Scottish & Southern Electricity Networks

Consultation Document – Alignment Selection

Tangy IV Wind Farm and Cnoc Buidhe Wind Farm 132 kV OHL Shared Use Connection

September 2024

REF: LT337 and LT404

Rev	Prepared By	Checked By	Approved By	Date of Issue
01	Various	CLH	MR	29/07/2024
02	Various	CLH	MR	09/08/2024
03	Various	CLH	MR	29/08/2024
04	Various	CLH/AG	AT	09/09/2024

Scottish & Southern Electricity Networks

CONTENTS

Appendices

Figures

GLOSSARY

Term	Definition
Alignment	A centre line of an overhead line (OHL), along with location of key angle structures.
Alignment (potential)	A centre line of an overhead line (OHL), along with location of key angle structures taken forward to stakeholder consultation following a comparative appraisal of alignment options.
Alignment (proposed)	A centre line of an overhead line (OHL), along with location of key angle structures taken forward following stakeholder consultation to the EIA stage of the overhead line routeing process.
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.
Ancient Woodland Inventory (AWI)	Provisional guide to the location of Ancient Woodland located in Scotland.
Biodiversity Net Gain (BNG)	BNG is an approach to development that makes sure that habitats for wildlife are left in a measurably better state than they were before the development.
Cable Sealing End Compound (CSEC)	A compound that houses a cable sealing end which allows electricity to flow from an overhead line to an underground cable and vice versa.
Cable Sealing End Platform (CSEP)	A platform upon which a cable sealing end can be situated to allow electricity to flow from an overhead line to an underground cable and vice versa.
Construction Environmental Management Plan (CEMP)	A CEMP outlines how a developer will minimise any negative environmental impacts of a specific construction project. A CEMP also demonstrates that a construction project complies with any relevant environmental legislation.
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 project decision making.
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 (Environmental Impact Assessment) (Scotland) Regulations 2017 used to systematically identify, predict and assess the likely significant environmental impacts of a proposed project or development and identify appropriate mitigation measures to avoid, prevent, reduce or offset likely significant adverse effects on the environment.
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.
Groundwater dependent terrestrial ecosystems (GWDTE)	Wetlands such as springs, flushes and fens which are fed by groundwater rather than rainfall or surface runoff.
Habitat	Term most accurately meaning the place in which a species lives, but also used to describe plant communities or agglomerations of plant communities.
Habitat Map of Scotland (HABMoS)	It is the national repository for habitat and land use data. The map adopts internationally recognised data and habitat classification standards.
Important Bird Area (IBA)	Area identified as being globally important for the conservation of birds.
Inventory battlefield	Record of battlefields and the reasons for their national importance.
Kilovolt (kV)	One thousand volts.
Limit of Deviation (LoD)	Maximum extent or buffer within which a development or measurement can be built or made.

Term	Definition
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.
Micro-siting	The process of positioning individual structures to avoid localised environmental or technical constraints.
Mitigation	Term used to indicate avoidance, remediation or reduction of likely significant adverse effects on the environment (see definition of EIA).
National Scenic Area (NSA)	A national level designation applied to those landscapes considered to be of exceptional scenic value.
Ornithology	Scientific study of birds.
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.
Ramsar	Wetland site designated to be of international importance under the Ramsar Convention.
Riparian Woodland	Natural home for plants and animals occurring in a thin strip of land bordering a stream or river.
Route	A linear area of approximately 1 km width (although this may be narrower/wider in specific locations in response to identified pinch points / constraints), which provides a continuous connection between defined connection points.
Route (preferred)	A route for the overhead line taken forward to stakeholder consultation following a comparative appraisal of route options.
Route (proposed)	A route taken forward following stakeholder consultation to the alignment selection stage of the overhead line routeing process.
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'.
Section 37 (S37)	Applications for consent to construct and operate new overhead lines are made under Section 37 of the Electricity Act 1989 in Scotland.
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
Site and Monument Record (SMR)	A list of known archaeological sites held by each county or unitary authority in the UK.
Site 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 Argyll and Bute 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 79/409/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.

Term	Definition
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.
Town and Country Planning Act 1997 (TCPA)	Applications for consent for various types of developments are made under the Town and Country Planning Act 1997 in Scotland.
Underground cable (UGC)	An electric cable that is buried below the ground.
Volts	The international unit of electric potential and electromotive force.
Wirescape	Scenary or landscape that is dominated by over-head wires and pylons.
World Heritage Sites (WHS)	Landmarks or areas legally protected by an international convention administered by the United Nations Educational, Scientific and Culture Organization (UNESCO).
Zone of Influence (ZoI)	Area identified within which there is the potential for impacts upon a receptor.

1. INTRODUCTION

1.1 Purpose of the Document

This Consultation Document invites comments from all interested parties on the Potential Alignment identified for the construction of a new 132 kilovolt (kV) connection with a combination of both overhead line (OHL) and underground cables (UGC) between consented Tangy IV Wind Farm and proposed Cnoc Buidhe Wind Farm Substations and the existing Carradale Grid Supply Point (GSP). This would amount to a distance of approximately 21.5 km between the Tangy IV Wind Farm Substation and Carradale GSP (hereafter referred to as 'Carradale substation'), and a distance of approximately 15 km between Cnoc Buidhe Wind Farm substation and Carradale substation (collectively referred to hereafter as the 'Proposed Development'). It also invites comments on the selected Site to accommodate the connection point between both windfarms and the transmission network. Further information on the Detailed Site Selection can be found in **Section 7** of this document.

This Consultation Document describes the findings of environmental, engineering and economic appraisal of all Alignment Options identified, and presents the process by which a Potential Alignment for the OHL and UGC has been selected. The Potential Alignment is considered to provide the optimal opportunity to achieve an economically viable, technically feasible and environmentally sound alignment within it. The Consultation Document also provides a summary of the Detail Site Selection Report (see **Section 7**). Comments are now sought from statutory authorities, key stakeholders, elected representatives and the public on the alignment selection process and the Potential Alignment identified.

All comments received will inform further consideration of the Potential Alignment.

The Consultation Document is available online at the Project website:

https://www.ssen-transmission.co.uk/projects/project-map/tangy-iv-wind-farm-and-cnoc-buidhe-wind-farm-shared-use-132kv-connection-project/

1.2 Document Structure

This report is comprised of the following sections:

1. Introduction – setting out the purpose of the Consultation Document;
2. The Proposals – describes the need for the proposals, the proposed technology solution and the typical construction methods;
3. Route and Alignment Selection Process – sets out the route and alignment selection process and methodology that has been applied to date to derive a Potential Alignment;
4. Alignment Options – provides a description of the alignment options;
5. Comparative Appraisal – provides a summary of the analyses of alignment options against environmental, technical and economic considerations to arrive at a recommendation for the Potential Alignment;
6. Potential Alignment – summarises the overall Potential Alignment;
7. Detailed Site Selection Report Summary – summarises the findings of the Carradale Detailed Site Selection Report;
8. Consultation on the Proposals – invites comments on the alignment assessment process and identification of the Potential Alignment.

The main body of this document is supported by a series of figures (see Appendix 1) and an alignment appraisal detail (see Appendix 2).

1.3 Providing Feedback

Consultation will involve public engagement events held in the local area. These events will include exhibition boards, maps and interactive videos, as well as offer the opportunity to share views on the proposals.

Visitors will be able to engage directly with the project team where they can ask any questions they might have about the project and share their feedback on the current proposals.

The consultation events will be taking place at the following times and locations:

- Tuesday 24th September 2024 at 1.30pm – 6.30pm at Glenbarr Village Hall, PA29 6UT
- Wednesday 25th September 2024 at 1.30pm – 6.30pm at Carradale Village Hall, PA29 6XT

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

When providing comments and feedback on this Consultation Document, SSEN Transmission would be grateful for your consideration of the questions below:

- Has the approach taken to select the Potential Alignment project been clearly explained?
- In your opinion, has a clear overview of the required project elements been provided?
- Do you have any specific concerns in relation to the Potential Alignment? If so, is there anything we could do to mitigate the impact of this?
- Do you feel, on balance, that the Potential Alignment selected is the most appropriate for further consideration at the Environmental Impact Assessment stage?
- Are there any factors, or environmental features that you believe have not been considered during the Potential Alignment selection process?

Comments on this Consultation Document should be sent to:

Caitlin Quinn

Community Liaison Manager

Scottish and Southern Electricity Networks

E: caitlin.quinn@sse.com

M: 07901135758

1 Waterloo St, Glasgow, G2 6AY

All comments are requested by **25th October 2024**.

1.4 Next Steps

A Report on Consultation will be produced which will document the consultation responses received, and the decisions made in light of these responses.

Following the identification of a Potential Alignment, the project will move on to the EIA and consenting stage where further technical and environmental surveys will be undertaken to support a Section 37 consent under the Electricity Act 1989. It is anticipated that an application for consent for a Proposed Alignment will be submitted in late 2025.

2. THE PROPOSALS

2.1 The Need for the Project

SSEN Transmission is a wholly owned subsidiary of the SSE plc Group of companies. SSEN Transmission holds a license under the Electricity Act 1989 for the transmission of electricity in the north of Scotland and has a statutory duty under Schedule 9 of the Electricity Act 1989 to '*develop and maintain an efficient, co-ordinated and economical electricity transmission system in its licensed areas'.* The consented Tangy IV Wind Farm and proposed Cnoc Buidhe Wind Farm in Argyll both require connection to the electricity transmission network at Carradale substation by April and May 2029 respectively. It is anticipated that this would be achieved via the construction and operation of a new 132 kV double circuit OHL and UGC. Under the terms of their licence, SSEN Transmission is therefore obliged to connect both developers to the transmission network by the contracted connection dates.

Cnoc Buidhe Wind Farm anticipate applying to the Scottish Government under Section 36 for 30 turbines in 2024. The project's connection to the grid network will be phased with 23 turbines planned to connect in May 2029 and the remaining seven turbines connecting in 2034. This is due to constraints on the wider transmission network which prevent the entire scheme connecting in one go.

2.2 Alternative Options and Preferred Technology Solution

Tangy IV and Cnoc Buidhe windfarms were originally designed and contracted as two single circuit trident wood pole connections, connecting at/close to Carradale substation.

Under an original scope, the connection of Tangy IV Wind Farm to the existing electricity grid network involved the construction of approximately 21.5 km of new 132 kV single circuit overhead line (OHL), utilising trident wood poles. A preliminary study area, or corridor, was identified within which the identification and assessment of route options could be completed. The corridor was developed to encompass a range of feasible route options between the two connection points which were then assessed and a Preferred Route selected that provides an optimum balance of environmental, engineering and economic factors. Following the consultation that was undertaken on the Preferred Route between August and October 2022, the Preferred Route was taken forward as the Proposed Route, within which the identification and assessment of alignment options could be completed. Further information on the routeing and alignment stages can be found in **Sections 3.2** and **3.3**.

During that time, another developer requested a new connection for Cnoc Buidhe Wind Farm to the Carradale substation. This brought the project back to the routeing stage, looking for new routes and assessing all identified options once more.

The Cnoc Buidhe Wind Farm developer increased the windfarm capacity rating which requires the use of a different and heavier conductor that can only be supported by steel lattice towers. Therefore, the transmission structure changed from trident wood pole to steel lattice single circuit tower.

The option to keep both projects as per their initial scope was considered, with the exception of an area of underground cabling likely required within the Cnoc Buidhe Wind Farm boundary in order to mitigate wake affect from the turbines on the OHL conductors. However, two OHLs running parallel to each other would increase the land take required, enlarge infrastructure in the area creating higher environmental risks and lead to visual intrusive impacts. After engineering, environmental and economic assessments were carried out, it was decided that the most optimum solution for Tangy IV and Cnoc Buidhe connections would be a shared use connection supported by steel OHL structures.

Reassessment of constraints for each route confirmed the previously identified Preferred Route for Tangy IV as the Preferred Route for the shared use connection and the project progressed to the Alignment stage. The alignment options were identified for Tangy IV and Cnoc Buidhe shared use

OHL connections. The alignment options have been appraised considering environmental, technical and economic factors to arrive at a Potential Alignment.

2.3 Proposals Overview

SSEN Transmission is proposing to construct a new 21.5 km 132 kV connection, comprising both OHL and UGC. The alignment will be an UGC between the Tangy IV Wind Farm and Cnoc Buidhe Wind Farm substations through the Cnoc Buidhe Wind Farm boundary for approximately 5.6 km to a connection point at the terminal tower, north of Collusca Water. From there, the connections will merge and transition to a shared use double circuit L7 steel lattice OHL tower, for approximately 13.5 km. The alignment will transition from OHL to UGC approximately 650 m north of the existing Carradale substation before connecting into the existing Carradale substation.

The final designation of support type is generally dependent on three main factors: altitude, weather and the topography of the route. The size of towers and span lengths will also vary depending on these factors, with towers being closer together at high altitudes to withstand the effects of greater exposure to high winds, ice and other weather events. The support configuration, height and the distance between supports will therefore only be fully determined after a detailed alignment survey.

It is assumed that the Proposed Development would comprise steel lattice towers from the L7 tower suite. Generally, the height, including extensions, for the L7 tower suite is approximately 26.9 m. Each tower would carry two circuits with three horizontal cross arms on each side of the tower, each carrying an insulator string and two conductors. An earth wire, containing an optical fibre ground wire (OPGW), would be strung between the tower peaks. The spacing between towers (span length) would vary depending on environmental and engineering constraints.

The proposed steel lattice tower will support six conductors (wires) on six cross-arms (three on each side) and an earth wire between the peaks. Typical designs can be seen in **Plate 2.1**.

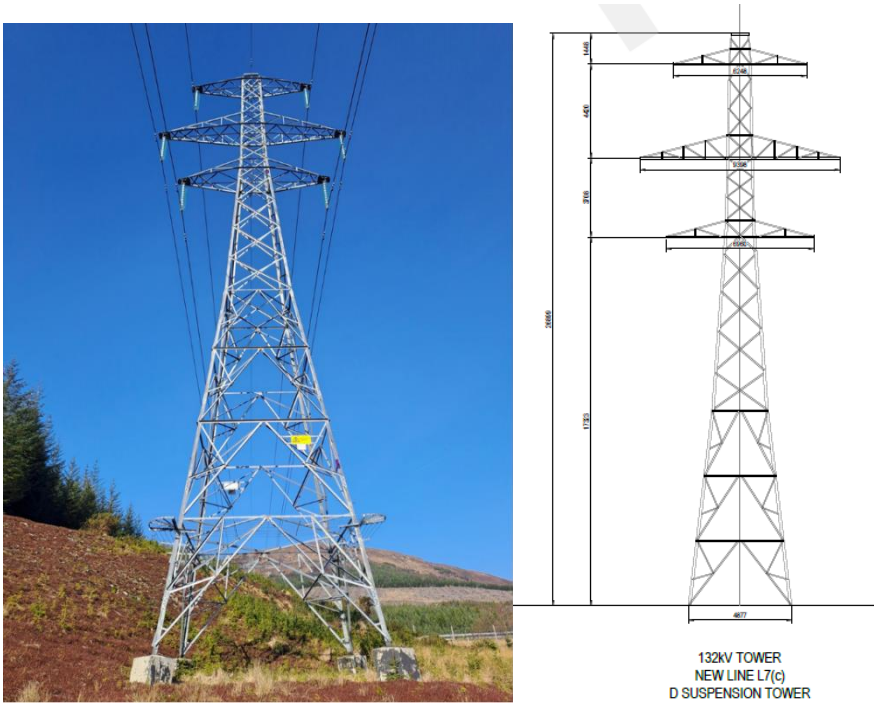

Plate 2.1 – Typical L7 steel lattice tower design

2.3.1 Construction Activities

To facilitate this connection, the main construction activities are anticipated as follows:

- alterations to the existing transmission and distribution networks;

- enabling work (forestry clearance and establishment of temporary construction compound(s);
- establishment of permanent stoned access to areas identified as requiring operational access;
- establishment of temporary construction access to areas where permanent access is not operationally required;
- establishment of suitable laydown areas for materials and working areas for tower foundations and erection equipment;
- delivery of components and materials to site;
- construction of approximately 6.5km of double circuit 132 kV UGC and 13.5 km 132 kV OHL;
- remedial works would be carried out to reinstate the immediate vicinity, and any ground disturbed to pre-existing condition; and inspections and OHL commissioning.

All construction activities will be undertaken in accordance with a Construction Environmental Management Plan (CEMP) which will define specific methods for environmental survey, monitoring and management throughout construction. A CEMP will be produced by the Principal Contractor and agreed with statutory stakeholders prior to the commencement of construction.

2.3.2 OHL Construction

Tower Foundations

Different approaches to forming foundations may be used, subject to ground conditions at each tower location. These are likely to comprise:

- spread type e.g., concrete pad and chimney;
- rock anchor; or
- piled type e.g., driven concrete, tube, and micro pile; or augered.

Foundation types and designs for each tower will be confirmed following detailed geotechnical investigation at each tower position, although it is currently anticipated that most tower foundations are likely to be of a concrete pad and chimney type. Dimensions of each foundation will be confirmed following micro-siting. For the purposes of this assessment however it has been assumed that each foundation would be buried to depths estimated up to 2.5 m below ground level (bgl) although extending up to 4 m depth where ground conditions require. They would extend over an area suitable to deliver the loading characteristics required (which would be a function of the underlying ground conditions and the weight of the structures to be supported). Piled foundations may be required where low strength ground conditions exist, particularly where peat is encountered at over 1 m depth.

Tower construction

Tower construction can commence two weeks after the foundations have been cast, subject to weather conditions and concrete curing rates. Tower steelwork would be delivered to each tower construction site either as individual steel members or as prefabricated panels, depending on the method of installation and the available access.

Conductor Stringing

The conductor would be delivered to site on drums in pre-determined pulling section lengths. Prior to stringing the conductors, temporary protection measures, (e.g., netted scaffolds) would be erected across public roads and existing access tracks.

OHL Commissioning

The OHL and support towers will then be subject to an inspection and snagging process. This allows the Contractor and SSEN Transmission to check that the works have been built to specification and are fit to energise. The Proposed Development will also go through a commissioning procedure for

the switchgear, communications, and protection controls at Carradale substation. The circuits will then be energised.

Reinstatement

Following commissioning of the Proposed Development, all construction sites will be reinstated. Reinstatement will form part of the contract obligations for the Principal Contractor and will include the removal of all temporary access tracks, all work sites around the tower locations and the revegetation of all construction compounds.

Underground Cable

Where UGC are to be utilised, the installation would typically involve the following tasks:

- establish a working corridor approximately 30 m wide, centred on the cable centreline;
- excavate a trench up to 2 m in depth and 0.8 m wide, widening through benching and battering where stability and safety concerns arise;
- place cabling within the trench, surrounded by engineered backfill in suitable layers for protection, with marker boards placed above the cable line; and
- reinstate excavated surface layers in reverse order.

2.3.3 *Forestry Removal*

Any woodland removal which may be required prior to the construction work will be identified and described after a proposed alignment has been identified. Any removal of sections of commercial forest would be undertaken in consultation with Forestry and Land Scotland (FLS) and affected landowners. After felling, any timber removed that is commercially viable would be sold and the remaining forest material would be dealt with in a way that delivers the best practicable environmental outcome and is compliant with waste regulations. The methods of woodland removal and management of timber would be described in a Woodland Report in-line with The UK Forestry Standard[1] guidance, to be prepared as part of the application for consent under Section 37 of the Electricity Act 1989 (as amended).

2.3.4 *Access during Construction*

Vehicle access is required to each support structure location during construction to allow excavation and creation of foundations and erection of towers. Existing tracks would be used where possible and upgraded as required. Preference will be given to lower impact access solutions including the use of low pressure tracked personnel vehicles and temporary track solutions in boggy / soft ground areas to reduce any damage to, and compaction of, the ground. These journeys would be kept to a minimum to minimise disruption to habitats along the route. Temporary access panel solutions may also be used to protect the ground, however, temporary stone tracks are likely to be necessary in some areas depending on existing access conditions, terrain and altitude. Helicopters may also be used to reduce access track requirements.

Access requirements for the Proposed Development will be dependent upon the type of OHL supports chosen. Consideration of impacts will be undertaken at the alignment stage once the support type has been confirmed. A more detailed plan for access during construction will be prepared once a Proposed Alignment has been identified and the type of support structure has been selected.

[1] The UK Forestry Standard 4th Edition (2017); The Governments' approach to sustainable forestry. [online]. Available at: https://www.gov.uk/government/publications/the-uk-forestry-standard (Accessed 14 June 2022).

In addition to access tracks, areas of hardstanding will be required to allow the use of cranes for the construction of the towers. The crane pads will be constructed of layers of stone and the thickness will depend on the ground conditions and size of crane required. The crane pads will be removed on completion of the tower and the area restored.

2.3.5 Programme

It is anticipated that construction of the Proposed Development would take place over an 18 month period, following the granting of consents, although a detailed programming of works would be the responsibility of the Principal Contractor in agreement with SSEN Transmission.

Construction is estimated to start in June 2027 with completion by April 2029.

3. ROUTE AND ALIGNMENT SELECTION PROCESS

3.1 Background

The approach to alignment selection, in identifying and assessing alternative OHL routes, is informed by the staged approach set out in SSEN Transmission's Routeing Guidance. The guidance develops a process which aims to balance environmental, technical and economic considerations.

The guidance sets out SSEN Transmission's approach to selecting a route for an OHL and helps meet the obligations under Schedule 9 of the Electricity Act 1989 (as amended) which requires transmission license holders:

- to have a regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interests; and
- to do what they reasonably can to mitigate any effect that the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.

The guidance splits a project into the following stages:

- Pre-Routeing Activities: Selection of proposed connection option;
- Stage 1: Corridor Selection;
- Stage 2: Route Selection;
- Stage 3: Alignment Selection; and
- Stage 4: EIA and consenting.

The stages that are carried out can vary depending on the type, nature of and size of a project and consultation is carried out at each stage of the process. Each stage in the SSEN Transmission routeing process is iterative, bringing cost, technical and environmental considerations together in a way which seeks the best balance at each stage. In the development of this project, SSEN Transmission has followed an approach with the following stages:

- Route Selection;
- Alignment Selection; and
- EIA and Consenting process.

Route Selection has been completed and a Proposed Route was selected based on earlier studies and consultation.

This report summarises the process of Alignment Selection from the guidance, which seeks to develop a Potential Alignment for the OHL. The Potential Alignment aims to achieve the optimum balance of technical, economic and environmental considerations.

On finalisation of the Alignment Selection stage the project will progress onto the Consenting Process stage.

3.2 Route Identification and Selection

A preliminary environmental study area, hereafter known as the 'corridor' was identified (**Figure 3.1**) within which the identification and assessment of route options could be completed (Plate 3.1). This corridor encompassed a range of feasible route options between the Tangy IV Wind Farm substation and Cnoc Buidhe Wind Farm substation to a connection point near the existing Crossaig to Carradale 132 kV OHL.

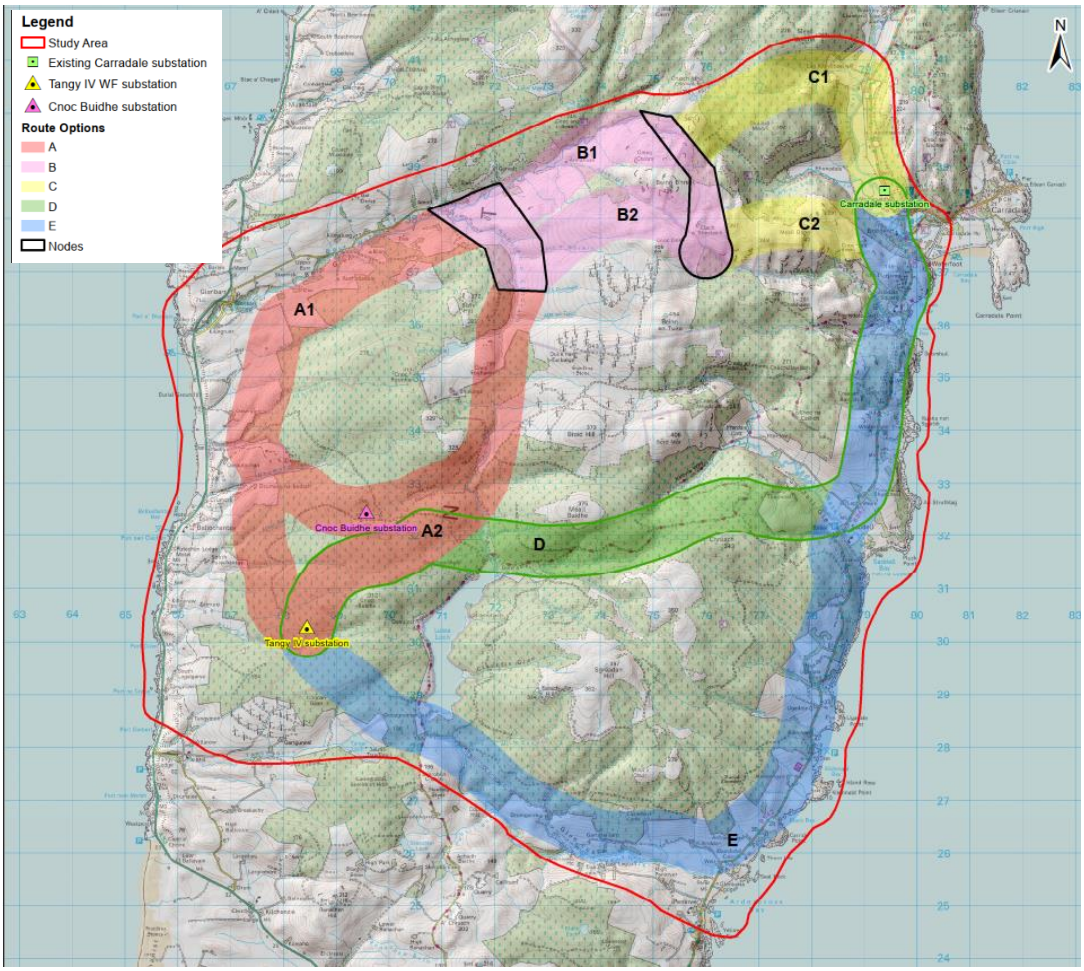

Plate 3.1 – Route Options

Desk-based studies focussed within the corridor, although consideration was given to potential receptors outside of this area (e.g. environmental designations, visual receptors or cultural heritage sites). Route options (see **Figure 3.2**) were identified as part of the desk-based studies considering the most notable constraints. Considerations included a review of the steps outlined in the Holford Rules and SSEN Transmission's Routeing Guidance.

3.2.1 Tangy IV Wind Farm

A route options appraisal was undertaken in July 2022 to select a Preferred Route. The appraisal was informed by desk studies and empirical walk over surveys. Workshops integrating engineering and environmental considerations were then held to select a Preferred Route as the starting point for developing an OHL alignment. A combination of Route Options A1, B1 and C1 was originally selected as the Preferred Route. SSEN Transmission consulted on the Preferred Route in August 2022[2]. Following initial consultation and feedback received on the Preferred Route, this was amended to a

[2] SSEN Transmission (August 2022) LT337 Tangy Route Selection Consultation Document.

combination of Route Options A2, B2 and C1 as shown in **Figure 3.3** and **Plate 3.2**. SSEN Transmission extended the consultation on the amended Preferred Route to the end of October 2022.

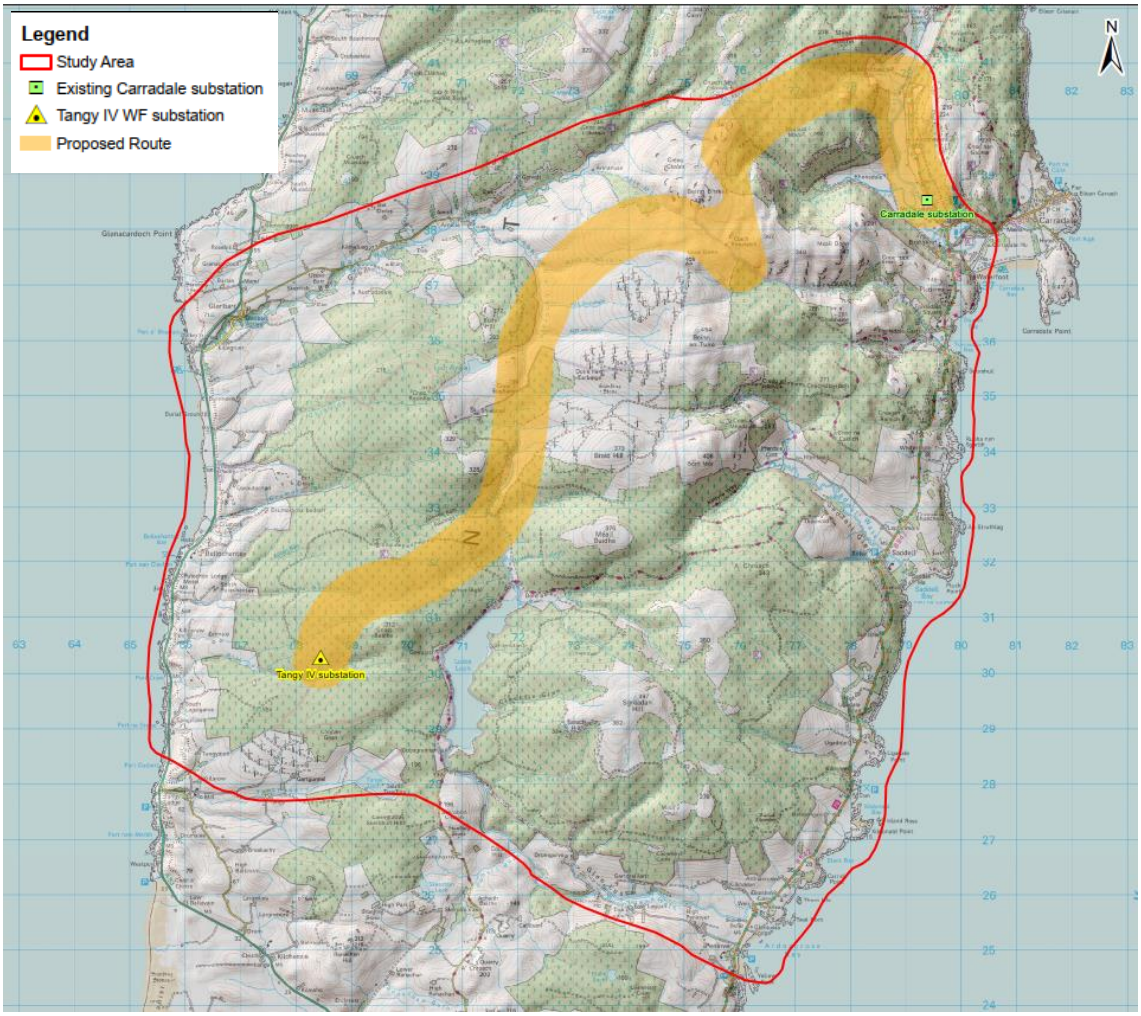

Plate 3.2 – Tangy IV WF Preferred Route

Following consultation, a Proposed Route using a combination of Route Options A2, B2 and C1 was confirmed as the basis for subsequent alignment selection. The Proposed Route was assessed as having the greatest potential to avoid or minimise interactions with the environment and people living and working in it.

Route Option A2 travels north east from Tangy IV Wind Farm substation around the lower slopes of Cnoc Buidhe (312 m Above Ordnance Datum (AOD)), along a shallow valley. The route then heads north, along the Allt nan Calltuinn water course, crossing the centre of the Study Area, to the west of the existing Beinn an Tuirc Wind Farm, before joining the node at Arnicle. Route A2 is approximately 8 km in length. Route Option B2 then stretches east of Arnicle, through shallow valleys, avoiding areas of steep slopes at Beinn Bhreac within the north. The route would pass north of the existing Beinn au Tuirc Wind Farm and continue east to join the node at Clach Bhealaich. Route B2 is approximately 4.4 km in length. From here, Route Option C1 continues from the node north of Clach Bhealaich in a north east direction, traversing steeper slopes in the north eastern extent of the Study Area at Lag Kilmichael. Route Option C1 would then turn south travelling in parallel to existing Crossaig to Carradale 132 kV OHL before connecting into the existing Carradale substation. Route C2 is approximately 5.9 km in length. Overall, the Proposed Route is approximately 18.3 km in length.

3.2.2 *Cnoc Buidhe Wind Farm*

A route options appraisal was undertaken in August 2023 to select a Preferred Route. The study area for the Cnoc Buidhe project overlaps with the study area which was implemented for the Tangy IV Wind Farm Connection project. As such, the observations and data collected during the site visits for the Tangy IV project have helped inform and ground truth the key constraints which have been identified by the various desk studies conducted. As a robust route selection exercise was completed previously as part of the Tangy IV project over the same area, the chosen Preferred Route for Cnoc Buidhe was the same. A combination of Route Options A2, B2 and C1 shown on **Figure 3.4** and **Plate 3.3** was selected as the Preferred Route.

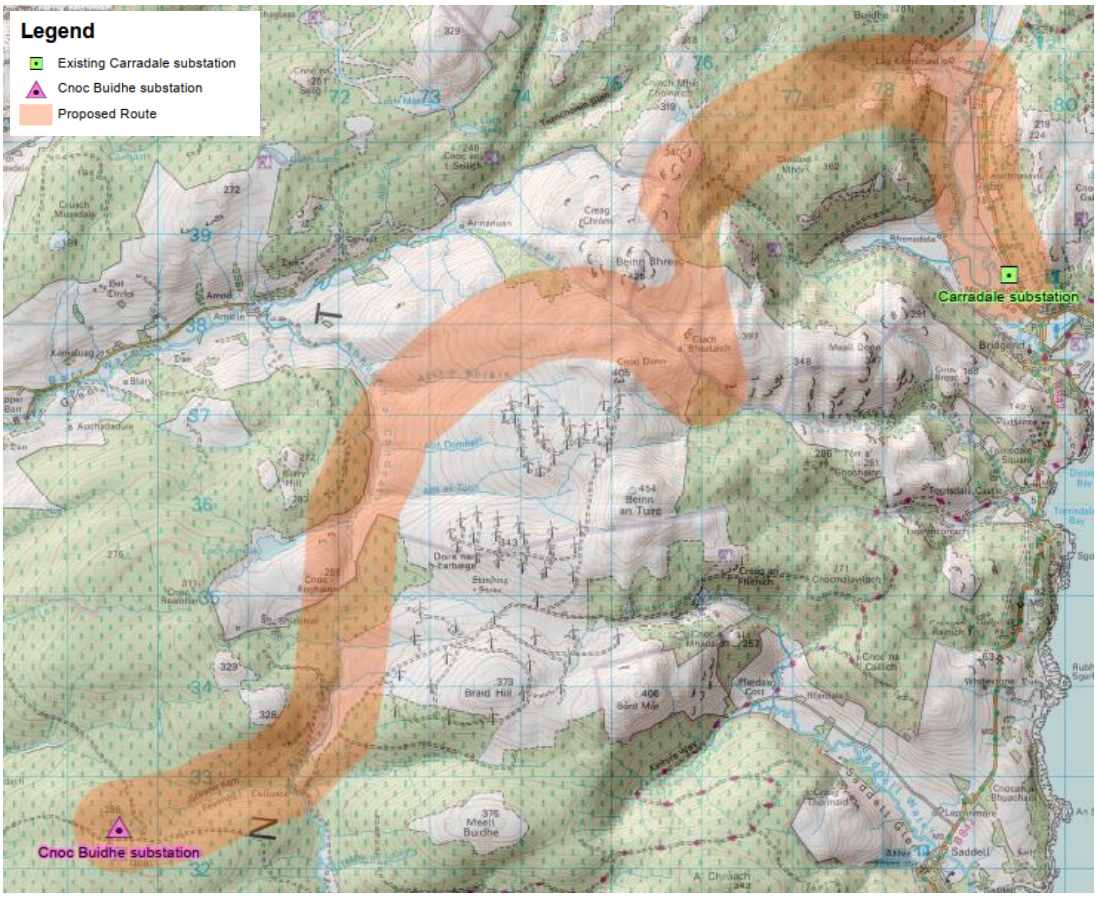

Plate 3.3 – Cnoc Buidhe WF Preferred Route

Route Option A2 travels north east from the proposed Cnoc Buidhe Wind Farm substation along the shallow valley of Gleann nam Feannag. The route then heads north, along the Allt nan Calltuinn water course, crossing the centre of the Area of Search, to the west of the existing Beinn an Tuirc Wind Farm, before joining the node at Arnicle. Route Option A2 is approximately 5.8 km in length. Route Option B2 then stretches east of Arnicle, through shallow valleys, avoiding areas of steep slopes at Beinn Bhreac within the north. The route would pass north of the existing Beinn au Tuirc Wind Farm and continue east to join the node at Clach Bhealaich. Route B2 is approximately 4.4 km in length. From here, Route Option C1 continues from the node north of Clach Bhealaich in a north east direction, traversing steeper slopes in the north eastern extent of the Study Area at Lag Kilmichael. Route Option C1 would then turn south travelling in parallel to existing Crossaig to Carradale 132 kV OHL before connecting into the existing Carradale substation. Route C2 is approximately 5.9 km in length. Overall, the Proposed Route is approximately 16.1 km in length.

3.3 Alignment Identification and Selection

Following identification of the Proposed Route, the following tasks have been undertaken in identifying and analysing alignment options:

- Desk-based review of initial alignment options presented by the engineering consultant. Comments and alternative alignment options were provided for discussion and further review;
- Site visits by the project landscape architect, heritage specialists and SSEN Transmission to review the alignment options on site and review environmental and technical considerations;
- UK Habitat Classification (UKHab) surveys of the Proposed Route were undertaken between September and October 2022. Up to Level 5[3] UKHab Primary Habitats were mapped, where possible, across the Proposed Route to gain sufficient additional data to identify Annex 1[4] and United Kingdom Biodiversity Action Plan (UKBAP)[5] priority habitats. UKHab data, and additional desk study information, also enables a high level assessment of the potential presence of priority peatland and GWDTE.
- Protected species suitability surveys were undertaken concurrently with the above habitat surveys across the Proposed route. The surveys aimed to classify the suitability of terrestrial habitats to support: bat species; badger; red squirrel; pine marten; and reptile species. In addition, the surveys aimed to classify the suitability of watercourses, at the specific location(s) that they were encountered/observed, for the following riparian mammals: otter; and water vole;
- Ornithology surveys were undertaken across suitable habitat within 2 km of all Route Options from March 2022 until February 2023 Surveys comprised:
  - Flight activity surveys from six fixed vantage points;
  - Goose roost surveys at Lussa Loch, Tangy Loch and Loch Arnicle;
  - Goose foraging surveys;
  - Scarce breeding bird surveys; and
  - Moorland breeding bird surveys.
- Workshops held with SSEN Transmission and engineering consultants to review initial alignment options and suggested alternatives; and
- Review of comments received from stakeholders following publication of the Tangy 132 kV OHL Consultation Document (August 2022) and public consultation events.

Considerations included a review of the steps outlined in the Holford Rules and SSEN Transmission's Routeing Guidance[3]. In summary the following has been considered as far as is practicable at this Alignment Selection stage:

- Avoid if possible major areas of highest amenity value (including those covered by national and international designations and other sensitive landscapes) (Holford Rule 1);
- Avoid by deviation, smaller areas of high amenity value such as regional scenic areas;
- Other things being equal, try to avoid sharp changes of direction and reduce the number of larger angle towers required (Holford Rule 3);

[3] The classification of UKHab Primary Habitats is hierarchical with five levels of detail. Level 1: Major ecosystems. Level 2: Ecosystem types, corresponding with major habitat types within the European Nature Information System (EUNIS) classification. Level 3: Broad habitat types, corresponding directly with UKBAP Habitats and closely to EUNIS. Level 4: Habitats, including UKBAP Priority Habitats, and further splits of Level 3 habitats. Level 5: Detailed habitats, including Habitats Directive Annex I habitats and further splits of Level 4 habitats.

[4] European Union Habitats Directive 92/43/EEC Annex I.

[5] BRIG (2011). UK Biodiversity Action Plan – Priority Habitat Descriptions. Joint Nature Conservation Committee (JNCC), Peterborough.

- Avoid skylining the alignment in key views and where necessary, cross ridges obliquely where a dip in the ridge provides an opportunity (Holford Rule 4);
- Avoid the highest terrain, where climatic conditions can impose extra loading (wind and ice) on OHL conductors (technical constraint that aligns with the second part of Holford Rule 4, land over 500 m avoided where possible, over 600 m avoided absolutely);
- Target the alignment towards moderately open valleys with woods where the apparent height of towers will be reduced, and views of the line will be broken by trees (avoid slicing through landscape types and try to keep to edges and landscape transitions) (Holford Rule 5);
- Consider construction access and the availability of existing roads and tracks;
- Consider the appearance of other lines in the landscape to avoid a dominating or confusing wirescape effect; and
- Consider technical issues related to crossing the existing OHL alignment, clearances, connectivity, outages, maintenance and faults.

Applying these principles alignment options were identified for further assessment. **Figure 3.5** and **Plate 3.4** show the final alignment options identified.

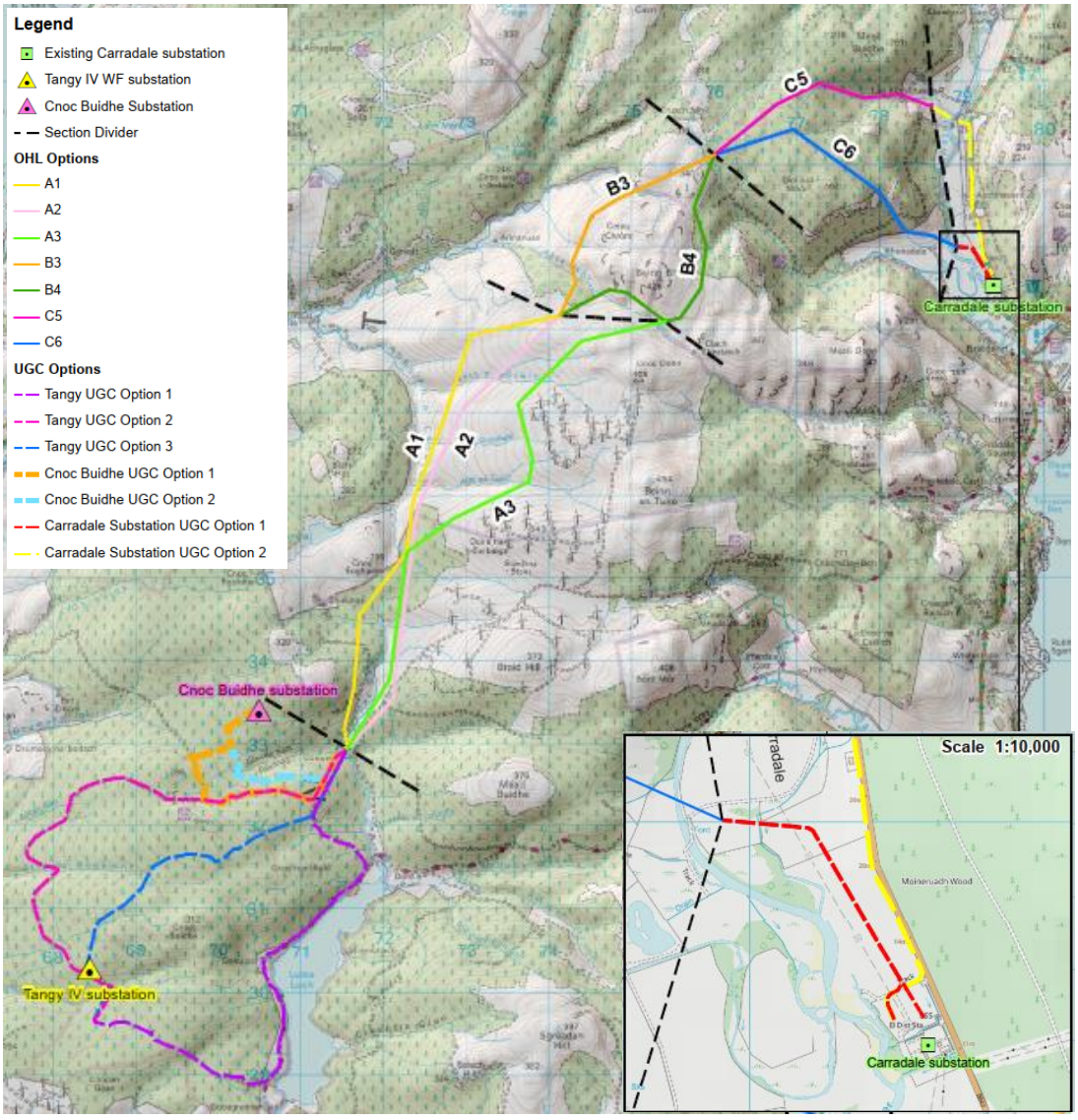

Plate 3.4 – Final Alignment Options

For ease of assessment and interpretation, the Proposed Route has been divided into five 'Sections' for the definition of options with the alignment options described within each Section. The alignment options are described in detail in **Section 4.**

3.4 Baseline Conditions

The following information sources have informed the desk based baseline study to identify potential environmental constraints within and adjacent to the alignments

- Identification of environmental designated sites and other constraints, utilising GIS datasets available via NatureScot Site Link[6] and other sources.
- Identification of archaeological designations and other recorded sites, utilising GIS datasets available via Historic Environment Scotland Data Services and Local Historic Environment Teams[7]. These include:
    - World Heritage Sites;
    - Scheduled Monuments;
    - Category A, B and C listed buildings; and
    - Inventory of Gardens and Designated Landscapes.
- Review of the Argyll and Bute Local Development Plan 2 (2024)[8] to identify further environmental constraints and opportunities, such as regional level designations or other locations important to the public;
- Review of Landscape Character Assessments of relevance to the Study Area[9];
- Review of Ordnance Survey (OS) mapping (1:50,000 and 1:25,000 online mapping and terrain data from OS OpenData) and aerial photography (where available) to identify other potential constraints such as settlements, properties, walking routes, cycling routes etc.;
- Extrapolation of OS OpenData to identify further environmental constraints including locations of watercourses and waterbodies and to undertake a preliminary slope analysis;
- Identification of watercourse and waterbody quality and areas prone to flooding, utilising online GIS data sources from Scottish Environment Protection Agency (SEPA)[10];
- Review of other local information through online and published media such as tourism sites and walking routes; and
- Review of ornithological data available for wind farms within a 2 km buffer of the Study Area from the Argyll and Bute planning portal[11].

Following the identification of the Proposed Route (see **Section 3.2** above), site walkovers and surveys were undertaken by landscape, ecology and heritage specialists to ground truth the key constraints identified by the desk studies and inform the assessment of potential alignment options. These included:

---

[6] NatureScot. Site Link. [online] Available at: https://sitelink.nature.scot/home (Accessed 16 April 2024).

[7] Historic Environment Scotland Data Services. Portal. [online] Available at: http://portal.historicenvironment.scot/ (Accessed 16 April 2024).

[8] Argyll and Bute Council (2024.). Local Development Plan 2. [online]. Available at: https://www.argyll-bute.gov.uk/planning-and-building/planning-policy/local-development-plan-2 (Accessed 16 April 2024).

[9] NatureScot (N/A). Scottish Landscape Character Type Map and Descriptions. [online]. Available at: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions (Accessed 16 April 2024).

[10] Scottish Environment Protection Agency (N/A). SEPA Data publication. [online]. Available at: https://www.sepa.org.uk/environment/environmental-data/ (Accessed 16 April 2024).

[11] Argyll and Byte Council (N/A). Planning Portal. [online]. Available online at: https://www.argyll-bute.gov.uk/planning-and-environment/find-and-comment-planning-applications (Accessed 16 April 2024).

- Ornithology Surveys: 21st March 2022 – 24th February 2023;
- Ecology UKHab Survey: 19th September – 7th October 2022;
- Ecology Protected Species Suitability Survey: 19th September – 07th October 2022;
- Cultural Heritage Survey: 3rd – 5th October 2022;
- Landscape and Visual Survey: 11th – 13th October 2022;
- Phase 1 Peat Probing Survey: 26th October – 17th November 2023;
- Cultural Heritage Walkover: 12th – 16th February 2024; and
- Phase 1 Peat Probing Survey: 18th – 29th March 2024.

3.5 Appraisal Method

At this preliminary alignment stage, and to account for the likelihood of minor changes in the alignment as the Proposed Development moves into EIA and design stages, a buffer of 100 m for OHL (50 m either side) and 20 m for the UGC (10 m either side), also referred to as a Limit of Deviation (LOD), has been applied. This has been included in the comparative appraisal.

3.5.1 Environment Criteria

A series of 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 alignment options. Appraisal of alignment options has involved systematic consideration against the following environmental topic *areas:*

- Natural Heritage – designations, protected species, habitats, biodiversity net gain, ornithology, hydrology, geology and hydrogeology;
- Cultural Heritage – designations and cultural heritage assets;
- Landscape and Visual – designations, landscape character and visual amenity;
- Land Use – agriculture, forestry and recreation;
- People – proximity to dwellings (assessed for OHL alignments only); and
- Planning Proposals

The following should be noted:

- 'Habitat' types have been defined in relevant UK Habitat Survey (UKHab categories[12]). For peatland, peatland classes as shown on the Carbon Peatland Map of Scotland (2016) are also referenced. For woodland, the categories assigned to areas noted on the Ancient Woodland Inventory (AWI) are also referenced, where relevant. Woodland definitions may therefore differ from those used within the 'Forestry' Section descriptions.
- An estimate has been made of the approximate area of commercial coniferous and broadleaved woodland that would be impacted by an indicative alignment within each alignment option, assuming a 90 m wide Operational Corridor (OC) for conifer and 60 m wide OC for broadleaves. This information is obtained from National Forestry Inventory (NFI) data. Additional felling may be required to facilitate access for construction, as well as mitigation felling to prevent wind throw.
- The Biodiversity Net Gain (BNG) assessment focuses on the calculation of Biodiversity Units (BU) from Ancient Woodland (categories 1a and 2a of the AWI), ancient or veteran trees,

[12] UK Habitat Classifications. Available at: HM_Data Sheet_UKHab Classifications_A4 Landscape.pdf (habitat-matters.com)

blanket bog or raised bog in good or moderate condition of those habitat parcels which span the full width of the Alignment Option and are therefore considered unavoidable. This approach was determined based on the assumption that SSEN Transmission will follow their biodiversity commitments to avoid any form of impact unto irreplaceable habitats. Other ecologically important ancient woodland (category 1b, 2b, 3) were not considered within the BNG assessment. Therefore, where the BU is detailed, at this stage this is only the BU from these habitat types where they are unavoidable, it does not represent the total BU value within an Alignment Option as not all habitat types have been considered at this stage.

- For the BNG assessment, in the absence of field data at this stage, condition was assumed to be moderate for all habitats. Blanket bog habitats were identified using the Peatland Classification of Scotland and the HABMoS data. Only peatland Class 1 and 2 were taken forward as blanket bog. Again, this habitat was assumed to be of 'Moderate' condition. Connectivity followed the simplified SSEN Transmission Guidance, where habitats of 'High' were assigned 'Medium' connectivity. Online available resources were used where possible to assign strategic significance, which relates the mention of the relevant habitats within the local plans i.e. Local Biodiversity Action Plans (LBAPs).

3.5.2 Engineering criteria

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

- Infrastructure Crossings – major crossings and road crossings;
- Environmental Design – elevation, atmospheric pollution, contaminated land and flooding;
- Ground Conditions – terrain and peat;
- Construction/ Maintenance – access and angle towers; and
- Proximity – clearance distance to buildings, wind farms, communication masts, urban environments and metallic pipelines (excludes proximity to dwellings which is covered under the environment criteria)

3.5.3 Economic criteria

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

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

3.5.4 Identification of a Potential Alignment

The overall objective throughout the appraisal of alignment options has been to define the Potential Alignment between the Tangy IV Wind Farm and Cnoc Buidhe Wind Farm substations and a the existing Carradale substation. Alignment options have been considered in combination to arrive at an alignment preferred from an environmental perspective. Where possible, alignment options of the lowest risk have been combined to form a complete corridor. However, where it is not possible to join up all alignment options of lowest risk rating, the alignment of next best rating has been selected, using professional judgement where relevant. This appraisal has taken account of environmental, engineering and economic characteristics in order to form a Potential Alignment which is subject to consultation.

3.6 Carradale Substation

Information on the site selection process and appraisal criteria for Carradale substation can be found in **Section 7**.

4. ALIGNMENT OPTIONS

This part of the Consultation Document describes a brief summary of key environmental considerations of each alignment per Section from an environmental, engineering and economic perspective, and provides comparative appraisal of each Section in order to select an overall Potential Alignment.

The Proposed Route was divided into five 'Sections', for definition of Alignment Options and ease of comparative appraisal (as shown in **Figure 3.5**):

- Indicative UGC Alignment Section 1, Tangy IV Wind Farm substation and Cnoc Buidhe Wind Farm substation to north of Collusca Water;
- OHL Alignment Section A, between north of Collusca Water to north of Allt a Bhlair;
- OHL Alignment Section B, between north of Allt a Bhlair and south east of Loch nan Ciob;
- OHL Alignment Section C, between south east of Loch nan Ciob and Carradale Water; and
- Indicative UGC Alignment Section 2, Carradale Water to Carradale substation.

4.1 Indicative UGC Alignment Section 1 – between Tangy IV Wind Farm substation and Cnoc Buidhe Wind Farm substation to north of Collusca Water

Five indicative UGC options have been considered in this section, three options from the Tangy IV Wind Farm substation and two options from the Cnoc Buidhe Wind Farm substation. Once the layout of the Cnoc Buidhe Wind Farm, with turbine and access locations, is known, the UGC alignments will be assessed once more and defined.

Tangy UGC Option 1 follows an existing forestry track along the eastern boundary of the Cnoc Buidhe Wind Farm. UGC Option 1 leaves the Tangy Wind Farm substation and travels east for approximately 1.7 km, reaching peak elevations of 225 m AOD towards Lussa Loch. The alignment then follows an existing forestry track for a further 600 m in an easterly direction before turning in a north / north easterly direction for 3.3 km along the western side of Lussa Loch. At the northern most point of Lussa Loch (145 m AOD), UGC Option 1 continues to follow an existing forestry track in a north westerly direction for 1 km before turning north west for 900 m to the Tangy and Cnoc Buidhe connection point immediately south of Allt'nan Calltuinn. Tangy UGC Option 1 is approximately 7.5 km in length.

Tangy UGC Option 2 follows an existing forestry track along the western boundary of the Cnoc Buidhe Wind Farm. UGC Option 2 leaves the Tangy Wind Farm substation and travels in a north / north easterly direction for 3.9 km to Alltan Ban, reaching peak elevations of 205 m AOD at the northern extent. The alignment continues to follow the forestry track to the east for 3.1 km through the centre of the Cnoc Buidhe Wind Farm, before turning north east for a further 750 m to the Tangy and Cnoc Buidhe connection point immediately south of Allt'nan Calltuinn. Tangy UGC Option 2 is approximately 7.7 km in length.

Tangy UGC Option 3 follows an alignment through the southern section of the Cnoc Buidhe Wind Farm. UGC Option 3 travels north east for 500 m before turning north west for 380 m. The alignment continues in a north / north easterly direction for 4.7 km, over Allt na Dunaich and utilising the areas of lower ground, to the Tangy and Cnoc Buidhe connection point immediately south of Allt'nan Calltuinn. Tangy UGC Option 3 is approximately 5.6 km in length.

Cnoc Buidhe UGC Option 1 travels south-west from the Cnoc Buidhe substation for 360 m to an existing forestry track, where it travels south 220 m, then south-west through forest for 490 m before turning south for 530 m through elevations of up to 270 m AOD. This option then continues east for 1.6 km before turning north-east for a further 750 m to the Tangy and Cnoc Buidhe connection point immediately south of Allt'nan Calltuinn. Cnoc Buidhe UGC Option 1 is approximately 3.7 km in length.

Cnoc Buidhe UGC Option 2 travels south-west from the Cnoc Buidhe substation for 360 m to an existing forestry track, where it travels south for 600 m through elevations of 240 m AOD, before turning east for 1.1 km and finally north-east for a further 430 m to the Tangy and Cnoc Buidhe connection point immediately south of Allt'nan Calltuinn. Cnoc Buidhe UGC Option 1 is approximately 2.5 km in length.

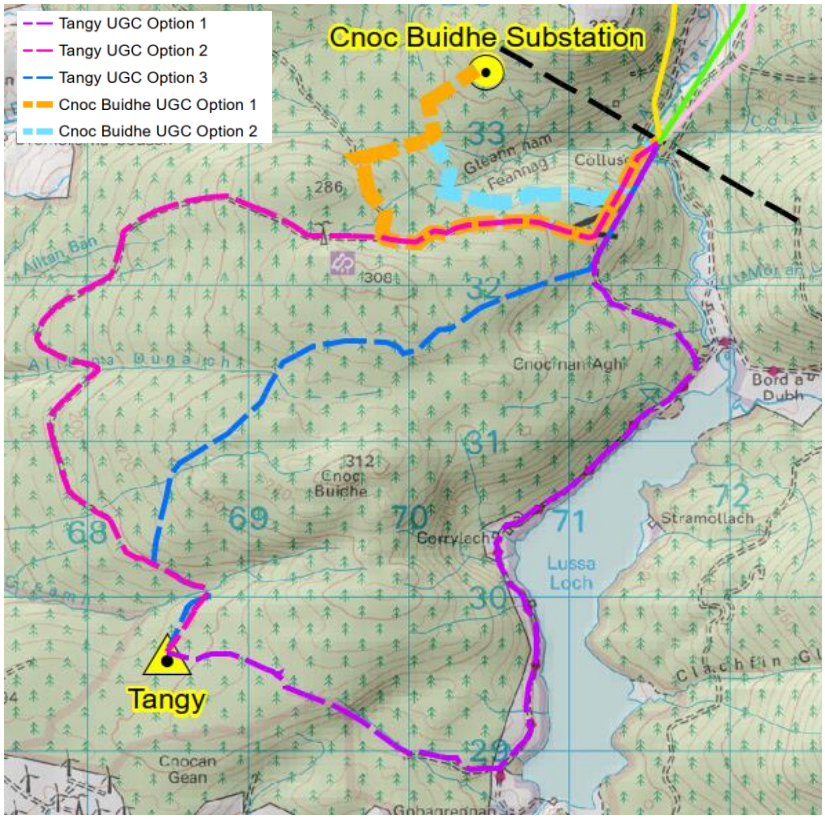

Plate 4.1 – Indicative UGC Alignment Options Section 1

4.2 OHL Alignment Section A - between north of Collusca Water to north of Allt a Bhlair

Three OHL alignment options have been considered in this section.

OHL Option A1 would run in a northerly direction and immediately cross Allt'nan Calltuinn. The alignment will continue in a northerly direction for 2.5 km, avoiding the higher ground associated with Cnoc Eoghainn, before crossing Allt'nan Calltuinn for a second time. The alignment will continue travelling north for 2.9 km to the east of Allt'nan Calltuinn and will cross Allt an Tuirc, Allt Domhain and Allt a'Bhlair. OHL Option A1 would then turn east for a further 1.1 km. OHL Option A1 sits at a minimum elevation of 185 m AOD and steady increases as the alignment progresses north to a maximum of 340 m AOD at the northern extent. OHL Option A1 is approximately 6.5 km in length.

OHL Option A2 would run north east to the east of Allt'nan Calltuinn for 800 m, continuing north past Beinn an Tuirc, Beinn an Tuirc 2 Wind Farms and Cnoc Donn for 2.3 km. The OHL Option A2 would then turn north east, crossing over Allt an Tuirc, Allt Domhain and Allt a'Bhlair for 3 km. OHL Option A2 is approximately 6.1 km in length.

OHL Option A3 would run in a northerly direction to the east of Allt'nan Calltuinn for 2.5 km to Cnoc Eoghainn. The alignment would then travel in a north easterly direction, skirting around the western boundary of Beinn an Tuirc and Beinn an Tuirc 2 Wind Farms and Cnoc Donn and eastern boundary of the proposed Arnicle Wind Farm. This 4.8 km stretch of alignment would also cross Allt an Tuirc, Allt Domhain and Allt a'Bhlair. As the alignment skirts around the wind farms, it reaches peak

elevations of 298 m AOD, increasing to 340 m AOD at the northern extent. OHL Option A3 is approximately 7.3 km in length.

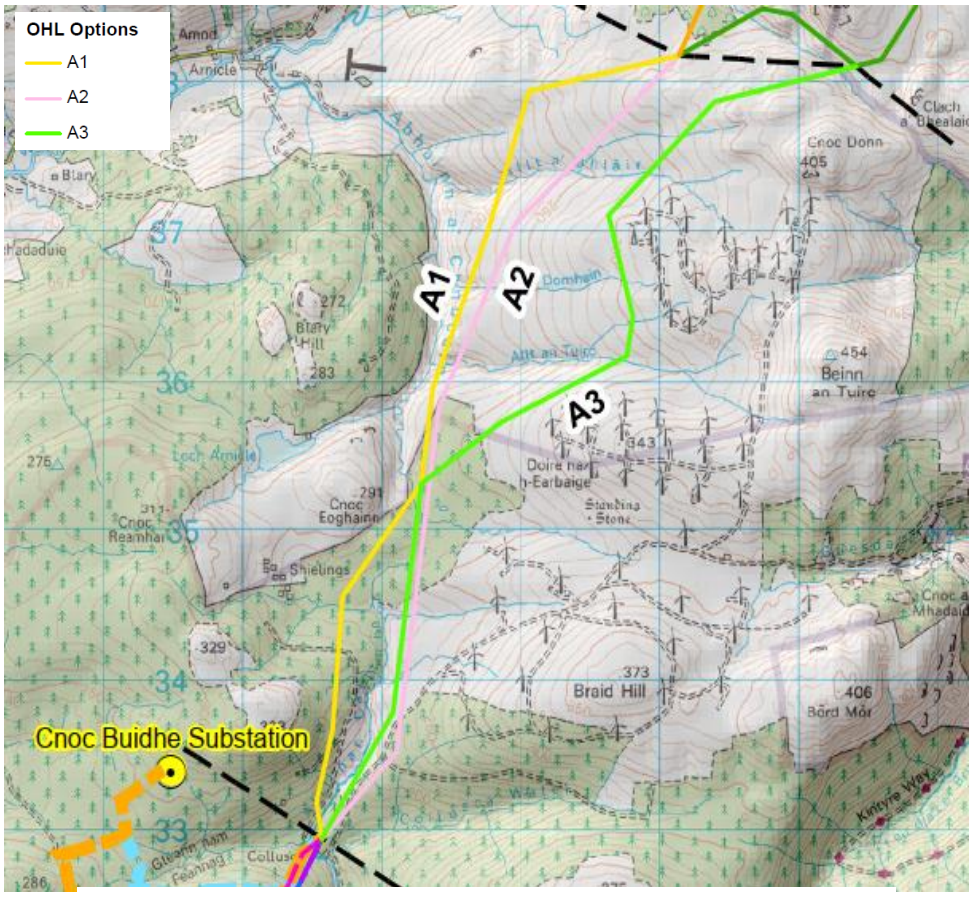

Plate 4.2 – OHL Alignment Options Section A

4.3 OHL Alignment Section B - between north of Allt a Bhlair and south east of Loch nan Ciob

Two OHL alignment options have been considered in this section.

OHL Option B3 would run north of Allt a'Bhlair, continuing north to cross Allt Mor and Allt na Muic to follow a route around the north of Creag Chrom, avoiding higher ground associated with Beinn Bhreac and keeping to valley sides. The alignment would continue north east to a point approximately 200 m south east of Loch nan Ciob. OHL Option B3 reaches a minimum elevation of approximately 230 m AOD as it skirts around Creag Chrom and maximum elevation of 330 m AOD. OHL Option B3 is approximately 3 km in length.

OHL Option B4 would run north of Allt a'Bhlair, continuing north east to cross Allt Mor and follow a route around the south of Beinn Bhreac for approximately 1.5 km, targeting valley sides to a maximum elevation of approximately 370 m AOD. OHL Option B4 would travel in a northerly direction to the east of Beinn Bhreac, crossing areas of bare ground and keeping west of a valley associated with Allt Starraidh to a point approximately 200 m south east of Loch nan Ciob. OHL Option B4 is approximately 3.8 km in length.

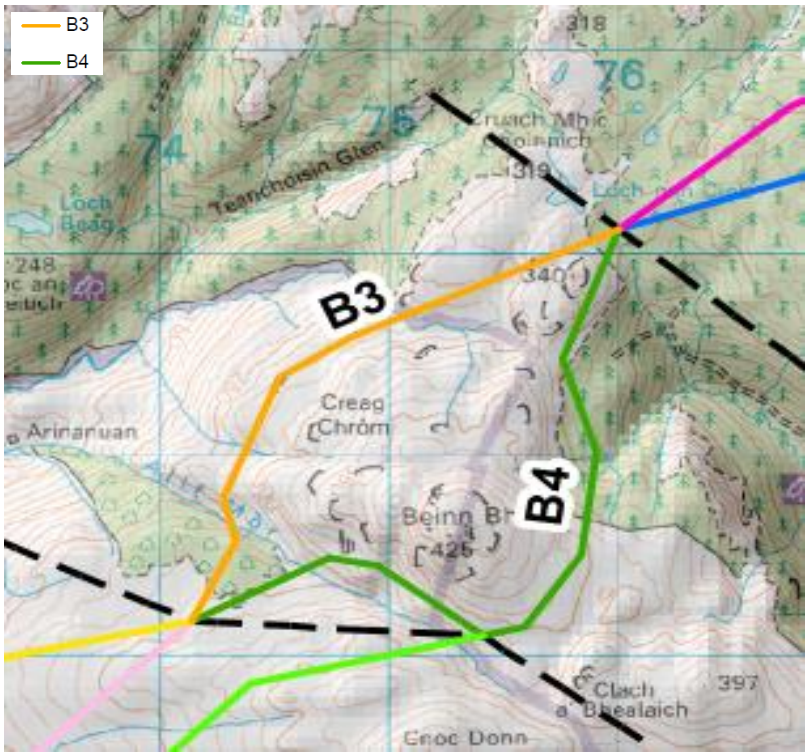

Plate 4.3 – OHL Alignment Options Section B

4.4 OHL Alignment Section C - between south east of Loch nan Ciob and Carradale Water

Two OHL alignment options have been considered in this section.

OHL Option C5 would travel north east of Loch nan Ciob for approximately 1.5 km passing through a maximum elevation of 320 m AOD. The alignment would then continue east, north of Abhainn Bheag, towards Carradale Water for 1.5 km, following a gradually reducing elevation from approximately 260 m AOD to 30 m AOD. OHL Option C5 is approximately 3 km in length.

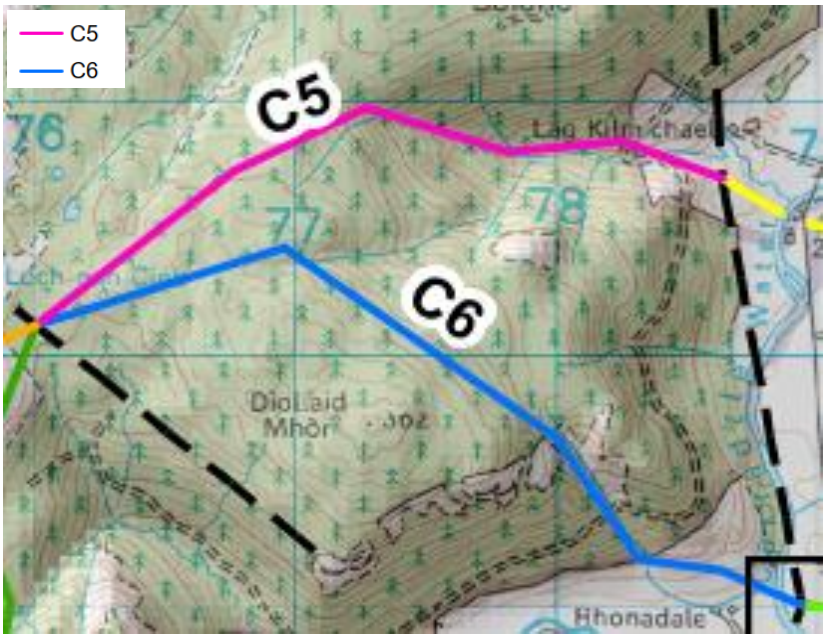

Plate 4.4 – OHL Alignment Options Section C

OHL Option C6 would run north east of Loch nan Ciob for 1 km, the alignment would the travel south east crossing higher ground at Diollaid Mhor with a maximum elevation of 325 m AOD. OHL Option C6 continues south east for 1.9 km through a break in the forestry with a steep descent in elevation from approximately 290 m AOD to 55 m AOD. This section of the alignment option follows an existing wood pole OHL through the valley. OHL Option C6 would then veer east for another 650 m to reach Rhonadale, crossing Carradale Water and terminating approximately 100 m east of the watercourse. OHL Option C6 is approximately 3.4 km in length.

4.5 Indicative UGC Alignment Section 2 - between Carradale Water and Carradale substation

Two indicative UGC options have been considered in this section, one option will comprise two connections but will be considered as one option.

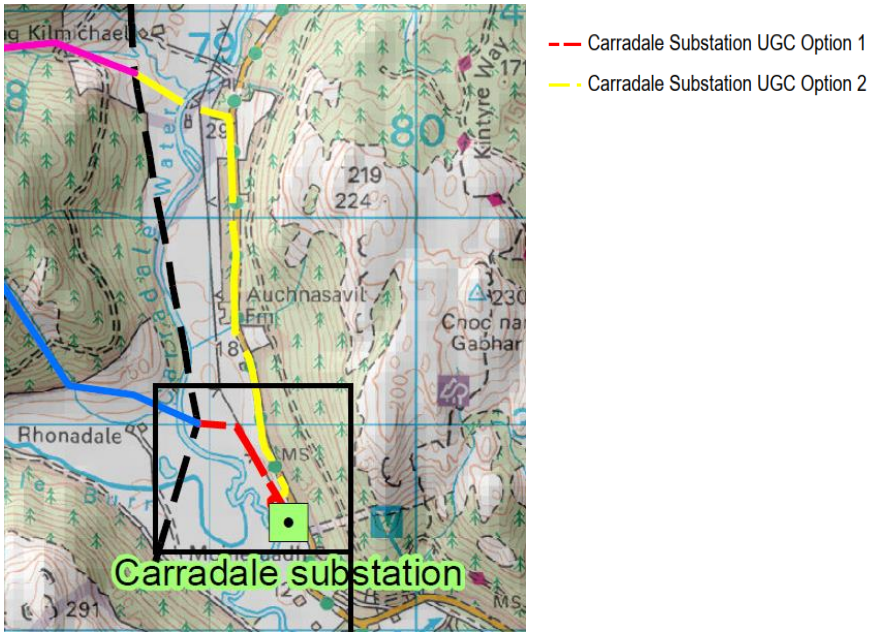

Plate 4.5 – Indicative UGC Alignment Section 2

Carradale substation UGC Option 1 would comprise two connections, one for the Tangy IV Wind Farm and the other for Cnoc Buidhe Wind Farm, these will run in parallel to each other to Carradale substation. The alignment would continue east for 190 m from a platform situated approximately 100 m east of Carradale Water before turning south through the centre of an agricultural field for 375 m. Approximately 20 m north of Carradale substation the two connections would split, the Tangy connection would continue south for a further 75 m before connecting into the existing Carradale substation. The Cnoc Buidhe connection would turn west for 45 m then south for a further 55 m to connect into the western side of the existing Carradale substation. Carradale substation UGC Option 1 is between 640m – 665 m in length.

Carradale substation UGC Option 2 would commence from the end of OHL Option C5. The UGC would travel 500 m south east, through Carradale Water to the B842. Once the UGC meets the B842, it would continue south for approximately 1.9 km along the western side of B842. The UGC would then west at the existing Carradale substation and would travel a further 135 m to connect into the western side of the existing Carradale substation. Carradale substation UGC Option 2 is approximately 2.5 km.

5. COMPARATIVE ANALYSIS OF ALIGNMENT OPTIONS

5.1 Introduction

This section is a summary of the key considerations of each alignment per Section from an environmental, engineering and economic perspective, and provides a comparative appraisal of each Section in order to select an overall Potential Alignment. The following figures accompany the text in this section and illustrate potential environmental baseline constraints identified under each topic.

- Figure 5.1a-e Key Constraints;
- Figure 5.2 Natural Heritage Constraints;
- Figure 5.3 Heritage Constraints;
- Figure 5.4 Residential and Recreational Constraints;
- Figure 5.5 Landscape and Visual Constraints;
- Figure 5.6 Landscape Character Types;
- Figure 5.7 Agricultural Land Classification; and
- Figure 5.8 Woodland Constraints.

Appendix 2: Alignment Appraisal Detail provides more detail on individual alignment option considerations for each topic as listed in Section 3.5 above. It should be noted that the tables in Appendix 2 focus on the individual alignment option summaries and divide environmental and engineering analysis into appropriate subheadings to fully assess each topic, whilst the appraisal in this section makes a full comparative analysis of each section as a whole and divides the assessment by 'environmental', 'engineering', and 'economic' factors.

Where topics, for example 'natural heritage' or 'cultural heritage', are not mentioned specifically within this section, there is no notable preference between the alignment options. This does not mean that there are no potential impacts relating to the topics, but that the topic does not differentiate between the options sufficiently to have a bearing on the alignment option choice.

The comprehensive EIA surveys have not yet been completed, however some surveys have been carried out in targeted areas, which is why some (but not all) sections have survey data referenced.

5.2 Indicative UGC Alignment Section 1

5.2.1 Environment

Tangy UGC Option 3 is more geographically remote than Tangy UGC Option 1 from Lussa Loch which is part of the Kintyre Goose Roosts; an SSSI, SPA, Ramsar Site and IBA, and is considered unlikely to compromise the designated features. It is also a further distance from a ruined stone building that has potential as a roosting bat habitat than Tangy UGC Option 2. Tangy UGC Option 3 passes through an area of conifer plantation with no known nesting sites of notable ornithological species unlike Tangy UGC 1. Both Tangy UGC Option 2 and 3 are considered to have relatively little landscape or visual impact on receptors and neither option interacts with any recreational features.

Overall, from an environmental perspective, for the Cnoc Buidhe UGC Alignment, Cnoc Buidhe UGC Option 2 is slightly less constrained than Cnoc Buidhe UGC Option 1.

Cnoc Buidhe UGC Option 2 is only marginally better than Cnoc Buidhe UGC Option 1 because it passes through a smaller area of degraded blanket bog habitat.

Overall, from an environment perspective, for the Tangy UGC Alignment, Tangy UGC Option 3 is least constrained when compared to Tangy UGC Options 1 and 2.

5.2.2 Engineering

Tangy UGC Option 3 has the least deviations from the most direct route. Deviations can compromise maximum cable pulling tensions and require support to avoid cable damage. Additionally, Tangy UGC Option 3 is not proposed along existing tracks and will therefore not have impacts as a result of road crossings, however it may impact internal access tracks. Additional information is required to confirm this.

Overall, from an engineering perspective, for the Cnoc Buidhe UGC Alignment, Cnoc Buidhe UGC Option 2 is slightly less constrained than Cnoc Buidhe UGC Option 1, as a result of less deviations from the most direct route.

Overall, from an engineering perspective, for the Tangy UGC Alignment, Tangy UGC Option 3 is slightly less constrained than Tangy UGC Options 1 and 2. This is however dependent on confirmation of the Cnoc Buidhe Wind Farm layout.

5.2.3 Economic

Economic considerations will be developed further as the design of the UGC alignment options mature.

5.2.4 Multi-disciplinary Appraisal

Tangy UGC Alignment Option 3 and Cnoc Buidhe UGC Option 2 have been selected as the Potential Alignments as they are the least constrained from both environmental and engineering perspectives.

5.3 OHL Alignment Section A

5.3.1 Environment

Alignment Option A1 impacts less habitats because it does not pass through any Annex 1 habitats, whereas Alignment Option A2 and A3 pass through Annex 1 blanket bog habitat. However, as the blanket bog spans across the width of all three options, it is considered unavoidable and therefore, the option with the least amount of impact to non-irreplaceable habitat, Alignment Option A3, is considered the least constrained from a BNG perspective. Furthermore, whilst all three options pass through high value hen harrier and golden eagle hunting habitat and pass in close proximity to hen harrier breeding sites, Alignment Option A3 also passes in close proximity to Beinn an Tuirc windfarm. Windfarms are typically avoided by the Golden Eagle present in this Section, making it a better option from an ornithological perspective.

Overall, from an environment perspective, Alignment Option A3 is least constrained when compared to Alignment Options A1 and A2.

5.3.2 Engineering

However, Alignment Option A1 is more advantageous in terms of elevation, as it is the lowest of the three and requires the fewest angle towers, which could help minimize environmental disruption. On the other hand, Alignment Option A2 boasts the most favourable terrain, making it the easiest to access. Both Alignment Options A2 and A3 are situated further from communication masts than Alignment Option A1, reducing the risk of obstructing their line of sight. Although, Alignment Option A3 steeper terrain poses some challenges, it also results in a lower flood risk compared to the other options.

While none of the alignments are close to significant buildings or properties, Alignment Option A3 emerges as the most preferred option when considering obstacles like watercourses and trees. Furthermore, Alignment Option A3 avoids the wake zones of existing and proposed wind turbines, making it a robust choice, especially considering the potential future wind farm developments across this area. In assessing wind farms in proximity to the alignment options, only existing and consented

wind farms were considered, however during the Corridor Routeing stage, an application for a new wind farm at Arnicle within Alignment Option A2 and in close proximity to Alignment Option A1 came to light. Alignment Option A3 starts from the proposed southern end of the Tangy IV Windfarm and is carefully aligned to stay outside all existing turbine wake zones.

Overall, from an engineering perspective, Alignment Option A3 is slightly less constrained than Alignment Options A1 and A2.

5.3.3 Economic

All alignment options are within 120% of the lowest capital cost option, so all options are considered acceptable from a capital cost perspective.

Operational costs are estimated to be similar for all options, with similar lengths and number of crossings for all options.

5.3.4 Multi-disciplinary Appraisal

Overall, on balance, Alignment Option A3 has been selected as the Potential Alignment. It emerges as the better choice from an environmental, engineering and economic perspective in respect to BNG, ornithology, access and egress, flood risk, elevation, terrain, windfarm proximity and peat land impact.

5.4 OHL Alignment Section B

5.4.1 Environment

Alignment Option B4 has a greater impact on ornithology compared to Alignment Option B3 due to the Potential Risk of Collision (PRC) and closer proximity to a Golden Eagle breeding area, which is within the Zone of Influence (ZoI) for construction phase disturbance impacts for Alignment Option B4.

In other areas, Alignment Option B4 is less constrained. From a visual perspective, Alignment Option B4 is slightly less visually intrusive than Alignment Option B3, mainly in the eastern half of the alignment and particularly if it were to be connected to Alignment Option A3. Although the eastern half of Alignment Option B4 risks being visible above the skyline in views from Cnoc nan Gabhar (Deer Hill) viewpoint above Carradale, this would generate a lesser visual impact compared to Alignment Option B3. Additionally, Alignment Option B3 crosses native woodland whereas Alignment Option B4 does not, and Alignment Option B3 also crosses a greater area of Annex 1 blanket bog habitat and irreplaceable habitat.

Overall, from an environment perspective, it is difficult to distinguish between the two options, although Alignment Option B4 is slightly less constrained when compared to Alignment Option B3.

5.4.2 Engineering

The nearest access track to both options is in Rhonadale which is located toward the north of Alignment Option B4. Remoteness requires less infrastructure crossings, however it reduces access so Alignment Option B4 is preferred as access tracks are in closer proximity. Additionally, Alignment Option B4 presents a slightly higher percentage of terrain within the manageable slope range (10-20% incline) suggesting fewer complications during construction and maintenance. Finally, the elevations of Alignment Option B4 do not reach as high as Alignment Option B3, therefore there is less risk of wind and ice loading and a reduced requirement for stronger, costlier structures to be constructed. In contrast, Alignment Option B3 does require three less angle towers.

Overall, from an engineering perspective, Alignment Option B4 is the least constrained when compared to Alignment Option B3.

5.4.3 Economic

All alignment options are within 120% of the lowest capital cost option, so all options are considered acceptable from a capital cost perspective.

Operational costs are estimated to be similar for all options, with similar lengths and number of crossings for all options.

Alignment B4 is 0.7km longer than B3, therefore it is estimated to be slightly more expensive.

5.4.4 Multi-disciplinary Appraisal

Overall, on balance, Alignment Option B4 has been selected as the Potential Alignment as it is the least constrained from an engineering perspective and it is slightly less constrained from an environmental perspective. Alignment Option B3 is considered the least expensive option, but this benefit is considered to be outweighed by the environmental and engineering considerations.

5.5 OHL Alignment Section C

5.5.1 Environment

From a visual perspective, Alignment Option C5 is slightly more visually intrusive because the terminal tower would be in the direct view of the properties at Lag Kilmichael, at under 200 m distance. Furthermore, whilst Alignment Option C6 crosses Carradale (inland) Local Nature Conservation Sites (LNCS), it is considered to have a lesser impact than Alignment Option C5 passing through native woodland pockets.

From an ecological perspective, Alignment Option C6 would be slightly more constrained than Alignment Option C5 because of the presence of pine marten in a nearby barn within the Survey Area for Alignment Option C6 and the greater loss of hunting habitats for Golden Eagles. These factors are considered to be slightly outweighed by the potential visual and habitat perspectives, particularly when taking into consideration the potential impacts of the UGC Section 2 options, where UGC Alignment Option 1 (which would connect to Alignment Option C6) is considered less constrained than UGC Alignment Option 2 (which would connect to Alignment Option C5).

Overall, from an environment perspective, Alignment Option C6 is slightly less constrained when compared to Alignment Option C5, although the difference is marginal.

5.5.2 Engineering

While both options present similar challenges in terms of terrain, Alignment Option C6 offers better proximity to existing access routes, which significantly reduces the need for extensive new infrastructure. Alignment Option C6 also avoids areas with high flood risk more effectively than Alignment Option C5, with only 4.78% of its alignment falling within flood-prone zones compared to 27.96% for Alignment Option C5. Additionally, Alignment Option C6's lower overall elevation reduces the risk of wind and ice loading, making it more manageable in terms of construction and maintenance. Although Alignment Option C5 requires fewer angle towers, which might minimize some environmental impacts, the overall benefits of Alignment Option C6—including better access, lower flood risk, and easier terrain—make it the more favourable option. Alignment Option C6 is also more straightforward, reducing potential complications during construction and long-term operation.

When comparing Alignment Options C5 and C6, Alignment Option C6 emerges as the preferred choice.

5.5.3 Economic

All alignment options are within 120% of the lowest capital cost option, so all options are considered acceptable from a capital cost perspective. Although as Alignment Option C5 is 1km longer than Alignment Option C6, Alignment Option C6 will be less expensive.

Operational costs are estimated to be similar for all options, with similar lengths and number of crossings for all options.

5.5.4 Multi-disciplinary Appraisal

Overall, on balance, Alignment Option C6 has been selected as the Potential Alignment as it is the least constrained from environmental, engineering and economic perspectives.

5.6 Indicative UGC Alignment Section 2

5.6.1 Environment

Carradale substation UGC 1 is located adjacent to Moineruadh Wood Ancient Woodland, however unlike Carradale substation UGC Option 2 which passes through three areas of ancient woodland and several native woodland parcels, the B842 lies between the woodland and the Carradale UGC Option 1, therefore there is a separation between the Alignment and the woodland.

Visually, during construction, Carradale substation UGC 2 would affect residential receptors, and local and tourist users of the scenic minor road, whereas Carradale substation UGC 1 would affect fewer receptors. Furthermore, during operation, Carradale substation UGC 1 is not expected to have any permanent visual effects, whilst permanent effects cannot be ruled out for Carradale substation UGC 2.

Overall, from an environmental perspective, Carradale substation UGC Alignment Option 1 is the least constrained when compared to Carradale substation UGC Alignment Option 2.

5.6.2 Engineering

Both Carradale UGC 1 and 2 pass under the existing 132 kV OHL connected to Carradale substation, however Carradale UGC 2 also crosses Carradale River, which might require Horizontal Directional Drilling given the width of the river at the area of crossing, and it crosses access tracks near the B842. Additionally, the greater distance from the B842 of Carradale UGC 1 means it is a further distance from properties on the road. The terrain of Carradale UGC 2 is steeper meaning it is more likely to be constrained, and the route passes through a section of Class 5 peat, whilst Carradale UGC 1 falls within Mineral soil.

Overall, from an engineering perspective Carradale substation UGC Alignment Option 1 is the least constrained when compared to Carradale UGC Option 2.

5.6.3 Economic

Economic considerations will be developed further as the design of the UGC alignment options mature.

5.6.4 Multi-disciplinary Appraisal

Carradale substation UGC Alignment Option 1 has been selected as the Potential Alignment as it is the least constrained from both environmental and engineering perspectives.

6. POTENTIAL ALIGNMENT

Following on from the comparative analysis carried out in **Section 5**, the Potential Alignment can be seen on **Figure 6.1** and comprises the following alignment options:

- Indicative Alignment Tangy UGC Option 3;
- Indicative Alignment Cnoc Buidhe UGC Option 2;
- Alignment Option A3;
- Alignment Option B4;
- Alignment Option C6; and
- Indicative Alignment Carradale UGC Option 1.

7. DETAILED SITE SELECTION REPORT SUMMARY

7.1 Introduction

This section provides a summary of the Detailed Site Selection Report[1] which describes the environmental, engineering and economic appraisal of Site Options for a new switching station and extension of the Carradale substation to create a transmission connection between the combined Tangy IV Wind Farm and Cnoc Buidhe Wind Farm 132 kV OHL to the existing SSEN Transmission network. The following elements are proposed to be included as a part of the Proposed Project:

- A new substation platform, indicatively 90 x 85 metres in size, surrounded by a 2.4 m high metal palisade security fence.
- The installation of two overhead line bays, Air Insulated Switchgear (AIS) to connect them. The installation shall comprise Live Tank Circuit Breakers, line and busbar disconnectors and associated earth switches and associated instrument transformers.
- A new modular control building housing protection apparatus and LV AC & DC systems.
- Connection to the existing 132 kV overhead lines which will be by overhead lines via new terminal towers established remotely from the substation compound and connected via underground cables.

7.2 Background

The approach to site selection was informed by SSEN Transmission's guidance on 'Substation Site Selection Procedures for Voltages at or above 132kV' (July 2022)[13]. The guidance sets out the approach to identification and selection of new substation sites. This document helps SSEN Transmission to meet its obligations under Schedule 9 of the Electricity Act 1989, which requires transmission license holders:

- To have a regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interests; and
- To do what they reasonably can to mitigate any effect that the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.

The guidance aims to balance these environmental considerations with technical and economic considerations throughout the site selection process.

The guidance splits the principal site selection into stages, as follows:

- Stage 0: Pre-Site Selection Activities – Strategic Connections Options Appraisal;
- Stage 1: Initial Site Screening;
- Stage 2: Detailed Site Selection; and
- Post Site Selection Activities: Consenting Process

The stages that are carried out can vary depending on the type, nature and size of a project and consultation is carried out at each stage of the process as appropriate. This project is currently at Stage 2: Detailed Site Selection.

At Stage 1 Initial Site Screening Report was produced in August 2022 which provided a high-level desk-based assessment of the Substation Site Options. The findings from the report were then taken to the public consultation held from August to October 2022. The completion of an initial site

[13] SSEN Transmissions (2022) Substation Site Selection Procedures for Voltages at or above 132kV.

selection process in October 2022 has indicated that extension of the existing Carradale substation is the Preferred Option to situate this connection, as this avoids the need to build an additional switching station in the area.

In accordance with the steps outlined in SSEN Transmission's guidance and having regard to the Holford Rules' principles, the following considerations have been taken into account as far as is practicable at this stage and will be considered in more detail during subsequent assessments:

- respect areas of high amenity value and take advantage of the containment of natural features such as woodland, fitting in with the landscape character of the area.
- take advantage of ground form with the appropriate use of site layout and levels to avoid intrusion into surrounding areas.
- use space effectively to limit the area required for development, minimising the effects on existing land use and rights of way.
- alternative designs of substations may also be considered, e.g., 'enclosed', rather than 'open', where additional cost can be justified.
- consider the relationship of towers and substation structures with background and foreground features, to reduce the prominence of structures from main viewpoints.
- when siting substations take account of the effects of line connections that will need to be made

7.3 Appraisal Method

Further environmental and engineering assessments were compiled and site visits for Ecology, Landscape and Heritage were undertaken in September and October 2022 to enable an informed opinion on how the potential environmental effects identified during the baseline studies could influence potential Site Options.

Environment Criteria

A series of 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 and, where applicable, the site visits, could influence potential site options. Appraisal of the Site Options has involved systematic consideration against the following environmental topi*c areas:*

- Natural Heritage – designations, protected species, habitats, biodiversity net gain, ornithology, hydrology, geology and hydrogeology;
- Cultural Heritage – designations and cultural heritage assets;
- Landscape and Visual – designations, landscape character and visual amenity;
- Land Use – agriculture, forestry and recreation; and
- Planning – policy and proposals

Engineering criteria

Appraisal of the Site Options has involved systematic consideration against the following engineering topic areas:

- Connectivity – existing circuits/network, future development possibilities, interface with SSE distribution and generation, and DNO connection;
- Footprint requirements – technology, adjacent land use and space availability;
- Hazards – unique hazards and existing utilities;
- Environmental Design – elevation, salt pollution, carbon footprint, contaminated land, noise and flooding;

- Ground Conditions – terrain and peat;
- Construction/ Maintenance – access for construction, maintenance and customers

Economic criteria

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

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

7.4 Description of the Site Options

This section describes further design for each of the Site Options identified in the Stage 1 appraisal (see **Figure 7.1**). Key Constraints Map of Carradale Substation is shown on **Figure 7.2**. The different terminal configuration options considered for Site Options 1 and 2 are also set out for clearer context. The Site Options assessed are listed (in order from north to south) and described in the following section:

7.4.1 Site Option 1

Site Option 1 would be situated directly at the end point of northern section of the C5 alignment option and would require a tee connection at tower RC9 on the existing Carradale to Crossaig 132kV OHL route for the proposed Cnoc Buidhe Circuit.

This option is located on agricultural land and is bound by Carradale Water to the east and open fields with blocks of woodland to the north, west and south. There are three sub-options at this site offering different OHL termination configurations (see **Plates 7.1, 7.3** and **7.5**):

Option 1a:

Option 1a would require a large switching station approximately 68 m x 58 m for the proposed Cnoc Buidhe circuit. Option 1a would allow for the Tangy IV circuit to be terminated either by a Sealing End Platform or Sealing End Compound and cabled all the way to Carradale substation associated bay.

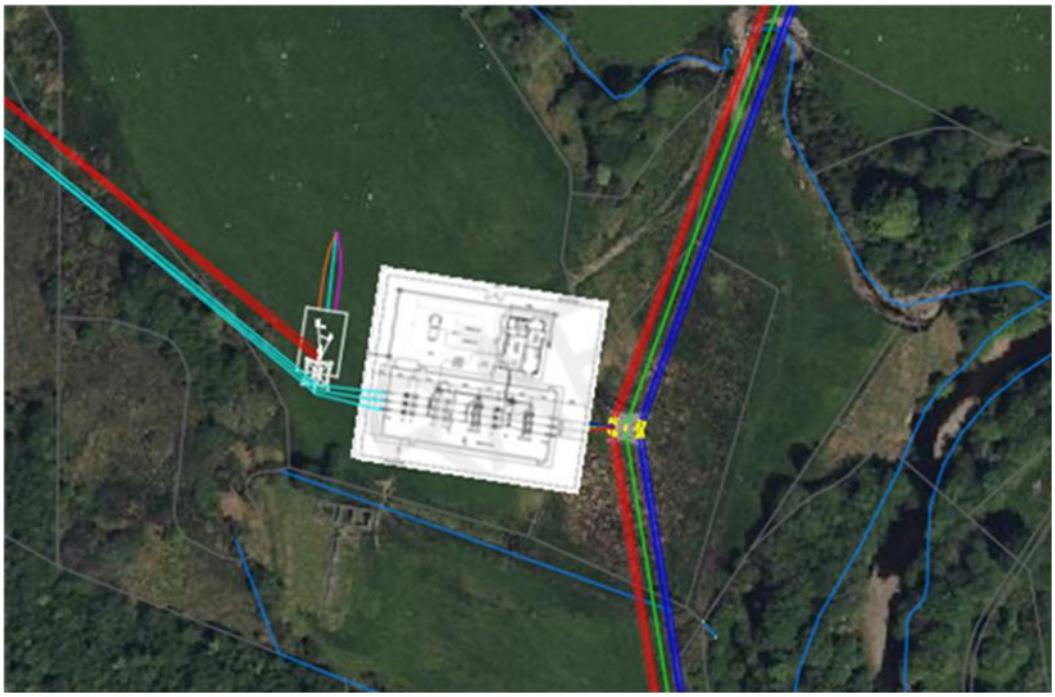

Plate 7.1 - Site Option 1a

Option 1b:

Option 1b would comprise Tangy IV and Cnoc Buidhe circuits terminating on a SEP (Sealing End Platform) directly at the end of C5 alignment option. This OHL connection would assume both circuits would be terminated onto a platform and cable routed to Carradale substation. This option would trigger the development of Carradale substation northern extension to allow for Cnoc Buidhe Circuit entry and Tangy IV would be routed directly to an allocated bay to the northeast of Carradale substation.

Plate 7.2 – Example of terminal tower with Sealing End Platform

Plate 7.3 - Site Option 1b

Option 1c:

Option 1c would be the siting of a SEC (Sealing End Compound) directly at the end of C5 alignment. This OHL connection would assume both circuits would be terminated down into a compound and cable routed to Carradale substation. This option would trigger the development of Carradale northern extension to allow for Cnoc Buidhe Circuit entry and Tangy IV circuit would be routed directly to an allocated bay to the northeast of Carradale substation.

Plate 7.4 – Example of terminal tower with Sealing End Compound

Plate 7.5 - Site Option 1c

7.4.2 ***Site Option 2***

This Site Option would require a 'T' connection at tower RC4 on the existing Carradale to Crossaig 132kV OHL route for the proposed Cnoc Buidhe Circuit. Site Option 2 is located on agricultural land and bound by the Carradale Water to the west and open fields with scattered woodland areas to the north, east and south. There are three sub-options at this site offering different OHL termination configurations (see **Plates 7.6-7.8**):

Option 2a:

Option 2a will consist of a switching station approximately 68 m x 58 m located west of Tower RC4 of the Crossaig to Carradale 132 kV OHL, approximately 700 m northwest of the existing Carradale substation. The connection would be a direct tee-in to the westerly RC circuit and would be situated directly at the end point of the northern section of the C6 alignment option.

Plate 7.6 - Site Option 2a

Option 2b:

Option 2b would be the siting of a Sealing End Platform directly at the end of Alignment C6. This OHL connection would assume both circuits would be terminated onto a platform and cable routed to Carradale substation. This option would trigger the development of Carradale northern extension to allow for Cnoc Buidhe Circuit entry, and Tangy would be routed directly to an allocated bay to the north east of Carradale substation.

Plate 7.7 - Site Option 2b

Option 2c:

Option 2c would be the siting of a Sealing End Compound directly at the end of Alignment C6 alignment option. This OHL connection would assume both Tangy IV and Cnoc Buidhe Circuits would be terminated down into a compound and cable routed to Carradale substation. This option would trigger the development of Carradale substation northern extension to allow for Cnoc Buidhe Circuit entry, and Tangy IV circuit would be routed directly to an allocated bay to the north east of Carradale substation.

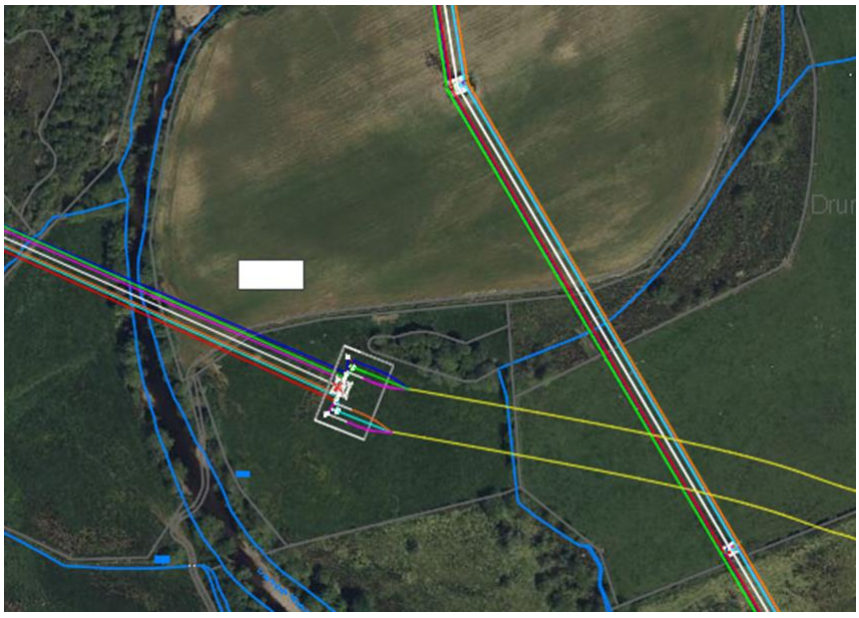

Plate 7.8 - Site Option 2c

*7.4.3 **Site Option 3***

This Site Option will consist of the installation of a new busbar immediately north of the existing Carradale substation and will form an extension to this substation. Site Option 3 is located on agricultural land and is bound by the Carradale Water to the west and the B842 to the east. Within each of the locations where the direct 'T' connection to the existing RC 132 kV OHL circuit by Cnoc Buidhe Wind Farm connection is not available, there would have to be the development of a substation extension in relation to 'switching' equipment carried out to the north of the existing Carradale substation. This would be to enable cable entry of Cnoc Buidhe circuit to Carradale substation. The extension would be north west of the existing terminal tower to accommodate the connection options. This option is shown on **Plate 7.9** and **Figure 7.2**.

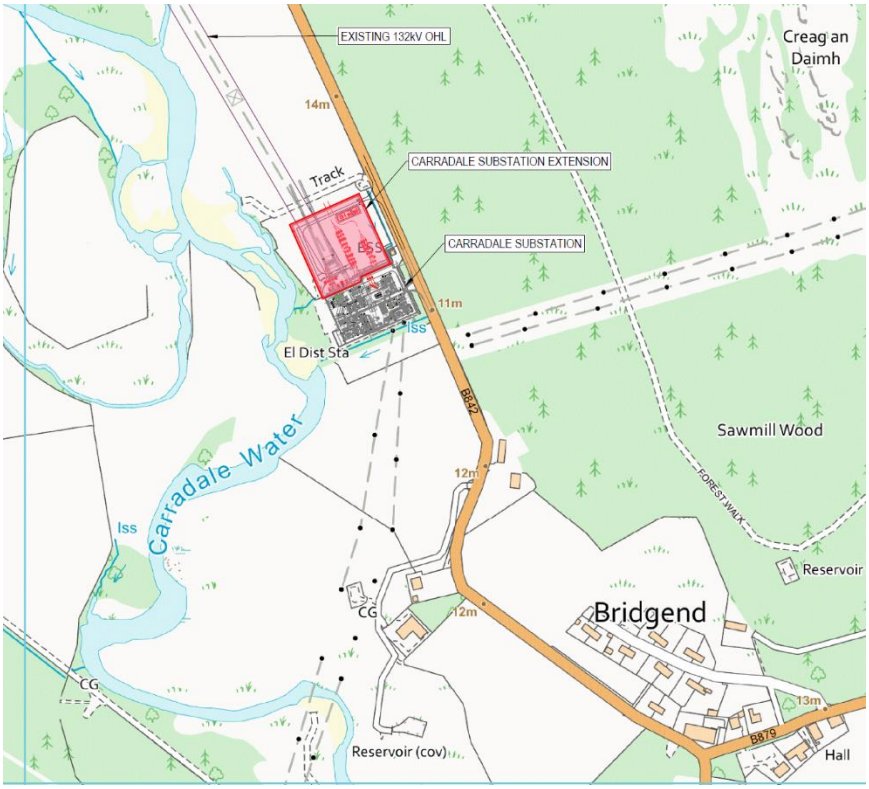

Plate 7.9 - Site Option 3

7.5 Comparative Appraisal Summary

7.5.1 Environment

Both Site Options 1 and 3 are not connected to any sites designated for natural heritage, unlike Site Option 2 which would result in the permanent loss of habitat within the Carradale Local Nature Conservation Site. Site options 2 and 3 are likely to compromise the quality or quantity of surface waters due to the proximity of the options to surface water, whereas Site Option 1 is anticipated to impact surface waters to a lesser extent. Site Option 1 is located within planning application 22/02321/FGS and woodland management plan, however, is considered unlikely to affect it, whereas Site Option 3 is located immediately south of planning application 21/01907/PAN for a battery storage facility at Carradale substation, which has a moderate risk of interacting with the proposal.

Site Option 3 is the preferred Site from a landscape and visual point of view. As an extension of the existing Carradale Substation, Site Option 3 is the least likely to cause any impacts on the landscape character or the visual amenity of this area. Furthermore, although all Site Options hold limited

biodiversity value and could be taken forward, from a BNG perspective, the habitats impacted within Site Option 3 are of lower biodiversity value compared to Site Options 1 and 2.

Overall, from an environmental perspective, Site Option 3 is slightly less constrained than Site Options 1 and 3, although there is little to distinguish between Site Options 1 and 3.

7.5.2 Engineering

Option 1 and 2 would require modification to the existing tower RC 9 and much larger land take to install a new switching station and a new terminal tower with a sealing end compound or platform. Option 1 and 2 are least preferred as they are in a close proximity to the properties and also have a higher carbon footprint associated with the proposal. Site Option 3 is located on SSE owned land whereas Site Options 1 and 2 would require third party land take. From an access perspective, Site Option 3 already has an established access route whereas Site Options 1 and 2 would require the construction of permanent accesses.

Overall, from an engineering perspective, Site Option 3 is the least constrained.

7.5.3 Economic

Site Option 3 is considered to be the most cost-effect during construction and operation when compared to Site Options 1 and 2.

7.5.4 Multi-disciplinary Appraisal

Site Option 3 has been selected as the Potential Site as it is the least constrained an environmental, engineering and economic perspective.

7.6 Next Steps

The Report on Consultation produced for the alignment process will also document the consultation responses received on the selected site for the Carradale substation extension, and the decisions made in light of these responses.

Following the consultation process, the project will move on to the EA and consenting stage where further technical and environmental surveys will be undertaken to support a planning application under the Town and Country Planning Act 1997. It is anticipated that an application for consent for the chosen Site Option will be submitted in late 2025.

8. CONSULTATION ON THE PROPOSALS

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

8.1 Questions for Consideration by Consultees

When providing your comments and feedback, SSEN would be grateful for your consideration of the questions below:

- Has the approach taken to select the Potential Alignment been clearly explained?
- In your opinion, has a clear overview of the required project elements been provided?
- Do you have any specific concerns in relation to the Potential Alignment? If so, is there anything we could do to mitigate the impact of this?
- Do you feel, on balance, that the Potential Alignment selected is the most appropriate for further consideration at the Environmental Impact Assessment stage?
- Are there any factors, or environmental features that you believe have not been considered during the Potential Alignment selection process?

8.2 Next Steps

The responses received from the consultation events, and those sought from statutory consultees and other key stakeholders, will inform further consideration of the alignments put forward, and the confirmation of the Proposed Alignment to take forward to EIA and consenting stage where further technical and environmental surveys will be undertaken to support a Section 37 consent under the Electricity Act 1989.

All comments are requested by Friday 25 October 2024. A Report on Consultation will be published after the consultation period has ended, which will document the consultation responses received, and the decisions made in light of these responses.

Submission of the Section 37 application is expected to take place in late 2025.

APPENDIX 1 – FIGURES

APPENDIX 2 – ALIGNMENT APPRAISAL DETAIL

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
Natural Heritage	Designations Tangy UGC 1 is in close proximity to Lussa Loch, which is part of the Kintyre Goose Roosts Site of Special Scientific Interest (SSSI)[14], Special Protection Area (SPA)[15], Ramsar Site[16] and Important Bird Area (IBA)[17]. Protected Species No protected species or suitable habitat for protected species are likely to be compromised by Tangy UGC Option 1. Habitats A UK Habitat survey of the options, along with a 50 m buffer either side	Designations Tangy UGC 2 is geographically remote from Lussa Loch and is unlike to comprise its designated features. Protected Species Tangy UGC 2 is 24 m east of a derelict stone farm building which has potential roost features for bats. Tangy UGC 2 and associated works may compromise the integrity of the potential roost site. Habitats	Designations Tangy UGC 3 natural heritage designations appraisal is the same ad Tangy UGC 2. Protected Species Tangy UGC 3 natural heritage protected species appraisal is the same as Tangy UGC 1. Habitats Tangy UGC Option 3 contains 0.43 Ha of irreplaceable blanket bog.	Designations Cnoc Buidhe UGC 1 is geographically remote from Lussa loch and is unlikely to comprise its designated features. Protected Species Cnoc Buidhe UGC 1 is 24 m east of a derelict stone farm building which has potential roost features for bats. Cnoc Buidhe UGC 2 and associated works may compromise the integrity of the potential roost site. Habitats	Designations Cnoc Buidhe UGC 2 natural heritage designations appraisal is the same ad Cnoc Buidhe UGC 1. Protected Species Cnoc Buidhe UGC 2 natural heritage protected species appraisal is the same as Cnoc Buidhe UGC 1. Habitats Cnoc Buidhe UGC Alignment Option Section 2 contains 0.15 Ha of

[14] Defined in glossary

[15] Defined in glossary

[16] Defined in glossary

[17] Defined in glossary

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
	of the options was carried out to map habitats present and identify those of conservation value. Tangy UGC Option 1 contains 0.07 Ha of irreplaceable blanket bog (f1a6). Non irreplaceable habitats include 3.16 Ha of other neutral grassland (g3c), 0.60 Ha of non-irreplaceable degraded blanket bog (f1a6), 8.34 Ha of other coniferous woodland (w2c), 0.42 Ha of other woodland broadleaved (w1g), 0.02 km of linear watercourse habitat with the remaining 2.54 Ha of urban built linear features (u1e). BNG[18] Tangy UGC 1 passes through 1.06 Biodiversity Units (BU) of irreplaceable blanket bog habitat. As the blanket bog spans the width of Tangy UGC 1, it is considered unavoidable. However, a significant	Tangy UGC 2 contains 0.15 Ha of irreplaceable blanket bog. Non irreplaceable habitats include 0.56 Ha of non-irreplaceable degraded blanket bog (f1a6), 12.04 Ha of other coniferous woodland (w2c), 0.02 Km of linear watercourse habitat and 3.13 Ha of urban built linear feature (u1e). BNG Tangy UGC 2 passes through 2.28BU of irreplaceable habitat. As the blanket bog spans the width of Tangy UGC 2, it is considered unavoidable. However, a significant proportion of this habitat can be avoided through	Non irreplaceable habitats include 0.96 Ha of non-irreplaceable degraded blanket bog (f1a6), 9.61 Ha of other coniferous woodland (w2c), 0.02 Km of linear watercourse habitat and 0.03 Ha of urban artificial unvegetated unsealed surface (u1c). BNG Tangy UGC 3 passes through 6.53 BU of irreplaceable habitat. As the blanket bog spans the width of Tangy UGC 3, it is considered unavoidable. However, a significant proportion of this habitat can be avoided through the considerate micro-siting nature of UGCs.	Cnoc Buidhe UGC Alignment Option Section 1 contains 0.15 Ha of irreplaceable blanket bog. Non irreplaceable habitats include 0.49 Ha of non-irreplaceable degraded blanket bog (f1a6), 5.97 Ha of other coniferous woodland (w2c), 0.02 Km of linear watercourse habitat and 0.92 Ha of urban built linear feature (u1e). BNG Cnoc Buidhe UGC 1 passes through 2.28 BU of irreplaceable habitat. As the blanket bog spans the width of Cnoc Buidhe UGC 1, it is considered unavoidable. However, a significant proportion of this habitat can be avoided through the considerate micro-siting nature of UGCs.	irreplaceable blanket bog. Non irreplaceable habitats include 4.94 Ha of other coniferous woodland (w2c) and 0.02 Km of linear watercourse habitat. BNG Cnoc Buidhe UGC 2 passes through 2.28 BU of irreplaceable. As the blanket bog spans the width of Cnoc Buidhe UGC 2, it is considered unavoidable. However, a significant proportion of this habitat can be avoided through the considerate micro-siting nature of UGCs. Cnoc Buidhe UGC 2 passes through 10.87 BU

[18] Defined in glossary

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
	proportion of this habitat can be avoided through the considerate micro-siting nature of UGCs. Tangy UGC 1 passes through 68.31 BU and 0.18 Linear Unit – Watercourse (LU-W) of non-irreplaceable habitat. Ornithology[19] The principal constraint in relation to Tangy UGC 1 would be construction related disturbance/displacement of roosting Greenland white-fronted goose on Lussa Loch associated with the designations detailed above. To avoid this impact works could be undertaken during the summer months (approximately May to August) when the birds are not present. There would be no notable operational impacts.	the considerate micro-siting nature of UGCs. Tangy UGC 2 passes through 30.47 BU and 0.18 Linear Unit – Watercourse (LU-W) of non-irreplaceable habitat. Ornithology Tangy UGC 2 passes through conifer planation with no known nest sites of notable species within the Zone of Disturbance (ZoI) for disturbance effects Conifer plantation is of low value to notable species. Hydrology, Geology and Hydrogeology Tangy UGC 2 natural heritage hydrology,	Tangy UGC 3 passes through 28.59 BU and 0.18 Linear Unit – Watercourse (LU-W) of non-irreplaceable habitat. Ornithology Tangy UGC 3 natural heritage ornithology appraisal is the same as Tangy UGC 2. Hydrology, Geology and Hydrogeology Argyll and Bute Council PWS records indicate that there no PWS within 1 km of Tangy UGC 3. Otherwise, the natural heritage hydrology, geology and hydrogeology appraisal for Tangy UGC	Cnoc Buidhe UGC 1 passes through 16.85 BU and 0.18 Linear Unit – Watercourse (LU-W) of non-irreplaceable habitat. Ornithology Cnoc Buidhe UGC 1 passes through conifer plantation that is of relatively low value for notable species. While barn owl breeding sites are known in the wider area none are within the potential disturbance zone from the Alignment Option options Hydrology, Geology and Hydrogeology Cnoc Buidhe UGC 1 is underlain by the Oban and Kintyre Groundwater Body (ID: 150698), classified by SEPA**Error! Bookmark not defined.** as having a 'Good' overall status. It crosses a low	and 0.18 Linear Unit – Watercourse (LU-W) of non-irreplaceable habitat. Ornithology Cnoc Buidhe UGC 2 natural heritage ornithology appraisal is the same as Cnoc Buidhe UGC 1. Hydrology, Geology and Hydrogeology Cnoc Buidhe UGC 2 natural heritage hydrology, geology and hydrogeology appraisal is the same as Cnoc Buidhe UGC 2.

[19] Defined in glossary

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
	<u>Hydrology, Geology and Hydrogeology</u> Tangy UGC 1 is underlain by the Oban and Kintyre Groundwater Body (ID: 150698), classified by Scottish Environment Protection Agency (SEPA) as having a 'Good' overall status. It crosses a low productivity aquifer from the Southern Highland Group, in which small amounts of groundwater are encountered in the near surface weathered zone and in secondary fractures. Tangy UGC 1 crosses a number of small watercourses, which include tributaries of Glenlussa Water and Lussa Loch. Argyll and Bute Council Private Water Supply (PWS) records indicate that there are PWS within 1 km of Tangy UGC 1. SEPA records indicate there are no potential SEPA water abstraction within 1km of Tangy UGC 1 and Scottish Water (SW) assets database indicates no SW	geology and hydrogeology appraisal is the same as Tangy UGC 1	2 is the same as Tangy UGC 1.	productivity aquifer from the Southern Highland Group, in which small amounts of groundwater are encountered in the near surface weathered zone and in secondary fractures. Cnoc Buidhe UGC 1 crosses a number of small watercourses, which include tributaries of Glenlussa Water and Lussa Loch. Argyll and Bute Council PWS records indicate that there are no PWS within 1 km of Cnoc Buidhe UGC 1. SEPA records indicate there are no potential SEPA water abstraction within 1km of Cnoc Buidhe UGC 1 and SW assets database indicates no SW abstractions within 1 km of Cnoc Buidhe UGC 1. Cnoc Buidhe UGC 1 is not within SEPA DWPA for surface water but is located within a SEPA DWPA for groundwater.	

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
	abstractions within 1 km of Tangy UGC 1. Tangy UGC 1 is not within SEPA Drinking Water Protected Area (DWPA)[14] for surface water but is located within a SEPA DWPA for groundwater. There is the potential presence of Ground Water Dependent Terrestrial Ecosystem (GWDTE)[20] in Tangy UGC 1. Tangy UGC 1 may compromise the quality or quantity of surface waters or groundwaters, due to the presence of watercourses, PWS, SEPA water abstraction, SEPA DWPA (for surface water) and the potential presence of GWDTE.			There is the potential presence of GWDTE in Cnoc Buidhe UGC 1. Cnoc Buidhe UGC 1 may compromise the quality or quantity of surface waters or groundwaters, due to the presence of watercourses, PWS, SEPA water abstraction, SEPA DWPA (for surface water) and the potential presence of GWDTE.	
Cultural Heritage	<u>Designations</u>	<u>Designations</u> Tangy UGC 2 encounters three SMR entries:	<u>Designations</u> Tangy UGC 3 encounters three SMR entries:	<u>Designations</u> There are no WHS, SMs, Inventory Battlefields or	<u>Designations</u> The cultural heritage designation appraisal for Cnoc Buidhe UGC 2 is

[20] Defined in glossary

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
	There are no World Heritage Sites (WHS)[21], Scheduled Monuments (SMs)[22], Inventory Battlefields or Inventory Garden and Designed Landscapes (GDLs)[23] within the Limit of Deviation (LoD) of Tangy UGC 1. Tangy UGC 1 encounters four Site and Monument Record (SMR)[24] entries: • Collusca, croft (West of Scotland Archaeology Service (WoSAS) 58408); • Corrylach Sheepfold (WoSAS 59537); • Lussa Loch Sheepfold (WoSAS 59535); and • Allt Harvie, shieling hut (Canmore ID 38389).	• Collusca, croft (WoSAS 58408); • Allt Nam Creamh, shieling huts (Canmore ID 38500); and • Killocraw, cup marked stone (Canmore ID 38505). Otherwise, the cultural heritage designations appraisal for Tangy UGC 2 is the same as Tangy UGC 1. <u>Assets</u> Tangy UGC 2 cultural heritage assets appraisal	• Collusca, croft (WoSAS 58408); and • Allt Nam Creamh, shieling huts (Canmore ID 38500). Otherwise, the cultural heritage designations appraisal for Tangy UGC 3 is the same as Tangy UGC 1. <u>Assets</u> Tangy UGC 3 cultural heritage assets appraisal is the same as Tangy UGC 1.	Inventory GDLs within the LoD of Cnoc Buidhe UGC 1. Cnoc Buidhe UGC 1 encounters one SMR entry, Collusca, croft (WoSAS 58408). This designation can be avoided by micro siting. <u>Assets</u> There are no Conservation Areas or LBs within the LoD or the 2 km study area of Tangy UGC 1, therefore minimal to no impacts to assets are anticipated	the same as Cnoc Buidhe UGC 1. <u>Assets</u> Cnoc Buidhe UGC 2 cultural heritage assets appraisal is the same as Cnoc Buidhe UGC 1.

[21] Defined in glossary

[22] Defined in glossary

[23] Defined in glossary

[24] Defined in glossary

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
	These designations can be avoided by micro siting. Assets There are no Conservation Areas or Listed Buildings (LBs)[14] within the LoD or the 2km study area of Tangy UGC 1, therefore minimal to no impacts to assets are anticipated.	is the same as Tangy UGC 1.			
Landscape and Visual	Designations No landscape or landscape related designations would be affected by Tangy UGC 1. Landscape Character Tangy UGC 1 would cause substantial local disturbance to the tranquil local landscape of Lussa Loch during construction. After full restoration, little to no permanent impacts are anticipated. Visual Whilst it can be assumed that there would be little or no long-term visual impacts from any options following	Designations Tangy UGC 2 landscape and visual designations appraisal is the same as Tangy UGC 1. Landscape Character Relatively little impact to landscape character is anticipated from Tangy UGC 2. Visual Tangy UGC 2 would have relatively little visual impact.	Designations Tangy UGC 3 landscape and visual designations appraisal is the same as Tangy UGC 1. Landscape Character Tangy UGC 3 landscape and visual landscape character appraisal is the same as Tangy UGC 2. Visual Tangy UGC 3 visual appraisal is the same as Tangy UGC 2.	Designations No landscape or landscape related designations would be affected by Cnoc Buidhe UGC 1. Landscape Character Cnoc Buidhe UGC 1 would impact small areas of remote forestry and would have little landscape impact. Visual Cnoc Buidhe UGC 1 would have relatively little visual impact.	Designations Cnoc Buidhe UGC 2 landscape and visual designations appraisal is the same as Cnoc Buidhe UGC 1. Landscape Character Cnoc Buidhe UGC 2 landscape and visual landscape character appraisal is the same as Cnoc Buidhe UGC 1. Visual Cnoc Buidhe UGC 2 visual appraisal is the

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
	restoration, Tangy UGC Option 1 would have a significant adverse impact on the visual amenity of the residential properties at Corrylach and the users of the Kintyre Way during construction.				same as Cnoc Buidhe UGC 1.
Land Use	<u>Agriculture</u> Tangy UGC 1 passes through Class 6.3 agricultural land, which is land capable of use as rough grazing with low quality plants and Class 5.3 land, land capable of use as improved grassland. As this land is not a particularly sensitive or fertile category, any impacts on agriculture as a result of Tangy UGC 1 is considered to be low. <u>Forestry</u> Tangy UGC 1 passes through the Luss forest managed by Forest and Land Scotland (FLS), a commercial forest with the primary objective as timber production. The impact on the current forest cover and future	<u>Agriculture</u> Tangy UGC 2 agriculture appraisal is the same as Tangy UGC 1. <u>Forestry</u> Tangy UGC 2 forestry appraisal is the same as Tangy UGC 1. <u>Recreation</u> The nearest constraints are the Kintyre Way and the C088 Campbelltown to Cloanaig Core Path, however Tangy UGC 2 would not interact with the recreational features, and given the distance and terrain in between, views	<u>Agriculture</u> Tangy UGC 3 passes through Class 6.3 agricultural land, which is land capable of use as rough grazing with low quality plants. As this land is not a particularly sensitive or fertile category, any impacts on agriculture as a result of Tangy UGC 3 is considered to be low. <u>Forestry</u> Tangy UGC 3 forestry appraisal is the same as Tangy UGC 1.	<u>Agriculture</u> Cnoc Buidhe UGC 1 passes through Class 6.3 agricultural land, which is land capable of use as rough grazing with low quality plants. As this land is not a particularly sensitive or fertile category, any impacts on agriculture as a result of Cnoc Buidhe UGC 1 is considered to be low. <u>Forestry</u> Tangy UGC 1 passes through the Luss forest managed by Forest and Land Scotland (FLS), a commercial forest with the primary objective as timber production. The impact on the	<u>Agriculture</u> Cnoc Buidhe UGC 2 agriculture appraisal is the same as Cnoc Buidhe UGC 1. <u>Forestry</u> Cnoc Buidhe UGC 2 forestry appraisal is the same as Cnoc Buidhe UGC 2. <u>Recreation</u> Cnoc Buidhe UGC 2 recreation appraisal is the same as Cnoc Buidhe UGC 2.

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
	management is considered significant. Recreation The nearest constraints are the Kintyre Way and the C088 Campbelltown to Cloanaig Core Path. Tangy UGC 1 runs along these paths for 3.3 km and would therefore directly impact them.	of the Proposed Development will be limited.	Recreation Tangy UGC 3 recreation appraisal is the same as Tangy UGC 2.	current forest cover and future management is considered medium. Recreation The nearest constraints are the Kintyre Way and the C088 Campbelltown to Cloanaig Core Path, however Cnoc Buidhe UGC 1 would not interact with the recreational features, and given the distance and terrain in between, views of the Proposed Development will be limited.	
Planning	Policy and proposals Adherence to National, Regional and Local planning policy will in part largely depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given presence of designated sites and areas of landscape importance.	Policy and proposals Tangy UGC 2 planning policy appraisal is the same as Tangy UGC 1. Tangy UGC 2 is located in close proximity to planning application 23/01516/PNPEA – Peat restoration project, 22/00075/PP – Erection of a 90 m high meteorological mas and	Policy and proposals Tangy UGC 3 planning policy and proposals appraisal is the same as Tangy UGC 1	Policy and proposals Adherence to National, Regional and Local planning policy will in part largely depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given presence of designated sites and areas of landscape importance.	Policy and proposals Cnoc Buidhe UGC 2 planning policy and proposals appraisal is the same as Cnoc Buidhe UGC 1 with the exception that it is not in close proximity to 23/01516/PNPEA – Peat restoration project.

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
	When considering NPF4, Tangy UGC 1 has the potential to conflict with the following policies: • Policy 5 – Soils (due to the presence of irreplaceable blanket bog habitat); and • Policy 6 – Forestry, Woodland and trees. Tangy UGC 1 is in close proximity to the boundary of planning application 20/01212/FDP – Long term forest plan.	20/01212/FDP – Long term forest plan.		When considering NPF4, Cnoc Buidhe UGC 1 has the potential to conflict with the following policies: • Policy 5 – Soils (due to the presence of irreplaceable blanket bog habitat); and • Policy 6 – Forestry, Woodland and trees. Cnoc Buidhe UGC 1 intersects the boundary associated with planning application 20/00801/PNFOR – formation of a forest track and is in close proximity to planning application 23/01516/PNPEA – Peat restoration project and 20/01212/FDP – Long term forest plan.	
Infrastructure Crossings	<u>Major Crossings</u> Tangy UGC 1 crosses the Strathdule Water and 17 minor water streams, but these are not considered major water crossings that could represent	<u>Major Crossings</u> Tangy UGC 2 major crossings appraisal is the same as Tangy UGC 1, with the exception that it	<u>Major Crossings</u> Tangy UGC 3 major crossings appraisal is the same as Tangy UGC 1, with the exception that it	<u>Major Crossings</u> Cnoc Buidhe UGC 1 crosses the Strathdule Water and 7 minor water streams, but these are not considered major water crossing	<u>Major Crossings</u> Cnoc Buidhe UGC 2 major crossings appraisal is the same as Cnoc Buidhe UGC 1, with the

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
	a major challenge to the construction of the route. No further major crossings such as highways and railroads exist throughout. Road Crossings Tangy UGC 1 is proposed along existing tracks, so impacts on the tracks are expected.	crosses 10 minor water streams. Road Crossings Tangy UGC 2 road crossings appraisal is the same as Tangy UGC 1.	crosses 8 minor water streams. Road Crossings Tangy UGC 3 may impact internal access tracks in Cnoc Buidhe, however additional information is required to confirm this.	that could represent a major challenge to the construction of the route. No further major crossings such as highways and railroads exist throughout. Road Crossings Cnoc Buidhe UGC 1 does not have road crossings, however confirmation of the windfarm layout is required to determine if any internal access tracks will be crossed.	exception that it crosses 6 minor water streams. Road Crossings Cnoc Buidhe UGC 2 road crossings appraisal is the same as Cnoc Buidhe UGC 1.
Environmental Design	Elevation Tangy UGC 1 has a minimum elevation of 146 m, maximum of 228 m, and average of 175 m, with approximately 25% of the route above 200 m AOD. Areas above 200m present a higher risk of severe weather. Atmospheric Pollution Tangy UGC 1 is considered outside of any contamination areas	Elevation Tangy UGC 2 has a minimum elevation of 159 m, maximum of 278 m, and average of 217 m, with approximately 50% of the route above 200 m AOD. Areas above 200m present a higher risk of severe weather.	Elevation Tangu UGC 3 has a minimum elevation of 163 m, maximum of 291 m, and average of 242 m, with approximately 85% of the route above 200 m AOD. Areas above 200m present higher risk of severe weather.	Elevation Cnoc Buidhe UGC 1 has a minimum elevation of 159 m, maximum of 271 m, and average of 243 m, with approximately 85% of the route above 200 m AOD. Areas above 200m present higher risk of severe weather.	Elevation Cnoc Buidhe UGC 2 has a minimum elevation of 159 m, maximum of 270 m, and average of 229 m, with approximately 85% of the route above 200 m AOD. Areas above 200m present higher risk of severe weather.

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
	containing carbon dioxide, nitrogen dioxide, nitrogen oxide, sulphur dioxide and particulate matters. Contaminated Land The region of Argyll and Bute in Scotland is a former WW2 testing ground, therefore there is a prevalence of UXOs in the area. However, in accordance with PR-NET-ENV-501, none of which come within contaminated land or area, therefore the risk of this is as low as reasonably practicable. Flooding According to SEPA flood maps, Tangy UGC 1 has a short section of high flood risk as a result of the Strathdule Water crossing, however this section represents less than 2% of the route's length.	Atmospheric Pollution Tangy UGC 2 atmospheric pollution appraisal is the same as Tangy UGC 1. Contaminated Land Tangy UGC 2 contaminated land appraisal is the same as Tangy UGC 1. Flooding Tangy UGC 2 flooding appraisal is the same as Tangy UGC 1.	Atmospheric Pollution Tangy UGC 3 atmospheric pollution appraisal is the same as Tangy UGC 1. Contaminated Land Tangy UGC 3 contaminated land appraisal is the same as Tangy UGC 1. Flooding Tangy UGC 3 contaminated land appraisal is the same as Tangy UGC 1.	Atmospheric Pollution Cnoc Buidhe UGC 1 is considered outside of any contamination areas containing carbon dioxide, nitrogen dioxide, nitrogen oxide, sulphur dioxide and particulate matters. Contaminated Land The region of Argyll and Bute in Scotland is a former WW2 testing ground, therefore there is a prevalence of UXOs in the area. However, in accordance with PR-NET-ENV-501, none of which come within contaminated land or area, therefore the risk of this is as low as reasonably practicable. Flooding According to SEPA flood maps, Cnoc Buidhe UGC 1 has a short section of high flood risk as a result of the Strathdule Water crossing, however this section	Atmospheric Pollution Cnoc Buidhe UGC 2 atmospheric pollution appraisal is the same as Cnoc Buidhe UGC 1. Contaminated Land Cnoc Buidhe UGC 2 contaminated land appraisal is the same as Cnoc Buidhe UGC 1. Flooding Cnoc Buidhe UGC 2 flooding appraisal is the same as Cnoc Buidhe UGC 1.

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
				represents less than 2% of the route's length.	
Ground Conditions	<u>Terrain</u> The terrain in the area around Tangy UGC 1 is steep given the mountainous terrain. It presents a profile with a maximum 18.9% and –17.1% and average 5.1% and –4.5%. <u>Rock</u> The area is composed of a combination of Glen Sluan Schist Formation - Psammite and semipelite and Green Beds Formation - Metavolcaniclastic sedimentary rock. <u>Peat</u> Significant peat is anticipated to be found along Tangy UGC 1, which could present difficulty for access, construction and maintenance, as well as being an important habitat. Ground investigations will be	<u>Terrain</u> The terrain in the area around Tangy UGC 2 is steep given the mountainous terrain. It presents a profile with a maximum 19.4% and –17.0% and average 4.4% and –3.9%. <u>Rock</u> Tangy UGC 2 rock appraisal is the same as Tangy UGC 1. <u>Peat</u> Tangy UGC 2 peat appraisal is the same as Tangy UGC 1.	<u>Terrain</u> The terrain in the area around Tangy UGC 3 is steep given the mountainous terrain. It presents a profile with a maximum 18.8% and –17.7% and average 6.1% and –4.8%. <u>Rock</u> Tangy UGC 3 rock appraisal is the same as Tangy UGC 1. <u>Peat</u> Tangy UGC 3 peat appraisal is the same as Tangy UGC 1.	<u>Terrain</u> The terrain in the area around Cnoc Buidhe UGC 1 is steep given the mountainous terrain. It presents a profile with a maximum 19.4% and –17.7% and average 6.2% and –4.5%. <u>Rock</u> The area is composed of a combination of Glen Sluan Schist Formation - Psammite and semipelite and Green Beds Formation - Metavolcaniclastic sedimentary rock. <u>Peat</u> Significant peat is anticipated to be found along Cnoc Buidhe UGC 1, which could present difficulty for access, construction and maintenance, as well as being an important habitat. Ground investigations will be	<u>Terrain</u> The terrain in the area around Cnoc Buidhe UGC 2 is steep given the mountainous terrain. It presents a profile with a maximum 20.3% and –18.3% and average 6.5% and –4.3%. <u>Rock</u> Cnoc Buidhe UGC 2 rock appraisal is the same as Cnoc Buidhe UGC 1. <u>Peat</u> Cnoc Buidhe UGC 2 peat appraisal is the same as Cnoc Buidhe UGC 1.

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
	performed to avoid areas of deep peat.			performed to avoid areas of deep peat.	
Construction Maintenance	Access Tangy UGC 1 is proposed along an existing road, therefore construction of temporary access for construction will not be required. Angles of Deviation Tangy UGC 1 will require deviations to keep alongside the existing tracks which may compromise maximum cable pulling tensions and require support to avoid cable damage. Cable Haul Road Sections of enhanced haul road design is expected where the route deviates from existing tracks.	Access Tangy UGC 2 access appraisal is the same as Tangy UGC 1. Angles of Deviation Tangy UGC 2 angles of deviation appraisal is the same as Tangy UGC 1. Cable Haul Road Tangy UGC 2 cable haul road appraisal is the same as Tangy UGC 1.	Access Tangy UGC 3 is expected to be within a 1km radius of proposed access tracks within the Cnoc Buidhe Windfarm. Angles of Deviation Tangy UGC 3 will require fewer deviations than Tangu UGC 1 and 2. Cable Haul Road Tangy UGC 3 cable haul road appraisal is the same as Tangy UGC 1.	Access Cnoc Buidhe UGC 1 is proposed along an existing road, therefore construction of temporary access for construction will not be required. Angles of Deviation Cnoc Buidhe UGC 1 will require deviations from the most direct path, which may compromise maximum cable pulling tensions and require support to avoid cable damage. Cable Haul Road Sections of enhanced haul road design is expected where the route deviates from existing tracks.	Access Cnoc Buidhe UGC 2 does not follow existing tracks. Angles of Deviation Cnoc Buidhe UGC 2 will require fewer deviations than Cnoc Buidhe UGC 1. Cable Haul Road Cnoc Buidhe UGC 2 cable haul appraisal is the same as Cnoc Buidhe UGC 1.
Proximity	Clearence Distance	Clearence Distance	Clearence Distance	Clearence Distance	Clearence Distance Cnoc Buidhe UGC 2 clearance distance

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
	No existing buildings have been identified that might be impacted by Tangy UGC 1. Wind Farms Tangy UGC 1 is within the Cnoc Buidhe windfarm boundary, however the route proposes to minimise cable crossings with the internal turbines cable array. Communication Masts No nearby communication masts have been identified in close proximity to Tangy UGC 1. Urban Environment The area around Tangy UGC 1 is not considered an urban environment. Metallic Pipelines There are no superficial metallic pipes along the Tangy UGC 1 route.	Tangy UGC 2 clearance distance appraisal is the same as Tangy UGC 1. Wind Farms Tangy UGC 2 wind farms appraisal is the same as Tangy UGC 1. Communication Masts Tangy UGC 2 communication masts appraisal is the same as Tangy UGC 1. Urban Environment Tangy UGC 2 urban environment appraisal is the same as Tangy UGC 1. Metallic Pipelines Tangy UGC 2 metallic pipelines appraisal is the same as Tangy UGC 1.	Tangy UGC 3 clearance distance appraisal is the same as Tangy UGC 1. Wind Farms Tangy UGC 3 wind farms appraisal is the same as Tangy UGC 1. Communication Masts Tangy UGC 3 communication masts appraisal is the same as Tangy UGC 1. Urban Environment Tangy UGC 3 urban environment appraisal is the same as Tangy UGC 1. Metallic Pipelines Tangy UGC 3 metallic pipelines appraisal is the same as Tangy UGC 1.	No existing buildings have been identified that might be impacted by Cnoc Buidhe UGC 1. Wind Farms Cnoc Buidhe UGC 1 is within the Cnoc Buidhe windfarm boundary, however the route proposes to minimise cable crossings with the internal turbines cable array. Communication Masts No nearby communication masts have been identified in close proximity to Cnoc Buidhe UGC 1. Urban Environment The area around Cnoc Buidhe UGC 3 is not considered an urban environment. Metallic Pipelines There are no superficial metallic pipes along the Cnoc Buidhe UGC 1 route.	appraisal is the same as Cnoc Buidhe UGC 1. Wind Farms Cnoc Buidhe UGC 2 wind farms appraisal is the same as Cnoc Buidhe UGC 1. Communication Masts Cnoc Buidhe UGC 2 communication masts appraisal is the same as Cnoc Buidhe UGC 1. Urban Environment Cnoc Buidhe UGC 2 urban environment appraisal is the same as Cnoc Buidhe UGC 1. Metallic Pipelines Cnoc Buidhe UGC 2 metallic pipelines appraisal is the same as Cnoc Buidhe UGC 1.

Topic	Option Tangy UGC 1 (abbr. Tangy UGC 1)	Option Tangy UGC 2 (abbr. Tangy UGC 2)	Option Tangy UGC 3 (abbr. Tangy UGC 3)	Option Cnoc Buidhe UGC 1 (abbr. Cnoc Buidhe UGC 1)	Option Cnoc Buidhe UGC 2 (abbr. Cnoc Buidhe UGC 2)
Design	Reactive Compensation The cable alignment proposed is less than 15km in length, therefore reactive power compensation will not be required. Joint Bays and Link Box Chambers Joint bays and link boxes are required where sections of the cable are connected. Given the characteristic of the topography and presence of several water streams, some restrictions on location or foreseeable risk of asset damage are expected but can be mitigated by the use of link pillars instead of joint bays.	Reactive Compensation Tangy UGC 2 reactive compensation appraisal is the same as Tangy UGC 1. Joint Bays and Link Box Chambers Tangy UGC 2 joint bays and link box chambers appraisal is the same as Tangy UGC 1.	Reactive Compensation Tangy UGC 3 reactive compensation appraisal is the same as Tangy UGC 1. Joint Bays and Link Box Chambers Tangy UGC 3 joint bays and link box chambers appraisal is the same as Tangy UGC 1.	Reactive Compensation Cnoc Buidhe UGC 1 is less than 15km in length, therefore reactive power compensation will not be required. Joint Bays and Link Box Chambers Joint bays and link boxes are required where sections of the cable are connected. Given the characteristic of the topography and presence of several water streams, some restrictions on location or foreseeable risk of asset damage are expected but can be mitigated by the use of link pillars instead of joint bays.	Reactive Compensation Cnoc Buidhe UGC 2 reactive compensation appraisal is the same as Cnoc Buidhe UGC 1. Joint Bays and Link Box Chambers Cnoc Buidhe UGC 2 joint bays and link box chambers appraisal is the same as Cnoc Buidhe UGC 1.
Economic	Economic considerations will be developed further as the design of the cable routes mature.	Economic considerations will be developed further as the design of the cable routes mature.	Economic considerations will be developed further as the design of the cable routes mature.	Economic considerations will be developed further as the design of the cable routes mature.	Economic considerations will be developed further as the design of the cable routes mature.

Topic	Option A1	Option A2	Option A3
Natural Heritage	Designations Alignment Option A1 is within 10 km of the Kintyre Goose Roosts SPA/SSSI and Important Bird Area, the Kintyre Goose Lochs Ramsar and the Sound of Gigha SPA. No non-statutory sites were identified within a 1 km radius of the Alignment Option A1. Protected Species A protected species suitability survey of the Alignment Option options and up to 250 m survey buffer ('Survey Area') was undertaken. The survey identified purple moor grass habitat adjacent to Alignment Option A1 that offers potential habitat for water voles. Although the watercourses were too fast flowing to be suitable for water vole, therefore no significant impacts are anticipated. Habitats A UK Habitat survey of the Alignment Options, along with a 50 m buffer either side of the OHL options was carried out to map habitats present and identify those of conservation value. Tangy Alignment Option A1 contains 507.70 BU of irreplaceable blanket bog (f1a6). Tangy Alignment Option A1 passes through 695.26 BU of non-irreplaceable habitat.	Designations Alignment Option A2 natural heritage designation appraisal is the same as Alignment Option A1. Protected Species Alignment Option A2 natural heritage protected species appraisal is the same as Alignment Option A1. Habitats The UK Habitat Survey identified the same habitats as Alignment Option A1. Alignment Option A2 passes through areas of Annex 1 blanket bog habitat. BNG Tangy Alignment Option A2 passes through 366.29 BU of irreplaceable blanket bog habitat. As the blanket bog spans the width of Alignment Option A2, it is considered unavoidable. However, a significant proportion of this habitat can be avoided through the considerate micro-siting and oversailing nature of OHLs. Tangy Alignment Option A2 passes through 717.91 BU of non-irreplaceable habitat.	Designations Alignment Option A3 natural heritage designation appraisal is the same as Alignment Option A1. Protected Species Alignment Option A3 natural heritage protected species appraisal is the same as Alignment Option A1. Habitats The UK Habitat Survey identified the same habitats as Alignment Option A1. Alignment Option A3 passes through areas of Annex 1 blanket bog habitat. BNG Tangy Alignment Option A3 passes through 425.80 BU of irreplaceable blanket bog habitat. As the blanket bog spans the width of Alignment Option A3, it is considered unavoidable. However, a significant proportion of this habitat can be avoided through the considerate micro-siting and oversailing nature of OHLs. Tangy Alignment Option A3 passes through 665.75 BU of non-irreplaceable habitat.

Topic	Option A1	Option A2	Option A3
	The survey identified bog (f1), including stretches of degraded blanket bog (f1a6) and many areas of purple moor grass with rush pastures (H6410), a United Kingdom Biodiversity Action Plan (UKBAP)[14] Priority Habitat within OHL Alignment Option Section A. Alignment Option A1 passes through areas of degraded blanket bog, a Priority Habitat but does not pass through any Annex 1 habitats[25]. <u>BNG</u> Tangy Alignment Option A1 passes through 507.7 BU of irreplaceable blanket bog habitat. As the blanket bog spans the width of Alignment Option A1, it is considered unavoidable. However, a significant proportion of this habitat can be avoided through the considerate micro-siting and oversailing nature of OHLs. Tangy Alignment Option A1 passes through 695.26 BU of non-irreplaceable habitat. <u>Ornithology</u> Ornithology surveys identified that Alignment Option A1 passes through high value hen harrier and golden eagle hunting habitats and passes in close proximity to hen harrier breeding sites. Potential impacts include	<u>Ornithology</u> Alignment Option A2 natural heritage ornithology appraisal is the same as Alignment Option A1. <u>Hydrology, Geology and Hydrogeology</u> Alignment Option A2 natural heritage hydrology, geology and hydrogeology appraisal is the same as Alignment Option A1.	<u>Ornithology</u> Alignment Option A3 natural heritage ornithology appraisal is the same as Alignment Option A1. <u>Hydrology, Geology and Hydrogeology</u> SEPA records indicate, that there is one potential SEPA water abstraction within 1 km of Alignment Option A3. Otherwise, the natural heritage hydrology, geology and hydrogeology appraisal for Alignment Option A3 is the same as Alignment Option A1.

[25] European Union Habitats Directive 92/43/EEC Annex I.

Topic	Option A1	Option A2	Option A3
	disturbance/displacement of breeding and hunting birds and collision mortality during operation. <u>Hydrology, Geology and Hydrogeology</u> Alignment Option A1 is underlain by the Oban and Kintyre Groundwater Body (ID: 150698), classified by SEPA**Error! Bookmark not defined.** as having a 'Good' overall status. It crosses a low productivity aquifer from the Southern Highland Group, in which small amounts of groundwater are encountered in the near surface weathered zone and in secondary fractures. Alignment Option A1 crosses a number of small watercourses, which include tributaries of Abhainn a Chnoeain and Glenlussa Water (u/s (upstream) Lussa Loch). Argyll and Bute Council PWS records indicate that there are no PWS within 1 km of Alignment Option A1. SEPA records indicate there are no potential SEPA water abstraction within 1km of Alignment Option A1 and SW assets database indicates no SW abstractions within 1 km of Alignment Option A1. Alignment Option A1 is not within SEPA DWPA for surface water but is located within a SEPA DWPA for groundwater. There is the potential presence of GWDTE in Alignment Option A1.		

Topic	Option A1	Option A2	Option A3
	Alignment Option A1 may compromise the quality or quantity of surface waters or groundwaters, due to the presence of watercourses, PWS, SEPA water abstraction, SEPA DWPA (for surface water) and the potential presence of GWDTE.		
Cultural Heritage	<u>Designations</u> There are no WHS, Inventory Battlefields or Inventory GDLs within the LoD of Alignment Option A1. There are two SMs within the 2 km study area of Alignment Option A1: • Crois Mhic Aoidh, standing stone (SM251), 1.1 km to the east; and • Garvalt, dun (SM3740), 1.6 km to the northwest. There is one SMR entry within the LoD of Alignment Option A1, that was identified during a walkover survey. It consists of a possible field system which spreads along the slope to the northeast of Beinn an Tuirc 1 Windfarm. It is anticipated that the upstanding remains can be avoided through micro-siting. Alignment Option A1 has the potential to impact upon the setting of Crois Mhic Aoidh standing stone (SM251) through changes within its setting as Alignment Option 1 would potentially be visible in views to the west along the valley containing the Abhainn a Chnocain watercourse. Any views are anticipated to be temporarily screened by	<u>Designations</u> The cultural heritage designation appraisal for Alignment Option A2 is the same as Alignment Option A1 with the exception of the following: There is one SM within the 2 km study area of Alignment Option A2: • Crois Mhic Aoidh, standing stone (SM251), 1 km to the east of Alignment Option A2. There are no SMR entries within the LoD for Alignment Option A2. <u>Assets</u> Alignment Option A2 cultural heritage assets appraisal is the same as Alignment Option A1.	<u>Designations</u> The cultural heritage designation appraisal for Alignment Option A3 is the same as Alignment Option A1 with the exception of the following: There is one SM within the 2 km study area of Alignment Option A3 • Crois Mhic Aoidh, standing stone (SM251), 780 m to the east of Alignment Option A3. There are no SMR entries within the LoD for Alignment Option A3. <u>Assets</u> Alignment Option A3 cultural heritage assets appraisal is the same as Alignment Option A1.

Topic	Option A1	Option A2	Option A3
	modern forestry and the area surrounding the stone is dominated by windfarms and an existing OHL. Assets There are no Conservation Areas or LBs within the LoD or the 2km study area of Alignment Option A1, therefore minimal to no impacts to assets are anticipated.		
People	Proximity to dwellings Dwellings are very sparse in and around the entirety of the Section. The nearest dwelling is located on the eastern bank of Lussa Loch approximately 2.6 km south west of Alignment Option A1.	Proximity to dwellings Alignment Option A2 people proximity to dwellings appraisal is the same as Alignment Option A1.	Proximity to dwellings Alignment Option A3 people proximity to dwellings appraisal is the same as Alignment Option A1.
Landscape and Visual	Designations No landscape or landscape related designations would be affected by Alignment Option A1. Landscape Character Alignment Option A1 would introduce an element of an industrial nature that would be out of context in the rugged plateau moorland landscape, albeit one much altered by forestry and the introduction of windfarms. Visual	Designations Alignment Option A2 landscape and visual designations appraisal is the same as Alignment Option A1. Landscape Character Alignment Option A2 landscape and visual landscape character appraisal is the same as Alignment Option A1. Visual	Designations Alignment Option A3 landscape and visual designations appraisal is the same as Alignment Option A1. Landscape Character Alignment Option A3 landscape and visual landscape character appraisal is the same as Alignment Option A1, although Alignment Option A3 is considered a slightly more discreet option than Alignment Options A1 and A2.

Topic	Option A1	Option A2	Option A3
	The main visual amenity constraint for Alignment Option A1 is the potential intrusion of an OHL in the northern part of the overall Section in views from Barr Glen. Alignment Option A1 risks being clearly visible above the skyline in views from residential properties in the upper part of Barr Glen, and more distantly visible from the lower glen.	Alignment Option A2 landscape and visual appraisal is the same as Alignment Option A1.	<u>Visual</u> Alignment Option A3 landscape and visual appraisal is the same as Alignment Option A1.
Land Use	<u>Agriculture</u> Alignment Option A1 passes through Class 6.3 agricultural land, which is land capable of use as rough grazing with low quality plants. As this land is not a particularly sensitive or fertile category, any impacts on agriculture as a result of Alignment Option A1 is considered to be low. <u>Forestry</u> Alignment Option A1 passes through a Woodland Grant Scheme (WGS3) and FLS managed Luss Forest, with a primary objective for timber production, and would therefore, require tree felling. The impacts would be mainly to productive Sitka Spruce compartments and riparian broadleaved woodlands. <u>Recreation</u> The nearest constraints are the Kintyre Way and the C088 Campbelltown to Cloanaig Core Path, located 1.4 km south of Alignment Option A1 at its closest point.	<u>Agriculture</u> Alignment Option A2 land use agriculture appraisal is the same as Alignment Option A1. <u>Forestry</u> Alignment Option A2 land use forestry appraisal is the same as Alignment Option A1, except for it would not impact upon the Woodland Grant Scheme. <u>Recreation</u> Alignment Option A2 land use recreation appraisal is the same as Alignment Option A1.	<u>Agriculture</u> Alignment Option A3 land use agriculture appraisal is the same as Alignment Option A1. <u>Forestry</u> Alignment Option A3 land use forestry appraisal is the same as Alignment Option A1. <u>Recreation</u> Alignment Option A3 land use recreation appraisal is the same as Alignment Option A1.

Topic	Option A1	Option A2	Option A3
	Alignment Option A1 would not interact with the recreational features and given the distance between the recreational features and Alignment Option A1 and the terrain in between, views of the Alignment would be limited.		
Planning	<u>Policy and proposals</u> Adherence to National, Regional and Local planning policy will in part largely depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given presence of designated sites and areas of landscape importance. When considering NPF4, Alignment Option A1 has the potential to conflict with the following policies: • Policy 5 – Soils (due to the presence of irreplaceable blanket bog habitat); and • Policy 6 – Forestry, Woodland and trees. Alignment Option A1 intersects the boundary associated with planning applications 19/02574/S37 – 33 kV connection for Blary Hill Wind Farm and 23/01790/PNPEAT – peatland restoration project. The Alignment Option also comes in close proximity to planning application 24/00270/PAPEAT – a peatland restoration scheme.	<u>Policy and proposals</u> Alignment Option A2 planning policy and proposals appraisal is the same as Alignment Option A1.	<u>Policy and proposals</u> Alignment Option A3 planning policy and proposals appraisal is the same as Alignment Option A1.

Topic	Option A1	Option A2	Option A3
Infrastructure crossings	Major Crossings Alignment Option A1 passes between access tracks for Beinn an Tuirc windfarm, however does not intersect with them. Road Crossings Where Alignment Option A1 progresses through Kintyre, the gradients are steeper and the neighbouring windfarms of Beinn an Tuirc and Arnicle are present throughout. This may present issues for gaining access to the site for maintenance activities.	Major Crossings Alignment Option A2 is proposed where no existing or proposed major crossings exist. Road Crossings Alignment Option A2 road crossings appraisal is the same as Alignment Option A1.	Major Crossings Alignment Option A3 major crossings appraisal is the same as Alignment Option A2. Road Crossings Alignment Option A3 presents reduced road access throughout the alignment where steeper gradients are present, which may necessitate further civils reinforcement. However, Alignment Option A3 possesses no notable crossings, reducing the risk of impacts to road crossings.
Environmental Design	Elevation Elevation of Alignment Option A1 increases as it travels north-east reaching 300m AOD. Most of the Alignment is over 200 m. High elevations expose overhead line assets to increased wind gusts and additional ice loading during winter, causing lines to bend and sag. Atmospheric Pollution Alignment Option A1 exhibits minimal risk of atmospheric pollution as a result of carbon dioxide, nitrogen dioxide, nitrogen oxide, sulphur dioxide and particulate matters. Contaminated Land The region of Argyll and Bute in Scotland is a former WW2 testing ground, therefore there is a prevalence of UXOs in	Elevation Alignment Option A2 elevation appraisal is the same as Alignment Option A1 with the exception that it reaches 310 m. Atmospheric Pollution Alignment Option A2 atmospheric pollution appraisal is the same as Alignment Option A1. Contaminated Land Alignment Option A2 contaminated land appraisal is the same as Alignment Option A1. Flooding	Elevation Alignment Option A3 elevation appraisal is the same as Alignment Option A1 with the exception that it reaches 350 m. Alignment Option A3 is the steepest of the three options. Atmospheric Pollution Alignment Option A3 atmospheric pollution appraisal is the same as Alignment Option A1. Contaminated Land Alignment Option A3 contaminated land appraisal is the same as Alignment Option A1. Flooding

Topic	Option A1	Option A2	Option A3
	the area. However, none of which come within contaminated land or area, therefore the risk of this is as low as reasonably practicable. Flooding According to the SEPA flood map, there are pockets of flooding around Alignment Option A1 (0.48% of alignment)	According to the SEPA flood map, there are pockets of flooding around Alignment Option A2 (0.39% of alignment).	According to the SEPA flood map, there are pockets of flooding around Alignment Option A3 (0.39% of alignment).
Ground Conditions	Terrain Over 47% of Alignment Option A1 has gradients of 5-10% and 31% has gradients of 10-20%. Peat 25% of Alignment Option A1 crosses Class 1 deep peat.	Terrain Over 29% of Alignment Option A2 has gradients of 5-10% and 36% has gradients of 10-20%. Alignment Option A2 is deemed to offer the most favourable terrain. Peat 23% of Alignment Option A2 crosses Class 1 deep peat.	Terrain Over 40% of Alignment Option A3 has gradients of 5-10% and 31% has gradients of 10-20%. Peat 28% of Alignment Option A3 crosses Class 1 deep peat.
Construction Maintenance	Access Alignment Option A1 may require new access tracks due to challenges crossing steeper terrain, watercourses and ravines. 7% of Alignment Option A1 is more than 1km away from existing roads and tracks. Angle Towers Minimal angle supports are required for Alignment Option A1.	Access 0.9% of Alignment Option A2 is more than 1km away from existing roads and tracks. Angle Towers Alignment Option A2 angle towers appraisal is the same as Alignment Option A1.	Access Alignment Option A3 may require new access tracks due to challenges crossing steeper terrain, watercourses and ravines. Angle Towers Alignment Option A3 angle towers appraisal is the same as Alignment Option A1, with the

Topic	Option A1	Option A2	Option A3
			exception that it will require the most angle supports.
Proximity	Clearance Distance No existing buildings have been identified that might be impacted by Alignment Option A1. Wind Farms Alignment Option A1 is close to existing/proposed turbines which are unavoidable given the steep gradients. Communication Masts 10% of Alignment A1 is within 750m of a communication mast, putting it at high risk of blocking the line of sight for telecommunication masts. Urban Environment There are no known future urban developments within the route that could impact Alignment Option A1. Metallic Pipelines No metallic pipes are present within Alignment Option A1.	Clearance Distance Alignment Option A2 clearance distance appraisal is the same as Alignment Option A1. Wind Farms Alignment Option A2 is close to existing/proposed turbines which are unavoidable given the steep gradients. In addition, an application for a new windfarm at Arnicle within Alignment Option A2 has been identified. Communication Masts A lower proportion of Alignment Option A2 is within 750m of a communication mast than Alignment Option A3. Urban Environment Alignment Option A2 urban environment appraisal is the same as Alignment Option A1. Metallic Pipelines Alignment Option A2 metallic pipelines appraisal is the same as Alignment Option A1.	Clearance Distance Alignment Option A3 clearance distance appraisal is the same as Alignment Option A1. Wind Farms Alignment Option A3 avoids all existing turbine wake zones. Communication Masts Alignment Option A3 communication masts appraisal is the same as Alignment Option A1. Urban Environment Alignment Option A3 urban environment appraisal is the same as Alignment Option A1. Metallic Pipelines Alignment Option A3 metallic pipelines appraisal is the same as Alignment Option A1.

Topic	Option A1	Option A2	Option A3
Economic	Alignment Option A1 is within 120% of the lowest capital cost option, so is considered acceptable from a capital cost perspective.	Alignment Option A2 economic appraisal is the same as Alignment Option A1.	Alignment Option A3 economic appraisal is the same as Alignment Option A1.

Topic	Option B3	Option B4
Natural Heritage	<u>Designations</u> Alignment Option B3 is within 10km of the Kintyre Goose Roosts SPA/ SSSI/ IBA, the Kintyre Goose Lochs Ramsar, and the Sound of Gigha SPA. Alignment Option B3 is considered to be at such a distance from the statutory sites that no significant impacts are anticipated. No non-statutory sites were identified within a 1km radius of the Alignment Option B3, therefore minimal to no impacts are anticipated. <u>Protected Species</u> A protected species suitability survey of the Alignment Option options and up to 250 m survey buffer ('Survey Area') was undertaken. The survey identified watercourses adjacent to Section B which have high suitability for otter. <u>Habitats</u> A UK Habitat survey of the Alignment Option options, along with a 50 m buffer either side of the OHL options was carried out to map habitats present and identify those of conservation value. The survey identified blanket bog, an Annex 1 habitat, which Alignment Option B3 passes through.	<u>Designations</u> Alignment Option B4 natural heritage designation appraisal is the same as Alignment Option B3. <u>Protected Species</u> Alignment Option B4 natural heritage protected species appraisal is the same as Alignment Option B3. <u>Habitats</u> Alignment Option B4 natural heritage habitats appraisal is the same as Alignment Option B3, although B4 passes through a smaller area of the Annex 1 blanket bog habitat. <u>BNG</u> Tangy Alignment Option B4 passes through 171.53 BU of irreplaceable blanket bog habitat. As the blanket bog spans the width of Alignment Option B4, it is considered unavoidable. However, a significant proportion of this habitat can be avoided through the considerate micro-siting and oversailing nature of OHLs. Tangy Alignment Option B4 passes through 687.20 BU of non-irreplaceable habitat. <u>Ornithology</u>

Topic	Option B3	Option B4
	BNG Tangy Alignment Option B3 passes through 286.90 BU of irreplaceable blanket bog habitat. As the blanket bog spans the width of Alignment Option B3, it is considered unavoidable. However, a significant proportion of this habitat can be avoided through the considerate micro-siting and oversailing nature of OHLs. Tangy Alignment Option B3 passes through 320.60 BU of non-irreplaceable habitat. Ornithology Ornithology surveys identified that Alignment Option B3 recorded 10 PRC flights of golden eagle, however it is beyond the ZoI for disturbance impacts to the breeding area. Alignment Option B3 would result in the loss of foraging habitat. Hydrology, Geology and Hydrogeology Alignment Option B3 is underlain by the Oban and Kintyre Groundwater Body (ID: 150698), classified by SEPA as having a 'Good' overall status. It crosses a low productivity aquifer from the Southern Highland Group, in which small amounts of groundwater are encountered in the near surface weathered zone and in secondary fractures. Alignment Option B3 crosses a number of small watercourses and unnamed tributaries of Barr Water. Argyll and Bute Council PWS records indicate that there are no PWS within 1 km of Alignment Option B3.	Ornithology surveys identified that Alignment Option B4 recorded 23 PRC flights of golden eagle. Option B4 is in a closer proximity to the golden eagle breeding area. Like Alignment Option B3, Alignment Option B4 would also result in the loss of foraging habitat. Hydrology, Geology and Hydrogeology Alignment Option B3 natural heritage hydrology, geology and hydrogeology appraisal is the same as Alignment Option B4, except Alignment Option B4 also crosses unnamed tributaries of Torrisdale Water.

Topic	Option B3	Option B4
	SEPA records indicate there are no potential SEPA water abstraction within 1km of Alignment Option B3 and SW assets database indicates no SW abstractions within 1 km of Alignment Option B3. Alignment Option B3 is located within SEPA DWPA (Carradale Water catchment) for surface water, as well as located within SEPA DWPA for groundwater. There is the potential presence of GWDTE in Alignment Option B3. Alignment Option B3 may compromise the quality or quantity of surface waters or groundwaters, due to the presence of watercourses, PWS, SEPA water abstraction, SEPA DWPA (for surface water) and the potential presence of GWDTE.	
Cultural Heritage	<u>Designations</u> There are no WHS, SMs, Inventory Battlefields, Inventory GDLs, or SMR entries within the LoD or the 2 km study area of Alignment Option B3, therefore minimal to no impacts to designations are anticipated. <u>Assets</u> There are no Conservation Areas or LBs within the LoD or the 2km study area of Alignment Option B3, therefore minimal to no impacts to assets are anticipated.	<u>Designations</u> The cultural heritage designation appraisal for Alignment Option B4 is the same as Alignment Option B3. <u>Assets</u> Alignment Option B4 cultural heritage assets appraisal is the same as Alignment Option B3.
People	<u>Proximity to dwellings</u> Dwellings are very sparse in and around the entirety of the Section. The nearest dwelling is located at Arnicle approximately 3km west of Alignment Option B3.	<u>Proximity to dwellings</u> Alignment Option B4 people proximity to dwellings appraisal is the same as Alignment Option B3.

Topic	Option B3	Option B4
Landscape and Visual	<u>Designations</u> No landscape or landscape related designations would be affected by Alignment Option B3. <u>Landscape Character</u> Alignment Option B3 would introduce an element of an industrial nature that would be out of context in the rugged plateau moorland landscape. <u>Visual</u> Alignment Option B3 risks being clearly visible above the skyline in views from residential properties in the upper part of Barr Glen.	<u>Designations</u> Alignment Option B4 landscape and visual designations appraisal is the same as Alignment Option B3. <u>Landscape Character</u> Alignment Option B4 landscape and visual landscape character appraisal is the same as Alignment Option B3. <u>Visual</u> The western half of Alignment Option B4 risks being visible above the skyline in views from residential properties in the upper part of Barr Glen and may just be visible from the lower glen. The eastern half of this Alignment Option risks being visible above the skyline in views from Cnoc nan Gabhar (Deer Hill) viewpoint above Carradale.
Land Use	<u>Agriculture</u> Alignment Option B3 passes through Class 6.3 agricultural land, which is land capable of use as rough grazing with low quality plants. As this land is not a particularly sensitive or fertile category, any impacts on agriculture as a result of Alignment Option B3 is considered to be low.	<u>Agriculture</u> Alignment Option B4 land use agriculture appraisal is the same as Alignment Option B3. <u>Forestry</u> Although Alignment Option B4 appears to go through forestry similar to Alignment Option B3, satellite images supported by the Forestry Land Scotland (FLS) forest plans show no commercial forest at present, nor any planned in the future.

Topic	Option B3	Option B4
	Forestry Alignment Option B3 passes through a Woodland Grant Scheme (WGS3), and would therefore, require tree felling. The impacts would be mainly to productive Sitka Spruce compartments and riparian broadleaved woodlands. Recreation The nearest constraints are NCR 78 and the C088 Campbelltown to Cloanaig Core Path, located 3.1 km east of Alignment Option B3 at its closest point. Given the distance, Alignment Option B3 would not interact with or compromise the recreational feature.	Recreation Alignment Option B4 land use recreation appraisal is the same as Alignment Option B3.
Planning	Policy and proposals When considering NPF4, Alignment Option B3 has the potential to conflict with the following policies: • Policy 5 – Soils (due to the presence of irreplaceable blanket bog habitat); and • Policy 6 – Forestry, Woodland and trees. Alignment Option B3 intersects the boundary associated with planning application 22/02321/FGS – woodland management plan.	Policy and proposals Alignment Option B4 planning policy and proposals appraisal is the same as Alignment Option B3.
Infrastructure Crossings	Major Crossings Alignment Option B3 is greater than or equal to 1km from the nearest access track and there are no major crossings proposed throughout the route.	Major Crossings Alignment Option B4 major crossings appraisal is the same as Alignment Option B3, with the exception that Alignment Option B4 is closer to an access track.

Topic	Option B3	Option B4
	Road Crossings Alignment Option B3 is considered low risk in terms of risk of road crossings.	Road Crossings Alignment Option B4 road crossings appraisal is the same as Alignment Option B3.
Environmental Design	Elevation The entirety of Alignment Option B3 is over 200m AOD, with its peak at 326m. High elevations expose overhead line assets to increased wind gusts and additional ice loading during winter, causing lines to bend and sag. Atmospheric Pollution There is no existing or proposed risk to atmospheric pollution across Alignment Option B3 as a result of carbon dioxide, nitrogen dioxide, nitrogen oxide, sulphur dioxide and particulate matters. Contaminated Land The region of Argyll and Bute in Scotland is a former WW2 testing ground, therefore there is a prevalence of UXOs in the area. However, none of which come within contaminated land or area, therefore the risk of this is as low as reasonably practicable. Flooding Argyll and Bute is prone to flooding throughout the year, however Alignment Option B3 is not located in a high-risk area.	Elevation Much of Alignment Option B4 is over 200m AOD, with its peak at approximately 300m. Atmospheric Pollution Alignment Option B4 atmospheric pollution appraisal is the same as Alignment Option B3. Contaminated Land Alignment Option B4 contaminated land appraisal is the same as Alignment Option B3. Flooding Alignment Option B4 flooding appraisal is the same as Alignment Option B3.
Ground Conditions	Terrain Alignment Option B3 has 40% of its alignment within the acceptable slope range of 10-20% and 35% between 2-5%. Peat	Terrain Alignment Option B4 has 46% of its alignment within the acceptable slope range of 10-20% and 30% between 2-5%. Peat

Topic	Option B3	Option B4
	92% of Alignment Option B3 has Class 2 peat present.	72% of Alignment Option B4 has Class 2 peat present.
Construction / Maintenance	Access Alignment Option B3 is routed far away from proposed or existing access networks, and crosses steep terrain and large ravines at high elevations making the construction and operation of the alignment difficult. This option may require the development of new permanent stone accesses. Angle Towers Alignment Option B3 would require four angle towers.	Access Alignment Option B4 is routed far away from proposed or existing access networks. Angle Towers Alignment Option B4 would require seven angle towers.
Proximity	Clearance Distance No clearance issues are anticipated as a result of Alignment Option B3. Wind Farms No areas of Alignment Option B3 fall within 750 m of any proposed or existing windfarms. Communication Masts There are no existing or proposed communication masts throughout Alignment Option B3. Urban Environment Alignment Option B3 is not located in any existing or proposed urban environments. Metallic Pipelines No metallic pipelines are present throughout Alignment Option B3.	Clearance Distance Alignment Option B4 clearance distance appraisal is the same as Alignment Option B3. Wind Farms Alignment Option B4 wind farms appraisal is the same as Alignment Option B3. Communication Masts Alignment Option B4 communication masts appraisal is the same as Alignment Option B3. Urban Environment Alignment Option B4 urban environment appraisal is the same as Alignment Option B3. Metallic Pipelines

Topic	Option B3	Option B4
		Alignment Option B4 metallic pipelines appraisal is the same as Alignment Option B3.
Economic	Alignment Option B3 is within 120% of the lowest capital cost option, so is considered acceptable from a capital cost perspective.	Alignment Option B4 economic appraisal is the same as Alignment Option B3, with the exception that it is 0.7km longer, and is therefore estimated to be slightly more expensive.

Topic	Option C5	Option C6
Natural Heritage	<u>Designations</u> Alignment Option C5 is within 10km of the Kintyre Goose Roosts SPA, and the Sound of Gigha SPA. Alignment Option C5 is considered to be at such a distance from the statutory sites that no significant impacts are anticipated. Alignment Option C5 is located within 1km of Carradale (inland) LNCS. Limited impacts are expected. Although not a designated site, Alignment Option C5 is situated 235 m north of Lag Wood, ancient woodland of semi natural origin. Given Alignment Option C5 would not pass through the woodland, it is not expected to directly impact the woodland nor produce significant indirect impacts. <u>Protected Species</u> A protected species suitability survey of the Alignment Option options and up to 250 m survey buffer ('Survey Area') was undertaken. The woodland adjacent to Section C contains mature trees which provide roost suitability for bats, though these woods lie outwith the Survey Area. A disused red squirrel drey was also found outwith the Survey Area. Given these features lie outside the Survey Area, limited impacts are expected. <u>Habitats</u> A UK Habitat survey of the Alignment Option options, along with a 50 m buffer either side of the OHL options was carried out to map habitats present and identify those of conservation value.	<u>Designations</u> Alignment Option C5 natural heritage designation appraisal is the same as Alignment Option C6, except for: Alignment Option C6 overlaps with Carradale (inland) LNCS. Although it overlaps the LNCS, limited impacts are expected. Although not a designated site, Alignment Option C6 is situated 116 m north of Cnoc Wood, ancient woodland of semi natural origin. Given Alignment Option C6 would not pass through the woodland, it is not expected to directly impact the woodland nor produce significant indirect impacts. <u>Protected Species</u> Alignment Option C6 natural heritage protected species appraisal is the same as Alignment Option C5, except: A local landowner informed surveyors that a pine marten was feeding in their barn within the Survey Area for Alignment Option C6 (131 m to the south), therefore impacts to pine marten may occur. <u>Habitats</u> Alignment Option C6 natural heritage habitats appraisal is the same as Alignment Option C5. <u>BNG</u>

Topic	Option C5	Option C6
	The survey identified blanket bog, an Annex 1 habitat, which Alignment Option C5 passes through. Alignment Option C5 passes through a smaller area of blanket bog than C6. BNG Tangy Alignment Option C5 passes through 198.10 BU of irreplaceable blanket bog habitat. As the blanket bog spans the width of Alignment Option C5, it is considered unavoidable. However, a significant proportion of this habitat can be avoided through the considerate micro-siting and oversailing nature of OHLs. Tangy Alignment Option C5 passes through 60.31 BU of non-irreplaceable habitat. Ornithology Ornithology surveys identified that Alignment Option C5 passes through bog habitat which is favoured by hunting golden eagle. There is a risk of impacts to golden eagle from disturbance/displacement of hunting birds, loss of habitat and collision mortality during operation. Hydrology, Geology and Hydrogeology Alignment Option C5 is underlain by the Oban and Kintyre Groundwater Body (ID: 150698), classified by SEPA as having a 'Good' overall status. It crosses a low productivity aquifer from the Southern Highland Group, in which small amounts of groundwater are encountered in the near surface weathered zone	Tangy Alignment Option C6 passes through 492.29 BU of irreplaceable blanket bog habitat. As the blanket bog spans the width of Alignment Option C6, it is considered unavoidable. However, a significant proportion of this habitat can be avoided through the considerate micro-siting and oversailing nature of OHLs. Tangy Alignment Option C6 passes through 49.22 BU and 1.1 Linear Unit – Watercourse (LU-W) of non-irreplaceable habitat. Ornithology Alignment Option C6 natural heritage ornithology appraisal is the same as Alignment Option C5, except Alignment Option C6 would result in the loss of a greater area of hunting habitat. Hydrology, Geology and Hydrogeology Alignment Option C6 natural heritage hydrology, geology and hydrogeology appraisal is the same as Alignment Option C5, except: Argyll and Bute Council PWS records indicate that there are no PWS within 1 km of Alignment Option C6. SEPA records indicate there is one potential SEPA water abstraction within 1km of Alignment Option C6 and SW assets database indicates there is one potential SW abstraction within 1 km of Alignment Option C6.

Topic	Option C5	Option C6
	and in secondary fractures. Alignment Option C5 crosses a number of small watercourses which include tributaries of Carradale Water/Narachan Burn. Argyll and Bute Council PWS records indicate that there is one PWS within 1 km of Alignment Option C5. SEPA records indicate there are no potential SEPA water abstraction within 1km of Alignment Option C5 and SW assets database indicates no SW abstractions within 1 km of Alignment Option C5. Alignment Option C5 is located within SEPA DWPA (Carradale Water catchment) for surface water, as well as located within SEPA DWPA for groundwater. There is the potential presence of GWDTE in Alignment Option C5. Alignment Option C5 may compromise the quality or quantity of surface waters or groundwaters, due to the presence of watercourses, PWS, SEPA water abstraction, SEPA DWPA (for surface water) and the potential presence of GWDTE.	
Cultural Heritage	<u>Designations</u> There are no WHS, Inventory Battlefields or Inventory GDLs within the LoD of the Alignment Option options or within 2 km of Alignment Option C5. There is one SM within 2km of Alignment Option C5, consisting of Carragh an Talaidh, chambered cairn (SM189), located 1.4 km to the northeast end of the option. It is not anticipated that changes within the setting of the cairn will generate significant impacts due to distance and intervening topography and vegetation.	<u>Designations</u> There are no WHS, SMs, Inventory Battlefields or Inventory GDLs within the LoD of the Alignment Option options or within 2 km of Alignment Option C6. There is one SMR entry within the LoD of Alignment Option C6, consisting of Rhonadale, millstone quarry (Canmore ID 38841). It is anticipated that the SMR entry can be avoided through micro-siting of Alignment Option C6.

Topic	Option C5	Option C6
	There is one SMR entry within the LoD of Alignment Option C5, consisting of Lag Kilmichael, church (Canmore ID 38895). It is anticipated that the SMR entry can be avoided through micro-siting of Alignment Option C5. Assets There are no Conservation Areas or LBs within the LoD or the 2km study area of Alignment Option C5, therefore minimal to no impacts to assets are anticipated.	Assets There are no Conservation Areas within the LoD or the 2 km study area of Alignment Option C6, therefore minimal to no impacts to assets are anticipated. There are two LBs within 2 km of Alignment Option C6, consisting of the Category C Listed Saddell Parish Church (LB18392) and Category B Listed Dippen Bridge (LB18393), located 1.5 km and 1.6 km southeast respectively. Distance from the Alignment Option, along with intervening topography and vegetation, is likely to reduce significant impacts.
People	Proximity to dwellings Dwellings are very sparse in and around the entirety of the Section. The nearest dwelling to Alignment Option C5 is a farmhouse located 100 m north of the ending point.	Proximity to dwellings Alignment Option C6 people proximity to dwellings appraisal is the same as Alignment Option C5, except the nearest dwelling to Option C6 is located approximately 120 m south of the ending point.
Landscape and Visual	Designations No landscape or landscape related designations would be affected by Alignment Option C5. Landscape Character Alignment Option C5 would introduce an element of an industrial nature that would be out of context in the rugged plateau moorland landscape and into the attractive valley of the Carradale Water.	Designations Alignment Option C6 landscape and visual designations appraisal is the same as Alignment Option C5. Landscape Character Alignment Option C6 landscape and visual landscape character appraisal is the same as Alignment Option C5. Visual

Topic	Option C5	Option C6
	Visual The upper parts of Alignment Option C5 would be visible above the skyline in views from Cnoc nan Gabhar (Deer Hill) viewpoint above Carradale. The eastern part of Alignment Option C5 would be clearly visible from the B842 between Brackley and Kilmichael and from the houses at Brackley, and it would be glimpsed from the B842 south of Kilmichael. There is the potential for significant impacts as the terminal tower would be in the direct view of the properties at Lag Kilmichael, at under 200 m distance.	The upper parts of Alignment Option C6 would be visible above the skyline in views from Cnoc nan Gabhar (Deer Hill) viewpoint above Carradale. The central section of Alignment Option C6 would be visible above the skyline in views from the B842 between Brackley and Kilmichael and from the houses at Brackley. The easternmost parts would be clearly visible from the B842 and from the scattered houses along the road between Moineruadh and Auchnasavil, and would pass close behind Rhonadale, to terminate in the oblique view from the house.
Land Use	Agriculture Alignment Option C5 passes through Class 4.2 Agricultural Land, land capable of producing a narrow range of crops, primarily on grassland with short arable breaks of forage crops, Class 6.1 Agricultural Land, land capable of use as rough grazings with a high proportion of palatable plants and Class 6.3 Agricultural Land, land capable of use as rough grazing with low quality plants. Only small sections at the end of Alignment Option C5 passes through Class 4.2 Agricultural Land and the Class 6.1 and 6.3 land is not particularly sensitive or fertile. Any impacts on agriculture as a result of Alignment Option C5 is considered to be low. Forestry Alignment Option C5 passes through the Carradale Forest owned and managed by FLS for timber production, but it avoids impact on nearby ancient woodland, hence the impact on forestry as a result of Alignment Option C5 is considered to be medium.	Agriculture Alignment Option C6 land use agriculture appraisal is the same as Alignment Option C5. Forestry Alignment Option C6 land use forestry appraisal is the same as Alignment Option C5. Recreation Alignment Option C6 land use recreation appraisal is the same as Alignment Option C5.

Topic	Option C5	Option C6
	Recreation The nearest constraints are National Cycle Route 78 and the C088 Campbelltown to Cloanaig Core Path, located 500 m east of Alignment Option C5 at its closest point. Given the distance, Alignment Option C5 would not interact with or compromise the recreational feature.	
Planning	Policy and proposals When considering NPF4, Alignment Option C5 has the potential to conflict with the following policies: • Policy 5 – Soils (due to the presence of irreplaceable blanket bog habitat); and • Policy 6 – Forestry, Woodland and trees. Alignment Option C5 intersects the boundary associated with planning application 22/02321/FGS – woodland management plan.	Policy and proposals Alignment Option C6 planning policy and proposals appraisal is the same as Alignment Option C5, except: Alignment Option C6 also comes in close proximity to the boundaries of planning application 23/00176/PP - Erection of 25 m high lattice tower supporting six radio antennas, four transmission dishes, radio equipment, solar array and associated works and planning application 21/01907/PAN - Proposal of application notice for the construction of a battery storage facility up to 50 MW, access track, energy storage equipment, meter building, security cameras, fencing and planting of trees at Carradale substation.
Infrastructure Crossings	Major Crossings There are no major crossings required throughout Alignment Option C5. Road Crossings There are two tracks existing on Alignment Option C5. whereupon these tracks are situated for access to and from the existing overhead line and therefore would not pose any additional risk to flora, fauna or the public.	Major Crossings Alignment Option C6 major crossings appraisal is the same as Alignment Option C5. Road Crossings Alignment Option C6 road crossings appraisal is the same as Alignment Option C5.

Topic	Option C5	Option C6
Environmental Design	Elevation Alignment Option C5 maintains a demonstrably high AOD at consistently 300m for the first part of the alignment, before dropping to below 50m. This landscape is high-risk, however no significant civil works are proposed in the area, and no additional risk is added by modifying the site. Atmospheric Pollution As stated in the PR-NET-ENV-501 atmospheric pollution includes outdoor terminations within proximity to coasts. Alignment Option C5 is categorised as high risk due to there being at least two outdoor transition points where the overhead lines for Tangy IV and Cnoc Buidhe windfarm connection will transition to underground cables. Contaminated Land The region of Argyll and Bute in Scotland is a former WW2 testing ground, therefore there is a prevalence of UXOs in the area. However, in accordance with PR-NET-ENV-501, none of which come within contaminated land or area, therefore the risk of this is as low as reasonably practicable. Flooding The SEPA flood map indicates that a significant amount of Alignment Option C5 is located within a flood zone. Flood risk is apparent at the termination point around Carradale substation. The option maintains a high-water table throughout where additional civil works may be required to improve drainage facilities in the area.	Elevation Alignment Option C6 elevation appraisal is the same as Alignment Option C5. Atmospheric Pollution Alignment Option C6 atmospheric pollution appraisal is the same as Alignment Option C5. Contaminated Land Alignment Option C6 contaminated land appraisal is the same as Alignment Option C5. Flooding Alignment Option C6 is in close proximity to Carradale River and is therefore at risk of flooding, potentially necessitating further civil reinforcement. Flood risk is apparent at the termination point around Carradale substation. The option maintains a high-water table throughout where additional civil works may be required to improve drainage facilities in the area.
Ground Conditions	Terrain Over 47% of Alignment Option C5 is between 20-40% incline.	Terrain

Topic	Option C5	Option C6
	Peat There is a negligible area of Class 1-3 peat present within Alignment Option C5.	Alignment Option C6 terrain appraisal is the same as Alignment Option C5. Peat 6% of Alignment Option C6 is within Class 1-3 peat.
Construction / Maintenance	Access Alignment Option C5 crosses steep terrain and large ravines making construction and operation difficult. This option is in an area which can utilise existing Forestry Land Scotland accesses, located within the northern section between the terminal tower and tower no. 38. Angle Towers Alignment Option C5 requires less than five angle towers	Access Alignment Option C6 crosses steep terrain and large ravines, however is in proximity of the B842 north of Carradale. Angle Towers Alignment Option C6 requires five angle towers.
Proximity	Clearance Distance There are two small building areas within proximity of Alignment Option C5. Wind Farms No areas of Alignment Option C5 fall within 750 m of any proposed or existing windfarms. Communication Masts Alignment option maintains large portions of communication masts throughout, with 34% exceeding 1 km in length. Urban Environment Alignment Option C5 is not located in any existing or proposed urban environments.	Clearance Distance Alignment Option C6 clearance distance appraisal is the same as Alignment Option C5, with the exception that it is within 100 m of Rhonadale, which is already a congested area, and overhead lines would require further modified designs like leg extensions and reinforced civil requirements. Wind Farms Alignment Option C6 wind farms appraisal is the same as Alignment Option C5. Communication Masts Alignment Option C6 maintains less portions of communications masts throughout than Alignment Option C5.

Topic	Option C5	Option C6
	Metallic Pipelines No metallic pipelines are present throughout Alignment Option C5.	Urban Environment Alignment Option C6 urban environment appraisal is the same as Alignment Option C5. Metallic Pipelines Alignment Option C6 metallic pipelines appraisal is the same as Alignment Option C5.
Economic	Alignment Option C5 is within 120% of the lowest capital cost option, so is considered acceptable from a capital cost perspective.	Alignment Option C6 economic appraisal is the same as Alignment Option C5, with the exception that it is 1km shorter, and is therefore estimated to be less expensive.

Topic	Option Carradale Substation UGC 1 (Abbr. Carradale UGC 1)	Option Carradale Substation UGC 2 (Abbr. Carradale UGC 2)
Natural Heritage	Designations While both connections for Carradale Substation UGC Option 1 are adjacent to Moineruadh Wood (long-established woodland of plantation origin) the B842 road lies between the UGC Options and the woodland so no impacts re predicted. The UGC option passes directly through the Carradale (Inland) LNCS which could result in impacts on small areas of habitats. Protected Species Carradale UGC 1 is adjacent to suitable otter habitat within Carradale Water. Otters are known to use Carradale Water and its tributaries from local knowledge. Habitats Carradale UGC 1 holds no protected habitats and so protected habitats are likely to be compromised by either connection. The habitats within Carradale Substation UGC 1 are of low biodiversity value and consist of low distinctiveness habitat. BNG Carradale Substation UGC 1 passes through no areas of irreplaceable habitat. Carradale Substation UGC 1 passes through 2.62 BU of non-irreplaceable habitat. Ornithology Carradale UGC 1 passes through modified grassland habitat which has limited potential to support notable species. Breeding waders, including lapwing and common sandpiper could be present (neither of which are listed on Sch1 or	Designations Carradale UGC 2 passes through Kilmichael Wood in the north of UGC Alignment Option Section 2 and Moinerudh Wood in the central part of UGC Alignment Option Section 2. Both woodlands are long-established woodlands of plantation origin. In the south of UGC Alignment Option Section 2, Carradale Substation UGC Option 2 then passes through Auchnasavil Woods, an ancient woodland of semi natural origin. Protected Species Carradale UGC 2 passes directly through Auchnasavil Woods, which hosts potential bat roosts and suitable red squirrel habitat. Potential roost features for bats were found in mature sycamore trees 4.6 m and 9.1 m from Carradale UGC 2. Further south is a stone building with slate roof which could also provide suitable roosting opportunities for bats. The building is 29 m from Carradale UGC 2. Auchnasavil Woods contains small parcels of mature conifers and young birch trees which is suitable habitat for red squirrel. These parcels are within the Study Area, 119 m east of Carradale UGC 2. In the north of UGC Alignment Option Section 2 there is highly suitable otter habitat within Carradale Water Habitats Carradale UGC 2 passes through irreplaceable ancient woodland. The habitats within Carradale Substation UGC Option 2 are of low biodiversity value and consist of low distinctiveness habitat. BNG

Topic	Option Carradale Substation UGC 1 (Abbr. Carradale UGC 1)	Option Carradale Substation UGC 2 (Abbr. Carradale UGC 2)
	Annex 1). No known breeding sites of notable species are present within the ZoI for disturbance. Lowland habitat is of limited importance for raptors. There would be no operational impacts. Mitigation could comprise adherence to the Bird SPP to minimise the potential for impacts to any breeding birds present. <u>Hydrology, Geology and Hydrogeology</u> Carradale UGC 1 is underlain by Oban and Kintyre Groundwater Body (ID: 150698), classified by SEPA as having a 'Good' overall status in 2022. It crosses a low productivity aquifer from the Southern Highland Group, in which small amounts of groundwater are encountered in the near surface weathered zone and in secondary fractures. Carradale UGC 1 crosses a number of small watercourses which include tributaries of Carradale Water/Narachan Burn. Argyll and Bute Council PWS records indicate that there is one PWS within 1 km of Carradale UGC 1. SEPA records indicate there are no potential SEPA water abstraction within 1km of Alignment Option C5 and SW assets database indicates one SW abstractions within 1 km of Carradale UGC 1. Carradale UGC 1 is located within SEPA DWPA (Carradale Water catchment) for surface water, as well as located within SEPA DWPA for groundwater. There is the potential presence of GWDTE in Carradale UGC 1. Carradale UGC 1 may compromise the quality or quantity of surface waters or groundwaters, due to the presence of watercourses, PWS, SEPA water abstraction, SEPA DWPA (for surface water) and the potential presence of GWDTE.	Carradale Substation UGC 2 passes through no areas of irreplaceable habitat. Carradale Substation UGC 2 passes through 11.12 BU and 0.18 W-BU of non-irreplaceable habitat. <u>Ornithology</u> Carradale UGC 2 natural heritage ornithology appraisal is the same as Carradale UGC 1, except Carradale UGC 2 is longer and passes in proximity of a barn owl breeding site. <u>Hydrology, Geology and Hydrogeology</u> Carradale UGC 2 natural heritage hydrology, geology and hydrogeology appraisal is the same as Carradale UGC 1.

Topic	Option Carradale Substation UGC 1 (Abbr. Carradale UGC 1)	Option Carradale Substation UGC 2 (Abbr. Carradale UGC 2)
Cultural Heritage	Designations There are no WHS, Inventory Battlefields or Inventory GDLs within the LoD of the Alignment Option options or within 2 km of Carradale UGC 1. There are two SMR entries within 2 km of Carradale UGC 1 consisting of Carradale, knife and scraper (Canmore ID 38826) and Carradale, charcoal, pits, and pottery (WoSAS 3436). The area has high potential for encountering further Mesolithic and Neolithic remains, but the known SMR entries are not anticipated to be impacted upon due to the proximity to the Carradale Water. Assets There are no Conservation Areas or LBs within the LoD or the 2 km study area of Carradale UGC 1, therefore minimal to no impacts to assets are anticipated.	Designations Carradale UGC 2 cultural heritage designations appraisal is the same as Carradale UGC 1. Assets Carradale UGC 2 cultural heritage assets appraisal is the same as Carradale UGC 1.
Landscape and Visual	Designations No landscape or landscape related designations would be affected by Carradale UGC 1. Landscape Character During construction the works would temporarily disturb the tranquil nature of the glen. Assuming full restoration, there should be no long-term permanent impact to this landscape character. Visual During construction the works would temporarily affect the visual amenity of a small number of residential receptors but, assuming full restoration, there should be no long-term permanent impact to the visual amenity.	Designations Carradale UGC 2 landscape and visual designations appraisal is the same as Carradale UGC 1. Landscape Character Carradale UGC 2 landscape and visual landscape character appraisal is the same as Carradale UGC 1 except that disturbance to the tranquil nature of the glen may be more substantial, and permanent impacts are unclear. Visual Alignment Option C6 landscape and visual landscape character appraisal is the same as Alignment Option C5 except that Carradale UGC 2 would

Topic	Option Carradale Substation UGC 1 (Abbr. Carradale UGC 1)	Option Carradale Substation UGC 2 (Abbr. Carradale UGC 2)
		also affect the visual amenity of local and tourist users of the scenic minor road and permanent impacts are unclear.
Land Use	<u>Agriculture</u> Carradale UGC passes through Class 4.2 Agricultural Land, land capable of producing a narrow range of crops, primarily on grassland with short arable breaks of forage crops and Class 6.1 Agricultural Land, land capable of use as rough grazings with a high proportion of palatable plants. Only small sections at the start the option pass through Class 4.2 Agricultural Land and Class 6.1 Land is not a particularly sensitive or fertile. Any impacts on agriculture as a result of the option are considered to be low. <u>Forestry</u> Carradale UGC 1 has no impact on forestry. <u>Recreation</u> The nearest constraints are National Cycle Route 78 and the C088 Campbelltown to Cloanaig Core Path, located adjacent to Carradale UGC 1. Given the distance, the option will interact with the recreational features.	<u>Agriculture</u> Carradale UGC 2 land use agriculture appraisal is the same as Carradale UGC 1. <u>Forestry</u> Carradale UGC 2 would impact parcels of ancient woodland in addition to several native woodland parcels. <u>Recreation</u> Carradale UGC 2 runs along the National Cycle Route 78 and the C088 Campbelltown to Cloanaig Core Path and will interact with these recreational features.
Planning	<u>Policy and proposals</u> When considering NPF4, Alignment Option C5 has the potential to conflict with the following policies: • Policy 5 – Soils (due to the presence of irreplaceable blanket bog habitat); and • Policy 6 – Forestry, Woodland and trees.	<u>Policy and proposals</u> Carradale UGC 2 planning policy and proposals appraisal is the same as Carradale UGC 1, except: Alignment Option C6 also intersects planning application 22/02321/FGS – woodland management plan.

Topic	Option Carradale Substation UGC 1 (Abbr. Carradale UGC 1)	Option Carradale Substation UGC 2 (Abbr. Carradale UGC 2)
	Carradale UGC 1 intersects the boundary of 21/01907/PAN – Proposal of application notice for the construction of a battery storage facility up to 50 MW, access track, energy storage equipment, meter building, security cameras, fencing and planting of trees at Carradale substation.	
Infrastructure Crossings	Major Crossings Carradale UGC 1 crosses underneath the existing 132 kV OHL connected to Carradale substation, and has crossings with existing assets around the Carradale Substation. The risks associated with the construction of UGC section underneath the existing OHL can be mitigated by respecting the minimum distance to the live conductors. Road Crossings Carradale UGC 1 does not have crossings with existing roads.	Major Crossings Carradale UGC 2 major crossings appraisal is the same as Carradale UGC 1, with the exception that it is also required to cross Carradale River. The crossing of the Carradale river might require Horizontal Directional Drilling given the width of the river at the area of crossing. Road Crossings Carradale UGC 2 has some crossings to access tracks and private owners near the B842.
Environmental Design	Elevation Carradale UGC 1 has a minimum elevation of 9 m and a maximum elevation of 13 m, and an average of 11 m. Atmospheric Pollution Carradale UGC 1 is considered outside of any contamination areas containing carbon dioxide, nitrogen dioxide, nitrogen oxide, sulphur dioxide and particulate matters. Contaminated Land The region of Argyll and Bute in Scotland is a former WW2 testing ground, therefore there is a prevalence of UXOs in the area. However, in accordance	Elevation Carradale UGC 2 has a minimum elevation of 12 m, a maximum elevation of 31 m and an average of 24 m. Atmospheric Pollution Carradale UGC 2 atmospheric pollution appraisal is the same as Carradale UGC 1. Contaminated Land Carradale UGC 2 contaminated land appraisal is the same as Carradale UGC 1. Flooding

Topic	Option Carradale Substation UGC 1 (Abbr. Carradale UGC 1)	Option Carradale Substation UGC 2 (Abbr. Carradale UGC 2)
	with PR-NET-ENV-501, none of which come within contaminated land or area, therefore the risk of this is as low as reasonably practicable. Flooding According to SEPA flood maps, Carradale UGC 1 is at high risk of flooding due to the proximity of Carradale river. There are route sections that represent more than 5% within a 1-in-200 year flood zone.	Carradale UGC 2 flooding appraisal is the same as Carradale UGC 1.
Ground Conditions	Terrain Carradale UGC 1 presents a profile with maximum 4.7% and -4.4% and an average of 1.2% and -1.7% incline. Rock The area around Carradale UGC 1 is composed of Beinn Bheula Schist Formation - Gritty psammite and perlite. Peat The majority of Carradale UGC 1 falls within the Mineral soil area. Ground investigations will be performed to confirm presence of peat, and if required, avoid areas of deep peat and therefore mitigate the risks associated with it.	Terrain Carradale UGC 2 presents a profile with maximum 20,6% and -14.1% and an average of 2.9% and -3%. Rock Carradale UGC 2 rock appraisal is the same as Carradale UGC 1. Peat Carradale UGC 2 peat appraisal is the same as Carradale UGC 1 with the exception that a section of Class 5 peat is also present.
Construction Maintenance	Access Carradale UGC 1 is expected to be within a 1 km radius of the B842. Angles of Deviation Carradale UGC 1 will require some deviations due to the presence of the Carradale river and associated flood plains. This may compromise maximum cable pulling tensions and require support to avoid cable damage.	Access Carradale UGC 2 is proposed along the existing B842. Angles of Deviation Carradale UGC 2 angles of deviation appraisal is the same as Carradale UGC 1.

Topic	Option Carradale Substation UGC 1 (Abbr. Carradale UGC 1)	Option Carradale Substation UGC 2 (Abbr. Carradale UGC 2)
	Cable Haul Road Sections of enhanced haul road design is expected for sections of the cable route that are further away from existing tracks, especially where there is a presence of high water tables.	Cable Haul Road Carradale UGC 2 cable haul road appraisal is the same as Carradale UGC 1.
Proximity	Clearence Distance There are at least five private properties along the B842 that might be impacted by the construction of Carradale UGC 1, however, given the distance between the route and the properties, it is not expected to become a risk. Wind Farms Carradale UGC 1 is not required to be within the boundary of any existing windfarms. Communication Masts No nearby communication masts have been identified in close proximity to Carradale UGC 1. Urban Environment The area around Carradale UGC 1 is not considered an urban environment. Metallic Pipelines There are no superficial metallic pipes along the Carradale UGC 1 route.	Clearence Distance Carradale UGC 2 clearance distance appraisal is the same as Carradale UGC 1, with the exception that the option is closer to the B842. Wind Farms Carradale UGC 2 wind farms appraisal is the same as Carradale UGC 1. Communication Masts Carradale UGC 2 communication masts appraisal is the same as Carradale UGC 1. Urban Environment Carradale UGC 2 urban environment appraisal is the same as Carradale UGC 1. Metallic Pipelines Carradale UGC 2 metallic pipelines appraisal is the same as Carradale UGC 1.
Design	Reactive Compensation	Reactive Compensation

Topic	Option Carradale Substation UGC 1 (Abbr. Carradale UGC 1)	Option Carradale Substation UGC 2 (Abbr. Carradale UGC 2)
	The cable alignment proposed is less than 15km in length, therefore reactive power compensation will not be required. Joint Bays and Link Box Chambers Joint bays and link boxes are required where sections of the cable are connected. Given the length of the cable route of Carradale UGC 1, the use of joint bays may not be required.	Carradale UGC 2 reactive compensation appraisal is the same as Carradale UGC 1. Joint Bays and Link Box Chambers Given the extension of the flooding area associated with the Carradale river, some restrictions on location or foreseeable risk of asset damage are expected but can be mitigated by the use of link pillars instead of joint bays.
Economic	Economic considerations will be developed further as the design of the cable routes mature.	Economic considerations will be developed further as the design of the cable routes mature.