

Netherton Hub

Environmental Impact Assessment Report Volume 1 | Non-Technical Summary (NTS)

September 2024



CONTENTS

1.	INTRODUCTION	1-1
2.	PROPOSED DEVELOPMENT NEED	2-1
3.	PROPOSED DEVELOPMENT DESCRIPTION	3-1
4.	THE SITE SELECTION PROCESS AND ALTERNATIVES	4-1
5.	EIA APPROACH, SCOPE AND CONSULTATION	5-1
6.	LANDSCAPE AND VISUAL IMPACT	6-1
7.	ECOLOGY, NATURE CONSERVATION AND ORNITHOLOGY	7-1
8.	CULTURAL HERITAGE	8-1
9.	TRAFFIC AND TRANSPORT	9-1
10.	HYDROLOGY, HYDROGEOLOGY, GEOLOGY AND SOILS	10-1
11.	NOISE AND VIBRATION	11-1
12.	LAND USE AND AGRICULTURE	12-1
13.	CUMULATIVE EFFECTS (EFFECT INTERACTIONS)	13-1
14.	SUMMARY	14-1

OTHER VOLUMES

VOLUME 2 – ENVIRONMENTAL IMPACT ASSESSMENT REPORT

VOLUME 3 – FIGURES

VOLUME 4 – TECHNICAL APPENDICES

VOLUME 5 – CONFIDENTIAL TECHNICAL APPENDICES

1. INTRODUCTION

1.1 Overview

- 1.1.1 This Non-Technical Summary (NTS) forms part of the Environmental Impact Assessment Report ("EIA Report") prepared on behalf of Scottish Hydro Electric Transmission plc ("the Applicant") who, operating and known as Scottish and Southern Electricity Networks Transmission ("SSEN Transmission"), own, operate and develop the high voltage electricity transmission system in the north of Scotland and remote islands.
- 1.1.2 The EIA Report has been prepared by WSP UK Limited (hereafter referred to as WSP), on the behalf of the Applicant, to accompany an application for consent for the Netherton Hub (hereafter also referred to interchangeably as "the Proposed Development") under the Town and Country Planning (Scotland) Act 1997 (as amended) ("the 1997 Act")¹.
- 1.1.3 The Applicant is seeking planning permission in principle for consent to construct and operate a new strategic transmission hub approximately 7.5 km to the west of Peterhead in Aberdeenshire, Scotland (National Grid Reference: NK052460). The location of the Proposed Development is shown in **Figure 1: Location Plan**.

1.2 Environmental Impact Assessment (EIA)

- 1.2.1 An Environmental Impact Assessment ("EIA") has been undertaken for the Proposed Development in accordance with the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 ("the EIA Regulations")² to assess the likely significant effects of the Proposed Development. The results of the EIA are presented within the EIA Report (**Volume 2**) and summarised in this NTS. The EIA Report informs readers of the nature of the Proposed Development, describes the existing environmental conditions in and around the Site (see **Figure 2: Environmental Features Plan**), identifying sensitive assets or features and the methods used to assess whether environmental effects, either beneficial or adverse, are predicted to occur during site preparation, construction, and the operation of the Proposed Development. Where appropriate, it also sets out measures (defined as 'mitigation measures') to prevent, reduce or offset and significant adverse environmental effects.
- 1.2.2 The EIA Report is structured as follows:
- Volume 1: Non-Technical Summary (NTS);
 - Volume 2: EIA Report;
 - Volume 3: Figures;
 - Volume 4: Technical Appendices; and
 - Volume 5: Confidential Technical Appendices.
- 1.2.3 The aim of this NTS is to summarise the content and the main findings of the EIA Report in a clear and consistent manner to assist the public in understanding what the environmental effects of the Proposed Development are likely to be.
- 1.2.4 The full EIA Report provides a more detailed description of the Proposed Development and the findings of the environmental assessments undertaken.
- 1.2.5 Notice of the application for planning permission in principle, including this EIA Report and associated documents and figures, will be available for viewing at the following public location during normal opening hours:
- Aberdeenshire Council, Buchan House, St Peter Street, Peterhead, AB42 1QF.

¹ Town and Country Planning (Scotland) Act 1997. [Online] Available at: <https://www.legislation.gov.uk/ukpga/1997/8/section/46>.

² Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. [Online] Available at: <https://www.legislation.gov.uk/ssi/2017/102/contents/made>.

- 1.2.6 Any representations should be made via the Aberdeenshire Council online portal. Electronic versions of the application, including this EIA are available to view and comment on via the Aberdeenshire online portal: <https://upa.aberdeenshire.gov.uk/online-applications/search.do?action=simple&searchType=Application>
- 1.2.7 Notice of the application, and details of the Proposed Development, are available on SSEN Transmission's website: <https://www.ssen-transmission.co.uk/projects/project-map/netherton-hub/>
- 1.2.8 This EIA Report is available in other formats if required. For details, including costs, contact:
- Roy Ferguson
Senior Consents and Environment Manager
SSEN Transmission, 200 Dunkeld Road, Perth, PH1 3GH
Email: nethertonengagement@sse.com

2. PROPOSED DEVELOPMENT NEED

- 2.1.1 The Applicant owns and maintains the electricity transmission network across the north of Scotland and holds a transmission licence under Section 6(1)(b) of the Electricity Act 1989 ("the 1989 Act")³. The Applicant has a statutory duty under Section 9(2) of the 1989 Act to develop and maintain an efficient, co-ordinated, and economical system of electrical transmission, and a separate duty to facilitate competition between current and new generators of electricity. Where there is a requirement to extend, upgrade or reinforce its transmission network, the Applicant's aim is to achieve an environmentally aware, technically feasible and economically viable option which would cause the least disturbance to the environment and the people who use the area.
- 2.1.2 By 2030, both the UK and Scottish governments are targeting a big expansion in offshore wind generation of 50 GW and 11 GW respectively. The Scottish Government has also set ambitious targets for an additional 12 GW of onshore wind by 2030. Across Great Britain, including the north of Scotland, there needs to be a significant increase in the capacity of the onshore electricity transmission infrastructure to deliver these 2030 targets and a pathway to net zero. The need for these reinforcements is also underlined within the British Energy Security Strategy⁴, which recognised the significant impact on the cost of living from rising gas prices and sets out a plan to increase the supply of electricity from zero-carbon British sources to deliver affordable, clean and secure power in the long term.
- 2.1.3 The National Grid published the Holistic Network Design (HND) Report in July 2022⁵ providing detail on a recommended approach for connecting offshore wind farms, including the associated offshore and onshore transmission network requirements. A strategic hub at Nethererton is required for the purpose of establishing a common and co-ordinated approach to development for the future network reinforcements as identified in the HND. The Nethererton Hub collective development will substantially strengthen the local transmission network and support new onshore and offshore connections, such as those created through the Scotwind offshore lease rounds. The Proposed Development will further help facilitate the export of future renewable generation from the North of Scotland to demand centres throughout the UK.
- 2.1.4 The Accelerated Strategic Transmission Investment (ASTI)⁶ projects within the Proposed Development are National Developments that are explicitly supported by national policy, the electricity system operator, and the energy regulator. The Proposed Development would contribute significantly towards the delivery of the UK and Scottish Government's Net Zero Targets and help reduce the UK's dependence on imported oil and gas.

³ Electricity Act 1989. [Online] Available at: <https://www.legislation.gov.uk/ukpga/1989/29/contents>.

⁴ HM Government, (2022). Policy paper – British energy security strategy. [Online] Available at: <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>.

⁵ National Grid Electrical System Operator (ESO), 2022. Pathway to 2030 – A holistic network design to support offshore wind deployment for net zero. [Online] Available at: <https://www.nationalgrideso.com/document/262676/download>.

⁶ Ofgem, (December 2022). Decision on accelerating onshore electricity transmission investment. [Online] Available at: https://www.ofgem.gov.uk/sites/default/files/2022-12/ASTI%20decision%20doc%20-%20Final_Published.pdf.

3. PROPOSED DEVELOPMENT DESCRIPTION

3.1 Proposed Development Overview

- 3.1.1 This section describes the key components of the Proposed Development, as shown on **Figure 3: Proposed Development**.
- 3.1.2 The Proposed Development would include a series of buildings, up to a height of approximately 30 m, to house the site services and control equipment. The substations, converter stations and switching station equipment would be housed indoors, with buildings likely to comprise a steel portal frame with metal cladding and roof designed to reduce visual and noise impact. The colour of the buildings is anticipated to be a range of relatively muted and medium to dark locally natural colours, including greens and browns.
- 3.1.3 Please note that all dimensions provided are approximate and provide a realistic worst case for the purposes of the EIA.

3.2 Key Components

400 kV Substation and 132 kV Substation

- 3.2.1 A series of buildings would be situated on a joint 400 kV/132 kV Substation platform. The platform footprint would be 322 m width by 380 m length. The buildings that would be situated on the platform include:
- 400 kV Substation building with dimensions: 20 m height, 151 m width at its widest point and 148 m length. This would house the gas insulated busbar (GIB), gas insulated switchgear (GIS) and the control building;
 - a 132 kV Substation building would provide 132 kV connections for existing and future third-party connection applications. Indicative building dimensions: 16 m height, 45 m width and 100 m length;
 - two 400 kV/132 kV Super Grid Transformer (SGT) buildings, with dimensions: 21 m height, 45 m width and 81 m length; and
 - a 33 kV Switchroom Building with dimensions: 8 m height, 9 m width and 22 m length.
- 3.2.2 The 400 kV and 132 kV substations would both be GIS⁷ substations. There is a requirement for small sections of Air Insulated Switchgear (AIS) equipment immediately to the south and west of the 400 kV building.

⁷ GIS typically allows safe clearance distances between live conductors to be reduced. This results in a smaller footprint compared to the more traditional substations comprising Air Insulated Switchgear (AIS)



Plate 3-1 Example 400 kV Substation

High Voltage Direct Current (HVDC) Switching Station

- 3.2.3 The transmission hall (expected to be a switching station) would be made up of multiple interlinked buildings. Indicative combined building dimensions are as follows: height of up to 30 m, 245 m width, 319 m length. The footprint of the platform to support the buildings is expected to be approximately 395 m width by 370 m length.

Spittal to Peterhead HVDC Converter Station and Eastern Green Link 3 HVDC Converter Station

- 3.2.4 HVDC converter stations are required to enable a proposed 2 GW 525 kV HVDC link to Spittal, Caithness, in the far north of Scotland and to South Humber, England. The standard stations would be composed of a series of buildings enclosing all apparatus and providing office, welfare and spare storage. The indicative combined building dimensions (for each converter station) are as follows: height of 29 m, width 206 m and length 200 m, the alternating current halls would sit separate to, but aligned with, the arms of the u-shaped building and have indicative building dimensions as follows: height of 27 m, width 84 m and length 64 m. The footprint of the platforms to support the buildings is expected to be approximately 288 m width by 358 m length.

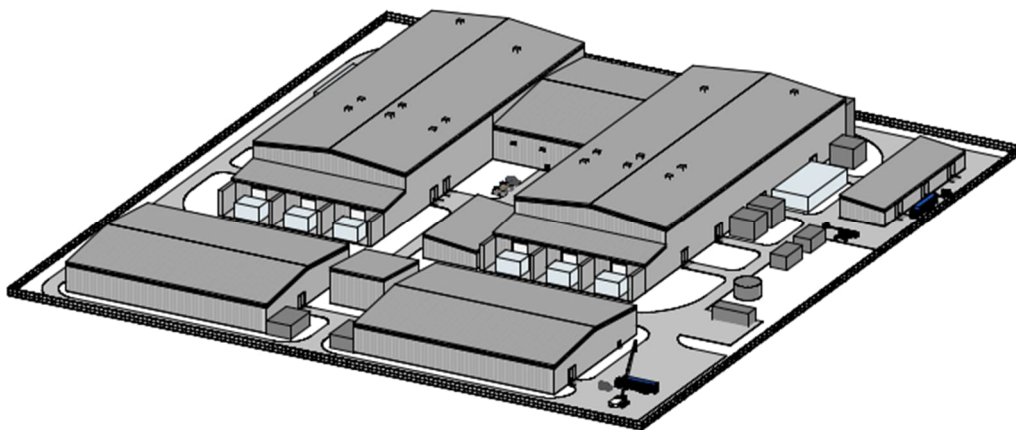


Plate 3-2 Indicative conceptual design for 2GW 525kV converter station

Operations Depot and Spares Buildings

- 3.2.5 The Operations Depot and Spares buildings would consist of buildings for offices, training facilities, car parking and storage facilities for strategic spares. The Operations Depot indicative dimensions are a height of 8 m, width of 30 m and length of 42 m, with an overall platform of 93 m width and 96 m length. Approximate

dimensions for the spares building are a height of 24 m, 61 m width and 125 m length, on a platform of 125 m width and 250 m length.

3.3 Ancillary Works

3.3.1 The Proposed Development would also include the following ancillary works.

Underground Cabling

3.3.2 Underground cables would connect the components within the Site. These would consist of circuits of multiple feeder circuits at 132 kV and 400 kV alternating current (AC), as well as 525 kV HVDC cables. All cables will be installed in troughs or trenches and will be connected (terminated) in the relevant substation or converter station.

Drainage and Flood Design

- 3.3.3 A surface and foul water drainage strategy has been prepared for the Proposed Development, which includes drainage and sustainable drainage systems (SuDS). SuDS mimic natural drainage processes to reduce the effect on the quality and quantity of runoff from developments and provide benefits to amenity and biodiversity. The SuDS have been integrated within the landscape proposals to enhance amenity, biodiversity, and habitat, whilst protecting and/or enhancing water quality.
- 3.3.4 The proposed surface water drainage network has been designed so that runoff from highways and landscaped areas would be collected and conveyed by a series of swales, with the building platforms drained by a separate underground gravity pipe network. The swales would be implemented to treat and attenuate the surface water runoff from the Site before discharging to detention basins located within the Site Boundary. Runoff is conveyed to relatively small intermediate detention basins at key points in the network to slow and attenuate runoff and contain flooding that would otherwise occur at low points and points of restriction. This practice reduces velocities and the diameters of the downstream pipe network. The final attenuation feature for each catchment is a large detention basin for attenuation prior to a flow restriction device. Final discharge would then be routed to discharge into the Burn of Ludquharn and Burn of Faichfield.
- 3.3.5 The Proposed Development has been designed to provide adequate capacity to contain flooding within the drainage network for a critical 1 in 30 year storm event, and flood water generated for up to a 1 in 200 year (plus climate change allowance of 37%) storm event. An area within the northwest part of the Site (near to Flushing) is currently at high risk of pluvial flooding. The drainage strategy proposes to reduce the catchment size upstream of the flooding zone, as well as provide an attenuation feature to contain flows. This is designed to reduce pluvial flooding to the existing area, and to ease the demand on the Burn of Faichfield downstream that is currently shown to have fluvial flooding.
- 3.3.6 An unnamed ditch located within the Site Boundary would be realigned to the west of its existing alignment, increasing the length of the ditch before connecting to a detention basin in the northwest area of the Site.

Lighting

3.3.7 Floodlights would be installed but would only be used in the event of a fault during the hours of darkness; during the over-run of planned works; or when sensor activated as security lighting for nighttime access. The roads would not be lit under normal operation. A light would also be provided at the access gates.

Security Fencing

3.3.8 A 3 to 4 m in height palisade fence would be installed around platforms. In addition, a standard post and wire perimeter fence would be installed around the Site Boundary, this would be a stock/deer proof fence to exclude grazing animals and allow establishment of landscaping and screen planting.

Access

Access during Operation

- 3.3.9 It is anticipated that a new permanent access would be created from the A950 to the north of the Site. The alignment of the access road has been designed to prevent direct views of the Proposed Development. There may also be a requirement for some public road improvements within the Site Boundary.
- 3.3.10 A secondary site entrance/exit to the south is also proposed, primarily from a health and safety perspective to ensure the Site is not limited to a single access point. The on-site access track layout has been designed to connect the various Proposed Development elements, whilst minimising hardstanding and maximising available land for landscape landform and planting.
- 3.3.11 The proposed access locations are shown on **Figure 3: Proposed Development**.

Access during Construction

- 3.3.12 During construction, vehicles would primarily access the Proposed Development by the proposed permanent entrance to the A950 highway to the north of the Site. It is anticipated that the majority of construction traffic will use the A950 to the east, when entering and leaving the Site.
- 3.3.13 A Construction Traffic Management Plan (CTMP) would be prepared by the Principal Contractor prior to any works commencing, in consultation with Aberdeenshire Council and Transport Scotland, as required. The CTMP would describe all mitigation and signage measures that are proposed on the public road network.

Earthworks

- 3.3.14 The proposed earthworks will extend over most of the Site. In general, unnecessary earthworks have been avoided so there is some land that will remain unworked mainly towards the southern boundary, west and northwest of the Site. Ground within the Site would be changed in level, to flatten it for proposed building platforms and graded for road profile or sloped between infrastructure interfaces. The infrastructure has been designed to be as tightly configured as possible, while maintaining the required separation, to minimise the extent of the earthworks.
- 3.3.15 All hardcore and earthworks materials for the construction of the Proposed Development would either be won on site, through cutting of the existing surface to construct the platforms or imported locally. It is anticipated that surplus topsoil following the earthworks, would be used as part of the landscaping strategy. The Site has been designed to have a cut and fill balance, to minimise the amount of imported material required and in turn minimise the construction traffic.

Landform and Planting and Biodiversity Enhancement

- 3.3.16 The proposed Site landform would be in keeping with the existing natural landform contours of the area and would restrict visibility of the Proposed Development for vehicles passing on the A950. Mitigation, in the form of landscape mounding has been included in the design to minimise potential landscape and visual impacts where possible. A series of development platforms have been designed to sit within the landscape, partially hiding the Proposed Development from surrounding visual receptors (the indicative landform and planting is shown on **Figure 4: Illustrative Landscape Masterplan**).
- 3.3.17 Once created new landforms and detention basins would then be vegetated by sowing them with wildflower meadow or planted with occasional shrubs, hedgerows and woodland plantations. The woodland would vary in type from a mixed conifer/deciduous woodland to broadleaved woodland to wet woodland on low lying areas. Some low lying areas such as the base of landforms, ditches and detention basins would be allowed to regenerate naturally.
- 3.3.18 The proposed planting and reinstatement works would create a variety of natural habitats, characteristic of this part of Aberdeenshire with the intention to improve the biodiversity of the Site. Local types of habitats have

been identified with an emphasis on delivering target habitats considered desirable such as wetland and broadleaved and mixed woodland. The proposed landscape strategy would fill hedgerow gaps, creating a series of natural wildlife corridors to assist in movement across the Site and connecting with the surroundings.

3.3.19 In addition, specific habitat would be created to support bank nesting Sand Martin (*Riparia riparia*) as a biodiversity enhancement.

3.3.20 The Applicant will develop a long-term Landscape and Ecology Management Plan to ensure measures are in place for the long-term maintenance of the proposed planting, habitat and biodiversity enhancement measures.

Biodiversity Net Gain

3.3.21 Biodiversity Net Gain (BNG) is a process which leaves nature in a better state than it started. SSEN Transmission has developed a BNG toolkit based upon the Natural England metric⁸, which aims to quantify biodiversity based upon the value of habitats for nature. SSEN Transmission use their BNG approach as a valid method to demonstrate positive effects for biodiversity as required under NPF4.

3.3.22 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, the Applicant is committed to providing a 10 % net gain and the BNG assessment undertaken as part of this EIA demonstrates that this should be comfortably achieved.

Colour Strategy

3.3.23 An environmental colour study has been undertaken to identify the natural hues and tones found within the local landscape and develop a colour strategy for the proposed buildings. The objective of the colour strategy is to reduce the scale of the mass of built form and to marry the buildings into the natural characteristic hues and tones of the rural landscape. Photography from four viewpoints at the different compass directions was used to test a range of styles and various colour patterns. A colour strategy has been developed and will form part of a Design Code for further detailed design development, with the colour of the buildings anticipated to be a range of relatively muted and medium to dark locally natural colours, including greens and browns.

3.4 Construction of the Proposed Development

Enabling Works

3.4.1 The enabling works will include (but not be limited to) existing utilities diversions, installation of new temporary and permanent water connections, electrical and telecommunication services, public road improvements and establishment of a temporary construction compound including welfare facilities.

Site Clearance and Demolitions

3.4.2 The following structures have been identified for demolition:

- All buildings associated with Netherton Farm, including a derelict farmhouse and outbuildings, a derelict single-story building and ruin.
- All buildings associated with Inverveddie House, including, one residential property and a commercial property.
- A residential property at Roer Teach.

3.4.3 Where required, vegetation would be carefully removed from within the Site, including trees and hedgerows subject to any ecological considerations relating to timing and method of working. Where possible, existing vegetation would be retained. The intention is also to retain as much of the perimeter hedgerows as possible within the technical requirements of the Proposed Development.

⁸ Natural England Biodiversity Metric 3.1. [Online] Available at: <http://publications.naturalengland.org.uk/publication/6049804846366720> [Accessed: July 2024].

Construction Programme and Working Hours

- 3.4.4 It is anticipated that construction of the Proposed Development would take place over a five to eight year programme, subject to consents and resource availability.
- 3.4.5 Construction working is likely to be during daytime periods only. Working hours are anticipated seven days a week between approximately 07.00 to 19.00 March to September and 07.30 to 17.00 (or within daylight hours) October to February. Any out of hours working would be agreed in advance with Aberdeenshire Council.

Temporary Construction Compound

- 3.4.6 A temporary construction compound would be required to provide welfare facilities for site staff, parking, temporary office cabins and a stores and maintenance area. An area for the compound has been identified in the southern area of the Site, as shown on **Figure 3: Proposed Development**.

Environmental Management during Construction

- 3.4.7 Works would be carried out in accordance with industry best practice construction measures, guidance, and legislation, together with the following documents and procedures.
- 3.4.8 General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs) have been developed by the Applicant.
- 3.4.9 A contractual management requirement of the Principal Contractor would be the development and implementation of a Construction Environmental Management Plan (CEMP). This document would detail how the Principal Contractor would manage the Site in accordance with all commitments and mitigation detailed in the EIA Report, statutory consents and authorisations, and industry best practice and guidance.
- 3.4.10 The implementation of the CEMP would be managed on site by a suitably qualified and experienced Environmental Clerk of Works (EnvCoW), with support from other environmental professionals as required. The Applicant would carry out regular inspections and audits to monitor the implementation of the CEMP.

3.5 Operation and Maintenance of the Proposed Development

- 3.5.1 It is expected that the Proposed Development would require approximately 20 permanent staff onsite during operation. These would be housed in the onsite Operations Depot building.
- 3.5.2 The Proposed Development plant requires maintenance and inspection at regular intervals. It is expected this would consist of a monthly inspection, whilst varying degrees of maintenance would be undertaken annually. There would be other visits as required for operational duties.

3.6 Decommissioning the Proposed Development

- 3.6.1 Planning permission is sought in perpetuity. Should the Proposed Development be decommissioned full details of the decommissioning plan would be agreed with the appropriate authorities and the landowners prior to any decommissioning works commencing.

4. THE SITE SELECTION PROCESS AND ALTERNATIVES

- 4.1.1 The selection of the Site for the Proposed Development has followed a staged process undertaken by the Applicant, which has considered a number of alternative site locations and design solutions. During this process there has been consideration of environmental, technical and economic factors in evaluating potential reasonable alternative sites, with the objective of identifying a site which is technically feasible and economically viable, and which causes the least disturbance to the environment and to the people who live, work, visit in proximity to the Proposed Development.
- 4.1.2 To reduce the need for additional infrastructure at the chosen site in the form of reactive power compensation, and ultimately reduce size and cost, it has been an objective to minimise to the greatest extent possible the distance between the proposed HVDC converters and the alternating current (AC) connection point at the 400 kV Substation. The optimal distance was considered to be less than 1 km, which supported the co-located arrangement that is proposed at the Netherton Hub.
- 4.1.3 Proximity to the existing transmission network was also a factor in order to minimise new overhead lines and/or underground cables that would be required to connect the Netherton Hub to the existing network, and where possible reduce the associated potential impacts associated with installing new connections.
- 4.1.4 Consideration was also given to the non-infrastructure elements of the site options to establish the total land requirement for the Site. These included BNG, screening and bunding to reduce potential visual and noise impacts, and all elements associated with water management and treatment both during construction and permanent operations.

Approach to Site Selection

- 4.1.5 The site selection process was undertaken in line with the 'Holford Rules', which is guidance that has been widely used throughout the UK since the 1960s. Whilst the Holford Rules principally apply to the development of overhead lines, they continue to inform best practice and contain supplementary notes on the siting of substations. SSEN Transmission has developed its own guidance, based on the principles set out in the Holford Rules but broadening the basis for site selection decisions to reflect contemporary practice, and, to provide a framework to ensure environmental, technical and economic considerations are identified and appraised at each stage of the site selection process. The guidance document is intended to inform substation site selection. The site selection process for the Proposed Development has been completed in compliance with SSEN Transmission's guidance document.
- 4.1.6 The principal site selection stages undertaken have been:
- Stage 0: Strategic Options Assessment;
 - Stage 1: Initial Site Screening;
 - Stage 2: Detailed Site Selection; and
 - Post Site Selection Activities: Consenting Process.
- 4.1.7 Each stage is an iterative process and involves an increasing level of detail and resolution, bringing technical, environmental and economic considerations together in a way which seeks to achieve the best balance. Consultation has been carried out to further inform the process at Stage 1, Stage 2 and during the Post Site Selection Activities: Consenting Process.

4.2 Initial Site Screening

- 4.2.1 Initially 13 potential sites were identified, with nine taken through to a screening evaluation, the remaining four sites were considered to be heavily constrained by existing and future overhead lines and therefore not take forward.

4.2.2 A comparative appraisal of the identified sites was informed by a desk-based appraisal and supported by site walkovers and a workshop. Following the comparative analysis exercise, four Preferred Sites (out of the nine that were appraised) were anticipated to be taken forward to the next stage. At this time, an initial public consultation event was held in January 2023 to introduce the project to the community and to present all of the sites. Feedback from the consultation included comments and queries primarily related to (but not limited to) visual impacts, noise from the site and traffic along the A950. This feedback was incorporated and considered as part of the site selection.

4.3 Detailed Site Selection

4.3.1 Detailed Site Selection involved the further detailed appraisal of the environmental and planning, technical and economic factors of the four sites taken forward at the initial site screening stage.

4.3.2 Overall, following comparison of all the environmental and planning factors, Site 4 (now known as the Netherton Hub site) was considered the Preferred Site. There is relatively little tree cover within the site, with the majority of the site used as agricultural land, and therefore containing a relatively low habitat diversity and proportion of suitable habitats to support protected and/or notable species. Of the 13 sites appraised during the site selection process, only four of the sites were considered less constrained by agriculture than Site 4. However, due to environmental and technical constraints these sites were not taken forward. Other favourable factors identified at Site 4 included ornithology, cultural heritage, geology/hydrology, planning and the low potential for impacts to recreation due to the absence of core paths and National Cycle Network routes. Visually, the site would be clearly visible from the A950 and nearby residential receptors, however, the site offers opportunities for large scale landform and planting mitigation to screen views and integrate the Proposed Development into the landscape when compared to the other sites which are more constrained as well as opportunities to enhance biodiversity.

4.3.3 Site 4 was also identified as the Preferred Site from a technical and economic perspective. Due to being the only site capable of supporting the construction of the Proposed Development including all the required infrastructure on a single site, as well as BNG and visual screening requirements.

4.3.4 A further round of consultation was undertaken in April 2023 to present the four Stage 2 sites and the rationale for, and approach to, the selection of the Preferred Site. A range of responses was received from stakeholders, including concerns about the potential environmental impacts, particularly on local biodiversity and wildlife, impacts to the local community including visual impacts and the loss of agricultural land. A pre-existing flooding issue at Site 4 was also highlighted through the Stage 2 consultation.

4.3.5 Following this Site 4 was taken forward as the single site for the Proposed Development.

4.4 Further Consideration of Alternatives during the EIA Process

4.4.1 The consideration of alternatives during the EIA process at the consenting stage has focussed on the siting of infrastructure, and landform and screening, as a result of more detailed environmental and engineering information due to surveys and further studies, including ecological species, habitats, landscape and visual, and cultural heritage and ground investigation results.

4.4.2 Extensive design work was undertaken between the landscape and engineering teams in relation to alternative building heights within the landscape. As a result, the development platforms where buildings would be sited have been designed to sit within the landscape, partially hiding the Proposed Development from surrounding visual receptors.

4.4.3 A building colour study has also been undertaken to examine alternative use of colour to reduce the landscape and visual impact of the Proposed Development buildings. This included comparison of natural colour palette characteristics of the local landscape during the different seasons of the year, as viewed from a number of landscape viewpoints.

- 4.4.4 The design of the Site drainage would significantly reduce the catchment size upstream of the potential flooding zone (northwest part of the Site) as well as provide an attenuation feature to formally contain flows for the 1 in 200-year plus climate change event. This is expected to reduce pluvial flooding to the existing area and ease the demand on the Burn of Faichfield further downstream that is shown to be at risk from fluvial flooding.

5. EIA APPROACH, SCOPE AND CONSULTATION

5.1 EIA Approach

- 5.1.1 EIA is a process that considers how a proposed development is predicted to change existing environmental conditions and what the consequences of such changes will be. It therefore informs both the design, and the decision-making processes related to the grant of development consents.
- 5.1.2 The EIA Report has been prepared in accordance with the EIA Regulations and current best practice guidance. The proposed methodologies for the assessment of likely significant effects for each topic area covered in the technical chapters within the EIA Report have been the subject of consultation with statutory and non-statutory consultees.
- 5.1.3 The result of the assessment is the determination of whether the likely effect of the Proposed Development on the receptors in the study area would be significant or not significant, and, adverse or beneficial.
- 5.1.4 Mitigation measures have been identified to prevent, reduce, or remedy any potentially significant adverse environmental effects identified, beyond that already taken into account as normal good practice. Such measures would be implemented during detailed design stage, construction and/or operation of the Proposed Development. Each technical chapter of the EIA Report details the measures recommended to mitigate identified likely significant effects.
- 5.1.5 The EIA has examined potential effects of the Proposed Development on the following factors:
- Landscape and Visual Impact;
 - Ecology, Nature Conservation and Ornithology;
 - Cultural Heritage;
 - Traffic and Transport;
 - Hydrology, Hydrogeology, Geology and Soils;
 - Noise and Vibration;
 - Land Use and Agriculture; and
 - Cumulative Effects.
- 5.1.6 Each of the above factors consider how the Proposed Development would affect potential receptors; a group, person, or environment that has the potential to be impacted by the Proposed Development. Some receptors would be more sensitive to environmental impacts than others.
- 5.1.7 In accordance with the EIA Regulations, the assessment has considered 'cumulative effects'. There are two aspects to cumulative effects, defined as follows:
- In-combination effects: the combined effect of the Proposed Development together with other reasonably foreseeable future developments (taking into consideration effects during the construction and operational phases); and
 - Effects interactions: the combined or synergistic effects caused by the combination of a number of effects from the Proposed Development alone on a particular receptor, which may collectively cause a more significant effect than individually.
- 5.1.8 The future developments that have broadly been considered with respect to in-combination effects within this EIA Report are shown on **Figure 5: Cumulative Developments** and are listed below:
- Spittal to Peterhead HVDC underground cable;
 - Eastern Green Link 3 HVDC underground cable;
 - Nethererton/Peterhead 400 kV overhead line diversion and repurposing;
 - Beauly to Blackhillock to New Deer to Peterhead 400 kV overhead line;

- Green Volt Offshore Windfarm, installation of onshore infrastructure;
- Bridgend Quarry Extension; and
- Residential Mixed-Use Development Comprising up to 800 Residential Homes at Peterhead (Traffic and Transport assessment only).

5.2 EIA Scoping

- 5.2.1 Scoping is the stage of the EIA process that sets out what needs to be assessed in the EIA to help define the approach to the assessment and what information may be needed to identify the likely significant effects from the development. Scoping provides a basis for a proportionate approach to EIA that is focused on likely significant effects to be considered and assessed. Consultation and engagement with stakeholders in the early stages of a development helps greatly to inform decisions about the design and the EIA scope.
- 5.2.2 An EIA Scoping Report was submitted to Aberdeenshire Council in October 2023 with a formal request for an EIA Scoping Opinion. The EIA Scoping Report contained information on the existing environmental conditions of the Site, details of the Proposed Development and the proposed assessment topics and methods. An EIA Scoping Opinion was received from Aberdeenshire Council in December 2023 which confirmed the scope of the assessments to be included in the EIA Report and it made reference to site specific issues of interest to Aberdeenshire Council, to be considered and addressed in addition to those laid out in responses from consultees. The responses, contained within the EIA Scoping Opinion, were considered in detail during the EIA process. The EIA Report includes a matrix detailing the key issues that were raised in the Scoping Opinion and how and where they are addressed in the EIA Report.

5.3 Consultation

- 5.3.1 Consultation is an important part of the EIA process and has been undertaken with a range of organisations and groups. The Applicant has sought to keep an open dialogue with local communities within the vicinity of the Proposed Development since the early stages and throughout the evolution of the Proposed Development. This has included carrying out consultation events during the site selection and consenting stages, engaging with statutory consultees, non-statutory consultees, community members and local organisations including local elected members and engaging with landowners, residents and businesses that may be affected by the Proposed Development.

6. LANDSCAPE AND VISUAL IMPACT

- 6.1.1 A thorough site selection process, followed by a comprehensive design process has been undertaken, with Landscape professionals involved from the beginning of the design of the Proposed Development. This has ensured that landscape and visual effects have been a key consideration of the development of the design, with landscape and visual amenity embedded into the mitigation. It is recognised that a National Development of this scale and nature initiates localised significant landscape and visual effects, however, through the iterative and collaborative design the extent of the potential landscape and visual impacts from the Proposed Development, has been reduced.
- 6.1.2 The landscape assessment considers the effects of change and development on the landscape as a resource. The character of the landscape derives from a combination of physical factors, natural processes, and human intervention. Landscape effects are a combination of the physical changes to the fabric of the landscape arising from the Proposed Development and perceptual changes – the way these physical changes alter how the landscape is perceived.
- 6.1.3 Visual assessment is concerned with the general visual amenity of people who may be affected by the Proposed Development and their perception and responses to changes in these views.
- 6.1.4 The assessment of likely significant effects on the landscape and on visual amenity arising from the Proposed Development considers both construction and operational phases. The assessment considers the baseline conditions and the mitigation that has been built into the design. The assessment reports on the residual effects of the Proposed Development, considering committed mitigation, assessed at Year 15 of operation.
- 6.1.5 The study area for the visual assessment is based on the results of the visibility study as, by definition, visual effects can only occur where at least some part of the development can be seen. Therefore, the study area for the LVIA and for the cumulative assessment for the LVIA have been set at 3 km from the Site to ensure the assessment focuses on potentially significant effects.

6.2 Baseline Conditions

- 6.2.1 The Site is located within gently undulating topography. The Site lies on an elevated north facing slope, with the highest point in the southern most part at approximately 65 m Above Ordnance Datum (AOD) falling northwards to approximately 30 m AOD. The Site is used for agriculture, a mixture of arable and pasture for grazing by cattle. The field patterns are medium in size and of a geometric irregular shape. The fields within the Site to the north, northwest and west are used for arable production. The fields to the south, east and southeast are pasture and used for grazing livestock (cattle). The surrounding landscape within the Study Area is predominantly also used for agriculture and is rural in character.
- 6.2.2 The village of Longside sits approximately 1 km to the northwest of the Site (approximately 1.3 km from the closest proposed building). Residential properties are a mixture of bungalows and one storey properties. Flushing is the nearest hamlet, located adjacent to the A950, directly north of the Site (approximately 500 m from the closest proposed building). The hamlet contains several bungalows, some with a south facing aspect towards the Site.
- 6.2.3 Also, within the study area are isolated farms, farmsteads and small clusters of residential properties, with placenames such as Parkhill, Toddlehills and Nether Kinmundy. Properties are scattered across the whole study area, mostly in the order of 500 m to 1 km apart.
- 6.2.4 A main highway, the A950 lies along the northern boundary of the Proposed Development. A minor road (Aberdeenshire Council reference 55B) lies on the southern boundary passing Inverveddie Farm. Minor Roads occur to the east, west and south connecting settlement and local farms and residences.
- 6.2.5 To the north of the Site lies the Formartine and Buchan Way, a regional trail used by walkers and cyclists. This route follows the old railway line from Peterhead to Maud, running east-west slightly over 1 km north of the

Proposed Development. At Longside, the Aberdeenshire Council Core Path 208.01 lies to the west, south and southeast of Longside.

- 6.2.6 The Site lies within the Coastal Agricultural Plain – Aberdeenshire (LCT 17), as defined by NatureScot, the NatureScot assessment finds that “*it is characterised by its gently undulating landform, relatively large scale, extensive moorlands and the influence of development including transmission masts, electricity transmission lines, the A90 and A953, and the gas terminal at St Fergus on its eastern edge.*”

6.3 Assessment of Potential Effects

Landscape Assessment

- 6.3.1 The Proposed Development would change the shape of the land and introduce larger scale buildings than currently exist into a predominantly rural landscape. It would have a significant adverse effect on the landscape very locally both during construction and on completion but a non-significant effect on the landscape more widely. The effect on the local landscape would reduce over time as the mitigation planting becomes established.

Mitigation Planting

- 6.3.2 The strategic planting of trees serves as an effective measure to mitigate visual and environmental impacts of the Proposed Development. Trees will be planted within the Site Boundary of the Proposed Development to establish a natural barrier to obscure the Proposed Development from view, thereby preserving the visual integrity of the surrounding landscape. By carefully selecting the tree species, optimising planting densities, and implementing a robust maintenance plan, the success of strategic planting can be maximised.

Visual Impact Year 1 and Year 15

- 6.3.3 During the construction of the Proposed Development and operation in the first year following construction (Year 1) there would potentially be visual effects on approximately 150 residential properties within 2 km of the Site, as trees planted as screening are in the early stages of root establishment and visible growth is minimal. The degree of significance on individual properties varies according to their elevation in relation to the Site, local topography, aspect and the presence or absence of intervening vegetation and garden planting.
- 6.3.4 The effect on visual amenity would reduce over time as the mitigation planting develops. By Year 15, the number of residential properties significantly affected would have reduced as trees experience significant growth in height and canopy spread thereby providing screening. The assessment found that at Year 15 of operation when planting has established, 44 properties would have a potential view of the Proposed Development, of which 22 would have a significant adverse visual effect. The remaining properties in the study area would not receive significant visual effects. The effects would continue to decrease over time as the woodland plantations become established.
- 6.3.5 During construction, there would be significant visual effects on users of Core Path 208.01 at Longside, the A950 approaching the site from both directions and minor roads when travelling alongside or towards the Site, within a distance of approximately 1.3 km. At Year 15 of operation, significant effects would remain to users of a small section of the Core Path 208.01 south of Longside for users looking to the southwest, to users of the A950 approaching the Site from both directions, east and west, and users of minor roads close to the Site to the east, south and southeast travelling alongside or towards the Site, within 1.3 km.

Residential Visual Amenity Assessment

- 6.3.6 A Residential Visual Amenity Assessment (RVAA) is a process used to evaluate how a proposed development might impact the views and overall visual experience from residential properties. This assessment helps understand the potential effects on the quality of life for residents living near the Proposed Development. This additional piece of work was carried out and examined the potential level of effect on residential properties within proximity to the Proposed Development .

- 6.3.7 During the consultations, the requirement for a RVAA had not been discussed as part of the EIA scope, however, subsequently it has been decided that this additional piece of assessment would reinforce the findings of the Landscape and Visual Impact Assessment, providing information on potential impacts from within the private domain.
- 6.3.8 The RVAA asks the question for each residential property, 'is the effect of Netherton Hub of such nature and/or magnitude that it potentially affects 'living conditions' or Residential Amenity'? This is referred to as the Residential Visual Amenity Threshold?'
- 6.3.9 The RVAA assessment found that the visual effects initiated by the Proposed Development on residential properties within 1 km of the Netherton Hub would be below the Residential Visual Amenity Threshold. This is due to presence of screening by the intervening topography, built form or/and vegetation within their curtilage and nearby fields and also due to the aspect and nature of the property itself.

Cumulative Effects with Other Future Developments

- 6.3.10 In-combination cumulative effects refer to the potential combined impact of the construction or operation of future developments on the environment, particularly if these impacts interact with each other. These combined effects can be more significant because they may affect the same environmental receptors, such as habitats or species. When considering all future developments together, the combined impact environmental receptors could be much greater than if each development was assessed in isolation.
- 6.3.11 In-combination cumulative effects relating to the Proposed Development include two proposed overhead line developments: Beauly to Blackhillock to New Deer to Peterhead 400 kV OHL and Netherton/Peterhead 400 kV OHL Diversion. It was concluded that the construction of both of these projects would result in potential significant cumulative effects in areas of the LCT 17 in closest proximity to the Proposed Development.
- 6.3.12 The two proposed overhead lines would also result in potential significant cumulative effects at Year 15, to residential receptors within 2 km to the Proposed Development, users of local highways within 3 km and recreational routes at Longside and the Formartine and Buchan Way. Existing overhead transmission lines are already present in the locality.

7. ECOLOGY, NATURE CONSERVATION AND ORNITHOLOGY

- 7.1.1 This section has considered the potential for significant effects to ecology, nature conservation and ornithology. The Guidelines for Ecological Impact Assessment (EclA)⁹ define an ecological significant effect as: “...an effect that either supports or undermines the biodiversity conservation objectives for important ecological features or for biodiversity in general.”
- 7.1.2 The assessment has focused on Important Ecological Features (IEF) that have been established during the scoping and EIA process and occur within the Proposed Development’s Ecological Zone of Influence (EZoI). IEFs are species and habitats present within the Proposed Development’s EZoI that are of sufficiently high value that certain levels of impact upon them, as a result of the Proposed Development, could result in a significant effect. The description and valuation of ecological features has taken account of any likely changes, including, for example: trends in the population size or distribution of species; likely changes to the extent of habitats; and the effects of other proposed schemes or land-use changes.
- 7.1.3 The conservation value of each ecological feature was evaluated within a geographical context using the categories recommended in the Guidelines for EclA. The evaluation considered a variety of factors including for example (but not exclusively) the rarity of a species or habitat; habitat diversity, whether the species population size is notable in a wider context, whether the habitats are important in supporting a rare species, whether species are on the edge of their habitat range or whether the faunal assemblage is characteristics of that habitat type.
- 7.1.4 A desk study was undertaken to identify records of protected or notable species within 2 to 5 km of the Site between 2013-2024 (i.e. relatively recent records). This was supported by habitat and species surveys undertaken between April 2023 and March 2024 to establish habitats and identify which protected species are present on Site. Species surveys undertaken included bats, pine marten, red squirrel, otter, fish, badgers and ornithological surveys.
- 7.1.5 An assessment of impacts and effects on badgers has been prepared in a separate, confidential technical appendix. Due to the on-going persecution of badgers, information relating to this species is considered sensitive.

7.2 Baseline Conditions

- 7.2.1 This assessment focused on IEFs: bats, otter, fish, barn owls and badgers (separate confidential assessment).

Bats

- 7.2.2 There were no commercially available records of bats identified within 5 km of the Site. However, a landowner at Drums, approximately 1.2 km west of the Proposed Development reported regularly seeing bats, and whilst working in the general area, surveyors identified a maternity pipistrelle roost at their accommodation near Mintlaw, approximately 7.5 km west of the Site. These anecdotal records of maternity pipistrelle roosts are located beyond the study area but have been noted to provide context on local populations.
- 7.2.3 A total of 43 trees with potential roost features for bats were identified in the survey area. No roosts were identified within these trees, however due to the time of year surveys were undertaken the precautionary principle has been applied and it is precautionarily assumed that bats may use these features at any time of year and there may be undetected roosts.
- 7.2.4 A day roost of a single soprano pipistrelle bat was recorded during the bat activity survey of a building, located outside of the Site, to the west. Additionally, because it was not possible to survey buildings at one of the properties within the Site during the maternity period, it is precautionarily assumed that bats may use any

⁹ CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland, Terrestrial, Freshwater and Coastal. CIEEM, Winchester.

buildings at the Site with suitability for activity roosts and there may be undetected roosts, including maternity roosts.

- 7.2.5 Automated detector hibernation surveys indicate that one building is used as a hibernation roost by common pipistrelle, soprano pipistrelle, and brown long-eared bat. While at another building, two bat passes were recorded on a single occasion therefore this is a suspected hibernation roost.

Otter

- 7.2.6 No commercially available records of otter were identified within 2 km of the Site. The small watercourses and ditches within the survey area provide cover and habitat for otters to travel along but overall were of limited to sub-optimal suitability, due to a perceived lack of suitable prey species. The Burn of Faichfield and Burn of Ludquharn were considered to have relatively greater suitability than the ditches within the central areas of the Site, with likely more foraging opportunities and connectivity to the wider River Ugie catchment. Two otter spraints were identified along the bankside of the Burn of Ludquharn in January 2024 evidencing otter use of the burn. No further field signs were identified and no otter resting sites were identified.

Fish

- 7.2.7 There are unnamed ditches as well as the Burn of Ludquharn and Burn of Faichfield within the Site, which have been assessed for their suitability for fish. The Burn of Ludquharn and Burn of Faichfield were assessed to have sub-optimal suitability for fish.
- 7.2.8 The Burn of Ludquharn and Burn of Faichfield are within the River Ugie catchment which connects to the coast at Peterhead. The Ugie District Salmon Fishery Board provided a sample of fish population data from watercourses in the catchment which showed juvenile populations of Atlantic salmon (*Salmo salar*) and sea trout (*Salmo trutta morpha trutta*) in the River Ugie.

Barn owl

- 7.2.9 There was an incidental sighting recorded for barn owl during surveys. The bird was disturbed from a roost site in a hedge along the Site Boundary which was not suitable as a breeding site. However, derelict buildings within the Site provide potentially suitable breeding habitat for this species.

Other species

- 7.2.10 No signs were recorded of the following protected or conservation priority species. Based on habitat suitability, it is unlikely that there will be regularly occurring populations, but their occasional presence cannot be ruled out:
- mammals – pine marten, red squirrel, brown hare, hedgehog, water shrew;
 - reptiles – common lizard, slow worm, adder; and
 - amphibians – common toad, common frog.
- 7.2.11 It is unlikely that there would be protected or conservation priority species of terrestrial invertebrates using the Site because the grasslands at the Site were heavily grazed and species-poor, i.e., limited resources for shelter or specific micro-climates, as caterpillar foodplants, or for pollinators.
- 7.2.12 The above species identified as IEFs have been valued in the context of the Site and surrounding area, and wider conservation status, including bats (national), otter (local), fish (district), barn owl (regional).

7.3 Assessment of Potential Effects

- 7.3.1 Construction and operational effects have been assessed, including (not limited to) effects from artificial lighting, loss of resting sites, changes to supporting habitat, and disturbance/ displacement of species/ groups, and incidental mortality and injury of IEF species. The significance of these effects was balanced against the current distribution and abundance of otter, barn owls and relevant species of bats and fish, their population trends and conservation objectives at the relevant scale which they have been valued.

- 7.3.2 With the application of additional mitigation, any residual effects from construction or operation of the Proposed Development on otter and fish would not be significant. Residual effects on bats and barn owls would be significant, in a worst-case scenario, however compensation measures have been identified to offset this and ultimately there would be no significant effects on the bat populations at a Local scale, nor barn owls. Beneficial effects (particularly for bats, otters, and barn owl) driven by the landscape proposals and drainage strategy have been identified but would be Not Significant.
- 7.3.3 A review of cumulative effects from other relevant developments has also been undertaken and no significant cumulative effects were identified.

7.4 Enhancements

- 7.4.1 A biodiversity net gain (BNG) assessment has been undertaken to demonstrate that the Proposed Development would be able to deliver significant biodiversity enhancements on Site. The assessment confidently predicts the Proposed Development would deliver the Applicant's commitment of a 10% net gain when measuring the change in biodiversity units of habitats at the Site.
- 7.4.2 An additional enhancement to be delivered by the Proposed Development includes the creation of sand martin nesting habitat within the proposed landform. Whilst a sand martin colony would be lost at the disused quarry area, this species did not meet the threshold for detailed assessment based on its conservation status (i.e., not an IEF) and therefore there would be no requirement to deliver compensation. The creation of sand martin nesting habitat is a commitment made by the Applicant as an enhancement and good practice measure.

8. CULTURAL HERITAGE

- 8.1.1 Heritage assets are features created or that have undergone modification from human agency. This includes a wide range of visible and buried archaeological sites and monuments, as well as other historic features or places. Heritage assets comprise World Heritage Sites, Scheduled Monuments, Listed Buildings, Gardens and Designed Landscapes (GDL), Battlefields, Conservation Areas, buried archaeological remains, other historic buildings, and earthworks.
- 8.1.2 Inner and Outer Study Areas of 500 m and 1 km extending from the boundary of the Site have been used to identify heritage assets. The assessment has been informed by a review of all available archaeological records, historical documentary evidence, cartographic evidence, and photographic material. A targeted walkover survey of the accessible areas within the Site was carried out in November 2023 by heritage professionals.

8.2 Baseline Conditions

- 8.2.1 There are 34 identified heritage assets noted within the Inner and Outer Study Areas. The Category A Listed Old Parish Church of Longside (LB9410; HA3) and the Churchyard Gateway/Lych Gate (LB9412; HA4) are within the village of Longside and outside the 1 km Outer Study Area. However, they have been included in the assessment following consultation with Historic Environment Scotland (HES).
- 8.2.2 Within the Site, there are eight non-designated heritage assets. There are a further 24 non-designated heritage assets within a wider 500 m of the Site, two designated Listed Buildings within a wider 1 km of the Site, and two further two Listed Buildings outside of the 1 km buffer.
- 8.2.3 The Site has low potential to contain archaeological remains from the prehistoric, Pictish, medieval, and modern periods. This is due to a lack of archaeological evidence dating from these periods within the Site and the Inner Study Area. There is moderate potential for post-medieval remains to be present within the Site boundary. There are three farms, a cottage, a hydraulic ram, and two dry-stone walls dating to the post-medieval period located within the Site boundary, with the possibility of archaeological remains associated with post-medieval agricultural activities, comprising rig-and-furrow, to be present.

8.3 Assessment of Potential Effects

- 8.3.1 All groundbreaking activities associated with the construction of the Proposed Development have the potential to directly impact upon heritage assets. Such activities include, but are not limited to groundworks, topsoil stripping, ground compaction, access, drainage, stockpiling, and storage. As a worst-case, it has been assumed that all areas within the Site will be subject to groundbreaking works during construction, and that any known heritage assets or currently unknown sub-surface archaeological remains will be physically impacted by these works and wholly removed.
- 8.3.2 There are eight non-designated heritage assets within the Site, seven of which consist of upstanding buildings or structures. The Inverveddie Farmstead non-designated heritage asset is within the Site, but the 19th century building has now been demolished and replaced with a modern farmhouse, so there will be no change to this heritage asset. It has been assumed that the remaining seven heritage assets would be demolished and removed as part of the Proposed Development, resulting in a significant effect to five of the assets prior to mitigation. As such the following mitigation measures are required:
- Historic Building Recording on the non-designated heritage assets that may be demolished; and
 - archaeological evaluation in the form of trial trenching within the Site; the scope of which has been agreed with the Local Planning Archaeologist.
- 8.3.3 Once the proposed mitigation measures are considered, any residual effects arising from the construction of the Proposed Development would be no greater than Slight Adverse and not significant.
- 8.3.4 Impacts during the operation of the Proposed Development relate to potential changes within the setting of designated heritage assets due to the addition of modern infrastructure within the existing landscape. A bare

earth Zone of Theoretical Visibility was used in the assessment of effects of changes within the setting of designated heritage assets.

- 8.3.5 Potential impacts were identified during operation to four designated heritage assets: the Category C Listed Building Cairngall House and Garden Walls and the Category B Listed Building St John's Episcopal Chapel, and two Category A Listed Buildings within the village of Longside: the Churchyard Gateway/Lych Gate and Old Parish Church of Longside. Impacts to settings are anticipated on all four of the heritage assets with the significance of effect expected to be no more than Slight Adverse (not significant). This is due to the undulating topography of the agricultural landscape, screening from modern buildings and mature planting, and the distance between the heritage assets and the Proposed Development.
- 8.3.6 As the potential for archaeological remains to exist within the Site is moderate, and the assessment has identified the potential for physical impacts on any sub-surface remains during construction, a programme of archaeological recording will be required to preserve the heritage assets by record. The mitigation to allow for this will involve an archaeological evaluation to investigate the presence or absence of archaeological remains.
- 8.3.7 The assessment also concluded that there will be no cumulative effects in relation to heritage assets.

9. TRAFFIC AND TRANSPORT

- 9.1.1 The traffic and transport assessment considers the access proposals and potential traffic and transport effects associated with the construction and operation of the Proposed Development on the surrounding public road network and on sensitive receptors.
- 9.1.2 The assessment is structured around the consideration of seven potential environmental effects related to traffic and transport within the Study Area: severance of communities, road vehicle driver and passenger delay, non-motorised user delay, non-motorised user amenity, fear and intimidation on and by road users, road user and pedestrian safety and hazardous/large loads.
- 9.1.3 Considering the potential access routes and potential receptor locations, the Study Area has been identified as follows:
- A950 between Mintlaw and the Peterhead Bypass at the Howe O’Buchan Roundabout; and
 - the A90 on the Peterhead Bypass between Newton and the A982 Junction with A90 North Road.
- 9.1.4 A desk study was undertaken that included reviews and identification of relevant transport policy, personal injury accident data, identifying sensitive receptor locations, identifying any other traffic sensitive receptors in the area (Core Paths, walking routes, communities, etc.), reviewing Ordnance Survey (OS) plans, determining potential origin locations of construction staff and supply locations for construction materials to inform extent of local area road network to be included in the assessment and identifying constraints to the movement of Heavy Goods Vehicles (HGV) traffic and larger loads.
- 9.1.5 To establish baseline traffic flows, traffic survey data has been obtained from the Department for Transport (DfT) for the road network contained within the Study Area.

9.2 Baseline Conditions

- 9.2.1 The A950 forms the northern boundary of the Site and is a rural single carriageway road linking the A90 Peterhead Bypass to the east, with New Pitsilgo to the northwest. Within the Study Area the A950 connects the village of Mintlaw with the A90 and is lit and subject to a 30 mph speed limit within Mintlaw and Longside where footways are provided adjacent to the carriageway. It is subject to a 60 mph limit outwith these villages. The Traffic count information suggests that the A950 at Mintlaw (west of the Site) is accommodating less than half the level of traffic than the A950 at Berryhill (east of the Site).
- 9.2.2 The A90 forms part of the trunk road network and connects Peterhead with Fraserburgh to the north and Aberdeen to the south. The A90 within the Study Area forms the Peterhead Bypass between Newton (to the south) and the A982 junction (to the north). In the Study Area, the A90 is a single carriageway road which is lit and subject to a 60 mph speed limit for all but between Newmill of Sandford and Newton, which is subject to a 40 mph speed limit.
- 9.2.3 A review of personal injury accident data shows that no personal injury accidents were recorded on the A950 between Longside and the proposed Site access junction for the latest available data between 2018 to 2022.
- 9.2.4 Shared-use facilities are provided adjacent to the Peterhead Bypass, with footways provided adjacent to the A950 within Longside and Mintlaw. There are no footways present outwith these villages. There are a limited number of Core Paths in close proximity to the Proposed Development. The closest Core Path is located approximately 2.8 km west from the Site entrance, identified as Core Path 208.01, and is 1.4 km in length and routes adjacent to the Longside from the A950 south through residential land use to agricultural fields as a dirt path. There are limited number of cycle facilities in close proximity to the Proposed Development. The closest facility to the Site is a shared-use facility provided adjacent to the Peterhead Bypass between Invernettie Roundabout and the A982 junction.

9.3 Assessment of Potential Effects

- 9.3.1 During construction, the overall increase in vehicle trips compared to the existing capacity of the road, has been assessed to be low. It is therefore considered that the existing road network can accommodate the anticipated temporary increase in traffic generated by construction activities and that the effects are not significant. Seven key traffic and transport criteria were assessed against thresholds identified by guidance and using professional judgement, with the greatest significance found to have temporary, short to medium term, minor adverse and not significant transport effects.
- 9.3.2 Operational traffic is considered to be so low that its effect would be negligible and has therefore been scoped out of further assessment.
- 9.3.3 In relation to the cumulative impact of the Proposed Development with local developments, it is considered that the coincidence of the construction phases is not predicted to result in significant cumulative traffic effects on the study network. The study has demonstrated that there is significant spare capacity on the local road network to accommodate the predicted level and type of vehicles associated with the various schemes.
- 9.3.4 Construction traffic will be managed through the implementation of a CTMP and the residual effect has been determined to be negligible when assessed in relation to the seven key traffic and transport indicators.

10. HYDROLOGY, HYDROGEOLOGY, GEOLOGY AND SOILS

- 10.1.1 The potential for construction and operational effects on hydrology, hydrogeology, geology, and soils have been assessed for the Proposed Development.
- 10.1.2 The following sensitive hydrology, hydrogeology, geology, and soils receptors within 1 km of the Proposed Development have been identified:
- Surface water bodies;
 - Groundwater bodies;
 - Groundwater Dependent Terrestrial Ecosystems (GWDTE), which are wetland areas dependent upon groundwater; they derive their water supply primarily from a groundwater body, rather than from rain and surface water saturated soils;
 - Water abstractions, including Private Water Supply (PWS);
 - Fisheries; and
 - Flood risk.
- 10.1.3 The assessment considered how the Proposed Development would potentially affect the sensitive receptors listed above through the impacts of pollution of surface watercourses, groundwater, and water supplies; changes to resource availability; loss and compaction of soils; modification of groundwater levels and flows, and surface water drainage patterns, and short-term flood risk increase during the construction of the Proposed Development.
- 10.1.4 Baseline conditions for the Proposed Development were established through desk study, consultation with Scottish Water, Aberdeenshire Council, Scottish Environment Protection Agency (SEPA) and landowners to identify water abstractions and PWS and a site walkover visit.

10.2 Baseline Conditions

- 10.2.1 The Proposed Development is approximately 750 m south of the River Ugie, entirely within the River Ugie Catchment. The River Ugie flows in an easterly direction before discharging into the Ugie Estuary coastal water body at Peterhead. The Burn of Ludquharn is located immediately adjacent at the west of the Proposed Development. The Burn of Faichfield is located immediately adjacent to the east of the Proposed Development. Both watercourses are tributaries of the Ugie Water.
- 10.2.2 Within the Proposed Development there are several minor watercourses adjacent to field boundaries, and which eventually discharge into the Burn of Cairngall, or the Burn of Faichfield, and ultimately the Ugie Water. The minor watercourses are heavily modified/artificial drainage ditches, associated with the Sites existing use for pastoral and arable farming. There are also likely to be buried field drains which discharge into the ditches. The hydrological regime of the Proposed Development would be modified on account of these factors.
- 10.2.3 The water features within the Site are considered to be artificial and heavily modified due to being strongly influenced by farming practices.
- 10.2.4 The Proposed Development is located in the area managed by the Ugie District Salmon Fishery Board. The Ugie catchment supports populations of Atlantic salmon and sea trout.
- 10.2.5 The bedrock formations underlying the Proposed Development are Forest of Deer Pluton - Melagranite, biotite. Igneous bedrock. A small area on the western edge of the Site is mapped as being underlain by Neoproterozoic Era Crinan Subgroup and Tayvallich Subgroup (DBCT) comprising of metamorphic semipelite, pelite and psammite rock. The Site is also underlain by superficial geology.
- 10.2.6 There are no historical records of contaminated land within the Proposed Development. Contaminated soil is unlikely to be present within the Site due to it being previously undeveloped, with historical and present land use being for agricultural.

10.2.7 The Proposed Development is not within a mineral safeguarding area or areas of search for mineral development according to Aberdeenshire Council.

10.3 Assessment of Potential Effects

10.3.1 The following sensitive hydrology, hydrogeology, geology, and soils receptors associated within 1 km of the Proposed Development have been identified:

- surface water bodies;
- groundwater bodies;
- GWDTE
- PWS;
- fisheries; and
- flood risk.

10.3.2 The assessment considered how the Proposed Development would affect the above sensitive receptors. The assessment has concluded that with the implementation of mitigation measures the Proposed Development would not result in significant residual effects during construction or operation.

10.3.3 The cumulative assessment identified that potential effects are primarily associated with impacts on water quality and flood risk in watercourses and downstream receptors between developments. However, it is not expected that significant in-combination cumulative effects would occur with the Proposed Development.

11. NOISE AND VIBRATION

- 11.1.1 This chapter identifies the likely impacts on noise sensitive receptors associated with the construction and operation of the Proposed Development.
- 11.1.2 High Voltage Direct Current (HVDC) Converter stations and switching stations contain similar equipment to substations. These contain various potential sources of environmental noise, the most significant of which are transformers and associated cooling equipment. Additional sources in HVDC converter stations and switching stations are items such as reactors and capacitors. The noise from these sources is usually steady and is assessed using standard noise assessment techniques.
- 11.1.3 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 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 steady state under normal operating conditions, however, with changes in electrical load, noise levels may fluctuate. The equipment is not expected to have any impulsive characteristics.
- 11.1.4 Noise monitoring has been conducted in the vicinity of the Proposed Development to determine the existing prevailing noise environment. Free-field long term monitoring equipment was installed during May 2023 and June 2023.
- 11.1.5 A desk-based construction noise appraisal has been prepared for the purpose of assessing the effects of the land levelling works on any nearby residents.
- 11.1.6 A detailed model of the Site and surrounding area has been constructed using noise modelling software considering geometric spreading, topography, screening, meteorological conditions and detailed information regarding the sources of noise, allowing for analysis of the predicted operational impact of the Site for Noise Sensitive Receptors.

11.2 Baseline Conditions

- 11.2.1 Noise measurements were taken at six noise sensitive receptors, positions were deemed to represent the background noise conditions for external amenity for the surrounding NSRs. In practice, there is no “single” background sound level as this is a fluctuating parameter. However, the background sound level used for the assessment is a representative average and therefore should be representative of the period being assessed.

11.3 Assessment of Potential Effects

- 11.3.1 The assessment concludes that nearby NSRs have the potential for Major effects from both construction and operational noise, which is significant, and therefore appropriate mitigation must be implemented. Avoiding high noise construction work during the weekends and evenings in the vicinity of the potentially impacted NSRs for the platform works and civils work phases will ensure this phase meets the 55 dB limit. In addition, the construction noise assessment must be revisited by the Principal Contractor when a full construction schedule is known, and a detailed CNMP is to be developed. The CNMP must also include any cumulative SSEN Transmission Developments. With these appropriate measures, potential residual construction effects are deemed not significant. Operational noise effects are expected to be reduced with appropriate engineering design or mitigation during detailed design. It is expected that operational noise can be reduced to an extent where Minor effects are predicted and therefore residual operational effects are deemed not significant.
- 11.3.2 Any possible significant cumulative construction impacts could be mitigated with communication with the respective developers and a combined CNMP during potential high noise activities. Operational noise is deemed negligible and not significant due to the distance of the projects and NSRs.

12. LAND USE AND AGRICULTURE

- 12.1.1 The assessment considers the potential for permanent or temporary land take in relation to classified agricultural land. The assessment also considers the potential permanent and temporary effects on farm viability and other farm businesses affected by the Proposed Development, and the ability of farmers and landowners to achieve any existing commitments made under relevant environmental schemes such as the Agri-Environment Climate Scheme.
- 12.1.2 The assessment considers the potential for permanent or temporary land use impacts to private residential properties (non-agricultural) and associated land parcels due to potential demolition, land take and changes to access.
- 12.1.3 The Study Area for the assessment of impacts on land use and agriculture comprises the land within the Site Boundary.
- 12.1.4 The assessment has mainly relied upon information from published sources and from specific liaison and consultation, including information obtained from farmers. Additional information obtained from the SSEN Transmission Lands Team and other environmental topics has also been considered. Farm Impact Assessment (FIA) questionnaires have been sent to all affected farm holdings, either directly or via a land agent to gather baseline information on farm holdings and their use.

12.2 Baseline Conditions

- 12.2.1 The area where the Proposed Development is located is an extensive, open, agricultural landscape bounded by post and wire fences with hedgerows and mature trees, with land use predominantly farmland. The site has predominantly remained undeveloped, with no settlements within the Site Boundary.
- 12.2.2 The Site extends to approximately 230 ha and is primarily agricultural land. The agricultural land at the Site is classified as follows:
- Class 3.2 (164.3 ha, or 72%);
 - Class 3.1 (58.0 ha, or 26%); and
 - Class 4.2 (4.7 ha or 2%).
- 12.2.3 Land from three separate farm holdings and a residential property would be required permanently for the Proposed Development. Temporary land take would be required from an additional three holdings for the installation of drainage pipes; however, it is envisaged that the land will be reinstated immediately with no lasting effects.
- 12.2.4 There are dispersed buildings used as farmhouses and a single residential property and garden (Roer Teach). There is one residential property associated with Inverveddie House and two associated with Netherton Farm House, although these are currently disused. There are an additional three private properties just outwith the proposed Site Boundary at Tiffery, Longleys and Langfield House. The Applicant is in advanced negotiations to acquire or has already acquired these properties.
- 12.2.5 There is a National Grid Gas Transmission high pressure main that runs through the north area of the Site, crossing the north and northwest Site Boundary. This would be maintained within the Proposed Development with an identified corridor. There are also existing overhead electricity lines that connect to existing buildings on the Site that would be removed as part of the Proposed Development.

12.3 Assessment of Potential Effects

- 12.3.1 The agricultural land within the Site is a resource of mostly high (Class 3.1) and medium (Class 3.2) sensitivity, with Class 4.2 being of low sensitivity. It is assumed that all of the agricultural land within the Site Boundary would be lost to the Proposed Development, which would result in a permanent significant effect on agricultural land. However, within the Aberdeenshire context, the permanent loss would represent just 0.03% of agricultural

land in Aberdeenshire, which is a highly productive agricultural area. In this context, the Proposed Development would have a Negligible (not significant) impact on Aberdeenshire's agricultural output.

- 12.3.2 The Proposed Development would permanently require land associated with three farm holdings and temporarily require land from an additional three holdings. Due to differences in enterprise type and the proportion of the holding lost, there would be a significant effect on these three farm holdings. The temporary effects on three farm holdings would not be significant.
- 12.3.3 The Proposed Development would require the demolition of three residential properties associated with farms within the Site Boundary (two of these properties are currently disused), resulting in a permanent significant effect to these properties. A further residential property and garden within the Site Boundary would also be required for the Proposed Development and would receive a significant effect. There would also be significant effects to three properties just outwith the Site Boundary due to potential change of use posed by the Proposed Development.
- 12.3.4 Due to the scale of the Proposed Development and the resultant significant effects, there is no change to the effect when Cumulative Developments are considered, although six potential schemes (listed in **paragraph 5.1.8** and shown on Figure 5 Cumulative Developments) have been identified that also require the use of agricultural land.

13. CUMULATIVE EFFECTS (EFFECT INTERACTIONS)

- 13.1.1 The assessment of Cumulative Effects (Effect Interactions) identified only one potential receptor (nearby residents to the Proposed Development) likely to see a measurable effect interaction from the Proposed Development. This being residential receptors in the vicinity of the Site. The assessment concluded no significant effects interactions on residential receptors in both the construction and operation phases.

14. SUMMARY

- 14.1.1 The Proposed Development is required to substantially strengthen the local transmission network and support new onshore and offshore connections, such as those created through the Scotwind offshore lease rounds. The Proposed Development will further help facilitate the export of future renewable generation from the North of Scotland to demand centres throughout the UK.
- 14.1.2 An EIA has been undertaken to assess the likely significant effects arising as result of the Proposed Development, with the EIA assessments showing that through careful and iterative design of the Proposed Development, through site-specific mitigation measures and the use of good practice methodologies during construction, the potential for adverse environmental effects has been reduced, with likely significant residual effects limited to localised effects on landscape, visual, land use and agriculture.