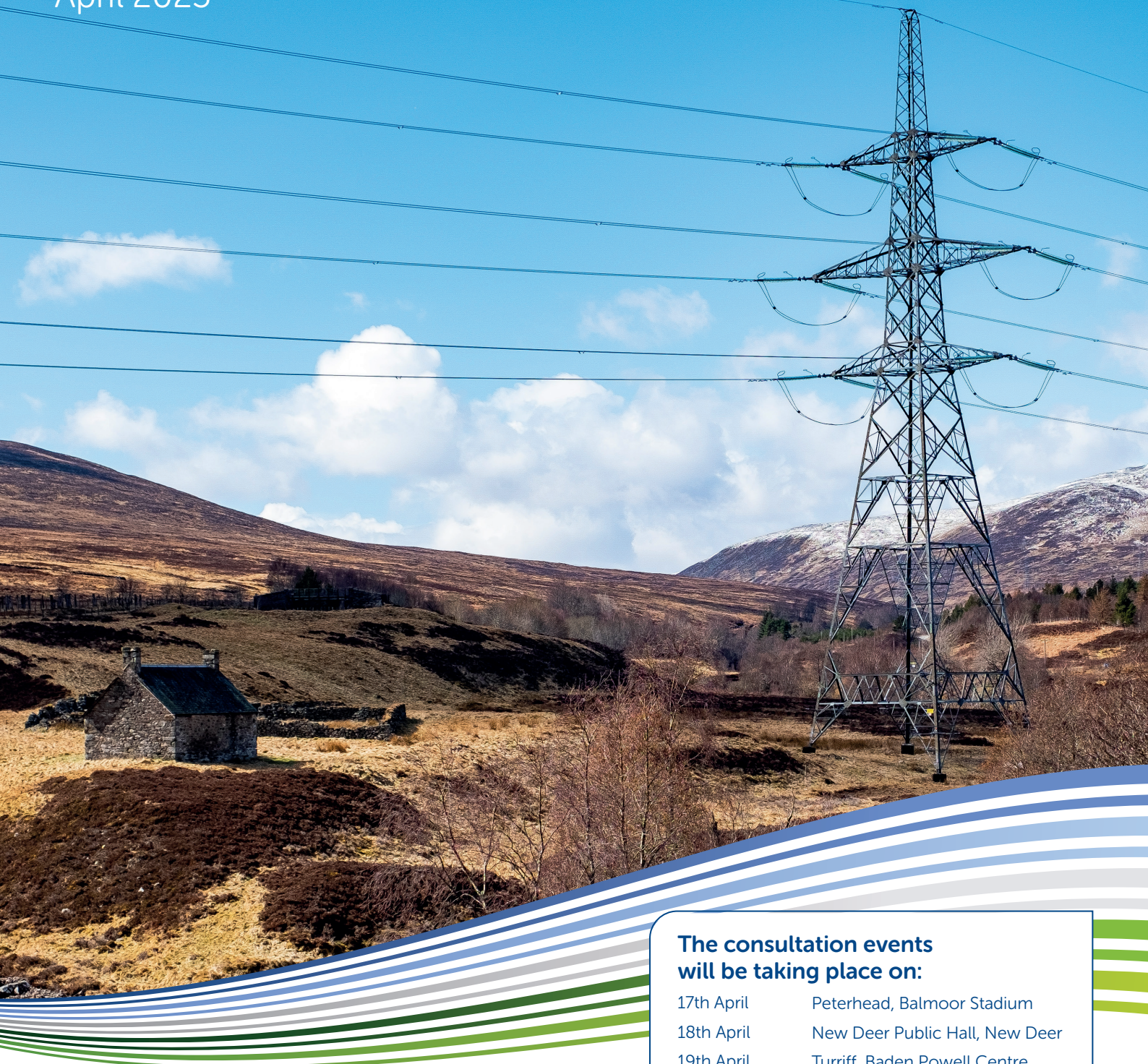


Beauly – Blackhillock – New Deer – Peterhead 400kV Project

Overhead line routeing consultation
booklet

April 2023



The consultation events will be taking place on:

17th April	Peterhead, Balmoor Stadium
18th April	New Deer Public Hall, New Deer
19th April	Turriff, Baden Powell Centre
20st April	Keith, Longmore Hall
21th April	Huntly, Stewart Hall
24th April	Elgin, UHI Moray College
25th April	Forres, Forres Town Hall
26th April	Inverness, Kingsmill Hotel
27th April	Beauly, Phipps Hall



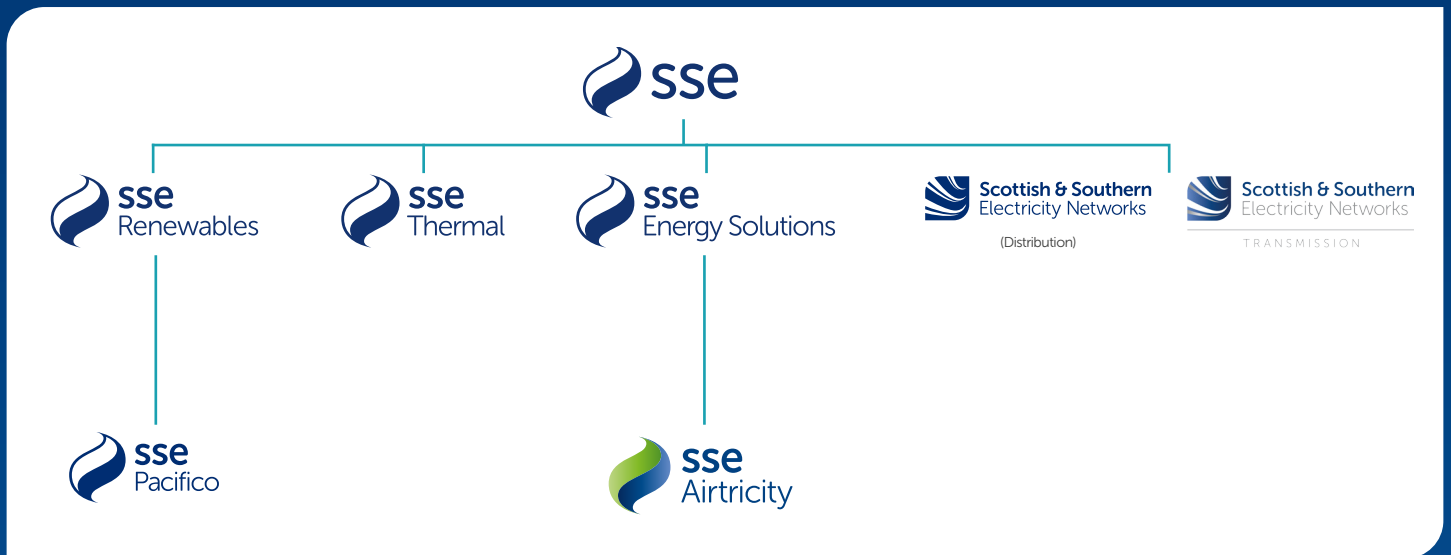
Scottish & Southern
Electricity Networks

TRANSMISSION

3	Who we are
4	The Pathway to 2030 Holistic Network Design
5	About the project
6	Project timeline
7	Our consultation process
8	Consultation Response and FAQs
10	The Proposed Corridor
13	Overhead line route options
14	Our preferred technology
15	Alternative technology
16	Overhead line route selection process
17	Route options identification
18	Route options appraisal
19	Key considerations and constraints
20	Section 1 – Beauly area substation to south of Beauly
22	Section 2 – south of Beauly to south of Inverness
24	Section 3 – A9 and River Nairn crossing
26	Section 4 – south of Culloden to Ferness
28	Section 5 – Ferness to south of Forres
30	Section 6 – south of Forres to Kellas
32	Section 7 – Kellas to Teindland
34	Section 8 – Teindland to Keith
36	Section 9 – Keith to south of Turriff
38	Section 10 – south of Turriff to New Deer
40	Section 11 – New Deer to Peterhead
42	Working with landowners and occupiers
43	Biodiversity net gain
44	Next steps
45	Notes
46	What happens now and how do I have my say?
47	Your feedback

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 subseacables, 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.

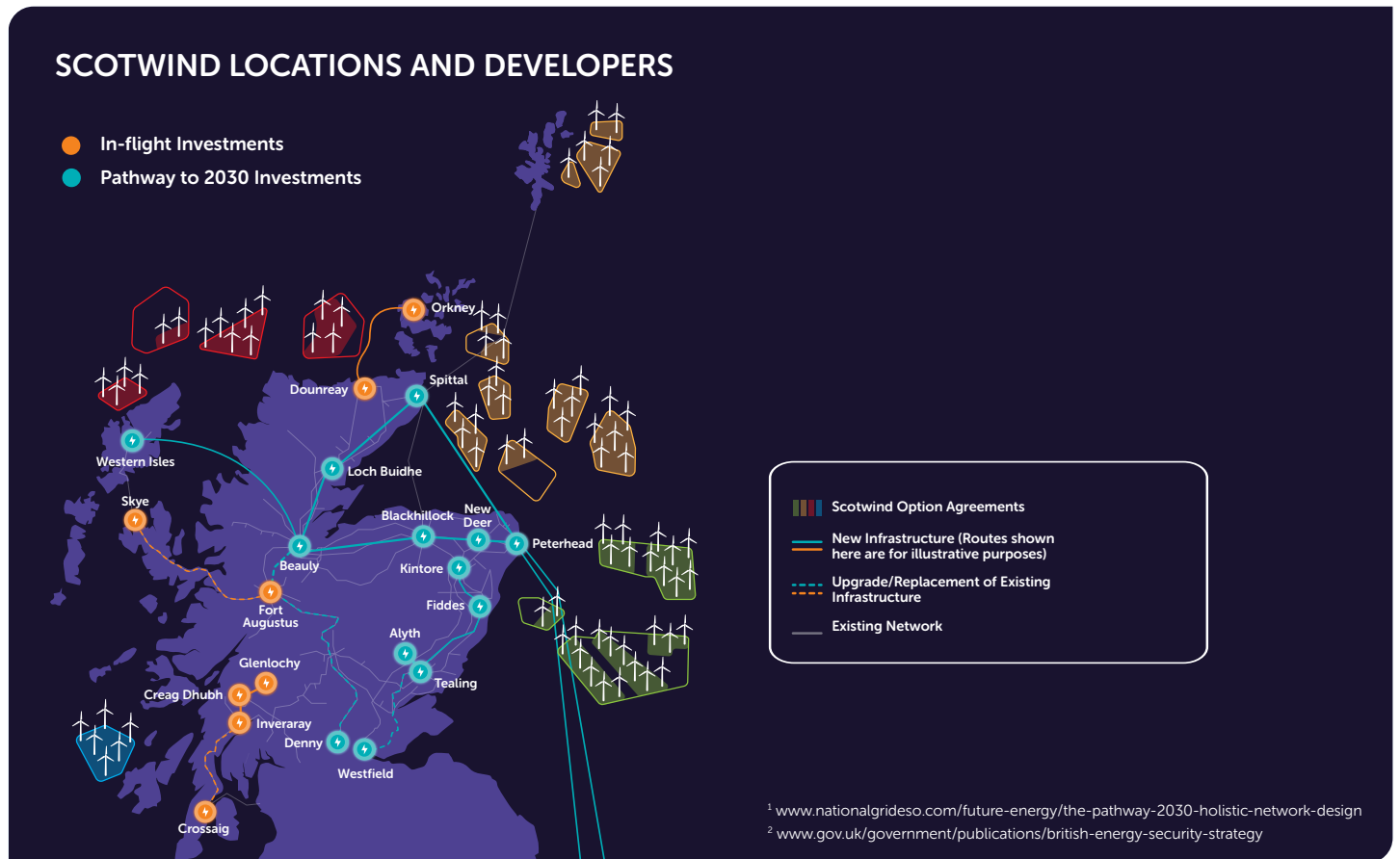
The Pathway to 2030

Holistic Network Design

In July 2022, National Grid, the Electricity System Operator (ESO), published the Pathway to 2030 Holistic Network Design ⁽¹⁾, setting out the blueprint for the onshore and offshore electricity transmission network infrastructure required to enable the forecast growth in renewable electricity across Great Britain, including the UK and Scottish Governments' 2030 offshore wind targets of 50GW and 11GW.

For the north of Scotland, this confirms the need for over £7bn of investment in onshore electricity transmission infrastructure to deliver 2030 targets and a pathway to net zero, several of which will require accelerated development and delivery to meet 2030 connection dates. The need for these reinforcements has been further underlined within the recent British Energy Security Strategy ⁽²⁾. This sets out the UK Government's plans to accelerate homegrown power for greater energy independence.

The strategy aims to reduce the UK's dependence on and price exposure to global gas wholesale markets via the deployment of homegrown low carbon electricity generation supported by robust electricity network infrastructure.



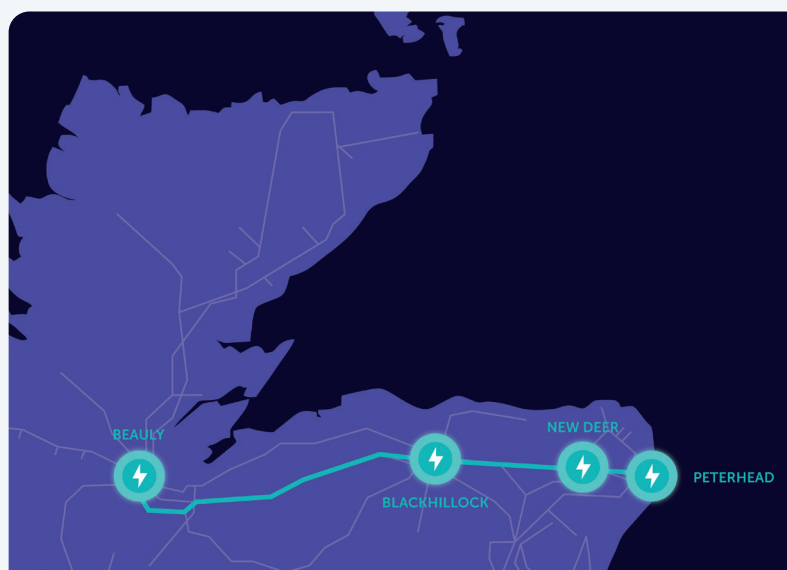
About the project

The Beaully – Blackhillock – New Deer – Peterhead 400kV Project

The ESO's Pathway to 2030 Holistic Network Design confirmed the requirement to reinforce the onshore corridor from Beaully to Blackhillock to New Deer and on to Peterhead. Providing a 400kV connection between these sites enables the significant power transfer capability needed to take power from large scale renewable generation connecting from the Western Isles and from connections north of Beaully (via the Beaully to Loch Buidhe to Spittal 400kV overhead line) – to the east at Peterhead and then offshore via two subsea HVDC links to transport power to demand centres in England. The connection points into Blackhillock and New Deer are needed to pick up power from additional large scale onshore and offshore low carbon renewable generation required to connect into the north-east of Scotland for onward transportation to demand centres.

The Spittal to Peterhead 2GW HVDC subsea link was an offshore solution proposed by SSEN Transmission for significant west to east power transfer, and the Holistic Network Design identified the need for both this offshore solution as well as the Beaully – Blackhillock – New Deer – Peterhead 400kV onshore reinforcement project. To fully utilise offshore subsea links requires the onshore network to also be strengthened.

The Beaully – Blackhillock – New Deer – Peterhead project has therefore been highlighted as critical to enable the delivery of the UK and Scottish Governments targets, with a requirement for accelerated development and delivery to meet these targets in line with a required in service date of 2030.



Project elements

There are key connection points across this span that can be used to help describe the project elements as follows:

Beaully – Blackhillock: Construct a new 400kV connection, between new Beaully and Blackhillock substations.

Blackhillock – New Deer: Construct a new 400kV connection from from a new Blackhillock substation to a new substation in New Deer.

New Deer – Peterhead: Construct a new 400kV connection from the new New Deer substation, to a new substation in Peterhead.

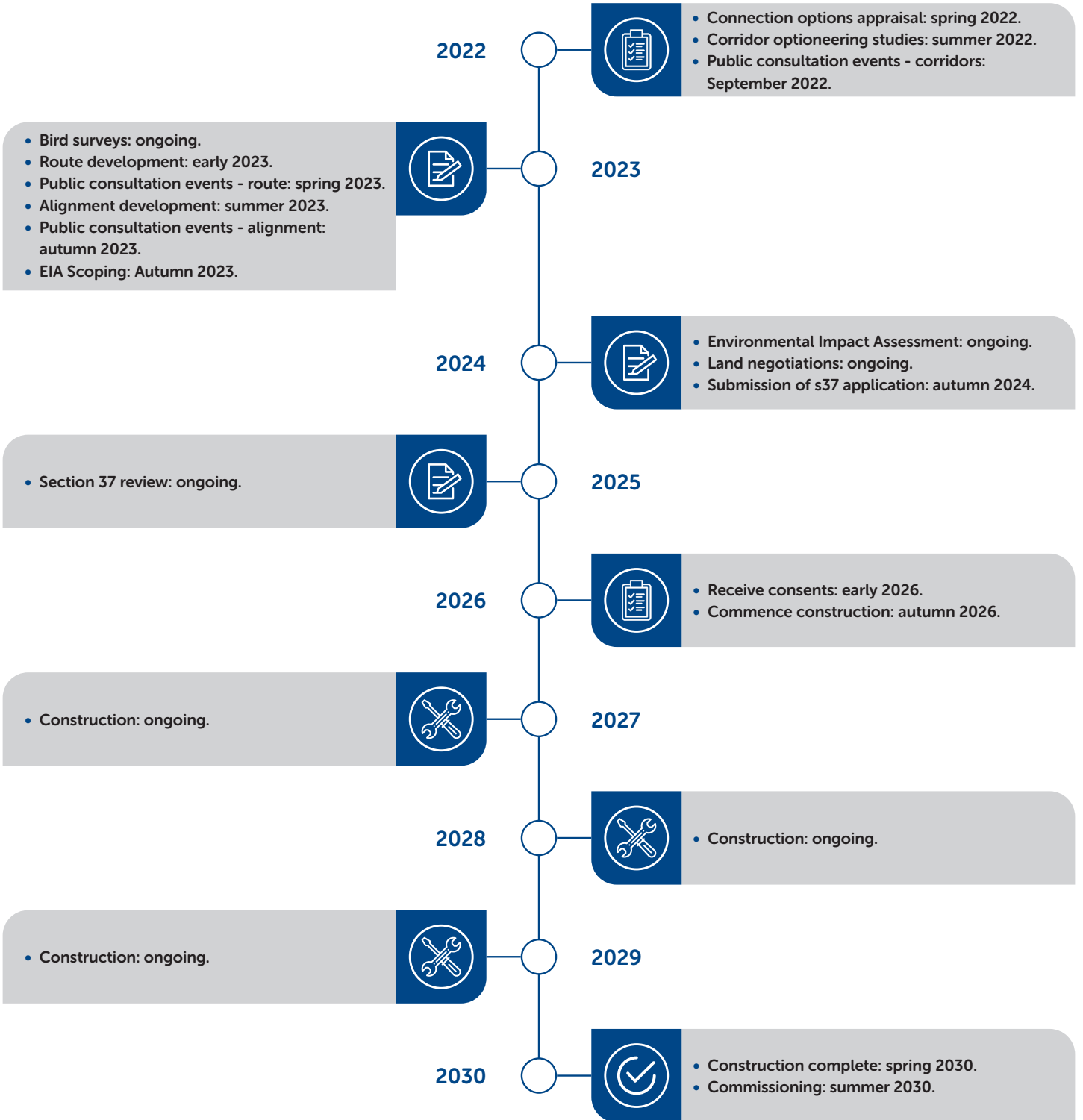
Additional infrastructure requirements - substations

Based on the requirements outlined in the ESO's Pathway to 2030 Holistic Network Design, we have developed proposals to reinforce the onshore corridor between Beaully and Peterhead, via Blackhillock and New Deer. To facilitate this connection, and others as part of the wider strategy, new additional 400kV substations and associated infrastructure is required at these four locations.

The 400kV substation projects form part of the ScotWind enabling Transmission Owner Reinforcement Instructions (TORIs), enabling renewable energy generation in the North-East to connect to the Transmission network. Due to the criticality of these works, there is a requirement for accelerated development and delivery to meet the 2030 connection dates. It has been agreed that the most efficient way to progress each of the interfacing Beaully – Blackhillock – New Deer – Peterhead projects, was to hold separate consultation events for both the substations and overhead line (OHL) projects.

Site selection consultation regarding preferred substation sites commenced earlier this year, find out more about our substation projects at: www.ssen-transmission.co.uk/projects/2030-projects

Project timeline



Our consultation process

At SSEN Transmission, we are committed to delivering a robust and transparent consultation process underpinned by inclusion and accessibility. As a stakeholder led business, we understand the importance of involving communities and key stakeholders throughout each stage of our development process.

This period of engagement in the development phase is vital in shaping our proposals and to do this effectively, we need to capture feedback from stakeholders, harness local knowledge to identify risks in key areas and explore potential community benefit opportunities.

We are presenting our approach to developing this project, including technology options, environmental considerations, the routing process, route selection and presenting maps which aim to give stakeholders and community members a better visual representation of the work on the project to date.

We have undertaken early engagement with communities across the route having consulted on the project at corridor selection stage, presenting our proposed options and preferred corridor.

We are keen to hear feedback from a broad range of stakeholders including but not limited to local residents, landowners, businesses, non-statutory consultees and statutory consultees such as local authorities, Nature Scot, SEPA, Historic Environment Scotland and Scottish Forestry.

Previous consultation

Following our previous round of consultation in Autumn 2022 on our Preferred Corridor for the overhead line, we have reviewed all feedback received and used this to refine and confirm our Proposed Corridor. We published our Report on Consultation in March 2023, which summarises all consultation feedback we have received and how this has fed into the selection of our Proposed Corridor for the overhead line. The Report on Consultation can be viewed in the Project Documents section of the project web page.



Route options - what we're consulting on

We have now completed a period of more detailed desktop studies and field surveys to identify and assess potential route options within the Proposed Corridor, in order to identify a more refined Preferred Route for the overhead line.

We are keen to hear stakeholder views regarding our Preferred Route and if there are any further considerations you believe need to be taken into account during the next stage of the development process.

Consultation Response and FAQs

Below are our responses to some of the main questions and concerns raised in the previous consultation. The full list with responses can be found in the Report on Consultation on the project web page, under Project Documentation.

Feedback/Comments	Response
<p>The consultation period has been very short, suggesting that the main decisions have already been taken.</p>	<p>At the time of the first round of public consultation, the project is still in the very early stages of development and as such, no decisions on the route or alignment of the project have been taken. We will be back out to public consultation with route options in Spring 2023 when the public will have an opportunity to provide further feedback. The Community Liaison Manager will accept feedback throughout the development period of the project and ensure this is passed to the project team for consideration.</p>
<p>Why can the line not go via subsea around the coast?</p>	<p>The decision to eliminate subsea cables from our corridor assessment was driven by wider network requirements.</p> <p>In the initial identification of the requirement for this project, many onshore and offshore reinforcement options were assessed by the Electricity System Operator (ESO) in the 'Pathway to 2030' Holistic Network Design (HND) study. The HND includes the offshore transmission network, the onshore works essential to facilitate each connection and the network needed to transport the electricity around the country. The ESO led on the offshore transmission network optioneering and design, exploring both radial and coordinated solutions for the connection of new offshore wind schemes, aiming to balance the needs of consumers, developers, communities, and the environment.</p> <p>Solutions proposed by SSEN Transmission for the significant west to east power transfer to be assessed in the HND included a subsea link from Spittal to Peterhead. Onshore solutions included a Spittal to Loch Buidhe to Beaully 400kV connection, a Beaully to Blackhillock 400kV connection and a Blackhillock to New Deer to Peterhead 400kV connection. The HND study identified the need for both the offshore solution, as well as the onshore reinforcement options between Spittal and Peterhead. This is because, to fully utilise offshore subsea links, the onshore network is also required to be strengthened.</p> <p>In the HND, the ESO explored additional solutions to coordinate offshore connections and to establish a bootstrap/link between two or more interface points on the onshore transmission system, which would potentially alleviate the need for the onshore reinforcements. However, these additional offshore solutions were determined as being far too expensive compared to the solutions provided by SSEN Transmission, and would result in a large increase in cost to the GB consumer. Of additional consideration was the requirement to create connection points for new generation at Blackhillock and New Deer, which the existing network is unable to accommodate.</p>
<p>You have not mentioned the health risks of a 400kV overhead line passing in close proximity to houses.</p>	<p>The UK Government sets guidelines for exposure to electric and magnetic fields (EMFs) in the UK on advice from Public Health England (PHE). In March 2004 the UK adopted the 1998 guidelines published by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). These guidelines are designed to set conservative exposure levels for the general public to electric and magnetic fields, and they are endorsed by the UK's Health Protection Agency, the World Health Organisation and the UK Government.</p> <p>It is the policy of the electricity industry to follow these independent guidelines. A Code of Practice, published jointly in 2012 by industry and the then Department for Energy and Climate Change (now part of the Department for Business, Energy and Industrial Strategy), sets out all the practical details needed to apply the exposure limits for transmission lines. All exposures in homes already comply with the ICNIRP guidelines. The electricity industry designs all new equipment to comply with the Government guidelines as set out in the Code of Practice. This includes measures such as adhering to statutory ground clearance requirements and ensuring optimum phasing of high voltage double-circuit overhead lines.</p> <p>Further information on EMFs can be found from National Grid's information site on EMFs (www.emfs.info).</p>



To view the Report on
Consultation scan here

Feedback/Comments	Response
How big are the towers going to be?	<p>The height of the towers used for the new OHL depends on the surrounding topography. The key factor that typically dictates the height of the structure is our statutory obligation to adhere to minimum clearances to ground. This is to ensure the safety to members of the public and our own operational teams as set out in the ESQCR (Electrical Safety Quality and Continuity Regulations). In addition to this, we also comply with the government guidelines for exposure to EMFs and tower heights may also be driven based on this requirement.</p> <p>The tower suite being considered for use on this project has tower heights ranging from 42m to 68m. Based on the general topography observed it is believed that the average tower height will be in the region of 57m, with some towers having a requirement to be taller and some may be less than this. As the project progresses, further work will be done to identify specific requirements in terms of tower heights but due to no alignment being identified at this point only an estimate can be provided.</p>
What is SSEN doing to protect wildlife and the local environment?	<p>Surveys will be conducted as the project develops so that all wildlife, including plants, birds and protected species (both terrestrial and aquatic) which may be potentially affected are identified and can be protected. This will be undertaken as part of the Environmental Impact Assessment (EIA), which will be required to support the application for consent to the Scottish Government.</p>
Why can't the route just follow the existing line?	<p>The existing OHLs were routed using similar criteria to those being used today to avoid designated features, minimise impacts on people, take account of engineering constraints, topography, watercourses, land use and existing infrastructure. If an OHL already exists that does not imply that we can construct a new line beside it without impacting on, or being impacted by, those same features. The existing lines may have taken the only route through a particular area to avoid constraints so in some cases there may be no room for additional infrastructure. However, in some locations it may be possible and appropriate to route the new OHL adjacent to the existing OHL. These options will be identified and assessed in greater detail in the subsequent stages of route and alignment selection.</p>
How will SSEN mitigate the noise of the project?	<p>Detailed noise surveys and assessments will be undertaken to identify and address any potential construction and operational noise impacts on nearby residential receptors. A key objective in routing the OHL will be to avoid proximity to as many residential properties as possible, which will reduce the potential for significant noise impacts. Appropriate noise limits will be agreed in consultation with local authorities and the proposed development will not be permitted to exceed these limits.</p>
There is insufficient information to differentiate between corridor 4A (preferred corridor) and corridor 4B. Why is 4A the preferred?	<p>The environmental assessment of corridors 4A and 4B concluded that Corridor 4A was marginally preferred over Corridor 4B from a landscape and visual impacts perspective, as Corridor 4A has a slightly more low lying, large scale open landscape with extensive energy infrastructure, which would help reduce setting and visual impacts. There is also more scope for avoidance of areas of forestry within Corridor 4A than 4B.</p> <p>From an engineering perspective, Corridor 4A was again marginally preferred over Corridor 4B, as there is a lower likelihood of requiring major crossings of existing overhead line infrastructure.</p> <p>Following feedback received at the consultation events regarding the sensitivity of the Deveron Valley landscape within Corridor 4A, and due to the marginal differences in our assessments of the corridor options, we have reviewed our Preferred Corridor within this section and taken the decision to include both Corridors 4A and 4B in the next stage of route selection. This is so that alternative route options within Corridor 4B can be assessed in further detail alongside options within Corridor 4A.</p>
The heat map methodology does not address the reality of a low density population dispersed throughout the countryside, who will all be detrimentally affected by the proposed OHL.	<p>The OHL will not be routed directly through any densely populated settlements or groups of housing. The heat map used to inform development of potential corridor, route and alignment options includes the locations of all residential dwellings and other properties located throughout the study area, with locations sourced from Ordnance Survey Address Base data. A 100m exclusion area has been applied around each residential dwelling, educational building, medical building and place of worship within the study area, to ensure that these are fully taken into account in the development of route and alignment options. A larger exclusion area of 200 m has been applied around larger settlement areas.</p>

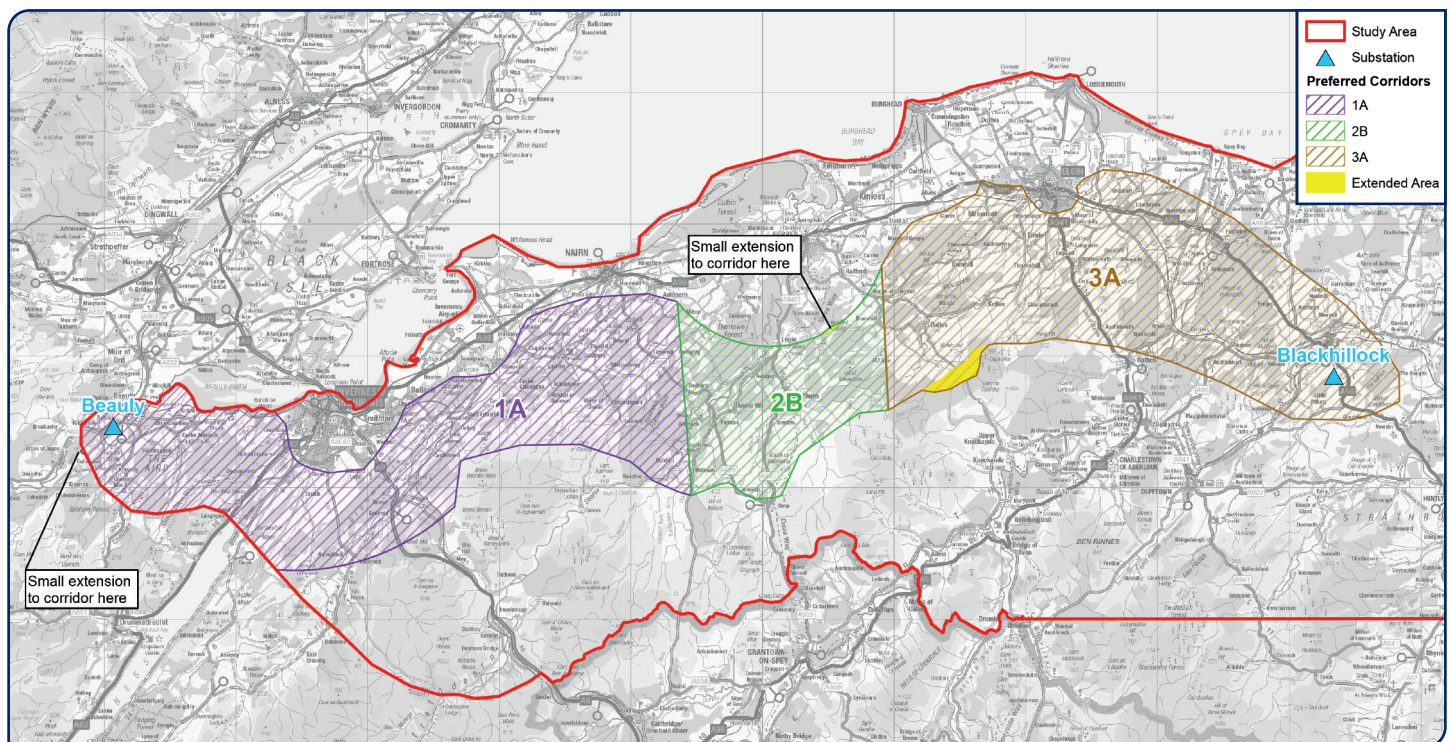
The Proposed Corridor

The previous round of stakeholder and public consultations undertaken in Autumn 2022 enabled SSEN Transmission to gather feedback on the Preferred Corridors and also local knowledge to help inform subsequent stages of the routing process. Listening to the local communities' concerns about the project and getting an insight into the many local areas across the study area has enabled SSEN Transmission to further understand the effects that the consulted corridor would have on certain areas.

Following this engagement, SSEN Transmission has amended the Preferred Corridor presented during the Autumn 2022 consultations to reflect the issues and concerns raised during the consultation period; the amended corridor is referred to as the Proposed Corridor.

The changes that have been made to the Preferred Corridor are illustrated on the following maps.

Sections 1 (Beauly to south of Nairn), 2 (Forres South), 3 (South Elgin to Blackhillock)



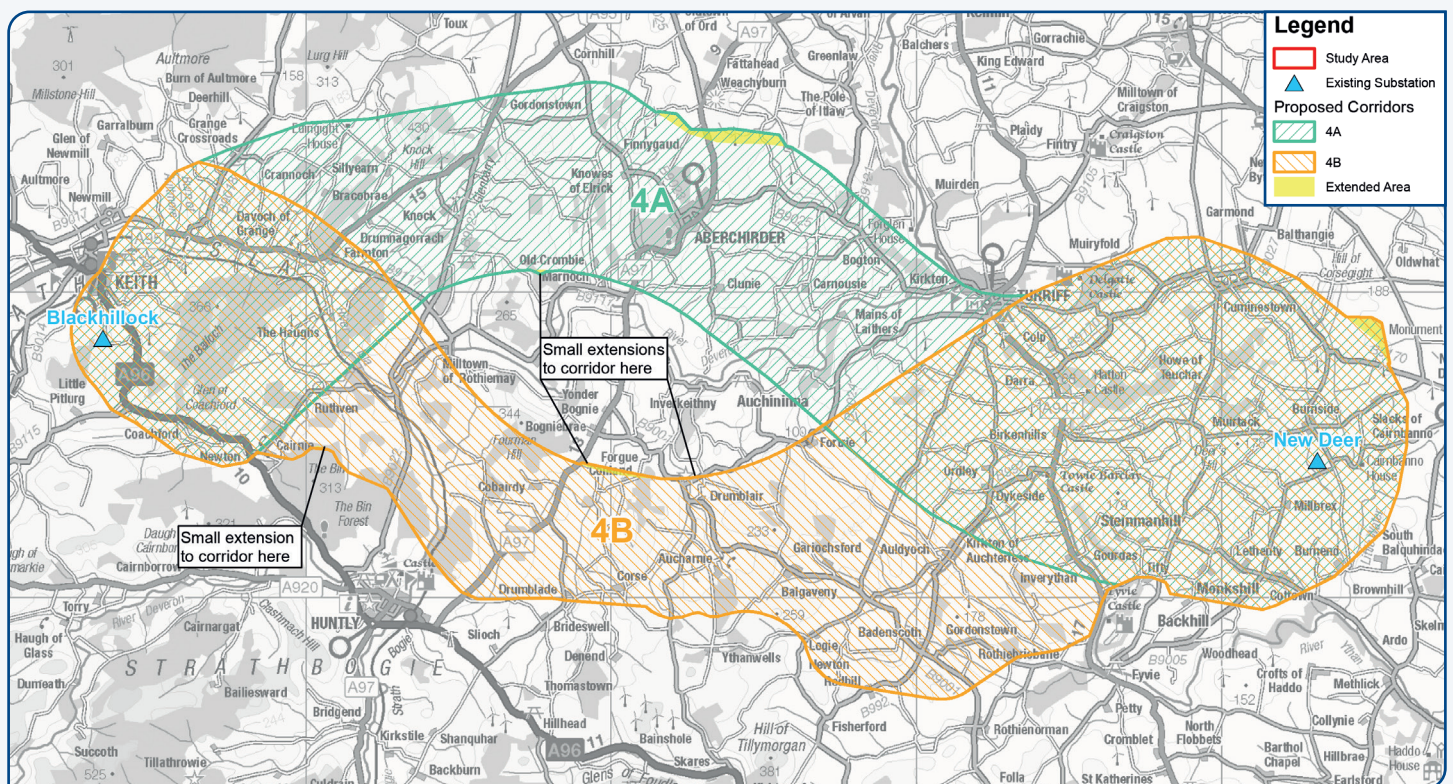
Corridor 1A has been extended slightly at the most western extent. This is to allow space to develop route options to the current preferred site for the proposed new Beauly area substation, which is being developed in parallel with this project.

The western part of Corridor 3A has been extended to the south, near Moss of Bednawinny, following feedback from the public and landowners in the area. This is to widen the corridor in an area that is constrained by residential dwellings, to ensure that there is suitable space to develop viable route options at the next stage.

Corridor 2B has been extended slightly to the north of Romach Hill to ensure there is suitable space to develop viable route options around the northern side of the hill at the next stage.

Section 4 (Blackhillock to New Deer)

Within Section 4, we presented Corridor 4A as our Preferred Corridor option, with a marginal preference due to having more low lying, large scale open landscape with extensive energy infrastructure already present, less forestry, and lower likelihood of major OHL crossings. Following feedback provided during the consultation period, the decision was made to include both corridor options (4A and 4B) within the Proposed Corridor to take forward to the route selection stage. This was largely due to feedback highlighting the use of Crombie Moss by Common Crane, and proximity to settlements in Corridor 4A. Potential route options have therefore been explored within both corridor options.



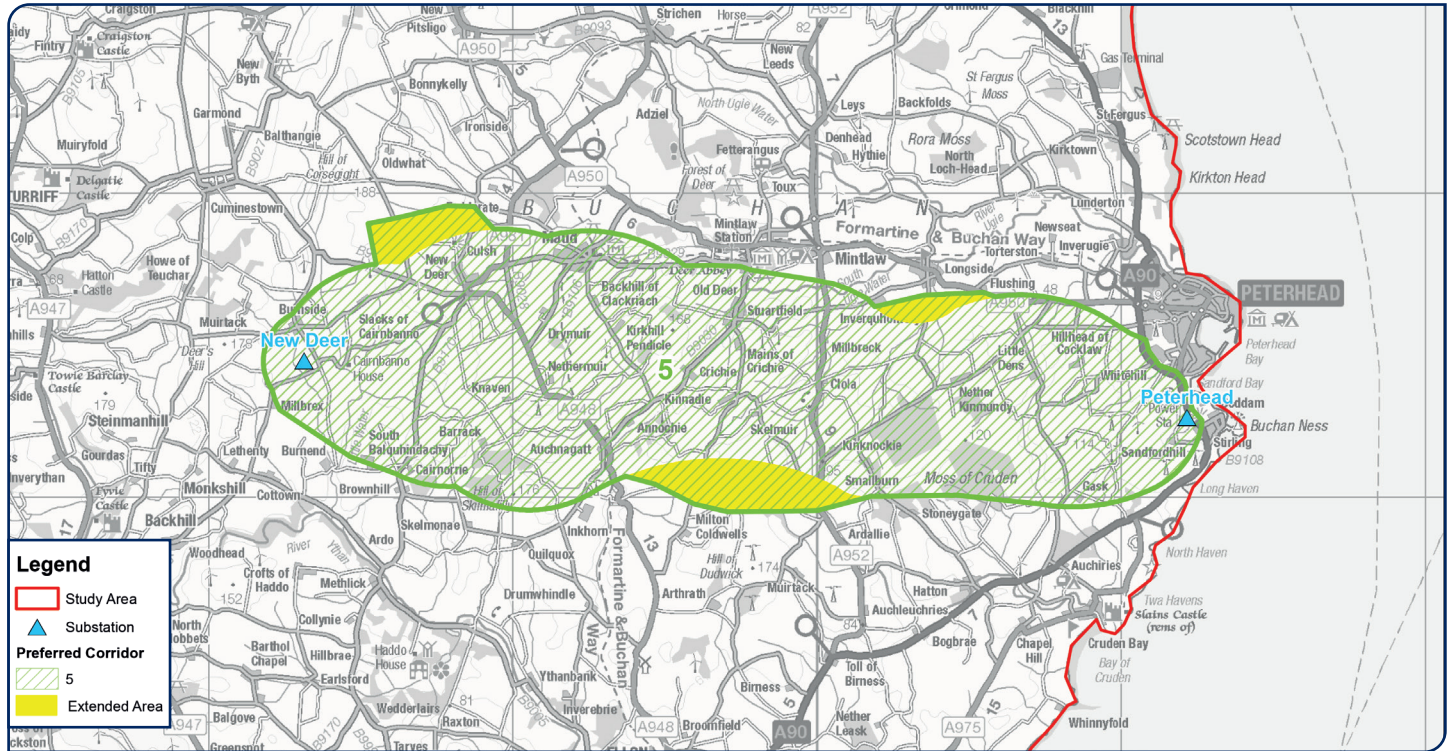
Corridor 4A has been extended slightly to the north of Aberchirder, following feedback from the public and landowners in the area. This is to widen the corridor in an area that is constrained by landscape and potential visual impacts, and to ensure there is suitable space to develop viable route options at the next stage.

The eastern extent of Corridor 4A has been extended north, to the north of New Deer. This is to allow additional space to develop route options to potential sites for the proposed New Deer 2 substation, which is being developed in parallel to this project.

To ensure there is sufficient space to develop viable route options at the next stage, marginal deviations have been made to the southern boundary of Corridor 4A west of Marnoch, and within Corridor 4B to the north east of Cairnie and to the south of Forgue.

The Proposed Corridor

Section 5 (New Deer to Peterhead)



The western extent of Corridor 5 has been extended north, to the north of New Deer. This is to allow additional space to develop route options to potential sites for the proposed New Deer 2 substation, which is being developed in parallel with this project.

Corridor 5A has been extended further south, to the east of Auchnagatt. This is to widen the corridor in an area that is constrained by residential dwellings, to ensure there is suitable space to develop viable route options at the next stage.

Corridor 5 has been extended to the north, south of Longside. This is to allow additional space to develop viable route options to potential sites for the proposed new Peterhead 2 substation, which is being developed in parallel with this project.

Overhead line route options



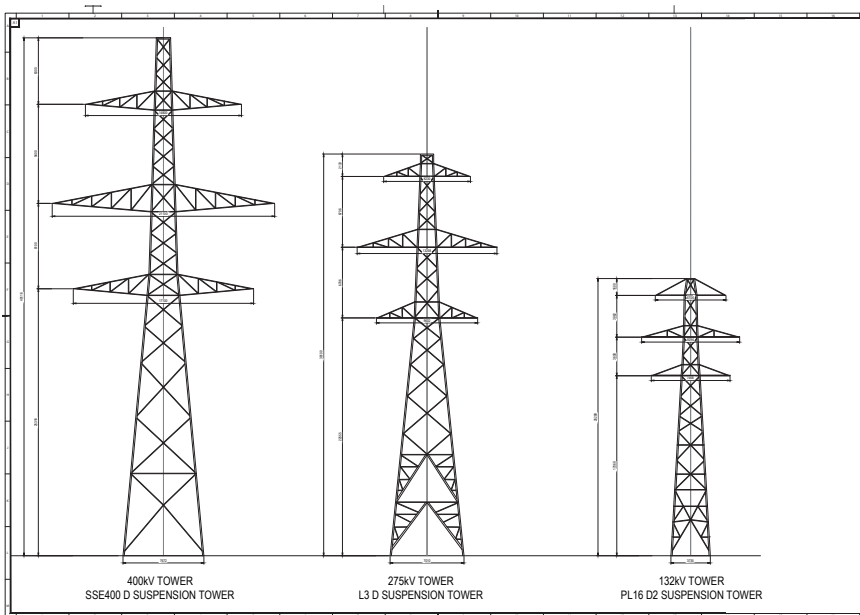
Our preferred technology

400kV double circuit overhead line

Our preferred technology for the new 400kV link between Beauly, Blackhillock, New Deer and Peterhead is a new double circuit 400kV HVAC (High Voltage Alternating Current) over head line. The proposed overhead line would consist of steel lattice towers with an assumed average height of approximately 57m which would support six conductor bundles on six cross arms and an earth wire between the peaks for lightning protection. The height of the towers and distance between them will vary dependent on several factors such as altitude, climatic conditions and topography.

To put into context the significant capacity a 400kV overhead line provides us when compared to lower voltage lines such as 275kV and 132kV a comparison has been done to show the equivalent number of over head lines that would be required to provide the same capacity.

400kV tower overhead line	275kV tower overhead lines	132kV tower overhead lines	132kV wood pole overhead lines
1	3	9	32



Key Benefits

1. Easier to cross challenging terrain like glens, hills, rivers, lochs, railways, roads and other utilities.
2. Quicker, easier and cheaper to identify and repair faults compared to underground cable.
3. Can travel long distances with no requirement of additional equipment/ expansion of substations to aid in network stability.
4. Significantly lower cost option when compared to underground cables.
5. Substantial capacity in terms of ability to transfer power.
6. Possible to upgrade in the future to extend life of asset and increase capacity where as cables require significant works to replace and increase capacity.

The figure above compares a standard height 400kV tower with the types of towers currently used on the existing 275kV and 132kV over head lines between Beauly and Blackhillock. It should be noted that these are what is termed standard height towers with no extensions to allow for a fair comparison however the heights for all the towers along these routes will vary compared to the values shown above to ensure that our statutory clearances are met.

It should also be noted that where new 132kV and 275kV towers are installed, these older tower types are no longer used and have been replaced by larger towers due to technical challenges with these historical designs.

Alternative technology

At the beginning of the project an initial options appraisal was carried out considering a range of technology options and determining their suitability to provide a connection between Beauly, Blackhillock, New Deer and Peterhead. This study in combination with National Grid's subsequent 'Pathway to 2030' Holistic Network Design (HND) determined that the preferred technology choice for this connection would be a 400kV Overhead Line. Some of the key factors that lead to this decision are explained below for each of the different electricity transmission options. **It should be noted that although the main technology choice is an over head line, it does not preclude the option to consider use of alternative technology where it is determined there is a benefit in doing so.**

Subsea HVDC

The Electricity System Operator explored the option of an additional subsea HVDC connection and determined that this option was not economically viable when compared to the alternative onshore options.

From a technical perspective HVDC connections are most beneficial where electricity transmission is required across a long uninterrupted length without having to "stop off" along the route. The reason for this is each time the connection reintegrates with the grid a costly convertor station is required to transfer from DC back to AC along with the land required for the convertor stations.

In addition to this, in the event of a subsea cable fault the length of time to repair and recommission the circuit can be in the region of 6 months compared to days or weeks for onshore options. This is the reason for reinforcing both the onshore and offshore network.

Onshore Cable

At the outset of the project a Strategic Connection Options Appraisal was carried out that considered the option of using onshore AC cable across the route. The key factors that determined that this option wasn't viable were as follows:

- Cost: Cost of cable is approx. 4-6 times more expensive and therefore not representing the best value for the consumer.
- Technical: Where AC cables exceed 5km in length, reactive compensation equipment may be required increasing space requirements at substations and possibly along the route.
- Operation and maintenance: Identifying and repairing faults on long AC cable circuits can take in the region of 25 times longer when compared to an overhead line. This is primarily due to the time taken to locate, excavate and technically facilitate the repair.

Alternative Overhead Lines

- A recent development upon the traditional steel lattice tower design is that of the T-pylon by National Grid in England. The key challenges associated with applying this in Scotland are as follows:
- The T-Pylon is suitable for rolling countryside but it is unlikely to be suitable for the mountainous slopes and steep glens found in many areas of Scotland due to out of balance loads on the structures.
- As the T-Pylon cannot be climbed directly, unlike a lattice steel tower, it has to be maintained via mobile elevated working platforms (MEWPs). This requires a considerable permanent area of hardstanding around each T-Pylon which steel towers don't need.
- The T-Pylon design can only turn angles up to 30°. Existing lattice steel tower designs can turn angles of up to 60°, or even 90° when necessary. This improves the ability for new lines to avoid communities and areas of scientific and environmental importance.

Overhead line route selection process

SSEN Transmission's approach to identifying where a new overhead power line is to be located follows four key stages, each increasing in detail and resolution, bringing technical, environmental and cost considerations together in a way which seeks the best balance.

This staged process leads to the identification of a proposed overhead line alignment which is capable of being granted consent by the Scottish Government under Section 37 of the Electricity Act 1989. The four key stages are detailed below.

This project is currently at Stage 2 – route selection.

Stage 0: routing strategy

The starting point in all new connection projects is to establish the need for the project and to select the preferred 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(s) on the existing transmission network where a connection can be made.

Stage 1: corridor selection

This stage aims to identify a preferred corridor capable of providing a continuous connection between the defined connection points and delivering the key design requirements for larger projects with extensive study areas, such as this project.

Stage 2: route selection

The purpose of this stage is to identify possible route options within the proposed corridor and a preferred route which is considered to have the optimal opportunity to achieve an economically viable, technically feasible and environmentally sound alignment within it. Route options 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.

Stage 3: alignment selection

The purpose of this stage is to further refine the routing process with the objective of defining an indicative proposed alignment which can be taken forward into the consenting and Environmental Impact Assessment (EIA) process. The alignment will be defined by, among other things, the location of terminal and angle support structures for overhead Lines and sealing end compounds for underground cables. The access strategy is also defined at this stage in the process, in terms of the nature and extent of temporary and/or permanent access tracks and possible road improvements.

Route options identification

Baseline conditions

A series of desk-based studies and targeted site visits were undertaken to identify a broad range of potential constraints and opportunities with the Proposed Corridor, which may be constraints to routeing. Examples of the types of constraints identified and reviewed include:

- Environmental designated sites
- Ecological data received from relevant bodies
- Archaeological designations and other recorded archaeological sites
- SEPA flood mapping
- Relevant Local Development Plans and development proposals in the planning system
- Landscape designations and landscape character assessments
- Ordnance survey (OS) mapping, aerial photography and OS Vectormap GIS data to identify settlements, properties, walking routes, cycling routes, watercourses and waterbodies, road classifications etc.
- Existing transmission infrastructure (overhead lines and underground cables), roads and railway lines
- Existing and proposed wind farm developments and other third party infrastructure
- Existing terrain, soil and ground conditions
- Ecological, cultural heritage and landscape site visits and surveys
- Public and private water supply data from local authorities and Scottish Water
- Feedback obtained during the Corridor Stage stakeholder and public consultation period.

Route options identification

All the identified constraints were layered onto a map so they could be viewed as a composite 'heat map', with weightings and buffers applied depending on the sensitivity of the constraint. The weightings and parameters were refined following site visits and sensitivity analysis to verify the outputs.

Initial route options were identified and then refined by a project team including an experienced Landscape Consultant and Overhead Line Engineer to take into account topography, land cover and the Holford Rules, in order to maximise the potential for alignment options within each identified route.

The preferred locations for the required new substation projects at Beauly, Blackhillock, New Deer and Peterhead were used to inform the selection of appropriate route options to connect into each substation location. In the event that the preferred location for one of these substations changes, the route options identification process will be revisited to ensure the optimum route option is selected to connect to each substation.

Due to the length of the Proposed Corridor, the route options were divided into 11 sections to enable different routes to be selected and to be able to connect to one another. The section breaks were therefore generally at locations where there was an opportunity to switch between route options.

Where there are numerous potential alignments at the section break, 'nodes' have been used to enable flexibility in connecting two preferred route options. These nodes do not form part of the current stage of the routeing appraisal and will be considered at Stage 3: Alignment Selection once a Proposed Route has been selected.

Route options appraisal

Appraisal Method

Environmental Criteria

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

- Natural Heritage – designations, protected species, habitats, ornithology, hydrology, geology and hydrogeology.
- Cultural Heritage – designations and cultural heritage assets.
- Proximity to Dwellings – residential properties and other sensitive receptors.
- Landscape and Visual – designations, landscape character and visual amenity.
- Land Use – agriculture, forestry and recreation.

Engineering Criteria

Appraisal of route options has involved systematic consideration against the following engineering topic areas:

- Infrastructure Crossing – major crossings and road crossings.
- Environmental Design – elevation, atmospheric pollution, contaminated land and flooding.
- Ground Conditions – terrain.
- Construction/Maintenance – access.
- Proximity – wind farms, communication masts, urban environments and metallic pipelines.

Economic Criteria

Appraisal of route options has involved systematic consideration against the following economic topic areas:

- Capital costs – construction, diversions, public road improvements, tree felling and land assembly.
- Operational costs – inspections and maintenance.

Key considerations and constraints

The following pages detail out some of the many engineering and environmental considerations which have assisted the route selection process.

More in-depth information regarding our routeing process can also be accessed via our Consultation Document, available for download from the project web page.














We have highlighted the key constraints on a map of each of the following sections:

- Section 1 – Beaulieu area substation to south of Beaulieu
- Section 2 – south of Beaulieu to south of Inverness
- Section 3 – A9 and River Nairn crossing
- Section 4 – south of Culloden to Ferness
- Section 5 – Ferness to south of Forres
- Section 6 – south of Forres to Kellas
- Section 7 – Kellas to Teindland
- Section 8 – Teindland to Keith
- Section 9 – Keith to south of Turriff
- Section 10 – south of Turriff to New Deer
- Section 11 – New Deer to Peterhead

Please note that due to the extent of factors to consider, not all considerations are shown on the following maps.

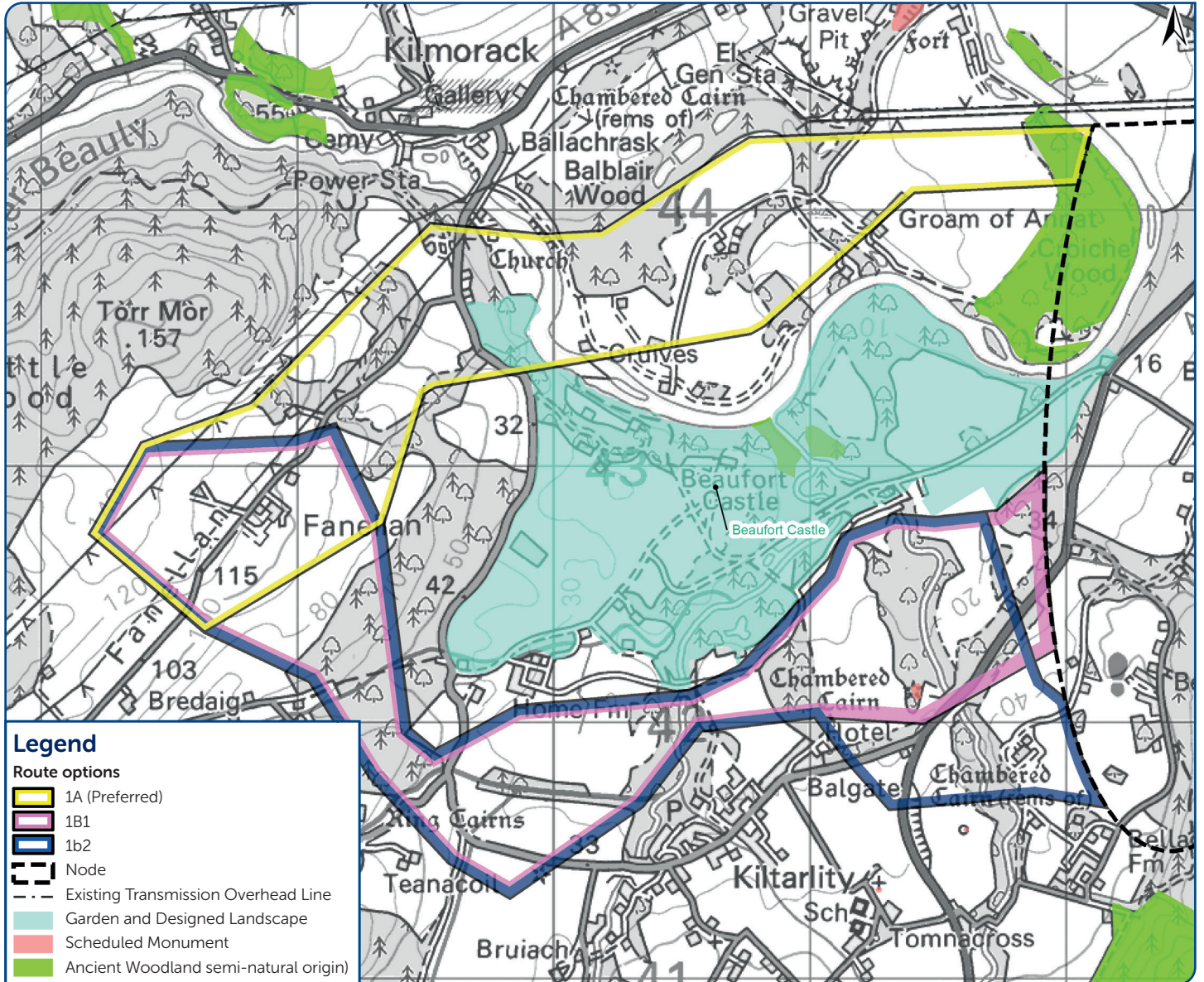
We have included a key below which you can refer to, to identify the constraints illustrated in each section:

Constraints

- · — Existing Transmission Overhead Line
- · — Long Distance Path
-  Battleground
-  Special Protection Area (SPA)
-  Special Area of Conservation (SAC)
-  Sites of Special Scientific Interest (SSSI)
-  Ramsar
-  Wildcat Priority Area
-  Special Landscape Area
-  Scheduled Monument
-  Garden and Designed Landscape
-  Conservation Area
-  Nationally important peatland likely to be of high conservation value
-  Ancient Woodland (of semi-natural origin)
-  Planted Ancient Woodland Site (PAWS)

An interactive Story Map is available to download from the project web page.

Section 1 – Beauly area substation to south of Beauly



Section 1 has three route options, all beginning in Fanellan to the east of Ruttle Wood at the preferred location for the new Beauly area substation. Site selection studies for the new substation are still in progress, therefore these route options may be subject to change if an alternative substation site is selected.

Route 1A initially travels north east until it meets the River Beauly where it changes to an easterly direction, passing Balblair Wood and Croiche Wood. The route ends at the north of Croiche Wood, where it meets the River Beauly again.

Route 1B1 travels south east until it meets Culburnie Burn, where it takes a turn north east, travelling north of Kiltarlity until it ends at the A833, east of Dounie Burn.

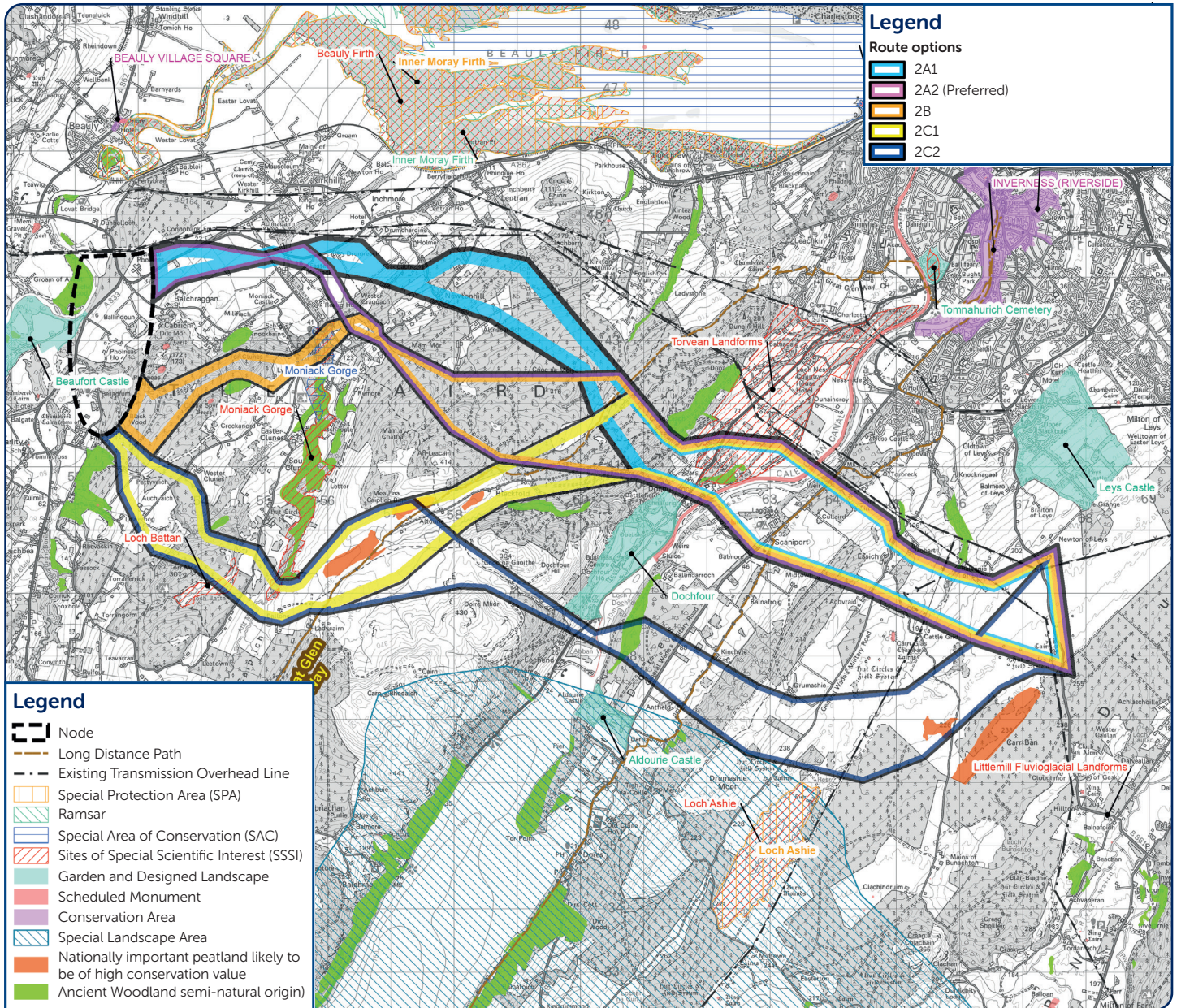
Route 1B2 follows the same route as Route 1B2, until it reaches north of Kiltarlity, where it travels south east until it ends in the direction of Belladrum.

The key environmental, engineering and cost considerations which differentiate between route options 1A, 1B1 and 1B2 include:

- Route 1A has the least impact on landscape character and visual impacts due to the presence of existing overhead line infrastructure within the route and fewer residential properties, although there are likely direct impacts on Beaufort Castle Garden and Designed Landscape (GDL) and irreplaceable ancient woodland of semi-natural origin at Croiche Wood.
- Route 1B2 was considered preferable from a Natural Heritage and Cultural Heritage perspective, however proximity to settlements and likely direct impacts on the Belladrum Tartan Heart Festival site were considered too great for it to be a preferred route.
- Routes 1B1 and 1B2 are closer to residential properties and settlements and would therefore impact a greater number of people than Route 1A. There is also potential for indirect impacts on Beaufort Castle GDL and the site of the Belladrum Tartan Heart Festival site.
- Route 1A requires two crossings of the River Beauly, compared with no crossings for Routes 1B1 or 1B2.
- Routes 1B1 and 1B2 pass in close proximity to larger settlements such as Culburnie, Kiltarlity and Belladrum.
- Route 1A has several dispersed dwellings, however it would be possible to identify an alignment within this route option that would maintain a proposed 170m buffer from residential properties.
- All other engineering factors were considered to be broadly similar between the routes with access, terrain and flooding posing no major concerns.
- Route 1A has the highest estimated capital and operational costs, predominantly due to the likely need for a cable dip of an existing 132kV overhead line, which would not be required for the other two options.

The overall preferred option in this section is Route 1A.

Section 2 – south of Beauly to south of Inverness



Section 2 and has five route options.

Route 2A1 begins at Balchraggan and travels east, through Easter Moniack, and south of Kirkhill. Route 2A1 then passes through the Aird in a south easterly direction, and continues in this direction as it crosses the Caledonian Canal north of Dochgarroch, Scaniport and Essich. Route 2A1 ends at the B861 just south of Newton of Leys.

Route 2A2 follows the same route as Route 2A1, until it reaches Easter Moniack, where Route 2A2 turns to the south east, taking a more southern route across the Aird than Route 2A1. Route 2A2 then re-joins Route 2A1 at Dochgarroch and continues on the same route.

Route 2B begins east of Belladrum within Black Wood, and travels in a north easterly direction. After passing Moniack Burn through Reeling Glen, Route 2B joins Route 2A2 and continues on the same route.

Route 2C1 begins just south of Route 2B in Black Wood. It travels in a south easterly direction, past Torr Mor, until it reaches Allt Mor. Here the route changes direction to the north east, following a similar pathway to the Great Glen Way until it joins Routes 2A1, 2A2 and 2B at Dochgarroch and continues on the same route.

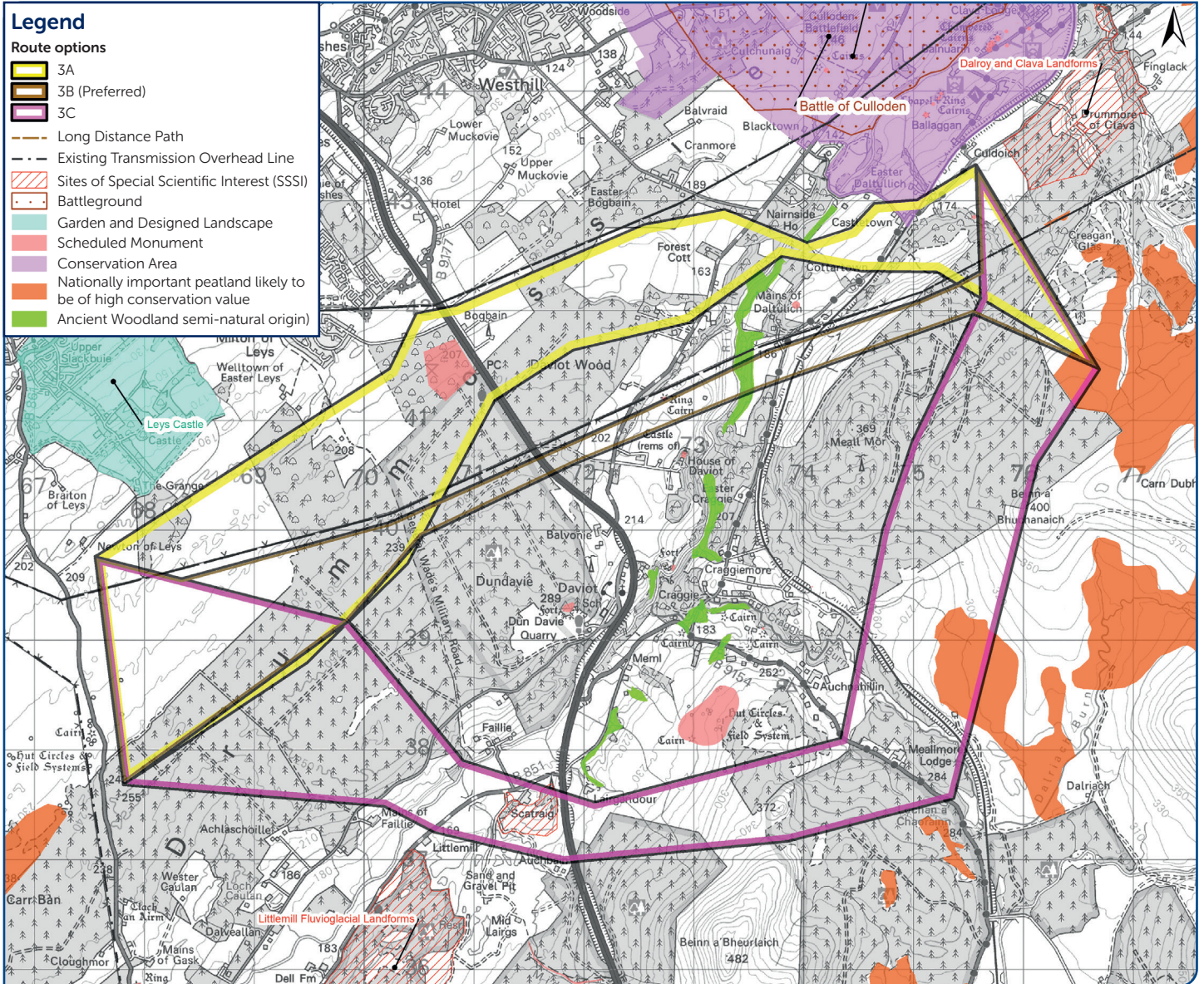
Route 2C2 initially follows the same route as Route 2C1 until it meets the Great Glen Way, where it takes a south easterly direction, crossing the Caledonian Canal at Kirkton. The route continues south east from here, crossing Darroch Wood and Drumashie Moor. As Route 2C2 passes to the north of Loch Ashie, it swings north east to end at the same point as the other Section 2 routes.

The key environmental, engineering and cost considerations which differentiate between route options 2A1, 2A2, 2B, 2C1 and 2C2 include:

- Route 2A1 is preferred for Landscape and Visual as it has the best overall 'landscape fit' along the crossing of The Aird, due to having a lower and less intrusive pathway than the other options.
- Route 2A1 is also preferred for Natural Heritage designations due to being furthest from any statutory designated sites, Protected Species due to a greater proportion of agricultural land / lower proportion of woodlands, and Habitats due to having the least coverage of Annex I habitats.
- Routes 2B and 2C2 have potential for setting impacts on Scheduled Monuments and Garden and Designed Landscapes (GDLs). Route 2C2 also has potential for indirect impacts on two Category A Listed Buildings.
- Route 2C2 was least preferred from a Habitats perspective due to having ancient woodland and irreplaceable peatland habitat that spans the route in many sections, making it unavoidable.
- Route 2B was the least preferred for Landscape Character as the western end sits high on steep ridged sidelong ground where it risks being locally prominent, and is also potentially intrusive around Moniack Gorge. It also risks being widely visible across The Great Glen, The Aird and the wider area to the north.
- Route 2C1 is the preferred route from an engineering perspective due to there being very few residential property constraints within the route, allowing for the number of angle towers to be reduced. The route passes through some steeper side slopes as it navigates along the Great Glen, however existing access would aid construction in these areas. There are some areas of peat within Route 2C1 however these are avoidable.
- Route 2A2 is considered the second preferred option, but there is a significant constraint around Easter Moniack in relation to proximity to residential buildings. Beyond this pinch point the remainder of the route is clear, with some challenges associated with undulating terrain as it passes across the hillsides through The Aird. Existing access is reasonable and could be utilised and improved for construction.
- Route 2A1 is considered least preferred due to the impact on a number of local dwellings that would be unavoidable.
- All routes traverse a steep section before crossing the Caledonian Canal and River Ness, however the routes crossing further north are considered preferable from an engineering perspective, with a narrower section requiring to be spanned and more options in terms of tower placement before the crossing.

The overall preferred option in this section is Route 2A2.

Section 3 – A9 and River Nairn crossing



Section 3 has three route options. All route options begin to the east of the B861, south of Newton of Leys, and end east of Castletown, to the south of Culloden Battlefield.

Route 3A travels in a north easterly direction across Drum Mossie Muir and through Daviot Wood. As the route reaches the B851 it travels east, past Castletown, until the end.

Route 3B travels in a north easterly direction across Drum Mossie Muir and through Daviot Wood, just south of the existing 275kV OHL and Route 3A. Route 3B continues in this direction until the end. It runs parallel to the south of the existing 275kV OHL.

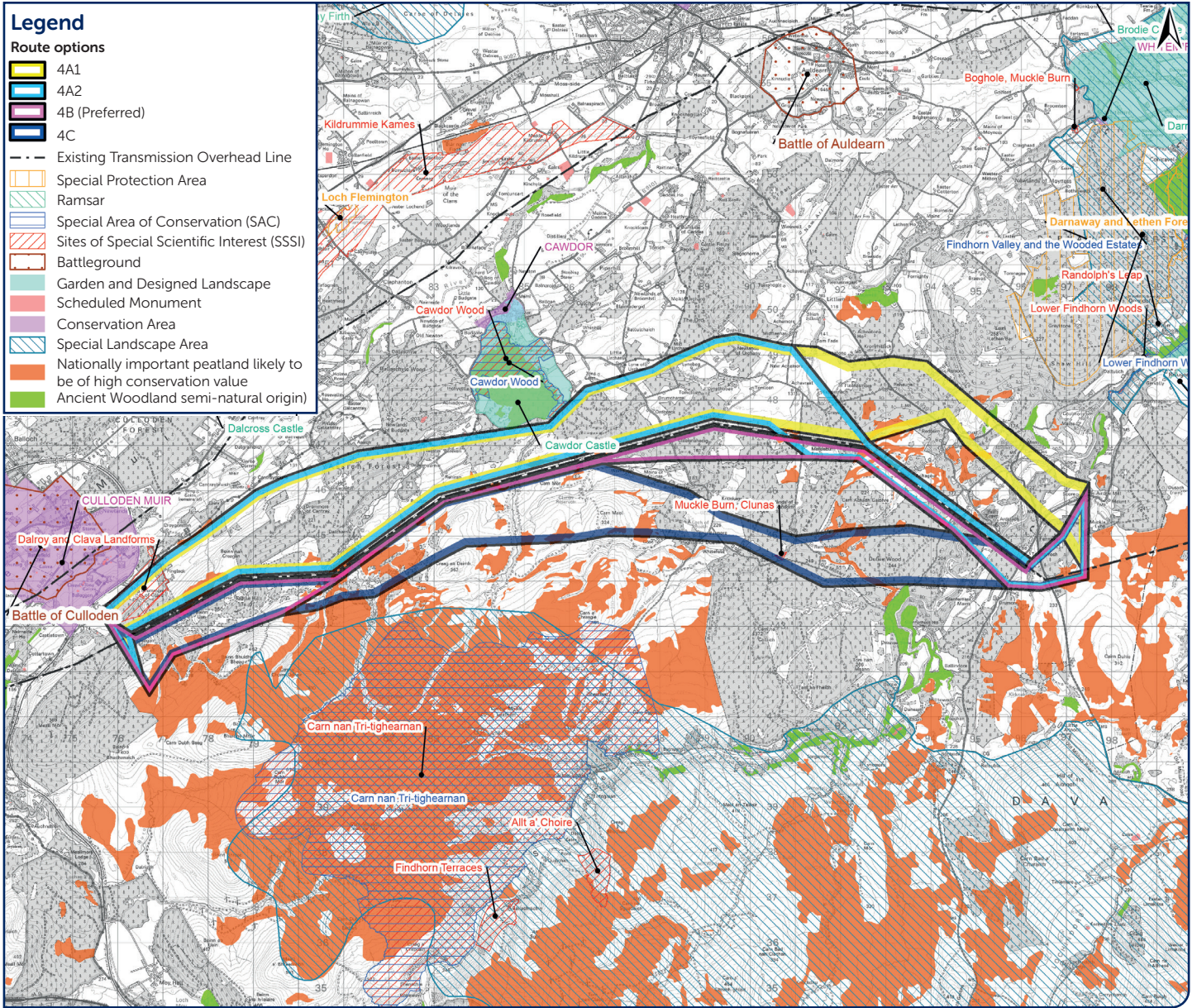
Route 3C travels south east across Drum Mossie Muir, where it passes the B851 at Scatraig. The route then travels east, until it reaches Meallmore Lodge, where it changes direction to travel north until the end.

The key environmental, engineering and cost considerations which differentiate between route options 3A, 3B and 3C include:

- Culloden Battlefield in the north is a major constraint, for Route 3A.
- Both landscape character and visual impacts of Route 3C have been assigned a Red RAG rating due to the OHL likely being intrusive and prominent across the attractive broad valley bowl at the confluence of the River Nairn and Craggie Burn at Daviot.
- On balance, Route 3B is preferred because it offers the opportunity to site the overhead line further from Culloden Battlefield to reduce indirect impacts, and avoids the landscape and visual pressures in the south.
- Route 3B also runs along the pathways of an existing overhead line, meaning any effects on the landscape would be concentrated on one area, rather than spreading them wider.
- Route 3B is also preferred from a Protected Species perspective due to having a lesser proportion of broadleaved woodlands and waterbodies.
- Route 3B would cross over an area of ancient woodland of semi-natural origin along the River Nairn, although there may be potential for the overhead line to pass over the top of the trees without the requirement for any felling in this area.
- There is little difference from an engineering perspective between Routes 3A and 3B. Route 3B offers the option to parallel with the existing overhead line, which allows existing accesses to be utilised or new accesses to be shared.
- Careful alignment placement would be required within Route 3B to minimise impacts on properties located between the two overhead lines.
- The least preferred option from an engineering perspective is Route 3C. This option sites further south and encroaches onto the hillsides of Beinn a Bheurlaich and Beinn a Bhuchanaich. The terrain in these areas is slightly more challenging, with longer sections passing through some relatively steep side slopes. Several sections also have limited access so significant works would be required to extend the existing tracks in the surrounding area to make it constructable.
- From both a Capital and Operational cost perspective, Route 3B is preferred for Section 3. It is the only option classed as 'Green' in the RAG scoring.

The overall preferred option in this section is Route 3B.

Section 4 – south of Culloden to Ferness



Section 4 has four route options. All route options begin to the south of Culloden Battlefield, and end east of Ferness at New Inn Wood.

Route 4A1 travels in a north east direction, through Assich Forest and Foxmoor Wood, until it reaches the A939. Here, Route 4A1 travels south east until the end, passing Loch Belivat, crossing the River Findhorn, and going through Logie Wood. The southern edge of the route runs parallel to the existing 275kV OHL for the majority of the route, except at the eastern end.

Route 4A2 follows the same route as Route 4A1 until it reaches Tomloan, where it travels in a south easterly direction, following a similar path to the existing 275kV OHL. Route 4A2 crosses the River Findhorn at Dalnaheighish Wood and continues south east until Achnabechan, where it turns north east to travel across New Inn Wood until the end.

Route 4B travels to the south of Routes 4A1 and 4A2, but still in a north easterly direction, past Saddle Hill. As Route 4B crosses Allt Dearg, it narrows considerably, and follows a path directly south of the existing 275kV OHL. The route widens slightly once it passes the north of Clunas Reservoir, still following the route of the existing 275kV OHL. Once Route 4B passes Muckle Burn, it narrows again and joins Route 4A2 until the end.

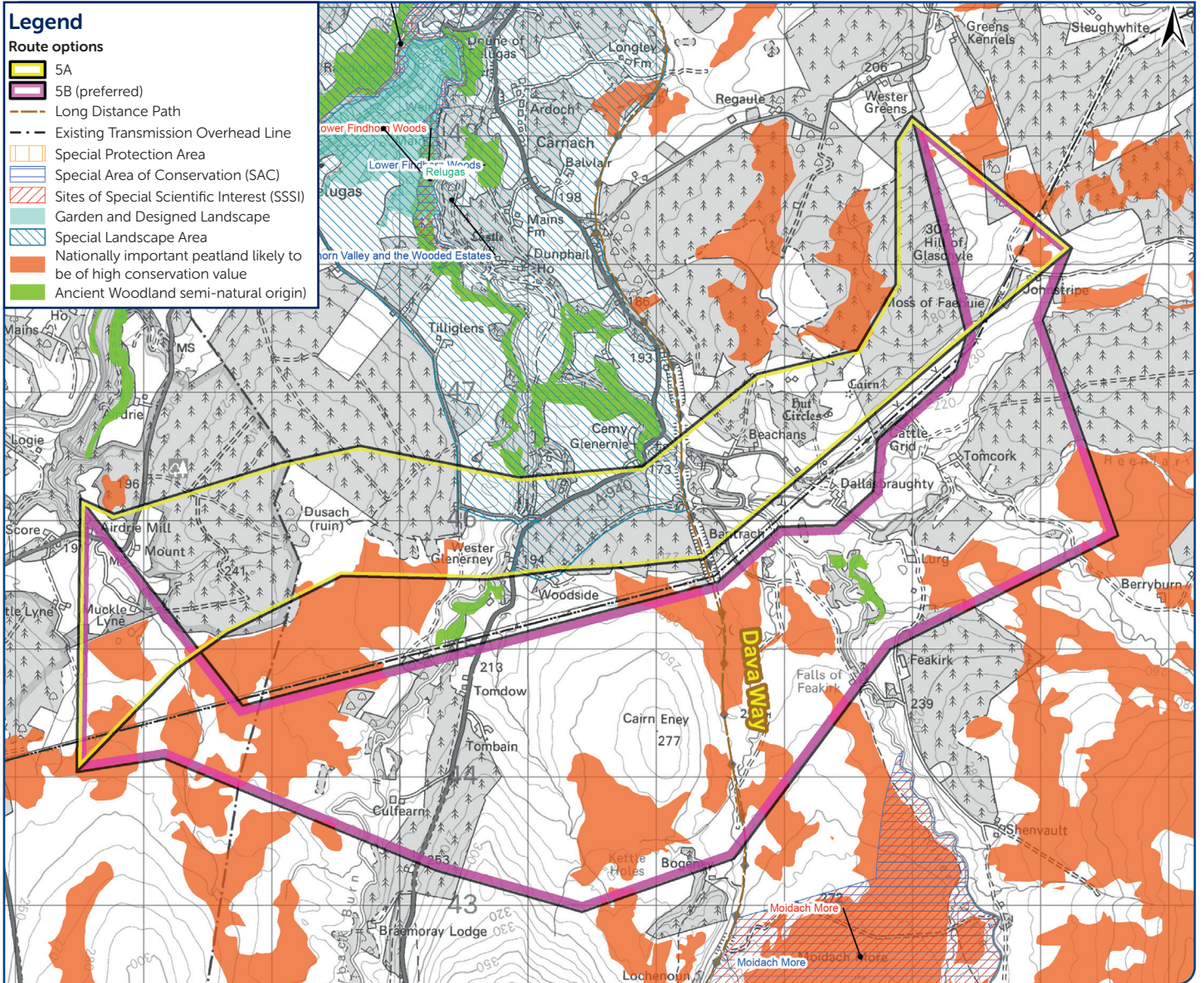
Route 4C follows the same route as Route 4B, until it passes Saddle Hill where Route 4C continues south of Route 4B and is much wider. Route 4C continues in an easterly direction, passing Clunas Reservoir, Loch of Boath Wood, Blackfold Wood, Dulsie Wood, and crossing the River Findhorn to the south of Route 4B. It then joins Route 4A2 and 4B at New Inn Wood until the end.

The key environmental, engineering and cost considerations which differentiate between route options 4A1, 4A2, 4B and 4C include:

- Route 4A1 is the least environmentally preferred route due to being closest to Culloden Battlefield and Culloden Muir, two Category A Listed Buildings, and Darnaway and Lethen Forest SPA, designated for Capercaillie.
- The 'A' routes risk being skylined in the Culloden and Clava areas, and are generally closer to scattered residential properties along the B9091 in the valley along the River Nairn. Additionally, NCN Route 1 runs to the north of both 'A' routes, which may be visually impacted by an overhead line in this route.
- Both Route 4B and Route 4C score similarly within the RAG ratings, however Route B is marginally preferred overall. Whilst Route 4C is preferable from a Cultural Heritage perspective due to widest scope to avoid indirect impacts on a Category A Listed Building (Ardclach Tower), it is less preferable from a landscape and visual perspective, has the greatest area of irreplaceable peatland habitat, and is less preferable from a protected species perspective due to having more broadleaf woodland and waterbodies than Route 4B.
- Route 4B benefits from running along the pathways of an existing OHL, so any effects on the landscape are concentrated within one area, rather than spreading them wider.
- Route 4A1 remains in lower elevations where terrain is more gradual, with little peatland and a limited number of properties to be avoided. There are some slightly steeper side slopes around Beinn nan Creagan, however it may be possible to avoid these as part of the alignment selection process.
- Route 4A2 is generally similar to Route 4A1 for the majority of its length, however it splits off to parallel the existing 275kV overhead line south of Achagour. This route option is not considered feasible due to the proximity of numerous properties within this final section.
- Route 4B is generally acceptable, however poses some challenges due to peatland and some sections of challenging terrain around Carn Mor. This option remains south of the existing 275kV overhead line, offering an opportunity to parallel for a significant section, however it would require passing through approximately 2km of peatland which Route 4A1 avoids.
- Route 4C is least preferred as it pushes further south into more challenging terrain and areas with less existing access.
- There was little difference between the options in terms of costs.

The overall preferred option in this section is Route 4B.

Section 5 – Ferness to south of Forres



Section 5 has two route options. Both route options begin to the east of New Inn Wood, and end at the Hill of Glaschyle.

Route 5A travels east across the south of Airdrie Plantations and Wood of Tilliglens, passing Dorback Burn, the A940, and Glenerner Wood. As Route 5A reaches the Dava Way, it crosses at the Divie Viaduct and travels in a north easterly direction until the end. It is located to the north of the existing 275kV OHL and its southern edge runs parallel in the eastern half.

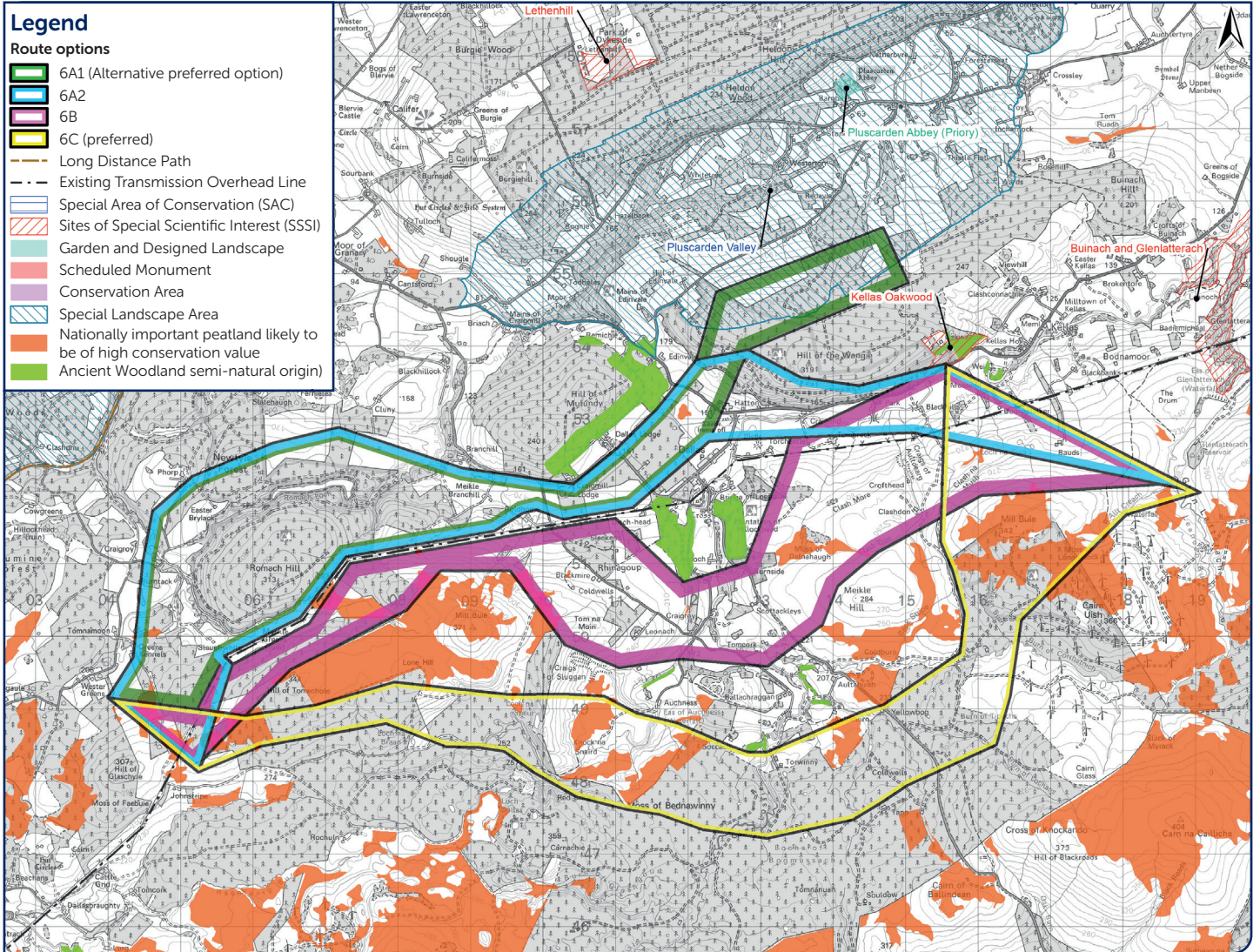
Route 5B travels south east, crossing the existing 275kV OHL. It then widens to pass Culfearn and Tomdow, and Cairn Eney. As the route passes the Dava Way it travels north east, across the River Divie, then runs north until the end. It is located to the south of the existing 275kV OHL and its northern edge runs parallel for most of the route.

The key environmental, engineering and cost considerations which differentiate between route options 5A and 5B include:

- Whilst Route 5A is slightly preferred from a Natural Heritage Designations, Protected Species and Habitats perspective, it is very constrained at a pinch point near Edinkillie House and Church, the Dava Way, and the Divie Viaduct. Here, there is potential for significant Landscape and Visual impacts for these receptors, as well as Cultural Heritage settings impacts on both Edinkillie House, which is a Category A Listed Building, and the Divie Viaduct, which is a Category B Listed Building.
- Both routes are considerably constrained by wind farm planning applications at both end of the routes.
- Route B is preferable from both a Landscape and Visual, and Cultural Heritage perspective, however it has large areas of irreplaceable peatland, which are not over-sailable in some sections of the route.
- Route 5A is considered the preferred option from an engineering perspective in this section as it sits north of the existing 275kV overhead line and avoids the wind farms in the area. It does however sit closer to properties compared to Route 5B, but technically is considered acceptable.
- Wind farms located at both the western and eastern ends of Route 5B make this route significantly challenging. Engineering solutions to these constraints could include realigning or undergrounding sections of the existing 275kV overhead line to allow space for the new 400kV overhead line to the south. Alternatively it may be possible, in consultation with the wind farm developers, to microsite some of the proposed wind turbine locations to allow space for an overhead line alignment.
- Route 5B is significantly more expensive than Route 5A due to the need to cross or realign the existing 275kV overhead line and due to the increased length of the route.
- Route 5B has been chosen as the Preferred Route for Section 5. There are strong cases against Route 5A from landscape, visual, and heritage issues around Edinkillie House and Church and the Divie railway viaduct. These are considered to override the cost preference for Route 5A. Alignment challenges remain within Route 5B from the wind farm constraints and peatland habitat, although these are considered workable.

The overall preferred option in this section is Route 5B.

Section 6 – south of Forres to Kellas



Section 6 has four route options. All route options begin north east of the Hill of Glaschyle.

Route 6A1 travels north around Romach Hill and to the south of Newtyle Forest. Route 6A1 then turns east, where it passes Romach Reservoir and Meikle Branchill. As the route passes to the south of the Hill of Mulundy, it travels north east through plantation woodland to the north of Dallas, then north of the Hill of the Wangie ending in Wangie Wood.

Route 6A2 follows the same route as Route 6A1 until it passes north of Dallas. Here, Route 6A2 runs east, passing to the south of the Hill of the Wangie, until it ends south of Kellas.

Route 6B travels in a north east direction, to the south of Romach Hill, following to the south of the exiting 275kV OHL until Rhinagroup. Here Route 6B travels to the south of Dallas and the Plantation of Hillockhead, before continuing north east to join Route 6A2 south of Kellas.

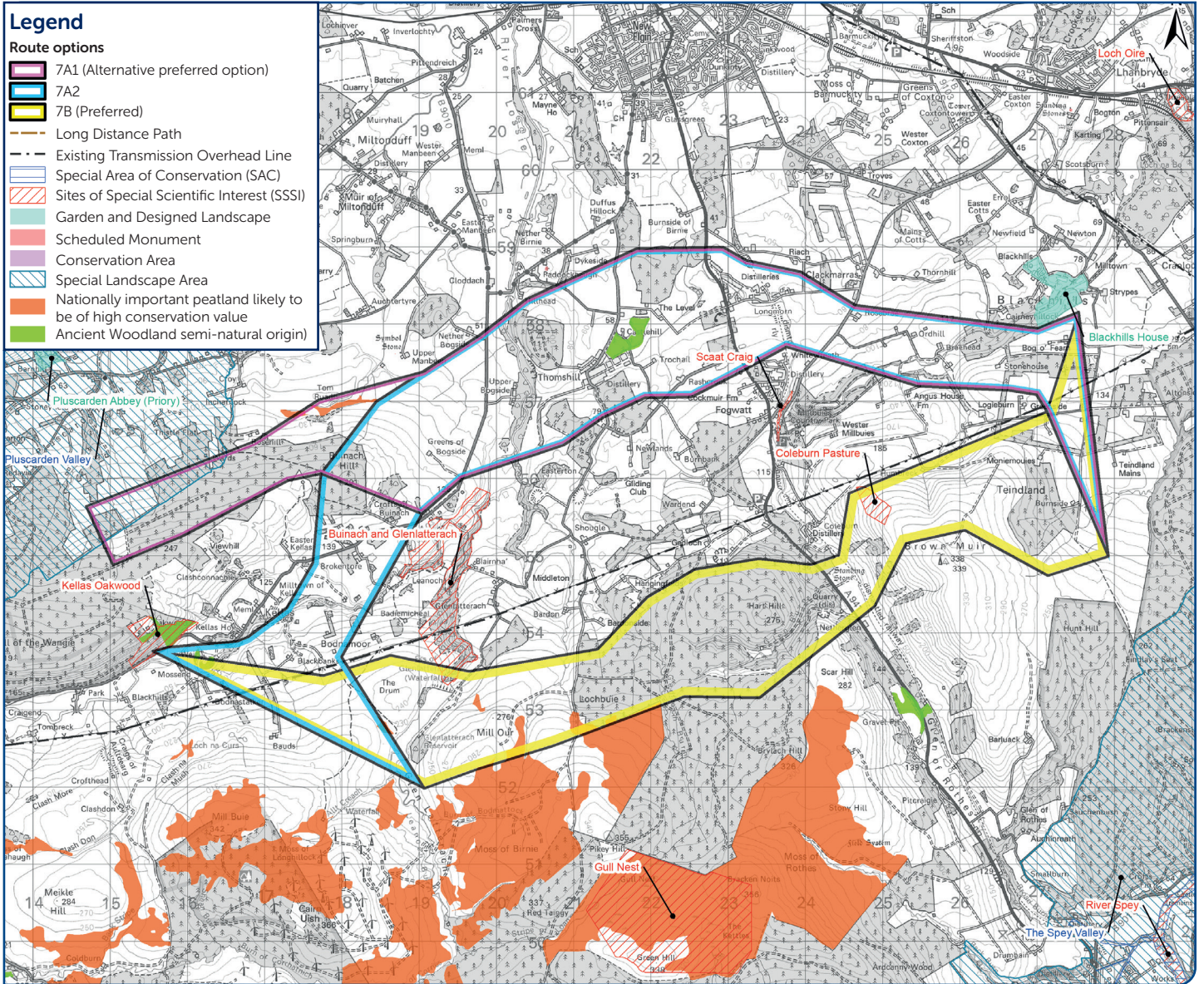
Route 6C travels east, to the south of the Hill of Tomechole, until it reaches the River Lossie. From here it travels in a north easterly direction, passing to the south east of Meikle Hill, where it turns to travel north to join Route 6A2 and 6B south of Kellas.

The key environmental engineering and cost considerations which differentiate between route options 6A1, 6A2, 6B and 6C include:

- Route 6C has a lower proportion of broadleaf woodland therefore it is preferred for Protected Species.
- Regarding Cultural Heritage, Route 6C is preferred as it is distanced from a number of sensitive assets that lie within the 'A' routes.
- Route 6C is also preferred from a Landscape and Visual perspective, as it runs wide of most sensitive receptors in the area, with few residential properties and little sign of recreational activity within the route. It also avoids Dallas, where the 'A' routes would be very intrusive in the landscape.
- Route 6C has a large area of irreplaceable peatland habitat and was therefore not a preferred option for Habitats. If Route 6C is chosen as the proposed route to take forward to alignment stage, a consideration will need to be given to whether it is possible to avoid peatland habitats.
- Similarly to Section 5, all routes within Section 6 are constrained by planning proposals for wind farms in the area. Route 6A1 is preferred in this respect as it only passes the application boundary of one wind farm, whereas the other options are constrained by two.
- Route 6A1 provides an opportunity to parallel the 275kV overhead line in areas on the north side, passing through generally accessible and gradual terrain. On approach to Dallas, Route 6A1 heads to the north of Hill of the Wangie and pushes the line further away from the village, however it would surround both sides of the village with overhead lines, which is less preferred.
- Route 6B has several constraints relating to sections of peatland and also some steep side slopes as the route travels around Hill of Tomechole and Mill Buie. The route keeps further south around Dallas, but reaches a significant constraint towards the end of the section due to the proposed Kellas Wind Farm.
- Route 6C pushes much further south into an area with very few residential properties and limited existing access. The terrain within this route is particularly challenging with significant slopes in sections, craigs and peatland. The advantages to this route include the distance from properties and the potential to use some of the existing tracks within the forestry, however it is expected significant access works would be required. Similar to Route 6B, the route is constrained towards the eastern end due to the proposed Kellas Wind Farm.

The overall preferred option in this section is Route 6C. A back-up alternative preferred option of Route 6A1 is proposed if a workable alignment past Kellas Wind Farm cannot be found.

Section 7 – Kellas to Teindland



Section 7 has three route options. All route options end in an area stretching from Blackhills to Teindland.

Route 7A1 begins to the north of the Hill of the Wangie, travelling in a north easterly direction, passing Buinach Hill, Thomshill and Longmorn. From here, Route 7A1 travels east until the end.

Route 7A2 begins south of Kellas, and travels north east through Buinach Hill, where it joins Route 7A1.

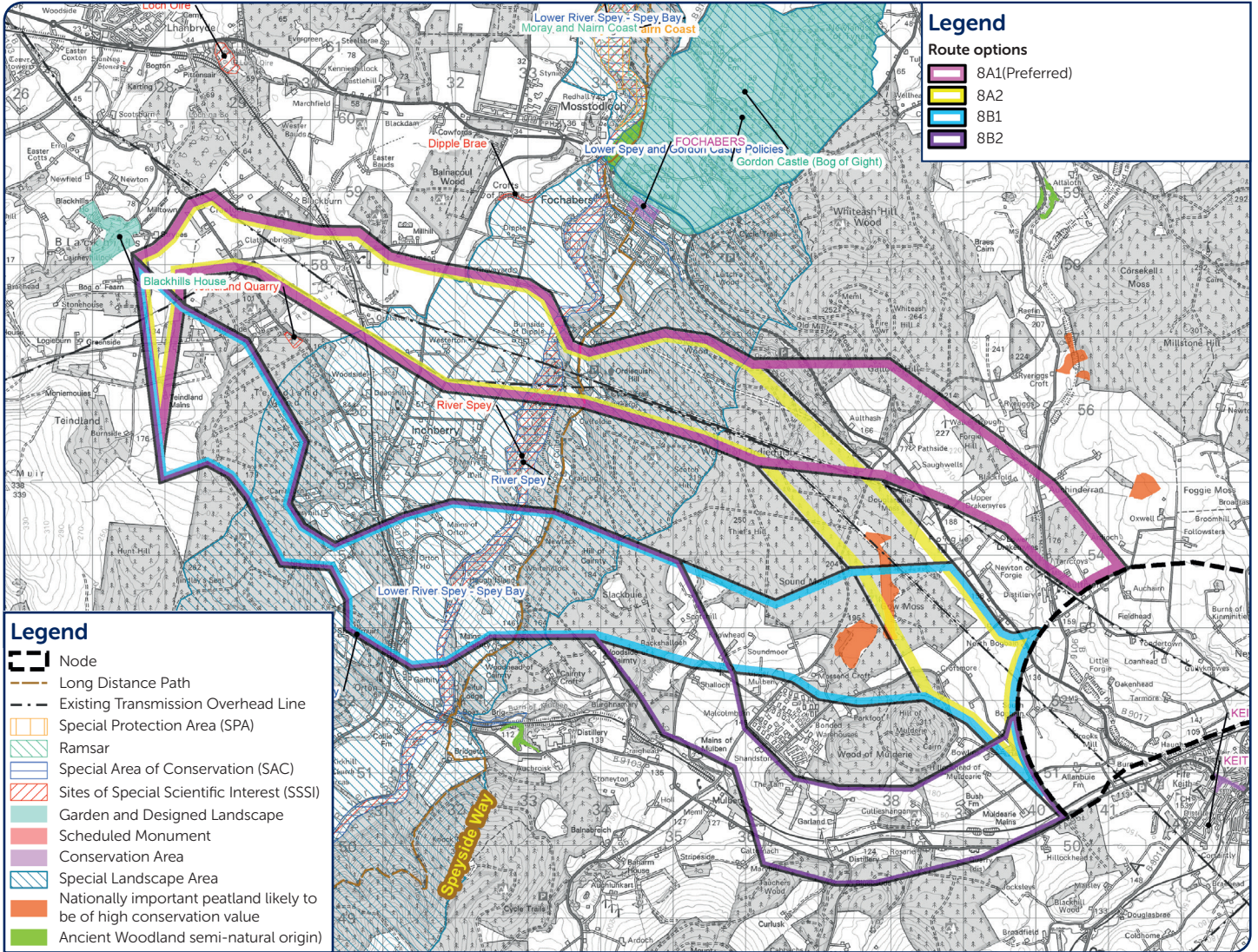
Route 7B begins south of Kellas, travelling in a general north easterly direction across Glenlatterach Reservoir, Lochbuie, Hart Hill and Brown Muir, until it reaches the end.

The key environmental, engineering and cost considerations which differentiate between route options 7A1, 7A2 and 7B include:

- Route 7B is preferred for Habitats due to having the widest scope for avoiding sensitive Annex I habitats at alignment stage.
- Route 7B is preferred for Cultural Heritage due to being the furthest route from Blackhills House GDL, and reduced settings impacts on Category A and B Listed Buildings.
- Route 7B is preferred from a Landscape and Visual perspective as it has the potential to be absorbed into the larger, simpler scale of the moorland fringes with extensive forestry, and less visible from any highly sensitive receptors. However, it would be clearly visible from the A941 in focused views along Glen of Rothes.
- However, it is acknowledged that Route 7B does pass through the Glenlatterach Reservoir Drinking Water Protected Area and alignments would need to be placed either down slope of the reservoir or construction managed sensitively within the drinking water protected area to manage this constraint during construction in line with Scottish Water guidelines for working within Drinking Water Protected Areas.
- The engineering preference within Section 7 is Route 7A1. The terrain in this section has some gradual slopes but not significantly challenging.
- There are some challenges towards the eastern end of Route 7A1 due to the number of angles required to navigate around the settlements of Fogwatt and Longmorn and to maintain a 170m buffer from residential dwellings.
- Route 7B has some specific challenges due to the proposed Kellas Wind Farm, which impacts both this and the previous section. In addition to this, the terrain to the south of the existing 275kV overhead line has steeper slopes and undulated terrain. This occurs specifically when navigating around Hart Hill and Brown Muir and is likely to be challenging.
- Route 7B is preferred from both a capital and operational cost perspective due to a shorter route length and lower number of anticipated angle towers.

The overall preferred option in this section is Route 7B. A back-up alternative preferred option of Route 7A1 is proposed if a workable alignment past Kellas Wind Farm cannot be found.

Section 8 – Teindland to Keith



Section 8 has four route options. All route options begin to the west of Teindland Wood.

Route 8A1 takes a sharp north direction up to Cranloch. From here Route 8A1 travels in a general south easterly direction passing Orbliston and Westerton, crossing the River Spey, then passing Ordiequish Hill and Wood of Ordiequish, and crossing the A96, before ending at Aultmore.

Route 8A2 follows the same route as Route 8A1, until it passes the Wood of Ordequish, where Route 8A2 follows a more south easterly route, alongside the existing 275kV OHL, until it reaches South Bogbain.

Route 8B1 travel south east, through Teindland Wood and Wood of Orton. As Route 8B1 passes the B9103, it travels east, crossing the River Spey, Hill of Cairnity, and Soundmoor, until it reaches Gow Moss where it joins Route 8A2.

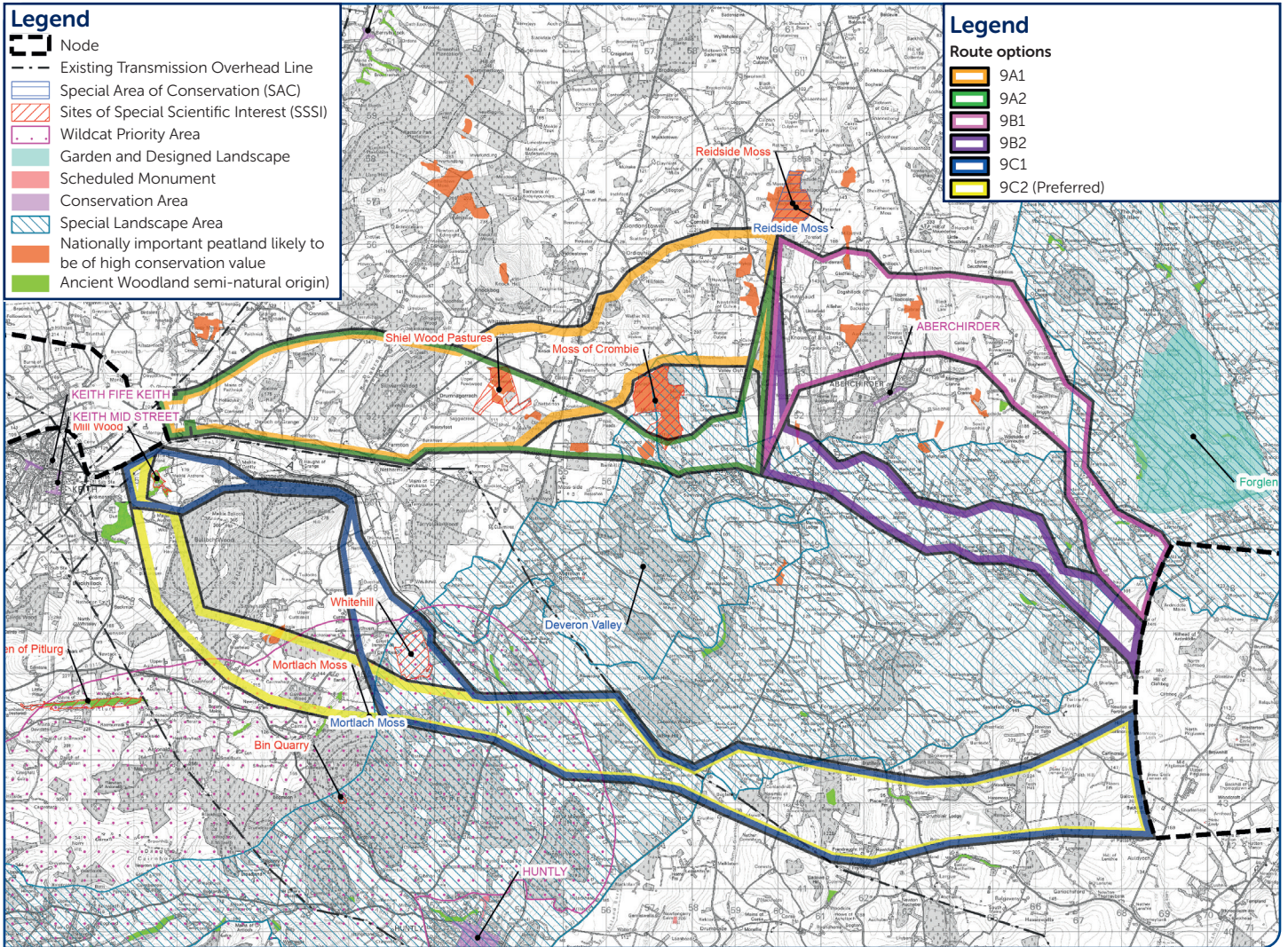
Route 8B2 follows the same route as Route 8B1, until it passes Hill of Cairnity and Slackbuie, where it takes a south easterly direction passing Mulben. From here, it travels east following the A95 until it reaches the end around Muldearie Mains.

The key environmental, engineering and cost considerations which differentiate between route options 8A1, 8A2, 8B1 and 8B2 include:

- Both 'A' routes have less Annex I and irreplaceable habitat, with Route 8A1 being marginally preferred due to an absence of Class 1 Peatland Habitat.
- The 'A' options also present the opportunity to avoid impacts on a Category A Listed building that lies within the 'B' routes, with Route 8A2 being marginally preferred.
- The key differentiator between the 'A' and 'B' routes is the crossing of the River Spey. The Spey valley is an attractive valley, recognised by a regional landscape designation. The 'A' routes cross the valley where it is wide, open to the west and characterised by intensive agriculture and existing overhead lines, whereas the 'B' options cross the valley where it is narrower and enclosed with a more intimate character. An overhead line in the 'A' options would intensify the effect of existing overhead line in this area, whereas an overhead line in the 'B' options would extend the effect to an area that is currently unaffected and risks being very intrusive in views from sections of the Speyside Way and from the A95 and railway.
- The 'A' routes lie within a Scottish Water Drinking Water Protected Area (DWPA) 'The Spey Boreholes, Dipple and the Ordiequish Collecting Chambers'. It is anticipated that direct impacts on the water supply infrastructure would be avoidable and indirect impacts avoided at the alignment stage through careful positioning of towers and compliance with Scottish Water guidelines for working within Drinking Water Protected Areas.
- Route 8A1 is preferred from an engineering perspective within this section. Route 8A1 passes through relatively gradual terrain for the majority of its length except around the Spey crossing.
- Route 8A2 is generally similar to 8A1, however crosses the 132kV OHL three times in an attempt to parallel with the 275kV OHL. This provides no advantage and therefore is not considered preferred. Route 8A2 also approaches Keith from the west and passes closer to the town than Route 8A1.
- Route 8B1 is generally acceptable, however it crosses the River Spey at a slightly steeper and more challenging location. Once past the River Spey, the route remains clear of properties for almost 8km before crossing the existing 275kV OHL and approaching Keith from the west.
- Route 8B2 does not offer any advantage over Route 8B1, as it moves closer to residential properties and introduces additional angle changes that otherwise could be avoided, so is least preferred.
- Route 8A1 is preferred from a capital and operational cost perspective.

The overall preferred option in this section is Route 8A1.

Section 9 – Keith to south of Turriff



Section 9 has six routes however the 'A' and 'B' routes need to be combined to have a route which is comparable to the 'C' routes; this approach was to provide further flexibility in route selection around Crombie Moss and Aberchirder.

Route 9A1 begins east of Auchinhove and travels east past Sillyearny Wood and Drumnagorach. From here it travels north east, passing north of Crombie Moss, and ends at Finnyguard.

Route 9A2 initially follows the same route as 9A1 until Drumnagorach, it then continues east, passing south of Crombie Moss and rejoins 9A1 at Finnyguard.

Route 9B1 begins at Finnyguard and travels east, to the north of Aberchirder and then south east, passing west of Bogton, and ending east of Milnbank.

Route 9B2 begins at Finnyguard and travels immediately south and then south east to pass south of Aberchirder, passing through Wettyfoot, to the north of Netherdale House and ending in the region of Bogs of Lathers.

Route 9C1 begins to the east of Keith in the vicinity of Drum and travels east through Balloch Wood and then south east through Drumhead before taking an easterly direction again past Millburn, Longmoor Wood, Conlandmill, Drumblair and ending at Gallows Hill.

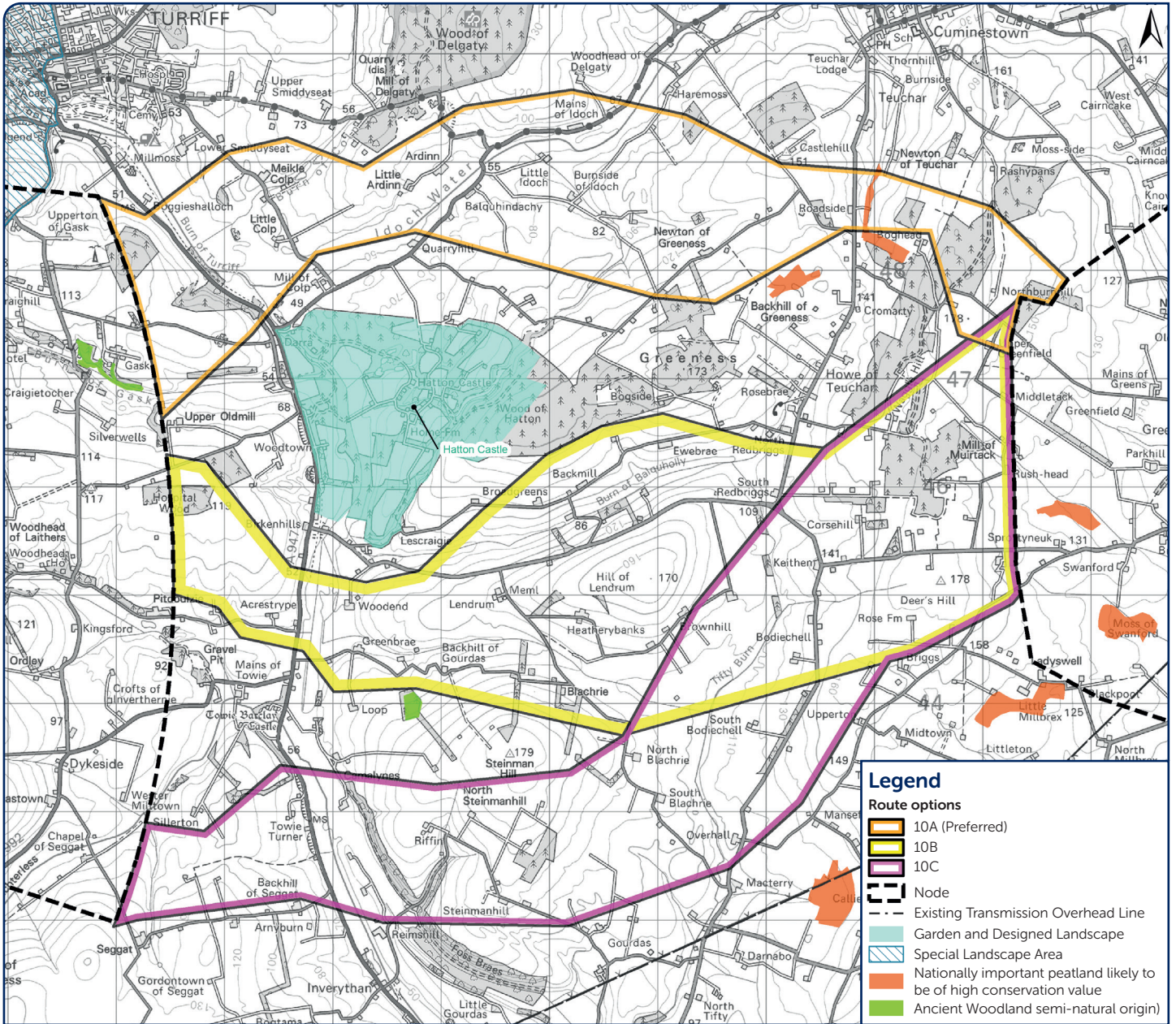
Route 9C2 begins to the east of Keith in the vicinity of Drum and travels south east through Balloch Wood and Garrowmuir Wood, before joining Route 9C2 south of Drumhead and then following the same route until the end.

The key environmental, engineering and cost considerations which differentiate between route options 9A1, 9A2, 9B1, 9B2, 9C1 and 9C2 include:

- The environmental preference is Route 9C2 as this route has the least landscape and visual effects and best fit with the landscape. Both the 'B' options are very intrusive in the landscape at Aberchirder and they cross the River Deveron in a particularly attractive and remote and secluded location. Route 9B2 is particularly challenging because of topography where the use of tall crossing towers is likely to be required or a wayleave up through a particularly tall steep wooded bank, with closely spaced tension towers. Both would compromise the special qualities of the Deveron SLA.
- The 9C options cross the river where the topography is relatively gentle, and a straight alignment of suspension towers should be achievable. Of the 9C options, Route 9C2 has less visibility from the A95 and is also preferred from a Habitats perspective, with there being less peatland. The distance from Crombie Moss to the C routes is also beneficial and Route 9C2 is marginally preferred for Designations.
- On balance Route 9C2 was selected as the Preferred Route due to the severity of landscape designation, character and visual effects associated with the 9B options.
- The engineering preference within this section are Routes 9A1 and 9B1. Within Section 9 the routes are heavily populated with dispersed residential dwellings. Two specific major pinch points are present both around Bracobrae and Knock, which are lined with residential properties. The terrain within this section poses no specific challenges, with some smaller hills and slopes, but all considered constructable.
- Route 9C1 is least preferred as it passes through very steep terrain at the start of the route before passing directly over the ridges of Meikle Balloch. It also crosses the existing 275kV overhead line that is currently being increased in operating voltage to 400kV, so one of the circuits would be required to be undergrounded or an alternative arrangement would be required at the crossing point.
- Route 9C2 has less residential properties within it. However, it passes across more undulated terrain and also requires a crossing of the existing 275/400kV overhead line. This is less preferred from a technical perspective as operationally cable dips require more maintenance and take longer to repair in the event of a failure occurring.

The overall preferred option in this section is Route 9C2.

Section 10 – south of Turriff to New Deer



Section 10 has three route options.

Route 10A begins west of the A947 at the Hill of Boggieshalloch and Wood of Darra. It travels east, passing Little Colp, Little Idoch, Newton of Greeness and Roadside, before ending at Northburnhill.

Route 10B begins at Hospital Wood, travelling east past the A947 and Hill of Lendrum, before ending at Mill of Muirtack.

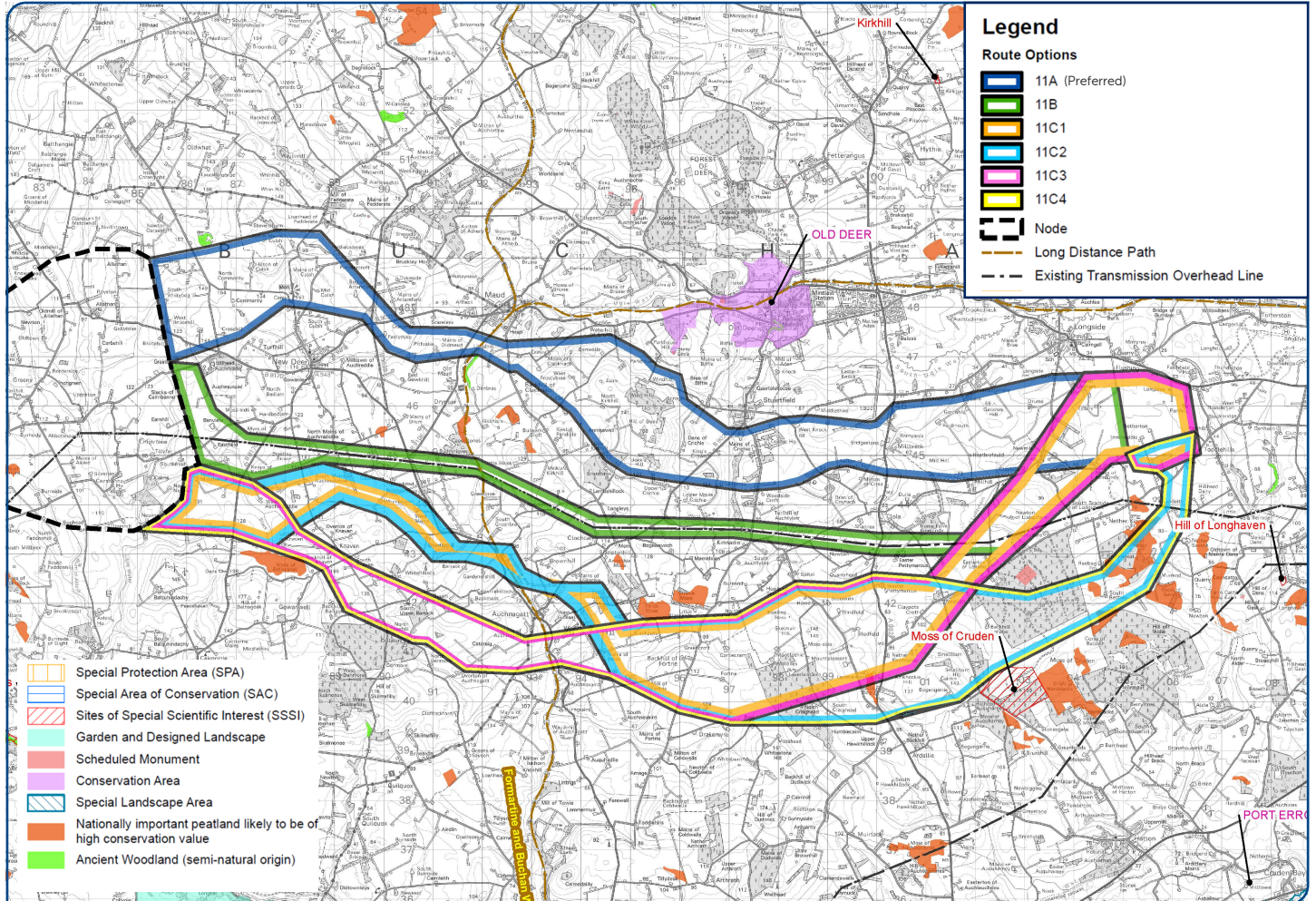
Route 10C begins at Sillerton, travelling east past the A947 until it reaches Blachrie and joins Route 10B.

The key environmental, engineering and cost considerations which differentiate between route options 10A, 10B and 10C include:

- Route 10B has the lowest proportion of watercourses and woodlands, therefore less suitable habitats for protected species.
- Route 10B also offers more opportunity than Routes 10A and 10C to reduce potential visibility of the OHL for scattered residential properties across the section, as well as the least awkward crossing of the valley of the Burn of Turriff from a landscape character perspective.
- Route 10C would be the least preferred from a landscape perspective within Section 10.
- The engineering preference within Section 10 is Route 10A. The terrain within this section is relatively gradual with only minor slopes. There are numerous residential properties, but it should be possible to identify an alignment that achieves the required clearances without an excessive number of angle changes. The route also provides a good option for entry into the proposed New Deer 2 substation location.
- Routes 10B and 10C are both more populated with residential properties, making alignments through the routes more challenging. Towards the proposed New Deer 2 substation location, entry from the south is considered infeasible and these routes are therefore least preferred.
- Route 10A is preferred from both a capital and operation cost perspective. Route 10C is the least preferred.

The overall preferred option in this section is Route 10A.

Section 11 – New Deer to Peterhead



Section 11 has six route options. All route options end west of Toddlehills.

Route 11A begins around West Brucehill and travels east until it reaches Mains of Culsh. From here, the route travels south east, passing north of New Deer and South of Maud. Route 11A continues south east, passing Wind Hill, until it reaches the B9030. Here the route continues to the south of Stuartfield, in an easterly direction, passing the A952 and Millbreck, until it reaches the end.

Route 11B begins at Eastfield, and travels east following the existing 275kV OHL until it passes south of Home Farm Kinmundy, where it travels north east to the end.

Route 11C1 begins around Middlemuir, and travels east until it reaches Auchmaliddie. From here Route 11C1 travels north east passing Nethermuir, Shantlerhill and the Formartine and Buchan Way at Annoichie. As Route 11C1 reaches Backhill of Fortrie, it travels east, passing Skelmuir Hill. As the route passes the A952, it travels north east until it meets Routes 11A and 11B.

Route 11C2 follows Route 11C1 until Laverockcairn, where it continues east, passing the A952 and plantation woodland east of Newton. At the Moss of Kinmundy, Route 11C2 travels north to join Routes 11A, 11B and 11C1.

Route 11C3 begins in the same place as Routes 11C1 and 11C2. It travels south east, passing Blackhill of Knaven and South Upper Barrack, until it meets the Formartine and Buchan Way and A948. After here Route 11C3 joins Route 11C1 until the end.

Route 11C4 – Route 11C4 follows Route 11C3 until it meets the Formartine and Buchan Way and A948, where it joins Route 11C2.

The key environmental, engineering and cost considerations which differentiate between route options 11A, 11B, 11C1, 11C2, 11C3 and 11C4 include:

- The preferred routes from an environmental perspective are Route 11B and 11C3. Route 11B is marginally preferred as it has the advantage of containing landscape effects to an area already affected by the existing overhead line and any views would be in the context of an existing overhead line rather than introducing the infrastructure to an area currently without it.
- Route 11B is also a preferred option for Natural Heritage designations as it intersects with the least amount of suitable habitat for wintering geese associated with SPAs within 20km, and does not contain a Local Nature Conservation Site like Routes 11C1, 11C2 and 11C4.
- For Habitats, Route 11B is preferred (alongside 11A), as they have less irreplaceable peatland habitat in comparison to the 'C' routes.
- Overall, Route 11A is least preferred from a landscape perspective as it would be very intrusive to panoramic views from Culsh Monument viewpoint north of New Deer. It also risks being intrusive south from the edge of Maud.
- The preferred option from an engineering perspective is Route 11A. This route passes through mainly arable land with no specific challenges in respect to terrain or ground conditions.
- Route 11A has a significant number of properties so would require numerous angle structures to navigate this, however certain sections appear to offer multiple alignments that can work around them.
- Route 11B passes directly through three properties and within 170 m of at least 20 properties due to the narrow route only allowing a close parallel with the existing line. This option is therefore not considered viable.
- All the 11C routes would be required to cross the existing 275kV overhead line which is currently being upgraded to 400kV. This introduces technical challenges relating to maintenance.
- Both Routes 11C2 and 11C4 also pass directly through an area of Class 1 peatland on approach to the preferred Peterhead 2 substation location, introducing additional costs and construction challenges.

The overall preferred option in this section is Route 11A.

Working with landowners and occupiers

SSEN Transmission recognises landowners and occupiers as key stakeholders in the development of our projects and is committed to consultation and engagement with all parties likely to have an interest in our proposals.

Over the past few months, we have been working to identify landowners and occupiers who are affected by our preferred route. The majority of landowners & occupiers should have received initial communication from SSEN Transmission Land Team informing them of project and the next steps.

As the project design develops, we will work with landowners and occupiers to mitigate the impact of our infrastructure on their properties. Our team of dedicated land managers will be on hand to answer queries and address concerns throughout.

SSEN Transmission will be required to carry out various engineering and environmental surveys to inform the design process. Consent will be sought from affected landowners and occupiers in advance for these surveys.

Once we have finalised the design of the overhead line infrastructure and associated works, we will be required to secure the appropriate land rights from the relevant parties for all infrastructure. Our land managers will endeavour to reach a voluntary agreement with each party, however, in the event that agreement cannot be achieved, we would look to utilise our statutory powers under the Electricity Act 1989.

Our statutory powers are used as a last resort and we aim to work with landowners and occupiers in order to secure the necessary land rights voluntarily.

We would encourage all landowners and occupiers to engage with our consultation events and feedback either via the form at the end of this booklet or with the SSEN Transmission Land Team directly.

Landowner FAQs

Feedback/Comments	Response
Is the remuneration and compensation for landowners going to be reviewed as the amounts seem outdated.	The SSEN Transmission Wayleave Payment Rates are reviewed on an annual basis. The wayleave payment is based on the size of tower footprint, as this is the amount of land used, and not the voltage of the OHL.
This project will potentially impact the value of our property. How will SSEN Transmission compensate us for this?	In terms of compensation, this is governed by law - Electricity Act 1989 and Land Compensation Act 1973. Compensation will be agreed on a case by case basis according to a number of factors e.g. number of towers, size of towers and type of property affected as set out in the statutory provisions.
I own and/or occupy land which is within your preferred route but have not been consulted yet. Why?	Over the past few months, we have been working to identify landowners and occupiers who are affected by our preferred route. The majority of landowners & occupiers should have received initial communication from SSEN Transmission Land Team informing them of project and the next steps. However, due the sheer length of our route, we may have missed landowners or occupiers. If you have not received any communication from ourselves or our land consultants, WSP, we would encourage you to contact our land managers directly to discuss.
It feels like already burdened landowners will have to suffer further from this proposed project.	All new OHL projects are routed using criteria in line with our Routing Guidance. This includes, but is not limited to, avoiding designated features, minimising impacts on people, taking account of engineering constraints, topography, watercourses, land use and existing infrastructure.
This should be shared out amongst other landowners.	During our consultation process, we will take on all feedback in relation to the project and to the impact of the OHL on landowners and properties. However, in some locations it may be possible and appropriate to route the new OHL adjacent to the existing OHL. These options will be identified and assessed in greater detail in the subsequent stages of route and alignment selection.

Biodiversity net gain

We recognise that we have significant interaction with the environment through the activities we undertake in Scotland as we seek to develop and improve the transmission network. With this work comes a legal responsibility to design and build our projects in a manner which protects the natural and built environment.

We are committed to protecting and enhancing the environment by minimising the potential impacts from our construction and operational activities on biodiversity. To this end, we have committed to no net loss of biodiversity in non irreplaceable habitats for all of our projects gaining consent from 2020 onwards, and net gain of biodiversity on all projects gaining consent from 2025. This means that during the development, construction and operation of our projects, we will leave the environment no worse than when we found it, and where possible make it even better, leaving a positive environmental legacy at all of our SSEN Transmission sites.

As this project progresses through the development process, we will actively seek ways to avoid and minimise impacts on biodiversity, through careful routing and site design to avoid areas of highest biodiversity value. Where avoidance is not possible, our impacts are mitigated for through the implementation of habitat creation and restoration efforts. These can be achieved within the boundary of the development site, or by providing support to local groups involved with habitat restoration or creation projects, within the locale of the development site.

Please let us know if you have ideas for biodiversity improvement projects in your local area that SSEN Transmission could get involved with. Contact details for the Community Liaison Manager can be found at the back of the booklet.

Thurso South substation

Creation of approximately 10 hectares of pollinator habitat to support the rare endemic great yellow bumble bee and contribute to wider conservation efforts for this species.

A collaboration with The Bumblebee Conservation Trust facilitated research on forage availability for bumblebees, identifying the need for a diverse seed mix containing key flowering species to enhance early, main and late forage to support the full lifecycle of bumblebees.



Argyll Coast and Countryside Trust (ACT) Woodland Planting Collaboration

Argyll's rainforest is a unique and rare habitat of ancient and native woodland. This collaboration with ACT will help deliver SSEN Transmission's compensatory tree planting commitments in Argyll while helping towards ACT's woodland planting ambitions, supporting its charitable objectives including biodiversity gain, health and wellbeing improvement for local people, outdoor learning opportunities and climate change workshops.

Next steps

The feedback process

Following our events, a consultation period will open, during which you can submit feedback. Previous consultation highlighted the need for an extended feedback period. In response to this, we will extend our usual 28 days feedback period from the final event until **Friday 9th June 2023**. You can complete our feedback form online or using the feedback form at the back of this booklet or submit feedback in writing, email or by phone.

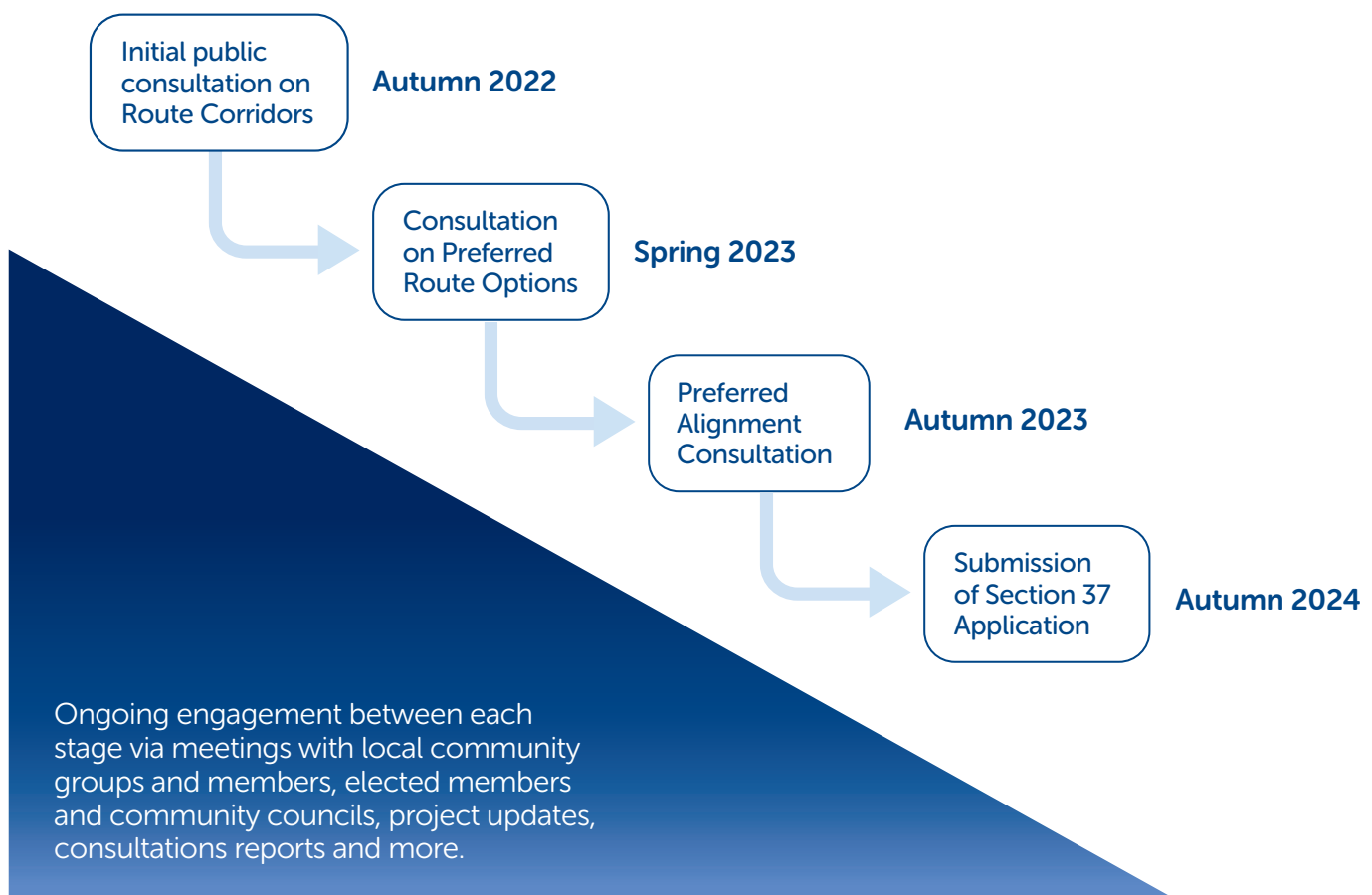
Our next consultation

The third round of consultation, **in late 2023**, will detail how the feedback has been taken on board as we continue to progress through the routing process, and we will present the findings of our alignment selection studies and our Preferred Alignment. There will be another consultation period, during which we will accept further feedback and comments on our proposals.

Further studies

As the project progresses we will be undertaking further environmental surveys and technical assessments to inform the alignment selection process. Bird surveys commenced in Autumn 2022 and will continue monthly throughout 2023. Ecology, peat, landscape and cultural heritage surveys are also planned in 2023 to assess potential alignment options.

Information on ongoing surveys will be posted in the project updates section of the web page.



Notes

A large, empty light blue rectangular area intended for 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:

- Which consultation event did you attend?
- Is there a specific section of the overhead line route that you are interested in?
- 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 preferred overhead line routes has been adequately explained?
- Do you agree with our preferred overhead line route, if not, why?
- Are there any factors, or environmental features, that you consider may have been overlooked during the preferred overhead line route selection process?
- Do you have any other comments or concerns in relation to the transmission infrastructure requirements or about the preferred overhead line route?
- Do you have any other comments (positive or negative) or concerns in relation to the need for the project, the transmission infrastructure requirements or preferred route?

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.

Feedback

We will be seeking feedback from members of the public on this exhibition until **Friday 9th June 2023**.

Feedback is welcomed throughout the development of the project. To provide comments on the proposal or to gain further information on the project, visit our project web page or contact our Community Liaison Manager

Community Liaison Manager, Ryan Davidson



BBNP@sse.com



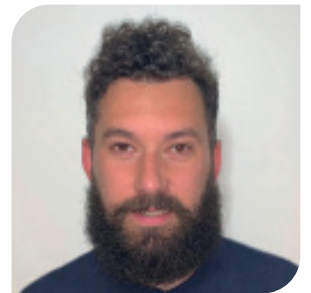
01463 728 072



07901 133 919



Ryan Davidson
Scottish Hydro
Electric Transmission,
1 Waterloo St,
Glasgow, G2 6AY



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/beauty-blackhill-new-deer-peterhead-400kv/

Follow us on Twitter:

@ssetransmission

Follow us on Facebook:

@ssencommunity

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 feedback form.

Please complete in **BLOCK CAPITALS**.

Q1 Which consultation event did you attend? (Select all that apply)

- | | | | |
|------------------------------------|---------------------------------|------------------------------------|--|
| <input type="checkbox"/> Peterhead | <input type="checkbox"/> Keith | <input type="checkbox"/> Forres | <input type="checkbox"/> None |
| <input type="checkbox"/> New Deer | <input type="checkbox"/> Huntly | <input type="checkbox"/> Inverness | <input type="checkbox"/> Online portal |
| <input type="checkbox"/> Turriff | <input type="checkbox"/> Elgin | <input type="checkbox"/> Beaulieu | |

Q2 Is there a specific section of the overhead line route that you are interested in?* (Select all that apply)

- | | |
|--|--|
| <input type="checkbox"/> Section 1 – Beaulieu area substation to south of Beaulieu | <input type="checkbox"/> Section 7 – Kellas to Teindland |
| <input type="checkbox"/> Section 2 – south of Beaulieu to south of Inverness | <input type="checkbox"/> Section 8 – Teindland to Keith |
| <input type="checkbox"/> Section 3 – A9 and River Nairn crossing | <input type="checkbox"/> Section 9 – Keith to south of Turriff |
| <input type="checkbox"/> Section 4 – south of Culloden to Ferness | <input type="checkbox"/> Section 10 – south of Turriff to New Deer |
| <input type="checkbox"/> Section 5 – Ferness to south of Forres | <input type="checkbox"/> Section 11 – New Deer to Peterhead |
| <input type="checkbox"/> Section 6 – south of Forres to Kellas | |

Q3 Have we adequately explained the need for this project?

- Yes No Unsure

Comments:

Q4 Do you feel sufficient information has been provided to enable you to understand what is being proposed and why?

- Yes No Unsure

Comments:

Q5 Are you satisfied that our approach taken to select our preferred overhead line routes has been adequately explained?

- Yes No Unsure

Comments:

Q6 Do you agree with our preferred overhead line route, if not, why?

(Please indicate which area your comment relates to if you have selected multiple answers for Q2)

- Yes No Unsure

Comments:



Q7 Are there any factors, or environmental features, that you consider may have been overlooked during the preferred overhead line route selection process?

(Please indicate which area your comment relates to if you have selected multiple answers for Q2)

Yes No Unsure

Comments:

Q8 Do you have any other comments or concerns in relation to the transmission infrastructure requirements or about the preferred overhead line route?

(Please indicate which area your comment relates to if you have selected multiple answers for Q2)

Yes No Unsure

Comments:

Q9 Do you have any other comments (positive or negative) or concerns in relation to the need for the project, the transmission infrastructure requirements or preferred route?

(Please indicate which area your comment relates to if you have selected multiple answers for Q2)

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, 1 Waterloo St, Glasgow, G2 6AY

Email: BBNP@sse.com

Online: www.ssen-transmission.co.uk/projects/project-map/beauly-blackhilllock-new-deer-peterhead-400kv/

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.

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