

Environmental Impact Assessment

Scoping Report

Creag Dhubh to Dalmally 275kV Connection

December 2020



Applies to SSEN Transmission	SSEN Transmission Environmental Impact Assessment Templates-Scoping Request	Document Reference TBC
Classification Internal	Uncontrolled if Printed	Revision

The author/owner of this document is Jackie Taylor Consents and Environment Manager	This document has been approved for issue by Richard Baldwin Head of Environment	Date of issue 16/12/2020	
---	--	-----------------------------	--

QUALITY MANAGEMENT

Issue/Revision	1	2	3	4
Date	03/12/2020	16/12/2020		
Remarks	For Client Review	Final for issue		
Prepared by	RF	RF		
Checked by	PB	PB		
Authorised by	JT	JT		
Project number	LT29	LT29		
Report number				
File reference				

Scottish and Southern Energy Networks (SSEN)

Inveralmond House

200 Dunkeld Road

Perth PH1 3AQ

Tel: +44 (0)1738 456 000

www.ssen-transmission.co.uk

CONTENTS

GLOSSARY AND ABBREVIATIONS	4
EXECUTIVE SUMMARY	6
1. INTRODUCTION	8
1.1 The Proposal	8
1.2 The Regulations	8
1.3 Sustainability Strategy	8
1.4 Purpose of the EIA Scoping Report	9
1.5 Consideration of relevant factors in the EIA Scoping Report	9
2. DESCRIPTION OF THE PROPOSED DEVELOPMENT	11
2.1 Description of Development	11
2.2 Additional Associated works	11
2.3 Purpose of Proposed Development	13
2.4 Indicative Overhead Line Design	14
2.5 OHL Construction	15
2.6 Construction Employment and Hours of Work	17
2.7 Construction Traffic	18
2.8 Operation and Management of the Transmission Connection	18
2.9 Use of Natural Resources	18
2.10 Residues and Emissions	18
2.11 Disaster Resilience	20
3. EIA METHODOLOGY	21
3.1 The EIA Report	21
3.2 Scoping Methodology	21
4. POPULATION AND HUMAN HEALTH	23
4.1 Introduction	23
4.2 Baseline Conditions	23
4.3 Sensitive Receptors	24
4.4 Potential Significant Effects	25
4.5 Assessment Scope and Methodology	25
4.6 Issues Scoped Out	25
4.7 Summary	26
5. BIODIVERSITY	27
5.1 Introduction	27
5.2 Ecology (non-avian)	27
5.3 Ornithology	36
6. LAND USE	41
6.1 Baseline Conditions	41
6.2 Sensitive Receptors	41
6.3 Potential Significant Effects	41
6.4 Issues Scoped Out	42
6.5 Assessment Scope and Methodology	42
6.6 Summary	43
7. SOIL	44
7.1 Introduction	44
7.2 Baseline	44
7.3 Sensitive Receptors	44
7.4 Potentially Significant Effects	44
7.5 Issues Scoped Out	44
7.6 Assessment Scope and Methodology	44
7.7 Summary	45
8. WATER ENVIRONMENT	46
8.1 Introduction	46
8.2 Baseline	46
8.3 Sensitive Receptors	46

8.4	Potentially Significant Effects	47
8.5	Assessment Scope and Methodology	47
8.6	Summary	47
9.	AIR AND CLIMATE	49
9.1	Climate Change	49
10.	MATERIAL ASSETS	51
10.1	Socioeconomics, Recreation, and Tourism	51
10.2	Traffic and Transport	52
10.3	Waste	55
11.	CULTURAL HERITAGE	56
11.1	Introduction	56
11.2	Baseline	56
11.3	Sensitive Receptors	58
11.4	Potentially Significant Effects	58
11.5	Assessment Scope and Methodology	59
11.6	Issues Scoped Out	59
11.7	Summary	59
12.	LANDSCAPE AND VISUAL IMPACT	60
12.1	Introduction	60
12.2	Study Area	60
12.3	Approach	60
12.4	Baseline Conditions	61
12.5	Effects Evaluations	66
12.6	Summary	67
13.	SUMMARY OF TOPICS	68
14.	NEXT STEPS	69
15.	REFERENCES	70

APPENDICES

APPENDIX A: FIGURES

APPENDIX B: TRAIL CAMERA PHOTOGRAPHS

GLOSSARY AND ABBREVIATIONS

132 kV	132 kilovolt (132,000 volt) operating voltage electrical circuit.
275 kV	275 kilovolt (275,000 volt) operating voltage electrical circuit
AOD	Above Ordnance Datum
ABC	Argyll and Bute Council – the Planning Authority
BGS	British Geological Survey
ECU	Energy Consents Unit, the department of the Scottish Government responsible for processing applications for consent under the Electricity Act 1989 on behalf of Scottish Ministers.
EIA	Environmental Impact Assessment. A formal process codified by EU directive 2011/92/EU, and subsequently amended by Directive 2014/52/EU. The national regulations are set out in <i>The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017</i> as amended. The EIA process is set out in regulation 4(1) of the regulations and includes the preparation of an EIA Report by the developer to systematically identify, predict, assess and report on the likely significant environmental impacts of a proposed project or development.
GDL	Garden and Designed Landscape, as listed on the Inventory of Gardens and Designed Landscapes held by Historic Environment Scotland
GWDTE	Groundwater Dependent Terrestrial Ecosystem
HES HGV	Historic Environment Scotland Heavy Goods Vehicle
IBA	Important Bird Areas are designated by Birdlife as places of international significance for the conservation of birds and other biodiversity. They are a non-statutory, international designation.
Indicative Proposed Alignment	The alignment identified within the Proposed Route, selected to be taken forward into the EIA and consenting process. It comprises a defined centre line for the overhead line and defined angle tower support structure locations.
LCT	Landscape Character Type
LOD	Limits of Deviation
NatureScot	Scotland's nature conservation agency (formerly Scottish Natural Heritage)
OHL	Overhead line. An electric line installed above ground, usually supported by lattice steel towers or wooden poles.
Planning application	An application for planning permission under the Town and Country Planning (Scotland) Act 1997, as amended by the Planning etc. (Scotland) Act 2006. It should be noted that consent under section 37 of the Electricity Act 1989 usually carries with it a direction from the Scottish Ministers under Section 57 of the Town and Country Planning (Scotland) Act 1997 that planning permission be deemed granted.
Proposed Development	The Proposed Development is taken to be the description of: the location of the development; the physical characteristics of the OHL, based on the proposed alignment and limits of deviation (LOD), including an indicative support structure (tower or pole) schedule, also specifying access arrangements and any associated construction activities and land-use requirements. The Proposed Development also comprises a description of the main characteristics of the operational development and an estimate of residues and emissions associated with both the construction and operational phases (as set out in Schedule 4 of the EIA regulations).
Proposed OHL	The proposed new 275 kV overhead transmission line.
Proposed Route	A route taken forward following stakeholder consultation to the alignment selection stage of the overhead line routing process.

132 kV	132 kilovolt (132,000 volt) operating voltage electrical circuit.
SAC	Special Area of Conservation - designated under Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (known as - The Habitats Directive)
Section 37 (s37) application	An application for development consent under section 37 of the Electricity Act 1989
SEPA	Scottish Environment Protection Agency
SSEN Transmission (SSEN)	Scottish and Southern Electricity Networks Transmission, the transmission license holder for the transmission of electricity in the north of Scotland
SLVIA	Seascape/landscape and visual assessment
SPA	Special Protection Area – designated under <i>Directive 2009/147/EC on the Conservation of Wild Birds</i> (the Birds Directive)
Spraint	Otters produce droppings known as 'spraints', which are left in prominent places along riverbanks, on rocks or under bridges to mark out their territories.
SSSI	Site of Special Scientific Interest – designated by NS under the <i>Nature Conservation (Scotland) Act 2004</i>
Study Area	A defined study area for the consideration of effects (including direct, indirect and cumulative) on each factor defined under Regulation 4(3) of the EIA regulations
WLA	Wild Land Area, as classified by NS (2014)
ZTV	Zone of Theoretical Visibility - the computer generated theoretical visibility of an object in the landscape

EXECUTIVE SUMMARY

In order to meet license obligations relating to security of supply SSEN Transmission need to provide a new 275 kilovolt (kV) transmission connection between the existing Inveraray to Taynuilt 132 kV overhead line, connecting to the existing Scottish Power Energy Networks (SPEN) 275 kV overhead line from Dalmally to Inverarnan.. The main drivers for the project are the forecast growth in renewable electricity generation across Argyll and the need to reinforce the electricity transmission network to transport that electricity to areas of demand, supporting the transition to net zero emissions.

Scottish Hydro Electric Transmission plc is proposing to submit an application for consent to construct and operate a 13.8 kilometre 275 kV overhead line, supported by lattice steel towers between a proposed substation at Creag Dhubh to a new switching station in Glen Lochy adjacent to the existing SPEN Dalmally to Inverarnan 275 kV overhead line, in Argyll, Scotland.

This Scoping Report is provided to support a formal request under Regulation 12 of the Environmental Impact Assessment (EIA) Regulations by the Applicant for a Scoping Opinion to determine the information to be provided within the EIA Report.

The proposed scope of the EIA is summarised in Table ES1 below, noting that the final scope will be agreed following the receipt of a Scoping Opinion from the Scottish Ministers.

Table ES1: Issues Scoped In and Out

Topic	Scoped In	Scoped Out
Landscape Character and Visual Impact	✓	No issues are scoped out in their entirety.
Biodiversity	✓	- Statutory designated sites within 10km of the Site where there is no connectivity - Operational effects on bat species - Water vole
Ornithology	✓	- barrier effects; - electrocution; - habitat loss (during both construction and operational phases); and - potential disturbance during the operational phase.
Cultural Heritage	✓	- Conservation Areas; - Battlefields; and - World Heritage Sites
Traffic and Transport	✓	- operational impacts - decommissioning impacts - Where the thresholds for significant effects during the construction phase are not met in a specific location (in accordance with IEMA Guidelines) it is proposed that further assessment is not required.
Hydrology, Hydrogeology, Geology, and Soils	✓	Contaminated Land
Noise and Vibration	✓	✓
Human Health	×	✓
Climate Change	×	✓
Major Accidents and Disasters	×	✓
Socioeconomics, Recreation and Tourism	×	✓
Land Use and Agriculture	×	✓

Topic	Scoped In	Scoped Out
Forestry	✓	x
Air Quality	x	✓

The Applicant invites consultees to comment on the following:

- What environmental information do you hold or are aware of that will assist in the EIA described here?
- Do you agree with the proposed approach for baseline collection, prediction and significance assessment?
- Are there any key issues or possible effects which have been omitted?
- Do you agree with the list of issues to be scoped out, and the rationale behind the decision?

Responses to this Scoping Report should be directed to the Energy Consents Unit (ECU) of the Scottish Government to ensure all responses are collated and included within the Scoping Opinion. Responses should be directed to:

Email: Econsents_Admin@gov.scot

OR

Energy Consents Unit Scottish Government 5 Atlantic Quay
150 Broomielaw Glasgow, G2 8LU

1. INTRODUCTION

1.1 The Proposal

Scottish and Southern Energy Networks Transmission (SSEN Transmission) is proposing to submit an application for consent to construct and operate a 13.8 kilometre (km) double circuit 275 kV overhead line (OHL), supported by lattice steel towers between a proposed substation at Creag Dhubh to a new switching station in Glen Lochy adjacent to the existing Scottish Power Energy Networks (SPEN) 275 kV overhead line from Dalmally to Inverarnan, in Argyll, Scotland (described hereafter as the 'Proposed Development'). The location of the Proposed Development is shown in **Figure 1.1**.

The scope of this application is limited to construction and operation of the OHL. The Proposed Development would not have a fixed operational life. It is assumed that the Proposed Development will be operational for 50 years or more. The effects associated with the construction phase can be considered to be representative of worst case decommissioning effects, and therefore no separate assessment is proposed as part of the EIA Report.

This project is part of a wider scope of works to upgrade the transmission network in eastern Argyll. Further detail on the wider works is provided in **section 2.2** of this report.

1.2 The Regulations

An application for consent for the Proposed Development will be made to the Scottish Ministers under section 37 of the Electricity Act 1989¹, along with a request for a direction that planning permission be deemed to be granted under section 57 (2) of the Town and Country Planning (Scotland) Act 1997² as amended. The Proposed Development is categorised as 'schedule 1' development under the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017³ (the EIA regulations). On this basis, the application for consent must be supported by an Environmental Impact Assessment Report (EIA Report).

1.3 Sustainability Strategy

A key part of SSEN's Sustainability Strategy⁴ is to achieve Biodiversity Net Gain (BNG)⁵ as part of project delivery. As such, the ambition is to ensure that activities not only maintain the existing balance that exists but enhance the biodiversity in our area.

For new infrastructure projects, SSEN propose to:

- Ensure natural environment considerations are included in decision making at each stage of a project's development;
- Utilise the mitigation hierarchy to avoid impacts by consideration of biodiversity in project design;
- Positively contribute to the United Nations (UN) and Scottish Government Biodiversity strategies by achieving an overall 'No Net Loss' on new infrastructure projects gaining consent in 2020 onwards and achieving Net Gain on projects gaining consent in 2025 onwards; and
- Work with our supply chain to gain the maximum benefit during asset replacement and upgrades.

BNG is a key consideration throughout project development and is discussed further in **Chapter 5: Biodiversity**.

¹ The Electricity Act 1989, c29.

² Town and Country Planning (Scotland) Act 1997, c8.

³ The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, No.101.

⁴ <https://www.ssen-transmission.co.uk/media/2701/sustainability-strategy.pdf>

⁵ <https://www.ssen-transmission.co.uk/media/3723/our-approach-to-implementing-biodiversity-net-gain.pdf>

1.4 Purpose of the EIA Scoping Report

The purpose of this EIA Scoping Report is to ensure that the subsequent EIA is focused on the key impacts likely to give rise to significant effects. As well as identifying aspects to be considered in the EIA, this document also identifies those aspects that are not considered necessary to assess further.

This Scoping Report, prepared by Ramboll UK Limited on behalf of the Applicant, is provided in support of a request by the Applicant to the Scottish Ministers for a Scoping Opinion under Regulation 12⁶ of the EIA Regulations.

In accordance with the EIA Regulations, this EIA Scoping Report contains:

- A plan sufficient to identify the Site which is the subject of the Proposed Development;
- A brief description of the nature and purpose of the Proposed Development and its possible effects on the environment; and
- Additional supporting information or representations.

SSEN Transmission invites consultees to comment on the following:

- What environmental information do you hold or are aware of that will assist in the EIA described here?
- Do you agree with the proposed approach for baseline collection, prediction and significance assessment?
- Are there any key issues or possible effects which have been omitted?
- Do you agree with the list of issues to be scoped out, and the rationale behind the decision?

1.5 Consideration of relevant factors in the EIA Scoping Report

This report is structured to provide information on the individual factors which require consideration under the EIA regulations. The Scoping Report presents the findings of an initial appraisal of the likely environmental effects of the Proposed Development on the receiving environment, based on the current understanding of the baseline conditions. The report identifies the potential for likely significant effects with reference to: the current understanding of baseline sensitivity; the proposed approach to further baseline data collection (where required); issues that can be scoped out from further assessment; issues that require further assessment on basis of potential for significant effect; and the methodology proposed for the assessment of significant environmental effects in each case.

The EIA regulations require the EIA Report to identify, describe and assess the likely significant effect on the factors specified in Regulation 4(3)⁷ and the interaction between those factors. **Table 1.1** lists the factors and outlines how this EIA Scoping Report addresses each, including how the report describes the potential interactions between the factors.

Table 1.1: Consideration of factors in the EIA Scoping Report

Regulation 4 (3) Factor	How this is addressed in the scoping report
Population and Human Health	Chapter 4: Population and Human Health incorporates a consideration of potential for likely significant effects on community health and wellbeing in relation to • nuisance related to noise and vibration during construction and operation; • perceived health effects related to electromagnetic fields (EMF); and • potential for impact resulting from major accidents or disasters (considered to be limited to impacts from towers being destabilised).
Biodiversity	Chapter 5: Biodiversity incorporates a consideration of potential for likely significant effects on biodiversity including consideration of terrestrial habitats, protected mammals, reptiles and amphibians, aquatic ecology and ornithology.

⁶ Regulation 12 – Request for Scoping Opinions. Available at <https://www.legislation.gov.uk/ssi/2017/101/regulation/12/made>

⁷ <https://www.legislation.gov.uk/ssi/2017/101/regulation/4/made>

Regulation 4 (3) Factor	How this is addressed in the scoping report
Land	Chapter 6: Land use incorporates a consideration of potential for likely significant effects on land use including agriculture and commercial forestry.
Soil	Chapter 7: Geology and Soils incorporates a consideration of potential for likely significant effects on soils including peatland habitat.
Water	Chapter 8: Water Environment incorporates a consideration of potential for likely significant effects on the water environment including hydrology, hydrogeology and groundwater dependent terrestrial ecosystems (GWDTE).
Air and Climate	Chapter 9: Air and Climate incorporates a consideration of potential for likely significant effects on air quality and the carbon footprint of the Proposed Development.
Material Assets	Chapter 10: Material Assets incorporates a consideration of the potential for likely significant effects on a wide range of social, environmental and economic assets including: transport, waste, minerals, water, energy, industry, housing, and other public/community assets.
Cultural Heritage	Chapter 11: Cultural Heritage and Archaeology incorporates a consideration of potential for likely significant effects on cultural heritage and archaeology assets as well as the cultural setting.
Landscape	Chapter 12: Landscape and Visual incorporates a consideration of potential for likely significant effects designated landscape areas, landscape character and visual receptors.

A detailed overview of the guidance and methodology adopted for each technical study is provided within the respective technical chapters of this EIA Scoping Report (**Chapters 4-12**). All figures are located in **Appendix A**.

2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Description of Development

The following description is provided to inform the request for a Scoping Opinion from Scottish Ministers. The EIA Report will provide a comprehensive description of the Proposed Development, in accordance with Schedule 4 of the EIA Regulations, for the purposes of describing the likely significant effects and for the purpose of defining the Proposed Development for the application for consent.

The Proposed Development would comprise the construction of approximately 13.8 km of 275 kV OHL from the proposed Creag Dhubh substation to the proposed Glen Lochy switching station, as shown on **Figure 2.1**.

The Proposed Development outlined above and subject to this Scoping Opinion request is currently at two stages of development. A preferred alignment is presented (see **Figure 2.1**) for the new 275 kV OHL between Creag Dhubh substation and Tower 33. This alignment was selected following survey, assessment and consultation in March 2018.

Starting at Tower 33, a preferred route (Route Option B1) has been identified (see **Figure 2.1**) between Tower 33 and the proposed Glen Lochy Switching Station (Site 6). This Route Option and Switching Station Site were selected following survey, assessment and consultation in September 2020. The preferred alignment between Tower 33 and Glen Lochy Switching Station will now be developed and presented at public consultation in February 2021. The indicative Proposed Alignment for the full length of the OHL will be developed following further consultation in February 2021 and will be assessed within the EIA Report.

The Proposed Development would not have a fixed operational life. It is assumed that the Proposed Development will be operational for 50 years or more. The effects associated with the construction phase can be considered to be representative of worst case decommissioning effects, and therefore no separate assessment is proposed as part of the EIA Report.

2.2 Additional Associated works

The Proposed Development will link the proposed Creag Dhubh substation and the proposed Glen Lochy switching station. For the purposes of the EIA process, the Proposed Development is limited to the 13.8 km OHL and necessary ancillary works required to facilitate its construction and operation (e.g. access tracks, temporary construction compounds, woodland removal). The proposed Creag Dhubh substation and proposed Glen Lochy switching station would be the subject of separate applications for consent, EIA process and will be supported by stand-alone environmental information.

Although it is normal practice in EIA to only consider the potential for cumulative effects against a future baseline which includes consented (not yet constructed) developments and/or developments which are subject of a valid planning application, an exception is made in this case on the basis that the two associated works projects are reasonably foreseeable, given that they will be brought forward by SSEN Transmission. The potential for cumulative environmental effects from the addition and combination of the Proposed Development with the Creag Dhubh substation and Glen Lochy substation will be included in the scope of the EIA.

2.2.1 Proposed Creag Dhubh substation

This substation is currently at the design stage (**Plate 2.1**) and is being progressed in parallel to the Proposed Development. It will be the subject of a separate planning application made by SSEN Transmission under the Town and Country Planning (Scotland) Act 1997, as amended. The proposed substation will connect the existing Inveraray to Taynuilt 132 kV overhead line to the Proposed Development.



Plate 2.1: Proposed Creag Dhubh Substation (indicative drawing to illustrate substation parameters)

2.2.2 Proposed Glen Lochy Switching Station

This switching station is currently at the design stage and is being progressed in parallel to the Proposed Development. It will be the subject of a separate planning application made by SSEN Transmission under the Town and Country Planning (Scotland) Act 1997, as amended. The switching station will connect the Proposed Development with the existing SPEN 275 kV overhead line between Dalmally and Inverarnan Substation. The switching station will create a central node on the network where multiple lines of the same voltage can connect. Switches at this location will allow each line in and out to be controlled without affecting the other lines.



Plate 2.2: Example Switching Station (Indicative image)

2.3 Purpose of Proposed Development

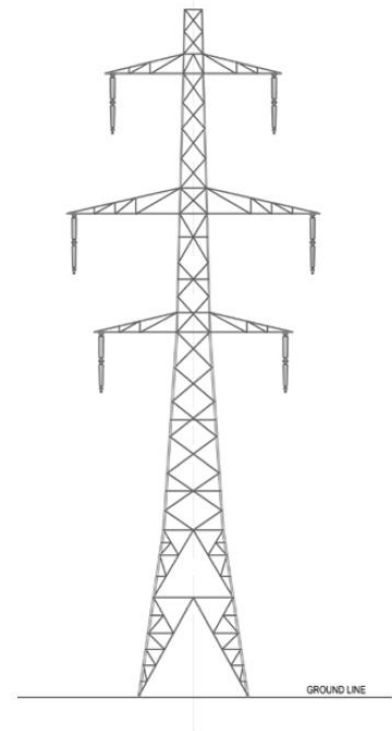
SSEN Transmission owns and operates the electricity transmission network infrastructure in the north of Scotland. As part of our Electricity Transmission Licence, we have a number of obligations, including:

- the development and maintenance of an efficient, coordinated and economical system of electricity transmission;
- facilitating competition in the supply and generation of electricity; and,
- ensuring that the security of the network is maintained as the demand and/or generation connections change over time.

These licence obligations mean that SSEN Transmission must endeavour to connect generation to the network, and should do so in an efficient, coordinated and economic way. An increase in renewable generation applying to connect to the Argyll and Kintyre network is the primary driver behind a need to reinforce this regional network. The level of generation applying to connect in the Argyll and Kintyre area has continued to increase, particularly within the past 12 months. Power system studies undertaken to assess the impact of this new generation shows that the capability of the existing network would be exceeded. Therefore, reinforcement is needed to maintain compliance with the standards that we need to plan our network against. Individual projects, like the Creag Dhubbh to Dalmally 275 kV connection, are being progressed to provide this additional capacity for new generation connections.

2.4 Indicative Overhead Line Design

The s37 application will seek consent for the construction and operation of the OHL. The Proposed Development will comprise of a 275kV OHL and supporting structures. The new OHL will be constructed using self-supporting fabricated galvanised steel lattice towers, L8(c) series (**Plate 2.3**), that are on average 50 metres (m) high and separated by an average distance of 280 m.



Proposed L8 (c)
Tower Suite

Plate 2.3: Transmission tower design

The application will be based on a proposed schedule of tower types, heights and locations, which will be used for the purpose of preparing the EIA Report. The spacing (span length) between towers and the tower height would vary depending on environmental and engineering constraints with maximum height of approximately 60 m and maximum span length of 350 m. Each tower would carry two circuits, with three horizontal cross arms on each side of the tower, each carrying an insulator string and two conductors. An earth wire, containing an optical fibre ground wire (OPGW), would be strung between the tower peaks.

The indicative proposed alignment, as illustrated in **Figure 2.1**, has been determined based on the environmental assessments, engineering analysis and stakeholder consultation undertaken to date. The proposed alignment and detailed tower schedule (for the purposes of the application for consent) is under development (refer to Section 2.1).

Following consent, the investigation of sub-surface and geotechnical conditions at proposed tower locations would be undertaken and may result in the requirement for additional adjustments (micro siting) in the tower locations or heights. It is proposed that the Application for consent (and the EIA Report) will be based on the proposed alignment and detailed tower schedule, subject to agreed horizontal limits of deviation (LOD) to allow for flexibility in the final siting of individual towers and access tracks, up to 100 m from the proposed tower locations. Similarly, the tower height may vary from the tower schedule proposed, and therefore would be subject to a vertical limit of deviation, provisionally up to 20% variation based on the tower schedule.

It is proposed that the EIA Report provides an assessment of the likely significant environmental effects based on the proposed tower schedule and access track locations. The application of the LOD would be limited to the variation of tower and access track details that do not result in adverse change to the level of significance of effects on the environment as detailed in the EIA Report. Any utilisation of the LOD would be evaluated against

the level of significance of effects reported in the EIA Report. Should the evaluation identify an adverse change to the level of significance identified in the EIA Report, consultation would be carried out with Argyll and Bute Council (and any relevant statutory consultees) for approval of the proposed change.

Certain associated works will also be required including works associated with establishing access for the construction and maintenance of the OHL. This will include tree and vegetation clearance; upgrading of existing or establishment of new junction bell-mouths and access tracks; and road and other infrastructure (bridges, culverts etc.) alterations.

2.5 OHL Construction

High voltage OHL construction typically follows a standard sequence of events as follows:

- Phase 1 – enabling works;
- Phase 2 – OHL construction;
- Phase 3 - OHL commissioning; and
- Phase 4 – re-instatement.

Further detail on typical construction activities and work methods will be set out in the EIA Report. An outline of the likely programme, phasing and working methods is provided below for the purpose of informing the initial scoping stage environmental assessment.

2.5.1 Construction Programme

It is anticipated that construction would commence in Q2 2023 (subject to consents and approvals being granted). A provisional construction period of 24 months in total is anticipated, with energisation of the project scheduled for Q2 2025.

The detailed construction phasing and programme would be subject to change as the design progresses and also due to necessary consents and wayleaves being agreed. Further information will be provided in the EIA Report on the indicative construction programme.

2.5.2 Construction practices and phasing

Construction Environmental Management Plan

A Construction Environmental Management Plan (CEMP) will be prepared to ensure that all construction activities are undertaken as per SSEN Transmission's standard practices, which will include reference to applicable General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs), as appropriate.

Phase 1 - Enabling works -Existing Network Diversions

Works will be required to the existing distribution network infrastructure which are crossed by the OHL. It is anticipated that these distribution network assets will be undergrounded to make way for the Proposed Development and can be carried out under Permitted Development rights.

Phase 1 - Road improvements and Access

Detailed access proposals will be developed by the Principal Contractor (yet to be appointed). In general, based on desk study analysis and preliminary walkover inspections, access will be established through a combination of:

- upgrade to existing tracks;
- installation of temporary new stone tracks;
- Installation of permanent / temporary floating stone tracks; and
- Installation of permanent new stone tracks.

It is anticipated that permanent access will be required in the form of stone access tracks for all angle towers on the Proposed Development. Where possible, existing tracks will be used or upgraded for use. In other locations (e.g. to access section towers), it is anticipated that new temporary tracks would be installed. Floating stone road or trackway panel construction may be installed in sensitive areas such as over peat, depending on the sensitivity of constraints identified and the technical feasibility of installing this type of track.

Phase 1 – Vegetation Management and Forestry Clearance

The proposed OHL navigates areas of commercial forestry and woodland; and in these areas an operational corridor would be required. The width of this corridor would be variable depending on the nature of the woodland, however for the purposes of EIA Scoping assessment, it is assumed that an average corridor of 80 m would be required (40 m either side of the tower centre line). The width of the Operational Corridor is dependent on the mature growth height of trees and topography adjacent to the OHL. In addition, minor vegetation management and felling may be required around the existing access track network to provide sufficient width. A detailed Tree Felling Plan, identifying the specific areas to be felled to create an Operational Corridor, will be provided with the EIA Report.

Phase 1 – Site Compounds

It is anticipated that a single main construction compound will be required, the location of which will be confirmed by the Principal Contractor. Temporary construction compound locations may be required along the operational corridor, the location of which will be determined through ongoing design works.

Phase 2 - Tower Foundations

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

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

Foundation types and designs for each tower will be confirmed following detailed geotechnical investigation at each tower position, although it is currently anticipated that the majority of tower foundations are likely to be of a concrete pad and chimney type.

Dimensions of each foundation will be confirmed following micrositings. For the purposes of this assessment however it has been assumed that each foundation would be buried to depths estimated up to 2.5 m below ground level (bgl) although extending up to 4 m depth where ground conditions require. They would extend over an area suitable to deliver the loading characteristics required (which would be a function of the underlying ground conditions and the weight of the structures to be supported). Piled foundations may be required where low strength ground conditions exist, particularly where peat is encountered at over 1 m depth.

For the purposes of the EIA it has been assumed that individual tower foundations and associated construction activities will require a working area of approximately 2500 m² (50 m x 50 m) around each individual tower location. The exact dimensions of the working area around each tower will be confirmed following micrositings.

Where encountered, top soil (including peat) will be stripped from the tower working area to allow installation of tower erection pad(s) as necessary in order to accommodate construction plant. Concrete is likely to be brought to site ready-mixed with no requirement for concrete batching at individual tower locations. Once the concrete has been cast and set, the excavation will be backfilled, using the original excavated material where possible.

It is anticipated that formation of each tower foundation will take approximately four weeks.

Phase 2 - Tower Construction

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

Each tower would be assembled on site into panels by a team of up to eight people. The lower tower panels may be erected using a telehandler, but upper panels would normally be erected into position using an all-terrain crane. Where access is not available for a crane, a derrick would be used. Most towers would be assembled within about five days each and erected by crane in one to two days depending on weather conditions and tower type. Large angle or terminal towers, or towers within restricted sites may take longer.

Phase 2 - Conductor Stringing

The conductor would be delivered to site on wooden drums in pre-determined pulling section lengths. Typical drum lengths for conductors are up to a maximum 2,400 m (approximate weight of 4 tonnes) but would depend on the specific length of section to be strung.

Prior to stringing the conductors, temporary protection measures, (e.g. netted scaffolds) would require to be erected across public roads and existing access tracks.

Conductor stringing equipment including winches, tensioners and ancillary equipment would be set out at either end of pre-selected sections of the OHL. Pilot wires would be pulled through the section to be strung. These would be hung in blocks (wheels) at each suspension tower in the section and connected to a winch and tensioner at the respective end of the section. The winch, in conjunction with the tensioner would be used to pull the pilot wires which would be connected to the conductor at the tensioner end. The conductor would be pulled via the pilot wires through the section and under controlled tension to avoid contact with the ground and any under-running obstacles including protection scaffolds. Once the conductor has been strung between the ends of the section it would then be tensioned to provide the necessary sag and then permanently clamped at each tower.

Dependant on terrain or particular site constraints pilot wires can be pulled through either with the use of all-terrain vehicles, tractors or, helicopters

Phase 3 - Commissioning

The OHL and support towers will then be subject to an inspection and snagging process. This allows the Contractor and SSEN Transmission to check that the works have been built to specification and are fit to energise. The Proposed Development will also go through a commissioning procedure for the switchgear, communications and protection controls through the switching station at Glen Lochy and substation at Creagh Dhubh. The circuits will then be energised.

Phase 4 - Reinstatement

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

2.6 Construction Employment and Hours of Work

SSEN Transmission takes community responsibilities seriously. The delivery of a major programme of capital investment provides the opportunity to maximise support of local communities.

Employment of construction staff will be the responsibility of the Principal Contractor but SSEN Transmission encourages the Principal Contractor to make use of suitable labour and resources from areas local to the project.

It is envisaged that there will be a number of separate teams working at the same time at different locations within the Proposed Development corridor. The resource levels will be dependent on the final construction sequence and will be determined by the Principal Contractor.

Construction working is likely to be during daytime periods only. Working hours are currently anticipated between approximately 07.00 to 19.00 in summer and 07.30 to 17.00 (or within daylight hours) in winter Monday to Saturday. Any out of hours working would be agreed in advance with Argyll and Bute Council.

2.7 Construction Traffic

The construction will give rise to regular numbers of staff transport movements, with small work crews travelling to work site areas. It is anticipated that the Principal Contractor will identify a single main compound area, with a safe area for parking away from the public highway.

Vehicle movements will be required to construct new or upgraded access roads; deliver the foundation and tower components and conductor materials to site; deliver and collect materials and construction plant from the main site compound and to individual tower locations.

The EIA Report would provide a summary of the total anticipated traffic movements associated with construction of the Proposed Development, broken down by phases.

2.8 Operation and Management of the Transmission Connection

In general, given the nature of the Proposed Development, there would be a negligible or no demand for energy, materials or natural resources during the operational life of the OHL. OHLs require very little maintenance.

Regular inspections are undertaken to identify any unacceptable deterioration of components, so that they can be replaced. From time to time, inclement weather, storms or lightning can cause damage to either the insulators or the conductors. If conductors are damaged, short sections may have to be replaced. Insulators and conductors are normally replaced after about 40 years, and towers painted every 15-20 years.

Managed Operational Corridor

In addition to the removal of vegetation to facilitate construction, it would be necessary to manage vegetation on average 40 m either side of the OHL throughout operation, to maintain required safety clearance distances. Vegetation clearance required will be dependent on the height of the vegetation adjacent to the OHL and the surrounding topography. If the vegetation height is in excess of 40 m or the topography is steeply sloping, then the vegetation clearance area may be in excess of 40 m from the centreline of the OHL alignment.

2.9 Use of Natural Resources

The EIA Regulations require the consideration of the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources. The Proposed Development will use land and the permanent footprint of the Proposed Development will be described in the EIA Report. Other than the change of land use, given the nature of the Proposed Development, there would be a negligible or no demand for natural resources during the operational life of the OHL and therefore no likely significant effect on the sustainable availability of such resources.

2.10 Residues and Emissions

The EIA Regulations require that the EIA Report provides an estimate, by type and quantity, of expected residues and emissions (such as water, air and soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced) resulting from the construction and operation of the Proposed Development.

Table 2.2 provides a summary of the anticipated residues and emissions for the purpose of informing the scope of the EIA.

Table 2.2: Residues and Emissions

Topic	Potential residue/emission
Water	Construction:

	Surface water runoff and discharge is likely during construction. In addition, occasional discharges may arise from pumping, or over-pumping in order to dewater foundation excavations. Pollution sources may arise as a result of soil erosion or from oil/ fuel or chemical storage and use. Operation: No water emissions or pollution sources have been identified for the operational phase.
Air	Construction: The construction phase would require the transport of people and materials by road and air, with associated emissions to the atmosphere. There are no air quality management areas within the vicinity of the Proposed Development. No significant air emissions are anticipated. Operation: Due to the nature of the Proposed Development no significant point source or diffuse air emissions would be produced during its operation. The Proposed Development would contribute to connecting renewable electricity generation capacity to the transmission network, in turn displacing emissions associated with fossil fuel based electricity generation elsewhere.
Soil and subsoil	Construction: Soil and subsoil excavation, handling and storage would be required during construction. All soil and subsoil would be stored temporarily for use in reinstatement Operation: No requirement for soil or subsoil excavation or handling during the operation phase has been identified. No pollution sources have been identified for the operational phase.
Noise and Vibration	Construction: Noise sources during the construction phase would include increased traffic flows and noise from construction plant. Further detail is provided in Chapter 4. There would be no significant vibration emissions associated with the Proposed Development. Operation: Noise emission levels from a 275 kV OHL are unlikely to be perceptible during dry weather, however perceptible noise can arise in wet weather. Further detail on the proposed scope of operational noise assessment is provided in Chapter 4.
Light	Construction: The temporary construction compounds are likely to be equipped with lighting installations for use during low light conditions and passive infra-red sensor controlled security lighting. Any effect would be temporary and not expected to be significant. Operation: No light sources have been identified during normal operation of the Proposed Development.
Heat and radiation	Construction: No heat or radiation sources have been identified during the construction phase. Operation: Electromagnetic fields (EMFs) are emitted from OHLs, with potential effects on human health. Further detail is provided in Chapter 4.
Waste	Construction: The construction stage will require felling of woodland. As such, it is anticipated that forestry related residues (brush and mulch) would result from the felling operations. Further detail on forestry is provided in Section 6.2 Construction will generate general waste in the form of domestic wastes and other materials, for example, wood, metals, plastics and stone. Waste will be managed in accordance with good practice guidance on

	the use of a Site Waste and Materials Management Plans⁸, to implement the waste management hierarchy⁹ Operation: Electricity transmission does not produce any waste. However, the general maintenance of the OHL has the potential to produce a small amount of waste. This is likely to be restricted to waste associated with employees and visiting contractors.
--	---

2.11 Disaster Resilience

The EIA regulations require the consideration of the potential risks to human health, cultural heritage or the environment associated with the vulnerability of the Proposed Development to major accidents and disasters. This requirement is interpreted as requiring the consideration of low likelihood but high consequence events which would result in serious harm or damage to environmental receptors.

Given the nature of the Proposed Development, the potential for risks related to the vulnerability to major accidents and disasters are likely to be limited to those associated with unplanned power outages, due to extreme weather or structural damage.

Relevant types of accident/disaster, given the predominantly rural context of the Proposed Development, include:

- severe weather events, including high winds, high rainfall leading to flooding, or extreme cold leading to heavy snow and ice loading;
- wild fire;
- traffic related accidents; and
- mass movement associated with ground instability.

Severe weather resilience is a core component to the network design, and includes consideration of flooding resilience, overhead line design and vegetation management to reduce the risk of unplanned power cuts. Crisis management and continuity plans are in place across the SSEN Transmission network. These are tested regularly and are designed for the management of, and recovery from, significant energy infrastructure failure events. Where there are material changes in infrastructure (or the management of it) additional plans are developed.

⁸ URL:: <https://www.netregs.org.uk/environmental-topics/waste/storage-handling-and-transport-of-waste/site-waste-management-plans-swmp/> (accessed 10/09/2020)

⁹ Scottish Government (2017) Applying the waste hierarchy: guidance: URL [https://www.gov.scot/publications/guidance-applying-waste-hierarchy/pages/3/#:-:text=The%20waste%20hierarchy%20ranks%20waste,the%20lifecycle%20of%20the%20material.&text=When%20waste%20is%20created%2C%20it,all%20disposal%20\(i.e.%20landfill\).](https://www.gov.scot/publications/guidance-applying-waste-hierarchy/pages/3/#:-:text=The%20waste%20hierarchy%20ranks%20waste,the%20lifecycle%20of%20the%20material.&text=When%20waste%20is%20created%2C%20it,all%20disposal%20(i.e.%20landfill).) (accessed 10/09/2020)

3. EIA METHODOLOGY

3.1 The EIA Report

The EIA Report would be prepared to meet the requirements of Schedule 4 of the EIA regulations and the Institute of Environmental Management and Assessment (IEMA) Quality Mark criteria.

3.1.1 Assessment of Likely Significant Environmental Effects

Each assessment chapter will include:

- a detailed methodology covering the approach to establishing the current state of the relevant baseline scenario used in the assessment (which may be the current baseline or a future baseline scenario) and the criteria used to identify and assess the likely significant effects;
- a description of how the assessment deals with LOD;
- a description of the relevant aspects of the current state of the environment (baseline conditions) and an outline of likely evolution of the baseline conditions in the absence of the Proposed Development (the 'do nothing' scenario) for the purpose of defining any relevant 'future baseline' scenarios that may be used as a basis for the impact assessment;
- a description of the likely significant effects;
- a description of the measures proposed to avoid, prevent, reduce, or, if possible, offset any likely significant effects (mitigation measures) and where appropriate, any proposed monitoring arrangements; and
- a description of residual effects remaining following the implementation of proposed mitigation measures.

The description of the likely significant effects will cover direct effects and indirect (including secondary) effects as a result of construction or operational activities. The description of effects will identify the effect duration (short-term, medium-term and long-term), whether effects are permanent or temporary, and if effects can be categorised as adverse or beneficial.

Consideration would be given to the potential for cumulative effects, where the assessment would describe the effects associated with the Proposed Development when considered in addition to and in combination with other reasonably foreseeable plans or projects (defined as those which are the subject of a valid consent or application for consent). The only exception being that the Applicant may include reference to other SSEN Transmission plans or projects, which are not yet the subject of an application or consent (but are foreseeable to the Applicant and relevant to this EIA). The final list of development to be considered in the cumulative effects assessment would be finalised approximately four months prior to publication to allow sufficient time to compile the EIA Report.

It is considered that there would be no potential for transboundary¹⁰ effects associated with the Proposed Development, and therefore no further assessment of transboundary effects is proposed.

3.2 Scoping Methodology

The following Chapters (4-12) aim to provide sufficient detail to characterise the potential interactions between the Proposed Development and the environmental receptors identified. In presenting a rationale for the proposed scope of environmental assessment, this report has taken the sensitivity of the current state of the environment into account, based on an understanding of the baseline conditions. The scoping report has also been prepared with reference to the potential magnitude of impacts, considering the typical construction and operational activities, physical characteristics and potential emissions/residues associated with the Proposed Development.

¹⁰ Transboundary effects under the EIA Directive are effects of certain projects implemented in one Member State, likely to have significant effects on the environment of another Member State.

Where there is sufficient evidence to support scoping a topic out of the EIA process, this is presented. Otherwise, where it is considered that there is the potential for likely significant effects, the scoping report provides details of the proposed scope or detailed impact assessment, including the approach to further baseline data collection and brief details of the proposed methodology for impact assessment which would be employed for each topic.

A detailed overview of the guidance and methodology adopted for each technical study is provided within the respective technical chapters of this EIA Scoping Report (**Chapters 4-12**). All figures are located in **Appendix A**.

4. POPULATION AND HUMAN HEALTH

4.1 Introduction

The World Health Organisation (WHO) defines health as a state of physical, mental and social wellbeing, as well as the absence of disease or infirmity. The focus of the chapter is on community health and wellbeing and not on occupational health and safety. The term 'health' is used to describe 'human health' and 'wellbeing' unless specifically referenced otherwise.

Given the nature of the Proposed Development, the potential and perceived effects on population and human health include:

- nuisance related to noise and vibration during construction and operation;
- perceived health effects related to electromagnetic fields (EMF); and
- potential for impact resulting from major accidents or disasters (considered to be limited to impacts from towers being destabilised).

4.2 Baseline Conditions

The Proposed Development is located in a rural area. All properties are situated more than 200m away, with the exception of Brackley Farm which is within 100m of the proposed development.

4.2.1 Noise and Vibration

A desk based review has been undertaken to identify noise sensitive receptors.

There is one residential property (Brackley Farm) within 100m of the Proposed Development, with the next closest properties situated approximately 500 m away (Achlian and Blarchaorain). Therefore, a site visit or a noise survey is not proposed at this stage. Instead, background noise levels typical of rural areas will be assumed to inform the assessment.

Consultation will be undertaken with Argyll and Bute to agree the assessment methodology.

4.2.2 Electro and Magnetic Fields (EMFs) during operation

EMFs arise from electric charges and current flow. Exposure guidelines¹¹ have been developed by the International Commission on Non-Ionising Radiation Protection (ICNIRP) to ensure protection of human health in different situations, occupational exposures and public exposure. These guidelines have been adopted by the UK Health and Protection Agency (HPA) for application in the UK¹.

The calculated field strengths for the proposed 275 kV OHL are within the ICNIRP guidelines as shown in **Table 4.1** below.

¹¹ <https://www.icnirp.org/cms/upload/publications/ICNIRPrfgdl2020.pdf>

Table 4.1: Typical EMF and UK Exposure Guidelines

Source	Electric Field (kV/m)		Magnetic Field (μT)	
	Calculated field beneath line	Typical field 25m from line	Calculated field beneath line	Typical field 25 m from line
ICNRIP public exposure limit	9		360	
Typical Field 275 kV OHL	2.8-3.3	0.2-0.5	24.9	1-2

Source: <http://www.emfs.info/sources/overhead/>

4.2.3 Accidents and Disasters

The potential for impact resulting from major accidents or disasters is limited to impacts from towers being destabilised. The design process seeks to avoid the potential for impacts arising from major accidents or disasters in two ways:

1. Altitudes over 300m above sea level are avoided to reduce the extent of tower strengthening (and speed of refurbishment) required due to the higher potential for ice and high winds in such locations.
2. Tower locations are chosen that are at least 100m from sensitive receptors; which is greater than the topple distance of the towers.

A review was undertaken regarding the expected effects deriving from the vulnerability of the development to risks of major accidents and disasters. An initial list of major accidents and disasters was compiled using a variety of sources including the Cabinet Office National Risk Register of Civil Emergencies 2015 Edition and UK Government Emergency Response & Recovery Guidance. This list was screened in two stages to identify risks which would be applicable to the Proposed Development; firstly based on the location and use/nature of the Proposed Development; and then based on the likelihood of the event and consequence of the outcome. The final screened list was then considered in terms of existing mitigation or prevention measures such as regulations and guidance; key documents included:

- Health and Safety Executive Guidance Note GS6 (Forth edition) Avoiding danger from overhead power lines;
- Forestry Industry Safety Accord (FIAS) Safety Guide 804 Electricity at work: Forestry; and
- ENA Technical Specification 43-8 2004: Overhead Line Clearances.

The baseline conditions for the following topics which have the potential to impact human health can be found in the following chapters of this Scoping Report:

- Water Environment (Chapter 8);
- Air and Climate (Chapter 9);
- Landscape and Visual Impact (Chapter 12); and
- Material Assets (Chapter 10).

4.3 Sensitive Receptors

Potential sensitive receptors that have been identified in the area surrounding the Proposed Development include:

- Onsite populations (e.g. site personnel); and
- Offsite populations (e.g. local residences/towns/villages).
- Noise sensitive receptors within 300 m of the Proposed Development, along the length of the line, will be included in the assessment of noise from the operation of the Proposed Development.
- Noise sensitive receptors within the same area will be assessed for any impacts arising from noise and vibration associated with the construction of the Proposed Development.

4.4 Potential Significant Effects

At this preliminary stage, possible effects associated with construction and operation of the Proposed Development includes:

- effects of construction noise (including traffic) on the surrounding area and on nearest residential properties;
- effects of vibration during construction on receptors in the area surrounding the connections and associated substations; and
- operational effects of noise from the 'corona discharge' along the overhead lines

Operational noise is likely to be minimal; the noise associated with overhead lines is a result of a phenomenon known as 'corona discharge'. This phenomenon generally occurs during damp weather when rain enhances the local electrical field strength allowing an audible discharge to occur.

Potential significant effects identified for the topics listed in Section 4.2 can be found in the relevant technical sections of this Scoping Report.

Appropriate control measures to ensure potential effects on human health are managed appropriately in the construction phase will be addressed through a Construction Environmental Management Plan (CEMP), which would be produced to manage the construction of the Proposed Development and would address the following issues related to human health and well-being:

- Water quality;
- Noise controls; and
- Air and dust management.

4.5 Assessment Scope and Methodology

A desktop study is proposed to assess the likely noise & vibration impacts arising from the Proposed Development. The assessment will be based on guidance in TR(T)94¹² for overhead line noise and BS5228¹³ for construction noise.

The noise levels generated by the installation of the overhead line will be assessed drawing on the guidance within TR(T) 94 for both dry conditions and periods of rainfall. In accordance with TR(T) 94 the specific noise level from a planned overhead line will be determined by using data of a line of equivalent design to that being proposed.

A construction assessment will be carried out in accordance with BS5228. Avoidance and mitigation measures will be provided, where required.

The technical sections listed in Section 4.2 set out the assessment methodology for the various technical topics relating to human health and population.

4.6 Issues Scoped Out

Issues scoped out of the topics listed in Section 4.2 are listed in the relevant technical sections of this Scoping Report.

This review did not identify potentially significant effects from major accidents or disasters that would require assessment under the EIA Regulations and therefore this topic has been scoped out from further assessment.

The typical field strengths for 275kV OHL are within the ICNIRP exposure guidelines. As such there is no likely significant effects on human health associated with EMFs and this issue is scoped out from further assessment.

¹² Technical Report TR(T)94, Issue 1, October 1993. A Method for Assessing the Community Response to Overhead Line Noise, National Grid

¹³ BS 5228-1:2009 Code of practice for noise and vibration control on construction and open sites.

4.7 Summary

The potential for significant effects on human health in terms water quality, air quality, visual impacts, traffic and transport have been considered in the appropriate sections of this Scoping Report.

A further desk-based noise assessment will be undertaken in accordance with guidance in TR(T)94 and BS5228.

There is no potential for public or occupational exposure to electro-magnetic fields (EMFs) above appropriate thresholds as a result of the Proposed Development. There is no potential for impacts to human health as a result of accidents and disasters.

As such, a separate human health and population impact assessment chapter will not be presented in the EIAR.

5. BIODIVERSITY

5.1 Introduction

The EIA will consider the potential effects of the Proposed Development on ecological features (avian and non-avian) along the proposed OHL and within the ecological zones of influence for species identified as important ecological features. Evaluation of the existing baseline environment will be made through a combination of desk-based study, field surveys and consultation.

5.2 Ecology (non-avian)

This section will assess the potential effects on ecological features resulting from the construction, and operation phase of the Proposed Development. This section does not discuss ornithology, which is discussed in a **Section 5.3** of this report.

This section:

- Describes the baseline conditions within the study area;
- Describes the key ecological issues associated with construction and operation of the Proposed Development;
- Presents the proposed survey methods that will be used to generate additional ecological baseline information; and
- Outlines the proposed approach to the Ecological Impact Assessments (EclA; as part of the wider Environmental Impact Assessment (EIA)).

5.2.1 Baseline Conditions

The following information has been gathered to inform the baseline ecological conditions of the Proposed Development.

Desk Study

A desk study has been undertaken using the NatureScot SiteLink¹⁴ website to identify designated nature conservation sites (10 km for sites of international¹⁵ importance and 2 km for those of national¹⁶ importance). In addition, a search for publicly available biological records was undertaken within 2 km of the Proposed Development using the following sources:

- NatureScot Sitelink¹⁷; and
- The Multi-Agency Geographic Information for the Countryside (MAGIC)¹⁸.

Table 5.1 summarises the key habitat and species action plans within the Argyll and Bute Local Biodiversity Action Plan (LBAP) 2010 - 2015.

Table 5.1: Argyll and Bute LBAP Habitat and Species

Terrestrial Habitats	Species (non-avian)
Atlantic Woodland	Lichen
Improved Grassland	Marsh Fritillary Butterfly
Machair and Dune	Bats
Native Caledonian Pinewoods	Otter
Peatlands	Pearl-bordered Fritillary Butterfly
Planted Conifer Forest	Red Deer

¹⁴ <https://sitelink.nature.scot/home>

¹⁵ i.e. Special Areas of Conservation (SAC).

¹⁶ i.e. Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs)

¹⁷ <https://sitelink.nature.scot/home>

¹⁸ MAGIC (2020). MAGIC Map. Available at: <http://magic.defra.gov.uk/>.

Terrestrial Habitats	Species (non-avian)
Unimproved Grassland	Red Squirrel
	Brown Hare
	Water vole
	Wildcat
	Slender Scotch Burnet Moth
	Sword-leaved Helleborine
	Transparent Burnet Moth

Biological records were returned for marsh fritillary *Euphydryas aurinia* (five records) butterfly. It should be noted that the absence of records of protected and notable species does not necessarily preclude the presence of a species from a site. Marshy fritillary is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) (hereafter referred to as the WCA).

Special Protection Areas (SPAs), and Ramsar sites, which are statutory designated sites of international importance for birds, are considered in **Section 5.3: Ornithology**.

Four statutory designated sites of international importance were identified within 10km of the Indicative Proposed Alignment. Details of these sites, including of the qualifying species associated with them, are provided within **Table 5.1** below and shown on **Figure 5.1**.

There are no non-statutory designations identified with potential connectivity to the Proposed Development.

Table 5.1: Statutory Designated Sites of International and National Importance

Site Name (area in hectares [ha])	Designation	Qualifying Feature	Distance and Direction from Site ¹⁹
Ben Lui (2060.37ha)	SAC, SSSI,	SAC – Upland habitat assemblage. SSSI – Mineralogy, invertebrate assemblage, upland habitat, vascular plant assemblage.	4.0km (East)
Glen Shira (65.4ha)	SAC	Western acidic oak woodland	6.6km (S/SE)
Allt Broighleachan (40ha)	SSSI	Native Pinewood	6.9km (NE)
Glen Nant (503.29ha)	SAC, SSSI, NNR	SSSI - Bryophyte assemblage, Cranefly <i>Tipula luridorostris</i> , Lichen assemblage, Upland oak woodland. NNR – No details provided	9.1km (NW)
Coille Leitire (98.08ha)	SSSI	Native woodland – upland oak	4.2 km West
Loch Etive Woods	SAC	Alder woodland on floodplains Mixed woodland on base-rich soils associated with rocky slopes Western acidic oak woodland Otter	4.2 km West and 9.1 km (NW)

Field Survey

Field surveys²⁰ were undertaken by WSP in July 2016 and between September 2017 and October 2017. The surveys included an extended Phase 1 Habitat Survey, National Vegetation Classification (NVC) surveys and protected species surveys

The Phase 1 Habitat Survey consisted of classifying and mapping habitats in accordance with the Joint Nature Conservation Committee (JNCC) method²¹ and was 'extended' to include consideration of the likely presence of

¹⁹ Measured from the closest point.

²⁰ The study area covered the 2017 proposed alignment (plus 100 m buffer), between Creag Dhubh substation and Dalmally substation.

protected or otherwise notable species in line with the Chartered Institute of Ecology and Environmental Management²¹ guidelines for EIA.

For each area of habitat mapped during the Phase 1 Habitat Survey a Habitat Condition Assessment was undertaken by Ramboll (2020). The Habitat Condition Assessment (HCA)²² was undertaken following SSSEN Transmission Guidance²³ and involved scoring each habitat area using established criteria. If a habitat passes all criteria it is considered to be in good condition, if it fails one criterion it is considered to be of moderate condition and if it fails two or more criteria it is considered to be of poor condition. The condition of each habitat is used in the Biodiversity Net Gain analysis (Refer to Section 5.2.5).

The NVC surveys were completed in line with NVC survey guidelines (Rodwell, 2006^{iv}), classifying communities in accordance with the NVC system (Rodwell, 1991 – 2000, 5 volumes^{iv}). The purpose of these surveys was to identify protected habitats, consisting of potential groundwater dependent terrestrial ecosystems (GWDTEs), Annex 1 habitats under the EU Habitats Directive and those with protection under the Scottish Biodiversity List (SBL). The protected species surveys consisted of a detailed search for field signs, in suitable habitat, and in accordance with standard survey guidance for badger *Meles meles*²⁴, otter *Lutra lutra*²⁵, and water vole *Arvicola amphibius*²⁶. In addition, a habitat suitability assessment (HSA) was undertaken for bat²⁷, red squirrel *Sciurus vulgaris*²⁸ and pine marten *Martes martes*²⁹, but did not include a detailed search for field signs, to allow for a rapid assessment of the site.

All field surveys (as stated above) have been ground-truthed by Ramboll ecologists between July and September 2020, with the previous survey findings remaining valid. All surveys were undertaken in accordance with the above survey guidance. The survey area has been updated to encompass the change in route from tower 33 eastwards to the proposed Glen Lochy switching station. This area is still due to be surveyed at time of writing. The survey area is shown on **Figure 2.1**, and includes a feature-specific buffer extending up to 250 m from the Site Boundary.

Habitats

The main habitats present are conifer plantation with a mosaic of semi-improved acid grassland and bracken, interspersed with marshy grassland and patches of bog. Open hillside is subject to grazing from livestock (sheep and cattle). Areas of broadleaved woodland were recorded occasionally scattered across the survey area, lining coniferous plantation and adjacent to watercourses. These woods were often dominated by sessile oak *Quercus petraea* and coincide with areas considered to be ancient woodland. **Figure 5.2** presents the mapped Phase 1 Habitat Survey results.

The NVC survey has identified a total of 25 semi-natural plant communities across the 2017 Survey Area, with further sub-communities also recorded (**Figure 5.3**). These communities recorded included those which are potentially groundwater dependent terrestrial ecosystems (GWDTEs)^v, those classified as Annex 1 habitat³⁰ types in terms of the EU Habitats Directive (Council Directive 92/43/EEC) and those with protection under the SBL (**Table 5.3**).

Communities with a high potential for GWDTEs are highlighted red in **Table 5.3**; communities with a moderate potential for GWDTEs are highlighted orange in **Table 5.3**.

²¹ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester

²² At the time of writing Habitat condition surveys were ongoing. Full details will be provided as part of the EIA

²³ SSSEN Transmission, Biodiversity Net Gain Toolkit User Guide - TG-NET-ENG-526, October 2020

²⁴ Scottish Badgers, Badger Surveying, Available at: <http://scottishbadgers.org.uk/badger-surveying.asp> [Last accessed 1st October 2020]

²⁵ Chanin, P. (2003), Monitoring the otter *Lutra lutra*, Conserving Natura 2000 Rivers Monitoring Series No 10, Peterborough: English Nature.

²⁶ Strachan, R. (2012), Water Vole Conservation Handbook, Third Edition, Wildlife Conservation Research Unit.

²⁷ Collins, J. (ed.) (2016), Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1.

²⁸ Gurnell, J. et al (2001), Practical Techniques for Surveying and Monitoring Squirrels. Edinburgh: Forestry Commission.

²⁹ NatureScot. (2020), Standing Advice for Planning Consultations, Protected Species Pine Marten. Available at:

<https://www.nature.scot/sites/default/files/2020-06/Species%20Planning%20Advice%20-%20pine%20marten.pdf>. [Last accessed 1st October 2020]

³⁰ None of the Annex 1 habitats listed are designated under the Habitat Regulations

Table 5.2: NVC communities which are potential GWDTEs, Annex 1 and / or SBL habitats

NVC Community	Annex 1	SBL
M15 – <i>Trichophorum germanicum</i> – <i>Erica tetralix</i> wet heath	North Atlantic wet heath with <i>Erica tetralix</i>	Upland heathland
M6 – <i>Carex echinata</i> – <i>Sphagnum recurvum/auriculatum</i> mire	Transition mires and quaking bogs	Upland flushes, fens and swamp
M17 – <i>Trichophorum germanicum</i> – <i>Eriophorum vaginatum</i> blanket mire	Blanket bog	Blanket bog
M19 – <i>Calluna vulgaris</i> – <i>Eriophorum vaginatum</i> blanket mire	Blanket bog	Blanket bog
M25 – <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	<i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils	Purple moor grass and rush pasture
M2 – <i>Sphagnum cuspidatum/recurvum</i> bog pool community	Transition mires and quaking bogs	Coastal and floodplain grazing marsh; Upland flushes, fens and swamp
M20 – <i>Eriophorum vaginatum</i> blanket and raised mire	Blanket bog/ degraded raised bog	Blanket bog**
H12 – <i>Calluna vulgaris</i> – <i>Vaccinium myrtillus</i> heath	European dry heath	Upland heathland
H10 – <i>Calluna vulgaris</i> – <i>Erica cinerea</i> heath	European dry heath	Upland heathland
H13 – <i>Calluna vulgaris</i> – <i>Cladonia arbuscula</i> heath	European dry heath	Upland heathland
M28 – <i>Iris pseudacorus</i> – <i>Filipendula ulmaria</i> mire	Transition mires and quaking bogs	Upland flushes, fens and swamp
M10 – <i>Carex dioica</i> – <i>Pinguicula vulgaris</i> mire	Alkaline fen	Upland flushes, fens and swamp
U5 – <i>Nardus stricta</i> – <i>Galium saxatile</i> grassland	Species-rich grassland with mat-grass, in upland areas	<i>Nardus stricta</i> – <i>Galium saxatile</i> grassland
W4 – <i>Betula pubescens</i> – <i>Molinia caerulea</i> woodland	Bog woodland	Wet woodland; upland birchwood
W11 – <i>Quercus petraea</i> – <i>Betula pubescens</i> – <i>Oxalis acetosella</i> woodland	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles	Upland birchwood; Upland oakwood
W17 – <i>Quercus petraea</i> – <i>Betula pubescens</i> – <i>Dicranum majus</i> woodland	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles	Upland birchwood; Upland oakwood
W2 – <i>Salix cinerea</i> – <i>Betula pubescens</i> – <i>Phragmites australis</i> woodland	Bog woodland	Wet woodland
M23 – <i>Juncus effusus/acutiflorus</i> – <i>Galium palustre</i> rush-pasture	N/A	Purple moor grass and rush pasture
U6 – <i>Juncus squarrosus</i> – <i>Festuca ovina</i> grassland	N/A	<i>Juncus squarrosus</i> – <i>Festuca ovina</i> grassland
W7 – <i>Alnus glutinosa</i> – <i>Fraxinus excelsior</i> woodland	N/A	Wet woodland
MG10 – <i>Holcus lanatus</i> – <i>Juncus effusus</i> rush pasture	N/A	N/A

NVC Community	Annex 1	SBL
MG9 – <i>Holcus lanatus</i> – <i>Deschampsia cespitosa</i> grassland.	N/A	N/A

** These habitats have priority status in the context of the Habitats Regulations.

Protected species

A summary of evidence gathered for protected species undertaken by WSP (2017) is provided below and shown on **Figure 5.4**. The findings of the updated protected species survey (Ramboll, 2020) are shown on **Figure 5.5**. Suitable terrestrial habitat was identified for otter, water vole, bat, badger, pine marten, red squirrel and reptiles. Aquatic habitat was identified for Atlantic salmon *Salmo salar* and brown trout *Salmo trutta* within Loch Awe and tributaries. The trail camera set up by Ramboll (Sept 2020) captured activity of red squirrel, pine martin, badger and fox within the site boundary (**Appendix B**).

Otter – The 2017 Survey Area is crossed by the Rivers Orchy, River Cladich and their tributaries. These watercourses were noted as having potential for otters to rest, forage and commute. Spraint and two potential resting sites were recorded along these watercourses. In addition, Loch Awe is considered to provide high quality habitat for otter for foraging, commuting and shelter.

Water vole – Overall, habitat across the 2017 Survey Area for water vole is limited due to very wet ground conditions in the lowlands, and rocky substrates in the uplands, both of which restrict burrowing opportunity. A single water vole was heard, and two burrows and associated feeding signs and latrines were noted on a tributary of the River Cladich within the Survey Area.

Bat – suitable roosting habitat for bats is present across the 2017 Survey Area within deciduous woodlands; with tree species including oak *Quercus spp.*, beech *Fagus spp.*, birch *Betula spp.* and occasionally larch *Larix decidua*, pine *Pinus spp.*, and cypress *Cupressus spp.* These species were noted with rot holes, snag ends, broken limbs, cavities, cracks and dropped limbs. These features offer moderate and high bat roost potential. Suitable roosting habitat was recorded at six bridges within the Survey Area which provide low to moderate bat roost potential. Suitable foraging and commuting habitat is present along forest edges, in forest rides, and along watercourses.

Badger – Two setts are located approx. 100m from each other in the northern section of the 2017 Survey Area. Sett 1 consisted of two entrances and was assessed as active; sett 2 consisted of one entrance and was considered to be inactive. The updated survey completed by Ramboll (2020) identified an additional sett within 30 m of the Proposed Development. Evidence of use by badger was recorded using a trail camera (**Appendix B**).

Red squirrel - Mature coniferous woodland (considered to be >25yrs old), providing suitable habitat for red squirrel, is found primarily towards the centre of the survey area and south of the River Orchy on the edges of forestry plantation woodlands.

Pine marten – Evidence for pine marten (scat) was found throughout the 2017 Survey Area. Scats were noted on two road bridges over tributaries to the River Strae, and six scats were recorded on the north banks of the River Orchy at the base of a tree. Further south, eight pine marten scats were recorded on the top of a road bridge east of the River Cladich and two near the Teatle Water on a prominent rock and on the edge of coniferous woodland. The rock was also considered to potentially be suitable as a den site. As with red squirrel, the extensive area of forestry in the southern section of the 2017 Survey Area is considered to provide a good resource of foraging, commuting and shelter for the species.

Reptiles and Amphibians (herpetofauna) – suitable habitat for reptiles (e.g adder, slow worm and common lizard) is present in upland moorland, and at woodland edges and rides. No evidence for reptiles was identified during the field survey. Incidental records of common frog *Rana temporaria*, and common toad *Bufo bufo* were made across the survey area during the protected species survey.

Invertebrates – suitable habitat was present in the 2017 Survey Area within marshy grassland habitat for the Marsh Fritillary butterfly. Suitable habitat within upland grassland was limited for Mountain Ringlet.

Invasive species – American mink *Neovison vison* scat was noted at two locations in the south of the Survey Area. Presence of mink in the area may affect the population of water vole within the Survey Area. Two records for Japanese knotweed *Fallopia japonica* and two for Himalayan balsam *Impatiens glandulifera* were recorded during the field survey. Three of these locations were along the River Orchy; and the fourth approximately 25km inland of the north bank of the River Orchy in deciduous woodland.

5.2.2 Sensitive Receptors

The ecological baseline has been used to identify important ecological features that could be affected by the construction and operation of the Proposed Development. These are considered to include habitats identified as potential GWDTEs, Annex I or SBL habitats, Ancient woodland, red squirrel, pine marten and badger. Any trees or features identified as having bat roost potential that need to be removed or may be disturbed by the Proposed Development could be significantly affected in the absence of appropriate mitigation.

The importance or sensitivity of an ecological feature will be ascertained via review of literature and guidance, field survey data, legal protection / conservation status and professional judgement.

5.2.3 Potential Significant Effects

General

The cumulative effects of the Proposed Development with other developments, either built or proposed, within the zone of influence³¹ for important ecological features identified as sensitive receptors, will be considered. This would include impacts that are additional or in-combination with the Proposed Development.

Habitats

Construction – During construction excavation and vegetation clearance works may negatively affect GWDTEs, Annex I, SBL habitats and areas of Ancient Woodland through direct impacts or indirect impacts such as permanent or temporary changes to existing hydrological conditions. These habitats cover extensive areas of the Proposed Development. The impacts would be assessed and characterised to identify potential significant effects and whether avoidance or mitigation is required.

Operation – No operational impacts associated with the Proposed Development have been identified at this stage.

Protected Species

Protected species, including red squirrel, pine marten and badger, may be negatively affected by vegetation clearance resulting in habitat loss, fragmentation and severance. The works are likely to affect the ability of these species to rest, breed, forage and commute. Any trees or structures with bat roost potential that would be removed or disturbed during construction could result in significant impacts to bats. The impacts would be assessed and characterised to identify potential significant effects and whether appropriate avoidance or mitigation is required.

Otters are likely to be using the watercourses in and around the Proposed Development. Key operational infrastructure for the Proposed Development will be installed outside of riparian zones (including a 50 m buffer on watercourses where possible); however, it is likely that a number of access track watercourse crossings will be required during construction. The EIA will identify the requirement for mitigation for otter, including the need for mammal crossings to be incorporated into proposed access tracks.

Reptiles are likely to be present in open moorland, rough grassland and along woodland rides and edges. They are unlikely to be present in the extensive coniferous woodland. Reptiles may be negatively affected by vegetation clearance required to facilitate the works. The EIA will identify the need for pre-construction surveys in areas where there is potential for the presence of sensitive features used for shelter and hibernation. The EIA will also identify a protocol for where micro-siting avoidance of sensitive features is not possible, including non-licensed precautionary methods of working under the supervision of the ECoW.

³¹ Defined as an area in which there may be ecological receptors subject to changes and subsequent effects as a result of the Proposed Development.

Marshy fritillary are likely to be present in marshy grassland present throughout the Indicative Proposed Alignment. The species may be negatively affected by vegetation clearance required to facilitate the works. However, these areas are considered to be small in scale relative to the extensive habitat that will still remain available. The EIA will identify the need for pre-construction surveys to confirm the presence of sensitive features used for egg laying and foraging. Where micro-siting is not possible, pre-construction surveys would inform non-licensed precautionary methods of working under the supervision of the ECoW.

Invasive species are known to be located across a small extent along the River Orchy. The EIA will identify the requirement for mitigation measures to avoid the spread of invasive species.

No operational impacts associated with the Proposed Development are considered to exist.

5.2.4 Issues Scoped Out

General

It is considered that all ecological features identified within this report could be affected by inappropriate lighting, noise, dust and visual disturbance caused by construction activities, however it is considered reasonable to expect that these potential effects are managed through standard practice construction methods and guidance. In addition, a Construction Environmental Management Plan (CEMP) will be produced, which will capture all mitigation measures required in respect of ecological features, both as a result of the outcome of the EclA and in order to comply with relevant legislation mentioned above, to be implemented on Site. The implementation and audit of these measures will be overseen by an Environmental Clerk of Works (ECoW). With the adherence to a CEMP, as overseen by an ECoW, it is not considered that there is potential for significant impacts. Therefore, no further assessment is proposed.

Designated sites

The closest designated sites to the Proposed Development are 4 km or greater away and are designated for terrestrial features, predominantly associated with the flora. No pathway has been identified for impacts to these features due to the distance they are separated from the Proposed Development. Therefore, it is not considered that there is potential for likely significant impacts, and therefore no Habitat Regulations Assessment is required.

Species

Water voles are known to be present in only one location. With the presence of mink, the population may currently be suppressed within the Site. In addition, large areas of the Proposed Development were considered to have unsuitable habitat for the species. It is therefore considered that no significant impacts will occur to the species from the Proposed Development. Pre-construction surveys outlined above will validate the distribution and abundance of the species to validate the results of the surveys undertaken in 2017.

Once operational, the overhead lines are not considered to limit bat movement through the Indicative Proposed Alignment. It is therefore considered that no significant operational impacts will occur to the species from the Proposed Development.

Mountain ringlet is generally found in the grasslands of upland areas of 350m^{vi} and above; this is upland of the Proposed Development and thus the species is not considered further.

Aquatic ecology - While the Proposed Development would cross over a number of watercourses, the OHL design would aim to locate towers further than 30m from watercourses where possible. It is considered that general mitigation measures to protect watercourses are included within the CEMP on the assumption of the presence of important ecological features (including fish and freshwater pearl mussel). These measures will be consistent with the requirements of SSEN Transmission's GEMP 1 Watercourse Crossings. Provided the CEMP is implemented as required, it is considered likely that no significant impacts will occur to the features from the Proposed Development.

5.2.5 Assessment Scope and Methodology

The Ecological Impact Assessment (EclA) will be completed in accordance with the Chartered Institute of Ecological and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment³². The assessment will use the ecological baseline to identify the important ecological features that could be affected by the construction of the Proposed Development. Important Ecological Features (IEF's) will be assigned a geographic level of importance based on their conservation status and population / assemblage trends and other relevant criteria (including size, naturalness, rarity and diversity). Details of the Proposed Development will then be used to assess what level of effect each receptor is likely to receive and whether that impact will be beneficial or adverse, significant or negligible, and temporary or permanent.

Where appropriate, mitigation measures will be recommended within the EclA to remedy any adverse impacts and measures to enhance the local ecology will also be incorporated. An assessment of cumulative and residual effects will also be undertaken and reported within the EIA Report.

Biodiversity Net Gain (BNG)

A BNG assessment shall be undertaken for the Proposed Development. BNG is a process whereby development leaves biodiversity in a measurably better state than before. The HCA data is combined with habitat distinctiveness, connectivity and strategic significance to determine biodiversity units per habitat polygon. The relative biodiversity value per polygon was indicated by calculating the biodiversity units per hectare (BU/ha). Any irreplaceable habitats identified, including ancient woodland and good/moderate condition blanket bog, were not included in the optioneering toolkit. This is a requirement of the BNG process as it is not possible to compensate for losses to irreplaceable habitat and they are therefore not quantified. This follows UK best practice and the SSEN Transmission BNG guidance.

Surveys

Based on the data collected from the previous consultation and desk based study, together with the extensive habitat and protected species surveys already undertaken, no further surveys are proposed.

However, where new accesses are proposed outwith the survey buffer distances noted above, or existing access routes require notable upgrade, habitat and species surveys will be extended or updated to cover these proposed access routes.

5.2.6 Summary

This report has presented the ecological baseline of the Site and undertaken an initial assessment of the potential impacts of the Proposed Development. This has enabled the scope for the EIA to be refined.

Desk study information has identified statutory designated sites within 10km of the Site. Due to the distance of these sites to the Proposed Development, and a lack of a pathway for impacts identified, it is possible to scope these sites out from further assessment.

The extensive baseline surveys undertaken by WSP (2016,2017) and Ramboll (2020) have provided an in depth understanding of the surrounding habitats. The Proposed Development is situated predominantly on coniferous plantation woodland and open moorland as well as wet habitats associated with the western Atlantic climate. These wet habitats thus have potential for GWDTEs, which have been identified through the NVC surveys. Characterisation of the vegetation through NVC surveys has also identified the potential for Annex I and SBL habitats. These ecological features may be affected by excavation and vegetation clearance works during construction. These potential effects should be considered in further detail within the EIA to establish the potential for significant impacts and identify appropriate mitigation.

Suitable habitat for otter, water vole, bat, badger, red squirrel, pine marten, reptiles and marshy fritillary has been identified within the Site. This habitat is limited for water vole and is the primary reason for this species to be scoped out of the EIA. The EIA Report will identify where species require to be safeguarded through further

³² CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

pre-construction surveys informing appropriate mitigation prior to construction. This information can be captured and administered through a CEMP and SSER Transmission's Species Protection Plans (SPP's) prior to and during construction and audited by an ECoW during and post-construction.

Red squirrel and pine marten may be negatively affected by the Proposed Development during construction and operation. This is due to large areas of coniferous woodland in the southern section of the Indicative Proposed Alignment being dissected by the Proposed Development. This is considered to result in permanent habitat loss, fragmentation and severance. GWDTEs, Annex I and SBL habitats cross large areas of the Site and will be affected by excavation and vegetation clearance works. These potential effects will be considered in further detail within the EIA to establish the potential for significant impacts and identify appropriate mitigation.

5.3 Ornithology

5.3.1 Introduction

The EIA chapter will assess the potential effects on ornithological interests resulting from the construction and operation phase of the Proposed Development. The specific objectives of the assessment would be to:

- Identify where there is potential for significant effects on designated sites (for birds);
- Detail the presence/possible presence of protected bird species and other species of particular conservation value;
- Describe the mitigation measures that have been committed to in order to avoid or reduce impacts; and
- Assess the significance of residual effects that are likely to remain following implementation of mitigation and restoration measures and describe if any result in a significant impact on ornithological features.

5.3.2 Baseline Conditions

The following information has been gathered to inform the baseline ecological conditions of the Proposed Development.

Desk Study

A desk study has been undertaken using the NatureScot SiteLink³³ website to identify designated nature conservation sites (10 km for sites of international³⁴ importance and 2km for those of national³⁵ importance). Special Protection Areas (SPAs), which are of international importance, and Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs) of national importance. In addition, a search for publicly available biological records was undertaken within 2 km of the Proposed Development.

Consultation was undertaken in 2017 with statutory and non-statutory consultees comprising the following:

- Scottish Natural Heritage (NS) (now NatureScot, NS);
- British Trust for Ornithology Scotland (BTO);
- Argyll Raptor Study Group; and
- RSPB Scotland (RSPB).

Consultation

No responses were received from either the BTO or the Argyll Raptor Study Group. RSPB was not undertaking monitoring of birds in the vicinity of the Site, and thus was unable to provide any further information. NS stated that they were in agreement with the range of surveys, survey methodologies and survey effort proposed for surveys undertaken between 2016 and 2017 (see below) and provided additional confidential information on golden eagle *Aquila chrysaetos* in relation to areas within the Glen Etive and Glen Fyne SPA. One vantage

³³ <https://sitelink.nature.scot/home>

³⁴ i.e. Special Protection Areas (SPAs) and Ramsar sites

³⁵ i.e. Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs)

point used for the Flight Activity Survey was discussed and changed with agreement of NS during changes to the design of the Proposed Development during the period of the surveys.

Statutory Designated Sites

The Proposed Development is bordered to the north and south-west by the Glen Etive and Glen Fyne SPA, designated for breeding golden eagle (**Figure 5.5**). The Proposed Development passes to the west of the SPA. Under the requirements of the Conservation (Natural Habitats, &c.) Regulations 1994 (Habitat Regulations) it is necessary to consider whether the Proposed Development will have likely significant effects upon the SPA. A Habitat Regulations Appraisal (HRA) screening assessment will be undertaken during the EIA reporting process to identify any likely significant effects³⁶ of the Proposed Development on the SPA.

Non-statutory Designations

There are no non-statutory designations for ornithological interest with potential connectivity to the Proposed Development.

Field Survey

Field surveys were undertaken by WSP ecologists between May 2016 and September 2017. The surveys included a Flight Activity Survey (FAS); Black Grouse Survey, Breeding Scarce Raptor Survey; Breeding Bird Survey; and Breeding Diver Survey (hereafter collectively referred to as the ornithological surveys).

The Flight Activity Survey consisted of undertaking watches during the breeding and non-breeding seasons between May 2016 to August 2016 and April 2017 to August 2017, and September 2016 to March 2017 (respectively); at two vantage points (VP) where the VP2 was required to be moved on two occasions to adequately cover the changing design and as agreed with NS.

These survey locations are shown on **Figure 5.6**:

- VP1 (British National Grid Reference [BNG]): NN 16101 28717; and
- VP2 (BNG): NN 12717 24327; NN 13710 22015, and NN 12918 23067.

The VP locations were designed to focus on all proposed OHL route options (as of May 2016) with an additional survey area of 500 m (and up to 2 km for larger species, e.g. golden eagle), following methods outlined in NS guidance documents (NS 2014; NS 2016^{viii}). A total of 32 flights were recorded during the flight activity surveys, comprising the following species; greylag goose *Anser anser*, cormorant *Phalacrocorax carbo*, mallard *Anas platyrhynchos*, oystercatcher *Haematopus ostralegus*, curlew *Numenius arquata*, snipe *Gallinago gallinago*, hen harrier *Circus cyaneus*, Merlin *Falco columbarius*, peregrine falcon *Falco peregrinus*, golden eagle *Aquila* and white-tailed eagle *Haliaeetus albicilla* (**Figure 5.7**).

Black Grouse Surveys included consideration of all proposed OHL route options under consideration in 2016 plus a 1.5 km buffer area (hereafter referred to as the Black Grouse Survey Area). Methods followed those outlined in Gilbert *et. al.* 1998^{viii}. Two black grouse leks were recorded during the surveys, outwith the route options corridor, in open moorland south of the River Orchy, shown on **Figure 5.8**. The first is located near Barran, near the Teatle Water and the second south-west of Cladich near the southern end of the route alignment.

Breeding Scarce Raptor Surveys consisted of all proposed OHL route options under consideration in May 2016 plus a 2 km buffer area (hereafter the Breeding Scarce Raptor Survey Area). Four visits were undertaken between May and August 2016 (inclusive) by experienced observers under a Schedule 1 Licence (NS licence number 75334). Methods followed those outlined in Hardey *et. al.* (2009)^{ix}. Three individual records of peregrine falcon, merlin and golden eagle were recorded during the scarce raptor breeding survey (**Figure 5.9**). All records were found outwith and south of the route options corridor, and all but merlin were within the Glen Etive and Glen Fyne SPA, where merlin was less than 500 m north of the designated site boundary. None of

³⁶ Without mitigation, as per updated legislation.

the birds were displaying behaviour indicative of breeding, however the merlin record was located in suitable breeding habitat.

A Breeding Bird Survey (BBS) was undertaken for the preferred route options plus a 500 m buffer (hereafter the BBS Survey Area). A total of four visits were undertaken between April and July 2017. Methods followed NS (2014*) and used an adapted method of Brown and Shepherd (1993)^{xi}. Altogether 33 breeding bird territories were recorded in the BBS survey area, comprising the following species; common buzzard *Buteo buteo*, common sandpiper *Actitis hypoleucos*, curlew, oystercatcher, snipe, mallard, goosander *Mergus merganser*, great black-backed gull *Larus marinus* and sand martin *Riparia riparia* (**Figure 5.10**).

Breeding diver surveys consisted of all water bodies within 1 km of proposed OHL route options under consideration in May 2016 (hereafter the Breeding Diver Survey Area). Surveys consisted of identifying nesting locations and habitual flight routes. Surveys followed methods outlined in Gilbert *et. al.* (1998). No observations of divers were recorded in the survey area.

Additional Breeding Scarce Raptor Surveys were undertaken by Ramboll UK Ltd (Ramboll) ornithologists in spring/summer 2019 and 2020. These surveys were undertaken from a variety of locations, shown on **Figure 5.11** and listed below.

- BR1 (BNG): NN 14333 26078 – (Monument);
- BR2 (BNG): NN 11654 22137 (Creag Bracha) and alternate location NN 12474 22652; and
- BR3 (BNG): NN 08177 18880 (Creag Dubh).

These surveys recorded flights of white-tailed eagle, golden eagle and honey buzzard. During summer 2020 a white-tailed eagle nest was identified approximately 500 m from the Proposed Development.

A further programme of FAS was undertaken by Ramboll UK Ltd ornithologists between October 2019 and September 2020 to record flight activity associated with the Proposed Development from tower 33 eastwards to the proposed Glen Lochy switching station. Two VP locations (**Figure 5.12**) were identified that provide a representative coverage of this section of the Proposed Development:

- VP1 (BNG): NN 14590 25065; and
- VP2 (BNG): NN 18826 25230.

These surveys recorded low levels of flight data from target species. Flights of black grouse, merlin and hen harrier were recorded. Notably, no golden eagle flights were recorded during the year of surveys.

5.3.3 Sensitive Receptors

As a result of the information provided by the desk-based study and field surveys, the following ornithological features are considered to be of sufficient sensitivity to warrant inclusion in the EIA:

- designated sites, where qualifying species have potential connectivity with the Proposed Development and where surveys recorded flights of qualifying species within the Proposed Development, i.e. Glen Etive and Glen Fyne SPA. This area is protected under the European Commission Council Directive 2009/147/EC (Birds Directive), which places importance on the protection of habitats for endangered and migratory species. Designated sites are also protected under Council Directive 92/43/EEC (Habitats Directive);
- Golden eagle, included on Schedule 1 of the Wildlife and Countryside Act 1981;
- Hen harrier, included on Schedule 1 of the Wildlife and Countryside Act 1981 and are a red-listed species of bird of conservation concern^{xii};
- Peregrine, included on Schedule 1 of the Wildlife and Countryside Act 1981
- Merlin included on Schedule 1 of the Wildlife and Countryside Act 1981 and are a red-listed species of conservation concern;
- Osprey, included on Schedule 1 of the Wildlife and Countryside Act 1981 and are an amber-listed species of conservation concern;

- White-tailed eagle, included on Schedule 1 of the Wildlife and Countryside Act 1981 and are a red-listed species of conservation concern;
- Wintering wildfowl and waders, susceptible to collision with powerlines, several species which are included on Schedule 1 of the Wildlife and Countryside Act 1981, such as greylag goose. Several species of which are amber listed species of conservation concern (Greylag goose, mallard, oystercatcher, snipe, common sandpiper, great black-backed gull) and curlew are a red-listed species of conservation concern; and
- Black grouse are a red-listed species of conservation concern.

5.3.4 Potential Significant Effects

The assessment will consider the potential for significant effects associated with:

- indirect effects on designated sites;
- the killing, injury or temporary disturbance (or displacement) of nationally and internationally protected species of bird during construction or through collision with conductors or the earth wire during the operational phase of development; and
- cumulative effects from other developments, either built or proposed, within the zone of influence for ornithological features identified as sensitive receptors of the Proposed Development. Potential impacts of the Proposed Development would be assessed both in addition and in-combination with the impacts identified from other developments to identify the potential for significant cumulative effects.

5.3.5 Issues Scoped Out

Barrier Effects

A barrier effect would be where the vertical configuration of wires and towers creates an actual or perceived barrier which bird species may not cross, or at the very least would need to habituate to crossing.

There are two existing 275kV OHL in proximity to the Proposed Development. One is located towards the southern end of the Proposed Development, and the other to the north near Dalmally. This suggests that birds would habituate/have already habituated to the presence of an OHL and would not treat it as a barrier. In addition, birds are considered likely to avoid the operational structure, which will be highly visible within the surrounding, predominantly open landscape. Therefore, the effect of this impact is of negligible significance.

Electrocution

Bird electrocution on OHLs is possible either where a bird can touch a conductor while it is perched on an earthed tower, touch a conductor and the earth wire simultaneously or touch two conductor wires simultaneously. The configuration of the wires and towers of the Proposed Development means that none of these scenarios are possible as the gaps between conductors and perch points would be greater than any bird wingspan.

Habitat Loss (Construction and Operational Phase)

Both permanent and temporary habitat loss and habitat modification due to vegetation management or hydrological change would be assessed in the chapter dealing with non-avian ecology. The levels of habitat loss and / or modification associated with tower and track construction and operational are low and are not considered to represent a likely significant loss and / or modification of bird habitat.

Disturbance (Operational Phase)

When operational, the Proposed Development would require very occasional visits by site personnel both on foot and in vehicles for maintenance activities. While the Proposed Development may also result in disturbance arising from noise and visual effects associated with the wires, the magnitude of these potential impacts is considered too low to cause a significant effect.

5.3.6 Assessment Scope and Methodology

The ornithological impact assessment would be completed in accordance with the Chartered Institute of Ecological and Environmental Management (CIEEM) Ecological Impact Assessment Guidance³⁷. The assessment will use the ornithological baseline to identify the IEF's that could be affected by the construction of the Proposed Development. IEFs will be assigned a geographic level of importance based on their conservation status and population/assemblage trends and other relevant criteria (including size, naturalness, rarity and diversity). Details of the Proposed Development will then be used to assess what level of effect each feature is likely to receive and whether that impact will be beneficial or adverse, significant or negligible, and temporary or permanent. Where appropriate, mitigation measures would be recommended to remedy any adverse impacts. An assessment of residual effects and cumulative effects would then be undertaken and reported within the EIA Report.

Collision Risk Methodology

As per the SSEN Transmission Ornithology Methods for Transmission Developments Guidance, the requirement for, and method of Collision Risk Modelling will be agreed with NatureScot.

Methodology for Provision of Information for Appropriate Assessment

Where the Proposed Development is considered likely to have a significant effect on an SPA, there is a requirement for the Scottish Ministers (in consultation with NatureScot) to complete an Appropriate Assessment as part of the HRA process.

Based on the data collected from the consultation and desk based study, together with a review of relevant data already obtained on the Site, an HRA screening assessment of the Proposed Development in relation to the potential for Likely Significant Effects on the Glen Etive and Glen Fyne SPA will be required. The HRA will utilise data pertaining to golden eagle presented in this report as well as external data sources such as confidential golden eagle range reports provided by NatureScot. A study to inform any Appropriate Assessment would be provided as part of the EIA, taking account of the potential for connectivity with the SPA.

Survey

No further survey is considered necessary at this time.

5.3.7 Summary

The scoping exercise has reviewed the ornithological features within the zone of influence of the Proposed Development and has identified those that have the potential to be impacted. These include the Glen Etive and Glen Fyne SPA, Schedule 1 species, such as golden and white-tailed eagle, and birds of conservation concern, such as black grouse. The likely direct and indirect potential impacts of the Proposed Development on these features would be assessed and mitigation measures, where appropriate, would be proposed to prevent, reduce or offset any likely significant adverse effects identified. Cumulative effects from other developments would also be considered in relation to the Proposed Development.

³⁷ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

6. LAND USE

6.1 Baseline Conditions

Agriculture in the area typically comprises cattle and sheep holdings. The James Hutton Institute Land Capability for Agriculture in Scotland classifies the majority of land in the region as either Land Capable of supporting Improved Grassland (Class 5.2 or 5.3) or Land Capable of supporting on Rough Grazing (Class 6.1 to 6.3).

As illustrated in **Figure 5.2: Phase 1 Habitat Survey**, a significant proportion (**Table 6.1**) of the Proposed Development passes through areas of productive coniferous woodland plantation, including some areas that have been recently felled. Productive conifer plantations are dynamic with their structure undergoing change through planned felling and replanting, or in reaction to natural events such as wind throw or pests and diseases. First rotation forests are required to improve the biodiversity with age and species diversity as determined by the UK Forestry Standards (UKFS)³⁸. This process is referred to as “restructuring”. Further research is required to determine the forest units present and to map the differing stages of restructuring. With 8.8% of those in employment in agriculture, forestry and fishing, Argyll and Bute has relatively high levels of employment in this industry³⁹.

Table 6.1: Woodland removal required

Type of Woodland	Estimated Area ⁴⁰ to be Felled (ha)
Semi-natural Broadleaved Woodland	8.646218299
Plantation Broadleaved Woodland	0.057601153
Plantation Coniferous Woodland	33.68352019
Scattered Scrub	1.572768304
Felled Coniferous Woodland	5.886447402
Felled Mixed Woodland	8.335400712

6.2 Sensitive Receptors

No land capable of supporting Arable Agriculture (Class, 1, 2 or 3) has been identified, therefore the agricultural land within the vicinity of the Proposed Development is of low sensitivity.

Given the dynamic nature of productive forests, which are subject to restructuring, the environmental sensitivity of the forest as a commercial asset and land use is low. There are small and localised areas of Ancient Woodland present and these are of high sensitivity. The assessment of effects on Ancient Woodland would be picked up through the biodiversity section of the EIA Report.

6.3 Potential Significant Effects

6.3.1 Agricultural Land

On the basis that the agricultural land within the Proposed Development is of low sensitivity and that only a small proportion of the area of the IAV (access tracks and tower bases) would be affected, the Proposed Development would not result in significant effects across the entire resource.

Construction work may result in some local temporary loss of land or access restriction; however, this can be adequately managed through agreements with the relevant land owners. Areas around Uachdar Mhaluidh would be impacted during construction and there may be future limitation to crofting activity. In general, the

³⁸ Forestry Commission. (2017) *The UK Forestry Standard*: Edinburgh

³⁹ Argyll and Bute Council. Economy. Table of Employment by Industry 2018. https://www.argyll-bute.gov.uk/info/economy?_sm_a_u_=iVVV6S2QTNSDNj7r [Accessed 17/11/2020].

⁴⁰ Based on a 80 m corridor (40 m either side of the tower centre line) of forestry clearance.

permanent loss of land to tower locations would be negligible and it would remain possible for grazing to continue around and under towers during their operational lifetime.

6.3.2 Forests

The Applicant is required to create safe operational corridors for construction and operation through the woodland areas identified. The typical operational corridor required within areas of commercial forestry is 80 m. The Operational Corridor is defined with reference to the distance at which a tree could fall and cause damage to the overhead line, resulting in a supply outage ⁴¹. As a result, the final corridor width would be based on the safety distance required to allow for a mature tree falling towards the OHL at the mid-point on a span between two towers, taking account of topography and tree height at maturity. On the basis that SSEN Transmission will provide compensatory planting in accordance with the Scottish Government's Control of Woodland Removal Policy (CoWRP)⁴² for all permanent woodland removal required to create the operational corridor, there would be no likely significant effect on the productive conifer plantation forest resource.

6.4 Issues Scoped Out

Overall, the Proposed Development would not impinge on land owner choice over the type or intensity level of land operations and would not require any significant management changes. As such, no further assessment of land use or agriculture is, therefore it is scoped out of the EIA.

On the basis that felling proposals to create the operational corridor will be supported by a commitment to comply with CoWRP, there would be no likely significant effects on the productive conifer plantation resource.

It is noted that the UKFS identifies seven elements of sustainable forest management, as follows:

- Forests and Biodiversity;
- Forests and Climate Change;
- Forests and Historic Environment;
- Forests and Landscape;
- Forests and People;
- Forests and Soil; and
- Forests and Water.

The potential environmental impacts and likely significant effects associated with the seven elements of sustainable forest management will be considered within the individual topic chapters proposed for inclusion in the EIA Report, rather than in a Forestry chapter.

6.5 Assessment Scope and Methodology

While likely significant effects on the forest resource are not anticipated, SSEN Transmission is committed to the development of OHL Woodland Reports for each forest ownership impacted by the Proposed Development. The OHL Woodland Reports will identify all areas of felling required to form the operational corridor and access corridors. In addition, the OHL Woodland Reports will aim to reduce the risk of future wind throw by identifying felling to stable forest edges (outside of the operational corridor). Consideration would also be given to maintaining the viability of forest units as productive plantations through the avoidance of fragmentation. The OHL Woodland Reports would also include but are not limited to seeking to agree a forest landscape design following good practice as defined by Forestry Commission guidance (2014)⁴³. It is noted that felling outwith the Proposed Development operational corridor or proposed access track corridors is not within the scope of this EIA or the proposed application for consent.

⁴¹ As specified by the 'red zone' set out in paragraph 39 of the Forest Industry Safety Accord (2013) Electricity at work: Forestry, FISA Safety Guide 804: URL: <https://www.ukfisa.com/assets/files/safetyLibrary/FISA%20804%20-%20Electricity.pdf> (Accessed 08/03/2018)

⁴² Forestry Commission Scotland. (2009) *The Scottish Government's Policy on Control of Woodland Removal*. Edinburgh

⁴³ Forestry Commission (2014) Design Techniques for Forest Management Planning. URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/689922/Design_techniques_for_forest_management_planning.pdf (accessed 02/12/2020)

6.6 Summary

The scoping exercise has reviewed the current land use within the zone of influence of the Proposed Development and has confirmed that the presence of low sensitivity agricultural land use and productive conifer plantation woodland. The likely impacts of the Proposed Development on agricultural land use would potentially be localised loss of grazing access during construction; however, it is anticipated that normal farming activities would be able to resume once the Proposed Development is in operation. No likely significant effects are anticipated on agricultural land use and no further assessment is proposed.

The likely impacts of the Proposed Development on productive conifer plantation land use would be related to the permanent felling of an operational corridor and access track corridors. On the basis that permanent felling would be approved subject to compliance with CoWRP, no likely significant effects are anticipated. Further information to be provided in the EIA Report would be in the form OHL Woodland Reports.

7. SOIL

7.1 Introduction

This EIA scoping chapter will assess the potential effects relating to Geology and Soils in relation to the construction and operation of the Proposed Development.

7.2 Baseline

The 1:625,000 and 1:50,000 scale geological mapping available from the British Geological Survey (BGS)⁴⁴ shows the majority of the site to be underlain by Diamicton Till, with small areas of peat or absent of superficial geology. These are underlain by psammite, semipelite and pelites of the Argyll Group, interspersed with areas of unnamed igneous intrusions.

NatureScot carbon rich soils, deep peat and priority habitat mapping⁴⁵ shows the area between T33 and Glen Lochy as predominantly 'Class 5' soils, particularly in areas covered by commercial plantation, which are defined as mineral or peat soils with no peatland vegetation. Large areas of 'Class 2' and 'Class 3' soils are present in the open areas around Creag a'Mhaol-diridh which are not dominated by commercial plantation. Class 2 soils are of national importance and are defined as peat soils with high potential to be restored to peatland.

The preferred OHL alignment between T1 and T33 is predominantly comprised of either 'Class 5' soils where it crosses commercial plantation, or areas where no peatland or carbon rich soils are mapped. Small areas of 'Class 2' and 'Class 3' soils are present in the areas south of Cladich, and north of the Allt Fearna burn.

7.3 Sensitive Receptors

Peat is the main sensitive receptor which will be considered in the EIA. Peat is considered in relation to ground stability risk assessment, assessment of peat volumes, reuse of excavated peat and minimisation of waste. This would be linked to the carbon calculator to assess impacts of the scheme on peat removal. Where there are interactions between peat issues and hydrology and ecology, liaison with these disciplines will be undertaken.

7.4 Potentially Significant Effects

The Proposed Development has the potential to result in the disturbance, loss or erosion of peat. The design of the Proposed Development would avoid the presence of peat and carbon rich soils where practicable. Where this is not possible the design will consider minimising the potential effects on peat through:

- avoiding areas of deeper peat,
- implementing suitable mitigation measures for reducing peat generation, and
- implementing appropriate measures for storage and re-using carbon rich soils.

This will be summarised as part of an outline Peat Management Plan (PMP) to be provided with the EIA Report, with a more detailed PMP developed prior to construction.

7.5 Issues Scoped Out

Given the current and historic land use of the site it is not considered that contaminated land assessment is required and is scoped out.

7.6 Assessment Scope and Methodology

A peat depth survey (Stage 1 & 2) will be undertaken across the developable areas of the site to prove presence/absence of peat, and its depth where present. Results to be analysed to provide detailed design of peat depth and condition to inform a Peat Landslide Hazard Risk Assessment (PLHRA) and access track design. This would be used to inform the constraints map and scheme design.

⁴⁴ <https://mapapps.bgs.ac.uk/geologyofbritain/home.html>

⁴⁵ Scottish Natural Heritage. (2016). Carbon and Peatland 2016 map (http://map.environment.gov.scot/soil_maps/)

A material balance will be provided to demonstrate how excavated soils and peat will be re-used on site and how any surplus carbon rich soils and peat will be managed. This will be presented within an outline PMP as an appendix to the EIAR chapter.

7.7 Summary

It is proposed that the geology soils chapter will review the geological conditions at the site, specifically regarding peat and carbon rich soils. Contaminated land is scoped out of the assessment.

The assessment will consider the potential effects on peat and carbon rich soils, and measures to minimise its disturbance, erosion and loss as part of the Proposed Development. An outline PMP will be produced as an appendix to the EIAR which will include the materials balance and mitigation measures to manage peat during construction and operation of the Proposed Development.

8. WATER ENVIRONMENT

8.1 Introduction

This chapter will assess the potential effects relating to Hydrology and Hydrogeology in relation to the construction and operation of the Proposed Development. This chapter is supported by the following **Figure 8.1: Surface Water Features**.

8.2 Baseline

The river catchments that the Proposed Development passes through predominantly drain to Loch Awe and are catchments of the River Orchy, Teatle Water and the Cladich River; in addition to smaller watercourses including Allt Fearn, Eas nan Ruadh, Allt Mhualuidh, Allt Fearn and Allt Fhuaran and other unnamed watercourses (**Figure 8.1**). With exception to this, the southern-most section of the OHL and the Creagh Dubh Substation site are located within the River Aray catchment, which drains southwards to Loch Fyne.

The Proposed Development is entirely underlain by the Oban and Kintyre ground water body (SEPA River Basin Management Plan (RBMP) ID 150698⁴⁶). The RBMP classifies the Cladich River (ID 10281) as being in moderate overall condition, downgraded on the basis of water flows and levels which cannot be addressed due to its role in hydroelectricity generation. The Teatle Water (ID 10282) is classified as being in overall good condition, and the River Orchy (ID 10285) in overall moderate condition downgraded because of ecology. Loch Awe (ID 100585) is classified as being in overall good condition but is classified as having moderate water quality related to hydroelectricity production. The Proposed Development will pass through a drinking water protection zone⁴⁷ near the Cladich River.

A review of the Hydrogeological Map of Scotland indicates that the site is underlain by impermeable rocks, generally without groundwater except at shallow depth. Argyll and Bute Council will be contacted to determine the location and nature of any private water supplies in proximity to the Proposed Development, but an initial review of private water supplies, water abstraction authorisations and drinking water protected areas indicates that there are private water supplies, a public water surface water abstraction and drinking water protected areas that would require consideration and protection.

A review of SEPA's Flood Risk Mapping⁴⁸ has indicated that some sections of the Proposed Development are classified as having a high likelihood of river flooding (on average once in every ten years), notably the Cladich River, Allt Fearn, Teatle Water and River Orchy and Allt Fearn. There are also discrete pockets of surface water flooding across the length of the Proposed Development.

The description of the hydrological baseline considers the area along the Proposed Development as well as downstream receptors and the hydrological catchment that it sits within.

Information on potential GWDTEs will be obtained from the ecological surveys (**Chapter 5: Biodiversity**). Additional fieldwork may be necessary to confirm their status, and any river crossings that may be required; the need for any such work as part of the EIA process will be determined in consultation with SEPA and NS.

8.3 Sensitive Receptors

The sensitive receptors considered in the EIA include:

- Surface water bodies (quality and quantity);
- Ground water bodies (quality and quantity);
- Private water supplies and abstractions; and

⁴⁶ SEPA River Basin Management Plan. Water Environment Hub. <https://www.sepa.org.uk/data-visualisation/water-environment-hub/> [Accessed: 18/11/2020].

⁴⁷ Scottish Government. Drinking water protected areas – Scotland river basin district: maps. <https://www.gov.scot/binaries/content/documents/govscot/publications/map/2014/03/drinking-water-protected-areas-scotland-river-basin-district-maps/documents/surface-water-maps/f9cd68d5-a8c1-4f24-93f6-189435d266fd/f9cd68d5-a8c1-4f24-93f6-189435d266fd/govscot%3Adocument/DWPA%2B-%2BScotland%2BRBD%2B-%2Bsurface%2Bwater%2B-%2Bmap%2B%2Bof%2B22.pdf> [Accessed: 18/11/20].

⁴⁸ SEPA Flood Maps. <https://map.sepa.org.uk/floodmap/map.htm> [Accessed: 18/11/2020]

- GWDTEs.

8.4 Potentially Significant Effects

The following discussion of potentially significant effects assumes that all embedded mitigation by design and appropriate construction methodologies are in place.

The Proposed Development may affect local hydrology and hydrogeology in a number of ways, including:

- Temporary (construction phase) pollution of surface watercourses and groundwater, and subsequent impacts on quality of private water supplies and other abstractions. There is a potential risk of sediment generation associated with tower and access track construction; and dewatering from borrow pits (if required). There is also the potential for chemical pollution from construction vehicle/equipment fuels and lubricants and use of cement for foundation construction. The risk is increased should construction be taking place in a flood risk area during a flood event.
- Interruption of supply or impacts on the quality of private water supplies/abstractions and GWDTEs associated with temporary stone tracks and tower foundations affecting subsurface flows and hydraulic connectivity. Where these sensitive receptors are identified within 250 m of the tower foundations, or 100m of temporary access tracks a technical report will be prepared to accompany the EIA Report to demonstrate how the abstraction or GWDTE would be protected.

8.5 Assessment Scope and Methodology

It is proposed that a focussed hydrological and hydrogeological impact assessment is provided. The assessment will be used to identify key interactions between the Proposed Development and the water environment. In doing so, the EIA chapter will identify the requirement for construction mitigation measures and provide an initial assessment of the requirements under the Controlled Activities Regulations.

The proposed technical reports to accompany the EIA Report are as follows and will inform design and construction mitigation:

A: Watercourse Crossing Assessment: A site survey of existing water features will be undertaken and a map of the location of all proposed engineering activities in the water environment provided. A systematic table detailing the justification for the activity; possible crossing types and level of CAR authorisation; and how any adverse impact will be mitigated will be included, accompanied by photography and dimensions. This will be presented as an appendix to the Proposed Development Chapter. The crossings for this project are anticipated to be related to temporary access tracks.

B: GWDTE Assessment: Where GWDTEs are identified within 250m of the tower foundations or borrow pits, or 100m of temporary access tracks, a technical report will be prepared to accompany the EIA Report to demonstrate how the GWDTE would be protected (i.e. prevention of the development of preferential pathways for groundwater and significant drying of GWDTE), in accordance with SEPA Guidance Note 31 (LUPS-GU31). This will be presented as an appendix to the Biodiversity Chapter.

C: Groundwater Abstraction Protection: Where groundwater private water supplies or other abstractions are identified within 250m of the tower foundations or borrow pits, or 100 m of temporary access tracks a technical report will be prepared to accompany the EIA Report to demonstrate how the abstraction will be protected, in accordance with SEPA Guidance Note 31 (LUPS-GU31). This will be presented as an appendix to the Proposed Development Chapter.

8.6 Summary

As discussed above, it is proposed that a focused hydrological and hydrogeological impact assessment be provided. Technical reports will be provided to inform the design (primary mitigation) and to ensure that the requirements of the statutory consultees are fully met as follows:

- Watercourse Crossing Assessment;
- GWDTE Assessment (if required); and

- Groundwater / Private Water Abstraction Protection (if required).

9. AIR AND CLIMATE

9.1 Climate Change

9.1.1 Baseline Conditions

The Climate Change (Scotland) Act 2009⁴⁹ requires an 80% reduction in GHG emissions in Scotland by 2050, compared to the 1990-1995 baseline. The Scottish Government has since passed the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 which has set a target of reducing domestic emissions to net zero by 2045. The Scottish Government has set annual targets⁵⁰ shown in **Table 9.1** below

Table 9.1: Annual GHG Emission Targets for Scotland

Year	Annual Target (tCO ₂ e)	% reduction from baseline
2019	41,976,000	-46%
2020	40,717,000	-47%
2021	39,495,000	-49%
2022	38,310,000	-50%
2023	37,161,000	-52%
2024	35,787,000	-54%
2025	34,117,000	-56%
2026	32,446,000	-58%
2027	30,777,000	-60%
2028	29,854,000	-61%
2029	28,958,000	-62%
2030	28,089,000	-64%
2031	27,247,000	-65%
2032	26,429,000	-66%

The UK climate change risk assessment⁵¹ details some of the hazards related to climate change of most relevance to the Proposed Development. The hazards include:

- increased precipitation (heavier rainfall) leading to potential flooding and erosion;
- higher extreme temperatures leading to risks associated with wildfire or risks to the grid connection;
- increased severity of storms with the potential for damage to plant and infrastructure.

There are no Air Quality Management Areas (AQMAS) in the Argyll and Bute Council area, indicating that the area is meeting national air quality objectives and European directives⁵² limits and target values for the protection of human health.

9.1.2 Sensitive Receptors

In the context of the EIA process, climate change is required to be assessed both in relation to the contribution of the Proposed Development to increasing the nature and magnitude of greenhouse gas emissions and the vulnerability of the Proposed Development to climate change.

⁴⁹ Climate Change Plan. The Third Report on Proposals and Policies 2018-2032. Scottish Government, 2018. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/corporate-report/2018/02/scottish-governments-climate-change-plan-third-report-proposals-policies-2018/documents/00532096-pdf/00532096-pdf/govscot%3Adocument/00532096.pdf> [Accessed on 23/03/2020].

⁵⁰ Climate Change Plan. The Third Report on Proposals and Policies 2018-2032. Scottish Government, 2018. Available at: same as above
⁵¹ URL: <https://www.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Scotland-National-Summary.pdf> (accessed 24/3/2020)

⁵² Directive 2008/50/EC, Directive 2004/107/EC and 2001/81/EC

The key receptors for air quality are the population (from a human health perspective), flora and fauna (from a biodiversity perspective).

9.1.3 Potential Significant Effects

Climate Change

IEMA guidance⁵³ indicates all GHG emissions should be considered as significant; however in this case it is anticipated that the Proposed Development will result in a net-reduction/saving of GHG emissions. While the construction of the OHL is likely to contribute to greenhouse gas emissions from vehicles during construction and the carbon footprint (embodied carbon) of the materials required to build the OHL, the Proposed Development is required to provide capacity for connection of distributed renewable energy generation to the electricity transmission network. As a such, while not quantified, the Proposed Development is a nationally significant development in planning terms and will play an important role in facilitating the transition to net zero emissions. On this basis, given that there would be no significant GHG emissions, a climate change assessment to consider GHG emissions is not proposed.

Climate Change Hazard Vulnerability

The vulnerability of the Proposed Development to climate change hazards is low on the basis that the design (which will be set out in the EIA Report) will specifically include embedded mitigation to ensure that significant effects are avoided or reduced to a tolerable level. A detailed assessment of the vulnerability of the Proposed Development to climate change hazards is not proposed.

Air Quality

The Proposed Development is not considered to give rise to significant effects to air quality. There is the potential for some localised and temporary construction related air quality effects associated with dust (foundation construction, passage of vehicles along access tracks) and construction plant and traffic exhaust emissions. However, the nature of the construction activities is that they will be short in duration, intermittent and controllable through the application of good construction practice. Once the Proposed Development is operational there is no potential for significant air quality effects.

The potential for nuisance effects on residential or recreational amenity will be limited and will be strictly controlled in accordance with a detailed CEMP.

The Proposed Development will not result in significant adverse effects on air quality during the construction and operational phases. Therefore, this issue is scoped out of the EIA and no further assessment of air quality is proposed as part of the EIA Report.

9.1.4 Issues Scoped Out

The Proposed Development would not result in significant adverse effects on air quality or climate change during the construction or operational phases. The Proposed Development would contribute to connecting renewable electricity generation capacity to the transmission network, in turn displacing emissions associated with fossil fuel based electricity generation elsewhere. As such, this issue is scoped out of the EIA and no assessment of air quality and climate change is proposed as part of the EIA Report.

⁵³ IEMA (2017). Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available at: <https://www.iema.net/assets/newbuild/documents/IEMA%20GHG%20in%20EIA%20Guidance%20Document%20V4.pdf>. [Accessed 24/03/2020].

10. MATERIAL ASSETS

10.1 Socioeconomics, Recreation, and Tourism

10.1.1 Baseline Conditions

The economy in the region is predominantly service based, with over 87% of employee jobs in the area within the service sector. The region also has relatively high levels of employment in agriculture, forestry, fishing and manufacturing and low levels of employment in finance. Tourism-related activities i.e. accommodation and food services equate to 12.5% of jobs in the area⁵⁴.

The main settlements close to the Proposed Development include Dalmally and Loch Awe. There are smaller clusters of development at Cladich to the south of Proposed Development and along the shore to Ardbrecknish, with further properties scattered along either side of the loch and a small number of isolated properties in the edges of the upland areas.

The roads within the study area (A85, A819, B840, B8074 and B8077) generally follow the main valleys and the shoreline of Loch Awe and are all used by tourists, although the B8074 and B8077 less so than the others. The railway to Oban runs parallel to the A85. There are walking and cycling routes, visitor attractions and activities throughout the area including Kilchurn Castle, St Conan's Kirk, Ben Cruachan and Beinn Eunaich, and Loch Awe itself.

10.1.2 Potentially Significant Effects

Potential effects may include:

- potential beneficial socio-economic effects including from direct employment and indirect spend in the local economy;
- temporary loss of amenity resulting from construction traffic and construction activity close to recreational routes and settlements; and
- loss of visual amenity for recreational routes and tourism receptors resulting from the installation of steel-lattice towers.

10.1.3 Issues Scoped Out

The Proposed Development would result in the creation of temporary jobs during the construction period. It is envisaged that a small proportion of the workforce would be from the local area. In addition, there would be potential beneficial effects through temporary increased spending on the supply of goods and services during construction. It is anticipated that these effects, while beneficial, are unlikely to be significant beyond the local area.

In the long term, the Proposed Development would ensure security of electricity supply to the region and facilitate the increase in renewable generation planned for the area. These beneficial effects will be highlighted within the EIA Report, however no separate impact assessment chapter is proposed to cover these issues.

The potential effects on visual amenity for tourism and recreational routes and receptors will be fully assessed in the EIA Report as part of the LVIA (**Chapter 12**). The potential for effects on core paths and national cycle routes would be included as part of the Traffic and Transport assessment (**Section 10.2**) and would be managed according to an outline Traffic Management Plan (TMP). Therefore, no separate recreation and tourism assessment is proposed in the EIA Report.

⁵⁴ Argyll and Bute Council, employment. Office Business Register and Employment Survey 2018. https://www.argyll-bute.gov.uk/info/economy?_sm_a_u_=iVVV6S2QTNSDNj7r [Accessed; 18/11/2020]

10.2 Traffic and Transport

10.2.1 Introduction

This section will assess the potential effects on Traffic and Transport in relation to the construction phase of the Proposed Development. Traffic associated with the operation of the Proposed Development will be negligible and is therefore not proposed to be included within the EIA process.

The assessment will be based on the effect of Heavy Goods Vehicles (HGVs), delivery vehicles and private car movements during the construction of the Proposed Development.

The traffic and transport chapter will:

- address potential disruption to pedestrians, cyclists and existing road users during the construction phase;
- assess changes to local traffic flows during the construction phase;
- assess the effect of the changes on the transport network and the level of significance of any effects established; and
- take account of the objectives of the local and strategic policy.

10.2.2 Baseline Conditions

The main roads in the study area are as follows:

- A-roads: A85 (from Dalmally to Lochawe) and A819 (A85 Dalmally to Taynafead);
- B-roads: B840 (from A819 Cladich to Ardchonnell) and B8077 (from A85 Kilchurn to A85 Dalmally); and
- Numerous minor roads and tracks which branch from the aforementioned A and B roads.

Existing traffic flow information would be requested from Argyll and Bute Council, Transport Scotland and the Department for Transport (DfT) open traffic count site. Should there be a requirement for new traffic count data, this would be obtained through the use of a week-long deployment of Automatic Traffic Counters (ATC).

Up to seven locations for traffic surveys are proposed covering the A85, A819, B840 and B8077. The precise location and number of these count sites will be agreed with Argyll and Bute Council and Transport Scotland during detailed transport discussions.

The baseline data will be adjusted to an agreed future base case using Low Growth National Road Traffic Forecast (NRTF) estimates.

High level accident data would be sourced from Crashmap.co.uk, an online accident review resource, and if required more detailed Personal Injury Accident (PIA) data obtained from Transport Scotland.

10.2.3 Sensitive Receptors

The methodology which would be used in this assessment adheres to that set out in the IEMA Guidelines. Paragraph 2.5 of the IEMA Guidelines identifies groups, locations and special interests which may be sensitive to changes in traffic conditions as follows:

- People at home;
- People in work places;
- Sensitive groups including children, elderly and disabled;
- Sensitive locations, e.g. hospitals, churches, schools, historic buildings;
- People walking or cycling;
- Open spaces, recreational sites, shopping areas; and
- Sites of ecological / nature conservation value tourist attractions.

The EIA chapter will identify those sensitive receptors which may be impacted by the construction traffic generated by the Proposed Development and will identify the significance of these impacts.

10.2.4 Potentially Significant Effects

In accordance with the IEMA Guidelines for the Environmental Assessment of Road Traffic, the thresholds above which there is considered to be the potential for significant effects are:

- on road links where traffic flows are predicted to increase by more than 30% (or where the number of heavy goods vehicles is predicted to increase by more than 30%); and
- traffic flows are predicted to increase by 10% or more in any other specifically sensitive areas.

Where the predicted growth in traffic flow is below the thresholds, the IEMA guidelines suggest the significance of the effects can be stated to be negligible and further detailed assessment is not warranted.

Potential Effects may include:

- construction traffic travelling to and from the site(s) may potentially have a temporary adverse effect on local traffic movements;
- severance;
- fear and Intimidation;
- accidents and safety;
- driver delay;
- pedestrian amenity; and
- pedestrian delay.

10.2.5 Assessment Scope and Methodology

At locations where the relevant thresholds are exceeded, an assessment will be provided as part of the EIA Report to include the likely number of construction traffic movements and the capacity of local roads to accommodate construction traffic, with reference to the potential effects of severance; fear and intimidation; accident and safety; driver delay; pedestrian amenity; and pedestrian delay.

Where thresholds for potential significant effects are not exceeded, no detailed assessment will be provided; however an outline Construction Traffic Management Plan (CTMP) will be provided, along with a commitment to work with Transport Scotland and Argyll and Bute Council in order to agree detailed traffic management proposals for implementation during the construction phase.

Mitigation measures for the effects of the construction phase will be presented in the form of a framework CTMP.

The preparation of the framework CTMP will set out the mitigation measures which will be implemented during construction and will be submitted for the approval by the relevant authorities prior to the commencement of construction, to ensure that the proposed mitigation measures are implemented successfully. The framework CTMP will include:

- Expected construction period / phasing and traffic movements.
- Types of vehicles anticipated.
- Requirements for new bellmouths/vegetation clearance to improve visibility and safety.
- The proposed construction traffic route/s for access to the construction areas.
- Advance warning signs to be installed on the approaches to the affected road network. Temporary signage advising drivers that construction traffic will be operating shall be erected on the local road sections of the route.
- Details of site access arrangements, any management required of access and egress movements, wheel cleaning facilities and dust management.

Where detailed assessment is required, this would be completed in consultation with Argyll and Bute Council and Transport Scotland and with reference to best practice guidelines detailed below in addition to other related technical and planning guidance:

- The Transport Assessment Guidance (Scottish Government, 2012);
- Guidelines for the Environmental Assessment of Road Traffic (Institute of Environmental Management and Assessment, 2005a);
- Scottish Planning Policy (Scottish Government, 2010) paragraphs 165-181 on Transport; and
- PAN 75: Planning for Transport (Scottish Government, 2005).

The final scope of the assessment will be agreed with Argyll and Bute Council and Transport Scotland following confirmation of the various site access locations and estimated trip generation during construction have been finalised.

The perception of change in traffic is dependent on a wide range of factors including volume, speed and composition of traffic (i.e. percentage of HGVs). The assessment of environmental effects of traffic requires a number of stages, namely:

- Determination of existing and forecast traffic levels and characteristics;
- Determining the time period suitable for assessment;
- Determining the year of assessment; and
- Identifying the geographical boundaries of assessment.

Once the environmental effects and the road links to be included within the analysis have been identified, the next stage of the assessment is to quantify the magnitude of the environmental impact. This requires the definition of both baseline conditions and estimation of conditions for the appropriate year of assessment.

The IEMA guidelines identify general thresholds for traffic flow increases of 10% and 30%. The guidelines also suggest that 30%, 60% and 90% changes in traffic levels should be considered as “slight, moderate and substantial” impacts respectively. Traffic flow increases of less than 10% are generally considered to be ‘not significant’, given that daily variation in background traffic flow may vary by this amount. Based on these rules and perceptions, the magnitude of the impact is classified using the criteria in **Table 10.1**.

Table 10.1: Criteria for Determining the Magnitude of Impact

Major	Moderate	Minor	Negligible
>90% increase in traffic	60%-90% increase in traffic	30%-60% increase in traffic	0%-30% increase in traffic

A combination of the sensitivity of the receptor and the magnitude of effect are then used to inform the significance of the effect, as detailed in Section 10.2.4. For many effects there are no simple rules or formulae which define thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed up by data or quantified information where possible.

10.2.6 Issues Scoped Out

The majority of traffic associated with the Proposed Development will occur during the construction stage. Negligible traffic will be associated with the operational phase of the project. On this basis, operational and decommissioning traffic assessments are scoped out of further assessment.

Where the thresholds for significant effects, detailed in Section 10.2.4, are not exceeded, no detailed assessment will be provided.

10.2.7 Summary

Effects from traffic would only occur during construction of the Proposed Development and this is the only phase that traffic and transport assessment within the EIA Report would focus on as a worst case scenario. The final scope of the assessment, including proposals for baseline data collection, will be agreed with Argyll and

Bute Council and Transport Scotland once the site access locations and trip generation numbers have been finalised.

10.3 Waste

Construction will generate general waste in the form of domestic wastes and other materials, for example, wood, metals, plastics and stone. Waste will be managed in accordance with good practice guidance and the Main Contractor will be required to implement a Site Waste and Materials Management Plan, to implement the waste management hierarchy.

Electricity transmission does not produce any waste. However, the general maintenance of the OHL has the potential to produce a small amount of waste. This is likely to be restricted to waste associated with employees and visiting contractors. Considering this, waste has been scoped out from further assessment.

11. CULTURAL HERITAGE

11.1 Introduction

This assessment will consider the potential effects of the Proposed Development on cultural heritage assets (archaeology and built heritage). The specific objectives will be to:

- identify the cultural heritage baseline within the Proposed Development LOD;
- assess the Proposed Development LOD in terms of its archaeological potential;
- identify designated cultural heritage assets within 5km of the Proposed Development where there is the potential for indirect effects to affect their settings;
- consider the potential direct, indirect and cumulative effects of the Proposed Development on heritage assets; and
- identify measures, where appropriate, to mitigate any predicted significant adverse effects and to assess residual effects taking this mitigation into account.

11.2 Baseline

11.2.1 Statutory and Non-Statutory Designated Heritage Assets

Preliminary appraisal, informed by desk-based work, indicates that there are four statutory designated cultural heritage assets within 500m of the Proposed Development. They are: three Scheduled Monuments (Auchtermally Deserted Township (SM 4019), Tom a' Chaisteil Dun (SM 4209) and Dychlie Township (SM 5149)) and one Category B Listed Building: Duncan Ban MacIntyre Monument (LB 12167) (**Figure 11.1**).

One of the Scheduled Monuments, Kilchurn Castle (SM 90179), is also a Historic Environment Scotland (HES) property in care (PIC).

In addition to those within 500m, there are 36 other statutory designated cultural heritage assets within 5km of the Proposed Development. They include 22 Scheduled Monuments, two Category A Listed Buildings, four Category B Listed Buildings, three Category C Listed Buildings and one Inventory Garden and Designed Landscape (Ardanaiseig House) (**Figure 11.2**).

There are no World Heritage Sites, Inventory Historic Battlefields or Conservation Areas within 5km of the Proposed Development.

There are three heritage assets within the wider 5km study area that are classed as non-statutory register (NSR) assets. These are recorded in the HER as being potentially of national importance and of schedulable quality and, for the purposes of the assessment will be treated as being of high sensitivity. These are: Drimfern Long Cairn (1582), Cladich Chambered Cairn (1778) and Dun Na Cuaiche Dun (1639) (**Figure 11.2**).

11.2.2 Non-Designated Heritage Assets

Preliminary appraisal indicates that, within 500 m of the Proposed Development, there are 19 non-designated cultural heritage assets listed in the West of Scotland Archaeology Service (WoSAS) Historic Environment Record (HER). The heritage assets are primarily associated with medieval to post-medieval settlement and agrarian activity, although the remains of two possible forts which may be of potential prehistoric date are also recorded.

The recorded heritage assets include:

- Prehistoric settlement remains (Iron Age): the possible remains of a prehistoric fort surviving at An Dun (1769) and the remains of a former fort on Beacon Hill (1775).
- Remains of medieval/post-medieval settlement and agricultural land-use remains, including former townships (1783) and farmsteads (21924 and 44177) with associated field systems (field banks and rig and furrow cultivation) (67550-67552), and other agrarian structures such as shieling huts (19319, 44828, and 44814-44815).
- The route of the former 18th century military road between Inveraray and Tyndrum (21742 and 21747)

Small clusters of heritage assets are present: at Brackley, southwest of Dalmally; and along the Teatle Water, around Tom a Chaisteil Dun (SM 4209) (**Figure 11.1**). The heritage assets indicate that there has been settlement and activity from at least the late prehistoric period onwards within the landscape crossed by the Proposed Development.

11.2.3 Additional Baseline

Desk-based Assessment

A desk-based assessment and reconnaissance walkover survey would be conducted, limited to covering the Proposed Development LOD once that has been established, in order to:

- identify all potential heritage assets, designated or otherwise,
- identify potential direct impacts on cultural heritage assets; and
- inform an assessment of the archaeological potential of the Proposed Development LOD.

The collation of baseline information would comply with the Chartered Institute for Archaeologists 'Code of Conduct' (2014⁵⁵) and 'Standard and Guidance for Historic Environment Desk-based Assessment' (2017⁵⁶).

A 5km study area would be adopted for assessing the likely effects of the Proposed Development upon the setting of cultural heritage assets with statutory and non-statutory designations.

Sources to be consulted for the collation of data would include on-line heritage databases (HER; HES GIS data download and the National Record of the Historic Environment (NHRE); historic maps, modern aerial photographs (GoogleEarth™; Bing™) and bibliographic and documentary references.

The desk-based assessment results would be collated to form:

- A gazetteer of all known cultural heritage assets within the Proposed Development LOD, detailing for each asset, the asset type, description of the asset, and the sensitivity of the asset.
- A gazetteer listing details of all designated heritage assets and assets classed as non-statutory register (NSR) assets within the HER that have predicted visibility of the Proposed Development. Detailed descriptions and background information will be collated for those sites that HES and WoSAS, through consultation, consider potentially sensitive to the Proposed Development.
- Site location mapping (using GIS).

Field Survey

Reconnaissance walkover field survey would be conducted within the Proposed Development LOD to:

- Locate all visible heritage assets, both those identified during the desk-based assessment and any previously unrecognised, and to record their character, extent and current condition.
- Identify areas with the potential to contain unrecorded, buried archaeological remains, taking into account factors such as topography and ground conditions.
- Inform the assessment of possible direct impacts of the Proposed Development on identified assets.

The walkover survey would exclude any areas of dense forestry plantation, apart from attempting to locate features identified during the desk-based assessment that are readily accessible without venturing into forestry coupes.

The survey would also include visiting cultural heritage assets with theoretical visibility of the Proposed Development that are within 5 km of the Proposed Development, in as far as access is possible, or required, to assess the predicted effect of the Proposed Development on their settings. Site visits will focus on heritage assets most likely to receive appreciable effects on their settings (i.e. those that are closest to the Proposed Development or those that have settings sensitive to change resulting from the Proposed Development).

⁵⁵ Chartered Institute for Archaeologists (CIfA) (2014) 'By-Laws: Code of Conduct, Chartered Institute for Archaeologists, Reading.

⁵⁶ Chartered Institute for Archaeologists (CIfA) (2017) 'Standard and guidance for historic environment desk-based assessment', Chartered Institute for Archaeologists, Reading.

Where access is difficult or denied, publicly accessible locations as close as possible to the asset will be sought as a basis for assessment.

Following the walkover field survey of the Proposed Development LOD and site visits to key external receptors, within the outer study area, the gazetteers will be updated with the results of the fieldwork, including the addition of any new and previously unrecorded assets identified during the walkover survey. The gazetteers will then subsequently form elements (Appendices) of the Environmental Impact Assessment (EIA) Report.

11.3 Sensitive Receptors

The Proposed Development passes close to three Scheduled Monuments (Tom a' Chaistel Dun (SM 4209), Dychlie Deserted Crofts (SM 5149) and Auchtermally Deserted Township (SM 4019)) and to one Category B Listed Building (Duncan Ban McIntyre Monument (LB 12167)). These heritage assets are potentially sensitive to effects on their settings due to their proximity to the Proposed Development. As such, the impact of the Proposed Development on the settings of these assets will be key considerations in the EIA.

A candidate list of viewpoints for cultural heritage assessment has been produced taking into consideration the list of potentially sensitive cultural heritage assets highlighted by the initial ZTV (**Figure 11.2**) produced for the Proposed Development. The viewpoints have been selected to represent a range of receptor type, distance and visitor experience. Indicative viewpoint locations are listed below in **Table 11.1** and their locations are shown on **Figure 11.2**. Consultation will be undertaken with HES and WoSAS to agree the cultural heritage viewpoints and viewpoint type (i.e. photomontage; wireline) and cross reference will be made to Landscape and Visual viewpoints where these are relevant to the cultural heritage assessment.

Table 11.1: Candidate Cultural Heritage Viewpoints

Asset number	Asset name	Status
SM 2219	Fraoch Eilean Castle	Scheduled Monument
SM 3810	Glenorchy Parish Church, Churchyard and Tombstones	Scheduled Monument
SM 4019	Auchtermally Deserted Township	Scheduled Monument
SM 4048	Carn Ban, Cairn	Scheduled Monument
SM 4184	Inishail, Church, Cross & Burial Ground	Scheduled Monument
SM 4186	Keppochan, Cup Marked Stone	Scheduled Monument
SM 4209	Tom a' Chaistel Dun, Teatle Water	Scheduled Monument
SM 5149	Dychlie Deserted Crofts	Scheduled Monument
SM 90179	Kilchurn Castle	Scheduled Monument
LB 12167	Duncan Ban McIntyre Monument Beacon Hill	Category B Listed
LB 12182	Ardanaiseig House	Category B Listed
1778	Cladich Chambered Cairn	WoSAS HER NSR Site

11.4 Potentially Significant Effects

Taking account of the findings of the desk study undertaken to date, whilst still adopting a precautionary approach at this preliminary stage, potential effects on cultural heritage associated with construction and/or operation of the Proposed Development include:

- Direct (physical) effects on non-designated cultural heritage sites or features within the Proposed Development LOD.
- Physical disturbance of known or hitherto undiscovered sites or features, including unforeseen buried remains of archaeological interest.
- Effects on the settings of cultural heritage assets, resulting from intervisibility between the asset and the Proposed Development.

- Cumulative effects on the settings of cultural heritage assets from the Proposed Development in combination with other Proposed Developments in the locality.

11.5 Assessment Scope and Methodology

The archaeological and cultural heritage assessment would be carried out with reference to the following guidance documents:

- Chartered Institute for Archaeologists (2019) 'Standard and Guidance for Historic Environment Desk-Based Assessment'.
- NS & HES (2018) 'Environmental Impact Assessment Handbook'.
- HES (2019) 'Designation Policy and Selection Guidance'.
- HES (2016) 'Managing Change in the Historic Environment: Setting'.
- Planning Advice Note (PAN) 2/2011: Planning and Archaeology.

The assessment would consider the potential for significant effects associated with:

- Physical (direct) impacts of construction on cultural heritage assets within the Proposed Development LOD;
- Setting (indirect) effects on the experience, appreciation and understanding of an asset resulting from the introduction of the Proposed Development; and
- Cumulative effects (as set out in Chapter 3: EIA Methodology).

Assessment of likely direct, indirect and cumulative effects of the Proposed Development on heritage assets would consider the sensitivity of the heritage asset and its setting, where appropriate, and the likely magnitude of change, which would be combined to provide a likely significance of effect, as set out in Chapter 3: Methodology (Section 3.1.1). The methodology that would be employed in the assessment, based on the guidance in the NS/HES Guidance (2018), would be agreed through post-scoping consultation with HES and WoSAS.

Mitigation measures designed to prevent, reduce or offset significant adverse effects would be set out and residual effects remaining following the implementation of proposed mitigation measures would be assessed.

11.6 Issues Scoped Out

Assessment of the effect of the Proposed Development on World Heritage Sites, Conservation Areas and Inventory Historic Battlefields will be scoped out. There are no assets with those designations within 5 km of the Proposed Development.

11.7 Summary

The proposed approach to the assessment has been designed to identify and evaluate any cultural heritage assets present within the Proposed Development LOD, through examination of desk-based sources and detailed field survey, and to identify key heritage assets within 5km of the Proposed Development.

The effects of the Proposed Development (direct and indirect impacts) on heritage assets would be assessed and mitigation measures, where appropriate, would be proposed to prevent, reduce or offset any likely significant adverse effects identified. Cumulative effects from the Proposed Development in combination with other Proposed Developments would also be considered, where appropriate.

12. LANDSCAPE AND VISUAL IMPACT

12.1 Introduction

The purpose of the Landscape and Visual Impact Assessment (LVIA) is to identify, predict and evaluate potential landscape and visual effects arising from the Proposed Development. The Proposed Development comprises a double circuit 275 kV overhead line (OHL), a 275/ 132 kV Creag Dhubh substation and a new switching station in Glen Lochy. The scale and location of the OHL is such that it is likely to be visible from locations out with the immediate site boundary, across the wider study area. Consequently, there is potential for effects on visual amenity and landscape character. The LVIA would address the potential impacts on the Site itself, and the potential for impacts on landscape and visual receptors within the study area.

12.2 Study Area

A study area of 10 km from the proposed alignment would be adopted for the LVIA, in order to ensure that all significant impacts are assessed, in line with current guidance.

A preliminary zone of theoretical visibility (ZTV) has been prepared for the study area to assist in scoping out the landscape and visual receptors that would not have visibility of the Proposed Development, and therefore would not be impacted (**Figure 12.2: LVIA Study Area and Zone of Theoretical Visibility**).

In this section, receptor distances from the Proposed Development are calculated to the nearest tower location. Where measurements are given between landscape character types, designated areas, routes or settlements, such measurements relate to the nearest part of such areas and routes to the Proposed Development.

12.3 Approach

The LVIA will address potentially significant effects within a 10 km study area and will contain the follow:

- A description of the methodology utilised in completing the assessment;
- A description of the existing landscape and visual baseline context and cumulative context at the time of completion of the LVIA;
- A description of impact generator associated with the construction and operation of the type of development proposed and their potential effects on receptors;
- A description of micrositeing of towers and design priorities and any mitigation measures proposed to address likely significant effects; and
- An assessment of residual landscape and visual effects, including cumulative effects and effects on night character, considering the influence of design responses and mitigation measures.

12.3.1 Landscape Impacts

The assessment of landscape impacts will address:

- Effects on landscape fabric;
- Effects on landscape character types;
- Effects on landscape designations and classifications; and
- Effects on visual amenity

12.3.2 Visual Assessment

The LVIA will address effects on the visual amenity of people at key visual receptors, including:

- Residents of settlements, scattered/ individual properties;
- Key transportation routes;
- Users of recreational routes, including strategic trails, cycleways and core pathways; and
- Key summits and routes used by hill walkers.

Care will be taken to describe the extent of visibility of the Proposed Development, and effects on important connecting/ linking views, sequential views, vantage points and prominent focal points. The assessment will also discuss what forms the basis of the local visual amenity.

12.3.3 Supporting Assessments and Graphics

The LVIA will be accompanied by a series of Technical Appendices (TAs) that will provide detailed assessment of residual effects on different aspects of the landscape and visual resource, including:

- An assessment of residual effects on landscape character types (LCTs);
- An assessment of residual effects on designated and classified landscapes; and
- A detailed viewpoint assessment.

Additionally, the LVIA will also be accompanied by a series of figures and visualisations.

12.3.4 Guidance

The LVIA would be undertaken in accordance with the following guidance and established standards:

- Landscape Institute and Institute of Environmental Management and Assessment: Guidance for Landscape and Visual Impact Assessment – Third Edition (2013);
- The Countryside Agency and Scottish Natural Heritage: Landscape Character Assessment (2002);
- Scottish Natural Heritage (NS) and the Countryside Agency: Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity (2002); and
- Visual Representation of Development Proposals – Landscape Institute Technical Advice Note 06/19 (2019).

Wherever possible, effects will be quantified, however, the nature of landscape and visual assessment requires interpretation by professional judgement.

In order to provide a level of consistency to the assessment, receptor sensitivity, the prediction of magnitude of impact, and assessment of significant residual effects will be based upon pre-defined criteria based on guidance provided by the Landscape Institute.

12.4 Baseline Conditions

The baseline will provide a description of the existing landscape and visual context of the Proposed Development site and wider study area. This will form the basis upon which to determine the potential effects of the Proposed Development.

Initially, the baseline will be prepared based on:

- Ordnance Survey (OS) mapping (1:25,000 and 1:50,000 scale);
- OS Terrain 5 m data;
- Field Reconnaissance/ Field Notes;
- Commercially available aerial photography; and
- Site Photography

Field reconnaissance will be undertaken to verify the findings of the desktop study, and the baseline description adjusted as necessary to accurately reflect the conditions on the ground.

12.4.1 Location

The Proposed Development is located on the lower western slopes of Beinn Bhalgairean, Beinn Bhreac and Beinn an t-Sithein within an area typified by coniferous forestry plantations and open moorland. The surrounding topography consists of rounded knolls, rocky outcrops and numerous lochans. Grid infrastructure forms an existing element within the landscape surrounding the site. The emergent pattern of grid infrastructure development (existing and consented) will be examined in the baseline appraisal of the LVIA, along with other

similar Proposed Developments (i.e. developments subject to a formal planning applications, appeal or further planning procedure).

12.4.2 Landscape Character

Figure 12.3: Landscape Character Types, shows the location and extent of landscape character types within the study area.

The site is wholly contained within The Craggy Upland – Argyll (LCT40), which will be assessed as part of the LVIA.

Those LCTs which are within the ZTV and which will also be assessed with the LVIA include:

- (LCT34) Steep Ridges and Mountains;
- (LCT35) Rugged Mountains;
- (LCT37) Upland Glens – Argyll;
- (LCT40) Craggy Upland – Argyll; and
- (LCT53) Rocky Coastland – Argyll

The landscape character assessment will consider the effect of the Proposed Development on these LCTs. The extent and characteristics of the LCTs will be verified as part of the assessment fieldwork and the boundaries may be refined as part of this process.

Those LCTs which have been scoped out of the assessment due to no or minimal visibility include:

- (LCT39) Plateau Moor and Forest – Argyll; and
- (LCT251) Highland Summits;

12.4.3 Landscape Designations

Landscape Designations are presented on **Figure 12.4: Landscape Designations**.

At its closest point, the Ben More and Glen Coe National Scenic Area (NSA) lies approximately 8.3 km from the northern end of the Proposed Development. The NSA covers an area of 904 km². However, only a small portion of the most southwestern spur of the designated area extends into the study area, covering the summit of Beinn nan Lus and Monadh Liath. This area forms part of the Ben Starav massif and is characterised by large slabs of igneous rock. NS describes the NSA as “a landscape of massive proportions, breath-taking grandeur and great variety⁵⁷.”

A section of the northwest border of the Loch Lomond and Trossachs National Park (LLTNP) extends into the western edge of the study area. The LLTNP is designated for its scenic qualities, natural and cultural heritage, diverse range of habitats and species, distinctive cultural identity, rolling lowlands in the south to high mountains in north, lochs and rivers, forests and woodland.

The Park extends to the summit of Meall nan Tighearn and it is this part which is found within the study area. This extent of the LLTNP is classified as being within the Breadalbane Landscape Area⁵⁸.

There are two Wild Land Areas (WLA) within the study area: These are:

- (06) Ben Lui; and
- (09) Loch Etive Mountains.

The North Argyll Area of Panoramic Quality (APQ) covers a large area from Kilchrenan in the east to Glen Lochy in the west and Glen Kinglas in the north to Glen Orchy and Glen Lochy in the west. The Proposed Development falls entirely within the APQ. There is not any publicly available documentation or citation setting out the special qualities of the area or the reasons for its designation. However, the Argyll and Bute Landscape

⁵⁷ Scottish Natural Heritage. (2010) Commissioned Report No. 374 *The special qualities of the National Scenic Areas*

⁵⁸ Scottish Natural Heritage and Loch Lomond and the Trossachs National Park Authority (2010). The special landscape qualities of the Loch Lomond and Trossachs National Park. *Scottish Natural Heritage Commissioned Report, No 376*

Wind Energy Capacity Study provides some information, noting that the designation reflects the “*juxtaposition of different landscape types in this area, including the dramatic and rugged mountains, the small scale pattern of settled glens, the presence of the Loch and its islands and the contrasts in scale, relief and landform shape which combine to add to the diversity and associated scenic quality of this landscape*”⁵⁹.

In addition to these designated landscapes there are two Gardens and Designated landscape (GDLs) within the study area (as identified by the Historic Environment Scotland Inventory). The closest GDL is Ardanaiseig House, located approximately 2.6 km west of the nearest section of the Proposed Development. The initial ZTV shows there would be no visibility with Inveraray Castle, the other GDL within the study area, therefore it will not be assessed within the LVIA.

Table 12.1, below, provides a list of Landscape Designations and Classifications considered for the LVIA, and describes the extent of visibility of the Proposed Development and whether it is intended to include each of the designations in the LVIA.

Table 12.1: Landscape Designations and Classifications (within the 10 km LVIA Study Area) to be included in the LVIA

Designation / Landscape Classification		Within ZTV	Approximate distance & direction from the Nearest Proposed Pole	Included in the LVIA
National Park				
Loch Lomond and Trossachs National Park (LLTNP)	Yes	6 km east	Yes	Initial ZTVs show limited visibility from the LLTNP across high slopes along the northwest fringe. The theoretical visibility is intermittent and not widespread. Significant effects are not anticipated; however further information and assessment will be provided in the EIAR to confirm.
Area of Panoramic Quality (APQ)				
Argyll and Bute Areas of Panoramic Quality (APQ)	Yes	Proposed Development lies within designated area	Yes	
Gardens and Designed Landscapes (GDLs)				
Ardanaiseig House,	Yes	3.6km west	Yes	
Inveraray Castle	No	6.6 km south	No – no visibility of the Proposed Development	
Wild Land Areas (WLAs)				
(6) Ben Lui	Yes	2.3 km east	Yes	
(9) Loch Etive Mountains	Yes	3.9 km southeast	Yes	

12.4.4 Visual Amenity

The Visual Assessment addresses the impacts on visual amenity, as experienced by people, from key locations within the study area. The baseline will identify visual receptors within areas of potential visibility as indicated by the ZTV. There will be some areas where fewer people are likely to experience the effects of the Proposed Development and other locations with higher concentrations of people with potential views towards the

⁵⁹ Argyll and Bute Council (2017) Landscape Wind Energy Capacity Study – Main Report Volume 2

Proposed Development. The baseline seeks to identify the people within areas of potential visibility whose views may be changed by the Proposed Development. In accordance with the GLVIA3 guidance, professional judgement is used to identify visual receptors.

The study area is a generally open landscape with long views across water and valleys to mountain backdrops. Along Strath of Orchy and parts of the loch shore areas, deciduous woodland creates local enclosures restricting and filtering views. Parts of the mid-level hill areas are forested, and, in these areas, dense plantations create local screening and enclosure.

12.4.5 Settlements

Within the study area settlement is largely limited to the loch shores and main glens. Dalmally and Stronmilchan in the Strath of Orchy, and Lochawe on the north extents of the shore comprise the main concentrations of residential development. There are a number of small clusters of development at Cladich to the south of the loch and along the shore to Ardbrecknish, with further properties scattered along either side of the loch and a small number of isolated properties in the edges of the upland areas.

A Residential Visual Amenity Assessment (RVAA) will be produced to assess the effects of the visual amenity for the properties which are closest to the Proposed Development. A detailed survey of residential properties will be undertaken for dwellings within 2 km of the Proposed Development; however, a precautionary approach will be taken and if any property within 5 km is considered to potential experience overbearing effect, the RVAA would also include these. The RVAA would generally be undertaken from publicly accessible locations nearest to properties. A finalised list of dwellings to be included in the RVAA will be drawn up following consultations with Argyll and Bute Council and NatureScot (NS).

12.4.6 Transportation Routes

Due to the nature of the topography within the study area, there are few transport routes which pass through the study area (**Figure 12.5**). Those that would be assessed in the LVIA are:

- The A85;
- The A819;
- The B840;
- The B845;
- The B8074;
- The B8077; and
- The Crainlarich to Oban spur of the West Highland Railway Line.

Recreational Routes and Summits

National Cycle Network (NCN) Route 78 crosses through the western portion of the study area, approximately 5.4 km to the west of the Proposed Development at its closest point. It follows an unnamed road from Ford to Kilchrenan before it joins the A845 near Taynuilt.

Within the western part of the study area there is a network of Argyll and Bute Adopted Core Paths (shown in **Figure 12.6**). Those which are located within the ZTV and which will be assessed with the LVIA include:

- C173e – Ford to Annat via Loch Avich and Inverinan;
- C300c – Kilchrenan to Taynuilt;
- C171b – Kilmore – Loch Nant – Kilchrenan;
- C425 – Kilchurn Castle Path, Dalmally;
- C528a, b and c – Dalmally Circular;
- C522 – Dalmally Village Old Road;
- C450 – Duncan Ban McIntyre Monument, Dalmally;
- C424 – Strone Hill walks Glen Lochy; and

- C409a – Glen Orchy B8074

Valued views in the study area include: views across open water from many vantage points along the shore of Loch Awe such as Kilchurn Castle, the Cruachan Visitor Centre and the loch-side roads; from the elevated monuments on hill tops such as the Duncan Ban MacIntyre Memorial south of Dalmally, the Duncan McLaren monument at Inverstrae and the Neil Munro monument above the A819 and; elevated views from the mountain summits in the north of the study area including Ben Cruachan, Stob Diamh, Beinn Eunaich, Beinn a'Chochuill and Ben a' Bhùiridh and from the approaches to and traverses between these hills.

The LVIA will consider the impacts on hill walkers, taking into account the experience of the journey along the key walking routes and the approach to (and view from) key summits. This will be undertaken as part of the recreational route assessment and as part of the viewpoint assessment (see **Table 12.3** below).

Preliminary – Viewpoint List

To inform and verify the findings of the LVIA, a series of representative viewpoints have been selected. These are intended to represent a range of landscape and visual receptors in the study area. These are listed in the **Table 12.2** below, and their locations are illustrated in **Figure 12.5**.

Viewpoints will be finalised and established through field reconnaissance and in consultation with ABC and NatureScot.

Table 12.2: Proposed Viewpoints and associated Visual and Landscape Receptors

Viewpoint Number	Viewpoint Name	Location	Approximate Distance from Nearest Proposed Turbine	Visual Receptors at Location	Landscape Receptors at Location
VP2	Stronmilchan (White House)	215339, 727891	250 m W	Recreational, Road user and Residential	Upland Glens – Argyll LCT
VP4	A85 by B8077 junction	213254, 728372	1.3 km NE	Road User (A85) and Road User (B8077)	Upland Glens – Argyll LCT
VP5	Dalmally Golf Club	214408, 727716	700 m E	Recreational (golfing) and Recreational (Golf Club)	Upland Glens – Argyll LCT
VP6	Kilchurn Castle	213328, 727647	1.6 km NE	Recreational	Upland Glens – Argyll LCT
VP7	Lochawe Hotel	212391, 727446	2.5 km NE	Recreational	Rocky Coastline – Argyll LCT
VP8	Monadh Driseig (hilltop)	211334, 728143	3.0 km NE	Recreational	Rugged Mountains LCT
VP9	Minor road above A85	211351, 726644	3.7 km E	Recreational	Rocky Coastline – Argyll LCT
VP10	A85 layby	209963, 725882	3.2 km SW	Road User	Rocky Coastline – Argyll LCT

Viewpoint Number	Viewpoint Name	Location	Approximate Distance from Nearest Proposed Turbine	Visual Receptors at Location	Landscape Receptors at Location
VP11	Cruachan visitor centre	207914, 726779	5.3 km W	Recreational	Rocky Coastline – Argyll LCT
VP12	Cruachan path by dam	208159, 728040	6.0 km SW	Recreational	Rugged Mountains LCT
VP13	A819 at forest road entrance	212342, 725950	1.8 km SW	Road User	Upland Glens – Argyll LCT
VP14	Duncan Ban MacIntyre monument	214433, 725848	500 m E	Recreational	Upland Glens – Argyll LCT
VP15	A819 layby	212147, 724900	1.1 km SE	Road User	Rocky Coastline – Argyll LCT
VP16	Fraoch Eilan	210869, 725171	2.1 km SSE	Recreational	N/A
VP17	Cladich steading	209742, 722129	950 m SE	Recreational and Road User	Rocky Coastline – Argyll LCT
VP18	A819	209962, 720545	550 m NNW	Road User	Upland Glens – Argyll LCT
VP19	Neil Munro Monument	209674, 719004	1.1 km SE	Recreational	Plateau Moor and Forest – Argyll LCT
VP20	Ardanaiseig	208895, 724880	3.3 km SE	Recreational	Rocky Coastline – Argyll LCT
VP21	Taychreggan	204772, 721375	4.3 km SE	Recreational	Rocky Coastline – Argyll LCT
VP22	Fernoch	201389, 719810	7.3 km E	Road User	Rocky Coastline – Argyll LCT

12.5 Effects Evaluations

Significance of Landscape and Visual Effects

Table 12.3 below, illustrates how residual effects will be determined by comparison of the sensitivity of receptors with the magnitude of impacts. For the purposes of the LVIA significant landscape or visual effects

will be defined as major or major/moderate. It should be noted, however, that the matrix is not intended to be applied in an arithmetical manner, but to act as a guide.

Table 12.3: Residual Effects

	Magnitude of Change				
Landscape and Visual Sensitivity	Substantial	Moderate	Slight	Negligible	None
High	Major	Major/moderate	Moderate	Moderate/ minor	None
Medium	Major/moderate	Moderate	Moderate/minor	Minor	None
Low	Moderate	Moderate/minor	Minor	Minor/none	None

12.6 Summary

The landscape and visual receptors within 10km of the Proposed Development have been reviewed and this scoping identifies those where there is the potential for significant effects and will therefore be included within the LVIA.

Potentially significant landscape effects include those on:

- The direct effects on the landscape of the site;
- Direct & indirect effects on The Craggy Upland LCTs, and indirect effects on LCTs within the study area;
- The North Argyll APQ; and
- Ben Lui and Loch Etive Mountains WLAs.

Potentially significant visual effects include those on:

- Residential receptors in the settlements of Dalmally and Stronmilchan and scattered residential properties at Croftintuime, Blarchoarain, Achlian and Bovuy;
- Recreational receptors accessing the Munro summits in the Ben Cruachan and Beinn Eunaich groups north of Loch Awe, local walkers including those using the paths to the Cruachan Dam, visitors to Kilchurn Castle and St Conan's Kirk and kayakers/ boaters on Loch Awe; and
- Transport receptors on the A85, A819, B8077 roads and on the West Highland railway.

Direct, indirect and cumulative effects of the Proposed Development will be assessed and, where appropriate and feasible, mitigation measures may be proposed to reduce any significant adverse effects.

Note that residential visual amenity effects on private views from individual dwellings and groups of dwellings will be addressed in an Appendix to the EIA Report.

13. SUMMARY OF TOPICS

As explained above, a number of topics are considered to be not significant and will be scoped out from further consideration within the EIA process. **Table 13.1** below lists each topic and the elements scoped in and out from further assessment; with a summary of the justification for doing so.

Table 13.1: Issues Scoped In and Out

Topic	Scoped In	Scoped Out
Landscape Character and Visual Impact	✓	No issues are scoped out in their entirety.
Biodiversity	✓	- Statutory designated sites within 10km of the Site where there is no connectivity - Operational effects on bat species - Water vole
Ornithology	✓	- barrier effects; - electrocution; - habitat loss (during both construction and operational phases); and - potential disturbance during the operational phase.
Cultural Heritage	✓	- Conservation Areas; - Battlefields; and - World Heritage Sites
Traffic and Transport	✓	- operational impacts - decommissioning impacts - Where the thresholds for significant effects during the construction phase are not met in a specific location (in accordance with IEMA Guidelines) it is proposed that further assessment is not required.
Hydrology, Hydrogeology, Geology, and Soils	✓	Contaminated Land
Noise and Vibration	✓	N/A
Human Health	×	N/A
Climate Change	×	N/A
Major Accidents and Disasters	×	N/A
Socioeconomics, Recreation and Tourism	×	N/A
Land Use and Agriculture	×	N/A
Forestry	✓	N/A
Air Quality	×	N/A

14. NEXT STEPS

SSEN Transmission invites consultees to comment on the following:

- What environmental information do you hold or are aware of that will assist in the EIA described here?
- Do you agree with the proposed approach for baseline collection, prediction and significance assessment?
- Are there any key issues or possible effects which have been omitted?
- Do you agree with the list of issues to be scoped out, and the rationale behind the decision?
- Of those issues identified for assessment, which do you consider the most important/material and which the least?

All responses should be addressed to:

Email: Econsents_Admin@gov.scot

OR

Energy Consents Unit Scottish Government 5 Atlantic Quay

150 Broomielaw Glasgow, G2 8LU

The Scoping Opinion provided will be used to finalise the terms of the EIA and the specific approach to the individual assessments.

All comments received will be included in the EIA Report for reference, unless consultees request otherwise.

15. REFERENCES

-
- ⁱ Health and Protection Agency <https://www.gov.uk/government/collections/electromagnetic-fields>
- ⁱⁱ JNCC, 2010. Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit. Joint Nature Conservation Committee, Peterborough
- ⁱⁱⁱ Rodwell, J. S. (2006). NVC Users' Handbook. ISBN 978 1 86107 574 1.
- ^{iv} Rodwell, J. S. (Ed), et al. (1991 – 2000). British Plant Communities (5 volumes). Cambridge University Press.
- ^v Scottish Environmental Protection Agency, 2017. Land Use Planning System Guidance Note 31. Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems [online]. Available at: <https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions-and-groundwater-dependent-terrestrial-ecosystems.pdf> [Accessed 30/11/2017]
- ^{vi} Butterfly Conservation, undated. Mountain Ringlet [online]. Available at: <https://butterfly-conservation.org/679-859/mountain-ringlet.html> [Accessed 31/11/2017]
- ^{vii} NS, 2016. Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds [online]. <https://www.snh.scot/sites/default/files/2017-06/A2047189%20-%20SNH%20-%20Assessment%20and%20mitigation%20of%20impacts%20of%20power%20lines%20and%20guyed%20meteorological%20masts%20on%20birds%20-%20guidance%20-%20July%202016.pdf> [Accessed 30/11/2017]
- ^{viii} Gilbert, G., Gibbons, D, W and Evans, J, 1998. Bird monitoring methods. Pelagic Publishing.
- ^{ix} Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. and Thompson, D, 2009. Raptors: A field guide for surveys and monitoring. The Stationery Office.
- ^x NS, 2014. Recommended bird survey methods to inform impact assessment of onshore wind farms [online]. http://www.snh.org.uk/pdfs/strategy/renewable/bird_survey.pdf [Accessed 30/11/2017]
- ^{xi} Brown, A, F and Shepherd K.B, 1993. A method for censusing upland breeding waders. Bird Study, 40, 189-195.
- ^{xii} BTO, 2015. Birds of Conservation Concern 4: the Red List for Birds [online]. Available at: https://www.bto.org/sites/default/files/shared_documents/publications/birds-conservation-concern/birds-of-conservation-concern-4-leaflet.pdf [Accessed 01/12/17]

APPENDIX A: FIGURES

APPENDIX B: TRAIL CAMERA PHOTOGRAPHS



Plate C1:Image of badger emerging from sett entrance.



Plate C2:Image of red squirrel



Plate C3: Image of pine martin



Plate C4: Image of fox