Greenburn 132kV Connection Project

Routeing and Consultation Report

January 2025

Land & Planning

Contents

Contents

Table of Tables

Chapter 1
Introduction

Purpose of this Report

1.1 This document has been prepared by LUC on behalf of SP Energy Networks (SPEN). It relates to the identification and appraisal of route options for a new single circuit 132 kilovolt (kV) overhead line (OHL) supported on wood poles, from the consented Greenburn Wind Park substation (ECU reference. ECU00002037) to the existing New Cumnock substation in East Ayrshire (hereafter referred to as the 'Greenburn 132kV Connection Project'). The location of the Greenburn 132kV Connection Project is shown on **Figure 1.1**.

1.2 Details of the Greenburn 132kV Connection Project can be found here:

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

1.3 This report presents the methodology adopted for routeing the Greenburn 132kV Connection Project, and the findings of the routeing study, culminating with the description of the 'preferred route' for the OHL connection. This report also sets out the process for the consultation which will be undertaken. This process is designed to gather feedback from stakeholders, including the public, to inform the subsequent stages of the Greenburn 132kV Connection Project.

The Need for the Greenburn 132kV Connection Project

1.4 A request for a connection to the transmission grid has been received by SPEN from the developer of Greenburn Wind Park, which was consented by Scottish Ministers in April 2023. Following consideration of the network in this area by SPEN, the proposed point of connection from the Greenburn Wind Park substation is to the existing New Cumnock substation via a 132kV OHL and it is anticipated that short sections of underground cable (UGC) may be required at entry to the two substations.

Greenburn 132kV Grid Connection
Routeing and Consultation Document
for SP Energy Networks

LUC

Figure 1.1: Location Plan

- Study Area
- Greenburn Wind Park Substation
- New Cumnock Collector Substation

EB:brown_i LUC 12573_r0_GreenburnGridConnectionFigures_January2025 07/01/2025 Source: SPEN, LUC

SP Energy Networks

SPEN's Statutory and License Duties

1.5 As 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.

1.6 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.

1.7 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) to have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features or special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and*
- *(b) to do what it reasonably can to mitigate any effects which the proposals would have on the natural beauty of the countryside or any such flora, fauna, features, sites, buildings or objects."*

1.8 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.

1.9 As a result of the above, SPEN is required to identify 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.

The Development and Consenting Process

1.10 The Greenburn 132kV Connection Project comprises three key phases:

- Phase One: Routeing and Consultation;
- Phase Two: Environmental Impact Assessment (EIA) or Environmental Appraisal (EA)[2]; and
- Phase Three: Application for Consent.

Phase One: Routeing and Consultation

1.11 This report relates to Phase One, 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.

1.12 SPEN is committed to ongoing consultation with interested parties, including statutory and non-statutory consultees and local communities. Whilst there is no statutory requirement to consult during the early routeing stages, SPEN nonetheless considers it good practice to introduce consultation at this stage.

Phase Two: Environmental Impact Assessment (EIA)

1.13 As an 'electric line installed above ground with a voltage of 132 kilovolts or more', the Greenburn 132kV Connection Project may be considered an 'EIA development' under Schedule 2 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations).

1.14 Following confirmation of the Proposed Route, SPEN will submit a request for an EIA Screening Opinion to the Scottish Ministers in accordance with Regulation 8(1) of the EIA Regulations to determine whether the Greenburn 132kV Connection Project is EIA Development. The request will be accompanied by the relevant information in accordance with Regulation 8(2) and 8(3) and will take into account the selection criteria in Schedule 3 and the findings of the work undertaken as part of the routeing process.

1.15 If Scottish Ministers determine that the Greenburn 132kV Connection Project is not EIA development, an 'Environmental Appraisal' will be undertaken and an Environmental Appraisal Report produced to accompany the S37 consent application.

1.16 Should the Scottish Ministers determine that the Greenburn 132kV Connection Project is EIA development,

[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

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[2] If Scottish Ministers determine that the Project is not and EIA development

and that subsequent provisions of the EIA Regulations apply, SPEN will follow the EIA process, with the topics requiring further consideration to be agreed with consultees through the EIA Scoping process. SPEN will then prepare an EIA Report to accompany the S37 application.

Phase Three: Application for Consent

1.17 SPEN will apply to the Scottish Ministers for consent under Section 37 of the Act, as amended, to install and keep installed, the proposed Greenburn Grid Connection. In conjunction with the Section 37 application, SPEN will apply for deemed planning permission under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended, for any ancillary development such as access tracks or substation facilitation works. The EIA Report/Environmental Appraisal will accompany the application as relevant.

Stakeholder Engagement

1.18 Stakeholder engagement, including public involvement, is an important component of the Scottish planning and consenting system. Legislation and government guidance aim to ensure that the public, local communities, statutory and other consultees and interested parties have an opportunity to have their views taken into account throughout the planning process.

1.19 Striking the right balance can be challenging, and in seeking to achieve this, SPEN recognises the importance of consulting effectively on proposals and of being transparent about the decisions reached. SPEN is keen to engage with key stakeholders including local communities and others who may have an interest in the Greenburn 132kV Connection Project. This engagement process begins at the early stages of development of a project and continues into construction once consent has been granted.

1.20 SPEN's approach to stakeholder engagement for major electrical infrastructure projects is outlined in Chapter 2 of SPEN's 'Approach to Routeing and Environmental Impact Assessment'[3]. SPEN aims to ensure effective, inclusive and meaningful engagement with the public, local communities statutory and other consultees and interested parties through four key engagement steps:

- **Pre-project notification and engagement:** Discussions are undertaken with consenting bodies, planning authorities, and statutory consultees such as NatureScot and the Scottish Environment Protection Agency (SEPA). Early and proactive engagement enables the views of these consultees to inform project design, assessment methodologies and further engagement. It also provides consultees with an early understanding of the likely programme to submission of the application for consent.
- **Information gathering:** To inform the routeing stage, information on relevant environmental and planning considerations and proposed data gathering techniques (e.g. for seasonal ecological surveys) is requested from statutory consultees and other relevant organisations.
- **Obtaining feedback on emerging route options:** This Routeing and Consultation document has been prepared to gather feedback on the emerging project details. It will be issued to statutory consultees and made available on SPEN's website and the document will also be made available at Council offices and in public libraries, with its availability advertised in the press. SPEN will be holding a public event in the local area for the public, stakeholders and consultees. SPEN will also provide virtual methods of informing consultation and gathering feedback from stakeholders such as a project specific website to share relevant information.
- **The EIA/EA stage**: The results of stakeholder engagement are taken into consideration and used to confirm the 'proposed route' for progression to EIA/EA. Further consultation is carried out during the EIA/EA stage, including additional information gathering, and the preparation of a publicly available Screening Report which accompanies a 'Request for a Screening Opinion' to the consenting authority.

1.21 In addition, and as noted above, SPEN as a holder of a transmission licence, has a duty under section 38 and Schedule 9 of the Electricity Act 1989, when formulating proposals for the new electricity lines and other transmission development, to have regard to the effect of work on communities, in addition to the desirability of the preservation of amenity, the natural environment, cultural heritage, landscape and visual quality.

The Structure of the Report

1.22 This report comprises of the following chapters:

- **Chapter 1**: Introduction;
- **Chapter 2**: Project Description;
- **Chapter 3**: Approach to Routeing;
- **Chapter 4:** Identification of Route Options;
- **Chapter 5**: Appraisal of Route Options;

[3] SPEN (2020) Approach to Routeing and Environmental Impact Assessment. Available at: https://www.spenergynetworks.co.uk/userfiles/file/SPEN_Approach_to_Routeing_Document_2nd_version.pdf

- **Chapter 6**: Appraisal Findings; and
- **Chapter 7**: The Consultation Process and Next Steps.

1.23 This report is also supported by figures and appendices, as listed in the contents page.

Chapter 2
Project Description

Connection Requirements

2.1 A new 132kV OHL is required to connect the Greenburn Wind Park into the New Cumnock substation. The proposed development will be supported on single circuit trident wood poles ('H' poles). It is anticipated that sections of UGC will be required at entry to the two substations. No substation works are required be consented or assessed as part of the Greenburn 132kV Connection Project.

Overhead Line Infrastructure

2.2 Conductors (or wires) will be suspended at a specified height above ground and supported by wooden poles, spaced at intervals of approximately 80m-100 m due to the relatively high altitude of the project.

2.3 Conductors will be made either of aluminium or steel strands. This connection will include one three-phase circuit with no earth wire and the middle phase conductor will incorporate a fibre optic cable for communication purposes.

2.4 Conductors are strung from insulators attached to the steelwork at the top of the poles and prevent the electric current from crossing to the relevant support.

Wood Pole Structure

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

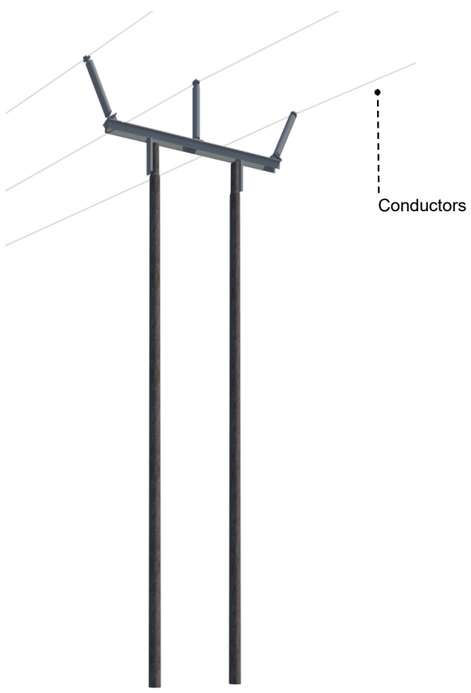
2.6 The proposed design is described below, and examples of pole design and photographs are shown on **Figure 2.1**.

2.7 Wood poles are fabricated from pressure impregnated softwood, treated with a preservation to prevent damage to structural integrity.

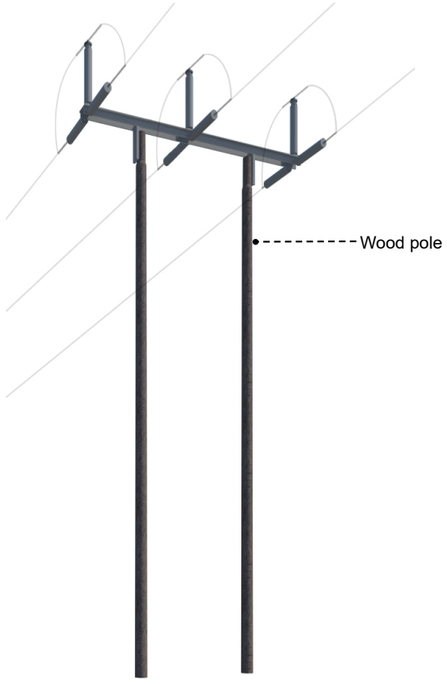
2.8 There are three types of wood pole structure, in terms of appearance:

- **Suspension or Line:** Where the pole structure forms part of a straight section of line and no change in direction is required. Straight sections of wood poles include section poles where segmentation is required to contain any failure in the OHL.

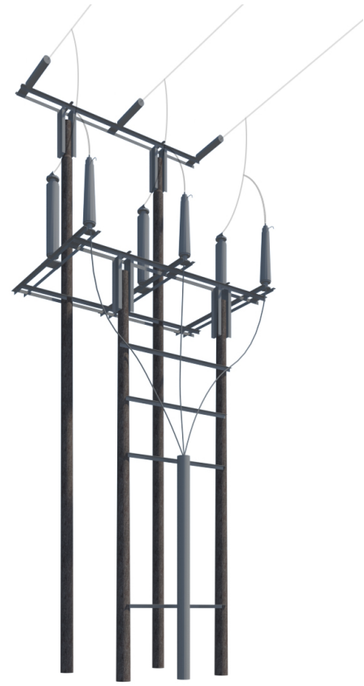
Figure 2.1: Typical Wood Pole Components



Component parts of 132kV 'Trident' design wood pole: Intermediate (H pole)



Component parts of 132kV 'Trident' design wood pole: Angle (H pole)



Component parts of 132kV 'Trident' design wood pole: Terminal (H pole)

- **Tension or Angle:** Where there is a horizontal or vertical deviation in line direction. The maximum allowable angle deviations on single wood pole designs is 30 degrees, with deviations up to 75 degrees being permitted on 'H' poles. All angle structures require to be back stayed.
- **Terminal:** Where the OHL terminates before entry into a substation or on to an UGC section via a cable sealing end compound or platform.

Wood Pole Heights and Span Lengths

2.9 The 132kV OHL will be supported on trident wood poles. The standard height of trident poles (including steel work and insulators) varies from 10m to 22m. Whilst wood poles have a standard height above ground of 13m, these can be extended or reduced in height, as required. Pole heights may require to be increased where circumstances dictate, e.g. over elevated land, structures or features.

2.10 The section of OHL between wood poles is known as the 'span', with the distance between them known as the 'span length'. Span lengths between wood poles average between 80m to 100m 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.

2.11 Wood poles are used to regulate the statutory clearances required for conductor height, which is determined the voltage of the OHLs (the higher the voltage, the greater the safety clearance that is required) and the span length between wood poles.

Wood Pole Colouring

2.12 Wood poles are dark brown in colour when first erected and weather to a silver/grey after a period of about five years.

2.13 The wood pole top cross-arms are galvanised steel and support the aluminium conductors on stacks of grey insulator discs. Both the steelwork and aluminium will weather and darken after a few years.

Underground Cable Infrastructure

2.14 As noted above, it is anticipated that sections of underground cable will be required to facilitate entry/exit to the two substations.

2.15 The sections to be undergrounded will comprise three cables in tri-foil arrangement with a multi-celled duct laid alongside to allow for telecommunications control and monitoring cables. Each cable will comprise a copper or aluminium central conductor encased in XLPE insulation material, overlaid with a metallic sheath and final outer sheath of graphite coated polythene. The cables will be surrounded with well compacted, thermally selected sand and backfilled with suitably screened excavated material. Cable markers will be deployed approximately every 250m along the route as a warning and indication that high voltage cable exists in the vicinity.

2.16 A typical 132kV UGC cross-section is provided as **Figure 2.2**. Where connected to an OHL, a UGC may also involve the creation of a fenced compound for the siting of terminal supports and sealing end compounds above ground.

Construction Process

2.17 The construction of OHLs and UGCs 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.

Wood Pole Construction

2.18 The construction of the Greenburn 132kV Connection Project will follow a well-established sequence of activities as outlined below:

- preparation of accesses;
- felling of forestry (where required);
- excavation of foundations;
- delivery of poles;
- erection of poles;
- delivery of conductor drums and stringing equipment;
- insulators and conductor erection and tensioning; and
- clearance and reinstatement.

2.19 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 lopped.

2.20 The erection of the wood poles will require a small 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 and stored and used for backfilling purposes. No concrete is required.

2.21 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 the tracked excavator which excavated the foundations. The pole foundation holes will then be backfilled, and the pole stay wire

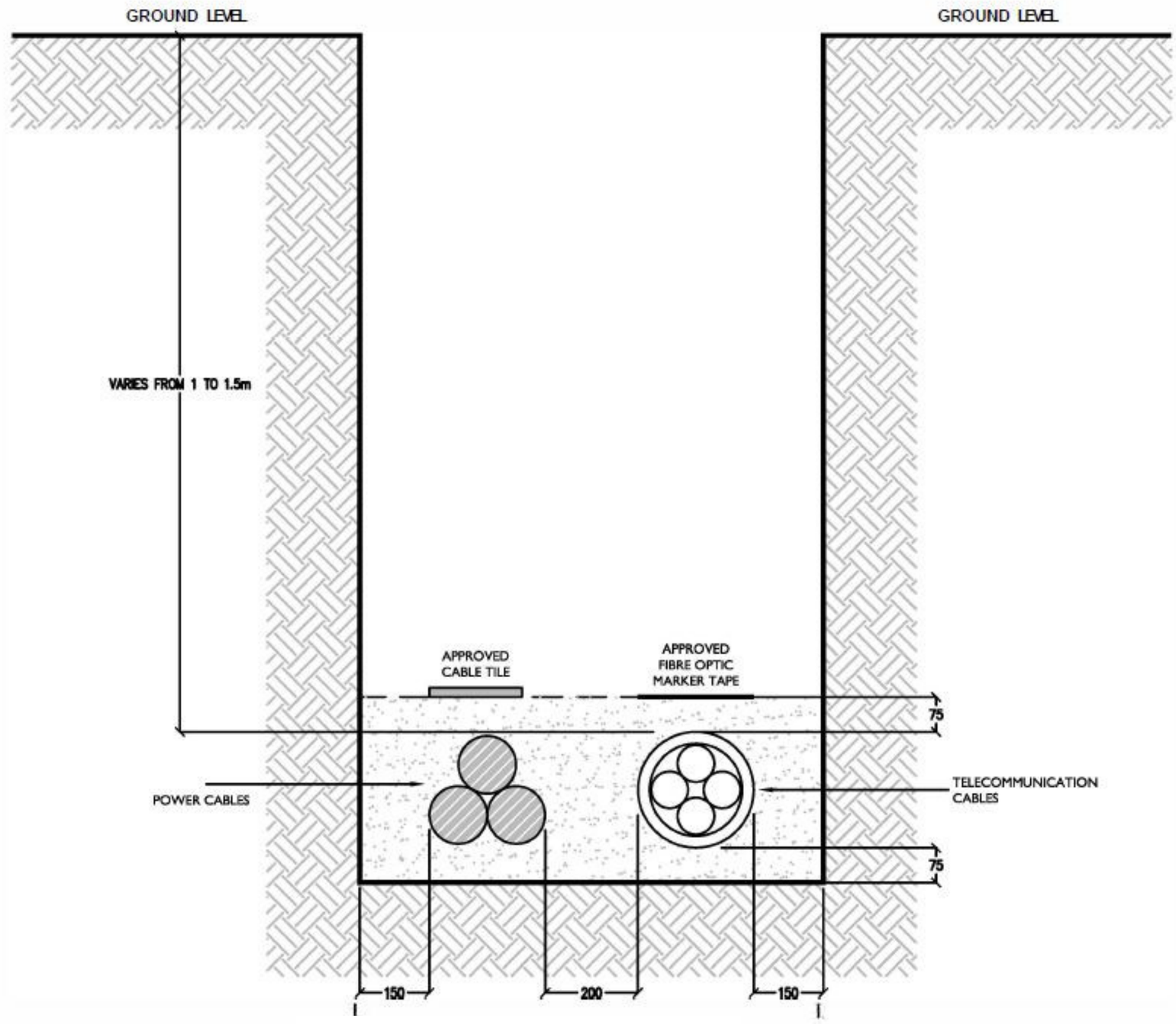


Figure 2.2: Typical 132kV Underground Cable Trench

supports attached to the ground in preparation for conductor stringing, erection and tensioning.

Underground Cable Construction

2.22 Open cut trenching is most likely to be used for installation of the sections of UGC proposed for the Greenburn 132kV Connection Project. A ducted solution may however be necessary depending on ground conditions. Works commonly consist of the use of low ground pressure vehicles or trackway, the excavation of the cable trench by mechanical excavators, cable laying, the backfilling of the trench with sand and native material and surface reinstatement.

Access

2.23 Temporary accesses 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.

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

2.25 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.

Temporary Working

2.26 Temporary working areas will be required for the duration of the construction works. Temporary vehicular access is required to every pole location. Wood pole locations will have a roped off working area of approximately 30m x 15m and could also extend to accommodate conductor pulling if required. This would not involve any area of hardstanding.

2.27 In some cases, the shape or size of the working area will be determined by nearby environmental or land use constraints, identified prior to construction. Each working area will be taped off to delineate the area for environmental protection reasons.

2.28 Following the completion of the construction works, the temporary working areas will be reinstated and restored to former conditions.

Construction Timescales

2.29 Construction and erection of a standard single pole generally takes approximately half a day depending on ground conditions and location, i.e. it may take more hours if the ground is softer. Angle poles can also take longer due to the need for ‘stay wires’ to stabilise the pole in the ground.

Operation and Maintenance

2.30 Whilst most OHL components are maintenance free, exposed elements which suffer from corrosion, wear, deterioration and fatigue may require inspection and periodic maintenance. OHL conductors generally require refurbishment after approximately 40 years.

2.31 Any felled wayleave areas will also have to be managed to maintain the required clearances whilst the connection remains in service. Walkover surveys or flyovers will identify where there is a requirement to clear wayleaves of new growth.

2.32 Annual maintenance checks on foot are commonly required during operation for UGCs. The cable section will also be kept clear of all but low growing vegetation. In the unlikely event that there is a fault along the cable, the area around the fault is excavated and the fault repaired, or a new section of cable inserted as a replacement. If lines are decommissioned, cables can either be left in situ or carefully excavated and removed.

Decommissioning

2.33 Should the Greenburn Wind Park be decommissioned, the Greenburn 132kV Connection Project will also be decommissioned and the wood poles will be removed in their entirety, with components re-used where possible. All ground disturbance will be fully reinstated. UGCs may be left in-situ and will be determined on a site-by-site basis.

Chapter 3
Approach to Routeing

SPEN's Overall Approach to Routeing an Overhead Line

3.1 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[3]. The approach to routeing documents forms the basis for the methodology used for the Greenburn 132kV Connection Project.

3.2 Having established the need for a project and the two points of connection, the starting point is to identify an OHL route.

3.3 The approach to routeing an OHL is based on the premise that one of the major effects of an OHL is visual and that the degree of visual intrusion can be reduced by careful routeing. A reduction in visual intrusion can be achieved by routeing the OHL to fit the topography, by using topography and trees to provide screening and/or backclothing, and by routeing the line at a distance from settlements and roads. However, other environmental issues also play a key role in this process, including (in no hierarchical order):

- visual amenity;
- landscape character;
- ecology and ornithology (biodiversity, including areas of irreplaceable habitat);
- cultural heritage including archaeology;
- forestry and woodland;
- hydrology and water resources;
- geology and soil (such as carbon-rich soils and minerals);
- land uses including planning applications; and
- recreation and tourism.

3.4 Technical considerations, which can influence routeing also require to be taken account of alongside environmental and economic considerations. Technical considerations include the existing electricity transmission network, access requirements, slope gradient, altitude, waterbodies, peat and the presence of wind turbines.

Established Practice for Overhead Line Routeing

The Holford Rules

3.5 It is generally accepted across the electricity industry that the guidelines developed by the late Lord Holford in 1959 for routeing OHLs, 'The Holford Rules', should continue to be employed as the basis for routeing high voltage OHLs. The Holford Rules were reviewed circa 1992 by the National Grid Company (NGC) Plc. (now National Grid Electricity Transmission Plc (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 ScottishHydro Electric Transmission Limited (SHETL) in 2003 to reflect Scottish circumstances.

3.6 The Holford Rules and the NGC and SHETL clarification notes are included in SPEN's Approach to Routeing and Environmental Impact Assessment document[4]. These guidelines for the routeing of new high voltage overhead transmission lines form the basis for routeing the Greenburn Grid Connection. Key principles of the Holford Rules include avoiding prominent ridges and skylines, following broad wooded valleys, avoiding settlements and residential properties and maximising opportunities for 'backclothing' infrastructure.

3.7 Consideration is also given to the Scottish Government's Control of Woodland Removal Policy[5] which requires that woodland removal should be kept to a minimum and that it should be replanted if felled. The policy only supports woodland removal where it would achieve significant and clearly defined public benefits. In most cases, compensatory planting may form part of this balance.

Biodiversity Net Gain

3.8 SPEN is committed to achieving No Net Loss (NNL) of biodiversity across all of its projects.

3.9 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 metric (version 2.0[6]). The toolkit has been developed in parity with Scottish and Southern Energy Networks' (SSEN) Biodiversity Toolkit[7] for consistency in assessments. The tools have been specifically adapted to reflect the unique nature of Scottish vegetation communities.

3.10 The adopted assessment tool will allow detailed analysis of biodiversity gains and losses as a consequence of development. However, following a period of testing, SPEN has determined that the assessment tool offers limited value at routeing stage, as detailed habitat and vegetation data is rarely available for all route options.

3.11 Consequently, a qualitative assessment of BNG opportunities is undertaken. Using data collected to inform the biodiversity appraisal detailed in later chapters of this report, professional ecological judgement is applied to determine the potential for development within each route to achieve NNL. The presence of designated sites and likely presence of habitats of particular conservation importance, along with the potential for site-based biodiversity enhancement interventions are considered.

3.12 Individual route options that are likely to have greater potential to achieve NNL are preferred.

The Routeing Objective

3.13 In accordance with SPEN's Approach to Routeing and Environmental Impact Assessment document, and to fulfil SPEN's statutory and license duties, the Routeing Objective for the Greenburn 132kV Connection Project is:

> *"To identify a technically feasible and economically viable route for an 132kV overhead line connection, supported on wood poles, from the Greenburn Wind Park substation to the existing New Cumnock Substation. This route should, on balance, cause the least disturbance to the environment and the people who live, work and enjoy recreation within it"*

Overview of Routeing Process

3.14 The methodology for overhead line (OHL) routeing follows a number of broadly sequential steps as shown in **Figure 3.1**.

3.15 Whilst presented in a broadly linear manner, 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

[4] SPEN (2020) Approach to Routeing and Environmental Impact Assessment. Available at: https://www.spenergynetworks.co.uk/userfiles/file/SPEN_Approach_to_Routeing_Document_2nd_version.pdf
[5] Forestry Commission Scotland (n/a) Control of Woodland Removal. Available at: https://forestry.gov.scot/publications/285-the-scottish-government-s-policy-on-control-of-woodland-removal/viewdocument/285
[6] Note that Defra has now published version 4.0 of the BNG metric, which is available at The Biodiversity Metric 4.0 - JP039 (naturalengland.org.uk)
[7] SSE renewables (2024) Nature Positive. Available at: https://www.sserenewables.com/sustainability/biodiversity-net-gain/

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.

Routeing Considerations, Identification of Study Area and Collection of Baseline Data

3.16 The main environmental and technical considerations which should be taken into account in routeing an OHL are determined from a study of potential effects and established routeing practice. These 'routeing considerations' include topography, landscape character and areas of high amenity value.

3.17 A 'study area' is first defined and information on the main environmental considerations within it is gathered. In addition, information is gathered on the technical considerations which apply such as the existing electricity transmission network, access requirements, slope gradient, altitude, waterbodies and peat and other infrastructure such as wind farms. Consultations are undertaken to obtain additional, up-to-date information on relevant considerations. The study area needs to be large enough to accommodate all likely route options, reflecting the Routeing Objective.

3.18 Considerations which are likely to constrain routeing are mapped together on a 'constraints map' to give an overview of the limitations to routeing, with all relevant environmental and technical information mapped. Topography is also mapped at this stage.

Routeing Strategy

3.19 Reflecting the study area and the routeing considerations located within it, a Routeing Strategy is developed to provide clarity on how the overall Routeing Objective will be achieved for the specific project in question. This is based on established practice for routeing and careful consideration of the specific technical and environmental constraints and opportunities relating to routeing an OHL through the identified study area. Further information on the detailed routeing strategy is provided in **Chapter 4** of this report.

Development of Route Options

3.20 Routeing considerations are applied to the study area to establish a number of possible 'Route Options'. This process involves the avoidance wherever possible of designated areas of high amenity value and irreplaceable habitat. These areas generally include areas of natural and cultural heritage value designated at a national, European or international level. These high amenity value areas are balanced with the technical constraints to inform the landscape led identification of route options.

Appraisal of Route Options

3.21 Each route option is appraised against the agreed environmental and technical routeing considerations, which have supporting objectives. For example, in relation to visual amenity, one objective may be to avoid/reduce, as far as is practicable, potential effects on views from residential receptors. In relation to technical considerations, such as the presence of existing or proposed wind turbines, the objective may be to avoid technical conflicts with existing or planned infrastructure.

3.22 In conjunction with the collection of relevant data and the appraisal of route options, the routeing considerations and related objectives may be re-appraised and updated as more information becomes available. Route options may then be rejected or modified, or new route options developed. The options which perform poorly in this initial appraisal are not considered further and the remaining route options are then further refined and re-appraised if necessary. The objective of this process is to identify the 'preferred route' which is technically feasible and economically viable whilst causing the least disturbance to the environment and to people.

Selection of a Preferred Route

3.23 Following completion of the environmental appraisal of route options, an emerging preferred option is identified on an environmental basis only. The Routeing and Consultation Report (i.e. this document) provides details on route options considered and provides a clear and transparent justification for the selection of the preferred route (refer to **Appendix B**).

3.24 At this stage a technical review of the route options is also undertaken by SPEN to inform the selection of the preferred option.

3.25 The emerging preferred option is then reviewed, and a 'Preferred Option' is taken forward for stakeholder consultation.

Modification of the Preferred Route

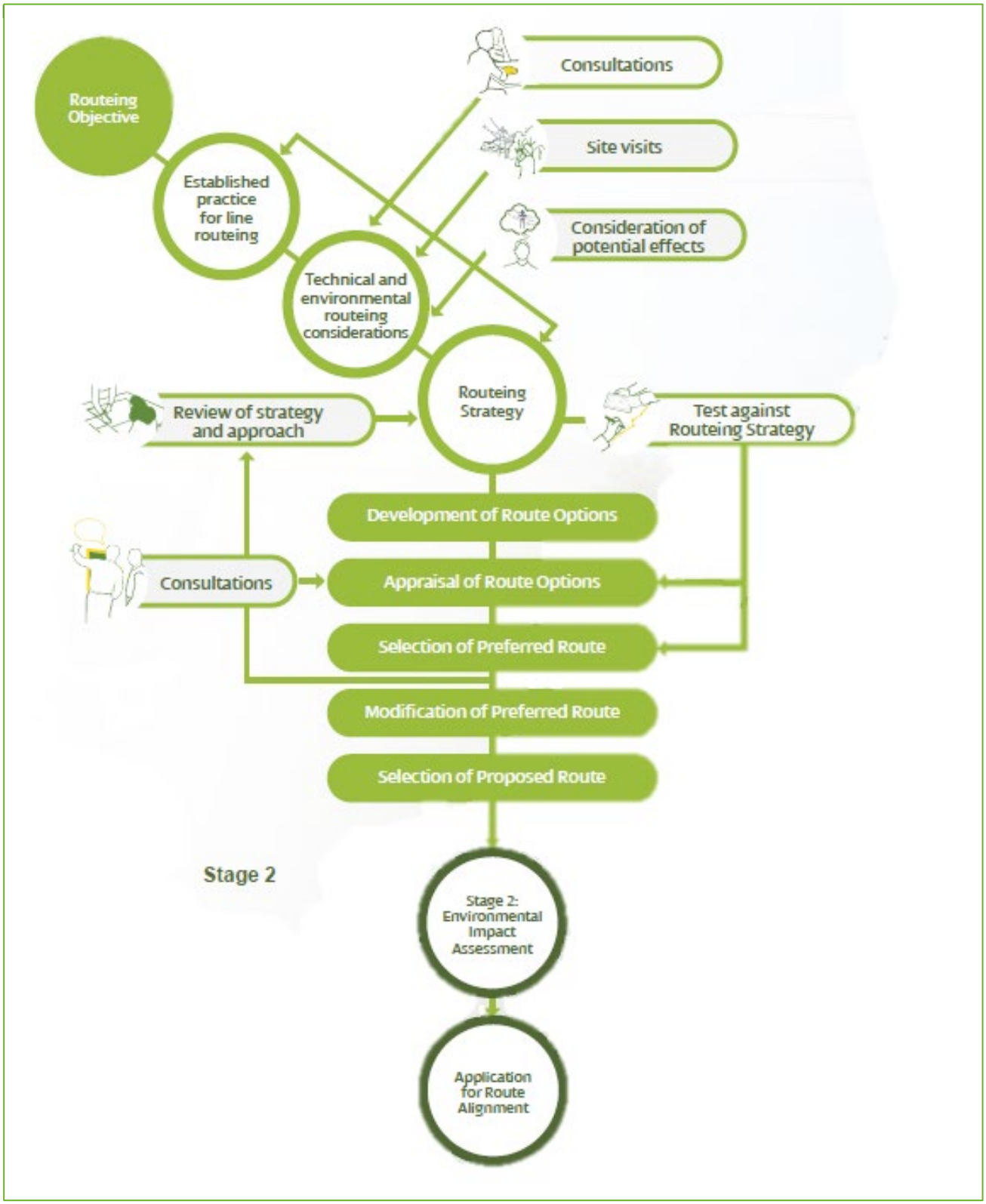
3.26 If required, following consideration of the consultation feedback, the preferred route may be modified to reflect the feedback. Modifications may result in further consultation if necessary.

Selection of the Proposed Route

3.27 The Preferred Route, with any post consultation modifications, is subsequently confirmed by SPEN as the 'Proposed Route'. This is then progressed to the EIA (if required) and detailed design stage to establish a final alignment, including locations for poles and for any ancillary

development required such as temporary construction access tracks, laydown areas and construction compounds.

Figure 3.1: Routeing Methodology



Chapter 4
Identification of Route Options

The Project Routeing Strategy

4.1 The Routeing Strategy, which has informed the identification of the route options for the Greenburn 132kV Connection Project, is as follows:

> *"Route options will take account of the valley landscape, making use of low-lying areas to limit visibility, and avoiding areas of highest amenity value and sensitivity as far as possible. Proximity to residential properties and other forms of development within the study area will also require consideration to limit potential cumulative effects."*

The Study Area

4.2 The first step in the routeing process involved identification of the study area, predominantly for the purposes of gathering data specific to the project area. In identifying the study area, it was important to ensure that this was large enough to accommodate all likely route options reflecting the Routeing Objective and Routeing Strategy.

4.3 On the basis of the Routeing Objective, the study area was required to be able to accommodate a 132kV OHL[8] from the Greenburn Wind Park proposed substation to the existing New Cumnock substation in East Ayrshire.

4.4 A preliminary check was also carried out to identify the presence of international, European or nationally designated areas within the wider area, to ensure that potential effects on these areas could be considered from the outset. Taking account of the above, and informed by topography, the maximum area across which the route options were likely to be located, was identified. The study area is shown in **Figure 4.1**.

Study Area Description

4.5 The study area is entirely within the East Ayrshire Council area; it is adjacent to the northern edge of the Carsphairn Hills and includes a section of the River Nith, approximately 4.4 km west of the settlement of New Cumnock at its closest point.

[8] To a terminal point reflecting approximately 400m of underground cable into the New Cumnock substation

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Routeing and Consultation Document
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Figure 4.1 Study Area

Study Area
Greenburn Wind Park Substation
New Cumnock Collector Substation
Slope > 22°
Topography (m AOD)
High
Low

Map scale 1:25,000 @ A3

0 0.5 1 km

EB:brown_i LUC 12573_r0_GreenburrGridConnectionFigures_January2025 14/01/2025 Source: SPEN, LUC, OS

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4.6 Topography within parts of the study area has been modified by opencast mining and ongoing restoration; however, it generally comprises an undulating area of foothills and broad river valley which ranges from 220m AOD near Dalricket Mill in the east, to the north-facing slope of Maneight Hill at 370m AOD in the south. Rig Hill (347m AOD) is a ridge-like foothill to the Carsphairn Hills, located north-east of New Cumnock substation.

4.7 In addition to the River Nith, there are several small tributary watercourses within the study area, including Beoch Lane and Knockenlee Burn, and areas of standing water within areas affected by opencast mining and ongoing restoration.

4.8 Former mineral extraction and part-restored areas have an impact on the character of the area. Ongoing restoration work of former opencast mines has resulted in the creation of a large steep-sided waterbody at Shiel Hill, and the landscaping and resurfacing of previously excavated areas. Much of the rest of the study area is relatively rural in nature, comprising small fields of rough grazing, extensive coniferous plantation, and areas of mixed and broadleaf woodland (which include areas of open ground).

4.9 The B741 road passes through the south of the study area and there are several residential properties adjacent to it, including Maneight and Nith Lodge. There is also a property at Upper Beoch, north of the B741 and west of Rig Hill. Although there are other buildings noted within the study area, these are understood to be associated with former mineral extraction and ongoing restoration and are not inhabited.

4.10 In terms of infrastructure, two existing OHLs extend from New Cumnock substation: a 275kV OHL forms the western edge of the study area, heading north, and a 132kV OHL heads south-west.

4.11 The following wind farms are also noted within the study area:

- North Kyle Energy Park (under construction);
- Greenburn Wind Park (consented); and
- Overhill Wind Farm (consented).

Planning Policy Context

National Planning Policy

4.12 The Fourth National Planning Framework (NPF4)[9], which was adopted on the 13th February 2023, is the spatial expression of the Scottish Government's Economic Strategy and plans for infrastructure investment and development priorities over the next 20 to 30 years.

4.13 Part 1 of NPF4 sets out an overarching spatial strategy for Scotland to 2045. Page 3 states that "*the global climate emergency means that we need to reduce greenhouse gas emissions and adapt to the future impacts of climate change*". The NPF4 Policy on Energy (Policy 11) emphasises the Scottish Government's commitment "*to encourage, promote and facilitate all forms of renewable energy development onshore and offshore. This includes energy generation, storage, new and replacement transmission and distribution infrastructure….*" (page 53).

4.14 Policy 11(a)(ii) further notes that grid transmission and distribution infrastructure will be supported.

4.15 Policy 11(e) provides details of which impacts are expected to have been considered through project design and mitigation, including impacts on residential amenity, landscape and visual impacts, public access, historic environment, etc. Further, Policy 11(e) notes that "*in the case of proposals for grid infrastructure, consideration should be given to underground connections where possible*".

4.16 NPF4 identifies transmission infrastructure as a national development where there is support for "*electricity generation and associated grid infrastructure throughout Scotland…helping to reduce emissions and improve security of supply*" (page 7). National Development 3: Strategic Renewable Electricity Generation and Transmission Infrastructure "*supports renewable electricity generation, repowering and expansion of the electricity grid*" (page 103). NPF4 acknowledges that "*the electricity transmission grid will need substantial reinforcement including the addition of new infrastructure to connect and transmit the output from new on and offshore capacity to customers in Scotland, the rest of the UK and beyond*" (page 103).

4.17 There is further acknowledgement at page 103 that "*additional electricity generation from renewables and electricity transmission capacity of scale is fundamental to achieving a net zero economy…*"

4.18 The Planning (Scotland) Act 2019 elevates the status of the National Planning Framework from material consideration to being part of the development plan. The Act also includes a planning purpose for the preparation of the NPF, being "*to manage the development and use of land in the long-term public interest*".

[9] The National Planning Framework (2023) available [online] at: https://www.gov.scot/publications/national-planning-framework-4/pages/1/

Local Planning Policy

4.19 The Local Development Plan (LDP) covering the study area is the East Ayrshire Local Development Plan 2 (adopted April 2024[10]) along with relevant statutory supplementary guidance.

4.20 The LDP is a strategic land use plan that sets out the strategic spatial priorities and policies for East Ayrshire and identifies land for specified uses (e.g. housing/industry etc.) to provide certainty for development.

4.21 The East Ayrshire Local Development Plan 2 will guide development within the District between 2023-2028.

Identification and Mapping of Routeing Considerations

4.22 The Holford Rules are broadly hierarchical with Rule 1 deemed the first rule to be considered in routeing. Rule 1 relates to the avoidance, where possible, of *"major areas of highest amenity value"*. Holford Rule 2 makes the following recommendation: *"avoid smaller areas of high amenity value or scientific interest by means of deviation"*.

4.23 As the Holford Rules do not define what constitutes a major area (Rule 1), and the importance of the areas is irrespective of size, smaller areas of highest amenity value were also mapped at this stage alongside the larger areas.

4.24 The Holford Rules do not identify which designated areas constitute areas of *highest amenity value*. However, SHETL clarification note b) (see SPEN's Approach to Routeing and Environmental Impact Assessment report[4]) states that areas of highest amenity value *"require to be established on a project-by-project basis considering Schedule 9 of the Electricity Act, 1989"*, and provides examples to be considered.

4.25 In this routeing study, the term 'environmental' has also been used in place of 'amenity' (with the exception of residential amenity) to reflect more recent thinking which also seeks to recognise the intrinsic values of such areas.

4.26 NatureScot Priority Peatland Habitats (Class 1 and 2 peatlands) have been mapped and comprise the only 'areas of highest environmental value' (Holford Rule 1) located within the study area. These formed an 'avoid ' constraint in the identification of route options.

4.27 As noted in **Chapter 3**, additional considerations can be introduced into the appraisal to help inform the identification and selection of a preferred route. These may be of more local importance and smaller in scale. As there are no national level designations, areas/features of "regional and local amenity value" have been included.

4.28 4.29 The SHETL note a) on Holford Rule 2 (see SPEN's Approach to Routeing and Environmental Impact Assessment report[4]) states these areas of "regional or local high amenity value" should be identified from Development Plans. For this routeing study, the other areas which have been considered are shown on Figure 4.2 and include:

- Local Nature Conservation Sites (LNCS); and
- Native Woodland Scotland (NWSS).

4.29 LNCS and NWSS areas have been mapped and form an 'avoid where possible' constraint in the identification of route options.

4.30 Supplementary Note a) of the Rules relates to residential areas, stating "*avoid routeing close to residential areas as far as possible on grounds of general amenity*". All properties across the study area have been mapped. Whilst it is recognised that proximity to properties is not an absolute constraint to routeing, a 150m 'trigger for consideration' has been mapped around each residential property to allow this proximity to be balanced with other considerations, while also helping identify possible 'pinch points'.

4.31 At this stage, all operational wind farms, under construction wind farms, wind farms with consent and those with valid planning applications or live appeals were also mapped as these form a technical constraint due to the requirement for a separation distance between turbines and the OHL.

4.32 Whilst it is known that that a number of other wind farm developments are in the process of undertaking EIA for sites, those at scoping stage were not mapped to inform the identification of route options[11] due to the level of uncertainty regarding their final layouts to be progressed through the consenting process.

4.33 SPEN advised that due to the potential for a 'wake effect'[12] a distance of 2x rotor diameter has been mapped to all operational, under construction and consented turbines within the study area which forms an 'avoid' constraint to identification of route options.

4.34 The existing and proposed OHL network has been mapped and included as a technical constraint. Only short lengths of the existing OHL network fall within the study area at the southern end where connection to the New Cumnock substation is proposed. Furthermore, waterbodies and watercourses have also been mapped. The River Nith may

[10] https://www.east-ayrshire.gov.uk/PlanningAndTheEnvironment/development-plans-and-policies/ldp2/ldp2-information.aspx

[11] A review of the status of all windfarms was undertaken on a monthly basis to ensure the latest status/layouts were used to inform routeing.
[12]'

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Routeing and Consultation Document
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Figure 4.2 Routeing Considerations

Glaisnock Moss / Carnivan Hill LNCS
Dalgig Plantation LNCS
Riggfoot / Lanemark Bogside Wetland LNCS
Martyrs' Moss LNCS
Dalleagles Woodland LNCS
Connel Burn / Benty Cowan LNCS

- Study Area
- Greenburn Wind Park Substation
- New Cumnock Collector Substation

Environmental Constraints

- Local Nature Conservation Site
- Canmore point
- Waterbodies and watercourses
- 50m buffer of watercourses and waterbodies
- Native Woodland Survey of Scotland (NWSS)

NatureScot Carbon and Peatland (2016) Classification

- Carbon and Peatland: Class 1
- Carbon and Peatland: Class 2
- Residential property
- Residential property - 150m buffer

Wind Farms

Consented

- Greenburn Wind Park
- Overhill

Under construction

- Enoch Hill
- North Kyle Energy Project
- Turbine layout - rotor diameter x 2

Technical Constraints

- 132kV overhead line
- 275kV overhead line

0 0.5 1 km

Map scale 1:25,000 @ A3

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require crossing, and along with other tributaries, will be considered at the appraisal stage.

4.35 The study area includes consideration of matters such as slope gradients (15 – 22 degrees and >22 degrees) which have been mapped. Slopes steeper than 22 degrees can present technical limitations.

4.36 The study area includes a large area of former opencast coal workings at its north-eastern edge on both sides of the River Nith, which is subject to ongoing restoration. These areas have been mapped and may present limitations in relation to slope gradients, mineral and ground stability.

4.37 These considerations have been mapped and are shown on **Figure 4.2**.

Identification of Route Options

4.1 Reflecting the Routeing Strategy, the identification of route options was undertaken using the methodology set out below to meet the overarching Routeing Objective.

4.2 Given the nature of overhead transmission lines, the primary environmental effects are likely to be landscape and visual effects. The best way to limit adverse effects on landscape and visual amenity is by careful line routeing, led by landscape architects, based on professional judgement and informed by fieldwork.

4.3 The presence of hard/avoid technical constraint posed by the 2x rotor diameter buffer around the consented turbines in the north of the study area, around the proposed Greenburn substation, resulted in there being no viable OHL route from the exit of the Greenburn substation. Therefore, SPEN advised that a section of underground cable was required to overcome the technical constraint posed by the consented turbines to connect to a terminal pole (the first pole in the OHL route).

4.4 At this initial stage of routeing the most appropriate location for the terminal pole was considered the aim was to minimise the length of UGC required, whilst avoiding the 2 x rotor buffer, proximity to the steep slopes of the restored opencast reservoir, and Class 1 peat.

4.5 Two approximate terminal pole locations (TPL) have been identified as shown on **Figure 4.3** to inform identification of the OHL routes.

4.6 The first is located to the south-west of the proposed Greenburn substation and the restored opencast reservoir, between the under construction wind turbines (and associated 2 x rotor buffers) at North Kyle Wind Farm (TPL1).

4.7 The second is located to the south-east of the proposed Greenburn substation outside the Greenburn 2 x rotor buffers (TPL2).

4.8 Following identification of the terminal pole locations, Holford Rules 1 and 2, formed the basis for the landscape led identification of OHL route options. In addition, Rules 4 and 5 of the Holford Rules identify that OHL infrastructure is judged to be more widely visible from surrounding areas when located on higher ground, for example ridges and skylines. Holford Rule 3 which states that, other things being equal, the most direct line should be chosen, with no sharp changes in direction, is also taken account of in identifying route options.

4.9 The presence of residential properties within the study area, and the 150m 'trigger for consideration', also played a key role in identifying route options.

4.10 Following a desk-based mapping exercise to define potential route options based on the environmental and technical constraints, a site visit was undertaken by LUC's landscape architects to further refine the potential route options for taking forward to the appraisal stage.

Description of OHL Route Options

4.11 Each of the route options was given a numerical reference: 1-4. All OHL route options have the same connection points commencing at the proposed Greenburn Wind Park Project substation and terminating at the existing New Cumnock substation. These are shown on **Figure 4.3**.

Route Option 1

4.12 Route Option 1 commences from the terminal pole siting area to the south-west of the reservoir within the restored House of Water opencast mining area.

4.13 The route option runs south-west to pass between under construction North Kyle wind turbines, and then south along the gentle slope of Little Rigend Hill, following the forestry edge.

4.14 The route option then travels south-west through forestry along the middle contours of the western flank of Rig Hill, avoiding the higher ridgeline above, and continuing south-west towards and across the B741 to reach the existing New Cumnock Substation.

Route Option 2

4.15 Route Option 2 commences at the same point as Route Option 1.

4.16 running south-west between the under construction wind turbines, and then travels southwards along the gentle slope of Little Rigend Hill following the forestry edge.

4.17 Route Option 2 then continues south across the northern forested slopes of Rig Hill before routeing south-west along its eastern flank, avoiding the higher ridgeline above and minimising proximity to Nith Lodge to the south-east. The

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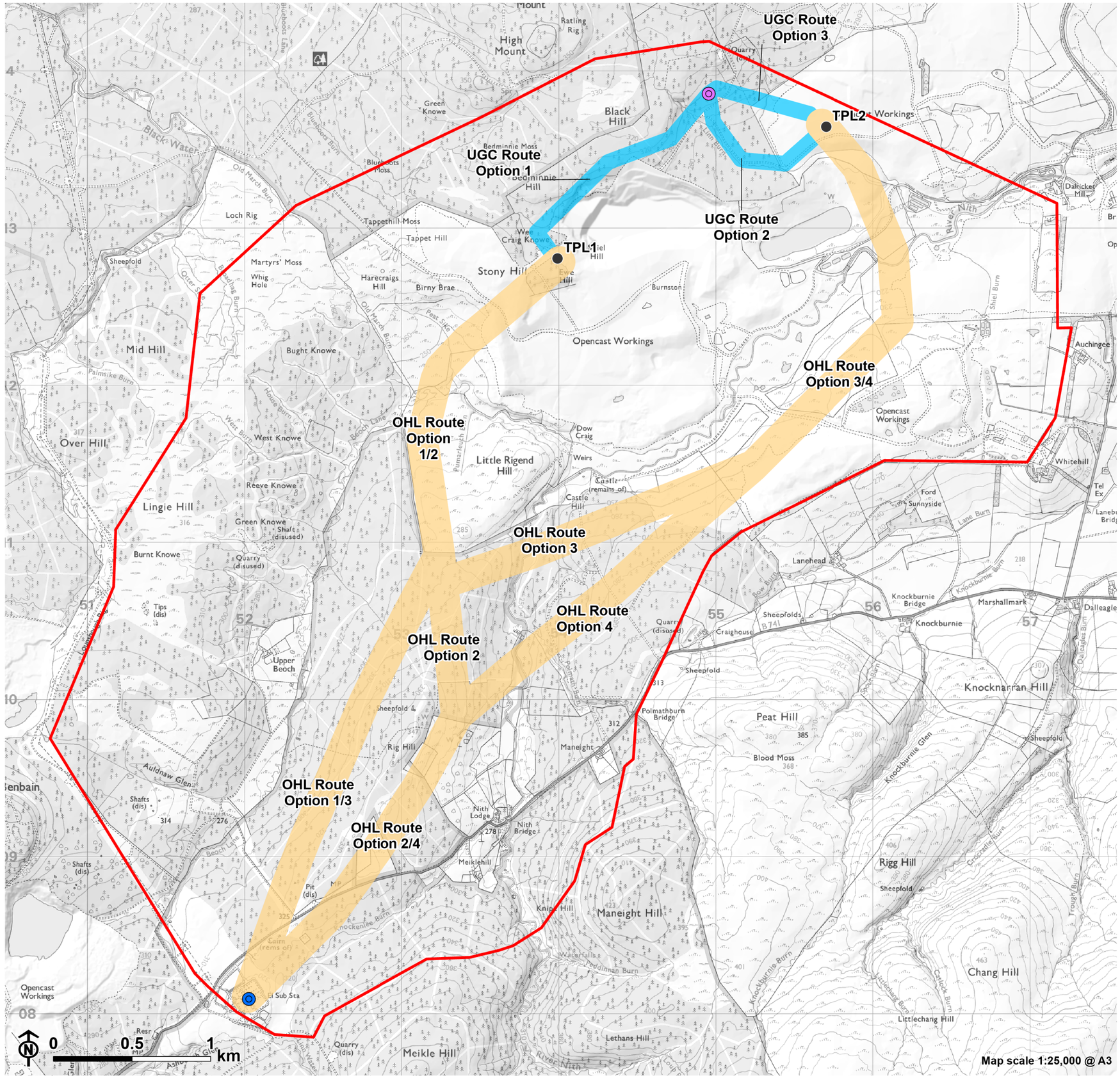
Figure 4.3 Route Options



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route then continues in south-west towards and across the B741 to reach the New Cumnock Station.

Route Option 3

4.18 From the proposed terminal pole siting area east of the Greenburn substation, Route Option 3 routes east of two waterbodies in the restored House of Water opencast mining area, and travels south to cross the River Nith. It then follows its course south-west along the gently rising southern slope of the valley side. The route enters coniferous forestry in the vicinity of Castle Hill before crossing the Polmath Burn and the River Nith once more, south of Little Rigend Hill.

4.19 As per Route Option 1, Route Option 3 then travels south-west through forestry along the middle contours of the western flank of Rig Hill, avoiding the higher ridgeline above and continuing south-west towards and across the B741 to reach the existing New Cumnock Substation.

Route Option 4

4.20 Route Option 4 follows, Route Option 3 where it enters the coniferous forestry at Castle Hill crossing the Polmath Burn and the River Nith once more.

4.21 Route Option 4 then follows Route Option 2 along the eastern flank of Rig Hill, avoiding the higher ridgeline above and minimising proximity to Nith Lodge to the south-east. The route then continues south-west, towards and across the B741, to reach New Cumnock Station.

Identification of Underground Cable Route Options

4.22 As set out above, the presence of hard/avoid technical constraint posed by the 2x rotor diameter buffer around the consented turbines in the north of the study area, around the proposed Greenburn substation, resulted in there being no viable OHL route from the exit of the Greenburn substation. Therefore, to facilitate the connection of the proposed OHL to the consented Greenburn Wind Park substation, three UGC route options were identified by SPEN. These commence at the Greenburn substation and will terminate at the terminal pole locations shown on **Figure 4.3**, at which point the connection transfers to an OHL.

4.23 The terminal pole locations and three proposed UGC route options are shown on **Figure 4.3.**

UGC Route Option 1

4.24 UGC Route Option 1 is approximately 1.6 km long and routes in a south-westerly direction around the reservoir created as part of the opencast restoration to TPL1.

UGC Route Option 2

4.25 UGC Route Option 2 is c.1 km long and runs in a south-easterly direction adjacent to an established access track to TPL2.

UGC Route Option 3

4.26 UGC Route Option 3 is c. 675 m long and crosses open grassland fields in a broadly easterly direction to TPL2.

4.27 As shown on **Figure 4.3**, UGC Route Option 1 would connect the proposed Greenburn Wind Park substation to OHL Route Options 1 and 2 at TPL1, before continuing to New Cumnock substation.

4.28 UGC Route Options 2 and 3 would connect the proposed Greenburn Wind Park substation to OHL Route Options 3 and 4 at TPL2, before continuing to New Cumnock substation.

Chapter 5
Appraisal of Route Options

Approach to Appraisal of Route Options

5.1 The objective of the appraisal of route options was to identify a preferred route for the Greenburn 132kV Grid Connection Project, in a comparable, documented and transparent way to identify an overall preferred route.

5.2 Professional judgement, informed by both desk studies and field work, and reflecting the Holford Rules, was employed to identify the preferred route.

5.3 The process also sought to:

- Continue to reflect the overall Routeing Objective and Routeing Strategy;
- Continue to reflect SPEN's 'Approach to Routeing and Environmental Impact Assessment' document;
- Continue to reflect the Holford Rules for Routeing Overhead Transmission Lines;
- Consider biodiversity net gain (BNG) priorities; and
- Draw out distinctions between the routes to enable the relative strengths and weaknesses of each to be identified.

5.4 The comparative appraisal of route options was undertaken in stages as set out below:

- Identification of appraisal criteria, together with their reasoning for inclusion (see **Appendix A**);
- Application of appraisal criteria to each route option, following the appraisal methodology;
- Comparative appraisal of route options to identify a preferred route (**Appendix B**); and
- SPEN technical review, reflecting system design requirements.

Environmental Appraisal Criteria

5.5 Based on the established practice for OHL routeing and the routeing considerations for the project, the route options were appraised using the following criteria, which continue to reflect the key considerations of the routeing methodology:

- Length of route;
- landscape and visual amenity;

- biodiversity (i.e. ecology and ornithology, including consideration of opportunities for BNG);
- cultural heritage;
- hydrology, flood risk and peat;
- forestry and woodland;
- Minerals; and
- land use.

5.6 The reasoning for the use of these criteria and an outline of the methodology for appraising each route option is set out in **Appendix A**. An overview of the environmental considerations within the study area represented by the appraisal criteria is provided below for context.

Biodiversity

5.7 There are no international designations (Ramsar, SPA SSSI and SAC) within the study area. There is only one national designation (Benbeoch SSSI) approximately 1.6 km to the southwest of the study area.

5.8 There are two LNCS within the study area; Martyr's Moss LNCS and Glaisnock Moss/Carnivan Hill LNCS, as shown on **Figure 5.1** at the end of **Chapter 5**.

Landscape and Visual Amenity

5.9 Consideration of landscape sensitivity is determined with reference to both the susceptibility of the landscape to the type and scale of OHL development proposed, and the value attributed to the landscape through formal designation or otherwise, using published baseline landscape character information.

5.10 The NatureScot digital map-based national Landscape Character Assessment (published in 2019) has been used as the basis for determining the Landscape Character Types (LCTs) across the study area. The LCTs are shown on **Figure 5.2** and listed below:

- Southern Uplands with Forest – Ayrshire LCT (82)[13];
- Foothills – Ayrshire LCT (76)[14];
- Upland Basin – Ayrshire LCT (74)[15]; and
- Southern Uplands – Ayrshire LCT (81)[16].

5.11 As the route options do not directly interact with the periphery of the Southern Uplands – Ayrshire LCT (81), this is not considered further within the appraisal.

5.12 NatureScot recognise that *"landscape boundaries are generally not hard boundaries though they have to be represented in a GIS as a distinct and sharp boundary between polygons"*[17]. The route options pass through the periphery of three LCTs and, although represented on **Figure 5.2** as distinct boundaries, differences noted during site survey are more subtle. Due to the similarity of landscape character through which the route options pass it is considered that there is no need to prepare a detailed landscape susceptibility appraisal for these route options. A susceptibility study in this case would not make a meaningful contribution to the route option appraisal.

5.13 Based on a review of the key characteristics of the LCTs and fieldwork observation, the LCTs are considered to be of lower susceptibility to the type of development proposed, in part due to existing human influence upon them (both directly and indirectly), including extensive coniferous forestry, remnant opencast mining (subject to ongoing restoration) and existing electricity infrastructure. Likely future change to the landscape of the study area and its immediate environs includes the introduction of a number of large scale wind turbines, associated with the consented schemes of Greenburn Wind Park (ECU00002037), North Kyle Energy Project (ECU00004480), Overhill Wind Farm (20/0425/PP) and Enoch Hill Wind Farm (EC00005256) as shown on **Figure 4.2**.

5.14 There are no national landscape designations, considered to be of area of highest environmental value (Holford Rule 1), within the study area. A small proportion of the Doon Valley Local Landscape Area (LLA) falls within the south-western extents of the 2 km study area (i.e. a landscape area of 'high environmental value (Holford Rule 2). This is illustrated on **Figure 5.2**.

5.15 In relation to residential visual amenity, there are several inhabited properties across the study area, with a higher density of population along the B741. For all properties, a 150m 'trigger for consideration' has been applied during the route appraisal (as shown on **Figure 5.2**).

5.16 Non-residential visual amenity, as experienced by those in the wider landscape e.g., recreational and road users travelling along roads/tracks and those working in the landscape, was also a factor in the appraisal of route options. This allowed consideration of topography, potential backclothing and visual prominence to be considered (similar to Holford Rule 4).

[13] Southern Uplands with Forest - Ayrshire LCT 82 (NatureScot 2019)

[14] Foothills - Ayrshire LCT 76 (NatureScot 2019)

[15] Upland Basin – Ayrshire LCT 74 (NatureScot 2019)

[16] Southern Uplands – Ayrshire LCT 81 (NatureScot 2019)

[17] SNH (2003) 'Overview of Scotland's National Programme of Landscape Character Assessment' (Page 93).

5.17 Consideration was also given to tourism receptors such as promoted/ key recreational viewpoints and promoted routes such as core paths. However, none of the Route Options would affect known tourism routes, destinations or core paths.

Cultural Heritage

5.18 There are no designated cultural heritage assets within the Study Area. There is one non-designated heritage asset of likely National Importance, comprising a former medieval castle at Little Rigend, Waterhead Castle (Canmore ID 43530). This is illustrated on **Figure 5.3**.

5.19 Much of the study area has been exploited for opencast coal extraction, thereby sterilising a substantial proportion of the archaeological resource. Similarly, the introduction of extensive conifer plantations across much of the remainder of the study area is likely to have resulted in extensive damage to any archaeological remains in planted and drained areas.

5.20 Recorded assets in areas unaffected by these current and past land uses relate largely to historical mineral extraction in the area, and the remains of 18th and 19th century agriculture. A few small areas of pre-Improvement cultivation are noted, along with undated enclosures and building footings that may relate to post-medieval settlement in the area. The fragmentary remains of Waterhead Castle, located on the south bank of the River Nith below Little Rigend Hill, represent an area of archaeological potential, outside the afforested area and the extent of historical mine workings.

5.21 The assets within the study area, based on available information, are generally of local importance and comparatively resilient to setting change, particularly given the impacts of afforestation and mineral extraction that have already occurred.

Forestry and Woodland

5.22 Forest areas within each of the route options were identified through the use of aerial photography, combined with digital data available from, NatureScot (formally SNH) and Scottish Forestry (SF) sources.

5.23 These forests were then divided into three groupings, as show on **Figure 5.4**:

1. Ancient Woodland Sites (AWI), including semi-natural.
2. National Forestry Inventory (NFI).
3. Native Woodlands from the Native Woodland Survey of Scotland (NWSS).

5.24 No AWIs are found within the study area and the route options do not interact with NWSS present within the study area, The appraisal therefore only considered conifer forest (represented by the NFI dataset and verified onsite).

Hydrology, Flood Risk and Peat

5.25 There are areas of Class 1 Peat within the study area close to Beoch Lane and Black Hill, as shown on **Figure 5.5**.

5.26 The Beoch Lane watercourse and the River Nith and their associated floodplains are within the study area. There are numerous watercourses within the study area.

Land Use and Minerals

Planning Applications/Appeals

5.27 Committed development data has been obtained from East Ayrshire Council, the Energy Consents Units and DPEA online planning portals to review live applications, appeals and consents. This was accessed in April 2024. All operational wind farms, wind farms under construction, with consent and those with valid planning applications or live appeals were considered at this stage, with a 2 x rotor diameter buffer for 'wake effect' applied to all turbines.

5.28 Wind farm proposals identified in the study area, and shown on **Figure 4.2** include:

- Greenburn Wind Park; consented in April 2021 (ECU reference ECU00002037[18]);
- North Kyle Energy Project; under construction (ECU reference ECU00001950); and
- Overhill Wind Farm scheme: permission granted in May 2020 (planning ref: 17/0395/PP) then a further planning permission granted at appeal in July 2023 to increase the tip heights (planning ref. 20/0425/PP, appeal ref: PPA-190-2080). A Section 42 application is currently noted for further amendments to the Overhill permission (planning ref. 23/0624/PP).

5.29 Other notable land uses within in the study area relate to open cast mining and electricity infrastructure. The following notable consented open cast mining/restoration applications have been identified within the study area:

- Opencast works restoration plans at House of Water are approved under application ref. 20/0007/PP (original consent ref. 17/0538/PP).

[18] The developer of Greenburn are currently undertaking a design review.

- Two consented planning applications for extensions to the New Cumnock substation (planning refs. 20/0242/PP and 22/0166/PP).

Minerals

5.30 Sands and gravel are locally present around water courses with sandstones, mudstones and igneous rocks present at surface below higher areas and below the drift deposits elsewhere.

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Figure 5.1 Biodiversity

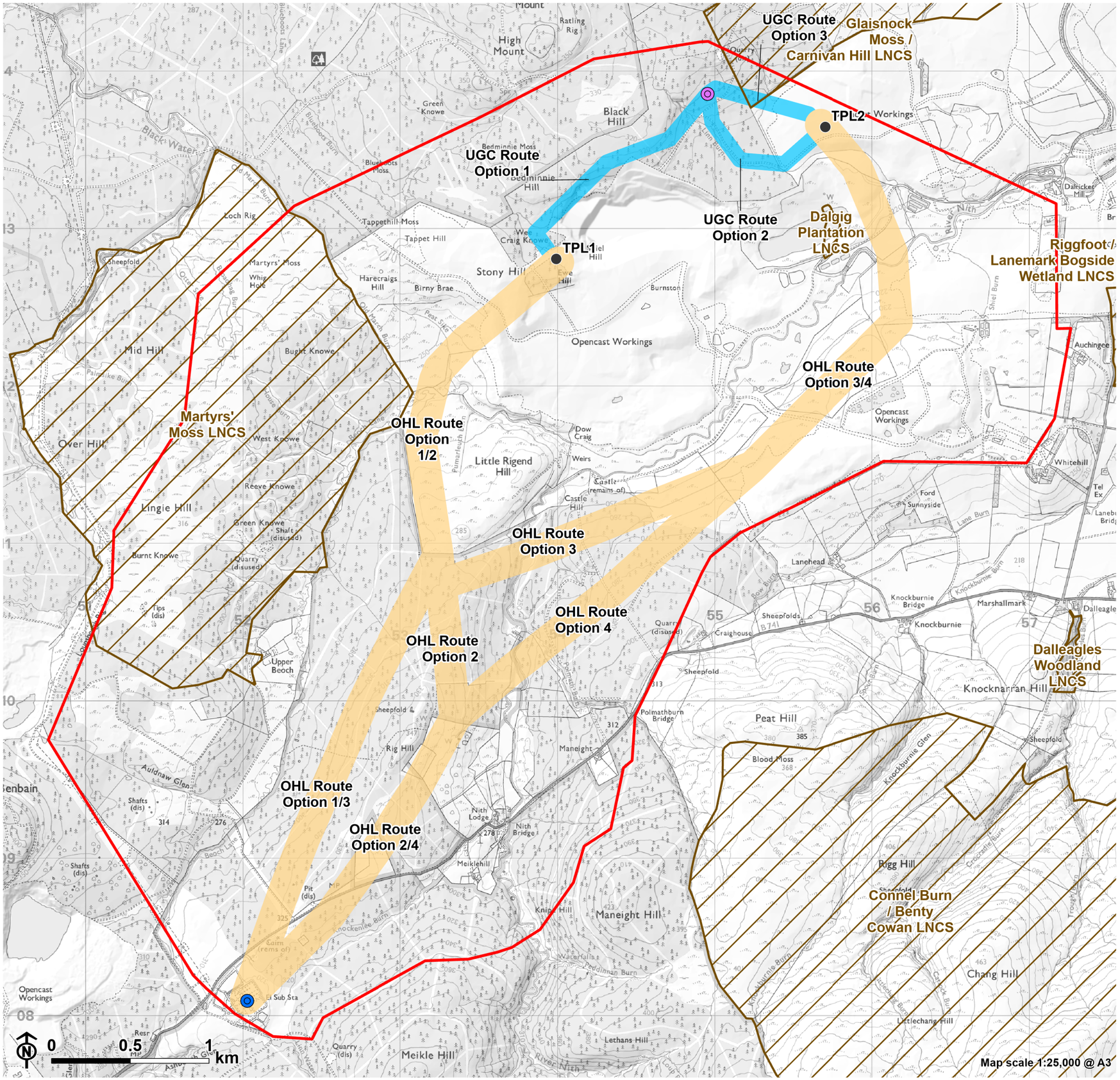

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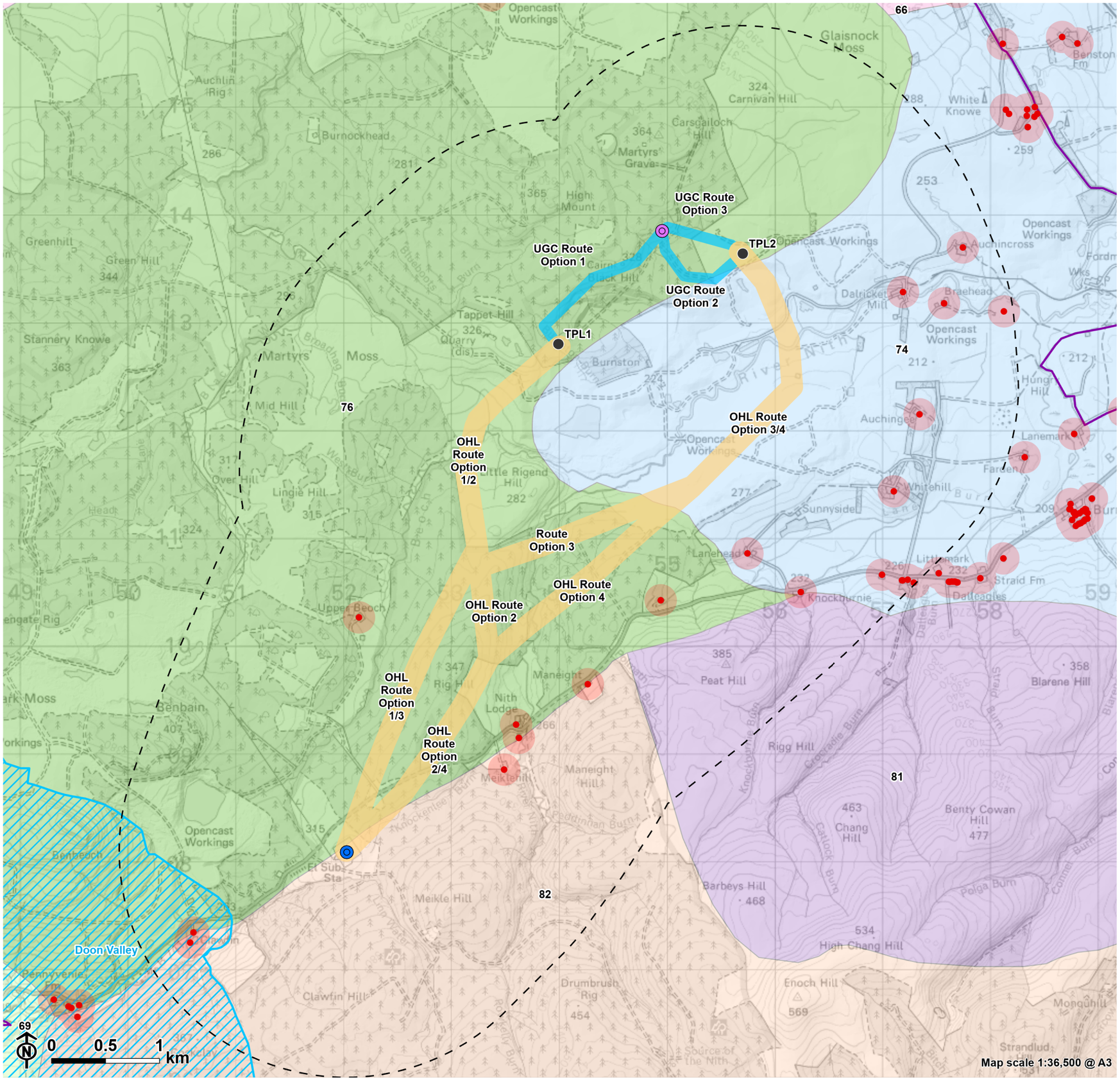
Figure 5.2: Landscape and Visual Amenity



- OHL Route Option
- UGC Route Option
- Study Area (2km from route options)
- Greenburn Wind Park Substation
- New Cumnock Collector Substation
- Indicative Terminal Pole Location (TPL)
- Core path
- Residential property
- Residential property - 150m buffer
- Local Landscape Area

Landscape Character Types (NatureScot 2019)

- 66. Agricultural Lowlands - Ayrshire
- 69. Upland River Valleys - Ayrshire
- 76. Foothills - Ayrshire
- 81. Southern Uplands - Ayrshire
- 82. Southern Uplands with Forest - Ayrshire
- 74. Upland Basin - Ayrshire

EB:brown_i LUC 12573_r0_GreenburnGridConnectionFigures_January2025 13/01/2025 Source: SPEN, LUC, NatureScot

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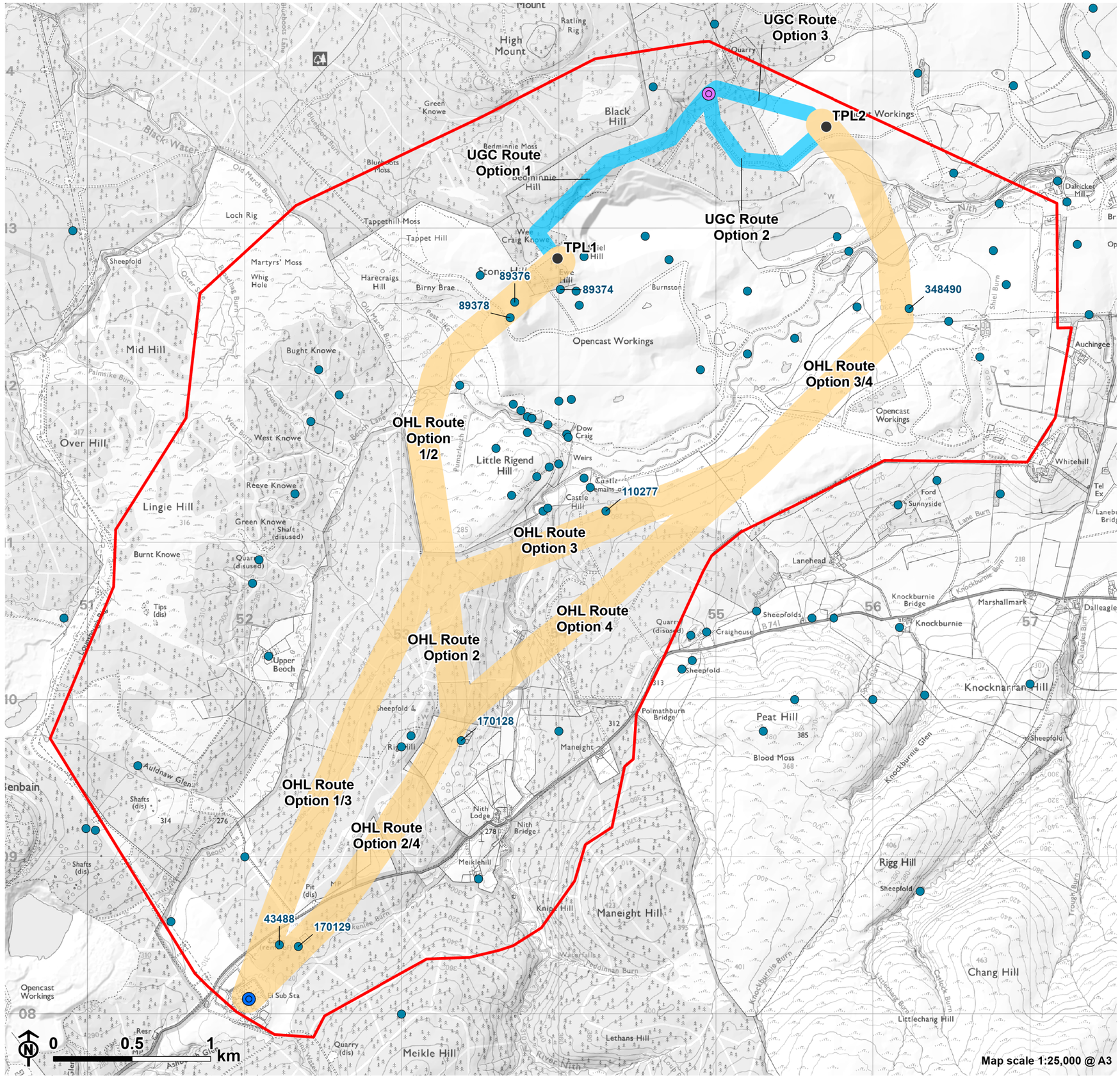
Figure 5.3 Cultural Heritage



Study Area
OHL Route Option
UGC Route Option
Greenburn Wind Park Substation
New Cumnock Collector Substation
Indicative Terminal Pole Location (TPL)
Canmore point

Map scale 1:25,000 @ A3

EB:brown_i LUC 12573_r0_GreenburnGridConnectionFigures_January2025 10/01/2025 Source: SPEN, LUC, HES

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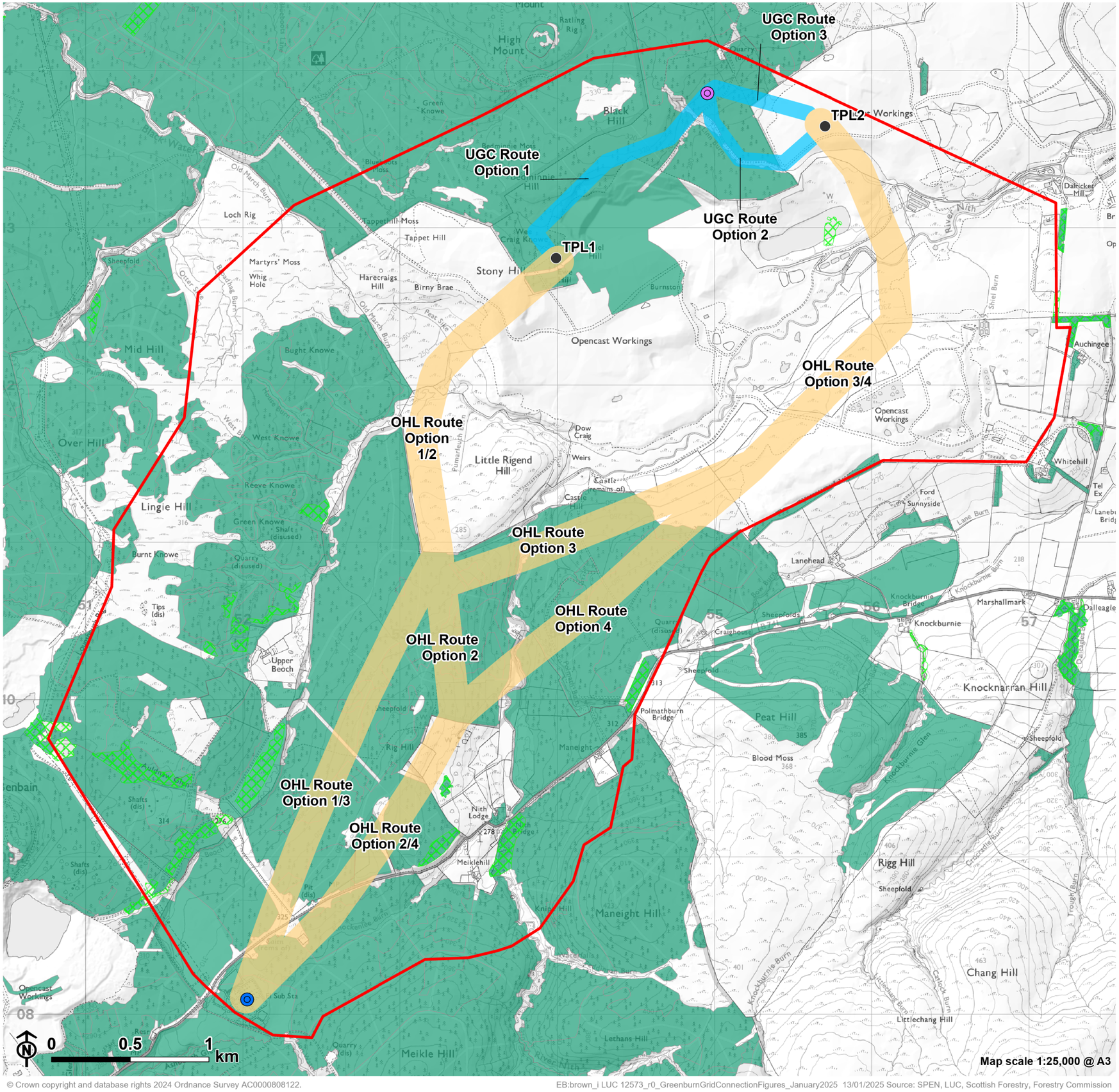
Figure 5.4 Forestry and Woodland



- Study Area
- OHL Route Option
- UGC Route Option
- Greenburn Wind Park Substation
- New Cumnock Collector Substation
- Indicative Terminal Pole Location (TPL)
- National Forest Inventory Woodland (NFI)
- Native Woodland Survey of Scotland (NWSS)

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EB:brown_i LUC 12573_r0_GreenburnGridConnectionFigures_January2025 13/01/2025 Source: SPEN, LUC, Scottish Forestry, Forestry Commission

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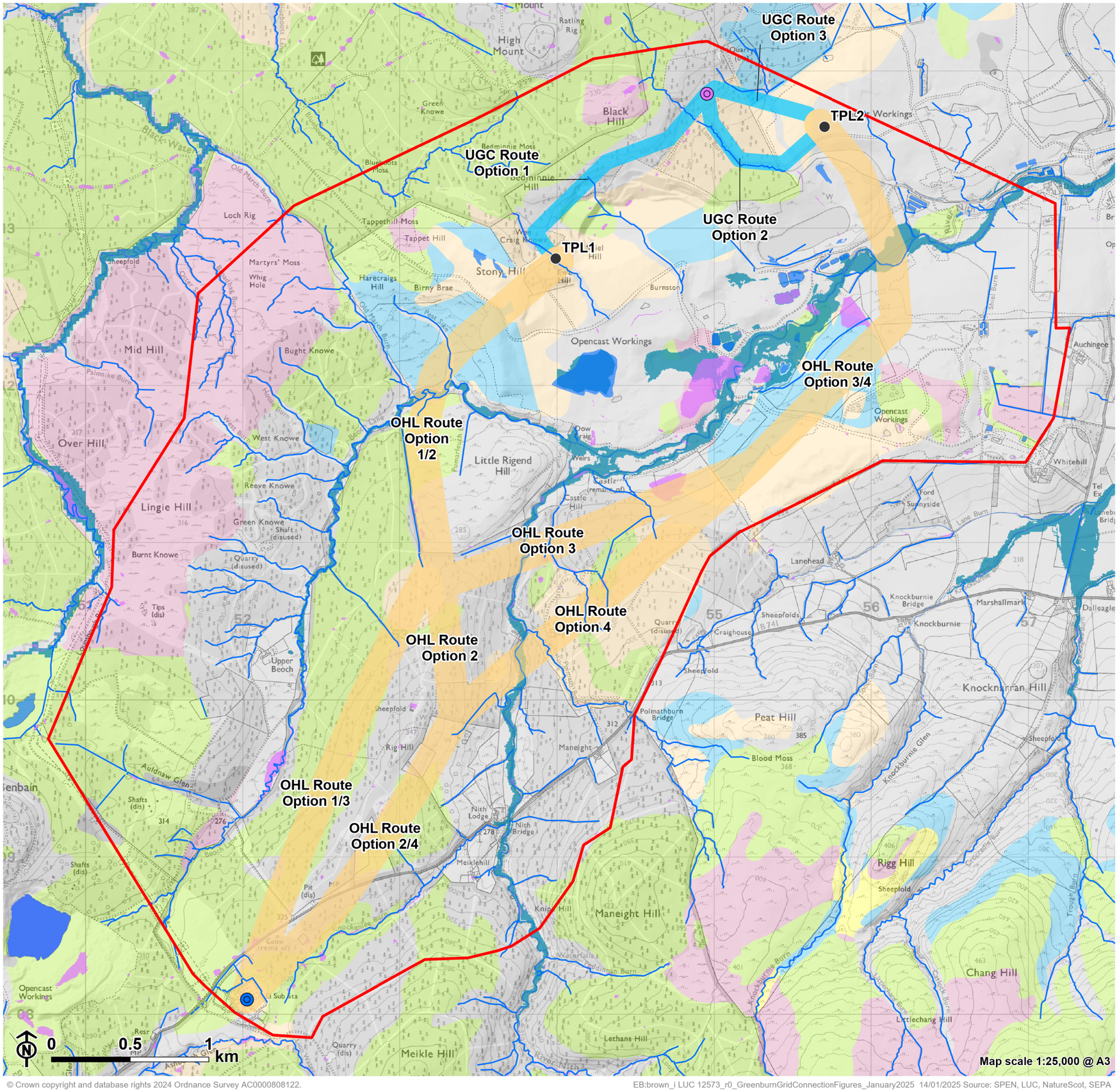
Figure 5.5 Hydrology, Flood Risk and Peat



- Study Area
- UGC Route Option
- OHL Route Option
- Greenburn Wind Park Substation
- New Cumnock Collector Substation
- Indicative Terminal Pole Location (TPL)

NatureScot Carbon and Peatland (2016) Classification

- Class 1: Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value.
- Class 2: Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas of potentially high conservation value and restoration potential.
- Class 3: Dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat.
- Class 4: Area unlikely to be associated with peatland habitats or wet and acidic type. Area unlikely to include carbon-rich soils.
- Class 5: Soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil. Soils are carbon-rich and deep peat.
- Class 0: Mineral soil - Peatland habitats are not typically found on such soils.
- Class -2: Non-soil (e.g. loch, built up area, rock and scree).
- Waterbodies
- Watercourses
- Flood Risk Management - Surface Medium (200 year)
- Flood Risk Management - Rivers Medium (200 year)

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Chapter 6
Appraisal Findings

6.1 The detailed environmental appraisal findings are included in **Appendix B.**

Emerging Preferred Route

6.2 The emerging preferred OHL route for the Grid Connection, taking account of environmental considerations only, is **Route Option 1.**

6.3 Route Option 1 is the shortest route, is preferred in relation to landscape and visual amenity, cultural heritage, minerals and hydrology/hydrogeology and would result in the second smallest impact on commercial forestry.

6.4 Whilst Route Option 1 is located in proximity to Martyrs Moss LNCS, connectivity can be avoided during detailed design, however, this option cannot avoid crossing large extents of Class 3 and Class 5 peat. Route Option 1 also has partial interaction with the HMP of the North Kyle Energy Project (proposed for Black Grouse enhancement) and crosses the proposed access track for the consented Overhill Wind Farm.

6.5 OHL Route Option 1 would connect to UGC Route Option 1 via TPL1.

6.6 As set out in **Chapter 3**, a Technical Review was then undertaken by SPEN on all the OHL and UGC routes to inform the selection of a Preferred Route.

Technical Review of Route Options

6.7 Following the environmental appraisal of the OHL route options (evidenced in **Appendix B**), all route options were reviewed by SPEN in relation to the system/network design requirements to identify the preferred route taking account of technical considerations only. The review was undertaken to ensure that, based on the level of detail available, the preferred technical route is within the technical parameters required to construct the OHL. This included consideration of the following parameters:

- **Route length;**
- **Altitude**;
- **Topography** (particularly slopes greater than 22 degrees however, slopes that were not greater than 22

degrees but steep in nature were also considered as these could be less favourable for routeing);

- **Buildability access constraints** (including restrictive roads and forestry access tracks);
- **Crossings of existing OHL transmission and distribution infrastructure**;
- **Proximity to existing OHL transmission and distribution infrastructure**;
- **Mineworking areas** (Opencast etc);
- **Ground conditions** (including peat);
- **Public service utilities** (crossings/ proximity) (including major pipelines);
- **Watercourse / Catchment areas crossings** (i.e. River, Loch, Reservoir);
- **Road / railway crossings along corridor**;
- **Windfarms** (existing and future developments);
- **Residential / Industrial areas**;
- **Pollution** (consideration of corrosion rates); and
- **Forestry** (felling required)**.**

6.8 All four OHL routes have an altitude >200m Above Ordinance Datum (AOD). All OHL routes will need to cross the River Nith/tributaries and other smaller watercourses. There are sections of forestry in all route options that will require felling and compensatory planting.

6.9 The technical review confirmed that all four of the OHL route options were technically viable.

6.10 With respect to the UGC route options, the engineering difficulties in this study area comprised the opencast mining operations, topography, quarry body of water, and existing and proposed accesses. To supplement the technical review of the three UGC routes, SPEN undertook a site walkover on 28th June 2024; the findings of which are presented below.

UGC Route Option 1

6.11 UGC Option 1 is the longest route, with challenging ground conditions due to the proximity to the quarry edge. There is a high probability of encountering rock, assumed due to previous quarry use and the area where the cable route starts being utilised by the wind farm as a stone extraction area. It crosses a watercourse with steep embankments, which is likely to be rebuilt/remediated as part of Greenburn turbine works and which presents technical constraints to the construction of the UGC.

6.12 There would be limited access to the UGC, meaning access would have to be constructed along the route for the duration of the works which may need to be permanent rather than temporary. Interaction with North Kyle Wind Farm and Greenburn Wind Park presents further technical issues, including potential crossover with their cable layout and restrictions on the proximity of construction works to turbines, which may push the UGC towards the quarry.

UGC Route Option 2

6.13 UGC Route Option 2 is located on mostly flat terrain and would minimise land sterilisation as it is located next to the existing access road/field boundary. It has the least interaction with the proposed Greenburn Wind Park access tracks, and it offers a more favourable approach to the substation compared to UGC Option 1.

UGC Route Option 3

6.14 Whilst UGC Route Option 3 is the shortest route and avoids more challenging watercourse crossings, it requires the establishment of an access track, and would sterilise a land strip through the middle of a number of fields and offers the least favourable approach to the substation among all cable route options.

Preferred UGC Route

6.15 SPEN confirmed that due to the terrain and ground conditions as a consequence of proximity to the opencast reservoir, length of route, presence of other wind farm infrastructure and operational requirements, UGC Route Options 1 and 3 are deemed to be technically unviable.

6.16 Therefore, UGC Route Option 2 is the preferred UGC Route Option.

Preferred Route

6.17 As the technical review found UGC Route Option 1 to be technically unviable, the Emerging Preferred OHL Route Option could not be progressed (as this required connection via UGC Route Option 1). Consideration of OHL Route Option 2 was also ruled out (as this also requires connection to UGC Route Option 1).

6.18 On this basis, the environmental appraisal was re-visited to appraise the least environmentally sensitive OHL route option between OHL Route Option 3 and Route Option 4 (which utilise the SPEN preference for UGC Route Option 2).

6.19 It was concluded that OHL Route Option 4 was the marginally preferred route as it comparatively approximately 360m shorter than Route Option 3, it passes through less woodland, meaning less trees will need to be felled, crosses the smallest extent of carbon rich soils and deep peat, and will not interact with the consented and under construction

windfarms and therefore avoids interaction with the consented HMPs.

6.20 Therefore, OHL Route Option 4, combined with UGC Route Option 2 connecting at TPL2, are referred to collectively as comprising the 'Grid Connection', and have been confirmed as the ‘Preferred Route’.

6.21 The Preferred Route has therefore been taken forward for stakeholder consultation. The Preferred Route is shown on **Figure 6.1.**

Conclusion

6.22 In accordance with the overarching project routeing strategy, the selection of the preferred route has primarily sought to avoid areas of highest amenity value whilst remaining technically viable and has been informed by the findings of a landscape and visual appraisal and site visit

6.23 This is on the basis that the routeing stage comprises the most effective way of avoiding and/or minimising potential landscape and visual effects. Further effects on other environmental characteristics, can be more readily minimised during the route alignment stage (and potentially through adoption of mitigation measures).

6.24 On this basis, the environmental and technical appraisal undertaken as part of the routeing process has identified a continuous 132kV route comprising OHL and UGC sections which meets the project routeing objective: OHL Route Option 4, combined with UGC Route Option 2 connecting at TPL2, have been confirmed as the Preferred Route.

6.25 The Preferred Route is shown in **Figure 6.1**. The Preferred Route, along with the alternative route options considered, form the basis of this round of consultation with stakeholders and the public.

6.26 Further details in relation to the consultation process are provided in **Chapter 7**.

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Routeing and Consultation Document
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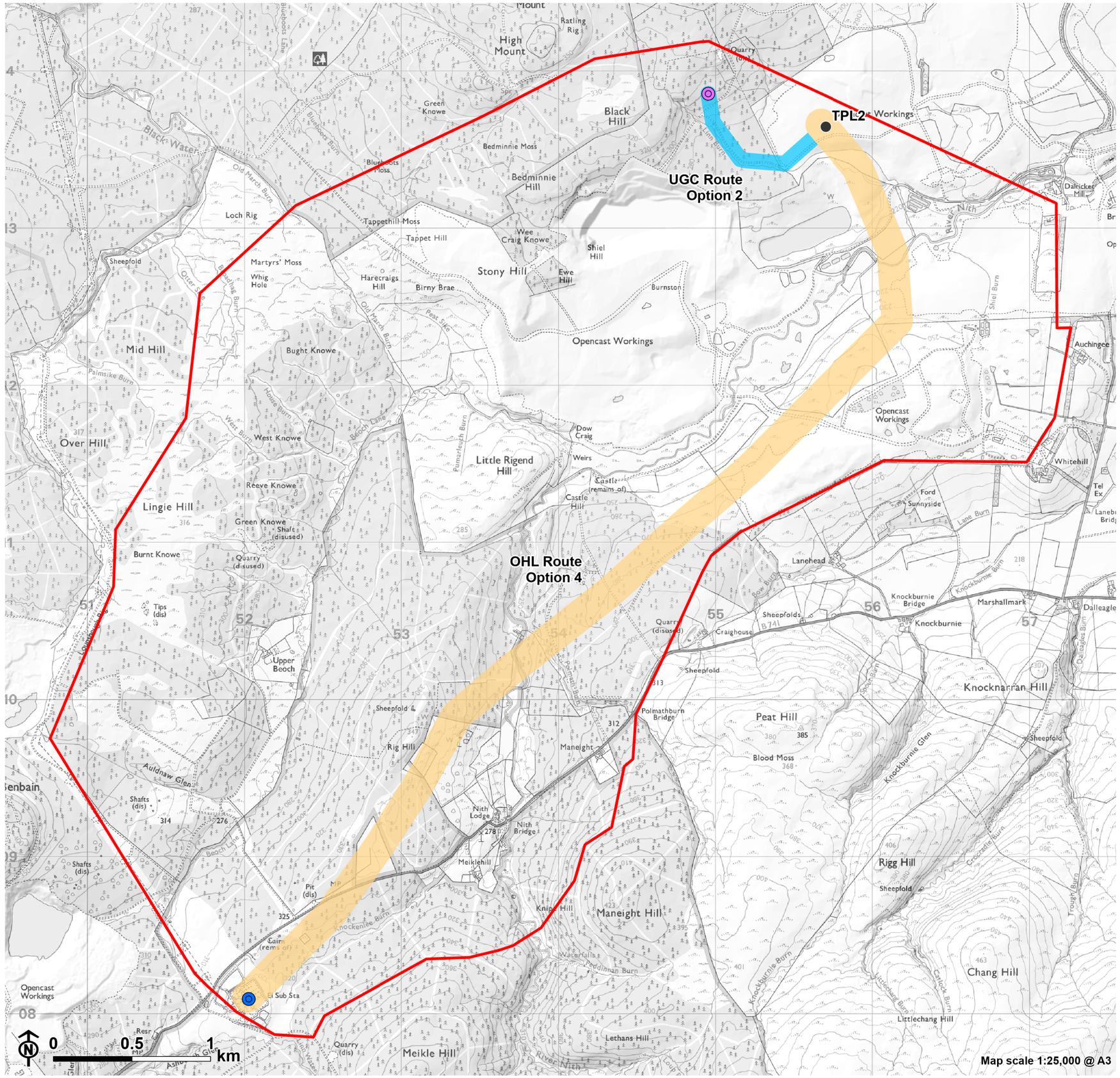
Figure 6.1 Preferred Route



SP Energy Networks

Chapter 7
Consultation Process and Next Steps

The Consultation Process

7.1 As set out in **Chapter 1**, SPEN will apply to the Scottish Ministers for consent to install and keep installed the new 132kV OHL electricity line, supported on wood poles, from the consented Greenburn Wind Park substation to the existing New Cumnock substation in East Ayrshire under Section 37 of the Electricity Act 1989. SPEN will also apply for deemed planning permission for the line and associated works under Section 57(2) of the Town and Country Planning (Scotland) Act 1997. While there are no formal pre-application requirements for consultation in seeking section 37 consent/deemed planning permission, SPEN is embracing best practice as outlined in the *Scottish Government Energy Consents Unit Good Practice Guidance for Applications under Section 36 and 37 of the Electricity Act 1989 (July 2022).* This guidance encourages applicants to engage with stakeholders and the public to develop their proposals in advance of such applications being made.

7.2 Therefore, prior to the submission, SPEN is carrying out consultation with stakeholders and the public.

7.3 Following the submission of application for Section 37 consent and deemed planning permission, the Scottish Government Energy Consents Unit will, on behalf of Scottish Ministers, carry out further consultation with the public and stakeholders, including East Ayrshire Council.

Consultation Strategy

7.4 SPEN attaches great importance to the effect that its works may have on the environment and local communities and is very keen to hear the views of local people to help it develop the Greenburn 132kV Connection Project in the best way.

7.5 The overall objective of the consultation process is to ensure that all parties with an interest in the Greenburn 132kV Connection Project continue to have access to up to date information and are given clear and easy ways in which to shape and inform SPEN's proposals at the pre-application stage.

7.6 In addition, it is envisaged that the key issues identified through this process can be recorded and presented to decision makers to assist the consents process.

7.7 As part of the consultation strategy, SPEN will be holding a public event in the local area for the public, stakeholders and consultees. Details of the consultation process are set out below.

Consultation launch and duration

7.8 The consultation will run from the 22nd January 2025 to the 19th February 2025.

7.9 Prior to the consultation event, an advert will appear in the Cumnock Chronicles (the local newspaper) on Wednesday 22nd January 2025. The advert provides the information on the project, where and when consultation will take place and confirms that comments received at this stage are informal comments to SP Energy Networks, with the opportunity to comment formally to the Energy Consents Unit available once an application has been submitted to them. A copy of the advertisement text to be publicised in the local newspaper is provided in **Appendix C**.

7.10 Prior to the consultation events, posters will also be provided to the following venues to be displayed:

- Dalmellington Community Centre 38 Ayr Rd, Dalmellington, Ayr KA6 7SJ
- Co-op Dalmellington 2 Churchill, High Main St, Dalmellington KA6 7Q
- High Main Street Post Office 10 High Main St, Dalmellington, Ayr KA6 7QN
- Scotmid Co-op New Cumnock 57 Afton Bridgend, New Cumnock, Cumnock KA18 4B
- New Cumnock Bowling Club 3 Castle, New Cumnock, Cumnock KA18 4AN

7.11 It is up to the venue's discretion as to whether the posters will be put up and remain in place for the duration of the consultation event.

7.12 Leaflets have also been distributed to local properties which are located within 2 km of the study area. The leaflet distributed is contained in **Appendix D,** and will be available to take away at the in-person consultation event**.**

7.13 The closing date for sending responses to SPEN will be midnight of Wednesday 19th February 2025. Following this date, the information will remain accessible online (on the project website) and available to download (from the project website).

Consultees

7.14 SPEN wishes to consult with relevant stakeholders and gain their views on the proposed route of the Greenburn 132kV Connection Project. The consultation will seek to gain views from the following broad groups:

- statutory and non-statutory consultees, including community councils;
- known local interest and community groups operating in East Ayrshire Council area;
- Selected members of East Ayrshire Council area; and
- Local residents, businesses and the public in general.

7.15 As noted above, leaflets have been distributed to local residents. Email correspondence has been sent to relevant stakeholders advising them of the consultation and seeking their views on the proposals. The list of stakeholders consulted can be found in **Appendix E.**

Consultation Event

7.16 An in-person consultation event will be held on the 28th January 2025 between 1pm-6pm at the following venue:

Dalmellington Community Centre
Miners Suite
38 Ayr Rd,
KA6 7SJ

7.17 Members of the SP Energy Networks and LUC project team will be in attendance to respond to questions.

The focus of the consultation

7.18 This report presents the findings of Phase One of the Greenburn 132kV Connection Project, the routeing process, resulting in identification of a preferred route.

7.19 The focus of the consultation process will be to ask for people's views on:

- the preferred route;
- any other issues, suggestions or feedback; particularly views on the local area, for example areas used for recreation, local environmental features, and any plans to build along the preferred route.

Sources of information about the consultation

7.20 The principal source of information regarding the consultation will comprise the Greenburn 132kV Connection Project website:

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

7.21 The website will contain publicly available consultation documents for viewing or download beyond the consultation period.

How people can provide comments

7.22 People will be able to submit comments by email to greenburngridconnection@spenergynetworks.co.uk no later than midnight on **Wednesday 19th February 2025**.

7.23 Feedback can also be provided through the virtual feedback form available on the project website.

7.24 Alternatively, people can also send in a letter providing comments to:

Greenburn Grid Connection
SP Energy Networks
55 Fullarton Drive
Cambuslang
Glasgow
G32 8FA

Next Steps: Route Alignment and Environmental Appraisal

7.25 The responses received from the consultation process will be considered in combination with the findings of this report to enable SPEN to decide on the 'Proposed Route' to be progressed to the next stage.

7.26 The Proposed Route will then progress to identify an OHL alignment, including individual pole positioning which will be informed by the Environmental Appraisal[19], detailed engineering ground surveys and discussions with landowners. This alignment, including all ancillary development will be included in the application for Section 37 Consent and deemed planning permission.

7.27 SPEN will consult fully with affected landowners and occupiers on all aspects of the Greenburn 132kV Connection Project and will give them an opportunity to comment on proposals as they progress.

[19] Subject to the Scottish Ministers confirming the Project does not require an EIA.

Appendix A

Routeing Appraisal Methodology

Table A.1: Route Appraisal Methodology

Criterion	Sub-criteria	Objectives	Methodology
Length of Route	■ Length of Route Option (Holford Rule 3)	■ To choose the shortest and most direct route (Holford Rule 3).	Holford Rule 3 states, "*other things being equal, choose the most direct line*". Although this rule primarily relates to avoiding sharp changes in direction, and therefore the need for more visually intrusive angle towers, choosing the most direct route may result in fewer adverse environmental effects than a longer, less direct route (taking due consideration of other constraints). The length of the centre line of each route option is calculated using Geographical Information Systems (GIS).
Biodiversity	■ Ramsar Sites (Holford Rule 1)[20] ■ Special Protection Areas (SPA) (Holford Rule 1)[35] ■ Sites of Special Scientific Interest (SSSI) (Holford Rule 1)[35] ■ Special Areas of Conservation (SAC) (Holford Rule 1)[35] ■ National Nature Reserves (NNR) (Holford Rule 1)[35] ■ Local Nature Reserves (LNR) (including RSPB Reserves) (Holford Rule 2)[35] ■ Local Nature Conservation Sites (LNCS) (Holford Rule 2) ■ Local Wildlife Sites (LWS) (Holford Rule 2) ■ Scottish Wildlife Trust (SWT) Reserves (Holford Rule 2)[35] ■ Biodiversity Net Gain (BNG) – No Net Loss (NLL)	■ To seek to avoid/reduce, as far as practical, effects on the qualifying features of designated sites of nature conservation importance (Holford Rule 1 and 2).	In accordance with Holford Rule 1, areas of highest environmental value are mapped to identify whether any of these areas are located within the study area. There are no Holford Rule 1 ecology and biodiversity sites within the Study Area. In accordance with Holford Rule 2, areas of regional or local value are also mapped to determine their presence (or lack of) within the study area. These include Local Nature Reserves (LNRs) (including RSPB Reserves), Local Nature Conservation Sites (LNCS), Local Wildlife Sites (LWS) and Scottish Wildlife Trust (SWT) Reserves. Potential physical effects on areas of 'highest amenity value' and regional or local value were identified based on the size/location of the designated sites which the route option overlaps, reflecting the potential to avoid locating the poles within the designated site at the detailed design stage. Holford Rule 2 sites have been avoided in identifying the route options. The appraisal also considers the distance of the route options to ecological designations and their qualifying features and identifies a route preference taking into account these factors. Where possible, the connectivity and pathways for impact (e.g. via watercourse or functionally-linked habitat) are also considered with the route options with the lowest potential for pathway-related effects on designations being preferred. Where designated sites with non-avian qualifying species are located within 1 km of a route option, these are considered within the appraisal. The habitats and species within the designation are considered, as well as any functional ecological connectivity to the route option and the likelihood of effects on the species' metapopulations within and beyond the boundaries of the designated sites. Species such as breeding Schedule 1 birds (outwith the boundaries of designated sites), European Protected Species (such as otters) and other nationally protected species (such as water vole and badger) will be considered during the detailed alignment and subsequent assessment stage, informed by the findings of field surveys. As far as possible, hydrology and forestry data sets are also reviewed as they indicate the presence of habitats such as open water and woodland. The appraisal considers the level of sensitivity of the habitat, the species this habitat is likely to support, and its distance from/degree of overlap with the route option. The absence of an ecological feature from the datasets cannot be taken to represent actual absence. Habitat distribution patterns should be interpreted with caution as they may reflect survey/reporting effort rather than actual distribution. Ecological sub-criteria, along with contemporary aerial imagery, is used to determine each route's potential to achieve BNG (NNL). Professional ecological judgement is applied to determine the likely habitat assemblages within each route. The presence of designated

[20] Designation/criteria were not identified in the route options or study area and are not considered in the environmental appraisal table

			sites and the likely presence of habitats of particular conservation importance, along with the potential for site-based biodiversity enhancement interventions, are considered. Individual route options that are likely to have greater potential to achieve NNL are preferred.
Landscape and Visual Amenity	■ Nationally Designated Landscapes: National Parks and National Scenic Areas (Holford Rule 1)[35] ■ Wild Land Areas (WLA) (Holford Rule 1)[35] ■ Locally Designated Landscapes: Local Landscape Areas (LLA) (East Ayrshire Council)[21] (Holford Rule 2) ■ Landscape Character Types (LCT) (Holford Rules 4, 5, 6 and 7), including Landscape Susceptibility. ■ Visual Amenity from residential properties (residential visual amenity) (similar to Holford Rule 4) ■ Non-residential visual amenity, as experienced by those in the wider landscape e.g., recreational receptors (OS promoted viewpoints, Sustrans routes, Core Paths, long distance promoted trails, tourist attractions) and road users travelling along roads/tracks and those working in the landscape (similar to Holford Rule 4 and Further Notes on Clarification to the Holford Rules).	■ To seek to avoid/reduce, as far as practical, effects on designated landscapes (Holford Rule 1 and 2). ■ To contribute to the understanding of likely landscape and visual sensitivities within different areas for routeing (Holford Rules 4, 5, 6 and 7). ■ To seek to avoid/reduce, as far as practicable, potential effects on views from residential receptors (similar to Holford Rule 4). ■ To seek to avoid/reduce, as far as practicable, potential effects on road users and recreational receptors utilising formal/informal recreational routes, areas and tourism features (similar to Holford Rule 4 and Further Notes on Clarification to the Holford Rules).	In accordance with Holford Rule 1, areas of highest environmental value are mapped to identify whether these areas are located within the study area, with the identification of route options seeking to avoid these. There are no Holford Rule 1 landscape designations sites within the Study Area. In addition to the areas of highest environmental value above, and in accordance with Holford Rule 2, areas of local value are also identified to inform the appraisal. These include areas of scenic value designated at local level, and which have a level of protection in a Local Development Plan (LDP). The potential for effects on the identified special qualities of these designated areas are appraised where present within the study area. The NatureScot (formerly SNH) digital map-based national Landscape Character Assessment (LCA) (published in 2019)[22] is used as the basis for determining the susceptibility of Landscape Character Types (LCTs) across the study area. This is supplemented by information contained within relevant published landscape capacity studies and observations made during fieldwork to appraise the relative landscape 'fit' of each route option. Landscape susceptibility refers to the ability of the landscape to accommodate a particular kind of change without significant change in its character, in this instance the introduction of a wood pole 132kV OHL development. During the appraisal of route options, indicators of landscape susceptibility are considered to ensure the most appropriate landscape 'fit' of the proposed OHL development. Reflecting Holford Rules 4, 5 and 6, the appraisal considers aspects of landscape character including landform and scale; landcover and pattern (e.g. in terms of topography or field boundaries); the presence of other human influences; and the presence and distribution of settlement and evidence of existing and likely future change within the landscape. Due to the similarity of landscape character across the study area, a detailed landscape susceptibility appraisal was not considered necessary, though the above criteria were considered through a review of the key characteristics of each LCT and fieldwork observation, as well as a consideration of likely future landscape changes related to consented wind farms. In all areas, routeing should seek a positive fit between the type and scale of OHL and the receiving landscape. Routes with a positive landscape fit are likely to give rise to less severe, fewer, and less widespread effects on landscape character. Routes with a poorer landscape fit, for example running along ridge lines, or cutting across valleys, are likely to have greater effects on landscape character. 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. Residential dwellings are mapped, and 150 m buffers on these are applied as 'trigger for consideration zones' for residential visual amenity to reflect the principles within the Further Notes on Clarification to the Holford Rules and published Landscape Institute Guidance on Residential Visual Amenity Assessment (RVAA) (TGN 02/2019)[23]. Potential effects on residential visual amenity are considered in more detail where these buffers overlap with route options. Particular consideration is given to higher concentrations of residential receptors within close proximity of route options that may result in 'pinch points'. The implications for principal views from individual properties are considered, informed by aerial photography and field work. Consideration is also given to visual amenity experienced by people within a 2km radius of the route options where recreational activities are undertaken, including tourist attractions. To inform consideration of visual amenity, a number of potential receptors (i.e. areas where people are undertaking recreation or visiting tourist attractions where views of the surrounding landscape are important to that experience) are considered, including but not limited to golf courses, holiday/caravan parks, promoted visitor attractions, promoted tourist routes/core paths and long distance walking/cycle routes. Data on recreation and tourism interests is gathered using a desk based approach using Ordnance Survey maps, aerial satellite imagery and GIS datasets (where these exist) and is supplemented by fieldwork. Outdoor tourist attractions, promoted viewpoints and formal recreational facilities, where the

[21] https://www.east-ayrshire.gov.uk/CouncilAndGovernment/Consultations/Local-Landscape-Area.aspx
[22] https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions
[23] https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/03/tgn-02-2019-rvaa.pdf

			surrounding landscape contributes to the recreational experience, were identified from Ordnance Survey maps, fieldwork, and tourist information. Transport routes are identified from Ordnance Survey maps. The potential for visual effects associated with OHL in the various route options on users of these features is considered in relation to professional judgements about the likely sensitivity of visual receptors; observations made during fieldwork (potential screening associated with the landform or vegetation); and the type and scale of the proposed OHL.
Cultural Heritage	■ Scheduled Monuments (Holford Rule 1)[35] ■ World Heritage Sites (Holford Rule 1)[35] ■ Listed Buildings, Category A, B and C (Holford Rule 1)[35]**Error! B ookmark not defined.** ■ Conservation Areas (Holford Rule 1)[35] ■ Inventory Gardens and Designed Landscapes (Holford Rule 1)[35] ■ Inventory Historic Battlefields (Holford Rule 1)[35] ■ Non-Inventory Designed Landscapes (Holford Rule 2) ■ Non-designated records identified by Canmore – Scotland's National record of the Historic Environment (Holford Rule 2) ■ Archaeologically Sensitive Areas (ASA) (Holford Rule 2)[35]	■ To seek to avoid/minimise, as far as practical, direct physical change on designated features of cultural heritage interest ('historic assets') or change in their settings which would harm their significance or perception (Holford Rule 1 and 2).	In accordance with Holford Rule 1, areas of highest environmental value were mapped to identify whether any of the statutory heritage designations, as listed in the sub-criteria, are present within the 2km Study Area. There are no Holford Rule 1 heritage assets within 2km of the Study Area. In accordance with Holford Rule 2, areas of regional or local value are also identified to inform the appraisal. For example, non-Inventory designed landscapes (NIDLs), Archaeologically Sensitive Areas (ASAs) and sites recorded in Canmore. There are no NIDLs or ASAs within the 2km study area. Policy and guidance seeks the preservation[24] of heritage assets and the routeing appraisal therefore focusses on the ways in which harm could arise to assets via: ■ Direct physical change[25]; ■ Change in the setting of assets which affects their cultural significance[26]; and ■ Change in the setting of assets which affects how the asset and its heritage significance is appreciated[27]. The cultural heritage appraisal provides a high-level consideration of effects to the heritage significance of: ■ Non-designated records identified by Canmore – Scotland's National record of the Historic Environment and non-inventory designed landscapes (NIDLs) which have had significance ratings pre-assigned to them. The methodology for assessing potential direct physical effects comprises identifying the number, extent and nature of historic assets within the route option (designated historic assets[28] and Canmore entries likely to constitute historic assets[29] (hereafter referred to as non-designated heritage assets)). These are then noted in relation to the opportunity, or otherwise, for avoiding direct effects at the detailed routeing stage. Potential effects of the OHL arising from how it may affect the cultural significance of historic assets as a result of change within their settings is assessed by identifying assets within the route option which are reviewed to identify those with susceptibility for harm to their cultural significance associated with the proposed OHL being within their setting. With some exceptions, consideration is not given to effects related to setting change for non-designated heritage assets at this stage. The non-designated heritage assets where effects associated with setting change are considered are due to those assets forming part of a related system with a designated asset and where the proposed OHL may affect how these relationships can be understood (e.g. a Roman fort SM and associated non-designated sections of Roman road).
Forestry and Woodland	■ Ancient Woodland of the Ancient Woodland Inventory (AWI) (Holford Rule 1)[35] ■ Native Woodland of the Native Woodland Survey of Scotland (NWSS) (Holford Rule 2) ■ Forestry of the National Forest Inventory (NFI) (Holford Rule 5)	■ To seek to avoid/reduce, as far as practical, effects on forestry, particularly areas of ancient woodland (Holford Rule 1) and native woodland (Holford Rule 2, and on future forestry operations (Holford Rule 5).	Notes c) and d) in respect of Rules 4 and 5 of the Holford Rules state "*where possible follow open space and run alongside, not through woodland or commercial forestry and consider opportunities for skirting edges of copses and woods. Protect existing vegetation including woodland and hedgerows, and safeguard visual and ecological links with the surrounding landscape*".

[24] Generally held, as a result of legal precedent, as meaning "to do no harm to", i.e. an asset could change but if this change is not harmful to its cultural significance then it would be understood as having been preserved.
[25] For example, this could include change to the key characteristics or fabric of a designated, or non-designated asset.
[26] For example, this could include blocking or obstructing the line of sight from a defensive asset and a topographic feature it was sited to observe/control (e.g. from a medieval castle to the river crossing it policed), or obscuring or obstructing intervisibility between related monuments.
[27] For example, this could include placing infrastructure in a location which affects appreciation of an asset (e.g. a tower being visible on a hillside when the principal elevation of a listed building is seen from its approach road/drive, or where it might lie within a designed vista from a listed building or a GDL).
[28] i.e. World Heritage Sites (WHS), Scheduled Monuments (SM), Listed Buildings (LB), Conservation Areas (CA), Inventory Gardens and Designed Landscapes (GDL), Inventory Historic Battlefields (HB).
[29] Entries in Canmore do not necessarily constitute historic assets for the purposes of planning and environmental assessment. It is therefore necessary for appropriately qualified and experienced professionals to undertake a sift of Canmore data to exclude, inter alia, find-spots, archaeological events (location of excavations, watching briefs etc.), assets previously lost/destroyed, records with insufficient spatial resolution, and other records not relevant to the purpose in hand.

			On this basis, forest and woodland areas within each of the route options are identified through the use of aerial photography, combined with digital data available from NatureScot (formerly SNH) and Scottish Forestry (SF) sources. Forests and woodland are divided into three groupings: **Table 7.1:** Conifer forest from aerial photography and cross reference to the National Forest Inventory (NFI) for Great Britain[30]; **Table 7.2:** Ancient Woodland Inventory (AWI); and **Table 7.3:** Native Woodlands from the Native Woodland Survey of Scotland (NWSS). The NFI records all forest types and both the AWI and NWSS are utilised to further identify designated native and ancient woodlands. There are no AWIs within the Study Area. Appraisal against the forestry and woodland criterion comprises analysis of the extent and location of each forest and woodland type within the route options to identify net areas for these three forest and woodland types. A GIS-based calculation is run to identify the total area (hectares (ha)) of woodland, of each forestry category listed above, present within each route option. In general terms, the objective in identifying a preferred route is based on identifying the lowest impact for all three types of forest and woodland listed above. This requires a subjective review which places greater weight on reducing the impact on type 2 and also 3 ahead of type 1. This reflects the importance of the local resource of these woodland types and as such, the implications of the proposed removal of this type of woodland within the wayleave (area of woodland felled to accommodate the OHL). GIS mapping is used to support commentary in the appraisal table as to whether woodland of different types can potentially be avoided through detailed design or whether it cannot (assuming that the final wayleave within woodland will be up to 70 m in width (i.e. 35 m on either side of the centre line of the OHL)), e.g. if it spans the entire width of the route option, with observations being made concerning the implications of this. Due to the often scattered and broken nature of natural forests and woodland, for example, there is frequently the opportunity to avoid areas through careful consideration of the detailed route alignment. Based on the above, a judgement is made as to which route option is preferred. Consideration is also given to minimising impacts on forestry and woodland at the detailed route alignment stage, taking account of the need to create long term stable forest edges and to minimise impacts on forestry and woodland management practices. During the alignment/EIA stage consideration will be given to all three forest and woodland types through: ■ taking account of existing, and planned, windfirm boundaries to minimise sterilisation of commercial forestry and woodland areas and reduce the requirements for additional felling outwith the wayleave; ■ taking account of forest design plans and liaising with forestry owners/managers to avoid, or reduce restrictions on forest management operations/techniques e.g. maintaining access to woodland blocks for harvesting/safety; and ■ identification of opportunities to retain and/or plant particularly lower growing shrub species within the wayleave, to maintain or create wildlife linkage corridors across the wayleave.
Hydrology (including flood risk), Hydrogeology & Peat	■ SEPA Future Flood Maps ■ Waterbodies/watercourses (and other water features) ■ NatureScot Carbon and Peatland Classification (Class 1 and Class 2) (Holford Rule 1) ■ NatureScot Carbon Peatland Classification Peatland Habitats (Classes 3, 4 and 5)	■ To cross flood zones at their narrowest point to minimise locating infrastructure within flood zones, where possible. ■ To avoid locating wood poles within watercourses and waterbodies.	To avoid potential conflicts with policy relating to flooding and to avoid potential increases to flood risk, the Scottish Environment Protection Agency (SEPA) flood maps are used to review SEPA flood zones and appraise the location of the route options relative to the flood plain. SEPA's Future fluvial flood maps (200-year + climate change) and surface water flood maps (200-year) were downloaded from the SEPA website and are mapped in the GIS. When appraising the route options, the ability to span the flood zone (average span of 80 m – 100 m for wood poles) is considered. The appraisal considers the potential to cross the flood zone at the narrowest point, all other environmental / technical considerations being

[30] Updated where necessary to reflect woodlands recently planted and not yet updated in the NFI

	■ Surface Water Drinking Water Protected Areas (DWPA)[35]	■ To seek to avoid/reduce loss of peatlands in accordance with National Planning Framework 4 (NPF4) (Holford Rule 1). ■ To avoid locating infrastructure in surface water DWPAs, where possible,	equal. It is noted that SEPA fluvial flood maps do not consider flood risk in watercourses with catchment areas <3km^2, hence flood risk from small watercourses is not shown on SEPA flood maps and this should be considered at the detailed routing stage by utilising appropriate watercourse buffers. GIS is also used to map watercourses, waterbodies and other water features (such as private water supplies and wells) to identify those which interact with the route options. The location of each constraint with respect to the route option; the length and/or area of intersection of the route option with the constraint is identified. Professional judgement is then applied to identify the possibility of avoiding effects upon the constraint via detailed design; and, where the constraint is unavoidable, the severity of potential effects upon it, taking into account mitigation. The presence of NatureScot Carbon Peatland Classification areas are also considered during the route appraisal. NatureScot (formerly Scottish Natural Heritage (SNH)) published a series of maps and guidance documents relating to Priority Peatlands (Mapping of SNH Carbon Rich Soil, Deep Peat and Priority Peatlands (CPP) (July 2016)). By dividing peatland habitat types into 5 broad 'classes', SNH has mapped those areas of Scotland of greatest value for carbon sequestration through peat formation. Class 1 and 2 peatlands are those which offer greatest restoration and carbon-sequestration potential and should be avoided as far as practicable. GIS is used to identify the location of Class 1 and 2 peatlands with respect to the length and/or area of intersection of the route option. There is no Class 1 or 2 peatland located within the route options. Professional judgement is applied to identify the possibility of avoiding effects upon the constraint via detailed design; and, where the constraint is unavoidable, the severity of potential effects upon it, taking into account mitigation. The avoidance of all peat is a consideration and areas of Class 3, 4 and 5 peat will also be considered in the route appraisal using the NatureScot GIS data to identify locations.
Minerals	■ Potential future areas of mineral extraction	■ Avoid/minimise areas where the construction of wood poles may sterilise the future extraction of mineral resources.	Review available British Geological Survey maps and borehole data to determine soil types and thicknesses as well as the nature and composition of the underlying rock strata and, hence, potential for mineral deposits of potential past and future economic importance to be present. Review Coal Authority mine plan data to obtain information on areas of potential shallow mineworkings and locations of mine entries. Review local authority planning policy documents with regard mineral potential including drift materials such as sand and gravel. Areas where future mineral extraction could be viable would also where possible be avoided. Where constraints are unavoidable, identify mitigation measures to reduce/remove the severity of the constraint(s) through the use of cost effective engineering methodologies and ground remediation techniques. Coal extraction has been excluded from the appraisals due to the unlikely progression of coal extraction in the future, where there is a strong national policy preference on the use of fossil fuels.
Land Use	■ Existing Infrastructure (existing OHL transmission and distribution infrastructure, existing gas infrastructure, existing road (A roads and trunk roads), rail infrastructure and existing, consented or proposed wind energy development) (Holford Rule 7) ■ Committed Development (Consented and Undetermined[31] Planning Applications) (Holford Rule 7) ■ Local Development Plan (LDP) Allocations (Holford Rule 7) ■ Scotland Land Capability for Agriculture (LCA) Classes 1, 2 and 3.1 (Holford Rule 7)[35]	■ Avoid existing, consented or proposed (with a valid planning application) wind energy developments (Holford Rule 7). ■ Avoid/minimise, as far as practical, the crossings of or encroachment on infrastructure (including any 400kV, 275kV, 132kV, 66kV and 33kV OHLs, high pressure gas pipelines, 'A'/trunk roads and rail infrastructure (Holford Rule 7). ■ Avoid, where possible, land use conflict with committed development including consented and undetermined planning	The land use appraisal identifies potential conflicts between the route options and existing and future, i.e. planned or consented but not yet constructed/operational, land uses. Potential land use conflicts may occur due to the presence of infrastructure within the route options such as overhead (OHL) transmission and distribution infrastructure, high-pressure gas pipelines, wind energy developments, and 'A'/trunk roads and rail infrastructure. Land which is already allocated for development within the route options, for example, through a Local Development Plan (LDP), and land which is subject to a valid planning application or planning permission, also presents the potential for future land use conflicts. Land of this type is referred to as 'committed development' in the appraisal, although it is taken into account that the degree of likelihood of future land use conflict varies within this type (e.g. land with a planning consent as against land with a validated planning application that has not yet been determined). Developments consented prior to April 2019[32] are considered either likely not to be constructed (as the consent will likely have expired[33]) or to have already been constructed

[31] Undetermined planning applications are those which have been validated, i.e. are 'live' applications, but have not yet been decided.
[32] Using 5 years data to consider impacts of covid legislation which extended the time period of consents.
[33] Under Section 58 of the Town and Country Planning (Scotland) Act 1997 (as amended), any planning permission granted expires after a period of 3 years beginning with the date on which permission was granted. Generally, unless the planning permission states otherwise, planning permissions expire three years following the date granted to commence development.

		applications and land allocated within an LDP (Holford Rule 7). ■ To seek to avoid/reduce, as far as practical, effects on Best and Most Versatile (BMV) agricultural land (Holford Rule 7).	and therefore captured as existing development within relevant data used to inform the appraisal across all topics. To ensure that all relevant planning permissions are captured in the appraisal, planning applications consented from 2019 onwards are appraised, as it was considered that this cut-off date allowed sufficient time for prior consents to be fully implemented. Applications considered within the cut-off period include applications which have received planning permission or planning permission in principle (PPiP) consent; applications for approval of matters specified in conditions (AMSC) associated with PPiP consents granted prior to the 2018 cut-off date; and applications which have been validated, i.e. are 'live' applications, but not yet determined. To avoid duplication, applications for Non-Material Amendments, Condition Variations or Discharge of Conditions were not referenced in the appraisal where these related to a planning application which had already been captured under other categories. When appraising the route options, where a committed development is located (fully or partially) within the route option, the implications of this for the detailed routeing/alignment design and/or subsequent environmental assessment stage are highlighted. Both residential and non-residential committed developments are considered within the appraisal: for example, residential dwellings, holiday lets, agricultural buildings, etc. The implications of committed development within 150 m of route options for residential visual amenity are treated under the Landscape and Visual Amenity topic above. Route options with the lowest number of committed developments present, or where the committed developments could be avoided through detailed design, are generally preferred. As outlined above, the land use appraisal also considers land which is allocated for a specific purpose within LDP2[34]. The appraisal assesses the extent to which areas allocated within the LDPs are present within the route options. A judgement is made as to whether areas allocated under either LDP can or cannot be avoided during the detailed design stage. Route options which avoid or cross fewer allocated areas within the LDPs are preferred. The appraisal also considers whether existing infrastructure is sited within the route options. Infrastructure appraised includes existing OHL transmission and distribution infrastructure, existing gas infrastructure, existing roads (A roads and trunk roads), rail infrastructure, and existing, consented or proposed (with a valid planning application) wind developments. A search is conducted of Scottish Government ECU and Council website sources to identify if any infrastructure projects present within the route options are subject to a current consent application. Screening and Scoping wind farm schemes have been excluded from the appraisal due to the level of uncertainty regarding their layouts. With regard to wind developments, it is considered preferable to avoid these by a separation distance equal to turbine tip height +10% for health and safety reasons and two times rotor diameter for overhead line operational reasons. There is no BMV land within the Study Area.

[34] EAC Local Development Plan 2 was adopted on 8th April 2024

Appendix B

Route Option Appraisals

Table B.1: Route Option Appraisal

Criterion	Sub-Criteria	Route Option 1	Route Option 2	Route Option 3	Route Option 4	Preferred Route Option
Length of Route	Length of Route Option (Holford Rule 3)	Approximately 5.30 km (1.67km UGC)	Approximately 5.50 km (1.67km UGC)	Approximately 7.75 km (734m UGC or 1.13km UGC)	Approximately 7.39 km (734m UGC or 1.13km UGC)	**Route Option 1 is preferred** as the length of overhead line is the shortest.
Biodiversity	Local Nature Conservation Sites (LNCS) (Holford Rule 2)	None of the Route Options overlap with LNCS. The northern extent of Route Options 1 and 2 is approximately 20m east of Martyr's Moss LNCS; which represents a locally important example of blanket bog, with a complex of bog pools. Given the distance between the Route Options and the LNCS, there may be an ecological connection, however, is anticipated that it can be avoided during the design process to ensure the project is not structurally or functionally connected to the LNCS.		None of the Route Options overlap with LNCS.		**Minor preference for Route Option 3 or 4** as these have no potential relationship with LNCS.
	Potential to achieve Biodiversity Net Gain (No Net Loss)	All Route Options are anticipated to support similar habitat structures and vegetation communities, comprising a mosaic of commercial forestry, grazed upland grasslands and, where peat deposits are present, areas of heath and blanket bog. Opportunities to achieve Biodiversity Net Gain (No Net Loss) are likely to be consistent across all Route Options.				**No preference** in relation to the potential for the routes to achieve Biodiversity Net Gain (No Net Loss).
Overall preferred Route Option for Biodiversity	**Minor preference for Route Option 3 or 4** as these have no relationship with the existing LNCS. However, none of the route options are located within a LNCS.					
Landscape and Visual Amenity	Locally Designated Landscapes (East Ayrshire Local Landscape Areas (LLA)) (Holford Rule 2)	None of the route options pass through, or are adjacent to, designated landscapes. All of the route options terminate at New Cumnock Substation approximately 1.1km to the north-east of the Doon Valley Local Landscape Area (LLA). All of the route options would be potentially visible from the summit of Benbeoch (463m AOD) at the eastern edge of the LLA. However, indirect effects upon the LLA which could adversely affect the integrity of the LLA are considered unlikely due to the nature and scale of the Greenburn 132kV Connection Project, and the limited geographical extent of outward views towards the route options from the LLA.				**No preference** for any of the route options as there are no locally designated landscapes within the route options.
	Landscape Character Types (LCT) (Holford Rules 4, 5,and 7)	The existing New Cumnock substation is in the Southern Uplands with Forest – Ayrshire LCT. Route Options 1 and 2 would cross the Foothills – Ayrshire LCT. They would pass close to the Upland Basin – Ayrshire LCT but would not impact it directly. Likely future changes to the landscape baseline include the introduction of large-scale wind turbines to both the Foothills – Ayrshire LCT, Upland Basin – Ayrshire LCT and Southern Uplands – Ayrshire LCT. In terms of localised landscape fit, Route Options 1 and 2 follow descending rough grassland terrain towards the watercourse of Beoch Lane before heading up the gentle slope of Little Rigend Hill. They then traverse through commercial forestry along the broad eastern and western flanks of Rig Hill respectively, which sweep south-west towards New Cumnock Substation.	The existing New Cumnock substation is in the Southern Uplands with Forest – Ayrshire LCT. Route Options 3 and 4 would cross through the Upland Basin – Ayrshire LCT and the Foothills – Ayrshire LCT. Likely future changes to the landscape baseline include the introduction of large-scale wind turbines to both the Foothills – Ayrshire LCT, Upland Basin – Ayrshire LCT and Southern Uplands – Ayrshire LCT. In terms of localised landscape fit, Route Options 3 and 4 traverse the more open landscape of the Upland Basin – Ayrshire LCT as they route south across the River Nith and then south-west along the gently sloping southern valley side, including through areas of open pasture. They then enter forestry within the Foothills – Ayrshire LCT and cross the narrow valley formed by the River Nith and Polmath Burn. The routes then traverse through this forestry along the broad eastern and		While the susceptibility to OHL development of the type proposed for LCTs across the study area is considered to be similar in nature the Upland Basin – Ayrshire LCT is considered to be of relatively slightly higher susceptibility due to its open character and the presence of some agricultural features such as pasture fields, hedgerows and drystone walls. As such, **Route Options 1 and 2 are preferred** as they are located entirely outwith the Upland

Criterion	Sub-Criteria	Route Option 1	Route Option 2	Route Option 3	Route Option 4	Preferred Route Option
				western flanks of Rig Hill respectively, which sweep south-west towards New Cumnock Substation.		Basin – Ayrshire LCT and are considered to be more congruent with localised landscape features.
	Visual Amenity from residential properties (residential visual amenity) (similar to Holford Rule 4)	The only residential property in the vicinity of Route Option 1 is Upper Beoch, approximately 0.5km to the west of the route as it passes along the western flank of Rig Hill. It is likely that views of the Greenburn 132kV Connection Project along Route Option 1 from Upper Beoch would be limited by intervening coniferous forestry to some degree (whilst this remains in place).	Route Option 2 passes within 0.4 – 0.8km of properties adjacent to the B741, including Maneight, Nith Lodge, Knockenlee and Meiklehill. Though the route option does not pass within the 150m trigger for consideration zone of any of the properties, views of the Greenburn 132KV Connection Project may be available in principal or secondary views where the route option crosses the area of open ground to the south-east of the summit of Rig Hill (north-west of Nith Lodge). However, views are likely to be limited in part by intervening coniferous forestry (whilst this remains in place), woodland surrounding the properties and/or the intervening landform. It is likely that the route options would be most evident in principal views from the property of Maneight, due to its greater elevation and open views towards Rig Hill.	The only residential property in the vicinity of Route Option 3 is Upper Beoch, approximately 0.5km to the west of the corridor as it passes along the western flank of Rig Hill. It is likely that views of the Greenburn 132kV Connection Project along Route Option 3 from Upper Beoch would be limited by intervening coniferous forestry to some degree (whilst this remains in place).	Route Option 4 passes within 0.4 – 0.6km of scattered residential properties adjacent to the B741, including Craighouse, Maneight, Nith Lodge, Knockenlee and Meiklehill. Though the route option does not pass within the 150m trigger for consideration zone of any of the properties, views of the Greenburn 132KV Connection Project may be available in principal or secondary views, particularly where the route option crosses the area of open ground to the south-east of the summit of Rig Hill (north-west of Nith Lodge). However, views are likely to be limited in part by intervening coniferous forestry (whilst this remains in place), woodland surrounding the properties and/or the intervening landform. It is likely that the route options would be most evident in principal views from the property of Maneight, due to its greater elevation and open views towards Rig Hill.	**Route Options 1 and 3 are preferred** as they have the potential to impact on the fewest properties.
	Non-residential visual amenity, as experienced by those in the wider landscape e.g., recreational receptors (OS promoted viewpoints, Sustrans routes, Core Paths, long distance promoted trails, tourist attractions) and road users travelling along roads/tracks and those working in the landscape (similar to Holford Rule 4 and Notes on Clarification to the Holford Rules)	All four route options are located in relatively low-lying areas and would pass through or adjacent to land potentially occupied by consented wind turbines (Route Options 3 and 4 to a lesser extent as they route further east), as well as extensive areas of coniferous forestry. Route Options 1 and 3 pass along the western flank of Rig Hill which encloses the secluded valley of Beoch Lane. In their eastern extents, route Options 3 and 4 would pass through open pasture absent of wind turbines as it crosses, and then runs parallel to, the River Nith before entering coniferous forestry. Route Options 2 and 4 would run parallel to the B741 as they traverse the eastern flank of Rig Hill and would be visible to road users intermittently between Maneight and New Cumnock Substation. All four Route options would need to cross the B741 road, to the north-east of New Cumnock Substation. None of the route options would impact on Core Paths or promoted recreational routes or destinations. Route options 2, 3 and 4 cross two indicative Public Rights of Wayalong the forested spine and northern slopes of Rig Hill (via a vague path and a series of wayleaves), and a more defined forestry track north-east of Maneight. Outward views from these routes are limited due to enclosing forestry. From fieldwork observations and desk based research (including activities logged on the Global			**Route Option 1 is preferred** as it minimises visual effects for road users on the B741 and is furthest removed from recreational receptors utilising PRoW, the minor road which provides access to the former House of Water mine, and the B741 respectively.

Criterion	Sub-Criteria	Route Option 1	Route Option 2	Route Option 3	Route Option 4	Preferred Route Option
		Strava Heatmap)[35] there is little evidence that the study area is widely utilised for recreational purposes. However, the Global Strava Heatmap suggests that there is some recreational use of the minor road that provides access to the restored area of opencast mining at the former House of Water mine (via Dalricket Mill), as well as the B741 (likely for cycling). The summit of Benbeoch to the south-west of the study area (within the Doon Valley LLA) also appears to be a recreational destination for walkers. All the route options are potentially visible to some degree from these areas, particularly Route Options 3 and 4 as they pass over the minor road west of Dalricket Mill.				
Overall preferred Route Option for Landscape and Visual Amenity	**Route Option 1** is the overall preferred route in terms of landscape and visual amenity as relative to other options it has potential to impact on the fewest visual receptors, particularly those associated with the B741, including adjacent properties.					
Cultural Heritage	Non-designated records identified by Canmore – Scotland's National record of the Historic Environment (Holford Rule 2)	There are three known non-designated heritage assets located within Route Option 1. These assets comprise a Bronze Age funerary monument (Canmore ID: 43488) as well as evidence for post medieval agricultural (Canmore ID: 89376) and industrial (Canmore ID: 89378) activities. The route has been subject to afforestation and historical mineral extraction, and as such these features are likely to be subject to extensive truncation and/or removal. In the event these assets survive, physical changes to these assets can be avoided where possible, through the detailed design process and careful consideration of wood pole placement to prevent further harm.	There are five known non-designated heritage assets located within Route Option 2. These assets comprise a Bronze Age funerary monument (Canmore ID: 43488) as well as evidence for post medieval agricultural (Canmore ID: 170129, 170128, & 89376) and industrial (Canmore ID: 89378) activities. The route has been subject to afforestation and historical mineral extraction, and as such these features are likely to be subject to extensive truncation and/or removal. In the event these assets survive, physical changes to these assets can be avoided where possible, through the detailed design process and careful consideration of wood pole placement to prevent further harm.	There are three known non-designated heritage assets located within Route Option 3. These assets comprise a Bronze Age funerary monument (Canmore ID: 43488) as well as post medieval agricultural and industrial complexes (Canmore ID: 110277 & 348490), The route has been subject to afforestation and historical mineral extraction, and as such these features are likely to be subject to extensive truncation and/or removal. In the event these assets survive, physical changes to these assets can be avoided where possible, through the detailed design process and careful consideration of wood pole placement to prevent further harm.	There are three known non-designated heritage assets located within Route Option 4. These assets comprise a Bronze Age funerary monument (Canmore ID: 43488) as well as evidence for a post medieval farm stead (Canmore ID: 170129) as well as an agricultural and industrial complex (Canmore ID: 348490). A further medieval farm stead (Canmore ID: 170128) is located adjacent to the boundary of Route Option 4. The route has been subject to afforestation and historical mineral extraction, and as such these features are likely to be subject to extensive truncation and/or removal. In the event these assets survive, physical	On balance **Route Option 1** is preferred due to interaction with the fewest known heritage assets. However, all known heritage assets, where still present, can be avoided during detailed design within all options.

35

Criterion	Sub-Criteria	Route Option 1	Route Option 2	Route Option 3	Route Option 4	Preferred Route Option
				Waterhead Castle (Canmore ID: 43530) is situated c. 225 m east of the proposed route, and whilst non-designated, it is classed as being of probable national importance by West of Scotland Archaeology Service. It is unlikely that the introduction of grid infrastructure into the setting of the asset would be significantly harmful to the understanding or appreciation of the castle; potential setting effects should be mitigated through the careful placement of wood poles within the route option.	changes to these assets can be avoided where possible, through the detailed design process and careful consideration of wood pole placement to prevent further harm.	
Overall Route Option Preference for Cultural Heritage	On Balance, **Route Option 1** is the overall preference as it has the fewest interactions with heritage assets.					
Forestry and Woodland	Forestry (National Forest Inventory and aerial imagery survey of land within Route Options) (Holford Rule 5)	Route Option 1 passes through 3285 m of woodland and forestry. *(350m Dalgig Forest; 2660m North Kyle Forest; 205m South Kyle Forest; 70m Substation Screen Plantation).* Route Option 1 would result in the removal of a total of **22.99 ha** of woodland, based on 70-meter-wide wayleave corridor. 1.19 ha of broadleaved trees, 17.25 ha of young conifers and 4.54 ha of mature conifers.	Route Option 2 passes through 3080 m of woodland and forestry. *(350m Dalgig Forest; 1610m North Kyle Forest; 300m Ault Plantation (Woodland Creation approved 20.09.22); 740m South Kyle Forest; 80m Substation Screen Plantation).* Route Option 2 would result in the removal of a total of **21.56 ha** of woodland, based on 70-meter-wide wayleave corridor. 1.96 ha of broadleaved trees, 9.1 ha of young conifers and 10.5 ha of mature conifers.	Route Option 3 passes through 6175 m of woodland and forestry. *(1950m House of Water South – Woodland Creation visible on Scottish Forestry Public Register (23FGS75593); in it 1100m Succession trees; 830m Lynehead Forest; 3120 North Kyle Forest; 205m South Kyle Forest; 70m Substation Screen Plantation)* Route Option 3 would result in the removal of a total of **43.23 ha** of woodland, based on 70-meter-wide wayleave corridor. 16.24 ha of broadleaved trees, 9.7 ha of young conifers and 17.29 ha of mature conifers.	Route Option 4 passes through 5400 m of woodland and forestry. *(1820m House of Water South – Woodland Creation visible on Scottish Forestry Public Register (23FGS75593); in it 1010m Succession trees; 1360m Lynehead Forest; 1100 North Kyle Forest; 300m Ault Plantation (Woodland Creation approved 20.09.22) 740m South Kyle Forest; 80m Substation Screen Plantation)* Route Option 4 would result in the removal of a total of **37.8 ha** of woodland, based on 70-meter-wide wayleave corridor. 17.01 ha of broadleaved trees, 9.94 ha of young conifers and 10.85 ha of mature conifers.	On balance, **Route Option 2** is preferred as it has the least impact on forestry[36]. *Route Option 1 would be the second preferred with relatively less broadleaved woodland and mature conifer stands impacted compared to route option 2.*
Overall preferred Route Option for Forestry and Woodland	On balance, **Route Option 2** is preferred as it is has the least impact on forestry and woodland.					

[36] Secondary desk based survey can inform comment on age of plantation stages with youngest trees perceived to provide least significant impact. A woodland survey is required to ground truth the existing site conditions following the opencast restoration.

Criterion	Sub-Criteria	Route Option 1	Route Option 2	Route Option 3	Route Option 4	Preferred Route Option
Hydrology (including flood risk), Hydrogeology & Peat	SEPA Future Flood Maps (200 year + allowance for climate change)	The only watercourse large enough to have a mapped flood extent in SEPA future flood maps within Route Options 1 and 2 is the Beoch Lane watercourse. The floodplain is between c. 70 m and c. 25 m wide at the crossing location and can be spanned through detailed design. Detailed routeing should try to avoid locating infrastructure within flood zones, and if crossings cannot be avoided should aim to cross the flood extents at their narrowest point, where possible.		Route Option 3 crosses the River Nith and its associated floodplain twice. The flood risk extent of the River Nith is between c. 100 - 200 m wide at the northern crossing location, which can be spanned if the alignment crosses at the narrowest point of the route option. The flood extent at the southern crossing location is narrower, between 20 – 40 m wide and can be spanned. Route Option 3 crosses a large low area close to the River Nith, which is noted on SEPA flood maps to be at pluvial (surface water) flood risk. There are several other areas of localised surface water flood risk, all of which could be avoided within the route option. Detailed routeing should try to avoid locating infrastructure within flood zones, and if crossings cannot be avoided should aim to cross the flood extents at their narrowest point, where possible.	Route Option 4 crosses the River Nith and its associated floodplain twice. The flood risk extent of the River Nith is between c. 100 - 200 m wide at the northern crossing location, which can be spanned if the alignment crosses at the narrowest point of the route option. The flood extent at the southern crossing location is narrower, between 30 – 80 m wide and can be spanned. Route Option 4 crosses several small, localised areas of pluvial (surface water) flood risk, all of which can be easily avoided within the option. Detailed routeing should try to avoid locating infrastructure within flood zones, and if crossings cannot be avoided should aim to cross the flood extents at their narrowest point, where possible.	**Route options 1 and 2** are preferred as they only cross one future flood extent and avoid crossing the wider floodplain of the River Nith, which is required for route options 3 and 4.
	Waterbodies / Watercourses (shown on 1:25K OS maps)	Route Option 1 crosses three watercourses, including the Beoch Lane watercourse, Peat Sike and an unnamed watercourse south of Wee Craig Knowe. An unnamed tributary of the River Nith is within the route option but can be avoided if the detailed design is to the east of the route option.	Route Option 2 crosses three watercourses, including the Beoch Lane watercourse, Peat Sike and an unnamed watercourse south of Wee Craig Knowe. There is a well shown on the OS 1:25K map on the eastern side of Rig Hill within the route option. There is also a ground water spring source for a private water supply (PWS) within the route option. Both can be avoided within the option during detailed wood pole siting.	Route Option 3 crosses six watercourses, including two crossings of the River Nith, the Linn burn and three unnamed tributaries of the River Nith.	Route Option 4 crosses six watercourses including two crossings of the River Nith, the Polmath Burn, the Linn Burn and two unnamed tributaries of the River Nith. There are several other unnamed watercourses within the route option, but these do not cross the entire width of the route option and can be avoided, so crossings may not be required. There is a well shown on the OS 1:25K map on the eastern side of Rig Hill within the route option. There is also a ground water spring source for a private water supply (PWS) within the route option. Both can be avoided within the option during detailed wood pole siting.	On balance, **Route Option 1** is marginally preferred over Route Option 2 as it crosses the fewest watercourses and avoids the well and groundwater spring in Route Option 2. Both options 1 and 2 avoid crossing the larger River Nith which options 3 and 4 cross.

Criterion	Sub-Criteria	Route Option 1	Route Option 2	Route Option 3	Route Option 4	Preferred Route Option
	NatureScot Carbon and Peatland Classification (Classes 3, 4 and 5)	Route Option 1 crosses an area of Class 3 peat on the north side of the Beoch Lane watercourse, which cannot be spanned or avoided, as it extends for a length of approximately 650 m. The route option contains several areas of Class 5 peat in the southern part of the option, which extend over a total length of approximately 1.8 km, most of which cannot be avoided during alignment. There are also three small areas of Class 4 peat which extend over 900 m and cannot be avoided.	Route Option 2 crosses an area of Class 3 peat on the north side of the Beoch Lane watercourse, which cannot be spanned or avoided, as it extends for a length of approximately 650 m. The route option contains several areas of Class 5 peat in the southern part of the option, which extend over a total length of approximately 1.5 km and cannot be avoided during alignment. There is also a small area of Class 4 peat which extends over 500 m and cannot be avoided.	Route Option 3 crosses one large area of Class 3 peat which extends within the route for a length of approximately 600 m and cannot be spanned or avoided. The route option contains an extensive area of Class 5 peat in the southern part of the option, which extends over a length of approximately 1.2 km and cannot be avoided during alignment. There is also a small area of Class 4 peat which extends over a length of approximately 400 m and cannot be avoided.	Route Option 4 crosses one large area of Class 3 peat, which extends within the route for a length of approximately 600 m and cannot be spanned or avoided. The route option contains several areas of Class 5 peat in the southern part of the option, which extend over a total length of approximately 650 m and most cannot be avoided during alignment. There is also an area of Class 4 peat which extends over 1.1 km and cannot be avoided.	**Route Option 4** is the preferred option, as it crosses the smallest areal extent of indicative carbon rich soils and deep peat (Class 3 and 5).
Overall Preference for Hydrology (including flood risk), Hydrogeology & Peat	**Route Option 1** is the preference with regards to hydrology and hydrogeology, as it crosses the fewest watercourses and avoids the well and groundwater spring. However, this option cannot avoid crossing large extents of Class 3 and Class 5 peat, which cannot be spanned. **Route Option 4** is the preferred option in terms of effects on peat soils, as it covers the smallest areal extent of soils that are indicated to be carbon-rich or deep peat (Class 3 and 5). However, route option 4 is the least preferred for hydrology and hydrology as it crosses the River Nith and its associated floodplain twice (although the flood extent can be spanned if the alignment crosses the floodplain at the narrowest point) and there is a well and groundwater spring within the route option, both of which can be avoided.					
Minerals	Potential future areas of mineral extraction	Sands and gravel are locally present around water courses with sandstones, mudstones and igneous rocks present at surface below higher areas and below the drift deposits elsewhere. The future widescale removal of these materials as a mineral resource is not likely or anticipated.				Overall, there is a **slight preference for Route Options 1 and 2** as there are no specific rock types or minerals below the route option that would be of potential economic value. However, there are no constraints that would prevent development within the other route options.
		There are no specific rock types or minerals within the bedrock below Route Option 1 and 2 that would be of potential economic value.		There are, locally, some limestone seams present within the southern section of Route Option 3 and 4, with mine entries indicated to be present adjacent to the River Nith. Any seams in this area are very thin and would not appear to be of any potential economic value. In addition, it should also be possible to avoid this area through careful route planning.		
Overall Preference for Minerals	Overall, there is a **slight preference for Route Options 1 and 2** as there are no specific rock types or minerals below the route option that would be of potential economic value. However, there are no constraints that would prevent development within the other route options.					
Land Use	Existing Infrastructure	There appears to be ongoing opencast mining taking place to the north of all the route options (approved under application ref. 20/0007/PP (original consent ref. 17/0538/PP)), but it is likely that the land will be restored in accordance with the approved restoration plan by the time the Proposed Development is complete. All route Options cross an existing distribution line to the south of Rig Hill and cross the B714 to the north of New Cumnock substation.				**Route Option 4 is preferred** due to interaction with the fewest consented and under construction windfarms, and

Criterion	Sub-Criteria	Route Option 1	Route Option 2	Route Option 3	Route Option 4	Preferred Route Option
		Route Options 1 and 2 route through the 'under construction' North Kyle Energy Project (ECU Ref. ECU00001950).		n/a		avoidance of interactions with HMP.
	Committed Development (Consented and Undetermined[37] Planning Applications)	All routes will connect into the New Cumnock substation, which has been granted two consents in the last five years for extensions (planning refs. 20/0242/PP and 22/0166/PP).				
		Route Option 1 routes through the 'under construction' turbines as part of the North Kyle Energy Project (ECU Ref. ECU00001950). The 200m width of Route Option 1 partially overlaps the two times rotor diameter of the two North Kyle Energy Project turbines (T5 and T6). However, the wood poles can be sited outwith this diameter. A short section of the northern extent of Route Option 1 crosses the habitat management area associated with the North Kyle Energy Park's Habitat Management Plan (HMP). The management area is proposed for enhancement of black grouse interventions in this area including the creation of scrub habitat. Due to the extent of the HMP area, it is unlikely that this could be avoided during detailed design. It is noted that the proposed access track for the Overhill Wind Farm will also be crossed to the south of Route Option 1, but this can be spanned during detailed design.	Route Option 2 routes through the 'under construction' turbines as part of the North Kyle Energy Project (ECU Ref. ECU00001950). The 200m width of Route Option 2 partially overlaps the two times rotor diameter of the two North Kyle Energy Project turbines (T5 and T6). However, the wood poles can be sited outwith this diameter. A short section of the northern extent of Route Option 2 crosses the habitat management area associated with the North Kyle Energy Park's Habitat Management Plan (HMP). The management area is proposed for enhancement of black grouse interventions in this area including the creation of scrub habitat. Due to the extent of the HMP area, it is unlikely that this could be avoided during detailed design.	Route Option 3 avoids all of the Greenburn Wind Park's consented turbine locations, including a two times rotor diameter of the consented turbines. The proposed access track for the Overhill Wind Farm will also be crossed to the south of Route Option 3, but this can be spanned during detailed design.	Route Option 4 avoids all of the Greenburn Wind Park's consented turbine locations, including a two times rotor diameter of the consented turbines.	
	Local Development Plan (LDP) Allocations	Route Options 1, 2, 3 and 4 all reside within the following policy designations within the East Ayrshire Adopted Local Plan 2017: - Rural Diversification Area - Area with potential for wind energy development and an area of significant protection under the 'Wind Energy Spatial Framework' which informs the LDP - Biosphere Buffer Zone All Route Options reside within land identified as the 'Rural Diversification Area'. The East Ayrshire Local Development Plan 2 is currently at examination, and the outcomes to the LDP2 examination were published on 20th December 2023. The outcomes of the examination are to be taken into consideration in the LDP2 in 2024. It is expected that the LDP designations would not result in a design or policy constraint to development.				There is **no preferred Route Option** with respect to local development plan allocations.
Overall preferred route for Land Use	**Route Option 4 is preferred** due to it avoiding interaction with the consented and under construction windfarms and avoidance of interactions with consented HMPs.					
Overall Route Option Preference	**On balance, the overall preference for the overhead line is Route Option 1 as it is the shortest route, is preferred in relation to landscape and visual amenity, cultural heritage, minerals and hydrology/hydrogeology and would result in the second smallest impact on commercial forestry.** Whilst Route Option 1 is located in proximity to Martyrs Moss LNCS, connectivity can be avoided during detailed design, however, this option cannot avoid crossing large extents of Class 3 and Class 5 peat. Route Option 1 also has partial interaction with the HMP of the North Kyle Energy Project (proposed for Black Grouse enhancement) and crosses the proposed access track for the consented Overhill Wind Farm.					

[37] Undetermined planning applications are those which have been validated, i.e. are 'live' applications, but have not yet been decided.

Appendix C

Newspaper Advertisement

Greenburn 132kV Grid Connection Project

SP Energy Networks

We'd like your views!

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

Scotland is a world leader in the fight against climate change. Our country has a target of Net Zero carbon emissions by 2045, with the UK aiming for Net Zero by 2050. To help meet those targets, SP 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 distribution work includes the provision of a new 132kV Grid Connection, comprising a wood pole overhead line and a section of underground cable, connecting the Greenburn Wind Park Project substation to the existing New Cumnock substation in East Ayrshire. We have identified a preferred route for the Grid Connection, and we would like to hear local people's views to help us develop our plans.

Our public consultation runs from **Wednesday 22nd January to Wednesday 19th February 2025**. We are also holding a consultation event where you can view our plans and talk to the project team:

Consultation Event Details

Date	Location
Tuesday 28th January 2025, Between 13:00 -18:00	**Dalmellington Community Centre,** Miners Suite, 38 Ayr Rd, Dalmellington, Ayr, KA6 7SJ

Information relating to the proposed Grid Connection will also be made available online from the **22nd January 2025** from the project website at:

www.spenergynetworks.co.uk/pages/greenburngridconnection.aspx

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

Email: **greenburngridconnection@spenergynetworks.co.uk**

Post: Greenburn Grid Connection
SP Energy Networks,
55 Fullarton Drive,
Cambuslang, Glasgow, G32 8FA

Please ensure your comments are provided by **latest midnight on Wednesday 19th February 2025**.

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.

Appendix D

Consultation Leaflet

We want to hear your views!

Our consultation period will run between **Wednesday 22nd January 2025** and **Wednesday 19th February 2025**. Please submit any comments to us by **midnight on Wednesday 19th February 2025**. Following this date, the information will remain accessible online and available to download.

Please find details below on how to get in touch with us and find out more:

Visit the website:
www.spenergynetworks.co.uk/pages/greenburngridconnection.aspx
On the project website you can read about the proposed Grid Connection, download the project information as a pdf, and provide feedback via email.

Email us: **greenburngridconnection@spenergynetworks.co.uk**

Send us a letter
Greenburn Grid Connection,
SP Energy Networks,
55 Fullarton Drive,
Cambuslang, Glasgow, G32 8FA

Attend a public exhibition
The in-person event will be held on :
Thursday 28th January 2025 between 13:00 – 18:00

Dalmellington Community Centre, The Miners Suite, 38 Ayr Rd, Dalmellington, Ayr KA6 7SJ

All the materials provided at the consultation event will be available to view online on the project website for those who cannot attend in person at: **www.spenergynetworks.co.uk/pages/greenburngridconnection.aspx**

What happens next

Your comments will be reviewed and will inform either confirmation of, or modifications to, the Preferred Route to form the Proposed Route to progress to the detailed design stage for the new Grid Connection. It will then be subject of the Section 37 (S37) application to the Scottish Government's Energy Consents Unit (ECU). The comments received in this consultation will also be collated into a report which will be made publicly available on SP Energy Networks website.

- Detailed Design
- Environmental Impact Assessment (EIA) Screening / Scoping
- Second Round of Consultation
- Section 37 Submission

Thank you for taking the time to read this leaflet.

SP Energy Networks

Greenburn 132kv Grid Connection Project

Consultation on the Preferred Route for a new 132kV Grid Connection

Background

The Greenburn 132kV Grid Connection Project (the 'Grid Connection') comprises a 132 kilovolt (kV) overhead line (OHL) supported on wood poles with a section of underground cable (UGC), located between the consented Greenburn Wind Park substation to the existing New Cumnock substation, in East Ayrshire. The location of the start and end point of the connection is shown on the plan overleaf.

The Preferred Route for the Grid Connection is also shown on the plan.

The Grid Connection is required to connect the consented Greenburn Wind Park to the electricity network. SPEN has a legal duty to keep its network up-to-date to safeguard electricity supplies, and to provide a connection for new generation to the wider electricity transmission network.

What will the overhead line look like?

The OHL element of the Grid Connection will be supported on trident double 'H' wood poles; the poles are approximately 10 – 22 meters in height above ground, with a distance between poles of approximately 80 – 100 meters. The H poles are dark brown in colour, with galvanised steelwork arms supporting aluminium conductors (wires) on insulators.

A section of UGC approximately 400 metres in length will also form part of the Grid Connection as it enters Greenburn Wind Park substation, to avoid OHL interaction with the consented wind turbines. It will be connected to the OHL by a terminal pole.

The precise pole configuration, height and span will be determined during the detailed line design stage.

Typical trident double 'H' wood pole

Preferred Route

SPEN has been working with independent environmental consultants to identify a preferred route option for the proposed Grid Connection. Our objective is to identify a route which meets the technical requirements of the electricity system, which are economically viable and cause the least disturbance to the environment and the people who live, work and enjoy recreation within it.

These route options have been appraised against environmental criteria, including local landscape character and views, hydrology and peat, cultural heritage and biodiversity, and a technical appraisal of the route options has also been undertaken by SPEN.

The route option shown on the next page is the preferred route as it best avoids areas of highest amenity value and technical constraints.

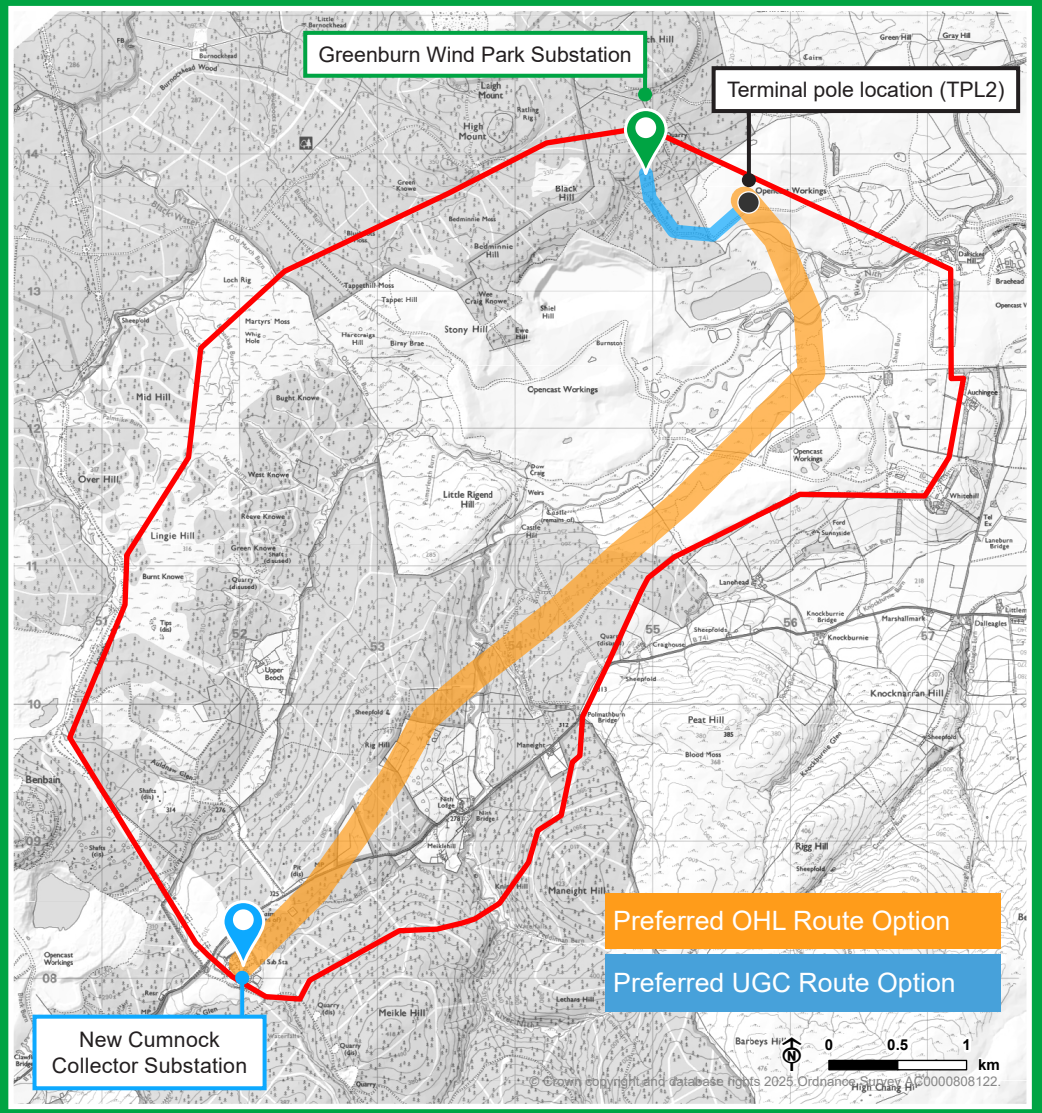
What we would like your views on?

As part of the consultation we would like your views on:

1. The Preferred Route for the Greenburn 132kV Connection Project;

2. Any other issues, suggestions or feedback you would like us to consider. In particular, your views on the local area, including areas for recreation, local environment features, and any plans you may have to build in the study area.

Greenburn 132kV Grid Connection Project



More information about the process we have followed to identify and appraise route options to select the Preferred Route can be found in our Routeing and Consultation Document (January 2025). This is available on the project website here:

www.spenergynetworks.co.uk/pages/greenburngridconnection.aspx

Appendix E

Poster

Greenburn 132kV Grid Connection Project

SP Energy Networks

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Please ensure your comments are provided by **latest midnight on Wednesday 19th February 2025**.

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Appendix F
Stakeholder Consultee List

Consultee List

Statutory Consultees

- East Ayrshire Council
- SEPA
- NatureScot
- Historic Environment Scotland

Internal Scottish Government Advisors

- Transport Scotland
- Scottish Forestry
- South Scotland Conservancy

Local Community Groups

- New Cumnock Community Council
- Dalmellington Community Council
- Miekhle Hill Community Group
- Cumnock Community Council

Non-Statutory Consultees

- British Horse Society
- Telecommunications (BT)
- Civil Aviation Authority
- Crown Estate Scotland
- The Coal Local Authority
- Defense Infrastructure Organisation
- Fisheries Management Scotland
- Local District Salmon Fisheries
- Joint Radio Company
- John Muir Trust
- Mountaineering Scotland
- NATS Safeguarding
- Nuclear Safety Directorate (HSE)
- RSPB Scotland
- Scottish Rights of Way and Access Society (ScotWays)
- Scottish Water

- Scottish Wildlife Trust
- Visit Scotland
- Glasgow Prestwick Airport
- Scottish Badgers
- South Scotland Red Squirrel Group
- Central Scotland Bat Group
- British Trust for Ornithology (Ayrshire and Cumbrae)
- National Farmers Union of Scotland
- National Grid