# Bingally 400 / 132kV Substation and 400kV OHL Tie in

## Stage 1 Peat Management Plan

SSEN Transmission

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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) for the proposed Bingally 400 / 132 kV Substation works (25/00592/FUL) (referred hereafter as Scheme as Submitted) and associated overhead line (OHL) connection (25/02301/S37). This PMP has been updated to reflect the Revised Scheme, as defined in Section 1.1.4 and Section 3 of the Additional Information Report.

The Revised Scheme and associated OHL connection are covered under two separate consenting submissions (a planning application for the Bingally 400/132 kV substation and a Section 37 submission for the OHL works), however, a single PMP has been produced covering both aspects as they are to be constructed simultaneously. As such, when referring to the 'Proposed Development' within this PMP this covers both aspects; the Revised Scheme and the associated OHL connection.

The Proposed Development is required to enable connections to meet the Electricity System Operators (ESO) Pathway to 2030 Holistic Network Design (HND). The published HND sets out the blueprint for the onshore and offshore transmission infrastructure that's required to support the forecasted growth in the UK's renewable electricity to create a pathway to Net Zero. The studies undertaken as part of the ESO's Pathway to 2030 HND confirmed the requirement to increase the power transfer capacity of the electricity corridor from Beauly to Denny. This requires a 400 kV connection between these sites to enable the significant capability needed to take power from onshore and large scale offshore renewable generation. The Proposed Development, alongside others along the existing 275 kV Beauly to Denny line, is therefore required to enable increase of the electrical circuit to 400 kV.

This document has been prepared to inform the planning authority The Highland Council (THC) and statutory consultees (Scottish Environment Protection Agency (SEPA) and NatureScot) of the proposed peat management method to be employed during the construction of the Proposed Development. This will involve the formation of the substation platform; installation of drainage systems including SuDS pond and temporary settlement lagoons; 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 existing access tracks and provision of new access tracks; construction of temporary compound areas; construction of temporary roads and working areas; and formation of borrow pits to allow material to be won from site. **Figures 1a** to **1c** located within **Appendix A** contain a plan showing the proposed works associated with the Proposed Development.

### 1.1.1 Peat Management Plan Update

In consideration of the planning application (25/00592/FUL), objections were raised by statutory and non-statutory bodies including of relevance to the PMP, THC and the Scottish Environmental Protection Agency (SEPA),. Specifically, SEPA have objected to the application and noted the following:

*"[…] the proposed Temporary Compound 3 and Borrow Pit area appears to be creating a disproportionate amount of excavated peat. Further detailed probing of this area is unlikely to demonstrate a significant reduction in these volumes. Most of the deeper peat in this location is in the southwestern part of the proposed compound area. Considering we have some concerns regarding the peat volumes possibly being used in reinstatement of the tracks […] we* ***object*** *to this application and will consider removing this objection once the applicant* ***modifies*** *the area of Temporary Compound 3 reducing/moving the area off the deeper area of peat to the southwest. These modifications will need to be accompanied by revised estimated peat excavation and re-use volume tables."*

*"[…] We are disappointed to note the 103,876m$^3$ excess of excavated peat which has not yet been identified for on-site re-use. Whilst it is proposed to use some of this excess peat in verge re-instatement of the main access track no re-use volumes for this have been confirmed. In addition, we highlight the excess 22,016m$^3$ of catotelm peat will not be suitable for such re-use. We therefore* ***object*** *to this application and* ***request*** *the applicant* ***modifies*** *the application to reduce the likely excavated volumes of peat."*

To address this objection, SSEN Transmission have updated the Proposed Development to include changes to the proposed layout thereby removing Temporary Compound 3 and the Borrow Pit area (among other changes),

update the peat proposals which reduce the overall volume of peat proposed to be disturbed and identifies that all peat excavated as part of the Proposed Development will be reused within the Site.

This PMP has been updated based on design changes to the Proposed Development made to satisfy objections inclusive of the objections made in relation to the peat quoted above. An Additional Information Report[1] has been prepared to highlight the changes made and provide further supporting information to address the objections made by the consultees and to appraise the design updates more widely.

## 1.2 Site Description

The Proposed Development location in general is as shown on **Figures 1a** to **1c**, in **Appendix A**. The Site is as defined by the Red Line Boundary (RLB) shown on **Figures 1a to 1c**, in **Appendix A**. For the purposes of this document, the Proposed Development can be split into 2 distinct areas: the southern extent where the bulk of the works are proposed and the access track leading from the A831 to the southern extent of the Site. For the purposes of this document when referring to the main works area, this refers to the southern extent of the Site where the bulk of the works and overhead line (OHL) tie-in are proposed. When referring to the access track, this means the proposed access track comprising of both upgrades and new sections which leads from the A831 to the main works area.

The main works area is located approximately 2.5 km south of Tomich at approximate National Grid Reference (NGR) NH 30371 24232. The main works area is located within land used for commercial forest. At present based on recent site visits, the main works area is clear-felled and with surface vegetation in the form of heathland observed with very localised juvenile trees present sporadically throughout the area. Existing drainage channels associated with the forestry land use were noted within the area. The existing forestry access track is present in the west and south of the area with a drainage channel running alongside the track.

The access track extends from the main works area in the south (approximate NGR: NH 30397 24625) to the A831 in the north, approximately 1 km east of the village of Cannich (approximate NGR: NH 35141 31677). The proposed access track is approximately 9.5 km in length and comprises upgrade of approximately 3.6 km of existing forestry track and construction of approximately 5.9 km of new access track. Where present, the existing access track was observed to be orientated northeast – southwest and to be of unbound construction comprising of compacted stone with a drainage channel typically running alongside. Several watercourses are also crossed by the access track at various points along its length, with the track typically crossing these via culverts.

The Proposed Development is located within hilly terrain with the topography varying across the Site, although in general the topography falls from east to west.

Within the main works area and running alongside much of the proposed access track is the existing north – south trending Beauly – Denny Overhead Electricity Line.

An intrusive ground investigation was completed in January 2024 within the main works area to inform the preferred location of the proposed substation as well as provide information to enable its design. No project specific ground investigation information was available at the time of writing relating to the proposed access track or overhead line diversion. Peat probing data was, however, available covering the vast majority of the Proposed Development (including the main works area and proposed access track).

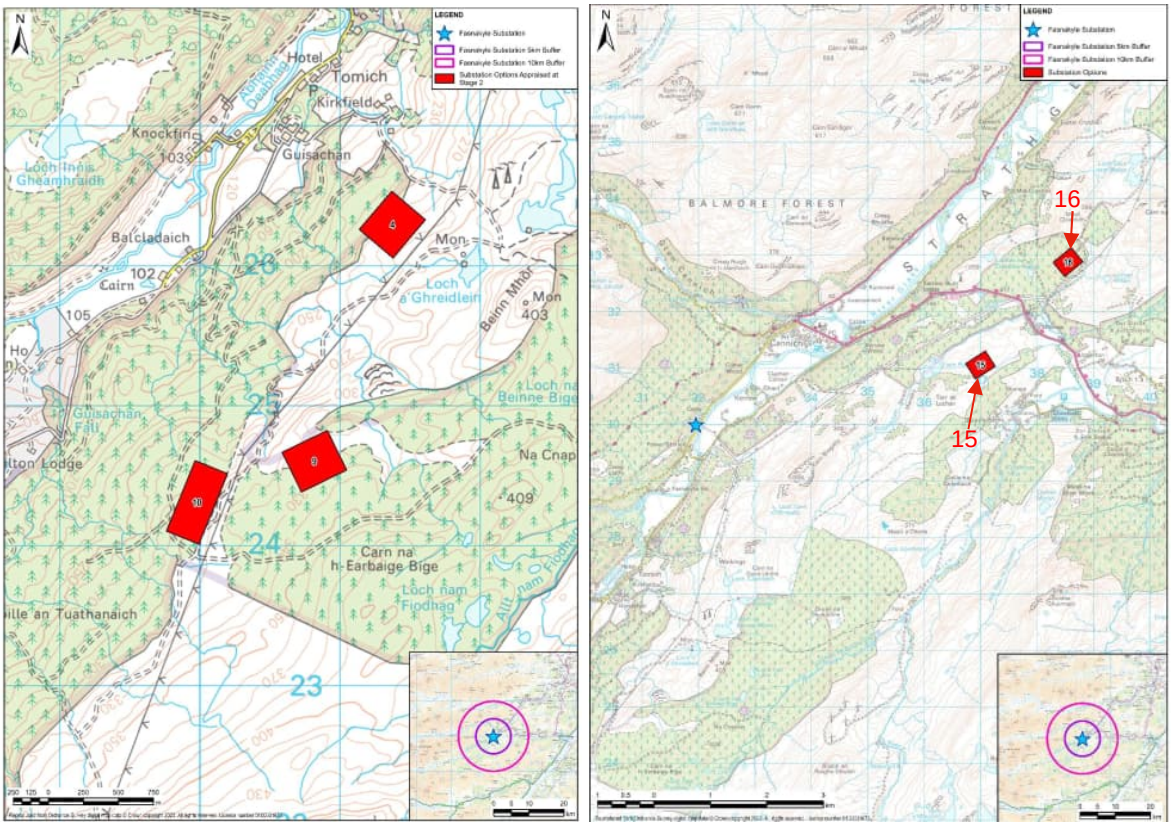
## 1.3 Design Development

As part of the development of the project, a site selection process was undertaken by SSEN to identify the preferred site based on technical (engineering), environmental and cost considerations. To facilitate the site selection process, SSEN undertook a two-phase site selection design development; initial and detailed. Both of these design development stages are included within SSEN Transmission's Site Selection Consultation Document[1].

As part of the initial screening process 16 sites were assessed to determine the most suitable for taking forward to detailed site selection assessment. For the initial screening, the sites selected were chosen to be within a 2.5 km search area either side of the existing Beauly - Denny OHL as well as being in the proximity (i.e. within 5 km) of the existing Fasnakyle substation. As part of the engineering assessment, the ground conditions and in particular whether peat was recorded to be present at each site was noted. Of the 16 sites considered, only five sites had no evidence of peat present. The recorded presence of peat within the sites was not the only

[1] AECOM (2025) Bingally 400 / 132kV Substation Additional Information Report

assessment criteria and as such sites were selected to be taken forward to detailed site selection even though peat was recorded within. Following the initial site selection process four sites were taken forward to detailed site selection (Options 4, 9, 10 & 15), as shown in **Insert 1-1** below. Of these sites only Option 10 recorded no evidence of peat.



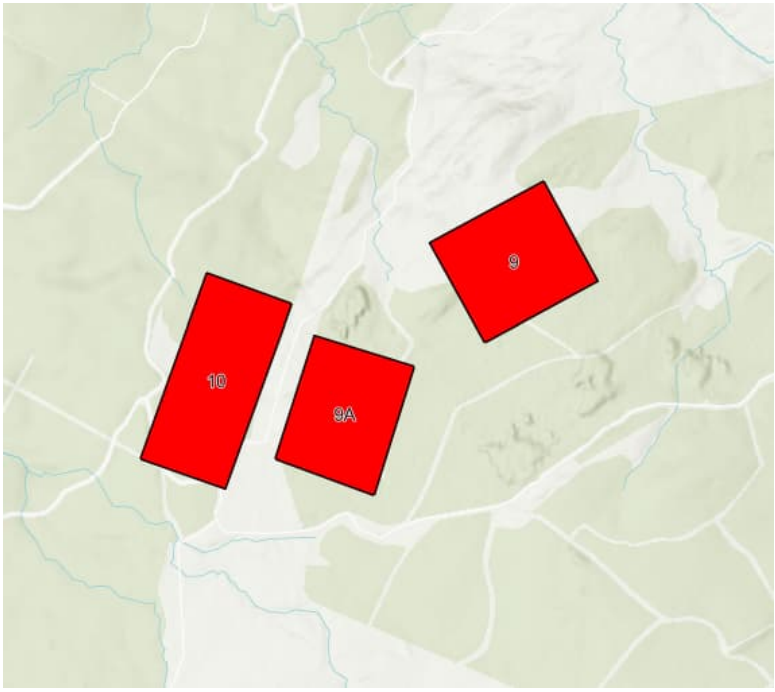

**Insert 1-1 – Locations of Sites Assessed during Detailed Site Selection Process[2]**

During the detailed site selection process, it was determined that based on a number of different factors, Option 9 was the preferred site location. Details on the site selection process and assessment undertaken, are included within SSEN Transmission's Site Selection Consultation Document[1]. This document was issued to a number of consultees, including statutory and non-statutory, like SEPA. Responses received as part of the consultation process are included in SSEN Transmission's Report on Consultation[3]. Feedback from consultees was noted in particular relating to the recorded presence of peat at the preferred site. SSEN Transmission acknowledged the presence of recorded peat within the preferred site, with peat probing and targeted ground investigation undertaken to inform peat assessments and the site and design refinement.

The targeted ground investigation undertaken (described further in **Section 3** of this report) included boreholes and trial pits along with various in-situ and laboratory testing. Peat probing was also undertaken as part of the ground investigation. Based on the estimated peat depths from this peat probing survey alone, Option 9 was shown to have areas of deep peat (>1.0 m) with a significant area indicated to have peat depths of >5.0 m. As a result SSEN probed and investigated another area just to the southeast of Option 9, nominally labelled as Option 9a. Option 9a was also estimated to have areas of deep peat present (>1.0 m), however the areas were not as significant, and the maximum depth recorded were up to 4.0 m although these areas were very localised.

[2] SSEN Transmission (2024) Site Selection Consultation Document – Beauly – Denny 2nd Circuit Upgrade, Proposed Fasnakyle 400kV Substation, January 2024 Update, available: https://www.ssen-transmission.co.uk/projects/project-map/bingally-400kv-substation/

[3] SSEN Transmission (2024) Fasnakyle Area 400kV Substation, Report on Consultation, March 2024, available: https://www.ssen-transmission.co.uk/projects/project-map/bingally-400kv-substation/




**Insert 1-2 – Location of Option 9A relative to Option 9 & Option 10**

Based on the ground investigation undertaken, SSEN undertook a further high-level comparison of Option 9 and Option 9a considering both the estimated depth and extent of peat, as well as the generalised platform footprint based on 1 in 3 cut and fill slopes. The comparison undertaken estimated approximately 160,000 $m^3$ of peat would be displaced by Option 9a, whereas approximately 201,000 $m^3$ would be displaced by Option 9. The difference in excavated peat volumes at each location was directly attributed to the extent of deeper peat under Option 9.

In addition, there is Class 1 peatland habitat recorded to be present which is more challenging to avoid at the location of Option 9, considering the further permanent works and construction areas that are required. As such, based on the estimated peat disturbance and the presence of the Class 1 peatland habitat, Option 9a was selected as the preferred option to be taken forward for development and design optimisation.

As highlighted in Section 1.1 since submission of the planning application in February 2025 and as a result of the objections received, refinements to the design have been made which reduce the disturbance on peat as well as ensuring there is reuse areas within the Site for peat to be deposited. **Figures 1a to 1c** in **Appendix A** presents the revised scheme layout.

As part of the design and optimisation of the Proposed Development, the Designer highlighted the following in relation to minimising peat disturbance as part of their design:

- Peat probing and peat coring to confirm peat depths and level of decomposition across the Proposed Development, with further intrusive investigation to feed into the understanding of peat across the Site. The peat information obtained will be used to refine the Proposed Development into the detailed design phases;
- Avoid areas of deep peat, where practical;
- Avoid areas of Class 1 and Class 2 peat according to the 2016 Carbon and Peatland Map[4]. This was not possible for the proposed access track in its entirety, due to the proposed alignment following the alignment of the existing access track across various sections. This was also not possible at the location of the proposed northern temporary settlement lagoon (where part of the lagoon is located within an area of Class 1 peat) as the lagoon is required to be positioned in this location due to the natural topography of the Site, although peat probing (discussed later in this document) generally estimated peat deposits <1.0m in thickness within the recorded Class 1 area;
- Refinement of slope angles in any peat cuttings, where possible, to reduce peat excavation whilst ensuring stability;
- Refine rock cut slope angles in order to reduce associated peat excavation;

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

- Optimising the substation and associated elements to minimise unnecessary excavation of deep peat;
- The use of appropriate plant (e.g. low ground bearing pressure plant), if required, to track over peat and avoid unnecessary disturbance; and
- Avoid double-handling of peat to minimise disturbance and damage, where possible.

Taking cognisance of the above, peat will still be disturbed as part of the Proposed Development during the required earthworks in areas of cut and fill in order to achieve acceptable levels of settlement.

## 1.4 Objectives

This Stage 1 PMP relates to the works associated with the construction of the Proposed Development. The Stage 1 PMP has been prepared to satisfy the requirements of the 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.

The Proposed Development is split into two parts, with an Environmental Appraisal (EA) covering the OHL (and associated infrastructure) works and an EA covering the works for the Scheme as Submitted (and associated infrastructure) which includes the access track from the A831. Although, the Proposed Development is covered by two separate consenting submissions (a planning application for the Scheme as Submitted and a Section 37 submission for the OHL works), a single PMP has been produced covering both aspects as the they are to be constructed simultaneously.

The Stage 1 PMP provides background details on the possible peat deposits based on desk based sources, an investigation on the peat extent and depth across the Proposed Development, information on the peat and substrate from a 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 Proposed Development 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 resulting from construction of the Proposed Development. It considers the potential for minimising the excavation and disturbance of the peat in order to avoid or reduce the generation of 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; and
- **Disposal (Waste):** Only after all other options have been explored and discounted would this option be considered.

In addition to the SEPA hierarchy, NPF4 mitigation hierarchy as presented within the guidance document "Advising on peatland, carbon-rich soils and priority peatland habitats in development management" [5] includes for the following:

- Avoid – by removing the impact outset.
- Minimise – by reducing the impact.
- Restore – by repairing damaged habitats.
- Offset – by compensating for residual impacts that remains, with preference to on-site over off-site measures.
- Enhance – biodiversity, including restoring degraded habitats and building and strengthening nature networks.

Note this PMP covers the aspects of the SEPA hierarchy and the first three points from the NPF4 hierarchy. Key information relating to offsetting and enhancement is presented within the Landscape Habitat Management Plan[6] (LHMP) (refer to Appendix E of the Additional Information Report[1]) for the Proposed Development.

Three main stages within the development process are defined within the guidance and describe what data should be gathered and assessed to inform the site specific PMP:

- **Stage 1:** Environmental Impact Assessment (EIA)**;**
- **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. This advice indicated that the Stage 1 PMP typically corresponds with the Outline PMP as highlighted within the

[5] NatureScot (2023) Advising on peatland, carbon-rich soils and priority peatland habitats in development management. Available at: Advising on peatland, carbon-rich soils and priority peatland habitats in development management | NatureScot
[6] AECOM (2025) Landscape Habitat Management Plan.

Pre-Application Consultation advice. One noticeable difference between the advice 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[7] 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 reuse volumes for reinstatement and restoration purposes.

[7] 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 Action Plan (UKBAP)[8];
- Scotland's National Peatland Plan (SNH, 2015)[9];
- European Council Habitats Directive 92/43/EEC (Council of the European Communities, 1992)[10];
- Scottish Biodiversity List (SBL) (Scottish Government, 2013)[11];
- European Council Water Framework Directive 2000/60/EC (Council of the European Communities, 2000)[12];
- Scottish Government discussion paper on the Management of Carbon-Rich Soils (Scottish Government, 2010)[13];
- Scottish Soil Framework (Scottish Government, 2009)[14]; and
- Climate Change Plan (2017-2032) (Scottish Government, 2017)[15].

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 PMP:

- Advising on peatland, carbon-rich soils and priority peatland habitats in development management[5]
- Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste[16];
- SEPA Regulatory Guidance – Developments on Peat and Off-site Uses of Waste Peat[17];
- Good Practice During Wind Farm Construction[18];.
- Peatland Survey. Guidance on Developments on Peatland[19];
- Floating Roads on Peat[20];
- Constructed Tracks in the Scottish Uplands[21];
- Restoration Techniques using Peat Spoil from Construction Works[22];
- Peatland Action – Technical Compendium[23];
- Guidance on Design Principles for Renewable Energy Development on Peatland on the National Forests and Land[24];
- A risk-based approach to peatland restoration and peat instability[25]; and

[8] United Kingdom Biodiversity Action Plan (UKBAP) (1994) Biodiversity The UK Action Plan. Available at: https://data.jncc.gov.uk/data/cb0ef1c9-2325-4d17-9f87-a5c84fe400bd/UKBAP-BiodiversityActionPlan-1994.pdf
[9] Scottish Nature Heritage (2015) Scotland's National Peatland Plan. Available at: https://www.nature.scot/doc/scotlands-national-peatland-plan-working-our-future
[10] 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
[11] Scottish Government (2013) Scottish Biodiversity List (SBL). Available at: https://www.nature.scot/doc/scottish-biodiversity-list
[12] 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
[13] 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
[14] 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.
[15] 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/
[16] 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.
[17] SEPA (May 2017). SEPA Regulatory Guidance – Developments on Peat and Off-site Uses of Waste Peat, SEPA Guidance, WST-G-052. Version 1.
[18] 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.
[19] Scottish Government, Scottish Natural Heritage, SEPA (2017). *Peatland Survey. Guidance on Developments on Peatland*
[20] Scottish Natural Heritage, Forestry Commission Scotland (2010). *Floating Roads on Peat,* August 2010.
[21] Scottish Natural Heritage (2015) Constructed Tracks in the Scottish Uplands, 2nd Edition, updated September 2015
[22] EnviroCentre on behalf of SEPA (2011) Restoration Techniques using Peat Spoil from Construction Works, Final Report, July 2011.
[23] NatureScot (2024) Peatland Action – Technical Compendium [online], available: https://www.nature.scot/doc/peatland-action-technical-compendium [last accessed July 2024].
[24] Forestry and Land Scotland (2024) Guidance on Design Principles for Renewable Energy Development on Peatland on the National Forests and Land, Version 1, January 2024
[25] Mills, A.J. and Rushton, D. (2023) A risk-based approach to peatland restoration and peat instability. NatureScot Research Report 1259

- Windfarms and blanket peat[26]

Additionally, the publication of the National Planning Framework (NPF) 4[27] has illustrated the importance of more considered practices within peatlands. Policy 5 of NPF4 states:

> *a) Development proposals will only be supported if they are designed and constructed: i) In accordance with the mitigation hierarchy by first avoiding and then minimising the amount of disturbance to soils on undeveloped land; ii) In a manner that protects soil from damage including from compaction and erosion, and that minimises soil sealing.*
>
> *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; iv) 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.

[26] Lindsay, R. and Bragg, O. (2005) Windfarms and blanket peat – A report on the Derrybrien bog slide, Second Edition
[27] The Scottish Government (2024) National Planning Framework 4, available: https://www.gov.scot/publications/national-planning-framework-4/

# 3 Ground Conditions

Two Geotechnical and Geo-Environmental Desk Studies have been produced by AECOM covering the Proposed Development. The first relates to the proposed OHL, while the second relates to the proposed substation and access track. These desk studies are provided as Technical Appendices within the OHL EA[28] and substation EA[29], respectively. The below subsections summarise the relevant information pertaining to this PMP from the desk studies produced and supplements this with further detail where required.

## 3.1 Topography

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

The topographic data obtained indicates the Site generally slopes down to the northwest. At the main works area the data indicates a fall from approximately 380 m Above Ordnance Datum (AOD) in the east to approximately 285 m AOD in the west. Across the OHL line the topography is shown to fall from approximately 335 m AOD at the southern extent to approximately 285 m AOD at the northern extent.

The topographic data indicates that the existing access track typically falls from southeast to northwest as well as from south to north. Towards the main works area the access track is at a level of approximately 300 m AOD which falls to approximately 85 m AOD by the A831.

## 3.2 Geology and Soil Maps

The BGS GeoIndex[30] indicates the majority of the Proposed Development to be underlain by either glacial till or areas where no superficial deposits are recorded, indicating bedrock is at or near ground level. Overlying both the glacial till and bedrock, pockets of peat are frequently recorded throughout the Proposed Development, typically in the lower lying areas and in northeast – southwest trending channels. Although not recorded by the BGS, alluvial deposits may be present in the immediate vicinity of watercourses within the Proposed Development. These alluvial deposits may contain peat horizons. Figures are provided within the OHL EA and substation EA showing the BGS recorded superficial deposits across the Proposed Development.

The National Soil Map of Scotland[31] records the main works area to be predominately underlain by peaty gleys with dystrophic semi-confined peat. Locally, in the northwestern and southwestern extents of the main works area, humus-iron podzols with peaty gleyed podzols are recorded. The proposed OHL line is also recorded to be underlain by peaty gleys with dystrophic semi-confined peat in the northern half and southern extent of the works area and humus-iron podzols with peaty gleyed podzols in the southern half and northern extent of the works area. In relation to the access track, this is recorded to be predominantly underlain by humus-iron podzols with peaty gleyed podzols throughout. Locally towards the middle of the route, just to the north of BP1, the access track is recorded to be underlain by peaty gleyed podzols. The northern extent of the access track is also locally underlain by mineral alluvial soils with peaty alluvial soils and the southern extent towards the substation underlain by peaty gleys with dystrophic semi-confined peat.

Review of the 2016 Carbon and Peatland Map layer of the National Soil Map of Scotland Interactive Map Viewer[15] indicates that the main works area is predominately underlain by Class 5 carbon and peatland soils. Locally, within the southwestern extent of the main works area Class 0 deposits are recorded and in the north of the main works area underlying part the northern most temporary settlement lagoon a small pocket of Class 1 carbon and peatland soils is recorded. A further larger area of Class 1 carbon and peatland soil is also recorded to the north east of the main works area, although there is no proposed infrastructure in that zone.

The 2016 Carbon and Peatland Map layer indicates that the proposed OHL is underlain by Class 5 soils in the northern half and Class 0 soils in the southern half. Locally in the southern extent of the OHL Class 1 soils are recorded, with these also recorded just to the east of the OHL as noted for the main works area above. Class 0 soils are also recorded within the northern extent of the OHL.

[28] SSEN Transmission (2025) Bingally 400kV Overhead Line Tie-In, Environmental Appraisal, April 2025
[29] SSEN Transmission (2025) Bingally 400kV Substation, Environmental Appraisal, March 2025
[30] BGS (2024) GeoIndex Onshore, Available: https://mapapps2.bgs.ac.uk/geoindex/home.html [accessed March 2024]
[31] NatureScot (2024) National Soil Map of Scotland Interactive Map Viewer, Available: https://map.environment.gov.scot/Soil_maps/?layer=1# [accessed March 2024]

For the access track, the 2016 Carbon and Peatland Map layer indicates this is predominately underlain by Class 0 soils. Locally towards the centre of the access track route, an area of Class 2 and Class 4 Carbon and Peatland soils are recorded. An area of Class 1 soils is also recorded to the east of the access track, within the red line boundary for the Proposed Development but not underlying the proposed access track alignment.
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 1 – Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value;
- Class 2 – Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas of potentially high conservation value and restoration potential;
- 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; and
- 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.

**Figures 3a to 3e** within **Appendix A** present the 2016 Carbon and Peatland classification across the Proposed Development.

## 3.3 Historic OS Mapping and Aerial Photography Review

Historic OS mapping was obtained for the Proposed Development as part of the Groundsure Report obtained for the Desk Studies and is included as Appendix C of the AECOM Geotechnical and Geo-Environmental Desk Studies[32 & 33]. Review of the earliest available map from 1872 identified the Site was generally undeveloped mainly agricultural land with localised areas of forestry. By 1971 further presumably commercial forestry was recorded particularly within the south of the Site. The mapping up to 1971 also identifies the former alignment of the OHL within the southwest of the Site with access tracks presumably for the forestry indicated within the centre and south of the Site. Also recorded within the south of the site were ponds and a disused gravel pit. From the 1971 mapping to present day no significant or extensive changes were noted within the Site. Typically, only new access tracks, OHL, slight changes to the forestry extent and localised pits / quarries were recorded.

A review of aerial photographs relating to the Proposed Development was undertaken using the historical aerial imagery time slider of Google Earth[34].

The earliest available aerial photograph from 1985 was of poor resolution, however, it appeared to record the Proposed Development to be predominately heathland with localised areas of forestry. The next map with good quality resolution was from 2006 which indicated the old alignment of the OHL which was present just to the west of the present-day Beauly – Denny OHL within the Proposed Development. The image from 2006 also indicated extensive forestry in what appears to be a conifer plantation in the main works area which extends to the east of the Proposed Development.

The next available photograph which showed any change was from 2016, which showed felling of most of the forestry within the main works area. The OHL that was present had been upgraded to the now present-day Beauly – Denny OHL in its current alignment, with the old OHL appearing to have been demolished. The existing access track within the Proposed Development that runs from the village of Fasnakyle past the proposed substation is now also present. It is assumed the existing access track was constructed for the installation of the present-day Beauly – Denny OHL alignment. Approximately 2.95km and 3.8 km northeast of the Revised Scheme, along the existing access track, are two presumed borrow pits. Both are assumed to have been formed for the extraction of aggregate for use in the construction of the existing access track.

No further significant development was noted through the images reviewed up to the most recent from 2024.

[32] AECOM Ltd (AECOM) (2024). LT521 Bingally 400kV Substation and Access Track, Geotechnical and Geo-Environmental Desk Study, Project No. 60701792, September 2024.
[33] AECOM Ltd (AECOM) (2024). LT521 Bingally Overhead Line, Geotechnical and Geo-Environmental Desk Study, Project No. 60701792, September 2024.
[34] Google (2024) Google Earth

## 3.4 Field Observations

A site walkover was undertaken as part of the desk studies for the Proposed Development in May 2024. The site walkover typically agreed with the information obtained through the desk-based research above. The Proposed Development is located in areas of forestry and unoccupied land comprising of open heathland with juvenile tress present sporadically. Surrounding the main works area out with the Proposed Development, forestry comprising mature woodland was noted. The existing access track along the western edge of the Proposed Development from around Fasnakyle to the Revised Scheme was also observed. This access track was observed to be unbound comprising of aggregate with a drainage channel running alongside. Peat exposures were not observed as part of the site walkover with the surface typically covered by forestry or the remnants of historic felling and growth of heathland. Within the main works area drainage channels were not encountered to allow viewing of any peat deposits within the channel horizons.

## 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.

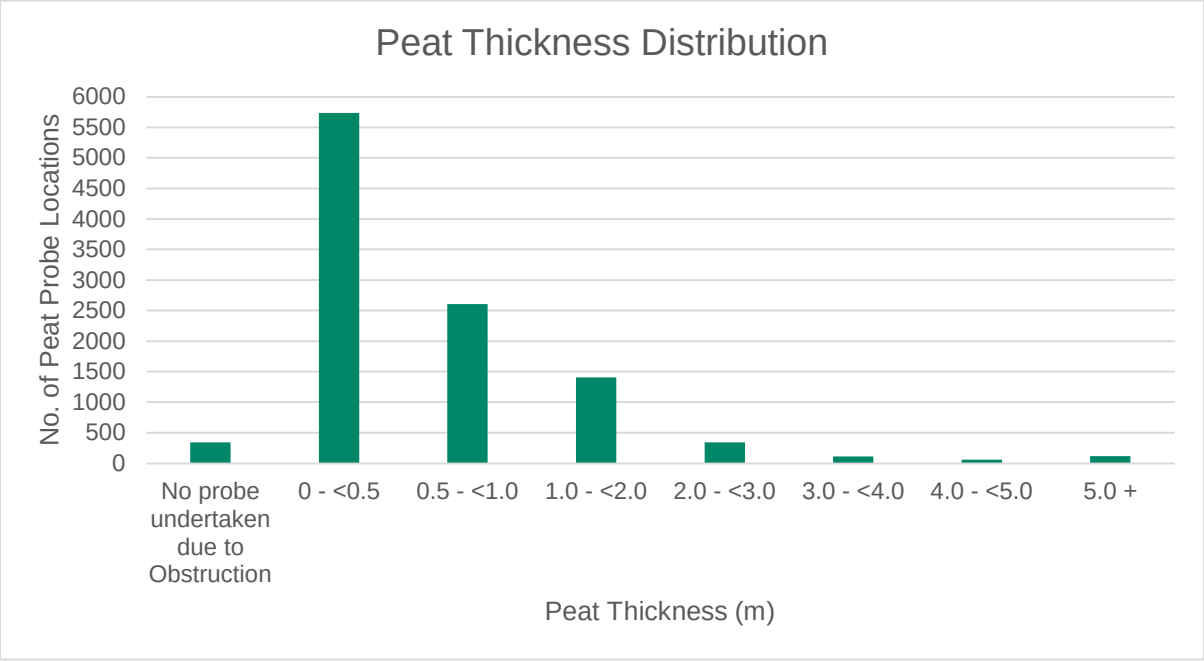
## 3.6 Peat Depth Assessment

Four phases of ground investigation to determine peat depths have been undertaken for the Proposed Development, as noted below:

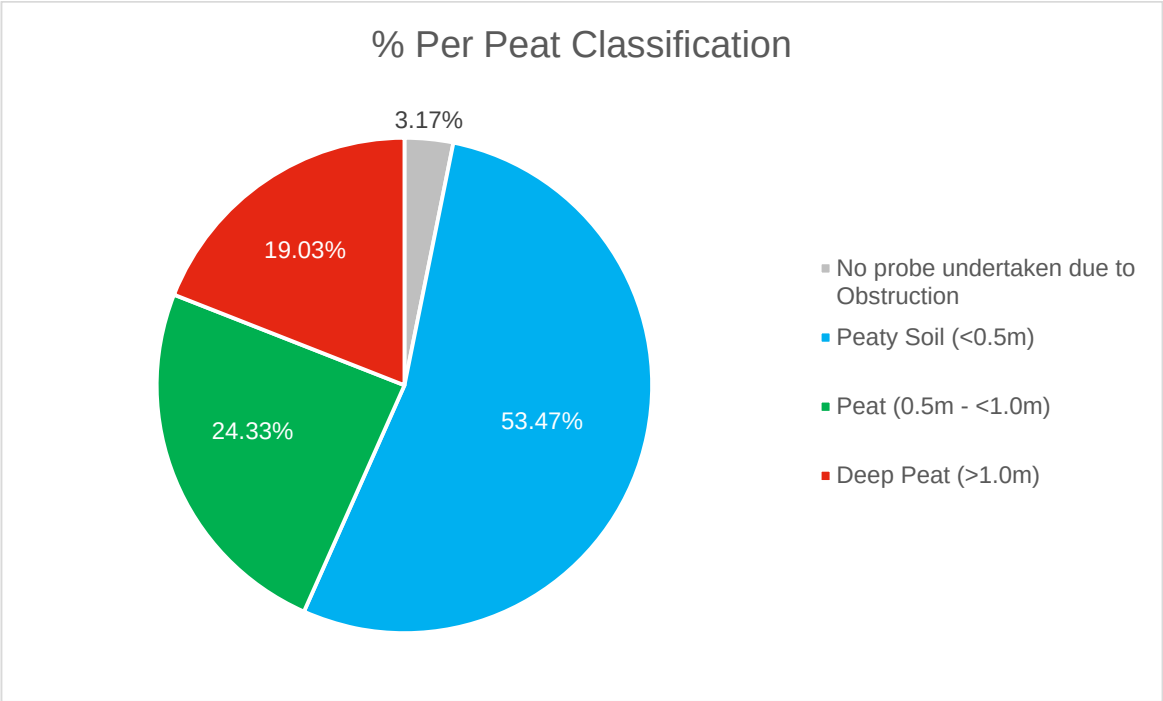
- Peat depth probing (6,270 probes of which 281 were not completed due to site constraints such as obstructions) was undertaken by Igne from November 2023 to January 2024 as part of a wider ground investigation. Probing was based on a 10m grid generally and covered Option 9 and Option 9a, as discussed in the **Design Development Section**. 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; and
- A further peat investigation survey comprising peat depth probing (3,375 probes of which 56 were not completed due to site constraints such as obstructions) and Russian Coring (60 locations) was undertaken by BAM Ritchies in May to July 2024 to cover the proposed access track, OHL and any infrastructure locations missed at the proposed substation location. The spacing of the probing undertaken varied depending on location with a 20 m grid typically undertaken adjacent to the proposed access track extending to 50 m with distance from the track. For the OHL a 10m grid was typically undertaken at each proposed tower location, working area and access track to the towers. For the proposed borrow pit location a 25 m grid was typically undertaken. The frequency of the Russian Cores undertaken was not set, instead the coring was undertaken to target areas of deep peat.
- Peat depth probing (421 probes) was undertaken by BAM Ritchies in late 2024 as part of a wider investigation for the proposed access track. The probing undertaken typically focused on proposed peat storage areas and the temporary compound near the A831 connection. Generally the probing undertaken within this phase was based on a 25m grid.
- An additional peat survey comprising peat probing (29 probes) was undertaken by Ecohydrology in May 2025 to provide coverage of the southwestern corner of the main works area. The probing undertaken was based on a 25 m grid generally over the area.
- A supplementary peat survey comprising peat probing (584 probes of which 3 were not completed due to site constraints such as obstructions) was undertaken by AECOM in August 2025 to cover the southwestern extent of the Proposed Development, to the west of the existing access track. The purpose of the probing was for the siting of the OHL temporary compound. The probing undertaken was based on a 10 m grid, generally, over the area probed.

- A further peat survey comprising peat probing (41 probes) was undertaken by Bam Ritchies in October 2025. The probing was undertaken along a small section of proposed access track towards the northern extent to fill in gaps were a lesser density of probes was available. The probing undertaken was based on a 25m grid generally in this area.

**Figure 3** within **Appendix A** of this PMP shows the location of the probes in relation to the Proposed Development, as well as the probed depths. **Figure 4** within **Appendix A** of this PMP provides a peat depth interpolation plan based on the peat probe results, noting that probes are not available for the full Red Line Boundary, however, the probe coverage covers the Proposed Development. **Plot 1** and **Plot 2** present the distribution of peat probes against the thickness range recorded. Where shallow bedrock or boulders, trees or access tracks were encountered, no probe was undertaken due to this obstruction.




**Plot 1 - Peat Thickness Distribution**




**Plot 2 – Percentage Per Peat Classification**

When considering both peat probe investigation surveys, 340 probes (~3.2% of the 10,720 no. total probes) were not undertaken due to the presence of obstructions at surface (e.g. trees, boulders, access track, etc.). Peaty soil

<0.5 m thick were recorded in 5,732 no. of the probes (~53.5% of the 10,720 no. total probes) and peat deposits between 0.5 m and <1.0 m thick were recorded in 2608 no. of the probes (~24.3% of the 10,720 no. total probes). Deep peat >1.0 m in thickness was recorded in 2040 no. of the probes (~19.0% of the 10,720 no. total probes).

In relation to the Proposed Development, the peat deposits recorded are typically <1.0 m in thickness. However, it is acknowledged that deep peat deposits (>1.0 m in thickness) are present. These deeper deposits are generally aligned in a northeast to southwest strip within the Revised Scheme footprint as well as being present more locally underlying other proposed pieces of infrastructure. The deep deposits underlying the Proposed Development are typically up to 3.0 m in depth with very localised areas up to 4.0 m underlying the Revised Scheme footprint. Along the proposed access track to the main works area, peat deposits of 0.5m or less were typically recorded, with only localised deeper deposits. These deeper deposits were generally recorded within the southern half of the access track and within the area of Class 2 Carbon and peatland soils located along the access track.

Large extents of deep peat >5.0 m in depth were recorded underlying Option 9 assessed as part of the site selection process (see **Design Development Section** of this PMP), which has since been avoided as part of the Proposed Development in favour of the current substation location at Option 9a. As discussed within the **Design Development Section** of this PMP, deep peat deposits were attempted to be avoided as part of the design process, however, could not be avoided in all cases and the current layout results in a lower level of peat excavation in comparison to other options considered.

### 3.6.1 Igne Ground Investigation

The ground investigation undertaken by Igne, detailed in their Factual Report dated May 2024[35], included 25 boreholes, 38 trial pits and 6,270 peat probes. Jacobs UK Limited produced a Ground Investigation Report (GIR) for the ground investigation works undertaken[36] which included description of the peat findings and an engineering assessment. The below describes the findings of Igne's ground investigation taking cognisance of the GIR produced by Jacobs as relates to the peat encountered. The peat probe data is described in the above paragraphs along with the further peat probe data collected by BAM Ritchies.

The Igne ground investigation undertaken only covered the main works area of the Proposed Development. Peat was encountered in 13 of the boreholes and all trial pits, except TP16 & TP27, undertaken to a maximum depth of 3.50 mbgl (BH28). 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.

Where observed in exploratory holes, the peat was generally described as dark brown slightly sandy plastic amorphous locally spongey fibrous peat. The Von Post Humification Scale was used to log the peat 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. In general, the peat encountered as part of the ground investigation was recorded in the range of H4 (slight decomposition) to H5 (moderate decomposition) / B1 (dry) to B2 (low moisture content), although humification of up to H8 (very strong decomposition) was locally recorded as well as moisture contents of up to B3 (moderate moisture content). Geotechnical laboratory testing was undertaken within the peat. 18 no. water content tests were undertaken indicating a minimum value of 19%, a maximum value of 1353% and an average value of 545%. 14 no. organic matter content tests were undertaken indicating a minimum value of 12.6%, a maximum value of 24.4% and an average value of 18.8%. Included within Appendix A of Jacobs GIR are geological longitudinal sections at three locations across the main works area, with the predicted platform level shown.

### 3.6.2 BAM Ritchies Peat Investigation

The peat investigation undertaken by BAM Ritchies, detailed in Fairhurst's GI Summary Note dated August 2024[37], included 3,361 peat probes and 60 Russian Cores. The BAM peat investigation covered the access track leading into the main works area and areas of the Proposed Development previously missed by the Igne Ground Investigation. At the time of writing no further ground investigation information was available for the proposed access track or OHL. The peat probe data recovered as part of this investigation is described at the start of

[35] Igne Ltd (2024). *Proposed LT521 Fasnakyle 400 kV Substation near Tomich Scottish Highland, Report on Ground Investigation*, Report Issue Final, May 2024
[36] Jacobs UK Limited (2024) *ASTI Substation Site – LT521 Fasnakyle Ground Investigation Report*, Document no: B2468300-JAC-ZZ-XX-RP-GE-0001, Version 00, April 2024
[37] Fairhurst (2024) LT521 – Bingally 400kV Substation, Access Track Peat Probing and Coring GI Summary Note, Report Ref. BING4-LT521-SEBAM-EWKS-ZZ-RPT-G-0003, August 2024

Section 3.6 along with the peat probe data collected by Igne. The locations of the cores undertaken are as shown on Drawings within Fairhurst's Summary Note, with five present in close proximity to the main works area and the rest spread across the length of the proposed access track. Of the 60 Russian Cores taken, all but 11 encountered peat. The majority of cores where no peat was encountered were located towards the northern extent of the proposed access track, although further cores where no peat was encountered are also located locally throughout the proposed access track alignment. Where peat was encountered the depths encountered through the Russian Coring typically agreed with the peat depths as estimated through the peat probing undertaken.

Where peat was encountered within the Russian Core positions, typically two distinct layers were encountered; an upper more fibrous layer and a lower more amorphous layer. The upper layer is likely to represent the acrotelmic layer of the peat, with this typically recorded from ground level to between 0.10 m and 1.25 m bgl. The upper layer is generally described as spongy to firm brown to dark brown fibrous PEAT with many fine roots. In relation to the Von Post Humification Scale the upper layer was typically recorded in the range H2 (insignificant decomposition) to H4 (slight decomposition), locally H1 (no noticeable decomposition) or H5 (moderate decomposition), with a moisture content of B1 (dry) to B2 (low), locally B3 (moderate). The lower more amorphous layer of peat is likely to represent the catotelmic layer of the peat, with this generally recorded underlying the actotelm to the base of the core location, at the interface with the substrate. The lower peat layer is typically described as spongy to firm, locally plastic, dark brown becoming black clayey pseudo-fibrous PEAT with a deeper deposit also frequently recorded underlying the pseudo-fibrous peat, typically comprising firm to plastic dark brown to black amorphous PEAT. In relation to the Von Post Humification Scale, the lower peat layer was typically recorded to range from H5 (moderate decomposition) to H7 (strong decomposition) becoming H8 (very strong decomposition) or H9 (nearly complete decomposition) with depth, with a moisture content of B2 (low) to B3 (moderate), locally B4 (high) or B5 (very high). No testing was carried out on the peat recovered from the BAM Ritchies peat investigation.

# 3.7 Peat Conditions at Site

## 3.7.1 Field Observations

For the purposes of this PMP, the peat has been separated into three distinct layers taking cognisance of the JNCC report 455 peat classifications, as reported in Section 3.5. These layers are:

- Where peat or peaty soils is recorded ≤0.5m thick from ground level to underlying substrate:
  - Peaty Soil
- Where peat is recorded with thicknesses >0.5m from ground level to underlying substrate:
  - Acrotelm – the shallow fibrous layer overlying deeper deposits of peat.
  - Catotelm – the deeper, typically amorphous peat layer.

In relation to the boundary between the acrotelm and catotelm this 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 NatureScot Research Report 1259 further identifying the acrotelm as lying above the seasonal water table fluctuations and displaying active root growth with some tensile strength exhibited. The catotelm underlies the acrotelm within the permanently saturated zone and comprises decomposing vegetation. 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.

The exploratory records undertaken as part of the Igne ground investigation typically describe the peat deposits as one unit, and typically do not differentiate the potential peat type with depth, making it difficult to determine the split of the acrotelm from the catotelm. The Von Post Humification Scale was used to describe the peat as part of the investigation and was used to aid in determination of the acrotelm / catotelm boundary. Although the Von Post scale was used, the boundary between the interpreted acrotelm and catotelm was still difficult to determine based on description alone. However, in this instance the boundary between the acrotelm and the catotelm was more clearly defined by the presence and level of the groundwater encountered within the exploratory holes undertaken at the main works area. The groundwater level, where recorded within or at the base of the peat, was between 0.10m and 3.20 m bgl with an average depth of 0.82 m bgl and a median depth of 0.50 m bgl. The acrotelm was therefore estimated to be between 0.30 m and 0.80 m in thickness.

The interpreted acrotelm was therefore encountered within the majority of the exploratory holes within the main works area, with the underlying interpreted catotelm only locally recorded in zones.

In relation to the interpretation of the acrotelm and catotelm relating to the BAM Ritchies peat investigation for the proposed access track, the definition of the boundary was much more defined. Section 3.6.2 of this PMP describes this boundary, with the acrotelm interpreted to depths of between 0.1m and 1.25 m bgl.

For the purposes of estimated peat volumes for this Outline PMP, an estimated average thickness of 0.50 m for the acrotelm layer has been applied throughout. This depth is consistent with the observed range of thicknesses included within Lindsay and Bragg – Windfarms and blanket peat[26] which suggest the acrotelm is typically around 0.5m in thickness. Even though the estimated acrotelm thickness is 0.50m, it is noted that, due to the commercial forestry activity in the area (particularly within the main works area), the acrotelm may also contain part of the upper catotelm.

Although in places the catotelm peat appears to have some structure, given the trial pits excavated generally remained stable without collapse, for the purposes of the Outline PMP the catotelm is not considered suitable for verge restoration with only the acrotelm proposed for this purpose.

From the peat investigations undertaken, as described in Section 3.6, it is clear that peat deposits of at least 0.5m thickness are widespread within the main works area. Deep peat of >1.0m thickness are present within the main works area, however, these are typically in discrete pockets and within the northeast-southwest trending channels. Peat of up to around 4.5m thickness is also present within the main works area, although only encountered in isolated probes. Along the proposed access track peat depths are generally up to 0.5m in thickness, however, areas of peat up to 1.0m are locally identified as well as discrete areas of deep peat (>1.0m thickness), typically within the vicinity of the Class 2 carbon and peat soils.

Based on the above, to estimate the volumes of peat across the Proposed Development the following assumptions were made:

- Where ≤0.5m of peat (i.e. shallow peat) was recorded, the peat was classified as ‘Peaty Soil’.
- Where >0.5m of peat was recorded, an average acrotelm thickness of 0.5m was applied to the earthwork’s footprint with the remaining thickness then estimated to be the catotelmic layer.

### 3.7.2 Peatland Condition Assessment

As part of the EA Process AECOM undertook a UK Habitat (UKHab) survey across the Proposed Development with the results of this covered by **Chapter 8** of the Bingally Substation EA, **Volume 1**. The survey indicated the main works area is predominantly covered by commercial plantation, formerly dominated by Sitka spruce and currently clear-felled. Habitats within this area are largely a form of degraded bog, that resembles wet heath. **Figure 8-3** of **Volume 2** of the Bingally Substation EA shows areas of degraded blanket bog within the main works area underlying parts of the Revised Scheme platform, temporary settlement lagoons, temporary platform compound, SuDS basin and internal and external peat cells. Outwith the peat bogs the main habitat classification within the main works area was recorded as other coniferous woodland with this the predominant habitat underlying the proposed substation footprint.

Along the proposed access track the habitat was recorded as being largely a near-natural mosaic of woodlands, heaths and bogs generally moderate or good condition. It was recorded that much of open ground and woodlands in the first 4 km of the track (from the A831) were burnt in a fire in May / June 2023, although it is anticipated these areas will make a full recovery in the long term. The alignment of the proposed access track includes large tracts of blanket bog and wet heath, along with occasional patches of species-poor purple moor-grass dominated mires, dry upland acid grassland and bracken-dominated habitat in a mosaic with heathland. **Figure 8-3** of **Volume 2** of the Bingally Substation EA shows localised areas of blanket bog and degraded blanket bog along the proposed access track.

The Bingally Substation EA highlights that blanket bog is an Annex I H7130 habitat under the Habitats Directive[38].

Potentially highly/ moderately Groundwater Dependent Terrestrial Ecosystems (GWDTE) have been recorded within the Proposed Development as identified by **Figure 8-4** of **Volume 2** of the Bingally Substation EA. Typically, throughout the Proposed Development the GWDTE identified are recorded to be potentially moderate, with the potentially high recorded in a small area in the southwest of the proposed substation, at the northern proposed temporary settlement lagoon and locally along the proposed access track. Notwithstanding, the GWDTE within the Site are often associated with ombrotrophic deep peat, and in these situations, it is likely that the hydrology of the GWDTE are largely (or perhaps entirely) maintained by surface water associated with rain-fed systems. An assessment was carried out by AECOM and found that most are not actual GWDTE.

[38] European Environment Agency (2019) The Habitats Directive, Annex I: natural habitat types of community interest whose conservation requires the designation of special areas of conservation, available: https://eunis.eea.europa.eu/references/2324/habitats

# 4 Sources of Peat During Construction

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

- Construction of the platform and associated earthworks including extended handling area and internal peat cells;
- External peat cell;
- Realigned forestry access tracks;
- Drainage, including the provision of SuDS comprising a basin, filter drains, watercourse diversions and swales;
- Proposed approximately 9.5 km long access track (comprising 5.9 km of new track and 3.6 km of upgraded/realigned track) from the A831 to the proposed platform;
- Construction of OHL tie-in from the existing OHL to the proposed substation;
- Temporary access roads to allow construction of Proposed Development;
- Temporary OHL diversion to allow construction of tie-ins;
- Temporary welfare compounds to the north of the proposed substation;
- Temporary compound towards the northern extent of the proposed access track towards the A831;
- Temporary compound for the OHL works, to the west of the proposed substation platform;
- Three temporary settlement lagoons; and
- Four borrow pits.

Due to the size and nature of the Proposed Development and due to its location, a significant volume of peat will require disturbance and excavation and will require relocation both in the temporary and permanent case.

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.

**Figures 1a to 1c** in **Appendix A** provides the scheme layout which can be referred to.

In order to estimate the peat volumes to be excavated as part of the Proposed Development, the peat probing undertaken was converted into a 3D peat surface model and attributed a peat classification in accordance with the assumptions presented in Section 3.7.1. Note for the OHL peat volumes a 3D peat surface model has not been produced and as such an estimated average depth across the relevant infrastructure locations has been used instead. A summary of the estimated peat volumes to be generated from each infrastructure aspect is presented below. Bulking factors have been applied to the volumes, however, this was only applied to the final total volumes of peat and not to each individual aspect of excavated peat . Where bulking factors have been applied this is explicitly stated.

Note that the excavated volumes relating to the Proposed Development have been provided by the Designer for the works and not calculated by AECOM.

## 4.1 Substation Platform (including extended handling area and internal peat cells)

The proposed platform location within the Proposed Development was selected to avoid, as best as possible, deep peat deposits using the data available. The design of the platform has also been refined to reduce, as best as possible, the volume of peat to be excavated. Typically, the peat deposits recorded across the proposed platform are recorded to be <1.0 m deep, however, localised channels and pockets of deep peat >1.0 m are present which cannot be avoided due to the undulating nature of the Site.

The current layout of the platform area extends to the southeast to meet handling and processing requirements. Beyond this further to the southeast, permanent peat relocation cells are proposed to be formed within the rock. The reuse of peat within the cells is discussed within Section 6.2, however, these cells are proposed to be formed as borrow pits with the excavated material used to construct the substation platform and access roads/tracks.

The reuse of peat within the cells is therefore a secondary consideration. A total of eight internal cells of various lengths could be opened for the Proposed Development dependant on the amount of site won material which is required (currently still in the development stage) and the volumes of catotelmic peat which is required to be deposited (dependant on the actual volumes encountered during the earthworks and the bulking factor actually experienced during excavation and deposition). Note it is not proposed peat reuse cells or borrow pits will be opened within the rock for the sole purpose of peat deposition.

Considering the undulation and topography around the platform, earthworks are required to produce a level platform. The finished platform will be required to be competent and capable of supporting the proposed electrical infrastructure of the substation (e.g. buildings, heavy electrical equipment, etc.). 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 Proposed Development. This requires both cut and fill, with peat required to be removed from the fill (embankments) sections also to allow a stable construction. The design of the earthworks considers slopes of 1V:3H through glacial till and weathered rock, although the final earthworks slopes are subject to review during the detailed design stage with steepened slopes to be considered within suitable rock. Cut slopes in peat are considered to be no steeper than 1:4.

Based on the estimated overall footprint of the platform, including the associated earthworks, extended peat handling area and internal peat cells a total peat volume of 111,859 $m^3$ is estimated to be excavated as part of the platform area. Of the 111,859 $m^3$ of peat generated, 17,636 $m^3$ is estimated to comprise peaty soil, 50,916 $m^3$ to comprise acrotelm and 43,306 $m^3$ to comprise catotelm.

## 4.2 External Peat Cell

In order to allow the initial construction of the substation platform, until the internal peat cells are accessible and formed, an external peat cell is proposed to be opened to the south of the substation platform. The external cell is proposed to act as an initial borrow pit to generate site won stone for the early stages of construction of the substation platform and to allow catotelm from the substation platform footprint to be deposited until the internal peat cells are formed. As noted with the internal peat cell, the external peat cell is not being formed solely for the purpose of peat reuse, instead being formed for a borrow pit which a secondary purpose of a peat deposition area.

The proposed external peat cell location was selected to avoid, as best as possible, deep peat deposits using the data available. Typically, the peat deposits recorded across the external peat cell are <1.0 m deep, however, a localised pocket of deep peat >1.0 m is noted towards its western extent.

Considering the requirement to win and excavate rock as part of the peat cell, excavation of all peat from its entire footprint is required.

Based on the estimated overall footprint of the external peat cell, a total peat volume of 3,177 $m^3$ is estimated to be excavated as part of its construction. Of the 3,177 $m^3$ of peat generated, 2,145 $m^3$ is estimated to comprise peaty soil, 775 $m^3$ to comprise acrotelm and 258 $m^3$ to comprise catotelm.

## 4.3 Realigned Forestry Access Track

As part of the Proposed Development, the access track from the A831 splits just to the north of the proposed substation platform. One of the routes split to link into the substation platform, whereas the other continues along what is the realigned existing forestry access. This item covers the realigned existing forestry access track with the other link covered in the access track. Note the whole track does not require realignment with part of the proposed track to utilise the existing alignment. Earthworks are required as part of the realignment of this access track with this typically in the form of embankments. Peat will require to be removed from under the embankments as these deposits do not generally have the necessary geotechnical properties to allow stable construction. Peat probing undertaken along this realigned track typically indicates peat <0.5m in depth, although localised areas of up to 1.0m depth are noted and isolated probes of up to 2.0m depth are also identified.

Considering the footprint of the proposed forestry access track realignment and the estimated peat depths, a total peat volume of 507 $m^3$ is estimated to be excavated as part of the construction works of this element. Of the 507 $m^3$ of peat generated, 306 $m^3$ is estimated to comprise peaty soil, 171 $m^3$ to comprise acrotelm and 30 $m^3$ to comprise catotelm.

## 4.4 Drainage

As part of the drainage network for the Proposed Development, a SuDS basins is proposed to be constructed. The basin is located to the north of the proposed substation platform. The proposed SuDS basins is typically underlain by peat deposits <1.0 m in thickness, although localised deep pockets of peat (>1.0 m) have been recorded underlying the basin towards its southwestern, northwestern and eastern extents.

Considering the footprint of the SuDS basin and the peat depth investigations, a total estimated peat volume of 5,784 $m^3$ is be excavated. Of the 5,784 $m^3$ of peat generated, 2,183 $m^3$ is estimated to comprise peaty soil, 3,184 $m^3$ to comprise acrotelm and 418 $m^3$ to comprise catotelm.

Note that the detailed drainage design is still to be confirm and as such the sizing of the basin may change slightly.

## 4.5 Access Track

To allow access to the Revised Scheme, an access track is required from the A831. The proposed Bingally access track is approximately 9.5 km in length. An existing access track is present along some of the proposed alignment of the proposed access track; however, this will require upgrading and new sections as well as divergences from the existing alignment will be required as part of the Proposed Development. As part of the proposed access track, earthworks are required, due to topographic variations, which encompasses both cut and fill.

The peat probing undertaken along the alignment of the proposed access track indicates peats depths typically <1.0 m in thickness, although deep peat deposits up to 3.0 m thickness are locally recorded.

The current design considers excavation of all the peat underlying the footprint of the proposed access track with an estimated peat excavation volume of 80,220 $m^3$ calculated. Of the 80,220 $m^3$ of peat generated, 39,094 $m^3$ is estimated to comprise peaty soil, 27,918 $m^3$ to comprise acrotelm and 13,207 $m^3$ to comprise catotelm. Note that the estimated peat volumes presented here are inclusive of the volume of peat to be generated by the northern proposed temporary compound and associated access tracks, and the three proposed borrow pits which are located along the access track (i.e. BP1, BP2 & BP3).

# 4.6 OHL Tie-In

As part of the OHL tie-in for the Proposed Development, existing towers require removal and new towers constructed. 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 across these permanent towers indicated peat depths of up to 2.0 m. The estimated peat excavation required to enable the construction of the towers has been determined as 128 $m^3$ of which 32 $m^3$ is estimated to comprise acrotelm and 96 $m^3$ to comprise catotelm. Note that the new gantries and tower to tie-in to the Revised Scheme are covered by the platform construction for the substation.

Two new permanent access roads are also required to allow access to towers. These are located at Tower T77 and Tower T79/79R. Peat probing along these access roads typically indicate peat depths up to 1.0 m thick although localised areas of deep peat were also identified. At present complete removal of the peat underlying the access track footprint are proposed. In total the estimated peat excavation required to allow construction of the access roads has been calculated as 2,458 $m^3$ of which 927 $m^3$ is estimated to comprise acrotelm and 1,531 $m^3$ to comprise catotelm.

# 4.7 Temporary OHL Diversion

To allow the construction of the tie-in to the substation, a temporary diversion to the existing OHL is required. This will require new temporary towers, temporary access roads and working areas around towers. Peat probing across the areas indicate estimated peat depths typically <1.0 m in thickness although deep peat up to 2.0 m was locally recorded.

Complete removal of the peat is required for the foundations underlying the temporary tower foundations, with the current design also anticipating complete removal of the peat under the footprint of the temporary access tracks and working areas. Based on the proposed works and the estimated peat depths an estimated peat volume to be excavated of:

- 179 $m^3$ has been calculated for the temporary towers. Of the 179 $m^3$ of peat generated, 19 $m^3$ is estimated to comprise peaty soil, 32 $m^3$ to comprise acrotelm and 128 $m^3$ to comprise catotelm.
- 840 $m^3$ has been calculated for the temporary access roads. Of the 840 $m^3$ of peat generated, 281 $m^3$ is estimated to comprise peaty soil, 364 $m^3$ to comprise acrotelm and 195 $m^3$ to comprise catotelm.
- 16,450 $m^3$ has been calculated for the temporary working areas. Of the 16,450 $m^3$ of peat generated, 7,320 $m^3$ is estimated to comprise peaty soil, 5,599 $m^3$ to comprise acrotelm and 3,531 $m^3$ to comprise catotelm. Note that the temporary working areas includes all towers where works are proposed so includes both temporary and permanent tower locations.

# 4.8 Temporary Compounds

As part of the Proposed Development, four temporary compounds are proposed as shown on **Figure 1a - c** within **Appendix A**.

Two of the proposed temporary compounds are located just to the north of the proposed substation platform. At these compounds peat is proposed to be stripped along with a proportion of the underlying granular superficial deposits and rock in order to create gently sloping platforms. Peat probing across these compounds typically indicate peat depths <1.0m, although a pocket of peat up to 1.50m depth is recorded affecting both proposed compounds. The total volume of peat estimated to be excavated from these compounds is 6,722 $m^3$. Of the 6,722 $m^3$ of peat generated, 2,831 $m^3$ is estimated to comprise peaty soil, 3,340 $m^3$ to comprise acrotelm and 552 $m^3$ to comprise catotelm.

Another of the proposed compounds is located towards the northern extent of the proposed access track towards the A831. At this compound it is proposed all peat is stripped along with a proportion of the underlying stratum to create a gently sloping platform. Peat probing within the area of this compound typically indicates peat depths <0.5m, with isolated probes indicating peat up to 1.0m depth. The total volume of peat estimated to be excavated as part of this compound is included within the total volumes presented for the access track.

The final proposed compound is located to the west of the proposed substation platform and is associated with the construction of the OHL. At this compound it is proposed all peat is stripped along with a proportion of the underlying stratum to create a gently sloping platform. Peat probing within the area of this compound typically indicates peat depths <1.0m although an area of peat with >1.0m depth is located within the eastern half. The

total volume of peat to be excavated as part of this compound is 1,761m$^3$. The peat volume estimated for the OHL compound was based on average peat depth across the footprint rather than a 3D peat surface. As such, at this stage determinations of the estimated peaty soil, acrotelm and catotelm are not available. Given the small peat volume associated with this aspect and as the peat excavated is proposed to be reinstated when the compound is no longer required, these determinations are not considered to be significant. For the purposes of the assessment and totalling of peat volumes, all peat excavated from the OHL compound have been assigned to peaty soil.

## 4.9 Temporary Settlement Lagoons

As part of the temporary drainage system formed during the construction of the proposed substation platform, up to three temporary settlement lagoons are proposed. These settlement lagoons are positioned around the western half of the proposed substation platform and are of varying sizes. The proposed settlement lagoons are still in the design development stage; however, it is intended that the acrotelm will be stripped with minimal catotelm being excavated. Bunds around the edges of the lagoons are being proposed, likely formed by the acrotelm to reduce peat excavation volumes with the lagoons then to be lined. Peat depths recorded across the lagoons generally show a mixture of depths ranging from <1.0m up to around 2.0m depth. Locally, at the central lagoon, isolated probes indicated peat depth up to 3.50m. The total volume of peat estimated to be excavated from the northern lagoon is 2,377m$^3$, of which 1,867m$^3$ is considered peaty soil or acrotelm and 510m$^3$ is considered to be catotelm. The total volume of peat estimated to be excavated from the central lagoon is 2,964m$^3$, of which 2,237m$^3$ is considered peaty soil or acrotelm and 727m$^3$ is considered to be catotelm. The total volume of peat estimated to be excavated from the southern lagoon is 10,044m$^3$, of which 5,253m$^3$ is considered peaty soil or acrotelm and 4,791m$^3$ is considered to be catotelm.

## 4.10 Borrow Pits

In order to generate site won stone to allow construction of the Proposed Development, particularly for the construction of the proposed access track and northern most temporary compound, four borrow pits are proposed. These are located as shown on **Figure 1a to 1c** in **Appendix A**, with three located along the proposed access track and one located to the east of the proposed substation platform. Three of the borrow pits (BP1, BP2 & BP4) are located at existing borrow pits which are proposed to be reopened. No peat restoration is noted within the existing borrow pits with the exposed rock surface being observed. The last borrow pit (BP3) is located immediately to the south of the northern most temporary compound and will be a new borrow pit opened for the purpose of the Proposed Development. Note that there is the possibility that not all borrow pits will be opened as part of the Proposed Development, however, this will be confirmed following completion of the detailed design. Peat depth across the various borrow pits are generally recorded to be <0.5m. No peat probing has been undertaken at the location of BP4 (southern most pit); however, no peat excavation is anticipated here due to the pit already being open. Estimated peat excavation volumes for the three borrow pits along the access track (BP1, BP2 & BP3) are included within the total volumes presented for the access track in **Section 4.5**.

# 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 soils 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 Access Track

The investigative works undertaken along the access track have typically indicated peat depths <1.0 m with more localised areas of deep peat (>1.0 m) present. The current design upon which the Stage 1 PMP is based considers the peat underlying the footprint of the access tracks will be removed in their entirety and as such provides the worst case. This will be reviewed during the detailed design and any changes to access track construction incorporated into the Stage 2 PMP post consent.

With the underlying peat proposed to be completely removed from the footprint of the access track, it 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 Proposed Development 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).

The current design assumes excavated tracks will require complete excavation of peat to competent substrate, with the excavated peat requiring permanent relocation and/or temporary storage ahead of being reinstated or reused. 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.
- Any excavation within peat creates the potential for minor slippages to occur 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 and undulations in the ground, the access tracks will be formed on sidelong ground in places, with cuttings formed within superficial deposits and supported on embankments. The gradient of the side slopes should 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 should be scheduled post construction to ensure that hydrological pathways and track integrity have been suitably maintained.

## 5.2 Temporary Compounds

The excavation of the peat across the temporary compound areas can have the same effect on the hydrological regime as the access track even though the compounds are temporary. As such, the mitigation proposed above for the proposed access track should be considered for the temporary compound areas also and implemented were practical.

## 5.3 Peat Excavation, Storage & Transport

As described previously there are three distinct layers of peat; for peat depths <0.5m thickness peaty soil, and for peat depths >0.5m acrotelm (including the vegetated turves) and the catotelm. These distinct layers should be recognised during peat excavation and reuse activities.

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

- Where excavation is required, superficial materials will be carefully separated during excavation, to keep peat (and peaty soils) and other soil materials (e.g. weathered rock, rock, gravels and sands) apart. Turves of peat (approximately 0.3m to 0.5m thick) should be cut and relocated temporarily nearby. These peat turves can then be used to support revegetation of excavated areas and new fill areas (turves shall be placed vegetation up).
- Where the peat is in excess of 0.5 m thick, the acrotelm and catotelm should be separated, with the acrotelm retained for surface in-situ reinstatement;
- 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.

### 5.3.1 Temporary Storage

Due to the programming of the works, peat storage will be required as part of the Proposed Development where reinstatement / reuse is not immediately possible. All stored peat will be reinstated / reused within the Proposed Development by the end of the construction phase. Where excavated peat is not immediately relocated or reused, proposed temporary storage areas are typically adjacent to the area of excavation in the case of peaty soil or acrotelm and within the peat cells or borrow pits (BP1 & BP3 only) when catotelm. All efforts will be made to avoid double handling of the peat generated from the Site, however, in the cases of the temporary infrastructure this is not likely to be possible, as full reinstatement when the infrastructure is no longer required, is generally proposed. To ensure the proposed temporary storage areas are suitable in terms of environment, construction practicality and safety, the areas will be assessed at a site level by the ECoW, geotechnical engineer and Contractor's temporary works engineer using the guiding principles below:

- Where possible peat shall be excavated, stored and reused as turves. The turves will 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 will 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;
- 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; and
- Monitor areas of peat / storage during period of wet weather, or during snow melt, to identify early signs of peat instability.

Where peat cannot be transferred immediately to an appropriate reuse area, short term storage (<2 months) will be required. The following good practice applies:

- Peat should be stored around the perimeter at sufficient distance from the cut face to prevent overburden induced failure;
- Local gullies, drainage lines, wet ground and steep slopes should be avoided;
- Stored upper turves (incorporating vegetation) should be organised and identified for reinstatement adjacent to like communities in the intact surrounding peat blanket; and
- Drying of stored peat should be avoided by irrigation (although this is unlikely to be significant for peat materials stored less than 2 months).

Where longer term storage is required (>2 months) the following good practice applies:

- Peat generated should be transported directly to its allocated reuse area to minimise the volume being stockpiled, with the possibility of drying out, where possible;
- Drying of stored peat should be avoided by irrigation, particular in hotter and drier months. Care shall be taken to use a fine spray to irrigate the peat to avoid run-off and / or oversaturation; and
- Monitoring of large areas after wet weather or snow melt.

### 5.3.2 Handling

The following will be considered when handling peat:

- Care will be taken when excavating peat to ensure that the acrotelm and catotelm layers are not mixed during stripping and storing;
- Handling peat can cause the internal structure to deteriorate and therefore make it more of a hazard when relocated due to a loss of shear strength. Peat will be relocated as close as practicable to where it was excavated. Care will be taken when transporting peat to avoid causing unnecessary structural damage;
- The removal of peat from site is considered to be the least desirable environmental option and is not currently anticipated;
- Where possible the peat will be excavated, relocated and re-used as turves. Turves will be relocated green side up to avoid drying out of peat and encourage regrowth. If it is not possible the peat will be reseeded when it is re-used. Where additional reseeding is deemed necessary a suitable seed mix will be agreed with NatureScot and the local planning authority. Restoration/reseeding to be monitored by ECoW throughout the works and in the first growing season post-construction (subject to further reseeding within 2 years). Monitoring detailed below;
- Peat will be relocated and reused as close to the source of excavation as possible, to promote habitat similar to the surrounding areas and promote vegetation regrowth towards natural conditions. This also reduces the haulage distance which should be kept at a minimum throughout the works to reduce potential impact on the peat/soil structure and reduce carbon emissions. Peat handling can also increase the bulking *factor of the material (currently assumed to be 25%) which has an impact on volumes of peat to be reused;*

- Where peat is to be reused, the placement of the catotelmic materials will be in the bottom layers, with the acrotelmic materials to the top.

A detailed storage and handling plan will be prepared by the Principal Contractor as part of the construction phase PMP, including:

- Best estimate excavation volume at each infrastructure location (including peat volume split into peaty soil, acrotelm or 'turf' and catotelm);
- Volume to be stored locally and volume to be transferred directly on excavation to reuse areas elsewhere to minimise handling;
- 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 short term storage.

These parameters will be determined by the contractor prior to construction.

### 5.3.3 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.

Care shall be taken when transporting the peat to avoid causing unnecessary structural damage.

### 5.3.4 Reinstatement & Restoration of Disturbed Areas

As part of the Proposed Development, the current design considers all peat excavated as part of the works will be reused within the Proposed Development. All temporary works areas (e.g. access roads, compound areas, working areas, settlement lagoons, etc.) will be fully reinstated to pre-construction levels once no longer needed with the peat excavated restored to its previous level. For the peat excavated as part of the permanent works, it is proposed the acrotelm will be reused for verge and slope dressing and for covering of peat cells or peat deposition in borrow pits. Catotelm excavated from the works is proposed to be deposited into one of the peat cells or one of borrow pits (BP1 & BP3 only). Further detail on the peat reuse areas proposed as part of the design, including estimated volumes, is provided in **Section 6** of this PMP.

As part of the Proposed Development peatland restoration is proposed outwith the infrastructure footprint but within the Site. Details on the wider peatland restoration outwith the proposed infrastructure locations within the Site are presented within the Landscape Habitat Management Plan (LHMP) which has been updated since issue as part of the scheme as originally submitted. All peatland restoration areas are proposed to be restored following Peatland Action Technical Compendium[23] techniques and best practice and are not currently anticipated to require the reuse of peat excavated from the Proposed Development.

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;
- 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 blanket bog, 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 to ensure the groundwater level is sufficient to sustain the peat.

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

# 6 Site Based Excavation & Management Assessment

## 6.1 Estimated Peat Excavation

Based on the details of the Proposed Development, 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 peaty soil, acrotelmic and catotelmic peat quantities based on the assessed proportion of each material as discussed earlier in Section 3.7.2.

Note that the excavated volumes relating to the Proposed Development 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 as the detailed design progresses. This further refinement will be taken into consideration within the Stage 2 (Detailed) PMP post consent / pre-construction.

**Table 6-1 Excavation Materials Management Plan**

| Description | Total Estimated Peat Volume ($m^3$) | Estimated Peaty Soils Volume ($m^3$) | Estimated Acrotelmic Peat Volume ($m^3$) | Estimated Catotelmic Peat Volume ($m^3$) |
|---|---|---|---|---|
| **Permanent** | | | | |
| Substation Platform inclusive of extended handling area and internal peat cell | 111,859 | 17,636 | 50,916 | 43,306 |
| External Peat Cell | 3,177 | 2,145 | 775 | 258 |
| Realigned Forestry Access Track | 507 | 306 | 171 | 30 |
| SuDS Basin | 5,784 | 2,183 | 3,184 | 418 |
| Main Proposed Access Track: | | | | |
| Section1 (A831 to Ch. 2000) inclusive of Northern Temporary Compound and BP3 | 17,267 | 9,177 | 5,100 | 2,990 |
| Section 2 (Ch. 2000 to Ch. 4000) | 14,718 | 5,678 | 6,092 | 2,948 |
| Section 3 (Ch. 4000 to Ch. 6000) inclusive of BP1 | 17,988 | 6,877 | 7,178 | 3,933 |
| Section 4 (Ch. 6000 to Ch. 8000) inclusive of BP2 | 13,066 | 10,778 | 1,839 | 448 |
| Section 5 (Ch. 8000 to Platform) | 17,181 | 6,584 | 7,709 | 2,888 |
| Total | 80,220 | 39,094 | 27,918 | 13,207 |
| OHL Tie-In – Towers | 128 | 0 | 32 | 96 |
| OHL Tie-In – Access Tracks | 2,458 | 0 | 927 | 1,531 |
| **Temporary** | | | | |
| OHL Diversion – Temporary Towers | 179 | 19 | 32 | 128 |
| OHL Diversion – Access Road | 840 | 281 | 364 | 195 |
| OHL Diversion – Working Areas | 16,450 | 7,320 | 5,599 | 3,531 |
| Temporary Welfare Compounds just north of the proposed platform | 6,722 | 2,831 | 3,340 | 552 |
| Northern Temporary Compound towards A831 | Included within Access Track Volumes for Section 1 | | | |
| OHL Temporary Compound | 1,761 | 1,761 | - | - |
| Temporary Settlement Lagoons: | | | | |
| Northern Lagoon | 2,377 | 1,867 | | 510 |
| Central Lagoon | 2,964 | 2,237 | | 727 |
| Southern Lagoon | 10,044 | 5,253 | | 4,791 |
| Borrow Pits: | | | | |

| | | | | |
|---|---|---|---|---|
| Borrow Pit 1 – 3 | Included within Access Track peat volumes as noted | | | |
| Borrow Pit 4 | No peat excavation anticipated | | | |
| **Total*** | **245,471** | **73,576** | **102,615** | **69,280** |
| **Total (25% bulking factor applied)** | **306,838** | **91,970[#]** | **128,269** | **86,660** |

* No bulking factors have been applied to the volumes

[#] The temporary settlement lagoon peat excavation volumes for the peaty soil / acrotelm which has not been differentiated between have been included entirely within the acrotelm peat volumes for the purposes of this PMP.

# 6.2 Peat Relocation and Reuse

## 6.2.1 Earthworks Phasing

Access to the substation site area will be possible via existing forestry tracks and there will not be a requirement to complete the main Access Track prior to commencing earthworks at the Platform.

The currently proposed sequencing starts with formation of the external peat cell, followed by the internal peat cells to manage the catotelm peat. Southern fill of the platform is scheduled next followed by south excavation, north fill, north excavation and outcrop excavation. The peat cells will be topped off and reinstated with acrotelm peat when completed.

## 6.2.2 Peat Reuse

Based on current design proposals, an outline approach for managing peat generated as a result of the works is presented below.

Note where tree stumps are present these can be chipped and turned into mulch for reuse as dressing of verges.

### 6.2.2.1 Temporary

It is anticipated that all peat excavated from the temporary areas (e.g. temporary compounds, settlement lagoons, etc.) will be reinstated when the infrastructure is no longer required. Peaty soil and acrotelm will temporarily be stored adjacent to the area of excavation, whereas catotelmic peat would be taken to the peat cells or borrow pits proposed for peat deposition (i.e. BP1 & BP3) for temporary storage. Table 6-2 presents the estimated peat reinstatement volumes for the temporary areas.

**Table 6-2 - Estimated Peat Reinstatement Volumes for Temporary Areas**

| Reinstatement Area | Total Estimated Peat Reinstatement Volume ($m^3$) | Total Estimated Peaty Soil Reinstatement Volume ($m^3$) | Estimated Acrotelmic Peat Reinstatement Volume ($m^3$) | Estimated Catotelmic Peat Reinstatement Volume ($m^3$) |
|---|---|---|---|---|
| OHL Diversion – Temporary Towers | 179 | 19 | 32 | 128 |
| OHL Diversion – Access Road | 840 | 281 | 364 | 195 |
| OHL Diversion – Working Areas | 16,450 | 7,320 | 5,599 | 3,531 |
| Temporary Welfare Compounds just north of the proposed platform | Reuse of peat within this area covered within Permanent Peat reuse section (Section 6.2.2.2) | | | |
| Northern Temporary Compound towards the A831 | Reinstatement of peat within this area covered within Permanent Peat reuse section (Section 6.2.2.2, Table 6-3, Proposed Access Track Embankment Slopes row) | | | |
| Temporary OHL Compound | 1,761 | 1,761 | - | - |
| Northern Lagoon | 2,377 | | 1,867 | 510 |
| Central Lagoon | 2,964 | | 2,237 | 727 |
| Southern Lagoon | 10,044 | | 5,253 | 4,791 |
| **Total** | 34,615 | | - | - |
| Note: Only total volume has been summed as part of this table, as all peat excavated is proposed to be reinstated. | | | | |

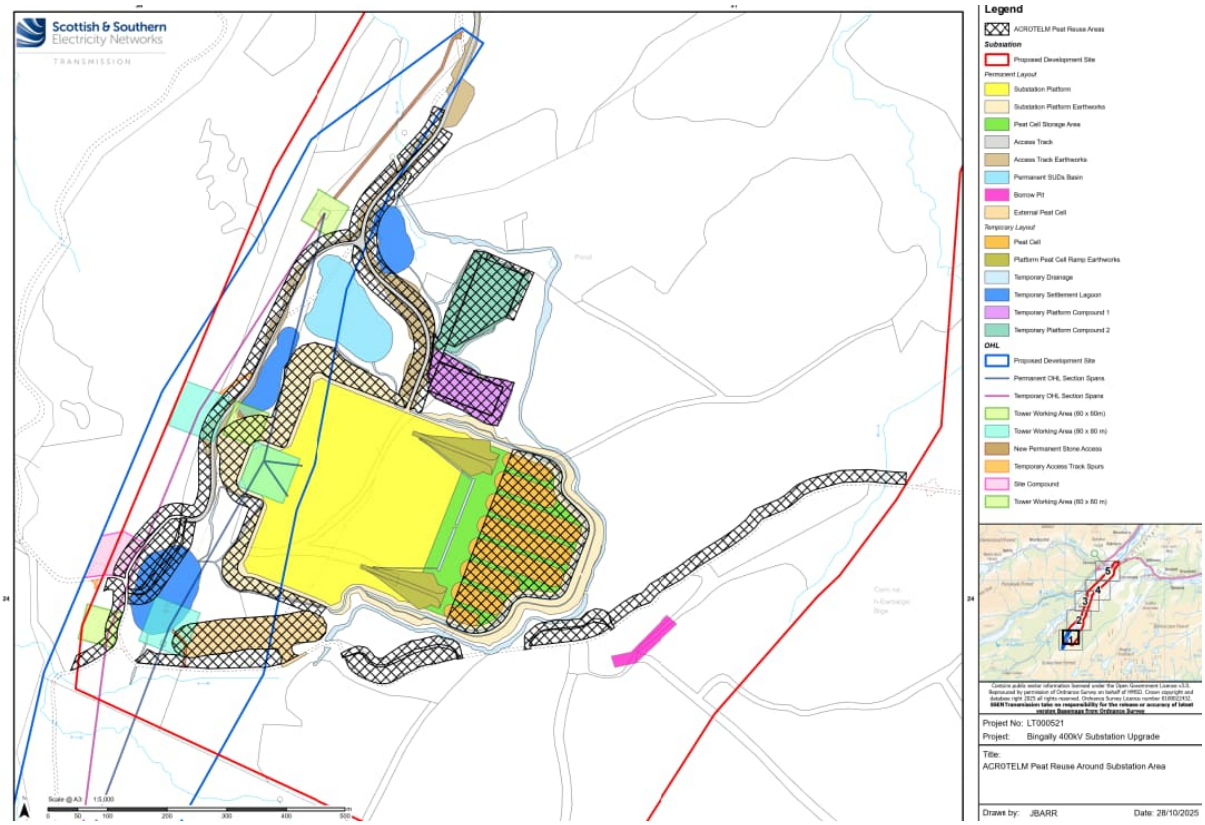
### 6.2.2.2 Permanent

**Peaty Soil**

Peaty soil is proposed to be treated as topsoil and as such is proposed for reuse for landscaping purposes. There are ample locations within the Proposed Development (e.g. as dressing along verges, slopes, etc.) where the peaty soil can be reused.

**Acrotelm**

Acrotelm is proposed to be reused as surface reinstatement layers across permanent catotelmic peat relocation areas, and as dressing for swales, SuDS basin and slopes ≤1V:3H. Transported acrotelm will be kept hydrated for reuse as turves. Where the reuse of turves is not possible or proving ineffective in habitat restoration / reinstatement then hydroseeding will be considered. **Insert 6-1** presents the proposed acrotelm reuse areas associated with the substation platform area only.




**Insert 6-1 - Preliminary areas for acrotelm reuse within substation area**

**Table 6-3** presents preliminary acrotelm peat reuse areas, reuse depths and volumes within the Proposed Development.

**Table 6-3 - Acrotelm Peat Relocation Volumes**

| Location | Area ($m^2$) | Anticipated deposition Depth (m) | Relocation Capacity |
|---|---|---|---|
| Realigned Forestry Access Track | 21,980 | 1 | 21,980 |
| Proposed Access Track Embankment Slopes | 158,633 | 0.3 | 47,590 |
| Main Access Track (beyond Ch. 8850) to proposed platform | 20,330 | 1 | 20,330 |
| Temporary Welfare Compounds (just north of proposed substation platform) | 15,300 | 1 | 15,300 |
| Temporary Welfare Compounds slopes (just north of proposed substation platform) | 9,500 | 0.3 | 2,850 |
| Substation Platform fill slopes | 26,070 | 0.3 | 7,821 |
| Internal Peat Cells (including surrounding tracks) | 41,250 | 0.5 | 20,625 |
| External Peat Cells | 14,010 | 0.5 | 7,005 |
| Borrow Pit 1 | 3,300 | 0.5 | 1,650 |

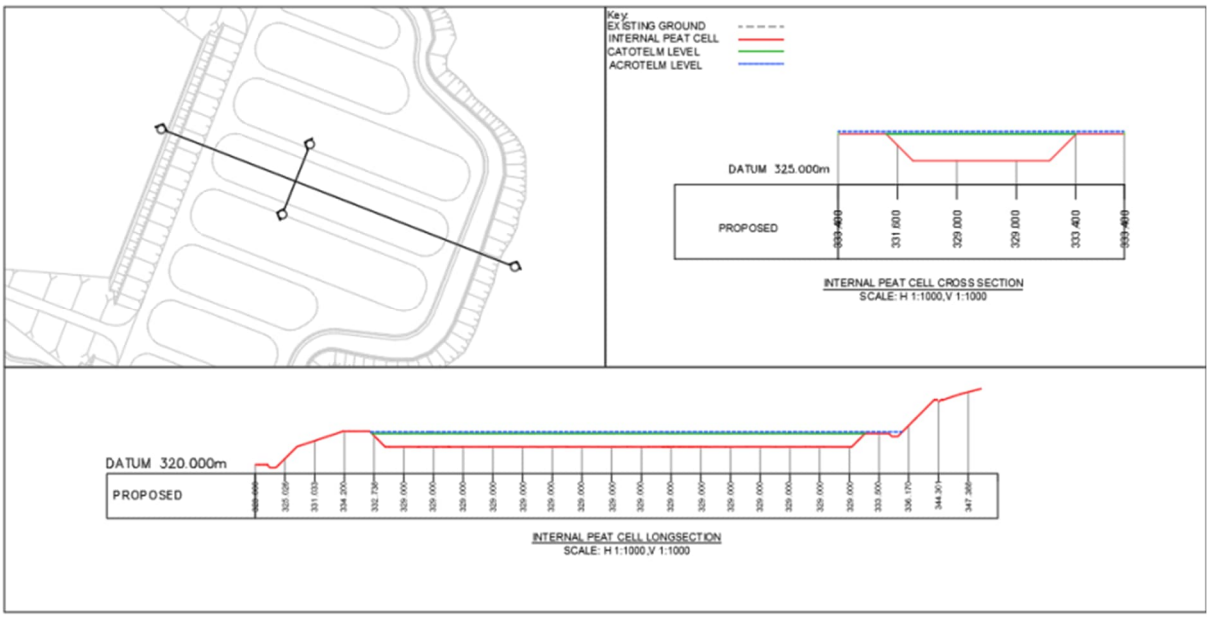
| | | | |
|---|---|---|---|
| Borrow Pit 3 | 4,210 | 0.5 | 2,150 |
| Restoration Track Southwest | 7,780 | 1 | 7,780 |
| Restoration Track South No. 1 | 5,760 | 1 | 5,760 |
| Restoration Track South No. 2 | 2,970 | 1 | 2,970 |
| Slopes of Existing Track 1 | 9,448 | 1 | 9,448 |
| Slopes of Existing Track 2 | 11,440 | 1 | 11,440 |
| **Total** | | | **184,699** |

## Catotelm

Catotelmic peat is proposed to be deposited in one of four different locations (Internal Peat Cell, External Peat Cell, Borrow Pit 1 & Borrow Pit 3) depending on where it is excavated and the stage at which it is excavated. The below sub-sections provide details for each of the catotelmic peat relocation areas.

### Internal Peat Cell

The internal peat cells are located to the east of the proposed substation platform and will be located above the level of the platform. In total 8 peat cells can be formed in the area, with the cells to be formed entirely within bedrock. The lengths of the cells vary to meet site conditions (i.e. to avoid areas of deep peat), however, each is intended to primarily hold a 4.5m thick layer of catotelmic peat which is sealed at surface by 0.5m thick acrotelm layer. Drawings are located within **Appendix B** providing cross-sections through the peat cells to show their generally layout prior to placement of peat. **Insert 6-2** below then presents a typical cross and long-section through one of the peat cells with the planned final catotelm and acrotelm levels.

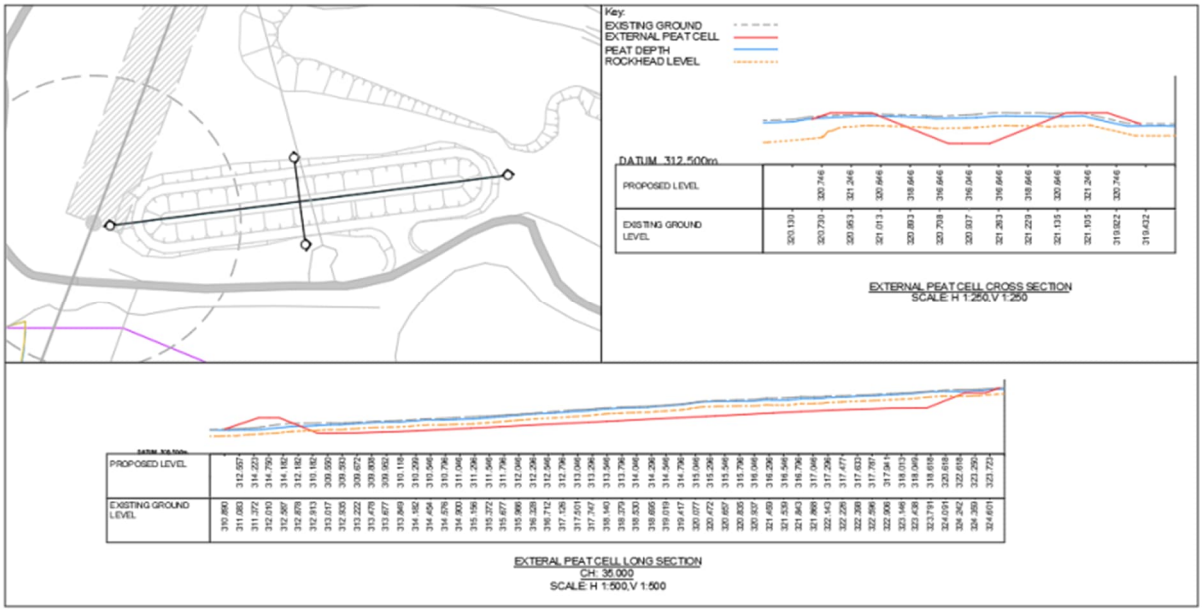



**Insert 6-2 - Typical Cross and Long Section through one of the Internal Peat Cells [Figure provided by the Designer for the scheme]**

Groundwater monitoring undertaken as part of the ground investigation undertaken indicated a high groundwater level which is to be expected given the existing presence of peat in the area. Given the peat cells are proposed to be excavated into the rock, rather than be built up above existing ground level it is anticipated high water levels can be maintained within the peat cells to, as a minimum, sustain the peat in the cells as a carbon store, although restoration of the peat is anticipated.. The drainage design around the peat cells will also look to control the water level with this designed to keep the water level close to surface. In terms of habitat, the conditions anticipated to be created should allow formation of wetland vegetation, although at best probably poor condition blanket bog at least in the short to medium term, as the structure of the peat will have been lost to full depth. As the design of the Proposed Development is still ongoing, development and design of the internal peat cell is still being undertaken as part of the detailed design process. Full details on the internal peat cells and how the cells shall function in order to maintain a high water level to keep the peat wet, as well as provide an ecosystem for habitat growth shall be provided within the Stage 2 PMP post consent / prior to construction.

**External Peat Cell**

The external peat cell is located to the south of the proposed substation platform. In contrast to the internal peat cell, the external peat cell comprises one large cell which is formed within superficial and bedrock deposits. As with the internal peat cells the external peat cells is intended to primarily hold a 4.5m thick layer of catotelmic peat which is sealed at surface by 0.5m thick acrotelm layer. A drawing is located within Appendix B providing cross-sections through the peat cell to show its generally layout prior to placement of peat. Insert 6-2 below presents a typical cross and long-section through the external peat cell with the planned final catotelm and acrotelm levels.




**Insert 6-3 - Typical Cross and Long Section through the External Peat Cell [Figure provided by the Designer for the scheme]**

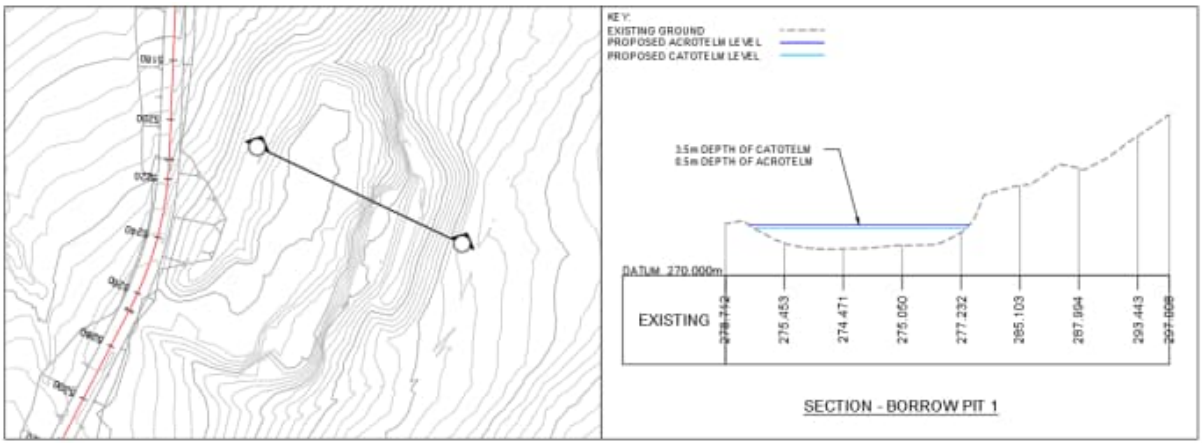
As can be seen from the long section, the external peat cell is located on naturally sloping ground, and therefore it is considered appropriate to utilise an earthworks bund at the western extent of the relocation area, behind which peat is to be deposited. This bund is still in the design development phase, however, is proposed to aid in peat stability with the cell itself.

Groundwater observations during the ground investigation undertaken in the area identified a level of 2.90m bgl, with post-fieldworks monitoring indicating groundwater between above surface and 1m bgl. It should be noted that the post-fieldworks monitoring was undertaken during November to April and has not been undertaken during the potentially drier summer months. Given the naturally shallow water level identified, this has ultimately led to the development of peat across the area. As the peat cell is proposed to be worked downslope, the worked face will retain high water levels within the temporary situation and in the long term maintain the peat relocated into the cell. The design of the peat cell will also look to control the water level with this to be kept close to surface, to as a minimum, sustain the peat as a carbon store although restoration of the peat is hoped. As with the internal peat cells, it is anticipated the external peat cell should allow formation of wetland vegetation, although again at best probably poor condition blanket bog at least in the short to medium term as the structure of the peat will have been lost to full depth. As the design of the Proposed Development is still ongoing, development and design of the external peat cell is still being undertaken as part of the detailed design process. Full details on the external peat cell and how the cell shall function in order to maintain a high water level to keep the peat wet, as well as provide an ecosystem for habitat growth shall be provided within the Stage 2 PMP post consent / prior to construction.

**Borrow Pit 1**

Borrow pit 1 is an existing area of working present adjacent to the proposed access track, as shown on **Figure 1b** in **Appendix A**. No infilling or restoration has been noted within the pit from site observations. The current configuration of the area includes an existing natural bund along the eastern edge and proposed peat reinstatement levels and volumes are based on the existing topography of the pit. Further material may be extracted from this pit for use in the construction of the access track, depending on the volumes required and the extraction of suitable material from other sources within the Proposed Development. Where further material is extracted, this could increase the overall capacity for peat deposition within the borrow pit. During site walkovers,

water has been observed to be present within the existing borrow pit and groundwater monitoring above the pit indicated groundwater fluctuates, however, have been recorded near to ground surface. The presence of water within the existing borrow pit and as groundwater has been recorded above the pit which will assist in recharging the borrow pit, it is considered that the pit represents a suitable location for the placement of the catotelmic peat. Given the high water level anticipated to be able to be maintained, as a minimum, it is considered the peat could be sustained in the borrow pit as a carbon store, although restoration of the peat is hoped. As such, it is estimated 3.5m of catotelmic peat could be placed within the borrow pit with 0.5m of acrotelm placed at the surface to seal the catotelm. Given the conditions which could be created with the deposition of peat in the borrow pit it is anticipated this should allow the formation of wetland vegetation, although at best probably poor condition blanket bog in the short to medium term, as the structure of the peat will have been lost to full depth. A cross-section of the existing borrow pit and the proposed peat deposition is presented in **Insert 6-4**, below.

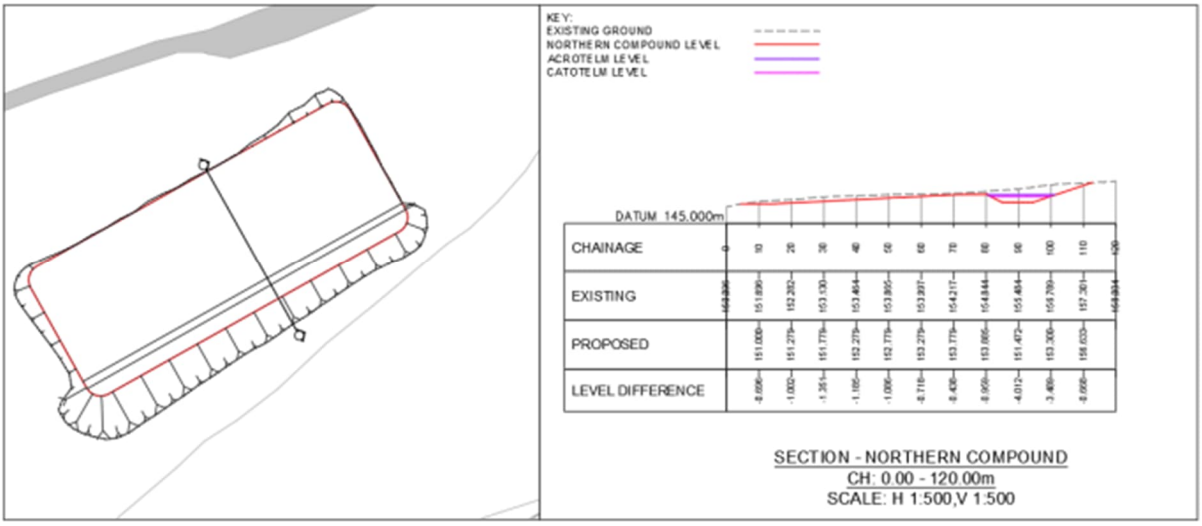



**Insert 6-4 - Typical Cross-section through existing Borrow Pit 1 [Figure provided by the Designer for the scheme]**

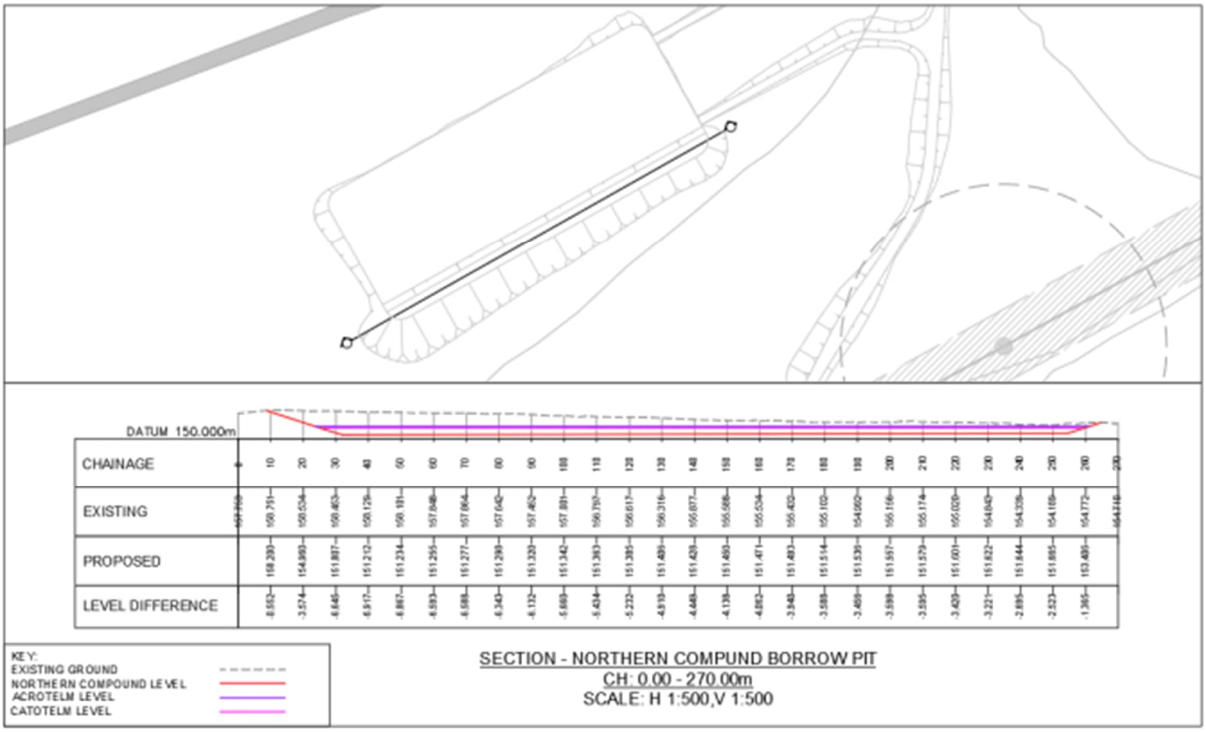
As the design of the Proposed Development is still ongoing, with the use of borrow pit 1 as a peat relocation area still to be confirmed, full details on the relocation of peat within the borrow pit and how the borrow pit shall function in order to maintain a high water level to keep the peat wet, shall be provided within the Stage 2 PMP post consent / prior to construction.

**Borrow Pit 3**

Borrow pit 3 is a new proposed borrow pit which is proposed running adjacent to the southern edge of the northern temporary compound towards the A831, as shown on **Figure 1a** within **Appendix A**. The borrow pit is proposed to provide site won stone for use in the construction of the main access track from the A831 to the proposed substation platform. Catotelmic peat is proposed to be relocated into this borrow pit to a maximum thickness of 1.5m at the eastern end and 2m at the western end, with 0.5m of acrotelm place on top to seal the surface. The depth of peat relocated into the borrow pit will conservatively leave the final peat level 0.2m below the northern compound level. Cross and long sections of the proposed borrow pit, inclusive of estimated final peat levels, is presented within **Insert 6-5** and **Insert 6-6**, respectively.




**Insert 6-5 - Typical cross-section through Borrow Pit 3 adjacent to Northern Compound [Figure provided by the Designer for the scheme]**




**Insert 6-6 - Typical long section through Borrow Pit 3 [Figure provided by the Designer for the scheme]**

Groundwater observations during the ground investigation undertaken in the area identified a typical shallow water level, although it should be noted monitoring was undertaken in typically wetter months of January to April and not through the potentially drier summer months. Given the water levels observed as part of the ground investigation and as the borrow pit is on a slope which could capture surface water, it is anticipated peat can be maintained in the borrow pit. The design of the borrow pit will look to control the water level with this to be kept close to surface, to as a minimum, sustain the peat as a carbon store although restoration of the peat is hoped. As the design of the Proposed Development is still ongoing, development and design of the borrow pit and surrounding drainage is still being undertaken as part of the detailed design process. Full details on the borrow pit and how the borrow pit shall function in order to maintain a high water level to keep the peat wet, shall be provided within the Stage 2 PMP post consent / prior to construction.

**Catotelm Relocation Area Capacities**

Given the summary provided above for each catotelm relocation area, **Table 6-4** presents the estimated capacity each location has in relation to receiving catotelmic peat.

**Table 6-4 - Peat Re-Use Volumes**

| Relocation Area | Approximate Area ($m^2$) | Maximum Depth of Deposited Catotelmic Peat (m) | Catotelm Relocation Capacity ($m^3$) |
|---|---|---|---|
| Internal Peat Cells: | | | |
| Peat Cell 1 | 1,934 | 4.5 | 8,703 |
| Peat Cell 2 | 3,276 | 4.5 | 14,742 |
| Peat Cell 3 | 5,167 | 4.5 | 23,252 |
| Peat Cell 4 | 5,167 | 4.5 | 23,252 |
| Peat Cell 5 | 5,167 | 4.5 | 23,252 |
| Peat Cell 6 | 3,108 | 4.5 | 13,986 |
| Peat Cell 7 | 2,718 | 4.5 | 12,231 |
| Peat Cell 8 | 1,322 | 4.5 | 5,949 |
| Internal Peat Cell Rock Trap | 2,509 | 1 | 1,346* |
| External Peat Cell | 7,424 | 4.5 | 24,784* |
| Borrow Pit 1 | 3,318 | 3.5 | 7,750* |
| Borrow Pit 3 | 4,320 | 1.5 | 6,000* |
| **Total** | | | **165,247** |
| Note: * Denotes trapezoidal shape where a simple area x depth formula is inaccurate | | | |

# 6.3 Peat Balance

The Stage 1 (Outline) PMP estimates 245,470$m^3$ (306,838$m^3$ with a 25% bulking factor applied) of peat will be generated by the construction activities.

Peat excavated from the majority of temporary areas is anticipated to be reinstated on completion of the works within the areas. This equates to a total volume of peat reinstatement in the temporary areas of 34,615 $m^3$ (note this volume excludes the temporary welfare compounds just north of the proposed substation platform and the northern temporary compound towards the A831, as these volumes are accounted for in the permanent peat reuse volumes). 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 210,855 $m^3$ (263,569$m^3$ with a 25% bulking factor applied) of which 64,195$m^3$ (80,244$m^3$ with a 25% bulking factor applied) is peaty soil, 87,263 $m^3$ (109,079$m^3$ with a 25% bulking factor applied) is estimated to be acrotelm and 59,398 $m^3$ (74,248$m^3$ with a 25% bulking factor applied) is estimated to be catotelm.

Table 6-5 below shows the peat balance for the Proposed Development based on the estimated excavated peat volumes requiring permanent reuse and the currently identified peat reuse/relocation areas.

**Table 6-5 - Peat Balance Summary**

| | Excavated Volume ($m^3$) | 25% Bulked Excavated Volume ($m^3$) | Relocation Capacity ($m^3$) | Difference between Bulked excavated Volume and Relocation Capacity ($m^3$) |
|---|---|---|---|---|
| Peaty Soil | 64,195 | 80,244 | See Note | - |
| Acrotelm | 87,263 | 109,079 | 184,699 | -75,620 (surplus capacity) |
| Catotelm | 59,398 | 74,248 | 165,247 | -90,999 (surplus capacity) |
| **Total** | **210,855** | **263,569** | **349,946*** | **-166,619 (surplus capacity)** |

Notes:
As peaty soil is proposed to be treated as topsoil and as such can be used for landscaping purposes, it is anticipated there will be ample opportunities for reuse of this material within the Proposed Development.

***** The total relocation capacity does not include for peaty soil as it is anticipated all peaty soil can easily be reused within the Proposed Development.

As can be seen from the above table there is surplus capacity in relation to the proposed peat reuse/relocation areas for the estimated peat volumes to be generated. The surplus in relocation capacity means if further peat is generated as part of the Proposed Development than estimated or if the bulking factor is greater than anticipated, then there is already identified capacity in the existing identified areas for the peat reuse. Note that peat reuse/relocation areas will not be used if these are not required (for example not all internal peat cells will be utilised if not required). Where this occurs some redesign in the peat relocation area may be required to ensure peat is contained and the required water levels are maintained to sustain the peat deposited. Volumes of peat generated during the construction will be continually monitored and the peat management adapted, where required. Any changes to the peat management will be confirmed in updated PMPs, inclusive of during construction, where required.

Note that as the detailed design is still being progressed, further refinement in the peat volumes (both excavated and relocation) is likely to occur. As such, a Stage 2 (Detailed) PMP will be produced to cover the detailed design, post-consent, prior to construction.

# 7 Monitoring & Inspection

The construction phase of the Proposed Development 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. All restored/reuse areas are to be monitored long term to assess new growth, germination of seed bank and overall vegetation cover. Vegetation establishment will be assessed during monitoring and appropriate remedial actions taken if vegetation cover is inadequate in line with landscaping requirements. 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 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;
- Monitoring for success could involve fixed-point photo monitoring, fixed-point vegetation quadrat sampling, and condition assessment all undertaken by the EcoW;
- For long terms monitoring the ECoW (or other qualified person) undertakes a inspection of all reinstated areas at the end of the first growing season following completion of reinstatement with the following suggested frequency following year 2, 5, 10 and then every 5 years until 30 years, or until restoration has been deemed a success; and
- 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 restoration/reuse, these reports will be available at the request of the Planning Authority.

# 8 Conclusions

This Stage 1 (Outline) PMP follows the guiding principles and has been created in adherence with best practice guidance and has been updated following adjustment to the Site layout to satisfy objections made to the Proposed Development.

The PMP addresses the following peat related issues:

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

The estimate of total peat volumes is based on a series of assumptions for the Proposed Development 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 which is proposed to address the extended platform area and permanent peat relocation cells, 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 Proposed Development within peat reuse and relocation areas within the Site. This PMP has identified peat reuse and relocation within the Proposed Development and has shown a surplus in capacity in those areas, showing all the peat generated can be reused. .

Peat restoration areas have been proposed within the wider Site, with details on these provided within the associated Landscape Habitat Management Plan for the Proposed Development.

It is expected that a Stage 2 PMP will be generated post consent to update this Stage 1 PMP with any new information obtained and based on a more refined design. The Stage 2 PMP will also provide further details on the peat reuse / relocation areas. Following this a Construction Phase PMP will be developed by the Contractor 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 construction phase 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 – Internal Peat Cell Sections

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