Scottish & Southern Electricity Networks

TRANSMISSION

Environmental Impact Assessment (EIA) Scoping Report

Hurlie 400 kV Substation

August 2024

Scottish & Southern Electricity Networks
TRANSMISSION

CONTENTS

List of Figures

List of Tables

GLOSSARY

Term	Definition
400 kV	400 kilovolt (400,000 volt) operating voltage electrical circuit
AIL	Abnormal Indivisible Loads (AIL) are movements of specialised heavy good vehicles (HGVs) primarily comprising large components of the substation such as transformers.
AIS Substation	An Air Insulated Switchgear (AIS) substation is constructed with switchgear which relies on open air components, which can require large clearance areas for operation and safety, which takes up a larger area of land than Gas Insulated Switchgear (GIS).
Ambient Noise	The all-encompassing noise level measured in LAeq,T (total equivalent noise level over measurement period). The Ambient Noise Level incorporates background sounds as well as the industrial source noise under construction.
Amenity	The natural environment, cultural heritage, landscape and visual quality. Also includes the impact of SSEN Transmission's works on communities, such as the effects of noise and disturbance from construction activities
AOD	Above Ordnance Datum.
Associated Works	Other associated works related to the Proposed Development for which separate consent would be sought.
ASTI	Accelerated Strategic Transmission Infrastructure (ASTI) is a regulatory framework. This framework will assess, fund and incentivise the accelerated delivery of the large, strategic onshore transmission projects required to deliver the government's ambition to connect up to 50GW of offshore wind generation to the network by 20301.
AWI	Ancient Woodland Inventory (AWI) is a provisional guide to the location of Ancient Woodland. It contains three main categories of woodland, all of which are likely to be of value for their biodiversity and cultural value. These include Ancient Woodland, Long-established woodlands of plantation origin (LEPO), and other woodlands.
Baseline Conditions	The physical, chemical, biological and cultural setting in which the Proposed Development is to be located, and where local impacts (both positive and negative) might be expected to occur.
BGS	British Geological Survey.
BNG	Biodiversity Net Gain (BNG) is an approach to development that aims to leave the natural environment in a measurably better state than it was pre-development. It focuses on the change in the biodiversity value of a site, comparing the pre and post construction biodiversity values to ensure a positive effect overall.
BoCC	Birds of Conservation Concern (BoCC) provides the status of all regularly occurring birds in the UK, Channel Islands and Isle of Man. The current version is BoCC 5, published December 2021. Birds of highest conservation concern will appear on the Red List.
CEMP	A Construction Environmental Management Plan (CEMP) is a document which defines specific methods for environmental survey, monitoring, mitigation and management throughout construction
Consultation	The dynamic process of dialogue between individuals or groups, based on a genuine exchange of views and, normally, with the objective of influencing decisions, policies or programmes of action.
Consultation Bodies	In terms of regulation 2(1) of the EIA Regulations, defined as meaning the planning authority, NatureScot, the Scottish Environment Protection Agency and Historic Environment Scotland.
Cumulative Effects	Impacts that result from the combination of the Proposed Development with other reasonably foreseeable projects.

[1] Ofgem (2023) Decision to modify the special licence conditions in the electricity transmission licences: Accelerated Strategic Transmission Investment

Term	Definition
DWPA	Drinking Water Protected Areas (DWPA). The water in ditches, streams, lochs and possibly groundwater in these areas is protected and likely to be taken to water treatment works, where it is treated and provided to the public as drinking water.
Effect	The change in condition of an environmental receptor (beneficial or adverse) arising as a result of a change brought about by the construction or operation of the Proposed Development.
EIA	Environmental Impact Assessment (EIA) is a formal process codified by EU Directive 2011/92/EU, and subsequently amended by Directive 2014/52/EU. The relevant regulations are set out in The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. The EIA process is set out in Regulation 4(1) of the regulations and includes the preparation of an EIAR (EIAR) by the developer to systematically identify, predict, assess and report on the likely significant environmental impacts of a proposed project or development.
Embedded Mitigation	Measures to avoid or reduce environmental impacts which are developed as an inherent part of the design of a project (e.g. bunding and landscaping to screen a substation from surrounding receptors) or from adoption of specific design parameters (e.g. compliance with specific buffer distance from an environmental receptor).
EMF	Electric and Magnetic fields.
EMI	Electromagnetic Interference.
ESO	National Grid is the Electricity System Operator (ESO) for Great Britain. The ESO balances electricity supply and demand to ensure the electricity supply. The ESO also outlines strategic goals for the UK's energy grid.
FRA	Flood Risk Assessment (FRA) – Document that reviews the risk of flooding from a development.
GDL	Garden and Designed Landscapes (GDL) are listed on the Inventory of Gardens and Designed Landscapes held by HES. These are considered by a panel of experts to be of national importance.
GEMP	General Environmental Management Plans. A series of standardised construction environmental management plans produced by SSEN Transmission.
GIS Substation	A Gas Insulated Switchgear (GIS) substation is constructed with switchgear with gaseous reliant components which allows operation and safety clearances to be reduced compared to an AIS substation.
GWDTE	Groundwater Dependent Terrestrial Ecosystem (GWDTE) – Wetlands which critically depend on groundwater flows. They are safeguarded by the Water Framework Directive (WFD) and are sensitive to hydrological and ecological changes.
Habitat	Term most accurately meaning the place in which a species lives, but also used to describe plant communities or agglomerations of plant communities.
HES	Historic Environment Scotland.
HGV	Heavy Goods Vehicle.
Horlock Rules (as modified)	Principles used to inform the siting of substations.
HRA	Habitats Regulations Appraisal (HRA) – Appraisal to determine whether the Proposed Development is likely to have a significant effect on a European designated site, to address the requirements of regulation 63 of the Conservation of Habitats and Species Regulations 2017
Impact	Physical constructions or activities that may change or disturb the surrounding environment.
Kilovolt (kV)	One thousand volts.
LCT	Landscape Character Type (LCT) – A distinct, recognisable and consistent pattern of elements in a landscape that differentiate the area from each other.

Term	Definition
LEPO	Long-Established woodlands of Plantation Origin (LEPO) – NatureScot category of the Ancient Woodland Inventory. Many of these plantation sites have developed semi-natural characteristics, especially the oldest ones, which may be as rich as Ancient Woodland.
Listed Building	Building included on the list of buildings of special architectural or historic interest and afforded statutory protection under the 'Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997' and other planning legislation. Classified in three categories A, B and C(s).
LLA	Local Landscape Areas (LLA) are designated by local planning authorities for sites which are considered to be of regional/local importance for their scenic qualities. Local Development Plans (LDPs) typically show the location of LLAs and associated policy.
LNCS	Local Nature Conservation Site (LNCS) – A non-statutory designation given by local authorities to areas of locally important nature. LNCS are intended to safeguard biodiversity and geodiversity of at least local importance.
LPA	Local Planning Authority (LPA) is the local government body that is empowered by law to exercise urban planning functions for a particular area.
Mitigation	Term used to indicate avoidance, remediation or alleviation of adverse impacts (see also Embedded Mitigation definition).
NatureScot	Scotland's statutory nature conservation agency (formerly Scottish Natural Heritage (SNH)).
NNR	National Nature Reserves (NNR) are areas of natural heritage where public access is encouraged and which usually host nationally or internationally important habitats and species.
NPF4	National Planning Framework 4 (NPF4) – The national spatial strategy for Scotland. It sets out the spatial principles, regional priorities, national developments and national planning policy. It replaces NPF3 and Scottish Planning Policy.
NSR	Noise sensitive receptors (NSRs) are defined as receptors which are potentially sensitive to noise and vibration. Examples include dwellings, hospitals, schools, community facilities.
OHL	Overhead Line (OHL) – An electric line installed above ground, usually supported by lattice steel towers.
Overall Project	The proposed new Kintore to Tealing 400 kV OHL project together with the proposed substations at Emmock and Hurlie. This term reflects the inter-connected nature of the three proposed projects as part of SSEN Transmission's wider programme of East Coast 400 kV Phase 2 Upgrade Projects.
PM10	Particulate matter with an aerodynamic diameter less than 10 micrometres.
PRI	Public Road Improvement (PRI). Works required to improve public roads to enable appropriate access.
PAN	Proposal of Application Notice (PAN). A notice to the council advising of how the developer intends to engage with the community about their proposal.
Proposed Development	The Proposed Development is a description capturing the physical characteristics of the substation.
PWS	Private Water Supply (PWS). A supply of water which does not come from a licensed water supplier.
Ramsar	Wetlands of international importance that have been designated to reflect their representative, rare or unique wetland types or for their importance in conserving biological diversity.
RLB	Red Line Boundary (RLB) This area should include all land necessary to carry out the Proposed Development.
SAC	Special Area of Conservation (SAC) – A designation under Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (known as the Habitats Directive), to ensure that rare, endangered or vulnerable habitats or species of community interest are either maintained at or restored to a favourable conservation status.

Term	Definition
Schedule 1 Species	Birds listed on the Schedule 1/A1/1A of the Wildlife & Countryside Act 1981, for which it is an offence to intentionally or recklessly disturb at, on or near an 'active' nest. The following are included in the schedules: Schedule 1 - birds protected by special penalties; Schedule 1A - birds that may not be intentionally or recklessly harassed at any time; and Schedule A1- birds whose habitually used nests may not be intentionally or recklessly taken, damaged, destroyed or otherwise interfered with when not in use.
Scheduled Monument	A monument which has been scheduled by the Scottish Ministers as being of national importance under the terms of the 'Ancient Monuments and Archaeological Areas Act 1979'.
Scoping Opinion	An opinion adopted by the Local Planning Authority (LPA) as to the scope and level of detail of information to be provided in the EIAR.
SEPA	Scottish Environment Protection Agency (SEPA).
Site	The extent of land encompassed within the Proposal of Application Notice (PoAN) boundary.
SPA	Special Protection Area (SPA) – Designated under Directive 2009/147/EC on the Conservation of Wild Birds (the Birds Directive) to protect important bird habitats.
SSEN Transmission	Scottish Hydro Electric Transmission plc is a wholly owned subsidiary of the SSE plc group of companies. Operating and known as Scottish and Southern Electricity Networks Transmission (SSEN Transmission) it owns and maintains the electricity transmission network across the north of Scotland and remote islands. It holds a licence under the Electricity Act 1989 to develop and maintain an efficient, co-ordinated and economical system of electricity transmission.
Stakeholders	Organisations and individuals who can affect or may be affected by SSEN Transmission works.
Study Area	The defined area for the consideration of environmental effects (including direct, indirect and cumulative) on each relevant factor listed under Regulation 4(3) of the EIA Regulations.
Substation	A node on the network to allow safe control of the electricity network. This could include convergence of multiple circuits, transformation of voltage or other functions to maintain and operate the electricity network.
Substation Site Area	Site area identified as necessary to deliver all the substation infrastructure requirements e.g. platform, access tracks, temporary construction area, drainage including SUDS and landscaping.
SuDS	Sustainable Drainage Systems (SuDS) – Drainage solutions that provide an alternative to the direct channelling of surface water through networks of pipes and sewers to nearby watercourses.
Terminal Structure	A structure (tower) required where an overhead transmission line terminates either at a substation or at the beginning and end of an underground cable section.
The Applicant	The person or organisation applying for planning permission. In this instance Scottish and Southern Electricity Networks Transmission (SSEN Transmission).
The National Grid	The electricity transmission network in Great Britain.
The Site	The geographical area where the works for the Proposed Development are proposed, as illustrated by the Site Boundary.
UK BAP	The UK Biodiversity Action Plan (UK BAP) was published in 1994 after the Convention on Biological Diversity (CBD). It summarised the most threatened species and habitats in the UK and gave detailed plans for their recovery.
UK BAP Species	Species identified as being most threatened and requiring conservation action at a national level under the UK Biodiversity Action Plan (UK BAP).
Volts	The international unit of electric potential and electromotive force.
WFD	Water Framework Directive (WFD) – The main aims of the Water Framework Directive (WFD) are to prevent deterioration and enhance status of aquatic ecosystems, including

Term	Definition
	groundwater, promote sustainable water use, reduce pollution, and contribute to the mitigation of floods and droughts.
Works	Constructing new transmission infrastructure such as substations, overhead lines, underground cables; major refurbishment of these; the dismantling and removal of any parts of the system; and ancillary works, which may include formation of access tracks, bridge and road improvements, tree cutting, drainage etc.
ZTV	Zone of Theoretical Visibility (ZTV) – The computer-generated plan showing the theoretical visibility of an object in the landscape.

EXECUTIVE SUMMARY

This Scoping Report has been prepared by Land Use Consultants Limited (LUC) on behalf of Scottish Hydro Electric Transmission plc ("the Applicant") who, operating and known as Scottish and Southern Electricity Networks Transmission – ("SSEN Transmission"), owns, operates and maintains the electricity transmission network across the north of Scotland and remote islands.

The Applicant has a statutory duty under Section 9 of the Electricity Act 1989, to develop and maintain an efficient, co-ordinated and economical system of electricity transmission, and to facilitate competition in the supply and generation of electricity. To meet its duty, the Applicant is planning and seeking consent for a new 106-kilometre 400 kV overhead line (OHL) transmission connection between Kintore and Tealing which includes two 400 kV substations at Hurlie (Proposed Development) located approximately 5 km west of Stonehaven in Fetteresso Forest in Aberdeenshire; Emmock, adjacent to the 275 kV substation at Tealing near Dundee in Angus; and related 400 kV reconductoring and tie-ins of the existing Alyth-Tealing and Westfield-Tealing 275 kV OHLs with tie-backs between Emmock and Tealing substations.

The main drivers for this new transmission infrastructure are the forecast growth in renewable electricity generation across the northeast of Scotland and the need to reinforce the electricity transmission network to transport that electricity to areas of demand. The proposed Kintore -Tealing 400 kV OHL supports the UK and Scottish Government's renewable energy targets and transition to net zero emissions in line with National Grid's Pathway to 2030 and OFGEM's Accelerated Strategic Transmission Investment (ASTI) framework for funding projects that are needed to deliver the Government's 2030 ambitions.

Hurlie substation will allow future energy generating stations to connect into the National Grid whilst facilitating the transfer of this energy to where it is required.

This Scoping Report is provided to support a formal scoping request under Regulation 17 of The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 by the Applicant for a Scoping Opinion from Aberdeenshire Council (as Local Planning Authority) to determine the information to be provided within the Environmental Impact Assessment (EIA) Report for the Proposed Development. The proposed scope of the EIAR is summarised in **Table ES1** below, noting that the final scope will be agreed following the receipt of a Scoping Opinion from Aberdeenshire Council.

Table ES1: Topics Scoped In

Topic	Comments on Scope
Forestry	**Scoped In** Effects upon forestry are likely and have therefore been scoped into the assessment.
Landscape and Visual Amenity	**Scoped In** Potential impacts on designated landscape areas, landscape character and visual receptors cannot be discounted. Therefore, further assessment is required.
Cultural Heritage and Archaeology	**Scoped In** Effects on the setting of cultural heritage assets in the wider landscape and impacts on buried archaeology cannot be discounted. Therefore, further assessment is required.
Ecology	**Scoped In** Effects on ecological receptors within and using the Site are anticipated and have some potential to be significant. Therefore, further assessment is required.
Ornithology	**Scoped In** Effects on assemblages of avian species within and using the Site cannot be discounted. Therefore, further assessment is required.

Topic	Comments on Scope
Hydrology, Hydrogeology, Geology, and Soils	**Scoped In** Effects on the water environment, geology, and soils cannot be discounted. Therefore, further assessment is required.
Traffic and Transport	**Scoped In** Effects on traffic and the local transport network cannot be discounted. Therefore, further assessment is required.
Noise and Vibration	**Scoped In** Effects on the local noise profile cannot be discounted. Therefore, further assessment is required.

Further details of the topics which have been scoped out of the EIA and the supporting rationale for so doing can be found in **Chapter 4: Topics Scoped Out of the EIA**. A summary of the proposed scope of the EIA is presented in **Chapter 14: Summary of Proposed EIA Scope**.

1. INTRODUCTION

1.1 The Proposal

1.1.1 Scottish Hydro Electric Transmission plc ("the Applicant") is a wholly owned subsidiary of the SSE plc group of companies. Operating and known as Scottish and Southern Electricity Networks Transmission ("SSEN Transmission") it owns and maintains the electricity transmission network across the north of Scotland and remote islands. In this Scoping Report the Applicant and SSEN Transmission are used interchangeably unless the context requires otherwise.

1.1.2 SSEN Transmission holds a licence and has a statutory duty under Section 9 of the Electricity Act 1989 to develop and maintain an efficient, co-ordinated and economical electrical transmission system in its licence area. Where there is a requirement to extend, upgrade or reinforce its transmission network, SSEN Transmission's aim is to provide an environmentally aware, technically feasible and economically viable solution which would cause the least disturbance to the environment and to people who use it.

1.1.3 The Applicant is proposing to submit a planning application to construct a new 400 kV substation in Fetteresso Forest in Aberdeenshire (described hereafter as the 'Proposed Development' or 'Hurlie substation'). In this Scoping Report references to 'The Site' refers to the geographical area where the works for the Proposed Development are proposed, as illustrated by the Proposal of Application Notice (PAN) boundary as shown in **Figure 1.1: Site Boundary**. The Proposed Development is part of a wider project which comprises a 400 kV OHL between Kintore and Tealing, the Emmock 400 kV substation, and Tealing - Emmock 400 kV tie-ins. These proposals are collectively defined as the 'Overall Project'.

1.1.4 The construction of the Overall Project is part of the East Coast 400 kV Phase 2 programme of new transmission projects and upgrades being promoted by SSEN Transmission. Consent for the Kintore to Tealing 400 kV OHL will be sought by the Applicant through an application to Scottish Government under section 37 of the Electricity Act 1989.

1.1.5 This Scoping Report and the forthcoming EIAR for the Proposed Development focus on the likely significant environmental effects of the proposed Hurlie substation. The EIAR which will be submitted by the Applicant to the Scottish Government for the Overall Project will incorporate the key findings and predicted effects of the three projects drawing on the EIARs for the two substations including their potential cumulative environmental effects.

Project Need

1.1.6 In July 2022, National Grid, the Electricity System Operator (ESO), published the Pathway to 2030 Holistic Network Design (HND)[2], setting out the blueprint for the onshore and offshore electricity transmission network infrastructure required to enable the forecasted growth in renewable electricity across Great Britain, including the UK and Scottish Government's 2030 offshore wind targets of 50 GW and 11 GW respectively.

1.1.7 For the north of Scotland, there is a need for a significant and strategic increase in the capacity of the onshore electricity transmission infrastructure to deliver 2030 targets and a pathway to net zero. Identified elements of the network reinforcement to deliver this capacity require accelerated development and delivery to meet 2030 connection dates; as part of the East Coast 400 kV Phase 2 upgrade reinforcement project, the Kintore - Tealing 400 kV OHL is required to be progressed accordingly. The need for these reinforcements has been further underlined within the recent British Energy Security Strategy[3]. This sets out the UK Government's plans to accelerate homegrown power to support increased UK energy independence.

1.1.8 The extensive studies completed to inform the ESO's Pathway to 2030 HND confirmed the requirement to increase the power transfer capacity of the onshore corridor from Kintore to Tealing. This requires a 400 kV connection

[2] National Grid ESO (2022) Pathway to 2030: A holistic network design to support offshore wind deployment for net zero
[3] HM Government (2022) British Energy Security Strategy

between these sites to enable the significant power transfer capability needed to take power from onshore and large scale offshore renewable generation which is proposed to connect at onshore locations on the East Coast of Scotland before then being transported to areas of demand.

1.1.9 The Kintore - Tealing 400 kV OHL (Overall Project), requires the Hurlie and Emmock 400 kV substations to be constructed to enable future connections and export routes to areas of demand, which will enable the delivery of the UK and Scottish Government's renewable energy targets in-line with both National Grid's Pathway to 2030 and OFGEM's Accelerated Strategic Transmission Investment (ASTI) framework for funding the projects that are needed to deliver the Government's 2030 ambitions. The 400 kV network on the East Coast of Scotland is specifically referred to within the ASTI projects.

1.2 The Environmental Impact Assessment (EIA) Regulations

1.2.1 The Proposed Development is not defined as Schedule 1 Development or Schedule 2 Development in the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 ('The Regulations')[4]; however, as set out in Part 2, Regulation 6 of The Regulations, if the Applicant submits an Environmental Impact Assessment (EIA) Report (EIAR) within its planning application to the Local Planning Authority, then the Proposed Development is considered an EIA development.

1.2.2 This Scoping Report supports the Applicant's request for a Scoping Opinion from Aberdeenshire Council under Regulation 17 of the Regulations; furthermore, by submitting this EIA Scoping Report, the Applicant confirms that the Proposed Development should be determined as an EIA development.

1.2.3 The EIA process will aim to avoid, reduce and, where necessary, mitigate likely significant environmental effects through an iterative design process for the substation. The findings of the EIA will be presented within the EIAR which will report on the effects of construction and operation of the Proposed Development.

1.2.4 The EIAR will also consider the cumulative effects of the Proposed Development with other development projects which share the study area, and which have progressed to the application stage, or which have been specifically identified by Statutory Consultees for inclusion within the cumulative impact assessment. The projects which are proposed to be included in the cumulative impact assessment, and the proposed approach to the assessment are discussed further in **Chapter 13: Cumulative Effects**.

1.2.5 This Scoping Report has been prepared in accordance with the EIA Regulations, with other relevant EIA best practice guidance, as specified in each relevant chapter, and taking account of the Applicant's own procedures for substation projects (in particular for the selection and appraisal of substation sites). It has been prepared by a team of environmental technical specialists led by Land Use Consultants Ltd (LUC) and managed by EIA practitioners with relevant competence in undertaking EIA.

1.2.6 In accordance with Regulation 17 (2) the EIA Regulations, this EIA Scoping Report contains:

- A plan sufficient to identify the location of the Proposed Development (see **Figure 1.1: Site Boundary**);
- A brief description of the nature and purpose of the Proposed Development and its possible effects on the environment (see **Chapter 2: Description of the Proposed Development** for description and subsequent report chapters (**Chapters 5 to 12**) for possible effects); and
- Additional supporting information and representations (**Chapters 14 to 15**).

1.3 Purpose of the EIA Scoping Report

1.3.1 The purpose of this EIA Scoping Report is:

- To summarise the main elements of the Proposed Development to allow consultees to comment meaningfully on the proposed scope of the EIA;

[4] HM Government (2017) Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017

- To summarise the current understanding of the environmental baseline and to explain the sources and methods of further baseline information collection where it is considered necessary;
- To set out the potential significant environmental and cumulative effects of the Proposed Development, and to set out the tools and techniques (where applicable) that will be adopted to predict then scale and assess the significance of effects in the EIA; and
- To identify those environmental issues which, on the basis of the preliminary environmental assessment undertaken at this scoping stage, are considered unlikely to represent a predicted significant environmental effect and which are proposed to be "scoped out" of the EIA process.

1.4 Overview of the Approach to the EIA Scoping Report

1.4.1 Consideration of relevant factors in this Scoping Report has primarily been shaped by Regulation 4 of the EIA Regulations to the extent that they are relevant to the specific characteristics of the Proposed Development and to the environmental features likely to be affected. In addition, current best practice and planning advice, which advocate a proportionate and efficient approach to EIA (Scottish Government 20135, and IEMA 20176), have been considered.

1.4.2 The EIA Regulations require the EIAR to identify, describe and assess the likely significant effects on the factors specified in Regulation 4(3)7 and the interaction between those factors. **Table 1.1 Consideration of Factors in the EIA Scoping Report** lists the factors and outlines how this EIA Scoping Report addresses each. The potential interactions between the factors in the table will be considered as part of an assessment of potentially significant cumulative effects in the EIAR.

Table 1.1: Consideration of Factors in the EIA Scoping Report

Regulation 4 (3) Factor	How this is addressed within this EIA Scoping report
Landscape	**Chapter 6: Landscape and Visual Amenity** considers the potential for likely significant effects designated landscape areas, landscape character and visual receptors.
Cultural Heritage	**Chapter 7: Cultural Heritage and Archaeology** considers the potential for likely significant effects on cultural heritage and archaeology assets, including on their setting.
Biodiversity	**Chapter 8: Ecology** considers the potential for likely significant effects on biodiversity, including terrestrial habitats, protected mammals, reptiles and amphibians, and aquatic ecology. **Chapter 9: Ornithology** considers the potential for likely significant effects on avian species.
Soil	**Chapter 10: Hydrology, Hydrogeology, Geology and Soils** considers the potential for likely significant effects on soils.
Water	**Chapter 10: Hydrology and Hydrogeology** considers the potential for likely significant effects on the water environment including hydrology hydrogeology, and water supplies.
Material Assets[8]	**Chapter 4: Approach to Topics Scoped Out of the EIA**
Land	**Chapter 4: Approach to Topics Scoped Out of the EIA**

[5] Scottish Government (2013) Planning Advice Note 1/2013: Environmental Impact Assessment
[6] IEMA (2017) Delivering Proportionate EIA. A Collaborative Strategy for Enhancing UK Environmental Impact Assessment Practice
[7] HM Government (2017) The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 – Regulation 4: Environmental impact assessment
[8] Material assets are not specifically defined by the EIA Regulations. This Scoping Report has considered material assets with reference to a range of topics which are considered in the EIA.

Regulation 4 (3) Factor	How this is addressed within this EIA Scoping report
Population and Human Health	**Chapter 4: Approach to Topics Scoped Out of the EIA**
Air	**Chapter 4: Approach to Topics Scoped Out of the EIA**
Climate	**Chapter 4: Approach to Topics Scoped Out of the EIA**

1.5 Structure of the EIA Scoping Report

1.5.1 This EIA Scoping Report will follow the structure outlined below:

- **Chapter 1: Introduction**, provides an overview of the Proposed Development, the EIA legislation as well as the purpose of the EIA Scoping Report.
- **Chapter 2: Description of the Proposed Development**, summarises the need for the Proposed Development, provides a description of the key components of the Proposed Development as well as the construction methodology.
- **Chapter 3: EIA Methodology**, provides a description of the proposed EIA methodology to progress a proportionate EIA. This chapter also provides an overview of engagement with stakeholders to date and planned future engagement.
- **Chapter 4: Topics Scoped Out of the EIA,** sets out the topics to be scoped out of the EIAR and the justification for excluding these topics as detailed assessments within the EIAR.
- **Chapters 5-12** address the environmental factors scoped into the EIA, detailing in each case, the approach to assessment of potential significant effects, the baseline conditions, any sensitive receptors and potential significant effects as well as the assessment scope and issues that have been scoped out. The topics covered in these chapters are as follows:
  - **Chapter 5: Forestry**
  - **Chapter 6: Landscape and Visual Amenity**
  - **Chapter 7: Cultural Heritage and Archaeology**
  - **Chapter 8: Ecology**
  - **Chapter 9: Ornithology**
  - **Chapter 10: Hydrology and Hydrogeology**
  - **Chapter 11: Traffic and Transport**
  - **Chapter 12: Noise and Vibration**
- **Chapter 13: Cumulative Effects,** provides an outline scope of the anticipated cumulative effects associated with the construction and operation of the Proposed Development.
- **Chapter 14: Summary of Proposed EIA Scope**, provides an overview of the issues scoped in and the issues scoped out for each of the technical scoping topics.
- **Chapter 15: Next Steps**, provides an overview of the steps to be undertaken following completion of the EIA Scoping Report.

1.5.2 The following appendices are also provided:

- **Appendix A: Competent Expert Information**
- **Appendix B: Figures**

- **Appendix C: List of Proposed Scoping Consultees**
- **Appendix D: List of Applied Mitigation Documents**
- **Appendix E: Peat Survey Report**

2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Description of the site

2.1.1 The Site comprises an area of relatively elevated land which lies within the eastern extent of the Highland Boundary Fault. The Site is afforested and comprises a conifer plantation forming part of an active commercial enterprise. The Site is dominated by two bluffs with a steep valley between them containing the upper reaches of the Burn of Day. The bluffs have relatively level upper elevations, where the Proposed Development will be sited, however to the west the landform rises steeply. To the east and south-east the elevation drops sharply with the landform shaped by the Burn of Day and Burn of Baulks. There is little built infrastructure in the wider environment with exception of the existing Fetteresso Substation, where there are works currently underway to increase its operating voltage from 275 kV to 400 kV as part of a sperate planning consent.

2.1.2 The wider site setting is similar in character to the Site, comprising steeply undulating, elevated land given over to commercial forestry plantation, interspersed with associated infrastructure. The Site and its surrounds form part of the eastern extent of the Highland Boundary Fault, a major fault zone which runs from Arran on the west coast to Stonehaven in the east. This geographic feature separates two different geological terranes, the Highlands and the Lowlands. Resultantly the land to the south, outwith Fetteresso Forest's extent, comprises an area of lowland given over to arable farming. This is broadly mirrored to the east where the land descends into a coastal plain. The land to the west and north, particularly the north-east, forms the Highlands – eventually rising to the elevations that comprise the Cairngorm mountain range.

2.2 Outline of the Proposed Development

2.2.1 The Proposed Development comprises the construction and operation of a new 400 kV air insulated substation located on a level platform and the formation of associated earthworks, access, drainage, landscaping, and security, including the creation of temporary construction compounds.

2.2.2 The electrical components of the substation are shown in **Figure 2.2 General Arrangement**. The key elements of the Proposed Development would, in brief, comprise:

- Widening of existing forest tracks to create of new permanent access to the Site.
- Cut and fill operations to create a development platform to accommodate the electrical infrastructure. The platform dimensions are currently anticipated to be 676 m x 305 m.
- The erection and commissioning of electrical equipment which would comprise new 400 kV Air Insulated Switchgear (AIS) with an approximate height of 15 m above platform level, including shunt reactors, transformers, connection bays and gantries; and four terminal connection towers at a height of approximately 60 m on average for new and upgraded overhead transmission lines, although tower heights may be increased where local topography dictates in order to achieve sufficient clearance distances (see below).
- The erection of a single storey control building approximately 7 m in height.
- Screening bunds and new planting to deliver landscape and visual mitigation, habitat loss mitigation and biodiversity net gain (BNG) targets.
- Creation of Sustainable Drainage System (SuDS), to the north west of the platform, draining into the Burn of Baulks and the Burn of Day.
- Internal accesses and vehicle parking within the substation platform area.
- Security fencing.
- Temporary site compound lay down area and access tracks.
- Temporary site offices and welfare facilities for on-site construction workers.

2.2.3 The new substation would provide for a connection to the proposed Kintore to Tealing 400 kV OHL. The terminal connection towers for the OHL will form part of a separate section 37 consent application. Where the OHL gives rise to cumulative impacts, in combination with the substation, they will be considered in the respective EIARs/supporting environmental information. The approach to identifying and assessing cumulative impacts is detailed in **Chapter 13: Cumulative Effects**.

2.3 Construction of the Proposed Development

2.3.1 The design of the substation platform and site landscaping seeks to minimise the need to import or export earthworks fill material although this will be confirmed through subsequent detailed design work and further information presented in the EIAR.

2.3.2 The main construction activities include:

- Topsoil stripping and stockpiling (across the Site in phases);
- Earthworks to form the access and install the culvert;
- Site levelling and laying of hardcore for the compound and offices;
- Controlled blasting of bedrock;
- Excavation and fill to create the platform, and drainage features;
- Crushing of won material;
- Formation of landscaping features and early planting of some bunds to establish early screening;
- Piling to form the foundations of major structures;
- Erection of a control building;
- Steel work supporting the electrical equipment; and
- Installation of the transformers, conductors and associated electrical equipment.

Hours of Working

2.3.3 Construction working is likely to be during daytime periods only, Monday to Friday. By exception, weekend working may be proposed, and some activities may be required outside of standard working hours, for example, abnormal load deliveries requiring traffic management, road / access upgrade works to minimise traffic disruptions, or where use of cranes is required to complete specific equipment install activities. Working hour assumptions would be set out within the EIAR and agreed with Aberdeenshire Council.

Access During Construction

2.3.4 The likely principal route, from both north and south, would be the A90 Aberdeen Western Peripheral Route (AWPR), exiting at the Peterculter Junction, and joining the B9077, then joining the Slug Road at Crathes, and arriving at the principal access to the site from the north. Abnormal Indivisible Loads (AILs) are proposed to use the A93 from the A90 to its junction with the A957 at Crathes.

2.3.5 Smaller deliveries and construction personnel, in addition to accessing from the north, may access from the unclassified Elfhill Road to the south of the site.

2.3.6 The proposed route for AIL transport will be likely to require the removal of some items of street furniture and road signs and these will be identified and assessed in the EIAR.

2.3.7 Forestry routes would be surveyed and assessed for plant and large load equipment delivery vehicle swept paths and loads, and upgraded, widened or realigned where necessary. Bellmouth junctions at public road interfaces would also be considered and upgraded as required. Remedial works are likely to be required on the forestry track to permit access for the AIL including minor road widening and vegetation clearance.

Construction Compounds

2.3.8 Temporary site compounds and laydown areas would be required during construction, located within the Site. These would provide office and welfare facilities for site staff, parking, laydown areas and holding and servicing space for construction. Precise locations of compounds and lay down areas are yet to be determined.

Construction Compounds

2.3.9 Temporary site compounds and laydown areas would be required during construction, located within the Site. These would provide office and welfare facilities for site staff, parking, laydown areas and holding and servicing space for construction. Precise locations of compounds and lay down areas are yet to be determined.

Delivery of Materials

2.3.10 It is anticipated that the delivery of the transformers will constitute abnormal loads to the proposed substation site during construction.

Construction Environmental Management

2.3.11 The approach to impact assessment in the EIAR will be undertaken on the basis that mitigation will follow a three-tiered hierarchy: embedded, applied, and additional. Mitigation will be embedded in the design phase, applied through industry best practice and a Construction Environment Management Plan (CEMP); and include additional site-specific mitigation as needed. The intention during construction will be to avoid, reduce or manage potential significant effects through the adoption of SSEN Transmission management plans referenced in **Appendix D: List of Applied Mitigation Documents**, which have been developed and implemented effectively on other SSEN Transmission projects, as a condition of the construction contracts entered into by the Principal Contractor.

2.3.12 A Construction Environment Management Plan (CEMP) will be developed and implemented by the appointed Principal Contractor during the construction phase. The CEMP provides information on the proposed infrastructure and aids in avoiding, minimising, and controlling adverse environmental impacts associated with the Proposed Development. Furthermore, this document will include relevant consent conditions, industry good practice, as well as specific actions required to implement mitigation identified in the EIAR, the planning process and/or other licencing or consenting processes. It is not proposed to submit an Outline CEMP alongside the EIAR; instead, the mitigation measures and SSEN's management procedures, including GEMPs and SPPs listed in **Appendix D: List of Applied Mitigation Documents**, will be referred to, with a specific mitigation detailed within the EIAR Schedule of Mitigation.

Reinstatement

2.3.13 Following successful commissioning of the Proposed Development, all temporary construction areas would be reinstated. Reinstatement would form part of the contract obligations for the Principal Contractor and will include the removal of all temporary access tracks and work sites.

Landscape and Drainage Design

2.3.14 Features to mitigate impacts on landscape and visual amenity will be integrated into the design of the Proposed Development. Features would include partial visual screening and measures to assimilate the Proposed Development into the surrounding landscape. Such measures would also provide opportunities for habitat and biodiversity enhancement.

2.3.15 The design will introduce new elements formed from excavated material, new shelter belts and new field edge treatments. Planting will include a mix of new woodland planting, the creation of shrub and scrub and new grass and wildflower habitat, contributing to increasing the biodiversity of the Site compared to its current character.

2.3.16 The drainage features are integrated into the design as elements of the landscape creating visual diversity. Following the principles of Sustainable Drainage Systems (SuDS), the drainage network will comprise a network of grass lined

swales (channels) which will collect drainage from the substation platform. A cut off swale (vegetation lined channel) will intercept run off from the higher parts of the site to the east and south of the platform at the top of the cut slope.

2.3.17 Run off will drain to a network of ponds to slow, hold and treat (by settlement) drainage water before being released to the Burn of Day ensuring that the volume, rate and quality of surface water discharge will be no greater than the level of run off currently. A network of interceptors will capture grit and contaminants from internal roadways and hardstanding. Clean runoff from the south and east of the platform will be intercepted and discharged to the Burn of Baulks. The discharge locations for both are shown on **Figure 10.1: Hydrology and Private Water Supply**.

2.3.18 Materials storage areas within the substation will be self-contained with drainage being conveyed to the SuDS ponds via an interceptor.

2.3.19 The landscape and drainage design will be refined as the substation site design evolves and following the landscape and visual assessment, flood risk assessment and hydrology assessment as part of the EIA process.

Anticipated Construction Programme

2.3.20 It is anticipated that construction of the Proposed Development would take place over an approximately 3-year period, following the granting of consents. Detailed programming works will be the responsibility of the Principal Contractor in agreement with the Applicant. The construction start date is proposed for 2026 with the energisation of the 400 kV substation in 2029. Further information will be provided in the EIAR on the indicative construction programme.

Biodiversity Net Gain

2.3.21 Biodiversity Net Gain (BNG) is an approach to development that aims to leave the natural environment in a measurably better state than it was pre-development. SSEN Transmission has developed a BNG toolkit based upon the Natural England metric, which quantifies biodiversity based upon the value of habitats for nature. It is an efficient and effective method for demonstrating whether development projects have been able to maintain or increase the biodiversity value of a development site after construction works.

2.3.22 The BNG toolkit would be applied to the Proposed Development to quantify the overall potential biodiversity impacts for the Proposed Development; this includes a biodiversity baseline assessment, analysis of habitat losses due to temporary works and permanent structures during construction works, and analysis of biodiversity gains following reinstatement of habitats in areas of temporary construction work.

2.3.23 SSEN Transmission is committed to protecting and enhancing the environment by minimising the potential impacts from their construction and operational activities. As part of this approach, SSEN Transmission plc has made commitments within its Sustainability Strategy (2018), Sustainability Plan (2019) and RIIO-T2 Business Plan, for new infrastructure projects to:

- Ensure natural environment considerations are included in decision making at each stage of a project's development;
- Utilise the mitigation hierarchy to avoid impacts by consideration of biodiversity in project design; positively contribute to the UN and Scottish Government Biodiversity strategies by committing to deliver 10% Biodiversity Net Gain on all Transmission projects gaining consent on or after 22nd May 2023, actively enhancing biodiversity and leaving a positive legacy at all of our SSEN Transmission sites as we deliver the UK and Scotland's Net Zero targets; and
- Work with their supply chain to understand enhancement opportunities to gain the maximum benefit during asset replacement and upgrades.

2.3.24 The design and evolution of the Proposed Development will be carried out in line with these commitments.

2.4 Future Maintenance of the Substation

2.4.1 The Proposed Development would be unmanned, with operations being controlled remotely from SSEN Transmission's control centre with some occasional visits for routing maintenance, inspection or repairs.

2.4.2 The Proposed Development requires maintenance and inspection at regular intervals and will undertake maintenance as necessary. There will be other visits as required for operational duties.

2.5 Decommissioning

2.5.1 The Proposed Development would not have a fixed operational life and, in the event that the Proposed Development is decommissioned, the effects associated with the construction phase can be considered to be representative of worst-case decommissioning effects, and therefore no separate assessment is necessary.

2.5.2 Should the Proposed Development be decommissioned, the site would be restored as follows:

- The substation infrastructure would be removed;
- Where removal of infrastructure such as substation foundations would result in more damage than leaving them in place, they would be left in-situ; and
- Disturbed ground would be reinstated.

2.5.3 It is likely that a decommissioning strategy would be made a condition of any grant of planning consent. Full details of any subsequent decommissioning plan would be agreed with the appropriate authorities prior to any decommissioning works commencing.

2.6 Residues and Emissions

2.6.1 The EIA Regulations require, to the extent relevant to the specific characteristics of the Proposed Development and the environmental features likely to be affected, that the EIAR provide an estimate, by type and quantity, of expected residues and emissions (such as water, air and soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced) resulting from the construction and operation of the Proposed Development.

2.6.2 **Table 2.1 Residues and Emissions** provides a summary of the principal residues and emissions for the purpose of informing the scope of the EIA. Further assessment of potential significant environmental effects of these residues and emissions for the Proposed Development is set out in **Chapters 5 to 11** of this Scoping Report.

Table 2.1: Residues and Emissions

Topic	Potential Residues and Emissions
Water	Construction: Surface water runoff and discharge is likely during construction. In addition, occasional discharges may arise from pumping, or over-pumping to dewater excavations for the substation platform. Pollution sources may arise as a result of soil erosion or from activities such as oil/fuel or chemical storage and use. Further assessment of environment effects on the aquatic environment is presented in **Chapter 10: Hydrology, Hydrogeology, Geology and Soils**. Operation: Drainage from the Proposed Development will be attenuated through the use of SuDS which will discharge flows at no greater than greenfield run off rates.
Air	Construction: The construction phase would require the transport of people and materials by road with associated emissions to the atmosphere. Additionally, construction activities including preparatory works and creation of the earthworks associated with the installation of the civils element of the Proposed Development have the potential to generate dust emissions along with, potentially, the operation of plant on Site. There are no air quality management areas within the vicinity of the Proposed Development or along the haulage routes outlined in Paragraphs 2.3.4 to 2.3.6. The potential for environmental effects associated with air emissions is presented in **Chapter 4. Approach to Topics Scoped Out of the EIA**. Operation: No significant point source or diffuse air emissions would be produced during OHL operation. The Proposed Development would contribute to connecting

Topic	Potential Residues and Emissions
	renewable electricity generation capacity to areas of demand, in turn displacing emissions associated with fossil fuel-based electricity generation elsewhere.
Soil and Subsoil Pollution	Construction: Soil and subsoil excavation, handling and storage would be required during construction particularly for the substation platform and some access tracks. All soil and subsoil would be stored temporarily for use in reinstatement. The Applicant will adopt measures in the Construction Environmental Management Plan (CEMP) and Soil Management Plan to avoid contamination of top and subsoil during construction. There will be no offsite disposal of arisings from the construction of the Proposed Development. The potential for environmental effects associated with soil handling during construction is presented in **Chapter 10: Hydrology, Hydrogeology, Geology and Soils**. Operation: No requirement for soil or subsoil excavation or handling during operation has been identified. No significant sources of soil contamination have been identified for the operational phase.
Noise and Vibration	Construction: Noise sources during the construction phase would include increased traffic flows and noise from construction activities and plant at the Site and for forming access tracks and possibly from controlled blasting should it prove necessary. Further detail is provided in **Chapter 12: Noise and Vibration**. Operation: Transformers and other electrical equipment emit continuous and consistent tonal noise. The potential for significant operational noise effects is considered further in **Chapter 12: Noise and Vibration**.
Light	Construction: The temporary construction compounds and platform working areas are likely to be equipped with lighting installations for use during low light conditions and passive infra-red sensor-controlled security lighting. Any effect would be temporary and is not predicted to be significant. The effects of lighting on visual receptors are considered further in **Chapter 6: Landscape and Visual Amenity**. Operation: No light sources have been identified during normal operation of the Proposed Development.
Heat and Radiation	Construction: No heat or radiation sources have been identified during the construction phase which are predicted to have significant environmental effects and these sources of impact will not be considered further in the EIA. Operation: Electromagnetic fields (EMFs) are emitted from the operation of substations but is typically contained within the boundary of the substation development. The potential effects on human health of EMFs are proposed to be scoped out of detailed assessment in the EIA as detailed in **Chapter 4: Approach to Topics Scoped Out of the EIA**.
Waste	Construction: Construction operations would generate arisings including both commercial wastes and other material arisings, for example, wood, metals and plastics and stone. Waste will be managed in accordance with good practice guidance and implementation of Site Waste and Materials Management Plans[9], to implement the waste management hierarchy[10]. Operation: Substation operation does not produce any waste. However, the general maintenance of the substation has the potential to produce a small amount of waste. This is likely to be restricted to waste associated with employees and visiting contractors, which will be recycled or disposed of as appropriate.

[9] NetRegs (undated) Site waste management plans
[10] Scottish Government (2017) Applying the waste hierarchy: guidance

3. EIA METHODOLOGY

3.1 The EIAR

3.1.1 The EIAR will be prepared in accordance with the EIA Regulations, and the approach to the assessment would be informed by current best practice guidance, including the following:

- Scottish Government Planning Advice Note (PAN) 1/2013 (revision 1.0); and
- Planning Circular 1/2017.

3.1.2 The EIA work will comprise a series of specialist environmental studies which will be targeted to assess the potential significant effects which the Proposed Development is likely to have on the environment. Each topic included within the EIAR will be incorporated as a separate chapter in the main body of the EIAR, or included as an appendix if the assessment of the subject matter is required to be more detailed.

3.1.3 On receipt and consideration of this Scoping Report, Aberdeenshire Council, following input by Statutory and non-statutory Consultees, will issue their Scoping Opinion confirming the scope of the EIAR. Throughout the EIAR, where an issue raised in the Scoping Opinion is addressed, this will be clearly referenced in the relevant chapter. A scoping matrix will also be included in the EIAR which will detail all pertinent consultation responses received during the scoping and EIA process, with a reference to where these responses have been addressed in the EIAR.

3.2 Baseline Definition

3.2.1 Environmental baseline surveys determine the characterisation of an area prior to the implementation of a Project; this includes construction, operation and decommissioning phases. The area considered varies by technical discipline and is specified in the technical chapters. Once the initial environmental status is determined and key receptors categorised, the potential for the impacts on this baseline, arising from completion of the Proposed Development are assessed using an appropriate methodology for each technical discipline.

3.2.2 A broad assessment approach for this is set out in **Section 3.3 Scoping Methodology**. For some disciplines consideration of a future baseline condition is required to fully understand the potential for significant effects of reasonably foreseeable changes to baseline conditions at the time of preparation of the EIAR and where projects climate changes may result in changes to receptor vulnerability or sensitivity. Consideration will also be given to the potential for cumulative effects where the assessment would describe effects associated with the Proposed Development in combination with itself or other projects, including consented developments which are under construction at the time of the EIA. The in-combination effects are described in each technical chapter respectively with the interactive effects described in **Chapter 13: Cumulative Effects**.

3.3 Scoping Methodology

3.3.1 Scoping is an important phase of the EIA process as it helps to focus the EIA on assessing the likely significant environmental effects arising from the Proposed Development that are considered most relevant to the determination of the planning application.

3.3.2 Therefore **Chapters 5 –12** of this Scoping Report aim to provide sufficient detail to characterise the potential interactions between the Proposed Development and the receiving environment and relevant sensitive receptors, so that the potentially significant effects are identified. At this stage of the project design and EIA process the design of the Proposed Development has not been finalised. The assessments in this Scoping Report have been based on the design details to date or, where these remain uncertain, on a broader conceptual design.

3.3.3 In presenting a rationale for the proposed scope of environmental assessment, this Scoping Report has taken the sensitivity of the current state of the receiving environment into account, utilising an understanding of the current baseline land-use and environmental conditions within and proximal to the Proposed Development. This understanding has been informed by desk-based studies and field survey. The spatial extent of the data collation and

survey effort has been defined, where relevant, by study areas. These study areas are defined in the relevant technical chapters.

3.3.4 The approach to this preliminary impact assessment has taken account of the work undertaken to date defining the baseline sensitivity, the typical construction and operational activities (as far as they are understood at this stage), the physical characteristics of the Proposed Development and the potential associated emissions and residues. The potential for significant effects has then been determined using professional judgment of the EIA team based on experience from other, similar, projects - with reference to relevant policy, guidance and best practice.

3.3.5 Where there is sufficient evidence to support scoping a topic (or part topic) out of the EIA process this presented in **Chapter 4: Topics Scoped Out**. Otherwise, where it is considered there is potential for significant environmental effects this Scoping Report identifies these to inform the scope of the detailed impact assessment to be undertaken in the EIA and presented in the EIAR.

3.3.6 The potential significance of residual effects identified in this Scoping Report has also taken account of key mitigation, which is termed as either Embedded or Applied Mitigation, see **Section 3.5: Mitigation**.

3.4 Impact Assessment Methodology

3.4.1 The EIA will focus on the assessment of potential significant environmental effects drawn from the preliminary findings in this Scoping Report, in agreement with the consenting authority and relevant statutory consultees. Significant effects are those which are deemed, following consideration of sensitivity of the receptors and magnitude of the potential impact, to be moderate or major as set out in **Table 3.1: Matrix for Determining the Significance of Effects**.

3.4.2 The assessments presented in the EIAR will consider the sensitivity of a given receptor as well as the magnitude of a potential impact. Receptor sensitivity is typically characterised as negligible to high, with highly sensitive receptors being most sensitive to change. Magnitude of impact is typically characterised as negligible to major, with major impacts representing the greatest potential for change in the status of a receptor. The interaction of receptor sensitivity and predicted magnitude of impact is used to determine the likely significance of effect as set out in **Table 3.1: Matrix for Determining the Significance of Effects**.

3.4.3 The determination of significance of effect will broadly follow the process outlined, drawing on the environmental data collection and analysis undertaken as part of the assessments underpinning the EIAR and the professional judgment and experience of the assessor. Some technical disciplines may rely on fixed thresholds associated with industry best practice in that specific field, instead of professional judgement, to designate the sensitivity, magnitude of impact and significance of effect. Where there is discipline specific thresholds/guidance for defining a designation of sensitivity, impact or significance of effect this will be clearly stated in the chapter.

3.4.4 Irrespective of the definition of the designation in any given technical chapter the significance designations themselves are universally consistent e.g. a negligible effect will always be the least significant and a major effect the most.

Table 3.1: Matrix for Determining the Significance of Effects

Magnitude of Change/Impact	Sensitivity of Receptor/Receiving Environment			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Negligible
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

3.4.5 Effects which are appraised to be of Negligible or Low significance will be presented and not considered further in the EIAR as the effect is sufficiently small or the receptor of low sensitivity/importance that further assessment or mitigation is not required.

3.4.6 Environmental topics that, based on the current level of assessment are identified as not likely to be significant are proposed to be 'scoped out' of the assessment. The justification for this is presented in **Chapter 4: Topics Scoped Out** of the EIA.

3.5 Mitigation

3.5.1 The proposed substation has been designed through an integrated process of engagement between the electrical and civil engineering designers with the environmental and landscape teams. The design has been iterated to reduce the potential for significant environmental effects at source taking account of site topography, slope, drainage and existing land uses and vegetation. A landscape design framework has been developed to define the location and position of landscaping structures which provide visual screening of the Proposed Development, and other design features and planting which mitigate landscape and visual impacts and which provide opportunities to enhance biodiversity within the Site.

3.5.2 The process of mitigating impacts through design is referred to in this report and the EIAR as 'Embedded Mitigation' and is the first of three levels of EIA mitigation which is applied to the EIA process, the second and third being, respectively:

- Applied Mitigation – the adoption of good practice measures and procedures relating to construction environmental management which are well understood with a high degree of confidence they would be implemented and effective.
- Additional Mitigation – further bespoke measures required to mitigate likely residual (i.e., after the application of other mitigation) significant effects which are identified through the EIA process.

3.5.3 In this Scoping Report, further reference to aspects of the design which has formed key Embedded Mitigation is set out briefly in the topic-based chapters to provide a context for the subsequent discussions on the potential effects of the Proposed Development.

3.5.4 In relation to Applied Mitigation, SSEN Transmission has adopted a Construction Environmental Management Plan (CEMP) and a suite of General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs) which will be implemented as appropriate by the Proposed Development and will be incorporated into the EIA process and presented in the EIAR. In addition, the Applicant will require, as a condition of the Principal Contract, that the Contractor develops detailed Management Plans which conform to the approach and content of the CEMP, GEMPs and SPPs, and which will incorporate any Additional Mitigation arising out of the EIA process. It is assumed that these Plans will also be required as consent conditions and will be reviewed and approved by Aberdeenshire Council as part of condition discharge. The content and effective implementation of the Plans by the Contractor during construction will also be assured by an audit process, the implementation of which is also assumed to be a consent condition.

3.5.5 A list of the SSEN Transmission GEMPs and SPPs considered to be relevant to the Proposed Development is set out in **Appendix D: List of Applied Mitigation Documents**. The EIA will identify and assess potentially significant effects taking account of the Embedded Mitigation and Applied Mitigation. The focus of the EIA therefore will be to identify, predict and evaluate, on a discipline-by-discipline basis, the significance of any residual environmental effects remaining after the application of embedded and applied mitigation, and to identify any Additional Mitigation which may be required to avoid or reduce the scale and significance of predicted residual to the extent possible. Where Additional Mitigation measures are required, these will be identified clearly within the relevant chapters of the EIAR and in a Schedule of Mitigation which will collate all embedded, applied and additional mitigation commitments in a single chapter.

3.5.6 Where there are opportunities for offsetting and/or positive and enhancing effects, these will be identified through the EIA process. It is acknowledged that these are not part of EIA mitigation and any proposals for compensation and enhancement as part of the planning application would be clearly and separately identified from mitigation measures.

3.6 Cumulative Effects

3.6.1 Consideration would also be given to the potential for cumulative effects, where the assessment would describe effects associated with the Proposed Development, in combination with itself or other projects. The in-combination effects are described in each technical chapter respectively with the interactive effects described in **Chapter 13 Cumulative Effects**.

3.7 Consultation

3.7.1 Stakeholder engagement is a key part of the EIA process. Input from, and collaboration with consultation bodies can help address concerns. It is also important to consult other non-statutory bodies, interested parties and the public, to take into consideration aspects that can affect specialist interests (such as recreational activities), livelihoods, employment and daily life activities. This section briefly describes the key consultations undertaken to date for the Proposed Development and its EIA and those which are proposed at the next stage.

Engagement to Date

3.7.2 A first round of stakeholder and public consultation on the Proposed Development was undertaken between May and July 2023. The consultation presented information on the options which has been appraised regarding the site selection for the initial proposed 400 kV substation site at Fiddes in Aberdeenshire. The consultation included information regarding site options, environmental and technical considerations, and the project development process, and explained the factors which were taken into consideration in the process.

3.7.3 The consultation sought to capture views from:

- Statutory consultees;
- Non-statutory consultees;
- Community members and local organisations, including local elected members; and
- Landowners and occupiers.

3.7.4 Project documents prepared to inform this consultation is available on the SSEN Transmission project website: https://www.ssen-transmission.co.uk/projects/project-map/emmock-400kv-substation/ The EIA statutory and non-statutory consultees were notified regarding the consultation and a number of these organisations provided written consultation responses to the Applicant. These responses have been taken into account in the preparation of this Scoping Report and where relevant to the different environmental technical assessments presented. Relevant EIA feedback is summarised in each of **Chapters 5 to 12**.

Outcome of Consultation

3.7.5 Feedback from the consultation was collated, analysed and used to inform the substation design process. A review of the initial site selection exercise was undertaken which incorporated further information on likely future connections and feedback from communities, Community Councils and Local Councils. The area of search was widened, and the site selection exercise was revisited which resulted in new candidate sites being identified which were then appraised. Following detailed assessment of environmental, technical and cost factors, a new location at Hurlie, in Fetteresso Forest was selected as the Site for the Proposed Development.

Pre-Application Consultation

3.7.6 A Report on Consultation (RoC) was published by the Applicant in December 2023[11] which presented the outcomes of the consultation process, the responses to the feedback received and confirmed the selection of the substation site for the Proposed Development.

Pre-Application Consultation

3.7.7 A formal Proposal of Application Notice (PAN) was published in January 2024.

3.7.8 A Pre-Application Consultation (PAC) event was undertaken at Drumlithie Village Hall on 19 March 2024 to present the background to the Proposed Development, the site selection process, the preliminary substation designs together with a summary of the environmental and technical factors taken into account in the design process. The PAC event was an opportunity for the community to see the initial proposals and to provide feedback. A Consultation Booklet was prepared to support the event and circulated to statutory and non-statutory consultees and other interested parties. It was also published on the SSEN Transmission project website.

3.7.9 A second PAC event to present feedback from the consultation, and the response and the Proposed Development designs have also been held at the following locations and times:

- Monday 10 June, 2-7pm at Auchenblae Village Hall, Auchenblae;
- Tuesday 11 June, 2-7pm at Drumlithie Village Hall, Drumlithie; and
- Thursday 13 June, 2-7pm at Stonehaven Town Hall, Stonehaven.

3.7.10 The consultation process and outcomes will be presented in a Pre-Application Consultation Report which will be submitted alongside the Planning Application for the Proposed Development.

[11] Scottish & Southern Electricity Networks Transmission (undated) Kintore-Tealing 400 kV Connection

4. TOPICS SCOPED OUT OF THE EIA

4.1 Topics Scoped Out

4.1.1 This Chapter provides the justification for excluding the detailed assessment of certain topics from the EIA. **Table 4.1: Issues Scoped Out** below lists the topics proposed to be 'Scoped Out', and the rationale for doing so. Where sub-topic areas are Scoped Out, the rationale for this is provided in the relevant chapter.

4.1.2 It is proposed that Population and Human Health is scoped out as an individual topic for assessment in the EIAR for the reasons stipulated in **Table 4.1**. However, elements of Population and Human Health are inherent within the assessments that are 'Scoped In' to the EIAR. The noise assessment, for example, will consider the likely significant effects of the Proposed Development with regard to the levels of noise that can be harmful to human health and the Traffic and Transport Assessment will identify matters of road safety concern.

Table 4.1: Issues Scoped Out

Topic	Justification
Land Use and Recreation	Recreation – Implementation of an Access Management Plan will ensure that no significant effects on users of recreational routes would be incurred during construction, and any minor adverse effects would be temporary in nature. It is not predicted that once the Proposed Development is operational that any significant impact to the use or general amenity of the key routes such as core paths and cycle routes would occur and therefore these effects are scoped out of further detailed assessment in the EIAR.
Population and Human Health	Electromagnetic Fields (EMF) arise from electric charges. To prevent known effects of EMFs on health, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) developed health protection guidelines in 1998 for both public and occupational exposure. In the UK, the National Institute for Health Protection's (NIHP) Centre for Radiation, Chemical and Environmental Hazards (CRCE) has set out guidelines for exposure to EMFs. In March 2004, the UK adopted the ICNIRP 1998 guidelines on the advice of the National Radiological Protection Board (now part of NIHP CRCE). These guidelines set conservative exposure levels for the public to electric and magnetic fields, and they are endorsed by the World Health Organisation and the UK Government. The NIHP CRCE keeps under review emerging scientific research and/or studies that may link EMF exposure with health problems and provides advice to the Department of Health and Social Care on the possible need for introducing further precautionary measures. Transmission lines comply with the government policy of adopting the guidelines of the International Commission on Non-Ionising Radiation Protection (ICNIRP) on exposure to EMF. The Applicant ensures at all times that they comply with relevant legislation[12], which in turn is based on the advice of the UK Government's independent scientific advisers, to ensure the appropriate level of protection for the public from these fields. In determining the level of impact, SSEN Transmission closely observe these independent guidelines which in conjunction with a Code of Practice, published in 2012 by industry and the Department for Energy and Climate Change (now part of the Department for Energy Security and Net Zero), sets out all the practical details needed to apply the exposure limits for substations. EMF resulting from the Proposed Development are compliant with National Policy and Industry Standards as specified with the Energy Network Association Code of Practice and Electricity Safety, Quality and Continuity Regulations 2002. Consequently, in setting out the scope of an EIA, SSEN Transmission can demonstrate that levels of exposure are within the limits set within these standards, within the exposure guidelines as specified in the Code of Practice on compliance, and with the policy on phasing as specified in the Code of Practice on optimal phasing, there is no potential for significant effects. Therefore, an assessment on EMF is proposed to be scoped out of the EIAR in its entirety.
	The potential for significant effects on human health has also been considered with respect to other predicted effects from the Proposed Development which have the

[12] Energy Networks Association (undated) What are electromagnetic fields?

Topic	Justification
	potential to affect human health determinants. Some changes in noise are predicted during construction for people living close to the Proposed Development and construction access, and there is some potential for elevated levels of dust from some construction works during dry periods. During operation the substation would not be illuminated at night for normal operation. Floodlights would be installed but would only be used in the event of a fault during the hours of darkness; or during the over-run of planned works; or when sensors are activated as security lighting for night-time access. Taking account of relevant mitigation commitments for construction environmental management, Once the new substation is installed and operational, it is not predicted that there would be significant adverse effects related to noise, emissions to air or visual impact on the health of people resident in the area. Population and Human Health is therefore scoped out of the EIA.
Air Quality	Local air quality is a combination of background air quality, representative of general levels of pollution away from busy roads and industrial activity and added emissions from local emission sources such as road traffic. Due to the rural nature of the Proposed Development, the contribution from road traffic and polluting industrial sources towards poor air quality are minimal. The Proposed Development is not located within an Air Quality Management Area (AQMA) and there are none in the Aberdeenshire Council area. The nearest are located within Aberdeen City Council, approximately 20 km northeast of the Site, of which there are three: Aberdeen City Centre AQMA, Wellington Road AQMA and Anderson Drive AQMA. Construction Phase – The Proposed Development will produce short-term emissions during key phases of construction. Exhaust gases and dust from construction equipment will be mitigated by the CEMP, GEMPs and Access Management Plan to minimize potentially significant effects. Operational Phase – There are no operational or maintenance activities that will give rise to emissions to air. Of note, the adoption of an Air Insulated substation design deliberately avoids the risk of fugitive losses of insulating gas which can occur at gas insulated substations. No assessment of air quality and climate change is therefore proposed as part of the EIAR.
Climate Change	National Planning Framework 4 (NPF4)[13] sets out a clear policy emphasis on consideration of climate/carbon issues. The policies make clear that lifecycle emissions and effects on peatlands are prominent issues in this context. However, they do not replace the process that needs to be followed through EIA, in particular the ability to scope out considerations where significant environmental effects are not considered to be likely. Based on the Greenhouse Gas (GHG) assessment of the National Development, and the summary of this in Annex B of NPF4, grid transmission projects are an overall and inextricable part of the renewables infrastructure required and collectively they deliver (net) emissions reductions. Therefore, further consideration at the individual project level is not needed. However, review of the findings of the GHG assessment (and SEA ER) indicates that, at the strategic level, the negative effects predicted in relation to grid infrastructure are not predicted to be greater than minor in significance and therefore this provides some support for a scoping approach which sets out to scope out effects on the basis they would not be significant. Overall, the Climate Change Assessment (CCA) for NPF4 predicts a significant beneficial impact on climate for the National Development. NPF4 Policies, particularly Policy 2 (Climate Mitigation and Adaptation) and Policy 5 (Soils) imply further specific consideration (for any development) is required in relation to the potential for projects to have adverse effects on climate. Scoping of the climate topic, or elements of it, should follow EIA process, i.e. the assessment is based on the potential for predicted significant effects and this should take account of committed mitigation. To that end, in determining significance of effects for GHGs for ASTI projects which are not replacing existing developments as they support a wider network of generators and transmission grid, has overall net beneficial GHG effects.

[13] Scottish Government (2023) National Planning Framework 4 (NPF4)

Topic	Justification
Life cycle/Embodied Carbon & Land Use Change Carbon	The CCA undertaken for NPF4 identified some potential for negative impacts relating to emissions associated with changes in land use (particularly peat loss) and from life cycle emissions associated with materials and components for new wind farms and transmission infrastructure although these were not predicted to be significant. Lifecycle emissions from carbon in embodied materials and components can be scoped from all ASTI projects, but with coverage included in EIARs (including mitigation commitments) to demonstrate minimisation of emissions through circular approaches, sustainable construction etc. These need to be considered in the context of the approach to scoping in EIA which is based on likely significant effects taking account of mitigation for each ASTI project. The approach taken to scoping of climate effects from land use change, particularly from effects associated with impacts on peatland, takes account of project design and mitigation to avoid peatlands as well as the nature and type of carbon rich soils present within OHL alignments and substation sites. Comparison of carbon emissions estimates for this project with existing 'baselines' (such as national or sectoral carbon budgets or targets) indicate that emissions from this project was insignificant in relative numeric terms. Moreover, in line with IEMA guidance1 where we are arguing that this project demonstrate that they contribute to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050, the approaches, and mitigation opportunities with respect to emissions from life cycle and land use sources for the projects further support the conclusions of net beneficial effects. Carbon in materials and components for OHLs and substations are acknowledged in NPF4 as requiring consideration for adverse climate effects. However, the calculation of the embodied carbon would arrive at an estimated carbon quantum (for example with reference to relevant carbon targets, inventories etc) and would determine that the value was not significant. Our view is that the priority is to ensure that the carbon embodied in the projects would be an absolute minimum (as NPF4 Policy 2a requires) through commitment via mitigation in relation to re-use, recycling of materials, circular economy principles, supply chain procurement requirements in contracts and adoption of low carbon construction methodologies etc. This would also support demonstration of compliance with the principles of NPF4 Policy 12 (Zero Waste). In the context of EIA therefore we consider that mitigation considered in determining whether the effects of [this project] are significant. This will include a clear demonstration of the process to avoid peat through design and siting/alignment and (as the NatureScot peatland guidance identifies) securing the production of relevant plans such as CEMPs, HMPs and PMPs. Further compensatory measures also provide clear opportunities to create carbon sequestering habitats albeit these as not strictly in the context of an environmental assessment. The requirement for scoping-out of climate change assessment is based on the following parameters as not being significant, namely, land use change issues (particularly with respect to peatlands and commercial forest) and life cycle emissions embodied in project construction materials and components. While they are scoped out for the Proposed Development, there is a commitment is given to present further information and particularly key mitigation measures in the Environmental Impact Assessment Report (EIAR). This will be set out in the project description chapter, to demonstrate how SSEN Transmission are at the forefront of sustainable approaches which would minimise life cycle emissions from this source. The design development and consideration of alternatives chapters of the EIAR includes narrative on the approach to following the mitigation hierarchy and with specific reference to how the "detailed site-specific assessment" has been followed to show compliance with the approach inherently required in NPF4 Policy 5d. This will cross reference to specific sections of the EIAR including the ecology and biodiversity assessments which will carry more information on mitigation plans and compensation/enhancement.
Socio-Economic Considerations and Assessments	The socio-economic assessment undertaken as part of the needs case for National Developments as defined in NPF4 is an established and settled policy in Scotland. Given that the proposed project fits within the provisions of the policy and its supporting framework it is unnecessary to revisit or argue material relevance of socio-economic impact; furthermore, any socio-economic statement would be best set out as a standalone

Topic	Justification
	assessment of socio-economic impacts in the context of evidence of compliance with national and local development policy. This will be found in the Planning Statement. **National Policy on Energy Infrastructure and Transmission** In July 2022, National Grid, the Electricity System Operator (ESO), published the Pathway to 2030 Holistic Network Design (HND), setting out the blueprint for the onshore and offshore electricity transmission network infrastructure required to enable the forecasted growth in renewable electricity across Great Britain, including the UK and Scottish Government's 2030 offshore wind targets of 50 GW and 11 GW. This confirms the need for significant and strategic increase in the capacity of the onshore electricity transmission infrastructure to deliver 2030 targets and a pathway to net zero. The need for these reinforcements is underlined within the British Energy Security Strategy. SSEN Transmission holds a license under the Electricity Act 1989 for the transmission of electricity in Scotland and has a statutory duty under Schedule 9 of the Electricity Act to develop and maintain an efficient, co-ordinated, and economical electrical transmission system in its licence area. Where there is a requirement to extend, upgrade or reinforce its transmission network, SSEN Transmission's aim is to provide an environmentally aware, technically feasible and economically viable solution which would cause the least disturbance to the environment and to people who use it. **National Developments** NPF4 identifies 18 National Developments (ND) described as "significant developments of national importance that will help to deliver the spatial strategy". Developments proposed as National Developments are acknowledged as projects expected to provide substantive support to the economy of Scotland in terms of direct and indirect employment and business investment, with wider economic benefits. It adds that "Their designation means that the principle for development does not need to be agreed in later consenting processes, providing more certainty for communities, businesses and investors". National Development 3 (ND3) "Strategic Renewable Electricity Generation and Transmission Infrastructure… support renewable electricity generation, repowering, and expansion of the electricity grid. A large and rapid increase in electricity generation from renewable sources will be essential for Scotland to meet its net zero emissions targets. Certain types of renewable electricity generation will also be required, which will include energy storage technology and capacity, to provide the vital services, including flexible response, that a zero-carbon network will require. Generation is for domestic consumption as well as for export to the UK and beyond, with new capacity helping to decarbonise heat, transport and industrial energy demand". The electricity transmission grid will need substantial reinforcement including the addition of new infrastructure to connect and transmit the output from new on and offshore capacity to consumers in Scotland, the rest of the UK and beyond. Delivery of this national development will be informed by market, policy and regulatory developments and decisions. **Designation and classification** The location for ND3 is set out as being all of Scotland and in terms of need it is described as "Additional electricity generation from renewables and electricity transmission capacity of scale is fundamental to achieving a net zero economy and supports improved network resilience in rural and island areas". The designation and classes of development which would qualify as ND3, are "A development contributing to 'Strategic Renewable Electricity Generation and Transmission' [in the location described], within one or more of the Classes of Development described below and that is of a scale or type that would otherwise have been classified as 'major' by 'The Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009', is designated a national development: (a) on and off shore electricity generation, including electricity storage, from renewables exceeding 50 megawatts capacity; (b) new and/or replacement upgraded on and offshore high voltage electricity transmission lines, cables and interconnectors of 132 kV or more; and (c) new and/or upgraded Infrastructure directly supporting on and offshore high voltage electricity lines, cables and interconnectors including converter stations, switching stations and substations". **Statement of Need** Underpinning the justification for scoping out socio economic assessment is the grounding principles of established national policy. This policy is reflected in both National UK and Scottish policy documents where National Grid, the ESO, published the Pathway to 2030

Topic	Justification
	HND in July 2022, setting out the blueprint for the onshore and offshore electricity transmission network infrastructure required to enable the forecasted growth in renewable electricity across Great Britain, including the UK and Scottish Governments' 2030 offshore wind targets of 50 GW and 11 GW respectively. We argue that ND3 supports renewable electricity generation, repowering, and expansion of the electricity grid wholly in line with the spirit and practical objectives of national policy. The Socio-economic assessments as part of a wider needs case form an integral part of the justification for development of Scotland's 'Strategic Renewable Electricity Generation and Transmission Infrastructure'. This infrastructure is designated as a National Development and explicitly supported by NPF4 under the provisions set out in Policy 11(a)(ii) (Energy)). A large and rapid increase in electricity generation from renewable sources will be essential for Scotland to meet its net zero emissions targets. Certain types of renewable electricity generation will also be required, which will include energy storage technology and capacity, to provide the vital services, including flexible response, that a zero-carbon network will require. Generation is for domestic consumption as well as for export to the UK and beyond, with new capacity helping to decarbonise heat, transport and industrial energy demand. This has the potential to support jobs and business investment, with wider economic benefits. The electricity transmission grid will need substantial reinforcement including the addition of new infrastructure to connect and transmit the output from new on and offshore capacity to consumers in Scotland, the rest of the UK and beyond. Delivery of this national development will be informed by market, policy and regulatory developments and decisions. Additional electricity generation from renewables and electricity transmission capacity of scale is fundamental to achieving a net zero economy and supports improved network resilience across Scotland. The development proposed will facilitate capturing renewable energy potential in [the areas] as well as delivering wider social and economic benefits. These proposals, have been determined as critical to enable the delivery of the UK and Scottish Government's renewable energy targets. There is a need for a significant and strategic increase in the capacity of the onshore electricity transmission infrastructure to deliver 2030 targets and a pathway to net zero. Identified elements of the network reinforcement to deliver this capacity require accelerated development and delivery to meet 2030 connection dates. The need for these reinforcements has been further underlined within the recent British Energy Security Strategy. This sets out the UK Government's plans to accelerate homegrown power to support increased UK energy independence. In considering the proposed developments direct and indirect effects, the lifecycle greenhouse gas emissions assessment concludes this development will likely have an overall net positive impact on achieving national greenhouse gas emissions reduction targets. Where statements of need, set out in as a requirement of the Town and Country Planning (Scotland) Act 1997 as development considered as a national development aligned with settled national policy, socio economic assessments sits within the wider planning statement that support a planning application. Accordingly, a socio economic assessment is scoped out of EIA based on an understanding of the relative scales of individual transmission infrastructure projects proposed in this project where any assessment of impacts is minor and likely not significant. The assessment is based on the founding principles of need as set out in Annex B of NPF4, as sufficient justification for development of Scotland's 'Strategic Renewable Electricity Generation and Transmission Infrastructure'.
Major Accidents and Disasters	Given the nature and rural location of the Proposed Development, the potential for effects related to the vulnerability to accidents and disasters are likely to be limited. Notably, the Proposed Development will be designed in-line with the Construction (Design and Management) Regulations (2015) (CDM Regulations). These regulations ensure the consideration of safety during the design, construction and operation of the Proposed Development and make it unlikely the Proposed Development would contribute to major accidents. The Proposed Development is largely inert and, by design, will be resilient to the likely effects of climate change, such as flooding. Further, the Proposed Development itself is unlikely to have the potential to act as either a source or a pathway for a hazard, making it unlikely the Proposed Development would contribute to effects arising from a disaster. Additionally, the Site will be secured by perimeter fencing and other relevant security measures which will limit the likelihood of the wider public or road traffic interacting with

Topic	Justification
	the Proposed Development. This further reduces the likelihood that the Proposed Development will contribute to major accidents or effects arising from disasters.
Material Assets and Waste	The location of the Proposed Development was selected to avoid material assets including key utilities infrastructure, such as gas pipelines. Construction: Waste will be managed in accordance with a Site Waste Management Plan (SWMP) and will be segregated to allow recycling and appropriate disposal of non-recyclable materials and surplus building materials that will be returned to suitable secondary material processors. More information on these measures will be included in the outline Construction Environmental Management Plan (CEMP) to be submitted with the planning application. Operation: Electricity transmission does not produce any waste; however, the general maintenance of the substation has the potential to produce an insignificant amount of waste associated with employees and visiting contractors that will be managed on site and recycled or disposed.

5. FORESTRY

5.1 Introduction

5.1.1 This chapter sets out the proposed approach to the assessment of potential effects on forestry during construction and operation of the Proposed Development. This chapter has been prepared by DGA Forestry Ltd.

5.1.2 In the UK there is a strong presumption against permanent deforestation unless it addresses other environmental concerns. In Scotland, such deforestation is dealt with under the Scottish Government's Control of Woodland Removal Policy (Forestry Commission Scotland, 2009)[14]. The purpose of the policy is to provide direction for decisions on woodland removal in Scotland.

Feedback from Consultation

5.1.3 The May 2023 consultation was undertaken for the initial proposed substation site at Fiddes in Aberdeenshire. Following feedback from the consultation a review of the site selection exercise was undertaken resulting in a change of the proposed substation location to Hurlie in Fetteresso Forest (see **Section 3.6 Consultation**). As such, the majority of feedback from the May 2023 consultation is not relevant to the Hurlie substation. Additional, public consultation was undertaken in March 2024 with further public consultation undertaken in June 2024. The feedback from these additional consultations will be considered with relevant points integrated into the design and assessed in the EIA.

5.2 Study Area

5.2.1 The Study Area will be limited to the woodlands within the Site boundary, see **Figure 5.1: Forestry Constraints**.

5.3 Approach

Desk-based Study

5.3.1 The forestry assessment has been informed by a desk-based study carried out using National Estate Sub-compartment database; the Native Woodland Survey of Scotland; the National Forest Inventory; aerial photography; Scottish Forestry publicly available databases; and current Policy, Legislation and Guidance.

Site Visits

5.3.2 Desk-based studies will be supplemented by a site walkover to verify the character of the forest, update baseline data as necessary; and assess the woodlands with respect to integration of the Proposed Development.

5.3.3 Further details of the methodology employed is described in **Section 5.8**.

5.4 Baseline Conditions

5.4.1 In this chapter the term 'woodland' is used to describe the 'receptor' whether that is a woodland of any description, a forestry plantation, a group of trees, or an individual tree within the Forestry Study Area. The Proposed Development is located within an extensive area of commercial forestry, known as the Mearns Forest. The land is part of Scotland's National Forest Estate, owned by Scottish Ministers on behalf of the nation, and managed by Forestry and Land Scotland (FLS).

5.4.2 The woodlands are managed under the Mearns Forest Design Plan (FDP) 2015-2024[15]. The Mearns FDP area is made up of three forest blocks; Fetteresso, Glenfarquhar and North Drumtochty and South Drumtochty. The Mearns forest is predominately an upland environment with poorer soils which have been planted with commercial conifers in the past. The purpose of the FDP is to set out management objectives and prescriptions for the Mearns forest for the

[14] Forestry Commission Scotland (2009) The Scottish Government's Policy on the Control of Woodland Removal
[15] Forestry and Land Scotland (2014) Mearns Forest Design Plan 2015-2024

ten-year period in detail, and in broader terms into the future. The main objectives of the FDP are to produce good quality timbers whilst dealing with plant health issues.

5.4.3 The woodlands are composed primarily of commercial conifers, principally Sitka spruce (Picea sitchensis), with areas of diverse conifers and small areas of mixed broadleaf woodland. The FDP confirms it is planned to retain the woodlands as commercial forest in the future. The woodlands within the Site have a diverse age class due to the ongoing felling and replanting programmes over many years.

5.4.4 None of the woodlands are recorded in the Ancient Woodland Inventory (AWI) Scotland[16]. Small areas are recorded as native woodland in the Native Woodland Survey of Scotland[17] However, comparison with the Mearns FDP and the National Forest Estate – Sub-compartments[18] identifies that the areas classed as native woodland are in fact comprised of commercial conifers or open ground.

5.4.5 There is an area within the Site which has been identified in the FDP with potential for management under LISS, (Low impact silvicultural system). However not all areas identified in the FDP with the potential for LISS will be converted to that management system due to site specific limiting factors. Only the most suitable sites are designated as LISS following detailed assessment and any areas unsuitable for LISS will revert to the clearfell management system. The LISS management system is defined as *"Use of silvicultural systems whereby the forest canopy is maintained at one or more levels without clear felling"*. LISS woodlands are managed on a continuous cover basis which can be considered to have a higher environmental value than woodlands managed on the clearfell management system. This would be taken into account in the forestry assessment if any woodlands within the Site have been selected for management as LISS woodlands.

5.5 Sensitive Receptors

5.5.1 The high-level desk-based assessment has not identified any designated woodlands within the Site. The woodlands consist of a mixture of commercial conifer plantations with small areas of broadleaf woodland. The broadleaf woodland will be regarded as a sensitive receptor given the small proportion it forms within the Site.

5.5.2 In addition, there may be other features, especially veteran trees, within the Site which may have significant biodiversity value and make a significant contribution to landscape character and quality.

5.5.3 In broad terms greater sensitivity will be given in the assessment to woodlands determined to be of high conservation value e.g. Ancient & Semi-Natural Woodlands, and lower weighting to woodlands determined to be of lower conservation value e.g. commercial forestry plantations. However, this does not imply that commercial woodland will automatically be assessed as of low sensitivity as the specific characteristics of the woodlands will be taken into account.

5.6 Mitigation

5.6.1 In-line with the hierarchy of mitigation set out in **Section 3.5: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this technical assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 5.7: Likely Significant Effects**.

Embedded Mitigation

5.6.2 As described in **Section 3.5: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of negative, significant effects on the receiving environment and the sensitive

[16] Scotland's environment (undated) Scotland's environment map – Ancient Woodland Inventory Scotland map layer
[17] Scottish Forestry (undated) Scottish Forestry Map Viewer
[18] Scotland's environment (undated) Scotland's environment map – National Forest Estate – Sub-compartments

receptors therein. The mitigation by design, referred to as 'Embedded Mitigation' in this report, which is relevant to this technical assessment comprises:

- Siting of the Proposed Development has taken advantage of an area of clearfell, reducing the potential for impacts on mature commercial forestry.

Applied Mitigation

5.6.3 In addition to the Embedded mitigation, inherent in the design of the Proposed Development, the Applicant is committed to implementation of Applied Mitigation which comprises a suite of SSEN standard management plans and contractor authored documentation, which details general and site-specific measures which will be implemented to avoid or mitigate likely significant effects. See **Section 3.5: Mitigation** and **Appendix D: List of Applied Mitigation Documentation**. The Applied Mitigation considered relevant to this technical assessment includes, but is not limited to:

- Forestry GEMP
- Consistent with the Applicant policy where tree removal is required for development, compensatory planting would be proposed to satisfy the requirements of the Control of Woodland Removal Policy (see **Paragraph 5.1.2**)..
- Complete felling of woodland blocks may be proposed in instances where, from a practical forestry point of view, it is unviable to fell only part of the woodland. This approach seeks to reduce the overall effect on the total woodland area even though it will result in a loss of woodland. If required, this would be captured in a CEMP.

Summary and Next Steps

5.6.4 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.5 Mitigation** and as described above in relation to this technical assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.

5.6.5 The technical assessment in the EIAR will, therefore, assess the potential for likely significant effects to arise as a result of potential effects which are not addressed by the Embedded or Applied Mitigation considered to date. The proposed scope of which is set out in **Section 5.7: Likely Significant Effects**. This further mitigation, termed 'Additional Mitigation', needed to address these residual effects will be detailed in the EIAR along with Embedded and Applied Mitigation.

5.7 Potential Significant Effects

5.7.1 There is potential for significant effects on the woodlands within the Site including:

- Temporary or permanent loss of woodland;
- Consequential effects on the wider future forest management plans within the Site;
- The loss or damage to areas of woodland of high conservation value; and
- The potential for consequential effects from woodland fragmentation and isolation e.g. increased risk of windblow.

5.8 Predicted Effects from Scoping Assessment

5.8.1 The Proposed Development would result in a permanent loss of woodland. The effect of the Proposed Development on woodland is determined by a combination of age; size of the woodland; woodland type; designations combined, with scale of affected woodland; type of effect; timescale; the risk of consequential damage and effect on the management of the remaining woodland. The Site comprises primarily commercial woodland with some native woodland. Commercial woodland does not have high conservation value. The Site is part of a larger managed forest, and the Proposed Development would not likely have a significant impact the overall management plan for the area. Commercial woodland felled for development can be replaced by offset agreement with Forestry and Land Scotland

(FLS). Felling of commercial trees allows for Biodiversity Net Gain through replanting of native woodland. Any likely potential effects not mitigated by design (Embedded Mitigation), or Applied Mitigation, will receive Additional Mitigation to minimise the scale, significance or degree of the effect. This will be identified in the EIAR.

5.9 Assessment Scope and Methodology

Proposed Scope of Assessment

5.9.1 The assessment in the EIAR will consider the potential effects of the Proposed Development on woodlands. The assessment will extend to all woodlands within the Proposal of Application Notice boundary of the Proposed Development.

5.9.2 The scope will not address any felling or woodland management undertaken outwith the Site which would be under the control of the landowner and over which the Applicant will have no influence or control. The scope of the assessment is therefore limited to consideration of the effects of the Proposed Development on the present woodlands composition and structure within the Site.

Assessment Methodology

5.9.3 The forestry baseline will describe the woodlands existing at the time of the preparation of the EIAR. This will include current species; planting year; any felling and replanting plans; and other relevant woodland information. The baseline will be compiled from a desk-based assessment and field surveys.

5.9.4 The desk-based assessment will include the National Estate Sub-compartment database; the Native Woodland Survey of Scotland; the National Forest Inventory[19]; aerial photography; SF publicly available databases; and current Policy, Legislation and Guidance.

5.9.5 The field survey will consist of a site walkover to verify and update baseline data as necessary; and assess the woodlands with respect to integration of the Proposed Development.

5.9.6 The magnitude of the effect on the woodlands will be assessed. The first stage will identify and describe any forestry works required to enable construction of the Proposed Development. The second stage will assess the effect of any such works on the specific woodlands. This includes any immediate effects on the woodland and any longer-term effect i.e. the risk that the long-term viability of the woodland may be compromised through fragmentation of the wood, consequential windblow or restrictions on future operational activities.

5.9.7 The woodland receptor sensitivity and predicted magnitude of impacts on each receptor will be ranked and the significance of the effects will be assessed and quantified by cross-reference to a matrix of potential effects and drawing on professional judgement of the forestry specialist.

5.10 Issues Scoped Out

5.10.1 The loss or damage to areas of woodland of high conservation value, such as ancient woodland or veteran trees is not considered a significant residual effect. Such woodlands would be avoided as none are known to be present within the Site.

5.10.2 Consequential effects on the wider future forest management plans of individual woodlands outside of the Site are not considered a significant residual effect as the implications for future management, including the increased risk of wind blow, would be addressed through the relevant landowner wayleave agreements.

5.10.3 Forestry management issues during the operational phase are scoped out. It is considered that implications for future forest management outside of the Site in terms of felling phases, risk of windblow, replanting on site and wayleave maintenance can be adequately addressed through wayleave agreements with the relevant landowners.

[19] Forestry Commission Open Data (2022) National Forest Inventory Scotland 2020

5.10.4 The effects on forestry and woodlands are considered to be project specific. No separate assessment of cumulative effects associated with woodland removal outwith the project is proposed.

5.10.5 The scope will not address any felling or woodland management undertaken outwith the Site which would be under the control of the landowner over which the Applicant would have no influence or control.

5.11 Summary

5.11.1 The assessment will consider the direct effects of woodland loss within the Site; it will not address any felling or woodland management undertaken by landowners outwith the substation Site area. It is considered that implications for future forest management in terms of felling phases, risk of windblow, replanting on site and wayleave maintenance can be adequately addressed through wayleave agreements with the relevant landowners. No separate assessment of cumulative effects associated with woodland removal is proposed.

6. LANDSCAPE AND VISUAL AMENITY

6.1 Introduction

6.1.1 This chapter sets out the proposed approach to assessing the potential effects of the Proposed Development on landscape character and visual amenity through a Landscape and Visual Impact Assessment (LVIA). The purpose of the LVIA is to identify, predict and evaluate potential landscape and visual effects arising from the Proposed Development. The scale and location of the Proposed Development is such that it will be widely visible. Consequently, there is potential for significant effects on landscape character and visual amenity. The LVIA will describe and assess the potential effects on landscape and visual receptors within the study area.

6.1.2 This chapter has been prepared by LUC.

Feedback from Consultation

6.1.3 The May 2023 consultation was undertaken for the initial proposed substation site at Fiddes in Aberdeenshire. Following feedback from the consultation a review of the site selection exercise was undertaken resulting in a change of the proposed substation location to Hurlie in Fetteresso Forest (see **Section 3.6 Consultation**). As such, the majority of feedback from the May 2023 consultation is not relevant to the Hurlie substation. Additional, public consultation was undertaken in March 2024 with further public consultation undertaken in June 2024. The feedback from these additional consultations will be considered with relevant points integrated into the design and assessed in the EIA.

6.2 Study Area

6.2.1 Informed by the dimensions of the Proposed Development (**See Section 2.2.2**). the study area comprises a 3 km offset from the Site boundary in all directions. The study area is presented in **Figure 6.1: Preliminary Viewpoint Locations and Draft Zone of Theoretical Visibility**.

6.2.2 Based on professional judgement and experience of assessing transmission infrastructure, significant effects on landscape character and visual amenity are unlikely to occur beyond 3 km from the substation. However, more distant viewpoints up to 5 km from the Proposed Development are considered where there is, in the assessor's professional opinion, the potential for significant visual effects to arise beyond the 3 km study area, for example where the topography allows more far-reaching views, or where receptor sensitivity is particularly high. The location of these viewpoints which have been selected to inform the LVIA will be informed by Zone of Theoretical Visibility (ZTV) mapping, which indicates the areas from which the Proposed Development would be theoretically visible, and supplemented by field work as the LVIA progresses.

6.3 Approach

Desk-based Study

6.3.1 The determination of the landscape and visual baseline has been informed through desk-based studies carried out during the site selection stage of the project. This has included assessing suitability of the Site with relation to landscape character and designations, landscape susceptibility, principal visual receptors and physical suitability of the Site. Data sources used to inform the baseline include the review of Ordnance Survey (OS) maps (1:25,000 and 1:50,000 scale), aerial photography and online street photography and review of NatureScot's Scottish Landscape Character Types (map and descriptions).

Site Visits

6.3.2 Desk-based studies have been supplemented by site visits to verify the character of the landscape and key visual receptor groups to be considered within the LVIA. Further site visits will be undertaken as part of the LVIA to further establish the existing landscape and visual baseline, and to help understand likely effects which may arise as a result of the Proposed Development.

6.4 Baseline Conditions

6.4.1 Most of the study area is located within the Mounth range of the Grampian Mountains, in Aberdeenshire. The study area extends across a varying landscape of commercial forestry at Fetteresso Forest, and open agricultural fields on the lower-lying land to the south of the Site, and along the A957 to the north of the Site. The landform of the study area generally consists of low rolling hills, with a maximum elevation of 321 m AOD at the summit of Hill of Trusta to the west of the Site. The highest landform is within the Fetteresso Forest area and forms a forested ridgeline and a backdrop to the lower-lying landscape to the north and south of these hills. Landcover within the study area is characterised by forestry across the higher hills (within Fetteresso Forest) and use for arable and pasture across the lower-lying rolling hills to the north and south of the forest. The pattern of the lower-lying rolling hills is defined by small to medium scale arable and pastoral fields. Areas of native woodland, shelterbelts and trees are also present, particularly near Cowie Water in the north, and Carron Water in the south.

6.4.2 The central and western part of the study area comprising Fetteresso Forest does not feature any properties, however scattered properties are found throughout the rest of the study area to the north and south of the Site. These properties tend to be focussed along the minor road connecting Auchenblae with Stonehaven to the south of the site, and along the A957 to the north of the Site. The closest properties to the Site include two at Clachanshiels approximately 50 m to the north of the Site, Whitehall approximately 250 m to the northeast, and two properties at Upper Baulk approximately 250 m to the southeast of the Site. The dispersed settlement of Rickarton is approximately 1.5 km to the northeast of the Site.

6.4.3 An existing 275 kV overhead line runs along the western boundary of the Site and connects into Fetteresso Substation located adjacent to the south-western boundary of the Site, within Fetteresso Forest. An additional 275 kV overhead line runs in a north-south direction approximately 2 km to the east of the Site.

6.5 Sensitive Receptors

Landscape Character

6.5.1 The study area extends across two Landscape Character Types (LCTs), identified as part of NatureScot's 2019 National Landscape Character Assessment[20] and shown in **Figure 6.2: Landscape Character Types**. The Site is located within the Summits and Plateaux – Aberdeenshire LCT (LCT 29). The relevant key characteristics of the 'host' Summits and Plateaux – Aberdeenshire LCT are as follows:

- *"An expansive upland plateau with a smooth rolling landform and rounded hill summits. Landform is more complex along the Highland Boundary Fault.*
- *Foreground to the Cairngorm massif and Cairngorms National Park.*
- *Backdrop in views from the north from Lower Deeside and the fringes of Aberdeen city.*
- *Regionally prominent hills.*
- *Coniferous forested lower hills, particularly extensive in the north-east. Wind farm development also present in this area.*
- *Dramatic juxtaposition of the steep scarp slopes of these rugged uplands with the expansive low-lying farmed and settled Howe of the Mearns."*[21]

6.5.2 The LVIA will also consider the Coastal Farmed Ridges and Hills LCT within the southern part of the study area.

Landscape Designations

6.5.3 There are no nationally, regionally or locally designated landscapes or Wild Land Areas within the study area.

[20] NatureScot (2019) National Landscape Character Assessment
[21] NatureScot (undated) SNH National Landscape Character Assessment – Landscape Character Type 29: Summits and Plateaux - Aberdeenshire

Visual Receptors

6.5.4 There are a number of potentially sensitive visual receptors in the study area including those listed below:

- People living in and moving around the study area, including those at individual houses within the study area and those in the settlement of Rickarton to the northeast;
- People engaged in outdoor recreation such as those using paths within and around the open access land of Fetteresso Forest and those at hill summits, as well as those walking or cycling in rural areas more generally; and
- People travelling along the road network, including minor roads and the A957 to the north.

6.6 Mitigation

6.6.1 In-line with the hierarchy of mitigation set out in **Section 3.5: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this technical assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 6.7: Potential Significant Effects**.

Embedded Mitigation

6.6.2 As described in **Section 3.5: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of negative, significant effects on the receiving environment and the sensitive receptors therein. The mitigation by design, referred to as 'Embedded Mitigation' in this report, which is relevant to this technical assessment comprises:

- The substation platform level has been designed to help balance the requirement for cut and fill associated with civil engineering earthworks.
- A detailed process of landscape and civil engineering design has been undertaken to integrate the proposed substation into the local landscape as far as possible.
- The landscape design incorporates varied ridges and crests and scalloped edge typed treatments to the bunds to provide a naturalistic appearance to the earthworks once they have been established and vegetated. A range of planting types has been proposed including extensive areas of woodland and shelterbelt tree planting to provide further screening of the development in the longer term with areas of shrub, scrub and open grassland and wildflower areas to provide diversity of treatments in areas where OHL connections prevent the establishment of trees.

Applied Mitigation

6.6.3 In addition to the Embedded mitigation, inherent in the design of the Proposed Development, the Applicant is committed to implementation of Applied Mitigation which comprises a suite of SSEN standard management plans and contractor authored documentation, which details general and site-specific measures which will be implemented to avoid or mitigate likely significant effects. See **Section 3.5: Mitigation** and **Appendix D: List of Applied Mitigation Documentation**. The Applied Mitigation considered relevant to this technical assessment draws on but is not limited to GEMP TG-NET-ENV-511 and includes, but is not limited to:

- Avoid major earthworks wherever possible to reduce effects on the physical fabric of the landscape.
- Retain natural features to mitigate effects on landscape character.
- Avoid loss of mature trees to mitigate the loss of trees and woodland that contribute to landscape character and provide screening.
- Site tracks and micro-site route around groups of trees to leave natural features rather than dissecting groups/copses.

- When crossing hedges or walls plan to use existing gaps to mitigate damage to such features.

Summary and Next Steps

6.6.4 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.5 Mitigation** and as described above in relation to this technical assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.

6.6.5 The impact assessment will, therefore, assess the potential for likely significant residual effects to arise and identify any further mitigation, in addition to the Embedded and Applied Mitigation, necessary to reduce their significance (referred to as "Additional Mitigation") as far as practicable.

6.6.6 Embedded, Applied and any Additional Mitigation will be set out in a Schedule of Mitigation as a Chapter of the EIAR. It is assumed that implementation will be assured by consent conditions.

6.7 Potential Significant Effects

6.7.1 Landscape and visual assessments are distinct, but interconnected, processes and the assessment will describe potential landscape and visual effects separately. The LVIA will consider potential effects on:

- Landscape as a resource in its own right (caused by changes to the constituent elements of the landscape, its specific aesthetic or perceptual qualities and the character of the landscape); and
- Views and visual amenity as experienced by people (caused by changes in the appearance of the landscape).

6.7.2 Sources of effects during the construction and operation of the Proposed Development include:

- Introduction of construction activity and vehicular / personnel movements on local roads;
- Construction and operation of compounds;
- Construction lighting, particularly during hours of darkness and in winter months, noting that this may extend over 2-3 years;
- Construction of temporary and permanent access tracks;
- Construction of the Air Insulated Switchgear (AIS) substation components; and
- The permanent introduction of a substation and associated security fencing and lighting. It is noted that operational lighting will not be permanent, but only needed for planned maintenance during winter months in hours of darkness.

Landscape Character

6.7.3 The construction and operation of the Proposed Development has the potential to affect landscape character both physically and perceptually.

6.7.4 During construction, effects on landscape character are likely to arise from the introduction of construction activities (including vehicle movement), use of lighting, particularly in the winter months, presence of construction equipment and the physical loss or fragmentation of distinctive landscape elements. Changes in landform, land use and land cover are considered most likely to result in significant effects, as this will result in permanent physical changes to the landscape. Other construction effects will be temporary and will cease at the end of construction works. Reinstatement of land cover may take longer but over time will reduce the construction stage effects. There is potential for significant effects on landscape character as a result of the use of lighting during the construction period (approximately 3-4 years) particularly in the winter months. Due to the temporary nature of construction, effects associated with construction lighting are anticipated to be short to mid-term (around 3-4 years). Lighting effects will therefore be considered within the assessment of landscape effects in the LVIA.

6.7.5 During operation, effects would arise from the introduction of above ground infrastructure elements in the landscape including the AIS, fencing, lighting and any permanent access tracks. There is potential for these effects to result in

significant adverse effects on landscape character across LCTs within the study area. Cumulative effects on landscape character may also arise from the Proposed Development and other proposed developments, including the new Kintore to Tealing 400 kV overhead line and the proposed tie-ins.

Visual Amenity

6.7.6 There are likely to be significant adverse effects during both construction and operation on views experienced by residents within the ZTV. Significant effects may occur on views from individual residential properties, residential communities and settlements within the study area. Potential effects will continue to be considered as the design of the Proposed Development evolves.

6.7.7 There are likely to be significant effects on the visual amenity of people visiting and / or taking part in recreational activities within the ZTV including use of recreational routes and people at local hill summits. There is potential for significant adverse effects, during both construction and operation, on views experienced by recreational receptors within the study area.

6.7.8 There are likely to be significant effects on the visual amenity of people travelling along parts of the road network within the ZTV. There is potential for significant adverse effects during both construction and operation.

6.7.9 There is potential for significant effects on the visual amenity of sensitive receptors in proximity to the Site as a result of the use of lighting during the construction period particularly in the winter months. Due to the temporary nature of construction, effects associated with construction lighting are anticipated to last for approximately 32 months. Lighting effects will be considered within the assessment of visual effects in the LVIA.

6.7.10 The potential for likely significant visual effects of the Proposed Development on residents within their own homes will be reduced through the iterative design process, where practicable. A residential visual amenity assessment (RVAA) will consider the likely effects upon properties within 1 km of the Proposed Development. There is potential that this may not be required at this Site given screening by retained forestry.

6.7.11 Cumulative visual effects associated with the Proposed Development when seen in combined, successive or sequential views with other proposed schemes may also arise (**see Section 6.8**). Effects resulting from in combination views with other existing development, for example the existing substation, will be addressed in the primary LVIA, given it is part of the existing baseline.

6.8 Assessment Scope and Methodology

Proposed Scope of Assessment

6.8.1 The landscape and visual receptors that are proposed to be scoped into the LVIA are set out in **Table 6.1: Proposed Scope of LVIA**.

Table 6.1: Proposed Scope of LVIA

Receptor	Phase	Scoped In/Out	Justification
Landscape Character	Construction and Operation	Scoped in	Physical effects on local LCTs that intersect with by the Proposed Development and perceptual effects upon LCTs in the study area from which potential visibility is indicated by ZTV maps.
Representative viewpoints	Construction and Operation	Scoped in	Effects on visual receptors within the Study Area, i.e. people who may be affected by changes in views resulting from the Proposed Development. Visual receptors to be considered would include: • People within settlements; • People using walking routes (core paths and promoted tourist and/or recreational routes) and

Receptor	Phase	Scoped In/Out	Justification
			cycle routes, people at hill summits and promoted viewpoints; and • People travelling on the local road network, including major and minor roads. A list of indicative preliminary viewpoints can be found in **Table 6.1: Proposed LVIA Viewpoints**. Further consultation would be undertaken to agree final viewpoint locations and visualisation types.
Visual receptors at settlements/ communities/ residential properties	Construction and Operation	Scoped in	ZTV analysis and field work would determine which settlements and residential properties within the Study Area are to be included in the assessment.
Residents within 1 km of the Proposed Development	Operation	Scoped in	Properties within approximately 1 km of the Proposed Development will be considered for inclusion within a residential visual amenity assessment (RVAA). ZTV analysis and field work would help to determine which properties need to be examined in the RVAA.
Recreational receptors, including on core paths and hill summits	Construction and Operation	Scoped in	ZTV analysis and field work would determine which recreational routes/locations within the study area are to be included in the assessment.
Receptors travelling on roads	Construction and Operation	Scoped in	Desk top study and ZTV analysis and field work would determine which roads within the study area are to be included in the assessment.
Landscape character and visual amenity at night	Construction	Scoped in	Substation will be lit for a period of approximately 32 months during construction. Potential for short-mid term effects on landscape character and visual amenity during the construction period.
Landscape character and visual amenity at night	Operation	Scoped out	Substation will not be permanently lit and the use of lights will be limited to occasional maintenance at night. No likely significant effects on landscape character or views at night.

Assessment Methodology

6.8.2 The LVIA, Cumulative LVIA and presentation of landscape and visual effects will be undertaken in line with relevant legislation and standards, as well as the following guidelines with consideration of the approach set out in Chapter 3:

- Landscape Institute and the Institute of Environmental Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition ('GLVIA3');
- Scottish Natural Heritage (2018) A Handbook on Environmental Impact Assessment, Appendix 2: Landscape and Visual Impact Assessment, Version 5;
- NatureScot (2021) Assessing the cumulative impact of onshore wind energy developments[22];
- Landscape Institute (2019) Residential Visual Amenity Assessment (RVAA) Technical Guidance Note 2/19;
- Landscape Institute (2019) Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment;
- Landscape Institute (2019) Technical Guidance Note 06/19 Visual Representation of Development Proposals;

[22] Although the guidance concentrates on the particular issue of assessing the cumulative effects of wind energy development, the methods are also useful when considering the cumulative landscape and visual effect of other forms of development.

- Scottish Natural Heritage (2017) Visual Representation of Wind Farms, Version 2.2[23];
- SSEN (2022) Substation Site Selection Procedures for Voltages at or above 132 kV; and
- SSEN (2022) Substation Site Selection Procedures for Voltages at or above 132 kV, Appendix A: Holford Rules: Supplementary Notes on the Siting of Substations.

6.8.3 The following information and data sources will be used to inform the LVIA:

- Ordnance Survey (OS) Maps;
- Aerial photography, Google Earth and Google Maps Street View;
- Scottish Natural Heritage (2012) Landscapes of Scotland – descriptions; and
- NatureScot (2019) Scottish Landscape Character Types, Map and Descriptions.

Field Surveys

6.8.4 Surveys have been undertaken during winter months and are being undertaken during summer months to fully understand the maximum level of visibility of the Proposed Development as part of the landscape and visual baseline. Visual site surveys are being undertaken for a selection of agreed representative viewpoints for a variety of receptor types and at a range of distances from the Proposed Development. The list of indicative preliminary viewpoints can be found in **Table 6.1 Proposed LVIA Viewpoints** and set out on **Figure 6.1 Preliminary Viewpoint Locations and Draft Zone of Theoretical Visibility**. Surveys would include capturing viewpoint photography to assist in the creation of wireframes and photomontages. Where possible all viewpoint photography would be captured when trees are not in leaf (i.e. a worst case).

Viewpoints and Visualisations

6.8.5 The identification of visual receptors has been informed by ZTV mapping, which indicates the areas from which the Proposed Development is theoretically visible. Field work has been undertaken to ground truth the ZTVs. The assessment will not consider effects on visual receptors that are located wholly outside the ZTV, as they will not experience views of the Proposed Development. Effects upon visual receptors would be considered through the use of representative assessment viewpoints. **Table 6.1: Proposed LVIA Viewpoints** and **Figure 6.1: Preliminary Viewpoint Locations and Draft Zone of Theoretical Visibility** set out the list of proposed viewpoints to be used in the LVIA, however additional viewpoints will be required to inform the assessment. Any additional viewpoints required will be discussed and agreed with the applicable consultees, including NatureScot and Aberdeenshire Council. The selection of the final viewpoints would be informed by the ZTV analysis, field work, desk-based research on access and recreation, tourism including popular vantage points, and by the distribution of the different groups of visual receptors.

6.8.6 The LVIA will set out the nature and extent of the likely significant effects on visual receptors, which will be assessed with reference to a number of representative viewpoints, listed in **Table 6.1**.

6.8.7 **Table 6.2: Proposed LVIA Viewpoints** and **Figure 6.1: Preliminary Viewpoint Locations and Draft Theoretical Zone of Visibility** set out a preliminary list of proposed representative viewpoints to be assessed in the LVIA.

Table 6.2: Proposed LVIA Viewpoints

VP	Viewpoint Name	Grid Reference (Easting, Northing)	Reason for Selection
1	Hillhead of Auquhirie	383168, 783708	Represents views to the northwest experienced by residential receptors on the elevated land to the south of the Site and east of Carmont Hill around Hillhead of Auquhirie.

[23] Although the guidance relates to the production of visualisations of wind farm development, elements of the methodology and approach are applicable for other types of development.

VP	Viewpoint Name	Grid Reference (Easting, Northing)	Reason for Selection
2	Nether Wyndings	381838, 785379	Represents views to the northwest experienced by residential receptors along the minor road to the south of the Site around Nether Wyndings, and road users travelling along the minor road.
3	Slug Road (A957), west of Rickarton	381413, 788988	Represents views to the south experienced by residential receptors along Slug Road to the northeast of the Site around near Rickarton, and road users travelling along the Slug Road.
4	Minor road west of Kirktown of Fetteresso	383462, 785612	Represents views to the northwest experienced by residential receptors to the west of Kirktown of Fetteresso and road users travelling along the minor road.
5	Minor road near Jacksbank	376715, 783388	Represents views to the northeast experienced by scattered residential receptors near Jacksbank and road users travelling along the minor road.

6.8.8 Wireframes and photomontages would be used to consider and illustrate changes to views. Visualisations would be prepared in accordance with the Landscape Institute's TGN 06/19 Visual Representation of Development Proposals. A number of the viewpoint locations would be illustrated with photomontages. Photomontages show more detail than wireframes, including buildings, vegetation, colour, texture and lighting conditions.

Judging Levels of Effect and Significance

6.8.9 Judging the significance of landscape and visual effects requires consideration of the nature of the receptor and the nature of the effect on the receptor. GLVIA3 states that the nature of receptors, commonly referred to as their sensitivity, should be assessed in terms of the susceptibility of the receptor to the type of change proposed, and the value attached to the receptor. Sensitivity judgements would be recorded as high, medium or low. The nature of the impact on each receptor, referred to as its magnitude, should be assessed in terms of size and scale; geographical extent; duration and reversibility. Magnitude of change would be recorded as high, medium, low or negligible.

6.8.10 Judgements of sensitivity and magnitude are then combined to form a judgement regarding the overall significance of effect. Levels of landscape or visual effect would be categorised as major, moderate, minor or negligible / no effect. 'moderate' and 'major' effects are considered significant in the context of the EIA Regulations. The nature of effects would be described as positive (beneficial), neutral or negative (adverse).

6.8.11 This determination of significance requires the application of professional judgement and experience to balance the many different variables which need to be considered, and which are given different weight according to site-specific and location-specific considerations. Judgements of the potential landscape and visual effects which may arise from the Proposed Development, either individually or cumulatively when considered in combination with other existing, consented or proposed schemes, are made on a case by case basis.

Night-time Effects

6.8.12 There is potential for effects on landscape character and visual amenity as a result of lighting during the construction period. Due to the temporary nature of the construction period, these effects are likely to be short to mid-term, however, will be considered within the assessments of landscape and visual receptors in the LVIA.

Residential Visual Amenity

6.8.13 Properties and groups of properties within approximately 1 km of the Proposed Development that are likely to have visibility of the Proposed Development, depend upon the existing forest that will be retained, will be included within the RVAA, in accordance with the Landscape Institute's Technical Guidance Note24. The 1 km study area for the RVAA has been informed by the scale and nature of the Proposed Development, ZTV analysis, and fieldwork

[24] Landscape Institute (2019) Residential Visual Amenity Assessment (RVAA) – Technical Guidance Note 2/19

undertaken in the aa, and it considers settlement pattern around the Proposed Development. In addition to ZTV analysis and feedback, each property or group of properties included in the RVAA will be informed by ZTVs, aerial photography, wirelines and fieldwork undertaken from publicly accessible locations within the vicinity to determine the scale of visual effects. Aspects such as combined and successive views, and encirclement will be considered.

6.8.14 The RVAA will determine whether visual effects on the residential property are considered to breach the 'residential visual amenity threshold'.

6.8.15 The methodology can be summarised as follows:

- Step 1: Identification of properties to be considered (defining the Study Area and scope).
- Step 2: Evaluation of baseline visual amenity from each property / property group.
- Step 3: Assessment of likely change to visual amenity of properties.
- Step 4: Formation of the RVAA judgement (the Residential Visual Amenity Threshold), in line with RVAA Technical Guidance Note 2/19.

Cumulative Assessment

6.8.16 Operational developments, such as existing substations, wind farms and other vertical infrastructure (e.g. overhead lines and telecommunications masts), form part of the existing baseline environment. The effects of the Proposed Development in addition to these features will be considered within the primary LVIA.

6.8.17 However, there is the potential for future cumulative effects to arise throughout the Study Area from the addition of the Proposed Development alongside other developments which are either under construction, consented or the subject of a valid application for consent (proposed). The cumulative assessment will consider the potential for the Proposed Development to have different effects in relation to other consented and proposed schemes that together form a future baseline. This future baseline may include a range of development types, but the assessment will focus on those which are likely to result in a similar type, scale and extent of landscape and visual effects as the Proposed Development. For example, other electricity infrastructure, wind turbines, or telecommunications masts.

6.8.18 A list of consented and proposed schemes to be considered in the Cumulative LVIA will be agreed with consultees through the EIA process. With reference to the cumulative developments listed in **Chapter 13. Cumulative Effects**, a preliminary list of developments to be included in the Cumulative LVIA is as provided below:

- The proposed Kintore to Tealing 400 kV overhead line which is subject to a separate section 37 consent application under the Electricity Act; and
- The proposed tie-ins connecting Hurlie substation with existing OHLs.

6.9 Issues Scoped Out

6.9.1 Residential properties located at a distance greater than 1 km from the Proposed Development will not be assessed as part of the RVAA.

6.9.2 Significant effects on landscape character and visual amenity at night are not anticipated during operation. During normal operation the Proposed Development will not be lit and the use of lighting will be limited to occasional maintenance activities that are carried out at night. As such, any effects on landscape character and views at night during operation are not predicted to be significant due to their infrequent occurrence. It is therefore proposed that the assessment of night-time effects in relation to landscape character and visual amenity during operation will be scoped out of the LVIA.

6.10 Summary

6.10.1 The LVIA will identify and evaluate the predicted residual effects of the Proposed Development on landscape and visual receptors within 3 km of the Proposed Development. This will be undertaken via desk study and through field surveys.

6.10.2 The effects of the Proposed Development on landscape character and on views and visual amenity would be assessed and mitigation measures, where appropriate, would be adopted through the siting and design of the substation to prevent, reduce, or offset any likely significant adverse effects identified. These will include the provision of landscape earthworks and planting. Cumulative effects from the Proposed Development in combination with other relevant consented and proposed developments, including the associated proposed Kintore to Tealing 400 kV overhead line, would also be considered.

7. CULTURAL HERITAGE AND ARCHAEOLOGY

7.1 Introduction

7.1.1 This chapter provides an overview of the cultural heritage baseline relevant to the Proposed Development, describes the potential effects associated with the construction and operation of the Proposed Development, presents a preliminary assessment of effects, and presents the assessment methodology to be used in the cultural heritage impact assessment.

7.1.2 This chapter has been prepared by CFA Archaeology Ltd.

Feedback from Consultation

7.1.3 The May 2023 consultation was undertaken for the initial proposed substation site at Fiddes in Aberdeenshire. Following feedback from the consultation a review of the site selection exercise was undertaken resulting in a change of the proposed substation location to Hurlie in Fetteresso Forest (see **Section 3.7 Consultation**). As such, the majority of feedback from the May 2023 consultation is not relevant to the Hurlie substation. Additional, public consultation was undertaken in March 2024 with further public consultation undertaken in June 2024. The feedback from these additional consultations will be considered with relevant points integrated into the design and assessed in the EIA.

7.2 Study Area

7.2.1 The following study areas have been used for this scoping assessment and will be adopted for the cultural heritage impact assessment:

- Inner Study Area: The Proposed Development Site (**Figure 7.1: Cultural Heritage Study Area**), once finalised, will form the study area to identify any heritage assets, both those previously recorded in the Historic Environment Records (HER) and on designation lists, and those identified through desk-based assessment, that could be directly affected by the Proposed Development.
- Outer Study Area: A wider study area, extending to 3 km from the proposed substation site boundary (**Figure 7.1: Cultural Heritage Study Area**), aligned with the LVIA study area, will be used, in combination with the Proposed Development Zone of Theoretical Visibility (ZTV) model, to identify heritage assets with statutory or non-statutory designations that could have their settings affected by the Proposed Development. Consideration will also be given to identifying designated heritage assets beyond 3 km where long-distance views and intervisibility are considered to be an important aspect of their setting.

7.3 Approach

7.3.1 The cultural heritage baseline has been identified through a desk-based study carried out during the selection stage of the project, drawing on data from the Aberdeenshire Historic Environment Records (HER), and designation lists held by Historic Environment Scotland (HES). The data from HES was obtained in November 2023 and that from the HER was obtained in September 2023, these datasets will be checked for updates during the preparation of the EIAR.

7.3.2 The data was augmented by targeted site visits on the 2nd September 2024 to designated heritage assets where their settings could potentially be affected by the Proposed Development. The purpose of the site visit was to assess the character and sensitivity of the settings of the heritage assets identified.

7.4 Baseline Conditions

Designated Assets

7.4.1 There is one scheduled monument that lies partly on or close to takan existing foresty access track, which may require upgrading as part of the Proposed Development: Cowie Line, pillbox and earthworks 945 m SW of

Stonehouse (SM 6437). This scheduled monument comprises a section of a Second World War anti invasion 'stop-line', the monument is located on the south bank of the Cowie Water at its confluence with the Burn of Finglennie and the Queel Burn. Key to the setting of this scheduled monument is its location on the confluence of three waterways and the proximity to the ford. The scheduled monument has a localised setting within a river valley that is currently dominated by commercial forestry.

7.4.2 Within the Outer Study Area there are:

- A further three scheduled monuments. These include two prehistoric settlement sites and further remnants of WW2 defences. These assets are located to the north of the Proposed Development Site.
- Three listed buildings, one category B listed and two category C listed. The closest listed building to the Proposed Development Site is the category C Listed Mergie House Garden House (LB 9313) 0.99 km to the north of the Proposed Development Site. The listed buildings are all small residential properties (i.e. farmhouses and garden houses), which have generally localised settings, where long distance views, or prominent visibility, are not important aspects of their settings.

7.4.3 There are no world heritage sites, conservation areas, inventory gardens and designed landscapes or inventory battlefields within 3 km of the Proposed Development.

Undesignated Assets

7.4.4 Within, or partly within, the Proposed Development Site there are nine undesignated heritage assets recorded in the HER. All of which are identified by the HER as being of standard significance. Eight of the assets are located along the routes of the proposed access tracks and include the site of a possible Roman road (NO79SE0010), the sites of post medieval to modern school (NO78SE0056), farmstead (NO78NE0011), a croft (NO78NE0025), buildings (NO78NE0035 and NO78SE0059) cottages, enclosures (NO78NE0017) and a farmstead (NO78SE0089) which remains in use. Within the Proposed Substation area, the HER records the site of two boundary stones (NO78NE0020).

7.5 Sensitive Receptors

7.5.1 Within the Proposed Development Site, the most sensitive receptor to construction impacts is Cowie Line, pillbox and earthworks 945 m SW of Stonehouse (SM 6437). The Proposed Development could also adversely affect its setting, and this will be addressed during the EIA design stage.

7.5.2 Within the wider landscape, there are three scheduled monuments and three listed buildings, that could have their settings affected. None currently stand out as likely to have their settings significantly adversely affected, but this will be considered further during the EIA design stage.

7.5.3 There is anecdotal evidence of downed aircraft, from WWII, in the wider area. Desk-based studies have not confirmed the presence of these constraints within the Site boundary. This will be considered further during the EIA design stage.

7.6 Mitigation

7.6.1 In-line with the hierarchy of mitigation set out in **Section 3.5: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this technical assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 7.7: Potential Significant Effects**.

Embedded Mitigation

7.6.2 As described in **Section 3.5: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of negative, significant effects on the receiving environment and the sensitive

receptors therein. The mitigation by design, referred to as 'Embedded Mitigation' in this report, which is relevant to this technical assessment comprises:

- The design and location of the substation platform
- The landscape bunding
- The planting treatments also provide screening of the substation development from key cultural heritage designated sites in the vicinity of the proposals.

Applied Mitigation

7.6.3 In addition to the Embedded mitigation, inherent in the design of the Proposed Development, the Applicant is committed to implementation of Applied Mitigation which comprises a suite of SSEN standard management plans and contractor authored documentation, which details general and site-specific measures which will be implemented to avoid or mitigate likely significant effects. See **Section 3.5: Mitigation and Appendix D: List of Applied Mitigation Documentation**. The Applied Mitigation considered relevant to this technical assessment will be captured in the CEMP and includes, but is not limited to:

- Impact on previously unidentified archaeological remains will be mitigated through a programme of archaeological works to be developed in consultation with Aberdeenshire Council Archaeology Service (ACAS) and detailed in a Written Scheme of Investigation (WSI).

Summary and Next Steps

7.6.4 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.5 Mitigation** and as described above in relation to this technical assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.

7.6.5 The impact assessment will, therefore, assess the potential for likely significant residual effects to arise and identify any further mitigation, in addition to the Embedded and Applied Mitigation, necessary to reduce their significance (referred to as "Additional Mitigation") as far as practicable.

7.6.6 Embedded, Applied and any Additional Mitigation will be set out in a Schedule of Mitigation as a Chapter of the EIAR. It is assumed that implementation will be assured by consent conditions.

7.7 Potential Significant Effects

7.7.1 The potential effects on cultural heritage, associated with the construction and operation of the Proposed Development are:

- Direct Physical Effects: Where the physical fabric of the asset is removed or damaged as a direct result of construction work associated with the Proposed Development.
- Indirect Physical Effects: Such as may occur as a result of vibration from piling operations or blasting for borrow pits or quarries, from the degradation of waterlogged deposits as a result of dewatering of peat deposits, or from changes in watercourse currents resulting in increased/decreased erosion.
- Setting Effects: Resulting from the Proposed Development causing change within the setting of a heritage asset that affects its cultural significance or the way in which it is understood, appreciated and experienced.
- Cumulative Effects: Arising as a result of impact interactions, either of different impacts of the proposal itself or between the impacts of other projects, or additive impacts resulting from incremental changes caused by the proposal together with other projects.

7.8 Assessment Scope and Methodology

Desk Based Assessment

7.8.1 Further desk-based assessment will be carried out covering the Inner Study Area and construction access route as these are developed during the EIA design stage. The following information sources will be consulted:

- HES Spatial Data Warehouse: For up-to-date data on the locations and extents of scheduled monuments, listed buildings, conservation areas, inventory status garden and designed landscapes and inventory status historic battlefields.
- Aberdeenshire's Council's Historic Environment Record (HER): For up-to-date data for the Proposed Development Site.
- The National Record of the Historic Environment (NHRE) database (Canmore): For any information additional to that contained in the HER.
- Map Library of the National Library of Scotland: for Ordnance Survey maps and other historical map resources that may provide information of historic settlement and land-use.
- Aerial photography and satellite imagery (Google Earth, Bing maps, ESRI World Imagery): For the identification of sites and features potentially of historic environment value not recorded elsewhere or shown on historic maps.
- Historic Land-Use Assessment Data for Scotland (HLAMap): For information on the historic land use character of the Proposed Development Inner Study Area.

Field Surveys

7.8.2 The Proposed Development Site lies within an area of dense commercial forestry. It is considered that a detailed archaeological walk-over field survey under such land use is impractical and unlikely to be informative and is therefore not proposed for the Proposed Development Site. Targeted survey will be undertaken to record the baseline character and condition of sites or features identified during the desk-based assessment to inform mitigation proposals.

7.8.3 Site visits are being undertaken to designated cultural heritage receptors within the Outer Study Area where necessary and in as far as access is possible, to assess their baseline settings and identify potential impacts from the Proposed Development. Site visits will include any assets specifically identified by consultees as requiring assessment and those identified through analysis of the Zone of Theoretical Visibility, where it is considered, on the basis of professional judgement, that the effect on their settings could be significant.

Assessment Methodology

7.8.4 The effects of the Proposed Development on heritage assets will be assessed using the approach set out **in Section 3.3 Scoping Methodology** and on the basis of their type (direct construction effects, impacts on setting, and cumulative impacts) and nature (adverse or beneficial). The assessment will take into account the value / sensitivity of the heritage asset and its setting and the magnitude of the predicted impact.

Criteria for Assigning Sensitivity of Heritage Assets

7.8.5 Cultural heritage assets are given weight through the designation process. Designation ensures that sites and places are recognised by law through the planning system and other regulatory processes. The level of protection and how a site or place is managed varies depending on the type of designation and the laws and policies that apply to it[25].

7.8.6 Cultural Heritage Viewpoints (**Table 7.1: Preliminary Cultural Heritage Viewpoints** and **Figure 7.2: Preliminary Cultural Heritage Viewpoints**) for the cultural heritage assessment is provided below. The viewpoint list will be confirmed following production of a ZTV for the Proposed Development and through further engagement with consultees. The types of visualisations (i.e. photomontage, wireline) will be agreed through consultation with

[25] Historic Environment Scotland (2019, updated 2020) Designation Policy and Selection Guidance

consultees. Cross reference will also be made throughout the EIAR to Landscape and Visual Assessment (LVIA) viewpoints where these will aid the assessment.

Table 7.1: Preliminary Cultural Heritage Viewpoints

VP	Asset Name	Asset No	Asset Status	Approx. Grid Ref
CH1	Raedykes Roman Camp	SM 1016	Scheduled Monument	384103, 790094

7.9 Issues Scoped Out

7.9.1 Based on the work undertaken to date, the professional judgement of the cultural heritage team, and experience from other similar projects, the following effects are proposed to be scoped out:

- Direct construction effects on heritage assets outwith the Inner Study Area. There will be no construction works associated with the Proposed Development beyond the Site.
- Indirect effects on standing archaeological remains or structures and buried archaeological remains or deposits. The Proposed Development is unlikely to give rise to significant adverse effects through, for example, hydrological changes or from vibration.
- Temporary setting effects on cultural heritage assets resulting from construction activities. Construction activities would be temporary, resulting in short-term / minor effects on heritage assets in close proximity to the Proposed Development and would have no permanent effects.
- Assessment of the effect of the Proposed Development on the settings of listed buildings in urban settings. These all have localised townscape settings and relationship with other historic buildings around them and the Proposed Development would not have significant effect on the settings of such designations.
- Assessment of direct operational effects from maintenance or replacement works. As a consequence of the design and pre-construction mitigation, there are no heritage assets likely to receive a direct effect during operation of the Proposed Development and any required maintenance or replacement works would use the proposed access and infrastructure to facilitate such works.

7.10 Summary

7.10.1 This chapter provides an overview of the Archaeology and Cultural Heritage baseline within the vicinity of the Proposed Development. It describes the potential effects associated with construction and operation of the Proposed Development and presents the assessment methodology to be use in the Cultural Heritage Impact Assessment.

7.10.2 The cultural heritage and archaeology baseline within the Proposed Development Site includes a scheduled monument and nine non-designated heritage assets recorded by the Aberdeenshire Council's HER.

7.10.3 There are three scheduled monuments and three listed buildings within 3 km of the Proposed Development Site.

7.10.4 Study areas for the EIA have been set out and the assessment methodology presented for approval. A further scope of desk-based assessment will be carried out to fully inform the baseline reported in the EIA and to inform mitigation proposals.

8. ECOLOGY

8.1 Introduction

8.1.1 This chapter sets out to the proposed approach to assessing the potential effects of the Proposed Development on ecology and should be read in conjunction with **Chapter 9: Ornithology**. The EIA will consider the potential effects of the Proposed Development on ecological features (non-avian) within the proposed substation boundary and suitable buffers as described by best practice. Evaluation of the existing baseline environment will be made through a combination of desk-based study, field surveys and consultation. This chapters: describes the baseline conditions within the Study Area; describes the key ecological issues associated with construction and operation of the Proposed Development including a preliminary assessment of effects on ecology and biodiversity; presents the survey methods that will be used to generate the ecological baseline information in addition to desk-based baseline; and outlines the proposed approach to the Ecological Impact Assessment (EcIA; as part of the wider EIA).

8.1.2 This chapter has been prepared by LUC.

Feedback from Consultation

8.1.3 The May 2023 consultation was undertaken for the initial proposed substation site at Fiddes in Aberdeenshire. Following feedback from the consultation a review of the site selection exercise was undertaken resulting in a change of the proposed substation location to Hurlie in Fetteresso Forest (see **Section 3.7 Consultation**). As such, the majority of feedback from the May 2023 consultation is not relevant to the Hurlie substation. Additional, public consultation was undertaken in March 2024 with further public consultation undertaken in June 2024. The feedback from these additional consultations will be considered with relevant points integrated into the design and assessed in the EIA.

8.2 Study Area

8.2.1 The Study Area comprises the Proposed Development and appropriate buffers as shown in **Table 8.1: Study Area Targets**.

8.2.2 The Proposed Development is located on and around the hills surrounding Hill of Swanley (229 m AOD) and Hill of Trusta (320 m AOD) and, at its nearest point, is situated approximately 4.6 km west of Stonehaven, Aberdeenshire. The habitats are largely comprised of commercial forestry, with small areas of semi-natural habitats. Access tracks and minor watercourses intersect the conifer plantation. The Burn of Day flows through the Proposed Development, and a small watercourse arises in the north; both of these are tributaries of the Cowie Water outwith to the north-east of the Proposed Development.

8.2.3 To assess the potential for direct impacts on ecological and environmental features resulting from the Proposed Development, the following buffers have been identified:

Table 8.1: Study Area Targets

Ecological Feature	Comment	Buffer from the Site
Statutory Designated Sites	To include: • European Sites (Special Areas of Conservation; SAC); • Ramsar Sites; • National Nature Reserves (NNR); • Sites of Special Scientific Interest (SSSI); and • Local Nature Reserves (LNR).	10 km
Non-Statutory Designated Sites	To include: • Local Nature Conservation Sites (LNCS); • RSPB and Scottish Wildlife Trust Reserves; and • Ancient/Long-Established Woodland.	5 km

Ecological Feature	Comment	Buffer from the Site
Existing Records of Protected Species[26]	To include: • All native protected species records from the preceding 15 years.	5 km for Protected Species 10 km for Bat Species

8.3 Approach

Desk Study

8.3.1 A desk study has been undertaken to identify ecological receptors within the study areas targeted (see **Table 8.1: Study Area Targets**). Further analysis will consider the potential for an impact pathway to exist from the Proposed Development that could result in effects upon the designated sites and protected species identified.

Field Surveys – Habitats and Vegetation

8.3.2 Field surveys are in progress and are being undertaken by experienced ecologists during the 2023 and 2024 survey seasons. Drawing on SSEN's best practice approach, data are being collected using the emerging UKHabs method[27] during the appropriate survey season.

8.3.3 The UKHabs method will ensure all habitats of conservation concern[28] are appropriately identified within both a technical and policy context. Where necessary, UKHabs data will be converted to standard National Vegetation Classification (NVC) terminology for the purposes of detailed identification of habitats of conservation concern and GWDTE. An assessment will be made in the field of the condition of habitats as per SSEN Transmission's BNG guidance[29]. Notes will be made of invasive non-native plant species (INNS) where encountered and used to inform relevant management plans for implementation during construction and operation as appropriate.

Field Surveys – Protected Species

8.3.4 In parallel with habitat and vegetation surveys, all habitat features will be considered with regard to their suitability to support the following protected species:

- Otter (Lutra lutra);
- Bats;
- Red squirrel (*Sciurus vulgaris*);
- Pine marten (*Martes martes*);
- Water vole (*Arvicola amphibius*);
- Mountain hare (*Lepus timidus*); and
- Badger (*Meles meles*).

8.3.5 Habitat suitability will be determined according to published criteria for each species[30]. Where suitable habitat is identified, searches will be made for:

- Resting sites;
- Foraging and commuting routes/evidence; and

[26] 'Protected Species' includes European Protected Species (EPS; i.e. those listed on Annex II and Annex IV of the Habitats Directive), species listed on Schedules 5 and 6 of the Wildlife and Countryside Act 1981 (as amended; WCA), and badger which is protected by the Protection of Badgers Act (1992).
[27] UKHab (undated) UK Habitat Classification
[28] Habitats of conservation concern include habitats considered conservation priorities in the Habitats Directive (i.e. Annex 1 habitats); habitats considered to indicate potential groundwater dependency; habitats included on the SBL; and habitats included in LBAPs relevant to the Proposed Development.
[29] SSEN Transmission (2020) TG-NET-ENV-526 Biodiversity Net Gain Toolkit User Guide (Rev 3.0)
[30] Drawing on methods established in current best practice digests – CIEEM (2021) Good Practice Guidance for Habitats and Species (Version 3)

- Diagnostic evidence such as feeding remains, prints, scat etc.

8.3.6 Sufficient evidence will be collected to allow an analysis of broad territorial uses and population structures. Note that, at this stage, detailed surveys of populations are not proposed. Should field evidence highlight particularly sensitive populations, further consultation with NatureScot will identify any secondary survey requirements. The EIAR will address future survey needs prior to construction activity, and the need for Species Protection Plans as part of the construction phase of the project.

8.3.7 Similarly, fish and aquatic invertebrate surveys are not proposed. Precedent has established that the design process for large-scale infrastructure projects proactively seeks to minimise impacts on watercourses through the application of good practice construction measures, and that these measures are sufficient to protect aquatic features. These measures will be established in the EIAR along with construction-phase monitoring requirements.

8.4 Baseline Conditions

Desk Study

8.4.1 As per **Table 8.1: Study Area Targets**, a desk study has been undertaken to identify statutory designated nature conservation sites within 10 km of the Proposed Development, including sites of international[31], national[32] and local[33] importance. Non-statutory designated sites[34] within 5 km of the Proposed Development were also identified. In addition, a search for publicly available biological records from the past 15 years was undertaken within 5 km of the Proposed Development. The following sources were consulted:

- NatureScot SiteLink[35] website; and
- National Biodiversity Network (NBN) Gateway[36].

8.4.2 The desk study identified habitats of conservation concern and protected and notable[37] species which may be relevant to the Proposed Development. The following sources were consulted:

- Scottish Biodiversity List (SBL)[38]; and
- North East Scotland Habitat Statements[39].

8.4.3 **Table 8.2: Key Habitats and Species of North East Scotland** summarises the key habitats (standardised using SBL terminology) and species identified which are considered likely to be particularly relevant to the Proposed Development.

Table 8.2: Key Habitats and Species of North East Scotland

Terrestrial Habitats	Species (non-avian)
Purple Moor Grass and Rush Pasture	Otter
Upland Heathland	Bats
Upland Flushes, Fens and Swamps	Red squirrel
Lowland Mixed Deciduous Woodland	Pine marten
Upland Birchwoods	Water vole

[31] i.e. Special Areas of Conservation (SAC)
[32] i.e. Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR)
[33] i.e. Local Nature Reserves (LNR)
[34] i.e. Local Nature Conservation Sites (LNCS), non-governmental organisation (NGO) nature reserves, and Ancient Woodland Inventory (AWI)
[35] NatureScot SiteLink website
[36] NBN Atlas website
[37] i.e. those species not afforded legal protection, but which are listed on the SBL and/or relevant LBAPs
[38] NatureScot (2020) Scottish Biodiversity List
[39] North East Scotland Biodiversity Partnership website

Terrestrial Habitats	Species (non-avian)
Wet Woodland	Badger
	Amphibians (including common toad (*Bufo bufo*))
	Reptiles
	Fish (including Atlantic salmon (*Salmo salar*) and brown trout (*Salmo trutta*))

8.4.4 Special Protection Areas (SPAs) and Ramsar sites, which are statutory designated sites of international importance for birds, and Sites of Special Scientific Interest (SSSIs) designated solely for ornithological features are considered in **Chapter 9: Ornithology**.

8.4.5 Three statutory designated sites of international importance, and three statutory designated sites of national importance were identified within 10 km of the Proposed Development. No statutory designated sites of local importance were identified. Details of the sites identified, including of the qualifying features associated with them, are provided within **Table 8.3: Statutory Designated Sites within 10 km of the Proposed Development** and shown on **Figure 8.1: Designated Sites within 10 km and 5 km of the Proposed Development**. Sites designated solely for ornithological or geological features are not included.

Table 8.3: Statutory Designated Sites within 10 km of the Proposed Development

Site Name	Designation	Qualifying Feature	Distance and Direction from Proposed Development[40]
River Dee	SAC	Otter Freshwater pearl mussel (*Margaritifera margaritifera*) Atlantic salmon	Approximately 5.4 km northwest
Loch of Lumgair	SSSI	Basic Fen ('Schwingmoor' Type) Wet Woodland	Approximately 5.5 km southeast
Garron Point	SAC SSSI	Narrow-mouthed whorl snail (*Vertigo angustior*) (SAC qualifying feature) Maritime Cliff Northern brown argus butterfly (*Aricia artaxerxes*)	Approximately 6.2 km east
Red Moss of Netherly	SAC SSSI	Active Raised Bog Degraded Raised Bog	Approximately 7.8 km northeast

8.4.6 There are three non-statutory designated sites of local importance identified up to 5 km from the Proposed Development. Details of these sites are provided in **Table 8.4: Non-Statutory Designated Sites within 5 km of the Proposed Development** and shown on **Figure 8.1: Designated Sites within 10 km and 5 km of the Proposed Development**.

8.4.7 In addition, there are numerous areas of woodland listed on the Ancient Woodland Inventory (AWI)[41] up to 5 km from the Proposed Development; several of these woodlands are of semi-natural origin (i.e. categories 1a and 2a on the AWI) and therefore considered to be Ancient Woodland in accordance with SSEN's guidance[42]. There are no stands of woodland listed on the AWI within the Proposed Development; the closest blocks are LEPO and are located approximately 0.2 km from the northern boundary.

[40] Measured from the closest point of the designated site to the Proposed Development.
[41] NatureScot (2021) A guide to understanding the Scottish Ancient Woodland Inventory (AWI)
[42] SSEN Transmission (2023) BN-NET-ENV-501 Ancient Woodland – Approach to Assessment and Reporting: Internal

Table 8.4: Non-Statutory Designated Sites within 5 km of the Proposed Development

Site Name	Designation	Notable Features	Distance and Direction from Proposed Development
Mergie	LNCS	Neutral and Acid Grassland Woodland Wet Heath Scrub Bracken Bog Pond Wetland Locally important species such as lesser twayblade (*Neottia cordata*) and bog myrtle (*Myrica gale*)	Approximately 0.1 km north
Elfhill	LNCS	Woodland Scrub Acid Grassland Particularly important for the native bluebell (*Hyacinthoides non-scripta*)	Approximately 0.7 km south
Fetteresso	LNCS	Woodland Scrub Neutral Grassland Locally uncommon wood stitchwort (*Stellaria nemorum*)	Approximately 3.4 km southeast

Field Surveys

8.4.8 Field surveys are in progress and are being undertaken by experienced ecologists during the 2023 and 2024 survey seasons. The Proposed Development was surveyed as part of a wider programme of survey associated with the proposed OHL from Kintore to Tealing. High-level habitat and protected species surveys were undertaken in 2023, and further fieldwork is being undertaken as details of the Proposed Development are refined.

Habitats

8.4.9 The Proposed Development site is dominated by commercial forestry, comprised of coniferous species at various stages of maturity and rotation. Non-native Sitka spruce (*Picea sitchensis*) is the predominant species, although more limited stands of Scots pine (*Pinus sylvestris*), hybrid larch (*Larix x eurolepis*), Japanese larch (*Larix kaempferi*) and lodgepole pine (*Pinus contorta*) were also noted. Some stands have been thinned and have an increased diversity of heathy ground flora, while others exhibit extensive windthrow and comprise fallen trees with extensive gorse (*Ulex europaeus*) and bramble (*Rubus fruticosus*) scrub.

8.4.10 Where stands of commercial forestry are mature and dense, the field layer is extremely limited due to the low light levels. In areas of open ground, among young trees and in rides, the field layer is variable with evidence of both dry and wet heath habitats, as well as damp acidic habitats. Within commercial forestry, small areas of dry heath, acid grassland and bracken (*Pteridium aquilinum)* were recorded, often on free-draining soil. Wet heath habitats were recorded in rides and unforested areas. Rush pasture habitats were recorded in wetter areas, such as along the Burn of Day in the north of the Proposed Development. Some of these riparian habitats have been planted with native broadleaved trees. Further extents of rush pasture were recorded in the north of the Proposed Development associated with the upper reaches of tributaries of the Cowie Water, in mosaic with areas of acid grassland and stands of bracken.

8.4.11 Surveys recorded several habitats four National Vegetation Classification (NVC) communities which indicated the potential presence of Groundwater Dependent Terrestrial Ecosystems (GWDTEs): M6, M15, M23 and M25. Further surveys by professional hydrologists are required in these areas to determine their true GWDTE dependency.

Protected Species

8.4.12 Potentially suitable habitat is present for otter, bats, red squirrel, pine marten, water vole, badger, amphibians, reptiles and fish.

8.4.13 The Cowie Water is situated approximately 0.3 km to the north and is directly connected to the site via the Burn of Day and tributaries in the north and north-west of the Proposed Development. The Cowie Water and surrounding tributaries have high potential for otter to rest, forage and commute, as well as for fish species including Atlantic salmon and brown trout.

8.4.14 Surveys undertaken in 2023 indicated that suitable habitat for roosting bats is limited within the Proposed Development, as the majority of the commercial forestry is comprised of non-native Sitka spruce of varying ages. Mature Scots pine and larch were noted to have some limited potential roost features (such as rot holes, broken limbs, cavities, and cracks). Suitable foraging and commuting habitat is present along woodland edges and rides, tree lines, and watercourses.

8.4.15 Whilst the commercial forestry does not provide optimal habitat for red squirrel and pine marten, it does provide some foraging and commuting suitability for both species. The Proposed Development is well connected to extensive areas of woodland in the wider extent of Fetteresso Forest to the west and east. Records of red squirrel and pine marten are widespread in the vicinity[43].

8.4.16 There are limited publicly available records of water vole within the vicinity of the Proposed Development, with records noted approximately 2.6 km south near Drumlithie and approximately 4 km near the Cowie Water. Potential water vole habitat was recorded during the 2023 surveys along the Burn of Day. The watercourse was noted to be relatively slow-flowing in places, with adjacent rush-pasture vegetation providing potential cover and foraging opportunities for the species. However, despite the suitable habitat, no physical evidence of water vole was recorded.

8.4.17 Commercial forestry is considered to offer sub-optimal habitat for badger. Within the plantation, the ground was often carpeted with dead conifer needles and the substrate was frequently bare and / or hard. These areas are considered to be sub-optimal for badger sett creation and for foraging. The drainage ditches and marshy habitats within the plantation were deep in places, leaving areas of water-logged ground unsuitable for foraging, digging and sett creation. Stands of thinned plantation and areas of open ground were generally more suitable and were mainly dominated by shrubby dry and wet heath. Some acid grassland, which is considered suitable for foraging, was recorded in the northwest of the Proposed Development. The wider agricultural landscape to the north and south of Fetteresso Forest is considered to be optimal badger habitat and provides abundant opportunities for the species.

8.4.18 It was not possible to survey some dense areas of commercial forestry, particularly where windthrow had occurred, and therefore it is possible that there may be some localised areas of habitats with higher suitability for badger. The presence of badger within the Proposed Development, albeit at low density, cannot be ruled out.

8.4.19 Common amphibians (e.g. common toad and common frog (*Rana temporaria*)) are likely to be present in suitable habitat such as ponds, ditches and wetlands in the Proposed Development. There were no publicly available records of any newt species within the Proposed Development or the 5 km buffer.

8.4.20 Suitable habitat for reptiles (e.g. adder (*Vipera berus*), slow worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*) is present in the Proposed Development, associated with woodland edges and rides, and in isolated patches of unmanaged open ground, particularly where heathland habitats occur.

[43] Littlewood, N., Chapman, P., Francis, I., Roberts, G., Robinson, A. and Sideris, K. (2017) Mammal Atlas of North-East Scotland and the Cairngorms. NESBReC, Aberdeen. 183pp.

8.5 Sensitive Receptors

8.5.1 The ecological baseline will be established following completion of field surveys to identify important ecological features that could be affected by the construction and operation of the Proposed Development. These are likely to include designated sites with a potential impact pathway from the Proposed Development, habitats identified as Ancient Woodland[44], SBL habitats[45], potential GWDTE[46], and protected and notable species such as otter, red squirrel, pine marten, water vole, and badger. In addition, individual trees may be present which offer bat roost potential.

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

8.6 Mitigation

8.6.1 In-line with the hierarchy of mitigation set out in **Section 3.5: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this technical assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 8.7: Potential Significant Effects**.

Embedded Mitigation

8.6.2 As described in **Section 3.5: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of negative, significant effects on the receiving environment and the sensitive receptors therein. The mitigation by design, referred to as 'Embedded Mitigation' in this report, which is relevant to this technical assessment comprises:

- Avoidance of irreplaceable habitats, and minimisation of impacts upon woodland listed on the AWI as long-established of plantation origin (LEPO)[47] wherever possible;
- Location of infrastructure on non-peat habitats, avoiding irreplaceable peatland habitats;
- Inclusion of a 50 m buffer between watercourses / waterbodies and key operational infrastructure (substation infrastructure and permanent access tracks) wherever possible;
- Retention of woodland and watercourse habitats that provide commuting and foraging opportunities for a range of protected species;
- Minimisation of habitat loss and vegetation removal to accommodate access tracks by using existing tracks where possible; and
- Any required watercourse crossings of access tracks will be designed to minimise risk to fish populations, aquatic species and habitat.

Applied Mitigation

8.6.3 In addition to the Embedded mitigation, inherent in the design of the Proposed Development, the Applicant is committed to implementation of Applied Mitigation which comprises a suite of SSEN standard management plans and contractor authored documentation, which details general and site-specific measures which will be implemented to avoid or mitigate likely significant effects. See **Section 3.5: Mitigation** and **Appendix D: List of Applied**

[44] Ancient Woodlands comprise categories 1a and 2a on the AWI. These woodlands are described by NatureScot (2021) as *"interpreted as semi-natural woodland from maps of 1750 (1b) or 1860 (2b) and continuously wooded to the present day"*.
[45] NatureScot (2020) Scottish Biodiversity List
[46] Scottish Environmental Protection Agency (SEPA) (2017) Land Use Planning System: SEPA Guidance Note 31 – Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems (GWDTE)
[47] LEPO woodlands comprise categories 1b and 2b on the AWI. These woodlands are described by NatureScot (2021) as *"interpreted as plantation from maps of 1750 (1b) or 1860 (2b) and continuously wooded since. Many of these sites have developed semi-natural characteristics, especially the oldest ones, which may be as rich as Ancient Woodland"*.

Mitigation Documentation. The Applied Mitigation considered relevant to this technical assessment includes, but is not limited to the implementation of a Construction Environmental Management Plan (CEMP) which, in addition to SSEN Transmission's General Environmental Management Plan (GEMP) assumably TG-NET-ENV-513 and TG-NET-ENV-521 as well as relevant Species Protection Plans (SPPs), will capture all mitigation measures required in respect of ecological features, both as a result of the outcome of the EcIA and in order to comply with relevant legislation, to be implemented during construction and operation of the Proposed Development. The implementation and audit of these measures will be overseen by an Environmental / Ecological Clerk of Works (ECoW).

- BNG is a key consideration throughout project development, and the ambition is to ensure that activities not only maintain the existing baseline conditions but enhance the biodiversity in the area in line with SSEN Transmission's policy on BNG[48].
- Avoid impacts on protected and notable species, including amphibians, via provision of a CEMP;
- Ensure natural environment considerations are included in decision making at each stage of the project development;
- Utilise the mitigation hierarchy to avoid impacts by consideration of biodiversity in project design; and
- Achieve Biodiversity Net Gain of 10% or more on all new infrastructure projects gaining consent from May 2023 onwards.

Summary and Next Steps

8.6.4 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in Section 3.4 Mitigation and as described above in relation to this technical assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.

8.6.5 The impact assessment will, therefore, assess the potential for likely significant residual effects to arise and identify any further mitigation, in addition to the Embedded and Applied Mitigation, necessary to reduce their significance (referred to as "Additional Mitigation") as far as practicable.

8.6.6 Embedded, Applied and any Additional Mitigation will be set out in a Schedule of Mitigation as a Chapter of the EIAR. It is assumed that implementation will be assured by consent conditions.

8.7 Potential Significant Effects

Designated Sites

8.7.1 There are three internationally important designated sites that lie within 10 km of the Proposed Development as outlined in **Table 8.3** (Garron Point SAC; Red Moss of Netherley SAC; and River Dee SAC). Garron Point SAC is located to the north of Stonehaven approximately 6.2 km east of the Proposed Development. The qualifying feature of the SAC is a species of snail found in marshy coastal grassland. The site is not hydrologically or functionally connected to the Proposed Development, and therefore there is no impact pathway to the qualifying feature of the SAC. A further site, Red Moss of Netherley SAC, is located approximately 7.8 m east of the Proposed Development. It is designated for its raised bog features which are ombrogenous[49]; as such, it is not hydrologically or functionally connected to the Proposed Development, and there is no impact pathway to the SAC. The remaining SAC, the River Dee, is a riverine site approximately 5.4 km north-west of the Proposed Development. The site is not hydrologically or functionally connected to the Proposed Development, and therefore there is no impact pathway to the qualifying feature of the SAC. No likely impact pathways have been identified for these three sites; therefore further assessment is proposed to be scoped out of the EIA.

8.7.2 There are three nationally important designated sites within 10 km of the Proposed Development as outlined in **Table 8.3** (Loch of Lumgair SSSI; Garron Point SSSI; and Red Moss of Netherly SSSI). Garron Point SSSI is also

[48] SSEN Transmission (2019) A Network for Net Zero – Our Approach to Implementing Biodiversity Net Gain
[49] Relying on rainwater for formation and maintenance, and not receiving either groundwater or surface water inputs.

designated as an SAC (see above); the qualifying features that are specific to the SSSI are maritime cliffs, and a species of butterfly which requires lightly grazed or ungrazed unimproved grasslands, preferring sheltered habitats, such as scrub, sand dunes, quarries, coastal valleys and steep slopes[50]. These habitat types are not found within the Proposed Development. Red Moss of Netherley is similarly designated as an SAC, and the SSSI does not have additional qualifying features. Loch of Lumgair is located at a distance of 5.5 km from the Proposed Development and is designated for wetland habitats; there is no ecological or hydrological connectivity between the SSSI and the Proposed Development. As such, impacts on these SSSIs are proposed to be scoped out from further assessment as no impact pathway has been identified.

8.7.3 In addition, there are three non-statutory designated sites (LNCS) of local importance within 5 km of the Proposed Development as outlined in **Table 8.4** (Mergie LNCS; Elfhill LNCS; and Fetteresso LNCS). Elfill LNCS and Fetteresso LNCS have potential hydrological connectivity to the Proposed Development via the Clerkenwell Burn which flows from the south-west of the Proposed Development. However, these sites are designated for terrestrial habitat features which do not have ecological connectivity to the Proposed Development, and so no impact pathway has been identified. These are proposed to be scoped out of the EIA. Mergie LNCS is situated approximately 0.1 km north of the Proposed Development and will therefore be ecologically and hydrologically connected to the Proposed Development, including via tributaries of the Cowie Water. As a result, due to the potential impact pathway identified, Mergie LNCS will be scoped into the assessment.

Habitats

8.7.4 Habitats of conservation concern were noted to be present, and some extents of these wetland habitats have the potential to be GWDTE; some may be affected by excavation and vegetation clearance works.

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

Protected and Notable Species

8.7.6 Protected species, including otter, bats, red squirrel, pine marten, water vole and badger, may be adversely affected by vegetation clearance resulting in habitat loss and fragmentation. Notable species, such as amphibians and reptiles, may be similarly affected. The works may affect the ability of these species to rest, breed, forage and commute.

8.7.7 Any trees or structures with bat roost potential that require to be removed or disturbed during construction could result in impacts to bats. Red squirrel and pine marten may be similarly impacted by removal of trees used for dreys and dens. The impacts will be assessed and characterised to identify potential significant effects taking account of embedded and applied mitigation, and considering where additional mitigation is required.

8.7.8 Otter and water vole may use the watercourses in and around the Proposed Development. Key operational infrastructure for the substation will be installed outside of riparian zones (including a 50 m buffer on watercourses where possible); however, it is possible that access track watercourse crossings will be required during construction (and some will be permanently retained). The EIAR will identify the requirement for mitigation for otter and water vole, including the need for mammal crossings to be incorporated into proposed access tracks as embedded mitigation, and additional mitigation where required.

8.7.9 Badger is likely to be present in the wider surrounding area, making use of the mosaic of habitats which include rough grassland, farmland (particularly grazed pasture) on the outskirts of Fetteresso Forest, and woodland. Any badger setts that require to be removed or disturbed during construction could result in impacts to badger. Potential effects will be identified taking account of embedded and applied mitigation, and considering where additional mitigation is required.

[50] Butterfly Conservation website

8.7.10 Common species of amphibians and reptiles are likely to be present in areas of rough grassland, heath, wetland, and along woodland rides and edges. However, they are unlikely to make use of areas of extensive mature commercial forestry. Amphibians and reptiles may be adversely affected by vegetation clearance of suitable habitat required to facilitate the works. Incidental records of reptiles and amphibians collected during surveys will be reported and the EIAR chapter will assume reptiles and amphibians are present within suitable habitat, with appropriate mitigation designed. The EIAR will identify the need for pre-construction surveys in areas where there is potential for the presence of sensitive features used for shelter and hibernation. The EIAR will also identify a protocol for where micro-siting avoidance of sensitive features is not possible, including non-licensed precautionary methods of working under the supervision of the ECoW. As such, this topic is scoped out of further assessment.

8.7.11 It is considered that all ecological features identified within this Scoping Report could be affected by inappropriate lighting, noise, dust and visual disturbance caused by construction activities; however, it is considered reasonable to expect that these potential effects would be managed through standard best practice construction methods and following relevant guidance to mitigate environmental impacts. With the adherence to a CEMP, and SSEN Transmission's GEMP and SPPs, as overseen by an ECoW, it is not predicted that there would be significant disturbance effects as a result of construction activities.

8.7.12 Once operational, the Proposed Development is not considered to limit bat movement. It is therefore predicted that no significant operational impacts will occur to bat species as a result of the proposals.

8.7.13 Confirmation of the presence or absence of invertebrate species is considered unnecessary as the EIAR will adopt a precautionary approach and include appropriate mitigation, where required, to avoid significant effects on habitats of conservation concern that are likely to support notable species or assemblages of invertebrates.

8.8 Assessment Scope and Methodology

Proposed Scope of Assessment

- Non-statutory designated sites with a potential impact pathway to the Proposed Development, comprising:
  - Mergie LNCS.
- Habitat loss or fragmentation of Ancient Woodland and LEPO woodland;
- Habitat loss or fragmentation of habitats of conservation concern; and
- Loss or fragmentation of habitats used by protected and notable species, including:
  - Otter;
  - Bats;
  - Red squirrel;
  - Pine marten;
  - Water vole; and
  - Badger.

Assessment Methodology

8.8.1 The Ecological Impact Assessment (EcIA) will be completed in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment[51]. The assessment will use the ecological baseline to identify the important ecological features that could be affected by the construction of the Proposed Development. These features will be assigned a level of importance within a defined geographical context, based on factors such as conservation status, population / assemblage trends, and other relevant criteria (including size, naturalness, rarity and diversity).

[51] CIEEM (2018, Version 1.2 – Updated April 2022) Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater, Coastal and Marine

8.8.2 Details of the Proposed Development will then be used to assess the pathways to effect, and the level of effect each receptor is predicted to receive with reference to the following parameters: beneficial or adverse; extent; magnitude; duration; frequency; and reversibility.

8.8.3 The significance of a potential effect will be considered, using professional judgement, within the context of the geographically based ecological importance of the feature. To allow the potential effects identified in the EcIA to be considered alongside those addressed in other topic chapters of the EIAR, a 'translation' from EcIA significance to EIA significance is then undertaken. The translation relates the geographically based significance of ecological effects (identified through the EcIA process) to the standard terminology for significance presented in other chapters (following the EIA process). Effects that are Moderate or Major in the EIA process are considered significant.

8.8.4 Where appropriate, mitigation measures will be presented within the EcIA to remedy any adverse impacts and measures to enhance the local ecology will also be incorporated. An assessment of cumulative and residual effects will also be undertaken and reported within the EIAR.

Biodiversity Net Gain (BNG)

8.8.5 BNG is a process whereby development leaves biodiversity in a measurably better state than before development commenced. The Applicant is committed to the delivery of BNG and as such it is a key consideration for the project. A BNG assessment is currently being progressed by way of field survey to ensure that BNG can be delivered. The BNG assessment will inform an Outline Biodiversity Enhancement Plan (BEP). The approach will follow UK best practice and the Applicant's BNG guidance.

Cumulative Effects

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

8.9 Issues Scoped Out

8.9.1 Based on the work undertaken to date, the professional judgement of the ecology team, and experience from similar projects, the following effects are proposed to be scoped out:

- Construction and operational effects on international and national statutory designated sites, and two locally designated sites (Elfhill LNCS and Fetteresso LNCS) due to no likely impact pathways having been identified as a result of a lack of either ecological or hydrological connectivity to the Proposed Development.
- Operational effects on habitats of conservation concern.
- Effects on protected and notable species as a result of habitat loss or fragmentation, specifically mountain hare, brown hare and hedgehog. The Applicant will seek to protect and enhance semi-natural habitats through embedded mitigation, and applied mitigation will be adhered to in the form of the CEMP, SSEN Transmission's SPPs, and pre-works surveys and best practice methods of work.
- Effects on amphibians and reptiles as a result of habitat loss or fragmentation. The assessment will assume amphibians and reptiles are present within suitable habitat. Embedded and applied mitigation measures will be agreed with NatureScot to avoid impacts on these species groups, including pre-construction surveys in areas where there is potential for the presence of sensitive features used for shelter and hibernation, and a protocol for locations where micrositing avoidance of sensitive features is not possible, including non-licensed precautionary methods of working under the supervision of the ECoW.
- Disturbance effects on protected and notable species as a result of construction activities via lighting, noise, pollution or visual disturbance. Construction activities will adhere to a CEMP, and SSEN Transmission's GEMP and SPPs, as overseen by an ECoW. In addition, the Applicant will seek to protect the aquatic environment and sensitive riparian habitats through embedded mitigation, and best practice applied mitigation measures to protect

watercourses will be included within the CEMP on the assumption of the presence of important ecological features.

- Operational effects from the Proposed Development on protected and notable species; once operational, activities will adhere to SSEN Transmission's GEMP and SPPs.
- Consideration of invertebrate species is considered unnecessary due to the limited ecological value of habitats within the Site.

8.10 Summary

8.10.1 This Scoping Report has presented the developing ecological baseline of the Proposed Development and an initial assessment of the potential impacts of the Proposed Development has been presented. This has enabled the proposed scope for the EIA to be refined.

8.10.2 Desk study information has identified statutory designated sites within 10 km of the Proposed Development, and non-statutory designated sites within 5 km. A potential impact pathway has been identified for a limited number of these sites which are therefore included in the scope of the EcIA; the remaining sites have been scoped out due to their distance from the Proposed Development and a lack of a pathway for impacts identified.

8.10.3 Baseline surveys are currently in progress, with more surveys scheduled for the 2024 survey season to provide an in depth understanding of the habitats within and adjacent to the Proposed Development. The Proposed Development would largely affect areas of commercial forestry, as well as more limited extents of upland heathland, and some open grassland and marshy habitats. Habitats of conservation concern were noted to be present, and some extents of these wetland habitats have the potential to be GWDTE; some may be affected by excavation and vegetation clearance works. These potential effects will be considered in further detail in the EIAR to establish the potential for significant impacts and identify appropriate mitigation.

8.10.4 Habitats with suitability for otter, bats, red squirrel, pine marten, water vole, and badger are present within the Proposed Development, all of which are protected species and will be further considered in the EIAR. Red squirrel and pine marten may be adversely affected by the Proposed Development during construction in extensive woodland. This is considered to result in permanent habitat loss and fragmentation. In addition, habitat is likely to be present with potential to support species such as fish, amphibians and reptiles. The EIAR will identify where species require to be safeguarded through further pre-construction surveys informing appropriate mitigation prior to construction. This information can be captured and administered through a CEMP and SSEN Transmission's SPPs prior to and during construction and audited by an ECoW during and post-construction.

9. ORNITHOLOGY

9.1 Introduction

9.1.1 This chapter sets out a preliminary assessment of effects and the proposed approach to assessing the likely significant effects on ornithology arising from the Proposed Development. This Chapter should be read in conjunction with **Chapter 8: Ecology**. This chapter identifies where there is potential for significant effects on the ornithological receptors; identifies where and what type of mitigation measures should be employed at the proposed sub-station site; and assesses the likely significance of residual effects following implementation of mitigation measures.

9.1.2 This chapter has been prepared by LUC.

Feedback from Consultation

9.1.3 The May 2023 consultation was undertaken for the initial proposed substation site at Fiddes in Aberdeenshire. Following feedback from the consultation a review of the site selection exercise was undertaken resulting in a change of the proposed substation location to Hurlie in Fetteresso Forest (see **Section 3.7 Consultation**). As such, the majority of feedback from the May 2023 consultation is not relevant to the Hurlie substation. Additional, public consultation was undertaken in March 2024 with further public consultation undertaken in June 2024. The feedback from these additional consultations will be considered with relevant points integrated into the design and assessed in the EIA.

9.1.4 Consultation has been undertaken with statutory and non-statutory consultees. Consultation was held with NatureScot to inform the ornithology survey methodology in relation to the proposed overhead line (OHL) of the Overall Project as well as to determine the approach to assessment, the scope of which also included the Proposed Development. In May 2023, NatureScot, confirmed they were content with the survey approach regarding the qualifying features of the designated sites as well as other protected bird species (Schedule 1 / Annex 1 species and wading birds). In September 2023, NatureScot were consulted again in relation to specific survey methods relating to wintering bird surveys. NatureScot advised they were content with the approach of completing flight activity surveys from Vantage Points (VPs) from late-September 2023 to March 2024 inclusive in relation to the proposed OHL.

9.2 Study Area

9.2.1 The study areas for ornithology are defined with reference to the infrastructure of the Proposed Development plus the following buffer areas, in line with best practice guidance and informed by professional judgement and experience of work on similar projects:

- Statutory Designated Sites[52]: To 20 km of the Proposed Development for ornithological qualifying features of SPAs;
- Non-Statutory Designated Sites[53]: 5 km;
- Schedule 1 birds[54]: Buffers up to 2 km, as determined by species present; and
- Habitats within at least 250 m of the Proposed Development (to breeding and foraging birds including Birds of Conservation Concern (BoCC) and the Scottish Biodiversity List species).

[52] Including European Sites, Sites of Special Scientific Interest (SSSIs) and National / Local Nature Reserves. Note that Special Protection Areas (SPAs) qualify for their ornithological assemblages.
[53] Including Local Nature Conservation Sites.
[54] The Wildlife & Countryside Act (WCA) 1981 provides enhanced statutory protection to rare breeding birds listed under Schedule 1. Significant changes have been made to the protection of wild birds in Scotland by the Nature Conservation (Scotland) Act 2004. In addition, all wild birds are protected by law under WCA.

9.3 Approach

9.3.1 Baseline ornithological conditions to inform the design and assessment of the Proposed Development will be established through desk-based and field studies.

Desk Study

9.3.2 The NatureScot SiteLink website[55] was used to identify designated nature conservation sites that may have ornithological connectivity to the Proposed Development (up to 20 km for sites of international importance and where the qualifying feature(s) core range extends to this distance and 2 km for sites of national importance). Designated sites include Special Protection Areas (SPAs), which are of international importance, and Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs) which are of national importance.

Species Records from Data Requests

9.3.3 A search for publicly available ornithological records within 2 km of the Proposed Development, including National Biodiversity Network (NBN[56]) and BTO record sources was undertaken.

9.3.4 In addition, data were obtained from the RSPB for bird records within 2 km of the Proposed Development. The RSPB data request included Schedule 1 bird species together with breeding waders and forest grouse. Data on Schedule 1 raptors have also been requested from local Raptor Study Groups. In addition, Forestry Land Scotland (FLS) environment team have been contacted since it is known that raptor survey (including for goshawk) has been ongoing within the Fetteresso Forest block.

Bird Records in Local Development Survey (including EIARs)

9.3.5 The use of relevant EIARs from local developments was used to inform on likely ornithology receptors in the local area. Namely, the EIAR[57] for Fetteresso Wind Farm (extension to Mill Hill Wind Farm) was obtained and provided additional records. Also, survey work for goshawk at Fetteresso Substation was carried out for SSEN by AECOM Ltd. in early 2023 regarding upgrade works there to identify mitigation with regard to the species[58].

Bird Habitat Appraisal

9.3.6 A recent British Trust for Ornithology (BTO) publication[59], together with the associated publicly available dataset, showing the 'sensitivity' of 1 km squares with regard to wader habitat (based on previous breeding bird survey work) was used to determine potential breeding wader receptors to 2 km of the Proposed Development.

Field Surveys

Wintering Birds

9.3.7 Surveys to explore the foraging distribution of SPA species have been carried out since September 2023 with regard to the proposed OHL route (ref. **Table 9.1: Statutory Designated Sites Associated with the Proposed Development** below). These surveys have coincided with the Proposed Development at Hurlie. These have involved systematic searches using the road network of the potential foraging area, to count and map feeding birds, describe the food sources being used and to plot flight lines of birds moving between feeding sites.

9.3.8 In addition, surveys to identify potential roosting Schedule 1 species were conducted between January and March 2024, inclusive. Vantage points overseeing the Proposed Development and area local to it focussed on late

[55] NatureScot SiteLink website
[56] NBN Atlas website
[57] Natural Power (2019) EIAR Fetteresso Wind Farm
[58] SSEN Transmission (2023) LT270 Fetteresso Substation: Goshawk Survey Report
[59] O'Connell, P., Wilson, M., Wetherhill, A. and Calladine, J. (2021) Sensitivity mapping for breeding waders in Britain: towards producing zonal maps to guide wader conservation, forest expansion and other land-use changes. Report with specific data for Northumberland and north-east Cumbria. BTO Research Report, 740, BTO, Thetford, UK.

afternoon/early evening surveys to identify if habitats were being used for roosting by raptors, especially Schedule 1 species.

Breeding Birds

9.3.9 Three survey visits of the Proposed Development and associated buffer (refer to **Section 9.2: Study Area**) were carried out in April and May 2024. The surveys focussed on scarce breeding raptors but were also used to identify other notable breeding bird species.

9.3.10 These scarce raptor surveys were undertaken over the breeding season in 2024 across focal areas of suitable habitat for Schedule 1 raptors within c. 1 km of the Proposed Development (refer to **Section 9.2 Study Area**).

9.4 Baseline Conditions

Designated Sites

9.4.1 The statutory designated sites that coincide with or where their designated features show connectivity e.g. where core ranges of the species coincide with the Proposed Development are set out in **Table 9.1: Statutory Designated Sites Associated with the Proposed Development** and shown in **Figure 9.1: Ornithological Designated Sites**.

Table 9.1: Statutory Designated Sites Associated with the Proposed Development

Site Name	Qualifying Features	Distance from Proposed Substation at its Closest	Connectivity with Proposed Development
Fowlsheugh SPA and SSSI	SPA: Supporting in excess of 20,000 individual seabirds: migratory species common guillemot (*Uria aalge*), black-legged kittiwake (*Rissa tridactylis*) and breeding razorbill (*Alca torda*), northern fulmar (*Fulmaris glacialis*) and herring gull (*Larus argentatus*). SSSI/Ramsar: Additionally – breeding bird assemblage.	7.8 km east of the Proposed Development	Potential connectivity with qualifying species due to distance from Proposed Development (gull mean foraging to 10.5 km from their breeding sites[60]).

9.4.2 Fowlsheugh is also a RSPB Nature Reserve and incorporates the inland portion of the Fowlsheugh SPA (ref. **Table 9.1: Statutory Designated Sites Associated with the Proposed Development**).

Desk Records

9.4.3 No records of Schedule 1 species or breeding waders were present within the RSPB desk record data set for the study area.

9.4.4 Raptor Study Group data are yet to be delivered at the time of this scoping report.

9.4.5 The FLS Fetteresso goshawk monitoring group confirmed breeding goshawk (potentially 3 territories) within 1 km of the Proposed Development.

9.4.6 The Fetteresso Wind Farm EIAR recorded goshawk flight activity within 5 km of the Proposed Development (the associated surveys were for the Wind Farm red-line boundary some 7 km to the west of the Proposed Development). A total of up to eight nesting attempts were recorded within 2 km of the turbine layout at Fetteresso during survey work for the wind farm extension, suggesting that the area provided a number of suitable trees (age, spacing, height) and forestry blocks in the plantations at the time of survey. The existing Fetteresso Substation goshawk report provided information from 2022 (Environmental Resources Management Ltd (ERM) surveys) and 2023. The results confirmed the presence of goshawk in the locale and considered the birds as likely nesting to the south-east of the

[60] Thaxter, C. B., Ross-Smith, V. H., Bouten, W. et al. (2019) Avian vulnerability to wind farm collision through the year: Insights from lesser black-backed gulls (*Larus fuscus*) tracked from multiple breeding colonies. J Appl Ecol. 2019;56:2410–2422.

existing substation (potentially adjoining the Proposed Development boundary). The Natural Heritage Zone (NHZ) breeding population of goshawk is c. 25 breeding pairs (NHZ 12 North East glens[61]) with the Fetteresso Forest area obviously being an important habitat for nesting of this Schedule 1 species.

9.4.7 NBN data search recorded a range of species including BoCC Red-listed species such as starling (*Sturnus vulgaris*), greenfinch (*Chloris chloris*), spotted flycatcher (*Muscicapa striata*) as well as a range of species associated with largely plantation woodland e.g. coal tit (*Peripatus ater*), siskin (*Spinus spinus*) and crossbill (*Loxia curvirostra*).

9.4.8 Curlew (*Numenius arquata*), lapwing (*Vanellus vanellus*) snipe (*Gallinago gallinago*) and oystercatcher (*Haematopus ostralegus*) were all present in the wider area, only the latter within 2 km of the Proposed Development, however.

9.4.9 The footprint of the Site coincides with BTO wader sensitivity ratings of 2 (of 5) for lapwing and for oystercatcher suggesting that the habitats within the area have the possibility to support nesting of these species. Given that the Proposed Development site is presently dominated by commercial forestry, these species would be restricted, if present, to areas of open heath and grassland.

Initial Field Survey Findings

9.4.10 Wintering bird surveys adjacent to the Proposed Development did not record foraging geese or herring gull locally, with habitats considered unsuitable for both species' groups.

9.4.11 Fetteresso forest was not identified as having Schedule 1 species using the area as a roost.

9.4.12 The breeding bird survey carried out to 1 km north-east of the Proposed Development did record breeding red kite (Milvus milvus) within 2.5 km of the Site and it is considered possible that the species may be present as a breeding bird at the edge of forestry associated with the Proposed Development.

9.4.13 Breeding bird surveys, together with Desk record data from FLS, identified breeding goshawk (Schedule 1 species) within the survey area.

9.4.14 Full details of the existing ornithological conditions as determined by ongoing surveys and desk study results will be presented within the EIAR.

9.5 Sensitive Receptors

9.5.1 Based on the initial desk and field-based work undertaken, the ornithological receptors that will be considered for assessment comprise:

- Bird species considered to be of High or Moderate Nature Conservation Importance, due to their inclusion on Annex I of the EC Birds Directive (Annex 1 species), Schedule 1 of the Wildlife and Countryside Act (1981), as amended (Schedule 1 species, notably goshawk and red kite) and occurrence on the Red List of UK Birds of Conservation Concern (Red-list species).

9.6 Mitigation

9.6.1 In-line with the hierarchy of mitigation set out in **Section 3.5: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this technical assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 9.7: Likely Significant Effects**.

Embedded Mitigation

9.6.2 As described in **Section 3.5: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of negative, significant effects on the receiving environment and the sensitive

[61] Raptor Monitoring (2023) Goshawk trends 2009-2018

receptors therein. The mitigation by design, referred to as 'Embedded Mitigation' in this report, which is relevant to this technical assessment comprises:

- Avoidance of high biodiversity value habitats including those with mature trees.

Applied Mitigation

9.6.3 In addition to the Embedded Mitigation, inherent in the design of the Proposed Development, the Applicant is committed to implementation of Applied Mitigation which comprises a suite of SSEN standard management plans and contractor authored documentation, which details general and site-specific measures which will be implemented to avoid or mitigate likely significant effects. See **Section 3.5: Mitigation** and **Appendix D: List of Applied Mitigation Documentation**. The Applied Mitigation considered relevant to this technical assessment, draws on but is not limited to GEMP TG-NET-ENV-521 and a CEMP including, but is not limited to:

- A Bird Protection Plan (BPP) will be employed and include careful timing of construction activities near to sensitive locations to avoid effects on breeding birds, in particular for Schedule 1 species. For example, appropriate species-specific working buffers may be employed to assure that minimal disturbance is achieved. Where significant effects are identified, or where the assessment identifies the requirement, additional mitigation measures may be proposed to offset those identified effects.
- Appropriate planting to provide shelter and food for bird species, together with suitable habitat management methods.

Summary and Next Steps

9.6.4 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.5 Mitigation** and as described above in relation to this technical assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.

9.6.5 The technical assessment in the EIAR will, therefore, assess the potential for likely significant effects to arise as a result of potential effects which are not addressed by the Embedded or Applied Mitigation considered to date. The proposed scope of which is set out in **Section 9.7: Likely Significant Effects**. This further mitigation, termed 'Additional Mitigation', needed to address these residual effects will be detailed in the EIAR along with Embedded and Applied Mitigation.

9.7 Potential Significant Effects

9.7.1 The Proposed Development has the potential to cause significant effects in both the construction and operation phases. These may arise due to:

- Habitat loss and habitat modification (construction and operational phases): The loss of habitats due to land take for infrastructure and habitat modification changes due to changes in land management may occur.
- Disturbance/displacement (construction phase): Disturbance of breeding birds, roosting birds (particularly during winter) and displacement of feeding / foraging birds in suitable habitats may occur during construction works associated with the Proposed Development. Disturbance of breeding birds is likely to result from activities associated with people and machines in the vicinity of the Proposed Development and to disturbance distances associated with the breeding species present, with reference to NatureScot guidelines[62]([63]) out with the site.

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

[62] NatureScot NatureScot Guidance Disturbance Distances in selected Scottish Bird Species
[63] 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.

- Effects on bird populations, arising from the killing, injury or disturbance (and / or displacement) of nationally and internationally protected species of bird during the construction or operational phases of the Proposed Development; and
- Cumulative effects arising from the above combined with effects from other proposed or existing developments in the same geographic area (Natural Heritage Zones NHZ 12; North East Glens) which act on the same regional bird populations.

9.8 Assessment Scope and Methodology

Proposed Scope of Assessment

- Schedule 1/Annex 1 bird species: Habitat loss, disturbance during breeding and roosting; and
- Birds of Conservation Concern (BoCC): Habitat loss and disturbance during breeding.

Assessment Methodology

9.8.1 The EIAR will provide a detailed description of the existing baseline ornithological features in the Study Area of the Proposed Development, along with an assessment of the potential effects on the important ornithological features present, taking into account mitigation measures to avoid and reduce significant effects where appropriate and feasible to do so.

9.8.2 The assessment will be informed by NatureScot guidance[64] and based on Chartered Institute of Ecology and Environmental Management (CIEEM) guidance[65]. The approach to assessment will take account of existing guidance and published scientific literature in relation to ornithology and infrastructure interactions, alongside professional judgement and experience of similar developments.

9.8.3 Effects will be considered during the construction and operational phases and will be assessed on the basis that a clearly defined range of appropriate avoidance buffers and standard good practice measures are implemented.

9.8.4 The assessment of effects will consider how the conservation status of each species may be affected by the predicted magnitude and direction of impacts on birds arising from the Proposed Development. The maintenance of existing favourable conservation status of potentially affected species, at the appropriate geographic scale, will be a key judgement for evaluating effect significance.

9.8.5 The identification and characterisation of effects on important ornithological features will be undertaken in accordance with the CIEEM guidelines with reference to effect magnitude (e.g. proportion of a population affected), extent, duration and reversibility as appropriate. Effect magnitude will be considered alongside the likelihood of its occurrence to inform a judgement on the significance of effects. Where appropriate and where supporting information is available, this approach may be supported by population models which will explore a range of scenarios to help understand the likely response of populations to potential effects arising from the Proposed Development.

9.8.6 Professional judgement will be used to consider effect significance on each ornithological feature, with effects on species' populations evaluated with reference to an appropriate regional or national spatial unit. Some regional populations may be spatially defined, and effects evaluated with reference to the NatureScot (SNH) Natural Heritage Zones spanning the Site. However, the assessment may define an alternative spatial unit where population data to support the NHZ approach is lacking or where evidence demonstrates that the most biologically appropriate regional population unit does not accord with the scale provided by this NHZ boundary.

9.8.7 The evaluation of effects will consider how the conservation status of each species may be affected by the predicted magnitude and direction of effects arising from the Proposed Development. The maintenance of existing favourable

[64] NatureScot (2018) Environmental Impact Assessment Handbook: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland
[65] CIEEM (2018, Version 1.2 – Updated April 2022) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine

conservation status for affected species, at the appropriate geographic scale, will be a key judgement for evaluating effect significance.

9.8.8 Where appropriate, mitigation measures would be outlined within the EIAR to reduce any adverse impacts. An assessment of residual effects and cumulative effects would then be undertaken and reported within the EIAR.

Cumulative Assessment

9.8.9 The cumulative assessment will consider ornithological features that were subject to a detailed assessment, and where a measurable adverse effect is predicted in isolation. The potential for significant cumulative effects due to habitat loss and disturbance/displacement will be assessed. The assessment will be based on the consideration of residual effects, i.e. assuming that proposed mitigation and compensation measures (where relevant) are implemented. The cumulative assessment will include consideration of:

- Existing developments, either operational or under construction;
- Approved developments, awaiting implementation; and
- Major development applications awaiting determination.

9.9 Issues Scoped Out

9.9.1 The following high-level elements have been scoped out of the detailed ornithological impact assessment as they are not predicted to have significant adverse effects:

- Barrier effects: A barrier effect occurs where an actual or perceived barrier which bird species may not cross, or at the very least would need to habituate to crossing is present. The presence of single or double-storey buildings associated with the Proposed Development would not be recognised as barriers to flight paths. Therefore, this effect is of negligible significance and will be scoped out of detailed assessment.
- Disturbance (Operational phase): Disturbance of birds during the operational phase of the Proposed Development is considered likely to be negligible relative to the home range and foraging requirements of bird species of nature conservation importance.
- Designated sites: Designated sites (in **Table 9.1: Statutory Designated Sites Associated with the Proposed Developmen**t) for which no connectivity of designated features is present will be scoped out. Although the Proposed Development lies within the core foraging range of SPA qualifying features (herring gull), the habitats present within the associated study area are not considered to support foraging opportunities for them.

9.10 Summary

9.10.1 This Scoping Report presents the ornithological baseline of the Proposed Development and an initial assessment of the potential impacts of the Proposed Development has been presented. This has enabled the proposed scope for the EIA to be refined.

9.10.2 Desk study information identified a statutory designated site within 20 km of the Proposed Development. The site has been scoped out since connectivity is not considered to be present given the habitat present within the substation study area and the species' foraging requirements.

9.10.3 Baseline surveys are in progress in in order to provide key, targeted information of the ornithology receptors present to inform the EIA and associated mitigation. There is the potential for protected bird species such as Schedule 1/A1/1A species, Annex I species, species listed as BoCC red-list species as well as Scottish Biodiversity List species to be affected by the Proposed Development.

9.10.4 The EIAR will identify where protected species and their habitats (both during breeding and over-wintering) require to be safeguarded through further pre-construction surveys to inform appropriate mitigation prior to construction. This information can be captured and implemented through a CEMP and the BPP prior to and during construction and audited by an ECoW.

10. HYDROLOGY, HYDROGEOLOGY, GEOLOGY AND SOILS

10.1 Introduction

10.1.1 This chapter presents a preliminary assessment of effects relating to hydrology, hydrogeology, geology, soils[66] and flood risk in relation to the construction and operation of the Proposed Development. Evaluation of the existing baseline environment has been made through a combination of desk-based study, field surveys and consultation.

10.1.2 This chapter has been prepared by Kaya Consulting.

Feedback from Consultation

10.1.3 The May 2023 consultation was undertaken for the initial proposed substation site at Fiddes in Aberdeenshire. Following feedback from the consultation a review of the site selection exercise was undertaken resulting in a change of the proposed substation location to Hurlie in Fetteresso Forest (see **Section 3.7 Consultation**). As such, the majority of feedback from the May 2023 consultation is not relevant to the Hurlie substation. Responses that are relevant are summarised as follows.

10.1.4 SEPA (16/06/2023) expect their Future Flood Maps to be used and climate change included in any flood risk assessment required in accordance with NPF4 Policy 22. SEPA also note that any sources for Private Water Supplies (PWS) should be confirmed and considered in any future assessments. Within the same consultation response SEPA also provide general scoping guidance for large infrastructure projects. SEPA guidance will be followed through the EIA process. Additional, public consultation was undertaken in March 2024 with further public consultation undertaken in June 2024. The feedback from these additional consultations will be considered with relevant points integrated into the design and assessed in the EIA.

10.2 Study Area

10.2.1 The study area for hydrology and hydrogeology comprises the Proposed Development and watercourses and catchments upstream and downstream of the Proposed Development, see **Figure 10.1: Hydrology and Private Water Supply**. The search area for private water supplies comprises a 1 km buffer from the Proposed Development. Existing conditions of the study area are described in **Section 10.4 Baseline Conditions**.

10.3 Approach

Desk-based Study

10.3.1 A desk-based review of Ordnance Survey maps (1:10,000 and 1:25,000 scale), British Geological Survey (BGS) Geology maps (1:50,000 to 1:625,000 scale), Soils Maps of Scotland (1:250,000 scale), SEPA Flood Maps (variable scale) and NatureScot Carbon and Peatland 2016 Map (1:250,000 scale) has been undertaken to identify watercourses and ground conditions within the vicinity of the Proposed Development.

Field Survey

10.3.2 An initial walkover of the Proposed Development area has been undertaken by an experienced hydrologist. The walkover was completed to view the surface water network around the Proposed Development area and to further the understanding of any potential flood risk within the Proposed Development area.

10.3.3 A Phase 1 peat probing survey has been undertaken to ascertain the depths and spatial coverage of peat within part of the Proposed Development area. The peat survey report is provided in **Appendix E.**

[66] Consideration of the classification and use of agricultural soils is presented in **Chapter 4: Land Use**.

10.4 Baseline Conditions

Surface Water Resources

10.4.1 The Proposed Development is within the catchment of two larger watercourses: the Cowie Water to the north and the Carron Water to the south. Within the Proposed Development area there are the sub-catchments of a number of tributaries to both larger watercourses. The Burn of Day flows in an easterly direction through the centre of the Site and then turns north to flow into the Cowie Water. There are several small unnamed watercourses within the northern part of the Site that flow into the Cowie Water. In the southern part of the Site area are parts of the Clerkenwell Burn and Burn of Baulks catchments, both watercourses flow into the Carron Water.

10.4.2 SEPA has characterised surface water quality status under the terms of the Water Framework Directive[67]. Classification by SEPA considers water quality, hydromorphology, biological elements including fish, plant life and invertebrates, and specific pollutants known to be problematic. The classification grades through High, Good, Moderate, Poor, and Bad status. This provides a holistic assessment of ecological health. The watercourses within the Proposed Development area (i.e. the Burn of Day) are too small to be classified. However, downstream of the Proposed Development, the Cowie Water (ID 23254) has a High classification status and the Carron Water (ID 23257) has a Moderate classification status in 2020.

10.4.3 There are no Special Areas of Conservation (SAC) or Sites of Special Scientific Interest (SSSI) downstream of the Site within the catchments of the Cowie Water or Carron Water.

Flood Risk

10.4.4 A review of SEPA Future Flood Maps[68] indicates that there is surface water (pluvial) flooding within the Site, predominantly concentrated around the smaller watercourses within the Site. Typically, the prediction of surface water flooding around the watercourse network occurs when the catchments are smaller than the threshold for SEPA to predict fluvial flooding.

10.4.5 The Proposed Development is not at risk of coastal flooding.

Hydrogeology

10.4.6 According to the British Geological Survey (BGS) 1:625k hydrogeological mapping[69], the Proposed Development is underlain by a low productivity aquifer.

10.4.7 A review of Ordnance Survey 1:10K and 1:25K mapping indicates no wells and groundwater springs within the Proposed Development area.

Water Resources

10.4.8 Aberdeenshire Council has been consulted to obtain further information on Private Water Supplies (PWS) near the Proposed Development. Properties that are known by the councils to be supplied by a PWS are shown in **Figure 10.1: Hydrology and Private Water Supply**. However, Aberdeenshire Council note that PWS records need to be verified, as the local authority databases are generally incomplete and data on source locations may be patchy and based on historical information.

10.4.9 A search area of known PWS within 1 km from the Site has been undertaken which has identified that there is one PWS source present; this is a groundwater spring source which supplies the Clachanshiels property, which is ~60 m north of the Proposal of Application Notice boundary. There are four other properties and the existing Fetteresso Substation that are known to be supplied by PWS within 1 km of the Site, as shown in **Figure 10.1: Hydrology and Private Water Supply**.

[67] SEPA (2022) Water Classification Hub
[68] SEPA (undated) Flood maps
[69] British Geological Survey(2020) Hydrogeology 625K digital hydrogeological map of the UK

10.4.10 SEPA were consulted and provided information on licensed Controlled Activities Regulations (CAR) abstractions within 1 km from the Site. There are no abstractions within the 1 km buffer from the Site.

10.4.11 The Proposed Development is located within a Drinking Water Protected Area (DWPA) for Groundwater (as is the whole of Scotland).

10.4.12 A review of Scotland's Environment Map Drinking Water Protected Areas (Surface Water) indicates that the Proposed Development is not within one.

Geology and Soils

10.4.13 British Geological Survey (BGS) 1:50k Bedrock Geology maps[70] show that the bedrock geology of the Site is predominantly comprised of the Glen Lethnot Grit Formation, a metamorphic psammite bedrock. The BGS mapping data shows some intrusive igneous features within the Proposed Development area.

10.4.14 The BGS 1:50k Superficial Geology maps[71] show that much of the Site has no superficial geology. Within the eastern part of the Site is an area comprised of the Banchory Till Formation (Diamicton) and other sedimentary deposits of glacial origin (clay, sand and gravel). The BGS mapping data shows an area of peat within the northern part of the Site.

10.4.15 A review of National soil map of Scotland[72] shows that soil within the Proposed Development is comprised of Peaty Gleyed Podzols and Humus-iron Podzols soil.

Peat

10.4.16 The NatureScot Carbon and Peatland 2016 map[73] shows the distribution of carbon and peatland classes in Scotland and gives a value to indicate the likely presence of carbon-rich soils, deep peat and priority peatland habitat at a coarse scale. A review of the NatureScot map indicates the following peat classes are found within the Site:

- Class 3 – Dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat. Predominantly peaty soil with some peat soil. Indicative vegetation is peatland with some heath.
- Class 4 – Area unlikely to be associated with peatland habitats or wet and acidic type. Area unlikely to include carbon-rich soils. Predominantly mineral soil with some peat soil. Indicative vegetation is heath with some peatland.
- Class 5 – Soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil. Soils are carbon-rich and deep peat. Peat soil, with no peatland vegetation.

10.4.17 The majority of the Site is comprised of Class 4 with small areas of Class 3 peat and Mineral Soil (Class 0) in the north and a small area of Class 5 peat in the south. The spatial distribution of the NatureScot carbon and peatland classes at the Proposed Development is shown in **Figure 10.2: Carbon Peatland** and **Appendix E: Peat Survey Report**.

10.4.18 The results of the Phase 1 peat survey found only a small, contained area of peat (with peat depths ranging from 0.5 m to 1.3 m) within the Site, concentrated in a valley in the south-eastern part of the Site boundary, **Appendix E: Peat Survey Report**. The majority of the Proposed Development area had probe depths of less than 0.5 m, which is not considered to be peat. Overall, from the combination of peat probe and core data, most of the Proposed Development area is comprised of mineral soils, with peaty material. Although there is some peaty material within these soils, the soil does not appear to be carbon-rich and is shallow.

[70] British Geological Survey (undated) BSG 50K Geology maps
[71] Supra note 64.
[72] Scotland's Soils (part of Scotland's environment) (undated) National soil map of Scotland
[73] NatureScot (2016) Carbon and Peatland Map

10.4.19.

10.5 Sensitive Receptors

10.5.1 The sensitive receptors that will be considered within the EIAR are described below:

- Surface watercourses: The Proposed Development is upstream of an area characterised as having a High surface water quality status under the terms of the Water Framework Directive (WFD). Additionally, surface watercourses as a receptor for downstream flooding.
- Groundwater bodies: The Proposed Development is located within a DWPA for Groundwater (as is the whole of Scotland).
- PWS: There are PWS within the Study Area.
- Groundwater Dependent Terrestrial Ecosystems (GWDTE): Baseline ecology surveys (see Chapter 8) are currently in progress during the 2023 and 2024 survey seasons to provide a more in depth understanding of the habitats present and to map the likely presence and location of GWDTEs within the Proposed Development.
- Localised areas of peat and carbon-rich soils.

10.6 Mitigation

10.6.1 In-line with the hierarchy of mitigation set out in **Section 3.5: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this technical assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 10.7: Likely Significant Effects**.

Embedded Mitigation

10.6.2 As described in **Section 3.5: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of negative, significant effects on the receiving environment and the sensitive receptors therein. The mitigation by design, referred to as 'Embedded Mitigation' in this report, which is relevant to this technical assessment comprises:

- A 50 m buffer will be applied from areas of infrastructure and access tracks, where possible, to all water features, including watercourses, waterbodies and springs to minimise as far as reasonably practicable the risk of potential impacts due to changes in runoff, sedimentation, or water quality.
- All components of the Proposed Development will be kept outwith flood risk areas, where possible.
- Sustainable Drainage Systems (SuDS) will be used to manage surface water runoff effectively within the development to mitigate against the impacts associated with an increase in the impermeable area (such as increased flows and exacerbated flooding downstream).
- Where possible, infrastructure will avoid areas of peat. This reduces the volume of peat required to be excavated (reducing displaced carbon) and limits potential effects on peatland hydrology.
- Where possible, all excavations less than 1 m deep should be located over 100 m away from groundwater abstractions, PWS or GWDTEs as per SEPA Guidance Note 31[74]. Excavations greater than 1 m in depth will where possible be located at least 250 m away from these receptors.

10.6.3 In addition to the siting of infrastructure components out of flood risk areas and the use of appropriate watercourse buffers and given the Applicant's commitment to, and prior experience of, implementing accepted applied mitigation in the form of good practice during construction and operation, and the current regulatory context, many potential significant effects on the water environment can be avoided or reduced. With respect to the current regulatory

[74] SEPA (2017) Land Use Planning System, SEPA Guidance Note 31 (LUPS-31): Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems

context, since the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR) came into force, CAR authorisation may be required in relation to a number of activities e.g., engineering works in inland waters for the proposed access track watercourse crossing. A Construction Site Licence (CSL) will also be required for the works under the CAR Regulations. Activities for which a CAR licence or registration is required will be identified and described in the EIAR.

Applied Mitigation

10.6.4 In addition to the Embedded mitigation, inherent in the design of the Proposed Development, the Applicant is committed to implementation of Applied Mitigation which comprises a suite of SSEN standard management plans and contractor authored documentation, which details general and site-specific measures which will be implemented to avoid or mitigate likely significant effects. See **Section 3.5: Mitigation** and **Appendix D: List of Applied Mitigation Documentation**. The Applied Mitigation considered relevant to this technical assessment assumably draws on but is not limited GEMP TG-NET-ENV-512, TG-NET-ENV-515 and TG-NET-ENV-511 as well as a CEMP including, but is not limited to:

- A flood risk assessment (FRA) will be undertaken and the conclusions presented in the EIAR. Mitigation proposals from the FRA will be included in the CEMP.
- A Drainage Strategy will be prepared to accompany the EIAR, which will provide a sustainable and integrated surface water management scheme for the Proposed Development. The Drainage Strategy will detail how the Proposed Development will maintain or reduce downstream flood risk by managing discharges from the site to the local water environment in a controlled manner. The Drainage Strategy and SuDS design will be developed in consultation with Aberdeenshire Council. Based on the indicative layout at Scoping stage, the detention basin (s) will likely drain attenuated discharge to the Burn of Day (and the Burn of Baulks) restricted to the 2-year greenfield runoff rates.
- In addition to the careful siting of infrastructure components (described above) and given the Applicant's commitment to, and prior experience of, implementing accepted applied mitigation in the form of good practice during construction and operation, and the current regulatory context, many potential significant effects on the water environment can be avoided or reduced. With respect to the current regulatory context, since the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR) came into force, CAR authorisation may be required in relation to a number of activities e.g. engineering works in inland waters for access track watercourse crossings. A Construction Site Licence (CSL) will also be required for the works under the CAR Regulations. Consultation with SEPA throughout the EIA process will be undertaken in relation to those activities for which a CAR licence or registration is required.
- Good practice pollution prevention and control measures will be implemented during construction via the CEMP. These will be embedded into the project design and will reflect best practice guidance and recognised industry standards (e.g. SEPA guidance, including their Guidance for Pollution Prevention (GPPs), CIRIA SUDS Manual[75] and control of water pollution guidance[76] [77], amongst others).
- In addition, SSEN Transmission's General Environmental Management Plan (GEMP), will capture all mitigation measures required in respect of hydrology, water quality and peat, as identified in the EIAR and in order to comply with relevant legislation, which will be implemented during construction and operation of the Proposed Development. The implementation and audit of the measures in the CEMP and GEMP will be overseen by an Environmental / Ecological Clerk of Works (ECoW).

[75] CIRIA (2015) The SUDS Manual (C753)
[76] CIRIA (2001) Control of water pollution from construction sites: Guidance for consultants and contractors (C532)
[77] CIRIA (2006) Control of water pollution from linear construction projects. Site guide (C649)

Summary and Next Steps

10.6.5 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.5 Mitigation** and as described above in relation to this technical assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.

10.6.6 The technical assessment in the EIAR will, therefore, assess the potential for likely significant effects to arise as a result of potential effects which are not addressed by the Embedded or Applied Mitigation considered to date. The proposed scope of which is set out in **Section 10.7: Likely Significant Effects**. This further mitigation, termed 'Additional Mitigation', needed to address these residual effects will be detailed in the EIAR along with Embedded and Applied Mitigation.

10.7 Potential Significant Effects

Potential Significant Effects

10.7.1 Potentially significant effects on the key receptors are considered more likely to occur during the construction phase of the Proposed Development. It is anticipated that the Proposed Development has the potential to cause the following effects:

- Temporary (construction phase) pollution of surface watercourses, waterbodies, groundwater and subsequent impacts on the quality of PWS. There is the potential for increased sedimentation of watercourses / waterbodies / groundwater associated with the ground preparation works and subsequent construction of the substation and access tracks. Additionally, there is potential for chemical pollution such as fuel hydrocarbons and lubricants from construction processes and equipment to impact surface and groundwater sources. The risk is increased should construction take place within a flood risk area.
- Effects during construction and operation on run-off rates and flood risk.
- Effects during construction on yields of PWS abstractions and GWDTEs reliant upon groundwater resources that have subsurface flows or hydraulic connectivity impacted adversely by construction of tower foundations and / or access tracks. If PWS abstractions or GWDTE are identified within 250 m of proposed excavations further assessment will be undertaken to accompany the EIAR to confirm the predicted effects of the proposals on the abstraction or GWDTE and propose additional mitigation measures, if required.
- Potential for loss/disturbance/erosion of peat and carbon-rich soils during construction, although given the small areas of peat within the Proposed Development it is likely that peat can be avoided. The design of the Proposed Development will aim to avoid peat and carbon-rich soils where practicable. Where this is not possible the design will minimise the potential effects on peat through avoiding areas of deeper peat and also implementing suitable mitigation measures, which will be summarised as part of a Peat Management Plan (PMP), if required.

10.7.2 With embedded and applied mitigation in place, as described in **Section 10.6: Mitigation**, there are no likely significant adverse effects predicted on hydrology, water quality and peat during construction and operation of the Proposed Development.

10.7.3 The detailed siting phase will be cognisant of all known site-specific constraints and the Proposed Development design will aim to achieve the buffers required and avoid flood risk and peat areas.

10.7.4 During operation, the presence of areas of permanent hardstanding which comprise the Proposed Development will be mitigated by the application of a permanent drainage strategy and suitably sized SuDS to attenuate flows entering the receiving environment and therefore there are no likely significant adverse effects predicted on hydrology.

10.8 Assessment Scope and Methodology

Proposed Scope of Assessment

10.8.1 The EIAR will include a focussed hydrological and hydrogeological impact assessment. The scope of this assessment will identify potentially significant effect on watercourses, hydrology / flood risk, peat, GWDTEs and PWS abstractions during construction.

Assessment Methodology

10.8.2 A hydrology walkover survey has been undertaken of the Proposed Development area in order to supplement desk-based surveys and data collection to outline the existing baseline conditions. The survey will inform a focussed hydrology assessment that will identify key interactions between the Proposed Development and the water environment.

10.8.3 A site-specific FRA will be undertaken for the Proposed Development. This will include undertaking a walkover assessment of areas identified as floodplain within the SEPA Flood Maps, hydrological analysis and modelling of the Burn of Day to predict the flood risk areas within the Site. A drainage strategy will also be prepared for the Proposed Development and will accompany the EIAR.

10.8.4 Walkover surveys at potentially sensitive and identified hydrogeological sites of interest including potential GWDTEs and PWS abstraction points will be undertaken drawing where relevant on ecology National Vegetation Classification (NVC) survey results and available PWS data including information from Aberdeenshire Council, supplemented by surveys are / or questionnaires to locate the PWS source locations. GWDTEs will be identified based on habitat mapping by ecologists and reviewed by hydrologists in the field. Where GWDTEs, groundwater abstractions and / or PWS are identified within 250 m of the Proposed Development or 100 m from access tracks, a technical report will be prepared to accompany the chapter. This report would outline the potential risk and demonstrate how the risk can be mitigated against in accordance with SEPA Guidance Note 31.

10.8.5 As evident from the Phase 1 peat survey, the vast majority of the Proposed Development is not underlain by peat. However, more detailed peat depth surveys will be carried out at localised areas within the Proposed Development where the results of the Phase 1 peat depth survey indicate that peat could be present (i.e. probe depths >0.5 m) if these areas cannot be fully avoided during design. Based on the Scoping layout, it is considered that peat can be avoided. Any additional peat probing will be undertaken in line with good practice guidance and relevant methodologies[78]. The effects on peat will be assessed and mitigation will be included to avoid the potential for significant adverse effects on soils including peat.

10.9 Issues Scoped Out

10.9.1 The following effects are proposed to be scoped out of the assessment:

- Potential adverse effects on bedrock geology during construction and operation. There are no highly sensitive geological receptors such as geological SSSIs or highly productive underlying aquifers within the Proposed Development area. Any excavation for the Proposed Development will be localised with no significant adverse effects on bedrock geology predicted.
- Potential adverse effects on surface water quality, PWS, groundwater abstractions and GWDTE during operation.

10.10 Summary

10.10.1 It is proposed that a focused hydrological and hydrogeological impact assessment is provided. Technical reports will be provided to inform the design (embedded mitigation) and applied mitigation and to meet the requirements of the

[78] Scottish Government, Scottish Natural Heritage, SEPA (2017) Peatland Survey – Guidance on Developments on Peatland

statutory consultees with regards to Flood Risk Assessment, Drainage Strategy, Watercourse Crossing Assessment, GWDTE Assessment and PWS Assessment.

10.10.2 It is anticipated that with embedded and applied mitigation most, if not all, of the effects on hydrology, hydrogeology and peat can be minimised such that residual effects will be of minor to negligible significance. The main effects are predicted to be restricted to the construction phase.

11. TRAFFIC AND TRANSPORT

11.1 Introduction

11.1.1 This chapter sets out the proposed approach to the assessment of the potential effects on traffic and transport in relation to the construction phase of the Proposed Development. Traffic associated with the operation of the Proposed Development is predicted to be negligible and is therefore not proposed to be included within the EIA process.

11.1.2 The assessment will be undertaken by Pell Frischmann.

Feedback from Consultation

11.1.3 The May 2023 consultation was undertaken for the initial proposed substation site at Fiddes in Aberdeenshire. Following feedback from the consultation a review of the site selection exercise was undertaken resulting in a change of the proposed substation location to Hurlie in Fetteresso Forest (see **Section 3.7: Consultation**). As such, the majority of feedback from the May 2023 consultation is not relevant to the Hurlie substation. Additional, public consultation was undertaken in March 2024 with further public consultation undertaken in June 2024. The feedback from these additional consultations will be considered with relevant points integrated into the design and assessed in the EIA.

11.2 Study Area

11.2.1 The Study Area includes local roads that are likely to experience increased traffic flows associated with the Proposed Development (see **Figure 11.1: Transport Network**). The geographic scope was determined through a review of Ordnance Survey (OS) plans and an assessment of the potential origin locations of construction staff and supply locations for construction materials.

11.2.2 The Proposed Development would be accessed from the A957 Slug Road at the Mid Hill Wind Farm access junction. Access would continue via existing private access tracks leading to the existing Fetteresso Substation (see **Figure 11.2: Haul Routes**).

11.2.3 The extents of the study area will include:

- The A90 between the Dunotter junction and A92 junction;
- The A90 Fastlink between the A92 junction and Cleanhill Roundabout; and
- The A957 Slug Road between the A90 and the site access junction.

11.3 Approach

11.3.1 The following policy and guidance documents have been used to inform the traffic and transport chapter:

- Transport Assessment Guidance (Transport Scotland, 2012)[79]; and
- Environmental Assessment of Traffic and Movement (Institute of Environmental Management & Assessment (IEMA), 2023)[80].

11.3.2 A Transport Assessment (TA) will be provided to review the impact of transport related matters associated with the Proposed Development. This will be appended to the Environmental Impact Assessment Report (EIAR) and will be summarised into a Transport & Access chapter within the EIAR.

11.3.3 It is not anticipated that a formal, detailed TA will be required as these are not generally considered necessary for temporary construction works. A reduced scope TA will therefore be provided in a format that is more suited to a development of this nature.

[79] Transport Scotland (2012) Transport Assessment Guidance
[80] Institute of Environmental Management & Assessment (IEMA) (2023) Environmental Assessment of Traffic and Movement

11.3.4 An appropriate access junction will be provided to cater for general construction traffic, abnormal loads deliveries and ongoing operational access to the Proposed Development. The junction will be described in the transport submissions and an indicative layout plan of the junction will be provided.

11.3.5 Abnormal Indivisible Loads (AIL) associated with the Proposed Development will be examined in a Route Survey Report (RSR) that will be appended to the EIAR. Swept path assessments and traffic management requirements necessary for the safe and efficient delivery of the loads will be detailed in the RSR.

11.4 Baseline Conditions

11.4.1 With the exception of the A90 and A92, all roads within the study area are operated and maintained by Aberdeenshire Council (AC). The A90 and A92 are part of the trunk road network and are maintained on behalf of Scottish Ministers by Transport Scotland (TS) and their maintenance agents.

11.4.2 The A90 is dual carriageway and is capable of accommodating abnormal load and Heavy Goods Vehicle (HGV) traffic. The road has been previously used for the transport of abnormal loads associated with the nearby Midhill Wind Farm.

11.4.3 The A90 provides strategic links from Perth and Dundee and joins the Aberdeen Western Peripheral Road (AWPR) to the north of Stonehaven. The AWPR, provides strategic links around Aberdeen and connects to the A96 to Elgin and Inverness.

11.4.4 The A92 also forms part of the trunk road network. The road is capable of accommodating abnormal loads and HGV traffic and provides strategic links into Aberdeen from the south.

11.4.5 The A957 Slug Road provides local connections between Crathes, Banchory and Stonehaven. The road is a two lanes local distributor road and is suitable for HGV traffic. The Agreed Route Map for Timber Traffic, notes that the road is an “Agreed Route”, i.e. a route that is available for haulage without restriction.

11.4.6 The A957 Slug Road is accessed from the A90 via local streets located within Stonehaven. Works at Mains of Ury as part of a new development area may provide improved access to and from the A90.

11.4.7 None of the roads within the study area form part of the Sustrans National Cycle Network and none function as Core Paths.

11.5 Sensitive Receptors

11.5.1 Sensitive receptors include the following:

- Potential impacts (of changes in traffic flows) on local roads and the users of those roads; and
- Potential impacts (of changes in traffic flows) on land uses and environmental resources fronting these roads, including the relevant occupiers and users.

11.5.2 The main transport impacts will be associated with the movement of general construction and HGV traffic travelling to and from the Proposed Development during the construction phase of the Proposed Development.

11.6 Mitigation

11.6.1 In-line with the hierarchy of mitigation set out in **Section 3.5: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this technical assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 11.7: Likely Significant Effects**.

Embedded Mitigation

11.6.2 As described in **Section 3.5: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of negative, significant effects on the receiving environment and the sensitive receptors therein. The mitigation by design, referred to as 'Embedded Mitigation' in this report, which is relevant to this technical assessment comprises:

- The design process has sought to reduce the volume of material needed to be imported to Site, thus reducing the number of vehicle movements.

Applied Mitigation

11.6.3 In addition to the Embedded Mitigation, inherent in the design of the Proposed Development, the Applicant is committed to implementation of Applied Mitigation which comprises a suite of SSEN standard management plans and contractor authored documentation, which details general and site-specific measures which will be implemented to avoid or mitigate likely significant effects. See **Section 3.5: Mitigation** and **Appendix D: List of Applied Mitigation Documentation**. The Applied Mitigation considered relevant to this technical assessment, draws on but is not limited GEMP TG-NET-ENV-516 and TG-NET-ENV-520 as well as a CEMP. These include, but is not limited to:

- All movement of waste should be undertaken in line with the relevant waste regulations; and
- Vehicles to comply with dust management requirements.

Summary and Next Steps

11.6.4 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.5 Mitigation** and as described above in relation to this technical assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.

11.6.5 The technical assessment in the EIAR will, therefore, assess the potential for likely significant effects to arise as a result of potential effects which are not addressed by the Embedded or Applied Mitigation considered to date. The proposed scope of which is set out in **Section 11.7: Likely Significant Effects**. This further mitigation, termed 'Additional Mitigation', needed to address these residual effects will be detailed in the EIAR along with Embedded and Applied Mitigation.

11.7 Potential Significant Effects

11.7.1 Potential impacts that may arise during the assessment may include the following for users of the road and those residents within the study area:

- Severance;
- Driver delay;
- Pedestrian delay;
- Non-motorised user amenity;
- Fear and intimidation;
- Road safety;
- Road safety audits; and
- Large loads.

11.7.2 The impacts on receptors within the study area will be reviewed during the construction phase, with a peak construction period assessment undertaken. This will review the maximum impact and presents a robust assessment of the effects of construction traffic on the local and trunk road networks.

11.7.3 The effects that will be considered will be based upon percentage increases in traffic flow and reviewed against the impacts noted above.

11.8 Assessment Scope and Methodology

11.8.1 The assessment will consider the potential effects associated with construction traffic across the Study Area. Traffic effects will be considered based upon a peak traffic flow derived from the Proposed Developments' construction programme to provide a robust assessment. The percentage increase in traffic over the future baseline traffic flows will be used to determine the likely impact.

11.8.2 The assessment is based on the likely effects of Heavy Goods Vehicles (HGV), delivery vehicles and private car movements during the construction of the Proposed Development.

11.8.3 The traffic and transport chapter of the EIAR will:

- Consider potential disruption to all existing road users during the construction phase;
- Assess likely changes to local road traffic flows during the construction phase; and
- Assess the effect of the changes on the transport network and the level of significance of any effects established.

11.8.4 Where effects are considered significant for each of the potential effects noted in **Section 11.6 Mitigation**, additional mitigation will be considered. The assessment will consider residents and road users across the study area.

11.8.5 The following rules taken from the IEMA guidance would be used as a screening process to define the scale and extent of the assessment:

- Rule 1 – Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles (HGV) will increase by more than 30%); and
- Rule 2 – Include highway links of high sensitivity where traffic flows have increased by 10% or more.

11.8.6 Increases below these thresholds are generally considered to be insignificant given that daily variations in background traffic flow may fluctuate by this amount. Changes in traffic flow below this level predicted as a consequence of the Proposed Development will therefore be assumed to result in no significant environmental impact and as such no further consideration will be given to the associated environment effects.

11.8.7 In order to forecast future year traffic flows it is proposed that low growth National Road Traffic Forecasts (NRTF) are used.

11.8.8 The estimated traffic generation for the construction of the Proposed Development will be compared with future baseline traffic flows, obtained from existing traffic survey data, in order to determine the percentage increase in traffic.

11.8.9 The impacts on receptors within the Study Area will be reviewed during the construction phase, with a peak construction period assessment undertaken. This will review the maximum impact and presents a robust assessment of the effects of construction traffic on the local and trunk road networks.

11.8.10 The impacts for road users (pedestrians, cyclists, equestrians and drivers) and those living along the links within the study area will be considered during the construction phase. The assessment would be based on the worst-case traffic flows at the peak of construction activity.

11.8.11 No road junction capacity assessments will be undertaken as the likely scale of the temporary construction phase will not result in junction capacities being exceeded.

11.8.12 The requirement for cumulative assessment will be considered with reference to other significant planned development proposals where a proposed development has planning consent and would have a significant impact on the study network (i.e. over 30% increase in traffic flows). These traffic flows would be included into the future baseline flows used within the assessment.

11.8.13 Planning proposals that are in scoping but do not have planning consent are not considered committed developments in terms of traffic and transport and as such would not be included in the assessment. The only exception would be

the associated developments relating to the proposed new Overhead Transmission Lines (OHL) of the Overall Project. Whilst these are the subject of separate planning applications, they are associated developments and as such will be included in the assessment.

11.8.14 Potentially significant environmental effects will then be assessed where the thresholds as defined above are exceeded. Suitable mitigation measures will be proposed, where required.

11.9 Issues Scoped Out

11.9.1 Once operational, it is envisaged that the level of traffic associated with the Proposed Development would be minimal. Regular maintenance visits would be made to the Proposed Development typically using Light Goods Vehicles (LGV) or 4 x 4 vehicles. It is considered that the effects of operational traffic would be negligible and therefore no detailed transportation assessment of the operational phase of the development is proposed.

11.9.2 There are no plans for decommissioning, however, traffic generation levels associated with a decommissioning phase are predicted to be less than those associated with the development phase as some elements such as access tracks to be retained by landowners would be left in place. As such, the construction phase is considered the worst-case assessment to review the impact on the Study Area. An assessment of the decommissioning phase would therefore not be undertaken, although a commitment to reviewing the impact of this phase would be made immediately prior to decommissioning works proceeding.

11.10 Summary

11.10.1 The access, traffic and transport issues relating to the construction phase will be examined in detail. The Transport & Access chapter will be accompanied by a Transport Assessment which will review the impact of the Proposed Development's construction traffic on the proposed study area.

12. NOISE AND VIBRATION

12.1 Introduction

12.1.1 This chapter provides an overview of the noise and vibration baseline conditions, the potential effects associated with the construction and operation of the Proposed Development and the proposed scope of assessment methodology to be considered in the EIAR.

12.1.2 This chapter was prepared by Wood Plc.

Feedback from Consultation

12.1.3 The May 2023 consultation was undertaken for the initial proposed substation site at Fiddes in Aberdeenshire. Following feedback from the consultation a review of the site selection exercise was undertaken resulting in a change of the proposed substation location to Hurlie in Fetteresso Forest (see **Section 3.7 Consultation**). As such, the majority of feedback from the May 2023 consultation is not relevant to the Hurlie substation. Additional, public consultation was undertaken in March 2024 with further public consultation undertaken in June 2024. The feedback from these additional consultations will be considered with relevant points integrated into the design and assessed in the EIA.

12.2 Study Area

12.2.1 Most of the study area is located within the Mounth range of the Grampian Mountains, in Aberdeenshire. The study area extends across a varying landscape of commercial forestry at Fetteresso Forest, and open agricultural fields on the lower-lying land to the south of the Site, and along the A957 to the north of the Site. The landform of the study area generally consists of low rolling hills, with a maximum elevation of 321 m AOD at the summit of Hill of Trusta to the west of the Site. The highest landform is within the Fetteresso Forest area and forms a forested ridgeline and a backdrop to the lower-lying landscape to the north and south of these hills. Landcover within the study area is characterised by forestry across the higher hills (within Fetteresso Forest) and use for arable and pasture across the lower-lying rolling hills to the north and south of the forest. The pattern of the lower-lying rolling hills is defined by small to medium scale arable and pastoral fields. Areas of native woodland, shelterbelts and trees are also present, particularly near Cowie Water in the north, and Carron Water in the south.

12.2.2 The central and western part of the study area comprising Fetteresso Forest does not feature any properties, however scattered properties are found throughout the rest of the study area to the north and south of the Site. These properties tend to be focussed along the minor road connecting Auchenblae with Stonehaven to the south of the site, and along the A957 to the north of the Site. The closest properties to the Site include two at Clachanshiels approximately 50 m to the north of the Site, Whitehall approximately 250 m to the northeast, and two properties at Upper Baulk approximately 250 m to the southeast of the Site. The dispersed settlement of Rickarton is approximately 1.5 km to the northeast of the Site.

12.2.3 An existing 275 kV overhead line runs along the western boundary of the Site and connects into Fetteresso Substation located adjacent to the south-western boundary of the Site, within Fetteresso Forest. An additional 275 kV overhead line runs in a north-south direction approximately 2 km to the east of the Site.

12.2.4 All properties within approximately 1.5 km of the nominal centre of the Proposed Development will be considered. A qualitative assessment of the closest receptors along access and haul routes will be performed on the basis that if the chosen properties meet noise criteria, then any property at greater distances will also pass the criteria.

12.2.5 The new 400 kV OHL will access the substation from the north-west and south-west. Receptors vulnerable to construction traffic noise and vibration will likely exist along the proposed main access routes, likely from the south. No assessment of the impact of noise and vibration for receptors has been undertaken to date.

12.3 Approach

12.3.1 The approach of the noise and vibration impact assessment will comprise the following.

Consultation and Screening

12.3.2 Initial consultation with Aberdeenshire Council's Environmental Health Officer (EHO) to establish noise limits and criteria, agreement on methodology, and agreement of noise sensitive receptors and base noise measurement locations.

12.3.3 Desk based screening assessment using conservative project data to establish potential impact zones.

Field Survey

12.3.4 A baseline noise survey will be conducted as detailed in **Section 12.4: Baseline Conditions**. This will define the pre-existing noise levels on site and at noise sensitive receptors (NSRs).

Detailed Desk-Based Study

12.3.5 A detailed desk-based assessment will follow the methodology outlined in **Section 12.8: Assessment Scope and Methodology**. The assessment will be primarily based on BS5228 for construction noise and BS4142 for operational noise and will comply with the standards set out in these as a minimum, including a cumulative noise impact assessment, determination of the requirement of mitigation of noise and vibration limits are predicted to be exceeded; and the determination of residual noise and vibration impact.

12.4 Baseline Conditions

12.4.1 The Proposed Development is located within a predominantly rural area and hosts existing electricity transmission infrastructure. No specific baseline noise measurements have been conducted to date regarding the Proposed Development.

12.4.2 A survey of the background (LA90,T) ambient noise (LAeq,T), and 1/3rd octave band spectrum levels was conducted to determine the existing noise level in the area and at any nearby noise sensitive receptors (NSRs) likely to be affected by the noise in accordance with BS4142. To ensure that values were reliable and representative of the outdoor amenity of NSRs, a minimum of one week of continuous background monitoring was conducted.

12.4.3 As the survey is based on long-term unattended measurements, a meteorological station was also set up in the area to monitor for appropriate weather conditions. Meteorological conditions such as wind and rain affect background noise (BGN) conditions and have possible effects on noise propagation. Measurements were taken every 15 minutes to coincide with the measured noise data.

12.4.4 Detailed ordinance survey maps and satellite imagery will be used to identify the potential NSRs. Receptors chosen will be representative of the closest residential properties surrounding the Proposed Development, and measurement locations will be agreed with the EHO prior to measurement.

12.5 Sensitive Receptors

12.5.1 NSRs are defined in the context of this assessment as residential properties located within 1.5 km of a nominal centre of the Proposed Development, which is a typical distance beyond which the noise impact of the Proposed Development is deemed unlikely. There will be the potential for cumulative impacts from the interaction of the substation noise, and OHL noise.

12.5.2 Where properties lie in groups rather than alone, one location may be chosen as being representative of several properties that are acoustically similar in nature. The noise assessment conducted for these properties will be based on the predicted highest (worst case) noise impact from the Proposed Development, and therefore if the chosen properties meet noise criteria, then any property at greater distances will also pass the criteria. The noise assessment conducted for these properties will have the highest noise impact from the Proposed Development, and

therefore if the chosen properties meet noise criteria, then any property at greater distances will also pass the criteria. Relevant NSRs associated with cumulative developments will be appropriately selected and assessed.

12.6 Mitigation

12.6.1 In-line with the hierarchy of mitigation set out in **Section 3.5: Mitigation**, the following section describes the Embedded and Applied Mitigation which is considered relevant to the Proposed Development in the context of this technical assessment. The mitigation outlined below has been considered and applied when determining the potential for likely significant effects arising from the construction and operation of the Proposed Development as described in **Section 12.7: Likely Significant Effects**.

Embedded Mitigation

12.6.2 As described in **Section 3.5: Mitigation**, the design evolution for the Proposed Development has included changes which result in a reduced likelihood of negative, significant effects on the receiving environment and the sensitive receptors therein. The mitigation by design, referred to as 'Embedded Mitigation' in this report, which is relevant to this technical assessment comprises:

- The optioneering for the Proposed Development helped select candidate sites with limited potential for interaction with NSRs;
- Micrositing was used to further reduce the potential for effects on NSRs;

Applied Mitigation

12.6.3 In addition to the Embedded Mitigation, inherent in the design of the Proposed Development, the Applicant is committed to implementation of Applied Mitigation which comprises a suite of SSEN standard management plans and contractor authored documentation, which details general and site-specific measures which will be implemented to avoid or mitigate likely significant effects. See **Section 3.5: Mitigation** and **Appendix D: List of Applied Mitigation Documentation**. The Applied Mitigation considered relevant to this technical assessment will comprise a CEMP and Construction Noise Management Plan (CNMP) which includes, but is not limited to:

- Minimising the noise as much as is reasonably practicable at source;
- Attenuation of noise propagation through enclosing noise generating infrastructure;
- Carrying out identified high noise level activities at a time when they are least likely to cause a nuisance to residents;
- Providing advance notice of unavoidable periods of high noise levels to residents;
- 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 daytime hours only. Care should be taken to minimise noise while unloading delivery vehicles;
- 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;
- Working typically will not take place outside of hours defined in the construction schedule;
- 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;
- Provide lined acoustic enclosures for equipment such as static generators and when applicable portable generators, compressors and pumps;
- In setting working hours, consideration is given to the fact that the level of noise through the normal working day is more easily tolerated than during the evening and night-time; and
- Avoiding undertaking noisy activities at the weekends or outside of daytime defined hours as necessary.

Summary and Next Steps

12.6.4 The Applicant is committed to delivering both Embedded and Applied Mitigation as set out in **Section 3.5 Mitigation** and as described above in relation to this technical assessment. The mitigation described above has been applied when considering the potential for the Proposed Development to result in likely significant effects.

12.6.5 The technical assessment in the EIAR will, therefore, assess the potential for likely significant effects to arise as a result of potential effects which are not addressed by the Embedded or Applied Mitigation considered to date. The proposed scope of which is set out in **Section 12.7: Likely Significant Effects**. This further mitigation, termed 'Additional Mitigation', needed to address these residual effects will be detailed in the EIAR along with Embedded and Applied Mitigation.

12.7 Potential Significant Effects

12.7.1 At this preliminary stage, it is anticipated that possible effects associated with construction and operation of the Proposed Development include:

- Noise and vibration during the construction phase;
- Operational effects of noise from the substation including, but not limited to, transformers, reactors, capacitors, cooling, and air handling units;
- Operational effects of noise from the overhead line as intra-project cumulatives (the operational noise has the potential to increase following installation of the new conductors and in the increased operational voltage of the OHL); and
- Operational effects of noise from the 'corona discharge' during damp weather along the OHL.

Construction Noise and Vibration

12.7.2 There is the potential for construction noise impacts from static, quasi static and mobile plant items including:

- Potential for crushing or blasting of rock;
- Potential for peat removal and/or rotary piling during the construction of foundations;
- Excavators, delivery of materials with lorries/dumper trucks, delivery and pumping of concrete;
- Installation of electrical infrastructure equipment; and
- Installation of and stringing of electricity towers, potentially including the use of cranes.

Operational Noise

12.7.3 Transformers and other electrical equipment associated with substation developments emit noise at frequencies of twice the normal operating current frequency due to magnetostriction of the transformer core. In the UK the supply current frequency is 50 Hertz (Hz), which results in 100 Hz and harmonics thereof being produced by the transformer. The nature of the noise generation mechanism results in tonal noise being emitted. The noise is continuous and consistent depending on the electrical load of the equipment, and therefore is not expected to have any impulsive characteristics.

12.7.4 Aeolian noise is caused by wind blowing through the OHL conductors and/or structures. This type of noise is usually infrequent and depends on wind velocity and direction. Aeolian noise is caused by wind blowing over a structure resulting in vibration that matches that 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.

12.8 Assessment Scope and Methodology

12.8.1 The Proposed Development and methodology of assessment will be agreed with the Aberdeenshire Council EHO, to confirm that the following methodology of assessment is appropriate.

Construction Noise and Vibration

12.8.2 The assessment of construction noise will comply with the following standards and guidance:

- British Standard 5228-1/2:2009 + A1:2014 (BS5228), Code of Practice for Noise and Vibration Control on Construction and Open Sites; and
- Guidance on the prediction and assessment of noise and vibration from construction sites is provided in British Standard 5228 2009 + A1:2014 (BS5228), Code of Practice for Noise and Vibration Control on Construction and Open Sites.

Part 1: Noise (BS5228-1)

12.8.3 Part 1: Noise (BS5228-1) provides recommended limits for noise from construction sites.

12.8.4 The construction noise impact assessment (CNIA) would be carried out according to the ABC method specified in Table E.1 of BS5228-1, in which noise sensitive receptors (NSRs) are classified in categories A, B or C according to their measured or estimated background noise level.

12.8.5 .

Part 2: Vibration (BS5228-2)

12.8.6 Part 2: Vibration (BS5228-2) provides recommended limits for vibration from construction sites.

12.8.7 The construction vibration impact assessment (CVIA) will be carried out against the guidance on effects of vibration levels specified in Table B.1 of BS5228-2. 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.

12.8.8 Construction activities that induce vibration are likely to be limited to potential piling activities.

12.8.9 Potential of heavy goods vehicle (HGV) vibration on receptors along haul roads will be predicted using the procedures in Transport and Road Research Laboratory (TRL) Research Report 246 – Traffic Induced Vibrations in Buildings.

Operational Noise – Substations

12.8.10 The assessment of operational noise will comply with the following standards and guidance.

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

12.8.11 Published in March 2011[81], this document provides advice on the role of the planning system in helping to prevent and limit adverse effects of noise (Scottish Government, 2011). 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.

[81] Scottish Government (2011) Planning Advice Note, PAN1/2011, Planning and Noise

12.8.12 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 BS4142:1997: Method for rating industrial noise affecting mixed residential and industrial areas. This British Standard has been replaced with BS4142:2014: Methods for rating and assessing industrial and commercial sound.

British Standard 4142:2014 + A1:2019: Methods for rating and assessing industrial and commercial sound (BS4142)

12.8.13 British Standard 4142[82] 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.

12.8.14 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.

12.8.15 In accordance with the assessment methodology, the specific sound level (LAeq,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" (Lar,Tr).The British Standard effectively compares and rates the difference between the rating level and the typical background sound level (LA90,T) in the absence of the noise source being assessed.

12.8.16 The British Standard 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.

12.8.17 Comparing the rating level with the background sound level, BS4142 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."*

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

12.8.18 The National Grid has derived a procedure[83] to assess the impact of OHL noise in both dry and rainy conditions. The guidance of the BS4142: 2014 can also be used to assess the impact of the noise from a specific industrial source at NSRs.

12.8.19 The procedure requires a series of assessments are conducted in tiers. Tier 3 requires that the background noise (BGN) at NSRs within a set distance from the OHL (usually 200 m) 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 BGN of the surface noise attributable to the rainfall can be derived from empirically derived curves

[82] British Standards Institute (2014) BS4142:2014 – Methods for Rating and Assessing Industrial and Commercial Sound
[83] National Grid (2021) Technical Guidance Note Report No. TGN(E)322 – Operational Audible Noise Assessment for Overhead Lines

(Miller curves). 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.

12.8.20 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 minimized 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 BGN levels at NSRs, or groups of such NSRs, within at least 280 m of the centreline of the OHL 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.

Noise Rating Curves and BS8233:2014

12.8.21 The Noise Rating (NR) curve is developed by the International Organization for Standardization (ISO 1973) to determine the acceptable indoor environment for hearing preservation, speech communication and annoyance.

12.8.22 The noise rating graphs for different sound pressure levels are plotted as acceptable sound pressure levels at different frequencies. Acceptable sound pressure level varies with the room and the use of it. Different curves are obtained for each type of use. Each curve is referenced by a NR number (see **Table 12.1: Noise Rating**).

Table 12.1: Noise Rating

Noise Rating	Application
NR 20	Quite rural area (council defined) for protection of amenity.
NR 25	Concert halls, broadcasting and recording studios, churches.
NR 30	Private dwellings, hospitals, theatres, cinemas, conference rooms.
NR 35	Libraries, museums, court rooms, schools, hospitals operating theatres and wards, flats, hotels, executive offices.
NR 40	Halls, corridors, cloakrooms, restaurants, night clubs, offices, shops.
NR 45	Department stores, supermarkets, canteens, general offices.
NR 50	Typing pools, offices with business machines.
NR 60	Light engineering works.
NR 70	Foundries, heavy engineering works.

12.8.23 British Standard 8233:2014: Guidance on sound insulation and noise reduction for buildings provides guidance for the control of noise in and around buildings. The guidance provided within the document is applicable to the design of new buildings, or refurbished buildings undergoing a change of use, but does not provide guidance on assessing the effects of changes in the external noise levels to occupants of an existing building.

12.8.24 The guidance provided includes appropriate internal and external noise level criteria which are applicable to dwellings exposed to steady-state external noise sources. It is stated in the British Standard that it is desirable for internal

ambient noise level not to exceed the criteria set out **Table 12.2: Summary of Internal Ambient Noise Level Criteria for Dwellings from with BS8233:2014**).

Table 12.2: Summary of Internal Ambient Noise Level Criteria for Dwellings from BS8233:2014

Activity	Location	Period	
		07:00 to 23:00 Hours, i.e. Daytime	23:00 to 07:00 Hours, i.e. Night-time
Resting	Living Room	35 dB LAeq,16 hour	-
Dining	Dining Room/Area	40 dB LAeq,16 hour	-
Sleeping (daytime resting)	Bedroom	35 dB LAeq,16 hour	30 dB LAeq,8 hour

Cumulative Noise

12.8.25 Consideration would also be given to the potential for cumulative effects, where the assessment would describe the additional effect associated with the Proposed Development, when considered in combination with other reasonably foreseeable projects of a similar type (where sources can be categorised as the same type and therefore assessed to the same methodology e.g. industrial noise source levels can be combined to a single received noise level and assessed to BS4142 methodology).

12.8.26 If significant impacts are predicted due to cumulative impacts, mitigation will be considered, as appropriate. If assets of cumulative projects are owned by the Applicant, a combined approach to mitigation will be applied to meet noise limits. If cumulative assets are owned by a third party, it is to be assumed that those assets are able to operate up to their defined noise limits, and therefore mitigation must be applied to solely to Applicant assets.

12.9 Issues Scoped Out

12.9.1 There are no known vibrational noise issues associated with the operation of the Proposed Development at nearby NSRs. Therefore, it is proposed that operational vibration is scoped out of the EIA assessment.

12.10 Summary

12.10.1 The above sections outline the scope and methodology during the EIA with regards to Noise and Vibration. Any potential impacts likely to have a significant effect on the NSRs with respect to operational noise and construction noise of the Proposed Development, will be evaluated within the EIAR.

12.10.2 Mitigation measures will be proposed, where required, for likely significant effects.

12.10.3 Noise limits (in line with best practice guidance) will be agreed with the EHO. Appropriate mitigation measures will be implemented to ensure these limits will be met and that the noise impact of the Proposed Development is low.

13. CUMULATIVE EFFECTS

13.1 Introduction

13.1.1 This Chapter explains the classification of cumulative effects for the EIA, sets out the proposed approach to identifying other development proposals in the cumulative effects assessment, and provides an outline scope of the anticipated cumulative effects assessment including the approach to identifying, mitigating and assessing impacts for the construction and operation of the Proposed Development.

13.1.2 The approach follows an assessment of two types of cumulative effect:

- In-combination effects (sometimes known as inter-project effects) which relates to the cumulation of impacts from the Proposed Development with other reasonably foreseeable development projects; and
- Interactive effects (also known as intra-project effects) which considers the effects from different impact types of the Proposed Development on key receptors such as communities, designated areas or ecosystems.

13.1.3 The in-combination assessment will take into account the potential for significant effects of the Proposed Development with the connection for the proposed Kintore to Tealing 400 kV OHL in order to provide an assessment of the Overall Project as far as it is relevant to the EIA for the proposed substation. The assessment will also consider the potential for further significant cumulative effects of the Overall Project with other development proposals in proximity to the Proposed Development including those associated with projects being planned by SSEN Transmission which will require upgrading and redirection of existing OHLs in the vicinity of Fetteresso Substation and the proposed Hurlie substation (see **Section 13.3: Developments for Cumulative Effects Assessment**).

13.2 Study Area

In-combination Cumulative Effects

13.2.1 An initial study area of 10 km from the Site was defined for the in-combination effects considered assessment through review of the likely zones of influence of the Proposed Development in relation to key sensitive receptors and the likely significant effects of the proposals for each topic-specific assessment. This study area is considered to be a maximum zone of influence based on the indicative study areas for potential effects on designated ecological sites, in particular those for potential effects on qualifying bird species for Special Protection Areas (SPAs)[84]. The reasonably foreseeable development proposals identified in planning and those proposals reasonably known to the Applicant within this initial study area are identified in **Table 13.1: Major Developments with Planning Applications and Consents** and **13.2: Developments Foreseeable to the Applicant**. This study area was refined on the basis of the likely significant cumulative effects identified in the preceding technical chapters.

13.2.2 A revised study area of 3 km is proposed for assessment in the EIAR following review of the initial study area. This is in-line with the study area for the ZTV and is considered to encapsulate the majority of study areas for other technical disciplines and takes account of the nature of both the Proposed Development and the receiving environment. More expansive study areas associated with some technical chapters were not adopted due to the specialised nature of those study area and the anticipated attenuation of in-combination effects as distance increases from the Site.

[84] The ornithological assessment study area extends to up to 20 km in relation to SPAs however it is anticipated that the potential for cumulative effects would diminish with distance from the receptor SPA(s) and the Proposed Development is not located closer than 8 km to any of the potentially affected sites. The requirement to consider other cumulative developments up to 20 km from the relevant SPAs will be addressed in a staged approach drawing on developing appraisal of the ornithological effects of the Proposed Development and any required HRA work. At the EIA stage the reasonably foreseeable developments to be included in the cumulative assessment for ornithology will address this issue further and all projects scoped into the cumulative assessment will be captured within the EIAR's ornithological assessment. A pragmatic approach has therefore been taken at the EIA scoping stage to definition of a study area to inform collation of a long list of potential reasonably foreseeable projects to a maximum radius from the site of 10 km. This is supported by recent consultation feedback from NatureScot which indicates they consider there would not be likely significant effects on any SPAs from the Proposed Development.

Interactive Cumulative Effects

13.2.3 Given the nature of the Proposed Development and Overall Project and the receiving environment it is anticipated that interactive cumulative effects will have a smaller, bespoke, study area which will comprise only receptors with potential direct pathways for multiple effects arising from the Overall Project. As the EIA progresses, further detail on the emerging predicted environmental effects of the proposals will allow for identification of key common receptors which may be sensitive to intra-project effects and the cumulative assessment will define these receptors therefore a fixed study area cannot be defined at this scoping stage.

13.3 Approach

In-combination Cumulative Effects

13.3.1 Consideration will be given to predicted cumulative environmental effects, which have the potential to arise from the effects associated with the Proposed Development and Overall Project when considered in addition to and in combination with other reasonably foreseeable development proposals. The potential for cumulative effects will be considered in relation to an agreed schedule of reasonably foreseeable developments. The criteria which are proposed to be used to inform selection of these developments will include:

- Development proposals of more than local scale (ie national or major development) located within 3 km[85] of the Proposed Development; and/or
- Development proposals of local scale where EIA is required, or where there is considered to be potential for significant effects on key receptors, and which are located within 2 km of the Proposed Development; and
- Where planning applications (or equivalent consent applications under other consent regimes) have been submitted but not yet determined or where requests for EIA scoping opinions have been submitted; or
- Where development consents have been granted but where construction has not commenced at the time of preparation of the EIAR for the Proposed Development.

13.3.2 The basis for this is that the development categories listed above are more likely to have potentially significant environmental effects in their own right and therefore greater potential to result in significant cumulative effects in combination with those predicted for the Proposed Development and Overall Project. There is also likely to be publicly available information on their predicted effects, for example through published EIARs which is necessary to inform anything other than a very high level cumulative assessment.

13.3.3 The list of reasonably foreseeable developments to be included in the cumulative effects assessment would be finalised prior to EIAR publication to allow sufficient time to complete the assessment and compile the EIAR. Each EIA topic lead would undertake an assessment of potentially significant cumulative effects as part of their assessment of the Proposed Development and Overall Project, with the findings reported in each technical chapter of the EIAR. Development proposals at the pre-application stage (e.g. those where a PAN notice and/or scoping opinion request has been lodged with the ECU or LPA) are generally not proposed to be included as cumulative projects. However, the cumulative assessment would include reference to other electricity transmission projects known to the Applicant, which are not yet the subject of an application or consent but are foreseeable to the Applicant and relevant to the EIA. A list of cumulative developments for the EIA will be finalised and agreed with the LPA drawing on advice provided in the Scoping Opinion. At this stage it is considered that the following project types would typically be included:

- Proposals for new or extended onshore wind farm and BESS developments;

[85] It is recognised that given the larger potential zone of influence of the proposals in relation to SPAs, consideration will be given to other foreseeable developments out to 10 km from the Proposed Development location specifically (and only) in respect of potentially significant cumulation of effects for relevant qualifying species of the affected SPAs.

- Energy transmission infrastructure proposals promoted by developers other than the Applicant and typically in close proximity to the existing Fetteresso Substation and the Proposed Development (e.g. proposals for onshore connections and substations for offshore wind farms and larger scale battery energy storage sites);
- Other types of development proposal of national or major scale such as those associated with settlement expansion or larger scale agricultural development for example; and
- The proposed new Kintore to Tealing 400 kV OHL (part of the Overall Project).

13.3.4 Significant projects (i.e. major developments and national developments) which are under construction at the point of the cumulative assessment would be considered as part of the future EIA baseline and not as cumulative development.

13.3.5 In considering the potential for inter-project effects, an initial list of major developments within 10 km of the proposed Hurlie substation have been identified at this scoping stage and they are collated in **Table 13.1: Major Developments with Planning Applications and Consents**. The table also provides a provisional indication of the development projects which are proposed to be screened from further consideration in the cumulative assessment with reference to the selection criteria set out above.

Table 13.1: Major Developments with Planning Applications and Consents

Planning Reference Number	Description of Development	Site Location	Distance from Hurlie	Date Approved	Shortlisted (Yes/No)
APP/2021/2686	Erection of 45 Dwellinghouses (Change of House Type to Planning Permission Reference APP/2018/0829). Applicant: Ury Estate	Land Adjacent To East Lodge Ury Estate Ury Stonehaven	6.1 km	17 August 2022	No. Over 3 km threshold.
APP/2021/2094	Erection of 3750sqm Retail (Class 1) Unit (Amended Design to APP/2015/3716 and APP/2018/1842). [Application supplemented by approved planning application APP/2022/0564 for 6 pump petrol station on site.] Applicant: FM Ury Limited & Wm Morrison Supermarkets Plc	Phase 1 Land At Ury Estate Ury Stonehaven Aberdeenshire	6.1 km	21 October 2021	No. Over 3 km threshold.
ECU00001851	Construction and Operation of Fetteresso Windfarm. Applicant: Fetteresso Wind Limited	Within Fetteresso Forest, 15 km west of Stonehaven	6.3 km	21 September 2022	Yes, only for transport due to the grid connection corridor and access corridor overlapping with the Site boundary.
APP/2022/2676	Installation of Battery Energy Storage System (BESS) with an Installed Capacity of up to 49.9 Megawatts (MW) and Associated Infrastructure. Applicant: One Planet Developments Limited.	Meetlaw Fordoun Laurencekirk Aberdeenshire AB30 1LL	5.9 km	19 September 2023	No. Over 3 km threshold.

13.3.6 Developments which are not currently subject to planning applications, but which are considered reasonably foreseeable to the Applicant, are listed in **Table 13.2** below. There is limited detail available relating to the predicted environmental effects of these potential developments at this time. Further information will be gathered as the EIA work for the Proposed Development and for these other proposed developments progresses and will be used to inform the cumulative assessment. The consideration of potential cumulative effects will be influenced by the level of detail of assessment information available and the cumulative assessment will therefore be supported by professional experience.

Table 13.2: Developments Foreseeable to the Applicant

Description of Development	Site Location	Distance from Hurlie	Shortlisted (Yes/No)
Kintore to Tealing 400 kV OHL: Forming part of the 400 kV East Coast Upgrade this proposal will connect to the Proposed Development. This will comprise creation of a new overhead line with associated towers, conductors and ancillary works.	Concurrent with Proposed Development	Connects to the Proposed Development	Yes
Fetteresso (Mid Hill) 275 kV Substation Upgrade	Elf Hill, Fetteresso Forest, Aberdeenshire	500 m	Yes
Bowdun Offshore Wind Farm Onshore Cable Connection	Hurlie Bog, Fetteresso Forest, Aberdeenshire	Connects to the Proposed Development	Yes
SSEN-T Offshore Cable to Onshore Cable Connection	Hurlie Bog, Fetteresso Forest, Aberdeenshire	500 m	Yes
Glendye Wind Farm Grid Connection	Glendye Wind Farm to Mid Hill Substation in Fetteresso Forest	Immediate proximity to Mid Hill Substation (connected)	Yes
Fetteresso Wind Farm Grid Connection	Within Fetteresso Forest, 15 km west of Stonehaven	6.3 km	Yes

13.3.7 From the proposed developments listed in **Tables 13.1 and 13.2**, a short list of projects to be included in the cumulative assessment has been determined to be taken forward for assessment in the EIA. These have been selected on the basis of the rationale set out above and are listed in **Table 13.3 Developments for Cumulative Effects Assessment**. The final list of reasonably foreseeable developments to be included in the cumulative assessment will be finalised taking account of key consultee feedback.

Table 13.3: Developments for Cumulative Effects Assessment

Planning Reference Number	Description of Development	Site Location	Distance from Hurlie Substation
ECU00001851	Construction and Operation of Fetteresso Windfarm. Applicant: Fetteresso Wind Limited.	Within Fetteresso Forest, 15 km west of Stonehaven	6.3 km
Not in planning system	Kintore to Tealing 400 kV OHL: Forming part of the 400 kV East Coast Upgrade this proposal will connect to the Proposed Development. This will comprise creation of a new overhead line with associated towers, conductors and ancillary works.	Concurrent with Proposed Development	Connects to the Proposed Development
Fetteresso (Mid Hill) 275 kV Substation Upgrade	Elf Hill, Fetteresso Forest, Aberdeenshire	500 m	Yes
Bowdun Offshore Wind Farm Onshore Cable Connection	Hurlie Bog, Fetteresso Forest, Aberdeenshire	Connects to the Proposed Development	Yes
SSEN-T Offshore Cable to Onshore Cable Connection	Hurlie Bog, Fetteresso Forest, Aberdeenshire	500 m	Yes
Glendye Wind Farm Grid Connection	Glendye Wind Farm to Mid Hill Substation in Fetteresso Forest	Immediate proximity to Mid Hill Substation (connected)	Yes

Interactive Cumulative Effects

13.3.8 This assessment will consider the effects from the interaction of different impact types of the Overall Project on key receptors such as communities, designated areas, important recreational areas etc (taking into consideration effects at the site preparation and earthworks, construction and operational phases), which may collectively cause 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 adjacent to a construction site. This assessment will also consider cumulative interactions from the Overall Project on potentially vulnerable receptors to the interaction of cumulative effects from the Proposed Development.

13.3.9 It should be noted however that assessment of cumulative effects is challenging and is constrained by the availability and detail of baseline data, the complexity of the systems involved both individually and in combination and by an absence of externally benchmarked thresholds for some topics. Resultantly, the cumulative effects assessment will be, in part, qualitative and based on the professional judgement of technical assessors.

13.4 Baseline Conditions

13.4.1 There are no development proposals within or immediately adjacent to the Proposed Development currently subject to a submitted planning application, at the time of writing which are in, or entering, their construction phase. The nearest proposal subject to a planning application is APP/2022/2676, approximately 5.9 km distant. This application comprises the proposed installation of a BESSS facility. Resultantly, there are no developments, at the time of writing, in the planning system which will be considered part of the baseline for the Proposed Development. As noted above, this will be revisited during the authoring of the EIAR.

13.4.2 Similarly, there are potential developments which the Applicant deems reasonably foreseeable which are proximal to the Proposed Development but which are not yet subject to a planning application. These developments will be assessed as part of the cumulative assessment and therefore would not be considered part of the baseline.

13.4.3 The assessment of cumulative effects will draw on relevant existing and future baseline information from the technical topic-specific assessments which will be undertaken for the EIA of the Proposed Development together with relevant information from the EIARs and other documentation prepared for reasonably foreseeable developments which are to be included in the in-combination cumulative assessment.

13.5 Sensitive Receptors

13.5.1 Sensitive receptors relevant to specific disciplines are listed in their respective chapters and are not replicated here. Instead, this section of the Scoping Report discusses those receptors likely to receive effects from the Proposed Development and Overall Project in conjunction with other reasonably foreseeable proposals or more than one effect from the Proposed Development itself.

13.5.2 Given the rural location there are a relatively limited number of sensitive anthropogenic receptors proximal to the Proposed Development. These primarily comprise groups of residential receptors and isolated cultural heritage assets. Given the current land-use (commercial forestry) potentially sensitive receptors in the natural environment are also limited. Irrespective of current land-use, watercourses are considered as sensitive receptors in relation to the Proposed Development.

13.6 Potential Significant Effects

In-combination Cumulative Effects

13.6.1 The Proposed Development has the potential to interact with other major and proximal development proposals, notably with the proposed Kintore to Tealing 400 kV OHL as part of the Overall Project, and as set out in the preceding technical chapters. The assessments of these effects are included in those chapters and are not replicated here.

Interactive Cumulative Effects

13.6.2 The Proposed Development has the potential for interactive cumulative effects on residential and transport receptors through the release of emissions arising from construction. These may comprise the release of noise, dust and construction lighting amongst others.

13.6.3 The Proposed Development has the potential for interactive cumulative effects on the water environment within and proximal to the Site. This may occur through the release of emissions arising from construction, comprising the release of dust and pollutants amongst others.

13.7 Assessment Scope and Methodology

13.7.1 There is no universally accepted standard for undertaking an assessment of cumulative effect. Therefore, the assessments will be undertaken in-line with relevant guidance for each technical discipline, the approach set-out above and the assessor's professional judgement.

13.7.2 Where technical disciplines provide guidance on the assessment of cumulative effects these have been applied within the relevant technical chapters. Where discipline specific guidance does not exist, professional judgement has been used instead within the framework set out in **Section 13.3: Approach**.

13.7.3 To ensure that the in-combination effects assessment takes full account of the predicted cumulative effects of the Overall Project, the cumulative effects sections of each technical chapter of the EIAR will form a key focus for the assessment of in-combination cumulative effects. These will be addressed in a discrete section specific to consideration of likely significant cumulative effects associated with the Overall Project. The findings of the EIA being undertaken for the proposed Kintore to Tealing 400 kV OHL will be closely considered with the predicted effects of the Proposed Development for each relevant topic and predicted cumulative effects will be reported in detail where required to ensure that a comprehensive approach is taken to considering the combined effects of the Overall Project.

13.7.4 Having defined the predicted cumulative effects of the Overall Project, the EIAR chapters will then present a section reporting the predicted cumulative effects with other reasonably foreseeable development projects, so far as this is possible.

13.7.5 The assessment of interactive cumulative effects will also focus on the Overall Project when considering potential significant synergistic effects arising from the combination of impacts from the proposals on key receptors and sites. The assessment will therefore similarly draw on key emerging impact assessments from the EIAs for both the Proposed Development and for relevant parts of the proposed new 400 kV OHL, particularly at its southern extent.

13.8 Issues Scoped Out

13.8.1 Whilst indirect effects can occur within the full range of technical disciplines, given the nature of the Proposed Development and the rural nature of the receiving environment, indirect cumulative effects are not anticipated.

13.9 Summary

13.9.1 The above section sets out the approach and scope of the proposed assessment of cumulative effects in relation to the Proposed Development. This chapter concludes there is potential for both in-combination and interactive cumulative effects arising as a result of the Proposed Development.

13.9.2 Mitigation measures will be proposed, where relevant, to avoid or reduce the potential for significant cumulative environmental effects where these are not controlled by the committed mitigation which will be outlined for each of the technical impact assessments in the EIAR.

14. SUMMARY OF PROPOSED EIA SCOPE

14.1 Scope of the EIA

14.1.1 The scoping assessment has identified that a number of environmental effects are not predicted to be significant and will be scoped out from further consideration within the EIA process. **Table 14.1: Environmental Topics and Aspects Scoped In and Out** lists each EIA topic area and identifies the key groups of effects (referred to as elements) which are proposed to be scoped in and out from further assessment; with a short summary of the justification for the scoping decisions.

Table 14.1: Environmental Topics and Aspects Scoped In and Out

Topic	Scoped In		Scoped Out	
	Construction	Operation	Construction	Operation
Landscape and Visual Amenity	Both construction and operational effects on visual amenity and landscape are scoped into the assessment. These relate to potential effects on visual amenity.		N/A	
Cultural Heritage and Archaeology	Both construction and operational effects on Cultural Heritage and archaeology are scoped into the assessment. These primarily relate to potential effects on visual setting.		N/A	
Ecology	Both construction and operational effects on Ecology are scoped into the assessment. These relate to potential effects on protected and notable species and habitats.		N/A	
Ornithology	Both construction and operational effects on Ornithology are scoped into the assessment. These relate to potential effects on protected and notable species.		N/A	
Hydrology, Hydrogeology, Geology and Soils	Both construction and operational effects on Hydrology and Hydrogeology are scoped into the assessment. These relate to potential effects on the water environment.		Effects on water quality, private water supplies (PWS) and groundwater abstraction during substation operation. No significant effects on these receptors are predicted.	
Traffic and Transport	Construction effects are scoped into the assessment. These relate to potential effects on road users.			Operational effects are scoped out of further assessment as no significant effects on transport are anticipated with the operation of the Proposed Development.
Noise and Vibration	Both construction and operational effects on noise and vibration are scoped into the assessment. These relate to potential effects on residential receptors.		N/A	
Land Use and Recreation	No construction or operational effects on land use and recreation are scoped in to the assessment. No significant effects on land use and recreation and outcomes have been predicted from the scoping assessment.		All elements of this topic are scoped out of the assessment.	

Topic	Scoped In		Scoped Out	
	Construction	Operation	Construction	Operation
Population and Human Health	No construction or operational effects on population and health are scoped in to the assessment. No significant effects on health determinants and outcomes have been predicted from the scoping assessment.		All elements of this topic are scoped out of the assessment.	
Air Quality	No construction or operational effects on air quality are scoped in. No significant effects on air quality have been predicted from the scoping assessment.		All elements of this topic are scoped out of the assessment.	
Climate Change	No construction or operational effects on climate change are scoped in. No significant effects on climate change have been predicted from the scoping assessment.		All elements of this topic are scoped out of the assessment.	
Major Accidents and Disasters	No construction or operational effects on major accidents and disasters are scoped in. No significant environmental effects from a comprehensive review of a series of potential accidents and disasters have been predicted from the scoping assessment.		All elements of this topic are scoped out of the assessment.	

15. NEXT STEPS

15.1.1 Following receipt of a Scoping Opinion, the Applicant will prepare an EIAR to capture the findings of the EIA process. The EIAR will be undertaken in accordance with the scope defined by the Scoping Opinion taking account of any further feedback provided by the EIA consultees. The EIAR will report the predicted significant environmental effects of the Proposed Development together with measures to mitigate predicted effects. The EIAR will be submitted by the Applicant to Aberdeenshire Council, along with the planning application for the Proposed Development.

15.1.2 Separate applications for development consent for the proposed 400 kV OHL and the substation at Emmock will be submitted to the local planning authorities in ECU and Angus Council respectively. These planning applications will be supported by EIARs for each development proposal.

15.1.3 The EIARs for the Proposed Development, the Emmock substation and the OHL will be prepared to take account of predicted respective cumulative environmental effects arising from the connections of the proposed OHL with the substation sites.

APPENDIX A: COMPETENT EXPERT INFORMATION

Chapter	Qualification/Expertise of Person Responsible
Chapter 1: Introduction **Chapter 2: Description of The Proposed Development** **Chapter 3: EIA Methodology** **Chapter 4: Topics Scoped Out of the EIA** (prepared by LUC)	**Hywel Roberts** BSc (Hons) CEnv MIEMA **Andrew Kenny** BSc (Hons) ACIWEM **Markus Naerheim** MA
Chapter 5: Forestry (prepared by DGA Forestry Ltd)	**Sandy Anderson** BSc (Hons) MBA
Chapter 6: Landscape and Visual Amenity (prepared by LUC)	**Sam Oxley** BSc (Hons) MA CMLI **Erin Hynes** BSc (Hons) MSC MRTPI **Fiona Pennycook** MA (Hons) MLA **Matt Cairns** BA (Hons) CMLI **Ritvika Singh** BA (Hons) MA
Chapter 7: Cultural Heritage and Archaeology (prepared by CFA Archaeology Ltd)	**Mhairi Hastie** BSc MSc MCIfA FSA Scot **Linn Glancy** MA (Hons) ACIfA
Chapter 8: Ecology (prepared by LUC)	**Anna Dennis** BA (Hons) MSc ACIEEM **Lorna Hutchison** BSc (Hons) MSc ACIEEM **Rocio Martinez-Cillero** PhD
Chapter 9: Ornithology (prepared by LUC)	**Jonathan Daisley** BSc (Hons) PhD **Iain Mackenzie** BSC (Hons) MSc MCIEEM
Chapter 10: Hydrology and Hydrogeology (prepared by Kaya Consulting)	**Dr Sally Stewart** BSc MSc PhD MCIWEM C.WEM **Cairns Harrison** BSc (Hons) MRes
Chapter 11: Traffic and Transport (prepared by Pell Frischmann)	**Gordon Buchan** BEng (Hons) MSc CMILT FCIHT
Chapter 12: Noise and Vibration (prepared by Wood plc)	**Harry Matthews** BSc
Chapter 13: Cumulative Effects (prepared by LUC)	**Andrew Kenny** BSc (Hons) ACIWEM **Harry Naylor** BSc (Hons) MSc
Chapter 14: Summary of Proposed EIA Scope (prepared by LUC)	**Andrew Kenny** BSc (Hons) ACIWEM
Chapter 15: Next Steps (prepared by LUC)	**Andrew Kenny** BSc (Hons) ACIWEM

APPENDIX B: FIGURES

APPENDIX C: PROPOSED SCOPING CONSULTEE LIST

This appendix presents a list of the proposed scoping consultees.

Table C.1: Proposed Scoping Consultee List

Consultees	Email Address/Contact
Consultation Bodies	
Aberdeenshire Council	
Historic Environment Scotland (HES)	
NatureScot	
Scottish Environment Protected Agency (SEPA)	
Statutory EIA Consultees	
Aberdeen City Council	
BAA Aerodrome Safeguarding (Aberdeen)	
Marine Scotland	
Network Rail	
Scottish Forestry	
Scottish Water	
Transport Scotland	
Non-Statutory	
Aberdeen and District Soarers	
AHPC – Aberdeen Hang-gliding and Paragliding Club	
British Horse Society	
BT	
Catchment Partnerships	
Civil Aviation Authority – Airspace	
Crown Estate Scotland	
Defence Infrastructure Organisation	
Fisheries Management Scotland	
Fisheries – Local District Salmon Fisheries & Fisheries Trusts	
John Muir Trust	
Joint Radio Company	
Mountaineering Scotland	
National Farmers Union Scotland	
National Farmers Union Scotland (Policy Advisor)	
National Grid (Gas)	
National Trust Scotland	
NATS Safeguarding	

Consultees	Email Address/Contact
Nuclear Safety Directorate (HSE)	
RSPB Scotland	
Scottish Canoe Association	
Scottish Rights of Way and Access Society (ScotWays)	
Scottish Wild Land Group (SWLG)	
Scottish Wildlife Trust (SWT)	
Sustrans	
Visit Scotland	

APPENDIX D: LIST OF APPLIED MITIGATION DOCUMENTS

This appendix presents a list of standard mitigation plans which have been developed by SSEN Transmission and include General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs).

Table D.1: List of SSEN Transmission GEMPs and SPPs

Document Reference	Document Name
General Environmental Management Plans (GEMPs)	
TG-NET-ENV-510	Oil Storage and Refuelling GEMP
TG-NET-ENV-511	Soil Management GEMP
TG-NET-ENV-512	Working in or Near Water GEMP
TG-NET-ENV-513	Working in Sensitive Habitats GEMP
TG-NET-ENV-514	Working with Concrete GEMP
TG-NET-ENV-515	Watercourse Crossings GEMP
TG-NET-ENV-516	Waste Management GEMP
TG-NET-ENV-517	Contaminated Land GEMP
TG-NET-ENV-518	Private Water Supplies GEMP
TG-NET-ENV-519	Forestry GEMP
TG-NET-ENV-520	Dust Management GEMP
TG-NET-ENV-521	Biosecurity GEMP
TG-NET-ENV-522	Restoration GEMP
TG-NET-ENV-523	Bad Weather GEMP
Species Protection Plans (SPPs)	
TG-NET-ENV-500	Freshwater Pearl Mussel Species Protection Plan
TG-NET-ENV-501	Badger Species Protection Plan
TG-NET-ENV-502	Bat Species Protection Plan
TG-NET-ENV-503	Otter Species Protection Plan
TG-NET-ENV-504	Red Squirrel Species Protection Plan
TG-NET-ENV-505	Birds Species Protection Plan
TG-NET-ENV-506	Water Vole Species Protection Plan
TG-NET-ENV-507	Wildcat Species Protection Plan
TG-NET-ENV-508	Pine Marten Species Protection Plan
TG-NET-ENV-527	Wood Ant Species Protection Plan
TG-NET-ENV-529	Beaver Species Protection Plan

APPENDIX E: PEAT SURVEY REPORT