

# Glen Kyllachy 132 kV Overhead Line

## Environmental Appraisal Volume 1: Main Report & Technical Appendices

October 2019



Scottish & Southern  
Electricity Networks

## GLOSSARY AND ABBREVIATIONS

Glossary and Abbreviations	
Term / Abbreviation	Meaning
BAP	Biodiversity Action Plan
BBS	Breeding Bird Survey
BGS	British Geological Survey
BTO	British Trust for Ornithology
CAR	Water Environment (Controlled Activities) Regulations 2011
CDEMP	Construction and Decommissioning Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
dB	Decibel
DPEA	Scottish Government Directorate for Planning and Environmental Appeals
DTM	Digital Terrain Model
DWQRS	Drinking Water Quality regulator for Scotland
EA	Environmental Appraisal
ECoW	Environmental Clerk of Works
ECU	Scottish Government Energy Consents Unit
EIA	Environmental Impact Assessment
EIA Regulations	Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, as amended.
EIA Report	Environmental Impact Assessment Report
Fermtoun	An alternative, vernacular, term for a farming township. A group of dwellings, associated farm buildings and land, held by two or more joint tenants usually working the land communally.
GPDO	The Town and Country Planning (General Permitted Development) (Scotland) Order 1992, as amended.
GGF	Great Glen Fault
GIS	Geographical Information Systems
GWDTE	Ground Water Terrestrial Ecosystem
ha	hectare
HER	Historic Environment Record
HES	Historic Environment Scotland
IBA	Important Bird Area
JL	Japanese larch

<b>Glossary and Abbreviations</b>	
LBAP	Local Biodiversity Action Plan
kV	Kilovolt
LCA	Landscape Character Assessment
LCT	Landscape Character Type
LOD	Limit of Deviation
LP	Lodgepole pine
LVA	Landscape and Visual Appraisal
m	meter
mm	millimetre
MAGIC	Multi Agency Geographic Information for the Countryside
MW	Megawatt
NS	Norway spruce
NVC	National Vegetation Classification
NWSS	Native Woodland Survey for Scotland
OHL	Overhead Line
OS	Ordnance Survey
PWS	Private Water Supply
s36	Section 36
s37	Section 37
SEPA	Scottish Environment Protection Agency
SHE Transmission	Scottish Hydro Electric Transmission plc.
SNH	Scottish Natural Heritage
SP	Scots pine
SPA	Special Protection Area
SS	Sitka spruce
SSSI	Site of Special Scientific Interest
THC	The Highland Council
UKFS	UK Forestry Standard
VP	Vantage Point
WFD	Water Framework Directive
ZTV	Zone of Theoretical Visibility

## VOLUME 1: MAIN REPORT AND TECHNICAL APPENDICES

### GLOSSARY OF ABBREVIATIONS AND DEFINITIONS

#### MAIN REPORT

##### CHAPTER 1 INTRODUCTION

- 1.1 Preamble
- 1.2 Background and Need for the Proposed Development
- 1.3 Environmental Appraisal Process
- 1.4 Structure of this Report

##### CHAPTER 2 ROUTE SELECTION

- 2.1 Aim of Process
- 2.2 Methodology
- 2.3 Consideration of Alternatives
- 2.4 Alignment Selection Outcome

##### CHAPTER 3 PROPOSED DEVELOPMENT

- 3.1 Introduction
- 3.2 Limits of Deviation
- 3.3 Summary of Alignment
- 3.4 Development Description
- 3.5 Construction Methods
- 3.6 Working Hours

##### CHAPTER 4 CONSULTATION

- 4.1 Introduction
- 4.2 EIA Screening
- 4.3 Public Consultation

##### CHAPTER 5 ECOLOGY APPRAISAL

- 5.1 Introduction
- 5.2 Methodology
- 5.3 Baseline Conditions
- 5.4 Potential Impacts and Mitigation
- 5.5 Residual Impacts
- 5.6 Cumulative Impacts

##### CHAPTER 6 ORNITHOLOGY APPRAISAL

- 6.1 Introduction
- 6.2 Methodology
- 6.3 Baseline Conditions
- 6.4 Potential Impacts and Mitigation
- 6.5 Residual Impacts
- 6.6 Cumulative Impacts

##### CHAPTER 7 WATER ENVIRONMENT AND SOILS APPRAISAL

- 7.1 Introduction
- 7.2 Methodology
- 7.3 Baseline Conditions
- 7.4 Potential Impacts and Mitigation
- 7.5 Residual Impacts
- 7.6 Cumulative Impacts

**CHAPTER 8 LANDSCAPE AND VISUAL APPRAISAL**

- 8.1 Introduction
- 8.2 Methodology
- 8.3 Baseline Conditions
- 8.4 Potential Impacts and Mitigation
- 8.5 Residual Impacts
- 8.6 Viewpoint Assessment

**CHAPTER 9 FORESTRY APPRAISAL**

- 9.1 Introduction
- 9.2 Regulatory and Policy Context
- 9.3 Methodology
- 9.4 Baseline Conditions
- 9.5 Potential Impacts and Mitigation
- 9.6 Residual Impacts
- 9.7 Cumulative Impacts

**CHAPTER 10 CULTURAL HERITAGE AND ARCHAEOLOGY APPRAISAL**

- 10.1 Introduction
- 10.2 Methodology
- 10.3 Appraisal of Potential Adverse Impacts
- 10.4 Baseline Conditions
- 10.5 Potential Impacts and Mitigation
- 10.6 Residual Impacts

**CHAPTER 11 SUMMARY AND SCHEDULE OF MITIGATION**

- 11.1 Summary
- 11.2 Schedule of Mitigation

**TECHNICAL APPENDICES**

**CHAPTER 3 PROPOSED DEVELOPMENT**

- TA3.1 Indicative Tower Types and Locations

**CHAPTER 7 WATER ENVIRONMENT AND SOILS APPRAISAL**

- TA7.1 Peat Impact and Stability Along OHL Corridor

## 1. INTRODUCTION

### 1.1 Preamble

Scottish Hydro Electric Transmission plc (SHE Transmission, hereafter referred to as 'the Applicant') is proposing to construct and operate a new 132 kilovolt (kV) overhead line (OHL), in conjunction with a section of underground cable, to connect the consented Glen Kyllachy Wind Farm to the Tomatin substation, located near to Garbole in Strathdearn. The site location is illustrated in Figure 1.1.

The Applicant, as the transmission license holder in northern Scotland, will obtain any necessary consents and land rights to install and operate the grid connection. SHE Transmission are a licensed and regulated company who are obliged by law to develop and maintain an efficient, co-ordinated and economic system of electricity transmission and to facilitate competition in the supply and generation of electricity. The Applicant is also responsible for developing the transmission system and connecting new demand and generation to the grid network in accordance with the GB Security and Quality of Supply Standards<sup>1</sup>.

The connection would comprise a single circuit trident OHL supported by 'H' wood poles and underground cable, following the route shown in Figure 1.2. The OHL would provide a connection from the proposed Glen Kyllachy Wind Farm substation to a location approximately 460 m north west of the Tomatin Substation. The OHL would run west of Beinn Bhreac, Carn Meadhonach and Creag Dhubh. The underground cable would complete the connection from a terminal pole on the OHL to the Tomatin substation.

The underground cable section of the connection will be progressed under Schedule 1 Class 40 of The Town and Country Planning (General Permitted Development) (Scotland) Order 1992 ("GPDO"), as amended<sup>2</sup>. As such, the underground section of the proposed development will not be considered further within this report.

This Environmental Appraisal (EA) therefore provides information to support an application for consent under section 37 of the Electricity Act 1989<sup>3</sup> and deemed planning permission would follow such consent, under section 57 of the Town and Country Planning (Scotland) Act 1997<sup>4</sup>, as amended, for the OHL section of the connection (the proposed development). Chapter 3: Proposed Development provides a detailed description of the proposed development.

In addition, environmental information is also provided in order to meet the applicant's obligations to preserve amenity and mitigate environmental effects under Schedule 9 of the Electricity Act 1989.

---

<sup>1</sup> <https://www.ofgem.gov.uk/licences-industry-codes-and-standards/standards/security-and-quality-supply-standard-sqss>

<sup>2</sup> The Town and Country Planning (General Permitted Development) (Scotland) Order 1992, as amended [Available at: <http://www.legislation.gov.uk/uksi/1992/223/contents/made>, accessed 19/09/2019]

<sup>3</sup> The Electricity Act 1989, Section 37 [Available at: <https://www.legislation.gov.uk/ukpga/1989/29/section/37>, [accessed 10/12/2018]

<sup>4</sup> Town and Country Planning (Scotland) Act 1997, Section 57 [https://www.legislation.gov.uk/ukpga/1997/8/section/57, [accessed 10/12/2018].

## 1.2 Background and Need for the Proposed Development

In April 2015, the Scottish Government Directorate for Planning and Environmental Appeals (DPEA) granted consent for the Glen Kyllachy wind farm appeal subject to 20 conditions<sup>5</sup>. The consent is for the construction and operation of the wind farm with a generating capacity of up to 50 Megawatt (MW). The wind farm substation will be constructed at the southern end of the wind farm site. In order to connect the wind farm to the transmission network, a 132 kV connection from the wind farm substation to the Tomatin substation is required. Tomatin substation was consented in 2016<sup>6</sup> and construction is scheduled for completion in October 2019. The wind farm developer has a contracted connection date to start generating by 30<sup>th</sup> April 2021.

## 1.3 Environmental Appraisal Process

The Applicant submitted a written request on 16 July 2019 for a screening opinion from Scottish Ministers on the need for Environmental Impact Assessment (EIA) under Regulation 8 ('Requests for a Screening Opinion) with reference to Schedule 3 ('Selection Criteria for Screening Schedule 2 Development') Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA regulations), as amended.

A Screening Opinion was received from the ECU on 16 September 2019, which confirmed that the proposed development does not constitute EIA development. With this in mind, an abbreviated methodology has been used to prepare an environmental appraisal, identifying potential receptors and impacts and describing mitigation employed in the proposed development to minimise residual environmental effects.

The Environmental Appraisal provides environmental information as set out in the request for a screening opinion, and addresses issues raised through pre-application consultation with statutory consultees and members of the public, where relevant. Further information on the pre-application consultation process is provided in Chapter 4. For the avoidance of doubt, this report does not form an 'Environmental Impact Assessment Report' under the EIA Regulations.

The technical chapters of the EA will only address impacts arising from the proposed OHL section of the grid connection (the proposed development), which will be consented under s37 of the Electricity Act 1989. As the underground cable section of the connection will be constructed under GPDO, the cabling works is outwith the scope of the application for s37 consent and these works are not detailed within this EA.

Environmental input into the report had been collated by Ramboll UK Limited (Ramboll), with technical environmental appraisals carried out by the following consultants, as described in Table 3.1.

## 1.4 Structure of this Report

### 1.4.1 Main Report

The content of the Main EA Report (Volume 2) and chapter authors with responsibility for delivery are set out in Table 1.1 below.

---

<sup>5</sup> The DPEA planning reference: PPA-270-2115

<sup>6</sup> The Highland Council planning reference: 16/00769/FUL

<b>Table 1.1: EA Volume 2</b>			
<b>Chapter Number</b>	<b>Chapter name</b>	<b>Author</b>	<b>Chapter Content</b>
01	Introduction	Ramboll	Describes the background to the Glen Kyllachy wind farm grid connection.
02	Route Selection	Ramboll	Outlines the process by which the route and final alignment was selected and describes the reasons why other route options were discounted.
03	Proposed Development	Ramboll	Describes the proposed development and provides detail of typical construction methods.
04	Consultation	Ramboll	Describes the stakeholder consultation undertaken to date.
05	Ecology Appraisal	Ramboll	Describes the baseline ecological environment and information gathered from non-avian ecology surveys, potential impacts on the ecological environment and how these impacts will be mitigated;
06	Ornithology Appraisal	Ramboll	Describes the baseline ecological environment and information gathered from ornithology surveys, potential impacts ornithology and how these impacts will be mitigated;
07	Water Environment and Soils Appraisal	Ramboll / SLR	Describes the baseline environment, potential impact of the proposed development on water and soils, and how these impacts will be mitigated;
08	Landscape and Visual Appraisal	Ramboll	Describes the potential landscape and visual impact of the proposed development and how this has been mitigated through design.
09	Forestry Appraisal	Chris Piper & Co Chartered Foresters	Describes the potential impact of the proposed development on surrounding woodland and presents mitigation measures.
10	Cultural Heritage and Archaeology Appraisal	CFA Archaeology	Describes the potential impact of the proposed development on the historic environment and presents mitigation measures that will be implemented to reduce adverse effects.
11	Summary and Schedule of Mitigation	Ramboll	Provides a summary of the appraisals undertaken and lists the mitigation measures identified.

#### 1.4.2 Technical Appendices

Technical Appendices included at the end of the report contain technical information relating to specific assessments as referred to in the text.



## 2. ROUTE SELECTION

### 2.1 Aim of Process

The Applicant is obliged 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. In addition, The Applicant has a duty under Schedule 9 of the Electricity Act 1989 to take account of 'the desirability of preserving natural beauty, of conserving flora, fauna, geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic interest and sites and structures of archaeological interest'. It is also required to take reasonable steps to mitigate the effects of its proposals.

The aim of the route selection process was to identify a proposed alignment and Limit of Deviation (LOD)<sup>7</sup> which is technically feasible and economically efficient, and which causes the least disturbance to the environment; and those living in it, working in it, visiting it or using it for recreational purposes.

### 2.2 Methodology

The proposed alignment was identified through an iterative process supported by desk-based analysis, field surveys, engineering studies and landowner related assessments. It was developed in accordance with SHE Transmission guidance<sup>8</sup>. The guidance recommends appropriate application of the 'Holford Rules' to inform routeing. These rules advocate the application of a hierarchical approach to routeing which first avoids major areas of highest amenity, then smaller areas of high amenity, and finally considers factors such as backdrop, woodland and orientation.

The initial desk studies for the alignment selection process were generally carried out with reference to the following information:

- Publicly available satellite imagery;
- Current 1:10,000 and 1:25,000 Ordnance Survey (OS) mapping;
- Current Digital Terrain Modelling (DTM) mapping;
- Historic Environment Scotland (HES), Scottish Natural Heritage (SNH), The James Hutton Institute (JHI) and Scottish Environmental Protection Agency (SEPA) databases;
- Phase 1 Habitat Survey Data collected by Ramboll in May 2016 for the proposed Glen Kyllachy 132 kV OHL and cable alignment at the time (the previous alignment)<sup>9</sup>.
- Protected Faunal Species Survey Data collected by Ramboll in April 2016<sup>10</sup>.
- Breeding Raptor Survey Data, collected by Ramboll in March and April 2016<sup>11</sup>.

---

<sup>7</sup> The LOD defines horizontal and vertical distances for the final siting of underground cable and individual poles which allow flexibility to reflect localised land, engineering and environmental constraints.

<sup>8</sup> Scottish Hydro Electric Transmission Ltd (SHETL) (2018): Procedures for Routeing Overhead Lines of 132kV and above, PR-NET-ENV-501.

<sup>9</sup> As the previous alignment followed a very similar route to the proposed development, this Phase 1 survey provides excellent coverage of the proposed development.

<sup>10</sup> As the previous alignment followed a very similar route to the proposed development, this Protected Faunal Species survey provides excellent coverage of the proposed development.

<sup>11</sup> As the previous alignment followed a very similar route to the proposed development, this Breeding Raptor Survey provides excellent coverage of the proposed development.

- Goshawk nest search data, collected by Ramboll (under licence from SNH) in both 2014 or 2016.
- Vantage Point Survey and Breeding Bird Survey Data collected by Ramboll for the consented Knocknagael – Tomatin 275 kV OHL between April 2013 and March 2014<sup>12</sup>.

## 2.3 Consideration of Alternatives

Three main alignment options (illustrated in Figure 2.1) were considered during the alignment selection process. These options included:

### 2.3.1 Alignment Option 1

Alignment Option 1 is composed of a 2.28 km OHL that would be routed along the lower slopes and base of a narrow glen, from the consented Glen Kyllachy Wind Farm to the consented Tomatin substation to the south east. Option 1 would be routed predominantly through an area of commercial coniferous forestry, with the exception of the northern 140 m section of the OHL, which would be located within an open area of wet heath / acid grassland, to the north of the plantation.

Within the commercial plantation woodland, the OHL would be routed adjacent to an existing forestry track, which is classified, where surveyed, as marsh / marshy grassland, for approximately 1.1 km. The OHL would then be routed away from the existing forestry track, in a south easterly direction, through an area of recently felled coniferous woodland plantation for a further 0.94 km to connect to the proposed Tomatin substation from the North.

### 2.3.2 Alignment Option 2

Alignment Option 2 would be composed of a 2.55 km OHL that would be routed along the western and southwestern slopes of Carn Dubh, Beinn Bhreac and Carn Meandhonach, from the consented Glen Kyllachy Wind Farm to the Tomatin substation to the south east.

The northern 165 m section of Alignment Option 2 would be located on open wet heath / acid grassland. The centre section of the OHL would be routed through dry heath / acid grassland, in addition to a small area of scrub, to the eastern side of the commercial forestry plantation for approximately 1.66 km. The southern 0.73 km of the alignment would be routed through an area of recently felled coniferous woodland plantation to connect to the Tomatin substation from the North.

### 2.3.3 Alignment Option 3

Alignment Option 3 is a 2.36 km route that would be composed of both OHL and underground cable. The alignment would be routed along the lower slopes and base of a narrow glen from the consented Glen Kyllachy Wind Farm to the consented Tomatin substation to the south east. Option 3 would be routed predominantly through an area of commercial coniferous forestry, with the exception of the northern 150 m section of the OHL, which would be located within an area of wet heath / acid grassland, to the north of the plantation.

---

<sup>12</sup> As the southernmost section of the Knocknagael – Tomatin 275 kV OHL alignment, on the approach to the consented Tomatin substation, is located within an area neighbouring the proposed development, this Vantage Point Survey and Breeding Bird Survey Data provides good coverage of the proposed development.

Within the commercial forestry plantation, the OHL would be routed adjacent to an existing forestry track that is classified (where surveyed) as marsh / marshy grassland, for approximately 1.55 km. The southern 0.7 km of the proposed route would be composed of an underground cable, which connects to the western side of the proposed Tomatin substation. The underground cable would be partially routed through an area of blanket sphagnum bog.

### *Other Considerations*

An underground cable would be a technically feasible option for the entire alignment. However due to the much higher capital cost of this solution The Applicant cannot take forward this option on the basis of their license obligation to provide the most economic solution. Underground cabling is only used by The Applicant in cases where there is a specific environmental constraint or technical need, which outweighs the additional costs associated with the cable installation, and the additional challenges associated with the maintenance of a cable.

## **2.4 Alignment Selection Outcome**

As a result of public consultation, technical assessments and environmental considerations Alignment Option 3 was taken forward as the preferred alignment due to it providing the optimum solution for the connection based on the following key considerations:

- Avoidance, where possible, of key environmental constraints;
- Minimising exposure to high altitudes and steep terrain;
- Avoidance, or identification of most suitable crossing locations of roads and watercourses;
- Proximity to access tracks and roads;
- Configuration of and approach to termination points;
- Avoidance of areas used by land owners for commercial shooting;
- Identification of main topographical and geotechnical features;
- Minimising visual impacts on nearby residential and from the public road network; and
- Avoiding adverse impacts to the Rolling Uplands Landscape Character Type.

To meet the capacity requirements of the Glen Kyllachy Windfarm the Applicant proposes to use a trident 'H' wood pole OHL for the majority of the connection. The Applicant proposes that the southernmost c.1 km of the connection, on the approach to Tomatin substation, be placed underground (Figure 1.2) to prevent issues with the operation of their transmission network and safety of personnel<sup>13</sup>. The underground cabling works are out with the scope of the application for s37 consent, and as such these works are not detailed within the EA.

Through ongoing design evolution the OHL section of the proposed development is approximately 200 m shorter than Alignment Option 3 and is located approximately 50 m further west, on the lower slopes of the valley (See Figure 2.2). In addition, the underground

---

<sup>13</sup> The proposed cable section is within the operational corridor of two lattice steel overhead lines connecting into Tomatin Substation. If an OHL solution was proposed for Glen Kyllachy within the operational corridor of the other connections, then all three may need to be shut off to allow safe access for maintenance on any of the three connections putting network resilience at risk. By cabling this section each connection can be operated and maintained independently of each other thus not posing a risk to network resilience.

cable section of the proposed alignment is approximately 300 m longer than Alignment Option 3 and extends further south. These modifications to Alignment Option 3 reflect further assessment of the key considerations stated above during the design process.

Further assessments of the proposed development are considered in Chapters 5 to 10.

## 3. PROPOSED DEVELOPMENT

### 3.1 Introduction

This chapter describes the characteristics of the proposed development, including the proposed alignment for the OHL and the nature of proposed construction works. More detailed descriptions of the baseline environment associated with the proposed development are described in Chapters 5 to 9 of this report. The proposed development, including indicative wood pole locations, is shown on Figure 3.1. The indicative coordinates and heights of the wood poles are presented in Technical Appendix 3.1.

### 3.2 Limits of Deviation

The Applicant seeks consent for the following Limits of Deviation (LOD), as shown on Figure 3.2, to allow for flexibility in micrositing poles to accommodate specific sub-surface conditions (e.g. deep peat) or should previously unidentified environmental sensitivities (e.g. protected species or cultural heritage features) be discovered during construction:

- A horizontal LOD of 50 m either side of the proposed OHL alignment; and
- The maximum vertical LoD of 18 m AoD (including steel work and insulators). The typical pole height is likely to be between 13 m and 15 m AoD. but poles may vary in height in order to respond to local topographical variations, engineering and safety considerations.

The assessments carried out for this appraisal have assumed that the wood poles could be placed anywhere within the OHL LOD, with a typical pole height of 13 m (10 to 18 m range).

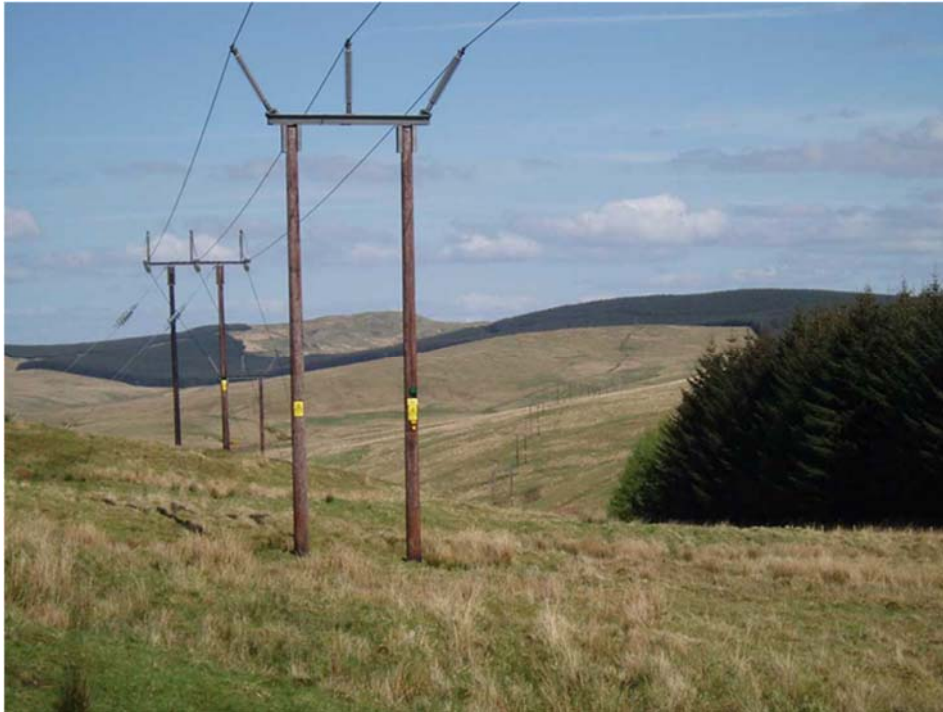
### 3.3 Summary of Alignment

The northern section of the proposed development would be comprised of an OHL, which begins at the consented Glen Kyllachy wind farm substation (NH 74419 26882). From the substation the OHL would run southeast for approximately 140 m, through an open area (classified as wet heath / acid grassland) until it enters an area of commercial forestry at NH 74551 26818. The OHL would then run along the eastern slopes and base of a narrow glen in a southerly direction for 1.35 km, parallel to the existing Tomatin Substation Haul Road. The OHL would also be located to west of Beinn Bhreac, Carn Meadhonach and Creag Dhubh and to the east of the Allt a'Mharcaidh watercourse. The OHL would cross the Allt Chaillich tributary at NH 74792 26334. A terminal wood pole would be located at NH 74887 25544.

The connection would be completed by underground cable from this point to the consented Tomatin substation (NH 75604 25232). Due to the underground cabling works being outwith the scope of the application for s37 consent, these works are not detailed as part of the EA.

### 3.4 Development Description

The proposed development would be constructed using approximately 21 Trident "H" formation wood pole structures, in a combination of single and terminal wood pole structures. Each pole is topped by galvanised steelwork cross-arm and insulators (likely to be grey metal). The steel cross arm and insulators would carry a single three-phase circuit (three metal alloy conductors) in a flat formation (i.e. all at the same height) along with an earth wire. A typical trident 'H' wood pole is illustrated in Photo 3.1.



**Photo 3.1 – Typical trident ‘H’ wood pole design**

The wood poles would be seasoned and treated with a suitable preservative, resulting in a dark brown appearance, which would weather to a silver/grey colour over a period of approximately five years following installation.

The height of the trident wood poles would typically be between 13 and 15 m above the ground level (including steel work and insulators). Pole heights may be increased locally (up to 18 m) where required to features such as watercourses. The statutory ground level clearance required for a 132 kV OHL is 6.7 m.

The spacing between the poles would vary depending on topography, altitude and land usage. The distance between the poles will be determined later in the design process; an average span of 80 m is estimated; however, the spans could range from 70 m to 120 m to accommodate technical and environmental considerations. Stays (guy lines) will be provided for additional stability for poles on changes in direction or in very poor ground conditions.

### **3.5 Construction Methods**

The construction methods and proposed environmental management measures are briefly described below for the purposes of informing this environmental appraisal. A Construction Environmental Management Plan (CEMP) would be developed by the appointed contractor at the pre-construction stage.

#### **3.5.1 Site Establishment and Temporary Construction Compounds**

Access to the proposed development for Heavy Goods Vehicles during construction would be via the existing Farr wind farm haul route, taken from the A9 north of Aultnaslanach

along General Wade's Military Road<sup>14</sup>. No new junctions or road widening would be required for the construction of the proposed development.

No new access tracks, temporary or permanent are required for construction and access will be taken from the existing Tomatin substation haul road (Figure 3.3).

A site compound would be provided by the windfarm developer under their section 36 (s36) application for Glen Kyllachy Wind Farm, located to the north of the proposed development. As such, a site compound does not need to be considered as part of the s37 application.

Clearly defined areas for the storage of oil will be identified as part of the site establishment process. Spill kits would be located and maintained at all oil storage and refuelling locations and on all site vehicles. An emergency response procedure would be provided as part of the proposed CEMP.

All waste would be stored securely and disposed of through a licensed waste carrier, in accordance with waste regulations and the Site Waste Management Plan.

### 3.5.2 Forestry

Some felling of commercial plantation woodland would be required to construct the proposed development. The total area of felling would be approximately 1.91 ha. The Applicant would liaise with the landowners to agree a suitable felling strategy. It is anticipated that all timber would be extracted from the site and transported to an end user (sawmill, board/pulp mill or wood fuel processing depot).

An operational wayleave corridor would be required to enable the safe operation and maintenance of the overhead line. and will be determined by several factors including ground conditions, topography and species of tree present. The exact area to be removed is assessed in a Forestry Impact Assessment and reported in chapter 9 as part of this environmental appraisal. This will include production of mapping indicating the varying width of the operational corridor along the OHL, determined by data gathered from site survey and stocking plans, and quantification of the total area to be felled. In all instances, the width of the operational corridor, and thus degree of felling required, would be minimised. Only trees which would pose a risk to the OHL at their full height would be removed.

Felling would be completed using a mechanical harvester, with timber extracted using an industry standard six or eight wheeled forwarder with telescopic boom and hydraulic grapple. Where, either due to tree size or location, it is not viable to use a mechanical harvester, manual chainsaw operators would complete the felling work.

Further details of anticipated forestry removal are presented in Chapter 9: Forestry.

### 3.5.3 OHL Construction

The following process would be followed for wood pole erection:

- pole positions would be microsited during the design phase to avoid deep peat, areas of forestry and other environmental constraints where possible. Angle poles must be in competent ground to support the line;

---

<sup>14</sup> This section of the General Wade's Military Road is not listed as a scheduled monument and was not identified in the Screening Opinion as a heritage asset.

- access would be taken using low ground pressure tracked excavators and all terrain personnel vehicles. Stone roads are not required for the construction or maintenance of the wood poles.
- in areas of peat the wood pole will be installed by a wide track excavator by contractors with 40+ years of experience of installing wood poles in the north of Scotland. Bog mats and temporary track mats may be used to cross soft ground where existing access tracks are not available and topography allows this to be undertaken safely;
- turf and topsoil would be removed together to retain the turf root system and placed to one side for later reinstatement;
- foundation excavations for a double pole trident, such as we require to use, would generally be 4 m long, 2 m wide and 2.5 m deep. In soft ground the side of the excavation would be shuttered to avoid collapse and minimise extent of excavations. There may be a requirement for additional stone to be imported for engineering backfill in the foundations. All material excavated for the foundations would be reinstated in the order it was removed, with turves replaced on top. There would be no surplus material to remove from site;
- topsoil, peat and subsoil would be stored in segregated stockpiles at least 1 m from the edge of the excavation;
- the pole would be lifted and lowered into position using a tracked excavator with hydraulic lifting arm;
- the hole would be backfilled with soils replaced in reverse order to the order of excavation. backfilling would be progressed in layers of approximately 300-400 mm deep, with stone hardcore added as required around foundation blocks to ensure adequate compaction and suitable geotechnical conditions are maintained between each layer; and
- when replacing the topsoil/turf around the pole it would be left slightly proud of ground level (approximately 150/300 mm) to allow for the excavation to naturally compact further through time.
- multiple tracking of excavators would be avoided where possible by using them in one direction; i.e. in one end and out the other; and
- each pole would take no more than two days to install; most can be installed in one day. As such turves would not be left exposed for long periods of time.

#### *Electrical Work*

- Installation of conductors, insulators and commissioning of the OHL

#### *Watercourse Crossing*

The OHL construction would not require the construction of any new watercourse crossings. Access would use existing tracks and watercourse crossings as far as possible. Bog mats would be used to cross minor watercourses without damage to bank integrity.

Where pole installation is required within 30 m of a watercourse, silt traps or other mitigation would be put in place (which would be outlined in the CEMP), with nearby watercourses checked during periods of high rainfall during construction activities. Ground excavation work would temporarily stop work during periods of high rainfall, where a risk to surface water quality is identified.



### **3.6 Working Hours**

The nearest residential property is located approximately 1.4 Km from the proposed development at its nearest point and the Applicant anticipates nuisance from construction noise to be negligible. As such, the Applicant seeks permission for construction working up to seven days a week between the hours of 07.00 to 19.00.

Throughout the construction period the Applicant and/or their appointed contractor shall maintain contact with local residents through an appointed representative to inform them of upcoming works and ensure the Proposed Development will not unduly affect them.

## 4. CONSULTATION

### 4.1 Introduction

The Applicant is committed to public and stakeholder consultation to gather opinion and advice on the proposed alignment and any site-specific sensitivities. This chapter describes the consultation undertaken and summarises comments arising from it and how these have been dealt with.

### 4.2 EIA Screening

The screening opinion, prepared by statutory consultees, identified that the proposed development is not EIA development.

<b>Stakeholder</b>	<b>Issue raised</b>	<b>Response / Action Taken</b>
Energy Consents Unit (ECU)	<p>Having considered the views of The Highland Council, SNH, SEPA and Historic Environment Scotland, the Scottish Ministers consider that the proposed development is not EIA development and any forthcoming application for consent (under section 37 of the Electricity Act 1989) does not require to be accompanied by a full Environmental Impact Assessment report. Scottish Ministers agree that any Section 37 application should provide voluntary Environmental Appraisal as part of a package of supporting information, describing the main elements of the project and providing an appraisal of the proposed development in the context of relevant policies.</p> <p>In reaching the conclusion that this development is not EIA development, the Scottish Ministers have had regard to the selection criteria set out in Schedule 3 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 relevant to the proposed development.</p>	<p>The Applicant has prepared a voluntary Environmental Appraisal as part of a package of supporting information, describing the main elements of the project and providing an appraisal of the proposed development in the context of relevant policies.</p>

**Table 4.1: Summary of Consultee Responses**

<p>The Highland Council (THC)</p>	<p>The assessment as presented by the applicant is generally accepted, the planning authority therefore recognises that the proposal as presented, does not directly impact a site designated for environmental interests. Nor by its nature or character is the development considered to have a significant impact on areas of interest.</p> <p>The planning authority is therefore of the view that any future Section 37 application need not be supported by an EIA Report. We appreciate the commitment to submit a voluntary Environmental Appraisal and agree with the proposed scope as presented in your letter dated 16 July 2019.</p>	<p>No action required.</p>
<p>Historic Environment Scotland (HES)</p>	<p>We have no comments to make on the requirement or otherwise for an EIA for this proposed development.</p> <p>We have reviewed the information provided in the Screening Request Document. We are satisfied that the document has identified the designated historic environment assets within our remit in the vicinity of the proposed development. Given the nature of the designated assets, their locations, distance to the proposed development and topography, we are content that significant effects on the site and the setting of historic environment assets within our remit from the proposed overhead line are unlikely.</p>	<p>No action required. However, A Cultural Heritage Appraisal has been included in the voluntary Environmental Appraisal undertaken by the Applicant.</p>
<p>Scottish Natural Heritage (SNH)</p>	<p>There are natural heritage interests in the area which will need to be considered as part of this project. However, the project will not create significant impacts on the aspects of the environment which falls within our remit.</p>	<p>No action required.</p>

**Table 4.1: Summary of Consultee Responses**

<p>Scottish Environment Protection Agency (SEPA)</p>	<p>We note that this development is less than 4km long. With respect to our interests, Environmental Impact Assessment is not required for the above proposal. This is on the assumption that modest or plainly and easily achievable environmental mitigation measures will be put in place. The developer should follow recognised best construction practice.</p>	<p>A Water Environments and Soils Appraisal, including an assessment of peat impact and stability along the OHL corridor, has been included in the voluntary Environmental Appraisal undertaken by the Applicant. This Appraisal outlines mitigation measures that will be implemented during the construction and operational phases of the proposed development.</p> <p>Best construction practice will be outlined in a CEMP (to be developed by the appointed contractor at the pre-construction stage).</p>
	<p>We would encourage the use of low ground pressure vehicles and bog matting over areas of wet and boggy ground, and that any tree felling ensures that merchantable timber is removed from site and not left as waste.</p>	<p>Access would be taken using low ground pressure tracked excavators and all terrain personnel vehicles. In areas of peat the wood pole will be installed by a wide track excavator by contractors with 40+ years of experience of installing wood poles in the north of Scotland. Bog mats and temporary track mats would may be used to cross soft ground where existing access tracks are not available and topography allows this to be undertaken safely.</p> <p>Micro-siting of the OHL within the Limits of Deviation (LoD) will be carried out wherever practicable in order to reduce the area of permanent woodland removal and / or other felling arising from indirect effects of the development.</p> <p>Where felling is required, marketable timber will be removed from site for onward transport to local timber markets.</p>

### **4.3 Public Consultation**

The Applicant first introduced this project to the general public in July 2015 as part of an update on other projects in this area, such as the Tomatin Substation. No representations were received from the public regarding this project following the event.

In September 2019, the Applicant attended a meeting with the Strathdearn Community Council in Tomatin to seek opinion on our proposed alignment, and inform the community of the next steps in the process, including the submission of the application for s37 consent. No representations were received from the community council or the public during or after the meeting.

## 5. ECOLOGY APPRAISAL

### 5.1 Introduction

This chapter identifies the likely impacts on ecological receptors associated with the construction and operation of the proposed development. Where appropriate, it also provides details of mitigation measures to address these potential impacts. The objectives of the chapter are to:

- describe the ecological baseline;
- identify the potential direct and indirect impacts on ecological receptors; and
- describe any mitigation measures proposed to address likely impacts.

This chapter is supported by:

Figures 5.1 and 5.2 are referenced in the text where relevant.

### 5.2 Methodology

#### 5.2.1 Study Areas

The ecological desk study area is defined as a 2 km buffer around the boundary of the proposed development, in order to enable data to be gathered to account for potential ecological links outwith this boundary.

The field study area is defined as a 500 m buffer on either side of the proposed development, which was considered to represent the area within which potential impacts on ecology would be concentrated.

#### 5.2.2 Desk Study

A desk study was undertaken to collect existing baseline data about the site and surrounding area, such as the location of designated nature conservation sites or other natural features of potential ecological or ornithological importance. The desk study areas considered the following data sources:

- Scottish Natural Heritage (SNH) Sitelink<sup>1</sup>;
- The Badenoch and Strathspey (Cairngorms) Local Biodiversity Action Plan (LBAP) 2002-2013<sup>2</sup> and the Cairngorms Nature Action Plan 2013-2018<sup>3</sup>; and
- Multi Agency Geographic Information for the Countryside (MAGIC)<sup>4</sup>.

Data sources were searched for protected or notable species records. Examples of notable species include, but are not limited to, national or local BAP species, restricted range species, species or species groups listed for local designated sites in the area (Local Nature Reserves, Sites of Importance for Nature Conservation, Sites of Nature Conservation Interest) or key species groups such as invertebrates or non-vascular plants. These species are not considered to have the same importance as those protected by legislation; however, their inclusion allows a more holistic approach and therefore a more robust assessment in line with the applicant's responsibilities under Schedule 9 of the Electricity Act 1989<sup>5</sup>. This information was used to understand what the

---

1 <http://gateway.snh.gov.uk/sitelink/>, accessed 23rd July 2018

2 <http://www.highlandbiodiversity.com/userfiles/file/acion-plans/badenoch-whole.pdf> accessed 23rd July 2018

3 <http://cairngorms.co.uk/resource/docs/publications/13052013/CNPA.Paper.1898.Cairngorms%20Nature%20Action%20Plan%202013-2018.pdf> accessed 23rd July 2018

4 <http://magic.defra.gov.uk/MagicMap.aspx> accessed 27th July 2018

5 <http://www.legislation.gov.uk/ukpga/1989/29/schedule/9> accessed 23rd July 2018

key species for the site might be prior to field surveys. Supplementary information on the site and its surroundings was obtained from aerial images available from Google™ Earth Pro.

### 5.2.3 Impact Appraisal

A preliminary ecological appraisal<sup>6</sup> of the field study area was undertaken to assess its ecological value and to consider the likely impacts of the proposed development on the ecological features, with the intention of identifying mitigation requirements. No assessment is made of the effect significance of potential impacts.

### 5.2.4 Field Surveys

#### *Extended Phase 1 Habitat Survey*

This survey involved a walkover with an assessment of key habitats, land use and ecological features focusing on areas of natural interest that could be affected by the proposed development. The initial survey was undertaken in March and April 2016, while the most recent survey to identify changes was carried out on the 27<sup>th</sup> June 2019. Habitats of potential sensitivity were recorded, such as wetlands, peatlands and other features of potential ecological value in their own right or as potential high-quality habitat for protected species. These habitats were mapped using standard Phase 1 habitat survey methodology as described in the Handbook for Phase 1 Habitat Survey<sup>7</sup>.

The field study area was also inspected for signs of any invasive plant species subject to legal controls, such as giant hogweed *Heracleum mantegazzianum* and Japanese knotweed *Fallopia japonica*.

#### *Protected Species*

The field study area was also surveyed for its potential to support species protected by international and national legislation, such as badger *Meles*, otter *Lutra*, water vole *Arvicola amphibius*, pine marten *Martes*, red squirrel *Sciurus vulgaris*, great crested newt (GCN) *Triturus cristatus* and wildcat *Felis silvestris grampia*. The survey occurred alongside the Phase 1 habitat survey and searched for features which could support those species, as well as signs of the species themselves as follows:

#### Badger

The survey looked for the following field signs<sup>8</sup>:

- Setts;
- Dung pits & latrines;
- Footprints & paths; and
- Foraging signs.

Any setts found were classified as either main, subsidiary or outlier and their level of usage indicated.

---

6 CIEEM (2013) Technical Guidance Series: Guidelines for Preliminary Ecological Appraisal. Chartered Institute of Ecology and Environmental Management, Winchester.

7 Joint Nature Conservation Committee (JNCC) (2010), Handbook for Phase 1 habitat survey – a technique for environmental audit. Peterborough: JNCC.

8 Scottish Badgers, Badger Surveying, <http://scottishbadgers.org.uk/badger-surveying.asp>

### Otter

The otter survey involved a detailed search of all watercourses within the field study area according to best practice guidelines<sup>9</sup>. The field signs sought were:

- Holts;
- Couches;
- Spraints;
- Feeding remains; and
- Footprints & slides

### Water Vole

The water vole survey comprised a search of riparian and pond edge habitat for characteristic signs of activity. The survey assessed all watercourses and water bodies within the field study area and for a distance of 200 m up and downstream in accordance with good practice guidelines<sup>10</sup>. The signs sought were:

- Burrows;
- Droppings & latrines;
- Feeding stations; and
- Footprints & runs.

### Red Squirrel

Survey methodology for red squirrel followed good practice guidelines<sup>11</sup>. The signs sought were:

- Dreys;
- Feeding signs; and
- Sightings.

### Wildcat and Pine Marten

Wildcat<sup>12</sup> and pine marten<sup>13</sup> survey involved a detailed search for the following field signs:

- Droppings;
- Footprints;
- Sightings;
- Scratch markings; and
- Used dens.

## **5.3 Baseline Conditions**

### **5.3.1 Desk Study**

#### *Designated Sites*

There are no ecological designated sites within the desk study area of 2 km.

---

9 Chanin, P. (2003), Monitoring the otter *Lutra lutra*, Conserving Natura 2000 Rivers Monitoring Series No 10, Peterborough: English Nature.

10 Strachan, R. (2012), Water Vole Conservation Handbook, Third Edition, Wildlife Conservation Research Unit.

11 Gurnell, J. et al (2001), Practical Techniques for Surveying and Monitoring Squirrels. Edinburgh: Forestry Commission.

12 <https://www.nature.scot/sites/default/files/2018-04/Guidance-Wildcat-Survey-Methods.pdf> accessed 2nd July 2018

13 <https://www.nature.scot/sites/default/files/2017-07/A1959323%20-%20Species%20Planning%20Advice%20Project%20-%20pine%20marten%20-%20FINAL.pdf> accessed 2nd July 2018



The proposed grid connection passes directly through an area listed on the semi-natural woodland inventory, while an area of ancient woodland is situated to the south-west of the proposed connection at a distance of approximately 0.6km away, as shown on Figure 5.1. Native and ancient woodlands are important for biodiversity and nature conservation, providing habitat for species such as badger *Meles*, red squirrel, pine marten *Martes* and bat species. Ancient woodland is defined as woodlands that have been continually wooded since 1750, and there is a strong presumption in Scottish Planning Policy against the removal of woodland on ancient woodland sites.

#### *Local Biodiversity Action Plan*

As the proposed development is in the Highlands, the Badenoch and Strathspey (Cairngorms) Local Biodiversity Action Plan (LBAP)<sup>14</sup> and the Cairngorms Nature Action Plan<sup>15</sup> are relevant. Priority habitats and species relevant to the proposed development are detailed in Table 5.1 below.

---

14 <http://www.highlandbiodiversity.com/userfiles/file/acion-plans/badenoch-whole.pdf> accessed 23rd July 2018

15

<http://cairngorms.co.uk/resource/docs/publications/13052013/CNPA.Paper.1898.Cairngorms%20Nature%20Action%20Plan%202013-2018.pdf> accessed 23rd July 2018

<b>Table 5.1: Relevant Habitat and Species Included in LBAP</b>	
<b>Habitats</b>	
Farmland and grassland	
Montane, heath and bog	
Wetland, wet grasslands and freshwater	
Woodland	
<b>Species</b>	
Water vole <i>Arvicola amphibius</i>	Corncrake <i>Crex</i>
Brown hare <i>Lepus europaeus</i>	Skylark <i>Alauda arvensis</i>
Mountain hare <i>Lepus timidus</i>	Song thrush <i>Turdus philomelos</i>
Common pipistrelle <i>Pipistrellus</i>	Ring ouzel <i>T. torquatus</i>
Nathusius' pipistrelle <i>P. nathusii</i>	Bullfinch <i>Pyrrhula</i>
Natterers' bat <i>Myotis nattereri</i>	Tree sparrow <i>Passer montanus</i>
Daubenton's bat <i>M. daubentonii</i>	Pink-footed goose <i>Anser brachyrhynchus</i>
Brown long-eared bat <i>Plecotus auritus</i>	Greylag goose
Wildcat <i>Felis sylvestris</i>	Black grouse <i>Lyrurus tetrix</i>
Red squirrel <i>Sciurus vulgaris</i>	Redshank <i>Tringa totanus</i>
Hedgehog <i>Erinaceus europaeus</i>	Lapwing <i>Vanellus</i>
Badger	Snipe <i>Gallinago gallinago</i>
Stoat <i>Mustela erminea</i>	Curlew <i>Numenius arquata</i>
Weasel <i>M. nivalis</i>	Oystercatcher <i>Haematopus ostralegus</i>
Grey partridge <i>Perdix perdix</i>	Golden plover <i>Pluvialis apricaria</i>
Grey wagtail <i>Motacilla cinera</i>	Short-eared owl <i>Asio flammeus</i>
Greenfinch <i>Carduelis chloris</i>	Barn owl <i>Tyto alba</i>
Goldfinch <i>C. carduelis</i>	Wren <i>Troglodytes troglodytes</i>
Chaffinch <i>Fringilla coelebs</i>	Yellowhammer <i>Emberiza citrinella</i>
Common toad <i>Bufo bufo</i>	Wood ants <i>Formica sp.</i>
Common lizard <i>Zootoca vivipara</i>	Common frog <i>Rana temporaria</i>
Common juniper <i>Juniperus communis</i>	Freshwater pearl mussel <i>Margaritifera margaritifera</i>

### 5.3.2 Field Surveys

#### *Phase 1 Habitat*

This section provides a summary of habitats identified during the extended Phase 1 habitat survey and records of protected species found. As shown on Figure 5.2 the proposed development crosses the following habitats, which are described in more detail below.

- Coniferous woodland – plantation. Coniferous species Sitka spruce *Picea sitchensis*, European larch *Larix decidua* and Scot's pine *Pinus sylvestris* dominant over grass and bryophyte species.

- Coniferous woodland – recently felled. The Species above have been recently felled as part of ongoing construction works for the Knocknagael to Tomatin 275 kV OHL and Tomatin Substation. The ground remains largely unvegetated, with short, ephemeral species growing through.
- Marsh/marshy grassland. Forest rides, dominated by soft rush *Juncus effusus* over *sphagnum tenellum* and *Polytrichum commune*.
- Wet heath/acid grassland. A mix of cross-leaved heath *Erica tetralix*, cottongrass species *Eriophorum sp.*, deergrass *Trichophorum cespitosum* and heath rush *Juncus squarrosus*. Heather *Calluna vulgaris* is also present as is *Sphagnum cuspidatum* in the ditches.

No invasive plant species were recorded during the surveys.

#### *Protected and Notable Species*

Protected faunal species surveys were undertaken in June 2016. Few protected/notable species were identified during this study. The following species were noted, with target notes shown on Figure 5.1:

#### Red squirrel

No red squirrel dreys were identified in the proposed development site. However, a red squirrel was sighted on the road to the south of the site so red squirrels are considered to be present on the site.

#### Wood ant

A wood ant *Formica sp.* nest was identified to the south-east of the proposed development. Wood ants are included in the Local Biodiversity Action Plan.

This nest has been moved to allow for the construction of Tomatin Substation and now located at approximately NH 75387 25115. It is not considered likely that this nest would be impacted. The potential for other wood ant nests to be identified exists.

## 5.4 Potential Impacts and Mitigation

### 5.4.1 Construction

Potential effects during construction are detailed in Table 5.2 below, which also details the relevant receptor and mitigation or control measures, where appropriate.

<b>Table 5.2: Potential Impacts on Ecology during Construction and Relevant Mitigation/Control Measures</b>		
<b>Construction</b>		
<b>Potential Impact</b>	<b>Receptor</b>	<b>Mitigation Measures</b>
Vegetation clearance, tree felling and ground disturbance due to vehicle movements on un-made ground.	Habitats (coniferous woodland, marshy grassland and wet heath/acid grassland mosaic)	<ul style="list-style-type: none"> <li>• Immediate reinstatement of habitats following construction activities;</li> <li>• Avoidance of tree felling, where possible, primarily through micro-siting;</li> <li>• Avoidance of areas of marshy grassland and wet heath/acid grassland, where possible. If not possible, bog mats and/or low</li> </ul>

**Table 5.2: Potential Impacts on Ecology during Construction and Relevant Mitigation/Control Measures**

		<p>ground-pressure vehicles would be used to cross these habitats; and</p> <ul style="list-style-type: none"> <li>• Preparation of a Construction Environmental Management Plan (CEMP). A suitably qualified Environmental Clerk of Works (ECoW) would input into the CEMP to ensure appropriate mitigation measures are in place, and to reduce any impacts;</li> <li>• It is not anticipated that there would be a need for peat disposal as all excavated material would be backfilled.</li> </ul>
<p>Disturbance from lighting, noise and excavations</p>	<p>Red squirrel (and potentially badger, otter and pine marten) Wood ants</p>	<ul style="list-style-type: none"> <li>• Undertake pre-construction surveys for protected species no longer than eight months prior to construction. If the results indicate the presence of protected species additional to those recorded to date, an assessment of the mitigation on the species would be completed and appropriate mitigation measures identified (if required), such as micro-siting of access routes. Standard SHE Transmission Species protection plans (SPPs) would be included in the CEMP;</li> <li>• Should any wood ant nests be found they would be marked with an appropriate buffer zone by the ECoW and avoided by the proposed development as far as possible. If they cannot be avoided they would be relocated to a safe location out with the construction area; and</li> <li>• CEMP to include measures to protect ecological and ornithological features, such as the deployment of mammal ladders in excavations left uncovered overnight. A suitably qualified ECoW would input into the CEMP to ensure appropriate mitigation measures are in place, and to reduce any disturbance impacts.</li> </ul>

<b>Table 5.2: Potential Impacts on Ecology during Construction and Relevant Mitigation/Control Measures</b>		
Pollution e.g. oil spill, siltation of watercourses or dust	Habitats (particularly standing and running water)	<ul style="list-style-type: none"> <li>• Good practice guidance<sup>1617</sup> would be followed when working close to or crossing smaller watercourses; and</li> <li>• The CEMP would include standard pollution prevention guidelines, such as silt traps, during the construction phase to ensure that no water or air borne pollutants reach ecological features.</li> </ul>

#### 5.4.2 Operation

Potential effects during operation are detailed in Table 5.3 below, which also details the relevant receptor and mitigation or control measures, where appropriate.

<b>Table 5.3: Potential Impacts on Ecology during operation and Relevant Mitigation/Control Measures</b>		
<b>Operation</b>		
<b>Potential Effect</b>	<b>Receptor</b>	<b>Mitigation Proposed</b>
Disturbance and displacement due to maintenance activities and presence of site personnel	Red squirrel and wood ants	<ul style="list-style-type: none"> <li>• If any vegetation clearance or excavation is required, breeding bird and protected species surveys would occur prior to this, where appropriate.</li> </ul>
Pollution e.g. oil spill from vehicles accessing proposed development for maintenance activities	Habitats	<ul style="list-style-type: none"> <li>• Oil spill kits carried in vehicles, particularly when working in sensitive habitats such as designated sites, peatlands, marshy grassland and close to watercourses.</li> </ul>

#### 5.5 Residual Impacts

Following the successful implementation of the mitigation proposed it is considered that no residual impacts are predicted on ecological features from the construction or operation of the proposed development.

#### 5.6 Cumulative Impacts

The proposed development is expected to be constructed at the same time as the proposed Glen Kyllachy Wind Farm. The proposed Glen Kyllachy Wind Farm is expected to result in potential significant residual impacts on blanket bog and wet heath and on dry upland and montane heaths. The proposed development crosses an area of wet heath/acid grassland mosaic, although the level of the impact on wet heath is considered to be minimal and much of the habitat lost would be reinstated after construction. The Proposed Glen Kyllachy Wind Farm is predicted to result in the loss of 19.56 ha of blanket bog and wet heath. The proposed development would result in the

16 [https://www.sepa.org.uk/media/150997/wat\\_sg\\_29.pdf](https://www.sepa.org.uk/media/150997/wat_sg_29.pdf) accessed 28th July 2017

17 <http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/> accessed 28th July 2017

temporary loss of approximately 0.25 ha and this is considered to present a very small additional impact.

## 6. ORNITHOLOGY APPRAISAL

### 6.1 Introduction

This chapter identifies the likely impacts on ornithological receptors associated with the construction and operation of the proposed development. The objectives of the chapter are to:

- describe the ornithological baseline;
- identify the potential direct and indirect impacts on ornithological receptors; and
- describe any mitigation measures proposed to address likely impacts.

Figures 6.1 – 6.3 are referenced in the text where relevant.

### 6.2 Methodology

Surveys for the proposed development were initially undertaken between April and June 2016 and supplemented by data collected between April 2013 and March 2014 for the Knocknagael to Tomatin 275kV Overhead Line (OHL). While it is understood that this data is not sufficient to be relied upon to form the baseline for this assessment, due to its age, it does help to understand what some of the likely constraints on the proposed development would include. A walkover survey was undertaken in June 2019 to “ground-truth” the results of the previous surveys.

#### 6.2.1 Desk Study

A desk study was undertaken to collect existing baseline data about the site and surrounding area, such as the location of designated nature conservation sites or other natural features of potential ecological or ornithological importance. The desk study areas considered the following data sources:

- Scottish Natural Heritage (SNH) Sitelink<sup>1</sup>;
- The Badenoch and Strathspey (Cairngorms) Local Biodiversity Action Plan (LBAP) 2002-2013<sup>2</sup> and the Cairngorms Nature Action Plan 2013-2018<sup>3</sup>; and
- Multi Agency Geographic Information for the Countryside (MAGIC)<sup>4</sup>.

Data sources were searched for protected or notable species records. Examples of notable species include, but are not limited to, national or local BAP species, restricted range species, species or species groups listed for local designated sites in the area (Local Nature Reserves, Sites of Importance for Nature Conservation, Sites of Nature Conservation Interest) or key species groups such as invertebrates or non-vascular plants. These species are not considered to have the same importance as those protected by legislation; however, their inclusion allows a more holistic approach and therefore a more robust assessment in line with the applicant’s responsibilities under Schedule 9 of the Electricity Act 1989<sup>5</sup>. This information was used to understand what the key species for the site might be prior to field surveys. Supplementary information on the site and its surroundings was obtained from aerial images available from Google™ Earth Pro.

---

1 <http://gateway.snh.gov.uk/sitelink/>, accessed 23rd July 2018

2 <http://www.highlandbiodiversity.com/userfiles/file/acion-plans/badenoch-whole.pdf> accessed 23rd July 2018

3 <http://cairngorms.co.uk/resource/docs/publications/13052013/CNPA.Paper.1898.Cairngorms%20Nature%20Action%20Plan%202013-2018.pdf> accessed 23rd July 2018

4 <http://magic.defra.gov.uk/MagicMap.aspx> accessed 27th July 2018

5 <http://www.legislation.gov.uk/ukpga/1989/29/schedule/9> accessed 23rd July 2018

### 6.2.2 Vantage Point Surveys

The Vantage Point (VP) survey programme ran from April 2013 to March 2014 collecting data for the now constructed Knocknagael to Tomatin 275kV OHL. Data on flight behaviour, direction and estimated height above ground level by key species was collected from strategically located vantage points. The scope and methodology for the surveys was agreed with SNH in March 2013 prior to the surveys commencing. Data from 12 VP locations was collected, with data from locations 7 and 8 relevant for the proposed development.

Each VP location was watched for three hours on three occasions each month, with these being spread out across the month to provide even coverage. Each of these surveys was classed as either an early, middle or late survey to provide even coverage across times of day and to include dawn and dusk surveys in those months when species such as geese might be present. Surveys were organised wherever possible to avoid surveying at the same time of day over sequential months. This ran for 12 months from April 2013 to March 2014 amassing 108 hours of surveying per VP location; or 36 hours for each season (summer, winter and spring/autumn migration).

Flights were recorded as per the SNH best practice guidelines for onshore wind farms relevant at the time<sup>6</sup>; with this method adapted to suit an OHL. Each flight was split into 15 second sections and each section was assigned to a height band related to the configuration of wires on the Knocknagael to Tomatin OHL. This information was adapted to suit the configuration of the proposed development.

All species of raptor, wader and wildfowl as well as notable species such as black grouse *Lyrurus tetrrix* were recorded as primary species. Other information e.g. flights by gull species, was also recorded in a shortened form by noting the species and whether it crossed the proposed development at collision risk height.

### 6.2.3 Breeding Raptor Surveys

During prior surveys of the field survey area, raptors were observed behaving in ways that indicated the presence of a territory. Goshawk *Accipiter gentilis* were observed displaying near the proposed Tomatin substation, which highlighted the need to conduct Breeding Raptor Surveys within the field survey area.

Surveys were undertaken following guidance<sup>7</sup> looking for any behaviour that would indicate the presence of a nest and, if possible, to identify the location of the nest. Three hour VP surveys were undertaken at various points along the route with surveyors moving to locations that gave them a better view of raptor flights. These surveys were undertaken in March and April 2016.

Goshawk nest searches were also undertaken under license during the BBS in and around Glen Kyllachy.

### 6.2.4 Breeding Bird Surveys

Breeding Bird Surveys (BBS) are a generic survey and were carried out following a methodology adapted from the Common Bird Census used by the British Trust for Ornithology (BTO)<sup>8</sup>. It also incorporated aspects of the Brown and Shepherd methodology<sup>9</sup> by covering within 100 m of any

---

<sup>6</sup> Whitfield, P., Bullman, R. and Band, B. (2005) Survey Methods for use in Assessing the Impacts of Onshore Windfarms in Bird Communities. SNH Advisory Services and National Strategy.

<sup>7</sup> Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. and Thompson, D. (2009) Raptors A Field Guide for Surveys and Monitoring. The Stationary Office: Edinburgh. ISBN 978 0 11 497345 2.

<sup>8</sup> Bibby, C.J. *et al.* (2000) Bird Census Techniques. Second Edition. London: Academic Press.

<sup>9</sup> Brown, A.F. and Shepherd, K.B. (1993). A Method for Censusing Upland Breeding Waders. Bird Study 40: 189-195.



point in the field survey area, defined as a 1 km wide corridor around the proposed alignment for the new OHL, in upland habitats. The purpose of these surveys is to provide information on birds using the site that were not recorded during the Vantage Point (VP) Surveys. Once the surveys were completed and the data analysed then the species breeding on site and their respective number of territories could be estimated.

The full field survey area was walked to within 100 m of every point by experienced ornithologists who recorded any birds seen or heard using in-field mapping techniques. Each bird recorded was given a relevant behaviour code which was then used to discern if a bird was confirmed to be breeding, possibly breeding or not breeding. For the purposes of this assessment, a bird displaying any territorial activity (e.g. singing, alarm calling, carrying food/nesting materials) was confirmed to be within its breeding territory. Those observed calling could not be confirmed to be breeding, but were possibly breeding. Any bird that was observed displaying no behaviour or simply flying over the field survey area was classed as not breeding.

These surveys were carried out three times between April and June 2016. The data was analysed using Geographic Information System (GIS) software with mapping of all records from the three surveys for each species. By combining the data and discounting records that were thought to be the same bird, the number of territories for each species within the field survey area was estimated.

#### 6.2.5 2019 Walkover Survey

Following consultation with SNH<sup>10</sup>, a “ground-truthing” walkover survey was undertaken in June 2019. This survey was targeted at goshawk from an ornithological perspective, and also recorded ecological features as discussed in **Chapter 5: Ecology**. No nest search for goshawk was undertaken.

### 6.3 Baseline Conditions

#### 6.3.1 Designated Sites

Figure 6.1: Designated Sites shows the designated nature conservation sites of ornithological importance located within the ornithological desk study area. The sites with a statutory designation for ornithological interest within the desk study area are detailed in Table 6.1. Where there is no potential for connectivity, defined as the potential for qualifying interest species of the designated nature conservation site to be using the habitats of the proposed development, this is detailed and the designated nature conservation sites are not considered any further in the assessment

---

<sup>10</sup> L1700003364\_SNH\_2, 26/04/2019.

**Table 6.1: Designated Sites within Ornithological Study Area**

Site Name	Relevant Qualifying Species	Distance to Proposed Development	Connectivity with Proposed Development
Kinveachy Forest Special Protection Area (SPA), Site of Special Scientific Interest (SSSI) and Important Bird Area (IBA)	Breeding pinewood species, including nationally important numbers of breeding crested tit <i>Lophophanes cristatus</i> ; and Breeding capercaillie <i>Tetrao urogallus</i> and Scottish crossbill <i>Loxia scotica</i> .	8.5 km to the south-west	No impacts are predicted as the species for which the site is classified/notified are not wide ranging and consistent suitable habitat, to act as a corridor between the designated site and the proposed development, does not exist. This site does not have connectivity with the proposed development.

### 6.3.2 Vantage Point Surveys

The results of the VP surveys are shown on Figure 6.2: Vantage Point Survey Results. The VP surveys recorded a wide range of raptor species flying around the proposed development, including:

- Red kite *Milvus milvus*;
- White-tailed eagle *Haliaeetus albicilla*;
- Hen harrier *Circus cyaneus*;
- Goshawk;
- Sparrowhawk *Accipiter nisus*;
- Buzzard *Buteo buteo*;
- Osprey *Pandion haliaetus*;
- Merlin *Falco columbarius*; and
- Peregrine *Falco peregrinus*.

Breeding behaviour was observed from goshawk, with many flights recorded of up to four birds. This suggested the presence of a potential goshawk territory within the forest around the proposed development. The surveys also identified probable territories of sparrowhawk and buzzard near the proposed development.

### 6.3.3 Breeding Raptor Surveys

The breeding raptor surveys again recorded high levels of flight activity from goshawk, including breeding behaviour. Nest searches were also undertaken, under licence, in 2014 and 2016, with no goshawk nests recorded. There is still potential for a nest to exist in the woodland to the south-west of the site. This area was not searched as it is considered out with the potential disturbance distance for goshawk of 500 m<sup>11</sup>.

### 6.3.4 Breeding Bird Survey

The results of the BBS are shown on Figure 6.3: Breeding Bird Survey Results. The BBS recorded a typical suite of species that would be expected in coniferous woodland and moorland.

During these surveys a black grouse lek was identified approximately 2.7 km to the west of the proposed development. This is considered to be outwith the zone of potential disturbance (up to 750 m) of the proposed development<sup>12</sup>.

### 6.3.5 2019 Walkover Survey

During the 2019 walkover survey no sightings of goshawk, or any other important ornithological features, was recorded.

---

<sup>11</sup> Ruddock, M. and Whitfield, D.P. (2007) A Review of Disturbance Distances in Selected Bird Species. Natural Research (Projects) Ltd. for SNH.

<sup>12</sup> *Ibid*

## 6.4 Potential Impacts and Mitigation

### 6.4.1 Construction

Potential effects during construction are detailed in Table 6.2 below, which also details the relevant receptor and mitigation or control measures, where appropriate.

<b>Table 6.2: Potential Impacts on Ornithology during Construction and Relevant Mitigation/Control Measures</b>		
<b>Construction</b>		
<b>Potential Impact</b>	<b>Receptor</b>	<b>Mitigation Measures</b>
Disturbance from lighting, noise and excavations	Goshawk territory Potential new black grouse leks	<ul style="list-style-type: none"> <li>The majority of bird species are not protected from disturbance under the Wildlife and Countryside Act, 1981<sup>13</sup>. However, black grouse are listed under Schedule 1 and their leks are protected from disturbance, which can occur at a distance of 300-500 m. Should any new leks be identified the Environmental Clerk of Works (ECoW) would be responsible for maintaining buffer zones to avoid any disturbance impacts.</li> </ul>
Destruction of bird nests	Breeding birds	<ul style="list-style-type: none"> <li>Ground or vegetation clearance works would be undertaken outwith the main bird nesting season (March–September, inclusive), if possible. If this is not possible, a suitably experienced ecologist would check the proposed development prior to construction to determine if nesting birds are present. If nesting birds are found, a suitable buffer zone would be implemented around the nest, with no work in this zone until the young have fledged or the nest is no longer in use.</li> <li>Adherence to The Applicant’s species protection plans for birds.</li> </ul>

<sup>13</sup> <https://www.legislation.gov.uk/ukpga/1981/69>

## 6.4.2 Operation

Potential effects during operation are detailed in Table 6.3 below, which also details the relevant receptor and mitigation or control measures, where appropriate.

<b>Table 6.3: Potential Impacts on Ornithology during operation and Relevant Mitigation/Control Measures</b>		
<b>Operation</b>		
<b>Potential Effect</b>	<b>Receptor</b>	<b>Mitigation Proposed</b>
Collision Risk	Birds of prey, particularly goshawk.	Goshawk ecology is focussed on making fast flights through dense vegetation in pursuit of avian prey. To do this they must have excellent vision and awareness of potential obstructions, such as trunks or branches. It is considered likely that goshawk would be capable of spotting and avoiding the proposed development and that it would provide a low level of collision risk to the birds using Glen Kyllachy.  No significant impact from collision risk is considered to exist.

## 6.5 Residual Impacts

Following the successful implementation of the mitigation proposed it is considered that no residual impacts are predicted on ornithological features from the construction or operation of the proposed development.

## 6.6 Cumulative Impacts

The proposed development is expected to be constructed at the same time as the proposed Glen Kyllachy Wind Farm. The EIA for the proposed Glen Kyllachy Wind Farm assesses disturbance impacts on golden plover *Pluvialis apricaria* and collision risk for red kite, golden eagle *Aquila chrysaetos* and peregrine falcon, with residual impacts for all species predicted to not be significant. No impacts on golden plover are predicted associated with the proposed development and flight activity levels for red kite, golden eagle and peregrine falcon are considered low enough so that only a very small additional collision risk for each species is predicted.

## 7. WATER ENVIRONMENT AND SOILS APPRAISAL

### 7.1 Introduction

This chapter identifies the likely impacts on the water environment and soil receptors associated with the construction and operation of the proposed development. The objectives of the chapter are to:

- describe the water environment and soils baseline;
- identify the potential direct and indirect impacts on environment and soil receptors; and
- describe any mitigation measures proposed to address likely impacts.

This chapter is supported by:

- Technical Appendix 7.1.

Figure 7.1 is referenced in the text where relevant.

### 7.2 Methodology

Desktop assessment has been carried out on the potential impacts of the proposed development on water and soils. Surveying of the wider area was carried out in 2016 and this surveying informs the assessment below. Ecological surveying carried out in 2016 and updated following a site visit in 2019 has been used to assess impacts on areas identified as potentially groundwater dependent. No further site visit or surveying has been carried out in respect to hydrology.

The following sources of information have been consulted in this chapter:

- OS 1:25,000, 1:10,000 and 5 m DTM mapping;
- British Geological Survey 1:625,000 bedrock and superficial geological mapping and 1:625,000 hydrogeological mapping of groundwater resources;
- The National Soils Map of Scotland and the Carbon and Peatland 2016 Map;
- Drinking Water Quality Regulator online map of Private Water Supplies
- SEPA Engineering in the Water Environment Good Practice Guide -Temporary Construction methods;
- SEPA GPP2 - Guidance for Pollution Prevention, 2009; and
- SEPA Water Environment (Controlled Activities) Regulations 2011 (CAR), v8.1 January 201

### 7.3 Baseline Conditions

OS 1:25,000 mapping records several watercourses in close proximity and likely hydrological connection to the proposed route. From the north to south the following watercourses represent potential receptors and pathways, were sediments or pollutants released during the construction or operational phases:

- Allt a'Mharcaidh lies to the west of the proposed route and flows broadly parallel to the OHL in a southerly direction. The watercourse flows 25 m to the west of the proposed route at its closest point.
- The proposed route crosses Allt Chaillich approximately 650 m south of the start of the proposed route. Allt Chaillich flows to Allt a'Mharcaidh approximately 120 m south west of the proposed crossing point.

- Kyllachy Burn (to which Allt a'Mharcaidh discharges) is 750 m south of the southern extent of the proposed development. The Kyllachy Burn is classified by SEPA as being of 'Good' overall under the Water Framework Directive (WFD).
- Kyllachy Burn discharges to the River Findhorn approximately 1.5 km south of the southern extent of the proposed development at its nearest point. The River Findhorn is classified by SEPA as being of 'Good' overall under the Water Framework Directive (WFD).

The topography of the site is such that surface water falling within the development corridor would flow to the watercourses identified above, eventually discharging to the River Findhorn.

There is only one point at which the proposed development crosses a watercourse as identified on 1:25,000 OS mapping. The route crosses Allt Chaillich approximately 650 m south of the start of the proposed route, at national grid reference 274782, 826331. However, given that the indicative spacing for wood poles is 80 m it is not anticipated that installation of the OHL will require any construction activity on the watercourse bank or bankside engineering. Therefore, it is not considered that the proposed OHL development will necessitate assessment in order to comply with Water Environment (Controlled Activities) Regulations 2011 (CAR), as amended as there is a very limited likelihood of adverse impact on the water environment.

British Geological Survey 1:625,000 mapping shows that the proposed route is predominantly underlain by bedrock of Gneissose Psammite and Gneissose Semipelite of the Moine Supergroup. Approximately 215 m of the proposed OHL route development are underlain by unnamed igneous intrusions (felsic rock). The underlying geology is classified as comprising a Low Productivity Aquifer on BGS mapping and as such groundwater flow is virtually all through fractures and other discontinuities. Small amounts of groundwater may be held in the near surface weathered zone and secondary fractures, with rare springs. BGS 1:625,000 mapping records the whole proposed route to be underlain by superficial deposits of till and diamicton.

The National Soil Map of Scotland shows that the site is underlain by Peaty Podzols with dystrophic blanket peat. Under the Carbon and Peatland 2016 Map peat soil underlying the proposed route is assessed as Class 5 peatland. Class 5 peatland represents an area in which soil information takes precedence over vegetation data and no peatland habitat is recorded and which may also include areas of bare soil.

Peat surveying, as reported in Technical Appendix 7.1, shows that shallow peaty soils are present along the length of the proposed OHL route and limited and localised areas of deeper peat (up to a maximum of 1.7 m below ground level) are present at the north of the development.

The majority of the proposed route is cleared commercial forestry and a haul route runs parallel to the proposed development. NVC surveying was carried out in 2016 to identify locations of potentially groundwater dependent terrestrial ecosystems (GWDTE), this data was updated following a site walkover by Ramboll ecologists in 2019 (as shown in Figure 7.1).

Surveying indicates that the vegetation overlying the majority of ground on which the development is not indicative of potentially groundwater dependent areas. Two sections of the proposed development intersect with areas considered to be of potentially high groundwater dependency as detailed in Table 7.1 below.

<b>Location description</b>	<b>NVC GWDTE classification</b>	<b>Length of intersection</b>	<b>Vegetation description</b>
North of Allt Chaillich	High	140 m	Marsh/Marshy Grassland
South of Allt Chaillich	High	12 m	Marsh/Marshy Grassland

Aerial imagery suggests that areas identified as potentially groundwater dependent follow the routes of forestry tracks that contour parallel to the course of the Allt a’Mharcaidh, or areas in close proximity to Allt a’Mharcaidh itself. As such it is considered likely that these areas represent likely pathways/minor watercourses by which surface waters are conveyed and therefore are not areas in which base groundwater supplies represent the main source of water supply. The compacted area of former track is likely to have poor infiltration levels creating a waterlogged surface. GWDTE habitats may develop in this wet environment, however, the likelihood of the habitats being connected to the underlying groundwater is considered to be low.

There is potential that shallow groundwater flows from peat deposits flow to potentially GWDTE areas. However, taking in to account the limited permeability of underlying bedrock, it is probable that such shallow groundwater emergence would comprise ephemeral flows during periods of saturation of peat soils.

With regards to Private Water Supplies (PWS), Ramboll has reviewed mapping of private water supplies provided by The Highland Council in April 2019 (as shown in Figure 7.1) and online available through the Drinking Water Quality Regulator for Scotland (DWQRS). These sources record no PWS abstractions from surface waters up to at least 5 km from the site. The nearest PWS to the proposed route (extracted from a borehole) is 1.6 km south of the proposed route, upstream of the confluence of the Kyllachy Burn with the River Findhorn. Further PWS are present 2 km (estate cottages and deer larder at Dalarossie ) and 2.5 km to the south west of the site (well at premises). None of these locations are considered to be in potential hydrological connectivity to the site, based on assessment of local catchments from LiDAR terrain data. Therefore, it is considered that the proposed development is highly unlikely to cause any negative impacts on PWS identified in the records reviewed.

## **7.4 Potential Impacts and Mitigation**

### **7.4.1 Construction**

Potential effects during construction are detailed in Table 7.2 below, which also details the relevant receptor and mitigation or control measures, where appropriate.

<b>Construction</b>		
<b>Potential Impact</b>	<b>Receptor</b>	<b>Mitigation Measures</b>
Risk of sediment produced during construction entering any nearby watercourses	Watercourses as identified in section 7.3	Implementation of good practice guidance for working in close proximity to the water environment <sup>1</sup>

<sup>1</sup> URL: <https://www.sepa.org.uk/regulations/water/engineering/engineering-guidance/> (accessed 09/09/2019)



Excavations at the pole locations could result in groundwater discharge and stockpiled material at the working areas	Watercourses as identified in section 7.3, surface water fed areas of vegetation	If dewatering is required, suitable mitigation measures will be put in place, as necessary, to settle out any suspended solids from the pumped groundwater before being safely discharged to surrounding vegetation, such that waters disperse naturally.
Drying of excavated peat soils	Degradation of upper, living layer of peat (acrotelm) and associated vegetation	<p>Areas of deep peat will be avoided by micro-siting, where possible.</p> <p>Peat turves to be cut and stored (topside up) such that they do not dry out prior to reinstatement after installation of wood poles</p> <p>Each woodpole shall be constructed in no more than 2 days. As such, peat would not be exposed for long periods of time.</p> <p>Management practices for peat materials shall be in accordance with methodologies set out in a Construction Environmental Management Plan (CEMP) which would be developed by the appointed contractor.</p>
Interruption of groundwater flow would potentially reduce the supply of groundwater water to GWDTEs	GWDTEs (alteration in quality or quantity of water supply)	<p>Minimising the extent of construction work within wetland and blanket bog habitat including GWDTE.</p> <p>Clean runoff (i.e. non-silty surface water flow, including that which has not passed over any disturbed construction areas) would be kept separate from potentially contaminated, water interceptor ditches and other drainage diversion measures would be installed.</p> <p>Clear delineation of areas supporting priority species through pre-construction protected species survey.</p>
Contamination of groundwater may also cause physical or chemical contamination to the GWDTE	GWDTEs (alteration in water quality)	Construction to be carried out in accordance with good practice as defined in SEPA guidance provided in the Guidance for Pollution Prevention (GPP) document.

#### 7.4.2 Operation

Potential effects during operation are detailed in Table 7.3 below, which also details the relevant receptor and mitigation or control measures, where appropriate.

<b>Table 7.3: Potential Impacts on Water Environment and Soils during operation and Relevant Mitigation/Control Measures</b>		
<b>Operation</b>		
<b>Potential Effect</b>	<b>Receptor</b>	<b>Mitigation Proposed</b>
Interruption of groundwater flows by sub-surface elements of wood poles	Peat soils GWDTE	No mitigation is proposed as wood pole excavations will be backfilled with the materials arising on the site, and as such interruptions to the groundwater flow are considered unlikely.

## 7.5 Residual Impacts

No residual impacts are predicted during the construction phase of the proposed development, provided mitigation measures and best practice procedures are implemented as outlined in the assessment above.

### 7.5.1 Operation

Potential residual impacts during operation are detailed in Table 7.4 below.

<b>Table 7.4: Potential Residual Impacts on Water Environment and Soils during Operation</b>	
<b>Construction</b>	
<b>Residual Impact</b>	<b>Description / Magnitude of Impact</b>
Improvement of peat drainage and diversification of NVC communities on undisturbed and uncultivated ground below the proposed development.	Reduced interruption of surface water flows due to the absence of plantation forestry and improved water chemistry in the absence of coniferous plantation and leaf drop. It is considered likely that magnitude of the continued clearance of land in close proximity to the OHL would be of a small magnitude in the context of the wider surrounding landscape.

## 7.6 Cumulative Impacts

The proposed development is to be developed within the existing context of the Tomatin substation and Tomatin substation haul route. Construction of the Glen Kyllachy Wind Farm (approved subject to conditions) is likely to be taking place at the same time as the installation of the transmission line. However, taking into account the small magnitude of any potential disturbance as a result of installation of the OHL, and as no potential residual impacts are predicted as a result of the proposed OHL development it is not anticipated that there will be cumulative impacts of the development.

## 8. LANDSCAPE AND VISUAL APPRAISAL

### 8.1 Introduction

This chapter presents an appraisal of predicted landscape and visual impacts as a result of the proposed 132 kV wood pole overhead line (OHL) between the consented Glen Kyllachy wind farm and Tomatin substation, north of Garbole in the Findhorn Valley (see Figure 8.1). The aim of the Landscape Visual Appraisal (LVA) is to assess the potential impacts of the proposed development on the landscape and visual resource of the site and surrounding area.

This chapter is supported by:

- Figure 8.1: Site Location and Study Area with Zone of Theoretical Visibility (ZTV);
- Figure 8.2: Topography within the Study Area;
- Figure 8.3: SNH Landscape Character Types within the Study Area;
- Figure 8.4: Viewpoint Locations; and
- Figure 8.5 – 8.8: Viewpoint Baseline Photographs and Visualisations.

### 8.2 Methodology

#### 8.2.1 Scope of Assessment

The Landscape and Visual Appraisal (LVA) considers impacts on:

- landscape fabric, caused by changes to the physical form and constituents of the landscape;
- landscape character, caused by changes to key characteristics and qualities of the landscape; and
- visual amenity, caused by changes to the visual composition of views and the wider visual resource.

The LVA also considers cumulative impacts attributable to the proposed development when considered in conjunction with consented, operational and proposed developments of a similar type.

The LVA is based on a double 'H' wood pole overhead line carrying a single circuit (3 conductors) in flat (horizontal) formation, assuming a typical pole height of 13 m (including insulators). In addition, the assessors have taken into account that the maximum vertical LOD is 18 m and pole heights will vary in certain locations in order to accommodate topographic variation.

The proposed development is described in Chapter 3: Proposed Development.

#### 8.2.2 Consultation

No specific consultation has been undertaken for this LVA. The scope of work reflects that which was proposed as part of the screening request to Scottish Ministers, which was shared with relevant consultees including THC. THC confirmed their agreement of the proposed scope of the Environmental Appraisal in their consultation response to the Screening Report, dated 29<sup>th</sup> July 2019. This was confirmed in the formal Screening Opinion, dated 16<sup>th</sup> September 2019.

#### 8.2.3 Preliminary Visual Analysis

A preliminary visual analysis was carried out to identify landscape and visual receptors which are predicted to have theoretical visibility of the proposed development based on the size, scale and

alignment of the proposed development, based on the Zone of Theoretical Visibility (ZTV) presented in Figure 8.1.

#### 8.2.4 Assessment Methodology

The purpose of the LVA is to identify, predict and evaluate potential impacts associated with the proposed development. Wherever possible, identified impacts are quantified, however the nature of LVA requires interpretation by professional judgement. In order to provide a level of consistency to the assessment, the prediction of magnitude of impact and assessment of the residual landscape and visual impacts have been based on pre-defined criteria.

##### *Guidelines*

The LVA accords with guidance provided in:

- Landscape Institute and Institute of Environmental Management and Assessment (2013) Guidance for Landscape and Visual Impact Assessment – Third Edition (GLVIA3);
- The Countryside Agency and Scottish Natural Heritage (2002) Landscape Character Assessment;
- Scottish Natural Heritage and the Countryside Agency (2002) Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity; and
- Advice Note 01/2011: Photography and Photomontage in Landscape and Visual Assessment (the Landscape Institute, 2011).

##### *Data*

The LVA was informed by data gathered from the following sources:

- OS Terrain 5;
- Ordnance Survey mapping (1:25,000; 1:50,000);
- Scottish Natural Heritage (SNH) Landscape Character Types (LCT) Assessment 2019;
- Field surveys in August 2019;
- Commercially available aerial photography;
- Computer generated theoretical ZTV (bare ground); and
- Site photography;

##### *Measurements*

Receptor distances from the proposed development are calculated on the basis of the nearest pole location. Where measurements are given between landscape character types, designated areas, routes or settlements, such measurements relate to the nearest part of such areas and routes to the proposed development.

##### *Study Area*

Defining the study area takes into account the nature of the topography, the pattern of visibility shown by the ZTV, the presence of existing vegetation and the pattern of settlement and other visual receptors such as residents, travellers and those engaging in recreation in the area surrounding the proposed development.

The study area adopted for this appraisal is a 1 km buffer from the alignment of the proposed infrastructure, as illustrated in Figure 8.1. The appraisal only considers those areas within the study area which have theoretical visibility of the proposed development.

### *Assumptions and Limitations to the Assessment*

This appraisal has assumed that the woodland and shelterbelts / roadside vegetation located in the study area would be retained. Any coniferous plantation woodland is anticipated to be on rotational felling cycle (unless otherwise known), and this has been taken into consideration in the appraisal.

Access to private properties was not requested as part of the appraisal of visual impacts. In accordance with GLVIA3, the appraisal considers receptors in publicly accessible locations. Where assessment of views from residential properties/ property groups has been undertaken this was completed from publicly accessible locations.

No assessment has been undertaken for individual residential or private properties. Due to the distance between the proposed development and the nearest residential receptor, and the lack of visibility of the proposed development, a residential visual amenity assessment (RVAA) was not undertaken.

## 8.2.5 Assessment Process

### *Baseline*

Prior to site work being undertaken, a baseline study was carried out to gain an understanding of the character of the landscape in the immediate and wider area of the proposed development site, identify any areas designated for their landscape and scenic qualities, and to identify key visual receptors most likely to be affected by the proposed development.

The assessment of baseline conditions was undertaken with reference to existing landscape character assessment studies. These studies have been considered and verified on site, and for the purposes of the LVA of the proposed development, the findings have been adopted as defining the baseline landscape character.

The LVA also considers landscape and visual impacts on designated landscapes in the study area, as well as non-designated sensitive landscapes such as Gardens and Designed Landscapes (GDLs) or areas of Wild Land.

The LVA considers impacts on visual amenity at publicly accessible areas including outdoor recreational areas, settlements, roads and the public rights of way.

### *Visibility Mapping*

To assist in evaluating potential landscape and visual impacts arising from the proposed development, a ZTV was generated to identify the potential extent of the proposed development's visibility over the study area.

The ZTV presents the area from which the proposed development may be visible. The ZTV is produced by computer modelling using ArcMap GIS software, and a 5 m digital terrain model (DTM) and was modelled based on the anticipated pole locations. Wood poles were modelled at 18 m heights to provide a worst case scenario.

The resulting ZTV is shown on Figure 8.1, overlaid on OS 1:50,000 mapping to provide an indication of where the proposed development would theoretically be seen from, and which receptors would therefore be potentially affected by views of the proposed development. It should be noted, that the ZTV findings are based on a bare ground terrain model which does not take account of the screening of vegetation or built development, nor does it include localised topographical variations or features in topography. This is considered important in respect of the LVA as the area in which the proposed development would be located has extensive plantation woodland, semi-natural and

ancient woodland tree cover, hedges and riparian vegetation, which serve to restrict intervisibility and potential views of the proposed development. Consequently, visibility would be considerably less than indicated in the ZTV.

Given the inherent limitations of the ZTV, it has only used as a tool to inform the understanding of the general pattern of visibility of the proposed development. Site work was utilised to verify the findings of the ZTV, thereby gaining an understanding of where screening may be afforded, and where discrepancies are found, these are described in the text.

#### *Site Survey and Fieldwork*

Field surveys and site photography were undertaken in August 2019 to identify specific landscape constraints, visual receptors and to verify data collected in the desk based baseline appraisal.

#### *Landscape and Landscape Receptors*

Landscape receptors include the different landscape character types or areas which may be affected by the proposed development, as well as landscape designations or classifications within the study area.

The ZTV indicates those areas of the landscape which have the potential to be affected (directly or indirectly) by the proposed development. Landscape receptors considered in this appraisal include:

- the landscape of the site;
- Landscape Character Types (LCTs) as they lie within the study area; and
- Designated landscapes within the study area.

#### *Viewpoints and Visual Receptors*

Only those receptors with potential for visibility (as indicated by the ZTV) have been considered for inclusion in the visual impact appraisal. Baseline research and field work confirmed the actual visibility of the proposed development and identified those receptors who were likely to be affected by views of the proposed development.

The visual appraisal is illustrated from four viewpoints (VPs) which have been selected to present typical views from within the study area, illustrating the impacts on viewers from different directions and at different distances. These VPs are listed and described in Table 8.1 and shown on Figure 8.4, and are all publicly accessible. The purpose of the viewpoint appraisal is to ascertain the level of visual impact at specific locations and to help to inform the appraisal of the overall impact of the proposed development on visual amenity.

It is considered that the viewpoints presented in Table 8.1 provide a representative spread of the locations where views of the proposed development are available for sensitive receptors.

<b>Table 8.1: Viewpoint Locations</b>		
<b>VP Ref and Name</b>	<b>Approximate Coordinates</b>  <b><i>Distance to Proposed Development</i></b>	<b>Description and Reason for Selection</b>
VP01 - Forest track	NH 74238 27018200 <i>m north west</i>	Representative of local walkers and other recreation uses  Located within the Rolling Upland Inverness Landscape Character Type (LCT).

VP02 - unclassified road north (linking Gaich and Tomatin)	NH 74058 25482 <i>900 m west</i>	Representative of local road users located at an elevated position within the study area. Located within the Rolling Upland Inverness Landscape Character Type (LCT).
VP03 - Garbole, Rural dwelling (Asgard)	NH 75675 24230 <i>1.4 km south east</i>	Representative of views from the nearest property to the proposed development Also representative of views from the local road (Ref U1116) near residential properties, at the southern end of the Allt a' Mharcaidh valley through which the line runs. Located within the Rolling Upland Inverness Landscape Character Type (LCT).
VP04 - unclassified road south (linking Gaich and Tomatin)	NH 74749 25302 <i>300 m west</i>	Representative of views from the local road near recently felled forestry, at the north western side of the valley through which the line runs. Located within the Rolling Upland Inverness Landscape Character Type (LCT).

### *Mitigation*

Mitigation measures which have been developed to reduce, remedy or avoid the impacts arising as a result of the proposed development are presented in Tables 8.4 and 8.5 of this chapter.

### *Residual Effects*

As identified in GLVIA3, effects are identified by establishing and describing the changes to the landscape and visual baseline resulting from the proposed development and the resulting effects on individual landscape or visual receptors. The assessment of effects is derived from a comparison of the sensitivity of receptors and the magnitude of impact anticipated as a result of the construction and operation of the proposed development, as indicated in Tables 8.6 and 8.7 below.

There is no requirement for a formal EIA to support this application. The appraisal has used the guidance provided by GLVIA3 Statement of Clarification 1/13 on the terminology to be used in non-EIA Landscape and Visual Appraisals:

*“In carrying out appraisals, the same principles and process as LVIA may be applied but, in so doing, it is not required to establish whether the effects arising are or are not significant given that the exercise is not being undertaken for EIA purposes. The reason is that should a landscape professional apply LVIA principles and processes in carrying out an appraisal and then go on to determine that certain effects would be likely be significant, given the term ‘significant’ is enshrined in EIA Regulations, such a judgement could trigger the requirement for a formal EIA.*

*The emphasis on likely ‘significant effects’ in formal LVIA stresses the need for an approach that is proportional to the scale of the project that is being assessed and the nature of its likely effects. The same principle – focussing on a proportional approach – also applies to appraisals of landscape and visual impacts outside the formal requirements of EIA.”*

In line with current guidance contained within GLVIA3, the terms ‘significant’ and ‘not significant’ have not been used in this appraisal. The level of impact is assessed through a combination of two considerations – the sensitivity of the receptor (landscape or visual), and the magnitude of impact arising from the development of the proposals, as described above. The levels of impact have been

set using the terms none, negligible, minor, moderate, or major in order to quantify the findings of the assessment. There is a gradual, indistinct transition between levels, and the given grade is based on many variables, weighed up by the application of professional judgement and experience, on a case by case basis. Each assessment varies depending on the location, the landscape and visual context and the type of development proposed.

<b>Magnitude of Impact</b>	<b>Sensitivity of Receptor to Impact</b>		
	<i>High</i>	<i>Medium</i>	<i>Low</i>
<i>High</i>	Major	Major/ Moderate	Moderate
<i>Medium</i>	Major/ Moderate	Moderate	Minor
<i>Low</i>	Moderate	Minor	Minor/ Negligible
<i>Negligible</i>	Minor	Minor/ Negligible	Negligible
<i>None</i>	None	None	None

#### *Illustrative Tools*

In addition to the ZTV, figures have been produced to show the location of landscape designations, landscape character areas, recreational routes and VP locations within the study area (see Figure 8.2 – 8.4).

Baseline photography and wirelines which show the proposed development have been prepared for all viewpoints.

Photomontages have been prepared for two of the VPs where views of the proposed development would be available, and not screened by intervening vegetation or topography. These have been created using the baseline photography and rendering the image using a model of the proposed development (see Figures 8.5 and 8.8).

It should be noted that, whilst photography is a valuable tool to assist in the visualisation process, it cannot be expected to replicate the actual view or predicted view which would be attained on the ground.

### 8.2.6 Undertaking the Assessment

#### *Nature of Impacts*

Impacts can be adverse (resulting in the loss or erosion of key characteristics of the landscape and/or view) or beneficial (resulting in an enhancement or improvement to the baseline condition of the landscape and/or view). For the purposes of this assessment impacts are assumed to be adverse unless stated otherwise. It is important to note that impacts can impact on both the degree and nature of impacts during the course of development, and with the maturation of some mitigation measures (e.g. tree/shrub planting which would gradually screen development and strengthen the character, structure and condition of the landscape, offering beneficial outcomes).

The assessment of residual impacts is set out in Tables 8.6 and 8.7 of the LVA. Proposed mitigation measures aimed at impact avoidance, reduction of impacts and/or replication of landscape and visual characteristic elements are outlined in Tables 8.4 and 8.5



### *Landscape Sensitivity*

The sensitivity of landscape receptors to impact arising from the type of development proposed is defined as high, medium and low and is based on professional interpretation of their value and susceptibility to the type of development proposed.

The value attached to landscape receptors (landscape character) is reflected by landscape designations and the level of importance which they signify. However, landscape designations are not the sole indicator of landscape value. The following factors are also important considerations in ascribing value:

- Landscape quality;
- Scenic quality;
- Rarity;
- Representativeness;
- Conservation interest;
- Recreation value;
- Perceptual aspects; and
- Cultural associations.

Susceptibility to impact concerns the ability of the landscape receptor to accommodate the proposed development without undue negative consequences for the maintenance of the baseline situation and/or the landscape planning policies and strategies.

The susceptibility of landscape character to impact is defined as high, medium or low based on an interpretation of a combination of parameters including:

- The scale and pattern of the landscape and its elements/features;
- The simplicity or complexity of the landscape;
- The nature of skylines;
- Landscape quality or condition;
- Existing land use;
- Visual enclosure/openness of views; and
- The scope for mitigation, which would be in character with the existing landscape.

### *Sensitivity of Visual Receptors*

The sensitivity of visual receptors is defined as high, medium and low based on professional interpretation, combining judgements of their susceptibility to the type of impact or development proposed and the value attached to the particular views. Visual receptors are assessed in terms of both their susceptibility to impact in views and visual amenity and also the value attached to particular views.

The susceptibility of different visual receptors to impact in views and visual amenity is mainly a function of:

- The occupation or activity of people experiencing the view at particular locations; and
- The extent to which their attention or interest may therefore be focused on the views and the visual amenity they experience (and expect) at that particular location.

In relation to the occupation or activity of people experiencing the view at the viewpoint, visual susceptibility is defined as follows:

- High: Residents of dwellings; users of outdoor recreational facilities including strategic recreational footpaths, cycle routes or rights of way, whose attention is focused on the landscape; visitors to cultural/historic assets where views out from the location are key to the enjoyment and experience of the asset, important landscape features with physical, cultural or historic attributes; beauty spots or picnic areas. Travellers on key tourist routes where vehicles are likely to contain passengers who have a particular interest in views of the landscape.
- Medium: General road users, commuters and travellers not primarily focused on the landscape.
- Low: People engaged in outdoor sports or recreation (other than appreciation of the landscape), commercial buildings, and other locations where people's attention may be focused on their work or activity, rather than their surroundings.

#### *Magnitude of Impact*

Each of the landscape and visual impacts identified are evaluated in terms of their size or scale, the geographical extent of the area influenced, and their duration and reversibility.

The magnitude of impact arising from the proposed development in respect of landscape character is described as High, Medium, Low, Negligible or None based on the interpretation of a combination of largely quantifiable parameters, as follows:

- The distance of the receptor from the proposed development;
- The extent of existing landscape elements that will be altered/lost;
- Adding of new ones;
- The proportion of the total extent of the landscape elements that this represents;
- The degree to which aesthetic or perceptual aspects of the landscape would be altered by removal of existing components or with the addition of new elements;
- The context in which the proposed development would be seen (i.e. similar land uses in the vicinity of the development);
- The geographic area over which the loss of landscape elements will be perceived;
- The alteration of the skyline/altering the vertical scale in relation to the existing landscape features;
- The duration of the impact; and
- The reversibility of the impact.

The criteria utilised in ascribing magnitude of impact in respect of visual amenity is as follows:

- The scale of impact in the view with respect to the loss or addition of features in the view and impacts in its composition, including the proportion of the view occupied by the proposed development;
- The degree of contrast or integration of any new features or impacts in the landscape with the existing or remaining landscape elements and characteristics in terms of form, scale and mass, line, height, colour and textures;
- The nature of the view of the proposed development;
- The relative amount of time over which it will be experienced and whether views will be full, partial or glimpsed;
- The angle of view in relation to the main activity of the receptor;
- The distance of the viewpoint from the proposed development; and
- The extent of the area over which the impacts would be visible.

The magnitude of impacts are categorised as follows:

- **High:** Total loss or considerable alteration to key elements, features or characteristics of the landscape character and/or composition of views. The development is highly prominent or even dominant and could become the defining characteristic of views and landscape character.
- **Medium:** Represents a notable alteration or loss of key elements, features or characteristics of the landscape character and/or composition of views. The development is prominent, but not dominant. In such circumstances the development may become ‘a’ defining characteristic of the view of landscape, but not ‘the’ defining characteristic.
- **Low:** Constitutes a partial loss to one or more key characteristics of the landscape or views. Localised impacts within an otherwise unaltered landscape or visual context.
- **Negligible:** Represents a barely discernible loss or alteration to one or more key elements, features or characteristics of the baseline conditions. The underlying landscape character or view composition would be essentially unimpacted.
- **None:** no discernible impact apparent.

#### *Cumulative Impacts*

The purpose of the cumulative impacts assessment is to establish the cumulative impact of the proposed development when considered in conjunction with similar existing consented or proposed developments within the study area.

A search for other proposed developments of a similar size, scale and/or character to the proposed development was undertaken using the Council’s online planning application search tool. All developments identified are consented or currently under construction and have been taken account of within the LVA baseline. No development currently at the planning stage were identified within the study area.

Therefore, no cumulative assessment has been carried out in this LVA.

### **8.3 Baseline Conditions**

#### *Landscape and Landscape Context*

##### *Location*

The location of the proposed development is shown in Figure 8.1.

The proposed development is situated in the Highlands, approximately 21 km southeast of Inverness. The proposed development comprises a new 1.5 km 132 kV overhead transmission line (OHL) which will link the consented Glen Kyllachy Wind Farm with the Tomatin substation (currently under construction). The proposed development routes southeast from the Glen Kyllachy Wind Farm before entering an area of coniferous woodland. The OHL would run parallel to the Allt a’ Mharcaidh watercourse, routing south east to the Tomatin substation in the south.

##### *Topography and Hydrological Features*

Figure 8.2 illustrates the topography within the study area. The landscape is formed by movement of the Great Glen Fault (GGF) which runs from Fort William in the south west to Inverness in the north east across the Highlands. The GGF has influenced the orientation of the Monadhliath mountain range, and is reflected in the rolling hills and valleys within the study area.

General topographic patterns follow a south west orientation, which lie parallel to the main fault. The alignment of the proposed development routes through the Allt a’ Mharcaidh valley, a narrow valley which lies between Carn Eitidh in the west and Carn Meadhonach to the east. The average

elevation within the study area range from 400 - 500 m above sea level, which collectively form a broad, undulating upland plateaux.

Watercourses are frequent within the landscape of the study area. In the centre of the study area, the Allt a' Mharcaidh burn flows in a north – south direction, flowing into the Kyllachy Burn which outfalls to the Findhorn River, in the south east. Throughout the wider study area, a number of minor burns including the Allt Chailich and Caocnan Dubh flow from the hills in the north down into the River Findhorn Valley.

#### *Landcover*

In the north of the study area, vegetation is comprised of expansive areas of heather moorland, characteristic of the vast areas of the upland landscape that flank the Monadhilath mountain range. Scrubby vegetation and trees lie along small sections of the forestry access road, located in the north west and west of the study area.

Vegetation within the central extent of the study area is predominantly comprised of coniferous forestry plantations, roadside trees and areas of open moorland. Felled forestry and forestry debris cover the central hillsides and valley floor.

To the south, as the alignment routes downhill towards the Findhorn River, coniferous forestry plantations are increasingly present in large areas along the banks of the Allt a' Mharcaidh burn. Small pockets of self-seeding trees align the watercourse as it meanders down the valley, towards its confluence with the Kyllachy burn.

#### *Land Use*

Land use within the study area comprises commercial forestry operations, with plantations predominately located within the central and southern section of the study area. Areas of open moorland to the north, east and west are used for rough grazing.

The Tomatin substation is located at a site to the south east of the study area. The substation forms the end point for the proposed grid connection. Throughout the centre of the study area are three operational transmission lines, namely the newly constructed 275 kV transmission line from Knocknagel to Tomatin substation; the retained section of the existing 132 kV transmission line running through Glen Kyllachy, parallel to the new 275 kV OHL, and the existing 132 kV OHL to the east of Tomatin substation connecting to Boat of Garten

Wind farm development is another key land use within the study area. Glen Kyllachy Wind Farm is a consented, but as yet unconstructed development which will be located approximately 600 m east of the proposed alignment at its closest point, sited on the broad plateau of Beinn Bhreac. Farr Wind Farm is the closest operational wind farm, located approximately 310 m north of the proposed alignment and its closest point.

#### *Landscape Designations*

There are no designated landscapes within the study area. The closest landscape designation is the Cairngorms National Park, which is located approximately 19 km south east of the proposed alignment at its closest point.

There are no landscape classifications within the study area. The nearest Wild Land Area (WLA) is the Monadhialh Wild Land Area, which is located approximately 5 km south of the study area boundary at its closest point.

### *Landscape Character Types*

Figure 8.3 indicates the location and extent of the landscape character types within the study area. The 2019 Scottish Natural Heritage (SNH) Landscape Character Assessment (LCA) has been used for the purposes of this appraisal as it provides the most up to date descriptions of the character of the landscape.

The proposed development and full study area are wholly contained within the Rolling Uplands Inverness LCT.

#### *LCT 221 Rolling Uplands Inverness*

This landscape character type is extensive throughout southern Inverness and is comprised of gentle hills with summits of similar heights forming broad, undulating upland plateaux. The upland hills form a backdrop to more of the distant areas south, east and west where they seem to merge into the undulating skyline without any clearly identifiable features. The LCT as it lies within the study area is comprised of the large scale, smooth, rounded hills of Carn Eitidh in the west, and Carn Meadhonach in the east. The Allt a' Mharcaidh valley lies within the central section of the study area. It is a narrow valley of medium scale with gently undulating slopes and a relatively flat bottom. The landcover is dominated by coniferous forestry plantations, contained within the Allt a' Mharcaidh valley and extensive heather moorland in the outer fringes of the study area in the north, west and east.

#### *Settlement*

There are no settlements within the study area. There is one property located on the edge of the study area boundary. Asgard is located approximately 1.4 km south east of the proposed alignment at its closest point. The property is orientated in a south west – north east direction with the main views extending across the River Findhorn valley, away from the proposed development.

#### *Transportation Routes*

Transport routes within the study area are limited. Where present, minor roads follow the valley floors and are generally contained by landform and large forestry plantations, which foreshorten and channel views.

An unclassified local road runs from Gaich to Tomatin and is the main vehicle route through the study area. The road winds through Glen Kyllachy and provides access to the property of Asgard, located on the south eastern boundary of the study area. The road is bordered by a mix of scrubby roadside vegetation, post and wire fencing and coniferous forestry plantations which varies the extent of the views available from the road.

There are no specific key recreational routes within the study area, apart from along the unclassified road between Gaich and Tomatin and the forestry track towards the north of the study area. There are no core pathways located within the study area. The closest core pathway is the Allt Neacrath Loop (IN27.03) core path, which is located 5 km east of the proposed development at its closest point.

Views from the road north are characterised by open moorland, rolling hills and small sections of post and wire fencing, however within the central and southern sections of the study area, views along the valley floor are foreshortened and contained by mature coniferous forestry plantations.

### Representative Viewpoints

The location of representative VPs are shown on Figure 8.4. Baseline views and photomontages are presented from each viewpoint in Figures 8.5 – 8.8. The following table presents a description of existing views from each representative viewpoint.

<b>Table 8.3: Representative Viewpoint Baseline View</b>		
<b>Viewpoint</b> <i>Distance to Development</i> <i>Receptor Type</i>	<b>Baseline View</b>	<b>Sensitivity</b>
<b>VP01</b> Forest track 274283, 827018 200 m north west  See Figure 8.5	<p>The views to the north and west are open and expansive across the heather moorland, while coniferous forestry plantations to the south and south east prevent extensive views down in to Glen Kyllachy and Strathdearn beyond. The views available from this location are across open heather moorland, with mature coniferous forestry plantations, with small forestry access roads tucked into the landform.</p> <p>Existing and newly constructed transmission lines run across the summit of Carn Eitidh and form a prominent element in views to the west and south west, extending down into the Allt a' Mharcaidh valley, following with the alignment of the topography. Elements of human intervention are common to the view, with heather burning taking place, which contribute to the working character of the landscape. The view to the east is strongly contained by newly constructed embankments, approximately 4 m in height.</p>	Road user: Medium
<b>VP02</b> unclassified road north (linking Gaich and Tomatin) 274058, 825482 1 km west  Road user  See Figure 8.6	<p>The view from the unclassified road provides open views across the Findhorn River Valley landscape in the south, while the rolling topography contains the view to the east. The views from this viewpoint are of open heather moorland, with mature coniferous forestry plantations predominately located in south, west and east following Glen Kyllachy. There have been considerable felling operations carried out in the view to the south, allowing views further into the Findhorn Valley (Strathdearn). New OHL towers have been constructed in the view south, routing downhill towards the Tomatin substation.</p> <p>Existing wind farm development (Farr Wind Farm) is visible in the views north and north west, forming a minor part of the distant view of the rolling hills. Overhead lines run across the summit of Carn Eitidh and form a major element in the views to north and north west. The low lying scrub and coniferous forestry vegetation are located in the foreground, masking the rolling topography in the south and south west. There is evidence of human intervention within the landscape, with heather burning taking place and extensive areas of burn scars.</p>	Road user: Medium
<b>VP03</b>	<p>The views from the residential property Asgard provide open and expansive views west and south, across the River Findhorn Valley floodplain. The view is of a</p>	Residential: High Road user: Medium

<p>Garbole, Rural dwelling (Asgard) 275675, 824230 1 km south east</p> <p>Residential Road user</p> <p>See Figure 8.7</p>	<p>generally agricultural landscape, with semi improved grass land and small areas of coniferous forestry plantations, concentrated on the upper slopes of the surrounding hillsides. The view east across the gently undulating hills, the newly constructed telephone mast sits high above the skyline, creating a new focal point across the skyline, in combination with existing OHLs. In the north, existing wind farm development (Farr Wind Farm) is visible, with turbine blades breaking the skyline.</p> <p>There are extensive coniferous forestry plantations to the east and north, with a small section of semi improved pastoral land in the foreground. The property at Asgard sits in the lowland area, adjacent to the River Findhorn. The property is enclosed by semi mature deciduous tree species, with vegetation demarcating the boundary. There are small sections of dry stone walling which enclose forestry plantations, while extensive post and rail fencing surround the semi improved pastoral land.</p>	
<p><b>VP04</b> unclassified road south (linking Gaich and Tomatin) 274749, 825302 1 km south east</p> <p>Road user</p> <p>See Figure 8.8</p>	<p>The view south and south west are generally contained, comprised of coniferous forestry plantations, with small areas of rough grassland in the foreground. In the distance Carn Bad an Daimh dominates the skyline in the south west, with extensive coniferous forestry plantations located on the side hills and summit, masking the underlying topography.</p> <p>Coniferous forestry sits low in the view to the south, following the natural undulation of the underlying topography. Existing OHL are present within the view to the south, routing downhill towards Kyllachy burn. The foreground to the south has small pockets of windblown deciduous tree species, concentrated along the unclassified road from Gaich to Garbole.</p> <p>Felling has taken place to the east of this viewpoint, allowing open and expansive views into the Allt a' Mharcaidh valley and across to Carn Meadhonach, which gently undulates along the skyline. New access tracks have been constructed across the valley sides and cross Allt a' Mharcaidh burn, located on the valley floor. New OHL towers have been erected in the view east and north of the view point dominating the foreground and skyline. Construction equipment and machinery are present in the view across the valley, with construction of the new OHLs currently in progress (at time of assessment). It is anticipated that this construction activity will be completed by October 2019, with removal of redundant sections of OHL in early 2020.</p>	<p>Road user: Medium</p>

## 8.4 Potential Impacts and Mitigation

### 8.4.1 Construction

Potential effects during construction are detailed in Table 8.4 below, which also describes the relevant receptor and mitigation or control measures, where appropriate.

**Table 8.4: Potential Impacts on Landscape and Visual Receptors during Construction and Relevant Mitigation/Control Measures**

<b>Construction</b>		
<b>Potential Impact</b>	<b>Receptor</b>	<b>Mitigation/ Control Measures</b>
Site clearance; excavation of the ground for pole construction; reinstatement works	<ul style="list-style-type: none"> <li>• Landscape fabric</li> <li>• Landscape character</li> </ul>	<ul style="list-style-type: none"> <li>• The proposed development will follow the alignment of existing tracks and forestry roads as far as practicable.</li> <li>• Immediate reinstatement of the ground condition following construction activities Excavated material will be stored appropriately and will be used for back filling and dressing of disturbed areas.</li> <li>• All working areas would be restricted as far as practicable to the specified areas and demarcated to prevent incursion of site plant onto non-construction areas</li> <li>• Material storage/ stockpiles would be retained for the shortest duration practicable and would be sited to avoid visual intrusion to neighbouring receptor locations</li> <li>• Public access along roads and paths will be retained throughout the construction period</li> <li>• Night lighting of construction sites/ compounds will be minimised within the requirements of health and safety, and only in use at locations where activity is being carried out.</li> </ul>
Loss of vegetation within the proposed development site, and consequent construction of the poles.	<ul style="list-style-type: none"> <li>• Landscape fabric</li> <li>• Landscape character</li> <li>• Visual amenity/ visual receptors</li> </ul>	<ul style="list-style-type: none"> <li>• Tree felling will be limited to only those necessary for the safe construction and operation of the grid connection.</li> </ul>
Presence of construction activity (including movement) and construction equipment such as excavators, tractors and scaffold tunnels	<ul style="list-style-type: none"> <li>• Landscape character</li> <li>• Visual amenity/ visual receptors</li> </ul>	<ul style="list-style-type: none"> <li>• All construction equipment will be removed, and the landscape restored immediately following completion of the construction works.</li> <li>• Night lighting of construction sites/ compounds will be minimised within the requirements of health and safety, and only in use at locations where activity is being carried out.</li> <li>• Material storage/ stockpiles would be retained for the shortest duration practicable and would be sited to avoid visual intrusion to neighbouring receptor locations.</li> </ul>



## 8.4.2 Operation

Potential effects during operation are detailed in Table 8.5 below, which also details the relevant receptor and mitigation or control measures, where appropriate.

<b>Table 8.5: Potential Impacts on Landscape and Visual Receptors during operation and Relevant Mitigation/Control Measures</b>		
<b>Operation</b>		
<b>Potential Effect</b>	<b>Receptor</b>	<b>Mitigation/ Control Measure Proposed</b>
Presence of new wood pole line (including conductor) within the landscape; presence of cleared wayleave	<ul style="list-style-type: none"> <li>• Landscape fabric</li> <li>• Landscape character</li> <li>• Visual amenity/ receptors</li> </ul>	<ul style="list-style-type: none"> <li>• The height of the poles would typically be 13 m above the adjoining ground level (including steel work and insulators). Pole heights may be increased locally (up to a maximum height of 18 m) where required for clearance purposes, i.e. to safely cross features such as watercourses and access tracks.</li> <li>• Where possible, the proposed alignment has been routed to reduce its impact on the character of the landscape, and its prominence in views from the wider area.</li> </ul>
Disturbance, movement and activity associated with maintenance activities	<ul style="list-style-type: none"> <li>• Landscape fabric</li> <li>• Landscape character</li> <li>• Visual amenity/ receptors</li> </ul>	<ul style="list-style-type: none"> <li>• All maintenance equipment will be removed, and any disturbed ground reinstated (if applicable) immediately following completion of the maintenance works.</li> </ul>

## 8.5 Residual Impacts

The following section assesses the impacts arising from the development of the proposed OHL on the landscape and visual receptors within the study area. Mitigation has been proposed to reduce the impact of these works. Impacts from construction would be temporary, short term, and essentially reversible. Once reinstated, impacts arising from the development of this element of the project would reduce over a short period of time and bare ground would become reinstated and re-vegetated.

Occasional maintenance activity may be required from time to time, however any impact arising from these works would be short term and temporary, and would be controlled by the measures outlined above. As such any residual effects are considered to be negligible.

### *Impacts on Landscape Fabric*

The proposed OHL development would directly impact upon the landscape fabric in areas of the pole foundations and where temporary access tracks are located. Each pole excavation would generally disturb an area 4 m long by 2 m wide and would be approximately 2.5 m deep. Each pole would measure between 13 m and 18 m in height above ground level, dependant on location and ground clearances requirements.

To facilitate the construction and operation of the proposed development, some small areas of saplings and low lying ground vegetation would be removed. As these are self-sown trees resulting

from forestry works, the removal of these features is not considered to be notable outwith the development site.

The ground disturbance would be remediated upon completion of the works. The proposed development is located within an area where the landscape fabric has been disturbed regularly as a result of forestry operations and existing access works. Therefore, it is considered that the impacts arising from the proposed works would be of low magnitude, temporary and reversible (where not required for permanent works).

#### *Impacts on Landscape Character*

The proposed development would both directly and indirectly impact upon the landscape of the Rolling Uplands - Inverness LCT.

The proposed development would be located within an area which is already characterised by forestry activity, wind farm development and existing overhead transmission lines and therefore it is considered that it would be consistent the character of the baseline landscape within the local area. While in some areas the proposed development would add to the assemblages of infrastructure within the landscape, impacts would be largely contained within the enclosed valley landscape and the influence of the proposed development across the wider study area would be minimal.

The proposed development would have limited impact on how the existing landscape of the Rolling Uplands Inverness is perceived across the wider area.

Overall, the magnitude of impact caused by the proposed development on the character of the Rolling Uplands Inverness LCT is considered to be low. Impacts would be localised within the immediate area surrounding the OHL. The nature of the topography surrounding the proposed development would contain the influence of the OHL on the overall character of the LCT, with impacts limited to within the valley landscape only. Further north and south, as the LCT extends to the north east of the proposed development, the magnitude of impact would quickly reduce to none within a small distance from the development.

#### *Impacts on Visual Amenity of Settlements*

The proposed development is not visible from Asgard, the only residential property within the study area. Due to the topography of Glen Kyllachy in the east and Carn Meadhonach in the west, the proposed alignment would be fully contained within the valley landscape. In addition, the main aspect from the property is away from the proposed alignment, towards the open and more expansive Strathdearn (Findhorn Valley).

The magnitude of impact on views from Asgard would be none.

#### *Impacts on views from Roads and other Transportation Receptors*

Travelers on the unclassified road from Tomatin and Gaich would have views of the proposed development briefly as the road routes north uphill, along the summit of Carn Eitidh. From this location, the road routes around the landform and provides a brief but clear view into the Allt a' Mharcaidh valley for those traveling uphill north west and downhill south east. The proposed development would be visible on the western section of the Allt a' Mharcaidh valley, with the view being dominated by existing and newly constructed OHLs alongside the proposed alignment. The proposed development would be seen at a distance of approximately 320 m, within the context of coniferous forestry, existing vertical infrastructure such as OHLs.

The proposed development would be backclothed by landform, existing vegetation and would not form a prominent feature within the view, nor would it contrast with existing elements within the

landscape. As the route descends into the Allt a' Mharcaidh valley, it is heavily bordered by road side trees and coniferous forestry plantations which block and obscure the views into the valley and towards the proposed development.

The magnitude of impact for north and south bound users on the unclassified road between Gaich and Tomatin would be low.

### 8.5.1 Construction Impacts

As described above, there would be short term landscape and visual impacts arising from the presence of plant and activities on site during construction and operation. These impacts are explained in Section 8.5 above and are summarised in Tables 8.6 and 8.7 below:

<b>Table 8.6: Potential Residual Impacts on Landscape and Visual Receptors during Construction</b>	
<b>Construction</b>	
<b>Residual Impact</b>	<b>Description / Magnitude of Impact</b>
Site clearance; pole base construction; reinstatement works	Works would be located within an area already largely disturbed by existing forestry activity. The magnitude of impact on landscape fabric is considered to be low
Loss of vegetation within the proposed development site.	Existing vegetation is comprised of coniferous tree species, with low growing scrub. Areas of vegetation would be removed to allow for access and construction of the proposed OHL however much of this has already been removed as part of ongoing forestry works. Following the completion of construction works, the restoration of disturbed land would take time to re-establish to the original condition, although no tree species would be replanted due to the clearance requirements for the OHL. The magnitude of impact is considered to be low
Presence of construction activity (including movement) and construction equipment such as excavators, tractors and scaffold tunnels	The presence of construction activity would occur from the start of the project and last for approximately eleven months. There would be a large concentration of machinery and construction equipment located along the proposed development route, especially in the central section of the study area. Given the containment provided by the valley topography, it is unlikely that construction activity would be perceived by sensitive visual receptors within the study area. The magnitude of impact is considered to be low. Upon completion of the proposed OHL construction activity will cease, the magnitude of impact would reduce to none once all of the machinery and equipment is removed off site.

### 8.5.2 Operation

<b>Table: 8.7 Potential Residual Impacts on Landscape and Visual Receptors during Operation</b>	
<b>Operation</b>	
<b>Residual Impact</b>	<b>Description / Magnitude of Impact</b>
Presence of new wood pole line (including conductor) within the landscape; presence of cleared wayleave	The current landscape is comprised of coniferous forestry and low lying scrubby vegetation. The wooden poles would form new features within the valley landscape however their influence across the wider area, or presence in views, would be restricted by the valley landform. As vegetation is re-established in line with assumed forestry practices, the verticality of the wood poles would be backclothed by forestry.

<b>Table: 8.7 Potential Residual Impacts on Landscape and Visual Receptors during Operation</b>	
	The magnitude of impact on the character of the landscape within the study area, and on views and visual amenity, is considered to be low.
Disturbance, movement and activity associated with maintenance activities	<p>Where maintenance activities are required, they will be localised and contained within the valley landscape, largely screened from view in the surrounding area.</p> <p>Maintenance activities would not be out of character with those currently experienced during commercial forestry activities.</p> <p>All maintenance equipment will be removed, and any disturbed ground will be reinstated immediately upon completion of the maintenance works.</p> <p>The maintenance of impact on views and visual amenity is considered to be negligible</p>

## 8.6 Viewpoint Assessment

Table 8.8 below represents the viewpoint for the representative VPs. Baseline descriptions for each location are described in Table 8.3 in Section 8.3, and the reason for selection is explained in Table 8.1.

<b>Table: 8.8 Distance to Development Sensitivity</b>	
	<b>Viewpoint Assessment</b>
<p><b>VP01</b> Forest track 274238, 827018 200 m north west</p> <p>Recreational: Medium See Figure 8.5</p>	<p>The proposed development would be located in the foreground of the view south from the forestry track. It would be visible as a new vertical feature within the landscape, although would be back clothed by coniferous forestry plantations. As the proposed alignment proceeds downhill towards the Allt a' Mharcaidh valley, the coniferous forestry plantations and topography would contain the visibility of the OHL.</p> <p>The proposed alignment would integrate with the existing view and is not of a size or scale where it would become a distinctive new feature in the landscape.</p> <p>The magnitude of impact would be low for both receptors.</p>
<p><b>VP02</b> Unclassified road from Gaich and Tomatin 274058, 825482 900 m west</p> <p>Recreational: Low Road user: Low See Figure 8.6</p>	<p>The proposed alignment would be located to the east, on the foothills of Beinn Bhreac and Carn Choire Odhair. The OHL would lie within the upper slopes of the Allt a' Mharcaidh valley, effectively containing the visibility of the OHL from the unclassified road. As the alignment routes south downhill towards the Tomatin substation, the dense coniferous forestry and topography screens and contains any potential visibility.</p> <p>The magnitude of impact would be none for both receptors.</p>
<p><b>VP03</b> Garbole, Rural dwelling (Asgard) 275675, 824230 1.4 km south east</p> <p>Residential: High See Figure 8.7</p>	<p>The proposed alignment would run along the foothills of Beinn Bhreac and Carn Choire Odhair in the north, routing south into the Allt a' Mharcaidh valley. The OHL would not be visible from the Asgard residential property, due to the topography and existing coniferous forestry plantations.</p> <p>The residential property Asgard located in Garbole at the location of the viewpoint, the extensive coniferous forestry and topography of the uplands would effectively screen the views to the development.</p>

**Table: 8.8 Distance to Development Sensitivity**

	The magnitude of impact would be none for the residential receptors.
<p><b>VP04</b> Unclassified road from Gaich and Tomatin 274749, 825302 300 m west</p> <p>Recreational: Medium Road user: Low See Figure 8.8</p>	<p>From this location alongside the unclassified road, as the north and south bound users experience the first views of the proposed development, the OHL would be viewed within a short section of felled forestry in the context of existing and newly constructed OHLs, access infrastructure and coniferous forestry plantations. The view is already characterised by built development.</p> <p>There would be no loss of existing features. The proposed development would add a new element within the view, but not one which is out of context, scale or character with existing elements in the landscape.</p> <p>As receptors progress uphill or downhill from this point, the views become more transient in nature and experienced over a short period of time with reduced visibility. The impact on the experience of driving along the unclassified road would be localised to the small section of felled forestry.</p> <p>The magnitude of impact would be low.</p>

*Summary*

All impacts arising from the proposed development would be localised to within the Allt a' Mharcaidh valley landscape, and within the rolling hills of Carn Eidih and Beinn Bhreac towards the north of the study area. Due to the nature of the topography, and the alignment of the proposed development lying low within the valley landscape, impacts will be contained to the local area.

No overall impacts of more than low magnitude are expected on the landscape fabric or on the character of the Rolling Uplands Inverness LCT (221). Following construction, impacts on the character of the LCT would remain low, or reduce to none.

The proposed development would not be visible from Asgard, the closest property to the alignment (and the only property within the study area) at a distance of 1.4 km from the OHL.

From the unclassified road between Gaich and Tomatin which runs through the study area, views of the proposed development would be intermittent and fleeting. The development would be contained within the valley landscape and the OHL would not be a prominent feature and would integrate with the existing and newly constructed OHL transmission lines which cross the landscape.

A viewpoint assessment has been carried out from four locations within the study area. These locations represent a range of receptors with views of the proposed development. The magnitude of impact for all receptors ranged from none to low.

## 9. FORESTRY APPRAISAL

### 9.1 Introduction

This chapter identifies the likely impacts on forestry receptors associated with the construction and operation of the proposed development, with specific reference to woodland removal.

The appraisal was carried out by Chris Piper FICFor (BSc Hons Forestry).

The objectives of the chapter are to:

- describe the forestry baseline;
- identify the potential direct and indirect impacts on forestry receptors; and
- describe any mitigation measures proposed to address likely impacts.

Figure 9.1 is referenced in the text where relevant.

### 9.2 Regulatory and Policy Context

There is a complex regulatory framework and other obligations which applies to electricity network operators, such as the Applicant. In considering the position which the Applicant should take in respect of instances of woodland removal the following legislation may be of relevance:

- The Electricity Act 1989, as amended;
- The Electricity Safety, Quality and Continuity Regulations 2002, as amended;
- The Town & Country Planning (Scotland) Act 1997, as amended; and
- The Forestry & Land Management (Scotland) Act 2019.

Sitting below the regulatory framework are policies which guide how forestry should be controlled and managed. The national policy documents set out below recognise the importance of electricity network operators in exercising their duties. The key policies of relevance are:

- National Planning Framework 3;
- Scottish Planning Policy; and
- The Scottish Government's Policy on Control of Woodland Removal.

In addition, at the local authority level there is The Highland Council's Trees, Woodlands & Development Supplementary Guidance.

### 9.3 Methodology

The assessment is based on the proposed development as described in Chapter 3: Proposed Development.

The assessment identifies the woodland removal required to provide a safe operational corridor for the construction and operation of the proposed development. The Operational Corridor is defined with reference to the distance at which a tree could fall and cause damage to the overhead line, resulting in a supply outage. As a result, the final corridor width would be based on the safety distance required to allow for a mature tree falling towards the OHL at the mid-point on a span between two poles, taking account of topography and tree height at maturity.

The appraisal has been undertaken using:

- GIS data pertaining to the proposed footprint of the proposed development;

- Aerial photographic coverage of the woodlands involved;
- Walk over survey of the areas of woodlands concerned.

It is noted that the scope of woodland removal included as part of the proposed development (for consenting purposes) has been limited to the woodland removal required to create the proposed operational corridor. It is acknowledged that the creation of the operational corridor would result in wider potential indirect effects on the surrounding woodland areas; however felling in these areas would require a separate agreement between Scottish Forestry and the landowner (or their agent) via an application for a felling permission.

## 9.4 Baseline Conditions

### 9.4.1 Definitions

For the purpose of this appraisal, the following categories of effects are used:

- **Direct effects** - woodland located within the operational corridor and that would require to be permanently removed by felling; and
- **Indirect effects** - woodland located adjacent to / contiguous with, the operational corridor. Felling of woodland adjacent/contiguous with the operational corridor may need to be considered if its condition and /or stability (for example, in terms of potential windblow) is likely to be materially impacted upon by the felling within the operational corridor itself.

Assessment of whether woodland would be subject to indirect effects and needs to be felled is subjective rather than definitive and a matter of professional judgment. The key factor applied in this assessment is the presence or absence of “windfirm” edges and/or other natural breaks in what are artificially created plantations, that inherently afford the trees along newly exposed woodland edges more resistance to onset of windblow.

### 9.4.2 Woodland Description

The following baseline descriptions pertain to the commercial conifers trees that are likely to be permanently removed to accommodate the proposed development.

The woodlands within the development area are primarily commercial conifers comprising a range of species, age class and growth rates.

The dominant species is Scots pine (SP), with other conifer plantations being a mixture of mainly Sitka spruce (SS), Norway spruce (NS), Lodgepole pine (LP), and some Japanese larch (JL).

The woodlands are predominantly even aged and planted between 1952 and 1960, making them between 67 and 59 years old respectively. For this range of species and age these plantations would normally be regarded as being mature and at or near economic rotation age.

### 9.4.3 Areas of Affected Woodland

The areas of directly and indirectly affected woodland (i.e. before any mitigation measures such as micro-siting of the “footprints” of the proposed OHL are applied) are **shown in** Figure 9.1 and summarised in Table 9.1 below:

<b>Woodland Description</b>	<b>Area (ha)</b>	<b>Impact</b>
Woodland already felled: (A) Mixed conifers mainly SP planted 1960.	2.55	Permanent removal of woodland.
(B) Mixed conifers mainly SS and NS planted 1952.	4.22	Permanent removal of woodland (as carried out under previous felling permissions).
(C) Mixed conifers SS, LP, SP and JL planted 1952.	6.01	Permanent removal of woodland (as carried out under previous felling permissions).
<b>Sub total</b>	<b>12.78</b>	
Direct effects: felling required to accommodate the operational corridor.	0.90	Permanent removal of woodland.
Indirect effects: potential additional felling.	1.01	Indirect effects arising from need to fell to windfirm edge provided by adjacent open ground and Allt a' Marcaidh Burn to immediate west.
<b>Sub total</b>	<b>1.91</b>	

#### 9.4.4 Areas of woodland identified by the Native Woodland Survey for Scotland (NWSS)

A search using Scottish Forestry's Map Viewer shows that some of the woodland within and around the development area is recorded by the 2014 Native Woodland Survey for Scotland (NWSS) as having been of native woodland origin, albeit that the woodland is now predominantly given over to commercial conifers which are non-native. These NWSS areas are highlighted in Fig 9.1.

Some areas of the woodland already felled (A), the directly affected additional felling and the southern section of the indirectly affected additional felling are included in the NWSS survey.

## 9.5 Potential Impacts and Mitigation

### 9.5.1 Forestry Operations

Felling operations are likely to be carried out using a mechanical harvester, with timber extracted using an industry standard six or eight wheeled forwarder with telescopic boom and hydraulic grapple. Lop and top will be utilised as a brush mat to enable machinery access and timber extraction to the roadside whilst minimising compaction and erosion of the forest soils.

Where, either due to tree size or location, it is not viable to use a mechanical harvester, manual chainsaw operators would complete the felling work, working in conjunction with the forwarder to achieve extraction of marketable timber to roadside.

Timber will be dispatched to local markets from the designated stacking areas. The vehicles will only follow designated timber transport routes via the haul road through the Farr Wind Farm to the A9 in line with project commitment not to use the Coignafern Road.

All trees within the operational corridor are considered to be of marketable quality (i.e. the diameter of the trunk is greater than 7cm) and as such there is anticipated to be no waste arising from forestry operations. Potential impacts of forestry operations during construction are detailed in Table 9.2 below, which also details the relevant receptor and mitigation or control measures, where appropriate.



<b>Table 9.2: Potential Impacts of Forestry during Construction and Relevant Mitigation/Control Measures</b>		
<b>Construction</b>		
<b>Potential Effect</b>	<b>Receptor</b>	<b>Mitigation Proposed</b>
Clear felling of commercial conifers to accommodate operational corridor	Soils and watercourses.  Projected species – notably red squirrels <i>Sciurus vulgaris</i>	All forestry operations to be carried out in accordance with best practice guidelines and in compliance with the UK Forestry Standard (UKFS), particularly with regard to the UKFS guidelines on Soils and Water.  Pre-construction survey of the proposed felling area to search for protected species, particularly location of red squirrel dreys. Adjust timing of forestry operations as necessary to avoid disturbance
Permanent loss of up to 0.9 ha woodland, of which 0.48 ha is permanently lost to potential future restoration to native woodland	Woodland cover	Micro-siting of the OHL within the Limits of Deviation (LoD) will be carried out wherever practicable in order to reduce the area of permanent woodland removal and / or other felling arising from indirect effects of the development.  The landowner would be able to restock the area subject to indirect effects; however this is outwith the control of the Applicant.

Potential effects during Operation are detailed in Table 9.3 below, which also details the relevant receptor and mitigation or control measures, where appropriate.

<b>Table 9.3: Potential Impacts of forestry during Operation and Relevant Mitigation/Control Measures</b>		
<b>Operation</b>		
<b>Potential Effect</b>	<b>Receptor</b>	<b>Mitigation Proposed</b>
Natural regeneration of conifers within OHL corridor, if allowed to continue unchecked, could grow to a height that could pose a risk to the proposed development.	Pre-felled and additional felled (directly affected) areas within the OHL corridor.	Periodic surveys of any conifer natural regeneration within OHL corridor and removal of regeneration by manual or mechanical means as appropriate.
Natural regeneration of birch and other broadleaves from local seed sources within the forest could impede access to the proposed development for maintenance etc..	Pre-felled and additional felled (directly affected) areas within the OHL corridor.	Monitor and remove any broadleaved natural regeneration occurring within 7.5 m from the outermost conductor of the OHL.

## 9.6 Residual Impacts

### 9.6.1 Construction

<b>Table 9.4: Potential Residual Impacts on Forestry during Construction</b>	
<b>Construction</b>	
<b>Residual Impact</b>	<b>Description / Magnitude of Impact</b>
Permanent loss of up to 0.9 ha of woodland cover.	Micro-siting of the OHL within the LoD to reduce the area of permanent woodland removal. The landowner would be able to restock the area subject to indirect effects; however this is outwith the control of the Applicant.

### 9.6.2 Operation

<b>Table 9.5: Potential Residual Impacts on Forestry during Operation</b>	
<b>Operation</b>	
<b>Residual Impact</b>	<b>Description / Magnitude of Impact</b>
No additional impact over and above the woodland removal proposed at the construction stage.	None

## 9.7 Cumulative Impacts

An area of 0.9 ha of commercial conifer woodland will be permanently removed as a direct effect of accommodating the proposed development. An additional 1.01 ha of woodland would be subject to potential indirect effects through woodland removal (under a separate felling license). While there is the potential for restocking the 'indirect effects' areas with native woodland, this would be outside of the Applicant's control. The loss of 1.91 ha of commercial forest is assessed as a negligible change in the context of the local and regional forest resource.

## 10. CULTURAL HERITAGE AND ARCHAEOLOGY APPRAISAL

### 10.1 Introduction

This chapter identifies the likely impacts on archaeology and cultural heritage receptors (hereafter 'heritage assets') associated with the construction and operation of the proposed development.

The objectives of the chapter are to:

- describe the cultural heritage baseline, including archaeological potential;
- identify the potential direct and indirect impacts on archaeology and cultural heritage receptors; and
- describe any mitigation measures proposed to address any likely impacts.

This chapter is supported by two figures referenced in the text where relevant:

- Figure 10.1: Heritage assets within the Inner Study Area; and
- Figure 10.2: Designated heritage assets in the Outer Study Area.

### 10.2 Methodology

The type of impacts on heritage assets which might result from the proposed development have been assessed in the following categories:

- **Construction Impacts:** where there may be a physical impact on an asset caused by construction of the proposed development. Direct impacts tend to have permanent and irreversible effects upon cultural heritage assets.
- **Operation Impacts:** where elements of the proposed development would affect the setting of heritage assets.

#### 10.2.1 Study Areas

Two zones have been defined for the cultural heritage appraisal:

- An Inner Study Area (Figure 10.1): for consideration of direct impacts, comprising a corridor extending 500 m either side of the proposed OHL alignment. This study area was considered sufficient to identify heritage assets close to, or within, the proposed development footprint and to provide background cultural heritage information to assess archaeological potential of the area of the proposed development.
- An Outer Study Area (Figure 10.2): for consideration of indirect impacts upon the setting of heritage assets, extends 2 km from the centreline of the proposed OHL alignment. This study area was considered sufficient to identify designated heritage assets in the local vicinity of the proposed development.

#### 10.2.2 Desk Study

The following sources were consulted as part of the desk-based assessment work:

- Historic Environment Scotland Spatial Data Warehouse (HES 2019a<sup>1</sup>): provided up-to-date data on the locations and extents of Scheduled Monuments, Listed Buildings, Inventory status

---

<sup>1</sup> Historic Environment Scotland (2019) GIS downloaded, available at <http://portal.historicenvironment.scot/downloads> (accessed in July 2019).

Gardens and Designed Landscapes, Inventory status Historic Battlefields and Conservation Areas.

- The Highland Council Historic Environment Record<sup>2</sup> (HER): on-line database provided up-to-date data on the locations of non-designated heritage assets within the Inner Study Area.
- The Historic Environment Scotland database (Canmore) (HES 2019b<sup>3</sup>): for any information additional to that provided in the HER.
- Ordnance Survey maps (1st and 2nd Edition maps) and other historic maps held by the Map Library of the National Library of Scotland.
- On-line modern aerial photographic imagery available through Google Earth™ and Bing™: for information on the current land-use and to identify any visible remains of previously recorded assets or of any not previously recorded.
- The on-line Historic Land-Use Assessment Data for Scotland (HLAmap) (HES 2019c<sup>4</sup>): for information on the historic land-use character of the Inner Study Area.
- The Bare-Earth Zone of Theoretical Visibility map generated for the proposed development was utilised to identify those designated assets within the Outer Study Area that would have theoretical visibility of the proposed development.

### 10.2.3 Field Survey

No field survey has been carried out in relation to the proposed development. The route of the proposed OHL runs through a commercial forestry plantation and the desk-based assessment has identified no heritage assets within the 50 m OHL Limit of Deviation (LoD) and only one within the Inner Study Area (see Section 10.4 below). Taking into account the forest environment it is assessed that there is a negligible archaeological potential within the Inner Study Area. It is therefore concluded that field survey is not necessary to establish the baseline conditions within the LoD of the proposed development.

## 10.3 Appraisal of Potential Adverse Impacts

The effects of the proposed development on heritage assets have been assessed on the basis of their type (direct effects, impacts on setting and cumulative impacts) and nature (adverse or beneficial). The assessment takes into account the value/sensitivity of the heritage asset, and its setting, and the magnitude of the predicted impact.

- Adverse impacts are those that detract from or reduce cultural significance or special interest of heritage assets.
- Beneficial impacts are those that preserve, enhance or better reveal the cultural significance or special interest of heritage assets.

The assessment of effects has been undertaken using two key criteria: the sensitivity of the cultural heritage asset (Table 10.1) and the magnitude of the predicted impact (Table 10.2), which measures the degree of change to the baseline condition of an asset resulting from the Proposed Development.

---

<sup>2</sup> Highland Council HER (2019) available at: <https://her.highland.gov.uk> (accessed in July 2019)

<sup>3</sup> Historic Environment Scotland (2019) National Record of the Historic Environment (NRHE) Database (Canmore) available from: <https://pastmap.org.uk/map> (accessed in July 2019)

<sup>4</sup> Historic Environment Scotland (2019) Historic Land-Use Assessment for Scotland (HLAmap) available from: <http://hlapmap.org.uk> (accessed in July 2019)

### 10.3.1 Assigning Sensitivity to Heritage Assets

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 its laws and policies (HES, 2019<sup>5</sup>).

Table 10.1 summarises the relative sensitivity of those heritage assets relevant to the proposed development (excluding in this instance World Heritage Sites and Marine Resources).

<b>Heritage Importance</b>	<b>Definition</b>
High	Assets valued at an international or national level, including: Scheduled Monuments Category A Listed Buildings Inventory Gardens and Designed Landscapes Inventory Historic Battlefields Non-designated assets that meet the relevant criteria for designation
Medium	Assets valued at a regional level, including: Archaeological sites and areas that have regional value (contributing to the aims of regional research frameworks) Category B Listed Buildings Conservation Areas
Low	Assets valued at a local level, including: Archaeological sites that have local heritage value Category C listed buildings Unlisted historic buildings and townscapes with local (vernacular) characteristics
Negligible	Assets of little or no intrinsic heritage value, including: Artefact find-spots (where the artefacts are no longer in situ and where their provenance is uncertain) Poorly preserved examples of particular types of features (e.g. quarries and gravel pits, dilapidated sheepfolds, etc)

Criteria for assessing the magnitude of impacts, which measures the degree of change to the baseline condition or setting of a heritage asset that would result from the proposed development, are presented in Table 10.2.

<b>Magnitude</b>	<b>Criteria</b>	
	<b>Adverse</b>	<b>Beneficial</b>
High	Changes to the fabric or setting of a heritage asset resulting in the complete or near complete loss of the asset's cultural significance.	Preservation of a heritage asset in situ where it would otherwise be completely or almost completely lost.

<sup>5</sup> Historic Environment Scotland (2019)'Designation Policy and Selection Guidance', Historic Environment Scotland, Edinburgh

<b>Table 10.2: Magnitude of Impact</b>		
	Changes that substantially detract from how a heritage asset is understood, appreciated and experienced.	Changes that appreciably enhance the cultural significance of a heritage asset and how it is understood, appreciated and experienced.
Medium	Changes to those elements of the fabric or setting of a heritage asset that contribute to its cultural significance such that this quality is appreciably altered. Changes that appreciably detract from how a heritage asset is understood, appreciated and experienced.	Changes to important elements of a heritage asset's fabric or setting, resulting in its cultural significance being preserved (where this would otherwise be lost) or restored. Changes that improve the way in which the heritage asset is understood, appreciated and experienced.
Low	Changes to those elements of the fabric or setting of a heritage asset that contribute to its cultural significance such that this quality is slightly altered. Changes that slightly detract from how a heritage asset is understood, appreciated and experienced.	Changes that result in elements of a heritage asset's fabric or setting detracting from its cultural significance being removed. Changes that result in a slight improvement in the way a heritage asset is understood, appreciated and experienced.
Negligible	Changes to fabric or setting of a heritage asset that leave its cultural significance unchanged and do not affect how it is understood, appreciated and experienced.	
None	No change to fabric or setting.	

## 10.4 Baseline Conditions

### 10.4.1 Inner Study Area

The assessment has identified one heritage asset within the 500 m Inner Study Area (Figure 10.1).

#### *Medieval or later Farmstead*

A former township or 'fermtoun' (MHG26218) has been identified as lying within 500 m of the proposed development. The township is named as 'Minshag' on Gen. W Roy's 'Military Survey of Scotland' map (1747-55), where it is shown as a cluster of five buildings. The township is also shown on the Ordnance Survey 1st edition map (1874; Inverness-shire Sheet XLIV) where it is depicted as comprising seven unroofed buildings, two enclosures and a roughly L-shaped length of wall. This wall appears to define the northern extent of the township and also marks its westernmost extent. The township is evidently abandoned at that date but is bounded on its east side by the Allt A' Mharcaidh watercourse. No remains of the township are marked on the 2019 Ordnance Survey map and the area is now covered with commercial forestry, either side of the present unclassified road from Gaich to Tomatin.

#### *Archaeological Potential*

The proposed grid connection OHL runs almost entirely through a commercial forestry plantation: following the route of an existing forestry track along its southern section and passing through a

forestry ride over its northern portion. A short section (around 150 m long) at the northern end passes through open moorland.

The baseline study has established that there are no recorded heritage assets, apart from the township described above, within the Inner Study Area. The HER does not record any other heritage assets within the Inner Study Area, and none was identified from examination of historic maps or aerial photographs.

In the wider landscape, there is evidence, mainly along the River Findhorn, through Strathdearn, of both prehistoric settlement and funerary activity, and of medieval or post-medieval farming settlement. There is no record of similar settlement or otherwise activity along the Allt a' Mharacaidh or around the slopes of Carn Meadhonach.

The proposed development passes through a commercial forestry that was already in place in the 1970s (Ordnance Survey maps 1973-75) and remains so at the present time. It is unlikely that any remains of any settlement that may have existed prior to that recorded in the mid 18th (Roy's map, 1747-55) or mid 19th century (Ordnance Survey 1<sup>st</sup> edition map 1874) will have survived in undisturbed condition, even if any were present in the 1970s.

The proposed development site is assessed as having a negligible archaeological potential and the probability of any undiscovered remains surviving within proposed development areas is similarly assessed as negligible.

#### 10.4.2 Outer Study Area

The only designated heritage assets within 2 km of the proposed development is a Category C Listed bridge: Garbole Bridge over the Kyllachy Burn (LB14897): a single span pinned rubble bridge with dressed rubble arch ring and parapet dated 1848 (Figure 10.1). The Category C Listed bridge is of local heritage importance and low sensitivity. The ZTV for the proposed development shows that there would be no visibility of the OHL from the bridge.

Two Scheduled Monuments, Banchor, Cairn 315m SE of (SM11814) and Dalarossie Cottage, Cairn 375m SSE of (SM11815), lie a little over 2 km to the southeast of the proposed development, on a hillside overlooking the River Findhorn. The two scheduled monuments are of national heritage importance and high sensitivity. The ZTV for the proposed development shows that there would be no visibility of the OHL from the location of either cairn.

### 10.5 Potential Impacts and Mitigation

#### 10.5.1 Construction

Potential effects during construction are detailed in Table 10.3 below, which also details the relevant receptor and mitigation or control measures, where appropriate.

<b>Table 10.3: Potential Impacts on Archaeology and Cultural Heritage during Construction and Relevant Mitigation/Control Measures</b>		
<b>Construction</b>		
<b>Potential Impact</b>	<b>Receptor</b>	<b>Mitigation Measures</b>
Direct impacts on known cultural heritage assets	None	None
Direct impact on unknown cultural	Unknown (but likely to be none)	None

<b>Table 10.3: Potential Impacts on Archaeology and Cultural Heritage during Construction and Relevant Mitigation/Control Measures</b>		
heritage assets (archaeology)		

### 10.5.2 Operation

Potential effects during operation are detailed in Table 10.4 below, which also details the relevant receptor and mitigation or control measures, where appropriate.

<b>Table 10.4: Potential Impacts on Archaeology and Cultural Heritage during operation and Relevant Mitigation/Control Measures</b>		
<b>Operation</b>		
<b>Potential Effect</b>	<b>Receptor</b>	<b>Mitigation Proposed</b>
Impacts on the settings of scheduled monuments	None within proposed development ZTV	None
Impacts on the settings of listed buildings	None within proposed development ZTV	None

## 10.6 Residual Impacts

### 10.6.1 Construction

<b>Table 10.5: Potential Residual Impacts on Archaeology and Cultural Heritage during Construction</b>	
<b>Construction</b>	
<b>Residual Impact</b>	<b>Description / Magnitude of Impact</b>
Direct impacts on known cultural heritage assets	None
Direct impact on unknown cultural heritage assets (archaeology)	None

### 10.6.2 Operation

<b>Table 10.6: Potential Residual Impacts on Archaeology and Cultural Heritage during Operation</b>	
<b>Construction</b>	
<b>Residual Impact</b>	<b>Description / Magnitude of Impact</b>
Impacts on the settings of scheduled monuments	None
Impacts on the settings of listed buildings	None



## 11. SUMMARY AND SCHEDULE OF MITIGATION

### 11.1 Summary

This Environmental Appraisal has been prepared to:

- describe the proposed development;
- identify the potential direct and indirect impacts of the proposed development on the environment; and
- describe the mitigation or control measures proposed to address likely impacts.

The connection would comprise a single circuit trident OHL supported by 'H' wood poles and underground cable, following the route shown in Figure 1.2. The OHL would provide a connection from the proposed Glen Kyllachy Wind Farm substation to a location approximately 460 m north west of the consented Tomatin Substation. An underground cable would complete the connection from a terminal pole on the OHL to the Tomatin substation. However, as the underground cable will be constructed under GPDO, the cabling works is out with the scope of the application for s37 consent and are therefore not considered part of the proposed development for the purpose of this Environmental Appraisal.

Environmental appraisals of the proposed development have been undertaken considering: ecology, ornithology, the water environment and soils, landscape and visual amenity, forestry and cultural heritage. The appraisals identify the potential for some temporary disturbance during the construction phase. This temporary disturbance can be largely controlled through good construction management and, where necessary, micro-siting the OHL to avoid direct impacts to ecological or cultural heritage assets.

The ecology, water environment and soils, landscape and visual and forestry appraisals also identify the potential for some impacts during the operational phase. These impacts can be minimised through implementing good practice controls and will be limited to negligible to low adverse impacts.

### 11.2 Schedule of Mitigation

The potential impacts and mitigation measures have been compiled into a "Schedule of Mitigation" which is presented in Table 11.1 below.

Mitigation measures which are 'by design', in other words, which have been incorporated into the final design as reflected on the application drawings provided for the proposed development, are not included here as they form part of the proposed development, as described in Chapter 3: Proposed Development.

**Table 11.1: Schedule of Mitigation**

Topic	Receptor	Potential Impact	Mitigation / Control Measures	Timing
Ecology	Habitats (coniferous woodland, marshy grassland and wet heath/acid grassland mosaic)	Vegetation clearance, tree felling and ground disturbance due to vehicle movements on un-made ground.	<ul style="list-style-type: none"> <li>• Immediate reinstatement of habitats following construction activities;</li> <li>• Avoidance of tree felling, where possible, primarily through micro-siting;</li> <li>• Avoidance of areas of marshy grassland and wet heath/acid grassland, where possible. If not possible, bog mats and low ground-pressure vehicles would be used to cross these habitats;</li> <li>• Preparation of a Construction Environmental Management Plan (CEMP). A suitably qualified Environmental Clerk of Works (ECoW) would input into the CEMP to ensure appropriate mitigation measures are in place, and to reduce any impacts; and</li> <li>• It is not anticipated that there would be a need for peat disposal as all excavated material would be backfilled.</li> </ul>	Construction
Ecology	Red squirrel (and potentially badger, otter and pine marten) Wood ants	Disturbance from lighting, noise and excavations	<ul style="list-style-type: none"> <li>• Undertake pre-construction surveys for protected species no longer than eight months prior to construction. If the results indicate the presence of protected species additional to those recorded to date, an assessment of the mitigation on the species would be completed and appropriate mitigation measures identified (if required), such as micro-siting of access routes. Species protection plans would be included in the CEMP;</li> <li>• Should any wood ant nests be found they would be marked with an appropriate buffer zone by the ECoW and avoided by the proposed development. If they cannot be avoided they would be relocated to a safe location out with the construction area; and</li> </ul>	Construction

**Table 11.1: Schedule of Mitigation**

			<ul style="list-style-type: none"> <li>• CEMP to include measures to protect ecological and ornithological features, such as the deployment of mammal ladders in excavations left uncovered overnight. A suitably qualified ECoW would input into the CEMP to ensure appropriate mitigation measures are in place, and to reduce any disturbance impacts.</li> </ul>	
Ecology	Habitats (particularly standing and running water)	Pollution e.g. oil spill, siltation of watercourses or dust	<ul style="list-style-type: none"> <li>• Good practice guidance<sup>12</sup> would be followed when working close to or crossing smaller watercourses; and</li> <li>• The CEMP would include standard pollution prevention guidelines, such as silt traps, during the construction phase to ensure that no water or air borne pollutants reach ecological features.</li> </ul>	Construction
Ecology	Red squirrel and wood ants	Disturbance and displacement due to maintenance activities and presence of site personnel	<ul style="list-style-type: none"> <li>• If any vegetation clearance or excavation is required, breeding bird and protected species surveys would occur prior to this, where appropriate.</li> </ul>	Operation
Ecology	Habitats	Pollution e.g. oil spill from vehicles accessing proposed development for maintenance activities	<ul style="list-style-type: none"> <li>• Oil spill kits carried in vehicles, particularly when working in sensitive habitats such as designated sites, peatlands, marshy grassland and close to watercourses.</li> </ul>	Operation
Ornithology	Goshawk territory Potential new black grouse leks	Disturbance from lighting, noise and excavations	<ul style="list-style-type: none"> <li>• The majority of bird species are not protected from disturbance under the Wildlife and Countryside Act, 1981<sup>3</sup>. However, black grouse are listed under Schedule 1 and their leks are protected from disturbance, which can occur at a distance of 300-500 m. Should any new leks be identified the</li> </ul>	Construction

1 [https://www.sepa.org.uk/media/150997/wat\\_sg\\_29.pdf](https://www.sepa.org.uk/media/150997/wat_sg_29.pdf) accessed 28th July 2017

2 <http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/> accessed 28th July 2017

3 <https://www.legislation.gov.uk/ukpga/1981/69>

**Table 11.1: Schedule of Mitigation**

			Environmental Clerk of Works (ECOW) would be responsible for maintaining buffer zones to avoid any disturbance impacts.	
Ornithology	Breeding birds	Destruction of bird nests	<ul style="list-style-type: none"> <li>Ground or vegetation clearance works would be undertaken outwith the main bird nesting season (March–September, inclusive), if possible. If this is not possible, a suitably experienced ecologist would check the proposed development prior to construction to determine if nesting birds are present. If nesting birds are found, a suitable buffer zone would be implemented around the nest, with no work in this zone until the young have fledged or the nest is no longer in use.</li> <li>Adherence to The Applicant’s species protection plans for birds.</li> </ul>	Construction
Water Environment and Soils	Watercourses as identified in section 7.3	Risk of sediment produced during construction entering any nearby watercourses	Implementation of good practice guidance for working in close proximity to the water environment <sup>4</sup>	Construction
Water Environment and Soils	Watercourses as identified in section 7.3, surface water fed areas of vegetation	Excavations at the pole locations could result in groundwater discharge and stockpiled material at the working areas	If dewatering is required, suitable mitigation measures will be put in place, as necessary, to settle out any suspended solids from the pumped groundwater before being safely discharged to surrounding vegetation, such that waters disperse naturally.	Construction
Water Environment and Soils	Degradation of upper, living layer of peat	Drying of excavated peat soils	Areas of deep peat will be avoided by micrositing, where possible.	Construction

<sup>4</sup> URL: <https://www.sepa.org.uk/regulations/water/engineering/engineering-guidance/> (accessed 09/09/2019)

**Table 11.1: Schedule of Mitigation**

	(acrotelm) and associated vegetation		<p>Peat turves to be cut and stored (topside up) such that they do not dry out prior to reinstatement after installation of wood poles. Each woodpole shall be constructed in no more than 2 days. As such, peat would not be exposed for long periods of time.</p> <p>Management practices for peat materials shall be in accordance with methodologies set out in a Construction Environmental Management Plan (CEMP) which would be developed by the appointed contractor.</p>	
Water Environment and Soils Water Environment and Soils	GWDTes (alteration in quality or quantity of water supply)	Interruption of groundwater flow would potentially reduce the supply of groundwater water to GWDTes	<p>Minimising the extent of construction work within wetland and blanket bog habitat including GWDTes.</p> <p>Clean runoff (i.e. non-silty surface water flow, including that which has not passed over any disturbed construction areas) would be kept separate from potentially contaminated, water interceptor ditches and other drainage diversion measures would be installed.</p> <p>Clear delineation of areas supporting priority species through pre-construction protected species survey.</p>	Construction
Water Environment and Soils	GWDTes (alteration in water quality)	Contamination of groundwater may also cause physical or chemical contamination to the GWDTes	Construction to be carried out in accordance with good practice as defined in SEPA guidance provided in the Guidance for Pollution Prevention (GPP) document.	Construction
Water Environment and Soils	Peat soils GWDTes	Interruption of groundwater flows by sub-surface elements of wood poles	No mitigation is proposed as wood pole excavations will be backfilled with the materials arising on the site, and as such interruptions to the groundwater flow are considered unlikely.	Operation
Landscape and Visual	Landscape fabric and landscape character	Site clearance; exavation of the ground for pole base construction; and reinstatement works	<ul style="list-style-type: none"> <li>The proposed development will follow the alignment of existing tracks and forestry roads as far as practicable.</li> <li>Immediate reinstatement of the ground condition following construction activities in areas of temporary</li> </ul>	Construction

**Table 11.1: Schedule of Mitigation**

			<p>access, particularly access tracks and the construction compound.</p> <ul style="list-style-type: none"> <li>Excavated material will be stored appropriately and will be used for back filling and dressing of disturbed areas.</li> <li>All working areas would be restricted as far as practicable to the specified areas and demarcated to prevent incursion of site plant onto non-construction areas</li> <li>Material storage/ stockpiles would be retained for the shortest duration practicable and would be sited to avoid visual intrusion to neighbouring receptor locations</li> <li>Public access along roads and paths will be retained throughout the construction period</li> <li>Night lighting of construction sites/ compounds will be minimised within the requirements of health and safety, and only in use at locations where activity is being carried out.</li> </ul>	
Landscape and Visual	<ul style="list-style-type: none"> <li>Landscape character, Landscape fabric and</li> <li>Visual amenity / visual receptors</li> </ul>	Loss of vegetation within the proposed development site, and consequent construction of the poles.	<ul style="list-style-type: none"> <li>Tree felling will be limited to only those necessary for the safe construction and operation of the grid connection.</li> </ul>	Construction
Landscape and Visual	<ul style="list-style-type: none"> <li>Landscape character and Visual amenity / visual receptors</li> </ul>	Presence of construction activity (including movement) and construction equipment such as excavators, tractors and scaffold tunnels	<ul style="list-style-type: none"> <li>All construction equipment will be removed, and the landscape restored immediately following completion of the construction works.</li> <li>Night lighting of construction sites/ compounds will be minimised within the requirements of health and</li> </ul>	Construction

**Table 11.1: Schedule of Mitigation**

			<p>safety, and only in use at locations where activity is being carried out.</p> <ul style="list-style-type: none"> <li>Material storage/ stockpiles would be retained for the shortest duration practicable and would be sited to avoid visual intrusion to neighbouring receptor locations.</li> </ul>	
Landscape and Visual	<ul style="list-style-type: none"> <li>Landscape character, Landscape fabric and</li> <li>Visual amenity / receptors</li> </ul>	Presence of new wood pole line (including conductor) within the landscape; presence of cleared operational corridor	<ul style="list-style-type: none"> <li>The height of the poles would typically be 13 m above the adjoining ground level (including steel work and insulators). Pole heights may be increased locally (up to a maximum height of 18 m) where required for clearance purposes, i.e. to safely cross features such as watercourses and access tracks.</li> <li>Where possible, the proposed alignment has been routed to reduce its impact on the character of the landscape, and its prominence in views from the wider area.</li> </ul>	Operation
Landscape and Visual	<ul style="list-style-type: none"> <li>Landscape fabric,</li> <li>Landscape character and</li> <li>Visual amenity / receptors</li> </ul>	Disturbance, movement and activity associated with maintenance activities	<ul style="list-style-type: none"> <li>All maintenance equipment will be removed, and any disturbed ground reinstated (if applicable) immediately following completion of the maintenance works.</li> </ul>	Operation
Forestry	Soils and watercourses.	Clearfelling of commercial conifers to accommodate operational corridor.	All forestry operations to be carried out in accordance with best practice guidelines and in compliance with the UK Forestry Standard (UKFS), particularly with regard to the UKFS guidelines on Soils and Water.	Construction
Forestry	Projected species – notably red squirrels <i>Sciurus vulgaris</i>	Clearfelling of commercial conifers to accommodate OHL footprint.	Pre-construction survey of the proposed felling area to search for protected species, particularly location of red squirrel dreys. Adjust timing of forestry operations as necessary to avoid disturbance	Construction

**Table 11.1: Schedule of Mitigation**

Forestry	Woodland cover	Permanent loss of up to 0.9 ha woodland, of which 0.48 ha is permanently lost to potential future restoration to native woodland	Micro-siting of the OHL within the Limits of Deviation (LoD) will be carried out wherever practicable in order to reduce the area of permanent woodland removal and / or other felling arising from indirect effects of the development. The landowner would be able to restock the area subject to indirect effects; however this is outwith the control of the Applicant.	Construction
Forestry	Pre-felled and additional felled (directly affected) areas within the OHL corridor.	Natural regeneration of conifers within OHL corridor, if allowed to continue unchecked, could grow to a height that could pose a risk to the proposed development.	Periodic surveys of any conifer natural regeneration within OHL corridor and removal of regeneration by manual or mechanical means as appropriate.	Operation
Forestry	Pre-felled and additional felled (directly affected) areas within the OHL corridor	Natural regeneration of birch and other broadleaves from local seed sources within the forest could impede access to the proposed development for maintenance etc..	Monitor and remove any broadleaved natural regeneration occurring within 7.5 m from the outermost conductor of the OHL.	Operation
Cultural Heritage and Archaeology	Unknown (but likely to be none)	Direct impact on unknown cultural heritage assets (archaeology)	None	Construction



## **TECHNICAL APPENDICES**

## APPENDIX 3.1: INDICATIVE POLE LOCATIONS

Table TA 3.1 summarises the indicative pole locations for the Proposed Development.

### 1.1 Overhead Line

<b>Table TA 3.1: Indicative Pole Locations</b>			
<b>Pole Number</b>	<b>Easting (X)</b>	<b>Northing (Y)</b>	<b>Indicative Pole Height (m)</b>
1	274457.61	826877.47	12.71
2	274524.09	826837.22	12.13
3	274577.07	826783.43	10.18
4	274628.72	826731.00	11.18
5	274683.84	826675.06	11.18
6	274740.33	826617.71	12.13
7	274739.63	826451.02	13.13
8	274764.74	826475.81	11.18
9	274789.02	826412.75	13.13
10	274792.10	826345.23	12.18
11	274795.13	826278.70	14.13
12	274804.82	826215.04	11.18
13	274814.45	826151.68	11.18
14	274827.41	826266.50	11.18
15	274839.65	825986.01	11.18
16	274851.11	825910.71	10.18
17	274862.85	825833.48	11.18
18	274875.17	825752.49	11.13
19	274879.15	825681.77	11.18
20	274883.09	825611.77	11.18
21	274886.92	825543.87	12.71

## APPENDIX 7.1: PEAT IMPACT AND STABILITY ALONG THE OHL CORRIDOR

### 1.1 Introduction

SLR Consulting Limited (SLR) was commissioned to undertake a peat assessment for the proposed 132 kV overhead line (OHL) from the consented Glen Kyllachy Wind Farm substation to the substation at Tomatin (the proposed development). This report provides details of the peat probing and sampling exercise initially undertaken in November 2014, April 2016 and completed and finalised in July 2019 (Photograph 1).

The proposed development extends from Glen Kyllachy Substation towards the Tomatin Substation where it will transition from OHL to be completed utilising underground cabling. The underground cable section of the development will be constructed under permitted development and is not assessed as part of this EA. Consequently, this Environmental Appraisal only address the OHL section.



**Photograph 1 – Looking towards proposed location of Glen Kyllachy Substation and Windfarm**

The peat probing exercise comprised the collection of field observation data on the characteristics of the underlying peaty soils and peat, including an interpretation of any potential peat slide risk along the entire route of the proposed development. Since the original survey was undertaken, an operational corridor was created through the forestry and a new track (Tomatin Substation Haul Route) constructed along the route indicated on the Location Plan and this will serve to provide access for the proposed development throughout construction and operation.

### 1.2 Proposed Development

The proposed development comprises the construction of a new 132 kV overhead line (OHL), approximately 1511 m long and extends from the consented Glen Kyllachy Wind Farm substation towards the substation at Tomatin, as shown on Figure 1. The OHL would be supported by trident “H” wood poles.

The height of the trident wood poles would typically be between 13 and 15 m above the ground level (including steel work and insulators) and support three conductors (wires) in a horizontal flat formation.

The statutory ground level clearance required for a 132 kV OHL is 6.7 m, and pole heights may be increased locally (up to 18 m) where required to safely cross features such as watercourses or windfarm/timber haulage roads. The spacing between the poles would vary depending on topography, altitude and land usage. The distance between the poles will be determined later in the design process; however, an average span of 80 m is estimated. However, the spans could range from 70 m to 120 m to accommodate technical and environmental considerations.

### **1.3 Geology**

#### **1.3.1 Soils**

Data from the Scotland Environment website suggests the soils on the site are likely to comprise podsoles and peaty podsoles.

#### **1.3.2 Superficial Deposits**

The British Geological Survey indicates that the superficial geology at the site comprises Glacial Deposits comprising undifferentiated till (diamicton). No peat has been identified from BGS Mapping of the site.

#### **1.3.3 Bedrock Geology**

The British Geological Survey indicates the solid geology at the site to comprise rocks from the Silurian age igneous rocks, bound to the west and east by Precambrian age psammities. The rocks are identified as the Findhorn Pluton, comprising granodiorites, bound to the west and east the Beinn Bhreac Formation to the west and the Glen Banchor Subgroup to the east. Geological Characteristics outlined in Table 1.

#### **1.3.4 Bedrock Properties**

Interpretation of the solid geology based on previous investigations indicates the bedrock is primarily granodiorite, this is typically quite weathered at surface and the depth of weathering and rate of decomposition can be quite high.

#### **1.3.5 Possible Geological Constraints**

All observations to date suggest that superficial soils across the search area will comprise thin soils, underlain by Glacial Deposits comprising undifferentiated till.

#### **1.3.6 Bedrock Properties**

Interpretation of the solid geology based on previous investigations indicates the bedrock is primarily granodiorite, this is typically quite weathered at surface and the depth of weathering and rate of decomposition can be quite high.

<b>Geological Unit</b>	<b>Characteristics of Superficial Deposits and Bedrock</b>
Peat	Limited localised pockets of peat on site
Glacial Deposits	Undifferentiated Glacial Till During the site walkover, granular material was proven to underlie the site, with weathered bedrock outcropping locally to north of site
Findhorn Formation	Granodiorite, Silurian age
Glen Banchor Subgroup	Micaceous Psammites, Precambrian
Beinn Bhreac Psammite	Gneissose Micaceous Psammites, Precambrian

#### **1.4 Peat Assessment and Methodology**

Utilising data collected in April 2016 and in later phases on the Tomatin site and along the Tomatin Substation Haul Road a plan showing the data collected along the route is included as Figure 7.1. The OHL route is indicated as a solid red line in parallel to the Tomatin Substation Haul Road, indicated in blue, and the underground cable route is indicated with a red dashed line.

The thickness of peat was assessed using a graduated fibre glass peat probe, which can be extended up to 10 m depth. This was pushed vertically into the peat to refusal and the depth recorded, together with a unique location number and the coordinates from a handheld Trimble Global Positioning System instrument (GPS). The accuracy of the GPS was quoted as  $\pm 4$  m, which was considered sufficiently accurate for this exercise. All data was uploaded to a PC for incorporation into various figures and analysis assessments.

Where the peat probing met refusal on a hard substrate, the ‘feel’ of the refusal can provide an insight into the nature of the substrate. The following criteria were used to assess likely material:

- Solid and abrupt refusal – rock;
- Solid but less abrupt refusal with grinding or crunching sound – sand or gravel;
- Rapid and firm refusal – clay;
- Gradual refusal – dense peat or soft clay.

An assessment of the substrate was made and recorded at each probe hole.

The relative stiffness of the peat was also assessed from the resistance to penetration of the probe and in particular to the effort required to extract the probes. Peat augering was carried out to determine the composition of the peat.

##### **1.4.1 Phase 1 Peat Probing Survey**

An initial peat probing reconnaissance visit was undertaken by SLR in November 2014. This survey identified isolated areas of deep peat, with much of the site comprising peaty soils (less than 0.5 m thick). A detailed survey was not completed at this time.

##### **1.4.2 Phase 2 Peat 50 m Probing Survey**

The Phase 2 peat probing survey visit in April 2016 was undertaken to further assess the potential extent of peat on the site, to address potential areas of concern and to determine extent of peat at the proposed Tomatin Substation location and along the proposed OHL route to Glen Kyllachy Wind Farm Substation. A ~50 m grid was set out across the proposed substation location and immediate surrounds and along the proposed access track to the northwest. The probe positions were verified

on site using GPS and downloaded directly into ArcGIS for modelling. The 50m grid was generally adhered to, however in areas of very wet ground or dense forestry probes were taken as close to the proposed location as was possible without compromising the safety of the surveyors.

#### 1.4.3 Phase 2 Peat Probing Survey along proposed OHL route

The Phase 2 peat probing survey visit in July 2019 was undertaken to further assess the potential extent of peat along the OHL route only. The probe positions were verified on site using GPS and downloaded directly into ArcGIS for modelling. An approximate 25 m grid was generally adhered to.

The probing exercise probed along the proposed OHL route while addressing the conditions down gradient and upgradient of this position. Additional probing was undertaken alongside the Tomatin substation Haul Road position.

### 1.5 Results

A total of 212 No. probes have been taken across the entire survey area. Of these a total of 135 probes were completed along the proposed development OHL Route, a total of 67.5% of the probe points taken were classified as peaty soils and predominately lie on the steeper slopes on site. The summary of the probing results is detailed in Table 2. The deeper peat in excess of 1.0 m is located down gradient of the proposed development. A summary of peat probing data is presented in Table 2.

The OHL route is underlain predominantly by peaty soils <0.5 m in most instances <0.2 m. The Tomatin substation haul road and the proposed development are located on thin peaty soils overlying granular glacial till or shallow bedrock. There is no significant peat in an upgradient position along the entire proposed development OHL route. There is a small pocket of flat lying peat close to the northern end of the proposed development near to the Glen Kyllachy wind farm substation. The Tomatin Substation Haul Road track has been floated over this section, with peat extending along the proposed OHL route to the south, as illustrated in Figure 1.

<b>Number of Probes</b>	<b>Peat Thickness (m)</b>	<b>Percentage %</b>
91	0-0.5	67.5
27	0.5-1.0	20.0
14	1.0-1.5	10.3
3	1.5-2.0	0.02
135	-	100

The substrate underlying the peaty soil on site was identified as granular material, comprising glacial till and/or weathered bedrock.

From Glen Kyllachy Substation the OHL crosses a small pocket of deeper peat located adjacent to the track. The track is 'floated' across the peat at this point and the maximum depth of 1.7 m is not anticipated to hinder the construction of the poles (Photograph 2). The location of the OHL pole is sufficiently close to the track minimise disruption of the peat and could be located to avoid the deeper peat, by appropriate pole placement.



**Photograph 2 - Floated Road near Proposed Glen Kyllachy Substation**

The proposed development OHL extends parallel to the Tomatin Substation Haul Road in a southerly direction and will be constructed accessing the poles directly off the existing track. Some organic soils were located approximately 50-70 m to the south of the track and the OHL route, this will not impact the layout and is a localised accumulation of organic peaty soils and peat along the former forest ride.

Along the entire route the upgradient soils/geology comprises thin organic soils over glacial till, therefore the entire route, including the track is located on glacial till.



**Photograph 3 Setting of Tomatin Substation Haul Route located on Glacial Till**

The construction method for the proposed development has not been finalised and will be detailed in the CEMP but is likely to follow the key stages identified below:

#### *Enabling Works*

- Site preparation including any tree removal (where required); and
- Site setup including installation of a site compound, offices, and welfare facilities<sup>1</sup>.

#### *OHL Construction*

- pole positions would be microsited during the design phase to avoid deep peat where possible. Angle poles must be in competent ground to support the line;
- access would be taken using low ground pressure tracked excavators and all terrain personnel Stone roads are not required for the construction or maintenance of the wood poles;
- in areas of peat the wood pole will be installed by a wide track excavator by contractors with 40+ years of experience of installing wood poles in the north of Scotland. Bog mats and temporary track mats may be used to cross soft ground where existing access tracks are not available and topography allows this to be undertaken safely;
- turf and topsoil would be removed together to retain the turf root system and placed to one side for later reinstatement;
- foundation excavations for a double pole trident, such as we require to use, would generally be 4m long, 2m wide and 2.5m deep. In soft ground the side of the excavation would be shuttered to avoid collapse and minimise extent of excavations. There may be a requirement for additional stone to be imported for engineering backfill in the foundations. All material excavated for the foundations would be reinstated in the order it was removed, with turves replaced on top. There would be no surplus material to remove from site;
- topsoil, peat and subsoil would be stored in segregated stockpiles at least 1 m from the edge of the excavation;
- the pole would be lifted and lowered into position using a tracked excavator with hydraulic lifting arm;
- the hole would be backfilled with soils replaced in reverse order to the order of excavation. Backfilling would be progressed in layers of approximately 300-400 mm deep, with stone hardcore added as required around foundation blocks to ensure adequate compaction and suitable geotechnical conditions are maintained between each layer; and
- when replacing the topsoil/turf around the pole it would be left slightly proud of ground level (approximately 150/300 mm) to allow for the excavation to naturally compact further through time.
- multiple tracking of excavators would be avoided where possible by using them in one direction; i.e. in one end and out the other; and
- each pole would take no more than two days to install; most can be installed in one day. As such turves would not be left exposed for long periods of time.

---

<sup>1</sup> The site compound was included under the Glen Kyllachy windfarm s36 consent.



### *Electrical Work*

- Installation of conductors, insulators and commissioning of the OHL.

#### **1.6 Peat Slide Risk**

A review of the potential for peat slide risk was completed based on the Scottish Government Guidance on developments on peatlands<sup>1</sup>. There is limited peat along the proposed access route, with most probes identifying peaty soils (<0.5 m). Based on the lack of peat and there being no evidence of historic peat instability, the review concluded that there is no potential risk of a peat slide associated with the activities on site.

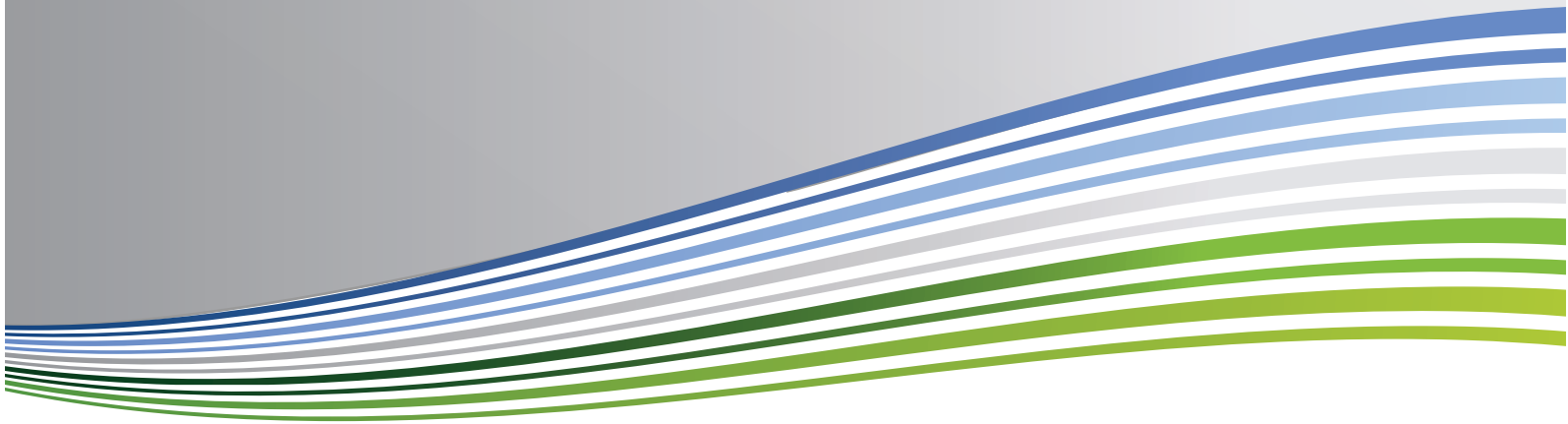
A localised pocket of peat is present near the Glen Kyllachy wind farm substation, however the existing track 'floats' over the peat and the OHL poles can be located to avoid this area.

#### **1.7 Conclusion**

The OHL line can be constructed along proposed route with no potential impact on peat or peat stability issues. A Peat Management Plan (PMP) is not required as all excavated material (not peat) would be reinstated in the excavations within a maximum of 2 days and as such any potential effect along the route is not significant and does not require specific mitigation. There will be no surplus materials generated on site.

---

<sup>1</sup> Peat Landslide Hazard and Risk Assessments (Scottish Executive, April 2017)



**Scottish & Southern**  
Electricity Networks