



Clydesmill to Strathaven Upgrade Project

Consultation Document

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Glossary

400 kV	400 kilovolt capacity of an electricity power line
AWI	Ancient Woodland Inventory
BGS	British Geological Survey
CEMP	Construction Environmental Management Plan
EIA	Environmental Impact Assessment
GIS	Geographic Information Systems
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicle
HTLS	High Temperature Low Sag
kV	Kilovolt
LCT	Landscape Character Type
LNR	Local Nature Reserve
LDP2	Local Development Plan 2
NESO	National Energy System Operator
NPF4	Scotland's Fourth National Planning Framework
OHL	Overhead line
PAC	Pre-Application Consultation
Planning application	An application for planning permission under the Town and Country Planning (Scotland) Act 1997, as amended by the Planning etc. (Scotland) Act 2006. It should be noted that consent under Section 37 of the Electricity Act 1989 usually carries with it deemed planning permission from the Scottish Ministers under Section 57 of the Town and Country Planning (Scotland) Act 1997.
Indicative Preferred route	The indicative route option which is considered to represent the optimum balance between the various environmental considerations.

Indicative Route options	A number of possible routes for comparative analysis.
Section 37 application	An application for development consent under Section 37 of the Electricity Act 1989.
SEPA	Scottish Environment Protection Agency
SPEN	Scottish Power Energy Networks
SSSI	Site of Special Scientific Interest – designated by SNH under the Nature Conservation (Scotland) Act 2004.
Study area	The area of land which comprises the area within which route options would be identified and evaluated.
tCSNP2	Transitional Centralised Strategic Network Plan 2
UGC	Underground Cable

Preface

This Consultation Document has been prepared by Ramboll UK Ltd on behalf of SP Energy Networks (SPEN) to seek comments from all interested parties on the Clydesmill to Strathaven Upgrade Project (hereafter referred to as the 'Proposed Development').

This Consultation Document is available online at: www.spenergynetworks.co.uk/cvup

The first in a series of consultation rounds is scheduled in November 2026 where further information regarding our proposals will be available alongside opportunities to speak to the project team.

The purpose of this document is to set out the project details and the key environmental constraints identified, in order to seek feedback on the proposals and any relevant environmental information from stakeholders and members of the public.

Comments on this document should be sent to:

- Email CVUP@SPENCONTACT.CO.UK
- Phone 0800 107 8231
- Post FREEPOST SPEN CVUP

1 Introduction

1.1 Purpose of Document

- 1.1.1 SP Energy Networks (SPEN) (hereafter referred to as ‘the Applicant’) owns, operates and maintains the transmission network in central and southern Scotland. Under Section 9(2) of the Electricity Act 1989¹, the Applicant is obligated to:
- Develop and maintain an efficient, coordinated, and economical system of electricity transmission; and
 - Facilitate competition in the generation and supply of electricity.
- 1.1.2 The Applicant proposes to undertake works associated with the Clydesmill to Strathaven Upgrade Project. These works include new terminal towers and associated overhead line spans at Clydesmill and Strathaven substations, an extension to the Strathaven 400 kV Substation, a 275 kV underground cable (UGC), and associated ancillary and enabling infrastructure. The works are required to facilitate a revised transmission network configuration and the operation of the transmission network at both 275 kV and 400 kV.
- 1.1.3 The Clydesmill to Strathaven Upgrade Project also includes the uprating of the existing Clydesmill-Strathaven (ZE) overhead line, together with associated refurbishment, reconductoring, tower strengthening, foundation upgrade and access works. The Applicant is currently reviewing the consenting requirements for the various components of the project, including the relationship between the proposed works and existing consents affecting the overhead line.

¹ Electricity Act 1989. Available at: <https://www.legislation.gov.uk/ukpga/1989/29/contents> (Accessed August 2026)

- 1.1.4 As elements of the Proposed Development will require Section 37 consent and relate to an overhead line operating at 275 kV and above, the application will require to be accompanied by an Environmental Impact Assessment (EIA). Schedule 1 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 identifies as Schedule 1 development the “construction of overhead electrical power lines with a voltage of 220 kilovolts or more and a length of more than 15 kilometres”. Schedule 1 development is EIA development and therefore an EIA Report will require to accompany the Section 37 application. Furthermore, all works associated with the Clydesmill to Strathaven Upgrade Project, including refurbishment works under the existing consent, will be assessed within the EIA to provide a comprehensive assessment of the likely significant environmental effects of the overall project and to avoid potential project segmentation.
- 1.1.5 This Consultation Document describes the nature of the Proposed Development and the potential environmental effects that have been identified. This document invites comments from all interested parties on the characteristics of the Proposed Development and the potential environmental effects that have been identified for further assessment.

1.2 Structure of this Report

- 1.2.1 The remainder of this report is as follows:
- Section 2 describes the need for the project and alternatives considered;
 - Section 3 describes the Proposed Development, including construction and operation phases;
 - Section 4 summarises the environmental assessment and consenting process;
 - Section 5 summarises the environmental and technical features and sensitivities which have informed this study.
 - Section 6 presents and analyses the potential UGC Indicative Route Options between the existing Strathaven Substation and the existing Malcolmwood compound.
 - Section 7 invites comments on the Proposed Development, the identification of potential environmental effects and next steps.
- 1.2.2 The main body of this document is supported by a series of figures which can be found in **Appendix A**.

1.3 SP Transmission's Duties and Licence Obligations

- 1.3.1 SPT, the Transmission Owner (TO) and Licence Holder under the Electricity Act 1989 is responsible for the electricity transmission network in central and southern Scotland. As the holder of a transmission licence under the Act, SPT is subject to a number of statutory duties and licence obligations. These include a requirement “to develop and maintain an efficient, coordinated and economical system of electricity transmission”. This requires SPT to provide for new electricity generators wishing to connect to the transmission system in its licence area; 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.
- 1.3.2 In addition, in formulating proposals for network reinforcements or grid connections such as that proposed for Clydesmill to Strathaven Upgrade project, SPT is subject to duties under Schedule 9 of the Act: “(a) to have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and, (b) to do what it reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.”
- 1.3.3 All work that SPT intends to undertake to carry out as part of the Clydesmill to Strathaven Upgrade Project will be undertaken in accordance with SPT's statutory duties and licence obligations with the objective of ensuring that the works are technically feasible, economically viable and on balance, cause the least disturbance to both the environment and people.

1.4 Next Steps

- 1.4.1 As part of the consultation, comments are sought from members of the public, statutory consultees and other stakeholders on the Proposed Development as described in this report.
- 1.4.2 An EIA, supported by appropriate surveys and specialist assessments, will be carried out to inform an EIA Report. The Applicant intends to submit an application to the Scottish Ministers for consent under section 37 of the Electricity Act 1989² in relation to the relevant components of the Proposed Development.

² Electricity Act 1989. Available at: <https://www.legislation.gov.uk/ukpga/1989/29/contents> (Accessed August 2026)

- 1.4.3 At the same time, the Applicant will also apply to the Scottish Ministers for deemed planning permission under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended³, for the works relating to any associated ancillary and enabling infrastructure. A Pre-Application Consultation Report will be submitted with the consent application which will document the consultation responses received, and the decisions made in light of these responses, to refine the Proposed Development and complete the EIA.
- 1.4.4 Further stages of Pre-Application Consultation (PAC), including additional consultation events, will be undertaken in accordance with statutory requirements. These events will provide continued opportunities for stakeholders and the public to review emerging details of the Proposed Development and to provide feedback. The outcomes of these consultation activities will be incorporated into the ongoing design refinement and will be reported within the PAC Report submitted alongside the consent application.

³ Town and Country Planning (Scotland) Act 1997. Available at: <https://www.legislation.gov.uk/ukpga/1997/8/contents> (Accessed August 2026)

2 Project Need and Alternatives

2.1 Introduction

- 2.1.1 This section sets out the need for the Proposed Development and summarises the alternatives being considered during design development.
- 2.1.2 The Proposed Development is located within the administrative boundary of South Lanarkshire Council. The Proposed Development is shown in **Figure 1 (Appendix A)**.

2.2 Need for the Project

- 2.2.1 The Applicant has a statutory duty under Schedule 9(2) of the Electricity Act 1989⁴ to develop and maintain an efficient, coordinated and economical electrical transmission system in its licence area. Where there is a requirement to extend, upgrade or reinforce its transmission network, the Applicant's aim is to provide an environmentally aware, technically feasible and economical solution which would cause the least disturbance to the environment and the people who use it. The Applicant is also obligated to facilitate competition in the generation and supply of electricity.
- 2.2.2 As part of the National Energy System Operator's (NESO) Transitional Centralised Strategic Network Plan 2 (tCSNP2) and Beyond 2030 network planning programme, the Proposed Development was identified to help strengthen the electricity transmission network and help in providing secure energy supplies for the future. The Proposed Development is intended to maximise the transfer capability via existing transmission overhead line routes by connecting the 400kV B5 circuit, established initially through wider works scheme DWUP (Clydesmill substation extension and Clydesmill to Denny North OHL Uprating), to the existing 400kV circuits beyond Strathaven, enhancing the B5 boundary capability. This is required to enable power to be directed from where it is generated to where it is needed. The Proposed Development was recommended to proceed by the National Electricity System Operator (NESO) in June 2026.

2.3 Consideration of alternatives

Overhead Line (OHL)

- 2.3.1 A key consideration in developing the Proposed Development is the selection of an appropriate OHL technology solution capable of delivering the required increase in transmission capacity. Alternatives to the Proposed Development have been considered and are outlined below.

⁴ Electricity Act 1989. Available at: <https://www.legislation.gov.uk/ukpga/1989/29/contents> (Accessed August 2026)

Do Nothing Scenario

- 2.3.2 Under the “do nothing” scenario, the existing transmission infrastructure would remain unchanged.
- 2.3.3 In this case, the current capacity limitations of the 275 kV OHL between Clydesmill and Strathaven would remain, restricting the ability of the transmission network to accommodate increasing electricity generation and demand. This would constrain the capacity of the transmission network and would not address the need for reinforcement of the existing electricity transmission infrastructure.
- 2.3.4 For these reasons, the “do nothing” scenario does not meet the identified need for the Proposed Development.

Construction of New Transmission Infrastructure

- 2.3.5 An alternative option would be the construction of a new overhead line along a different route to provide the required capacity.
- 2.3.6 This approach would require the identification and development of a new transmission corridor and would result in increased land take and potential environmental effects, including impacts on landscape character, habitats, cultural heritage and communities. It would also involve greater complexity in the consenting and construction process.
- 2.3.7 Given that a suitable transmission corridor already exists, the development of new infrastructure is not considered to represent a proportionate or efficient solution.

Upgrade of Existing Overhead Line

- 2.3.8 For the Proposed Development, the preferred approach is the uprating of the existing overhead line infrastructure from 275 kV to 400 kV. This approach allows:
- Continued use of the established transmission corridor;
 - Avoidance of new large-scale infrastructure routes;
 - Reduction in environmental disturbance compared to a new-build solution; and
 - Efficient delivery of increased electrical capacity.
- 2.3.9 This approach has been selected because it makes use of existing infrastructure and an established corridor, thereby reducing the need for additional land take and limiting environmental effects. It also provides a technically feasible and efficient means of increasing transmission capacity and meeting the identified network requirements.
- 2.3.10 The uprating works will primarily involve replacement or upgrading of conductors, fittings, and electrical components, together with strengthening of towers and foundations where required.

Underground Cable (UGC)

- 2.3.11 For the installation of a new 275 kV connection between the existing Strathaven Substation and the existing Malcolmwood compound, six UGC indicative routes are currently being considered.
- 2.3.12 The Applicant is applying its established route selection methodology⁵ to identify a technically feasible and economically viable UGC route that minimises potential effects on local communities, land use, environmental receptors and other constraints. The UGC Routing Appraisal is summarised in Section 6.

2.4 Planning Policy Context

National Planning Policy

- 2.4.1 The Proposed Development has been developed within the context of national planning policy and energy strategy.
- 2.4.2 Scotland's Fourth National Planning Framework (NPF4)⁶, published in February 2023, provides the long-term spatial strategy for Scotland to 2045 and forms part of the statutory development plan. NPF4 identifies strategic renewable electricity generation and transmission infrastructure as playing an important role in supporting the transition to a low-carbon economy and achieving Scotland's net zero targets.
- 2.4.3 NPF4 supports the development and reinforcement of electricity transmission infrastructure through National Development 3 (Strategic Renewable Electricity Generation and Transmission Infrastructure) and Policy 11 (Energy). These recognise the need to strengthen the electricity transmission network to accommodate increasing levels of renewable energy generation and support climate change objectives.
- 2.4.4 NPF4 also recognises that transmission infrastructure should be delivered in a way that minimises potential effects on people and the environment wherever practicable. Consideration should be given to environmental, landscape, cultural heritage and community interests throughout the design process.
- 2.4.5 The Proposed Development has therefore been developed to balance the need for network reinforcement with environmental considerations and the interests of local communities.

⁵ SP Energy Networks, 2020. Approach to Routing and Environmental Impact Assessment. https://www.spenergynetworks.co.uk/userfiles/file/SPEN_Approach_to_Routeing_Document_2nd_version.pdf#page=13&zoom=100,0,0

⁶ <https://www.gov.scot/publications/national-planning-framework-4/>

Local Planning Policy

- 2.4.6 The Proposed Development is located entirely within the South Lanarkshire Council area. In addition to NPF4, consideration has therefore been given to the policies and guidance contained within South Lanarkshire Council's Local Development Plan 2 (LDP2), which guides development and environmental protection across the area.

3 The Proposals

3.1 Introduction

- 3.1.1 This section provides an overview of the Proposed Development, including its key components and the activities associated with its construction and operation.

3.2 The Proposed Development

- 3.2.1 The Proposed Development comprises the uprating and reconductoring of existing overhead line infrastructure, the construction of replacement terminal towers, modifications to existing substation infrastructure (see **Figure 2a and 2b, Appendix A**), the installation of a new underground cable and associated ancillary works within an established transmission corridor.

- 3.2.2 The main components of the Proposed Development are as follows:

- Uprating approximately 10.4 km of existing 275 kV OHL between Clydesmill and Strathaven to facilitate 400 kV operation;
- Construction of a new terminal tower at Clydesmill Substation and associated new OHL span;
- Construction of a new terminal tower at Strathaven Substation and associated new OHL span;
- Extension of the existing Strathaven 400 kV Substation compound to facilitate the addition of one bay, which will facilitate the connection of the uprated reconducted ZE No.2 circuit;
- Installation of a new 275 kV underground cable (UGC) circuit between the existing Strathaven Substation and the existing Malcolmwood compound, including cable sealing end equipment; and
- Associated ancillary and enabling infrastructure, including construction compounds, laydown areas, hardstanding, access roads and vegetation clearance.

Uprating the Clydesmill–Strathaven OHL

- 3.2.3 The Proposed Development would include works to uprate the existing Clydesmill–Strathaven 275 kV double circuit overhead line to facilitate 400 kV operation. The No. 2 (eastern) circuit would be operated at 400 kV, whilst the No. 1 (western) circuit would continue to operate at 275 kV, creating a split-voltage operational arrangement. This will include strengthening of existing towers, including modification of steelwork and, where required, foundations.

Substation Infrastructure for OHL

- 3.2.4 The Proposed Development would also include reconfiguration works at Clydesmill and Strathaven substations, comprising the construction of a new terminal tower at

Clydesmill and a new tower at Strathaven to facilitate a 400 kV connection into the substation. An extension of the existing Strathaven 400kV substation compound is required to facilitate the addition of one new bay. The existing Wishaw 400kV circuit will connect to this new bay, which will allow the uprated reconductored ZE No.2 circuit to be connected the vacated Wishaw bay. The installation of a small control building to accommodate the new panels and all associated enabling works will be required.

UGC Circuit

- 3.2.5 In addition to the OHL works, the Proposed Development would include the installation of approximately 7.3 km of new 275 kV UGC between the existing Strathaven Substation and the existing Malcolmwood compound.
- 3.2.6 Cable sealing end equipment would be installed at the existing Malcolmwood compound to facilitate the transition between the UGC and the overhead transmission infrastructure.

Ancillary and Enabling Infrastructure

- 3.2.7 The Proposed Development would include temporary and permanent ancillary infrastructure required to facilitate construction activities, including construction compounds, laydown areas and hardstanding.
- 3.2.8 Access infrastructure would be established or upgraded where required to facilitate access to work areas and construction locations. This may include temporary and permanent access roads, haul roads and associated drainage infrastructure.
- 3.2.9 Vegetation clearance works would be undertaken where required to facilitate construction, operation and maintenance of the Proposed Development. This may include the removal of vegetation within working areas, access routes and locations required for the installation of permanent and temporary infrastructure.

3.3 Construction and Maintenance

OHL Construction

- 3.3.1 Construction activities are expected to include preparation of working areas, localised vegetation clearance within the operational corridor, establishment of temporary construction compounds and storage areas, and strengthening of towers and foundations where required.
- 3.3.2 Works would also include the removal of existing conductors and installation of new conductors and associated equipment. Construction would generally be undertaken in sections along the existing alignment, allowing works to be progressed efficiently while limiting disturbance at any one location.
- 3.3.3 Following completion of works, land disturbed during construction would be reinstated as far as practicable.

Access requirements

- 3.3.4 Existing access arrangements associated with the operational overhead line would be utilised where practicable.
- 3.3.5 In some locations, additional access may be required to facilitate construction. This may include temporary trackways, particularly in areas of softer ground, localised improvement of existing access tracks, and limited new access to specific tower locations where necessary.
- 3.3.6 Temporary access arrangements would be removed following completion of construction, with reinstatement of affected areas undertaken where practicable.

UGC Construction

- 3.3.7 The proposed UGC would generally be installed within a temporary construction corridor along the route. Construction activities would include excavation of a trench, installation of cable ducts and cables, construction of cable joint bays at intervals along the route, and reinstatement of land following completion of works.
- 3.3.8 Trenching would be undertaken in sections, with completed areas backfilled as construction progresses to minimise disturbance. Excavated materials would be reused where appropriate, and land affected by construction would be reinstated as close as practicable to its pre-construction condition.
- 3.3.9 Following installation, the cable route would be marked where necessary and maintained to enable safe operation of the electricity network.

Horizontal Directional Drilling

- 3.3.10 Horizontal Directional Drilling (HDD), a trenchless construction technique, may be used at specific locations where it is necessary to pass beneath existing infrastructure, such as the A725, in order to minimise disruption and avoid the need for open trench excavation. Additionally, HDD may be used to pass beneath areas of protected woodland, or watercourse crossings such as the Rotten Calder, in order to minimise impacts.

UGC Access Requirements

- 3.3.11 Temporary access would be required during construction to facilitate cable installation. Where practicable, existing tracks and access routes would be used, supplemented by temporary access arrangements where required. Measures would be adopted to minimise disturbance to land, habitats and watercourses during construction.
- 3.3.12 A temporary access track may be established within the construction corridor to support construction activities. Following completion of the works, all temporary access tracks and working areas would be reinstated as close as practicable to their pre-construction condition.

Operation and Maintenance

- 3.3.13 Once operational, the upgraded overhead line would form part of the existing transmission network.
- 3.3.14 Operational activities would be similar to those currently undertaken and would include routine inspections, maintenance of infrastructure, and occasional repair works where required. These activities are expected to be infrequent and would generally utilise existing access arrangements.
- 3.3.15 A Site Waste Management Plan (SWMP) shall be established before works commence. The plan must include reasonable steps to ensure that all waste generated on the construction site is dealt in accordance with the waste duty of care in Section 34 of the Environmental Protection Act.

3.4 UGC Routing and Design

Route Identification Overview

- 3.4.1 The UGC route selection and design process involves the systematic collection and review of environmental, engineering, land-related and stakeholder information to identify a preferred route for the proposed connection. The process initially considers the shortest practicable route while seeking to maximise the use of public roads and highways, thereby minimising impacts on landowners and third-party land interests. The route is then progressively refined through the assessment of environmental, engineering and land constraints, together with constructability and maintenance considerations. A number of potential routing options are developed and evaluated through an iterative process, with the findings used to further refine the alignment and ultimately identify a single preferred route that offers the most balanced solution across all technical, environmental and land-related factors.
- 3.4.2 As part of this process, the Applicant is engaging with statutory consultees, non-statutory organisations, landowners and other stakeholders to obtain information and feedback that can help inform route development. While there is no statutory requirement to consult on indicative route options for the UGC at this stage, the Applicant considers early engagement to be an important part of the development process. This consultation document provides an overview of the design work currently being undertaken and the approach being used to identify a preferred route, enabling stakeholders to review the available information and provide comments at an early stage.
- 3.4.3 Following consultation, the indicative route options will be reviewed in light of the feedback received and any new information that becomes available. Where necessary, modifications to the preferred route may be identified and subject to further consultation. Consultation responses, together with ongoing environmental and technical assessments, will inform the selection of a proposed route to be taken forward as part of the EIA process.

4 EIA and Consenting Process

4.1 Introduction

- 4.1.1 The Proposed Development constitutes a project for which an EIA is required under the *Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017*⁷. Schedule 1 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 identifies as Schedule 1 development the “construction of overhead electrical power lines with a voltage of 220 kilovolts or more and a length of more than 15 kilometres”. Schedule 1 development is EIA development and therefore an EIA Report will require to accompany the Section 37 application. Furthermore, all works associated with the Clydesmill to Strathaven Upgrade Project, including those being undertaken under an existing consent, will be assessed within the EIA to provide a comprehensive assessment of the likely significant environmental effects of the overall project and to avoid potential project segmentation.
- 4.1.2 The EIA process provides a structured and systematic framework for identifying, predicting, evaluating and reporting the likely significant environmental effects of the Proposed Development prior to any consent decision being made.
- 4.1.3 The primary objective of the EIA process is to ensure that environmental considerations are fully integrated into both the design and decision-making processes associated with the Proposed Development. In doing so, the EIA enables potential environmental effects to be understood, avoided where practicable, or reduced through the implementation of appropriate mitigation measures. The findings of the EIA will be presented within an EIA Report, which will accompany the application for consent submitted to Scottish Ministers.
- 4.1.4 An EIA Scoping Report is currently being prepared in order to define the scope and methodology of the assessment. This process is informed through consultation with statutory consultees and other stakeholders. Responses received will guide the identification of environmental topics requiring detailed assessment, as well as those which can be scoped out.
- 4.1.5 The environmental assessment is iterative in nature, meaning that the findings of baseline data collection, consultation, and assessment continuously inform the design of the Proposed Development. This approach helps ensure that environmental constraints are considered at the earliest possible stage, allowing the design to evolve in a manner that minimises adverse environmental effects.

⁷ <https://www.legislation.gov.uk/ssi/2017/101/contents>

4.2 EIA Process

- 4.2.1 The EIA process follows established regulatory and best practice guidance, incorporating a series of interconnected stages including baseline data collection, identification of sensitive receptors, assessment of potential effects, and the development of mitigation measures.

4.3 Identification of Baseline Conditions

- 4.3.1 The identification of baseline conditions is established through a combination of desk-based studies, consultation and field surveys. This approach enables an initial understanding of environmental sensitivities in proximity to the Proposed Development.
- 4.3.2 Baseline survey work is being undertaken and will continue throughout the EIA process. For example, initial ecology surveys have been conducted in August 2026 to identify habitat types, protected species and designated sites, while cultural heritage studies identify both designated and non-designated heritage assets within 1 km of the Proposed Development.
- 4.3.3 This comprehensive approach ensures that all relevant environmental receptors are identified and characterised, forming a robust basis for subsequent impact assessment.

4.4 Assessment of Likely Significant Effects

- 4.4.1 The EIA will assess the likely significant environmental effects of the Proposed Development during both the construction and operational phases. Effects are identified through an evaluation of the sensitivity of receptors and the magnitude of change resulting from the Proposed Development.
- 4.4.2 During construction, potential effects may arise from activities such as vegetation clearance, access provision, tower strengthening, and conductor replacement. These activities may give rise to both direct effects, such as physical disturbance within the working corridor, and indirect effects, such as changes to environmental conditions affecting nearby receptors.
- 4.4.3 During operation, potential effects are primarily associated with the ongoing presence and functioning of the Proposed Development. These may include operational noise, ecological interactions, and potential effects on sensitive receptors in proximity to the infrastructure.
- 4.4.4 The assessment considers both temporary and permanent effects, as well as short-term and long-term impacts. In addition, cumulative effects will be assessed, considering the interaction of the Proposed Development with other existing or planned developments within the surrounding area.
- 4.4.5 Mitigation measures will be embedded within the design and be further secured through environmental management plans, including a Construction Environmental Management Plan (CEMP), ensuring that potential adverse effects are avoided or reduced wherever practicable.

4.5 Application for Consent

- 4.5.1 Following completion of the EIA Report, the Applicant intends to submit an application to the Scottish Ministers for consent under section 37 of the Electricity Act 1989⁸ in respect of the necessary components within the Proposed Development. At the same time, the Applicant will also apply to the Scottish Ministers for deemed planning permission under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended⁹, for the works relating to any relevant associated ancillary and enabling infrastructure.
- 4.5.2 The Proposed Development comprises a combination of works associated with the existing Clydesmill-Strathaven transmission infrastructure and proposed new overhead line, substation and underground cable infrastructure. SPEN is currently reviewing the consenting requirements for the various components of the Proposed Development, including the relationship between the proposed works and existing consents affecting the overhead line.
- 4.5.3 All works associated with the Clydesmill to Strathaven Upgrade Project will be assessed within the EIA, irrespective of the consenting mechanism ultimately adopted. This approach will ensure that the likely significant environmental effects of the overall project are assessed comprehensively and avoids the potential for project segmentation.
- 4.5.4 The EIA Report will accompany the relevant consent application(s). In determining any application, the Scottish Ministers will consult with statutory consultees, relevant stakeholders and members of the public in accordance with applicable legislative requirements.

⁸ Electricity Act 1989. Available at: <https://www.legislation.gov.uk/ukpga/1989/29/contents> (Accessed August 2026)

⁹ Town and Country Planning (Scotland) Act 1997. Available at: <https://www.legislation.gov.uk/ukpga/1997/8/contents> (Accessed August 2026)

5 Technical and Environmental Considerations

5.1 Overview

- 5.1.1 As set out in Section 4, the EIA process involves a series of interconnected stages including baseline data collection, identification of sensitive receptors, assessment of potential effects, and the development of mitigation measures.
- 5.1.2 This section provides an overview of each environmental topic to be considered within the assessment, including the baseline conditions, potential effects, and proposed assessment methodologies.

5.2 Environmental and Technical Baseline

- 5.2.1 An initial evaluation of the range of environmental and technical constraints is undertaken during the collection of background information. Through a combination of Geographic Information Systems (GIS) analysis, consultation and liaison with the wider technical and environmental project team, constraints which are considered key in terms of avoidance are mapped.
- 5.2.2 Digital data sets describing the nature and extent of environmental features were obtained from published sources and from SPEN records and were transferred to a Project GIS for subsequent analysis. The constraints include current baseline conditions, as well as known potential future conditions, for environmental features related to:
- archaeology and cultural heritage;
 - ecology and ornithology;
 - landscape and visual amenity;
 - hydrology, hydrogeology and geology;
 - traffic and transport;
 - residential dwelling and land use; and
 - other infrastructure (incl. transmission lines, wind farms (planned and consented), and roads).
- 5.2.3 The environmental and technical baseline information is presented below.

Archaeology and Cultural Heritage

Description of Baseline Conditions

- 5.2.4 The Proposed Development is sited on a predominantly agricultural landscape interspersed with woodland, farms and areas of urban development around Blantyre.

- 5.2.5 A range of designated heritage assets have been identified within 1 km of the Proposed Development, including the Scheduled Monuments of Blantyre Priory and Bothwell Castle, together with one Category A Listed Building and a number of Category B and Category C Listed Buildings; the locations of these assets are shown in **Figure 3a and 3b (Appendix A)**. Listed Buildings are concentrated within the settlements of Carmyle, Blantyre and High Blantyre, with additional historic assets located within the surrounding rural landscape.
- 5.2.6 Numerous non-designated heritage assets and archaeological records have also been identified, including prehistoric remains, former agricultural features, industrial heritage assets, transport routes and historic settlements. Mapping indicates that the wider landscape has long been characterised by agricultural land use, with evidence of ongoing settlement and infrastructure development throughout the corridor.

Potential Significant Effects and Assessment Methodology

- 5.2.7 Potential effects on cultural heritage are primarily associated with construction activities and may include direct impacts on known and previously unidentified archaeological remains arising from tower foundation works, access improvements, construction compounds and other ground disturbance activities. Temporary effects on the setting of designated heritage assets may also occur as a result of construction traffic, machinery, scaffolding, noise and visual disturbance.
- 5.2.8 Mitigation will focus on the avoidance of sensitive cultural heritage assets wherever practicable through project design and construction planning. Where impacts cannot be avoided, archaeological investigation and recording would be undertaken as appropriate, with construction management measures implemented to minimise temporary impacts on the setting of designated heritage assets.

Ecology and Ornithology

Description of Baseline Conditions

- 5.2.9 The Proposed Development is located within a predominantly rural landscape comprising a mosaic of broadleaved and mixed woodland, hedgerows, scrub, improved and semi-improved grassland, agricultural land and watercourses. These habitats provide ecological connectivity across the route and support a range of protected and notable species. The locations of key ecological constraints are shown on **Figure 3a and 3b (Appendix A)**.
- 5.2.10 Designated sites in proximity to the Proposed Development include two areas of Ancient Woodland listed on the Ancient Woodland Inventory (AWI): Calder Glen Ancient Woodland and ancient woodland near Neilsland and Earnock. Together with Neilsland and Earnock Local Nature Reserve (LNR) and Greenhall, Millheugh and Barnhill LNR. Woodland, scrub and hedgerow habitats are particularly prevalent along sections of the route and provide important habitat corridors for wildlife. Hamilton Low Parks SSSI is located approximately 3.7 km east of the Proposed Development, supporting one of the largest grey heron nesting colonies in Scotland.

- 5.2.11 Preliminary ecological surveys identified a number of receptors of relevance to the assessment. Trees with bat roost potential were recorded at several tower locations and along the underground cable route, whilst evidence of badger activity was identified in proximity to the Proposed Development. Suitable habitats were also identified for barn owl, breeding birds, pine marten, red squirrel and reptiles. No confirmed evidence of otter, water vole or beaver was recorded during the surveys, although suitable habitat exists along sections of the River Rotten Calder corridor.
- 5.2.12 Invasive non-native species were recorded, including Himalayan balsam at the proposed terminal tower location at Clydesmill Substation and along sections of the Rotten Calder watercourse.

Potential Significant Effects and Assessment Methodology

- 5.2.13 Potential ecological effects are primarily associated with construction activities and may include temporary habitat loss, fragmentation and disturbance arising from tower upgrade works, access requirements, construction compounds and underground cable installation. Sensitive habitats, including areas of woodland and Ancient Woodland Inventory sites, may be affected where works are located in close proximity to these features.
- 5.2.14 Potential effects on protected and notable species include disturbance to bats, badgers, barn owls, breeding birds and other fauna during vegetation clearance and construction activities. There is also potential for indirect effects associated with increased noise and activity, impacts on riparian habitats and water quality, and the spread of invasive non-native species through construction works and vehicle movement.
- 5.2.15 Embedded mitigation measures will include the minimisation of habitat loss through careful design and construction planning, retention of existing vegetation where practicable, and implementation of species protection measures where required. Further mitigation may include timing restrictions on vegetation clearance, pre-construction surveys, protective buffer zones, biosecurity measures to prevent the spread of invasive species and habitat reinstatement following construction. Opportunities for biodiversity enhancement will also be identified as part of the assessment process.

Landscape and Visual Amenity

Description of Baseline Conditions

- 5.2.16 The Proposed Development is located within the lowland landscapes of South Lanarkshire, extending between Clydesmill and Strathaven through a transitional urban-rural environment. The landscape is influenced by the broad valley of the River Clyde, the incised valley of the Rotten Calder and a number of smaller watercourses, with landform generally rising from north to south. The landscape comprises a mixture of urban development, agricultural land, woodland, transport corridors and existing electricity infrastructure.

- 5.2.17 Land use within 3 km of the Proposed Development is characterised by residential development around Glasgow, Blantyre, Hamilton and East Kilbride, transitioning to predominantly agricultural landscapes to the south. Woodland is generally concentrated along river corridors and within shelterbelts, while major infrastructure features include the M74 motorway, strategic road network, railway lines, existing transmission infrastructure and Blantyre Muir Wind Farm.
- 5.2.18 The Proposed Development is located within a number of Landscape Character Types, including Urban, Broad Urban Valley, Incised River Valleys, Urban Fringe Farmland, Rolling Farmland and Plateau Farmland. These landscapes are characterised by a combination of urban influences, agricultural land use, river corridors, woodland and established electricity infrastructure. No nationally or locally designated landscapes have been identified within 3 km of the Proposed Development, although Calderglen Country Park and Chatelherault Country Park are located nearby.
- 5.2.19 Sensitive visual receptors include residents within nearby settlements and rural properties, users of the local road network, rail passengers and recreational users. Key recreational receptors include the Clyde Walkway, National Cycle Network Route 75, local cycle routes, core paths and visitors to elevated locations such as Dechmont Hill. Visual receptors are concentrated around the new infrastructure proposed at Clydesmill and Strathaven substations, where opportunities for views of construction activity and new infrastructure are greatest.

Potential Significant Effects and Assessment Methodology

- 5.2.20 Potential landscape and visual effects are expected to arise principally from construction activities and the introduction of new infrastructure at Clydesmill and Strathaven substations. Construction compounds, temporary access routes, vegetation clearance, earthworks, construction plant and associated activities may result in localised temporary effects on landscape character and visual amenity.
- 5.2.21 During operation, potential effects are expected to be associated with the permanent presence of new terminal towers and associated substation infrastructure at Clydesmill and Strathaven. Along the existing overhead line route, works would largely comprise upgrades to existing infrastructure and are therefore anticipated to result in limited changes to established landscape character and views.
- 5.2.22 Mitigation will be incorporated through the design and construction process, including careful siting of temporary construction infrastructure, minimisation of vegetation removal where practicable and reinstatement of disturbed areas following construction. Given the presence of existing transmission infrastructure throughout the corridor and the limited extent of permanent changes proposed, significant landscape and visual effects are expected to be localised and primarily associated with the substation connection works.

Hydrology, Hydrogeology and Geology

Description of Baseline Conditions

- 5.2.23 The Proposed Development is located within the River Clyde catchment of the Scotland River Basin District. Several watercourses are present within and adjacent to the Proposed Development, including the River Clyde, Rotten Calder, Newton Burn, Spittal Burn, Red Burn, Earnock Burn, Cadzow Burn and a number of unnamed tributaries. The River Clyde and Rotten Calder are the principal watercourses within proximity to the Proposed Development and are classified by SEPA as being of moderate overall condition. The OHL route crosses or passes in close proximity to a number of these watercourses, including direct crossing points at the Rotten Calder and Newton Burn.
- 5.2.24 Areas of fluvial flood risk are associated primarily with the Newton Burn and Rotten Calder corridors. Limited interactions with medium and high likelihood flood extents have been identified, together with areas of surface water flooding associated with watercourse corridors and ponds. While parts of the route intersect flood risk areas, several interactions are limited to existing overhead line crossings, with no proposed permanent ground-level infrastructure currently identified within the mapped flood extents.
- 5.2.25 The Proposed Development lies within a designated Groundwater Drinking Water Protected Area. Information relating to nearby Private Water Supplies will be obtained from South Lanarkshire Council and will be incorporated into the assessment.
- 5.2.26 The Proposed Development is generally underlain by the Scottish Coal Measures Group bedrock of Carboniferous age, comprising sedimentary sequences of mudstone, siltstone, sandstone, coal, ironstone and ferricrete. Localised areas of limestone-bearing formations associated with the Clackmannan Group are present towards the south of the Proposed Development and around Strathaven Substation. The area is underlain by a moderately productive aquifer and therefore exhibits some groundwater resource sensitivity.
- 5.2.27 Superficial deposits in the area comprise glacial till, alluvial deposits and localised sand and gravel deposits. The NatureScot Carbon and Peatland Map indicates that the Proposed Development is predominantly underlain by mineral soils, with limited areas of non-soil surface associated with existing built development. The Proposed Development is also located within a Coal Mining Reporting Area, with some sections identified as a Development High Risk Area.

Potential Significant Effects and Assessment Methodology

- 5.2.28 Potential effects are expected to arise primarily during the construction phase and may include impacts on surface water quality, groundwater, flood risk, soils and geological resources. Construction activities such as excavation, tower foundation works, vehicle movements, temporary access creation and accidental releases of fuels or chemicals have the potential to affect nearby watercourses, groundwater resources and sensitive hydrological receptors.

- 5.2.29 Consideration will be given to particular receptors including surface watercourses, groundwater within the underlying moderately productive aquifer, any Private Water Supplies identified during the assessment process, Groundwater Dependent Terrestrial Ecosystems and sensitive geological or soils receptors. Interactions with watercourses, flood risk areas and former mining areas will also be considered.
- 5.2.30 Embedded mitigation is expected to include the application of established pollution prevention measures, good practice construction techniques and appropriate controls for works in proximity to watercourses, groundwater receptors and flood-prone areas. Further mitigation requirements, including any measures relating to Private Water Supplies or groundwater-dependent habitats, will be identified once the remaining baseline information has been completed.

Traffic and Transport

Description of Baseline Conditions

- 5.2.31 The traffic and transport baseline comprises the local road network that would be used to access the Proposed Development during construction. Principal access routes are anticipated to include the A763 and Westburn Drive/Westburn Road for works associated with Clydesmill Substation, the A723 and Muttonhole Road for works associated with Strathaven Substation, and sections of the A724, B7012, Sydes Brae, Newhousemill Road and other local roads providing access to the existing overhead line corridor.
- 5.2.32 The area surrounding the Proposed Development includes a combination of strategic and local roads passing through urban, suburban and rural areas. Sensitive receptors include local residents, road users, pedestrians, cyclists and other non-motorised users who may experience changes in traffic conditions during the construction phase. Baseline traffic conditions will be established through a review of available traffic data, supplemented by traffic surveys where required, together with analysis of recent road collision records.

Potential Significant Effects and Assessment Methodology

- 5.2.33 Potential effects are associated primarily with construction traffic and may include temporary increases in traffic flows, changes in vehicle composition, delays to road users, impacts on pedestrian and cyclist amenity, changes to road safety conditions and effects associated with the movement of HGVs and abnormal loads. Temporary effects may also arise from the establishment of construction access arrangements and associated construction traffic movements along local roads.
- 5.2.34 Traffic associated with the operational phase of the Proposed Development is expected to be limited to periodic inspection and maintenance activities and is therefore not anticipated to give rise to significant traffic and transport effects. Decommissioning effects are also proposed to be scoped out, as traffic levels would be comparable to or lower than those associated with construction activities.

- 5.2.35 Mitigation measures will be developed where required and are expected to include the implementation of a Construction Traffic Management Plan. This will set out construction traffic routes, delivery management procedures, traffic control measures, communication protocols and other measures designed to minimise disruption, maintain road safety and reduce effects on local communities and road users during construction.

6 Underground Cable Routeing Appraisal

6.1 Overview

- 6.1.1 This Section presents and analyses potential UGC Route Options between the existing Strathaven Substation and the existing Malcolmwood compound.
- 6.1.2 Six indicative UGC Route Options were identified and appraised. However, further site investigations, engineering design development and stakeholder consultation will be undertaken to verify the technical and environmental feasibility of the indicative route options. The route alignments may be refined as additional constraints or routeing efficiencies are identified. Accordingly, the indicative routes presented within this report are subject to change prior to all necessary surveys assessments being undertaken to enable the establishment of a preferred route. The indicative UGC Route options are shown in **Figure 4 (Appendix A)** and described below.

6.2 Indicative Route Option Descriptions

Route Option 1

- 6.2.1 Route Option (RO) 1 is approximately 7.33 km in length. It extends northwest from Strathaven Substation, connecting to Highstonehall Road and following west to Muttonhole Road. It follows Muttonhole Road north to Newhousemill Road where it turns northeast before turning west up Parkneuk Road and travelling north via Sydes Brae. RO1 then crosses beneath the A725 following the B758 north (Douglas Street, Hunthill Road) before turning west at Loanend Road, crossing the Rotten Calder and entering Malcolmwood Compound.

Route Option 2

- 6.2.2 RO2 is approximately 9.98 km in length. RO2 extends northwest from Strathaven Substation, connecting to Highstonehall Road and following west to Muttonhole Road. It follows Muttonhole Road north to Newhousemill Road where it turns northeast before turning west up Parkneuk Road and travelling north via Sydes Brae. At Calderside Road the route then turns west and follows north before crossing the East Kilbride Expressway (A725) and connecting to Stoneymeadow Road and following northwest. RO2 then turns north up Flemington Road until reaching Flemington Farm where the route turns southeast and follows Loanend Road to Malcolmwood Compound.

Route Option 3

- 6.2.3 RO3 is approximately 10.4 km in length. RO3 extends northwest from Strathaven Substation, connecting to Highstonehall Road and following west to Muttonhole Road. It follows Muttonhole Road north to Newhousemill Road where it turns northeast before turning west up Parkneuk Road and travelling north via Sydes Brae. At Auchentibber Road the route then turns west before joining Calderside Road and following north before crossing the East Kilbride Expressway (A725) and connecting to Stoneymeadow Road and following northwest. RO3 then turns north up Flemington Road until reaching Flemington Farm where the route turns southeast and follows Loanend Road to Malcolmwood Compound.

Route Option 4

- 6.2.4 RO4 is approximately 12.2 km in length. RO4 and RO3 extend northwest from Strathaven Substation, connecting to Highstonehall Road and following west to Muttonhole Road. It follows Muttonhole Road north to Newhousemill Road where it turns west. RO4 then turns north at Calderside Road following north before crossing the East Kilbride Expressway (A725) and connecting to Stoneymeadow Road and following northwest. RO4 then turns north up Flemington Road until reaching Flemington Farm where the route turns southeast and follows Loanend Road to Malcolmwood Compound.

Route Option 5

- 6.2.5 RO5 is approximately 7.3 km in length. RO5 extends northwest from Strathaven Substation, connecting to Highstonehall Road and following west to Muttonhole Road. It follows Muttonhole Road north to Newhousemill Road where it turns northeast before turning west up Parkneuk Road and travelling north via Sydes Brae. At Auchentibber Road the route then turns west before joining Calderside Road and following north before reaching the East Kilbride Expressway (A725). RO5 would then traverse east on the southern border of the East Kilbride Expressway within the adjoining field before using HDD methods to connect through to Malcolmwood Compound. This route section presents approximately 1.1 km of HDD beneath the East Kilbride Expressway, Hamilton Road, Greenhall Milheugh and Barnhill LNR and the Rotten Calder.

Route Option 6

- 6.2.6 RO6 is approximately 8.87 km in length. RO6 extends northwest from Strathaven Substation, connecting to Highstonehall Road and following west to Muttonhole Road. It follows Muttonhole Road north to Newhousemill Road where it turns northeast before turning west up Parkneuk Road and travelling north via Sydes Brae. At Auchentibber Road the route then turns west before joining Calderside Road and following north before crossing the East Kilbride Expressway (A725) and connecting to Hamilton Road moving east. RO6 then turns north via Afton Gardens and Hunthill Road. Before reaching Loanend Road, HDD is proposed beneath the Rotten Calder from Hunthill Road northwest to Malcolmwood Compound.

6.3 Environmental Appraisal

Appraisal Method

- 6.3.1 An appraisal was undertaken using GIS which utilised available digital datasets, covering the following environmental topics:
- Ecology;
 - Ornithology;
 - Landscape and Visual;
 - Cultural Heritage;
 - Hydrology; and
 - Geology and Soils.
- 6.3.2 A full list of environmental constraints that were considered in the environmental appraisal can be found in **Appendix B**.
- 6.3.3 Each RO was appraised and given a Red/Amber/Green (RAG) rating for each of the environmental constraints, as shown in **Appendix B**. The RAG rating provides an indication of the proximity of identified environmental constraints to each UGC option and was used to support comparison between the options. A Red rating was assigned where the UGC option directly intersected a constraint, while an Amber rating was assigned where a constraint was located within 500 m of the UGC option, or within 50 m in the case of residential receptors. A Green rating was assigned where no identified constraints were located within 500 m of the UGC option, or 50 m for residential receptors.
- 6.3.4 It should be noted that the RAG appraisals have been used as a comparison tool to assist route selection, and a RED or AMBER rating does not necessarily indicate that a UGC Option would be unacceptable in environmental terms but rather indicates the need for further consideration of the identified constraint and the potential for adverse effects. The RAG matrix is not intended to be applied as a prescriptive or arithmetic tool, and therefore the appraisal of potential effects allows for the application of professional judgement when comparing the UGC Options. Consequently, route selection has not been based on the number of Red, Amber or Green ratings alone, but on an overall consideration of the opportunities and challenges presented by each option.
- 6.3.5 The assignment of high-level RAG ratings assumed a worst-case scenario in terms of the trenching method used, so assumed open cut trenching would be used rather than horizontal directional drilling (HDD) for many constraints identified, such as Ancient Woodland. It is to be noted that the final decision making process for a preferred UGC Option did take into consideration the ability to mitigate impacts on identified constraints through the use of HDD.
- 6.3.6 It is to be noted that the appraisal assumed a worst-case scenario in terms of open trenching vs HDD.

Comparative Analysis

Route Option 1

- 6.3.7 A key negative differentiating factor for RO1 is the high number of residential properties, with over 150 located within 50 m of the RO. A key positive differentiating factor is that RO1 does not use General's Bridge, Stoneymeadow Road, a Category B Listed Building, to cross the Rotten Calder.
- 6.3.8 RO1 directly intercepts the Greenhall, Millheugh & Barnhill LNR polygon. However, the RO1 alignment would follow the route of the existing road through the LNR and would therefore avoid direct interaction with the LNR. Furthermore, RO1 does not directly intercept Ancient Woodland, with the closest area, Mid Lettrick Wood, located over 70 m away. No SSSIs, Country Parks or Scheduled Monuments are located within 500 m of RO1. RO1 crosses three Core Paths and has three Listed Buildings within 500 m, the closest at approximately 80 m distance. RO1 also crosses the Rotten Calder and an unnamed watercourse associated with Park Burn. These features would require consideration as the design progresses; however, they are not considered to be determining factors in the comparative appraisal of the RO.
- 6.3.9 Overall, RO1 performs less favourably than other ROs in relation to the high number of residential properties within 50 m the route. The LNR constraint is moderated by RO1 following the existing road through the designated area. RO1 performs favourably across several other differentiating constraints, including distance from Ancient Woodland and Scheduled Monument, the absence of SSSIs and Country Parks within 500 m, and avoidance of the Category B listed General's Bridge used by RO2, RO3 and RO4.

Route Option 2

- 6.3.10 RO2 has two key negative differentiating factors. Firstly, RO2 would use General's Bridge, Stoneymeadow Road, a Category B Listed Building, to cross the Rotten Calder. Secondly, RO2 would require three watercourse crossings, namely the Rotten Calder, Cocks Burn and Lees Burn.
- 6.3.11 Additionally, RO2 runs directly adjacent to an area of Long-Established Woodland of plantation origin (Woodland ID 29528, Ancient Woodland Inventory) and is within 500 m of Calder Glen SSSI, Greenhall, Millheugh & Barnhill LNR and Calderglen Country Park. RO2 intercepts two Core Paths and lies within 500 m of two further Listed Buildings, Flemington Farm (Category B) and Crossbasket (Category A), as well as Scheduled Monument SM4701. These features would require consideration as the design progresses; however, they are not considered to be determining factors in the comparative appraisal of the RO.
- 6.3.12 Overall, the principal disadvantages of RO2 relate to its use of the Category B listed General's Bridge and its three watercourse crossings. RO2 performs more favourably in relation to the LNR, as it does not directly intercept or follow the road through the designation.

Route Option 3

- 6.3.13 Similarly to RO2, RO3 has two key negative differentiating factors. Firstly, RO3 would use General's Bridge, Stoney Meadow Road, a Category B Listed Building, to cross the Rotten Calder. Secondly, RO3 would require three watercourse crossings, namely the Rotten Calder, Cocks Burn and Lees Burn.
- 6.3.14 In addition, RO3 runs directly adjacent to an area of Long-Established Woodland of plantation origin (Woodland ID 29528, Ancient Woodland Inventory) and is within 500 m of Calder Glen SSSI, Greenhall, Millheugh & Barnhill LNR and Calderglen Country Park. RO3 intercepts two Core Paths and is within 500 m of two further Listed Buildings, Flemington Farm (Category B) and Crossbasket (Category A), as well as Long Calderwood cairn scheduled monument (SM4701). These features would require consideration as the design progresses; however, they are not considered to be determining factors in the comparative appraisal of the RO.
- 6.3.15 Overall, the principal disadvantages of RO3 relate to its use of the Category B listed General's Bridge and its three OS Open River crossings. RO3 performs more favourably in relation to Greenhall, Millheugh & Barnhill LNR, as it does not directly intercept the designation. Overall, RO3 is therefore broadly comparable with RO2 in relation to its principal differentiating constraints.

Route Option 4

- 6.3.16 RO4 has four key negative differentiating factors. Firstly, RO4 would use General's Bridge, Stoney Meadow Road, a Category B Listed Building, to cross the Rotten Calder. Secondly, RO4 would require three watercourse crossings, namely the Rotten Calder, Cocks Burn and Lees Burn. In addition, two SSSIs, Calder Glen SSSI and Blantyre Muir SSSI, are located within 500 m of RO4.
- 6.3.17 Furthermore, RO4 is also located in close proximity to an area of Class 1 peatland and there may be potential for the presence of deep peat. RO4 runs directly adjacent to identified areas of Ancient Woodland and is within 500 m of Greenhall, Millheugh & Barnhill LNR and Calderglen Country Park. RO4 intercepts two Core Paths and is within 500 m of four further Listed Buildings, comprising Flemington Farm, Crossbasket, Newhouse Bridge and Newhousemill, as well as Long Calderwood cairn scheduled monument (SM4701). These features would require consideration as the design progresses; however, they are not considered to be determining factors in the comparative appraisal of the RO.
- 6.3.18 Overall, RO4 performs marginally less favourably than RO2 and RO3 in relation to the principal differentiating environmental constraints. RO4 is additionally distinguished by its proximity to Class 1 peatland and the presence of two SSSIs within 500 m. RO4 performs more favourably than RO1 in relation to the LNR, as it does not directly intercept or run adjacent to the road through the LNR, and, together with RO2 and RO3, intercepts the fewest identified Core Paths. However, RO4 runs directly adjacent to Ancient Woodland, unlike RO1, and lies within 500 m of Long Calderwood cairn scheduled monument (SM4701).

Route Option 5

- 6.3.19 RO5 has two key negative differentiating factors relating to designated ecological interests. RO5 directly intercepts the Greenhall, Millheugh & Barnhill LNR and also directly intercepts three areas of Ancient Woodland, comprising one area of Long-Established Woodland of plantation origin and two areas of Ancient Woodland of semi-natural origin. However, a key positive differentiating factor is that RO5 represents the shortest RO.
- 6.3.20 Additionally, RO5 intercepts three Core Paths and has two Listed Buildings within 500 m, comprising General's Bridge, Stoney Meadow Road (Category B) and Crossbasket (Category A). RO5 crosses the Rotten Calder and Cocks Burn. These features would require consideration as the design progresses; however, they are not considered to be determining factors in the comparative appraisal of the RO.
- 6.3.21 Overall, the principal disadvantages of RO5 relate to its direct interception of Greenhall, Millheugh & Barnhill LNR and multiple areas of Ancient Woodland. The LNR constraint is shared with other ROs, but RO5 would intercept a greater area of the LNR and RO5 has a greater degree of direct interception with Ancient Woodland. Conversely, RO5 avoids the use of the Category B listed General's Bridge required by RO2, RO3 and RO4 and is not within 500 m of Long Calderwood cairn scheduled monument (SM4701).

Route Option 6

- 6.3.22 RO6 has two key negative differentiating factors. Firstly, RO6 directly intercepts the Greenhall, Millheugh & Barnhill LNR. Secondly, over 150 residential receptors are located within 50 m of the RO.
- 6.3.23 In addition, RO6 runs directly adjacent to an area of Long-Established Woodland of plantation origin and is within 500 m of Calder Glen SSSI and Calderglen Country Park. RO6 also intercepts six Core Paths and has five Listed Buildings within 500 m, with the nearest, Shott House, located approximately 76 m away. These features would require consideration as the design progresses; however, they are not considered to be determining factors in the comparative appraisal of the RO.
- 6.3.24 Overall, the principal disadvantages of RO6 relate to its direct interception of the LNR and the high number of residential receptors identified through OS AddressBase. These constraints are broadly similar to those associated with RO1. RO6 also runs directly adjacent to Ancient Woodland, unlike RO1, and intercepts a greater number of Core Paths than the other ROs. However, RO6 avoids the use of the Category B listed General's Bridge associated with RO2, RO3 and RO4, is not within 500 m of Long Calderwood cairn scheduled monument (SM4701).

Environmental Appraisal Summary

- 6.3.25 Overall, no Indicative Route Option is environmentally unconstrained and each presents a different balance of advantages and disadvantages. RO2, RO3 and RO4 avoid direct interaction with Greenhall, Millheugh & Barnhill LNR but require direct use of the Category B listed General's Bridge, these routes are also in proximity to Ancient Woodland. RO1 performs favourably through avoiding Ancient Woodland and use of General's Bridge, although it follows the road through the LNR and is associated with a high number of residential receptors. RO6 shares many of the same constraints as RO1 whilst also running adjacent to Ancient Woodland. RO5 directly intersects the LNR and Ancient Woodland but avoids the Category B listed bridge and is the shortest Indicative Route Option.
- 6.3.26 Subject to confirmation of HDD feasibility, RO5 is considered to provide the most favourable overall environmental balance, owing to its shorter length and the potential for HDD to avoid or substantially reduce effects on key environmental constraints, including the LNR and Ancient Woodland. Should the proposed HDD for RO5 not be demonstrated to be feasible, RO1 and RO6 are considered the next most favourable environmental options, notwithstanding the greater potential for construction-related disruption to residential areas.

6.4 Engineering Appraisal

Appraisal Method

- 6.4.1 The technical feasibility of each RO was considered against multiple engineering criteria, these are listed below:
- Route length
 - Maximum depth
 - Topography
 - Access Constraints
 - Proximity to existing OHL transmission and distribution infrastructure
 - Ground Conditions
 - Backfill specification
 - Public Service Utilities
 - Watercourse/Catchment Crossings
 - Road/Railway Crossings
 - Residential Areas
 - Forestry

- 6.4.2 The construction risk and technical feasibility of each RO was then given a Red/Amber/Green (RAG) rating applied to each criterion. The RAG rating indicates the potential for each Indicative Route Option to be constrained, with RED indicating a high potential for constraint, AMBER indicating intermediate potential for constraint and GREEN indicating low potential for constraint.
- 6.4.3 The specific RAG thresholds are defined in **Appendix B**.
- 6.4.4 It should be noted that a RED or AMBER rating does not necessarily indicate that an RO would be unacceptable in engineering terms, but rather indicates the need for further consideration of the potential to mitigate potentially adverse effects.

Comparative Analysis

Route Option 1

- 6.4.5 RO1 has a shorter route length (approximately 7.33 km) than the average for all ROs (9.34 km). RO1 requires a HDD beneath the Rotten Calder, resulting in a maximum installation depth of approximately 10 m. The route also traverses areas of steep topography, with longitudinal gradients of up to approximately 22.5%, which may require specialist construction techniques and plant.
- 6.4.6 Further constraints include the proximity of the route to existing overhead line infrastructure near Strathaven Substation, a high concentration of buried utilities within the urban area of Blantyre, and a major crossing of the A725 slip road which would require significant traffic management measures. The route also passes through established residential areas, increasing the potential for temporary disruption during construction.
- 6.4.7 Notwithstanding these constraints, the route benefits from the availability of existing roads and tracks for construction access, no identified forestry constraints, and no significant areas of peat or abnormal ground conditions. Overall, RO1 is considered technically viable, although it presents a relatively high degree of engineering complexity associated with the HDD river crossing, steep terrain, utility congestion and urban construction environment.

Route Option 2

- 6.4.8 RO2 has a marginally longer route length (approximately 9.98 km) than the average for all ROs (9.34 km). The route traverses moderately steep terrain, with a maximum longitudinal gradient of approximately 19.1%, which may present challenges for construction access and cable installation activities.
- 6.4.9 Key engineering constraints associated with this route include the crossing of the Rotten Calder. Whilst installation using the existing bridge may be possible if the structure is deemed suitable, an HDD solution may ultimately be required. The route also includes a crossing of the A725 which would require traffic management measures and potentially night-time working. In addition, the route passes in proximity to existing 33 kV overhead line infrastructure and areas of higher utility density near Strathaven Substation.

- 6.4.10 The route benefits from the availability of existing roads and tracks for construction access and is largely located away from residential areas. Furthermore, no significant geological constraints, peat deposits, or forestry areas have been identified. The majority of the route is anticipated to be installed using concrete bonded sand (CBS) backfill, with concrete backfill required only in limited sections associated with busier roads.

Route Option 3

- 6.4.11 RO3 has a longer route length (approximately 10.40 km) than the average for all ROs (9.34 km). RO3 is broadly subject to the same engineering constraints as RO2.
- 6.4.12 The route also traverses moderately steep terrain, with a maximum longitudinal gradient of approximately 19.1%, which could create challenges for construction access and cable installation activities.
- 6.4.13 Key engineering constraints associated with this route include the crossing of the Rotten Calder. While use of an existing bridge may be possible if the structure is confirmed to be suitable, there remains the potential requirement for an HDD crossing should the bridge be found unsuitable. The route also includes a crossing of the A725 which would require traffic management measures and potentially night-time working. In addition, the route passes in proximity to existing 33 kV overhead line infrastructure and areas of increased utility density near Strathaven Substation.
- 6.4.14 The route benefits from the availability of existing roads and tracks for construction access and is predominantly located away from residential areas, with only limited sections in close proximity to residential properties. Furthermore, no significant geological constraints, peat deposits, or forestry areas have been identified along the route. The majority of the route is anticipated to utilise CBS backfill, with concrete backfill required only at selected road crossings and within busier road sections.

Route Option 4

- 6.4.15 RO4 is significantly longer (approximately 12.20 km) than the average for all ROs (9.34 km). The route also traverses moderately steep terrain, with a maximum longitudinal gradient of approximately 19.1%, which may present challenges for construction access and cable installation activities.
- 6.4.16 Key engineering constraints associated with this route include the crossing of the Rotten Calder. Whilst use of an existing bridge may be possible if the structure is confirmed to be suitable, there remains a risk that an HDD crossing would be required should the bridge prove unsuitable. The route also includes a crossing of the A725, which would require traffic management measures and potentially night-time working. In addition, the route passes in proximity to existing 33 kV overhead line infrastructure and areas of increased utility density near Strathaven Substation.

- 6.4.17 The route benefits from the availability of existing roads and tracks for construction access and is largely located away from residential areas, with only limited sections in proximity to residential properties. Furthermore, no significant geological constraints, peat deposits, or forestry areas have been identified along the route. The majority of the route is anticipated to be installed using CBS backfill, with concrete backfill required only at selected road crossings and within busier road sections.
- 6.4.18 RO4 is subject to broadly the same engineering constraints as RO2 and RO3, with the principal constraints being the Rotten Calder crossing, A725 crossing and proximity to existing utility infrastructure, whilst being substantially longer. Consequently, the route would be expected to require greater quantities of materials, longer construction durations and increased installation costs.

Route Option 5

- 6.4.19 RO5 is much shorter (approximately 7.3 km in length) than the average for all ROs (9.34 km). Though this relies on a substantial HDD section of approximately 1.1 km to bypass the A725, the Rotten Calder and the associated Greenhall Milheugh and Barnhill LNR. The HDD is anticipated to require installation depths of up to approximately 10 m and would represent the most technically complex construction elements associated with any of the indicative route options.
- 6.4.20 Additional engineering constraints include the presence of steep topography, with longitudinal gradients reaching approximately 20.3%, which may necessitate specialist installation techniques and construction plant, including adjustments to the route to limit the maximum slope to 20 degrees. The route also crosses existing transmission infrastructure.
- 6.4.21 The route benefits from the availability of existing roads and tracks for construction access and is largely located away from densely populated areas, with only limited sections in proximity to residential properties. Utility congestion is also relatively limited compared with routes that pass through more urbanised areas. Furthermore, no significant geological constraints, peat deposits or forestry impacts have been identified, with the HDD enabling sensitive features, including woodland and the LNR, to be avoided at surface level.
- 6.4.22 RO5 may be preferred, however the requirement for a long HDD beneath the A725, Rotten Calder and associated LNR introduces a significant level of engineering complexity, construction risk and cost. Consequently, whilst the route avoids many of the surface constraints associated with other options, it is characterised by the substantial technical challenge associated with delivering the extended HDD crossing and managing interactions with existing transmission infrastructure.

Route Option 6

- 6.4.23 RO6 is marginally shorter (approximately 8.87 km in length) than the average for all ROs (9.34 km). The route traverses moderately steep terrain, with longitudinal gradients reaching approximately 20.2%, which may present challenges for construction access and cable installation activities.

- 6.4.24 Key engineering constraints associated with this route include the crossing of the Rotten Calder south of Loanend Road. HDD is anticipated to be required and would present a technically complex construction element in comparison to other options.
- 6.4.25 Further constraints include the proximity of the route to existing overhead line infrastructure near Strathaven Substation, a high concentration of buried utilities within the urban area of Blantyre, and a major crossing of the A725 which would require traffic management measures and potentially night-time working. The route also passes through established residential areas, increasing the potential for temporary disruption during construction.
- 6.4.26 Notwithstanding these constraints, the route benefits from the availability of existing roads and tracks for construction access, and no significant areas of peat or abnormal ground conditions. Overall, RO6 is considered technically viable, although it presents a relatively high degree of engineering complexity associated with the HDD river crossing, steep terrain, utility congestion and urban construction environment.

6.5 Preferred Indicative UGC route

- 6.5.1 The identification of a preferred route has been informed by consideration of both engineering and environmental constraints, recognising the need to balance technical feasibility, constructability and environmental sensitivities. At this stage of the project, route selection remains preliminary. The currently preferred route has been identified based on the information available at this stage of the project. However, it remains subject to change as further surveys, site investigations and technical, environmental and land-related assessments are undertaken. The outcomes of these activities will inform the ongoing route evaluation and design development process and may result in the refinement of the current alignment or the selection of an alternative route where this is demonstrated to provide a more suitable overall solution. In particular, further engineering assessment is required to confirm the feasibility, constructability and extent of HDD requirements, which may influence the final route alignment.
- 6.5.2 From an environmental perspective, no Indicative Route Option is clearly unconstrained. RO2, RO3 and RO4 benefit from avoiding direct interaction with Greenhall, Millheugh & Barnhill LNR; however, these routes are located in proximity to Ancient Woodland, Calder Glen SSSI and Country Park, and a number of Listed Buildings, particularly in crossing General's Bridge, Stonymeadow Road (Category B). In contrast, RO1, RO5 and RO6 would avoid some of these constraints but would directly intersect the LNR and, in the case of RO5 and RO6, also areas of Ancient Woodland. Potential impacts on the Ancient Woodland and LNR are wholly dependent on the feasibility of HDD for RO5 and RO6. Whilst RO5 offers the greatest opportunity to avoid direct interaction with these constraints through HDD, RO2 and RO3 also present potentially viable route options, avoiding direct interaction with the LNR and warranting further investigation as alternative options should RO5 be demonstrated to be unsuitable.

- 6.5.3 From an engineering perspective, RO2, RO3 and RO4 are broadly comparable, with the principal engineering constraints comprising the Rotten Calder crossing, crossings of the A725 and interaction with existing utility infrastructure. However, these routes are substantially longer than RO1 and RO5 and would therefore be expected to result in greater construction durations, material requirements and associated costs. RO1 and RO6 are comparatively shorter but are influenced by utility congestion and residential areas. On balance, RO5 is considered to be the preferred route from an engineering perspective, with RO2 and RO3 representing the most favourable alternatives to RO5; these three route options are therefore considered suitable for further assessment.
- 6.5.4 RO5 is distinguished by requiring an extended HDD of approximately 1.1 km beneath the A725, Rotten Calder and Greenhall, Millheugh & Barnhill LNR. Whilst this approach has the potential to substantially reduce direct environmental interactions and avoid many of the surface constraints associated with other options, it introduces the most significant engineering challenge of all ROs and would likely be associated with increased construction risk, programme implications and cost.
- 6.5.5 Having considered the engineering and environmental appraisals together, RO5 is identified as the preferred route at this stage. Whilst RO5 presents the most significant engineering challenge due to the requirement for an approximately 1.1 km HDD, it provides the best overall balance between engineering feasibility and environmental performance. In particular, the route benefits from its relatively short length and the potential to substantially reduce direct interactions with the Greenhall, Millheugh & Barnhill LNR, Ancient Woodland and other sensitive receptors through the use of HDD.
- 6.5.6 Recognising that route selection remains preliminary and that the feasibility of the proposed HDD has yet to be demonstrated, RO2 and RO3 are also identified as the principal alternative route options. Both routes avoid direct interaction with the LNR and present fewer engineering uncertainties than RO5, although they are longer and would be expected to result in increased construction duration, material requirements and cost. Accordingly, further site investigation and technical assessment is proposed for RO5, RO2 and RO3 to confirm their overall feasibility and inform the ongoing route selection process.
- 6.5.7 Notwithstanding the current preference for RO5, further engineering design, ground investigation and HDD feasibility assessment will be required to determine whether RO5 remains the preferred solution or whether an alternative route option should be progressed.

7 Consultation on the Proposals and Next Steps

- 7.1.1 As set out in Section 1 of this Consultation Document, the Applicant intends to submit an application to the Scottish Ministers for consent under Section 37 of the Electricity Act 1989 for the relevant components of the Proposed Development. At the same time, the Applicant intends to seek deemed planning permission under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended, for all works associated with ancillary and enabling infrastructure.
- 7.1.2 As elements of the Proposed Development will require Section 37 consent and relate to an overhead line operating at 275 kV and above, the application will require to be accompanied by an Environmental Impact Assessment (EIA). Schedule 1 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 identifies as Schedule 1 development the “construction of overhead electrical power lines with a voltage of 220 kilovolts or more and a length of more than 15 kilometres”. Schedule 1 development is EIA development and therefore an EIA Report will require to accompany the Section 37 application. Furthermore, all works associated with the Clydesmill to Strathaven Upgrade Project, including those being undertaken under an existing consent, will be assessed within the EIA to provide a comprehensive assessment of the likely significant environmental effects of the overall project and to avoid potential project segmentation.
- 7.1.1 A Pre-Application Consultation Report will be submitted with the consent application which will document the consultation responses received, and the decisions made in light of these responses, to refine the Proposed Development and complete the EIA.
- 7.1.2 Further stages of Pre-Application Consultation (PAC), including additional consultation events, will be undertaken in accordance with statutory requirements. These events will provide continued opportunities for stakeholders and the public to review emerging details of the Proposed Development and to provide feedback. The outcomes of these consultation activities will be incorporated into the ongoing design refinement and will be reported within the PAC Report submitted alongside the consent application.
- 7.1.3 While there are no formal pre-application requirements for consultation in seeking Section 37 consent and deemed planning permission, the Applicant is embracing best practice as promoted by Scottish Government Energy Consents Unit, which encourages applicants to engage with stakeholders and the public in order to develop their proposals in advance of such applications being made. In May 2025 the Scottish Government published new guidance on pre-application consultation

and engagement for Section 37 applications which require an Environmental Impact Assessment (EIA)¹⁰.

- 7.1.4 The intention of the consultation is to gain views on the Proposed Development, as well as the alternatives considered. 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 South Lanarkshire Council
 - Elected members in the South Lanarkshire area, the Member of Parliament (MP) and Members of the Scottish Parliament (MSPs) whose constituencies are within South Lanarkshire.
 - Local residents, businesses and the public in general.

7.1 Questions for Consideration by Consultees

- 7.1.1 When providing your comments and feedback, the Applicant would be grateful for your consideration of the questions below:
- Have we explained the need for this Project adequately?
 - Have we explained the characteristics of the Project clearly and the approach taken to identifying key environmental issues for further assessment?
 - Are there any factors, or environmental features, that you consider may have been overlooked during process thus far?

7.2 Next Steps

- 7.2.1 The public exhibition as part of the consultation will be held in the locations and at the times detailed below:
- **Monday 2 November 2026, 3pm to 7pm, Halfway Community Hub**, 211 Hamilton Road, Cambuslang G72 7PJ

*SP Energy Networks is also holding a final feedback event for the Clydesmill Substation Extension and Overhead Line Uprating (DWUP) project at this venue on the same day.

- **Tuesday 3 November 2026, 3pm to 7pm Hillhouse and Earnock Community Centre**, 121 Hillhouse Road, Hamilton ML3 9TX

¹⁰ Scottish Government (2025). *Electricity Act 1989 Pre-Application Consultation and Engagement Guidance For Electricity Transmission Line Projects Which Require Environmental Impact Assessment*. Available at: [Electricity Act 1989 pre-application consultation and engagement guidance for electricity transmission line projects which require Environmental Impact Assessment](#)

7.2.2 The exhibition will be advertised in the local press, and in the local community. All of the project information and documents will also be available online at:
www.spenergynetworks.co.uk/pages/cvup

7.2.3 Feedback forms will be available at the public exhibition. Comments can also be posted or emailed to SP Energy Networks, at the details below:

- Email: CVUP@spencontact.co.uk
- Phone: 0800 107 8231
- Post: FREEPOST SPEN CVUP

7.2.4 Consultation will run from 2 November 2026 to 1 December 2026

7.2.5 All comments received will inform further design of the Proposed Development, which will be taken forward for more detailed environmental assessment prior to submission of an application for Section 37 consent under the 1989 Act (for the OHL). These applications will be developed for an anticipated submission in 2029.

Appendix A: Figures

Figure 1: Proposed Development

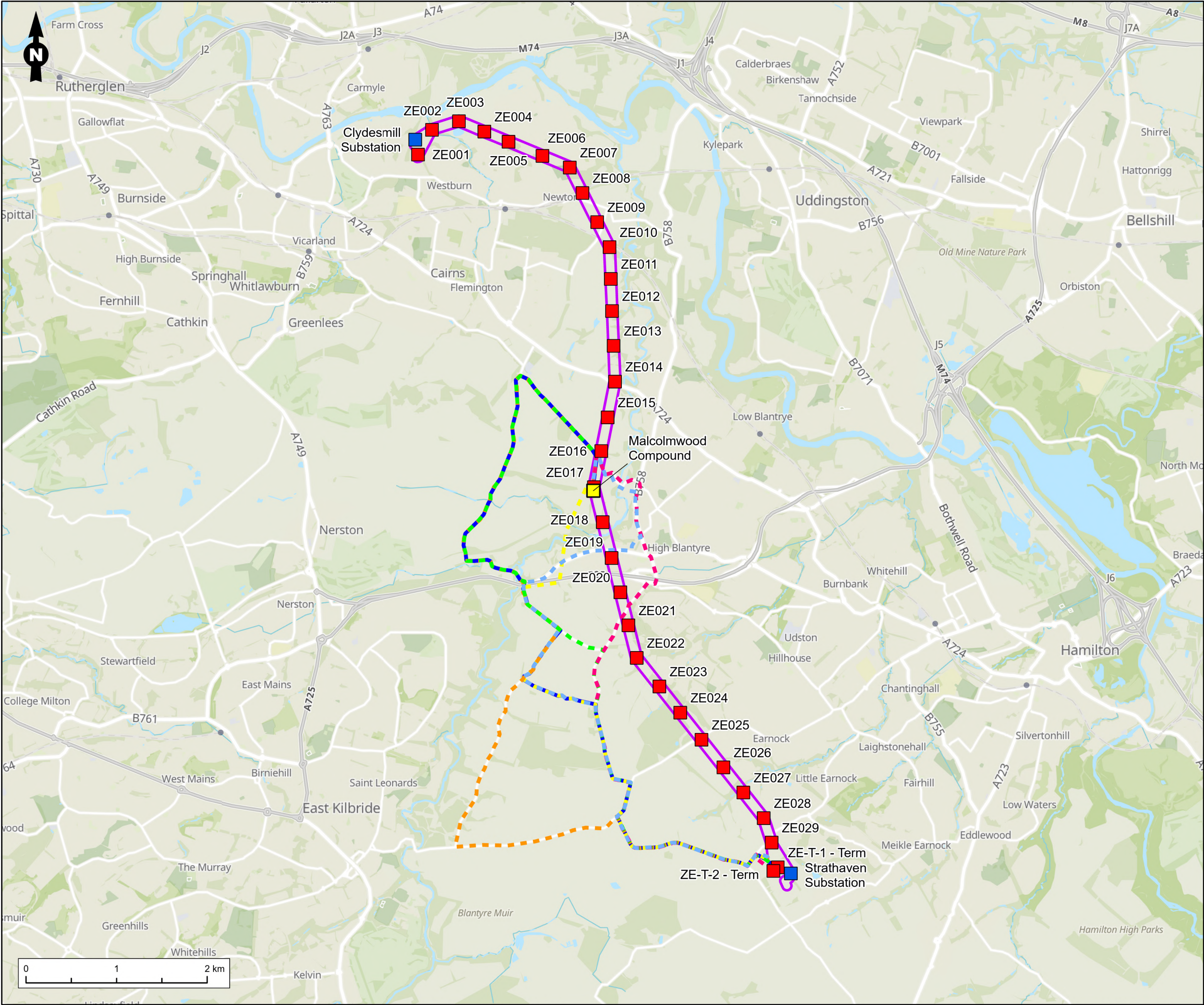
Figure 2a: Clydesmill Substation

Figure 2b: Strathaven Substation

Figure 3a: Key Environmental Constraints (OHL)

Figure 3b: Key Environmental Constraints (UGC)

Figure 4: UGC Indicative Route Options



Legend

Overhead Line Working Corridor

Existing Tower

New Proposed Tower

Malcolmwood Compound

Indicative Underground Cable (UGC) Route Options

Cable Route 1

Cable Route 2

Cable Route 3

Cable Route 4

Cable Route 5

Cable Route 6

Figure Title

Proposed Development

Project Name

Clydesmill to Strathaven Upgrade Project (CVUP)

Project No./Fily ID

1620019293 / REH2026N03355

Date

October 2026

Figure No.

1

Revision

1.0

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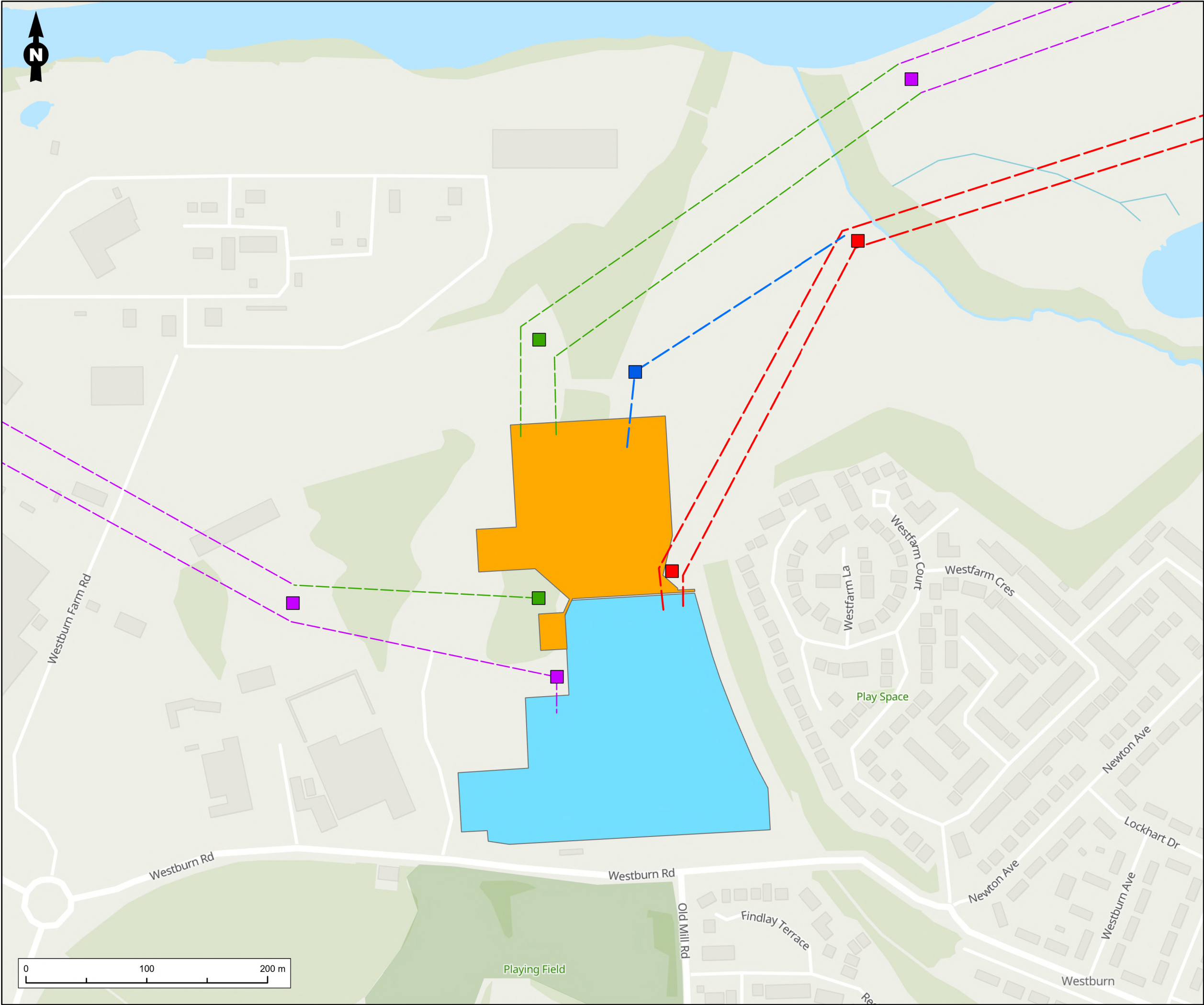
Scottish Power Energy Network

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Legend

- Existing CVUP Tower
- Proposed CVUP Tower
- Proposed DWUP Tower
- Retained Tower
- Existing CVUP Overhead Line
- Proposed CVUP 400kV Overhead Line
- Proposed DWUP Overhead Line
- Retained Overhead Line
- Existing Substation
- Proposed Substation Extension (DWUP Project)

Figure Title

Clydesmill Substation

Project Name

Clydesmill to Strathaven Upgrade Project (CVUP)

Project No./Filery ID

1620019293 / REH2026N03355

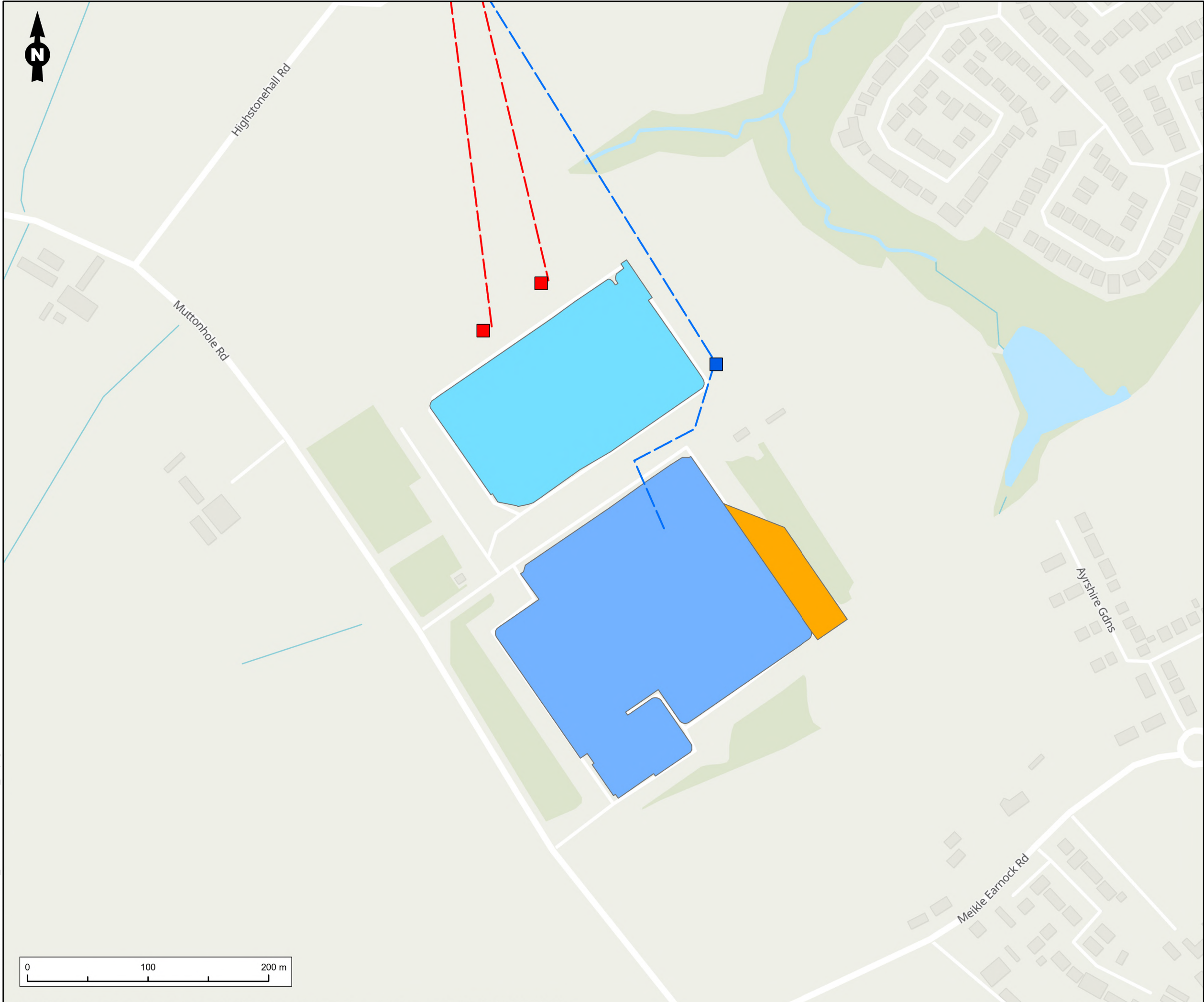
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Scottish Power Energy Network

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Legend

- Existing CVUP Tower
- Proposed CVUP Tower
- Existing CVUP Overhead Line
- Proposed CVUP 400kV Overhead Line
- Existing Strathaven 275kV Substation
- Existing Strathaven 400kV Substation
- Indicative Substation Extension Area

Figure Title
Strathaven Substation

Project Name
Clydesmill to Strathaven Upgrade Project (CVUP)

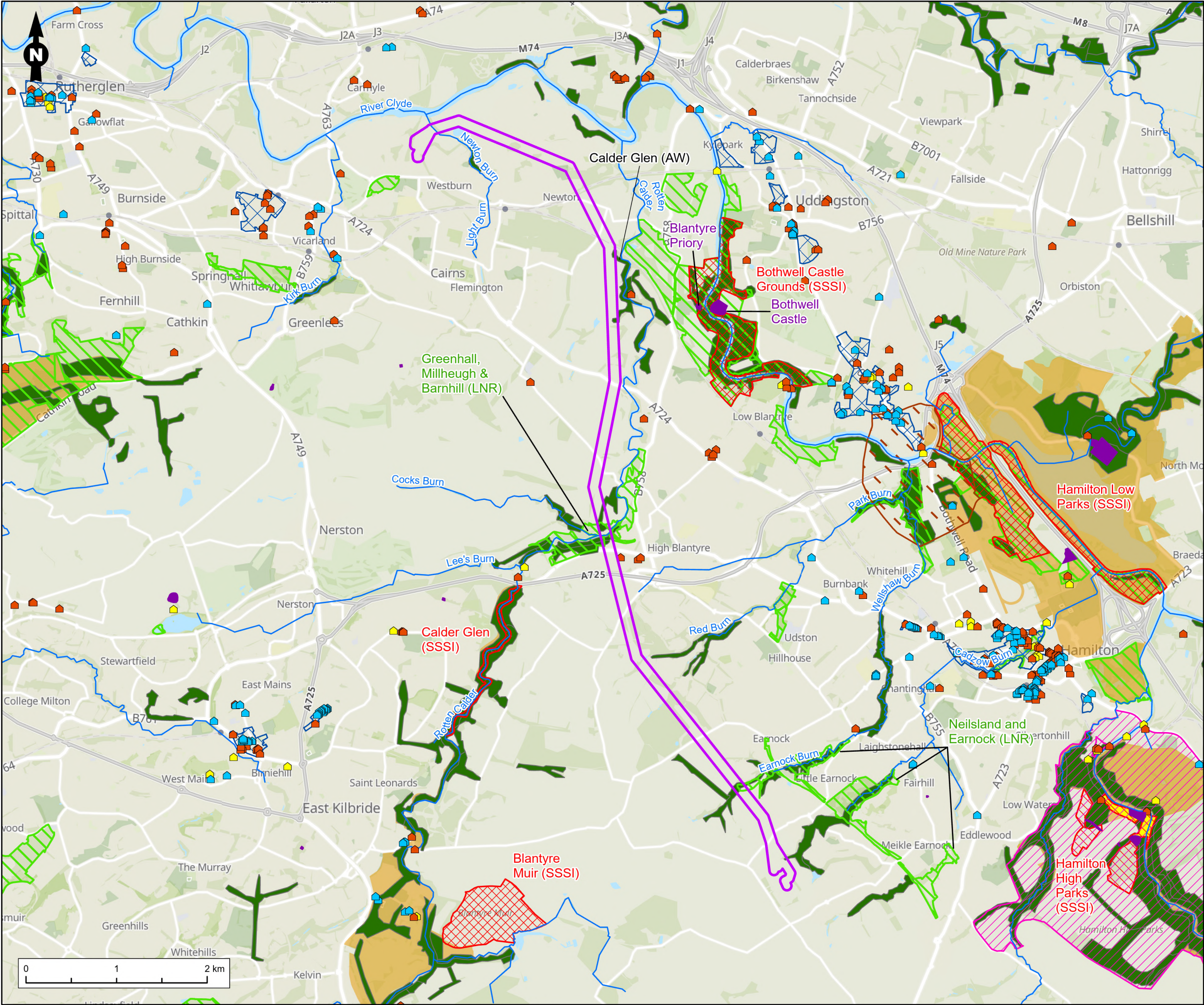
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Legend

Overhead Line Working Corridor

Key Environmental Constraints

Ancient Woodland

Local Nature Reserve

Site of Special Scientific Interest

Special Area of Conservation

Battlefield

Conservation Area

Garden and Designed Landscape

Scheduled Monument

Country Park

Watercourse

Listed Building - Category A

Listed Building - Category B

Listed Building - Category C

Figure Title

Key Environmental Constraints:
Overhead Line (OHL) Route

Project Name

Clydesmill to Strathaven
Upgrade Project (CVUP)

Project No./Filey ID

1620019293 / REH2026N03355

Date

October 2026

Figure No.

3a

Revision

1.0

Prepared By

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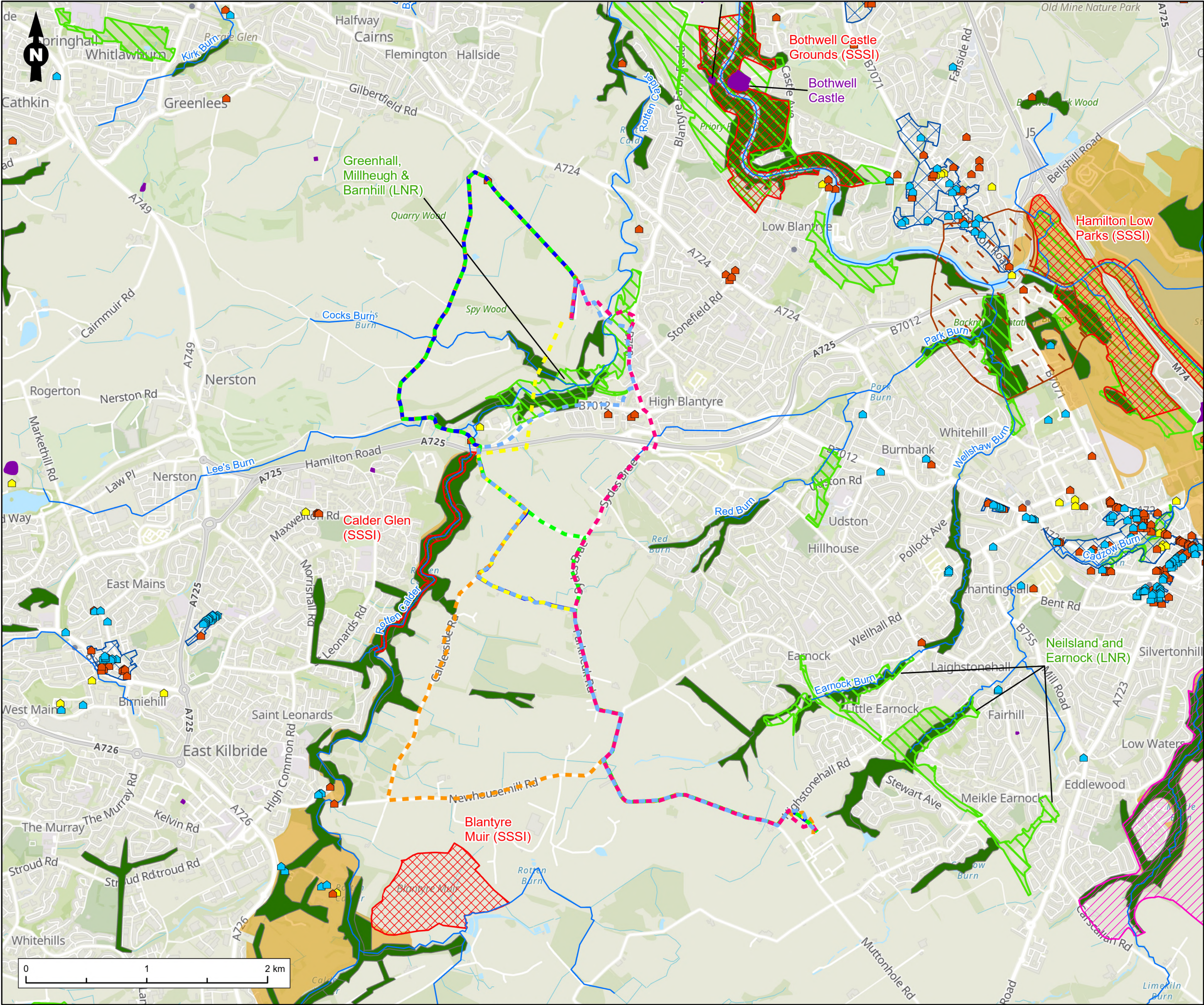
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Legend

Indicative Underground Cable (UGC) Route Options

- Cable Route 1
- Cable Route 2
- Cable Route 3
- Cable Route 4
- Cable Route 5
- Cable Route 6

Key Environmental Constraints

- Ancient Woodland
- Local Nature Reserve
- Site of Special Scientific Interest
- Battlefield
- Conservation Area
- Garden and Designed Landscape
- Scheduled Monument
- Country Park
- Watercourse
- Listed Building - Category A
- Listed Building - Category B
- Listed Building - Category C

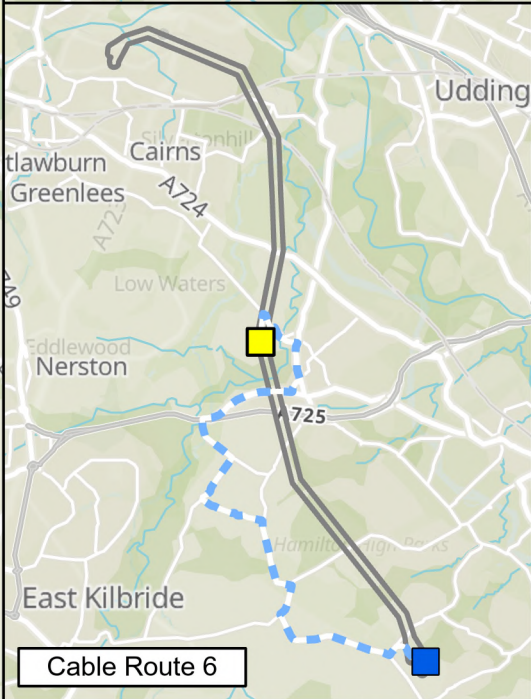
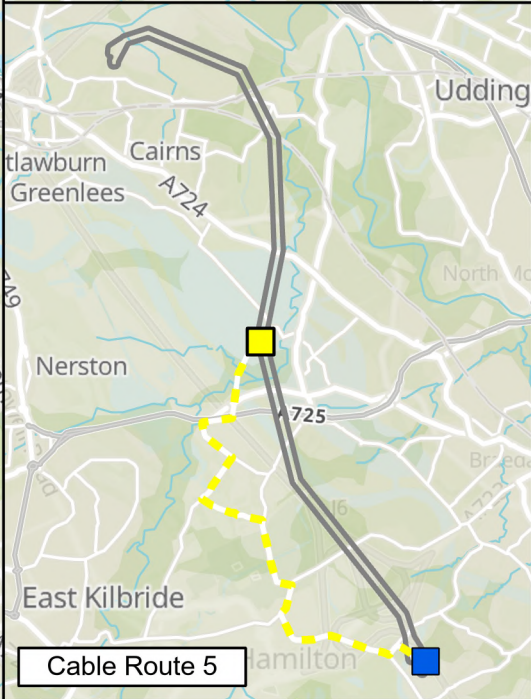
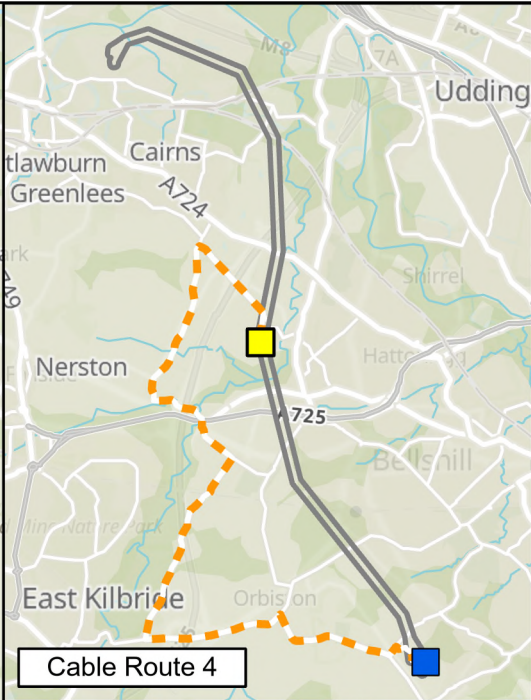
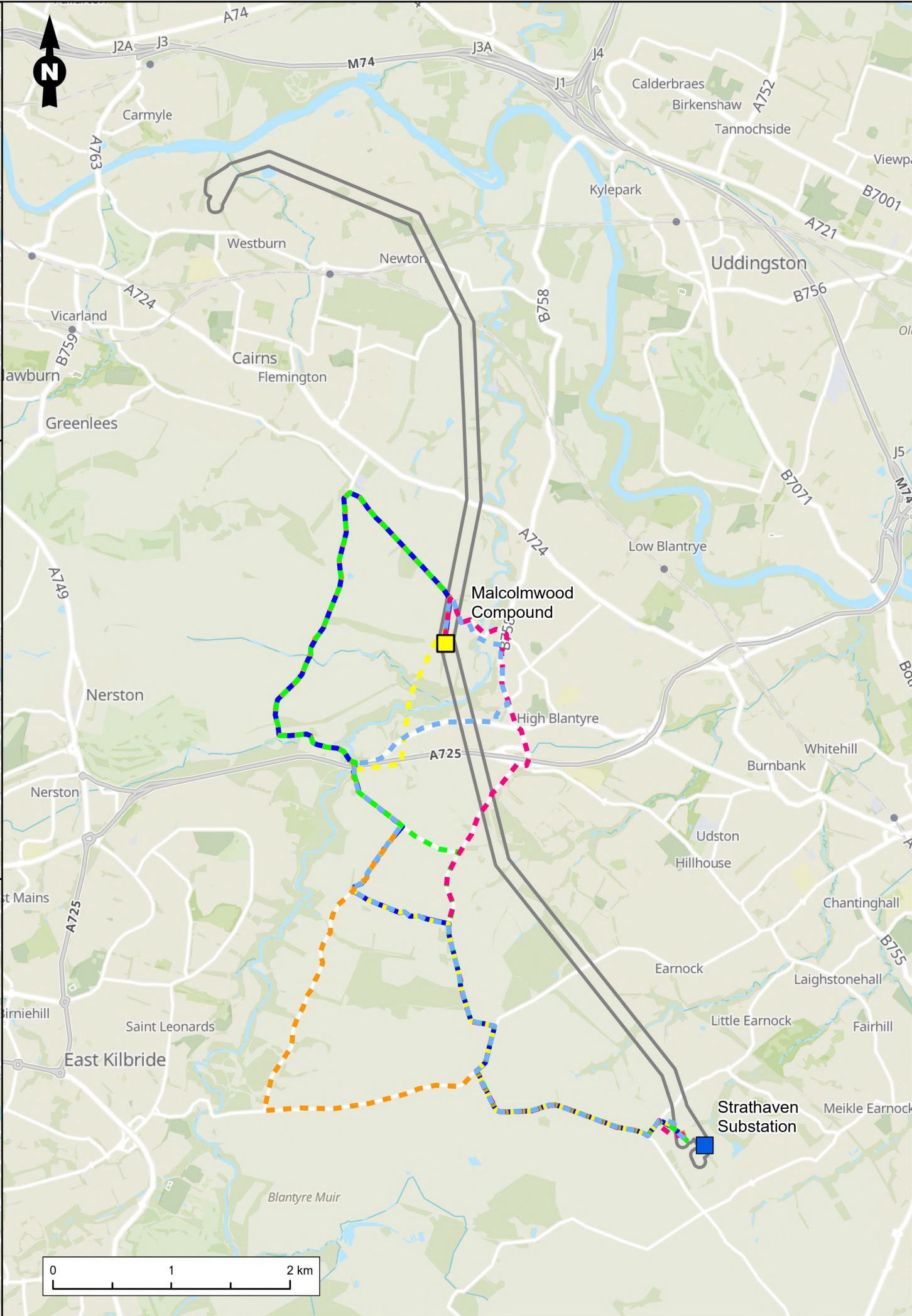
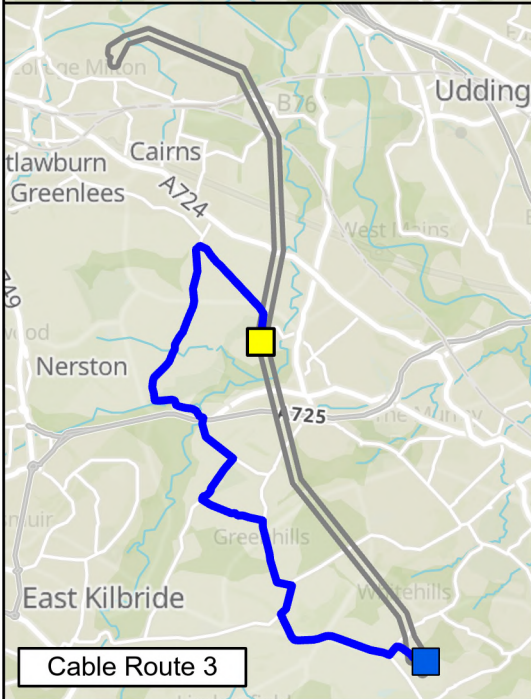
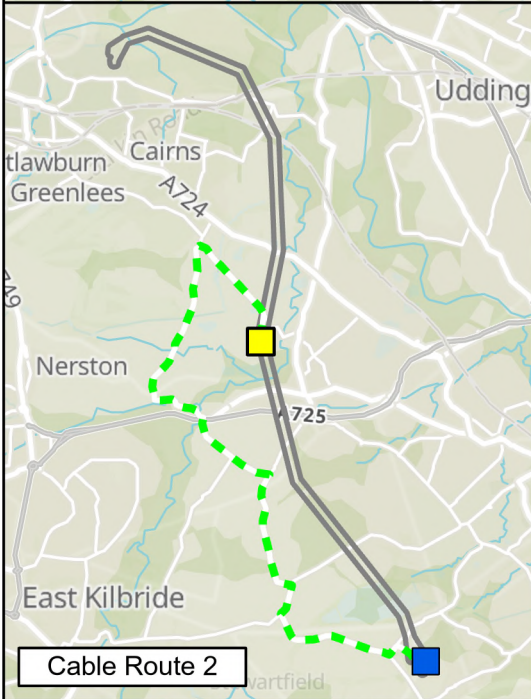
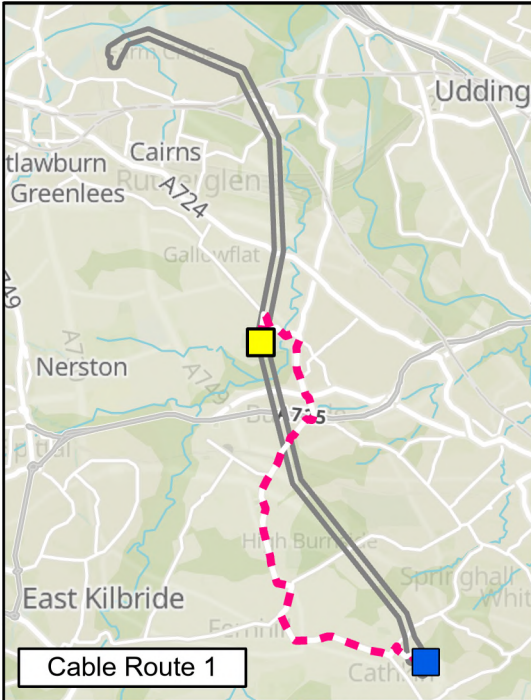
Figure Title
Key Environmental Constraints:
Indicative Underground Cable (UGC)
Route Options

Project Name
Clydesmill to Strathaven
Upgrade Project (CVUP)

Project No./Fily ID
1620019293 / REH2026N03355

Date	October 2026	Figure No.	3b	Revision	1.0
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Client
Scottish Power Energy Network



Legend

Overhead Line Working Corridor

Strathaven Substation

Malcolmwood Compound

Indicative Underground Cable (UGC) Route Options

Cable Route 1

Cable Route 2

Cable Route 3

Cable Route 4

Cable Route 5

Cable Route 6

Figure Title

Indicative Underground Cable (UGC) Route Options

Project Name

Clydesmill to Strathaven Upgrade Project (CVUP)

Project No./Fility ID

1620019293 / REH2026N03355

Date

October 2026

Figure No.

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Revision

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Appendix B: UGC Routeing Criteria

Environmental

RAG Ratings used for Environmental Appraisal

RAG Rating	Definition
	Environmental constraint/s are intercepted by the Route Option.
	Environmental constraint/s are located within 500 m of the Route Option.
	Environmental constraint/s are not located within 500 m of the Route Option.

Comparative Appraisal of Underground Cable Route Options							
Topic	Route Options						Environmental Appraisal
	1	2	3	4	5	6	
ECOLOGY							
Sites of Special Scientific Interest (SSSI)							Calder Glen Site of Special Scientific Interest (SSSI) is located within 500 m of Route Options 2, 3, 4, 5 and 6. Calder Glen SSSI is an important geological site on the eastern edge of East Kilbride that contains an extensive and near-continuous sequence of Carboniferous sedimentary rocks formed around 327 million years ago. The rock exposures extend from the Lawmuir Formation to the lower Limestone Coal Formation and provide one of the most significant sections for understanding the Scottish Carboniferous. The site is particularly notable for its "Pendleside fauna", including the bivalve <i>Posidonia becheri</i>, which enables rare geological correlations with equivalent late Dinantian rock strata in England Blantyre Muir SSSI is also located within 500 m of Route Option 4. Blantyre Muir SSSI is an important example of raised bog habitat in South Lanarkshire and is nationally important for its actively growing, Sphagnum-rich vegetation and distinctive ridge-and-hollow surface pattern. The SSSI supports a diverse range of bog mosses and characteristic peatland species, including common cottongrass, round-leaved sundew, bog asphodel, cranberry, heather and cross-leaved heath, sustained by a high water table. It also contains well-developed peatland transition habitats, including lagg fen communities. Route Option 1 is preferred, due to there being no SSSIs located within 500 m of this Route Option.
Special Areas of Conservation (SACs)							No Special Areas of Conservation (SACs) are located within 500 m of the Route Options. There is no preference between the Route Options.
Local Nature Reserves (LNRs)							Greenhall, Millheugh & Barnhill Local Nature Reserve (LNR) is located within 500 m of all the Route Options, with Route Options 5 and 6 directly intercepting the LNR and Route Option 1 following the existing road that runs through the LNR. Greenhall, Milheugh and Barnhill LNR follows the Rotten Calder Water through the former estates of Milheugh and Greenhall and supports a landscape of open parkland with mature trees, surrounded by woodland on the valley slopes. Much of the site comprises broadleaved woodland, including areas of ancient woodland with a diverse ground flora

							supporting species such as wild garlic, bluebell, broadleaved helleborine, wood anemone and wood sorrel. The reserve also includes grassland habitats and woodland restoration areas and is actively managed with support from the Friends of the Calder community group. Route Options 2, 3 and 4 are preferred as they do not directly intercept the identified LNR and are located at an equal distance from it.
National Nature Reserves (NNRs)							No National Nature Reserves (NNRs) are located within 500 m of the Route Options. There is no preference between the Route Options.
RAMSAR Wetlands of International Importance							No RAMSAR Wetlands of International Importance are located within 500 m of the Route Options. There is no preference between the Route Options.
Protected Sites – Environmentally Sensitive Areas							No Protected Sites – Environmentally Sensitive Areas are located within 500 m of the Route Options. There is no preference between the Route Options.
Ancient Woodland Inventory							All Route Options are located within 500 m of Ancient Woodland listed on the Ancient Woodland Inventory. Route Options 2 to 6 directly intercept with areas of Ancient Woodland, as follows: • Route Option 2 - Site ID 30, Woodland ID 29528, located to the west of High Blantyre (Long-Established (of plantation origin)). • Route Option 3 - Site ID 30, Woodland ID 29528, located to the west of High Blantyre (Long-Established (of plantation origin)). • Route Option 4 - Site ID 29, Woodland ID 29539 and 29545, associated with Calder Glen Country Park (both Ancient (of semi-natural origin)); and - Site ID 30, Woodland ID 29528, located to the west of High Blantyre (Long-Established (of plantation origin)). • Route Option 5 - Site ID 34, Woodland ID 29530, located to the west of High Blantyre and north of Hamilton Road B7012 (Long-Established (of plantation origin)); - Site ID 31, Woodland ID 29526, located to the west of High Blantyre (Ancient (of semi-natural origin)); and - Site ID 34, Woodland ID 29527, located to the west of High Blantyre and north of Hamilton Road B7012 (Ancient (of semi-natural origin)). • Route Option 6 - Site ID 34, Woodland ID 29530, located to the west of High Blantyre and north of Hamilton Road B7012 (Long-Established (of plantation origin)). The closest Ancient Woodland to Route Option 1 is located within 75 m and is identified as Site ID 7, Woodland ID 29524, Mid Lettrick Wood (Ancient (of semi-natural origin)). Route Options 2, 4, 5 and 6 are located between 8 m and 15 m from Site ID 29, Woodland ID 29532 associated with Calder Glen Country Park (Ancient (of semi-natural origin)).

								All Route Options are within 150 m of Woodland ID 30358, near Earnock (Ancient (of semi-natural origin)). Route Option 1 is preferred, as it does not directly intercept the identified Ancient Woodland.
ORNITHOLOGY								
Special Protection Areas (SPAs)								No Special Protection Areas (SPAs) are located within 500 m of the Route Options. There is no preference between the Route Options.
LANDSCAPE & VISUAL								
Landscape Character Assessment								All Route Options lie within Landscape Character Type (LCT) 201 - Plateau Farmland - Glasgow & Clyde Valley and LCT 204 - Incised River Valleys. LCT 201 is characterised by extensive, open plateau farmland with a gently undulating landform, predominantly pastoral land use, limited tree cover and increasing influence from settlement and infrastructure. LCT 204 is characterised by deeply incised, steep-sided river valleys containing broadleaved woodland, agricultural land and historic landscape features, with rivers forming the defining element of landscape character. Route Options 1, 2, 3, 4 and 6 lie within LCT 200 - Rolling Farmland - Glasgow & Clyde Valley. LCT 200 is characterised by a gently rolling landform with a mix of pastoral and arable farmland, a well-defined pattern of hedgerows, shelterbelts and woodland, and a dispersed settlement pattern of farms and small villages. The landscape retains a predominantly rural character, although it is influenced by nearby urban areas, transport infrastructure and views to surrounding uplands and river valleys. Route Options 1 and 6 also lie within urban areas, which are not classified as LCTs. Due to the cables being installed underground, the route options are considered unlikely to impact the special qualities of the identified LCTs. Furthermore, the identified LCTs are already influenced by energy infrastructure, including existing overhead line towers and substations. There is no preference between the Route Options.
National Cycle Network (Public)								No National Cycle Network (Public) routes lie within 500 m of the Route Options. There is no preference between the Route Options.
Reclassified Routes (Public)								No Reclassified Routes (Public) lie within 500 m of the Route Options. There is no preference between the Route Options.
National Parks								No National Parks lie within 500 m of the Route Options. There is no preference between the Route Options.
Country Parks								Route Options 2, 3, 4, 5 and 6 are within 500 m of Calderglen Country Park, which includes a zoo and tropical conservatory, ornamental gardens and nature trails and walks. Route Option 1 is preferred, due to there being no Country Parks located within 500 m of this Route Option.

Wild Land Areas 2014							No Wild Land Areas lie within 500 m of the Route Options. There is no preference between the Route Options.
Local Landscape Designations							No Local Landscape Designations lie within 500 m of the Route Options. There is no preference between the Route Options.
National Scenic Areas							No National Scenic Areas lie within 500 m of the Route Options. There is no preference between the Route Options.
Core Paths							All Route Options intercept with Core Paths. Core Paths intercepted are as follows: - Route Option 1: - Core Path Code HM/4240/1, named 'Sydes Brae'; - Core Path Code HM/2140/1, named 'Douglas Street pavement'; and - Core Path Code HM/2123/1, named 'Hamilton Rd - Greenhall Estate'. - Route Options 2, 3 and 4: - Core Path Code EK/1016/1, named 'Stonemeadow Rd pavement to Blantyre'; and - Core Path Code EK/5772/1, named 'Path by EK Express'. - Route Option 5: - Core Path Code HM/2125/1, named 'Hamilton Rd - Greenhall Estate'; - Core Path Code HM/2130/1, named 'Greenhall Estate paths'; - Core Path Code HM/2135/1, named 'Path along Rotten Calder'; - Route Option 6: - Core Path Code HM/2125/1, named 'Hamilton Rd - Greenhall Estate'; - Core Path Code EK/5772/1, named 'Path by EK Express'; - Core Path Code HM/2135/1, named 'Path along Rotten Calder'; - Core Path Code HM/4167/1, named 'Hunthill Rd to Loanend Rd'; - Core Path Code HM/2123/1, named 'Hamilton Rd - Greenhall Estate'; and - Core Path Code EK/5771/1, named 'Stonemeadow Rd cross Route Options 2, 3 and 4 are preferred, as they intercept the fewest identified Core Paths.
OS AddressBase – Residential Properties							All Route Options have residential properties within 50 m. - Route Option 1: 156 residential properties within 50 m. - Route Option 2: 21 residential properties within 50 m. - Route Option 3: 23 residential properties within 50 m. - Route Option 4: 17 residential properties within 50 m. - Route Option 5: 12 residential properties within 50 m. - Route Option 6: 162 residential properties within 50 m. Route Options 2, 3, 4 and 5 are preferred, as there are less than 25 residential properties located within 50 m from these Route Options.
CULTURAL HERITAGE							

Listed Buildings							Route Options 2, 3 and 4 use the Listed Building named 'General's Bridge, Stoney Meadow Road', listed as Category B, to cross over Rotten Calder. Listed Buildings located within 500 m of Route Options are as Follows: • Route Option 1: - Churchyard, Blantyre Old Parish Church, Category B (nearest, located approximately 80 m from the Route Option); - Blantyre Old Parish Church, Craigmuir Road, Blantyre, Category B; and - Shott House, Hamilton Road, Blantyre, Hamilton, Category B. • Route Option 2: - General's Bridge, Stoney Meadow Road, Category B (nearest, Route Option would use this bridge to cross Rotten Calder); - Flemington Farm, Category B; and - Crossbasket, Category A. • Route Option 3: - General's Bridge, Stoney Meadow Road, Category B (nearest, Route Option would use this bridge to cross Rotten Calder); - Flemington Farm, Category B; and - Crossbasket, Category A • Route Option 4: - General's Bridge, Stoney Meadow Road, Category B (nearest, Route Option would use this bridge to cross Rotten Calder); - Flemington Farm, Category B; - Crossbasket, Category A; - Newhouse Bridge, Newhousemill Road, East Kilbride, Category B; and - Newhousemill, East Kilbride, Category B • Route Option 5: - General's Bridge, Stoney Meadow Road, Category B (nearest, located approximately 135 m from the Route Option); and - Crossbasket, Category A • Route Option 6: - Shott House, Hamilton Road, Blantyre, Hamilton, Category B (nearest, located approximately 76 m from the Route Option); - General's Bridge, Stoney Meadow Road, Category B; - Blantyre Old Parish Church, Craigmuir Road, Blantyre, Category B; - Churchyard, Blantyre Old Parish Church, Category B; and - Crossbasket, Category A. Route Option 5 is preferred as the nearest Listed Building is located further from it than from the other Route Options.
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Gardens & Designated Landscapes							No Gardens & Designated Landscapes lie within 500 m of the Route Options. There is no preference between the Route Options.
Scheduled Monuments							Route Options 2, 3 and 4 lie within 500 m of Scheduled Monument SM4701, named 'Long Calderwood, cairn 40m SSW of 1 Cadell Gardens'. The Scheduled Monument is a substantial round burial cairn dating most likely to the Bronze Age (between around 2000 BC and 800 BC), surviving as a truncated, grass-covered mound approximately 20 m in diameter and up to 1 m high. Despite some disturbance, the cairn is reasonably well-preserved and retains high potential for buried archaeological remains, including human burials, associated grave goods and palaeoenvironmental evidence. The monument is of national importance for its potential to make a significant addition to our understanding of Bronze Age burial monuments, belief systems and burial practices, and the placing of such monuments within the landscape. Route Options 1, 5 and 6 are preferred, as the identified Scheduled Monument is not located within 500 m of these Route Options.
Conservation Areas							No National Scenic Areas lie within 500 m of the Route Options. There is no preference between the Route Options.
Historic Marine Protected Areas							No Historic Marine Protected Areas lie within 500 m of the Route Options. There is no preference between the Route Options.
Battlefields Inventory							No areas listed in the Battlefields Inventory lie within 500 m of the Route Options. There is no preference between the Route Options.
World Heritage Sites							No World Heritage Sites lie within 500 m of the Route Options. There is no preference between the Route Options.
HYDROLOGY							
SEPA Flood Maps							All Route Options cross areas of high likelihood of river flooding, associated with identified OS Open Rivers. All Route Options cross areas of high likelihood of surface water and small watercourses flooding. There is no preference between the Route Options.
OS Open Rivers							All Route Options intercept Rotten Calder. The following OS Open Rivers are also intercepted by the Route Options, as follows: • Route Option 1: - Unnamed watercourse associated with Park Burn. • Route Option 2: - Cocks Burn; and - Lees Burn • Route Option 3: - Cocks Burn; and - Lees Burn • Route Option 4:

							- Cocks Burn; - Lees Burn. • Route Option 5: - Cocks Burn. Route Options 1 and 5 are preferred, as they intercept the fewest number of Open Rivers.
Drinking Water Protection Areas							No Drinking Water Protection Areas lie within 500 m of the Route Options. There is no preference between the Route Options.
GEOLOGY AND SOILS							
Carbon and Peatland Map 2016							The 2016 Carbon and Peatland map of Scotland indicates that only Route Option 4 lies within 500 m of Class 1 or Class 2 peatland. Route Option 4 is located approximately 25 m from Class 1 peatland at its closest point. Route Options 1, 2, 3, 5 and 6 do not lie within 500 m of Class 1 or Class 2 peatland and are located the same distance from the identified area of Class 1 peatland. As such, Route Options 1, 2, 3, 5 and 6 are preferred.

Engineering

Technical Engineering Feasibility Appraisal RAG Scoring for all Route Options

RED	High Risk	Score = 1
AMBER	Medium Risk	Score = 3
GREEN	Low Risk	Score = 5

Route Option 1 – Technical Feasibility Appraisal

RISK DESCRIPTION	RISK APPRAISAL MEASURES	RISK - IMPACT RATING CATEGORY (R.A.G.)	CONSIDERATION COMMENTS	SOURCE OF REVIEW INFORMATION	CORRIDOR ASSESSMENT	RISK - IMPACT RATING
Route length	Longer than average	AMBER		PLS-Cadd / Google Earth / Drawings	7.33 km in length Average =	RED
	Average of routes	GREEN				AMBER
	Shorter than average	GREEN				GREEN
Maximum depth	Depth $\geq$ 1.4m	RED	Railway crossing or HDD	Design specification	Maximum depth approx. 10m due to HDD river crossing	RED

	Depth >800mm < 1.4m	AMBER	Agricultural / open countryside			AMBER
	Depth ≥ 600mm ≤ 800mm	GREEN	In roads, within substation boundaries and footpaths			GREEN
Topography	steep ground slope Longitudinal > 20%	RED	Additional roller, winches breakers or cable pusher may be required.	Google Earth / Topographical survey	Longitudinal Max. Slope is approx. 22.5%	RED
	ground slope Longitudinal ≥ 10% ≤ 20%	AMBER	highly loaded vehicular access difficulties.			AMBER
	ground slope Longitudinal ≤ 10%	GREEN	no access or build restrictions			GREEN
Buildability Access Constraints	no existing major, minor roads / forestry tracks / access tracks infrastructure / severe terrain	RED	challenging landscape with complex access difficulties / areas of environmental importance	Google Earth / OS maps / TIN model of corridor using PLS-Cadd	Existing roads/tracks for access	RED
	restrictive roads, forestry access tracks network available / severe terrain	AMBER	restrictive vehicular access			AMBER
	suitable roads, forestry access tracks network available	GREEN	no access restrictions			GREEN

Proximity to existing OHL transmission and distribution infrastructure	encroachment within 10m of OHL tower	RED	Liaise with OHL asset owner and adhere to restrictions	Google Earth / UMV / ENA 43-8 - OHL clearances	Potentially within 10m near the Strathaven Substation	RED
	encroachment within 30m of OHL tower	AMBER	Liaise with OHL asset owner			AMBER
	no HV / LV OHL's in the corridor	GREEN	no restrictions			GREEN
Ground Makeup	contaminated land / organic soils (i.e.. Peat) / shallow coal deposits / unstable ground (i.e.. evidence of land slip)	RED	Unstable ground conditions / excessive foundation designs / Heavy vehicular loads / environmental concerns	British Geology Survey website	No unusual soil as can be seen from UKSO, no peat or bog area.	RED
	poor sub strata soils / flood zone / shallow rock types (i.e.. Shale) / high water table	AMBER	known ground conditions / special foundations design			AMBER
	good sub strata soils	GREEN	standard foundations			GREEN
Backfill specification	Selected sand - Thermal resistivity = 2.5 kmW	RED	Default backfill	Design specification	Majority of route will be concrete due to routing in busy public roads.	RED

	Concrete bond sand - Thermal resistivity = 1.2 kmW	AMBER	Selected cable laying applications			AMBER
	Concrete - Thermal resistivity = 0.8 kmW	GREEN	Road Crossings or other protected cable routeing			GREEN
Public Service Utilities (crossings / proximity)	Large number (>3) underground utility services present	RED	Cable laying area will be constrained	UMV / OS Maps	Large number of buried services in Blantyre town	RED
	small number (<3) underground utility services present	AMBER	Cable laying may be constrained			AMBER
	nominal or no underground / overground utility services present	GREEN	no restrictions			GREEN
Watercourse / Catchment Areas Crossings (i.e.. River, Loch, Reservoir)	river, loch or reservoir	RED	HDD may be required, increased depth of burial	Google Earth / OS maps	Rotten Calder River crossing requires HDD	RED
	small pond, stream or burn	AMBER	Increased depth of burial, Concrete backfill required?			AMBER
	flood plane or no crossings	GREEN	Slight increased in depth of burial			GREEN

Road / Railway Crossings along corridor	major transport infrastructure crossings (i.e. large motorway, major road, railway)	RED	Open trenching at night, HDD or special railway requirements may be necessary	Google Earth / UMV	Crosses major off ramp of the A725 that will require significant traffic management or open trenching at night.	RED
	roads	AMBER	Traffic management, open trenching at night			AMBER
	minor/ rural road only	GREEN	Minimal traffic management or shutting road			GREEN
Residential Areas	Routing within large residential areas	RED	Major disruption / Multiple driveway closures / Reduced residential access	Google Earth	Large residential areas mainly Blantyre would impose major disruption to residence.	RED
	Routing in proximity to residential areas	AMBER	Driveway access limited / restricted access			AMBER
	no residential within proposed route	GREEN	no access restrictions			GREEN
Forestry	Ancient woodland	RED	Realignment routing to avoid or consider HDD beneath ancient woodland.	Google Earth / UMV	No areas of forest within route.	RED
	route of corridor through forestry area	AMBER	Realignment of route			AMBER
	route of corridor through area with no forestry	GREEN	No limitations			GREEN

Total Score	30
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Route Option 2 – Technical Feasibility Appraisal

RISK DESCRIPTION	RISK APPRAISAL MEASURES	RISK - IMPACT RATING CATEGORY (R.A.G.)	CONSIDERATION COMMENTS	SOURCE OF REVIEW INFORMATION	CORRIDOR ASSESSMENT	RISK - IMPACT RATING
Route length	Longer than average	AMBER		PLS-Cadd / Google Earth / Drawings	9.98 km	RED
	Average of routes	GREEN				AMBER
	Shorter than average	GREEN				GREEN
Maximum depth	Depth $\geq 1.2\text{m}$	RED	Railway crossing or HDD	Design specification	Maximum depth is anticipated to be 900mm as the last section near Strathaven will be routed in agricultural fields.	RED
	Depth $>800\text{mm} < 1.2\text{m}$	AMBER	Agricultural or beside railway			AMBER
	Depth $\geq 600\text{mm} \leq 800\text{mm}$	GREEN	In roads, within substation boundaries and footpaths			GREEN
Topography	steep ground slope Longitudinal $> 20\%$	RED	Additional roller, winches breakers or cable pusher may be required.	Google Earth / Topographical survey	Longitudinal Max. Slope is approx. 19.1%	RED

	ground slope Longitudinal $\geq$ 10% $\leq$ 20%	AMBER	highly loaded vehicular access difficulties.			AMBER
	ground slope Longitudinal $\leq$ 10%	GREEN	no access or build restrictions			GREEN
Buildability Access Constraints	no existing major, minor roads / forestry tracks / access tracks infrastructure / severe terrain	RED	challenging landscape with complex access difficulties / areas of environmental importance	Google Earth / OS maps / TIN model of corridor using PLS- Cadd	Existing roads/tracks for access	RED
	restrictive roads, forestry access tracks network available / severe terrain	AMBER	restrictive vehicular access			AMBER
	suitable roads, forestry access tracks network available	GREEN	no access restrictions			GREEN
Proximity to existing OHL transmission and distribution infrastructure	encroachment within 10m of OHL tower of 132kV or higher.	RED	Liaise with OHL asset owner and adhere to restrictions	Google Earth / UMV / ENA 43-8 - OHL clearances	Encroachment of 33kV	RED
	encroachment within 30m of OHL tower or within 10m of 33kV or lower.	AMBER	Liaise with OHL asset owner			AMBER

	no HV / LV OHL's in the corridor	GREEN	no restrictions			GREEN
Ground Makeup	contaminated land / organic soils (i.e.. Peat) / shallow coal deposits / unstable ground (i.e.. evidence of land slip)	RED	Unstable ground conditions / excessive foundation designs / Heavy vehicular loads / environmental concerns	British Geology Survey website	No unusual soil as can be seen from UKSO, no peat or bog area.	RED
	poor sub strata soils / flood zone / shallow rock types (i.e.. Shale) / high water table	AMBER	known ground conditions / special foundations design			AMBER
	good sub strata soils	GREEN	standard foundations			GREEN
Backfill specification	Selected sand - Thermal resistivity = 2.5 kmW	RED	Default backfill	Design specification	The majority of the route is expected to be CBS with small sections of concrete for the busier roads.	RED
	Concrete bond sand - Thermal resistivity = 1.2 kmW	AMBER	Selected cable laying applications			AMBER
	Concrete - Thermal resistivity = 0.8 kmW	GREEN	Road Crossings or other protected cable routeing			GREEN

Public Service Utilities (crossings / proximity)	Large number underground utility services present	RED	Cable laying area will be constrained	UMV / OS Maps	Small number of utilities along route with an area near the Strathaven substation being more densely populated with utilities.	RED
	small number underground utility services present	AMBER	Cable laying may be constrained			AMBER
	Minimal or no underground / overground utility services present	GREEN	no restrictions			GREEN
Watercourse / Catchment Areas Crossings - River, Loch, Reservoir with no existing viable crossing.	river, loch or reservoir	RED	HDD may be required, increased depth of burial	Google Earth / OS maps	Rotten Calder river crossing via a bridge if deemed structurally sound. (Bridge unlikely to be viable therefore rating upgraded)	RED
	small pond, stream or burn	AMBER	Increased depth of burial, Concrete backfill required?			AMBER
	flood plane, no crossings or pre-existing viable crossing	GREEN	Slight increased in depth of burial			GREEN
Road / Railway Crossings along corridor	major transport infrastructure crossings (i.e. large motorway, major road, railway)	RED	Open trenching at night, HDD or special railway requirements may be necessary	Google Earth / UMV	Largely minor road with a small crossing of the A725 that would require open trenching at night.	RED
	roads	AMBER	Traffic management, open trenching at night			AMBER

	minor/ rural road only	GREEN	Minimal traffic management or shutting road			GREEN
Residential Areas	Routing within large residential areas	RED	Major disruption / Multiple driveway closures / Reduced residential access	Google Earth	Limited areas located in proximity to residential areas.	RED
	Routing in proximity to residential areas	AMBER	Numerous driveway access blocked / restricted access			AMBER
	no residential within proposed route	GREEN	Limited access restrictions			GREEN
Forestry	Ancient woodland	RED	Realignment routing to avoid or consider HDD beneath ancient woodland.	Google Earth / UMV	No areas of forest throughout route.	RED
	route of corridor through forestry area	AMBER	Realignment of route			AMBER
	route of corridor through area with no forestry	GREEN	No limitations			GREEN

Total Score	42
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Route Option 3 – Technical Feasibility Appraisal

RISK DESCRIPTION	RISK APPRAISAL MEASURES	RISK - IMPACT RATING CATEGORY (R.A.G.)	CONSIDERATION COMMENTS	SOURCE OF REVIEW INFORMATION	CORRIDOR ASSESSMENT	RISK - IMPACT RATING
Route length	Longer than average	AMBER		PLS-Cadd / Google Earth / Drawings	10.4 km	RED
	Average of routes (within 10%)	GREEN				AMBER
	Shorter than average	GREEN				GREEN
Maximum depth	Depth $\geq 1.4\text{m}$	RED	Railway crossing or HDD	Design specification	Maximum depth is anticipated to be 900mm as the last section near Strathaven will be routed in agricultural fields.	RED
	Depth $>800\text{mm}$ < 1.4m	AMBER	Agricultural / open countryside			AMBER
	Depth $\geq 600\text{mm}$ $\leq 800\text{mm}$	GREEN	In roads, within substation boundaries and footpaths			GREEN
Topography	steep ground slope Longitudinal > 20%	RED	Additional roller, winches breakers or cable pusher may be required.	Google Earth / Topographical survey	Longitudinal Max. Slope is approx. 19.1%	RED

	ground slope Longitudinal $\geq 10\% \leq 20\%$	AMBER	highly loaded vehicular access difficulties.			AMBER
	ground slope Longitudinal $\leq 10\%$	GREEN	no access or build restrictions			GREEN
Buildability Access Constraints	no existing major, minor roads / forestry tracks / access tracks infrastructure / severe terrain	RED	challenging landscape with complex access difficulties / areas of environmental importance	Google Earth / OS maps / TIN model of corridor using PLS- Cadd	Existing roads/tracks for access	RED
	restrictive roads, forestry access tracks network available / severe terrain	AMBER	restrictive vehicular access			AMBER
	suitable roads, forestry access tracks network available	GREEN	no access restrictions			GREEN
Proximity to existing OHL transmission and distribution infrastructure	encroachment within 10m of OHL tower of 132kV or higher.	RED	Liaise with OHL asset owner and adhere to restrictions	Google Earth / UTM / ENA 43-8 - OHL clearances	Encroachment of 33kV	RED
	encroachment within 30m of OHL tower or within 10m of 33kV or lower.	AMBER	Liaise with OHL asset owner			AMBER

	no HV / LV OHL's in the corridor	GREEN	no restrictions			GREEN
Ground Makeup	contaminated land / organic soils (i.e.. Peat) / shallow coal deposits / unstable ground (i.e.. evidence of land slip)	RED	Unstable ground conditions / excessive foundation designs / Heavy vehicular loads / environmental concerns	British Geology Survey website	No unusual soil as can be seen from UKSO, no peat or bog area.	RED
	poor sub strata soils / flood zone / shallow rock types (i.e.. Shale) / high water table	AMBER	known ground conditions / special foundations design			AMBER
	good sub strata soils	GREEN	standard foundations			GREEN
Backfill specification	Selected sand - Thermal resistivity = 2.5 kmW	RED	Default backfill	Design specification	The majority of the route is expected to be CBS with small sections of concrete for the busier roads.	RED
	Concrete bond sand - Thermal resistivity = 1.2 kmW	AMBER	Selected cable laying applications			AMBER

	Concrete - Thermal resistivity = 0.8 kmW	GREEN	Road Crossings or other protected cable routeing			GREEN
Public Service Utilities (crossings / proximity)	Large number (>3) underground utility services present	RED	Cable laying area will be constrained	UMV / OS Maps	Small number of utilities along route with an area near the Strathaven substation being more densely populated with utilities.	RED
	small number (<3) underground utility services present	AMBER	Cable laying may be constrained			AMBER
	nominal or no underground / overground utility services present	GREEN	no restrictions			GREEN
Watercourse / Catchment Areas Crossings (i.e.. River, Loch, Reservoir)	river, loch or reservoir	RED	HDD may be required, increased depth of burial	Google Earth / OS maps	Rotten Calder River crossing via a bridge if deemed structurally sound. (Bridge unlikely to be viable therefore rating upgraded)	RED
	small pond, stream or burn	AMBER	Increased depth of burial, Concrete backfill required?			AMBER
	flood plane or no crossings	GREEN	Slight increased in depth of burial			GREEN
Road / Railway Crossings along corridor	major transport infrastructure crossings (i.e. large motorway,	RED	Open trenching at night, HDD or special railway requirements may be necessary	Google Earth / UMV	Largely minor road with a small crossing of the A725 that would require open trenching at night.	RED

	major road, railway)					
	roads	AMBER	Traffic management, open trenching at night			AMBER
	minor/ rural road only	GREEN	Minimal traffic management or shutting road			GREEN
Residential Areas	Routing within large residential areas	RED	Major disruption / Multiple driveway closures / Reduced residential access	Google Earth	Limited areas located in proximity to residential areas.	RED
	Routing in proximity to residential areas	AMBER	Driveway access limited / restricted access			AMBER
	no residential within proposed route	GREEN	no access restrictions			GREEN
Forestry	Ancient woodland	RED	Realignment routing to avoid or consider HDD beneath ancient woodland.	Google Earth / UMV	No areas of forest throughout route.	RED
	route of corridor through forestry area	AMBER	Realignment of route			AMBER

	route of corridor through area with no forestry	GREEN	No limitations				GREEN
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Total Score	40
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Route Option 4 – Technical Feasibility Appraisal

RISK DESCRIPTION	RISK APPRAISAL MEASURES	RISK - IMPACT RATING CATEGORY (R.A.G.)	CONSIDERATION COMMENTS	SOURCE OF REVIEW INFORMATION	CORRIDOR ASSESSMENT	RISK - IMPACT RATING
Route length	Longer than average	AMBER		PLS-Cadd / Google Earth / Drawings	12.2 km	RED
	Average of routes	GREEN				AMBER
	Shorter than average	GREEN				GREEN
Maximum depth	Depth $\geq 1.4\text{m}$	RED	Railway crossing or HDD	Design specification	Maximum depth is anticipated to be 900mm as the last section near Strathaven will be routed in agricultural fields.	RED
	Depth $>800\text{mm} < 1.4\text{m}$	AMBER	Agricultural / open countryside			AMBER
	Depth $\geq 600\text{mm} \leq 800\text{mm}$	GREEN	In roads, within substation boundaries and footpaths			GREEN
Topography	steep ground slope Longitudinal $> 20\%$	RED	Additional roller, winches breakers or cable pusher may be required.	Google Earth / Topographical survey	Longitudinal Max. Slope is approx. 19.1%	RED

	ground slope Longitudinal $\geq 10\% \leq 20\%$	AMBER	highly loaded vehicular access difficulties.			AMBER
	ground slope Longitudinal $\leq 10\%$	GREEN	no access or build restrictions			GREEN
Buildability Access Constraints	no existing major, minor roads / forestry tracks / access tracks infrastructure / severe terrain	RED	challenging landscape with complex access difficulties / areas of environmental importance	Google Earth / OS maps / TIN model of corridor using PLS- Cadd	Existing roads/tracks for access	RED
	restrictive roads, forestry access tracks network available / severe terrain	AMBER	restrictive vehicular access			AMBER
	suitable roads, forestry access tracks network available	GREEN	no access restrictions			GREEN
Proximity to existing OHL transmission and distribution infrastructure	encroachment within 10m of OHL tower of 132kV or higher.	RED	Liaise with OHL asset owner and adhere to restrictions	Google Earth / UTM / ENA 43-8 - OHL clearances	Encroachment of 33kV	RED

	encroachment within 30m of OHL tower or within 10m of 33kV or lower.	AMBER	Liaise with OHL asset owner			AMBER
	no HV / LV OHL's in the corridor	GREEN	no restrictions			GREEN
Ground Makeup	contaminated land / organic soils (i.e.. Peat) / shallow coal deposits / unstable ground (i.e.. evidence of land slip)	RED	Unstable ground conditions / excessive foundation designs / Heavy vehicular loads / environmental concerns	British Geology Survey website	No unusual soil as can be seen from UKSO, no peat or bog area.	RED
	poor sub strata soils / flood zone / shallow rock types (i.e.. Shale) / high water table	AMBER	known ground conditions / special foundations design			AMBER
	good sub strata soils	GREEN	standard foundations			GREEN

Backfill specification	Selected sand - Thermal resistivity = 2.5 kmW	RED	Default backfill	Design specification	The majority of the route is expected to be CBS with small sections of concrete for the busier roads.	RED
	Concrete bond sand - Thermal resistivity = 1.2 kmW	AMBER	Selected cable laying applications			AMBER
	Concrete - Thermal resistivity = 0.8 kmW	GREEN	Road Crossings or other protected cable routeing			GREEN
Public Service Utilities (crossings / proximity)	Large number (>3) underground utility services present	RED	Cable laying area will be constrained	UMV / OS Maps	Small number of utilities along route with an area near the Strathaven substation being more densely populated with utilities.	RED
	small number (<3) underground utility services present	AMBER	Cable laying may be constrained			AMBER
	nominal or no underground / overground utility services present	GREEN	no restrictions			GREEN
Watercourse / Catchment Areas Crossings (i.e..	river, loch or reservoir	RED	HDD may be required, increased depth of burial	Google Earth / OS maps	Rotten Calder river crossing via a bridge if deemed structurally sound. (Bridge unlikely to be viable therefore rating upgraded)	RED

River, Loch, Reservoir)	small pond, stream or burn	AMBER	Increased depth of burial, Concrete backfill required?			AMBER
	flood plane or no crossings	GREEN	Slight increased in depth of burial			GREEN
Road / Railway Crossings along corridor	major transport infrastructure crossings (i.e. large motorway, major road, railway)	RED	Open trenching at night, HDD or special railway requirements may be necessary	Google Earth / UMV	Largely minor road with a small crossing of the A725 that would require open trenching at night.	RED
	roads	AMBER	Traffic management, open trenching at night			AMBER
	minor/ rural road only	GREEN	Minimal traffic management or shutting road			GREEN
Residential Areas	Routing within large residential areas	RED	Major disruption / Multiple driveway closures / Reduced residential access	Google Earth	Limited areas located in proximity to residential areas.	RED
	Routing in proximity to residential areas	AMBER	Driveway access limited / restricted access			AMBER

	no residential within proposed route	GREEN	no access restrictions			GREEN
Forestry	Ancient woodland	RED	Realignment routing to avoid or consider HDD beneath ancient woodland.	Google Earth / UMV	No areas of forest throughout route.	RED
	route of corridor through forestry area	AMBER	Realignment of route			AMBER
	route of corridor through area with no forestry	GREEN	No limitations			GREEN

Total Score	40
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Route Option 5 – Technical Feasibility Appraisal

RISK DESCRIPTION	RISK APPRAISAL MEASURES	RISK - IMPACT RATING CATEGORY (R.A.G.)	CONSIDERATION COMMENTS	SOURCE OF REVIEW INFORMATION	CORRIDOR ASSESSMENT	RISK - IMPACT RATING
Route length	Longer than average	AMBER		PLS-Cadd / Google Earth / Drawings	7.3 km	RED
	Average of routes	GREEN				AMBER
	Shorter than average	GREEN				GREEN
Maximum depth	Depth $\geq 1.4\text{m}$	RED	Railway crossing or HDD	Design specification	HDD so up to 10m deep expected.	RED
	Depth $>800\text{mm} < 1.4\text{m}$	AMBER	Agricultural / open countryside			AMBER
	Depth $\geq 600\text{mm} \leq 800\text{mm}$	GREEN	In roads, within substation boundaries and footpaths			GREEN
Topography	steep ground slope Longitudinal $> 20\%$	RED	Additional roller, winches breakers or cable pusher may be required.	Google Earth / Topographical survey	Longitudinal Max. Slope is approx. 20.3%	RED

	ground slope Longitudinal $\geq 10\% \leq 20\%$	AMBER	highly loaded vehicular access difficulties.			AMBER
	ground slope Longitudinal $\leq 10\%$	GREEN	no access or build restrictions			GREEN
Buildability Access Constraints	no existing major, minor roads / forestry tracks / access tracks infrastructure / severe terrain	RED	challenging landscape with complex access difficulties / areas of environmental importance	Google Earth / OS maps / TIN model of corridor using PLS- Cadd	Existing roads/tracks for access	RED
	restrictive roads, forestry access tracks network available / severe terrain	AMBER	restrictive vehicular access			AMBER
	suitable roads, forestry access tracks network available	GREEN	no access restrictions			GREEN
Proximity to existing OHL transmission and distribution infrastructure	encroachment within 10m of OHL tower of 132kV or higher.	RED	Liaise with OHL asset owner and adhere to restrictions	Google Earth / UMV / ENA 43-8 - OHL clearances	Diversions or underground likely require for 132kV Crossings and avoidance of 275kV route.	RED

	encroachment within 30m of OHL tower or within 10m of 33kV or lower.	AMBER	Liaise with OHL asset owner			AMBER
	no HV / LV OHL's in the corridor	GREEN	no restrictions			GREEN
Ground Makeup	contaminated land / organic soils (i.e.. Peat) / shallow coal deposits / unstable ground (i.e.. evidence of land slip)	RED	Unstable ground conditions / excessive foundation designs / Heavy vehicular loads / environmental concerns	British Geology Survey website	No unusual soil as can be seen from UKSO, no peat or bog area.	RED
	poor sub strata soils / flood zone / shallow rock types (i.e.. Shale) / high water table	AMBER	known ground conditions / special foundations design			AMBER
	good sub strata soils	GREEN	standard foundations			GREEN

Backfill specification	Selected sand - Thermal resistivity = 2.5 kmW	RED	Default backfill	Design specification	Due to HDD expected TR is 1.2kmW as this is the standard UK soil TR.	RED
	Concrete bond sand - Thermal resistivity = 1.2 kmW	AMBER	Selected cable laying applications			AMBER
	Concrete - Thermal resistivity = 0.8 kmW	GREEN	Road Crossings or other protected cable routeing			GREEN
Public Service Utilities (crossings / proximity)	Large number underground utility services present	RED	Cable laying area will be constrained	UMV / OS Maps	Minimal underground service with slightly more near Strathaven.	RED
	small number underground utility services present	AMBER	Cable laying may be constrained			AMBER
	Minimal or no underground / overground utility services present	GREEN	no restrictions			GREEN
Watercourse / Catchment Areas Crossings (i.e..	river, loch or reservoir	RED	HDD may be required, increased depth of burial	Google Earth / OS maps	HDD so crossing no issue.	RED

River, Loch, Reservoir)	small pond, stream or burn	AMBER	Increased depth of burial, Concrete backfill required?			AMBER
	flood plane or no crossings	GREEN	Slight increased in depth of burial			GREEN
Road / Railway Crossings along corridor	major transport infrastructure crossings (i.e. large motorway, major road, railway)	RED	Open trenching at night, HDD or special railway requirements may be necessary	Google Earth / UMV	Minor roads only.	RED
	roads	AMBER	Traffic management, open trenching at night			AMBER
	minor/ rural road only	GREEN	Minimal traffic management or shutting road			GREEN
Residential Areas	Routing within large residential areas	RED	Major disruption / Multiple driveway closures / Reduced residential access	Google Earth	In proximity to a small number of residential areas limiting driveway access.	RED
	Routing in proximity to residential areas	AMBER	Driveway access limited / restricted access			AMBER

	no residential within proposed route	GREEN	no access restrictions			GREEN
Forestry	Ancient woodland	RED	Realignment routing to avoid or consider HDD beneath ancient woodland.	Google Earth / UMV	No forest impacted due to HDD.	RED
	route of corridor through forestry area	AMBER	Realignment of route			AMBER
	route of corridor through area with no forestry	GREEN	No limitations			GREEN

Total Score	46
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Route Option 6 – Technical Feasibility Appraisal

RISK DESCRIPTION	RISK APPRAISAL MEASURES	RISK - IMPACT RATING CATEGORY (R.A.G.)	CONSIDERATION COMMENTS	SOURCE OF REVIEW INFORMATION	CORRIDOR ASSESSMENT	RISK - IMPACT RATING
Route length	Longer than average	AMBER		PLS-Cadd / Google Earth / Drawings	8.87 km	RED
	Average of routes	GREEN				AMBER
	Shorter than average	GREEN				GREEN
Maximum depth	Depth $\geq 1.4\text{m}$	RED	Railway crossing or HDD	Design specification	Maximum depth is anticipated to be 900mm as the last section near Strathaven will be routed in agricultural fields.	RED
	Depth $>800\text{mm} < 1.4\text{m}$	AMBER	Agricultural / open countryside			AMBER
	Depth $\geq 600\text{mm} \leq 800\text{mm}$	GREEN	In roads, within substation boundaries and footpaths			GREEN
Topography	steep ground slope Longitudinal $> 20\%$	RED	Additional roller, winches breakers or cable pusher may be required.	Google Earth / Topographical survey	Longitudinal Max. Slope is approx. 20.2%	RED

	ground slope Longitudinal $\geq 10\% \leq 20\%$	AMBER	highly loaded vehicular access difficulties.			AMBER
	ground slope Longitudinal $\leq 10\%$	GREEN	no access or build restrictions			GREEN
Buildability Access Constraints	no existing major, minor roads / forestry tracks / access tracks infrastructure / severe terrain	RED	challenging landscape with complex access difficulties / areas of environmental importance	Google Earth / OS maps / TIN model of corridor using PLS- Cadd	Existing roads/tracks for access	RED
	restrictive roads, forestry access tracks network available / severe terrain	AMBER	restrictive vehicular access			AMBER
	suitable roads, forestry access tracks network available	GREEN	no access restrictions			GREEN
Proximity to existing OHL transmission and	encroachment within 10m of OHL tower	RED	Liaise with OHL asset owner and adhere to restrictions	Google Earth / UMV / ENA 43-8 - OHL clearances	Potentially within 10m near the Strathaven Substation	RED

distribution infrastructure	encroachment within 30m of OHL tower	AMBER	Liaise with OHL asset owner			AMBER
	no HV / LV OHL's in the corridor	GREEN	no restrictions			GREEN
Ground Makeup	contaminated land / organic soils (i.e.. Peat) / shallow coal deposits / unstable ground (i.e.. evidence of land slip)	RED	Unstable ground conditions / excessive foundation designs / Heavy vehicular loads / environmental concerns	British Geology Survey website	No unusual soil as can be seen from UKSO, no peat or bog area but potential flood areas.	RED
	poor sub strata soils / flood zone / shallow rock types (i.e.. Shale) / high water table	AMBER	known ground conditions / special foundations design			AMBER
	good sub strata soils	GREEN	standard foundations			GREEN
Backfill specification	Selected sand - Thermal resistivity = 2.5 kmW	RED	Default backfill	Design specification	Majority of route will be concrete due to routing in busy public roads.	RED

	Concrete bond sand - Thermal resistivity = 1.2 kmW	AMBER	Selected cable laying applications			AMBER
	Concrete - Thermal resistivity = 0.8 kmW	GREEN	Road Crossings or other protected cable routeing			GREEN
Public Service Utilities (crossings / proximity)	Large number (>3) underground utility services present	RED	Cable laying area will be constrained	UMV / OS Maps	Large number of buried services in Blantyre town	RED
	small number (<3) underground utility services present	AMBER	Cable laying may be constrained			AMBER
	nominal or no underground / overground utility services present	GREEN	no restrictions			GREEN
Watercourse / Catchment Areas Crossings (i.e.. River, Loch, Reservoir)	river, loch or reservoir	RED	HDD may be required, increased depth of burial	Google Earth / OS maps	Rotten Calder river crossing requires HDD	RED
	small pond, stream or burn	AMBER	Increased depth of burial, Concrete backfill required?			AMBER

	flood plane or no crossings	GREEN	Slight increased in depth of burial			GREEN
Road / Railway Crossings along corridor	major transport infrastructure crossings (i.e. large motorway, major road, railway)	RED	Open trenching at night, HDD or special railway requirements may be necessary	Google Earth / UMV	Crosses A725 that will require significant traffic management or open trenching at night.	RED
	roads	AMBER	Traffic management, open trenching at night			AMBER
	minor/ rural road only	GREEN	Minimal traffic management or shutting road			GREEN
Residential Areas	Routing within large residential areas	RED	Major disruption / Multiple driveway closures / Reduced residential access	Google Earth	Large residential areas mainly Blantyre would impose major disruption to residence.	RED
	Routing in proximity to residential areas	AMBER	Driveway access limited / restricted access			AMBER
	no residential within proposed route	GREEN	no access restrictions			GREEN

Forestry	Ancient woodland	RED	Realignment routing to avoid or consider HDD beneath ancient woodland.	Google Earth / UMV	Minor forestry within corridor however a lot of forests area Ancient Woodland which has special protections and will need to be avoided where possible.	RED
	route of corridor through forestry area	AMBER	Realignment of route			AMBER
	route of corridor through area with no forestry	GREEN	No limitations			GREEN

Total Score	32
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