



**SP ENERGY
NETWORKS**

SP Energy Networks

**Clauchrie Wind Farm 132kV
Grid Connection
Routeing and Consultation
Report**

Final report

Prepared by LUC

May 2021

SP Energy Networks

Clauchrie Wind Farm 132kV Grid Connection Routing and Consultation Report

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11300

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Land Use Consultants Ltd
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Registered office:
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Contents

Chapter 1		Chapter 6	
Introduction	1	Appraisal Findings	18
Purpose of this Report	1	Technical Review of Emerging Preferred Route Option	18
The Need for the Clauchrie Wind Farm 132kV Grid Connection	1	Consideration of Cumulative Effects of Emerging Route Option Preference	19
SPENs Statutory and Licence Duties	2	Conclusion	19
The Development and Consenting Process	2		
The Structure of the Report	3	Chapter 7	
		Consultation Process and Next Steps	20
Chapter 2		The Consultation Process	20
Project Description	4	Consultation Strategy	20
Connection Requirements	4	Next Steps: Route Alignment and Environmental Appraisal	22
Overhead Line Infrastructure	4		
Construction Process	5		
		Appendix A	
Chapter 3		The Holford Rules and SHETL Clarification Notes	A-1
Approach to Routeing	7	The Holford Rules: Guidelines for the Routeing of New High Voltage Overhead Transmission Lines (with NGC 1992 and SHETL 2003 Notes)	A-2
SPENs Overall Approach to Routeing	7	Supplementary Notes	A-4
The Clauchrie Wind Farm Grid Connection Routeing Objective	7		
Established Practice for Overhead Line Routeing	7		
Overview of Routeing Process	8		
Identification and Appraisal of Route Options	9	Appendix B	
Selection of the Preferred Route	9	Route Options Appraisal Table	B-9
Chapter 4		Appendix C	
Identification of Route Options	11	Newspaper Advertisements 4th May 2021	C-1
The Project Routeing Strategy	11		
The Study Area	11		
Planning Policy Context	12	Appendix D	
Identification and Mapping of Routeing Considerations	12	Project Leaflet	D-1
Identification of Route Options	14		
Description of Route Options	14	Appendix E	
		Stakeholder Consultee List	E-1
Chapter 5			
Appraisal of Route Options	15		
Approach to Appraisal of Route Options	15		
Appraisal Criteria	15		

Chapter 1

Introduction

Purpose of this Report

1.1 This document has been prepared by LUC on behalf of SP Energy Networks (SPEN). It relates to the identification and appraisal of route options for a new 132 kilovolt (kV) overhead line (OHL) supported on wood poles, from the proposed Clauchrie Wind Farm (WF)¹ substation to the proposed extension to the existing 132kV collector substation at Mark Hill (hereafter referred to as the 'Clauchrie 132kV Connection Project'). The location of the Clauchrie 132kV Connection Project is shown on **Figure 1.1**.

1.2 All figures submitted with this report illustrate the proposed Mark Hill Substation extension which is subject of a separate consenting process. The design, technical requirements and merits of the substation extension are not considered in this report. The proposed Clauchrie 132kV Connection Project will link into the proposed substation extension from the south through the use of an underground cable.

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

The Need for the Clauchrie Wind Farm 132kV Grid Connection

1.4 A request for a connection to the transmission network has been received by SPEN via NGET from the Developer of Clauchrie Wind Farm (100MW). Following consideration of the network in this area by SPEN, the proposed point of connection from the wind farm substation is to the Mark Hill collector substation via a 132kV OHL.

¹ Currently submitted to ECU for determination; ECU Ref ECU00002001

SPENs Statutory and Licence Duties

1.5 As a transmission licence holder for southern Scotland, SPEN² is required under Section 9(2) of the Electricity Act 1989 to:

- develop and maintain an efficient, co-ordinated and economical system of electricity transmission; and
- facilitate competition in the supply and generation of electricity.

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

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

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

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

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

The Development and Consenting Process

1.10 The Project comprises three key phases:

- Phase One: Routeing and Consultation.
- Phase Two: Environmental Appraisal.
- Phase Three: Application for Consent.

Phase One: Routeing and Consultation

1.11 This report relates to Phase One, which comprises a review of environmental, technical and economic considerations and the application of established step-by-step routeing principles to identify and appraise potential route options to establish a 'preferred' route for the OHL.

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

1.13 Responses to the consultation process will be evaluated and the 'proposed' route confirmed for progression to the next stage.

Phase Two: Environmental Appraisal

1.14 The Clauchrie 132kV Connection Project could be considered an EIA development under Schedule 2 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. However, due to its nature, size and location with regard to the selection criteria for screening Schedule 2 development presented as Schedule 3 (Regulation 7(2)(a)) of the Regulations, an Environmental Impact Assessment may not be required.

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

² SPEN owns and operates the electricity transmission and distribution networks in central and southern Scotland through its wholly-owned subsidiaries SP Transmission plc (SPT) and SP Distribution plc (SPD). SP Transmission plc is the holder of a transmission licence.

The references below to SPEN in the context of statutory and licence duties and the application for section 37 consent below should be read as applying to SP Transmission plc.

1.16 Should the Scottish Ministers determine that the Clauchrie 132kV Connection Project is not EIA development and that subsequent provisions of the EIA Regulations do not apply, SPEN will undertake an environmental appraisal in relation to key topics (to be agreed with consultees) and prepare a supporting Environmental Report to accompany the Section 37 application.

Phase Three: Application for Consent

1.17 Following completion of the Environmental Report, SPEN will apply to Scottish Ministers for consent under Section 37 of the Electricity Act 1989 ('the Electricity Act'), as amended, to install, and keep installed, the proposed OHL identified above. In conjunction with the Section 37 application, SPEN will apply for deemed planning permission for the OHL under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended, for any ancillary development such as access tracks or substation facilitation works. The Environmental Report (or Environmental Impact Assessment Report if the Ministers deem the project to be EIA development) will accompany the application.

Stakeholder Engagement

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

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

1.20 SPEN's approach to stakeholder engagement for major electrical infrastructure projects is outlined in **Chapter 5** of the document 'Major Infrastructure Projects: Approach to Routeing and Environmental Impact Assessment'. SPEN aims to ensure effective, inclusive and meaningful engagement with the public, local communities statutory and other consultees and interested parties through four key engagement steps:

- Information gathering to inform the routeing stage;
- Consultation on specific requirements;
- Obtaining feedback on the preferred route; and

- The Environmental Appraisal stage.

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

1.22 Due to current COVID-19 restrictions regarding face to face interactions, the public consultation and stakeholder engagement will take place online using an online consultation hub developed by LUC. Further details in relation to the consultation process are provided in **Chapter 7**.

The Structure of the Report

1.23 This report comprises of the following chapters:

- **Chapter 1:** Introduction
- **Chapter 2:** Project Description
- **Chapter 3:** Approach to Routeing
- **Chapter 4:** Identification of Route Options
- **Chapter 5:** Appraisal of Route Options
- **Chapter 6:** Appraisal Findings
- **Chapter 7:** The Consultation Process and Next Steps

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

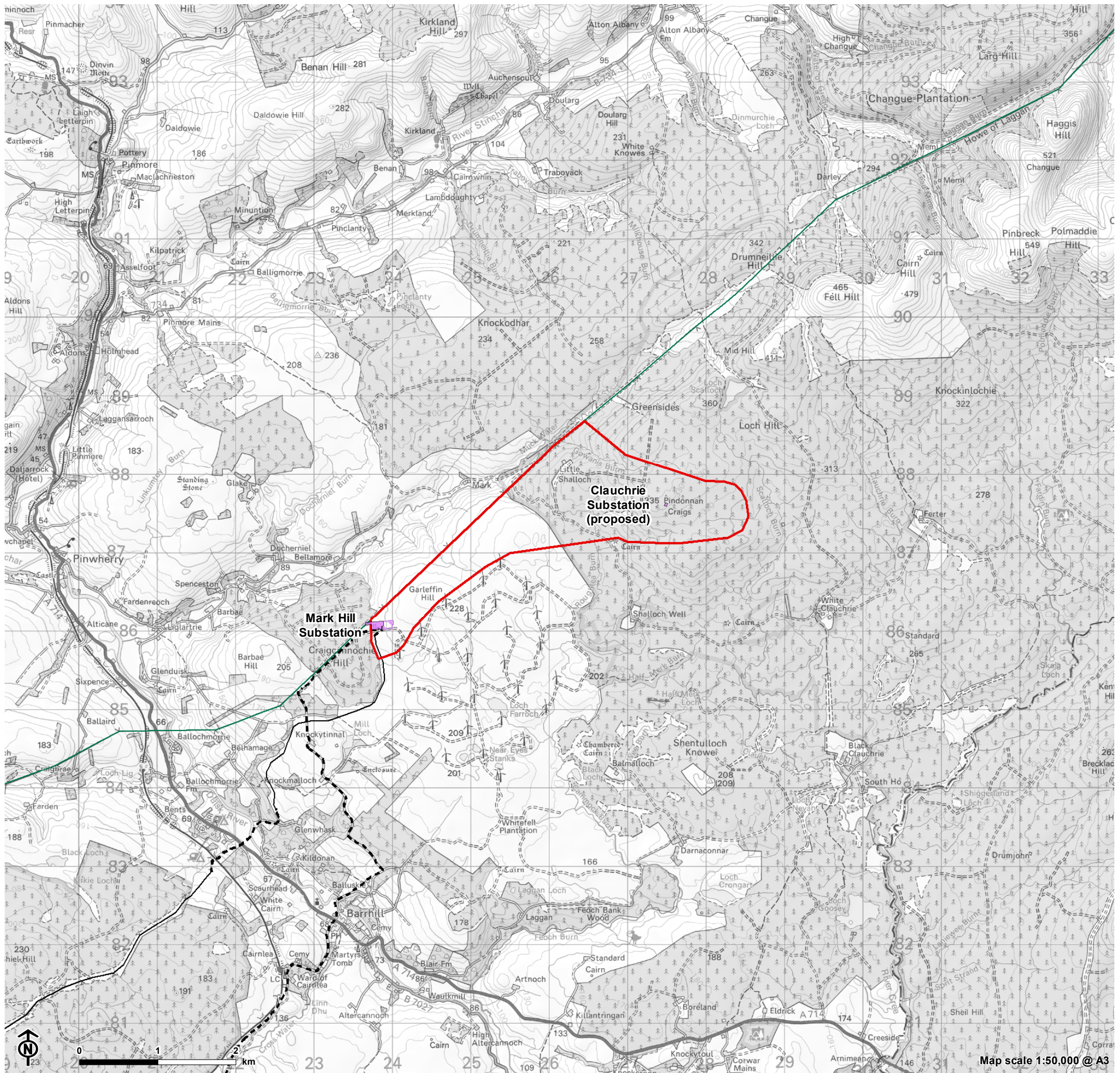


Figure 1.1: Location Plan

- Study area
- Substation
- Proposed Mark Hill Substation Extension
- Existing 132kV overhead line (OHL)
- Existing 275kV overhead line (OHL)
- 132kV UGC



Chapter 2

Project Description

Connection Requirements

2.1 A new 132kV OHL is required to connect the proposed Clauchrie Wind Farm into the Mark Hill collector substation. The proposed development is approximately 4.5km in length and will be supported on wood poles. A section of underground cable will also be required to connect the OHL to the Mark Hill substation and will be approximately 500m in length.

2.2 As part of the wider approach, a land right would be sought with each landowner for a corridor, typically 60m wide (30m either side of the centre of the OHL), to protect the resilience of the line from future development and from falling trees.

Overhead Line Infrastructure

2.3 With an OHL of this nature, conductors (or wires) are suspended at a specified height above ground, incorporating minimum safety clearances and supported by wooden poles, spaced at intervals.

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

2.5 Conductors are strung from insulators attached to the steelwork at the top of the pole and prevent the electric current from crossing to the pole body.

Wood Pole Structure

2.6 The proposed OHL will be constructed using the Trident 'H' wood pole design with galvanised steelwork on top supporting aluminium conductors on insulators.

2.7 The proposed design is described below, and examples of typical pole designs are shown on **Figure 2.1**.

2.8 Wood poles can be used for single circuit lines operating at 132kV. Wood poles are fabricated from pressure impregnated softwood, treated with a preservative to prevent damage to structural integrity.

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

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

2.10 The maximum allowable angle deviations on single wood pole designs is 30 degrees, with deviations up to 75 degrees being permitted on double 'H' poles. **Figure 2.1** illustrates both the single and H pole variants of the intermediate and angle poles.

Wood Pole Heights and Span Lengths

2.11 The 132kV OHL will be supported on trident wood poles. The typical height of trident poles above ground (including steel work and insulators) varies from 11m to 16m. In terms of the technical specification, the wood pole length range for trident poles is 10 m – 22 m. Once foundation depth (2.5 m) is subtracted and insulator height (1.6 m) included, the potential range of heights above ground is 9.1 m – 21.1 m.

2.12 The section of OHL between wood poles is known as the 'span', with the distance between them known as the 'span length'. Span lengths between wood poles average between 80m to 100m but can be increased if there is a requirement to span a larger distance due to the presence of a feature in the landscape such as a river or loch.

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

Wood Pole Colouring

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

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

Construction Process

2.16 The construction of OHLs requires additional temporary infrastructure such as temporary accesses to pole locations. All have limited maintenance requirements, and all are subject

to well-established procedures for dismantling/decommissioning.

Wood Pole Construction

2.17 The construction of the OHL will follow a well-established sequence of activities as outlined below:

- preparation of accesses and felling of woodland to allow safe operation of the OHL;
- excavation of foundations;
- delivery of wood poles;
- erection of wood poles;
- delivery of conductor drums and stringing equipment;
- insulators and conductor erection and tensioning; and
- clearance and reinstatement.

2.18 Prior to constructing the OHL, temporary working areas around each pole location will be required for foundation excavation and pole erection. Any vegetation that requires removal will be removed or lopped. Following commissioning of the OHLs, all equipment and temporary access of construction areas will be removed with the land being reinstated to as similar a condition as possible prior to the works having taken place.

2.19 The erection of the wood poles will require a small excavation to allow the pole brace block and/or steel foundation braces to be positioned in place. A typical pole excavation will be 3m² by 2m deep. The excavated material will be sorted and stored and used for backfilling purposes. No concrete is required.

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

Access

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

2.22 The initial preference when taking temporary access is to use low ground pressure vehicles and plant. Where access is required to be taken through any sensitive areas identified

during the environmental appraisal process, other less intrusive methods such as temporary steel matting, or timber roadways may be employed.

2.23 The use of temporary stone tracks is unlikely for the construction of wood pole connections. However, if small sections are required, all temporary tracks will be removed after commissioning with land being restored to as close to its former condition as possible.

Temporary Working

2.24 Temporary working areas will be required for the duration of the construction works. Temporary vehicular access is required to every pole location. Wood pole locations will have a working area of approximately 30m x 15m and could also extend to accommodate conductor pulling if required.

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

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

Construction Timescales

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

Operation and Maintenance

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

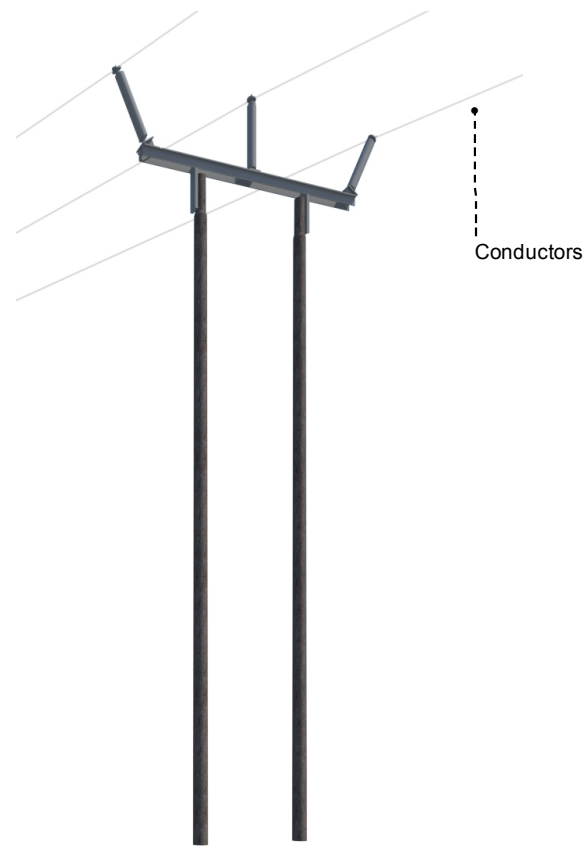
2.29 Any felled wayleave areas will also have to be managed to maintain the required clearances whilst the connection remains in service. Walkover surveys or flyovers will identify where there is a requirement to clear wayleaves of new growth.

Decommissioning

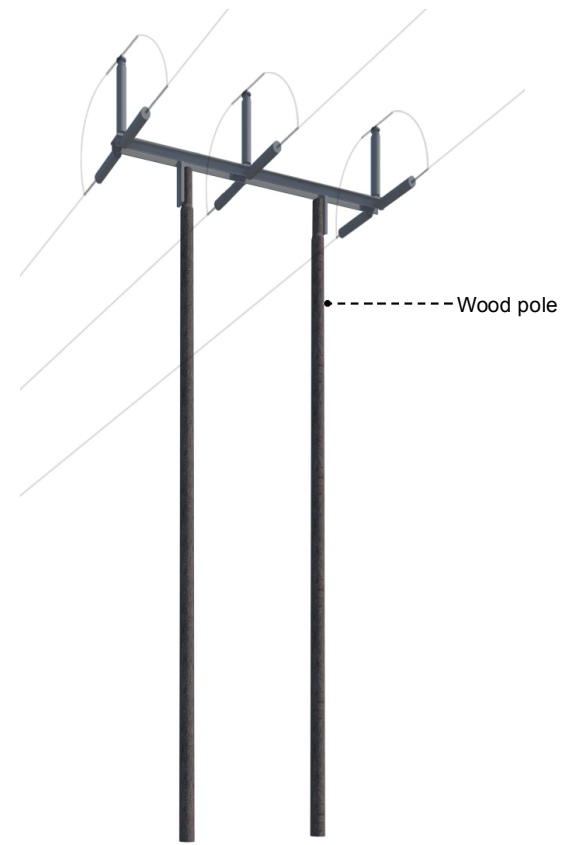
2.30 When the operational life of the proposed Clauchrie OHL comes to an end, it is possible that the line may be re-equipped with new conductors and insulators and refurbished. Alternatively, the OHL may be decommissioned fully.

2.31 Upon decommissioning of Clauchrie Wind Farm, the wood poles will be removed in their entirety, with components re-used where possible. All ground disturbance will be fully reinstated.

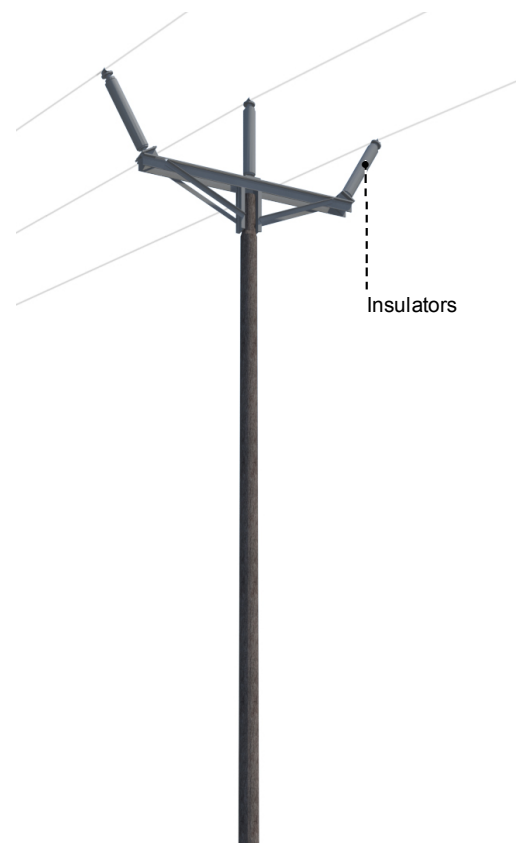
Figure 2.1: Typical Wood Pole (Component Parts of 132kV 'Trident' Design Wood Pole)



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



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



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



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



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

Chapter 3

Approach to Routeing

SPENs Overall Approach to Routeing

3.1 The Government, Ofgem and the electricity industry, including SPEN, have reviewed their positions on OHLs. They remain of the view that the need to balance economic, technical and environmental factors, as a result of statutory duties and licence obligations, continues to support an OHL approach in most cases.

3.2 It is therefore SPEN's view that wherever practical an OHL approach is taken when planning and designing new transmission lines. However, SPEN accepts that there are specific circumstances in which an undergrounding approach should be considered.

3.3 In 2015, SPEN published a summary document outlining the approach taken to routeing transmission infrastructure (Major Infrastructure Projects: Approach to Routeing and Environmental Impact Assessment, SPEN 2015). This document is available at:
https://www.spenergynetworks.co.uk/userfiles/file/SPEN_Approach_to_Routeing_FINAL_20150527.pdf.

The Clauchrie Wind Farm Grid Connection Routeing Objective

3.4 In accordance with SPEN's approach to routeing, the routeing objective for the Clauchrie 132kV Connection Project is:

“To identify a technically feasible and economically viable route for overhead line supported on wood poles from the proposed Clauchrie Wind Farm to the existing Mark Hill collector substation. The route should, on balance, cause the least disturbance to the environment and the people, who live, work and enjoy recreation within it.”

Established Practice for Overhead Line Routeing

3.5 SPEN's overall approach is based on the premise that the main effect of an OHL is visual, as a result of its scale relative to objects in the vicinity such as buildings and trees,

and that as there is no technical way of reducing this other than choice of support (wood poles in this case), and only limited ways of achieving screening through planting, the most effective way of causing least visual disturbance is by careful routeing. In addition, a well routed OHL takes account of other environmental and technical considerations, even if the length is increased as a consequence.

3.6 It is generally accepted across the electricity industry that the guidelines developed by the late Lord Holford in 1959 for routeing OHLs, 'The Holford Rules', should continue to be employed as the basis for routeing high voltage OHLs. The Holford Rules were reviewed circa 1992 by the National Grid Company (NGC) Plc. (now National Grid Electricity Transmission Plc (NGT)) as owner and operator of the electricity transmission network in England and Wales, with notes of clarification added to update the Rules. A subsequent review of the Holford Rules (and NGC clarification notes) was undertaken by ScottishHydro Electric Transmission Limited (SHETL) in 2003 to reflect Scottish circumstances.

3.7 The Holford Rules and the NGC and SHETL clarification notes are included in **Appendix A**. These guidelines for the routeing of new high voltage overhead transmission lines form the basis for routeing the Clauchrie Wind Farm Grid Connection. Key principles of the Holford Rules include avoiding prominent ridges and skylines, following broad wooded valleys, avoiding settlements and residential properties and maximising opportunities for 'backclothing' infrastructure.

3.8 For simplicity, the methodology is set out in a linear manner (as shown in **Figure 3.1**), with the findings of each step informing the next step, building up an ever-increasing level of understanding to inform the routeing process. However, it is important to note that this process remains iterative, with the steps subject to a technical review and consultation where necessary. This enables assumptions to be confirmed and ensures confidence in the findings, prior to the commencement of subsequent steps

Overview of Routeing Process

Study Area

3.9 A study area is first defined, which is large enough to accommodate all likely route options, taking account of the technical requirements (i.e. connection points) and factors such as topography. Baseline mapping of the routeing considerations outlined below then enables routeing constraints and opportunities to be identified.

Environmental Considerations

3.10 Statutory duties imposed by Section 38 and Schedule 9 of the Electricity Act 1989 require licence holders to seek to

preserve features of natural and cultural heritage interest, and to mitigate where possible, any effects which their proposals may have on such features. The construction and operation of an overhead transmission line will have potential effects on people and the environment, including potential effects on (in no hierarchical order):

- visual amenity;
- landscape character;
- ecology and ornithology;
- hydrology, hydrogeology, geology and water resources;
- cultural heritage; and
- land uses including committed development and forestry.

3.11 Some effects can be avoided or limited through careful routeing. Other effects are best mitigated through local deviations of the route, the refining of wood pole locations and/or specific construction practices. These are reviewed as part of the environmental appraisal process.

Technical Considerations

3.12 Technical considerations which can influence routeing include the existing and proposed electricity transmission network (such as the 275kV interconnector (YY Route) OHL north of Mark Hill substation and the 132kV OHL and underground cable to the south of Mark Hill substation), slope gradient, waterbodies, and windfarms.

3.13 In addition to the Clauchrie 132kV Connection Project, SPEN are also currently progressing the routeing and consultation strategy for the Knockodhar 132kV Connection Project, where both projects will connect into the proposed Mark Hill substation extension. The connection points into the southern end of Mark Hill substation will be considered through the detailed design process.

Economic Considerations

3.14 In compliance with the duties imposed on SPEN in terms of Section 9 of the Electricity Act 1989, the proposed route must be 'economically viable'. This is interpreted by SPEN as meaning that as far as is reasonably practicable, and all other concerns being equal, the line should be as direct as possible and the route should avoid areas where technical difficulty or compensatory requirements would render the scheme unviable on economic grounds.

Identification and Appraisal of Route Options

3.15 Following identification of the study area a number of possible 'route options' for the Clauchrie Grid Connection Project are identified. This process involves the avoidance where possible of areas of highest 'amenity' value. These areas generally include areas of natural and cultural heritage value designated at a national, European or international level as these are afforded the highest levels of policy protection.

3.16 Given the limited nature of areas of highest amenity value within the study area the process also includes the consideration of areas that are of more local importance and are smaller in scale, which may not necessarily be designated at an international or national level.

3.17 The study area also includes consideration of matters such as altitude and slope gradients, over which technical limitations would mean a route was unachievable.

3.18 The route options are then appraised against environmental criteria.

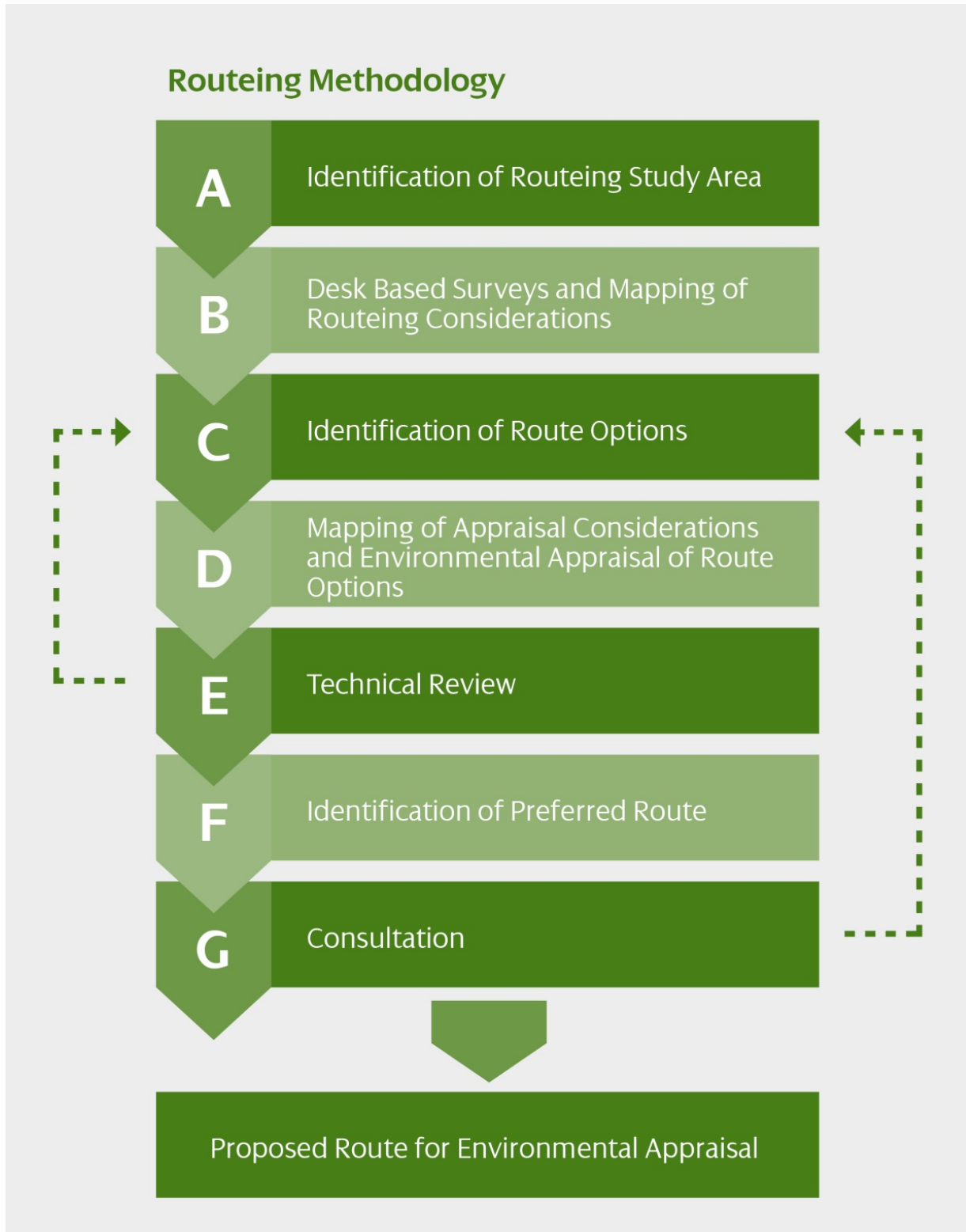
Selection of the Preferred Route

3.19 The environmental appraisal of route options leads to identification of an 'emerging preferred route' which is subjected to a technical review to confirm that the emerging preferred route is technically feasible by comparison to the other Route Option (**Chapter 6**). At this stage the emerging preferred route is also subject to a review of potential cumulative effects with other proposed connections within the study area, as outlined below. Following the cumulative review, with associated revisiting or modification of routes as necessary, the 'preferred route' is selected.

3.20 The preferred route is the option which is considered technically feasible and economically viable whilst causing the least disturbance to the environment and to people. This is then taken forward for stakeholder and public consultation. The preferred route is subjected to further consideration in response to public consultation and may be modified further in the light of these consultations. Modifications may result in further consultation if necessary.

3.21 The preferred route, modified to take into account consultations and the consideration of specific local issues, is then confirmed as the 'proposed route'. The proposed route is subjected to further environmental survey, detailed design and subsequent environmental appraisal, resulting in the further modifications required to avoid and/or minimise effects on the environment.

Figure 3.1: Routeing Methodology



Chapter 4

Identification of Route Options

The Project Routeing Strategy

4.1 The routeing strategy, which has informed the identification and appraisal of the route options is:

“Route options will take account of the grain of the local landscape, avoiding areas of highest ground, disturbance to notable landscape features and avoid areas of highest amenity value and sensitivity as far as possible. Proximity to other forms of development (existing overhead electricity lines and wind turbines) within the study area will also require consideration.”

The Study Area

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

4.3 On this basis, the study area was required to be able to accommodate a continuous 132kV OHL from the Clauchrie Wind Farm proposed substation to the existing Mark Hill substation.

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

Study Area Description

4.5 The study area is within the council area of South Ayrshire and extends broadly from the proposed Clauchrie Wind Farm in the north-east to Mark Hill Wind Farm Substation in the south-west. The study area takes in part of the western extents of the Galloway Forest Park and Dark Skies Park.

4.6 The landscape of the study area is largely defined by the upper southern fringes of the pastoral valley of the River Muck and the upland plateaus which include areas of open moorland and coniferous forest cover across the centre and south of the study area. The elevation range across the study area is from approximately 335m AOD, at Pindonnan Craigs to the north-east down to approximately 190m AOD, on the southern upper fringes of the Muck Water Valley.

4.7 There are no inhabited settlements or residential properties located within the study area. There is an abandoned property at Little Shalloch, to the north of the study area. There are also inhabited properties to the north of the study area (Mark) and to the south-east at Shalloch Well. The closest settlement is the village of Pinwherry, approximately 4km outside and to the west of the study area. The A714 and Glasgow South Western Railway runs to the west of the village.

4.8 In terms of existing development, Mark Hill Wind Farm extends across the elevated plateau, south of Garleffin Hill and largely forms the south-eastern boundary of the study area. An existing 275kV overhead line supported by steel lattice towers extends north-east to south-west along the northern slopes and forms the western study area boundary.

Planning Policy Context

Local and Strategic Planning Policy

4.9 The Statutory Development Plan for the study area consists of:

- The South Ayrshire Local Development Plan (LDP) (adopted September 2014).
- Statutory Supplementary Guidance.

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

4.11 The Council has adopted supplementary guidance which constitutes a material consideration, carrying the weight of the development plan. Non-statutory guidance is also available.

National Planning Policy

4.12 The Third National Planning Framework (NPF3)³, which was laid in the Scottish Parliament on 23rd June 2014, is the spatial expression of the Scottish Government's Economic Strategy and plans for infrastructure investment and development priorities over the next 20 to 30 years.

4.13 NPF3 strengthens the link between strategy and delivery through 14 national development priorities identified within Annex A. In relation to development priority number four of Annex A, 'An Enhanced High Voltage Electricity Network', the statement of need is as follows: *"These classes of development are needed to support the delivery of an enhanced high voltage electricity transmission grid which is vital in meeting national targets for electricity generation, statutory climate change targets, and security of energy supplies."*

4.14 In terms of the description of Classes of Development it includes, new or upgraded onshore electricity cabling of or in excess of 132kV. The OHL forming part of the Clauchrie Project constitutes national development. The need for the OHL is therefore established.

4.15 The updated Scottish Planning Policy (SPP)⁴ document was published in June 2014 and is a statement of Scottish Government policy on development and land use planning. Paragraph 156 states that *"strategic development plans should support national priorities for the construction or improvement of strategic energy infrastructure, including generation, storage, transmission and distribution networks."*

4.16 National Planning Framework 4 (NPF4) is currently being reviewed by the Scottish Government and will incorporate SPP to allow spatial and thematic policies to be addressed in one document. NPF4 will have development plan status which will place a stronger emphasis on NPF4 policies in decision-making. It is expected that NPF4 will provide improved alignment with wider national programmes and strategies, which will include infrastructure and economic investment in addition to addressing the meeting of targets relating to the reduction of greenhouse gas emissions.

4.17 A draft NPF4 is targeted to be laid before the Scottish Parliament in Autumn 2021, with final adoption in Spring 2022.

Identification and Mapping of Routeing Considerations

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

4.19 As the Holford Rules do not define what constitutes a major area (Rule 1), and the importance of the area is

³ The National Planning Framework (2014) available [online] at: <<http://www.gov.scot/Publications/2014/06/3539>>

⁴ Scottish Planning Policy available [online] at: <<https://beta.gov.scot/publications/scottish-planning-policy/pages/2/>>

irrespective of size, smaller areas of highest amenity value were also mapped at this stage alongside larger areas.

4.20 The Holford Rules do not identify which designated areas constitute areas of *highest amenity value*. However, SHETL clarification note b) (see **Appendix A**) states that areas of highest amenity value “*require to be established on a project-by-project basis considering Schedule 9 of the Electricity Act, 1989*”, and provides examples to be considered.

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

4.22 There are no ‘areas of highest environmental value’ (Holford Rule 1) located within the study area, and therefore national level designations have not been considered within this stage of the routeing process.

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

4.24 The SHETL note a) on Holford Rule 2 (see **Appendix A**) states these areas of “regional or local high amenity value” should be identified from Development Plans. For this routeing study, the other areas which have been considered are shown on **Figure 4.2** and include:

- Areas of native Woodland of Scotland (NWS) as defined by the National Woodland Survey of Scotland.
- Areas of National Forest Inventory (NFI).
- Areas of Class 1 priority peatland habitat as defined by the SNH Carbon Peatland Map (2016).

4.25 These have been mapped where present and treated as ‘avoid where possible’, or where not possible, ‘balance with other considerations’.

4.26 The South Ayrshire Scenic Area, as defined within the South Ayrshire Local Plan, covers a large part of the open western extents of the study area (not including the area around Mark Hill Substation). As this cannot be avoided during routeing it is considered during the appraisal of route options.

4.27 The Galloway Forest Park and Galloway Dark Skies Park covers the majority of the forested eastern extents of the

study area. As these areas cannot be avoided during routeing, they are considered during the appraisal of route options.

4.28 Within the study area there are three Historic Environment Records (HER)⁵. These are Little Shalloch (farmstead), Hay Ree/Little Shalloch and Little Shalloch (Building/enclosure) and are considered during the appraisal of route options. The Roughlee Burn Cairn lies just outside the study area and therefore has not been included.

4.29 The entire study area is within the Western Southern Uplands Environmentally Sensitive Area (ESA). It is therefore not possible to avoid the ESA, however the considerations outlined above will ensure that the objectives of the designation are not significantly affected. The ESA is therefore not shown on **Figure 4.2**.

4.30 Supplementary Note a) of the Rules relates to residential areas, stating “*avoid routeing close to residential areas as far as possible on grounds of general amenity*”.

4.31 There are no Settlements, defined as towns and villages identified within the Local Development Plan within the study area.

4.32 There are no currently inhabited residential properties located within the study area. Though Little Shalloch is currently uninhabited there is the potential for future inhabitation. Therefore, Little Shalloch will be treated as a property with a ‘trigger for consideration’. However, due to the current status, opportunities to route within this ‘trigger’ zone will be considered. Furthermore, a 100m ‘trigger for consideration zone’ has been applied. This is reduced from the 150m ‘trigger for consideration’ which is generally applied to inhabited properties across study areas, given the status of the property (uninhabited with potential for future habitation).

4.33 At this stage all operational wind farms, wind farms with consent and those with valid planning applications were also mapped as these form an environmental constraint to routeing as committed development and also as a technical constraint due to the requirement for a separation distance between turbines and the OHL. The existing Mark Hill turbines and proposed Clauchrie turbines were mapped with a tip height plus 10% buffer included as ‘avoid where possible’ constraint to routeing.

4.34 In addition to this, the ‘wake effect’ of wind turbines on overhead lines has been mapped through the application of a three times rotor diameter buffer being applied to the mapped turbine locations of the operational, consented and valid planning application wind farms. This is shown on **Figure 4.2**.

⁵ This data has been provided courtesy of PastMap. Available: <https://www.pastmap.org.uk/>

4.35 The existing OHLs, including the 275kV OHL (YY route), 132kV OHL (for Arecleoch wind farm) and underground cable (for Kilgallioch wind farm) and proposed 132kV Knockodhar OHL connection have been included as both environmental and technical constraints.

4.36 Furthermore, waterbodies including the Muck Water tributaries, the Shalloch Burn and tributaries, and the Roughlea Burn and tributaries have also been included as both an environmental and technical constraint.

Identification of Route Options

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

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

4.39 Following a desk-based mapping exercise to define potential route options based on the environmental and technical constraints, a site visit was undertaken by LUC's landscape architects in December 2020 to further refine the potential route options for taking forward to the appraisal stage.

Description of Route Options

4.40 The identified route options are shown in **Figure 4.3** and described below. **Figure 4.3a** illustrates the route options in the context of the routeing considerations.

Route Option 1

4.41 On departure from the proposed Clauchrie Substation, route option 1 travels in a north-westerly direction, through coniferous forest and to the north of a local high point at Pindonnan Craigs. It then turns to the south-west, continuing through coniferous forest and passing to the south of Little Shalloch (uninhabited) and crossing the forest track which provides access to Shalloch Wells. The route option continues in a south-westerly direction, passing over open moorland on the valley side above the Muck Water. Through this section the route option passes between the existing 275kV OHL and

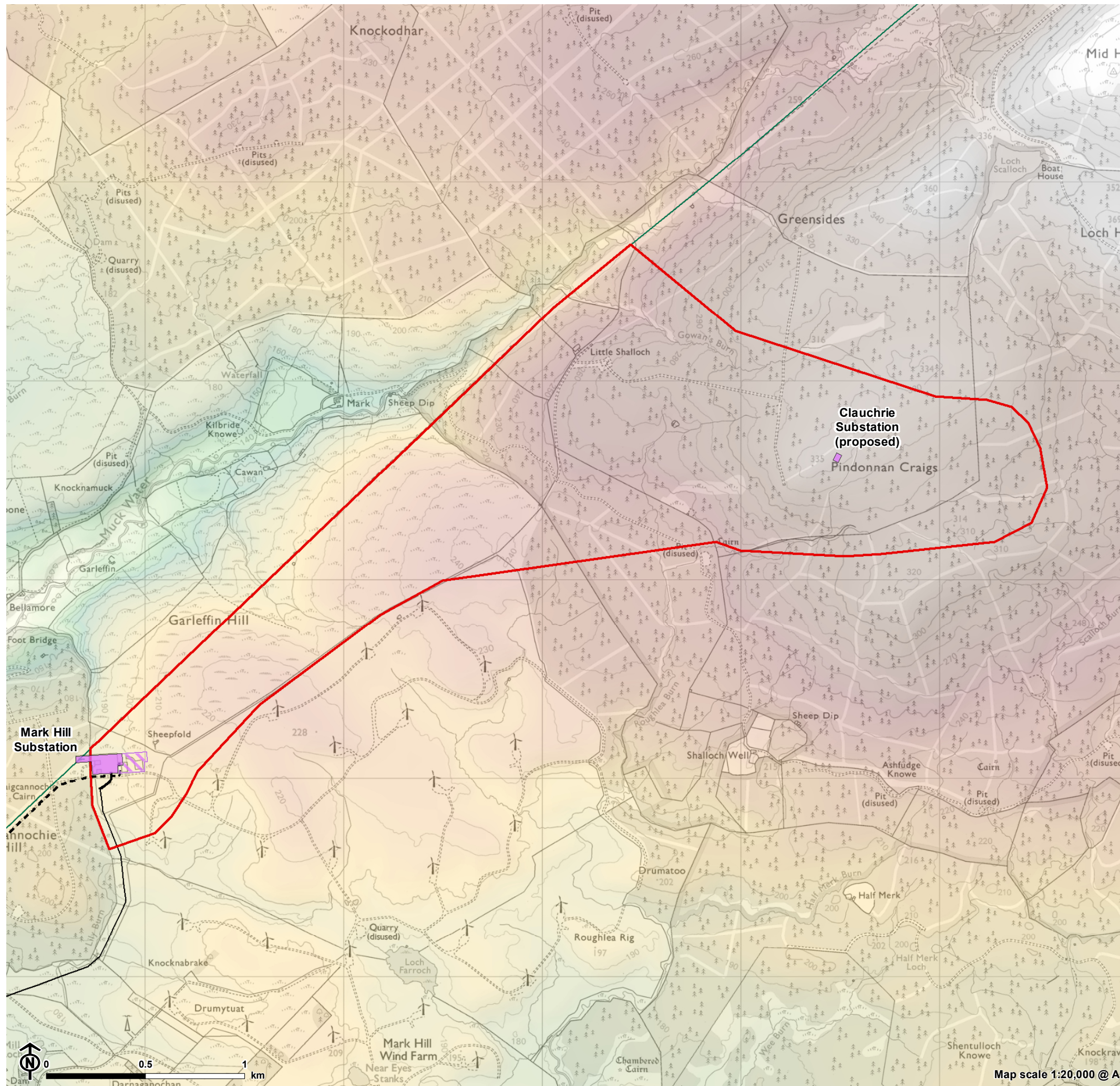
turbines on the north-western edge of Mark Wind Farm, before linking into Mark Hill Substation.

Route Option 2

4.42 On departure from the proposed Clauchrie Substation, route option 2 travels in a south-westerly direction, through coniferous forest and to the south of a local high point at Pindonan Craigs. It then continues to the west through coniferous forest and crossing the forest track which provides access to Shalloch Wells. The route option continues in a south-westerly direction, passing over open moorland on the valley side above the Muck Water following a similar alignment to route option 1, as it links into Mark Hill Substation.

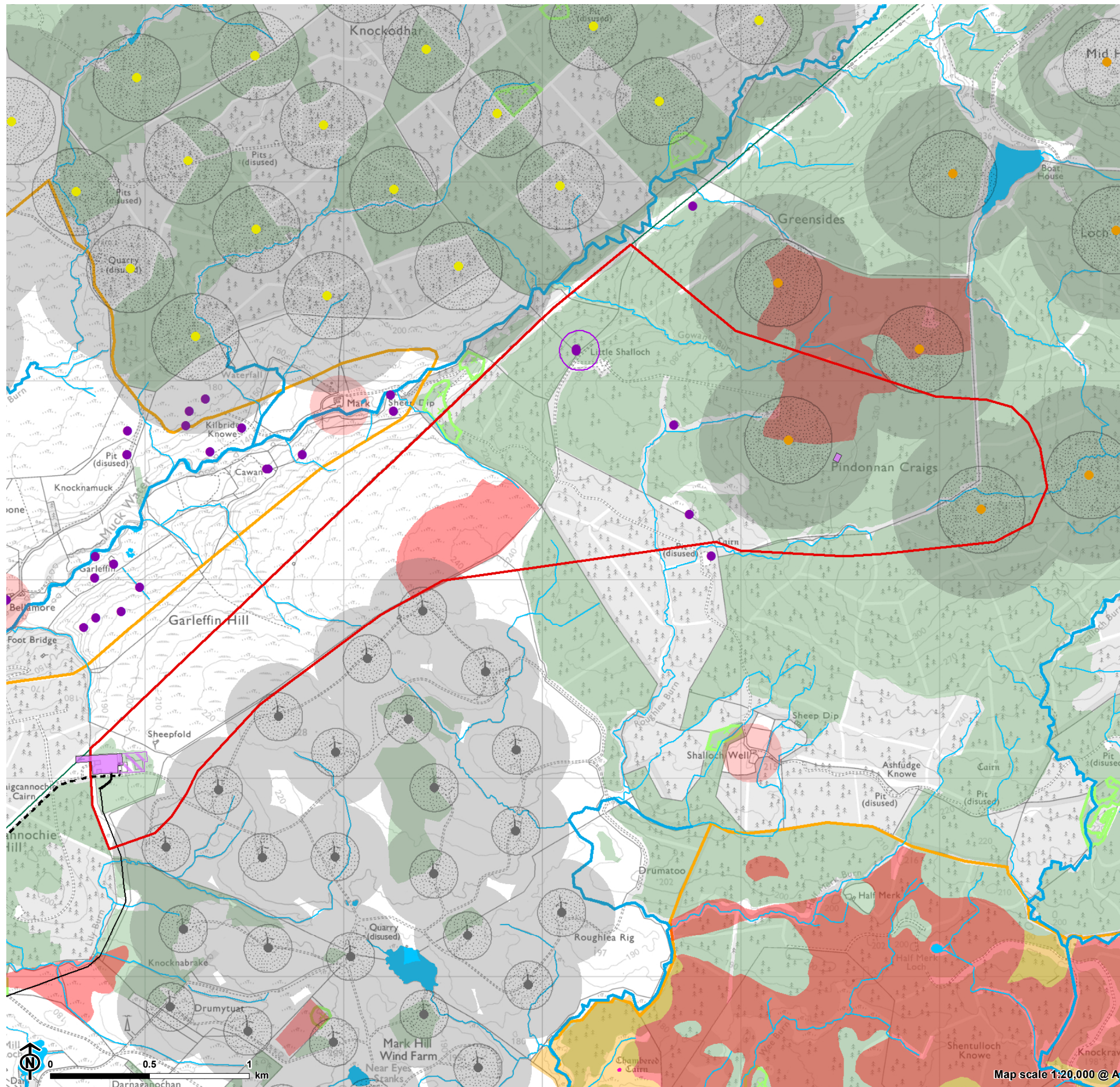
4.43 Both route options will require a section of underground cable to connect the OHL to the Mark Hill substation and will be approximately 500m in length.

Figure 4.1: Study Area



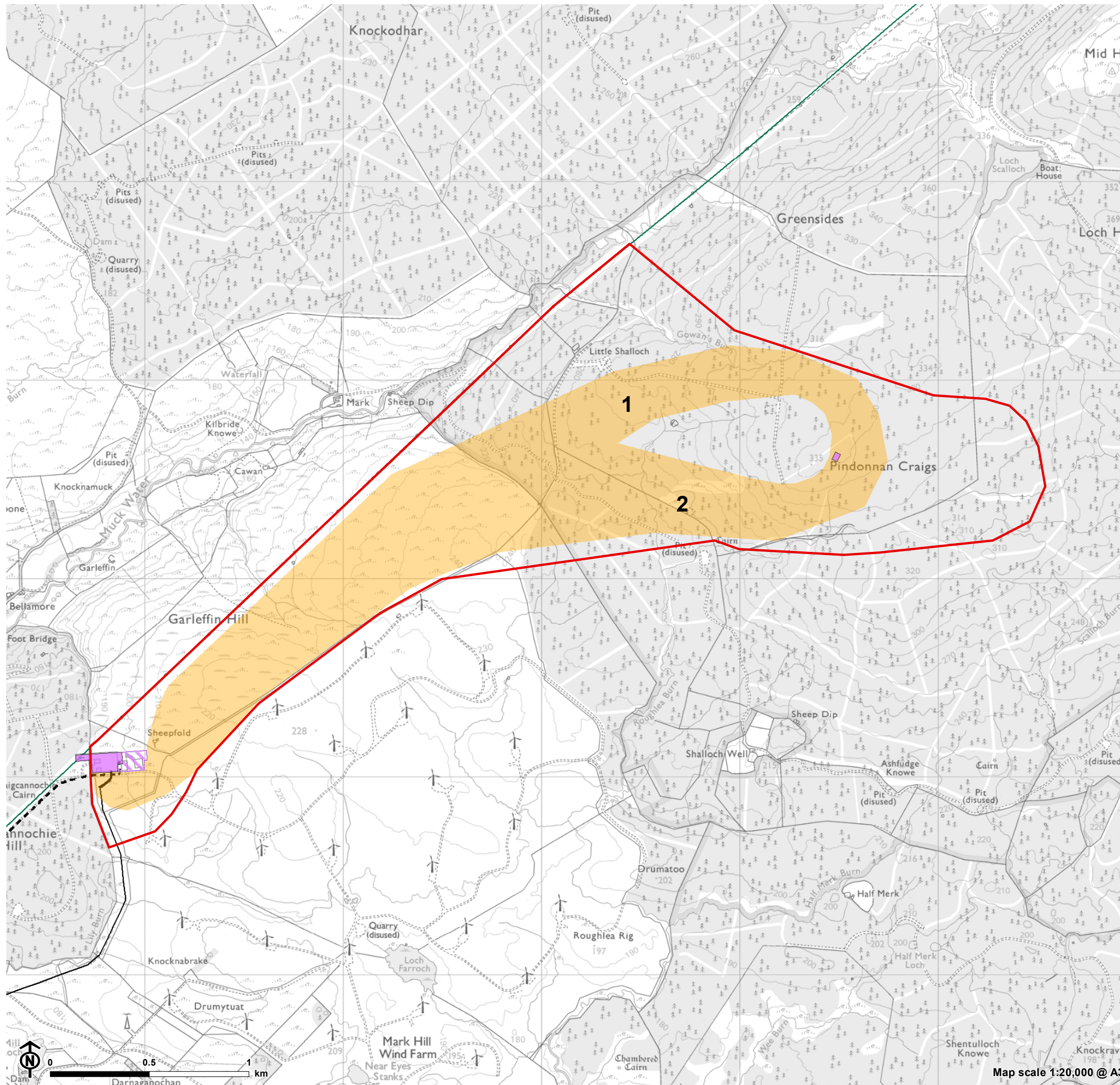
- Study area
 - Substation
 - Proposed Mark Hill Substation Extension
 - Existing 132kV overhead line (OHL)
 - Existing 275kV overhead line (OHL)
 - 132kV UGC
- Topography AOD**
- High : 400
 - Low : 50

Figure 4.2: Routeing Considerations



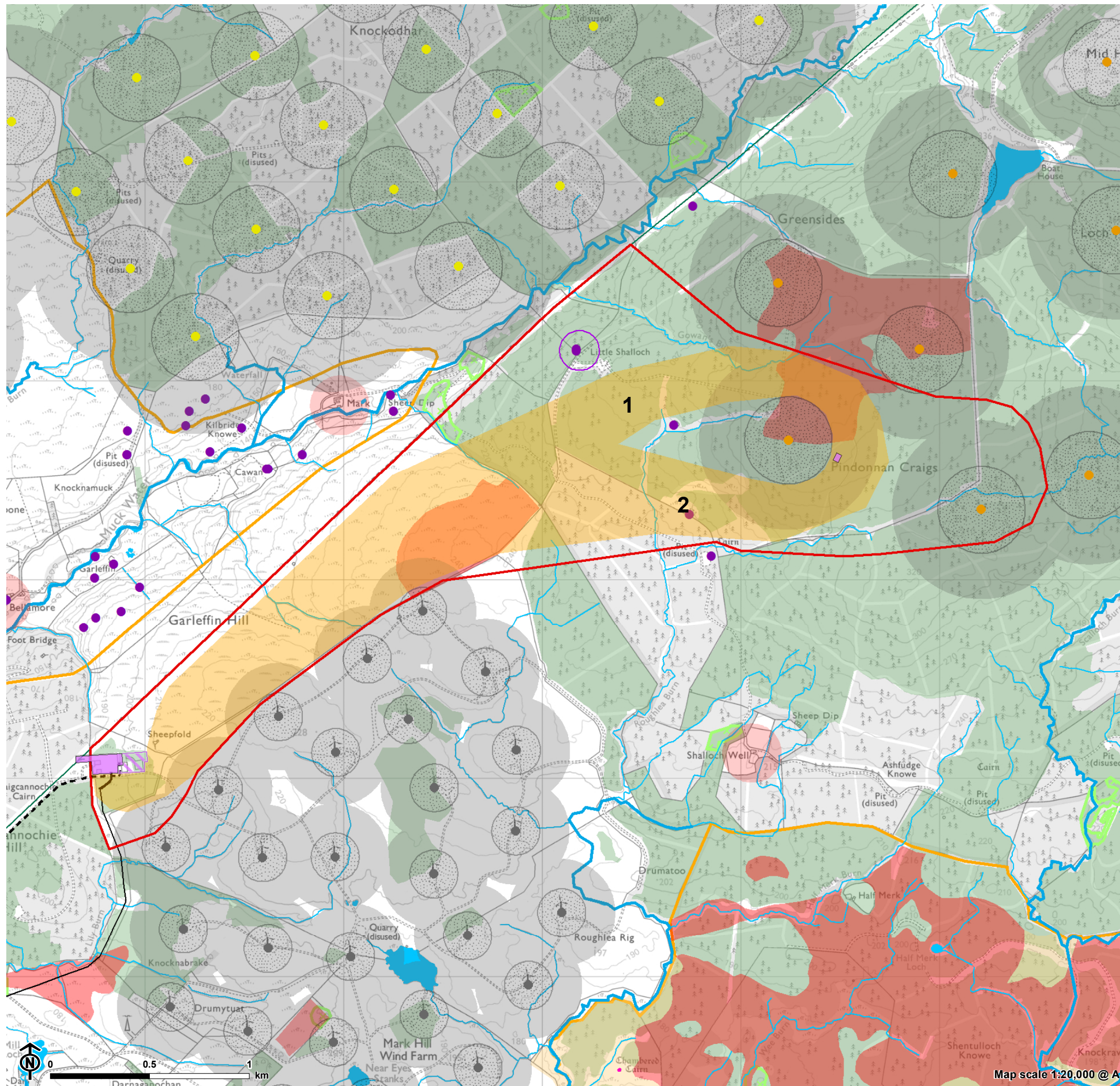
- Study area
 - Substation
 - Proposed Mark Hill Substation Extension
 - Existing 132kV overhead line (OHL)
 - Existing 275kV overhead line (OHL)
 - 132kV UGC
- Routeing Considerations**
- Scheduled Monument
 - Historic Environment Record
 - Carbon Peatland - Category 1
 - Carbon Peatland - Category 2
 - Local Nature Conservation Site
 - Native Woodland Survey of Scotland (NWSS)
 - National Forest Inventory (NFI)
 - Residential trigger for consideration 150m buffer
 - 100m trigger for consideration (uninhabited property)
 - Wind Turbine - Operational
 - Wind Turbine - Appeal/Public Inquiry
 - Wind Turbine - Design/Scoping
 - Turbine Topple Distance - Tip Height + 10%
 - 3 x Rotor Diameter (Wake Effect)
 - Watercourse

Figure 4.3: Route Options



- Study area
- Substation
- Proposed Mark Hill Substation Extension
- 132kV UGC
- Existing 132kV overhead line (OHL)
- Existing 275kV overhead line (OHL)
- Route Options

Figure 4.3a: Route Option 1 and 2



- Study area
 - Substation
 - Proposed Mark Hill Substation Extension
 - Existing 132kV overhead line (OHL)
 - Existing 275kV overhead line (OHL)
 - 132kV UGC
 - Route Options
- Routing Considerations**
- Scheduled Monument
 - Historic Environment Record
 - Carbon Peatland - Category 1
 - Carbon Peatland - Category 2
 - Local Nature Conservation Site
 - Native Woodland Survey of Scotland (NWSS)
 - National Forest Inventory (NFI)
 - Residential trigger for consideration 150m buffer
 - 100m trigger for consideration (uninhabited property)
 - Wind Turbine - Operational
 - Wind Turbine - Appeal/Public Inquiry
 - Wind Turbine - Design/Scoping
 - Turbine Topple Distance - Tip Height + 10%
 - 3 x Rotor Diameter (Wake Effect)
 - Watercourse

Chapter 5

Appraisal of Route Options

Approach to Appraisal of Route Options

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

5.2 As outlined in the Routeing Strategy, where the characteristics of the study area were such that they required to be balanced to enable the overarching Routeing Objective to be met, professional judgement, informed by both desk studies and field work, and reflecting the Holford Rules, was employed to identify the preferred route. This professional judgement was made on a case by case basis.

5.3 The process also sought to:

- continue to reflect the overall Routeing Objective and Routeing Strategy;
- continue to reflect SPEN's Approach to Routeing and EIA document;
- continue to reflect the Holford Rules for Routeing Overhead Transmission Lines; and
- draw out distinctions between the routes to enable the relative strengths and weaknesses of each to be identified.

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

- identification of appraisal criteria, together with their reasoning for inclusion;
- application of appraisal criteria to each route option, following the appraisal methodology;
- comparative appraisal of route options to identify a preferred route;
- SPEN technical review, reflecting system design requirements (**Chapter 6**); and
- cumulative appraisal with other OHL connections within the study area.

Appraisal Criteria

5.5 Based on the established practice for overhead line routeing and the routeing considerations for the project, the

route options were appraised using the following criteria, which continue to reflect the key considerations of the routeing methodology:

- Length of Route;
- Landscape and Visual Amenity;
- Hydrology,
- Forestry;
- Biodiversity and Geological Conservation;
- Cultural Heritage; and
- Land Use.

5.6 The reasoning for the use of these criteria and an outline of the methodology for appraising each route option is set out below.

Length of Route Option

5.7 Holford Rule 3 states that “other things being equal choose the most direct line”. Although this rule primarily relates to avoiding sharp changes in direction, and therefore the need for more visually intrusive angle poles, choosing the most direct route may result in fewer adverse effects, than a longer, less direct route (taking due consideration of other constraints).

Landscape and Visual Amenity

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

5.9 The NatureScot (formerly SNH) digital map-based national Landscape Character Assessment (published in 2019) has been used as the basis for determining the susceptibility of Landscape Character Types (LCTs) across the study area. This was supplemented by information contained within published landscape capacity studies and observations made during fieldwork to appraise the relative landscape ‘fit’ of each route option.

5.10 The LCTs found across the study area are shown on **Figure 5.1**. The study area is contained within the Plateau Moorland – Ayrshire Landscape Character Types (LCT). This LCT is characterised by extensive areas of gently undulating heather and grass moorland (which is apparent across the western extents of the study area) and coniferous forest (which is apparent across the eastern extents of the study area). The landscape susceptibility of this LCT across the study area is judged to be of medium-low susceptibility. A

local level landscape designation covers parts of the western extents of the study area, indicating a medium value. The overall landscape sensitivity across the study area is judged to be medium-low. Both route options follow a similar alignment in the western extents of the study area, and pass through similar landscapes in the eastern extents of the study area.

5.11 There are no landscape designations comprising ‘areas of highest environmental value’ (Holford Rule 1) within the study area. However, landscape areas of ‘high’ environmental value (Holford Rule 2), afforded landscape designation and protection at a local level (i.e. the South Ayrshire Scenic Area), covers much of the western extents of the study area, as shown on **Figure 5.2**.

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

5.13 In relation to residential visual amenity, there are no properties which are currently inhabited within the study area. There is a single uninhabited property (Little Shalloch) to the north-east of the study area. For this building a 100m ‘trigger for consideration zone’ has been applied (see **Figure 4.2**). This is reduced from the 150m ‘trigger for consideration’ which is generally applied to inhabited properties across study areas, given the status of the property (uninhabited with potential for future habitation).

5.14 Consideration was also given to tourism receptors such as promoted/ key recreational viewpoints and promoted routes such as core paths. No OS promoted viewpoints, Sustrans routes, core paths, long distance trails or known tourist attractions are within the study area. The eastern extent of the study area is located within the Galloway Forest Park and Galloway Dark Skies Park and this was therefore taken into consideration (as shown on **Figure 5.2**).

Hydrology

5.1 In relation to potential conflicts with policy relating to flooding and to avoid potential increase to flood risk, SEPA flood zones were mapped using GIS. There are no flood zones identified within the study area.

5.2 The waterbodies/watercourses, which the route options cross, or are in proximity to were also considered during the appraisal process.

Forestry

5.3 Forest areas within each of the route options were identified through the use of aerial photography, combined

with digital data available from, NatureScot (formally SNH) and Scottish Forestry (SF) sources.

5.4 These forests were then divided into three groupings:

1. Conifer forest (NFI).
2. Ancient and Semi Natural Woodland sites (ASNW).
3. Native Woodlands from the Native Woodland Survey of Scotland (NWSS).

5.5 No areas of ASNWI are found within the Study Area. A small area of NWSS adjoins the study area on the western edge, however this is outwith the route option. The appraisal therefore only considers conifer forest (represented by the NFI dataset and verified onsite).

5.6 Appraisal against the forestry criterion comprised analysis of the extent and location of the conifer forest within the route options to identify net areas. Based on 2018 NFI data, the approximate forestry loss associated with Route Option 1 is 13.16ha, with Route Option 2 resulting a loss of approximately 6.66ha.

5.7 In general terms, the objective in identifying a preferred route is based on identifying the lowest impact for the conifer forest. This reflects the importance of the regional resource of this woodland type and as such, the implications of the proposed removal of this type of forest within the wayleave (area of forestry felled to accommodate the OHL).

5.8 Further consideration will also be given to minimising impacts on forestry at the route alignment stage, taking account of the need to create long term stable forest edges and to minimise impacts on any forestry management practices. During the alignment/Environmental Appraisal stage consideration will be given to conifer forest through:

- taking account of existing, and planned, windfarm boundaries to minimise sterilisation of commercial woodland areas and reduce the requirements for additional felling outwith the wayleave; and
- taking account of forest design plans and liaising with forestry owners/managers to avoid, or reduce restrictions on forest management operations/techniques e.g. maintaining access to woodland blocks for harvesting/safety; and identification of opportunities to retain and/or plant particularly lower growing shrub species within the wayleave.

Biodiversity and Geological Conservation

5.9 There are no international or national designations (Ramsar, SPA, SAC and SSSI) within the study area (there are only regional/local designated sites which are outlined below).

5.10 The appraisal takes into account the Western Southern Uplands Environmentally Sensitive Area.

5.11 The presence of NatureScot (formally SNH) Priority Peatland Habitats (Class 1 and 2 peatlands) was also taken into account during the appraisal.

Cultural Heritage

5.12 There are no Scheduled Monuments, Listed Buildings, and Unscheduled Archaeology of likely National Importance within the study area. On this basis, the appraisal focusses on Unscheduled Archaeology of regional and local significance.

5.13 Potential effects of the OHL proposal on the setting of cultural heritage assets, have been assessed by initially identifying assets within 500m of the route option, and 'screening' the assets using professional judgement to identify and appraise assets with the potential to experience an effect on their setting.

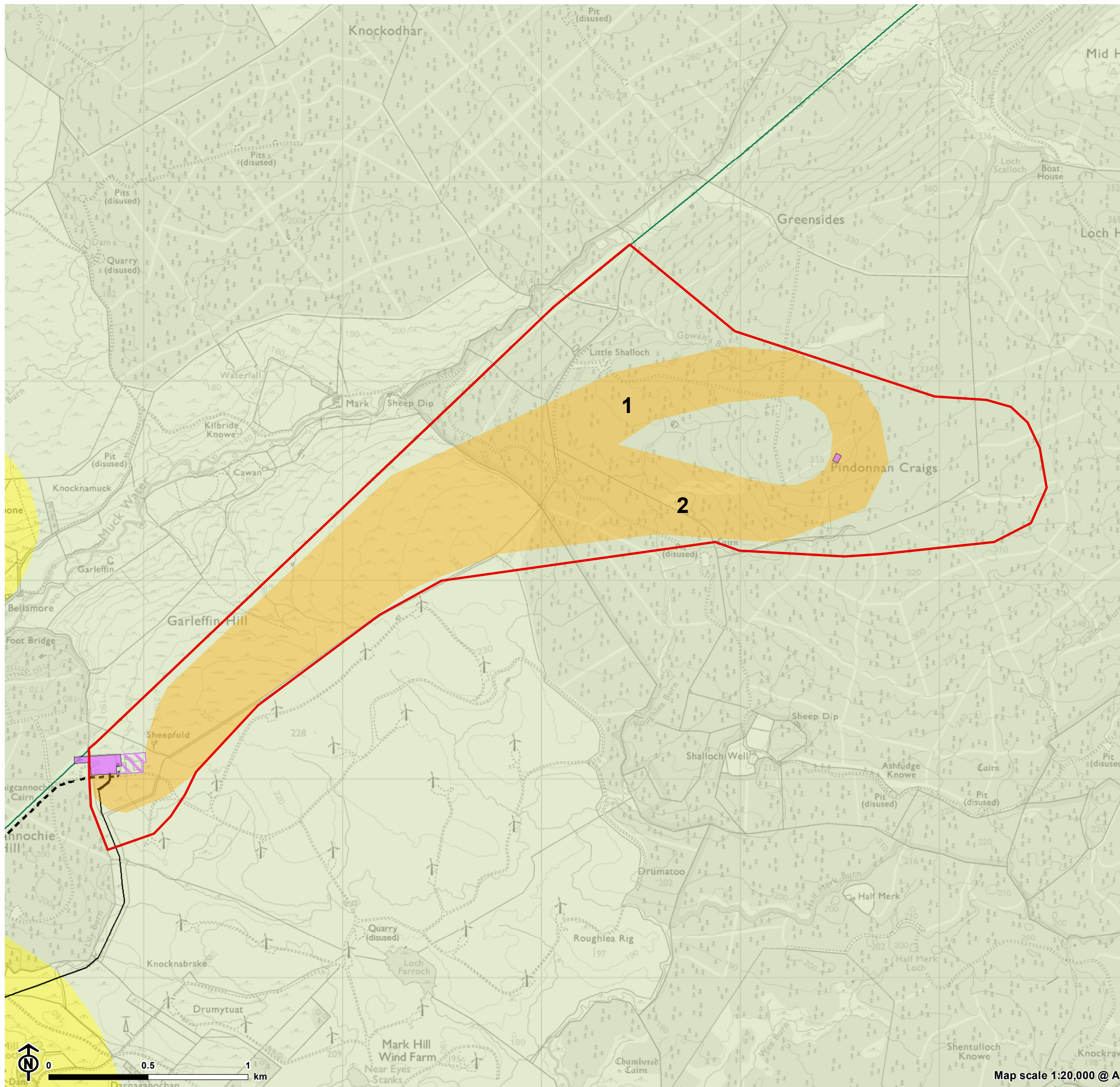
5.14 WoSAS (the provider of the HER data for the area), were contacted for data for route options appraisal on 5th October 2020 but had not yet replied at the time of report preparation, therefore the online mapping <https://www.wosas.net/mapsearch.html> and Historic Environment Scotland's <https://pastmap.org.uk/> were used and accessed on 2nd February 2021.

Land Use

5.15 When appraising the route options, where a route was located within proximity to committed development, the implications of this for the alignment and/or subsequent environmental appraisal stage were highlighted. Existing and consented wind farms were also considered at this stage, with a 'trigger for consideration' zone of three times the rotor diameter placed around all turbines to account for the wake effect from the wind generated by the turbines as this can impact the OHL conductors, if they are within the horizontal wind rose. A 'trigger for consideration' zone of the tip height plus 10% buffer was also placed around all turbines.

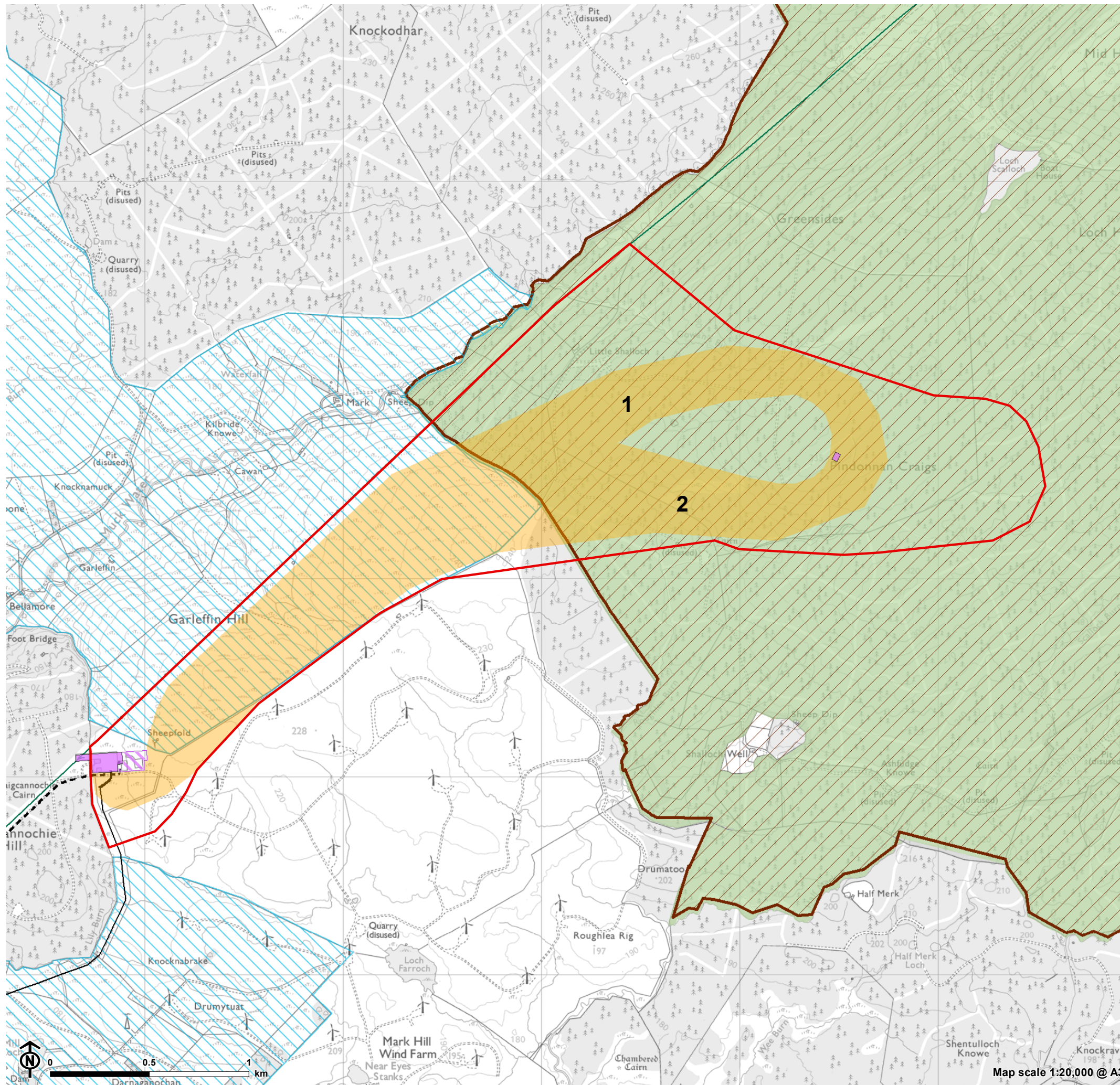
5.16 Committed development data has been obtained from South Ayrshire Council using the online planning portal (<https://www.south-ayrshire.gov.uk/planning/applications.aspx>) to review live applications and consents. This was accessed on 3rd February 2021. A consented met mast lies within the eastern extents of the study area near the Clauchrie Wind Farm substation; it is unclear from the Council planning portal and Google maps whether this mast was installed. Further to this, and with the exception of the existing Mark Hill Wind Farm and the proposed Clauchrie Wind Farm turbines, no areas of committed development within or in close proximity to the route options were identified.

Figure 5.1: Landscape Character Types

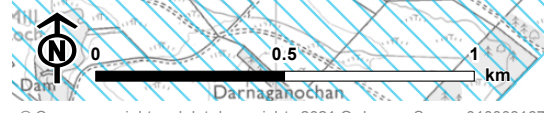


- Study area
 - Substation
 - Proposed Mark Hill Substation Extension
 - Existing 132kV overhead line (OHL)
 - Existing 275kV overhead line (OHL)
 - 132kV UGC
 - Route Options
- Landscape Character Types (NatureScot 2019)**
- Pastoral Valleys
 - Plateau Moorland

Figure 5.2: Local Landscape Designations



- Study area
 - Substation
 - Proposed Mark Hill Substation Extension
 - Existing 132kV overhead line (OHL)
 - Existing 275kV overhead line (OHL)
 - 132kV UGC
 - Route Options
- Local Landscape Designations**
- Scenic Areas South Ayrshire
 - Dark Skies Park - Dumfries and Galloway
 - Galloway Forest Park



Map scale 1:20,000 @ A3

Chapter 6

Appraisal Findings

6.1 The emerging preferred route for the 132kV overhead line (OHL), i.e. the preference taking account of environmental considerations only, is **Route Option 2**. Route Option 2 is the shortest route and has the best potential, relative to Route Option 1, to minimise visual effects on residential receptors and effects on the wider landscape during the route alignment stage of the Clauchrie 132kV Connection Project. This is, however, a finely balanced judgement as there is very little in landscape and visual terms between the two route options.

6.2 Route Option 2 also has the potential, relative to Route Option 1, to minimise effects on biodiversity as Route Option 2 has the potential to avoid Class 1 Priority Peatland Habitat. Route Option 2 is of equal preference in terms of land use and forestry.

6.3 Route Option 2 does, however, require crossing a greater number of watercourses in comparison to Route Option 1 where more crossings can be avoided through design. Therefore, the route alignment of the OHL and construction processes will be required to avoid/minimise the hydrological effects on these watercourses. The alignment of the OHL and construction processes will also need to consider a non-designated heritage asset which is located within Route Option 2.

6.4 The detailed appraisal findings are included in **Appendix B**.

Technical Review of Emerging Preferred Route Option

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

- **Altitude;**
- **Topography** (particularly slopes greater than 22 degrees however, slopes that were not greater than 22 degrees but steep in nature were also considered as these could be less favourable for routing);

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

6.6 Potential technical risks identified within the SPEN technical review for both Route Options 1 and 2 include altitudes $\geq 200\text{m} \leq 500\text{m}$ Above Ordnance Datum (AOD) with some minor sections of steeper slopes >11 degrees, proximity to the Clauchrie Wind Farm turbines (route option 1 passing north in proximity to potentially three turbines and route option 2 heading south around one turbine) and proximity to Mark Hill Wind Farm turbines.

6.7 Overall, the technical review confirmed that both route options were very similar from a technical perspective. Therefore, the technical review confirmed the emerging preferred route could be progressed to the cumulative appraisal stage as outlined below.

Consideration of Cumulative Effects of Emerging Route Option Preference

6.8 As set out in **Chapter 3**, the routeing process takes cognisance of other OHL connections which share the project study area. When considering more than one project, combined or cumulative effects can arise from the concentration of effects in one area or the distribution of effects across a wider area. It is therefore necessary to find an appropriate balance using professional judgement and experience.

6.9 The 275kV interconnector (YY Route) defines the north-western extents of the study area. In conjunction with the Clauchrie 132kV Connection Project, SPEN are currently progressing the routeing and consultation strategy for the Knockodhar 132kV Connection Project. Both projects will

connect into the Mark Hill substation extension and will be consulted on at the same time.

6.10 Following technical confirmation of the emerging route preference, an environmental review was undertaken to consider the existing 275kV OHL and Knockodhar OHL in combination with the emerging preferred Route Option 2.

6.11 The environmental review found that the emerging preferred route would run broadly parallel to the south of the existing 275kV OHL, across the more open moorland to the west of the study area. It is likely that cumulative interactions with the proposed Knockodhar 132kV Connection Project would be localised in the area where both OHLs will link into the Mark Hill Substation extension to the west of the study area.

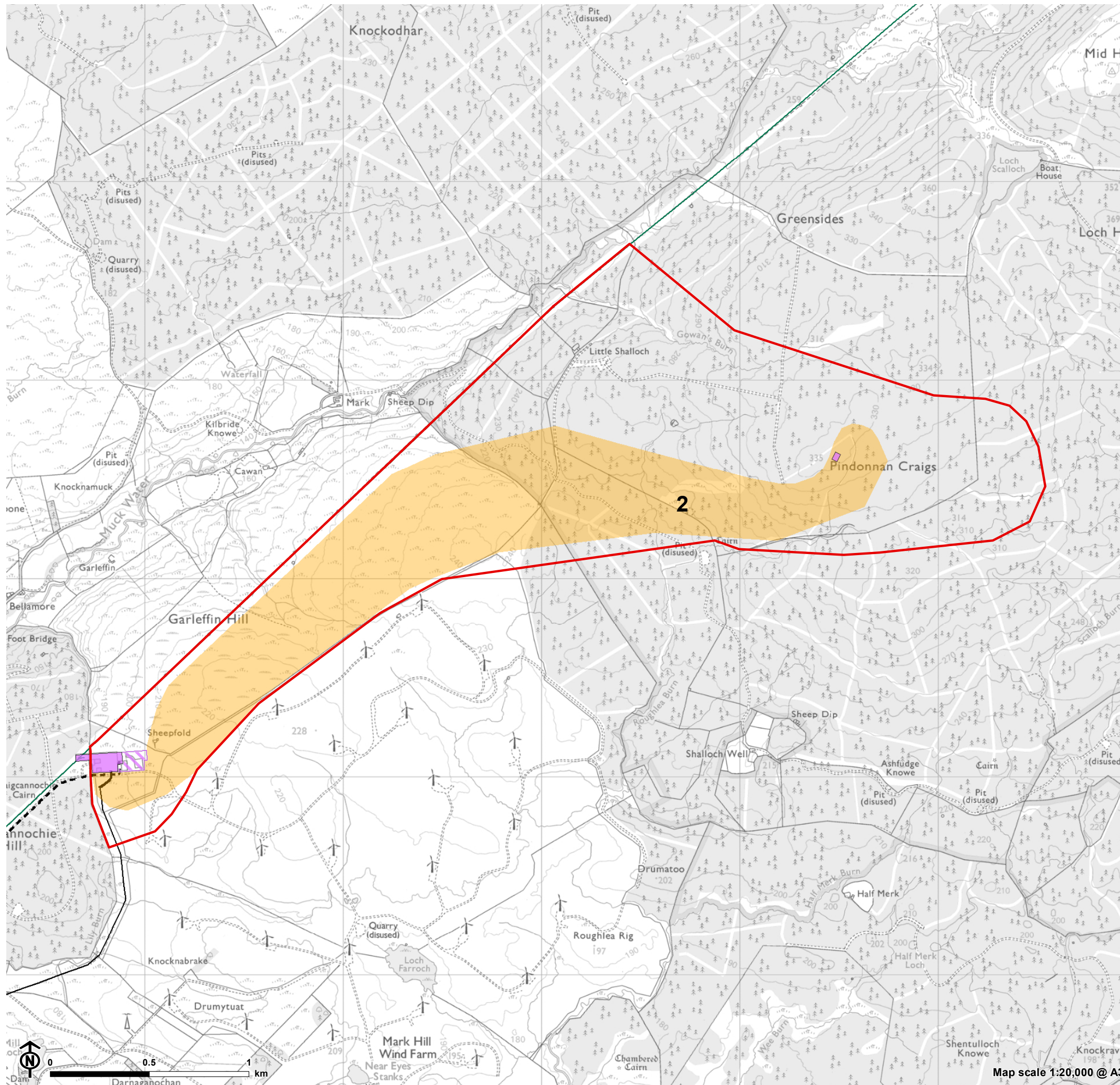
6.12 Overall, there are no likely significant cumulative effects which will prevent Route Option 2 from being progressed further. Cumulative effects will, however, continue to be considered, and assessed where appropriate, throughout the alignment and environmental appraisal stages.

Conclusion

6.13 In accordance with the overarching project routeing strategy, the selection of the preferred route has primarily reflected the findings of the landscape and visual appraisal, subject to avoiding areas of highest amenity value. This is on the basis that the routeing stage comprises the most effective way of avoiding and/or minimising potential landscape and visual effects, whereas effects on other environmental characteristics such as biodiversity can be more readily minimised during the route alignment stage (and potentially through adoption of mitigation measures).

6.14 On this basis, the environmental and technical appraisal undertaken as part of the routeing process has identified a continuous 132kV OHL route which meets the project routeing objective. The preferred route is confirmed as **Route Option 2** and is shown in **Figure 6.1**. The preferred route, along with the alternative route option considered, form the basis of this round of consultation with stakeholders and the public. Further details in relation to the consultation process are provided in **Chapter 7**.

Figure 6.1: Preferred Route



- Study area
- Substation
- Proposed Mark Hill Substation Extension
- Existing 132kV overhead line (OHL)
- Existing 275kV overhead line (OHL)
- 132kV UGC
- Preferred Route**
- Route Option 2

Chapter 7

Consultation Process and Next Steps

The Consultation Process

7.1 As set out in **Chapter 1**, SPEN will apply to the Scottish Ministers for consent to install and keep installed the new 132kV overhead electricity line, supported on wood poles, from the proposed Clauchrie Wind Farm (WF) substation to the proposed 132kV collector substation extension at Mark Hill under Section 37 of the Electricity Act 1989. SPEN will also apply for deemed planning permission for the line and associated works under Section 57(2) of the Town and Country Planning (Scotland) Act 1997. While there are no formal pre-application requirements for consultation in seeking section 37 consent/deemed planning permission, SPEN is embracing best practice as outlined in the *Scottish Government Energy Consents Unit's Best Practice Guidance (January 2013)*. This guidance encourages applicants to engage with stakeholders and the public in order to develop their proposals in advance of such applications being made.

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

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

7.4 As set out in **Chapter 6**, SPEN will also be undertaking consultation for the Knockodhar 132kV Connection Project at the same time as the Clauchrie 132kV Connection Project.

Consultation Strategy

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

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

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

7.8 As part of the consultation strategy, SPEN will be holding virtual exhibitions for the public, stakeholders and consultees. Details of the consultation process are set out below.

Consultation Launch and Duration

7.9 The consultation will run for four weeks from May 17th until June 14th 2021.

7.10 Prior to the consultation, an advert will appear in the Ayr Advertiser (a local weekly newspaper) on Tuesday 4th May 2021. The advert provides information on the project, where and when the consultation will take place and confirms that comments received at this stage are informal comments to SP Energy Networks, with the opportunity to comment formally to the Energy Consents Unit (ECU) available once an application has been submitted to them. A copy of the advertisement text to be publicised in the local newspaper is provided in **Appendix C**.

7.11 Leaflets have also been distributed to local properties which are located within 5km of the study area. The leaflet distributed is contained in **Appendix D**.

7.12 The closing date for sending responses to SPEN will be midnight on Monday 21st June 2021. Following this date, the information will remain accessible online (on the project website) and available to download (from the project website and the online virtual exhibition).

Consultees

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

- statutory and non-statutory consultees, including community councils;
- known local interest and community groups operating in South Ayrshire Council area;
- elected members of South Ayrshire Council area, the Member of Parliament (MP) and Members of the Scottish Parliament (MSPs) whose constituencies are within in the South Ayrshire Council area; and
- local residents, businesses and the public in general.

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

The Focus of the Consultation

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

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

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

Sources of Information about the Consultation

7.17 The principal source of information regarding the consultation will comprise the Clauchrie 132kV Connection Project website and the online virtual exhibition.

Project Website

7.18 The website www.spenergynetworks.co.uk/ClauchrieOHL will contain publicly available consultation documents for viewing or download.

Online Virtual Exhibition

7.19 Given the current social distancing restrictions due to the Covid-19 pandemic, it has not been possible to hold in-person public exhibitions. Therefore, as a form of good practice, SPEN will hold a virtual public from May 17th 2021 – 14th June 2021 as an alternative to face-to-face consultation. Although this is not a statutory consultation requirement, it remains in line with recent Scottish Government Guidance⁶.

7.20 The online exhibition will include a series of information boards outlining details of the Clauchrie 132kV Connection Project. The information on the Clauchrie 132kV Connection Project will also be available to download as a pdf.

⁶ Scottish Government, 2020, 'Covid 19 Emergency and Pre-Application Consultation and Requirements for a Public Event', Available [online] at: <https://www.gov.scot/publications/coronavirus->

[covid-19-planning-guidance-on-pre-application-consultations-for-public-events/](https://www.gov.scot/publications/coronavirus-covid-19-planning-guidance-on-pre-application-consultations-for-public-events/)

7.21 Visitors to the online exhibition will have the opportunity to provide feedback by completing an online questionnaire or contacting SPEN via the project email clauchrieOHL@spenergynetworks.co.uk.

How People can make a Comments

7.22 People will be able to submit comments:

- at the virtual exhibition via the online survey and questionnaire;
- by email.

At the Virtual Exhibition

7.23 Visitors to the online exhibition will have the opportunity to provide feedback by completing an online survey and questionnaire. The closing date for sending responses will be midnight on Monday 21st June 2021. Following this date, the information will remain accessible online and available to download.

Email

7.24 SPEN will also accept comments relating to the specific focus of this round of consultation by e-mail to ClauchrieOHL@spenergynetworks.co.uk no later than midnight on Monday 21st June 2021.

Next Steps: Route Alignment and Environmental Appraisal

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

7.26 The proposed route will then progress to identify an OHL alignment, including individual pole positioning which will be informed by the Environmental Appraisal⁷, detailed engineering ground surveys and discussions with landowners. This alignment, including all ancillary development will be included in the application for Section 37 Consent and deemed planning permission.

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

⁷ Subject to the Scottish Ministers confirming the Project does not require an EIA.

Appendix A

The Holford Rules and SHETL Clarification Notes

The Holford Rules: Guidelines for the Routeing of New High Voltage Overhead Transmission Lines (with NGC 1992 and SHETL 2003 Notes)

Rule 1

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

Note on Rule 1

- a. Investigate the possibility of alternative routes, avoiding altogether, if possible major areas of highest amenity value. The consideration of alternative routes must be an integral feature of environmental statements. If there is an existing transmission line through a major area of highest amenity value and the surrounding land use has to some extent adjusted to its presence, particularly in the case of commercial forestry, then effect of remaining on this route must be considered in terms of the effect of a new route avoiding the area.
- b. Areas of highest amenity value require to be established on a project-by-project basis considering Schedule 9 to The Electricity Act 1989, Scottish Planning Policies, National Planning Policy Guidelines⁸, Circulars and Planning Advice Notes and the spatial extent of areas identified.

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

*Special Area of Conservation (NPPG 14)*⁹

*Special Protection Area (NPPG 14)*¹⁰

*Ramsar Site (NPPG 14)*¹¹

*National Scenic Areas (NPPG 14)*¹²

*National Parks (NPPG 14)*¹³

*National Nature Reserves (NPPG 14)*¹⁴

*Protected Coastal Zone Designations (NPPG 13)*¹⁵

*Sites of Special Scientific Interest (SSSI) (NPPG 14)*¹⁶

*Schedule of Ancient Monuments (NPPG 5)*¹⁷

*Listed Buildings (NPPG 18)*¹⁸

*Conservation Areas (NPPG 18)*¹⁹

*World Heritage Sites (a non-statutory designation) (NPPG 18)*²⁰

*Historic Gardens and Designed Landscapes (a non-statutory designation) (NPPG 18)*²¹

⁸ The National Planning Policy Guidelines ("NPPG") have been superseded by the Scottish Planning Policy ("SPP") published on 23 June 2014. The references to the relevant equivalent paragraphs of the SPP are noted.

⁹ Now noted in SPP paragraph 207.

¹⁰ Now noted in SPP paragraph 207.

¹¹ Now noted in SPP paragraph 211.

¹² Now noted in SPP paragraph 212.

¹³ Now noted in SPP paragraph 212.

¹⁴ Now noted in SPP paragraph 212.

¹⁵ Now noted in SPP paragraph 87.

¹⁶ Now noted in SPP paragraphs 211-212.

¹⁷ Now noted in SPP paragraph 145.

¹⁸ Now noted in SPP paragraph 141.

¹⁹ Now noted in SPP paragraph 143.

²⁰ Now noted in SPP paragraph 147.

²¹ Now noted in SPP paragraph 148.

Rule 2

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

Note on Rule 2

- a. *Small areas of highest amenity value not included in Rule 1 as a result of their spatial extent should be identified along with other areas of regional or local high amenity value identified from development plans.*
- b. *Impacts on the setting of historic buildings and other cultural heritage features should be minimised.*
- c. *If there is an existing transmission line through an area of high amenity value and the surrounding landuses have to some extent adjusted to its presence, particularly in the case of commercial forestry, then the effect of remaining on this line must be considered in terms of the effect of a new route deviating around the area.*

Rule 3

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

Note on Rule 3

- a. Where possible choose inconspicuous locations for angle towers, terminal towers and sealing end compounds.
- b. Too few angles on flat landscape can also lead to visual intrusion through very long straight lines of towers, particularly when seen nearly along the line.

Rule 4

Choose tree and hill backgrounds in preference to sky backgrounds, wherever possible; and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees.

Rule 5

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

Notes on Rules 4 and 5

- a. Utilise background and foreground features to reduce the apparent height and domination of towers from main viewpoints.
- b. Minimise the exposure of numbers of towers on prominent ridges and skylines.
- c. *Where possible follow open space and run alongside, not through woodland or commercial forestry, and consider opportunities for skirting edges of copses and woods. Where there is no reasonable alternative to cutting through woodland or commercial forestry, the Forestry Commission Guidelines should be followed (Forest Landscape Design Guidelines, second edition, The Forestry Commission 1994 and Forest Design Planning – A Guide to Good Practice, Simon Bell/The Forest Authority 1998).*

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

Rule 6

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

Note on Rule 6

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

Rule 7

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

Note on Rule 7

- a. When a line needs to pass through a development area, route it so as to minimise as far as possible the effect on development.
- b. Alignments should be chosen after consideration of impacts on the amenity of existing development and on proposals for new development.
- c. When siting substations take account of the impacts of the terminal towers and line connections that will need to be made and take advantage of screening features such as ground form and vegetation.

Explanatory Note on Rule 7

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

Supplementary Notes

a. Residential Areas

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

b. Designations of Regional and Local Importance

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

c. Alternative Lattice Steel Tower Designs

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

FURTHER NOTES ON CLARIFICATION TO THE HOLFORD RULES

Line Routeing and People

The Holford Rules focused on landscape amenity issues for the most part. However, line routeing practice has given greater importance to people, residential areas etc.

The following notes are intended to reflect this.

- a. Avoid routeing close to residential areas as far as possible on grounds of general amenity.
- b. In rural areas avoid as far as possible dominating isolated house, farms or other small-scale settlements.
- c. Minimise the visual effect perceived by users of roads, and public rights of way, paying particular attention to the effects of recreational, tourist and other well used routes.

Supplementary Notes on the Siting of Substations

- a. Respect areas of high amenity value (see Rule 1) and take advantage of the containment of natural features such as woodland, fitting in with the landscape character of the area.
- b. Take advantage of ground form with the appropriate use of site layout and levels to avoid intrusion into surrounding areas.
- c. Use space effectively to limit the area required for development, minimizing the impacts on existing land use and rights of way.
- d. Alternative designs of substation may also be considered, e.g. 'enclosed', rather than 'open', where additional cost can be justified.
- e. Consider the relationship of tower and substation structures with background and foreground features, to reduce the prominence of structures from main viewpoints.
- f. When siting substations take account of the impacts of line connections that will need to be made.

INTERPRETATION OF THE HOLFORD RULES 1 AND 2 AND THE NOTES TO RULE 2 REGARDING THE SETTING OF A SCHEDULED ANCIENT MONUMENT OR A LISTED BUILDING

1. Interpretation of The Holford Rules 1 and 2

1.1. Introduction

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

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

1.2. Designations

Since 1949 a framework of statutory measures has been developed to safeguard areas of high landscape value and nature conservation interest. In addition to national designations, European Community Directives on nature conservation, most notably through Special Areas of Conservation under the Habitats and Species Directive (92/43/EC) and Special Protection Areas under the Conservation of Wild Birds Directive (79/409/EEC) have been implemented. Governments have also designated a number of Ramsar sites under the Ramsar Convention on wetlands of International Importance (CM6464). Scottish Office circulars 13/1991 and 6/1995 are relevant sources of information and guidance. In addition, a wide range of non-statutory landscape and nature conservation designations affect Scotland.

1.3. Amenity

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

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

1.4. Hierarchy of Amenity Value

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

Schedule 9 to the Act gives no indication of hierarchy of value and there is no suggestion of a hierarchy of value in either NPPG5: Archaeology and Planning, NPPG 13: Coastal Planning, NPPG 14: Natural Heritage or NPPG 18: Planning and the Historic Environment. Nevertheless, designations give an indication of the level of importance of the interest to be safeguarded.

1.5. Major and Smaller Areas

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

1.6. Conclusion

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

2. The setting a Scheduled Ancient Monument or a Listed Building

The NGC note to Rule 2 refers to the setting of historic buildings and other cultural heritage features. NPPG 5: Archaeology and Planning refers to the setting of scheduled ancient monuments and NPPG 18: Planning and the Historic Environment refers to the setting Listed Buildings. None of these documents define setting.

ENVIRONMENTAL AND PLANNING DESIGNATIONS – EXAMPLES OF DESIGNATIONS TO BE TAKEN INTO ACCOUNT IN THE ROUTEING OF NEW HIGH VOLTAGE TRANSMISSION LINES

Major Areas of Highest Amenity Value

2. In Scotland relevant national or international designations for major areas of highest amenity value include the following identified from Scottish Planning Policies and National Policy Guidelines²²:

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

Other Smaller Areas of High Amenity Value

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

Areas of Great Landscape Value

Regional Scenic Areas

Regional Parks

Country Parks

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

Flora and Fauna

4. Legislation sets out the procedure for designation of areas relating to flora, fauna and to geographical and physiogeographical features. Designations relevant to the routeing of transmission lines will include Special Area of

²² See footnotes under Holford Rule 1 (note on Rule 1) for references update.

Conservation, Special Protection Area, Sites of Special Scientific Interest, National Nature Reserves, Ramsar Sites and may also include local designations such as Local Nature Reserve.

Area of Historic, Archaeological or Architectural Value

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

Schedule of Ancient Monuments

Listed Buildings, especially Grade A and Grade B Conservation Areas

Gardens and Designated Landscapes included in the Inventory of Gardens and Designated Landscapes of Scotland

Green Belts

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

Appendix B

Route Options Appraisal Table

Appendix B
Route Options Appraisal Table

Clachrie Wind Farm 132kV Grid Connection
May 2021

Criterion	Sub-Criteria	Route Option 1	Route Option 2	Preference
Approximate Length of Line Route (km)	N/A	Approximately 4.6km	Approximately 4.3km	Route Option 2 is preferred as it is the shorter route.
Biodiversity	Environmentally Sensitive Areas (ESA)	Both route options pass through the Western Southern Uplands ESA designated for the purpose of conserving, protecting and enhancing environmental features of the area by the maintenance or adoption of agricultural methods. The ESA is unavoidable for all Route Options due to its extent.		On balance, Route Option 2 is preferred as this route has potential to avoid Class 1 Priority Peatland Habitat.
	Local Wildlife Sites	Neither Route Option crosses into any Local Wildlife Sites. However, on the western edge of the Study Area, a buffer area (500m) associated with a potential Greater Crested Newt (GCN) pond location within the Muck Water Nature Conservation Site crosses slightly into the Study Area. Both Route Options cross slightly into this buffer zone; both routes can avoid the buffer zone through detailed design.		
	SNH (now NatureScot) Priority Peatland	Route Option 1 includes an area of Class 1 Priority Peatland habitat located at the eastern extents of the Study Area as well as Class 1 Priority Peatland located in the centre of the Study Area. Class 1 Priority Peatland at the eastern extents cannot be avoided through detailed design. However the Class 1 Priority Peatland in the centre of the study area can be avoided through detailed design. Both options are located on Class 5 peatland, where soils are carbon rich with deep peat.	Route Option 2 avoids the Class 1 Priority Peatland habitat located at the eastern extents of the Study Area, however, includes an area of Class 1 Priority Peatland located in the centre of the Study Area. Class 1 Priority Peatland in the centre of the study area can be avoided through detailed design. Both options are located on Class 5 peatland, where soils are carbon rich with deep peat.	
Landscape and Visual Amenity	Residential Visual Amenity with '100m trigger for consideration zone'	Both Route Options are not within the 100m 'trigger for consideration zone'.		On balance, Route Option 2 is the preference.

Appendix B
Route Options Appraisal Table

Clauchrie Wind Farm 132kV Grid Connection
May 2021

Criterion	Sub-Criteria	Route Option 1	Route Option 2	Preference
	Visual Amenity	Both Route Options pass through areas of coniferous forest to the east of the study area. Visual effects associated with OHL and associated wayleaves will be apparent from forest tracks and residential receptors accessing the property at Shalloch Wells, to the south of the study area. Both Route Options follow a similar alignment across the western extents of the study area and pass through open areas of moorland on the valley side/ ridge above the Muck Water. Cumulative interactions with the existing 275kV OHL and Mark Hill Wind Farm turbines will be apparent, including for receptors in the Muck Water Valley.		However, this is a finely balanced judgement as there is very little (in landscape and visual terms) between the two options. Route Option 2 avoids crossing as many forest tracks in the eastern extents of the study area. Route Option 2 also provides greater offset from the uninhabited property at Little Shalloch (which may be of relevance should this ever be restored to residential use).
	Landscape Designations	Both Route Options follow a similar alignment through the locally designated South Ayrshire Scenic Area, which covers a large proportion of the open ground within the western extents of the study area.		
	Landscape Character	Both Route Options are contained within the Plateau Moorland – Ayrshire Landscape Character Types (LCT) ²³ . This LCT is characterised by extensive areas of heather and grass moorland (which is apparent across the western extents of the study area) and coniferous forest (which is apparent across the eastern extents of the study area). In the eastern extents of the study area, both Route Options pass through coniferous forest and deviate to the north (Route Option 1) and south (Route Option 2) of a small local summit at Pindonnan Craigs, where a turbine of the Clauchrie windfarm is proposed to be sited. As such, both Route Options pass through areas of coniferous forest cover avoiding a local high point, and effects on landscape character will be comparable. Both routes options follow a similar alignment in the western extents of the study area, so effects on landscape character will be similar.		
	Tourism and Recreation: OS promoted viewpoints (visual amenity – Sustrans routes, core	There are no OS promoted viewpoints, Sustrans routes, core paths or long distance trails of note within the study area. Route Option 1 crosses up to four forest tracks in the western extents of the study area, with Route Option 2 crossing up to two.		

²³ <https://www.nature.scot/sites/default/files/LCA/LCT%20078%20-%20Plateau%20Moorland%20-%20Ayrshire%20-%20Final%20pdf.pdf>

Appendix B
Route Options Appraisal Table

Clachrie Wind Farm 132kV Grid Connection
May 2021

Criterion	Sub-Criteria	Route Option 1	Route Option 2	Preference
	paths, long distance trails, tourist attractions and recreational areas such as golf courses)	Both Route Options are within the Galloway Forest Park and the Galloway Dark Skies park, which covers the majority of the forested extents to the east of the study area.		
Cultural Heritage	Non-designated heritage assets of regional/local importance (recorded in West of Scotland Archaeology Service (WoSAS) Historic Environment Record (HER)).	<p>There are no heritage assets recorded on the WoSAS HER within Route Option 1.</p> <p>The following recorded heritage assets lie outside of Route Option 1 but in relatively close proximity to it:</p> <ul style="list-style-type: none"> ■ Little Shalloch, farmstead (WoSAS Pin: 17203) ■ Little Shalloch, building; enclosure (WoSAS Pin: 17204) ■ Mark, farmstead; rig (WoSAS Pin: 11502) ■ Mark, sheep dip (WoSAS Pin: 68564) ■ Hay Ree/ Little Shalloch, building; enclosure (WoSAS Pin: 17205) <p>It is not currently anticipated that the setting of these assets would be affected in a way that will affect their heritage significance.</p>	<p>The following heritage assets are present within Route Option 2:</p> <ul style="list-style-type: none"> ■ Hay Ree/ Little Shalloch, building; enclosure, (WoSAS Pin: 17205) <p>Direct effects on this asset can be avoided through the detailed design.</p> <p>The following heritage assets are outside of Route Option 2 but in relatively close proximity to it:</p> <ul style="list-style-type: none"> ■ Little Shalloch, building; enclosure (WoSAS Pin: 17204) ■ Little Shalloch, farmstead (WoSAS Pin: 17203) ■ Roughlea Burn, cairn (WoSAS Pin: 11499) ■ Mark, farmstead; rig (WoSAS Pin: 11502) ■ Mark, sheep dip (WoSAS Pin: 68564) <p>It is not currently anticipated that the setting of these assets would be affected in a way that will affect their heritage significance.</p>	On the basis of the present evidence, Route Option 1 is preferred as it does not have any heritage assets within the route.
Land Use	Existing and Committed Development: areas allocated within the LDP2 including existing	Both Route Options must avoid the Clachrie Wind Farm turbine number 2 (T2) which is located directly adjacent to the Clachrie substation in the western extent of the study area. There are no other areas of committed development within or in close proximity to both Route Options.		There is no preferred Route Option as there is no notable difference

Appendix B
Route Options Appraisal Table

Clauchrie Wind Farm 132kV Grid Connection
May 2021

Criterion	Sub-Criteria	Route Option 1	Route Option 2	Preference
	buildings/sites, residential use applications and valid planning applications for other non-residential uses of a size and geographic location to be considered 'major areas' (including minerals and wind farm turbines)	The study area forms part of the South Ayrshire Council Local Development Plan 2 (LDP2) 'Carrick Investment Area'. This area will not have any implications on the routeing proposals.		between both Routes in relation to Land Use.
Forestry	Forestry (NFI)	NFI Forestry covers the eastern extents of the study area. There is no notable difference in the amount of NFI woodland within each of the options.		There is no preferred Route Option as there is no notable difference between both Routes in relation to forestry.
Hydrology and Flood Risk	Flood Zones and Waterbodies	<p>There are no Flood Zones identified by SEPA within the study area. However, small watercourses with catchment areas of less than 3km² are not assessed in the SEPA maps.</p> <p>Based on mapped watercourses on 1:25K Ordnance Survey, four small watercourses are present within Route Option 1; two of which will need to be crossed.</p> <p>In the eastern extent of the Study Area, Gowans Burn crosses into Route Option 1. This is a tributary of Muck Water to the north.</p>	<p>There are no Flood Zones identified by SEPA within the study area. However, small watercourses with catchment areas of less than 3km² are not assessed in the SEPA maps.</p> <p>Based on mapped watercourses on 1:25K Ordnance Survey, four small watercourses are present within Route Option 2; three of which will need to be crossed.</p> <p>Roughlea Burn crosses the width of Route Option 2 at the eastern extent of the Study Area and cannot be avoided.</p>	On balance, Route Option 1 is preferred as there may only be a requirement to cross over two of the watercourses, with Route Option 2 likely to require crossing three watercourses (when taking in to account the positioning of the Class 1 peat in the central

Appendix B
Route Options Appraisal Table

Clauchrie Wind Farm 132kV Grid Connection
May 2021

Criterion	Sub-Criteria	Route Option 1	Route Option 2	Preference
		<p>In the central and western extent of the Study Area, both Route Options will need to cross two tributaries of the Muck Water. The most southernly tributary is unavoidable as the tributary spans the width of the Study Area at this point. The northern tributary in the central study area is likely to be crossed as it extends to most of the study area width, and then links into an area of Class 1 peat.</p>	<p>In the central and western extent of the Study Area, both Route Options will need to cross two tributaries of the Muck Water. The most southernly tributary is unavoidable as the tributary spans the width of the Study Area at this point. The northern tributary in the central study area is likely to be crossed as it extends to most of the study area width, and then links into an area of Class 1 peat.</p>	<p>extent of the study area).</p> <p>The crossings are however small, and can be spanned by the OHL through detailed design.</p>
<p>Overall Emerging Preference</p>		<p>Overall emerging preferred route is Route Option 2.</p> <p>Route Option 2 is the shorter route and also has the best potential, relative to Route Option 1, to minimise visual effects on residential receptors and effects on the wider landscape during the alignment stage of the OHL development. (However, this is a finely balanced judgement as there is very little (in landscape and visual terms) between the two options.)</p> <p>Route Option 2 also has the potential, relative to Route Option 1, to minimise effects on biodiversity (peat) and is of equal preference in terms of land use and forestry aspects.</p> <p>Route Option 2 however, does require crossing a greater number of watercourses in comparison to Route Option 1 (where more crossings can be avoided through design) and the alignment of the OHL and construction processes will require to avoid/minimise hydrological effects on these watercourses. The alignment of the OHL and construction processes will also need to consider a non-designated heritage asset which is also present within Route Option 2.</p>		

Appendix C

Newspaper Advertisements 4th May 2021

Other Notices

The Clauchrie 132kV Connection Project



We'd like your views

Public consultation

Overhead line connection from Clauchrie Wind Farm to Mark Hill Substation

SP Energy Networks are seeking comments on a proposed 132kV, wood pole overhead line which would connect Clauchrie Wind Farm to the transmission grid system at Mark Hill substation in South Ayrshire.

This consultation will run for four weeks between 17th May until 14th June 2021.

However, the information will remain accessible online and available to download in a pdf format after the 14th June 2021 from

www.spenergynetworks.co.uk/ClauchrieOHL

Due to current restrictions relating to the Covid-19 pandemic, a virtual, online consultation process is being undertaken, rather than a town hall presentation format. This will allow people to view the project information in a virtual environment and to leave comments on the preferred overhead line route. Hard copies of the Routeing and Consultation Report can be downloaded from the web page above and information leaflets will be distributed locally too. Feedback from this event will then be considered by SP Energy Networks prior to the proposed route being determined.

From 17th May 2021 the virtual consultation and questionnaire can be accessed from this link:

www.ClauchrieOHL.co.uk

Comments can also be sent to the project email address

ClauchrieOHL@spenergynetworks.co.uk

Please note - Comments at this stage are informal and are made to allow SP Energy Networks to determine whether changes to the route are necessary. An opportunity to comment formally to the Energy Consents Unit will follow at a later stage in the process following consultation by the Scottish Government once the application is submitted to them.

The Knockodhar 132kV Connection Project



We'd like your views

Public consultation

Overhead line connection from Knockodhar Wind Farm to Mark Hill Substation

SP Energy Networks are seeking comments on a proposed 132kV, wood pole overhead line which would connect Knockodhar Wind Farm to the transmission grid system at Mark Hill substation in South Ayrshire.

This consultation will run for four weeks between 17th May until 14th June 2021.

However, the information will remain accessible online and available to download in a pdf format after the 14th June 2021 from

www.spenergynetworks.co.uk/KnockodharOHL

Due to current restrictions relating to the Covid-19 pandemic, a virtual, online consultation process is being undertaken, rather than a town hall presentation format. This will allow people to view the project information in a virtual environment and to leave comments on the preferred overhead line route. Hard copies of the Routeing and Consultation Report can be downloaded from the web page above and information leaflets will be distributed locally too. Feedback from this event will then be considered by SP Energy Networks prior to the proposed route being determined.

From 17th May 2021 the virtual consultation and questionnaire can be accessed from this link:

www.KnockodharOHL.co.uk

Comments can also be sent to the project email address

KnockodharOHL@spenergynetworks.co.uk

Please note - Comments at this stage are informal and are made to allow SP Energy Networks to determine whether changes to the route are necessary. An opportunity to comment formally to the Energy Consents Unit will follow at a later stage in the process following consultation by the Scottish Government once the application is submitted to them.

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Appendix D
Project Leaflet

How to make your views known?

Our consultation will run for four weeks from **17th May until 14th June 2021**. The closing date for you to send your responses to us is midnight on Monday 21st June 2021. Following this date, the information will remain accessible online and available to download.

Please find below the best ways to find out more or talk to us.



Visit the online virtual exhibition from 17th May 2021: www.ClauchrieOHL.co.uk

In normal circumstances, we would engage with communities face-to-face through drop-in public exhibitions, however, given current social distancing restrictions this is not possible. Therefore, we have prepared an online virtual consultation to replicate the in-person village hall experience. Here you can see detailed maps, read about the proposals, download the project information as a pdf, and provide feedback via the online survey and questionnaire.



Visit the website: www.spenergynetworks.co.uk/ClauchrieOHL

Our dedicated website has lots more information. You can view or download all the project documents, including this leaflet, on the website.



Email us: ClauchrieOHL@spenergynetworks.co.uk

What happens next?

SP Energy Networks places great importance on the effect its work may have on the environment and local communities and is keen to hear the views of local people to help develop the project in the best way. Informed by the consultation responses, SP Energy Networks will confirm the proposed route for the Clauchrie 132kV Connection Project.

Reflecting the proposed route, SP Energy Networks intend to submit a Screening Opinion request to the Energy Consents Unit in Summer 2021 to confirm whether or not the proposed development requires an Environmental Impact Assessment (EIA). The proposed route will then progress to identification of an overhead line alignment, including individual wood pole positioning which will be informed by the Environmental Appraisal, detailed engineering ground surveys and discussions with landowners.

This alignment, including all ancillary temporary development e.g. temporary access tracks, will be included in the application for Section 37 Consent and deemed planning permission which we anticipate being submitted in Summer 2022. The Section 37 application will be submitted to the Scottish Ministers via the Energy Consents Unit; South Ayrshire Council will be notified as a statutory consultee to the proposed development as well as being asked to comment on the application prior to submission via the Simplified Notification process.

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

Thank you for taking the time to read this leaflet.



**SP ENERGY
NETWORKS**

The Clauchrie 132kV Connection Project

Public Consultation Leaflet



Background

The proposed Clauchrie Wind Farm by ScottishPower Renewables is located in an area of commercial forestry on the National Forest Estate, approximately 5.5 kilometres (km) north-east of Barrhill in South Ayrshire. It comprises 18 wind turbines.

To meet its licence obligations to connect the Clauchrie Wind Farm to the grid, SP Energy Networks is proposing a new 132 kilovolt (kV) overhead line (OHL) to connect the proposed Clauchrie Wind Farm to the transmission grid system at Mark Hill substation in South Ayrshire. The new connection will be approximately 4.5km in length and supported on wood poles. The location of the start and end point of the connection is shown on the plan overleaf. The preferred route for the overhead line is also shown on the plan.

SP Energy Networks is part of the ScottishPower Group of companies and owns three regulated businesses in the UK. These businesses are 'asset-owner' companies holding the regulated assets and Electricity Transmission and Distribution licenses of ScottishPower. As part of this, SP Energy Networks operates, maintains and develops the network of cables, overhead lines and substations which transport electricity to connected homes and businesses in Southern and Central Scotland.

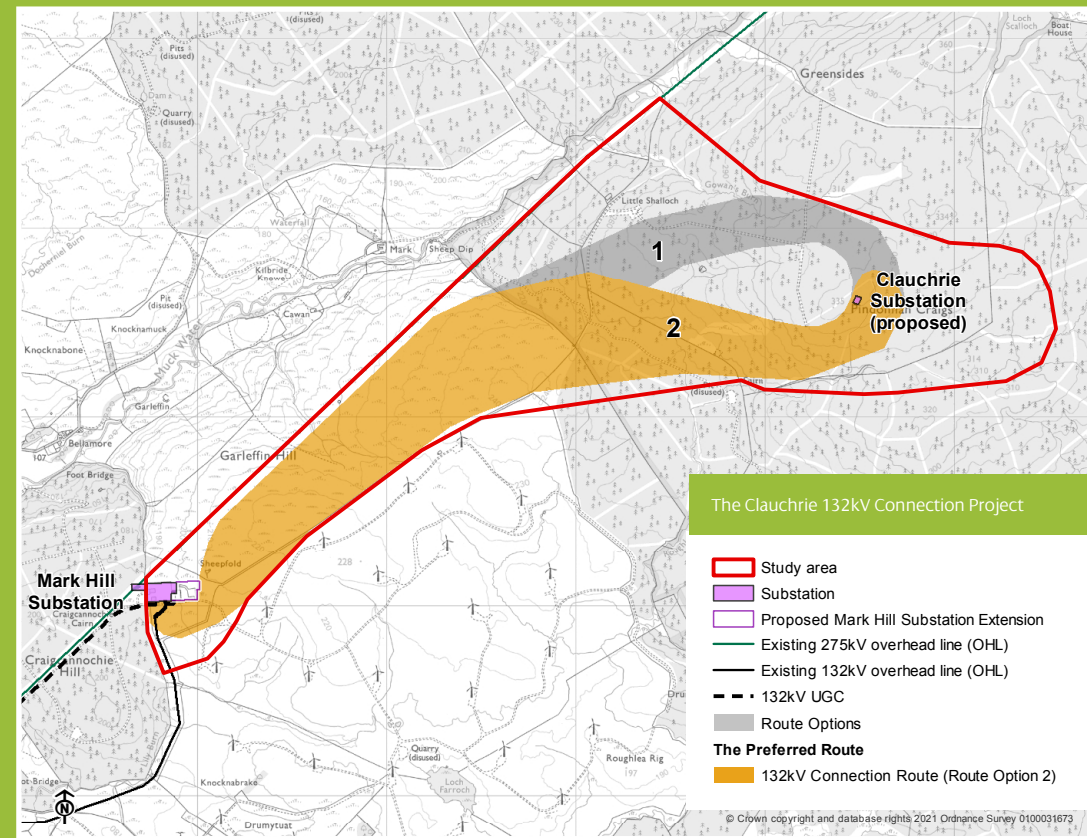
SP Energy Networks has a legal duty to keep its network up-to-date to safeguard electricity supplies. SP Energy Networks also has a duty to provide a connection for new generation to the wider electricity transmission network.

What will the Overhead Line look like?

The 132kV overhead line will be supported on Trident double 'H' wood poles which average between 11 metres (m) and 16m in height above ground. The section of OHL between the wood poles is known as the 'span'. Span lengths between the wood poles will average between 80m and 110m. The Trident 'H' wood poles are dark brown in colour when newly constructed and weather over the years to a light grey. They include two wood pole structures to support the conductors. For technical reasons, a section of underground cable approximately 500 metres in length will also form part of the connection as it enters Mark Hill substation.



The Clauchrie 132kV Connection Project

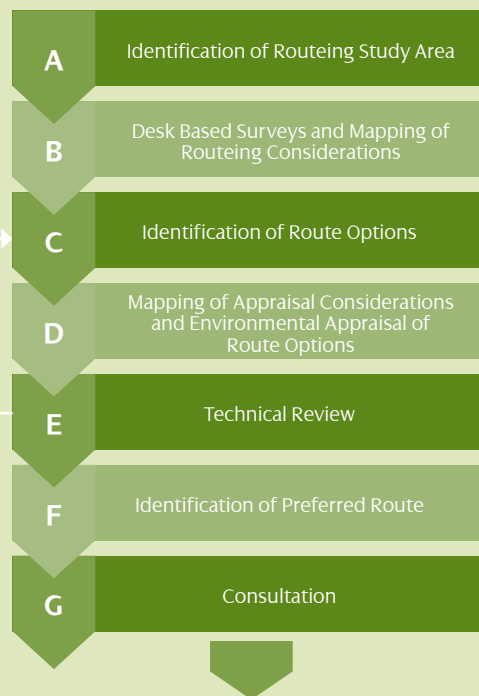


Routeing

SP Energy Networks has been working with independent environmental consultants to identify options for potential routes for the proposed overhead line. Our objective is to identify a route for the overhead line which meets the technical requirements of the electricity system, which are economically viable and cause, on balance, the least disturbance to the environment and the people who live, work and enjoy recreation within it.

Following an established best practice methodology for routeing overhead lines, two route options were identified for the overhead line. These were appraised against environmental criteria, including local landscape character and views, cultural heritage and biodiversity, to identify the preferred route. SP Energy Networks are committed to engaging with stakeholders, including local communities, through the consultation process and your feedback will be used to review the routeing findings and inform the next steps.

Routeing Methodology



Proposed Route for Environmental Appraisal

More information about the process we have followed to identify and appraise route options to select the preferred route can be found in our Routeing and Consultation Document (April 2021). This is available on the project website, www.spenergynetworks.co.uk/ClauchrieOHL

What we would like your views on?

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

- The preferred route for the Clauchrie 132kV Connection Project
- Any of the alternative route options we considered during the routeing process
- Any other issues, suggestions or feedback you would like us to consider. We would particularly like to hear your views on your local area, for example areas you use for recreation, local environmental features you would like us to consider, and any plans you may have to build in proximity to the preferred route.

Please note comments at this stage are informal comments to SP Energy Networks and are made to allow SP Energy Networks to determine whether changes to the preferred route are necessary. An opportunity to comment formally to the Scottish Government Energy Consents Unit will follow at a later stage in the process following submission of the Section 37 application.

Appendix E

Stakeholder Consultee List

Appendix E
Stakeholder Consultee List

Clauchrie Wind Farm 132kV Grid Connection
May 2021

The stakeholder groups listed in Table 1 below were contacted via email unless otherwise noted.

Table 1: List of Stakeholders consulted through the consultation process

Consultee	
Ayrshire Rivers Trust	RSPB Scotland
Barr Community Council	Scottish Badgers
Barrhill Community Council	Scottish Forestry
British Horse Society	Scottish Outdoor Access Network
British Trust for Ornithology (Ayrshire and Cumbrae)	Scottish Rights of Way and Access Society (ScotWays)
Central Scotland Bat Group	Scottish Water
Crown Estate Scotland	Scottish Wildlife Trust
Defence Infrastructure Organisation	SEPA
Fisheries – Local District Salmon Fisheries	South Ayrshire Council (Planning)
Fisheries Management Scotland	South Scotland Red Squirrel Group
Historic Environment Scotland	South Strathclyde Raptor Study Group
Mountaineering Scotland	Sustrans Scotland
National Farmers Union of Scotland	The Coal Authority
NATS Safeguarding	The Health and Safety Executive (HSE)*
NatureScot	The National Trust for Scotland
Nuclear Safety Directorate (HSE)	The Ramblers Association
Pinwherry and Pinmore Community Council	West of Scotland Archaeology Service
RAF	

*consultation details sent via post