Slickly Wind Farm Connection Project

Consultation Booklet

August 2023

Scottish & Southern Electricity Networks

TRANSMISSION

Contents

Who we are

We are SSEN Transmission, the trading name for Scottish Hydro Electric Transmission. We are responsible for the electricity transmission network in the north of Scotland, maintaining and investing in the high voltage 132kV, 220kV, 275kV and 400kV electricity transmission network.

Our network consists of underground and subsea cables, overhead lines on wooden poles or steel towers, and electricity substations. It extends over a quarter of the UK's land mass, crossing some of its most challenging terrain.

Our first priority is to provide a safe and reliable supply of electricity to our communities. We do this by taking the electricity from generators and transporting it at high voltages over long distances through our transmission network for onwards distribution to homes and businesses in villages, towns and cities.

Our operating area is home to vast renewable energy resources and this is being harnessed by wind, hydro and marine generation. Working closely with National Grid, the GB transmission System Operator, we also enable these electricity generators to connect to the transmission system by providing their connections and allowing the electricity generated by them to be transported to areas of demand across the country.

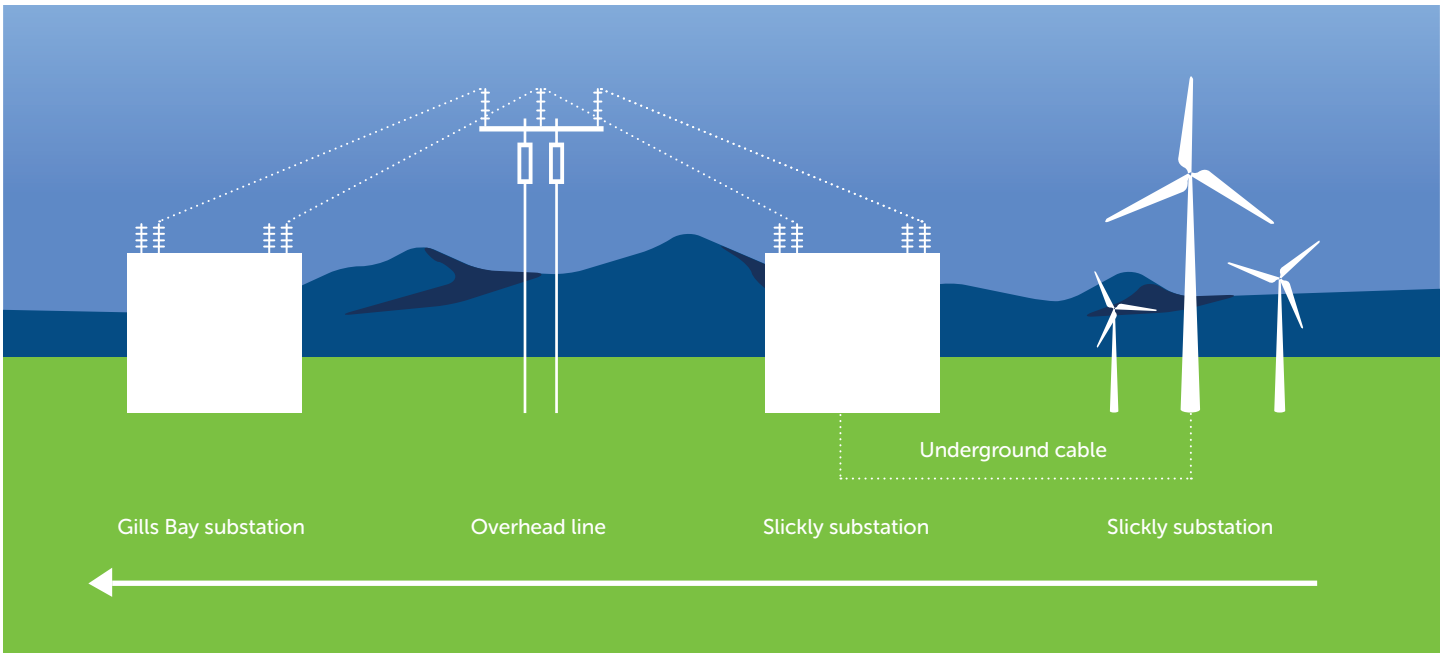
Scotland's transmission network has a strategic role to play in supporting delivery of the UK and Scotland's Net Zero targets. We're already a mass exporter of renewable energy, with around two thirds of power generated in our network area exported to demand centres further south. By 2050, the north of Scotland is expected to need 40GW of low carbon energy capacity to support net zero delivery. For context, we currently have around 8GW of renewable generation connected in the north of Scotland.

As a natural monopoly, we are closely regulated by the GB energy regulator, Ofgem, who determines how much revenue we are allowed to earn for constructing, maintaining and renovating our transmission network in the north of Scotland. These costs are shared between all those using the transmission system, including generation developers and electricity consumers. Following a minority stake sale which completed in November 2022, we are now owned 75% by SSE plc and 25% by Ontario Teachers' Pension Plan Board.

As a stakeholder-led business, SSEN Transmission is committed to inclusive stakeholder engagement, and we conduct this at an 'Advanced' level as assessed by AccountAbility, the international consulting and standards firm.

Project need and overview

As the transmission license holder in the north of Scotland, we have a duty under Section 9 of the Electricity Act 1989 to facilitate competition in the generation and supply of electricity. We have obligations to offer non-discriminatory terms for connection to the transmission system, both for new generation and for new sources of electricity demand.



The connection comprises a single circuit 132kV trident wood H pole arrangement, as shown, supporting the overhead line running a distance of approximately 8.5km in length between the proposed Slickly wind farm substation and the Gills Bay substation (being proposed and constructed under a separate SSEN-T project). The trident wood pole line will transition to cable via a gantry arrangement located within the Gills Bay substation.

The Slickly wind farm substation has been consented by the Developer who will undertake the construction of the substation platform and electrical infrastructure works to connect the wind farm, including the installation of a single 132/33kV 90MVA transformer and associated control building.

The average height of the trident poles is between 13 and 15 meters, up to a maximum of 18 meters, with an average span of between 70 and 100 metres.

Project timeline

The figure below identifies key milestones for consenting and construction programmes.

March 2022
Commencement of ornithology surveys across multiple route options.

August 2023
Optimal alignment consultation.

October 2023
Environmental impact assessment commences.

March 2024
Section 37 application submitted.

August 2025
Section 37 consent determination.

February 2026
Construction commences.

June 2027
Project completion.

Our overhead line routeing and design process

SSEN Transmission has developed and implemented formal guidance for the selection of routes and alignments for its new Overhead Lines (OHL).

The main aim of the guidance is to provide a consistent approach to the selection of new OHL alignments and is underpinned by our statutory obligations to: 'develop and maintain an efficient, coordinated and economical electricity transmission system in its licenced area' and in so doing, to 'have regard to the desirability of preserving the natural beauty, of conserving flora, fauna and geological and physiographical features of special interest and protecting sites, buildings and objects of architectural, historic or archaeological interest; and do what we reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites buildings or objects'.

These duties capture the principal objective of the routeing process which is to balance technical and cost considerations with environmental considerations, to select a proposed alignment that is economically viable, technically feasible, minimises impacts on important resources or features of the environment and reduces disturbance to those living in it, working in it, visiting it or using it for recreational purposes.

Key stages

For new OHL projects, the process follows four principal stages, each iterative and increasing in detail and resolution, bringing cost, technical and environmental considerations together in a way that seeks the best balance. This staged process leads to the identification of a proposed overhead line alignment that is capable of being granted consent by the Scottish Government under Section 37 of the Electricity Act 1989. The key stages are:

Stage 1: Strategic options assessment/routeing strategy

The starting point in all OHL projects is to establish the need for the project and to select the proposed strategic option to deliver it. This process will be triggered by the preparation of a number of internal assessments and documents which identify the technology to be used and the point on the existing Transmission network where a connection can be made. The Routeing Strategy also determines which of the following stages are required.

Stage 2: Corridor selection

Corridor selection seeks to identify possible corridors which are as short as practicable, which are not constrained by altitude or topography, and which would avoid, where possible, any interaction with man-made infrastructure and features of environmental sensitivity. For Slickly, the corridor stage is omitted as the location of the wind farm and point of connection on the network naturally define a corridor.

Stage 3: Route selection

Route Selection seeks to find a route within the corridor which avoids where possible physical, environmental and amenity constraints, is likely to be acceptable to stakeholders, and is economically viable, taking into account factors such as altitude, slope, ground conditions and access. The dimensions of a route will depend on the context provided by the corridor. A route may be several kilometres in length and may range from 200m to 1km in width, depending on the scale of the project, the nature and extent of constraints and the character of the area in question. A number of route options are usually identified and assessed, leading to an optimal route being selected.

Stage 4: Alignment selection

Alignment selection seeks to identify an alignment within the optimal route and to define the access strategy which will be adopted in terms of, for example, the nature and extent of temporary and/or permanent access tracks and possible road improvements. It will be influenced by local constraints, such as individual properties, their aspect, and amenity; ground suitability; habitats; and cultural heritage features and setting. There may be more than one distinct alignment option through the proposed route. It is more likely, however, that variants to sections of an alignment may arise where there are different ways to avoid a constraint.

What happens next?

The outcome of the OHL Routeing Process is to identify an Optimal Alignment, which following stakeholder engagement with the public, statutory bodies and landowners, is finalised as a Proposed Alignment to be taken forward for formal environmental assessment and consent application. A further pre-application consultation on our detailed proposals will be held before the consent application is submitted.

Meeting our obligations

Our Transmission Operators licence requires us to provide the best value for customers and Great Britain (GB) consumers. As a natural monopoly, SSEN Transmission are closely regulated by the GB energy regulator Office of Gas and Electricity Markets which determines how much revenue we are allowed to earn for constructing, maintaining and renovating our transmission network. These costs are shared between all those using the transmission system, including generation developers and electricity consumers. We, therefore, work to strict price controls which means the following environmental, engineering, and economic considerations form a key part of our routeing process:

Environmental assessments

Desk-based assessments using available mapping and GIS (Geographic Information Systems) data, together with initial site walkovers by specialists, have been undertaken to gather baseline information. This is crucial to enable us to understand the key environmental constraints and sensitivities within the connection Corridor.

This work has been carried out during 2022-2023 and has helped to identify key environmental constraints including landscape and visual amenity, sensitive habitats, protected ecology and ornithology, forestry, hydrology, hydrogeology, recreation and cultural heritage.

Following confirmation of an optimal route and alignment for both connections, further detailed studies and assessment work will be undertaken to support the consenting process in 2024.

Consenting

Before a project progresses to consent application stage (under Section 37 of the Electricity Act 1989), a Screening Opinion is requested from the Scottish Ministers (through the Energy Consents Unit) to clarify whether the project falls within the thresholds of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

If the project meets or exceeds certain criteria, then it is deemed to be an EIA Development and any application for consent must be accompanied by a formal EIA Report.

If it is not EIA Development, SSEN Transmission will provide equivalent environmental information through a voluntary Environmental Appraisal (EA) Report.

Engineering and economic considerations

In addition to the suite of environmental assessments undertaken, the following engineering and economic considerations form a key part of our routeing process:

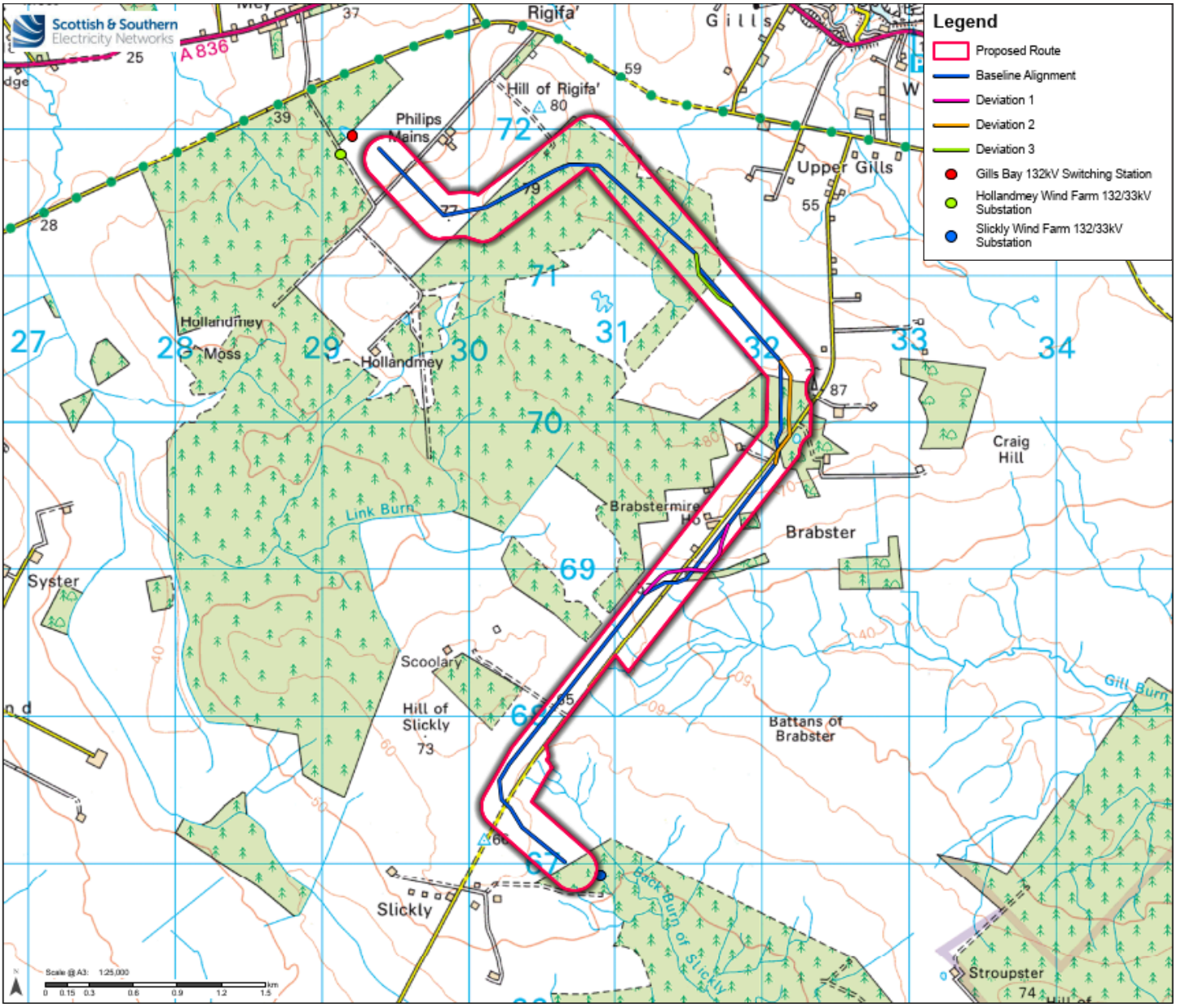
- Construction costs and buildability (largely affected by ground conditions, such as peat/rock/flooding/ contaminated land, etc).
- Operations and maintenance requirements.
- Outage requirements and network constraints.
- Vicinity to other electrical overhead line and underground structures.
- Vicinity to any other utility, overhead or underground.
- Wind farms.
- Communications masts.
- Urban development.
- Technology costs and design parameters.
- Site accessibility.
- Route length.

A summary of key environmental considerations for each route option are presented in the route options tables.

OHL Alignment options

A baseline alignment was developed within the extent of the Proposed Route identified in February 2023 for the connection of Slickly wind farm to the Gills Bay substation. The map below shows the baseline alignment and the potential alignment deviation options that have been considered.

The route selection stage ensured that the areas of highest amenity value were avoided. The baseline alignment was identified based on various parameters including infrastructure crossings, geology, ground conditions, construction/maintenance accessibility and proximity to dwellings. Therefore, for the majority of the baseline alignment, no obvious benefit was identified from alternative alignment options and the baseline alignment was confirmed as the Proposed Alignment for the majority of the connection. However, three deviation options were identified for further assessment as shown on the map below.



Alignment options

Baseline Alignment and Deviation 1 – Appraisal

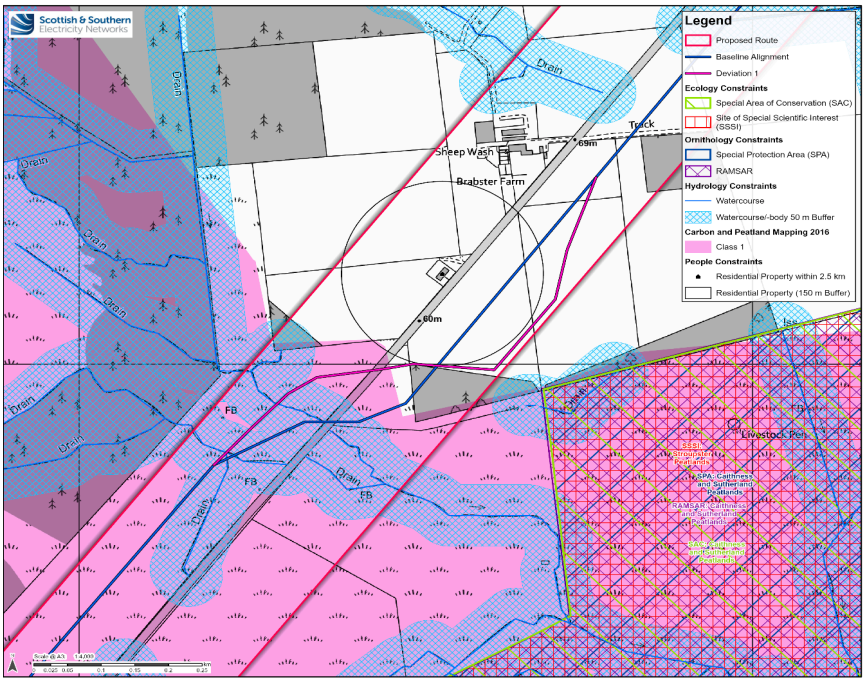
Deviation 1 was chosen so that only one (unnamed) watercourse would be crossed rather than two.
This deviation was also chosen to offer potential improvements to visual amenity from a nearby residential property.

The Baseline Alignment is proposed in relation to:

- Ecology, due to its greater distance from the Caithness and Sutherland Peatlands SPA/ RAMSAR/SAC and Stroupster Peatlands SSSI and the buffer zone of water bodies which would reduce the potential for damage/ disturbance to protected species and associated habitats;
- Ornithology, due to its greater distance from the Caithness and Sutherland Peatlands SPA which would reduce the potential for disturbance to the breeding area of protected bird species using the SPA; and
- Geology, due to its greater distance from the Caithness and Sutherland Peatlands designated site which supports peatland habitat.
- Construction/Maintenance, as Deviation 1 would require approximately 8 additional angle poles in comparison with Baseline Alignment.

Alignment Deviation 1 is proposed in relation to:

- Hydrology, due to its crossing of two watercourses rather than three. Deviation 1 would also allow for the perpendicular crossing of both watercourses.



Environmental and Engineering analysis

Alignment options	RAG Impact Rating																												
	Natural Heritage						Cultural Heritage		People	Landscape and visual			Land use			Planning		Infrastructure Crossing		Environmental Design				Ground Conditions		Construction/ Maintenance	Proximity		
	Designations	Protected species	Habitats	Ornithology	Hydrology	Geology	Designated assets	Non-designated assets	Proximity to dwellings	Designations	Character	Visual	Agriculture	Foresty	Recreation	Policy	Proposals	Major crossings	Road crossings	Elevation	Atmospheric pollution	Contaminated land	Flooding	Terrain	Peatland	Angle poles	Clearance distance to building	Communication masts	Metallic pipes
Baseline																													
Deviation 1																													

Baseline Alignment and Deviation 2 – Appraisal

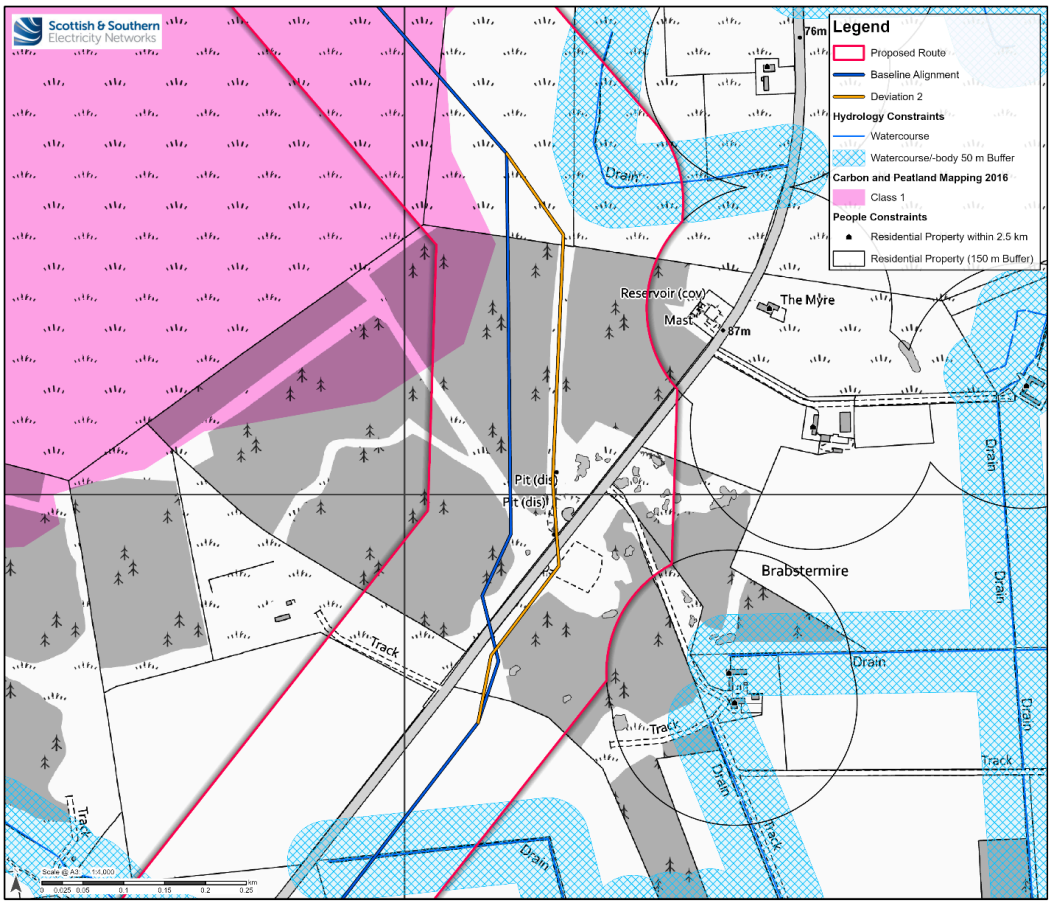
Deviation 2 was chosen in order to move the Baseline Alignment into an existing firebreak in the trees, in order to minimise the amount of tree felling required.

The Baseline Alignment is proposed in relation to:

- Proximity to dwellings, due to its greater standoff distance from the Hastigrow – Warse unclassified road and from another overhead line. This would create some separation and in part reduce the clustering effect of cumulative development.
- Proximity to communication mast, as Deviation 2 is located approx. 210m from a communication mast.

Alignment Deviation 2 is proposed in relation to:

- Land Use (Forestry), due to it taking advantage of an existing fire break in the forestry plantation.



Environmental and Engineering analysis

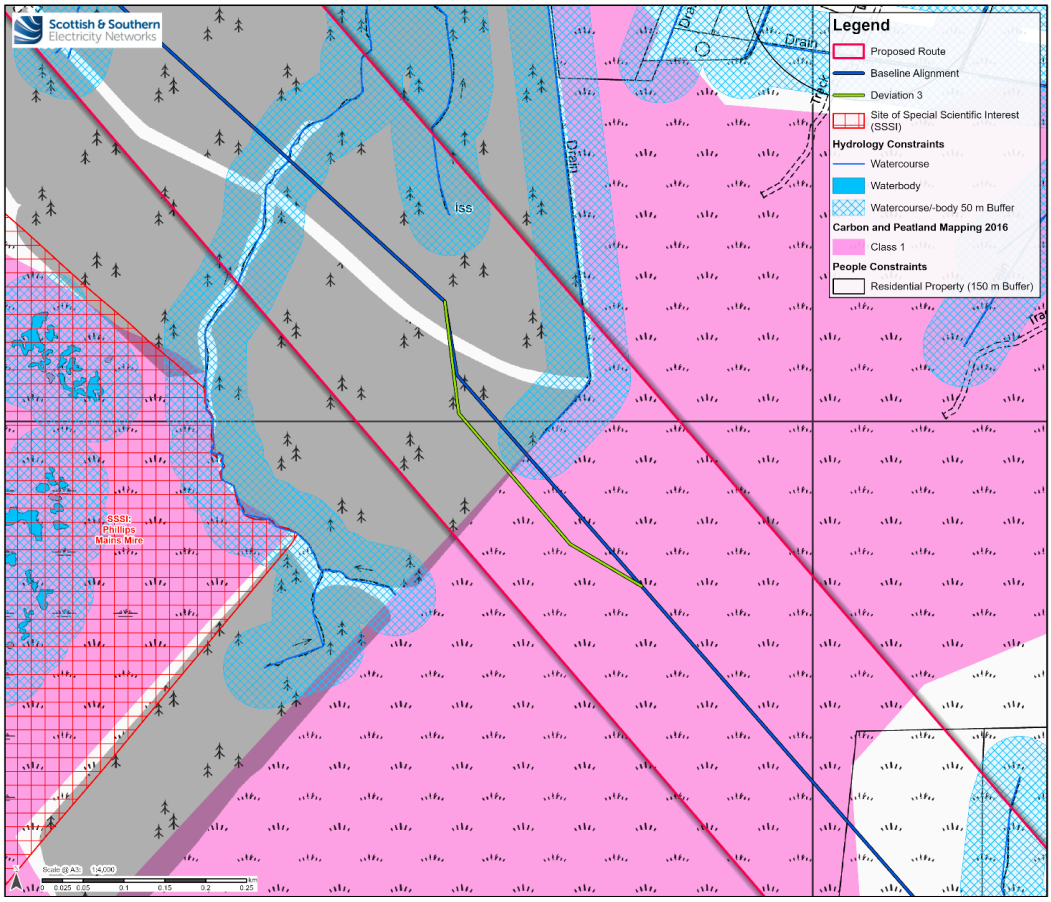
Alignment options	RAG Impact Rating																											
	Natural Heritage						Cultural Heritage		People	Landscape and visual			Land use			Planning		Infrastructure Crossing		Environmental Design				Ground Conditions		Construction/ Maintenance	Proximity		
	Designations	Protected species	Habitats	Ornithology	Hydrology	Geology	Designated assets	Non-designated assets	Proximity to dwellings	Designations	Character	Visual	Agriculture	Forestry	Recreation	Policy	Proposals	Major crossings	Road crossings	Elevation	Atmospheric pollution	Contaminated land	Flooding	Terrain	Peatland	Angle poles	Clearance distance to building	Communication masts	Metallic pipes
Baseline																												
Deviation 2																												

Baseline Alignment and Deviation 3 – Appraisal

Deviation 3 was chosen in order that the proposed development would retain a greater distance to the nearby unnamed watercourse 50m) and minimise potential impacts on hydrology.

Alignment Deviation 3 is proposed in relation to:

- Hydrology, as it would achieve a 50m buffer from an unnamed watercourse.



Environmental and Engineering analysis

Alignment options	RAG Impact Rating																												
	Natural Heritage						Cultural Heritage		People	Landscape and visual			Land use			Planning		Infrastructure Crossing		Environmental Design				Ground Conditions		Construction/ Maintenance	Proximity		
	Designations	Protected species	Habitats	Ornithology	Hydrology	Geology	Designated assets	Non-designated assets	Proximity to dwellings	Designations	Character	Visual	Agriculture	Foresty	Recreation	Policy	Proposals	Major crossings	Road crossings	Elevation	Atmospheric pollution	Contaminated land	Flooding	Terrain	Peatland	Angle poles	Clearance distance to building	Communication masts	Metallic pipes
Baseline																													
Deviation 3																													

Construction of an overhead wood pole line

A typical "H" wood pole installation requires foundations of approximately 2.5m by 3m across and to a depth of around 2 metres. To minimise construction impact and the requirement for access tracks helicopters are used wherever possible to help deliver the materials to the site.

The picture below shows a typical helicopter delivery of the steel work used on the top of a pole and the baulk timbers used in the foundation at the base of each structure. Helicopters are also used to assist with the stringing of the conductors.

Above is a typical example of an angle wood pole which requires additional stays. Note that stays are not usually required on non-angle poles unless ground or weather conditions dictate.

Construction of access tracks

Access tracks will only be constructed where access by all-terrain vehicles or the use of trackway is not feasible.

Access tracks will be constructed with imported and/or locally sourced material.

Access tracks are not usually retained after construction of the overhead line. Permanent access may be required to terminal structures where an OHL meets a cable section.

Notes

What happens now and how do I have my say?

We understand and recognise the value of the feedback provided by members of the public during all engagements and consultations. Without this valuable feedback, the project development team would be unable to progress projects and reach a balanced proposal.

We are keen to receive your views and comments in regards to the following questions:

- Has the requirement for the project been clearly explained?
- Have we explained the approach taken to select the proposed OHL alignment adequately?
- Are there any additional factors, or environmental features, that you consider important and should be brought to the attention of the project team?
- Do you have any other comments about the baseline alignment and alignment deviations?

  Following a review of the provided information, how would you describe your understanding of the Slickly Wind Farm Connection project?
- Overall how do you feel about the Slickly Wind Farm Connection project?

Comments

Your views and comments can be provided to the project team by completing the feedback form or by writing to our Community Liaison Manager. All feedback received will be assessed and the proposed options adapted where necessary.

Feedback

We will be seeking feedback from members of the public on this exhibition until **Friday 15th September 2023**.

Please note comments made to Scottish and Southern Electricity Networks Transmission (SSEN Transmission) are not representations to the Scottish Ministers and if SSEN Transmission submits an application there will be an opportunity to make representations on that application to the Scottish Ministers.

Lisa Marchi

Community Liaison Manager

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M: 07825 015 507

Lisa Marchi
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10 Henderson Road,
Inverness, IV1 1SN

Additional information

Information will also be made available via the project webpage and social media channels:

Project website:
www.ssen-transmission.co.uk/projects/project-map/slickly-wind-farm-connection/

Follow us on Facebook:
@ssencommunity

Follow us on Twitter:
@ssetransmission

Your feedback

Thank you for taking the time to read this consultation booklet. In order to record your views and improve the effectiveness of our consultation, please complete this short feedback form.

Please complete in **BLOCK CAPITALS.** (Please tick one box per question only)

Q1 Has the requirement for the project been clearly explained?

☐ Yes ☐ No ☐ Unsure

Comments:

Q2 Have we explained the approach taken to select the proposed OHL alignment adequately?

☐ Yes ☐ No ☐ Unsure

Comments:

Q3 Are there any additional factors, or environmental features, that you consider important and should be brought to the attention of the project team?

☐ Yes ☐ No ☐ Unsure

Comments:

Q4 Do you have any other comments about the baseline alignment and alignment deviations?

☐ Yes ☐ No ☐ Unsure

Comments:

Q5 Following a review of the provided information, how would you describe your understanding of the Slickly Wind Farm Connection project?

☐ Yes ☐ No ☐ Unsure

Comments:

Q5 Overall how do you feel about the Slickly Wind Farm Connection project?

☐ Yes ☐ No ☐ Unsure

Comments:

Full name

Address

Telephone

Email

If you would like to be kept informed of progress on the project please tick this box. ☐

If you would like your comments to remain anonymous please tick this box. ☐

Thank you for taking the time to complete this feedback form.

Please submit your completed form by one of the methods below:

Post: Scottish Hydro Electric Transmission, 10 Henderson Road, Inverness, IV1 1SN

Email: lisa.marchi@sse.com

Online: www.ssen-transmission.co.uk/projects/project-map/slickly-wind-farm-connection/

Download: Comments forms and all the information from today's event will also be available to download from the project website.

The feedback form and all information provided in this booklet can also be downloaded from the project websites.

Any information given on the feedback form can be used and published anonymously as part of Scottish and Southern Electricity Networks consultation report. By completing this feedback form you consent to Scottish and Southern Electricity Networks using feedback for this purpose.