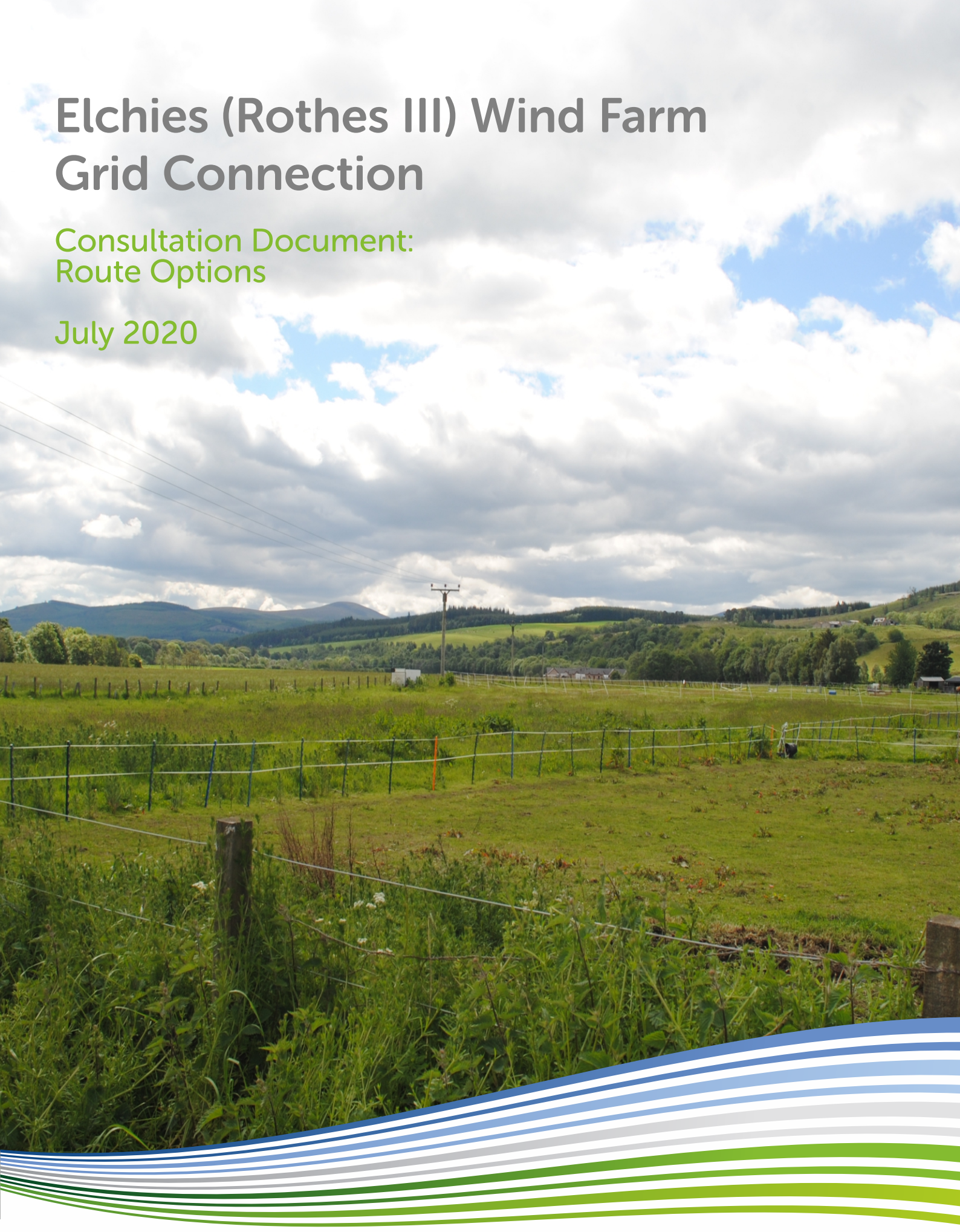
Elchies (Rothes III) Wind Farm Grid Connection

Consultation Document: Route Options

July 2020



Scottish & Southern Electricity Networks

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GLOSSARY

Term	Definition
Alignment	A centre line of an overhead line OHL, along with location of key angle structures.
Amenity	The natural environment, cultural heritage, landscape and visual quality. Also includes the impact of SHE Transmission's works on communities, such as the effects of noise and disturbance from construction activities.
Conductor	A metallic wire strung from structure to structure, to carry electric current.
Consultation	The dynamic process of dialogue between individuals or groups, based on a genuine exchange of views and, normally, with the objective of influencing decisions, policies or programmes of action.
Corridor	A linear area which allows a continuous connection between the defined connection points. The corridor may vary in width along its length; in unconstrained areas it may be many kilometres wide.
Environmental Impact Assessment (EIA)	Environmental Impact Assessment. A formal process codified by EU directive 2011/92/EU, and subsequently amended by Directive 2014/52/EU. The national regulations are set out in The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. The EIA process is set out in Regulation 4(1) of the regulations and includes the preparation of an EIA Report by the developer to systematically identify, predict, assess and report on the likely significant environmental impacts of a proposed project or development.
Habitat	Term most accurately meaning the place in which a species lives, but also used to describe plant communities or agglomerations of plant communities.
Kilovolt (kV)	One thousand volts.
Listed Building	Building included on the list of buildings of special architectural or historic interest and afforded statutory protection under the 'Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997' and other planning legislation. Classified categories A – C(s).
Micrositing	The process of positioning individual structures to avoid localised environmental or technical constraints.
Mitigation	Term used to indicate avoidance, remediation or alleviation of adverse impacts.
Overhead line (OHL)	An electric line installed above ground, usually supported by lattice steel towers or poles.
Plantation Woodland	Woodland of any age that obviously originated from planting.
Riparian Woodland	Natural home for plants and animals occurring in a thin strip of land bordering a stream or river.
Route	A linear area of approximately 1 km width (although this may be narrower/wider in specific locations in response to identified pinch points / constraints), which provides a continuous connection between defined connection points.
Routeing	The work undertaken which leads to the selection of a proposed alignment, capable of being taken forward into the consenting process under Section 37 of the Electricity Act 1989.
Scheduled Monument	A monument which has been scheduled by the Scottish Ministers as being of national importance under the terms of the 'Ancient Monuments and Archaeological Areas Act 1979'.

Term	Definition
Semi-natural Woodland	Woodland that does not obviously originate from planting. The distribution of species will generally reflect the variations in the site and the soil. Planted trees must account for less than 30% of the canopy composition
Sites of Special Scientific Interest (SSSI)	Areas of national importance. The aim of the SSSI network is to maintain an adequate representation of all natural and semi-natural habitats and native species across Britain.
Span	The section of overhead line between two structures.
Special Area of Conservation (SAC)	An area designated under the EC Habitats Directive to ensure that rare, endangered or vulnerable habitats or species of community interest are either maintained at or restored to a favourable conservation status.
Special Landscape Area (SLA)	Landscapes designated by Moray Council which are considered to be of regional/local importance for their scenic qualities.
Stakeholders	Organisations and individuals who can affect or are affected by SHE Transmission works.
Study Area	The area within which the corridor, route and alignment study takes place.
The National Grid	The electricity transmission network in the Great Britain.
Volts	The international unit of electric potential and electromotive force.
Wayleave	A voluntary agreement entered into between a landowner upon whose land an overhead line is to be constructed and SHE Transmission

PREFACE

This Consultation Document has been prepared by ASH Design and Assessment Ltd. on behalf of Scottish Hydro Electric Transmission plc (SHE Transmission plc) to seek comments from all interested parties on the preferred route identified for the proposed Rothes III Wind Farm 132 kV overhead line between Rothes III wind farm on-site substation and Blackhillock substation near Keith.

The Consultation Document is available online at the project website:

www.ssen-transmission.co.uk/projects/elchies-rothes-iii-wind-farm-grid-connection/

Under normal circumstances, consultation on the project would involve public engagement events held in the local area. However, as a result of the Covid 19 pandemic this has not been possible.

To continue engagement on the project SHE Transmission has developed an online consultation tool, to enable the local community to experience the full exhibition from home on a computer, tablet or mobile device. The online exhibition has been designed to look and feel like a real consultation in a community hall, with exhibition boards, maps, interactive videos and the opportunity to share views on the proposals.

Visitors will be able to engage directly with the project team, via a live chat function, where they can ask any questions they might have about the project and share their feedback on the current proposals.

The virtual consultation events will be taking place via the project website at the following times:

- 8th July 2020; 13:00 – 15:00 and 17:00 – 19:00; and
- 9th July 2020; 14:00 – 16:00 and 18:00 – 20:00

Comments on this Consultation Document should be sent to:

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All comments are requested by **7th August 2020**.

EXECUTIVE SUMMARY

The proposed Rothes III wind farm (capacity 99 MW) in Moray requires connection to the electricity transmission network at Blackhillock substation by June 2024. It is anticipated that this will be achieved via the construction and operation of a new 132 kV single circuit Overhead Line (OHL) routed between the proposed Rothes III wind farm onsite substation and Blackhillock substation. This Consultation Document invites comments from all interested parties on the preferred grid connection route identified.

A corridor was identified within which the identification and assessment of route options could be completed (see **Figure 1**). The corridor was developed to encompass a range of feasible route options between the two connection points.

The preferred route option has been selected to provide an optimum balance of environmental, technical and economic factors. Moving forward, confirmation of the proposed route (generally between 1 and 2 km wide) and of potential OHL alignments within it will be informed by this consultation exercise and through detailed surveys, which may identify any as yet unknown engineering, environmental or land use constraints.

Further public consultation on a preferred alignment (approximately 200 m width depending on constraints) will take place by Spring 2021. It is anticipated that an application for consent for a proposed alignment will be submitted early 2022.

When providing comments and feedback on this Consultation Document, SHE Transmission plc would be grateful for your consideration of the questions below:

- Have we explained the need for this Project adequately?
- Have we explained the approach taken to select the preferred route adequately?
- Are there any factors, or environmental features, that you consider may have been overlooked during the preferred route selection process?
- Do you feel, on balance, that the preferred route selected is the most appropriate for further consideration at the alignment selection stage?

1. INTRODUCTION

1.1 Purpose of Document

This Consultation Document invites comments from all interested parties on the preferred route identified for the proposed 132 kV overhead line between Rothes III wind farm on-site substation and Blackhillock substation near Keith.

This Consultation Document describes the route options appraisal undertaken, the alternatives considered during the selection of route[1] options, and the identification of a preferred route. Comments are now sought from statutory authorities, key stakeholders, elected representatives and the public on the route selection process and the preferred route identified.

All comments received will inform further consideration of the preferred route, and subsequent alignment.[2] options therein.

1.2 Document Structure

This report is comprised of seven sections as follows:

1: Introduction – setting out the purpose of the Consultation Document;

2: The Proposals – describes the need for the proposals, the proposed technology solution and the typical construction methods;

3: Route Selection Process – sets out the route selection process and methodology that has been applied to date;

4: Description of Routes – describes the route options that have been identified;

5: Environmental Baseline – describes the local context and baseline environmental and engineering context;

6: Comparative Analysis of Routes – analyses each route option against a series of environmental, technical and economic considerations to arrive at a preferred route; and

7: Consultation on the Proposals and Next Steps – invites comments on the route assessment process and identification of preferred route.

The main body of this document is supported by a series of figures.

1.3 Next Steps

As part of the consultation exercise, comments are sought from members of the public, statutory consultees and other key stakeholders on the preferred route option put forward in this report.

A Report on Consultation will be produced which will document the consultations received, and the decisions made in light of these responses.

Following the identification of a proposed route, further technical and environmental surveys will be undertaken to identify a preferred alignment within the route. Consultation on a preferred alignment will be undertaken in a similar manner to the identification of a preferred route, during Spring 2021.

[1] A linear area of approximately 1 km width (although this may be narrower/wider in specific locations in response to identified constraints), which provides a continuous connection between defined connection points.

[2] A centre line of an overhead line, along with the location of key angle structures.

2. THE PROPOSALS

2.1 The Need for the Project

SHE Transmission plc is a wholly owned subsidiary of the SSE plc group of companies. SHE Transmission plc owns and maintains the electricity transmission network across the north of Scotland, and holds a license under the Electricity Act 1989 to develop and maintain an efficient, co-ordinated and economical system of electricity transmission.

The proposed Rothes III wind farm (capacity 99 MW) in Moray requires connection to the electricity transmission network at Blackhillock substation by June 2024. It is anticipated that this will be achieved via the construction and operation of a new 132 kV single circuit Overhead Line (OHL) routed between the proposed Rothes III wind farm on-site substation and Blackhillock substation (see **Figure 1**). This transmission connection will be known as the Elchies (Rothes III) Windfarm Connection. A separate connection will also be made from the Rothes III Windfarm into the distribution network and this will be known as the Rothes III Windfarm Connection. SHE Transmission is not responsible for this connection to the distribution network and therefore it is not considered further in this report.

2.2 Preferred Technology Solution

Based on the options assessed, the preferred solution is a new 132 kV single circuit OHL supported on a trident wood pole[3]. This is the most economical option which minimises access requirements and environmental impacts during construction due to reduced foundation and access requirements.

2.3 Alternative Options Considered

While SHE Transmission has determined that a trident wood pole is the preferred technological solution for this project, it is recognised that there may be potential environmental and technical considerations that require the use of alternative technology options for lengths of the preferred alignment. However, until a preferred alignment for the OHL has been identified and detailed assessments and consultations have been completed, the requirement or extent of any use of other technology options is not known.

2.4 Proposals Overview

The trident wood poles would have a nominal height of approximately 16 m (including insulators and support). The proposed trident wood pole would support three conductors (wires) in a horizontal flat formation. The spacing between poles would vary depending on topography and altitude. The specific distances would be determined after a detailed line survey, but would be approximately 100 m apart. A photograph showing a typical wood pole trident line is shown in Plate 2.1 below.

2.4.1 Construction Activities

To facilitate this connection, the main construction elements of the project are as follows:

- Establishment of suitable laydown areas for materials and installation of temporary track solutions as necessary;
- Delivery of structures and materials to site;
- Assembly and erection of wood pole structures and stays;
- Stringing of conductors using hauling ropes and winches; and
- Inspections and commissioning.

Installation of the wood poles would involve the following tasks:

[3] The consideration of other technology options may be required in areas where particular physical or environmental constraints are identified.

- Excavation of a suitable area for the wood poles, and backfilling after installation of the pole (backfilling would generally be carried out the same day as excavation so that no open excavations are left overnight). The exact area would depend on the ground conditions at each pole;
- In some pole locations, it may be necessary to add imported hardcore backfill around the pole foundations to provide additional stability where the natural sub soils have poor compaction qualities;
- Conductors would be installed on the wood poles using full tension stringing to prevent the conductor coming into contact with the ground; and
- Remedial works would be carried out to reinstate the immediate vicinity of the structures, and any ground disturbed, to pre-existing condition. This would be undertaken using excavated material.

Plate 2.1: Wood Pole Trident Configuration

No expansion of Blackhillock substation outwith the current boundary is expected to support this development. The additional equipment would be installed within the existing site boundaries.

2.4.2 Forestry Removal

Construction of the project would likely require the removal of some sections of commercial forest, which would be undertaken in accordance with the UK Forestry Standard[4] and in consultation with Forestry and Land

[4] Forestry Commission (2017) The UK Forestry Standard

Scotland (FLS) and affected landowners. Scottish Forestry would also be consulted throughout the development of the project and the project will seek to adhere to Scottish Government's Control of Woodland Removal Policy[5].

After felling, any timber removed that is commercially viable would likely be sold and the remaining forest material would be dealt with in a way that delivers the best practicable environmental outcome and is compliant with waste regulations.

An operational corridor would be required to enable the safe operation and maintenance of the OHL. This will vary depending on the type of woodland (based on species present) in proximity to the OHL. In areas of native woodland it is usually possible to provide a narrower corridor due to a reduced risk of trees falling on the OHL.

Compensatory Planting will be considered for all woodland removed as a direct result of the project.

2.4.3 Access during Construction

Vehicle access is required to each pole location during construction to allow excavation and creation of foundations and pole installation. Existing tracks would be used where possible. Preference will be given to lower impact access solutions including the use of low pressure tracked personnel vehicles and temporary track solutions in boggy / soft ground areas to reduce any damage to, and compaction of, the ground. These journeys would be kept to a minimum to minimise disruption to habitats along the route. However, temporary stone tracks may be necessary in some areas depending on existing access conditions, terrain and altitude.

It is not anticipated that new permanent access tracks would be required.

2.4.4 Programme

It is anticipated that construction of the project would take place over an 18 month period, following the granting of consents, although detailed programming of the works would be the responsibility of the Contractor in agreement with SHE Transmission plc.

Every effort would be made to minimise disturbance to landowners, local residents and other stakeholders during construction by providing regular updates on works and restrictions via the site manager, community liaison manager and corporate affairs team.

[5] Forestry Commission Scotland (2009) Control of Woodland Removal Policy

3. ROUTE SELECTION PROCESS

3.1 Guidance Document

The approach to route selection was informed by SHE Transmission plc's guidance 'Procedures for Routeing Overhead Lines of 132 kV and above'. The guidance sets out SHE Transmission plc's approach to selecting a route for an OHL. This document helps SHE Transmission plc to meet its obligations under Schedule 9 of the Electricity Act 1989, which requires transmission license holders:

- to have a regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interests; and
- to do what they reasonably can to mitigate any effect that the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.

The guidance develops a process which aims to balance these environmental considerations with technical and economic considerations throughout the route options process.

The guidance splits a project into the following stages:

- Pre-Routeing Activities: Selection of proposed connection option;
- Stage 1: Corridor Selection;
- Stage 2: Route Selection;
- Stage 3: Alignment Selection; and
- Stage 4: EIA and consenting.

The stages that are carried out can vary depending on the type, nature of and size of a project and consultation is carried out at each stage of the process. This project is currently at Stage 2: Route Selection.

In line with the principles outlined in the guidance document, the method of identifying a preferred route option at Stage 2 has involved the following 4 key tasks:

- Identification of the baseline situation;
- Identification of alternative route options;
- Environmental, technical and economic analysis of route options; and
- Identification of a preferred route option.

3.2 Area of Search

A corridor was identified within which the identification and assessment of route options could be completed (see **Figure 1**). The corridor was developed to encompass a range of feasible route options between the two connection points at Rothes III wind farm on-site substation and Blackhillock substation. Given the relatively short distance between the two connection points no alternative corridors were assessed.

Baseline studies have been focussed within the corridor, although consideration of potential receptors outside of this area (e.g. environmental designations, visual receptors or cultural heritage sites) has been undertaken and is referenced where relevant in this report.

3.3 Baseline Conditions

A baseline desktop study has been carried out to identify a broad range of potential constraints and opportunities within the broad corridor, and its adjacent context. This has involved the following activities:

- Identification of environmental designated sites and other constraints, utilising GIS datasets available via SNHi Site Link[6];
- Identification of archaeological designations and other recorded sites, utilising GIS datasets available via Historic Environment Scotland[7,8] and Moray Historic Environment Record (HER)[9];
- SEPA interactive Flood Risk Mapping[10];
- Review of the Moray Structure Plan (2007)[11], Moray Local Development Plan (2015)[12] and proposed Moray Local Development Plan (2020)[13] to identify further environmental constraints and opportunities, such as regional level designations or other locations important to the public;
- Review of landscape character assessments of relevance to the corridor[14];
- Review of Native Woodland Survey of Scotland and Ancient Woodland Inventory data sets[15]
- Review of Ordnance Survey (OS) mapping (1:50,000 and 1:25,000 and online GIS data sources from OS OpenData) and aerial photography (where available) to identify other potential constraints such as settlement, properties, walking routes, cycling routes etc.;
- Extrapolation of OS Vectormap GIS data to identify further environmental constraints including locations of watercourses and waterbodies, roads classifications and degree of slope; and
- Review of other local information through online and published media such as tourism sites and walking routes.[16,17]

3.3.1 Site Appraisals

A series of high-level site appraisals were carried out by experienced professionally qualified individuals in the various specialist fields to enable an informed combined opinion on how the potential environmental effects identified during the baseline studies could influence potential route options.

Site appraisals were also undertaken by SHE Transmission plc OHL engineers and other project team members to help inform the technical and economic appraisal of options.

3.4 Route Identification and Selection Methods

Following site appraisals and taking into account the most notable constraints identified during the baseline studies, route options were identified.

Considerations included a review of the steps outlined in the Holford Rules and SHE Transmission plc's approach to routeing. In summary, the following has been taken into account as far as is practicable at this routeing stage and will be considered in more detail during Stage 3 (Alignment Selection):

- Avoid if possible major areas of highest amenity value (including those covered by national and international designations and other sensitive landscapes);
- Avoid by deviation, smaller areas of high amenity value;

[6] SNH. SNHi Site Link. [online] Available at:: http://www.snh.gov.uk/publications-data-and-research/snhi-information-service/

[7] Historic Environment Scotland Data Services. Portal. [online] Available at: http://portal.historicenvironment.scot/

[8] Royal Commission on Ancient and Historical Monuments of Scotland. Canmore. [online] Available at:: http://canmore.rcahms.gov.uk/

[9] Aberdeenshire Archaeology Service. Moray Historic Environment Record. [online] Available at: https://online.aberdeenshire.gov.uk/smrpub/master/default.aspx?Authority=Moray

[10] Scottish Environmental Protection Agency. SEPA Flood Maps [online] Available at: http://map.sepa.org.uk/floodmap/map.htm

[11] Moray Council (2007). Moray Structure Plan

[12] Moray Council (2015). Moray Local Development Plan

[13] Moray Council (2018). Moray Local Development Plan 2020: Proposed Plan

[14] Scottish Natural Heritage. (2019). Scottish Landscape Character Types Map and Descriptions [online] Available at: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions

[15] Available at data.gov.uk

[16] Munro Magic [online] Available at: http://www.munromagic.com/

[17] Walk Highlands [online] Available at: http://www.walkhighlands.co.uk/

- Try to avoid sharp changes of direction and reduce the number of larger angle towers required;
- Avoid skylining the route in key views and where necessary, cross ridges obliquely where a dip in the ridge provides an opportunity;
- Target the route towards open valleys and woods where the scale of poles will be reduced and views broken by trees (avoid slicing through landscape types and try to keep to edges and landscape transitions);
- Consider the appearance of other lines in the landscape to avoid a dominating or confusing wirescape effect; and
- Approach urban areas through industrial zones and consider the use of undergrounding in residential and valued recreational areas.

Indicative route options have been identified at widths of between 1 and approximately 2 km (see **Figure 2**) to allow for subsequent identification of alignments during the next stage of the process (Stage 3).

3.5 Appraisal Method

Appraisal of route options has involved systematic consideration against the topic areas included in Table 3.1 overleaf.

3.5.1 RAG Rating

A RAG rating has been applied to each topic area within each section, indicating potential impacts. A high level convention for assigning RAG ratings is shown in Plate 3.1 below.

Plate 3.1: RAG Ratings

Performance	Comparative Appraisal
Most Preferred  **Least Preferred**	Low potential for the development to be constrained
	Intermediate potential for the development to be constrained
	High potential for the development to be constrained

3.5.2 Identification of a Preferred Route

The overall objective throughout the appraisal of route options has been to take full consideration of all environmental factors to minimise any potential adverse impacts on the environment whilst taking into account technical and cost considerations. Following review and consideration of the potential route options, a preferred route option was arrived at.

Table 3.1: Topic Areas Considered

	Category	Sub-Topic
Environmental	**Natural Heritage**	Designations
		Protected Species
		Habitats
		Ornithology
		Geology, Hydrology and Hydrogeology
	Cultural Heritage	Designations
		Cultural Heritage Assets
	People	Proximity to Dwellings
	Landscape and Visual	Designations
		Character
		Visual
	Land Use	Agriculture
		Forestry
		Recreation
	Planning	Policy
		Proposals
Engineering	**Infrastructure Crossings**	Major Crossings (132kV, 275kV, Rail, 200+m wide river, navigable canal, gas or hydro pipeline)
		Road Crossings
	Environmental Design	Elevation
		Pollution Areas
		Flooding
	Ground Conditions	Terrain
		Peat
	Construction / Maintenance	Access
		Angle Towers
	Proximity	Clearance Distance
		Proximity to Windfarms
		Urban Environments
Cost	**Capital**	Construction, Diversions, Public Road Improvements, Felling, Land Assembly, and Consents Mitigations
	Operational	Inspections and Maintenance

4. DESCRIPTION OF ROUTES

4.1 Identification of Route Options

Indicative route options have been defined with approximately 1 - 2 km widths to allow for subsequent identification of alignments during Stage 3 (Alignment Selection) of the project (see **Figure 2**). Each route option is described below. During the route selection process, urban environments were avoided where possible. This resulted in the route options being positioned to completely avoid Archiestown, Charlestown of Aberlour and Keith. After initial site visits, Route Option A was altered to skirt around the southern outer edge of Rothes, to avoid infringing on the town boundary. Route Options A1 and A2, however pass through the northern part of the settlement. It was not possible to avoid Craigellachie when selecting the southern route options. As a result, Route Options B and C pass through the northern and southern portions of the town respectively.

4.2 Route Option A and Sub Options A1 and A2

Route Option A is the most northerly of route options, travelling generally in an easterly direction between Rothes III wind farm on-site substation via Rothes, Boat O' Brig and Mulben before heading south east to Blackhillock substation prior to reaching Keith. Two sub-options to Route A have been identified at the western extent of the route which provide alternative route options to consider upon leaving the wind farm substation and the approach to and around Rothes. These two sub-options are referred to as A1 and A2 and are appraised separately in this report.

Route Option A travels in a south-easterly direction from Rothes III wind farm on-site substation passing through an area of commercial forestry before turning eastward for approximately 3 km where it turns north-eastward, descends into the valley and crosses the A941 south of Rothes. This upland area is characterised by conifer plantations, grazing land and numerous scattered properties (see **Plate 4.1**, Photo 1).

Route Option A1 leaves the on-site substation in an easterly direction through commercial forestry and to the north of Hunt Hill and cairn Cattoch before turning north-eastward to begin its descent towards Rothes. The route widens to nearly 2 km as it circles around the northern edge of the settlement to Auchinroaths. It then continues eastward following the B9015.

Route Option A2 travels north-eastward from the on-site substation across the Burn of Rothes towards the Moss of Rothes. It skirts around Ardcanny Wood along the edge of the moss before turning southward towards Rothes along the A941. From here it joins Route Option A1 passing to the north of Rothes.

To the east of Rothes the three options converge and continue to the northeast across the broad floodplain of the River Spey and the B9015 toward Boat o' Brig (see **Plate 4.1**, Photo 2). The lower slopes of Ben Aigan are incorporated within Route Option A in this area (see **Plate 4.1**, Photo 3).

After Boat o' Brig the routes join and turn in an eastward direction narrowing for a short stretch along the B9103 before widening again on approach to the A95 and Mulben (see **Plate 4.1**, Photo 4). From the A95 and Mulben the routes travel in a generally south-eastward direction, narrowing to 1 km as they turn eastward and follow the A95, railway and Burn of Mulben. Approximately 2 km from Keith, the routes turn to the southeast again toward Blackhillock substation.

Plate 4.1: Route Option A Photographs

Photo 1: View westward from local access road near Whiteacen

Photo 2: View southward from Core Path near Rothes

Photo 3: From Parking area Southwest of Orton on B9015 looking towards Bridgeton

Photo 4: View southward over A95 from car park west of Mulben

4.3 Route Option B

This route option travels south-east from Rothes III wind farm on-site substation through an area of commercial forestry before turning eastward and over the A941 towards the River Spey and Craigellachie. This upland area is initially comparable to Route Option A (see Plate 4.1, Photo 1) in that it is characterised by conifer plantations, grazing land and numerous scattered properties. This route option however crosses the Spey Valley within the vicinity of Craigellachie (to the north) (see Plate 4.2, Photo 1). The eastern slopes of the Spey Valley in this location are particularly steep and wooded.

After crossing the Spey Valley, the route option curves north-eastward around the lower slopes of Ben Aigan to roughly follow the A95 (see Plate 4.2, Photo 2).

From the A95 the route curves around the northern edge of Hill of Towie Windfarm (see Plate 4.2, Photo 3) and heads eastward through an area of forestry plantation before crossing Strath Isla (see Plate 4.2, Photo 4) and connecting in to Blackhillock substation.

Plate 4.2: Route Option B Photographs

Photo 1: View looking west across Spey Valley

Photo 2: View from minor road to the south of Maggieknockater looking north

Photo 3: View from minor road to west of A95 looking east towards Hill of Towie Wind Farm

Photo 4: View from minor road near Broadfield Farm looking east towards Cairds Wood

4.4 Route Option C

This route option leaves Rothes III wind farm on-site substation in a south-easterly direction, crossing the B9102 before heading towards the Macallan distillery. This option crosses the Spey Valley between the settlements of Craigellachie and Charlestown of Aberlour (see Plate 4.3, Photo 1).

After crossing the Spey Valley, the route follows the A95 in a north-easterly direction before crossing the River Fiddich (see Plate 4.3, Photo 2).

From the River Fiddich the route heads in a south-easterly direction, passing through Drummuir Estate land to the south of the proposed Hill of Towie II windfarm extension development area. It then turns in a north-easterly direction at Loch Park and runs roughly parallel to the B9014 and the Keith & Dufftown Railway passing through an area of commercial forestry. It turns eastward to connect into Blackhillock substation around the Mains of Auchindachy.

Plate 4.3: Route Option C Photographs

Photo 1: From Viewpoint near Viewfield looking westward towards potential Spey River crossing

Photo 2: Looking Westward over Mains of Newton to Glen Fiddich from local access road

5. LOCAL CONTEXT

5.1 Introduction

The corridor is located within the local authority area of Moray, a predominantly rural region whose main centres of population are located at Elgin, Forres, Buckie, Keith and Lossiemouth.

Within the corridor, settlement is largely confined to the towns of Rothes, Craigellachie, and the outskirts of Aberlour, with other scattered townships and smaller communities located along the main roads. The main local centre for the area, Keith, is located just outside the corridor at its eastern edge. Dufftown is located outwith the corridor, to the south.

The River Spey and Spey Valley, located toward the west of the corridor, offer a particular focus for the area in terms of its scenic qualities, ecological importance, recreational and heritage value. There is a distinctive sense of place associated with the historic management and identity of Speyside as an important landscape for fishing, recreation and whisky distilling.

The area is served by the A95, which provides a route between Keith, Mulben and Charlestown of Aberlour and onwards to Aviemore, and the A941 which runs between Dufftown and Elgin, passing through Craigellachie and Rothes. A number of B roads and minor / local roads are also present within the corridor. In addition, there is a network of existing tracks serving farms and the Hill of Towie wind farm that may be suitable for overhead line construction and maintenance traffic.

The Aberdeen to Inverness rail link runs through the north of the corridor, typically following a route to the north of the A95 and B9103 between Keith and Boat O' Brig before heading north. To the south of the corridor, the Keith and Dufftown heritage railway operates a recreational service between April and September.

Other electrical infrastructure also exists in the corridor in the form of 11 kV and 33 kV wood pool overhead lines, 132 kV and 275 kV steel lattice transmission lines and Blackhillock substation.

5.2 Environmental Designations

The following environmentally designated sites or areas afforded recognition or protection within planning policy are present within the corridor.

- River Spey Special Area of Conservation (SAC): The River Spey along with the River Fiddich and its tributary Burn of Aldernie, Burn of Ringorm, the lower reaches of Burn of Mulben, and Burn of Rothes have been designated as a SAC, an internationally designated site under the Habitats Directive, for Atlantic salmon, freshwater pearl mussel, sea lamprey and otter;
- The River Spey is also designated as a Site of Special Scientific Interest (SSSI) for Atlantic salmon, freshwater pearl mussel, sea lamprey and otter. SSSIs are those areas of land and water that SNH consider best represent our natural heritage – its diversity of plants, animals and habitats, rocks and landforms, or a combination of such features;
- The Spey Valley Candidate Special Landscape Area (CSLA) and Area of Great Landscape Value;
- Designated cultural heritage assets comprising Scheduled Monuments (SM), Listed Buildings (LB) and Conservation Areas (CA); and
- A number of woodlands within the corridor that are categorised as ancient woodland.

In addition, the River Spey, River Fiddich and River Isla are designated as drinking water protection areas (DWPAs) serving local treatment works from wellfields and abstraction points along the rivers.

5.3 Natural Heritage

The corridor generally comprises a complex mosaic of farmland (dominated by pasture and arable field systems), woodland and areas of heathland on higher ground (typically above 200 m). Woodland areas are dominated by conifer plantations, but there are numerous fragments of broadleaved and mixed woodland

associated with riparian zones, field boundaries, road and railway sides, and around settlements. Some areas of woodland are categorised as ancient woodland, whilst some habitats are considered to be potentially ground water dependent (see **Figure 3).**

Various soil types have been identified in the area around the route options. A large proportion of the soil deposits in this area are mineral podzols along with mineral gleys. Concentrations of alluvial soils have also been identified along the flood plains of the major watercourses in the area; namely the River Spey, River Fiddich and River Isla. Priority peatland mapping highlights that there are several small and discrete areas within the corridor of Class 3 (predominantly peaty soil, some peat soil with peatland vegetation and some heath) and Class 5 (peat soils with no peatland vegetation) soils. There are nationally important (Class 1 or 2) carbon rich soils within the western part of the corridor (see Figure 4).

Protected species such as otter, pine marten, badger, bat species, red squirrel, Atlantic salmon and freshwater pearl mussel are either known, or are likely to be present in the local area based on the presence of suitable habitat or being a qualifying feature of a nearby designated site.

The woodland and scrub habitat throughout the area will support breeding bird species, whilst more wetland areas could provide habitats of value to breeding waders and wildfowl. The corridor also passes through open field systems, which may be of value to foraging waders and wildfowl.

There are numerous watercourses, lochs and reservoirs of various sizes within the corridor, the largest of which is the River Spey. North of Craigellachie, the flood plain of the River Spey broadens, and the meandering and migratory nature of the river through much of the corridor is apparent. Other larger river bodies include the River Fiddich, River Isla and the Burn of Mulben. SEPA's flood mapping suggests that all of these watercourses are susceptible to the risk of flooding. Both Rothes and Keith have experienced flooding in the past, and a flood alleviation scheme has been operational in Rothes since 2011.

5.4 Cultural Heritage

Baseline information on known cultural heritage assets recorded within the vicinity of the corridor was obtained from datasets curated by Historic Environment Scotland and Moray Historic Environment Record (HER).

The assets within the vicinity of the corridor are diverse in both their date and their character and reflect human occupation and exploitation of the landscape since prehistory. They include prehistoric ritual and settlement sites; Pictish stones; medieval castles and ecclesiastical sites; post-medieval industrial (milling and distilling) remains and working sites; and, historic buildings.

Cultural heritage assets are given weight through the designation process. Designation ensures that sites and places are recognised by law through the planning system and other regulatory processes. The level of protection and how a site or place is managed varies depending on the type of designation and its laws and policies[18] (HES (2019) 'Designation Policy and Selection Guidance').

Within the search area, designated cultural heritage assets include:

- Six Scheduled Monuments (SM), with statutory protection: national importance (high sensitivity), including Church of Dundurcas and Cauddwell Castle;
- 145 Listed Buildings (LB), with statutory protection: (14 Category A (national importance, high sensitivity); 82 Category B (regional importance, medium sensitivity); 49 Category C (local importance, low sensitivity). Category A LBs include Boat of Brig Toll house, Telford Bridge, Drummuir Castle and Mill of Towie; and,
- Three Conservation Areas (CA), with statutory protection: regional importance (medium sensitivity) - Keith Fife Keith; Keith Mid Street; and, Archiestown.

[18] Historic Environment Scotland (2019) Designation Policy and Selection Guidance

In addition to these designated assets, the Moray HER contains details of non-designated assets of archaeological and cultural heritage interest within the search area. Of these, 20 are regarded as of regional importance (medium sensitivity).

5.5 Landscape Character and Visual Amenity

The overriding landscape character of the corridor is of a detailed mosaic of small scale rolling farmland contrasting with simple forested valley slopes and moorland summits. Rural dwellings are clustered along transportation routes and settlements focused around the rivers feeding the historic distilleries of the area.

There is a distinctive sense of place particularly in the western part of the corridor associated with the historic management and identity of Speyside as an important landscape for fishing, recreation and whisky distilling. As a result human habitation is also a regular feature within the landscape of this area particularly around Rothes and Craigellachie.

The eastern part of the corridor is characterised by forestry plantations, wind turbines, overhead lines and other infrastructure, including Blackhillock substation. Scattered farms and residential dwellings are concentrated along the transportation routes that form the rough boundaries of the corridor.

There are seven Landscape Character Areas (LCAs) within the corridor as outlined in the updated SNH Landscape Character Areas published in 2019[19]. Distribution of these is illustrated on **Figure 7**. Other LCAs outwith the corridor are shown on **Figure 7** for context.

Visual receptors within the corridor comprise:

- Views from built properties including residential areas and places of work;
- Views from routes including roads and recreational routes; and
- Views from other outdoor locations where the view is considered of recreational importance.

5.6 Land Use and Recreation

Forestry

Forestry is a common land use within the corridor, with a number of productive conifer plantations on a fell and restock cycle. Many of these plantations form part of the National Forest Estate and are managed by the Scottish Government's agency Forestry and Land Scotland. **Figure 9** shows the distribution of forestry on the National Forest Estate within the corridor. Private woodland, comprising both a mix of conifer and mixed broadleaf woodland, also exist throughout the corridor. As previously noted, some areas of woodland throughout the corridor are categorised as ancient woodland.

Agriculture

Agricultural land is dominated by pasture and arable field systems, classified by The Macaulay System of Land Capability for Agriculture as a mix of Class 5.1 and 5.2 agricultural lands. Class 5 areas are capable of supporting improved grassland.

Recreation

The corridor, and in particular the Spey Valley, is popular with walkers, hikers, cyclists, canoeists, anglers, whisky enthusiasts and heritage railway enthusiasts. Tourism, including the pursuit of recreational activities (particularly fishing)[20] contributes significantly to the local economy annually. Recreational and tourism sites are distributed throughout the Corridor, often clustered near settlements, along main roads and near to other sites of tourist interest. These are illustrated on **Figure 8**.

[19] Scottish Natural Heritage. (2019). Scottish Landscape Character Types Map and Descriptions [online] Available at: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions [accessed 23rd May 2019]

[20] The fishing season runs from 11th February to 30th September each year.

One of the major tourism draws to the area is the concentration of internationally renowned whisky distilleries within the Spey Valley and surrounding area, drawing water from the Spey River and its tributaries. The annual Spirit of Speyside Festival celebrates the industry and gives visitors a chance to sample whiskies from across the region and visit distilleries that are not always open to the public. The Malt Whisky Trail running through the area is a sign-posted three-day driving tour of seven world-famous working distilleries, one historic distillery and the Speyside Cooperage.

There are a large number of walking routes including the Speyside Way, a long distance walking route (linking the Moray coast to the Grampian Mountains), and Core Paths (see **Figure 8**).[21] The Speyside Way is also accessible to cyclists and horses. There are also numerous trails maintained by Forestry and Land Scotland such as those on Ben Aigan, the summit of which provides open views across Moray and to the coast to the north. Annual competitive races that run through the corridor along these recreational routes include The Dramathon from Glenfarclas Distillery to Glenfiddich Distillery, and the Speyside Way Race Ultra Marathon from Ballindalloch to Buckie.

5.7 Planning

The Development Plan for the region is set out in the Moray Structure Plan (2007) and the Moray Local Development Plan (2015), both of which focus on sustainable economic growth, and tackling climate change through appropriately sited and designed development. The LDP addresses strategic as well as local policy issues. Moray Council recently finished consulting on its revised LDP: 'Moray Local Development Plan 2020'. It is expected that the plan will be adopted in 2020. There are numerous policies within the current and proposed LDPs on the protection of the natural and built environments that will be relevant in the consideration of the development of electricity infrastructure.

Existing or potential windfarm locations within the vicinity of the route options include Rothes III Wind Farm (Application Stage) Hill of Towie I (Operational), Hill of Towie II (Approved), Edintore (Approved) and Bodinfinnoch (Scoping) in the eastern part of the corridor.

[21] Scottish Right of Way and Access Society. (2011). Scottish Hill Tracks (5th Edition).

6. COMPARATIVE APPRAISAL

This section provides a summary of the potential environmental, technical and economic effects identified for each route option following the topic areas shown in Table 3.1. Reference should also be made to **Figures 3 to 9** which illustrate potential environmental baseline constraints identified under each topic. Figures are split over two sections (Section 1 (West) and Section 2 (East)) for presentational purposes.

6.1 Environmental Topic Areas

6.1.1 Natural Heritage

Designations

The western extent of the corridor lies within the River Spey catchment, where the river is designated as a SAC and SSSI. The River Fiddich, lower reaches of the Burn of Mulben and Burn of Rothes also form part of the SAC designation. Proximity and presence of a potential pathway for effect present an elevated risk of impact to the qualifying interests of the designations for all route options. Without appropriate control there is potential that works associated with construction of the grid connection could impair water quality and compromise the qualifying interests of the SSSI and SAC.

Areas of ancient woodland are present along all route options, but it is considered that there are greater opportunities to avoid these areas for Route Option A, A1 and A2, albeit potential pinch points may be present (e.g. within the vicinity of Boat o' Brig). Route Option B is likely to impact on areas of ancient woodland to the south of Ben Aigan to some degree, whereas Route Option C could impact on areas of ancient woodland within the vicinity of the River Fiddich crossing.

All route options have been allocated a RAG rating of **Amber** for Designations (Natural Heritage).

Protected Species

For all route options, there is abundant woodland, and woodland edge habitat, which could provide suitable habitat for badger, red squirrel, pine marten and bat species. Riparian zones could provide suitable habitat for otter. Minimising potential impacts on woodland would ensure potential effects are reduced. Potential for impacts on protected species could be further reduced or eliminated by undertaking pre-construction surveys and adopting appropriate mitigation.

All route options have been allocated a RAG rating of **Amber** for Protected Species.

Habitats

There are small areas of potential GWDTE present within all route options. Annex 1 habitats dominated by heathlands are present in the area to the north of the B9102, to the north-west of Ardcanny Wood and at Hill of Towie. These are shown on **Figure 3**. These sensitive habitats present modest constraints which could be further reduced or eliminated by micro-siting infrastructure and/or adopting appropriate mitigation.

It is anticipated that, in general, potential effects on the numerous fragments of broadleaved and mixed woodland throughout the corridor could be minimised. However, for Route Options B and C, the crossing of the Spey Valley, the River Fiddich and the A95 would likely result in some felling of broadleaf and riparian woodland.

As such, all route options have conservatively been allocated a RAG rating of **Amber**.

Ornithology

All route options could potentially result in the loss of small areas of woodland and scrub habitat and/or wetland areas which support breeding bird species. Breeding bird surveys would be required to fully assess the likely ornithological constraints, including assessing potential disturbance to sensitive and protected bird species that may breed within the vicinity.

All route options have conservatively been allocated a RAG rating of **Amber** for Ornithology.

Geology, Hydrology and Hydrogeology

A number of watercourse crossings will be necessary for all route options, some of which will have potentially steep crossing points. Of relevance to all route options, within the River Spey catchment floodplain, permanent structures will need to be set back from the watercourse channel to protect against exposure from natural geomorphological processes of watercourse meandering and migration.

Of particular relevance to Route Option A, A1 and A2 (although also crossed by Route Option B) is the designation of the River Spey, downstream of Craigellachie, as a DWPA. Groundwater is abstracted from shallow wellfields adjacent to the River Spey between the towns of Inchberry and Mosstodloch, approximately 5 km to the north of these route options. Shallow groundwater here will therefore be vulnerable to pollution. Subject to best practice construction techniques that safeguard water quality, the wellfield is not considered a development constraint.

The River Isla, upstream of the Burn of Haughs tributary at Keith, has also been designated as a surface water DWPA. This is of relevance to all route options, although Route Option C runs within the vicinity of the River Isla for approximately 10 km. Sensitive routeing and timing of construction activities would be required to protect the water quality of these DWPAs.

As shown on **Figure 4**, priority peatland mapping highlights that for all route options there is a discrete area of Class 1 peatland to the east of the proposed Elchies substation, as well as some presence of Class 3 (predominantly peaty soil, some peat soil with peatland vegetation and some heath) and 5 (peat soils with no peatland vegetation). Route Option A1 also passes through an area of Class 1 peatland (priority peatland) at Moss of Rothes. The presence of peat is not considered a development constraint as micro siting can be used to mitigate potential effects.

All Route Options have been allocated a RAG rating of **Amber** for Geology, Hydrology and Hydrogeology.

6.1.2 Cultural Heritage

Potential direct or indirect impacts on the following cultural heritage designations were identified within each of the route options as outlined in Table 6.1 below:

Table 6.1: Designated and Non-Designated Cultural Heritage Assets

Criterion	Route Option A	Route Option A1	Route Option A2	Route Option B	Route Option C
Scheduled Monuments (SMs)	Church of Dundurcas, Old Parish Church (SM5621).	Church of Dundurcas, Old Parish Church (SM5621).	Church of Dundurcas, Old Parish Church (SM5621).	Cauddwell Castle (SM2505).	Cauddwell Castle (SM2505).
Category A Listed Buildings	Boat Of Brig Tollhouse (LB2324).	Boat of Brig Tollhouse (LB2324).	Boat of Brig Tollhouse (LB2324).	Craigellachie, old bridge over River Spey (Telford Bridge) (LB2357).	Drummuir Castle (LB2296). Mill of Towie (LB2303).
Inventory Gardens and Designed Landscapes (GDLs)	No GDLs on route	No GDLs on route	No GDLs on route	No GDLs on route	No GDLs on route
Inventory Historic Battlefields	No Inventory Historic Battlefields on route	No Inventory Historic Battlefields on route	No Inventory Historic Battlefields on route	No Inventory Historic Battlefields on route	No Inventory Historic Battlefields on route

Criterion	Route Option A	Route Option A1	Route Option A2	Route Option B	Route Option C
Category B Listed Buildings	Mulben Mill (LB2319) Mulben Station (LB2321) Railway Bridge, Boat o' Bridge (LB15849) Glebe House and Garden Walls, Rothes (LB40439) Dundurcas Old Church Burial Ground (LB15827)	Mulben Mill (LB2319) Mulben Station (LB2321) Railway Bridge, Boat o' Bridge (LB15849) Glebe House and Garden Walls, Rothes (LB40439) Dundurcas Old Church Burial Ground (LB15827)	Mulben Mill (LB2319) Mulben Station (LB2321) Railway Bridge, Boat o' Bridge (LB15849) Glebe House and Garden Walls, Rothes (LB40439) Dundurcas Old Church Burial Ground (LB15827)	Bridge of Fiddich (LB2318) Old Parish Church and Burial Ground, Boharm (LB2325) Macdowall Bridge, Arndilly (LB2316) Primary School, John Street, Craigellachie (LB2355)	Granary, Mill of Towie (LB2304) Bridge of Auchindachy (LB8700) Hazelwood (LB15861) Easter Elchies (LB8497) Church of Macallan and Burial Ground with Elchies Mausoleum (LB8501) Home Farm, Drummuir Castle (LB2298)
Conservation Areas	None on route	None on route	None on route	None on route	None on route
Properties in Care	None on route	None on route	None on route	None on route	None on route
Regional Significance HER Sites	Braes of Collie, Cropmark (NJ35SW0008) Aikenway Castle (NJ25SE0001)	Braes of Collie, Cropmark (NJ35SW0008) Aikenway Castle (NJ25SE0001)	Braes of Collie, Cropmark (NJ35SW0008) Aikenway Castle (NJ25SE0001)	Dandaleith Pictish Stone (NJ24NE0097)	Towiemore cropmark (NJ34NE0005)
Category C Listed Buildings	Two C-Listed Buildings	Two C-Listed Buildings	Two C-Listed Buildings	One C-Listed Building	Three C-Listed Buildings
Local Significance HER Sites	77 recorded in HER.	122 recorded in HER.	96 recorded in HER	78 recorded in HER	81 recorded in HER
Non-Inventory Designed Landscapes (NIDLs)	No NIDLs on route	No NIDLs on route	No NIDLs on route	Small part of one NIDL lies within corridor.	Corridor crosses one NIDL.

It is acknowledged that other Scheduled Monuments and Listed Buildings are located within the general vicinity of route options (for example Rothes Castle SM 2455, Mill of Towie LB 2303 and listed buildings in Keith). Such assets would be considered as required during future stages of the project to ensure potential indirect effects are minimised.

Taking into account the opportunities for avoidance through design and the adoption of other standard working practices, it is anticipated that potential impacts on both Cultural Heritage Designations and Cultural Heritage Assets could be minimised across Route Options A, A1, A2 and B, and as such these route options have been allocated a **Green** RAG rating.

Based on the potential impacts identified, Route Option C is allocated a RAG rating of **Amber** for both Cultural Heritage Designations and Cultural Heritage Assets. This is largely due to the potential impacts on the setting of the Category A Listed Building, Drummuir Castle (LB2296) and direct impacts on the regionally important HER Site (Towiemore cropmark (NJ34NE0005)), potential direct impacts on 81 HER sites of local importance, and potential direct impacts on an NIDL.

6.1.3 People

There are numerous dwellings and buildings scattered throughout the corridor, as shown on **Figure 6**. Particular pinch points for each of the route options are noted as:

- Route Option A: the areas around the A941 crossing, the Auchroisk Distillery, and the Craighead and Stoneyton area off of the B9103;
- Route Option A1: the areas around the A941 crossing, the Auchroisk Distillery, and the Craighead and Stoneyton area off the B9103;
- Route Option A2: the areas around the A941 crossing, the Auchroisk Distillery, and the Craighead and Stoneyton area off of the B9103;
- Route Option B: the areas around Braehead and Craigellachie; and
- Route Option C: the areas around the Macallan Distillery, Craigellachie and Speyside Cooperage Visitor Centre.

It is considered that there are some opportunities to minimise potential effects on dwellings and buildings for Route Option A, A1 and A2, and as a result these options have been allocated a RAG rating of **Amber.** Route Options B and C offer greater constraints and therefore have been allocated a RAG rating of **Red**.

6.1.4 Landscape and Visual

Designations

All route options pass through the Spey Valley AGLV and CSLA, landscape designations that recognise the highly valued and sensitive views of the Spey Valley. Route Option A passes through an area of Spey Valley AGLV and CSLA characterised by the meandering nature of the river, its wide flood plain and the forested slopes that contain the valley. Route Options A1 and A2 pass through shorter sections of the AGLV and CLSA which are similarly characterised by the meandering River Spey and forested slopes. Route Options B and C both pass through an area of the Spey Valley AGLV and CSLA characterised by steep valley walls framing the Spey River and views along it. Craigellachie sits on the eastern bank before forested slopes steeply rise up. The Thomas Telford Bridge, a valued receptor within the designation, sits within Route Option B.

All route options have been allocated a RAG rating of **Amber** for Landscape Designations.

Landscape Character

Route Options A, A1, A2 and B pass through five of the seven LCA's present within the corridor (see **Figure 7**) including the sensitive Broad Farmed Valley LCA of the Spey Valley recognised by the Spey Valley AGLV and CSLA designations. Route Option C passes through all but the Open Upland LCA. Broadly speaking the LCAs within the corridor can accommodate this type of development assuming an appropriate alignment can be achieved. Some removal of forestry is likely to be required, although it is anticipated this will be kept to a minimum through careful siting of the OHL alignment (Stage 3 of the routeing process).

All route options have been allocated a RAG rating of **Amber** for Landscape Character.

Visual

Route Option A largely follows main transportation routes through the corridor. As a result it passes through areas with a large number of dwellings and potential tourist routes. The most sensitive area along the route from a visual perspective will be the area around the River Spey crossing and routes along it which is highly valued by locals and visitors alike. While less iconic than the Spey Valley, development through the rest of the route will likely also be constrained by the infrastructure corridors already present (A95 and rail line) and the numerous residential properties that line the main and local access roads through it.

Once it descends from the forested slopes in the west, Route Option A1 crosses the A941 to the north of Rothes. Due to the residential properties and forestry in this area, development may be somewhat constrained and will require consideration of potential effects on properties at alignment stage. Further eastward the route

joins Route Option A and follows the transportation routes through the corridor (the B9015, B9103, and A95). As a result, it continues to pass through areas with residential properties and along potential tourist routes and other infrastructure corridors (A95 and rail line) which may act as constraints.

The constraints along the majority of Route Option A2 are very similar to Route Options A and A1 as the central and eastern sections cover the same areas. However, the most western portion, skirts along the woodland lining the edge of the Moss of Rothes. While not solely a visual constraint this sensitive habitat and felling of the adjacent woodland may constrain development through this section.

The most sensitive area along Route Option B from a visual perspective will be the area around the River Spey crossing and Craigellachie. This is a populated area and the surrounding topography would likely result in significant engineering solutions accompanied by extensive felling. This would have wider visual impacts beyond the corridor itself, as the area is often a focal point of views from elevated viewpoints across the Spey Valley. A further constraint along the route is an area of ancient woodland along the A95 south of Ben Aigan. While this is not solely a visual constraint, this attractive woodland is an important part of the experience of the local landscape and the approach to the Spey Valley.

For Route Option C, similar sensitivities and challenges around Craigellachie exist. Additionally, on the western side of the River Spey, the Macallen Distillery complex spans across most of the route option. The Distillery has recently completed a visitors centre with views over the Spey Valley. There are likely to be some constraints along the rest of the route option, particularly the Keith and Dufftown Historic Railway.

It is assumed that through detailed consideration during the alignment studies it is possible that many of these effects could be avoided through careful siting. As such all route options have been allocated a RAG rating of **Amber** for Visual.

6.1.5 Land Use

Agriculture

As with the wider corridor the agricultural land within the study area is identified as being suitable for improved grassland. As this is not a particularly sensitive or fertile category any impacts on agriculture as a result of either of the route options is considered to be low.

Therefore a RAG rating of **Green** has been allocated to all route options for Agricultural impacts.

Forestry

Some felling may be required through conifer plantations within Route Option A, A1 and A2, including the northern extents of the Ben Aigan plantation and Ardcanny Woods, however opportunities do exist to minimise impacts. It will be particularly important however to avoid or minimise impacts on the Wood of Conrock (Route Option A) as this is designated as ancient woodland and is a feature of the valley. Other pinch points may be present, for example within the vicinity of Boat o' Brig and Mulben whereby there is a high concentration of ancient woodland.

Felling along Route Option B would be likely in some areas, for example on the eastern slopes of the Spey Valley, where felling of Danderleith Wood and Mansefield Wood is likely to lead to a high percentage of the woodland requiring removal, and through areas of conifer plantation at Mount Pleasant and Gowk Hill, part of the National Forest Estate. Felling along Route Option C would be likely in some areas, with a high potential for significant felling requirements at Drummuir and Tombreck Wood.

As such Route Options A, A1 and A2 have been allocated a RAG rating of **Amber** for potential Forestry impacts. Route Option B has been allocated a RAG rating of **Red** for potential forestry impacts. Route Option C has been allocated a RAG rating of **Amber** for potential forestry impacts, although there could be potential for this to increase to **Red** were an alignment chosen that resulted in significant tree loss.

Recreation

There are numerous points of recreational interest along each of the route options (see **Figure 8**). Table 6.2 lists the recreational assets within each route option that may potentially be impacted:

Table 6.2: Recreational Assets Potentially Impacted

Recreational Asset	Route Option A	Route Option A1	Route Option A2	Route Option B	Route Option C
The Core Path to the east of Rothes	X	X	X		
The Core Path from Rothes along the Burn of Rothes connecting to Thomshill		X	X		
The Core Path to the northwest of Craigellachie				X	
The Core Path to the north of Lochend Wood and South Hill to Drummuir					X
The Speyside Way long-distance walking route	X	X	X	X	X
Auchroisk Distillery	X	X	X		
Glentauchers Distillery	X				
Macallan Distillery				X	X
Speyburn Distillery		X	X		
The Keith & Dufftown Historic Railway	X	X	X	X	X
Camping / caravanning sites				X	X
Other tourist and recreational locations in and around Craigellachie				X	X
Drummuir Castle					x

Given the potential impacts on the above recreational assets, all route options have been allocated a RAG rating of **Amber**.

6.1.6 Planning Context

Adherence to National, Regional and Local planning policy will in large part depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given presence of designated sites and areas of landscape importance.

As such, Route Options A, A1 and A2 have been allocated an **Amber** RAG rating to reflect the potential for impact on some of these features, as noted above, albeit opportunities do exist to minimise potential impacts. However, Route Options B and C have been allocated a **Red** RAG rating given high potential for constraint in some topic areas.

At the current stage there do not appear to be any notable planning proposals within any of the route options that would present potential for constraint that could not be addressed through careful and considered siting and design. All routes have therefore been allocated a **Green** RAG rating for Planning Proposals.

6.2 Engineering Topic Areas

6.2.1 Infrastructure Crossings

Major Crossings

Major infrastructure crossings[22] can present many obstacles when designing and constructing an overhead line and therefore, it is advantageous to avoid multiple crossings if possible. The routes were assessed on various criteria. Following an appraisal of all routes in respect of major infrastructure crossings, Route Options A, A1 and A2 were identified as having a greater number of major crossings than Routes B and C (see Table 6.3 below) including the Aberdeen-Inverness railway line. While the River Spey would likely need to be crossed on more than one occasion none of these crossings would be in excess of 200 m and therefore, while sensitive, they are not considered to be major crossings.

Table 6.3: Major Crossings

Major Crossing	Route Option A	Route Option A1	Route Option A2	Route Option B	Route Option C
132 / 275 kV Overhead Line	3	3	3	3	3
Aberdeen and Inverness Railway	1	1	1	n/a	n/a
Keith and Dufftown Heritage Railway	1	1	1	1	1
River Crossings Greater than 200 m	n/a	n/a	n/a	n/a	n/a
Navigable Canal Crossings	n/a	n/a	n/a	n/a	n/a
Gas Pipeline Crossings	n/a	n/a	n/a	n/a	n/a
Hydro Pipeline Crossings	n/a	n/a	n/a	n/a	n/a

In accordance with SHE Transmission's guidance all routes have been allocated a RAG rating of **Red** as each would require more than two major crossings.

Road Crossings

Considering road crossings, Route Option A2 has fewer overall crossing than Route Options A, A1, B and C as shown in Table 6.4 below. It should also be highlighted that the A95 road travels within the eastern portion of Route Options A, A1, A2 and B for a considerable distance and while constituting an infrastructure crossing, may be advantageous in terms of access.

Table 6.4: Road Crossings

Road Crossing	Route Option A	Route Option A1	Route Option A2	Route Option B	Route Option C
A-Road	2 (A941 & A95)	2 (A941 & A95)	2 (A941 & A95)	2 (A941 & A95)	2 (A941 & A95)
B-Road	3 (B9013, B9014 & B9015)	3 (B9013, B9014 & B9015)	3 (B9013, B9014 & B9015)	2 (B9014 & B9102)	2 (B9014 & B9102)
Minor / Local Road	13	11	10	18	18

As such in accordance with SHE Transmission's guidance Route Option A2 has been allocated a RAG rating of **Green** for Road Crossings while Route Options A, A1, B and C have been allocated a rating of **Amber**.

[22] Major infrastructure crossings include high voltage transmission lines, rail lines, wide rivers (greater than 200 m), navigable canals, gas pipelines, and hydro pipelines.

6.2.2 Environmental Design

Elevation

The elevation on which an overhead line is constructed can have a significant effect in terms of influencing both wind and ice loading. In order to limit the effects of wind and ice loading due to elevation, it is favourable to minimise the erection of overhead lines on lands above 200 m AOD.

Route Options A1 and A2 are preferred from an elevation perspective as the majority of the routes (approximately 85% and 78%) stay below 200 m AOD. This is in contrast to Route Options A, B and C which traverse higher, more mountainous terrain with maximum elevation in some areas exceeding 350 m AOD. Approximately 25% of both Route Options B and C, and 29% of Route Option A have an elevation greater than 200 m AOD.

Route Option A1 and A2 have therefore been allocated an **Amber** RAG rating while Route Options A, B and C have been allocated a **Red** RAG rating for Elevation.

Flooding

There are three types of flooding which must be considered; Coastal, Surface and River. As all of the proposed route options are inland from the coast, there is no risk of coastal flooding occurring in this region. While both surface and river flooding events can occur in the region around the proposed routes, the latter is considered the greatest threat to any overhead line.

Due to the influence of the River Spey within Route Option A, it can be concluded that this route carries the greatest risk in terms of flooding with a large area assessed to be within 1 in 200 year flood risk area. Whilst this is the case, it should be noted that although Route Option A is greatly influenced by the meandering nature of the River Spey, the percentage area in a 1 in 200 year flood risk zone (4.7 %), is not significantly greater than that of Route A1 (2.75 %), A2 (2.8 %), B (3.2 %) or C (2.2 %). These percentages also include for potential flood risk associated with the River Isla (all routes), Burn of Mulben (Route Options A, A1 and A2), and the River Fiddich (Route Options B and C).

Given the information available a RAG rating of **Amber** has been allocated for all Route Options for Flooding from an Engineering perspective.

6.2.3 Ground Conditions

Terrain

Unfavourable terrain can lead to many design and construction related challenges for new overhead line builds. Steep slopes, mountainous terrain and/or cliffs create difficult obstacles for overhead lines to cross and therefore, it is preferred to limit construction in this terrain where possible. Another consideration is pinch points and areas within the corridor with limited options to achieve a potential route.

Route Option A generally compromises rolling and gently undulating terrain with some areas of steep slopes. Conversely, Routes A1, A2, B and C are generally steeper and more mountainous. These routes, particularly Route Options B and C, comprise more rolling terrain with areas of steep gradients and several pinch points which may be difficult to overcome.

Therefore a RAG rating of **Amber** has been allocated for Route Option A, while ratings of **Red** have been allocated for Route Options A1, A2, B and C for Terrain.

Peat

Construction in areas of peat can pose engineering challenges during both the design and construction stages of an overhead line build. In addition, construction in peat can lead to increased construction costs and therefore, should be reduced or avoided where possible.

The percentage of peat is deemed to be moderate within each of the route options largely due to the relatively high concentration of peat deposits in the westernmost part of the corridor near the Elchies substation These peat deposits which are located mainly in areas of high elevation consist of peaty gleys, peaty podzols and peat.

All route options have therefore been allocated a rating of **Amber** for Peat.

6.2.4 Construction / Maintenance

Constructability is an important consideration for all overhead line routes considering the wide ranging terrain and multiple obstacles that are often encountered. Therefore, giving some aforethought to both access routes and the number of critical angle masts to be used on this overhead line is important for the construction and future maintenance requirements of the line.

Access

Adequate access is an important consideration for both construction and maintenance activities. Positioning an overhead line in close proximity to existing public roads and networks of tracks will provide ease of access and can greatly reduce costs associated with the construction stage.

The five potential routes were assessed for access availability. Each route was generally found to have adequate access to public roads and existing networks of tracks. A portion of Route Option C however was more than 1 km from public roads.

Taking this into account, Route Options A, A1, A2 and B were allocated RAG ratings of **Green** while Route Option C was allocated a rating of **Amber** for Access.

Angle Towers

Angle towers can be important components of an overhead line and are used in various scenarios, such as changes in direction. Angle towers present challenges in both overhead line design and construction requiring more significant foundations as well as more difficult installation.

In this instance, given the proposed construction of a wood pole trident line, it is assumed that angle towers might only be required at terminations. As an indicative figure it is therefore assumed that each potential line route would require two angle towers.

Therefore all five routes have been allocated a RAG rating of **Green** for Angle Towers.

6.2.5 Proximity

The location of an overhead line relative to structures and settlement of people is an important consideration when selecting a preferred route option. Overhead lines must be an adequate distance from buildings in order to ensure electrical clearance limits are achieved but similarly, in order to reduce the impact on households of the construction of a piece of key infrastructure in their vicinity. From an operability and maintenance viewpoint, wind turbines near overhead lines have been found to potentially increase the occurrence of conditions suitable for aeolian vibration leading to the premature wear of the conductor through fatigue.

Clearance Distance

Assessment of the route options was undertaken to determine the clearance distances available between buildings and dwellings.

Route Option A has between 100 m and 150 m clearance from buildings available throughout. While there are some areas along the western portion of the route where there are limited options, further east there are no such constraints and clearances in excess of 150 m are achievable.

Route Options A1 and A2 must pass through an area to the west of the River Spey that includes Auchinroath and the northern outskirts of Rothes. By avoiding the town of Rothes, the number of potential dwellings is

reduced by approximately 50 per cent. While this is a congested area, it should be possible to achieve a clearance distance of between 100 m and 150 m between buildings. This area may also be constrained by the Speyburn Distillery which reduces the number of possible routes. To the immediate west of Rothes, no issues regarding proximity to buildings are present. East of Rothes, Route Options A1 and A2 share similar proximity constraints to Route Option A.

Despite having the lowest concentration of buildings, it is not possible to achieve 100 m clearance from all buildings within Route Option B. The area around Craigellachie is particularly problematic. While in other areas maintaining a 100 m buffer is possible, but options are limited and in some cases would force the route onto high ground.

Route Option C generally has between 100 m and 150 m clearance between buildings available throughout the route. The line should be able to pass between Elchies and Craigallachie however there may be some pinch points, notably the Macallan distillery storage warehouses west of Craigellachie. For the remainder of the route to the east of Craigellachie, clearance distance should be sufficient with greater than 200 m available.

As Route Option B was found to have areas with less than 100 m clearance to buildings, especially around Craigellachie, it was allocated a RAG rating of **Red**. The other routes had greater than 100 m clearance throughout although pinch points were identified in each. They were therefore allocated **Amber** RAG ratings.

Proximity to Windfarms

Route Options B and C have been found to be particularly constrained by wind farms with limited options available to pass by existing and proposed developments including the operational Hill of Towie wind farm and the consented Hill of Towie II wind farm extension. Route Options A, A1 and A2 are not generally constrained by wind farms, with the exception of the Rothes III Wind Farm itself, which is a constraint to all route options.

As a result, all five Route Options have therefore been allocated RAG ratings of **Red** for Proximity to Windfarms, albeit it is anticipated that there will be opportunities to avoid interaction with Rothes III wind turbines during the alignment stage.

Urban Environments

Route Option A does not pass within close proximity to any small, medium or large urban environments or settlements, skirting around the outer edge of Rothes. Route Options A1 and A2 pass within close proximity to the northern part of Rothes, however they do not infringe on the boundary of the town. Route Option B passes through the northern portion of the town of Craigellachie whilst Route Option C passes through the southern section of the town. This is the only town passed through by Route Options B and C.

It is estimated that less than 10 % of all five route options are within an urban environment. As such a RAG rating of **Green** has been allocated to all options.

6.3 Cost Topic Areas

Costs were not assessed in detail as part of this route selection process. These will be considered in more detail at the alignment stage when the technical and engineering specifications required become clearer.

6.3.1 Capital

The preferred technology solution is a new 132 kV single circuit OHL supported on a trident wood pole. From a capital cost perspective this option reduces costs when compared to other technologies. This is largely due to the reduced foundation and access requirements. That said none of the route options are without construction constraints.

As such, all routes have been allocated an **Amber** RAG rating for Capital Costs.

6.3.2 Operational

Compared to other overhead line technologies a single circuit OHL supported on a trident wood pole is relatively straight forward technology to inspect and maintain.

As such, all routes have been allocated a **Green** RAG rating for Operational Costs.

6.4 Comparative Analysis Summary

Table 6.5 below illustrates the environmental, engineering and cost appraisal RAG ratings for the route options considered. A summary RAG table is included in Appendix 1.

All route options would pass through the sensitive Spey Valley, comprising the River Spey SAC and SSSI, and the Spey Valley AGLV and CSLA. Whilst Route Options A, A1 and A2 pass through the Spey Valley for a greater distance, they generally avoid the steep slopes, proximity to settlements and dwellings, and likely tree removal (and potential landscape scarring) associated with Route Options B and C around Craigellachie.

Notwithstanding this, Route Options A, A1 and A2 would require particular consideration in order to minimise potential effects on the River Spey given its ecological importance and status as a DWPA. Of the three routes (A, A1 and A2), Route Option A passes through the Spey Valley for the greatest length.

There are potential pinch points for Route Options A, A1 and A2 in terms of proximity to dwellings when routeing the line across the A941 and around Rothes. However, there are considered to be opportunities to minimise impacts with all options in comparison with Route Options B and C whereby opportunities to avoid impacts, particularly at Craigellachie, appear limited.

Another key consideration for the project is aiming to minimise loss of woodland and commercial plantations as far as practicable. All route options would likely result in some felling, albeit opportunities to minimise felling appear greatest for Route Options A, A1 and A2.

In terms of cultural heritage designations and assets, there is a greater density and potential for impact for Route Option C, compared to Route Options A, A1, A2 and B.

From an engineering perspective, factors such as major infrastructure crossings, elevation, terrain, flooding and access were all important considerations in the selection of a preferred route.

Table 6.5: RAG Ratings

	Category	Sub-Topic	Route Option 'A' Rating	Route Option 'A1' Rating	Route Option 'A2' Rating	Route Option 'B' Rating	Route Option 'C' Rating
Environmental	**Natural Heritage**	Designations					
		Protected Species					
		Habitats					
		Ornithology					
		Geology, Hydrology and Hydrogeology					
	Cultural Heritage	Designations					
		Cultural Heritage Assets					
	People	Proximity to Dwellings					
	Landscape and Visual	Designations					
		Character					
		Visual					
	Land Use	Agriculture					

	Category	Sub-Topic	Route Option 'A' Rating	Route Option 'A1' Rating	Route Option 'A2' Rating	Route Option 'B' Rating	Route Option 'C' Rating
		Forestry					
		Recreation					
	Planning	Policy					
		Proposals					
Engineering	**Infrastructure Crossings**	Major Crossings (132kV, 275kV, Rail, 200+m wide river, navigable canal, gas or hydro pipeline)					
		Road Crossings					
	Environmental Design	Elevation					
		Pollution Areas					
		Flooding					
	Ground Conditions	Terrain					
		Peat					
	Construction / Maintenance	Access					
		Angle Towers					
	Proximity	Clearance Distance					
		Proximity to Windfarms					
		Urban Environments					
Cost	**Capital**	Construction, Diversions, Public Road Improvements, Felling, Land Assembly and Consent Mitigations					
	Operational	Inspections and Maintenance					

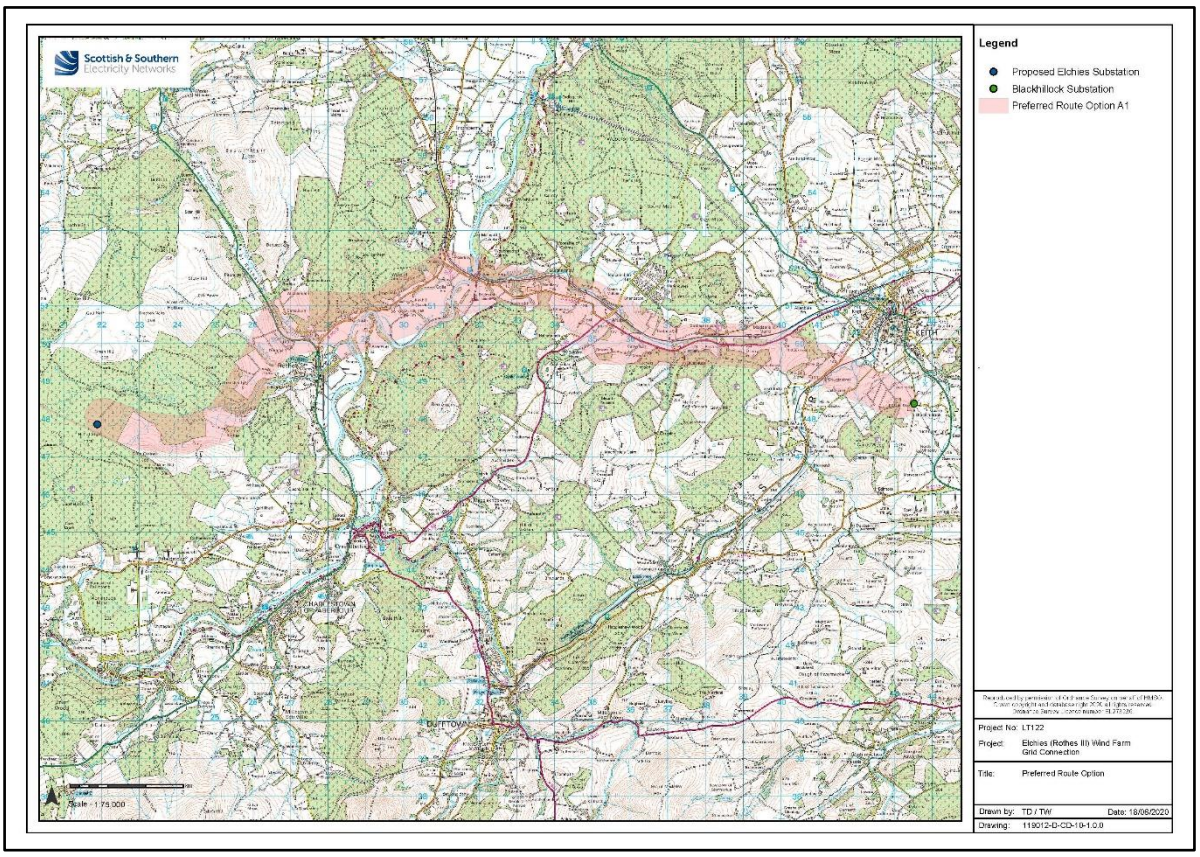
6.5 Preferred Route

A preferred route has been identified following consideration of both environmental, engineering and cost considerations.

The analysis to date has concluded that both Route Options A and A1 provide advantages over Route Options A2, B and C and could each offer a viable route and solution for the project from an environmental, engineering and cost perspective. However, on balance and based on current analysis, it is considered that **Route Option A1 is the preferred option** as it crosses the Spey Valley for less distance compared with Route Option A, thereby reducing potential impacts on the SAC, DWPA, AGLV and CSLA. It also has greater opportunities to minimise felling and avoid sensitive habitats.

The Preferred Route is shown in Plate 6.1 below (see also Figure 10).

Plate 6.1: The Preferred Route



The Preferred Route would require careful consideration during the alignment selection stage of the project to achieve an acceptable alignment with minimal environmental effects. Should further site and desk-based analysis at the alignment selection stage identify a particular constraint, a further review of route or alignment options may be required prior to the identification of a preferred alignment.

7. CONSULTATION ON THE PROPOSALS

SHE Transmission plc places great importance on, and is committed to, consultation and engagement with all parties, or stakeholders, likely to have an interest in proposals for new projects such as this. Stakeholder consultation and engagement is an essential part of an effective development process.

7.1 Questions for Consideration by Consultees

When providing your comments and feedback, SHE Transmission would be grateful for your consideration of the questions below:

- Have we explained the need for this Project adequately?
- Have we explained the approach taken to select the preferred route adequately?
- Are there any factors, or environmental features, that you consider may have been overlooked during the preferred route selection process?
- Do you feel, on balance, that the preferred route selected is the most appropriate for further consideration at the alignment selection stage?

7.2 Next Steps

Virtual online consultation events will be held, as detailed in the preface of this document. The responses received from these consultation events, and those sought from statutory consultees and other key stakeholders, will inform further consideration of the route options put forward, and the identification of a preferred route option to take forward to the next stage in the routeing process (alignment selection).

All comments are requested by 7th August 2020. A Report on Consultation will be produced which will document the consultations received, and the decisions made in light of these responses.

Following the identification and confirmation of a proposed route, further technical and environmental surveys (e.g. Phase 1 Habitat / NVC surveys, Protected Species Surveys and further input by landscape, ecology, cultural heritage, hydrology and forestry specialists) would be undertaken to identify a preferred alignment. Consultation on a preferred alignment will be undertaken in a similar manner to the identification of a preferred route in Spring 2021.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