

Consultation Document - Alignment Selection

Creag Dhubh substation to Dalmally substation

275kV Overhead Line



Approved for publication		
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GLOSSARY

Term	Definition
Alignment	A centre line of an overhead line OHL, along with location of key angle structures.
Amenity	The natural environment, cultural heritage, landscape and visual quality. Also includes the impact of SHE Transmission's works on communities, such as the effects of noise and disturbance from construction activities.
Conductor	A metallic wire strung from structure to structure, to carry electric current.
Consultation	The dynamic process of dialogue between individuals or groups, based on a genuine exchange of views and, normally, with the objective of influencing decisions, policies or programmes of action.
Corridor	A linear area which allows a continuous connection between the defined connection points. The corridor may vary in width along its length; in unconstrained areas it may be many kilometres wide.
Environmental Impact Assessment (EIA)	A formal process set down in The Electricity Works (EIA) (Scotland) Regulations 2000 (as amended in 2008) used to systematically identify, predict and assess the likely significant environmental impacts of a proposed project or development.
Gardens and Designed Landscapes (GDLs)	The Inventory of Gardens and Designed Landscapes lists those gardens or designed landscapes which are considered by a panel of experts to be of national importance.
Habitat	Term most accurately meaning the place in which a species lives, but also used to describe plant communities or agglomerations of plant communities.
Kilovolt (kV)	One thousand volts.
Listed Building	Building included on the list of buildings of special architectural or historic interest and afforded statutory protection under the 'Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997' and other planning legislation. Classified categories A – C(s).
Micrositing	The process of positioning individual structures to avoid localised environmental or technical constraints.
Mitigation	Term used to indicate avoidance, remediation or alleviation of adverse impacts.
National Scenic Area (NSA)	A national level designation applied to those landscapes considered to be of exceptional scenic value.
Overhead line (OHL)	An electric line installed above ground, usually supported by lattice steel towers or poles.
Plantation Woodland	Woodland of any age that obviously originated from planting.
Riparian Woodland	Natural home for plants and animals occurring in a thin strip of land bordering a stream or river.

Term	Definition
Route	A linear area of approximately 1 km width (although this may be narrower/wider in specific locations in response to identified pinch points / constraints), which provides a continuous connection between defined connection points.
Routeing	The work undertaken which leads to the selection of a proposed alignment, capable of being taken forward into the consenting process under Section 37 of the Electricity Act 1989.
Scheduled Monument	A monument which has been scheduled by the Scottish Ministers as being of national importance under the terms of the 'Ancient Monuments and Archaeological Areas Act 1979'.
Semi-natural Woodland	Woodland that does not obviously originate from planting. The distribution of species will generally reflect the variations in the site and the soil. Planted trees must account for less than 30% of the canopy composition
Sites of Special Scientific Interest (SSSI)	Areas of national importance. The aim of the SSSI network is to maintain an adequate representation of all natural and semi-natural habitats and native species across Britain.
Span	The section of overhead line between two structures.
Special Area of Conservation (SAC)	An area designated under the EC Habitats Directive to ensure that rare, endangered or vulnerable habitats or species of community interest are either maintained at or restored to a favourable conservation status.
Special Landscape Area (SLA)	Landscapes designated by The Highland Council which are considered to be of regional/local importance for their scenic qualities.
Special Protection Area (SPA)	An area designated under the Wild Birds Directive (Directive 74/409/EEC) to protect important bird habitats. Implemented under the Wildlife and Countryside Act 1981.
Stakeholders	Organisations and individuals who can affect or are affected by SHE Transmission works.
Study Area	The area within which the corridor, route and alignment study takes place.
Terminal Structure	A structure (tower or pole) required where the line terminates either at a substation or at the beginning and end of an underground cable section.
The National Grid	The electricity transmission network in the Great Britain.
Volts	The international unit of electric potential and electromotive force.
Wayleave	A voluntary agreement entered into between a landowner upon whose land an overhead line is to be constructed and SHE Transmission
Wild Land Area (WLA)	Those areas comprising the greatest and most extensive areas of wild characteristics within Scotland.

PREFACE

This Consultation Document has been prepared to seek comments from all interested parties on the Preferred Alignment identified for the proposed Creag Dhubh substation to Dalmally 275kV Overhead Line project.

Public consultation events detailing the proposals described in this document will be held in March 2018; these events will be advertised publicly via traditional printed media, social media and through postal notification.

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

Dalmally	Dalmally Community Centre	Monday 19 th March 2018, 2pm - 7pm
Kilchrenan	Kilchrenan Village Hall	Tuesday 20 th March 2018, 2pm - 7pm
Portsonachan	Portsonachan Village Hall	Wednesday 21 st March 2018, 2pm - 7pm
Taynuilt	Taynuilt Village Hall	Thursday 22 nd March 2018, 2pm - 7pm

Comments on this document should be sent to:

Kelly Scott, by email at kelly.scott@sse.com, or by post to:

Scottish Hydro Electric Transmission plc, Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ.

SHE Transmission request that all consultation responses on this Preferred Route Alignment Consultation Document are received by [27th April 2018](#).

EXECUTIVE SUMMARY

This Consultation Document invites all interested parties to comment on the Preferred Alignment selected by Scottish Hydro Electric Transmission plc (SHE Transmission), which is part of Scottish and Southern Electricity Networks, for a new 13.25 km double circuit 275 kilovolt overhead line, supported by steel lattice towers, to connect between Creag Dhubh substation and Dalmally substation, in Argyll, Scotland.

The existing transmission network serving Argyll was originally designed to serve a rural area with low demand for electricity. Since the introduction of the Scottish Government's renewable energy targets in 2011, requests for grid connections have increased significantly from renewable energy developers, requesting new connections to the electricity network throughout Scotland. This is placing a significant demand on the transmission system. Specific to this project, connections have been requested for further renewable generation throughout Argyll, which exceeds the capacity of the existing transmission system in the area. As a result, a new OHL is required.

SHE Transmission is following a four-stage approach to routeing, as follows:

- Stage 1: Corridor Selection;
- Stage 2: Route Selection;
- Stage 3: Alignment Selection; and
- Stage 4: Consenting Process.

Stage 2 has been completed and a 500 m wide Proposed Route was selected, based on earlier studies and consultation. This Consultation Document describes the Stage 3: Alignment Selection process, which has been used to develop a Preferred Alignment for the OHL.

The Preferred Alignment is considered to represent the optimum balance of technical, economic and environmental considerations, and has been developed with reference to SHE Transmission's license obligations under the Electricity Act 1989. Moving forward, all comments received will inform further consideration of the Preferred Alignment (Stage 3), and the selection of an Indicative Proposed Alignment (Stage 3). The Indicative Proposed Alignment will be taken forward into Stage 4: Consenting Process for more detailed environmental assessment, prior to submission of an application for consent for a Proposed Alignment under section 37 of the Electricity Act 1989.

The purpose of this Consultation Document is to inform stakeholders of the project need, summarise the process followed to arrive at the Preferred Alignment and how and why the Preferred Alignment was selected by SHE Transmission.

1. INTRODUCTION

1.1 Purpose of Document

SHE Transmission (part of Scottish and Southern Electricity Networks) is developing proposals to construct and operate a new 275 kilovolt (kV) overhead transmission line (OHL) between the proposed Creag Dhubh¹ substation (near Ardbrecknish) and the existing substation at Dalmally, in eastern Argyll.

This Consultation Document has been prepared to invite all interested parties to comment on the Preferred Alignment selected. Moving forward, all comments received will inform further consideration of the Preferred Alignment, and the selection of an Indicative Proposed Alignment. The Indicative Proposed Alignment will be taken forward into the consenting process for further, more detailed environmental assessment prior to submission of an application for consent for a Proposed Alignment under Section 37 of the Electricity Act 1989.

1.2 Project Background

SHE Transmission plc is the transmission license holder in the north of Scotland and has the following duties under Section 9 of the Electricity Act 1989:

- to develop and maintain an efficient, co-ordinated and economical system of electricity transmission; and
- to facilitate competition in the generation and supply of electricity.

SHE Transmission also has obligations to offer non-discriminatory terms for connection to the transmission system. As such, SHE Transmission has a legal duty to provide connections for new electricity generators wishing to connect to the transmission network in its licence area under the terms of its statutory and licence obligations. SHE Transmission is obliged to make its transmission network available for these purposes and ensure the system is fit for purpose through appropriate reinforcements to accommodate the contracted capacity.

The existing transmission network serving the eastern Argyll area was originally designed to serve a rural area with low demand for electricity. Requests from renewable generation developers to connect to the electricity transmission network in this area exceed the capacity of the existing transmission network. As a result, a new OHL is required between the proposed Creag Dhubh substation (near Ardbrecknish) and the existing substation at Dalmally substation (see **Figure 2.7**, page 21).

1.3 Indicative Design

The new OHL would be supported by galvanised steel lattice towers, of L8 design. Each tower will have three arms on each side, each supporting an insulator string carrying two conductors (12 conductors in total). An earth wire, containing an optical fibre composite overhead ground wire, would be strung between the tower peaks.

¹ The proposed Creag Dhubh substation was previously known as North Argyll substation, therefore references to North Argyll substation (particularly in relation to titles of reports) should be read as referencing Creag Dhubh.

The specific tower design and span length will vary to account for detailed engineering requirements. Typical tower heights will range from approximately 46 m to 55 m above ground level (AGL), with a typical span length of approximately 300 m.



Typical L8 line tower and (partly behind trees) angle tower

1.4 Structure of this document

The remaining sections of this document are structured as follows:

- Section 2 describes the overall SHE Transmission routeing process and provides a brief overview of the methodology used to select the Preferred Alignment.
- Section 3 describes the Baseline Alignment selected within the Proposed Route, and highlights where alternative alignments (deviations) were considered with reference to environmental, technical and cost criteria. Landowner feedback to the Baseline Alignment was also considered. .
- Section 4 describes the Preferred Alignment and provides a rationale for the selection with reference to environmental, technical and cost criteria.

2. SHE TRANSMISSION ROUTEING PROCESS

2.1 Overview of Routeing Process

In the development of this project, SHE Transmission is following a four-stage approach, as follows:

- Stage 1: Corridor Selection;
- Stage 2: Route Selection;
- Stage 3: Alignment Selection; and
- Stage 4: Consenting Process.

Stage 2 has been completed and a 500 m wide Proposed Route was selected, based on earlier studies and consultation. This Consultation Document describes the Stage 3: Alignment Selection process, which has been used to develop a Preferred Alignment for the OHL.

Each stage in the SHE Transmission routeing process is iterative, bringing cost, technical and environmental considerations together in a way which seeks the best balance at each stage. The Preferred Alignment is considered to represent the optimum balance of technical, economic, and environmental considerations, and has been developed with reference to SHE Transmission's licence obligations under the Electricity Act 1989. SHE Transmission is now seeking feedback on the Preferred Alignment through the publication of this document, before concluding Stage 3. The conclusion of the Stage 3 : Alignment Selection will result in the confirmation of an Indicative Proposed Alignment to be taken forward for Environmental Impact Assessment (EIA).

The four-stage approach is illustrated in the flow chart in **Figure 2.1** below.

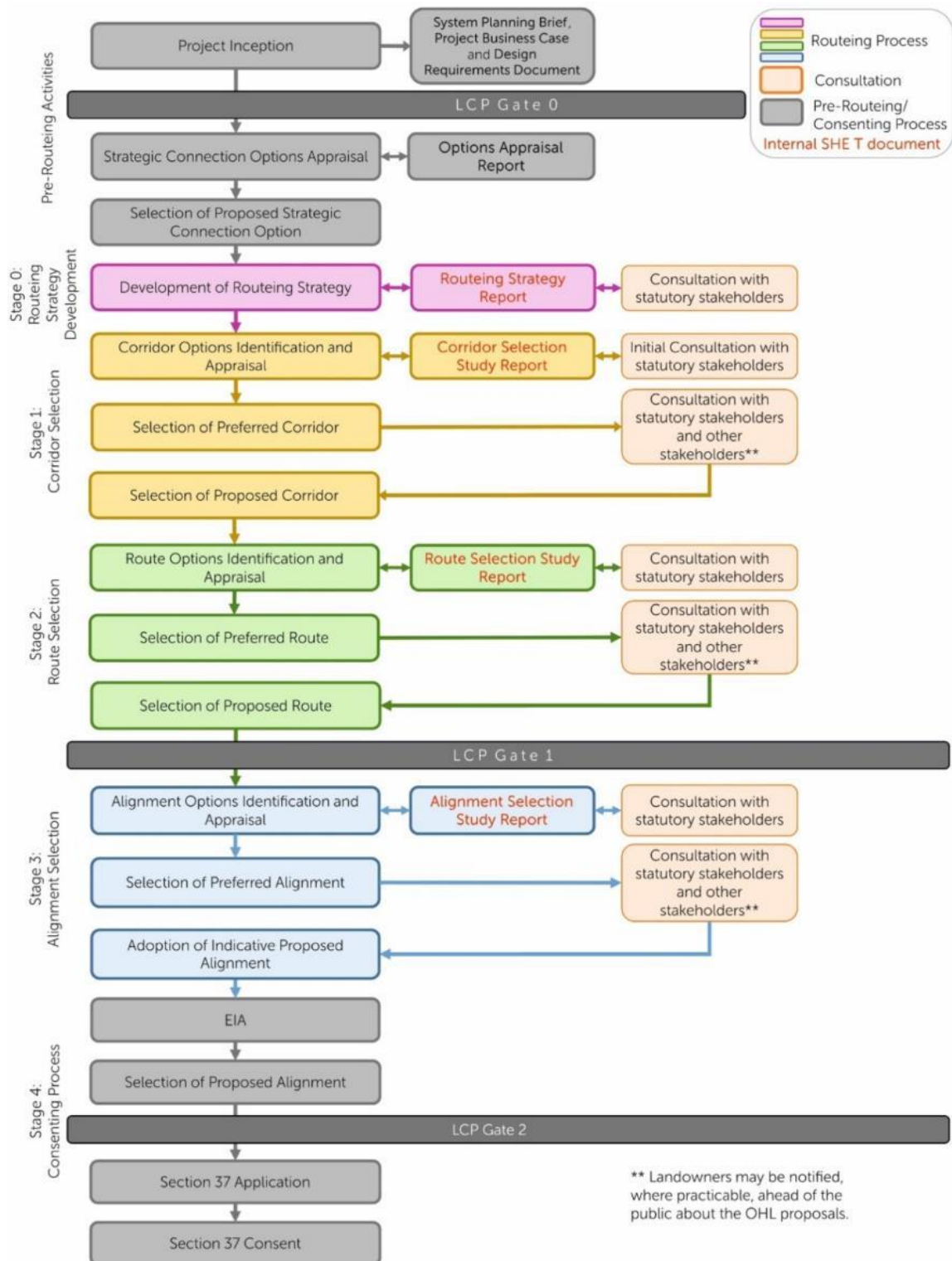


Figure 2.1: The SHE Transmission Approach to OHL Routeing and Key Outputs

This project is currently at Stage 3: Alignment Selection, with Stages 0 – 2 having already been completed.

2.2 Stage 1 – Corridor Selection

The corridor selection process was carried out in 2015. At the start of the process, a Strategic Study Area was identified within which it would be possible to locate potential routes that would be capable of meeting the requirements of the project.

The Strategic Study Area was defined “by taking a straight line between the existing Dalmally substation and the centre point of the preferred North Argyll² Substation Targeted Search Area, and offsetting this by 5 km. This allows a range of route options and tie-in locations to be analysed”.

The Strategic Study Area is illustrated in **Figure 2.2** (overleaf).

Within this Strategic Study Area, baseline studies and walkover site visits were undertaken in April and November 2015 to identify the potential constraints to routeing.

² Now known as “Creag Dhubh substation”

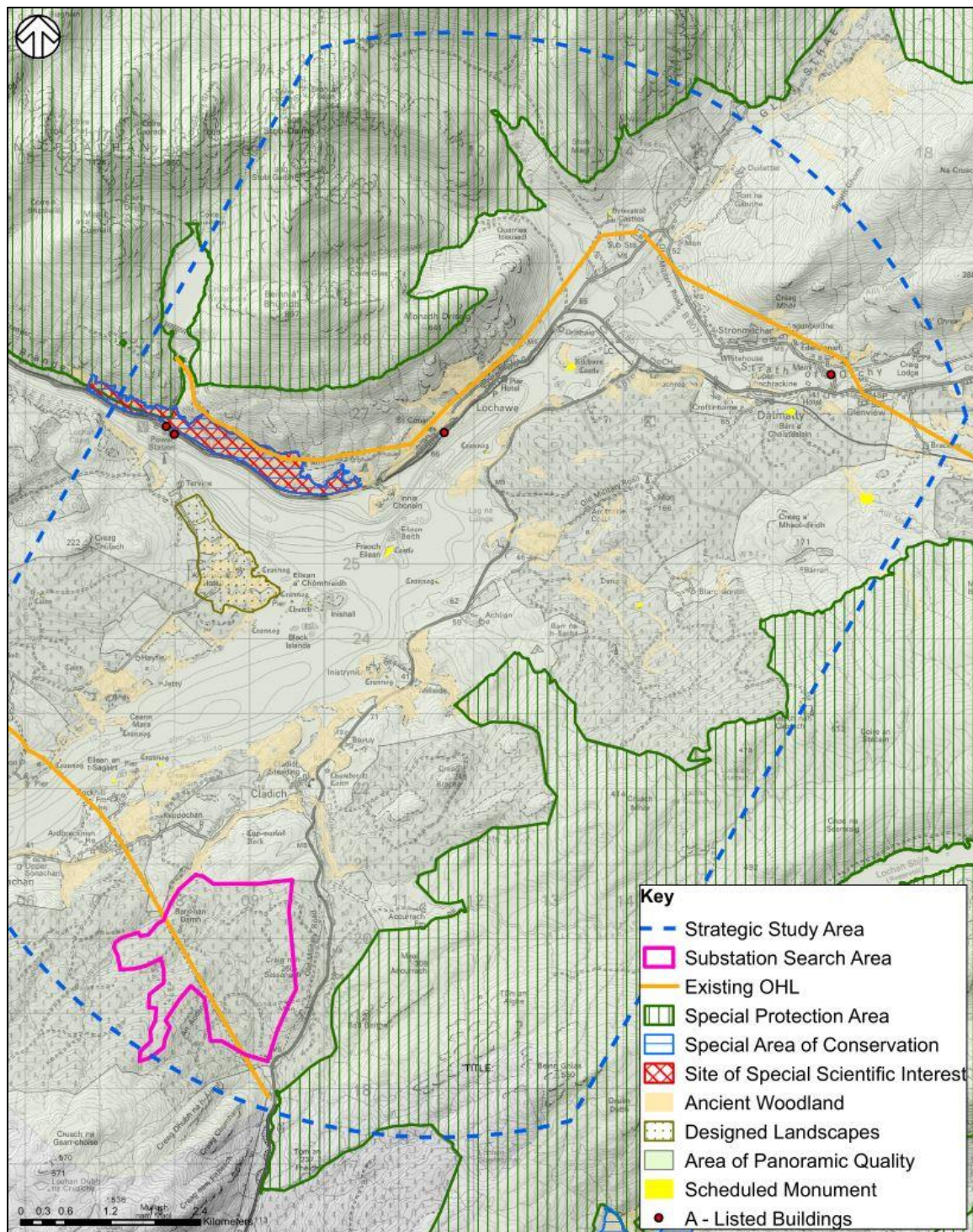


Figure 2.2: Environmental constraints within the Strategic Study Area

In March 2016, SHE Transmission consulted with the public and statutory consultees on a refined corridor within the Strategic Study Area; as shown in **Figure 2.3** below:

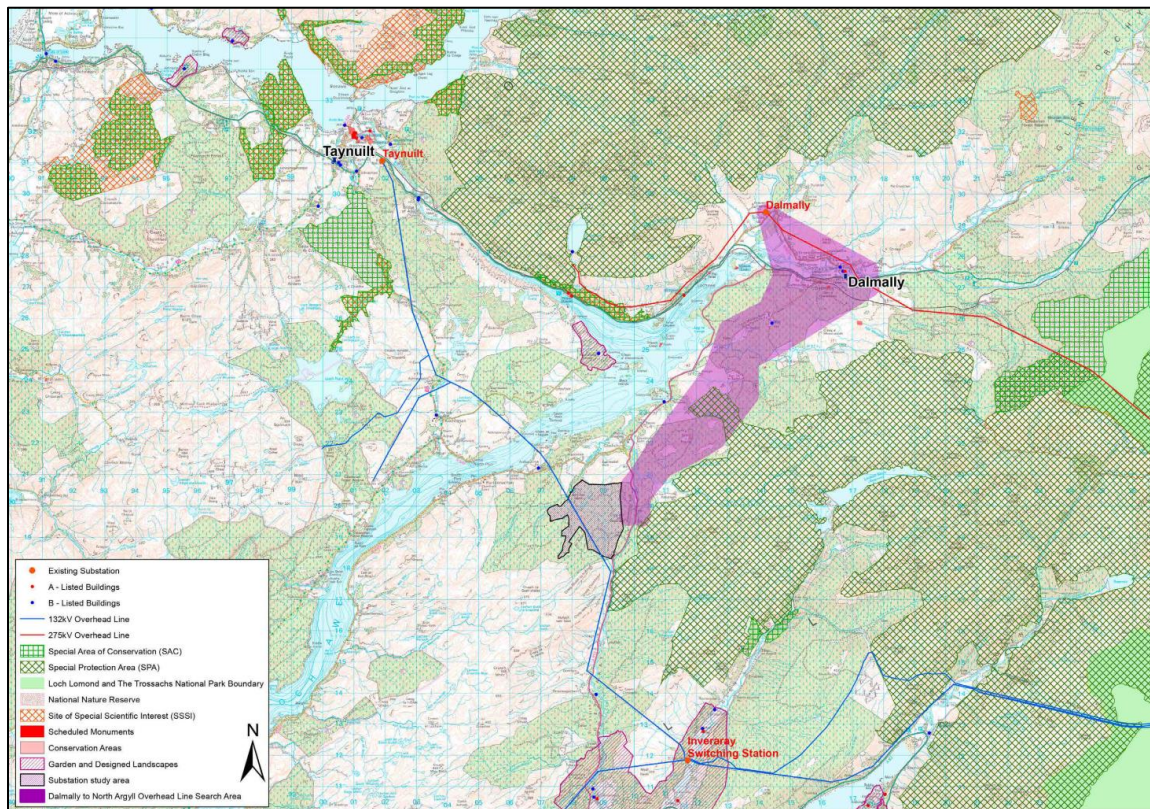


Figure 2.3: Refined Corridor

The results of the route selection stage environmental assessment are described in the Dalmally Substation to North Argyll³ Substation, 275kV Transmission Line, Route Options Appraisal (Ash, 2016).

2.3 Stage 2 – Route Selection

The route selection process was carried out in 2016 and subsequently consulted on in July 2017. From this process, a Proposed Route was selected to be brought forward to the alignment selection stage. A 'Proposed Route' according to the SHE Transmission OHL Routing Guidance is defined as "a route taken forward following stakeholder consultation to the alignment selection stage of the overhead line routing process".

The results of the route selection stage environmental assessment are described in the North Argyll³ to Dalmally Route Selection Study Report (SHE Transmission, 2016).

The route options identified are shown on **Figure 2.4** below

All routes are 500 m in width to allow for the potential for more than one alignment option during later stages of the design process.

³ Now known as "Creag Dhubh substation"

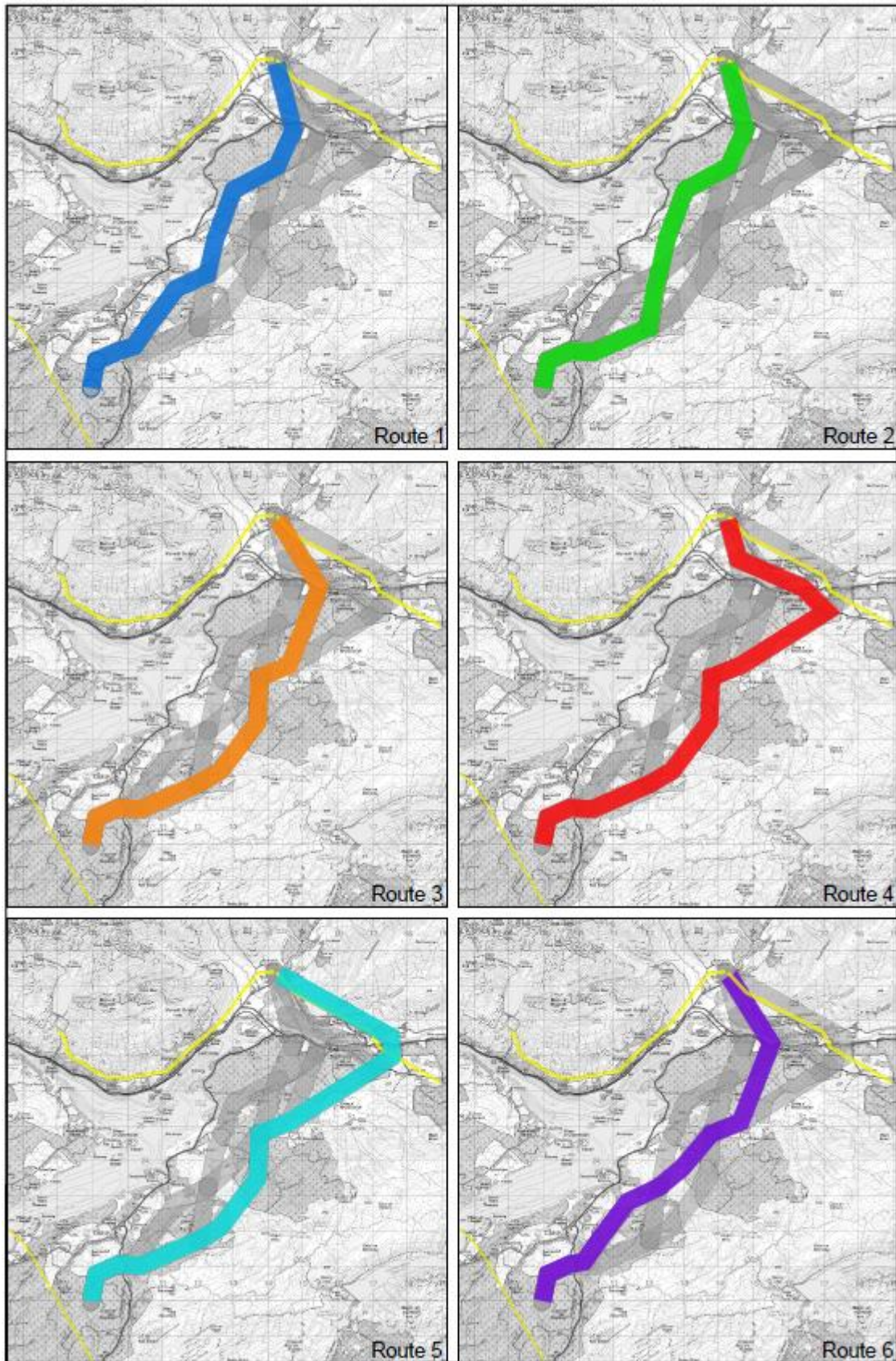


Figure 2.4: Route Options

Route 6 was identified as the overall Preferred Route as shown in **Figure 2.5**.

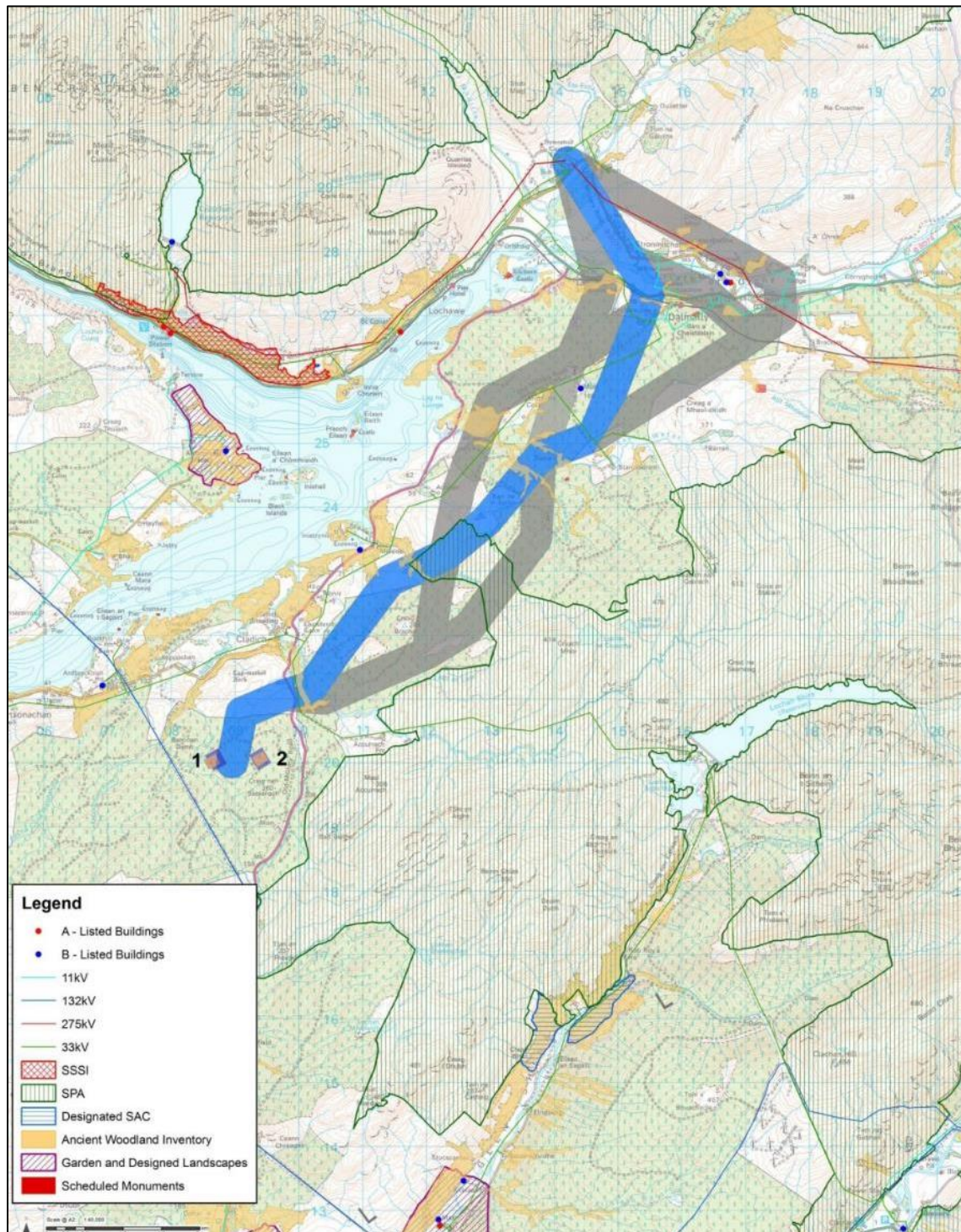


Figure 2.5: Preferred Route

2.4 Stage 3 – Alignment Selection

2.4.1 Overview

The alignment selection has been completed with the aim of developing a Proposed Alignment, within the Proposed Route, which is technically feasible and economically viable and which causes the least disturbance to the environment; and those living in it, working in it, visiting it or using it for recreational purposes.

The approach adopted in developing and accessing alignment options is consistent with relevant SHE Transmission guidance⁴.

The guidance recommends appropriate application of the “Holford Rules” to inform routeing. The Holford Rules⁵ were first developed in 1959 by Sir William Holford and continue to inform transmission line routeing in the UK. These rules advocate the application of a hierarchical approach to routeing which first avoids major areas of highest amenity, then smaller areas of high amenity, and finally considers factors such as backdrop, woodland, and orientation.

In this case, the Holford Rules have been applied to the identification and evaluation of alignment options, from which a Proposed Alignment will be defined. It should be noted that the Holford Rules apply the term ‘amenity’ to refer to environmental designations and classifications such as Natura 2000 sites, Sites of Special Scientific Interest (SSSI), Scheduled Monuments, Listed Buildings, and National Parks.

The guidance also recognises that the key effect of OHLs is visual and it advises that the routeing of OHLs should consider the types of mitigation or screening that could offset any visual effects.

The Holford Rules are reproduced in **Table 2-1**.

⁴ The SHE Transmission Approach to Routeing of Overhead Lines, 2016

⁵ The Holford Rules: Guidelines for the Routing of New High Voltage Overhead Transmission Lines with NGC 1992 and SHETL 2003 Notes

Table 2-1 The Holford Rules (SHE Transmission, 2004)

Rule	Explanation
Rule 1	Avoid altogether, if possible, the major areas of highest amenity value, by so planning the general route of the line in the first place, even if the total mileage is somewhat increased in consequence.
Rule 2	Avoid smaller areas of high amenity value, or scientific interest by deviation; provided that this can be done without using too many angle towers, i.e. the more massive structures which are used when lines change direction.
Rule 3	Other things being equal, choose the most direct line, with no sharp changes of direction and thus with few angle towers.
Rule 4	Choose tree and hill backgrounds in preference to sky backgrounds, wherever possible; and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees.
Rule 5	Prefer moderately open valleys with woods where the apparent height of towers will be reduced, and views of the line will be broken by trees.
Rule 6	In country which is flat and sparsely planted, keep the high voltage lines as far as possible independent of smaller lines, converging routes, distribution poles and other masts, wires and cables, so as to avoid a concatenation or 'wirescape'.
Rule 7	Approach urban areas through industrial zones, where they exist; and when pleasant residential and recreational land intervenes between the approach line and the substation, go carefully into the comparative costs of undergrounding, for lines other than those of the highest voltage.

The SHE Transmission approach to alignment selection is illustrated in **Diagram 2.6** (overleaf). The Alignment Selection study (Stage 3 in the overall routeing process) has comprised a three-step approach, as detailed below:

- Step 1: Identification of Baseline Alignment within the Proposed Route;
- Step 2: Review of Baseline Alignment with reference to environmental and technical criteria; and
- Step 3: Comparative Alignment Analysis
 - Step 3a: Description of Deviations from Baseline Alignment
 - Step 3b: Alignment Option Comparative Analysis and Identification of Preferences

The methodology employed within each of these stages is detailed below.

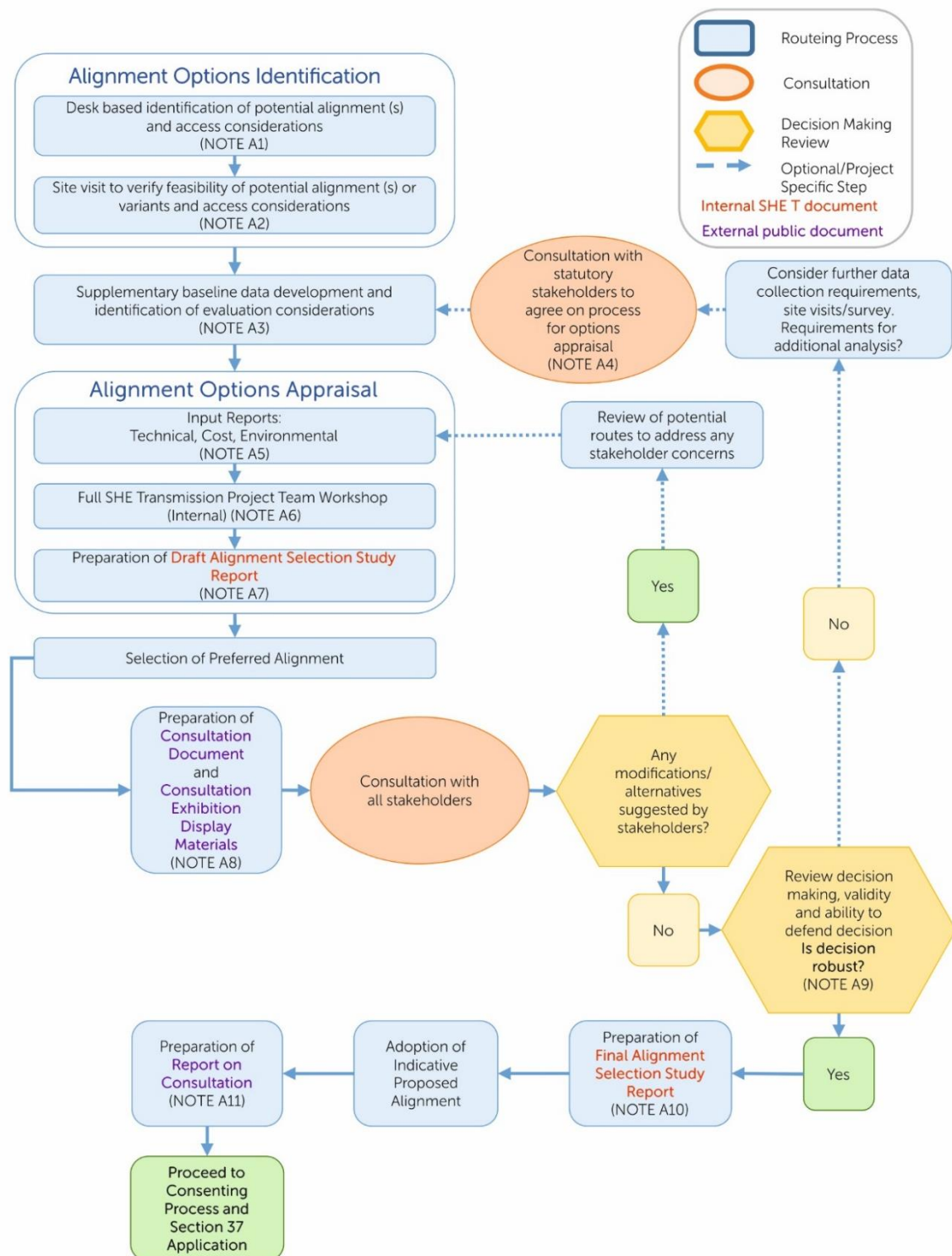


Figure 2.6: The SHE Transmission Stage 3 Alignment Selection Approach

2.4.2 Step 1: Identification of Baseline Alignment

Following the route options appraisal undertaken in November 2017⁶, a 500 m wide Proposed Route was established as the starting point for developing the alignment options.

A Baseline Alignment was developed with the objective to provide the technical (engineering) preference for the OHL based on:

- An initial desktop analysis of provisional angle points; and
- An on-site assessment of the Baseline Alignment and angle points.

The Baseline Alignment aims to provide the optimal alignment within the Proposed Route, taking account of technical criteria (listed in **Table 2-2**). The Baseline Alignment is also considered to represent the base cost option.

Table 2-2 Alignment Options – Technical Appraisal Criteria

Environmental Design	<ul style="list-style-type: none"> • Review of altitude, with a preference for lower altitude within the Proposed Route.
Topography	<ul style="list-style-type: none"> • Review of topography, with a preference for lower gradients and avoiding slope gradients >25% where possible. • Review of topography to identify the potential for ‘galloping’ through laminar wind flow.
Ground Conditions	<ul style="list-style-type: none"> • Review of the subgrade ground conditions based on desktop study or borehole data and geological mapping information. • Site survey to avoid unfavourable ground, such as peat, extensive areas of rocky outcrops and wet areas and water courses/bodies.
Access	<ul style="list-style-type: none"> • Identification of potential access points from the main asphalt roads, requirements for gates, culverts and bridges on the proposed access routes. • Preference for alignment close to existing access routes for ease of operational maintenance of the proposed OHL.
Existing Infrastructure	<ul style="list-style-type: none"> • Review of buildings, roads, public footpaths, existing services and existing LV and HV overhead lines. • Provision of 100 m exclusion zone where possible from all properties.
Existing Network	<ul style="list-style-type: none"> • Provision of at least 50 m separation from existing OHLs.
Operational	<ul style="list-style-type: none"> • Provision of appropriate clearances to various features and crossings at 275kV voltage.

The Baseline Alignment was identified within the Proposed Route, based on the technical criteria set out in **Table 2-2**. The Proposed Route and Baseline Alignment is shown on **Figure 2.7** (and full size in Appendix A).

⁶ North Argyll to Dalmally Route Selection Study Report (SHE Transmission, 2016)

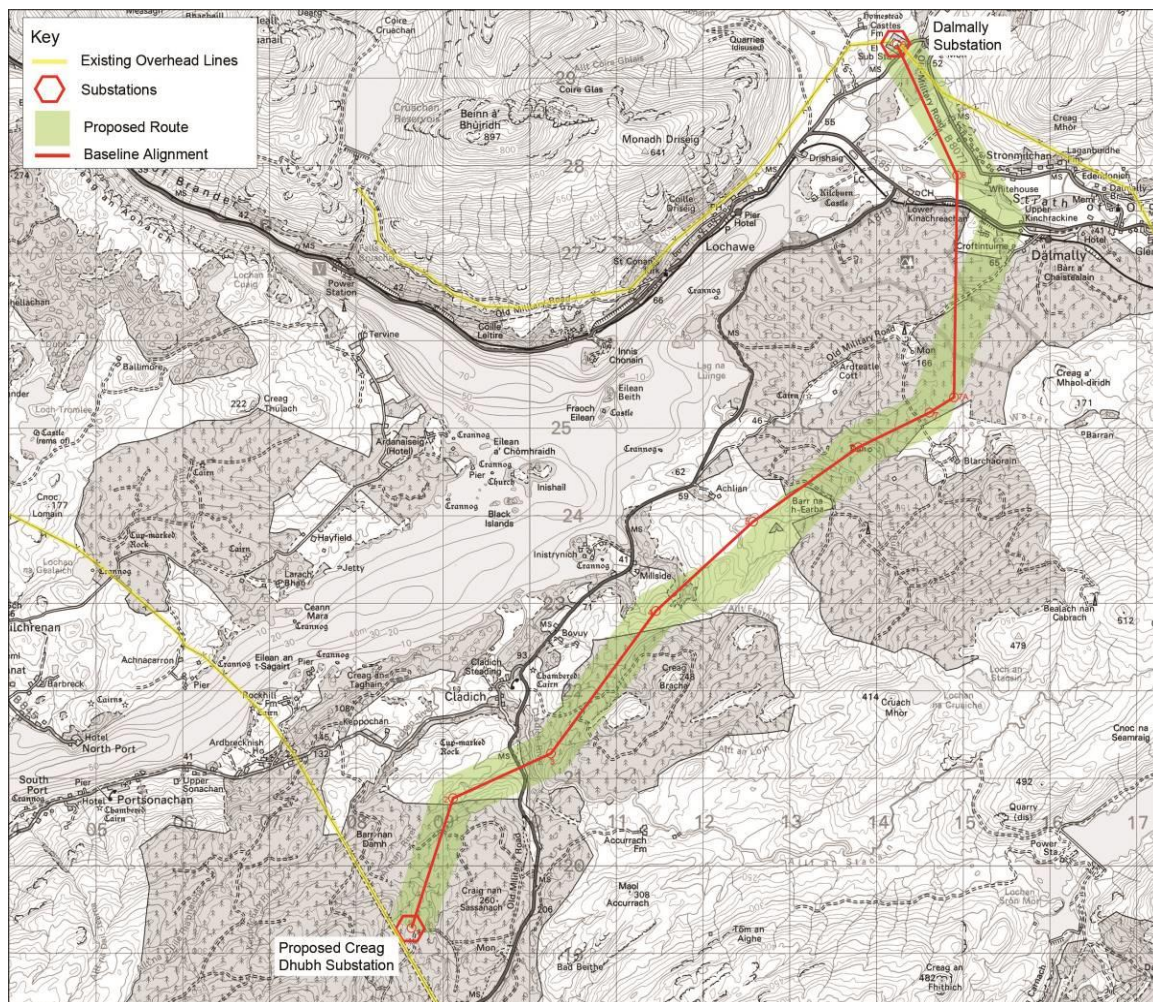


Figure 2.7: Proposed Route and Baseline Alignment

2.4.3 Step 2: Review of Baseline Alignment

A review of the Baseline Alignment was completed based on criteria set out in **Table 2-2** and environmental and cost factors. The environmental features considered in completing the review of the Baseline Alignment are shown on **Figures 2.8 and 2.9** (and full size in Appendix A).

Due to the differences in the potential effects and constraints across the area, the Preferred Route was broken down into two sections:

- Section 1: from the (proposed) Creag Dhubh Substation to Strath Orchy
- Section 2: Strath Orchy to the (existing) Dalmally Substation

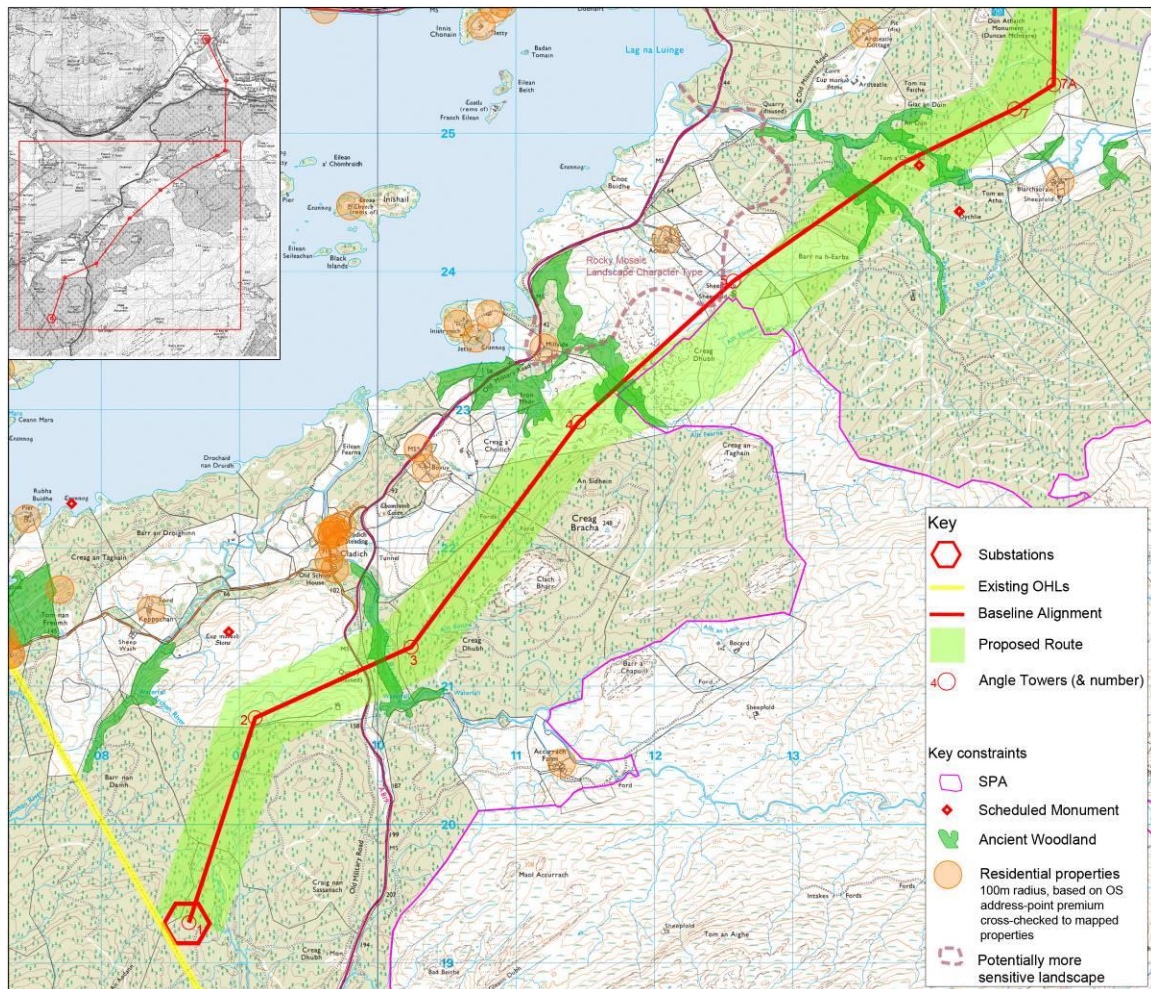


Figure 2.8: Environmental Features Present in Section 1

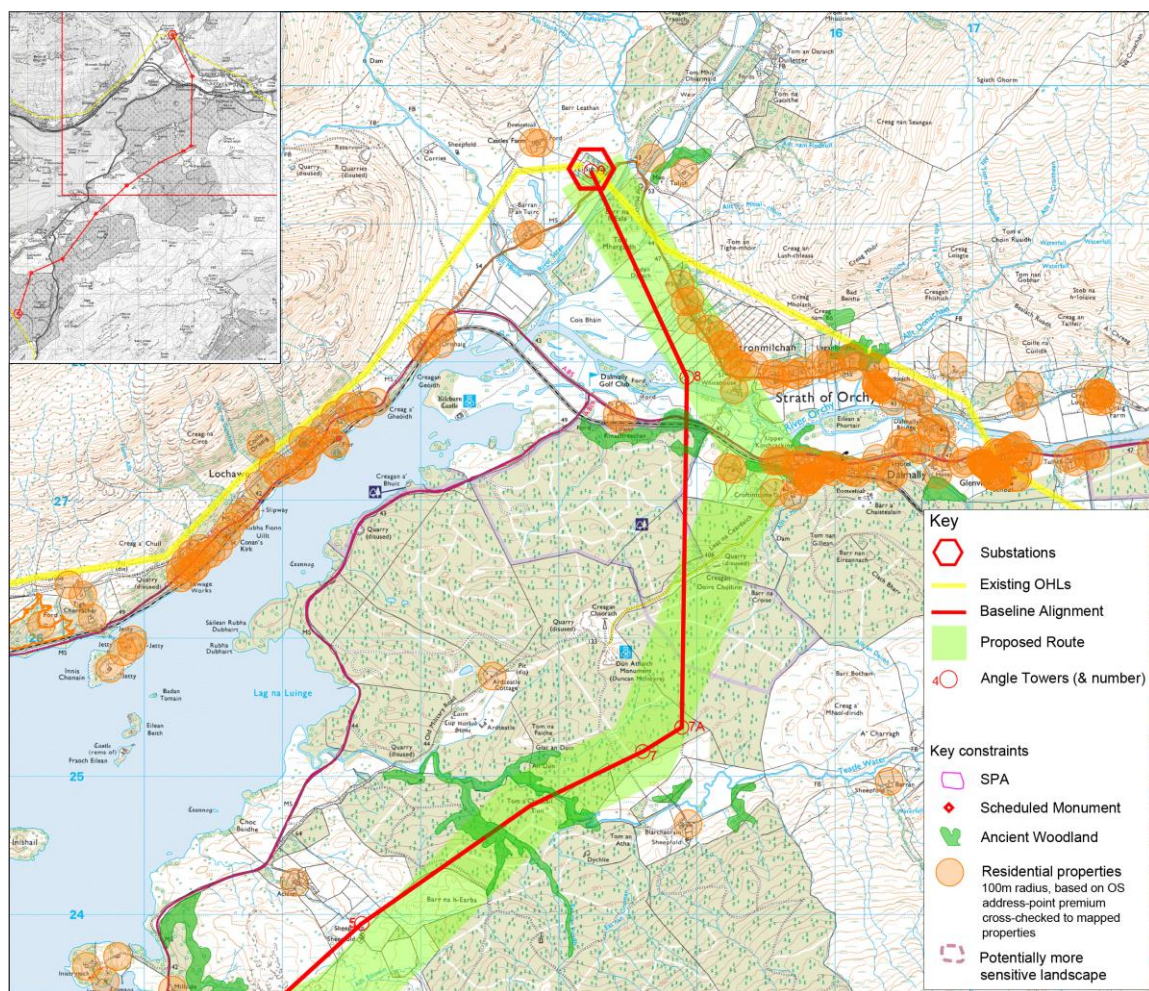


Figure 2.9: Environmental Features Present in Section 2

In areas where no obvious benefits can be derived from alignment options, the Baseline Alignment is normally proposed as the Preferred Alignment. This occurred between Angle Tower (AT) 1 and AT4. However, the landowner in the Cladich area requested the consideration of an alternative approach to Creag Dhubh substation between AT1 and AT3. This is addressed below.

By following the SHE Transmission OHL routing process and the Holford Rules, the area of highest amenity value were avoided in the route selection stage. As a result, the environmental criteria listed below are proportionate to the detail required at alignment selection stage. In some instances, buffers have been applied to designations where the proposed OHL could have an indirect effect on an environmental criterion, for example an OHL could cause setting effects on a scheduled monument from 6km away. The size of the buffer applied to designations varies according to the area in which indirect effects may occur on the designation.

Table 2-3 Alignment Options – Environmental Appraisal Criteria

Natural Heritage	<p>Designations</p> <p>Special Areas of Conservation (SAC) (direct – unless connectivity potential);</p> <p>Special Protection Areas (SPA) (direct and 10 km buffer – depending on notification);</p> <p>Ramsar sites (direct);</p> <p>Sites of Special Scientific Interest (SSSI) (direct and 10 km buffer – depending on notification); and</p> <p>Ancient Woodland Inventory (AWI) (direct).</p> <p>Ornithology surveys for protected bird species were undertaken during the alignment selection process and the results to date were considered in the selection of the alignment.</p> <p>Protected species (animal and plant) will be considered at the EIA stage following complete field surveys.</p>
Cultural Heritage	<p>Designations</p> <p>Scheduled Ancient Monuments (direct and 6 km buffer);</p> <p>Listed Buildings (direct and 6 km buffer);</p> <p>Conservation Areas (direct); and</p> <p>Gardens and Designed Landscapes (GDL) (direct and 2 km buffer).</p>
People	<p>Avoid settlements; and</p> <p>Provision of a 100 m exclusion zone where possible from all properties.</p>
Landscape	<p>Designations</p> <p>National Scenic Area (NSA) (10 km buffer);</p> <p>Areas of Panoramic Quality (APQ) (10 km buffer);</p> <p>Wild Land Areas (10 km buffer); and</p> <p>Sensitive Landscape Character Types.</p>
Land Use	<p>Minimise direct effects on all woodland, and semi-natural and Ancient Woodland in particular.</p> <p>Minimise direct effects on Core Paths, Sustrans Cycle Routes, Scotland's Great Trails and navigable waterways.</p> <p>Minimise visual effects perceived by users of roads and public rights of way.</p>
Planning	<p>Argyll and Bute Local Development Plan (LDP).</p> <p>Consideration of other proposed developments (that are subject of a valid planning application or consent) which may have a cumulative effect on the environment when considered alongside the proposed OHL.</p>

2.4.4 Step 3: Comparative Alignment Analysis

Step 3a: Description of Deviations from Baseline Alignment

Following the identification of the Baseline Alignment, amendments were suggested (hereafter referred to as 'deviations'). These options were largely suggested to address environmental issues, identified during stakeholder and public consultation and the Baseline Alignment review.

Step 3b: Alignment Option Comparative Analysis and Identification of Preferences

The suggested deviations were assessed against the Baseline Alignment in line with the technical and environmental criteria outlined in **Tables 2-2 and 2-3** above.

In addition, the appraisal included a consideration of the potential difference in cost between the options, based on a unit cost per kilometre of overhead line, taking the Baseline Alignment to represent the base cost.

The option (deviation or Baseline Alignment) which, on balance, would represent the optimum balance of cost efficiency, technical feasibility, and environmental considerations was identified for each deviation.

Although cost efficiency is a consideration when determining options and final alignment, for the majority of deviations the cost differences between the Baseline Alignment and the various options has not proven to be the determining factor in selection of a chosen deviation option over the baseline.

3. COMPARATIVE ALIGNMENT ANALYSIS

As described in Section 2, the comparative analysis of deviations to the Baseline Alignment (Step 3) was undertaken by means of the following stepped process:

- Step 3a: Description of Deviations from Baseline Alignment – the potential need for a deviation was identified and suggested deviations from the Baseline Alignment mapped.
- Step 3b: Alignment Option Comparative Analysis and Identification of Preferences – a comparative analysis of Baseline Alignment and identified deviations against environmental, technical, and cost criteria to identify the optimal alignment option.

A detailed review of the comparative analysis of deviation options is reported in the Alignment Selection Report (SHE Transmission, 2017). For the purposes of this consultation document, a brief description is provided to summarise the reasons for selecting the Preferred Alignment in **Table 2-2** and **Table 2-3** above. The description of each deviation is made with reference to the Angle Tower (AT) points, as annotated in **Figure 2.8** and **Figure 2.9**.

In each case the preferred alignment option (either baseline or deviation) was selected following a review of the optimal balance of cost efficiency, technical feasibility, and environmental considerations. Overall, it is noted that the alignment options appraisal is based on a comparative analysis of the options. In the next stage (Consenting Process) the EIA Report will consider the likely significance of environmental effects (in terms of the EIA regulations).

The following sections provide a description and further information on the suggested deviations from the Baseline Alignment and the reasoning for their suggestion. Due to the differences in the potential effects and constraints across the area, the Preferred Route was broken down into two sections:

- Section 1: from the (proposed) Creag Dhubh Substation to Strath Orchy
- Section 2: Strath Orchy to the (existing) Dalmally Substation

Deviations were then identified and assessed within the two areas; ordered systematically travelling from south to north along the Baseline Alignment and numbered accordingly.

Whilst a level of environmental impact is unavoidable when constructing and operating a new overhead line, there were no significant environmental issues identified between AT1 and AT4 that could be noticeably reduced by local realignment. Given the limited environmental sensitivities in this area; no Deviations were required to the Baseline Alignment as any alternative alignment would have similar environmental impacts. Therefore, no Deviations were suggested in this area. However, a local landowner, representing the residents of Cladich, proposed an alternative alignment which they believe would be preferable in terms of visual appearance. At the time of the request, this Consultation Document had not been issued, so it was decided that the proposal should be assessed and included here, prior to the Public Exhibitions.

3.1 Deviation 1: Loch Awe side (AT4-AT7)

Deviation 1 was proposed in the Loch Awe area, as per **Figure 3.1** (full size in Appendix A).

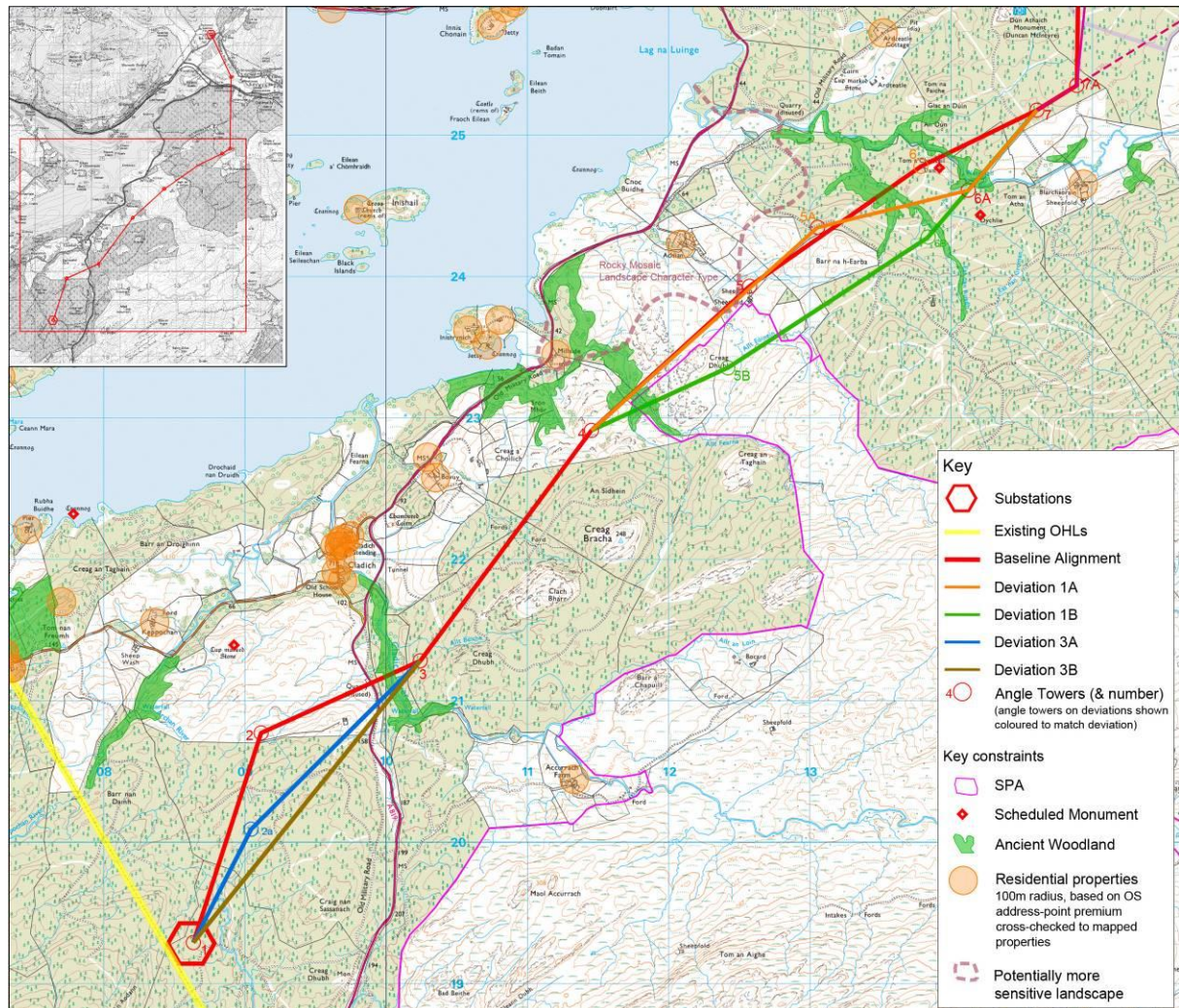


Figure 3.1: Loch Awe side

Table 3-1 discusses the assessment of Deviation 1.

Table 3-1 Deviation 1 – Loch Awe side (Figure 3.1)

Need	As noted in the Consultation Document ⁷ , the area between AT4 and AT7 incorporates the area where impacts relating to landscape and ornithology converge. This “pinch point” is in relation to the Rocky Mosaic LCT (landscape) and the Glen Etive and Glen Fyne SPA (ornithology). In addition, Deviations were sought to avoid the potential for effects upon the setting of Tom a’Chaisteal Dun Scheduled Monument and direct effects on the ancient woodland lining the banks of the various burns that cross the area.
Baseline Alignment (AT4-AT7)	Environmental – The Baseline Alignment avoids crossing the SPA, but passes close to Tom a’Chaisteal Dun Scheduled Monument, with AT6 less than 150 m from the scheduled monument, in the direct view from it to Loch Awe. Technical – The Baseline Alignment traverses across open upland with rock formation that is visible on the surface in places. The Baseline Alignment crosses Barr na h-Earba to the north, various watercourses, forestry tracks, and would require a low voltage line to be crossed.
Deviation 1 Option 1A Changes from Baseline Alignment	<p>Deviation 1A was developed to reduce the setting impact on Tom a’Chaisteal Dun; whilst still avoiding the SPA. It follows very close to the Baseline Alignment from AT4 to AT5, but moves AT5 some 600 m northeast to a new location (AT5A) beside a forestry track north of the low summit of Barr na h-Earba. It then heads slightly north of east to a new tower location (AT6A) above the left bank (in direction of flow) of the Teatle Water, southwest of Tom a’Chaisteal Dun. From there it heads northeast to AT7.</p> <p>Environmental – Deviation 1A avoids crossing the SPA and passes ‘behind’ the Tom a’Chaisteal Dun Scheduled Monument, away from the view to the loch and at a greater distance, reducing the potential effect on its setting. In terms of effect on people, Deviation 1A would have a slightly greater visual effect at Blarchorain than the Baseline Alignment.</p> <p>Technical – No change to constraints as identified for the Baseline Alignment other than overall length.</p> <p>Cost – 102% of Baseline cost</p>

⁷ SHE Transmission (2017) Route Selection Consultation Document, June 2017

<p>Deviation 1 Option 1B Changes from Baseline Alignment</p>	<p>Deviation 1B was developed to seek to reduce visibility from the Loch Awe-side area, reduce the effects on the Rocky Mosaic LCT and to reduce the setting impact on Tom a'Chaisteal Dun. The Deviation heads east northeast from AT4 to a new angle tower position (AT5B) southeast of the low hill of Creag Dhubh. It then runs almost parallel to the Baseline Alignment, but some 400 m to the southwest, to a new angle tower position (AT6B) on the left bank of the Eas nan Ruadh, before heading northeast to follow the line of Deviation 1A to AT7.</p> <p>Environmental – Deviation 1B takes a line that better fits the landscape locally but in doing so crosses the SPA. Deviation 1B passes 'behind' the Tom a'Chaisteal Dun Scheduled Monument, away from the view to the loch and at a greater distance, reducing the potential effect on its setting. Deviation 1B is slightly further away from the monument and thus preferred over 1A.</p> <p>In terms of effect on people, Deviation 1B would have a slightly greater visual effect at Blarchorain, but would have a slightly lesser effect on views from the A819 (than the Baseline Alignment or 1A).</p> <p>In landscape terms, Deviation 1B is locally a better 'landscape fit' but overall the difference between the three options is not substantial.</p> <p>Technical – No change to constraints as identified for the Baseline Alignment other than overall length.</p> <p>Cost - 101% of Baseline cost</p>
<p>Summary of Preferred Alignment</p>	<p>Environmental – Deviation 1A is distinctly preferred because it has a reduced effect on the Scheduled Monument, whilst not introducing the consenting issue of physically crossing the SPA caused by Deviation 1B.</p> <p>Technical – the Baseline Alignment is preferred because it is straighter and shorter in alignment enabling greater flexibility in stringing locations.</p> <p>Cost – The Baseline Alignment is the most economical.</p> <p><i>Deviation 1A presented the optimum alignment on balance, given the considerable environmental advantages (compared with the Baseline Alignment) and the comparatively small technical and cost implications.</i></p>

3.2 Deviation 2: Strath of Orchy (AT7-AT9)

Deviation 2 was proposed in the Strath of Orchy area, as per **Figure 3.2** (and full size in Appendix A).

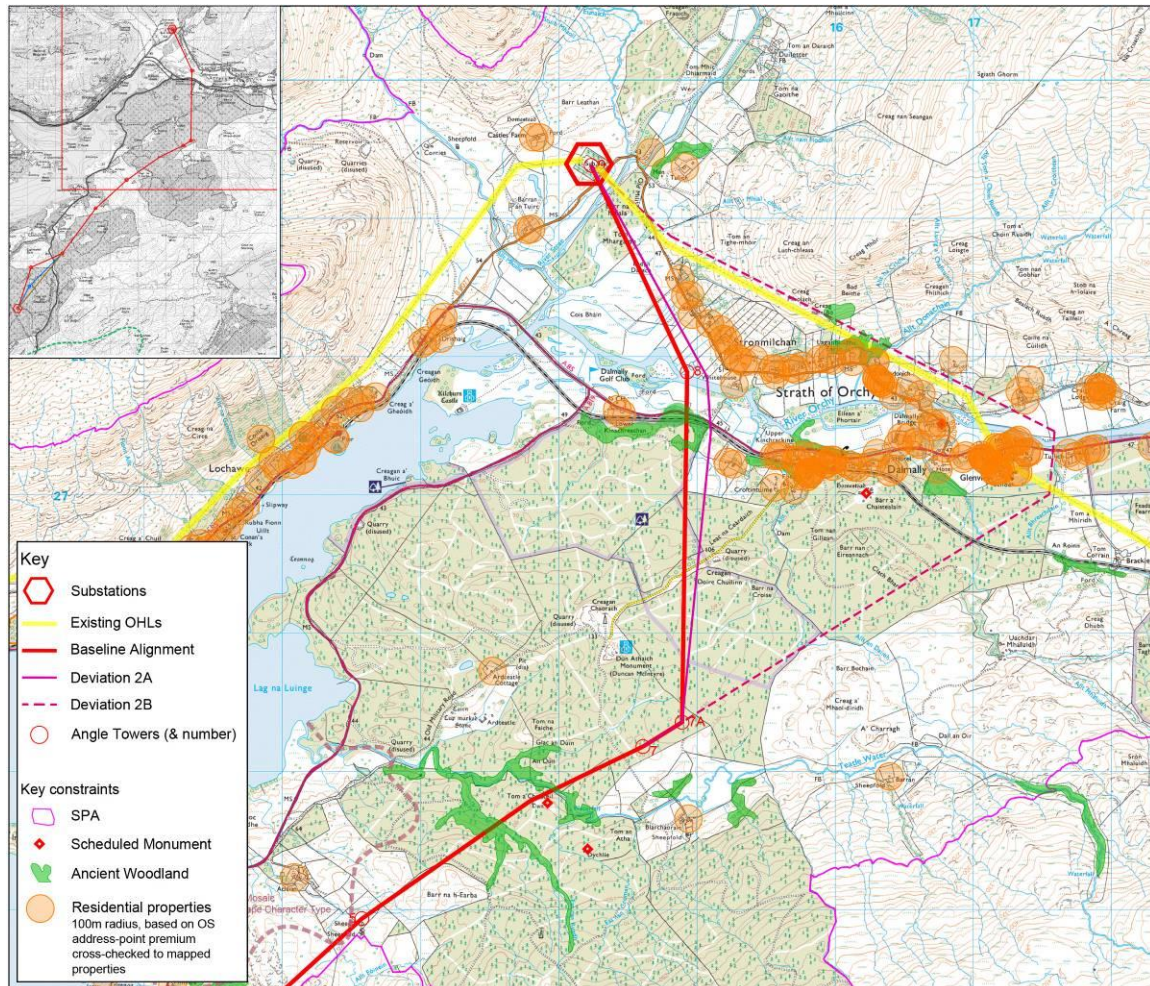


Figure 3.2: Strath of Orchy

Table 3-2 discusses the assessment of Deviation 2.

Table 3-2 Deviation 2 – Strath of Orchy (Figure 3.2)

Need	<p>As noted in the Consultation Document⁸, all of the route options in this area were considered likely to result in landscape effects due to the high value of the landscape (as recognised by its designation in the Local Development Plan) and its sensitivity to the scale of overhead line development proposed.</p> <p>Similarly all route options were considered likely to result in visual effects because of the proximity of sensitive visual receptors – Dalmally, Stronmilchan and Croftintuime, tourists on the A85 and Oban railway, visitors to Kilchurn Castle and recreational users on the surrounding hills.</p> <p>In addition, all options would have cumulative landscape and visual effects with the existing 275kV line from Dalmally to Glenfalloch.</p> <p>Finally, an area of ancient woodland is located south of the A85 and the railway.</p>
Baseline Alignment (AT7-AT9)	<p>Environmental – The Baseline Alignment passes mainly through habitats of relatively low ecological value; other than an area of Ancient Woodland just south of the A85 and the railway line.</p> <p>The Baseline Alignment would be visible from Kilchurn Castle but in wider landscape views, filtered by the trees along the A85, the railway and the river banks, and back-clothed by the hillside. The Baseline Alignment passes east of the Duncan Ban McIntyre Memorial monument, with Deviation 2B having less of a risk of an effect because it would be at a greater distance.</p> <p>The Baseline Alignment, across the Strath of Orchy, is a reasonably good 'landscape fit' in terms of the Holford Rules, following the edge of the valley such that whilst the OHL would substantially affect the landscape very locally, it would have a relatively limited effect on the wider landscape.</p> <p>The Baseline Alignment has the potential to cause significant adverse visual effects on the properties in Stronmilchan positioned to take advantage of the view down the Strath of Orchy and therefore the potential to adversely affect their residential amenity.</p> <p>Technical – Sections of the Baseline Alignment north of the A85 are within an area of high flood risk and areas of peat deposits. However, flood risk and hydrological issues were not a determining factor, as there are no options that avoid river crossings or areas at risk of flooding.</p> <p>The Baseline Alignment is the shortest and most direct route requiring fewer angle and suspension towers.</p>
Deviation 2 Option 2A Changes from Baseline Alignment	<p>Deviation 2A runs slightly east of the Baseline Alignment, to avoid the ancient woodland immediately south of the A85 and the railway. In order to maintain a reasonably direct crossing of the road, railway and river, this moves AT8 east some 150 m and introduces an additional angle tower just south of the railway.</p> <p>Environmental – Deviation 2A passes mainly through habitats of relatively low ecological value. The upper portions of Deviation 2A would be visible from Kilchurn Castle, but as per the Baseline Alignment, these would be in wider landscape views and filtered by existing screening.</p> <p>The crossing of the Strath is a similarly good 'landscape fit' in terms of the Holford Rules. Deviation 2A also has the potential to cause significant adverse visual effects on the properties in Stronmilchan positioned to take advantage of the view down the Strath of Orchy and therefore the potential to adversely affect their residential amenity.</p>

⁸ SHE Transmission (2017) Route Selection Consultation Document, June 2017

	<p>In land use terms, Deviation 2A is the preference; although all options would result in a requirement for tree-felling/clearance.</p> <p>Technical – No change to constraints as identified for the Baseline Alignment other than overall length.</p> <p>Cost - 102% of Baseline cost</p>
Deviation 2 Option 2B Changes from Baseline Alignment	<p>Deviation 2B follows Route Option A3 as shown in the Route Consultation Document, in order to pass across the hillside above and to the rear of Stronmilchan rather than in the main prospect from the properties affected by the Baseline Alignment. From AT7 it continues in a direct line to just south of the existing Scottish Power 275kV OHL at Glenview, then turns north to cross the Strath close to the Community Centre. It then turns sharply west on the north bank of the River Orchy to run parallel to, and above, the existing 275kV OHL to Dalmally Substation.</p> <p>Environmental – Deviation 2B also runs through areas of relatively low ecological value, although it also runs near a single record of lekking black grouse. From a Cultural Heritage perspective, Deviation 2B is preferred as it would be further from the Castle. However it would be more clearly visible above the existing 275kV OHL across the hillside. All three options pass east of the Duncan Ban McIntyre Memorial monument, with Deviation 2B having less of a risk of an effect because it would be at a greater distance. Deviation 2B would be prominently located on the higher mountainside, likely to appear out of place and, cumulatively with the existing 275kV line, form a detracting feature within the APQ. Building this line would require access tracks cut into the hillslope which would be difficult to reinstate. It is also likely to appear prominent where it crosses the Strath of Orchy by the Community Centre at Glenview. Deviation 2B is less likely to affect residential amenity but would be prominent from in wider views and would be intrusive at Glenview. From a planning perspective, the Deviation 2B is less preferable as it traverses an area of the best agricultural land; which is protected via planning policy.</p> <p>Technical – Deviation 2B traverses the steep slopes on the northern side of Strath Orchy. This will likely lead to construction difficulties and potentially highly visible access routes.</p> <p>In addition, a 275kV transmission line owned by Scottish Power Energy Networks crosses Deviation 2B at Glenview and runs parallel within Deviation 2B corridor from south of Craig Lodge to Dalmally substation. The technical preference would be to avoid crossing the 275kV OHL.</p> <p>Cost - 116% of Baseline cost</p>
Summary of Preferred Alignment	<p>Environmental – Deviation 2A is preferred because it avoids impacting on the ancient woodland and would not increase the other environmental impacts associated with the Baseline Alignment.</p> <p>Technical – the Baseline Alignment is preferred because it is straighter and shorter in alignment enabling greater flexibility in stringing locations; and as it avoids crossing the 275 kV OHL.</p> <p>Cost – The Baseline Alignment is the most economical.</p> <p><i>Deviation 2A presented the optimum alignment on balance, given the considerable environmental advantages (compared with the Baseline Alignment) and the comparatively small technical and cost implications.</i></p>

3.3 Deviation 3: Approach to Creag Dhubh substation

Deviation 3 was proposed in the area south of Cladich, as per **Figure 3.1 above** (and full size in Appendix A).

Table 3-3 discusses the assessment of Deviation 3.

Table 3-3 Deviation 3 - south of Cladich (Figure 3.1)

Need	A local landowner, representing the residents of Cladich, proposed an alternative alignment which they believe would be preferable in terms of visual appearance. At the time of the request, this Consultation Document had not been issued, so it was decided that the proposal should be assessed and included here, prior to the Public Exhibitions.
Baseline Alignment (AT1-AT3)	<p>Environmental – The baseline alignment has been routed to follow the form of the underlying landscape across gently falling land in the forest towards AT2, then down a shallow valley to cross the A819 and the Cladich River valley directly to AT3. In doing so it reduces the potential wider visibility of the towers and lines and thus its potential effect on people and on the setting of the Keppoch SM. However, about 900 m of the alignment are close to potential water vole habitat and it passes some 500 m from a black grouse lekking site</p> <p>Technical – sections of the baseline alignment to the east of the A819 road are within an area of high flood risk from Cladich River. Two angle towers are required, one D30 and one D60 with a total length of approximately 2795 m</p>
Deviation 3 Option 3A Changes from Baseline Alignment	<p>Deviation 3A was proposed to reduce the effect on the people of Cladich. It runs to the east of to the Baseline Alignment moving AT2 some 700 m south to a new location (AT2A) so that more of the route runs through forestry and is further from Cladich.</p> <p>Environmental – Deviation 3A avoids the marshy valley, reducing the potential for effect on water vole and is further from the black grouse lekking sites. However, it would be a inferior landscape fit and, running further across higher ground has the potential to be more widely visible to people (from Cladich and the A819) and to have a greater effect on the setting of the Keppoch SM.</p> <p>Technical – sections of the alignment deviation 3A to the east of the A819 road are within an area of high flood risk from Cladich River. Two tension angle towers are required, one D10 and one D60 with a total deviation length of approximately 2590 m.</p> <p>Cost – 92% of Baseline cost</p>
Deviation 3 Option 3B Changes from Baseline Alignment	<p>Deviation 3B is an engineering simplification of Deviation 3A, running directly from AT1 to AT3 (renumbered AT2).</p> <p>Environmental – Deviation 3A also avoids the marshy valley, reducing the potential for effect on water vole and is further still from the black grouse lekking sites. However, it would be a worse landscape fit and, running higher still has the potential to be more widely visible to people (from Cladich and the A819) and to have a greater effect on the setting of the Keppoch SM.</p> <p>Technical – sections of the alignment to the east of the A819 road are within an area of high flood risk from Cladich River. One tension angle tower is required, a D10 with a total deviation length of approximately 2560 m.</p> <p>Cost – 93% of Baseline cost</p>
Summary of Preferred Alignment	<p>Environmental – The Baseline Alignment is preferred because it has a better 'landscape fit' in accordance with the Holford Rules and less potential for effects on people and cultural heritage. It raises some natural heritage concerns</p>

	<p>regarding water vole in particular but can be addressed by micro-siting and ensuring a 30 m buffer from all watercourses.</p> <p>Technical – Deviation 3b is preferred as it is the shortest option.</p> <p>Cost – Deviation 3A is preferred as it is the most economical.</p> <p><i>The Baseline Alignment presented the optimum alignment on balance, given the considerable environmental advantages and the comparatively small technical and cost implications.</i></p>
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4. PREFERRED ALIGNMENT AND NEXT STEPS

4.1 Summary of Preferred Alignment

The Preferred Alignment is illustrated on **Figure 4.1** (and full size in Appendix A). This includes the deviations accepted in the previous section.

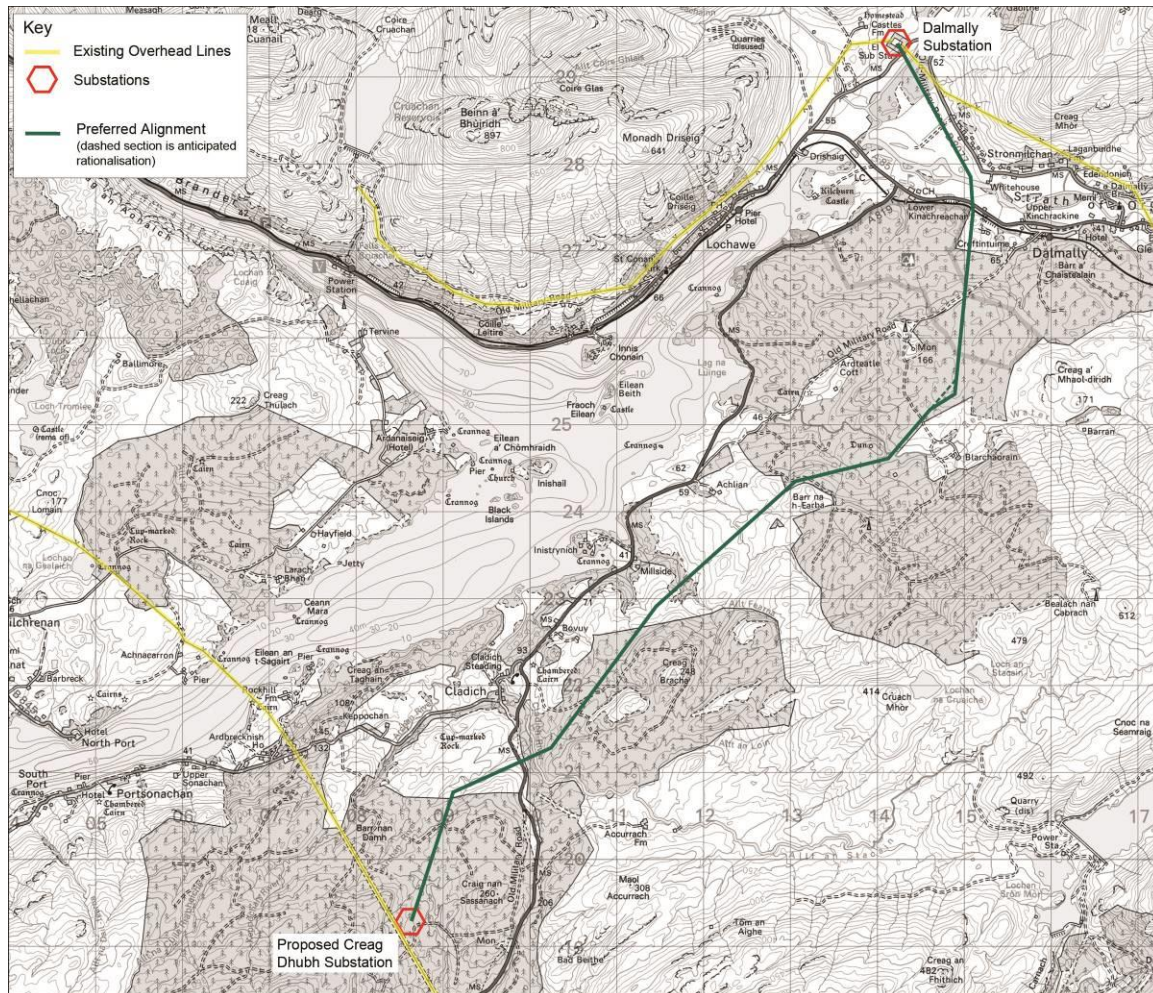


Figure 4.1: The Preferred Alignment

4.2 Summary of Next Steps

4.2.1 Summary of Consultation Process

SHE Transmission places great importance on and is committed to consultation and engagement with all parties likely to have an interest in proposals for new OHL projects.

This Consultation Document is a publicly available document which facilitates consultation on the Preferred Alignment. Its purpose is to inform stakeholders of the project need, summarise the process followed to arrive at the Preferred Alignment and how and why the Preferred Alignment was selected by SHE Transmission.

A Report on Consultation will be produced following consultation. Its purpose is to record the stakeholder feedback received during the consultation process, explain how SHE Transmission have responded and, how it has informed the selection of the Indicative Proposed Alignment.

4.2.2 Selection of Indicative Proposed Alignment

All comments received from consultees will inform further consideration of the Preferred Alignment. Suggested changes will be accepted or rejected which will result in the selection of an Indicative Proposed Alignment. It may not always be the case that a particular comment or request can be incorporated into the option selection or design. Where this is the case, the decision will be clearly explained. The selection of the Indicative Proposed Alignment will be documented in a Report on Consultation which will be made available to consultees. The Report on Consultation will confirm the Indicative Proposed Alignment that will be taken through the consenting process.

4.2.3 EIA and Consents

The Indicative Proposed Alignment will be taken forward to the consenting process for more detailed environmental assessment via an EIA, prior to the submission of an application for consent under section 37 of the Electricity Act 1989.

4.2.4 Timeline

Comments on this document should be sent to:

Kelly Scott, by email at kelly.scott@sse.com, or by post to: Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ.

Public consultation events detailing the proposals described in this document will be held in March 2018, these events will be advertised publicly via traditional printed media, social media, and through postal notification.

SHE Transmission requests that all consultation responses on the Preferred Alignment are received by [27th April 2018](#).

APPENDIX A: FIGURES