Redshaw to Hagshaw Tee to Bankend Rig III Collector Substation Overhead Line Grid Connection

Routeing Consultation Document

April 2025

Environmental Planning

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01.
Introduction

1. Introduction

1.1 Purpose of the Report

1.1.1 This document has been prepared by The Environmental Dimension Partnership Ltd (EDP) and Stantec on behalf of Scottish Power Energy Networks (SPEN) and relates to the identification and appraisal of route options for a new 132 kilovolts (kV) overhead line (OHL) between Redshaw Substation and the proposed Bankend Rig III Collector Substation via the provision of a connection to Hagshaw Hill Repowering Phase 3 Substation, hereafter referred to as the 'Proposed Development'.

1.1.2 This Routeing Consultation Document (RCD) explains the background to the proposal, provides a description of the proposed grid connection and sets out the methodology for routeing the new OHL. It presents the findings of the environmental baseline and an evaluation of the route options, culminating in a description of the 'Preferred Route' for the connection. The report also sets out the process for consultation with stakeholders and other interested parties and how this will be undertaken, providing the opportunity for interested parties to comment on the Preferred Route and inform the next stages of the design and assessment process.

1.2 Need for the Project

1.2.1 There is a need to connect the proposed wind farms (Bankend Rig III and Hagshaw Hill Repowering Phase 3) to the transmission grid in southern Scotland. This is to be done via a new wood pole 132kV OHL. When a wind farm developer applies for a connection via National Energy System Operator (NESO), within the Scottish Power Transmission (SPT) license area, SPT, as the transmission licence holder, is obliged to provide such a connection. As with all grid connections of this type, the initial premise is that these will be provided through OHLs.

1.2.2 In broad terms, the OHL will run between Redshaw Substation and the proposed Bankend Rig III Collector Substation via the provision of a connection to Hagshaw Hill Repowering Phase 3 Substation near West Douglas. The Proposed Development includes the key elements shown on **Figure 1**, which also illustrates the location of key elements of the electrical infrastructure and the wind farms.

1.3 The Need for Environmental Impact Assessment

1.3.1 The Proposed Development, to install a single above-ground electric line of 132kV, is of a nature and scale that brings it within the scope of Schedule 2 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. The Proposed Development is therefore potentially an 'EIA development', within the meaning given to it by the Regulations and for which an Environmental Impact Assessment Report (EIA Report) must be prepared:

"The carrying out of development (other than development which is Schedule 1 development to provide any of the following (2) an electric line installed above ground (a) with a voltage of 132 kilovolts or more."

1.3.2 Due to the length and location of the route, SPEN considers that the application for consent should be accompanied by an EIA Report and will therefore progress with the consenting process on the basis that the Proposed Development is EIA development. The EIA Regulations require an 'assessment of alternatives' to be undertaken and reported in the EIA Report. The options considered in this RCD will form part of this assessment of alternatives. The EIA Regulations set out information on consultation and this RCD has been prepared to inform the first stage of the consultation process.

1.4 SPEN's Statutory and Licence Duties

1.4.1 As a transmission licence holder for southern Scotland, SPEN[1] is required under Section 9(2) of the Electricity Act 1989 to:

- *"Develop and maintain an efficient, co-ordinated and economical system of electricity transmission; and*
- *Facilitate competition in the supply and generation of electricity".*

1.4.2 SPEN is required in terms of its statutory and licence obligations to provide for new electricity generators wishing to connect to the transmission system in its licence area. SPEN is also obliged to make its transmission system available for these purposes and to ensure that the system is fit for purpose through appropriate reinforcements to accommodate the contracted capacity.

1.4.3 Schedule 9 of the Electricity Act 1989 imposes a further statutory duty on SPEN to take account of the following factors in formulating proposals for the installation of overhead transmission lines.

"(a) ...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."

1.4.4 SPEN's 'Schedule 9 Statement' sets out how it will meet the duty placed upon it under Schedule 9. The statement also refers to the application of best practice methods to assess the environmental impacts of proposals and to identify appropriate mitigation measures.

[1] SPEN owns and operates the electricity transmission and distribution networks in central and southern Scotland through its wholly-owned subsidiaries SP Transmission plc (SPT) and SP Distribution plc (SPD). SP Transmission plc is the holder of a transmission licence. The references within this report to SPEN in the context of statutory and licence duties and the application for Section 37 consent below should be read as applying to SP Transmission plc

1.4.5 As a result of the above, SPEN is required to identity electrical connections that meet the technical requirements of the electricity system, which are economically viable, and cause on balance, the least disturbance to both the environment and the people who live, work and enjoy recreation within it.

1.5 Approach to Routeing Overhead Lines

1.5.1 SPEN aim to undertake routeing of OHLs with regard for the natural environment and the amenity of people living and working within an area, and in line with guidance on routeing contained within the Holford Rules (see **Appendix 1**). The Holford Rules are tried and tested and are still applicable to routeing today.

1.5.2 SPEN undergo routeing for OHLs via a sequential process, which takes account of the range of technical, environmental and economic constraints at a broad and detailed level and with regard to comprehensive consultation with relevant stakeholders and the public. In doing so, they are able to provide viable routes which address the foreseeable constraints of a given Study Area. The use of the 'Preferred Route' as a means for consultation at the pre-scoping stage ensures that comments are then evaluated and revisions made to the route in the identification of a 'Proposed Route' to be taken through the EIA process

1.5.3 SPEN's approach to routeing OHLs is summarised within their document 'Approach to Routeing and Environmental Impact Assessment'. The key diagram in terms of approach is provided on Page 12 of that document:

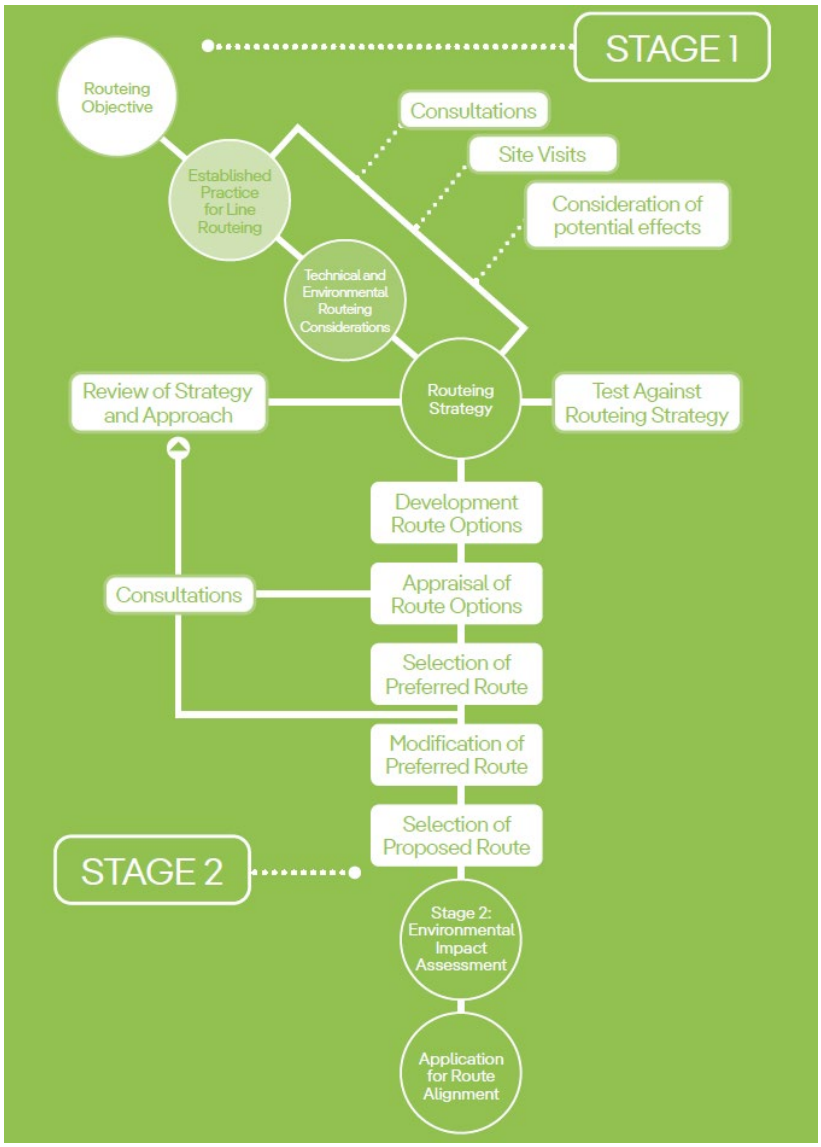


Image1.1: SPEN's approach to Routeing and Environmental Assessment

The Routeing Study Area

1.5.4 The Routeing Study Area (RSA) (**Figure 3**) for this project includes in its southern extent the proposed Redshaw Substation, before extending northwards towards Douglas and the valley of the Douglas Water. The RSA then follows broadly north, to the west of Coalburn and Lesmahagow, following the break in slope between the higher ground (containing significant wind farm development) before turning westwards along the B743 and B7086, then turning south at Glengavel towards the Bankend Rig III Collector Substation.

1.6 The Development and Consenting Process

1.6.1 In 2024, EDP, Stantec UK and their wider team of specialised sub-consultants were commissioned by SPEN to undertake an environmental appraisal of the Redshaw to Hagshaw Tee to Bankend Rig III Collector Substation grid connection project. SPEN have a tried and tested method of developing grid infrastructure and integrating this into the wider existing network within the area under their control. SPEN's approach to developing OHLs consists of three primary phases, within each of which additional sub-phases apply.

1.6.2 The Redshaw to Hagshaw Tee to Bankend Rig III Collector Substation OHL grid connection comprises three key phases:

- Phase One: Routeing and Consultation;
- Phase Two: Environmental Impact Assessment (EIA); and
- Phase Three: Application for Consent.

Phase One: Routeing and Consultation

1.6.3 The RCD relates to Phase 1, which comprises a review of environmental, technical and economic considerations and the application of established step-by-step routeing principles to identify and appraise potential route options to establish a 'Preferred Route' for the OHL.

1.6.4 SPEN are committed to consulting with statutory and non-statutory bodies throughout the development process, not only as a statutory duty within the planning system, but as a measure to involve, and gain feedback from, as broad a range of consultees and stakeholders as possible. Consultation with statutory organisations is not required as part of these early routeing studies. However, involving these consultees at this initial stage is considered an essential part of being able to define, early in the project, those constraints which will be key to the wider routeing study.

1.6.5 Responses to the consultation process will be evaluated and the 'Proposed Route' confirmed for progression to the next stage.

Phase Two: Environmental Impact Assessment

1.6.6 The EIA Process is set out in full within the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. As the project comprises an 'electric line installed above ground with a voltage of 132 kilovolts or more', the Redshaw to Hagshaw Tee to Bankend Rig III Collector Substation OHL grid connection may be considered an 'EIA development' under Schedule 2 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the EIA Regulations').

1.6.7 Following consultation, SPEN will submit a request for an EIA Scoping Opinion to the Scottish Ministers in accordance with Regulation 17(1) of the EIA Regulations. The request will be accompanied by the relevant information in accordance with Regulation 17(2) and 17(3) and will take

into account the selection criteria in Schedule 3 and the findings of requiring further consideration will also be agreed with consultees through the EIA Scoping process.

1.6.8 Due to the length and location of the route, SPEN considers that the application for consent should be accompanied by an EIA Report and will therefore progress with the consenting process on the basis that the Proposed Development is EIA development.

Phase 3: Application for Consent

1.6.9 SPEN will apply to the Scottish Ministers for consent under Section 37 of the Electricity Act 1989 ('the Electricity Act'), as amended to install and operate Redshaw to Hagshaw Tee to Bankend Rig III Collector Substation OHL grid connection.

1.6.10 In conjunction with this application, requests will be made for a direction under Section 57(2) of the Town and Country Planning (Scotland) Act 1997 (as amended), that planning permission be deemed to be granted in respect of the overhead electricity distribution line and any ancillary developments such as access tracks or Substation facilitation works. The EIA Report will accompany the application as relevant.

1.7 Purpose of this Document and Consultation

1.7.1 This RCD has been prepared to set out the steps taken in identifying the Preferred Route for the Proposed Development. It is provided for issue to interested stakeholders, giving them the information required to engage and comment on the project at an early stage. It sets out SPEN's approach to routeing and the suggested form of the grid connection based on the work undertaken to date.

1.7.2 This consultation on the Preferred Route will be carried out using the information contained in this RCD. Following consultation on the Preferred Route, any comments raised will be considered in order to identify the 'Proposed Route'.

02.
Elements of the Grid Connection

2. Elements of the Grid Connection

2.1 Introduction

2.1.1 The first part of the connection involves a 132kV wood pole OHL from the Redshaw Substation to a suitable 'tee in' point to be identified (notionally known as Hagshaw Tee). There will be a short length of OHL from this tee in point, westwards, to the Hagshaw Hill Repowering Phase 3 Wind Farm. There will be a length of OHL between the Hagshaw Tee and the Bankend Rig III Collector Substation. These elements are shown on **Figure 1**.

2.1.2 This RCD and the consultation exercise more generally relates to the OHL elements of the connection only. Whilst SPEN will be providing the collector Substation at Bankend Rig III, they will be seeking consent for this via a separate Town and Country planning application to South Lanarkshire council in near future.

2.2 Overhead Lines

2.2.1 The UK Government and the Electricity Industry, including SPEN, constantly review their positions on the routeing of major electrical infrastructure projects. The evidence available, including economic, technical and environmental factors, specifically statutory duties and licence obligations, will support an OHL approach in most cases.

2.2.2 It is therefore SPEN's view that wherever practical, an OHL approach is taken when planning and designing major electrical infrastructure projects. However, SPEN appreciates that there are specific circumstances in which an underground approach should be considered.

2.2.3 If, in certain circumstances, it is determined that an underground cable is required instead of an OHL, the approach is to minimise the length of underground cable necessary to overcome the constraint to OHL routeing, consistent with a balance between technical and economic viability, deliverability and environmental considerations.

2.2.4 In light of its licence obligations to provide the best technical and most cost-efficient solution for connection, SPEN policy seeks to find an OHL solution for all transmission connections and only where there are exceptional constraints would underground cables be considered as a design alternative. Such constraints can be found in urban areas and in rural areas of the highest scenic and amenity value. Where an OHL solution is not achievable for technical reasons, the company will look to an underground cable solution as an alternative.

2.2.5 The starting point for considering this connection is therefore the assumption that the grid connection will be provided by OHLs along its entire length. Should the constraints determine that an underground cable is required, this will be evaluated as necessary.

2.3 Overhead Line Infrastructure

2.3.1 The OHLs will be supported on trident wood poles with galvanised steelwork cross-arms supporting the aluminium conductors on insulators. These are suitable for supporting single circuit lines operating at 132kV.

2.3.2 There are three types of wood pole structure, in terms of appearance:

- Intermediate: where the pole structure is part of a straight-line section;
- Angle: where there is a horizontal or vertical deviation in line direction of a specified number of degrees; and
- Terminal: where the OHL terminates into a Substation or on to an underground cable section via a separate cable sealing end compound or platform.

Wood Pole Heights and Span Lengths

2.3.3 The standard height of Trident wood pole structures (including steel work and insulators) varies from 11m to 16m. The Proposed Design is described below, and examples of Trident pole designs are shown in **Figure 2**. For single poles, the nominal height of the wood poles is likely to be c.15m, with a maximum above-ground height of 22m and a minimum above-ground height of 10m. The spacing between the poles will vary but will generally be 100m, with a maximum span length of 150m.

2.3.4 For the 'H' pole configuration – which will generally be used at elevations of greater than 200m – the height will again be between 10m and 22m (above-ground), but the spans will be shorter at between 70m and 100m.

2.3.5 The 'Trident' OHL design specification is a UK Electricity Industry Design Standard and the final designation of pole type is generally dependant on three main factors: (1) altitude; (2) weather; and (3) the topography of the route. The size of poles and span lengths will also vary depending on these factors, with poles being closer together at high altitudes to withstand the effects of greater exposure to high winds, ice and other weather events. The pole configuration, height and the distance between poles will therefore only be fully determined after a detailed line survey.

2.3.6 The proposed wood pole will support three conductors (wires) as shown in **Figure 2**. The Trident wood pole design does not include a separate earth wire, as it is earthed at each end of the line and the telecommunications wire is included within one of the conductors.

2.3.7 Following identification of the Proposed Route for the new line, a detailed topographical survey will be carried out. This is required to identify the proposed positions and heights of each individual tower and wood pole. Site surveys to examine the subsoil conditions will also be carried out at proposed tower and wood pole positions where required. These will inform the tower foundation designs.

2.3.8 An Infrastructure Location Allowance (ILA) will be requested as part of the application for S.37 consent to allow an appropriate degree of flexibility during construction, should insurmountable constraints be found at the site.

2.3.9 A wayleave agreement is sought to secure access rights to the overhead line and to secure a level of resilience from trees and new buildings during its operational period. This servitude corridor will be 60m wide, 30m either side of the OHL.

2.4 Construction Process

2.4.1 The construction of OHLs requires additional temporary infrastructure such as temporary accesses to pole locations. All have limited maintenance requirements, and all are subject to well-established procedures for dismantling/decommissioning.

2.4.2 The construction of the OHL will follow a well-established standard sequence of events as outlined below:

- Preparation of accesses;
- Excavation of foundations;
- Delivery of poles;
- Erection of poles;
- Delivery of conductor drums and stringing equipment;
- Insulations and conductor erection and tensioning; and
- Clearance and reinstatement.

2.4.3 Prior to constructing the OHL, temporary working areas around each pole location will be required for foundation excavation and pole erection. Any vegetation that requires removal will be removed or pruned/lopped.

2.4.4 A tracked excavator and low ground-pressure vehicles, (e.g. tractor, Argocat and quad bikes) will be used to deliver, assemble and erect each wood pole structure at each location. The erection of the wood poles will require an excavation to allow the pole brace block and/or steel foundation braces to be positioned in place. A typical pole excavation will be $3m^2$ by 2m deep. The excavated material will be sorted into appropriate layers and used for backfilling. No concrete will be used. The excavator(s) then hoist the assembled structure into position and once the structure has been braced in position the trench is backfilled.

2.4.5 Poles are erected in sections, i.e. between angle support poles and/or terminal support pole. The insulator fittings, and wood poles forming the pole support, will be assembled local to the pole site and lifted into position utilising a tracked excavator which excavates the foundations. The pole foundation holes will then be backfilled, and the pole stay wire supports attached to the ground in preparation for conductor stringing, erection and tensioning.

2.4.6 In all cases, every effort is made to cause the least disturbance to landowners and local residents during construction. The route of the line is selected to avoid communities and individual dwellings as far as possible, and ground disturbance during construction of the new line will be reinstated.

Access

2.4.7 Temporary access to all pole locations will be taken from the existing main road network wherever feasible, with the use of selected unclassified roads also likely to be required. The use of existing tracks and watercourse crossings will be maximised, with the upgrading of these where necessary.

2.4.8 The initial preference when taking temporary access is to use low ground pressure vehicle and plant. Where access is required to be taken through any sensitive areas identified during the EIA process, other less intrusive methods such as temporary steel matting, or timber roadways may be employed.

2.4.9 The use of temporary stone tracks is normally minimal for wood pole connections. All temporary tracks will be removed after commissioning with land being restored to its former condition.

2.5 Overhead Line Maintenance

2.5.1 In general, a transmission line requires very little maintenance. It is periodically inspected to identify any unacceptable deterioration of components so that they can be replaced. From time to time, inclement weather, storms or lightning can cause damage to either the insulators or the conductors. If conductors are damaged, short sections may have to be replaced – that would involve winching to or from section poles. There is therefore a preference that any crushed stone access tracks built to access pole locations are left *in situ* for future use; this will be dependent on agreement with individual landowners and having regard to the views of other interested parties. Insulators and conductors are normally replaced after about 40 years and maintenance undertaken on wood poles and steel towers as required through their lifespan.

Decommissioning

2.5.2 When the operational life of the Proposed Development comes to an end, it is possible that the line may be re-equipped with new conductors and insulators and refurbished. Alternatively, the OHL may be decommissioned fully.

2.5.3 Upon decommissioning of the Proposed Development, the wood poles will be removed in their entirety, with components re-used where possible. All ground disturbance will be fully reinstated.

03.
Planning Policy Context

3. Planning Policy Context

3.1 Introduction

3.1.1 The application for consent for the Proposed Development is submitted under Section 37 of the Electricity Act 1989 and approval is also sought at the same time for deemed planning permission under Section 57 of the Town and Country Planning (Scotland) Act 1997 (as amended).

3.1.2 In terms of section 57(2) of the Town and Country Planning (Scotland) Act 1997 (as amended) the Scottish Ministers, may on granting consent under section 37 of the Electricity Act direct that planning permission is deemed to be granted in respect of the OHL and any ancillary development to which the consent relates.

3.1.3 As such an assessment under the relevant planning policy framework is required.

3.1.4 The proposed grid connection RSA is located across both the South Lanarkshire Council area and East Ayrshire Council area. Due to the coverage of the RSA (being significantly focussed in South Lanarkshire), the planning policy context below considers only those policies of the South Lanarkshire LDP, and the NPF4.

3.2 Energy Policy

The Electricity Act

3.2.1 Section 37 of the Electricity Act 1989 provides that an application to install or keep installed an above-ground electricity line, shall be made to the Scottish Ministers who may direct that planning permission for the Proposed Development and any ancillary development shall be deemed to be granted under Section 57 (2) of the Town and Country Planning (Scotland) Act 1997 (as amended).

3.2.2 The following hierarchy of policies and guidance will be considered:

- Government Energy Policy;
- National Planning Policies and Guidance;
- The Development Plan; and
- Topic related policies relevant to the Proposed Development.

UK Energy Policy

3.2.3 At the UK level, action to tackle climate change is underpinned by the Climate Change Act 2008 as amended by the Climate Change Act 2008 (2050 Target Amendment) Order 2019. This legislation created a legally binding duty on the Secretary of State to ensure a 100% reduction by 2050 in the UKs net CO^2 account – covering all six Kyoto Protocol Green House Gasses (GHGs) – compared with 1990 levels, resulting in 'net-zero carbon' emissions. The 2008 Act also established a rolling

system of statutory five-year carbon budgets to ensure steady progress towards the 2050 emissions reduction target. The UK Government has also indicated it will legislate for a 78% reduction of GHGs by 2035 in line with the recommendations of the 6th carbon budget.

3.2.4 A range of policy documents set out the UK Government's binding commitments to cut carbon emissions through the deployment of renewable energy technologies, including the UK Government's Ten Point Plan for a Green Industrial Revolution (2020) and Energy White Paper (2020). On 06 April 2022 the UK Government published the British Energy Security Strategy, which sets out plans to accelerate the deployment of domestic renewable energy and reduce reliance on oversees sources.

Scotland Energy Policy

3.2.5 On 14 May 2019, the Scottish Government declared a climate emergency and stated that tackling climate change would be placed at the heart of all decision making. The Scottish Government recognises the opportunities that Scotland's vast renewable energy potential provides in terms of tackling climate change and developing world leading expertise in low carbon technologies.

3.2.6 Scotland has enacted a world leading legislative framework to tackle climate change and transition to a low carbon economy, with the Climate Change (Scotland) Act 2009 (as amended) by the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. This sets out ambitious binding net carbon emission reduction targets to require a 70% reduction in net emissions by 2030, a 90% reduction by 2040 and a 100% reduction (i.e. for Scotland to become net zero carbon) by 2045. The targets reflect the view expressed by the UK Committee on Climate Change (May 2019) that Scotland has greater capacity to reduce emissions than the UK as a whole, including through substantial renewable energy generation. [2]

3.2.7 Sitting alongside Scotland's world leading climate change legislative framework, the Scottish Energy Strategy (2017) sets a target for "*the equivalent of 50% of the energy for Scotland's heat, transport and electricity consumption to be supplied from renewable sources*" by 2030. This builds upon existing electricity generation-only targets set for 2020 and confirms that further action to decarbonise Scotland's energy system is required. In March 2021 the Scottish Government published Scotland's Energy Strategy Statement Position Statement, which provides an overview of their approach to supporting the energy sector in the lead up to COP26 and a green economic recovery from the COVID-19 pandemic. The statement sets out a programme of work across the energy sector but does not replace the current Energy Strategy.

3.2.8 In response to the new and ambitious targets set by the Climate Change Act 2019 the Scottish Government has updated Scotland's 2018–2032 Climate Change Plan. Published in December 2020, the Update to the Climate Change Plan, 2018–2032, Securing a Green Recovery

[2] Whilst this remains the legislative framework for Scotland's climate change targets, the Scottish Government have signalled that the target to reduce emissions by 75% by 2030 is unlikely to be achieved and will be replaced with five-yearly carbon budgets. The Scottish Government is expected to introduce new legislation that will alter the legal climate targets.

on a Path to Net Zero, is a key strategic document supporting the green recovery from COVID-19. Chapter 3.1, Electricity, discusses the decarbonisation of Scotland's energy sector, which has been aided by the growth of renewable technology and sets out that further progress is needed to move from a low carbon electricity system to one that is no carbon.

3.2.9 The Proposed Development is compliant with the Climate Change Plan in that it provides a grid connection to a renewable energy project. In more general terms, however, it is evident that grid connections are a necessary part of energy infrastructure without which new generation projects are unable to contribute to the achievement of the targets set out above.

3.3 Development Plan Policy

3.3.1 The Development Plan for the proposal currently comprises:

- NPF4 – adopted 13 February 2023; and
- South Lanarkshire LDP2 (2021).

Material Considerations

3.3.2 In addition to the primacy of the development plan, decisions will also be made in the context of the following material considerations:

- The Climate Change Scotland Act (2009) (as amended by the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019);
- Draft Energy Strategy and Just Transition Plan (2023);
- Planning Advice Notices (PAN):
    - PAN 1/2011 – Planning and Noise;
    - PAN 2/2011 – Planning and Archaeology;
    - PAN 51 – Planning and Environmental Protection;
    - PAN 60 – Planning for Natural Heritage;
    - Flood Risk: planning advice (2015); and,
    - PAN 1/2013 – Planning and Environmental Impact Assessment.

3.4 National Planning Policy Context

National Planning Framework for Scotland

3.4.1 NPF4 was adopted by Scottish Ministers in February 2023. For the first time, NPF4 incorporates Scottish Planning Policy and takes on enhanced status as part of the statutory development plan. It

has a longer time-horizon, fuller regional coverage and improved alignment with wider programmes and strategies.

3.4.2 NPF4's National Spatial Strategy has been designed to guide decisions on future development across the country and is underpinned by six spatial principles including: ensuring a just transition, conserving and recycling assets, local living, compact urban growth, rebalanced development and rural revitalisation. It supports the creation of net zero, nature-positive places designed to reduce emissions and adapt to the impacts of climate change. To achieve this, every decision on future development must contribute to making Scotland a more sustainable place and this includes new renewable energy infrastructure.

3.4.3 Supporting the delivery of the sustainable place's agenda are six national developments. Of relevance to the Proposed Development is National Development 3 'Strategic Renewable Electricity Generation and Transmission Infrastructure'. This supports electricity generation and associated grid infrastructure throughout Scotland, helping to reduce emissions and improve security of supply.

The Climate Change Scotland Act (2009)

3.4.4 This Act commits to reduce greenhouse gases and increase Scotland's potential for sustainable economic growth. The delivery of renewable energy generation and associated grid connection infrastructure is central to the policy.

Climate Change (Emissions Reduction Targets) (Scotland) Act 2019

3.4.5 The Climate Change (Scotland) Act 2009 was amended by the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, increasing the ambition of Scotland's emissions reduction targets. The Act establishes a target to achieve net zero emissions by 2045, as well as interim targets to achieve a 75% reduction in emissions by 2030 and 90% by 2040.

Key Planning Issues

3.4.6 **Table 3.1** details the policies at all levels from which the key considerations in determining a future planning application will be derived.

Table 3.1: Key Planning Issues

Issue	Policy and Guidance	Criteria to meet
Energy	NPF4 Policy 1: Tackling the climate and nature crisis, Policy 11: Energy Draft Energy and Just Transition Plan (2023) South Lanarkshire LDP2 (2021) Policy RE1 Renewable Energy	National Policy When considering all development proposals significant weight will be given to the global climate and nature crises. Development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported,

Issue	Policy and Guidance	Criteria to meet
		including enabling works such as grid transmission and distribution infrastructure. In considering impacts of the development, significant weight will be placed on the contribution of the proposal to renewable energy generation targets and on greenhouse gas emissions reduction targets. Grid capacity should not constrain renewable energy development. It is for developers to agree connections to the grid with the relevant network operator. In the case of proposals for grid infrastructure, consideration should be given to underground connections where possible. Local Policy Proposals for the generation, storage and utilisation of renewable energy, including proposals for the co-location of these technologies, in the form of new build development, infrastructure or retrofit projects are encouraged and will be supported in standalone locations and as integral parts of new and existing developments, where they are acceptable when assessed against all relevant criteria.
Landscape and Visual Impacts	NPF4 Policy 4: Natural Places South Lanarkshire LDP2 (2021) Policy RE1 Renewable Energy, Policy GBRA1 Rural Design and Development, Policy NHE16 Landscape South Lanarkshire Council Supporting Planning Guidance on Renewable Energy	National Policy Development proposals, which by virtue of type, location or scale will have an unacceptable impact on the natural environment, will not be supported. Local Policy Developments shall be sited in a manner that respects existing built form, landform and local landscape character and setting. Developments shall have no unacceptable adverse impacts on existing residential amenity, particularly in terms of

Issue	Policy and Guidance	Criteria to meet
		overlooking or overshadowing of existing residential properties. Development proposals within the Special Landscape Areas (SLA) identified on the Strategy Map will only be permitted if: 1. they accord with LDP2 policies and guidance on Green Belt and Rural Area; and 2. they can be accommodated without having an unacceptable significant adverse effect on the landscape character, scenic interest and special qualities and features for which the area has been designated. All development proposals within or adjacent to an SLA shall take into account the guidance within South Lanarkshire Council's Report on Validating Local Landscape Designations (2010).
Development Design	NPF4 Policy 11: Energy, Policy 14: Design, quality and place South Lanarkshire LDP2 (2021) Policy RE1 Renewable Energy, Policy GBRA1 Rural Design and Development	<u>National Policy</u> Development proposals will be supported where they are consistent with the following six qualities of successful places, as of which are expanded upon at Annex D within NPF4: • Healthy: Supporting the prioritisation of women's safety and improving physical and mental health; • Pleasant: Supporting attractive natural and built spaces; • Connected: Supporting well connected networks that make moving around easy and reducing car dependency; • Distinctive: Supporting attention to detail of local architectural styles and natural landscapes to be interpreted, literally or creatively, into designs to reinforce identity;

Issue	Policy and Guidance	Criteria to meet
		• Sustainable: Supporting the efficient use of resources that will allow people to live, play, work and stay in their area, ensuring climate resilience, and integrating nature positive, biodiversity solutions; and • Adaptable: Supporting commitment to investing in the long-term value of buildings, streets and spaces by allowing for flexibility so that they can be changed quickly to accommodate different uses as well as maintained over time. Development should relate well to the scale, density, massing, character, appearance and use of materials of the surrounding area and in so doing be sympathetic to the local built forms as well as respecting the important physical, historic and landscape features of the site and its vicinity. Local Policy Developments shall be sited in a manner that respects existing built form, land form and local landscape character and setting. Proposals shall make use of appropriate materials which respect and reinforce local character and identity. Proposals shall not have an unacceptable significant adverse environmental impact on the amenity of the surrounding area. In particular, 'bad neighbour' uses, which by virtue of visual impact, noise, smell, air and light pollution, disturbance, traffic or public safety are detrimental to local amenity, will not be permitted.
Forestry/Trees	NPF4 Policy 6: Forestry, woodland and trees	National Policy Development proposals will not be supported where they will result in

Issue	Policy and Guidance	Criteria to meet
	Forestry and Land Management (Scotland) Act 2018; Scottish Government's policy on control of woodland removal: implementation guidance (February 2019); South Lanarkshire LDP2 (2021) Policy NHE13 Forestry and Woodland	any loss of ancient woodlands, ancient and veteran trees, or adverse impact on their ecological condition. Local Policy Development proposals should seek to manage, protect and enhance existing Ancient Semi-natural Woodland (ASNW), other woodlands, hedgerows and individual trees. Proposals likely to impact on woodlands, hedgerows or individual trees should be accompanied by a full tree survey and written justification for any losses. Proposals should accord with the Council's Tree Strategy. In all cases involving the proposed removal of existing woodland, the acceptability of woodland removal and the requirement for compensatory planting will be assessed against the criteria set out in the Scottish Government's Policy on Control of Woodland Removal. Removal for development purposes will only be permitted where it would achieve significant and clearly defined public benefits. Where the woodland proposed to be removed is ASNW, such public benefits should be of national importance. In all cases, developers will generally be expected to deliver compensatory planting.
Natural Heritage/ Biodiversity	NPF4 Policy 3: Biodiversity, Policy 4: Natural Places South Lanarkshire LDP2 (2021) Policy GBRA1 Rural Design and Development, Policy NHE8 National Nature Reserves and Sites of Special Scientific Interest, Policy NHE9 Protected Species, Policy NHE15 Local Nature Reserves, Policy NHE20 Biodiversity	National Policy Development proposals will contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats and building and strengthening nature networks and the connections between them. Proposals should also integrate nature-based solutions, where possible. Proposals should also integrate nature-based solutions, where possible. National Development, or

Issue	Policy and Guidance	Criteria to meet
	SLC Supporting Planning Guidance Natural and Historic Environment SLC Local Biodiversity Strategy	for development that requires an EIA, will only be supported where it can be demonstrated that the proposal will conserve, restore and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention. This will include future management. To inform this, best practice assessment methods should be used. Impacts on natural heritage, wildlife and habitat, ecosystems and biodiversity need to be assessed. <u>Local Policy</u> Development that affects a Site of Special Scientific Interest (SSSI)/National Nature Reserve (NNR) will only be permitted where an appraisal has demonstrated: a. the objectives of designation and the overall integrity of the area will not be compromised; or b. any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by social, environmental or economic benefits of national importance. Development affecting protected species will not be permitted unless it can be justified in accordance with the relevant protected species legislation. All development proposals should seek to conserve and enhance on site biodiversity, and habitat networks within and adjacent to the site in order to reverse biodiversity loss. Development proposals likely to lead to significant loss of biodiversity will only be supported if adequate mitigation and offsetting measures are agreed with the Council. Development proposals affecting designated nature conservation sites

Issue	Policy and Guidance	Criteria to meet
		shall be assessed against the requirements set out in the relevant LDP2 policy for that designation. Development proposals should consider opportunities to contribute positively to biodiversity conservation and enhancement, proportionate to the scale and nature of the proposal. The Council shall seek to protect peatland and carbon rich soils from adverse impacts resulting from development. Where peat and other carbon rich soils are present, applicants should assess the likely effects of development on carbon dioxide (CO^2) emissions. Where peatland is drained or otherwise disturbed, there is likely to be a release of CO^2 to the atmosphere. Developments should aim to minimise this release.
Impact on Historical/ Cultural Environment	NPF4 Policy 7: Historic assets and places Historic Environment Policy for Scotland (HEPS 2019) South Lanarkshire LDP2 (2021) Policy NHE2 Archaeological Sites and Monuments, Policy NHE3 Listed Buildings, Policy NHE4 Garden and Designed Landscapes, Policy NHE5 Historic Battlefields, Policy NHE6 Conservation Areas	National Policy Development proposals with a potentially significant impact on historic assets or places will be accompanied by an assessment, which is based on an understanding of the cultural significance of the historic asset and/or place. The assessment should identify the likely visual or physical impact of any proposals for change, including cumulative effects and provide a sound basis for managing the impacts of change. Proposals should also be informed by national policy and guidance on managing change in the historic environment, and information held within the Historic Environment Records (HER). Local Policy Potential impacts on the historic environment and cultural heritage, including scheduled monuments,

Issue	Policy and Guidance	Criteria to meet
		listed buildings and their settings should be considered. Any impacts arising on the historic environment and cultural heritage should be avoided or adequately resolved. Development should not affect archaeological sites, monuments and other non-designated historic assets and areas of historical interest.
Public Access	NPF4 Policy 11: Energy South Lanarkshire LDP2 (2021) Policy NHE18 Walking, Cycling and Riding Routes	Local Policy Impacts on public access, including impacts on long distance walking and cycling routes and scenic routes should be taken into account. Development proposals should not impact adversely on any access routes and Core Paths. New or alternative access routes and enhancements to existing routes should be considered where these can be delivered as part of the development.
Impact on Geology, Hydrology and Hydrogeology	NPF4 Policy 5: Soils, Policy 22: Flood risk and water management South Lanarkshire LDP2 (2021) Policy NHE12 Water Environment and Biodiversity, Policy SDCC2 Flood Risk, Policy SDCC3 Sustainable Drainage Systems	National Policy Development proposals at risk of flooding or in a flood risk area will only be supported if they are for essential infrastructure where the location is required for operational reasons. Local Policy Impacts on soil and ground stability will also need to be considered. Development proposals should protect and where possible enhance the water environment in accordance with the Water Framework Directive. Development proposals which will have a significant adverse impact on the water environment will not be permitted. Consideration will be given to water levels, flows, quality,

Issue	Policy and Guidance	Criteria to meet
		features, flood risk and biodiversity within the water environment. New development proposals should be designed to minimise impact on the water environment. This should include, where appropriate, blue/green network links incorporating provision of Sustainable Drainage Systems (SuDS) and adequately sized buffer strips between developments and water courses to protect the riparian zone. Physical changes to the water environment should be avoided (for example culverting for land gain).
Tourism and Recreation	South Lanarkshire LDP2 (2021) Policy GBRA1 Rural Design and Development	Local Policy Impacts on tourism and recreation should be assessed. Any impacts arising should be avoided or adequately resolved. Development proposals in rural areas should be suitably scaled, sited and designed to be in keeping with the character of the area. They should also consider how the development will contribute towards local living and take into account the transport needs of the development as appropriate for the rural location.
Impact on Communities	NPF4 Policy 11: Energy South Lanarkshire LDP2 (2021) Policy RE1: Renewable Energy	Local Policy Impacts on communities and individual dwellings, including visual impact/dominance, residential amenity, noise and shadow flicker should be examined.

Issue	Policy and Guidance	Criteria to meet
Pollution	NPF4 Policy 23: Health and Safety South Lanarkshire LDP2 (2021) Policy DM17 Air Quality South Lanarkshire Air Quality Strategy	National and Local Policy Environmental pollution to water, air, or soil is a material consideration. Development proposals which have the potential to have a detrimental impact on air quality or introduce new relevant human exposure into an area where there is existing poor air quality will not be acceptable unless measures to mitigate the impact of air pollutants are proposed and can be agreed with the planning authority.
Transport and Access impacts	NPF4 Policy 13: Sustainable transport South Lanarkshire LDP2 (2021) Policy NHE18 Walking, Cycling and Riding Routes, Policy SDCC4 Sustainable Transport	National Policy Development proposals that have the potential to affect the operation and safety of the Strategic Transport Network will be fully assessed to determine their impact. Where it has been demonstrated that existing infrastructure does not have the capacity to accommodate a development without adverse impacts on safety or unacceptable impacts on operational performance, the cost of the mitigation measures required to ensure the continued safe and effective operation of the network should be met by the developer. Local Policy Impacts on road traffic and adjacent trunk roads needs to be considered including that from volume of traffic and abnormal loads.
Aviation	NPF4 Policy 11: Energy South Lanarkshire LDP2 (2021) Policy RE1 Renewable Energy	National and Local Policy The impacts of the proposals on radar performance, defence interests and other air safety and seismological recording considerations must be satisfactorily addressed and demonstrated to the satisfaction of the relevant technical authority.

Issue	Policy and Guidance	Criteria to meet
Impact on Broadcasting Installations	NPF4 Policy 11: Energy, Policy 24: Digital infrastructure South Lanarkshire LDP2 (2021) Policy RE1 Renewable Energy	National and Local Policy Impacts on telecommunications and broadcasting installations need to be considered, particularly ensuring that transmission links are not compromised.
Decommissioning and Restoration	NPF4 Policy 11: Energy South Lanarkshire LDP2 (2021) Policy RE1 Renewable Energy	National and Local Policy Consideration is required of the potential decommissioning of a development including ancillary infrastructure, and site restoration. There should be appropriate provision in any assessment for decommissioning and restoration. Proposals for renewable energy must consider decommissioning and restoration proposals as part of their applications. The need for planning conditions relating to the decommissioning of developments, including ancillary infrastructure, and site restoration will be considered, as will the need for planning obligations to achieve site restoration.
Cumulative Impacts	NPF4 Policy 11: Energy South Lanarkshire LDP2 (2021) Policy MIN1 Cumulative Impact	National and Local Policy Consideration of wider cumulative impacts with other neighbouring renewable energy developments. The cumulative landscape and visual impact of wind energy and, where relevant, other renewable energy developments must be fully assessed and shown to be acceptable. Proposals must demonstrate that there will be no unacceptable significant adverse cumulative impacts on ecological or ornithological interests. This should include the preparation of a cumulative impact assessment.

04.
Routeing Methodology

4. Routeing Methodology

4.1 SPEN's Overall Approach to Routeing an Overhead Line

4.1.1 In June 2021, SPEN published the second version of their Approach to Routeing and Environmental Impact Assessment document outlining the approach taken to routeing transmission infrastructure. The Approach to Routeing guidance has formed the basis for the methodology used for Redshaw to Hagshaw Tee to Bankend Rig III Collector Substation OHL grid connection project as summarised in the previous sections.

4.1.2 The routeing process is iterative, and the steps outlined below may be re-visited several times. The outcome of each step is subject to a technical and, where relevant, consultation, 'check' with key stakeholders including the public, prior to commencing the next step. Professional judgement is used to establish explicitly the balance between technical, economic viability and environmental factors.

4.1.3 As such, a well-routed line takes into account other environmental and technical considerations and will avoid, wherever possible, areas of high amenity value, for example:

- Areas of Great Landscape Value;
- Regional Scenic Areas;
- Regional Parks; and
- Country Parks.

4.2 The Routeing Objective

4.2.1 In accordance with SPEN's approach to routeing, the Routeing Objective for the Redshaw to Hagshaw Tee to Bankend Rig III Collector Substation OHL grid connection project is:

> *"To identify a technically feasible and economically viable route for a continuous 132kV overhead line connection, supported on wood poles from the proposed point of connection from Redshaw Substation to Bankend Rig III Collector Substation, including a tee off point to connect Hagshaw Hill Repowering Phase 3 Wind Farm. This route should, on balance, cause the least disturbance to the environment and the people who live, work and enjoy recreation within it."*

4.3 The Holford Rules

4.3.1 It is generally accepted across the electricity industry that the guidelines developed by the late Lord Holford in 1959 for routeing overhead transmission lines, 'The Holford Rules', should continue to be employed as the basis for routeing high voltage overhead transmission lines. The Holford Rules were reviewed c.1992 by the National Grid Company (NGC) plc (now National Grid Transmission (NGT)) as owner and operator of the electricity transmission network in England and

Wales, with notes of clarification added to update the Rules. A subsequent review of the Holford Rules (and NGC clarification notes) was undertaken by Scottish Hydro Electric Transmission Limited (SHETL) in 2003 to reflect Scottish circumstances. The full version of the Holford Rules, and accompanying Appendices to the Holford Rules, provided at **Appendix 1** of this report. The application of the Holford Rules within this RCD is set out below.

Application of the Holford Rules

Potential Route Corridor Length

4.3.2 Within the context of the distribution of environmental and technical constraints, it is desirable to keep the length of the OHL as short as practicable. This concurs with Holford Rule 3, which states that *"Other things being equal, choose the most direct line, with no sharp changes of direction and thus with few angle towers."* A shorter route corridor will therefore score better than a longer route when being appraised as part of a comparative exercise.

Landscape Quality

4.3.3 This principle draws on information contained within documented landscape character assessments and landscape designations (at all levels) with this supplemented by site work focussed on the individual route corridors. To understand the landscape and visual constraints that exist across the potential corridors, a review of the routeing corridors has been undertaken that looks at the key landscape and visual issues as defined within the current guidance on this topic and recognised landscape character and visual amenity assessment processes.

4.3.4 The review will include reference to traditional landscape character assessment processes and will refer to the sensitivity gradient proposed to be used within the LVIA for the proposal, which are tabulated as follows in **Table 4.1**:

Table 4.1: Landscape Receptor Sensitivity Criteria

Category	Landscape Receptor Sensitivity Criteria
Very High	Nationally designated/valued countryside and landscape features or areas. An absence of landscape detractors whereby there exists a largely undeveloped landscape; particularly relevant where no existing OHLs are present. Areas where landform is such that OHLs would be visible or prominent in the landscape or would dominate skylines i.e. exposed areas with wide intervisibility. Smaller, more intimate scale landscapes where change would be more evident and landscape features are found in greater number and/or are of greater quality. A wide distribution of characteristic landscape features which are sensitive to loss individually or collectively.
Very Low	Undesignated countryside and landscape features or areas. Presence of many landscape detractors that already erode the landscape character; particularly relevant where existing OHLs are present, but where there is no risk of the creation of a wirescape. Areas where landform is such that OHLs would have limited intervisibility and would be able to be assimilated into the landscape context without forming prominent or dominant elements i.e. valley landscapes. Larger scale landscapes where change would be less evident and where structures of large linear scale would be more acceptable. Landscapes where features are found in lesser number and/or are of lesser quality. A limited distribution of characteristic landscape features which are less sensitive to loss individually or collectively.

4.3.5 Whilst the level of designation and documented protection form a key component of the definition of sensitivity, it is also relevant to consider the particular attributes of OHLs to which a landscape may or may not be sensitive – this as detailed above refers to their susceptibility. For OHLs, this includes their linear nature, and ability to affect a potentially wider area; their visual prominence resulting from their height relative to other landscape or built features; or the fact that they are man-made structures within what might be a largely exposed or undeveloped landscape situation. This approach not only reflects the Holford Rules but also the new Landscape Institute guidance that advocates the adoption of sensitivity criteria based upon both inherent landscape value and also the susceptibility of a receptor to the type of change (development) proposed.

4.3.6 In utilising a comparative sensitivity for the landscapes subject to routeing as defined above, the review will address the hierarchical approach proposed by the Holford Rules 1 and 2, whereby areas of highest amenity value should be avoided. It further reflects Rules 4 and 5, which discuss the routeing of OHLs relative to ridges, skylines and general topography.

Visual Amenity

4.3.7 This principle looks at the potential visibility of the OHL from rights of way, highways, local areas of tourist activity or areas of settlement, and considers the change in view that might result from the proposed OHL and how this could affect the general amenity within the RSA. This review accords with the 'Further Notes' to the Holford Rules, which states that routes should *"Minimise the visual effect perceived by users of roads and public rights of way, paying particular attention to the effects of recreational, tourist and other well-used routes."*

4.3.8 When considering potential changes to views, perceptibility is a key consideration, and is referenced under Holford Rule 4. Whether the elements were 'backclothed' or 'skylined' has a considerable impact on the extent of change experienced, and at what distance. The conclusions drawn for a similar type of infrastructure (single-circuit flat formation wood pole line) were as follows:

- 1.5km is the outer limit of 'normal' perceptibility (the distance beyond which the casual observer is likely to be unaware of the presence of an OHL of this type) when the OHL and support structures are fully backclothed;
- 2.5km is the absolute limit of perceptibility when the OHL and support structures are fully backclothed; and
- 6km is the outer limit of visibility when the OHL and support structures are seen fully skylined.

4.3.9 These distances provide a basis to understand the likely 'perceptibility' of the route. In many cases, although the OHL and support structures are theoretically visible (on the basis of the bare ground digital terrain), the perceptibility of these will be appreciably diminished. The visual review undertaken subsequently has been carried out on the basis of assumed visibility; the moderating effects of 'perceptibility' will also be considered. These, in addition to the screening provided by the extensive areas of commercial forest and other woodland, will often serve to appreciably mitigate the presence of an OHL of the size proposed within the landscape.

4.3.10 As with any material subjected to the elements on a consistent basis, wood pole structures suffer weathering and subsequent colour variations over time. The colour of the poles at the point of construction is a dark brown colour, which fades over time to a more silver-grey, and appreciably lighter, colour. The rate of change of colour will depend heavily on the prevailing weather conditions and to some degree on the type of timber and timber treatment that is used. The perceptibility distances outlined above are considered representative at the point of construction when the poles retain the darker brown colouration.

4.3.11 Over time, as the poles age and fade in colour, the effectiveness of backclothing is likely to reduce (depending upon the colour of the prevailing backclothing landscape or landscape feature). This is to some measure compensated by a reduction in visibility of skylining when the poles have acquired a paler colour. On balance, it is considered that the wood pole component of the OHL will gradually become more perceptible over the life of the line, although this change in perceptibility is difficult to predict and is subject to variation depending on lighting, backclothing/skylining and many other factors.

Residential Amenity

4.3.12 SPEN take a precautionary approach to the potential effects upon private residences and in line with the Holford Rules (Rule 7) adopt an offset to these which avoids "*routeing close to residential areas as far as possible on grounds of general amenity*", and that in rural areas they *"avoid as far as possible dominating isolated houses, farms or other small-scale settlements"*. SPEN adopt a 'trigger for consideration zone' to all private residences, and where possible route as far from individual or groups of properties as possible. These offsets are shown on **Figure 8**.

4.3.13 The comparative exercise will look at the total number of private residences within the route corridor being appraised. Those corridors with fewer properties will score higher.

Other Environmental Designations

4.3.14 The range of other areas of high amenity value will be reviewed for each corridor in terms of the level of conflict with them. Whilst every effort has been made to avoid these key constraints in the selection of route corridors, it is inevitable that on occasion there will be some conflict. The level of conflict, and the level of designation, will form the basis of the appraisal carried out and will determine the acceptability of such conflict.

4.3.15 There are important environmental designations to be considered, including the following:

- Areas of Ancient Woodland (**Figure 6**);
- Muirkirk and North Lowther Uplands Special Protection Area (SPA) (**Figure 6**);
- The Noth Lowther Uplands Site of Special Scientific Interest (SSSI) (**Figure 6**);
- Conservation Areas, Listed Buildings and Scheduled Monuments (**Figure 5**);
- The Angus and Douglas Ornamental Ground or Park (**Figure 6**); and
- Local Landscape Areas (**Figure 5**).

Land Use and Forestry

4.3.16 The Holford Rules are specific in stating that OHLs should route alongside areas of woodland/forestry, and that *"Where possible* [routes should] *follow open space and run alongside, not through woodland or commercial forestry, and consider opportunities for skirting edges of copses and woods"*. The Forestry Commission guidelines on routeing through woodlands provides the following guidance where such a route is unavoidable:

- Avoid areas of landscape sensitivity;
- Avoid the line of sight of important views;
- Be kept in valleys and depressions;
- Not divide a hill into two similar parts where it crosses over a summit;
- Cross skyline or ridges where they drop to a low point;

- Follow alignment diagonal to the contour as far as possible; and
- Be inflected upwards in hollows and downwards on ridges.

4.4 Technical Considerations

OHL Connection Points

4.4.1 The primary fixed constraints for the route of the OHL are the location of the connection points to the wind farms. The location of the Bankend Rig III Substation, whose geographical position has been advised by the developers of the wind farm as being 268156, 633305. This forms the start point for any grid connection. The Substation is located within an area of commercial forestry between Millstone Rig and Inner Tod Hill, broadly adjacent to the B743. There is no reason to suggest that the location of the Substation will be revised between the Consultation stage (the current stage) and the submission of the EIA Report and application for consent. For the Hagshaw Tee, the start/end point has been confirmed by the wind farm developer as being near to Douglas West, at grid co-ordinates 281881, 630615.

Other Infrastructure

4.4.2 There are a large number of wind farms, both existing and proposed, within the RSA, therefore proximity to proposed turbines and other infrastructure will be a consideration in the routeing process. Typically, standard offsets are used to ensure no infringement with physical infrastructure (through avoiding toppling distances) and to maintain the efficiency of the turbines themselves.

Topographical Considerations

4.4.3 Wood poles of the design proposed are able to operate and be installed on ground, of which has less than 22 degrees of slope and in areas absent of rocky outcrops and areas of deep peat. With regards to altitude constraints, Trident wood poles can be utilised above 300m above Ordnance Datum (aOD), although only for short lengths. However, there are compromises to be made in doing this. Firstly, the narrower spans required at this altitude mean there is greater potential to create an unacceptable visual effect, and the creation of a 'wirescape' within views becomes more likely. Secondly, the necessity to use the 'H' pole configuration results in greater costs per linear unit. What constitutes a 'short length' varies depending on the specific site circumstances, and for this project anything less than 1km is considered to be a short length. Also, for this project the absolute maximum in terms of altitude is 350m aOD – the Bankend Rig III Collector and Redshaw Substations both sit at c.300m aOD.

4.4.4 The restriction on slope relates to construction and operational activities, and at greater altitude the prevailing weather conditions, in particular temperature and wind factors, increase the risk of failure of the infrastructure.

Electric and Magnetic Fields (EMF)

4.4.5 Power-frequency electric and magnetic fields (EMF) in the vicinity of high-voltage electric power equipment are a concern when considering routeing of OHLs. SPEN ensure at all times that they comply with generally agreed exposure limits, although it should be noted that there are currently no statutory limits to be adhered to.

4.5 Environmental Considerations

4.5.1 Statutory duties imposed by Section 38 and Schedule 9 of the Electricity Act 1989 require licence holders to seek to preserve features of natural and cultural heritage interest, and to mitigate where possible, any effects which their proposals may have on such features. The construction and operation of an overhead transmission line will have potential effects on people and the environment, including potential effects on:

- Landscape and visual amenity (including recreation and tourism);
- Biodiversity (including ecology and ornithology designations);
- Cultural heritage including archaeology;
- Forestry and woodland (including areas of ancient woodland and native woodland);
- Hydrology, hydrogeology and peat (such as watercourses, flood risk, carbon rich soils and deep peat); and
- Planning and land uses (including agricultural uses).

4.5.2 In addition to effects on visual amenity, a number of other effects can best be avoided or limited through careful routeing.

4.5.3 Other effects are best mitigated through local deviations of the route, the refining of wood pole locations and/or specific construction practices. These are reviewed as part of the environmental assessment process.

Biodiversity Net Gain

4.5.4 SPEN is committed to achieving No Net Loss (NNL) of biodiversity across all its projects. The Scottish Government has not adopted a formal definition of Biodiversity Net Gain (BNG). However, in recognition of their commitment to NNL, SPEN has proactively adopted an assessment toolkit based on DEFRA's BNG

4.6 Economic Considerations

4.6.1 In compliance with the duties imposed on SPEN in terms of Section 9 of the Electricity Act 1989, the proposed route must be 'economically viable'. This is interpreted by SPEN as meaning that as far as is reasonably practicable, and all other concerns being equal, the line should be as direct as

possible, and the route should avoid areas where technical difficulty or compensatory requirements would render the scheme unviable on economic grounds.

4.7 The Routeing Process Applied to this Project

4.7.1 A routeing methodology has been devised for this project, with due regard to the local landscape, the applicable Statutory Obligations and to achieve a balance between technical considerations and environmental protection. The routeing methodology seeks to use the broad principles of the Holford Rules in association with the environmental parameters that are presented within the RSA.

4.7.2 The routeing methodology is essentially a number of sequential steps, each of which looks to suggest routeing options or strategies based upon the distribution of environmental and technical constraints presented, and the connection required. This is a hierarchical approach, which has been adopted to offer greatest protection to those most valued environmental receptors and areas of highest amenity value, whilst also offering a more modest, yet important level of protection to those which are considered less sensitive.

4.7.3 The key stages of the methodology are as follows:

- Stage 1: Identification of RSA and Constraints Analysis;
- Stage 2: Identification of Primary Route Corridor (PRC);
- Stage 3: Identification and Appraisal of the Detailed Route Options;
- Stage 4: Identification and Appraisal of the Preferred Route;
- Stage 5: Consultation and Refinement; and
- Stage 6: Identification of Proposed Route.

Stage 1: Identification of Routeing Study Area and Constraints Analysis

4.7.4 When defining an RSA for the OHL, the process starts by identifying the notional start- and endpoints for the route, which represent the fixed geographical elements of the route. From these points, it is then necessary to establish the extent of the RSA taking account of the technical, environmental and economic constraints which exist.

4.7.5 This relates to the aspirations of Holford Rule 1, which states that areas of highest amenity value should be avoided, even if the total mileage of the route is increased. The routeing is not required to take a direct point between the start and endpoints and must route according to the constraints identified.

4.7.6 The primary consideration of the range of constraints happens during this stage. Through a combination of Geographic Information Systems (GIS) analysis, fieldwork, consultation and liaison with the wider technical and environmental project team, those constraints considered key in terms

of avoidance, are mapped for the RSA. This will include at least those listed within the note on Holford Rule 1 (see **Appendix 1**).

4.7.7 Of critical importance during this stage is the identification and understanding of the range of technical constraints that may categorically dictate the routeing of a line. Whereas all environmental constraints are somewhat flexible in their level of constraint, technical constraints commonly are not. Examples include the location of large waterbodies that can't be crossed or existing electrical infrastructure that cannot be moved, rerouted or crossed.

4.7.8 With reference to Holford Rule 2, it is considered that even small areas of high amenity value should be included within this section as size is not necessarily directly proportionate to importance in environmental terms. The balance between route options and large or small areas of high value will be included as part of subsequent stages in the routeing process.

Stage 2: Identification of Primary Route Corridor

4.7.9 In response to the identification of the key environmental and technical parameters, a number of high-level route corridor options that respond to the locations or the pattern of constraints, and the identified start and endpoints will be considered. Secondary at this stage is the directness of the route, which although a consideration borne out by Holford Rule 3, is something that has to be balanced technically and environmentally throughout the routeing process. It may be that the technical and environmental parameters are such that just a single PRC is identified at this stage.

4.7.10 There is no definitive width for the PRC and these will be as broad or as narrow as the prevailing baseline dictates. The Preferred Route (and ultimately the Proposed Route) will, notwithstanding the emergence of further constraints information, fall within this PRC. The aim of identifying potentially wide corridors is to provide a broadly compliant route, but one that contains flexibility for selecting a range of route options.

Stage 3: Identification and Appraisal of the Detailed Route Options

4.7.11 Dependent on the size of the PRC and distribution of environmental and technical constraints, a wide range of potential detailed route options may emerge from Stage 2. In order to focus the identification of a Preferred Route, necessary to appraise these detailed route corridors in terms of their wider environmental acceptability and to carry out a comparative exercise to appraise their relative potential, with a focus on the landscape and visual acceptability of the options as directed by Holford Rules 3 to 7. It may be that all detailed routes exhibit a comparative level of potential. However, this is rare, especially when appraised against both the constraints identified in Stage 1 and the landscape and visual acceptability of the corridor.

4.7.12 The conclusion of this stage will be the emergence of a Preferred Route. Whilst this route will be defined based upon the available data to date, further consultation or technical matters may emerge which render the Preferred Route no longer the best option (for example the emergence of hitherto unknown technical constraints). Where this occurs, the comparative analysis carried out will have defined the 'second best' alternative corridor to pursue.

Stage 4: Identification and Appraisal of the Preferred Route

4.7.13 This stage takes the results of the evaluation undertaken in Stage 3 to identify and illustrate the Preferred Route. Unless further environmental or technical constraints emerge subsequent to, or during this stage, this route will be that taken forward to the formal consultation stage.

4.7.14 There may only be a single route, or there may be several options, or there may be a single route, with options at different points along its length. This will depend on two factors: firstly, the width of the PRC, and secondly the distribution of landscape elements and constraints which guide the route.

4.7.15 The conclusion of this stage will be the definition of the 'Preferred Route'.

Stage 5: Consultation and Refinement

4.7.16 Consultation on the Preferred Route is perhaps the key part of identifying the most technically and environmentally acceptable route option. Whilst the analysis of route options undertaken up to this point is based upon all available technical and environmental constraints and consultation with statutory bodies, consultation with a broader range of stakeholders, including the public, often raises further constraints which were hitherto unidentified, but which are important in the context of routeing.

Stage 6: Identification of Proposed Route

4.7.17 Following the consultation undertaken at Stage 5 any changes required to the Preferred Route are evaluated and accepted, if found to be acceptable in general routeing terms. With the changes incorporated, the route then forms the Proposed Route, which becomes the subject of the EIA Report as part of any future planning submission.

05. Identification of Routeing Strategy and Constraints Analysis

5. Stage 1: Identification of Routeing Study Area and Constraints Analysis

5.1 The Routeing Study Area

5.1.1 As shown on **Figure 3**, the RSA comprises a swathe of landscape that lies predominantly within South Lanarkshire, but also containing a small part of East Ayrshire. The landscape is largely rural in nature, with only limited human habitation within the upland areas, and a greater focus of habitation along the A70 (Douglas) and the motorway corridor (Coalburn and Lesmahagow), which runs east to west through the study area, and to the north around the A71 (Strathaven).

5.1.2 The RSA is roughly split into four main sub-areas:

1. The southern area comprises the area of moorland around the proposed Redshaw Substation, which is an elevated area with a number of wind farms and OHLs, and is near to the route of the M74 motorway;
2. The landscape then falls to the north into the valley of the Douglas Water, in which lies the town of Douglas and a lower lying riparian valley containing heritage features and road infrastructure;
3. The landscape then rises to the north and north-west, with numerous wind farms located within the historic coal mining area and commercial forestry areas to the north-west. The settlements of Coalburn and Lesmahagow lie in the eastern parts of the RSA towards the M74. This section of the RSA continues around the periphery of the higher ground towards Glengavel; and
4. The western section of the RSA contains the forested and open areas around Glengavel Reservoir and areas of forestry containing wind farms. This is an elevated and topographically complex part of the RSA.

5.2 Other Grid and Electrical Connections and Wind Farms

5.2.1 It is evident from desk study analysis that there are a number of other potential and existing grid connections within the RSA, which may have a bearing on the routeing of the Proposed Development. This is because they may provide an option for 'Teeing in' to these routes, may offer an existing corridor (e.g. through forestry), or offer a way of reducing environmental, technical or economic impact through combining the routes.

5.2.2 These grid connection routes are shown on **Figure 10** and summarised below:

- Hagshaw Energy Cluster Western Expansion grid connection is a connection between Hagshaw Energy Cluster Western Expansion and Redshaw Substation. This connection is currently at screening stage but there is no final design; and

- Kennoxhead Wind Farm is in the south of the study area and has an OHL connection which crosses north to south through the RSA, as shown on **Figure 10**. This connection is subject to an application to the Energy Consents Unit (ECU), and given its alignment, will require a crossing for the Proposed Development.

5.2.3 The extent of wind farm development is shown on **Figure 10**. The following wind farms are present within the RSA, referenced broadly south to north:

1. Andershaw Wind Farm;
2. M74 West Wind Farm;
3. Bodinglee Wind Farm;
4. Glentaggart Wind Farm;
5. Hagshaw Hill Repowering Wind Farm;
6. Hagshaw Hill Wind Farm;
7. Hagshaw Hill Wind Farm Extension;
8. Douglas West Wind Farm;
9. Douglas West Extension Wind Farm;
10. Dalquhandy Wind Farm;
11. Nutberry Wind Farm;
12. Cumberhead West Wind Farm;
13. Auchrobert Wind Farm;
14. Kype Muir Wind Farm;
15. Kype Muir Extension Wind Farm;
16. Dungavel Wind Farm;
17. Hagshaw Energy Cluster – Western Expansion (Phase 1);
18. Bankend Rig Wind Farm;
19. Bankend Rig II Wind Farm;
20. Bankend Rig III Wind Farm;
21. Broken Cross Wind Farm; and
22. Mill Rig Wind Farm.

5.2.4 Also shown on **Figure 10** are numerous small, generally farm scale wind energy schemes within the RSA. These are typically located in the transitional area between the higher ground and commercial wind farms and the more settled agricultural landscape, which encircles the higher ground.

5.3 Identification of Strategic Environmental and Technical Constraints

5.3.1 Having established the start and possible endpoints for the OHL and having identified the range of highest value (and lesser value) constraints, it is now possible to look at the detail of the environmental baseline within the RSA. **Figures 5** to **11** illustrates those environmental constraints across the RSA, which include the following:

- Listed buildings;
- Scheduled monuments;
- Archaeological features with potential to be of National Importance
- Landscape Character Areas;
- Leadhills and Lowther Local/Special Landscape Area;
- Uplands and Moorlands Local/Special Landscape Area;
- Local/Special Landscape Areas around Douglas;
- Core Paths and Cycle Routes;
- Non-Inventory Designed Landscapes;
- Areas of ancient woodland;
- Functional flood plains of the existing watercourses;
- Mainshill Forestry Land Scotland Management Plan area;
- Angus and Douglas 'Park or Ornamental Ground';
- Ecological designations (internationally, nationally and locally designated sites); and
- Important Areas of Peat.

5.3.2 Also mapped are the following technical constraints, as described previously:

- Turbines within the Hagshaw Energy Cluster (and other turbines);
- Areas with a slope gradient of greater than 15 degrees ('soft' slope constraint);
- Areas with a slope gradient of greater than 22 degrees ('hard' slope constraint);
- Areas above 300m elevation ('soft' elevation constraint); and
- Areas above 350m elevation ('hard' elevation constraint).

5.3.3 These constraints include those listed within the Holford Rules (**Appendix 1**), and also a number of other constraints important in the context of the local landscape.

5.3.4 Whilst the above form the documented constraints evident across the RSA, other key components in a route's acceptability are those pertaining to potential landscape and visual effects. In identifying a preferred route, it is essential that landscape and visual effects are considered. The routeing of the OHL has followed a landscape-led approach whereby the technical and environmental constraints

are considered alongside those of landscape sensitivity and visual acceptability. The analysis of the landscape and visual issues is undertaken during the detailed route corridor appraisal stage.

5.3.5 This approach ensures all factors are considered, the highest areas of environmental value are avoided or addressed where avoidance is not possible, and the routeing parameters advocated by the Holford Rules are applied.

5.4 Environmental Baseline of RSA

Introduction

5.4.1 This section reviews the prevailing environmental baseline of the RSA, and in so doing provides a strategic understanding of the key environmental constraints which have guided the routeing process

Landscape and Visual Amenity

Landscape Designations

5.4.2 Across the RSA, there are limited landscape designations present. These designations are illustrated on **Figure 5** and summarised below.

5.4.3 Three Local Landscape Area (LLA) designations (sometimes referred to as Special Landscape Areas (SLAs) are present throughout the RSA. The Douglas Valley Landscape Area is located within South Lanarkshire to the east, in a region, which is experiencing increased wind farm development. The second is the Uplands and Moorlands Landscape Area, located to the south-west of the RSA near Muirkirk.

5.4.4 The Angus and Douglas Designed Landscape is located east of Douglas and comprises an open landscape containing areas of woodland and mature trees. This landscape feature is also in close proximity to the remains of Douglas Castle.

5.4.5 There are no other area-based landscape designations, such as National Parks, Garden and Designed Landscapes (GDLs) or National Scenic Areas (NSAs) located within the RSA.

Topography

5.4.6 Across the RSA, the topography is undulating as it consists of upland areas, defined as 'Plateau Moorlands' and areas of lower elevation throughout the 'Upland River Valleys'. River Valleys are generally orientated north-east – south-west and run across the central part of the RSA.

5.4.7 Elevation varies across the RSA. Within the river valley, elevation ranges from c.190m aOD in the north-east (near Douglas) to c.200m aOD in the south-west (near Muirkirk). South of the river valley, the Plateau Moorlands increase to c.450m aOD around Urit Hill. Other peaks in this area include Parisholm Hill (c.427m aOD) and Auchensaugh Hill (c.392m aOD). Similarly to the north of the river

valley, the elevation increases across the plateau moorlands before falling back. Peaks in this area include Nutberry Hill (c.522m aOD) and Priesthill Height (c.493m aOD).

Landscape Character

5.4.8 Landscape character within the RSA is described within the SNH '2019 Landscape Character Type map and associated Landscape Character Type Descriptions' study. This study supersedes the 1998 study, which also referenced Regional Character Areas, which have been discontinued. The landscape character of the RSA is shown on **Figure 12**.

5.4.9 The LCTs within the study area – and a summary of their susceptibility (as considered at **Appendix 3**) – are as follows:

- LCT 207 Upland River Valley – Glasgow and Clyde Valley: Overall, this LCT is considered to have a low/medium susceptibility due to its contained nature which limits views and the experience of the landscape to within the valley. However, existing development including open cast workings, the presence of wind farm infrastructure and the decline of certain characteristic landscape cover lowers the overall susceptibility to new development;
- LCT 69 Upland River Valley – Ayrshire: Overall, this LCT has a low susceptibility as the presence of landscape elements such as mining, settlements and key road corridors exert a notable influence on the area which contrasts from the wider rural character beyond, and these act as key detractors which lowers overall susceptibility in regard to new OHL development;
- LCT 78 Plateau Moorlands – Ayrshire: The susceptibility of this LCT is judged to be medium due to the open nature of the LCT and the lack of existing development creates a landscape that is more susceptible to the Proposed Development including OHLs;
- LCT 213 Plateau Moorlands – Glasgow and Clyde Valley: The susceptibility of this LCT is judged to be low due to the open nature and large scale of the landform having the ability to accommodate development. In addition, the recent wind farm development and presence of existing electrical infrastructure act as detractors to the character of the landscape in regard to new OHL development; and
- LCT 201 Plateau Farmland – Glasgow and Clyde Valley: The susceptibility of this LCT is judged to be medium due to the semi-exposed character, elevated sense of pastoral character and transitional nature.

Land Use and Local Character

5.4.10 The RSA consists of an undulating landscape which transitions between the higher elevated ground of the Plateau Moorlands into the lower river valley associated with the River Ayr. Therefore, the RSA is host to characteristics of both landscape areas.

5.4.11 The central part of the RSA consists of the lower lying land of the River Ayr and Douglas Valleys, which contain the settlements of Douglas to the north-east and Muirkirk to the west, with the A70 road corridor that traverses the valley roughly north-east to south-west. Areas of woodland flank

the lower valley sides north of Muirkirk and around Douglas, with areas of pasture frequent along the valley floor. To the north of the River Ayr and Douglas Water, the land increases in elevation associated with the Plateau Moorlands, and features occasional peaks and increased forest cover. Settlement becomes more sparse, however increased Wind Energy development is apparent, particularly north-west of Douglas and north-west of Muirkirk which is becoming a defining characteristic of the landscape.

Residential and Visual Amenity

5.4.12 Visual effects depend on visual receptors, particularly people whose views may be impacted by the Proposed Developments. Topography significantly influences views for OHLs, especially in Scotland's upland and mountainous areas. High peaks offer panoramic views, while valleys are often restricted by slopes and vegetation.

5.4.13 Residential areas are mostly found in the central parts of the RSA, particularly around Douglas and along the A70, with more dispersed dwellings in surrounding regions, including individual farmsteads in higher ground. Other settlement is contained in the west, at Coalburn and Lesmahagow, near the M74.

5.4.14 The RSA features a network of Core Paths, primarily connecting along the A70 road corridor. The River Ayr Way runs through southern part of the RSA near the A70, while the National Cycle Network traverses the area from north to south near the M74.

5.4.15 Most roads are confined to lower-lying land in the river valley, with the A70 trunk road running from the M74 through Douglas and Muirkirk towards Cumnock, and other routes consisting of unclassified tracks leading to isolated areas.

Archaeology and Cultural Heritage

5.4.16 The RSA includes archaeological sites, historic buildings, and landscape features that provide insights into past human activity or hold cultural significance. National planning policy highlights the need to protect and enhance Scotland's finite cultural heritage resources.

5.4.17 Digital information on cultural heritage within the study area has been provided by Historic Scotland and the West of Scotland Archaeology Service. The following designations are relevant:

- Scheduled Monuments (SMs) are nationally important sites protected under the Ancient Monuments and Archaeological Areas Act 1979. The study area contains ten SMs.
- Listed Buildings fall under the Listed Buildings and Conservation Areas (Scotland) Act 1997, ensuring control over alterations to buildings of special architectural or historic interest. There are a number of listed buildings in the area, categorised as follows:
    - 2no. Category A (national importance);
    - 37no. Category B (regional importance); and
    - 36no. Category C (local importance).

5.4.18 These buildings are primarily located in the east, around Douglas, and in Lesmahagow.

5.4.19 Conservation Areas aim to preserve areas of special interest; the study area includes the Douglas Conservation Area, which contains 30 listed buildings.

5.4.20 There are no Gardens and Designed Landscapes within the study area.

5.4.21 Additionally, there are eight undesignated features classified as 'almost certainly' of national importance and 28 'probably' of national importance. Overall, key cultural heritage constraints include Scheduled Monuments, Listed Buildings, and other significant features requiring protection. It is likely that further archaeological remains exist within the study area, necessitating additional investigation for the EIA.

Nature Conservation (Ecology, Ornithology and Biodiversity)

5.4.22 Nature conservation designations and certain species receive legal protection under various national and international legislative instruments. In addition, there are other habitats and species that do not receive legal protection, but which are notable owing to their conservation status. The presence of such nature conservation interests within the RSA, as derived from the desk study and summarised below, has been used, in combination with professional judgement, to inform the most sensitive routing of the overhead grid connection through the landscape.

Nature Conservation Designations

5.4.23 The RSA contains three sites that have been designated for nature conservation value at an international level: Muirkirk and North Lowther Uplands Special Protection Area (SPA), Red Moss Special Area of Conservation (SAC) and Coalburn Moss SAC. Muirkirk and North Lowther Uplands covers a vast area, predominantly within the west of the RSA.

5.4.24 A further eight international sites are located within 20km of the RSA. Namely:

- Airds Moss SAC/SSSI: Designated for the presence of Blanket Bogs;
- Upper Nithsdale Woods SAC: Designated for its Tilio-Acerion forests of slopes, screes and ravines;
- Clyde Valley Woods SAC: Designated for its Tilio-Acerion forests of slopes, screes and ravines;
- Clyde Valley Woods SAC/NNR: Designated for the presence of Tilio-Acerion forests of slopes, screes and ravines;
- Cranley Moss SAC/SSSI: Designated for the presence of Active Raised Bogs and degraded Raised Bogs;
- Waukenwae Moss SAC/SSSI: Designated for the presence of Active Raised Bogs and Degraded Raised Bogs;
- River Tweed SAC/SSSI: Designated for representing a "*water course of plain to montane levels with the Ranunculion fluitans and Callitricho-Batrachion vegetation*" and for supporting

populations of Annex II species. Three features are also listed that are not a reason for designation, namely brook, river and sea lampreys (*Lampetra planeri, L. fluviatilis and Petromyzon marinus*); and

- Braehead Moss SAC: Designated for the presence of Active Raised Bogs and degraded Raised Bogs.

5.4.25 Based on the qualifying features, distance and spatial separation from the RSA, the international sites identified outside of the RSA are unlikely to be impacted as a result of the Proposed Development, and therefore no further consideration is required in relation to the routeing study.

5.4.26 Five sites designated for biodiversity at the national level are present within the RSA, namely:

- Muirkirk Uplands SSSI - Designated for its Upland Assemblage, the presence of Blanket Bogs, and the breeding bird assemblage, specifically hen harrier and short-eared owl;
- North Lowther Uplands SSSI – Designated for its Upland Assemblage and the breeding bird assemblage, specifically hen harrier;
- Red Moss SSSI – Designated for its Raised Bogs;
- Miller's Wood SSSI – Designated for its Upland Birch Woodland;
- Blood Moss and Slot Burn SSSI – Designated for the presence of Blanket Bog; and
- Shiel Burn SSSI, Birk Knowes SSSI, Birkenhead Burn SSSI, Garpel Water SSSI, Dunside SSSI, Kennox Water SSSI and Ree Burn and Glenbuck Loch SSSI are also present within the RSA, but these are designated for geological interest.

5.4.27 The RSA spans across East Ayrshire and South Lanarkshire, and while detail for locally designated sites was obtained for East Ayrshire through SWSEIC, for South Lanarkshire the local record centre (Glasgow Museum Biological Records Centre (GMBRC)) was not operational at the time of the request, and data for these local sites was not available. SWSEIC provided details for one Local Nature Conservation Sites (LNCSs) within the RSA, as described below:

- Glenbuck Loch Woodland and Floodplain LNCS – mature woodland and botanically rich loch.

Species of Nature Conservation Importance

5.4.28 A number of species sensitivities present within the RSA have been identified through the course of the desk study. As described above for locally designated sites, protected and notable species data was only available for East Ayrshire, and no data from South Lanarkshire was available at the time the data search was carried out. Owing to the confidential nature of many of these records, they have not been presented on a figure but have been used by the project team to inform both the routeing selection process and scope of future survey works that are likely to be required.

Habitats of Nature Conservation Importance

5.4.29 The Ancient Woodland Inventory available from NatureScot has been used to identify sensitive Ancient Woodland habitats within the RSA. This habitat type is present predominantly in the east of the RSA around Douglas.

5.4.30 In addition, Habitat Map of Scotland[3] shows that a number of bog habitats are potentially present within the RSA, which are associated with Muirkirk Uplands SSSI and North Lowther SSSI.

Transport and Access

5.4.31 The study area features key connections to the strategic road network, including the M74, which links to the M6 and major roads towards Glasgow, and the A70, which connects Edinburgh and Ayr. The A71 is also accessible for conventional vehicles, though routing for larger vehicles will need further analysis.

5.4.32 Local access routes include the B743, which connects Strathaven and Muirkirk, as well as routes providing access to various areas like Ayr.

5.4.33 For construction purposes related to the new OHL, temporary access will primarily follow the OHL's centre line and may include gravel or matting surfaces to minimise environmental impact. Coordination will occur with local councils and Transport Scotland to assess traffic conditions and the feasibility of routes.

Socio-economic, Employment and Tourism

5.4.34 Key settlements include Glenbuck, Douglas, Coalburn and Lesmahagow. The region has high economic activity rates, with East Ayrshire at 74.1% and South Lanarkshire at 78.7%. Tourism plays a significant role in the local economy, attracting over 600,000 visitors to South Lanarkshire and 1 million to East Ayrshire in 2018, generating substantial revenue and supporting thousands of jobs. Notable local tourism businesses include the Bill Shankly Memorial, Douglas Castle (Castle Dangerous), Douglas Heritage Museum, Douglas West Outdoor Centre and Muirkirk Caravan Park.

Land Use and Forestry

5.4.35 The study area features a diverse landscape comprising river valleys, moorland, arable land, and woodlands, along with urban settlements such as Douglas, Coalburn, Lesmahagow and Strathaven. The M74 motorway and the A70 and A71 roads, which runs east to west, are key transport routes. Notably, there is no railway station in the area. The Douglas Water flows through the RSA from east to west, north of the A70. Residential properties are found along the A70 and within the villages, which also host a primary school and local businesses.

[3] https://www.environment.gov.scot/our-environment/habitats-and-species/habitat-map-of-scotland/

5.4.36 Large areas of commercial forestry are located on the higher ground, often associated with wind farm development, but also in areas of reclaimed coal mining in and around Coalburn and Lesmahagow. There are several areas of ancient woodland in the east of the RSA near Douglas (at Poniel Hill), and areas of broadleaf woodland associated with the agricultural landscape. Mature trees are commonplace especially in association with traditional farmsteads. There is an area of reclaimed mining at Mainshill in the east of the RSA which has a Forestry Management Plan, which has not yet been fully redeveloped.

Agriculture

5.4.37 The agriculture capability mapping in Scotland, conducted by the Macauley Institute, identifies various land classifications in the study area. Key points include:

- Areas around Douglas and along the Ayr Road and River Ayr are classified as Class 4.1 and 4.2, suitable primarily for grassland and limited arable crops;
- The Hagshaw Hill Wind Farm site is classified as Class 5.2, indicating improved grassland with some pasture maintenance challenges; and
- The rest of the study area includes lower classifications (Classes 5.3, 6.1, 6.2, and 6.3), resulting in overall low-quality agricultural land with no Prime Agricultural Land present, thus not influencing the route appraisal.

Hydrology and Hydrogeology

5.4.38 The Douglas Water, a separate catchment of 98.9 km² flowing towards the River Clyde, is mostly rural and features a slightly more sinuous channel as it moves downstream. The Glespin Burn is a tributary of the Douglas Water with a catchment area of 21.3 km², maintaining a similar dynamic to the Douglas Water with no urban influences.

5.4.39 A FRA will be conducted to address these concerns, and mitigation measures will be incorporated to minimise the risk of flooding and other environmental impacts, in line with planning policies.

Human Health

5.4.40 The Proposed Development is not anticipated to have a direct impact on human health and amenity, as a result of the low population of the RSA (comprised of a small town, small parishes, hamlets and a small village) and the nature of the scheme.

5.4.41 In accordance with Regulation 4(2) of the 2017 Town and Country Planning EIA Regulations, if required, the environmental interactions chapter of the EIA will consider any likely significant effect on human health and amenity, arising from any potential interactions between likely significant effect arising on the individual 'factors' listed in Regulation 4(3) – (a) population and human health; (b) biodiversity; (c) land, soil, water, air and climate; and (d) material assets, cultural heritage and the landscape.

Climate

5.4.42 The construction phase of the Proposed Development will use energy-intensive materials and fossil fuels, but the completed project aims to support the UK's transition to a low carbon economy by reducing reliance on coal-generated electricity. While the scheme itself is not expected to have direct impacts on climate, its infrastructure may be vulnerable to future climatic factors, particularly due to the location of flood risk areas.

5.4.43 Overall, while the Proposed Development is not expected to significantly affect the climate, it may be impacted by climate change due to its location.

Air Quality

5.4.44 There are no active Air Quality Management Area (AQMA) in close proximity to the RSA. Current nitrogen dioxide (NO2) concentrations at nearby monitoring sites in East Ayrshire being significantly below the National Air Quality Objective (NAQO) of 40 µg/m³. The highest recorded level is 19.0 µg/m³. Predicted background air quality concentrations for 2024 are also low and expected to decrease over time. Some residential areas, particularly those near construction activities like Douglas, Coalburn and Lesmahagow, may experience higher exposure. However, according to the IAQM guidance, the overall impacts from the Proposed Development on air quality are deemed 'not significant,' as mitigation measures are included through planning conditions.

Noise and Vibration

5.4.45 The noise impact of a development depends on existing conditions and changes in noise levels at sensitive receptors. Lower baseline sound levels increase the likelihood of audible noise, but this doesn't always lead to adverse effects. The proposed 132kV OHLs routes primarily pass through rural areas with low background noise during the day and night. Since routeing would be more than 50m from existing dwellings, there exists the potential to minimise noise impact.

Geology and Ground Conditions

5.4.46 The British Geological Survey (BGS) indicates that the RSA's geology includes superficial deposits like Till, Alluvium, Glaciofluvial Deposits, and Peat, with bedrock consisting of Sandstone, Greywacks, and Scottish Coal Measures. Peat and alluvium may be compressible, while peatlands support carbon storage and biodiversity.

5.4.47 The RSA has extensive Made Ground from historical mining, posing stability and contamination risks. The Coal Authority identifies much of the area as a Coal Mining Reporting Area, indicating potential hazards. There are also historical non-coal mining activities and known cavities, though their extent remains unclear.

06. Identification and Appraisal of Route Corridors and Options

6. Stage 2 : Identification and Appraisal of Route Corridors and Options

6.1 Stage 2: Identification of the Primary Route Corridor

6.1.1 Based upon the areas of highest environmental value identified in the previous section and the distribution of landscape and other features, alongside technical and engineering considerations, there is only a single high level route corridor option available. This is identified as the PRC on **Figure 4**.

6.1.2 The principal environmental sensitivities and constraints which have driven the identification of this PRC are as follows, and are illustrated on **Figure 6**:

- The Muirkirk and North Lowther Uplands Special Protection Area (International);
- The Muirkirk Uplands Site of Special Scientific Interest (National);
- The North Lowther Uplands Site of Special Scientific Interest (National); and
- Blood Moss and Slot Burn Site of Special Scientific Interest (National).

6.1.3 SPAs are crucial because they are designated under the EU Birds Directive, to protect rare, vulnerable, and migratory bird species, and their habitats, ensuring their survival and contributing to biodiversity conservation. Scotland's SSSIs are crucial for conserving the country's natural heritage, protecting diverse flora, fauna, geology, and geomorphology, and are the foundation of Scotland's nature conservation efforts.

6.1.4 The Muirkirk and North Lowther Uplands SPA is crucial for its diverse upland habitats and breeding bird populations, particularly for species like hen harrier, short-eared owl, merlin, peregrine falcon, and golden plover, which are of European importance.

6.1.5 The area features large tracts of blanket bog, wet and dry heaths, and upland grasslands, creating a variety of habitats. It includes the largest remaining continuous block of unforested moorland in south-west Scotland. Large sections of the moorland are SNH Priority 1 peatland of national importance.

6.1.6 The Muirkirk Uplands SSSI is important because it supports a diverse upland breeding bird community, including nationally and internationally important populations of hen harriers and short-eared owls, and is part of a larger area designated as a SPA.

6.1.7 The North Lowther Uplands SSSI is important because it supports a nationally important upland bird assemblage, including breeding waders and birds of prey like hen harrier and short-eared owl, and is a component of the Muirkirk and North Lowther Uplands SPA.

6.1.8 The Blood Moss and Slot Burn SSSI is important because it's a designated area of land and water that best represents the natural heritage of the area in terms of flora, fauna, geology, and geomorphology.

6.1.9 In terms of technical constraints, **Figure 10** illustrates the extent of wind turbine development, both existing and proposed, within the central areas between the proposed Redshaw Substation and the Bankend Rig III Collector and Hagshaw Repowering Phase 3 Substations. There is a technical requirement for OHLs to be offset from wind turbines by up to three times the rotor diameters of the wind turbine.

6.1.10 Accepting this technical constraint – alongside the nature conservation constraints detailed above – makes a route which passes through the central parts of the landscape between the connection points unviable from the outset. For this reason, only the PRC option described below was progressed in terms of considering more detailed route options.

6.1.11 The PRC runs north from the Bankend Rig III Collector Substation, broadly along the B743 and the Glengavel Water. Lower level constraints in this initial upland area include commercial forestry, the reservoir (Glengavel Reservoir) and watercourse, and residential development. After c.5km the corridor turns north-westwards, running broadly between the B734 and A71, before heading eastwards towards Sandford. The corridor then turns south and widens to incorporate the upland areas of the Kype Water and Logan Water and a number of wind farms in this area. Continuing southwards the corridor includes the western edge of Lesmahagow and Coalburn.

6.1.12 Beyond Coalburn the corridor takes in the edge of the wind farm landscape on the previous coal mining areas, and extends eastwards to the M74 motorway. It includes the settlement of Douglas and the valley of the Douglas Water extending to the M74. South of here the land rises, and the corridor continues into a further wind farm landscape, before terminating at the proposed Redshaw Substation.

6.1.13 Under normal routeing circumstances, this stage of the Routeing process would involve a comparative review of the different high level route corridor options against the previously identified routeing considerations. Although there are no other high level route corridors to compare the PRC with, a review has been undertaken of the PRC against the key considerations identified in the baseline. This is presented in **Table 6.1** below.

Table 6.1: Environmental Considerations within the PRC

Technical Topic	Detailed Consideration	Primary Route Corridor
Length of Route	The approximate length of the route between the Redshaw Substation and the Bankend Rig III Collector Substation.	c.38km c.2-3km Hagshaw Spur
Biodiversity	Muirkirk and North Lowther Uplands SPA, Muirkirk Uplands SSSI and North Lowther Uplands SSSI	This PRC avoids any conflict with these designations by routeing around the east and north of the wind farm conglomerations on the high ground. There will therefore be no physical impact on these designations.

Technical Topic	Detailed Consideration	Primary Route Corridor
	Red Moss SAC/SSSI	The SAC/SSSI is present within the southern end of the PRC, and therefore the construction of the OHL has the potential to directly impact the habitats on the site. It could be avoided by detailed routeing.
	Miller's Wood SSSI	The SSSI does not overlap with the PRC.
	Blood Moss and Slot Burn SSSI	The SSSI is close to the Bankend Rig III Collector Substation, but does not overlap with PRC.
	Local Nature Conservation Sites	No LNCSs have been identified within the PRC.
	Protected and Notable Species (Ornithology)	The PRC passes through blocks of woodland which have the potential to support breeding raptor species as well as woodcock. The majority of the route comprises open agricultural land, however some open moorland is present along the route, which has the potential to support breeding hen harrier, short-eared owl black grouse, golden plover, lapwing, skylark and curlew. Therefore, there is the potential to for direct impacts on these species during construction. In addition, there is the potential for the passage of breeding birds and winter migrants to move through the route corridor and therefore the erection of the OHL could result in a collision risk for these, and other migratory species during construction and operation. The PRC also contains the Glengavel Reservoir, and therefore the erection of the OHL could result in a collision risk for waterfowl and wader species during construction and operation.
	Protected and Notable Species (Ecology)	The desk study retuned very few records from within proximity of the PRC. Whilst the absence of records for any species does not imply the absence of the species, it is considered likely that the limited records can be partly attributed to the agricultural habitats which occupy most of the route. Given the other habitats present, main potential constraints include badger, red squirrel, pine martin, reptiles and roosting bats. There are potentially a number of watercourses, as well as Glengavel Reservoir within proximity of the route, and therefore construction has the potential to cause disturbance of otter and/or water vole, albeit temporarily. Unmanaged grassland, and other suitable habitat, is likely to be present within the PRC, meaning that reptiles are likely present, although impacts would be temporary and minor. Potential areas of heathland/upland habitat could support mountain hare, although impacts are likely to be minor given the minimal amounts of this habitat type within the route.

Technical Topic	Detailed Consideration	Primary Route Corridor
		Where woodland is present within the route, there may be mature trees suitable to support roosting bats that may require removal, this would have direct impacts on the species.
	Priority Habitats (Bog and Ancient Woodland)	From the review of the Habitat Map of Scotland, bog habitats have been identified in the east of the PRC associated with the Coalburn Moss SSSI, and therefore has the potential to be impacted by the development during construction. The route overlaps with some blocks of Ancient Woodland in the east (Long Established Woodland) of the corridor, and depending on whether the OHL can be microsited, construction could impact this habitat. Given the area of ancient woodland some conflict is likely.
Landscape and Visual	Residential Amenity	The PRC crosses Douglas, where there is a high density of residential development. There are also a small number of individual properties within the remaining easterly part of the corridor in this area. North of Douglas the corridor includes the small linear settlement of Coalburn and to the north-west of this settlement, a relatively dense pattern of individual dwellings. These are dispersed sufficiently that micrositing could result in a possible route. Around the north of the corridor, the settlement is heavily related to the road corridors, with density of dwellings reducing southwards. Although a relatively dense distribution of dwellings, micrositing would allow a route to be defined without impacting consultation zones.
	Landscape Character	The PRC runs through areas defined by the LCT 78 Plateau Moorlands, LCT 207 Upland River Valley and LCT 201 Plateau Farmland LCAs. LCT 207 is judged to have a low/medium susceptibility due to its contained nature which limits views to within the valley. However. existing development including the presence of wind farm infrastructure and the decline of certain characteristic landscape cover lowers the overall susceptibility to new development. Restored open-cast workings are further characteristic features of the landscape with enhanced walking routes offering increased recreational value which suggests a higher susceptibility to change. However, LCT 78 is considered to have a higher susceptibility, which is judged as medium. This is due to the more open nature of the LCT and the lack of existing development creates a landscape that is more susceptible to proposed development including OHLs.

Technical Topic	Detailed Consideration	Primary Route Corridor
		LCT 201 has a medium susceptibility, although given juxtaposition of the settlement of Coalburn, it is unlikely this part of the RSA would be utilised. The PRC runs through the Douglas Valley Local Landscape Area only. The PRC includes the Angus and Douglas 'Park or Ornamental Ground' to the east of Douglas.
	Visual Amenity	Areas of settlement and individual residences will potentially experience visual change, but that would be in the context of significant other energy infrastructure and OHL development. Residential consultation zones could be respected. Several Core Paths cross the eastern parts of the corridor near Coalburn and north of Douglas. Users are likely to experience limited visual change due to the scale of the development across the expanse of the LCT and the undulating landscape. The PRC contains no long distance walking routes. It does contain a number of minor roads, and a small length of the A71.
Cultural Heritage	Listed Buildings	The PRC contains 27 Category C, 13 Category B, and two Category A listed buildings. The majority are within the town of Douglas, and the accompanying Conservation Area, which is already subject to OHL elements. It is anticipated that micrositing can ensure that the OHL would not substantially affect the setting of these assets.
	Scheduled Monuments	One Scheduled monument is within the PRC, St. Bride's Church (SM7364). The monument is within the town of Douglas, and the accompanying Conservation Area. The setting of the scheduled monument is an area already impacted by OHL elements/the urban area and it is not expected that the presence of the proposed OHL would materially affect this asset.
	Inventory and Non-Inventory Designed Landscapes	The PRC is a long distance from the nearest Non-Inventory Landscape or Inventory Designed Landscape, and there would be no impact. The corridor includes the Angus and Douglas Park or Ornamental Ground, which although not designated formally, is an area of attractive parkland to the east of Douglas which is located in close proximity to Douglas Castle.
	Undesignated Archaeology of probable/almost certain National Importance (recorded HER)	The PRC contains one Historic Environment Record (HER) feature which has a probable potential to be of National Importance. Physical effects to all these assets could be avoided during detailed route alignment and sensitive micro-routing.

Technical Topic	Detailed Consideration	Primary Route Corridor
	Undesignated Archaeology of Regional/ Local Importance (recorded HER)	For the PRC, the identified undesignated heritage assets largely comprise stock enclosures, farmsteads, and discrete areas of settlement or cultivation earthworks and enclosures, and a smaller number of cairns and stone circles. Physical effects to all these assets could be avoided during detailed route alignment and sensitive micrositing.
Flood Risk and Hydrology	Functional Floodplains	Part of the PRC crosses the floodplain of the Douglas Water, which shows medium-to-high risk of out of bank flooding. There is therefore the possibility for infrastructure to be located within the functional floodplain of the Douglas Water. Watercourse crossings for the PRC might include the Burnhouse Burn, the Windrow Burn, and the Broadlea Burn. Other potential crossings could include crossing the Logan Water and the Long Knowe Burn (upstream of the Kype Reservoir) and the Kype Burn (downstream of the Kype Reservoir). The watercourses appear to show little out of bank flooding, with flood waters contained within a narrow flood plain. Other crossings might include several smaller watercourses, including small unnamed tributaries to the Logan Water, the Lochfennoch Burn which flows into the Dunside Reservoir, the Ara Burn and the Hareshaw Burn. Also, several smaller watercourses including tributaries to the Logan Water and tributaries to the Marrow Burn. Routeing may need to cross the north-eastern corner of the Glengavel Reservoir, which may want to be avoided, as well as crossing of the Glengavel Water and Patrick Burn. Other crossings might include more minor watercourse crossings, including the Braidle Burn and the Spoutloch Burn. Any flood risk to these watercourses is contained within the channel corridors, indicating a narrow functional floodplain, likely due to the steep topography.
	Watercourse Crossings	
	Access Track Drainage	Access tracks intercept natural drainage paths/surface water runoff.
Socio-economic and Tourism	Settlements	The PRC runs near the town of Coalburn and Lesmahagow and skirts around the edge of Douglas.
	Local Businesses	The PRC is not considered to impact tourism assets although there is the potential for businesses in Douglas to be impacted. A number of residences might be impacted at distance.
Other Issues (Traffic and	Air Quality	No significant issues due to very low nearby monitoring data.

Technical Topic	Detailed Consideration	Primary Route Corridor
Transport, Noise, Human Health, etc.)		Routeing construction HGVs should be away from designated ecologically important sites where possible. Overall, however, is not considered that Air Quality would prove to be a constraint for this route due to the low level of monitored concentrations and lack of a nearby Air Quality Management Areas (AQMAs).
	Noise and Vibration	The PRC does not appear to pass close to highly densely populated areas and a route could be proposed which is 100m or more from dwellings. The PRC means routeing has the potential to pass close to densely populated areas. However, there appear to be opportunities for the route to be located 50m or more from residential properties, which would likely reduce noise and vibration related impacts.
	Baseline Traffic Flows and Composition	Road capacity may be affected by the additional activity, including construction traffic and operation and maintenance traffic.
	Transport and Traffic	The northern and western parts of the PRC run along the B743. The rest of the route has limited access to the existing road network meaning a number of new connections would be required to access the route.
	Human Health	The PRC passes across the north and north-eastern boundary of the village of Douglas. Except for this locality, the majority of the route is largely routed away from residential receptors with limited potential for human health impacts.
	Gradient and Elevation	The PRC contains a number of elevated areas, but does not contain any areas of steep gradient. The corridor should not conflict with the highest areas, i.e., those above 350m.
	Forestry and Woodland	The PRC contains small areas of commercial woodland, but some more significant areas of ancient woodland than the other corridors. This is particularly so to the north of Douglas.
	Other Energy Infrastructure	This corridor purposely routes around the main area of wind energy development in the central part of the RSA. Even so, there are a number of areas where existing or proposed turbines will constrain detailed routeing. This is particularly the case to the north around Drumclog and near to Coalburn where the corridor includes the edge of the wind farms on Arkney Hill. In terms of existing OHL infrastructure, the main constraint is the proposed Kennoxhead connection, which runs across the corridor, approximately from Chapel Hill to Coalburn.

Technical Topic	Detailed Consideration	Primary Route Corridor

Geology and Ground Conditions	Extensive coal mining and opencast mining (ground subsidence and collapse risk)
	
	Localised peat and alluvial soils (compressible)
	
	BGS recorded artificial deposits (Made Ground)
	
	Shallow bedrock
		Superficial geology
		• The PRC travels through an extensive area where peat is mapped as being present; and
		• Superficial deposits are shown as being absent in two areas meaning bedrock is likely to be close or at the surface.
		Geological designations
		• The PRC includes the Dunside Geological Conservation Review (GCR) site. GCR sites don't hold the same weight as geological SSSIs, which are considered to be nationally important, however it could be preferable to route around these; and
		• The route does not cross any geological SSSIs.
		Coal Mining
		• The eastern half of the PRC is within a Coal Mining Reporting Area;
		• This portion of the route (east of Coalburn as well as around the settlement of Douglas) is affected by the following features:
		  • Crosses through two development high risk areas;
		  • At least five mine entries in the immediate vicinity of the route; and
		  • Approx. 530m of the route passes over an area where probable shallow coal mine workings are present.

6.1.14 Whilst the PRC has been identified as being acceptable in terms of providing a route corridor which is strategically acceptable in environmental terms, there remain a range 'lower level' environmental constraints affecting it, as follows, and shown on **Figures 5** to **11**. This is detailed from south to north:

- Elevation constraints between Redshaw and Douglas;
- Turbine offsets, in particular a 3x rotor diameter buffer to proposed and existing turbines between Redshaw and Douglas;
- Areas of ancient woodland (Long Established Woodland category) at Towinhead Wood south of Douglas and other areas at Poniel Hill;
- Forestry Land Scotland areas at Mainshill subject to a detailed Land Management Plan;
- The Angus and Douglas 'Park or Ornamental Grounds;
- The settlement of Douglas and residential buffers;
- Listed Buildings in Douglas and along the A70;
- Core Paths in the landscape between Redshaw and Lesmahagow;

- Flood Zone (High Risk) north of Douglas;
- Areas of commercial forestry on the higher ground; and
- Residential buffer zones to the many isolated and detached dwellings along the northern edge of the corridor.

6.1.15 Acknowledging these constraints, there are a number of detailed routeing options within the PRC, particularly in the southerly part of the PRC around Douglas and Poniel Hill. The variety of routes is illustrated on **Figure 14**, with considerations on each of these provided in turn within **Table 7.1**.

07.
Detailed Route Corridor Appraisal

7. Stage 3: Detailed Route Corridor Appraisal

7.1.1 The detailed route options identified on **Figure 14** have been reviewed in light of the above environmental and technical considerations, with this review provided in **Table 7.1** below. Throughout the appraisal process, those parts of the Holford Rules which are applicable to the different appraisal principles are encompassed within the general review.

7.1.2 In defining the detailed route options within the PRC, the routeing area was split into four sections, broadly orientated north to south. The following sections were identified, with these based upon the distribution of constraints and required orientation of routes:

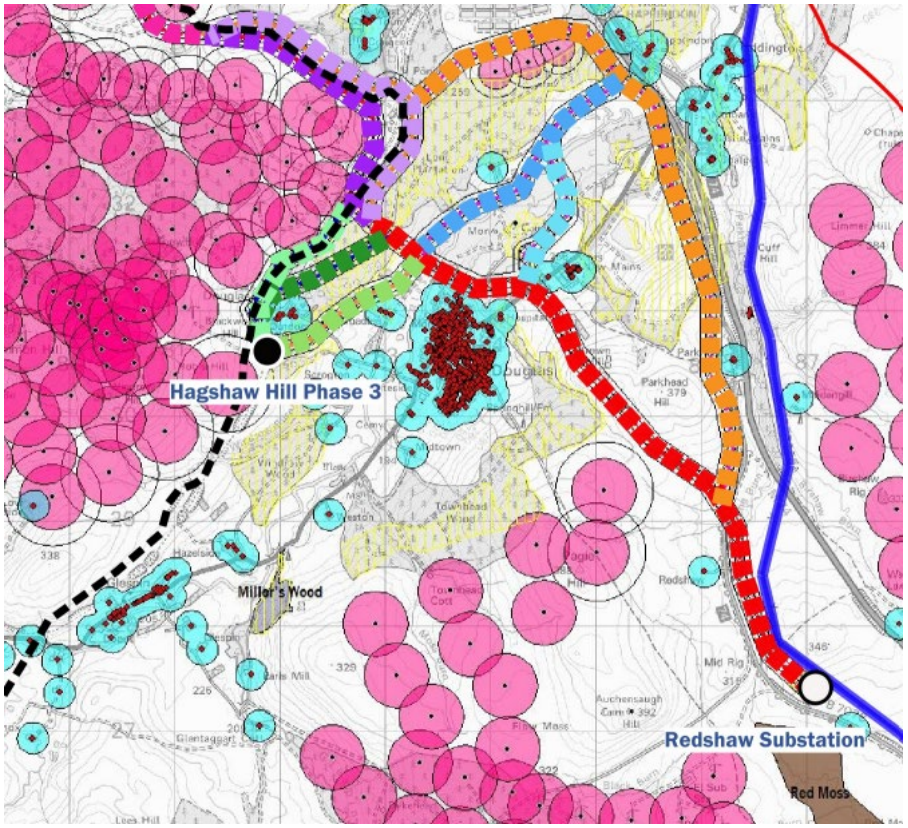
1. **Section 1**: this section runs from the proposed Redshaw Substation to broadly where the Hagshaw Tee connection is required to run west. There are two broad options – one which runs to the east, near to the M74, and one which runs to the west, which passes close to Douglas. The easterly option (Corridor 1B) would require a longer connection to the Hagshaw Tee, and is designed to avoid the ancient woodland areas on Poniel Hill, as well as other constraints within the Douglas Water valley. Sub-options exist for this section (Corridors 1B-1 and 1B-2), the use of which will depend on the eventual routeing of Section 1 as a whole;
2. **Section 2**: this short section provides options in relation to the proposed Kennoxhead grid connection, which needs to be crossed by the Proposed Development at some point. Options allow for a more northerly or more southerly crossing, with the location for this dependent on the option selected for Section 1;
3. **Hagshaw Tee**: three options exist to connect the principal route to the Hagshaw Repowering Phase 3 Substation, with the selection broadly dependent on the route corridor selected for Sections 1 and 2. Constraints in this area are focused on private residences, the Kennoxhead connection and wind turbine offsets;
4. **Section 3**: this long section runs from the point of crossing the Kennoxhead connection to a location north of Glengavel Reservoir near the Bankend Rig III Collector Substation. Whilst there is one principal option which runs around the transitional zone between the higher wind farm landscape and the more settled agricultural land on the lower land, there is an option which runs further into the wind farm landscape near Dunside reservoir; and
5. **Section 4**: the final section of the route indicates a number of options to route the connection over the last few kilometres of the connection. Although a relatively small and discrete area, there are significant constraints including forestry, private residences, the Glengavel Reservoir and watercourse and turbine offsets (see **Figure 10**) which impact routeing.

7.1.3 Based upon the above sections, the detailed routeing has been appraised section by section in **Table 7.1** below. This table provides a summary analysis of the constraints impacting each section, and provides a comparative review of the different route corridor options available. It therefore provides reasoned justification for the Preferred corridor options which are then taken forward to the Preferred Route.

7.1.4 It is important to note that the route 'edges', as illustrated, do not represent fixed boundaries to routeing. The identification of route options was undertaken to identify the broad geographic area

within which routeing of an OHL was considered to be preferable, relative to other geographic areas. The route options shown are a minimum of 200m in diameter, allowing for flexibility to deal with more details constraints that might emerge.

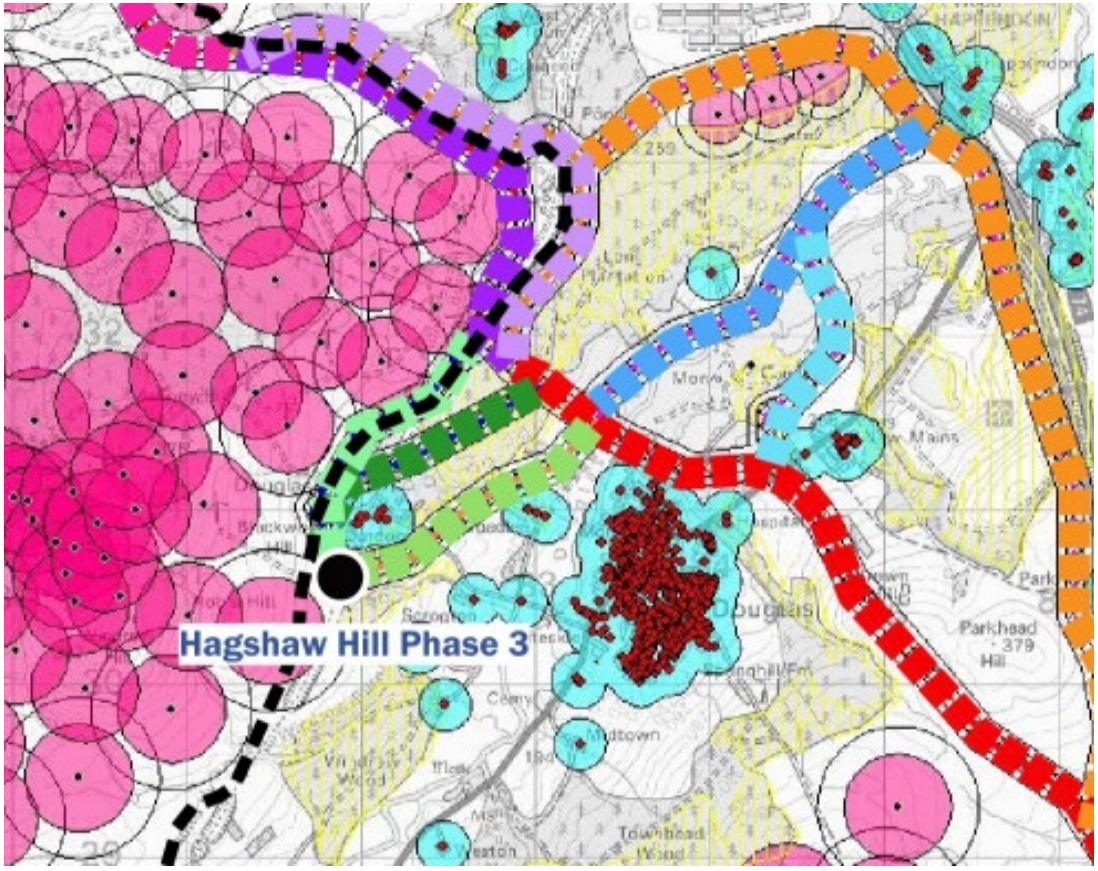
Table 7.1: Detailed Routeing Analysis

Detailed Routeing Considerations	
Route Corridor	**Environmental and Technical Considerations/Constraints**
SECTION 1 ROUTE CORRIDOR OPTIONS	
	This section runs from the proposed Redshaw Substation to broadly where the Hagshaw Tee connection is required to run west. There are two broad options – one which runs to the east, near to the M74, and one which runs to the west, which passes close to Douglas. The easterly option (Corridor 1B) would require a longer connection to the Hagshaw Tee, and is designed to avoid the ancient woodland areas on Poniel Hill, as well as other constraints within the Douglas Water valley. Sub-options exist for this section (Corridors 1B-1 and 1B-2), the use of which will depend on the eventual routeing of section 1 as a whole. **Route Corridor Lengths** Route Corridor 1A: 6.3km. Route Corridor 1B: 8.4km. Route Corridor 1B-1: 2.5km (total length 9.3km). Route Corridor 1B-2: 2.1km (total length 10.4km)

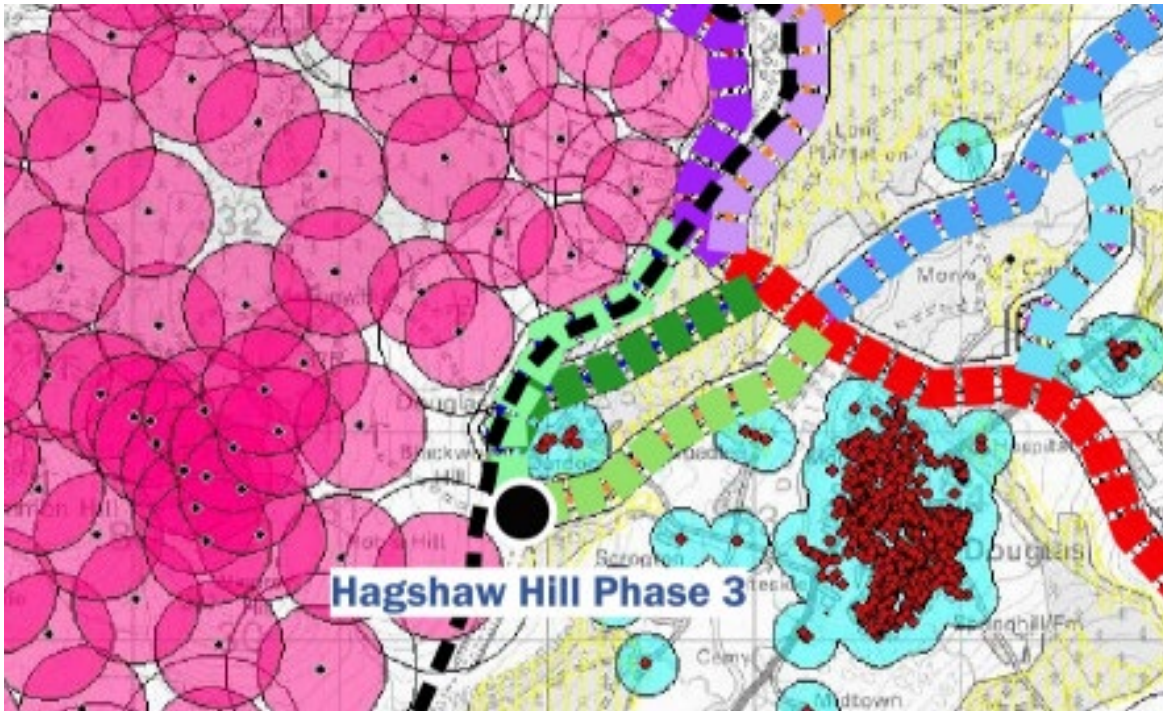
Detailed Routeing Considerations	
Route Corridor	**Environmental and Technical Considerations/Constraints**
Route Corridor 1A 	Travelling north-west from Redshaw Substation, the route passes across open moorland before descending into the valley near Douglas. It then climbs again up Poniel Hill. Key routeing considerations as follows (south to north): • Red Moss SSSI located south of connection point, although can be avoided by routeing northwards out of the Substation, which would be the natural routeing option; • National Cycle Route 74 runs along part of the B7078. Cyclist users will be impacted through changes to their visual amenity and recreational experience; • Residential offsets for both isolated dwellings and the settlement of Douglas, and also dwellings along the A70. Routeing allows offsets to these, although there would be limited flexibility due to other constraints; • Turbine rotor offsets at Pagie Hill are a constraint for parts of the section, but these could be avoided through more detailed routeing; • Residential offsets at Douglas and along the A70 near New Mains are a complex constraint, but routeing can likely overcome this at the detailed level; • Hydrology (waterbodies and watercourse) considerations in the valley need careful routeing to avoid sensitive features. Flooding is a constraint, although not a hard constraint subject to construction practices; • Heritage constraints (Douglas Castle/Dangerous Castle) exist both in Douglas and in the landscape to the west; • Landscape and heritage constraints (Angus and Douglas Park or Ornamental Ground) is a consideration west of Douglas; • The corridor runs through the Douglas Special/Local Landscape Area, and impacts to landscape character, and the features which contribute to this LLA need to be considered. The corridor runs close to Douglas Castle and the ornamental grounds in this regard; • Ancient woodland constraints on Poniel Hill present a significant constraint for a swathe of landscape; • The Kennoxhead Connection is a consideration in terms of potential crossing requirements, although technically a crossing could be achieved in a numb er of potential locations; and • The northern area of Section 1 (within the Douglas Water valley) contains a dense network of Core Paths. Impacts to visual amenity and recreation is a concern in this area, and detailed routeing might be required to minimise this, for example by routeing with a consideration of screening by existing vegetation.

Detailed Routeing Considerations	
Route Corridor	**Environmental and Technical Considerations/Constraints**
Route Corridor 1B	Travelling north from Redshaw Substation this corridor crosses then broadly follows the B7078 before dropping elevation near Mainshill towards the motorway junction. The corridor then crosses the A70 and runs north towards the Dewar's facility at Poniel. At this point the corridor breaks west towards Poniel Hill and the wind farm landscape. Key routeing considerations as follows (south to north): • Red Moss SSSI located south of connection point, although can be avoided by routeing northwards out of the Substation, which would be the natural routeing option; • National Cycle Route 74 runs along part of the B7078. Cyclist users will be impacted through changes to their visual amenity and recreational experience; • The corridor avoids the Angus and Douglas ornamental area, and the features which contribute to this (Douglas Castle and grounds), although runs through the Douglas LLA. In running through the east of the LLA, near the motorway and away from the Castle and grounds, impacts would be more limited; • Residential offsets for both isolated dwellings and the settlement of Douglas, and also dwellings along the A70. Routeing allows offsets to these, although there would be limited flexibility due to other constraints; • The Forestry Land Scotland site at Mainshill, which is subject to a Land Management Plan and future public access. This is formerly ancient woodland and is being substantially replanted. It is not yet planted, or open to the public, so is potentially available for routeing without significant forestry impacts; • The route corridor runs through areas of former open cast coal mining at Mainshill and the Dewars facility; • Hydrology (waterbodies and watercourse) considerations in the valley need careful routeing to avoid sensitive features. Flooding is a constraint, although not a hard constraint subject to construction practices; • Ancient woodland constraints on Poniel Hill present a significant constraint for a swathe of landscape; • The Kennoxhead Connection is a consideration in terms of potential crossing requirements, although technically a crossing could be achieved in a numb er of potential locations; and • The turbines at the Dewar's facility have been withdrawn (as of March 2025) so potentially for a constraint, but could likely be avoided by detailed routeing.
Route Corridor 1B-1	Route Corridor 1B-1 provides an alternative route (if following Route 1B) which seeks an earlier westerly extension towards the Hagshaw Hill Repowering Phase 3. This would avoid conflict with the Kennoxhead connection and would avoid a route through the ancient woodland at Poniel Hill for the Hagshaw Tee.

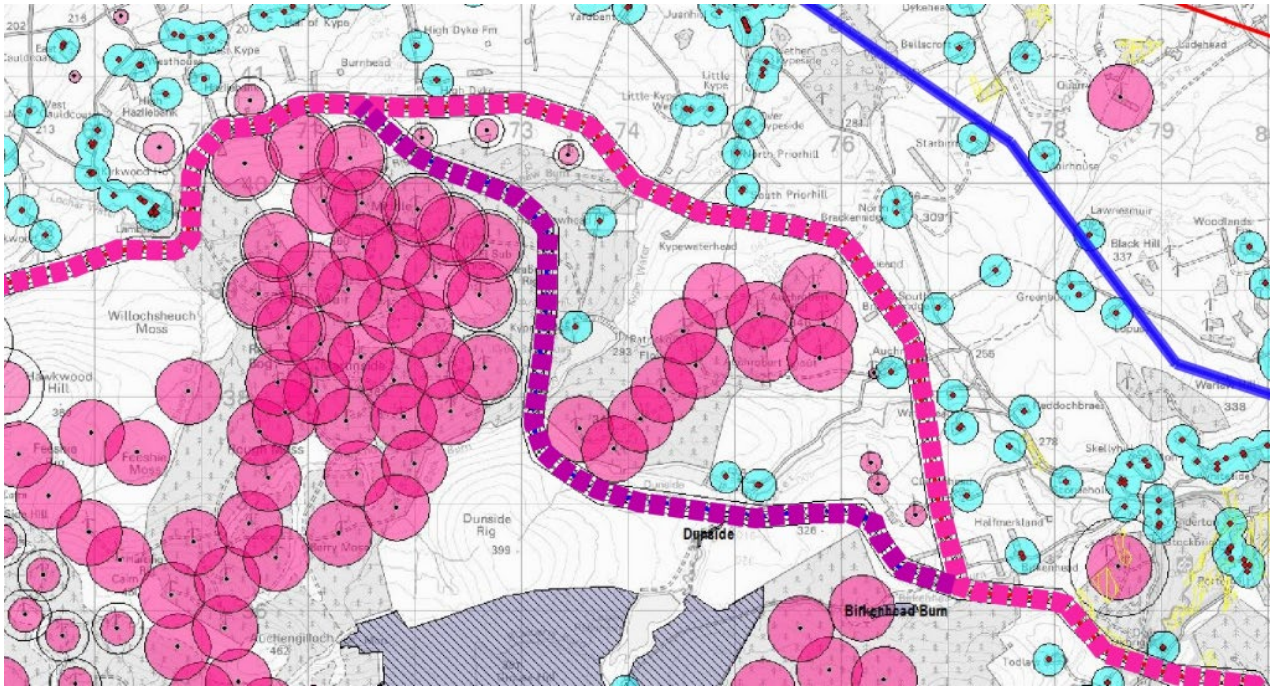
Detailed Routeing Considerations	
Route Corridor	**Environmental and Technical Considerations/Constraints**
	This corridor option could be adopted in association with Route Corridor 1B-2 if a more southerly connection was required between Route Corridor 1A and 1B.
Route Corridor 1B-2	This corridor provides a potential link between Corridors 1A and 1B if avoiding the ancient woodland at Poniel Hill is required for the Hagshaw Tee. There is constraint in the form of residential development and mature trees around New Mains which would require careful micrositing, but a route could be progressed with care.
SECTION 1 PREFERENCE Route Corridor 1A is achievable and buildable, however it is constrained by a number of designated and non-designated features. In particular, the ancient woodland and cultural features, residential dwelling offsets and the Kennoxhead Connection. Route Corridor 1A would impact the centre of the Angus and Douglas ornamental grounds and the LLA. Route Corridor 1B is constrained by the FLS feature at Mainshill, and other hydrological features in the Douglas Water valley. Relative to Route Corridor 1A, 1B is less constrained and has more flexibility in terms of detailed route options. It is slightly longer (8.4km versus 6.4km) than Route Corridor 1A, but not materially so. The corridor would avoid the ornamental grounds but would impact the LLA, although in the lowest sensitivity part next to the motorway. Route Corridor 1B-1 would be preferred if Route Corridor 1B was selected over Route Corridor 1A. Route Corridor 1B-2 could be utilised dependent on other routeing options, although careful micrositing required at New Mains. **Overall, Route Corridor 1B (without using Corridors 1B-1 and 1B-2) is preferred.**	

Detailed Routeing Considerations	
Route Corridor	**Environmental and Technical Considerations/Constraints**
SECTION 2 ROUTE CORRIDOR OPTIONS	
	This short section provides options in relation to the proposed Kennoxhead grid connection, which needs to be crossed by the Proposed Development at some point. Options allow for a more northerly or more southerly crossing, with the location for this dependent on the option selected for Section 1. **Route Corridor Lengths** Route Corridor 2A: 3km Route Corridor 2B: 3.2km

Detailed Routeing Considerations	
Route Corridor	**Environmental and Technical Considerations/Constraints**
Route Corridor 2A	Route Corridor 2A provides a connection from Route Corridor 1A (red) which crosses the Kennoxhead connection earlier (than 2B) and runs in proximity to the turbines and to the west of the Kennoxhead route. The main constraint for this section is the requirement for 3 rotor diameter offsets to existing wind turbines. Some conflict with this constraint is inevitable but is likely to be technically available with careful micrositing. Running west of the Kennoxhead connection earlier avoids some environmental constraints to the east and south of the Kennoxhead connection (hydrology and woodland) – and in particular the ancient woodland immediately adjacent to the Kennoxhead connection.
Route Corridor 2B	Route Corridor 2B runs east of the Kennoxhed connection and in doing so avoids potential conflict with the turbine rotor offsets to the west of the Kennoxhead connection. Some other constraints exist to the east of the route, although micrositing could avoid any conflict.
SECTION 2 PREFERENCE There is not a great deal of difference between the route options in terms of conflict with routeing considerations. Route Corridor 2A Would be the preferred option if Route Corridor 1A was part of the routeing without using Route Corridors 1B-1 and 1B-2. Route Corridor 2B would be the preferred option if Route Corridor 1B was selected in preference to Route Corridor 1A, without the use of Route Corridors 1B-1 or 1B-2. **The final preferred route option in this area will be dependent on detailed routeing and the preferred solution for Section 1. Based upon the current preference for Route Corridor 1B, either Route Corridor Option 2A or 2B could be preferred. This allows greater flexibility for the Hagshaw Tee routeing.**	

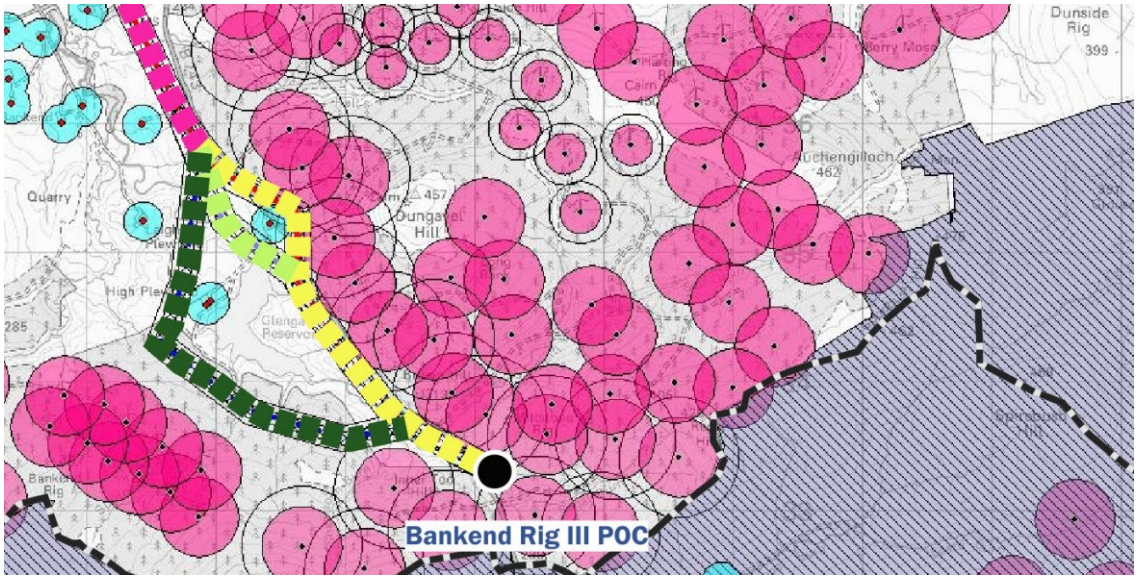
Detailed Routeing Considerations	
Route Corridor	**Environmental and Technical Considerations/Constraints**
HAGSHAW TEE ROUTE CORRIDOR OPTIONS	
	Three options exist to connect the principal route to the Hagshaw Repowering Phase 3 Substation, with the selection broadly dependent on the route corridor selected for Sections 1 and 2. Constraints in this area are focused on private residences, the Kennoxhead connection and wind turbine offsets. All route corridor options are broadly the same length.
Hagshaw Tee Corridor 1	This is the most southerly route option and follows open ground before passing the residential properties at Broadlea and breaking through the narrow strip of ancient woodland along the Broadlea Burn. The route then follows west of the dwellings at Scrogton and passes through further ancient woodland to the Hagshaw Hill Repowering Phase 3 Substation.

Detailed Routeing Considerations	
Route Corridor	**Environmental and Technical Considerations/Constraints**
Hagshaw Tee Corridor 2	This route heads west from Route 1A (or 1B with a southerly extension) and passes through the ancient woodland at Douglas West, before passing to the north of the Outdoor Centre and dwellings here. Some of this woodland has recently been felled and a route through can likely be achieved, although there would be some impacts. Aside from the ancient woodland and residences, proximity to the Kennoxhead connection (and other energy infrastructure) is the main constraint. The Route Corridor runs south of the proposed Kennoxhead connection, parallel to it to limit wider impacts.
Hagshaw Tee Corridor 3	This option joins Route 1A (red) further north than Hagshaw Tee Corridors 2 and 3, and therefore avoids additional impacts to ancient woodland (than would be required for Route 1A). The corridor is constrained by proximity to the proposed Kennoxhead connection and residences, but detailed routeing would be able to avoid significant conflict.
HAGSHAW TEE ROUTE CORRIDOR PREFERENCE Hagshaw Tee Corridor 1 would be an option if Route 1A (red) was adopted either in combination or not with Route Corridors 1B-1 or 1B-2. Would be preferred to Hagshaw Tee option 2 and 3 if proximity to dwellings at Douglas West and Kennoxhead restricted routeing. Hagshaw Tee Corridor 1 Is not preferred currently due to Corridor 1B being preferred but could be if 1B-1 was selected at a future date. Dependent on the ability to route between the residences and the Kennoxhead connection Hagshaw Tee Corridor 2 would be preferable to Hagshaw Tee Corridor 1, but not Hagshaw Tee Corridor Option 3. This corridor is not preferred currently due to Corridor 1B being preferred, but could be if 1B-1 was selected at a future date. **Hagshaw Tee Corridor 3 is preferred currently due to Route 1B being the preferred for Section 1, in cpombination with weither Corridors 2A or 2B. The option would also be preferred if adopting Route 1A to Poniel Hill and if detailed routeing could avoid the Kennoxhead connection and dwellings at Douglas West.**	

Detailed Routeing Considerations	
Route Corridor	**Environmental and Technical Considerations/Constraints**
SECTION 3 ROUTE CORRIDOR OPTIONS	
	This long section of the route runs from the point of crossing the Kennoxhead connection to a location north of Glengavel Reservoir near the Bankend Rig III Collector Substation. Whilst there is one principal option which runs around the transitional zone between the higher wind farm landscape and the more settled agricultural land on the lower land, there is an option which runs further into the wind farm landscape near Dunside reservoir. **Route Corridor Lengths** Route Corridor 3A: 24.5km. Route Corridor 3B: 25km.

Detailed Routeing Considerations	
Route Corridor	**Environmental and Technical Considerations/Constraints**
Route Corridor 3A	This route corridor option runs from Poniel Hill to near Glengavel Reservoir and is the longest section of the proposed route. There is a single route option between Poniel Hill and Birkenhead Burn (c.4.5km), and a single route option between Middlerig and Glengavel Reservoir (c.10km). Constraints affecting these sections of the route include the following: • To the south near Poniel Hill there are turbines associated with the wind farm landscape to the west, which means the route would need to run outside of the wind farm development area; • In addition to the conglomeration of large wind farms, there are also a large number of smaller, farm scale turbines spread throughout the transitional area where the route is proposed, and offsets to these is also a constraint which has required detailed consideration; • Areas of historic coal mining are located within the wind farm area and around Coalburn. Ground surveys will likely be required, but these areas aren't generally a hard constraint to routeing; • With the settlement and Coalburn and agricultural character of the landscape, residential dwellings are spread across the area, but largely in an isolated pattern which allows routeing to avoid the nominated offset; • Hydrology (waterbodies and watercourse) considerations in the valley need careful routeing to avoid sensitive features. Flooding is a constraint, although not a hard constraint subject to construction practices; and • The southern area of Section 3 contains a dense network of Core Paths. Impacts to visual amenity and recreation is a concern in this area, and detailed routeing might be required to minimise this, for example by routeing with a consideration of screening by existing vegetation.
Route Corridor 3B	This corridor runs westwards from Birkenhead Burn towards the moorland around Dunside Reservoir. It avoids the reservoir and designated areas, and the turbine offsets and dwelling offsets. Other constraints exist as follows: • The corridor runs at a much higher elevation than Corridor 3A, and some of the corridor is marginally above 350m; • The corridor is nearer to the protected landscapes to the south-west, and the moorland and reservoir is likely to support greater presence of ecological and ornithological protected species; • The route corridor runs in close proximity to the Dunside SSSI; • There are areas of peat in the moorland around the Dunside reservoir;

Detailed Routeing Considerations	
Route Corridor	**Environmental and Technical Considerations/Constraints**
	• Being more remote, and away from the pastoral transition zone, the route has the potential to result in elevated visual impacts to those using the elevated areas for recreation; and • Between the wind farms at Auchrobert and Kype Muir the route corridor would need to run through areas of commercial forestry.
ROUTE CORRIDOR 3 PREFERENCE Route Corridor 3A is constrained along its length by existing wind energy infrastructure, both commercial and farm scale, and residential buffers. Along with relatively 'typical' and manageable constraints in terms of hydrology and recreation, this route option is not constrained by high value constraints. Whilst a potential route option exists for Route Corridor 3B, it is constrained by the same factors as Route Corridor 3A, as well as elevation, landcover type, forestry constraints. **Route Corridor 3A is preferred to option 3B due to the ability to stay at a lower elevation and avoid potentially sensitive moorland areas near Dunside.**	

Detailed Routeing Considerations	
Route Corridor	**Environmental and Technical Considerations/Constraints**
SECTION 4 ROUTE CORRIDOR OPTIONS	
	The final section of the route indicates a number of options to route the connection over the last few kilometres of the connection. Although a relatively small and discrete area, there are significant constraints including forestry, private residences, the Glengavel Reservoir and watercourse and turbine offsets (see Figure 10) which impact routeing. **Route Corridor Lengths** Route Corridor 4A: 3.6km. Route Corridor 4B: 3.4km. Route Corridor 4B-1: 1.3km (total length 3.2km).
Route Corridor 4A	This route breaks south near to Laigh Plewland and heads away from the road and across the Glengavel Burn north of Glengavel Reservoir. It crosses open ground towards the forested area, before following the woodland back to the road and the Bankend Rig III wind farm. In routeing away from the road, the corridor avoids the significant turbine offset constraints present here, although is exposed to hydrological and woodland constraints as a result. In crossing the open landscape surrounding the watercourse, the route corridor is also constrained by potential visual and hydrological impacts. The route would, however, be backclothed by falling ground and the areas of forestry when viewed from the road, lessening impacts. As for all route options in this area, the route will need to address turbine offsets for the final few hundred metres of the corridor.

Detailed Routeing Considerations	
Route Corridor	**Environmental and Technical Considerations/Constraints**
Route Corridor 4B	Route 4B follows the line of the road and is impacted by turbine offset constraints along its entire route. There are also residential offsets to consider and impacts upon visual amenity for those using the road. This is not a viable option if strict adherence to the turbine offsets is followed, and further technical input (or undergrounding) would be required. As for all route options in this area, the route will need to address turbine offsets for the final few hundred metres of the routeing.
Route Corridor 4B-1	This sub option seeks to avoid some of the turbine offsets and also the residential offset at Glengavel House. In doing so it oversails an arm of the Glengavel Reservoir, and potentially affects ornithology receptors using the waterbody and watercourse. As for Corridor 4B, visual impacts upon road users is also a constraint. As for Corridor 4B, this is not a viable option if strict adherence to the turbine offsets is followed, and further technical input (or undergrounding) would be required. As for all route options in this area, the route will need to address turbine offsets for the final few hundred metres of the routeing.
ROUTE CORRIDOR 4 PREFERENCE In moving away from the road Route Corridor 4A avoids a number of the more fixed constraints (e.g. turbine offsets), but it results in a longer route and one which impacts an open landscape with potential hydrological constraints. Route Corridor 4B is preferable to 4A in terms of impact to the open landscape and hydrology, although is likely to be unavoidably constrained by turbine offsets. Route Corridor 4B-1 is equally acceptable to 4B, although faces different constraints (turbine offsets versus hydrological/ ornithological constraints). **Route Corridor 4A is preferred at this point due to the likelihood of unavoidable turbine offset constraints for corridors 4B and 4B-1.**	

7.2 Summary of Route Corridor Appraisal

7.2.1 The above review of route corridors sets out the detail of each one with reference to the range of considerations against which the acceptability of a route corridor is judged. It is clear from this review that whilst many of the corridors can be rated similarly against one or more of the considerations, there are some corridors that 'score' better against one or more criteria.

7.2.2 Based upon the analysis above, the Preferred Route for the proposed grid connection will include the following section preferences, as illustrated on **Figure 15**:

- Section 1B;
- Section 2A/2B – either could work with Option 1B;
- Hagshaw Tee Option 3;
- Section 3A; and
- Section 4A.

08. Identification and Appraisal of the Preferred Route

8. Stage 4: Identification and Appraisal of the Preferred Route

8.1.1 The total length of the Preferred Route shown **Figure 15** is c.41km – this comprises 38km for the main route and 3km for the Hagshaw Tee. This route (and sub options that exist) is to be adopted as the Preferred Route for the purposes of consultation and until such time as this is revised to form the Proposed Route.

8.1.2 The Preferred Route has been identified following a systematic process of addressing the range of technical, environmental and economic constraints within the RSA and in line with the guidance provided by the Holford Rules (and their appendices) and the routeing strategy identified for use on this project.

8.1.3 In passing through an environment that contains little in the way of urban settlement or population (except around Douglas and Coalburn), and in this sense has a predominantly rural character, the Preferred Route, as per any new infrastructure development of around 38km in length, will result in a number of potential residual environmental effects. In following the systematic and hierarchical routeing process adopted, the extent of residual effects has been minimised as far as possible. The principal residual effects of the Preferred Route, as described above, and illustrated on **Figure 15**, are summarised below with reference to the area of the environment potentially affected.

8.2 Landscape and Visual

8.2.1 The key issues in relation to landscape and visual matters in relation to the Preferred Route are potential impacts to landscape character and fabric, to landscape designations and as a result of changes to people's visual amenity as they live or work within the area.

8.2.2 Landscape character effects will occur through changes to the perception of the landscape through changes brought about by the introduction of the OHL into the landscape. In the area through which the Preferred Route runs there already exists a relatively extensive network of electrical infrastructure, and wind farms are a common feature. This serves to reduce the susceptibility of the landscape and helps minimises effects. The main area of landscape change will be within the Douglas Valley LLA, although impacts have been minimised by routeing the Preferred Route to the east, near the line of the M74, and not through the central areas of the LLA near Douglas Castle.

8.2.3 Impacts upon visual amenity will be limited by a number of factors, including the existing presence of electrical infrastructure and the relatively small scale of the proposals, and the inherent ability to backcloth the OHL in many areas. Areas of woodland and large trees will also offer some filtering and screening of the proposals in those areas most densely populated. The Core Path network near Douglas will experience visual change, and some effects, but again, the valley landscapes will allow the OHL to be backclothed in many areas, reducing perceptibility.

8.3 Cultural Heritage and Archaeology

8.3.1 In terms of high value cultural heritage assets, the preferred route does not contain any scheduled monuments, category A, or category B listed buildings, designated landscapes, or registered battlefields. Although the Preferred Route does pass around 150m of two category B listed buildings, these are within the Douglas area, and close to the M74, and are subject to existing OHL and other visual disturbances. The Preferred Route is at a distance of c.2.8km from a registered battlefield, and would not have the potential to affect its significance. Finally, the Preferred Route does not contain any archaeological features which have a high probability to be of a national level of importance.

8.3.2 In terms of other cultural resources, the preferred route does not contain any category C listed buildings, or conservation areas. Although the route passes within c.470m and c.170m of two category C listed buildings, these are within areas already subject to a number of visual disturbances. The route also contains 20 HER features, none of which are assessed as having the potential to be of a national level of importance. Micrositing will likely avoid impacts to these features, where feasible.

8.4 Forestry and Woodland

8.4.1 The Preferred Route avoids significant areas of commercial woodland in the southern parts of the route, and also to the north near Kype Muir. The route runs through the former Mainshill opencast coal mining area to the east of Douglas, which is the subject to a Forestry Management Plan produced by Forestry Land Scotland. This area has not yet been planted. The Preferred Route avoids the areas of ancient woodland north of Douglas at Poniel Hill by routeing around the north near the Dewars facility.

8.4.2 The Preferred Route runs in close proximity to small areas of woodland and mature trees to the north of Douglas, and detailed routeing would enable these conflicts to be minimised or even avoided entirely.

8.5 Human Health

8.5.1 The Preferred Route would pass close to a small number of residential properties, with the closest likely to be those to the west of Douglas, to the south of Coalburn. In the context of the overall route, the potential effect on residences is considered to be limited, although close consideration of SPEN's trigger for consideration zone will be required when routeing at the detailed level. Furthermore, proximity to dwellings is not the only factor to consider; even though these properties may be close to the OHL, there may be screening, topography or other factors that result in any effects experienced being of a limited magnitude.

8.6 Residential Amenity

8.6.1 The route would pass close to a number of residential properties, with the closest likely to be those at Coalburn, within the agricultural landscape between Coalburn and Sandford/Strathaven and to the north-west near Glengavel. In the context of the overall route, the potential effect on residences is considered to be limited, although close consideration of SPEN's trigger for consideration zone will be required when routeing at the detailed level. Furthermore, proximity to dwellings is not the only factor to consider; even though these properties may be close to the OHL, there may be screening, topography or other factors that result in any effects experienced being of a limited magnitude.

8.7 Socio-economic and Tourism

8.7.1 The Preferred Route avoids passing through settlements within the study area. However, it does pass within close proximity to Coalburn although the effects of the route on residential properties is considered to be limited. The route passes in close proximity to Douglas but it is considered unlikely that this route would have a significant effect on residential properties or tourism assets.

8.8 Hydrological Issues

8.8.1 The preferred route crosses multiple watercourses. These include:

- The Douglas Water;
- The Poneil Water;
- The River Nethan;
- The Birkenhead Burn;
- The Logan Water;
- The Kype Water;
- The Lochar Water;
- The Dykes Burn;
- The Hall's Burn;
- The Glengavel Water; and
- The Powbrone Burn.

8.8.2 Crossings also occur over numerous small, unnamed watercourses, including tributaries to the Birkenhead Burn, the Lochar Water, the Marrow Burn, the Avon Water, the Hall's Burn, the Glengavel Water, and to the Glengavel Reservoir.

8.8.3 Connection into the existing network via this route may be located within the functional floodplain of the Douglas Water. However, little out of bank flooding is indicated for the rest of the watercourses, with flood waters contained within a narrow functional floodplain.

8.9 Transport

8.9.1 The Preferred Route has good connectivity to the existing road network and access tracks when compared to other route options. The Preferred Route benefits from being in proximity to the B70678, A70, B743 and the B7086 roads making accessing the Proposed Route easier. Away from the B Roads there is a good network of existing track accesses that would also be of benefit to the site.

8.10 Noise

8.10.1 The Preferred Route passes through predominantly rural areas and is not in particularly close proximity to residential properties, assuming the standard SPEN offset is maintained. However, the route has the possibility of passing close to Coalburn which is a more densely populated area. If the route is not suitably located at the detailed stage there is potential for noise impact to occur due to operation noise. Subject to a detailed review, there appears to be the opportunity for the Preferred Route to be suitably separated from residential properties and therefore result in negligible noise impact.

8.11 Air Quality

8.11.1 The Preferred Route avoids major settlements within the study area, thus mitigating air quality impacts on sensitive human receptors. The alternative routes run closer to the town of Douglas, but with the appropriate construction phase mitigation this is not likely to provide a constraint. There are a number of sensitive ecological receptors in the study area, and therefore care should be taken to route construction and operational road traffic away from these where possible, to minimise air quality impacts on sensitive ecological receptors.

8.11.2 All air quality monitoring within the vicinity of the site has recorded values below the relevant national objectives in recent years, and DEFRA background concentrations across the study area are below the national objectives.

8.12 Climate Change

8.12.1 The construction phase of the Proposed Development will utilise energy intensive materials (e.g. metals) as well as fossil fuels for construction/plant vehicles. It should also be noted that the construction of the OHL will potentially mean that more areas of woodland may have to be felled which would cause the release of GHGs into the atmosphere as the Preferred Route covers areas of woodland. The Preferred Route would have watercourse crossings which presents the risk of the

OHLs being located in a functional floodplain. The Proposed Developments infrastructure, may therefore, be vulnerable to future climatic flood risk events.

8.13 Ecology and Ornithology

8.13.1 The Preferred Route avoids all known statutory designated ecological sites within the RSA, including the Muirkirk and North Lowther Uplands SPA, classified on account of its important upland bird assemblages; and Airds Moss, Coalburn Moss and Red Moss SACs which are designated on account of the fen/bog habitat they support. The SSSIs which underpin these European designations, and indeed other, unaffiliated SSSIs are also fully avoided.

8.13.2 The Preferred Route has also sought to limit impacts on important habitats such as ancient woodland and bog habitat, with agricultural land/improved grassland predominantly impacted. Where the route does pass through potentially sensitive habitat, it should be possible to avoid significant impacts through micro-siting of the OHL. In any event, all habitat loss will generally be confined to small, discrete areas where the poles will be installed.

8.13.3 Avoiding Muirkirk and North Lowther Uplands SPA will significantly reduce the risk of direct and indirect impacts on internationally important populations of birds. Where the Preferred Route goes up to 500m of habitat that is likely important for protected or notable species, targeted survey work will be undertaken to help inform any necessary micrositing.

8.14 Geology and Ground Conditions

8.14.1 According to the BGS GeoIndex (onshore) viewer, the Route Corridor appears to avoid significant areas of mapped Peat. Alluvium is mapped as being present across part of the Route, mainly confined to river courses and the valley floor around Douglas Water. Small portions across the remainder of the Route will be affected by Alluvium associated with small surface water bodies. Alluvium and Peat are considered to be a compressible ground hazard and potential constraint to OHL foundations.

8.14.2 Superficial deposits (soils) are mapped as being absent across a fairly large area along the southeast portion of the Route (approximately 2km in distance) which suggests that the bedrock is close to (or at) the surface of the ground. Shallow bedrock, Alluvium and Peat, if present, will need to be taken into consideration within the foundation design.

8.14.3 The Route is within a Mining Remediation Authority (formerly known as the Coal Authority) Coal Mining Reporting Area in the area near the settlement of Coalburn, and the eastern portion of the Route passes through a Development High Risk Area (where coal mining hazards are likely to affect development) and where several mine entries are recorded.

09.
Next Steps

9. Next Steps

9.1 Stage 5: Consultation and Refinement

9.1.1 For developments of this nature, it is considered best practice to undertake consultation on the Preferred Route prior to identification of the Proposed Rout. Whilst this RCD takes account of all known environmental constraints in identifying a Preferred Route, more locally available information, or that provided by statutory consultees, can be invaluable in finalising the route detail.

9.1.2 This document forms the main method by which consultation occurs at the early stages of the project, and in order to capture the widest range of possible consultations, this document will be issued to all those consultees listed in Section 10. In addition, public exhibitions will be held during this stage so that the local population can discuss the project with members of the project team.

9.2 Stage 6: Identification of Proposed Route

9.2.1 At the conclusion of the consultation process, a Proposed Route will be selected by SPEN after consideration of:

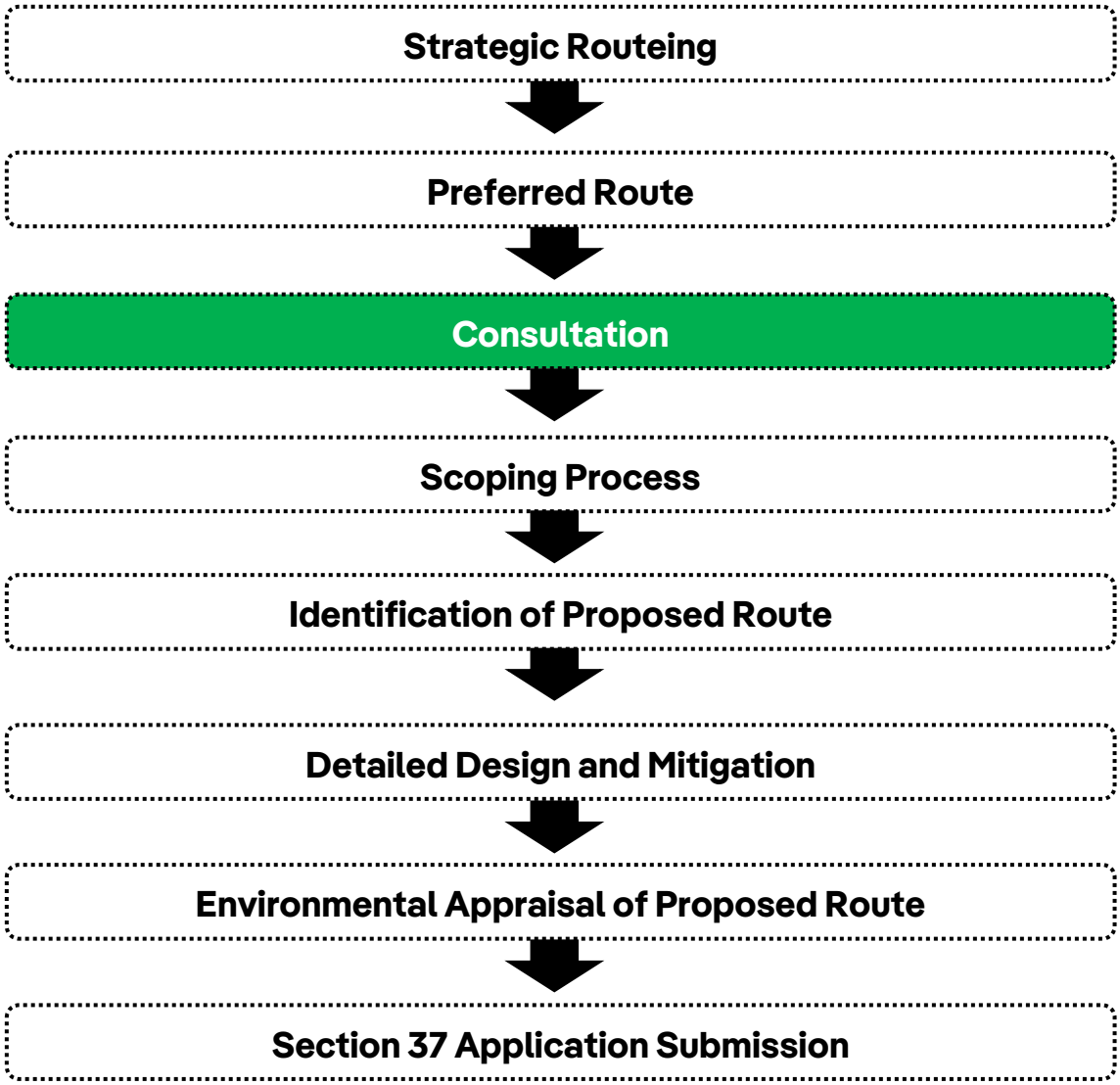
- All the comments and responses made by statutory and other interested parties during the consultation process;
- The appraisal of options considered; and
- Having regard to all other matters SPEN consider relevant.

9.2.2 Following which, SPEN will issue a Scoping Request to the Scottish Ministers under Regulation 7 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000, as amended 2008, for a Scoping Opinion on the information to be included within the EIA Report. The Scoping Request will set out the proposed structure and content of the EIA Report and identify the potential effects on the environment of the Proposed Route.

9.2.3 Either following the receipt of a Scoping Opinion from the Scottish Ministers, or as part of the wider environmental appraisal process, further detailed studies will be undertaken to define the Proposed Route, which will be taken forward for the preparation of the Section 37 application and the EIA.

9.2.4 The EIA Report will report on all the likely environmental effects arising from the construction and operation of the proposed OHLs. The EIA Report will incorporate relevant information from this document and the consultation process. Following further detailed environmental and technical assessment, it may identify local deviations from the Proposed Routes in order to mitigate local effects.

9.2.5 The flow diagram below illustrates this process of route identification and assessment, and identifies the stage reached to date.


Strategic Routeing
Preferred Route
Consultation
Scoping Process
Identification of Proposed Route
Detailed Design and Mitigation
Environmental Appraisal of Proposed Route
Section 37 Application Submission

10. Consultees and Contact Information

10. Consultees and Contact Information

10.1.1 The following table identifies the consultees who have been/will be included in this consultation process. This list seeks to provide a wide range of consultees and stakeholders with the opportunity to understand the proposals and the reason for them. SPEN actively seeks comment from all stakeholders to inform this project.

Table 10.1: Consultees Included in this Consultation Process

Consultee Name
Statutory Consultees
South Lanarkshire Council
Historic Environment Scotland
Nature Scot
SEPA
Scottish Forestry
Internal Scottish Government Advisors
East Ayrshire Council
Transport Scotland
The Coal Authority
Community/Councils
Sandford/Upper Avondale
Douglas
Coalburn
Lesmahagow
Non Statutory
Fisheries Management Scotland
Scottish Water
Scottish Wildlife Trust
Scottish Wild Land Group
The Coal Authority
West of Scotland Archaeology Service
British Horse Society

Consultee Name
BT
Civil Aviation Authority
Defence Infrastructure Organisations
Scottish Badgers
Game & Wildlife Conversation Trust
Garden History Association
John Muir Trust
National Farmers Union of Scotland
NATS Safeguarding
National Trust for Scotland
Network Rail
Ramblers Association (Scotland)
Red Squirrels in Scotland
Scottish Outdoor Access Network (SOAN)
Scottish Rights of Way and Access Society (ScotWays)
Sustrains Scotland
Crown Estate Scotland
The Woodland Trust
Visit Scotland
RSPB
Ward Councillors for.
Clydesdale South
Avondale and Stonehouse
MPs for.
Dumfriesshire, Clydesdale and Tweeddale
East Kilbride and Strathaven
MSPs for.
South Scotland

10.2 Who to Contact?

10.2.1 If you would like to comment on any aspect of this scheme, please contact:

Redshaw to Bankend Rig Project Manager
Land and Planning Team
SP Energy Networks
55 Fullarton Drive
Glasgow
G32 8FA

10.2.2 Or alternatively, please email us at:

RedshawToBankendRig@spenergynetworks.co.uk

10.2.3 SPEN would seek comment and responses on the 'Preferred Route' described within this RCD by 26 May 2025. These should be made to the addresses provided above, or at the Consultation Events detailed below.

Table 10.2: Consultation Events

Date	Location
Wednesday 30 April, 2pm to 7pm	Sandford Village Hall, Strathaven Road, **Sandford**, Strathaven, ML10 6PE
Thursday 01 May, 1.30pm to 6.30pm	St Brides Centre, Braehead, **Douglas**, Lanark, ML11 0PT

10.2.4 Copies of this document are also available to download at:

https://www.spenergynetworks.co.uk/pages/redshaw_to_bankend_rig.aspx

A1.
The Holford Rules

11. Appendix 1 – The Holford Rules: Guidelines for the Routeing of New High Voltage Overhead Transmission Lines with NGC 1992 and SHETL 2003 Notes Rules

11.1 The Holford Rules

Rule 1

11.1.1 Avoid altogether, if possible, the major areas of highest amenity value, by so planning the general route of the line in the first place, even if the total mileage is somewhat increased in consequence.

Note on Rule 1

a) Investigate the possibility of alternative routes, avoiding altogether, if possible major areas of highest amenity value. The consideration of alternative routes must be an integral feature of environmental statements. If there is an existing transmission line through a major area of highest amenity value and the surrounding land use has to some extent adjusted to its presence, particularly in the case of commercial forestry, then the effect of remaining on this route must be considered in terms of the effect of a new route avoiding the area; and

b) Areas of highest amenity value require to be established on a project-by-project basis considering Schedule 9 to The Electricity Act 1989, Scottish Planning Policies, National Planning Policy Guidelines (NPPG), Circulars and Planning Advice Notes and the spatial extent of areas identified.

11.1.2 Examples of areas of highest amenity value which should be considered are

- Special Area of Conservation (NPPG 14);
- Special Protection Area (NPPG 14);
- Ramsar Site (NPPG 14);
- National Scenic Areas (NPPG 14);
- National Parks (NPPG 14);
- National Nature Reserves (NPPG 14);
- Protected Coastal Zone Designations (NPPG 13);
- Sites of Special Scientific Interest (SSSI) (NPPG 14);
- Schedule of Ancient Monuments (NPPG 5);
- Listed Buildings (NPPG 18);
- Conservation Areas (NPPG 18);

- World Heritage Sites (a non-statutory designation) (NPPG 18); and
- Historic Gardens and Designed Landscapes (a non-statutory designation) (NPPG 18).

Rule 2

11.1.3 Avoid smaller areas of high amenity value, or scientific interest by deviation; provided that this can be done without using too many angle towers, i.e. the more massive structures which are used when lines change direction.

Note on Rule 2

a) Small areas of highest amenity value not included in Rule 1 as a result of their spatial extent should be identified along with other areas of regional or local high amenity value identified from development plans;

b) Effects on the setting of historic buildings and other cultural heritage features should be minimised; and

c) If there is an existing transmission line through an area of high amenity value and the surrounding land uses have to some extent adjusted to its presence, particularly in the case of commercial forestry, then the effect of remaining on this line must be considered in terms of the effect of a new route deviating around the area.

Rule 3

11.1.4 Other things being equal, choose the most direct line, with no sharp changes of direction and thus with few angle towers.

Note on Rule 3

a) Where possible choose inconspicuous locations for angle towers, terminal towers and sealing end compounds; and

b) Too few angles on flat landscape can also lead to visual intrusion through very long straight lines of towers, particularly when seen nearly along the line.

Rule 4

11.1.5 Choose tree and hill backgrounds in preference to sky backgrounds, wherever possible; and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity.

11.1.6 Where it does not, cross directly, preferably between belts of trees.

Rule 5

11.1.7 Prefer moderately open valleys with woods where the apparent height of towers will be reduced, and views of the line will be broken by trees.

Notes on Rules 4 and 5

a) Utilise background and foreground features to reduce the apparent height and domination of towers from main viewpoints;

b) Minimise the exposure of numbers of towers on prominent ridges and skylines;

c) Where possible follow open space and run alongside, not through woodland or commercial forestry, and consider opportunities for skirting edges of copses and woods. Where there is no reasonable alternative to cutting through woodland or commercial forestry, the Forestry Commission Guidelines should be followed (Forest Landscape Design Guidelines, second edition, The Forestry Commission 1994 and Forest Design Planning – A Guide to Good Practice, Simon Bell/The Forest Authority 1998); and

d) Protect existing vegetation, including woodland and hedgerows, and safeguard visual and ecological links with the surrounding landscape.

Rule 6

11.1.8 In country which is flat and sparsely planted, keep the high voltage lines as far as possible independent of smaller lines, converging routes, distribution poles and other masts, wires and cables, so as to avoid a concatenation or 'wirescape'.

Note on Rule 6

a) In all locations minimise confusing appearance; and

b) Arrange wherever practicable that parallel or closely related routes are planned with tower types, spans and conductors forming a coherent appearance. Where routes need to diverge allow, where practicable, sufficient separation to limit the effects on properties and features between lines.

Rule 7

11.1.9 Approach urban areas through industrial zones, where they exist; and when pleasant residential and recreational land intervenes between the approach line and the Substation, go carefully into the comparative costs of undergrounding, for lines other than those of the highest voltage.

Note on Rule 7

a) When a line needs to pass through a development area, route it so as to minimise as far as possible the effect on development;

b) Alignments should be chosen after consideration of effects on the amenity of existing development and on proposals for new development; and

c) When siting Substations take account of the effects of the terminal towers and line connections that will need to be made and take advantage of screening features such as ground form and vegetation.

Explanatory Note on Rule 7

11.1.10 The assumption made in Rule 7 is that the highest voltage line is overhead.

Supplementary Notes

a) Residential Areas.

11.1.11 Avoid routeing close to residential areas as far as possible on grounds of general amenity.

b) Designations of Regional and Local Importance.

11.1.12 Where possible choose routes which cause the least disturbance to Areas of Great Landscape Value and other similar designations of Regional or Local Importance.

c) Alternative Lattice Steel Tower Designs.

11.1.13 In addition to adopting appropriate routeing, evaluate where appropriate the use of alternative lattice steel tower designs available where these would be advantageous visually, and where the extra cost can be justified (Note: SHETL have reviewed the visual and landscape arguments for the use of lattice steel towers in Scotland and summarised these in a document titled Overhead Transmission Line Tower Study 2004).

11.2 Further Notes on Clarification to the Holford Rules

Line Routeing and People

11.2.1 The Holford Rules focused on landscape amenity issues for the most part. However, line routeing practice has given greater importance to people, residential areas etc. The following notes are intended to reflect this:

a) Avoid routeing close to residential areas as far as possible on grounds of general amenity;

b) In rural areas avoid as far as possible dominating isolated houses, farms or other small-scale settlements; and

c) Minimise the visual effect perceived by users of roads and public rights of way, paying particular attention to the effects of recreational, tourist and other well-used routes.

11.2.2 Supplementary Notes on the Siting of Substations:

a) Respect areas of high amenity value (see Rule 1) and take advantage of the containment of natural features such as woodland, fitting in with the landscape character of the area;

b) Take advantage of ground form with the appropriate use of site layout and levels to avoid intrusion into surrounding areas;

c) Use space effectively to limit the area required for development, minimizing the effects on existing land use and rights of way;

d) Alternative designs of Substations may also be considered, e.g. 'enclosed', rather than 'open', where additional cost can be justified;

e) Consider the relationship of towers and Substation structures with background and foreground features, to reduce the prominence of structures from main viewpoints; and

f) When siting Substations take account of the effects of line connections that will need to be made.

11.3 Appendix A to the Holford Rules: Interpretation of the Holford Rules 1 and 2 and the notes to Rule 2 regarding the setting of a Scheduled Ancient Monument or a Listed Building

Interpretation of The Holford Rules 1 and 2

Introduction

11.3.1 Rule 1 refers to avoiding major areas of highest amenity value, Rule 2 refers to avoiding smaller areas of high amenity value. These rules therefore require identification of areas of amenity value in terms of highest and high, implying a hierarchy, and the extent of their size(s) or area(s) in terms of major and smaller areas.

11.3.2 The NGC Notes to these rules identify at Rule 1(b) areas of highest amenity value and at Rule 2(a) and (b) of high amenity value that existed in England circa 1992.

Designations

11.3.3 Since 1949, a framework of statutory measures has been developed to safeguard areas of high landscape value and nature conservation interest.

11.3.4 Community Directives on nature conservation, most notably through SAC under the Habitats and Species Directive (92/43/EC) and SPAs under the Conservation of Wild Birds Directive (79/409/EEC) have been implemented. Governments have also designated a number of Ramsar sites under the Ramsar Convention on Wetlands of International Importance (CM6464). Scottish Office circulars 13/1991 and 6/1995 are relevant sources of information and guidance. In addition, a wide range of non-statutory landscape and nature conservation designations affect Scotland.

Amenity

11.3.5 The term 'amenity' is not defined in The Holford Rules but has generally been interpreted as designated areas of scenic, landscape, nature conservation, scientific, architectural or historical interest.

11.3.6 This interpretation is supported by paragraph 3 of the Schedule 9 to the Electricity Act 1989 ('the Act'). Paragraph 3 (1)(a) requires that in formulating any relevant proposals the licence holder must have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiological features of special interest and of protecting sites, buildings including structures and objects of architectural, historic or archaeological interest. Paragraph 3 (1)(b) requires the licence holder to do what he reasonably can do to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any flora, fauna, features, sites, buildings or objects.

Hierarchy of Amenity Value

11.3.7 Rules 1 and 2 imply a hierarchy of amenity value from highest to high.

11.3.8 Schedule 9 to the Act gives no indication of hierarchy of value and there is no suggestion of a hierarchy of value in either NPPG 5: Archaeology and Planning, NPPG 13: Coastal Planning, NPPG 14: Natural Heritage or NPPG 18: Planning and the Historic Environment. Nevertheless, designations give an indication of the level of importance of the interest to be safeguarded.

Major and Smaller Areas

11.3.9 Rules 1 and 2 imply consideration of the spatial extent of the area of amenity in the application of Rules 1 and 2.

Conclusion

11.3.10 Given that both the spatial extent in terms of major and smaller and the amenity value in terms of highest and high that must be considered in applying Rules 1 and 2, that no value in these terms is provided by either Schedule 9 to the Act, relevant Scottish Planning Policies or National Planning Policy Guidelines, then these must be established on a project-by-project basis. Designations can be useful in giving an indication of the level of importance and thus value of the interest safeguarded. The note to The Holford Rules can thus only give examples of the designations which may be considered to be of the highest amenity value.

The Setting of a Scheduled Ancient Monument or a Listed Building

11.3.11 The NGC note to Rule 2 refers to the setting of historic buildings and other cultural heritage features. NPPG 5: Archaeology and Planning refers to the setting of scheduled ancient monuments and NPPG 18: Planning and the Historic Environment refers to the setting of Listed Buildings.

11.3.12 None of these documents define setting.

11.4 Appendix B to the Holford Rules: Environmental and Planning Designations – Examples of designations to be taken into account in the routeing of new high voltage transmission lines

Major Areas of Highest Amenity Value

11.4.1 In Scotland relevant national or international designations for major areas of highest amenity value include the following identified from Scottish Planning Policies and National Planning Policy Guidelines:

- Special Areas of Conservation (NPPG 14);
- Special Protection Areas (NPPG 14);
- Ramsar Sites (NPPG 14);
- National Scenic Areas (NPPG 14);
- National Parks (NPPG 14);
- National Nature Reserves (NPPG 14);
- Protected Coastal Zone Designations (NPPG 13);
- Sites of Special Scientific Interest (NPPG 14);
- Scheduled Ancient Monuments (NPPG 5);
- Listed Buildings (NPPG 18);
- Conservation Areas (NPPG 18);
- World Heritage Sites (NPGG 18); and
- Historic Gardens and Designed Landscapes (NPPG 18).

Other Smaller Areas of High Amenity Value

11.4.2 There are other designations identified in development plans of local planning authorities which include areas of high amenity value:-

- Areas of Great Landscape Value;
- Regional Scenic Areas;
- Regional Parks; and
- Country Parks.

11.4.3 The nature of the landscape in these areas is such that some parts may also be sensitive to intrusion by high voltage overhead transmission lines but it is likely that less weight would be given to these areas than to National Scenic Areas and National Parks.

Flora and Fauna

11.4.4 Legislation sets out the procedure for designation of areas relating to flora, fauna and to geographical and physiogeographical features. Designations relevant to the routeing of transmission lines will include SACs, SPAs, SSSIs, NNRs, Ramsar Sites and may also include local designations such as Local Nature Reserves.

Area of Historic, Archaeological or Architectural Value

11.4.5 Certain designations covering more limited areas are of relevance to the protection of views and the settings of towns, villages, buildings of historic, archaeological or architectural value. These designations include features which may be of exceptional interest. Of particular importance in this connection are:

- Schedule of Ancient Monuments;
- Listed Buildings, especially Grade A and Grade B;
- Conservation Areas; and
- Gardens and Designed Landscapes included in the Inventory of Gardens and Designed Landscapes of Scotland.

Green Belts

11.4.6 Generally the purposes of Green Belts are not directly concerned with the quality of the landscape.

A2. Forestry Commission Routeing Guidance

12. Appendix 2 – The Forestry Commission guidance on routeing OHLs

12.1.1 Route transmission lines to follow open space and to run alongside, not through, woodland.

12.1.2 Where there is no alternative route; a power line through the forest should:

- Avoid areas of landscape sensitivity;
- Avoid the line of sight of important views;
- Be kept in valleys and depressions;
- Not divide a hill into two similar parts where it crosses over a summit;
- Cross skyline or ridges where they drop to a low point;
- Follow alignment diagonal to the contour as far as possible; and
- Be inflected upwards in hollows and downwards on ridges.

12.1.3 In the design of the transmission line corridor, the transmission line within forests should seem to pass through a series of irregular spaces. The forest should appear to meet across the open space in some places so that the corridor does not split the forest completely. The aim should be a corridor of varying character and width, swinging from one side of the line to the other, taking care to avoid irregular but symmetrical spaces. Exit points should be gently asymmetrical bell-mouths. Felling areas should be planned to link with and across the power line corridor and create greater irregularity.

A3.
Detailed Baseline Information

13. Appendix 3 – Detailed Baseline Information

13.1 Landscape Character

13.1.1 The Key Characteristics of the key Landscape Character Types (LCTs) within the RSA are set out below.

LCT 69 Upland River Valleys - Ayrshire

13.1.2 The Upland River Valleys - Ayrshire Landscape Character Type occurs in five places in Ayrshire, focused to the central eastern extents of the region in East Ayrshire. The rim of hills which surrounds the Ayrshire agricultural lowlands is cut by a series of medium sized river valleys - the Doon, Nith, Glenmuir, Ayr and lrvine. Although each has its own distinctive character, they share a number of common characteristics, largely as a result of their scale and the strong sense of enclosure provided by surrounding uplands. The key characteristics of this LCT are summarised below:

- *"Varying river valley landform with broad open sections which contrast with steeper valley slopes and narrow, more enclosed valleys.*
- *Varied underlying geology which includes sandstone, millstone, coal measures and a volcanic plug, Loudoun Hill, which forms a distinctive landmark from the Upper Irvine Valley.*
- *Characterised by moorland vegetation, with increasing amounts of improved pasture on lower slopes and valley floors.*
- *Confined landscape scale.*
- *Together with adjacent moorlands, these valleys often provide the focus for open- cast coal mining activity.*
- *A focus for industrial settlement in all but the Upper Nithsdale valley, where settlement is scarce, confined to farmsteads on the lower valley slopes.*
- *Often act as a focus for transport routes.*
- *Open views in the broad valley sections, changing to quite enclosed and intimate views within narrow sections."*

LCT 78 Plateau Moorlands – Ayrshire

13.1.3 The Plateau Moorland - Ayrshire Landscape Character Type occurs on the higher ground of eastern and southern Ayrshire. The eastern area extends along the Ayrshire-Lanarkshire boundary, from the Irvine Valley in the north to the Nith Valley at New Cumnock in the south, and is subdivided by areas of the Upland River Valleys. The southern area includes the open and forested moors around Glen App and Barr Hill, on the boundary of Dumfries and Galloway. The key characteristics of this LCT are summarised below:

- *"Topography is comparatively level with extensive plateaux rising to soft contoured ridges.*
- *Underlain by basalts to the east and greywackes to the south-west.*
- *Covered by blanket bog, heather and grass moorland, with extensive mosses and peatland forming an important component of this landscape type.*
- *Frequent extensive areas of coniferous forest of uniform age which, in places, have significantly modified the original character of these areas in terms of colour, texture and views.*
- *Largely undeveloped with a sparse network of roads.*
- *Wind farm development on the north-eastern margins.*
- *Open, exposed and rather remote landscape, wild in character, although this is lessened in places by the presence of wind turbines and associated infrastructure.*
- *Views are open and medium to longer distance depending on undulations in the local topography."*

LCT 207 Upland River Valley – Glasgow and Clyde Valley

13.1.4 This LCT covers a swathe of the valley that runs through the central belt of the RSA across South Lanarkshire, extending north-east of Douglas to just beyond the M74 motorway. This LCT is also located in valley areas to the far south-east, as well as in areas to the north and north-west as shown on **Figure 12**. The key characteristics of this LCT are summarised below:

- *"A series of valleys formed along faultlines through the Plateau Moorlands and paired with valleys to the south and west in Ayrshire";*
- *"Strong contrast between the wooded and settled character of the valleys and the exposed enclosing uplands"; and*
- *"Transition from the exposed upper reaches to more sheltered lowland areas".*
- *within narrow sections".*

LCT 213 Plateau Moorlands – Glasgow and Clyde Valley

13.1.5 The Plateau Moorlands – Glasgow and Clyde Valley LCT is contained within South Lanarkshire and covers approximately all of the eastern half of the RSA, except for areas of the upland river valleys LCT described above and a very small area of the Southern Uplands. This LCT also extends across the far north and north-west of the RSA. The Plateau Moorlands are described as having the following key characteristics:

- *"Large scale landform";*
- *"Distinctive upland character created by the combination of elevation, exposure, smooth plateau landform, moorland vegetation";*
- *"Predominant lack of modern development";*
- *"Extensive wind turbine development, including one of the largest wind farms in Scotland"; and*

- *"Sense of apparent naturalness and remoteness which contrasts with the farmed and settled lowlands, although this has been reduced in places by wind energy development".*

LCT 201 Plateau Farmland – Glasgow and Clyde Valley

13.1.6 A very small section to the far north of the RSA is located within the LCT 201 Plateau Farmland – Glasgow and Clyde Valley. The key characteristics of this LCT are summarised below:

- *"Extensive, open, flat or gently undulating landform";*
- *"Limited and declining tree cover";*
- *"Dominance of pastoral farming";*
- *"Visually prominent settlements and activities such as mineral working"; and*
- *"Rural character of the Plateau Farmland has reduced as tree cover has declined and the visual influence of settlements, transport infrastructure and mineral working has increased".*

13.1.7 Given the distribution of these LCTs, as illustrated on **Figure 12**, it is important to consider the susceptibility of those LCTs likely to be impacted by the Proposed Development.

13.1.8 According to the Guidelines for Landscape and Visual Impact Assessment (GLVIA3), susceptibility of the landscape resource is the ability of the landscape receptor (whether it be the overall character or quality/condition of a particular landscape type or area, or an individual element and/or feature, or a particular aesthetic and perceptual aspect) to accommodate the Proposed Development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.

13.1.9 The table below examines the five LCTs comprising the majority of the RSA in terms of their landscape susceptibility, by considering each LCT in turn against the following factors:

- Landform;
- Landcover;
- Settlement and Human Influences;
- Perception; and
- Scale.

Table 13.1: Susceptibility of LCTs

LCT	Susceptibility Factor	LCT Characteristics	Overall Susceptibility
LCT 207 Upland River Valley	**Landform**	Small scale landscape. North-east to south-west orientation along fault lines and contained nature.	Medium – smaller scale, contained landscape is more susceptible to development.

LCT	Susceptibility Factor	LCT Characteristics	Overall Susceptibility
– Glasgow and Clyde Valley	**Landcover**	Loss and decline of mature farm and woodlands which integrates valley floor and sides and contrasts with moorland hills. Characteristics treed field boundaries, small to medium scale woodland belts. Predominantly agricultural, transitioning from arable to lower quality grazing on valley sides.	Low – loss and decline of certain distinctiveness lowers susceptibility.
	Settlement and Human Influences	Settlement is comparatively limited and conurbation influence decreases further south. Includes important transport corridors over moorland hills. Areas of extensive open cast mineral workings (since restored). Wind farm development is appearing on skyline views within the valley.	Low – variety of human influences, including presence of nearby wind farms lower overall susceptibility to new OHL development.
	Perception	Presence of settlement further north which decreases to the south across the valley. South perceived as having wild character.	Low/medium – areas of settlement lower susceptibility to new development. Areas of wild character more susceptible as less human detractors.
	Scale	Contained landscape and clear relationship with surrounding moorlands.	Medium – the landscape and therefore the views are contained to within the valley. Suggests a medium susceptibility.

LCT	Susceptibility Factor	LCT Characteristics	Overall Susceptibility
	Overall, this LCT is considered to have a low/medium susceptibility due to its contained nature which limits views and the experience of the landscape to within the valley. However. existing development including open cast workings, the presence of wind farm infrastructure and the decline of certain characteristic landscape cover lowers the overall susceptibility to new development.		
LCT 69 Upland River Valley - Ayrshire	Landform	Broad and open valley with slopes rising to the plateau moorlands.	Low – open valley landscape with broader scale so suggests lower susceptibility.
	Landcover	Characterised by woodland vegetation on upper slopes, and improved pasture on lower slopes. Agricultural fields defined by hedgerow boundaries, which are slowly deteriorating, weakening contrast between upper and lowland valley slopes. Decline of areas of woodland along the Ayr valley. Open-cast mining within the upland valley slopes.	Low – weakening characteristic elements and decline of areas of woodland suggests lower susceptibility.
	Settlements and Human Influences	Mining on upper slopes has had significant influence on the landscape. Modern open-cast mining is of very different scale to previous extraction, and changes the landscape over a significant area. Main road routes which follow the valley. 19th Century settlement pattern related to previous industrial activity is an important part of the historic landscape.	Low – influence of mining activity has notable influence and lowers susceptibility to new development, as does the presence of key road corridors and pattern of existing settlement.

LCT	Susceptibility Factor	LCT Characteristics	Overall Susceptibility
	Perception	Focus for the development of settlements and transport routes, with the developed character a contrast to the more remote areas within the valleys. Sense of contrast in views, more open views obtainable in broader valley sections compared to areas of more contained views where valley narrows.	Low/medium – Existing development pattern creates notable human presence across the landscape which lowers susceptibility to new OHL development. More remote and wild areas are apparent, which would be more susceptible to development.
	Scale	Broader valley, with more open views across and to adjoining moorland areas.	Low/medium - broad views, with relationship to moorland areas apparent.
	Overall, this LCT has a low susceptibility as the presence of landscape elements such as mining, settlements and key road corridors exert a notable influence on the area which contrasts from the wider rural character beyond, and these act as key detractors which lowers overall susceptibility in regard to new OHL development.		
LCT 213 Plateau Moorlands – Glasgow and Clyde Valley	Landform	Hills are neatly rounded or haven gently sloping ridges. Central plateau moors have less varied topography and more level. LCT is distinguished geologically.	Medium – open landscape will gently sloping ridges and more level topography suggests medium susceptibility.
	Landcover	Blanket bog, heather and grass moorland. Large scale topography, with farmland on lower slopes. Open and exposed character.	Low – large scale, open character suggests lower susceptibility.

LCT	Susceptibility Factor	LCT Characteristics	Overall Susceptibility
	Settlement and Human Influences	Mostly sparse settlement pattern. Significant wind farm development across the area.	Low/medium – sparse settlement pattern suggests minimal human influences present, however introduction of recent wind farm development lowers overall susceptibility.
	Perception	Exposed and relatively remote character. Wind farms have reduced the perception of undeveloped character. Number of man-made features visible, particularly road corridors and electrical infrastructure.	Low – large areas of open and remote character and areas of recent development visible across the LCT, including wind farms. Lower the overall susceptibility for this LCT.
	Scale	Large scale landscape across the moorlands with relatively remote character.	Low - open and expansive views across the plateau, however existing landscape detractors present.
	The susceptibility of this LCT is judged to be low due to the open nature and large scale of the landform having the ability to accommodate development. In addition, the recent wind farm development and presence of existing electrical infrastructure act as detractors to the character of the landscape in regard to new OHL development.		
LCT 78 Plateau Moorlands – Ayrshire	Landform	Extensive ridge to the east separating this LCT with the Clyde basin. Comparatively level topography with extensive plateaux with soft contoured edges.	Low – areas of level topography and soft contoured edges suggest gradual changes in elevation which are of lower susceptibility.
	Landcover	Blanket bog, heather and grass moorland. Open, exposed and rather wild character.	Low – large scale, open character suggests lower susceptibility.

LCT	Susceptibility Factor	LCT Characteristics	Overall Susceptibility
	Settlement and Human Influences	Largely undeveloped morrlands and sparse network of roads.	Low/medium – sparse settlement pattern suggests minimal human influences present, however introduction of recent wind farm development lowers overall susceptibility.
	Perception	Exposed and relatively remote character. Wind farms have reduced the perception of undeveloped character. Number of man-made features visible, particularly road corridors and electrical infrastructure.	Medium/high – addition of new development likely to be visible, as views are open and longer distance across larger areas.
	Scale	Large scale landscape across the moorlands with relatively remote character.	Low - open and expansive views across the plateau, however existing landscape detractors present.
	The susceptibility of this LCT is judged to be medium due to the open nature of the LCT and the lack of existing development creates a landscape that is more susceptible to proposed development including OHLs.		
LCT 201 Plateau Farmland – Glasgow and Clyde Valley	Landform	The landform is predominantly flat, gently sloping or slightly undulating. In contrast to the more sheltered valleys and gorges and the Rolling Farmlands, this is an exposed landscape, the uniformity of landform offering very little shelter from wind.	Medium - Exposure and gently undulating so could accommodate relatively small scale landscape features such as wood pole OHLs.

LCT	Susceptibility Factor	LCT Characteristics	Overall Susceptibility
	Landcover	Agricultural land use is fundamental to the character of this landscape, dominated by pastoral farming consisting mostly of sheep farming with some cattle farming. Some important mosses and patches remain unreclaimed and unimproved.	Medium – semi-pastoral landscape type which in parts would be susceptible. More exposed areas, with less of a pastoral character, would be lower susceptibility.
	Settlement and Human Influences	Settlement in this LCT tends to be sparse and confined to a scatter of farmsteads which are often identifiable from a distance by their sheltering woodlands.	Medium – slightly more settled than other areas so a slightly higher susceptibility.
	Perception	There are wide views across this open, transitional LCT, but few visual foci. The area appears in the foreground when seen in views from or towards adjacent moorland and hills. The edges of this landscape are visible from within the Clyde Valley, forming the backdrop to the valley lowlands. There are some rural areas which have a tranquil character.	Medium – undulating landscapes are more able to accommodate OHLs of this scale, which are also of typical scale in transitional landscapes.
	Scale	A medium scale landscape, with some areas which are open and exposed and some which are more pastoral.	Medium – LCT within the RSA is associated with conurbation.
	The susceptibility of this LCT is judged to be medium due to the semi-exposed character, elevated sense of pastoral character and transitional nature.		

13.2 Residential Amenity

13.2.1 For there to be visual effects there has to be visual receptors, usually people whose visual amenity may be affected by a proposed development, either in their homes or outside, whether travelling or recreating, or simply enjoying the view.

13.2.2 Generally, topography dictates the nature of views for OHLs, especially in upland, mountainous or rolling landscapes in Scotland. Panoramic views can be obtained from high peaks, while views from the valley areas are constrained and dominated by upland slopes or existing vegetation. The intervisibility of lowland and highland areas contributes to some key of the key characteristics of the scenic qualities of the area.

13.2.3 Residential dwellings are most apparent along the central belt of the RSA within the urban context of Douglas and Muirkirk, and along the A70 road corridor. Beyond these areas, dwellings are more dispersed, with groupings of properties at Coalburn, Lesmahagow and peripheral areas to these settlements. Across regions of higher ground further to the north and south, dwellings become increasingly more sporadic consisting mainly of individual farmsteads.

13.2.4 Across the RSA, there is an extensive network of Core Paths with the majority of routes connecting across the north-east and south-west along the A70 road corridor via Douglas and Muirkirk, and particularly in the Douglas Valley.

13.2.5 The River Ayr Way long distance route runs through the river valley within the south-western parts of the RSA, starting at Glenbuck Loch before heading west towards Ayr.

13.2.6 The National Cycle Network passes through the east of the RSA, running roughly north to south, adjacent to the M74 motorway, and near to the southern end of the RSA near to the proposed Redshaw Substation.

13.2.7 Roads are generally limited to areas of lower lying land associated with the river valley across the central parts of the RSA. This includes the A70 trunk road which runs roughly north-east from the M74 motorway junction, south-west via Douglas and Muirkirk towards Cumnock, and the B743 which runs north and west from Muirkirk. The A71 runs through the northern parts of the RSA near Strathaven.

13.2.8 The M74 passes through the far east of the RSA, north to south. Other routes are unclassified tracks leading to isolated farmsteads and forestry access.

Residential Amenity (including Noise)

13.2.9 Residential amenity effects relate to the potential effects upon people when they are at their place of residence. Common environmental effects include noise effects from the OHL or other infrastructure (such as Substations), visual effects relating to the construction of steel towers or other infrastructure or general interference of people when at home (for example land use or traffic). Rule 7 of the Holford Rules deals specifically with residential amenity, and the notes on this rule are as follows:

"a) When a line needs to pass through a development area, route it so as to minimise as far as possible the effect on development.

b) Alignments should be chosen after consideration of effects on the amenity of existing development and on proposals for new development.

c) When siting Substations take account of the effects of the terminal towers and line connections that will need to be made and take advantage of screening features such as ground form and vegetation."

13.2.10 As effects on views and visual amenity are experienced by people as receptors, receptors at their homes are often judged to be most susceptible to changes in views and visual amenity. Therefore, all individual settlements and residential properties within the RSA were identified.

13.2.11 Individual residential properties were mapped using OS AddressBase Plus® data, and a 150m radius applied around each property to reflect the principles within the 'Further Notes on Clarification to the Holford Rules a) (see **Appendix 1**)' (as shown on **Figure 8**). Where possible, route options were identified which avoided encroaching on the trigger for consideration zone. In addition, route options will seek to avoid principal views from residential properties, informed by observations made during fieldwork which considered the orientation of properties, the likely availability of views from the property and its curtilage and the presence of intervening screening (e.g. localised landform, woodland, forestry and vegetation, built form and other landscape features).

13.3 Archaeology and Cultural Heritage

13.3.1 The 'Archaeology and Cultural Heritage' of an area comprises archaeological sites, historic buildings and other features in the landscape that have the capacity to provide information about past human activity, or which have cultural relevance due to associations with folklore or historic events. Sites of cultural heritage interest may also be informed by their 'setting' within a wider landscape.

13.3.2 National planning policy and guidance recognises that Scotland's cultural heritage is a finite and non-renewable resource that needs to be protected, conserved and enhanced accordingly.

13.3.3 Digital baseline information on known cultural heritage resources recorded within the study area has been supplied by Historic Scotland and The West of Scotland Archaeology Service (WoSAS), who keep and maintain the HER for both Lanarkshire, and Ayrshire and Arran. There are a number of archaeology and cultural heritage-related designations within the study area. These are set out and described below, and illustrated on **Figure 5**.

13.3.4 Scheduled Monuments (SMs) are designated under the Ancient Monuments and Archaeological Areas Act 1979 and are defined as monuments of national importance whose preservation *in situ*, and within an appropriate setting, is important to retain. Within the study area there are ten scheduled monuments

13.3.5 Listed Buildings are protected under the Listed Buildings and Conservation Areas (Scotland) Act 1997. The purpose of listing is to ensure that any demolition, alteration, repair or extension that would affect the building's special architectural or historic interest is controlled. The term 'building' is defined broadly and can include, for example, walls and bridges. Protection also extends to the interior of listed buildings and to all buildings within the curtilage of the listed building that have formed part of the land since before 01 July 1948. Buildings of special architectural or historic interest are divided into three categories to reflect their degree of interest, however, all listed buildings receive equal legal protection. Within the RSA there are 75 listed buildings:

- Two Category A buildings of national importance (one also scheduled);
- 37 Category B buildings of regional importance; and
- 36 Category C buildings of local importance.

13.3.6 The Listed Buildings within the study area are located predominantly in the north-east and east of the RSA, in or around the vicinity of Douglas and Lesmahagow. The majority of the remainder are located along or close to the A71/A70 between Strathaven and Darvel. These buildings are not discussed individually in this report but are represented graphically on **Figure 5**.

13.3.7 Conservation Areas are protected under the same legislation as listed buildings and are areas of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance. There is one Conservation Area within the RSA; Douglas. This Conservation Area is located towards the north-east of the RSA and contains the majority of the listed buildings within the RSA.

13.3.8 There are no Gardens and Designed Landscapes (GDLs) within the RSA. Furthermore, there are no nearby GDLs at the edge of the RSA to be considered.

13.3.9 Within the Study area there are a further eight undesignated features classified in the HER as being 'almost certainly' of national importance, and 28 features 'probably' of national importance.

13.3.10 In general terms, the key cultural heritage constraints within the study area are the Scheduled Monuments, Listed Buildings, Archaeologically Sensitive Areas, Non-inventory Gardens and Landscapes and the undesignated features of almost certain or probable national importance, which national planning policy requires should be protected.

13.3.11 It is highly likely that other, as yet undetected, remains of archaeological interest are present within the study area. Further, more detailed, work will be undertaken to inform the EIA.

13.4 Nature Conservation (Ecology, Ornithology and Biodiversity)

13.4.1 Nature conservation designations and certain species receive legal protection under various national and international legislative instruments. In addition, there are other habitats and species that do not receive legal protection, but which are notable owing to their conservation status. The presence of such nature conservation interests within the RSA, as derived from the desk study and

summarised below, has been used, in combination with professional judgement, to inform the most sensitive routing of the overhead grid connection through the landscape.

13.4.2 Sites of nature conservation value and pertinent protected or notable species and habitats present within the RSA have been identified through a desk-based assessment of on-line resources and information derived from South West Scotland Environmental Information Centre (SWSEIC). Information gathered from SWSEIC related to non-statutory sites and protected or notable species within the RSA, which covers all three route options, i.e. sensitive ecological features most likely to be impacted by the grid connection. The RSA was deemed appropriate for the purposes of the routeing exercise. Statutory designated sites were identified within 20km of the RSA.

Nature Conservation Designations

13.4.3 The RSA contains three sites that have been designated for nature conservation value at an international level: Muirkirk and North Lowther Uplands SPA, Red Moss SAC and Coalburn Moss SAC. Muirkirk and North Lowther Uplands covers a vast area, predominantly within the west of the RSA, and lies within three of the four route options.

13.4.4 The SPA is designated for regularly supporting populations of European importance for hen harrier (*Circus cyaneus)*, short-eared owl (*Asio flammeus),* merlin (*Falco Subbuteo),* peregrine (*Falco peregrinus),* and golden plover (*Pluvialis apricaria).* Red Moss is located in the south-east of the RSA. The qualifying interest for the site is the presence of Active Raised Bogs. A further eight international sites are located within 20km of the RSA. Namely:

- Airds Moss SAC/SSSI, located south-west of the RSA. Designated for the presence of Blanket Bogs:
- Upper Nithsdale Woods SAC, located south of the RSA. Designated for its Tilio-Acerion forests of slopes, screes and ravines;
- Clyde Valley Woods SAC, located north of the RSA. Designated for its Tilio-Acerion forests of slopes, screes and ravines;
- Clyde Valley Woods SAC/NNR, located north of the RSA. Designated for the presence of Tilio-Acerion forests of slopes, screes and ravines;
- Cranley Moss SAC/SSSI, located north-east of the RSA. Designated for the presence of Active Raised Bogs and degraded Raised Bogs;
- Waukenwae Moss SAC/SSSI, located north of the RSA. Designated for the presence of Active Raised Bogs and Degraded Raised Bogs;
- River Tweed SAC/SSSI located east of the RSA. Designated for representing a "*water course of plain to montane levels with the Ranunculion fluitans and Callitricho-Batrachion vegetation*" and for supporting populations of Annex II species (Atlantic salmon (*Salmo salar*) and otter (*Lutra lutra*)). Three features are also listed that are not a reason for designation, namely brook, river and sea lampreys (*Lampetra planeri, L. fluviatilis and Petromyzon marinus*); and
- Braehead Moss SAC, located north-east of the RSA. Designated for the presence of Active Raised Bogs and degraded Raised Bogs.

13.4.5 Based on the qualifying features, distance and spatial separation from the RSA, the international sites identified outside of the RSA are unlikely to be impacted as a result of the Proposed Development, and therefore no further consideration is required in relation to the routeing study.

13.4.6 Five sites designated for biodiversity at the national level are present within the RSA, namely:

- Muirkirk Uplands SSSI - Designated for its Upland Assemblage, the presence of Blanket Bogs, and the breeding bird assemblage, specifically hen harrier and short-eared owl;
- North Lowther Uplands SSSI – Designated for its Upland Assemblage and the breeding bird assemblage, specifically hen harrier;
- Red Moss SSSI – Designated for its Raised Bogs;
- Miller's Wood SSSI – Designated for its Upland Birch Woodland; and
- Blood Moss and Slot Burn SSSI – Designated for the presence of Blanket Bog.

13.4.7 Shiel Burn SSSI, Birk Knowes SSSI, Birkenhead Burn SSSI, Garpel Water SSSI, Dunside SSSI, Kennox Water SSSI and Ree Burn and Glenbuck Loch SSSI are also present within the RSA, but these are designated for geological interest.

13.4.8 The RSA spans across East Ayrshire and South Lanarkshire, and while detail for locally designated sites was obtained for East Ayrshire through SWSEIC, for South Lanarkshire the local record centre (GMBRC) was not operational at the time of the request, and data for these local sites was not available. SWSEIC provided details for one LNCS within the RSA, as described below:

- Glenbuck Loch Woodland and Floodplain LNCS – mature woodland and botanically rich loch.

Species of Nature Conservation Importance

13.4.9 A number of species sensitivities present within the RSA have been identified through the course of the desk study and are briefly summarised below. As described above for locally designated sites, protected and notable species data was only available for East Ayrshire, and no data from South Lanarkshire was available at the time the data search was carried out. Owing to the confidential nature of many of these records, they have not been presented on a figure but have been used by the project team to inform both the routeing selection process and scope of future survey works that are likely to be required.

13.4.10 Recent records[4] for a number of birds of conservation importance (i.e. birds that are protected under Schedule 1 of the Wildlife and Countryside Act (1981, as amended) (WCA)) have been received within the RSA including hen harrier, osprey (*Pandion haliaetus),* merlin, barn owl (*Tyto alba),* redwing (*Turdus Iliacus)*, fieldfare (*Turdus pilaris)* and shorelark (*Eremophila alpestris)*. Other birds of conservation importance recorded within the RSA and considered pertinent to the proposals include short-eared owl, golden plover, lapwing (*Vanellus vanellus),* barnacle goose (*Branta*

[4] Records from within the last 10 years.

leucopsis), kestrel (*Faco tinnunculus),* black grouse (*Lyurus tetrix),* skylark (*Alauda arvensis),* lesser redpoll *(Acanthis cabaret),* yellowhammer (*Emberiza citronella),* reed bunting (*Emeriza schoeniclus),* linnet (*Linaria cannabina),* siskin (*Spinus spinus),* spotted flycatcher *(Muscicapa striata),* song thrush (*Turdus philomelos),* ring ouzel (*Turdus torquatus),* cuckoo (*Cuculus canorus),* woodcock (*Scolopax rusticola)* and curlew (*Numenius arquata*).

13.4.11 Non-avian protected species records within the RSA include otter, badger (*Meles meles),* red squirrel (*Sciurus vulgaris)*, mountain hare (*Lepus timidus)*, common lizard (*Zootoca vivipara),* adder (*Vipera berus)* and a number of species of bat (Myotis sp., Daubenton's bat (*Myotis daubentoniid)*, Natterer's bat *(Myotis nattereri)*, Leisler's bat (*Myctalus leisleri)*, common pipistrelle (*Pipistrellus pipistrellus)* and soprano pipistrelle (*Pipistrellus pygmaeus)).* Priority Species[5] recorded within the study area include hedgehog (*Erinaceus europaeus),* brown hare (*Lepus lepus),* common toad (*Bufo bufo),* beetle (*Megasternum concinnum/immaculatum*), *Donacia thalassina (*beetle), bilberry bumblebee (*Bombus monticola),* red-shanked carder bee (*Bombus ruderarius),* small pearl-bordered fritillary (*Boloria selene)*, cinnabar (*Tyria jacobaeae),* small heath (*Coenonympha pamphilus)* large heath (*Coenonympha tulia),* latticed heath (*Chiasmia clathrata),* small phoenix (*Ecliptopera silaceata),* white ermine (*Spilosoma lbricipeda),* broom moth (*Ceramica pisi),* Haworth's minor (*Celaena haworthii)* and dark brocade (*Mniotype adusta).* The invasive non-native species giant hogweed (*Heracleum mantegazzianum*) has been recorded within the RSA.

Habitats of Nature Conservation Importance

13.4.12 The Ancient Woodland Inventory available from NatureScot has been used to identify sensitive Ancient Woodland habitats within the RSA. This habitat type is present predominantly in the east of the RSA around Douglas.

13.4.13 In addition, Habitat Map of Scotland[6] shows that a number of bog habitats are potentially present within the RSA, which are associated with Muirkirk Uplands SSSI and North Lowther SSSI.

13.5 Transport and Access

Strategic Access

13.5.1 There are a number of links within the study area that form part of the strategic road network. The M74 lies to the east of the study area which provides a connection between the M6 to the south and the M77, M73 and M8 to the north towards Glasgow.

13.5.2 In addition, the A70 and A71 also run through the study area. The A70 provides a connection between Edinburgh to the north-east and Ayr to the south-west. In proximity to the study area, the A70

[5] Those species included on the Scottish Biodiversity List
[6] https://www.environment.gov.scot/our-environment/habitats-and-species/habitat-map-of-scotland/

provides a link to the M74. The A71 provides a link from the M74, south-west through Strathaven to Darvel, and beyond. The RSA area is therefore well connected to the strategic road network.

13.5.3 Whilst detailed route investigations have not yet been undertaken, conventional road vehicles will be able to use the A Roads without restriction, albeit routing strategies for longer and abnormal load carrying vehicles will require testing for when passing through local centres within the study area.

Local Access

13.5.4 The study area also benefits from a number of local routes. The B743 enters the study area to the north-west through Dungavel. The B743 provides a connection between the A71 in Strathaven and the A70 in Muirkirk. The B743 would provide access to Bankend Rig III which is the start/end of all routeing options. The B743 also enters the study area to the west providing further connections to Ayr through areas including Mauchline, Failford, Mossblown and Ayr.

Further Considerations

13.5.5 Access for construction purposes to the new OHL will be temporary and largely follow the power line centre line where practicable. Where existing routes are not provided the route will take the form of a roughly gravelled surface that can be removed post-construction, or matting, the latter being preferable in terms of reducing surface-degradation (indeed, every effort will be made to preserve existing grass cover.

13.5.6 Discussions will take place with South Lanarkshire Council and East Ayrshire Council (as required) as well as Transport Scotland with traffic speeds and flows likely to be required on the A70 and A71. Gradients and soil conditions will need further assessment.

13.6 Socio-economics and Tourism

13.6.1 The study area crosses the border of East Ayrshire and South Lanarkshire Local Authority areas. Both Authorities have a combined population of 446,000[7] but the study area is predominantly rural and remote in nature, with no major settlements in the area. The RSA includes the settlements of Glenbuck, Glespin, Coalburn, Lesmahagow, Sandford and Douglas. Some of the route options pass near Coalburn and Douglas.

13.6.2 Much of the surrounding area is covered by sparsely inhabited forest and moorland and agricultural land, with a few isolated farmsteads. Due to the rural nature and low population of these farmsteads, they will not be considered within the socio-economic and tourism assessment.

[7] Source: 2021 Census, ONS

13.7 Employment

13.7.1 The economic activity rate is a useful measure of the labour market opportunities available in East Ayrshire and South Lanarkshire Local Authority areas. The economic activity rate measures the percentage of the population (16-64yrs), both in employment and unemployed, that represent the labour supply regardless of their labour status.

13.7.2 In 2023-24, economic activity rates in East Ayrshire and South Lanarkshire stand at 74.1% and 78.7% respectively compared to 77.1% in Scotland and 78.6% in Great Britain. Economically inactive persons in the Local Authority area predominantly comprise those considered to be 'long-term sick' - 32.7% in East Ayrshire and 32.4% in South Lanarkshire.

13.8 Tourism

13.8.1 Tourism is a key sector in the South Lanarkshire economy with the area's tourism strategy highlighting that Lanarkshire attracted 614,820 visitors. These visitors generated an economic impact of £204.5M for South Lanarkshire and the sector supported 3,013 full-time equivalent (FTE) jobs[8]. A further 1,616 FTE are employed in East Ayrshire's tourism economy, supporting over 1m visitors in 2018 that generated a tourism revenue of £95.6m[9]

Local Tourism Businesses

13.8.2 The following tourism businesses and assets have been identified within the study area:

- Bill Shankly Memorial;
- Douglas Castle;
- Douglas Heritage Museum;
- Douglas West Outdoor Centre; and
- Muirkirk Caravan Park.

13.9 Land Use and Forestry

13.9.1 The land within the study is made up of river valleys, moorland, areas of arable land and forestry and woodland. There are some urban areas, including the settlements of Douglas, Coalburn, Lesmahagow and Strathaven. The M74 motorway runs down the east of the RSA, as does the B7078. The A70 (Ayr Road) cuts through the study area east to west, linking to the M74 in the east. The A71

[8] Scottish Tourism Economic Activity Monitor 2020

[9] https://www.eastayrshirecommunityplan.org/Performance/EastAyrshirebyNumbers/EconomyandSkills/TourismInEastAyrshire.aspx

runs from the M74, south-west through Strathaven towards Darvel. There is no railway line or train station within the study area. The River Ayr and Douglas Water both cross through the RSA from east to west.

13.9.2 There are residential properties located along the A70 and A71 corridors and within in the settlements of Douglas, Lesmahagow and Coalburn, as well as a primary school and local businesses within both villages. There are residential properties in the hamlets of Glespin and Sandford as well as residential properties at a number of farms within the study area.

13.9.3 Large areas of commercial forestry are located on the higher ground, often associated with wind farm development, but also in areas of reclaimed coal mining in and around Coalburn and Lesmahagow. There are several areas of ancient woodland in the east of the RSA near Douglas (at Poniel Hill), and areas of broadleaf woodland associated with the agricultural landscape. Mature trees are commonplace especially in association with traditional farmsteads.

13.9.4 There is an area of reclaimed mining at Mainshill in the east of the RSA which has a Forestry Management Plan, which has not yet been fully redeveloped.

Agriculture

13.9.5 Scotland has been mapped by the Macauley Institute in terms of its capability for agriculture, with different categories identified dependent on the prevailing soil, climate and relief. The classifications within the RSA include the following:

13.9.6 The land surrounding Douglas and on either side of Ayr Road and the River Ayr between Uddington and Glespin is Class 4.1, defined as *"Land capable of producing a narrow range of crops, primarily grassland with short arable breaks of forage crops and cereal"* and Class 4.2, defined as *"Land capable of producing a narrow range of crops, primarily on grassland with short arable breaks of forage crops."*

13.9.7 The Hagshaw Hill Repowering Phase 3 and Bankend Rig III Wind Farm Boundary, as well as the Hagshaw Hill Wind Farm Connection Point are on land that is Class 5.2, defined as "*Land capable of use as improved grassland. Few problems with pasture establishment but may be difficult to maintain".*

13.9.8 The remainder of the study area is on land Class 5.3, Class 6.1, Class 6.2 and Class 6.3.

13.9.9 The overall quality of the agricultural land is therefore low, with no land identified as Prime Agricultural Land (Classes 1, 2 and 3.1) which would be afforded protection from development under NPF4. Agriculture, as a land use, has therefore not informed the route appraisal.

13.10 Hydrology and Hydrogeology

River Ayr

13.10.1 The River Ayr catchment to its downstream point at Airds Moss is approximately 130 km^2 in area. The river originates at Glenbuck Loch in East Ayrshire and flows in a south-westerly direction towards South Ayrshire.

13.10.2 The sinuous nature of the main river channel indicates that it is dynamic within the floodplain corridor, meandering along the valley floor. The width of the flat valley floor is considered to be the functional floodplain, in which flood waters from the River Ayr would route into during storm events.

13.10.3 The River Ayr Catchment also contains the Greenock Water and Whitehaugh Water catchments. Several smaller burns and fields drain feed into the River Ayr along its course, most notably the Garpel Water.

13.10.4 It is a predominantly rural catchment to its downstream point at Airds Moss, with some small towns located within the lower extents - most notably Muirkirk. Principal land use within the catchment area includes agricultural land, forestry, land for mineral extraction, and recreational land uses. Urban influence on catchment hydrology is negligible due to the largely rural nature of the catchment from its source to Airds Moss.

Greenock Water

13.10.5 The Greenock Water is one of the principal tributaries to the River Ayr, with a total catchment area of 38.5 km^2. The watercourse originates approximately 12km north-east of Muirkirk, flowing out of the Dippal Burn approximately 3.2km south of Dungavel Hill. It flows in a south-westerly direction until it meets the River Ayr approximately 6.4km west of Muirkirk.

13.10.6 The nature of the watercourse as it flows through the valley is like that of the River Ayr, with a dynamic meandering channel along a flat valley floor. The width of the flat valley floor is considered to be the functional floodplain of the Greenock Water.

Whitehaugh Water

13.10.7 The Whitehaugh Water is another key tributary to the River Ayr, with a total catchment area of 17.9 km^2. The source of the Whitehaugh Water is approximately 8.9km north of its confluence with the River Ayr. The Whitehaugh Water – River Ayr confluence occurs approximately 1km downstream of the Greenock Water – River Ayr confluence.

13.10.8 The watercourse starts off gently meandering in its upstream reaches, becoming more sinuous as you move downstream towards the River Ayr.

13.10.9 The narrow valley floor is considered to be the functional floodplain of the Whitehaugh Water

Garpel Water

13.10.10 The Garpel Water originates approximately 7.5km south-east of Muirkirk, meeting the River Ayr downstream of the town. To its downstream point at its confluence with the River Ayr, the Garpel Water has a total catchment area of approximately 13 km^2.

13.10.11 The sinuous nature of the main river channel indicates that it is dynamic within the floodplain corridor, meandering along the valley floor. The width of the flat valley floor is considered to be the functional floodplain, in which flood waters from the watercourse would route into during storm events.

13.10.12 It is a rural catchment, with no urban influence on catchment hydrology.

Douglas Water

13.10.13 The Douglas Water to its downstream point at Uddington is approximately 98.9km^2 in area. Its source is close to that of the River Ayr, but it instead flows in a north-easterly then easterly direction, through the village of Douglas. To the east of Douglas, it flows under the M74 motorway, and its direction of flow turns to the north-east. It is a tributary of the River Clyde, which it meets approximately 5km south of Lanark.

13.10.14 The nature of the channel is gently meandering in its upper reaches, becoming more sinuous further downstream. The flat valley floor is considered to be the functional floodplain of the Douglas Water, with a dynamic shifting channel meandering through it.

13.10.15 It is a predominantly rural catchment, with some small towns located in its lower reaches, including Douglas and Glespin. There is therefore a negligible urban influence on catchment hydrology.

13.10.16 The Douglas Water catchment contains the catchments of numerous other burns, most notably the Glespin Burn.

Glespin Burn

13.10.17 The Glespin Burn originates approximately 12.7km south-east of the town of Glespin and has its confluence with the Douglas Water approximately 2km downstream from Glespin. The total catchment area is approximately 21.3 km^2.

13.10.18 The character of the watercourse is largely similar to that of the Douglas Water, in that it is a dynamic, shifting meandering channel along a flat valley floor, and the flat valley floor is considered to be the functional floodplain.

13.10.19 It is a rural catchment, with no urban influence on catchment hydrology.

Hydrological Constraints

13.10.20 Location of towers within the functional floodplains of watercourses should be avoided where practicable to prevent changes to the hydrodynamics of the floodplain which may result in

increased erosion, changes in flooding patterns which could impact further downstream, and also to prevent pollution during construction and operation of the Proposed Route. Access to the towers for construction and maintenance may also be hindered by flooding if the infrastructure were to be located there.

13.10.21 Construction of OHL and associated access tracks will require a Controlled Activities Regulations (CAR) Licence to deal with the surface water runoff from construction activities. This will involve the design and implementation of SuDS, or other pollution mitigation measures that may be deemed suitable by SEPA, to capture and treat runoff and the development of a Pollution Prevention Plan.

13.10.22 Any watercourse crossing will be required to be designed to convey the 1 in 200 year flows so as not to increase flood risk upstream or downstream of the crossings.

13.11 Human Health

13.11.1 The Proposed Development is not anticipated to have a direct impact on human health and amenity, as a result of the low population of the RSA (comprised of a small town, small parishes, hamlets and a small village) and the nature of the scheme.

13.11.2 In accordance with Regulation 4(2) of the 2017 Town and Country Planning EIA Regulations, if required, the environmental interactions chapter of the EIA will consider any likely significant effect on human health and amenity, arising from any potential interactions between likely significant effect arising on the individual 'factors' listed in Regulation 4(3) – (a) population and human health; (b) biodiversity; (c) land, soil, water, air and climate; and (d) material assets, cultural heritage and the landscape.

13.12 Climate

13.12.1 It is acknowledged that the construction phase of the Proposed Development will utilise energy intensive materials (e.g. metals) as well as fossil fuels for construction/plant vehicles. Once complete, however, the Proposed Development will support the UK's transition towards a low carbon economy by enabling the displacement of electricity generated from coal fired capacity, grid mix or a fossil fuel mix.

13.12.2 The scheme itself is not considered to have a direct impact on climatic factors. However, the placement of the Proposed Development's associated infrastructure on the landscape and wider environment may result in the infrastructure being vulnerable to future climatic factors.

13.12.3 The RSA contains flood risk areas, however limiting watercourse crossings would help prevent the risk of the OHLs being located in a functional floodplain. Despite this, it should be noted that there is still a chance that the eventual route selected could be in a functional floodplain. The Proposed Developments infrastructure, depending on the route chosen, may therefore, be vulnerable to future climatic flood risk events. However, this will be considered within a FRA, as well as in the Hydrology and Hydrogeology chapters of the environmental appraisal or EIA Report.

13.12.4 Despite this, in accordance with planning policy, suitable mitigation will be incorporated into the design of the Proposed Development to ensure that there is not a significant risk of flooding (or other potential environmental impacts), even when allowing for the impact of climate change.

13.12.5 In accordance with Regulation 4(2) of the 2017 Town and Country Planning EIA Regulations, if deemed to be an EIA development, each discipline discussed within the EIA Report will give consideration to climate factors.

13.12.6 The Proposed Development is not considered to have any likely significant effects on the climate however, it could be significantly affected by climate change as a result of the RSAs location with a flood risk area.

13.13 Air Quality

13.13.1 There are no nearby Air Quality Management Areas (AQMAs). Measured 2021 NO2 concentrations at the nearest monitoring locations, at Cumnock, East Ayrshire, are far below the annual mean National Air Quality Objective (NAQO) of 40 µgm3, ranging from 8.7 at site DT52 at Knockroon Learning Campus, to 19.0 at site A4 at Holmhead Road. Furthermore, monitored concentrations within the nearest AQMA at Lanark range from 21.8 µgm3 to 4.3 µgm3, far below the objective.

13.13.2 The Scottish Government produces predictions of background concentrations on a 1x1 km grid for the entire country. 2024 predicted background concentrations are a maximum of 3.9 µgm3 for NO2, 8.5 µgm3 for PM10 and 5.4 µg/m3 for PM2.5, all of which are projected to steadily decrease in future years.

13.13.3 There are some residential areas where exposure to any potential air quality impacts may be greater, particularly in relation to construction traffic vehicle movements such as the settlements of Douglas, Coalburn and Lesmahagow. There are also a number of ecological receptors such as SPAs and SSSIs, which may have ecological features sensitive to air pollution impacts. Construction traffic routing will need to bear this in mind on any given route.

13.13.4 Under the IAQM's guidance on the assessment of impacts from demolition and construction, all impacts are determined to be 'not significant' as mitigation is inherent and provided through planning conditions. Impacts would be required to be assessed to inform the level of mitigation measures included within a Construction Environmental Management Plan.

13.13.5 Overall, the Proposed Development is not considered to have any likely significant impacts relating to air quality within the study area relating to the NAQOs.

13.14 Noise and Vibration

13.14.1 The level of noise impact generated by a development is determined by the existing baseline conditions and the level of noise change associated with the development at noise sensitive receptors. Where existing baseline sound levels are low there is a higher chance of noise from the

development being audible. However, it should be noted that audible noise does not necessarily result in adverse noise impact.

13.14.2 All Proposed Routes pass through predominantly rural areas, where background sound levels are expected to be low during the daytime and night-time. The proposed OHL is 132kV, and it is unlikely that there would be significant noise impact at distances greater than 50 m from the proposed line.

13.14.3 All route options appear to allow the OHL to pass more than 50 m away from existing dwellings, and there is therefore an opportunity to minimise the risks of noise impact.

13.15 Geology and Ground Conditions

13.15.1 The BGS indicates the geology beneath the site varies and generally comprises Till, Alluvium, Glaciofluvial Deposits and Peat (superficial geology) and beneath that, Sandstone, Greywacks and the Scottish Coal Measures (bedrock geology). Peat and alluvium, if present, can be soft and compressible in nature. Peatland is a sensitive receptor and is key in the storage carbon, rich in biodiversity and has the capacity to reduce flood risk. There are areas along all three route corridors where no superficial deposits are recorded which suggests that bedrock is at or near to the surface which will need to be taken into consideration within the foundation design.

13.15.2 The BGS indicates that within the RSA there are some extensive areas of Made Ground (infilled ground and other anthropogenic ground) where surface and below ground coal mining has taken place historically. The nature and depth of this material is unknown and can pose ground stability hazards if unsuitable loads are placed on top, and existing contamination, if present, can become mobilised affecting sensitive receptors including waters and aquifers.

13.15.3 Coal Authority interactive mapping indicates that much of the RSA is within a Coal Mining Reporting Area, which is an area of known coal mining activity that is used to identify possible ground instability and potential mining hazards. The RSA includes Development High Risk Areas which are defined by the Coal Authority as *"areas with two or more coal mining related features which have the potential for instability or a degree of risk to the surface from the legacy of coal mining operations"*. In addition, the study area is shown to be affected by historical non-coal mining and the BGS suggests that non-coal mine plans are available across the study area. The Stantec Cavities Database, which contains over 32,000 records of natural and manmade cavities across the UK, shows cavity records in all three route corridors however the extent of the cavities is unknown at this stage.

13.15.4 Some areas within the RSA are shown to have a gradient greater than 30 degrees, however these areas are very localised and not considered to pose significant constraints.

A4. Consultation Newspaper Advert

14. Appendix 4 – Consultation Newspaper Advert

Redshaw to Hagshaw Tee to Bankend Rig III Collector substation Overhead Line Grid Connection

SP Energy Networks

We'd like your views!

Scotland is a world leader in the fight against climate change.

To help meet those targets, Scottish Power Energy Networks needs to strengthen Scotland's electricity transmission and distribution network so we can transport increasing amounts of clean, green energy from where it's produced to where it's needed.

Our transmission work includes the provision of a new 132kV wood pole overhead line from Redshaw substation to the proposed Bankend Rig III Collector substation via a connection to Hagshaw Hill Repowering Phase 3 Wind Farm.

We have identified a preferred route for the proposed new overhead line, and we would like to hear local people's views to help us develop our plans.

We are holding two public exhibitions where you can view our plans and talk to the project team. Information relating to the proposed overhead line will also be made available online from the 21st April 2025 at:

https://www.spenergynetworks.co.uk/pages/redshaw_to_bankend_rig.aspx

You can leave comments on the website, and you can also contact us in the following ways:

Email:
RedshawToBankendRig@spenergynetworks.co.uk

Post:
Redshaw to Bankend Rig Project Manager
Land and Planning Team
SP Energy Networks
55 Fullarton Drive
Glasgow, G32 8FA

At this stage, your comments are not representations to the planning authority. If we do make an application for development consent in future, you will be able to make formal representations to the planning authority at that stage.

Our public consultation runs from Monday 21st April 2025 to 26th May 2025

Public consultation events:

Wednesday 30 April, 2pm to 7pm
Sandford Village Hall, Strathaven Road, Sandford, ML10 6PE

Thursday 1 May, 1.30pm to 6.30pm
St Brides Centre, Braehead, Douglas, Lanark, ML11 0PT

A5.
Consultation Leaflet

15. Appendix 5 – Consultation Leaflet

We want to hear your views

Our consultation period will run **between Monday 21st April and Monday 26th May 2025.** Please submit any comments to us by **midnight on Monday 26th May 2025.** Following this date, the information will remain accessible online and available to download.

Redshaw to Hagshaw Tee to Bankend Rig III Collector Substation Overhead Line Grid Connection

Please find details below on how to get in touch.

Visit our website:

https://www.spenergynetworks.co.uk/pages/redshaw_to_bankend_rig.aspx

Email our Project Manager:

RedshawToBankendRig@spenergynetworks.co.uk

Attend one of our Public Consultation Events:

Wednesday 30th April (2pm to 7pm)	Thursday 1st May (1:30pm to 6:30pm)
Sandford Village Hall Strathaven Road Sandford Strathaven ML10 6PE	St Bride's Centre, Braehead Douglas Lanark ML11 0PT

By Post:

Redshaw to Bankend Rig Project Manager, Land and Planning Team, SP Energy Networks, 55 Fullarton Drive, Glasgow, G32 8FA.

Consultation Information Leaflet

SP Energy Networks

What happens next?

Your comments will be reviewed and fed into the detailed design with alignment for the new OHL, which will be the subject of the Section 37 application to the Scottish Government's Energy Consents Unit. The comments will also be collated into a report, which will be made publicly available on SP Energy Networks website.

- Detailed Design
- Scoping
- EIA and 2nd Consultation
- Section 37 Application

The Project

The **Redshaw to Hagshaw Tee to Bankend Rig III Collector substation Overhead Line Grid Connection Project** involves a 132 kilovolt (kV) overhead line (OHL) supported on wood poles. This will connect Redshaw Substation to the Bankend Rig III Collector substation via a connection to Hagshaw Hill Repowering Phase 3 in the South Lanarkshire Council area.

The connection is required to allow the proposed Hagshaw Hill Repowering Phase 3 Wind Farm and Bankend Rig III Wind Farm to connect into the electricity network if approved. Scottish Power Energy Networks (SPEN) has a legal duty to keep its network up-to-date to safeguard electricity supplies. SPEN also has a duty to provide a connection for new generation to the wider electricity transmission network.

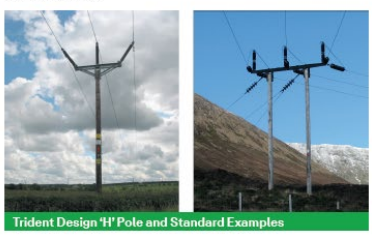
What will the OHL look like?

The proposed OHL will be supported by trident wood poles with galvanised steelwork cross arms supporting aluminium conductors (wires) on insulators. These are suitable for supporting a single circuit line operating at 132kV.

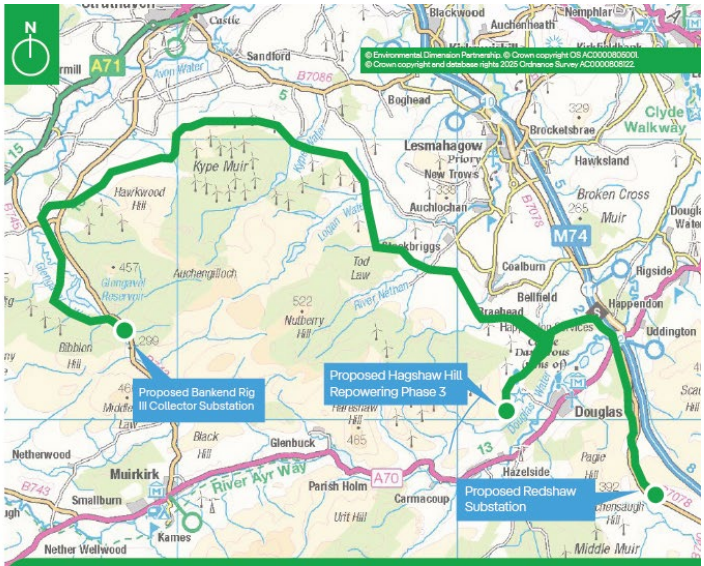
Wood poles are dark brown in colour when newly constructed and weather over the years to a light grey. They have a standard height above ground of approximately 15m, but these can be increased or reduced as required where circumstances dictate e.g. over elevated land, structures or features.

The distance between wood poles will average between 80m and 120m, but can be increased if there is a requirement to span a larger distance due to the presence of a feature in the landscape, such as a river or loch.

The precise pole configuration, height and span will be determined following a detailed review of the engineering and technical requirements for the connection.



Trident Design 'H' Pole and Standard Examples



Our Preferred Route

SPEN have been working with independent environmental consultants to identify options for potential routes for the proposed overhead line.

Our objective is to identify a route for the overhead line which meets the technical requirements of the electricity system, which is economically viable and causes, on balance, the least disturbance to the environment and the people who live, work and enjoy recreation in it.

SPEN are committed to engaging with stakeholders, including local communities, through the consultation process, and your feedback will be used to review the routeing findings and inform the next steps.

Our **Preferred Route** is shown in **green** above.

A6.
Figures

16. Appendix 6 – Figures Supporting this Document

16.1.1 The following figures are provided in support of this Routeing Consultation Document.

Figure 1: Key Elements of the Grid Connection
(edp8565_d002b 04 April 2025 VMS/MWi)

Figure 2: Form of the Proposed Overhead Line
(edp8565_d015a 11 April 2025 RBa/CMy)

Figure 3: Routeing Study Area
(edp8565_d001e 04 April 2025 VMS/MWi)

Figure 4: Route Corridor Options
(edp8565_d008b 04 April 2025 MWi/LMa)

Figure 5: Environmental Constraints Landscape and Heritage
(edp8565_d003b 04 April 2025 VMS/MWi)

Figure 6: Environmental Constraints Ecology and Forestry
(edp8565_d010b 04 April 2025 VMS/MWi)

Figure 7: Environmental Constraints Gradient and Slope
(edp8565_d005b 04 April 2025 VMS/MWi)

Figure 8: Environmental Constraints Transport Links and Residential Offsets
(edp8565_d007b 04 April 2025 VMS/MWi)

Figure 9: Environmental Constraints Hydrology
(edp8565_d009b 04 April 2025 VMS/MWi)

Figure 10: Environmental Constraints Wind Energy Development
(edp8565_d013a 04 April 2025 VMS/MWi)

Figure 11: Environmental Constraints Peat
(edp8565_d011b 04 April 2025 VMS/MWi)

Figure 12: Environmental Constraints: Landscape Character
(edp8565_d006b 04 April 2025 VMS/MWi)

Figure 13: Environmental Constraints: Topography
(edp8565_d004b 04 April 2025 VMS/MWi)

Figure 14: Detailed Routeing Options
(edp8565_d016a 04 April 2025 CMy/LMa)

Figure 15: Preferred Route Corridor
(edp8565_d018b 04 April 2025 CMy/LMa)