Quoich Tee overhead line and access road replacement project

Consultation Booklet

September 2023

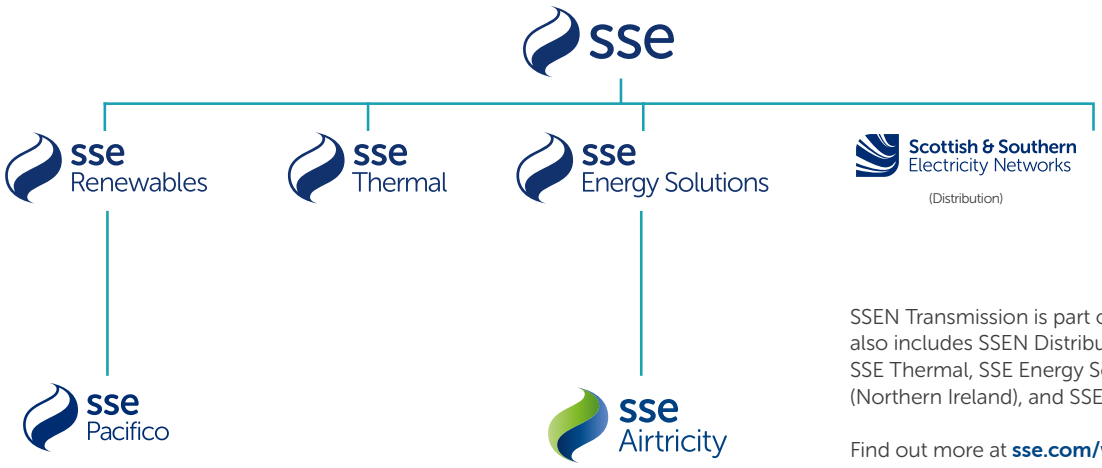
Scottish & Southern Electricity Networks

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.



SSEN Transmission is part of SSE Group which also includes SSEN Distribution, SSE Renewables, SSE Thermal, SSE Energy Solutions, SSE Airtricity (Northern Ireland), and SSE Pacifico (Japan).

Find out more at **sse.com/what-we-do**

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

The existing 132kV switching station at Quoich Tee contains obsolete equipment that has reached the end of its life and it is no longer possible to obtain spare parts for some of the switchgear. This site forms a critical part of the electrical infrastructure supplying Skye and the Western Isles and a replacement is essential to ensure continuity of supplies and to allow for the connection of renewable generation on the route to net zero.

Following detailed Design and Engineering work a solution has been identified that would allow new equipment to be installed within the existing switching station while still keeping the connection to Skye and the Western Isles operating during the construction period.

This work has removed the need to construct a new switching station within the Glen, although a new access track and turning area will be required at the existing site and other upgrades will be required to ensure the site complies with current Operational and Regulatory standards.

The Engineering process has removed the original need to install more equipment within the switching station and will ensure compliance with current technical and legislative requirements within the existing footprint. This compliance is dependent upon the construction of the new access track with turning and laydown area.

Further work will be required in the next Regulatory period following the completion of the new overhead line to Skye and the changes to the site are being designed to accommodate this work without the need to further extend the site in the future.

Upgrading this switching station is essential to ensure continued security of supply and to provide one element of the works necessary to allow the connection of more renewable energy schemes as part of the decarbonisation of our energy supply system. The existing overhead line (OHL) is reaching the end of its operational life and cannot be upgraded to meet current technical standards and will therefore be replaced.

Project timeline

January 2023
- Commencement of ecology surveys across multiple alignment options.

June 2023
- Commencement of Ornithology Surveys.

September 2023
- Alignment consultation

December 2023
- Section 37 and Planning applications submitted.

December 2024
- Planning consent and Section 37 consent determination respectively.

May 2025
- Construction commences.

August 2025
- 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 routing process which is to balance technical and cost considerations with environmental considerations, to select an optimal 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 typically 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 optimal 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 optimal 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 Achany, 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 that 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. A route may be several kilometers 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 a 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 optimal 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 alignment selection process is an optimal alignment which will be taken forward for formal environmental assessment and then consent application.

Alignment selection consultation

SSEN Transmission is consulting on the selection of an optimal alignment.

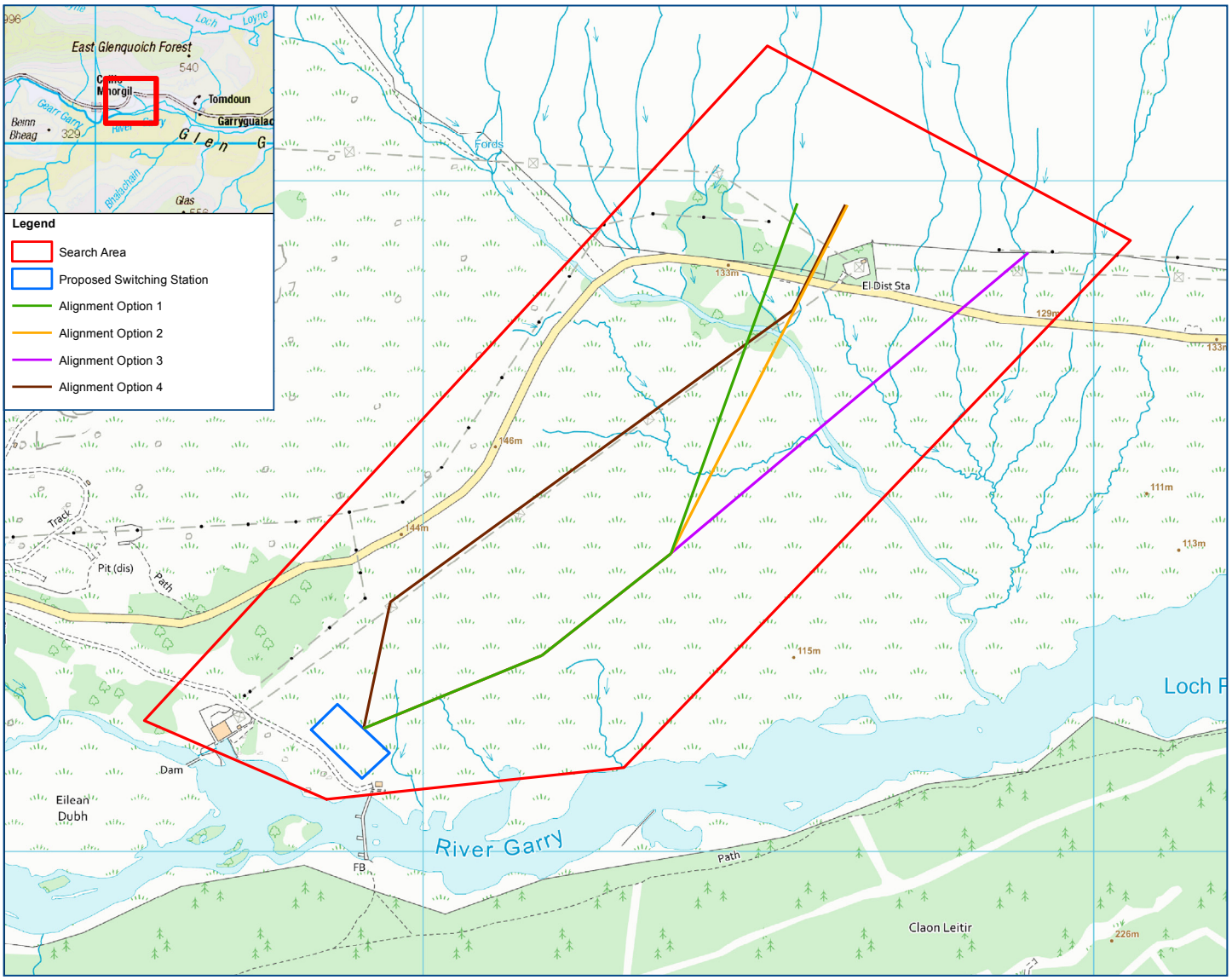
Overhead lines and underground cables are subject to a detailed alignment selection process. This ensures that the least constrained alignment is selected and provides a balance between meeting technical engineering requirements, causes the least impact on the environment and is economically viable.

The process is iterative and will include consideration of stakeholder feedback and concerns so that they can be addressed, or further data collection and appraisal is undertaken to better define the nature and extent of potential constraints and their materiality.

Consultation with statutory consultees was undertaken in July 2023. Further to that Consultation, a fifth alignment variant has been assessed and is presented here as the optimal alignment. The consultation document provides the detailed justification for the alignments presented in Figure 1 and can be found on the project web page under ***Project Documents***.

Initial alignment options considered are shown in Figure 1.

Figure 1 alignment options



Steel lattice towers

The least constrained alignment

A total of five alignment variants have been devised to avoid localised constraints. These alignment variants have been defined as centrelines; however, it is assumed that Limits of Deviation (LOD) of approximately 100m either side of the alignment centrelines would be applied to the alignment taken forwards for detailed assessment and into the consenting process to allow for further design iterations during the environmental assessment process as more detailed survey information is gathered and analysed.

Environmental constraints

In selecting the least constrained alignment on environmental grounds, consideration has been given to a number of factors and topic areas. Whilst there are potential constraints that are consistent across all topic areas, the key differentiators to consider in this alignment selection exercise are:

- Woodland loss, particularly woodland listed on the Ancient Woodland Inventory; and
- Landscape character.

These topics have been assessed in more detail using data obtained from initial site visits and preliminary site walkovers. Following assessment of the alignment options it has been identified that on balance, the least constrained from an environmental perspective would be Alignment Variant 5 as shown on Figure 2. Alignment 5 is less constrained in that it avoids an area of Ancient Woodland Inventory and native woodland.

Engineering constraints

The engineering appraisal of the alignments takes into consideration constraints such as road crossings, elevation, terrain, the requirement for angle towers and access, amongst others. It follows the same process as the environmental and economic appraisal in order to find the least constrained alignment. It has been determined that Alignment Variant 5 is feasible from an engineering perspective.

The optimal alignment along with neighbouring environmental constraints is show in Figure 2 and Figure 3.

Other projects in the area

Skye Reinforcement project:

Reinforcement of the high voltage electricity network from Ardmore on Isle of Skye, to Fort Augustus which will see the overhead line between Quoich substation and Ardmore substation rebuilt, with the existing line removed. https://www.ssen-transmission.co.uk/projects/project-map/skye-reinforcement/

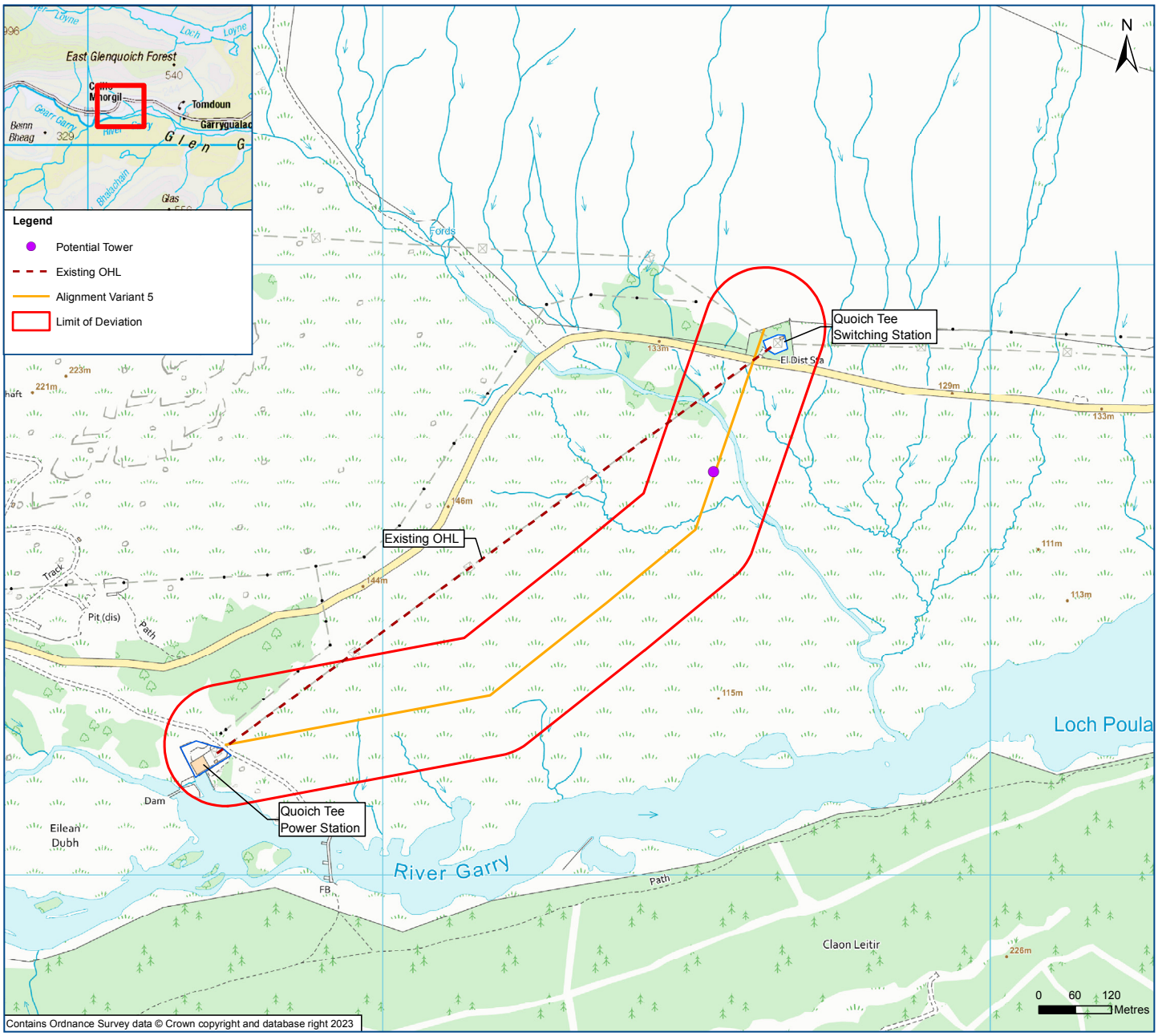
Coire Glas Connection:

Connection of the Coire Glas Pumped Hydro Scheme which includes two new substations and overhead lines. www.ssen-transmission.co.uk/projects/project-map/coire-glas-connection-project/

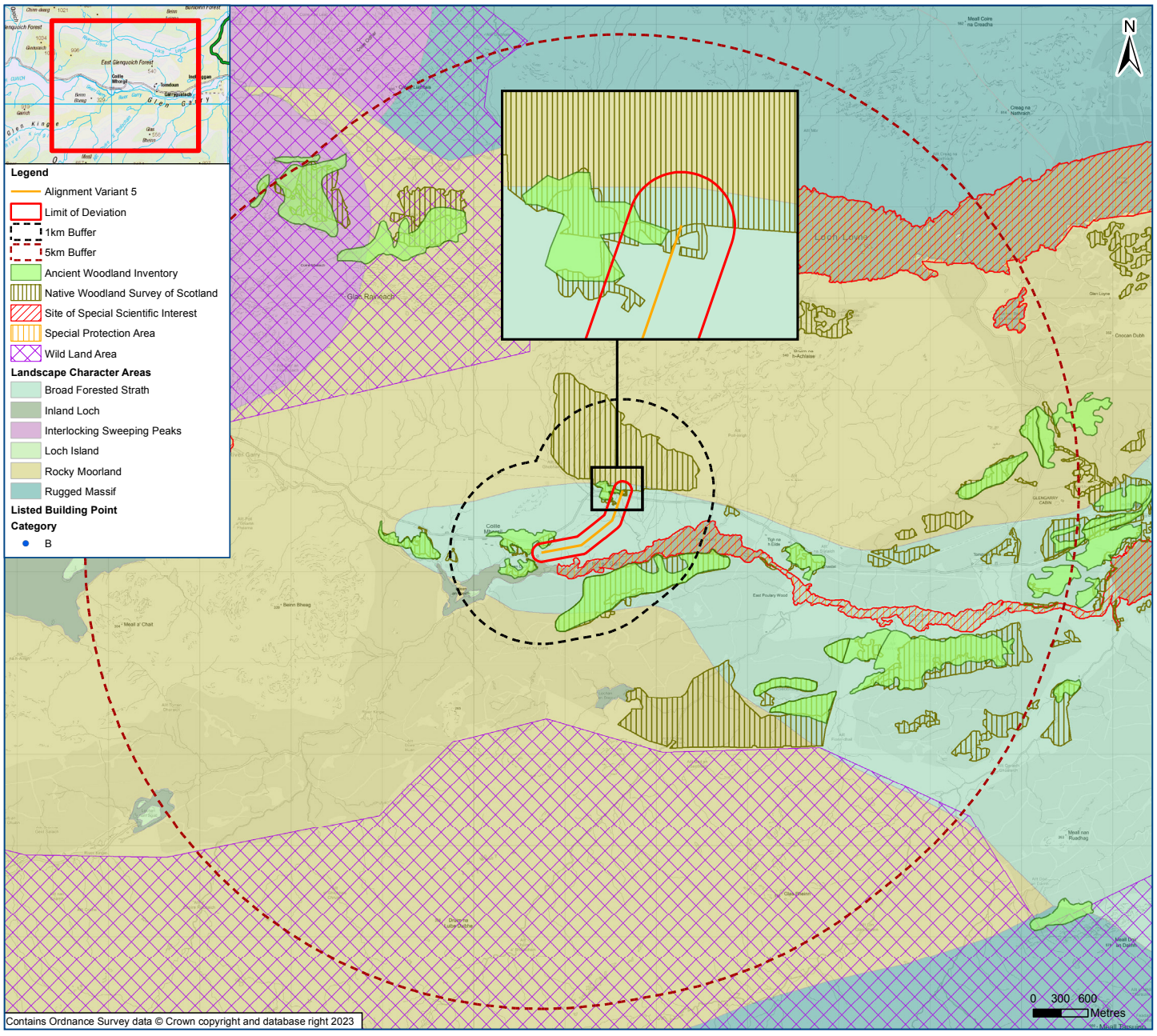
Fort Augustus substation works:

Reinforcement of the existing Fort Augustus substation through the installation of new buildings and equipment. Full details of all projects connecting to Fort Augustus can be found on https://www.ssen-transmission.co.uk/projects/2030-projects/fortaugustushub

Optimal alignment and environmental constraints



Optimal alignment and environmental constraints

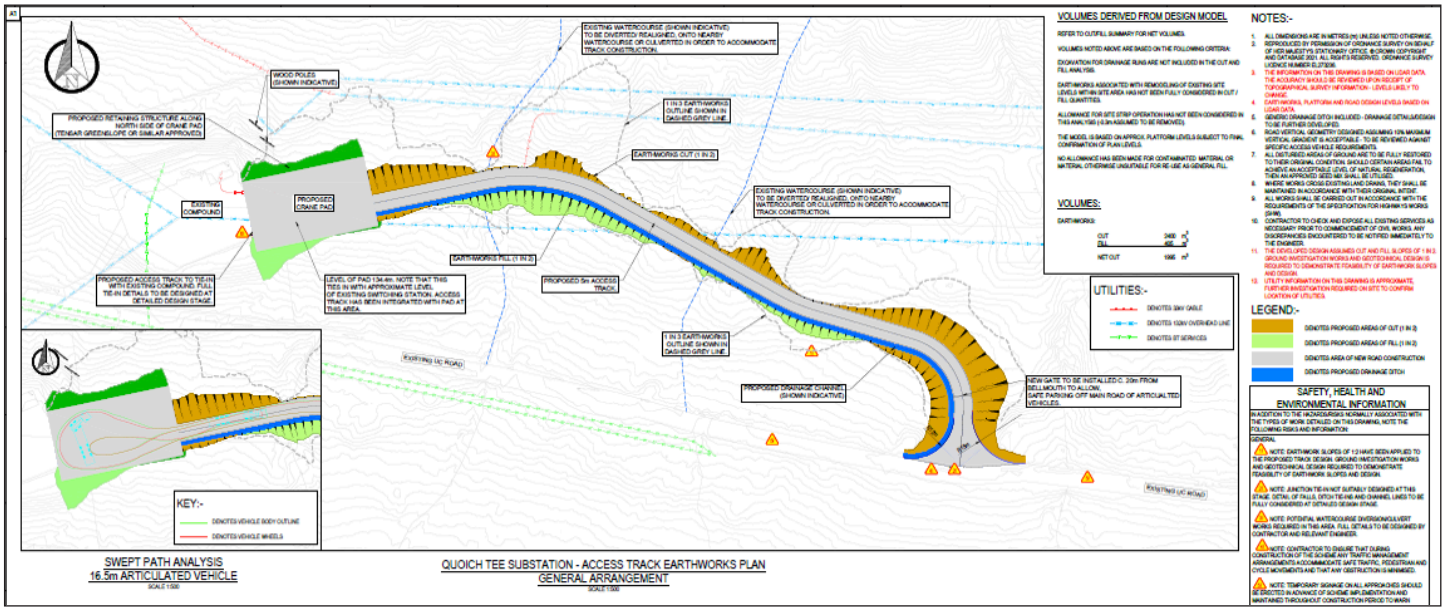


New access road

In order to access the existing switching station safely, a new access road is required. The existing access to the switching station does not provide safe measures for offloading material and turning of vehicles.

The new road will be permanent and approximately 240m in length designed to meet the required gradients for vehicles and deliveries. The road will require a new bellmouth connecting to the current C1144. The design also includes a construction crane pad approximately 30m by 20m.

The crane pad is required in order to remove the existing overhead line tower within the switching station. Some of this crane pad will be temporary to facilitate the construction works and thereafter sections of this will be removed to accommodate turning of light good vehicles.



Construction of a steel lattice overhead line

The steel lattice towers would have a nominal height of approximately 26 - 30m (including insulators and support). The current model under consideration is the L7c steel lattice towers. The spacing between towers would vary depending on topography and altitude, but would be approximately 250 - 300m apart.

Approx 1.6 km long

Will operate at 132kV voltage

5 towers

3 gantries at T3 stage

The construction phase would typically comprise the following key activities:

- Detailed geotechnical investigation at each tower position and micrositing, if required, to confirm final tower position and type of foundation.
- Tower foundation preparation with foundations estimated to be up to 2.5m below ground level and up to 4m depth, where ground conditions require.
- Establish tower construction working areas of approximately 2500 m2 (50m x 50m) for section towers and 6400m2 (80m x 80m) for angle towers.
- Tower assembly with steelwork delivered to each tower site either as individual steel members or as prefabricated panels.
- Tower stringing with stringing equipment including winches, tensioners and ancillary equipment set out at either end of preselected sections of the OHL.

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.

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:

- Have we adequately explained the need for this project?
- Do you feel sufficient information has been provided to enable you to understand what is being proposed and why?
- Are you satisfied that our approach taken to select our proposed alignment options have been adequately explained?
- Do you agree with our proposed alignment, if not, why?
- Are there any factors, or environmental features, that you consider may have been overlooked during the proposed alignment process or access tracks?
- Do you have any particular concerns or queries on the proposals?
- Do you have any other comments (positive or negative) or concerns in relation to the need for the project, the transmission infrastructure requirements or about the proposals presented in this booklet?

Recite me

To support everyone online, we provide accessibility and language options on our website through 'Recite Me'. The accessibility and language support options provided by 'Recite Me' include text-to-speech functionality, fully customisable styling features, reading aids, and a translation tool with over 100 languages, including 35 text-to-speech.

Please select "Accessibility" on our website to try out our inclusive toolbar."

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.

Maren Ebeling
Community Liaison Manager

maren.ebeling@sse.com

+44 (0) 7721 462 330

Grampian House
10 Henderson Road,
Inverness, IV1 1SA

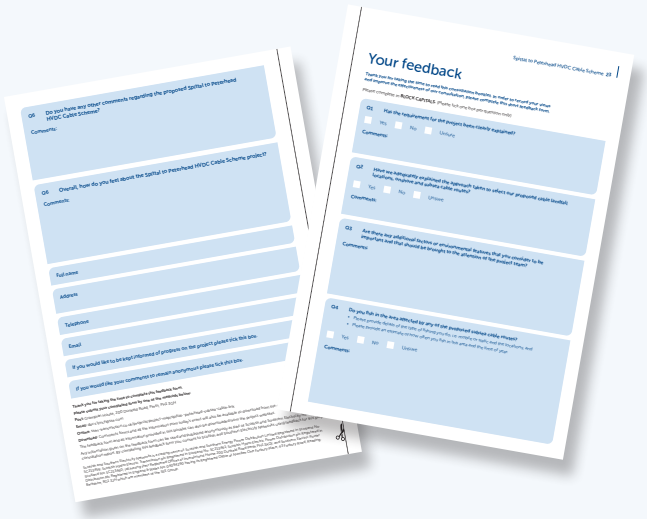
Additional information

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

Project website:
www.ssen-transmission.co.uk/projects/project-map/quoich-tee-switching-station-replacement

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 Do you feel sufficient information has been provided to enable you to understand what is being proposed and why?

☐ Yes ☐ No ☐ Unsure

Comments:

Q3 Are you satisfied that our approach taken to select our proposed alignment options have been adequately explained?

☐ Yes ☐ No ☐ Unsure

Comments:

Q4 Do you agree with our proposed alignment, if not, why?

☐ Yes ☐ No ☐ Unsure

Comments:

Q5 Are there any factors, or environmental features, that you consider may have been overlooked during the proposed alignment process or access tracks?

Comments:

Q6 Do you have any particular concerns or queries on the proposals?

Comments:

Q6 Do you have any other comments (positive or negative) or concerns in relation to the need for the project, the transmission infrastructure requirements or about the proposals presented in this booklet?

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: Grampian House, 10 Henderson Road, Inverness, IV1 1SA

Email: maren.ebeling@sse.com

Online: ssen-transmission.co.uk/projects/project-map/quoich-tee-switching-station-replacement

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.

Notes