

Annex I - HRA

December 2022



Habitat Regulations Appraisal (HRA)
Argyll and Kintyre 275 kV Substations:
Craig Murrail

December 2022





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1 INTRODUCTION

- 1.1.1 This Report has been prepared by Environmental Resources Management (ERM) on behalf of Scottish Hydro Electric Transmission plc ("the Applicant") who, operating and known as Scottish and Southern Electricity Networks Transmission ("SSEN Transmission"), own, operate and develop the high voltage electricity transmission system in the north of Scotland and remote islands.
- 1.1.2 The Applicant has a statutory duty under Schedule 9 of the Electricity Act 1989 to develop and maintain an efficient co-ordinated and economical electrical transmission system in its licence area.
- 1.1.3 The Applicant proposes to construct a new 275 kilovolts (kV) electricity substation (located at Grid Ref 187725 691030) at Craig Murrail, to the north of Lochgilphead. The new substation will connect into the recently completed overhead line between Inveraray and Crossaig which is capable of operation at 275kV. Works are required to the overhead line to divert it temporarily to allow for the substation to be constructed, with the construction of two temporary towers. Post construction, the overhead line will be realigned to its existing alignment and the temporary towers will be removed. The substation and overhead line will support the continued export of renewable energy generated within the Argyll area.
- 1.1.4 This document has been produced to inform the Habitats Regulations Appraisal (HRA) process for the Project. It provides information to enable the screening of the Project with respect to its potential to have a likely significant effect (LSE) on European and Ramsar sites of nature conservation importance.



2 PROJECT DESCRIPTION

2.1 The Project

2.1.1 The Proposed Development

The Proposed Development comprises the following:

- A substation platform in the region of 2.93 ha at a height of 115 m AOD;
- Gas insulated Switchgear (GIS) building, maximum height 22 m and single storey control building annex;
- 275/132 kV super grid transformer (SGT), rated at 480 MVA located in a ventilated building of maximum height 16 m;
- Two gantries and electrical equipment to connect the OHL and the proposed substation;
- Three temporary work areas, one adjacent to the substation platform and two areas south west of the Proposed Development, adjacent to the existing access track and temporary peat storage;
- Diesel generator;
- Borehole for water;
- Turning and parking areas;
- Use of existing forestry access track with some upgrades, approximately 5 km in length;
- Construction of a permanent access track approximately 153m long connecting the proposed substation to the existing forestry track;
- A 2.4 m high security fence of palisade construction around the substation platform perimeter;
- Designation of the area around the substation site as bog/mire to provide biodiversity enhancement; and
- Foul and surface water drainage including Sustainable Urban Drainage (SUDS) pond and outfall pipe.

2.1.2 In addition, tree felling and compensatory planting will be required, as described in **Chapter 5 Forestry Appraisal and Appendix J**.

2.1.3 Buildings will comprise steel portal frames with metal cladding and roof. There would be some un-housed electrical switchgear and plant located within the platform area.

2.1.4 The substation would not be illuminated at night during normal operational activities. Flood lights would be installed but would only be used in the event of a fault during the hours of darkness; or during the over-run of planning works; or when sensor activated as security lighting for night-time access.

2.1.5 Small scale alterations to the existing FLS access track off the A816 may be required. Subject to survey, and to satisfy the requirements of ABC Roads Department, works may include widening of the existing bellmouth, increasing turning radii and improving visibility splays. Between the access point and the Proposed

Development site, works may include widening at bends/road strengthening to accommodate the long and heavy construction vehicles.

2.1.6 The Associated Development

The Associated Development comprises the construction of a temporary new OHL section and associated temporary towers in order to connect the Proposed Development to the recently constructed 132 kV OHL between Inveraray and Crossaig..

The Associated Development comprises the following:

- Construction of two temporary steel lattice towers to support the temporary realignment of the existing overhead line during construction. Post construction, the overhead line will be realigned to its existing alignment and connected into the new substation and the temporary towers will be removed.
- Two downloads from the realigned overhead line into the substation;
- A permanent access track approximately 191m long providing access to the existing OHL to the north east of the site; and
- Two temporary access tracks leading from the proposed substation access track to the temporary towers.

The transmission tower design is illustrated on **Figure 2.1**.

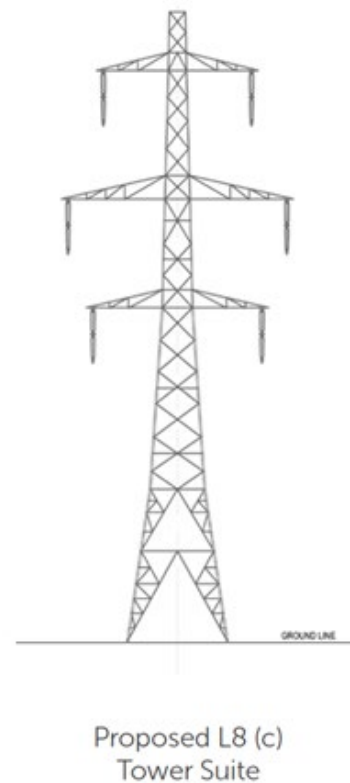


Figure 2.1: Transmission Tower Design

2.2 Construction Works

The construction of the Project will follow the key stages identified below. There will be overlap between the civil construction work and electrical construction, with a total construction programme lasting approximately 30 months.

2.3 Phase 1: Enabling Works and Civils Construction

2.3.1 For the Proposed Development, this phase is anticipated to take up to 15 months, and is expected to comprise of the following:

- Permanent access track within the Proposed Development site, approximately 153 m in length, with a 3.5 m wide running surface. Works to widen the existing forestry track may also be required to create a 5 m running surface and 20 m service corridor, however the exact locations of upgrades will be confirmed by the Principal Contractor;
- Temporary works drainage (clean and dirty water systems);
- An infiltration basin to receive all surface water runoff generated within the platform area (and runoff from the construction compound). The basin will be constructed during the construction phase and thus provide appropriate storage facility for surface water runoff during excavation and earth works (to capture and reduce suspended solids);
- A TWA containing storage, control building (office and welfare facilities) and septic tank to receive foul drainage from the compound. The septic tank will be emptied by a licenced contractor for off-site disposal at regular intervals dependent upon usage. Anticipated size is 18 m³ giving an interval between emptying of 45 days;
- Cut and fill engineering works to form a level platform;
- Individual concrete foundation slabs situated within the finalised platform to support essential electrical components, and substation control building;
- Erection of a GIS building and transformer building of a steel portal frame design;

2.3.2 For the Associated Development, this phase is anticipated to take up to 3 months, and is expected to comprise the installation of the following:

- Creation of a level platform at each tower location through processing of site won materials and import of commercial aggregates, as required;
- Concrete foundations/bases for temporary towers and electrical equipment;
- Dismantling of temporary towers once construction works are completed.

2.3.3 The Associated Development is situated within areas of commercial forestry and broadleaved woodland; and in these areas an operational corridor would be required. The width of this corridor would be variable depending on the nature of the woodland, with an average corridor of 80 m required (40 m either side of the tower centre line) subject to the Limits of Deviation mentioned previously. In addition, minor vegetation management and

felling would be required around the existing access track network for the Project to provide sufficient width. Further Details can be seen in the **Annex J: Forestry Appraisal**.

- 2.3.4 Foundation types and designs for each tower would be confirmed following detailed geotechnical investigation at each tower position, although it is currently anticipated that most tower foundations are likely to be of a concrete pad and chimney type. Individual tower foundations and associated construction activities would require a working area of approximately 2,500 m² (50 m x 50 m) around each individual tower location. The exact dimensions of the working area around each tower will be confirmed following micro-siting.
- 2.3.5 It should be noted that the Associated Development will utilise the same access track and TWA as the Proposed Development, however there will be additional tracks to be constructed to the temporary tower locations for maintenance purposes.
- 2.3.6 In terms of the overall Project, detailed access proposals would be developed by the Principal Contractor (to be appointed following granting of consent). Similarly, the Principal Contractor would confirm the final location of site compounds post consent.

2.4 Phase 2: Electrical Construction

- 2.4.1 This phase is anticipated to take 18 months for the Proposed Development and would comprise:
- Installation of electrical infrastructure; and
 - Commissioning of the substation.
- 2.4.2 For the Associated Development, the following would take place during this phase:
- Existing OHL network diversion;
 - Installation of electrical plant e.g., cable sealing ends and tower. Scaffolding will be required for cable jointing; and
 - Removal of temporary OHL diversion.

2.5 Phase 3: Commissioning

- 2.5.1 The Project would be subject to an inspection and snagging process. This allows the Principal Contractor and SSEN Transmission to check that the works have been built to specification and are fit to energise. The Project would also go through a commissioning procedure for the switchgear, communications, and protection controls. The circuits would then be energised.

2.6 Phase 4: Reinstatement

- 2.6.1 Following commissioning of the Project, all temporary construction sites will be reinstated with the exception of an area to be retained for operational purposes. Reinstatement will form part of the contract obligations for the Principal Contractor and will include removal of buildings and materials from the construction compound and revegetation.



2.7 Description of Construction Works - Formation of Substation Platform

- 2.7.1 Given the slightly sloping topography, cut and fill would be required to create a level substation platform. The proposed finished platform level would be at approximately 114.25 m AOD.
- 2.7.2 Peat probing surveys undertaken and updated in 2021 confirmed the Proposed Development is located on areas of peat ranging from 0.0 m deep to 3.3 m deep, with an average peat depth across the site of 1.22 m. Given the presence of peat, a Peat Management Plan (PMP) has been prepared and can be seen in **Annex O**.
- 2.7.3 The substation platform will comprise a balanced cut and fill construction, which will use imported material where the excavated on-site material does not meet the requirements of the SSEN Transmission substation earthworks specification. The final cut and fill design would be based on a detailed ground investigation and site-specific topographic survey to be undertaken by the Principal Contractor once appointed.

2.8 Formation of Track

- 2.8.1 Access track work consists of constructing two permanent access tracks associated with the Proposed Development, construction of temporary access tracks for the Associated Development, and the potential to requirement to upgrade existing forestry tracks.
- 2.8.2 The new permanent access tracks will be constructed at the beginning of the construction period to enable use during the construction phase. The access tracks would be capable of accommodating the substation equipment deliveries, and other heavy plant and vehicles required for the construction, including cranes and concrete deliveries. All tracks would be constructed to good practice working methods^{1,2,3,4,5}, with watercourse crossings designed and constructed to comply with legislation set out in The Water Environment (Controlled Activities) (Scotland) Regulations 2011, as amended.
- 2.8.3 Given the new proposed track route is located on peat of varying depths, the following principles would be applied, which would be developed at the pre-construction stage based on the detailed site investigation work completed prior to construction commencing:
- In areas of shallow or no peat (0 m to 1 m), a 'cut track' design would be utilised, for which any vegetation, topsoil and peat would be stripped to expose a suitable foundation on which to build the track. Surplus excavated soil, together with any vegetation, would be used for landscaping and reinstatement work around the track shoulders following construction. The track would then be constructed by laying and compacting crushed rock to the level required using a combination of tracked excavators and vibratory compacting rollers. Road aggregate will either be sourced from site won "cut" material, on site borrow pits or from an off-site licensed quarry. The volume of aggregate required would be confirmed following detailed ground investigation.
 - Where peat depth is greater than 1 m (See **Annex O**: PMP for information on peat depth on-site), a 'floating track' design would generally be used. This would incorporate geotextile material laid onto the surface at a width to suit the road width, which would greatly increase the resistance to prevent the tracks settling into the ground. A layer of crushed stone would then be laid on the geotextile to form the track, which produces a steep stone batter with the edges of the site track raised above the surface. Where ground conditions are found to be saturated, and potentially supporting ground water dependent ecosystems, the track construction would incorporate drainage measures to maintain groundwater flows

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

² 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.

³ CIRIA Publications 2006: Control of Water Pollution from Linear Construction Projects. Site Guide (C649)

⁴ Scottish Natural Heritage (2013) Constructed Tracks in the Scottish Uplands, 2nd Edition

⁵ Forestry Commission Scotland and Scottish Natural Heritage (2010) Floating Roads on Peat

and levels, such as using perforated pipes wrapped in free draining geotextile membrane incorporated into the floating track.

- 2.8.4 When upgrading the existing forestry track between the A816 and the new substation site, a sacrificial stone layer will be added to the existing road construction, where considered necessary. Road aggregate will either be sourced from site won “cut” material or from an off-site licensed quarry. The volume of rock aggregate required would be confirmed following detailed ground investigation.

2.9 Construction Compound/Facilities

- 2.9.1 The main TWA would be located north of the Proposed Development site with two smaller areas along the access road to the south west (as shown in **Figure 1.1**). The TWA would provide storage for materials and welfare facilities for both the Proposed Development and the Associated Development. The construction compound would include storage cabins, waste disposal skips, toilet units with washing facilities, a changing / drying room, a mess cabin, a parking area and a small storage area. On completion of the Proposed Development.

2.10 Tower Foundations

- 2.10.1 Different approaches to forming foundations may be used, subject to ground conditions at each temporary tower location. These would/are likely to comprise:
- spread type e.g. concrete pad and chimney;
 - rock anchor; or
 - piled type e.g. driven concrete, tube, and micro pile; or augered.
- 2.10.2 Foundation types and designs for each tower would be confirmed following detailed geotechnical investigation at each tower position, although it is currently anticipated that most tower foundations are likely to be of a concrete pad and chimney type.
- 2.10.3 Dimensions of each foundation would be confirmed following micrositing. For the purposes of this assessment however it has been assumed that each foundation would be buried to depths estimated up to 2.5 m below ground level (bgl) although extending up to 4 m depth where ground conditions require. They would extend over an area suitable to deliver the loading characteristics required (which would be a function of the underlying ground conditions and the weight of the structures to be supported). Piled foundations may be required where low strength ground conditions exist, particularly where peat is encountered at over 1 m depth.
- 2.10.4 For the purposes of the EA it has been 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. The exact dimensions of the working area around each tower would/will be confirmed following micrositing.
- 2.10.5 Where encountered, top soil (including peat) would be stripped from the tower working area to allow installation of tower erection pad(s) as necessary to accommodate construction plant as per the Soil Management GEMP provided in **Annex A**. Concrete would/is likely to be brought to site ready-mixed with no requirement for concrete batching at individual tower locations. Once the concrete has been cast and set, the excavation would be backfilled, using the original excavated material where possible. The Working with Concrete GEMP provided in **Annex A** will inform concrete works.
- 2.10.6 It is anticipated that formation of each tower foundation would take approximately four weeks.

2.11 OHL Construction

- 2.11.1 Temporary tower construction can commence two weeks after the foundations have been cast, subject to weather conditions and concrete curing rates. Tower steelwork would be delivered to each tower construction site either as individual steel members or as prefabricated panels, depending on the method of installation and the available access.
- 2.11.2 Each tower would be assembled on site into panels by a team of up to eight people. The lower tower panels may be erected using a telehandler, but upper panels would normally be erected into position using an all-terrain crane. Where access is not available for a crane, a derrick would be used. Most towers would be assembled within about five days each and erected by crane in one to two days depending on weather conditions and tower type. Large angle or terminal towers, or towers within restricted sites may take longer.

2.12 Conductor Stringing

- 2.12.1 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.
- 2.12.2 Prior to stringing the conductors, temporary protection measures, (e.g. netted scaffolds) would be erected across public roads and existing access tracks.
- 2.12.3 Conductor stringing equipment including winches, tensioners and ancillary equipment would be set out at either end of pre-selected sections of the OHL. Pilot wires would be pulled through the section to be strung. These would be hung in blocks (wheels) at each suspension tower in the section and connected to a winch and tensioner at the respective end of the section. The winch, in conjunction with the tensioner would be used to pull the pilot wires which would be connected to the conductor at the tensioner end. The conductor would be pulled via the pilot wires through the section and under controlled tension to avoid contact with the ground and any under-running obstacles including protection scaffolds. Once the conductor has been strung between the ends of the section it would then be tensioned to provide the necessary sag and then permanently clamped at each tower.
- 2.12.4 Dependent on terrain or site constraints pilot wires can be pulled through either with the use of all-terrain vehicles, tractors, or helicopters.

2.13 Construction and Contracting Strategy

- 2.13.1 The Project would be constructed by an experienced construction contractor with a proven track record working on similar projects in accordance with UK and international standards in respect of quality, health, safety and environmental management.
- 2.13.2 The contract to construct the Project would be a design and build contract based on the pre-consent designs included in this EA. This procedure allows the final design to take account of any consent conditions. It also allows the contractor to adapt design and construction proposals to address specific issues relating to actual ground conditions and limitations found onsite, as well as allowing for advances in technology and construction methodology.

2.14 Construction Employment

- 2.14.1 The number of construction workers employed on-site would vary throughout the different phases of construction works. Employment of construction staff will be the responsibility of the Principal Contractor but SSEN Transmission encourages the Principal Contractor to make use of suitable labour and resources from areas local to the location of the works. There will be multiple contractors working on sites across Argyll and so

it will be difficult to give an accurate figure with regard to the number of workers that will be required per site. The peak number of workers is likely to occur during the final phase of civil engineering works and commencement of the electrical equipment installation where these phases overlap.

2.15 Hours of Work

- 2.15.1 Construction activities would in general be undertaken during daytime periods. This would involve work between approximately 07:00 to 19:00 on week days and 07:00 to 18:00 on Saturdays. Construction works will only take place during these agreed hours and in planning the works, our contractors will look to minimise the impact of construction noise on neighbours and the public. There may be times that construction works require to take place outwith these agreed hours due to time critical activities, this would only be done with the prior agreement of ABC. Works outwith of daylight hours requiring illumination would be undertaken in accordance with relevant guidance to avoid light spill.
- 2.15.2 The Principal Contractor will develop a construction noise management plan as part of the Construction Environmental Management Plan (CEMP).

2.16 Construction Traffic and Plant

- 2.16.1 Access to the Project during construction and operation would be via the A816 and then existing forestry track to the site.
- 2.16.2 It is anticipated that Heavy Goods Vehicles (HGVs) and Light Goods Vehicles (LGVs) will access the site on a daily basis throughout the duration of the construction period to deliver materials and construction plant such as excavators, dump trucks, cranes and deliveries of machinery and scaffolding. All materials would be delivered to the construction compound. The transformers will be delivered by a small number of abnormal indivisible loads.
- 2.16.3 Further details of the anticipated volume and type of construction traffic are provided within **Chapter 9: Transport Appraisal**. A Traffic Management Plan (TMP) will be developed by SSEN Transmission, which will be agreed with the ABC Roads team in advance of construction, as part of the CEMP. The CEMP will include traffic management measures to ensure that the Project will not have an unacceptable impact on the public road network or nearby road users.
- 2.16.4 It is unlikely that construction lighting would be required during summer months. Should lighting be required in the winter, these would either be mobile or fixed temporary lighting. Any lighting would be located and directed to avoid impacts to sensitive receptors.

2.17 Construction Environmental Management

- 2.17.1 The Applicant adopts a consistent approach to the construction of all developments. It is standard practice that, following receipt of approval for development, a CEMP is prepared by the Applicant's Principal Contractor. This would be provided as part of a condition to any planning consent. The key objective of the CEMP is to ensure that commitments to mitigate environmental impacts that may arise during construction are delivered. Compliance with the CEMP will be required as part of the Principal Contractor's contract terms.
- 2.17.2 The CEMP will include the following General Environmental Management Plans (GEMPs):
- Oil Storage and Refuelling
 - Soil Management
 - Working in or Near Water
 - Working in sensitive habitats
 - Working with concrete

- Watercourse crossings
- Waste Management
- Contaminated Land
- Private Water Supplies
- Forestry
- Dust Management
- Biosecurity (on land)
- Restoration
- Bad weather

2.17.3 The CEMP will also include development-specific plans developed by the Applicant, including Species Protection Plans (SPPs), as well as the Stage 1 Peat Management Plan prepared in accordance with the requirements of the 'Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste', Scottish Renewables and SEPA, Version 1, January 2012. Outline Species Protection Plans (bird, bat, red squirrel, otter, pine marten, badger, wildcat) are provided in **Annex H** and the outline PMP is provided in **Annex O** of this EA. The PMP sets out the general principles for the management and re-use of excavated peat.

2.17.4 A Construction Site Licence would be required and obtained in accordance with the Controlled Activity Regulations (CAR) from SEPA prior to any construction works commencing on-site. The Licence would specify the control measures that would be used at the Project to safeguard the water environment.

2.18 Forestry

2.18.1 The Project is located within a region of felled plantation forest; however, some felling will be required to remove immature trees which have recolonised the area, as well as any remaining mature trees. Further details of the long-term effect of the Project on forestry and woodland are provided in **Annex J: Forestry Assessment**. It is possible that some localised felling and pruning will be required along the existing access road. This will be confirmed by the principal contractor and will be subject to mitigation identified in this EA.

2.19 Surface Water Drainage Proposals

2.19.1 Surface water drainage from the Project would be minimised through the installation of an upslope cut-off drain on the upslopes around the substation perimeter, which would divert surface water around the substation platform, with a discharge point proposed to the south of the substation. For further information on surface water drainage see **Annex K: Drainage Strategy and Drainage Plans**.

2.19.2 The surface water runoff within the substation platform area would be managed using a multi-tiered sustainable drainage system (SuDS), providing filtration and attenuation, prior to discharge to a local watercourse. The surface water runoff will be attenuated to equivalent greenfield runoff rates, which would ensure that the runoff from the Project would not result in any increase in flood risk within the wider surface water catchment.

2.19.3 The SuDS system will be designed in compliance with CIRIA C697¹, providing two levels of treatment for road and paved runoff, and one level of treatment for roof runoff.

2.19.4 For further information on the drainage proposal see **Chapter 6: Hydrology, Hydrogeology and Geology Appraisal** and supporting appendices.

¹ CIRIA C697 (2007) The SuDS Manual



2.20 Watercourse Crossings

- 2.20.1 Possible watercourse crossing upgrades, including the upgrade to the existing culverted watercourse, may be required on the access track from the public road during the construction of the Project. As above, watercourse crossings would be designed and constructed to comply with legislation set out in The Water Environment (Controlled Activities) (Scotland) Regulations 2011¹, as amended. These measures would be carried out in line with the Water Construction Management Plan (WCEMP), as outlined in **Annex N**.

2.21 Private Water Supplies

- 2.21.1 A PWSRA has been undertaken for the Project. The PWSRA identified all PWS within a 2 km radius of the Project and confirms the location of source water supplies. **Annex M** informs the risk assessment of the effects of the Project on the private water supply, source water and associated distribution infrastructure. Where new access tracks or upgrades to existing tracks are required, within 100 m of supplies, mitigation measures are proposed. Potential effects and mitigation measures are discussed in detail within **Chapter 6: Hydrology, Hydrogeology and Geology Appraisal** and associated technical appendices.

¹ Scottish Government. URL: <https://www.legislation.gov.uk/ssi/2011/209/contents/made>

3 METHODOLOGY

3.1 Requirement for Habitats Regulation Assessment

- 3.1.1 Where a development has the potential, either alone or in combination with other plans or projects, to result in likely significant effects on one or more European sites ⁽¹⁾ ⁽²⁾, it is subject to the requirements of The Conservation of Habitats and Species Regulations (2017) (the Habitats Regulations) with regards to Section 37 developments, and the requirements of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland) for Town and Country Planning developments.
- 3.1.2 If a development is likely to affect a European site and/or a European marine site, a report must be provided with the application showing the site(s) that may be affected together with sufficient information to enable the Competent Authority to undertake a Habitat Regulations Appraisal (HRA). For the Proposed Development, the Competent Authority is Argyll and Bute Council, and the Energy Consents Unit for the Associated Development. Both competent authorities are advised by NatureScot.

3.2 Overview of HRA Process

- 3.2.1 The approach to the HRA has followed that set out in the Conservation of Habitats and Species Regulations 2017, as amended ('The Habitats Regulations') and NatureScot guidance on the consideration of plans or projects affecting SACs and SPAs ⁽³⁾ ⁽⁴⁾. It has also taken account of a range of other guidance material including that produced by the European Commission (EC) (2018a ⁽⁵⁾), (2018b) ⁽⁶⁾ 2007 ⁽⁷⁾; 2002 ⁽⁸⁾.
- 3.2.2 The HRA process comprises four main stages, these are:
- **Stage 1 Screening** to identify the likely effects of a project on a European Site and consider whether the effects are likely to be significant;
 - **Stage 2 Appropriate Assessment** to determine whether the integrity of the European site will be adversely affected by the project;
 - **Stage 3 Assessment of Alternative Solutions** to establish if there are any that will result in a lesser effect on the European site; and
 - **Stage 4 Imperative Reasons of Overriding Public Interest (IROPI) and Compensatory Measures** to establish whether it is necessary for the project to proceed despite the effects on the European site, and to confirm that necessary compensatory measures are in place to maintain the coherence of the European site 2000 network.
- 3.2.3 Each of the stages is discussed in more detail in the following sections.

(1) These are Special Areas of Conservation (SACs), candidate Special Areas of Conservation (cSACs) and Special Protection Areas (SPAs). this protection is also extended to proposed SPAs and proposed SACs. Where Ramsar site interests coincide with qualifying interests protected under an SPA or an SAC it is Scottish government policy to extend the same protection to these features.

(2) Scottish Government (2019) Implementation of Scottish Government policy on protecting Ramsar sites. Guidance Document.

(3) SNH (2014) Natura 2000 Casework Guidance – How to consider plans and projects affecting Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

(4) SNH (2019) Guidance Note - The handling of mitigation in Habitats Regulations Appraisal - the People Over Wind CJEU judgement

(5) European Commission (2018) Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. EC

(6) European Commission (2018) Guidance on Energy Transmission Infrastructure and EU nature legislation. EC

(7) European Commission (2007) Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC. EC

(8) European Commission (2002) Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites. Methodological Guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. EC

3.3 Stage 1 – Screening

3.3.1 The purpose of the screening stage is to identify likely impacts upon European sites, as a result of either a project alone or in combination with other plans and projects and consider whether these impacts are likely to be significant.

3.3.2 In order to determine if the Project is likely to have any significant effects on the designated sites the following issues have been considered:

- could the proposals affect the qualifying interest and are they sensitive / vulnerable to the effect;
- the probability of the effect happening;
- the likely consequences for the site's conservation objectives if the effect occurred; and
- the magnitude, duration and reversibility of the effect.

The objective of the screening stage is to conclude whether;

1. no likely significant effect will occur;
2. a likely significant effect will occur; or
3. it cannot be concluded that there will be no likely significant effect.

3.3.3 If the screening stage concludes the second or third outcome, then an Appropriate Assessment (AA) is triggered. The implications of the identified likely significant effect(s) on the European designated site, in view of its specific conservation objectives and qualifying features and the nature, scale and location of the potential impact should be assessed. The term Habitat Regulations Appraisal encompasses both the initial screening stage and, where required, the follow on AA stage.

3.4 Stage 2 – Appropriate Assessment

3.4.1 An AA is required to determine potential effects of a project upon the integrity of European sites. It should provide and analyse sufficient information to allow Argyll and Bute Council (for the substation and cabling) and Energy Consents Unit (temporary overhead line diversion), as the competent authorities to determine whether the aspects of the project pertinent to their consents will or will not adversely affect the integrity of European sites. AA should exclusively focus on the qualifying features of the European site and it must consider any impacts on the conservation objectives of those qualifying interests. It should also be based on, and supported by evidence that is capable of standing up to scientific scrutiny. EC guidance states that without proper reasoning the assessment does not fulfil its purpose, and cannot be considered 'appropriate' and therefore cannot be consented. In terms of what is reasonable, guidance states *"to identify the potential risks, so far as they may be reasonably foreseeable in the light of such information as can be reasonably obtained"* ⁽¹⁾.

3.4.2 In undertaking an AA, there are two phases;

- a scientific evaluation of all the likely significant effects of the project on the relevant qualifying interests of a European site; and
- a conclusion based on outcomes of the scientific evaluation whether the integrity of a European site will be compromised.

⁽¹⁾ Scottish Natural Heritage (SNH) (2001) *Natura Casework Guidance: Consideration of Proposals Affecting SPAs and SACs*. SNH Guidance Note Series. SNH

3.4.3 The emphasis for AA is to prove that no adverse impacts due to a project will occur which would undermine a European sites integrity.

3.4.4 Site integrity can be defined as:

“the coherence of its ecological structure and function, across its whole area that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified” ⁽¹⁾.

3.4.5 The assessment will also take into account any avoidance or mitigation measures which will be implemented to avoid or reduce the level of impact from the project. The Competent Authority may also consider the use of conditions or restrictions to help avoid adverse effects on site integrity.

3.4.6 If the AA concludes that there will be an adverse effect on the integrity of the European site, or that there is uncertainty and a precautionary approach is taken, then consent can only be granted if there are no alternative solutions, IROPI is applicable and compensatory measures have been secured.

3.5 Stage 3 – Assessment of Alternative Solutions

3.5.1 All feasible alternatives have to be analysed to ensure that there are none which *“better respect the integrity of the site in question”* and its contribution to the overall coherence of the Natura 2000 network (EC, 2007). Alternatives could include the location of the site, its scale and design, and the way in which it is constructed and operated. The ‘zero’ option also has to be considered.

3.5.2 The comparisons of alternatives should not allow other assessment criteria (e.g. economics) to overrule ecological criteria (EC, 2007). However, the same guidance also refers to the opinion for the case C-239/04 ⁽²⁾, where the opinion of the Advocate General was that *“the choice does not inevitably have to be determined by which alternative least adversely affects the site concerned. Instead, the choice requires a balance to be struck between the adverse effect on the integrity of the SPA and the relevant reasons of overriding public interest”*.

3.6 Stage 4 - Imperative Reasons for Overriding Public Interest and Compensation Measures

3.6.1 Where a development has an adverse effect on the integrity of a European site and there are no alternative solutions consent can only be granted if there are imperative reasons of overriding public interest, including those of social or economic nature which would require the realisation of a project. A definition of ‘overriding public interest’ does not occur in the directive, however examples considered are:

- human health, public safety or beneficial consequences of primary importance to the environment; or
- any other reasons which are considered by the Competent Authority to be IROPI taking account of the opinion of the EC; and
- if the site does not host a priority habitat or species then IROPI must be demonstrated, and the reasons can include those of a social or economic nature.

3.6.2 If the importance of the project is deemed to outweigh the effects which will result on the European site, and there are no alternatives, compensatory measures must be secured before consent is granted. Compensatory

(1) Scottish Natural Heritage (SNH) 2014 Natura Caseowork Guidance: How to consider plans and projects affecting Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). SNH

(2) Commission of the European Communities V Portuguese Republic [2006] Case C.239/04



measures are independent of the project and are intended to offset the adverse effects of a project, corresponding specifically to the negative effects on habitats and species concerned.

3.6.3 To be acceptable, compensatory measures should:

- take account of the comparable proportions of habitats and species which are adversely affected;
- be within the same bio-geographical range within which the European site is located;
- provide functions which are comparable to those which justified the selection of the of the original site; and
- have clearly defined implementation and management objectives so the measures can achieve the aim of maintaining the overall coherence of the network.

3.7 Consultation

3.7.1 A summary of the comments received from stakeholders, together with how they have been addressed within this HRA Screening Report, is provided in **Table 3.1** below.



Table 3.1 - Summary of consultation undertaken on the HRA Screening Report

CONSULTEE	COMMENT	ADDRESSED
<p>NatureScot – email consultation on 30 September 2021 to discuss ornithology impacts from the project</p>	<p>We note the intention to use survey information dating back to 2015/16 and, although we generally determine that data older than 5 years is out of date, given the location of the substations within habitats of low ecological and conservation value (predominately commercial forestry), this approach is deemed acceptable providing the baseline habitat conditions have not changed since the initial surveys. However, we do suggest that you consult with the RSPB, FLS and the Argyll Raptor Study Group to determine if they have any more recent bird recordings that you could use to feed into the assessment.</p> <p>If the substation works are capable of disturbing schedule 1 species, then they should be scheduled to be completed out-with the breeding bird season.</p> <p>We also wish to highlight that we are seeing increasingly more white tailed eagle breeding activity in Mid-Argyll and Kintyre, and pairs could have set up nests in commercial forestry since the initial bird surveys were undertaken. As such, you will need to consider this species (as well as osprey) in the pre-felling / construction checks.</p>	<p>Species identified by NatureScot assessed for connectivity to European sites.</p>



4 ENVIRONMENTAL BASELINE

4.1.1 The Project baseline has been informed by a range of published and publicly available data including:

- NatureScot Information Services (SNHi) – Data on designated sites and notable species;
- Scottish Biodiversity List;
- Vantage Point (VP) surveys, raptor surveys, wintering wildfowl surveys and breeding bird surveys following guidance issued by NatureScot⁽¹⁾ carried out between 2015-2018 to inform the EIA for the OHL which covered the proposed substation location; and
- VP surveys undertaken for the construction of the Inveraray-Crossaig OHL between March to May 2021.

4.1.2 Based on the data collected from consultation and desk-based study, an Extended Phase 1 Habitat Survey ⁽²⁾ has been undertaken to inform the ecological assessment:

4.1.3 A summary of the baseline environment is presented in the Project Environmental Appraisal.

⁽¹⁾ NatureScot. *Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds. Guidance. Version 1. July 2016.*

⁽²⁾ *In accordance with JNCC Phase 1 survey 2010 methodology*

5 SCREENING OF EUROPEAN SITES AND FEATURES

5.1 Approach to Initial Screening

- 5.1.1 This stage is essentially a site-identification / selection process which effectively identifies all those designated sites and the relevant features which are at risk of likely significant effects (LSE), should those features be sensitive to the relevant effects.
- 5.1.2 The criteria used in this first stage of selection takes account of the location of the European sites (including Ramsar sites) in relation to the Project, the area of influence (AOI) of potential impacts associated with the Project and the ecology and distribution of qualifying features. These criteria are described in **Table 5.1**.
- 5.1.3 Due to the nature and location of the Project, only terrestrial European sites or sites with bird species qualifying interest features have been included in the initial screening – marine SACs have been screened out due to the lack of impact pathway.

Table 5.1 Criteria Used for Initial Screening of Relevant European Sites

CRITERIA USED FOR SCREENING OF RELEVANT EUROPEAN SITES	
1	European or Ramsar site with physical overlap with the Project location.
2	European or Ramsar site with adjoining 'functionally linked habitat' with physical overlap with the Project.
3	European or Ramsar site with a qualifying feature located within the potential area of influence (the AOI) associated with the Project; the area of influence is considered to be a radius of 5 km of the Project.
4	European or Ramsar site with qualifying mobile species whose range (e.g. foraging, migratory, overwintering, breeding or natural habitat range) may interact with potential effects from the Project

- 5.1.4 Details of European Protected sites initially screened in under one or more of the above criteria are provided in **Table 5.2** and illustrated in **Figure 5.1**. The qualifying features for each site are detailed, using publicly available information obtained from the Magic¹, SiteLink² and JNCC³ websites. The most recent SPA citations available on NatureScot SiteLink have been used to inform the HRA.
- 5.1.5 Connectivity with SPAs has been informed by NatureScot Guidance⁴.

¹ The MAGIC website provides geographic information about the natural environment from across government. The information covers rural, urban, coastal and marine environments across Great Britain. It is presented in an interactive map which can be explored <http://www.magic.gov.uk/> accessed 12.01.2022

² NatureScot: <https://sitelink.nature.scot/home> accessed 11.01.2022

³ Joint Nature Conservation Committee : <http://jncc.defra.gov.uk/page-4> accessed 12.01.2022

⁴ Scottish Natural Heritage (2016) Assessing Connectivity with Special Protection Areas (SPAs) Guidance

Table 5.2 Initial Screening of Relevant European Sites

EUROPEAN SITE NAME (SITE CODE)	AREA OF SITE (HA)	APPROXIMATE DISTANCE FROM PROJECT (KM)	QUALIFYING FEATURES OF INTEREST	SCREENED IN/OUT OF ASSESSMENT
Special Protection Area (SPA)				
Knapdale Lochs (UK9003301)	112.39	Access Track: 4.41 km Project: 6.82 km	Annex I Species: Regularly supports a breeding population of Annex 1 species Black-throated diver (<i>Gavia arctica</i>) (Four pairs, estimated 2% of GB breeding population)	Screened in – within SPA connectivity distance for black-throated diver.
Special Area of Conservation (SAC)				
Moine Mhor (UK0019839)	1149.02	Access Track: 1.47 Km Project: 4 km	Annex I habitats: <ul style="list-style-type: none"> - Active raised bogs (priority feature) - Degraded raised bogs still capable of natural regeneration - Mudflats and sandflats not covered by seawater at low tide - Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) - Old sessile oak woods with Ilex and Blechnum in the British Isles Annex II species: <ul style="list-style-type: none"> - Marsh fritillary butterfly <i>Euphydryas (Eurodryas, Hypodryas) aurinia</i> - Otter (<i>Lutra lutra</i>) 	Screened out – traffic movements will be within 1.47 km however the development site is 4 km from the SAC with no impact pathway.
Taynish and Knapdale Woods (UK0012682)	1017.96	Access Track: 3.69 km Project: 7 km	Annex I habitats that are primary reason for site designation: <ul style="list-style-type: none"> - Old sessile oak woods with Ilex and Blechnum in the British Isles - Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea Annex 2 species that are primary reason for site designation: <ul style="list-style-type: none"> - Marsh fritillary butterfly <i>Euphydryas (Eurodryas, Hypodryas) aurinia</i> - Otter (<i>Lutra lutra</i>) 	Screened out - traffic movements will be within 3.69 km however the development site is 7 km from the SAC with no likely impact pathway.

5.2 Effects Considered in Assessment

- 5.2.1 The potential effects upon European site(s) as a result of the Project that have been considered within this HRA report are listed in the following sections.
- 5.2.2 No potential effects on supporting habitats within the SPA, SAC or Ramsar sites are predicted.
- 5.2.3 All qualifying interest features of European or Ramsar sites and potential effects on these features have been considered within this assessment.
- 5.2.4 Potential effects on ornithology features outside of the European sites are considered to comprise of:
- indirect loss of bird habitats due to the displacement of birds (disturbance and/or displacement) by construction works and operation;
 - accidental mortality due to collision with project infrastructure; and
 - potential barrier effects as a result of the presence of infrastructure
- 5.2.5 All other impacts arising from the Project are not likely to have significant effects due to the lack of connectivity and/or distance such that there is no pathway of effect between the European sites and the Project.

6 DETERMINATION OF LIKELY SIGNIFICANT EFFECTS

6.1 Introduction

- 6.1.1 The European site initially screened in for assessment of likely significant effects (LSE) is documented in **Table 5.2**. The Knapdale Lochs SPA site was selected for screening using the criteria outlined in **Table 5.1**. There is therefore a need to consider the potential for LSE on this site in relation to the Project.
- 6.1.2 In addition, in **Section 5.2**, the likely effects that may result during construction, operation and maintenance and decommissioning of the Project (and are relevant to the receptors being considered here) are identified to enable these to be considered. This section combines that information for the Project alone and presents the assessment of LSE, thus providing the necessary information for Stage 1 of the Habitats Regulations Appraisal process.
- 6.1.3 The assessment of LSE is based on the Project's current understanding of the baseline environment and the scope and nature of the proposed project activities, together with the relevant information available for Knapdale Lochs SPA. Consultee and advisor responses to this document, and refinements to the Project design may change this assessment.

6.1 Assessment of Likely Significant Effects (LSE)

- 6.1.1 The assessment and conclusions, with regards to LSEs on the Knapdale Lochs SPA (**Table 5.2**) and the relevant features identified, has been carried out taking account of the AOI of potential impacts, location of the European site under consideration and (where known) the distribution of qualifying features in relation to the Project. The information is presented below in **Table 6.1**.

Table 6.1 Assessment of LSE

DESIGNATED SITE	FEATURES SCREENED IN	RELEVANT EFFECT	CONSIDERATION OF LSE	CONCLUSION OF LSE
Knapdale Lochs (SPA)	Black-throated diver (<i>Gavia arctica</i>) breeding population	Indirect loss of bird habitats due to displacement of birds (disturbance and/or displacement) by construction works and operation.	<p>The Project does not physically overlap the SPA. The construction access road is approximately 4.41 km from the closest SPA loch, however the development itself is approximately 6.82 km from the closest SPA loch. Traffic along the main road to the construction access road will not be substantially increased by the Project.</p> <p>During the breeding season black throated diver foraging range is likely to be less than 10 km.¹ The closest waterbody on which divers were recorded during baseline surveys for the Inveraray – Crossaig OHL project is approximately 3.4 km north east of the Project.</p> <p>Black-throated diver will consequently not be significantly disturbed by project activities, nor displaced from breeding, foraging or resting areas by the onshore construction traffic or final development. Overall no likely significant effects are predicted.</p>	No LSE

¹ NatureScot (2016) Assessing Connectivity with Special Protection Areas <https://www.nature.scot/sites/default/files/2018-08/Assessing%20connectivity%20with%20special%20protection%20areas.pdf> Accessed 11.01.2022

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		<p>Accidental mortality due to collision with project infrastructure.</p>	<p>During the breeding season black throated diver foraging range is likely to be less than 10 km.¹ The closest SPA loch is approximately 6.82 km from the Proposed Development and the Associated Development is approximately 213 meters in length. Birds from the SPA are unlikely to pass over the Project travelling to feeding lochs.</p> <p>The closest black-throated diver flights recorded during baseline surveys for the Inveraray – Crossaig OHL were approximately 4 km north east of the Project.</p> <p>Black-throated divers are unlikely to fly near to, or over, the Project. No likely significant effects are predicted.</p>	<p>No LSE</p>
		<p>Potential barrier effects as a result of the presence of infrastructure.</p>	<p>During the breeding season black throated diver foraging range is likely to be less than 10 km.² The closest SPA loch is approximately 6.82 km from the proposed Project site and the OHL is approximately 213 meters in length. Birds from the SPA are unlikely to pass over the Project site travelling to feeding lochs.</p> <p>The closest black-throated diver flights recorded during baseline surveys for the Inveraray – Crossaig OHL were approximately 4 km north east of the Project.</p> <p>Black-throated divers are unlikely to fly near to, or over, the Project. No likely significant effects are predicted.</p>	<p>No LSE</p>

¹ NatureScot (2016) Assessing Connectivity with Special Protection Areas <https://www.nature.scot/sites/default/files/2018-08/Assessing%20connectivity%20with%20special%20protection%20areas.pdf> Accessed 11.01.2022

² NatureScot (2016) Assessing Connectivity with Special Protection Areas <https://www.nature.scot/sites/default/files/2018-08/Assessing%20connectivity%20with%20special%20protection%20areas.pdf> Accessed 11.01.2022

6.2 In combination Assessment

- 6.2.1 A number of developments in the vicinity of the Project have been identified: the proposed installation of up to 14 wind turbines and associated ancillary infrastructure on land at Sidh Mor South Of Lochan Anama and North West Of A-Chruach Wind Farm Kilmichael Fores approximately 4 km north of the Project and the proposed erection of Crarae 275 kV substation and infrastructure approximately 10.7 km north east of the Project. Neither development is predicted to result in in-combination effects with the Project.

7 CONCLUSION

- 7.1.1 As a result of the HRA Screening assessment undertaken, no likely significant effects are predicted on any European protected sites. As such, stage 2 Appropriate Assessment is not required.