Scottish & Southern Electricity Networks

TRANSMISSION

Spittal to Loch Buidhe to Beauly 400 kV OHL Connection Environmental Impact Assessment Volume 5 | Technical Appendix

Appendix 11.2 | Outline Peat Management Plan

July 2025

Scottish & Southern Electricity Networks
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VOLUME 5: APPENDIX 11.2 – OUTLINE PEAT MANAGEMENT PLAN

Figures

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1. INTRODUCTION

1.1 Background

1.1.1 This Outline Peat Management Plan (PMP) has been prepared by Environmental Resources Management Ltd (ERM) to assess the estimated peat excavation and reuse potential as well as the proposed peat and soil management methodologies to be employed during the construction of the Spittle to Loch Buidhe to Beauly 400kV OHL Connection (the Proposed Development).

1.1.2 The Outline PMP has been prepared as a technical appendix to an Environmental Impact Assessment (EIA) Report and should be read in conjunction with Chapter 11: Geology and Soil Environment. This Outline PMP will ensure that the construction of the Proposed Development will comply with best practice in accordance with Scottish Renewables (SR) and Scottish Environmental Protection Agency (SEPA) guidance.

1.1.3 The purpose of the Outline PMP is to:

- Define the materials that will be excavated during the construction of the Proposed Development, focusing specifically on the excavation of peat;
- Report on detailed investigations into peat depths within the Proposed Development, including peat probing and scoring results;
- Detailed proposals for the management of excavated peat and other soils;
- Determine volumes of excavated peat at the Proposed Development and proposals for reuse or reinstatement using excavated materials;
- Assess the potential for peatland restoration at the Proposed Development, and;
- Provide details of the embedded and specific mitigation measures.

1.1.4 The Outline PMP has been produced in accordance with SR and SEPA guidance on peat excavations and management[1]. It is expected that this document will evolve throughout the different phases of the Proposed Development and will therefore be subject to continued review to address:

- Requirements to adhere to future planning conditions;
- Detailed ground investigations and design development;
- Unforeseen conditions encountered during construction;
- Changes in best practice during life of the OHL, and;
- Changes resulting from the construction methods used by the Principal Contractors.

1.1.5 Whilst this Outline PMP provides a base standard for best practice, the Principal Contractors will implement any methods or improvements to current practices which will avoid or minimise risks to the environment, where possible, and will correspond with SR and SEPA guidance.

1.1.6 This Outline PMP is accompanied by the following appendices:

- Annex A – Figures,
- Annex B – Peat Depth Data, and;
- Annex C – Excavation and Reuse Volumes and Calculations

1 SR and SEPA (2012) Guidance on the Assessment of Peat volumes, Re-use of Excavated Peat and the Minimisation of Waste [Online] Available at: Guidance+on+the+assessment+of+peat+volumes%2C+reuse+of+excavated+peat%2C+and+the+minimisation+of+waste.pdf (Accessed 26/11/2024)

1.2 The Proposed Development

1.2.1 The Proposed Development spans over 173 km between Spittal, Loch Buidhe and Beauly in the northern highlands of Scotland.

1.2.2 The Proposed Development would include the following works, for which Section 37 consent under the 1989 Act and deemed planning permission is sought:

- The installation and operation of approximately 96 km of new double circuit 400 kV OHL on steel lattice towers between the proposed Banniskirk and Carnaig 400 kV Substations;
- The installation and operation of approximately 77 km of new double circuit 400 kV OHL on steel lattice towers between the proposed Carnaig and Fanellen 400 kV Substations;
- Permanent diversion works required to existing 132 kV and 275 kV OHLs (referred to within this EIA as special arrangements) to enable the construction of the Proposed Development including the temporary diversion works required to construct the permanent diversions; and
- Construction of temporary and permanent access tracks at various locations along the length of the Proposed Alignment.

1.2.3 The layout of the Proposed Development has evolved throughout the EIA process with details of the final layout provided in **Volume 2, Chapter 3: Description of the Proposed Development.** The Site layout is displayed in **Figure 1: Site Layout**, which is included in **Annex A**.

1.2.4 Given the linear scale of the Proposed Development, this EIA report splits the Proposed Development into five geographically defined 'Sections'. These Sections are broadly defined as follows:

- Section A – Spittal to Brora;
- Section B – Brora to Loch Buidhe;
- Section C – Loch Buidhe to Dounie;
- Section D – Dounie to Near Strathpeffer; and
- Section E – Near Strathpeffer to Beauly.

1.3 Consultation

1.3.1 Peat excavation and disturbance within the Proposed Development, as well as reinstatement and restoration potential, were considered throughout the EIA for the Proposed Development and the outcomes of studies are reported in this EIA Report. This EIA Report forms part of the planning application submitted to the Scottish Government's Energy Consent Unit (ECU) and made available to all consultees, including SEPA.

1.3.2 To inform the scope of the assessment for the Proposed Development, consultation was undertaken with statutory and non-statutory bodies through early consultation and a formal EIA scoping process.

1.3.3 Full details of the consultation process and responses are included in **Volume 2, Chapter 6: Scope and Consultation** and associated **Volume 5, Appendix 6.3: Scoping Matrix**. Specific scoping responses, relevant to the peatland environment, are provided in **Table 11.1, Volume 2, Chapter 11: Geological Environment**.

2. OBJECTIVES

2.1 Introduction

2.1.1 Desk based assessments, detailed peat survey work and completion of technical assessments such as the Peat Landslide Hazard Risk Assessment (PLHRA) for this EIA Report allows a consistent approach for managing peat.

2.1.2 The preparation of this Outline PMP is in response to the Scoping Opinion (February 2025) as well as the intent to deliver a construction project that complies with best practice in accordance with SR and SEPA.

2.1.3 In addition to the technical assessments, an outline design of the proposed development corridor has been undertaken. The excavation and disturbance if peat has been afforded significant consideration during the routing, alignment, design and construction phase of the Proposed Development. The access tracks and towers have been placed in areas of shallower peat or avoiding peat altogether as far as possible. **Volume 2, Chapter 4: Routeing Process and Alternatives** details the design process and how peat was avoided in the Proposed Development.

2.2 Aims and Objectives

Need of Peat Management Plan

2.2.1 Peatlands are considered to be a significant natural resource due to the wildlife habitats that they provide and their ability to absorb carbon, as such they are protected by various legislation, policy and local, national and international initiatives such as:

- United Kingdom Biodiversity Action Plan (UKBAP)[2];
- Scotland's National Peatland Plan (2015)[3];
- Scottish Biodiversity List (SBL)[4];
- Scotland's 2018-2032 Climate Change Plan[5], and;
- Scottish Soil Framework (2009)[6].

Guidance and Standards

2.2.2 This Outline PMP has been compiled in accordance with the following best practice guidance:

- National Planning Framework 4 (NPF4) (2023)[7]
- The Scottish Government (2009) The Scottish Soil Framework[8];

2 Joint Nature Conservation Committee: UKBAP [online] Available at: UK BAP | JNCC - Adviser to Government on Nature Conservation (Accessed 27/11/2024).
3 NatureScot - Scotland's National Peatland Plan: Working for our future [online] Available at: Scotland's National Peatland Plan: Working for our future | NatureScot (Accessed 27/11/2024)
4 NatureScot – Scottish Biodiversity List [online] Available at: Scottish Biodiversity List | NatureScot (Accessed 27/11/2024)
5 Scottish Government – "Securing a green recovery on a path to net zero: climate change plan 2018–2032 – update" [online] Available at: Chapter 6 Land Use, Land Use Change and Forestry - 3.6. Land Use, Land Use Change and Forestry - Securing a green recovery on a path to net zero: climate change plan 2018–2032 - update - gov.scot (www.gov.scot) (Accessed 27/11/2024)
6 Scottish Government – "The Scottish Soil Framework" [online] Available at: The Scottish Soil Framework - gov.scot (www.gov.scot) (Accessed 27/11/2024)
7 The Scottish Government (2024) National Planning Framework 4 [Online] Available at: National Planning Framework 4 (www.gov.scot) [Accessed November 2024]
8 The Scottish Government (2009) The Scottish Soil Framework [Online]. Available at: http://www.gov.scot/Publications/2009/05/20145602/0 [Accessed December 2024].

- The Scottish Government, NatureScot (formally Scottish Natural Heritage (SNH)), Scottish Environment Protection Agency (SEPA) (2017) Peatland Guidance on Development on Peatland[9];
- The Scottish Office (1996) Planning Advice Note (PAN) 50 – Controlling the Environmental Effects of Surface Mineral Working[10];
- NatureScot (2023) Advising on peatland, carbon-rich soils and priority peatland habitats in development management[11];
- SEPA (2017) Developments on Peat and Off-Site Uses of Waste Peat[12];
- Forestry Commission Scotland (FCS) & SNH (2010) Floating Roads on Peat - Report into Good Practice in Design, Construction and Use of Floating Roads[13];
- Scottish Renewables, SNH, SEPA, FCS, Historic Environment Scotland, Marine Scotland Science and AEECoW (2019) Good Practice during Windfarm Construction, 4th Edition18[14]; and
- Construction Industry Research and Information Association (CIRIA) (2023) C741 Environmental Good Practice on Site[15].

Mitigation Hierarchy

2.2.3 SEPA has a statutory duty to ensure that where peat spoil is generated during construction, it is stored, reused, treated or disposed of correctly, which may require authorisation or permits.

2.2.4 SEPA's policy on the management of peat sets out a mitigation hierarchy in their SEPA Regulatory Position Statement – Developments on Peat and has been used in the development of this Outline PMP. The mitigation hierarchy is detailed below:

Prevention and Avoidance

2.2.5 The best management option it to prevent or reduce the production of waste peat. This can be achieved by the following:

- Minimise infrastructure that could impact peat;
- Where possible position site infrastructure in areas of no peat or shallower peat; and,
- Design appropriate engineering solution to avoid and/ or minimise excavation of peat (for example floating roads and piling solutions).

[9] Scottish Government, Scottish Natural Heritage, SEPA (2017) Guidance on Developments on Peatland, online version only. Available at: Guidance+on+developments+on+peatland+-+peatland+survey+-+2017.pdf (www.gov.scot) [Accessed December 2024].
[10] The Scottish Office (1996) Planning Advice Note (PAN) 50 – Controlling the Environmental Effects of Surface Mineral Working [Online]. Available at: https://www.gov.scot/publications/planning-advice-note-pan-50-annex-controlling-environmental-effects-surface/documents/ [Accessed December 2024].
[11] NatureScot (2023) Advising on peatland, carbon-rich soils and priority peatland habitats in development management. Available at: https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management [Accessed December 2024].
[12] SEPA (2017) Developments on Peat and Off-Site Uses of Waste Peat Available at: https://www.sepa.org.uk/media/287064/wst-g-052-developments-on-peat-and-off-site-uses-of-waste-peat.pdf [Accessed December 2024].
[13] Forestry Commission Scotland & SNH (2010) Floating Roads on Peat - Report into Good Practice in Design, Construction and Use of Floating Roads. Available at: https://www.roadex.org/wp-content/uploads/2014/01/FCE-SNH-Floating-Roads-on-Peat-report.pdf [Accessed December 2024].
[14] Scottish Renewables, NatureScot (formally Scottish Natural Heritage (SNH)), SEPA, Forestry Commission Scotland, Historic Environment Scotland, Marine Scotland Science and AEECoW (2019) Good Practice during Windfarm Construction, 4th Edition. Available at: https://www.scottishrenewables.com/assets/000/000/453/guidance_-_good_practice_during_wind_farm_construction_original.pdf?1579640559 [Accessed December 2024].
[15] CIRIA (2023) Environmental Good Practice on Site Guide (Fifth Edition) [online]. Available at: https://www.ciria.org/ItemDetail?iProductCode=C811D&Category=DOWNLOAD&WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91 [Accessed January 2025]

Reuse

2.2.6 Excavated peat should be utilised on-site for construction and reinstatement purposes at first instance. Methods to reuse peat can include:

- Restoring tower foundations, hardstanding areas, borrow pits, road verges, or degraded peatland; —or
- For off-site for peatland restoration efforts only where it is suitable for the identified and required use.

Recycling/Recovery

2.2.7 If peat cannot be utilised on-site or off-site for peatland restoration, it can be repurposed and employed in other appropriate projects such as:

- Applied to land for agricultural purposes;
- Blending with other materials to create a soil substitute;
- Dewatered to improve its mechanical properties in support of reuse.

Disposal

2.2.8 Only after all other options have been explored and discounted.

Objectives of Peat Management Plan

2.2.9 This Outline PMP is prepared to demonstrate to local authorities, SEPA and other consultees that the construction of the Proposed Development will progress in a manner that is planned, in accordance with best practice and achieves the aim of being environmentally sustainable.

2.2.10 Therefore, this Outline PMP is prepared in accordance with the SR and SEPA guidance. It details how:

- The Proposed Development has been structured and designed to reduce the volumes of peat excavated as far as is reasonably practicable.
- Volumes of peat excavated during construction have been considered in the design, and;
- Excavated peat will be managed.

2.2.11 The main objective of the Outline PMP is to outline how peat and peaty soils proposed to be excavated will be managed and reused during the construction of the Development and proposed restoration plans.

2.2.12 This is achieved through responding of the following objectives:

- Providing details of the extent and depth of the peat on Site and how this was determined;
- Estimation of peat volumes to be excavated and reused;
- Classification of excavated materials;
- Consideration of the use of appropriate construction methods;
- Describing how excavated peat will be handled to ensure suitability for reuse;
- Determining if temporary storage of peat will be required during construction and how this will be done to ensure suitability for reuse, and;
- Considering the potential volume of peat which may not be suitable for reuse and any requirement for a Waste Management Plan for the Development.

2.2.13 The objective of this Outline PMP is achieved by:

- Ensuring the characteristics of the Proposed Development are understood through extensive peat probing and assessing the Site topography;
- Understanding the Proposed Development layout and how peat will be excavated and stored;

- Modelling the peat depth profile based on probing;
- Considering the best practise guidance for peat reinstatement, and;
- Developing practical peat restoration opportunities for the improvement of habitats and peatlands.

Approach to Minimising Peat Extraction

2.2.14 The following steps have been taken during the outline design stage of the Proposed Development to minimise the effect on peat:

- The development of an access track design which avoids deeper peat where practicable;
- The development of an access track design that uses existing tracks where possible, where gradients permit, and can be floated through sections where peat is 1.0 m or greater; and
- The design and orientation of towers considers local topography, peat depth and other environmental constraints.

2.2.15 These steps will be further supplemented by taking the following measures to minimise disturbance:

- Maximisation of batter angles in cuttings;
- Utilisation of existing access tracks, and;
- The use of appropriate construction plant to avoid unnecessary disturbance of the ground surface (e.g. low ground pressure excavators).

2.2.16 The Outline PMP is based upon the fundamental principle that achieving a successful materials strategy is contingent on gaining a thorough understanding of the Proposed Development through investigation and developing a design that achieves the materials management objectives. For the Proposed Development, this principle is achieved by undertaking significant peat probe investigations prior to preparing the outline design layout and the preparation of this Outline PMP based on the available information.

2.2.17 The response to these objectives is provided within the following sections.

3. BASELINE STUDIES AND PEAT INVESTIGATIONS

3.1 Peat Classification and Published Geology

General Peatland Classification

3.1.1 Peat is defined as the partially decomposed carbon-rich remains of plant and soil organisms which have accumulated at the surface of the soil profile. Peat is typically dark brown or black in colour and typically forms in anaerobic, waterlogged conditions which prevents plant material from fully decomposing. Peat ultimately forms when the accumulation of organic material exceeds the rate of decomposition. Peat is classed as greater than 0.5m and any peat deposits less than 0.5m thick are too thin to be classified as true peat deposits and instead would be referred to as peaty or organic soils.

3.1.2 There are two distinct layers within a peat profile:

- Acrotelmic peat is the upper layer of peat consisting of living and partially decayed materials with a higher hydraulic conductivity and a variable water table. These deposits are generally found to exist in the upper 0.5 m of peat deposits and are typically suitable for reinstatement because they contain viable plant life to assist in the regeneration of peatland vegetation and carbon sequestration; and,
- Catotelmic peat is variable in characteristic, with decomposition of fibres generally increasing with depth. Water content can be highly variable and affects the structural strength of the material. Suitability for reuse generally depends on fibre and water content. The upper catotelm is commonly deemed as being appropriate for use in restoration due to its relatively high fibre content.

3.1.3 Generally, excavated semi fibrous catotelmic peat from the Proposed Development will have sufficient structural strength to be able to be used in the lower layers of verge restoration as it will not be ‘fluid’.

3.1.4 The catotelmic peat would be capped with a surface layer of acrotelm to re-establish the peat vegetation. If any fluid like wet catotelmic peat is encountered, then it would be placed in more appropriate locations such as low-lying sections of concave deposition areas.

3.1.5 The following assumptions have been made in classifying peat excavated during the construction work:

- Where the total peat depth was found to be less than 0.5 m, this peat material is assumed to be 100% acrotelmic;
- Where the total peat depth is between 0.5 m and 1.0 m, the upper acrotelmic peat is at least 0.5 m deep; and
- Where the total peat depth is found to be greater than 1.0 m, acrotelmic peat is assumed to account for at least 30% of total depth but generally applying a minimum of 0.5 m thick.

3.1.6 Existing topography and permitted track gradients drive the design of the infrastructure with consideration given to potential construction risk and effects on environmentally sensitive receptors including deep peat, watercourse buffers and any GWDTEs. Further micro-siting post-consent would take place in such a way as to avoid where possible the excavation of deep peat.

3.1.7 Deep peat is defined as a surface layer of peat soil greater than 1.0 m in depth by the Scottish Government[16].

16 Scottish Government (2017) Peat Landslide Hazard and Risk Assessments: Best Practice for Proposed Electricity Generation Developments. (Online) Available at: Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (gov.scot) (Accessed on 27/11/2024)

3.2 Published Soils, Superficial Soils, Carbon and Peat and Geology

BGS Geoindex[17] gives information on the superficial soils and geology present at the Proposed Development. NatureScot Soil Map of Scotland[18] and the Carbon and Peatland Map 2016[19] gives information on the distribution of carbon and peat classes across the Proposed Development.

Section A – Spittal to Brora;

Section Description and Constraints

3.2.1 This section of the Proposed Development originates at the proposed new Spittal area substation (Banniskirk), following a southerly direction west of Dunbeath, Berriedale and Helmsdale before continuing south-west to north of Brora.

3.2.2 Constraints between Spittal and Brora in relation to Peat and Geology include various peatlands in the area that form part of The Flow Country (an intact and expansive blanket bog system that stretches across Caithness and Sutherland). The Flow Country was inscribed on the World Heritage List to the United Nations Educational, Scientific and Cultural Organisation (UNESCO) as of July 2024.

Land Use and Topography

3.2.3 The predominant land use within Section A consists of open moorland, private forestry used for commercial purposes and agricultural land.

3.2.4 The terrain in the area is mix of moderate hills with some steep slopes, and areas with more gradual undulating terrain. The elevations along Section A range from approximately 20 m AOD to 380 m AOD.

Soils

3.2.5 The 1:250,000 National Soil Map of Scotland indicates that there are a range of soil types recorded across Section A of the Proposed Development:

- Mineral Gleys;
- Dystrophic Blanket Peat;
- Peaty Gleys;
- Peaty Gleyed Podzols;
- Brown Soils; and
- Mineral Podzols.

3.2.6 The majority of the Proposed Development is underlain by peaty gleys, peaty podzols and blanket peat. Peat deposits are predominantly mapped across the northern and central areas of Section A. Brown soils and mineral podzols are situated across steeper slopes and hillsides.

17 British Geological Survey (2022). BGS GeoIndex. [Online] Available at: GeoIndex - British Geological Survey (bgs.ac.uk) (Accessed on 27/11/2024)
18 Scotland's Soils (2016). National Soils Map of Scotland. [Online] Available at: Scotland's Soils - soil maps (environment.gov.scot) (Accessed 27/11/2024)
19 Scotland's Soils (2016). Carbon and Peatland Map. [Online] Available at: Map | Scotland's environment web (Accessed 27/11/2024)

Superficial Geology

3.2.7 The BGS GeoIndex Superficial Geology Mapping indicates that the most common superficial deposits mapped throughout Section A of the Proposed Development are peat and glacial till. **Table 1** details the superficial deposits that are present across Section A of the Proposed Development.

Table 1: Superficial Geology in Section A

Superficial Deposit	Description
Peat	Peat is a partially decomposed mass of semi-carbonized vegetation which has grown under waterlogged, anaerobic conditions, usually in bogs or swamps.
Diamicton Till (Devensian)	Comprised of unsorted and unstratified drift deposits clay, sand, gravel and boulders that vary significantly in size and shape.
Alluvium	Comprised of clay, silt, sand and gravel. It is the unconsolidated detrital material deposited by a river, stream or other body of running water as a sorted or semi-sorted sediment in the bed of the stream or on its floodplain or delta, or as a cone or fan at the base of a mountain slope.
Glaciofluvial Deposits	Comprised of sand and gravel with occasional lenses of silt, clay or organic material, that have been deposited by meltwater streams.
Raised Marine Deposits	Predominantly comprised of gravel, sand, silt and clay. Raised Marine Deposits are commonly charged with organic debris (plant and shell) and depositionally, have resulted from gradual tectonic movements and falling sea levels.
River Terrace Deposits (Undifferentiated)	Comprised of sand and gravel with localised lenses of silt, clay or peat.
Glaciofluvial Ice Contact Deposits	Comprised of stratified sand and gravel and interbedded diamicton deposited by meltwater and ice under (subglacial), within (englacial), and at the margins of, glaciers.

Carbon-rich Soils, Deep Peat and Priority Peatland Habitats

3.2.8 The 2016 Carbon and Peatland Map indicates areas of Class 1, 2, 3, 4 and 5 peatlands within Section A of the Proposed Development. This section of the Proposed Development consists of large sections of high priority Class 1 and 2 peatland with isolated areas of Class 3, 4, and 5 peatlands. In addition, there are mapped areas of Class 0 (mineral soils) towards the southern areas of the Proposed Development, generally situated across steep slopes, hillsides or situated adjacent to watercourses.

Bedrock Geology

3.2.9 The BGS GeoIndex indicates that there are several bedrock formations underlying Section A of the Proposed Development, detailed in **Table 2**:

Table 2: Bedrock Geology in Section A

Bedrock Formation	Lithology Type	Description
Spital Flagstone Formation	Sedimentary	Siltstone, mudstone and sandstone
Berriedale Sandstone Formation	Sedimentary	Sandstone, limestone, mudstone, siltstone and trace breccia
Lybster Flagstone Formation	Sedimentary	Siltstone, mudstone and sandstone
Ben Dorrery Conglomerate Member	Sedimentary	Conglomerate and arenite
Kildonan Psammite Formation	Metamorphic	Psammite and semipelite

Bedrock Formation	Lithology Type	Description
Helmsdale Granite Phase 1	Igneous	Granite (porphyritic)
Badbea Breccio – Conglomerate Member	Sedimentary	Conglomerate with subsidiary breccia
Braemore Mudstone Formation	Sedimentary	Mudstone, siltstone and sandstone
Ousdale Arkose Formation	Sedimentary	Breccia, conglomerate and sandstone with subsidiary mudstone
Helmsdale Granite Phase 2	Igneous	Granite (porphyritic) and microgranite (aplitic)
Langwell Conglomerate Member	Sedimentary	Conglomerate

Section B – Brora to Loch Buidhe

Section Description and Constraints

3.2.10 This section of the Proposed Development originates north of Brora, heading generally south-west towards the proposed new Loch Buidhe area substation (Carnaig).

3.2.11 Constraints between Bora and Loch Buidhe in relation to Peat and Geology include the Strath Carnaig and Strath Fleet Moors SPA and SSSI which extends from the west of Golspie to Loch Buidhe; the Dornoch Firth and Loch Fleet Ramsar site and SPA to the south of Golspie; Mound Alderwoods SAC and SSSI; and Strathfleet SSSI).

Land Use and Topography

3.2.12 The predominant land use within Section B consists of open moorland, private forestry used for commercial purposes and agricultural land.

3.2.13 The terrain in this section has a mix of high hills and steep slopes. Elevations along Section B range from approximately 10 m to 410 m AOD.

Soils

3.2.14 The 1:250,000 National Soil Map of Scotland indicates that there are a range of soil types recorded across Section B of the Proposed Development:

- Peaty Gleys;
- Blanket Peat;
- Peaty Podzols;
- Mineral Podzols;
- Alluvial Soils; and
- Brown Soils.

3.2.15 The majority of Section B of the Proposed Development is underlain by peaty gleys, peaty podzols and blanket peat. Alluvial soils are generally associated with surface watercourses, whilst brown soils and mineral podzols are generally situated across steeper slopes and hillsides.

Superficial Geology

3.2.16 The BGS GeoIndex Superficial Geology Mapping indicates that the most common superficial deposits mapped throughout Section B of the Proposed Development are peat and glacial till. **Table 3** details the superficial deposits that are present across Section B of the Proposed Development.

Table 3: Superficial Geology in Section B

Superficial Deposit	Description
Peat	Peat is a partially decomposed mass of semi-carbonized vegetation which has grown under waterlogged, anaerobic conditions, usually in bogs or swamps.
Diamicton Till (Devensian)	Comprised of unsorted and unstratified drift deposits clay, sand, gravel and boulders that vary significantly in size and shape.
Undifferentiated River Terrace Deposits	Comprised of sand and gravel with localised lenses of silt, clay or peat.
Lacustrine Deltaic Deposits	Comprised of gravel, sand, and silt. Deposited in a prograding delta at the fluvial-lacustrine boundary as fluvial current velocity is dissipated, causing a 'coarsening upward sequence' of sediments.
Alluvium	Comprised of clay, silt, sand and gravel. It is the unconsolidated detrital material deposited by a river, stream or other body of running water as a sorted or semi-sorted sediment in the bed of the stream or on its floodplain or delta, or as a cone or fan at the base of a mountain slope.
Alluvial Fan Deposits	Comprised of gravel, sand, silt and clay. Deposits are low, outspread, relatively flat to gently sloping masses of loose rock material in a fan-like shape. Deposited by streams at the mouths of tributary valleys onto a plain or broad valley.

Carbon-rich Soils, Deep Peat and Priority Peatland Habitats

3.2.17 The 2016 Carbon and Peatland Map shows that predominantly Class 1, 2, and 5 peatlands are present within Section B of the Proposed Development. In addition, there are mapped areas of Class 0 (mineral soils) towards the areas of the Proposed Development, predominantly adjacent to the River Fleet and where steep slopes are situated.

Bedrock Geology

3.2.18 The BGS GeoIndex indicates that there are several bedrock formations underlying Section B of the Proposed Development, detailed in **Table 4**:

Table 4: Bedrock Geology in Section B

Bedrock Formation	Lithology Type	Description
Kildonan Psammite Formation	Metamorphic	Psammite and semipelite
Badbea Creccio – Conglomerate Member	Sedimentary	Conglomerate with subsidiary breccia
Berriedale Sandstone Formation	Sedimentary	Sandstone with subsidiary limestone, mudstone, siltstone and trace breccia
Ulbster Sandstone Formation – Sandstone	Sedimentary	Sandstone
Ulbster Sandstone Formation – Conglomerate	Sedimentary	Conglomerate

Bedrock Formation	Lithology Type	Description
Langwell Conglomerate Member	Sedimentary	Conglomerate
Altnaharra Psammite Formation – Psammite and Micaceous Psammite	Metamorphic	Siliceous to feldspathic psammite with micaceous psammite and semipelite
Altnaharra Psammite Formation – Psammite (Migmatitic)	Metamorphic	Siliceous to feldspathic psammite with micaceous psammite and semipelite
Lewisian Complex - Orthogneiss	Metamorphic	Orthogneiss

Section C – Loch Buidhe to Dounie

Section Description and Constraints

3.2.19 This section of the Proposed Development originates at the proposed new Loch Buidhe area substation (Carnaig) heading generally south-west towards the west of Bonar Bridge.

3.2.20 There are no constraints in Section C.

Land Use and Topography

3.2.21 The predominant land use within Section C consists of open moorland, private forestry used for commercial purposes and agricultural land.

3.2.22 Elevations along Section C range from approximately 10 m to 200 m AOD.

Soils

3.2.23 The 1:250,000 National Soil Map of Scotland indicates that there are a range of soil types recorded across Section C of the Proposed Development:

- Peaty Podzols;
- Peaty Gleys; and
- Mineral Podzols.

3.2.24 Section C of the Proposed Development is predominantly underlain by peaty gleys with minor occurrences of peaty podzols in the northern areas and mineral podzols adjacent to the Kyle of Sutherland watercourse.

Superficial Geology

3.2.25 The BGS GeoIndex Superficial Geology Mapping indicates that the most common superficial deposits mapped throughout Section C of the Proposed Development are till and morainic deposits and peat. **Table 5** details the superficial deposits that are present across Section C of the Proposed Development.

Table 5: Superficial Geology in Section C

Superficial Deposit	Description
Peat	Peat is a partially decomposed mass of semi-carbonized vegetation which has grown under waterlogged, anaerobic conditions, usually in bogs or swamps.
Till and Morainic Deposits (Undifferentiated)	Comprised of diamicton, gravel and sand.

Superficial Deposit	Description
River Terrace Deposits (Undifferentiated)	Comprised of sand and gravel with localised lenses of silt, clay or peat.
Alluvium	Comprised of clay, silt, sand and gravel. It is the unconsolidated detrital material deposited by a river, stream or other body of running water as a sorted or semi-sorted sediment in the bed of the stream or on its floodplain or delta, or as a cone or fan at the base of a mountain slope.
Raised Marine Beach Deposits (Late Devensian)	Comprised of gravel, sand and silt.

Carbon-rich Soils, Deep Peat and Priority Peatland Habitats

3.2.26 The 2016 Carbon and Peatland Map indicates that areas of Class 1, 2 and 5 peatlands are present within Section C of the Proposed Development. Class 1 and 2 peatlands are predominantly situated across the northern extents of Section C and localised pockets of Class 1 is present towards the south of the section. Class 5 peat is present throughout the majority of the central and southern areas of Section C. In addition, there are mapped areas of Class 0 (mineral soils) towards throughout the central areas, situated on moderate to steep slopes and adjacent to the Kyle of Sutherland watercourse.

Bedrock Geology

3.2.27 The BGS GeoIndex indicates that Section C of the Proposed Development is underlain by the Altnaharra Psammite Formation, with minor igneous intrusive formations, further detailed in **Table 6**.

Table 6: Bedrock Geology in Section C

Bedrock Formation	Lithology Type	Description
Altnaharra Psammite Formation – Psammite and Micaceous Psammite	Metamorphic	Siliceous to feldspathic psammite with micaceous psammite and semipelite
North Britain Siluro-Devonian Calc-Alkaline Dyke Suite - Minette	Igneous	Minette – a porphyritic alkaline igneous rock, usually occurring in dykes
Neoproterozoic Basic Minor Intrusion Suite - Amphibolite	Metamorphic	Amphibolite are commonly in sheet-like, intrusive sill form

Section D – Dounie to Near Strathpeffer

Section Description and Constraints

3.2.28 This section of the Proposed Development originates west of Bonar Bridge following a southerly direction towards the north of Strathpeffer.

3.2.29 There are no constraints in Section D.

Land Use and topography

3.2.30 The predominant land use within Section D consists of open moorland, private forestry used for commercial purposes and agricultural land.

3.2.31 Elevations along Section D range from approximately 30 m to 440 m AOD.

Soils

3.2.32 The 1:250,000 National Soil Map of Scotland indicates that there are a range of soil types recorded across Section D of the Proposed Development:

- Mineral Podzols;
- Alluvial Soils;
- Peaty Gleys;
- Blanket Peat;
- Mineral Gleys;
- Peaty Podzols; and
- Brown Soils.

3.2.33 The northern area of Section D is predominantly underlain by peaty gleys and localised pockets of blanket peat and mineral gleys. The southern area of the Section D is predominantly underlain by mineral podzols, peaty podzols and mineral gleys with localised pockets of peaty gleys and brown soils.

Superficial Soils

3.2.34 The BGS GeoIndex Superficial Geology Mapping indicates that the most common superficial deposits mapped throughout Section D of the Proposed Development are till and morainic deposits and peat. **Table 7** details the superficial deposits that are present across Section D of the Proposed Development.

Table 7: Superficial Geology in Section D

Superficial Deposit	Description
River Terrace Deposits (Undifferentiated)	Comprised of sand and gravel with localised lenses of silt, clay or peat.
Till and Morainic Deposits (Undifferentiated)	Comprised of Diamicton – clay, sand and gravel.
Alluvium	Comprised of clay, silt, sand and gravel. It is the unconsolidated detrital material deposited by a river, stream or other body of running water as a sorted or semi-sorted sediment in the bed of the stream or on its floodplain or delta, or as a cone or fan at the base of a mountain slope.
Peat	Peat is a partially decomposed mass of semi-carbonized vegetation which has grown under waterlogged, anaerobic conditions, usually in bogs or swamps.
Glaciofluvial Deposits	Comprised of sand and gravel with occasional lenses of silt, clay or organic material, that have been deposited by meltwater streams.

3.2.35 Mapped superficial deposits are absent from localised areas of the Proposed Development, indicating potential bedrock at or near surface.

Carbon-rich Soils, Deep Peat and Priority Peatland Habitats

3.2.36 The 2016 Carbon and Peatland Map indicates that areas of Class 1 and Class 2 peatland are present throughout Section D of the Proposed Development. These deposits are predominantly located in the northern and central areas of Section D near Strathrusdale and Boath.

3.2.37 The majority of Section D is underlain by Class 5 peat soil and Class 0 (mineral soils). Mineral soils are predominantly mapped adjacent to watercourses, such as the River Carron or River Sgitheach, and across

moderate to steep slopes. In addition, there are very localised areas of Class 3 mapped towards the south of the Section D.

Bedrock Geology

3.2.38 The BGS GeoIndex indicates that Section D of the Proposed Development is underlain by metamorphic and sedimentary bedrock formations, as detailed in **Table 8**.

Table 8: Bedrock Geology in Section D

Bedrock Formation	Lithology Type	Description
Altnaharra Psammite Formation - Psammite and Micaceous Psammite	Metamorphic	Siliceous to feldspathic psammite with micaceous psammite and semipelite
Crom Psammite Formation	Metamorphic	Interbedded micaceous psammite, semipelite and pelite
Diebidale Pelite Formation	Metamorphic	Interbedded psammite and semipelite
Ben Wyvis Pelite Formation	Metamorphic	Interbedded semipelite and psammite
Tarvie Psammite Formation	Metamorphic	Psammite
Braemore Mudstone Formation	Sedimentary	Mudstone, siltstone and sandstone
Ousdale Arkose Formation	Sedimentary	Breccia, conglomerate and sandstone with subsidiary mudstone

Section E – Near Strathpeffer to Beauly

Section Description and Constraints

3.2.39 This section of the Proposed Development originates to the north of Strathpeffer, following a southerly direction to the proposed new Beauly area substation (Fanellan).

3.2.40 There are no constraints in Section E.

Land Use and topography

3.2.41 The predominant land use within Section E consists of open moorland, private forestry used for commercial purposes and agricultural land.

3.2.42 Elevations along Section E range from approximately 15 m to 368 m AOD.

Soils

3.2.43 The 1:250,000 National Soil Map of Scotland indicates that there are a range of soil types recorded across Section E of the Proposed Development:

- Peaty Gleyed Podzols with dystrophic blanket peat;
- Humus-iron Podzols;
- Brown Earths;
- Mineral alluvial soils with peaty alluvial soils; and,
- Peaty gleyed podzols with dystrophic semi-confined peat and peaty gleys.

3.2.44 The majority of Section E of the Proposed Development is underlain by Humus-iron Podzols with peaty gleyed podzols. Alluvial soils are generally associated with surface watercourses, whilst brown soils and mineral podzols are generally situated across steeper slopes and hillsides.

Superficial Soils

3.2.45 The BGS GeoIndex Superficial Geology Mapping indicates that the most common superficial deposits mapped throughout Section E of the Proposed Development are glacial and fluvial derived deposits and peat. **Table 9** details the superficial deposits that are present across Section E of the Proposed Development.

Table 9: Superficial Geology in Section E

Superficial Deposit	Description
Hummocky (Moundy) Glacial Deposits	Comprised of rock debris, clayey till, sand and gravel.
River Terrace Deposits	Comprised of sand and gravel with localised lenses of silt, clay or peat.
Alluvium	Comprised of clay, silt, sand and gravel. It is the unconsolidated detrital material deposited by a river, stream or other body of running water as a sorted or semi-sorted sediment in the bed of the stream or on its floodplain or delta, or as a cone or fan at the base of a mountain slope.
Raised Marine Beach Deposits	Comprised of gravel, sand, silt and clay. Raised Marine Deposits are commonly charged with organic debris (plant and shell) and depositionally, have resulted from gradual tectonic movements and falling sea levels.
Diamicton Till (Devensian)	Comprised of unsorted and unstratified drift deposits clay, sand, gravel and boulders that vary significantly in size and shape.
Peat	Peat is a partially decomposed mass of semi-carbonized vegetation which has grown under waterlogged, anaerobic conditions, usually in bogs or swamps.

3.2.46 Mapped superficial deposits are absent from localised areas of the Proposed Development, indicating potential bedrock at or near surface.

Carbon-rich Soils, Deep Peat and Priority Peatland Habitats

3.2.47 The 2016 Carbon and Peatland Map indicates that the majority of Section E is underlain by Class 0 (mineral soils), particularly due to the presence of agricultural land, areas with steep slopes, hillsides and watercourses where alluvial soils are typically present. High priority Class 1 and 2 peatland is mapped locally throughout the central areas of Section E, between proposed S202 and S207. In addition, localised Class 5 peat is mapped throughout northern and southern areas of the Proposed Development.

Bedrock Geology

3.2.48 The BGS GeoIndex indicates that there are several bedrock formations underlying Section E of the Proposed Development, detailed in **Table 10**.

Table 10: Bedrock Geology in Section E

Bedrock Formation	Lithology Type	Description
Tarvie Psammite Formation	Metamorphic	Psammite
Ousdale Arkose Formation	Sedimentary	Breccia and conglomerate
Braemore Mudstone Formation	Sedimentary	Mudstone, sandstone and limestone
Achnaconeran Striped Formation	Metamorphic	Psammite and semipelite
Caledonian Supersuite	Igneous	Pegmatite and Lamprophyres

3.3 Investigations

3.3.1 The existing peat depths across the Proposed Development have been determined through a phased survey approach. The survey was initiated to inform the EIA and Site design work while supporting the PLHRA. The total number of peat probes sunk during the peat investigations was 17,371.

3.3.2 Following confirmation of the design layout and the review of the ground truthing exercise, targeted peat probing was carried from March 2024 to February 2025. The relevant sections of the Proposed Development were probed at 100m intervals, with typical offsets at 100m either side of the alignment (where practical) to satisfy Phase 1 probing requirements and to cover the Limit of Deviation (LoD).

3.3.3 In addition, probing was undertaken at 50 m intervals along the centre line of the tracks with probes at 10 - 25 m on either side of the tracks to provide a corridor for micro-siting. At proposed tower locations, a crosshair of 100 m x 100 m probing (50 m in each direction from the centre point) with probes at 10 m centres was deemed sufficient to provide peat depth information at proposed tower bases with allowance for potential micro-siting.

3.3.4 The rationale of probing is in accordance with the Phase 1 approach as detailed in the Scottish Government guidance for investigating peat. In addition, the proposed methodology for peat probing was issued to SEPA, in a Peat Probing Consultation Note, and was accepted following the consultation process

3.3.5 Findings of this Outline PMP are based on all phases of probing.

3.3.6 The peat depths are illustrated on **Figure 2: Recorded Peat Depths** within **Annex B** of this Outline PMP.

3.4 Summary of Peat Depths

3.4.1 Deep peat deposits are generally localised across the Proposed Development, typically situated across flatter expanses and topographic lows across undulating land. Extensive deep peat is rare across the Proposed Development and peat deposits are generally confined by topography and rarely situated across slopes.

Section A – Spittal to Brora

3.4.2 Along Section A, a total of 8,253 peat probe points were sunk during the peat probing survey. Within Section A peat depths ranged from 0.0 to 7.5 m across the section, with the deepest peat being located in Section A at N25. The average peat depth across Section A is 0.8 m. Of the 8,253 survey points, 23.78% recorded peat depths greater than 1.0 m. The recorded peat depths across Section A are summarised in **Table 11** below:

Table 11: Peat Probing Summary for Section A

Peat Depth Range (m)	Nº of Peat Probes	Percentage of Total (%)
0.0 – 0.5	4,520	54.77
>0.5 – 1.0	1,770	21.45
>1.0 – 1.5	612	7.42
>1.5 – 2.0	385	4.66
>2.0	966	11.70
Total	**8,253**	**100**

3.4.3 Of the 201 towers (where probing was undertaken) in Section A, 39 of them (21.28 %) recorded average peat depths greater than 1.0 m. Sections of deep peat, from within a 20 m radius of proposed tower centres, were identified at towers N19, N22 - N30, N34, N35 ,N47, N50, N86, N96, N105, N121, N130 – N134, N137, N138, N142, N144, N154, N160 -N162, N165, N172, N173 and N191.

3.4.4 The deepest peat in Section A was recorded within a 20 m radius of N22 and measured 5.0 m.

3.4.5 Deep peat deposits have been identified throughout Section A of the Proposed Development, appearing both as continuous stretches exceeding 1 km and as isolated pockets. The most prominent deep peat areas in Section A were observed on flat terrain and in low-lying topographical areas within The Flow Country, specifically between N13 and N35. Additional areas of continuous deep peat were identified on the eastern slopes of Cnoc Coir' a' Phuill (404 m AOD), in an area associated with in topographic lows at the bases of slopes around N130 to N138.

3.4.6 Isolated pockets of deep peat were also identified between N50 and N51, N56 and N57, N90, N118 and N199, N121 and N122, N161, N173 and between N193 and N194. These pockets are associated with topographical breaks that form flatter terrain and areas with minor water courses.

3.4.7 Besides the continuous stretches and isolated pockets of deep peat, N24 to N28, N33 to N37, N126 to N138, as well as N147 and N148, are situated within The Flow Country World Heritage Site (WHS). **Table 1** in **Annex B** details peat depths at towers in Section A summarises the average, minimum and maximum peat depths within a 55 m radius of each tower.

3.4.8 Peat depths along the proposed permanent tracks in Section A ranged from 0.01 to 4.2 m with an average peat depths of 0.64 m.

3.4.9 Isolated pockets of deep peat were identified along 6 or the 23 proposed permanent access tracks in Section A.

3.4.10 **Table 2** in **Annex B** details peat depths along permanent access tracks summarises the average, minimum and maximum peat depths along each proposed permanent access track in Section A.

3.4.11 **Figure 3: Interpolated Peat Depths included in Annex A** of this Outline PMP illustrates the peat depths recorded across the Proposed Development as well as the distribution of peat depths along the proposed access tracks and infrastructure.

Section B – Brora to Loch Buidhe

3.4.12 Along Section B a total of 4,279 peat probe points were sunk during the peat probing survey. Within Section B peat depths ranged from 0.01 m to 7.5 m across the section, with the deepest peat being located directly to the east of N249 along to proposed access track. The average peat depth across Section B is 0.59 m. Of the 4,279 survey points, 18.6 % recorded peat depths greater than 1.0 m. The recorded peat depths across Section B are summarised in **Table 12** below:

Table 12: Peat Probing Summary for Section B

Peat Depth Range (m)	Nº of Peat Probes	Percentage of Total (%)
0.0 – 0.5	2571	60.08
>0.5 – 1.0	912	21.31
>1.0 – 1.5	324	7.57
>1.5 – 2.0	165	3.86
>2.0	307	7.17
Total	**4279**	**100**

3.4.13 Of the 91 towers in Section B, 15 of them (16.48 %) recorded average peat depths greater than 1.0 m. Sections deep peat, from within a 20 m radius of proposed tower centres, were identified at N209, N210, N213, N214, N227, N228, N229, N230, N231, N233, N235 – N237, N243, N246, N249, N268, N274, N295.

3.4.14 The deepest peat in Section B recorded within a 20 m radius of a tower was located at N210 and measured 3.3m.

3.4.15 Deep peat deposits have been recorded throughout Section B of the Proposed Development, primarily as isolated pockets. These deposits were predominantly found in flat, low-lying terrain. Notable locations include isolated pockets near N201 on a flat expanse at a hilltop. Additionally, between N228 and N251, significant deposits were identified on flatter terrain between the peaks of Ben Horn (520 m AOD) and Meall Corie Aghairsgeig (394 m AOD) for N228 to N237, and between the peaks of Cnoc na Gamhna (371 m AOD) and Beinn Lunndaidn (446 m AOD) for N246 to N250. **Table 1** in **Annex B** details peat depths in Section B summarises the average, minimum and maximum peat depths within a 55 m radius of each tower.

3.4.16 Peat depths along the proposed permanent tracks in Section B ranged from 0.01 to 1.3 m with an average peat depths of 0.32 m.

3.4.17 Isolated pockets of deep peat were identified along 1 of the 9 proposed permanent access tracks in Section B.

3.4.18 **Table 2** in **Annex B** details peat depths along Proposed Permanent Access Tracks summarises the average, minimum and maximum peat depths along each proposed permanent access track in Section B.

3.4.19 **Figure 3: Interpolated Peat Depths** included in **Annex A** of this oPMP illustrates the peat depths recorded across the Proposed Development as well as the distribution of peat depths along the proposed access tracks and infrastructure.

Section C – Loch Buidhe to Dounie

3.4.20 Along Section C a total of 1,749 peat probe points were sunk during the peat probing survey. Within Section C peat depths ranged from 0.01 m to 6 m across the section, with the deepest peat being located on the LoD, 118 m southeast of S17. The average peat depth across Section C is 0.66 m. Of the 1,749 survey points, 21.79 % recorded peat depths greater than 1.0 m. The recorded peat depths across Section C are summarised in **Table 13** below:

Table 13: Peat Probing summary for Section C

Peat Depth Range (m)	Nº-of Peat Probes	Percentage of Total (%)
0.0 – 0.5	1081	62.81
>0.5 – 1.0	287	16.41
>1.0 – 1.5	125	7.15
>1.5 – 2.0	96	5.49
>2.0	160	9.15
Total	**1749**	**100**

3.4.21 Of the 30 towers (where probing was undertaken) in Section C, 6 of them (19.35 %) recorded average peat depths greater than 1.0 m. Sections of deep peat, from within a 20 m radius of individual tower centres, were identified within a 20 m radius of proposed tower centres at towers S3, S4, S9, S13, S14, S16, S17, S31, S33 and S35.

3.4.22 The deepest peat in within a 20 m radius of a tower was recorded at S4 and measured 3.8 m.

3.4.23 Isolated pockets of deep peat have been identified throughout Section C, particularly within a 55 m radius of S2 to S17 and along permanent access tracks. These deep peat areas are mainly located in flatter expanses at the base of the northern slope of Sidhean Mòr (242 m AOD) near S2 to S7. Additionally, an isolated pocket of deep peat is present at S17 in a flat area situated between Cnoc Breac (237 m AOD) and Cnoc a' Chorie Bhuidhe (298 m AOD). **Table 1** in **Annex B** details peat depths in Section C summarises the average, minimum and maximum peat depths within a 55 m radius of each tower.

3.4.24 Peat depths along the proposed permanent tracks in Section C ranged from 0.01 to 3.2 m with an average peat depths of 0.41 m.

3.4.25 Isolated pockets of deep peat were identified along 2 of the 4 proposed permanent access tracks in Section C. Areas of deep peat identified along proposed access tracks are associated with flatter topography identified around S2 to S7.

3.4.26 **Table 2** in **Annex B** details peat depths along Proposed Permanent Access Tracks summarises the average, minimum and maximum peat depths along each proposed permanent access track in Section C.

3.4.27 **Figure 3: Interpolated Peat Depths** included in **Annex A** of this Outline PMP illustrates the peat depths recorded across the Proposed Development as well as the distribution of peat depths along the proposed access tracks and infrastructure.

Section D – Dounie to Near Strathpeffer

3.4.28 Along Section D a total of 1,774 peat probe points were sunk during the peat probing survey. Within Section D peat depths ranged from 0.0 m to 5 m across the section, with the deepest peat being in close proximity to S83. The average peat depth across Section D is 0.87 m. Of the 1,774 survey points, 31.47 % recorded peat depths greater than 1.0 m. The recorded peat depths across Section D are summarised in Table 11.2.14 below:

Table 14: Peat Probing summary for Section D

Peat Depth Range (m)	Nº of Peat Probes	Percentage of Total (%)
0.0 – 0.5	907	51.13
>0.5 – 1.0	314	17.70
>1.0 – 1.5	167	9.41
>1.5 – 2.0	147	8.29
>2.0	239	13.47
Total	**1774**	**100**

3.4.29 Of the 46 towers (where probing was undertaken) in Section D, 17 of them (37%) recorded average peat depths greater than 1.0 m. Sections of deep peat, within a 20 m radius of individual tower centres, were identified at S46, S47, S51- S53, S55, S56, S59, S60, S62- S70, S73, S83, S107 and S108.

3.4.30 The deepest peat in Section D was recorded within a 20 m radius of S83 and S108 which both measured 5 m.

3.4.31 Within Section D, both continuous stretches and isolated pockets of deep peat have been identified, particularly within a 55 m radius of S52 to S60, S63 to S70 and S83 and S107 to S108.

3.4.32 Isolated pockets of peat between S52 and S60 are associated with the eastern slopes of Carn a Liath-bhaid (492 m AOD) and Meall na h-Uigeig (515 m AOD). These deposits are located in topographic breaks and at the base of slopes in flatter terrain.

3.4.33 The isolated pocket of deep peat at S83 is situated in a topographic low between the two hilltops of Carn Beag (460 m AOD). Meanwhile, the isolated deep peat deposit between S107 and S108 corresponds to the path of a minor watercourse within the low-lying area surrounding Loch a' Chaplaich.

3.4.34 A continuous stretch of deep peat was identified between S62 and S70, following the valley bottom between the slopes of Meall Bhenneit (531 m AOD) to the west and Cnoc Leathad an Siorramachd (565 m AOD) to the east. This deep peat deposit aligns with the path of a minor watercourse.

3.4.35 **Table 1** in **Annex B** details peat depths in Section D summarises the average, minimum and maximum peat depths within a 55 m radius of each tower.

3.4.36 Peat depths along the proposed permanent tracks in Section D ranged from 0.01 to 2.6 m with an average peat depths of 0.37 m.

3.4.37 Isolated pockets of deep peat were identified along the single proposed permanent access track in Section D.

3.4.38 **Table 2** in **Annex B** details peat depths in along Proposed Permanent Access Tracks summarises the average, minimum and maximum peat depths along each proposed permanent access track in Section D.

3.4.39 **Figure 3: Interpolated Peat Depths** included in **Annex A** of this Outline PMP illustrates the peat depths recorded across the Proposed Development as well as the distribution of peat depths along the proposed access tracks and infrastructure.

Section E – Near Strathpeffer to Beauly

3.4.40 Along Section E a total of 1,316 peat probe points were sunk during the peat probing survey. Within Section E peat depths ranged from 0.0 m to 6.4 m across the section, with the deepest peat being located on the LoD 135 m from the centre of S207. The average peat depth across Section E is 0.48 m. Of the 1,316 survey points, 13.53 % recorded peat depths greater than 1.0 m. The recorded peat depths across Section E are summarised in **Table 15** below:

Table 15: Peat Probing summary for Section E

Peat Depth Range (m)	Nº of Peat Probes	Percentage of Total (%)
0.0 – 0.5	960	72.95
>0.5 – 1.0	178	13.53
>1.0 – 1.5	77	5.85
>1.5 – 2.0	37	2.81
>2.0	64	4.86
Total	**1316**	**100**

3.4.41 Of the 22 towers (where probing was undertaken) in Section E, 3 of them (14%) recorded average peat depths greater than 1.0 m. Sections of deep peat, within a 20 m radius of individual tower centres, were identified at S203, S207- S212, S215 and S219.

3.4.42 The deepest peat in Section E was recorded within a 20 m radius of S207 and measured up to 3.9 m.

3.4.43 Along Section E, isolated of pockets of deep peat have been identified, most notably within a 55 m radius of S207 and S211. Deep peat deposits in this area are associated with topographic lows and flatter terrain between Cnoc Dubh (378 m AOD) to the west and Torr Breac (360 m AOD) to the west.

3.4.44 **Table 1** in **Annex B** details peat depths in Section E, summarising the average, minimum and maximum peat depths within a 55 m radius of each tower.

3.4.45 Peat depths along the proposed permanent tracks in Section E ranged from 0.01 to 5.1 m with an average peat depths of 0.36 m.

3.4.46 Isolated pockets of deep peat were identified along five of the proposed permanent access tracks in Section E.

3.4.47 **Table 2** in **Annex B** details peat depths in along Proposed Permanent Access Tracks summarises the average, minimum and maximum peat depths along each proposed permanent access track in Section E.

3.4.48 **Figure 3: Interpolated Peat Depths** included in **Annex A** of this Outline PMP illustrates the peat depths recorded across the Proposed Development as well as the distribution of peat depths along the proposed access tracks and infrastructure.

4. EXCAVATION AND RE-USE CALCULATIONS

Excavation Calculations

4.1.1 Excavated peat volumes have been estimated through review of average peat depth data recorded during peat probing surveys. Using probed peat depth survey data and GPS co-ordinates of each peat probe, peat depth and interpolated peat depth maps were created through ArcGIS Spatial Analyst tools. Data tables were exported from GIS and analysed in Excel to calculate average, maximum and minimum depths within a 55 m radius of Proposed Development infrastructure. Data was then compared to a proposed areas anticipated for the Proposed Development infrastructure. For the purpose of the peat excavation and reuse calculations some assumptions have been adopted as detailed below in **Table 16**Error! Reference source not found..

Table 16: Design, Excavation and Reuse Assumptions

Infrastructure	Design Assumption	Excavation Assumption	Reuse Assumption	Additional Information
Tower Foundations	Current maximum pad size of 6.5 x 6.5 x 0.9m per tower leg	For Excavation area: Maximum pad size of 6.5 x 6.5 = 42.25 per tower leg. For 4 tower legs x 4 = 169m^2	An additional 0.4 m has been added to the perimeter of each tower foundation to be dressed off.	Average peat depths suggest there should be sufficient acrotelmic peat available for redressing infrastructure.
			Catotelmic peat will be placed in the bottom of the tower foundations to a maximum thickness of 2.75 m where very deep peat is encountered.	Peat cut volume has been calculating using area of total tower legs x average peat depth.
			Towers and associated earthworks will be dressed off with up to 0.5 m of peat and peaty soils.	Average peat depths have been calculated using peat survey data within a 55 m radius of individual tower centres
			a + 10% Bulk Factor Contingency has been included in peat cut volumes	
Permanent Tracks	Track widths during construction are typically expected to have a running width of 6m with overall construction corridor of approximately 10 m to allow for suitable drainage and pollution prevention measures	Track areas calculated length x 10 m	Where new permanent tracks are proposed, peat will be reinstated along verges and associated earthworks with peat up to 0.5 m thick with verged not	Where operation access is required, this would likely range from use of all-terrain vehicle (ATV) routes with no formal track to a stone road suitable for 4x4 vehicle access, approximately 2.5m width with appropriate turning heads where required.

Infrastructure	Design Assumption	Excavation Assumption	Reuse Assumption	Additional Information
		Track lengths calculated by individual track.	expected to exceed 3 m on either side.	Permanent and temporary tracks are required to facilitate construction and operation of the proposed development. Tracks to be retained would be partially reinstated on commissioning of the OHL to reduce their width to approximately 2.5m for use by SSEN Transmission for maintenance access. Other tracks noted as temporary would be removed and the land reinstated.
				Average peat depths have been calculated using peat survey data within a 50 m radius of individual tracks.
				Average peat depths suggest there should be sufficient acrotelmic peat available for redressing infrastructure.
Tower compounds	85 m x 85 m - Tension Tower 60 m x 60 m - Suspension Tower	Excavation assumption has calculated individual tower compound area minus any infrastructure that sits within the compound, such as permanent tower footings and access tracks that pass though (permanent and temporary) to ensure volumes are accurate.	It is assumed peat excavated for temporary compounds will be temporarily stored and replaced in the vicinity of its original location once permanent infrastructure is in place.	The same average peat depths for tower footings have been used to calculate temporary compound volumes.
Temporary access tracks (Cut and Fill)	Track widths during construction are typically expected to have a running width of 6m with overall construction corridor of approximately 10 m to allow for suitable drainage and pollution prevention measures	Excavation volumes have been calculated by individual track.	It is assumed peat excavated for temporary tracks will be temporarily stored and replaced in the vicinity of its original location.	Average peat depths have been calculated using peat survey data within a 50 m radius of individual tracks.

Section A – Spittal to Brora

4.1.2 The estimated peat excavation volumes for Section A are included on **Table 17** using the anticipated construction activities that will generate excavated soils.

Table 17: Peat Excavation Volumes Based on Construction Activity in Section A

Development Component	Estimated Volume of Excavated Peat (m^3)	Excavated Volume of Acrotelmic Peat (m^3)	Estimated Volume of Catotelmic Peat (m^3)
Towers and associated earthworks	19168	10182	8986
Temporary compounds	564179	299541	264638
New permanent access tracks	43219	25429	17789
Temporary access tracks (Cut and Fill)	256785	163604	93182
Sub-Total	**883351**	**498756**	**384595**
+ 10% Bulk Factor Contingency (Permanent Infrastructure only)	6238	3561	2678
Total	**889589**	**502317**	**387273**

Section B – Brora to Loch Buidhe

4.1.3 The estimated peat excavation volumes for Section B are included on **Table 18** using the anticipated construction activities that will generate excavated soils.

Table 18: Peat Excavation Volumes Based on Construction Activity in Section B

Development Component	Estimated Volume of Excavated Peat (m^3)	Excavated Volume of Acrotelmic Peat (m^3)	Estimated Volume of Catotelmic Peat (m^3)
Towers and associated earthworks	9309	5374	3935
Temporary compounds	277624	170526	107098
New permanent access tracks	3776	3376	0
Temporary access tracks (Cut and Fill)	121879	74373	47505
Sub-Total	**412188**	**253649**	**158538**
+ 10% Bulk Factor Contingency (Permanent Infrastructure only)	1269	875	393
Total	**413457**	**254524**	**158931**

4.1.4 A detailed assessment of excavated volumes by location within the Proposed Development is provided in **Annex C** of this Outline PMP.

Section C – Loch Buidhe to Dounie

4.1.5 The estimated peat excavation volumes for Section C are included on **Table 19** using the anticipated construction activities that will generate excavated soils.

Table 19: Peat Excavation Volumes Based on Construction Activity in Section C

Development Component	Estimated Volume of Excavated Peat (m^3)	Excavated Volume of Acrotelmic Peat (m^3)	Estimated Volume of Catotelmic Peat (m^3)
Towers and associated earthworks	2875	1715	1160
Temporary compounds	67950	41826	26125
New permanent access tracks	4454	2699	1755
Temporary access tracks (Cut and Fill)	15962	12457	3504
Sub-Total	**91241**	**58697**	**32544**
+ 10% Bulk Factor Contingency (Permanent Infrastructure only)	733	5428	2963
Total	**91974**	**64125**	**35507**

4.1.6 A detailed assessment of excavated volumes by location within the Proposed Development is provided in **Annex C** of this Outline PMP.

Section D – Dounie to Near Strathpeffer

4.1.7 The estimated peat excavation volumes for Section D are included on **Table 20** using the anticipated construction activities that will generate excavated soils.

Table 20: Peat Excavation Volumes Based on Construction Activity in Section D

Development Component	Estimated Volume of Excavated Peat (m^3)	Excavated Volume of Acrotelmic Peat (m^3)	Estimated Volume of Catotelmic Peat (m^3)
Towers and associated earthworks	8014	3061	4952
Temporary compounds	192166	69876	122,290
New permanent access tracks	1428	1428	0
Temporary access tracks (Cut and Fill)	17730	10366	7364
Sub-Total	**219338**	**84731**	**134606**
+ 10% Bulk Factor Contingency (Permanent Infrastructure only)	944	449	495
Total	**220,282**	**85180**	**135101**

4.1.8 A detailed assessment of excavated volumes by location within the Proposed Development is provided in **Annex C** of this Outline PMP.

Section E – Near Strathpeffer to Beauly

4.1.9 The estimated peat excavation volumes for Section E are included on **Table 21** using the anticipated construction activities that will generate excavated soils.

Table 21: Peat Excavation Volumes Based on Construction Activity in Section E

Development Component	Estimated Volume of Excavated Peat (m^3)	Excavated Volume of Acrotelmic Peat (m^3)	Estimated Volume of Catotelmic Peat (m^3)
Towers and associated earthworks	2116	1426	690
Temporary Compounds	51555	35917	15638
New permanent access tracks	13559	12708	851
Temporary Access Tracks (Cut and Fill)	89	89	0
Sub-Total	67319	50140	17179
+ 10% Bulk Factor Contingency (Permanent Infrastructure only)	1568	1413	154
Total	68887	51553	17334

4.1.10 A detailed assessment of excavated volumes by location within the Proposed Development is provided in **Annex C** of this Outline PMP.

Re-Use Calculations

Section A – Spittal to Brora

4.1.11 **Table 22** shows the opportunities for the reuse of peat within the Proposed Development including the demand for acrotelm and catotelm peat, while **Table 22** summarises the total peat balance estimated during construction of the Proposed Development.

Table 22: Peat Reuse Volumes Based on Construction Activity in Section A

Development Area	Total Demand Estimate (m^3)	Acrotelm Demand (m^3)	Catotelm Demand (m^3)	Reinstatement Thickness (max) (m)
Towers and associated earthworks	19933	11328	8604	2.132
Temporary Compounds	564179	299541	264638	All excavated peat reinstated
New permanent access tracks	31468	24524	6944	0.7
Temporary Access Tracks (Cut and Fill)	256785	163604	93182	All excavated peat reinstated
Total	872364	498996	373368	

4.1.12 **Table 23** is presented as a summary of the assessment of peat reinstatement volumes. A detailed assessment is provided in **Annex C** of this Outline PMP.

Table 23: Peat Balance Calculations in Section A

Peat Description	Total Peat Demand Estimate for Reinstatement (m^3)	Total Peat Supply from Excavation (m^3)	Surplus (+) or Deficit (-) (m^3)
Acrotelm	**498996**	502316	3413

Peat Description	Total Peat Demand Estimate for Reinstatement (m³)	Total Peat Supply from Excavation (m³)	Surplus (+) or Deficit (-) (m³)
Catotelm	**373368**	387272	3305
Total	**872364**	889588	**6718**

4.1.13 **Table 23** demonstrates that there is a surplus of acrotelm and catotelm peat following the development and reuse of excavated peat. Surplus catotelm peat will be reused in deep peatland where erosion has been observed, further details will be available within the Habitat Management Plan (HMP).

Section B – Brora to Loch Buidhe

4.1.14 **Table 24** shows the opportunities for the reuse of peat within the Proposed Development including the demand for acrotelm and catotelm peat, while **Table 25** summarises the total peat balance estimated during construction of the Proposed Development.

Table 24: Peat Reuse Volumes Based on Construction Activity in Section B

Development Area	Total Demand Estimate (m³)	Acrotelm Demand (m³)	Catotelm Demand (m³)	Reinstatement Thickness (max) (m)
Towers and associated earthworks	9538	7656	1882	2.75
Temporary Compounds	277624	170526	107098	All excavated peat reinstated
New permanent access tracks	3376	3376	0	0.35
Temporary Access Tracks (Cut and Fill)	121878	74373	47505	All excavated peat reinstated
Total	412416	255931	156485	

4.1.15 **Table 25** is presented as a summary of the assessment of peat reinstatement volumes. A detailed assessment is provided in **Annex C** of this Outline PMP.

Table 25: Peat Balance Calculations in Section B

Peat Description	Total Peat Demand Estimate for Reinstatement (m³)	Total Peat Supply from Excavation (m³)	Surplus (+) or Deficit (-) (m³)
Acrotelm	255931	254525	-1406
Catotelm	156485	158931	2247
Total	412416	413456	1040

Peat Description	Total Peat Demand Estimate for Reinstatement (m³)	Total Peat Supply from Excavation (m³)	Surplus (+) or Deficit (-) (m³)

4.1.16 **Table 19** demonstrates that there is a deficit of acrotelm and a surplus catotelm peat following the development and reuse of excavated peat. Surplus catotelm peat will be reused in deep peatland where erosion has been observed, further details will be available within the HMP.

Section C – Loch Buidhe to Dounie

4.1.17 **Table 26** shows the opportunities for the reuse of peat within the Proposed Development including the demand for acrotelm and catotelm peat, while **Table 27** summarises the total peat balance estimated during construction of the Proposed Development.

Table 26: Peat Reuse Volumes Based on Construction Activity in Section C

Development Area	Total Demand Estimate (m³)	Acrotelm Demand (m³)	Catotelm Demand (m³)	Reinstatement Thickness (max) (m)
Towers and associated earthworks	2875	1786	1089	0.5
Temporary Compounds	67951	41826	26125	All excavated peat reinstated
New permanent access tracks	4916	4232	684	0.7
Temporary Access Tracks (Cut and Fill)	15962	12457	3505	All excavated peat reinstated
Total	88684	59055	29630	

4.1.18 **Table 27** is presented as a summary of the assessment of peat reinstatement volumes. A detailed assessment is provided in **Annex C** of this Outline PMP.

Table 27: Peat Balance Calculations in Section C

Peat Description	Total Peat Demand Estimate for Reinstatement (m³)	Total Peat Supply from Excavation (m³)	Surplus (+) or Deficit (-) (m³)
Acrotelm	61157	59138	-2019
Catotelm	30546	32836	2209
Total	91703	91974	271

4.1.19 **Table 27** demonstrates that there is a deficit of acrotelm and a surplus catotelm peat following the development and reuse of excavated peat. Surplus catotelm peat will be reused in deep peatland where erosion has been observed, further details will be available within the HMP.

Section D – Dounie to Near Strathpeffer

4.1.20 **Table 28** shows the opportunities for the reuse of peat within the Proposed Development including the demand for acrotelm and catotelm peat, while **Table 29** summarises the total peat balance estimated during construction of the Proposed Development.

Table 28: Peat Reuse Volumes Based on Construction Activity in Section D

Development Area	Total Demand Estimate (m^3)	Acrotelm Demand (m^3)	Catotelm Demand (m^3)	Reinstatement Thickness (max) (m)
Towers and associated earthworks	8013	3670	4343	2.44
Temporary Compounds	192166	69876	122290	All excavated peat reinstated
New permanent access tracks	1428	1428	0	0.38
Temporary Access Tracks (Cut and Fill)	17730	10366	7364	All excavated peat reinstated
Total	219338	85341	133997	

4.1.21 **Table 29** is presented as a summary of the assessment of peat reinstatement volumes. A detailed assessment is provided in **Annex C** of this Outline PMP.

Table 29: Peat Balance Calculations in Section D

Peat Description	Total Peat Demand Estimate for Reinstatement (m^3)	Total Peat Supply from Excavation (m^3)	Surplus (+) or Deficit (-) (m^3)
Acrotelm	**85341**	85181	-160
Catotelm	**133997**	135101	1103
Total	**219338**	220282	**943**

4.1.22 **Table 29** demonstrates that there is a deficit of acrotelm and a surplus catotelm peat following the development and reuse of excavated peat. Surplus catotelm peat will be reused in deep peatland where erosion has been observed, further details will be available within the HMP.

Section E – Near Strathpeffer to Beauly

4.1.23 **Table 30** shows the opportunities for the reuse of peat within the Proposed Development including the demand for acrotelm and catotelm peat, while **Table 31** summarises the total peat balance estimated during construction of the Proposed Development.

Table 30: Peat Reuse Volumes Based on Construction Activity in Section E

Development Area	Total Demand Estimate (m^3)	Acrotelm Demand (m^3)	Catotelm Demand (m^3)	Reinstatement Thickness (max) (m)
Towers and associated earthworks	2113	1598	515	1.66
Temporary Compounds	51555	35916	15638	All excavated peat reinstated
New permanent access tracks	13607	12573	1034	0.7
Temporary Access Tracks (Cut and Fill)	89	89	0	All excavated peat reinstated
Total	67366	50973	17188	

4.1.24 **Table 31** is presented as a summary of the assessment of peat reinstatement volumes. A detailed assessment is provided in **Annex C** of this Outline PMP.

Table 31: Peat Balance Calculations in Section E

Peat Description	Total Peat Demand Estimate for Reinstatement (m^3)	Total Peat Supply from Excavation (m^3)	Surplus (+) or Deficit (-) (m^3)
Acrotelm	50973	51553	581
Catotelm	17188	17334	145
Total	67366	68887	1521

4.1.25 **Table 31** demonstrates that there is a surplus of acrotelm and catotelm following the development and reuse of excavated peat. Surplus peat will be reused in deep peatland where erosion has been observed, further details will be available within the HMP.

4.2 Summary of Peat Balance Calculations across all Sections

Table 32: Peat Balance Calculations Summary

Section	Surplus (+) or Deficit (-) (m^3)	
	Acrotelm	Catotelm
A	3413	3305
B	-1406	2447
C	-2019	2290
D	-160	1104

Section	Surplus (+) or Deficit (-) (m^3)	
	Acrotelm	Catotelm
E	1376	145
Total	**1204**	**9291**

5. PEAT MANAGEMENT AND MITIGATION

5.1.1 Significant consideration has been given to the excavation and disturbance of peat during the routing, alignment, design, and construction phases of the Proposed Development. Wherever possible, access tracks and towers have been positioned in areas with shallower peat or have been designed to avoid peat entirely based on findings from initial peat probing surveys. Further details about the design process and efforts to minimise peat disturbance are provided in **Volume 2, Chapter 4: Routeing Process and Alternatives.**

5.1.2 The initial construction phase of the Proposed Development will involve soil and peat stripping, as well as excavation activities necessary for its development.

5.1.3 Any peat and soils excavated during construction of the Proposed Development will be temporarily stored and subsequently reinstated following the guidance and recommendations outlined in the next section of this report.

5.1.4 It will be necessary for the Principal Contractors to prescribe methods and timing involved in the excavation, handling and storage of peat for the use in reinstatement. The Principal Contractors will be responsible for appointing a geotechnical engineer who will monitor any potential stability risks.

Embedded Mitigation and Best Practice Measures

5.1.5 Mitigation has been embedded into the design and routing of the Proposed Development and through the implementation of mitigation and best practice measures based on IEMA guidance, detailed in paragraph 11.3.44 onwards, and **Table 11.6** of **Volume 2, Chapter 11: Geological Environment** of this EIA Report.

5.1.6 Embedded mitigation and best practice measures will be implemented in accordance with the peat excavation, reuse, restoration potential, storage, handling, transportation and waste management and will be based on the following principles:

Excavation

5.1.7 The principles of excavating peat and peat soils should be adhered to for all elements of the Proposed Development, comprising of the following:

- Where excavation activities occur within peatland it shall be undertaken by a contractor with machine operators that are highly experienced working in peatland restoration projects;
- Excavation activities will be overseen by a suitably qualified and experienced Peatland Restoration Advisor, with advice from the Ecological Clerk of Works (ECoW) (as appropriate), to ensure methods and mitigation detailed in the BNG Assessment, HMP and PMP are correctly adhered to;
- The construction works will be phased to ensure that peat is stripped in each part of the site ahead of mineral subsoil;
- Wherever possible, a 360^{o} excavator will be used to permit stripping of large-scale surface peat turves, with their vegetation intact;
- The surface layer of peat (acrotelm) and vegetation will be stripped separately from the catotelmic peat, where practicable. This will typically be an excavation depth of up to 0.5 m and with an area up to a maximum of 1m subject to the depth, consistency and condition of the surface peat at each location and the plant used for stripping; and
- Timing of excavation activities should be considered to avoid periods of heavy and or prolonged rainfall to minimise the likelihood of excavated peat losing its structural integrity.

Peatland Restoration Potential

5.1.8 The outline objectives in proposing restoration of peatlands on Site are to:

- Peatland reinstatement and restoration activities shall be undertaken by a contractor with machine operators that are highly experienced working in peatland restoration projects;
- Peatland restoration activities will be overseen by a Peatland Restoration Advisor, with advice from the ECoW (as appropriate), to ensure methods and mitigation detailed in the BNG Assessment, HMP and PMP are correctly adhered to;
- Ensure residual volumes of excavated peat from the Proposed Development are re-used in areas where ecological benefits can be maintained or increased carbon sequestration can be delivered in line with the BNG Assessment and HMP;
- Promote the reuse of excavated peat materials and avoid their disposal to landfill;
- Reinstatement will, in all instances, be undertaken at the earliest opportunity to minimise storage of turves and other materials;
- Promote use of best practices and guidance to ensure that benefit is made from reusing peat and peaty soils for ecological enhancement; and
- Complement planned mitigation identified in the HMP.

Estimation of Peat Reuse Requirements

5.1.9 The principles of reinstating peat and peat soils should be adhered to for all elements of the Proposed Development, comprising of the following:

- Further site investigation will be undertaken to inform the detailed design of the Proposed Development, which will be microsited within the Limits of Deviation (LoD) to avoid the deepest areas of peat, sensitive peatland habitats and/or saturated ground as far as possible. Where micrositing is not possible, mitigation by design will consider the use of floated tracks and compounds, and piled foundations to avoid or minimise the removal of peat.
- Where located within peat, the area cleared for construction of the tower (apart from the tower foundations themselves) will be fully reinstated with the carbon rich soil or peat that has been excavated from the cleared area and temporarily stored during the construction works;
- The orientation and exact width of dressing back around the reinstated tower area will need to take into account the presence of adjacent access tracks and will be determined by the Site Construction Manager following advice from the ECoW and Peatland Restoration Advisor (as appropriate) taking into account local conditions including topography, morphology and peat slide risk;
- Peat and peaty soils will be reinstated on access track and infrastructure verges with turves placed on the upper horizons, encouraging revegetation;
- Verges will be created on both sides of permanent cut access tracks through carbon rich soil or peat following advice from the Peatland Restoration Advisor;
- All peat, soil and turves excavated from beneath infrastructure (excluding floated access tracks) will be reinstated in the vicinity of its original location;
- Any wet catotelmic peat will be placed at the bottom of any restoration profile, followed by semi-fibrous catotelmic peat and acrotelmic peat should be placed at the top;
- It is proposed that a large proportion of excavated peat will be utilised in peatland restoration activities in line with the outline techniques discussed in the HMP;
- Acrotelmic material will be replaced as intact as possible once construction progresses/as it is complete;
- Acrotelmic material is to be placed on the surface of reinstatement areas but not placed on intact vegetation;

- Dressing back site infrastructure and the creation of verges along access tracks will generally involve the laying of peat turves up to a maximum depth of 0.5m. Where the depth exceeds 0.5m, there will be two stages to create an appropriate peat profile. The first stage involves the spreading of loose peat, and the second stage involves the replacement of peat turves on top to create conditions that should promote the growth of peatland vegetation and grade smoothly into adjacent peatland vegetation. Reinstated peat areas will not exceed a depth of 0.7m;
- Dressing back will be tapered to fit smoothly with the adjacent habitat using peat turves that will typically be trimmed to a slope of between 1 in 5 and 1 in 2 (notably where hardstandings need to be cut into the side of a steep sided hill). Loose, wet peat will not be used for this purpose and peat at the edges of deposition areas will be compressed to minimise water loss from lateral flow;
- It is anticipated that, if peat turf has been correctly stored, no further re-seeding will be required. However, re-seeding will be carried out using heather brash collected from the surrounding area and/or an appropriate seed mix if judged to be necessary by the Peatland Restoration Advisor;; and
- In the event of surplus peat arising from the construction of the Proposed Development the Applicant considers it can successfully be reused within, or adjacent to, the Proposed Development for reinstatement and restoration peatland habitats in line with the BNG Assessment and HMP.

Handling and Storage of Peat

5.1.10 Careful handling of peat is essential to retain any existing structure and integrity of the excavated materials and thereby maximise the potential for excavated material to be re-used.

5.1.11 Temporary peat storage areas may be required throughout the construction phase, the location of which will be defined by the chosen Site Construction Manager following advice from the Peatland Restoration Advisor, and ECoW (as appropriate). The chosen locations will be based on the site conditions, environmental constraints and logistical considerations.

5.1.12 The following best practice applies to the handling and temporary storage of peat:

- Identification of suitable areas for stockpiling material during construction prior to commencement of works;
- The number and location of temporary peat storage areas will be chosen to minimise the distance the stripped and excavated peat will have to be transported;
- Acrotelmic material will be stored separately from catotelmic material, where required;
- Temporary storage of peat will be minimised, with restoration occurring in parallel with other works to protect the peat resource and minimise the area required for temporary storage where possible;
- Excavated peat will be temporarily stored in designated locations as close as possible to the area from which it has been cut;
- Doubling handling will be avoided as much as possible and a robust planning and monitoring programme will be invoked to ensure peat and mineral soils are not mixed;
- Less humified catotelmic peat which maintains its structure upon excavation should be kept separate from any highly humified amorphous or wet catotelmic peat, as far a reasonably practicable;
- Peat turf and vegetated layer will be transferred intact to their temporary storage location, with vegetation upright, in a single layer on geotextile material (to protect the underlying vegetation as much as possible).
- Moisture levels of acrotelm will be maintained to prevent it drying out, as far as reasonably practicable.
- Peat turves may be stored in double layers (separated by geotextile) provided that such storage does not exceed 2 months;
- Subsoil and mineral soils are to be stored, separately to peat to avoid cross contamination;

- Excavated peat will be stored in areas of previous disturbance area where peat was less than 0.5 m, where possible;
- Peat that is not overly wet should be stored in stockpiles no greater than 2 m in height in areas where topography permits and there is a low instability risk, as far as reasonable practicable;
- Any bunded storage areas would need to be designed with a sedimentation/settling pond to de-water wet peat and aid sediment containment. Each settling pond must be designed with appropriate filtration treatment facilities prior to connection into the construction phase surface water drainage scheme and Sustainable Drainage System (SuDS) for the Proposed Development;
- Excavated peat will be stored in areas out with 25 m buffer of watercourses/ major functioning drainage ditches, where possible;
- Excavated peat will be stored in locations with lower ecological risk and avoid areas of sensitive habitat;
- If heavy goods vehicles (HGVs) or dump trucks typically used for transporting non-peat materials are repurposed to carry peat materials, appropriate measures must be taken to prevent cross-contamination between peat soils and other materials.
- In order to ensure that the minimum amount of peat compaction occurs during placement when heavy machinery is being used for reinstatement, the contractor will develop a suitable method for spreading any loose peat prior to reinstating peat turves. This is likely to include very light tamping down by use of the bucket on a long reach excavator;
- The Site Construction Manager, with advice from the Peatland Restoration Advisor, ECoW and/or Site Engineer, will determine whether special mitigation measures are required, such as orientation of stockpile, levelling/benching to level the surface, bunding to contain stored materials and/or site-specific drainage to ensure that runoff waters are sufficiently controlled.
- Peat turves and storage areas will be regularly managed and inspected to ensure maintenance of stockpile stability and integrity and to identify any features such as bare peat surfaces, erosion and/or ponding so that corrective actions can be taken if necessary.
- Monitor peat storage areas during periods of heavy or prolonged rainfall, or during snowmelt, to identify early signs of peat instability. Dewatering may be required to protect the peat following periods of increase precipitation.
- Should any issues be observed during regular visual inspections of peat stockpiles, implementation of appropriate correction measures would need to be recorded and monitored for effectiveness.

Vehicle Movement and Transportation of Peat

5.1.13 The following best practices apply to vehicle movement on peat soils:

- Managing the construction work as much as possible to avoid periods when underlying peat soils are likely to be wetter i.e. high rainfall events;
- Limiting vehicle movements on untracked ground to reduce the impact on areas of peat, reducing surface cover loss, soil compaction and impacts on areas of peat or areas with softer drift deposits / soils and steeper slopes;
- Appropriate scale plant will be used, such as 360^{o} diggers rather than bulldozers.

5.1.14 Transportation of peat soils will be avoided where reasonably practicable. In cases where in situ restoration or within close proximity to the excavation area is not feasible, such as when excess peat is generated, peat soils may need to be relocated within the Site for reuse in areas lacking sufficient local peat. The following best practices will be applied to the transportation of peat soils:

- If heavy goods vehicles (HGVs) or dump trucks typically used for transporting non-peat materials are repurposed to carry peat materials, appropriate measures must be taken to prevent cross-contamination between peat soils and other materials.

- Avoid transportation during adverse weather conditions to reduce erosion and runoff risks;
- Transport peat in sealed or covered containers to retain moisture and prevent drying;
- Designate specific haul routes to limit the spatial extent of disturbance within the Site; and,
- Follow best practice for the handling of peat.

Waste Management Plan Requirements

5.1.15 Based on the calculations carried out for each section above, no waste management plan will be required as no material will be moved off the Proposed Development. Peat material will be reused and restored on the Proposed Development itself as defined in the BNG Assessment, HMP and PMP.

Additional Mitigation Recommendations

Along with the embedded mitigation measures and best practice measures presented in paragraphs 5.1.1 to 5.5.17 additional mitigation recommendations relating to this Outline PMP will be implemented in specific areas of the Proposed Development where the potential impact on peat is considered to be the greatest. These are set out below:

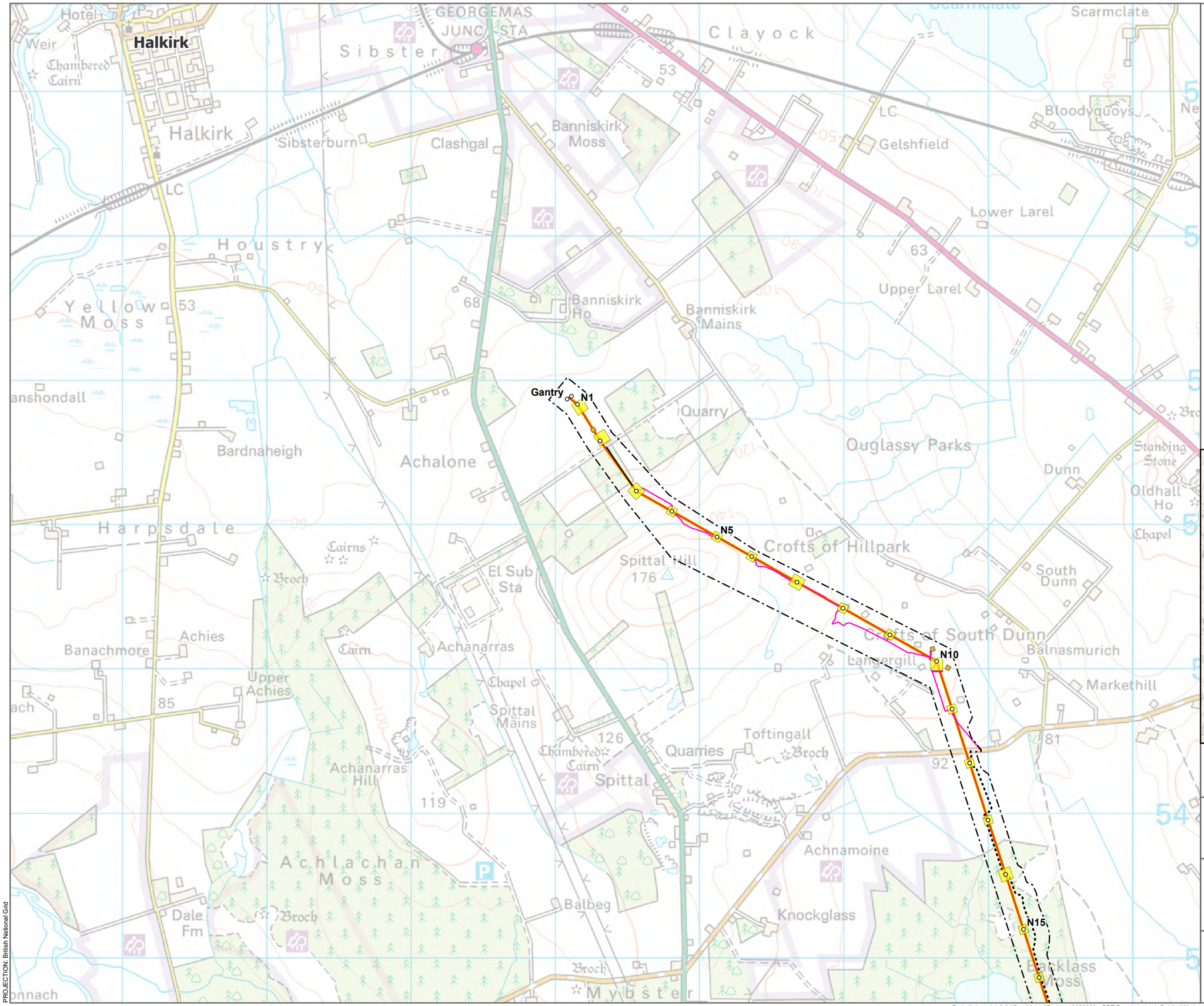
- Access routes and working areas will be clearly delineated throughout the construction phase;
- Inspection and maintenance of the drainage system during construction;
- Reinstated peat conditions will be inspected immediately and corrective actions taken as deemed necessary by the Peatland Restoration Advisor;
- Consideration of specific construction methods appropriate for infrastructure in peatland (i.e. geogrids) as part of the design development;
- Use of the LoD to aid micro-siting of Proposed Development infrastructure based on the findings of site surveys where deep peat has been identified.
- Avoid loading of materials on deep peat;
- Floating access tracks will have to be considered to protect areas of deep peat;
- If sustained heavy rain occurs during soil/peat stripping operations, work must be suspended and not restarted until the Peatland Restoration Advisor confirms the ground conditions are suitable to do so. Rainfall quantities and soil/ peat wetness conditions considered to be cut-off thresholds for cessation of soil/ peat stripping/ handling works may differ across the site depending upon the peat conditions and will be informed by the results of detailed site investigations; and
- If sustain heavy snowfall or prolonged freezing conditions occur, soil/peat striping and or stockpiling, and/or restoration activities will be suspended. When thawing conditions occur, the Site Construction Manager with advice from the Peatland Restoration Advisor will determine the appropriate timescale for restarting peat management activities based on the meteorological forecast. Decision making will pay attention to the potential for rapid snowmelt runoff, peat erosion and slide risk.

6. CONCLUSIONS

6.1.1 The following conclusions are drawn regarding the management of peat and excavated materials within the Proposed Development:

- The Proposed Development design minimises the disturbance of deep peat wherever possible.
- As a result of the peat excavation and reuse estimates, all the peat will be reused within or close proximity to the Proposed Development itself;
- Excavated peat will be reused on Site as detailed within the outline Biodiversity Enhancement Management Plan and PMP;
- The estimates of excavated peat provided in this report are likely to be higher than those that occur during construction, as micro-siting will allow for the avoidance of localised pockets of deeper peat,
- Sufficient methods have been defined to ensure that peat can be sensitively handled and stored on Site to allow for effective reuse; and
- No waste license is required for the construction work as all peat will be reused in reinstatement and or restoration of the Proposed Development.

ANNEX A FIGURES



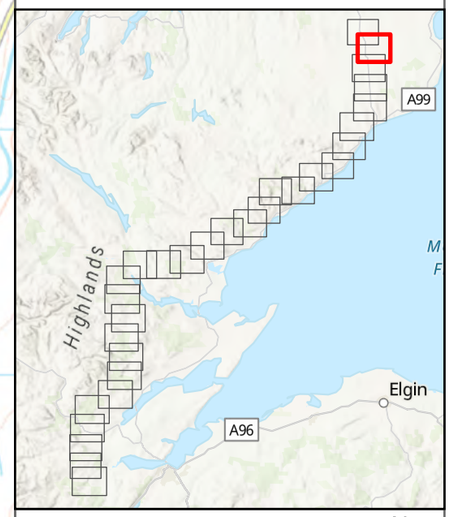
SCALE: See Scale Bar	VERSION: A02
SIZE: A3	DRAWN: BW
PROJECT: 0720281	CHECKED: TA
DATE: 07/08/2025	APPROVED: KG

Figure 1 - 1
Spittal - Loch Buidhe - Beauly 400 kV OHL Connection
Peat Management Plan
Site Layout

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\Arcus\Projects\0652629 - SSE Beauly to Loch Buidhe\Workspace\Engineering\SLBB Engineering v1.aprx - 0652659 - Figure 11.2.1 - Site Layout - A01

- Tower Location
- Alignment Section A
- Limit of Deviation
- Temporary Tower Compound Area
- Equipotential Zone (EPZ) (Pulling Position)
- Temporary Access Track - Cut/Fill
- Temporary Access Track - Floating
- Temporary Access Track - EPZ
- Permanent Access Tracks - Floating
- Alignment Section Break



0 200 400 600 800 1,000
Metres

N

SCALE: See Scale Bar	VERSION: A02
SIZE: A3	DRAWN: BW
PROJECT: 0720281	CHECKED: TA
DATE: 07/08/2025	APPROVED: KG

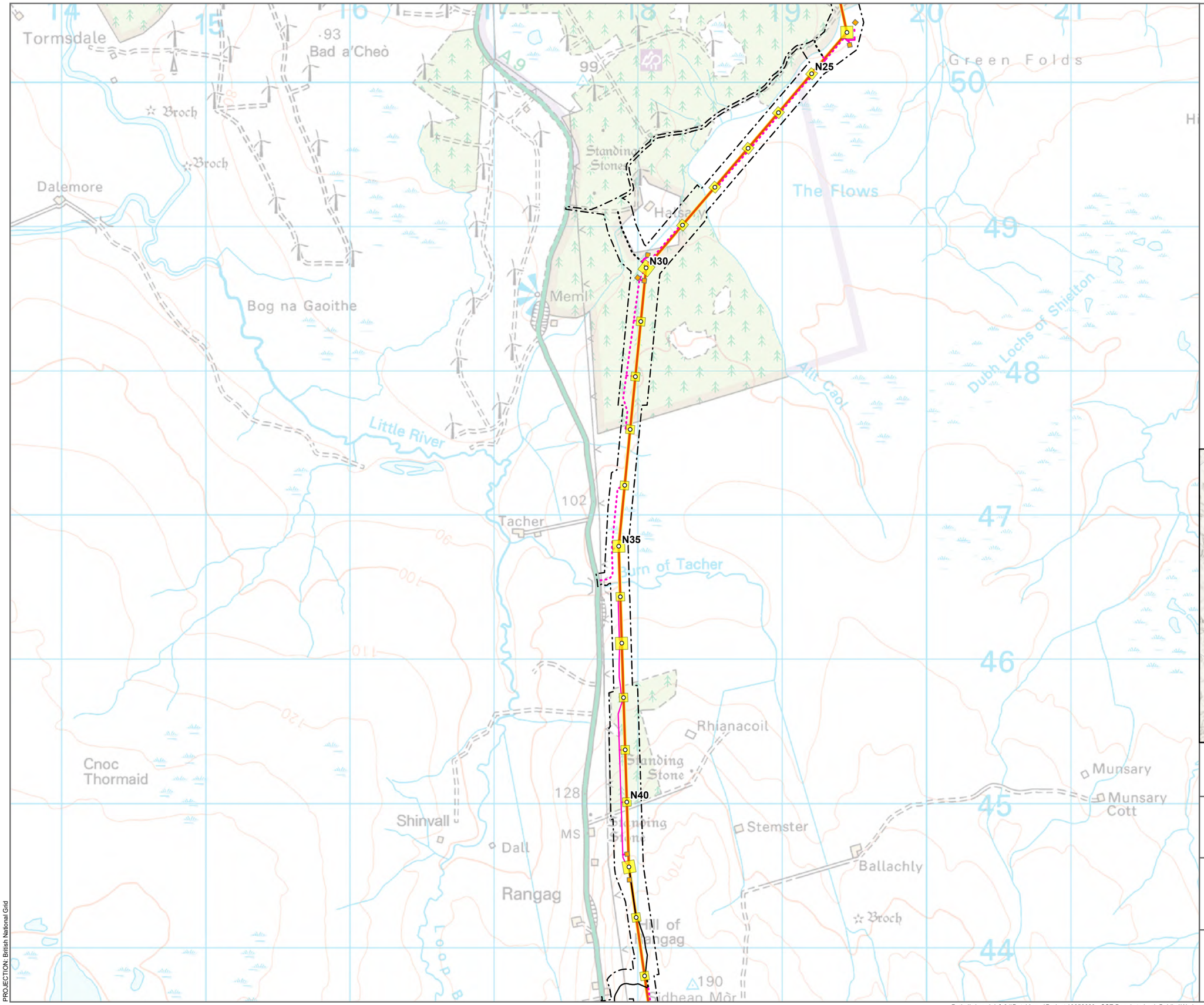
Figure 1 - 2
Spittal - Loch Buidhe - Beauly 400 kV OHL Connection
Peat Management Plan
Site Layout

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\Arcus\Projects\0652629 - SSE Beauly to Loch Buidhe\Workspace\Engineering\SLBB Engineering v1.aprx - 0652659 - Figure 11.2.1 - Site Layout - A01

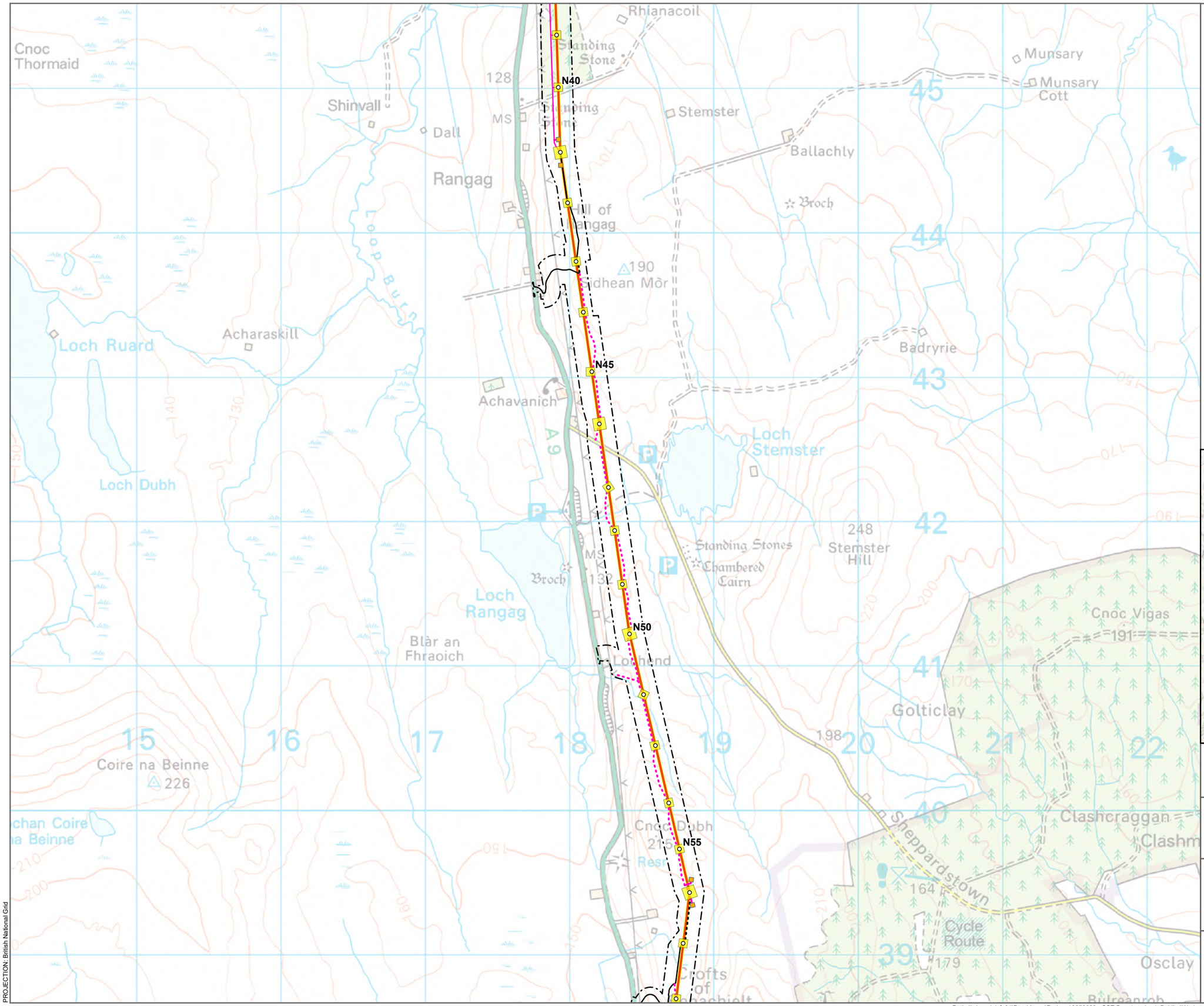


SCALE: See Scale Bar	VERSION: A02
SIZE: A3	DRAWN: BW
PROJECT: 0720281	CHECKED: TA
DATE: 07/08/2025	APPROVED: KG

Figure 1 - 3
Spittal - Loch Buidhe - Beauly 400 kV OHL Connection
Peat Management Plan
Site Layout

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\Arcus\Projects\0652629 - SSE Beauly to Loch Buidhe\Workspace\Engineering\SLBB Engineering v1.aprx - 0652659 - Figure 11.2.1 - Site Layout - A01



PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\Arcus\Projects\0652629 - SSE Beauly to Loch Buidhe\Workspace\Engineering\SLBB Engineering v1.aprx - 0652659 - Figure 11.2.1 - Site Layout - A01

- Tower Location
- Alignment Section A
- Special Arrangement
- Limit of Deviation
- Temporary Tower Compound Area
- Equipotential Zone (EPZ) (Pulling Position)
- Temporary Access Track - Cut/Fill
- Temporary Access Track - Floating
- Temporary Access Track - EPZ
- Permanent Access Track - Cut/Fill
- Permanent Access Tracks - Floating
- Alignment Section Break

N55
N60
N65
N70
N75

Coire na Beinne
226
Lochan Coire na Beinne
Cnoc Dubh
Crofts of Benachielt
Shepardstown
Clashcraggan
Cycle Route
Bulreanrob
Rumster Forest
Airigh Hill
Riskamain
Braelangie
Ben-a-chielt
Red Rock
Moss of Forse
Mullbuie
Den Moss
Burn of Latheronwheel
Cor Tulloch Settlement
Broch
Houstry
Buolfruich
Buolfruich
Guidebest
Stone Circle
Upper Latheron
Leodebest
Hill of Leodebest
Dun & Settlement
Hut Circles
Nottingham
Forse House
Corr
Gillivoan
Bell Tower Standing Stones
Standing Stone
Buoldhu
Brochs
Rumster Broch
Forse
Highlands
Elgin
A9
A96
A99

0 200 400 600 800 1,000
Metres

N

SCALE: See Scale Bar	VERSION: A02
SIZE: A3	DRAWN: BW
PROJECT: 0720281	CHECKED: TA
DATE: 07/08/2025	APPROVED: KG

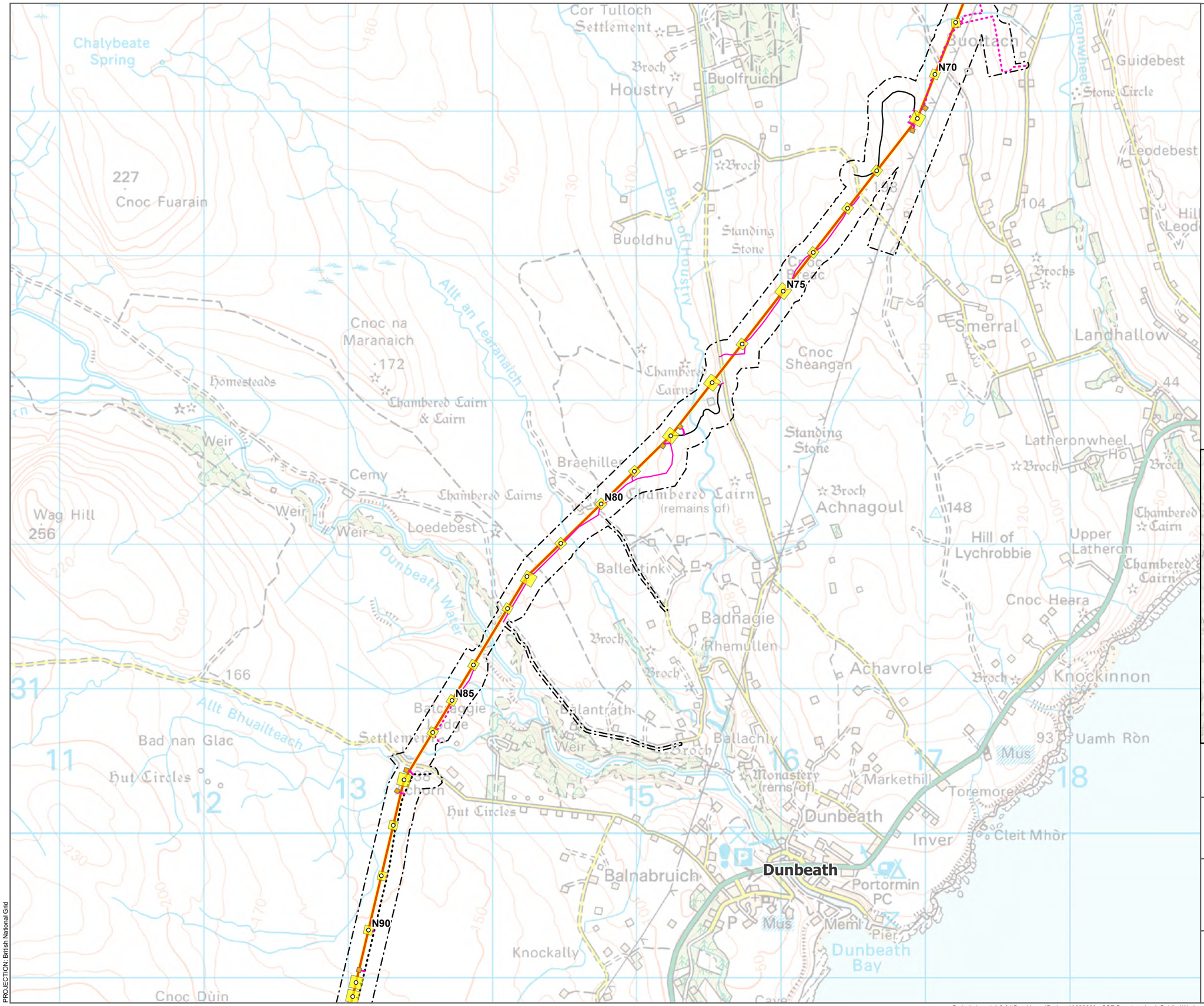
Figure 1 - 5
Spittal - Loch Buidhe - Beauly 400 kV OHL Connection
Peat Management Plan
Site Layout

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\Arcus\Projects\0652629 - SSE Beauly to Loch Buidhe\Workspace\Engineering\SLBB Engineering v1.aprx - 0652659 - Figure 11.2.1 - Site Layout - A01



SCALE: See Scale Bar	VERSION: A02
SIZE: A3	DRAWN: BW
PROJECT: 0720281	CHECKED: TA
DATE: 07/08/2025	APPROVED: KG

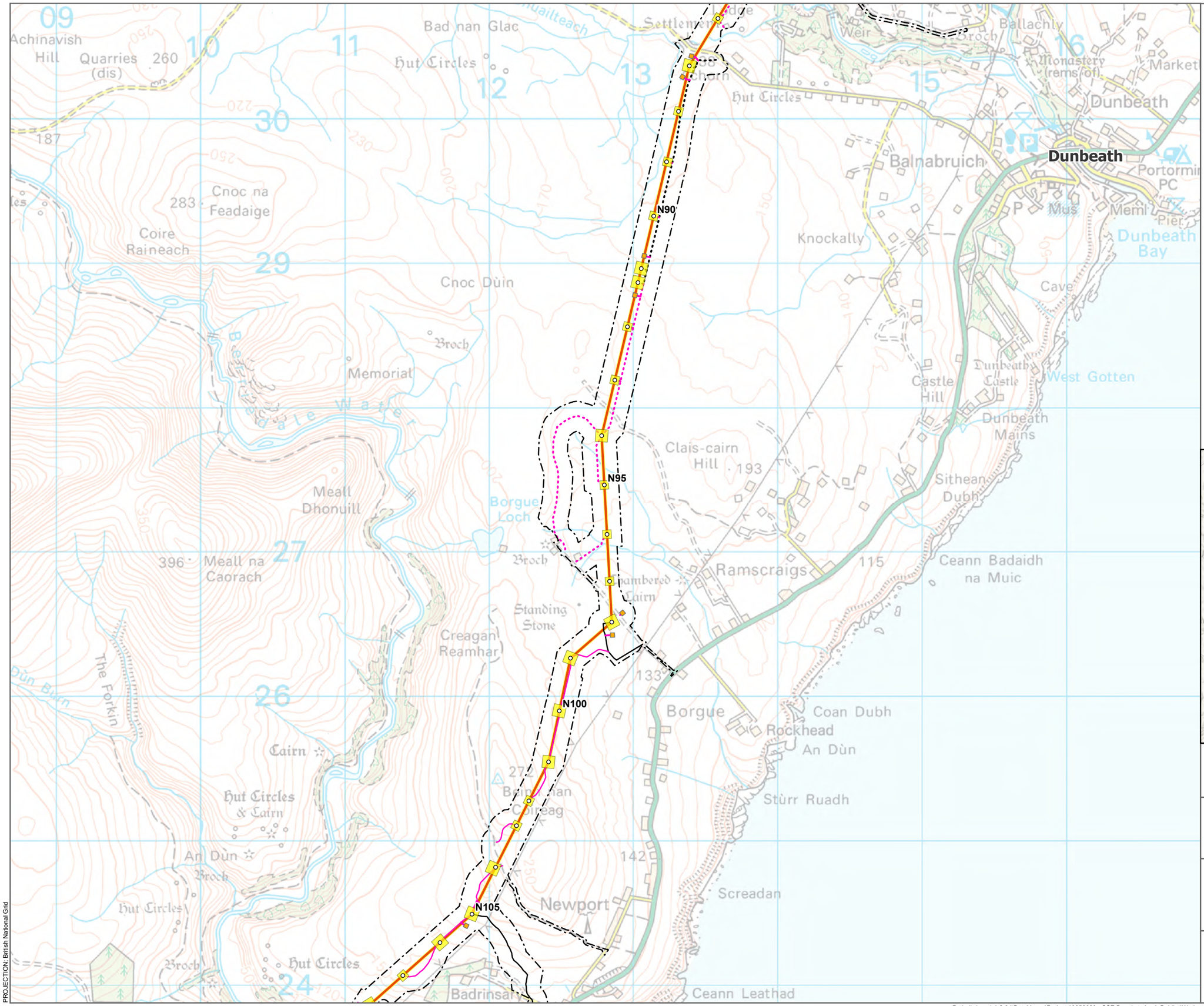
Figure 1 - 6
Spittal - Loch Buidhe - Beauly 400 kV OHL Connection
Peat Management Plan
Site Layout

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\Arcus\Projects\0652629 - SSE Beauly to Loch Buidhe\Workspace\Engineering\SLBB Engineering v1.aprx - 0652659 - Figure 11.2.1 - Site Layout - A01



SCALE: See Scale Bar	VERSION: A02
SIZE: A3	DRAWN: BW
PROJECT: 0720281	CHECKED: TA
DATE: 07/08/2025	APPROVED: KG

Figure 1 - 7
Spittal - Loch Buidhe - Beauly 400 kV OHL Connection
Peat Management Plan
Site Layout

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\Arcus\Projects\0652629 - SSE Beauly to Loch Buidhe\Workspace\Engineering\SLBB Engineering v1.aprx - 0652659 - Figure 11.2.1 - Site Layout - A01

Tower Location
Alignment Section A
Limit of Deviation
Temporary Tower Compound Area
Equipotential Zone (EPZ) (Pulling Position)
Temporary Access Track - Cut/Fill
Temporary Access Track - EPZ
Permanent Access Track - Cut/Fill
Alignment Section Break

N105
N110
N115
N120
N125

Newport
Screadan
Badrinsall
Ceann Leathad nam Bò
Lower Newport
Tràigh Bhuidhe
Berriedale
Grave Yard
Castle
Towers
Langwell Ho
Inver Hill
Borgue
Langwell
Cnoc na Croiche
Boch-ailean
Badbea
Ousdale
Braigh na h-Eaglaise
Cnoc Bad Asgaraidh
Cnoc Spàrdain
Bad an Achaidh
Souterrain
Hut Circles & Souterrains
Hut Circles & Cairn
An Dùn
Broch
Cadha Fhionn
Creag na Cuinge
Sròn Mhòr
Highlands
Elgin
A99
A96

0 200 400 600 800 1,000
Metres

N

SCALE: See Scale Bar	VERSION: A02
SIZE: A3	DRAWN: BW
PROJECT: 0720281	CHECKED: TA
DATE: 07/08/2025	APPROVED: KG

Figure 1 - 8
Spittal - Loch Buidhe - Beauly 400 kV OHL Connection
Peat Management Plan
Site Layout

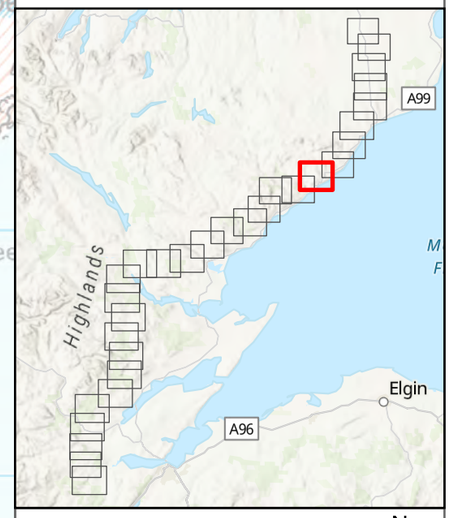
ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\Arcus\Projects\0652629 - SSE Beauly to Loch Buidhe\Workspace\Engineering\SLBB Engineering v1.aprx - 0652659 - Figure 11.2.1 - Site Layout - A01

- Tower Location
- Alignment Section A
- Limit of Deviation
- Temporary Tower Compound Area
- Equipotential Zone (EPZ) (Pulling Position)
- Temporary Access Track - Cut/Fill
- Temporary Access Track - EPZ
- Permanent Access Track - Cut/Fill
- Alignment Section Break



0 200 400 600 800 1,000
Metres

N

SCALE: See Scale Bar	VERSION: A02
SIZE: A3	DRAWN: BW
PROJECT: 0720281	CHECKED: TA
DATE: 07/08/2025	APPROVED: KG

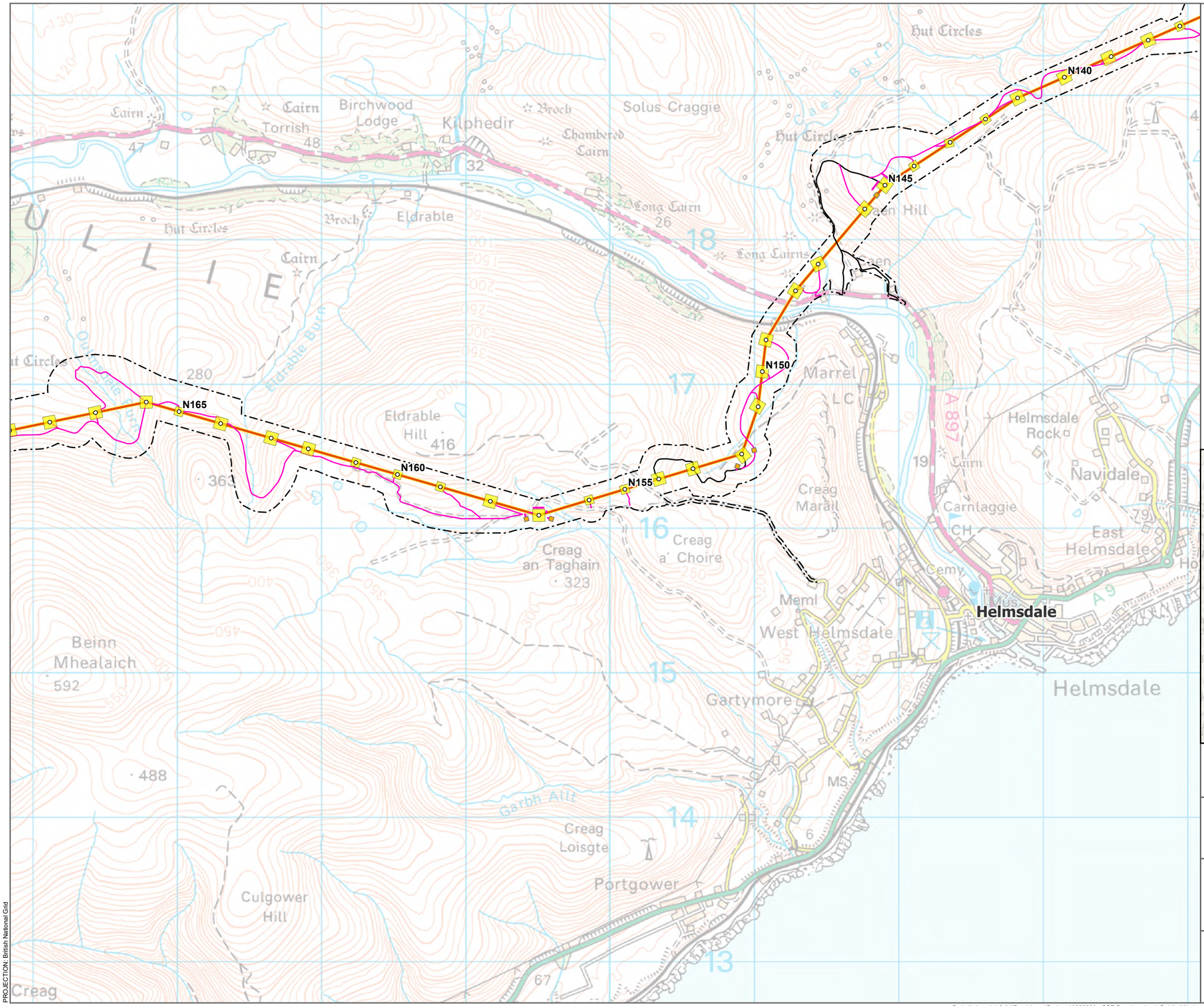
Figure 1 - 9
Spittal - Loch Buidhe - Beauly 400 kV OHL Connection
Peat Management Plan
Site Layout

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\Arcus\Projects\0652629 - SSE Beauly to Loch Buidhe\Workspace\Engineering\SLBB Engineering v1.aprx - 0652659 - Figure 11.2.1 - Site Layout - A01

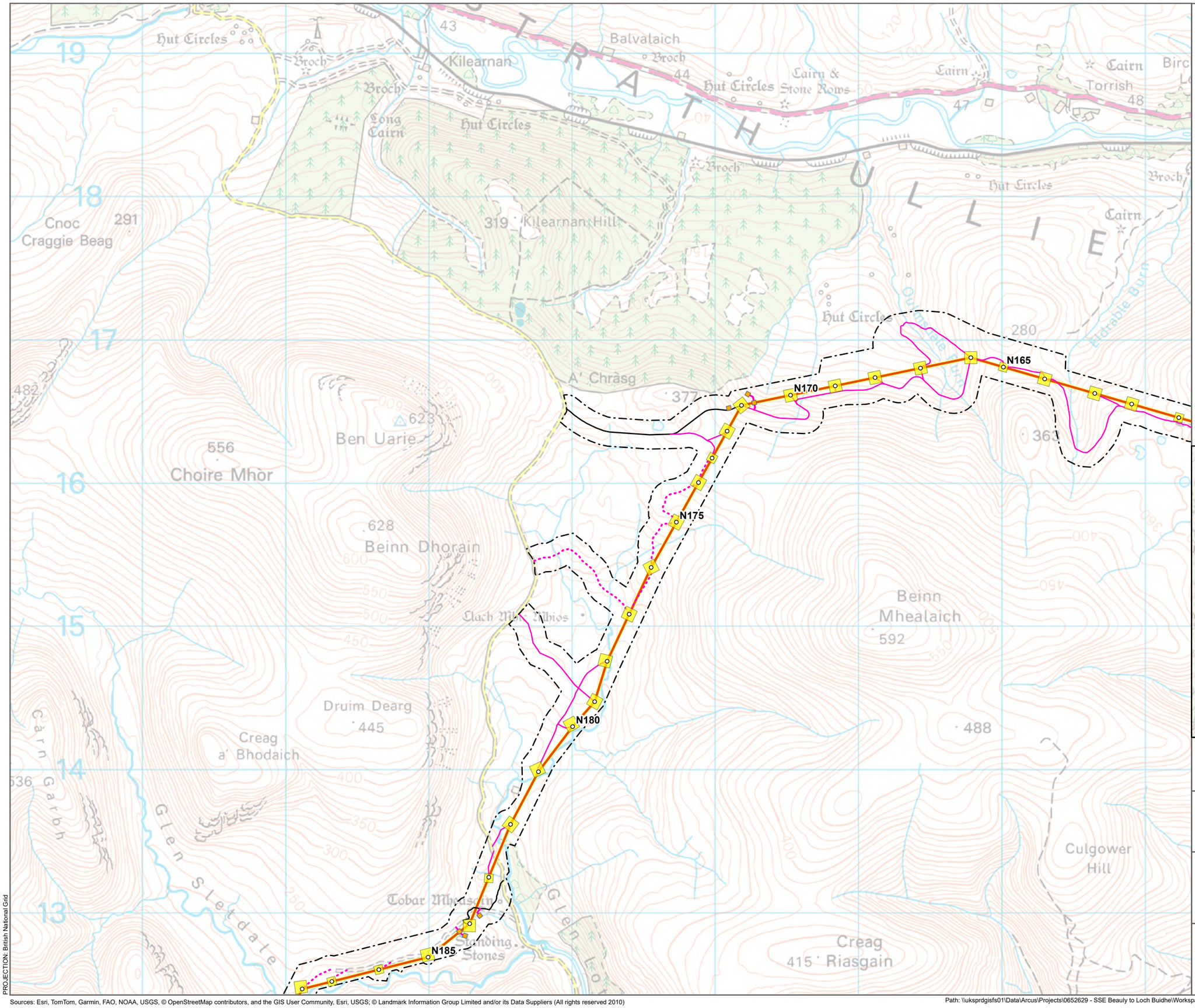


SCALE: See Scale Bar	VERSION: A02
SIZE: A3	DRAWN: BW
PROJECT: 0720281	CHECKED: TA
DATE: 07/08/2025	APPROVED: KG

Figure 1 - 10
Spittal - Loch Buidhe - Beauly 400 kV OHL Connection
Peat Management Plan
Site Layout

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\Arcus\Projects\0652629 - SSE Beauly to Loch Buidhe\Workspace\Engineering\SLBB Engineering v1.aprx - 0652659 - Figure 11.2.1 - Site Layout - A01



SCALE: See Scale Bar	VERSION: A02
SIZE: A3	DRAWN: BW
PROJECT: 0720281	CHECKED: TA
DATE: 07/08/2025	APPROVED: KG

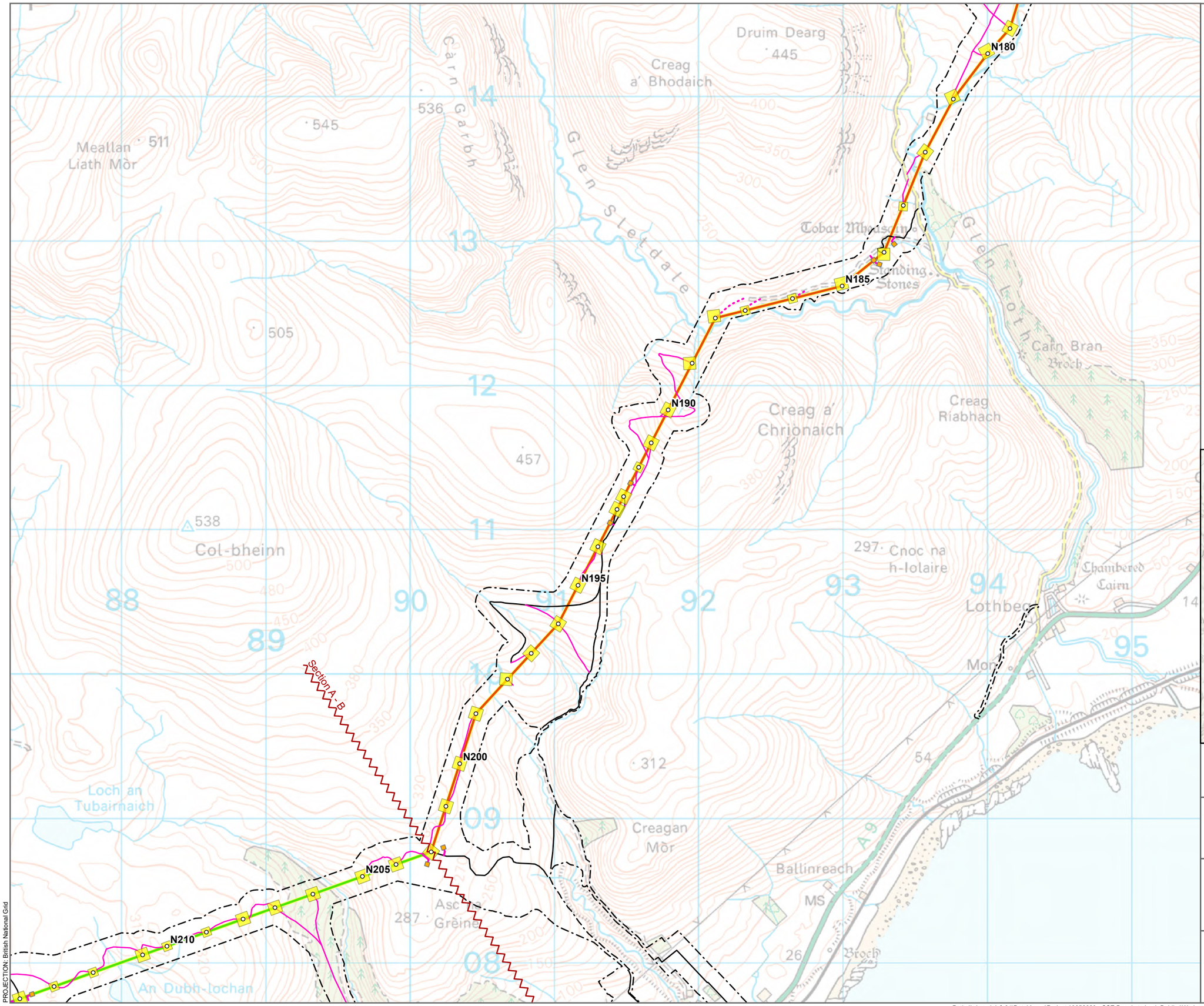
Figure 1 - 11
Spittal - Loch Buidhe - Beauly 400 kV OHL Connection
Peat Management Plan
Site Layout

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\Arcus\Projects\0652629 - SSE Beauly to Loch Buidhe\Workspace\Engineering\SLBB Engineering v1.aprx - 0652659 - Figure 11.2.1 - Site Layout - A01



PROJECTION: British National Grid

SCALE: See Scale Bar | VERSION: A02
SIZE: A3 | DRAWN: BW
PROJECT: 0720281 | CHECKED: TA
DATE: 07/08/2025 | APPROVED: KG

Figure 1 - 12
Spittal - Loch Buidhe - Beauly 400 kV OHL Connection
Peat Management Plan
Site Layout

ERM

Scottish & Southern Electricity Networks TRANSMISSION

Path: \\uksprdgisfs01\Data\Arcus\Projects\0652629 - SSE Beauly to Loch Buidhe\Workspace\Engineering\SLBB Engineering v1.aprx - 0652659 - Figure 11.2.1 - Site Layout - A01

Tower Location
Alignment Section A
Alignment Section B
Limit of Deviation
Temporary Tower Compound Area
Equipotential Zone (EPZ) (Pulling Position)
Temporary Access Track - Cut/Fill
Temporary Access Track - Floating
Temporary Access Track - EPZ
Permanent Access Track - Cut/Fill
Permanent Access Tracks - Floating
Alignment Section Break

N195
N200
N205
N210
N215
N220
N225
Section A-B

A99
A96
Highlands
Elgin

0 200 400 600 800 1,000
Metres

N

SCALE: See Scale Bar	VERSION: A02
SIZE: A3	DRAWN: BW
PROJECT: 0720281	CHECKED: TA
DATE: 07/08/2025	APPROVED: KG

Figure 1 - 13
Spittal - Loch Buidhe - Beauly 400 kV OHL Connection
Peat Management Plan
Site Layout

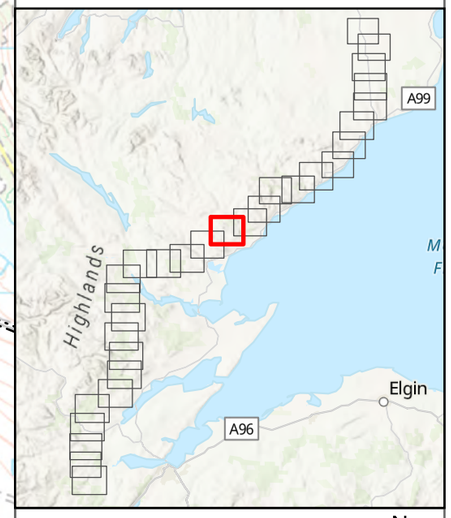
ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\Arcus\Projects\0652629 - SSE Beauly to Loch Buidhe\Workspace\Engineering\SLBB Engineering v1.aprx - 0652659 - Figure 11.2.1 - Site Layout - A01

- Tower Location
- Alignment Section B
- Limit of Deviation
- Temporary Tower Compound Area
- Equipotential Zone (EPZ) (Pulling Position)
- Temporary Access Track - Cut/Fill
- Temporary Access Track - Floating
- Temporary Access Track - EPZ
- Permanent Access Track - Cut/Fill
- Permanent Access Tracks - Floating
- Alignment Section Break



0 200 400 600 800 1,000
Metres

N

SCALE: See Scale Bar	VERSION: A02
SIZE: A3	DRAWN: BW
PROJECT: 0720281	CHECKED: TA
DATE: 07/08/2025	APPROVED: KG

Figure 1 - 14
Spittal - Loch Buidhe - Beauly 400 kV OHL Connection
Peat Management Plan
Site Layout

ERM

Scottish & Southern Electricity Networks TRANSMISSION

PROJECTION: British National Grid

Path: \\uksprdgisfs01\Data\Arcus\Projects\0652629 - SSE Beauly to Loch Buidhe\Workspace\Engineering\SLBB Engineering v1.aprx - 0652659 - Figure 11.2.1 - Site Layout - A01