

Carrick Windfarm Grid Connection

Siting and Consultation Document

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1. Introduction

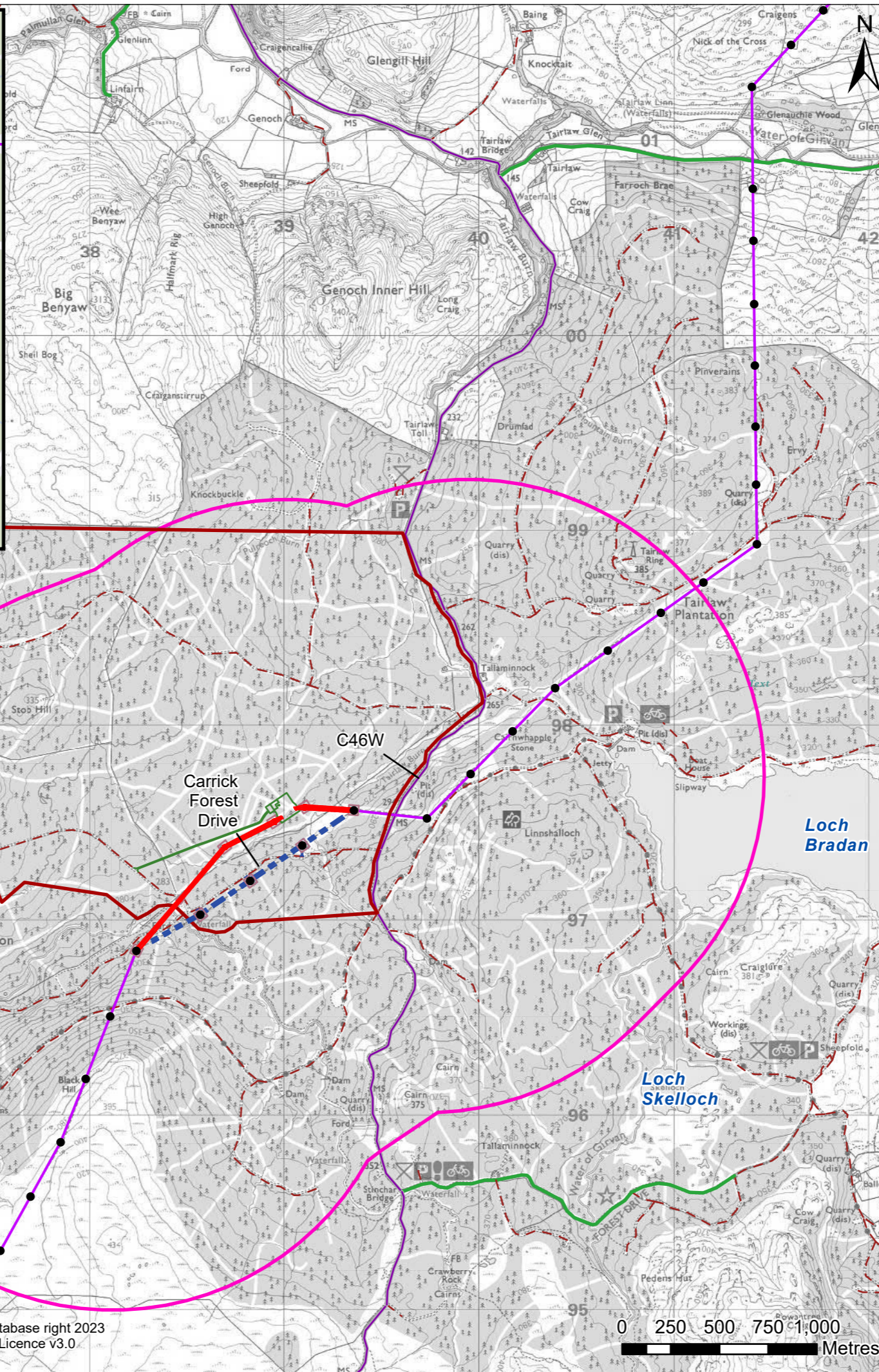
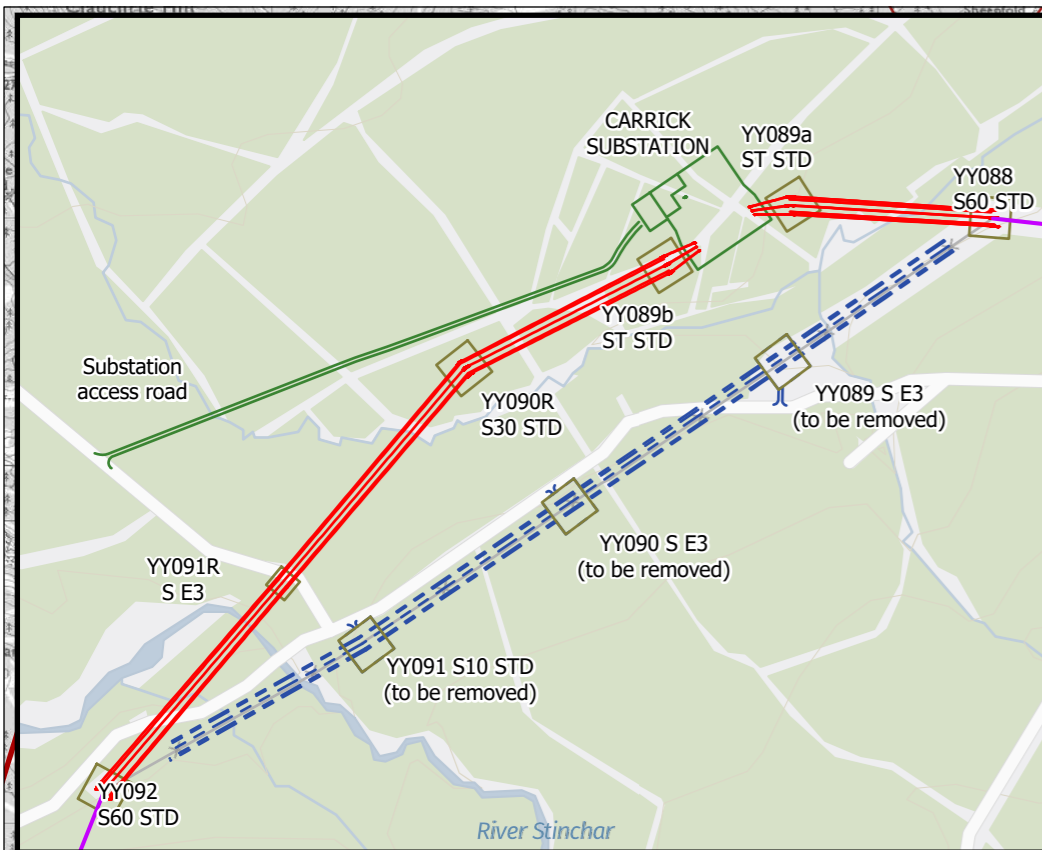
1.1. Introduction and Purpose of the Document

This Siting and Consultation Document (SCD) has been prepared by Sweco on behalf of Scottish Power Energy Networks (SPEN). SPEN is proposing to construct a new 275kV collector substation (Carrick Substation), providing a connection into the transmission network for two onshore wind farms: the proposed Carrick Windfarm (centred on national grid reference (NGR) NX 3719 9838); and Knockcronal Windfarm (approximate centre point NGR NX 3826 9939). It is proposed to divert the existing 275kV overhead line (OHL) and construct four new towers to connect ('turn in') the new substation to the existing route between towers YY088 and YY092 (known as the "YY route"), and remove three of the towers and associated conductors of the existing OHL.

The proposed Carrick Wind Farm and Carrick Substation are located within Carrick Forest, a commercial forestry area within Galloway Forest Park, approximately 6km south of Straiton (the nearest settlement to the site) in South Ayrshire. The commercial forest is owned and managed by Forestry and Land Scotland (FLS). The windfarm is currently at the consenting stage (see Section 1.2 for more information).

This document, for the purposes of consultation, focuses on the siting of the realigned OHL grid connection, which requires consent under Section 37 of the Electricity Act 1989. The proposed Carrick Substation is subject to separate planning consent under the Town and Country Planning (Scotland) Act 1997 (as amended), and therefore is not described further in this document. The location of the grid connection is shown on Figure 1-1.

The overall aim of this siting study was to appraise the proposed tower locations for the diverted OHL grid connection, reflecting the environmental and technical considerations that have been identified, and provide recommendations for further consideration at detailed design stage to identify an OHL route alignment. This SCD sets out the findings of the high level environmental and technical siting study for the grid connection. It presents the background to the grid connection, the approach and methodology adopted, and sets out the consultation process which will be undertaken. This process is designed to gather feedback from stakeholders, including the public, to inform subsequent stages of the project. The appraisal findings are included in Appendix A.



- Legend**
- Study area
 - Proposed Carrick Windfarm Site Boundary
- Proposed 275kV OHL (The Grid Connection)**
- Proposed 275kV Overhead Line (OHL)
 - Proposed Carrick Substation and access roads - indicative design only, not subject to S37 consent
 - Working Area / Tower Positions
 - Existing 275kV OHL To Be Removed
- Existing 275kV OHL**
- Existing 275kV OHL
 - Transmission Tower
- Roads**
- Classified Unnumbered
 - Unclassified
 - Unknown



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Sweco UK Limited
 2nd Floor Quay 2, 139 Fountainbridge
 Edinburgh, EH3 9QG
 Tel: +44 (0)131 550 6300
 www.sweco.co.uk



Project Title
CARRICK WINDFARM CONNECTION

Drawing Title
FIGURE 1-1 : LOCATION PLAN & STUDY AREA

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1.2. Project Background / Needs Case

As part of their commitments to tackling climate change, the Scottish Government has set legally binding targets to reach net zero greenhouse gas emissions in Scotland by 2045. In delivering net zero, the electricity system, i.e. how electricity is generated, transmitted, distributed and used, is undergoing transformational change.

This grid connection is needed to connect the proposed Carrick and Knockcronal windfarms to the transmission network. As the transmission licence holder, SP Transmission (SPT) (represented by SPEN), is legally obliged under the Electricity Act 1989 to provide a grid connection.

The Proposed Grid Connection

A request for a connection to the transmission grid has been received from the developer of Carrick Windfarm (Scottish Power Renewables, SPR). Following consideration of the network in this area by SPEN, the proposed point of connection is from Carrick wind farm substation via a diversion of the 275kV YY route to turn in the substation.

The Carrick Substation location, in the south-east of the Carrick Windfarm site, was selected principally as it avoided sensitive habitats, areas of deep peat and steep slopes, and is located outwith the topple distance of the nearest proposed wind turbines. The location of the substation was selected in consultation with SPEN based on technical requirements for the grid connection and proximity to the existing 275kV OHL¹.

Carrick Windfarm

In December 2021, SPR applied to the Scottish Government's Energy Consents Unit (ECU) for consent under Section 36 of the Electricity Act 1989 (as amended) (herein 'the 1989 Act') for a development consisting of up to 13 wind turbines, with a blade tip height of up to 200m, and an energy storage facility. The application was supported by an Environmental Impact Assessment Report (EIAR), which presented the results of the Environmental Impact Assessment (EIA).

In September 2022, the application was referred to the Scottish Government's Planning and Environmental Appeals Division (DPEA) following an objection from the local planning authority, South Ayrshire Council, and from the Scottish Environment Protection Agency (SEPA), triggering a Public Local Inquiry (PLI) to be called by the Scottish Ministers. The objections primarily concerned impacts from the proposed windfarm on deep peat, and landscape and visual impacts. Following consultation with SEPA, SPR took the decision to remove one of the turbines (T10) from the development. This resulted in the submission of an Addendum to the application for consent, and resulted in an updated design of up to 12 wind turbines and a total electricity generating capacity reduced from around 86MW to 79MW².

The Carrick Windfarm site boundary covers an area of approximately 827ha and the grid connection crosses into the south-eastern part of the larger windfarm boundary, as shown on Figure 1-1. Consultations were undertaken with statutory consultees and members of the public on the windfarm proposals in 2020, and further information on this is contained in the Pre-Application Consultation Report, which was submitted in support of the application for consent³. A decision to grant consent for the windfarm is still awaited from the Scottish Ministers.

¹ SPR (2021). Carrick Windfarm Environmental Impact Assessment Report – Chapter 3: Site Selection and Design. Available online: https://www.scottishpowerrenewables.com/userfiles/file/Chapter_3_-_Site_Selection_and_Design.pdf

² SPR website – Carrick Windfarm. Available online: https://www.scottishpowerrenewables.com/pages/carrick_windfarm.aspx

³ SPR (2021). Carrick Windfarm Pre-Application Consultation Report, December 2021. Available online: https://www.scottishpowerrenewables.com/userfiles/file/Carrick_PAC_Report.pdf

The location for the proposed windfarm development was selected primarily (but not limited to) the following factors:

- initial studies and monitoring data suggest a good wind resource available at the site to support a renewable energy development;
- there are no international or national statutory designations for landscape and/or nature conservation in, or within 2km to the site;
- no residential properties within 1km of the nearest wind turbines;
- options to connect the substation to the existing transmission line which is located within the site; and
- opportunities to use and upgrade the existing forestry track where possible, particularly at the entrances from the C46W public road.

1.3. Statutory Duties and Licence Obligations

SPT, the Transmission Owner and Licence Holder under the 1989 Act, is responsible for the electricity transmission network in central and southern Scotland, including South Ayrshire where the proposed grid connection is located. As the holder of a transmission licence under the 1989 Act, SPT is subject to a number of statutory duties and licence obligations. These include a requirement to:

- “develop and maintain an efficient, coordinated and economical system of electricity transmission”;
- and
- “facilitate competition in the supply and generation of electricity”.

This requires SPT to provide connections for new electricity generators seeking to connect to the transmission system in its licence area; to make its transmission system available for these purposes and to ensure that the system is fit for purpose through appropriate reinforcements to accommodate the contracted capacity.

Schedule 9 of the 1989 Act imposes a further statutory duty on SPT to take account of the following factors in formulating proposals for the installation of overhead transmission lines, as follows:

- “(a) to have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features or special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and
- (b) to do what it reasonably can to mitigate any effects which the proposals would have on the natural beauty of the countryside or any such flora, fauna, features, sites, buildings or objects.”

As a result of the above SPEN, acting on behalf of SPT, is required to identify electrical connections that:

- meet the technical requirements of the electricity system;
- are economically viable; and
- cause the least disturbance to both the environment and the people who live, work and enjoy recreation within it.

In line with SPT’s statutory duties and licence obligations and drawing upon established practice, routing (and siting) considerations comprise environmental, technical and economic factors (see Section 1.6). These considerations inform the identification and assessment of route options ensuring that the process is robust and transparent.

1.4. Statutory Consent Process

This section summarises the three key stages for the proposed development and consent of the grid connection.

- **Phase 1: Routeing and Consultation** – this SCD relates to Phase 1, which comprises a review of environmental, technical and economic considerations. This phase culminates in the identification of a preferred route option for the OHL, and more specifically any requirements for the siting of the towers, which is then subject to consultation.

SPEN is committed to ongoing consultation with interested parties, including statutory and non-statutory consultees and local communities. Whilst there is no statutory requirement to consult during the early routeing and siting stages, SPEN nonetheless considers it good practice to consult at this early stage.

- **Phase 2: Detailed Route Design and Environmental Impact Assessment (EIA)** – the proposed development also falls under the description of ‘Schedule 2 development’ of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (hereafter ‘the Regulations’) and therefore requires consideration as to the potential for significant effects on the environment with reference to the criteria listed in Schedule 3 of the Regulations. Based on the relatively short length of 275kV OHL (approximately 1km) and other characteristics of the grid connection (as described in Chapter 3), it is considered highly unlikely that the Scottish Ministers would determine that the grid connection constitutes ‘EIA development’. On this basis, a non-statutory Environmental Appraisal Report (EAR) would be prepared, targeted on key environmental topics and issues within the study area.
- **Phase 3: Application for Consent** – SPEN will apply to the Scottish Ministers for consent under Section 37 of the 1989 Act, to install and keep installed, the grid connection. The EAR will accompany the application for consent. In conjunction, SPEN will apply to the Scottish Ministers for deemed planning permission under Section 57(2) of the Town and Country Planning (Scotland) Act 1997 (as amended) for the grid connection and associated works. The Scottish Ministers will consult with statutory stakeholders and members of the public in determining the application for consent.

1.5. Stakeholder Engagement

Stakeholder engagement, including with the public, is an important element of the Scottish planning and consenting system. Legislation and government guidance aim to ensure that the public, local communities, statutory and other consultees have an opportunity to have their views taken into account throughout the planning process. SPEN recognises the importance of consulting effectively on proposals and is keen to engage with key stakeholders including local communities and others who may have an interest in the proposed grid connection.

This engagement process continues through to the construction of SPEN projects. SPEN’s approach to stakeholder engagement for major electrical infrastructure projects is outlined in Chapter 2 of SPEN’s 2020 guidance ‘*Approach to Routeing and Environmental Impact Assessment*’⁴. SPEN aims to ensure effective, inclusive and meaningful engagement with the public, local communities, statutory and other consultees and interested parties. As a holder of a transmission licence, SPEN has a duty under section 38 and

⁴ SP Energy Networks (2020). Approach to Routeing and Environmental Impact Assessment. Available online: https://www.spenergynetworks.co.uk/userfiles/file/SPEN_Approach_to_Siting_Document_2nd_version.pdf

Schedule 9 of the 1989 Act (when formulating proposals for new electricity lines and other transmission development) to have regard to the effects of development on communities, in addition to the desirability of the preservation of amenity, the natural environment, cultural heritage, landscape and visual quality.

1.6. SPEN's Approach to Routeing and Siting

In 2020, SPEN consulted on and published the second version of their guidance document 'Approach to Routeing and Environmental Impact Assessment'³, which describes their general approach to routeing and siting new electricity transmission infrastructure. The approach to routeing and siting forms the basis for the methodology used for the proposed grid connection.

Having established the need for a project and the two points of connection, the starting point is to identify an overhead line route. The first principle of the approach set out by SPEN is that the main effect of an OHL is visual and that the degree of visual impact can be reduced by careful routeing; for example, by using topography and vegetation to provide screening or background to the OHL and by siting the OHL at a distance from settlements and roads. In addition, OHL routeing and siting takes into account other environmental, technical and economic considerations and will avoid, wherever possible, the most sensitive and valued natural and man-made features.

Environmental Considerations

Environmental considerations include (for example):

- landscape character;
- visual amenity;
- ecology and ornithology;
- cultural heritage;
- watercourses/hydrology and flood risk;
- geology and soil (such as carbon-rich soils and deep peat); and
- land uses, e.g. agriculture and forestry.

Technical Considerations

Technical considerations include (for example):

- proximity to existing electricity transmission or distribution infrastructure (e.g. overhead lines, and buried cables);
- proximity to wind turbines, public utilities and mineworking areas;
- altitude, topography and slope gradients;
- accessibility;
- crossings of roads, railways and watercourses; and
- forestry and ground conditions.

Economic Considerations

In compliance with the duties imposed on SPEN in terms of Section 9 of the Electricity Act 1989 (as introduced in Section 1.3), the proposed route must be 'economically viable'. This is interpreted by SPEN as meaning that as far as is reasonably practicable, and all other concerns being equal, the line should be as direct as possible, and the route should avoid areas where technical difficulty or compensatory requirements would render the development unviable on economic grounds.

The Holford Rules

Routeing and siting considerations take account of the guidance contained in ‘the Holford Rules’ and relevant notes or clarifications (see Appendix B). It is generally accepted across the electricity industry that the guidelines developed by the late Lord Holford in 1959 for routeing OHLs should continue to be considered as the basis for routeing high voltage OHLs.

The Holford Rules are broadly hierarchical with Rules 1 and 2 placing considerable emphasis on avoiding areas of the highest or high amenity value.

- Rule 1 advises that routes should **avoid major areas of the highest amenity value** where possible, and
- Rule 2 advises that routes should **avoid smaller areas of high amenity value** by deviation.

The Holford Rules do not identify what constitutes “major areas” or “smaller areas” but indicate that consideration should also be given to the spatial extent of areas of highest/high amenity or environmental value. The Holford Rules also consider landform, topography and vegetation in order to reduce landscape and visual effects, and these rules have been interpreted and applied to this siting study, where appropriate.

Biodiversity Net Gain

SPEN is committed to achieving No Net Loss (NNL) of biodiversity across all of its projects. The Scottish Government has not adopted a formal definition of Biodiversity Net Gain (BNG). However, in recognition of their commitment to BNG (NNL), SPEN has proactively adopted Scottish and Southern Energy Networks (SSEN) toolkit⁵ based on DEFRA’s BNG metric (version 2.0)⁶. The tool has been specifically adapted to reflect the unique nature of Scotland’s vegetation communities. At this stage of the project, a qualitative assessment of BNG constraints and opportunities has been undertaken and presented in Section 4.2 of this report.

Grid Connection Routeing and Siting Objective

The first step in the approach has been to identify an overarching objective for the grid connection, which takes account of SPT’s statutory duties and licence obligations. In accordance with SPEN’s overall approach to routeing and siting, the objective for the grid connection is:

“To identify a technically feasible and economically viable route for the realigned 275kV overhead line route, supported on steel towers, along the YY route between existing towers YY088 and YY092, to turn in the proposed 275kV Carrick Substation. This route should, on balance, cause the least disturbance to the environment and the people who live, work and enjoy recreation within it.”

⁵ SSE Renewables website. Available online: <https://www.sserenewables.com/sustainability/biodiversity-net-gain/>

⁶ Note that Defra has now published version 4.0 of the BNG metric, which is available at The Biodiversity Metric 4.0 - JP039 (<https://publications.naturalengland.org.uk/publication/6049804846366720>)

2. Project Description

2.1. The Grid Connection

This section provides a description of the infrastructure which would be required for the grid connection. As introduced in Section 1.1, the grid connection consists of the following elements:

- Approximately 1km of new single circuit OHL, including four Balfour Beatty bespoke design single circuit towers to 'turn in' the proposed Carrick 275kV substation to the existing YY route.
- Associated ancillary works including accesses and laydown areas.
- Dismantling and removal of approximately 1.4km of OHL circuit on YY route between towers YY088 and YY092, including dismantling and removal of towers YY089, YY090 and YY091.

It should be noted that this information is not confirmation of a final design; however, it is considered appropriate for the purposes of this siting study and to inform the consultation to be undertaken as part of Phase 1. As outlined in Section 1.1, a new 275kV Carrick Substation is also required to provide connection into the transmission network for the proposed Carrick and Knockcronal windfarms. However, the substation would require separate planning consent and is not the subject of this consultation.

2.2. Overhead Line Infrastructure

General Description

OHLs transmit electricity by conductors (or wires) which are suspended at a specified height above ground and supported by wooden poles or lattice steel towers, spaced at intervals.

The conductors can be made of aluminium or steel strands. The new realigned single circuit 275kV OHL is proposed to be supported on four Balfour Beatty bespoke design towers. The tower types used on the existing "YY route" are presented on Photos 2-1 and 2-2, and the typical design described below.



Photo 2-1: Facing south-west along the existing "YY route" towards tower YY089 (to be removed) (Tower 1 type)



Photo 2-2: Facing south-west from Carrick Forest Drive along the existing “YY route” towards tower YY092 (to be retained) (Tower 2 type)

Steel Tower Types

Towers carry conductors and are generally of a lattice steel construction fabricated from high tensile steel, which is assembled using galvanised high tensile steel bolts with nuts and locking devices.

There are three types of tower:

- Suspension or line: where the tower is part of a straight-line section.
- Tension or angle: where there is a horizontal or vertical deviation in line direction of a specified number of degrees. There are four main types of angle tower – 10 degrees, 30 degrees, 60 degrees and terminal towers.
- Terminal: where the overhead line terminates into a substation via gantry structure/anchor blocks or alternatively transitions to an underground cable section via a separate cable sealing end compound or platform.

For this grid connection, the types of towers will match those previously installed on the existing “YY route”, which are Balfour Beatty bespoke designs as per the below specification.

Steel Tower Heights and Span Lengths

The overhead line will be supported on four new single circuit Balfour Beatty bespoke towers. These towers have a single full width cross arm with attachment points in a horizontal configuration. The towers have two earth wire peaks and have a standard height of between 25m and 30m. The section of overhead line between towers is known as the ‘span’, with the distance between them known as the ‘span length’. Span lengths between towers typically range between 200m and 300m but can be above 350m if there is a requirement to span a feature, such as a river or loch. Towers are used to regulate the statutory clearances required for conductor height, which is determined by the voltage of the overhead line (the higher the voltage, the greater the safety clearance that will be required) and the span length required between towers. For this grid connection, tower heights are proposed to be between approximately 25m and 30m, and spans between approximately 250m and 360m.

Steel Tower Appearance

Towers are fabricated from galvanised steel. It is not possible to colour towers to camouflage them for all times of day or all seasons. However, the colour of towers can often only be recognised over a short distance. Over greater distances, the colour is often not distinguishable and appears as grades of light and dark. Where towers are viewed against the sky, colour cannot be relied upon to diminish visibility, since the lighting characteristics of the sky vary greatly. Towers will turn a dull grey colour after about 18 months.

Information on the proposed tower types, including general arrangement drawings of towers previously constructed along the YY route, are provided in Appendix C.

2.3. Typical Construction Process

The construction of OHLs follows a well-established process. As well as the OHL it also requires additional temporary land-take and infrastructure, for example temporary accesses and temporary construction compounds to store materials.

Construction

Key phases of construction may comprise the following activities (not exhaustive):

- site clearance including tree felling/ lopping and vegetation removal;
- construction of temporary construction compounds to store materials;
- preparation of accesses;
- excavation and construction of foundations;
- assembly and erection of towers;
- insulator and conductor erection and tensioning; and
- reinstatement.

Prior to constructing OHLs, temporary accesses would be constructed, as necessary, and laydown areas established. Any trees which may impact on safety clearances would be removed or lopped. Following commissioning of an OHL, all equipment and temporary access of construction areas would be removed with the land being reinstated to its former condition.

The construction programme for the proposed OHL would be confirmed at detailed design stage and prior to start of construction following the granting of statutory consents and after all necessary land purchase or wayleave arrangements have been concluded. The total duration of construction activity at any single tower site is approximately two to four weeks for tower foundations, one to two weeks for tower construction, and up to four weeks for conductor erection and stringing depending on the size of the tower and the number of the conductors to be strung. At this stage, it is considered that construction of the grid connection and associated works would be approximately 6-12 months.

Operation and Maintenance

OHL infrastructure generally has limited maintenance requirements. Whilst most OHL components are generally low maintenance, exposed elements which suffer from corrosion, wear, deterioration and fatigue may require inspection and periodic maintenance. OHL conductors generally require refurbishment after approximately 40 years.

The condition of tower steelwork and foundations is monitored regularly. Towers which have deteriorated significantly may be dismantled carefully and replaced. Any felled wayleave areas (likely 60m through forestry) would also have to be managed to maintain the required clearances whilst the connection remains in service. Walkover surveys or flyovers would identify where there is a requirement to clear wayleaves of new growth.

Decommissioning

OHL infrastructure is subject to well-established procedures for dismantling/ decommissioning. If an OHL line is decommissioned, the steel towers would be removed with components re-used where possible. Foundations and supports are removed to a minimum depth of 1m below ground level and the ground reinstated to pre-development conditions, to the satisfaction of the landowner. For this grid connection, existing tower YY089, YY090 and YY091 are proposed to be decommissioned and removed.

3. Tower Siting Areas

3.1. Study Area

The grid connection is located within the northern extent of Galloway Forest, owned by FLS, approximately 7.5km south of Straiton and 20km east of Girvan, in South Ayrshire. It is a public forest park, predominantly used for recreational activities, including hiking, mountain biking and fishing, and is made up of a mixture of conifer and mixed deciduous broadleaved woodlands. Approximately half of the study area consists of conifer plantation woodland, ranging from mature and semi-mature to young/newly planted woodlands, dominated by Sitka spruce. The study area is shown on Figure 1-1.

The development site is accessed along Carrick Forest Drive, via the C46W public road from the east. The C46W/Carrick Forest Drive junction is currently used to provide access to the area for timber extraction and other land management uses. This junction is proposed to be upgraded as part of the proposed Carrick Windfarm development.

One core path crosses the C46W road, between the C46W/Carrick Forest Drive access and another access along the C46W to the north. National Cycle Network (NCN) Route 7 follows the C46W road in this location; however the public road does not have any dedicated cycling or pedestrian facilities in this area.

There are two main watercourses within the study area; the River Stinchar and Tairlaw Burn. The River Stinchar runs roughly from east to west and crosses Carrick Forest Drive via a small bridge. Tairlaw Burn consists of two tributaries within the study area, which join just north of Carrick Forest Drive, before flowing north roughly parallel with the C46W road. One of these tributaries flows under Carrick Forest Drive via a culvert. There are also several smaller drainage channels throughout the conifer plantation, most of which are still water. The study area is also within a drinking water protection zone and Girvan Bathing Water Catchment.

There are three lochs which either overlap or are at the edge of the study area, comprising Linfern Loch to the west, and Loch Bradan and Loch Skelloch to the east and south-east, respectively.

Local tourist attractions within the wider area include Galloway Forest Park, Galloway and Southern Ayrshire UNESCO⁷ Biosphere, Merrick Wild Land Area and the Galloway Dark Sky Park.

The grid connection is located at the northern edge of the Carrick Hills within an area of forested foothills, between the Water of Girvan and Stinchar Valleys. The landscape is characterised by a large-scale landform, comprising of steep-sided valleys and gently rounded hills. Merrick Wild Land Area lies approximately 3km to the south of the grid connection boundary at its closest extent, and within the wider area there are a number of operational windfarms (including Dersalloch and Hadyard Hill windfarms) and proposed windfarms (including Carrick, Knockcronal, Clauchrie and Craiginmoddie windfarms).

The grid connection does not fall within any national landscape designation but is identified as being located within the South Ayrshire Scenic Area, the Galloway National Forest Park, and Galloway and Southern Ayrshire Biosphere Reserve. The grid connection is located within the 'Foothills - Ayrshire' landscape character type (LCT) 76 (determined by NatureScot). The eastern section of the grid connection boundary also falls within the edge of the 'High Carrick Hills' South Ayrshire Local Landscape Area (LLA) and 'The Stinchar Valley' LLA lies approximately 1km to the west of the grid connection at its closest extent.

The 'Foothills - Ayrshire' LCT 76 description defines this area as having a fragmented topography featuring incised valleys nestled between rounded ridges with occasional, plateaus that rise to modest summits. Areas of dense dark green coniferous forest blanket many of the rounded peaks, extending down to the

⁷ UNESCO is the United Nations Educational, Scientific and Cultural Organisation that promotes peace and security through international cooperation

lower slopes. The small scale Tairlaw Burn tributary is located immediately to the south of the grid connection forming a small landscape feature on the edge of the woodland. While the presence of large-scale coniferous forests highlights human impact on the landscape, the enclosed nature of these forests, lack of settlement, and the restricted views contribute to a sense of remoteness and isolation. Existing high voltage pylons and overhead lines feature within this landscape area.

Visual receptors located within the area are limited to users of core paths, local paths, forest paths and users of the unclassified road (Carrick Forest Drive). The closest Core Path SA49 is located within woodland at a considerable distance (750m) to the south of the grid connection and is visually enclosed by woodland. The closest Local Path 75 is located at some distance to the east of the grid connection, within woodland surrounding Loch Bradan. A forestry path is located to the south grid connection at a distance of approximately 120m with close range views of the immediately adjacent existing pylons. The topography combined with commercial forestry plantation of mainly coniferous woodland results in the area being visually enclosed. Visual receptors likely to experience views of the grid connection already experience views of the existing overhead pylons. The existing woodland surrounding the forest path and Carrick Forest Drive would result in momentary glimpses of the proposed grid connection.

The existing environmental considerations in the study area are shown on Figures D.1 to D.4 (Appendix D) and Photos 3-1 and 3-2 illustrate the typical characteristics of the study area.



Photo 3-1: Facing towards the proposed location of the Carrick Substation from Carrick Forest Drive



Photo 3-2: General view towards the location of the grid connection from the west (existing “YY route” in the background)

3.2. Planning Policy

National Planning Policy

National Planning Framework 4 (NPF4)⁸ was adopted by the Scottish Ministers on 13th February 2023. NPF4 is a long-term plan for Scotland that sets out where development and infrastructure is needed and supersedes National Planning Framework 3 and Scottish Planning Policy 2014.

NPF4 sets out pathways aligned with the Government’s target for achieving net zero by 2045: “we must embrace and deliver radical change so we can tackle and adapt to climate change, restore biodiversity loss, improve health and well-being, reduce inequalities, build a wellbeing economy and create great places.”

Of key relevance to the grid connection is Policy 11 (Energy) of NPF4, which seeks to encourage, promote and facilitate “all forms of renewable energy development onshore and offshore”, including “new and replacement transmission and distribution infrastructure”.

NPF4 Policy 4 (Natural Places) seeks to protect, restore, and manage natural assets and designated sites. Policy 4 informed the consideration of ‘Areas or Sites of Highest Amenity or Environmental Value’, as introduced in Section 1.6. Specifically:

- European Sites (Special Areas of Conservation (SACs) or Special Protection Areas (SPAs));
- National Parks;
- National Scenic Areas;

⁸ Scottish Government (2023). National Planning Framework 4. Available online: <https://www.gov.scot/publications/national-planning-framework-4/>

- Site of Special Scientific Interest (SSSIs);
- National Nature Reserves; and
- Wild land.

NPF4 Policy 3 (Biodiversity) seeks to “*protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks*”. Mapping constraints and opportunities, in terms of BNG or NNL, is a key part of SPEN’s routeing and siting process and addresses the need for development proposals to deliver biodiversity enhancements in line with Policy 3.

NPF4 Policy 7 (Historic assets and places) sets out the intent to “*...protect and enhance historic environment assets and places, and to enable positive change as a catalyst for the regeneration of places.*” Policy 7 encompasses both designated and non-designated heritage assets which should be considered as part of the routeing and siting process to avoid, where possible, or minimise any impacts to their cultural significance.

The grid connection would be consented through the 1989 Act, and for these applications, NPF4 does not have the same statutory role as it does within Town and Country Planning (Scotland) Act 1997 applications. However, NPF4 and other relevant planning policy, including local planning policy contains policies relating to many of the environmental factors listed in Schedule 9 of the 1989 Act. NPF4 will therefore be a key consideration during the determination by Scottish Ministers for Section 37 consent under the 1989 Act.

Local Planning Policy

The grid connection study area is located within the South Ayrshire local authority area. In South Ayrshire, local planning policy is set out within the Local Development Plan 2 (LDP2)⁹, which was adopted in August 2022, and provides the framework to achieve inclusive growth. Of key relevance is the LDP policy on renewable energy, namely:

“We will support proposals for generating and using renewable energy in stand-alone locations, and as part of new and existing developments, if they will not have a significant harmful effect on residential amenity, the appearance of the area and its landscape character, biodiversity, historic environment and cultural heritage associations.”

Regarding wind energy specifically, the LDP2 sets out that “[w]e will support proposals for wind energy development (including repowering or extensions) comprising one or more wind turbine greater than 15 metres to blade tip”, subject to a number of criteria to minimise environmental impacts and achieve socio-economic benefits. South Ayrshire Council has developed a Spatial Framework to identify areas that are likely to be most appropriate for onshore windfarms.

LDP2’s policy on the ‘Galloway and Southern Ayrshire Biosphere’ states: “*We will support development that promotes the goals of the biosphere and shows an innovative approach to sustainable living and the economy, and supports improving, understanding and enjoying the area as a world-class environment. Development must be appropriate to the role of the different zones within the Biosphere.*”

3.3. Siting Considerations

This section describes the siting considerations within the study area. This takes into account SPEN’s approach to routeing and siting, as well as the guidance contained in the Holford and Horlock Rules, and

⁹ South Ayrshire Council (2022). Local Development Plan 2 (LDP2). Available online: <https://www.south-ayrshire.gov.uk/article/28782/Local-development-plan-2>

the Grid Connection Routeing and Siting Objectives identified in Section 1.6. The purpose is to ensure a consistent approach to identifying and assessing the siting considerations which have been identified.

The preliminary design of the grid connection seeks to ensure that:

- The realigned OHL is as direct as possible to 'turn in' the proposed Carrick Substation.
- It minimises as far as possible potentially adverse effects on the visual amenity of the nearest sensitive receptors such as vehicle and recreational users of the forestry tracks.
- It minimise potential direct and indirect effects on:
 - all other statutory and non-statutory sites within the study area;
 - habitats and protected species; and
 - recreational and access routes.
- It takes account of existing and planned land use and infrastructure as far as possible including proximity to existing OHLs and the proposals for Carrick Windfarm.

It should be noted that following consultation and through detailed topographical surveys and ground investigation surveys, it is anticipated that it may be necessary and desirable to refine the final design, on an individual tower basis, to reflect detailed topography, ground conditions and to provide scope for further mitigation of environmental effects. The modifications would be assessed to ensure that they are not varied to such a degree as to cause an increase in the significance of likely environmental effects as identified through the siting process. An infrastructure location allowance would therefore be proposed through the application process, which would permit the siting of a tower to be adjusted within a 50m radius of the indicative tower locations and a 50m tolerance either side of the indicative access track locations.

3.4. Identification and Mapping of Environmental and Technical Considerations

Following the development of the siting area for the grid connection, environmental and technical considerations have been identified and reviewed. These considerations are set out below and can be viewed on Figures D.1 to D.4 in Appendix D.

The findings and conclusions of the appraisal of the tower (and substation) siting areas are presented within Chapter 4.

Landscape & Visual

The grid connection does not fall within national landscape designation. It is located within South Ayrshire Scenic Area and Galloway National Forest Park (but no implication for localised re-siting given the extent and nature of the Scenic Area and Forest Park).

The location falls within the 'Foothills - Ayrshire' LCT 76 (identified by NatureScot), as described in Section 3.1 above. The vicinity comprises an upland area at approximately 300m AOD. The grid connection sits at a comparatively lower level to the surrounding topography within a relatively flat area of valley and would therefore not be visually prominent. This is a large-scale landscape of predominantly commercial plantation forestry which is considered to be of low susceptibility to the proposed grid connection. The Tairlaw Burn tributary requires consideration during routeing and siting to avoid directly impacting upon this small-scale landscape feature.

Views from the core path and local path are visually enclosed by woodland and located at such a distance as to not impact upon localised siting considerations. Visual access is limited to users of the unclassified

road (Carrick Forest Drive) and the forest path located to the south of the site. There is no implication for localised siting from these receptors as they are considered to be of low visual sensitivity and already experience intermittent views of the existing pylons. The grid connection would increase the distance of the OHL and pylons from the forest path, where they would be screened behind plantation woodland with views of the proposed substation filtered by existing trees.

The area is relatively flat with broadly consistent landcover, and therefore local micro-siting would not materially increase or decrease landscape and visual effects.

Ecology and ornithology

The boundary of the grid connection is not located within or in close proximity to any European designated sites, i.e. Special Areas of Conservation (SACs), Special Protection Areas (SPAs) or Ramsar sites. There are no ecological statutory sites within the grid connection boundary. The nearest designated sites, Auchalton Site of Special Scientific Interest (SSSI), Merrick Kells SAC and SSSI, and Loch Doon SSSI are all located at least 8km to the northwest, south-east and east of the grid connection boundary, respectively. These designated sites are not considered to be ecologically or hydrologically connected to the site of the proposed grid connection.

The site lies within the following non-statutory designated sites:

- the UNESCO Galloway and Southern Ayrshire Biosphere Reserve;
- the River Stinchar (Milton to Black Hill) provisional local wildlife site to the south-west; and
- Galloway Forest Park Important Bird Area.

There are no areas of ancient woodland (listed on the Ancient Woodland Inventory, AWI¹⁰) within the grid connection boundary. The closest ancient woodland, Tairlaw Glen, is located over 2km to the north-east of the grid connection. There are however small areas of native or nearly-native woodland (listed on the Native Woodland Survey of Scotland, NWSS¹¹) within close proximity to the grid connection, mainly consisting of wet woodland or upland birchwood.

Preliminary Ecological Appraisal

Results of the preliminary ecological appraisal (PEA) undertaken in June and July 2024¹² noted the following:

Desk study:

The desk study identified no statutory or non-statutory sites within 2km of the survey area and no woodlands listed on the AWI or Tree Preservation Orders (TPOs) were noted within 50m. An online search identified no records of protected/notable species within 2km of the grid connection.

Phase 1 habitat survey:

- Approximately 50% of study area consists of conifer plantation woodland, ranging in maturity from mature and semi-mature to young/newly planted woodlands. These plantations are dominated by Sitka spruce (*Picea sitchensis*).

¹⁰ NatureScot – Ancient Woodland Inventory Map. Available online: <https://opendata.nature.scot/datasets/snh::ancient-woodland-inventory/about>

¹¹ Scottish Forestry – Native Woodland Survey of Scotland (NWSS). Available online: <https://www.forestry.gov.scot/forests-environment/biodiversity/native-woodlands/native-woodland-survey-of-scotland-nwss>

¹² Bowland Ecology (2024a). BOWS17.183 Carrick Windfarm OHL Connection – Ecological Appraisal Report

- Where the forestry has been cleared, areas of marshy grassland are present, covering approximately 20% of the study area. Common species are similar in all areas and include dominant compact rush (*Juncus conglomeratus*) and common rush (*Juncus acutiflorus*).
- Small pockets of scattered scrub are present throughout the site, covering approximately 15% of the study area. The denser areas are present along the edges of the existing forestry tracks and in areas of clear fell underneath the existing OHL.
- A number of small watercourses are present within the survey area, notably the River Stinchar, which runs roughly east to west in the study area; and Tairlaw Burn, consisting of two tributaries which generally flows northwards from their confluence just north of Carrick Forest Drive. The watercourses were peaty and slow flowing at the time of the surveys. There are several smaller drainage channels through the conifer plantation, most of which are still water, and are therefore not considered as waterbodies in this report.
- No invasive non-native species (INNS) were noted on site during the survey.

Species:

Bats:

- There are no suitable structures on site that could be utilised by roosting bats. The trees present also have no identifiable bat roosting features.
- The habitats within the site are considered sub-optimal for foraging and commuting bats. However, the access track and woodland edges provide a suitable corridor for foraging and commuting bats.

Badger:

- Much of the site provides good quality foraging habitat for badgers and a badger scat was located on all of the access tracks within the site. The wet peaty soil may make sett creation difficult on areas of flat land, however there are several areas of the site which are suitable for sett creation.

Pine marten:

- Numerous fresh and dried pine marten scats were recorded on the site, either on or adjacent to the access tracks. Suitable habitat for foraging and potential for pine marten dens mean pine marten are likely to be present.

Red squirrel:

- No signs of red squirrel were found during the surveys. The site provides suitable habitat for foraging, denning, and commuting activities.

Otter:

- The watercourses are considered suitable commuting and foraging habitat for otters, An otter spraint was found underneath the bridge which also provided good shelter for a resting place or layup site. The site has not been recently visited by an otter but is considered to be in intermittent use as part of a wider territory.

Water vole:

- No evidence of water vole was noted during the survey; however, the watercourses are considered suitable foraging and sheltering habitat for water vole.

Reptiles and amphibians:

- Two common lizards were recorded during the surveys and many areas of habitat offer suitable foraging, refuge and basking habitat for reptiles.
- The site contained no ponds for amphibians; however, terrestrial habitats on site provide high-quality foraging and refuge habitat for newts and other amphibians.

Breeding Bird Surveys

Results of the breeding bird surveys undertaken in June and July 2024¹³ noted the following:

Desk study: an online search on the National Biodiversity Network (NBN) Atlas identified five bird species with red conservation status, one bird species with amber conservation status, and no Schedule 1 bird species between 2000 and 2024 within 2km of the site.

Surveys: the woodlands and scrub provide foraging and nesting habitat for small tree and shrub nesting birds in the area. Loch Bradan located approximately 0.23km to the east of the grid connection, provides foraging and nesting habitat for bird species that live and forage in and around a semi-aquatic habitat, including osprey (*Pandion haliaetus*), which was recorded over the loch from the access track outside of the 1km survey area.

Furthermore, the areas of grassland, woodland plantation and felled conifer plantation provide potentially suitable foraging habitat for raptors and owls. Buzzard (*Buteo buteo*) were recorded during the breeding bird surveys.

Based on surveys carried out in summer 2024, a total of 24 bird species were recorded. Of these, 5 species, including bullfinch, cuckoo, herring gull, lesser redpoll and osprey, are considered of high conservation interest (e.g. Schedule 1 species, listed under the Birds of Conservation Concern (BoCC) red list and Scottish Biodiversity List (SBL) of Priority Species). The remaining bird species were considered common and widespread within the local area and the majority of them were of low conservation status.

Of the 10 species listed on the BoCC Red or Amber list, only meadow pipit, willow warbler and wren were confirmed to be breeding on site. Bullfinch, cuckoo, lesser redpoll and rook were all assumed to be breeding as the site provides suitable nesting habitat for these species, although were not recorded during the surveys.

Cultural Heritage

The routing and siting appraisal for cultural heritage has been undertaken as a desk-based exercise using records of designated heritage assets obtained from Historic Environment Scotland (HES), data for non-designated heritage assets viewed on the National Record of the Historic Environment website (Canmore)¹⁴ alongside aerial imagery and historic maps available on the National Library of Scotland website.

There are no designated heritage assets within 5km of the boundary of the proposed grid connection. The closest designated heritage asset is the Scheduled Monument 'Bencallen Hill' (SM3890) located approximately 5.1km to the west of the site. The asset, also known as 'The Druids Grave', comprises a chambered cairn dating to the Neolithic period of which the visible remains comprise a pair of side stones and at least two capstones with a probable entrance to the north. The cairn has been significantly

¹³ Bowland Ecology (2024b). BOWS17.183 Carrick Windfarm OHL Connection – Breeding Bird Survey Report

¹⁴ Canmore National Record of the Historic Environment Map (Compiled and Managed by Historic Environment Scotland). <https://canmore.org.uk/map/about>

disturbed by the construction of a later sheepfold, although some surviving cairn material was recorded on the northern edge.

The asset is located on a west facing slope below a woodland plantation overlooking Balloch Burn and its associated glen, which comprises its principal setting in addition to its spatial, historic and likely visual relationship with several broadly contemporary assets within the glen which are recorded in the Canmore data. There is no indication the area within the grid connection boundary shares any meaningful relationship with the asset which would place it within any part of its setting which contributes to its cultural significance. In addition, the higher elevation of the grid connection boundary and the large areas of intervening woodland effectively remove any likelihood of a visual relationship. The grid connection cannot, therefore, lead to an impact to the cultural significance of the cairn through a change in setting.

Within 1km of the grid connection boundary, there are no recorded non-designated heritage assets within the Canmore data while there are no identifiable archaeological or built heritage remains on historic mapping within the grid connection boundary.

The closest non-designated heritage assets are recorded approximately 1.1km west of the grid connection boundary which comprise the remains of a turf-covered cairn of probably prehistoric origin (Canmore ID 63051), disturbed by the establishment of a later sheepfold and post-medieval unroofed building thought to be a 'cothouse', a small cottage, surrounded by a possible enclosure (Canmore ID 63054).

Within the wider landscape, the Canmore data indicates the presence of several similar small prehistoric cairns and post-medieval structures and features associated with the agricultural/pastoral use of the upland landscape. Whilst the grid connection may be a noticeable addition within this wider landscape, the change this would lead to is considered to be extremely limited given the presence of existing OHLs within that landscape. There will be no physical impact, nor will there be a change to how the cultural significance of these assets, principally from their archaeological and historic values, is appreciated or understood.

Forestry and woodland

As introduced in Section 3.1, approximately 50% of the study area consists of conifer plantation woodland, ranging in maturity from mature and semi-mature to young/newly planted woodlands. These plantations are dominated by Sitka spruce. Ground flora comprises Yorkshire fog (*Holcus lanatus*), bracken (*Pteridium aquilinum*), fern sp. (*Polypodiophyta*), ragwort (*Jacobaea vulgaris*), false oat grass (*Arrhenatherum elatius*) and tufted hair grass (*Deschampsia cespitosa*).

The commercial forestry plantation is owned and managed by FLS. The area surrounding the grid connection boundary consists largely of mature commercial conifers with areas of open elevated moorland.

Watercourses, flood risk and peat

There are no nationally designated sites for hydrology or geology features in close proximity to the site.

In the vicinity of where the River Stinchar flows under Carrick Forest Drive, there is an area of fluvial flood risk (medium risk, 1-to-200-year flood event), as shown on SEPA's indicative flood maps¹⁵. Due to the general presence of headwaters and small tributaries in the study area, the SEPA flood maps show no other risk of flooding, with floodwaters generally contained to the channel banks, and very localised and isolated areas of surface water (pluvial) flooding.

¹⁵ SEPA Flood Maps. Available online: <https://map.sepa.org.uk/floodmap/map.htm>

Linfen Loch, owned by a third party, is located to the west of the grid connection boundary. The area is characterised by a number of distinct valleys, which feature numerous relatively small upland watercourses which drain the area.

Peat is present in open areas, such as forestry rides, clearings and in the vicinity of surface water bodies. The Carbon and Peatland 2016 Map on the NatureScot website shows tower YY091R to be located within an area of 'Dystrophic blanket peat'.

The Carbon and Peatland Map on the Scotland's Soils website classifies the soil on the site as predominantly Class 5 which indicates that no peatland habitat is recorded. The site may include areas of bare soil, soils that are carbon-rich and deep peat in excess of 50cm. There are also some Class 4 areas on the site which indicates the area is unlikely to be associated with peatland habitats or wet and acidic type soils and is unlikely to include carbon-rich soils.

Potential groundwater dependent terrestrial ecosystems (GWDTes) are considered to be present within the study area. However their groundwater dependency is considered low, as surface water and hill runoff are likely to be the dominant soil water factors, rather than groundwater.

Technical Considerations

The technical considerations have been identified to ensure the tower siting areas are within the technical parameters identified by SPEN. These include the following (as introduced in Section 1.6):

- proximity to existing electricity transmission or distribution infrastructure (e.g. overhead lines, and buried cables);
- proximity to wind turbines, public utilities and mineworking areas;
- altitude, topography and slope gradients;
- accessibility;
- crossings of roads, railways and watercourses; and
- forestry and ground conditions

4. Appraisal Findings and Conclusions

4.1. Findings and Recommendations

The objective of the appraisal was to identify, in a comparable and transparent way, any key environmental and technical considerations that would influence the siting of the proposed towers (and substation). The appraisal findings are included in Appendix A.

In summary, tower YY091R is located in close proximity to the flood extent of the River Stinchar, shown on SEPA's indicative flood mapping. Further investigation and surveys through a flood study or detailed flood risk assessment (FRA) are recommended to ensure the tower is located outwith the floodplain and to design the infrastructure appropriately. This could be achieved by further micro-siting of the tower, raising the tower base to an appropriate level or ensuring sufficient freeboard above the modelled flood level, in line with SEPA and local authority best practice. In addition, the existing bridge crossing under Carrick Forest Drive should be examined to assess if a larger crossing structure would minimise/ reduce the flood extent (back up) shown in this area. These measures would help to minimise the risk of flooding to the grid connection as well as the flood risk in the surrounding area as a result of the proposals. Consultation with SEPA and South Ayrshire Council's flood officer, or equivalent, should be undertaken to agree the proposed approach and outputs.

No other significant environmental constraints have been identified on the siting of the other towers or Carrick Substation within the study area.

Ecological enhancement measures were identified during the PEA¹¹ and include, but are not limited to:

- the creation of log/brush piles to provide hibernacula for sheltering small mammals, reptiles and amphibians;
- the installation of bat and bird boxes on suitable trees along the woodland edges; and
- the retainment of any felled trees, including root plates, as deadwood away from works.

The proposed Carrick Windfarm development includes a number of site enhancements including a Habitat Management Plan (HMP). The HMP will aim to result in positive land management for the benefit of landscape and nature conservation, focusing on bog habitat restoration. There may be opportunities to link in with the windfarm HMP for the grid connection.

4.2. Conclusion

Overall, the location of tower YY091R has been identified as being in close proximity to the flood extent of the River Stinchar, as shown on SEPA's indicative flood mapping. As indicated in Section 4.1 above, further investigation and surveys are recommended to ensure the tower is located outwith the floodplain and designed appropriately, in line with best practice guidance. This should include a survey of the existing bridge crossing under Carrick Forest Drive to assess if a larger crossing structure would help to minimise/ reduce the flood extent shown in this area. Consultation with SEPA and South Ayrshire Council's flood officer, or equivalent, should be undertaken to agree the proposed approach and outputs.

No other significant environmental constraints have been identified on the siting of the other towers or Carrick Substation within the study area.

Opportunities for achieving BNG (NNL) have been identified, including the ecological enhancement measures outlined in Section 4.1, and these will be explored further at future project stages.

5. Next Steps

5.1. Approach to Consultation

As set out in Section 1.4, SPEN will apply to the Scottish Ministers for consent under Section 37 of the Electricity Act 1989, to install, and keep installed, the grid connection. SPEN will also apply for deemed planning permission for the proposed OHL and associated works under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended.

Whilst there are no formal pre-application requirements for consultation, but SPEN is embracing early engagement in line with best practice as promoted by the Scottish Government's Energy Consents Unit ECU. SPEN has also embraced Scottish Government Planning Advice Note 3/2010 on Community Engagement.

In line with this, SPEN is now consulting on the siting of the realigned OHL and towers, as detailed in this document. The deadline for receipt of feedback for this Round One consultation will be Friday 8th November 2024.

Following submission of the application for Section 37 consent, the Scottish Government ECU will, on behalf of Scottish Ministers, carry out further statutory consultation with the public and stakeholders, including South Ayrshire Council.

The main objective of the consultation process is to ensure that all parties with an interest in the grid connection have access to accurate and up-to-date information and are given an opportunity in which to shape and inform SPEN's proposals at the pre-application stage. In addition, it is intended that the key issues identified through this process can be recorded and presented to decision-makers in order to assist the consent granting process.

Available Consultation Material

Project website

The principal source of information regarding the consultation is the project website.

The project website:

www.spenergynetworks.co.uk/pages/carrick_windfarm_connection_yy_route_diversion.aspx will go live prior to the start of consultation and will be live for 30 days from Wednesday 9th October until Friday 8th November. It will provide up-to-date information in relation to the grid connection, and host publicly available consultation documents for viewing or download, and an online feedback form.

People will be able to make comments online at carrick@spenergynetworks.co.uk and an online feedback form will be available to raise comments and will be available until Friday 8th November 2024.

The responses received from this consultation will be considered and will inform the future design and assessment stages of the grid connection. Following the consultation period, SPEN will consider all responses carefully and will subsequently prepare a Consultation Feedback Report setting out how consultation responses have been considered and how they have informed the selection of the proposed route. The feedback report will be published to the project website. In parallel, SPEN will submit a request for an EIA Screening Opinion to the Scottish Ministers and local planning authority, South Ayrshire Council, to determine if a full EIA is required for the proposed development.

The alignment, including all ancillary development, will be included in the application for Section 37 consent and deemed planning permission. SPEN will consult fully with any affected landowners and will give them an opportunity to comment on proposals as they progress.

Appendix A – Tower and Substation Appraisal Table

Table A-1: Environmental Appraisal Table for the proposed 275kV Tower and Substation Siting Areas

| Criterion | Proposed Asset Structure (tower coordinates) | | | | |
|----------------------------------|---|---|---|---|---|
| | Tower YY091R S E3 238464 (E), 597108 (N) | Tower YY090R S30 STD 238693 (E), 597378 (N) | Tower YY089b ST STD 238948 (E), 597508 (N) | Tower YY089a ST STD 239103 (E), 597583 (N) | Carrick Collector Substation 239001 (E), 597553 (N) |
| Landscape & Visual | <p>The proposed tower position does not fall within any national landscape designation. It is located within the South Ayrshire Scenic Area and Galloway National Forest Park (but no implication for localised re-siting given extent and nature of the Scenic Area and Forest Park).</p> <p>The location falls within the 'Foothills - Ayrshire' landscape character type (Type 76 identified by NatureScot). The vicinity comprises an upland area at approximately 300m AOD and is generally visually enclosed by extensive commercial forestry plantation. The Tairlaw Burn requires consideration during re-siting to avoid directly impacting upon this small-scale landscape feature.</p> <p>Visual access is limited to users of the unclassified road through the commercial forestry plantation and the forest path located to the south of the grid connection. The low sensitivity of these largely visually enclosed receptors combined with the presence of pylons and overhead lines in existing views results in no implications for re-siting. The closest core path and local path are visually enclosed and located at such a distance that there is no implication on re-siting.</p> <p>The area is relatively flat with broadly consistent landcover, and therefore local micro-siting would not materially increase or decrease landscape and visual effects.</p> | Same appraisal commentary as for proposed tower YY091R. | Same appraisal commentary as for proposed tower YY091R. | Same appraisal commentary as for proposed tower YY091R. | Same appraisal commentary as for proposed tower YY091R. |
| Ecology & Ornithology | <p>The tower is not located within or in close proximity to a Special Area of Conservation (SAC), Special Protection Area (SPA) or Ramsar site. The nearest ecological designated sites are:</p> <ul style="list-style-type: none"> Auchalton Site of Special Scientific Interest (SSSI) Merrick Kells SAC and SSSI Loch Doon SSSI <p>These designated sites are all located at least 8km to the northwest, south-east and east of the grid connection boundary, respectively. The grid connection is also located within the Galloway and Southern Ayrshire Biosphere Reserve.</p> <p>Preliminary Ecological Appraisal (PEA), including a Phase 1 habitat survey undertaken in June and July 2024:</p> <p>Desk study: The desk study identified no statutory or non-statutory sites within 2km of the survey area and no woodlands listed on the AWI or Tree Preservation Orders (TPOs) were noted within 50m. An online search identified no records of protected/notable species within 2km of the grid connection boundary.</p> <p>Habitats:</p> <ul style="list-style-type: none"> Approximately 50% of study area consists of conifer plantation woodland, ranging in maturity from mature and semi-mature to young/newly planted woodlands. These plantations are dominated by Sitka spruce. Where the forestry has been cleared, areas of marshy grassland are present, covering approximately 20% of the study area. Common species are similar in all areas and include dominant compact rush and common rush. Small pockets of scattered scrub are present throughout the site, covering approximately 15% of the study area. The denser areas are present along the edges of the existing forestry tracks and in areas of clear fell underneath the existing OHL. A number of small watercourses are present within the survey area, including the River Stinchar, which runs from east to west in the study area; and Tairlaw Burn, consisting of two tributaries which generally flow northwards. They were peaty and slow flowing at the time of the surveys. There are several smaller drainage channels through the conifer plantation, most of which are still water, and are therefore not considered as waterbodies in this report. No invasive non-native species (INNS) were noted on site during the survey. | Same appraisal commentary as for proposed tower YY091R. | Same appraisal commentary as for proposed tower YY091R. | Same appraisal commentary as for proposed tower YY091R. | Same appraisal commentary as for proposed tower YY091R. |

| Criterion | Proposed Asset Structure (tower coordinates) | | | | |
|-----------|--|--|---|---|--|
| | Tower YY091R S E3 238464 (E), 597108 (N) | Tower YY090R S30 STD 238693 (E), 597378 (N) | Tower YY089b ST STD 238948 (E), 597508 (N) | Tower YY089a ST STD 239103 (E), 597583 (N) | Carrick Collector Substation 239001 (E), 597553 (N) |
| | <p>Species:</p> <p>Bats</p> <ul style="list-style-type: none"> There are no suitable structures on site that could be utilised by roosting bats. The trees present also have no identifiable bat roosting features. The habitats within the site are considered sub-optimal for foraging and commuting bats. However, the access track and woodland edges provide a suitable corridor for foraging and commuting bats. <p>Badger</p> <ul style="list-style-type: none"> Much of the site provides good quality foraging habitat for badgers and a badger scat was located on all of the access tracks within the site. The wet peaty soil may make sett creation difficult on areas of flat land, however there are several areas of the site which are suitable for sett creation. <p>Pine Marten</p> <ul style="list-style-type: none"> Numerous fresh and dried pine marten scats were recorded on the site, either on or adjacent to the access tracks. Suitable habitat for foraging and potential for pine marten dens mean pine marten are likely to be present. <p>Red Squirrel</p> <ul style="list-style-type: none"> No signs of red squirrel were found during the surveys. The site provides suitable habitat for foraging, denning, and commuting activities. <p>Otter</p> <ul style="list-style-type: none"> The watercourses are considered suitable commuting and foraging habitat for otters, An otter spraint was found underneath the bridge which also provided good shelter for a resting place or layup site. The site has not been recently visited by an otter but is considered to be in intermittent use as part of a wider territory. <p>Water Vole</p> <ul style="list-style-type: none"> No evidence of water vole was noted during the survey; however, the watercourses are considered suitable foraging and sheltering habitat for water vole. <p>Reptiles and Amphibians</p> <ul style="list-style-type: none"> Two common lizards were recorded during the surveys and many areas of habitat offer suitable foraging, refuge and basking habitat for reptiles, The site contained no ponds for amphibians, however, terrestrial habitats on site provide high-quality foraging and refuge habitat for newts and other amphibians. <p>Breeding birds:</p> <p>Desk study: an online search on the NBN Atlas identified five bird species with red conservation status, one bird species with amber conservation status, and no Schedule 1 bird species between 2000 and 2024 within 2km of the site.</p> <p>Breeding bird surveys undertaken in June and July 2024:</p> <p>The woodlands and scrub provide foraging and nesting habitat for small tree and shrub nesting birds in the area. Loch Bradan located approximately 0.23km to the east of the site, provides foraging and nesting habitat for bird species that live and forage in and around a semi-aquatic habitat, including osprey, which was recorded over the loch from the access track outside of the 1km survey area.</p> <p>Furthermore, the areas of grassland, woodland plantation and felled conifer plantation provide potentially suitable foraging habitat for raptors and owls. Buzzard (<i>Buteo buteo</i>) were recorded during the breeding bird surveys.</p> <p>A total of 24 bird species were recorded during the summer 2024 surveys. Of these, five species, including bullfinch, cuckoo, herring gull, lesser redpoll and osprey, are considered of high conservation interest (e.g. Schedule 1 species, listed under the Birds of Conservation Concern (BoCC) red list and Scottish Biodiversity List (SBL) of Priority Species). The remaining bird species were considered common and widespread within the local area and the majority of them were of low conservation status.</p> | | | | |

| Criterion | Proposed Asset Structure (tower coordinates) | | | | |
|--------------------------------------|---|--|---|---|---|
| | Tower YY091R S E3 238464 (E), 597108 (N) | Tower YY090R S30 STD 238693 (E), 597378 (N) | Tower YY089b ST STD 238948 (E), 597508 (N) | Tower YY089a ST STD 239103 (E), 597583 (N) | Carrick Collector Substation 239001 (E), 597553 (N) |
| | Of the 10 species listed on the BoCC Red or Amber list, only meadow pipit, willow warbler and wren were confirmed breeding on site; bullfinch, cuckoo, lesser redpoll and rook were assumed to be breeding as the site provides suitable nesting habitat for these species and the surveys were undertaken later in the breeding season. | | | | |
| Cultural Heritage | <p>There are no designated heritage assets within 5km of the grid connection boundary. The closest designated heritage asset comprises the Scheduled Monument Bencallen Hill (SM3890) located approximately 5.1km to the west. The grid connection will not physically affect the monument while the grid connection boundary does not lie within the setting of the scheduled monument. There can therefore be no impact to its cultural significance.</p> <p>There are no non-designated heritage assets within 1km of the grid connection boundary with the closest assets located approximately 1.1km to the west. These assets comprise a small, prehistoric turf covered cairn and a small post-medieval cottage. There will be no physical impact from the grid connection on these assets while the establishment of the towers and substation will be a change to their wider landscape, this change is extremely limited given the presence of existing OHL apparatus in the vicinity. The slight alteration the grid connection will cause will not change the cultural significance of either asset nor the appreciation and experience of their cultural significance.</p> | Same appraisal commentary as for proposed tower YY091R. | Same appraisal commentary as for proposed tower YY091R. | Same appraisal commentary as for proposed tower YY091R. | Same appraisal commentary as for proposed tower YY091R. |
| Forestry & Woodland | <ul style="list-style-type: none"> The grid connection is located within Galloway National Forest Park, and is surrounded predominantly by coniferous plantation woodland. The closest ancient woodland, Tairlaw Glen, is located over 2km to the north-east of the grid connection (as listed on the Ancient Woodland Inventory, AWI). A number of small areas of native or nearly-native woodland (listed on the Native Woodland Survey of Scotland, NWSS) are located within close proximity to the grid connection, mainly consisting of wet woodland or upland birchwood. | Same appraisal commentary as for proposed tower YY091R. | Same appraisal commentary as for proposed tower YY091R. | Same appraisal commentary as for proposed tower YY091R. | Same appraisal commentary as for proposed tower YY091R. |
| Watercourses & Flood Risk | <p>The area is within a drinking water protection zone and in Girvan Bathing Water Catchment.</p> <p>The tower is located near to the River Stinchar where it crosses under Carrick Forest Drive via a small bridge. In this location, there is an area of river flooding shown on SEPA's indicative flood maps (medium flood risk, 1 to 200 year flood event). The tower is located in very close proximity to this flood risk area.</p> | The tower is not located within a flood risk area (for river flooding or other sources of flood risk), as shown on the indicative SEPA flood maps. | Same appraisal commentary as for proposed tower YY090R. | Same appraisal commentary as for proposed tower YY090R. | Same appraisal commentary as for proposed tower YY090R. |
| Peatland | <p>Tower located within an area of 'Dystrophic blanket peat', identified on the carbon and peatland maps.</p> <p>The Carbon and Peatland Map on the Scotland's Soils website classifies the soil on the site as predominantly Class 5 which indicates that no peatland habitat is recorded. The site may include areas of bare soil, soils that are carbon-rich and deep peat in excess of 50cm. There are also some Class 4 areas on the site which indicates the area is unlikely to be associated with peatland habitats or wet and acidic type soils, and is unlikely to include carbon-rich soils.</p> | Same appraisal commentary as for proposed tower YY091R. | Same appraisal commentary as for proposed tower YY091R. | Same appraisal commentary as for proposed tower YY091R. | Same appraisal commentary as for proposed tower YY091R. |

Appendix B – Holford Rules

Rule 1

Avoid altogether, if possible, the major areas of highest amenity value, by so planning the general route of the line in the first place, even if the total mileage is somewhat increased in consequence.

Note on Rule 1

(a) Investigate the possibility of alternative routes, avoiding altogether, if possible major areas of highest amenity value. The consideration of alternative routes must be an integral feature of environmental statements. If there is an existing transmission line through a major area of highest amenity value and the surrounding land use has to some extent adjusted to its presence, particularly in the case of commercial forestry, then effect of remaining on this route must be considered in terms of the effect of a new route avoiding the area.

(b) Areas of highest amenity value require to be established on a project-by-project basis considering Schedule 9 to The Electricity Act 1989, Scottish Planning Policies, National Planning Policy Guidelines, Circulars and Planning Advice Notes and the spatial extent of areas identified.

Examples of areas of highest amenity value which should be considered are:

- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Ramsar Site
- National Scenic Areas (NSA)
- National Parks
- National Nature Reserves (NNR)
- Protected Coastal Zone Designations
- Sites of Special Scientific Interest (SSSI)
- Schedule of Ancient Monuments
- Listed Buildings
- Conservation Areas
- World Heritage Sites
- Historic Gardens and Designed Landscapes

Rule 2

Avoid smaller areas of high amenity value or scientific interest, by deviation; provided that this can be done without using too many angle towers (i.e. the more massive structures which are used when lines change direction).

Note on Rule 2

a) Small areas of highest amenity value not included in Rule 1 as a result of their spatial extent should be identified along with other areas of regional or local high amenity value identified from development plans.

b) Impacts on the setting of historic buildings and other cultural heritage features should be minimised.

c) If there is an existing transmission line through an area of high amenity value and the surrounding land uses.

Rule 3

Other things being equal, choose the most direct line, with no sharp changes of direction and thus fewer angle towers.

Note on Rule 3

- a) Where possible choose inconspicuous locations for angle towers, terminal towers and sealing end compounds.
- b) Too few angles on flat landscape can also lead to visual intrusion through very long straight lines of towers, particularly when seen nearly along the line.

Rule 4

Choose tree and hill backgrounds in preference to sky background wherever possible and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees.

Rule 5

Prefer moderately open valleys with woods, where the apparent height of the towers will be reduced and views of the line will be broken by trees.

Notes on Rules 4 and 5

- a) Utilise background and foreground features to reduce the apparent height and domination of towers from main viewpoints.
- b) Minimise the exposure of numbers of towers on prominent ridges and skylines.
- c) Where possible follow open space and run alongside, not through woodland or commercial forestry, and consider opportunities for skirting edges of copses and woods. Where there is no reasonable alternative to cutting through woodland or commercial forestry, the Forestry Commission Guidelines should be followed (Forest Landscape Design Guidelines, second edition, The Forestry Commission 1994 and Forest Design Planning – A Guide to Good Practice, Simon Bell/The Forest Authority 1998).
- d) Protect existing vegetation, including woodland and hedgerows, and safeguard visual and ecological links with the surrounding landscape.

Rule 6

In country, which is flat and sparsely planted, keep the higher voltage lines as far as possible independent of smaller lines, converging routes, distribution lines and other masts, wires and cables so as to avoid a concatenation or 'wirescape'.

Note on Rule 6

- a) In all locations minimise confusing appearance.
- b) Arrange wherever practicable that parallel or closely related routes are planned with tower types, spans and conductors forming a coherent appearance. Where routes need to diverge allow, where practicable, sufficient separation to limit the impacts on properties and features between lines.

Rule 7

Approach urban areas through industrial zones where they exist and where pleasant residential and recreational land intervenes between the approach line and substation, go carefully into the costs of undergrounding, for lines other than those of the highest voltage.

Note on Rule 7

- a) When a line needs to pass through a development area, route it so as to minimise as far as possible the effect on development.
- b) Alignments should be chosen after consideration of impacts on the amenity of existing development and on proposals for new development.
- c) When siting substations take account of the impacts of the terminal towers and line connections that will need to be made and take advantage of screening features such as ground form and vegetation.

Supplementary Notes

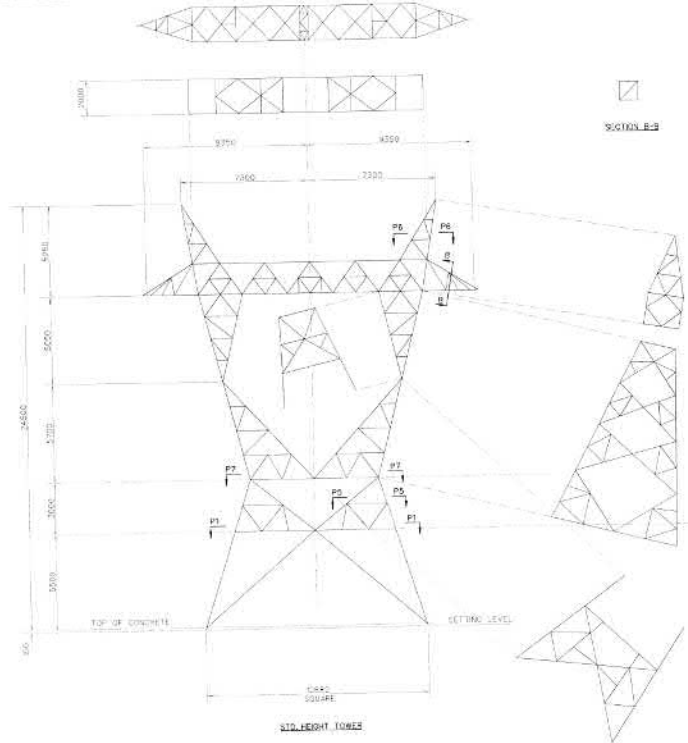
- a) Residential Areas: Avoid siting close to residential areas as far as possible on grounds of general amenity.
- b) Designations of Regional and Local Importance: Where possible choose routes which cause the least disturbance to Areas of Great Landscape Value and other similar designations of Regional or Local Importance.
- c) Alternative Lattice Steel Tower Designs: In addition to adopting appropriate siting, evaluate where appropriate the use of alternative lattice steel tower designs available where these would be advantageous visually, and where the extra cost can be justified.
- d) [Note: SHETL have reviewed the visual and landscape arguments for the use of lattice steel towers in Scotland and summarised these in a document entitled Overhead Transmission Line Tower Study 2004].

Further Notes on Clarification to The Holford Rules Line Siting and People

The Holford Rules focused on landscape amenity issues for the most part. However, line siting practice has given greater importance to people, residential areas etc. The following notes are intended to reflect this.

- a) Avoid siting close to residential areas as far as possible on grounds of general amenity.
- b) In rural areas avoid as far as possible dominating isolated house, farms or other small-scale settlements.
- c) Minimise the visual effect perceived by users of roads, and public rights of way, paying particular attention to the effects of recreational, tourist and other well used routes.

Appendix C – Example Tower Types

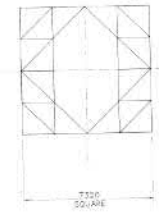


SECTION B-B

PLAN ON P6-P5

PLAN ON P5-P3

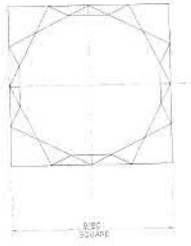
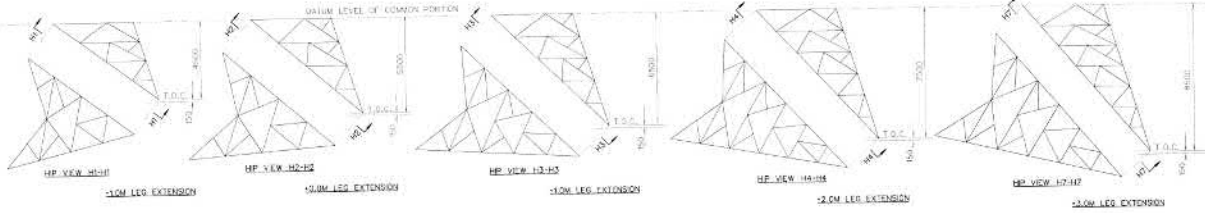
110 HEIGHT TOWER



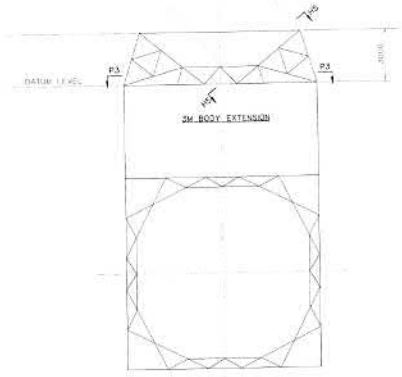
PLAN ON P7-P7

| STEEL WORK MARK NUMBERS | LOCATION (SEE KEY SHEET) | ORIGINE NO. | MANUFACT LIST NO. | REPL. LIST NO. |
|-------------------------|--------------------------|----------------|-------------------|----------------|
| | | AQ/PTD/1620/41 | AQ/PTD/1620/41 | AQ/PTD/1620/41 |
| 700-10-150-750 | 4M LEG EXTENSION | 41 | 42 | 43 |
| 700-10-200-150 | 4M LEG EXTENSION | 44 | 45 | 46 |
| 100-12-150-800 | 4M LEG EXTENSION | 47 | 48 | 49 |
| 100-12-150-900 | 4M LEG EXTENSION | 50 | 51 | 52 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 53 | 54 | 55 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 56 | 57 | 58 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 59 | 60 | 61 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 62 | 63 | 64 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 65 | 66 | 67 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 68 | 69 | 70 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 71 | 72 | 73 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 74 | 75 | 76 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 77 | 78 | 79 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 80 | 81 | 82 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 83 | 84 | 85 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 86 | 87 | 88 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 89 | 90 | 91 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 92 | 93 | 94 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 95 | 96 | 97 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 98 | 99 | 100 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 101 | 102 | 103 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 104 | 105 | 106 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 107 | 108 | 109 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 110 | 111 | 112 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 113 | 114 | 115 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 116 | 117 | 118 |
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| 100-12-1000-1000 | 4M LEG EXTENSION | 122 | 123 | 124 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 125 | 126 | 127 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 128 | 129 | 130 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 131 | 132 | 133 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 134 | 135 | 136 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 137 | 138 | 139 |
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| 100-12-1000-1000 | 4M LEG EXTENSION | 149 | 150 | 151 |
| 100-12-1000-1000 | 4M LEG EXTENSION | 152 | 153 | 154 |
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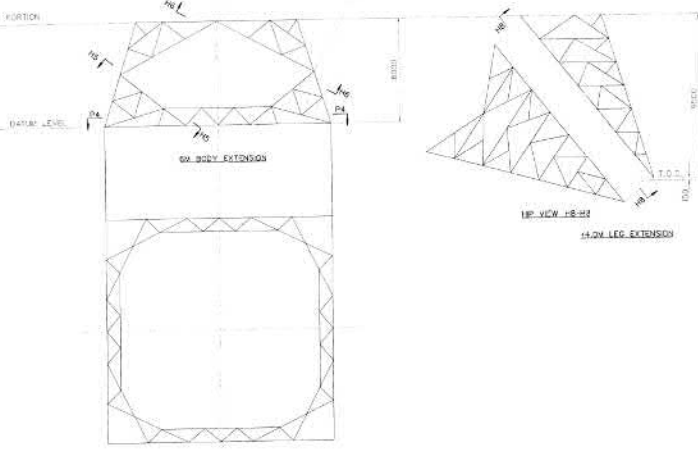
ANY COMBINATION OF LEG EXTENSIONS CAN BE FITTED TO ANY DATUM LEVEL.



PLAN ON P1-P1



PLAN ON P3-P3



PLAN ON P5-P5

GENERAL NOTES
 MATERIAL: MILD STEEL TO EN 10025 GRADE S275JR (M05)
 MATERIAL: NOTED MYS TO R6 GRADE S185MR
 MATERIAL: GALVANIZED IN ACCORDANCE WITH BS EN ISO 1461
 BOLTS: 20mm DIA X HEX HOLEY M16 X 7.5 HOLES SHOWN 21X10
 20mm DIA X 11.5 HOLES
 24mm DIA X 12.5 HOLES
 ALL BOLTS: 20mm DIA X 11.5 HOLES TO EN 12355 S355MR WITH DIMENSIONS TO BS EN 24038, EACH TO BE FITTED WITH 1 O-RING SEAL SPRING WASHER TO BS 4464 TYPE B.
 PACK WASHERS 17.5 WITH 18 DIA HOLE FOR 18 DIA WTB IS.
 STEP BOLTS: 20mm DIA X 11.5 HOLES TO EN 12355 S355MR WITH DIMENSIONS TO BS EN 24038, EACH TO BE FITTED WITH 1 O-RING SEAL SPRING WASHER TO BS 4464 TYPE B.
 LASKER SUPPLIED ON 10M LENGTH ONLY. FACE FROM WAST TO GASTRY LEVEL IN ACCORDANCE WITH DRAWING 4071031000101.
 ALL MARK NUMBERS SHOWN THIS DRAWING TO BE PROVIDED BY

| | | | | |
|-----|-----|-----|-----|-----|
| E | 100 | 100 | 100 | 100 |
| D | 100 | 100 | 100 | 100 |
| C | 100 | 100 | 100 | 100 |
| B | 100 | 100 | 100 | 100 |
| A | 100 | 100 | 100 | 100 |
| REV | 100 | 100 | 100 | 100 |

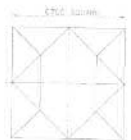
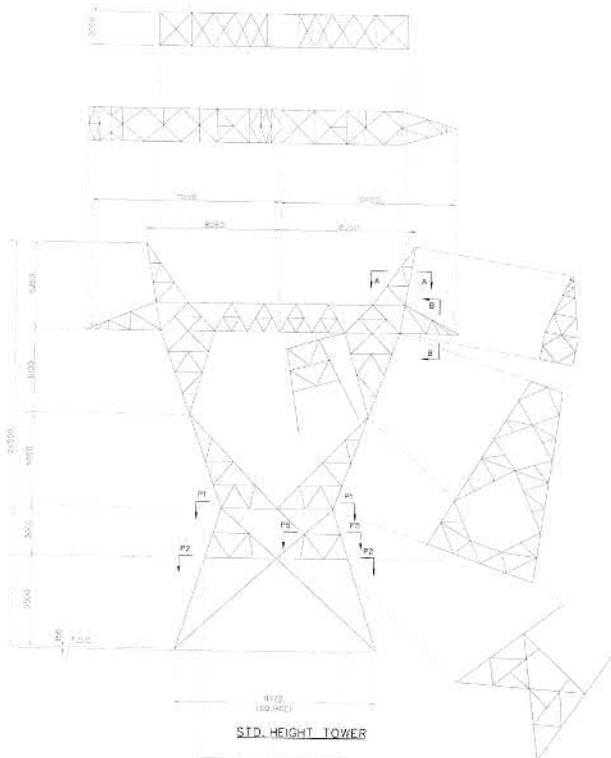
SCOTTISH POWER
 SCOTLAND - NIRELAND
 275 KV INTERCONNECTOR

TITLE:
10 DEG. ANGLE TOWER KEY DIAGRAM

BB
 POWER TRANSMISSION DIVISION

SCALE: 1:100

PROJECT: AQ/YY/BKDY/0054
 DRAWING NO: AQ/PTD/1620/41



PLAN ON PLATE 1

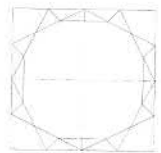


SECTION A-A



SECTION B-B

SID. HEIGHT TOWER



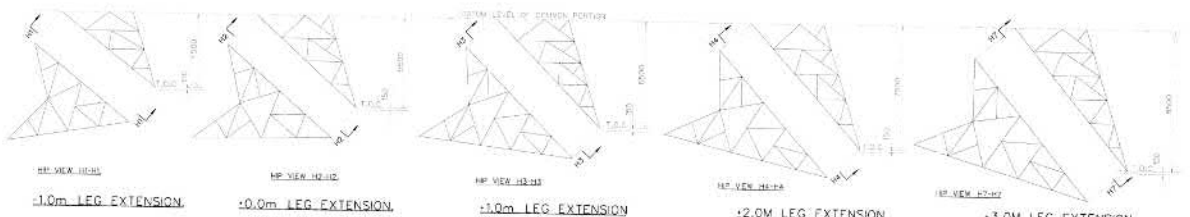
PLAN ON PLATE 2

GENERAL NOTES

- 1. ALL DIMENSIONS SHOWN UNLESS OTHERWISE STATED TO BE IN MILLIMETERS.
- 2. ALL DIMENSIONS TO FACE UNLESS OTHERWISE STATED.
- 3. ALL DIMENSIONS TO CENTER UNLESS OTHERWISE STATED.
- 4. ALL DIMENSIONS TO SURFACE UNLESS OTHERWISE STATED.
- 5. ALL DIMENSIONS TO CENTER UNLESS OTHERWISE STATED.
- 6. ALL DIMENSIONS TO SURFACE UNLESS OTHERWISE STATED.
- 7. ALL DIMENSIONS TO CENTER UNLESS OTHERWISE STATED.
- 8. ALL DIMENSIONS TO SURFACE UNLESS OTHERWISE STATED.
- 9. ALL DIMENSIONS TO CENTER UNLESS OTHERWISE STATED.
- 10. ALL DIMENSIONS TO SURFACE UNLESS OTHERWISE STATED.
- 11. ALL DIMENSIONS TO CENTER UNLESS OTHERWISE STATED.
- 12. ALL DIMENSIONS TO SURFACE UNLESS OTHERWISE STATED.
- 13. ALL DIMENSIONS TO CENTER UNLESS OTHERWISE STATED.
- 14. ALL DIMENSIONS TO SURFACE UNLESS OTHERWISE STATED.
- 15. ALL DIMENSIONS TO CENTER UNLESS OTHERWISE STATED.
- 16. ALL DIMENSIONS TO SURFACE UNLESS OTHERWISE STATED.
- 17. ALL DIMENSIONS TO CENTER UNLESS OTHERWISE STATED.
- 18. ALL DIMENSIONS TO SURFACE UNLESS OTHERWISE STATED.
- 19. ALL DIMENSIONS TO CENTER UNLESS OTHERWISE STATED.
- 20. ALL DIMENSIONS TO SURFACE UNLESS OTHERWISE STATED.

| ITEM NO. | DESCRIPTION | QUANTITY | UNIT | PRICE | TOTAL |
|----------|-------------|----------|------|-------|-------|
| 1 | ... | ... | ... | ... | ... |
| 2 | ... | ... | ... | ... | ... |
| 3 | ... | ... | ... | ... | ... |
| 4 | ... | ... | ... | ... | ... |
| 5 | ... | ... | ... | ... | ... |
| 6 | ... | ... | ... | ... | ... |
| 7 | ... | ... | ... | ... | ... |
| 8 | ... | ... | ... | ... | ... |
| 9 | ... | ... | ... | ... | ... |
| 10 | ... | ... | ... | ... | ... |
| 11 | ... | ... | ... | ... | ... |
| 12 | ... | ... | ... | ... | ... |
| 13 | ... | ... | ... | ... | ... |
| 14 | ... | ... | ... | ... | ... |
| 15 | ... | ... | ... | ... | ... |
| 16 | ... | ... | ... | ... | ... |
| 17 | ... | ... | ... | ... | ... |
| 18 | ... | ... | ... | ... | ... |
| 19 | ... | ... | ... | ... | ... |
| 20 | ... | ... | ... | ... | ... |

NOT TO SCALE



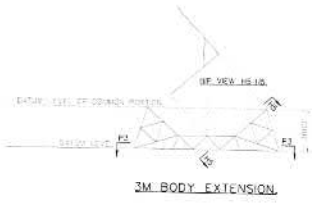
1.0m LEG EXTENSION

2.0m LEG EXTENSION

3.0m LEG EXTENSION

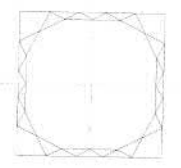
4.0m LEG EXTENSION

5.0m LEG EXTENSION

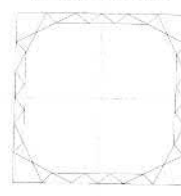


3M BODY EXTENSION

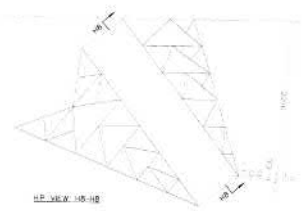
6M BODY EXTENSION



PLAN ON PLATE 3



PLAN ON PLATE 4



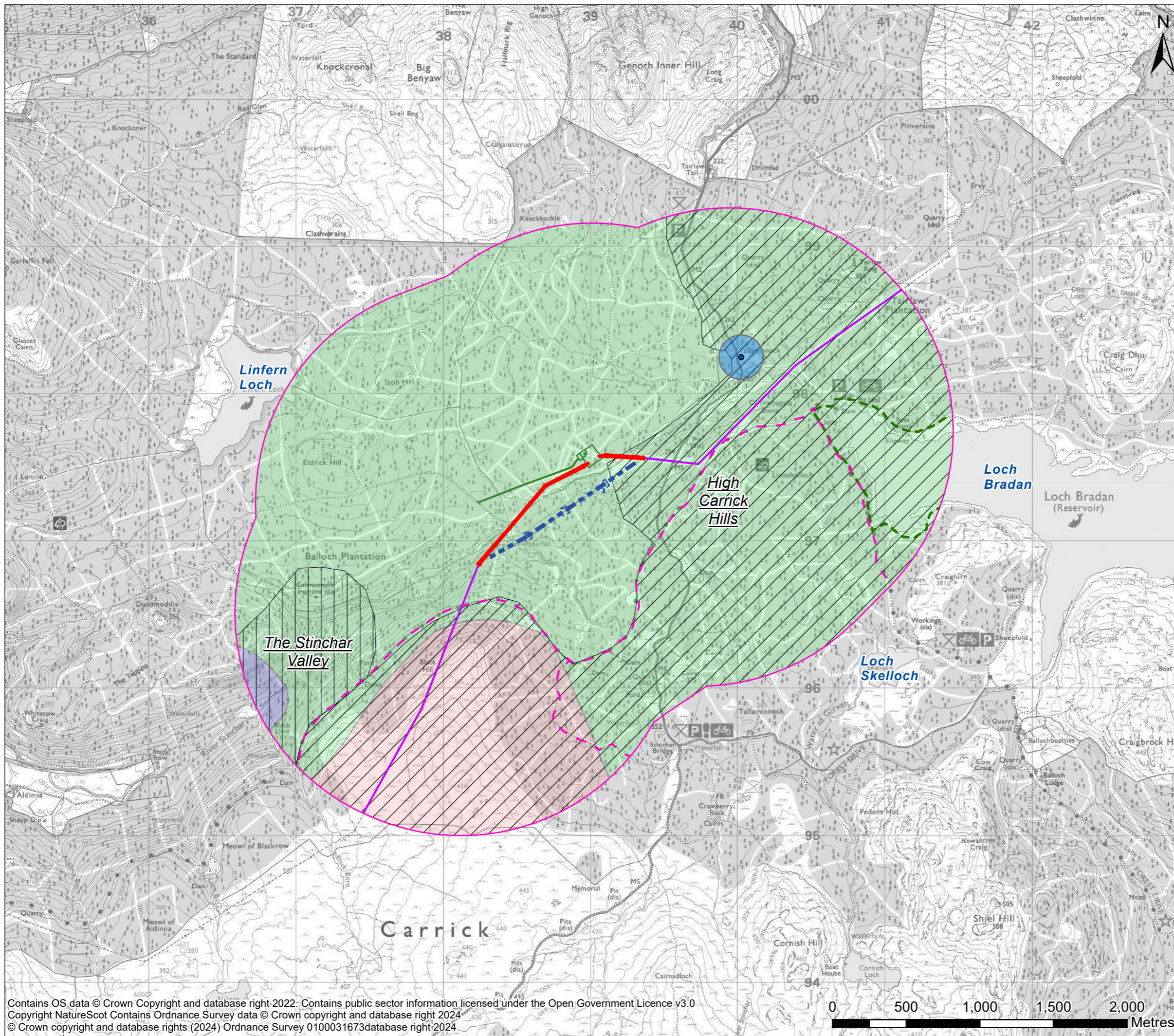
4.0m LEG EXTENSION

SCOTTISH POWER
 SCOTLAND - 100000
 275 KV INTERCONNECTOR

60 DEG. ANGLE TOWER
 KEY DIAGRAM

AD/PTD/1620/121

Appendix D – Supporting Figures



- Legend**
- Study area
 - Proposed 275kV OHL (The Grid Connection)**
 - Proposed 275kV Overhead Line (OHL)
 - Proposed Carrick Substation and access roads - indicative design only, not subject to S37 consent
 - Existing 275kV OHL To Be Removed
 - Existing 275kV OHL
 - Residential Properties
 - Residential Properties - 150m Buffer
 - Loch Bradan Local Path
 - Core Path
 - South Ayrshire Local Landscape Areas**
 - High Carrick Hills
 - The Stinchar Valley
 - Nature Scot : Landscape Character Assessment 2019**
 - LCT 81 - Southern Uplands - Ayrshire
 - LCT 76 - Foothills - Ayrshire
 - LCT 72 - Pastoral Valleys - Ayrshire



| | | | | | |
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| P01 | 02.10.2024 | FIRST ISSUE | AC | JM | BMC |
| Rev | Date | Amendment Details | Dr'n | Chk' | App' |

Sweco UK Limited
2nd Floor Quay 2, 139 Fountainbridge
Edinburgh, EH3 9QG
Tel: +44 (0)131 550 6300
www.sweco.co.uk



Client
SP Energy Networks

Project Title
CARRICK WINDFARM CONNECTION

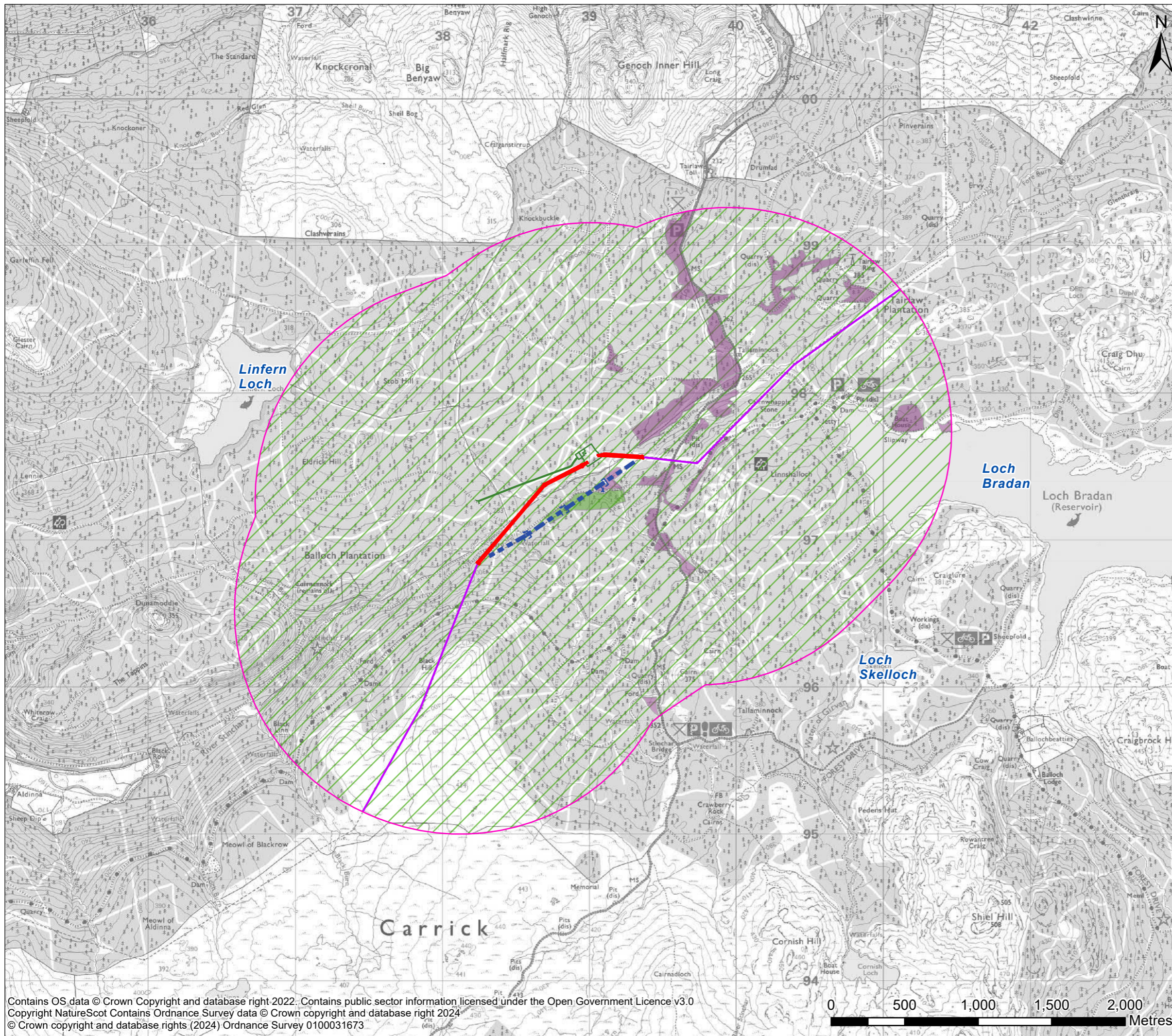
Drawing Title
FIGURE D.1 LANDSCAPE AND VISUAL CONSIDERATIONS

| | | | |
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| Sheet Size | Scale | Sweco Ref | Revision |
| A3 | 1:25,000 | 65211566 | P01 |

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- Legend**
- Study area
 - Proposed 275kV OHL (The Grid Connection)**
 - Proposed 275kV Overhead Line (OHL)
 - Proposed Carrick Substation and access roads - indicative design only, not subject to S37 consent
 - Existing 275kV OHL To Be Removed
 - Existing 275kV OHL
 - Galloway and Southern Ayrshire Biosphere Reserve (Buffer Zone)
 - Native Woodland Survey of Scotland**
 - Native woodland
 - Nearly-native woodland



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 Tel: +44 (0)131 550 6300
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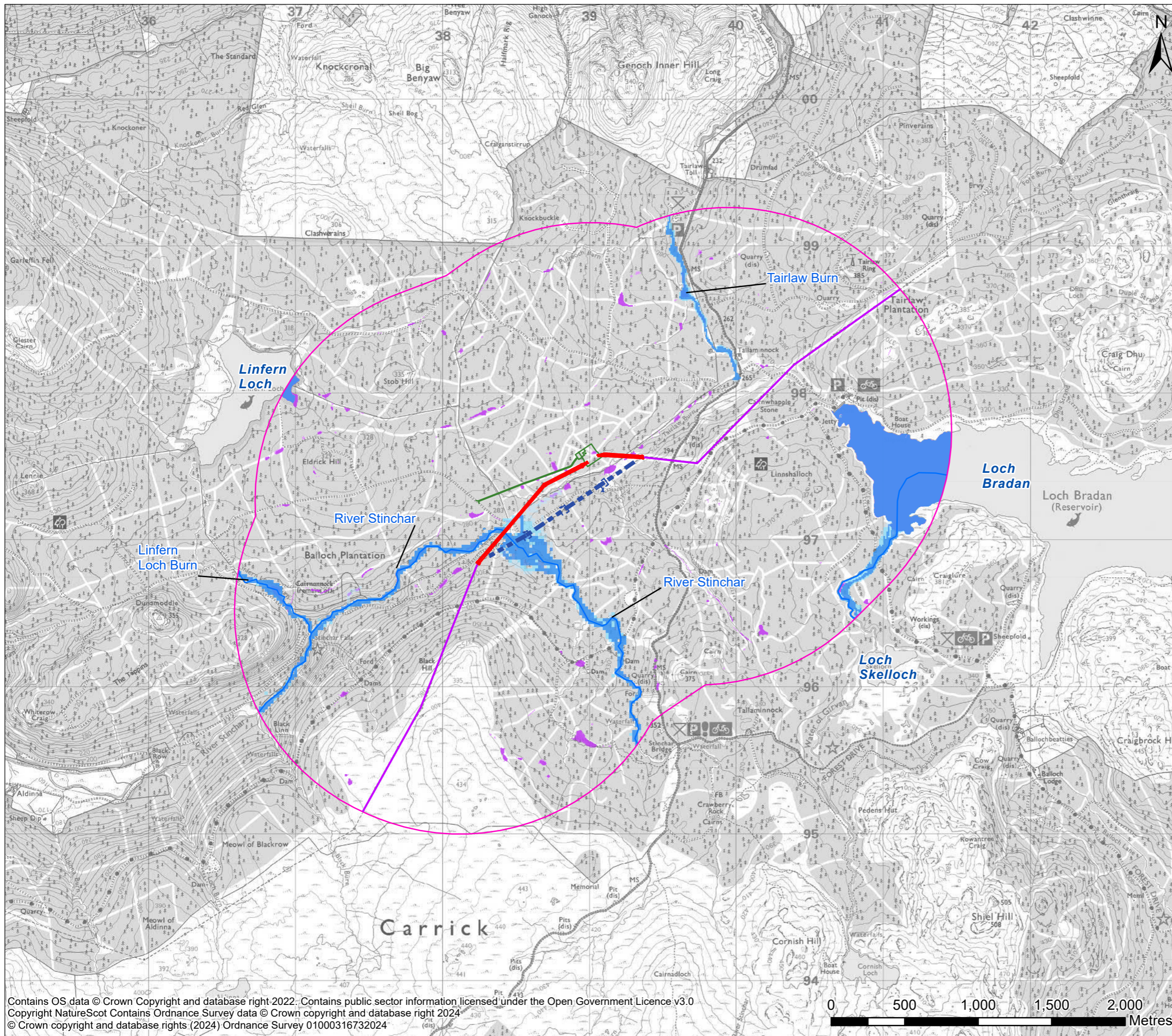
Drawing Title
FIGURE D.2 ECOLOGY AND FORESTRY CONSIDERATIONS

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Legend

- Study area
- Proposed 275kV Overhead Line (OHL)
- Proposed Carrick Substation and access roads - indicative design only, not subject to S37 consent
- Existing 275kV OHL To Be Removed
- Existing 275kV OHL
- Flood Risk**
- Risk from Surface Water Flooding - Low
- Risk from Surface Water Flooding - Medium
- Risk from Surface Water Flooding - High
- Risk from Flooding River - Low
- Risk from Flooding River - Medium
- Risk from Flooding River - High
- Watercourse



| | | | | | |
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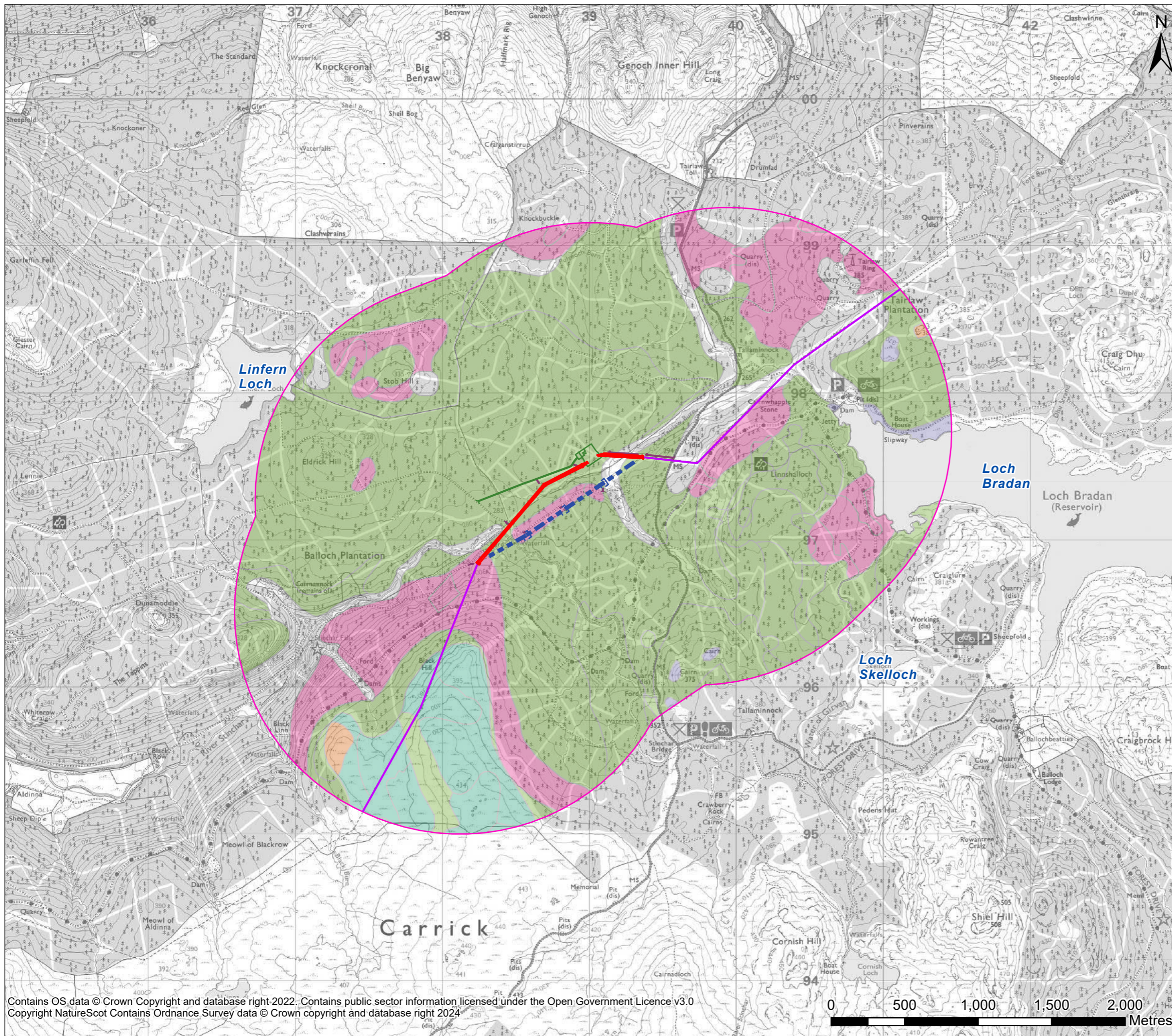
Drawing Title
D.3 HYDROLOGY AND FLOOD RISK CONSIDERATIONS

| | | | |
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- Legend**
- Study area
 - Proposed 275kV OHL (The Grid Connection)
 - Proposed Carrick Substation and access roads - indicative design only, not subject to S37 consent
 - Stone Access
 - Existing 275kV OHL To Be Removed
 - Existing 275kV OHL
- Carbon and Peatland 2016**
- Class 1 - Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value
 - Class 2 - Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas of potentially high conservation value and restoration potential
 - Class 3 - Dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat
 - Class 4 - Area unlikely to be associated with peatland habitats or wet and acidic type. Area unlikely to include carbon-rich soils
 - Class 5 - Soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil. Soils are carbon-rich and deep peat.



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CARRICK WINDFARM CONNECTION

Drawing Title
D.4 PEAT AND CARBON RICH SOILS

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