

**Emmock 400 kV Substation
EIA Report
Non-Technical Summary
November 2024**

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Image 1 Photomontage of the Proposed Development from Viewpoint 1: Cairns-Balkello Hill

1. Introduction & Overview

Overview

1.1 Scottish Hydro Electric Transmission plc ('the Applicant') is a wholly owned subsidiary of the SSE plc group of companies. Operating and known as Scottish and Southern Electricity Networks Transmission ('SSEN Transmission'), it owns and maintains the electricity transmission network across the north of Scotland and remote islands.

1.2 SSEN Transmission has a statutory duty under section 9 of the Electricity Act 1989¹ to develop and maintain an efficient, co-ordinated and economical electrical transmission system in its licence area. Where there is a requirement to extend, upgrade or reinforce its transmission network, SSEN Transmission's aim is to provide an environmentally aware, technically feasible and economically viable solution which would cause the least disturbance to the environment and to people who use it.

Background

1.3 In July 2022, National Grid, the Electricity System Operator (ESO)¹, published the Pathway to 2030 Holistic Network Design (HND²), setting out the blueprint for the onshore and offshore electricity transmission network infrastructure required to enable the forecasted growth in renewable electricity across Great Britain, including the UK and Scottish Government's 2030 offshore wind targets of 50 GW and 11 GW respectively.

1.4 The extensive studies completed to inform the ESO's Pathway to 2030 HND confirmed the requirement to increase the power transfer capacity of the onshore corridor from Kintore to Tealing. This requires a new 400 kV connection between these locations to enable the significant power transfer capability needed to take power from onshore and large scale offshore renewable generation which is proposed to connect at onshore locations on the East Coast of Scotland and transport it to areas of demand.

1.5 To achieve this, SSEN Transmission is proposing a new 400 kilovolt (kV) overhead transmission line (OHL) between Kintore and Tealing. This new connection also requires two new 400 kV substations to be constructed near Tealing in Angus and in Fetteresso Forest in Aberdeenshire to enable future connections and export routes to areas of demand. In addition, two of the existing 275kV OHLs from the existing substation at Tealing, and Alyth and Westfield substations require to be upgraded to 400kV and connected to the new 400kV substation near Tealing. Additional short 275kV connections between the new 400kV and existing Tealing substation are also required.

The Planning Application

1.6 The Applicant is applying to Angus Council for full planning permission under the Town and Country Planning Act (Scotland) 1997, to install and operate this new 400 kV substation at Emmock, near Tealing in Angus, with associated earthworks, the formation of platforms, landscaping, means of access, means of enclosure, site drainage, and temporary construction compounds (referred to hereafter as "Proposed Development").

1.7 The Proposed Development is located on land at Balkemback Farm, approximately 77.86 ha in area to the west of the U322 (known as Emmock Road) and hereinafter referred to as 'the Site'. The location of the Site is shown in Figure 1.1

1.8 In accordance with the requirements of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017, (the EIA Regulations) an Environmental Impact Assessment Report has been prepared by Land Use Consultants (LUC) on behalf of the Applicant to assess the likely significant effects of the Proposed Development on the environment. The findings of the EIA are presented in an EIA Report, including the measures which would be taken to prevent, reduce and, where possible, offset predicted likely significant adverse effects.

¹ The ESO was replaced by the National Energy System Operator in 2024.

² [Pathway to 2030 – Holistic Network Design – July 2022 \(National Grid ESO\)](#)

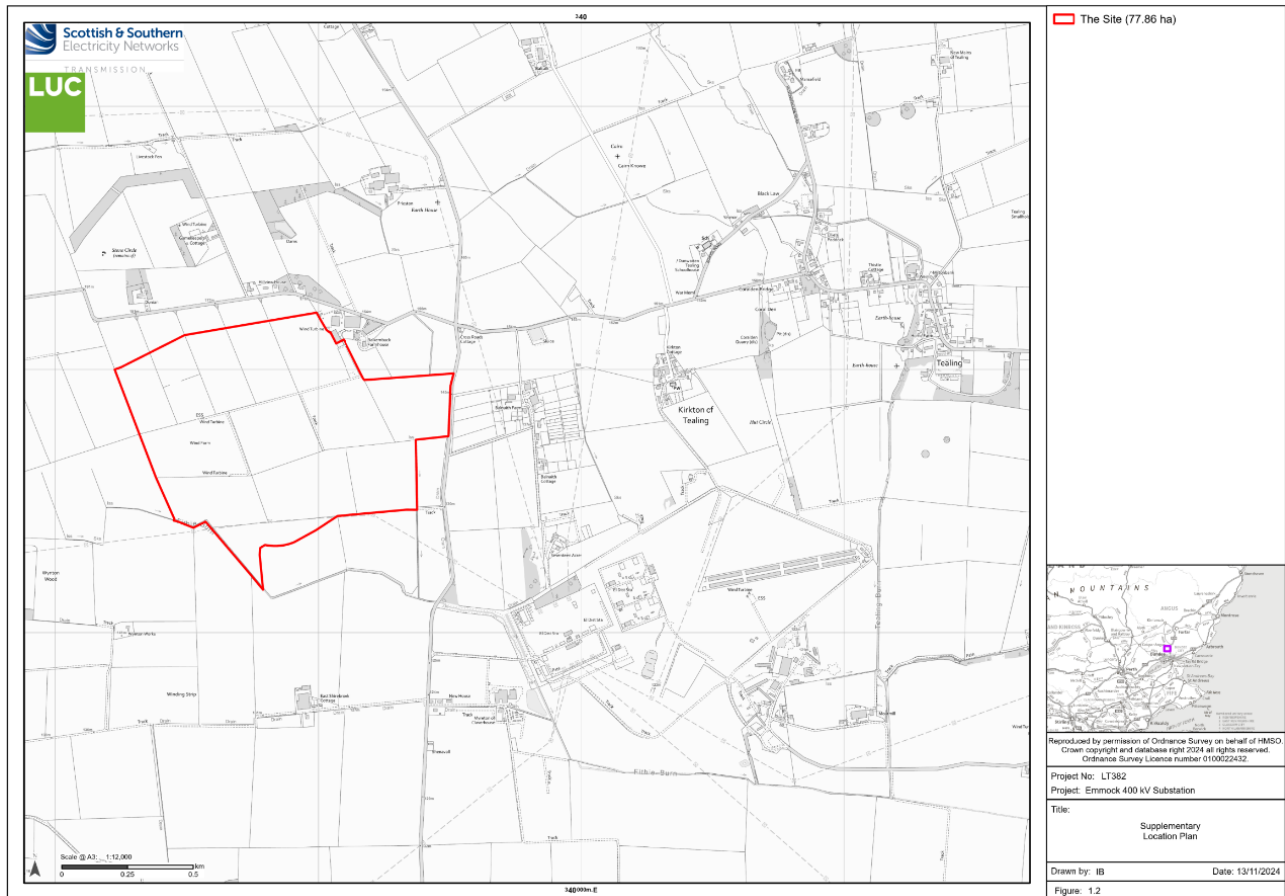


Figure 1.1 - Site Location

1.9 This Non-Technical Summary (NTS) forms part of the Environmental Impact Assessment Report ("EIA Report") as required in Paragraph 2(e) of Part 5 of the EIA Regulations.

Associated SSEN Transmission Projects

1.10 In addition to the Proposed Development, the Applicant is bringing forward separate consent applications for the associated infrastructure (referred to as Associated SSEN Transmission Projects) detailed as follows:

- Kintore to Tealing 400 kV OHL – application for consent to be submitted to the Scottish Ministers under Section 37 of the Electricity Act 1989, for a new 400 kV OHL from the existing Kintore substation in Aberdeenshire to Emmock substation, via a new substation (Hurlie substation (below)) 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 1997 (as amended);
- 400 kV Hurlie Substation – application for planning permission to be submitted to Aberdeenshire Council under the Town and Country Planning (Scotland) Act 1997, as amended;

- Alyth to Tealing Tie-in - application under Section 37 of the Electricity Act 1989 for the installation of a new short (2 km approx.) section of 400 kV OHL from the upgraded Alyth to Tealing OHL (see below) to Emmock substation and the removal of a short section of the existing OHL (approx. 2 km) to the existing Tealing Substation;
- Westfield to Tealing Tie-in – application under Section 37 of the Electricity Act 1989 for the installation of a short span of 400 kV from the upgraded Westfield to Tealing OHL to Emmock substation (see below) and the removal of a short span of existing OHL (approx. 350 m); and
- Emmock to Tealing Tie-backs – application under Section 37 of the Electricity Act 1989 to repurpose a short section of the existing Westfield to Tealing 275kV OHL from Emmock substation to the existing Tealing substation and to install a new short section of 275kV OHL from Emmock substation to the existing Tealing Substation.

1.11 In addition to the above, the Applicant is also seeking separate Section 37 consent under the Electricity Act 1989, for the following;

- 400 kV upgrade of the existing 275kV Alyth to Tealing OHL – application for consent to be submitted to the Scottish Ministers under Section 37 of the Electricity Act 1989, 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 1997 (as amended)8.

- 400 kV upgrade of the existing 275kV Tealing to Westfield OHL – application for consent to be submitted to the Scottish Ministers under Section 37 of the Electricity Act 1989, 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 1997 (as amended). The S37 consent will cover the upgrade of the OHL as far as the shared boundary with Scottish Power Energy Networks.

1.12 The cumulative environmental effects of the Proposed Development with the Associated SSEN Transmission Projects as well as other foreseeable developments in the area have been considered in the EIA Report and the effects presented accordingly.

EIA Report Structure

1.13 The EIA Report is structured as follows.:

- Volume 1: Non-Technical summary;
- Volume 2: Main Report;
- Volume 3: Figures and Visualizations; and
- Volume 4: Appendices

1.14 A Planning Statement, Design and Access Statement, Pre-Application Consultation Report, Socio-Economic Assessment and specific plans and drawings are also submitted as part of the planning application but none forms part of this EIAR.

Notifications

1.15 In accordance with the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (the “EIA Regulations”), the submission of this EIA Report will be publicised in a newspaper circulating in the locality of the proposed development, and in the Edinburgh Gazette.

1.16 Notice of this planning consent application, including This EIA Report and associated documents and figures, will be available for viewing at the following public locations during normal opening hours:

- Forfar Library, 50-56 W High St, Forfar, DD8 1BA

1.17 An electronic version is available online at [Emmock 400 kV Substation - SSEN Transmission](#).



Image 2 Photomontage of the Proposed Development from Viewpoint 3: Balkemback Cottages

2. Project Description

Project Overview

2.1 The Proposed Development comprises the construction and operation of a 400 kV substation and the formation of associated earthworks, access, drainage, landscaping, and security. (Figure 2.1)

2.2 The construction of the Proposed Development would principally involve cut and fill earthworks to create a level platform of approximate dimensions 675 m x 285 m where the electrical infrastructure would be located. To the west, north and east of the platform, earth bunds would be formed to screen the electrical infrastructure, with further bunds and drainage to the south of the platform. A new access would be formed between Emmock Road (U322) and the platform. A temporary combined compound and laydown area approximately 188 m x

140 m would be formed to the east of the platform and this area would be returned to agricultural use following construction.

2.3 A control building, occupying a footprint of some 50 m x 24 m and height not exceeding 7 m would be constructed on the platform.

2.4 The substation would use new 400 kV Air Insulated Switchgear (AIS) equipment with an approximate height of 18 m above platform level, including, transformers, connection bays and gantries. No new transmission towers are included within the scope of the Proposed Development. The terminal towers which will connect new and uprated overhead lines (OHL) will be included as part of separate OHL proposals and consent applications as described in Section 1.10.

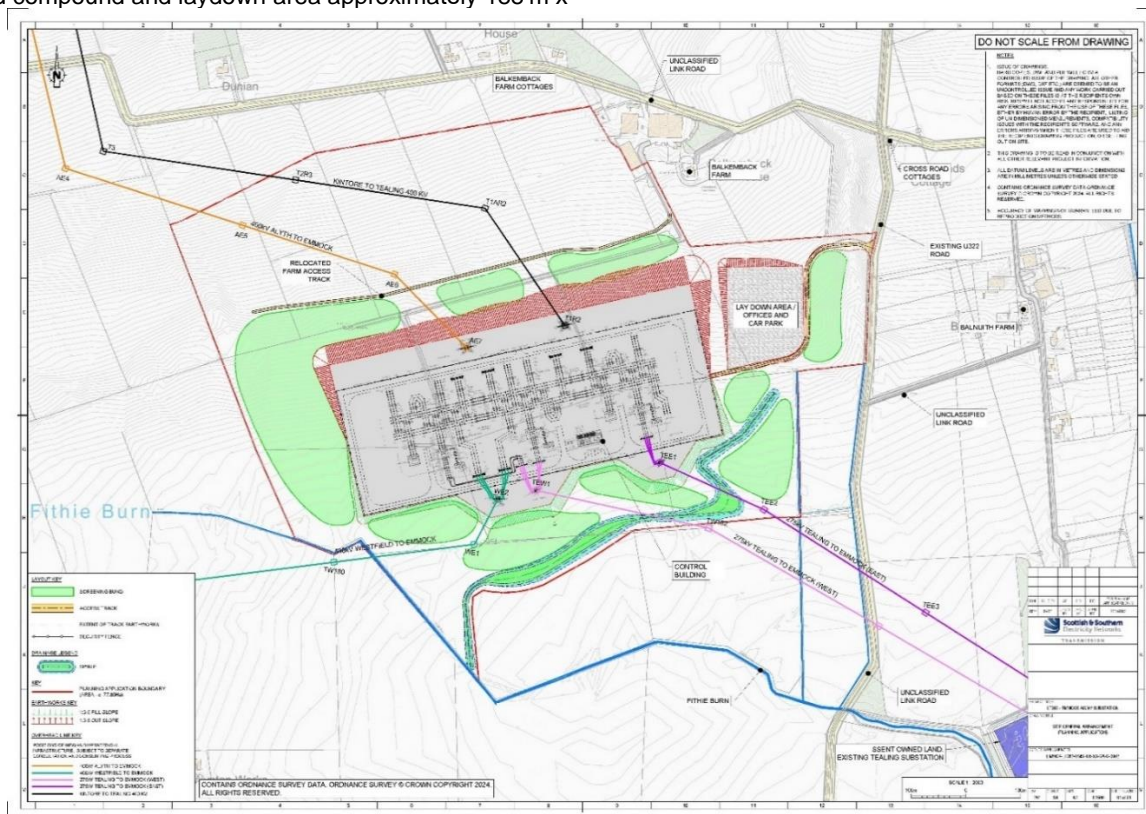


Figure 2.1 - General Arrangement of the Proposed Development

Location of the Proposed Development

2.5 The Site comprises arable land at Balkemback Farm as shown in Figure 1.1: Site Location.

2.6 The site is located south of the Sidlaw Hills in Angus, an area of open agricultural lowlands with scattered properties and existing infrastructure. Dundee is located approximately 2.8 km to the south of the Site. A number of individual residential properties are scattered throughout the area including the dwelling at Balkemback located outside the Site along its northeastern boundary and Balkemback Cottages located approximately 50 m to the north of the Site.

2.7 The site is currently in agricultural use and is comprised of several fields with associated boundaries of hedging and fencing.

2.8 The wider site setting is similar in character to the Site, comprising agricultural land with small pockets of residential properties to the north and east of the Site, of which eight properties are located within 200 m from the northern edge of the Site boundary. The settlement of Tealing lies approximately 1.5 km to the northeast of the Site and the settlement of Bridgefoot is located approximately 1.8 km to the southwest of the Site. Two notable exceptions to the general pattern of the wider landscape are: Craigowl Hill, some 2 km north, with its associated elevations and woodland to the northwest; and the existing Tealing Substation located approximately 230 m to the southeast of the Site, along with its attendant infrastructure, including two existing 275 kV OHLs connecting Tealing Substation with Alyth and Westfield (Glenrothes) Substations. Seagreen Wind Energy operates a substation immediately east of the Tealing Substation. An overhead line passes through the southern part of the Site in an east to west orientation. Two on-site, landowner-owned, low-output wind-turbines, which will be decommissioned prior to construction, are located within the western part of the Site.

Description of the Proposed Development

Substation Design

2.9 The design of the Proposed Development has been progressed through an iterative process integrating electrical and civil engineering and environmental considerations. The design process has sought to reduce the potential for significant environmental effects at the outset taking account of site topography, slope, drainage existing land uses and vegetation.

2.10 The principal iterations have focused on reducing the extent of the Site and on optimising the cut and fill works. As a result, the Site area has been reduced from approximately 90ha

to 78ha since the Proposed Development was subject to public consultation. The main platform width has been reduced slightly from 300 m to 285 m and the platform level lowered from 140.5 m above ordnance datum (AOD) to 139 m (AOD) reducing the extent to which the electrical infrastructure would be visible, particularly from the north. The landscape design has been reconfigured as a result of the reduction in Site area while retaining its function to mitigate potential landscape and visual impact.

Substation Platform

2.11 The elevation of the Site falls from approximately 173 m AOD in the north to 131 m in the south. The substation platform would be formed by excavating into the slope of the Site. Excavated material would be used to form the platform where the Site slopes away and to form screening bunds around the perimeter of the platform although it is anticipated that engineered stone would need to be imported to form the upper drainage layer. The platform would comprise a flat, rectangular area accommodating the electrical and built infrastructure.

2.12 Drainage will be provided by a network of drains with interceptor traps, which will drain to a 'swale' which acts as a channel to carry surface water runoff to the Fithie Burn south of the Site, whilst also allowing water to soak to groundwater which can help reduce flooding during intense rainfall events.

Landscape Design

2.13 The proposed landscape design would comprise of screening bunds and the planting of a variety of habitat types that would provide both visual screening and opportunities for biodiversity. The design will introduce new elements formed from excavated material, new shelter belts and new field edge treatments. The landscape design is shown in Figure 2.1.

2.14 Where existing and proposed OHL cross the Site, no landscaping bunds or vegetation that grows to a significant height would be included. This is to ensure that the minimum safety standards for clearances beneath OHL are maintained and to ensure that mature vegetation does not pose a safety risk were trees to fall.

2.15 The planting schedule comprises new areas of woodland, hedgerows, wetland planting and grassed areas. Broadleaved woodland, with species such as rowan, willow, hazel and birch would be complemented by grass meadows and wildflowers. Hedgerows of holly, dog rose and alder would be provided to allow connection for species through the creation of 'wildlife corridors'. Collectively, the planting proposed would be designed to ensure that habitats are created for invertebrates, mammals and avian species.

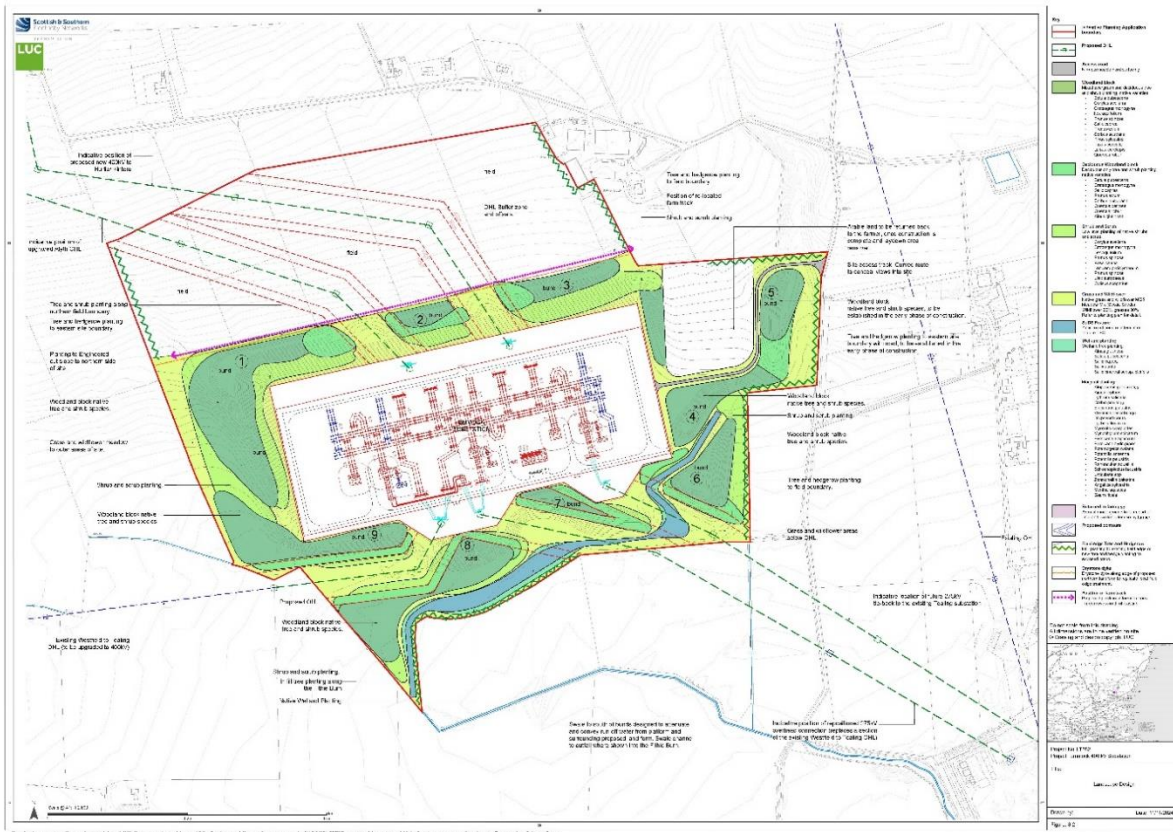


Figure 2.2- Landscape design

Lighting

2.16 During the construction period, temporary construction compounds and platform working areas are likely to be equipped with lighting installations for use during low light conditions and passive infra-red sensor-controlled security lighting.

2.17 During operation, lighting will be kept to the minimum to ensure safe operations and security; individual light clusters will be low-level, narrow beam, and directed downwards to minimise glare and light spill; different lighting configurations and designs will be adopted for different parts of the site and will be appropriate for use; landscape bund design and positioning will support the reduction of glare and light spill experienced.

Construction Programme

2.18 Construction hours, including construction deliveries, are proposed to be as follows unless otherwise agreed with Angus Council: Monday to Sunday – 07:00 to 19:00

2.19 Construction of the Proposed Development is scheduled to take three and a half years from spring 2026 until autumn 2029. Following testing and commissioning it is expected that the Proposed Development will be fully operational by late 2030.

Construction Employment

2.20 Employment of construction staff would be the responsibility of the Principal Contractor but SSEN Transmission encourages the use of suitable labour and resources from areas local to the location of the works, where available. At the peak of construction, it is expected that the Proposed Development will employ 150 people.

Construction Traffic

2.21 The main types of construction traffic to the Site include vehicle movements of low-loaders with one-time delivery associated with mobilization, site set-up and bringing earthworks plant, and accommodation units to Site. HGVs would bring equipment and supplies including stone and steel, while abnormal loads would include crane and transformer movements to and from Site.

2.22 Construction traffic will follow a circular route separating in-bound and out-bound traffic as far as is possible. Inbound bulk materials from the south will travel north on the A90, exiting onto Moatmill Road under a 40 mph limit and continuing to Emmock Road past the existing Seagreen Substation and Tealing Substation to access the Site. Bulk materials traffic from the north will travel past the Moatmill turning and continue south to the Emmock Roundabout to perform a U turn in safety before following the same route as north bound traffic via Moatmill

Road. No right turns at the Moatmill Road junction with the A90 will be permitted.

2.23 Empty heavy goods vehicles (HGV) traffic will leave the Site and use the U322 Emmock Road which crosses the A90 on a bridge before continuing southbound to Dundee and the Emmock Roundabout.

2.24 To allow safe use of the Emmock road a series of passing places/laybys will be constructed.

2.25 A maximum of six Abnormal indivisible loads (AILs) bringing large, heavy equipment, are anticipated to access the Site from the Kingsway, the Old Glamis Road and the Emmock Road from the south. All AIL movements would be subject to the approval and supervision of the relevant local authority and the police.

2.26 A Construction Traffic Management Plan (CTMP) would be prepared by the Principal Contractor, in consultation with SSEN Transmission, Angus Council and Transport Scotland. The CTMP will detail how traffic impacts will be managed during the construction of the Proposed Development as well as identifying the design and location of passing places/laybys including any asset strengthening, surface finishing, drainage proposals, and approaches to environmental management which Angus Council deems necessary.

Environmental Management during Construction

2.27 All construction works would be carried out in accordance with the Applicant's General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs), which have been developed by the Applicant to ensure best practice working methods are adapted to mitigate potential environmental effects.

2.28 A contractual requirement of the Principal Contract would be the development and implementation of a Construction Environmental Management Plan (CEMP). This document would detail how the Principal Contractor would manage the construction process in accordance with all commitments and mitigation detailed in the EIA Report, statutory consents and authorisations, and industry best practice and guidance.

2.29 The CEMP will include measures to address, but will not be limited to, the following:

- Water management, including how to manage surface water runoff and how to ensure the protection of watercourses from construction processes;
- Air quality management, including processes to manage and mitigate dust emissions;
- Soil pollution and management, including ensuring the return of construction areas to agricultural use;
- Noise and vibration management from both the construction of the Proposed Development and from transport to and from Site;

- Lighting, including proposals for safe construction during low light conditions; and

- Waste management, including proposals for managing, segregating and recycling construction materials as appropriate.

2.30 The Principal Contractor will be required to appoint an Environmental Clerk of Works (ECoW) whose role is to ensure that the construction of the Proposed Development is undertaken in accordance with the CEMP and all other relevant legal and planning obligations.

Operation and Maintenance

2.31 The Proposed Development would be unmanned, with operations largely being controlled remotely from SSEN Transmission's control centre, with routine inspection and maintenance performed at regular intervals. Most substations have a monthly inspection, whilst varying degrees of maintenance would be undertaken annually. There would be other visits as required for operational duties and occasional repairs, as necessary.

Mitigation

2.32 The Applicant is committed to protecting and enhancing the environment by ensuring that the design and the construction of the Proposed Development is undertaken in adherence to all the mitigation measures that are identified through the EIA process. A three-tiered mitigation hierarchy has been adopted in the EIA Report as follows:

- Embedded Mitigation: design stage mitigation where SSEN Transmission has sought to reduce impacts on the environment through the design of the Proposed Development and which has been delivered through the design process.
- Applied Mitigation: standard/best practice environmental discipline/construction industry mitigation including GEMPs and SPPs prepared by SSEN Transmission that specify working practices that the Principal Contractor is obliged to follow under the conditions of contract.
- Additional Mitigation: Site-specific bespoke mitigation that is required to mitigate a particular impact that has been identified through the EIA process and which the Principal Contractor will be obliged to follow. These are expected to form planning conditions attached to any planning permission granted for the Proposed Development and which would be required to be approved by Angus Council before any development begins.

Biodiversity Net Gain

2.33 Biodiversity Net Gain (BNG) is an approach to development that aims to leave the natural environment in a measurably better state than it was pre-development. SSEN

Transmission has developed a BNG toolkit which quantifies biodiversity based upon the value of habitats for nature. It is an efficient and effective method for demonstrating whether development projects have been able to maintain or increase the biodiversity value of a development site after construction works.

2.34 It is not always feasible or possible to deliver BNG within a proposed development site and in such circumstances, the developer can use opportunities outwith the Site to achieve the remaining enhancement measures required. Using SSEN Transmission's BNG toolkit, the planting proposals on Site deliver a net loss of 2% for area habitats. SSEN Transmission will therefore enter into an agreement with other landowners and biodiversity project developers to deliver the remaining 12% required in order to achieve the 10% gain that is required by their own corporate targets



3. Site Selection and Consideration of Alternatives

Introduction

3.1 The location of the Proposed Development was adopted following a rigorous site selection exercise that was subject to consultation in the spring of 2023. Nine candidate sites were considered with all but two of these rejected due to a combination of technical and environmental reasons. The sites considered are shown on Image 6: Site Selection with the two sites selected for furthermore detailed appraisal (sites 4 and 7) shown in blue.

3.2 Sites 1, 2, 3a, 3b, 5, 6 and 6a were not considered suitable for the following key reasons:

- Site 1: on sloped terrain which would require considerable earthworks which would leave a prominent feature in the landscape;
- Site 2: at a prominent elevation with high visibility from the village of Tealing along with the probable requirement to divert a watercourse;
- Site 3: a high pressure gas pipeline runs through this site;
- Site 3A: a high pressure gas pipeline runs through this site;
- Site 5: this site would likely be visible to a number of properties and connecting the OHLs would be very complex;
- Site 6: this site lies within an area of surface water flood risk; and
- Site 6a: this site lies within an area of surface water flood risk.

Site Appraisal

3.3 The two short listed sites (site 4 and site 7) were subject to an appraisal of the following:

- Cost;
- Engineering feasibility; and

- Environmental impact.

3.4 This appraisal confirmed that site 4 was the most appropriate option to be progressed through the EIA and subsequent consenting stages. The key reasons for choosing site 4 over site 7 were:

- The Site can accommodate the substation size and design and is considered to represent the lower overall cost option;
- There were fewer residential properties in close proximity to the site;
- Nearby cultural heritage assets were unlikely to be adversely impacted by the development;
- The site offered efficient connections to the existing Tealing substation, reusing redundant sections;
- The requirement of new infrastructure needed to connect upgraded existing circuits was minimised; and
- The location allowed over 3 km of existing 275kV OHL to be removed.

Design Alternatives

3.5 During the design of the Proposed Development, a number of design considerations have resulted in reduced impacts upon the environment. Key decisions include:

- Reducing the platform size to 285 m in width from 300 m and lowering the platform height to 139 m AOD from 140.5 m AOD hence reducing visual impact;
- Access to the Proposed Development is achieved through the provision of a new junction at the north of the Site where flood risk is less than its original location.

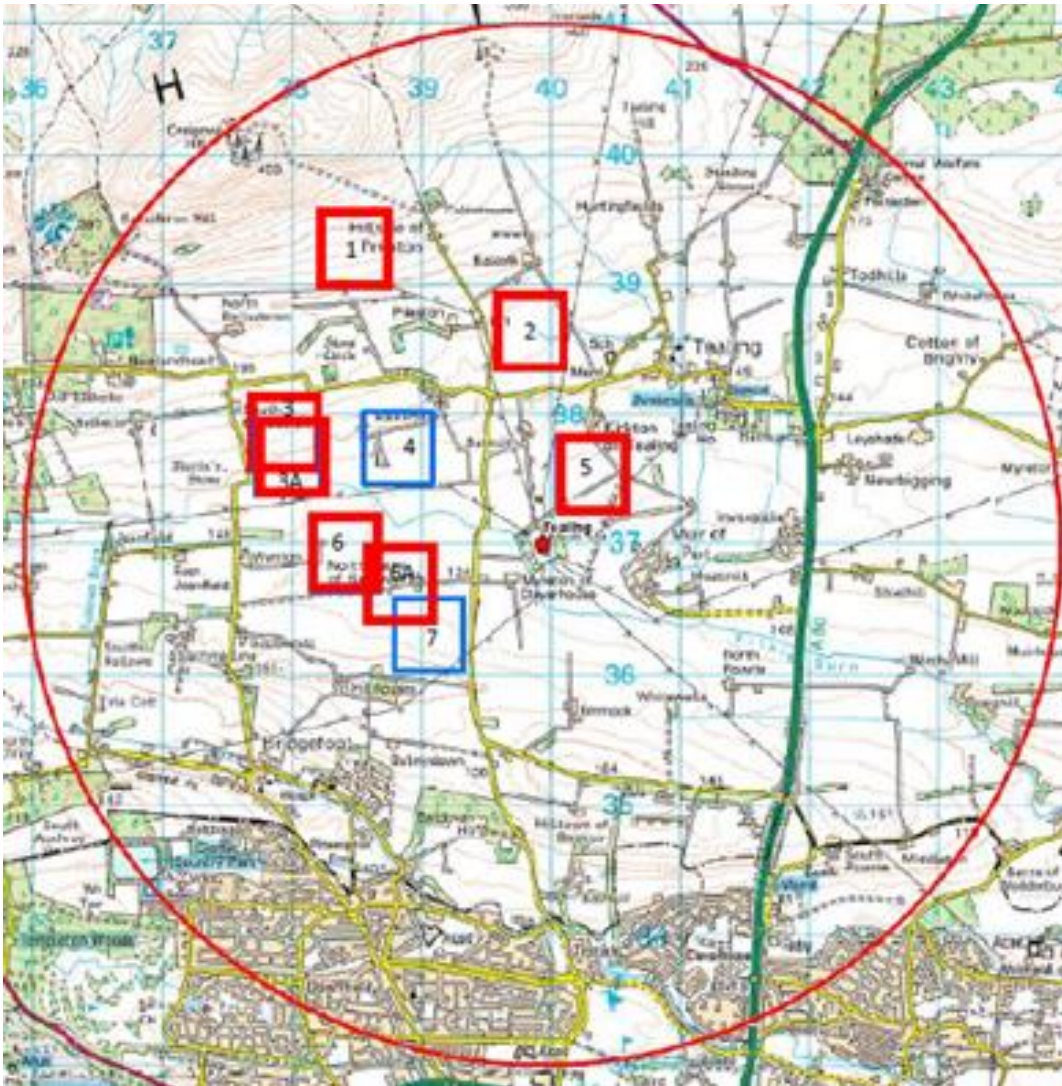


Figure 3.1 Site selection alternatives

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Image 4 Photomontage of the Proposed Development from Viewpoint 7: Inveraldie

4. EIA Approach, Scope and Consultation

Introduction

4.1 Environmental Impact Assessment (EIA) is a process that considers how a proposed development is predicted to change existing environmental conditions and what the consequences of such changes will be. It therefore informs both the project design and the decision-making processes related to the grant of planning permission and assists the Local Planning Authority (in this case Angus Council), statutory consultees and the wider public in considering an application.

4.2 An essential element of EIA is collating suitable information on the baseline environment to determine the character of an area prior to the implementation of a project. The area that is considered varies by technical discipline. The EIA Report has been prepared using up to date technical information that has been gathered from a variety of desk based sources as well as from specific site surveys.

4.3 Once the environmental baseline has been determined, and the receptors identified and categorised, the potential for impacts on the baseline from the construction and operation of the Proposed Development are predicted and assessed using an appropriate methodology identified in each topic specific chapter.

4.4 The EIA Report subsequently presents the assessment of these likely significant effects using criteria specific to and detailed within each topic chapter with effects usually defined, unless otherwise on a case by case basis, as 'major', 'moderate', 'minor' or negligible. For the purposes of the EIA Regulations, impacts that are 'major' or 'moderate' are deemed to be significant.

4.5 The EIA process is an iterative one whereby the identification and assessment of effects can also inform the design of a project so that likely significant adverse effects can be avoided, reduced or, if possible, removed at an early stage. Following the adoption of mitigation measures the resulting 'residual' significant effects are presented within the EIA Report.

Scoping

4.6 Prior to the submission of the EIA Report to Angus Council, the Applicant has sought the views of statutory consultees on the scope of the EIA through a formal process known as 'scoping'. This is a process through which the Applicant has agreed with Angus Council the scope of the surveys and studies to be included in the EIA Report as well as any specific methodologies that should be followed. This scoping process is managed by Angus Council and draws upon the feedback that has been received from, amongst others, NatureScot, Historic Environment Scotland, Scottish Environment Protection Agency as well as officers of Angus Council with responsibility for environmental health, archaeology and transport.

Consultation with the Local Community



Figure 4.1: Consultation at Tealing Village Hall

4.7 SSEN Transmission has sought to maintain an open dialogue with local communities in the vicinity of the Proposed Development throughout the evolution of the project. This has included carrying out consultation events, engaging with local elected members such as Ward Councillors and Community Councils and engaging with landowners, residents and businesses. The EIA Report details the consultation that has taken place, the feedback that has been received and how the

Applicant has sought to address this feedback either within the EIA Report or through the design of the Proposed Development.

Cumulative effects

4.8 The assessment of cumulative effects is a key part of the EIA process and is concerned with identifying circumstances in which a number of potential and/or predicted effects associated with the Proposed Development, in combination with itself or other existing or planned development projects, could combine to cause a significant effect on a particular receptor.

4.9 In the EIA Report, the following cumulative effects have been considered:

- In-combination effects - impacts from the Proposed Development with other reasonably foreseeable future developments.
- Interactive effects - combined or synergistic effects from different impact types of the Proposed Development where a sensitive receptor experiences significant effects from more than one topic area (for example a significant visual impact as well as a significant noise impact).

4.10 “In combination effects” have been considered with reference to three groups of reasonably foreseeable future developments; (a) those projects which are defined in Chapter 1 as Associated SSEN Transmission developments and (b) other projects which fall into one or more of the following categories: other SSEN Transmission Developments, other projects of national importance within 3 km, local developments within 2km where an EIA is required, developments where undetermined planning/consent applications or scoping requests have been submitted, or developments where consents have been granted but construction has not yet commenced at the time of preparation of this EIAR.



Image 5 Photomontage of the Proposed Development with Associated OHL developments from Viewpoint 2: Balkemback Cottages Stone Circle

5. Landscape and Visual Impact

Introduction

5.1 The landscape and visual impact assessment (LVIA) has considered the potential effects of the Proposed Development, in isolation and cumulatively with other developments, on landscape and views of the Site from key viewpoints, surrounding routes, residential properties and settlements during construction and operation, in accordance with best practice guidance.

Overview of Methodology

5.2 The assessment in the EIA Report has been undertaken by chartered landscape architects experienced in the assessment of renewable energy and electricity transmission projects in accordance with accepted guidance published by both NatureScot and the Landscape Institute.

5.3 The assessment has considered the baseline environment in the vicinity of the Proposed Development drawing upon field work and aerial photography. Suitable viewpoint locations that are representative of views into and of the Proposed Development from sensitive receptors (including residences and public rights of way) were agreed with Angus Council. Photographs of representative views from these locations were subsequently taken in accordance with the industry standard guidance published by the Landscape Institute.

5.4 Using a 3D model of the Proposed Development and computer software, photomontages - computer generated, location and scale specific representations of the Proposed Development within a photographed view and prepared in accordance with an agreed method - have been produced that show the existing view, the visibility of Proposed Development immediately following construction and ten years later to demonstrate how maturing vegetation will aid the screening proposals. The photomontages also include those Associated SSEN Transmission Developments visible in the view, to show a representation of how the cumulative effect of these developments in combination with the Proposed Development may appear.

5.5 Nine viewpoints within the 3 km study area were selected which represent the maximum visibility of the Proposed Development from different viewing directions and distances.

Overview of Baseline Conditions

5.6 The Site is located within Landscape Character Type (LCT) 387: Dipslope Farmland, an area of lowland farmland which slopes down from the Sidlaw Hills in the northwest.

5.7 The Site is not within any designated landscapes. However, the proposed Sidlaw Local Landscape Area (LLA) is located approximately 1.3 km to the northwest of the Site.

5.8 There are a number of small settlements within 3 km of the Proposed Development, and those with theoretical visibility of the Proposed Development include Tealing, Kirkton of Tealing and Inveraldie.

5.9 There are several core paths identified within 3 km of the Proposed Development including, *Core Path 207 (Angus Council) Kirkton of Tealing to Balnuith*, *Core Path 210 (Angus Council) Kirkton of Auchterhouse to Balluderon* and *Core Path 208 (Angus Council) Prieston to Glen Ogilvie*.

Mitigation

5.10 A Landscape Design, as illustrated in Figure 2.2: Landscape Design, has been prepared for the Proposed Development. The Landscape Design proposes the construction of large earth bunds ranging in height from 1.5 – 10m which would help screen views looking towards the proposed development from the north, south, east and west. Proposed mitigation planting in the form of shrubs and woodland would be planted on the proposed bunding. This mitigation planting would help better integrate the Proposed Substation into the landscape and provide screening in close proximity views.

Overview of Effects

Landscape

5.11 Major (Significant) landscape effects would occur within the Site during construction due to the extent of ground excavation, the presence and movement of plant and machinery, and large-scale earthworks. During operation, Major effects on the Site would be expected as a result of the presence of the Proposed Substation which would reduce over time as the landscape planting matures, helping to better integrate the Proposed Development into the landscape.

5.12 In terms of impacts on the character of the wider landscape, Moderate (Significant) effects are predicted for LCT 387: Dipslope Farmland, within up to 0.5 km of the Site, reducing to Minor (Not Significant) elsewhere during both construction and operation. Effects on LCT 382: Lowland Hill Ranges will fall below the threshold of significance.

Visual

5.13 Broadly, the Proposed Development is not predicted to give rise to significant visual effects. From the majority of viewpoints selected, (7 out of 9), effects are either Minor or Negligible. Further, no significant effects are predicted from Kirkton of Tealing, Tealing and Inveraldie.

5.14 Significant effects are predicted at two viewpoints: Balkemback Cottages and the minor road west of Balnuith during the construction and operation of the Proposed Development, which reflects the close proximity of these viewpoints to the Site.

5.15 Significant effects would also be experienced by users of the local (minor) road network immediately after construction but would reduce to not-significant by the time the landscaping has matured.

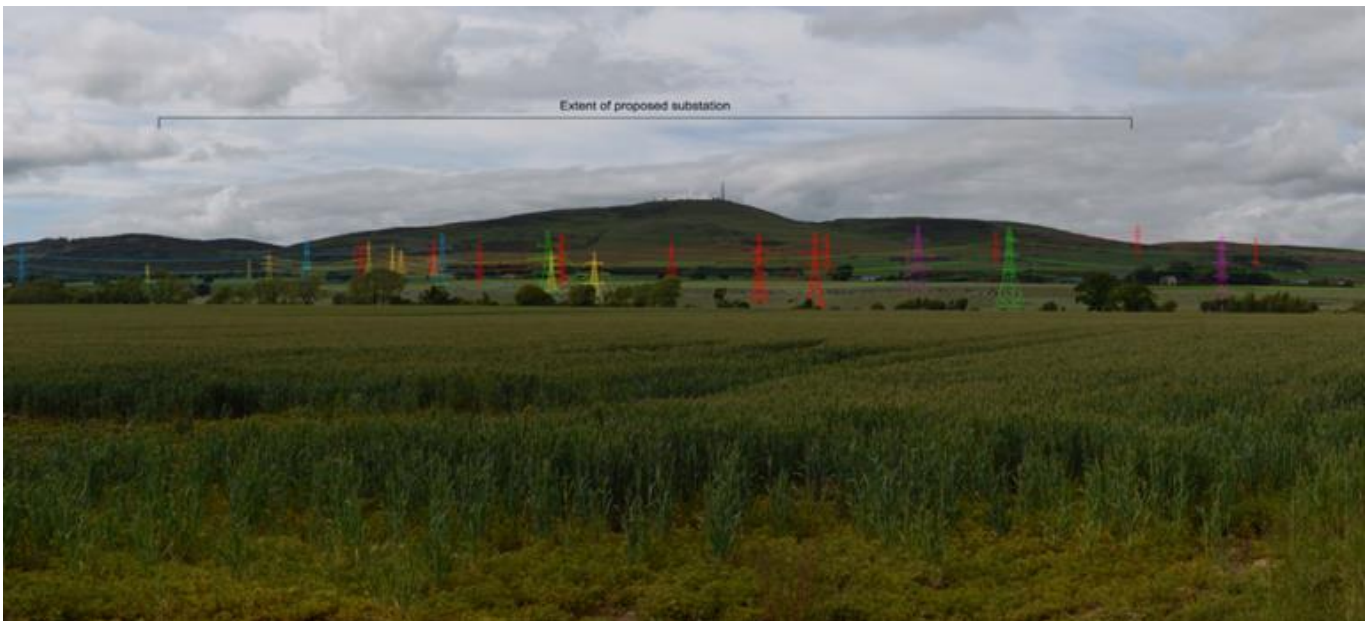


Image 5.1: Viewpoint - Minor Road

Cumulative Effects

5.16 During both the construction and operational phase of the Proposed Development there will be significant cumulative landscape and visual effects when combined with the Associated SSEN Transmission Developments. This is due to the scale of the Proposed Development along with the vertical prominence of the new towers associated with the new OHL

lines (shown in different colours to differentiate between the lines).

5.17 The Proposed Development is also likely to have significant cumulative landscape and visual effects when combined with other third party developments although there is a higher level of uncertainty with the level of information that is presently available on some of these projects.



Image 7 Photomontage of the Proposed Development with Associated OHL developments from Viewpoint 3: Craig Hill, Fort & Broch

6. Cultural Heritage and Archaeology

Introduction

6.1 The assessment of impacts upon cultural heritage and archaeology has considered the potential effects of the Proposed Development, both in isolation and cumulatively with other developments, upon buried archaeological remains and the setting of designated assets (i.e. listed buildings and scheduled monuments).

Overview of methodology

6.2 The assessment in the EIA Report has been undertaken by experienced cultural heritage professionals with considerable experience in the assessment of renewable energy and electricity transmission projects in accordance with accepted guidance published by the Chartered Institute for Archaeologists.

6.3 The assessment has considered the baseline environment in the vicinity of the Proposed Development through a desk based study of the known heritage assets that are present, using data derived from Historic Environment Scotland Spatial Warehouse and from the Angus Historic Environment Record (HER), and a site based survey to establish the setting of these assets.

6.4 Suitable viewpoint locations have also been identified that are representative of the views of the Proposed Development from designated assets. Similarly to those photographs and photomontages prepared for the assessment of landscape and visual impact, photomontages have been produced that show the existing view, the Proposed Development immediately following construction and ten years later to demonstrate how maturing vegetation will aid the screening proposals.

Overview of baseline conditions

6.5 There are no designated heritage assets (world heritage sites, scheduled monuments, listed buildings, inventory gardens and designed landscapes, inventory historic battlefields, or conservation areas) within the Site and although there are several scheduled monuments and listed buildings in the vicinity, the majority of are sufficiently distant from the Site

that no impacts are predicted. The assessment has therefore focused upon the following assets:

- Stone circle near Balkemback Cottages (scheduled monument record number 2868) (see Image 5);
- Martin's Stone Cross Slab (scheduled monument record number 159) (see Image 6.1);
- Craig Hill Fort and Broch (scheduled monument record number 3038) (see Image 7);
- South Balluderon Farmstead (listed building record number 17458).

6.6 There are six non-designated heritage assets in the vicinity of the Site of which two are thought to be within the Site. These non-designated assets are a variety of historic (Bronze Age), pre and post medieval and modern in nature and indicate that there is the potential for undiscovered archaeology to be present within the Site.

Mitigation

6.7 A Landscape Design, as illustrated in Figure 2.1: Landscape Design, has been prepared for the Proposed Development. The Landscape Design proposes the construction of large earth bunds ranging in height from 1.5 – 10m which would help screen views looking towards the Proposed Substation from the designated heritage assets included within this assessment. Proposed mitigation planting in the form of shrubs and woodland would be planted on the proposed bunding to provide further screening.

6.8 A Written Scheme of Investigation (WSI) would be prepared and approved by Angus Council in advance of any construction works. The WSI will detail the methodology to be followed to identify any archaeology that is present within the Site and how the remains will be investigated and preserved in record.

Overview of Effects

6.9 During the construction phase of the Proposed Development, undertaking construction in accordance with the WSI will result in an effect no greater than minor (Not

Significant) effects on archaeological assets as, should any unforeseen assets be discovered, their preservation by record will be secured and documented accordingly.

6.10 During the operational phase of the Proposed Development, impacts upon the setting of the designated heritage assets assessed will be negligible (Not Significant). This is due to intervisibility between the heritage assets and the

Proposed Development being either screened by existing buildings and vegetation or by the bunds and planting of the landscaping proposals of the Proposed Development. Image 6.1 below shows a photomontage of Martin's Stone Cross Slab with the Proposed Development in the background.



Image 6.1 - Photomontage of the Proposed Development in the first year of operation with Martin's Stone Cross Slab

Cumulative Effects

6.11 The Proposed Development in combination with Associated SSEN Transmission Developments, other SSEN Transmission Developments and third-party developments will not have significant effects upon buried archaeological remains with the adoption of appropriate mitigation measures including working to an agreed WSI.

6.12 The assessment of cumulative effects during the operational phase of the Proposed Development with the Associated SSEN Developments, other SSEN Transmission Developments and third party developments will not lead to a significant cumulative effect and, although these other projects may have significant effects upon the setting of designated heritage assets, the in-combination effect will be no greater than the other project's effect in isolation.



Image 9 Photomontage of the Proposed Development from Viewpoint 8: Emmock Road

7. Ecology

Introduction

7.1 The assessment of impacts upon ecology has considered the potential effects of the Proposed Development, both in isolation and cumulatively with other developments, upon protected species, namely bats, badger, otter and beaver.

Overview of Methodology

7.2 The assessment in the EIA Report has been undertaken by experienced ecologists experienced in the assessment of renewable energy and transmission projects in accordance with the accepted guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM).

7.3 The assessment has considered the baseline environment in the vicinity of the Proposed Development through a desk based study of designated sites and records of protected species held by NatureScot and the National Biodiversity Network as well as site based surveys to identify the habitats and species likely to be present.

7.4 An Ecological Impact Assessment was undertaken following guidelines issued by the CIEEM having regard to relevant legislation, policy and guidance on the protection, management and assessment of ecological assets/habitats and species.

Overview of baseline conditions

7.5 There are no statutory or non-statutory designated sites within the Site. Two Special Areas of Conservation (SAC) and one Site of Special Scientific Interest (SSSI) were identified within 10 km and 5 km of the Site, respectively. The closest of these statutory designated sites, located approximately 2.7 km northwest, is Auchterhouse Hill SSSI which is designated for its subalpine dry heath. Three woodlands listed on the Ancient Woodland Inventory as Long-Established of Plantation Origin (LEPO) were identified within 2 km of the Site; two of these are no longer wooded, and the closest extant LEPO woodland is approximately 0.1 km southwest of the Site.

7.6 The Fithie Burn forms the southwest boundary of the Site and is hydrologically connected to the Dighty Burn LNCS. The Dighty Burn LNCS is located approximately 2.8 km south of the Site directly, but it is over 8 km downstream of the Site. The

proposed access route to be used by construction vehicles crosses the Dighty Burn LNCS via the Emmock Road Bridge.

7.7 All habitats identified with the Site during the field surveys are common and widespread and the majority are intensively managed fields. The only habitat of conservation concern identified within the Site are two hedgerows which are grown out and gappy and a small number of individual small trees.

7.8 Habitats were considered suitable to support bats, otter, beaver and badger, but no direct evidence of these species was identified during the surveys indicating that the Site is not of importance to these species beyond the vicinity of the Site.

Mitigation

7.9 A Landscape Design, as illustrated in Figure 2.1: Landscape Design, has been prepared for the Proposed Development. The Landscape Design proposes planting in the form of grassland, shrubs and woodland that will provide suitable habitat for a range of species.

7.10 The construction works will be undertaken in accordance with the GEMPs and SPPs that specify working practices that the Principal Contractor is obliged to follow under the conditions of contract. The Principal Contractor is also obliged to prepare an Ecological and Ornithological Management Plan that will specify how the construction works will implement the requirements of the GEMPs and SPPs.

7.11 The implementation of the Ecological and Ornithological Management Plan as well as adherence to all GEMPs and SPPs will be supervised by an Environmental Clerk of Works.

7.12 The planting proposals on Site deliver a net BNG loss of 2% for area habitats. The Applicant will therefore enter into an agreement with other landowners and biodiversity project developers to deliver the remaining 12% required in order to achieve the 10% gain that is required by their own corporate targets.

Overview of Effects

7.13 The construction of the Proposed Development has the potential to disturb bats, otter, beaver and badger through direct habitat loss, habitat fragmentation and disturbance. However, as these species have not been identified as using the Site, and with mitigation in the form of the GEMPs and SPPs in place that

will ensure that pre-construction surveys are undertaken prior to works starting on Site, these impacts are considered to be not significant in the context of an EIA.

7.14 The Proposed Development will not impact any designated sites due to their distance from the Site and a lack of connectivity and accordingly, there will be no significant effect.

Cumulative Effects

7.15 The Proposed Development in combination with the Associated SSEN Transmission Developments, other SSEN Transmission Developments and third party developments will not have significant effects upon designated habitats or protected species with mitigation in the form of GEMPs and SPPs in place



Image 10 Photomontage of the Proposed Development with Associated OHL developments from Viewpoint 6: North of Balnuth

8. Ornithology

Introduction

8.1 The assessment of impacts upon ornithology has considered the potential effects of the Proposed Development, both in isolation and cumulatively with other developments, upon birds that may use the site either during the winter for roosting or during the summer for breeding.

Overview of Methodology

8.2 The assessment in the EIA Report has been undertaken by experienced ornithologists experienced in the assessment of renewable energy and electricity transmission projects in accordance with guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM).

8.3 The assessment has considered the baseline environment in the vicinity of the Proposed Development through a desk based study of sites designated for their ornithological interest using data from NatureScot as well as site based surveys across the calendar year to identify how birds may use the site and what species and populations are present.

8.4 The importance of bird species has been defined by, amongst other aspects, whether they are protected through legislation and the numbers identified relative to the regional population.

8.5 Birds are considered of high importance where they are listed in the EU Birds Directive or in the Wildlife and Countryside Act of 1981, and of medium importance when they are present in regionally important numbers or on the 'Red List' of the Birds of Conservation Concern list which is jointly published by a number of conservation bodies including NatureScot and the Royal Society for the Protection of Birds.

Overview of Baseline Conditions

8.6 There are no designated sites for ornithological species within the Site although the following are located within 20 km of the Proposed Development:

- Firth of Tay and Eden Estuary Ramsar and SPA – 7.5 km south of the Site;
- Outer Firth of Forth and St. Andrew's Bay SPA – 7.5 km south of the Site;
- Lock of Kinnordy SPA, Ramsar and SSSI – 15.8 km north-west of the Site; and
- Loch of Lintrathen SPA, Ramsar and SSSI – 19.5 km north-west of the Site.

8.7 These four sites are designated for, amongst others, herring gull, greylag geese and pink-footed geese and surveys undertaken in the vicinity of the Site indicate that none of these 'qualifying species' use the Site for breeding or roosting. The Site is therefore considered to be of negligible importance for 'qualifying species' of the SPAs and no further assessment is required; this position has been endorsed by NatureScot.

8.8 No record of any birds of high importance was identified using the Site through desk study or during surveys and, given the habitats that are present, it is unlikely that the Site represents important habitat to these protected species.

8.9 Low numbers of birds of medium importance were identified in surveys with breeding pairs of skylark, tree sparrow and yellowhammer being recorded on Site.

8.10 The Site is therefore not considered to be of significant value to birds.

Mitigation

8.11 A Landscape Design, as illustrated in Figure 2.1, has been prepared for the Proposed Development. The Landscape Design proposes planting in the form of grassland, shrubs and woodland that will provide suitable habitat for a range of species.

8.12 The construction works will be undertaken in accordance with the GEMPs and SPPs that specify working practices that the Principal Contractor is obliged to follow under the conditions of contract. The Principal Contractor is also obliged to prepare an Ecological and Ornithological Management Plan that will

specify how the construction works will implement the requirements of the GEMPs and SPPs.

8.13 The implementation of the Ecological and Ornithological Management Plan as well as adherence to all GEMPs and SPPs will be supervised by an Environmental Clerk of Works.

Overview of Effects

8.14 The construction of the Proposed Development will remove known breeding habitat for birds of medium importance and as a result it is likely that some breeding bird territories will be lost. However, given the numbers of territories affected relative to the numbers of breeding pairs known to be present both regionally and nationally, the loss of territories is considered to be negligible and therefore not significant.

Cumulative Effects

8.15 The Proposed Development in combination with the Associated SSEN Transmission Developments, other SSEN Transmission Developments and third party developments will not have significant cumulative effects upon ornithology.



Image 11 Photomontage of the Proposed Development from Viewpoint 4: Myreton of Claverhouse

9. Hydrology and Hydrogeology

Introduction

9.1 The assessment of impacts upon hydrology and hydrogeology has considered the potential effects of the Proposed Development both in isolation and cumulatively upon water quality, flood risk, groundwater abstractions, Private Water Supplies (PWS) and Ground Water Dependent Terrestrial Ecosystems (GWDTEs).

Overview of Methodology

9.2 The assessment in the EIA Report has been undertaken by hydrologists experienced in the assessment of renewable energy and electricity transmission projects in accordance with published guidance.

9.3 The assessment has considered the baseline environment on the Site with information gathered through desk based studies drawn from information obtained through publicly available flood mapping, water classification and licensed abstraction data and private water supply (PWS) data from Angus Council (supplemented by information obtained via PWS questionnaires issued to residents in the vicinity of the Site).

9.4 The assessment has been complemented by hydrology and topography field surveys to detail and categorise the hydrological baseline environment.

9.5 A detailed assessment of hydrology and flood risk has been undertaken which included hydraulic modelling of the two watercourses on Site; the Fithie Burn which runs to the south of the Site in a easterly direction, and an unnamed tributary to the Fithie Burn which flows south through a culvert along the eastern extent of the Site.

9.6 This modelling has been undertaken to understand the extent of flood risk within the Site and to aid the development of the layout of the Proposed Development.

Overview of Baseline Conditions

9.7 The Proposed Development is within the catchment of the Fithie Burn. Flood maps published by SEPA indicates the likelihood of flooding within those parts of the Site close to the Burn.

9.8 Detailed survey of the Fithie Burn and hydraulic computer modelling as part of the assessment mapped the 200 year climate change adjusted flood risk areas in greater detail. This information was used to inform the design of the Proposed Development.

9.9 The surface water quality of Fithie Burn is classified by SEPA as Poor and is designated as a heavily modified water body. The Fithie Burn is a tributary of the Dighty Water, which enters the Firth of Tay and Eden Estuary SPA and SAC and the Monifieth Bay SSSI. The SPA, SAC and SSSI are approximately 12.5 km downstream of the Site.

9.10 The groundwater body underlying the Site was classified by SEPA as Good in 2022 and is classified by the British Geological Survey (BGS) as a moderately productive aquifer. A review of Ordnance Survey mapping, supplemented by site visits, indicates that there are no wells and groundwater springs located within the Site. There are no known PWS, groundwater abstractions or GWDTEs within 250 m of the Proposed Development.

Mitigation

9.11 The design of the Proposed Development has been carefully considered to avoid any development within areas that are likely to flood except in areas of landscaping and on the access into the Site where the risk of flooding can be appropriately managed. There will be no increase in the ground level within any flood risk area.

9.12 Run-off from the Proposed Development will be managed so that it does not increase the risk of flooding downstream of the Site. This is achieved through a network of surface water drains that allow water to flow to a swale which will slow the flow of the runoff to a rate that is no greater than is experienced at present.

9.13 The construction works will be undertaken in accordance with the GEMPs and SPPs that specify working practices that the Principal Contractor is obliged to follow under the conditions of contract. The Principal Contractor is also obliged to undertake all construction works in accordance with the Construction Environmental Management Plan (CEMP). The

implementation of the CEMP will be supervised by an Environmental Clerk of Works.

9.14 In addition to the adherence to the CEMP, GEMPs and all relevant guidance published by SEPA and other bodies, additional pollution control measures (e.g. silt fences, settlement ponds) will be installed at four locations where a 50 m buffer from watercourses cannot be achieved around working areas and access tracks during construction to reduce the risk of sediment/silt runoff to the water environment during construction. In addition, no construction materials will be placed within flood risk areas and the contractor will sign up to SEPA's flood warning service and follow weather forecasts and warning in order to receive advance warning of flood events. Construction work of the access track crossing will cease during predicted flood events, as indicated by SEPA.

Overview of Effects

9.15 Taking into account the mitigation measures summarised above, the assessment has concluded that the Proposed Development will give rise to no significant effects on hydrological or hydrogeological receptors. The Proposed

Development avoids areas likely to flood, except where the risk can be appropriately managed, and there will be no impact on the likelihood or extent of flooding downstream of the Site.

Cumulative Effects

9.16 The Proposed Development in combination with the Associated SSEN Transmission Developments, other SSEN Transmission Developments and third party developments will not have significant cumulative effects upon hydrology or hydrogeology.

9.17 The Associated SSEN Transmission Developments have extremely limited footprints compared to the Proposed Development, and it follows that no cumulative effects are likely. Other third party projects considered as part of the cumulative assessment are all downstream of the Site and would not be impacted by the Proposed Development. Nor would the Proposed Development increase the impacts of those projects on water resources or flooding beyond the impacts arising from those projects when considered on their own.



Figure 9.1- Fithie Burn to the south of the Site



Image 12 Photomontage of the Proposed Development from Viewpoint 8: Emmock Road

10. Transport and Access

Introduction

10.1 The assessment of impacts upon transport and access has considered the potential effects of the Proposed Development, both in isolation and cumulatively with other developments, of construction traffic on the surrounding road network.

Overview of Methodology

10.2 The assessment in the EIA Report has been undertaken by chartered engineers and transport planners experienced in the assessment of renewable energy and electricity transmission projects in accordance with accepted guidance published by the Institute of Environmental Management and Assessment (IEMA).

10.3 The assessment has considered the baseline environment in the vicinity of the Proposed Development drawing upon desk based records to identify traffic volumes and field based traffic count surveys for minor roads where existing records are not available.

10.4 The assessment has also considered highway safety drawing upon historic accident data in the vicinity of the Site.

10.5 The assessment has subsequently considered the acceptability of the existing highway network to safely accommodate the number of heavy goods vehicle (HGV) numbers that are anticipated to access the Site during the construction phase of the Proposed Development, and made recommendations on what mitigation measures are required.

10.6 No assessment of the operational phase of the Proposed Development was necessary given the low level of traffic associated with the operation of the Site. Decommissioning effects have also been scoped out as the construction phase will result in the greatest number of trips on the road network.

Overview of Baseline Conditions

10.7 The Site is accessed from the public road network at the U322, (Emmock Road) to the east. Traffic surveys have provided information on how traffic uses the highway network in the vicinity of the Site.

10.8 A review of accidents on the highway network within the vicinity of the Site has not identified any trends that would be

exacerbated by the construction traffic associated with the Proposed Development.

Mitigation

10.9 All HGVs accessing the Site will do so via the proposed construction access route. Inbound HGVs will travel via Moatmill Road and the A90. Outbound HGVs that travel north will access the A90 via the Moatmill Road. Outbound HGVs travelling south will follow the U322 Emmock Road south until it reaches the Emmock Roundabout on the A90 in Dundee.

10.10 A Construction Traffic Management Plan (CTMP) would be prepared by the Principal Contractor, in consultation with SSEN Transmission, Angus Council and Transport Scotland. The CTMP will detail how traffic impacts will be managed during the construction of the Proposed Development. The CTMP will include and specify the following:

- A temporary 40 mph speed limit on the A90 at the Moatmill Road junction so that HGV movements can be undertaken safely;
- No right turns into or out of Moatmill Road will be permitted for construction traffic related HGVs;
- All HGVs will access the Site via the approved proposed construction route and do not use the Emmock Road north of the Site or access via Tealing;
- Signage at the Site access junction that directs HGV traffic onto the approved proposed construction route;
- Adoption by the Principal Contractor of a staff Travel Plan to reduce the use of single occupancy travel to and from the Site.

Overview of Effects

10.11 The peak of construction activities is predicted to occur in Quarter 2 of 2027 and will result in daily traffic flows of 212 (two way) traffic flows. Of these, 128 are HGV movements, the remaining 84 being car or LGV movements.

10.12 During the peak of construction activities, likely significant effects prior to the implementation of additional mitigation measures were identified on both Emmock Road and Moatmill Road due to the increase in vehicle movements that will occur.

Overview of additional mitigation

10.13 The assessment has identified the need for additional mitigation measures in the form of passing places on both Emmock Road (the U322) and Moatmill Road. Their location and design will be agreed with Angus Council prior to construction of the Proposed Development.

10.14 The Principal Contractor will also prepare an enhanced CTMP, implement a public information campaign and an abnormal load management plan.

Summary of likely residual effects

10.15 Following the application of the additional measures, no significant residual effects are predicted.

Cumulative Effects

10.16 The Proposed Development in combination with Associated SSEN Transmission Developments and other SSEN Transmission Developments will have no significant cumulative effects as the nature of these other projects is that they are unlikely to generate significant additional baseline flows.

10.17 There is no significant cumulative effect between the Proposed Development and other third party developments due to the construction schedules of the projects not overlapping and/or due to the limited movements and the limited shared access routes that are proposed to be used.



Image 13 Photomontage of the Proposed Development with Associated OHL developments from Viewpoint 1: Cairns-Balkello Hill

11. Noise and Vibration

Introduction

11.1 The assessment of impacts upon noise and vibration has considered the potential effects of the Proposed Development both in isolation and cumulatively upon noise sensitive receptors (NSRs) in the vicinity of the Site and the proposed construction route.

Overview of Methodology

11.2 The assessment in the EIA Report has been undertaken by acousticians experienced in the assessment of renewable energy and transmission projects in accordance with published guidance.

11.3 The assessment has considered the baseline noise conditions on and around the Site through undertaking noise measurement surveys at locations that are representative of the NSRs that are closest to the Site.

11.4 The assessment has considered both the construction and the operational phase of the Proposed Development and quantified how noise emissions will be controlled to ensure that there is no significant effect upon the NSRs.

11.5 The assessment of noise impacts during the construction phase of the Proposed Development has been modelled using worst case noise emissions from construction equipment such as excavators and lorries, using the established methodology for the assessment of construction noise within British Standard 5228.

11.6 A detailed model of the Proposed Development in the operational phases has been constructed using noise modelling software which considers topography, screening, weather and information on noise generated by equipment and plant on Site using the established methodology for the assessment of noise within British Standard 4142.

11.7 These noise models allow an assessment of the noise associated with both the construction and the operation of the Proposed Development upon NSRs in the vicinity of the Site with the mitigation measures in place.

11.8 The construction vibration assessment has focused on the vibration from HGV deliveries to the Site assuming, as a worst case scenario, the presence of defects in the road (i.e. potholes and cracks) adjacent to residential properties. No vibration likely to lead to significant effects is predicted once the Proposed Development is operational.

Overview of baseline conditions

11.9 Noise measurements were taken at 12 NSRs surrounding the Site. Five of these were long term unattended measurements that were undertaken for several days that allow the assessment to be undertaken using a representative average of the background noise level. The unattended measurements were complemented with attended monitoring measurements at seven further locations at nighttime.

11.10 Noise levels were identified as being typical of a semi-rural environment, with generally low noise levels at night with distant traffic being the dominant noise source, and higher daytime levels with traffic and other noise sources (such as farming) dominant.

Mitigation

11.11 A contractual requirement of the Principal Contract would be the development and implementation of a Construction Noise Management Plan (CNMP) (CNMP). This document would detail how the Principal Contractor would manage the construction process in accordance with all commitments and mitigation detailed in the EIA Report, statutory consents and authorisations, and industry best practice and guidance.

11.12 The CNMP will identify when construction operations that are likely to generate significant noise will occur and implement, among others, the following procedures:

- minimising the noise as much as is reasonably practicable at source;
- providing acoustic shielding and barriers where necessary and appropriate;

- ensure plant and equipment are regularly and properly maintained;
- use electrically powered plant rather than diesel or petrol driven, where this is practicable;
- carrying out high noise level activities at a time when they are least likely to cause a nuisance to residents; and
- providing advance notice of unavoidable periods of high noise levels to Angus Council and residents likely to be impacted.

developments due to the construction schedules of the projects overlapping.

11.13 The CNMP will be established to ensure that noise levels at NSRs that have been identified through the assessment are not exceeded with a noise monitoring programme established to ensure that these levels are maintained.

11.14 The CNMP will be agreed with Angus Council.

11.15 A Landscape Design has been prepared for the Proposed Development. The Landscape Design proposes the construction of large earth bunds ranging in height from 1.5 – 10m which would not only help screen views of the electrical infrastructure of the Proposed Development. But it will also aid in the screening of noise during the operational phase.

11.16 The electrical infrastructure will be specified prior to purchase to ensure that the noise levels that they generate during operation of the Proposed Development do not breach the limits at the NSRs that are specified in the assessment.

Overview of Effects

11.17 During the construction phase of the Proposed Development, there will be no significant effect upon NSRs with the implementation of a CTMP and noise monitoring to ensure that these levels are maintained.

11.18 The vibration assessment has concluded that the increase in HGV traffic during the construction phase will not result in a significant effect as, in the worst-case scenario, the levels of vibration generated will be low and just perceptible.

11.19 By specifying that all electrical equipment is designed, constructed and installed to meet defined sound power level limits, SSEN Transmission will ensure that there are no significant effects on NSRs and on the residential properties the NSRs represent.

Cumulative Effects

10.18 The Proposed Development in combination with Associated SSEN Transmission Developments and other SSEN Transmission Developments will have no significant cumulative effects.

10.19 There is a potential significant cumulative effect between the Proposed Development and other third party



Image 14 Photomontage of the Proposed Development from Viewpoint 3: Balkemback Cottages

12. Summary of the Assessment

Summary

12.1 The EIA for the Proposed Development has been undertaken in accordance with regulatory requirements, guidance, good practice and the feedback received from statutory and non-statutory consultees and members of the community through the consultation and scoping process.

12.2 The Applicant is committed to a programme of mitigation measures that it will ensure are delivered through conditions of contract with the Principal Contractor. The construction of the Proposed Development will also be undertaken in accordance with a series of GEMPs and SPPs that have been developed and agreed previously with statutory consultees.

12.3 The EIA Report has considered the effects of the Proposed Development upon the following environmental factors, both in isolation and cumulatively:

- Landscape and Visual Impact;
- Cultural Heritage;
- Ecology;
- Ornithology;
- Hydrology and Hydrogeology;
- Traffic and Access; and
- Noise and Vibration.

12.4 With the application of mitigation measures, it has been concluded that significant effects upon the environment are limited to the following; during construction, effects on two landscape character types, and on views from six locations surrounding the Site. Once operational, significant effects (on views) are predicted at three locations (on the Site, at Balkemback Cottages and on the Minor Road west of Balnuith) once the mitigation planting has matured.

12.5 No other impacts that have been considered in the EIA Report are significant in terms of the EIA Regulations.