Scottish & Southern Electricity Networks

TRANSMISSION

Scottish Hydro Electric Transmission plc

Beauly-Denny Overhead Line Diversion

Environmental Appraisal

July 2025

Scottish & Southern Electricity Networks

TRANSMISSION

CONTENTS

LIST OF ABBREVIATIONS

AOD	Above Ordnance Datum
AWI	Ancient Woodland Inventory
BGL	Below Ground Level
BGS	British Geological Survey
BNG	Biodiversity Net Gain
BBPP	Breeding Bird Protection Plan
BFD	Bird Flight Diverters
BTO	British Trust for Ornithology
CAR	Controlled Activity Regulation
CBC	Common Bird Census
CDM	Construction Design and Management
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CIRIA	Construction Industry Research and Information Association
CRA	Collision Risk Area
CTMP	Construction Traffic Management Plan
EA	Environmental Appraisal
EcIA	Ecological Impact Assessment
ECoW	Environmental Clerk of Works
ECU	Scottish Government Energy Consents Unit
EIA	Environmental Impact Assessment
EPS	European Protected Species
EPZ	Equi-Potential Zone
EZoI	Ecological Zone of Influence
FRA	Flood Risk Assessment
GEMP	General Environmental Management Plan
GIS	Geographic Information System
GVLIA3	Guidelines for Landscape and Visual Impact Assessment 3rd Edition
GWDTE	Groundwater Dependent Terrestrial Ecosystems
ha	Hectares
HCA	Habitat Condition Assessment
HCHET	Highland Council Historic Environment Team
HER	Historic Environment Record
HES	Historic Environment Scotland

HGV	Heavy Goods Vehicle
HRA	Habitats Regulations Appraisal
IBA	Important Bird Area
IEF	Important Ecological Features
IOF	Important Ornithological Features
IPA	Important Plant Areas
IOF	Important Ornithological Features
IUCN	International Union for Conservation of Nature
kV	Kilovolt
LBAP	Local Biodiversity Action Plan
LCT	Landscape Character Type
LEPO	Long-Established woodland of Plantation Origin
LNCS	Local Nature Conservation Sites
LoD	Limit of Deviation
LVIA	Landscape and Visual Impact Assessment
NBN	National Biodiversity Network
NPF4	National Planning Framework 4 (Scotland)
NVC	National Vegetation Classification
OC	Operational Corridor
OHL	Overhead Line
OS	Ordnance Survey
PWS	Private Water Supply
RBBP	Rare Breeding Birds Panel
RSPB	Royal Society for the Protection of Birds
SAC	Special Areas of Conservation
SBBS	Scarce Breeding Bird Surveys
SBL	Scottish Biodiversity List
SEPA	Scottish Environment Protection Agency
SLA	Special Landscape Area
SM	Scheduled Monument
SNH	Scottish Natural Heritage
SPA	Special Protection Area
SPP	Species Protection Plan
SRMS	Scottish Raptor Monitoring Scheme
SSSI	Site of Special Scientific Interest

SuDS	Sustainable Drainage Systems
THC	The Highland Council
UKHab	UK Habitat Classification
VP	Vantage Point
WFD	Water Framework Directive
ZTV	Zone of Theoretical Visibility

1. INTRODUCTION

1.1.1 Scottish Hydro Electric Transmission plc, who, operating and known as Scottish and Southern Electricity Networks Transmission (hereafter referred to as 'SSEN Transmission'), owns and maintains the electricity transmission network across the north of Scotland and holds a license under Section 9 of the Electricity Act 1989[1] to 'develop and maintain an efficient, co-ordinated and economical electricity transmission system in its licensed area'. SSEN Transmission is a wholly owned subsidiary of the SSE PLC group of companies.

1.1.2 SSEN Transmission is seeking consent under section 37 (s37) of the Electricity Act 1989 to permanently divert a section of the existing 400 Kilovolt (kV) overhead transmission line (OHL) (currently operating at 400 / 275 kV) between Beauly and Denny, for a distance of approximately 1.7 km at Fanellan, near Beauly (hereafter referred to as the 'Proposed Development'). SSEN Transmission is also seeking consent under section 37 for a temporary diversion of part of the OHL which will be needed to facilitate construction of the permanent OHL diversion works and a proposed new 400 kV Substation and Converter Station (herein after referred to as 'proposed Fanellan 400 kV Hub' [see separate Town and Country Planning (Scotland) Act 1997 (as amended) application 25/00826/FUL]). The Proposed Development is required to facilitate connection of the proposed Fanellan 400 kV Hub to the existing Beauly-Denny OHL. Deemed planning permission under section 57(2) of the Town and Country Planning (Scotland) Act 1997 for the diverted OHL and ancillary infrastructure is also sought.

1.1.3 This Environmental Appraisal (EA) has been prepared to assess the potential effects of the Proposed Development and to support the application for consent under s37 of the Electricity Act 1989. The EA provides an evaluation of the existing environmental conditions, identifies potential impacts, and outlines mitigation measures to ensure compliance with relevant environmental regulations and best practices.

1.1.4 The existing Beauly – Denny 400 kV OHL is supported by steel lattice towers. The new section shall also be supported by similarly sized steel lattice towers and built to the same specification and capacity as the existing line. (**Figure 1.1 Site Location**). The Applicant is proposing to upgrade the existing Beauly-Denny 275 kV circuit to operate at 400 kV. This upgrade does not require works to be done to the existing OHL infrastructure but does require alternations on the wider network to existing substations and resulting OHL tie-ins.

1.1.5 The Proposed Development will facilitate new onshore and offshore renewable generation projects, including the Western Isles link and forms part of SSEN Transmission's Pathway to 2030 projects[2]. These projects are key to a proposed major upgrade of the electricity transmissions network across Great Britain, which will help deliver United Kingdom (UK) and Scottish Government's climate change and energy security targets. SSEN Transmission has a licence obligation to invest in its existing assets to maintain network health and condition; thus improving operational flexibility and resilience in line with SSEN Transmission's goal to aim for 100% transmission network reliability for homes and businesses. SSEN Transmission also has a statutory duty under the Electricity Safety Quality and Continuity Regulations 2002[3] to ensure that the electricity transmission network is fit for purpose. This strategic grid reinforcement is deemed to be essential for maintaining long-term security of electricity supply supporting sustainable economic development.

1.1.6 The Scottish Government adopted National Planning Framework 4 (NPF4)[4] in February 2023 which supersedes and replaces NPF3[5]. The need for a high voltage electricity transmission network is included within NPF4 as "*New and/or replacement upgraded on and offshore high voltage electricity transmission lines, cables and interconnectors of 132 kV or more*". The NPF4 confirms that the Proposed Development is required to support the delivery of an enhanced high

1 UK Government (1989). The Electricity Act 1989. Available at: https://www.legislation.gov.uk/ukpga/1989/29/contents

2 SSEN Transmission (2024). Projects delivering a Network for Net Zero. Available at: https://www.ssen-transmission.co.uk/projects/2030-projects/

3 UK Government (2002). The Electricity Safety, Quality and Continuity Regulations 2002. Available at: https://www.legislation.gov.uk/uksi/2002/2665/contents/made

4 Scottish Government (2023). Revised Draft National Planning Framework 4. Available at: https://www.gov.scot/publications/national-planning-framework-4/ https://www.transformingplanning.scot/national-planning-framework/revised-draft-npf4/

5 Scottish Government (2019). National Planning Framework 3: monitoring report (2019). Available at: https://www.gov.scot/publications/national-planning-framework-3-monitoring-report/pages/3/

voltage electricity transmission grid which is identified as vital in meeting national targets for electricity generation, statutory climate change targets and the security of energy supply. Further information is provided in the Planning Statement which accompanies this s37 application.

1.1.7 The Proposed Development is technically and economically justified to meet the current and future requirements of SSEN Transmission and the wider UK transmission system.

1.2 Site Location

1.2.1 The Proposed Development is located adjacent to the proposed Fanellan 400 kV Hub and is shown on **Figure 1.2 Project Design**.

1.2.2 The 'Site' is defined as the area of land which encompasses the extent of the existing OHL, and the footprint of works for the Proposed Development as illustrated in **Figure 1.2 Project Design**, including both temporary and permanent infrastructure.

1.3 Site Context

1.3.1 The Proposed Development is located at Fanellan, in a rural area in the Scottish Highlands, approximately 5 km south-west of Beauly. Key sensitivities in close proximity (approximately 5 km) include Inner Moray Firth Ramsar Site and Special Protection Area (SPA), Beauly Firth Site of Special Scientific Interest (SSSI), and Loch Battan SSSI. The landscape character and visual amenity relating to local residents and visitors (including outdoor enthusiast and hillwalkers) using both the Core Path (IN20.11[6]) and Fanellan Road, which run directly to the south of the Proposed Development, and nearby residential properties are also key sensitives.

1.3.2 Settlement within the area consists of scattered farmsteads, individual properties and villages such as Kiltarlity, located approximately 2.5 km south east of the Proposed Development. The largest settlement near to the site is Beauly, located approximately 4.5 km to the north-east.

1.3.3 Access to the Proposed Development will be taken from the A833, approximately 1.5 km to the east of the Site, via the C1108, U1604 and C1106 (Fanellan Road) where it is intended to form a site access shared with the associated proposed development Fanellan 400kV Hub. This route will be taken until such time as the Black Bridge replacement works have been completed at which point access will be along the A862 over the Black Bridge, C1106 and into the new shared site access.

1.4 Environmental Context

1.4.1 The following environmentally sensitive sites are located within 2 km of the Site, as shown on **Figure 1.3 Environmental Constraints**:

- Long-established woodland of plantation origin (LEPO Category 2b) including Ruttle Wood, Balblair Wood, Lonbuie Wood and Boblainy Wood;
- Ancient woodland of semi-natural origin including Black Wood and An Druim;
- A series of Core Paths, including IN20.11 and IN20.05, which intersect the Study Area to the south of the Site. In addition to the designated core paths, there are a series of non-core paths, which include local trails, forestry tracks, and informal routes;
- Buglife's 'East Inverness-shire' Important Invertebrate Area;
- Butterfly Conservation's 'Great Glen and the Beauly Catchment' Scottish Priority Landscape;
- 10 listed buildings including, one Category A listed building, six Category B listed buildings and three Category C listed buildings;
- Beaufort Castle Garden and Designated Landscape;

[6] The Highland Council (2024). Core Paths in Highland Council area. Available at: https://highland.maps.arcgis.com/apps/webappviewer/index.html?id=2fd3fc9c72d545f7bcf1b43bf5c8445f (Accessed September 2024).

- Two Schedule Monuments, including Kiltarlity Old Parish Church and Culburnie Ring Cairn; and
- 10 non-designated heritage assets within the boundary of the Proposed Development.

1.4.2 Most forestry located around the Proposed Development is registered on the Ancient Woodland Inventory (AWI) as long-established woodland of plantation origin (LEPO Category 2b). Approximately half of the forestry around the Site is registered as native woodland and native pinewood on the Native Woodland Survey of Scotland inventory.

1.4.3 As indicated by the Carbon and Peatland 2016 map[7] there is not likely to be peat present. The National soil map of Scotland[8] indicates that the site is predominately underlain by humus-iron podzols. The design footprint is supposedly underlain by superficial deposits predominately of Devensian Till, and potentially small amounts of undifferentiated river terrace deposits. Additionally, Ground Investigation (GI) 2023 trial pit information indicates the presence of peat soils are limited to a few isolated pockets within the Site, with only four out of 91 machine excavated trial pits showing evidence of peat soils present within them.

1.4.4 **Figure 1.3 Environmental Constraints** shows the Site in relation to key statutory and non-statutory environmental designated sites.

[7] NatureScot (2016). Carbon and Peatland Map. Available at: https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/soils/carbon-and-peatland-2016-map (Accessed September 2024).

[8] SEPA (2023). National soil map of Scotland. Available at: https://soils.environment.gov.scot/maps/soil-maps/national-soil-map-of-scotland/ (Accessed September 2024).

2. REGULATORY CONTEXT

2.1 Introduction

2.1.1 As outlined in **Section 1**, the Applicant is seeking consent under s37 of the Electricity Act 1989[9] and deemed planning consent[10] to divert a section of the existing Beauly Denny 400 kV OHL in order to facilitate the connection of the proposed Fanellan 400kV Hub (see planning application reference 25/00826/FUL)[11] at Fanellan, southwest of Beauly near Inverness. This application also includes for the tie in of the permanently diverted OHL to the proposed Fanellan 400kV Hub and also the temporary OHL diversion to enable the permanent OHL diversion.

2.1.2 As outlined in **Section 1.1.3**, this EA has been prepared to assess the potential effects of the OHL diversions and permanent tie ins to the proposed Fanellan 400kV Hub and to support the application for consent under s37 of the Electricity Act 1989.

2.1.3 The Proposed Development's works will include:

- permanently diverting a 1.7 km long section of the existing Beauly - Denny 400 kV overhead line (OHL), around the proposed Fanellan 400kV Hub to facilitate its construction and also to provide a tie in connection via new downleads; and
- temporarily diverting part of the existing Beauly - Denny 400 kV OHL to facilitate construction of the permanent OHL diversion described above;
- Temporary access tracks;
- Upgrading of existing permanent access track and new access track; and
- Site clearance activities including some tree felling.

A number of activities such as earthworks, construction compounds and laydown and drainage will be shared with the associated Fanellan 400 kV Hub works and are covered in that planning application (25/00826/FUL).

2.2 Development Considerations

2.2.1 SSEN Transmission has obligations under section 9 of the 1989 Act to *"develop and maintain an efficient, co-ordinated and economical system of electricity transmission"*'.

2.2.2 SSEN Transmission, as a licence holder under the Electricity Act 1989, *"when formulating proposals to generate, transmit, distribute or supply electricity"*' is required, under Schedule 9 to:

- "*have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest*"; and
- "*do what [it] reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects*".

2.2.3 Under the terms of the transmission licence, SSEN Transmission is obliged to comply with the NETS SQSS[12], which provides the criteria for the planning and design of the transmission system. The NETS SQSS requires SSEN Transmission to provide a transmission connection capable of withstanding single circuit faults without loss of supply and without disconnection of generation stations. Furthermore, the Construction (Design and Management) Regulations 2015 (CDM Regulations) require that the design aims to minimise hazards and reduces risks during construction.

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9 The Electricity Act 1989, c29, Section 37

10 Section 57(2) of the Town and Country Planning (Scotland) Act 1997

11 The Highland Council, Planning – Application Summary (n.d.) Available at: https://wam.highland.gov.uk/wam/applicationDetails.do?keyVal=SSPNC9IHHIS00&activeTab=summary

12 National Electricity Transmission System Security and Quality of Supply Standard, Version 2.4 (2019). Available at: https://www.nationalgrideso.com/codes/security-and-quality-supply-standards?code-documents

2.2.4 As outlined in **Section 2.1**, the Proposed Development is seeking to divert a section of the existing Beauly Denny 400 kV OHL and tie it in to the proposed Fanellan 400kV Hub. As a result, no alignment or routeing assessment has been conducted as no alternative routes are being considered.

2.2.5 The parameters of the Proposed Development are as described in **Section 3: Description of the Proposed Development.**

3. DESCRIPTION OF THE PROPOSED DEVELOPMENT

3.1 Introduction

3.1.1 This Section provides a description of the key components and information regarding the construction, operation and maintenance of the Proposed Development.

3.2 The Proposed Development

3.2.1 The Proposed Development for which s37 Consent and deemed planning permission is sought comprises:

- Permanent diversion of approximately 1.7 km (increased from 1.5 km of existing OHL in that section) of new 400 kV OHL supported by steel lattice towers, including three new angled tension towers, two new terminal towers and one new suspension tower;
- Construction of a temporary diversion using steel lattice towers to allow for construction of both the new towers and the proposed Fanellan 400 kV Hub (the temporary diversion will be in place approximately 9 months);
- The removal of a section of the existing Beauly-Denny 400 kV OHL, including four existing suspension towers, two of which will be replaced with new angle towers;
- The construction of new access tracks (both temporary and permanent) and upgrading of existing (note some of these are shared with the proposed Fanellan 400 kV Hub and have been included in that application (25/00826/FUL), and some relating solely to the OHL are included within this application;
- Construction of a temporary site compound, laydown areas and stockpile areas (included with the proposed Fanellan 400 kV Hub application 25/00826/FUL as will be used by the contractor on that development too) ; and
- Some tree felling (the majority of which is covered by the associated Fanellan 400 kV Hub planning application)

3.2.2 The proposed alignments of the permanent and temporary OHL diversions are hereafter referred to as the 'proposed OHL alignments' and are illustrated in **Figure 1.2 Project Design**; the permanent OHL diversion is approximately 1.7 km in length and will be supported by steel lattice towers with the same technology as the existing OHL. The temporary OHL diversion is minimal as it simply diverts the OHL in two places, away from existing suspension towers, to two new temporary suspension towers.

3.2.3 To strike a balance between providing certainty between the location of the proposed OHL alignment and the need for some flexibility over individual tower locations and accesses, Limits of Deviation (LoD) have been defined (see **Section 3.4** below) within which the proposed OHL alignment will be constructed. No towers will be located outside the LoD described.

3.3 Ancillary Development for which Deemed Planning Permission is sought

3.3.1 The following works would be required as part of the Proposed Development, or to facilitate its construction and operation:

- The formation of access tracks (including temporary and permanent and upgrading to existing tracks – as noted above some of these are shared with the proposed Fanellan 400 kV Hub and have been included in that application (25/00826/FUL), and some relating solely to the OHL are included within this application) to facilitate access;
- The removal of two of the existing suspension towers;
- Working areas around infrastructure to facilitate construction;
- Formation of flat areas including temporary working areas (to provide a safe and secure foundation for items of plant to work from), backstays and Equipotential Zones (EPZs) from which the conductor will be pulled during construction, which will contain earthed metal working surfaces (EPZs);
- Measures to protect road and water crossings and veteran trees during construction (scaffolding etc.); and

- Felling (much of the felling requirement was captured under the associated Fanellan 400 kV Hub planning application 25/00826/FUL)

3.3.2 These different forms of ancillary development are described in further detail in this Section and where appropriate are illustrated in **Figure 1.2 Project Design**.

3.4 Limits of Deviation

3.4.1 A Limit of Deviation (LoD) defines the maximum extent within which a development can be built. It should be noted that the design of the Proposed Development described within the Environmental Appraisal (EA) Report has been established following the identification of detailed environmental and technical considerations. Investigation of sub-surface and geotechnical conditions was undertaken in August and September 2023 to determine ground conditions with further ground investigations ongoing. There is therefore a high degree of certainty with respect to the location of infrastructure, as presented within this EA Report. Nevertheless, it is possible that further micro-siting may be required during the construction process to reflect localised land, engineering and environmental constraints and therefore the LoD provides some flexibility in this regard.

3.4.2 Consideration is given to the following principles in defining the LoD for the Proposed Development:

- Presumption towards the proposed OHL alignment whilst providing flexibility for micro-siting during the detailed design phase; and
- presumption towards avoiding sensitive environmental features and minimising impacts on land use.

3.4.3 The LoD on the proposed OHL alignments and temporary access tracks is 50 m, allowing for each proposed tower and temporary access track to be micro-sited up to 50 m from its proposed location.

3.4.4 It is possible that further engineering analysis at the detailed design stage might alter the required heights of towers necessary to maintain statutory ground clearance, a vertical LoD parameter is, therefore, included to allow a height adjustment of up to +/- 20% of the proposed tower heights.

3.5 Description of OHL Infrastructure

Steel Lattice Towers

Permanent OHL Diversion

3.5.1 The towers to be used for the Proposed Development will be constructed from fabricated galvanised steel and will be grey in colour. The Proposed Development will use an 'SSE400' series of lattice steel tower (as shown in **Plate 3.1** below), which can vary in height between 46 m (suspension tower) and 69 m (terminal tower) (which includes for potential extensions). The maximum tower height for the permanent OHL diversion, based on current assessments is 59.42 m which includes a 3 m height adjust (tower LG/LYA-8A). Three types of towers will be used within the Proposed Development permanent OHL diversion as follows:

- Suspension towers: These are used for straight sections of OHL where there is no need to manage uplift loads on the support structure;
- Angle/ tension towers: These are used either for straight sections, where there is a need to manage uplift pressures on the support structure, and / or where there is a need to change the direction of the OHL alignment; and,
- Terminal towers: Proposed at associated Fanellan 400 kV Hub (substation), from which the termination of the OHL to the substation is made on the one side and the other from which it emerges to connect the substation on to the wider network.

3.5.2 A total of six new towers are proposed to be constructed to form the permanent diversion as part of the Proposed Development. This includes two new terminal towers (which will replace the existing terminal towers), three new

angled tension towers, and one new suspension tower. Tower locations, structure heights (above ground level), and structure footprints (area bounded by the four legs) are provided in **Appendix C Tower Schedule**.

3.5.3 The construction of the new Proposed Development will also require the removal of four existing suspension towers, two of which will be replaced by angle towers.

Temporary OHL Diversion

3.5.4 Temporary suspension towers will also be constructed to allow for the construction of the new Proposed Development. The temporary diversion is likely to be in place for approximately 9 months and will use conventional steel lattice towers. It will be located to the south of the existing Beauly-Denny OHL, that is, between the new substation platform and the Fanellan road.

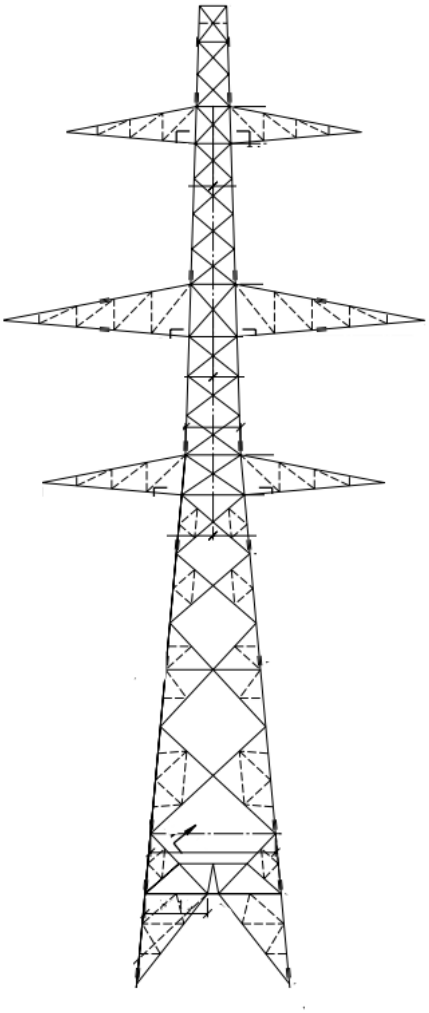

Plate 3.1: Typical Steel Lattice Standard SSE400(c) Suspension Tower Design

Conductors and Span Length

3.5.5 Towers will carry two circuits, each with three conductors supported from either glass, porcelain, or composite insulators attached to the horizontal cross arms on both sides of each lattice steel tower. An earth wire with a fibre optic core will be suspended between tower peaks, above the conductors.

3.5.6 The span length (distance between towers) will vary depending on topography, and land usage. The current average span from the initial assessment is 315 m with maximum span of 464 m along the permanent alignment. For the

temporary alignment the span is an average of 397 m with a maximum of 561 m and will be a single circuit on one side of the towers as opposed to two circuits.

Termination

3.5.7 The newly diverted permanent OHL will tie into and out of the proposed Fanellan 400 kV Hub (Substation side) using two new terminal towers. The terminal towers will be located on a new platform which has been allowed for in the design of the proposed Fanellan 400 kV Substation.

Earth Wires and Conductors

3.5.8 The existing OHL has two earth wires on the top and three phase conductors in a transposed format (each circuit has 3 phases, transposed is two circuits on one side of the tower and one on the other side, as opposed to all phases belonging to a circuit being on the same side of the tower).

3.5.9 The Proposed Development will be built using the same technology as has been used on the circuit previously, with a single earth wire on top and three phases, with two conductors per phase. The arrangement of the circuits will match the existing.

3.6 Construction Programme

3.6.1 It is anticipated that construction of the Proposed Development would take place over several months (approximately nine), following the granting of consents, although a detailed programming of works would be the responsibility of the Principal Contractor in agreement with SSEN Transmission.

3.6.2 Construction is estimated to start in Q2 2026 with completion of diversion works in Q3 2027 and completion to include the down leads into the new proposed Fanellan 400 kV Substation by Q4 2030, however this is subject to formalisation by the Principal Contractor.

3.7 Construction Practices and Phasing

Phase 1 – Enabling Works

Distribution

3.7.1 Works will be required to the existing distribution network infrastructure which are crossed by the new access track (shared with the proposed Fanellan 400kV Hub).

Road improvements and Access

3.7.2 Access would be required to each tower for delivery of materials, fittings, fixtures, working platforms and plant. Access requirements to each tower would depend on the tower type and the operations required at the tower.

3.7.3 There will be new shared access tracks with the proposed Fanellan 400kV Hub (included in that separate planning application 25/00826/FUL) and some new access tracks specific for the OHL diversion works along with an upgrade to an existing track. These are illustrated in the application site plan (FNLN4-LT459-MES-OHL-ZZ-D-EO-5009).

3.7.4 Existing tower access routes utilised by the Applicant's operation and maintenance teams would be used whenever possible. Many individual tower sites would be accessible from public roads, via the addition of the new access tracks, and in such circumstances normal site vehicles such as 4x4 Hiab wagons, transit vans, 4x4 pickup trucks, quad bikes and tractors would be utilised. These access tracks have been illustrated on **Figure 1.2 Project Design**.

3.7.5 Where there are no public roads or tracks, should ground conditions permit, it may be possible in dry weather for the vehicle types indicated above to gain access to certain sites without causing ground surface damage. If damage is likely, it may be necessary to undertake access upgrades to allow the use of the above vehicles, or to use specialist low ground bearing pressure vehicles.

3.7.6 Access upgrades and ground protection can be undertaken in a number of ways. The preferred method for each tower site would be selected by the Principal Contractor based on the suitability to withstand expected construction loads, cause the least environmental damage, and be installed/ recovered at the lowest cost. Measures to mitigate the potential impact of each type of access have been addressed in the EA Report, in general terms.

3.7.7 The range of construction access options likely to be considered include:

- Installation of temporary metal or plastic roadway panels (e.g. Trakway);
- Installation of temporary stone roads on a geo-textile fabric base;
- Upgrading of existing access tracks;
- Use of specialised low ground bearing pressure vehicles; or,
- Installation or modification of permanent access track routes to new tower locations to assist with ongoing operation, maintenance and repair of the proposed asset, and where land use/ land management activities can accommodate or benefit from this.

Site Compounds

3.7.8 There are several areas for compounds and laydown that will facilitate construction works (including office provision). These have been included in the associated proposed Fanellan 400kV Hub application (25/00826/FUL) as they will be used by other contractors prior to / after the OHL diversion contractor. One area is located to the East of the associated Fanellan 400kV Hub Site and a second is located to the South of the diversion (and South of the associated Fanellan 400kV Hub site). Potential impacts from the compounds will be minimised and controlled via the CEMP, which will be prepared and implemented by the Principal Contractor.

3.7.9 The obtaining of any necessary planning consent or other authorisations required for any additional site compounds, should any be required, will be the responsibility of the Principal Contractor.

Phase 2 – Construction Works

Tower Foundations

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

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

3.7.11 Foundation types and designs for each tower will be confirmed following detailed geotechnical investigation at each tower position which is ongoing. All tower positions will require foundations at each leg. The foundation type is expected to be a combination of conventional (concrete pad and chimney) and piled type. This assumption is based on an initial geotechnical survey and the anticipated different construction methodologies required due to the varying terrain. Dimensions of pad and chimney foundations will be confirmed following micrositing but usually consist of formation to depths of between 2.5 m and 4 m below ground level (bgl) and will typically be in the order of 5 m x 5 m in plan size for each tower leg. The structure footprint for each tower, i.e. the area of the tower base bounded by the four legs, is presented in **Appendix C Tower Schedule**.

3.7.12 Where ground conditions indicate near surface rock, mini-piles and rock anchors may be more appropriate engineering solutions. Mini-pile solutions typically involve installing up to six piles (each between 150 mm and 300 mm diameter) below each tower leg. The piles are encompassed within a near surface pile cap, upon which the tower leg rests. The piles normally extend into the existing bedrock to satisfy both compression and uplift design loadings. Pile depths can extend up to 25 m. Where near surface rock is evident, rock anchors are normally employed. Rock anchors do not require a sacrificial caisson, and the pile cap normally rests on the bedrock. The pile cap is secured to the bedrock by interconnecting mini-piles.

3.7.13 For the purposes of the EA Report, it has been assumed that individual tower foundations and associated construction activities will require a working area of approximately 2,500 m^2 (50 m x 50 m) around each individual tower location for a crane build. The exact dimensions of the working area around each tower will be confirmed following micro-siting and further design by the Principal Contractor but working areas, backstays and EPZ areas are indicated on Figure 1.2 and the Site Plan FNLN4-LT459-MES-OHL-ZZ-D-EO-5009.

3.7.14 Where encountered, topsoil will be stripped from the tower working area to allow installation of tower erection pad(s) as necessary in order to accommodate construction plant. Concrete is likely to be brought to site ready-mixed. Once the concrete has been cast and set, the excavation will be backfilled, using the original excavated material where possible.

3.7.15 **Photo 3.1** provides an illustrative image of tower foundation construction.

Photo 3.1 Illustrative Image of Tower Foundation Construction

Tower Construction

3.7.16 Tower construction will commence after the foundations have been cast, subject to weather conditions and concrete curing rates. Tower steelwork will 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.

3.7.17 If a crane is to be used for tower erection the size of the construction area adjacent to the tower will typically be approximately 50 m x 50 m. This will accommodate a crane pad formed alongside the position of the tower. This is constructed out of crushed stone, geogrid and geotextiles to form a level stable base on which the crane can safely work.

3.7.18 Once the foundations and lower tower section have been constructed, the top section of the structure is built on the ground at the site before being lifted into position by telehandler or crane.

Conductor Stringing

3.7.19 Prior to stringing the conductors, a short site access track closure will be required to pull the conductors across the track. This would be less disruptive to erecting scaffolding which would require tree clearance and ground levelling to erect the scaffolding. The track closure will only affect site operations and will not impact local road access. Scaffolding will however be used in one area for the temporary OHL diversion. This is so that when moving the conductor from the existing OHL to the temporary tower (9T), the veteran trees below can be protected from potential snagging due to the lower tension.

3.7.20 Conductor stringing equipment (i.e. winches, tensioners and ancillary equipment) are set out at Equi-Potential Zones (EPZs) at either end of the OHL. They are usually placed approximately one and a half tower heights from the tower and made up using temporary aluminium panels. The principle is to retain EPZ landforms, although there is potential to landscape these areas; they have been considered to be permanent features for the purpose of this assessment.

3.7.21 Pilot wires will be pulled through the section to be strung. These will be hung on blocks (wheels) at each suspension tower and connected to a winch and tensioner at the respective end of the section. The winch, in conjunction with the tensioner is used to pull the pilot wires between the structures. The conductor is pulled via the pilot wires through the section under tension to avoid contact with the ground and any underrunning obstacles. Once the conductor has been strung between the ends of the section, it is then tensioned and permanently clamped at each tower.

Watercourse Crossings

3.7.22 The Proposed Development does not have any watercourses crossings. However, the existing towers cross the River Beauly as well as two unnamed water courses. Further information can be found in **Section 11: Hydrology, Hydrogeology, Geology, and Soils**. A new access track will be built to service both the proposed Fanellan 400 kV Hub and the Proposed Development. This access track will cross over one watercourse. This watercourse crossing will be culverted (using a bottomless arch culvert, allowing the access to the sites, the watercourse bed to remain natural and the natural water flow downhill to be maintained). This access track and watercourse crossing has been covered in the associated proposed Fanellan 400 kV Hub planning application (25/00826/FUL).

Phase 3 – Commissioning

3.7.23 The proposed OHL alignment and support towers will then 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 Proposed Development will also go through a commissioning procedure for the switchgear, communications and protection controls through the substation before the circuits will be energised and the proposed OHL alignment becomes operational.

Phase 4 – Dismantling the section of existing OHL

3.7.24 Two of the existing OHL towers (7 and 8) will form part of the temporary diversion and then be dismantled following construction and use of the proposed temporary OHL diversion, to allow construction of the proposed Fanellan 400 kV Hub.

3.7.25 The existing line sections would be decommissioned, conductors would be removed, towers dismantled, and the upper part of foundations removed on the existing lines.

3.7.26 Removal of conductors would be carried out as the reverse process of re-conductoring operations. Winch and tensioner positions would need to be established to reel in the conductors.

3.7.27 Towers are generally dismantled by felling and breaking up with an excavator mounted hydraulic cutter or by hand with a blowtorch. Where felling may cause damage, it may be necessary to dismantle by crane in manageable panels which can then be broken up on the ground. The steel is bundled on site and removed by tractor and trailer or dumper to a central store for bulk removal. Insulator strings are taken to a large skip at the main store for separate disposal.

3.7.28 Existing concrete foundations outwith the associated proposed Fanellan 400kV Hub would be broken down to a depth of approximately 1 m below ground level and stubs cut off. Waste material would be removed from site using a licensed waste carrier and deposited at a licensed site.

Phase 5 – Reinstatement

3.7.29 Following commissioning of the Proposed Development, all construction sites will be reinstated (unless the areas will be developed as part of the associated Fanellan 400 kV Hub). Reinstatement will form part of the contract obligations for the Principal Contractor and will include the removal of temporary access tracks and all work sites around the tower locations.

3.7.30 Reinstatement principles are detailed in SSEN Transmission's General Environmental Management Plans (GEMPs).

3.8 Construction Employment and Hours of Work

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

3.8.2 Employment of construction staff will be the responsibility of the Principal Contractor, however, SSEN Transmission encourages the Principal Contractor to make use of suitable labour and resources from areas local to the location of the works.

3.8.3 Construction working hours are anticipated seven days a week between 07.00 to 19.00 January to December. Any out of hours working would be agreed in advance. During the commissioning phase there may be a requirement for 24 hours a day, 7 days a week working and potential for out of hours working. These working hours are subject to approval from the ECU and The Highland Council. This will be confirmed in the Principal Contractors CEMP.

3.9 Construction Traffic

3.9.1 Construction of the Proposed Development will give rise to regular numbers of staff transport movements, with small work crews travelling to and from work site areas. The construction compound would have a safe area for parking away from public roads.

3.9.2 Construction traffic will be required for the purposes of transporting workers, plant and machinery and materials to and from Site.

3.9.3 The Principal Contractor would determine where access is required, and for which items of plant, and prepare a final Construction Traffic Management Plan in consultation with the Principal Contractor for the associated proposed Fanellan 400 kV Hub, SSEN Transmission and the local authority. Traffic Management Plans would describe all mitigation and signage measures that are proposed on the public road accesses based on access maps and subsequent site assessments.

3.10 Construction Environmental Management

Construction Environmental Management Plan (CEMP)

3.10.1 A CEMP will be prepared and implemented by the Principal Contractor in consultation with the Principal Contractor for the associated proposed Fanellan 400 kV Hub. This document would detail how the Principal Contractor would manage the site in accordance with all commitments and mitigation detailed in this EA Report, statutory consents and authorisations, and industry best practise and guidance. **Table 3.1** sets out key construction good practice measures and **Section 13: Schedule of Mitigation** provides a schedule of the committed mitigation measures included in this report.

3.10.2 The CEMP will also reference the SSEN Transmission's set of General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs) that are applied as a standard requirement to all construction sites and practices. The GEMPs and SPPs considered relevant to this project are provided in **Appendix A GEMPs** and **Appendix B SPPs** some of which are also listed in **Table 3.1**.

3.10.3 The implementation of the CEMP will be completed by the Contractor and would be monitored on-site by a suitably qualified and experienced Environmental Advisor, with support from other environmental professionals as required. SSEN Transmission would also audit and inspect environmental performance to ensure compliance with legislation, conditions and best practices, in line with their Environmental Management System.

Construction Good Practice

3.10.4 **Table 3.1** lists key construction good practice measures that will be adopted in addition to / as part of the CEMP. Management Plans will be produced in consultation with the Principal Contractor for the associated proposed Fanellan 400 kV Hub works.

Table 3.1: Key Construction Good Practice Measures

Ref	Title	Description
GE1	Noise Management Plan	The Principal Contractor will be required to produce and implement a Noise Management Plan for the construction phase. The plan will be taken forward by the Principal Contractor for any post construction works of a similar nature that are associated with the Proposed Development e.g. maintenance. The plan will be agreed with SSEN Transmission prior to construction commencing. Compliance with the relevant EC Directives and UK Statutory Instruments that limit noise emissions of a variety of construction plant; and guidance set out in BS 5228-1:2009+A1:2014 which covers noise control on construction sites.
GE2 (also HYD1)	Site Water Management Plan	A Site Water Management Plan will be developed to manage potential risks to the water environment including silt mitigation and its locations, dewatering of excavations inclusive of pump locations, monitoring points, cut off drains, and SuDS (incl. compound). In addition, this plan will show how rivers downstream will be protected from sedimentation or pollution resulting from the project activities. The Site Water Management Plan will include a drawing of the Proposed Development, as well as any access tracks detailing all locations of water mitigation measures. All relevant activities will be undertaken in compliance with the Controlled Activities Regulations. The plan will be to a standard to support a construction site licence (CSL). SSEN Transmission's GEMPs for 'Oil Storage and Refuelling', 'Soil Management', and 'Working with Concrete' (**Appendix A**) will be adhered to.
GE3	Construction Traffic Management Plan	A Construction Traffic Management Plan (CTMP) will be developed by the Principal Contractor, which will be agreed with The Highland Council's roads team in advance of construction. The CTMP will contain measures which will ensure the following: • A driver induction will be undertaken to include a safety induction, speed control and the identification of specified access routes. • Adoption of car sharing where possible to reduce the number of vehicles arriving and departing from the site. • Heavy Goods Vehicles (HGV's) adhere to weight restrictions on roads in the area.
GE4	Soil Management	Soil management will follow the general guidance set out in SSEN Transmission's GEMP - 'Soil Management' (**Appendix A**). Additionally, reinstatement shall be completed as soon as practicably possible in order to prevent environmental disturbance.
GE5	Dust	Dust will be managed through implementation of standard control measures such as management of stock piles to suppress dust and road cleaning in accordance with SSEN Transmission's GEMP – 'Dust Management (**Appendix A**)'.
GE6	Waste	Waste Management will be in accordance with Section 34 (Scotland) of the Environmental Protection Act, SSEN Transmission's GEMP – 'Waste Management' (**Appendix A**) and the waste hierarchy.
GE7	Emergency	An Environmental Emergency Response Plan will be developed by the Principal Contractor to deal with, among other things, accidental spills / leaks. Appropriate spill kits will be located on site and in key vehicles. Site staff will be trained in their use and provided with advice on action(s) to be taken and who should be informed in the event of a pollution incident. Emergency response teams and contractors, their locations and response times will be identified in the plan.
GE8	Welfare facilities	On-site welfare facilities will be adequately designed and maintained to ensure all sewage is disposed of appropriately. This may take the form of an on-site septic tank with soak

Ref	Title	Description
		away, tankering and off-site disposal depending on agreement with SEPA; or discharge to foul sewer.
GE9	Adverse weather	The proposed timing of works dictates that work will have to be undertaken during winter months, details will be provided of how the Site will be managed to address this. SSEN Transmission's GEMP – 'Bad weather' (**Appendix A**) will be adhered to.
GE10	Local residents	Local residents will be kept informed of any potentially disruptive activities and actions being taken to mitigate the impact of these activities.
GE11	Excavation Cover	No excavations will be left open overnight, unless a ramp with a 45 degree angle is included to allow animals to escape should they fall in. All excavations will be backfilled immediately where possible.
GE12	Validity of Baseline Conditions	Where construction has not commenced within 12 months and conditions for species may have changed, surveys will be repeated in order to provide the most accurate and up to date recommendations for the Site.

Enhancements - Biodiversity Net Gain

3.10.5 SSEN Transmission is committed to protecting and enhancing the environment by minimising the potential impacts from construction and operational activities. As part of this approach, SSEN Transmission set out a biodiversity ambition within the 2018 Sustainability Strategy to 'Positively contribute to the UN and Scottish Government Biodiversity strategies by achieving an overall 'No Net Loss' on new infrastructure projects gaining consent in 2020 onwards and achieving Net Gain on projects gaining consent in 2025 onwards'.

3.10.6 In line with this approach, SSEN Transmission is undertaking a Biodiversity Net Gain (BNG) assessment for the Proposed Development, which is covered under the Full BNG Report accompanying this application. This will entail quantification of the pre and post-development biodiversity across the Site (and includes the associated Fanellan 400 kV Hub) to determine the actions necessary to work towards 10 % net gain as part of the Proposed Development.

3.11 Operation and Management of the Transmission Connection

3.11.1 In general, an OHL requires very little maintenance. Regular inspections are undertaken to identify any unacceptable deterioration of components so that they can be replaced before failure.

3.11.2 The operational corridor (OC) of the OHL is also monitored through periodic inspection to identify growth of trees which may compromise the resilience of the OHL. Where trees are identified which could pose a risk to the safe operation of the line in the future, these are felled. Removal of other vegetation, e.g. Gorse and Rhododendron, may be required to ensure the area under the conductors is clear so access can be taken and to facilitate safe maintenance or repair in the event of failure.

3.11.3 From time to time, inclement weather, storms or lightning can cause damage to either the insulators or the conductors. If conductors are damaged, short sections may have to be replaced. Insulators and conductors are normally replaced after about 40 years, and towers painted every 15 to 20 years.

3.11.4 In the event of a fault on the line, delivery of working platforms may be required to tension towers to allow the towers to be safely worked on. These platforms can be delivered on large tracked all-terrain vehicles. In steep areas, it is required to retain access formation to these tension towers to ensure that safe access can be made.

3.11.5 If a section of damaged conductor is to be replaced, a new conductor may be pulled through a section, as such it is required to maintain some of the earth work formations made during construction to ensure there is a safe suitable area to create EPZs.

4. APPRAISAL SCOPE AND METHODOLOGY

4.1 Approach to EA

4.1.1 The Proposed Development is not covered under the developments listed within Schedule 1 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 'hereafter referred to as the 'EIA Regulations' but is directly identified within the developments listed in Schedule 2 of the EIA Regulations. A Screening Request was issued to the Energy Consents Unit (ECU) in February 2024. A Screening Opinion was provided by the ECU in April 2024 determining that the Proposed Development does not constitute EIA development.

4.1.2 The approach followed in this voluntary EA is to initially identify the topics which require a level of assessment to determine the potential for likely direct and indirect environmental risks. This is achieved through a scoping exercise taking into consideration potential sensitive receptors and the nature of the construction and operation of the Proposed Development. 'Scoped out' topics are not considered further in the appraisal.

4.1.3 For the 'scoped-in' topics, this EA provides a concise appraisal of the likely direct and indirect environmental risks that the Proposed Development may pose; and makes recommendations for additional mitigation measures as required. The EA has been undertaken based on appropriate methodologies and best practice guidelines. Further details on this are provided in the technical Sections, where considered relevant.

4.1.4 **Section 13** collates the additional mitigation measures recommended in each of the appraisal Sections, which will be taken forward for inclusion in the site-specific CEMP.

4.2 Scope of Appraisal

4.2.1 Best practice in environmental appraisal encourages consultation and engagement with stakeholders early in the process, with advice and input from key consultees being sought at the early design stages of a project, to inform decisions about the Proposed Development. A summary of the consultation undertaken is provided within the technical Sections (**Sections 5-7)**.

4.2.2 An initial review of baseline conditions and sensitive receptors has been undertaken; **Figure 1.3 Environmental Designations** illustrates the identified environmental considerations located within proximity of the Site.

4.2.3 For each topic, the potential for environmental effects on these receptors has been considered and is documented in **Table 4.1,** which also indicates whether the topic is 'scoped in' or 'scoped out' of further assessment as discussed above.

Table 4.1: Scoping Review

Topic	Description	Scoped In/Out of appraisal
Cultural Heritage	There are 10 heritage assets identified within the Site and study areas. There is one non-designated heritage assets within the Site consisting of possible prehistoric pits discovered during GI works, related to probable prehistoric settlement activity. There are four non-designated heritage assets within the 250 m study area surrounding the Site that relate to prehistoric settlement and funerary activity. There are five designated heritage assets within the 1 km study area surrounding the Site, consisting of:	**Scoped In** Construction impacts on non-designated heritage assets. Operational impacts upon Scheduled Monuments (SM), Listed Buildings, and Garden and Designed Landscapes (GDLs). **Scoped Out** The impacts during construction and operation of the Proposed Development on World Heritage Sites, Inventory Battlefields, and Conservation Areas are scoped out of the cultural heritage assessment as there are none within the 1 km study area.

Topic	Description	Scoped In/Out of appraisal
	• Kiltarlity Old Parish Church (SM5570) • Beaufort Castle (GDL00052) • Category B Kiltarlity Old Parish Church Burial Ground (LB8081) • Category C Kilmorack Old Burial Ground (LB7123) • Category B Eileanaigas House (LB7117) The Proposed Development has a high potential to contain archaeological remains from the prehistoric period and post-medieval periods. This is due to the presence of heritage assets dating from these periods within the Site and 250 m study area, which includes the prehistoric cairn and sub-surface archaeological remains. There is low potential for medieval remains to be present within the Site, and any remains are anticipated to relate to agricultural activities.	Temporary construction impacts through changes within the setting of designated and non-designated heritage assets are scoped out as these temporary effects are not anticipated to result in significant effects. Indirect impacts on designated and non-designated heritage assets during the construction and operational phase are scoped out as indirect impacts are not anticipated.
Landscape and Visual	In landscape and visual terms, the Proposed Development is a temporary and permanent diversion of the existing Beauly - Denny 400 kV OHL on steel lattice towers, around a proposed new substation. The permanent diversion is anticipated to replace 4 no. existing suspension towers, currently in a straight alignment, with 3 no. angle towers and 1 no. suspension tower to divert the existing line behind the substation. 2 no. terminal towers will take the diverted line into and out of the proposed new substation. The two new terminal towers will be considerably bulkier in appearance (wider body and longer arms) than the existing suspension towers but will be located further northwest. The diversion of the Beauly-Denny OHL will necessitate the felling of some trees on the periphery of Ruttle Wood (Category 2B LEPO woodland). It is understood that the top of the new towers constructed for both the permanent OHL diversion and the temporary diversion will sit at a broadly similar Ordnance Datum as the existing OHL (and not more than 9m above existing AOD). The requirement for bulkier towers (including angle towers and terminal towers) has the potential to increase their visual prominence in the landscape. Topography and vegetation to the north and west of the Proposed Development would continue to provide some screening of lower portions of the towers for the visual receptors, including those at Kilmorack, Torgormack and Broallan but will push the OHL slightly closer to them. For receptors to the south and east, the temporary diversion of the OHL will be located	**Scoped In** Landscape - construction activities would have the potential to be intrusive in the landscape locally, giving rise to temporary and permanent significant landscape effects. Visual - the potential for adverse effects during construction arises primarily from the presence of new, bulkier steel lattice towers, which may form an intrusive element in views where a tower was not previously visible or was less noticeable. **Scoped Out** The assessment of operational effects is scoped out as the Proposed Development is the temporary and permanent diversion of the existing Beauly to Denny line. The permanent diversion takes an alignment further north (closer to Ruttle Wood and into the hillside) and set back further from Fanellan Road. It is noted that two towers will be replaced with bulkier terminal towers, but due to the site context and nature of the Proposed Development significant effects are not anticipated. Therefore, only the temporary diversion works (construction of the temporary and permanent lines) are considered here. The effect on NSA and the Central Highlands Wild Land Area is also scoped out, as the changes to the existing OHL, including temporary diversion, are unlikely to be readily perceptible at this distance and therefore unlikely to be significant.

Topic	Description	Scoped In/Out of appraisal
	closer to them as it will be located south eastwards of the existing OHL. However, the permanent OHL will contain bulkier infrastructure making them potentially more prominent in wider views and slightly closer to receptors to the north.	
Ecology and Nature Conservation	The Proposed Development is located in a rural area in The Highland Council locality, approximately 5 km south-west of Beauly. Key sensitivities in close proximity (approximately 5 km) include Inner Moray Firth Ramsar Site and Special Protection Area (SPA), Beauly Firth Site of Special Scientific Interest (SSSI), and Loch Battan SSSI. The Site presents suitability for a range of protected species including Bats and Badgers.	**Scoped In** Impacts upon legally protected and notable species including bat species and badger. Due to a potential roosting feature being lost, bats will be included in further assessment Due to the potential impact on badger resting sites, badgers will be included in further assessment **Scoped Out** Construction impacts on Glen Affric to Strathconon SPA, Inner Moray Firth Ramsar, Moniack Gorge SAC, Strathglass Complex SAC, and Inner Moray Firth SPA are scoped out due to their distance from the Proposed Development and lack of functional connectivity. Potential impacts on receptors including the Red Squirrel, Pine Martin, Great Crested Newt, and Upland Birchwood are scoped out. Construction impacts on agricultural land within the ecological study area are scoped out due to the land being of low ecological value. All operational impacts have been scoped out, as the only activities associated with the Proposed Development will be statutory ground clearance and irregular unplanned repairs of the OHL. These activities will be temporary and of low magnitude, and therefore, are scoped out of the appraisal.
Ornithology	Three species of Schedule 1 raptor were confirmed nesting in the wider area surrounding the Site: osprey, red kite and peregrine. Additionally, territorial behaviour was recorded for the Schedule 1 species honey-buzzard in the wider area surrounding the Site. A relatively large amount of flight activity for osprey and red kite was recorded across the Site.	**Scoped In** Potential significant effects will be limited to the following ornithological receptors: • Osprey, red kite, honey-buzzard, peregrine. Construction impacts: • Loss or degradation of habitats; and • Disturbance and displacement. Operational impacts: • Disturbance and displacement; and • Injury or mortality through collision risk with OHL. **Scoped Out** Construction and Operational impacts on the following are scoped out from further assessment: • Impacts upon Moray Firth SPA and Glen Affric to Strathconon SPA;

Topic	Description	Scoped In/Out of appraisal
		• Impacts on foraging geese; • Impacts on passerine (songbird) species; • Impacts on the breeding wader assemblage. Indirect effects on habitats as a result of construction related pollution are scoped out of further assessment.
Traffic and Transport	Construction of the Proposed Development will give rise to staff transport movements, and construction vehicle movements including heavy goods vehicles using the C1106 to access the Site from the A833 via the C1108 and U1604 . The classified road network is of a reasonable standard and the unclassified is to be partially upgraded in association with the nearby proposed Fanellan 400 kV Hub development. These two roads would form the Study Area for considering the impact of the Proposed Development.	**Scoped Out** While construction of the Proposed Development will give rise to staff transport movements, and construction vehicle movements including heavy goods vehicles, the scheme is of a short length (1.7 km), with a limited number of towers supporting the OHL's installation and the level of vehicles generated by construction activities is expected to be low. The impact of construction traffic would be further reduced as vehicles disperse onto the wider road network and, thus, diluting any potential effects. The Proposed Development's construction will be supported by the implementation of a Construction Traffic Management Plan (CTMP) which will set out the mitigation measures to be implemented during the construction phase. This document will be developed by the Principal Contractor (in consultation with the Principal Contractor for the associated proposed Fanellan 400 kV Hub development) in agreement with The Highland Council prior to commencement of construction activities. The measures will manage the impact of all construction traffic on the operation of the local road network. Therefore, no further assessment of traffic impacts during the construction phase is considered necessary. The traffic impacts associated with the operational phase are anticipated to be of low volume, being limited to movements associated with service vehicles carrying out routine maintenance. Therefore, further assessment of the traffic impacts of the Proposed Development during the operational phase is not considered necessary. With this in mind, Traffic and Transport is scoped out of the EA.
Hydrology, Hydrogeology, Geology and Soils	Sensitive receptors with the potential of being adversely impacted by the Proposed Development include Designated Sites, pollution of surface water and groundwater bodies, surface water and groundwater flows, river flood risk, GWDTE and peat. The Proposed Development is located within the River Beauly catchment, located within 1 km to the south of the river.	**Scoped In** Potentially significant effects that may result from the construction phase of the Proposed Development: • Pollution of surface watercourses, groundwater, and private water supplies: including from suspended sediment in surface water bodies, hydrocarbon and oil pollution. Potential sources of suspended sediments on construction sites include excavations, exposed ground and

Topic	Description	Scoped In/Out of appraisal
	There is one private water supply (PWS) and one SEPA CAR licence abstraction within 1 km of the Proposed Development, both located the opposite side of the River Beauly. Beaufort Estate have indicated that there is a private water tank and pipework on private land, supplied by public mains water, before being privately distributed across the estate. The water tank is located approximately 365 m southeast and downslope from the Site Boundary. There are no Scottish Water abstractions within 1 km of the Proposed Development. The Proposed Development is not located in a DWPA for surface water but is within a groundwater DWPA. The underlying bedrock geology is formed of Ousdale Arkose Formation, whilst the underlying superficial deposits include glacial sands and gravels, till and undifferentiated river deposits. There is limited evidence of peat underlying the Proposed Development according to peat mapping tools, which corroborates with the 2023 GI report for the Site. There are no historical records of contaminated land within the Site. The Site is underlain by Lower Old Red Sandstone, a moderately productive aquifer, as well as the Muir of Ord groundwater body, which is classified as having 'poor' overall status. There are no areas of high, medium or low river flood risk within the Site, yet there is a high risk associated with the nearby River Beauly. There are also small areas at high risk of localised surface water flooding. There are several NVC communities that are indicative of being GWDTE nearby to the Proposed Development.	stockpiles, plant and wheel washing, dust, and mud on site access roads. Sources of oils and hydrocarbons include leaks from access vehicles and powered hand tools. • Modifications to groundwater conditions, including levels and flows, which may cause alteration to receptors such as GWDTE or groundwater-fed water supplies. • Modification of surface water drainage patterns, which could be impeded by construction activity in or adjacent to watercourse channels or poorly chosen / designed watercourse crossing locations. • Impacts on PWS, including the water yield and quality, may occur as a result of construction works. • Short term flood risk may be increased as a result of construction activity, affecting construction workers, third parties, nearby developments and floodplains. • Impacts to GWDTE from construction practices could potentially lead to interruption and disruption to groundwater flows, and associated dewatering could potentially cause large changes to the groundwater supply. **Scoped Out** • Operation impacts on the assumption of good design and inclusion of embedded design mitigation as identified as required. • Impact on hydrologically relevant designated sites from chemicals, fuels and sedimentation pollution to groundwater and surface water, changes to groundwater flows and levels, and surface water drainage patterns, on the basis that there are none present within 1 km of the Proposed Development. • Impacts to bedrock and superficial geology as they have not been identified as sensitive receptors and significant effects are therefore not anticipated. • Impacts related to disturbance, compaction and loss of peat based on review of BGS Superficial Deposits geology mapping, James Hutton Institute National Soil Map of Scotland, NatureScot Carbon and Peatland mapping, and 2023 GI reporting indicating evidence of peat soils to be limited within the Site, therefore, significant effects are not anticipated. • Impact of pollution on fisheries, including from suspended sediment in surface water bodies, oil and hydrocarbons, considering the distance to

Topic	Description	Scoped In/Out of appraisal
		the River Beauly and assuming appropriate pollution source controls in relation to onsite watercourses. • Mobilisation of contaminated soil / bedrock is considered to be unlikely to be significant considering the location of the OHL Route.
Forestry	The desk study confirmed the absence of Tree Preservation Orders (TPOs) and conservation areas within the Study Area. Additionally, no registered records of ancient or veteran trees were identified. Areas of woodland classified as Ancient Woodland (Long-Established Plantation Origin, Category 2b), as listed in the Ancient Inventory for Scotland, are present throughout the Study Area. These woodlands primarily cover forestry areas to the Wouth and West, as well as blocks of woodland to the North-east. A total of 12 features were recorded within the Study Area of the OHL, consisting of seven groups and five individual trees. These features were assessed for quality as follows: • four high quality features, including three veteran trees located within a moderate quality woodland to the South-west of the Proposed Development. • six moderate quality features. • two low quality features. No areas of commercial forestry were identified within the Study Area.	**Scoped In** Construction impacts • Forestry impact assessment including an Arboricultural Impact Assessment (AIA). The AIA has assessed the potential impact of the Proposed Development upon those trees identified and recommends protection measures which are necessary to ensure the health of retained trees. Three veteran trees are considered irreplaceable habitat within the National Planning Policy Framework and are therefore scoped in. **Scoped Out** Timber volume and value: • Due to the amount of tree removal proposed, forestry operation will be assessed at a high level. Where deemed appropriate, this detailed assessment should be carried out by the forest manager to determine suitable compensation. Operational impacts: • Once the Proposed Development is constructed, there will not be a need for the removal of additional trees beyond what will be accounted for in the construction phase (other than maintaining the operational corridor), and this will be assessed within the forestry Section. Therefore, operational impacts related to the tree removal or disturbance have been scoped out.
Noise and vibration	The Proposed Development is located in a sparsely populated area. Nearby several individual receptors are present, including the residential properties of the hamlet of Fanellan. The existing noise environment in the surrounding area is generally low, with mild traffic noise coming from the nearby A831 road. The noise environment in the surrounding area is typically rural, featuring daytime noise consisting of road traffic noise. At night time, there are no dominant noise sources and levels are relatively low.	**Scoped In** Potentially significant effects that may result from the construction phase of the Proposed Development: Construction noise impacts have been scoped in due to the proximity of noise-sensitive receptors (NSRs) and the potential for exceedance of the 55 dB threshold during key activities such a piling, tree felling, and conductor stringing. The assessment follows BS 5228:2009+A1:2014 and includes cumulative effects with the Fanellan 400 KV Hub and other nearby infrastructure. It also includes effects of static and quasi-static construction noise from construction plant, such as excavators, dump trucks and cranes.

Topic	Description	Scoped In/Out of appraisal
		Construction vibration impacts have been scoped in, particularly for activities such as dynamic compaction s. The assessment uses BS 5228:2009+A1:2014. Operational noise from the permanent and temporary OHL diversions are scoped in, with assessment of corona discharge noise under wet conditions using National Grid's TGN(E)322 methodology. While most receptors are predicted to experience negligible impacts, a small number required Tier 2 assessment. This includes three Noise Sensitive Receptors (NSR), Fanellan Crofthouse, Fanellan Forest Lodge, 3 Fanellan). No NSR proceed to Tier 3. Cumulative operational noise effects from the Fanellan 400 kV Hub and associated OHLs (the proposed 400 kV Beauly-Peterhead and the proposed 400 kV Spittal-Beauly) have been scoped in to ensure the combined effects are fully understood. The proposed HVDC Converter Station is assumed to be operating with coolers on for predicted maximum cumulative noise emissions. **Scoped Out** Aeolian noise has been scoped out due to a lack of a standardised prediction method. However, mitigation will be applied through the design of the Proposed Development. While construction of the Proposed Development will give rise to staff transport movements, and construction vehicle movements including heavy goods vehicles, the scheme is of a short length (1.7 km), with a limited number of towers supporting the OHL's installation and the level of vehicles generated by construction activities is expected to be low. An assessment of traffic noise impacts during the construction phase is therefore not considered necessary. The traffic impacts associated with the operational phase are anticipated to be of low volume, being limited to movements associated with service vehicles carrying out routine maintenance. Therefore, further assessment of the traffic impacts of the Proposed Development during the operational phase is not considered necessary. With this in mind, it is proposed to scope noise and vibration from traffic and transport out of the EA.
Land Use	The Site is located within an area of Class 4.1 agricultural land, defined as land capable of producing a narrow range of crops, primarily grassland with short arable breaks of forage crops and cereal.	**Scoped Out** As the Proposed Development is not located on high quality agricultural land, there would be a minor potential for impact. There is one core path (track) located approximately 800 m south of the Proposed Development, including the Home Farm to Hughton by Lonbuie.

Topic	Description	Scoped In/Out of appraisal
	The Proposed Development encroaches on land Class 5.1, defined as land capable of use as improved grassland. There are no Special Areas of Conservation (SAC), or SSSI, located near the Proposed Development. The is one water body, namely the River Beauly, located approximately 1.2 km north-east of the Proposed Development. The site is located in an area managed by the Beauly District Fishery Board.	However, this core path is not directly affected by the Proposed Development, and therefore recreational activities are likely to remain unaffected. Apart from land take impacts which are assessed during the construction phase and are permanent, the effects during operation are expected to be limited to impacts associated with regular maintenance activities. Therefore, impacts to Land Use and Agriculture are scoped out for the operation stage of the Proposed Development. Based on the above information, significant effects on Land Use and Agriculture are unlikely, and therefore, have been scoped out from further assessment in the EA.
Air Quality and Climate	The area surrounding the Proposed Development is a sparsely populated, rural area with no industrial activities in the immediate vicinity. Background air quality in the area is assumed to be good. The Proposed Development is not located within an Air Quality Management Area (AQMA). The closest AQMA is located approximately 18 km east at Inverness City Centre and has been declared for exceedances of Nitrogen Dioxide (NO2) air quality standard limits.	**Scoped Out** The Proposed Development has the potential to give rise to some localised and temporary construction related releases associated with dust (foundation construction, passage of vehicles along access tracks) and construction plant and traffic exhaust emissions. However, the nature of the construction activities is that these would be localised, short term for individual activities and intermittent. Any potential for nuisance effects on residential or recreational amenity during construction would be strictly controlled in accordance with a CEMP. In regard to climate, in the context of the EA process, climate is assessed both in relation to the contribution of the Proposed Development to increasing or decreasing the nature and magnitude of greenhouse gas emissions (GHGs), and the vulnerability of the Proposed Development to climate change. The construction of the Proposed Development is anticipated to contribute to local GHGs due to the use of vehicles during construction and from the carbon footprint of the materials required to build the Proposed Development. The emissions directly associated with construction are likely to be temporary and short in duration from exhaust gases associated with vehicles and construction plant. Where practicable, the resources required to construct the Proposed Development will be locally sourced to minimise the generation of GHGs. Where possible, excavated material will also be reused on-site to reduce the need for disposal of material off-site. The amount of material and potential emissions required during construction and operation is not considered disproportionate for a development of this scale. Therefore, the GHGs emitted from the

Topic	Description	Scoped In/Out of appraisal
		Proposed Development are unlikely to increase or decrease the concentration of GHGs, as annually, there will be projects of this scale that are required to ensure that infrastructure needs are met in Scotland. In relation to climate adaptation, the design and location of the Proposed Development has considered the potential risk posed by increased flood risk and ground instability (further details provided in Section 6). The intention is to reduce potential risks to the electricity assets so that repairs and upgrades are less frequent. Based on the above, Air Quality and Climate is scoped out of the EA.
Material Assets and Waste	The surrounding area includes existing electricity distribution infrastructure. No other material assets have been identified. The Proposed Development would require material consumption for the realignment of the OHL and conductors, insulators, other fittings, steel and foundation works. Waste would be generated from the removal of the existing OHL and general construction waste from the compounds and sub-yards which would be recycled where possible.	**Scoped Out** The materials and waste associated with construction activities will be captured and addressed within a Materials Management Plan and Site Waste Management Plan which will form part of the Principal Contractor's CEMP. This will include use of recycled material, efficient use of material to minimise waste, and other waste management measures. To minimise the generation of waste, material excavated to create the platforms for the proposed towers as far as is practicable will be reused on-site to minimise the off-site deposition of material. Considering the nature and scale of the Proposed Development, significant effects on material assets and waste are not anticipated. Materials and Waste is scoped out the EA.
Socio-Economic	The Proposed Development is located in a rural area with relatively few nearby sensitive receptors. The nearest settlement to the Proposed Development containing businesses is Kiltarlity, approximately 2.5 km to the south-east. There are areas of recreational interest in and around Kiltarlity. These, along with further sensitive receptors, are outlined in the Scoped Out column of the table.	**Scoped Out** A small number of businesses including local shops, and a post office are located in Kiltarlity. Due to its location, nature, and scale, the Proposed Development is not anticipated to have any significant direct or indirect effects on residential properties or businesses within Kiltarlity. There may be short-term disruption to residents and businesses using the local road network during the construction period, however, this will be managed through the implementation of a CEMP and CTMP by the Principal Contractor, which will be agreed in advance with the Highland Council. There is one primary school, namely Tomnacross Primary School, located approximately 5 km via road from the Proposed Development. However, due to the location of this receptor, it is unlikely to be subject to disruption.

Topic	Description	Scoped In/Out of appraisal
		There is one tourist business, namely Highland Discovery Tours, located in Kiltarlity. However, it is considered unlikely to be subject to adverse effects as a result of the Proposed Development. In relation to recreation, the closest Highland Council Core Path is located approximately 800 m south of the Proposed Development, namely the Home Farm to Hughton by Lonbuie track. There are no core paths designated across the Proposed Development site or any records of Rights of Way, although it is noted that the Rights of Way record is not definitive. It is also unknown to what extent, if any, the area is used informally by local residents. As such, as they are outside the Proposed Development site it is not expected that any Core Paths would be directly affected by the Proposed Development. Ramblers paths that currently cross the Proposed Development will need to be diverted to enable the associated proposed Fanellan 400 kV Hub and will therefore be diverted in accordance with an Outdoor Access Management Plan being produced for that application. . Indirect visual effects to users of public roads and recreational routes are considered within the Landscape and Visual Impact section. Where there may be interactions with recreational users during the construction of the Proposed Development, an Outdoor Access Plan would be prepared as part of the Principal Contractor's CEMP. Temporary signage would be erected at suitable locations to alert users to construction traffic. Any disturbance during construction would be temporary and short term in nature. The impacts on human health for a development of this nature and scale are limited to increased exposure to noise and changes in amenity value of residential or recreational resources. These are considered in the Landscape and Visual Impact and Noise and Vibration Sections of the EA and therefore a specific Human Health assessment has been scoped out of the EA. Based on the above, it is proposed that the Population and Human Health topic (including potential impacts to Socioeconomics, Tourism and Recreation) is scoped out of further assessment in the EA.
Major Accidents and Disasters	The primary major accident and disaster risk associated with an overhead line replacement relates to electrical discharge through accidental contact with live lines or structural collapse of towers.	**Scoped Out** Given the nature of the Proposed Development, the potential for effects related to the vulnerability to major accidents and disasters are likely to be limited to those associated with unplanned power outages, due to extreme weather or structural damage.

Topic	Description	Scoped In/Out of appraisal
		Crisis management and continuity plans are in place across the SSE Group. These are tested regularly and are designed for the management of, and recovery from, significant energy infrastructure failure events. Where there are material changes in infrastructure (or the management of it) additional plans are developed. Potential significant effects on the vulnerability of the Proposed Development to Major Accidents and Disasters is therefore scoped out of the EA.
Electric and Magnetic Fields	The UK Health Protection Agency (HPA) is the government body responsible for policy and guidance on Electric and Magnetic Fields (EMF). Exposure guidelines have been developed by the International Commission on Non-Ionising Radiation Protection (ICNIRP) to ensure protection of human health in different situations, occupational exposure and public exposure, which have been adopted by the HPA for application in the UK. Whilst substation equipment is known to generate EMFs, these have been observed to drop away to background levels quickly with distance from source. In addition, EMF generated by substation infrastructure has been consistently recorded to be lower than that associated with incoming/outgoing OHL or underground cables associated with the substation.	**Scoped Out** The Proposed Development will comply with government regulations and guidance on EMF, based on advice from the National Radiological Protection Board (NRPB), now part of the Health Protection Agency. This guidance ensures that appropriate levels of public protection from EMFs are maintained. Consequently, no significant effects are anticipated, and it is proposed that EMF is scoped out of further assessment in the EA. An EMF Compliance Report is however appended to the s37 application.

4.3 Cumulative Effects

4.3.1 There are two aspects to Cumulative Effects, defined as follows:

- In-combination effects: The combined effect of the Proposed Development together with other reasonably foreseeable developments (taking into consideration effects during the site preparation and earthworks, construction and operational phases); and
- Effects Interactions: The combined or synergistic effects caused by the combination of a number of effects on a particular receptor, or group of receptors, (taking into consideration effects at the site preparation and earthworks, construction and operational phases), which may collectively cause a more significant effect than individually. A theoretical example is the culmination of disturbance from dust, noise, vibration, artificial light, human presence and visual intrusion on sensitive fauna (e.g. certain bat species) adjacent to a construction site.

4.3.2 A search for developments was undertaken on 2nd June 2025, which considered the potential for cumulative effects in relation to EIA developments and major applications, which are located within 5 km of the Proposed Development and have been submitted or approved in the last five years. The basis for this is that only these developments have the potential to result in significant cumulative effects in combination with those arising from the Proposed Development.

4.3.3 **Section 12** of this EA presents an overview of these cumulative developments and an appraisal of potential cumulative effects.

5. LANDSCAPE AND VISUAL APPRAISAL

5.1 Introduction

5.1.1 This Section assesses the effect of the Proposed Development on the landscape and on visual amenity. It describes and analyses the existing landscape of the area that may be affected and considers its sensitivity to the development proposed. It defines the extent to which the Proposed Development would be visible and illustrates and analyses a representative sample of views to give a clear indication of the effect the development might have on visual amenity.

5.1.2 It should be noted that the Proposed Development constitutes both a permanent diversion of a section of the existing OHL (to divert the OHL around the associated proposed Fanellan Hub and tie it in to the associated Fanellan Hub) and a temporary diversion line whilst the new permanent diversion is constructed in a similar location to the existing line. The temporary line will then be removed. As such, the Proposed Development will not be introducing a new OHL into the area and will be diverting a section of it further north. The permanent diverted line will, however, include two new terminal towers, which are bulkier towers than currently used on the existing line.

5.1.3 Landscape and visual appraisals are separate although linked processes, describing closely related but distinct sets of effects.

5.1.4 Landscape effects are direct physical changes to the landscape caused by the development, or indirect changes to landscape character and how the landscape is perceived following the development. Landscape impact appraisal considers these effects both in terms of the individual components of the landscape and on the structure, coherence and character of the landscape as a whole.

5.1.5 Visual effects are changes in the composition and character of views available in the area affected by the Proposed Development. Visual impact appraisal considers the response of the people who experience these effects, who may be living or working in the area, enjoying recreational activities or simply passing through. The appraisal considers the overall consequence of the effects on the visual amenity - the pleasantness of the view or outlook – that the people affected enjoy.

5.1.6 This Section is accompanied by the following figures and appendices:

- Figure 5.1 Zone of Theoretical Visibility;
- Figure 5.2 Viewpoint Locations;
- Figure 5.3 Landscape Character;
- Figure 5.4 Landscape Context;
- Figures 5.5 - 5.21 Visualisations.
- Appendix 5.1 Landscape and Visual Methodology;
- Appendix 5.2 Landscape Character Sensitivity;
- Appendix 5.3 Landscape Effects; and
- Appendix 5.4 Viewpoint Effects.

5.2 Information Sources

5.2.1 The following sources of information have been used to inform this report:

- Desk study – a desk based review of existing information and online resources in order to inform the field surveys and subsequent appraisal.
- Field Survey – undertaken in February 2024 and October 2024 to undertake the appraisal, verify the desk study findings, confirm the extent of visual influence and take photos.

5.3 Scope of Assessment and Methodology

Scope of Assessment

5.3.1 As noted in the introduction, this Section reports on the assessment of likely significant effects on the landscape and on visual amenity arising from the Proposed Development, during construction. It describes the assessment methodology, the baseline conditions and the mitigation that has been built into the design. The assessment of operational effects has been scoped out as the Proposed Development is the temporary and permanent diversion of the existing Beauly to Denny line. The permanent diversion takes an alignment further north (closer to Ruttle Wood and into the hillside) and set back further from Fanellan Road. It is noted that two towers will be replaced with bulkier terminal towers, but due to the site context and nature of the Proposed Development significant effects are not anticipated. Therefore, only the temporary diversion works (construction of the temporary and permanent lines) are considered here.

5.3.2 This section then analyses the landscape and considers its sensitivity to the type of development proposed. It also defines the extent to which the Proposed Development is likely to be visible and identifies the range and type of people (or places they may occupy) likely to be affected, which are illustrated by a representative sample of views.

5.3.3 There are no Tree Preservation Orders (TPOs) covering any part of the Site and they are therefore not discussed further. It is noted that there are Veteran trees which will be over sailed by the temporary OHL (which have been considered in the design so as to protect them by ensuring sufficient vertical clearance and scaffolding during relevant parts of construction) and further information is provided within **Section 8: Forestry.**

5.3.4 Gardens and Designed Landscapes (GDLs) on the Historic Environment Scotland inventory are addressed in **Section 10: Cultural Heritage.**

5.3.5 The visual assessment includes consideration of residential receptors. It should be noted that a significant effect on an isolated residential receptor is an effect on their private visual amenity whereas a significant effect on a settlement as a whole may involve a degree of effect on the public good.

5.3.6 This assessment has been carried out in accordance with the following:

- Landscape Institute and Institute of Environmental Management and Assessment Guidelines for Landscape and Visual Impact Assessment', 3rd Edition (2013) (GLVIA3)[13].
- Visual Representation of development proposals, Landscape Institute Technical Guidance Note 06/19 (2019). Photography has been undertaken and visualisations created in accordance with Landscape Institute guidance[14], which is consistent with NatureScot guidance.

Study Area

5.3.7 The area of study for the visual assessment is the area from which the Proposed Development may be seen (by definition, visual effects can only occur where at least some part of the development is visible). The Study Area for the landscape appraisal is also defined by the area from which the Proposed Development may be seen but the assessment considers potentially affected landscapes in terms of the character area or unit as a whole, not just the part from which there may be visibility (as per GLVIA3 paragraph 5.2).

5.3.8 Perceptibility studies[15] have shown that steel lattice tower overhead lines can be noticeably visible from up to 10 km away. The starting point for the study area will therefore be the OHL alignment buffered by 10 km in all directions.

[13] Landscape Institute and Institute of Environmental Management and Assessment (2013). 'Guidelines for Landscape and Visual Impact Assessment', 3rd Edition (2013).

[14] Visual Representation of development proposals, Technical Guidance Note 06/19 (2019).

[15] Perceptibility of Overhead Steel Lattice Transmission Towers, Collected Papers, Mark Turnbull Landscape Architects 2015

5.3.9 The Study Area will be based on the Zone of Theoretical Visibility (ZTV) as shown on **Figure 5.1**. As visual effects can, by definition, only occur where the Proposed Development may be visible, the Study Area for the visual assessment will be the area identified by the ZTV, which extends to 10 km from each indicative tower position.

5.3.10 It should be noted that the Proposed Development is a replacement OHL. There will be a temporary diversion line whilst the new replacement line is constructed in a similar location to the existing line. The temporary line will then be removed. As such, the Proposed Development will not be introducing a new permanent OHL into the area. The replacement line will be designed to current safety standards, and it will use larger / bulkier towers in some of the replacement section (e.g. terminal towers to tie in the OHL to the new associated proposed Fanellan 400kV Hub) than are currently used on the existing line.

5.3.11 For the landscape assessment it is considered that the effects would be more localised. As a replacement line, the Proposed Development would not greatly change the overall nature of existing effect on the landscape as the area is already affected by the presence of an OHL, but it may alter the magnitude of effect and may change the extent of areas most affected at a local scale. The replacement overhead line is therefore unlikely to alter the perception of a landscape beyond 3 km, except in the case of landscapes with a high degree of wild land characteristics.

Zone of Theoretical Visibility

5.3.12 The first step in the visibility assessment is to establish the area from which the Proposed Development may be seen - called the 'zone of theoretical visibility' (ZTV). The ZTV is produced by computer modelling, whereby the high point of the Proposed Development is overlain on a digital terrain model and computer generated 'lines of sight' generated to show what can be seen from this point and thus the places from which the Proposed Development may be visible.

5.3.13 **Figure 5.1** shows the ZTV: the theoretical visibility of the Proposed Development. This is a 'bare ground' ZTV, making no allowance for screening from buildings or vegetation. The ZTV used the Ordnance Survey Terrain 5 / 50 DTM and is based on a viewer eye height of 1.6m. The ZTV was produced from five points representing the proposed tower heights as set out in **Table 5.1: Parameters of the Proposed** OHL below.

5.3.14 The ZTV of the proposed OHL was produced using a terrain model, which does not take into account buildings and vegetation and thus gives an exaggerated impression of the extent of visibility. It should be borne in mind that the ZTV represents a theoretical model of the potential visibility of the Proposed Development. In reality, landscape features such as trees, hedgerows, embankments, landform and / or buildings found on the ground are likely to combine to screen the Proposed Development to a greater degree. It should be also considered that the main factor to the magnitude of scale, is the distance and this cannot be modelled in the ZTV and as a result, the extent of actual visibility experienced on-the-ground might be considerably less than is suggested by the ZTV pattern.

5.3.15 The ZTV study was used to assist in identifying potential receptors and indicate the potential visibility of the Proposed Development, and therefore the scope of receptors likely to be affected and merit detailed consideration in the appraisal of effects.

5.3.16 The anticipated main area of visibility has been established through field verification in February 2024.

5.3.17 The ZTV is shown on **Figure 5.1**, indicating areas of potential visibility of the proposed towers. Their height is modelled on the footprint of their location on the terrain, as shown on **Table 5.1 Parameters of the Proposed OHL** below.

Table 5.1: Parameters of the Proposed OHL

Tower	Structure Description	Elevation (m AOD)	Tower Height (m)
Temporary Diversion			
No 1	SSE400 D E3	175.316	52.116

Tower	Structure Description	Elevation (m AOD)	Tower Height (m)
No 2	SSE400 D E3 + 1m Leg Extension	187.316	53.116[16]
Permanent Diversion and Tie ins			
No 1	SSE400 D55 E3 +1m Legs	169.353	53.38
No 2	SSE400 D55 STD	184.669	49.38
No 3	SSE400 D M3	183.044	46.116
No 4	SSE400 DT STD	183.42	56.42
No 5	SSE400 DT STD +3m Legs	186.42	59.42
No 6	SSE400 D55 E9	193.33	58.38

5.3.18 The ZTV was used to identify potential viewpoints from a range of distances, directions and elevations to give a representative sample of likely views of the Proposed Development t and to illustrate this assessment. The actual level of visibility was verified during the Site visits.

5.3.19 Viewpoints 1 to 14 were agreed with The Highland Council (THC) and Nature Scot (NS) as part of the consultation for the Fanellan Hub application (25/00826/FUL).

Consultation

5.3.20 An EIA screening report was submitted in February 2024. This included a statement that landscape and visual impacts have been considered as part of the design development process and there would be potential for significant effects upon landscape designations, landscape character and visual amenity.

5.3.21 The Scottish Ministers Screening Opinion of 26 April 2024, in consultation with THC, concluded that the Proposed Development does not constitute 'EIA development'. However, it does note that it is entirely possible the Proposed Development may have an unacceptable impact, perhaps within a more localised area, and a negative screening opinion should not, therefore, be taken as an indication that there are no environmental issues and planning permission will automatically be forthcoming. The Screening Opinion states:

- *Due to the distance and topography from the WLA and NSA there is not likely to be any significant effect on the characters of these designated landscapes."*
- *"The proposed Development would be situated immediately beside the proposed new substation and proposed 400 kV OHL's from Spittal and Peterhead. There may be overall significant effects on the cumulative impact of all these projects, however the proposed Development assessed within this screening opinion is unlikely to provide a significant contribution."*
- *"The Scottish Ministers therefore conclude that the effects of the proposed Development are not likely to be significant and that an Environmental Impact Assessment report shall not be required."*

5.3.22 Consultation with stakeholders has been undertaken as part of the Fanellan Hub application, and summaries of the responses are provided in **Table 5.2** No separate consultation has been undertaken for this application.

[16] Alignment information correct as of 22.12.2024. Heights of towers may not match tower schedule due to subsequent increases within the vertical LoD.

Table 5.2: Landscape and Visual Consultation

Organisation	Type of Consultation	Response	How response has been considered
Scottish Ministers (ECU)	Pre-application meeting Held with ECU on 24/01/24	To provide introduction to the project ahead of submitting the EIA Screening Request. There were no particular points raised by ECU relating to landscape and visual.	N/A
THC	Email Initial request issued on 25/01/24	To agree 11 viewpoint locations for the Fanellan Hub application. THC accepted the initial proposed viewpoint locations and requested additional viewpoint locations to demonstrate elevated views from between Drumindorsair and Farley and the settlement of Crask of Aigas.	Two additional viewpoint locations were added to the initial views proposed. Viewpoint 12 – looking north-east from Crask of Aigas and Viewpoint 13 – looking south-east from Farley.
THC	Pre-app Meeting Undertaken on 13/03/24.	Meeting notes included: Number of OHL towers was queried. Close spacing, and scope to underground towers was requested to be reviewed in the EIA alongside micrositing to limit visibility.	SSEN have considered the siting of towers and protection of landscape features as part of the design process.
THC	Scoping Opinion for the Fanellan Hub Application (24/02655/SCOP) Received 06/08/2024	Requested that receptors at Belladrum Festival Grounds are considered within the assessment.	Viewpoint 14 – looking north-west from Belladrum Festival Grounds was added to the Hub application.
NS	Email Issued to NS on the 16/09/2024	To agree 14 viewpoint locations for the Fanellan Hub application. NS agreed the proposed viewpoint locations.	N/A
THC	Email Issued to THC on the 21/02/24	To confirm additional viewpoint locations and amendments to existing proposed locations to respond to comments re revised views.	No further action. In addition to the above viewpoints as the OHL has a larger study area a further 3 viewpoints have been included (but have not been agreed).

Baseline Data Collation

5.3.23 Information has been gathered primarily from desk study and site surveys. Relevant publications that have been taken into consideration include:

- NatureScot's National Landscape Character Assessment. Landscape Character Types, 2019
- Highland Council's Assessment of Highland Special Landscape Areas, 2019
- NatureScot's National Scenic Areas;
- NatureScot's Wild Land Areas;
- NatureScot's Wild Land Areas map and descriptions 2014; and
- Online mapping including Ordnance Survey maps, Google Earth Pro and Google Street View.

5.3.24 Site surveys were carried out in February, March and October 2024 for this assessment. Weather conditions were generally dry and clear, although weather conditions were changeable throughout the day.

Visualisation presentation

5.3.25 To assist in illustrating the potential level of impact magnitude to visual receptors, visualisations have been prepared for each of the seventeen representative viewpoints identified on **Figure 5.2 Viewpoint Locations.** The visualisations were prepared in accordance with Technical Guidance Note 06/19 Visual Representation of development proposals. All of the representative viewpoints are illustrated by 3D wirelines (Type 2). The camera location was surveyed on site using a handheld Global Positioning System (GPS).

5.3.26 The visualisations consist of A3 single frame views with two sheets per viewpoint. The first shows the current view, and the second shows the proposed view at Construction (illustrating the temporary diversion and the permanent tie ins) using the 3D model of the Proposed Development. The photography was completed in February 2024 (13 viewpoints), June 2024 (3 additional viewpoints) and October 2024 (1 viewpoints). The visualisations are included as **Figures 5-8 to 5-20.**

5.3.27 Within the study area, potential key visual receptors are individual residential properties, residents on the edge of settlements, users of nearby roads, footpath and cycle networks used by local residents and visitors. Reference has been made to The Highlands Council Core Paths network.

5.3.28 The representative viewpoints are used to illustrate the assessment of visual effects on the receptors identified above. The location of the 17 representative viewpoints are shown on **Figure 5.1 and 5.2** and listed in **Table 5.5.**

Determining Sensitivity of Receptors and Magnitude of Change

5.3.29 This section provides an overview of the LVIA methodology. A full methodology is set out **in Appendix 5.1 Landscape & Visual Methodology**.

Sensitivity of Receptors

5.3.30 The sensitivity of landscape and visual receptors is arrived at by separately considering the receptor value and the susceptibility of the receptor to the change proposed.

Landscape Sensitivity

5.3.31 The value of a landscape may be indicated by its designation, nationally or locally. However, the absence of a designation does not preclude a landscape being considered important. The European Landscape Convention, to which the UK is a signatory, promotes a people-centred approach and the need to take account of all landscapes, not just those that might be considered special. Following this approach, some local authorities do not make local designations. Landscape value may therefore also be indicated by local consensus because of scenic or aesthetic qualities and/or cultural associations, or it may be identified by a professional considering aspects such as landscape and/or scenic quality, rarity and/or representativeness, conservation interests and recreational value. Local value may be indicated by local cultural or natural heritage records, works of art or levels of use.

5.3.32 Landscape susceptibility considers the ability of the receptor to accommodate the specific change proposed without undue consequences on its baseline character or how it is perceived.

5.3.33 Susceptibility and value are combined such that a combination of high susceptibility and high value is likely to result in the highest sensitivity, whereas a low susceptibility and low value is likely to result in the lowest level of sensitivity. As noted in GLVIA3, there can be complex relationships between the value attributed to a landscape and its susceptibility to change, which can be particularly important when considering change in designated landscapes.

Visual Sensitivity

5.3.34 Value attributed to visual amenity relates to the level of recognition of the view, from highly celebrated nationally known views to views of no particular recognition.

5.3.35 Susceptibility to the proposed change for visual receptors relates to the location of the person and their occupation. For example, residents at home would be highly susceptible to change, whereas people using indoor facilities where the nature of the surroundings is irrelevant to their activity would be of low or negligible susceptibility.

5.3.36 As with landscape, susceptibility and value are combined to form a judgement about the visual sensitivity of a given receptor. Whilst a valued view may serve to increase the overall sensitivity of a visual receptor, a low value would not necessarily reduce sensitivity. Visual receptors considered highly susceptible to the proposed change are normally considered to be of high sensitivity unless there are features associated with the value of the view that lead to a reduction in sensitivity.

5.3.37 Professional judgement is always used in determining the sensitivity of a receptor.

Magnitude of Change

5.3.38 The magnitude of landscape and visual change depends on a combination of factors including:

- size, scale and nature of change in relation to the context;
- the geographical extent of the area influenced; and
- its duration or reversibility.

5.3.39 Professional judgement is always used in determining the magnitude of change.

Determining Effect Significance

5.3.40 Sensitivity and magnitude are then combined to gauge the overall level of effect and determine whether it is significant or not, with a clear rationale for the overall judgement provided. The level of effect (and thus significance) will vary depending on the circumstances, the type and scale of development proposed, the baseline context and other factors. The significance matrix in **Appendix 5.1 LVIA Methodology, Table 8** is used as a guide, but professional judgement is used both in allocating magnitude and sensitivity ratings, and in the conclusions on significance derived from these. For ease of reference, the matrix is shown below.

Table 5.3: Matrix for Determining the Significance of Effects

		Sensitivity of Landscape or Visual Receptor			
		High	**Medium**	**Low**	**Negligible**
Magnitude of Change/ Effect	**High**	Major	Major or Moderate	Moderate or Minor	Minor or Negligible
	Medium	Major or Moderate	Moderate	Minor	Negligible
	Low	Moderate or Minor	Minor	Minor	Negligible
	Negligible	Minor or Negligible	Negligible	Negligible	Negligible

5.3.41 The gradations of magnitude of change and level of effect used in the assessment represent a continuum and are here described on a four-point scale of major; moderate; minor and negligible. Where appropriate, this assessment uses intermediate descriptors where the assessor considers that the effect falls between the levels.

5.3.42 Effects can be either beneficial or adverse or, in some cases, neutral (neither beneficial nor adverse). As stated in **Section 4: Appraisal Scope and Methodology,** effects found to be moderate or greater are normally considered to be significant in the context of the EIA Regulations, whilst effects less than moderate are considered not significant.

5.3.43 It should be noted that there are situations where the conclusions regarding significance in this section differ from that suggested by the matrix in **Section 4.** This is most frequent where there is a low but not negligible magnitude of visual impact on a receptor of high sensitivity, where following the table gives a conclusion of moderate effect but the assessor considers the effect not to be significant. In this circumstance the significance would be found to be 'minor to moderate' or even 'minor'. This section therefore uses a developed version of this matrix, shown as **Table 5.3** above.

Items scoped out of the assessment

5.3.44 The following items are not included within the assessment with justification given:

Table 5.4: Items scoped out of the LVIA

Issues Scoped out of Assessment	Justification
Landscape Character: **National Parks and National Scenic Areas**	The effect on National Parks and National Scenic Areas will not be considered because the nearest areas are too far from the Proposed Development to be affected.
Landscape Character: **Wild Land Areas**	The effect on the Central Highlands Wild Land Area is also scoped out, as the changes to the existing OHL, including temporary diversion, are unlikely to be readily perceptible at this distance and therefore unlikely to be significant.
Visual Receptors	• Recreational: Visitors to Beaufort Castle are likely to be focussed on the castle and the immediate landscape rather than wider views. • Recreational: Attendees of Belladrum Festival Grounds are likely to be focussed on the event and the immediate landscape of the festival grounds rather than wider views. • Recreational: Local recreational users of core paths IN20.02, IN20.03, IN20.04, (near Belladrum Festival Grounds), due to intervening vegetation and the undulating nature of the local topography the extent to which the Proposed Development would be perceived is limited. • Recreational: Users of the Great Glen Way are located at the periphery of the 10km Study Area and views of the Proposed Development are not anticipated to be significant and have therefore been scoped out of the assessment. • Recreational: Users of Forestry Commission Access Land. Due to the wooded nature of these areas intervisibility with the wider landscape is limited, therefore these receptors have been scoped out of the assessment. • Recreational: Users of the River Beauly are likely to be focussed on their water-based leisure activities such as fishing, sailing and kayaking rather than wider views and changes to the existing OHL, including temporary diversion. The Proposed Development is unlikely to be readily perceptible. • Recreational: people visiting the local church yards and cemeteries at Kiltarlity and Kilmorack have been scoped out of the assessment, as receptors are likely to be focused on the immediate landscape of the church yards/cemeteries rather than views of the wider landscape. • Commercial: The are limited commercial receptors in the study area such as Kilmorack gallery, Post Office etc, as places of work the majority of these receptors are focussed on inward facing views rather than the wider landscape, these are considered to be of low sensitivity that would not be significantly affected as a result these receptors are scoped out of the assessment.

Issues Scoped out of Assessment	Justification
	• Commercial: The Proposed Development would be visible from Beauly Substation. As a workplace with no particular view to the site and where workers attention is not focussed on the landscape, their visual amenity is not likely to be significantly affected, and they are therefore scoped out of further assessment.
Night time assessment	Permanent lighting during operation is not anticipated. There would be emergency floodlights installed for health and safety purposes, but these would not be permanently lit. The access roads would also not be lit under normal operation. As such, there are no anticipated impacts from light pollution as a result of the Proposed Development and a night-time visual assessment has therefore been scoped out of this assessment.
Cumulative assessment	The Proposed Development would introduce an additional temporary OHL within the agricultural land north of Fanellan Road. During the construction period, proposed changes are of a small-scale nature, occurring within the context of the existing OHL. Due to the temporary and small-scale nature of the Proposed Development, significant cumulative effects are unlikely; as a result, cumulative effects have been scoped out of the assessment.

5.4 Assumptions and limitations

5.4.1 The assessment has been carried out by assuming the worst case of greatest visibility i.e. on a clear, bright winter's day with no screening from deciduous foliage.

5.4.2 The ZTV is based on 'bare ground' and does not take into account the screening effects of built form, forestry and vegetation, nor distance and the reduction in visibility with distance that can occur on less than a perfectly clear day, all of which can prevent or reduce visibility. The ZTV presents the worst-case scenario.

5.4.3 The assessment of visual effects on residential receptors has been undertaken from publicly accessible locations. Assumptions have therefore been made on the main outlooks and importance of views from these properties.

5.5 Baseline Conditions

Introduction & local landscape description

5.5.1 The area traversed by, and potentially affected by, the Proposed Development is primarily pastoral fields bounded by scattered trees, scrub and post and wire fencing or rough timber fencing. Immediately to the north, northeast and northwest the Site is enclosed by Ruttle Wood - a mixed woodland, predominantly pine plantation with some broadleaved planting. The area immediately south of the Site is relatively open, with sloping pastoral and arable fields, and scattered mature trees along the lines of old hedgerows and alongside roads.

5.5.2 The Site as a whole (as defined by the Site Boundary) is situated south of the A831, on the south facing side of the broad valley of the River Beauly. The Site lies on a hill approximately on the 140 m contour, falling to approximately 130 m AOD at the southeast and south edge of the Site. The Site is crossed by a series of towers and overhead lines (the existing Beauly Denny OHL) which form prominent vertical elements.

5.5.3 Settlement in the immediate vicinity of the Site is limited to a small number of farmsteads, individual cottages, and houses scattered along Fanellan Road. Directly beyond the railway line to the north-east is the village of Beauly - the largest settlement within the study area. Other smaller settlements within the study area include Muir of Ord, Kilmorack and Wester Balblair to the northeast, Aigas to the west, Hughton, Eskadale to the southwest, Culburnie, Glaichbea, Torrangorm to the south, Kiltarlity and Tomacross to the southeast.

5.5.4 The River Beauly is a major watercourse and noticeable feature within the study area that meanders as it flows east, passing to the south of Beauly and into the Beauly Firth. There are also numerous small watercourses and burns to the north and south which drain into the River Beauly.

5.5.5 A large extent of the study area is covered by blocks of woodland. The northern section is covered by Farley Wood, Ruttle Wood, Aigas Community Forest and woods east of Torr a Breac and Rheindown Wood; whilst the southern section is dominated by Fanellan, Femnock, Teanacoil, Eskadale and Boblainy Woods, which enclose the Site and form a particularly distinctive feature of the landscape pattern.

5.5.6 The majority of the Core Paths intersect the study area to the south of the Site, including Core Paths IN20.11 and IN20.05 merging with Core Path IN20.06 south of Beaufort Castle. The latter splits up to IN20.08 and IN20.10 on one side and IN20.07 and IN20.09 on the other side. In the area that lies between Beaufort Castle and Balblair are Core Paths IN03.03 and IN03.04. To the southeast within the Black Wood are Core Paths IN20.03 and IN20.04 and near Eskadale is Core Path IN20.01. Further southeast, Core Paths IN22.02, IN22.03 and The Great Glen Way run at the periphery of the 10km Study Area. To the east, Core Path IN03.04 runs in close proximity to the River Beauly on the southern edge of Balblair and Balblair Wood, Core Paths IN03.01 and IN03.02 run within the built up areas of Beauly. Further east, there is a network of Core Paths which connect a number of small settlements, these include: IN21.01, IN21.02, IN21.03, IN21.04, IN21.05, IN21.06, IN21.07 and IN21.08. Core Paths IN23.02 and IN23.03 are located at the periphery of the study area within the wooded area of The Aird. To the north, Core Paths RC32.08, RC32.09, RC32.02,

RC32.04, RC32.06, RC32.05 and RC32.10 are clustered around the settlement of Muir of Ord. The remaining footpaths to the north of the study area (RC30.02, RC32.03 and RC32.07) are located within heavily wooded areas and are located outside of the ZTV. To the northwest, Core Path RC30.01 is located at the edge of the 10km Study Area near the River Conon. To the west Core Path IN26.01 is located at the edge of the 10km Study Area.

5.5.7 In addition to the present-day settlement, the landscape includes many visible archaeological assets including tumuli, standing stones, Beaufort Castle, and the church and cemetery near Black Bridge. The historic landscape and effects thereon are discussed in **Section 10: Cultural Heritage**. It is indirectly considered here because the extensive visible archaeology not only indicates a long history of development but also contributes to the present-day landscape character.

Landscape Character Types

5.5.8 This assessment considers the effects of the Proposed Development on the character of the landscape locally, in the immediate vicinity of the Site, and at the scale of the areas identified in the NatureScot Landscape Character Assessment (2019).

5.5.9 The landscapes in Scotland were characterised by Scottish Natural Heritage (SNH - now NatureScot) in the 1990s but have since been updated and refined through identification of landscape character types (LCTs). These can be viewed within the Scottish Landscape Character Types Map and Descriptions website database. The NatureScot Landscape Character Assessment (2019) identifies twelve Landscape Character Types (LCTs) in the landscape study area, as shown in **Figure 5.3 Landscape Character.**

5.5.10 The northwestern part of the Site is located within the northern section of LCT 227: Farmed Strath – Inverness, which encompasses the tops of Ruttle Wood and Torr Mor, and then stretches south-west. The southeastern part of the Proposed Development is located within the LCT 229: Enclosed Farmland – Inverness, which is relatively more open and runs south-east towards Fanellan to the south of the Site.

5.5.11 A number of other LCTs are also located within the study area. To the south of LCT 229, and south of Culburnie and Camault Muir, lies LCT 222 Rocky Moorland Plateau - Inverness. To the northeast, LCT 229 transitions into the flatter lands around the edge of the Beauly Firth into LCT 342 Farmed River Plains. To the west of LCT 342, along the lower part of the south-east facing slopes of the broad valley of the River Beauly and north of Fanellan, lies LCT 346 Open Farmed Slopes, which runs from Kilmorack to Clashandorran. The higher parts of the valley side to the west (and north of Torr Mor) is located within LCT 345 Farmed and Forested Slopes, a narrow strip between 0.5 and 1 km wide running northeast. Further west still (and adjacent to the west and north-west of LCT 227) are the low summits of a large area of land forming LCT 220 Rugged Massif. Further north, and between LCT 220 and 345 lie LCT 341 Forest Edge Farming to the northeast and LCT 342 Farmed River Plains, and the hills of LCT 331 Rounded Rocky Hills – Ross & Cromarty to the north-west.

5.5.12 Due to the scale of the LCTs, intervening vegetation, and the undulating nature of the local topography, the extent to which the Proposed Development would be perceived from these wider landscapes is limited. As a result, only the two LCTs in which the Site is located will be taken forward for further assessment in this section, namely:

- Enclosed Farmland (LCT 229); and
- Farmed Strath – Inverness (LCT 227).

5.5.13 These two LCTs are described further below.

Enclosed Farmland LCT 229

5.5.14 The Enclosed Farmland LCT 229 consists of an area of north facing, sheltered sloping farmland located to the west of Inverness. The LCT forms a transition between the Rocky Moorland Plateau – Inverness LCT 222 to the south and the intensively farmed lowland plain to the north of the Farmed Strath-Inverness LCT 227.

5.5.15 Key characteristics of the LCT 229 include:

- *"Broad undulating glens interspersed with low, rounded ridges sloping to lower plains.*
- *Mixed agricultural land-use balanced with a high proportion of trees, woodlands, small scale forests and hedgerows.*
- *Tree cover provides varying degrees of enclosure for fields and buildings as well as a diverse mix of landscape patterns, colours and textures.*
- *Large areas of intensive agriculture with medium-sized geometric fields divided by rows of mature deciduous trees and woodland, with some stone dykes.*
- *Contrasting small scale, intimate croft lands, small rectangular fields, simple arrangement of buildings, narrow lanes, gullies and small scrubby woodlands.*
- *Diverse range of settlement with many small farms and crofts, several villages and estates.*
- *Large estate houses set in woodlands and parklands with avenues of trees, prominent in the intensive agricultural land.*
- *Network of major and minor roads following geometric field boundaries.*
- *Wide distribution and range of historic sites dating from prehistoric cairns and settlements to more recent sporting estates.*
- *Landform and tree cover limit long distance views, creating intrigue and screen many settlements from roads.*
- *Restricted views and increased sense of enclosure in crofting areas, due to the density and close proximity of vertical landscape elements."*

5.5.16 **Plate 5.1** below is a photograph from within LCT 229 illustrating some of its landscape characteristics.

Plate 5.1: View north from Fanellan Road

5.5.17 LCT 229 is a glacial landscape is characterised by broad undulating glens, low rounded ridges, which slope gently down towards the north and merging with the intensively farmed plains of the Moray Firth.

5.5.18 The LCT description notes that tree cover is an important component of this landscape, stating: *"Trees combine with a mix of arable and pastoral fields to create a landscape which has a broad range of colour, texture and seasonal diversity."* Broadleaf woodlands follow streams and line banks of the meandering rivers, whereas coniferous forests (small scale) are located on lower river terraces, side slopes and on areas of raised ground where conditions are less favourable for agriculture.

5.5.19 The LCT is strongly influenced by human activity, with a consistent distribution of croft housing creating a relatively populated feel to the landscape in the south. There are also large houses set in woodlands and parklands with avenues of trees to the north-west. To the north – west the landscape is intensively farmed with medium sized fields bordered

by hedgerows and stone dykes. To the south, in the areas of higher ground, field patterns are smaller and linear in nature, comprised of semi-improved pasture divided by stone wall, fences, narrow lanes, gullies and small woodlands.

5.5.20 The LCT contains a diverse range of settlements, from small villages, scattered farms, and crofting townships to individual grand houses in woodlands. Villages are typically associated with road junctions and organised in a linear arrangement.

5.5.21 Visibility within the LCT tends to be limited due to the screening effect of woodland and landform, creating "*intrigue and a varying range of spaces which constantly change whilst travelling through the area*". Areas of semi enclosure convey a sense of intimacy, where attention is focussed on the immediate landscape due to the shelter created by these spaces. Areas of trees and woodland planting provide screening and visual containment for the majority of built form, which helps maintain a rural character. Similarly, views from in crofting areas *"…tend to be restricted by the density and close proximity of vertical landscape elements which also increase the sense of enclosure."*

Farmed Strath – Inverness LCT 227

5.5.22 Within the Study Area, the Farmed Strath – Inverness LCT 227 is comprised of open farmland valley floors and a meandering river contained within steep, mainly forested and wooded slopes.

5.5.23 Key characteristics of relevance to the Study Area include:

- *"Linear to sinuous channels cut through uplands, with a central meandering river located in a flat or gently undulating strath floor, edged by the steep, rocky, side slopes.*
- *Pronounced and dynamic river meanders of Strathglass, emphasised by riparian trees, oxbow lakes and curved wetland features.*
- *Small scale broadleaf woodlands and small blocks of conifer forest within Strathnairn/Stratherrick strath floor which do not override openness of the strath.*
- *A few small settlements located on the strath floor or sides and infrequent small farms, crofts, estate buildings or groups of houses.*
- *Roads which generally relate well to landform, with a limited number of river crossing points.*
- *Many archaeological sites in Strathnairn dating from a range of periods.*
- *Contrast between the open, inhabited and agricultural landscape of the straths, the side slopes cloaked in alternating broadleaf woodlands, conifer forests and heather moorland, and the setting of adjacent rugged, remote uplands.*
- *Diversity of colour and texture added by river meanders, wetlands, damp pastures and thin bands of woodland.*

Plate 5.2: View south – west from the Crask of Aigas

5.5.24 The assessment notes a strong sense of enclosure, noting that "*The consistency of the strath sides, combined with the flatness of the strath floor, creates a sense of linear enclosure, which directs distant views along the strath and allows uninterrupted views of the flanking hill slopes.*"

Designated and Protected Landscapes

National Parks

5.5.25 The National Parks in Scotland are established under the provisions of the National Parks (Scotland) Act 2000. The Act sets out four National Park aims, to:

- Conserve and enhance the natural and cultural heritage of the area;
- Promote sustainable use of the natural resources of the area;
- Promote understanding and enjoyment (including enjoyment in the form of recreation) of the special qualities of the area by the public; and,
- Promote sustainable economic and social development of the areas' communities.

5.5.26 Where these aims conflict, the National Park authority must prioritise the first of these aims.

5.5.27 The nearest National Park is the Cairngorms which lies over 10 km to the south-east of the Proposed Development and is therefore scoped out of the assessment.

National Scenic Area

5.5.28 National Scenic Areas (NSA) are defined as areas of outstanding scenic value in a national context. The nearest NSA is the Glen Strathfarrar National Scenic Area (NSA) which lies over 10 km to the west of the Proposed Development at its closest point. Due to distance and screening provided by the undulating topography and tree planting, views towards the Site will be limited. As a result, the NSA has been scoped out of the assessment.

Wild Land Area

5.5.29 Wild Land Areas (WLAs) are the most extensive areas of high wildness, defined and mapped by NatureScot. They are identified as nationally important in Scottish Planning Policy but are not a statutory designation. The nearest WLA is Central Highlands (24) which lies approximately 6 km to the west of the Proposed Development. Due to distance and screening provided by the undulating topography and tree planting views towards the Site will be limited. As a result, the WLA has been scoped out of the assessment.

Inventory of Gardens and Designed Landscapes

5.5.30 The Inventory of Gardens and Designed Landscapes (GDLs) is maintained by Historic Environment Scotland, so GDLs are considered cultural heritage assets and are appraised as such. Those that are also popular tourist attractions or particularly distinctive local landscapes are considered in their present-day context in this section.

5.5.31 The Beaufort Castle GDL occupies the castle and grounds area south of the River Beauly. The Beaufort Castle GDL is located within 2 km of the existing OHL and within a similar context to the Proposed Development as illustrated in **Figure 1.3**, although it is a private residence. Receptors at Beaufort Castle have been scoped out of the assessment as visitors are likely to be focused on the castle and the immediate landscape rather than wider views, however Beaufort Castle is considered within **Section 10 Cultural Heritage**.

Visual Introduction & Overview

5.5.32 The extent of visibility of the Proposed Development, and thus the area from which there may be visual effects, can be seen in the ZTV (**Figure 5.1 Zone of Theoretical Visibility**). It should be noted however, that this is a bare ground ZTV and does not take account of the screening effects of woodland and forestry or built form and infrastructure.

5.5.33 As shown in **Figure 5.1,** there would potentially be extensive visibility to the south and east of the Site, across the low-lying land beyond Fanellan Road, as well as to the north east extending along the River Beauly valley. By contrast, visibility to the north and west is generally more contained due to the vegetation within Ruttle Wood and Aigas Community Forest, such that only a few areas beyond 10 km are potentially affected.

5.5.34 Whilst the ZTV indicates theoretical visibility beyond the 10km study area, visibility of the Proposed Development beyond this distance is likely to be extremely limited due to intervening topography, vegetation, built form, and distance, such that any visibility would not be considered significant. In order to focus on potentially significant effects, the study area for the visual assessment is cut off at 10 km from the Proposed Development (Temporary Diversion and Permanent tie-ins of the existing Beauly to Denny 400 kV Overhead Line). The discussion of receptors in the following paragraphs is limited to this 10 km Study Area to focus on potentially significant effects.

Visual Receptors

5.5.35 For the purpose of the assessment, whilst it is the people living, working, passing through or enjoying recreational activities in the area who see the view and enjoy the visual amenity, it is the places they may occupy that are mapped and described as the 'receptors' of the views.

5.5.36 The visual receptors in the Study Area are discussed below, grouped as residential, recreational, transport and commercial receptors.

Residential receptors

5.5.37 As noted in the landscape baseline above, lower lying lower land is extensively settled, to the north along the River Beauly the Crask of Aigas is located off the A831 in a densely vegetated area, Kimorack is located near Black Bridge, which crosses the River Beauly. Further north-east the larger settlements of Balblair and Beauly are located on the flood plain off the A831 and A862. To the south, small clusters of villages and individual properties are located on the sloping valley sides including: Fanellan, Culburnie, Drumbagarrachan, Kiltarlity, Camault Muir and Glaichbea are located off the network of local roads. Individual cottages, houses and farmsteads are scattered fairly evenly along local roads in the area.

5.5.38 Because of this broad scatter of settlement, the Proposed Development would be visible, to varying degrees, to a range of residential receptors across the undulating land to the south and east of the Site. Of these, approximately 56[17] residential receptors are spread fairly evenly along the local road network and would be located within one kilometre of the Proposed Development. The nearest residential receptors are the houses at Fanellan, immediately south of the Site Boundary off Fanellan Road at Upper Fanellan Cottages[18], Fanellan Cottages, Bredaig and Sunnybrae. Fanellan Croft is located adjacent to the east of the Proposed Development and there is a cluster of properties at the junction on the C1106 (Fanellan Road) near Butlers Cottage.

5.5.39 For the purposes of assessment, residential receptors are considered as groups and clusters of properties, mainly based on the naming of places on the Ordnance Survey Landranger map. The degree to which properties are grouped is inversely proportional to their distance from the Site as well as topography/ potential visibility identified. Nearer the Proposed Development, where more potential for significant effects is anticipated, the grouping is done at a finer grain with smaller groups, except where topography suggests limited visibility. Further from the Proposed Development, where fewer significant effects are anticipated the grouping is done at a coarser grain, with larger groups, except where topography suggests visibility may be greater.

[17] Numbers of receptors are given as 'approximate' because in a number of locations there are small clusters of buildings where it is difficult to distinguish the exact number of separate residential receptors.

[18] It is noted that Upper Fanellan Cottages are to be demolished as part of the Fanellan Hub application if the application is accepted.

5.5.40 This is therefore not a comprehensive list of all residential properties that may be affected but a thorough sample to ensure the assessment fully considers potential views from the different distances and directions from the Site. There will be houses between the named groups, subject to effects similar to the places either side.

Residents within 1 km

- Residents of Upper Fanellan Cottages, Fanellan Cottages and Fanellan Croft
- Residents of Butlers Cottage, Broomhill & Hill
- Residents of Fanellan
- Residents of Bredaig and Sunnybrae
- Residents of Hughton
- Residents of Culburnie
- Residents of Kilmorack

Residents between 1 km and 2 km from the Site boundary

- Residents of Torgormack and Broallan
- Residents of Wester Balblair
- Residents of Ruisaurie
- Residents of Crask of Aigas
- Residents of Crerag

Residents between 2 km and 5 km from the Site boundary

- Residents of Eskadale
- Residents of Camault Muir and Glaichbea
- Residents of Kiltarlity and Tomnacross
- Residents of Beauly
- Residents of Farley

Residents between 5 km and 10 km from the Site boundary

- Residents of Foxhole

Recreational & visitor receptors

5.5.41 The two main visitor and recreational receptor groups are visitors to Beaufort Castle and visitors to Belladrum Tartan Heart Festival to the south – east. There would be limited views from core paths running through Beaufort Castle and the remainder of the Estate. Recreational users of these footpaths are likely to be focussed on their immediate landscape rather than wider views and have therefore been scoped out of the assessment. Similarly, the recreational users of the River Beauly are likely to be focussed on their water based leisure activities such as fishing, sailing and kayaking and the immediate landscape rather than wider views and therefore have been scoped out of the assessment. Additionally, people visiting the local church yards, Kiltarlity Cemetery and Kilmorack Cemetery (Old and New) are likely to be focused on the immediate landscape surrounding the church and cemeteries and have been scoped out of the assessment.

5.5.42 People visiting the Kilmorack Cemetery (New – now an art gallery); and Kiltarlity / Tomnacross Cemetery are likely to be focused on the immediate landscape surrounding the church and cemeteries and have been scoped out of the assessment. Intervisibility of the Proposed Development for receptors at Black Bridge (Old Kilmorack burial ground) is largely limited due to intervening topography and vegetation separating the burial ground from the Site. People visiting this area have therefore also been scoped out of this assessment.

5.5.43 Belladrum Tartan Heart Festival attracts a large number of visitors and lies approximately 4 km south - east of the Proposed Development. Given the nature of the festival, focus of visitors would be primarily within the festival grounds. This, along with blocks of woodland surrounding the Site and between the Belladrum Tartan Heart Festival site and the Site, as well as the distance, is unlikely to result in any significant visual effects.

5.5.44 Recreational users of core paths IN03.01 and IN03.02 (within Beauly) have been scoped out of the assessment as views will be largely obscured by built form and woodland planting in Beauly.

5.5.45 Recreational users of Forestry Commission Access Land have also been scoped out of the assessment due to the wooded nature of these areas strongly limiting any intervisibility with the wider landscape.

5.5.46 Recreational users of The Great Glen Way Great Trail is located near Abriachan at the periphery of the 10km study area and have been scoped out of the assessment, as intervening vegetation and topography will limit the potential for significant effects, as shown in Viewpoint 16.

5.5.47 There are no National Cycle Routes within the Study Area.

5.5.48 Key recreational receptors who may therefore experience a view and scoped into this assessment are:

- Recreational users of core paths IN20.01;
- Recreational users of core paths IN20.11 and IN20.05;
- Recreational users of core paths IN20.06, IN20.08 and IN20.10;
- Recreational users of core paths IN20.07 and IN20.09;
- Recreational users of core paths IN20.02, IN20.03, IN20.04, (near Belladrum Festival Grounds);
- Recreational users of core paths IN20.02, IN03.04, IN03.03;
- Local recreational users of core paths IN20.01 near Eskadale; and
- Local recreational users of core paths IN26.01.

Transport receptors

5.5.49 Within study area, the Proposed Development would be visible from many local roads including Fanellan Road which runs south of the Site, the A831 located to the north-east of the site and C1106 Fanellan Road and Black Bridge connecting them with the A831. There is also an established network of minor and unclassified windy narrow roads with passing places that link the scattered development across the whole study area and are used by both commuters and tourists.

5.5.50 People travelling to Beauly centre via the train have a greater appreciation of views than road users due to the nature of their travel. Views towards the Proposed Development will be filtered by intervening vegetation, but filtered views may be available in the background of the view.

5.5.51 **Figure 5.4** illustrates there are two tourist routes The North Coast 500 and the Moray Firth Route are located to the north-east of the study area near Beauly. Due to intervening vegetation and topography, theoretical visibility of the Proposed Development is limited as shown on **Figure 5.1**, as a result these receptors have been scoped out of the assessment.

5.5.52 The key transport receptors who may experience a view and are scoped into this assessment are:

<u>Major 'A' Roads</u>

- Road users travelling along the A831,
- Road users travelling along the A833,
- Road users travelling along the A862,

Minor roads to the east

- Road users travelling along C1106 Fanellan Road and Black Bridge connecting them with the A831;

Minor roads to the north

- Road users travelling into Wester Balblair;
- Road users of minor roads connecting Ruilick, Ruisaurie and Drumindorsair to the A831;
- Road users of the route between Torgormack and Drumindorsair;
- Road users of the connecting route between Farley and Torgormack;

Minor roads to the south

- Road users of the existing route between Culburnie and Fanellan;
- Rural road users of the route connecting Crerag with Culburnie;
- Road users of the connecting routes between and connecting the A833, Kiltarlity and Tomnacross (including Allarburn Drive and Post Office Brae);
- Road users travelling in and around Foxhole;

Minor roads to the west

- Road users of the exiting residential road corridor connecting Crask of Aigas to the A831; and

Railways

- Rail users travelling along the railway towards Beauly.

Commercial receptors

5.5.53 The are limited commercial receptors in the study area such as Kilmorack gallery, Post Office etc, as places of work the majority of these receptors are focussed on inward facing views rather than the wider landscape, these are considered to be of low sensitivity that would not be significantly affected as a result these receptors are scoped out of the assessment. There are a number of farms and B&Bs which are also residential receptors and are considered as such.

5.5.54 The Proposed Development would be visible from Beauly Substation. As workplaces with no particular view to the site, these are considered to be of low sensitivity that would not be significantly affected, and they are thus not considered further in this assessment.

5.6 Viewpoints

5.6.1 This assessment includes a series of viewpoint photographs from a range of distances and directions showing a representative sample of the likely views of the Proposed Development, including key and important views.

5.6.2 The 14 initial viewpoints proposed were those identified for the associated proposed Fanellan 400 kV Hub, and were chosen following detailed desk study and fieldwork. They were discussed and agreed with The Highland Council and NatureScot and were considered appropriate and also representative of receptors for this application. However, for this OHL diversion report, a further 3 viewpoints have been added to represent sensitive receptors within the larger Study Area. Some minor changes were also made during fieldwork where a better or more representative viewpoint was obtainable or where necessary to ensure a safe location.

5.6.3 The 17 viewpoints to illustrate this assessment are shown on **Figure 5.2** and listed in **Table 5.5: Representative Viewpoints**, below.

Table 5.5: Representative Viewpoints

VP	Description	Receptor	Distance / Direction to Site (approx)
1	View looking west from Fanellan Road at Fanellan Cottages	Residents Road Users	0m/north
2	View looking north from near Sunnybrae and Bredaig	Residents Road Users	0.9km/north
3	View looking south-west from the northern-western edge of West Balbair	Residents Road Users	3km/south-west
4	View looking south-west from Ruisaurie	Residents Road Users	3.5km/south-west
5	View looking north-west from Tomnacross primary School entrance (south of Kiltarlity)	Residents Road Users	2.7km/north-west
6	View looking north from the western edge of Culburnie	Residents Road Users	1.3k/north
7	View looking north-east from near Crerag	Residents Road Users	1.8km/north
8	View looking south-west from Beauly train Station car park	Residents Rail and Road Users	4km/south-west
9	View from Togormack and Broallan	Residents Road Users	1.7km/south
10	View looking south-west from Kilmorack	Residents Road Users	1.4km/south-west
11	View north-west from Camault Muir and Glaichbea	Residents Road Users	3km/north-west
12	View looking north-east from Crask of Aigas	Residents Road Users	1.6km/north-east
13	View looking south-east from Farley	Residents	2.3km/south-east
14	View looking north-east from Eskadale	Residents	3.8km/north-east
15	View looking north-west from Foxhole	Residents	5.8km/north-west
16	View looking north-west from the Great Glen Way	Recreational	8.7km/north-west
17	View looking north-west from Belladrum Tartan Heart Festival Grounds	Recreational	3.7km/south-east

5.7 Future Baseline

5.7.1 In the event that the Proposed Development does not proceed, it is likely that the majority of the landscape and visual baseline within the Site Boundary would remain similar to that of the current baseline. As the future conditions would include the move to carbon neutrality and achieving net zero energy goals, it is anticipated that the existing OHL will be retained/replaced beyond their current lifespan. Current land use and management are predominately related to agricultural land (arable and grazed pasture), thus ecological conditions are unlikely to significantly change over the

coming years. Where management lapses over time, natural succession of habitats from grassland to scrub and woodland may occur.

5.7.2 A more subtle change which may affect the landscape baseline is changes to deer management regimes which could promote and/or suppress the natural regeneration of woodland.

5.7.3 Although vegetation species abundance and distribution within the Site Boundary may fluctuate, it is assumed that there would be no significant changes to species composition or geographical extent of vegetation cover.

5.7.4 Similarly, small fluctuations in population density in the surrounding area may occur, slightly increasing traffic on surrounding road network, but the extent of change is not expected to be significant.

5.8 Sensitive Receptors

5.8.1 The identified sensitive landscape receptors to be taken forward to assessment are as follows:

- LCT 227 Farmed Strath – Inverness,
- LCT 229 Enclosed Farmland

5.8.2 For visual amenity, the identified sensitive receptors are as follows:

- Residential Receptors within 1 km:
  - Residents of Upper Fanellan Cottages, Fanellan Cottages and Fanellan Croft;
  - Residents of Butlers Cottage, Broomhill & Hill View;
  - Residents of Fanellan;
  - Residents of Bredaig and Sunnybrae;
  - Residents of Hughton;
  - Residents of Culburnie;
  - Residents of Kilmorack;
- Residential Receptors between 1 km and 2 km from the Site boundary:
  - Residents of Togormoack and Broallan;
  - Residents of Wester Balblair;
  - Residents of Ruisaurie;
  - Residents of Crask of Aigas;
  - Residents of Crerag;
- Residential Receptors between 2 km and 5 km from the Site boundary:
  - Residents of Eskadale;
  - Residents of Camault Muir and Glaichbea;
  - Residents of Kiltarlity and Tomnacross;
  - Residents of Beauly;
  - Residents of Farley;
- Recreational Receptors:
  - Recreational users of core paths IN20.01;
  - Recreational users of core paths IN20.11 and IN20.05;
  - Recreational users of core paths IN20.06, IN20.08 and IN20.10;
  - Recreational users of core paths IN20.07 and IN20.09;
  - Visitors to Belladrum Tartan Heart Festival grounds;
- Transport Receptors:
  - Users of Major 'A' Roads:
    - Road users travelling along the A831,
    - Road users travelling along the A833,
    - Road users travelling along the A862,

- Users of Minor roads to the east:
  - Road users travelling along C1106 (Fanellan Road) and Black Bridge connecting them with the A831;
- Users of Minor roads to the north:
  - Road users travelling into Wester Balblair;
  - Road users of minor roads connecting Ruilick, Ruisaurie and Drumindorsair to the A831;
  - Road users of the route between Torgormack and Drumindorsair;
  - Road users of the connecting route between Farley and Torgormack;
- Users of Minor roads to the south:
  - Road users of the existing route between Culburnie and Fanellan;
  - Rural road users of the route connecting Crerag with Culburnie;
  - Road users of the connecting routes between and connecting the A833, Kiltarlity and Tomnacross (including Allarburn Drive and Post Office Brae);
- Users of Minor roads to the west:
  - Road users of the exiting residential road corridor connecting Crask of Aigas to the A831; and
- Railways:
  - Rail users travelling along the railway towards Beauly.

5.9 Potential Impacts

5.9.1 The Proposed Development may affect the landscape and visual amenity in a number of ways, as outlined below.

- The presence of construction compounds, laydown areas and temporary spoil heaps;
- The clearance of vegetation to facilitate the OHL;
- Large machinery moving about, with flashing lights and reversing beepers, and potentially tall temporary structures such as cranes;
- Presence of people working at the site, and driving to/from their temporary accommodation to their temporary place of work at the Site;
- The active change underway as development progresses and the gradual emergence of the temporary and permanent OHL diversions to include new towers;
- Light in a currently dark landscape, from floodlighting to allow a full working day in winter; and
- Extensive areas of bare earth from temporary stockpiles and new landforms before they have had a chance to 'green up' from the landscape works.

5.9.2 The construction period assessment considers the temporary effects of the construction activities, although it is acknowledged that the vegetation lost during construction will occur progressively during the construction period and will result in permanent impacts.

5.10 Mitigation Measures

5.10.1 In landscape and visual terms, the permanent Proposed Development would replace four of the existing suspension towers, currently in a straight alignment, with three angle towers, two terminal towers and one suspension tower to divert and tie in the existing line to the associated proposed Fanellan 400 kV Hub. Two of the existing suspension towers would be demolished. The two new terminal towers will be considerably bulkier in appearance (wider body and longer arms) than the existing suspension towers but will be located further northwest than the existing OHL, closer to Ruttle Wood, which will provide a greater degree of a backdrop. The siting of the proposed OHL towers can be regarded as part of embedded mitigation, reducing both landscape and visual effects, and not introducing any new type of elements into the area.

5.10.2 This application is intrinsically linked with the Fanellan Hub application, and the Proposed Development will not happen without Fanellan Hub, cumulative effects will appear during construction, but they will be significantly greater than the Proposed Development due to the construction of the Hub, associated mitigation and earthworks (see

Application Ref 25/00826/FUL). In combination with the Hub the construction of the Proposed Development is comparatively small.

5.10.3 Due to the direction of emerging wires / conductors, a limited amount of clearance of the existing trees within Ruttle Wood (Category 2B LEPO woodland) to the east and west of the proposed OHL will be required. In areas that will not be developed as part of the Fanellan 400 kV Hub, the ground surface would be reinstated, following the removal of the temporary access tracks which will be used to access the proposed towers.

5.10.4 The mitigation of effects on the landscape and visual resource during construction are those integral to the construction process under the 'Considerate Contractors' process that is now routinely followed, such as tidy site management to reduce visual clutter associated with the works; and use of construction lighting in accordance with best practice to minimise lighting intrusion to surrounding sensitive receptors.

5.10.5 The implementation of a Construction Environmental Management Plan (CEMP) and General Environmental Management Plans (GEMP) will ensure that best practice standards are used during the construction and reinstatement periods which will assist in minimising landscape and visual effects.

5.10.6 No further mitigation is proposed in terms of planting.

5.11 Assessment of Likely Effects

Introduction

5.11.1 The paragraphs below set out the potential landscape and visual effects of the Proposed Development incorporating the mitigation described in **Section 5.10: Mitigation Measures.** The degree to which any development affects the landscape depends in part on the size of the development in relation to the extent of the landscape being considered. In the case of the Proposed Development, it would add an additional (temporary) OHL within the Site, during the construction period, for a period of 9 months (length of time temporary diversion is anticipated to be in place) two OHLs will be visible within the Site Boundary.

Landscape Assessment

5.11.2 The Proposed Development lies within the boundary of the Enclosed Farmland and the Farmed Strath - Inverness LCTs. The Site itself is primarily pastoral fields bounded by scattered trees, scrub and post and wire fencing or rough timber fencing. Immediately to the north and northeast, the Site is enclosed by Ruttle Wood, a mixed woodland, predominantly pine plantation and partly broadleaved woodland. The area immediately south of the Site is relatively open to sloping pastoral and arable fields with scattered mature trees along the lines of old hedgerows.

5.11.3 The Proposed Development would introduce an additional temporary OHL within the agricultural land north of Fanellan Road for a period of 9 months.

5.11.4 The permanent OHL diversion would involve a small amount of vegetation loss to facilitate the Proposed Development, which will be set further north closer to the edge of Ruttle Wood. The permanent diversion is anticipated to replace 4 no. existing suspension towers, currently in a straight alignment, with: 3 no. angle towers and 1 no. suspension tower to divert the existing line to the north and 2 no. terminal towers. The two new terminal towers will be considerably bulkier in appearance (wider body and longer arms) than the existing suspension towers but will be located further northwest.

5.11.5 This assessment considers the effect on the landscape at the scale of the individual NatureScot defined LCT. As the significance of potential effects on the landscape character local to the Site would inevitably be greater than the significance of the impacts on the LCT, the effects on the landscape at a more local scale are also considered within the assessment.

Visual Assessment

5.11.6 The Proposed Development is anticipated to be noticeably visible to the 'ordinary[19]' observer to approximately 3 km from the Site. The following paragraphs describe the overall extent of visibility and should be read in conjunction with the **ZTV (Figure 5.1)** and with reference to the viewpoint photos and visualisations **(Figures 5.8 to 5.21).**

5.11.7 To the south, south east and south west, the Proposed Development would be visible across the low-lying land beyond Fanellan Road as well as to the north east extending along the River Beauly valley. The Proposed towers will be visible in their entirety, at close proximity and in some middle-distance views due to a small amount of vegetation loss opening up views. Viewpoints 1, 2, 5, 6, 7, 11, 14, 15 and 16 illustrate views from this area.

5.11.8 To the north and north west, the Proposed Development would be generally more contained due to the vegetation within Ruttle Wood and Aigas Community Forest. Visibility of the Proposed Development would be largely limited to the upper aspects of the towers of the Proposed Development appearing above the vegetation at Ruttle Wood and Tor Morr. Viewpoints 4, 9, 12 and 13 illustrate views from this area.

5.11.9 To the east, towards Wester Balblair and Beauly, the Proposed Development would be visible in the background of the view, where the vegetation removed during construction has opened up views towards the Proposed Development. The Proposed Development would be distantly visible, amongst the vegetation at Ruttle Wood and Torr Mor. Viewpoints 3, 8, and 10 illustrate views from this area.

Significant Effects

Construction Stage

5.11.10 The likely significant for Landscape and Visual receptors associated with the construction stage are set out below.

5.11.11 Changes to the landscape character within the Site Boundary and the Study Area are considered likely to occur during the construction stage. Alongside changes to the visual amenity of those surrounding sensitive visual receptors.

5.11.12 The construction activities to build the Proposed Development have the potential to create temporary and permanent effects on landscape features through activities such as the clearance of vegetation, and additional/replacement of large-scale structures.

5.11.13 Temporary, short-term effects on landscape character potentially will occur from the presence and movement of construction plant and associated temporary construction infrastructure and temporary line diversion.

5.11.14 A detailed assessment of effects on landscape character is set out in **Appendix 5.3 Landscape Effects** with a summary of those which are likely to be significant shown in **Table 5.6.**

5.11.15 A detailed assessment of effects on visual amenity for receptors during construction is set out in **Appendix 5.4 Viewpoint Effects** with a summary of those which are likely to be significant shown in **Table 5.7.**

[19] A member of the public who is looking at the view whilst going about their ordinary business, whether at home or as a tourist passing by, as opposed to someone specifically looking to identify the Proposed Development or considering a specific visual relationship.

Table 5.6: Significant Landscape Effects Summary – Construction

Landscape Character Type (LCT)	Sensitivity	Description of Impact	Magnitude of Change	Significance of Effect
NATURESCOT LCT 229 Enclosed Farmland	High	Construction of the Proposed Development will be located on a small elevated part of this LCT near Fanellan, south of Ruttle Wood and Tòrr Mòr to the north of the existing OHL. The landscape within this character area is principally characterised by sloping agricultural land with some urban influences. The proposals will introduce additional large scale vertical elements within an open elevated area of this LCT which is relatively exposed to the south. Construction activity will be dominant within the localised landscape surrounding Fanellan. The scale of change is therefore assessed as **Medium**. The proposals occur within a small section of the LCT at Fanellan, but due to the exposed south facing slopes, the influence on the wider setting will be noticeable. The geographical extent of change is therefore assessed as **Medium**. The construction stage is considered to be short term and the duration of change is therefore assessed as **Low**.	Medium	**Moderate adverse (significant)** to a very localised area of the LCT.

Table 5.7: Significant Visual Effects Summary – Construction

Viewpoint	Location	Sensitivity	Description of Impact	Magnitude of Change	Significance of Effect
1	View looking north - west from Fanellan Road at Fanellan Cottages	High	The construction activity of the Proposed Development is located in the middle distance on the rising slopes beyond the properties at Bredaig and Fanellan, in line and set back from the existing OHL and towers. Visible construction activity will include the movement of tall plant and infrastructure associated with the temporary line diversion and permanent tie-ins, visible to the front of Ruttle Morr and above the skyline. Two lines of parallel OHL and two additional temporary towers will be visible for a portion of the construction period (approximately 9 months). Views of the construction activities will be noticeable above the skyline and additional infrastructure elements will be prominent in the view. This will result in noticeable changes to the key characteristics of the background view. The scale of change is assessed as **Medium**. The construction activities will be visible within a noticeable proportion of the view. The geographical extent of change is therefore assessed as **Medium**. The construction phase is short term, and the duration of change is therefore assessed as **Low**.	Medium	**Moderate adverse (significant)**
2	View looking north from near Sunnybrae and Bredaig	High	The construction activity of the Proposed Development will be visible beyond the existing tower and OHL in the middle distance. Views of construction activities will be limited to the movement of tall plant and infrastructure in the middle distance and background, along the skyline. Two lines of parallel OHL and towers will be visible for a small portion of the construction period (approximately 9 months). This will result in noticeable changes to the middle distance and background characteristics of the view. The scale of change is assessed as **Medium**. The construction activities will be visible across the background of the view. The geographical extent of change is therefore assessed as **Medium**. The construction phase is short term, and the duration of change is therefore assessed as **Low**.	Medium	**Moderate adverse (significant)**
5	View looking north-west from Tomnacross primary School entrance (south of Kiltarlity)	High	The construction activity of the Proposed Development is located in the background on the rising slopes beyond Kiltarity in the beyond the existing OHL and towers. Visible construction activity will include the movement of tall plant and infrastructure associated with the temporary line diversion and permanent tie-ins at Fanellan. Two lines of parallel OHL and towers will be visible for a small portion of the construction period (approximately 9 months). Construction activities will be noticeable in the background of the view within the context of the existing towers and OHL. The scale of change is assessed as **Medium**. The construction activities will be visible within	Medium	**Moderate adverse (significant)**

Viewpoint	Location	Sensitivity	Description of Impact	Magnitude of Change	Significance of Effect
			a small proportion of the view. The geographical extent of change is therefore assessed as **Low**. The construction phase is short term, and the duration of change is therefore assessed as **Low**.		
6	View looking north from the western edge of Culburnie and Culburnie Muir	High	The construction activity of the Proposed Development is located in the middle distance on the rising slopes beyond the properties at Bredaig, Lonbuie and Fanellan adjacent to and set back from the existing OHL and towers in the view. Visible construction activity will include the movement of tall plant and infrastructure associated with the temporary line diversion and permanent tie-ins, visible to the front of Ruttle Morr and Tòrr Mòr appearing above the skyline. Two lines of parallel OHL and towers will be visible for a small portion of the construction period (approximately 9 months). This will result in noticeable changes to the key characteristics of the middle distance and background view. The scale of change is assessed as **Medium**. The construction activities will be visible within a small proportion of the middle distance and background view. The geographical extent of change is therefore assessed as **Medium**. The construction phase is short term, and the duration of change is therefore assessed as **Low**.	Medium	**Moderate adverse (significant)**

General and Specific Limitations

5.11.16 The assessment has been carried out by assuming the worst case of greatest visibility i.e. on a clear, bright winter's day with no screening from deciduous foliage.

5.11.17 The ZTV is based on 'bare ground' and does not consider the screening effects of built form, forestry and vegetation, nor distance and the reduction in visibility with distance that can occur on less than a perfectly clear day, all of which can prevent or reduce visibility. The ZTV presents the worst-case scenario.

5.11.18 The assessment of visual effects on residential receptors has been undertaken from publicly accessible locations. Assumptions have therefore been made on the main outlooks and importance of views from

5.12 Summary of Effects

Landscape Character

5.12.1 The Proposed Development would introduce additional temporary OHL within the agricultural land north of Fanellan Road for the construction period. It would involve a small amount of vegetation loss to facilitate the Proposed Development, which will be set further north closer to the edge of Ruttle Wood. The permanent diversion is anticipated to replace 4 no. existing suspension towers, currently in a straight alignment, with 3 no. angle towers and 1 no. suspension tower to divert the existing line to the north to terminate at 2 no. terminal towers. The two new terminal towers will be considerably bulkier in appearance (wider body and longer arms) than the existing suspension towers but will be located further northwest.

5.12.2 The effect on the local landscape would reduce on completion of the construction period and the removal of the temporary line.

Visual Amenity

5.12.3 The degree of significance at individual receptors varies according to their orientation in relation to the Site, local topography, and the presence or absence of screening elements such as buildings, walls, trees and shrubs between the receptor and the Site.

5.12.4 During construction there would be significant adverse visual effects on high sensitivity visual receptors represented by viewpoints 1, 2, 5 and 6 within two kilometres of the Site. The significance of effect on visual receptors would reduce on completion of the construction period and the removal of the temporary line.

6. ORNITHOLOGY

6.1 Introduction

6.1.1 This Section presents the appraisal of the potential effects on ornithology resulting from the Proposed Development. This Section and its associated figures and appendices are not intended to be read as a standalone appraisal and reference should be made to the introductory section of this EA Report (**Sections 1** to **4**).

6.1.2 Additional information which supports this Section is presented in **Appendix 6.1 Ornithology Baseline** and accompanying figures.

6.2 Confidentiality

6.2.1 This Section is informed by **Appendix 6.2 Confidential Schedule 1 Raptors Baseline** which contains sensitive information pertaining to the locations of nest sites for Schedule 1 raptors. The confidential appendix and its accompanying **Figure 6.2.1** are not for public viewing and should only be viewed by persons for whom the information is essential to progress or assess the Proposed Development. This Section does not provide specific reference to nest site locations to allow public viewing.

6.3 Appraisal Methodology and Significance Criteria

Introduction

6.3.1 This Section focuses on the effects of the construction and operational phase of the Proposed Development and subsequent decommissioning of parts of the existing OHL on Important Ornithological Features (IOFs). The method of appraisal aligns with the Ecological Impact Assessment (EcIA) guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM)[20] (hereafter the 'CIEEM EcIA Guidelines').

Legislation, Policy and Guidance

6.3.2 The legislative framework applicable to the appraisal comprises the following:

- UK Withdrawal from the European Union (Continuity) (Scotland) Act 2021;
- European Commission Directive on the Conservation of Wild Birds (2009/147/EC) (the Birds Directive);
- Environmental Impact Assessment Directive 2011/92/EU (as amended);
- European Union Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna (the 'Habitats Directive');
- The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations);
- Wildlife and Countryside Act 1981 (as amended);
- Nature Conservation (Scotland) Act 2004 (as amended);
- The Wildlife and Natural Environment (Scotland) Act 2011 (as amended); and
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (EIA Regulations).

6.3.3 The following policy documents have been considered in defining the scope of the appraisal presented in this Section:

- EU Biodiversity Strategy for 2030[21] ;

[20] CIEEM (2024). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3. Chartered Institute of Ecology and Environmental Management, Winchester.

[21] European Commission, Directorate-General for Environment (2021). EU Biodiversity Strategy for 2030: bringing nature back into our lives. Publications Office of the European Union. Online at: https://data.europa.eu/doi/10.2779/677548 , accessed October 2023.

- Scottish National Planning Framework 4 (NPF4)[22] , specifically:
- Policy 3: Biodiversity; and
- Policy 4: Natural places.
- Scottish Biodiversity Strategy (SBS) to 2045[23] which, as a draft, sets out an ambition for Scotland to be Nature Positive by 2030 and to have restored and regenerated biodiversity by 2045. This builds upon Scotland's Biodiversity: it's in your hands[24] – a strategy for conserving biodiversity in Scotland up to 2030; and the 2020 Challenge for Scotland's biodiversity[25] – a plan for how to achieve the outcomes of the European Biodiversity Strategy 2020 and UN Aichi targets. With reference to Scottish biodiversity strategy post-2020: statement of intent[26]. The SBS is implemented locally through Local Biodiversity Action Plans; and
- Scottish Biodiversity List (SBL)[27] of flora, fauna and habitats considered of principal importance for the conservation of biodiversity;

6.3.4 Guidance for the appraisal as set out by CIEEM are as follows:

- CIEEM Guidelines for Preliminary Ecological Appraisal[28]; and
- CIEEM EcIA Guidelines[28].

Baseline Data Collection

Study Area

6.3.5 Distinct study areas have been established for desk-based data review exercises and field surveys, to reflect the different elements of the Proposed Development, ecological sensitivities along the proposed OHL diversions (temporary and permanent) and the extent of the Proposed Development's Ecological Zone of Influence (EZoI) for each ecological feature appraised. The CIEEM EcIA Guidelines define the EZoI as the area over which ecological features may be subject to significant effects as a result of the Proposed Development; this could extend beyond the footprint of the Proposed Development.

6.3.6 The study area varies for each ecological feature due to the varying mobility range of the feature being appraised as well as the connectivity between the feature and the Proposed Development.

6.3.7 Surveys were conducted based on the area encompassing both the adjacent proposed Fanellan 400 kV Hub and the Proposed Development which aligns with the EZoI for the Proposed Development also (See **Figures 6.1.2** to **6.1.3**) and any required survey extents as set out within relevant guidance. A 50 m Limit of Deviation (LoD) either side of the OHL diversions centre line is considered in this appraisal i.e., 100 m total width.

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22 Scottish Government (2023). National Planning Framework 4. Published by the Scottish Government, Edinburgh. Online at: https://www.gov.scot/publications/national-planning-framework-4/documents/ , accessed October 2023.

23 Scottish Government (2022). Scottish Biodiversity Strategy to 2045 (draft). Online at: https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2022/12/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/documents/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/govscot%3Adocument/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland.pdf , accessed October 2023.

24 Scottish Executive (2004). Scotland's Biodiversity: It's In Your Hands. Edinburgh. Online at: https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy , accessed October 2023.

25 Scottish Government (2013). 2020 Challenge for Scotland's Biodiversity. Edinburgh. Online at: https://www.gov.scot/publications/2020-challenge-scotlands-biodiversity-strategy-conservation-enhancement-biodiversity-scotland/documents/ , accessed October 2023.

26 Scottish Government (2020). Scottish biodiversity strategy post-2020: statement of intent. Online at: https://www.gov.scot/publications/scottish-biodiversity-strategy-post-2020-statement-intent/ , accessed October 2023.

27 Scottish Biodiversity Forum (2013). Scottish Biodiversity List. Online at: https://www.webarchive.org.uk/wayback/archive/20150218221128/http://www.gov.scot/Topics/Environment/Wildlife-Habitats/16118/Biodiversitylist/SBL , accessed October 2023.

28 CIEEM (2017). Guidelines for Preliminary Ecological Appraisal. Chartered Institute of Ecology and Environmental Management. Hampshire.

Desktop Study

6.3.8 A desk-based review of publicly available data sources was undertaken to inform the survey scope and to provide contextual information to inform the appraisal. The review was completed by competent ecologists who hold current CIEEM membership of at least graduate membership and sufficient experience in ecological data collection.

6.3.9 Data sources included:

- NatureScot SiteLink[29] to identify designated sites with ornithological interests;
- A review of ecological information contained in other project reports of relevance to the Site:
- Scarce Breeding Bird Surveys (SBBS) for the proposed Beauly to Peterhead 400kV OHL (2023); and
- SBBS for the proposed Spittal – Loch Buidhe – Beauly 400kv OHL (2024).
- Studies of the distribution of foraging geese from relevant designated sites were used to predict if important foraging assemblages could occur within an Ecological Zone of Influence (EZoI) of the Proposed Development[30]. The EZoI was based on the predicted maximum disturbance/displacement distance relating to pink-footed goose *Anser brachyrhynchus.* Mitchell (2012)[31] provides data on the distribution of pink-footed and greylag geese *Anser anser* within 20 km of all relevant European sites.

Field Surveys

6.3.10 Full details of survey methods are provided in **Appendix 6.1 Ornithology Baseline and Appendix 6.2 Confidential Schedule 1 Raptors Baseline.** The survey areas are shown on the accompanying **Figures 6.1.2** to **6.1.3** and **6.2.1 (confidential).**

6.3.11 A summary of Ornithological survey methods is as follows:

- Flight activity survey using NatureScot guidance[32,33]. Flights have been appraised within a Collision Risk Area (CRA) comprising the Site and a 100 m buffer. A 100 m buffer was considered sufficient to allow for observer error with judging the position of flights given the relatively localised nature of the Proposed Development.
- Breeding bird survey using adapted Common Bird Census (CBC)[34] methods. The breeding bird survey area comprised an earlier iteration of the proposed Fanellan 400kV Hub site and a 100 m buffer. Some areas of the Proposed Development fell out with this coverage. See **Limitations and Assumptions** for further discussion.

6.3.12 Ornithological surveys focussed on target species based on the following legislative or conservation lists:

- Annex I of the EU Directive on the Conservation of Wild Birds 79/409/EEC (the 'Birds Directive') (Annex I);
- Schedule 1 (including Schedule 1A and/or A1) of the Wildlife and Countryside Act (1981) (Schedule 1);
- 'Red' or 'Amber' on Birds of Conservation Concern 5 (BoCC5)[35]; and
- SBL species.

29 NatureScot SiteLink Online https://sitelink.nature.scot/home

30 Goodship, N.M. and Furness, R.W. (MacArthur Green) Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283. https://www.nature.scot/doc/naturescot-research-report-1283-disturbance-distances-review-updated-literature-review-disturbance#Black-throated+diver,+Gavia+arctica

31 Mitchell, C. (2012). Mapping the distribution of feeding Pink-footed and Iceland Greylag Geese in Scotland. Wildfowl & Wetlands Trust / Scottish Natural Heritage Report, Slimbridge. 108pp.

32 SNH (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. Version 2, March 2017.

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

34 Marchant, J.H (1983). Common Birds Census Instructions. BTO, Tring.

35 Stanbury, A.J., Eaton, M.A., Aebischer, N.J., Balmer, D., Brown, A.F., Douse, A., Lindley, P., McCulloch, N., Noble, D.G. & Win, I (2021). Birds of Conservation Concern 5: The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114, 723-747.

Determining Sensitivity of Receptors and Nature of Change

Evaluation of Conservation Importance

6.3.13 The appraisal focuses on IOFs of greatest nature conservation importance, as supported by the CIEEM EcIA Guidelines. To inform the scoping of relevant IOFs, each has been evaluated in line with the **Legislation, Policy and Guidance Section** within **Section 6.3**.

6.3.14 For the purposes of this EcIA, the geographic context of an IOF's nature conservation importance is interpreted as follows:

- International = Europe;
- National = Scotland;
- Regional = Highland;
- County= Inverness-shire[36, 37]; and Local = Aird and Loch Ness[38].

6.3.15 Sites, habitats and species that are of less than Local importance under the above frame of reference are not considered in detail in this appraisal.

6.3.16 Examples of geographic criteria and context are provided in **Table 6.1.**

Table 6.1: IOF Importance Geographic Context

Geographic frame of reference	Criteria/ examples
International	A site designated under international conventions or European directives meeting the criteria for a European site[39]. Considerable extents of a habitat type listed in Annex I of the Habitats Directive, or smaller areas of such habitat that are essential to maintain the viability of a larger area. A regularly occurring significant population/ number of any internationally important species i.e. those listed on Annex II of the Habitats Directive, Annex I of the Birds Directive or International Union for Conservation of Nature (IUCN) Red listed.
National	Nationally designated sites, or sites meeting the criteria for national designation. Notified species/habitats of a nationally designated site. A nationally important, viable area of priority habitat identified within the Scottish Biodiversity List (SBL) or a smaller area which is vital for the viability of a larger area. A regularly occurring significant population/ number of any nationally important species i.e. listed on the Wildlife and Countryside Act 1981 (as amended). Species present in nationally important numbers (>1 % Scotland population).
Regional	Any internationally or nationally important habitat (as described above) that is currently degraded but has the potential for restoration. Sites falling slightly below criteria for selection as a national designated site. Local Nature Conservation Sites (LNCS) identified by the Local Authority.

[36] Encompassing the historic county of Inverness-shire. Map available online: https://historiccountiestrust.co.uk/descriptions

[37] With the exception of ornithology receptors which are based on Natural Heritage Zone populations as detailed in Wilson, M. W., Austin, G. E., Gillings S. and Wernham, C. V. (2015). Natural Heritage Zone Bird Population Estimates. SWBSG Commissioned report number SWBSG_1504

[38] Highland Council (2023). Open Map Data – Polling Districts. Available online: Highland Council Polling Districts - data.gov.uk

[39] NatureScot, European Sites [online]. Available at: https://www.nature.scot/professional-advice/protected-areas-and-species/protected-areas/international-designations/european-sites [Accessed July 2022].

Geographic frame of reference	Criteria/ examples
	Regularly occurring moderate to large populations/ numbers of SBL/Local Biodiversity Action Plan (LBAP)[40] species. Species present in regionally important numbers (>1 % of the regional population).
County	A regularly occurring, viable population of an SBL/LBAP species or habitat which is scarce in the County area. Species present in important numbers (>1 % of the county population). Areas identified of conservation interest by organisations such as the Scottish Wildlife Trust and other non-statutory designated sites for nature conservation.
Local	Viable areas of local priority habitat or small areas of such habitats which are essential to maintain the viability of the larger area; identified by the LBAP. A regularly occurring, substantial population of a species scarce in the local area or of local priority. Areas of habitat or species considered to enrich the ecological resource within the local context (e.g. hedgerows).
Site	Areas of heavily modified or managed vegetation of low species diversity or low value as habitat to species of nature conservation interest. Common and widespread species with limited legal protection.
Negligible	No intrinsic nature conservation value associated with habitat or species. Generally, these are areas of hard standing or buildings with no nature conservation interest. Invasive and non-native species which threaten native habitat or species.

Determining Nature of Change

6.3.17 The magnitude of change covers a range of characteristics. For each IOF, the impacts of construction and operational aspects of the Proposed Development and their resultant effects on IOFs are characterised as:

- Adverse or beneficial;
- Permanent or temporary;
- Reversible or irreversible;
- Direct or indirect; and
- Unavoidable or uncertain.

6.3.18 The spatial and temporal extent of potential impacts and effects has also been considered. The spatial magnitude has been quantified in terms of the amount of habitat affected where possible. The following timescales have been defined; however, this would be adapted to reflect the lifecycle of a species or growth rate of a habitat where appropriate:

- Temporary/short term (e.g., construction phase/less than 5 years);
- Medium term (e.g., 5-10 years); and
- Permanent/long term (e.g., for the duration of the operational phase of the development).

Significance

6.3.19 The significance of an effect has been defined as either beneficial or adverse.

[40] Highland Nature Biodiversity Action Plan 2021 – 2026 https://www.highlandenvironmentforum.info/biodiversity/action-plan/

6.3.20 For adverse effects, conservation status defined in the CIEEM EcIA Guidelines was considered as follows:

- Habitats – "*conservation status is determined by the sum of the influences acting on the habitat and its typical species that may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area*".
- Species – "*conservation status is determined by the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area*".
- Designated sites – consideration should be given to whether *"…any processes or key characteristics will be removed or changed; there will be an effect on the nature extent or structure and function of component habitats; or there is an effect on the average population size and viability of component species*."

6.3.21 A beneficial effect was assessed as ecologically significant if the Proposed Development causes:

- Restoration of desired conservation status for a habitat/species population; and/or
- Restoration of a designated site's integrity (where this has been undermined).

6.3.22 A matrix approach has not been applied to the EA in line with CIEEM EcIA Guidelines. This deviates from the wider EcIA methods set out in Chapter 4, Section 4.3 of the CIEEM EcIA Guidelines, which categorises effects using the sensitivity of receptor and magnitude of change as Major, Moderate, Minor or Negligible.

6.3.23 This appraisal of significance has been prepared using professional judgement based on an analysis of the predicted impacts of the Proposed Development, including consideration of the specific parameters outlined above. The significance has been quantified on a geographical scale which does not necessarily equate to the geographical context in which an IOF has been considered important (see **Determining Sensitivity of Receptors and Nature of Change**). For example, although a habitat type may represent 20 % of the resource at a Regional level and hence be considered of value at this scale, the Proposed Development might affect only a portion of the habitat representing 1% of the resource in the Region hence the effect would not be considered significant at this scale. However, that 1 % may represent 20 % of the resource at a Local scale and therefore the effect at this geographic scale would be considered significant.

6.3.24 The word significant is used here in its ordinary meaning of worthy of consideration.

Limitations and Assumptions

6.3.25 The approach taken to inform the baseline was considered proportionate with reference to the type of works associated with the Proposed Development. However, the following limitations apply to the appraisals presented:

- The breeding bird survey represents an adapted version of the CBC methodology with fewer survey visits undertaken. Four survey visits are considered sufficient to provide an estimate of breeding territories to enable an assessment of effects of the Proposed Development to be undertaken. The number and location of breeding territories is an estimate based on the species and behaviours recorded.
- After completion of the Breeding Bird Surveys, the Proposed Development's Site boundary was increased to encompass a larger area of land. The additional area includes earthworks predominantly relating to the associated Proposed Development for the Fanellan 400kV Substation and Converter Station situated on agricultural grazing pasture and therefore considered to be of low ornithological value. A Scarce Breeding Bird Survey overlapping the expanded Proposed Site Development Boundary and 2km study area was conducted for the proposed Beauly-Peterhead 400kV OHL in 2023 and for the proposed Spittal – Loch Buidhe – Beauly 400kv OHL in 2024 with data collected relating to sensitive breeding species (Schedule 1 raptors).
- Flight activity survey effort from the single Vantage Point (VP) achieved 30 hours of survey effort for the breeding season, slightly below the recommended minimum of 36 hours per season. This is not considered a significant

limitation. Thirty hours of survey effort was achieved across a large proportion of the breeding season (April to August) and was considered sufficiently representative of flight activity.

- Bird survey data is typically valid if collected within the last five years or within three years if the populations of key species are known to be changing rapidly, for example, if conditions are likely to change more quickly due to ecological processes or anticipated changes in management. Bird data used to inform this appraisal is wholly within the validity period.

6.4 Baseline Conditions

Desk Study

6.4.1 The following statutory designated sites at European or International level with ornithological interests were identified within the search area:

- Inner Moray Firth Special Protection Area (SPA) and Ramsar (3.3 km north-east) – designated for breeding osprey *Pandion haliaetus* and common tern *Sterna hirundo*, and non-breeding/overwintering greylag goose, goldeneye *Bucephala clangula*, greater scaup *Aythya marila*, teal *Anas crecca* , wigeon *Mareca penelope* , goosander *Mergus merganser*, red-breasted merganser *Mergus merganser*, bar-tailed godwit *Limosa lapponica*, redshank *Tringa totanus*, curlew *Numenius arquata*, oystercatcher, cormorant *Phalacrocorax carbo*, and waterfowl assemblage.
- Moray Firth SPA (6.1 km north-east) – designated for non-breeding common scoter, eider, goldeneye, great northern diver *Gavia immer*, long-tailed duck *Clangula hyemalis*, red-breasted merganser, red-throated diver *Gavia stellata*, scaup, shag *Gulosus aristotelis*, Slavonian grebe *Podiceps auritus*, and velvet scoter *Melanitta fusca*.
- Glen Affric to Strathconon SPA (9.1 km west) – designated for breeding golden eagle *Aquila chrysaetos*.
- North Inverness Lochs SPA (9.4 km south) – designated for breeding Slavonian grebe.
- Cromarty Firth SPA and Ramsar (14 km north-east) – designated for breeding osprey and common tern, and non-breeding/overwintering whooper swan *Cygnus cygnus*, greylag goose, pintail *Anas acuta*, wigeon, greater scaup, red-breasted merganser *Mergus merganser*, bar-tailed godwit, dunlin *Calidris alpina*, knot *Calidris canutus*, curlew, redshank, oystercatcher, and waterfowl assemblage.

6.4.2 There are no statutory designated sites at National or Local level within 2 km of the Site. There are no non-statutory designations or nature conservation sites which overlap with the Proposed Development site or are otherwise connected.

6.4.3 The distribution maps in Mitchell (2012)[31] for foraging geese within 20 km of the Inner Moray Firth SPA/Ramsar and Cromarty Firth SPA/Ramsar show no indication that the Proposed Development Site is within an important foraging area for geese from the European sites. More dense clusters of foraging activity are indicated to the north-east of the Proposed Development.

Breeding Bird Survey

6.4.4 A total of 22 bird species were recorded between April and July 2023, inclusive of two Schedule 1 and/or Annex I listed species. Four species (red kite *Milvus milvus*, crossbill *Loxia curvirostra*, house martin *Delichon urbicum* and swallow *Hirundo rustica*) were only recorded in flight across the Breeding Bird Survey Area.

6.4.5 A summary of the results for all target species recorded is provided below in **Table 6.2.** The distribution of those target species exhibiting territorial behaviour is illustrated in **Figure 6.1.2: Breeding Bird Survey Results** accompanying **Appendix 6.1 Ornithology Baseline.** Target species not confirmed as holding territory are not illustrated on the figure**.**

Table 6.2: Breeding Bird Survey Results – All Species

Species	Scientific name	Count	Annex I	Schedule 1	BoCC	SBL
Lapwing	*Vanellus vanellus*	1 T	-	-	Red	Yes
Skylark	*Alauda arvensis*	3 T	-	-	Red	Yes
House martin	*Delichon urbicum*	1 F	-	-	Red	-
Starling	*Sturnus vulgaris*	15 I	-	-	Red	Yes
Mistle thrush	*Turdus viscivorus*	12 I	-	-	Red	-
Tree sparrow	*Passer montanus*	1 I	-	-	Red	Yes
House sparrow	*Passer domesticus*	19 I	-	-	Red	Yes
Linnet	*Linaria cannabina*	5 I	-	-	Red	Yes
Yellowhammer	*Emberiza citrinella*	3 T	-	-	Red	Yes
Oystercatcher	*Haematopus ostralegus*	3 I	-	-	Amber	-
Common gull	*Larus canus*	8 I	-	-	Amber*	-
Rook	*Corvus frugilegus*	44 I	-	-	Amber	-
Willow warbler	*Phylloscopus trochilus*	5 I	-	-	Amber	-
Whitethroat	*Curruca communis*	1 I	-	-	Amber	-
Wren	*Troglodytes troglodytes*	2 I	-	-	Amber	-
Song thrush	*Turdus philomelos*	1 T	-	-	Amber	Yes
Dunnock	*Prunella modularis*	1 I	-	-	Amber	-
Meadow pipit	*Anthus pratensis*	12 I	-	-	Amber	-
Bullfinch	*Pyrrhula pyrrhula*	5 I	-	-	Amber	Yes
Red Kite	*Milvus milvus*	1 F	Yes	Yes	Green	Yes
Barn swallow	*Hirundo rustica*	1 F	-	-	Green	-
Common crossbill	*Loxia curvirostra*	2 F	-	Yes	Green	-
Key to Count Codes. T: Number of estimated territories I: Number of individuals. F: Number of individuals seen in flight only						

Flight Activity Survey

6.4.6 Flights are shown on **Figure 6.1.3: Flight Activity Survey Results** accompanying **Appendix 6.1 Ornithology Baseline**. Flight activity surveys between April 2023 and August 2023 recorded six species crossing the CRA across a total of 39 flights:

- Greylag goose (one flight);
- Oystercatcher (one flight);
- Lapwing five flights);
- Herring gull *larus argentatus* (three flights);
- Osprey (13 flights); and
- Red kite (16 flights).

6.4.7 An additional notable species recorded during the flight activity surveys beyond the CRA was Honey-buzzard *Pernis apivorus* with two flights. This species is discussed in the context of a likely breeding territory in the wider area.

Scarce Breeding Bird Survey

6.4.8 Scarce Breeding Bird Surveys were conducted for the proposed Beauly-Peterhead OHL (2023) and Spittal – Loch Buidhe – Beauly 400kv OHL (2024), the survey areas of which overlapped the updated Proposed Development footprint and a 2km study area. The surveys targeted sensitive breeding Schedule 1 raptors, of which three species were confirmed as nesting: osprey (SPA qualifying - two nest sites in 2023, two nest sites in 2024); red kite (one nest site in 2023, one nest site in 2024); and peregrine (one nest site in 2023). These results are illustrated in **Confidential Figure 6.2.1** and summarised in **Appendix 6.2 Confidential Schedule 1 Raptors Baseline**.

6.4.9 Additionally, there were flight observations of the Schedule 1 species honey-buzzard within the study area during surveys for the proposed Beauly-Peterhead OHL. Although breeding was not confirmed, flight activity from this species indicated a territory was established within the wider area surrounding the Proposed Development. This activity involved three observations of the same individual on a single date in June 2023. One of the flights involved 'wing clapping' display indicative of territorial behaviour. Further to this, an apparent pair of honey-buzzard were watched in flight together during VPs to inform the assessment of the Proposed Development in August 2023.

Future Baseline

6.4.10 Generally, the long-term trend for the Schedule 1 raptors relevant to the Proposed Developments EZoI, osprey, peregrine and red kite, has comprised increasing populations following a reduction in historic persecution, and in the case of red kite, a re-introduction scheme.

6.4.11 Assuming no significant land use changes e.g., large scale felling of woodland, there may be a short-term increase in the Schedule 1 raptor population relevant to the Proposed Developments EZoI. Any further increase would be expected to level off in the long term, given population constraints such as the availability of suitable nest sites and foraging habitat.

6.4.12 Overall, the future population of Schedule 1 raptors within the Proposed Developments EZoI is predicted to remain stable with the potential for localised changes in nest site locations from year to year as species move between alternative nest sites. Use of alternative nest sites has the potential to bring breeding pairs of Schedule 1 raptors within the Proposed Developments EZoI for disturbance and displacement during the construction phase, where those pairs had previously been outwith the EZoI.

6.5 Sensitive Receptors

6.5.1 **Table 6.3** below highlights those receptors that have been taken forward as IOF's and those receptors that have been scoped out. A rationale is provided for scoping in/out.

Table 6.3: Receptors Scoped In and Out

Feature	Geographical Context	Scoped in/Out	Rationale
Inner Moray Firth Special Protection Area (SPA) and Ramsar	International	In (Osprey only)	Most of the qualifying interests of the European site are specialist marine/estuarine species for which the Site and surrounding area comprises wholly unsuitable habitat. Greylag goose populations potentially linked to the European site could forage within agricultural fields such as those within and surrounding the Site. However, distribution maps in Mitchell (2012)[31] for foraging geese within 20 km of the European site show no indication that the Proposed

Feature	Geographical Context	Scoped in/Out	Rationale
			Development is within an important foraging area for geese. More dense clusters of foraging activity are indicated to the north-east of the Site. Further to this, geese were recorded on only one occasion during the proposed 400kV Beauly-Peterhead OHL scheme with overlapping study areas. A flock of eight greylag geese was recorded in flight only during the flight activity surveys and not seen to land, with no indication of the Site being utilised as a foraging area by greylag goose or other geese species. Ospreys nesting within the Proposed Development's EZoI could be linked to qualifying populations of the European site based on the predicted maximum foraging range for the species[41]. Therefore, osprey is taken forward for assessment as an IOF as a qualifying interest of the European site.
Moray Firth SPA	N/A	Out	The qualifying interests of the European site are specialist marine/estuarine species for which the Site and surrounding area comprises wholly unsuitable habitat.
Glen Affric to Strathconon SPA	N/A	Out	At approximately 9.1 km from the European site, the Site is just beyond the maximum predicted foraging range for golden eagle of 9 km[41]. In addition, the Site and surrounding area provide foraging habitat of low suitability for this species.
North Inverness Lochs SPA	N/A	Out	The sole qualifying interest, Slavonian grebe, is a specialist aquatic species for which the Site and immediate surrounding area are wholly unsuitable.
Cromarty Firth SPA and Ramsar	International	In (Osprey only)	Most of the qualifying interests of the European site are specialist marine/estuarine species for which the Site and surrounding area comprises wholly unsuitable habitat. Two of the qualifying species of wildfowl could use habitat within and surrounding the Site: • Whooper swan could forage in fields within and surrounding the Site. However, whooper swan has a core foraging range of less than 5 km[41], the European site is approximately 14 km away. • Greylag goose populations potentially linked to the European site could forage within agricultural fields such as those within and surrounding the Site and have a predicted maximum foraging range of 20km[41]. However, distribution maps in Mitchell (2012)[31] for foraging geese within 20 km of the European site show no indication that the Proposed Development is within an important foraging area for geese. More dense clusters of foraging activity are indicated to the north-east of the Site. Further to this, geese were recorded on only one occasion during the proposed 400kV Beauly-Peterhead OHL scheme with overlapping study areas. A

[41] SNH (2016). Assessing Connectivity with Special Protection Areas (SPAs. https://www.nature.scot/sites/default/files/2022-12/Assessing%20connectivity%20with%20special%20protection%20areas.pdf

Feature	Geographical Context	Scoped in/Out	Rationale
			flock of eight greylag geese was recorded in flight only during the flight activity surveys and not seen to land, with no indication of the Site being utilised as a foraging area by greylag goose or other geese species. Ospreys nesting within the Proposed Developments EZoI could be linked to qualifying populations of the European site based on the predicted maximum foraging range for the species[41]. Therefore, osprey is taken forward for assessment as an IOF as a qualifying interest of the European site.
Osprey (non-SPA populations)	Regional	In	Osprey is a Schedule 1 species and SBL species. The Rare Breeding Birds Panel (RBBP) report for 2021 (Eaton et al, 2024)[42] gives an estimate 229 pairs in Scotland for that year, including 189 confirmed pairs. In 2021, a total of 71 pairs were present in Highland, the region applicable to the Proposed Development. Of the 71 pairs, 55 pairs were confirmed as breeding. Two pairs of ospreys were recorded nesting in the Proposed Development's 2 km raptor study area in 2023 and 2024. Two pairs are not considered a significant contribution to the total estimate of the Scottish population (<1 %). Two pairs comprise approximately 3 % of the total pairs estimated for Highland, the region relevant to the Proposed Development. Therefore, the contribution to the regional population is >1 % and considered significant at a regional level. Osprey is scoped in as of regional importance.
Red kite	Regional	In	Red kite is a Schedule 1 species, a SBL species and an Annex I species. Results from the Scottish Raptor Monitoring Scheme (SRMS) for 2022[43] show 298 pairs occupying home ranges in Scotland and 44 pairs occupying home ranges in the Highland region. There was a single confirmed breeding pair of red kites within the Proposed Development's 2 km raptor study area in 2023 and 2024. However, the confirmed nest sites were at different locations in each year and those locations were beyond the predicted maximum distance of 1 km for alternative nest sites used by the same pair[43]. This assessment assumes a 'worst case scenario' where two pairs of red kites could be within the Proposed Development's EZoI. Two pairs are not considered a significant contribution to the total estimate of the Scottish population (<1 %). Two pairs comprise approximately 4 % of the total pairs estimated for Highland, the region relevant to the Proposed Development. Therefore, the contribution to the regional

[42] Eaton et al and the Rare Breeding Birds Panel 2023. Rare breeding birds in the United Kingdom. 2021. British Birds 116. 615-676

[43] Scottish Raptor Monitoring Scheme Website https://raptormonitoring.org/srms-species/accipitriformes/red-kite

Feature	Geographical Context	Scoped in/Out	Rationale
			population is >1 % and considered significant at a regional level. Red kite is scoped in as of regional importance.
Peregrine Falcon	Regional	In	Peregrine Falcon is a Schedule 1 and SBL species. The RBBP report for 2021 (Eaton et al, 2023) [42] gives an estimate 350 pairs in Scotland for that year, including 259 confirmed pairs. In 2021, a total of 25 pairs were present in Highland, the region applicable to the Proposed Development. Of the 25 pairs, 11 pairs were confirmed as breeding. There was a single confirmed breeding pair of peregrines within the Proposed Development's 2 km raptor study area in 2023. One pair is not considered a significant contribution to the total estimate of the Scottish population (<1 %). One pair comprises approximately 4 % of the total pairs estimated for Highland, the region relevant to the Proposed Development. Therefore, the contribution to the regional population is >1 % and considered significant at a regional level. Peregrine is scoped in as of regional importance.
Honey-buzzard	National	In	Honey-buzzard is a Schedule 1 species and SBL species. There was no confirmed breeding for this species. However, flight activity from this species indicated a territory was established within the wider area surrounding the Site. One of the flights involved 'wing clapping' display indicative of territorial behaviour. Considering that honey-buzzard can display over a large area and make long distance foraging flights, any nest site associated with the territorial behaviour could be outwith the Proposed Developments EZoI. However, a nesting attempt within the Proposed Development's EZoI in 2023 cannot be fully ruled out based on the available evidence. The RBBP report for 2021 (Eaton et al, 2023)[42] gives an estimate of 58 pairs in Scotland for that year, including 17 confirmed breeding pairs. In 2021, a total of 20 pairs were present in Highland, the region applicable to the Proposed Development. Of the 20 pairs, five pairs were confirmed as breeding. Assuming one breeding pair were present within the Proposed Development's EZoI, one pair would comprise approximately 2 % of the national (Scottish) population and therefore a significant contribution to the total estimate of the Scottish population (>2 %). Honey-buzzard is scoped in as of National importance.
Breeding bird assemblage: non-raptors	Neighbourhood	Out	The Site mainly comprises grazing pasture considered of low value for ornithological interests. Most of the 22 species recorded within the Site and a surrounding 100 m buffer during the BBS were passerines (songbirds). Four species of

Feature	Geographical Context	Scoped in/Out	Rationale
			elevated conservation concern (red-listed BoCC5, SBL) were found to be holding breeding territories within the Site and a 100 m buffer: lapwing (one territory), song thrush (one territory), skylark (three territories), and yellowhammer (three territories). An additional six red-listed species were recorded foraging within or over the Site: house martin, starling, mistle thrush, tree sparrow, house sparrow, and linnet. Although red listed, the species confirmed as holding territory have large UK and Scottish populations in the context of the low number of territories recorded during the BBS. UK breeding population estimates[44] for the species confirmed as holding territory are lapwing (97, 500 pairs), song thrush (1,300,000 territories), skylark (1,550,000 territories), and yellowhammer (700,000 territories). Further to this, only a relatively small area mainly comprising grazing pasture will be permanently lost to Proposed Development infrastructure and a small number of trees along the edge of Rutle Wood. Considering the above, the breeding bird assemblage (non-raptors) is scoped out.

6.6 Effects Scoped in and Out

6.6.1 The following effects were scoped in for the construction phase:

- Loss of nesting and foraging habitat. Permanent loss of nest sites and foraging resources, at least on a short-term basis (one breeding season) while birds relocate. Also, potential long-term implications (reduced breeding success) as this effect increases competition for resources with other breeding Schedule 1 raptors in the wider area.
- Disturbance and displacement from foraging habitat. The construction programme is anticipated to last three years, so this effect could occur on a medium-term basis with birds being displaced from parts of their home range across that three-year period. This effect increases competition for resources with other breeding Schedule 1 raptors in the wider area potentially reducing breeding success for several pairs.
- Disturbance and displacement from nest sites. Disturbance from a nest site, at least for one breeding season with a temporary reduction in recruitment of fledged young into Schedule 1 raptor populations. Schedule 1 raptors often have alternative nest sites within their home ranges. Therefore, an alternative nest site may be outwith a EZoI for disturbance and displacement effects from the Proposed Development. In a worst-case scenario, alternative nest sites may also be within a EZoI for disturbance and displacement effects from the Proposed Development, resulting in longer-term displacement.

6.6.2 The following effect was scoped in for the operational phase:

- Collision risk. Sensitive species (Schedule 1 raptors) colliding with the OHL resulting in mortality and affecting population levels.

6.6.3 The following effects were scoped out:

- Construction pollution events. The IOFs taken forward for assessment are Schedule 1 raptors nesting in forestry habitat. Data from 2023 and 2024 indicates that nest sites for Schedule 1 raptors are likely to be a significant

[44] Avian Population Estimates Panel (APEP 4, 2020). Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, D.A. & Noble, D. Population estimates of birds in Great Britain and the United Kingdom. British Birds 113: 69–104

distance from the Site. Considering that any pollution events that may occur are likely to be localised and pollution prevention measures as part of embedded mitigation within the Construction Environmental Management Plan (CEMP) will be adopted to avoid such pollution events, significant effects from pollution are highly unlikely.

- Operational disturbance and displacement. The operational phase of the Proposed Development is anticipated to involve occasional maintenance involving a low number of personnel and vehicles that would not represent a material impact upon the IOFs.

6.7 Assessment of Effects, Mitigation and Residual Effects

Construction Phase

Embedded Impact Avoidance and Mitigation

6.7.1 Embedded mitigation includes tried and tested measures documented within the Applicant's GEMPs and SPPs (which have been agreed with NatureScot); see **Appendix A GEMPs** and **Appendix B SPPs**. The Applicant will require that the protocols detailed within these documents are implemented successfully by the employed contractors as part of the CEMP.

6.7.2 Where a receptor is particularly sensitive or mitigation deviates, even slightly, from GEMPS/SPPs this mitigation may be included in the additional mitigation section.

6.7.3 Where species are potentially present, but have been scoped out from this appraisal, SSEN hold a Species Protection Plan (SPP) which will be adhered to regardless of appraisal in this EA.

6.7.4 The Bird SPP held by the Applicant is applicable to IOFs in relation to the Proposed Development's construction phase.

6.7.5 All additional mitigation will be captured in and delivered through the Principal Contractor's CEMP.

Description of Effects

6.7.6 This section details the appraisal of IOFs during construction and operation. **Table 6.4** describes the assessment undertaken for IOFs with respect to potential impacts from the Proposed Development during construction.

6.7.8 Table 6.5 describes the assessment undertaken for IOFs with respect to potential impacts from the Proposed Development during operation. Only one operational effect is considered relevant to the IOFs: collision risk.

6.7.9 The appraisal considers embedded mitigation outlined above and any additional mitigation measures which may be required.

Table 6.4: Assessment of the Significance of Effects During Construction

IOF	Potential Impacts	Development Activity	Details of ecological effect	Assessment
Osprey (including European sites)	Habitat loss	Construction of OHL Towers including site preparation.	Removal of trees to facilitate construction of the Proposed Development which are potentially suitable for nesting osprey.	No adverse effects are anticipated. Data from 2023 and 2024 shows that the nearest osprey nest was beyond the maximum predicted disturbance distance based on studies [35]. Any habitat loss because of the Proposed Development affecting potential nesting habitat is anticipated to be restricted to minor tree felling where small sections of the Site overlap adjoining woodland. Considering the location of osprey nests during the last two years, it is highly unlikely that the relatively low amount of tree clearance to facilitate the Proposed Development would encroach on a nest site. Construction would require the removal of individual trees and groups of trees within agricultural land. In addition, a small section along the perimeter of Ruttle Wood would be removed and approximately half of the young woodland block at Bredaig in the south-west corner of the Site. The Bredaig plantation is a very young coniferous plantation, unsuitable for breeding raptors. This effect is deemed not significant.
Osprey (including European sites)	Disturbance and displacement from foraging habitat	Construction of OHL Towers including site preparation.	Audial and visual disturbance from construction works preventing osprey from using an important foraging resource.	Considering disturbance and displacement from foraging habitat, ospreys forage on fish taken from freshwater and estuarine environments. Suitable foraging habitat is absent from the Site and limited in the immediate surrounding area. A potentially suitable small lochan is approximately 370 m from the Site. However far more extensive foraging habitat comprising the Beauly River is further away from the Site (>700 m) and closer to the osprey nest sites recorded in 2023 and 2024. There is no requirement for osprey using the nest sites recorded in 2024 and 2023 to cross or

IOF	Potential Impacts	Development Activity	Details of ecological effect	Assessment
				fly near the Site to reach foraging habitat within the two relevant European sites which are in the opposite direction from the Site. This effect is deemed not significant.
Osprey	Disturbance from a nest site potentially resulting in abandonment of a nest, reducing recruitment of young into the population.	Construction of OHL Towers including site preparation.	Audial and visual disturbance from construction works.	Considering disturbance and displacement from nest sites, osprey nest sites recorded in 2023 and 2024 were beyond the maximum predicted disturbance distance for the species (750 m)[45] from the Site. Potential disturbance and displacement effects will be further reduced by the local topography, the Site is situated on the opposite side of a forested hill to the osprey nest sites which are further screened due to their locations in the Beauly River gorge. The topography is predicted to eliminate disturbance from visual stimuli and to significantly reduce noise disturbance. The effect has been deemed not significant.
Red kite	Habitat loss	Construction of OHL Towers including site preparation.	Removal of trees to facilitate construction of the Proposed Development which are potentially suitable for nesting red kite.	Any habitat loss affecting potential nesting habitat because of the Proposed Development is anticipated to be restricted to small areas of tree felling where small sections of the Site overlap with adjoining woodland and trees (mainly immature specimens) within the Site of low suitability for nesting raptors .Considering the location of red kite nests during the last two years, it is highly unlikely that any tree clearance to facilitate the Proposed Development would encroach on a nest site given their significant distances from the Site. The effect has been deemed not significant.
Red kite	Disturbance and displacement from foraging habitat	Construction of OHL Towers including site preparation.	Audial and visual disturbance from construction works preventing red kite from using an important foraging resource.	Considering loss of foraging habitat and disturbance and displacement from foraging habitat, red kite forage in a variety of habitats including upland moorland, woodland and farmland. Grazing pasture within the Site is suitable foraging habitat but represents a relatively small area in the context of an extensive

[45] Goodship, N.M. and Furness, R.W. (MacArthur Green) 2022. Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283.

IOF	Potential Impacts	Development Activity	Details of ecological effect	Assessment
				mosaic of woodland and farmland in the wider area surrounding the Site. The effect has been deemed not significant.
Red kite	Disturbance from a nest site potentially resulting in abandonment of a nest, reducing recruitment of young into the population.	Construction of OHL Towers including site preparation.	Audial and visual disturbance from construction works.	Active nest sites for red kite in 2023 and 2024 were beyond the predicted maximum range of 300 m for disturbance from construction activities[30]. Further to this, topography is predicted to eliminate disturbance from visual stimuli and to significantly reduce noise disturbance. The red kite nest site in 2024 was on the opposite slope of a hill to the Site. The effect has been deemed not significant.
Peregrine falcon	Habitat loss	Construction of OHL Towers including site preparation.	Removal of trees to facilitate construction of the Proposed Development which are potentially suitable for nesting peregrine falcon.	Considering habitat loss, peregrines generally nest on rocky out crops and cliffs when holding territory in rural areas such as those in the wider area surrounding the Site. Any habitat loss because of the Proposed Development is anticipated to be restricted to minor tree felling where parts of the Site boundary overlap adjoining woodland and the loss of grazing pasture within the Site to accommodate Proposed Development infrastructure. All these habitats are wholly unsuitable for peregrine nest sites. The effect has been deemed not significant.
Peregrine falcon	Disturbance and displacement from foraging habitat	Construction of OHL Towers including site preparation.	Audial and visual disturbance from construction works preventing peregrine falcon from using an important foraging resource.	Considering loss of foraging habitat and disturbance and displacement from foraging habitat, peregrine falcons hunt a variety of prey species in a variety of habitats. The Site and habitats alongside could be used by peregrine falcon as they are likely to have woodpigeon, a favoured prey species, considering suitable habitat for that species comprising woodland and farmland is present. However, flight activity surveys in 2023 did not record any peregrine flights, suggesting that the Site and immediate surrounding area is not an important foraging resource for peregrine. The effect has been deemed not significant.

IOF	Potential Impacts	Development Activity	Details of ecological effect	Assessment
Peregrine falcon	Disturbance from a nest site potentially resulting in abandonment of a nest, reducing recruitment of young into the population.	Construction of OHL Towers including site preparation.	Audial and visual disturbance from construction works.	A peregrine falcon nest recorded in 2023 was outwith the disturbance range predicted for the species[30]. Potential disturbance and displacement effects will be further reduced by the local topography, the Site is situated on the opposite side of a forested hill to the peregrine nest site. The topography is predicted to eliminate disturbance from visual stimuli and to significantly reduce noise disturbance. The effect has been deemed not significant.
Honey-buzzard	Habitat loss	Construction of OHL Towers including site preparation.	Removal of trees to facilitate construction of the Proposed Development which are potentially suitable for nesting honey-buzzard.	This species was not confirmed breeding in the Proposed Developments EZoI although observations from the baseline data in 2023 indicate a territory was being held in the wider area surrounding the Site. One of the flights involved 'wing clapping' display indicative of territorial behaviour. Honey-buzzards can display over a large area, therefore display activity near the Site does not automatically indicate a nest site in proximity to the Site. Further to this, honey-buzzards are a secretive species that spend large amounts of time under the woodland canopy. In Scotland, nest sites are typically deep within mature coniferous forestry. Based on their ecology, it is predicted that a nest site would be a significant distance from the Site (several hundred metres or more). Any habitat loss affecting potential nesting habitat because of the Proposed Development is anticipated to be restricted to small areas of tree felling where small sections of the Site boundary overlaps adjoining woodland and trees within the Site of low suitability for nesting raptors (mainly immature tree specimens). Considering the predicted location of nest sites based on the species ecology, it is highly unlikely that the low amount of tree clearance required to facilitate the Proposed Development would encroach on a nest site. Further to this, embedded mitigation through a bird SPP will account for any change in nest site locations

IOF	Potential Impacts	Development Activity	Details of ecological effect	Assessment
				and will include pre-construction surveys and implementation of protection zones where required. The effect has been deemed not significant.
Honey-buzzard	Disturbance and displacement from foraging habitat	Construction of OHL Towers including site preparation.	Audial and visual disturbance from construction works preventing honey-buzzard from using an important foraging resource.	Considering loss of foraging habitat and disturbance and displacement from foraging habitat, honey-buzzard typically forages within woodland and woodland clearings, grazing pasture dominating the Site does not provide suitable habitat and is unlikely to be an important resource. The effect has been deemed not significant.
Honey-buzzard	Disturbance from a nest site potentially resulting in abandonment of a nest, reducing recruitment of young into the population.	Construction of OHL Towers including site preparation.	Audial and visual disturbance from construction works.	Considering disturbance and displacement from a nest site, no nest sites have been confirmed to draw firm conclusions. However, based on the species ecology discussed above, a nest site is predicted to be a minimum of several hundred metres from the Site and likely to be screened from works by forestry and the local topography. As a precaution, if pre-construction surveys and construction monitoring indicate a nest site is within the Proposed Developments EZoI, embedded measures within the bird SPP applicable to all works activities will be implemented including disturbance protection zones and seasonal working restrictions where required. The effect has been deemed not significant.

Table 6.5: Assessment of the Significance of Effects During Operation

IOF	Potential Impacts	Development Activity	Details of ecological effect	Assessment
Osprey (including European sites)	Osprey colliding with OHL resulting in mortality and affecting population levels.	Operational OHL	OHL wires not visible to osprey undertaking commuting flights across the Site resulting in collision risk.	There is an existing OHL at the site which will be diverted both temporarily and permanently as part of the Proposed Development. As the OHL is already in situ close to the location of the temporary diversion, ospreys and other raptor species may have a degree of habituation to it. However, the permanent diversion will result in six new towers at a new location unfamiliar to commuting raptors. In addition, the maximum tower height for the permanent OHL diversion, based on current assessments is 58.38 m which is a significant height and increases the potential for collision risk i.e., at a height of nearly 60 m the OHL is more likely to be in the collision risk zone for raptors on commuting flights than an OHL of a lower height. A total of 13 osprey flights crossed the CRA with seven fights at risk height. Based on the frequency of flights across the CRA including more than half the flights at risk height, there is potential for significant, adverse, long-term effects to breeding osprey populations in the wider area. Without additional mitigation, significant effects are predicted. Therefore, Bird Flight Divertors (BFD's) will be installed along the permanent diversion and as a precaution, on the temporary diversion. The temporary diversion is predicted to be in place for 9 months to a year. The temporary diversion will be in a similar location to the existing OHL footprint, but it is uncertain how habituated commuting raptors are to the existing OHL. Further details of the additional mitigation are provided in **Impact Avoidance, Mitigation and/or Compensation Section**.
Red kite	Red kite colliding with OHL resulting in mortality and affecting population levels.	Operational OHL	OHL wires not visible to red kite undertaking commuting flights across the Site resulting in collision risk.	Red kite recorded the most flights across the CRA of all species recorded during the flight activity surveys with 16 flights, nine of which were at risk height.

IOF	Potential Impacts	Development Activity	Details of ecological effect	Assessment
				Considering the frequency of flights across the CRA and number at risk height, the same conclusion for the appraisal of effects as for osprey is applied. Without additional mitigation measures, significant, adverse, long-term effects are predicted. The additional mitigation will be the installation of BFD's on both permanent and temporary OHL diversions as detailed further in **Impact Avoidance, Mitigation and/or Compensation Section**.
Peregrine falcon	Peregrine falcon colliding with OHL resulting in mortality and affecting population levels.	Operational OHL	OHL wires not visible to peregrine undertaking commuting flights across the Site resulting in collision risk.	There were no flights across the CRA for peregrine. Based on this pattern of flight activity, significant adverse effects are unlikely. Should this species flight activity change in future years, additional mitigation proposed for osprey and red kite (BFD's) will reduce collision risk to non-significant levels for peregrine as well.
Honey-buzzard	Honey-buzzard colliding with OHL resulting in mortality and affecting population levels.	Operational OHL	OHL wires not visible to honey-buzzard undertaking commuting flights across the Site resulting in collision risk.	There were no flights across the CRA for honey-buzzard. Based on this pattern of flight activity, significant adverse effects are unlikely. Should this species flight activity change in future years, additional mitigation proposed for osprey and red kite (BFD's) will reduce collision risk to non-significant levels for honey-buzzard as well.

Impact Avoidance, Mitigation and/or Compensation

6.7.10 Additional mitigation is required to ensure no significant effects during the operational phase through collision risk to osprey and red kite. BFD's will be installed on both the permanent OHL diversion and temporary OHL diversion.

6.7.11 The conductors for the Proposed Development are configured into bundles of two, supported by spacers. This configuration is considered to be more visible to birds than single conductors and there is currently no approved BFD for use on this configuration. As a result, where line marking has been identified as additional mitigation, this relates to installing BFDs on the earth wire. Technical information on BFD's can be found in Prinsen et al., 2011[46]. The following summary of key considerations for installation of BFD's is provided:

- Markers should be installed as close together as possible (at least every 5-10 m on power lines);
- Markers should be designed for maximum visibility in different weather and light conditions, within the limits of a design approved for use on the network;
- All BFD's shall be maintained in line with operations standards to minimise the potential risk to birds. This includes replacing BFD's that have fallen off, been damaged or are otherwise not functioning for the purpose they were intended to. As per operations processes, all defects on BFD's shall be raised through a defect reporting system and operations shall address defects within a defect programme of works in line with planned outages. Defects shall be addressed within two OPEX budget periods i.e., 5-10 years, to enable operations to make appropriate access and safety arrangements and secure required budget.
- Post installation, monitoring will be undertaken. OHL inspections are carried out by operations and include inspections of all BFD's. OHL Inspections are carried out every six years aligning with regulatory budget periods. Manufacturers specifications for BFD's are 20 years unless otherwise stated; real time failure rate observed by Operations is 15 years. Based on this, OHL Inspections of six years are considered appropriate. During these inspections, a suitably qualified person would check for bird strike mortalities beneath the OHL.
- Reactive monitoring may be undertaken on a more frequent basis where a specific higher risk has been identified e.g. increased line strikes, reporting of bird carcass in the areas.
- Several nesting Schedule 1 raptor species have been recorded within 2 km of the Proposed Development and survey data shows numerous flights for osprey and red kite, including inexperienced young birds, across the Proposed Development footprint. Considering this, it is recommended that a slightly more frequent rate of inspection by operations is undertaken, to include a check in year three, year six and six years thereafter.

Residual Effects

6.7.12 There are no significant residual effects predicted during the construction and operational phases.

Cumulative Effects

6.7.13 The following proposed projects are considered most likely to contribute to cumulative effects given the nature of the works involved, their scale, and location alongside the Proposed Development:

- The Spittal-Beauly 400 kV OHL adjacent to the Proposed Development;
- The Beauly-Peterhead 400 kV OHL adjacent to the Proposed Development;
- The Western Isles Link HVDC underground cable, adjacent to the Proposed Development;

[46] Prinsen, H.A.M., Smallie, J.J., Boere, G.C. & Píres, N. (Compilers), 2012. Guidelines on How to Avoid or Mitigate Impact of Electricity Power Grids on Migratory Birds in the African-Eurasian Region. AEWA Conservation Guidelines No. 14, CMS Technical Series No. 29, AEWA Technical Series No. 50, CMS Raptors MOU Technical Series No. 3, Bonn, Germany.

- Fanellan 400 kV Substation and Converter Station ('Fanellan400 kV Hub'), the Proposed Development connects to this substation.
- Black Bridge replacement works to facilitate the heavy loads, including Abnormal Indivisible Loads (AILs) to site for the associated Fanellan 400 kV Substation and Converter Station. Structural options are currently being reviewed with Highland Council and, where required, will be progressed under a separate application.

6.7.14 All the effects from the Proposed Development alone were determined to be non-significant and therefore unlikely to contribute to cumulative effects.

6.7.15 To facilitate construction of the proposed Spittal-Beauly 400 kV OHL, part of Ruttle Wood is required to be felled. The habitat loss from that proposed project alone has the potential to cause significant effects to Schedule 1 raptors. However, minor felling to facilitate construction of the Proposed Development to which this application relates, is unlikely to contribute significantly to this effect, particularly as much of the proposed felling involves suboptimal woodland for nesting raptors.

6.7.16 It is expected that all cumulative projects will implement the same measures as the Proposed Development and this process will be efficient and coordinated considering the same developer is responsible for the Proposed Development and the above projects. Further to this, it is unlikely that all construction activities to facilitate the Proposed Development and above projects will occur simultaneously. Construction of the proposed new OHLs would occur sequentially.

6.8 Summary

6.8.1 The following sensitive ornithological receptors (referred to as IOFs) within the Site and EZoIs were identified:

- Osprey;
- Red kite;
- Peregrine; and
- Honey-buzzard.

6.8.2 This Section has considered how, in the absence of mitigation, the Proposed Development's construction phase could affect the above IOFs through habitat loss, disturbance and displacement from nest sites and foraging areas. The Section also considered how the Proposed Developments operational phase could result in significant collision risk to osprey and red kite.

6.8.3 Through the successful application of embedded and industry-standard mitigations (including the Applicant's GEMPs and SPPs) for the construction phase and additional mitigation during the operational phase, this Section concludes that the Proposed Development would not result in a significant residual effect on the IOFs.

7. ECOLOGY AND NATURE CONSERVATION

7.1 Introduction

7.1.1 This Section presents the appraisal of the potential effects on ecology resulting from the Proposed Development. The Section and its associated figures and appendices are not intended to be read as a standalone appraisal and reference should be made to the introductory sections of this EA Report (**Sections 1 to 4**).

7.1.2 Additional information which supports this Section is presented in the following confidential technical appendices and their associated figures:

- Appendix 7.1 Confidential Badger Technical Appendix[47]

7.2 Scope and Baseline Methodology

Scope of the Appraisal

Introduction

7.2.1 This Section focuses on the effects of the construction and operational phase of the Proposed Development and subsequent decommissioning of parts of the existing OHL on Important Ecological Features (IEFs). The method of appraisal aligns with the Ecological Impact Assessment (EcIA) guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM)[48] (hereafter the 'CIEEM EcIA Guidelines').

Legislation, Policy and Guidance

7.2.2 The legislative framework applicable to the appraisal comprises the following:

- UK Withdrawal from the European Union (Continuity) (Scotland) Act 2021;
- Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna (the Habitats Directive);
- Conservation (Natural Habitats &c.) Regulations 1994 (as amended) (the Habitats Regulations);
- Wildlife and Countryside Act 1981 (as amended);
- Nature Conservation (Scotland) Act 2004 (as amended);
- Wildlife and Natural Environment (Scotland) Act 2011 (as amended);
- Protection of Badgers Act 1992;
- Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003;
- Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR);
- Wild Mammals (Protection) Act 1996;
- Animals and Wildlife (Penalties, Protections and Powers) (Scotland) Act 2020;
- The Electricity Works (Environmental Impact Assessment) (Scotland) regulations 2017;
- Planning (Scotland) Act 2019; and
- Electricity Act 1989.

[47] Due to the on-going persecution of badgers, information relating to this species is considered sensitive. Survey methods and results with regards to badgers are reported on separately in confidential document.

[48] CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester. Available at: https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.2-April-22-Compressed.pdf

7.2.3 The following policy documents have been considered in defining the scope of the appraisal:

- EU Biodiversity Strategy for 2030[49] ;
- Scottish National Planning Framework 4 (NPF4)[50] , specifically:
- Policy 3: Biodiversity;
- Policy 4: Natural places;
- Policy 5: Soils; and
- Policy 6: Forestry, woodland and trees.
- Scottish Biodiversity Strategy (SBS) to 2045[51] which, as a draft, sets out an ambition for Scotland to be Nature Positive by 2030 and to have restored and regenerated biodiversity by 2045. This builds upon Scotland's Biodiversity: it's in your hands[52] – a strategy for conserving biodiversity in Scotland up to 2030; and the 2020 Challenge for Scotland's biodiversity[53] – a plan for how to achieve the outcomes of the European Biodiversity Strategy 2020 and UN Aichi targets. With reference to Scottish biodiversity strategy post-2020: statement of intent[54]. The SBS is implemented locally through Local Biodiversity Action Plans;
- Scottish Biodiversity List (SBL)[55] of flora, fauna and habitats considered of principal importance for the conservation of biodiversity;
- Pollinator Strategy for Scotland 2017-2027[56];
- Code of Practice on Non-Native Species[57];
- Highland Nature: Biodiversity Action Plan 2021-2026[58].

7.2.4 Guidance for the appraisal as set out by CIEEM are as follows:

- CIEEM Guidelines for Preliminary Ecological Appraisal[59]; and
- CIEEM EcIA Guidelines[60].

[49] European Commission, Directorate-General for Environment (2021). EU Biodiversity Strategy for 2030: bringing nature back into our lives. Publications Office of the European Union. Online at: https://data.europa.eu/doi/10.2779/677548 , accessed October 2023.

[50] Scottish Government (2023). National Planning Framework 4. Published by the Scottish Government, Edinburgh. Online at: https://www.gov.scot/publications/national-planning-framework-4/documents/ , accessed October 2023.

[51] Scottish Government (2022). Scottish Biodiversity Strategy to 2045 (draft). Online at: https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2022/12/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/documents/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/govscot%3Adocument/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland.pdf , accessed October 2023.

[52] Scottish Executive (2004). Scotland's Biodiversity: It's In Your Hands. Edinburgh. Online at: https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy , accessed October 2023.

[53] Scottish Government (2013). 2020 Challenge for Scotland's Biodiversity. Edinburgh. Online at: https://www.gov.scot/publications/2020-challenge-scotlands-biodiversity-strategy-conservation-enhancement-biodiversity-scotland/documents/ , accessed October 2023.

[54] Scottish Government (2020). Scottish biodiversity strategy post-2020: statement of intent. Online at: https://www.gov.scot/publications/scottish-biodiversity-strategy-post-2020-statement-intent/ , accessed October 2023.

[55] Scottish Biodiversity Forum (2013). Scottish Biodiversity List. Online at: https://www.webarchive.org.uk/wayback/archive/20150218221128/http://www.gov.scot/Topics/Environment/Wildlife-Habitats/16118/Biodiversitylist/SBL , accessed October 2023.

[56] NatureScot and Scottish Government (2017). Pollinator Strategy for Scotland 2017-2027. Online at: https://www.nature.scot/doc/pollinator-strategy-scotland-2017-2027 , accessed October 2023.

[57] Scottish Government (2012). Code of Practice on Non-Native Species. Made by the Scottish Ministers under section 14C of the Wildlife and Countryside Act 1981. Published by the Scottish Government, Edinburgh. Online at: https://www.gov.scot/publications/non-native-species-code-practice/ , accessed October 2023.

[58] Highland Environment Forum (2021) Highland Nature Biodiversity Action Plan. Available online: https://www.highlandenvironmentforum.info/biodiversity/action-plan/ [Accessed June 2025]

[59] CIEEM (2016). Guidelines for Preliminary Ecological Appraisal. Chartered Institute of Ecology and Environmental Management. Hampshire.

[60] CIEEM (2022) Guidelines for Ecological Impact Assessment in the UK and Ireland. Chartered Institute of Ecology and Environmental Management. Hampshire.

7.3 Study Area

7.3.1 Distinct study areas have been established for desk-based data review exercises and field surveys, to reflect the different elements of the Proposed Development, ecological sensitivities along the proposed OHL alignment and the extent of the Proposed Development's Ecological Zone of Influence (EZoI) for each ecological feature appraised. The CIEEM EcIA Guidelines define the EZoI as the area over which ecological features may be subject to significant effects as a result of the Proposed Development; this could extend beyond the footprint of the Proposed Development.

7.3.2 The study area varies for each ecological feature due to the varying mobility range of the feature being appraised as well as the connectivity between the feature and the Proposed Development. For example, the effect of the EZoI on mobile species, such as otter *Lutra lutra* and bird species (see **Section 6**), will usually be greater than those on sedentary habitats. The below Study Areas were used:

- Habitats – 250 m;
- Bat Species – 30 m;
- Red Squirrel – 50 m;
- Water Vole – 200 m;
- Otter – 200 m;
- Badger – 100 m;
- Pine Marten – 250 m; and
- Great Crested Newts – 500 m.

7.3.3 Surveys were conducted based on the area encompassing the associated Proposed Fanellan 400kV Hub which aligns with the EZoI for the Proposed Development also (See **Figure 7.6.1 UKHab Survey Results and 7.6.2 Protected Species Survey Results**) and any required survey extents as set out within relevant guidance. The Limit of Deviation (LoD) used at this stage is 100 m (50 m either side) from the centreline of the Proposed Development (temporary and permanent OHL diversions).

7.4 Desktop Study

7.4.1 A desk-based review of publicly available data sources was undertaken to inform the survey scope and to provide contextual information to inform the appraisal. The review was completed by competent ecologists who hold current CIEEM membership of at least graduate membership and sufficient experience in ecological data collection.

7.4.2 Data sources included:

- National Biodiversity Network (NBN) Atlas[61];
- NatureScot Natural Spaces Portal[62];
- Native Woodland Survey of Scotland (NWSS) data[63];
- NatureScot Habitat Map of Scotland[64];

[61] NBN Atlas (2021). Explore Your Area. Available at: https://nbnatlas.org/ Accessed October 2023

[62] NatureScot (online). Natural Spaces. Available at: https://www.nature.scot/information-hub/naturescot-data-services Accessed October 2023

[63] Scottish Forestry (2020) Native Woodland Survey of Scotland. Available at: https://open-data-scottishforestry.hub.arcgis.com/datasets/6d27b064fcba471da50c8772ad0162d7_0/explore?location=57.422958%2C-4.591994%2C7.08 Accessed October 2023

[64] NatureScot (online). Habitat Map of Scotland. Available at: https://map.environment.gov.scot/sewebmap/?layers=HabVegSurvey1,saltmarshSurvey1,habmos-

- Ancient Woodland Inventory (AWI)[65];
- Buglife Important Invertebrate Areas (IIA)[66] and B-lines[67];
- Important Plant Areas (IPA)[68];
- Butterfly Conservation Trust Priority Landscapes[69]; and
- A review of ecological information contained in other project reports of relevance to the Site.

7.5 Field Surveys

7.5.1 All field surveys were undertaken by a team of competent ecologists who hold current CIEEM membership and sufficient experience in surveying the habitats and protected species likely to be encountered across the relevant study areas. A summary of surveys undertaken is provided in **Table 7.1**.

7.5.2 In this appraisal where references are made to the Survey Area for a particular species or habitat type (e.g. 'PBRA Survey Area'), they refer to the respective Survey Areas cited in **Table 7.1**.

7.5.3 Field surveys were undertaken for both the associated proposed Fanellan 400kV Hub and the OHL Diversions (Proposed Development) therefore complete coverage of all required survey areas was achieved for both proposed developments.

Table 7.1: Survey Method and Areas

Survey Type	Survey Dates	Survey Area	Relevant Guidance
UK Habitat Classification (UKHab)	December 2022, April 2024, June 2025	Proposed Development plus 250 m.	UKHab User Manual[70]; UKHab Classification Field Key[71], and UKHab Habitat Descriptions Version 1.1[72][73].

OtherLanduse,habmosNVCToAnnexIAndEUNIS,habmos-FreshWater,eunisLandCoverScotland,habmos-NativeWoodlandSurveyScotland,coastalVegShingle1&extent=-301028,528191,722972,1215192 Accessed October 2023

65 Scottish Government (2022). Open Data: Ancient Woodland Inventory (Scotland). Available at: https://spatialdata.gov.scot/geonetwork/srv/eng/catalog.search;jsessionid=7A479A27E04C7359A8FE067425E794B1#/metadata/A091F945-F744-4C8F-95B3-A09E6EF6AE33 Accessed October 2023

66 Buglife (2022). Important Invertebrate Areas. Available at: https://www.buglife.org.uk/our-work/important-invertebrate-areas/ Accessed October 2023

67 Buglife (2022). B-Lines. Available at: https://www.buglife.org.uk/our-work/b-lines/ Accessed October 2023

68 Plantlife https://www.plantlife.org.uk/protecting-plants-fungi/important-plant-areas/#uk-important-plant-areas

69 Butterfly Conservation Trust (online). Available at: https://butterfly-conservation.org/sites/default/files/2018-11/Scotland%20Conservation%20Strategy%202025.pdf Accessed October 2023

70 UK Habitat Classification Working Group (September 2020). UK Habitat Classification User Manual V1.1. UK Habitat Classification Working Group (UKHab Ltd), Stockport, Cheshire. Available at: https://ecountability.co.uk/ukhabworkinggroup-ukhab/ Accessed October 2023.

71 UK Habitat Classification Working Group (2018b). UK Habitat Classification Field Key. UK Habitat Classification Working Group (UKHab Ltd), Stockport, Cheshire. Available at: https://ecountability.co.uk/ukhabworkinggroup-ukhab/ Accessed October 2023.

72 UK Habitat Classification Working Group (2018c). The UK Habitat Classification Habitat. Descriptions Version 1.0 UK Habitat Classification Working Group (UKHab Ltd), Stockport, Cheshire. Available at: https://ecountability.co.uk/ukhabworkinggroup-ukhab/ Accessed October 2023.

73 The UK Habitat Classification guidance was updated in 2023 after the commissioning of surveys to inform this assessment. However, there is considered to be no material difference in the outcome of this assessment from using the earlier guidance.

Survey Type	Survey Dates	Survey Area	Relevant Guidance
Habitat Condition Assessment (HCA)	December 2022, April 2024, June 2025	Proposed Development plus 250 m.	Biodiversity Metric 3.1[74].
Protected Species Habitat Suitability	June 2023, July 2023, and April 2024	Proposed Development plus up to 500 m buffer	A range of guidance including those referenced for species surveys.
Preliminary Bat Roost Assessment (PBRA)	June 2023, July 2023	Proposed Development and 30 m buffer.	Collins, 2016[75] (NB It should be noted that survey guidance has been superseded since the bat surveys were undertaken; however, this change is not material to this Assessment).
Aerial tree inspections	May to July 2024	Trees within Proposed Development and 30 m buffer	
Red Squirrel	June 2023, July 2023, and April 2024	Proposed Development plus 50 m.	Gurnell *et al*., 2009[76], Cresswell *et al*., 2012[77], NatureScot 2020[78].
Water Vole	June 2023, July 2023, and April 2024	Proposed Development plus 200 m.	Dean *et al.*, 2016[79], NatureScot 2022[80].

74 Natural England (2022) Biodiversity Metric 3.1 User guide. Natural England.
75 Collins (2016). Bat Surveys for Professional Ecologists, Good Practice Guidelines (3rd edition)
76 Gurnell, John & Lurz, Peter & Mcdonald, Robbie & Pepper, Harry. (2009). Practical Techniques for Surveying and Monitoring Squirrels
77 Cresswell, W.J., Birks, J.D.S., Dean, M., Pacheco, M., Trewhella, W.J., Wells, D. and Wray, S. (2012). UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation. The Mammal Society, Southampton.
78 NatureScot (2020a) Standing advice for planning consultations – Red Squirrels. Available at: Standing advice for planning consultations - Red Squirrels | NatureScot [Accessed November 2022]
79 Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.
80 NatureScot (2022) Standing advice for planning consultations – Water Voles Available at https://www.nature.scot/doc/standing-advice-planning-consultations-water-voles Accessed October 2023.

Survey Type	Survey Dates	Survey Area	Relevant Guidance
Badger	June 2023, July 2023, and April 2024	Proposed Development plus 100 m.	Scottish badgers, 2018[81].
Otter	June 2023, July 2023, and April 2024	Proposed Development plus 200 m.	Chanin, 2003[82]., NatureScot., 2020b[83].
Pine Marten	June 2023, July 2023, and April 2024	Proposed Development plus 250 m.	Cresswell *et al.*, 2012[84], NatureScot 2020c[85].
Great Crested Newt	June 2023, July 2023, and April 2024	Proposed Development plus 500 m.	Langton *et al.*, 2001[86]

7.6 Assessment Methodology and Criteria

Evaluation of Conservation Importance

7.6.1 The appraisal focuses on Important Ecological Features (IEFs) of greatest nature conservation importance, as supported by the CIEEM EcIA Guidelines. To inform the scoping of relevant IEFs, each has been evaluated in line with the criteria presented in **Section 7.2**.

7.6.2 For the purposes of this EcIA, the geographic context of an IEF's nature conservation importance is interpreted as follows: International = Europe; National = Scotland; Regional = Highland; County= Inverness-shire[87, 88]; and Local = Aird and Loch Ness[89].

7.6.3 Sites, habitats and species that are of less than Local Importance under the above frame of reference are not considered in detail in this appraisal.

Table 7.2: IEF importance Geographic Context

Geographic Frame of Reference	Criteria / Examples
International (Europe)	Extremely rare (endangered), potentially extremely vulnerable to change, of international importance or recognition, very limited potential for substitution. For example:

81 Scottish Badgers (2018) Surveying for Badgers; Good Practice Guidelines

82 Chanin (2003) Monitoring the Otter

83 NatureScot (2020b) Protected species: otter. Available at https://www.nature.scot/doc/standing-advice-planning-consultations-otters Accessed October 2023

84 Cresswell, W.J., Birks, J.D.S., Dean, M., Pacheco, M., Trewhella, W.J., Wells, D. and Wray, S. (2012). UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation. The Mammal Society, Southampton

85 NatureScot (2020c) Protected species: pine martens. Available at https://www.nature.scot/doc/standing-advice-planning-consultations-pine-martens Accessed October 2023

86 Langton *et al* (2001) Great Crested Newt Conservation Handbook, Froglife, Halesworth.

87 Encompassing the historic county of Inverness-shire. Map available online: https://historiccountiestrust.co.uk/descriptions

88 With the exception of ornithology receptors which are based on Natural Heritage Zone populations as detailed in Wilson, M. W., Austin, G. E., Gillings S. and Wernham, C. V. (2015). Natural Heritage Zone Bird Population Estimates. SWBSG Commissioned report number SWBSG_1504

89 Highland Council (2023). Open Map Data – Polling Districts. Available online: Highland Council Polling Districts - data.gov.uk

Geographic Frame of Reference	Criteria / Examples
	SPA; SAC; Ramsar site; or area meeting the criteria for designation as such. Considerable extents of a priority habitat type listed in Annex I of the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, or smaller area of such habitat that are essential to maintain the viability of a larger area. Any regularly occurring population of an internationally important species, which is threatened or rare in the UK, i.e. International Union for the conservation of Nature (IUCN) 'Red List' species, or any species of uncertain conservation status or of global conservation concern. A regularly occurring significant population/number of any internationally important species, e.g., species listed in Annex II of the Habitats Directive, 1 % of the known international population of a particular species.
National (Scotland)	Rare, of national importance or recognition, limited potential for substitution, highly vulnerable to change. For example: Site of Special Scientific Interest (SSSI), National Park, National Nature Reserve (NNR) and their qualifying interests; or a site considered worthy of such designation. Ancient Woodland. A viable area of a habitat type listed in Annex I of the Habitats Directive, or smaller areas of such habitat which are essential to maintain the viability of a larger whole. A regularly occurring significant population/number of any nationally important species e.g. listed on Schedules 5 and 8 of the *Wildlife and Countryside Act 1981 (as amended)*, or e.g. 1 % of the known UK population of a particular species. Areas of viable, connected habitat which may support delivery of the SBS to 2045 and meet EU Nature Restoration Law Targets, with actions such as improving and re-establishing biodiversity habitats on a large scale, and bringing back species populations by improving and enlarging their habitats (wetlands, forests, grasslands, rivers and lakes, heath and scrub, rock habitats, and dunes). This is adapted from the SBS to 2045. Species recognised as vulnerable/important in the SBS to 2045 and associated projects/conservation strategies (e.g., SOTE[6]) – which are regularly occurring in moderate to large numbers.
Regional (North Scotland)	Somewhat rare or vulnerable, difficult to substitute. For example: Areas of internationally or nationally important habitats which are degraded but are considered readily restored. Sites falling slightly below criteria for selection as a national designated site. Any regularly occurring significant population of HNBAP Priority Species, e.g., present in regionally important numbers (e.g. >1 % of the regional population). Viable areas of HNBAP Priority Habitat, or smaller areas of such habitat which are essential to maintain the viability of a larger whole.
District (Highland)	Difficult to substitute at a district level, rare or unusual at the district level but well represented elsewhere. For example: Sites that the Local Authority has determined meet the published ecological selection criteria for designation, including Local Nature Conservation Sites. Areas identified of conservation interest by organisations such as Scottish Wildlife Trust, Buglife, Butterfly Conservation Trust. Sites or features that are scarce within the Local Authority area which appreciably enrich the habitat resource. Areas of internationally or nationally important habitats which are degraded and have little or no potential for restoration. A regularly occurring population of a species which is large enough to be of district level importance.

Geographic Frame of Reference	Criteria / Examples
Local (Inverness-Shire)	Locally important, difficult to substitute at a local level, but well represented elsewhere in the district/region. For example: A species-rich, good condition example of a common or widespread habitat in the local area. A regularly occurring population of a species which is large enough to be of local level importance, or of a species scarce in the local area. Habitats or species considered to enrich the ecological resource within the local context.
Neighbourhood (Site and its vicinity, including areas of habitats contiguous with or linked to those on Site)	Examples include: Areas of heavily modified or managed vegetation of low species diversity or low value as habitat to species of nature conservation interest. Common and widespread species. Neighbourhood (Site and its vicinity, including areas of habitats contiguous with or linked to those on Site)
Negligible	No intrinsic nature conservation value associated with habitat or species. Generally, these are areas of hard standing or buildings with no nature conservation interest. Invasive and non-native species which threaten native habitat or species.

Determining Nature of Change

7.6.4 The magnitude of change covers a range of characteristics. For each IEF, the impacts of construction, decommissioning and operational aspects of the Proposed Development and their resultant effects on IEFs are characterised as:

- Beneficial or adverse – whether the impact will result in net loss or degradation of an IEF or whether it will enhance or improve it.
- Extent – the spatial area over which an impact occurs.
- Magnitude – the size or intensity of the impact measured in relevant terms, e.g. number of individuals lost or gained, area of habitat lost or created or the degree of change to existing conditions (e.g. noise or lighting levels).
- Duration – the length of time over which the impact occurs. This may be permanent or temporary; short term (e.g., during applicable construction operation), medium term (e.g., 7-10 years), or long term (e.g., duration of the full operational phase).
- Reversibility – the extent to which impacts are reversible either through natural regeneration and succession or through active mitigation.
- Timing and frequency – consideration of the timing of events in relation to ecological change, e.g., some impacts may be of greater magnitude if they take place at certain times of year (e.g., breeding season). The extent to which an impact is repeated may also be of importance.

7.6.5 These factors are brought together to assess the magnitude of the impact on a particular IEF and, wherever possible, the magnitude of the impact is quantified. Professional judgment based on knowledge and experience on similar schemes is then used to assign the impacts on the IEF to one of four classes of magnitude. A matrix approach has not been applied to this assessment, in line with the Guidelines for EcIA[14].

Table 7.3: Classes of Impact Magnitude

Level	Examples of Definitions
Major	A permanent or long-term effect on the extent or size or integrity of a site, habitat, species assemblage or community, population or group. If adverse, this is likely to threaten its sustainability. If beneficial, this is likely to enhance its conservation status.

Level	Examples of Definitions
Moderate	A permanent or long-term effect on the extent or size or integrity of a site, habitat, species assemblage or community, population or group. A short-term effect which will adversely affect the integrity of a receptor in a permanent manner. If adverse, this is unlikely to threaten its sustainability. If beneficial, this is likely to be sustainable but is unlikely to enhance its conservation status.
Minor	A permanent, long-term reversible or short-term effect on a site, habitat, species assemblage or community, population or group whose magnitude is detectable but will not threaten/change its conservation status.
Negligible	A short-term reversible effect on the extent, size or integrity of a site, habitat, species assemblage or community, population or group that is within the normal range.

7.6.6 Potential impacts are characterised initially in the absence of any mitigation, except where this is integral to the design of the Proposed Development.

7.6.7 Any additional mitigation or compensation proposed is identified and its likely effectiveness is assessed. An indication of the confidence with which predictions of potential impacts are made is also given.

Significance

7.6.8 The significance of an effect has been defined as either beneficial or adverse.

7.6.9 For adverse effects, conservation status defined in the CIEEM EcIA guidelines was considered as follows:

- Habitats – "conservation status is determined by the sum of the influences acting on the habitat and its typical species that may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area";
- Species – "conservation status is determined by the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area";
- Designated sites – consideration should be given to whether "…any processes or key characteristics will be removed or changed; there will be an effect on the nature extent or structure and function of component habitats; or there is an effect on the average population size and viability of component species.";

7.6.10 A beneficial effect was assessed as ecologically significant if the Proposed Development causes:

- Restoration of desired conservation status for a habitat/species population; and/or
- Restoration of a designated site's integrity (where this has been undermined).

7.6.11 A matrix approach has not been applied to the EA in line with CIEEM EcIA Guidelines due to the scale of the development. This deviates from the wider EcIA methods set out in Chapter 4, Section 4.3 of the guidelines, which categorises effects using the sensitivity of receptor and magnitude of change as Major, Moderate, Minor or Negligible.

7.6.12 This appraisal of significance has been prepared using professional judgement based on an analysis of the predicted impacts of the Proposed Development, including consideration of the specific parameters outlined above. The significance has been quantified on a geographical scale which does not necessarily equate to the geographical context in which an IEF has been considered important (see Sensitivity of Receptors above). For example, although a habitat type may represent 20 % of the resource at a Regional level and hence be considered of value at this scale, the Proposed Development might affect only a portion of the habitat representing 1% of the resource in the Region, hence the effect would not be considered significant at this scale. However, that 1 % may represent 20 % of the resource at a Local scale and therefore the effect at this geographic scale would be considered significant.

7.6.13 The word significant is used here in its ordinary meaning of 'worthy of consideration'.

Limitations and Assumptions

7.6.14 The approach taken to inform the baseline was considered proportionate with reference to the type of works associated with the Proposed Development. However, the following limitations apply to the appraisals presented:

- Where suitable features that can be used as resting sites (e.g. squirrel dreys; or pine marten dens) have been identified within the Survey Area, but the presence or current use by a protected species has not been confirmed, they have been recorded as 'potential' rest areas (i.e. 'potential squirrel drey'; or 'potential pine marten den site'). For the purposes of the EA Report, this allows the habitat suitability for the applicable species to be appraised and the availability of resting sites recorded. This information can then inform the potential impact and mitigation.
- Faunal species are transient and can move between favoured habitats regularly throughout and between years. This survey provides a baseline using a snapshot of field signs and habitat suitability observed on the dates of survey. Ecological survey data for mobile species is typically valid for 18 months unless otherwise specified, for example, if conditions are likely to change more quickly due to ecological processes or anticipated changes in land management[90].

7.6.15 It is considered that this EA is not materially affected by the above limitations.

7.6.16 The Proposed Development boundary used means that the assessment provided within this Section focused primarily on the locations of the towers, and the LoD surrounding the tower locations and access tracks. The LoD means that the towers can move anywhere within the LoD and therefore potential constraints have been included for the full diversion alignments and access tracks LoD.

7.6.17 Ecological survey data will typically remain valid for up to 18 months with the following exceptions[91]:

7.7 Baseline Conditions

7.7.1 As the footprint of the Proposed Development is small, details of the baseline have been included here as opposed to in an appendix. Information on badger presence in the area can be found in the **Appendix 7.1 Confidential Badger Appendix**.

Designated Sites

7.7.2 No statutory designated sites lie within 2 km. The following lie within 10 km of the Proposed Development:

- Glen Affric to Strathconon Special Protection Area (SPA) (4.1 km east) – designated for ornithological interests and addressed in **Section 6**;
- Inner Moray Firth Ramsar and SPA – designated for intertidal salt flat and wintering waterfowl. Ornithological interests are assessed in **Section 6;**
- Moniack Gorge Special Area of Conservation (SAC) (6.8 km east) – designated for green shield-moss;
- Strathglass Complex SAC (8.3 km west) – designated for Caledonian forest, blanket bog, bog woodland, montane acid grasslands, dry heaths, and alpine and subalpine heaths; and
- Moray Firth SAC (9.3 km east) – designated for bottlenose dolphin and subtidal sandbanks.

7.7.3 The following non-statutory designations or nature conservation sites occur within 2 km of the Proposed Development:

- Overlaps the Proposed Development:

[90] CIEEM (2019). Advice note on the lifespan of ecological reports and surveys. Available: https://cieem.net/resource/advice-note-on-the-lifespan-of-ecological-reports-and-surveys/ [Accessed: February 2023].

[91] Chartered Institute of Ecology and Environmental Management (2019). Advice Note on the Lifespan of Ecological Reports and Surveys. CIEEM, Winchester.

- Buglife's 'East Inverness-shire' Important Invertebrate Area[92];
- Butterfly Conservation's 'Great Glen and the Beauly Catchment' Scottish Priority Landscape[93]; and
- Ancient Woodland under the category 2b – Long Established of Plantation Origin.
- Within 2 km of the Proposed Development:
- A Buglife B-line[94].

Field Evidence

7.7.4 Habitats within the Study Area were reflective of an agricultural environment, with arable land and modified grassland recorded. A small area of upland birchwood (SBL habitat) was present within the footprint of the eastern most tower. Further woodland in the form of conifer plantation and Scot's pine woodland is also present within the LoD and under the Proposed Development. Scrub is present throughout the Study Area in parcels in agricultural land and to the west along the existing wayleave.

7.7.5 Evidence of badger presence was recorded, please see **Confidential Appendix 7.1** for further information.

7.7.6 One red squirrel was sighted to the north of Tower 6R. No other evidence was found of red squirrel or pine marten, despite suitable woodland habitat being present.

Potential Constraints within the LoD

7.7.7 Potential constraints within the LoD have not been carried forward for assessment, however **Figures 7.6.1 - 7.6.2 and 7.6.3** (confidential) show these and are presented here for information should the OHL platforms be moved within the LoD.

7.7.8 Habitats within the LoD are similar to those under the Proposed Development. There is no difference between habitats under the Proposed Development and those within the LoD.

7.7.9 Evidence of badger presence was recorded, please see **Confidential Appendix 7.1** for further information.

7.7.10 Twelve trees with bat roosting potential are present within the LoD which may present a constraint should the OHL platforms be moved.

Future Baseline

7.7.11 The range and population size of the IEF and species (see **Sensitive Receptors**) are predicted to change significantly due to the construction of the associated Proposed Fanellan 400kV Hub. Many of the trees with PRFs and badger setts between the Proposed Development and the C1106 running south west / north east will be lost to electrical infrastructure, hardstanding and buildings.

7.8 Sensitive Receptors

7.8.1 An IEF is a sensitive receptor that occurs within the EZoI which has been evaluated to be of Local nature conservation importance or above. The habitats and species identified as IEFs are presented in **Table 7.4**, together with the justification for this evaluation.

[92] Buglife, Important Invertebrate Areas (online). Available at: https://www.buglife.org.uk/our-work/important-invertebrate-areas/ [Accessed: February 2024]

[93] Butterfly Conservation, Our Conservation Strategies (online). Available at: https://butterfly-conservation.org/our-work/our-conservation-strategies [Accessed: February 2024]

[94] Buglife, Downloadable B-Lines Maps (online). Available at: https://www.buglife.org.uk/our-work/b-lines/b-lines-guidance/downloadable-b-lines-maps/ [Accessed: February 2024]

Table 7.4: Important Ecological Features

Feature	Geographic importance	Baseline Summary, Valuation and Reason for Inclusion in the Appraisal
Bats	Local	Twelve trees with bat roosting potential lie within the LoD. Twenty-four trees with roosting potential will require works within 30 m as part of the Proposed Development and will require an inspection prior to felling. A single tree lies under the temporary access track to Tower 9, and a single tree with roosting potential under the temporary tower working area by Tower 6R and these will likely be removed as part of the Proposed Development and one tree lies under the temporary tower working area. As a precautionary approach, it is assumed that these trees will be utilised as a roost for bats. Tree roosts have been confirmed within 30m of the LoD and in the wider area. Bats are listed on the SBL and are European Protected species, however they are widespread within the area and therefore valued at Local level. Due to the potential roosting feature being disturbed, bats will be included in further assessment.
Badgers	Local	There are a number of badger setts, and potential setts within 30 m of the Proposed Development, including two that will be lost. Other evidence of badger presence including foraging signs and latrines. Badgers are protected under the Protection of Badgers Act 1992 as amended by the Wildlife and Natural Environment (Scotland) Act 2011. Badgers are assigned Local importance. Due to the potential impact on badger resting sites, badgers will be included in further assessment.
Great Crested Newt	County	There are four ponds within 500m of the Proposed Development with Below Average (pond L), Average (ponds C and N), and Good (pond B) Habitat Suitability Index Scores (HSI). The pond with the Good HSI score lies 200m south of the proposed works at Towers 10 and 11. No ponds will be lost to the Proposed Development. The habitat surrounding the pond is a combination of a tree line leading to woodland and grazing/farmland. Under the works area nearest to the Good suitability pond, there is a combination of heathland and grassland. Due to the distance between pond B and the Proposed Development, GCN are included in further assessment.

7.9 Receptors and Impacts Scoped Out

7.9.1 The CIEEM EcIA Guidelines state that the appraisal process does not require consideration of effects on ecological features deemed to be below a predefined nature conservation importance threshold and where predicted effects are unlikely to occur. Therefore, an appraisal of the effects upon features of Site level nature conservation importance, those which do not occur within the Proposed Development's EZoI, or where effects are unlikely to occur or be of negligible magnitude have been excluded from further appraisal.

7.9.2 It is assumed that best practice construction measures will be in place as set out in **Paragraphs 7.10.1 to 7.20.20.**

7.9.3 All operational impacts have been scoped out. No operational activities are associated with the Proposed Development except for statutory ground clearance and irregular unplanned repairs of the OHL which will be temporary and of low magnitude and are therefore scope out of the appraisal.

Table 7.5: Receptors Scoped Out

Feature	Justification
Glen Affric to Strathconon SPA	This SPA located 4.1 km north-east of the Proposed Development is designated for ornithological interests and is assessed in **Section 6**.
Inner Moray Firth Ramsar	This Ramsar site lies approximately 4.1 km north east of the Proposed Development. It is designated for intertidal salt flats and wintering waterfowl population. The ornithological interests of this designated site is assessed in **Section 6**. The area of the Proposed Development does not have any functional connectivity between the Proposed Development and the designated area, or River Beauly which flows into the designated area. For these reasons, the Inner Moray Firth Ramsar terrestrial interests is scoped out.
Moniack Gorge SAC	This SAC lies approximately 6.8 km east of the Proposed Development and is designated for Green shield moss *Buxbaumia viridis*. There is no functional connectivity between the Proposed Development and this SAC, therefore there would be no impacts to this designated site.
Strathglass Complex SAC	This SAC lies approximately 8.3 km west of the Proposed Development. It is designated for a number of habitat features including alpine and boreal heaths, blanket bog, Caledonian forest, dry heaths as well as otter. There is no functional connectivity between the Proposed Development and this SAC, and therefore there would be no impact to this designated site.
Inner Moray Firth SPA	This designated site is designated for ornithological interests and is assessed in **Section 6**.
Ancient Woodland	The ancient woodland present is of Long Established Plantation Origin (ancient woodland category 2b) which is not considered irreplaceable by SSEN. This habitat is of low ecological value being of plantation origin (single species, densely planted). When assessing solely for habitat value (not protected species suitability), this is scoped out as it is commonly occurring in the area and only a small area is being removed.
Red Squirrel	The woodlands to the north and west of the Proposed Development present suitable habitat for red squirrel drey creation, however none were identified. As there are likely to be no impacts to resting sites, and considering the multitude of available habitat nearby, there will likely be no impacts to red squirrel and therefore they are scoped out from appraisal.
Pine Marten	The woodlands to the north and west of the Proposed Development present suitable habitat for pine marten den creation, however none were identified. As there are likely to be no impacts to resting sites, and considering the multitude of available habitat nearby, there will likely be no impacts to pine marten and therefore they are scoped out from appraisal.
Otter	Watercourses are present within 250 m of the Proposed Development are only likely to support commuting otter and therefore impacts are highly unlikely and therefore scoped out.
Beaver	No watercourses present within 250 m of the Proposed Development had capacity to carry over 70cm of water depth and thus considered unlikely to support the creation of potential beaver lodge or burrow resting sites in the future. For this reason, beaver are scoped out.
Modified Grassland	This habitat is heavily influenced by agricultural grazing and is of low ecological value, for this reason it is scoped out from further appraisal.
Arable	This habitat is heavily influenced by agricultural management and is of low ecological value, for this reason it is scoped out from further appraisal.

Feature	Justification
Upland Birchwood	This habitat will be impacted through a small loss for earthworks for the platform for the eastern most platform. Given the extensive nature of this within the Study Area, this small loss will not significantly impact the integrity of the habitat. For this reason, upland birchwoods have been scoped out from further appraisal.
Other Conifer Woodland	This habitat will be impacted through direct loss to facilitate the construction of new and temporary towers and wayleaves. This habitat is widespread in the local area and the loss of these small areas will not significantly impact the integrity of the larger habitat parcels. For this reason, other conifer woodland has been scoped out from further appraisal.
Other Scot's Pine Woodland	A small area of Scot's pine woodland will be lost to the wayleave of the permanent diversion to the western end. This small parcel extends further to the north to an intact area that will not be impacted by the Proposed Development. This area is designated as Ancient Woodland – Long Established of Plantation Origin which SSEN do not recognise as ancient woodland. Given that only a small area will be lost compared to a much larger area untouched, the impact is not considered to be significant to the integrity of this woodland. For this reason, other Scot's pine woodland has been scoped out from further appraisal.
Gorse Scrub	Areas of scrub will be impacted through direct habitat loss to facilitate the construction of new and temporary towers. This habitat is widespread in the local area and the loss of these small areas will not significantly impact the integrity of the larger habitat parcels. For this reason, gorse scrub has been scoped out from further appraisal.
River Beauly	This habitat and species potentially present with including any Freshwater Pearl Mussel has potential to be impacted through pollution from works in the North East of the Site near a watercourse that connects to the River Beauly. Through strict adherence to SSEN CEMP and GEMPs, there is unlikely to be any pollution incidents that would impact the river and therefore the river has been scoped out from further appraisal.

7.10 Assessment of Effects, Mitigation and Residual Effects

Mitigation by Design

7.10.1 The height of Tower 9T is being increased within the vertical LoD in order to create sufficient clearance that veteran trees (irreplaceable habitat) beneath are not required to be felled.

Construction Phase

Embedded Impact Avoidance and Mitigation

7.10.2 Embedded mitigation includes tried and tested measures documented within the Applicant's GEMPs and SPPs (which have been agreed with NatureScot); see **Appendix A GEMPs** and **Appendix B SPPs.** The Applicant will require that the protocols detailed within these documents are implemented successfully by the employed contractors.

7.10.3 Where a receptor is particularly sensitive or mitigation deviates, even slightly, from GEMPS/SPPs this mitigation may be included in the additional mitigation section.

7.10.4 Where species are potentially present, but have been scoped out from this appraisal, such as otter, red squirrel, and pine marten, SSEN hold SPPs which will be adhered to regardless of appraisal in this EA.

7.10.5 For clarity, embedded mitigations captured within the following GEMPs will be sufficient to address and control potential impacts associated with pollution events, such that pollution impacts have not been addressed through this appraisal:

- Oil storage and refuelling;

- Working in or near water;
- Working with concrete;
- Watercourse crossings;
- Waste management; and
- Contaminated land.
- Working in sensitive habitats;
- Soil management;
- Biosecurity on land;
- Restoration; and
- Bad weather.

7.10.6 The following SPPs are held by the Applicant and are applicable to IEFs in relation to the Proposed Development's construction phase:

- Bat species;
- Badger; and
- Great Crested Newt.

7.10.7 Implementation of the "Working in sensitive habitats", "Restoration" and "Bad Weather" GEMPs will help mitigate any potential habitat degradation and fragmentation, beyond the minimum amount of clearance required by the Proposed Development. In particular, the GEMP for working in sensitive habitats sets out suitable access protocols to avoid and minimise disturbance to sensitive habitats such as the wet heath located within the Proposed Development's footprint. The GEMPs will also help ensure pollution events, which may otherwise result in habitat degradation, are avoided or reasonably mitigated for.

7.10.8 All additional mitigation will be captured in and delivered through the Principal Contractor's Construction Environmental Management Plan (CEMP).

Description of Effects

7.10.9 This Section details the appraisal IEFs during construction. **Table 7.6** describes the assessment undertaken for IEFs with respect to potential impacts from the Proposed Development. The appraisal considers embedded mitigation outlined above and any additional mitigation measures which may be required.

Table 7.6: Assessment of the Significance of Effects in Important Ecological Features during Construction

IEF	Potential Impacts	Development Activity	Details of ecological effect	Assessment
Bats	Loss of roost.	Construction of OHL Towers and Access Track to Tower 9 including site preparation.	A tree (0796) being removed as part of the OHL Diversion construction has bat roosting potential in the form of a woodpecker hole and insect holes. Another tree (0746) being removed as part of the track to Tower 9 presents lifting bark. No roost has been confirmed, however working on a precautionary principle there may be roosting bats at the time of felling. It has been recommended through surveys that an inspection prior to felling can be undertaken.	Adverse, short-term effects are anticipated, however due to the number of trees in the wider area with bat roosting potential, the loss of these trees is deemed not significant.
Bats	Loss of foraging habitat.	Construction of OHL Towers including site preparation.	Trees being removed as part of the Proposed Development would be utilised in part by bats for foraging. Removal of these trees would mean that a small portion of this resource would be lost. There are a very small number of trees being removed compared to the resource in the area.	Adverse effects are anticipated as the trees to be removed represent only a foraging resource; however they are only a tiny percentage of the tree resource in the wider area, and main foraging corridors are not being altered. This effect is deemed not significant.
Badger	Loss of setts.	Construction of OHL Towers including site preparation.	Two badger setts will be lost as part of the construction of the OHL towers. This loss of these setts is part of six confirmed and two potentially being lost from the associated proposed Fanellan 400kV Hub development. There are many other setts present in the wider area unaffected by either the Proposed Development or the substation development.	Adverse effects are anticipated on badgers from the loss of these setts, however there are more setts in the wider area, and given that they are outliers, there is no breeding being undertaken here. Within the wider area, there is extensive suitable habitat for sett creation, meaning the loss of this one sett is not detrimental to the clan territory and as such the effect has been deemed not significant.

IEF	Potential Impacts	Development Activity	Details of ecological effect	Assessment
Badger	Loss of foraging habitat.	Construction of OHL Towers including site preparation.	There will be a small area of habitat (1.6 ha) lost to the Proposed Development. This habitat is a combination of modified grassland and arable land, both of which are known badger foraging habitats. This habitat will be lost through site clearance and construction of the OHL Towers.	Adverse effects are anticipated from the habitat lost, however there is a significant area within the wider area not being impacted and being left untouched by the Proposed Development and adjacent substation development. It has been concluded that these effects are not significant due to availability of foraging habitat in the area.
Great Crested Newt	Loss of terrestrial habitat.	Works on existing towers within 200m of pond B including site preparation	There will be a small area of habitat lost temporarily to an access track, existing tower temporary working areas at Towers 10 and 11, an EPZ working area and a backstay working area. These works lie within 200m of the Good suitability pond and the habitat may be used by GCN.	No ponds will be lost, however adverse effects may be anticipated from the loss of habitat utilised by GCN, however the works area represents a very small area of suitable habitat within the wider area. It has been concluded that these effects are not significant due to the plentiful availability of suitable habitat in the wider area.

Impact Avoidance, Mitigation and/or Compensation during Construction

7.10.10 Two sett closures will be required for the outlier sett by Tower 6R and unknown sett type by Tower 8A due to be lost under the Proposed Development footprint. This will require a licence from NatureScot the development of a Site-Specific Species Protection Plan which will detail specific working methods and any compensation required. Confirmation of the unknown sett type is expected shortly from the GI ECoW once camera trapping data has been reviewed. It is unlikely that a compensatory sett will be required as there are many other setts in the wider area.

7.10.11 A Licence may be required for any works within 30 m of trees with bat roosting potential (see **Figure 7.6.2**) and this will involve the creation of a Species Protection Plan (SPP). This is likely to comprise a works method to minimise impacts to any bats.

7.10.12 A GCN Species Protection Plan should be developed for working within 200m of a pond with Good HSI score. This should detail working methods for pre-works checks for individuals that may be utilising the terrestrial habitat. Further surveys may be required to determine if there is a population of GCN in that pond or others nearby.

7.10.13 All licence and SPP work will be the responsibility of the Principal Contractor following detailed design.

Residual Effect

7.10.14 There are no significant residual effects on any IEFs during construction.

Enhancements

7.10.15 Where required by Biodiversity Net Gain (BNG) assessment, habitat enhancement may be required to compensate for the loss of grazing, arable and woodland. SSEN has the aim of achieving a minimum 10 % gain for all projects so enhancements will need to take this into account. Habitat enhancements are likely to include local habitats.

Operational Phase

Description of Effects

7.10.16 No operational effects are anticipated from the Proposed Development.

Mitigation During Operation

7.10.17 No mitigation is required during the operation of the Proposed Development.

Operational Phase

Description of Effects

7.10.18 No effects are anticipated from the decommissioning of the existing OHL.

Cumulative Effects

7.10.19 All the effects from the Proposed Development alone were determined to be non-significant and therefore unlikely to contribute to cumulative effects with the adjacent proposed Fanellan 400 kV Hub development.

7.10.20 It is expected that the adjacent cumulative project will implement the same measures as the Proposed Development and this process will be efficient and coordinated considering the same developer is responsible for the Proposed Development and the above project.

7.11 Summary

7.11.1 The following sensitive ecological receptors (referred to as IEFs) within the Site and EZoIs were identified:

- Bats;

- Badgers; and
- Great Crested Newts.

7.11.2 This Section has considered how, in the absence of mitigation, the Proposed Development's construction phase would affect the above IEFs by habitat loss; and the loss /disturbance to species and their resting sites. The Proposed Developments construction phase could result in the loss of resting sites of badger and bats.

7.11.3 Through the successful application of embedded and industry-standard mitigations (including the Applicant's GEMPs and SPPs); this Section concludes that the Proposed Development would not result in a residual significant effect on any sensitive ecology and nature conservation receptors.

7.11.4 The potential disturbance of Tree 0796 will require further mitigation involving the further inspection of the tree to determine if a disturbance licence is required. A Licence may be required for the works within 30 m of this tree and this will involve the creation of a Species Protection Plan (SPP). This is likely to comprise a works method to minimise impacts to any bats.

7.11.5 The loss of two active outlier setts has been assessed as not significant as they are outliers, non-breeding and there are further setts in the area. The removal, however, will require a licence from NatureScot and the production of a SPP to detail working methods, although it is likely that compensation will not be required due to the number of setts in the area.

7.11.6 It should be noted that despite not being sensitive ecological receptors, there remains a legal compliance to not cause harm to protected species not found during the survey effort. Mitigation will be required to ensure this requirement is met.

8. FORESTRY

8.1 Introduction

8.1.1 Impacts on the majority of forestry receptors and arboricultural features associated with the Proposed Development have been assessed within the Fanellan 400 kV Hub EIA Chapter (planning application 25/00826/FUL) which covers forestry and arboriculture impacts associated with both the construction of the proposed Fanellan 400 kV Hub and the proposed Beauly Denny OHL diversions known at the time of that submission. It was deemed necessary to assess the impacts on forestry and arboriculture together for both the Proposed Development and the new proposed Fanellan 400 kV Hub as the majority of tree removal is required on one project to facilitate the other. Full details of impacts are found in Volume 2, Chapter 15: Forestry of the Fanellan Hub EIA (planning application 25/00826/FUL), included for ease of reference as **Appendix 8.1 – Fanellan Hub 400 kV Substation and Converter Station, Volume 2, Chapter 15**.

8.1.2 This environmental assessment provides a summary of forestry and arboricultural impacts associated with the Beauly Denny permanent and temporary OHL diversions (and associated tracks) only (hereafter the 'Proposed Development').

8.2 Assessment Methodology and Significance

8.2.1 Sensitivity and magnitude criteria have been developed and are set out in Volume 2, Chapter 15: Forestry, of the Fanellan Hub EIA Report. Arboricultural and forestry assessment areas were determined to assess significance of effects. These assessment areas included features impacted by the Proposed Development as well as the proposed Fanellan 400 kV Hub and as such, if the same criteria were used here, reporting of significance within this environmental assessment would be disproportionate to the Proposed Development and so significance is not reported herein. Furthermore, it is acknowledged that the impacts associated with the Proposed Development only, i.e. those that are not also required for removal as part of the proposed Fanellan 400 kV Hub, are negligible and it is likely that assessing these impacts alone would not necessitate forestry to be scoped in.

8.3 Study Area

8.3.1 The arboricultural and forestry study area covers the extents of the Proposed Development Site in addition to the Fanellan 400 kV Hub Site, plus up to a further 15 m. This joint Study Area has been used as the original survey was conducted for the Fanellan 400 kV Hub EIA and retaining the same tree references helps make it easier to compare trees between the different projects and avoid potential double counting of impacts. The purpose of this 15 m beyond the Site extents is to ensure compliance with BS 5837 which recommends that all arboricultural features whose Root Protection Areas (RPAs) and crowns may be impacted are identified and surveyed. BS 5837 has a maximum RPA radius of 15 m, hence the extent of the Study Area. Where windthrow impacts, or clearance for overhead lines are deemed likely then the Study Area has been extended to 50m either side of the OHL.

8.3.2 An Operational Corridor (OC) width has been assessed and identified for the safe build and energisation of the proposed temporary and permanent OHL towers through areas of commercial conifer woodland as 90 m (45 m either side of the OHL centreline). This has taken cognisance of current tree height within the Study Area and potential growth within a five-year maintenance period. The OC width that has been assessed and identified through areas of native broadleaved woodland is 60 m (30 m either side of the OHL centreline).

8.4 Desktop Study

8.4.1 A desktop study was delivered in July 2024 which included a review of publicly available sources to inform the baseline and impact assessment. The desktop study was undertaken to establish the following statutory and non-statutory constraints:

- tree preservation orders (TPOs);
- conservation areas;

- ancient woodland;
- native woodland;
- Caledonian pinewood;
- forestry management plans, grans and permissions; and
- ancient or veteran trees.

8.5 Field Surveys

8.5.1 Walkover surveys were undertaken in June 2024 and June 2025 and complied with BS 5837 by suitably qualified and experienced arboriculturists. Trees with diameter over 75mm at 1.5m above ground level have been recorded.

8.5.2 A tree survey schedule detailing information about trees in the Study Area is presented in **Appendix 8.2**.

8.6 Baseline Conditions

8.6.1 The desk study found no TPOs nor conservation areas within Study Area. The desk study found no registered records of ancient or veteran trees within the Study Area.

8.6.2 Woodland registered on the Ancient Woodland (Scotland) Inventory as ancient woodland long established of plantation origin (Category 2b), were located throughout the Study Area, covering the areas of forestry at the south and west and blocks of woodland to the north-east. Native woodland registered as 'native pinewood' 'upland birchwood' and 'wet woodland' on the Native Woodland Survey of Scotland was located throughout the Study Area. No Caledonian Pinewood was registered within the Study Area.

8.6.3 Within the Study Area, 188 arboricultural features have been identified, comprising 96 individual trees and 92 groups. Of these, 19 features were assessed as high quality, 106 of moderate quality, 56 of low quality and seven of very low quality. Within the two large forested areas, Ruttle Wood and Fanellan Wood, 22 individual forest coupes or woodlands have been identified. The majority of coupes within Ruttle Wood were mid to late rotation and coniferous plantation including Scots pine, Sitka spruce, European larch and Norway spruce.

8.6.4 The arboricultural survey identified three veteran trees within the Study Area, located to the South-West, within the woodland G77. These consist of a rowan (T78), a silver birch (T79), and a birch cherry (T80).

8.6.5 The forests mapped in the Study Area have been subject to various felling applications, woodland grant schemes, and management plans. Lovat Highland Estates provided a superseded forest management plan for review, and it is assumed forestry under Eilean Aigas Estate is managed under a forestry management plan, although none has been provided.

8.6.6 A large number of surveyed arboricultural and forestry features are not within close proximity to the proposed temporary and permanent OHL towers associated with the Proposed Development, as they were surveyed to support the EIA Report in relation to the wider development, the proposed Fanellan 400 kV Hub. The Tree Removal and Protection Plan of figure 8.1 shows all survey features within the Study Area as well as the specific design associated with the Proposed Development only.

8.7 Assessment of Effects, Mitigation and Residual Effects

8.7.1 The impacts on the majority of features, including an assessment of significance of effects and proposed compensatory planting from both the Proposed Development permanent OHL diversion and associated proposed Fanellan 400 kV Hub development, has been detailed within the Fanellan 400 kV Hub EIA Report. As such, the below is a summary of the impacts associated with the Proposed Development temporary OHL and the permanent OHL (and associated tracks) only and should not be double counted.

Table 8.1: Summary of tree removals associated with the Proposed Development

BS 5837 Category	Quality	Individual Trees	Groups	Partial Groups	Total
Category A	High	0	1	0	1
Category B	Moderate	6	3	9	18
Category C	Low	0	3	2	5
Category U	Very Low	0	0	0	0
Total	-	6	7	11	24

8.7.2 Thirteen features are fully removed, including seven groups and six trees, in the Study Area. Additionally, partial loss of 11 groups is anticipated due to the impacts associated with the Proposed Development.

8.7.3 The vertical clearance for the temporary OHL is to be increased in proximity to the veteran trees to avoid canopies and maintain sufficient clearance (within the vertical LoD). Other mitigation will be provided where appropriate to ensure veteran tree retention for example use of temporary fencing to protect from vehicle encroachment, scaffolding to protect from the conductor snagging the branches, and arboricultural supervision during works.

8.7.4 The majority of these removals would be anticipated to facilitate construction of the proposed Fanellan 400 kV Hub, as assessed in the Fanellan Hub Volume 2, Chapter 15: Forestry EIA Chapter.

8.7.5 Although a worst-case approach has been taken to this assessment, a precautionary approach would be taken within the Operational Corridor (OC) whereby category A or B Trees within the OC shall be retained where possible, ensuring they are assessed for height to ensure future resilience.

8.8 Summary

8.8.1 Impacts on forestry receptors and arboricultural features associated with the Proposed Development have largely been assessed within Volume 2, Chapter 15: Forestry of the EIA associated with the construction of the proposed Fanellan 400 kV Hub (with the exception of any specific design feature areas associated with the OHL diversions and their temporary works that were not known at that time / were outside of the red line boundary of the Town and Country Planning application (25/00826/FUL)). As such, this environmental assessment only acts as a summary of the Proposed Development.

8.8.2 A desktop study and walkover survey were undertaken to identify statutory and non-statutory constraints as well as arboricultural and forestry features within the study area.

8.8.3 The desk study found no TPOs, conservation areas, ancient or veteran trees within Study Area. Woodland registered on the Ancient Woodland (Scotland) Inventory as ancient woodland long established of plantation origin (Category 2b), were located throughout the Study Area

8.8.4 Within the full Study Area, 188 arboricultural features have been identified, comprising 96 individual trees and 92 groups. Of these, 19 features were assessed as high quality, 106 of moderate quality, 56 of low quality and seven of very low quality. 22 individual forest coupes or woodlands have been identified. Three of these high-quality features are veteran trees. Features in proximity to the Proposed Development are much lower in number compared to total features but still include the three veteran trees.

8.8.5 The Proposed Development (permanent and temporary OHL diversions and associated tracks) would result in the removal or partial removal of 24 features including six individual trees, seven groups and 11 partial groups. Of these, one is of high quality, 18 are of moderate quality and five are of low quality.

8.8.6 The temporary OHL will be raised within the vertical LoD to achieve sufficient clearance over the veteran trees and other mitigation, including arboricultural supervision, will be employed as required to ensure their retention and protection.

8.8.7 Tree removal associated with the Proposed Development not previously captured by the associated Fanellan 400 kV Hub planning application and its Compensatory Planting Strategy, equates to 0.12 ha. The Compensatory Planting Strategy for Fanellan 400 kV Hub included 1 ha offsite which more than covers the additional 0.12 ha from this Proposed Development. In summary 6.83 ha of compensatory woodland planting will be delivered on site (Fanellan 400 kV Hub boundary) and 1 ha offsite. This will compensate for 7.09 ha of forestry and woodland assessed as removed in the Fanellan 400 kV Hub planning application and EIA (which included the majority of Proposed Development) and 0.12 ha assessed as removed in this EA by the Proposed Development (Total for both Proposed Developments = 7.21 ha removed; Total for both Proposed Developments to be planted 7.83 ha). For the avoidance of doubt the Compensatory Planting Strategy has been updated to support this Section 37 application to capture the aforementioned.

9. NOISE AND VIBRATION

9.1 Introduction

9.1.1 This Section considers the potential effects and cumulative effects of noise and vibration from the Proposed Development. The assessment includes the potential effects upon noise sensitive receptors (NSRs) during both the construction and operation of the Proposed Development. The evaluation of the current noise baseline has been made through a combination of desk-based study and consultation with The Highland Council (THC) as a statutory consultee. Where likely Significant effects are predicted, appropriate mitigation measures are proposed, and the significance of predicted residual effects are assessed.

9.1.2 The objectives of the appraisal are to:

- identify the NSRs in the vicinity of the Proposed Development;
- describe the assessment methodology and significance criteria used in the assessment;
- identify the dominant sound sources associated with the operation and construction of the Proposed Development;
- calculate and assess the potential impacts on NSRs,
- assess any potential cumulative impacts; and
- indicate any requirements for mitigation measures, if applicable, to provide sufficient levels of protection for all NSRs.

9.1.3 This Section is necessarily technical in nature so, to assist the reader, a glossary of acoustic terminology is included in **Appendix 9A.1.**

9.1.4 A layout of the Proposed Development is illustrated by the drawing provided in **Figure 1.2: Project Design**.

9.2 Scope of Assessment

Effects Assessed in Full

9.2.1 This Section is an investigation into the existing background noise and acoustic environment in the area within and surrounding the Proposed Development. It has considered the potential operational noise effects that could arise due to the Proposed Development at the closest noise sensitive receptors (NSRs) in the vicinity of the Site.

9.2.2 An energised electrical overhead line (OHL) can be the source of an audible phenomenon known as ‘corona discharge’. This is a limited electrical breakdown of the air in the vicinity of the OHL conductors. While OHL conductors are designed and constructed to minimise corona discharge, surface irregularities such as damage, attached raindrops, insects and other types of contamination can increase local electric field strength beyond the inception level for local corona discharge at these sites. Such corona discharge can be the source of audible noise, a crackling sound accompanied sometimes by a low frequency hum. These noise levels are present in 275 kV OHLs and are more likely to be prominent in 400 kV OHLs, depending on the conductor type.

9.2.3 The highest noise levels generated by an OHL usually occur during light rain when water droplets, collecting on the surface of the conductor, can initiate corona discharge. The number of droplets that collect, and hence the amount of noise, depends on the rate of rainfall. Mist or fog can also cause corona discharge from droplets condensing on and attaching to the conductor surface. Sometimes, after a prolonged spell of dry weather, conductors can become contaminated with accumulated dust particles and other materials on which corona discharge can occur and audible noise can be generated. Later rain showers have the effect of washing the conductors clean of such debris.

9.2.4 An OHL may also produce ‘aeolian noise’. Aeolian noise is caused by wind blowing over a structure resulting in vibration that matches that of the natural frequency of the structure, or vortex shedding on the surface of a structure.

There is currently not a standardised method to predict this type of noise, therefore it is difficult to assess. This type of noise is usually infrequent and depends on wind velocity and direction.

9.2.5 This report looks at the provided baseline noise data to determine the existing noise environment, particularly to understand if there are any risks associated with the potential site location. Using the baseline noise data, a noise impact assessment of the construction and an overhead line noise assessment of the operation of the development have been conducted. The outcome of the assessment is used to inform a mitigation strategy to address any issues identified during the assessment.

Effects Scoped Out

9.2.6 While construction of the Proposed Development will give rise to staff transport movements, and construction vehicle movements including heavy goods vehicles, the scheme is of a short length (1.7 km), with a limited number of towers supporting the OHL's installation and the level of vehicles generated by construction activities is expected to be low. The impact of construction traffic would be further reduced as vehicles disperse onto the wider road network and, thus, diluting any potential effects. The Proposed Development's construction will be supported by the implementation of a Construction Traffic Management Plan (CTMP) which will set out the mitigation measures to be implemented during the construction phase. This document will be developed by the Principal Contractor (in consultation with the Principal Contractor for the associated proposed Fanellan 400 kV Hub development) in agreement with The Highland Council prior to commencement of construction activities. The measures will manage the impact of all construction traffic on the operation of the local road network. Therefore, no further assessment of traffic noise impacts during the construction phase is considered necessary. The traffic impacts associated with the operational phase are anticipated to be of low volume, being limited to movements associated with service vehicles carrying out routine maintenance. Therefore, further assessment of the traffic impacts of the Proposed Development during the operational phase is not considered necessary. With this in mind, it is proposed to scope noise and vibration from traffic and transport out of the EA.

Consultation

9.2.7 The methodology and assessment approach outlined below is standard for this type of development. In undertaking the assessment, consideration has been given to the scoping and pre-application responses which has been undertaken for the associated proposed Fanellan 400kV Hub as detailed in **Table 9.1: Summary of** Consultation**.**

Table 9.1: Summary of Consultation

Consultee and Date	Type of consultation	Response	How Issue has been Addressed
THC (14/11/2023)	Pre-application advice for associated proposed Fanellan 400kV Hub (25/00826/FUL)	In addition to the potential impacts from the combined substation and converter station or the individual station sites, it will be vital to consider the potential cumulative impacts from the associated overhead lines due to connect into the sites. Finally, whilst not specifically included as part of this application, the wider project includes the installation of OHL lines both from Spittal and to Peterhead. The installation of 400 kV line requires significant	Construction noise and vibration is assessed to BS 5228-1 and BS 5228-2 respectively. Construction is proposed to take place from 07.00 to 19.00 seven days a week. Construction noise has been assessed to 55 dB limits to be in accordance with the Evening and Weekends limit, as per BS 5228-1. It has also been assessed to 65 dB limits to show impacts in the Daytime and Saturdays timeframe. Operational noise caused by corona discharge in wet conditions is assessed according to TGN(E)322. Cumulative effects from construction of the Fanellan 400 kV Hub is considered. Cumulative operational noise from the Fanellan 400 kV Hub and associated two new proposed OHLs

Consultee and Date	Type of consultation	Response	How Issue has been Addressed
		construction works and will also require a construction noise management. Furthermore, an operational noise assessment for the OHL will require to be submitted in accordance with National Grid Technical Guidance Note TGN(E)322 (2021) operational audible noise assessment process for overhead lines.	(Beauly to Peterhead and Spittal to Beauly) is assessed.
ECU (24/01/24)	Pre-application	No concerns raised about noise.	No action required.
ECU (26/04/24)	Screening Opinion	No concerns raised about noise. The general comment was made that: "The proposed Development would be situated immediately beside the proposed new substation and proposed 400 kV OHL's from Spittal and Peterhead. There may be overall significant effects on the cumulative impact of all these projects, however the proposed Development assessed within this screening opinion is unlikely to provide a significant contribution...." and that "The Scottish Ministers therefore conclude that the effects of the proposed Development are not likely to be significant and that an Environmental Impact Assessment report shall not be required."	No action required.

Legislation, Policy, and Guidance

9.2.8 The assessment has taken account of applicable planning policy and current guidance.

Planning Advice Note (PAN) 1/2011: 'Planning and Noise' and Associated Technical Advice Note (TAN) 2011

9.2.9 Published by the Scottish Government in March 2011, this document provides advice on the role of the planning system in helping to prevent and limit adverse effects of noise. Information and advice on noise assessment methods are provided in the accompanying Technical Advice Note (TAN): *Assessment of Noise*. Included within the PAN document and the accompanying TAN are details of the legislation, technical standards and codes of practice for specific noise issues.

9.2.10 TAN provides guidance which assists in the technical evaluation of noise assessments. It provides a table of receptor sensitivities as shown in **Table 9.2: Evaluation of Receptor Sensitivity (TAN 2011**).

Table 9.2: Evaluation of Receptor Sensitivity (TAN 2011)

Level of Sensitivity	Definition
Low	Receptors where distraction or disturbance from noise is minimal.
	• Buildings not occupied during working hours. • Factories and working environments with existing high noise levels. • Sports grounds when spectator noise is a normal part of the event. • Night Clubs.
Medium	Receptors moderately sensitive to noise, where it may cause some distraction or disturbance.
	• Offices. • Bars/Cafes/Restaurants where external noise may be intrusive. • Sports grounds when spectator noise is not a normal part of the event and where quiet conditions are necessary (e.g. tennis, golf, bowls).
High	Receptors where people or operations are particularly susceptible to noise.
	• Residential, including private gardens where appropriate. • Quiet outdoor areas used for recreation. • Conference facilities. • Theatres/Auditoria/Studios. • Schools during the daytime. • Hospitals/residential care homes. • Places of worship.

9.2.11 Neither PAN 1/2011 nor the associated TAN provides specific guidance on the assessment of noise from fixed plant, but the TAN includes an example assessment scenario for 'New noisy development (incl. commercial and recreation) affecting a noise sensitive building', which is based on BS 4142:1997: *Method for rating industrial noise affecting mixed residential and industrial areas*. This British Standard has been replaced by BS 4142:2014: *Methods for rating and assessing industrial and commercial sound,* which was further amended in 2019**.**

TGN(E)322 – Operational Audible Noise Assessment Process for Overhead Lines

9.2.12 The National Grid Electricity Transmission (NGET) has derived a procedure to assess the impact of OHL noise in both dry and rainy conditions – TGN(E)322 – Operational Audible Noise Assessment Process for Overhead Lines

9.2.13 The procedure requires that a series of assessments are conducted in tiers. Tier 3 requires that the background noise (BGN) at NSRs within a set distance from Proposed Development be measured during quiet night times and in dry conditions with little wind. The nature of the ground surface around the sensitive receptors is noted so that the contribution to background noise of the surface noise attributable to the rainfall can be derived from empirically derived curves (Miller curves). Miller curve descriptions are provided in **Table 9.3**

Table 9.3: Miller Curve Description

Miller Curve	Description
R-1	Essentially bare, porous ground (that is ploughed field or snow-covered ground), no standing puddles or water. Relatively small-leafed ground cover vegetation, such as grass lawn, meadow, hayfield shortly after mowing, field of small-leaf plants.
R-2	Non-porous, hard, bare ground or pavement, falling raindrops splash on thin layers of puddles of collected water; or in or beside wooded area of deciduous trees without leaves or with only small leaves; or in or

Miller Curve	Description
	beside wooded area of coniferous trees or evergreens having needles rather than leaves; or thin-leafed ground cover of crop, such as hay, clover, or grain.
R-3	A few small, fully leafed deciduous trees 15 to 30 m or a few large, fully leafed trees 30 to 90 m distance.
R-4	Large area of fully leafed trees or large-leafed crops or vegetation, such as corn starting 15 to 30 m distance.
R-5	Large area of fully leafed trees or large-leafed crops or vegetation surrounding the area of interest.

9.2.14 The logarithmic sum of the measured BGN and the empirically derived contribution for rainfall is adopted as the BGN level, in rainy conditions, against which to compare the predicted received noise from the OHL. Using the parameters provided in TGN(E)322 the likelihood of an adverse impact can be assessed.

9.2.15 The assessment procedure follows TGN(E)322, and has been conducted in the following stages:

- the outcome of the Tier 1 assessment will determine whether the 'worst case' wet noise impact is predicted to be acceptable, or whether further assessment is required;
- the outcome of the Tier 2 assessment will determine whether the combined wet and dry noise impact is acceptable, or whether further assessment is required;
- the outcome of the Tier 3 assessment will determine whether the noise impact is acceptable, whether the noise needs to be mitigated and minimised or whether the noise is unacceptable;
- the Tier 3 assessment takes account of existing background sound levels in the area and noise levels due to rainfall;
- the attended collection of night-time background noise levels at NSRs, or groups of such NSRs, that proceed to Tier 3 during suitable dry weather conditions, before construction;
- allowance for the effects of rainfall on BGN;
- prediction of contribution from conductors; and
- determination of total excess at the most likely rain rate.

British Standard 4142:2014+A1:2019: Methods for rating and assessing industrial and commercial sound (hereafter referred to as BS 4142)[95]

9.2.16 BS 4142 is the basis of a TGN(E)322 Tier 3 assessment. BS 4142 describes methods for rating and assessing the following:

- sound from industrial and manufacturing processes;
- sound from fixed installations which comprise mechanical and electrical plant and equipment;
- sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and
- sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train movements on or around an industrial and/or commercial site.

9.2.17 The methods use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

[95] British Standard 4142: *Methods for rating and assessing industrial and commercial sound* (BS 4142), BSI, 2014, Amended 2019

9.2.18 In accordance with the assessment methodology, the specific sound level ($L_{Aeq,T}$) of the noise source being assessed is corrected, by the application corrections for acoustic features, such as tonal qualities and/or distinct impulses, to give a "rating level" ($L_{Ar,Tr}$). BS 4142 effectively compares and rates the difference between the rating level and the typical background sound level ($L_{A90,T}$) in the absence of the noise source being assessed.

9.2.19 BS 4142 advises that the time interval ('T') of the background sound measurement should be sufficient to obtain a representative or typical value of the background sound level at the time(s) when the noise source in question is likely to operate or is proposed to operate in the future. The time interval used in the provided survey data was 15 minutes.

9.2.20 Comparing the rating level with the background sound level, BS 4142 states:

> *"Typically, the greater this difference, the greater the magnitude of impact.*
>
> *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
>
> *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.*
>
> *The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context."*

9.2.21 The guidance outlined in BS 4142: 2014 is somewhat comparable to Tier 3 of TGN(E) as both methods are intended to evaluate industrial sources at the NSR.

British Standard 5228-1:2009 +A1:2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites (hereafter referred to as BS 5228) [96]

9.2.22 Guidance on the prediction and assessment of noise and vibration from construction sites is provided in British Standard (BS) 5228 2009 +A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise. BS 5228-1 provides recommended limits for noise from construction sites.

9.2.23 The construction noise impact assessment (CNIA) has been carried out according to the ABC method specified in Table E.1 of BS 5228-1, in which noise sensitive receptors (NSRs) are classified in categories A, B or C according to their measured or estimated background noise level.

9.2.24 Part 2: Vibration. BS 5228-2 provides recommended limits for vibration from construction sites. The construction vibration impact assessment (CVIA) will be carried out against the guidance on effects of vibration levels specified in Table B.1 of BS 5228-2. The level of vibration ranging from 0.14 mm.s-1 to 10 mm.s-1 indicates where vibration may be perceptible however acceptable, or intolerable.

Assessment Methodology

Construction Noise

9.2.25 A desk-based construction noise impact assessment has been prepared for the effects of the construction works on any nearby residents. This assessment has been produced in line with British Standard 5228:2009 +A1:2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites (BS 5228).

9.2.26 NSRs that fall within approximately 1.5 km of the centre of the Proposed Development and surrounding access tracks and links are considered. A total of 154 NSRs are considered in this study and are detailed in **Appendix 9A.3**.

[96] British Standard 5228: Code of practice for noise and vibration control on construction and open sites (BS 5228), BSI, 2009, amended 2014

9.2.27 Potential significant noise effects that may result from the construction of the Proposed Development:

- effects of construction noise on the surrounding area and on NSRs. Including effects of static and quasi-static construction noise from construction plant, such as excavators, dump trucks and cranes.

9.2.28 The construction noise of the Proposed Development is assessed. In addition, other proposed projects that are assessed cumulatively with the Proposed Development are:

- Fanellan 400kV Hub
- Black Bridge Replacement Works
- Spittal to Loch Buidhe to Beauly 400kV OHL
- Beauly to Peterhead 400kV OHL

9.2.29 The estimated construction schedule **Table 9.5** and likely construction equipment have been supplied by The Principal OHL Contractor with source sound power level data identified in Annex C of BS 5228-1. The equipment and utilisation have been estimated by the Principal Contractors for the relevant phases, which are subject to change. The activity is analysed to determine the percentage of the construction time each piece of equipment is being used and how many are in use. Using this information, a total equivalent noise level is calculated. The dispersion of this total noise level is then modelled, accounting for distance and ground absorption.

Construction Vibration

9.2.30 A desk-based construction vibration assessment has been prepared for the purpose of assessing the effects of the construction vibration works on any nearby residents. This appraisal has been produced in line with British Standard 5228:2009 +A1:2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites (BS 5228).

9.2.31 BS 5228-2 provides recommended limits for vibration from construction sites. The construction vibration impact assessment (CVIA) has been carried out against the guidance on effects of vibration levels specified in Table B.1 of BS 5228-2. The level of vibration ranging from 0.14 mm.s-1 to 10 mm.s-1 indicates where vibration may be perceptible however acceptable, or intolerable.

9.2.32 Construction activities that induce vibration are likely to be limited to potential piling activities where required at the foundations of tower platforms. As a worst-case assessment, all towers are assumed to require foundations works. The formulae for the prediction of groundborne vibration due to piling is taken from Table E.1 in BS 5228-2.

9.2.33 General formulae have been developed empirically in BS 5228 and can be used to predict vibration levels, but more site-specific testing should be done at time of construction.

Operational Noise

9.2.34 The corona-induced audible noise of both the temporary and permanent OHL diversions in rainfall has been calculated using the EPRI method as recommended in TGN(E)322. Information of the Twin Araucaria conductor type has been supplied for this calculation. The external rain-induced noise levels will be assessed using the TGN(E)322 methodology developed by National Grid, which is recommended by the Department of Energy & Climate Change for the assessment of rain induced noise.

9.2.35 During wet conditions, the noise output from OHLs varies according to the number and size of rain droplets accumulated on the surface of the conductors. Therefore, there is a strong relationship between the rainfall rate and the noise output from an OHL. Background noise levels also increase with rainfall rate, such that during very heavy rain noise is generally inaudible. For these reasons, an alternative noise assessment method to deal with rain-induced noise is required.

9.2.36 In the TGN(E)322 method, the tiered system screens out receptors where wet noise is predicted to fall below 34 dB in Tier 1 and if necessary, assesses the combined wet and dry noise in Tier 2. If the combined wet and dry noise is

predicted to be above 36.8 dB, Tier 3 is required. In Tier 3, the total noise is assessed at a worst-case rain rate of 1 mm/hr to provide the excess above the wet background noise.

9.2.37 In a Tier 3 assessment, the excess wet figure is compared against BGN level calculated through the logarithmic addition of dry BGN levels and predicted noise due to rainfall according to the Miller curve value for that specific NSR. To conduct a conservative assessment, all NSRs have been assigned the R-1 Miller Curve, which will provide the lowest background noise level in wet conditions

9.2.38 The permanent Beauly-Denny OHL diversion and the whole OHL will be operating at 400 kV on both circuits. The temporary diversion is assumed to be operating at 400 kV on both circuits as a worst-case assessment. Both diversion instances have been assessed according to the TGN(E)322 procedure.

9.2.39 Only receptors which the OHL moves closer to are considered in the assessment of the diversions. NSRs are not considered where the line is diverted further away or stays in the same place, as the noise source levels are expected to be the same or improved at these locations. All receptors are considered to be of residential use.

Sensitivity of Receptors

9.2.40 The sensitivity of the NSR is estimated in its current state prior to any assessment of impact by the Proposed Development. The level of sensitivity is determined according to existing regulations and guidance, societal value, and vulnerability for the change. By the combination of the assessed value of these three components, the NSRs' sensitivity can be classified as Low, Medium or High, as recommended by TAN 2011. **Table 9.2: Evaluation of Receptor Sensitivity (TAN 2011**) shows the description of receptor sensitivities.

9.2.41 All NSRs considered in the construction assessment are assumed to be residential/commercial in nature, with a semi-rural baseline noise environment. Therefore, the sensitivity of all NSRs is High.

Magnitude of Impact

9.2.42 The magnitude of an impact at a given receptor can be interpreted as the degree of alteration that is undergone by the receptor as a consequence of the impact. Magnitude criteria is quantitative using specified standards. The impact magnitude is worked out on a case-by-case basis for each NSR and classified as Negligible, Low, Medium, or High.

Construction Noise and Vibration

9.2.43 The noise criteria provided for the ABC method are detailed in BS 5228-1 are shown in **Table 9.4: Construction Noise Impact Assessment** Criteria.

Table 9.4: Construction Noise Impact Assessment Criteria

Assessment category and threshold value period	Threshold value, LAeq (dB)		
	Category A	Category B	Category C
Night-time	45	50	55
Evenings and weekends	55	60	65
Daytime and Saturdays	65	70	75

9.2.44 Night-time is defined as between 23:00 and 07:00. Evenings and weekends are defined as 19:00 – 23:00 on weekdays, 13:00 – 23:00 on Saturdays and 07:00 – 23:00 on Sundays. Daytime is defined to be 07:00 – 19:00 on weekdays and 07:00 – 13:00 on Saturdays.

9.2.45 The NSR is defined as Category A if the ambient noise levels (rounded to the nearest 5 dB) are less than those stated for Category A. This is true for the Study Area (ambient noise levels range between 23 and 32 dB) and therefore the Proposed Development will be assessed to Category A thresholds.

9.2.46 The construction schedule of the Proposed Development is shown in **Table 9.5: Daily Construction Schedule of** OHL which was supplied by the Principal Contractor Morrisons Energy Services (MES).

9.2.47 Cumulative construction noise has been considered for the following proposed Cumulative Projects:

- Fanellan 400 kV hub
- Black Bridge
- Western Isles Underground Cable (UGC)
- Spittal to Beauly 400 kV OHL
- Beauly to Peterhead 400 kV OHL

9.2.48 The construction schedule for the proposed Beauly Denny OHL diversion is presented in Table 9.5 and was supplied by The Principal OHL Contractor. A construction schedule is not available for Black Bridge; however a high-level assessment has been conducted to determine the potential impact. No information is currently available for the Western Isles UGC and therefore has not been assessed cumulatively. The UGC project will be assessed as part of its own EA and assessed cumulatively with the projects listed within this report where relevant. Any construction activities associated with the Proposed Development that are concurrent with either Spittal to Beauly 400 kV OHL or Beauly to Peterhead 400 kV OHL must be controlled through a Construction Noise Management Plan (CNMP) to manage noise emissions from static activities.

Table 9.5: Daily Construction Schedule of OHL

Contract Works	Proposed Working Hours
Tree Felling	(January to December) Monday to Sunday: 07:00 to 19:00
Foundations	
Tower Erection / Removal	
Downleads	
Stringing of Conductors	
Yard	
General	

9.2.49 From the outlined construction schedule above, it is expected that the majority of construction works will occur during BS5228 daytime hours but will extend into Saturday afternoons and Sundays. Construction work will be subject to the 55 dB Evening and Weekends limit. Excess of 5 dB over the limit criteria will result in **High** impact magnitude. Excess (less ≤ 5dB) over this limit criteria will result in **Medium** impact magnitude. Below this limit will result in **Low** impact magnitude.

9.2.50 With a noise limit of 55 dB(A) identified from BS 5228-1, the following magnitude of impact at receptors can be determined from **Table 9.6: Construction Noise - Magnitude of Impact at Receptors.**

Table 9.6: Construction Noise - Magnitude of Impact at Receptors

Magnitude of Impact	Construction Noise Level (dB(A))
High	> 60
Medium	56 to 60
Low	BGN to 55
Negligible	< BGN

9.2.51 Criteria for construction vibration due to access tracks and foundation works are taken from Table B.1 in BS 5228-2 and shown in **Table 9.77: Construction Vibration Impact Assessment Criteria**. Vibration is measured as peak particle velocity (PPV) measured in millimetres per second ($mm \cdot s^{-1}$).

Table 9.77: Construction Vibration Impact Assessment Criteria

Impact Magnitude	Vibration Level, Peak Particle Velocity (PPV) ($mm.s^{-1}$)	Effect
Negligible	0.14 $mm \cdot s^{-1}$	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
Low	0.3 $mm \cdot s^{-1}$	Vibration might be just perceptible in residential environments.
Medium	1.0 $mm \cdot s^{-1}$	It is likely that vibration of this level in residential environments will cause complaints but can be tolerated if prior warning and explanation have been given to residents.
High	10 $mm \cdot s^{-1}$	Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments.

9.2.52 Excess over the 10 $mm \cdot s^{-1}$ criteria will result in **High** impact magnitude. Construction vibration between the 1 $mm \cdot s^{-1}$ and 10 $mm \cdot s^{-1}$ threshold will result in **Medium** impact magnitude. Below 1 $mm \cdot s^{-1}$ will result in **Low** impact magnitude.

Operational Noise

9.2.53 The impact of operational noise is approached as a tiered assessment in TGN(E)322.

9.2.54 The outcome of the Tier 1 assessment will determine whether the 'worst case' wet noise impact is predicted to be acceptable, or whether further assessment is required. Predicted free field wet noise levels at the external façade of the NSR are compared against the Tier 1 noise criteria outlined in **Table 9.8: Operational Noise – Tier 1.**

Table 9.8: Operational Noise – Tier 1

Use	No Adverse Impact - Screened Out	Tier 2 Assessment Required
Vulnerable subgroups	< 29 dB(A)	> 29 dB(A)
Residential	< 34 dB(A)	> 34 dB(A)
Schools and Hotels	< 39 dB(A)	> 39 dB(A)

9.2.55 Where the predicted wet noise levels fall into the 'No Adverse Impact' category in Table 1, the noise from the OHL is acceptable. Receptors falling into this category are screened out of further assessment and no further action or assessment is necessary, impact can be considered **Negligible**.

9.2.56 A Tier 2 Assessment shall be carried out where predicted Wet Noise levels exceed the 'No Adverse Impact' Category. A Tier 2 assessment considers the combined dry and wet noise contribution through logarithmic calculation to determine new noise criteria. The combined noise criteria are presented in **Table 9.9: Operational Noise – Tier 2.**

Table 9.9: Operational Noise – Tier 2

Use	No Adverse Impact	Adverse Impact	Significant Adverse Impact
Vulnerable subgroups	< 31.7 dB(A)	31.7 - 41.7 dB(A)	> 41.7 dB(A)
Residential	< 36.7 dB(A)	36.7 - 46.7 dB(A)	> 46.7 dB(A)
Schools and Hotels	< 41.7 dB(A)	41.7 - 51.7 dB(A)	> 51.7 dB(A)

9.2.57 Where the predicted combined wet/dry noise level falls into the 'No Adverse Impact' category in a Tier 2 assessment, impacts can be considered **Low**.

9.2.58 Where the predicted combined wet/dry noise level falls into the 'Significant Adverse Impact' category in a Tier 2 assessment, TGN(E)322 states a Tier 3 assessment will be necessary. As a conservative approach, this assessment also proceeds to Tier 3 where 'Adverse Impacts' are identified at Tier 2.

9.2.59 The outcome of the Tier 3 assessment will determine whether the noise impact is acceptable, whether the noise needs to be mitigated and minimized or whether the noise is unacceptable.

9.2.60 The Tier 3 assessment takes account of existing background sound levels in the area and noise levels due to rainfall. The Tier 3 Assessment requires the impact of dry Noise and wet Noise to be assessed separately using two different methods which are based on the principles of BS41425. The two methods differ in that the dry Noise assessment requires the determination of the existing baseline sound level, whilst for the wet noise assessment, it is necessary to predict the increase in background sound levels due to rainfall (as discussed in 9.2.37).

9.2.61 Magnitude criteria can be quantitative using standards from BS 4142. The impact magnitude is worked out on a case-by-case basis for each NSR and classified as Negligible, Low, Medium, or High. Information from the rating level, the background sound level, and the stated impacts from a BS4142 assessment have been converted into representative impact magnitudes, detailed in **Table 9.8: Operational Noise – Tier** 3.

Table 9.8: Operational Noise – Tier 3

Impact Magnitude	Definition	BS4142 Excess Above Background
Negligible	Impact to the receptor is immeasurable, undetectable or within the range of normal natural background variation.	≤ 0 dB
Low	The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context	0 to 4 dB
Medium	A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.	5 to 9 dB
High	A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.	≥ 10 dB

9.2.62 A difference in the rating level at the NSR compared to background sound levels of +10dB or more is likely to be an indication of a **High** impact.

9.2.63 A difference of +5dB to +9dB is likely to be an indication of a **Medium** impact.

9.2.64 A difference of 0 to +4dB is an indication of **Low** impact.

9.2.65 Where the level of noise from the OHL does not exceed the background sound level, this is an indication of noise from the OHL having a **Negligible** impact.

9.2.66 Information from the rating level, the background sound level, and the stated impacts from a BS 4142 assessment have been converted into representative impact magnitudes and are detailed in **Table 9.9: Matrix for Determination of Significance of Effects**.

Significance of Effect

9.2.67 After assessing the sensitivity of the NSR in its baseline state, and then the impact magnitude of the noise likely to affect the NSR, an estimate of the significance of effect can be derived by applying a calculation matrix.

9.2.68 The measure of significance is the key output of the impact assessment process and drives the requirement for mitigation measures to be applied during operation to offset or reduce potential project generated effects.

9.2.69 The predicted significance of the effect was determined through the recommendations in TAN 2011 and based on professional judgement, considering both sensitivity and magnitude of change as detailed in **Table 9.9: Matrix for Determination of Significance of** Effects**.**

Table 9.9: Matrix for Determination of Significance of Effects

Significance		Level of Significance Relative to Sensitivity of Receptor		
		Low	**Medium**	**High**
Impact Magnitude	**High**	Minor / Moderate	Moderate / Major	Major
	Medium	Minor	Moderate	Moderate / Major
	Low	Neutral / Minor	Minor	Minor / Moderate
	Negligible	Neutral / Minor	Neutral / Minor	Minor
	No change	Neutral	Neutral	Neutral

9.2.70 The evaluation of effect significance shall be performed by following professional judgment, considering the context where necessary. A conservative approach to methodology has been applied, where worst-case results are reported. This is a robust approach and used to account for potential uncertainties. Uncertainties include temperature gradients near the ground which can affect the sound propagation. Resulting effects of **Moderate** and **Major** impacts are considered significant.

9.3 Assessment Limitations and Assumptions

9.3.1 This assessment considers conservative assumptions with the aim to produce a worst-case assessment. This ensures that in practicality, noise levels would be expected to be lower than the assessment details, and uncertainty is reduced to as minimal as possible.

9.3.2 Estimated noise emissions from the construction of the Proposed Development have been based on the equipment information supplied by the Principal Contractor. There is always a degree of uncertainty when conducting assessments on developments prior to completion of detailed design. This assessment considers conservative assumptions to produce a worst-case assessment to account for those uncertainties and ensure that the assessment is robust.

9.3.3 Unless otherwise stated, all sound levels refer to free field levels i.e. sound levels without influence from any nearby reflective surfaces.

9.3.4 The assessments are based on information available at the time of publication, any changes to design or specification of the Proposed Development that may lead to increased adverse effects would require re-assessment.

9.3.5 The perception and impact of noise is subjective. However, the standard methodologies aim to assess noise objectively.

9.3.6 Whilst some information is subject to change such as the construction activities, it is considered that there is sufficient information to enable an informed decision to be taken in relation to the identification and assessment of likely Significant environmental effects on noise and vibration.

9.3.7 There will be periods just after rainfall or during mist conditions where there is some noise emission from the OHL, although these levels are less than those during rain. Noise generated under these circumstances is referred to as 'wet noise'. The number of droplets, and hence the noise level, will depend primarily on the rate of rainfall. Historical studies determined that hum inception typically occurs at a rainfall rate of approximately 1 mm/hr.

9.3.8 Potential uncertainties occur in calculation, rounding, and baseline levels used. Assumptions include a flat terrain between OHL centreline and NSR. For all calculations, an uncertainty distance of 10 m has been included when determining distance from source to receiver. In Tier 1 and 2 of the TGN(E)322 assessment, no acoustic absorption due to the ground is included to ensure a worst-case assessment. The calculation for OHL conductor noise uses the Electric Power Research Institute (EPRI)[97] method of calculation which assumes a moderately aged conductor, which is appropriate for the assessment of the Proposed Development for the lifetime of its operation.

9.3.9 There is no method to reliably predict or assess for the potential aeolian noise impacts. Therefore, aeolian noise is not assessed within this Section. However, the impacts of such noise should be anticipated and mitigated where possible in the design of the Proposed Development. Certain dampers and insulators are known to produce aeolian noise, therefore, it is recommended to select appropriate OHL components and avoid those that are known to produce aeolian noise where practicable to do so. Where possible, it is also recommended to obtain manufacturer statements of such components that are known to produce no aeolian noise.

9.4 Construction Noise

9.5 Results

9.5.1 At the time of writing, the total equipment expected to be used has been supplied. **Appendices 9A.4 to A.12** show the plant activities, items, their quantities, utilisation and associated noise levels at 10 m from the source.

9.5.2 To calculate the potential construction noise levels from each construction phase, information about the proposed construction activities is needed. The Principal Contractor will be responsible for developing the detailed construction methodology and associated plant requirements. Noise due to vehicle movements is also considered in this calculation. By combining the items' noise levels ($L_{A,eq}$ at 10 m from the plant (dB)) with the amount of time each will be running (utilisation) and their quantity, the total equivalent noise can be calculated for each activity. These are then logarithmically summed to give a total value for the construction noise at 10 m from the noise source. The total equivalent noise level at 10 m from the plant source for each activity can be used in a propagation calculation to find the specific noise at each receptor. To ensure a worst-case assessment, it has been assumed that all works within the phases will take place simultaneously.

9.5.3 This attenuation has been calculated over mixed hard and soft ground to the F.2.3.2 method in BS 5228. Given the dominance of soft ground in the area surrounding the Proposed Development, this is slightly conservative. The effects of barriers or topographical screening have not been considered.

[97] Electrical Power Research Institute, 2005. *EPRI AC Transmission Line Reference Book – 200 kV and Above*, Third Edition, Final Report, 2005, Electrical Power Research Institute.

9.5.4 The Construction Noise Assessment (results for the Proposed Development are shown in **Appendix 9A.13**) predicts that construction noise has the potential to exceed the 55 dB noise limit at stages in the construction. These are summarised in **Table 9.10: Summary of Construction Noise Results per** Phase below.

Table 9.10: Summary of Construction Noise Results per Phase

Phase	NSRs in excess (above 55 dB Limit indicating Medium impacts)	NSRs in excess (above 60 dB indicating High Impacts)	NSRs above 65 dB (if assessed during Daytime and Saturdays)
Tree Felling	58	21	8
Foundations	36	26	2
Tower Erection / Removal	33	8	0
Downleads	58	20	1
Stringing of Conductor	65	29	9
Fibre Diversion	31	6	0
Scaffold	32	3	0
Yard	43	7	0
General	32	4	0

9.5.5 Based on the results shown for the construction phases for the Proposed Development, construction noise at 65 NSRs is above the 55 dB Evening and Weekends criteria. The foundations phase is expected to cause a maximum of 71 dB at Fanellan Crofthouse. Therefore, prior to the mitigation measured outlined in Section **9.6**, construction noise results in **High** impact magnitude, assessed as **Major,** and therefore significant due to being at least 5 dB over the 55 dB limit.

Cumulative Construction Noise

9.5.6 Information was supplied for the Fanellan 400 kV Hub construction. The noisiest phase is predicted to be the foundations. As a worst-case assessment, if the foundations phase of the Proposed Development was to coincide with the noisiest phase of the Fanellan 400 kV Hub (Earthworks AC) then 76 breaches of the 55 dB are predicted, with 43 NSRs predicted to experience noise at least 5 dB over the 55 dB limit. Therefore, prior to the mitigation measured outlined in **Section 9.6**, construction noise results in **High** impact magnitude, assessed as **Major,** and therefore significant due to being at least 5 dB over the 55 dB limit. **Table 9.11: Summary of Cumulative Construction Noise Results with Fanellan 400 kV** Hub shows the number of NSRs affected.

Table 9.11: Summary of Cumulative Construction Noise Results with Fanellan 400 kV Hub

Phase	NSRs in excess (above 55 dB Limit indicating Medium impacts)	NSRs in excess (above 60 dB indicating High Impacts)	NSRs above 65 dB (if assessed during Daytime and Saturdays)	NSRs above 70 dB (if assessed during Daytime and Saturdays indicating High impacts)
Proposed Development Foundations	36	26	2	1
Cumulative with Fanellan 400 kV Hub Earthworks AC	76	43	7	3

9.5.7 The results show that the cumulative construction for the worst-case phases increase the number of receptors that exceed the 55 dB limit. The receptors that exceed 65 dB due to cumulative construction noise that did not already exceed 65 dB due to the Proposed Development or Fanellan 400 kV hub alone are NSR 7 – Lower Fanellan and NSR 9 – Wester Fanellan. NSRs 1 and 5 only exceed 55 and 65 dB noise limit due to the Proposed Development. NSRs 6, 99 and

100 are already exceeding both the 55 and 65 dB noise limit without the Proposed Development (construction limit breaches are only due to the Fanellan 400 kV Hub).

9.5.8 With the information supplied for the Black Bridge site establishment, it is not anticipated that cumulative noise at any NSR will breach the 55 dB limit that has not already been breached by the worst-case construction of the Proposed Development (Tree Felling and Foundations). Tree felling activity (that will take place for the Proposed Development and associated proposed Fanellan 400kV Hub) will likely be short-term and subject to change as the number of proposed equipment and active on-time are a conservative estimate at time of writing.

9.5.9 It is important that Cumulative Projects are considered in the phasing and schedules as an overlap may cause an increase in noise due to static equipment.

9.6 Mitigation during Construction

9.6.1 All of the eight phases for the Proposed Development works are predicted to cause **Moderate** effects against the 55 dB limit and it is therefore deemed **Significant**.

9.6.2 The potential piling works due to foundation construction is the major contributor to noise limit breaches at nearby NSRs (NSR 1 and NSR 5). This work should also be prioritised during the day. The two piling rigs are currently predicted to operate 100 % of the working hours and to produce a sound power level of 123 dB and a sound pressure level of 115 dB at 10 metres. If the total sound power level of the two rigs can be reduced to 115 dB then noise limits could be met at the nearby NSRs. This could potentially be achieved by reducing the number of rigs in use, minimise the time that any rig is operational for, and procuring a lower noise piling rig where possible, but the Principal Contractor would need to explore the feasibility of this.

9.6.3 The felling of trees is also expected to produce high noise levels at the nearby NSRs. NSRs 1, 23, 48 are within 100 m of the vegetation clearance areas and result in high noise levels. Although felling is likely to be short-term, the noisiest equipment such as the chainsaws must be managed for the duration of total operational time.

9.6.4 Noise due to stringing of the temporary and permanent OHL diversions is largely dominated by the tractors, which must be managed for duration of total operational time.

9.6.5 If the schedules of the Fanellan 400 kV Hub Earthworks AC phase and the Proposed Development foundations phase are concurrent, the noisiest activities must be prioritised during the hours of Daytime and Saturdays and thus assessed to the 65 dB limit. If this mitigation measure is in place, the Fanellan 400 kV Hub construction causes a change at three NSRs (6, 7, 9) however these are not predicted to exceed 70 dB and therefore indicate **Medium** impacts and therefore deemed **Significant**.

9.6.6 It is best practice that construction noise should be controlled by a CNMP, in accordance with the guidance and procedures outlined in BS 5228-1. The CNMP is expected to be embedded within the Construction Environmental Management Plan (CEMP). Procedures will include:

- minimising the noise as much as is reasonably practicable at source;
- attenuation of noise propagation;
- carrying out identified 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 residents

9.6.7 In order to maintain low impact on the noise environment, consideration will be given to attenuation of construction noise at source by means of the following:

- giving due consideration to the effect of noise, in selection of construction methods;

- avoidance of vehicles waiting or queuing, particularly on public highways or in residential areas with their engines running;
- scheduling of deliveries to arrive during set hours to be agreed with the ECU and THC that are likely to be in line with Monday to Friday 08:00 – 19:00 and Saturday 08:00 – 13:00. Care should be taken to minimise noise while unloading delivery vehicles. Delivery vehicles should follow routes that minimise use of residential roads;
- ensure plant and equipment are regularly and properly maintained. All plant should be situated to sufficiently minimise noise impact at nearby properties;
- fit and maintain silencers to plant, machinery, and vehicles where appropriate and necessary;
- operate plant and equipment in modes of operation that minimise noise, and power down plant when not in use;
- use electrically powered plant rather than diesel or petrol driven, where this is practicable;
- work typically not to take place outside of requested working hours (as set out in this EA Report); and
- where feasible, procurement of low noise piling rigs, ideally at or below 115 dB sound power level.

9.6.8 Consideration will be given to the attenuation of construction noise in the transmission path by means of the following:

- locate plant and equipment liable to create noise as far from noise sensitive receptors as is reasonably practicable or use natural land topography to reduce line of sight noise transmission;
- noise screens, hoardings and barriers should be erected where appropriate and necessary to shield high-noise level activities; and
- provide lined acoustic enclosures for equipment such as static generators and when applicable portable generators, compressors and pumps.

9.6.9 Implementing the above mitigation measures into a CNMP will ensure that impacts can be reduced from **Medium** to **Low** and therefore will be deemed **Not Significant**.

9.7 Construction Vibration

Results

9.7.1 Construction activities resulting in vibration are largely unknown at time of writing, therefore, the worst-case parameters will be assumed for vibration. The vibration activities taking place at the Proposed Development has been assessed for impact on the closest receptor. If the assessment passes at the closest receptor, it will pass at all others. The parameters that affect resultant vibration, v_{res}, are shown in **Table 9.12: Groundborne Vibration Parameters from Mechanised Construction** Works**,** airborne vibration is predicted to be negligible compared to groundborne vibration.

Table 9.12: Groundborne Vibration Parameters from Mechanised Construction Works

Vibration Parameter	Range
Maximum amplitude of drum vibration, in millimetres (mm),	Between 0.4 and 1.72 mm
Pile toe depth, in metres (m),	Between 1 and 27 m
Vibrating roller drum width, in metres (m)	Between 0.75 and 2.2 m
Number of vibrating drums	1 or 2

Vibration Parameter	Range
Slope distance from the pile toe or tunnel crown, in metres (m)	Depends on distance between source and receiver and pile toe depth
Nominal hammer energy, in joules (J)	Between 1.5 and 85 kJ
Potential energy of a raised tamper, in joules (J)	Between 1 and 12 MJ
Distance measured along the ground surface, in metres (m)	134 m for closest NSR to Proposed Development (Fanellan Croft House)

9.7.2 **Table 9.13: Groundborne Vibration Results at Nearest** NSRs shows the worst-case results of the groundborne vibration. Vibratory compaction, percussive and vibratory piling, and dynamic compaction have been calculated in the case these activities will take place.

Table 9.13: Groundborne Vibration Results at Nearest NSRs

Vibration Operation	Resultant PPV (mms^{-1})	Magnitude of Impact
Vibratory Compaction (Steady State)	0.15	Low
Vibratory Compaction (Start Up and Run Down)	0.41	Low
Percussive Piling	0.08	Negligible
Vibratory Piling	0.06	Negligible
Dynamic Compaction	9.32	Medium

9.7.3 All impacts for potential vibration works, except dynamic compaction (**Medium),** have been assessed as **Negligible**. Otherwise, in the worst case, all operations are imperceptible, therefore, the effect for construction vibration is **Not Significant**.

9.8 Mitigation during Construction Vibration

9.8.1 If dynamic compaction is to occur the raised tamper energy must be reduced. The mitigation required to lower the impact to Low for this activity is shown in **Table 9.14: Groundborne Vibration Results from Dynamic Compaction at Nearest** NSRs.

Table 9.14: Groundborne Vibration Results from Dynamic Compaction at Nearest NSRs

Maximum Energy of Raised Tamper for Low Impact (MJ)	Maximum Energy of Raised Tamper for Negligible Impact (kJ)
0.9	57.8

9.9 Operational Noise

Proposed Development - Beauly Denny OHL Diversion

9.9.1 As shown in Appendix **9A.14** for the Tier 1 assessment, the wet noise at each location is predicted to be between 26 and 39 dB. Also detailed is the distance from the NSRs to the nearest point on the relevant line. The temporary diversion contributes a higher noise level than the permanent diversion due to the proximity to nearest NSRs.

9.9.2 Audible noise from the wet temporary and permanently diverted overhead lines falls below 34 dB for 151 of the 154 receptors. This results in **Negligible** magnitude of impact at these 6 NSRs and therefore **Not Significant**. There is no requirement to proceed to Tier 2 for these NSRs.

9.9.3 3 NSRs (Fanellan Crofthouse, Fanellan Forest Lodge, 3 Fanellan) are required to proceed to a Tier 2 assessment as wet noise is predicted above 34 dBA at these NSRs. This stage assesses the proportion of time the area is raining or is dry and calculates a 'combined' wet and dry noise. Dry noise is assumed to be 25 dB less than wet noise. Table 2 and Appendix C of TGN(E)322 provide criteria on various rainfall. After evaluating historical rain data from June 2014 to December 2024 at the nearest weather station the Met Office has data for (Lentran Weather Station), the average annual wet hours rain is approximately 1278 hours, or rain is expected to fall 14.6 % of the annual hours. If combined noise is predicted to be above 36.8 dBA, NSRs will proceed to a Tier 3 assessment. The results of this assessment, for both the temporary and the permanent diversion are shown in **Appendix 9A.15**. A summary is provided in **Table 9.15: Summary of Proposed Development Operational Noise** Results.

Table 9.15: Summary of Proposed Development Operational Noise Results

Scenario	Tier	Outcome
Temporary	1	Wet noise is predicted to be above 34 dBA at NSRs 1, 3, 5, therefore proceed to Tier 2. Wet noise is predicted to fall below 34 dBA at NSRs all other NSRs
	2	Combined wet and dry noise at NSRs 1, 3, 5 is predicted to fall below 36.8 dBA, therefore passing a Tier 2 assessment.
Permanent	1	Wet noise is predicted to be above 34 dBA at NSRs 1, 3, 5, therefore proceed to Tier 2. Wet noise is predicted to fall below 34 dBA at NSRs all other NSRs
	2	Combined wet and dry noise at NSRs 1, 3, 5 is predicted to fall below 36.8 dBA, therefore passing a Tier 2 assessment.

9.9.4 The Tier 2 assessment for the remaining 3 NSRs indicates no excess above 36.8 dB for combined noise, therefore no NSRs proceed to Tier 3. The results of the assessment predict **Negligible** impact, and **Not Significant**.

9.10 Cumulative OHL Assessment

9.10.1 Cumulative noise from two other OHLs that are also proposed to connect to the nearby proposed Fanellan 400 kV Hub (proposed 400 kV Beauly-Peterhead and proposed 400 kV Spittal-Beauly) as well as the Fanellan 400 kV Hub itself are considered in this study.

9.10.2 Table 9.1 of **Appendix 9A.16** shows the noise contribution from each OHL span, summed with the predicted noise from the proposed Fanellan 400kV Hub HVDC converter station. The proposed Beauly – Peterhead OHL and Spittal – Beauly OHL are both expected to use a Triple Araucaria conductor array, which produces less noise compared to Twin Araucaria. The NSRs assessed are those that proceeded to a Tier 2 assessment previously. It should be noted that the total noise at NSR 1, 3, and 5 is composed entirely of the wet noise of the Proposed Development. At these locations, the other developments have a negligible contribution to total cumulative noise. The proposed HVDC Converter Station is assumed to be operating with coolers on for predicted maximum cumulative noise emissions.

9.10.3 A summary of the results in shown in **Table 9.1618: Summary of Cumulative Operational Noise Results.**

Table 9.1618: Summary of Cumulative Operational Noise Results

Scenario	Outcome

Wet, with coolers on	Maximum total noise level from the three OHLs and Fanellan 400 kV Hub of 39.4 dB(A) at NSR 3 – Forest Lodge. The noise from the Proposed Development is 39.3 dB(A) at this NSRs, therefore there is no noticeable increase or contribution due to other developments. The substation and other OHLs cause a negligible increase to the wet noise level. From the TGN(E)322 assessment, it has been shown that there are **Negligible** impacts from the Proposed Development and therefore there are no **Significant** cumulative effects. The noise impacts from the Proposed Development were summarised in **Section 9.9.4** as being **Not Significant**. Therefore, cumulative noise is assessed as **Not Significant**.

9.11 Conclusions

9.11.1 The existing noise environment in the surrounding area is of a low level, with the nearby A831 road providing mild traffic noise.

9.11.2 The noise environment in the surrounding area is typically rural, with daytime noise consisting of road traffic noise. At night time there are no dominant noise sources and levels are relatively low.

9.11.3 A desk-based construction noise assessment, in line with BS 5228, has been prepared for the purpose of assessing the effects of the works on any nearby residents. NSRs in the vicinity fall under Category A, and construction noise is predicted to be above the 55 dB Evening and Weekends limit during all stages of the Proposed Development work, and therefore construction noise is assessed initially as **Major** significance. The implementation of a robust CNMP, prioritising particularly noisy work (such as felling or piling) during daytime defined hours with a higher 65 dB limit, will help construction noise of the Proposed Development to achieve a **Minor** (**Not Significant**) impact on nearby NSRs.

9.11.4 Any updates to the construction schedule and plant will need to be revisited and assessed, to inform a more detailed management plan.

9.11.5 Operational noise has been assessed to produce **Minor** effects and is therefore **Not Significant**.

9.11.6 Cumulative noise has been considered from the OHL works (proposed Beauly to Peterhead 400 kV OHL, proposed Spittal to Beauly 400 kV OHL and the Fanellan 400 kV Hub). Effects are deemed to be **Not Significant** effect from cumulative SSEN Transmission Developments during the operational phase.

9.11.7 The assessment concludes that nearby NSRs have the potential for **Minor** effects from operational noise, which is **Not Significant.**

10. CULTURAL HERITAGE

10.1 Introduction

10.1.1 This Section appraises the potential impacts of the Proposed Development on cultural heritage. This Section (and its associated figures and appendices) is not intended to be read as a standalone appraisal and reference should be made to the introductory sections of this EA.

10.1.2 Cultural heritage comprises a diverse range of elements that are referred to as heritage assets. Heritage assets are features created or that have undergone modification from human activity. This includes a wide range of visible and buried archaeological sites and monuments, as well as other historic features or places. Heritage assets comprise World Heritage Sites, Scheduled Monuments, Listed Buildings, Gardens and Designed Landscapes, Inventory Battlefields, Conservation Areas, buried archaeological remains, other historic buildings, and earthworks.

10.1.3 The specific objectives of this Section are to identify the heritage assets that have the potential to be impacted upon by the Proposed Development, appraise the impacts on those heritage assets, and describe the mitigation to remove or reduce those impacts.

10.1.4 Additional information which supports this Section is presented in the following figures and technical appendices:

- Appendix 10A.1: Cultural Heritage Background and Gazetteer;
- Appendix 10A.2: Fanellan Hub 400 kV Substation and Converter Station, Archaeological Project Design for Archaeological evaluation and Mitigation; and
- Figure 10.1: Cultural Heritage Assets.

10.2 Legislative Framework, Policy, and Guidance

10.2.1 The following national legislation and guidance forms the background against which the appraisal has been made:

- Scotland National Planning Framework 4 (2023)[98];
- Planning Advice Note (PAN) 2/2011: Planning and Archaeology (2011)[99];
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017[100];
- The Historic Environment Scotland Act 2014[101];
- Historic Environment Policy for Scotland (2019)[102];
- Ancient Monuments and Archaeological Areas Act 1979[103]; and
- Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997[104].

10.2.2 The following local planning policy relevant to archaeology and cultural heritage that has been considered as part of the appraisal includes:

- Highland-wide Local Development Plan (HwLDP) – Policy 57[105]; and
- Inner Moray Firth Proposed Local Development Plan (2015)[106].

98 Scottish Government (2023). Fourth National Planning Framework 2023. Available at: https://www.gov.scot/publications/national-planning-framework-4/pages/3/
99 Scottish Government (2011). Planning Advice Note (PAN) 2/2011: Planning and Archaeology.
100 UK Government (2017). The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.
101 Scottish Government (2014). The Historic Environment Scotland Act 2014.
102 Scottish Government (2019) Historic Environment Policy for Scotland (HEPS)
103 UK Government (1979). The Ancient Monuments and Archaeological Areas Act 1979.
104 UK Government (1997). Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997.
105 The Highland Council (2012). Highland-wide Local Development Plan.
106 The Highland Council (2015). Inner Moray Firth Local Development Plan.

10.2.3 The following guidance has been applied to the appraisal process:

- Designation Policy and Selection Guidance[107];
- Managing Change in the Historic Environment Setting[108];
- Standard and guidance for historic environment desk-based assessment[109]; and
- Standards and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment[110].

10.3 Appraisal Methodology and Significance

Scope of the appraisal

10.3.1 The scope of the appraisal is to define the known heritage assets within the Site and the study areas surrounding the Site, to identify heritage assets that have the potential to be impacted upon by the Proposed Development. The Site is defined as the Proposed Development and a 50 m Limit of Deviation around the Proposed Development. The appraisal will also identify areas within the Site that have the potential to contain unknown archaeological remains. This Section presents the appraisal of the impacts of the Proposed Development on the heritage assets within the baseline.

Determining Magnitude of Impact and Value of Heritage Assets

10.3.2 The determination of the cultural significance or value of heritage assets is based on statutory designation and/or professional judgement against the characteristics and criteria expressed in HES Designation Policy and Selection Guidance[111] and the Historic Environment Policy for Scotland[112]. The criteria used for the determination are presented in **Table 10.1**.

Table 10.1: Criteria for Appraising the Value of Cultural Heritage Assets

Value	Criteria
Very High	World Heritage Sites (including nominated sites). Heritage assets of acknowledged international importance.
High	Scheduled Monuments (including proposed sites); Listed Buildings (Category A and B); Battlefields included within the inventory; Marine Protected Areas; Gardens and Designed Landscapes; Conservation Areas containing nationally important buildings; Non-designated heritage assets of scheduled quality and importance; and Heritage assets of national importance.
Medium	Listed Buildings (Category C); Conservation Areas containing buildings that contribute significantly to its historic character; and

107 Historic Environment Scotland (2019) *Designation Policy and Selection Guidance*

108 Historic Environment Scotland (2020), Managing Change in the Historic Environment: Setting. Available at: https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationid=80b7c0a0-584b-4625-b1fd-a60b009c254

109 Chartered Institute for Archaeologists (2020) *Standard and guidance for historic environment desk-based assessment*

110 Chartered Institute for Archaeologists (2020) Standards and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment

111 Historic Environment Scotland (2019) *Designation Policy and Selection Guidance*

112 Historic Environment Scotland (HES), (2019), Historic Environment Policy for Scotland, https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=1bcfa7b1-28fb-4d4b-b1e6-aa2500f942e7

Value	Criteria
	Heritage assets of regional importance.
Low	Heritage assets of local importance; Heritage assets compromised by poor preservation and/or poor survival of contextual associations; and Buildings of modest quality in their fabric or historical association.
Negligible	Heritage assets with very little or no surviving archaeological interest; Artefact find spots (where the artefacts are no longer in situ and where their provenance is uncertain); and Poorly preserved examples of particular types of minor historic landscape features (e.g., quarries and gravel pits, dilapidated sheepfolds, etc).

10.3.3 The criteria for assessing the magnitude of impact from the Proposed Development on heritage assets is shown in **Table 10.2**.

Table 10.2: Criteria for Appraising the Magnitude of Impact on Cultural Heritage Assets

Value	Adverse Criteria	Beneficial Criteria
Major	Loss of most or all key archaeological materials or key historic building elements such that the significance of the heritage asset is totally altered. Comprehensive changes to setting such as extreme visual effects, gross change of noise or change to sound quality, or fundamental changes to use or access.	Preservation of a heritage asset in situ where it would otherwise be completely or almost lost. Changes that appreciably enhance the cultural significance of a heritage asset and how it is understood, appreciated, and experienced.
Moderate	Changes to many key archaeological materials or key historic building elements, such that the significance of the heritage asset is clearly modified. Considerable changes to setting that affect the character of the heritage asset such as visual change to many key aspects or views, noticeable differences in noise or sound quality, or considerable changes to use or access.	Changes to important elements of a heritage asset's fabric or setting, resulting in its cultural significance being preserved (where this would otherwise be lost) or restored. Changes that improve the way in which the heritage asset is understood, appreciated, and experienced.
Minor	Changes to key archaeological materials or key historic building elements, such that the significance of the heritage asset is slightly altered. Slight changes to setting such as slight visual changes to few key aspects or views, limited changes to noise levels or sound quality, or slight changes to use or access.	Changes that result in elements of a heritage asset's fabric or setting detracting from its cultural significance being removed. Changes that result in a slight improvement in the way a heritage asset is understood, appreciated, and experienced.
Negligible	Changes to archaeological materials or historic buildings elements such that alterations to the significance of the heritage asset are very minor. Very minor changes to setting such as virtually unchanged visual effects, very slight changes in noise levels or sound quality, or very slight changes to use or access.	Very minor changes that result in elements of a heritage asset's fabric or setting detracting from its cultural significance being removed. Very minor changes that result in a slight improvement in the way a heritage asset is understood, appreciated, and experienced.
No Change	Changes to fabric or setting that leave significance unchanged.	

10.3.4 The terms shown in the matrix below have been used to define the Overall Impact identified and apply to both beneficial and adverse impacts.

10.3.5 For the purpose of this appraisal, Overall Impacts of Moderate or greater are considered potentially material to the s37 consenting process and are highlighted in bold in **Table 10.3**.

Table 10.3: Overall Impact

Value	Magnitude of Impacts					
		Major	**Moderate**	**Minor**	**Negligible**	**No change**
	Very High	**Very Large**	**Large or Very Large**	**Moderate / Large**	Slight	Neutral
	High	**Large / Very Large**	**Moderate / Large**	**Moderate** / Slight	Slight	Neutral
	Medium	**Moderate / Large**	**Moderate**	Slight	Neutral / Slight	Neutral
	Low	Slight / **Moderate**	Slight	Neutral / Slight	Neutral / Slight	Neutral
	Negligible	Slight	Neutral / Slight	Neutral / Slight	Neutral	Neutral

Limitations and Assumptions

10.3.6 The desk-based data gathering and walkover survey on which this appraisal has been based was extensive but not exhaustive, thus there remains the possibility that there may be heritage assets that have not been identified. It has been assumed that the information obtained from data sources listed in 10.5.1 are accurate and up to date at the time of appraisal.

10.4 Study Area

10.4.1 The nature and extent of the cultural heritage resource has been examined to determine the potential direct impacts of the Proposed Development on heritage assets within an Inner Study Area and a wider Outer Study Area.

10.4.2 The Inner Study Area equates to a 250 m radius extending from the edge of the LoD related to the permanent works, for the identification of non-designated heritage assets that may be physically impacted by the Proposed Development during construction and access. The Inner study area allows for consideration of the temporary accesses and towers that form part of the works. Consideration of the surrounding landscape was necessary to establish the local archaeological and historical context, to provide a broader understanding of the historical development of the Proposed Development and the potential for unidentified archaeological remains to be located within the Site. Non-designated heritage assets outside the Inner Study Area primarily pertain to the village of Kilmorack or post-medieval farming activity. It is not expected that changes within the setting of these non-designated heritage assets will result in overall impacts that are considered material to the s37 consenting process.

10.4.3 The Outer Study Area equates to a 1 km area extending from the edge of the Site. This Outer Study Area has been used for the identification of designated heritage assets whose setting is significant enough to be affected by the Proposed Development. The extent of the Outer Study Area and the heritage assets chosen were defined using professional judgement, following initial assessments at site selection.

10.5 Baseline Conditions

Information Sources

10.5.1 The appraisal has been informed by a review of all available archaeological records, historical documentary evidence, cartographic evidence, and photographic material. This has involved a consultation of the following sources:

- Geographic Information System (GIS) data on World Heritage Sites, Scheduled Monuments, Listed Buildings, GDLs, Battlefields, and Conservation Areas obtained from HES[113];
- GIS data on other non-designated heritage assets was obtained from the Scottish National Record of the Historic Environment (SNRHE) which is maintained by HES[96];
- information from Highland Council Historic Environment Team (HCHET);
- pre-Ordnance Survey maps of the Proposed Development area, available online from the National Library of Scotland (NLS)[114];
- first and subsequent editions of the Ordnance Survey (OS) maps of the Proposed Development area, examined via the NLS[97];
- LIDAR datasets of the general area through NLS[97];
- the solid and drift geology for the Proposed Development area based on that recorded by the British Geological Survey/Geological Survey of Great Britain maps[115];
- Ground investigation works within the Proposed Development area and adjacent Fanellan Hub development area were carried out in September 2023 by the AOC Archaeology Group[116]; and
- a walkover survey of the Site was carried out on 11 June 2024 by heritage professionals.

Baseline Summary

10.5.2 There are ten heritage assets noted within the Site and study areas (Figure 10.1).

10.5.3 The non-designated possible prehistoric pit (A9) is located within the Site. There are four non-designated heritage assets within the Inner Study Area:

- Ruttle Wood cairn (Canmore ID 116606) (A6)
- Fanellan pits and structure (Canmore ID 346470) (A7)
- Fanellan structure (Canmore ID 346720) (A8)
- Possible posthole (TP28.1) (A10)

10.5.4 The Outer Study Area contains an additional five designated heritage assets, consisting of one Scheduled Monument, one GDL, and three Listed Buildings:

- Kiltarlity Old Parish Church (SM5570) (A1)
- Beaufort Castle (GDL00052) (A2)
- Category B Kiltarlity Old Parish Church Burial Ground (LB8081) (A3)
- Category C Kilmorack Old Burial Ground (LB7123) (A4)
- Category B Eileanaigas House (LB7117) (A5)

10.5.5 The descriptions of the heritage assets that form the baseline for the cultural heritage appraisal are provided in Appendix 10A.1 Cultural Heritage Background and Gazetteer, and the locations are shown on **Figure 10.1 Cultural Heritage Assets**.

Archaeological Potential

10.5.6 The Proposed Development has a high potential to contain archaeological remains from the prehistoric period and post-medieval periods. This is due to the presence of heritage assets dating from these periods within the Site and

113 https://portal.historicenvironment.scot/spatialdownloads
114 https://maps.nls.uk/
115 British Geological Survey, (2023). Geology Viewer [online]. Available at https://geologyviewer.bgs.ac.uk/ [Accessed May 2024].
116 AOC Archaeology (2023) Beauly Area 400 kV Substation GI Monitoring, Fanellan, Beauly. Archaeological Watching Brief Data Structure Report

Inner Study Area, which includes the prehistoric cairn and sub-surface archaeological remains. There is low potential for medieval remains to be present within the Site, and any remains are anticipated to relate to agricultural activities.

10.6 Consultation

10.6.1 **Table 10.4** provides a summary of the consultation activities undertaken in support of the EIA Report for the associated Fanellan 400 kV Hub Project, that would be located to the immediate southeast of the Proposed Development.

Table 10.4: Summary of Consultation Undertaken

Body / organisation	Type of Consultation Date Received	Summary of outcome of discussions	How the comments have been considered
Historic Environment Scotland (HES)	Pre-application Advice Response 14 November 2023	HES noted that the preferred option (Option 7*) was the best option offered in terms of impact on designated heritage assets. They stated that the woodland surrounding the Site and the flat topography is likely to screen the majority of the proposed substation in views from Dun Garbhaig, fort, Kilmorack (SM2422) and Kiltarlity Parish Church (SM5570). They also state that woodland may also provide screening cover from Dun Mor, fort, Ballindoun (SM2423), Phoineas Hill, enclosure 900 m ESE of Phoineas House (SM4729), and Culburnie Ring Cairn and stone circle (SM2425). HES stated that there is likely to be visibility from Beaufort Castle GDL (GDL00052) and Beaufort Castle (LB8068), but that the mature woodland enclosing the estate may limit visibility, and any impacts on the setting of these are unlikely to raise issues of national interest. *Fanellan	The detailed response from HES was welcomed. Their comments have been taken into consideration for development of the study area for the appraisal.
HES	Scoping Response 2 August 2024	HES stated they are content with the elements scoped out of the assessment and are happy that heritage assets outside the 1 km study area will be considered. HES emphasised the importance of assessing the cumulative effects from other electrical infrastructure projects, and that wireframes and visualisations should be produced where the assessment indicates the potential for significant impacts.	The response from HES and the list of heritage assets to be considered was welcomed. The heritage assets noted were considered for inclusion within the appraisal, and scoped out where impacts were not anticipated. Kiltarlity Old Parish Church (SM5570) was already within the 1 km study area and included in the baseline. The other five heritage assets have not been included within the baseline as there is no potential for significant impacts due the presence of the existing line.

Body / organisation	Type of Consultation Date Received	Summary of outcome of discussions	How the comments have been considered
		HES specifically requested that the following six heritage assets be scoped into the assessment for the EIA: • SM5570 Kiltarlity Old Parish Church • SM2425 Culburnie Ring Cairn and Stone Circle • SM2435 Belladrum, chambered cairns • SM4979 Dun Mor, fort • SM4729 Phoineas Hill, enclosure • SM2423 Dun Mor, fort, Ballindoun HES noted that there is less potential for significant impacts to Listed Buildings and Gardens and Designed Landscapes within their remit but stated that detailed assessment of Beaufort castle and Beaufort Castle GDL should be included. HES concluded that it is considered possible to accommodate the Fanellan Hub development without raising issues of national interest for Listed Buildings, and Inventory Gardens & Designed Landscapes.	A detailed appraisal of Beaufort Castle GDL has been included within the appraisal.
Highland Council	Scoping Opinion 6 August 2024	The Highland Council Historic Environment Team (HCHET) is satisfied with the scope of the Fanellan Hub EIA. Where impacts to heritage assets are unavoidable, the mitigation methods should be discussed in detail.	The response from HCHET was welcomed. The mitigation strategy is set out below (**Section 10.10**) for the impacts to the known heritage assets within the Site, and the detailed methodology for archaeological works required will be set out within a detailed archaeological project design.

10.7 Sensitive Receptors

10.7.1 The non-designated prehistoric pit within the Site has the potential to be physically impacted upon by the Proposed Development. The resulting Overall Impact that would not be material to the s37 consenting process.

10.7.2 The designated heritage assets within the Outer Study Area have the potential to be impacted upon through changes within their setting. The Proposed Development would likely be visible from these heritage assets, although intervening topography and vegetation may reduce any impacts.

10.8 Impacts Scoped Out

10.8.1 The following impacts are not anticipated to give rise to impacts that are material to the s37 consenting process and have not been considered within the appraisal:

- Impacts to World Heritage Sites, Inventory Battlefields, and Conservation Areas, as there are none within the Site or study areas;
- Temporary impacts through construction activity as the temporary nature of them make them unlikely to result in impacts that are material to the s37 consenting process; and
- Indirect impacts on heritage assets as it is not anticipated that there will be any indirect impacts upon heritage assets within or outside the Site or study areas.

10.9 Appraisal of Impacts

Designated Heritage Assets

10.9.1 There are no anticipated physical impacts on the five designated heritage assets located within the Outer Study Area due to the Proposed Development. Impacts from the Proposed Development would include changes to the setting of heritage assets and alterations to distant views from these heritage assets due to the introduction of a change in the modern infrastructure already present within the existing landscape.

10.9.2 There are no changes anticipated to the Scheduled Monument and the three listed buildings within the Outer Study Area due to the Proposed Development: Kiltarlity Old Parish Church (SM5570) (A1); Kiltarlity Old Parish Church Burial Ground (LB8081) (A3); Kilmorack Old Burial Ground (LB7123) (A4); and Eileanaigas House (LB7117) (A5). The movement of the existing electrical infrastructure to the northwest would not be anticipated to change the setting or impact the important elements of the setting which contributes to the heritage assets' significance. The slopes of Torr Mor to the northeast of the Proposed Development would continue to screen any potential views from Kiltarlity church and burial ground, and Kilmorack, with the forestry in this area also providing further screening, albeit potentially temporary in nature.

10.9.3 The current setting and views from the Beaufort Castle GDL (GDL00052) include the existing infrastructure in this direction. Views from the GDL are restricted by the woodland surrounding it, which also impede views towards it. The focus of the scenic components are the location along the River Beauly, with the more open views between the castle and Home Farm making a positive contribution to the significance of the heritage asset, as this would have formed its historic setting, and still forms an important element of the current setting. As such, the key views from the GDL appear to be to the east and south, away from the Proposed Development. While the movement of towers to the northwest will place them on slightly higher ground and potentially make them more visible from various locations within the GDL, none of the important elements of the GDL's setting would be impacted upon. As a heritage asset of High value, the magnitude of impact of Negligible Adverse would result in a Slight Adverse overall impact, which is not material to the s37 consenting process.

Non-designated heritage assets

10.9.4 The possible prehistoric pits (A9) lie within the Site. It is assumed that all areas of the Site will be impacted during construction works for the Proposed Development.

10.9.5 The possible pits (A9) were discovered during the 2023 GI monitoring works and have been interpreted as of prehistoric date and contemporary with the pits and structures nearby (A7 and A8). As sub-surface archaeological remains of probable poor preservation with limited cultural significance, the pits have been appraised as low value. As the magnitude of impact would be Major Adverse, this would result in a Slight Adverse overall impact, prior to mitigation, which is not material to the s37 consenting process. The overall impact is appraised as Slight Adverse rather than Moderate Adverse due to the limited potential for the pits to provide further information on dating and phasing of the prehistoric heritage assets already discovered in the area.

10.10 Mitigation

10.10.1 Due to the lack of change within the setting of the Beaufort Castle GDL (GDL00052) (A2), there are no mitigation measures recommended to reduce the impacts stated.

10.10.2 Where the appraisal has identified the potential for physical impacts on heritage assets within the Site, **Table 10.5** provides details of the recommended mitigation to preserve the heritage assets in situ, or where this is not possible, to preserve them by record.

Table 10.5: Recommended Mitigation to Preserve Heritage Assets in Situ

Reference	Description
CH01	**Demarcation and Avoidance** The Ruttle Wood cairn (Canmore ID 116606) (A6) is located close to Site and should be demarcated and avoided through the erection of temporary fencing set at least 10 m from the visible edge of the heritage asset. Fencing should be put in place prior to any construction activity, including Geotechnical Investigations or archaeological works, to ensure visibility of the heritage asset and avoid accidental damage.
CH02	**Preservation by Record** Possible pits (A9) are located within a part of the Site that will be removed by the Proposed Development construction. The impacts will be mitigated through a programme of archaeological excavation. The methodology for the works is set out within a Project Design (Appendix 10A.2) that has been approved by Highland Council Historic Environment Team (HCHET). It sets out next steps for recording of archaeological remains discovered, including archaeological excavation, reporting, post-excavation assessment and analysis, publication of the findings, and archiving requirements.

10.10.3 In keeping with policies contained within NPF4, and the requirements of HCHET, as the potential for archaeological remains to exist within the Site is high, archaeological works will be required within the construction areas for the towers and any access tracks requiring ground breaking works, to investigate the presence or absence of currently unknown archaeological remains at these locations. This could take the form of an archaeological evaluation through trial trenching or may be conducted as a watching brief.

10.11 Summary

10.11.1 A comprehensive desk-based review of existing information was undertaken, highlighting the presence of ten heritage assets within the baseline, indicating human activity within the Site since the prehistoric period.

10.11.2 There is one non-designated heritage asset (A9) within the Site, which relates to domestic prehistoric activity that could be physically impacted during the construction of the Proposed Development. The appraisal of this impact has been assessed as Slight Adverse, prior to mitigation. Archaeological excavation (CH02) of the possible pits (A9) will ensure their preservation by record, in accordance with policies of NPF4.

10.11.3 Overall impacts through changes within the setting to the Beaufort Castle GDL (GDL00052) (A2) have been appraised as Slight Adverse, and not material to the s37 consenting process. No mitigation to reduce these impacts further has been recommended.

10.11.4 There will be no impacts to the four non-designated heritage assets within the Inner Study Area, or the other four designated heritage assets within the Outer Study Area, but demarcation of the Ruttle Wood cairn (A6) is recommended to avoid accidental impacts during construction.

11. HYDROLOGY, HYDROGEOLOGY, GEOLOGY AND SOILS

11.1 Introduction

11.1.1 This Section sets out the assessment of the potential for effects on hydrology, hydrogeology, geology, and soils resulting from the Proposed Development. The assessment considers effects within the Site Boundary (area within the 50 m Limits of Deviation shown in Figure 1.1 of this Environmental Appraisal (EA) report) and the relevant Study Areas (defined below). For each of the following topics, this section details the baseline description, identifies and appraises the effects on each receptor and, where relevant, identifies proposed mitigation:

- Geomorphology and geology – geomorphological characteristics within the Site Boundary and changes to geological structures or effects on designated sites;
- Soils and peat – changes to soil and peat characteristics related to erosion, compaction and soil quality;
- Contamination – historical site uses which may have resulted in existing contaminant impact to soils and the water environment and has the potential to harm sensitive receptors;
- Hydrogeology – changes to groundwater infiltration and groundwater levels, water quality and wetland characteristics; and
- Hydrology – changes to drainage regime and associated alteration to surface water runoff rates and volumes, erosion / sedimentation and water quality characteristics within the Site Boundary and the wider catchment, including designated sites and Groundwater Dependent Terrestrial Ecosystems (GWDTE). Also, changes to water resources such as Scottish Water drinking water abstractions, private water supplies (PWS), and both Scottish Environment Protection Agency (SEPA) and Scottish Water (SW) Drinking Water Protected Areas.

11.1.2 This Section should be read in conjunction with the following Sections, Appendices and Figures:

- **Sections 1** – 4 of this Environmental Appraisal;
- **Figure 11.1**: Superficial Geology;
- **Figure 11.2**: Bedrock Geology;
- **Figure 11.3**: Water Supplies; and
- **Figure 11.4**: GWDTE.
- **Appendix 11.1**: Flood Risk Assessment (FRA);
- **Appendix 11.2**: Drainage Strategy Report (DSR);
- **Appendix 11.3**: Drainage Impact Assessment (DIA);
- **Appendix 11.4**: Ground Investigation (GI) Report; and
- **Appendix 11.5**: Earthworks Strategy.

11.1.3 The above appendices were completed and submitted as part of the associated Fanellan Hub planning application (25/00826/FUL) and EIA but are of suitable detail to provide information for the Proposed Development as it is within the same area. However, SEPA and THC flood risk management team have requested that the FRA is updated, and a revised version is currently being produced post submission of the EIA for the associated Fanellan 400kV Hub and this application, but prior to the start of construction.

11.2 Legislation, Policy and Guidance

Legislation

11.2.1 This assessment is carried out in accordance with the principles contained within the following legislation:

- The Water Environment and Water Services (Scotland) Act 2003[117];
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011, as amended (CAR)[118];
- The Private Water Supplies (Scotland) Regulations 2006[119];
- The Flood Risk Management (Scotland) Act 2009[120]; and
- Environmental Protection Act (1990)[121].

Policy

11.2.2 This assessment is carried out in accordance with the principles contained within the following documents:

- National Planning Framework 4 (NPF4) 2023122;
- SEPA Policy No. 19, Groundwater protection policy for Scotland123;
- The Highland-wide Local Development Plan (HwLDP)124;
- Planning Advice Note (PAN) 33: Development of contaminated land (2017)125;
- SEPA's Position Statement on Planning and Soils (2022)126;
- SEPA's Position Statement on Land Protection (2022)127;
- Planning Advice Note 60: Natural Heritage (2000)128; and
- The Scottish Soil Framework (2009)129.

Guidance

11.2.3 This assessment is carried out in accordance with the principles contained within the following documents:

- Construction industry research and information association (CIRIA) Report C532 – Control of water pollution from construction sites: Guidance for consultants and contractors130;
- CIRIA Report C753 – The SuDS Manual131;
- Scottish Government – River crossings & migratory fish: Design guidance (2012)132;

117 Water Environment and Water Services (Scotland) Act 2003. asp 3. Available at: https://www.legislation.gov.uk/asp/2003/3/contents.
118 The Water Environment (Controlled Activities) (Scotland) Regulations 2011. Available at: https://www.legislation.gov.uk/ssi/2011/209/contents/made.
119 The Private Water Supplies (Scotland) Regulations 2006. Available at: http://www.legislation.gov.uk/ssi/2006/209/contents/made.
120 Scottish Government (2009). Flood Risk Management (Scotland) Act 2009. Available at: https://www.legislation.gov.uk/asp/2009/6/contents.
121 Environmental Protection Act (1990). Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents
122 National Planning Framework (2023). Available at: https://www.gov.scot/publications/national-planning-framework-4/
123 Scottish Environment Protection Agency (2009). Groundwater Protection Policy for Scotland v3, November 2009, Environmental Policy Number 19. Available at: https://www.sepa.org.uk/media/34371/groundwater-protection-policy-for-scotland-v3-november-2009.pdf.
124 The Highland Council (2017 – 2024) Highland-wide Local Development Plan (HwLDP). Available at: https://www.highland.gov.uk/info/178/local_and_statutory_development_plans/199/highland-wide_local_development_plan/.
125 Planning Advice Note (PAN) 33: Development of contaminated land (2017) Available at: https://www.sepa.org.uk/media/143286/lups-gu3-planning-guidance-on-land-subject-to-contamination-issues.pdf
126 Scottish Environment Protection Agency (SEPA) Position Statement on Planning and Soils (2022). Available at: https://www.sepa.org.uk/environment/land/soil/
127 SEPA's Position Statement on Land Protection (2022). Available at: https://www.sepa.org.uk/media/159201/ep-054_position_statement_on_land_protection.pdf
128 Planning Advice Note 60: Natural Heritage (2000). Available at: https://www.gov.scot/publications/pan-60-natural-heritage/
129 The Scottish Soil Framework (2009). Available at: https://www.gov.scot/publications/scottish-soil-framework/
130 Masters-Williams, H., Heap, A., Kitts, H., Greenshaw, L., Davis, S., Fisher, P., Hendrie, M. and Owens, D. (2001). CIRIA C532 Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors.
131 CIRIA (2015). The SuDS Manual (C753).
132 Scottish Government (2012). River Crossings and Migratory Fish: Design Guidance.

- Scottish Natural Heritage (now 'NatureScot') – A handbook on environmental impact assessment Version 5 (2018)133;
- SEPA – The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended): A Practical Guide (Version 9.2, December 2022)134;
- SEPA – Position Statement WAT-PS-06-02 Culverting of watercourses135;
- SEPA – WAT-SG-25, Good practice guide – river crossings136;
- SEPA – WAT-SG-31, Special requirements for civil engineering contracts for the prevention of pollution137;
- SEPA – Land Use Planning System Guidance Note 31, Guidance on assessing the impacts of development proposals on groundwater abstractions and groundwater dependent terrestrial ecosystems138;
- Scottish Government (2006), Environmental Protection Act 1990 - Part IIA Contaminated Land: statutory guidance edition 2139;
- BS 10175:2011+A2:2017 Investigation of potentially contaminated sites. Code of practice (BSI, 2017)140;
- BS 5930:2015+A1:2020 Code of practice for ground investigations (BSI, 2020)141;
- Scottish Government, Scottish Natural Heritage (SNH), SEPA (2017), Peatland Survey. Guidance on Developments on Peatland142;
- SEPA (2022c), Land Remediation and Waste Management Guidelines143; and
- DEFRA (2009), Construction Code of Practice for the Sustainable Use of Soils on Construction Sites144.

11.3 Methodology

11.3.1 To investigate baseline conditions and to consider potential effects of the Proposed Development with respect to hydrology, hydrogeology, geology and soils, a review of available desk-based information has been undertaken.

11.3.2 WSP Hydrology Team have not undertaken a specific site visit for this Proposed Development; however, undertook a watercourse crossing survey at the associated proposed Fanellan 400 kV Hub site on 28th October 2024. WSP Ecology Team undertook an NVC habitat survey on 9th to 12th September 2024, with the data being applicable for the GWDTE section of the Fanellan Hub EIA. A Ground Investigation (GI) survey was undertaken by a third party for the proposed Fanellan Hub, with some data being applicable to this Proposed Development. Additionally, there is continual GI surveying being undertaken prior to construction of the Proposed Development.

11.3.3 The general methodology used to appraise the potential effect of the Proposed Development on the hydrology, hydrogeology, geology, and soils receptors is as follows:

- Desktop study to obtain baseline and historical data, including the use of relevant appendices (**Appendices 11.1 to 11.5**);

133 Scottish Natural Heritage and Historic Environment Scotland (2018). Environmental Impact Assessment Handbook.
134 Scottish Environment Protection Agency (2022). The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) – A Practical Guide (Version 9.2, December 2022).
135 Scottish Environment Protection Agency (2011). WAT-PS-06-02: Culverting of Watercourses – Position Statement and Supporting Guidance.
136 Scottish Environment Protection Agency and Natural Scotland (2010). Engineering in the Water Environment: Good Practice Guide River Crossings (Second Edition).
137 Scottish Environment Protection Agency (2006). Prevention of Pollution from Civil Engineering Contracts: Special Requirements (Version 2, June 2006).
138 Scottish Environment Protection Agency (2017). Land Use Planning System Guidance Note 31, Guidance on assessing the impacts of development proposals on groundwater abstractions and groundwater dependent terrestrial ecosystems.
139 Scottish Government (2006), Environmental Protection Act 1990 - Part IIA Contaminated Land: statutory guidance edition 2
140 BS 10175:2011+A2:2017 Investigation of potentially contaminated sites. Code of practice (BSI, 2017)
141 BS 5930:2015+A1:2020 Code of practice for ground investigations (BSI, 2020).
142 Scottish Government, Scottish Natural Heritage (SNH), SEPA (2017), Peatland Survey. Guidance on Developments on Peatland.
143 SEPA (2022c), Land Remediation and Waste Management Guidelines.
144 DEFRA (2009), Construction Code of Practice for the Sustainable Use of Soils on Construction Sites

- Consultation with SW, THC and landowners to identify water abstractions and Private Water Supplies (PWS);
- Identification of the potential effects of the Proposed Development on sensitive receptors taking account of the Applicant's General Environmental Management Plans (GEMPs) (**Appendix A**).

Limitations and Assumptions

11.3.4 Baseline conditions have been established from a variety of sources, including historical data, although due to the dynamic nature of certain aspects of the environment, conditions have the potential to change during the construction and operation of the Proposed Development.

11.3.5 It is assumed that information received by third parties is complete and up to date.

11.3.6 It is assumed that the design, construction and completed stages of the Proposed Development, including the dismantling of existing OHL, will satisfy minimum environmental standards, consistent with contemporary legislation, practice, and knowledge.

Extent of the Study Area

11.3.7 The appraisal is based upon the land within the Study Area (as defined below), applying professional judgement and experience of assessing similar developments in similar environments. The following terms are used across this section:

- Proposed Development – the erection and operation of a diversion of the existing Beauly Denny 400 kV OHL, supported by 1.7 km of steel lattice towers. There will also be a need for a temporary diversion of part of the existing Beauly Denny 400kV OHL to enable the permanent diversion works. There will also be a need for ancillary works such as access tracks and drainage. The Proposed Development will allow for the construction of the Proposed Fanellan 400 kV Hub Development and its connection to the existing Beauly - Denny OHL, as defined in **Section 3**.
- The Site Boundary – an area of land that encompasses the extent of relevant section of the existing OHL, the footprint of the planned infrastructure and works for the Proposed Development, and the land within the Application Boundary, including the defined Limits of Deviation (LoD), where applicable.
- Study Area – encompasses the sensitive hydrology, hydrogeology, geology and soils receptors considered within this appraisal, both within the footprint of the Proposed Development and up to a defined distance of various receptors.

11.3.8 The extent of the Study Area for the appraisal of PWS, SW and SEPA abstractions, flooding, and relevant designated sites is up to 1 km from the Proposed Development.

11.3.9 For pollution and sedimentation impacts, it is considered that at distances more than 1 km, the Proposed Development is unlikely to have a hydrological impact, as attenuation and dilution of substances is likely to occur.

11.3.10 The extent of the Study Area for the appraisal of loss and compaction impacts to soils and peat is within the Site Boundary.

11.3.11 SEPA's guidance on assessing the impacts of developments on GWDTE SEPA Land Use Planning System Guidance (LUPS-GU31)[138] requires assessment of potential GWDTE located within 250 m of excavations greater than 1 m and within 100 m of excavations less than 1 m. Therefore, the GWDTE Study Area for this appraisal comprises a 250 m buffer from the Proposed Development.

Consultation Undertaken to Date

11.3.12 **Table 11.1** provides a summary of the consultation activities undertaken in support of the preparation of this section. It is important to note that the consultation activities listed in the below table were done alongside consultation for Fanellan Hub.

Table 11.1: Consultation responses of relevance to Hydrology, Hydrogeology, Geology and Soils

Organisation	Type of Consultation	Response	How response has been considered
Scottish Water (SW)	A list of SW public water abstractions within a 5 km radius of the Proposed Development was requested via email in December 2022.	Response received January 2023. SW provided public water abstractions within a 5 km radius of the Proposed Development.	This information is considered further within **Section 11.4: Water Supplies** section of this section.
The Highland Council (THC)	THC PWS records within a 5 km radius of the Proposed Development were requested via email in December 2022.	Response received January 2023. THC provided an up to date (as of January 2023) PWS register within 5 km of the Proposed Development.	This information is considered further within **Section 11.4: Water Supplies** section of this section.
	THC PWS records for THC administrative areas were requested via email in February 2024.	Response received February 2024. THC provided PWS for their administrative areas.	This information is considered further within **Section 11.4: Water Supplies** section of this section.
	On 20th February 2024, an EIA screening assessment for the Proposed Development was submitted to THC.	Response received on 26th April 2024, with THC determining that the Proposed Development does not require to be accompanied by a full EIA report.	Therefore, potential adverse effects associated with the Proposed Development are considered within this voluntary EA report.
The Highland Council (THC)	An initial FRA was produced by a third-party for the associated Proposed Fanellan 400kv Hub, which is applicable to this Proposed	THC flood risk management team reviewed the initial FRA and object to the application due to the lack of information on flood risk. THC state "the hydraulic modelling is based on assumptions about the channel cross-section and doesn't use site specific topography. It also assumes an artificial raised bund along the left bank of the watercourse". THC have requested the following revisions to be made to the FRA:	This response has been considered and will result in updating the FRA in line with THC's comments (including site specific topographical data). This will be done after submission but prior to the start of construction.

Organisation	Type of Consultation	Response	How response has been considered
	Development. This was reviewed by THC flood risk management team as part of statutory consultation on the associated development planning application (25/00826/FUL).	The FRA will need to be updated to use site specific topography that includes measured cross sections of the watercourse. The FRA will need to include scenarios where the informal bund is not in place as this may be prone to future erosion and/or failure. The FRA will need to demonstrate that there will be no loss of floodplain capacity or conveyance and no increase in flood risk to others.	This information is acknowledged further within **Section 11.4: Flood Risk**.
SEPA	SEPA abstractions data for a 7 km radius from the Proposed Development was requested via email in January 2023.	Response received January 2023. SEPA provided all records of activities authorised under the Controlled Activities Regulations (CAR)[145].	This information is considered further within **Section 11.4: Water Supplies**.
SEPA	An initial FRA was produced by a third-party for the associated Proposed Fanellan 400kV Hub, which is applicable to this Proposed Development. This was reviewed by SEPA as part of statutory consultation on the associated development planning application (25/00826/FUL)..	SEPA submitted a holding objection to the initial FRA and have requested for a revised FRA. The reason listed for holding objection is due to the uncertainty in the modelling approach. SEPA have requested the following revisions to be made to the FRA: Cross sections across the unnamed watercourse and adjacent floodplain should be surveyed and incorporated into the model. A baseline (at present) scenario should be presented as well as several post development scenarios all including any proposed landraising and structures by the unnamed watercourse. Blockage scenarios should be modelled for the proposed culvert. There is woodland upstream which could present a large source of debris. We hold records of significant flooding in other areas where blockages have been the main cause, and it is recommended that a range of blockage scenarios be tested. All proposed landraising potentially within the flood risk area of the unnamed watercourse should be detailed. Sensitivity testing of 20% should be applied to the design flow estimate (including the climate change allowance). We would also recommend that the FEH Rainfall Runoff method be used to estimate peak flows as well.	This response has been considered and will result in updating the FRA in line with SEPA's comments. This will be done after submission but prior to the start of construction. This information is acknowledged further within **Section 11.4: Flood Risk**.

[145] The Water Environment (Controlled Activities) (Scotland) Regulations 2011. Available at: https://www.legislation.gov.uk/ssi/2011/209/contents/made [Accessed: October 2024].

Organisation	Type of Consultation	Response	How response has been considered
		Should the post development scenario be deemed to increase the flood risk to nearby receptors, landraising (from the earth infill areas or otherwise) within the flood risk area must be accompanied with plans for like-for-like compensatory storage. If so, the volume of compensatory storage must be equal to or greater than the volume of landraising within the flood risk area. This should be the case at all ground levels which are at flood risk.	

11.3.13 In addition to above, information regarding SW abstractions was gathered in January 2024, directly from SW's asset database under agreement between SW and WSP. This information is considered further within **Section 11.4: Water Supplies**. Beaufort Estate provided information on a water tank and private pipework within private land that is supplied by mains water. This is located within the study area and has been considered further within **Section 11.4: Water Supplies**.

11.4 Baseline Conditions

River Catchment

11.4.1 The Proposed Development is located within the River Beauly Catchment, 795 m to the south of the River Beauly at its closest point. Access tracks are located closer to the river, including Black Bridge which crosses the River Beauly. The River Beauly flows in an easterly direction before discharging into the Beauly Firth, leading into the Moray Firth coastal water body. The River Beauly drains a catchment of approximately 1,000 km^2 of land.

11.4.2 SEPA Water Classification Hub[146] mapping indicates that River Beauly (ID:20209) has been designated as a heavily modified water body on account of physical alterations that cannot be addressed without a significant impact of water storage for hydroelectricity generation. The River Beauly is classified as having a good overall status, having a "good ecological potential" as of 2023.

11.4.3 The Site Boundary is located approximately 990 m southeast of Aigas Dam, located on the River Beauly. The "River Beauly – Beauly Firth to Cannich" (SEPA Water Body name) (ID: 20209) has been classified by SEPA under the WFD as having a good overall status (2023) and a good ecological potential. "Breakachy Burn" (ID: 20216) is classified as having a high overall status (2023).

11.4.4 OS 1:10,000 scale map and aerial imagery indicate that there are four separate culverts under the A831 road, which runs parallel to the northern side of the River Beauly. These apparent culverts are for tributaries flowing into the river and are located between 900 m and 1 km from the Proposed Development.

11.4.5 The Proposed Development does not require crossings of any existing watercourse channels shown on OS 1:50,000 scale mapping that would be subject to SEPA CAR authorisation. It would be reasonable to anticipate a combination of smaller or ephemeral surface channels and sub-surface field drainage in this area, which may be more apparent during wet conditions. OS 1:25,000 scale mapping shows a small, unnamed watercourse within the northeastern section of the Site Boundary that would be crossed by a shared proposed access track used for both the proposed Fanellan 400 kV Hub and the Proposed Development.

[146] SEPA Water Classification Hub Available at: https://www.sepa.org.uk/data-visualisation/water-classification-hub/ [Accessed October 2024].

Statutory Designated Sites

11.4.6 No Sites of Special Scientific Interest (SSSI), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Geological Conservation Review (GCR) sites, or Marine Protection Areas have been identified within 1 km of the Site Boundary.

Geology and Soils

11.4.7 According to the British Geological Survey (BGS) Geoindex Onshore Bedrock[147] and Superficial Deposits geology mapping, the superficial deposits underlying the area within Site Boundary are Devensian till (diamicton). The wider study area is underlain by glacial sand and gravel, and undifferentiated river deposits (clay, silt, sand and gravel) as shown in **Figure 11.1 Superficial Geology**. The underlying bedrock geology is the Ousdale Arkose Formation, composed of Breccia and conglomerate with subsidiary mudstone, as shown in **Figure 11.2 Bedrock Geology**. GI trial pit information from 2023 (**Appendix 11.4**) confirmed the underlying bedrock and superficial deposits indicated by BGS geology mapping.

11.4.8 According to the NatureScot Carbon and Peatland map[148] the Proposed Development is underlain by Class 0 (mineral soils – peatland soils are not typically found on these soils), which are not classified as priority peatland habitats and indicates that peat is not present within Proposed Development Site Boundary.

11.4.9 According to the James Hutton Institute National Soil Map of Scotland[149], the Proposed Development is underlain by humus-iron podzols, typically found in undulating lowlands and hills with gentle slopes. Soil drift is derived from Middle and Lower Old Red Sandstone conglomerates.

11.4.10 2023 Ground Investigation (GI) trial pit information indicates the presence of peat soils is limited to one isolated pocket within the Site Boundary, out of 91 machine excavated trial pits taken for during the GI survey within the Site Boundary and the associated proposed footprint of Fanellan 400 kV Hub.

Water Supplies

11.4.11 THC has indicated one PWS within 1 km of the Proposed Development, namely Aigas Power Station located on Aigas Dam to the northwest of the Proposed Development, as shown in **Figure 11.3 Water Supplies**.

11.4.12 Beaufort Estate have indicated that there is a private water tank and pipework on private land, supplied by public mains water, before being privately distributed across the estate. The water tank is located approximately 365 m southeast and downslope from the Site Boundary.

11.4.13 SEPA have advised in relation to the associated Fanellan 400 kV Hub project, their records indicate a well at NGR: NH 48485 43033, approximately 60 m to the northeast of the Site Boundary between the proposed permanent and temporary alignments, which is also indicated on OS 1:25,000 scale mapping. This has been confirmed as non-operational by the landowner, who additionally reported no properties being on private supplies at Fanellan.

11.4.14 SW data indicates that there are no public water abstraction points within the Study Area.

11.4.15 SEPA data indicates that there are no water abstractions within the Study Area.

147 BGS Geoindex (interactive web map). Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.245552583.25395335.1617804149-924903878.1582883826 [Accessed: October 2024].

148 NatureScot Carbon and Peatland (interactive web map). Available at: https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/ [Accessed: October 2024].

149 National Soil Map of Scotland (interactive web map). Available at: https://map.environment.gov.scot/Soil_maps/?layer=1 [Accessed: October 2024].

11.4.16 SEPA DWPA – Scotland River basin district maps[150] indicate that the area within the Site Boundary is not located within a DWPA for surface water; however, it is located within a DWPA for groundwater.

Contaminated Land

11.4.17 There are no historical records of contaminated land within the Site Boundary.

11.4.18 The GI report shows that no made ground or other anthropogenic sources of contamination were encountered within the Site Boundary. There is also no known off-site source of contamination within the vicinity of the Site Boundary, so the slightly elevated metal concentrations encountered in the groundwater are considered likely to be naturally occurring. The historical and present land use is agriculture and forested land. Historical mapping and landowner records indicate there was a mill dam pre-1973 approximately 60 m northeast of the Proposed Development between the proposed permanent and temporary alignments, however more recent mapping indicates that it is no longer exists.

Hydrogeology

11.4.19 BGS Hydrogeology mapping (1:625,000 scale)[151] indicates that the area within the Site Boundary is underlain by the Lower Old Red Sandstone moderately productive aquifer, which is a locally important multi-layered aquifer.

11.4.20 SEPA Water Classification Hub[146] mapping indicates that the area within the Site Boundary is underlain by the Muir of Ord (ID: 150619) groundwater body, covering a total area of 158.3 km^2. This is classified as having 'poor' overall status on account of poor surface water interaction as of 2023, but overall status for water quality is good. GI surveys for Fanellan 400 kV Hub encountered 4 out of 27 boreholes struck groundwater, ranging between depths of 0.4 m and 4.4 m, one within suspected cohesive glacial till and the other three in granular glacial till deposits. Subsequent groundwater monitoring was undertaken, with the results concluding that the area within the Site Boundary has generally shallow groundwater levels, typically within the range of 0 m – 3 m in depth, with only one borehole having a minimum groundwater level in excess of 5 m. Note that these results are for the Proposed Fanellan 400 kV Hub adjacent to the Proposed Development (see **Appendix 11.4 - GI report**).

Flood Risk

11.4.21 SEPA's indicative flood risk mapping[152] suggests that there are no areas of high, medium or low risk of river flooding within the Site Boundary. There is a high risk associated with the River Beauly, approximately 100 m northeast of the Site Boundary and 500 m – 600 m from the northern and western sides of the Site Boundary, respectively.

11.4.22 There are small, localised areas at high risk of surface water flooding within the forested areas in the northern and eastern extents of the Study Area.

11.4.23 An initial FRA (**Appendix 11.1**) and Drainage Impact Assessment (DIA) (**Appendix 11.2**) have been undertaken for the adjacent Proposed Fanellan 400 kV Hub. These assessments are considered to cover a suitable extent to support the Proposed Development. Additionally, the drainage layout and catchment plans within those documents illustrate the inclusion of the Proposed Development tower pads in the drainage design. The FRA also assesses the catchment where the Proposed Development is located and includes modelling of the water crossing for the access track, which is shared with the associated Fanellan 400 kV Hub. Both documents have assessed the impact of the Proposed Development area as it is within the associated Fanellan 400 kV Hub footprint, and shares access and SuDS drainage

[150] The Scottish Government drinking water protected areas - Scotland river basin district: maps [online]. Available at: https://www.gov.scot/publications/drinking-water-protected-areas-scotland-river-basin-district-maps/ [Accessed October 2024].

[151] BGS Geoindex (interactive web map). Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.245552583.25395335.1617804149-924903878.1582883826 [Accessed: October 2024].

[152] Scottish Environment Protection Agency – Flood Maps: https://map.sepa.org.uk/floodmap/map.htm [Accessed: October 2024].

areas including proposed drainage outfalls. Both assessments concluded that the impact of the Proposed Fanellan 400 kV Hub on flood risk is negligible.

11.4.24 SEPA and THC have, however, submitted a holding objection to the initial FRA produced for the adjacent Proposed Fanellan 400 kV Hub, requesting a revised FRA on the basis of uncertainty in the modelling approach. A revised FRA will be produced in line with SEPA's and THC's comments after submission but prior to the start of construction. Where applicable, this will seek to identify and mitigate any residual increased flood risk attributed to the site to reduce risk to an acceptable level.

Groundwater Dependent Terrestrial Ecosystem (GWDTE)

11.4.25 SEPA's guidance on assessing the impacts of developments on GWDTE (LUPS-GU31)[138] requires assessment of GWDTE located within 250 m of excavations greater than 1 m and within 100 m of excavations less than 1 m.

11.4.26 NVC Surveys were undertaken between 9th and 11th September 2024 by the WSP Ecology Team. NVC communities within the Study Area (250 m from the Site Boundary) that are indicative of potentially supporting GWDTE are displayed in **Table 11.2** and shown in **Figure 11.4 GWDTE**.

Table 11.2: NVC Communities within the Study Area

NVC Community[153]	Potential of Groundwater Dependency based on SEPA LUPS-GU31[138]
H10 - *Calluna vulgaris–Erica cinerea* heath M15 - *Scirpus cespitosus - Erica tetralix* wet heath W23 - *Ulex europaeus–Rubus fruticosus scrub*	- Yes -
M25 - *Molinia caerulea-Potentilla erecta* mire M4 - *Carex rostrata–Sphagnum fallax* mire	- Yes
M4 - *Carex rostrata–Sphagnum fallax* mire	Yes

11.4.27 The communities identified on-site are often associated with surface water or direct rainfall, with surface water flowing downslope locally to eventually form or join surface water channels. These habitats are typically located on moderately sloping ground, away from likely groundwater emergence.

11.4.28 The cluster of H10/M15/W23 habitats is located within the Site Boundary and is crossed by the access track restoration for Tower 9. This habitat cluster is located in a forest clearing with existing overhead lines and access tracks. As a result, the groundwater regime has likely already been altered, and further changes are unlikely to be consequential. M15[154] is found in areas with a moderate to high rainfall and is the typical form of wet heath in the north and west of the UK. Consequentially, the predominant local water sources are considered to be surface water and direct precipitation.

11.4.29 The cluster of M25/M4 is located 50 m west of the Site Boundary and 20 m north of a small unnamed watercourse which flows from east to west until it meets the River Beauly. M4 (mire)[155] is generally associated with bog and wet heath, with low groundwater dependency. The predominant local water sources are considered to be the tributaries of the River Beauly and direct precipitation.

153 National Vegetation Classification: Users' handbook. (2006). Available at: https://data.jncc.gov.uk/data/a407ebfc-2859-49cf-9710-1bde9c8e28c7/JNCC-NVC-UsersHandbook-2006.pdf [Accessed: October 2024].

154 An Illustrated Guide to British Upland Vegetation (2004). [online]. Available at https://data.jncc.gov.uk/data/a17ab353-f5be-49ea-98f1-8633229779a1/IllustratedGuideBritishUplandVegetation-2004.pdf [Accessed October 2024]

155 An Illustrated Guide to British Upland Vegetation (2004). [online]. Available at https://data.jncc.gov.uk/data/a17ab353-f5be-49ea-98f1-8633229779a1/IllustratedGuideBritishUplandVegetation-2004.pdf [Accessed October 2024]

11.4.30 The M4 habitat is located approximately 130 m west of the Site Boundary, within the dense forest area near a small unnamed loch, which is hydrologically connected to the River Beauly via a small watercourse named Allt nan Damn. There is also a small unnamed watercourse appearing to flow from east to west into the unnamed loch.

11.4.31 The NVC communities listed above are unlikely to be groundwater dependent on the basis of the local topography and the presence of watercourses, indicating that they are more likely to be reliant on surface water and precipitation.

Future Baseline

11.4.32 In relation to the future baseline, it is important to note that the Proposed Fanellan 400 kV Hub is located adjacent to the Proposed Development. This will alter the baseline conditions of the landscape, increasing the area of impermeable surfaces, which could increase surface runoff and flood risk. However, as detailed in the Flood Risk section of the baseline, FRA work associated with the Proposed Fanellan 400 kV Hub is ongoing, with consultation with SEPA and THC, in order to identify and mitigate any increased flood risk attributed to the site to reduce risk to an acceptable level. Therefore, in the absence of the Proposed Development, the baseline conditions within the Study Area will be altered but are unlikely to cause substantial change.

11.4.33 However, there is potential for climate change to impact on future baseline conditions. Climate change studies[156] predict a decrease in summer precipitation and an increase in winter precipitation alongside slightly higher annual average temperatures. This suggests that there may be greater pressures on water supplies in summer months in the future. Storms are predicted to be of greater intensity. Therefore, peak fluvial flows associated with extreme storm events may also increase in volume and velocity.

11.5 Issues Scoped Out

11.5.1 Operational impacts have been scoped out of this appraisal as there are not expected to be any long-term direct or indirect hydrology, hydrogeology, geology and soils risks from the operation of the Proposed Development, with good design layout and implementation of good practice measures, detailed within GEMPs, protecting against longer-term effects. As the Proposed Development involves the replacement of two existing OHL towers, demolition of two existing towers, and construction of six new (two of which are only temporary) towers, it is unlikely that there would be significant changes to the baseline environment post-construction phase.

11.5.2 There are no statutory designated sites within 1 km of the Proposed Development and for this reason potential impacts have been scoped out.

11.5.3 The Proposed Development is not within a DWPA for surface water, so this has therefore been scoped out.

11.5.4 Potential impacts related to the disturbance, compaction and loss of peat are not anticipated and have been scoped out from this appraisal. This is on the basis of the GI report (**Appendix 11.4**), BGS Superficial Deposits geology mapping, James Hutton Institute National Soil Map of Scotland, and NatureScot Carbon and Peatland. All of which indicate the presence of potential peat soils to be very limited within the Site Boundary, especially considering the current arable land use.

11.5.5 Furthermore, with cognisance of the above, risk of peat instability has not been identified and therefore Peat Landslide Hazard and Risk Assessment (PLHRA) has been scoped out.

11.5.6 Based on the outcomes of the GI report (**Appendix 11.4**), there is no indication of contamination within the Site Boundary, so potential impacts due to contaminated soils have been scoped out.

11.5.7 Potential pollution impacts on fisheries, including from suspended sediment in surface water bodies, oil, and hydrocarbons, are not anticipated and therefore have been scoped out.

[156] Scotland's Environment. Available at: Climate | Scotland's environment web [Accessed: November 2024].

Mitigation by Design / Good Practice Measures

11.5.8 A number of good practice measures are detailed in **Section 3: Description of Proposed Development**, including the Construction Environmental Management Plan (CEMP) (which will be prepared and implemented by the Principal Contractor) and the Applicant's GEMPs (provided in **Appendix A)**. As outlined in **Section 3**, implementation of the CEMP would be managed on site by a suitably qualified and experienced Environmental Advisor, with support from other environmental professionals, as required. A summary of those good practice measures most relevant to hydrology, hydrogeology and geology of the Proposed Development is provided below.

11.5.9 Measures set out in **Section 3** will be implemented during the construction of the Proposed Development, detailing best practice construction management measures, including measures to manage risks associated with construction of the Proposed Development to the environment and human health, such as those associated with pollution and resource use.

11.5.10 The adoption of the applicable GEMPs would reduce the probability of an incident occurring and further reduce the magnitude of any incident due to a combination of good site environmental management procedures, including minimised storage of excavated soil and peat volumes, soil management, staff training, contingency equipment, and emergency plans.

11.5.11 The GEMPs (see **Appendix A**) applicable to this section are:

- Working in or near water;
- Working in sensitive habitats;
- Watercourse crossings;
- Private water supplies;
- Soil Management;
- Oil Storage and Refuelling;
- Contaminated Land;
- Working with concrete; and
- Bad weather.

11.5.12 The CEMP will be produced and implemented by the Principal Contractor.

11.5.13 Further consultation will be required with local property owners regarding the potential for further unregistered PWS located within 250 m of works. The Principal Contractor will be required to consider all construction activities and satisfy themselves that they are aware of all PWS and associated network infrastructure in the local area that may be at risk of adverse effects as a result of the Proposed Development. Should any PWS be identified, an assessment of potential impacts will be undertaken and, where required, specific mitigation will be developed and agreed with SEPA and the PWS owner.

11.5.14 Further consultation with SW is required prior to construction to confirm any SW assets which require protection. Specific mitigation measures will be developed and will be agreed with SW.

11.5.15 Consultation with SEPA will be required to identify potential CAR authorised activities associated within the Proposed Development in accordance with SEPA CAR, and the CAR Practical Guide.

11.5.16 The Proposed Development would increase impermeable areas at locations such as tower pads and access tracks and therefore the application of SuDS to reduce the increase of flood risk to downstream areas will be utilised. The aim of SuDS is to emulate natural drainage systems to return post-development flows to pre-development levels. The design discharge rates from the SuDS are lower than the existing IH124* greenfield runoff rates, meaning that the impact on flood risk to the existing watercourses is not increased and that there is no significant flood risk to the surrounding areas. Further details have been considered in **Appendix 11.2** (DSR) and **Appendix 11.3** (DIA).

11.5.17 * A method used to estimate the peak flow rate of greenfield runoff for a mean annual flood. IH124 was specifically produced to address the runoff from small catchments.[157]

11.5.18 Tower construction will require vehicle access to each support structure location to allow excavation and creation of foundations and erection of the support structure. It is currently anticipated that access will be via an existing track to the southeast of the Site Boundary. A new access track which will serve the Proposed Fanellan 400 kV Hub and the Proposed Development and there will also be short sections of new access tracks constructed specifically for the Proposed Development (temporary and permanent).

11.5.19 Detailed design regarding the type of access tracks used for the construction of the Proposed Development has not been confirmed and the Principal Contractor will select the most suitable tracks based on the suitability to withstand expected construction loads, cause the least environmental damage, and be installed/ recovered at the lowest cost. Where temporary tracks are not within the permanent development boundary of the associated proposed Fanellan 400 kV Hub, they would be removed upon completion of the Proposed Development with land being reinstated to its former condition.

11.5.20 In relation to watercourse crossings for the primary permanent access track, shared with the Proposed Fanellan 400 kV Hub, all structures will be designed and constructed following good practice measures and in accordance with SSEN Drainage Specification. This would be of sufficient capacity to receive 1 in 200 years storm flows with an allowance for increased flows due to climate change. Key measures identified to minimise alterations to surface water drainage patterns include:

- Application of sustainable drainage techniques to increase peak lag time and implementation of cross-drains at appropriate intervals and frequent discharge points to reduce scour potential;
- Minimising the size and duration of in-channel works; and
- Excluding the need to culvert for land drainage, design was amended to a bridge / bottomless arch structure in lieu of culverts where feasible following consultation with SEPA, in line with SEPA guidance.

11.5.21 Dismantling of the existing OHL will involve existing concrete foundations being broken down to a depth of approximately 1 m below ground level and stubs cut off. Waste material would be removed from site using a licensed waste carrier and deposited at a licensed site. These areas will be backfilled with local material from the area within the Site Boundary.

11.5.22 The Principal Contractor will follow SEPA guidance in relation to soil, earthworks and site restoration including but not limited to land remediation and waste management guidelines. SEPA land remediation and waste management guidelines outline how SEPA regulate the reuse of potential contaminated materials at an excavation site. Whilst earthworks are expected to be limited, the Principal Contractor will identify any potential for the sustainable re-use and recycling of material for the Proposed Development. If necessary, a Material Management Plan will be produced. The Principal Contractor will adhere to construction good practices that help to minimise the use of raw materials and maximise the use of secondary aggregates and recycled or renewable materials within the Site Boundary.

11.5.23 A Site Water Management Plan will be developed to manage potential risks to the water environment including silt mitigation and its locations, dewatering of excavations inclusive of pump locations, monitoring points, cut off drains, and SuDS (incl. compound).

[157] UK SuDS - HR Wallingford. Available at: https://www.uksuds.com/tools/surface-water-storage-volume-estimation) [Accessed: November 2024].

11.6 Appraisal of Likely Effects

Construction Phase

11.6.1 During the construction phase of the Proposed Development, there is the potential for the following short-term impacts on the hydrology, hydrogeology, geology and soils environment, in the absence of additional mitigation measures. The construction phase of the Proposed Development is anticipated to take place over nine months.

Pollution Incidents, Erosion and Sedimentation

11.6.2 During the construction phase, a number of potential pollutants would be present on-site to facilitate civil engineering activities, including oil, fuels, chemicals, unset cement and concrete, sediments, and waste and wastewater from construction activities. With chemicals and oil being stored and used on-site there is the potential for an incident. Potential sources of suspended sediments within the Site Boundary include (but are not limited to): any excavations / piling for tower pads, the construction of the access tracks, the construction of the temporary construction compound, and from the construction of the Proposed Development.

11.6.3 Soil erosion, loss of soil, and sediment generation may occur in areas where the ground has been disturbed during construction including in situations where:

- Engineering activities occur close to or in watercourses;
- Watercourse realignment activities take place;
- Higher velocity surface water flows may occur due to local slopes and drainage design; and
- Surface water passing through small surface drains, efficiently draining the new infrastructure, could exhibit higher localised flows, increasing the potential for bank erosion.

11.6.4 Sediment transport in watercourses can result in high Total Suspended Solids (TSS) and turbidity levels which affect the ecology, particularly fish stocks, by reducing the light and oxygen levels in the water. Sediment deposition can further affect watercourses by potentially smothering plant life, invertebrates, and spawning grounds, and can reduce the flood storage capacity of channels and block culverts, resulting in an increased flood risk.

11.6.5 Any pollution incident occurring on site could have a detrimental effect on the water quality of the nearby surface waters, groundwaters and / or soil, including the River Beauly, Breakachy Burn, and Muir of Ord Groundwater Body. Major causes of environmental harm associated with working in or near watercourses include:

- Silt, e.g. disturbance of riverbed or bank, dewatering and pumping of excavations, run-off from exposed ground, plant washing, roads and river crossings.
- Cement and concrete – which is very alkaline and corrosive and can cause serious pollution.
- Chemicals and solvents – oil storage, refuelling, trade materials etc.
- Waste materials (including special waste), e.g. oily wastes, spent acids and solvents.

11.6.6 In the case of pollution incident effects, good practice site environmental management measures, adherence to an approved CEMP, relevant GEMPs and the dilution factor involved would be expected to reduce any potential sedimentation effect downstream.

Concrete and Cement Product

11.6.7 Concrete may be used during construction, therefore the potential for concrete spillages exists in addition to the generation of alkaline leachate in water dependent habitats. Good practice construction techniques will reduce these impacts at the construction stage.

11.6.8 The major pathways for cement contaminated water to reach surface water bodies within the Study Area, are either overland flow (suspended in surface water runoff into drains and watercourses, especially during periods of high

runoff rainfall events) or when areas are subject to 'wash down'. There is also the potential for cement contaminated water to reach groundwater bodies via tower piling and excavations.

11.6.9 Should it be necessary to mix concrete on-site, the measures within GEMP – working with concrete, will be adhered to. With the adoption of such measures, the probability of effects associated with concrete and cement product contamination would be greatly reduced.

Modification of Groundwater Levels and Flows

11.6.10 Excavations can disrupt groundwater systems resulting in the lowering of groundwater levels in the immediate vicinity of the works, thus causing potential alterations to groundwater flow paths during dewatering activities.

11.6.11 Earthworks associated with the Proposed Development would likely result in minor changes to the local subsurface and groundwater flows.

11.6.12 The Proposed Development is located within a groundwater DWPA, similarly to the majority of Scotland. On this basis, with the assumption that construction good practice and measures detailed within the Applicant's GEMPs are implemented, groundwater alterations to the DWPA are not anticipated.

11.6.13 Changes in groundwater levels and flows have the potential to impact GWDTE and PWS, potentially affecting both the quality and quantity of water nourishing receptors. As described in **Section 11.4: Groundwater Dependent Terrestrial Ecosystems** the majority of potential GWDTE habitats identified are considered to ombrotrophic / surface water fed and they are unlikely to be dependent on groundwater. Notwithstanding, using a precautionary approach, the potential for GWDTE cannot be excluded.

11.6.14 Assuming implementation of construction good practice, specifically the working in sensitive habitats GEMPs, the effects listed above would be managed to greatly reduce the probability of any modification of groundwater levels and flows.

Modification of Surface Water Drainage Patterns

11.6.15 The Proposed Development is included within a detailed Drainage Strategy Report (**Appendix 11.2)** produced for the adjacent proposed Fanellan 400 kV Hub.

11.6.16 Surface flows could be impeded by construction activity in or adjacent to stream channels, poor choice of watercourse crossing locations or inadequately designed crossing structures. Blockages could be caused by inadequate control of earthmoving plant, sedimentation, and poor waste management; all of which could lead to flooding upstream. There are a number of flood-sensitive locations, such as the River Beauly, its tributaries such as Breakachy Burn, and multiple unnamed minor watercourses, as outlined in the Baseline Conditions.

11.6.17 The Proposed Development would restrict the infiltration of rainfall into the soil and underlying superficial deposits through the introduction of impermeable areas during the construction phase. This results in localised increased volumes of surface runoff and could exacerbate flood risk downstream. New impermeable areas due to tower and track construction may result in the interception of diffuse overland flow, which could disrupt the natural drainage regime of the area within the Site Boundary by concentrating flows and influencing drainage in soils.

11.6.18 Assuming the application of SuDS and the implementation of a CEMP plus construction good practice, specifically the working in or near water, working in sensitive habitats, and soil management GEMPs, the effects listed above would be managed to greatly reduce the probability of any modification of hydrological pathways. All structures will be designed and constructed following good practice techniques and would be of sufficient capacity to receive storm flows with an allowance for increased flows due to climate change. Key measures identified to minimise alterations to surface water drainage patterns include:

- Application of sustainable drainage techniques to increase peak lag time and implementation of cross-drains at appropriate intervals and frequent discharge points to reduce scour potential;
- Any alteration to the drainage regime will require consideration of existing groundwater levels and ponding in the local area;
- Any alteration to the drainage regime will be designed to be sympathetic to local watercourse features, including bed and bank materials, and gradients;
- Minimising the size and duration of in-channel works; and
- Appropriate design of any crossing structures to ensure sufficient capacity to convey 1:200-year storm flows and enable mammal and fish passage.

Private Water Supplies

11.6.19 Water supplies can potentially be impacted by pollution, changes to hydrological pathways, or through damage to their infrastructure, caused by construction activities.

11.6.20 The Aigas power station PWS is unlikely to be affected during the construction phase, given the local topography and due to intervening distance. The well approximately 500 m to the southeast of the Proposed Development, within the study area, as indicated on OS 1:25,000 scale mapping, has been confirmed as non-operational, and therefore will not be affected during the construction phase. In relation to the water tank serving Beaufort Estate, which is situated on private land, it has been noted by Beaufort Estate that it is supplied by public mains water, before being distributed via private pipework across private land to Beaufort Estate. This would not be considered a PWS as the source is public mains water, but should be considered further, as required, prior to construction to avoid disruption/damage to the water supply infrastructure. Therefore, no mitigation measures specific to the management and protection of water supplies are needed in addition to good working practices and the adoption of the relevant GEMPs and the site-specific CEMP.

11.6.21 Potential further unregistered supplies that may be installed following the submission of this EA also need to be established through consultation with local property owners.

11.6.22 The Principal Contractor will be required to consider all construction activities to ensure that they are aware of all authorised abstractions and PWS in the local area. This should include consultation with landowners to identify any unregistered PWS. Should any PWS be identified which require protection, specific mitigation is advised to be developed in conjunction with the landowner and agreed with SEPA.

11.6.23 Assuming implementation of construction good practice and measures detailed within the water supplies GEMP, and assuming further investigation and consultation with SEPA, the potential for SEPA authorised abstractions to be affected will be minimised. The construction works will not require any new water abstractions from local sources. Construction foul water will be collected and removed from within the Site Boundary for off-site disposal at a licensed premises.

11.6.24 Following good practice and measures detailed within the water supplies GEMP, there are no anticipated potential impacts to PWS from the Proposed Development.

Flood Risk Assessment

11.6.25 Short term increases in flood risk have the potential to impact construction workers, third parties, nearby developments, and floodplains.

11.6.26 Surface flows can be impeded by construction activity in or adjacent to stream channels and poor choice of crossing locations. Blockages can be caused by inadequate control of earthmoving plant, sedimentation, and poor waste management, all of which could lead to flooding upstream. Through the implementation of appropriate drainage

design during construction, in accordance with SSEN Drainage Specification, flood risk will remain the same, if not improved, as outlined in the DIA (**Appendix 11.3**).

11.6.27 Within the wider Study Area, small areas of predicted surface water flooding have been noted in the FRA (**Appendix 11.1**). However, with appropriate drainage design during construction, outlined in the DIA (**Appendix 11.3**), runoff created during works will be stored and discharge into downstream waterbodies and will be controlled. This will prevent increased flood risk during the construction of the Proposed Development to downstream receptors. In addition to the mitigation measures in place, the FRA (**Appendix 11.1**) concluded that the Proposed Fanellan 400 kV Hub is unlikely to cause any notable changes in flood risk within the catchment. It is therefore considered unlikely for the Proposed Development to result in increased flood risk due to the comparatively small impermeable areas associated with this type of development and the smaller overall footprint size.

11.6.28 The Flood Risk Assessment (FRA) for the associated Fanellan 400kV Hub application (25/00826/FUL) will be updated, incorporating SEPA and THC feedback and will be made available to the ECU.

11.6.29 Subject to appropriate surface water drainage design the Proposed Development will comply with Energy Networks Association Engineering Technical Report 138 (ENA ETR 138) and NPF4[122].

11.6.30 The construction phase of the Proposed Development will consider the design mitigation, construction good practice and recommendations in the FRA (**Appendix 11.1**), DSR (**Appendix 11.2**) and DIA (**Appendix 11.3**), specifically the Working in or Near Water and Watercourse Crossings GEMPs (**Appendix A**) and any subsequent mitigation measures that may be identified by the updated FRA once it is produced. Considering the aforementioned points, the probability of impacts on flood risk to other nearby receptors would be reduced.

Loss and Compaction of Soils

11.6.31 Soil compaction caused by construction works within the Site Boundary may damage the vegetation and result in a reduction of soil permeability and rainfall infiltration, thereby increasing the potential for longer-term erosion from surface water runoff. This would most likely be caused by tracking of heavy plant machinery.

11.6.32 Stockpiled and unvegetated/exposed areas of soils are also at risk of desiccation and erosion by wind and water, also potentially causing soil loss.

11.6.33 Following construction good practice, specifically the soil management GEMP, the effects listed above will be managed to greatly reduce the probability of any loss or compaction of soils.

GWDTE

11.6.34 Excavation of soil and bedrock during construction may cause localised disruption and interruption to groundwater flow. Where GWDTE are present, interrupting groundwater flow may reduce the proportion of the Zone of Contribution (ZoC) available to such ecosystems, by changing the quantity of groundwater supplying the GWDTE. The ZoC is defined for each habitat as the area up hydraulic gradient of the GWDTE, based upon the geology and topographic information within the Site Boundary. Contamination of groundwater or surface water may cause physical or chemical contamination to the GWDTE.

11.6.35 As described in **Section 11.4: Groundwater Dependent Terrestrial Ecosystems**, the majority of potential GWDTE habitats identified are considered to ombrotrophic / surface water fed and they are unlikely to be dependent on groundwater. Notwithstanding, using a precautionary approach, the potential for GWDTE cannot be excluded.

11.6.36 Assuming implementation of construction good practice measures, specifically the working in sensitive habitats GEMPs, the effects listed above would be managed to greatly reduce the probability of any modification of groundwater levels and flows that may impact any potential GWDTE.

11.7 Cumulative Effects

11.7.1 Cumulative developments which are operational are not considered to have the potential to lead to in-combination effects with the Proposed Development. This is because the potential for significant effects on hydrology, hydrogeology, geology and soils are considered greatest during construction. **Section 12: Cumulative Appraisal** identifies other developments to be included in the assessment of cumulative effects. No likely direct and indirect environmental residual risks have been identified which are associated with the Proposed Development. Also, assuming that effective 'source' controls for each individual development and good practice methodology are going to be applied, significant cumulative effects are not anticipated, even if these other developments present potentially material effects on the receiving hydrology, hydrogeology, geology and soils environment.

11.7.2 Furthermore, the differing construction programming and activities that would be anticipated to occur across various developments reduces the probability that water quality and flow issues would be coincident across the catchments.

11.8 Summary

11.8.1 The potential for construction effects on hydrology, hydrogeology and geology have been appraised for the Proposed Development. The following sensitive hydrology, hydrogeology, geology and soils receptors associated with the Proposed Development have been identified:

- Surface water bodies, including the River Beauly, and its tributaries including multiple minor watercourses;
- PWS, namely Aigas Power Station located within 1 km of the Proposed Development Site Boundary;
- Groundwater bodies, specifically the Northern Highlands Groundwater Body; and
- Flooding.

11.8.2 The appraisal has demonstrated how the Proposed Development may affect the above sensitive receptors. Through successful application of good practice measures (GEMP and CEMP), the appraisal has concluded that impacts from the Proposed Development can be mitigated to prevent any likely direct and indirect environmental residual risks on the hydrology, hydrogeology, geology and soil receptors. Therefore, no material effects are considered likely to arise as a result of the Proposed Development.

11.8.3 Following the implementation of good practice measures and mitigation by design, including those outlined within the GEMP and CEMP, no significant effects are predicted for the hydrology, hydrogeology, geology, and soils receptors.

12. CUMULATIVE APPRAISAL

12.1 Cumulative Schemes

12.1.1 As discussed in **Section 4, Section 4.3**, two aspects of cumulative assessment are being considered in the EA Report; in-combination effects and effect interactions.

12.1.2 Developments identified as having the potential for cumulative effects in combination with the Proposed Development have been detailed in **Table 12-1** and illustrated in **Figure 12.1**; which also illustrates the 5 km search area.

Table 12-1: Cumulative Developments

ID	Project Name	Ref No.	Planning Portal Link	Application Status	Distance / direction to the Fanellan Hub
SSENT projects (Inter Developments):					
1	**SSENT SLBB 400 kV OHL**	**24/04588/SCOP**	LINK	Status: unknown – submission in process	-
2	**SSENT BBNP 400 kV OHL**	**24/03064/SCOP**	LINK	Status: unknown – submission in process	-
3	**SSENT Western Isles HVDC UGC**	-	-	Permitted Development	-
4	**SSENT Aigas Substation - Construction of 132kV replacement substation**	**24/02830/FUL**	LINK	Status: under consideration	**GIS Substation – 1,591.7 m to the Southeast Converter Substation – 1,238.7 m to the Southeast**
5	**SSENT Erection of replacement Overhead Line –**	**22/03536/PNO**	LINK	Decision: Prior approval not required	**GIS Substation – 2,237.1 m to the Southwest Converter Substation – 1,807.7 m to the Southwest**
6	**Black Bridge replacement**	-	-	Subject to ongoing discussion with The Highland Council	**1.39km to the north east of the Proposed Development**
Associated Development					
7	**Fanellan Hub 400 kV Substation and Converter Station**	**25/00826/FUL**	**LINK**	Status: Under Consideration	
3rd Party					
8	**Proposed energy storage facility**	**20/04849/PAN**	LINK	Decision: Case Closed	**GIS Substation – 2,061.3 m to the Southwest**

ID	Project Name	Ref No.	Planning Portal Link	Application Status	Distance / direction to the Fanellan Hub
					Converter Substation – 1,631.5 m to the Southwest
9	**Erection and operation of battery energy storage system up to 49.9 MW, substations, switchgear and control buildings, landscaping, fencing and ancillary infrastructure –**	**24/01548/FUL (see also 23/03772/SCRE relating to the same project)**	LINK	Status: Under Consideration	**GIS Substation – 3,096.1 m to the Southwest Converter Substation – 2,742.1 m to the Southwest**
10	**Beauly BESS - Construction and operation of a Battery Energy Storage System along with associated infrastructure and ancillary works, earthworks, access, drainage, landscaping and biodiversity enhancements. This case will be determined by the Energy Consents Unit.**	**25/00503/S36**	LINK	Status: Under Consideration (Section 36 Consent Application)	**GIS Substation – 4,102.5 m to the West Converter Substation – 3,790 m to the West**

12.2 Appraisal (In-combination Effects)

12.2.1 No disciplines have identified any in-combination effects. This is assuming that appropriate mitigation measures (See Section 13: Schedule of Mitigation) are applied.

12.3 Effect Interactions

12.3.1 Cumulative effect interactions are the combined or synergistic effects caused by the combination of a number of effects on a particular receptor, which may collectively cause a more significant effect than individually.

12.3.2 The approach to the assessment of effect interactions considers the changes in baseline conditions at common sensitive receptors (i.e. those receptors that have been assessed by more than one technical topic) due to the Proposed Development. The assessment is based upon residual effects only (considered to be effects of minor or greater significance i.e. excluding negligible effects).

12.3.3 Only residual effects with the potential for effect interactions are considered, i.e. where there are common receptors with other distinctly different topics. The assessment of effect interactions concluded that significant residual effects are unlikely for Landscape and Visual; Ecology; Forestry; Ornithology; Hydrology, Geology, Hydrogeology and Soils; Heritage; and Noise. Therefore, no effect interactions have been identified as a result of the Proposed Development.

12.3.4 The ecological assessment includes the impacts from the other topics including impacts from water quality on aquatic receptors. It also considers the combined effects of different ecological impacts on specific receptors. To assess this as part of the effect interactions assessment would effectively double count the effects.

12.3.5 Overall, no cumulative effects are predicted for the Proposed Development.

13. SCHEDULE OF MITIGATION

13.1 Introduction

13.1.1 This chapter presents a compilation of the mitigation measures outlined in the preceding chapters of this Report. **Table 13.1** displays, by topic, the mitigation or monitoring measures to be implemented. Each measure is assigned a code for ease of reference).

13.1.2 Embedded mitigation comprising 'Design Mitigation' and general 'Construction Good Practice' has been incorporated into the description of the Proposed Development; and as such has been assessed as being part of the development proposals. SSEN Transmission's General Environmental Management Plans (GEMPs) (**Appendix A)** and Species Protection Plan (SPPs) (**Appendix B**) have been included within the schedule of environmental mitigation for completeness.

13.1.3 The following mitigation codes are used in this section:

- GE – General mitigation measures;
- LV – Landscape and Visual;
- O – Ornithology;
- E – Ecology and Nature Conservation;
- F – Forestry;
- N – Noise;
- H – Heritage; and
- HYD – Hydrology, Hydrogeology, Geology and Soils.

In all instances, the Principal Contractor will have responsibility for implementation of the mitigation or monitoring measures.

Table 13.1: Schedule of Mitigation

Topic	Phase	Mitigation Reference	Mitigation Description
General	Construction Phase	GE1	A CEMP will be prepared and implemented by the Principal Contractor in consultation with the Principal Contractor for the associated proposed Fanellan 400 kV Hub. This document will detail how the Principal Contractor will manage the site in accordance with all commitments and mitigation detailed in this EA Report, statutory consents and authorisations, and industry best practice and guidance. The CEMP will: Be overseen by a qualified Environmental Advisor. and Include contingency planning, emergency response, and staff training. The CEMP will include General Environmental Management Plans (GEMPs): Applicable GEMPs include: • Working in or near water. • Working in sensitive habitats. • Watercourse crossing.

Topic	Phase	Mitigation Reference	Mitigation Description
			• Private water supplies. • Soil managmement. • Oil storage and refuelling. • Contaimnated land. • Working with concrete. • Bad weather.
General	Construction Phase	GE2	A Construction Traffic Management Plan (CTMP) will be developed by the Contractor, which will be agreed with The Highland Council roads team in advance of construction. The CTMP will contain measures which will ensure the following: A driver induction will be undertaken to include a safety induction, speed control and the identification of specified access routes. Adoption of car sharing where possible to reduce the number of vehicles arriving and departing from the site. HGV's adhere to weight restrictions on roads in the area.
General	Construction Phase	GE3	Soil management will follow the general guidance set out in SSEN Transmission's GEMP - 'Soil Management' (**Appendix A**). Additionally, reinstatement shall be completed as soon as practicably possible in order to prevent environmental disturbance.
General	Construction Phase	GE4	Dust will be managed through implementation of standard control measures such as management of stock piles to supress dust and road cleaning in accordance with SSEN Transmission's GEMP – 'Dust Management' (**Appendix A**).
General	Construction Phase	GE5	Waste Management will be in accordance with Section 34 (Scotland) of the Environmental Protection Act, SSEN Transmission's GEMP – 'Waste Management' (**Appendix A**) and the waste hierarchy.
General	Construction Phase	GE6	An Environmental Emergency Response Plan will be developed by the Principal Contractor to deal with, among other things, accidental spills / leaks. Appropriate spill kits will be located on site and in key vehicles. Site staff will be trained in their use and provided with advice on action(s) to be taken and who should be informed in the event of a pollution incident. Emergency response teams and contractors, their locations and response times will be identified in the plan.

Topic	Phase	Mitigation Reference	Mitigation Description
General	Construction Phase	GE7	On-site welfare facilities will be adequately designed and maintained to ensure all sewage is disposed of appropriately. This may take the form of an on-site septic tank with soak away, tankering and off-site disposal depending on agreement with SEPA; or discharge to foul sewer.
General	Construction Phase	GE8	The proposed timing of works dictates that some of the work will have to be undertaken during winter months, details will be provided of how the Site will be managed to address this. SSEN Transmission's GEMP – 'Bad weather' (**Appendix A**) will be adhered to.
General	Construction Phase	GE9	Local residents will be kept informed of any potentially disruptive activities and actions being taken to mitigate the impact of these activities.
Ecology	Construction Phase	E1	No excavations will be left open overnight, unless a ramp with a 45 degree angle is included to allow animals to escape should they fall in. All excavations will be backfilled immediately where possible.
Ecology	Construction Phase	E2	Where construction has not commenced within 18 months and conditions for species may have changed, surveys will be repeated in order to provide the most accurate and up to date recommendations for the Site.
Ecology	Pre-construction	E3	License requirements for badger and bats as set out in paragraphs 7.10.10 to 7.10.13 and 7.11.4 to 7.11.5.
Ecology and Nature Conservation	Construction Phase	E3	Implementation and strict adherence to the GEMPs and SPPs for all protected species within the EZOI will be required. The GEMPs include: • Working in sensitive habitats, restoration, bad weather, oil storage and refueling, working in or near water, working with concrete, waste management, soil management, and biosecurity on land. Development and implementation of SPPs for: • Bats, Badgers, and Great Crested Newts (GCN). • Where species are potentially present, but have been scoped out from this appraisal, such as otter, red squirrel, and pine marten, SSEN SPPs will be adhered to regardless of appraisal in this EA. All mitigation measures will be delivered through the Principal Contractor's CEMP and monitored by an ECoW.

Topic	Phase	Mitigation Reference	Mitigation Description
Landscape and Visual	Construction Phase	LV1	The mitigation of effects on the landscape and visual resource during construction are integral to the construction process under the 'Considerate Constractors' process that is now routinely followed, such as tidy site management to reduce visual clutter associated with the works; and use of construction lighting in accordance with best practice to minimise lighting intrusion to surrounding sensitive receptors. Such mitigation measures will be included within a CEMP which will be prepared by the Principal Contractor.
Landscape and Visual	Embedded Design Mitigation	LV2	Tower Siting: the proposed OHL towers have been sited to reduce both landscape and visual effects. This includes: • Locating the new terminal towers further northwest, closer to Ruttle Wood, which provides a natural visual backdrop,
Landscape and Visual	Embedded Design Mitigation	LV3	Minimising New Elements: the development does not introduce new permanent OHL alignment but modifies existing alignments, helping to maintain landscape coherence.
Landscape and Visual	Construction Phase	LV4	Vegetation Clearance: limited to what is necessary for conductor clearance, particularly within Ruttle Wood (Category 2B LEPO woodland). Measures include ensuring sufficient vertical clearance.
Landscape and Visual	Construction Phase	LV5	Site Management: • Implementation of GEMPs to ensure best practice during construction and reinstatement. • Tidy site practices to reduce visual clutter. • Controlled use of construction lighting to minimize light pollution, especially during winter months.
Landscape and Visual	Operation Phase	LV6	Reinstatement: Ground surfaces will be reinstated after the removal of temporary access tracks and towers (unless to be lost to associated proposed Fanellan 400 kV Hub permanent development footprint. • No additional planting is proposed, but the reinstatement will help blend the site back into the surrounding landscape.
Ornithology	Construction Phase	O1	Site Management: • The project will implement the Applicant's standard GEMPs and Species Protection Plans (SPPs), which are pre-agreed with NatureScot.

Topic	Phase	Mitigation Reference	Mitigation Description
			• These protocols will be enforced through the CEMP and are applicable to all works, including those involving sensitive bird species.
Ornithology	Construction Phase	O2	Bird-Species Protection Plan (SPP): • The dedicated Bird SPP will be applied to all construction activities • This includes pre-construction surveys to identify active nest sites, and where required, use of protection zones around nests if found, and seasonal working restrictions to avoid disturbance during breeding periods.
Ornithology	Construction Phase	O3	Habitat Clearance Controls: • Tree and vegetation removal will be minimized and restricted to areas essential for construction. • If habitat clearance is undertaken in the breeding bird season (March - August inclusive) the ECoW will undertake a nesting bird check before the works can commence. If an active nest is found a protection zone, as deemed suitable by the ECoW, will be implemented. The protection zone will remain in place until it is confirmed that the nest is no longer active.
Ornithology	Operation Phase	O4	Collison Risk Reduction: • Bird Flight Diverters (BFDs) will be installed on both the permanent and temporary OHL diversions to reduce the risk. of bird collisions, particularly for Osprey and Red Kite. • BDFs will be spaced every 5 to 10 m for maximum visibility and are designed to remain visible in various weather and light conditions.
Forestry	Construction Phase	F1	Veteran Tree Protection Vertical clearance for the temporary OHL will be increased over veteran trees to avoid canopy interferences. Additional protective measures include: • Use of temporary fencing around veteran trees. • Scaffolding to shield canopies during construction. • Arboricultural supervision during works to ensure compliance and protection.

Topic	Phase	Mitigation Reference	Mitigation Description
Forestry	Construction Phase	F2	Tree Retention within Operational Corridor where possible and where to do so does not pose a risk to electrical infrastructure or prohibit access to it for maintenance. A cautionary approach is advised within the Operational corridor (OC): • Category A and B trees (high and moderate quality) should be retained where possible. • Trees should be assessed for height to ensure they do not pose a future risk to the OHL.
Forestry	Operational Phase	F3	Compensatory Planting A compensatory planting strategy has been developed for the Proposed Development, to account for: • Impacts from both permanent and temporary OHL alignments and associated tracks.
Noise and Vibration	Construction Phase (Noise)	N1	The Principal Contractor will be required to produce and implement a Construction Noise Management Plan (CNMP). The CNMP will be taken forward by the Principal Contractor for any post construction works of a similar nature that are associated with the Proposed Development e.g. maintenance. The CNMP will be agreed with SSEN Transmission prior to construction commencing. Compliance with the relevant EC Directives and UK Statutory Instruments that limit noise emissions of a variety of construction plant; and guidance set out in BS 5228-1:2009+A1:2014 which covers noise control on construction sites. The CNMP will: • be embedded within the CEMP; • control noise at source and along transmission paths; and • include scheduling, equipment selection, and community engagement.
Noise and Vibration	Construction Phase (Noise)	N2	Piling Activities: • Prioritise piling during daytime hours (07:00 – 19:00 on weekdays and 07:00 – 13:00 on Saturdays) to align with higher noise thresholds. • Reduce number of rigs, operational time, or procure quieter rigs (the Principal Contractor would need to explore the feasibility of this).

Topic	Phase	Mitigation Reference	Mitigation Description
Noise and Vibration	Construction Phase (Noise)	N3	Tree Felling and Vegetation Clearance: • Manage chainsaw and heavy equipment use to minimise duration and intensity near sensitive receptors (e.g. NSRs 1, 23 and 48).
Noise and Vibration	Construction Phase (Noise)	N4	Stringing Operations of OHL: • Manage tractor use during conductor stringing to reduce prolonged high noise levels.
Noise and Vibration	Construction Phase (Noise)	N5	Scheduling and Equipment Use: • Noise activities to be scheduled during daytime and Saturdays to benefit from the 65 dB limit. • Where there are concurrent noisy phases with the Fanellan 400 kV Hub, prioritise noisiest activities during the day to reduce cumulative impacts.
Noise and Vibration	Construction Phase (Vibration)	N6	Dynamic Compaction: • Reduce tamper energy to ≤0.9 MJ to achieve low impact. • For negligible impact, reduce to ≤57.8 kJ.
Noise and Vibration	Operational Phase (Noise)	N6	Component Selection: • Avoid OHL components known to produce aeolian noise where practicable to do so.
Heritage	Construction Phase	H1	Demarcation and Avoidance: The Ruttle Wood cairn (Canmore ID 116606) (A6) is located close to Site and should be demarcated and avoided through the erection of temporary fencing set at least 10 m from the visible edge of the heritage asset. Fencing should be put in place prior to any construction activity, including Geotechnical Investigations or archaeological works, to ensure visibility of the heritage asset and avoidance of accidental damage.
Heritage	Construction Phase	H2	Preservation by Record: Possible pits (A9) are located within a part of the Site that will be truncated by the Proposed Development construction. The impacts will be mitigated through a programme of archaeological excavation. The methodology for the works will be set out within a Project Design that is approved by Highland Council Historic Environment Team (HCHET), setting out next steps for recording of archaeological remains discovered, including archaeological excavation, reporting, post-excavation assessment and analysis, publication of the findings, and archiving requirements.

Topic	Phase	Mitigation Reference	Mitigation Description
Heritage	Construction Phase	H3	General Archaeological Mitigation: Due to the high poential for undiscovered archaeological remains: • Archaeological works will be required in all construction areas involving ground disturbance (e.g. tower foundations, access tracks). • This may include trail trenching evaluations or may be conducted as watching brief during groundworks.
Hydrology, Hydrogeology, Geology and Soils	Construction Phase	HYD1	A Site Water Management Plan will be developed to manage potential risks to the water environment including silt mitigation and its locations, dewatering of excavations inclusive of pump locations, monitoring points, cut off drains, and SuDS (incl. compound). In addition, this plan will show how rivers downstream will be protected from sedimentation or pollution resulting from the project activities. The Site Water Management Plan will include a drawing of the Proposed Development, as well as any access tracks detailing all locations of water mitigation measures. All relevant activities will be undertaken in compliance with the Controlled Activities Regulations. The plan will be to a standard to support a construction licence (CSL), which the Principal Contractor is required to apply for. SSEN Transmission's GEMPs for 'Oil Storage and Refueling, 'Soil Management', and 'Working with Concrete' (Appendix A) will be adhered to.
Hydrology, Hydrogeology, Geology and Soils	Construction Phase	HYD2	Private Water Supplies (PWS): • Consultation with landowners to identify unregistered PWS.
Hydrology, Hydrogeology, Geology and Soils	Operation Phase	HYD3	Watercourse Crossings: Use of bottomless arch or bridge structures instead of culverts to maintain natural bed and bank features as much as possible. • Designed to convey 1-in-200 year storm flows with climate change allowance.
Hydrology, Hydrogeology, Geology and Soils	Operation Phase	HYD4	Surface Water and Flood Risk: • Implementation of Sustainable Drainage Systems (SuDS) to manage runoff and prevent increased flood risk. • Revised Flood Risk Assessment (FRA) to be completed post-submission, incorporating SEPA and THC feedback on the associated

Topic	Phase	Mitigation Reference	Mitigation Description
			Fanellan 400kV Hub application (25/00826/FUL).