Scottish & Southern Electricity Networks

Spittal to Loch Buidhe to Beauly 400 kV OHL Connection

Environmental Impact Assessment

Volume 5, Appendix 13.1 – P:

Woodland Reports

Inversh in Wood

July 2025

Scottish & Southern Electricity Networks

Contents

1. Introduction

1.1 Scottish and Southern Electricity Networks (SSEN) Transmission, hereafter referred to as 'the Applicant', owns, operates, develops and maintains the high voltage electricity transmission system in the north of Scotland and the Scottish islands. Due to the growth in renewable electricity generation in the north and north-east of Scotland, upgrade of the transmission network is required to provide the necessary increase in transmission capacity. The Applicant is applying for consent under Section 37 of the Electricity Act 1989 to construct and operate a new double circuit 400 (kilovolt) kV overhead line (OHL).

1.2 This report provides an assessment of woodland impact related to the Spittal to Loch Buidhe to Beauly 400 kV OHL Connection project (the 'Proposed Development'). The report details the woodland area affected by the Operational Corridor (OC), new access tracks (permanent), and additional felling required due to windblow risk within individual ownerships. It also includes mitigation considerations and compensatory planting recommendations.

2. Purpose of this Woodland Report

2.1 As part of the Environmental Impact Assessment (EIA) process, it was identified that construction of the OHL and associated access tracks would cross a number of woodland areas within both public and private landholdings. The landholding property boundaries are identified in **Figure 1: Woodland Impacted by the Proposed Development**.

2.2 This document provides an assessment of the woodland areas that are affected by the Proposed Development, including the requirement for woodland removal and management recommendations to mitigate the impact of the woodland removal.

2.3 Field surveys of the woodland areas have been undertaken and have been used to determine the various woodland characteristics to identify the woodland removal required and recommended. This document also sets out the area, in hectares (ha), of compensatory planting required to ensure no net loss of woodland is achieved.

3. Woodland Property

3.1 Invershin wood is publicly owned and managed by Forest Land Scotland. This woodland is situated approximately 6 km north of Bonar Bridge, with the nearest major public road being the A836, along the eastern side of the Kyle of Sutherland estuary.

3.2 Within the local setting, the woodland is primarily situated between two main roads, the A836 to the south and west, and the B864 to the west, with open hill and moorland to the east. The woodlands affected by the Proposed Development are located on both sides of the main watercourse running through the Invershin Wood property, Allt na Ciste Duibhe.

3.3 The site features forestry access tracks that lead to the centre of the main wooded area and near most of the southern towers affected by the Proposed Development. Some of these tracks will need to be upgraded to support the construction and operational phases of the project. Refer to **Figure 1: Woodland Impacted by the Proposed Development**.

4. Development Requirements

4.1 400 kV Operational Corridor

4.1.1 With reference to **Figure 1: Woodland Impacted by the Proposed Development**, the Overhead Line (OHL) sections relevant to Invershin wood extend from 35 m north to Tower S14 to over 200 m south of Tower S21.

4.1.2 The Study Area for this assessment is based around an operational corridor of 90 m. The Applicant defines the OC as the area in which it has rights to remove woodland for the purposes of creation of new OHL, resilience and maintenance of OHLs, or protection of electrical plant as required by the Electricity Safety, Quality and Continuity Regulations (ESQCR) 2002 regulations and The Electricity Act 1989. The OC is defined as to the distance at which a tree could fall and cause damage to the OHL, resulting in a supply outage. As a result, the final OC width would be based on the safety distance required from the OHL centreline to allow for a mature tree falling towards the OHL, taking account of topography and tree height at maturity.

4.1.3 The OC width that has been assessed and identified for the safe build and energisation of the new OHL through areas of conifer woodland is 90 m (45 m either side of the OHL centreline). Further details can be found in **Section 13.3** of **Volume 2, Chapter 13: Forestry** which outlines the extent of the study area.

4.1.4 The OC width that has been assessed and identified for the safe build and energisation of the OHL through the areas of broadleaves is also 90 m (45 m either side of the OHL centreline). This has been assessed as a maximum OC width required at these woodland locations, with the potential of further narrowing of the OC prior to construction to allow greater tree retention depending on factors such as tree height, topography, crown reduction or other mitigation strategies[1].

4.2 Access Track Route Design

4.2.1 An existing infrastructure network within the property provides access to various areas of the woodlands and is in proximity to the Proposed Development features; however, new sections of both temporary and permanent roads will be constructed within and outside the OC. These roads will serve as the primary vehicle access route for the Proposed Development, as illustrated in **Figure 1:**

[1]As specified by the 'Red Zone' set out in paragraph 41 of the Forest Industry Safety Accord. (2020) Safety Guide 804 Electricity at Work: Forestry. [pdf] Available at: FISA 804 (ukfisa.com).

Woodland Impacted by the Proposed Development, and will undergo maintenance and upgrades as part of the construction scope.

4.2.2 New access tracks, also detailed in **Figure 1: Woodland Impacted by the Proposed Development**, will be built to service Towers S14 to S21.

4.2.3 The access track corridor width required for clearing through the woodland is 20 m (10 m on either side of the centreline), but this will be evaluated in situ to determine the suitability for further tree retention.

4.2.4 The construction of these new access tracks will increase the impact of woodland removal along routes located outside the OC. The affected woodland along the new roadways will consist of a similar composition to that found within the OC, featuring a combination of coniferous plantations and broadleaved woodlands, depending on the specific location of the roads. Refer to **Table 9.1** below.

4.2.5 Tree felling, stump removal and residue mulching will be required for the installation of new access tracks and at each tower location for the formation of temporary construction working areas.

4.2.6 These access tracks can serve as the main arterial construction route. Tree felling and timber extraction would be able to utilise existing tracks, prior to any construction activity.

4.2.7 Where existing tracks require maintenance or upgrading, this may involve the removal of trees and scrub to facilitate the works, particularly to accommodate the creation of additional passing places. While much of the upgrade activity would fall within standard forest access maintenance, which typically involves the removal of scrub, regeneration, and crown management, some sections may require additional tree clearance within a corridor of up to 12 m in width.

5. Woodland Characteristics

5.1 A desk-based study of the woodland areas was conducted, to identify current woodland environmental designations and classifications.

5.2 The web-based data provided by Scottish Forestry and referencing the Scottish Government's Ancient Woodland Inventory (AWI), and

- The Scottish Forestry Map Viewer provides spatial data on the Native Woodland Survey of Scotland (NWSS) and classifies the woodland types into four categories[2] [3]:

[2] Scottish Forestry Map Viewer URL https://scottishforestry.maps.arcgis.com/apps/webappviewer/index.html?id=0d6125cfe892439ab0e5d0b74d9acc18

[3] Scottish Forestry Native Woodland Survey of Scotland: Glossary of Terms; URL: Main Title (forestry.gov.scot)

1. Native woodland
2. Nearly-native woodland
3. Open land habitat
4. Plantations on Ancient Woodland Sites (PAWS)

5.3 The woodlands within this ownership are situated on gentle slopes, on the foothill of local Cnoc Breac. The general aspect is southwest-facing. The woodland ranges in elevation from approximately 50 to 180 m above sea level.

5.4 Some classifications are also encountered within the areas proposed as Management Felling. Refer to **Section 6** for details.

5.5 The route primarily passes through coniferous plantations of a mixed species. To the south of the OC, there are some areas classified as Native Woodlands identified through the Native Woodland Survey of Scotland (NWSS) in the category native pinewoods. Refer to **Table 5.1**.

5.6 All wooded areas affected by the Proposed Development in this property are coniferous woodlands with no broadleaved elements.

Table 5.1: Woodland Designations

Item	Type of Impact	Woodland Designations	Area (ha)
Operational Corridor	Permanent	NWSS- Native woodland	4.79
Access track corridor	Permanent	NWSS- Native woodland	0.12
	Temporary	NWSS- Native woodland	0.74
Management Felling*	Temporary	NWSS- Native woodland	18.27

*Management Felling reference and details described in **Section 6**- Windblow Risk Impact.

5.7 The Native Woodland classification only appears on the south-western areas of Invershin and it affects to 4.79 ha of woodland within the OC, 0.86 ha within the proposed new roads and 18.27 ha for the proposed Management Felling areas.

5.8 The Native Woodlands of the native pinewood type feature Scots pine conifer woodlands with scattered larch trees throughout. Those trees are at pole stage and semi-mature stage and have not undergone thinning operations.

Native Woodland – woods where the canopy cover is composed mainly of native species (i.e., over 50%).
Nearly Native Woodland - where native species make up between 40% and 50% of the canopy. These are woods that could have potential to be converted into native woodlands by altering their species mix.
Open Land Habitat – areas with <20% canopy cover of trees and shrubs adjoining a native woodland.
PAWS - Plantation on Ancient Woodland Sites. These are surveyed in the NWSS where they are recorded in the Scottish ancient woodland inventory (SAWI). These woodlands appear to have originated through natural regeneration sometime before the mid-19th century, but were later converted to planted wood.

They are of an average 17 m with variations between the plantations. The canopy is rather close, and there is no understorey development on those pinewoods. Woodland records show the planting year in 1989. Refer to **Plates 1 and 2**.

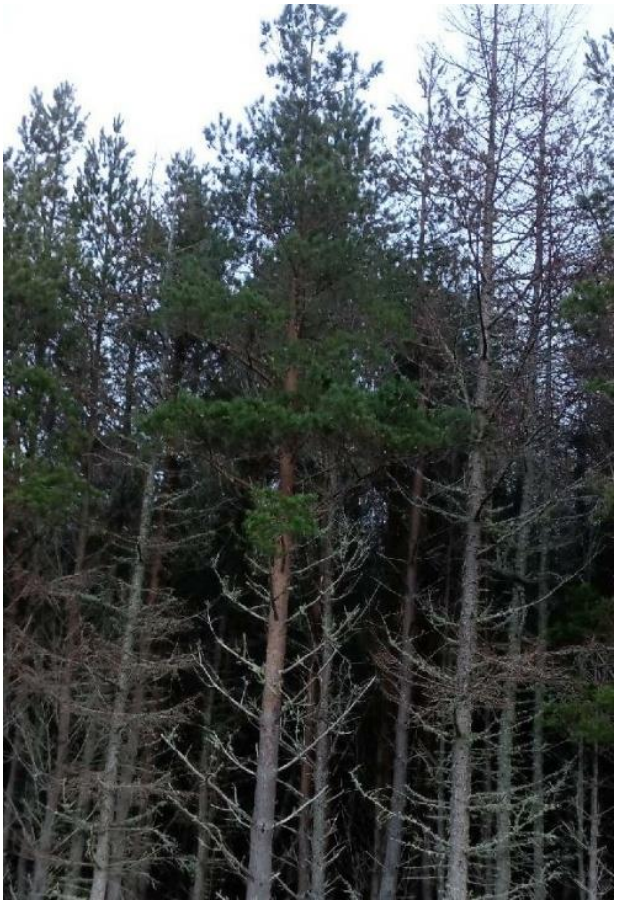


Plate 1- edge of the Native Woodland (pinewood) at the proximity of Tower S21. Pole immature stand of Scots pine averaging 17 m in height presenting a rather close upper canopy. Grid reference: NH 58017 96543.

Plate 2-Scots pine and larch mix stand on the Native Woodland site. Trees feature a commercial plantation with trees averaging 20 m in height. Grid reference: NH 58166 96664

5.9 Within the Native Woodlands, some pure stands of larch species are also encountered with similar characteristics as Scots pine being of semi-mature/pole stage. Generally, they are on an intimate mix stand throughout the southern side of the pinewood classification. Refer to **Plate 3**.

Plate 3- Larch stand within the Native Woodland. Trees averaging 19 m high and with a rather close canopy. Grid reference: NH 58353 96644

5.10 The rest of the areas, which do not show any classification, are predominantly coniferous plantations of a mix of pole stage to semi-mature (commercially speaking) spruce and Lodgepole pine. These trees average 18 m and are intimately mixed stands of Lodgepole pine and spruce. The upper canopy is closed and does not present any features on the understorey. Refer to **Plates 4 and 5**.

Plate 4- Lodgepole pine and spruce mix plantation edge of a forest ride. Conifers are 16 m on average on these blocks. Not previously thinned. Grid ref: NH 58824 96839

Plate 5- Commercial conifer block composed of Lodgepole pine and spruce on wet ground. Grid reference: NH 59112 97015

5.11 The northern coniferous blocks located on the higher ground present a poorer establishment rate with some stunted and checked groups throughout this area. Trees here are of the same composition of Lodgepole pine and spruce, averaging 12 m in height. Soils are poorer as so it's the tree development. Refer to **Plate 6**.

5.12 Some natural regeneration is evident along the edges of the conifer plantation, with seedlings observed reaching heights of no more than 1 m. Refer to **Plates 7 and 8**.

Plate 6- Within the commercial conifer stands, occasionally encountered spruce and Lodgepole pine in stunted growth. Grid reference: NH 60048 97449.

Plate7- Semi-mature conifer plantation on the edge of the open ground showing signs of natural regeneration of spruce (mainly) and pine amongst the heather. Conifer trees reaching maturity average 19m in height. Grid ref: NH 59807 97347.

Plate 8- Edge of the conifer plantation north of the OC at Invershin woodland. Grid reference: NH 60562 97631.

5.13 The woodland consists primarily of commercial conifer plantations dominated by a mix of spruce and lodgepole pine, with a minor presence of larch. These plantations were established in 1988 and 1989. On the southern side of the OC, there are areas classified as Native Woodland under the Native Woodland Survey of Scotland (NWSS), identified as pinewoods.

5.14 The site soils are predominantly peaty gleyed podzols.[4]

6. Windblow Risk Impact

6.1 An assessment was undertaken of the risk of windblow to areas of woodland adjacent to the OC which would be exposed due to the tree clearance required for the OC. This assessment was based on the professional judgement of the forestry surveyor with consideration being given to the soil and moisture regime, the topography, tree species, top height, exposure, altitude and aspect in relation to the prevailing wind direction and any previous management regimes. This assessment was also based on site visits and observations, and available data of the site. Reference was also made to Forest GALES 2.5 Forest Research decision support system where appropriate. Felling outwith the OC to a windfirm boundary is termed Management Felling and is presented within **Figure 1: Woodland Impacted by the Proposed Development.**

6.2 Given the nature of some of the woodlands- those of pole immature and semi-mature conifer woodlands of an average height of 17 m with unthinned stands and the local characteristics of soils, topography and aspect, it is anticipated that the introduction of the OC will result in future windblow to the adjoining woods. Refer to **Table 9.1.**

[4] Scottish Government's Scotland's soils website https://soils.environment.gov.scot

6.3 The woodland site affected by the Proposed Development has a 'Detailed Aspect Method of Scoring' (DAMS)[5] windthrow hazard class score of 16, classified as moderately exposed to exposed. The site presents mineral soils with shallow rooting that are mostly cool and moist.

6.4 Management felling is proposed in the areas adjacent to the OC and the access track corridors to minimize the future risk of windblow. However, certain areas within the woodland contain more open coupes, which are likely to remain wind-stable. These rather open coupes have been assessed and are therefore considered stable in the current conditions. Refer to **Table 9.4**.

6.5 While management felling is proposed by the Applicant as part of sound forestry practice, the decision to implement such operations ultimately rests with the forest owner, who must align any felling activities with their broader forest management plans and objectives. Felling permission for these areas must be obtained by the landowner through an application to Scottish Forestry. As part of this regulatory process, Scottish Forestry will consider the appropriateness of the proposed felling and will attach conditions requiring the restocking of felled areas to ensure continued sustainable forest management.

7. Woodland Management Impact

7.1 The OHL will create additional challenges for the future management of the forest as it dissects existing management coupes and introduces an electrical hazard. The risks associated with the electrical hazard will be reduced by regular maintenance of the OC, so maintaining the compliance of the OC and reducing any need for future tree clearance operations within the "Red Zone".[6]

7.2 The sterilisation of the OC, however, will have an impact on forest restructuring, potentially impacting the landowner's ability to utilise the forest's commercial viability in accordance with the UK Forestry Standard. Mitigation opportunities are discussed in the following **Section 8**.

7.3 The OHL will cross the woodland road network at either approximately 45 or 90 degrees and will be built to the regulatory safe height clearances above forest access tracks, which will reduce the hazard in respect of future timber haulage. It may still, however, impact on machine operations within the proximity of the OHL, such as stacking and loading. Mitigation of which could be incorporated into the access design, following discussions with the landowner.

[5] Detailed Aspect method of Scoring (DAMS) Ref. Forest Research, "Forest Gales software programme" and Forestry Commission Leaflet 85 "Windthrow Hazard Classification"

[6] As specified by the 'Red Zone' set out in paragraph 41 of the Forest Industry Safety Accord (FISA) Safety Guide 804. Electricity at Work: Forestry (2020) FISA 804 (ukfisa.com)

7.4 The OHL may be restrictive to future in-forest machinery access. The requirement for dedicated forestry machine OHL crossing points will be discussed with the landowner and if required, will be identified once the OHL has been constructed, thus providing a safe OHL crossing point(s) for future working within the woodland.

7.5 The impact of the Proposed Development on the overall viability and continuity of woodland management has been considered. The areas affected by the OC form part of a larger commercial woodland, primarily comprising semi-mature conifer blocks. While the proposed OC intersects several woodland compartments through the centre of these blocks, any potential impact on forest operations or ongoing management is expected to be limited. The OC crosses central sections of the woodland where established access infrastructure is already in place to a central location. Furthermore, the construction of new access tracks at further away points and either side of the OC will enhance connectivity, particularly to the northeastern areas of the site, thereby maintaining operational accessibility. As such, no significant fragmentation or isolation of woodland units is anticipated.

7.6 The impacts arising from the Proposed Development are not anticipated to affect the wider woodland management regime, nor are they expected to necessitate any alteration to the current or planned species composition.

8. Mitigation Opportunities

8.1 The Applicant will be using a process of 'managed resilience' which will seek to retain naturally regenerated broadleaved trees and shrubs as close as possible to the line to keep as much tree cover as possible. Smaller- and lower-growing tree species and shrubs can be retained closer to the OHL. OHL vegetation maintenance would take place on a 4-yearly cycle as required.

8.2 Impacts on woodland restock opportunities, resulting from the OC sterilisation, could be addressed through the amendment of the Felling Licence Application or the Long-Term Forest Plan (LTFP), adhered to the regulations of the Forestry and Land Management (Scotland) Act 2018, and in line with the UK Forestry Standard guidance to utilise wayleave corridors as designed Open Ground, repurposing currently unplanted areas to maintain the commercial productivity of the woodland.

8.3 Before the construction phase, these areas, along with access tracks, will be assessed for selective felling and also crown reduction to determine if greater tree retention is feasible. The final extent of tree retention will depend on the requirements of the Proposed Development, particularly ensuring the safety of OHL wiring operations during construction.

8.4 The OC woodland removal area is required for the construction and operation of the new OHL infrastructure. Opportunities will be assessed for encouraging woodland regeneration within the OC, the identification of suitable areas cannot be guaranteed due to the requirement of maintaining the safe energisation of the OHL. Reference to **Tables 9.2 and 9.3** below, will fully mitigate the loss of forest resource within the OC through compensatory planting of the equivalent area (ha) of woodland removed.

8.5 Impacts on tree windfirm stability within the remaining crop have been assessed and considered as noted in **Section 6**. Woodland loss and management felling have been minimised through retention of crops identified as likely to be windfirm.

8.6 The impact of stability within the remaining crop has been assessed and reported on above.

9 Woodland Removal Impact

Table 9.1: Woodland Removal for Infrastructure

Item	Type of Infrastructure	Woodland type	Area (ha)
Operational Corridor	Permanent	Conifer woodland	17.24
		Broadleaved woodland	0.10
Access track corridor	Permanent	Conifer woodland	0.46
	Temporary	Conifer woodland	4.78

Table 9.2: Compensatory planting

Compensatory Planting Area		22.58

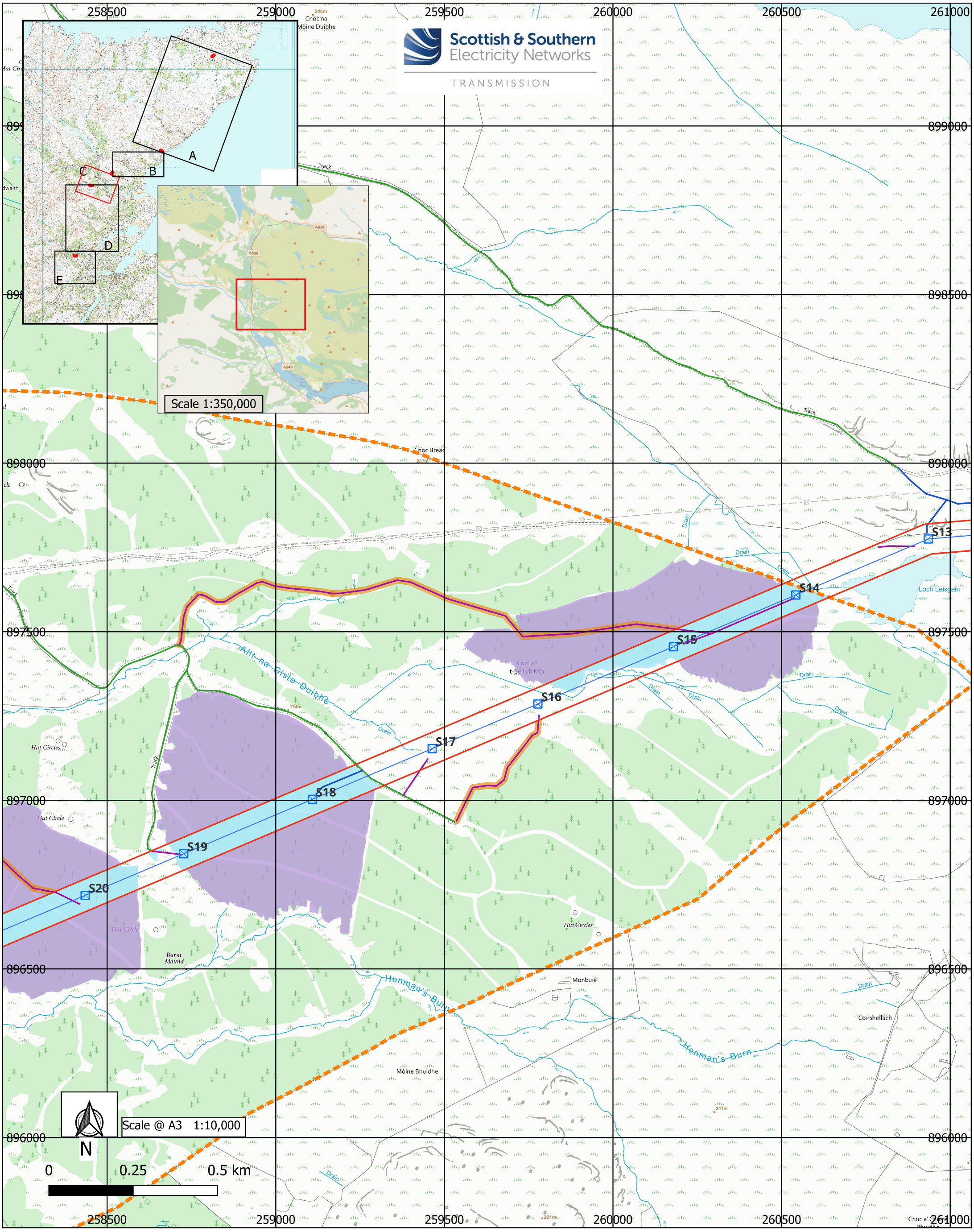
Table 9.3: Woodland Removal Impact of Infrastructure

Item	Woodland type	Area (ha)
Total Loss of Woodland Area	Conifer woodland	22.48
	Broadleaved woodland	0.10
Total Compensatory Planting Area off-site	Conifer woodland	17.70
	Broadleaved woodland	0.10
Total Restocking/ Replanting Area on-site	Conifer woodland	4.78
Total Net Loss of Woodland Area		**0**

Table 9.4: Woodland Removal for Management Felling			
Item	**Type of Impact**	**Woodland type**	**Area (ha)**
Management Felling	Temporary	Conifer woodland	67.98
Replanting / Restocking	Adhere to the Forestry and Land Management (Scotland) Act 2018.	Conifer woodland	67.98
Net Loss of Woodland Area			0
Note: Felling approval is via the Scottish Forestry Felling Licence Application process or Long-Term Forest Plan application, or amendments process.			

10. Compensatory Planting

10.1 Compensatory planting to achieve the area quantity (ha) of woodland removal as a result of the Proposed Development will be in accordance with the Scottish Government's Control of Woodland Removal Policy of no net loss of woodland. A compensatory planting strategy is set out in **Volume 5, Appendix 13.3: Compensatory Planting Strategy**.

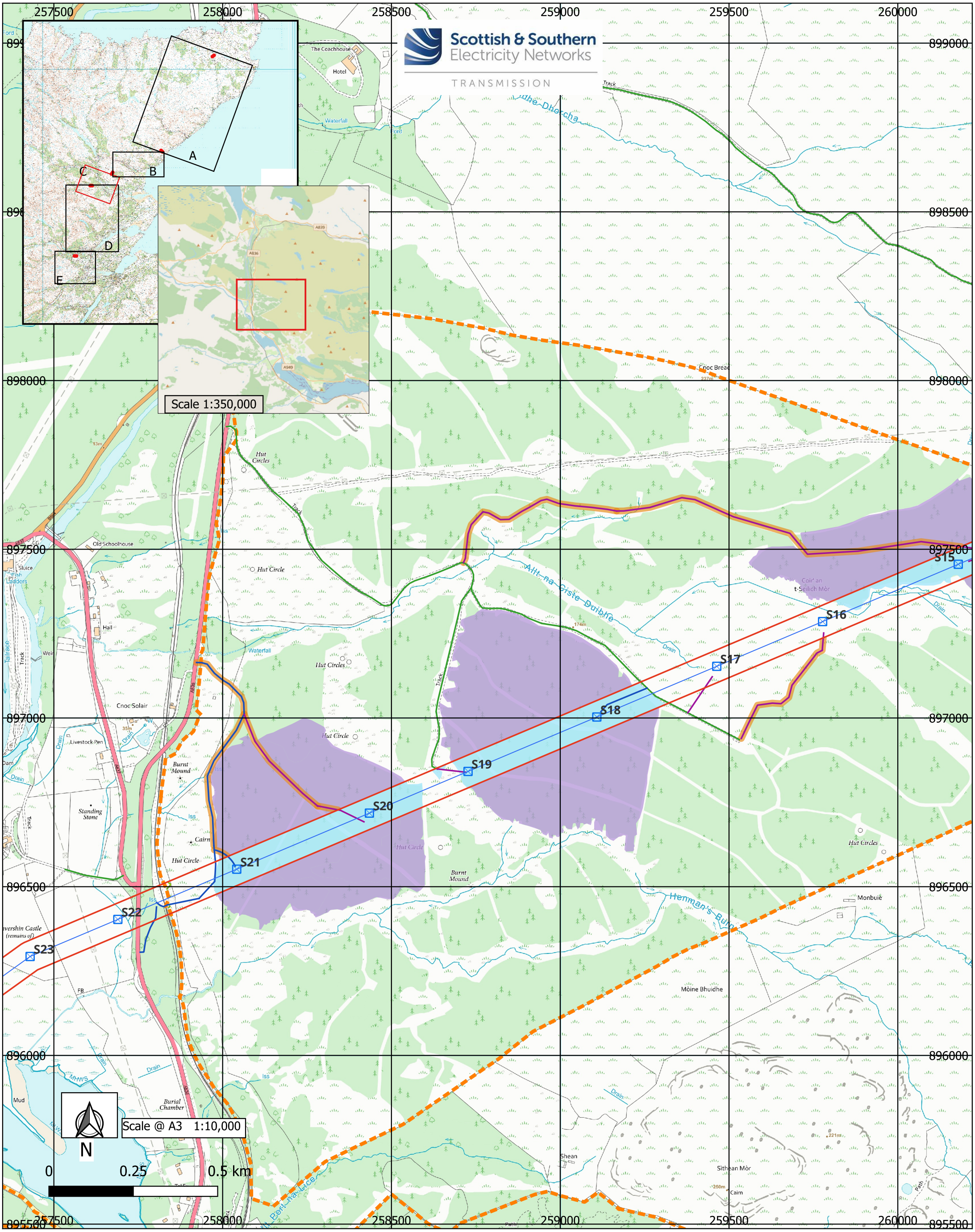


Legend

- Landownership boundary/parcel
- Operational Corridor
- Central line Operational Corridor
- Proposed 400kV OHL Towers
- Management Felling
- 20m Access Corridor
- Access Tracks- Existing Upgrade
- Access Tracks- New Stone Perm
- Access Tracks- New Stone Temp
- Conifer woodland- Operational Corridor 90m

Woodland report
Project No- LT000132
Spittal- Loch Buidhe - Beauly 400kV Connection
Figure 1. Woodland Impacted by the Proposed Development
Section C-Invershin wood
1 Out of 2

Ref No: 22-07-2025



Legend

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- Management Felling
- Conifer woodland- Operational Corridor 90m
- Broadleaved woodland- Operational Corridor 90m

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Figure 1. Woodland Impacted by the Proposed Development
Section C-Inversin wood
2 Out of 2

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