Scottish & Southern Electricity Networks
TRANSMISSION

TEM-NET-ENV-XXX

Environmental

Stage 1 Peat Management Plan

Project Name – Cambushinnie 400kV Substation

Project Code – LT520 (60721943)

April 2025

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1 Introduction

1.1 Background

AECOM Limited (AECOM) have been appointed by SSEN Transmission (the Applicant) to produce a Stage 1 Peat Management Plan (PMP) with respect to the to the following developments:

- Proposed Cambushinnie 400 kV substation – Consent will be sought under by the applicant under the Town and Countryside
- Overhead line tie overhead Line (OHL) tie-in from the Cambushinnie 400kV substation to the existing Beauly Denny OHL, – Consent will be sought by the applicant under section 37 of the Electricity Act;
- A new haul road that bypasses the need to route construction traffic through Braco village, the applicant will progress this under a separate Planning Application.

This PMP has been prepared as an overarching document covering the management of peat for the proposed Cambushinnie 400kV substation and OHL tie-in listed above (for the purposes of this document the 'project' is defined as the proposed Cambushinnie substation and the OHL tie-in). The proposed haul road is not considered as part of this document as the areas crossed are not recorded as a peatland habitat and negligible peat, if any, is anticipated. Although, if peat is encountered for the proposed haul road the principles as outlined in this PMP would be followed.

This document has been prepared to inform the planning authority Perth and Kinross Council (PKC and statutory consultees (Scottish Environment Protection Agency (SEPA) and NatureScot) of the proposed peat management method to be employed during the construction of the Project. This will involve the formation of the substation platform; installation of drainage systems including a SUDs basin; construction of new overhead line tie-ins from the new substation to the existing overhead lines; temporary overhead line diversion to allow construction of new substation and tie-ins; upgrade of the existing access tracks and provision of new access tracks; construction of Contractors Compound areas and laydown areas; and utility provision to the new substation (e.g. power, telecommunications, water, etc). **Figure 1a** and **Figure 1b** located within **Appendix A Figures** contains a plan showing the proposed works associated with the Cambushinnie 400kV Substation.

1.2 Site Description

The Site location is as shown on **Figure 1a** and **Figure 1b**, in **Appendix A Figures**. The Site being assessed as part of this report can be split into 2 distinct areas: (1) new substation, and overhead line diversion / tie-in and (2) existing access track.

Insert 1 below shows the sites considered for the proposed new substation during the site selection process, with Site 2 being the favoured final option. For the purposes of this report when referring to the main works area, this refers to the proposed new substation, and overhead line diversion / tie-in, proposed temporary Contractor's Compound and new access track leading from the existing Braco West substation to these developments. When referring to the existing access track, this means the track which leads from the B8033 to the existing Braco West substation, where upgrading and widening works are proposed.

The main works area is located just to the southwest and west of the existing Braco West Substation, on the southern facing slopes of Feddal Hill approximately 4.0 km west of the village of Braco. The National Grid Reference (NGR) to the approximate centre of this area is NN 79267 08941. The main works area is within land used for commercial forestry. Recent site visits observed much of the main works area contained felled trees which had been recently replanted although towards the western and southern boundaries mature and semi-mature trees were still present. Within the zone of mature trees in the western extent of the main works area, wind-blown fallen trees are also present. Mature and semi-mature trees were also noted just outwith the main works area boundaries to the east and southeast, as well as young trees being present

immediately to the northwest of the northwestern boundary. Within the northwest of the main works area the northeast – southwest trending Beauly to Denny overhead electrical line is present.

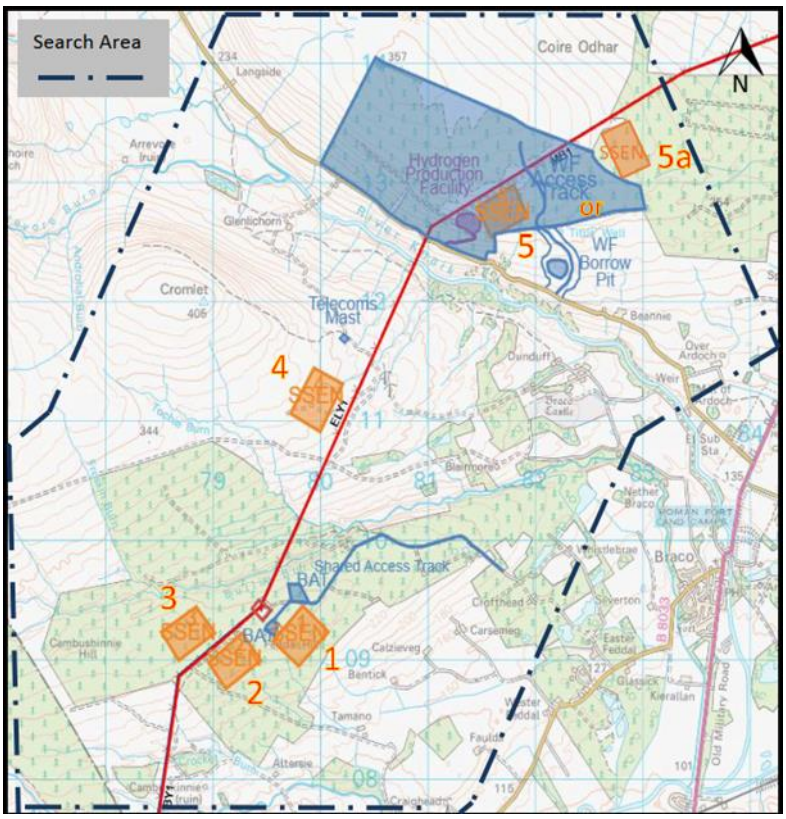
The existing access track extends from the existing Braco West Substation in the west (approximate NGR: NN 79671 09481) to the B8033 approximately 680 m southwest of the village of Braco in the east (approximate NGR: NN 82729 08923). As inferred by the name, the existing access track is currently present across the area. Observations made during a recent site visit indicated the existing access track was typically unbound comprising of gravel surfacing. Also observed were drainage ditches on either side of the access track. Along the length of the existing access track watercourses are noted to be crossed, as well as being present in the immediate vicinity. Where crossed by the existing access track this was noted to be through the use of culverts. The land surrounding the existing access track typically comprises commercial forestry with the woodland in various stages of management (i.e. felled, recently replanted, semi-mature and mature) along the route.

The Site is located within a hill range and therefore the topography varies across the Site. In general, the topography within the Site is recorded to fall from north to south, although locally the initial part of the existing access track from the existing Braco West Substation is recorded to fall from west to east.

1.3 Design Development

SSEN Transmission have developed internal guidance for the selection of new electricity transmission substation sites, with a staged approach undertaken with each stage being iterative and involving an increasing level of detail and resolution. Section 2.2 of the Environmental Appraisal for the proposed new substation[1], provides a summary of the Site Selection Process with an initial six potential sites, as identified in **Insert 1** below, reduced to three potential sites (Sites 1, 2 & 3) as part of the process. Each of the potential sites were assessed against a number of criteria including the presence of peatland, with the eventual outcome of the Site Selection Process identifying Site 2 as the preferred Option.

[1] SSEN Transmission (2025) Cambushinnie 400kV Substation – Environmental Appraisal, April 2025



Insert 1 Locations of Site assessed during Site Selection Procedure [Extract from SSEN Geo-Environmental Desk Study[2], [Figure 1]

As part of the Detailed Site Selection Process, SSEN Transmission produced a Geo-environmental Desk Study[2] which covered Sites 2 & 3 and reviewed information from the National Soil Map of Scotland[3] and the Carbon and Peatland 2016 Map[4]. Based on the available information from these sources, Site 3 was suggested to be entirely underlain by peat, with Site 2 predominantly underlain by peat except for the southern extent which is recorded to be underlain by glacial till.

The ground investigation undertaken for the final site selection process to decide between Site Options 2 & 3 (discussed further in **Section 3** of this report) included boreholes, trial pits and peat probes along with various in-situ and laboratory tests. Based on the estimated peat depths from the probing alone, it was indicated that Site 2 would generate the least volume of peat during the site development and was thus considered the favoured option for the proposed substation. The results of the peat probing are discussed in detail in **Section 3** of this report.

When considering the two preferred sites for the proposed substation, the desk study produced by SSEN Transmission recorded Site 2 to fall to the southeast from approximately 250 m Above Ordnance Datum (AOD) to 235 mAOD with an average slope angle of approximately 12%. The topography at Site 3 was recorded to fall to the southeast from approximately 267 mAOD to 260 mAOD with an average slope angle ranging from 5 – 10%. Given the topography at Site 2 is steeper this would result in an increase in the footprint of the development due to the earthworks required, when compared to Site 3. However, this increase in footprint is not considered to offset the significant peat depth increase between Site 2 and Site 3, and therefore Site 2 is the most suitable option in relation to minimising peat excavation.

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[2] SSEN Transmission (2023) LT520 – Braco West Substation, Geo-Environmental Desk Study, Doc Ref. LT520-BRCW-GDS-CIV-001, Rev. 1.0, October 2023

[3] Scotland's Soils. *National Soil map of Scotland.* [Online] [accessed 12th August 2024] available from: National soil map of Scotland | Scotland's soils

[4] Scotland's Soils (2016). *Carbon and Peatland Map 2016.* [Online] [accessed 12th August 2024] available from: National soil map of Scotland | Scotland's soils

1.4 Objectives

This Stage 1 PMP relates to the works associated with the construction of the new substation and associated infrastructure. The Stage 1 PMP has been prepared to satisfy the requirements of an Environmental Impact Assessment (EIA) (detailed in **Section 2** below) and to ensure that there has been systematic consideration of peat management and a quantitative assessment throughout the development process. It is acknowledged that the Proposed Cambushinnie 400 kV substation and OHL Tie-in are both considered non-EIA development, and as such Environmental Appraisals (EAs) are being undertaken for the project rather than an EIAs, however, there are no discernible differences relating to the management of peat between the principles and consideration for an EIA stage than for an EA stage, as both represent early development of the project prior to achieving planning approval.

The Stage 1 PMP provides background details on the possible peat deposits based on desk based sources, investigations on the peat extent and depth across the Site, information on the peat and substrate from ground investigation undertaken for the works, details on the approximate predicted volumes of peat that would be excavated during the construction activities associated with the works, an estimation on the characteristics of the peat that would be excavated, and the principles of how and where this excavated peat would be stored, reused and managed.

A Stage 2 PMP shall be prepared by the Principal Contractor and/or their Designer considering the management of peat for the works post-consent / pre-construction following further development and finalisation of the Project and on any further information becoming available (e.g. further ground investigation).

2 Stage 1 Peat Management Plan

This Stage 1 Peat Management Plan considers the excavation of peat and soils across the Site resulting from construction of the Project. It considers the potential for minimising excavation and disturbance to avoid or reduce any unnecessary surplus of soil and peat.

2.1 Design Principles

SEPA has provided the following hierarchy of design principles to minimise the impacts associated with excavation of peat:

- **Prevention:** The best management option for waste peat is to prevent or limit its production. This can be done through design, positioning infrastructure in shallower peat or through consideration of alternative construction methods or engineering solutions e.g. floated roads;
- **Reuse** (on site or off site for peatland restoration): Using excavated peat in construction or reinstatement (where suitable) e.g. restoration of temporary hardstanding areas, verge reinstatement, screening bunds, peatland restoration etc. SEPAs preference is for all peat excavated onsite to be reused within the site itself;
- **Recycling/Recovery/Treatment**: Where peat cannot be reused on site or off site for restoration, it may be used for agricultural benefit or treated/blended with other materials to form a soil substitute or used in other relevant works. This use would require a waste management license or registration as an exempt activity and compliance with the legal requirements;
- **Storage:** Temporary storage of peat on site (for example, during short periods in the construction phase) and then reuse. Should the peat become unsuitable for reuse during storage, it would be classed as a waste material;
- **Disposal (Waste):** Only after all other options have been explored and discounted would this option be considered and would require a licence from SEPA.

Three main stages within the development process are defined within Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste[5]and describe what data should be gathered and assessed to inform the site specific PMP:

- **Stage 1**: Environmental Impact Assessment (EIA) (or Environmental Appraisal for this project);
- **Stage 2**: Post-consent/pre-construction; and
- **Stage 3**: Construction.

This report has been prepared in accordance with the requirements for Stage 1.

As part of the development process, SEPA were contacted and provided Pre-Application Consultation advice which indicated that the Stage 1 PMP typically corresponds with the Outline PMP. One noticeable difference between the guidance provided above and the Pre-Application Consultation Advice is that disposal of peat has been stated as not being acceptable within the Pre-Application Consultation Advice. This differs from the hierarchy provided by SEPA in their Guidance Document - Developments on Peat and Off-Site Uses of Waste Peat[6] which is still provided on SEPA's website and to which the above hierarchy has been based.

This report details the methodologies required to assess all potential surplus materials and presents estimates from the Designer of the expected volume of excavated materials and required reuse volumes for reinstatement and restoration purposes.

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[5] Scottish Renewables, SEPA (2012). Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste, Version 1.

[6] SEPA (2017) SEPA Guidance - Developments on Peat and Off-Site Uses of Waste Peat, WST-G-052, Version 1, May 2017

2.2 Policy and Guidance for Peat Management

The significance of peatlands is most evident in their protection by various legislation, policy and local, national or international initiatives including, but not limited to:

- United Kingdom Biodiversity Framework (UKBF)[7];
- Scotland's National Peatland Plan (SNH, 2015)[8];
- European Council Habitats Directive 92/43/EEC (Council of the European Communities, 1992)[9];
- Scottish Biodiversity List (SBL) (Scottish Government, 2013)[10];
- European Council Water Framework Directive 2000/60/EC (Council of the European Communities, 2000)[11];
- Scottish Government discussion paper on the Management of Carbon-Rich Soils (Scottish Government, 2010)[12];
- Scottish Soil Framework (Scottish Government, 2009)[13];
- Climate Change Plan (2017-2032) (Scottish Government, 2017)[14];
- Scottish National Adaption Plan (2024-2029) (Scottish Government, 2024)[15];
- Advising on peatland, carbon-rich soils and priority peatland habitats in development management (NatureScot, 2023)[16]; and
- Perth and Kinross Council Local Development Plan 2[17].

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

As such, the following documents were referred to for guidance during the preparation of this Stage 1 (Outline) PMP:

- Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste[18];
- SEPA Regulatory Guidance – Developments on Peat and Off-site Uses of Waste Peat[19];

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[7] United Kingdom Biodiversity Framework (UKBAP) (2024) UK Biodiversity Framework. Available at: https://data.jncc.gov.uk/data/19a729f6-440e-4ac6-8894-cc72e84cc3bb/uk-biodiversity-framework.pdf [accessed July 2024]

[8] Scottish Nature Heritage (2015) Scotland's National Peatland Plan. Available at: https://www.nature.scot/doc/scotlands-national-peatland-plan-working-our-future [accessed July 2024]

[9] Council of the European Communities (1992) European Council Habitats Directive 92/43/EEC. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A01992L0043-20130701 [accessed July 2024]

[10] Scottish Government (2013) Scottish Biodiversity List (SBL). Available at: https://www.nature.scot/doc/scottish-biodiversity-list [accessed July 2024]

[11] Council of the European Communities (2000) European Council Water Framework Directive 2000/60/EC. Available at: https://www.legislation.gov.uk/eudr/2000/60/contents [accessed July 2024]

[12] Scottish Government (2010) Scottish Government discussion paper on the Management of Carbon-Rich Soils. Available at: https://www.iucn-uk-peatlandprogramme.org/news/scottish-government-publishes-discussion-paper-carbon-rich-soils [accessed July 2024]

[13] Scottish Government (2009) Scottish Soil Framework. Available at: https://www.gov.scot/publications/scottish-soil-framework/#:~:text=Published%2021%20May%202009&text=This%20framework%20is%20aimed%20at,key%20stakeholders%20with%20an%20interest. [accessed July 2024]

[14] Scottish Government (2017) Update to the Climate Change Plan (2018-2032). Available at: https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/ [accessed July 2024]

[15] Scottish Government (2024) Climate change: Scottish National Adaptation Plan 2024-2029. Available at: https://www.gov.scot/publications/scottish-national-adaptation-plan-2024-2029-2/ [accessed December 2024]

[16] 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]

[17] Perth & Kinross Council (2019) Local Development Plan 2, Adopted November 2019. Available at: https://www.pkc.gov.uk/media/45242/Adopted-Local-Development-Plan-2019/pdf/LDP_2_2019_Adopted_Interactive.pdf?m=1576667143577 [accessed July 2024]

[18] Scottish Renewables, SEPA (2012). Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste, Version 1.

[19] SEPA (May 2017). SEPA Regulatory Guidance – Developments on Peat and Off-site Uses of Waste Peat, SEPA Guidance, WST-G-052. Version 1.

- Good Practice During Wind Farm Construction[20];.
- Peatland Survey. Guidance on Developments on Peatland[21];
- Floating Roads on Peat[22];
- Constructed Tracks in the Scottish Uplands[23];
- Restoration Techniques using Peat Spoil from Construction Works[24]; and
- Peatland Action – Technical Compendium[25].

The 'Good Practice during Wind Farm Construction' document[20] was produced for wind farm developments, however, principles discussed can be considered as good practice for other similar scale developments in areas with similar infrastructure (Access Tracks) and typical ground conditions seen on wind farms, particularly peat and around the water environment.

Additionally, the publication of the National Planning Framework (NPF) 4[26] has illustrated the importance of more considered practices within peatlands. Policy 5 of NPF4 states:

> *c) Development proposals on peatland, carbon-rich soils and priority peatland habitat will only be supported for: i) Essential infrastructure and there is a specific locational need and no other suitable site; ii) The generation of energy from renewable sources that optimises the contribution of the area to greenhouse gas emissions reductions targets; iv) Restoration of peatland habitats.*
>
> *d) Where development on peatland, carbon-rich soils or priority peatland habitat is proposed, a detailed site specific assessment will be required to identify: i) the baseline depth, habitat condition, quality and stability of carbon rich soils; ii) the likely effect of the development on peatland, including on soil disturbance; iii) the likely net effect of the development on climate emissions and loss of carbon.*

As such, the details provided in NPF4 have been considered in this Stage 1 (Outline) PMP.

3 Ground Conditions

A Geo-Environmental Desk Study has been produced by SSEN Transmission[1] covering the two potential locations of the proposed substation considered during the early design stages. The existing access track was not included as part of the desk study produced. The desk study has therefore been reviewed and supplemented by other sources as highlighted in the below subsections.

3.1 Topography

An Ordnance Survey 5 m DTM file was obtained for the Site. This file was used to produce the contour data as shown on **Figure 2a** and **Figure 2b** within **Appendix A Figures**. A brief summary of the elevation data is also presented below.

The topographic data obtained indicates the main works area is located on the southern facing slopes of Feddal Hill. Within the area the land generally slopes southwards from approximately 260

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[20] Scottish Renewables, Scottish Natural Heritage, SEPA, Forestry Commission Scotland, Historic Environment Scotland, Marine Scotland Science, AECoW (2019). *Good Practice During Wind Farm Construction*, 4th Edition.

[21] Scottish Government, Scottish Natural Heritage, SEPA (2017). *Peatland Survey. Guidance on Developments on Peatland*

[22] Scottish Natural Heritage, Forestry Commission Scotland (2010). *Floating Roads on Peat,* August 2010.

[23] Scottish Natural Heritage (2015) Constructed Tracks in the Scottish Uplands, 2nd Edition, updated September 2015

[24] EnviroCentre on behalf of SEPA (2011) Restoration Techniques using Peat Spoil from Construction Works, Final Report, July 2011.

[25] NatureScot (2024) Peatland Action – Technical Compendium [online], available: https://www.nature.scot/doc/peatland-action-technical-compendium [accessed July 2024].

[26] The Scottish Government (2024) National Planning Framework 4, available: https://www.gov.scot/publications/national-planning-framework-4/ [accessed July 2024]

mAOD in the northwestern corner to approximately 204 mAOD in the southwestern and continues to fall southwards out with the Site boundary.

The topographic data indicates that the existing access track typically falls to the east, when the track trends east – west (i.e. from the existing Braco West Substation to a point approximately 1.90 km east of the existing substation) from approximately 250 mAOD to approximately 200 mAOD. From this point the existing access track typically trends northwest – southeast with the topography generally falling to the south from approximately 200 mAOD to approximately 130 mAOD by the B8033.

3.2 Geology and Soils Maps

The BGS GeoIndex[27] indicates the main works area is predominately underlain, from surface, by peat. The BGS records the peat to comprise "partially decomposed mass of semi-carbonized vegetation which has grown under waterlogged, anaerobic conditions." Within the south of the main works area the BGS records glacial till present from surface instead of peat. The BGS does not provide a description for the glacial till, however, it is anticipated to consist of a variable proportion of clay, silt, sand and gravel with cobbles and boulders. Just beyond the eastern extent of the main works area, there is an area where no superficial deposits are recorded by the BGS. This may indicate bedrock is close to surface in that area. Given the potential presence of shallow bedrock adjacent to the main works area, this may indicate that locally peat is directly overlying bedrock, which is likely to be weathered. As watercourses are recorded within the southeastern extent of the main works area there is potential for alluvial deposits to be present in the immediate vicinity of these watercourses. The alluvial deposits are described by the BGS as typically consisting of "unconsolidated clay, silt, sand and gravel deposited by a body of running water as sorted or semi-sorted sediment. They are typically described as soft to firm, compressible silty clay which can contain layers of silt, sand, peat and basal gravel."

For the existing access track, the BGS records the western extent on approaching the existing Braco West Substation to be underlain by peat. From approximately 600 m east-northeast of the existing Braco West Substation the existing access track is then recorded to be underlain by glacial till until a point approximately 500 m north-northwest of the B8033 where glaciofluvial ice contact deposits are recorded underlying the rest of the existing access track. The BGS describes the glaciofluvial ice contact as typically comprising "sand and gravel, locally with lenses of silt, clay and organic material." Recorded just to the northeast of the existing access track towards Whistlebrae a small area of peat is recorded by the BGS. As the existing access track crosses and comes into close vicinity of watercourses and waterbodies, there is the potential for the alluvial deposits to underly the access track local to these hydrology features.

The National Soil Map of Scotland[28] records the main works area to be predominantly underlain by Balrownie soils consisting of peaty gleyed podzols. Just within the northwestern corner of the main works area, and extending further north and west outwith the Site, the mapping indicates organic soils consisting of dystrophic blanket peat are present.

The National Soil Map of Scotland records the existing access track to be underlain by Balrownie soils consisting of peaty gleyed podzols from the existing Braco West Substation to a point approximately 1.9 km east-northeast, whereby Balrownie soils consisting of brown earths are then recorded.

The mapping provides further details on the recorded soils as follows:

- Balrownie soils, peaty gleyed podzols:
    - Parent Material: Drifts derived mainly from sandstones of Lower Old Red Sandstone age, often water-modified.

[27] BGS (2024) GeoIndex Onshore, Available: https://mapapps2.bgs.ac.uk/geoindex/home.html [accessed March 2024]

[28] NatureScot (2024) National Soil Map of Scotland Interactive Map Viewer, Available: https://map.environment.gov.scot/Soil_maps/?layer=1# [accessed March 2024]

    - Land Form: Undulating uplands with gentle and strong slopes: non-rocky.
- Organic Soils, dystrophic blanket peat:
    - Parent Material: Organic deposits.
    - Land Form: Uplands and northern lowlands with gentle and strong slopes.
- Balrownie soils, brown earths:
    - Parent Material: Drifts derived mainly from sandstones of Lower Old Red Sandstone age, often water-modified.
    - Land Form: Undulating lowlands with gentle and strong slopes: non-rocky.

Review of the Carbon and Peatland 2016 Map layer[4] of the National Soil Map of Scotland Interactive Map Viewer[28] indicates that there is no Class 1 or Class 2 areas of peat within the Site. The main works area is predominately underlain by Class 4 carbon and peatland soils (see description below). Locally in the northern half of the main works area, Class 5 carbon and peatland soils are also recorded.

The 2016 Carbon and Peatland Map layer[4] indicates that the existing access track is predominately underlain by Class 0 carbon and peatland soils, with Class 5 soils recorded within the western half of the existing access track and Class 4 soils recorded as a thin strip around the Class 5 soils again within the western half. Elsewhere in the immediate vicinity of the existing access track, a small area of Class 5 soils is recorded just to the northeast at Whistlebrae.

The 2016 Carbon and Peatland map provides further details on the classifications recorded as follows:

- Class 0 – Generally mineral soils where peatland habitats are not typically found.
- Class 4 – Predominately mineral soils where some peat soil may be encountered. The areas are unlikely to be associated with peatland habitats or wet and acidic type soils. The area is also unlikely to contain carbon-rich soils.
- Class 5 – Recorded as a peat soil, where the soil information takes precedence over the vegetation data. No peatland habitat is recorded within the area; however, the soils are likely to be carbon-rich and contain deep peat. Bare soils may also be present within the area.

3.3 Historical Mapping & Aerial Photography

A review of aerial photographs relating to the Site was undertaken using the historical aerial imagery time slider of Google Earth[29]. The earliest available aerial photograph with good resolution was from 2005 and recorded that the main works area was within a conifer plantation with mature unfelled trees present throughout. The existing Braco West Substation had not been constructed, however, the existing access track leading to the Braco West Substation from the B8033 was present in its current day alignment.

By 2015 much of the conifers within the main works area had been felled, although many still remained particularly within the southeast and southwest of the area, and the Braco West Substation appears to be under construction with the northeast – southwest trending Beauly to Denny overhead electrical line also under construction. The access track located within the northwest of the main works area was present presumably to facilitate the construction of the Beauly to Denny overhead line as part of the Braco West Substation's development.

By 2017 construction of the Braco West Substation had been completed, as was the Beauly to Denny overhead line to the west of the existing substation. An additional branch of access track was present within the south and southwest of the main works area with all the existing tracks within the Site now present in their current day alignment.

By the most recent aerial photography available from 2021, the plantation within and surrounding the main works area was in the current day state of felling/replanting. Felling adjacent to the

[29] Google (2024) Google Earth [online] Available at: earth.google.com/static/multi-threaded/versions/10.75.0.2/index.html? [Accessed: March 2024]

existing access track had also taken place with this also noted to be in its current day state of felling/replanting. From this date, it appears the Site is in its current day state with the only differences being the planted trees developing to be larger than shown, and the unfelled forestry within the western extent of the main works area now having windblown fallen trees present.

Historic mapping obtained from Groundsure was reviewed as part of the Desk Study[30] produced for the proposed substation. The Desk Study is included as Appendix H of the EA for the proposed substation[1]. The historic mapping available indicated the Site was typically undeveloped with mainly open moorland present from the earliest map reviewed 1862 – 1863 until around 2001, when the mapping starts to show the plantation forestry. From this date the mapping typically agreed within the aerial photography as summarised in the above paragraphs.

3.4 Field Observations

Site reconnaissance during peat probing works in March 2024 and a subsequent site walkover in May 2024 typically agreed with the information obtained through the desk-based research presented above. The main works area was partially occupied by semi-mature conifer plantation trees, with the remainder felled and containing new very young plantation. The surrounding areas to the north, south and west of the main works area are also occupied by semi-mature to mature conifer plantations. Towards the southwestern corner of the main works area windblown trees were noted. Where zones were cleared, felled stumps were still noted to be present with branches and other woodland debris noted on the ground surface. In the zones of the new plantation and semi—mature trees the furrows created as part of the plantation process were noted to be particularly prevalent.

Throughout the main works area drainage ditches and channels were frequently noted associated with the forestry land use of the area many of which can be seen from aerial imagery. In some cases, these ditches were approximately 2 m in depth. As a result of the drainage present the underfoot conditions were typically not noted as boggy or saturated, except for a strip following the line of the existing overhead line in the northwest of the main works area. Peat deposits were generally noted in the sidewalls of the ditches observed within the main works area. Towards the north and northwest of the main works area and further north outwith the Site boundary, the sidewalls contained peat across the full depth, (see **Insert 2**) which shows some agreement with the peat probing results in that zone and that deep peat deposits are present (peat probing results discussed in more detail in **Section 3.6**). To the south and west of the main works area, the peat observed in the sidewalls of the drainage ditches was not noted to be as deep, approximately 0.5 m observed overlying mineral soils (see **Insert 3**). Again this shows agreement with the peat probing results.

Observations made along the existing access track did not highlight peat exposure or peat soils within the sidewalls of drainage channels along the majority of the track. The exception to this was towards the western end of the track leading up to the existing Braco West Substation, where peat was noted in the sidewalls of drainage channels (see **Insert 4**). Along the route of the existing access track the surrounding land use was noted as being a combination of agricultural and forestry plantation in various stages of felling/replanting.

[30] AECOM (2025) Cambushinnie 400kV Substation, Geo-Environmental Desk Study, January 2025

Insert 2 - Photograph of peat exposure within a drainage ditch in northeast of main works area taken during site reconnaissance in March 2024

Insert 3 – Photograph of peat exposure within a drainage ditch in west of main works area (approximate NGR NN 78848 08907) taken during site walkover in May 2024

Insert 4 - Photograph of peat exposure within a ditch adjacent to the south of the existing access track towards its western extent on approach to the existing Braco West Substation (approximate NGR NN79868 09471) taken during site walkover in May 2024

3.5 Definitions of Peat

The Scottish Government Peat Landslide Hazard Best Practice Guide (2017) uses the following Joint Nature Conservation Committee (JNCC) report 455 'Towards an Assessment of the State of UK Peatlands' definition for classification of peat deposits:

- Peaty (or organo-mineral) soil: a soil with a surface organic layer less than 0.5 m deep;
- Peat: a soil with a surface organic layer greater than 0.5 m deep which has an organic matter content of more than 60 %; and
- Deep Peat: a peat soil with a surface organic layer greater than 1.0 m deep.

3.6 Peat Depth Assessment

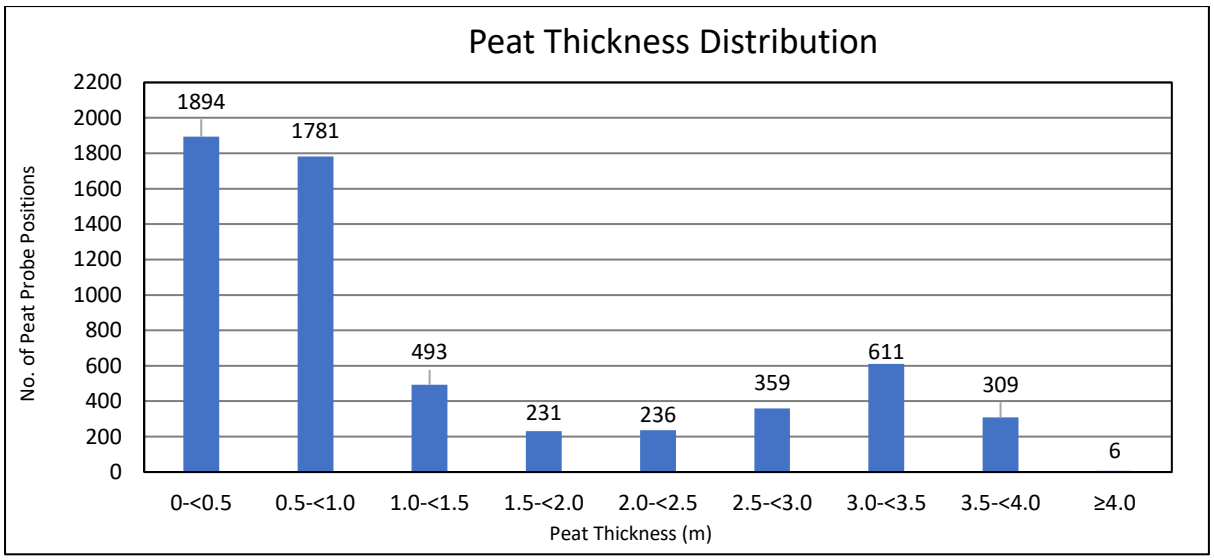
Peat depth assessments across the works areas were undertaken taking cognisance of the Peatland Survey Guidance[22] available. Three phases of ground investigation to determine peat depths have been undertaken specific to the main works area, as noted below:

- The initial peat depth probing (4,795 probes) was undertaken by IGNE in November 2023 as part of a wider ground investigation which also included 17 boreholes and 20 trial pits. Probing was based on a 10 m grid generally and covered Site 2 and Site 3, as discussed in the Design Development section of this PMP (**Section 1.3**). The purpose of the peat probing was to determine the depth and extent underlying each of the potential sites, to determine which would be most favourable in relation to that aspect. The findings of Igne's 2023 Ground Investigation are included in their Factual Report dated March 2024[31], which is included in Appendix C of AECOMs Geo-environmental Desk Study[31].
- A further phase of peat depth probing (442 probes) was undertaken by AECOM in March 2024, based on a 10 m grid over an area extending south from the initial phase of peat probing. The purpose of the further probing was to cover areas of the wider main works area (Site 2 from the Design Development) which had not been previously investigated. Note that 847 probes were initially proposed for the further investigative works, however, due to safety concerns relating to undertaking probes within zones of windblown plantation and zones of dense semi-mature conifers this number was reduced. Also note that the probing undertaken did not extend to the full Site boundary, instead it only extended to cover the proposed works within the main works area at the time. A Technical Note providing full details on the additional probing undertaken by AECOM in March 2024 is provided as **Appendix C Peat Investigation Technical Notes**.
- A supplementary phase of peat depth probing (683 probes) was undertaken by AECOM in December 2024 and included 7 no. Russian Cores to identify composition of the peat deposits present. The supplementary probing was undertaken in 3 separate areas across the main works area, targeting areas not previously probed. The cores were taken adjacent to trial pits previously undertaken in order to obtain samples for laboratory testing and to build on the peat description which had previously been omitted. Note that ,1280 probes were initially proposed for the supplementary peat investigation works, however, this was reduced to 683 as reasoned in the following text. In the area in the southeast of the main works area, the probing was based on an original 10m x 10m grid, however, after initial probing the peat depths encountered were typically estimated to be <1.0m in thickness and as such the density of probes was reduced to typical 10m spacing in the northeast – southwest orientation and 20m spacing in the southeast – northwest orientation. The grid was increased back to a 10m grid where deposits >1.0 m were identified. In the area of the proposed OHL tie-in works, a typical 10 m probing grid was undertaken across the proposed OHL tower and working platform locations. The last area probed was to the immediate east of the main works area and south of the existing Braco West Substation. The probing was undertaken here to gain understanding of the peat depths adjacent to the main works area and was undertaken in a typical 20 m grid. Probing in this area was reduced from that initially proposed due to the presence of an underground 33 kV cable and due to the presence of dense forestry in the east of the area. A Technical Note providing full details on the supplementary probing undertaken by AECOM in December 2024 is provided as **Appendix C Peat Investigation Technical Notes**.
- Note it was an aspiration of the planning stage to undertake probing throughout the red line boundary of the main works area. However, due to access constraints relating to windblown

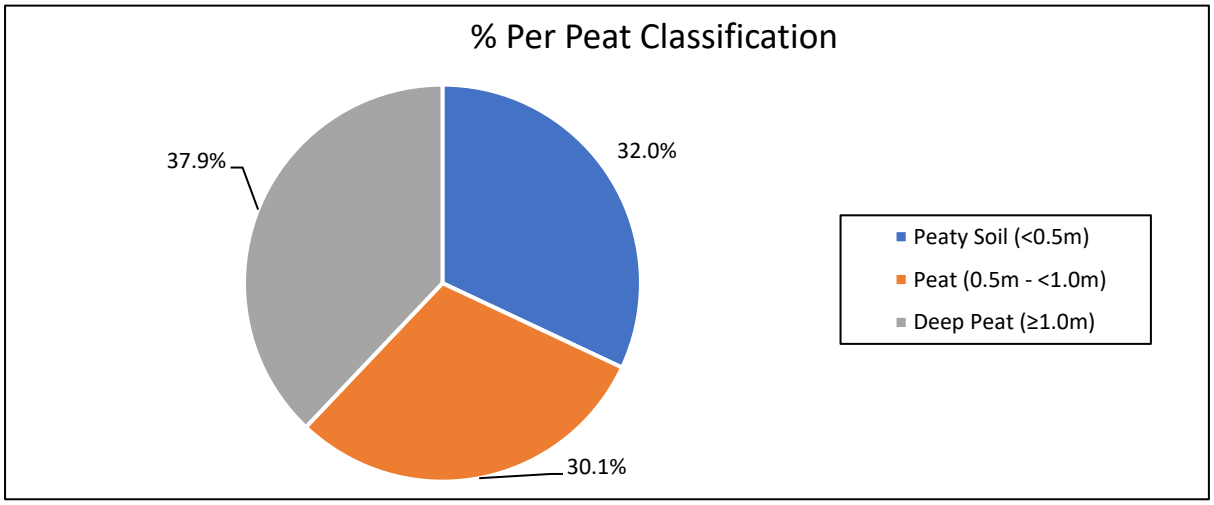
[31] Igne Ltd (2024). *Proposed Substation , Report on Ground Investigation*, Report Issue Final, March 2024

trees and dense forestry this was not possible, and the probes undertaken represent the areas able to be accessed safely. Despite this, it is considered that a robust survey has been completed with sufficient number of probes completed. There will also be an opportunity Pre-Construction, once forested areas have been felled, to undertake further confirmatory probing in these areas.

Figure 3 within **Appendix A Figures** of this PMP shows the location of the probes in relation to the Project, as well as the probed depths. **Figure 4** within **Appendix A Figures** of this PMP provides a peat depth interpolation plan based on the peat probe results, noting that probes are not available for the full Site boundary. Note the peat depth interpolation was undertaken using the Inverse Distance Weighting methodology. **Plot 1** and **Plot 2**, on the following page, present the distribution of peat probes referenced above against the thickness range recorded.



Plot 1 – Peat Thickness Distribution



Plot 2 – Percentage Per Peat Classification

When considering both the IGNE and AECOM peat probe surveys undertaken, 2245 of the probes (~37.9% of the 5920 no. total probes) indicate deep peat >1.0m in thickness. Peat deposits between 0.5m and <1.0m thick were recorded in 1781 no. of the probes (~30.1% of the 5920 no. total probes, and peaty soil <0.5m thick were recorded in 1894 no. of the probes (~32.0% of the 5920 no. total probes).

In relation to the Project, the deep peat deposits were typically located out with the Site boundary to the northwest, as shown on **Figure 3** within **Appendix A Figures**, and underlying the Site 3 as discussed within the Design Development section (**Section 1.3**) of the PMP. Peat and peaty soil deposits were generally encountered throughout the main works area with no particular trend

noted. Localised areas of deep peat deposits were identified within the main works area typically along the northwestern and northern boundaries, within the south and towards the western extent. The deep peat deposits were typically recorded up to a depth of 3.0m, however, localised probes encountered deeper deposits with the maximum being >5.0m.

No probing was undertaken along the existing access track. However, peat probing will be undertaken along the access track pre-construction, where required to prove peat extent/depths in relation to any upgrade works. The results of this probing will be included in the Stage 2 PMP post-consent.

Along with the peat probe data described above, Igne's ground investigation also included exploratory holes (17 boreholes and 20 trial pits) which provide peat composition descriptions. This detail is described below. **Figure 5** within **Appendix A Figures** shows the locations of the boreholes and trial pits undertaken by Igne.

Although the ground investigation was undertaken to cover both Site 2 and Site 3 considered for the Design Development stage, all exploratory holes are considered relevant for the main works area as they lie within the Site boundary. The exploratory holes undertaken encountered peat deposits ranging from 0.20 m thick (BH14 New & TP13 New) to 2.0 m thick (BH13) with the thickness of peat generally greater towards the northwestern boundary of the main works area. Generally, the peat depths encountered were <1.0m in thickness with peat also locally recorded to be absent (TP10 New & TP21) with the average thickness of approximately 0.8 m. TP10 New was located within the southeast of the main works area and recorded topsoil overlying sand. TP21 was located in the northeast of the main works area, adjacent to the existing Braco West Substation, and recorded made ground comprising of sand overlying a soft clay. Locally in TP23 located within the northeast of the main works area, adjacent to the existing Braco West Substation, the peat was also recorded underlying a made ground comprising of sand. Typically, the exploratory holes undertaken as part of Igne's ground investigation agreed with the peat depths and extents recorded as part of the peat probing undertaken by both Igne and AECOM. The peat deposits across the main works area, as reported in Igne's Factual Report, are typically recorded to fall into two different types, as follows:

- soft dark brown spongy amorphous peat locally with cobbles and pieces of wood;
- soft dark brown spongy pseudo-fibrous peat locally with pieces of wood.

Within BH13 where the deepest peat deposits were recorded a very soft plastic amorphous peat was recorded underlying the soft spongy amorphous peat at a depth of 1.2 m. Note, however, BH13 is situated just outwith the Site boundary to the west. No discernible trends were noted in relation to the spread of amorphous or pseudo-fibrous peat across the main works areas. No intrusive ground investigation was carried out along the existing access track.

SLR Consulting Limited produced a Ground Investigation Report (GIR) for the Project[32] which includes description on the peat findings and an engineering assessment. Generally, SLRs interpretation of the peat depths and extents agreed with the text provided in the paragraph immediately above. However, SLR note that although amorphous peat has been recorded within exploratory holes at several locations, they considered this to be more pseudo-fibrous in nature. No laboratory testing was undertaken on the peat. Included within Appendix D of SLRs GIR are geological longitudinal sections at three locations across the main works area, with the predicted platform level shown.

As part of the peat investigation works undertaken by AECOM in December 2024, 7 no. peat cores were taken, using a Russian Corer, to supplement the information already obtained and provide more detailed information on the composition of the peat present. These cores were taken at locations corresponding with trial pits completed by Igne as part of their ground investigation; at TP's 01, 03, 04, 09, 10, 11 & 13, so that the cores could be cross referenced with the peat already identified within the trial pits and provide more detailed information on the peat encountered. The depth of peat encountered as part of peat cores ranged from 0.25m to 1.0m bgl. Descriptions of

[32] SLR Consulting Limited (2024) Braco West ASTI 400kV Substation, Ground Investigation Report, SLR Project No. 422.064790.00001, Revision: Final, 21 May 2024

the peat encountered were typically recorded as soft dark brown to brown fibrous to pseudo fibrous peat locally with occasional pieces of wood.

The Von Post Humification Scale was used as part of the logging of the peat cores recovered, whereby the peat is classified in accordance with its degree of humification (decomposition) between H1 and H10, with H1 being completely undecomposed and H10 being completely decomposed. The peat was also classified in accordance with its moisture content using a scale of B1 to B5, with B1 as dry peat up to B5 which is very high moisture content. The peat recovered from the coring was recorded in the range H4 (slight decomposition) to H5 (moderate decomposition) / B2 (low moisture content), although locally moisture contents of B1 (dry) and B3 (moderate) were also recorded. Geotechnical laboratory testing was undertaken on core samples recovered during the peat coring exercise. These typically indicated water contents ranging from 486% to 822% and organic matter content (OMC) ranging from 59.1% to 71.7%. Given the high OMC, generally ≥60%, the peat present onsite would typically meet the minimum OMC required as per NatureScot's Guidance[17] of 60% to be considered a peat. However, there were two locations corresponding to TP03 & TP13, where lower OMCs were recorded; 9.7% and 14.7%, respectively. At TP13 this means the peat likely falls more into a peaty topsoil. Whereas, at TP03 the depth of the test was towards the base of peat layer (0.42m – 0.60m) and may indicate the peat is shallower here coming into a more organic mineral soil at this depth. The descriptions of the peat recovered from the AECOM peat coring typically agreed with SLR Consulting's assessment that the peat present within the main works area is generally more fibrous in content than that recorded by Igne, with the peat being described as pseudo-fibrous rather than amorphous.

Further ground investigation is being proposed by the Applicant which would provide further information on the peat and groundwater condition across the Site, for use in the detailed design process. Details of this ground investigation will be included as part of the Stage 2 PMP post-consent.

3.7 Peat Conditions at Site

Field Observations

Peat deposits can be broadly subdivided into two layers: acrotelmic (upper layer) and catotelmic (lower layer); the boundary between the two layers is generally defined by the lowest level of the water table. Acrotelm represents the upper fibrous vegetation mat where accretion of material is occurring, with the decomposing vegetation below this comprising catotelm. Catotelmic peat is variable in characteristics, with the decomposition of fibres generally increasing with depth, ranging from semi-fibrous in nature through to amorphous where the original structure of the plant is completely decomposed. Water content can be highly variable and as fibre content affects structural strength of the material.

As highlighted in Section 3.6, the exploratory records available typically describe the peat deposits as one unit, with this ranging from amorphous peat in the Igne investigation to fibrous/pseudo-fibrous in the AECOM peat cores. Due to this discrepancy in descriptions and as no clear boundary between the acrotelm and catotelm can be identified from the exploratory hole records, for the purposes of this Stage 1 PMP, the simple accepted assumption of the upper 0.3 m peat thickness being acrotelm and the rest of the peat thickness being catotelm has been assumed. Further investigation across the main works area with description of peat (inclusive of Von Post Scale) and groundwater level observations within the peat would enable a better definition of the acrotelm / catotelm boundary. From observations, based on trial pit recovery and stability and field observations made during the peat probing by AECOM, it is considered that the majority of the excavated catotelmic peat has some structural strength i.e. it appears it can be excavated in intact lumps, and it will not be fluid. However, for the purposes of the Stage 1 PMP the catotelm is not considered suitable for verge restoration with only the acrotelm proposed for this purpose.

Peatland Condition Assessment

A ecological walkover has been completed by AECOM[33] ecologists which identifies the main works area (Site 2 and parts of Site 3) generally falls into habitat classified as coniferous woodland plantation. Locally within the main works area degraded blanket bog is recorded within the forestry ridings, particularly in the northeast. Degraded raised bog is also locally recorded within the northwestern corner of the main works area. Locally within the southwest of the main works area heathland comprising dry dwarf shrub heath is recorded within the forestry rides.

Modified / degraded blanket bog is an Annex I H7130 habitat under the Habitats Directive and is a priority habitat under the Tayside Local Biodiversity Action Plan (LBAP)[34]. However, the walkover noted the narrow remnant strips of degraded bog are heavily affected by adjacent forestry and/or drainage, therefore they are not in good condition and so are not of high ecological value.

[33] AECOM (2023). *LT307 Beauly Denny 2nd Upgrade – Braco West Substation, Preliminary Ecological Appraisal*, Rev0, July 2023

[34] Angus Council (2016). Tayside Local Biodiversity Action Plan. [Online] [accessed 20th November 2024] Available from: Tayside Local Biodiversity Action Plan 2nd Edition 2016-2026

4 Sources of Peat During Construction

The following activities are likely to generate excavation of peat during the construction process:

- Construction of new access tracks;
- Construction of platform including earthworks;
- Construction of Temporary Construction / Contractors Compound and aggregate stockpile area;
- Installation of trenches, pipework, SUDS basin, etc. to support disposal of surface water and treated water;
- Construction of temporary access tracks to provide access to the platform from the Contractors Compound; and
- Construction of permanent and temporary OHL towers with associated construction of temporary access tracks and working areas to facilitate the construction of the temporary OHL towers and tie-in to existing OHL towers.

Upgrades to the existing access track are proposed primarily associated with widening the track. No probing has been undertaken along the existing access track, however, given the desk-based research into the geology along the existing access track (**Section 3.2**) and observations made during site visits (**Section 3.4**), minimal peat is anticipated to be encountered with deposits only anticipated towards the western extent of the existing access track. Given the works proposed and the peat deposits anticipated to be encountered, it is considered that the peat excavated as a result of the upgrades to the existing access track will be minimal and will likely be reused as verge restoration along the access track. Further peat probing will be undertaken pre-construction to confirm actual peat extents and depths along the existing access track. Further details of the peat to be excavated as a result of the upgrades to the existing access track and the proposed reuse of this excavated peat will be included as part of the Stage 2 PMP post-consent, following ground investigation works along the track and following the full maturity of the Project design. That being said, where peat is encountered the principles highlighted within this PMP will be followed.

All efforts to minimise impact on peat and requirement for excavation of peat – while taking account of other constraints – have been made in the design process, informed by desk study, walkover observations, peat depth surveys and peatland condition assessment.

4.1 New Access Track

The new access track to be constructed as part of the Project, as shown on **Figure 1b (Scheme Layout Plan)** in **Appendix A Figures**, will be an extension to the existing operational access track leading into the existing Braco West Substation. Earthworks will be required to construct the new access track due to the topography of the Site, especially towards the western extent where part of the track will be on side-long ground. Local undulations and the presence of deeper laying furrows will also require earthworks for the construction of the access track. This means cut and fill operations will be required to create the necessary gradient for the access track. Typically for peat depths <1.0 m access tracks are generally constructed by excavating to competent strata and where deeper peat deposits are encountered by constructing floating tracks where no peat is excavated. Note that the peat deposits along the proposed new access tracks as shown on **Figure 3** in **Appendix A Figures**, are typically <1.0 m although there are local pockets deeper than 1.0m identified. These pockets of peat >1.0 m may be of too short a length for floating roads to be considered appropriate, and thus at this stage it is anticipated that the entire new access track will be constructed by excavating to competent strata. The potential for use of floating roads to reduce the required peat excavation where peat depths are >1.0mbgl will be considered further in the detailed design and proposed, where considered appropriate, in the Stage 2 PMP following consent.

The type of access track anticipated (i.e. complete removal of peat to competent strata from footprint of access track) has the potential to disrupt natural hydrological drainage pathways. Therefore, appropriate drainage will be designed to mitigate this. Further details of the drainage

will be developed as the detailed design of the Project is progressed and will be contained in the Stage 2 PMP post consent as well as being contained within the Construction Environmental Management Plan (CEMP).

Considering the footprint of the proposed permanent access tracks (~32,90 m^2) and associated peat depths underlying (determined through a peat model), a total peat volume of 38,030m^3 is estimated to be excavated as part of the construction works of this permanent element.

As part of the temporary infrastructure required for the construction of the proposed works within the main works area, temporary access tracks are also required, as shown on **Figure 1b (Scheme Layout Plan)** in **Appendix A Figures**. The text within this section generally applies to the temporary access tracks also. Considering the footprint of the proposed temporary access tracks (~1,167) and associated mean peat depths underlying (0.75 m), a total peat volume of 875 m^3 is estimated to be excavated as part of the construction works of this temporary element.

4.2 Substation Platform

The earthworks footprint associated with the substation platform, as shown on **Figure 1b** in **Appendix A Figures** will cover an area of approximately 105,000 m^2. As the proposed platform is on side-long ground, to produce a level platform, the earthworks have been designed to provide an approximate cut and fill balance. Peat is not considered a suitable strata for forming the proposed platform and as such will require removal across the footprint, with the excavation to continue until formation level or competent strata is encountered. Peat, along with other superficial deposits and rock will therefore be excavated as part of the Project. Peat depths across the area of the proposed substation platform, as shown on **Figure 3** in **Appendix A Figures,** are typically <1.0m, however, there are pockets of deeper peat recorded during the investigation works. As peat, and other organic soils, do not exhibit the appropriate geotechnical qualities to be considered for reuse as embankment fill all peat beneath embankments will be required to be removed to ensure the stability of the platform.

The siting of the proposed platform has been selected based on a number of criteria including peat depth and extent. As shown by the peat probing results, the selection of Site 2 over Site 3 (discussed in the **Design Development Section** of this PMP) was based on there being a lower average peat depth within Site 2 and to avoid the deeper peat deposits which dominant the Site 3 location.

Based on the estimated overall footprint of the platform (~105,000 m^2), including the associated earthworks and the peat depth investigations undertaken (used to create a peat model), a total peat volume of 76,239m^3 is estimated to be excavated as part of the platform construction.

4.3 Drainage

As part of the drainage network for the Project, swales, filter drains and a SUDS basin is proposed to be constructed. Volumes of peat excavation relating to the swales and filter drains are not yet known as these are still in the design development stage, and as such details will be presented as part of the Stage 2 PMP post-consent.

Information relating to the proposed SUDS basin is available. The basin is located in the southwest of the main works area, as shown on **Figure 1b** in **Appendix A Figures**. The available ground investigation records and peat probe data, as shown on **Figure 3** in **Appendix A Figures**, indicate the proposed SUDS basin is typically underlain by peat deposits <1.0m in thickness, although the whole basin area has not been probed due to the presence of dense forestry causing access constraints.

To create the SUDS basin excavation is required to drop the overall ground level with peat expected to be stripped from the footprint of the basin area. Based on the footprint of the proposed basin (~12,670m^2) and the peat depth as identified from the probing available in the area (used to create a peat model), it is estimated approximately 3,928m^3 of peat will be excavated as part of the basin construction. Temporary Construction / Contractors Compound & Aggregate Stockpile Area

To create a level and solid surface for the Contractor to place facilities, materials, plant and equipment required during the construction of the Project, a Construction / Contractors Compound is required. For the Project, one area has been identified for this as shown on **Figure 1b** in **Appendix A Figures** located just to the northeast of the proposed platform. Due to the site of the Construction / Contractors Compound being on side-long ground, earthworks in the form of cutting and filling will be required to construct the compound area. The proposed Construction / Contractors Compound covers an area of approximately 31,828 m^2. Peat probing as well as intrusive ground investigation works have been undertaken within and immediately surrounding the proposed location of the Construction / Contractors Compound. The probing, as shown on **Figure 3** in **Appendix A Figures,** and intrusive works indicate the peat deposits throughout the proposed Construction / Contractors Compound are <1.0 m in depth and so are not considered deep peat. Given deep peat is not encountered in the proposed area, it is proposed that excavation of the peat to competent strata will be undertaken to allow forming of the compound. Based on the proposed footprint (~31,828 m^2), and estimated peat depths at the construction compound (mean depth ~0.75 m), an estimated peat excavation volume of 23,871m^3 has been calculated.

As part of the Project a temporary aggregate stockpile area is required. This is located adjacent to the Construction / Contractors Compound in the same area shown on **Figure 1b** in **Appendix A Figures**. At this location all peat is proposed to be stripped to create an approximate level area that is suitable for stockpiling of aggregates. As with the Construction / Contractors Compound area, peat within the stockpile area has been estimated to be <1.0m in thickness (i.e. not considered deep peat) based on the peat probing, as shown on **Figure 3** in **Appendix A Figures,** and intrusive investigation records available. As such, considering the footprint of the proposed stockpile area and the estimated peat depths present, an estimated peat excavation volume of 4,095m^3 has been calculated for its formation.

4.4 OHL Tie-In

As part of the OHL tie-in for the Project, an existing tower requires removal, and a new permanent tower constructed, as shown on **Figure 1b** in **Appendix A Figures**. To allow construction of the permanent OHL tie-in, a temporary OHL diversion is required. Works required and associated peat volumes are provided in **Section 4.7** of this PMP. Due to the nature of the towers and the requirement to ensure suitable stable foundation soil, peat will require total removal from underlying the tower foundations. Peat probing, as shown on **Figure 3** in **Appendix A Figures**, at the new tower location indicates peat up to 1.5m bgl and at the location of the existing tower removal up to 1.0m bgl. The estimated peat excavation required to enable construction of the new tower foundation (estimated footprint of 8m x 8m applied to 4 no. foundation pads per tower i.e. total area 256 m^2) has been calculated as 384m^3 (considering mean peat depth at tower of 1.5 m) and at the existing tower removal has been calculated as 16m^3 (considering existing foundation pad size of 2m x 2m and four of these applied to the tower i.e. total area 16 m^2 with mean peat depth of 1 m). Note that the new gantries to tie-in to the proposed substation are covered by the platform construction for the substation.

Two new permanent access tracks are also required to allow access to towers, as shown on **Figure 1b** in **Appendix A Figures**. These are located at Tower 380R (the new tower) and Tower 381 (the tower to the west that is to remain in place). Peat probing, as shown on **Figure 3** in **Appendix A Figures,** along these access roads typically indicate peat depths <1.0m thick, although localised areas of deep peat up to 3.0m was also identified at Tower 381. Floating the access track may be considered for the track leading to Tower 381 where deep peat has been identified, however, the section where deep peat is present may be too short for floating to be considered effective or efficient. As such, at present complete removal of the peat underlying the access track footprint is proposed. This may be revisited as part of the Stage 2 PMP, post consent following design maturity and any further information becoming available. Considering the footprints of these access tracks (20m in length for track to Tower 380R and 80m in length for track to Tower 381 with both 5m in width) and the estimated mean peat depth across the areas (1m for Tower 380R and 2m for Tower 381), in total the estimated peat excavation required to allow construction of the access tracks has been calculated as 900m^3.

Two temporary access tracks are required to allow access to existing towers as part of the tie-in, as shown on **Figure 1b** in **Appendix A Figures**. These are located at Tower 379 (to the east of the proposed new tower) and at Tower 380 (the tower to be removed as part of the Project). Peat probing, as shown on **Figure 3** in **Appendix A Figures**, at these locations indicate peat depths up to 1.0m. As part of the proposals the peat is proposed to be stripped across the area of the temporary access tracks to enable its formation. Considering the footprints of these access tracks (both 10m in length and 5m in width) and the estimated mean peat depth across the areas (1m for both), in total the estimated peat excavation required to allow construction of the temporary access tracks has been calculated as 200m^3.

Temporary working areas around the existing and new towers, where works are proposed, is required to enable the Project, as shown on **Figure 1b** in **Appendix A Figures**. Peat probing, as shown on **Figure 3** in **Appendix A Figures**, around the towers indicates peat depths up to 1.0m for Towers 380 and 379, with peat depths up to 1.5m for Tower 380R and typically up to 1.0m at Tower 381 although locally depths up to 2.5m was recorded. The current design anticipates complete removal of all peat under the footprint of the temporary working areas. Based on the proposed footprints (60m x 60m for towers 379, 380 & 381 and 80m x 80m for tower 380R) and estimated peat depths underlying each temporary working area (1m for towers 379 & 380 and 1.5m for towers 380R & 381) an estimated peat volume to be excavated of 22,200m^3 has been calculated.

4.5 Temporary OHL Diversion

To allow the construction of the tie-in to the substation, a temporary diversion to the existing OHL is required as shown on **Figure 1b** in **Appendix A Figures**. This will require new temporary towers, temporary access roads and working areas around towers. Peat probing, as shown on **Figure 3** in **Appendix A Figures**, across the areas indicate estimated peat depths typically up to 1.5 m in thickness although deeper peat up to 3.0 m was locally recorded.

Complete removal of the peat is required for the foundations underlying the temporary tower foundations, with the design also requiring complete removal of the peat under the footprint of the temporary access tracks and working areas. Based on the footprint of the proposed works and the estimated peat depths an estimated peat volume to be excavated of 768m^3 has been calculated for the temporary towers' foundations (considering two towers, each with 4 pad foundations estimated at 8m x 8m, and both with estimated mean peat depths of 1.5m), 950m^3 has been calculated for the temporary access roads (length of track to tower 379T of 80m and length of track to tower 380T of 110m with both tracks 5m in width and both estimated with a mean peat depth underlying of 1m) and 16,000m^3 has been calculated for the temporary working areas (both working areas 80m x 80m with mean peat depth at tower 379T estimated at 1.5m and at tower 380T at 1.0m).

5 Proposed Mitigation During Construction

There are four main types of impact on peat which can occur during construction. These are:

- Loss of structural integrity and peat strength, due to stripping off or damaging the surface vegetation turf, excavation, handling and transporting peat (particularly wet, subsurface peat);
- Erosion and gullying, caused by exposure and desiccation of bare peat surfaces primarily caused by water erosion, due to surface runoff after rainfall;
- Contamination, caused by leaks, spillages or inappropriate laydown of materials; and
- Peat slide, caused by laying wet peat on top of wet peat, laying other heavy materials (including excavated mineral soil or other construction materials) on top of wet peat or by inappropriate stockpiling, such as attempting to create stockpiles of peat that are too high, without bunding, engineering or geotechnical support.

A range of methods and control measures can be adopted to minimise the impact on peat which are described below and are designed to prevent these impacts from occurring. This best practice guidance should be adhered to throughout the construction phase.

5.1 New Access Track

The investigative works have identified peat along the route of the proposed access tracks although limited areas of deeper peat (>1.0 m depth) have been identified. It is therefore likely all new access tracks (permanent and temporary) will require excavation of peat. There may be opportunities to construct floating access tracks that would remove the requirement for peat excavation and limit the disruption of hydrological pathways, however, given the lengths of deep peat along the new access track are small, floating access tracks may not be considered suitable. This will be considered further in the detailed design stage and incorporated into the Stage 2 PMP post-consent, if used.

Excavated tracks require complete excavation of peat to a competent substrate with the excavated peat being reused immediately, where possible, or, where not possible to reuse immediately, requiring storage ahead of reuse.. Good practice guidance in association with excavated tracks is as follows:

- Trackside ditches should capture surface water (within the acrotelm) before it reaches the track;
- Any additional interceptor drains associated with the track construction should be shallow and flat bottomed (and preferably entirely within the acrotelm to limit drawdown of the water table); and
- Any stripped peat turves should be placed back in the invert and sides of the ditch to stabilise the banks and assist regeneration.

Although excavation is normally undertaken in peat of minor thickness, there is a possibility of minor slippage from the cut face of the peat mass. Accordingly:

- Free faces should be inspected for evidence of instability (cracking, bulging, excessive discharge of water or sudden cessation in discharge); and
- Where peat is to be stored adjacent to an excavation, stability analysis should be conducted to determine Factor of Safety (FoS) and an acceptable FoS adopted for loaded areas.

Due to the topography, the access tracks will be formed on sidelong ground in places, with cuttings formed within superficial deposits and supported on embankments formed by site won material. The gradient of the side slopes would allow the placement of peaty soil (fibrous) onto cut slopes. However, where rock has been exposed in cut slopes, there will be no opportunity for the re-use of excavated peat.

Monitoring would be scheduled post construction to ensure that hydrological pathways and track integrity have been suitably maintained.

5.2 Excavation

As described previously there are two distinct layers of peat; the acrotelm (including the vegetated turves) and the catotelm. These distinct layers should be recognised during peat excavation and reuse activities.

As peat is to be reused or reinstated with the intention that its supported habitat continues to be viable, the following good practice applies:

- Peat should be excavated as turves, including the acrotelm (surface vegetation) or as blocks of catotelmic peat;
- The acrotelm should not be separated from its underlying peat, if possible, the full depth of acrotelm layers from the top surface of the peat deposit should be excavated together;
- Turves should be as large as possible to minimise desiccation during storage;
- Mineral soils should be transported and stored separately to reduce the risk of contamination of excavated peat; and

- The timing of excavation of peat should avoid periods of very wet weather and multiple handling of peat should be avoided to reduce the risk of peat losing its structural integrity.

5.3 Temporary Storage

Due to the programming of the works, temporary peat storage would be required as part of the Project where reinstatement/reuse is not immediately possible. Where required, proposed temporary storage areas are immediately adjacent or close to the area of excavation. Peat storage will only be required where reinstatement/reuse is not immediately possible, and all stored peat will be reinstated/reused within the Site by the end of the construction phase. Where temporary peat storage is required (e.g. for the temporary contractor's compound), in the worst case situation this would typically be for a number of years to allow completion of the works, although a construction phase programme is still to be developed to detail when reinstatement/reuse of the peat would be undertaken. This programme will be developed post consent with any timings to be provided as part of the Stage 2 and Stage 3 PMPs. To ensure that storage locations are suitable in terms of environment, construction practicality and safety, the precise location of temporary peat stockpiles will be determined at a Site level following consideration and assessment of suitable areas by the ECoW, geotechnical engineer and Contractor's temporary works engineer. The guiding principles below would be followed in relation to the peat storage:

- Where possible peat should be excavated, stored and reused as turves. The turves should be stored green side up to avoid drying out of the peat and encourage regrowth;
- Peat turves should be stored in wet conditions or irrigated to prevent desiccation (once dry, peat will not rewet);
- Stockpiling of peat should be in large volumes to minimise exposure to wind and sun but with due consideration for slope stability;
- Excavation and handling of peat can cause the internal structure of the peat to deteriorate. The peat can therefore be a greater hazard when temporarily stored with this loss of structure and strength requiring to be considered and monitored during temporary storage;
- Where minimal peat underlies the ground surface, the peat should be stripped back to the underlying superficial deposits or rock to allow stockpiling to be undertaken to a maximum of 1.0 m thick (unless otherwise agreed by the Geotechnical Engineer). Where peat is approved to be stored higher than 1.0 m this should not be stored greater than 2.0 m, as this can lead to stability issues and could damage the peat itself, and all peat material underlying the proposed storage area will require removal prior to the stockpile being formed to ensure sliding risk is controlled;
- Stores of non-turf (catotelm) peat should be bladed off to reduce the surface area and desiccation of the stored peat;
- Stockpiling of peat should be located away from any watercourses;
- Cut off ditches and suitable treatment systems should be considered and installed at temporary storage areas, to ensure any leachate or sediment from stored peat does not reach any watercourse;
- Where sustained snowfall and freezing conditions occur, peat excavation may be temporarily halted based on the advice and professional judgement of the ECoW and/or a suitably experienced geotechnical engineer. The decision to restart work would be based on the thawing condition of the site and general meteorological conditions;
- Monitor areas of peat/storage during period of wet weather, or during snow melt, to identify early signs of peat instability; and
- Temporary stockpiles should be inspected weekly. If non-compliance is noted, corrective actions must be taken.

5.4 Handling

A detailed storage and handling plan will be prepared by the Principal Contractor as part of the Stage 3 PMP. This document would include and highlight:

- Best estimate excavation volume at each infrastructure location (including peat volume split into acrotelm or 'turf' and catotelm);
- Careful handling is essential to retain any existing structure and integrity of the excavated materials and thereby maximise the potential for excavated material to be reused
- Volume to be stored locally and volume to be transferred directly on excavation to restoration areas elsewhere to minimise handling;
- During peat handling, efforts will be made to prevent unnecessary trafficking over peat;
- Appropriate scale plant will be used, double handling will be avoided (wherever possible), and a monitoring programme will be installed to ensure mixing of peat and mineral soil is avoided;
- Location and size of storage area relative to natural peat morphology and drainage features; and
- Irrigation requirements and methods to minimise desiccation of excavated peat during temporary storage.

These parameters will be determined by the Principal Contractor prior to construction.

5.5 Transport

Movement of turves should be kept to a minimum once excavated, and therefore it is preferable to transport peat planned for translocation and reinstatement to its destination at time of excavation.

If HGVs are used for transporting non-peat material and excavated peat, measures should be taken to minimise the risk of cross-contamination.

5.6 Reinstatement & Restoration of Disturbed Areas

As part of the Project, the current design considers all peat excavated as part of the works will be reused within the Project. All temporary works areas (e.g. access tracks, construction/contractor's compounds, working areas, etc.) would be fully reinstated to pre-construction levels as soon as possible once the temporary infrastructure is no longer needed. For the peat excavated as part of the permanent works, it is proposed this will be reused for verge and slope dressing as well as within peat restoration areas within the Site. Further detail on the peat reuse/restoration areas proposed as part of the design, including estimated volumes, is provided in **Section 6** of this PMP.

The Landscape Management proposed within the EA (refer to the Landscape and Habitat Management Plan (LHMP) within **Appendix F** of the EA) for the Project, identifies the peatland restoration areas where mass placement of peat is to be undertaken. The Landscape and Habitat Restoration Plan drawing contained within LHMP identifies designated areas within the Site where peatland restoration is proposed to be undertaken, with these noted to be to the south and west of the proposed substation platform. Note that the restoration areas identified by the LHMP are the areas where mass placement of peat is proposed. Further peatland restoration works in the form of drainage ditch and furrow blocking, through infilling with peat, to restore natural drainage conditions are also proposed throughout the main works area of the Site. All peatland restoration areas are proposed to be restored taking cognisance of Peatland Action techniques and best practice[35].

The following shall be considered when considering reinstatement and restoration of disturbed areas of peat:

- Undertake reinstatement/relocation and revegetation works as soon as possible;
- Where required, consider exclusion of livestock and deer from areas of site undergoing restoration;

[35] NatureScot (2024) Peatland Action, Technical Compendium, available: https://www.nature.scot/doc/peatland-action-technical-compendium [accessed December 2024]

- As far as is reasonably practicable, restoration should be carried out concurrently with construction rather than at its conclusion; and
- To ensure safe reuse, all peatland restoration works should be subject to assessment by a geotechnical specialist, ensuring that emplacement of peat will not increase the likelihood of peat instability.

The areas proposed for reuse and restoration are typically considered to be degraded peat, due to the forestry activities, and as such present an opportunity for restoration through peat reuse. The hydrological regime within each reuse area will require to be maintained or improved to ensure the groundwater level is sufficient to sustain the peat.

Final details on the proposed reuse / restoration areas will be provided within the Stage 2 (Detailed) PMP post-consent, following any further information becoming available (e.g. ground investigation) and on completion of the detailed design.

6 Site Based Excavation & Management Assessment

6.1 Estimated Peat Excavation

Based on the details of the Project, the total volume of peat to be excavated has been calculated and is summarised in **Table 6-1.**

The estimate also includes a breakdown of the acrotelmic and catotelmic peat quantities based on the assessed proportion of each material as discussed earlier in the **Section 3.7**.

Note that the excavated volumes relating to the Project have been provided by the Designer for the works and not calculated by AECOM. The volumes provided are noted to be approximate and will require refinement on further data becoming available. This further refinement will be taken into consideration within the Stage 2 PMP post consent/pre-construction.

Table 6-1 - Excavation Materials Management Plan

Description	Total Estimated Peat Volume (m^3)	Estimated Acrotelmic Peat Volume (m^3)	Estimated Catotelmic Peat Volume (m^3)
Permanent			
Substation Platform	76,239	31,493	44,746
Access Tracks	38,030	9,870	28,160
SUDS Basin	3,928	3,801	127
OHL – Tower Foundations	384	77	307
OHL – Access Tracks	900	150	750
Temporary			
Contractors / Construction Compound	23,871	-	-
Access Tracks	875	-	-
Aggregate Stockpile Area	4,095	-	-
OHL Permanent Tie–In – Access Tracks	200	-	-
OHL Diversion – Access Tracks	950	-	-
OHL Diversion – Tower Foundations	768	-	-
OHL Permanent Tie–In – Working Areas	22,200	-	-
OHL Diversion – Working Areas	16,000	-	-
OHL Tie-in – Removal of Existing Tower Foundations	16	-	-
Total	**188,456**	**45,391[#] (only accounts for permanent works)**	**74,090[#] (only accounts for permanent works)**

*** No bulking factors have been applied to the volumes**

[#] Volumes do not take into account temporary works peat volumes

6.2 Peat Reuse & Restoration

This section sets out measures to reuse peat, inclusive within peatland restoration areas, and the expected peat reuse volumes. Peat reuse and restoration is proposed within the Site, concentrated within the main works area as follows:

- Dressing of slopes and verges;
- Resoiling of SUDS Basin;
- Three specific peatland restoration areas proposed for peat upfill as shown on **Figure 1b** in **Appendix A Figures**; and
- Peatland restoration through reinstatement of drainage conditions (i.e. drainage ditch and furrow blocking) created during the forestry process to natural.

Note that all peat excavated as part of the temporary works identified would be fully reinstated to pre-construction levels as soon as possible once the temporary infrastructure is no longer needed. Therefore detailed text relating to peat volumes proposed for reinstatement within the temporary works are not presented within this subsection.

6.2.1 Slope & Verge Dressing

Acrotelmic peat excavated as part of the Project is proposed to be used in part in the dressing of exposed slopes and verges of earthworks. Resoiling along the proposed platform and new access track will be undertaken at 0.20 m thickness for slopes and 0.35 m thickness for verges. **Table 6-2** below presents the estimated acrotelm that can be reused in dressing activities on the permanent works.

Table 6-2 – Peat Resoiling Reuse

Area	Resoiling at 0.20m thickness	Resoiling at 0.35m thickness
Platform (m^2)	9,739	12,416
Access Track (m^2)	12,567	9,759
Totals (m^2)	**22,306**	**22,175**
Total Volumes Peat Reuse (m^3)	4,461	7,761
	12,222	

6.2.2 Resoiling of SUDS Basin

On completion of the excavation of the SUDS Basin to the required level, it is proposed that the majority of the peat excavated will be reused in resoiling the exposed subsoils. For the purposes of the resoiling only acrotelmic peat is considered for this reuse with 0.15 m thickness proposed to be placed on the slopes and bank of the basin and 0.30 m thickness proposed to be placed at the base of the pond. **Table 6-3** below presents the estimated acrotelm that can be reused in the resoiling activities for the proposed SUDS Basin.

Table 6-3 – Peat Resoiling of SUDS Basin

	Resoiling Volume (m^3)	Notes
Resoil of completed slopes	1,295	Resoil Area: 4,176 m^2 150 mm resoil [slopes at 1v:3hz]
Resoil to basin banks	321	Resoil Area: 2,138 m^2 150 mm resoil [slopes at 1v:3hz]
Resoil to basin base	1,370	Resoil Area: 4,567 m^2 300 mm resoil

Total Acrotelm Reuse	**2,986**	**-**

6.2.3 Peatland Restoration Areas

Three peatland restoration areas (West Restoration Areas, South Restoration Area 1 & South Restoration Area 2) are proposed as part of the Project as shown on Landscape and Habitat Restoration Plan contained within LHMP (**Appendix F** of the EA) and as indicated on **Figure 1b** within **Appendix A Figures**.

The restoration within the areas is proposed to be achieved through upfill on the existing peat with thickness of peat deposition on top of the existing peat proposed between 0.6 m and 0.8 m, as indicatively shown on Drawing "Proposed Typical Restoration Areas" within **Appendix B - Designers Peat Reuse/Restoration Areas** As shown on the drawing, permanent access tracks through the peatland restoration areas are proposed. These are to provide access to allow the deposition of the peat and will also act to provide geotechnical support for the deposited peat. At the extremities of the restoration areas the deposited peat is proposed to be graded and dressed to match the existing slope. At this stage the upfill restoration areas still require a geotechnical design and should therefore be considered indicative and preliminary subject to changes during the detailed design.

In addition to the restoration as highlighted above, within South Restoration Area 1 it is also proposed to carry out further restoration through depositing peat behind (north side) the earth mound, as shown on **Figure 1b** in **Appendix A Figures**, and referenced in Section 5.3.2, Appendix F – Landscape and Habitat Management Plan of the EA Report. It is estimated that the depth of peat upfill behind the earth mound would be 0.7 m. Note that the upfill of peat behind the earth mound is not already taken into consideration within the South Restoration Area 1 peat volumes presented in the table below. This is separate with the peat proposed to be deposited overlying existing peat and not overlying peat deposited as part of the South Restoration Area 1 works.

Estimated peat reuse volumes through depositing in the peat restoration areas is presented in **Table 6-4**.

Table 6-4 – Peat Reuse Volumes for Peat Restoration Areas

Area	Estimated Depth of Upfill (m)	Approximate Area (m^2)	Total Peat Re-use Volume (m^3)	Acrotelm Peat Re-use Volume (m^3)	Catotelm Peat Re-use Volume (m^3)
West Restoration Area	0.8	17,350	13,880	5,205	8,675
South Restoration Area 1	0.8	53,275	42,620	15,983	26,637
South Restoration Area 2	0.6	19,634	11,780	5,890	5,890
Behind Earth Mound	0.7	12,600	8,820	3,780	5,040
		Totals	**77,100**	**30,858**	**46,242**

6.2.4 Restoration of Drainage Conditions

The main works area of the Site has generally been subject to commercial forestry. This has resulted in the remains of ploughed furrows and drainages ditches being present across the Site. By blocking and infilling these furrows and drainage ditches the hydrological regime can be improved to support the recovery of the degraded peat currently present. It is proposed that peat generated as part of the Project can be used to block the furrows and drainage ditches in areas of the main works area that are outwith the proposed works locations (both temporary and permanent) and the peatland restoration areas.

At present, detailed surveys of the Site are not available which means quantifying the capacity of the furrows and drainage ditches is difficult. However, an estimate of the capacity has been carried out using available aerial imagery from Google Earth[30] to provide an indicative understanding on the approximate volumes of peat which can be reused.

Drainage Ditches:

A typical V-ditching bucket for the size of excavator presumed to have been used for the creation of the drainage ditches has a depth of 1.1 m, base width of 0.3 m and top width of 1.5 m. This produces a cross-sectional area of 0.99m^2.

As the extent of the drainage network within the main works area is currently not defined in detail, examination of aerial images available on Google Earth[30] has been undertaken to provide an estimate of the density of the ditch network within the main works area. Due to the surface coverage (i.e. forestry, vegetation and brash) across much of the main works area, the drainage ditches are only clearly visible within the northwest of the main works area, extending outwith the main works area to the northwest, either side of the existing access track. Using the drainage ditches visible within the study area it is estimated that there is approximately 7,015 m of ditch present within an area of approximately 10.92 ha. This gives an estimated drainage ditch density of 642 linear metres of ditch per hectare which is indicatively assumed to apply for the whole mina works area.

The total area of the main works area of the Site is approximately 68 ha, with the area where works are currently proposed as part of the Project being approximately 42 ha. This leaves approximately 26 ha available for infilling of drainage channels. Multiplying the area available for infilling drainage ditches (~26 ha), the estimated ditch density per hectare (~642 linear metres of ditch per hectare) and the estimated cross-sectional area of the assumed ditching bucket used (~0.99 m^2), gives an estimated volume of peat reuse within the drainage ditches in the main works area of 16,624m^3 (accounting for rounding in other calculations). This equates to 6,816m^3 of acrotelm reuse and 9,808m^3 of catotelm reuse.

Furrows:

A furrow creates a plough line whereby the peat arisings are pushed away from the ploughs double mouldboard to form ridges either side of the plough furrow. For the purposes of estimating the capacity of the peat furrows, based on experience from projects in forestry environments it has been assumed the void is approximately 0.75 m wide by 0.45 m deep, giving a cross-section area of approximately 0.34m^2.

As with the drainage ditches, the extent of the furrows present within the main works area is currently not defined in detail. Examination of aerial images available on Google Earth[30] has therefore been undertaken to provide an estimate of the density of furrows within the main works area. Due to the surface coverage (i.e. forestry, vegetation and brash) across much of the main works area, the furrows are only clearly visible within the northwestern corner of the main works area, extending outwith the Site boundary to the northwest. At this location the furrows are running in parallel within the drainage ditches present. Based on the study area, it is estimated there is approximately 2,905 m of furrows in an area of approximately 1.82 ha. This gives an estimated furrow density of 1,595 linear metres of furrow per hectare which is indicatively assumed to apply for the whole main works area.

It has been estimated that 22.86 ha of the main works is undisturbed land where no further works are proposed. As the whole main works would not contain furrows due to, for example, firebreaks,

track verges, etc. it is assumed only 80% of the undisturbed land would be available for furrow infilling. Multiplying the available area estimated for furrow infilling (22.86 ha), the reduction in area likely to have furrows (80%), the estimated furrow density per hectare (1,595 linear metres of furrow per hectare) and the estimated cross-sectional area of the assumed furrow (0.34 m^2), gives an estimated volume of peat reuse within the furrows of the main works area of 9,845 m^3 (accounting for rounding in other calculations). This equates to 6,563m^3 of acrotelm reuse and 3,282m^3 of catotelm reuse.

6.2.5 Peat Reuse Summary

Table 6-5 provides a summary of the peat volumes estimated to be able to be reused as part of the Project.

Table 6-5 – Summary Peat Reuse Volumes

Area	Total Peat Re-use Volume (m^3)	Acrotelm Peat Re-use Volume (m^3)	Catotelm Peat Re-use Volume (m^3)
Verge & Slope Dressing	12,222	12,222	0
Resoiling SUDS Basin	2,986	2,986	0
West Restoration Area	13,880	5,205	8,675
South Restoration Area 1	42,620	15,983	26,637
South Restoration Area 2	11,780	5,890	5,890
Behind Earth Mound	8,820	3,780	5,040
Drainage Ditches	16,624	6,816	9,808
Furrows	9,845	6,563	3,282
Totals	**118,778**	**59,445**	**59,333**

6.3 Peat Balance

The Stage 1 PMP estimates 188,456m^3 of peat will be generated by the construction activities of both the permanent and temporary works.

All peat excavated from temporary areas is anticipated to be completely reinstated as soon as possible on completion of the permanent infrastructure to which they are associated, when the temporary infrastructure is no longer required. As per **Table 6-1** this equates to a total volume of peat reuse in the temporary areas of 68,975m^3. This volume of peat will require temporary storage for a period of time until the temporary areas are no longer in use and can be restored.

In relation to the peat requiring permanent relocation, this volume is estimated as 119,481m^3 of which 45,391m^3 is estimated to be acrotelm and 74,090m^3 is estimated to be catotelm**.**

Table 6-6 below shows the peat balance for the Project based on the estimated excavated peat volumes requiring permanent relocation and the currently identified peat reuse/restoration areas.

Table 6-6 - Proposed Peat Balance

Area	Total Volume (m^3)	Acrotelm Volume (m^3)	Catotelm Volume (m^3)
Excavated	119,481	45,391	74,090
Identified Reuse	118,778	59,445	59,333

Required to be Reused	703	-14,054	14,757

As can be seen from the above table the peat balance for the Project indicates a very small peat surplus which could be placed on the peat restoration areas, with no significant impact. It is acknowledged that the peat balance currently shows a deficit of acrotelm and a surplus of catotelm, however, it is considered that the acrotelmic peat could be thinned (by placing the available acrotelm turves in pockets across the deposited catotelm) at certain strategic locations (e.g. for the furrow and drainage ditch blocking/infilling and/or around the edges of the peat restoration areas) where the availability of adjacent flora should encourage rapid recolonisation. This should make the excavated acrotelm spread further and therefore reduce the overall acrotelm deficit as well as reduce the surplus of catotelmic peat. The balance of the acrotelmic and catotelmic peat will be considered further as part of the Stage 2 PMP, post-consent, following design maturity and further investigation to better define the acrotelm / catotelm boundary.

7 Monitoring & Inspection

The construction phase of the Project would be supported by a geotechnical engineer and ECoW. There would be frequent, routine and regular inspections of peat in all stockpiles and temporary storage areas as part of the PMP audit process. Inspections would assess in situ peat physical conditions, integrity of containment and temporary drainage conditions, and they would seek to confirm that stockpile design and management was adequate to prevent erosion and peat slide. These inspections would take place weekly (at a minimum) during stockpile creation and storage.

Should any problems be observed during regular visual inspections of peat stockpiles, this would invoke implementation of an appropriate corrective action which would be recorded and monitored for effectiveness. Types of corrective actions would include, but would not necessarily be limited to:

- modification of temporary drainage;
- additional or modified bunding;
- incorporating of sediment fencing if required; and
- light re-grading to correct any areas of surface erosion, etc.

Regular, frequent inspections of peat conditions during construction and restoration phases of work would be carried out by the Geotechnical Engineer and ECoW as follows:

- Peat surface, peat profile and peat consistency conditions assessments would be carried out as part of ground investigations prior to the start of construction. This information would provide detailed information on the baseline conditions for each part of the infrastructure footprint.
- Restored peat conditions would be inspected immediately after restoration to ensure that the methods detailed in the PMP had been correctly implemented and to inform any corrective actions should they be required.
- The physical condition of peat would be retained as carefully as possible both at the peat storage and the peat restoration stages. This is particularly important for vegetation establishment.
- Within 3 months of completion of works in any area, the ECoW inspects the reinstatement efforts to determine satisfactory placement of sub-soil, topsoil and turves.
- The ECoW (or other qualified person) undertakes a final inspection of all reinstated areas at the end of the first growing season following completion of reinstatement.
- The ECoW should complete a daily diary of onsite activities which would be compiled within a monthly ECoW report which will include information relating to peat reinstatement, these reports will be available at the request of the Planning Authority.

8 Conclusions

This Stage 1 PMP follows the guiding principles and has been created in adherence with best practice guidance.

The PMP addresses the following peat related issues:

- The depth and condition of peat deposits across the main works areas of the Site;
- The volumes of peat that are predicted to be excavated and its suitability for reuse;
- The capacity to reuse the peat on-site for landscaping and peatland restoration;
- Peat handling and temporary storage; and
- Restoration and monitoring of peatland habitat.

The estimate of total peat volumes are based on a series of assumptions for the Project including measurement of the current design compared to existing ground level and using ground models developed through the ground investigation data available. Such parameters can still vary over small scale and therefore topographic changes in the substrate and bedrock profile, historical ground disturbance, etc. may impact the total accuracy of the volume calculations. The peat volumes provided will be refined as part of the detailed design, taking account of any further information obtained (e.g. further ground investigation data, more detailed topographic surveys, etc.) and as the geotechnical design develops to the fully mature construction design. The Applicant has committed to, as far as practicable, reusing the surplus peat generated from the construction of the Project within peatland restoration areas within the Site.

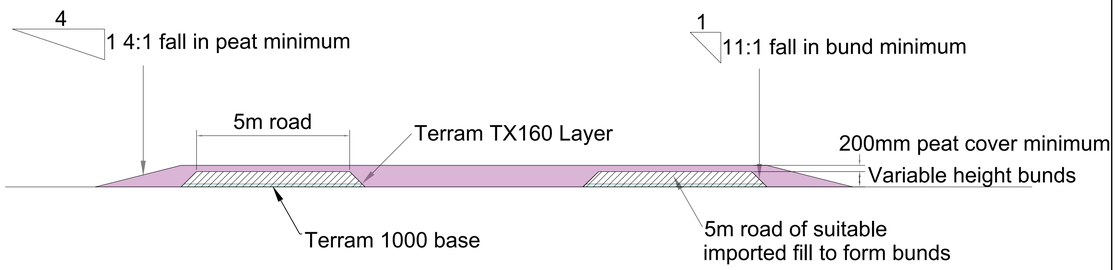
This PMP has identified peat reuse and restoration areas within the Project where all of the peat excavated from the main works area would be reused/restored. The PMP does not account for the volume of peat to be excavated and reused as part of the existing access track upgrades, however, the peat excavated for this is anticipated to be minimal when compared to that excavated as part of the works in the mains works area and it is considered this will be able to be reused along the existing access track itself (likely within verge restoration), details of which are to be developed. Details relating to the excavation and reuse of peat along the existing access track will be presented as part of the Stage 2 PMP.

It is expected that a Stage 2 PMP will be generated post consent to update the Stage 1 PMP with any new information obtained and based on the detailed construction design. The Stage 2 PMP will also provide further details on the reuse / restoration areas available. Following this a Stage 3 PMP will be developed by the Contractor for the construction phase which will be an update of the Stage 1 and 2 PMPs and which will be constantly updated and maintained throughout the site works.

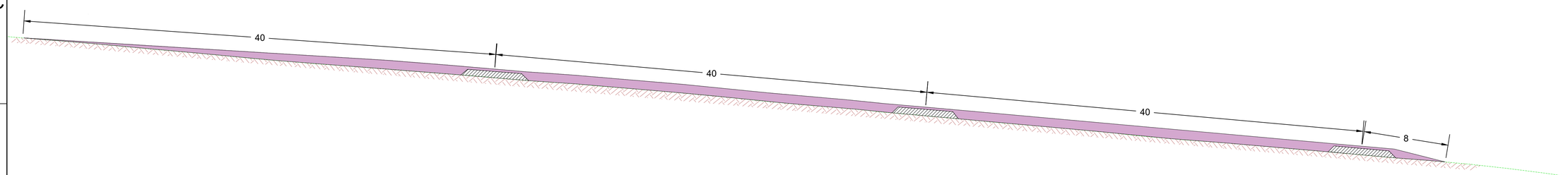
The implementation of a Stage 3 PMP would ensure a commitment from the Contractor to excavating, handling, storing, transporting and reinstating peat that follows good practice and ensures protection of peat throughout the construction and post construction phases. A series of good practice standards detailed within this PMP relating to excavation, handling and storage of peat will be utilised to maintain the structural integrity of excavated peat and its suitability for reuse.

Appendix A Figures

Appendix B - Designers Peat Reuse/Restoration Areas

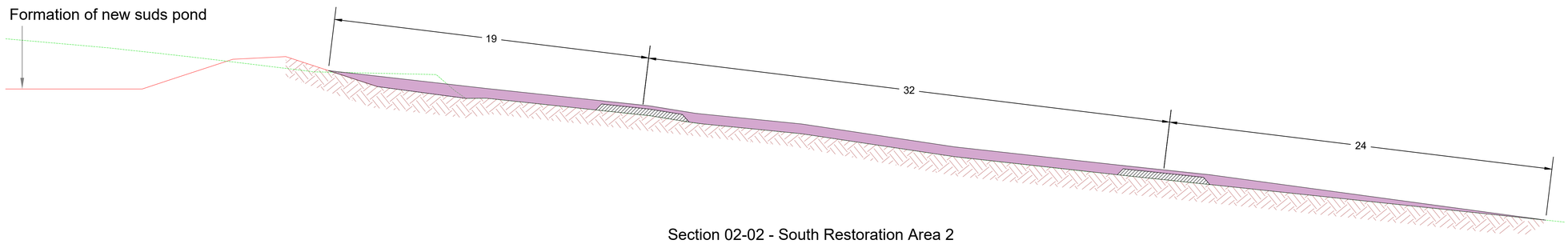


Typical detail
Scale 1:100



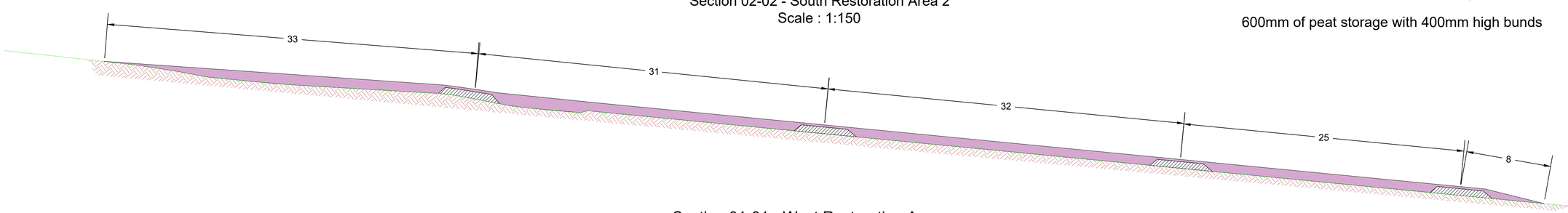
Section 03-03 - South Restoration Area 1
Scale : 1:200

800mm of peat storage with 600mm high bunds



Section 02-02 - South Restoration Area 2
Scale : 1:150

600mm of peat storage with 400mm high bunds



Section 01-01 - West Restoration Area
Scale : 1:250

800mm of peat storage with 600mm high bunds

DRAWN	CB	REMARKS: Updated to comments			
CHKD	MJ				
DESIGN	CB	SUITABILITY	S4	DATE	01/04/25
APPD	AJ	FOR ACCEPTANCE		REV	P01
DRAWN	CB	REMARKS: FIRST ISSUE			
CHKD	MJ				
DESIGN	CB	SUITABILITY	S4	DATE	13/12/24
APPD	AJ	FOR ACCEPTANCE		REV	P01

Scottish & Southern Electricity Networks

Balfour Beatty

PROJECT NAME:
ASTI - ECE

LOCATION: CAMBUSHINNIE 400kV S/S
SITE: -

TITLE:
CAMBUSHINNIE 400kV S/SX

PEAT MANAGEMENT PLAN
PROPOSED TYPICAL
RESTORATION AREAS

SIZE	SCALE	FORMAT	SHEET No.
A1	SCALE	ACAD	01 OF 01

SSEN DRAWING No. / BIM CODE
CMBS4-LT520-BB-ENV-XX-D-Z-0001

Appendix C Peat Investigation Technical Notes.

SSEN Cambushinnie 400kV Substation

Technical Note: Additional Peat Probe Survey

Client name	Project name	Project number
Scottish & Southern Electricity Networks (SSEN)	Cambushinnie 400kV Substation	60721943

Prepared by	Checked by	Verified by	Approved by
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Date: 15.03.2024	Date: 26.03.2024	Date: 26.03.2024	Date: 26.03.2024

Document No.	Revision	Date
-	0	26th March 2024

Introduction

Scottish & Southern Electricity Networks (SSEN) is proposing to upgrade the existing Beauly-Denny 275 kV circuit to 400 kV to mirror the ratings of the existing 400 kV circuit which runs along the route. SSEN have therefore proposed to construct a new 400kV substation in the proximity of the existing Braco West Substation. As part of the works a new overhead line link is also required to tie-in the new substation to the existing network and a new underground cable connection is required to tie the existing substation into the new. There is also a requirement for a new access track to lead into the new proposed substation, as well as the potential for upgrading the existing, if this does not meet the requirement for construction and operation of the new proposed substation.

AECOM have been commissioned to undertake the Environmental Impact Assessment Report (EIAR) for the new proposed substation, associated access track and the new overhead line link. Based on information provided by the Client and review of the BGS Geoindex[1], the site is known to be underlain by peat deposits which must be taken into consideration as part of the EIAR process. An initial phase of peat investigation was undertaken by Igne in late 2023 comprising of a 10m x 10m grid of peat probing covering two potential sites of the proposed substation and proposed overhead line. Since the probing was undertaken, the site of the proposed substation and access track into the new substation has been finalised with the probing undertaken identified as not covering the full footprint of the proposed works. As such, additional peat probing has been proposed by AECOM to cover the areas not previously investigated.

This technical note provides details of the additional peat probing undertaken by AECOM.

Site Description

The site is located on the eastern slopes of Feddal Hill approximately 4.0km west of Braco within Perth and Kinross. The site is within an area of commercial forestry comprising of mature and semi mature trees as well as areas of felled trees. The existing Braco West Substation (275kV) is present to the northeast with overhead electrical cables from the Beauly to Denny line leading into the existing substation. The overhead cables intersect the site from the northeast heading in a southwest direction.

[1] BGS (2024) Geoindex Onshore Viewer, available: https://mapapps2.bgs.ac.uk/geoindex/home.html [accessed March 2024]

Peat Probing Exercise

The additional peat probing was carried out by AECOM during March 2024 and was proposed to comprise of 847 probes on a 10m x 10m grid covering areas of the proposed works site which were not investigated as part of the initial peat probing by Igne in late 2023. The peat investigation can be split into two key areas: a small area northeast of the proposed substation and southwest of the existing substation covering areas of the proposed Contractors compound and a large area south and southwest of the proposed substation largely covering the proposed new access track and SuDs network. The smaller compound area comprised 178 probe locations whereas the larger area comprised 669 probe locations. See Insert 1 which shows these two areas.

Insert 1: Peat Probe Locations

During the site works, two areas were identified where trees were still present within the site. Within these areas it was not possible to safely undertake all of the probe hole locations. The two areas in question both relate to the larger probing area of the site. Figure 1 within Appendix A shows the areas where probes were cancelled and provides photographs of the condition. The first area indicatively shown by the red block in Figure 1, comprised mature trees which were severely windblown and had either collapsed or partially collapsed. This made the area inaccessible to the peat probing team. The second area indicatively shown by the purple block in Figure 1, comprised dense semi-mature trees where access could not be made easily and safely. Probing in these areas was undertaken where access could be made safely, however, 390 probes were cancelled due to the access and safety concerns. A further 15 probe locations were also cancelled due to the presence of overlying rock fill or gravel track. The peat probe result table in Appendix B provides the results of the probing exercise and where not undertaken, provides reasoning for this.

In total 442 out of the 847 (52%) probe hole locations were completed. Within the small area to the northeast of the proposed substation peat depths ranged between 0.1m and 0.85m with an average depth of 0.35m. Within the large area to the southwest of the proposed substation peat depths ranged between 0.1m and 3.7m with an average depth of 0.96m. Typically the peat depths identified as part of the additional probing agree with the probing results from the original probing exercise with the majority of the probes recording depths <1.0m. However, deeper depths were recorded locally, all to the southwest of the proposed substation, ranging from 1.0m to 3.7m.

Figure 2 in Appendix A shows the locations of all probing undertaken across the site (i.e. inclusive of original and additional probing), as well as providing details on the depths of peat estimated for each probe location.

Appendix A – Figures

Scottish & Southern Electricity Networks

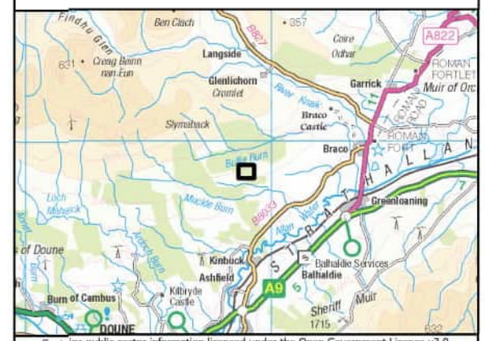
Legend

Project Layout

- Red Line Boundary
- Platform Earthworks Extent
- Contractors Compound
- Access Road Earthworks Extent
- Access Road
- Drainage
- Substation Layout

Peat Probes

- Additional Peat Probe Location



Project No: LT000520

Project: Cambushinnie 400kV Substation

Title:
Peat Probe Locations

Drawn by: JBARR Date: 27/02/2024

Drawing: Figure 1

Scale @ A3: 1:2,000

0 12.5 25 50 75 100 125 m

Scottish & Southern Electricity Networks

TRANSMISSION

09

09

79

ETL

N

Scale @ A3: 1:4,000

0 25 50 100 150 200 250 m

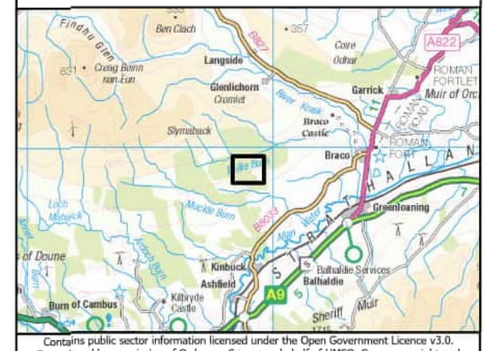
Legend

Project Layout

- Red Line Boundary
- Platform Earthworks Extent
- Contractors Compound
- Access Road Earthworks Extent
- Access Road
- Drainage
- Substation Layout

Peat Probe Depth (m)

- 0.00 - 0.50
- 0.51 - 1.00
- 1.01 - 1.50
- 1.51 - 2.00
- 2.01 - 2.50
- 2.51 - 3.00
- 3.01 - 3.50
- 3.51 - 4.00
- 4.01 - 5.00
- 5.01 +
- Unable to Survey



Project No: LT000520

Project: Cambushinnie 400kV Substation

Title:
Peat Probe Locations and Depths

Drawn by: JBARR Date: 26/03/2024

Drawing: Figure 2

Appendix B – Additional Peat Probe Results

SSEN Cambushinnie 400kV Substation
Addtional Peat Probe Results

Probe ID	Eastings	Northings	Location	Depth (m bgl)	Comments
PP001	279443	709262	Additional Probe	0.2	
PP002	279451	709268	Additional Probe	0.4	
PP003	279400	709219	Additional Probe	0.65	
PP004	279408	709225	Additional Probe	0.3	
PP005	279416	709230	Additional Probe	0.2	
PP006	279424	709236	Additional Probe	0.25	
PP007	279432	709242	Additional Probe	0.15	
PP008	279440	709248	Additional Probe	0.2	
PP009	279448	709254	Additional Probe	0.2	
PP010	279456	709260	Additional Probe	0.45	
PP011	279358	709175	Additional Probe	0.15	
PP012	279366	709181	Additional Probe	0.1	
PP013	279375	709187	Additional Probe	0.3	
PP014	279383	709193	Additional Probe	0.5	
PP015	279391	709199	Additional Probe	0.25	
PP016	279399	709205	Additional Probe	0.15	
PP017	279407	709211	Additional Probe	0.15	
PP018	279415	709217	Additional Probe	0.2	
PP019	279423	709223	Additional Probe	0.45	
PP020	279431	709229	Additional Probe	0.25	
PP021	279438	709234	Additional Probe	0.21	
PP022	279446	709240	Additional Probe	0.5	
PP023	279454	709246	Additional Probe	0.2	
PP024	279462	709252	Additional Probe	0	
PP025	279331	709144	Additional Probe	0.85	
PP026	279339	709150	Additional Probe	0.4	
PP027	279348	709156	Additional Probe	0.3	
PP028	279356	709162	Additional Probe	0.35	
PP029	279364	709168	Additional Probe	0.2	
PP030	279372	709174	Additional Probe	0	
PP031	279380	709180	Additional Probe	0.4	clean
PP032	279388	709186	Additional Probe	0.15	
PP033	279396	709192	Additional Probe	0.35	
PP034	279404	709198	Additional Probe	0	
PP035	279412	709204	Additional Probe	0.3	
PP036	279420	709210	Additional Probe	0.1	clean
PP037	279428	709216	Additional Probe	0.75	
PP038	279436	709222	Additional Probe	0.4	
PP039	279444	709227	Additional Probe	0.4	
PP040	279452	709233	Additional Probe	0.25	
PP041	279460	709239	Additional Probe	0.3	
PP042	279468	709245	Additional Probe	0.7	clean
PP043	279329	709130	Additional Probe	0.35	
PP044	279337	709136	Additional Probe	0.55	
PP045	279346	709142	Additional Probe	0.35	
PP046	279354	709148	Additional Probe	0.45	
PP047	279362	709154	Additional Probe	0.7	
PP048	279370	709160	Additional Probe	0.5	
PP049	279378	709166	Additional Probe	0.45	
PP050	279386	709172	Additional Probe	0.3	
PP051	279394	709178	Additional Probe	0.2	
PP052	279402	709184	Additional Probe	0.2	
PP053	279410	709190	Additional Probe	0.25	
PP054	279418	709196	Additional Probe	0.35	
PP055	279427	709202	Additional Probe	0.25	
PP056	279435	709208	Additional Probe	0.3	
PP057	279443	709214	Additional Probe	0.25	
PP058	279451	709220	Additional Probe	0.55	
PP059	279459	709226	Additional Probe	0.3	
PP060	279467	709232	Additional Probe	0.4	
PP061	279474	709236	Additional Probe	0.4	
PP062	279335	709122	Additional Probe	0.55	
PP063	279343	709128	Additional Probe	0.3	
PP064	279352	709134	Additional Probe	0.45	
PP065	279360	709140	Additional Probe	0.25	
PP066	279368	709146	Additional Probe	0.65	

PP067	279376	709152	Additional Probe	0.45	
PP068	279384	709158	Additional Probe	0.45	
PP069	279392	709164	Additional Probe	0.25	clean
PP070	279400	709170	Additional Probe	0.25	
PP071	279408	709176	Additional Probe	0.35	clean
PP072	279416	709182	Additional Probe	0.25	clean
PP073	279424	709188	Additional Probe	0.4	
PP074	279433	709194	Additional Probe	0.4	
PP075	279441	709200	Additional Probe	0.4	
PP076	279449	709206	Additional Probe	0.35	
PP077	279457	709212	Additional Probe	0.35	
PP078	279465	709218	Additional Probe	0.4	
PP079	279473	709224	Additional Probe	0.4	
PP080	279479	709229	Additional Probe	0.25	
PP081	279341	709114	Additional Probe	0.35	
PP082	279349	709120	Additional Probe	0.55	
PP083	279358	709126	Additional Probe	0.5	
PP084	279366	709132	Additional Probe	0.5	
PP085	279374	709138	Additional Probe	0.45	
PP086	279382	709144	Additional Probe	0.35	
PP087	279390	709150	Additional Probe	0.65	
PP088	279398	709156	Additional Probe	0.4	
PP089	279406	709162	Additional Probe	0.3	
PP090	279414	709168	Additional Probe	0.25	clean
PP091	279422	709174	Additional Probe	0.1	clean
PP092	279430	709180	Additional Probe	0.4	
PP093	279439	709186	Additional Probe	0.35	
PP094	279447	709192	Additional Probe	0.5	
PP095	279455	709198	Additional Probe	0.3	
PP096	279463	709204	Additional Probe	0.7	clean
PP097	279471	709210	Additional Probe	0.35	
PP098	279479	709216	Additional Probe	0.15	
PP099	279485	709220	Additional Probe	0.6	
PP100	279346	709106	Additional Probe	0.4	
PP101	279354	709112	Additional Probe	0.5	
PP102	279363	709118	Additional Probe	0.5	
PP103	279371	709124	Additional Probe	0.45	
PP104	279379	709130	Additional Probe	0.35	
PP105	279387	709136	Additional Probe	0.3	
PP106	279395	709142	Additional Probe	0.5	
PP107	279403	709148	Additional Probe	0.45	
PP108	279411	709154	Additional Probe	0.4	
PP109	279419	709160	Additional Probe	0.5	
PP110	279427	709166	Additional Probe	0.35	
PP111	279435	709172	Additional Probe	0.4	clean
PP112	279444	709178	Additional Probe	0.35	
PP113	279452	709184	Additional Probe	0.45	
PP114	279460	709190	Additional Probe	0.45	
PP115	279468	709196	Additional Probe	0.35	
PP116	279476	709202	Additional Probe	0.45	
PP117	279484	709208	Additional Probe	0.5	
PP118	279491	709213	Additional Probe	0.55	
PP119	279345	709092	Additional Probe	0.45	
PP120	279353	709097	Additional Probe	0.5	
PP121	279361	709103	Additional Probe	0.4	
PP122	279370	709109	Additional Probe	0.7	
PP123	279378	709115	Additional Probe	0.5	
PP124	279386	709121	Additional Probe	0.4	
PP125	279394	709127	Additional Probe	0.4	
PP126	279402	709133	Additional Probe	0.55	
PP127	279410	709139	Additional Probe	0.45	
PP128	279418	709145	Additional Probe	0.25	
PP129	279426	709151	Additional Probe	0.3	
PP130	279434	709157	Additional Probe	0.5	
PP131	279442	709163	Additional Probe	0.3	
PP132	279451	709169	Additional Probe	0.45	
PP133	279459	709175	Additional Probe	0.4	

PP134	279467	709181	Additional Probe	0.45	
PP135	279475	709187	Additional Probe	0.4	
PP136	279483	709193	Additional Probe	0.3	
PP137	279491	709199	Additional Probe	0.45	
PP138	279497	709204	Additional Probe	0.55	clean
PP139	279351	709084	Additional Probe	0.25	
PP140	279359	709089	Additional Probe	0.65	
PP141	279367	709095	Additional Probe	0.6	
PP142	279376	709101	Additional Probe	0.25	
PP143	279384	709107	Additional Probe	0.35	
PP144	279392	709113	Additional Probe	0.4	
PP145	279400	709119	Additional Probe	0.35	
PP146	279408	709125	Additional Probe	0.35	
PP147	279416	709131	Additional Probe	0.6	
PP148	279424	709137	Additional Probe	0.48	
PP149	279432	709143	Additional Probe	0.15	clean
PP150	279440	709149	Additional Probe	0.15	clean
PP151	279448	709155	Additional Probe	0.25	clean
PP152	279457	709161	Additional Probe	0.25	
PP153	279465	709167	Additional Probe	0.1	clean
PP154	279473	709173	Additional Probe	0.2	
PP155	279481	709179	Additional Probe	0.25	
PP156	279489	709185	Additional Probe	0.2	
PP157	279497	709191	Additional Probe	0.25	
PP158	279503	709196	Additional Probe	0.15	
PP159	279357	709076	Additional Probe	0.25	
PP160	279364	709081	Additional Probe	0.2	
PP161	279372	709087	Additional Probe	0.55	
PP162	279381	709093	Additional Probe	0.45	
PP163	279389	709099	Additional Probe	0.4	
PP164	279397	709105	Additional Probe	0.4	
PP165	279405	709111	Additional Probe	0.4	
PP166	279413	709117	Additional Probe	0.25	
PP167	279421	709123	Additional Probe	0.2	clean
PP168	279429	709129	Additional Probe	0.15	
PP169	279437	709135	Additional Probe	0.2	
PP170	279445	709141	Additional Probe	0.1	
PP171	279453	709147	Additional Probe	0.25	
PP172	279462	709153	Additional Probe	0.25	
PP173	279470	709159	Additional Probe	0.2	
PP174	279478	709165	Additional Probe	0.2	
PP175	279486	709171	Additional Probe	0.25	
PP176	279494	709177	Additional Probe	0.5	
PP177	279502	709183	Additional Probe	0.15	
PP178	279509	709188	Additional Probe	0.15	
PP179	278719	708882	Additional Probe	0	
PP180	278727	708888	Additional Probe	0.95	
PP181	278717	708868	Additional Probe	0.7	
PP182	278725	708874	Additional Probe	1.1	
PP183	278733	708880	Additional Probe	0.65	
PP184	278741	708886	Additional Probe	0.7	
PP185	278714	708854	Additional Probe	1.1	
PP186	278722	708860	Additional Probe	1.4	
PP187	278730	708866	Additional Probe	1.35	
PP188	278739	708872	Additional Probe	0.1	clean
PP189	278747	708878	Additional Probe	2.1	
PP190	278755	708883	Additional Probe	2.1	
PP191	278703	708833	Additional Probe	0.85	clean
PP192	278711	708839	Additional Probe	0.9	
PP193	278719	708845	Additional Probe	0.4	
PP194	278727	708851	Additional Probe	0.85	
PP195	278736	708857	Additional Probe	1	
PP196	278744	708863	Additional Probe	1.5	
PP197	278752	708869	Additional Probe	1	
PP198	278760	708875	Additional Probe	2.5	
PP199	278701	708819	Additional Probe	1.05	
PP200	278709	708825	Additional Probe	0.55	

PP201	278717	708831	Additional Probe	0.55	
PP202	278725	708837	Additional Probe	0	rock fill
PP203	278733	708843	Additional Probe	0.5	
PP204	278741	708849	Additional Probe	1	
PP205	278749	708855	Additional Probe	1.4	
PP206	278758	708861	Additional Probe	1.8	
PP207	278766	708867	Additional Probe	2.3	
PP208	278774	708872	Additional Probe	1.9	
PP209	278691	708799	Additional Probe	2.1	
PP210	278699	708805	Additional Probe	3.7	
PP211	278707	708811	Additional Probe	2.1	
PP212	278715	708817	Additional Probe	2.2	
PP213	278723	708823	Additional Probe	0.3	
PP214	278731	708829	Additional Probe	0	rock fill
PP215	278739	708835	Additional Probe	0	rock fill
PP216	278747	708841	Additional Probe	0	rock fill
PP217	278755	708847	Additional Probe	0	rock fill
PP218	278763	708853	Additional Probe	0	rock fill
PP219	278772	708858	Additional Probe	0	rock fill
PP220	278780	708864	Additional Probe	0	rock fill
PP221	278788	708870	Additional Probe	0	rock fill
PP222	278689	708785	Additional Probe	0.45	
PP223	278697	708791	Additional Probe	1.1	
PP224	278705	708797	Additional Probe	1.75	
PP225	278713	708803	Additional Probe	3.1	
PP226	278721	708809	Additional Probe	3.1	
PP227	278729	708815	Additional Probe	0	rock fill
PP228	278737	708821	Additional Probe	0.55	
PP229	278745	708827	Additional Probe	0.8	
PP230	278753	708833	Additional Probe	2	
PP231	278761	708839	Additional Probe	1.2	
PP232	278769	708845	Additional Probe	2.5	
PP233	278777	708850	Additional Probe	2.1	
PP234	278786	708856	Additional Probe	2	
PP235	278794	708862	Additional Probe	1.9	
PP236	278686	708771	Additional Probe	0.5	
PP237	278695	708777	Additional Probe	0.3	
PP238	278703	708783	Additional Probe	0.5	
PP239	278711	708789	Additional Probe	0.45	
PP240	278719	708795	Additional Probe	1.75	
PP241	278727	708801	Additional Probe	0	rock fill
PP242	278735	708807	Additional Probe	2.2	
PP243	278743	708813	Additional Probe	1.1	
PP244	278751	708819	Additional Probe	0.35	
PP245	278759	708825	Additional Probe	0.8	
PP246	278767	708831	Additional Probe	1.05	
PP247	278775	708836	Additional Probe	1.9	
PP248	278783	708842	Additional Probe	0.95	
PP249	278791	708848	Additional Probe	1.8	
PP250	278799	708854	Additional Probe	1.3	
PP251	278808	708860	Additional Probe	1.95	
PP252	278692	708763	Additional Probe	0.2	clean
PP253	278700	708769	Additional Probe	0	rock fill
PP254	278709	708775	Additional Probe	0.4	
PP255	278717	708781	Additional Probe	0.45	
PP256	278725	708787	Additional Probe	0.6	
PP257	278733	708793	Additional Probe	2.7	
PP258	278741	708799	Additional Probe	2	
PP259	278749	708805	Additional Probe	3	
PP260	278757	708811	Additional Probe	0.7	
PP261	278765	708817	Additional Probe	0.1	clean
PP262	278773	708822	Additional Probe	0.9	
PP263	278781	708828	Additional Probe	1.6	
PP264	278789	708834	Additional Probe	1.95	
PP265	278797	708840	Additional Probe	1.45	
PP266	278805	708846	Additional Probe	1.75	
PP267	278813	708852	Additional Probe	1.5	

PP268	278822	708858	Additional Probe	1.85	
PP269	278698	708755	Additional Probe	0.1	clean
PP270	278706	708761	Additional Probe	0	rock fill
PP271	278714	708767	Additional Probe	0.1	clean
PP272	278723	708773	Additional Probe	0.2	clean
PP273	278731	708779	Additional Probe	0.5	clean
PP274	278739	708785	Additional Probe	1	
PP275	278747	708790	Additional Probe	2.2	
PP276	278755	708797	Additional Probe	3	
PP277	278763	708803	Additional Probe	0.2	
PP278	278771	708808	Additional Probe	0.5	
PP279	278779	708814	Additional Probe	0	
PP280	278787	708820	Additional Probe	0.95	
PP281	278795	708826	Additional Probe	1.8	
PP282	278803	708832	Additional Probe	1.5	
PP283	278811	708838	Additional Probe	1	
PP284	278819	708844	Additional Probe	0.9	
PP285	278827	708850	Additional Probe	0.85	
PP286	278704	708747	Additional Probe	0	clean
PP287	278712	708753	Additional Probe	-	fallen trees preventing safe access
PP288	278720	708759	Additional Probe	-	fallen trees preventing safe access
PP289	278728	708765	Additional Probe	0.4	
PP290	278736	708771	Additional Probe	0.25	clean
PP291	278745	708776	Additional Probe	0.1	clean
PP292	278753	708782	Additional Probe	0.2	clean
PP293	278761	708789	Additional Probe	1.95	
PP294	278769	708795	Additional Probe	2.1	
PP295	278777	708800	Additional Probe	0.25	
PP296	278785	708806	Additional Probe	0.4	
PP297	278793	708812	Additional Probe	0.5	
PP298	278801	708818	Additional Probe	0.75	clean - mossy
PP299	278809	708824	Additional Probe	1.2	
PP300	278817	708830	Additional Probe	2	
PP301	278825	708836	Additional Probe	0.7	
PP302	278833	708842	Additional Probe	0.9	
PP303	278841	708848	Additional Probe	1.1	
PP304	278718	708745	Additional Probe	1	
PP305	278726	708751	Additional Probe	0	clean
PP306	278734	708757	Additional Probe	0.45	
PP307	278742	708763	Additional Probe	0.5	
PP308	278750	708768	Additional Probe	0.2	clean
PP309	278759	708774	Additional Probe	0.4	
PP310	278767	708781	Additional Probe	1.1	
PP311	278775	708786	Additional Probe	1.35	
PP312	278783	708792	Additional Probe	2.2	
PP313	278791	708798	Additional Probe	2.1	
PP314	278799	708804	Additional Probe	2.1	
PP315	278807	708810	Additional Probe	0.5	
PP316	278815	708816	Additional Probe	0.25	clean
PP317	278823	708822	Additional Probe	1.1	
PP318	278831	708828	Additional Probe	0.9	
PP319	278839	708834	Additional Probe	1	
PP320	278847	708840	Additional Probe	0.8	
PP321	278855	708846	Additional Probe	0.9	
PP322	278724	708737	Additional Probe	0.4	clean
PP323	278732	708743	Additional Probe	1.5	
PP324	278740	708749	Additional Probe	0.3	
PP325	278748	708754	Additional Probe	0.5	4m N - fallen tree
PP326	278756	708760	Additional Probe	0.5	
PP327	278764	708766	Additional Probe	0.15	clean
PP328	278773	708772	Additional Probe	0.7	
PP329	278781	708778	Additional Probe	0.6	
PP330	278789	708784	Additional Probe	0.85	
PP331	278797	708790	Additional Probe	2.05	
PP332	278805	708796	Additional Probe	2.5	
PP333	278813	708802	Additional Probe	2.3	
PP334	278821	708808	Additional Probe	0.7	

PP335	278829	708814	Additional Probe	0.65	
PP336	278837	708820	Additional Probe	0.4	
PP337	278845	708826	Additional Probe	0.55	
PP338	278853	708832	Additional Probe	0.5	
PP339	278861	708837	Additional Probe	1	
PP340	278730	708729	Additional Probe	0.9	8m W
PP341	278738	708735	Additional Probe	-	fallen trees preventing safe access
PP342	278746	708740	Additional Probe	-	fallen trees preventing safe access
PP343	278754	708746	Additional Probe	0.4	5m NW
PP344	278762	708752	Additional Probe	0.4	clean
PP345	278770	708758	Additional Probe	-	fallen trees preventing safe access
PP346	278778	708764	Additional Probe	0.2	clean
PP347	278787	708770	Additional Probe	0.4	
PP348	278795	708776	Additional Probe	0.35	
PP349	278803	708782	Additional Probe	1.6	
PP350	278811	708788	Additional Probe	1.7	
PP351	278819	708794	Additional Probe	2.7	
PP352	278827	708800	Additional Probe	2.65	
PP353	278835	708806	Additional Probe	0.55	
PP354	278843	708812	Additional Probe	0.2	
PP355	278851	708818	Additional Probe	0.15	clean
PP356	278859	708823	Additional Probe	0.9	
PP357	278867	708829	Additional Probe	0.65	
PP358	278875	708835	Additional Probe	0.65	
PP359	278736	708721	Additional Probe	1.8	
PP360	278744	708726	Additional Probe	0.4	
PP361	278752	708732	Additional Probe	-	fallen trees preventing safe access
PP362	278760	708738	Additional Probe	-	fallen trees preventing safe access
PP363	278768	708744	Additional Probe	-	fallen trees preventing safe access
PP364	278776	708750	Additional Probe	-	fallen trees preventing safe access
PP365	278784	708756	Additional Probe	-	fallen trees preventing safe access
PP366	278792	708762	Additional Probe	-	fallen trees preventing safe access
PP367	278800	708768	Additional Probe	0.15	
PP368	278809	708774	Additional Probe	0.4	
PP369	278817	708780	Additional Probe	0.2	
PP370	278825	708786	Additional Probe	1.1	
PP371	278833	708792	Additional Probe	2.5	
PP372	278841	708798	Additional Probe	2.4	
PP373	278849	708804	Additional Probe	2.95	
PP374	278857	708809	Additional Probe	1	
PP375	278865	708815	Additional Probe	0.6	
PP376	278873	708821	Additional Probe	0.5	
PP377	278881	708827	Additional Probe	0.4	clean
PP378	278889	708833	Additional Probe	0.7	
PP379	278742	708713	Additional Probe	1.5	
PP380	278750	708718	Additional Probe	1.2	
PP381	278758	708724	Additional Probe	-	fallen trees preventing safe access
PP382	278766	708730	Additional Probe	-	fallen trees preventing safe access
PP383	278774	708736	Additional Probe	-	fallen trees preventing safe access
PP384	278782	708742	Additional Probe	-	fallen trees preventing safe access
PP385	278790	708748	Additional Probe	-	fallen trees preventing safe access
PP386	278799	708754	Additional Probe	-	fallen trees preventing safe access
PP387	278807	708760	Additional Probe	-	fallen trees preventing safe access
PP388	278815	708766	Additional Probe	-	fallen trees preventing safe access
PP389	278823	708772	Additional Probe	0.4	
PP390	278831	708778	Additional Probe	0.15	clean
PP391	278839	708783	Additional Probe	0.4	clean
PP392	278847	708789	Additional Probe	0.3	5m SE clean
PP393	278855	708795	Additional Probe	0.5	
PP394	278863	708801	Additional Probe	2.6	
PP395	278871	708807	Additional Probe	2.1	
PP396	278879	708813	Additional Probe	1.25	
PP397	278887	708819	Additional Probe	0.8	
PP398	278895	708825	Additional Probe	0.2	Topsoil
PP399	278748	708704	Additional Probe	0.95	
PP400	278756	708710	Additional Probe	1.1	
PP401	278764	708716	Additional Probe	-	fallen trees preventing safe access

PP402	278772	708722	Additional Probe	-	fallen trees preventing safe access
PP403	278780	708728	Additional Probe	-	fallen trees preventing safe access
PP404	278788	708734	Additional Probe	-	fallen trees preventing safe access
PP405	278796	708740	Additional Probe	-	fallen trees preventing safe access
PP406	278804	708746	Additional Probe	-	fallen trees preventing safe access
PP407	278812	708752	Additional Probe	-	fallen trees preventing safe access
PP408	278821	708758	Additional Probe	-	fallen trees preventing safe access
PP409	278829	708764	Additional Probe	-	fallen trees preventing safe access
PP410	278837	708769	Additional Probe	-	fallen trees preventing safe access
PP411	278845	708775	Additional Probe	-	fallen trees preventing safe access
PP412	278853	708781	Additional Probe	-	fallen trees preventing safe access
PP413	278861	708787	Additional Probe	-	fallen trees preventing safe access
PP414	278869	708793	Additional Probe	0.3	
PP415	278877	708799	Additional Probe	1.7	
PP416	278885	708805	Additional Probe	2.3	
PP417	278893	708811	Additional Probe	1.9	
PP418	278901	708817	Additional Probe	0.55	
PP419	278754	708697	Additional Probe	0.85	
PP420	278762	708703	Additional Probe	0.8	
PP421	278770	708708	Additional Probe	-	fallen trees preventing safe access
PP422	278778	708714	Additional Probe	-	fallen trees preventing safe access
PP423	278786	708720	Additional Probe	-	fallen trees preventing safe access
PP424	278794	708726	Additional Probe	-	fallen trees preventing safe access
PP425	278802	708732	Additional Probe	-	fallen trees preventing safe access
PP426	278810	708738	Additional Probe	-	fallen trees preventing safe access
PP427	278819	708744	Additional Probe	-	fallen trees preventing safe access
PP428	278827	708750	Additional Probe	-	fallen trees preventing safe access
PP429	278835	708756	Additional Probe	-	fallen trees preventing safe access
PP430	278843	708762	Additional Probe	-	fallen trees preventing safe access
PP431	278851	708768	Additional Probe	-	fallen trees preventing safe access
PP432	278859	708773	Additional Probe	-	fallen trees preventing safe access
PP433	278867	708779	Additional Probe	-	fallen trees preventing safe access
PP434	278875	708785	Additional Probe	-	fallen trees preventing safe access
PP435	278883	708791	Additional Probe	0.2	clean
PP436	278891	708797	Additional Probe	0.55	
PP437	278899	708803	Additional Probe	2.9	
PP438	278907	708809	Additional Probe	1.95	
PP439	278915	708815	Additional Probe	0.4	
PP440	278760	708689	Additional Probe	0.65	
PP441	278768	708694	Additional Probe	0.4	
PP442	278776	708700	Additional Probe	-	fallen trees preventing safe access
PP443	278784	708706	Additional Probe	-	fallen trees preventing safe access
PP444	278792	708712	Additional Probe	-	fallen trees preventing safe access
PP445	278800	708718	Additional Probe	-	fallen trees preventing safe access
PP446	278808	708724	Additional Probe	-	fallen trees preventing safe access
PP447	278816	708730	Additional Probe	-	fallen trees preventing safe access
PP448	278824	708736	Additional Probe	-	fallen trees preventing safe access
PP449	278832	708742	Additional Probe	-	fallen trees preventing safe access
PP450	278841	708748	Additional Probe	-	fallen trees preventing safe access
PP451	278849	708754	Additional Probe	-	fallen trees preventing safe access
PP452	278857	708759	Additional Probe	-	fallen trees preventing safe access
PP453	278865	708765	Additional Probe	-	fallen trees preventing safe access
PP454	278873	708771	Additional Probe	-	fallen trees preventing safe access
PP455	278881	708777	Additional Probe	-	fallen trees preventing safe access
PP456	278889	708783	Additional Probe	-	fallen trees preventing safe access
PP457	278897	708789	Additional Probe	0.4	
PP458	278905	708795	Additional Probe	0.95	
PP459	278913	708801	Additional Probe	3	
PP460	278921	708807	Additional Probe	1.9	
PP461	278766	708681	Additional Probe	0.8	
PP462	278774	708686	Additional Probe	0.1	Topsoil
PP463	278782	708692	Additional Probe	-	fallen trees preventing safe access
PP464	278790	708698	Additional Probe	-	fallen trees preventing safe access
PP465	278798	708704	Additional Probe	-	fallen trees preventing safe access
PP466	278806	708710	Additional Probe	-	fallen trees preventing safe access
PP467	278814	708716	Additional Probe	-	fallen trees preventing safe access
PP468	278822	708722	Additional Probe	-	fallen trees preventing safe access

PP469	278830	708728	Additional Probe	-	fallen trees preventing safe access
PP470	278838	708734	Additional Probe	-	fallen trees preventing safe access
PP471	278846	708740	Additional Probe	-	fallen trees preventing safe access
PP472	278855	708745	Additional Probe	-	fallen trees preventing safe access
PP473	278863	708751	Additional Probe	-	fallen trees preventing safe access
PP474	278871	708757	Additional Probe	-	fallen trees preventing safe access
PP475	278879	708763	Additional Probe	-	fallen trees preventing safe access
PP476	278887	708769	Additional Probe	-	fallen trees preventing safe access
PP477	278895	708775	Additional Probe	-	fallen trees preventing safe access
PP478	278903	708781	Additional Probe	-	fallen trees preventing safe access
PP479	278911	708787	Additional Probe	0.8	
PP480	278919	708793	Additional Probe	3.1	
PP481	278927	708799	Additional Probe	2.5	
PP482	278772	708672	Additional Probe	0.35	mud/topsoil
PP483	278780	708678	Additional Probe	0	
PP484	278788	708684	Additional Probe	-	fallen trees preventing safe access
PP485	278796	708690	Additional Probe	-	fallen trees preventing safe access
PP486	278804	708696	Additional Probe	-	fallen trees preventing safe access
PP487	278812	708702	Additional Probe	-	fallen trees preventing safe access
PP488	278820	708708	Additional Probe	-	fallen trees preventing safe access
PP489	278828	708714	Additional Probe	-	fallen trees preventing safe access
PP490	278836	708720	Additional Probe	-	fallen trees preventing safe access
PP491	278844	708726	Additional Probe	-	fallen trees preventing safe access
PP492	278852	708732	Additional Probe	-	fallen trees preventing safe access
PP493	278860	708737	Additional Probe	-	fallen trees preventing safe access
PP494	278869	708743	Additional Probe	-	fallen trees preventing safe access
PP495	278877	708749	Additional Probe	-	fallen trees preventing safe access
PP496	278885	708755	Additional Probe	-	fallen trees preventing safe access
PP497	278893	708761	Additional Probe	-	fallen trees preventing safe access
PP498	278901	708767	Additional Probe	-	fallen trees preventing safe access
PP499	278909	708773	Additional Probe	-	fallen trees preventing safe access
PP500	278917	708779	Additional Probe	-	fallen trees preventing safe access
PP501	278925	708785	Additional Probe	1.1	
PP502	278933	708791	Additional Probe	1.5	
PP503	278778	708664	Additional Probe	0.25	clean
PP504	278786	708670	Additional Probe	0	
PP505	278794	708676	Additional Probe	0.35	clean
PP506	278802	708682	Additional Probe	-	fallen trees preventing safe access
PP507	278810	708688	Additional Probe	-	fallen trees preventing safe access
PP508	278818	708694	Additional Probe	-	fallen trees preventing safe access
PP509	278826	708700	Additional Probe	-	fallen trees preventing safe access
PP510	278834	708706	Additional Probe	-	fallen trees preventing safe access
PP511	278842	708712	Additional Probe	-	fallen trees preventing safe access
PP512	278850	708718	Additional Probe	-	fallen trees preventing safe access
PP513	278858	708723	Additional Probe	-	fallen trees preventing safe access
PP514	278866	708729	Additional Probe	-	fallen trees preventing safe access
PP515	278874	708735	Additional Probe	-	fallen trees preventing safe access
PP516	278882	708741	Additional Probe	-	fallen trees preventing safe access
PP517	278891	708747	Additional Probe	-	fallen trees preventing safe access
PP518	278899	708753	Additional Probe	-	fallen trees preventing safe access
PP519	278907	708759	Additional Probe	-	fallen trees preventing safe access
PP520	278915	708765	Additional Probe	-	fallen trees preventing safe access
PP521	278923	708771	Additional Probe	-	fallen trees preventing safe access
PP522	278931	708777	Additional Probe	-	fallen trees preventing safe access
PP523	278939	708783	Additional Probe	0.8	
PP524	278792	708662	Additional Probe	0	
PP525	278800	708668	Additional Probe	0.1	topsoil
PP526	278808	708674	Additional Probe	-	fallen trees preventing safe access
PP527	278816	708680	Additional Probe	-	fallen trees preventing safe access
PP528	278824	708686	Additional Probe	-	fallen trees preventing safe access
PP529	278832	708692	Additional Probe	-	fallen trees preventing safe access
PP530	278840	708698	Additional Probe	-	fallen trees preventing safe access
PP531	278848	708704	Additional Probe	-	fallen trees preventing safe access
PP532	278856	708709	Additional Probe	-	fallen trees preventing safe access
PP533	278864	708715	Additional Probe	-	fallen trees preventing safe access
PP534	278872	708721	Additional Probe	-	fallen trees preventing safe access
PP535	278880	708727	Additional Probe	-	fallen trees preventing safe access

PP536	278888	708733	Additional Probe	-	fallen trees preventing safe access
PP537	278896	708739	Additional Probe	-	fallen trees preventing safe access
PP538	278905	708745	Additional Probe	-	fallen trees preventing safe access
PP539	278913	708751	Additional Probe	-	fallen trees preventing safe access
PP540	278921	708757	Additional Probe	-	fallen trees preventing safe access
PP541	278929	708763	Additional Probe	-	fallen trees preventing safe access
PP542	278937	708769	Additional Probe	-	fallen trees preventing safe access
PP543	278945	708774	Additional Probe	-	fallen trees preventing safe access
PP544	278797	708654	Additional Probe	0.7	topsoil
PP545	278806	708660	Additional Probe	0	
PP546	278814	708666	Additional Probe	-	fallen trees preventing safe access
PP547	278822	708672	Additional Probe	-	fallen trees preventing safe access
PP548	278830	708678	Additional Probe	-	fallen trees preventing safe access
PP549	278838	708684	Additional Probe	-	fallen trees preventing safe access
PP550	278846	708690	Additional Probe	-	fallen trees preventing safe access
PP551	278854	708695	Additional Probe	-	fallen trees preventing safe access
PP552	278862	708701	Additional Probe	-	fallen trees preventing safe access
PP553	278870	708707	Additional Probe	-	fallen trees preventing safe access
PP554	278878	708713	Additional Probe	-	fallen trees preventing safe access
PP555	278886	708719	Additional Probe	-	fallen trees preventing safe access
PP556	278894	708725	Additional Probe	-	fallen trees preventing safe access
PP557	278902	708731	Additional Probe	-	fallen trees preventing safe access
PP558	278910	708737	Additional Probe	-	fallen trees preventing safe access
PP559	278919	708743	Additional Probe	-	fallen trees preventing safe access
PP560	278927	708749	Additional Probe	-	fallen trees preventing safe access
PP561	278935	708755	Additional Probe	-	fallen trees preventing safe access
PP562	278943	708760	Additional Probe	-	fallen trees preventing safe access
PP563	278951	708766	Additional Probe	-	fallen trees preventing safe access
PP564	278811	708652	Additional Probe	-	fallen trees preventing safe access
PP565	278820	708658	Additional Probe	1.95	6m S due to fallen trees
PP566	278828	708664	Additional Probe	-	fallen trees preventing safe access
PP567	278836	708670	Additional Probe	-	fallen trees preventing safe access
PP568	278844	708676	Additional Probe	-	fallen trees preventing safe access
PP569	278852	708682	Additional Probe	-	fallen trees preventing safe access
PP570	278860	708687	Additional Probe	-	fallen trees preventing safe access
PP571	278868	708693	Additional Probe	-	fallen trees preventing safe access
PP572	278876	708699	Additional Probe	-	fallen trees preventing safe access
PP573	278884	708705	Additional Probe	-	fallen trees preventing safe access
PP574	278892	708711	Additional Probe	-	fallen trees preventing safe access
PP575	278900	708717	Additional Probe	-	fallen trees preventing safe access
PP576	278908	708723	Additional Probe	-	fallen trees preventing safe access
PP577	278916	708729	Additional Probe	-	fallen trees preventing safe access
PP578	278924	708735	Additional Probe	-	fallen trees preventing safe access
PP579	278932	708741	Additional Probe	-	fallen trees preventing safe access
PP580	278941	708746	Additional Probe	-	fallen trees preventing safe access
PP581	278949	708752	Additional Probe	-	fallen trees preventing safe access
PP582	278957	708758	Additional Probe	-	fallen trees preventing safe access
PP583	278825	708650	Additional Probe	-	fallen trees preventing safe access
PP584	278833	708656	Additional Probe	-	fallen trees preventing safe access
PP585	278842	708662	Additional Probe	-	fallen trees preventing safe access
PP586	278850	708668	Additional Probe	-	fallen trees preventing safe access
PP587	278858	708673	Additional Probe	-	fallen trees preventing safe access
PP588	278866	708679	Additional Probe	-	fallen trees preventing safe access
PP589	278874	708685	Additional Probe	-	fallen trees preventing safe access
PP590	278882	708691	Additional Probe	-	fallen trees preventing safe access
PP591	278890	708697	Additional Probe	-	fallen trees preventing safe access
PP592	278898	708703	Additional Probe	-	fallen trees preventing safe access
PP593	278906	708709	Additional Probe	-	fallen trees preventing safe access
PP594	278914	708715	Additional Probe	-	fallen trees preventing safe access
PP595	278922	708721	Additional Probe	-	fallen trees preventing safe access
PP596	278930	708727	Additional Probe	-	fallen trees preventing safe access
PP597	278938	708733	Additional Probe	-	fallen trees preventing safe access
PP598	278946	708738	Additional Probe	-	fallen trees preventing safe access
PP599	278955	708744	Additional Probe	-	fallen trees preventing safe access
PP600	278963	708750	Additional Probe	-	fallen trees preventing safe access
PP601	278839	708648	Additional Probe	-	fallen trees preventing safe access
PP602	278847	708654	Additional Probe	-	fallen trees preventing safe access

PP603	278856	708659	Additional Probe	-	fallen trees preventing safe access
PP604	278864	708665	Additional Probe	-	fallen trees preventing safe access
PP605	278872	708671	Additional Probe	-	fallen trees preventing safe access
PP606	278880	708677	Additional Probe	-	fallen trees preventing safe access
PP607	278888	708683	Additional Probe	-	fallen trees preventing safe access
PP608	278896	708689	Additional Probe	-	fallen trees preventing safe access
PP609	278904	708695	Additional Probe	-	fallen trees preventing safe access
PP610	278912	708701	Additional Probe	-	fallen trees preventing safe access
PP611	278920	708707	Additional Probe	-	fallen trees preventing safe access
PP612	278928	708713	Additional Probe	-	fallen trees preventing safe access
PP613	278936	708719	Additional Probe	-	fallen trees preventing safe access
PP614	278944	708724	Additional Probe	-	fallen trees preventing safe access
PP615	278952	708730	Additional Probe	-	fallen trees preventing safe access
PP616	278960	708736	Additional Probe	-	fallen trees preventing safe access
PP617	278969	708742	Additional Probe	-	fallen trees preventing safe access
PP618	278853	708645	Additional Probe	-	fallen trees preventing safe access
PP619	278861	708651	Additional Probe	-	fallen trees preventing safe access
PP620	278870	708657	Additional Probe	-	fallen trees preventing safe access
PP621	278878	708663	Additional Probe	-	fallen trees preventing safe access
PP622	278886	708669	Additional Probe	-	fallen trees preventing safe access
PP623	278894	708675	Additional Probe	-	fallen trees preventing safe access
PP624	278902	708681	Additional Probe	-	fallen trees preventing safe access
PP625	278910	708687	Additional Probe	-	fallen trees preventing safe access
PP626	278918	708693	Additional Probe	-	fallen trees preventing safe access
PP627	278926	708699	Additional Probe	-	fallen trees preventing safe access
PP628	278934	708705	Additional Probe	-	fallen trees preventing safe access
PP629	278942	708710	Additional Probe	-	fallen trees preventing safe access
PP630	278950	708716	Additional Probe	-	fallen trees preventing safe access
PP631	278958	708722	Additional Probe	-	fallen trees preventing safe access
PP632	278966	708728	Additional Probe	-	fallen trees preventing safe access
PP633	278974	708734	Additional Probe	-	fallen trees preventing safe access
PP634	278867	708643	Additional Probe	-	fallen trees preventing safe access
PP635	278875	708649	Additional Probe	-	fallen trees preventing safe access
PP636	278883	708655	Additional Probe	-	fallen trees preventing safe access
PP637	278892	708661	Additional Probe	-	fallen trees preventing safe access
PP638	278900	708667	Additional Probe	-	fallen trees preventing safe access
PP639	278908	708673	Additional Probe	-	fallen trees preventing safe access
PP640	278916	708679	Additional Probe	-	fallen trees preventing safe access
PP641	278924	708685	Additional Probe	-	fallen trees preventing safe access
PP642	278932	708691	Additional Probe	-	fallen trees preventing safe access
PP643	278940	708696	Additional Probe	-	fallen trees preventing safe access
PP644	278948	708702	Additional Probe	-	fallen trees preventing safe access
PP645	278956	708708	Additional Probe	-	fallen trees preventing safe access
PP646	278964	708714	Additional Probe	-	fallen trees preventing safe access
PP647	278972	708720	Additional Probe	-	fallen trees preventing safe access
PP648	278980	708726	Additional Probe	-	fallen trees preventing safe access
PP649	278881	708641	Additional Probe	-	fallen trees preventing safe access
PP650	278889	708647	Additional Probe	-	fallen trees preventing safe access
PP651	278897	708653	Additional Probe	-	fallen trees preventing safe access
PP652	278906	708659	Additional Probe	-	fallen trees preventing safe access
PP653	278914	708665	Additional Probe	-	fallen trees preventing safe access
PP654	278922	708671	Additional Probe	-	fallen trees preventing safe access
PP655	278930	708677	Additional Probe	-	fallen trees preventing safe access
PP656	278938	708683	Additional Probe	-	fallen trees preventing safe access
PP657	278946	708688	Additional Probe	-	fallen trees preventing safe access
PP658	278954	708694	Additional Probe	-	fallen trees preventing safe access
PP659	278962	708700	Additional Probe	-	fallen trees preventing safe access
PP660	278970	708706	Additional Probe	-	fallen trees preventing safe access
PP661	278978	708712	Additional Probe	-	fallen trees preventing safe access
PP662	278986	708718	Additional Probe	-	fallen trees preventing safe access
PP663	278895	708639	Additional Probe	-	fallen trees preventing safe access
PP664	278903	708645	Additional Probe	-	fallen trees preventing safe access
PP665	278911	708651	Additional Probe	-	fallen trees preventing safe access
PP666	278920	708657	Additional Probe	-	fallen trees preventing safe access
PP667	278928	708663	Additional Probe	-	fallen trees preventing safe access
PP668	278936	708669	Additional Probe	-	fallen trees preventing safe access
PP669	278944	708674	Additional Probe	-	fallen trees preventing safe access

PP670	278952	708680	Additional Probe	-	fallen trees preventing safe access
PP671	278960	708686	Additional Probe	-	fallen trees preventing safe access
PP672	278968	708692	Additional Probe	-	fallen trees preventing safe access
PP673	278976	708698	Additional Probe	-	fallen trees preventing safe access
PP674	278984	708704	Additional Probe	-	fallen trees preventing safe access
PP675	278992	708710	Additional Probe	-	fallen trees preventing safe access
PP676	279000	708715	Additional Probe	0.2	Topsoil
PP677	278909	708637	Additional Probe	-	fallen trees preventing safe access
PP678	278917	708643	Additional Probe	-	fallen trees preventing safe access
PP679	278925	708649	Additional Probe	-	fallen trees preventing safe access
PP680	278933	708655	Additional Probe	-	fallen trees preventing safe access
PP681	278942	708660	Additional Probe	-	fallen trees preventing safe access
PP682	278950	708666	Additional Probe	-	fallen trees preventing safe access
PP683	278958	708672	Additional Probe	-	fallen trees preventing safe access
PP684	278966	708678	Additional Probe	-	fallen trees preventing safe access
PP685	278974	708684	Additional Probe	-	fallen trees preventing safe access
PP686	278982	708690	Additional Probe	-	fallen trees preventing safe access
PP687	278990	708696	Additional Probe	-	fallen trees preventing safe access
PP688	278998	708702	Additional Probe	-	fallen trees preventing safe access
PP689	279006	708707	Additional Probe	0.1	Topsoil
PP690	278923	708635	Additional Probe	-	fallen trees preventing safe access
PP691	278931	708641	Additional Probe	-	fallen trees preventing safe access
PP692	278939	708646	Additional Probe	-	fallen trees preventing safe access
PP693	278947	708652	Additional Probe	-	fallen trees preventing safe access
PP694	278956	708658	Additional Probe	-	fallen trees preventing safe access
PP695	278964	708664	Additional Probe	-	fallen trees preventing safe access
PP696	278972	708670	Additional Probe	-	fallen trees preventing safe access
PP697	278980	708676	Additional Probe	-	fallen trees preventing safe access
PP698	278988	708682	Additional Probe	-	fallen trees preventing safe access
PP699	278996	708688	Additional Probe	-	fallen trees preventing safe access
PP700	279004	708694	Additional Probe	-	fallen trees preventing safe access
PP701	279012	708699	Additional Probe	0	topsoil
PP702	278937	708633	Additional Probe	-	fallen trees preventing safe access
PP703	278945	708638	Additional Probe	-	fallen trees preventing safe access
PP704	278953	708644	Additional Probe	-	fallen trees preventing safe access
PP705	278961	708650	Additional Probe	-	fallen trees preventing safe access
PP706	278970	708656	Additional Probe	-	fallen trees preventing safe access
PP707	278978	708662	Additional Probe	-	fallen trees preventing safe access
PP708	278986	708668	Additional Probe	-	fallen trees preventing safe access
PP709	278994	708674	Additional Probe	-	fallen trees preventing safe access
PP710	279002	708680	Additional Probe	-	fallen trees preventing safe access
PP711	279010	708686	Additional Probe	-	fallen trees preventing safe access
PP712	279018	708691	Additional Probe	0	topsoil
PP713	278951	708630	Additional Probe	-	fallen trees preventing safe access
PP714	278959	708636	Additional Probe	-	fallen trees preventing safe access
PP715	278967	708642	Additional Probe	-	fallen trees preventing safe access
PP716	278975	708648	Additional Probe	-	fallen trees preventing safe access
PP717	278983	708654	Additional Probe	-	fallen trees preventing safe access
PP718	278992	708660	Additional Probe	-	fallen trees preventing safe access
PP719	279000	708666	Additional Probe	-	fallen trees preventing safe access
PP720	279008	708672	Additional Probe	-	fallen trees preventing safe access
PP721	279016	708678	Additional Probe	-	fallen trees preventing safe access
PP722	279024	708683	Additional Probe	-	fallen trees preventing safe access
PP723	278965	708628	Additional Probe	-	fallen trees preventing safe access
PP724	278973	708634	Additional Probe	-	fallen trees preventing safe access
PP725	278981	708640	Additional Probe	-	fallen trees preventing safe access
PP726	278989	708646	Additional Probe	-	fallen trees preventing safe access
PP727	278997	708652	Additional Probe	-	fallen trees preventing safe access
PP728	279006	708658	Additional Probe	-	fallen trees preventing safe access
PP729	279014	708664	Additional Probe	-	fallen trees preventing safe access
PP730	279022	708670	Additional Probe	-	fallen trees preventing safe access
PP731	279030	708675	Additional Probe	-	fallen trees preventing safe access
PP732	278979	708626	Additional Probe	-	fallen trees preventing safe access
PP733	278987	708632	Additional Probe	-	fallen trees preventing safe access
PP734	278995	708638	Additional Probe	-	fallen trees preventing safe access
PP735	279003	708644	Additional Probe	-	fallen trees preventing safe access
PP736	279011	708650	Additional Probe	-	fallen trees preventing safe access

PP737	279020	708656	Additional Probe	-	fallen trees preventing safe access
PP738	279028	708661	Additional Probe	-	fallen trees preventing safe access
PP739	279036	708666	Additional Probe	-	fallen trees preventing safe access
PP740	278993	708624	Additional Probe	-	fallen trees preventing safe access
PP741	279001	708630	Additional Probe	-	fallen trees preventing safe access
PP742	279009	708636	Additional Probe	-	fallen trees preventing safe access
PP743	279017	708642	Additional Probe	-	fallen trees preventing safe access
PP744	279025	708647	Additional Probe	-	fallen trees preventing safe access
PP745	279033	708653	Additional Probe	-	fallen trees preventing safe access
PP746	279041	708658	Additional Probe	-	fallen trees preventing safe access
PP747	279007	708622	Additional Probe	-	fallen trees preventing safe access
PP748	279015	708628	Additional Probe	-	fallen trees preventing safe access
PP749	279023	708634	Additional Probe	-	fallen trees preventing safe access
PP750	279031	708639	Additional Probe	-	fallen trees preventing safe access
PP751	279039	708645	Additional Probe	-	fallen trees preventing safe access
PP752	279047	708650	Additional Probe	-	fallen trees preventing safe access
PP753	279021	708620	Additional Probe	-	fallen trees preventing safe access
PP754	279029	708625	Additional Probe	-	fallen trees preventing safe access
PP755	279037	708631	Additional Probe	-	fallen trees preventing safe access
PP756	279045	708637	Additional Probe	-	fallen trees preventing safe access
PP757	279053	708642	Additional Probe	-	fallen trees preventing safe access
PP758	279061	708649	Additional Probe	-	fallen trees preventing safe access
PP759	279035	708617	Additional Probe	-	fallen trees preventing safe access
PP760	279043	708623	Additional Probe	-	fallen trees preventing safe access
PP761	279051	708629	Additional Probe	-	fallen trees preventing safe access
PP762	279059	708634	Additional Probe	-	fallen trees preventing safe access
PP763	279067	708641	Additional Probe	-	fallen trees preventing safe access
PP764	279049	708615	Additional Probe	-	fallen trees preventing safe access
PP765	279057	708621	Additional Probe	-	fallen trees preventing safe access
PP766	279065	708626	Additional Probe	-	fallen trees preventing safe access
PP767	279073	708633	Additional Probe	-	fallen trees preventing safe access
PP768	279063	708613	Additional Probe	-	fallen trees preventing safe access
PP769	279079	708625	Additional Probe	-	fallen trees preventing safe access
PP770	279087	708630	Additional Probe	-	fallen trees preventing safe access
PP771	279070	708619	Additional Probe	-	fallen trees preventing safe access
PP772	279085	708617	Additional Probe	-	fallen trees preventing safe access
PP773	279093	708622	Additional Probe	-	fallen trees preventing safe access
PP774	279099	708614	Additional Probe	-	fallen trees preventing safe access
PP775	279130	708638	Additional Probe	0.25	clean
PP776	279138	708644	Additional Probe	0.45	
PP777	279146	708650	Additional Probe	0.25	clean - topsoil
PP778	279155	708656	Additional Probe	0.45	
PP779	279163	708662	Additional Probe	0.5	7m W
PP780	279171	708668	Additional Probe	-	Dense tree coverage preventing access
PP781	279179	708674	Additional Probe	-	Dense tree coverage preventing access
PP782	279187	708679	Additional Probe	-	Dense tree coverage preventing access
PP783	279195	708685	Additional Probe	-	Dense tree coverage preventing access
PP784	279203	708691	Additional Probe	0.1	topsoil
PP785	279211	708697	Additional Probe	0.4	
PP786	279219	708703	Additional Probe	0	gravel road
PP787	279227	708709	Additional Probe	0	
PP788	279235	708715	Additional Probe	0.1	
PP789	279243	708721	Additional Probe	0.2	
PP790	279251	708727	Additional Probe	0.4	
PP791	279112	708614	Additional Probe	0.55	5m SE due to fallen trees
PP792	279120	708620	Additional Probe	0.5	
PP793	279128	708625	Additional Probe	0.3	clean
PP794	279136	708631	Additional Probe	0.5	topsoil
PP795	279144	708637	Additional Probe	0.25	
PP796	279153	708643	Additional Probe	0.55	clean
PP797	279161	708649	Additional Probe	0.5	
PP798	279169	708655	Additional Probe	0.25	clean
PP799	279177	708661	Additional Probe	-	Dense tree coverage preventing access
PP800	279185	708666	Additional Probe	-	Dense tree coverage preventing access
PP801	279193	708672	Additional Probe	-	Dense tree coverage preventing access
PP802	279201	708678	Additional Probe	-	Dense tree coverage preventing access
PP803	279209	708684	Additional Probe	-	Dense tree coverage preventing access

PP804	279217	708690	Additional Probe	0.25	
PP805	279225	708696	Additional Probe	0.1	
PP806	279233	708702	Additional Probe	0	gravel road
PP807	279241	708708	Additional Probe	0.2	topsoil
PP808	279249	708714	Additional Probe	0.35	topsoil
PP809	279142	708623	Additional Probe	0.35	topsoil
PP810	279150	708629	Additional Probe	0.4	clean
PP811	279158	708635	Additional Probe	0.25	clean
PP812	279167	708641	Additional Probe	0.4	
PP813	279175	708647	Additional Probe	0.3	clean
PP814	279183	708653	Additional Probe	-	Dense tree coverage preventing access
PP815	279191	708659	Additional Probe	-	Dense tree coverage preventing access
PP816	279199	708664	Additional Probe	-	Dense tree coverage preventing access
PP817	279207	708670	Additional Probe	-	Dense tree coverage preventing access
PP818	279215	708676	Additional Probe	-	Dense tree coverage preventing access
PP819	279223	708682	Additional Probe	-	Dense tree coverage preventing access
PP820	279231	708688	Additional Probe	-	Dense tree coverage preventing access
PP821	279239	708694	Additional Probe	0.2	clean
PP822	279247	708700	Additional Probe	0	
PP823	279165	708628	Additional Probe	0.4	topsoil
PP824	279173	708634	Additional Probe	0.35	topsoil
PP825	279181	708640	Additional Probe	0.35	topsoil
PP826	279189	708646	Additional Probe	-	Dense tree coverage preventing access
PP827	279197	708651	Additional Probe	-	Dense tree coverage preventing access
PP828	279205	708657	Additional Probe	-	Dense tree coverage preventing access
PP829	279213	708663	Additional Probe	-	Dense tree coverage preventing access
PP830	279221	708669	Additional Probe	-	Dense tree coverage preventing access
PP831	279229	708675	Additional Probe	-	Dense tree coverage preventing access
PP832	279237	708681	Additional Probe	-	Dense tree coverage preventing access
PP833	279245	708687	Additional Probe	-	Dense tree coverage preventing access
PP834	279186	708634	Additional Probe	0.5	clean
PP835	279194	708640	Additional Probe	-	Dense tree coverage preventing access
PP836	279202	708646	Additional Probe	-	Dense tree coverage preventing access
PP837	279210	708651	Additional Probe	-	Dense tree coverage preventing access
PP838	279218	708657	Additional Probe	-	Dense tree coverage preventing access
PP839	279226	708663	Additional Probe	-	Dense tree coverage preventing access
PP840	279234	708669	Additional Probe	-	Dense tree coverage preventing access
PP841	279242	708675	Additional Probe	-	Dense tree coverage preventing access
PP842	279208	708638	Additional Probe	-	Dense tree coverage preventing access
PP843	279216	708644	Additional Probe	-	Dense tree coverage preventing access
PP844	279224	708650	Additional Probe	-	Dense tree coverage preventing access
PP845	279232	708656	Additional Probe	-	Dense tree coverage preventing access
PP846	279240	708662	Additional Probe	-	Dense tree coverage preventing access
PP847	279237	708649	Additional Probe	-	Dense tree coverage preventing access

SSEN Transmission Cambushinnie 400kV Substation Upgrade

Additional Peat Probe Survey

Client name	Project name	Project number
Scottish & Southern Electricity Networks (SSEN) Transmission	Cambushinnie 400kV Substation Upgrade	60721943

Prepared by	Checked by	Verified by	Approved by
Sally Bennett	Claire Vallis	David Raeside	
Date: 20.12.2024	Date: 10.01.2025	Date: 17.02.2025	Date:

Document No.	Revision	Date
-	1	20th March 2025

Introduction

Scottish & Southern Electricity Networks (SSEN) Transmission is proposing to upgrade the existing Beauly-Denny 275 kV circuit to 400 kV to mirror the ratings of the existing 400 kV circuit which runs along the route. SSEN Transmission have therefore proposed to construct a new 400kV substation in the proximity of the existing Braco West Substation. As part of the works a new overhead line link is also required to tie-in the new substation to the existing network and a new underground cable connection is required to tie the existing substation into the new. There is also a requirement for a new access track to lead into the new proposed substation, as well as the potential for upgrading the existing, if this does not meet the requirement for construction and operation of the new proposed substation.

AECOM have been commissioned to undertake the Environmental Appraisal (EA) for the new proposed substation, associated access track and the new overhead line link. Based on information provided by the Client and review of the BGS Geoindex[1], the site is known to be underlain by peat deposits which must be taken into consideration as part of the EIAR process. An initial phase of peat investigation was undertaken by Igne in late 2023 comprising of a 10m x 10m grid of peat probing covering two potential sites of the proposed substation and proposed overhead line. Since this probing was undertaken, the site of the proposed substation and access track into the new substation has been finalised with the probing undertaken identified as not covering the full footprint of the proposed works. Additional peat probing was conducted by AECOM in March 2024 to cover some of the areas not previously investigated with further probing and coring undertaken in December 2024 to complete the investigation of areas included in the proposed restoration and landscaping.

This technical note provides details of the additional peat probing undertaken by AECOM in December 2024.

Site Description

The site is located on the eastern slopes of Feddal Hill approximately 4.0km west of Braco within Perth and Kinross. The site is within an area of commercial forestry comprising of mature and semi mature trees as well as areas of felled trees. The existing Braco West Substation (275kV) is present to the northeast with overhead electrical cables from the Beauly to Denny line leading into the existing substation. The overhead cables intersect the site from the northeast heading in a southwest direction.

[1] BGS (2024) Geoindex Onshore Viewer, available: GeoIndex - British Geological Survey [accessed December 2024]

Site Investigation

Peat Probing

The additional peat probing was carried out by AECOM during December 2024 and was split into three areas as shown in figure 1 below:

- General site – south eastern area (947 probes),
- Overhead Line (OHL) – 2 no. areas (158 probes),
- Site 1 area (175 probes),

The peat probes across the south eastern area and the OHL were taken on a 10m x 10m grid. The additional probes for the Site 1 area were taken on a 25m x 25m grid. The probing covered areas of the site which were not investigated as part of the initial peat probing by Igne in late 2023 and AECOM in March 2024.

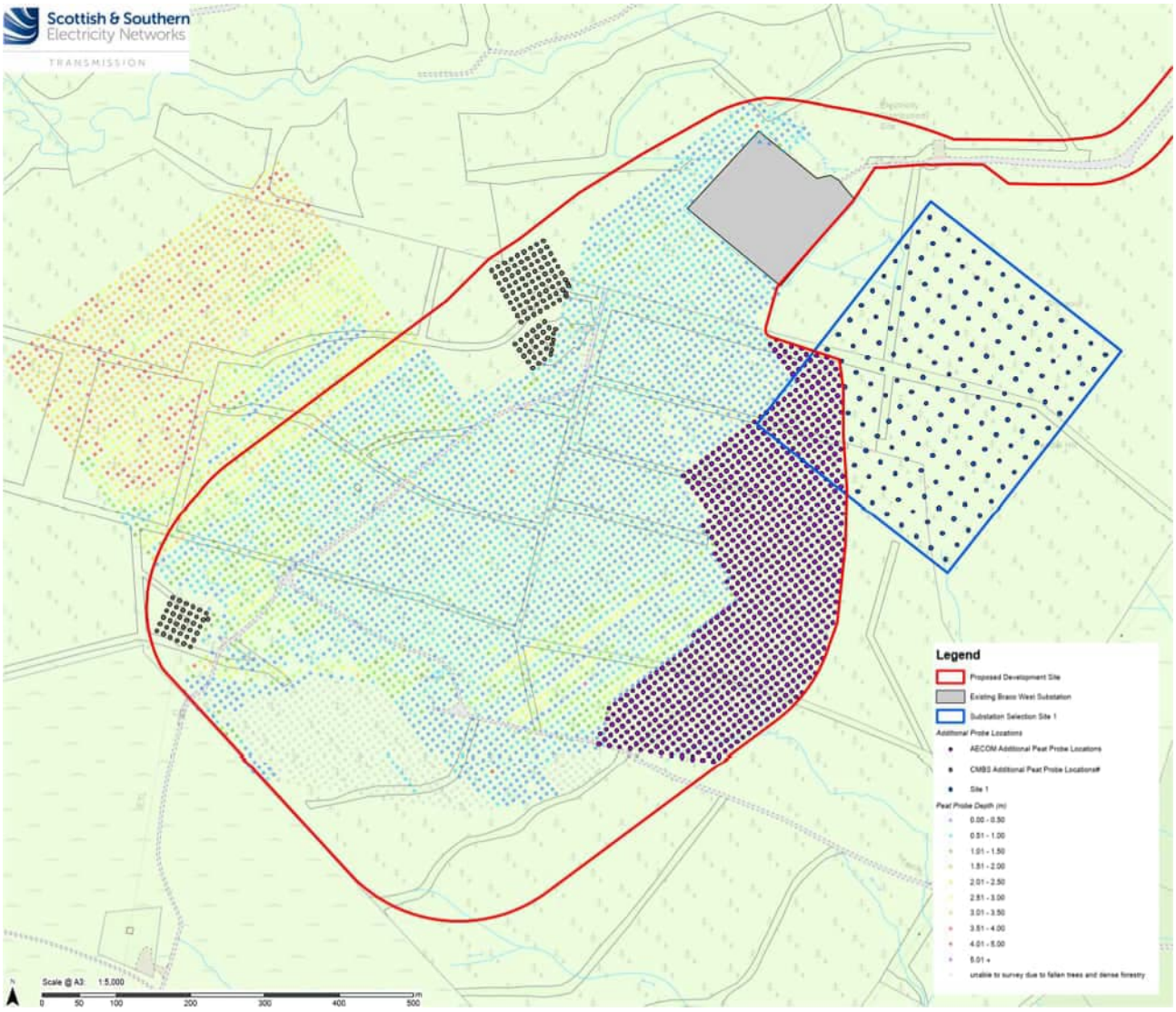


Figure 1: Proposed additional peat probe locations and previous peat probe locations & depths.

The probes used consisted of lightweight non-conductive fibreglass rods and handles which are nominally 1.0m in length with threaded joints allowing extension of the probe as required by the depth of the peat encountered. The probe was manually pushed through the peat at each location until one of the following occurred:

- Refusal of the peat probe;
- Recognisable change in the stiffness in the ground; or,
- Regular granular material could be felt scrapping along the probe.

Due to the nature of peat probing and as no sample is recovered during the advancement of the probe, the peat depth determined is only an estimate based on the judgment of the probe operator. More intrusive investigation techniques, which recover samples, is required to determine the depth of peat more accurately.

Peat Coring

The initial ground investigation undertaken by Igne did not include sampling or testing of the peat deposits encountered in the exploratory holes. In order to assess the peat further and classify it in terms of the Von Post scale, additional peat cores were taken during the site works using a Russian Corer. The cores were undertaken at 7 locations across the site, adjacent to existing trial pits completed during the original investigation. The co-ordinates and ground level of the core location has been taken from the log of the original trial pit.

The cores were logged/photographed and tub samples taken with laboratory testing scheduled and issued to Terra Tek Ltd.

Site Investigation Results

Peat Probing

The drawing within Appendix A shows the locations of all probing completed across the site (i.e. inclusive of original and additional probing), as well as providing details on the depths of peat estimated for each probe location. The drawing also shows where the additional probes were cancelled as access could not be obtained due to either dense mature trees or an underground 33kv electricity cable.

AECOM Additional Probes

In total only 449 of the original planned 947 probe holes were completed (47%). Within the area, probed depths were generally shallow throughout, ranging from 0.0m to 1.0m. As a result, the spacing of the probed grid was widened with only every other row of peat probes undertaken. Where a deeper area of peat was found, the grid was tightened again to 10 x 10m grid.

During the site works, an area of dense trees obstructed access within the southern area of the site and it was not possible to safely undertake all of the probe locations.

OHL Probes

In total 155 of the original planned158 probes were completed (98%). Within the area probe depths ranged from 0.0m to 2.4m and was generally relatively shallow across the site with deeper localised areas. The OHL in the north closer to the existing substation generally had deeper peat than the OHL in the south east of the site.

Site 1 Probes

In total only 79 of the original planned 175 probes were completed (45%). Within the area probed, depths ranged from 0.0m to 0.8m and therefore the peat was relatively shallow across the site.

During the site works, an area of dense mature trees prevented access and an underground 33kv electricity cable were identified and therefore these areas were avoided and the peat probes were cancelled.

Peat Coring

Peat cores were undertaken using a Russian Corer adjacent to existing trial pits TP's 01, 03, 04, 09, 10, 11 & 13 which were completed during the original Igne ground investigation. The depth of peat identified in each core is provided in Table 1 along with a description of the peat and its Von Post classification.

Core / Location	Depth of Peat (m)	Description	Von Post Classification
PC01 (TP11)	GL – 0.37	Soft dark brown to brown fibrous Peat with occasional pieces of wood.	H4/5 B1
PC02 (TP01)	GL – 0.25	Soft dark brown to brown fibrous Peat	H4/5 B2
PC03 (TP10)	GL – 0.4	Soft dark brown fibrous Peat	H4/5 B2
PC04 (TP13)	GL – 0.3	Soft brown fibrous Peat	H4/5 B2
PC05 (TP03)	GL – 0.6	Soft dark brown to brown fibrous to pseudo fibrous Peat	H4/5 B2
PC06 (TP04)	GL – 0.56	Soft dark brown to brown fibrous to pseudo fibrous Peat with occasional pieces of wood	H4/5 – H5/6 B2 – B3
PC07 (TP09)	GL – 1.0	Soft dark brown to brown fibrous to pseudo fibrous Peat	H4/5 – H5/6 B2 – B3

Table 1: Peat Coring Details

Logs and Photographs of each core are included in Appendix C.

Samples of peat were sent to Igne's laboratory for moisture content, pH, organic matter content and bulk density testing, the results from which are summarised in Table 2 below, with a copy of their lab report included in Appendix D.

Core/Location	Depth of Peat (m)	Water Content (%)	Bulk Density (Mg/m^3)	Dry Density (Mg/m^3)	pH	Organic Matter Content (%)
PC01/TP11	0 – 0.37	568			4.1	63.5
PC02/TP01	0 – 0.25	621			4.3	60.8
PC03/TP10	0 – 0.4	486	1.21	0.21	4.6	59.1
PC04/TP13	0 – 0.3	533			5.0	14.7
PC05/TP03	0 – 0.42	822	1.11	0.12	4.3	67.8
PC05/TP03	0.42 – 0.6	53.6			4.9	9.7
PC06/TP04	0 – 0.43	765	1.09	0.13	4.4	68.5
PC06/TP04	0.43 – 0.56	655			4.4	70.2
PC07/TP09	0 – 0.5	511			4.0	69.5
PC07/TP09	0.5 – 1.0	498	1.16	0.19	4.3	71.7

Table 2: Summary of Lab Test Results

Appendix A – Drawings

79

09

09

79

Scottish & Southern Electricity Networks

TRANSMISSION

Electricity Distribution Site

Shieldour

Pasual Hill

ETL

ETL

Track

N

Scale @ A3: 1:5,000

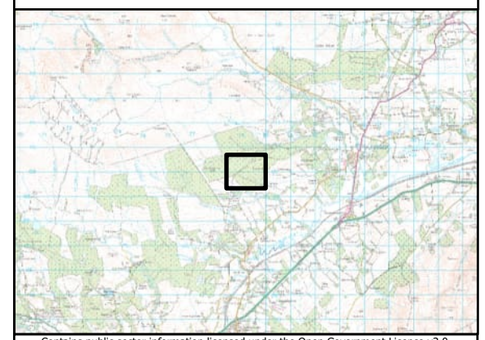
0 50 100 200 300 400 500 m

Legend

- Proposed Development Site
- Existing Braco West Substation
- Substation Selection Site 1
- Approximate line of 33kV cable. Based on BB drawing and marker posts viewed on site.
- Dense mature trees, no access available

Peat Probe Depth (m)

- N/A
- 0.00 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- 4.00 - 5.00
- 5.00 +



Project No: LT000520

Project: Cambushinnie 400kV Substation

Title:

Peat Probe Locations and Depths
December 2024

Drawn by: JBARR Date: 17/12/2024

Drawing:

Appendix B – Peat Probe Results

ProbeID	XCoord	YCoord	Results
AECOM_pp_0001	279398	708678	
AECOM_pp_0002	279406	708684	
AECOM_pp_0003	279414	708690	
AECOM_pp_0004	279422	708697	
AECOM_pp_0005	279429	708703	
AECOM_pp_0006	279437	708709	
AECOM_pp_0007	279445	708715	
AECOM_pp_0008	279453	708721	
AECOM_pp_0009	279461	708727	
AECOM_pp_0010	279469	708733	
AECOM_pp_0011	279477	708739	
AECOM_pp_0012	279485	708745	
AECOM_pp_0013	279493	708751	
AECOM_pp_0014	279501	708757	
AECOM_pp_0015	279509	708763	0.1
AECOM_pp_0016	279517	708769	0.2
AECOM_pp_0017	279384	708680	0.45
AECOM_pp_0018	279392	708686	
AECOM_pp_0019	279400	708692	
AECOM_pp_0020	279408	708698	
AECOM_pp_0021	279415	708704	
AECOM_pp_0022	279423	708711	
AECOM_pp_0023	279431	708717	
AECOM_pp_0024	279439	708723	
AECOM_pp_0025	279447	708729	
AECOM_pp_0026	279455	708735	
AECOM_pp_0027	279463	708741	
AECOM_pp_0028	279471	708747	
AECOM_pp_0029	279479	708753	
AECOM_pp_0030	279487	708759	
AECOM_pp_0031	279495	708765	0.1
AECOM_pp_0032	279503	708771	0
AECOM_pp_0033	279511	708777	0.3
AECOM_pp_0034	279519	708783	0.7
AECOM_pp_0035	279527	708789	0
AECOM_pp_0036	279535	708795	0.1
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AECOM_pp_0871	279499	709157	0.2
AECOM_pp_0872	279507	709163	0.1
AECOM_pp_0873	279515	709169	0.45
AECOM_pp_0874	279523	709175	0.5
AECOM_pp_0875	279531	709181	0.1
AECOM_pp_0876	279539	709187	0.4
AECOM_pp_0877	279547	709193	0.7
AECOM_pp_0878	279555	709199	0.7
AECOM_pp_0879	279563	709205	0.6
AECOM_pp_0880	279357	709062	0.25
AECOM_pp_0881	279365	709068	0.3
AECOM_pp_0882	279373	709074	0.1
AECOM_pp_0883	279381	709080	0.3
AECOM_pp_0884	279389	709086	0.1
AECOM_pp_0885	279397	709092	0.55
AECOM_pp_0886	279405	709098	0.15
AECOM_pp_0887	279413	709104	0.4
AECOM_pp_0888	279421	709111	1
AECOM_pp_0889	279429	709117	0.2
AECOM_pp_0890	279437	709123	0.1
AECOM_pp_0891	279445	709129	0.4
AECOM_pp_0892	279453	709135	0.1
AECOM_pp_0893	279461	709141	0.3
AECOM_pp_0894	279469	709147	0.25
AECOM_pp_0895	279477	709153	0.3
AECOM_pp_0896	279485	709159	0.2
AECOM_pp_0897	279493	709165	0.2
AECOM_pp_0898	279501	709171	0.2
AECOM_pp_0899	279509	709177	0.6
AECOM_pp_0900	279517	709183	0.3
AECOM_pp_0901	279525	709189	0.1
AECOM_pp_0902	279533	709195	0.3
AECOM_pp_0903	279541	709201	0.4
AECOM_pp_0904	279549	709207	0.2
AECOM_pp_0905	279557	709213	0.5
AECOM_pp_0906	279511	709191	0.15
AECOM_pp_0907	279519	709197	0.2
AECOM_pp_0908	279527	709203	0.4
AECOM_pp_0909	279535	709209	0.3
AECOM_pp_0910	279543	709215	0.55
AECOM_pp_0911	279550	709221	

AECOM_pp_0912	279505	709199	0.1
AECOM_pp_0913	279513	709205	0
AECOM_pp_0914	279521	709211	0
AECOM_pp_0915	279529	709217	0.1
AECOM_pp_0916	279536	709223	
AECOM_pp_0917	279499	709207	0.4
AECOM_pp_0918	279507	709213	0.1
AECOM_pp_0919	279515	709219	0.1
AECOM_pp_0920	279522	709225	0.6
AECOM_pp_0921	279493	709215	0.1
AECOM_pp_0922	279500	709221	0
AECOM_pp_0923	279508	709227	0.2
AECOM_pp_0924	279516	709233	
AECOM_pp_0925	279486	709223	
AECOM_pp_0926	279494	709229	0.2
AECOM_pp_0927	279502	709235	0.1
AECOM_pp_0928	279480	709231	
AECOM_pp_0929	279488	709237	0.2
AECOM_pp_0930	279474	709239	0.3
AECOM_pp_0931	279482	709245	
AECOM_pp_0932	279337	708808	
AECOM_pp_0933	279305	708784	
AECOM_pp_0934	279289	708772	
AECOM_pp_0935	279313	708790	
AECOM_pp_0936	279369	708832	
AECOM_pp_0937	279321	708796	
AECOM_pp_0938	279353	708820	
AECOM_pp_0939	279345	708814	
AECOM_pp_0940	279329	708802	
AECOM_pp_0941	279273	708760	
AECOM_pp_0942	279361	708826	
AECOM_pp_0943	279377	708838	
AECOM_pp_0944	279257	708748	
AECOM_pp_0945	279297	708778	
AECOM_pp_0946	279265	708754	
AECOM_pp_0947	279281	708766	
OHL_0121	279173	709288	1
OHL_0001	279169	709297	1.1
OHL_0002	279164	709306	1
OHL_0003	279159	709314	1.2
OHL_0004	279154	709323	1.3
OHL_0005	279149	709332	1.3
OHL_0006	279144	709341	1.6
OHL_0007	279139	709349	1.5
OHL_0008	279134	709358	0.5
OHL_0009	279165	709283	0.9
OHL_0010	279160	709292	1.1
OHL_0011	279155	709301	1.1

OHL_0012	279150	709310	1.1
OHL_0013	279145	709318	1.3
OHL_0014	279140	709327	1.4
OHL_0015	279135	709336	1.1
OHL_0016	279130	709344	1.65
OHL_0017	279125	709353	1.6
OHL_0018	279139	709269	0.8
OHL_0019	279134	709277	2
OHL_0020	279129	709286	0.9
OHL_0021	279124	709295	1.2
OHL_0022	279119	709303	1.1
OHL_0023	279114	709312	0.75
OHL_0024	279109	709321	1.3
OHL_0025	279104	709329	0.8
OHL_0026	279099	709338	0.8
OHL_0027	279147	709274	1.2
OHL_0028	279142	709282	1
OHL_0029	279138	709291	0.95
OHL_0030	279133	709300	0.9
OHL_0031	279128	709308	1.2
OHL_0032	279123	709317	1.4
OHL_0033	279118	709326	1.7
OHL_0034	279113	709334	1.4
OHL_0035	279108	709343	1.4
OHL_0036	279156	709279	1.2
OHL_0037	279151	709287	1.1
OHL_0038	279146	709296	1.1
OHL_0039	279141	709305	1.1
OHL_0040	279136	709313	1.6
OHL_0041	279131	709322	1.5
OHL_0042	279126	709331	1.6
OHL_0043	279121	709339	1.5
OHL_0044	279116	709348	1.4
OHL_0045	279165	709283	0.9
OHL_0046	279160	709292	1.1
OHL_0047	279155	709301	1.1
OHL_0048	279150	709310	1.1
OHL_0049	279145	709318	1.3
OHL_0050	279140	709327	1.4
OHL_0051	279135	709336	1.1
OHL_0052	279130	709344	1.65
OHL_0053	279125	709353	1.6
OHL_0054	279182	709293	1.1
OHL_0055	279177	709302	1
OHL_0056	279172	709311	1
OHL_0057	279167	709319	1.4
OHL_0058	279162	709328	1.4
OHL_0059	279157	709337	1.3

OHL_0060	279152	709345	1
OHL_0061	279148	709354	1
OHL_0062	279143	709363	1.5
OHL_0063	279191	709298	1.2
OHL_0064	279186	709307	1.2
OHL_0065	279181	709316	0.7
OHL_0066	279176	709324	1.2
OHL_0067	279171	709333	1.1
OHL_0068	279166	709342	1
OHL_0069	279161	709350	0.7
OHL_0070	279156	709359	1.2
OHL_0071	279151	709368	1.2
OHL_0072	279200	709303	0.8
OHL_0073	279195	709312	0.9
OHL_0074	279190	709321	1.2
OHL_0075	279185	709329	1.1
OHL_0076	279180	709338	1.1
OHL_0077	279175	709347	0.9
OHL_0078	279170	709355	0.85
OHL_0079	279165	709364	1.1
OHL_0080	279160	709373	1.2
OHL_0081	279203	709317	0.8
OHL_0082	279198	709326	1
OHL_0083	279193	709334	1
OHL_0084	279188	709343	0.9
OHL_0085	279183	709352	0.6
OHL_0086	279179	709360	0.4
OHL_0087	279174	709369	1.1
OHL_0088	279169	709378	1.1
OHL_0089	279154	709207	0
OHL_0090	279148	709215	0.7
OHL_0091	279142	709223	0.55
OHL_0092	279137	709231	0.7
OHL_0093	279131	709239	0.5
OHL_0094	279162	709213	0.55
OHL_0095	279156	709221	0.75
OHL_0096	279151	709229	0.4
OHL_0097	279145	709237	0.75
OHL_0098	279139	709245	0.7
OHL_0099	279170	709219	0.45
OHL_0100	279165	709227	0.65
OHL_0101	279159	709235	0.5
OHL_0102	279153	709243	0.5
OHL_0103	279147	709251	0.8
OHL_0104	279179	709225	0.6
OHL_0105	279173	709233	1
OHL_0106	279167	709241	0.7
OHL_0107	279161	709249	0.35

OHL_0108	279155	709257	1
OHL_0109	279181	709239	0.85
OHL_0110	279175	709247	0.4
OHL_0111	279169	709255	0.4
OHL_0112	279163	709263	0.8
OHL_0113	279183	709253	0
OHL_0114	279177	709261	0.45
OHL_0115	279171	709269	0.9
OHL_0116	279201	709321	
OHL_0117	279199	709307	
OHL_0118	279185	709259	0.4
OHL_0119	279182	709245	1
OHL_0120	279180	709231	
OHL_0122	278648	708852	0.8
OHL_0123	278694	708831	1
OHL_0124	278685	708835	1.25
OHL_0125	278676	708839	1.9
OHL_0126	278666	708844	2
OHL_0127	278657	708848	2.4
OHL_0128	278653	708861	0.85
OHL_0129	278698	708840	0.6
OHL_0130	278689	708844	0.75
OHL_0131	278680	708848	1
OHL_0132	278671	708853	1
OHL_0133	278662	708857	2
OHL_0134	278657	708870	0.85
OHL_0135	278702	708849	0.1
OHL_0136	278693	708853	0.1
OHL_0137	278684	708857	0.1
OHL_0138	278675	708862	0.3
OHL_0139	278666	708866	0.8
OHL_0140	278661	708879	0.2
OHL_0141	278706	708858	0.5
OHL_0142	278697	708862	0.1
OHL_0143	278688	708867	0.7
OHL_0144	278679	708871	0
OHL_0145	278670	708875	0
OHL_0146	278666	708889	0.65
OHL_0147	278711	708867	0.55
OHL_0148	278702	708871	0.45
OHL_0149	278693	708876	0.3
OHL_0150	278684	708880	0.7
OHL_0151	278675	708884	0.7
OHL_0152	278670	708898	0.8
OHL_0153	278715	708876	0.8
OHL_0154	278706	708880	0.1
OHL_0155	278697	708885	0.1
OHL_0156	278688	708889	0.5

OHL_0157	278679	708893	0.2
OHL_0158	278717	708868	0.4
S_001	279710	708949	0.4
S_002	279726	708968	0.1
S_003	279741	708988	0.3
S_004	279756	709008	0.1
S_005	279772	709028	0.1
S_006	279787	709047	0.2
S_007	279802	709067	0.1
S_008	279818	709087	0.1
S_009	279833	709106	0.2
S_010	279849	709126	0.2
S_011	279864	709146	
S_012	279879	709166	
S_013	279895	709185	
S_014	279910	709205	
S_015	279925	709225	
S_016	279690	708964	0.5
S_017	279706	708984	0.8
S_018	279721	709004	0.5
S_019	279737	709023	0.35
S_020	279752	709043	0.1
S_021	279767	709063	0
S_022	279783	709082	0.2
S_023	279798	709102	0.1
S_024	279813	709122	0.2
S_025	279829	709142	0.3
S_026	279844	709161	
S_027	279860	709181	
S_028	279875	709201	
S_029	279890	709220	
S_030	279906	709240	
S_031	279671	708980	0.1
S_032	279686	708999	0.2
S_033	279702	709019	0.8
S_034	279717	709039	0
S_035	279732	709058	0
S_036	279748	709078	0.1
S_037	279763	709098	0.4
S_038	279778	709118	0.3
S_039	279794	709137	0.1
S_040	279809	709157	0.1
S_041	279825	709177	
S_042	279840	709196	
S_043	279855	709216	
S_044	279871	709236	
S_045	279886	709256	
S_046	279651	708995	0.4

S_047	279666	709015	0.8
S_048	279682	709034	0.4
S_049	279697	709054	0.1
S_050	279713	709074	0.1
S_051	279728	709093	0.4
S_052	279743	709113	0.4
S_053	279759	709133	0.2
S_054	279774	709153	0.5
S_055	279789	709172	
S_056	279805	709192	
S_057	279820	709212	
S_058	279836	709231	
S_059	279851	709251	
S_060	279866	709271	
S_061	279631	709010	0.6
S_062	279647	709030	0.3
S_063	279662	709050	0.3
S_064	279677	709069	0.2
S_065	279693	709089	0.25
S_066	279708	709109	0.1
S_067	279724	709129	0.1
S_068	279739	709148	0.1
S_069	279754	709168	0.2
S_070	279770	709188	
S_071	279785	709207	
S_072	279800	709227	
S_073	279816	709247	
S_074	279831	709267	
S_075	279847	709286	
S_076	279612	709026	
S_077	279627	709045	
S_078	279642	709065	0.5
S_079	279658	709085	0.1
S_080	279673	709105	0.2
S_081	279689	709124	0.3
S_082	279704	709144	0.4
S_083	279719	709164	0.3
S_084	279735	709183	
S_085	279750	709203	
S_086	279765	709223	
S_087	279781	709243	
S_088	279796	709262	
S_089	279812	709282	
S_090	279827	709302	
S_091	279592	709041	0.6
S_092	279607	709061	0.8
S_093	279623	709080	0.6
S_094	279638	709100	0.1

S_095	279653	709120	0.1
S_096	279669	709140	0.5
S_097	279684	709159	0.4
S_098	279700	709179	0.2
S_099	279715	709199	
S_100	279730	709218	
S_101	279746	709238	
S_102	279761	709258	
S_103	279776	709278	
S_104	279792	709297	
S_105	279807	709317	
S_106	279588	709076	0.4
S_107	279603	709096	0.35
S_108	279618	709116	0
S_109	279634	709135	0.6
S_110	279649	709155	0.3
S_111	279664	709175	0.25
S_112	279680	709194	
S_113	279695	709214	
S_114	279711	709234	
S_115	279726	709254	
S_116	279741	709273	
S_117	279757	709293	
S_118	279772	709313	
S_119	279787	709332	
S_120	279583	709111	0.1
S_121	279599	709131	0.1
S_122	279614	709151	0.5
S_123	279629	709170	0.4
S_124	279645	709190	0.6
S_125	279660	709210	
S_126	279676	709229	
S_127	279691	709249	
S_128	279706	709269	
S_129	279722	709289	
S_130	279737	709308	
S_131	279752	709328	
S_132	279768	709348	
S_133	279579	709146	0.5
S_134	279594	709166	0.4
S_135	279610	709186	0.6
S_136	279625	709205	
S_137	279640	709225	
S_138	279656	709245	
S_139	279671	709265	
S_140	279687	709284	
S_141	279702	709304	
S_142	279717	709324	

S_143	279733	709343	
S_144	279748	709363	
S_145	279575	709181	0.8
S_146	279590	709201	0.6
S_147	279605	709221	
S_148	279621	709241	
S_149	279636	709260	
S_150	279651	709280	
S_151	279667	709300	
S_152	279682	709319	
S_153	279698	709339	
S_154	279713	709359	
S_155	279728	709379	
S_156	279570	709216	0.6
S_157	279586	709236	
S_158	279601	709256	
S_159	279616	709276	
S_160	279632	709295	
S_161	279647	709315	
S_162	279663	709335	
S_163	279678	709354	
S_164	279693	709374	
S_165	279709	709394	
S_166	279551	709232	
S_167	279566	709252	
S_168	279581	709271	
S_169	279597	709291	
S_170	279612	709311	
S_171	279627	709330	
S_172	279643	709350	
S_173	279658	709370	
S_174	279674	709390	
S_175	279689	709409	

Appendix C – Peat Core Logs & Photographs

APPENDIX C – Peat Core Logs and Photographs

Peat Core 1 (PC01) at Trial Pit 11

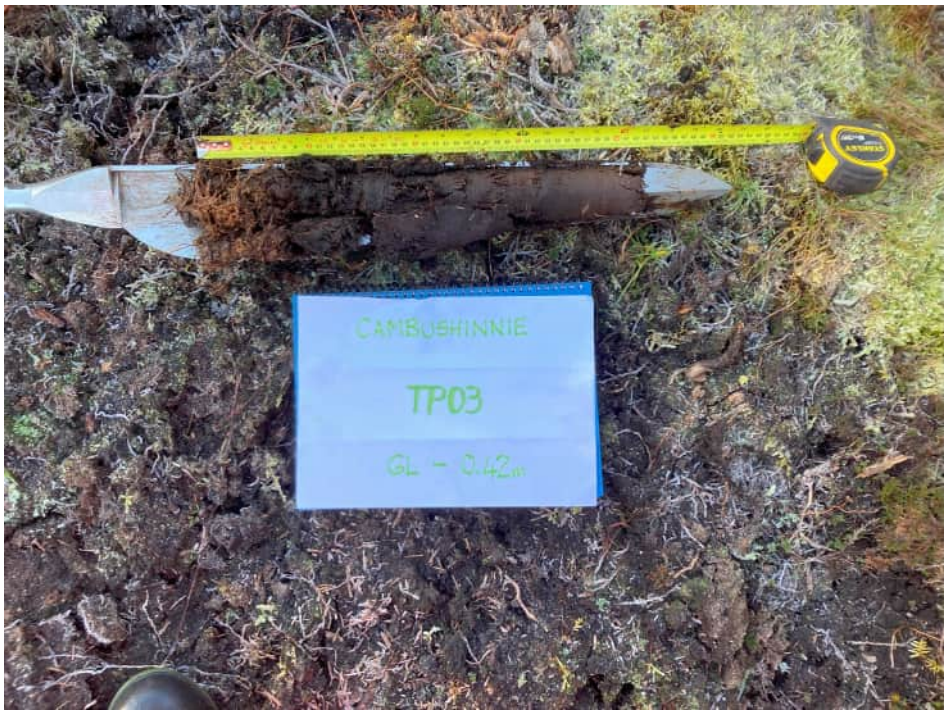
Peat Core 2 (PC02) at Trial Pit 1

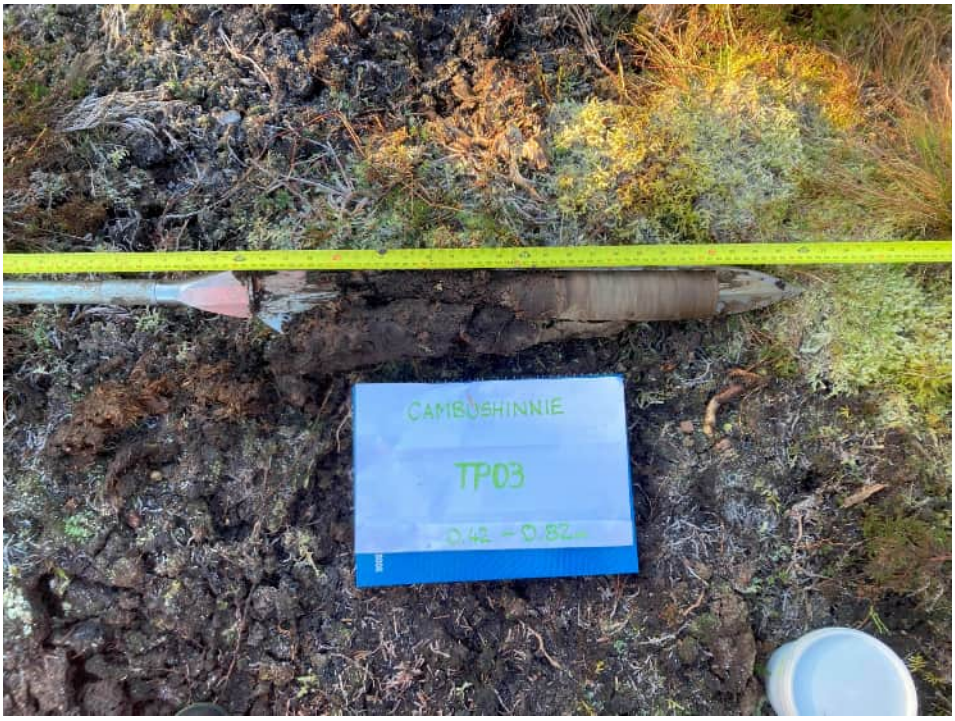
Peat Core 3 (PC03) at Trial Pit 10

Peat Core 4 (PC04) at Trial Pit 13

SSEN Cambushinnie 400kV Substation Upgrade
Additional Peat Probe Survey

Peat Core 5 (PC05) at Trial Pit 3

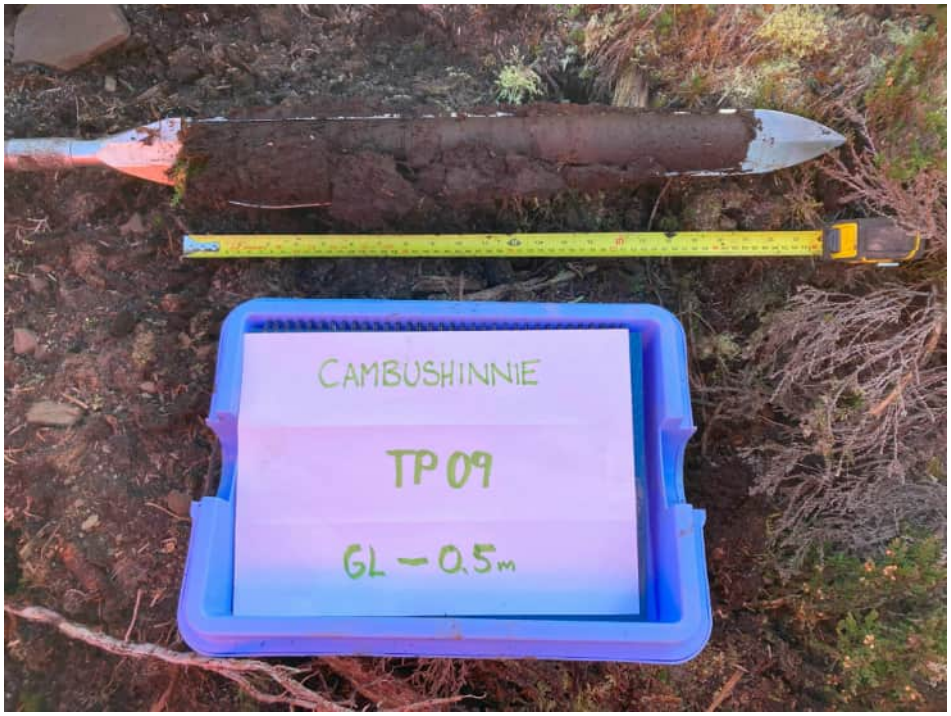




SSEN Cambushinnie 400kV Substation Upgrade
Additional Peat Probe Survey

Peat Core 6 (PC06) at Trial Pit 4

Peat Core 7 (PC07) at Trial Pit 09



Appendix D – Peat Lab Test Results

AECOM
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For the attention of David Raeside

Report No: A15474-1
Issue No: 01
Date of issue: 20/03/2025

LABORATORY TEST REPORT

Project Name	**CAMBUSHINNIE SUB STATION**		
Project Number	**A15474-1**	Date samples received	21/02/2025
Your Ref	A15474-1	Date written instructions received	21/02/2025
Purchase Order	60721943	Date testing commenced	08/03/2025

Please find enclosed the results as summarised below

Figure / Table	Test Quantity	Description	ISO 17025 Accredited
	10	Determination of Water Content	Yes
	4	Bulk Desnity	Yes
	10	Chemical Analysis	Yes s/c
App A	~	Notes on Laboratory Procedures - Soil	N/A

Remarks:
Complete

Key to symbols used in this report
S/C : Testing was sub-contracted

Issued by: S McDonagh
Laboratory Coordinator
20/03/2025

Approved Signatories: C Donnelly - Lab Manager, C Loudon - Field Services Manager, S McDonagh - Laboratory Coordinator, S Gilchrist - Quality Supervisor, A Lavery - Concrete and Asphalt Supervisor, J Simpson - Field Testing Training Manager, D Whyte - Senior Lab Technician

6 Belgrave Street, Bellshill Industrial Estate, Bellshill, North Lanarkshire, ML4 3NP
Tel: +44 (0)1236 747 949
bellshill.testing@igne.com
www.igne.com
Terra Tek Ltd is registered in Scotland. SC121594
Offices in Aston Clinton, Barnsley, Bellshill, Daventry
Head Office: Whistleberry Road, Hamilton, Glasgow, Scotland, ML3 0HP

0126

igne

Site: CAMBUSHINNIE SUB STATION

Client: SSEN

Engineer: AECOM

Contract No A15474-1

Sample Identification				Lab Sample ID	Non Enginering Description	Water Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
PC01 / TP11	0.00-0.37		D	2041278	Brown fibrous Peat	568
PC02 / TP01	0.00-0.25		D	2041279	Brown fibrous Peat	621
PC03 / TP10	0.00-0.40		D	2041280	Brown fibrous Peat	486
PC04 / TP13	0.00-0.30		D	2041281	Brown fibrous Peat	533
PC05 / TP03	0.00-0.42		D1	2041282	Brown fibrous Peat	822
PC05 / TP03	0.42-0.60		D2	2041283	Brown gravelly very silty SAND with organic matter. Gravel is fine to medium	53.6
PC06 / TP04	0.00-0.43		D1	2041284	Brown fibrous Peat	765
PC06 / TP04	0.43-0.56		D2	2041285	Brown fibrous Peat	655
PC07 / TP09	0.00-0.50		D1	2041286	Brown fibrous Peat	511
PC07 / TP09	0.50-1.00		D2	2041287	Brown fibrous Peat	498

Notes

Originator	Checked & Approved
SM	20/03/2025

Determination of the Water Content

BS EN ISO 17892-1:2014

6 Belgrave Street, Bellshill Industrial Estate, Bellshill, North Lanarkshire, ML4 3NP

igne	Site: CAMBUSHINNIE SUB STATION Client: SSEN Engineer: AECOM	Contract No **A15474-1**

Sample Identification				Lab Sample ID	Non Enginering Description	Bulk Density	Dry Density	Water Content
Hole ID	Depth m	Sample Ref	Sample Type			Mg/m³	Mg/m³	%
PC03 / TP10	0.00-0.40		D	2041280	Brown fibrous Peat	1.21	0.21	486
PC05 / TP03	0.00-0.42		D1	2041282	Brown fibrous Peat	1.11	0.12	822
PC06 / TP04	0.00-0.43		D1	2041284	Brown fibrous Peat	1.09	0.13	765
PC07 / TP09	0.50-1.00		D2	2041287	Brown fibrous Peat	1.16	0.19	498

Notes

Originator	Checked & Approved
SM	20/03/2025

BULK DENSITY

BS EN ISO 17892-2 Determination of bulk density
Linear measurement method

6 Belgrave Street, Bellshill Industrial Estate, Bellshill, North Lanarkshire, ML4 3NP

Project Number: 25031439

Client: Terra Tek Ltd T/A Igne
Date Issued: 20/03/2025
Project Name: A15474-1 - Cambushinnie Sub Station 1

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
25031439-001	PC01/TP11-0-D-0.00-0.37		SOLID	Peat Sample
25031439-002	PC02/TP01-0-D-0.00-0.25		SOLID	Peat Sample
25031439-003	PC03/TP10-0-D-0.00-0.40		SOLID	Peat Sample
25031439-004	PC04/TP13-0-D-0.00-0.30		SOLID	Peat Sample
25031439-005	PC05/TP03-0-D-0.00-0.42		SOLID	Peat Sample
25031439-006	PC05/TP03-0-D-0.42-0.60		SOLID	Clay Sample
25031439-007	PC06/TP04-0-D-0.00-0.43		SOLID	Peat Sample
25031439-008	PC06/TP04-0-D-0.43-0.56		SOLID	Peat Sample
25031439-009	PC07/TP09-0-D-0.00-0.50		SOLID	Peat Sample
25031439-010	PC07/TP09-0-D-0.50-1.00		SOLID	Peat Sample

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UKAS TESTING 1252

Analysis Results

Method Code	Analysis	MDL	Accred.	SOCOTEC Sample ID:	25031439-001	25031439-002	25031439-003	25031439-004	25031439-005
				Sampling Date:					
				Customer ID:	PC01/TP11-0-D-0.00 -0.37	PC02/TP01-0-D-0.0 0-0.25	PC03/TP10-0-D-0.0 0-0.40	PC04/TP13-0-D-0.0 0-0.30	PC05/TP03-0-D-0.0 0-0.42
CLANDPREP	Total Moisture at 35°C	0.1 %	N		74.3	77.5	79.9	48.4	79.8
	Major Constituents	-	N		PEAT	PEAT	PEAT	PEAT	PEAT
	Minor Constituents	-	N		None	None	None	None	None
	Miscellaneous Constituents	-	N		Organic Matter	Organic Matter	Organic Matter	Organic Matter	Organic Matter
	Colour of Material	-	N		Brown	Brown	Brown	Brown	Brown
PHSOIL	pH (2.5:1 extraction)	1 pH units	U		4.1*	4.3*	4.6*	5.0*	4.3*
ORGMAT	Organic Matter	0.2 % m/m	N		63.5	60.8	59.1	14.7	67.8

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Analysis Results

Method Code	Analysis	MDL	Accred.	SOCOTEC Sample ID:	25031439-006	25031439-007	25031439-008	25031439-009	25031439-010
				Sampling Date:					
				Customer ID:	PC05/TP03-0-D-0.42-0.60	PC06/TP04-0-D-0.00-0.43	PC06/TP04-0-D-0.43-0.56	PC07/TP09-0-D-0.00-0.50	PC07/TP09-0-D-0.50-1.00
CLANDPREP	Total Moisture at 35°C	0.1 %	N		33.4	82.3	85.7	86.6	81.6
	Major Constituents	-	N		CLAY	PEAT	PEAT	PEAT	PEAT
	Minor Constituents	-	N		Silt	None	None	None	None
	Miscellaneous Constituents	-	N		Organic Matter	Organic Matter	Organic Matter	Organic Matter	Organic Matter
	Colour of Material	-	N		Brown	Brown	Brown	Brown	Brown
PHSOIL	pH (2.5:1 extraction)	1 pH units	U		4.9	4.4*	4.4*	4.0*	4.3*
ORGMAT	Organic Matter	0.2 % m/m	N		9.7	68.5	70.2	69.5	71.7

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Deviating Sample Report

Sample Reference	Text ID	Method Code	Incorrect Container	Incorrect Label	Headspace	Incorrect/No Preservative	No Sampling Date	Holding Time
PC01/TP11-0-D-0.00-0.37	25031439-001	CLANDPREP					✓	✓
PC01/TP11-0-D-0.00-0.37	25031439-001	ORGMAT					✓	✓
PC01/TP11-0-D-0.00-0.37	25031439-001	PHSOIL					✓	✓
PC02/TP01-0-D-0.00-0.25	25031439-002	CLANDPREP					✓	✓
PC02/TP01-0-D-0.00-0.25	25031439-002	ORGMAT					✓	✓
PC02/TP01-0-D-0.00-0.25	25031439-002	PHSOIL					✓	✓
PC03/TP10-0-D-0.00-0.40	25031439-003	CLANDPREP					✓	✓
PC03/TP10-0-D-0.00-0.40	25031439-003	ORGMAT					✓	✓
PC03/TP10-0-D-0.00-0.40	25031439-003	PHSOIL					✓	✓
PC04/TP13-0-D-0.00-0.30	25031439-004	CLANDPREP					✓	✓
PC04/TP13-0-D-0.00-0.30	25031439-004	ORGMAT					✓	✓
PC04/TP13-0-D-0.00-0.30	25031439-004	PHSOIL					✓	✓
PC05/TP03-0-D-0.00-0.42	25031439-005	CLANDPREP					✓	✓
PC05/TP03-0-D-0.00-0.42	25031439-005	ORGMAT					✓	✓
PC05/TP03-0-D-0.00-0.42	25031439-005	PHSOIL					✓	✓
PC05/TP03-0-D-0.42-0.60	25031439-006	CLANDPREP					✓	✓
PC05/TP03-0-D-0.42-0.60	25031439-006	ORGMAT					✓	✓
PC05/TP03-0-D-0.42-0.60	25031439-006	PHSOIL					✓	✓
PC06/TP04-0-D-0.00-0.43	25031439-007	CLANDPREP					✓	✓
PC06/TP04-0-D-0.00-0.43	25031439-007	ORGMAT					✓	✓
PC06/TP04-0-D-0.00-0.43	25031439-007	PHSOIL					✓	✓
PC06/TP04-0-D-0.43-0.56	25031439-008	CLANDPREP					✓	✓
PC06/TP04-0-D-0.43-0.56	25031439-008	ORGMAT					✓	✓
PC06/TP04-0-D-0.43-0.56	25031439-008	PHSOIL					✓	✓
PC07/TP09-0-D-0.00-0.50	25031439-009	CLANDPREP					✓	✓
PC07/TP09-0-D-0.00-0.50	25031439-009	ORGMAT					✓	✓
PC07/TP09-0-D-0.00-0.50	25031439-009	PHSOIL					✓	✓
PC07/TP09-0-D-0.50-1.00	25031439-010	CLANDPREP					✓	✓
PC07/TP09-0-D-0.50-1.00	25031439-010	ORGMAT					✓	✓
PC07/TP09-0-D-0.50-1.00	25031439-010	PHSOIL					✓	✓

Analysis Method

Method Code	Method Description	Analysis Method
CLANDPREP	Moisture Content @ 35°C	As Received
CLANDPREP	Solid Material Description	As Received

Project Number: 25031439

Client: Terra Tek Ltd T/A Igne
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ORGMAT	Organic Matter Content by Colorimetry	Air Dried & Ground
PHSOIL	pH (2.5:1)	As Received

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing. Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Project Number: 25031439

Client: Terra Tek Ltd T/A Igne
Date Issued: 20/03/2025
Project Name: A15474-1 - Cambushinnie Sub Station 1

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any accreditation marked with ^ signify results are reported on a dry weight basis of 105 ° C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35° C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any results marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by another SOCOTEC department or by an external subcontracted laboratory. Further information is available upon request.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis

AIRDRIE LABORATORY NOTES ON LABORATORY PROCEDURES

Samples of various soil types taken during the ground investigation are examined in the laboratory and assessments of their characteristics are used to supplement field observations and laboratory test results.
Preparation and testing is carried out to the requirements of British, European and International Test Standards where applicable, or otherwise in accordance with good practice. All other tests reported or opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.

	Test Title/Method	Test Standard/Clause
Soils	Determination of water content - oven drying method (U)	BS 1377-2:2022 cl. 4.2 (BS EN ISO 17892-1:2014+A1:2022 cl. 5)
	Determination of water content - oven drying method (U)	BS 1377-2:1990 cl. 3.2 (W)
	Determination of liquid limit by cone penetrometer method (U)	BS 1377-2:2022 cl. 5.2 (BS EN ISO 17892-12:2018+A2:2022 cl. 5.3)
	Determination of liquid limit by cone penetrometer method (U)	BS 1377-2:1990 cl. 4.3 (W)
	Determination of plastic limit and plasticity index (U)	BS 1377-2:2022 cl. 6 (BS EN ISO 17892-12:2018+A2:2022 cl. 5.5)
	Determination of plastic limit and plasticity index (U)	BS 1377-2:1990 cl. 5.3 (W)
	Determination of density - linear measurement (U)	BS 1377-2:2022 cl. 8 (BS EN ISO 17892-2:2014 cl. 5.1)
	Determination of density - linear measurement (U)	BS 1377-2:1990 cl. 7.2 (W)
	Determination of particle density by gas jar method (U)	BS 1377-2:2022 cl. 9.2
	Determination of particle density by gas jar method (U)	BS 1377-2:1990 cl. 8.2 (W)
	Determination of particle size distribution - sieving method (U)	BS 1377-2:2022 cl. 10 (BS EN ISO 17892-4:2016)
	Particle size distribution - wet sieving method (U)	BS 1377-2:1990 cl. 9.2 (W)
	Particle size distribution - dry sieving method (U)	BS 1377-2:1990 cl. 9.3 (W)
	Determination of particle size distribution - pipette method (U)	BS 1377-2:2022 cl. 10 (BS EN ISO 17892-4:2016)
	Particle size distribution - pipette method (U)	BS 1377-2:1990 cl. 9.4 (W)
	Dry density/water content relationship - 2.5kg rammer method (U)	BS 1377-2:2022 cl. 11.3/11.4
	Dry density/water content relationship - 2.5kg rammer method (U)	BS 1377-4:1990 cl. 3.3/3.5 (W)
	Dry density/water content relationship - 4.5kg rammer method (U)	BS 1377-2:2022 cl. 11.5/11.6
	Dry density/water content relationship - 4.5kg rammer method (U)	BS 1377-4:1990 cl. 3.4/3.6 (W)
	Dry density/water content relationship - Vibrating hammer (U)	BS 1377-2:2022 cl. 11.7
	Dry density/water content relationship - Vibrating hammer (U)	BS 1377-4:1990 cl. 3.7 (W)
	Determination of max/min dry densities for granular soils	BS 1377-2:2022 cl. 12
	Moisture Condition Value - natural water content (U)	BS 1377-2:2022 cl. 13.4
	Moisture Condition Value - natural water content (U)	BS 1377-4:1990 cl. 5.4 (W)
	Moisture Condition Value - water content relationship (U)	BS 1377-2:2022 cl. 13.5
	Moisture Condition Value - water content relationship (U)	BS 1377-4:1990 cl. 5.5 (W)
	Determination of the California Bearing Ratio (U)	BS 1377-2:2022 cl. 15
	Determination of the California Bearing Ratio (U)	BS 1377-4:1990 cl. 7 (W)
	One-dimensional consolidation properties (U)	BS 1377-2:2022 cl. 16 (BS EN ISO 17892-5:2017 cl. 6)
	One-dimensional consolidation properties (U)	BS 1377-5:1990 cl. 3 (W)
	Determination of shear strength by laboratory vane method	BS 1377-2:2022 cl. 24
	Determination of shear strength - small shear box	BS 1377-2:2022 cl. 25 (BS EN ISO 17892-10:2018 cl. 6)
	Determination of shear strength - small shear box (U)	BS 1377-7:1990 cl. 4 (W)
	Determination of unconfined compressive strength	BS 1377-2:2022 cl. 27 (BS EN ISO 17892-7:2018 cl. 6)
	Unconsolidated undrained triaxial test (U)	BS 1377-2:2022 cl. 28 (BS EN ISO 17892-8:2018 cl. 6)
	Undrained shear strength triaxial test single stage (U)	BS 1377-7:1990 cl. 8 (W)
	Undrained shear strength triaxial test multi-stage (U)	BS 1377-7:1990 cl. 9 (W)
	Reference density and water content - Proctor compaction (U)	BS EN 13286-2:2010
	Reference density and water content - Vibrating hammer (U)	BS EN 13286-4:2021
	Determination of the compressive strength	BS EN 13286-41:2021
	Moisture condition value (U)	BS EN 13286-46:2003
	Determination of California bearing ratio (U)	BS EN 13286-47:2021
	Determination of degree of pulverisation (U)	BS EN 13286-48:2005

(U) Denotes UKAS accreditation held; (W) Denotes test standard/method withdrawn/superseded

Soil Description
Laboratory soil descriptions (non-engineering) and classifications are generally given in accordance with Section 6 of BS 5930:2015+A1:2020 & Section 6 of BS EN ISO 14688-1:2018