

Inveraray to Crossaig
275 kV Overhead Line Reinforcement
Environmental Impact Assessment

Scoping Report

August 2017



Applies to SHE Transmission	Scoping Request	Document Reference LT000040/EIAScopingRev1
Classification External	Uncontrolled if Printed	Revision 1

The author/owner of this document is Paul McQuillan Environmental Project Manager	This document has been approved for issue by Jean Lewis Regional Development Project Manager	Date of issue 18 August 2017
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Version	Date of Issue	Comments
Rev0	28/07/2017	First issue
Rev1	18/08/2017	Table 4.1 amended to update numbering of viewpoint locations to be consistent with Figure 4.5

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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
BGS	British Geological Survey
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> , which come into force on 16 th May 2017. 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	Historic Environment Scotland
HGV	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
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 between Inveraray Switching Station and Crossaig Substation.
Proposed Route	A route taken forward following stakeholder consultation to the alignment selection stage of the overhead line routeing process. The proposed route for the purposes of this report is the route which was arrived at from the Environmental Route Options Report (ASH, 2014).

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
SHE Transmission	Scottish Hydro Electric Transmission plc – part of Scottish and Southern Electricity Networks, and the transmission license holder for the transmission of electricity in the north of Scotland
SLVIA	Seascape/landscape and visual assessment
SNH	Scottish Natural Heritage
SPA	Special Protection Area – designated under <i>Directive 2009/147/EC on the Conservation of Wild Birds</i> (the Birds Directive)
SSSI	Site of Special Scientific Interest – designated by SNH 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 SNH (2014)
ZTV	Zone of Theoretical Visibility - the computer generated theoretical visibility of an object in the landscape

EXECUTIVE SUMMARY

Scottish Hydro Electric Transmission plc (SHE Transmission, hereafter referred to as 'the applicant') is proposing to submit an application for consent to construct and operate an 81 kilometre (km), 275 kilovolt (kV), overhead line (OHL), supported by lattice steel towers between Inveraray Switching Station and Crossaig Substation, Argyll.

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 Scoping Report is provided in two volumes: comprising Volume 1: Main Report; and Volume 2: Figures.

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

When submitting a response to the Scoping Report, the applicant would be grateful if you could also send a copy of your response to the address below:

Email to: lt000040@sse.com

OR

For the attention of Paul McQuillan

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Copies of this document can be found online at: <https://www.ssen-transmission.co.uk/projects/inveraray-crossaig/>

1. INTRODUCTION

1.1 The Proposals

The applicant is proposing to submit an application for consent to construct and operate an 81 kilometre (km), 275 kilovolt (kV), overhead line (OHL), supported by lattice steel towers between Inveraray Switching Station and Crossaig Substation, Argyll. The project is referred to as the Inveraray to Crossaig 275 kV OHL Reinforcement Replacement (and hereafter as the 'proposed development'). The location of the proposed development is shown on Figure 1a-1c in Volume 2.

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 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 adverse 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 Environ 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 12 of the EIA Regulations. The Scoping Report is provided in two volumes: comprising Volume 1: Main Report; and Volume 2: Figures.

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

- information to identify the location of the proposed development;
- a brief description of the nature and purpose of the proposed development and its possible effects on the environment; and
- information and representations from the applicant on the aspects of the proposed development and environment that are not considered necessary to assess further.

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?

1.4 Scoping Report Methodology

This report is structured to provide information on the individual factors which require consideration under regulation 4(3) of 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.

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.

Environmental topics included for initial assessment in this EIA Scoping Report are:

- Seascape/Landscape and Visual Amenity;
- Ecology and Nature Conservation;
- Ornithology;
- Cultural Heritage;
- Forestry;
- Traffic and Transport;
- Hydrology, Hydrogeology and Soils;
- Amenity and Health (Noise and Vibration and Electromagnetic Fields);
- Recreation and Tourism;
- Land Use and Agriculture;
- Air Quality and Climate; and
- Accidents and Disasters.

2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Introduction

The proposed development would comprise the construction of approximately 81 km of 275 kV OHL from the existing Inveraray Switching Station to the existing Crossaig Substation, as shown on Figure 1.1a-1.1c in Volume 2. The OHL would also include a section to tie into the existing OHL and substation at Port Ann near Lochgilphead, as illustrated in Figure 1.1b. No new or significant alterations to existing substations are proposed.

Certain ancillary works would be associated with the proposed OHL such as the formation of bellmouths at public road access points, temporary and permanent construction access tracks and tower working areas, construction compounds and borrow pits to provide stone. Whilst the s37 consent is concerned only with the installation of the OHL, the applicant will seek deemed consent for such works under s57(2) of the Town and Country Planning (Scotland) Act 1997. Indicative access and accommodation work (tracks and laydown areas) are shown in Figure 1.1a-1.1c.

For the purposes of this report, the 'proposed development' includes the proposed 275 kV OHL and the horizontal Limits of Deviation (LOD) as set out below. All measurements from the 'proposed development' are from the edge of the LOD. Measurements from the 'indicative proposed alignment' are from the indicative proposed development as shown in Figure 1.1a-1.1c.

2.2 Limits of Deviation

The s37 application will seek consent for the construction and operation of the OHL, specifying a centre line, terminal and angle supporting structures with a prescribed horizontal LOD⁴ to allow flexibility in the final siting of individual towers to reflect localised land, engineering and environmental constraints.

The horizontal LOD parameter specified at this stage is 100 m either side of the indicative proposed alignment.

A vertical LOD parameter is set at a maximum of 60 m above ground level, based on the maximum height of the proposed lattice steel towers. The majority of towers are expected to be approximately 46 m above ground level; however there may be a small number of locations where, based on topography and other technical requirements, taller towers are required to achieve the necessary ground clearance.

The LOD, for which consent will be sought, may be refined through the EIA process, and will ultimately seek to balance the need for flexibility in micro-siting with the desirability of avoiding, reducing or controlling the potential for environmental impact.

2.3 Associated works

2.3.1 Decommissioning the existing 132 kV OHL

The existing 132 kV OHL from Inveraray to Crossaig would be dismantled and removed following the commissioning of the proposed development. The dismantling works will be required as a consequence of the construction of the overhead line, but do not form part of the application for consent under s37 of the Electricity Act 1989 and therefore are included here as 'associated works' for the purposes of the EIA.

Associated ancillary works required to remove the existing overhead line will be supported by the assessment provided in the Inveraray to Crossaig 275 kV Overhead Line Reinforcement EIA Report. The applicant would implement an Environmental Management Plan for these works to ensure good practice and compliance with all relevant environmental and nature conservation legislation.

In addition to considering the potential for significant effects associated with dismantling work, the effects of the removal will be assessed in the context of the potential for cumulative effects with the proposed development

⁴ Limit of Deviation, an area which defines the practical limits within which micro-siting of the OHL infrastructure can occur within the terms of the s37 consents which are to be sought. The purpose of Limits of Deviation is to allow flexibility within a s37 consent for the final micro-siting of individual towers to respond to localised ground conditions, topography, engineering and environmental constraints

and in so far as they are relevant in contributing to change within the future baseline. For example, the EIA will take account of the removal of the existing 132 kV OHL when considering the likely visual effects of the Proposed Development where the two lines would otherwise been seen together.

2.3.2 Decommissioning the Proposed Development

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 necessary.

2.4 OHL Design

2.4.1 Physical Characteristics of the OHL

The proposed development would be constructed using self-supporting fabricated galvanised steel lattice towers. The overhead line would be expected to consist of L8(c) series towers (as shown in plate 2.1). 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 composite overhead ground wire, would be strung between the tower peaks.

The spacing between towers would vary depending on topography, altitude and land use. The specific height and distance between towers will be determined later in the design process. The typical span distance between towers would be between 300 m to 350 m.



Plate 2-1: L8 towers near Beattock, Dumfries and Galloway

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 would be set out in the EIA Report. An outline of the likely programme, phasing and working methods is provided here for the purpose of informing the initial scoping stage environmental assessment.

2.5.1 Anticipated Construction Programme

It is anticipated that construction would commence in third quarter of 2019 (subject to consents and approvals being granted). The construction programme is planned to deliver the Inveraray to Port Ann section of the OHL by fourth quarter of 2021, followed by the Port Ann to Crossaig section by second quarter of 2023. A provisional construction period of approximately 36 months in total is anticipated.

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 and construction related traffic generation.

2.5.2 Standard Mitigation and Working Methods

The initial scoping appraisal and the assessment in the EIA Report will be carried out on the basis that standard mitigation measures will be implemented during the construction work, including compliance with both project wide and site specific environmental management procedures, with reference to SHE Transmission General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs).

2.5.3 Construction practices and phasing

Phase 1 - Enabling works -Existing Network Diversions

Works will be required to the existing network of lower voltage (11 kV and 33kV) OHLs which are crossed by the proposed development. It is anticipated that these assets will be undergrounded to make way for the proposed development. This work can be carried out under Permitted Development rights.

Phase 1 – Vegetation Management and Forestry Clearance

Approximately 57 km of the proposed OHL is located in areas of semi-natural woodland and in these areas a corridor would be required. The width of this corridor would be variable depending on the nature of the woodland, however for the purposes of high level assessment, it is assumed that a corridor of 80 m would be required (40 m either side of the tower centre line). Within areas of commercial woodland, a corridor of at least 80 m would be required. In addition, some more minor vegetation management and felling may be required around the existing access track network in order to provide sufficient width.

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:

- upgrades to existing tracks;
- installation of temporary new stone tracks;
- installation of permanent floating stone tracks; and
- installation of permanent new stone tracks.

It is anticipated that the majority of access will be achieved through upgrade of existing tracks and installation of temporary new tracks. Floating stone road or trackway panel construction may be installed in sensitive areas such as over peat.

Approximately 99 km of existing access track will be used. Existing tracks may require minor alterations (depending on their existing condition) to increase their width, improve their running surface, and improve bellmouths/junctions within the existing road network. The installation of approximately 48 km of new temporary stone access tracks will be required. All new constructed tracks would be constructed to good practice working methods^{5,6,7,8,9,10} with watercourse crossings designed and constructed to comply with

⁵ Forestry Commission (2011). Forests and Water. UK Forestry Standard Guidelines. Forestry Commission, Edinburgh. i-iv + 1– pp.

⁶ Forestry Commission (2014) Forest Commission Road Specification, April 2014, URL: <http://www.forestry.gov.uk/forestry/infid-6emgrz> (accessed 16.10.15)

legislation set out in The Water Environment (Controlled Activities) (Scotland) Regulations 2011. The indicative access proposals are shown on Figure 1.1a-1.1c. Deemed consent will be sought for access tracks and access points as part of the s37 consent application, once the Principal Contractor has completed the access design.

Phase 1 - Site Compounds

It is currently anticipated that construction compounds would be required, the location and number of which would be confirmed by the Principal Contractor. Temporary construction compound locations may be required along the LOD, the location of which will be determined through ongoing design works.

Phase 2 – Tower Foundations

All tower positions would require foundations at each tower leg which may take the form of standard reinforced concrete pad (mass gravity) design, piled foundations or rock anchor foundations. For the purposes of the EIA it is assumed that foundations would be of concrete pad (mass gravity) design, as this is considered to represent a reasonable worst case for foundation construction for the purposes of EIA on the basis that conventional foundations require the greatest amount of ground disturbance during installation. It would be assumed that individual tower foundations and associated construction activities would require a working area of approximately 2500 m² (50 m x 50 m) around each individual tower location. Excavations would include soil stripping, and excavation to a maximum of 4 m depth for foundations. Construction sites for each tower would be fenced as appropriate ahead of construction commencing to ensure protection to livestock and the general public.

Foundation types and designs for each tower would be confirmed following detailed geotechnical investigation at each tower position.

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 location normally by heavy goods vehicles (HGVs), where road access is available, or by helicopter for site without access suitable for HGV deliveries. 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 8 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 5 days each and erected by crane in 1-2 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

7 Scottish Natural Heritage (2015) Good Practice During Wind Farm Construction, A joint publication by Scottish Renewables, SNH, SEPA, Forestry Commission Scotland and Historic Scotland, 3rd Edition.

8 CIRIA Publications 2006: Control of Water Pollution from Linear Construction Projects. Site Guide (C649);

9 Scottish Natural Heritage (2013) Constructed Tracks in the Scottish Uplands, 2nd Edition;

10 Forestry Commission Scotland and Scottish Natural Heritage (2010) Floating Roads on Peat.

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 would then be subject to an inspection and snagging process. This allows the Contractor and the applicant to check that the OHL has been built to specification and are fit to energise. The circuits would then be energised from the substations in a phased sequence.

Phase 4 - Reinstatement

Following commissioning of the proposed development, all construction sites would be reinstated. Reinstatement would form part of the contract obligations for the Principal Contractor and would 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 Associated Works – Dismantling the 132 kV OHL

The OHL dismantling process typically follows a standard sequence of events as follows:

- Phase 1 - enabling works;
- Phase 2 – conductor and insulator removal;
- Phase 3 – tower removal; and
- Phase 4 - re-instatement.

The phase 1 enabling works would include any vegetation management and temporary access arrangements to facilitate the dismantling work. It is proposed that existing access routes and tracks, accessed from the public highways, will be used for the movement of machinery, materials and personnel as far as possible. No new permanent tracks are proposed to facilitate dismantling work. Access will typically use low ground pressure tracked machines, nominally 11 tonne and 13 tonne excavators, small dumpers and 'Hagglund' type tracked personnel carriers. Land rovers and mobile welfare vans (and other similar road vehicles) are normally parked at a safe location and personnel would walk to the work area unless operating any of the machines.

Where ground conditions are particularly wet and boggy it may be preferable to install a temporary track to avoid excessive ground damage. Bog mats (long timber sleepers) can be used in the majority of tower locations, however a temporary 'geo-road' may be installed by laying a geotextile material and some imported stone to form a running track, which will be removed immediately after the dismantling work.

As for the construction phase, the initial scoping appraisal and the assessment in the EIA Report will be carried out on the basis that standard mitigation measures will be implemented during the dismantling work, including compliance with both project wide and site specific environmental management procedures, with reference to SHE Transmission General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs).

Following the enabling work, conductor would be removed and collected using winch and cable drum, either by:

- unclamping, lowering to the ground and winching where there are no ground based constraints; or
- by installing rollers (running out blocks) at each tower, unclamping the conductor and placing the conductor in the rollers prior to winching.

Following the removal of the conductor and insulators, each tower will be removed. This is typically completed by cutting the legs and felling the tower. The towers are then cut into sections using hydraulic shears and

extracted from the site. The tower leg stubs and concrete foundation are normally decommissioned *in situ*, pushed into an excavation of approximately 1 m depth with the ground reinstated.

All scrap metal from the towers and conductors, plus the glass insulators, would be removed from site for recycling.

2.7 Construction Employment and Hours of Work

SHE 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 would be the responsibility of the Principal Contractor but SHE Transmission encourages the Principal Contractor to make use of suitable labour and resources from areas local to the location of the works.

It is envisaged that there would be a number of separate teams working at the same time at different locations within the proposed development corridor. The resource levels would 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) Monday to Saturday in winter. Any out of hours working would be agreed in advance with the relevant local authority.

2.8 Construction Traffic

The construction would 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 would identify compound areas, with a safe area for parking away from the public highway.

Vehicle movements would 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.

2.9 Operation and Management of the OHL

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.

2.9.1 Managed Operational Wayleave

In addition to the removal of vegetation to facilitate construction, it would be necessary to manage all vegetation along and up to 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.

2.10 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 2.1 provides a summary of the anticipated residues and emissions for the purpose of informing the scope of the EIA.

Table 2.1: Residues and Emissions	
Topic	Potential residue/emission
Water	<p>Construction:</p> <p>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.</p> <p>Operation:</p> <p>No water emissions or pollution sources have been identified for the operational phase.</p>
Air	<p>Construction:</p> <p>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.</p> <p>Operation:</p> <p>Due to the nature of the proposed development no significant point source or diffuse air emissions would be produced during its operation.</p> <p>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.</p>
Soil and subsoil	<p>Construction:</p> <p>Soil and subsoil excavation, handling and storage would be required during construction. All soil and subsoil would be stored temporarily for use in reinstatement</p> <p>Operation:</p> <p>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.</p>
Noise and Vibration	<p>Construction:</p> <p>Noise sources during the construction phase would include increased traffic flows and noise from construction plant. Further detail is provided in section 11.</p> <p>There would be no significant vibration emissions associated with the proposed development.</p> <p>Operation:</p> <p>Based on manufacturer's specifications, a worst case sound pressure level for the 275 kV OHL (L50 at 50 m) is 6.1 dB during dry weather and 31.1 dB during wet weather. Further detail on the operational noise is provided in section 11.</p>
Light	<p>Construction:</p> <p>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.</p> <p>Operation:</p> <p>No light sources have been identified during normal operation of the proposed development.</p>
Heat and radiation	<p>Construction:</p> <p>No heat or radiation sources have been identified during the construction phase.</p> <p>Operation:</p> <p>Electromagnetic fields (EMFs) are emitted from OHLs, with potential effects on human health. Further detail is provided in section 11.</p>
Waste	<p>Construction:</p> <p>The construction stage will require felling of woodland. As such, it is anticipated that forestry related residues (brush) would result from the felling operations. It would be intended to use the non-marketable forest residues to enhance the soil and support the establishment of woodland</p>

Table 2.1: Residues and Emissions

	<p>habitat (for screening and biodiversity purposes). Evidence would be provided to demonstrate the volumes proposed would not be excessive and would be proportionate the identified need. Further detail on forestry is provided in section 9.</p> <p>Construction operations will generate general waste in the form of domestic wastes and other materials, for example, wood, metals, plastics and stone.</p> <p>Demolition:</p> <p>The main waste streams associated with the decommissioning of the existing 132 kV OHL will include glass (from insulators) and metal (towers and conductor). All construction and demolition waste would be managed in accordance with the waste hierarchy to maximise opportunities for reuse and recycling and will comply with all relevant legislation.</p> <p>Operation:</p> <p>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.</p>
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3. METHODOLOGY

3.1 Introduction

This section sets out the approach that would be taken to complete the EIA of the proposed development, including reference to legal requirements, best practice and the assessment of parameters.

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. The EIA Report would also take account of the relevant guidance set out in the Scottish Government Planning Advice Note¹¹, which emphasises the importance of achieving a proportionate EIA scope, focussed on the likely significant effects.

In line with Schedule 4 of the EIA regulations, it is anticipated that the EIA Report would provide introductory chapters to provide:

- a description of the proposed development comprising information on the location of the OHL; its physical characteristics, including the conductor selection, voltage and tower suite, and the area of land required during construction and operational phases; the main characteristics of the operational phase of the development; and the type and quantity of expected residues and emissions produced during the construction and operation phases; and
- a description of reasonable alternatives studied in terms of the OHL alignment selection and technology (conductor selection, voltage, tower suite) and the main reasons for the chosen option, including a comparison of the environmental effects, highlighting how the proposed development delivers 'mitigation by design'.

3.2 Assessment of Likely Significant Environmental Effects

It is proposed that the EIA Report would provide assessment chapters for the relevant factors specified in regulation 4(3) of the EIA regulations where they are likely to be significantly affected, taking account of the description of the proposed development and the mitigation by design. Each assessment chapter would set out:

- a detailed methodology used to establish the relevant aspects of the current state of the environment (the baseline), and the criteria used to identify and assess the likely significant effects;
- a description of the current environment (baseline conditions) and any relevant 'future baseline' scenarios that are 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
- 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. 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 also be given to the potential for cumulative effects, where the assessment would describe the additional effect associated with the proposed development, when considered in combination with other reasonably foreseeable projects (defined as those which are the subject of a valid consent or application for consent). The basis for this is that only these developments have the potential to result in significant cumulative effects in combination with those arising from the proposed development. The final list of development to be considered in the cumulative effects assessment would be finalised three months prior to publication to allow sufficient time to compile the EIA Report.

¹¹ Scottish Government (2013) Planning Advice Note 1/2013: Environmental Impact Assessment

The following committed development proposals would be considered, where appropriate, in assessing the effects of the proposed development.

Table 3.1: Details of Developments for Consideration in Cumulative Assessment		
Wind Farm Mid Argyll and Cowal Peninsula	Wind Farms Kintyre Peninsula	Grid Infrastructure
Existing and consented turbines <ul style="list-style-type: none"> • Allt Dearg & Srondoire • A'Chruach (including Phase 2) • Clachan Flats • An Suidhe • Cruach Mhor • Blarghour Schemes in planning <ul style="list-style-type: none"> • Achanelid • Barmolloch • Carse • Cruach Chaorainn • Kilmichael • Lephin Farm • Upper Sonachan Forest • Airigh • Lephinchapel Farm 	Existing and consented turbines <ul style="list-style-type: none"> • Deucheran Hill • Cour • Freasdail 	<ul style="list-style-type: none"> • Existing substations • Existing 132 kV lines in study area • Existing Inveraray to Crossaig 132 kV OHL

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

A more detailed overview of the guidance and methodology adopted for each technical study is provided within the respective technical sections of this EIA Scoping Report (Sections 4-14).

3.3 Scoping Methodology

This following sections (Sections 4-14) 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.

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.

4. SEASCAPE/LANDSCAPE CHARACTER AND VISUAL IMPACT

4.1 Introduction

A seascape/landscape and visual assessment (SLVIA) would consider the likely significant effects of the proposed development on the 'landscape resource' and on 'visual amenity of the area'. Given the nature and scale of the proposed lattice steel tower OHL, it is considered unlikely that significant seascape/landscape and visual effects would be experienced at distances in excess of 10 km from the proposed development¹². Therefore, this distance is proposed as the extent of the study area boundary for the SLVIA.

4.2 Baseline Conditions

Figures 4.1a-4.1d illustrates the topography within the SLVIA study area. Figures 4.2a-4.2d illustrates the location and extents of landscape designations, classifications and character types within the SLVIA study area.

4.2.1 Landscape Designations and Classifications

The study area contains two National Scenic Areas (NSAs). These comprise:

- Knapdale NSA, which, at its closest is situated around 500 m west of the proposed development; and
- North Arran NSA, which is located over 4.2 km to the south east of the proposed development.

The special qualities of these designated areas are set out in Scottish Natural Heritage (2010)¹³.

The study area contains a number of Areas of Panoramic Quality (APQs), including:

- the Bute and South Cowal APQ, which, at its closest is situated over 5.6 km east of the proposed development;
- the Knapdale and Melfort APQ which, at its closest is situated over 3.9 km west of the proposed development;
- the West Kintyre APQ, which, at its closest, is located over 7.2 km to the west of the proposed development;
- West Loch Fyne APQ, which runs parallel to the Mid Argyll section of the proposed development, and which is located within 1 km of the proposed development.
- East Loch Fyne APQ, which forms a narrow strip along the eastern side of Loch Fyne, over 3.4 km south east of the nearest section of the proposed development.

APQs are designated in the Argyll and Bute adopted Local Development Plan 2015. These are areas of regional importance in terms of their landscape quality which were previously identified as 'Regional Scenic Areas' in the former Strathclyde Structure Plan. There is currently no published citation that lists the special qualities of this designation. Consequently the SLVIA would address the criteria set out in SG LDP ENV 13 – Development Impact on Areas of Panoramic Quality¹⁴.

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

- North Arran (WLA3) which, at its closest, is situated over 6 km south east of the proposed development; and
- Ben Lui (WLA6), which, at its closest, is situated over 7.4 km north east of the proposed development.

There are a number of Gardens and Designed Landscapes (GDLs) within the study area which are included in the Inventory of Gardens and Designed Landscapes and protected as nationally important. These comprise:

- Inveraray Castle – the proposed development is partially located within this GDL, within the Balantyre Wood;

¹² Based on unpublished research for SHE Transmission: Turnbull Jeffrey Partnership (1993). Effectiveness of Backcloth for Electricity Transmission Towers.

¹³ Scottish Natural Heritage (2010). The special qualities of the National Scenic Areas. SNH Commissioned Report No.374.

¹⁴ URL: <https://www.argyll-bute.gov.uk/sites/default/files/finalsgdocument31jan2013.pdf> [accessed 16 June 2017].

- Crarae – located approximately 800 m east of the proposed development;
- Strone and Ardkinglas – situated around 4 km east of the proposed development;
- Duntrune Castle – around 7 km north west of the proposed development;
- Ballimore – approximately 7.3 km east of the proposed development; and
- Stonefield Castle Hotel - situated approximately 900 m east of the proposed development.

4.2.2 Landscape Character

The seascape and landscape character of the study area would be mapped and described with reference to the following publications:

- Carol Anderson and Alison Grant Landscape Architects (2012) Argyll and Bute Landscape Wind Energy Capacity Study (LWECS);
- SNH and Environmental Resources Management (1996) No 78 - Landscape assessment of Argyll and the Firth of Clyde;
- SNH (2005). Loch Lomond and the Trossachs landscape character assessment. Scottish Natural Heritage Commissioned Report No. 093 (ROAME No. BAT/AA302/00/01/123); and
- Scott, K.E., Anderson, C., Dunsford, H., Benson, J.F. and MacFarlane, R. (2005) - An assessment of the sensitivity and capacity of the Scottish seascape in relation to offshore windfarms. Scottish Natural Heritage Commissioned Report No.103 (ROAME No. F03AA06).

Whilst a number of these publications relate to wind energy development, they are considered to contain the most up to date character descriptions that are relevant to the type of development proposed and the completion of the SLVIA.

Figures 4.3a-4.3d show the findings of the SNH character assessments, whilst Figures 4.4a-4.4d show the findings of the LWECS.

The Landscape Character Types (LCTs) and Seascape Units present within the SLVIA study area comprise the following:

- Mountain Glen (also known as Wooded Glen) – LCT LWECS 4 (comprising LLT6: Wooded Glen, and LLT11: Farmed Strath Floor LCTs in SNH's Loch Lomond and the Trossachs landscape character assessment);
- Kintyre Upland Forest-Moor Mosaic (Including Loch Fyne and Knapdale units of this LCT) – LCT LWECS 6 (AGC6 in the SNH character assessment);
- Rocky Mosaic – LCT LWECS 20 (AGC20 in the SNH character assessment);
- Craggy Upland – LCT LWECS 7 (AGC7 in the SNH character assessment);
- Upland Parallel Ridges – LCT LWECS 10 (AGC10 in the SNH character assessment);
- West Kintyre, South-east Jura and East Islay – Seascape Unit 24; and
- Loch Fyne/Kilbrannan Sound – Seascape Unit 25.

The LCTs and Seascape Units identified would be verified during field reconnaissance, adjusted as necessary, and would form the basis of the assessment of effects on seascape and landscape character.

4.2.3 Visual Amenity

The key visual receptors within the study area include:

- settlements including Inveraray, Furnace, Minard, Port Ann, Lochgilphead, Ardrishaig, Inverneill, Tarbert, and Whitehouse.
- scattered dwellings within close proximity of the proposed development. Note residential visual amenity effects on private views from individual dwellings/groups of dwellings will be addressed in Section 11: Amenity and Health.
- road users on the following routes:

- the A83, which is crossed by the proposed development at the south western end of Tarbert;
- the A815, which is situated on the eastern side of Loch Fyne;
- the A816, which is crossed by the proposed development approximately north west of Lochgilphead;
- the A819, which is crossed by the proposed development north of Inveraray;
- the B842, which runs roughly parallel to the alignment of the proposed development between Claonaig and the substation at Crossaig;
- the B8001, which intersects the alignment of the proposed development east of Kennacraig;
- the B8024 which is crossed by the proposed development west of Inverneill and west of Tarbert.
- recreational receptors, including cyclists on National Cycleway 78 which the proposed development crosses at the Crinan Canal near Lochgilphead, as well as sea kayakers in West Loch Tarbert and on Loch Fyne.

Figure 4.5a-4.5d contains a preliminary ZTV for the proposed development (specifically, the towers and conductors) along with a series of preliminary representative viewpoints that are intended for use in verification of potential visual effects.

4.3 Potentially Significant Effects

4.3.1 Potentially Significant Landscape Effects

The SLVIA would address potentially significant effects on the following receptors:

- landscape fabric (i.e. the physical landscape resource, including topography and land cover);
- landscape designations and classifications;
- seascape/landscape character; and
- visual receptors (including residential receptors, road users, hill walkers, walkers and cyclists on regionally and/or nationally important routes, passengers on ferries).

Landscape Fabric

The majority of the proposed development would be situated in forested areas and areas of open moorland. The construction of the proposed development would result in a permanent loss of approximately 427 hectares of forest cover within the wayleave area (a maximum of 40 m on either side of the indicative proposed alignment, with potential for reduction within forested areas) and temporary disturbance to existing moorland vegetation associated with the construction of a temporary construction track and tower compounds. There would be no appreciable changes to existing topography. Following cessation of construction works all compounds and temporary access tracks would be removed and the ground reinstated. Consequently, residual effects on landscape fabric are expected to be non-significant. However, this position would be reviewed once the development proposals have been finalised. For the purposes of scoping it is assumed that assessment of the effect of the proposed development on landscape fabric would be scoped into EIA assessment.

Landscape Designations/Classifications

- NSAs: A comparison of Figures 4.2a-4.2d and 4.5a-4.5d indicate that the theoretical viewshed of the proposed development would be confined to upland forested locations and parts of the NSA in and around Moine Mhor and Loch Crinan. However, such views are likely to be restricted by intervening topography and vegetation and so significant effects on the special qualities of the NSA are considered unlikely.
- APQs: The proposed development would be partially located within the North Argyll APQ, with potential for significant, albeit localised residual effects. Whilst the theoretical viewshed of the proposed development, as illustrated in Figure 4.5a-4.5d extends over these designated areas, field reconnaissance suggests that actual visibility would be considerable less due to the screening effect of intervening vegetation, principally coniferous forest plantations. Consequently, no significant effects are expected within this designation.
- WLAs: As the proposed development would not be located within the WLAs identified above, it would not have a direct effect on the physical characteristics of the Wild Land. The preliminary ZTV in Figure 4.5a-

4.5d indicates that these WLAs would be subject to limited views of the proposed development. Given the elevated nature of viewpoints in the WLA the proposed development is likely to be backclothed and recessive in views and would therefore be highly unlikely to result in significant effects on the perceptual qualities of the WLAs.

- GDLs: The only GDL to be subject to potential direct effects would be Inveraray Castle. A large proportion of the GDLs are subject to substantial woodland cover, thereby restricting potential views out from all but the most elevated parts of the GDLs. Moreover, where views out are provided they are generally focused upon the interior of Loch Fyne and away from the proposed development and its forested context. The exception to this is the tower at Dun na Cuaiche, in the Inveraray Castle GDL, from where the proposed development is likely to be clearly evident in views to the north-west, but would be backclothed by topography and forestry and would therefore be less prominent. Limited visibility would also be provided from the Duntrune Castle GDL. However, the proposed development would be seen distantly and would be partially screened by intervening topography and vegetation. On this basis significant effects on these landscapes is considered unlikely.

Based on this initial appraisal, there are no predicted significant effects on landscape designations/classifications and as such it is suggested these are scoped out of EIA assessment.

Seascape/Landscape Character

The greatest potential for significant effects on seascape/landscape character would occur within the Rocky Mosaic LCT. This is due to the sensitivity of the landscape and its position, coincident with smaller scale linear landscape that the proposed development would need to cross (e.g. Glen Shira, Glen Aray, Crinan Valley, Glen Ralloch, edges of Western Loch Tarbert, and the western end of the glen between Kennacraig and Claonaig). Additionally, some significant effects may occur at the transition between the Rocky Mosaic and the Upland Forest-Moor Mosaic LCT where the proposed development could be prominent on scarp slopes that form the backdrop to the Rocky Mosaic landscape. Consequently, these aspects would be scoped in to EIA assessment.

4.3.2 Potential Significant Visual Effects

Settlements

- Inveraray: Given the distance of this settlement from the nearest section of the indicative proposed alignment (over 2 km) and the extent of intervening coniferous forestry, no significant effects are anticipated within the main settlement of Inveraray and as such it is suggested to scope this settlement out of EIA assessment.
- Furnace: This settlement lies approximately 3 km from the nearest section of the indicative proposed alignment. This, coupled with the extent of intervening coniferous forest, means that significant effects on the amenity of this settlement are unlikely and as such it is suggested to scope this settlement out of EIA assessment.
- Minard: This settlement is situated approximately 1.3 km from the nearest section of the indicative proposed alignment. The ZTV in Figure 4.5a indicates that views of the proposed development would be provided from a large proportion of this settlement. However, field reconnaissance suggests that such visibility would be substantially constrained by intervening coniferous forest and that significant effects on the amenity of this settlement are unlikely and as such it is suggested to scope this settlement out of EIA assessment.
- Port Ann: The ZTV in Figure 4.5b indicates theoretical visibility of up to 44 towers of the indicative proposed alignment. However, field reconnaissance suggests that visibility on the ground would be constrained by intervening coniferous forest and that significant effects on the amenity of this settlement are therefore unlikely and so it is suggested to scope this settlement out of EIA assessment.
- Lochgilphead: The ZTV in Figure 4.5b indicates theoretical visibility of up to 70 towers of the indicative proposed alignment, the greatest potential visibility occurring in locations at the northern and southern parts of the settlement where views of the Crinan Valley crossing and elevated sections of the indicative

proposed alignment would be visible. On this basis significant visual effects are anticipated in locations within this settlement. The SLVIA would endeavour to ascertain whether such effects are widespread and represent a significant effect on key parts of the town and as such this settlement is scoped into EIA assessment.

- **Ardrishaig:** The ZTV in Figure 4.5b indicates theoretical visibility of up to 47 towers of the indicative proposed alignment from the entirety of this settlement. However, field reconnaissance suggests that visibility on the ground would be partially constrained by intervening topography and coniferous forest. It is also the case that some mitigation may be derived from the removal of the existing 132 kV line which is currently interposed between the indicative proposed alignment and Ardrishaig settlement. On this basis significant effects on the amenity of this settlement are therefore considered unlikely and therefore it is suggested to scope this settlement out of EIA assessment.
- **Inverneill:** According to the ZTV in Figure 4.5c, up to 17 of the proposed towers would be visible from the rear of Inverneill properties, the towers appearing on the skyline around 560 m to the west of the settlement. However, some mitigation would be afforded by the removal of the existing 132 kV line which is currently interposed between the settlement and the indicative proposed alignment. On this basis significant effects on the amenity of this settlement are therefore considered unlikely and it is suggested to scope this settlement out of EIA assessment.
- **Tarbert:** Whilst the ZTV indicates widespread visibility of up to five of the proposed towers from Tarbert, field reconnaissance suggests that visibility would be substantially constrained by intervening vegetation and localised topography. The clearest anticipated visibility would be from:
 - the southern approach to Tarbert, where the indicative proposed alignment would be seen the loch end of West Loch Tarbert and climbing the side of the Kintyre peninsula;
 - from the curtilage of the most elevated properties in Croft Park; and
 - in locations on Eastfield and High Park.However, visibility from the interior of these locations would be partially obscured by intervening built forms and vegetation. A detailed assessment of visibility and residual visual effects is therefore proposed and this settlement is scoped into EIA assessment.
- **Whitehouse:** Whilst the ZTV in Figure 4.5d indicates that up to eight towers would be visible on the skyline field reconnaissance suggest that views out from the interior of this village are substantially obscured by intervening vegetation. Consequently, significant effects are considered unlikely and it is suggested to scope this settlement out of EIA assessment.

Scattered Dwellings

According to available address data there are around 275 properties within 500 m of the indicative proposed alignment which would be subject to potential views of the proposed development. These are primarily located:

- north of Inveraray;
- north of Lochgilphead, and within the Crinan Valley;
- at Inverneill and between Inverneill and Bagh Taigh an Droighinn; and
- at Tarbert, between West Loch Tarbert and the main settlement of Tarbert.

The potential for residential visual amenity effects on these properties will be considered through further assessment as defined in Section 11: Amenity and Health.

Key Transport Routes and Tourist Routes

There is potential for significant effects on key transport and tourist routes as discussed below.

- **A83:** Given the transitory nature of receptors on this route, their low lying position relative to much of the proposed development, the presence of structural vegetation on the landward side of the route, and consequent restriction and short duration of views of the proposed development. Significant effects are likely to be highly restricted (e.g. confined to locations south of Tarbert), and unlikely to represent a

significant overall effect on the amenity of this long distance route. However, as NCR78 overlaps this route, it is suggested this route is scoped into EIA assessment.

- A815: This route is situated over 4 km from the proposed development. Views of the proposed development would be confined to locations along around a half of this route within the study area. Where visible the proposed development is likely to be seen on the skyline, the lower sections of towers would be partially screened by intervening topography and vegetation, thereby reducing the apparent scale of the towers. Given the distance at which the proposed development would be seen and its partially screened appearance, significant effects are anticipated to be localised, rather than constituting a significant overall effect on the amenity of this route and therefore it is suggested this route is scoped out of EIA assessment.
- A816: Significant effects are predicted on the A816 north of Lochgilphead where the proposed development crosses the Crinan Valley and therefore this route is scoped into EIA assessment.
- A819: Whilst this route intersects the indicative proposed alignment north of Inveraray the proposed development would only be glimpsed briefly. In the context of the limited extent and briefness of visibility, and the removal of the existing 132 kV line that runs parallel to the indicative proposed alignment, effects on this route are anticipated to be non-significant and therefore it is suggested this route is scoped out of EIA assessment.
- B842: Views of up to 21 of the proposed towers would be provided from this route, south of Claonaig. The proximity of the indicative proposed alignment to this route (within 100 m in places), means that significant effects are possible. However, the removal of the existing 132 kV line that is located between this route and the proposed development would offer some mitigation. Due to the steep gradient of the landform, it is unlikely users of the B842 would experience significant effects, however, the NCR78 overlaps this route and therefore it is suggested this route is scoped into EIA assessment.
- B8001: Significant effects are predicted on the B8001 east of Kennacraig, where the indicative proposed alignment would cross this route. Significant effects are anticipated to be localised, rather than constituting a significant overall effect on the amenity of this route. The NCR78 overlaps this route and therefore it is suggested this route is scoped into EIA assessment.
- B8024: Visibility from the majority of this route would be constrained by a combination of vegetation and topography. However, a large number of the proposed towers would be visible where this route intersects the indicative proposed alignment, west of Inverneill and at Glen Ralloch and loch end, West Loch Tarbert. On this basis only localised significant effects are anticipated on this route. However, as the NCR78 overlaps this route it is suggested this route is scoped into EIA assessment.

Recreational Receptors

The key potential for significant effects on recreational receptors would concern:

- walkers on the Kintyre Way, on high ground west of Claonaig;
- cyclists on NCR78 in the Crinan Valley, west of Inverneill, at loch end West Loch Tarbert, and south of Claonaig; and
- the Crinan canal, north of Lochgilphead.

Such effects are likely to be localised, with large proportions of these route unaffected or effected to a non-significant level. Notwithstanding this, it is intended to undertake a detailed statistical and quantitative assessment of the entire length of each route as it occurs within the study area and so these recreational receptors are scoped into EIA assessment.

4.4 Issues Scoped Out

The residual effects on landscape fabric are expected to be non-significant, however this position would be reviewed once the finalised development proposals and construction operations have been finalised. For the purposes of scoping it is assumed that assessment of the effect of the proposed development on landscape fabric would be scoped into EIA assessment. Significant effects are not considered likely on NSAs, APQs, WLAs and GDLs, therefore the assessment of the effect of the proposed development on these designations would be scoped out of EIA assessment. The only LCTs scoped in at this stage are the Rocky Mosaic and

Upland Forest-Moor Mosaic LCTs, the effect of the proposed development on all other LCTs is scoped out at this stage. The assessment of cross-boundary effects on landscape character would be limited to the transition between the Rocky Mosaic LCT and the Upland Forest-Moor Mosaic LCT. All other cross-boundary effects would be scoped out.

In terms of visual effects on settlements, key transport and tourist routes and recreational receptors, the assessment would be limited to those receptors with predicted significant effects in the relevant subsections of section 4.3.2 above (Lochgilphead and Tarbert settlements; the A83, A816, A842, B8001 and B8024; and all recreational receptors listed above. All other receptors have been scoped out. Residential visual amenity effects on private views from individual dwellings/groups of dwellings will be addressed in Section 11: Amenity and Health.

4.5 Assessment Methodology

The SLVIA would be undertaken in accordance with the following guidance:

- Landscape Institute and Institute of Environmental Management and Assessment (2013) Guidance for Landscape and Visual Impact Assessment – Third Edition.
- The Countryside Agency and Scottish Natural Heritage (2002) Landscape Character Assessment.
- Scottish Natural Heritage and the Countryside Agency (2002) Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity.

4.5.1 Cumulative Assessment

An assessment of cumulative effects would be undertaken with regard to the relationship between the proposed development, existing/consented wind farms and grid infrastructure as well as developments currently subject to a planning application. The cumulative assessment would consider the 'in combination' as well as 'additional' effect of the proposed development taking account of concurrent and sequential visibility of the proposed development and cumulative sites. The detailed assessment criteria for the cumulative assessment will be defined in the EIA Report.

4.5.2 Assessment of Effects on the Residential Visual Amenity of Properties

4.5.3 The methodology for the assessment of residential visual amenity of properties is discussed in Section 11: Amenity and Health Verification of Findings

In order to verify potential effects on landscape character and the visual amenity of the study area a series of assessment viewpoints would be assessed, as listed in Table 4.1, below. These viewpoints are intended to represent a range of receptors at a range of locations. The location of each viewpoint is indicated in Figures 4.5a- 4.5c.

Cumulative Assessment

Table 4.1: Proposed SLVIA Viewpoints			
Viewpoint Number	Location	Easting	Northing
1	Tower Fort, Dun na Cuaiche, Inveraray Castle	210014	710147
2	A83 Northern Approach to Inveraray on bridge of River Array	209815	709081
3	A83, Auchindrain	202958	703227
4	Carron Bothy	194442	699646
5	A816, east of Dunadd	184770	693401
6	Loch Glashan	191449	692123
7	Crinan Canal Towpath by Cairnbaan	183916	690828

Viewpoint ID	Viewpoint Description	Easting	Northing
8	Crinan Canal Towpath and NCR	184770	689923
9	Northern Fringe of Lochgilphead	185841	689098
10	A83, Lochgilphead Waterfront by Poltaloch Street	186067	687996
11	A83, Lochgilphead Waterfront (east)	186351	687607
12	Ardrishaig Pier	185479	685407
13	A83, Inverneill	184891	681254
14	A83, Barr Hill, Northern Approach to Tarbert	186054	671060
15	Isle of Bute/Arran Ferry, East Loch Tarbert	188010	669097
16	Lochend, West Loch Tarbert	185008	668412
17	A83, Western Fringe of Tarbert	185896	668370
18	Eastern Fringe of Tarbert	186400	668300
19	B8024, South of Lochend, West Loch Tarbert	183875	667455
20	B8024, north of Bàrr Mòr	182074	666249
21	B8024, Rubha Riabhach	179849	662530
22	B8001, east of Whitehouse	182883	661446
23	B8001 (by Spion Kop)	183930	660674
24	B8001, north of Cloanaig	186276	658394
25	Kintyre Way, west of Cloanaig	184413	656472
26	B842, Port Fada, south of Cloanaig	185381	654617
27	B824, Crossaig	183358	651784

4.6 Summary

The scoping exercise has reviewed the landscape fabric, landscape designations/classifications, seascape/landscape character and visual receptors within 10 km of the proposed development and has identified those which have potential for significant effects. These include landscape fabric, the Rocky Mosaic and Upland Forest-Moor Mosaic LCTs and the transboundary effects on these two LCTs. In terms of visual receptors, Tarbert and Lochgilphead settlements, the A83, A816, A842, B8001 and B8024 routes and all those listed under the 'Recreational Receptors' subheading in section 4.3.2 above have been scoped into the SLVIA.

Likely direct, indirect and cumulative effects of the proposed development on these SLVIA receptors would be assessed and mitigation measures, where appropriate, would be proposed to prevent, reduce or offset any likely significant adverse effects identified.

Note residential visual amenity effects on private views from individual dwellings/groups of dwellings will be addressed in an Amenity and Health EIA Report chapter.

5. ECOLOGY AND NATURE CONSERVATION

5.1 Introduction

The EIA Report will include a chapter to consider the likely significant effects of the proposed development on ecological features. The specific objectives of the assessment would be to:

- identify where there is potential for significant effects on designated sites and habitats considered to be of conservation or ecological value;
- detail the presence/possible presence of protected 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 likely significant effects on ecological features.

5.2 Baseline Conditions

The site is dominated by plantation woodland and grassland (particularly marshy, semi-improved and acid grassland) with areas of upland peatland, such as blanket bog, wet heath and dry heath. Woodland included on the semi-natural woodland inventory and the ancient woodland inventory is present at various locations within the proposed development LOD. Badger *Meles meles*, otter *Lutra lutra*, pine marten *Martes martes* and common lizard *Zootoca vivipara* are known to be present from field signs recorded during surveys. The habitats are also suitable to support bat species, water vole *Arvicola amphibius*, red squirrel *Sciurus vulgaris* and amphibians and reptiles.

5.2.1 Desk Study

A desk study to collect existing baseline data about the site and the surrounding area, such as the location of designated sites or other natural features of potential ecological importance, was undertaken. The desk study area, defined as a 1 km corridor around the proposed development, was surveyed using the following data sources:

- Scottish Natural Heritage (SNH) Sitelink¹⁵; and
- National Biodiversity Network (NBN) Gateway¹⁶.

The NBN Gateway website was searched for protected species records, in order to develop an understanding of the likely presence of key species prior to undertaking field surveys. The Argyll and Bute Local Biodiversity Action Plan (LBAP)¹⁷ was also consulted. Supplementary information on the site and its surroundings was obtained from aerial images available from Google™ Earth Pro.

Statutory Designated Sites

There are five sites with a non-avian statutory designation within 1 km of the proposed development. The details of their designations and features are summarised in Table 5.1 (listed generally from north to south). Locations of the designated sites are shown on Figure 5.1a-5.1f.

¹⁵ URL: <http://gateway.snh.gov.uk/sitelink/> [Accessed 28 June 2017]

¹⁶ URL: <https://data.nbn.org.uk/> [Accessed 28 June 2017]

¹⁷ URL: <https://www.argyll-bute.gov.uk/sites/default/files/planning-and-environment/AandB%20BAP%20Draft.pdf> [Accessed 28 June 2017]

Table 5.1: Statutory Designated Sites (non-avian Ecology) within 1 km of Proposed Development			
Site Name	Qualifying Features	Distance from Proposed Development (at closest point)	Comment
Inverneil Burn SSSI	Upland oak woodland, bryophyte and lichen assemblages	0.37 km west	Potential impacts unlikely as proposed development does not enter SSSI and crosses watercourse downstream from designated site.
Artilligan and Abhainn Srathain Burns SSSI	Upland oak woodland	Proposed development spans this SSSI.	Proposed development designed to span SSSI without need for removal of the notified species. Indirect impacts possible due to proximity of works.
Tarbert Woods SAC	Western acidic oak woodland	Proposed development spans this SSSI.	Proposed development designed to span SSSI without need for removal of the notified species. Indirect impacts possible due to proximity of works.
Glen Ralloch to Baravalla Woods SSSI	Upland oak woodland, bryophyte and lichen assemblages	Approx. 0.003 sq km of LOD within this SSSI.	Potential impacts possible with proximity to proposed development but unlikely to be significant due to small area involved
Claonaig Wood SSSI	Upland oak woodland	0.74 km east	No impacts predicted as separated from proposed development by road and open moorland.

Non-statutory designations

There are several areas of woodland identified as ancient woodland or included on the semi-natural woodland inventory, as shown on Figure 5.1a-f. Large areas occur around Inveraray, Lochgilphead, Inverneill, Tarbert and Crossaig. Native and ancient woodlands are important for biodiversity and nature conservation, providing habitat for species such as badger, red squirrel, pine marten and bat, and are also often important sites for lower plants within Argyll. Ancient woodland is defined as woodlands that have been continually wooded since 1750, and there is a strong presumption in Scottish Planning Policy against the removal of woodland on ancient woodland sites¹⁸.

In addition to the designated sites listed above, areas of particular sensitivity include:

- Douglas Woods, where there is a known area of high quality upland oak woodland;
- Balantyre Wood, one of the first areas to be planted with conifer specimen trees from North America;
- Corranbuie Wood, an area of high quality native woodland; and

¹⁸ URL: <http://www.snh.gov.uk/planning-and-development/advice-for-planners-and-developers/woodlands/> [Accessed 28 June 2017]

- The north west of Ardrishaig, where there are mature trees which have high potential as bat roosts.

Local Biodiversity Action Plan

The proposed development passes through the Argyll and Bute LBAP area. This LBAP covered the period of 2010-2015 and has not been updated. The relevant habitat and species included in the LBAP are detailed in Table 5.2.

Habitats	Species
Upland oak woodland	Freshwater pearl mussel <i>Margaritifera margaritifera</i>
Wet woodland	Atlantic salmon <i>Salmo salar</i>
Native pine woodland	Sea lamprey <i>Petromyzon marinus</i>
Upland heathland	River lamprey <i>Lampetra fluviatilis</i>
Upland flushes, fens and swamps	Adder <i>Vipera berus</i>
Purple moor-grass and rush pastures	Great crested newt <i>Triturus cristatus</i>
Blanket bog	Red squirrel
Rivers and lakes	Water vole
	Otter
	Wildcat <i>Felis silvestris grampia</i>
	Soprano pipistrelle <i>Pipistrellus pygmaeus</i>
	Brown long-eared bat <i>Plecotus auritus</i>
	Noctule <i>Nyctalus noctula</i>

Protected Species

From the desk study, red squirrel, badger, otter, water vole and bat species are known to occur in the area.

5.2.2 Field surveys

A Preliminary Ecological Appraisal (PEA)¹⁹, including an extended Phase 1 habitat survey²⁰, was undertaken in July and August 2015 by ASH Design and Assessment Ltd. Additional surveys were completed by Ramboll Environ UK Ltd in May, June, August and October 2016 in accordance with routeing/alignment changes. These surveys comprised a Phase 1 habitat survey and woodland assessment of Corranbuie Wood, a National Vegetation Classification (NVC)²¹ survey of Balantyre Wood, with aging of the mature specimen trees, and an extended Phase 1 habitat survey of deviations to the proposed alignment, particularly focusing on otter, water vole, bat roost potential trees, surveying potentially sensitive habitats to NVC level and an assessment of ancient woodland areas.

Figure 5.2a-I details the habitat types found during the Phase 1 habitat surveys. The following habitats were recorded:

¹⁹ URL: https://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/GPEA/GPEA_April_2013.pdf [Accessed 28 June 2017]

²⁰ URL: http://jncc.defra.gov.uk/PDF/pub10_handbookforphase1habitatsurvey.pdf [Accessed 28 June 2017]

²¹ URL http://jncc.defra.gov.uk/pdf/pub06_NVCusershandbook2006.pdf [Accessed 28 June 2017]

- broad-leaved semi-natural woodland;
- broad-leaved plantation woodland;
- coniferous plantation;
- mixed plantation woodland;
- dense scrub;
- scattered scrub;
- scattered trees;
- recently-felled woodland;
- acid grassland;
- marshy grassland;
- neutral grassland;
- improved grassland;
- continuous bracken;
- scattered bracken;
- tall ruderal;
- dry dwarf shrub heath-acid;
- wet dwarf shrub heath;
- wet heath/acid grassland mosaic;
- dry/wet dwarf shrub heath mosaic;
- wet dwarf shrub heath/blanket bog mosaic;
- wet dwarf shrub heath/flush mosaic;
- wet dwarf shrub heath/fen mosaic;
- blanket bog;
- wet modified bog;
- dry modified bog;
- acid/neutral flush;
- fen;
- swamp;
- valley mire;
- basin mire;
- standing water;
- running water (including a number of watercourse crossings along the proposed development, such as Douglas Water, Stronachullin Burn and Crossaig Burn); and
- mosaic habitats, including marshy grassland/wet modified bog, marshy grassland/dry heath and marshy grassland/wet heath.

Protected species surveys recorded the following:

- badger field signs and two setts;
- otter sightings in Dubh Loch and Loch Righeachan with spraints present in several watercourses, including Loch Righeachan, Stronachullin Burn, the Allt Romain and Crossaig Burn;
- pine marten scat at Stronachullin and Crarae;
- a common lizard sighting in Balantyre Wood; and
- numerous trees throughout the proposed development suitable to support roosting bats.

No other protected dwelling areas apart from badger setts were recorded within the proposed development.

Invasive non-native plant species were recorded during Phase 1 habitat surveys, consisting of Himalayan balsam *Impatiens glandulifera*, rhododendron *Rhododendron ponticum* and Japanese knotweed *Fallopia japonica*.

The following ecological features are considered to be of sufficient sensitivity to warrant inclusion in the EIA:

- peatland habitats, comprising blanket bog, wet and dry heath, fens and mires. These habitats are included in Annex 1 of the EC Habitats Directive²² and are sensitive to environmental change, such as changes to hydrology, carbon function, species composition and nutrient status. The majority of peatland habitat in the UK is in poor condition due to drainage and damage from peat extraction²³;
- wetland habitats, comprising Groundwater Dependent Terrestrial Ecosystems (GWDTE). Three areas of GWDTE have been identified in Balantyre Wood and to the south west of Redesdale House, as shown on

²² URL: <http://jncc.defra.gov.uk/page-1523> [Accessed 28 June 2017]

²³ URL: <http://www.wildlifetrusts.org/peatlands> [Accessed 28 June 2017]

Figure 5.2a and j. GWDTE are sensitive to changes in hydrology and are a priority under the EU Water Framework Directive²⁴;

- woodland in areas of ancient and semi-natural woodland. Ancient woodland contains remnants of Scotland's original forests, preserving the integrity of ecological processes in the soil and its associated biodiversity. Once destroyed, ancient woodland cannot be recreated. Although no legislation specifically protects ancient woodland, there is a strong presumption against removing ancient semi-natural woodland or plantations on ancient woodland sites²⁵;
- invasive non-native plant species, which reduce plant diversity through competition and the formation of dense stands. Himalayan balsam, rhododendron and Japanese knotweed are subject to legal controls under Schedule 9 of the Wildlife and Countryside Act 1981²⁶. This Act was amended by the Wildlife and Natural Environment (Scotland) Act 2011²⁷ to enable Scotland to adopt a recognised approach to dealing with invasive non-native species; and
- badger, otter, pine marten and bat species. Badgers and their setts are protected under the Protection of Badgers Act 1992²⁸. Otter, pine marten and bat species are European Protected Species (EPS) under the EC Habitats Directive²⁹.

5.2.3 Additional Baseline Information Required and Surveys Proposed

Based on the data collected from the consultation and desk based study, together with a review of relevant data already obtained on site, the following surveys are proposed to be undertaken within July to October 2017:

- assessment of trees for bat roost potential. Appropriate mitigation would be put in place prior to the removal of any trees with bat roosting potential;
- extended Phase 1 habitat survey of laydown/storage areas; and
- groundwater dependent terrestrial ecosystems (GWDTE) assessment of wetland habitats not assessed in initial Phase 1 habitat survey and that are located within the LOD.

These surveys would then be used as to inform any subsequent assessment and provide evidence to support habitat management and mitigation proposals.

5.3 Potentially Significant Effects

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

- designated sites, comprising Artilligan and Abhainn Strathain Burns SSSI, Tarbert Woods SAC and Glen Ralloch to Baravalla Woods SSSI;
- habitat loss, fragmentation and severance, with particular attention given to any Annex 1 habitats (as defined in the EC Habitats Directive) such as acid dry heath and blanket bog (peat) habitats, other sensitive habitat types such as GWDTE, and woodland removal in areas of ancient woodland (including consideration of hydrological change);
- the spread of non-native invasive plants species, such as Himalayan balsam, rhododendron and Japanese knotweed; and
- the killing, injury or temporary disturbance of nationally and internationally protected species of wildlife through traffic collision, lighting, noise, and/or pollution during construction.

²⁴ URL: <http://jncc.defra.gov.uk/page-1375> [Accessed 28 June 2017]

²⁵ URL: <http://www.snh.gov.uk/docs/C283974.pdf> [Accessed 28 June 2017]

²⁶ URL: <http://jncc.defra.gov.uk/page-1377> [Accessed 28 June 2017]

²⁷ URL: <http://www.legislation.gov.uk/asp/2011/6> [Accessed 28 June 2017]

²⁸ URL: <http://www.snh.gov.uk/protecting-scotlands-nature/protected-species/legal-framework/badger-protection/> [Accessed 28 June 2017]

²⁹ URL: <http://www.snh.gov.uk/protecting-scotlands-nature/protected-species/legal-framework/habitats-directive/euro/> [Accessed 28 June 2017]

5.4 Issues Scoped Out

5.4.1 Reptiles

5.4.2 Reptiles and amphibians are unlikely to be present in large numbers within the proposed development due to the limited availability of suitable habitat; undertaking surveys to confirm presence or absence is considered unnecessary as the EIA Report would include appropriate mitigation, to be agreed with SNH to avoid impacts on these species groups. Incidental records of reptiles and amphibians collected during other surveys would be reported and the EIA Report chapter would assume reptiles and amphibians are present within suitable habitat, with appropriate mitigation designed. As such, this topic is scoped out of further assessment. Disease Transfer

No common juniper *Juniperus communis* were recorded on the site, therefore biosecurity measures for the control of *Phytophthora austrocedrae*, a fungus-like organism which infects the plant via the roots and causes foliage to decline and eventually die, is considered unnecessary and are scoped out of further assessment.

No amphibians were recorded during field surveys and habitat within the proposed development is considered unlikely to support large numbers of this species. As a result, measures to control transfer of chytridiomycosis, an infectious disease caused by the chytrid *Batrachochytrium dendrobatidis*, are considered unnecessary and are scoped out of further assessment.

5.4.3 Invertebrates

Confirmation of the presence or absence of this species group is considered unnecessary as the EIA Report would adopt a precautionary approach and include appropriate mitigation, where required, to avoid significant effects.

5.4.4 Aquatic ecology

While the proposed development would cross over a number of watercourses, the OHL design would aim to locate towers further than 30 m from watercourses where possible. On the basis that the construction work would be carried out following good practice mitigation for pollution prevention and taking a precautionary approach by assuming the presence of sensitive aquatic ecology (including fish and freshwater pearl mussel), significant effects associated with the proposed development on aquatic ecology including fish are unlikely and therefore this topic is scoped out of further EIA assessment.

5.4.5 Cumulative Effects

No other developments have been identified that are likely to represent a source of significant cumulative environmental effects on non-avian ecology and so cumulative effects would not be considered as part of the ecology and nature conservation assessment.

5.5 Assessment Methodology

The ecological impact assessment (EclA) would be completed in accordance with the Chartered Institute of Ecological and Environmental Management (CIEEM) Ecological Impact Assessment Guidance³⁰. The assessment would use the ecological baseline to identify the sensitive ecological features that could be impacted by the construction or operation of the proposed development. Each feature would be assigned a geographic level of importance based on its national and local conservation status and population/assemblage trends and other relevant criteria (including size, naturalness, rarity and diversity). Details of the proposed development would then be used to assess the potential impacts affecting important ecological features. Impacts would be characterised by describing their extent, magnitude, duration, reversibility, timing and frequency. The effect of the impact on each ecological feature would then be considered in the absence of any mitigation and classified as significant or not significant.

³⁰ URL: https://www.cieem.net/data/files/Website_Downloads/Guidelines_for_Ecological_Impact_Assessment_2015.pdf [Accessed 28 June 2017]

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

5.6 Summary

The scoping exercise has reviewed the ecological features within 1 km of the proposed development and has identified those that have the potential to be impacted. These include the Artilligan and Abhainn Strathain Burns SSSI, Tarbert Woods SAC, Annex 1 habitats, such as blanket bog and wet heath, and protected species, such as badger and bats. 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.

6. ORNITHOLOGY

6.1 Introduction

The EIA Report will include a chapter to consider the likely significant effects of the proposed development on ornithological features. 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 likely significant effects on ornithological features.

6.2 Baseline Conditions

The following key species were recorded during flight activity surveys, nesting diver surveys, moorland/woodland breeding bird surveys, black grouse *Tetrao tetrix* lek surveys and breeding raptor surveys for the proposed development:

- red-throated diver *Gavia stellata* nests at five lochs close to the proposed development. Both red-throated and black-throated diver *Gavia artica* were recorded flying at collision risk height across the proposed development;
- at least five occupied golden eagle *Aquila chrysaetos* territories close to the proposed development. Roost surveys of two territories identified seven eyries, the closest of which occurs within 500 m of the proposed development. Flight activity surveys recorded flights occurring at collision risk height;
- four hen harrier *Circus cyaneus* territories, with flights across the proposed development;
- two osprey *Pandion haliaetus* territories, with flights across the proposed development;
- an adult pair of white-tailed eagle *Haliaeetus albicilla* around two lochs close to the proposed development with a single flight at collision risk height;
- a single short-eared owl *Asio flammeus* territory and a nest, with flights close to the proposed development but generally below collision risk height;
- five barn owl *Tyto alba* territories but no flights;
- wintering ducks, geese and swans on mud flats at Loch Tarbert and Loch Gilp. Migratory whooper swan *Cygnus cygnus*, greylag goose *Anser anser* and brent goose *Branta bernicla* were present on the mudflats at Loch Gilp. Flights of whooper swan, greylag and pink-footed goose *Anser brachyrhynchus* were recorded across the proposed development at Lochgilphead. Whooper swan flights also occurred across the proposed development at Kilduskland Reservoir;
- wintering waders on mud flats at West Loch Tarbert and Loch Gilp. Loch Gilp was recorded as a regular stop-off area for black-tailed godwit *Limosa limosa*. Wintering wader flights around West Loch Tarbert and Loch Gilp were generally local, below collision risk height and did not cross the proposed development, although a flight of six golden plover *Pluvialis apricaria* crossed at collision risk height at Meall Dubh, with larger groups of migrants moving to the south west of Crossaig; and
- four black grouse lek sites with flights crossing the proposed development generally below collision risk height. However, one dead male was recorded under the existing 132 kV line near Inveraray.

6.2.1 Statutory Designated Sites

There are 12 sites with a statutory designation for ornithological interest with potential connectivity to the proposed development. The details of their designations and features are summarised in Table 6.1 (listed generally from north to south) and their locations are provided on Figure 6.1a-6.1c.

Table 6.1: Statutory Designated Sites for Ornithology within 20 km of the Proposed Development			
Site Name	Qualifying Features	Distance from Proposed Development (at closest point)	Connectivity with Proposed Development
Glen Etive and Glen Fyne SPA	Golden eagle, breeding	2.28 km north	Potential for connectivity with golden eagle as falls within core range.
Jura, Scarba and the Garvellachs SPA	Golden eagle, breeding	15.50 km north west	No potential connectivity with golden eagle as outwith core range.
Knapdale Lochs SSSI and SPA	Black-throated diver, breeding	3.20 km west	Although occurs outwith core range of black-throated diver, survey data has indicated possible flights of birds from this site to the proposed development.
Moine Mhor SSSI and National Nature Reserve (NNR)	SSSI: breeding bird assemblage including hen harrier, short-eared owl, red-breasted merganser <i>Mergus serrator</i> , redshank <i>Tringa totanus</i> , curlew <i>Numenius arquata</i> and snipe <i>Gallinago gallinago</i> . NNR: 500 ha of bog habitat supporting hen harrier	2.58 km north west	There is low potential for connectivity with hen harrier and short-eared owl as just outwith core range of 2 km. No potential for connectivity with other qualifying species.
North End of Bute SSSI	Breeding bird assemblage including red-throated diver, hen harrier, merlin <i>Falco columbarius</i> , peregrine <i>Falco peregrinus</i> and golden eagle	13.70 km east	No potential connectivity with qualifying species due to distance from proposed development.
Ulva, Danna and the McCormaig Isles SSSI	Cormorant <i>Phalacrocorax carbo</i> , breeding; shag <i>Phalacrocorax aristotelis</i> , breeding; Greenland barnacle goose <i>Branta leucopsis</i> , non-breeding; Greenland white-fronted goose <i>Anser albifrons flavirostris</i> , non-breeding; whooper swan, non-breeding.	11.58 km west	Potential connectivity with Greenland barnacle goose but no other qualifying species.
Kintyre Goose Lochs SSSI	Greenland white-fronted goose, non-breeding;	5.64 km west	Potential connectivity with Greenland white-fronted goose as within

Table 6.1: Statutory Designated Sites for Ornithology within 20 km of the Proposed Development			
			core range.
Gigha Island And Islets IBA	Breeding species of global conservation concern that do not meet IBA criteria: corncrake <i>Crex crex</i>	14.09 km west	No potential connectivity with qualifying species due to distance from proposed development.
Kintyre Goose Roosts Ramsar and SPA	Greenland white-fronted goose, non-breeding	5.64 km west	Potential connectivity with Greenland white-fronted goose as within core range.
Rhunahaorine Point IBA and SSSI	IBA: Nationally important for summer moulting assemblages of red-breasted merganser. SSSI: Greenland white-fronted goose, non-breeding; little tern <i>Sternula albifrons</i> , breeding	11.09 km west	No potential connectivity with qualifying species due to distance from proposed development.
Arran Northern Mountains SSSI	Breeding bird assemblage including golden plover, dunlin <i>Calidris alpina</i> , hen harrier, raven <i>Corvus corax</i> , peregrine, golden eagle and red-throated diver, in addition to the most southerly Scottish locality for ptarmigan <i>Lagopus muta</i>	15.60 km south east	No potential connectivity with qualifying species due to distance from proposed development.
Arran Moors IBA and SSSI and SPA	IBA: hen harrier. Important for breeding raptors and other upland species. SSSI: breeding bird assemblage including hen harrier, red-throated diver, golden eagle, peregrine and short-eared owl. SPA: hen harrier, breeding.	IBA and SPA: 15.55 km south east SSSI: 6.75 km south east	IBA and SPA qualifying species have no potential connectivity due to distance from proposed development. Potential connectivity with red-throated diver (within core range) and low potential for connectivity with golden eagle from SSSI (just outwith core range of 6 km).

6.2.2 Non-statutory Designations

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

6.2.3 Target Species

Initial Surveys

Ornithological surveys were undertaken by Lawrence Environmental Consultants (LEC) in 2015 and 2016, with the proposed development split into the following survey areas, as shown on Figure 6.2a-6.2f:

- Inveraray Substation to Balantyre Wood;
- Balantyre Wood to Loch Righeachan;
- Barmore Wood to Loch Leacann;
- Loch Leacann to Minard;
- Loch Glashan;
- Lochgilphead;
- Kilduskland;
- Stronachullin;
- Meall Mhor;
- West Loch Tarbert;
- Tarbert to Claonaig; and
- Escart to Crossaig.

The following section describes the surveys undertaken by LEC.

Nesting Diver Surveys

Five lochs were identified as suitable to support nesting diver species and where interaction with the preferred route was considered to be possible. These lochs occurred in the Loch Leacann to Minard, Loch Glashan, Kilduskland, Meall Mhor and Escart to Crossaig survey areas.

These nesting lochs were surveyed in summer 2015, with additional surveys at three other locations in the Inveraray Substation to Balantyre Wood, Meall Mhor and West Loch Tarbert survey areas in summer 2016. Survey methods followed guidance set out in Gilbert et al (1998)³¹ with three visits per summer to each nesting loch.

Raptor and Owl Nest Territory Surveys

Surveys for breeding raptors were undertaken to assess potential effects from the proposed development and to inform alignment selection. Surveys were undertaken for golden eagle, white-tailed sea eagle, merlin, peregrine, hen harrier, osprey and short-eared owl following methods set out in Hardey et al, (2009)³². Surveys were undertaken within a 1 km buffer of the proposed development, although records of osprey territories included a greater distance where their commuting routes could potentially overlap with the proposed development. Survey areas comprised the Inveraray Substation to Balantyre Wood, Barmore Wood to Loch Leacann, Loch Leacann to Minard, Loch Glashan, Stronachullin, Meall Mhor, Tarbert to Claonaig and Escart to Crossaig survey areas.

Additional surveys, including the use of four automatic trail cameras in July and August 2015, were completed under a Schedule 1 license to monitor a golden eagle core territory. Eagle habitat quality assessments were also undertaken in October 2015, which involved walking the moorland crossed by the proposed development and assessing its suitability to support foraging golden eagles. Owl nest surveys also included dusk surveys in 2015 and 2016 with cold searches for signs/cavities/nest boxes/barns/steading.

Moorland and Woodland/Forestry Bird Surveys

³¹ Gilbert, G., Gibbons, D.W. & Evans, J. (1998). Bird Monitoring Methods, RSPB/BTO. pp. 394-396.

³² Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. and Thompson, D. (2009). Raptors A Field Guide for Surveys and Monitoring. The Stationary Office: Edinburgh. ISBN 978 0 11 497345 2.

Larger areas of moorland were surveyed using the Brown and Shepherd, (1993) methodology. This accounted for approximately 70% of the 24 km of moorland crossed by the proposed development. Moorland surveys were carried out in the Inveraray Substation to Balantyre Wood, Loch Leacann to Minard, West Loch Tarbert, Tarbert to Claonaig survey areas.

An adapted Common Bird Census³³ was used to survey for woodland/forestry birds. This accounted for approximately 60% of the 56 km of woodland/forestry crossed by the proposed development. Woodland surveys were undertaken in the Balantyre Wood to Loch Righeachan, Barmore Wood to Loch Leacann, Loch Glashan, Lochgilphead, Kilduskland, Meall Mhor, West Loch Tarbert and Escart to Crossaig survey areas.

Black Grouse Surveys

Black grouse surveys were undertaken, covering sites that were known prior to the commencement of survey work and in areas where suitable habitat occurred. These surveys occurred in the Inveraray Substation to Balantyre Wood, Loch Leacann to Minard, Loch Glashan, Kilduskland, Meall Mhor, West Loch Tarbert; Tarbert to Claonaig; and Escart to Crossaig survey areas. Surveys were undertaken in 2015 with repeats taking place in 2016, where necessary due to alignment alterations. Surveys took place in April and May, with each survey beginning at dawn and lasting until two hours after dawn.

Flight Activity Surveys

Vantage Point (VP) surveys were undertaken following SNH guidance on VP methodology³⁴. Surveys at key locations identified by LEC, where species sensitive to OHL collisions were known to transit, commenced in April 2015 and continued for 12 months. Due to the identification of a potential golden eagle territory in close proximity to the proposed development, additional survey work began in July 2015, with surveys finishing August 2016. VP locations were within the Loch Glashan, Lochgilphead, Kilduskland, Stronachullin, West Loch Tarbert and Escart to Crossaig survey areas. Target species for the flight activity surveys included divers, gulls, and raptors listed under Schedule 1, geese, swans, and waders.

Where existing third party data sets confirmed a low probability of flight activity close to the proposed development, flight activity surveys were not completed. The scope of the flight activity surveys was agreed through consultation with SNH.

Due to the vulnerability of some of the target species to persecution, no figures are provided. Confidential figures will be only provided to appropriate statutory consultees and selected non-statutory consultees (e.g. SNH/RSPB).

Additional Surveys

Flight Activity Surveys

12 VP locations were surveyed twice per month for four months between February and May 2017 inclusive, in order to provide suitable data for the completion of a collision risk assessment for golden eagle and other key species. Following a review of the data collected between February and May 2017, and following additional consultation with SNH, surveys were discontinued at seven of these location, with five VP locations taken forward for survey twice per month for 4 months from June to September 2017 inclusive. The five VPs were selected to continue gathering data on potential issues remaining regarding flights of red-throated and black-throated diver, peregrine, golden eagle and white-tailed eagle.

Raptor Nest Territory Surveys

Surveys of the golden eagle nest occupancy were repeated three times during the 2017 breeding season to update the 2016 eagle nest occupancy data.

³³ Bibby, C.J., Burgess, N.D., Hill, D.A., and Mustoe, S.H. (2000). Bird Census Techniques, 2nd ed. Academic Press, London.

³⁴ URL: http://www.snh.org.uk/pdfs/strategy/renewable/bird_survey.pdf [Accessed 28 June 2017]

Target Species Sensitivity

Table 6.2 provides the identified or potential ornithological sensitivities by survey area.

Table 6.2: Identified/Potential Ornithological Sensitivities by Survey Area	
Survey Area	Ornithological Sensitivity
Inveraray Substation to Balantyre Wood	The proposed development passes 2.28 km south of the Glen Etive and Glen Fyne SPA, classified for golden eagles. Flight activity surveys identified a low level of golden eagle flights in this area.
Balantyre Wood to Loch Righeachan	Proposed development passes close to a golden eagle core territory. This area is also used for diver flights to and from Loch Righeachan.
Barmore Wood to Loch Leacann	There are known to be diver flights between lochans north of Beinn Dearg and Loch Fyne. Active peregrine <i>Falco peregrinus</i> nest close to proposed development.
Loch Leacann to Minard	There is a known golden eagle territory approximately 2 km from the proposed development although flight activity in this area was low.
Loch Glashan	Survey work in 2015/2016 identified diver flights to and from Loch Glashan and Loch Fyne. These flights did not cross the proposed development, which lies to the west of Loch Glashan. High level of white-tailed eagle activity.
Lochgilphead	Survey work in 2015/2016 identified high usage of the mudflats at the top of Loch Gilp by wintering wildfowl and waders, particularly whooper swans. Flights along the Crinan Canal were noted with swans observed circling high above Loch Gilp and then crossing above the existing 132 kV OHL. The proposed development and tower configuration in this area would mean that it would not present a significantly different barrier to wildfowl flights than that presented by the existing 132 kV OHL.
Kilduskland Reservoir	Survey work in 2015/2016 identified diver flights between Kilduskland Reservoir and surrounding lochs to and from Loch Gilp. The Knapdale Lochs SPA, classified for black throated divers, lies 3.2 km west of the proposed development. Flights were typically high, above collision height, as divers circled above lochs before flying across the proposed development.
Stronachullin	The proposed development passes along the eastern-most edge of a golden eagle territory, close to the existing 132 kV OHL and away from all recently occupied eyries. Diver flights were also recorded in the area. These flights may have been birds from the Knapdale Lochs SPA lying 4 km to the west. As recorded elsewhere, diver flights were typically high above the proposed development and it was not always possible to identify all flights to species level.
Meall Mhor	There is a previously occupied golden eagle territory in this area and some uncertainty as to how this historical territory relates to the one at Stronachullin. There is also the potential for diver flights between Loch Chaorainn and Meall Mhor Loch and on to Loch Gilp.
West Loch Tarbert	Similar to Lochgilphead, high usage of the mudflats at the top of West Loch Tarbert by wintering wildfowl and waders was noted. Flights across the proposed development to East Loch Tarbert were common with birds crossing above the existing 132 kV OHL. West Loch Tarbert is in the process of being classified as an SPA for great northern diver <i>Gavia immer</i> , red breasted merganser and common eider <i>Somateria mollissima</i> . However, none of these species were recorded during flight activity surveys.
Tarbert to Claonaig	The proposed development passes between two known golden eagle territories. There is also suitable hen harrier, short-eared owl and black grouse habitat and identified activity around the proposed development.
Escart to Crossaig	One diver flight and a low level of activity of activity by raptors. A tree eyrie of the golden eagle territory lies within 500 m of the proposed development.

As a result, 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, Knapdale Lochs SPA and SSSI, Moine Mhor SSSI and NNR and Arran Moors SSSI. These areas are protected under the EC Bird Directive³⁵, which places importance on the protection of habitats for endangered and migratory species. Designated sites are also protected under the Habitats Directive³⁶;
- red-throated and black-throated diver, both species included on Schedule 1 of the Wildlife and Countryside Act 1981³⁷. Black-throated diver are vulnerable to disturbance when breeding and are an amber-listed species of conservation concern³⁸;
- 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 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 and several species are included on Schedule 1 of the Wildlife and Countryside Act 1981, such as whooper swan, greylag goose and black-tailed godwit. Whooper swan and greylag goose are amber listed species, and black-tailed godwit are a red-listed species of conservation concern; and
- black grouse are a red-listed species of conservation concern.

6.2.4 Additional Baseline Information Required and Surveys Proposed

Flight activity surveys for the remaining potential issues identified will be completed in September 2017. No further surveys are proposed.

6.3 Likely 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 study area of the proposed development e.g. A'Cruach wind farm and Kilmichael wind farm. 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.

6.4 Assessment Methodology

The ecological impact assessment (EclA) would be completed in accordance with the Chartered Institute of Ecological and Environmental Management (CIEEM) Ecological Impact Assessment Guidance³⁹. The assessment would use the ornithological baseline to identify the sensitive ornithological features that could be impacted by the construction or operation of the proposed development. Each feature would be assigned a geographic level of importance based on its national and local conservation status and population/assemblage trends and other relevant criteria (including rarity and susceptibility to environmental change). Details of the

³⁵ URL: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147> [Accessed 28 June 2017]

³⁶ URL: http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm [Accessed 28 June 2017]

³⁷ URL: http://jncc.defra.gov.uk/PDF/waca1981_schedule1.pdf [Accessed 28 June 2017]

³⁸ URL: https://www.rspb.org.uk/Images/birdsofconservationconcern4_tcm9-410743.pdf [Accessed 28 June 2017]

³⁹ URL: https://www.cieem.net/data/files/Website_Downloads/Guidelines_for_Ecological_Impact_Assessment_2015.pdf [Accessed 28 June 2017]

proposed development would then be used to assess the potential impacts affecting important ornithological features. Impacts would be characterised by describing their extent, magnitude, duration, reversibility, timing and frequency. The effect of the impact on each ornithological feature would then be considered in the absence of any mitigation and classified as significant or not significant.

Where appropriate, mitigation measures would be recommended within the EclA to remedy any adverse impacts. An assessment of residual effects and cumulative effects would then be undertaken and reported within the EIA Report.

6.4.1 Collision Risk Methodology

The flight activity surveys described above were undertaken to identify areas associated with a potentially high likelihood of bird collision, in consultation with SNH. A qualitative assessment using SNH guidance⁴⁰ would be undertaken to assess the impacts of the proposed development on ornithological features, particularly with reference to collision risk. Where a potential for significant adverse effects is identified using the qualitative assessment, consideration would be given to using a quantitative collision risk model developed by Ramboll Environ and adapted from the collision risk model created by Band *et al.* (2007)⁴¹. The model follows two steps:

- it first calculates an estimate for the number of flights passing through the airspace of the proposed development (the Collision Risk Window) in a year; and
- it calculates the likelihood of these flights colliding with the proposed development.

Collision Risk Window

The first stage of the Collision Risk Assessment (CRA) is to identify exactly what it is that birds would potentially collide with. In the case of an overhead power line, this is the conductor wires and the earth wire (the towers themselves are considered to be visible enough that birds see and avoid them). In order to identify whether birds fly at the heights that these wires would occupy within the proposed development, information from the project design engineers would be used to identify the airspace occupied by these wires i.e. the 'risk window'. All flights observed during the VP surveys would be allocated into flight height bands relating to this risk window - referred to as 'below collision height', 'at collision height' and 'above collision height'.

Probability of Colliding with a Wire

The probability of colliding is assumed to be proportional to the extent of the risk window occupied by wires and excluding all the areas of airspace in between. This would be calculated by multiplying the potential vertical area occupied by a given bird species by the total length of wire, allowing for wire sag and dividing by the total area of the risk window.

Avoidance Rates

Once an estimate of the number of flights through the collision risk window has been calculated and the probability of one of these flights resulting in a collision then the next step would be to account for the avoidance action of the bird. Avoidance rates are prescribed⁴² by SNH for species in relation to wind farms. These would be used as there are no standard avoidance rates for powerlines.

Output

The estimated number of flights through the collision risk window is reduced by the probability of a bird colliding with the wires (assuming no avoiding action) and then by the avoidance rate. The model outputs an estimate of the total yearly collision risk for a bird species as a result of the proposed development.

⁴⁰ SNH (2016). Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds

⁴¹ Band, W., M. Madders, and D. P. Whitfield. (2007). Developing field and analytical methods to assess avian collision risk at wind farms

⁴² SNH (2010). Use of Avoidance Rates in the SNH Wind Farm Collision Risk Model

6.4.2 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 to complete an Appropriate Assessment as part of the Habitats Regulations Appraisal (HRA) process. Where there is no potential connectivity with SPA qualifying bird species, Appropriate Assessment would not be required. A study to inform any Appropriate Assessment would be provided as part of the EIA, taking account of the potential for connectivity with SPAs as detailed in Table 6.1.

6.5 Issues Scoped Out

6.5.1 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.

Wintering waders and wildfowl, particularly at the Lochgilphead and West Loch Tarbert mudflat flyway areas, have been observed modifying their flights to avoid the existing 132 kV OHL during flight activity surveys. This existing OHL runs for much of the length of the proposed development. This suggests that birds would habituate/have already habituated to the presence of an OHL and would not treat it as a barrier. The alignment and tower configuration in this area would mean that the proposed development would not present a significantly different barrier to ornithological features, such as waders and wildfowl, than that presented by the existing 132 kV OHL. Therefore, the effect of this impact is considered to be of negligible significance.

6.5.2 Electrocutation

6.5.3 Bird electrocution on OHLs is possible either where a bird is able to 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.

6.5.4 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 both of these potential impacts is considered too low to cause a significant effect.

6.5.5 Habitat Loss (Construction 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 are low and are not considered to represent a likely significant loss and/ or modification of bird habitat.

6.6 Summary

The scoping exercise has reviewed the ornithological features within 20 km of the proposed development and has identified those that have the potential to be impacted. These include the Glen Etive and Glen Fyne SPA and Knapdale Lochs SPA and SSSI, Schedule 1 species, such as golden eagle and diver species, 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.

7. CULTURAL HERITAGE

7.1 Introduction

The cultural heritage assessment would consider the potential effects of the proposed development on cultural heritage assets (archaeology and built heritage). The specific objectives would be to:

- identify the cultural heritage baseline within the proposed development LOD;
- assess the proposed development LOD in terms of its archaeological potential;
- identify cultural heritage assets within 10 km of the LOD where there is the potential for indirect effects to arise on the setting of assets;
- 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.

7.2 Baseline Conditions

7.2.1 Statutory Designated Sites

There are statutory designated cultural heritage assets within 500 m of the indicative proposed alignment. They consist of one Inventory status Garden and Designed Landscape, Inveraray Castle, which is crossed by the indicative proposed alignment; one Scheduled Monument, Stane Alane (SM213); two Category B Listed Buildings, Inverneil Mausoleum (LB18257) and Stronachullin Lodge (LB18259); and three Category C Listed Buildings, Strondour Cottage (LB18260), Glenralloch Farmhouse (LB18264) and Spion Kop Kennels (LB12028).

In addition there are 479 statutorily designated cultural heritage assets within 10 km of the indicative proposed alignment. They include 160 Scheduled Monuments, 41 Category A Listed Buildings, 163 Category B Listed Buildings, 103 Category C Listed Buildings, six Inventory status Gardens and Designed Landscapes and six Conservation Areas.

There are no World Heritage Sites and Inventory status Historic Battlefields within 10 km of the indicative proposed alignment.

7.2.2 Non-Statutory Designated Sites

Within 500 m of the indicative proposed alignment there are 197 non-statutory designated cultural heritage assets. The heritage assets include a range of features and sites widely varying in character and age, and indicate that there has been extensive settlement and activity from the early prehistoric period onwards within the landscapes crossed by the proposed development.

The known heritage assets include:

- prehistoric settlement and funerary remains (Neolithic to Iron Age): a dun at Eascairt and prehistoric fort at Alt an Dubnair; cup-marked rocks at Oragaig, Larachmor Burn, Auchbraad, Achnabreck and Feorlin; burial cairns at Guala Shith, Alt an Dubnair and Creag Mhor; and a standing stone at Eascairt. Prehistoric artefacts have been found at Glenralloch (flint fabricator) and Loch Glashan (bronze dirk).
- remains of medieval/post-medieval settlement and agricultural land-use remains: former townships and farmsteads with associated field systems (field banks and rig and furrow cultivation), and other agrarian structures such as shieling huts and sheepfolds.
- historic mining activity: relict copper mining workings at Cruach Chaorainn; zinc workings at Artilligan; and lead mining remains at Erines, Stronachullin and Craignure.
- historic forestry management features: charcoal burning platforms at Artilligan and Blantyre wood, which forms part of the designed landscape surrounding Inveraray Garden.

- former Ecclesiastical sites: possible chapel sites at Cille Bhrìde and Achnakeil and a possible former burial ground at Glenkil.
- particular clusters of heritage assets are recorded at Sithean Beag, to the northwest of Minard; north of Lochgilphead, at Stronachullin Burn; to the east of Tarbert; and along the coast between Oragaig and Crossaig.

7.3 Potentially Significant Effects

Pre-planning comments received from HES with regards to the proposed development identified potential effects of the proposed development on the setting of the following cultural heritage assets, and requested that they are specifically assessed within the EIA.

7.3.1 Scheduled Monuments

- Auchoish Chambered Cairn (SM173);
- Loch Glashan Dun (SM10871); and
- Crinan Canal (SM6500).

7.3.2 Inventory status Garden and Designed Landscapes (GDL)

- Inveraray Castle;
- Crarae; and
- Stonefield Castle Hotel.

7.3.3 Conservation Areas

- Auchindrain

7.3.4 Promoted Monument

- Neil Munro Monument

The proposed development passes through Inveraray GDL and the impact of the proposed development on the setting of this asset forms a key issue.

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 HES and the initial ZTV (Figure 7.1a-7.1d) produced for the proposed development. The viewpoints have been selected to represent a range of view receptors, distance and experiences. Indicative viewpoint locations are listed in Table 7.1 below and their locations are shown on Figure 7.1a-7.1d.

CH Viewpoint No.	Asset Name/Number	Status	Easting	Northing	Viewpoint Type
1	Neil Munro Monument	Promoted monument	209685	719022	Wireline
2	Dun na Cuiache Watch Tower (LB11543)	Category A Listed	210031	710123	Wireline & Photograph (360°)
3	Carloon Dovecot (LB11540)	Category A Listed	209260	709901	Wireline & Photograph (180°)
4	Inveraray Castle and Inveraray	GDL and Conservation Area	212120	707555	Wireline & Photograph (180°)
5	Achnagoul Chambered	NSR Site in HER	206170	705622	Wireline

Table 7.1: Proposed Cultural Heritage Viewpoints					
	Cairn (HER1523)				
6	Creag Mhor Chambered Cairn (HER1554)	NSR Site in HER	203450	70395	Wireline
7	Chapel of Kilbride (SM3337)	Scheduled Monument	200752	796610	Wireline & Photograph (180°)
8	Allt an Dubhair Fort (HER4616)	NSR Site in HER	194768	697487	Wireline
9	Loch Glashan Dun (SM10871)	Scheduled Monument	192276	693016	Wireline
10a	Auchoish, long cairns (SM173)	Scheduled Monument	187040	691110	Wireline & Photograph (180°)
10b	Auchoish, long cairns (SM173) – from opposite side of valley	Scheduled Monument	186550	691550	Wireline
11	Barr Lola Fort (SM3503)	Scheduled Monument	193831	682879	Wireline
12	Inverneil Mausoleum (LB18257)	Category B Listed	183818	681258	Wireline
13	Inverneil Walled Garden and Summer House (LB18256)	Category B Listed	184773	681554	Wireline
14	Stonefield Castle	GDL	186791	671761	Wireline & Photograph (180°)
15	Tarbart Castle (SM276)	Scheduled Monument	186720	668649	Wireline & Photograph (180°)
16	Escart Standing Stones (SM3656)	Scheduled Monument	184632	666789	Wireline
LVIA VP2	Aray Bridge (LB11545)	Category A Listed	-		-
LVIA VP3	Auchindrain	Conservation Area	-		-
LVIA VP8	Crinan Canal (SM6501)	Scheduled Monument	-		-
LVIA VP23	Spion Kop Kennels (LB12028)	Category C Listed	-		-

7.4 Issues Scoped Out

It is proposed that the assessment of the effect of the proposed development on World Heritage Sites and Inventory status Historic Battlefields be scoped out at this stage. There are no World Heritage Sites or Inventory status Historic Battlefields within 10 km of the indicative proposed alignment and their settings would not be affected by the proposed development.

7.5 Assessment Methodology

The archaeological and cultural heritage assessment would be conducted with reference to the relevant guidance, primarily HES Policy Statement (HESPS 2016⁴³) and Scottish Planning Policy (SPP 2014⁴⁴).

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 Section 3: Methodology).

Assessment of likely direct, indirect and cumulative effects of the proposals on heritage assets would take into account the sensitivity of the receptor 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 Section 3: Methodology (Section 3.2). Assessment of potential effects upon the settings of heritage assets would take into account the guidance published by Historic Scotland (Managing Change in the Historic Environment: Setting, 2016⁴⁵).

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.

7.5.1 Additional Baseline

A desk-based assessment and walkover field survey would be conducted for the proposed development LOD to identify all known heritage assets, designated or otherwise, to identify potential direct impacts on cultural heritage assets and to 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 (2014⁴⁶) and Standard and Guidance for Historic Environment Desk-based Assessment (2017⁴⁷).

The 10 km study area adopted for the SLVIA would be used for assessing the likely effects of the proposed development upon the setting of cultural heritage assets with statutory designations.

Sources to be consulted for the collation of data would include on-line heritage databases (Historic Environment Records (HER); Historic Environment Scotland GIS data and Canmore); historic maps; aerial photographs (available from the RCAHMS collections and GoogleEarthTM) 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 site: the site type, site description, and importance/sensitivity of the asset.
- a gazetteer listing details of all designated heritage assets and non-designated assets of at least regional importance (NSR sites), recorded within the HER, that have predicted visibility of the proposed development. Detailed descriptions and background information would be collated for those sites that Historic Environment Scotland and Argyll and Bute Council, through consultation, consider potentially sensitive to the proposed development.
- site location mapping (using GIS).

Reconnaissance field survey would be conducted within the proposed development LOD to:

- locate all visible cultural heritage assets, both identified during the desk-based assessment and previously unrecognised, and record their character, extent and current condition.

⁴³ HES (2016) Historic Environment Scotland Policy Statement June 2016, Historic Environment Scotland

⁴⁴ The Scottish Government (2014) Scottish Planning Policy (SPP)

⁴⁵ HES (2016) Managing Change in the Historic Environment: Setting, Historic Environment Scotland

⁴⁶ Chartered Institute for Archaeologists (CIfA) (2014) 'By-Laws: Code of Conduct, Chartered Institute for Archaeologists, Reading.

⁴⁷ Chartered Institute for Archaeologists (CIfA) (2017) 'Standard and guidance for historic environment desk-based assessment', Chartered Institute for Archaeologists, Reading

- identify areas with the potential to contain unrecorded, buried archaeological remains, taking into account factors such as topography, geomorphology and ground conditions.
- inform the assessment of the 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. The survey would also include visits to key cultural heritage assets with theoretical visibility of the proposed development within 10 km of the indicative proposed alignment, in as far as access is possible, to assess whether the proposed development would affect their settings.

7.6 Summary

The proposed assessment has been designed to identify and evaluate any cultural heritage assets presented within the proposed development LOD, through examination of desk-based sources and detailed field survey, and to identify key heritage assets within 10 km of the indicative proposed alignment that could have their setting affected. Likely direct, indirect and cumulative effects of the proposed development on heritage assets would be assessed and mitigation measures, where appropriate, would be proposed to prevent, reduce or offset any likely significance adverse effects identified.

8. FORESTRY

8.1 Introduction

It is proposed that woodland removal required as part of the enabling works and long term wayleave maintenance will be described as part of the Description of the Proposed Development in the EIA Report. Additional detailed information on the felling required including area, volume, species composition, yield class, forest design, residue management and compensatory planting plans will be described in a factual report to be included as a Technical Appendix to the main EIA report.

Direct and Indirect effects associated with woodland removal, including effects on landscape character, visual amenity, ecology, ornithology and cultural heritage will be assessed as part of the impact assessment chapters on Seascape/Landscape and Visual, Ecology, Ornithology and Cultural Heritage respectively.

No separate impact assessment chapter to consider woodland removal is proposed as part of the EIA Report.

8.2 Baseline Conditions

As described in Section 5: Ecology and Nature Conservation, large sections of the proposed development are dominated by areas of commercial forestry plantation, whilst smaller areas of native or nearly native woodland are also present.

Approximately 57 km of the indicative proposed alignment is located within semi-natural woodland and approximately 7.2 km is within areas noted on the Ancient Woodland Inventory (AWI). Of the AWI, the indicative proposed alignment is located within approximately 3.5 km category 1a and 2a (Ancient Woodland), 3.1 km category 2b (long-established woodlands of plantation origin (LEPO)) and 0.6 km category 3 (Other woodlands on 'Roy' woodland sites)⁴⁸. Ancient Woodland is defined as woodlands that have been continually wooded since 1750, and there is a strong presumption in Scottish Planning Policy against the removal of woodland on ancient woodland sites.

The indicative proposed alignment runs through Artilligan and Abhainn Srathain Burns SSSI and Tarbert Woods SAC. Artilligan and Abhainn Srathain Burns Biological SSSI is notified for upland oak woodland and Tarbert Woods SAC is designated for Western acidic oak woodland. The indicative proposed alignment has been carefully designed so that it would span these designated features without the need for removal of the protected oak woodland. Effects on woodlands designated for their ecological value/importance will be considered in the Ecology chapter.

Scotland's Third National Planning Framework reinforces that "woodlands and forestry are an economic resource, as well as an environmental asset"⁴⁹. The Scottish Government has developed a policy on the control of woodland removal⁵⁰ which provides policy direction for decisions on woodland removal in Scotland. It is relevant to all woodland removal for the purposes of conversion to another type of land use.

8.3 Potential Significant Effects

As described in section 8.1, all potential significant effects associated with woodland removal activities will be assessed the impact assessment chapters on Seascape/Landscape and Visual, Ecology, Ornithology and Cultural Heritage respectively. No forestry impact assessment EIA Report chapter is proposed; however the changes to the forest structure and implications for forest/land-use management would be described in a Technical Appendix to the EIA Report.

⁴⁸ SNH (no date) A guide to understanding the Scottish Ancient Woodland Inventory (AWI). URL: <http://www.snh.gov.uk/docs/C283974.pdf>

⁴⁹ Scottish Government (2014) Scotland's Third National Planning Framework. URL: <http://www.gov.scot/Resource/0045/00453683.pdf> (accessed 14/06/17).

⁵⁰ Forestry Commission Scotland (2009) The Scottish Government's Policy on Control of Woodland Removal. URL: [https://www.forestry.gov.uk/PDF/fcfc125.pdf/\\$FILE/fcfc125.pdf](https://www.forestry.gov.uk/PDF/fcfc125.pdf/$FILE/fcfc125.pdf) (accessed 14/06/17).

8.4 Issues Scoped Out

Woodland removal will be detailed in a Technical Appendix to the EIA Report. A report will be provided to outline the Forestry Design implications in terms of felling phases, risk of wind throw, compensatory planting and wayleave maintenance.

It is considered that impacts on land-use and forest management can be adequately addressed through wayleave agreements with the relevant land owners.

No separate assessment of cumulative effects associated with woodland removal is proposed.

8.5 Proposed Reporting

The preparation of a Forestry Technical Appendix will take account of current industry guidance including, but not limited to:

- Forestry Commission (2011): The UK Forestry Standard, The Government's Approach to Sustainable Forestry. Forestry Commission, Edinburgh.
- Forestry Commission Scotland (2006): The Scottish Forestry Strategy. Forestry Commission, Edinburgh.
- UKWAS (2012): The UK Woodland Assurance Standard Third Edition. UKWAS, Edinburgh; " Forestry Commission Scotland (2009): The Scottish Government's Policy on Control of Woodland Removal. Forestry Commission Scotland, Edinburgh.
- Forestry Commission (2011): Forests and Water. UK Forestry Standard Guidelines (and other guidelines in the same series). Forestry Commission, Edinburgh.
- SEPA Guidance on the Management of Forestry Waste (SEPA, 2013).

Following consultation with Forestry Commission Scotland (FCS) Woodland Impact Assessments (WIAs) have been commissioned for each woodland ownership requiring felling as result of the proposed development. The Forestry Technical Appendix will summarise the findings of the WIAs and will describe the changes to the forest structure resulting from the incorporation of the proposed development into the forest. This would include the changes to, for example, the woodland composition and existing felling programmes. Areas of woodland would need to be felled for the construction and operation of the proposed development including access tracks and other infrastructure. The structure of the woodlands may therefore change, resulting in a potential loss of woodland area. This will be addressed through the redesign of the existing forest including, for example, the use of designed open space; alternative woodland types; changing the management intensity; or the provision of compensation planting on an alternative site.

The applicant is committed to working with individual land owners and forest managers to develop revised Forest Design Plans (FDPs). It is considered that the submission of finalised FDPs could be controlled by an appropriately worded condition, as the FDPs would be tied to the wayleave agreements with landowners.

8.6 Summary

The proposed development would require forestry felling to create wayleaves for construction and operation. No forestry impact assessment EIA Report chapter is proposed; however the changes to the forest structure and implication for forest/land-use management would be described in a Technical Appendix to the EIA Report. The summarised findings of the WIAs would also be included in the Technical Appendix. The effects of woodland removal on other environmental receptors (e.g. landscape, visual, cultural heritage, ecology and ornithology) will be considered in their respective impact assessment chapters.

9. TRAFFIC AND TRANSPORT

9.1 Introduction

This chapter will assess the potential effects relating to Traffic and Transport in relation to the construction phase of the proposed development. Traffic associated with the operation of the proposed development would be negligible. The assessment will be based on the effect of HGVs, private car and delivery vehicle movements during the construction of the proposed development.

The transport, traffic and access chapter will:

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

9.2 Baseline Conditions

The main roads in the study area are as follows:

- A-roads: A83 (from Inveraray to Clachan); A819 (through Glen Aray to Inveraray); A816 (Bridgend to Lochgilphead); A815 (Laglingarten to Clachan Strachur); A8015 (at Tarbert);
- B-roads: B841 (Bellanoch to Cairnbaan), B8024 (Inverneill to Achahoish); B8024 (Barmore to Dunmore); B8026 (at West Tarbert); B8001 (Redhouse to Skipness); B842 (Claonaig to Grogport); B8000 (Garbhallt to Auchnaha); and
- numerous minor roads and tracks branch from the aforementioned A and B roads.

Traffic numbers would be sought from Argyll and Bute Council, Transport Scotland and the Department for Transport (DfT) open traffic count site. Accident data would be sourced from Crashmap.co.uk, an online accident review resource. Should new traffic count data be necessary, this would be obtained through the use of a week-long deployment of an Automatic Traffic Counter (ATC).

Seven locations for traffic surveys are proposed covering the A83, B8001, B842, A816 and A819. The precise location of these count sites will be established with Argyll and Bute Council 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.

9.3 Potentially Significant Effects

In accordance with the Institute of Environmental Management Assessment (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 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:

- severance;
- fear and intimidation;
- accidents and safety;
- driver delay;

- pedestrian amenity; and
- pedestrian delay.

9.4 Issues Scoped Out

The majority of traffic associated with the proposed development would occur during the construction stage. Negligible traffic would be associated with the operational phase of the project. On this basis, operational traffic assessment is scoped out of further assessment.

Where the thresholds for significant effects, detailed in section 9.3, are not exceeded, no detailed assessment will be provided.

9.5 Assessment Methodology

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; accidents 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 Traffic Management Plan will be provided, along with a commitment to work with Transport Scotland and the local roads authority in order to agree detailed traffic management proposals for implementation during the construction phase.

An assessment would be completed with reference to the following guidelines and policy:

- 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 57: Planning for Transport (Scottish Executive, 1999).

The final scope of assessment will be agreed with Transport Scotland and local roads officers once the 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. It is generally considered that 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, the magnitude of the impact is classified using the criteria in Table 9.1.

Table 9.1: 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 traffic increase are then used to inform the assessment of significance of residual effects effects (after mitigation), with reference to the potential effects of severance; fear and intimidation; accidents and safety; driver delay; pedestrian amenity; and pedestrian delay. 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.

9.6 Summary

Effects from traffic would only occur during construction and this is the only phase that traffic and transport assessment would focus on as a worst case scenario. The final scope of the assessment, including proposals for baseline data collection, will be agreed with Transport Scotland and local roads officers once the site access location and trip generation numbers have been finalised.

10. WATER AND SOILS

10.1 Introduction

This section considers the potential effects the proposed development could have on the hydrological, hydrogeological and soil receptors during construction and operation.

10.2 Baseline Conditions

The proposed development is located in the vicinity of numerous watercourses and waterbodies. The main watercourses and waterbodies include River Array, Douglas Water, Leacan Water, Loch Glashan, Crinan Canal, Inverneil Burn, Stronachullin Burn, Artilligan Burn, Meall Mhòr Loch, Lochan da Cheadhinn, Abhainn Strathainn, Bardaravine River, Claonaig Water and Crossaig Burn.

The proposed development is located over two major aquifers according to the 1:625,000 UK Digital Hydrogeological Data⁵¹; the Argyll Group and Southern Highland Group as well as a number of unnamed igneous intrusions. These are low productivity aquifers in which flow is virtually through fractures and other discontinuities.

An initial overview of the Carbon and Peatland 2016⁵², mapping has been conducted for the proposed development, the results of which are summarised in Table 10.1 below and illustrated on Figure 10.1: Carbon and Peatland Map 2016. Class 1 and 2 are considered to represent nationally-important resources of carbon-rich soils⁵³, deep peat⁵⁴ and priority peatland habitat⁵⁵. Class 1 areas are likely to be of high conservation value while Class 2 areas have potentially high conservation value and restoration potential. Although the Carbon and Peatland map classifies the likelihood of presence of features of national importance, it does not infer any significance of effects on the qualities of areas identified as being carbon rich soil, deep peat and priority habitats.

Class	Interactions with Proposed Development
Class 1	One area south west of Loch Glashan and two north west of Oragaig within proposed development,
Class 2	Seven areas north west of Inveraray within proposed development, four areas north of Minard and one area north east of Whitehouse.
Class 3	One area north of Inveraray within proposed development, one area west of Minard, one area south west of Erines, five areas east of Whitehouse and five areas south west of Claonaig.
Class 4	Three areas south east of Whitehouse within proposed development.
Class 5	70 areas of varying sizes within proposed development along whole LOD.

10.3 Potentially Significant Effects

There is potential for the proposed development to give rise to some localised and temporary construction related hydrological impacts as listed below:

- temporary alteration or obstruction to natural drainage patterns as a result of excavations or creation of temporary access tracks or hardstandings;
- physical damage of watercourse bed or banks from the use of machinery during construction works; and

⁵¹ URL: <http://www.bgs.ac.uk/products/hydrogeology/maps.html> [Accessed 27 June 2017]

⁵² URL: <http://www.snh.gov.uk/planning-and-development/advice-for-planners-and-developers/soils-and-development/cpp/> [Accessed 27 June 2017]

⁵³ Defined by SNH as any soil with a surface peat layer (no minimum depth) – this includes peat soil and peaty soil types.

⁵⁴ Defined by SNH as greater than 0.5m.

⁵⁵ Defined by SNH as land covered by peat-forming vegetation or vegetation associated with peat formation.

- temporary disturbance to flows of groundwater and indirect effects on peat hydrogeology and groundwater dependant terrestrial ecosystems (GWDTE) through excavation works and the construction of any temporary access tracks.

The potential for effects on hydrological features during construction would be strictly controlled in accordance with a detailed Construction Environmental Management Plan (CEMP) and Pollution Prevention Guidelines (PPGs). Outline details of the content of the CEMP and PPGs would be included within the EIA Report, and would be taken forward by the contractor for implementation during construction. Standard construction mitigation practice (including a 30 m buffer between working areas and watercourses, use of erosion control measures etc.) would be followed where required. The applicant aims to locate towers no closer than 30 m of a watercourse (shown on 1:50,000 scale OS mapping) to avoid impacts on water quality. Foundation works and construction tracks would be constructed to standard good practice working methods (see section 2.4) and would comply with legislation in the form of the general binding rules set out in The Water Environment (Controlled Activities) (Scotland) Regulations 2011.

Consultation has been undertaken by the applicant to identify private water supply (PWS) abstractions within the proposed development or within 250 m of the proposed development in order to assess potential risk during construction and operation. There has been a low response rate to date therefore further consultation would be undertaken to identify PWS within the following distances of the proposed development:

- within 100 m radius of all excavations less than 1 m in depth; and
- within 250 m of all excavations deeper than 1 m.

Any previously unknown private water supply abstractions identified during the construction works (e.g. that are encountered during geotechnical survey or access works) would be managed through standard good practice working methods as referenced above.

While there is the potential for some temporary disturbance to peatland habitats during construction, peat excavated for tower foundations or temporary access track construction would be stored in order to allow re-use in backfilling and site re-instatement. Access tracks will be designed to maintain hydraulic continuity between areas of habitat dependent on groundwater. The potential for ecological effects associated with soil/peat disturbance will be considered in the Ecology chapter.

No likely significant effects have been identified associated with the operational OHL.

As it is predicted that there would be no likely significant effects associated with the construction or operation of the proposed development, it is therefore assumed that a detailed technical assessment of hydrological and hydrogeological resources would not be included in the EIA Report.

It is proposed however, to provide information on hydrology, hydrogeology and soils to the extent necessary to satisfy SEPA's requirements for information on:

- pollution prevention;
- engineering in the water environment;
- peat management;
- private water supplies; and
- ground water dependent terrestrial ecosystems (GWDTEs).

10.4 Issues Scoped Out

The applicant seeks to scope out a detailed impact assessment chapter for Hydrology, Hydrogeology and Soils from the EIA Report as there is limited potential for significant direct or indirect effects as a result of the proposed development. However, information on hydrology, hydrogeology and soils would be provided to the extent necessary to satisfy SEPA's requirements. As outlined above, it is anticipated that this information would be included as Technical Appendices to the Project Description chapter of the EIA Report. Information regarding potential GWDTEs would be included in a report that would form a technical appendix to the Ecology EIA Report chapter.

10.5 Assessment Methodology

It is intended to scope out a detailed impact assessment chapter for hydrology, hydrogeology and soils from the EIA Report. Instead it is proposed to include the following information on hydrology, hydrogeology and soils to the extent necessary to satisfy SEPA's requirements for information on:

- pollution prevention and environmental management - outline details of a proposed Construction Environmental Management Plan would be included within the description of the proposed development;
- engineering in the water environment - a water crossing schedule and information on flood risk would be provided as a technical appendix to the Proposed Development EIA Report chapter;
- information on peat characteristics, extent, proposed excavation, surplus and re-use options would be provided in a Stage 1 peat management plan (PMP) in line with SEPA guidance as a technical appendix to the Proposed Development EIA Report chapter;
- PWS - should PWS be identified within the parameters above, a site specific qualitative risk assessment would be supplied as a technical appendix to the Proposed Development EIA Report chapter; and
- GWDTEs - a technical appendix to address the hydrogeology effects on GWDTE would be provided as a technical appendix to the Ecology EIA Report chapter in line with LUPS SEPA guidance note 31.

The reports abovementioned would identify appropriate design and construction mitigation measures to minimise effects.

10.6 Summary

The applicant seeks to scope out an EIA Report chapter on hydrology, hydrogeology and soils and instead proposes to include information on these topics as technical appendices to the Project Description EIA Report chapter, or in the case of GWDTEs, a technical appendix to the Ecology EIA Report chapter. These technical appendices will contain sufficient detail to satisfy SEPA's requirements for information on pollution prevention and environmental management; engineering in the water environment; peat management; and GWDTEs.

11. POPULATION AND HUMAN HEALTH

11.1 Introduction

This section of the scoping report is included to consider factors considered to fall under the heading of population and human health, as referenced under regulation 4(3) of the EIA regulations. Given the nature of the proposed development, the potential and perceived effects on population and health include:

- nuisance related to noise and vibration during construction and operation;
- health effects related to electric and magnetic fields (EMFs) during operation; and
- residential visual amenity effects on residential properties during operation.

11.2 Baseline Conditions

The proposed development would be located within a predominantly rural area. The main settlements within the vicinity of the proposed development include Inveraray, Lochgilphead and Tarbert. Smaller settlements, individual dwellings and clusters of properties are also distributed along the length of the indicative proposed alignment.

11.2.1 Noise and Vibration

For the purposes of a worst case assessment, a conservative (low) background noise level of 20 dB(A) in dry conditions was used to complete preliminary calculations which indicated the potential for the operational OHL to be audible at up to 300 m during wet conditions. On this basis, properties within a 300 m buffer either side of the indicative proposed alignment are considered representative of potential noise sensitive receptors (NSRs) along the alignment. A property being located within 300 m of the indicative proposed alignment does not necessarily indicate the potential for significant noise effects. The 300 m buffer is shown on Figure 11.1.

Data gathering will include baseline noise surveys for a representative sample of receptor locations, and the purchase of meteorological data in order to provide data upon which an impact assessment can be based⁵⁶.

No significant vibration sources have been identified.

11.2.2 EMF

EMFs arise from electric charges. Exposure guidelines have been developed by the International Commission on Non-Ionising Radiation Protection (ICNIRP) to ensure protection of human health in different situations, occupational exposure and public exposure. These guidelines have been adopted by the UK Health Protection Agency (HPA) for application in the UK⁵⁷. The calculated field strengths for the proposed 275 kV overhead lines are within the ICNIRP exposure guidelines as shown in Table 11.1.

⁵⁶ Dunstaffnage was chosen as a suitable surrogate location from which to analyse historic meteorological conditions, as provided by the Met Office (<http://www.metoffice.gov.uk/public/weather/climate-historic/#?tab=climateHistoric>, accessed 26 April 2017). Although the weather station at Paisley is closer to the assessment location, Dunstaffnage is more accurate as it shares a coastal weather system. Using average rainfall levels per month collected at Dunstaffnage from June 1971 to April 2017 along with a provisional yearly percentage of hours of rain of 20.6%, the mean rain rate was calculated to be 0.925 mm/hour.

⁵⁷ Health Protection Agency.

<http://www.hpa.org.uk/Topics/Radiation/UnderstandingRadiation/UnderstandingRadiationTopics/ElectromagneticFields/ElectricAndMagneticFields/ExposureGuidelinesForElectricAndMagneticFields/>

Source	Electric Field (kV/m)		Magnetic Field (μT)	
	Calculated field beneath line ⁵⁹	Typical field 25 m 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 – 29.4	1-2

11.2.3 Residential Amenity

The key residential visual amenity receptors within the study area include dwellings within close proximity of the proposed development, either as scattered rural dwellings or dwellings on the edge of settlements.

11.3 Potentially Significant Effects

11.3.1 Noise and Vibration

Using the worst case conditions described in 11.2.1 above,, the noise scoping assessment has determined areas where there is potential for significant effects on NSRs from operational noise, construction plant noise and construction traffic noise. There are no potential significant effects from vibration.

Operational Noise

A preliminary TR(T)94 assessment⁶⁰ has been conducted using conservative assumptions to determine the threshold distance for further detailed assessment as part of the EIA process.

The assessment indicates that during wet conditions:

- NSRs located at distances greater than 284 m from the indicative proposed alignment are likely to experience no observed reaction.
- NSRs located within 284 m from the indicative proposed alignment should be considered in further detail in the EIA report.

The assessment indicates that during dry conditions:

- No observed reaction is likely for NSRs located at distances greater than 62 m from the indicative proposed alignment.

To ensure a conservative assessment, all NSRs located within 300 m of the indicative proposed alignment will be subject to further detailed impact assessment (for wet weather conditions) in the EIA report.

Construction Plant Noise

A preliminary construction noise impact assessment (CNIA) has been carried out according to the ABC method specified in Table E.1 of BS 5228-1⁶¹. The NSRs are likely to fulfil the requirements of Category A with work assumed to take place during weekdays between 07:00 – 19:00 and on Saturdays between 07:00 – 13:00, therefore resulting in a 65 dB threshold. Conservative assumptions have been made to ensure a worst-case assessment. The CNIA indicates that NSRs located greater than 137 m from the plant items will meet construction noise thresholds. To ensure conservative assessment, further analysis will be carried out on all receptors located closer than 150 m from the works.

⁵⁸ URL: <http://www.emfs.info/Sources+of+EMFs/Overhead+power+lines/> [Accessed 20 June 2017]

⁵⁹ WSP, 2017, EMF Study, LT-40 Inveraray to Crossaig, Unpublished.

⁶⁰ National Grid, Technical Report TR(T)94 – *A Method for Assessing the Community Response to Overhead Line Noise*, Issue 1, October 1993.

⁶¹ BSI Group, BS 5228-1: 2009+A1: 2014 – Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise, 2014.

Construction Traffic Noise

A preliminary construction traffic noise impact assessment has been carried out in accordance with the former Department of Transport and Welsh Office 1988 Calculation of Road Traffic Noise (CoRTN)⁶² to determine the required increase in traffic flow that would result in an increase in background levels by 5 dB, indicating an adverse impact.

The traffic flow data were collected from the Department for Transport⁶³ at seven locations on the A83 and one north of Lochgilphead on the A816. The CNIA was carried out on each data set using conservative assumptions to determine a worst case scenario. For the worst case stretch of road assessed (the A816), the assessment indicates an increase in construction traffic of 18% would result in a 5 dB increase in noise level, and hence an adverse impact.

A more detailed breakdown of the type of additional construction vehicles required would provide a more accurate assessment criterion.

In conclusion, the noise scoping assessment indicates:

- NSRs located within 300 m of the indicative proposed alignment require further assessment. NSRs located further than 300 m from the indicative proposed alignment will observe no reaction.
- NSRs located within 150 m of construction works require further assessment. NSRs location further than 150 m from construction works will meet threshold levels.
- NSRs likely to experience an increase in traffic flow of 18% or greater require further assessment. NSRs experiencing traffic increases of less than 18% will not experience adverse impact and therefore require no further assessment.

11.3.2 EMF

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

11.3.3 Residential Visual Amenity

According to available address data there are around 275 properties within 500 m of the indicative proposed alignment which would be subject to potential views of the proposed development. These are primarily located:

- north of Inveraray;
- north of Lochgilphead, and within the Crinan Valley;
- at Inverneill and between Inverneill and Bagh Taigh an Droighinn; and
- at Tarbert, between West Loch Tarbert and the main settlement of Tarbert.

The potential for residential visual amenity effects on these properties will be subject to further assessment.

11.4 Issues Scoped Out

11.4.1 Noise and Vibration

- NSRs located further than 300 m from the indicative proposed alignment will observe no reaction and thus are scoped out of further assessment.
- NSRs location further than 150 m from construction works will meet threshold levels and thus are scoped out of further assessment.
- NSRs experiencing traffic increases of less than 18% will not experience adverse impact and therefore require no further assessment.

⁶² Department of Transport, Calculation of Road Traffic Noise, 1998.

⁶³ <http://www.dft.gov.uk/traffic-counts/cp.php?a=Argyll+and+Bute>, accessed 26 April 2017.

- There are no potential effects from vibration and thus this topic is scoped out of further assessment.

11.4.2 EMF

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

11.4.3 Residential Visual Amenity

Properties further than 500 m from the proposed development (LOD) have been scoped out. 500 m is considered to be the greatest distance within which effects on visual amenity may be significant and possibly 'overbearing'.

11.5 Assessment Methodology

11.5.1 Noise and Vibration

Operational Noise

As the TR(T)94 assessment established, NSRs located within 300 m of the proposed indicative alignment require further assessment for operational noise effects during wet weather conditions. Baseline noise surveys would be undertaken at proxy locations representative of the NSRs along the indicative proposed alignment as shown on Figure 11.1.

The TR(T)94 methodology would be used to assess rain-induced noise from overhead lines. This follows recommendations broadly outlined in ISO 1996 and BS-7445⁶⁴ series of standards and in that respect is also consistent with the principles of BS4142. The wet assessment criteria are defined as such:

- New sound level exceeding the background noise by 0 dB indicates no observed reaction.
- New sound level exceeding the background noise by 5 dB indicates sporadic complaints.
- New sound level exceeding the background noise by 10 dB indicates widespread complaints.
- New sound level exceeding the background noise by 15 dB indicates threats of community action.
- New sound level exceeding the background noise by 20 dB indicates vigorous community reaction.

It should be noted that the wet assessment criteria are not threshold levels, and therefore the new sound level would be rounded to the nearest 5 dB to determine impact.

The magnitude of effect criteria would be consistent with guidance in BS4142:2014. "A difference of around +10dB or more is likely to be an indication of a significant adverse impact" and "a difference of around +5dB is likely to be an indication of an adverse impact". The TR(T)94 method for overhead line noise is founded on the principles of BS4142:1990 and it is not considered that BS4142:2014 introduces any new requirements that would trigger the need to introduce changes to the principles followed in TR(T)94.

Construction Plant Noise

A construction noise assessment would be undertaken at proxy locations representative of NSRs closer than 150 m from the works to determine the potential noise impacts during the construction phase of the proposed development. The construction noise assessment would be undertaken in accordance with the methodology outlined in BS5228: Part 1: 2009 and ISO9613:1996 ('Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation'). Impacts would be assessed using criteria contained within BS5228-1: 2009 and, where appropriate, mitigation measures will be proposed.

⁶⁴ British Standards Institute (2003) BS7445:2014, Description and Measurement of Environmental Noise - Guide to Quantities and Procedures, British Standards Institution

Construction Traffic Noise

Proxy locations representative of those which would experience an increase in traffic flow of 18% or greater would be identified for further assessment. Changes in operational traffic noise associated with the proposed development would be assessed using the calculation method outlined in CoRTN. Impacts would be classified in accordance with the thresholds defined in Design Manual for Roads and Bridges Volume 11, Section 3, 'Part 7: Noise and Vibration'.

An Amenity and Health chapter would be included in the EIA Report and would include information on the baseline noise surveys and a noise impact assessment to consider operational noise, construction plant and construction traffic. A draft Construction Noise Management Plan would be provided within the CEMP.

11.5.2 Residential Visual Amenity

There are currently no published methodology standards for the assessment of effects on the amenity of residential properties. The assessment of such impacts would therefore follow established convention for such studies i.e.:

- determination of properties within which residents may experience significant visual effects;
- evaluation of the extent of visibility of the proposed development at each property; and
- provision of sufficient analysis as to enable the competent authority to determine whether 'overbearing'⁶⁵ effects would be experienced at individual properties and whether this is likely to lead to the property becoming an unattractive place to live (in essence the application of the Lavender test⁶⁶).

11.6 Summary

In terms of amenity and health, both noise and vibration and EMF are considered. For noise, there are NSRs located further within 300 m of the indicative proposed alignment which could be affected by operational noise. There are NSRs located within 150 m of likely construction works locations which could be affected by construction noise. Additionally there is potential for traffic increases over 18% which could result in construction traffic noise at NSRs. As a result, a noise impact assessment will be conducted for operational, construction plant and construction traffic noise at NSRs within these thresholds and will be reported in an Amenity and Health chapter of the EIA Report. There are no potential significant effects from vibration and therefore this topic has been scoped out of further assessment and will not be included in the EIA Report.

The typical field strengths for 275 kV overhead lines are within the ICNIRP exposure guidelines and as there is no likely significant effect on human health associated with EMFs, this issue is scoped out from further assessment. A draft Construction Noise Management Plan would be provided within the CEMP.

In terms of residential visual amenity, properties within 500 m of the proposed development will be considered as part of a staged approach to establish if 'overbearing' effects would be experienced at these properties. The residential visual amenity survey would be reported in an Amenity and Health chapter of the EIA Report.

⁶⁵ The Planning Inspectorate for England and Wales defines the term 'overbearing' as: 'A term used to describe the impact of a development or building on its surroundings, particularly a neighbouring property, in terms of its scale, massing and general dominating effect'. This definition is also considered germane to the Scottish planning context.

⁶⁶ North Dover (Enifer Downs) Public Inquiry, PINS Appeal Reference APP/X2220/A/08/2071880. Decision Letter, dated 16 March 2009 ('Lavender Test')

12. SOCIO-ECONOMICS, RECREATION AND TOURISM

12.1 Introduction

This section will assess the potential effects on socio-economic, recreation and tourism receptors resulting from the construction and operation of the proposed development and establish if this topic should be scoped into the EIA.

12.2 Baseline Conditions

The economy in the region is predominantly service based, with over 85% of employee jobs in the area within the service sector. The region also has relatively high levels of employment in agriculture and fishing, and low levels of employment in manufacturing and finance (www.argyll-bute.gov.uk/info/economy). 14.9% of employee jobs in tourism-related activities⁶⁷.

The main settlements within the vicinity of the proposed development include Inveraray, Lochgilphead and Tarbert. These, and other settlements, are typically found along the coast and A83 (see Figure 12.1a-12.1f) and act as centres for local services. Individual dwellings and clusters of properties are also distributed along the shore-side, coastal roads and inland, and along some of the valleys which feed Loch Fyne, Loch Gilp and Loch Tarbert.

The principal road within the area is the A83, which runs from Campbeltown on the Kintyre Peninsula to Tarbert, near Loch Lomond. This is a popular tourist route, particularly during summer months.

There are a number of walking and cycling routes, many of which are noted as Core Paths by Argyll and Bute Council⁶⁸. Notable Core Paths within the area include the Kintyre Way, Crinan Canal and Ardrishaig to Crinan tow path, various routes around Loch Glashan and the B8001 from Redhouse to Claonaig. National Cycle Route 78 also passes through the area running from Fort William to Campbeltown.

Key visitor attractions and activities throughout the area include Inveraray Castle, Inveraray Jail and Crarae Gardens, as well as a variety of golf courses, museums and outdoor walks and activities.

12.3 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 receptors resulting from the installation of larger steel-lattice towers.

12.4 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 SLVIA. The potential for effects on core paths and national cycle routes would

⁶⁷ https://www.argyll-bute.gov.uk/info/economy?_sm_au_=iVVV6S2QTNSDNj7r

⁶⁸ <https://www.argyll-bute.gov.uk/where-go-outdoors>

be included as part of the Traffic and Transport assessment and would be managed according to an outline TMP. Therefore, no separate recreation and tourism assessment is proposed in the EIA Report.

13. LAND USE AND AGRICULTURE

13.1 Introduction

This section will assess the potential effects on land use and agriculture receptors resulting from the construction and operation of the proposed development and establish if this topic should be scoped into the EIA.

13.2 Baseline Conditions

Agriculture in the area typically comprises cattle and sheep holdings, with The Macaulay Land Use Research Institute classifying land in the region as either Land Capable of supporting Improved Grassland (Class 5.1 to 5.3) or Land Capable of supporting on Rough Grazing (Class 6.1 to 7). There are some isolated small areas of Land Capable of supporting Mixed Agriculture (Class 4.1 to 4.2) immediately north of Crossaig. 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.

A significant proportion of the proposed development passes through areas of commercial forestry plantation and therefore land which is not in agricultural use. Forestry is dealt with in Section 8 Forestry.

With 4.8% of those in employment in agriculture and fishing, Argyll and Bute has relatively high levels of employment in this industry⁶⁹.

13.3 Potential Significant Effects

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 LOD (access tracks and tower bases) would be affected, the proposed development would not result in significant effects. The construction work may result in some temporary loss of land or access restriction, however it is considered that this can be adequately managed through wayleave agreements with the relevant land owners. The 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.

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 proposed as part of the EIA and so is scoped out of the EIA.

13.4 Issues Scoped Out

The proposed development would not result in significant adverse effects on land use or agriculture during the construction or operational phases. As such, this issue is scoped out of the EIA and no assessment of land use or agriculture is proposed as part of the EIA Report.

⁶⁹ https://www.argyll-bute.gov.uk/info/economy?_sm_au_=iVVV6S2QTNj7r. Note the 2012 figures were used as the 2015 figures exclude farm-based agriculture.

14. AIR QUALITY AND CLIMATE

14.1 Introduction

This section sets out the proposed approach to the potential impacts of the proposed development on air quality and climate change during construction and operation.

14.2 Baseline Conditions

There are no Air Quality Management Areas (AQMAs) in the Argyll and Bute Council area. Residential properties in the vicinity of the proposed development represent air quality receptors.

14.3 Potentially Significant Effects

14.3.1 Air Quality

The proposed development is not considered likely to give rise to significant effects on air quality. There is potential to give rise to 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 relatively short term, intermittent and controllable through the application of good construction practice, and thus low impact. The potential for nuisance effects on residential or recreational amenity will be limited and will be strictly controlled in accordance with a detailed Construction Environmental Management Plan (CEMP).

There is no potential for significant operational air quality effects.

14.3.2 Climate Change

In the context of the EIA process climate change is considered both in relation to the contribution of the proposed development to increasing or decreasing gaseous emissions with global warming potential (GWP), and in relation to climate change adaptation.

Emissions associated with the proposed development will be limited to temporary and short term emissions of exhaust gases from vehicles and construction plant, and the potential for the release of carbon dioxide as a result of dewatering and exposing peat and peat soils during construction. Neither source is considered likely to be significant in terms of GWP.

With regard to climate adaptation, consideration will be given the potential implications of climate change on the OHL design and the design of tower support structures (e.g. design for increased flood risk and adverse weather); however no potential for significant impacts have been identified.

14.4 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.

15. ACCIDENTS AND DISASTERS

15.1 Introduction

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 accidents and disasters. This requirement is interpreted as requiring the consideration of low likelihood/ high consequence events which would result in serious harm or damage to environmental receptors.

15.2 Baseline Conditions

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

Crisis management and continuity plans are in place across the Group. 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.

15.3 Potentially Significant Effects

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.

In the event of an unplanned power cut, significant effects are considered unlikely. Effects are likely to be short term and essential services e.g. medical facilities, are likely to have some form of backup generation.

15.4 Issues Scoped Out

Potential significant effects on human health, cultural heritage or the environment associated with the vulnerability of the proposed development to accidents and disasters will be scoped out of the EIA.

16. TOPICS SCOPED OUT

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 15.1 lists each topic and the elements scoped in and out from further assessment.

Table 14.1: Topics Scoped In and Out of EIA Assessment		
Topic	Scoped In	Scoped Out
Seascape, Landscape Character and Visual Amenity	X	
Ecology and Nature Conservation	X	
Ornithology	X	
Cultural Heritage	X	
Forestry		X
Traffic and Transport	X	
Hydrology, Hydrogeology and Soils		X
Population and Health	Noise and Residential Amenity	Vibration and EMF Socio-economic
Recreation and Tourism		X
Land Use and Agriculture		X
Air Quality and Climate		X
Accidents and Disasters		X

17. NEXT STEPS

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?

All responses should be addressed to:

Local Energy and Consents

Scottish Government

4th Floor

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.