Scottish & Southern Electricity Networks

TRANSMISSION

Consultation Document - Alignment Selection

Carn Fearna Wind Farm Connection

May 2025

Scottish & Southern Electricity Networks

TRANSMISSION

Rev								
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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 SSEN 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)	A formal process set down in The Electricity Works (EIA) (Scotland) Regulations 2000 (as amended in 2008) used to systematically identify, predict and assess the likely significant environmental impacts of a proposed project or development.
Gardens and Designed Landscapes (GDLs)	The Inventory of Gardens and Designed Landscapes lists those gardens or designed landscapes which are considered by a panel of experts to be of national importance.
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.

Term	Definition
Mitigation	Term used to indicate avoidance, remediation or alleviation of adverse impacts.
National Scenic Area (NSA)	A national level designation applied to those landscapes considered to be of exceptional scenic value.
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'.
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 The Highland Council which are considered to be of regional/local importance for their scenic qualities.

Term	Definition
Special Protection Area (SPA)	An area designated under the Wild Birds Directive (Directive74/409/EEC) to protect important bird habitats. Implemented under the Wildlife and Countryside Act 1981.
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.
Terminal Structure	A structure (tower or pole) required where the line terminates either at a substation or at the beginning and end of an underground cable section.
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.
Wild Land Area (WLA)	Those areas comprising the greatest and most extensive areas of wild characteristics within Scotland.

PREFACE

This Consultation Document has been prepared by ERM on behalf of Scottish and Southern Electricity Networks Transmission (SSEN Transmission), to seek comments from all interested parties on the Carn Fearna Wind Farm Connection project.

The Consultation Document is available online at: Carn Fearna Wind Farm Connection

Public consultation events detailing the proposals described in this document will be held at the following time and location:

- Wednesday 25th June 2025, Garve Village Hall, IV23 2PR, 3pm – 7pm

Comments on this document should be sent to:

Lisa Marchi

Community Liaison Manager

SSEN Transmission

10 Henderson Road, Inverness IV1 1SN

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All comments are requested by Friday 25th July 2025.

EXECUTIVE SUMMARY

SSEN Transmission is proposing to construct and operate a 132 kilovolt (kV) overhead line (OHL) to connect the proposed Carn Fearna Wind Farm to a proposed extension at the existing Corriemoillie 132kV substation, from where the electricity will enter the wider transmission network. SSEN Transmission has a statutory duty under Schedule 9 of the Electricity Act 1989 to connect the proposed wind farm development to the transmission network by the contracted connection date.

There is approximately 3 km of underground cable (UGC) that is required from the wind farm developer's substation (Statkraft UK) to a connection point south of Strathgarve Forest. There is an additional single circuit 132 kV OHL supported by trident wooden 'H' poles, approximately 7.5 km in length, connecting to a proposed extension at the existing Corriemoillie substation.

The Carn Fearna Wind Farm is an onshore wind project comprising up to 9 wind turbines and associated infrastructure located to the east of Loch Luichart in the northwest Highlands.

Eight alignment options have been identified to achieve the connection, and these have been appraised against environmental, engineering and economic criteria. This Consultation Document invites comments from all interested parties on the eight alignment options under consideration.

The key environmental considerations are impacts on the natural heritage of the Ben Wyvis SSSI, SPA and SAC as well as collision and barrier effects on protected bird species and landscape and visual impacts. The key engineering considerations are elevation, access challenges, existing infrastructure, and the potential presence of peat within the alignment options.

The overall preferred alignment option for the connection between the proposed Carn Fearna Wind Farm to the proposed extension at the existing Corriemoillie 132kV substation is UGC alignment option 3.1 in the eastern section and the OHL alignment option 3.2 in the western section. This is achieved though consideration of environmental, engineering and economic appraisals of all alignment options.

A face to face consultation event will be held at Garve Village Hall on 25th June between 3pm and 7pm. Meetings will be arranged with statutory and other stakeholders. The responses received, and those sought from statutory consultees and other key stakeholders will inform further consideration and design of the preferred alignment leading to the identification of a proposed alignment to take forward to the consenting stages.

Please submit your comments to Lisa Marchi, Community Liaison Manager, SSEN Transmission, 10 Henderson Road, Inverness IV1 1SN (lisa.marchi@sse.com).

All comments are requested by 25th July 2025.

1. INTRODUCTION

1.1 Purpose of Document

SSEN Transmission is proposing to construct and operate a 132 kV overhead line (OHL) to connect the proposed Carn Fearna Wind Farm to the existing Corriemoillie 132 kV substation (the Proposed Development). This Consultation Document invites comments from all interested parties on the alignment options under consideration (see **Figure 1.1**., **Appendix A**).

This Consultation Document presents the findings of an environmental, engineering and cost appraisal of the alignment options identified by SSEN Transmission and describes the process by which a preferred alignment has been selected. The preferred alignment is considered to provide the optimal opportunity to achieve an economically viable, technically feasible and environmentally sound alignment within it.

1.2 Document Structure

This Consultation Document comprises the following sections:

- Section 1: Introduction – describes the purpose of the document;
- Section 2: The proposals – describes the Proposed Development need and the development;
- Section 3: Alignment selection process – describes the process for selecting the alignment options and preferred alignment, based on environmental, engineering and economic considerations;
- Section 4: Description of alignments – describes the identification of alignment options and provides a summary of each alignment (1.1, 2.1, 3.1, 1.2, 2.2, 3.2, 4.2 and 2.3);
- Section 5: Comparative appraisal – a summary of the environmental, engineering and economic topics;
- Section 6: Selection of preferred alignment - a comparative analysis summary and a description of the preferred alignment; and
- Section 7: Consultation on the proposals – invites comments on the preferred option process, the identification of preferred alignment and next steps.

1.3 Next Steps

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

A Report on Consultation will be published after the consultation period has ended, which will document the consultation responses received, and the decisions made considering these responses to select a proposed alignment. The proposed alignment will be selected, and further technical and environmental assessment will be undertaken. This assessment will culminate with an application to Scottish Ministers for consent for the construction and operation of an OHL under section 37 of the Electricity Act 1989.

2. THE PROPOSALS

2.1 The Need for the Proposed Development

Scottish Hydro Electric Transmission plc who, operating and known as Scottish and Southern Electricity Networks Transmission (SSEN Transmission), holds a licence under the Electricity Act 1989 to develop and maintain an efficient, co-ordinated, and economical system of electricity transmission in the north of Scotland and remote islands.

The developer of Carn Fearna Wind Farm (Statkraft UK) has sought a Scoping Opinion from the Scottish Government's Energy Consents Unit (ECU) under Section 36 of the Electricity Act 1989 for a ~ 85 MW wind farm. SSEN Transmission has a statutory duty under Schedule 9 of the Electricity Act 1989 to connect the proposed wind farm development to the transmission network by the contracted connection date.

The development is in line with SSEN Transmission's commitment and licence obligation to facilitate the connection of renewables generators to the grid through an economical, efficient and coordinated approach to transmission reinforcement.

2.2 Alternative Options Considered

There were three underground cable (UGC) alignment options in the eastern section and five OHL alignment options in the western section considered. As part of this process, each option was examined by its environmental, engineering and cost appraisal. This was done using a RAG rating system to identify the most appropriate alignment that would impose minimal negative impacts. From here, a preferred alignment option was established.

2.3 Project Overview

The Carn Fearna Wind Farm Connection (the 'Proposed Development') comprises approximately 7.5 km of single circuit 132 kV OHL (see **Image 2.1**) and 3 km of UGC connecting the proposed Carn Fearna Wind Farm substation to a proposed extension at the existing Corriemoillie 132 kV substation (**Figure 2.1.**, **Appendix A**).

Image 2.1 - Trident Wooden 'H' Pole Example

2.3.1 Preferred Technology Solution

Overhead Lines

Trident wooden 'H' poles will carry a single circuit, with three conductors supported from either glass, porcelain, or composite insulators attached to the horizontal cross arms of each wood pole. An ADSS shall be strung approximately 3 m below the cross arm.

Underground Cables

A set of three cables, arranged in trefoil installation, of 1600 mm² Aluminium core, cross-linked XLPE insulation, Smooth Welded Aluminium Sheath cables is proposed as the most appropriate option for the UGC on the proposed development matching the proposed OHL rating. Cable trenching is likely to be the method of cable laying, where sections of trench are opened, cable laid inside PVC ducts and then backfilled in a rolling fashion, avoiding the need to open long lengths of trench at once. The proposed trench size would be approximately 4.6 m wide with a working width of approximately 25 m and an operation corridor of 15 m. Location of the trench will preferably be adjacent to existing access tracks or through forestry rides / fire breaks to reduce impacts on the surrounding habitats.

2.3.2 Construction Activities

The main construction elements associated with the proposed development are anticipated to include:

- Establishment of suitable laydown areas for material and installation of temporary track solutions as necessary;
- Establishment of temporary construction compounds/welfare units;
- Upgrades to existing tracks and potentially new tracks where required;
- Delivery of structures and materials to site;
- Assembly and erection of wood pole structures and stays; and
- Stringing of conductors using hauling ropes and winches.

Installation of the wood poles would involve the following tasks:

- Excavation of a suitable area for the wood poles, and backfilling after installation of the pole;
- In some pole locations, it may be necessary to add imported hardcore backfill around the pole foundations to provide additional stability in areas where the natural sub soils have poor compaction qualities;
- In some pole locations where shallow bedrock is present, it may be necessary to break or remove rock to accommodate pole foundations;
- 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 structure, and any ground disturbed, to pre-existing use.

Installation of the UGC infrastructure would require (to be confirmed if needed):

- Establish a working corridor centred on the cable centreline;
- Installation of an access haul road and bridges where/if required;
- Excavate a trench up to 1.5 m in depth and 4.6 m wide, widening through benching and battering where stability and safety concerns arise;
- Clear out all materials likely to damage cable ducts, e.g. clods, rocks, stones and organic debris, and employ use of pumps to remove any water;

- Installation of ducting within the trench, surrounded by engineered backfill for protection, with protection tile and warning tape placed above the cable line, reinstatement to sub-soil level;
- Excavation and formation of power cable joint bays with above ground electrical link pillars and associated demarcation; reinstate excavated surface layers in reverse order;
- Transportation of and installation of power cable;
- Mobilisation of jointing containers and jointing of power cable;
- Reinstatement of joint bays and installation of fencing at link pillar locations; and
- Reinstate excavated surface layers in reverse order.

2.3.3 Forestry Removal

Any woodland removal which may be required prior to the construction work will be identified and described after a proposed alignment has been identified. Any removal of sections of commercial forest through a management felling plan would be undertaken in consultation with Scottish Forestry and affected land owners. After felling, any timber removed that is commercially viable would 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 proposed development. This will vary depending on the type of woodland (based on species present) in proximity to the Proposed Development. In areas of native woodland, it is usually possible to provide a narrower corridor due to a reduced risk of trees falling on the proposed development.

2.3.4 Access during Construction

The access strategy during construction will be detailed in the (Environmental Impact Assessment (EIA) Report and the Section 37 consent application, with further refinements during the design phase. The approach includes upgrading existing access tracks where possible and constructing new ones as needed. New tracks with a clear long-term need will remain in place, while infrastructure in suitable ground conditions, like dry, level pasture, may be built without dedicated access tracks.

Most access will be achieved by upgrading existing tracks and installing new temporary ones in sensitive areas, considering gradients and ground conditions to minimise environmental impact. For new access tracks, a geotextile layer will typically be laid down, followed by approximately 200 mm of crushed and compacted stone. In areas with peat, floating stone tracks, trackway panel construction or cut-and-fill methods may be used.

2.3.5 Programme

It is anticipated that construction of the proposed development would take place over an 18-to-22-month period, following the granting of consents, although detailed programming of works would be the responsibility of the Principal Contractor in agreement with SSEN Transmission. The programme for the proposed development is currently under development, an indicative programme is as follows:

- Construction Start: July 2028; and
- Operation: June 2030.

3. ALIGNMENT SELECTION PROCESS

3.1 Guidance Document

The approach to alignment selection has been informed by SSEN Transmission's guidance 'Procedures for Routeing OHLs and UGCs of 132 kV and above'. This guidance considers within it the Holford Rules, which sets out a hierarchical approach to routeing which advocates avoiding areas of high amenity value, minimises changes in direction, and takes advantage of topography to minimise visual interaction with other transmission infrastructure.

The guidance document sets out SSEN Transmission's approach to selecting a corridor, route or alignment for an OHL. This document helps SSEN Transmission to meet its obligations under Schedule 9 to the Electricity Act 1989, which requires transmission licence 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 Proposed Development.

The guidance splits a project into the following key stages:

- Stage 0: Routeing Strategy Development;
- Stage 1: Corridor Selection;
- Stage 2: Route Selection;
- Stage 3: Alignment Selection; and
- Stage 4: EIA and consenting.

The procedures note that, depending on the scale of the Proposed Development or character of the area, it may be possible to combine Stages 1 and 2. In this case, given the relatively short distance and small Study Area (**Figure 2.1, Appendix A**), Stages 1 and 2 have been combined. In practice, this has been achieved by moving from Stage 0 to Stage 2, with no evaluation of alternative corridors completed.

The stages that are carried out can vary depending on the type, nature and size of a project and consultation is usually carried out at each stage of the process. The Proposed Development is currently at **Stage 3: Alignment Selection**.

In consideration of these principles, the method of identifying an environmentally preferred alignment option in this study has involved the following key tasks:

- Identification of the baseline situation;
- Identification of alternative alignment options;
- Environmental analysis of alignment options; and
- Identification of a potential alignment.

3.2 Study Area

The extent of the area of search (hereafter the 'study area'), has been defined by the preferred route, identified at the end of Stage 2: Route Selection. **Figure 2.1** (**Appendix A**) illustrates the combined proposed alignments.

The alignment option was developed to be sufficiently broad to allow for a range of connection alignment options to be considered, responding to environmental, technical, and economic considerations. The alignment options within the study area have been developed and assessed to identify potential environmental impacts ahead of selecting an overall preferred alignment option to take further.

The study area applied for each discipline is listed below:

- 15 km for international designations (however, during technical assessment, consideration is sometimes given to designated features beyond this due to potential connectivity);
- 10 km for national designations;
- 2 km for local designations;
- 4 km for landscape and visual receptors;
- 2 km for cultural heritage assets; and
- 1 km for hydrology receptors.

3.3 Baseline Conditions

The following information sources have informed the desk-based baseline study to identify potential environmental constraints within and adjacent to the Alignment Options. The study area applied for natural heritage features was 10 km, for landscape and visual 15 km, and cultural heritage 2 km. The desktop survey has involved the following:

- Identification of environmental designated sites and other constraints, utilising GIS datasets available via NatureScot SiteLink[1] and other sources. These include:
  - Special Areas of Conservation (SAC);
  - Special Protection Areas (SPA)
  - National Nature Reserves (NNR);
  - Local Nature Reserves (LNR);
  - Proposed Special Protection Areas (pSPA);
  - Sites of Special Scientific Interest (SSSI);
  - National Park;
  - National Scenic Area (NSA);
  - Wild Land Areas (WLA);
  - Royal Society for the Protection of Birds (RSPB) reserves;
  - Land Capability for Agriculture[2];
  - Geological Conservation Review Sites;
  - Carbon-rich soil, deep peat and priority peatland habitats[3]; and

[1] Nature Scot (2024) SiteLink Home [online] Available at: https://sitelink.nature.scot/home [Accessed: March 2025]

[2] The Scottish Government (2024) Scotland's Soils [online] Available at: https://map.environment.gov.scot/Soil_maps/?layer=5 [Accessed: March 2025]

[3] NatureScot (2024) Carbon and peatland 2016 map [online] Available at: https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/ [Accessed: March 2025]

- Areas at risk of flooding[4] .

- Identification of archaeological designations and other recorded sites, utilising GIS datasets available via Historic Environment Scotland Data Services[5] and local Historic Environment Scotland teams; these include:
  - World Heritage Sites (WHS) and buffers;
  - Scheduled Monuments;
  - Registered Battlefield Sites;
  - Category A, B and C listed buildings;
  - Gardens and Designed Landscapes;
  - Conservation Areas; and
  - Non-designated assets (Historic Environment Record (HER) and Canmore).
- Review of the Highland-wide Council Local Development Plan 2012[6] to identify local policies and further environmental constraints and opportunities, such as Local Nature Conservation Sites (LNCS), core paths or other locations important to the public;
- Review of landscape character assessments of relevance to the study area;
- Review of Ordnance Survey (OS) mapping (1:50,000 and 1:25,000) and online GIS data sources (from OS Open Data[7]) and aerial photography (where available) to identify other potential constraints such as settlement, properties, walking routes, cycling routes etc.; and
- Review of other local information through online and published media such as tourism sites.

Vantage Point surveys will be undertaken to understand the interaction between birds and potential overhead lines along the preferred alignment.

3.4 Alignment Identification and Selection Methods

Alignment options were identified following site appraisals, taking into account the most notable constraints identified during the baseline studies. Considerations have included a review of the steps outlined in the Holford Rules and SSEN Transmission plc's approach to routeing. In summary, the following has been taken into account as far as is practicable at this stage and will be considered in more detail during Stage 4 (EIA):

- 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;
- 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;

[4] SEPA (2024) Flood Maps [online] Available at: https://scottishepa.maps.arcgis.com/apps/webappviewer/index.html?id=3098bbef089c4dd79e5344a0e1e7c91c&showLayers=FloodMapsBasic_2743;FloodMapsBasic_2743_0;FloodMapsBasic_2743_1;FloodMapsBasic_2743_2;FloodMapsBasic_2743_3;FloodMapsBasic_2743_4;FloodMapsBasic_2743_5;FloodMapsBasic_2743_6;FloodMapsBasic_2743_7;FloodMapsBasic_2743_8;FloodMapsBasic_2743_9;FloodMapsBasic_2743_10;FloodMapsBasic_2743_11 [Accessed: March 2025]

[5] Historic Environment Scotland (2024) Historic Environment Scotland Data Services [online] Available at: https://portal.historicenvironment.scot/downloads [Accessed: March 2025]

[6] Highland Council (2012) Highland-wide Local Development Plan [online] Available at: https://www.highland.gov.uk/info/178/development_plans/199/highland-wide_local_development_plan [Accessed: March 2025]

[7] OS (2024) Open Data [online] Available at: https://osdatahub.os.uk/downloads/open [Accessed: March 2025]

- Target the alignment towards open valleys and woods where the apparent height of towers 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 alignment options have been identified within the proposed route to allow for subsequent identification of alignments during the next stage of the process (Stage 4).

3.5 Appraisal Method

Appraisal of alignment options has involved systematic consideration against the following environmental, technical and economic topic areas:

3.5.1 Environmental

- **Natural Heritage** (Designations, Protected Species, Habitats, Ornithology and Geology, Hydrogeology and Hydrology);
- **Cultural Heritage** (Designations and Cultural Heritage Assets);
- **People** (Settlements, Visual and Physical Effects);
- **Landscape** (Designations and Character);
- **Land Use** (Agriculture, Forestry and Recreation); and
- **Planning.**

Environmental sensitivity has been considered qualitatively, based on professional judgement and utilising the Red, Amber, Green (RAG) rating. It has been applied to each topic area indicating potential impacts. This rating is based on a four-point scale as described in **Table 3.1** below. SSEN Transmission guidance "Procedures for Routeing Overhead Lines of 132 kV or above" (**Section 3.1**) has been followed.

Table 3.1 – RAG Rating for Comparative Analysis

Performance	Comparative Appraisal	
Most Preferred ↓ Least Preferred	No Impact	Negligible, or no potential effects
	Lower Impact	Potentially minor effects, with little or no requirement for mitigation
	Moderate Impact	Potentially moderate effects subsequent to appropriate mitigation
	Higher Impact	Potentially major effects which may be difficult to mitigate

3.5.2 Engineering

The purpose of this assessment is to evaluate the alignment options using the methodology and engineering categories in table A7 of SSEN document 'PR-NET-ENV-501: Procedures of Routeing Overhead Lines of 132kV and above'. These categories are as follows:

- **Infrastructure crossings** – major crossings, road crossings;
- **Environmental design** – elevation, atmospheric pollution, contaminated land, flooding;
- **Ground conditions** – terrain, peat;

- **Construction/Maintenance** – access; and
- **Proximity** – clearance distance, communication masts, metallic pipelines.

Engineering sensitivity has been considered qualitatively, based on professional judgement and utilising the RAG rating. It has been applied to each topic area indicating potential impacts. This rating is based on a four-point scale as described in **Table 3.1**. SSEN Transmission guidance "Procedures for Routeing Overhead Lines of 132 kV or above" (**Section 3.1**) has been followed.

3.5.3 Cost

Appraisal of alignment options has involved systematic consideration against capital cost including construction, diversions, public road improvements, felling and land assembly.

To allow comparative appraisal a RAG rating has been applied using the criteria described in **Table 3.2**.

Table 3.2 Cost RAG Rating for Comparative Analysis

Red	Amber	Green
>140% of least cost option	120 - 140% of least cost option	< 120% of least cost option

3.5.4 Identification of a Preferred Alignment

Following review of all of the potential alignment options, these have been considered in combination to arrive at a preferred alignment option. The overall objective throughout the appraisal of alignment 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. Where possible, sections of the lowest risk have been combined to form a complete alignment option. However, where it is not possible to join up all sections of lowest risk rating, the section of next best rating has been selected, using professional judgement.

4. DESCRIPTION OF ALIGNMENTS

This Consultation Document appraises eight alignment options (as shown on **Figure 4.1, Appendix A**). The appraisal uses the environmental criteria set out in **Section 3** to identify a preferred alignment option.

4.1 Eastern section

4.1.1 Alignment option 1.1 (UGC)

Alignment option 1.1 is an UGC which starts west of the proposed Carn Fearna Wind Farm substation and travels west for 0.4 km south of Loch an Tuirc, and then diverts north on the western edge of Loch an Tuirc before travelling northeast for approximately 1.9 km. The alignment follows the existing access track before diverting west to end at the OHL wood pole connection point, approximately 1.4 km east of Black Water Falls, just south of the existing access track.

4.1.2 Alignment option 2.1 (UGC)

Alignment option 2.1 is an UGC which starts east of the proposed Carn Fearna Wind Farm substation and passes on the eastern edge of Loch an Tuirc for 0.3 km, and then travels southwest for 0.9 km along the northern edge of Loch an Tuirc before travelling northeast for approximately 1.5 km. The alignment follows the existing access track before diverting west to end at the OHL wood pole connection point, approximately 1.4 km east of Black Water Falls, just south of the existing access track.

4.1.3 Alignment option 3.1 (UGC)

Alignment option 3.1 is an UGC which starts east of the proposed Carn Fearna Wind Farm substation and travels through the proposed Carn Fearna Wind Farm, where it passes 0.2 km east of Loch an Tuirc before travelling northwest for 0.4 km, then northeast for 0.6 km and north for 0.9 km where it meets the existing access track. The alignment then diverts southwest for 0.3 km and travels east for 0.2 km to end at the OHL wood pole connection point, approximately 1.4 km east of Black Water Falls, just north of the existing access track.

4.2 Western section

4.2.1 Alignment option 1.2 (OHL)

Alignment option 1.2 is an OHL which starts approximately 1.4 km east of Black Water Falls, just north of the existing access track and travels northwest for 0.5 km, then west for 0.5 km and veers west southwest for 0.8 km, crossing over the A835. The alignment then travels southwest for 0.5 km and then west for 4 km, where it then travels slightly more northwest for 0.6 km and then southwest for 0.5 km where the alignment enters the proposed extension at the existing Corriemoillie substation from the north.

4.2.2 Alignment option 2.2 (OHL)

Alignment option 2.2 is an OHL which starts approximately 1.4 km east of Black Water Falls, just south of the existing access track. Alignment option 2.2 travels roughly southwest for 2.3 km, crossing the A835 approximately 800 m north of Little Garve, then the alignment travels west for 2.7 km, then northwest for 1.1 km and then roughly west for 0.9 km where the alignment enters the proposed extension at the existing Corriemoillie substation from the north.

4.2.3 Alignment option 2.3 (OHL Diversion)

Alignment option 2.3 is an OHL which starts approximately 0.4 km east of Corriemoillie substation. Alignment option 2.3 travels southwest for 0.5 km and enters the proposed extension at the existing Corriemoillie substation via a small diversion from the south.

4.2.4 Alignment option 3.2 (OHL)

Alignment option 3.2 is an OHL which starts approximately 1.4 km east of Black Water Falls, just south of the existing access track and travels in a southwest direction for 0.9 km, then travels west for 0.8 km, crossing the A835, and then travels west southwest for 2 km where it diverts northwest for 0.4 km and then southwest for 0.8 km. The alignment then travels northwest for 1.1 km and then roughly west for 0.9 km where the alignment enters the proposed extension at the existing Corriemoillie substation from the north.

4.2.5 Alignment option 4.2 (OHL)

Alignment option 4.2 is an OHL which starts approximately 1.4 km east of Black Water Falls, just south of the existing access track and travels in a southwest direction for 0.9 km then travels west for 2.8 km, crossing the A835, and then travels west southwest for 2 km. The alignment then travels northwest for 2.2 km where it then travels south for 0.5 km and enters the proposed extension at the existing Corriemoillie substation from the north.

5. COMPARATIVE ANALYSIS

This section provides a summary of the potential environmental, technical and economic constraints identified for each alignment option. A detailed review of potential environmental and technical constraints is presented in **Appendix B** and **C**.

5.1 Alignment Option 1.1 (UGC)

5.1.1 Environmental Constraints

5.1.2 Landscape and Visual Context

The landscape and visual constraints present within alignment option 1.1 are illustrated in **Figure 5.1**.

Designations

Alignment option 1.1 does not pass through an NSA, WLA or SLA. The Ben Wyvis SLA designated by The Highland Council is located 300 m to the east of alignment at the closest point. Alignment option 1.1 is undergrounded and therefore is unlikely to compromise the special qualities of this designation. Therefore, a Green rating is applied.

Visual Amenity

The Ben Wyvis WLA is located 600 m to the east of alignment option 1.1 at the closest point. The alignment is unlikely to impact the special visual qualities of this designation as it is undergrounded and is located outside of the designation. The visual receptors include:

- Residents at Little Garve, Gorstan and Corriemoillie.
- Road users of A832.
- Walkers along the core paths of Silverbridge Circuit and Tor Breac to the south of Black Water Falls.

Due to alignment option 1.1 being undergrounded, it is unlikely to comprise the visual amenity. Therefore, a Green rating is applied.

5.1.3 Natural Heritage Context

The natural heritage designations present within alignment option 1.1 are illustrated in **Figure 5.2**.

Designations

Alignment option 1.1 near multiple international and national designated sites, with specific distances as follows:

- Ben Wyvis SPA, SAC, SSSI and NNR: 2.8 km NE;
- Glen Affric to Strathconon SPA: 4.5 km SW;
- Lower River Conon SSSI: 7.9 km SE;
- Conon Islands SAC: 7.9 km SE;
- Loch Ussie SAC and SSSI: 9.6 km SE;
- Allt nan Caorach SSSI: 10.1 km NE;
- Achanalt Marshes SPA and SAC: 13.5 km W;
- Cromarty Firth SPA, SSSI and Ramsar site: 14 km SE;
- Beinn Dearg SSSI, SPA and SAC: 15 km NW;

- Fannich Hills SAC and SSSI: 15 km W;
- Novar SPA: 16 km NE;
- Drummondreach Wood SSSI: 16.7 km SE;
- Monadh Mor SAC: 17.7 km SE;
- Beauly Firth SSSI: 19.3 km SE;
- Glen Strathfarrar SSSI: 19.5 km S;
- Moray Firth SPA; 19.5 km SE; and
- Inner Moray Firth SPA and Ramsar site: 20 km E.

Designated sites with ornithological species with no connectivity to the Proposed Development have not been included.

This alignment poses potential risks to the qualifying species in these designated sites. Therefore, an Amber rating is applied.

Protected Species

European protected species in the area include otter, wildcat, and bat species. The southern part of the area is within a designated WPA. UK BAP species present include red squirrel, pine marten, badger, and adder. SBL species include slow worm, common lizard, common toad, hedgehog, mountain hare, and brown hare.

For assessment purposes and in the absence of a survey, it is assumed that alignment option 1.1, being underground, and utilising proper design, licensing, and best practice construction techniques, is unlikely to compromise the conservation status or habitats of these species. Therefore, a Green rating is applied.

Habitat

There are areas of Class 1 priority peatland at the southern section of alignment option 1.1. There is the potential to compromise the integrity of Annex 1 habitats including blanket bog and GWDTE as a result of the construction of alignment option 1.1.

Within the areas of Class 1 Peatland, the primary component soils are made up of peaty gleys with dystrophic semi-confined peat. Alignment option 1.1 also includes component soils made up of humus-iron podzols with peaty gleyed podzols and peaty gleyed podzols with dystrophic semi-confined peat with peaty gleys. Class 0 and 5 Peatland are recorded to the north of the alignment. The description of Class 5 peatland is that soil information takes precedence over vegetation data, an area where there is no peatland vegetation and therefore no peatland habitat has been recorded. This may include areas of bare soil, where the soil is carbon-rich and deep peat present.

SSEN Transmission defines irreplaceable ancient woodland as Categories 1a and 2a of the AWI. There is no ancient woodland of category 1a and 2a within study area option 1.1.

A Red rating is applied as alignment option 1.1 is likely to compromise the conservation status of Annex 1 habitats including blanket bog e.g. by passing directly through them.

Geology, Hydrology and Hydrogeology

There are areas of Class 1 peatland throughout the southern areas of alignment option 1.1. The remainder of alignment option 1.1 is mapped as Class 5 peatland and Class 0 mineral soils. The northern section of alignment option 1.1 is predominantly situated across shallow soils less than 0.5 m in depth. Results from the southern section of alignment option 1.1 indicate that peat (>0.5 m) is present, with areas of deep peat (>1.0 m) primarily

recorded throughout the southern extents of the alignment option, adjacent to Loch an Tuirc.

The alignment option 1.1 does not lie within 250 m of any PWS which are hydrologically connected to the option. Alignment option 1.1 passes within 250 m of the Loch an Tuirc hydrological feature. The alignment option does not pass through any Water Framework Directive (WFD) designated watercourses therefore no WFD assessment is required as part of any EIA. The alignment option does not pass through a Surface Water Drinking Protected Area and is unlikely to compromise the quality and/or quantity of surface waters.

Due to the Class 1 and 2 mapped peat and localised areas of recorded peat >1.0 m, an Amber rating is applied.

Ornithology

The following designations and their qualifying bird species in relation to alignment option 1.1 are as follows:

- Ben Wyvis SPA (3.8 km N): Supports breeding dotterel.
- Cromarty Firth SPA & Ramsar Site (14 km SE): Supports osprey, common tern, greylag goose, whooper swan, bar-tailed godwit, and over 20,000 wintering waders and wildfowl.
- Glen Affric to Strathconon SPA (4.5 km SW): Supports golden eagle.
- Achanalt Marshes SPA (13.5 km W): Supports wood sandpiper (*Tringa glareola*).
- Inner Moray Firth SPA Ramsar Site (20 km SE): Supports osprey, common tern, greylag goose, red-breasted merganser, redshank, and over 20,000 wintering birds.
- Novar SPA (16 km NE): Supports breeding capercaillie. Schedule 1 / Annex I and / or Birds of Conservation Concern (BoCC) red-list species and Scottish Biodiversity List species with nesting territories / nest buffer zones near alignment option 1.1 include black grouse, capercaillie, osprey, and red kite.

There is the potential for disturbance or displacement impacts to protected species during construction and a precautionary Red rating is applied.

5.1.4 Other Potential Environmental Constraints

Cultural Heritage

The cultural heritage constraints present within alignment option 1.1 are illustrated in **Figure 5.3**.

Designated Assets: There are no Scheduled Monuments within alignment option 1.1. There are no Registered Battlefields, Gardens and Designed Landscapes or World Heritage Sites within or within 5 km of alignment option 1.1. Within 2 km of alignment option 1.1 there is one Scheduled Monument: SM2720 Little Garve, bridge over Black Water.

Non-designated assets: There are no non-designated assets identified from the Canmore Database, located within 50 m of alignment option 1.1.

Direct: No direct impacts to designated assets are anticipated for alignment option 1.1. However, there remains the potential to introduce direct effects to unknown buried archaeology through the construction phase.

Indirect and Setting: Although SM2720 is located within less than 2 km, it is not anticipated that alignment will introduce any permanent effects on the setting of this asset, due to the alignment being undergrounded.

There are no Conservation Areas or Listed Buildings within or within 5 km of alignment option 1.1. No direct impacts to designated Listed Buildings are anticipated for this alignment. No indirect or setting impacts to designated Listed Buildings are anticipated for this alignment. A Green rating is therefore applied.

People

Alignment option 1.1 does not pass any residential communities in close proximity, however there are scattered residential properties situated across the open landscape, including the hamlets of Gorstan, and Little Garve approximately 1.3 km away.

As alignment option 1.1 does not pass within close proximity to any residential dwellings, a Green rating is applied.

Land Use and Recreation

Agricultural land within alignment option 1.1 has a land capability of between 5.3 and 6.3. Therefore, a Green RAG rating has been applied.

Alignment option 1.1 runs along an existing access track on a steep slope alongside Strathgarve Forest, which runs approximately 0.4 km west of the alignment option. Therefore, a Green RAG rating is applied as it is unlikely to result in a loss of woodland to tree felling.

Alignment option 1.1 does not directly intersect any core paths. As such, a Green RAG rating is applied.

Planning

Alignment option 1.1 is in full compliance with national, regional and local applicable planning policy. Therefore, a Green rating has been applied.

Table 5.1 - Environmental RAG Rating Table for Alignment Option 1.1 (UGC)

Alignment option (UGC)	RAG Impact Rating - Environmental													
	Natural Heritage					Cultural Heritage		People	Landscape		Land Use			Planning
	Designations	Protected Species	Habitats	Geology, Hydrology and	Ornithology	Designations	Cultural Heritage Assets	Proximity to People	Designations	Visual	Agriculture	Forestry	Recreation	Planning
1.1	M	L	H	M	H	L	L	L	L	L	L	L	L	L

5.1.5 Engineering Constraints

Major Crossings

There are no current or envisaged future crossings. Major crossings accessed here are 132KV, 275KV, and 400KV transmission lines, HVDC, rail, bridges, rivers, canals oil, and gas pipelines or hydro pipelines. Therefore, a Green rating has been applied.

Road Crossings

For all alignment option 1.1, the road crossing requirements remain consistent, involving a small number of crossings over existing stone access tracks and wind farm access roads. Therefore, a Green rating has been applied.

Elevation

Alignment option 1.1 – approx. 100% of the alignment is at >200m altitude. Therefore, a Red rating has been applied.

Atmospheric Pollution

None of the outdoor transition points (CSEs) are located within 3 km of the coast; thus, atmospheric pollution is considered negligible for Alignment Option 1.1 and a Green rating is applied.

Contaminated Land

There are no known areas of contaminated land or evidence of a risk of contaminated land within alignment option 1. An initial desktop study for UXO was completed and there was found to be no risk. Therefore, a Green rating has been applied.

Flooding

Within alignment option 1.1, less than 2% of option length in 1 in 200 years flood zone, however, there are small surface water tributaries to various lochs in the area that should be accounted for /Analysed further. Therefore, an Amber rating has been applied.

Terrain

The terrain has been assessed by reviewing the maximum gradients of the terrain along the alignment using the Google Earth elevation profile. All alignment options would traverse comparable terrain, encountering maximum slope gradients of 18.4% for alignment option 1.1. Therefore, an Amber rating has been applied.

Rock

Rock presents significant challenges for access, construction, and maintenance. Alignment options within mountainous regions are typically more constrained, making installation and ongoing maintenance more difficult and costly. Alignment option 1.1 contains significant surface rock and rock outcrops in certain sections. The depth of these formations cannot be determined at this stage, posing a substantial risk to the project. Therefore a Red rating is applied.

Peatland

Desktop surveys and developers' peat data were utilised to assess the severity of peat along the alignment. All three alignment options have more than 20% of their route length situated in Class 1 and 5 peat areas. Therefore, a Red rating has been applied to alignment option 1.1.

Access

New access tracks are required for approx. 15% of alignment option 1.1. Therefore, an Amber rating has been applied.

Angle Supports

Several deviations identified along alignment option 1.1. Therefore, an Amber rating has been applied.

Cable Haul Road

UGC alignments can be installed within challenging terrain resulting in poor ground conditions for cable hauling. Mitigation may be required to enhance the cable haul road design to aid the UGC installation, therefore resulting in increased costs for upgrading roads for installation. An alignment option which is a greater distance from a suitable cable haul road is at greater risk of being constrained. Alignment option 1.1 is likely to require an enhanced haul road design due to steep slopes, peatland, and poor ground conditions. However, existing tracks can be used and improved, therefore an Amber rating is applied.

Clearance

The construction work for UGC near or under high-voltage lines is governed by PR-PS-312, which provides guidance and advice on the necessary safety precautions and documentation required to ensure safe working conditions in proximity to Scottish and Southern Energy (SSE) lines and substation equipment. All alignments have been assessed, and no live SSE lines or equipment are present in the vicinity. Therefore, a Green rating has been applied to alignment option 1.1.

Wind Farms

The proposed location of the Cable sealing end (CSE) is out with wind turbine wake zones and the risk of ice throw is deemed low. Therefore, a Green rating has been applied to alignment option 1.1.

Communication Masts

A communication tower is situated within 750 meters of all three proposed routes. A utility survey will be undertaken once the final route alignment has been confirmed. Therefore, a Red rating has been applied

Urban Developments

There are no urban developments present along any of the proposed alignment options, therefore all options are scored equally with a Green rating.

Metallic Pipes

No metallic pipes were identified along alignment option 1.1. Therefore, a Green rating has been applied.

Reactive Compensation

Long route lengths (typically >10 km) can introduce the requirement of reactive compensation. Minimising the necessity for reactive compensation can ultimately reduce the costs incurred in an Option.

For all proposed alignment options, the circuit length is less than 10 km and therefore reactive compensation will likely not be required. Therefore, a Green rating is applied.

Joint Bays & Link Box Chambers

Joint bays and/or link box chambers may necessitate additional access points, leading to increased costs and access requirements. An alignment option requiring new access tracks to joint bay locations is more expensive compared to one utilising existing access that may only need improvements. Alignment Option 1.1 has enhanced section required for joint bay access. Therefore, an Amber rating is applied.

The Electricity Safety, Quality and Continuity Regulations (ESQCR) assessment

The Electricity Safety, Quality, and Continuity Regulations are evaluated to be very low risk for alignment option 1.1. Therefore, a Green rating has been applied.

Table 5.2 - Engineering RAG Rating Table for Alignment Option 1.1

Route Option	Infrastructure Crossing		Environmental Design				Ground Condition			Construction and Maintenance			Proximity					Design		ESQCR	
	Major Crossings	Minor Roads	Elevation	Atmospheric Pollution	Contaminated Land	Flooding	Terrain	Rock	Peatland	Access	Angle of deviation	Cable Haul Road	Clearance Distance	Windfarms	Communication	Urban Environments	Metallic Pipes	Reactive Compensation	Joint Bays and Link Box Chambers	ESQCR	Constructability
1.1	L	L	H	L	L	I	I	H	H	I	I	I	L	L	H	L	L	L	I	L	H

5.1.6 Economic Considerations

Capital

Capital costs such as construction, tree felling and land assembly are just some of the criteria considered in the cost appraisal. In terms of cost, there is little difference between alignment options 1.1, 2.1 and 3.1 which are all comparable. Therefore, a green rating has been applied.

Operational

In terms of inspection and maintenance, all UGC options are comparable and therefore a green rating has been applied.

RAG Impact Rating Summary

Table 5.3 - Cost RAG Rating Table for Alignment Option 1.1

Alignment Option	RAG Impact Rating - Cost	
	Capital	**Operational**
	Construction, Diversions, Public Road Improvements, Felling, Land Assembly and Consent Mitigations	Inspections and Maintenance
1.1 UGC	L	L

5.2 Alignment Option 2.1 (UGC)

5.2.1 Environmental Constraints

5.2.2 Landscape and Visual Context

The landscape and visual constraints present within alignment option 2.1 are illustrated in **Figure 5.3**.

Designations

Alignment option 2.1 does not pass through an NSA, WLA or SLA. The Ben Wyvis SLA designated by The Highland Council is located 300 m to the east of alignment at the closest point. The alignment is unlikely to compromise the special qualities of this designation due to being underground. Therefore, an Amber rating is applied

Visual Amenity

The Ben Wyvis WLA is located 500 m to the east of the alignment at the closest point. The alignment is unlikely to impact the wild qualities of this designation as it is undergrounded and is located outside of the designation.

The visual receptors include:

- Residents at Little Garve, Gorstan and Corriemoillie.
- Road users of A832.
- Walkers along the core paths of Silverbridge Circuit and Tor Breac to the south of Black Water Falls.

The alignment is unlikely to comprise a view or visual amenity so a Green rating is applied.

5.2.3 Natural Heritage Context

The natural heritage designations present within alignment option 2.1 are illustrated in **Figure 5.3**.

Designations

Alignment option 2.1 passes within 20 km of multiple international and national designated sites, with specific distances as follows:

- Ben Wyvis SPA, SAC, SSSI and NNR: 2.8 km northeast;
- Glen Affric to Strathconon SPA: 4.5 km southwest;
- Lower River Conon SSSI: 7.9 km southeast;
- Conon Islands SAC: 7.9 km southeast;
- Loch Ussie SAC and SSSI: 9.6 km southeast;
- Allt nan Caorach SSSI: 10.1 km northeast;
- Achanalt Marshes SPA and SAC: 14 km west;
- Cromarty Firth SPA, SSSI and Ramsar Site: 14 km southeast;
- Beinn Dearg SSSI, SPA and SAC: 15 km northwest;
- Fannich Hills SAC and SSSI: 15 km west;
- Novar SPA: 16 km northeast;
- Drummondreach Wood SSSI: 16.7 km southeast;
- Monadh Mor SAC: 17.7 km southeast;
- Beauly Firth SSSI: 19.3 km southeast;

- Glen Strathfarrar SSSI: 19.5 km south;
- Moray Firth SPA; 19.7 km southeast;
- Strathglass Complex SAC: 19.9 km south; and
- Inner Moray Firth SPA and Ramsar site: 20 km east.

Designated sites with ornithological species with no connectivity to the Proposed Development have not been included.

There is the potential for disturbance or displacement impacts to protected species during construction and a precautionary red rating is applied.

Protected Species

European protected species known to occur in the area, which may therefore be present across the alignment include otter, wildcat and bat species. The south of the alignment option is within a designated WPA.

UK BAP species including red squirrel, pine marten, badger, and adder. SBL species including slow worm, common lizard, common toad, hedgehog, mountain hare and brown hare.

For assessment purposes and in the absence of a survey, it is assumed that alignment option 2.1, being underground, and utilizing proper design, licensing, and best practice construction techniques, is unlikely to compromise the conservation status or habitats of these species. Therefore, a Green rating is applied.

Habitat

There are areas of Class 1 Peatland at the southern section of alignment option 2.1. Therefore, there is the potential to compromise the integrity of Annex 1 habitats including blanket bog and GWDTE. Within the areas of Class 1, the primary component soils are made up of peaty gleys with dystrophic semi-confined peat. Alignment option 2.1 also includes component soils made up of humus-iron podzols with peaty gleyed podzols and peaty gleyed podzols with dystrophic semi-confined peat with peaty gleys. Class 5 Peatland and Class 0 mineral soils are recorded to the north of the alignment.

SSEN Transmission defines irreplaceable ancient woodland as Categories 1a and 2a of the AWI. There is no ancient woodland of category 1a and 2a within the alignment option 2.1.

A Red rating is applied as the proposed development is likely to compromise the conservation status of Annex 1 habitats including blanket bog e.g. by passing directly through them.

Geology, Hydrology and Hydrogeology

There are areas of Class 1 peatland throughout the southern areas of alignment option 2.1. The remainder of alignment option 2.1 in the north is mapped as Class 5 peatland and Class 0 mineral soils. The northern section of alignment option 2.1 is predominantly situated across shallow soils less than 0.5 m in depth. Results from the southern section of alignment option 2.1 indicate that peat (>0.5 m) is present, with areas of deep peat (>1.0 m) primarily recorded throughout the southern extents of the alignment option, adjacent to Loch an Tuirc.

The alignment option 2.1 does not lie within 250 m of any PWS which are hydrologically connected to the option. Alignment option 2.1 passes within 50 m of the Loch an Tuirc hydrological feature. The alignment option does not pass through any Water Framework

Directive (WFD) designated watercourses, therefore no WFD assessment is required as part of any EIA.

The alignment option is not near any Surface Water Drinking Protected Areas and therefore is unlikely to compromise the quality and/or quantity of surface waters which provide public supply. Therefore, an Amber rating is applied.

Ornithology

The following designations and their qualifying bird species in relation to alignment option 2.1 are as follows:

- Ben Wyvis SPA (2.8 km N): Supports breeding dotterel.
- Glen Affric to Strathconon SPA (4.5 km SW): Supports golden eagle.
- Achanalt Marshes SPA (14 km W): Supports wood sandpiper.
- Beinn Dearg SPA is (14.9 km NW): Supports breeding dotterel
- Cromarty Firth SPA & Ramsar Site (14 km SE): Supports osprey, common tern, greylag goose, whooper swan, bar-tailed godwit, and over 20,000 wintering waders and wildfowl.
- Novar SPA (16 km NE): Supports breeding capercaillie.
- Inner Moray Firth SPA Ramsar Site (20 km SE): Supports osprey, common tern, greylag goose, red-breasted merganser, redshank, and over 20,000 wintering birds.
- Schedule 1 / Annex I and / or Birds of Conservation Concern (BoCC) red-list species and Scottish Biodiversity List species with nesting territories / nest buffer zones near alignment option 2.1 include black grouse, capercaillie, osprey, and red kite.

Alignment option 2.1 may cause barrier and collision effects to SPA species, resulting in a Red rating.

5.2.4 Other Potential Environmental Constraints

Cultural Heritage

The cultural heritage constraints present within alignment option 2.1 are illustrated in **Figure 5.3**.

Designated Assets: There are no Scheduled Monuments within alignment option 2.1. There are no Registered Battlefields, Gardens and Designed Landscapes or World Heritage Sites within or within 5 km of alignment option 2.1. Within 2 km of the alignment option 2.1 there is one Scheduled Monument: SM2720 Little Garve, bridge over Black Water.

Non-designated assets: There are no non-designated assets identified from the Canmore Database, located within 50 m of alignment option 2.1. Direct: No direct impacts to designated assets are anticipated for alignment option 2.1. However, there remains the potential to introduce direct effects to unknown buried archaeology through the construction phase.

Indirect and Setting: Although SM2720 is located within 2 km, it is not anticipated that alignment will introduce any permanent effects on the setting of this asset. Therefore, there is potential for a low impact to designations as a result of this alignment and a Green rating is applied.

There are no Conservation Areas or Listed Buildings within or within 5 km of alignment option 2.1.

Direct: No direct impacts to designated Listed Buildings are anticipated for this alignment.

Indirect and Setting: No indirect or setting impacts to designated Listed Buildings are anticipated for this alignment. Therefore, there is potential for a low impact to designations as a result of this alignment and a Green rating is applied.

People

Alignment option 2.1 does not pass any residential communities in close proximity, however there are scattered residential properties situated across the open landscape, including the hamlets of Gorstan and Little Garve approximately 1.3 km away. As alignment option 2.1 does not pass within close proximity to any residential dwellings, a Green rating is applied.

Land Use and Recreation

Agricultural land within alignment option 2.1 has a land capability of between 5.3 and 6.3, therefore a Green RAG rating has been applied.

Alignment option 2.1 runs along the access track on a steep slope alongside Strathgarve Forest, which runs approximately 0.4 km west of the alignment option. Therefore, a Green RAG rating is applied as it is unlikely to result in a loss of woodland to tree felling.

Alignment option 2.1 does not directly intersect the two core paths in any area. As such a Green RAG rating is applied.

Planning

Alignment option 2.1 is in full compliance with national, regional and local applicable planning policy. A Green rating has been applied as there have been no other Proposed Developments identified in the planning system that may interact with the alignment option.

Table 5.4 - Environmental RAG Rating Table for Alignment Option 2.1

Alignment Option	RAG Impact Rating - Environmental													
	Natural Heritage					Cultural Heritage		People	Landscape		Land Use			Planning
	Designations	Protected Species	Habitats	Geology, Hydrology and	Ornithology	Designations	Cultural Heritage Assets	Proximity to People	Designations	Visual	Agriculture	Forestry	Recreation	Planning
2.1	M	L	H	M	H	L	L	L	L	L	L	L	L	L

5.2.5 Engineering Constraints

Major Crossings

There are no current or envisaged future crossings. Major crossings accessed here are 132KV, 275KV, and 400KV transmission lines, HVDC, rail, bridges, rivers, canals oil, and gas pipelines or hydro pipelines. Therefore, a Green rating has been applied for alignment option 2.1.

Road Crossings

For alignment option 2.1, the road crossing requirements remain consistent, involving a small number of crossings over existing stone access tracks and wind farm access roads. Therefore, a Green rating has been applied.

Elevation

For alignment option 2.1 – approx. 100% of the alignment is at >200m altitude. Therefore, a Red rating has been applied.

Atmospheric Pollution

None of the outdoor transition points (CSEs) are located within 3 km of the coast; thus, atmospheric pollution is considered negligible for Alignment Option 2.1 and a Green rating is applied.

Contaminated Land

There is no known evidence of contaminated land in alignment option 2.1. Therefore, a Green rating has been applied.

Flooding

For alignment option 2.1 less than 2% of the alignment length in 1 in 200 years flood zone, however, there are small surface water tributaries to various lochs in the area that should be accounted for /Analysed further. Therefore, an Amber rating has been applied.

Terrain

Alignment option 2.1 has a maximum slope gradient of approximately 18.7%. Therefore, an Amber rating has been applied.

Rock

Rock presents significant challenges for access, construction, and maintenance. Alignment options within mountainous regions are typically more constrained, making installation and ongoing maintenance more difficult and costly. Alignment option 1.1 contains significant surface rock and rock outcrops in certain sections. The depth of these formations cannot be determined at this stage, posing a substantial risk to the project. Therefore a Red rating is applied.

Peatland

The majority of alignment option 2.1 is located within a peatland. Therefore, a Red rating has been applied.

Access

For alignment option 2.1, new access tracks are required for approximately 36% of the alignment. Therefore, a Red rating has been applied.

Angle Supports

There are several deviations identified along the proposed alignment for alignment option 2.1. Therefore, an Amber rating has been applied.

Cable Haul Road

UGC alignments can be installed within challenging terrain resulting in poor ground conditions for cable hauling. Mitigation may be required to enhance the cable haul road design to aid the UGC installation, therefore resulting in increased costs for upgrading roads for installation. An alignment option which is a greater distance from a suitable cable

haul road is at greater risk of being constrained. Alignment option 2.1 is likely to require an enhanced haul road design due to steep slopes, peatland, and poor ground conditions. However, existing tracks can be used and improved, therefore an Amber rating is applied.

Clearance

No live SSE lines or equipment are present within alignment option 2.1. Therefore, a Green rating has been applied.

Wind Farms

The proposed location of the Cable sealing end (CSE) is out with wind turbine wake zones and the risk of ice throw is deemed low. Therefore, a Green rating has been applied.

Communication Masts

There is one communication mast located within 750 metres of alignment option 2.1. Therefore, a Red rating has been applied.

Urban Developments

No urban developments are present along the alignment. Therefore, a Green rating has been applied.

Metallic Pipes

No metallic pipes were identified along alignment option 2.1. Therefore, a Green rating has been applied.

Reactive Compensation

Long route lengths (typically >10 km) can introduce the requirement of reactive compensation. Minimising the necessity for reactive compensation can ultimately reduce the costs incurred in an Option.

For all proposed alignment options, the circuit length is less than 10 km and therefore reactive compensation will likely not be required. Therefore, a Green rating is applied.

Joint Bays & Link Box Chambers

Joint bays and/or link box chambers may necessitate additional access points, leading to increased costs and access requirements. An alignment option requiring new access tracks to joint bay locations is more expensive compared to one utilising existing access that may only need improvements. Alignment Option 2.1 has enhanced section required for joint bay access. Therefore, an Amber rating is applied.

The Electricity Safety, Quality and Continuity Regulations (ESQCR) assessment

Alignment option 2.1 has been given a Green rating as no major risks were identified.

RAG Impact Rating Summary

Table 5.5 - Engineering RAG Rating Table for Alignment Option 2.1

Route Option	Infrastructure Crossing		Environmental Design				Ground Condition			Construction and Maintenance			Proximity					Design		ESQCR	
	Major Crossings	Minor Roads	Elevation	Atmospheric Pollution	Contaminated Land	Flooding	Terrain	Rock	Peatland	Access	Angle of deviation	Cable Haul Road	Clearance Distance	Windfarms	Communication	Urban Environments	Metallic Pipes	Reactive Compensation	Joint Bays and Link Box Chambers	ESQCR	Constructability
2.1	L	L	H	L	L	I	I	H	H	H	I	I	L	L	H	L	L	L	I	L	H

5.2.6 Economic Considerations

Capital

In terms of cost, there is little difference between alignment options 1.1, 2.1 and 3.1 which are all comparable. Therefore, a green rating has been applied.

Operational

In terms of inspection and maintenance, all UGC options are comparable and therefore a green rating has been applied.

RAG Impact Rating Summary

Table 5.6 – Cost RAG Rating Table for Alignment Option 2.1

Alignment Option	RAG Impact Rating - Cost	
	Capital	**Operational**
	Construction, Diversions, Public Road Improvements, Felling, Land Assembly and Consent Mitigations	Inspections and Maintenance
2.1 UGC	L	L

5.3 Alignment Option 3.1 (UGC)

5.3.1 Environmental Constraints

5.3.2 Landscape and Visual Context

The landscape and visual constraints present within alignment option 3.1 are illustrated in **Figure 5.5**.

Designations

Alignment option 3.1 does not pass through an NSA or WLA. The Ben Wyvis SLA designated by The Highland Council part of the alignment passes through in the north. The alignment is unlikely to compromise the special qualities of this designation due to being underground. Therefore, an Amber rating is applied.

Visual Amenity

The Ben Wyvis WLA is located 300 m to the east of the alignment at the closest point. The alignment is unlikely to impact the special visual qualities of this designation as it is undergrounded and is located outside of the designation.

The visual receptors include:

- Residents at Little Garve, Gorstan and Corriemoillie.
- Road users of A832.
- Walkers along the core paths of Silverbridge Circuit and Tor Breac to the south of Black Waterfalls.

Therefore, a Green rating is applied.

5.3.3 Natural Heritage Context

The natural heritage designations present within alignment option 3.1 are illustrated in **Figure 5.5.**

Designations

Alignment option 3.1 passes within 20 km of multiple international and national designated sites, with specific distances as follows:

- Ben Wyvis SPA, SAC, SSSI and NNR: 2.8 km northeast;
- Glen Affric to Strathconon SPA: 4.6 km southwest;
- Lower River Conon SSSI: 7.7 km southeast;
- Conon Islands SAC: 7.7 km southeast;
- Loch Ussie SAC and SSSI: 9.4 km southeast;
- Allt nan Caorach SSSI: 9.8 km northeast;
- Beinn Dearg SSSI, SPA and SAC: 13.8 km northwest;
- Achanalt Marshes SPA and SAC: 14 km west;
- Cromarty Firth SPA, SSSI and Ramsar Site: 14 km southeast;
- Fannich Hills SAC and SSSI: 15 km west;
- Novar SPA: 15.6 km northeast;
- Drummondreach Wood SSSI: 16.5 km southeast;
- Monadh Mor SAC: 17.5 km southeast;
- Beauly Firth SSSI: 19.2 km southeast;

- Inner Moray Firth SPA and Ramsar site: 19.2 km east.
- Glen Strathfarrar SSSI: 19.8 km south;
- Moray Firth SPA; 19.7 km southeast; and
- Strathglass Complex SAC: 19.7 km south.

Designated sites with ornithological species with no connectivity to the Proposed Development have not been included.

There is the potential for disturbance or displacement impacts to protected species during construction and a precautionary Red rating is applied.

Protected Species

European protected species known to occur in the area, which may therefore be present across the alignment include otter, wildcat and bat species. The south of the alignment option is within a designated WPA.

UK BAP species known to occur in the area include red squirrel, pine marten, badger, and adder. SBL species include slow worm, common lizard, common toad, hedgehog, mountain hare and brown hare. For the purposes of assessment and in the absence of survey, it is assumed that through design, licencing and best practice construction techniques the Proposed Development is unlikely to compromise the conservation status or known presence or suitable habitats for EPS or BAP species. A Green rating is applied.

Habitat

There are areas of Class 1 and Class 2 habitats and are present throughout alignment option 3.1. Therefore, there is the potential to compromise the integrity of Annex 1 habitats including blanket bog and GWDTE. Within the areas of Class 1, the primary component soils are made up of peaty gleys with dystrophic semi-confined peat. Class 5 Peatland is recorded along the alignment.

SSEN Transmission defines irreplaceable ancient woodland as Categories 1a and 2a of the AWI. There is no ancient woodland of category 1a and 2a within the alignment option 3.1.

A red rating is applied as the proposed development is likely to compromise the conservation status of Annex 1 habitats including blanket bog e.g. by passing directly through them.

Geology, Hydrology and Hydrogeology

There are areas of Class 1 peatland throughout alignment option 3.1. In addition, there is a localised area of Class 2 peatland mapped in the northern section of alignment option 3.1. The remainder of alignment option 3.1 is mapped as Class 5 peatland and Class 0 mineral soils. The available results indicated that predominantly shallow soils are situated throughout the northern extents of alignment option 3.1.

In addition, there were shallow soils (<0.5 m) recorded throughout the central areas of alignment option 3.1. In the central areas of alignment, predominantly across flatter expanses, peat depths were recorded between 0.7 – 1.5 m. It should be noted that there is insufficient peat data available to cover the full alignment option 3.1, especially in areas of the north extents. Further surveys will be required if this alignment is selected as the preferred option.

The alignment option 3.1 does not lie within 250 m of any PWS which are hydrologically connected to the option. Alignment option 3.1 passes within 200 m of the Loch an Tuirc

hydrological feature. Alignment option 3.1 does not pass any Water Framework Directive (WFD) designated watercourses. The alignment option is not near any surface water drinking protected areas and therefore is unlikely to compromise the quality and/or quantity of surface waters which provide public supply.

An Amber rating is applied due to the presence of peat throughout alignment option 3.1.

Ornithology

The following designations and their qualifying bird species in relation to alignment option 3.1 are as follows:

- Ben Wyvis SPA (2.4 km N): Supports breeding dotterel.
- Glen Affric to Strathconon SPA (5 km SW): Supports golden eagle.
- Achanalt Marshes SPA (14 km W): Supports wood sandpiper.
- Beinn Dearg SPA is situated (14.9 km NW): Supports breeding dotterel.
- Cromarty Firth SPA & Ramsar Site (14 km SE): Supports osprey, common tern, greylag goose, whooper swan, bar-tailed godwit, and over 20,000 wintering waders and wildfowl.
- Novar SPA (15 km NE): Supports breeding capercaillie.
- Inner Moray Firth SPA Ramsar Site (20 km SE): Supports osprey, common tern, greylag goose, red-breasted merganser, redshank, and over 20,000 wintering birds.

Schedule 1 / Annex I and / or Birds of Conservation Concern (BoCC) red-list species and Scottish Biodiversity List species with nesting territories / nest buffer zones near alignment option 3.1 include black grouse, capercaillie, osprey, and red kite.

Alignment option 3.1 may cause barrier and collision effects to SPA species, resulting in a Red rating.

5.3.4 Other Potential Environmental Constraints

Cultural Heritage

The cultural heritage constraints present within alignment option 3.1 are illustrated in **Figure 5.5**.

Designated Assets: There are no Scheduled Monuments within alignment option 3.1. There are no Registered Battlefields, Gardens and Designed Landscapes or World Heritage Sites within or within 5 km of alignment option 3.1.

Within 5 km of the alignment option 3.1 there is one Scheduled Monument: SM2720 Little Garve, bridge over Black Water.

Non-designated assets: There are no non-designated assets identified from the Canmore Database, located within 50 m of alignment option 3.1.

Direct: No direct impacts to designated assets are anticipated for alignment option 3.1. However, there remains the potential to introduce direct effects to unknown buried archaeology through the construction phase.

Indirect and Setting: Although SM2720 is located within 5 km, it is not anticipated that alignment will introduce any permanent effects on the setting of this asset. Therefore, there is potential for a low impact to designations as a result of this alignment and a Green rating is applied.

There are no Conservation Areas or Listed Buildings within or within 5 km of alignment option 3.1. Direct: No direct impacts to designated Listed Buildings are anticipated for this

alignment. Indirect and Setting: No indirect or setting impacts to designated Listed Buildings are anticipated for this alignment. Therefore, there is potential for a low impact to designations as a result of this alignment and a Green rating is applied.

People

Alignment option 3.1 does not pass any residential communities in close proximity, however there are scattered residential properties situated across the open landscape, including the hamlets of Gorstan, and Little Garve.

As alignment option 3.1 does not pass within close proximity to any residential dwellings, a Green rating is applied.

Land Use and Recreation

Agricultural land within alignment option 3.1 has a land capability between 5.3 and 6.3. Therefore, a Green rating is applied.

Alignment option 3.1 runs along the access track on a steep slope alongside Strathgarve Forest, which runs approximately 0.7 km west of the alignment option. Therefore, a Green rating is applied as it is unlikely to result in a loss of woodland to tree felling.

Alignment option 3.1 does not directly intersect the two core paths in the study area. As such a Green rating is applied.

Planning

Alignment option 3.1 is in full compliance with national, regional and local planning policy. A Green rating has been applied as there have been no other Proposed Developments identified in the planning system that may interact with the alignment option.

Table 5.7 - Environmental RAG Rating Table for Alignment Option 3.1

Alignment option	RAG Impact Rating - Environmental													
	Natural Heritage					Cultural Heritage		People	Landscape		Land Use			Planning
	Designations	Protected Species	Habitats	Geology, Hydrology and	Ornithology	Designations	Cultural Heritage Assets	Proximity to People	Designations	Visual	Agriculture	Forestry	Recreation	Planning
3.1	M	L	H	M	H	L	L	L	L	L	L	L	L	L

5.3.5 Engineering Constraints

Major Crossings

There are no major crossings within alignment option 3.1. Therefore, a Green rating has been applied.

Road Crossings

There are only minor roads and access track crossings located within alignment option 3.1. Therefore, a Green rating has been applied.

Elevation

Approximately 100% of the alignment is at an altitude of greater than 200m. Therefore, a Red rating has been applied.

Atmospheric Pollution

None of the outdoor transition points (CSEs) are located within 3 km of the coast; thus, atmospheric pollution is considered negligible for Alignment Option 3.1 and a Green rating is applied.

Contaminated Land

There are no known or evidence of contaminated land within alignment option 3.1. Therefore, a Green rating has been applied.

Flooding

Less than 2% of option length in 1 in 200 years flood zone, however, there are small surface water tributaries to various lochs in the area that should be accounted for or analysed further. Therefore, an Amber rating has been applied.

Terrain

There is a maximum slope gradient of approximately 22% within alignment option 3.1. This is highest among the alignment options and therefore a Red rating has been applied.

Rock

Rock presents significant challenges for access, construction, and maintenance. Alignment options within mountainous regions are typically more constrained, making installation and ongoing maintenance more difficult and costly. Alignment option 3.1 does not contain significant surface rock and rock outcrops. The depth of these formations cannot be determined at this stage, posing a substantial risk to the project. Therefore, a Green rating is applied.

Peatland

The majority of alignment option 3.1 is located within peatland. Therefore, a Red rating has been applied

Access

Alignment option 3.1 requires new access tracks for approximately 55% of the alignment. This is a significant amount compared to other alignment options and therefore, a Red rating has been applied.

Angle Supports

Several deviations were identified along alignment option 3.1. This was a similar level to the other alignment options and therefore, an Amber rating has been applied.

Cable Haul Road

UGC alignments can be installed within challenging terrain resulting in poor ground conditions for cable hauling. Mitigation may be required to enhance the cable haul road design to aid the UGC installation, therefore resulting in increased costs for upgrading roads for installation. An alignment option which is a greater distance from a suitable cable haul road is at greater risk of being constrained. Alignment option 3.1 is likely to require an enhanced haul road design due to steep slopes, peatland, and poor ground conditions. Therefore, a Red rating is applied.

Clearance

No live SSE lines or equipment was present along alignment option 3.1. Therefore, a Green rating has been applied.

Wind Farms

The proposed location of the Cable sealing end (CSE) is out with wind turbine wake zones and the risk of ice throw is deemed low. Therefore, a Green rating has been applied.

Communication Masts

There is one communication mast located within 750m of alignment option 3.1. Therefore, a Red rating has been applied.

Urban Developments

No urban developments are present along alignment option 3.1. Therefore, a Green rating has been applied.

Metallic Pipes

No metallic pipes were identified along alignment option 3.1. Therefore, a Green rating has been applied.

Reactive Compensation

Long route lengths (typically >10 km) can introduce the requirement of reactive compensation. Minimising the necessity for reactive compensation can ultimately reduce the costs incurred in an Option.

For all proposed alignment options, the circuit length is less than 10 km and therefore reactive compensation will likely not be required. Therefore, a Green rating is applied.

Joint Bays & Link Box Chambers

Joint bays and/or link box chambers may necessitate additional access points, leading to increased costs and access requirements. An alignment option requiring new access tracks to joint bay locations is more expensive compared to one utilising existing access that may only need improvements. Alignment Option 3.1 has no existing access is available new access tracks are required. Therefore, a Red rating is applied.

The Electricity Safety, Quality and Continuity Regulations (ESQCR) assessment

There is a low risk on the impact of ESQCR on alignment option 3.1. Therefore, a Green rating has been applied.

RAG Impact Rating Summary

Table 5.8 - Engineering RAG Rating Table for Alignment Option 3.1

Route Option	Infrastructure Crossing		Environmental Design				Ground Condition			Construction and Maintenance			Proximity					Design		ESQCR	
	Major Crossings	Minor Roads	Elevation	Atmospheric Pollution	Contaminated Land	Flooding	Terrain	Rock	Peatland	Access	Angle of deviation	Cable Haul Road	Clearance Distance	Windfarms	Communication	Urban Environments	Metallic Pipes	Reactive Compensation	Joint Bays and Link Box Chambers	ESQCR	Constructability
3.1	L	L	H	L	L	I	I	L	H	H	I	I	L	L	H	L	L	L	I	L	I

5.3.6 Economic Considerations

Capital

In terms of cost, there is little difference between alignment options 1.1, 2.1 and 3.1 which are all comparable. Therefore, a green rating has been applied.

Operational

In terms of inspection and maintenance, all UGC options are comparable and therefore a green rating has been applied.

RAG Impact Rating Summary

Table 5.9 – Cost RAG Rating Table for Alignment Option 3.1

Alignment Option	**RAG Impact Rating - Cost**	
	Capital	**Operational**
	Construction, Diversions, Public Road Improvements, Felling, Land Assembly and Consent Mitigations	Inspections and Maintenance
3.1 UGC	L	L

5.4 Alignment Option 1.2 (OHL)

5.4.1 Environmental Constraints

5.4.2 Landscape and Visual Context

The landscape and visual constraints present within alignment option 1.2 are illustrated in **Figure 5.7**.

Designations

Alignment option 1.2 does not pass through an NSA, WLA or SLA. The Ben Wyvis SLA designated by The Highland Council is located 450 m to the east of alignment at the closest point. The study area is unlikely to compromise the special qualities of this designation. Therefore, an Amber rating has been applied.

Visual Amenity

The Ben Wyvis WLA is located 900 m to the east of alignment option 1.2 at the closest point. The alignment option is unlikely to compromise this designation as it is located outside of the boundary. The potential visual receptors are:

- Residents at Little Garve, Gorstan and Corriemoillie;
- Visitors of Black Water Falls;
- Road users of A832 and A835; and
- Walkers along Silverbridge circuit and Tor Breac core paths to the south of Black Waterfalls.

The alignment option is unlikely to comprise a view or visual amenity so a Green rating is applied.

5.4.3 Natural Heritage Context

The natural heritage designations present within alignment option 1.2 are illustrated in **Figure 5.7.**

Designations

Alignment option 1.2 passes within 20 km of multiple international and national designated sites, with specific distances as follows:

- Ben Wyvis SPA, SAC, SSSI and NNR: 2.8 km northeast;
- Glen Affric to Strathconon SPA: 2.5 km southwest;
- Lower River Conon SSSI: 9.6 km southeast;
- Conon Islands SAC: 9.6 km southeast;
- Allt nan Caorach SSSI: 10.5 km northeast;
- Loch Ussie SAC and SSSI: 10.7 km southeast;
- Achanalt Marshes SPA and SSSI: 7.5 km west;
- Cromarty Firth SPA, SSSI and Ramsar site: 14.5 km southeast;
- Beinn Dearg SSSI, SPA and SAC: 11 km northwest;
- Fannich Hills SAC and SSSI: 8.2 km west;
- Novar SPA: 16.5 km northeast;
- Drummondreach Wood SSSI: 17.5 km southeast;
- Achnasheen Terraces SSSI: 18.6 km west;

- Monadh Mor SAC: 18.7 km southeast;
- Corrieshalloch Gorge: 19.4 km northeast;
- Moray Firth SPA; 19.5 km southeast; and
- Inner Moray Firth SPA and Ramsar site: 20 km east.

Designated sites with ornithological species with no connectivity to the Proposed Development have not been included.

This alignment poses potential risks to the qualifying species in these designated sites. Therefore, a Red rating is applied.

Protected Species

European protected species known to occur in the area, which may therefore be present across the alignment option include otter, wildcat and bat species. There is a designated WPA which is located approx. 1.2 km southeast of alignment option 1.2.

UK BAP species including red squirrel, pine marten, badger, and adder. SBL species including slow worm, common lizard, common toad, hedgehog, mountain hare and brown hare.

For the purposes of assessment and in the absence of survey, it is assumed that through design, licencing and best practice construction techniques, alignment option 1.2 is unlikely to compromise the conservation status or known presence or suitable habitats for EPS or BAP species. A Green rating is applied.

Habitat

There are no areas of Class 1 and Class 2 Peatland throughout alignment option 1.2. There is however still potential to compromise the conservation status of Annex 1 Habitats means there may be potential to compromise the integrity of Annex 1 habitats including blanket bog and GWDTE. Class 5 Peatland and Class 0 mineral soils are recorded along the alignment. The description of Class 5 peatland is that soil information takes precedence over vegetation data, an area where there is no peatland vegetation and therefore no peatland habitat has been recorded. This may include areas of bare soil, where the soil is carbon-rich and deep peat present alignment option 1.2 component soils are primarily made up of peaty gleyed podzols with dystrophic semi-confined peat with peaty gleys.

SSEN Transmission defines irreplaceable ancient woodland as Categories 1a and 2a of the AWI. There is ancient woodland of category 1a and 2a within alignment option 1.2.

A Red rating is applied as the proposed development is likely to compromise the conservation status of Annex 1 habitats including blanket bog e.g. by passing directly through them.

Geology, Hydrology and Hydrogeology

Class 5 peatland and Class 0 mineral soils is mapped throughout the majority of alignment option 1.2. There are no areas of recorded priority Class 1 and Class 2 peatland throughout alignment option 1.2. The majority of alignment option 1.2 is underlain by shallow soils (<0.5 m) with very localised areas of peat (>0.5 m) recorded throughout.

The alignment option 1.2 lies within 250 m of three PWS which are hydrologically connected to the option (PWS Silverbridge Tigh Fiodha, PWS Silverbridge Toilets, and PWS Corriemoillie Sub Station). Alignment option 1.2 passes through three Water Framework Directive (WFD) designated watercourses (River Black Water, Allt a' Bheith Oig and Allt Coire Mhuilidh), which may require a WFD assessment to be completed as part of

any EIA. There is also a waterfall (Black Water Falls) within 250 m of the alignment option which lies along the River Black Water.

The alignment option is approximately 600 m southeast of a Surface Water Drinking Protected Area (the Allt Ceann Loch Luichairt small river). The alignment is not hydrologically connected to the SWDPA. It is therefore unlikely to compromise the quality and/or quantity of surface waters which provide public supply. Therefore, a Green rating is applied.

Ornithology

The following designations and their qualifying bird species in relation to alignment option 1.2 are as follows:

- Ben Wyvis SPA (3 km E): Supports breeding dotterel.
- Glen Affric to Strathconon SPA (2.5 km S): Supports golden eagle.
- Achanalt Marshes SPA (7.5 km W): Supports wood sandpiper.
- Beinn Dearg SPA (11.7 km NW): Supports breeding dotterel.
- Cromarty Firth SPA & Ramsar Site (14.5 km SE): Supports osprey, common tern, greylag goose, whooper swan, bar-tailed godwit, and over 20,000 wintering waders and wildfowl.
- Novar SPA (16.5 km NE): Supports breeding capercaillie.
- Inner Moray Firth SPA Ramsar Site (20 km SE): Supports osprey, common tern, greylag goose, red-breasted merganser, redshank, and over 20,000 wintering birds.

Schedule 1 / Annex I and / or Birds of Conservation Concern (BoCC) red-list species and Scottish Biodiversity List species with nesting territories / nest buffer zones near alignment option 1.2 include black grouse, capercaillie, osprey, and red kite.

Alignment option 1.2 may cause barrier and collision effects to SPA species, resulting in a Red rating.

5.4.4 Other Potential Environmental Constraints

Cultural Heritage

The cultural heritage constraints present within alignment option 1.2 are illustrated in **Figure 5.7**.

Designated Assets: There are no Scheduled Monuments within alignment option 1.2. There are no Registered Battlefields, Gardens and Designed Landscapes or World Heritage Sites within or within 5 km of alignment option 1.2. Within 5 km of the alignment option 1.2 there is one Scheduled Monument: SM2720 Little Garve, bridge over Black Water.

Non-designated assets: There is no non-designated asset identified from the Canmore Database, located within 50 m of alignment option 1.2.
Direct: No direct impacts to designated assets are anticipated for alignment option 1.2. However, there remains the potential to introduce direct effects to unknown buried archaeology through the construction phase.

Indirect and Setting: There remains the potential to introduce effects to setting for designated assets as a result of changes to the landscape visibility and character of the area. Particularly, SM2720 is located within approximately 800 m south of alignment option 1.2. However, this is likely situated far enough away that no significant effects to setting are anticipated. As such, there is potential for a low impact to designations as a result of this alignment and a Green rating is applied.

There are no Conservation Areas or Listed Buildings within alignment option 1.2. Within 5 km of alignment option 1.2 there are five Listed Buildings:

- LB1774 Category B, Burial Ground, Lochluichart Parish Church;
- LB1774 Category B, Lochluichart Parish Church;
- LB1775 Category C, Lochluichart Parish Manse;
- LB1775 Category C, Steading, Lochluichart Parish Manse; and
- LB51705 Category C, Conon Valley, Hydro Electric Scheme, Achanalt Power Station and Dam.

Direct: No direct impacts to designated Listed Buildings are anticipated for this alignment. Indirect and Setting: There remains the potential introduce impacts to setting for Listed Buildings, as a result of changes to the landscape visibility and character of the area. However, no Listed Buildings are located within 3 km of this alignment and their context has limited interaction with the alignment option 1.2. As such, there is potential for a low impact to designations as a result of this alignment and a Green rating is applied.

People

Alignment option 1.2 does not directly pass through any residential communities. However, the alignment passes 600 m north of the scattered properties of Corriemoillie, 300 m north of the properties east of the A835, and 700 m north of Little Garve residential properties. As the alignment passes in close proximity to these residential properties, an Amber rating is applied.

Land Use and Recreation

Agricultural land within alignment option 1.2 has a land capability between 6.2 and 6.3 therefore a Green rating for low impact is applied.

A Red rating is applied as alignment option 1.2 runs adjacent to and within conifer plantation woodland and is likely to result in sufficient loss of woodland to tree felling/wayleave clearance activities which may compromise the commercial viability of the forestry operation.

Alignment option 1.2 does not intersect any core paths. However, the Tor Breac and Silverbridge Circuit are less than 150 m south of alignment option 1.2. As such, an Amber RAG rating is applied.

Planning

Alignment option 1.2 is in full compliance with national, regional and local applicable planning policy. An Amber rating has been applied as the Loch Luichart connection and the Corriemoillie Battery Storage are located within the area

Table 5.10 - Environmental RAG Rating Table for Alignment Option 1.2

Alignment option	RAG Impact Rating - Environmental													
	Natural Heritage					Cultural Heritage		People	Landscape		Land Use			Planning
	Designations	Protected Species	Habitats	Geology, Hydrology and	Ornithology	Designations	Cultural Heritage Assets	Proximity to People	Designations	Visual	Agriculture	Forestry	Recreation	Planning
1.2	H	L	H	L	H	L	L	L	L	L	L	H	M	M

5.4.5 Engineering Constraints

Major Crossings

All four alignments have 1 major crossing over the A835 dual carriageway. They also cross Blackwater River, which is around 30 m wide, which is within the 200m threshold. Therefore, a Red has been applied to alignment option 1.2.

Road Crossings

0 road crossings, 8 access track crossings have been identified for alignment option 1.2. Therefore, a Green rating has been applied.

Elevation

Alignment option 1.2 has an Elevation – Min: 116m, Max: 329m, Avg: 197m and 38% of the alignment is above 200 AOD. Therefore, a Red rating has been applied.

Atmospheric Pollution

Alignment option 1.2 has intermediate levels of atmospheric pollution for CO_2 and NO_2. Therefore, an Amber rating has been applied.

Contaminated Land

No known risk of soil contamination as well as UXO are present within alignment option 1.2. Therefore, a Green rating has been applied.

Flooding

Alignment option 1.2 has 1.6% (121.5m) of total length is within the 1-in-200-year flood zone. Therefore, a Green rating has been applied.

Terrain

Alignment option 1.2 has a Slope – Max: 18.3%, -19.7%, and an average of 7.0%, -7.4%. Therefore, an Amber rating has been applied.

Peatland

Peat, particularly deep peat, represents a significant difficulty for access, construction, and maintenance. Options with a large proportion peatland are more likely to be constrained and thus more difficult and costly to build and maintain. Peatland is also an important habitat and construction of new OHLs can cause lasting damage. For alignment option 1.2,

92.23% of the length is within Class 5. No Class 1 or Class 2 Peat identified. Therefore, a Red rating has been applied.

Access

Alignment option 1.2 has limited access tracks through majority of route. Therefore, an Amber rating has been applied.

Angle Supports

The number of angle poles required for each alignment is based on the visual study of the deviations on the alignment option. The visual inspection reveals that the number of angle poles needed for alignment option 1.2 is 18. Therefore, a Red rating has been applied.

Clearance

There are 2 properties within 100-250m of alignment option 1.2. Therefore, an Amber rating has been applied.

Wind Farms

Alignment option 1.2 is located 840 metres away from the nearest wind turbines that is being connected. Therefore, an Amber rating has been applied.

Communication Masts

The nearest communication mast to alignment option 1.2 is at a distance of greater than 1 km. Therefore, a Green rating has been applied.

Urban Developments

There are no urban environments within the route of alignment option 1.2. Therefore, a Green rating has been applied.

Metallic Pipes

There are no known metallic pipes within alignment option 1.2. Therefore, a Green rating has been applied.

Alignment Lengths

Alignment option 1.2 has a length of 7.85 km and is therefore at a cost of 8% than the shortest. Therefore, an Amber rating has been applied.

DNO Crossings

Within alignment option 1.2, 1x 33kV OH Distribution & 02x33kV UG crossings has been identified. Therefore, an Amber rating has been applied.

The Electricity Safety, Quality and Continuity Regulations (ESQCR) assessment

Alignment option 1.2 has Intermediate Potential of Risk due to river and properties for ESQCR. Therefore, an Amber rating has been applied.

RAG Impact Rating Summary

Table 5.11 - Engineering RAG Rating Table for Alignment Option 1.2

Route Option	Infrastructure Crossing		Environmental Design				Ground Condition		Construction and Maintenance		Proximity					Other Considerations		
	Major Crossings	Minor Roads	Elevation	Atmospheric Pollution	Contaminated Land	Flooding	Terrain	Peatland	Access	Angle Poles	Clearance Distance	Windfarms	Communication Masts	Urban Environments	Metallic Pipes	Alignment Length	DNO Crossings	ESQCR
1.2	H	L	H	I	L	L	I	H	I	H	I	I	L	L	L	I	I	I

5.4.6 Economic Considerations

Capital

All eastern alignment options are comparable in terms of capital cost. Therefore a Green RAG rating has been applied to alignment option 1.2 as it is within 120% of the least cost option.

Operational

All eastern alignment options are comparable in terms of operational cost. Therefore a Green RAG rating has been applied to alignment option 1.2.

RAG Impact Rating Summary

Table 5.12 - Cost RAG Rating Table for Alignment Option 1.2

Alignment Option	RAG Impact Rating - Cost	
	Capital	**Operational**
	Construction, Diversions, Public Road Improvements, Felling, Land Assembly and Consent Mitigations	Inspections and Maintenance
1.2 OHL	L	L

5.5 Alignment Option 2.2 (OHL)

5.5.1 Environmental Constraints

5.5.2 Landscape and Visual Context

The landscape and visual constraints present within alignment option 2.2 are illustrated in **Figure 5.9**.

Designations

Alignment option 2.2 does not pass through an NSA, WLA or SLA. The Ben Wyvis SLA designated by The Highland Council is located 450 m to the east of alignment at the closest point. The alignment is unlikely to compromise the special qualities of this designation. Therefore, an Amber rating is applied.

Visual Amenity

The Ben Wyvis WLA is located 900 m to the east of the alignment at the closest point. The alignment is unlikely to impact on the wild qualities of this designation as it is located outside of the designation. The potential visual receptors are:

- Residents at Little Garve, Gorstan and Corriemoillie;
- Visitors of Black Water Falls;
- Road users of A832 and A835; and
- Walkers along Silverbridge circuit and Tor Breac core paths to the south of Black Water Falls.

The alignment is unlikely to comprise a view or visual amenity so a Green rating is applied.

5.5.3 Natural Heritage Context

The natural heritage designations present within alignment option 2.2 are illustrated in **Figure 5.9**.

Designations

Alignment option 2.2 passes within 20 km of multiple international and national designated sites, with specific distances as follows:

- Ben Wyvis SPA, SAC, SSSI and NNR: 3 km northeast;
- Glen Affric to Strathconon SPA: 2 km southwest;
- Lower River Conon SSSI: 9.4 km southeast;
- Conon Islands SAC: 9.4 km southeast;
- Allt nan Caorach SSSI: 10.5 km northeast;
- Loch Ussie SAC and SSSI: 10.6 km southeast;
- Achanalt Marshes SPA and SSSI: 7.5 km west;
- Cromarty Firth SPA, SSSI and Ramsar site: 14.5 km southeast;
- Beinn Dearg SSSI, SPA and SAC: 11.5 km northwest;
- Fannich Hills SAC and SSSI: 8.2 km west;
- Novar SPA: 16.5 km northeast;
- Drummondreach Wood SSSI: 17.5 km southeast;
- Achnasheen Terraces SSSI: 18.6 km west;

- Monadh Mor SAC: 18.7 km southeast;
- Corrieshalloch Gorge: 19.4 km northwest;
- Moray Firth SPA: 19.5 km southeast; and
- Inner Moray Firth SPA and Ramsar site: 20 km east.

Designated sites with ornithological species with no connectivity to the Proposed Development have not been included.

This alignment poses potential risks to the qualifying species in these designated sites. Therefore, an Amber rating is applied.

Protected Species

European protected species known to occur in the area, which may therefore be present across the alignment include otter, wildcat and bat species. There is a designated WPA which is located approximately 1 km southeast of the alignment option 2.2. UK BAP species including red squirrel, pine marten, badger, and adder. SBL species including slow worm, common lizard, common toad, hedgehog, mountain hare and brown hare. For the purposes of assessment and in the absence of survey, it is assumed that through design, licencing and best practice construction techniques, alignment option 2.2 is unlikely to compromise the conservation status or known presence or suitable habitats for EPS or BAP species. A Green rating is applied.

Habitat

There are no areas of Class 1 and Class 2 throughout alignment option 2.2. There is however still potential to compromise the integrity of Annex 1 habitats including blanket bog and GWDTE. Class 5 Peatland is recorded along the alignment. Alignment option 2.2 component soils are primarily made up of peaty gleyed podzols with dystrophic semi-confined peat with peaty gleys.

SSEN defines irreplaceable ancient woodland as Categories 1a and 2a of the AWI. There is ancient woodland of category 1a and 2a within alignment option 2.2.

A Red rating is applied as the proposed development is likely to compromise the conservation status of Annex 1 habitats including blanket bog e.g. by passing directly through them.

Geology, Hydrology and Hydrogeology

Class 5 peatland is mapped throughout the majority of alignment option 2.2. There are no areas of recorded priority Class 1 and Class 2 peatland throughout alignment option 2.2. The majority of alignment option 2.2 is underlain by shallow soils (<0.5 m) with very localised areas of peat (>0.5 m) recorded throughout.

The alignment option 2.2 lies within 250 m of five PWS which are hydrologically connected to the option (PWS Strathmore House, PWS Corriemoillie Lodge, PWS Corriemoillie Farm, PWS Corriemoillie Sub Station). Alignment option 2.2 passes through three Water Framework Directive (WFD) designated watercourses (River Black Water, Allt a' Bheith Oig and Allt Coire Mhuilidh), which may require a WFD assessment to be completed as part of any EIA.

Ornithology

The following designations and their qualifying bird species in relation to alignment option 2.2 are as follows:

- Glen Affric to Strathconon SPA (2 km SW): Supports golden eagle.

- Ben Wyvis SPA (3 km N): Supports breeding dotterel.
- Achanalt Marshes SPA (7.5 km W): Supports wood sandpiper.
- Beinn Dearg SPA is situated (11.7 km NW): Supports breeding dotterel.
- Cromarty Firth SPA & Ramsar Site (14.5 km SE): Supports osprey, common tern, greylag goose, whooper swan, bar-tailed godwit, and over 20,000 wintering waders and wildfowl.
- Novar SPA (16.5 km NE): Supports breeding capercaillie.
- Inner Moray Firth SPA (20 km E): Supports osprey, common tern, and bar-tailed godwit.

Schedule 1 / Annex I and / or Birds of Conservation Concern (BoCC) red-list species and Scottish Biodiversity List species with nesting territories / nest buffer zones near alignment option 2.2 include black grouse, capercaillie, osprey, and red kite. Alignment option 2.2 may cause barrier and collision effects to SPA species, resulting in a Red rating.

5.5.4 Other Potential Environmental Constraints

Cultural Heritage

The cultural heritage constraints present within alignment option 2.2 are illustrated in **Figure 5.9**.

Designated Assets: There are no Scheduled Monuments within alignment option 2.2. There are no Registered Battlefields, Gardens and Designed Landscapes or World Heritage Sites within or within 5 km of alignment option 2.2.

Within 5 km of alignment option 2.2 there is one Scheduled Monument: SM2720 Little Garve, bridge over Black Water.

Non-designated assets: There is one non-designated asset identified from the Canmore Database, located within 50 m of alignment option 2.2, the Corriemoillie post-medieval head-dyke / township.
Direct: No direct impacts to designated assets are anticipated for this alignment. However, there remains the potential to introduce direct effects to previously unknown buried archaeological remains. Further investigations through field survey and other appropriate methods may be required, as the likelihood of encountering unknown buried archaeology is elevated given the wider landscape context, specifically in the area surrounding the non-designated post-medieval township.

Indirect and Setting: Although SM2720 is located within 5 km, it is not anticipated that alignment will introduce any permanent effects on the setting of this asset. Therefore, there is potential for a low impact to designations as a result of this alignment and a Green rating is applied.

There are no Conservation Areas or Listed Buildings within alignment option 2.2. Within 5 km of alignment option 2.2 there are five Listed Buildings:

- LB1774 Category B, Burial Ground, Lochluichart Parish Church;
- LB1774 Category B, Lochluichart Parish Church;
- LB1775 Category C, Lochluichart Parish Manse;
- LB1775 Category C, Steading, Lochluichart Parish Manse; and
- LB51705 Category C, Conon Valley, Hydro Electric Scheme, Achanalt Power Station and Dam.

Direct: No direct impacts to designated Listed Buildings are anticipated for this alignment. Indirect and Setting: There remains the potential introduce impacts to setting for Listed Buildings, as a result of changes to the landscape visibility and character of the area. However, no Listed Buildings are located within 3 km of this alignment and their context has limited interaction with the alignment option 2.2. Therefore, there is potential for a low impact to designations as a result of this alignment and a Green rating is applied.

People

Alignment option 2.2 does not directly pass through any residential communities. However, the alignment passes 300 m north of the scattered properties of Corriemoillie, 200 m south of the properties east of the A835, and 400 m north of Little Garve residential properties. As the alignment passes in close proximity to these residential properties, an Amber rating is applied.

Land Use and Recreation

Agricultural land within alignment option 2.2 has a land capability between 5.1 and 6.3 therefore a Green rating for low impact has been applied.

An Amber rating is applied as alignment option 2.2 runs adjacent to and within conifer plantation woodland and is likely to result in sufficient loss of woodland to tree felling/ wayleave clearance activities which may compromise the commercial viability of the forestry operation.

Alignment option 2.2 does directly intersect the two core paths in the area, the Tor Breac and Silverbridge Circuit which may compromise their recreational use. As such, an Amber rating is applied.

Planning

Alignment option 2.2 is in full compliance with national, regional and local planning policy. An Amber rating has been applied as the Loch Luichart connection and the Corriemoillie Battery Storage are located within the area.

Table 5.13 - Environmental RAG Rating Table for Alignment Option 2.2

Alignment option	RAG Impact Rating - Environmental													
	Natural Heritage					Cultural Heritage		People	Landscape		Land Use			Planning
	Designations	Protected Species	Habitats	Geology, Hydrology and ...	Ornithology	Designations	Cultural Heritage Assets	Proximity to People	Designations	Visual	Agriculture	Forestry	Recreation	Planning
2.2	M	L	H	L	H	L	L	M	L	L	L	M	M	M

5.5.5 Engineering Constraints

Major Crossings

There is 1 major crossing identified within alignment option 2.2, the A835 dual carriageway. Therefore, a Red rating has been applied.

Road Crossings

0 road crossings and 7 access track crossings were identified within alignment option 2.2. Therefore, a Green rating has been applied.

Elevation

Alignment option 2.2 has an Elevation – Min: 101m, Max: 324m, Avg: 154m. Additionally, 9% of the alignment is above 200 AOD. Therefore, a Green rating has been applied.

Atmospheric Pollution

Alignment option 2.2. has intermediate levels of atmospheric pollution of CO_2 and NO_2. Therefore, an Amber rating has been applied.

Contaminated Land

There are no known risks of soil contamination as well as UXO within alignment option 2.2. Therefore, a Green rating has been applied.

Flooding

3.88% of the total length of alignment option is within the 1-in-200 year flood zone. Therefore, an Amber rating has been applied.

Terrain

Steep or mountainous slopes present a significant difficulty for routeing, access, construction, and maintenance. Alignment 2.2. has a slope of Max: 24.3%, -15.6% and an Average: 8.3%, -4.7%. Therefore, an Amber rating has been applied.

Peatland

100% of length of alignment option 2.2 is within Class 5. No Class 1 or Class 2 Peat has been identified. Therefore, a Red rating has been applied.

Access

Construction of temporary access for construction are a significant project cost and an Option that is remote from existing tracks and the public road network has the potential to incur large access costs. There are limited access tracks through the majority of the route. Therefore, an Amber rating has been applied.

Angle Supports

Alignment option 2.2. has 15 angle poles present which is the lowest among the different alignment options. Therefore, a Green rating has been applied.

Clearance

There are 4 properties located within 100-250 m of alignment option 2.2. Therefore, an Amber rating has been applied.

Wind Farms

Alignment option 2.2 is 840 m away from the nearest wind turbine that is being connected. Therefore, an Amber rating has been applied.

Communication Masts

The nearest communication mast is at a distance of greater than 1km. Therefore, a Green rating has been applied.

Urban Developments

There are no urban environments within alignment option 2.2. Therefore, a Green rating has been applied.

Metallic Pipes

There are no known metallic pipes within alignment option 2.2. Therefore, a Green rating has been applied.

Alignment Lengths

Alignment option 2.2 is 7.29 km which is the shortest of the different alignment options. Therefore, a Green rating has been applied.

DNO Crossings

Within alignment option 2.2., 1x 33kV OH Distribution & 02x33kV UG crossings has been identified. Therefore, an Amber rating has been applied.

The Electricity Safety, Quality and Continuity Regulations (ESQCR) assessment

Alignment option 2.2 has an Intermediate Potential of Risk due to river and properties. Therefore, an Amber rating has been applied.

RAG Impact Rating Summary

Table 5.14 - Engineering RAG Rating Table for Alignment Option 2.2

Route Option	Infrastructure Crossing		Environmental Design				Ground Condition		Construction and Maintenance		Proximity					Other Considerations		
	Major Crossings	Minor Roads	Elevation	Atmospheric Pollution	Contaminated Land	Flooding	Terrain	Peatland	Access	Angle Poles	Clearance Distance	Windfarms	Communication Masts	Urban Environments	Metallic Pipes	Alignment Length	DNO Crossings	ESQCR
2.2	H	L	L	I	L	I	I	H	I	L	I	I	L	L	L	L	I	I

5.5.6 Economic Considerations

Capital

A Green RAG rating has been applied to alignment option 2.2 as it is within 120% of the least cost option.

Operational

A Green RAG rating has been applied to alignment option 2.2 in terms of operational cost as it is within 120% of the least cost option.

RAG Impact Rating Summary

Table 5.15 – Cost RAG Rating Table for Alignment Option 2.2

Alignment Option	RAG Impact Rating - Cost	
	Capital	**Operational**
	Construction, Diversions, Public Road Improvements, Felling, Land Assembly and Consent Mitigations	Inspections and Maintenance
2.2 OHL	L	L

5.6 Alignment option 2.3 (OHL Diversion)

5.6.1 Environmental Constraints

5.6.2 Landscape and Visual Context

The landscape and visual constraints present within alignment option 2.3 are illustrated in **Figure 5.11**.

Designations

Alignment option 2.3 does not pass through an NSA, WLA or SLA. The Ben Wyvis SLA designated by The Highland Council is located 7.5 km to the east of alignment at the closest point. The alignment is unlikely to compromise the special qualities of this designation. Therefore, an Amber rating is applied.

Visual Amenity

The Ben Wyvis WLA is located 8.5 km to the east of the alignment at the closest point. The alignment is unlikely to impact on the wild qualities of this designation as it is located outside of the designation and a significant distance from any special or wild qualities. The potential visual receptors are:

- Residents at individual dwellings to the south at Corriemoillie; and
- Road users of A832 And A835.

The alignment is unlikely to comprise a view or visual amenity so a Green rating is applied.

5.6.3 Natural Heritage Context

The natural heritage designations present within alignment option 2.3 are illustrated in **Figure 5.11**.

Designations

Alignment option 2.3 passes within 20 km of multiple international and national designated sites, with specific distances as follows:

- Glen Affric to Strathconon SPA: 2 km southwest;
- Achanalt Marshes SPA and SSSI: 7.3 km west;
- Fannich Hills SAC and SSSI: 8.2 km west;
- Lower River Conon SSSI: 9.4 km southeast;
- Conon Islands SAC: 9.4 km southeast;
- Ben Wyvis SPA, SAC, SSSI and NNR: 2.8 km northeast;
- Beinn Dearg SSSI, SPA and SAC: 11.5 km northwest;
- Loch Ussie SAC and SSSI: 16.2 km southeast;
- Novar SPA: 16.5 km northeast;
- Allt nan Caorach SSSI: 16.7 km northeast;
- Moray Firth SPA: 19.5 km southeast;
- Cromarty Firth SPA, SSSI and Ramsar site: 20 km southeast.

Designated sites with ornithological species with no connectivity to the Proposed Development have not been included.

This alignment poses potential risks to the qualifying species in these designated sites. Therefore, an Amber rating is applied.

Protected Species

European protected species known to occur in the area, which may therefore be present across the alignment include otter, wildcat and bat species. There is a designated WPA which is located approximately 3.5 km southeast of alignment option 2.3.

UK BAP species known to occur in the area include red squirrel, pine marten, badger, and adder. SBL species include slow worm, common lizard, common toad, hedgehog, mountain hare and brown hare.

For the purposes of assessment and in the absence of survey, it is assumed that through design, licencing and best practice construction techniques, alignment option 2.3 is unlikely to compromise the conservation status or known presence or suitable habitats for EPS or BAP species. A Green rating is applied.

Habitat

There are no areas of Class 1 and Class 2 throughout the alignment option 2.3. The alignment option passes through an area of plantation woodland. Class 5 Peatland is recorded along the alignment option. Alignment option 2.3 component soils are primarily made up of peaty gleyed podzols with dystrophic semi-confined peat with peaty gleys.

SSEN Transmission defines irreplaceable ancient woodland as Categories 1a and 2a of the AWI. There are no ancient woodland of category 1a and 2a within the alignment option.

A Green rating is applied as alignment option 2.3 is not likely to compromise the conservation status of Annex 1 habitats including ancient woodland e.g. by passing directly through them.

Geology, Hydrology and Hydrogeology

Class 5 peatland is mapped throughout the entirety of alignment option 2.3. There are no areas of recorded priority Class 1 and Class 2 peatland throughout alignment option 2.3. Peat depth assessments could not be undertaken across alignment option 2.3 due to the existing substation and abundance of utilities. However, from review of aerial imagery and observations during site visits, alignment option 2.3 does not exhibit peatland vegetation and is likely underlain by shallow soils.

The alignment option 2.3 lies within 250 m of one PWS which are hydrologically connected to the option (PWS Corriemoillie Sub Station). Alignment option 2.3 crosses tributaries of the Allt Coire Mhuilidh which is a Water Framework Directive (WFD) designated watercourse and may require a WFD assessment to be completed as part of any EIA. Due to the absence of Class 1 and 2 peatlands throughout alignment option 2.3, a Green rating is applied for geological constraints.

Ornithology

The following designations and their qualifying bird species in relation to alignment option 2.3 are as follows:

- Ben Wyvis SPA (9.9 km N): Supports breeding dotterel.
- Glen Affric to Strathconon SPA (1.9 km SW): Supports golden eagle.
- Achanalt Marshes SPA (7.3 km W): Supports wood sandpiper.
- Beinn Dearg SPA is situated (12.9 km NW): Supports breeding dotterel.

Alignment option 2.3 may cause barrier and collision effects to SPA species, resulting in a Red rating.

5.6.4 Other Potential Environmental Constraints

Cultural Heritage

The cultural heritage constraints present within alignment option 2.3 are illustrated in **Figure 5.11**.

Designated Assets: There are no Scheduled Monuments within alignment option 2.3. There are no Registered Battlefields, Gardens and Designed Landscapes or World Heritage Sites within or within 5 km of alignment option 2.3.

Within 5 km of the alignment option 2.3. there is one Scheduled Monument: SM2720 Little Garve, bridge over Black Water.

Non-designated assets: There are no non-designated assets identified from the Canmore Database, located within 50 m of alignment option 2.3.

Direct: No direct impacts to designated assets are anticipated for alignment option 2.3. However, there remains the potential to introduce direct effects to unknown buried archaeology through the construction phase.

Indirect and Setting: Although SM2720 is located within 5 km, it is not anticipated that alignment will introduce any effects on the setting of this asset. As such, there are no anticipated impacts to the setting of nearby designated assets as a result of alignment option 2.3. As such, there is potential for a low impact to cultural heritage assets as a result of this alignment and a green rating is applied.

There are no Conservation Areas or Listed Buildings within alignment option 2.3. Within 5 km of alignment option 2.3 there are five Listed Buildings:

- LB1774 Category B, Burial Ground, Lochluichart Parish Church;
- LB1774 Category B, Lochluichart Parish Church;
- LB1775 Category C, Lochluichart Parish Manse;
- LB1775 Category C, Steading, Lochluichart Parish Manse; and
- LB51705 Category C, Conon Valley, Hydro Electric Scheme, Achanalt Power Station and Dam.

Direct: No direct impacts to designated Listed Buildings are anticipated for this alignment.

Indirect and Setting: There remains the potential introduce impacts to setting for Listed Buildings, as a result of changes to the landscape visibility and character of the area. However, no Listed Buildings are located within 3 km of this alignment and their context has limited interaction with the alignment option 2.3. As such, there is potential for a low impact to cultural heritage assets as a result of this alignment and a Green rating is applied.

People

Alignment option 2.3 does not pass any residential communities in close proximity, however there are scattered residential properties situated across the open landscape, including the hamlets of Gorstan, Little Garve and Corriemoillie.

As alignment option 2.3 does pass nearby to the residential dwellings near Corriemoillie and Little Garve, an Amber rating is applied.

Land Use and Recreation

Agricultural land within alignment option 2.3 has a land capability between 5.1 and 6.3 therefore a Green RAG rating for low impact has been applied.

An Amber rating is applied as alignment option 2.3 runs adjacent to and within conifer plantation woodland and is likely to result in sufficient loss of woodland to tree felling/wayleave clearance activities which may compromise the commercial viability of the forestry operation.

Alignment option 2.3 does not directly intersect the two core paths within the alignment option. As such a Green RAG rating is applied.

Planning

Alignment option 2.3 is in full compliance with national, regional and local planning policy. An Amber rating has been applied as the Loch Luichart connection and the Corriemoillie Battery Storage are located within the area.

Table 5.16 - Environmental RAG Rating Table for Alignment Option 2.3

Alignment option	RAG Impact Rating - Environmental													
	Natural Heritage					Cultural Heritage		People	Landscape		Land Use			Planning
	Designations	Protected Species	Habitats	Geology, Hydrology and	Ornithology	Designations	Cultural Heritage Assets	Proximity to People	Designations	Visual	Agriculture	Forestry	Recreation	Planning
2.3	M	L	L	L	H	L	L	M	L	L	L	M	L	M

5.6.5 Engineering Constraints

Alignment option 2.3 which is approx. 0.612km is a variant could be used for alignment option 2.2 and 3.2 near Battery Storage Project to terminate the line from southern side of the Corriemoillie Substation. This will cross some forestry area, existing access tracks, 132kV UG cable and 132kV OHL before entering existing Corriemoillie Substation.

Access and Infrastructure Crossings

Alignment option 2.3 crosses the (Corriemoillie teed ORRI, 132KV) OHL, therefore a confirmation of clearance check would be need unless a UGC for this section is deemed feasible.

RAG Impact Rating Summary

Table 5.17 - Engineering RAG Rating Table for Alignment Option 2.3

Route Option	Infrastructure Crossing		Environmental Design				Ground Condition		Construction and Maintenance		Proximity					Other Considerations		
	Major Crossings	Minor Roads	Elevation	Atmospheric Pollution	Contaminated Land	Flooding	Terrain	Peatland	Access	Angle Poles	Clearance Distance	Windfarms	Communication Masts	Urban Environments	Metallic Pipes	Alignment Length	DNO Crossings	ESQCR
2.3	I	L	L	I	L	I	L	H	L	L	I	L	L	L	L	I	L	I

5.6.6 Economic Considerations

Capital

A Green RAG rating has been applied to alignment option 2.3 as it is within 120% of the least cost option.

Operational

A Green RAG rating has been applied to alignment option 2.3 in terms of operational cost as it is within 120% of the least cost option.

RAG Impact Rating Summary

Table 5.18 – Cost RAG Rating Table for Alignment Option 2.3

Alignment Option	RAG Impact Rating - Cost	
	Capital	**Operational**
	Construction, Diversions, Public Road Improvements, Felling, Land Assembly and Consent Mitigations	Inspections and Maintenance
2.3 OHL	L	L

5.7 Alignment Option 3.2 (OHL)

5.7.1 Landscape and Visual Context

The landscape and visual constraints present within alignment option 3.2 are illustrated in **Figure 5.13**.

Designations

Alignment option 3.2 does not pass through an NSA, WLA or SLA. The Ben Wyvis SLA designated by The Highland Council is located 450 m to the east of alignment at the closest point. The alignment is unlikely compromise the special qualities of this designation. Therefore, a Green rating is applied.

Visual Amenity

The Ben Wyvis WLA is located 900 m to the east of the alignment at the closest point. The alignment is unlikely to impact on the wild qualities of this designation as it is located outside of the designation. The potential visual receptors are:

- Residents at Little Garve, Gorstan and Corriemoillie;
- Visitors of Black Water Falls;
- Road users of A832 and A835; and
- Walkers along Silverbridge circuit and Tor Breac core paths to the south of Black Water Falls.

The alignment is unlikely to comprise a view or visual amenity so a Green rating is applied.

5.7.2 Natural Heritage Context

The natural heritage designations present within alignment option 3.2 are illustrated in **Figure 5.13**.

Designations

Alignment option 3.2 passes within 20 km of multiple international and national designated sites, with specific distances as follows:

- Ben Wyvis SPA, SAC, SSSI and NNR: 2.8 km northeast;
- Glen Affric to Strathconon SPA: 2 km southwest;
- Achanalt Marshes SPA and SSSI: 7.5 km west;
- Fannich Hills SAC and SSSI: 8.2 km west;
- Lower River Conon SSSI: 9.4 km southeast;
- Conon Islands SAC: 9.4 km southeast;
- Allt nan Caorach SSSI: 10.5 km northeast;
- Loch Ussie SAC and SSSI: 10.7 km southeast;
- Beinn Dearg SSSI, SPA and SAC: 11.5 km northwest;
- Cromarty Firth SPA, SSSI and Ramsar site: 14.5 km southeast;
- Novar SPA: 16.5 km northeast;
- Drummondreach Wood SSSI: 17.5 km southeast;
- Achnasheen Terraces SSSI: 18.6 km west;
- Monadh Mor SAC: 18.7 km southeast;
- Corrieshalloch Gorge: 19.4 km northwest;
- Moray Firth SPA: 19.5 km southeast; and

- Inner Moray Firth SPA and Ramsar site: 20 km east.
- Designated sites with ornithological species with no connectivity to the Proposed Development have not been included.

This alignment poses potential risks to the qualifying species in these designated sites. Therefore, a Red rating is applied.

Protected Species

European protected species known to occur in the area, which may therefore be present across the alignment include otter, wildcat and bat species. There is a designated WPA which is located approx. 1.2 km southeast of the alignment option 3.2.

UK BAP species known to occur in the area include red squirrel, pine marten, badger, and adder. SBL species include slow worm, common lizard, common toad hedgehog, mountain hare and brown hare. For the purposes of assessment and in the absence of survey, it is assumed that through design, licencing and best practice construction techniques, alignment option 3.2 is unlikely to compromise the conservation status or known presence or suitable habitats for EPS or BAP species. A Green rating is applied.

Habitat

There are no areas of Class 1 and Class 2 throughout alignment option 3.2. There is however still potential to compromise the integrity of Annex 1 habitats including GWDTE. Class 5 Peatland is recorded along the alignment. Alignment option 3.2 component soils are primarily made up of peaty gleyed podzols with dystrophic semi-confined peat with peaty gleys.

SSEN Transmission defines irreplaceable ancient woodland as Categories 1a and 2a of the AWI. There is ancient woodland of category 1a and 2a within alignment option 3.2.

A Red rating is applied as the proposed development is likely to compromise the conservation status of ancient woodland e.g. by passing directly through them.

Geology, Hydrology and Hydrogeology

Class 5 peatland is mapped throughout alignment option 3.2. There are no areas of recorded priority Class 1 and Class 2 peatland throughout alignment option 3.2. The majority of alignment option 3.2 is underlain by shallow soils (<0.5 m) with very localised areas of peat (>0.5 m) and deep peat (>1.0 m) recorded throughout.

The alignment option 3.2 lies within 250 m of, or is hydrologically connect to, six PWS (PWS Silverbridge Tigh Fiodha, PWS Silverbridge Toilets, PWS Strathmore House, PWS Corriemoillie Farm, PWS Corriemoillie Lodge and PWS Corriemoille Sub Station).

Alignment option 3.2 passes through three Water Framework Directive (WFD) designated watercourses (River Black Water, Allt a' Bheith Oig and Allt Coire Mhuilidh), which may require a WFD assessment to be completed as part of any EIA.

The alignment option is approximately 1.2 km southeast of a Surface Water Drinking Protected Area (the Allt Ceann Loch Luichairt small river). The alignment is not hydrologically connected to the SWDPA. It is therefore unlikely to compromise the quality and/or quantity of surface waters which provide public supply. Therefore, a Green rating is applied.

In addition, the majority of the alignment option is situated across shallow soils <0.5m and does not cross any areas of Class 1 or 2 priority peatland.

Ornithology

The following designations and their qualifying bird species in relation to alignment option 3.2 are as follows:

- Ben Wyvis SPA (3 km N): Supports breeding dotterel.
- Glen Affric to Strathconon SPA (2 km SW): Supports golden eagle.
- Beinn Dearg SPA is situated 11.7 km NW.
- Achanalt Marshes SPA (7.5 km W): Supports wood sandpiper.
- Novar SPA (16.5 km NE): Supports breeding capercaillie.
- Cromarty Firth SPA & Ramsar Site (14.5 km SE): Supports osprey, common tern, greylag goose, whooper swan, bar-tailed godwit, and over 20,000 wintering waders and wildfowl.
- Inner Moray Firth SPA and Ramsar site (20 km east): Supports osprey, common tern, and bar-tailed godwit.

Schedule 1 / Annex I and / or Birds of Conservation Concern (BoCC) red-list species and Scottish Biodiversity List species with nesting territories / nest buffer zones near alignment option 3.2 include black grouse, capercaillie, osprey, and red kite.

Alignment option 3.2 may cause barrier and collision effects to SPA species, resulting in a Red rating.

5.7.3 Other Potential Environmental Constraints

Cultural Heritage

The cultural heritage constraints present within alignment option 3.2 are illustrated in **Figure 5.13**.

Designated Assets: There are no Scheduled Monuments within alignment option 3.2. There are no Registered Battlefields, GDLs or WHS within or within 5 km of alignment option 3.2.

Within 5 km of the alignment option 3.2. there is one Scheduled Monument: SM2720 Little Garve, bridge over Black Water.

Non-designated assets: There is no non-designated asset identified from the Canmore Database, located within 50 m of alignment option 3.2.

Direct: No direct impacts to designated assets are anticipated for alignment option 3.2. However, there remains the potential to introduce direct effects to unknown buried archaeology through the construction phase.

Indirect and Setting: There remains the potential to introduce effects to setting for designated assets as a result of changes to the landscape visibility and character of the area. Particularly, SM2720 is located within approximately 800 m south of alignment option 3.2. However, this is likely situated far enough away that no significant effects to setting are anticipated. A s such, there is potential for a low impact to designations as a result of this alignment and a Green rating is applied.

There are no Conservation Areas or Listed Buildings within alignment option 3.2. Within 5 km of alignment option 3.2 there are five Listed Buildings:

- LB1774 Category B, Burial Ground, Lochluichart Parish Church;
- LB1774 Category B, Lochluichart Parish Church;
- LB1775 Category C, Lochluichart Parish Manse;

- LB1775 Category C, Steading, Lochluichart Parish Manse; and
- LB51705 Category C, Conon Valley, Hydro Electric Scheme, Achanalt Power Station and Dam.

Direct: No direct impacts to designated Listed Buildings are anticipated for this alignment.

Indirect and Setting: There remains the potential introduce impacts to setting for Listed Buildings, as a result of changes to the landscape visibility and character of the area. However, no Listed Buildings are located within 3 km of this alignment and their context has limited interaction with the alignment option 3.2. As such, there is potential for a low impact to designations as a result of this alignment and a Green rating is applied.

People

Alignment option 3.2 does not directly pass through any residential communities. However, the alignment passes 300 m north of the scattered properties of Corriemoillie, 200 m south of the properties east of the A835, and 600 m north of Little Garve residential properties. As the alignment passes in close proximity to these residential properties, an Amber rating is applied.

Land Use and Recreation

Agricultural land within the alignment option 3.2 has a land capability ranging between 5.3 and 6.3. Therefore, a Green rating has been applied.

As alignment option 3.2 runs adjacent to and within conifer plantation woodland and is likely to result in sufficient loss of woodland to tree felling/ wayleave clearance activities which may compromise the commercial viability of the forestry operation. Therefore, a Red rating is applied.

Alignment option 3.2 does directly intersect two core paths in the area, Torc Breac and Silverbridge Circuit, which may compromise their recreational use. As such, an Amber rating is applied.

Planning

Alignment option 3.2 is in full compliance with national, regional and local planning policy. An Amber rating has been applied as the Loch Luichart connection and the Corriemoillie Battery Storage are located within the area.

Table 5.19 - Environmental RAG Rating Table for Alignment Option 3.2

Alignment option	RAG Impact Rating - Environmental													
	Natural Heritage					Cultural Heritage		People	Landscape		Land Use			Planning
	Designations	Protected Species	Habitats	Geology, Hydrology and	Ornithology	Designations	Cultural Heritage Assets	Proximity to People	Designations	Visual	Agriculture	Forestry	Recreation	Planning
3.2	H	L	H	L	H	L	L	L	L	L	L	H	M	M

5.7.4 Engineering Constraints

Major Crossings

There is one major crossing of the A835 dual carriageway within alignment option 3.2. Therefore, an Red rating has been applied.

Road Crossings

There are 0 road crossings and 6 access track crossings for alignment option 3.2. Therefore, a Green rating has been applied.

Elevation

Alignment option 3.2 has an elevation minimum of 102 metres, and maximum of 324 metres and 9% of the alignment is above 200 AOD. Therefore, a Amber rating has been applied.

Atmospheric Pollution

Alignment option 3.2 has intermediate levels of atmospheric pollution for CO_2 and NO_2. Therefore, an Amber rating has been applied.

Contaminated Land

There are no known risks of soil contamination as well as UXO within alignment option 3.2. Therefore, a Green rating has been applied.

Flooding

2.66% of the total length of alignment option 3.2 is within 1-in-200 year flood zone. Therefore, an Green rating has been applied.

Terrain

Alignment option 3.2 has a slope maximum of 26.9%-27.5%. Therefore, an Amber rating has been applied.

Peatland

100% of the length of alignment option 3.2 is within Class 5. No Class 1 or Class 2 Peat has been identified. Therefore, a Red rating has been applied.

Access

Alignment option 3.2 has limited access tracks throughout the majority of the route. Therefore, an Amber rating has been applied.

Angle Supports

Alignment option 3.2 has 18 angle poles present. This is higher than the alternative alignment options and therefore a Green rating has been applied.

Clearance

There are 4 properties within 100-250m of alignment option 3.2. Therefore, an Amber rating has been applied.

Wind Farms

Alignment option 3.2 is 840m away from the nearest wind turbines that is being connected. Therefore, an Amber rating has been applied.

Communication Masts

Communication masts are at a distance greater than 1km for alignment option 3.2. Therefore, a Green rating has been applied.

Urban Developments

There are no urban environments within alignment option 3.2. Therefore, a Green rating has been applied.

Metallic Pipes

There are no known metallic pipes within alignment option 3.2. Therefore, a Green rating has been applied.

Alignment Lengths

Alignment option 3.2 is 7.33 km in length, only 1% than the shortest alignment option. Therefore, a Green rating has been applied.

DNO Crossings

Alignment option 3.2 has 1x 33kV OH Distribution & 02x33kV UG crossings identified. Therefore, an Amber rating has been applied.

The Electricity Safety, Quality and Continuity Regulations (ESQCR) assessment

Alignment option 3.2 has intermediate potential of risk due to river and properties. Therefore, an Amber rating has been applied.

RAG Impact Rating Summary

Table 5.20 - Engineering RAG Rating Table for Alignment Option 3.2

Route Option	Infrastructure Crossing		Environmental Design				Ground Condition		Construction and Maintenance		Proximity					Other Considerations		
	Major Crossings	Minor Roads	Elevation	Atmospheric Pollution	Contaminated Land	Flooding	Terrain	Peatland	Access	Angle Poles	Clearance Distance	Windfarms	Communication Masts	Urban Environments	Metallic Pipes	Alignment Length	DNO Crossings	ESQCR
3.2	H	L	I	I	L	L	I	H	I	L	I	I	L	L	L	L	I	I

5.7.5 Economic Considerations

Capital

A Green RAG rating has been applied to alignment option 3.2 in terms of capital cost as it is within 120% of the least cost option.

Operational

A Green RAG rating has been applied to alignment option 3.2 as it is within 120% of the least cost option.

RAG Impact Rating Summary

Table 5.21 – Cost RAG Rating Table for Alignment Option 3.2

Alignment Option	RAG Impact Rating - Cost	
	Capital	**Operational**
	Construction, Diversions, Public Road Improvements, Felling, Land Assembly and Consent Mitigations	Inspections and Maintenance
3.2 OHL	L	L

5.8 Alignment Option 4.2 (OHL)

5.8.1 Environmental Constraints

5.8.2 Landscape and Visual Context

The landscape and visual constraints present within alignment option 4.2 are illustrated in **Figure 5.15**.

Designations

Alignment option 4.2 does not pass through an NSA, WLA or SLA. The Ben Wyvis SLA designated by The Highland Council is located 500 m to the east of alignment at the closest point. The alignment is unlikely to compromise the special qualities of this designation. Therefore, a Green rating is applied.

Visual Amenity

The Ben Wyvis WLA is located 1.2 km to the east of the alignment at the closest point. The alignment is unlikely to impact on the wild qualities of this designation as it is located outside of the designation. The potential visual receptors are:

- Residents at Little Garve, Gorstan and Corriemoillie;
- Visitors of Black Water Falls;
- Road users of A832 and A835; and
- Walkers along Silverbridge circuit and Tor Breac core paths to the south of Black Water Falls.

5.8.3 Natural Heritage Context

The natural heritage designations present within alignment option 4.2 are illustrated in **Figure 5.15**.

Designations

Alignment option 4.2 passes within 20 km of multiple international and national designated sites, with specific distances as follows:

- Ben Wyvis SPA, SAC, SSSI and NNR: 2.8 km northeast;
- Glen Affric to Strathconon SPA: 2 km southwest;
- Achanalt Marshes SPA and SSSI: 7.5 km west;
- Fannich Hills SAC and SSSI: 8.2 km west;
- Lower River Conon SSSI: 9.4 km southeast;
- Conon Islands SAC: 9.4 km southeast;
- Allt nan Caorach SSSI: 10.5 km northeast;
- Loch Ussie SAC and SSSI: 10.7 km southeast;
- Beinn Dearg SSSI, SPA and SAC: 11 km northwest;
- Cromarty Firth SPA, SSSI and Ramsar site: 14.5 km southeast;
- Novar SPA: 16.5 km northeast;
- Drummondreach Wood SSSI: 17.5 km southeast;
- Achnasheen Terraces SSSI: 18.6 km west;
- Monadh Mor SAC: 18.7 km southeast;
- Corrieshalloch Gorge: 19.4 km northwest;

- Moray Firth SPA: 19.5 km southeast; and
- Inner Moray Firth SPA and Ramsar site: 20 km east.

This alignment poses potential risks to the qualifying species in these designated sites. Therefore, a Red rating is applied.

Protected Species

European protected species known to occur in the area, which may therefore be present across the alignment include otter, wildcat and bat species. There is a designated WPA which is located approximately 1.2 km southeast of the alignment option 4.2.

UK BAP species known to occur in the area include red squirrel, pine marten, badger, and adder. SBL species include slow worm, common lizard, common toad, hedgehog, mountain hare and brown hare.

For the purposes of assessment and in the absence of survey, it is assumed that through design, licencing and best practice construction techniques, alignment option 4.2 is unlikely to compromise the conservation status or known presence or suitable habitats for EPS or BAP species. A Green rating is applied.

Habitat

There are no areas of Class 1 and Class 2 throughout alignment option 4.2. However, there is still potential to compromise the integrity of Annex 1 habitats including blanket bog and GWDTE. Class 5 Peatland is recorded along the alignment. Alignment option 4.2 component soils are primarily made up of peaty gleyed podzols with dystrophic semi-confined peat with peaty gleys.

SSEN defines irreplaceable ancient woodland as Categories 1a and 2a of the AWI. There is ancient woodland of category 1a and 2a within the alignment option 4.2.

A Red rating is applied as the proposed development is likely to compromise the conservation status of Annex 1 habitats ancient woodland e.g. by passing directly through them.

Geology, Hydrology and Hydrogeology

Class 5 peatland is mapped throughout the majority of alignment option 4.2, indicative of soils that are carbon rich, potential deep peat, bare soils and no recorded peatland vegetation or habitats. There are no areas of recorded priority Class 1 and Class 2 peatland throughout alignment option 4.2. The majority of alignment option 4.2 is underlain by shallow soils (<0.5 m) with very localised areas of peat (>0.5 m) and deep peat (>1.0 m) recorded throughout.

The alignment option 4.2 lies within 250 m of three PWS which are hydrologically connected to the option (PWS Silverbridge Tigh Fiodha, and PWS Strathmore House). Alignment option 4.2 passes through three Water Framework Directive (WFD) designated watercourses (Allt Coire Mhuilidh, River Black Water and Allt a' Bheith Oig), which may require a WFD assessment to be completed as part of any EIA. A Green rating is applied as the alignment option does not pass a Surface Water Drinking Protected Area and is unlikely to compromise the quality and/or quantity of surface waters which provide public supply.

Ornithology

The following designations and their qualifying bird species in relation to alignment option 4.2 are as follows:

- Ben Wyvis SPA (3 km N): Supports breeding dotterel.
- Glen Affric to Strathconon SPA (2 km SW): Supports golden eagle.
- Achanalt Marshes SPA and SSSI (7.5 km W):
- Beinn Dearg SPA (11.7 km NW): Supports breeding dotterel.
- Cromarty Firth SPA & Ramsar Site (14.5 km SE): Supports osprey, common tern, greylag goose, whooper swan, bar-tailed godwit, and over 20,000 wintering waders and wildfowl.
- Novar SPA (16.5 km NE): Supports breeding capercaillie.
- Inner Moray Firth SPA and Ramsar site (20 km E): Supports osprey, common tern, greylag goose, red-breasted merganser, redshank, and over 20,000 wintering birds

Schedule 1 / Annex I and / or Birds of Conservation Concern (BoCC) red-list species and Scottish Biodiversity List species with nesting territories / nest buffer zones near alignment option 4.2 include black grouse, capercaillie, osprey, and red kite.

Alignment option 4.2 may cause barrier and collision effects to SPA species, resulting in a Red rating.

5.8.4 Other Potential Environmental Constraints

Cultural Heritage

The cultural heritage constraints present within alignment option 4.2 are illustrated in **Figure 5.15**.

Designated Assets: There are no Scheduled Monuments within alignment option 4.2. There are no Registered Battlefields, Gardens and Designed Landscapes or World Heritage Sites within or within 5 km of alignment option 4.2. Within 5 km of the alignment option 4.2 there is one Scheduled Monument: SM2720 Little Garve, bridge over Black Water.

Non-designated assets: There is no non-designated asset identified from the Canmore Database, located within 50 m of alignment option 4.2. Direct: No direct impacts to designated assets are anticipated for alignment option 4.2. However, there remains the potential to introduce direct effects to unknown buried archaeology through the construction phase. Indirect and Setting: There remains the potential to introduce effects to setting for designated assets as a result of changes to the landscape visibility and character of the area. Particularly, SM2720 is located within approximately 800 m of alignment option 4.2. However, this is likely situated far enough away that no significant effects to setting are anticipated. As such, there is potential for a low impact to cultural heritage assets as a result of alignment option 4.2 and a Green rating is applied.

There are no Conservation Areas or Listed Buildings within alignment option 4.2. Within 5 km of alignment option 4.2 there are five Listed Buildings:

- LB1774 Category B, Burial Ground, Lochluichart Parish Church;
- LB1774 Category B, Lochluichart Parish Church;
- LB1775 Category C, Lochluichart Parish Manse;
- LB1775 Category C, Steading, Lochluichart Parish Manse; and
- LB51705 Category C, Conon Valley, Hydro Electric Scheme, Achanalt Power Station and Dam.

Direct: No direct impacts to designated Listed Buildings are anticipated for this alignment. Indirect and Setting: There remains the potential introduce impacts to setting for Listed Buildings, as a result of changes to the landscape visibility and character of the area.

However, no Listed Buildings are located within 3 km of this alignment and their context has limited interaction with the alignment option 4.2. As such, there is potential for a low impact to cultural heritage assets as a result of alignment option 4.2 and a Green rating is applied.

People

Alignment option 4.2 does not directly pass through any residential communities. However, the alignment passes 600 m north of the scattered properties of Corriemoillie, 200 m south of the properties east of the A835, and 600 m north of Little Garve residential properties. As the alignment passes in close proximity to these residential properties, an Amber rating is applied.

Land Use and Recreation

Agricultural land within alignment 4.2 has a land capability between 5.1 and 6.3. Therefore, a Green rating is applied.

A Red rating is applied as the alignment option passes through extensive areas of commercial forestry.

Alignment option 4.2 does directly cross the two core paths in the area, the Tor Breac and Silverbridge Circuit, which may compromise their recreational use. As such an Amber RAG rating has been applied.

Planning

Alignment option 4.2 is in full compliance with national, regional and local planning policy. An Amber rating has been applied as the Loch Luichart connection and the Corriemoillie Battery Storage are located within the area.

Table 5.22 - Environmental RAG Rating Table for Alignment Option 4.2

Alignment option	RAG Impact Rating - Environmental													
	Natural Heritage					Cultural Heritage		People	Landscape		Land Use			Planning
	Designations	Protected Species	Habitats	Geology, Hydrology and	Ornithology	Designations	Cultural Heritage Assets	Proximity to People	Designations	Visual	Agriculture	Forestry	Recreation	Planning
4.2	H	L	H	L	H	L	L	L	L	L	L	H	M	M

5.8.5 Engineering Constraints

Major Crossings

There is 1 major crossing at A835 dual carriageway, proposed HVDC UG cable, River Glass Crossing. Therefore, a Red rating has been applied

Road Crossings

There are 0 road crossing and 6 access track crossings along alignment option 4.2. Therefore, a Green rating has been applied.

Elevation

Alignment option 4.2 has an elevation minimum of 102m and a maximum of 324m with an average of 183m. 31% of the alignment is above 200 AOD. Therefore, a Red rating has been applied.

Atmospheric Pollution

Alignment option 4.2 has intermediate levels of pollution for CO_2 and NO_2. Therefore, an Amber rating has been applied.

Contaminated Land

There are no known risks of soil contamination as well as UXO. Therefore, a Green rating has been applied.

Flooding

There is 2.31% of the total length within the 1-in-200 year flood zone. Therefore, an Amber rating has been applied.

Terrain

Alignment option 4.2 has a slope maximum of 25.9% and an average of 15%, -0.8%. Therefore, an Amber rating has been applied.

Peatland

100% of the length of alignment option 4.2 is within Class 5. No Class 1 or Class 2 Peat are identified. Therefore, a Red rating has been applied.

Access

There is limited access tracks through the majority of alignment option 4.2. Therefore, an Amber rating has been applied.

Angle Structures

There are 19 angle poles identified along alignment option 4.2. This is the highest of all alignment options. Therefore, a Red rating has been applied.

Clearence

There are 2 properties within 100m and 3 properties within 100-250m of alignment option 4.2. Therefore, a Red rating has been applied.

Windfarms

Alignment option 4.2 is 840m away from the nearest wind turbines that is being connected. Therefore, an Amber rating has been applied.

Communication Masts

The nearest communication mast is at a distance of greater that 1km from alignment option 4.2. Therefore, a Green rating has been applied.

Urban Developments

There are no urban developments identified along alignment option 4.2. Therefore, a Green rating has been applied.

Metallic Pipes

There are no known metallic pipes identified along alignment option 4.2. Therefore, a Green rating has been applied.

Route Length

Alignment option 4.2 is 7.77km in length. This is 5.62% longer than the shortest alignment option. Therefore, an Amber rating has been applied.

DNO Crossings

There is 1x 33Kv OH Distribution & 02x33Kv UG crossings identified along alignment option 4.2. Therefore, an Amber rating has been applied.

ESQCR Assessment

There is intermediate potential of risk identified along alignment option 4.2 due to river and properties. Therefore, an Amber rating has been applied.

RAG Table summary

Table 5.23 - Engineering RAG Rating Table for Alignment Option 4.2

Route Option	Infrastructure Crossing		Environmental Design				Ground Condition		Construction and Maintenance		Proximity					Other Considerations		
	Major Crossings	Minor Roads	Elevation	Atmospheric Pollution	Contaminated Land	Flooding	Terrain	Peatland	Access	Angle Poles	Clearance Distance	Windfarms	Communication Masts	Urban Environments	Metallic Pipes	Alignment Length	DNO Crossings	ESQCR
4.2	H	L	H	I	L	I	I	H	I	H	H	I	L	L	L	I	I	I

5.8.6 Economic Considerations

Capital

A Green RAG rating has been applied to alignment option 4.2 in terms of capital cost as it is within 120% of the least cost option.

Operational

A Green RAG rating has been applied to alignment option 4.2 as it is within 120% of the least cost option.

RAG Impact Rating Summary

Table 5.21 – Cost RAG Rating Table for Alignment Option 4.2

Alignment Option	RAG Impact Rating - Cost	
	Capital	**Operational**
	Construction, Diversions, Public Road Improvements, Felling, Land Assembly and Consent Mitigations	Inspections and Maintenance
4.2 OHL	L	L

6. SELECTION OF PREFERRED ALIGNMENT

6.1 Preferred Alignment

Eastern section preferred Alignment Option 3.1 (UGC)

From an environmental perspective, Alignment Options 1.1 (UGC), 2.1 (UGC), and 3.1 (UGC) all present similar challenges, particularly with high risks associated with habitats and ornithology. All three alignments in the eastern section face similar natural heritage challenges, with high risks to Annex 1 habitats and potential disturbance to protected species near ornithological sites during construction. However, **Alignment Option 3.1** is the environmentally preferred UGC option as it scored the lowest impact (Green) ratings across the topics and any potential impacts should be avoided through mitigation.

From an engineering perspective, there is minimal difference between Alignment Option 1.1 and Alignment Option 2.1, aside from distinctions identified in the RAG assessment. Alignment Option 1.1 requires minimal construction of new access tracks, as it primarily relies on utilising or upgrading existing tracks. However, this option presents significant challenges, particularly the construction of a 25 m wide construction corridor on a steep slope. This may necessitate extensive earthworks and material displacement. Additional concerns include an increased risk of equipment instability and increased risk for personnel, such as slipping and falling. Furthermore, the presence of rock outcrops in certain areas, with unknown depth at this stage, represents a potential constraint.

Alignment Option 3.1 is the preferred option from an engineering perspective as it presents fewer critical constraints compared to the other options. This option is located in flat terrain which facilitates easier construction, more efficient material storage, and safer movement of personnel, machinery, and materials. However, this alignment option intersects with the proposed Carn Fearna Wind Farm, creating potential construction risks. Where cable crossings with wind farm infrastructure present risks, detailed modelling will be undertaken to ensure the integrity of the export cable.

Western section preferred alignment option 3.2 (OHL)

From an environmental perspective, when comparing the alignment options within the western section, all alignment options present similar natural heritage constraints. From the environmental appraisal, Alignment Option 2.2 has the lowest risk to habitats, forestry activities, and land use in the area. However, **Alignment Option 3.2** has greater potential micrositing opportunities, and therefore it is anticipated that areas of ancient woodland and forestry habitat in the west of the alignment will be avoided. Therefore, **Alignment Option 3.2** is the environmentally preferred OHL alignment.

From an engineering perspective, Alignment Option 2.2 and Alignment Option 3.2 are the preferred options, offering the shortest overall length and a more favourable elevation profile. These alignments present the fewest constraints, including a manageable number of angle poles. Less than 5% of their total length lies within flood zones associated with a 1-in-200-year event. Additionally, there are no property clearance infringements within 100 m. The maximum gradient is a manageable 24%, and the alignments follow existing access roads.

Alignment Option 3.2 is the preferred alignment from an engineering perspective. When compared with Alignment Option 2.2, Alignment Option 3.2 has a slightly smaller flood zone, a flat terrain at the River Black crossing point, a maximum gradient of approximately 20%, improved access and fewer environmental and forestry constraints.

7. CONSULTATION ON THE PROPOSALS

7.1 Introduction

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

The proposals detailed in this report have been developed through environmental and technical analysis of various Alignment Options. The potential for environmental effects remains and further assessment and design will be important in giving detailed consideration to the development and integration of mitigation measures to address significant environmental effects identified.

When providing comment and feedback, SSEN Transmission would be grateful for your consideration of the questions below. We are keen to receive your views and comments in regard to the following:

- Do you feel sufficient information has been provided to enable you to understand what is being proposed and why?
- Which of the eight Alignment Options would you consider the best option for SSEN Transmission to develop? Please provide an explanation of your answer.
- Which of the eight Alignment Options would you consider the least preferable option for SSEN Transmission to develop? Please provide an explanation of your answer.
- Are there any potential risks or benefits associated with this project, that you believe have not been included in the Consultation Document?
- Do you have any other comments on the Proposed Development?

7.2 Next Steps

A public exhibition will be held on 25th June 2025 (see **Preface**) and meetings will be arranged with statutory consultees and other stakeholders. The responses received and those sought from statutory consultees and other key stakeholders will inform further consideration and design of the preferred alignment, leading to the identification of a proposed Alignment Option for OHL and UGC to take forward to the next stage.

Please submit your comments to:

Lisa Marchi

Community Liaison Manager

SSEN Transmission

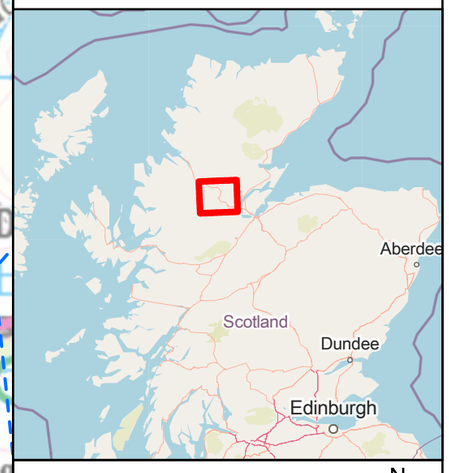
10 Henderson Road, Inverness IV1 1SN

Email: lisa.marchi@sse.com

Mobile: 07825 015 507

All comments are requested by 25th July 2025.

Indicative Corriemoillie Substation Extension
10km Buffer
Carn Fearna Preferred Alignments
3.1 (UGC)
3.2 (OHL)
Carn Fearna Alignment Options
1.1 (UGC)
2.1 (UGC)
1.2 (OHL)
4.2 (OHL)
2.2 (OHL)
2.3 (OHL - Diversion)
Existing 132kV OHL
Existing 275kV OHL
Proposed Spittal to Loch Buidhe to Beauly OHL



0 1 2 3 4
Kilometres

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: CI
PROJECT: 0738456	CHECKED: LS
DATE: 5/21/2025	APPROVED:

Figure 1.1
Proposed Development

ERM

Scottish & Southern Electricity Networks
TRANSMISSION

PROJECTION: British National Grid

Indicative Corriemoillie Substation Extension
10km Buffer
Carn Fearna Preferred Alignments
3.1 (UGC)
3.2 (OHL)
Carn Fearna Alignment Options
1.1 (UGC)
2.1 (UGC)
1.2 (OHL)
4.2 (OHL)
2.2 (OHL)
2.3 (OHL - Diversion)
Existing 132kV OHL
Existing 275kV OHL
Proposed Spittal to Loch Buidhe to Beauly OHL

Aberdee
Scotland
Dundee
Edinburgh

0 1 2 3 4
Kilometres

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: CI
PROJECT: 0738456	CHECKED: LS
DATE: 5/21/2025	APPROVED:

Figure 2.1
Study Area

ERM

Scottish & Southern Electricity Networks
TRANSMISSION

PROJECTION: British National Grid

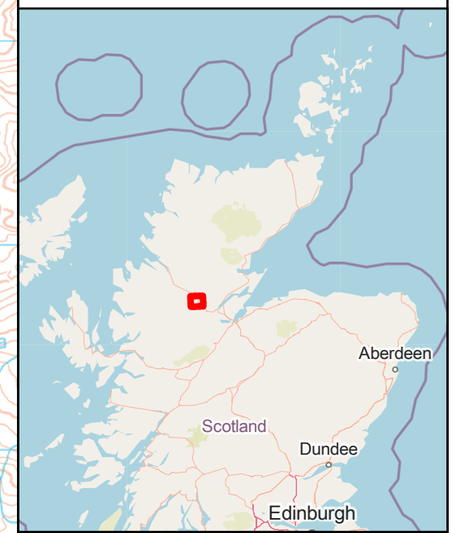
Indicative Corriemoillie Substation Extension

Carn Fearna Preferred Alignments

- 3.1 (UGC)
- 3.2 (OHL)

Carn Fearna Alignment Options

- 1.1 (UGC)
- 2.1 (UGC)
- 1.2 (OHL)
- 4.2 (OHL)
- 2.2 (OHL)
- 2.3 (OHL - Diversion)
- Existing 132kV OHL



0 200 400 600 800 1,000
Metres

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: CI
PROJECT: 0738456	CHECKED: LS
DATE: 5/21/2025	APPROVED: KG

Figure 4.1
Carn Fearna Alignment Options

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: <LINK>\\uksprdgisfs01\Data\London\Projects\0738903 - Abhainn Dubh & Carn Fearna\Map\0738903 - Carn Fearna.aprx</LINK> / 0738903 - EROR Carn Fearna - Fig 4.1 & 5.1 - Alignment Options - A01

Indicative Corriemoillie Substation Extension
Existing 132kV OHL
Carn Fearna Alignment Options
1.1 (UGC)
2.1 (UGC)
1.2 (OHL)
4.2 (OHL)
2.2 (OHL)
2.3 (OHL - Diversion)
Carn Fearna Preferred Alignments
3.1 (UGC)
3.2 (OHL)
Landscape and Visual Constraints
Core Paths
Wild Land

Aberdeen
Scotland
Dundee
Edinburgh

0 200 400 600 800 1,000
Metres

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: CI
PROJECT: 0738456	CHECKED: LS
DATE: 5/21/2025	APPROVED: KG

Figure 5.1
Landscape and Visual Constraints

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: <LINK>\\uksprdgisfs01\Data\London\Projects\0738903 - Abhainn Dubh & Carn Fearna\Map\0738903 - Carn Fearna.aprx</LINK> / 0738903 - EROR Carn Fearna - Figure 5.3 & 6.1 - Landscape and Visual Constraints - A01

Indicative Corriemoillie Substation Extension

Carn Fearna Preferred Alignments

- 3.1 (UGC)
- 3.2 (OHL)

Carn Fearna Alignment Options

- 1.1 (UGC)
- 2.1 (UGC)
- 1.2 (OHL)
- 4.2 (OHL)
- 2.2 (OHL)
- 2.3 (OHL - Diversion)
- Existing 132kV OHL

Natural Heritage Constraints

- Special Protection Areas (SPA)
- Special Areas Of Conservation (SAC)
- Sites Of Special Scientific Interest (SSSI)
- Ancient Woodland Inventory (AWI)
- Wildcat Protection Areas

Carbon And Peatland

IMPORTANCE

- Carbon And Peatland - Class 1 Importance
- Carbon And Peatland - Class 2 Importance

0 200 400 600 800 1,000

Metres

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: CI
PROJECT: 0738456	CHECKED: LS
DATE: 5/21/2025	APPROVED: KG

Figure 5.2
Natural Heritage Constraints

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\London\Projects\0738903 - Abhainn Dubh & Carn Fearna\Map\0738903 - Carn Fearna.aprx / 0738903 - EROR Carn Fearna - Fig 5.1 and 6.2 - Natural Heritage Constraints - A01

Indicative Corriemoillie Substation Extension

Existing 132kV OHL

Carn Fearna Preferred Alignments

3.1 (UGC)

3.2 (OHL)

Carn Fearna Alignment Options

1.1 (UGC)

2.1 (UGC)

4.2 (OHL)

1.2 (OHL)

2.2 (OHL)

2.3 (OHL - Diversion)

Cultural Heritage Constraints

Scheduled Monument

0 200 400 600 800 1,000

Meters

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: CI
PROJECT: 0738456	CHECKED: LS
DATE: 5/21/2025	APPROVED: KG

Figure 5.3
Cultural Heritage Constraints

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: <LINK>\\uksprdgisfs01\Data\London\Projects\0738903 - Abhainn Dubh & Carn Fearna\Map\0738903 - Carn Fearna.aprx</LINK> / 0738903 - EROR Carn Fearna - Fig 5.2 & 6.3 - Cultural Heritage Constraints - A01