Appendix 12.2**:** Outline Peat Management Plan

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Appendix 12.2: Outline Peat Management Plan

1 Introduction

This Outline Peat Management Plan (OPMP) document has been prepared by Fluid Environmental Consulting (Fluid) on behalf of the Applicant to support the Environmental Impact Assessment (EIA) for Shepherds' Rig Wind Farm (the 'Proposed Varied Development'). A 17 turbine wind farm was previously consented in August 2023. The Proposed Varied Development has a reduced number of 11 larger wind turbines.

The site (**Figure 13.1** of the EIA Report) is located approximately 5km west of Carsphairn, 14 km east of Stranraer and 17 km west of Newton Stewart within the Dumfries and Galloway administrative area and covers an area of approximately 7.52 km^2. The site has smooth, rolling topography mostly sloping down to the east with relatively flat saddle areas along the western section. Steep areas are present in the vicinity of Marscalloch (381 m Above Ordnance Datum (AOD)) and Craigengillan (401 m AOD). Between these summits the site has a lower elevation of 280 m. The summits are slightly conical in shape. Most of the site is covered by commercial forestry with minor unforested areas coinciding with the hill summits or forestry rides.

The Proposed Varied Development comprises approximately 10.288 km of access tracks, of which 7.47 km are new access tracks, 2.605km are existing tracks and 0.213 km is floating track, up to eleven turbine locations and associated crane hardstandings; Battery Energy Storage System (BESS) and substation; a temporary construction compound and two borrow pits.

The total area of the Proposed Varied Development infrastructure footprint (229,466 m^2) and associated earthworks (129,211 m^2) is 358,677 m^2.

The design of the Proposed Varied Development has been undertaken as an iterative process to avoid areas of peat, deeper peat and using existing tracks where possible considering other constraints to minimize the disturbance of peat. The location of the 11 turbines vary from the previous Consented Development layout due in part to the increased avoidance of peat. The turbine locations have been renumbered in the Proposed Varied Development, however, for example, Turbine 3 (previously Turbine 4) is relocated 297 m north-east Turbine 11 (previously Turbine 19) has been moved over 259 m south west and Turbine 10 (previously Turbine 18) has been moved 193 m west to reduce the disturbance of deep peat or avoid being located on peat. Further details on the design process are discussed in **Chapter 3: Site Selection and Alternatives** of the EIA Report.

The OPMP will be further developed and implemented subsequent to the Proposed Varied Development receiving consent from the Scottish Government in consultation with SEPA, NatureScot and Dumfries and Galloway Council (DGC). Further details and specific plans will be determined during the detailed design process and once further site investigations have been undertaken. These details will then be included in a detailed PMP as a part of the Contractor's detailed Construction Environmental Management Plan (CEMP). The responsibility for the implementation of the detailed PMP will be with the Principal Contractor (PC).

This OPMP has been developed due to the presence of peat (see **Chapter 12: Geology and Peat**), potential peatland habitats on the site (**Chapter 8: Ecology** of the EIA Report) and as requested by SEPA at the scoping stage. This OPMP should be read in conjunction with the Peat Survey Report included as **Appendix 12.1** of the EIA Report.

The potential volumes of peat extracted and re-used have been calculated based on an area specific or infrastructure specific basis, using a modelled peat contour plan developed on a high-density probing grid where excavations will be undertaken in accordance with Scottish Government, Scottish Natural Heritage (SEPA) (now NatureScot), (2017) *Peatland Survey. Guidance on Developments on Peatland*. This has allowed high levels of confidence in the estimation of the volumes of peat that will be excavated and that will require appropriate re-use.

This OPMP addresses the management of peat during the construction period for the Proposed Varied Development and the restoration of the site both during construction and once construction has been completed. In accordance with the *SEPA Regulatory Position Statement (2010) Developments on Peat*, as much excavated peat as possible, or all peat, is reused on Site.

2 Objectives

This OPMP has been developed to demonstrate that peat has been afforded significant consideration during the design and assessment process and will be afforded necessary protection during the construction phase of the Proposed Varied Development, should consent be granted. It proposes mitigation and enhancement measures that will minimise any impacts to peat and presents the long-term habitat restoration and management plans to enhance the Site.

The OPMP outlines the overall approach of minimisation of peatland disruption that has been adopted during the design stage (as detailed in EIA Report **Chapter 3**). It aims to ensure that all further opportunities to minimise peat disturbance and extraction will be undertaken.

The OPMP seeks to demonstrate that appropriate proposals to re-use the surplus peat can be accommodated within the site, without significant environmental or health and safety implications, to minimise risk in terms of carbon release and human health.

3 Structure

The structure of the OPMP is as follows:

- Section 4 sets out the legislation, policy, and guidance, and the role of the OPMP;
- Section 5 presents the definition of peat, details of peatland characteristics and peat conditions on Site;
- Section 6 states the principles of avoidance and minimisation of peat disturbance;
- Section 7 presents the infrastructure and areas considered for excavation or floating and the assumptions that the calculations are based on;
- Section 8 presents the peat excavation volumes and sensitivity associated with the Proposed Varied Development;
- Section 9 presents the proposed reuse of excavated peat and the overall peat balance;

- Section 10 details the general peat excavation and handling methods / controls and temporary peat storage;
- Section 11 discusses the general methodologies for reuse in infrastructure construction restoration and in habitat enhancement; and
- Section 12 provides a summary.

Tables are included showing:

- **Table 1:** A summary of depth of penetration probe data.
- **Table 2:** A summary of interpreted peat depth at infrastructure areas.
- **Table 3** and **Table 4**: A summary of dimension and area details of the infrastructure and associated excavation areas on peat.
- **Table 5**: Presents the sensitivity of the peat and soils where it interacts with the proposed infrastructure.
- **Table 6:** Where excavated peat will be re-used and the associated quantities.
- **Table 7:** A summary of the peat extraction and re-use balance.

The following EIA Report figures are referenced throughout where relevant:

- **Figure 12.5a and b**: Depth of Peat Probe Penetration.
- **Figure 12.6a and b:** Estimated Peat Depth Contour Map.
- **Figure 12.7a and b**: Peat Reinstatement Areas.

4 Legislation, Policy and Guidance for Peat Management

4.1 Legislation, Policy and Guidance

When considered as part of a carbon landscape, peat has a capacity to act as a carbon sink. The management of peat therefore has implications for carbon emissions and climate change. There is a substantial body of legislation, policy and guidance regarding climate change and carbon which is relevant to the management of peat including:

- Scottish Government Environmental Authorisation (Scotland) Regulations 2018 (EASR) as amended by Environmental Authorisation (Scotland) Amendment Regulations 2025 (that came into effect 1st November 2025);
- National Planning Framework 4 (NPF4), Scottish Government, 2023;
- Scotland's National Peatland Plan Working for our future. Scottish Natural Heritage, 2015;

- The Carbon and Water Guidelines. Carbon Landscapes and Drainage, 2012 www.clad.ac.uk;
- Forestry Commission, 2011, 'Forests and climate change: UK Forestry Standard Guidelines;
- Best Practice Guidance to Planning Policy Statement 18 'Renewable Energy', August 2009;
- Peatland Survey: Guidance on Developments on Peatland. Scottish Government, Scottish Natural Heritage, SEPA, 2017;
- *Good practice during windfarm construction* (Scottish Renewables, SNH, SEPA & Forestry Commission Scotland, 4th Edition 2019)*;*
- SEPA Regulatory Position Statement – Developments on Peat. February 2010;
- WAS-G-52 SEPA Guidance: Developments on Peat and Off-Site Uses of Waste Peat Version 2 (August, 2025);
- SEPA Planning Advice Note - Assessing the Impact of Developments on Peatland and Carbon-Rich Soils (December 2025);
- WAS-G-11 Construction and Remediation: On-site Management of Excavated Peat Version 1, (revised guidance on the on-site use of excavated peat) SEPA, March 2026;
- Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste. Scottish Renewables, 17 January 2012;
- Floating Roads on Peat: A Report into Good Practice in Design, Construction and Use of Floating Roads in Peat with particular reference to Windfarm Developments in Scotland. Forestry Civil Engineering and SNH, 2010;
- Tracks and Roads on Peatlands, IUCN UK Peatland Programme (March 2025);
- Forestry Commission (2012*).* Forests & Water Guidelines. 5th Edition. HMSO;
- Peat Slide Hazards and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments. Scottish Executive, 2017;
- Advising on peatland, carbon-rich soils and priority peatland habitats in development management NPF4 (NatureScot, 2023, revised November 2023);
- Peatland ACTION - Technical Compendium of Peatland Restoration Techniques. NatureScot, 2024 (https://www.nature.scot/doc/peatland-action-technical-compendium); and
- Towards an assessment of the state of UK Peatlands. JNCC, 2010.

4.2 Role of the Peat Management Plan

The OPMP is intended to be a working document to be used throughout the key stages of the design, construction, operation, decommissioning and re-instatement phases of the Proposed Varied Development as part of an overall CEMP.

4.3 Stage 1: Environmental Impact Assessment (EIA) Report

It is necessary to show how, through site investigation and iterative design, the Proposed Varied Development has been designed to minimise, so far as reasonably practicable, the quantity of peat which will be excavated; that volumes of peat anticipated to be excavated by the Proposed Varied Development have been considered; and how excavated peat will be managed. The overall aim is to minimise the impacts associated with excavation of peat by using the following hierarchy of design principles: prevent excavation; reduce volumes of peat excavated; and reuse excavated peat in a manner to which it is suited. This hierarchical approach comprises:

1. Initial assessment of peat coverage within the Study Area based on a broad 100 m grid;
2. Design of layout based on various constraints including peat occurrence on site;
3. Further detailed site surveys undertaken to obtain peat depth across the proposed layout and micro-siting allowance and iteration as necessary;
4. Calculation of estimated volumes of excavated peat and potential reuse volume requirements based upon the proposed Site design / layout;
5. Determine whether there is likely to be negative or positive overall peat balance, and whether the generation of excess material can be avoided, and, if not, where reductions in the volumes of excavated materials may be achieved;
6. The layout is refined to avoid areas of deeper peat and hence reduce carbon impacts of the Proposed Varied Development's construction activities;
7. Further surveys undertaken if required in new sections of infrastructure;
8. Record specific examples of how overriding principles of prevention and minimization of peat disturbance are to be taken into account in the design of the site;
9. The assessment is to be consistent with and feed into the peat stability and carbon payback assessment; and
10. Identify limitations and make recommendations for further site investigation (post-consent) to steer detailed design and micro-siting such that opportunities for further reductions in excavated peat volumes can be implemented where possible.

4.4 Stage 2: Post Consent / Pre-Construction

As part of the EIA Report, it has been demonstrated that, on the basis of the investigation and data gathered, the excavated materials for the Proposed Varied Development can be managed in an appropriate manner. The peat mass balance calculations may be further developed and refined post planning consent, and prior to the relevant works commencing, due to any further or more detailed ground investigation or survey works being required to inform detailed design, or that may be required under planning consent conditions.

4.5 Stage 3: Construction Stage

Actual peat volumes excavated during construction will be recorded against the overall predicted volumes provided in **Tables 5 and 6** of this OPMP. Within micro-siting allowances, the alignment and design of tracks, hardstanding orientation and construction methods will be reviewed to avoid/minimise peat disturbance as far as possible taking account of the more detailed information available once construction commences. A regular review and update of the peat mass balance table will be undertaken by the appointed Contractor and monitored by the Ecological/Environmental Clerk of Works (ECoW) on-Site and made available to regulators as required.

5 Peat Conditions

5.1 Definitions of Peat

Organic material less than 0.5m depth is not defined as peat. This is in accordance with guidance from:

- Scottish Government, Scottish Natural Heritage, SEPA (2017) Peatland Survey. Guidance on Developments on Peatland states that *'Peat soil is an organic soil which contains more than 60 per cent of organic matter and exceeds 50 centimetres in thickness'*;
- The James Hutton Institute define shallow peat as having 'a prescribed depth of organic matter of 50 – 100cm' (https://www.hutton.ac.uk/learning/exploringscotland/soils/organicsoils); and
- The Forestry Commission use 45cm as the critical depth for peat to occur (*Understanding the GHG implications of Forestry on Peat Soils in Scotland,* 2010).

Peat can therefore be classified as organic material over 0.5 m in depth.

Peat can be separated into three main layers: acrotelmic (the upper living layer), catotelmic (the middle to lower layer) and occasionally amorphous (lower layer) peat:

- Acrotelmic peat is the living layer of the peat including the peat turf being a thin, floating vegetation mat layer. The acrotelm is generally found within the top layer of peat (often less than 0.5 m) depending on the degree of decomposition and fibrous nature of the peat (approximately H1 to H5 on the Von Post classification scale). The acrotelm is generally of high permeability, decreasing with depth. The water table fluctuates in this layer and conditions vary from aerobic to anaerobic. Material may be fibrous or pseudofibrous (plant remains recognisable), spongy, and when excavated strength is lost but retains integral structure and can stand unsupported when stockpiled up to 1m.

- Catotelmic peat is the dead layer of peat found deeper than acrotelmic peat which has some remnant plant structures. Material has high water content and is permanently below the water table (saturated) therefore organic matter decomposes anaerobically. Some plant structures may be recognisable but are highly humified losing most of their characteristics (approximately H6 to H8 on the Von Post classification scale) and strength. Water flow through the catotelm is slow unless peat structures such as sink holes or peat pipes are present.

- Amorphous peat is highly decomposed organic material where all recognisable plant remains are absent (approximately H9 to H10 in the Von Post classification scale). These deposits are dark brown to black in colour, plastic, are low tensile strength and are unable to stand unsupported up to 1 m when stockpiled.

5.2 Peat Conditions on Site

The Site was assessed for peat vegetation through desktop review of maps and plans and field surveys by ecologists and hydrologists; including intrusive site investigation in terms of peat depth probing and coring (see **Appendix 12.1** of the EIA Report).

The Proposed Varied Development has smooth, rolling topography generally sloping down to the east with more low gradient areas along the western boundary. Steeper areas are present in the vicinity of Marscalloch (381 m AOD) and Craigengillan (401 m AOD). Between these summits the site has a lower elevation of 280 m. The summits are slightly conical in shape. The Site is mostly commercial forestry with unforested areas coinciding with the hill summits or forestry rides. Surface water drainage channels are present across the site as natural dendric watercourses and in the form of artificial ridge and furrow drains and coup forestry drainage.

The land cover on the site mainly consists of commercial forestry and harvested forestry with marshy grassland being present between the forested areas.

Peat cover was found to be present across 27% of the Proposed Varied Development study area. Most of the peat is concentrated in the west of the Site, with depths up to 5 m found in the extreme western section of the site. Most of the infrastructure has been designed to avoid the deep peat areas and larger areas of peat by being located in areas with less peat or no peat taking into account other constraints.

The peatland habitats are heavily modified and degraded due to the commercial forestry activities. The depth of the peat does not always relate to the quality of the overlying peatland habitat. For most of the peat on this Site, the peat did not have peatland habitat qualifying habitat at the surface due to the commercial forestry leaving the surface bare of qualifying peatland species.

5.3 Peat Surveying Methodology

To obtain a detailed understanding of the spatial and depth distribution of peat and its properties, a series of tasks have been completed which include:

- Phase 1 habitat mapping (detailed within **Chapter 9 Ecology, Appendix 9.5 Habitat Survey Report** and shown in **Figure 9.2** and **Figure 9.3** of the EIA Report);

- Depth penetration probing (see **Appendix 12.1** and **Figure 12.5a-b** of the EIA Report) at 7,778 locations within the site boundary:

    - On a 100 m grid across the Study Area (area originally considered for development);

    - across the footprint of all infrastructure within peat areas on a 10 m grid and probing within a 50 m buffer area on a 20 m grid; and

- at 50 m intervals with 10 m offset probes along all proposed access tracks.

- Peat coring at 22 locations to verify the probing is representative of peat depth and to assess the peat structure and properties (see **Appendix 12.1** of the EIA Report);

- Development of a penetrable substrate depth map to indicate the maximum depth of probe penetration at all investigated points across the site (**Figure 12.5a-b** of the EIA Report);

- Development of an interpreted maximum depth of peat contour map to indicate the potential penetrable substrate or inferred peat depth based on the depth penetration probing results and verified by coring (**Figure 12.6a-b** of the EIA Report); and

- Examination of the variability of the depth of the acrotelm, the thickness of the catotelm and the thickness of amorphous peat.

5.4 Peat Survey Results

Each probe measured the depth of penetration and the potential substrate at the limit of penetration (see **Appendix 12.1** and **Figure 12.6a-b** of the EIA Report).

Of the 7,778 locations probed a total of 5,506 probes (70.8%) recorded depths of 0.5 m or less (no peat), 1,110 probes (14.3%) recorded depths of penetration between 0.5 m and 1.0 m and 1,162 probes (14.9%) recorded depths of penetration >1.0 m (deep peat), as shown in **Table 1**.

Table 1: Depth of Penetration Distribution

Depth Range (m)	Number of Probes	Percentage of Probes
0.0 - 0.5	5,506	70.8%
>0.5 – 1.0	1,110	14.3%
>1.0 – 1.5	441	5.67%
>1.5 – 2.0	377	4.85%
>2.0 – 3.0	293	3.77%
>3.0 – 4.0	41	0.53%
>4.0	10	0.13%
Total	7,778	100%

The depth of penetration at each probe location within the survey area is presented on **Figure 12.5a-b** of the EIA Report.

Based on the data collected an interpreted peat depth map (**Figure 12.6a-b** of the EIA Report) was produced to demonstrate the variation in peat across the survey area and at the various infrastructure locations. A comparison of the peat depth with the infrastructure footprint is presented in **Table 2**.

Table 2: Peat Penetration Depth across the Infrastructure and Earthworks Footprint

Depth Range (m)	Peat depth distribution across infrastructure and earthworks footprint (m^2)	Peat depth percentage distribution across infrastructure and earthworks footprint
0 to 0.5 (no peat)	265,723	76.33%
>0. 5 – 1.0	51,144	14.69%
>1.0 – 1.5	17,377	4.99%
>1.5 – 2.0	10,510	3.02%
>2.0 – 3.0	3,210	0.92%
>3.0 – 4.0	177	0.05%
Total	348,141	100.00%

These data indicate that peat (>0.5 m depth) is present across 23.67% of the Proposed Varied Development infrastructure and associated earthworks and no peat (0 – 0.5 m depth) is present across 76.33% of the Proposed Varied Development infrastructure and associated earthworks. The OPMP is therefore only concerned with the 23.67% of the infrastructure and earthworks footprint that overlies peat.

A total of 22 cores were completed with 18 encountering peat (greater than 0.5m depth). The peat depth minus the acrotelm depth can been used to calculate the potential catotelm thickness.

5.5 Peat Characteristics

The coring identified a distinctive acrotelm layer in eight of the 18 coring locations that ranged between 0.05 m and 0.15 m in thickness and averaged 0.09m where present. There was no acrotelm layer identified in the remaining 10 coring location due to the altered ground conditions and lack of peatland vegetation caused by the presence of forestry plantations leaving the ground surface bare.

The catotelm thickness ranged between 0.45 m and 1.80 m in the 18 cores where present.

No amorphous peat was identified or recorded in the survey area.

These values have been used in calculations of volumes of peat across the survey area where the peat contour map indicates that peat is present (e.g. >0.5 m probe depth).

The average peat depth across the study area was calculated as 0.51 m.

6 Avoidance and Minimisation of Peat Disturbance

6.1 Avoidance

The development of the infrastructure layout has been an iterative process designed to avoid or minimise impact on blanket bog habitats and peat where possible. The mapping of peat

depth through probing has therefore allowed an estimated peat depth contour map to be generated with a greater level of detail at proposed infrastructure locations to inform further layout modifications to enable higher confidence in the avoidance of peat.

Where avoidance of peat has been unavoidable for any section of track, a floating track design is proposed, if feasible. The infrastructure has also been designed to avoid areas where peat slide risk is moderate or higher (**Appendix 12.3** of the EIA Report**).**

The final iteration of the infrastructure layout was informed by detailed peat probing across all infrastructure which resulted in layout modifications that further reduced the presence of infrastructure located on peat to 23.67% and on peat >1.0 m depth to 8.98 % of its footprint including earthworks.

6.2 Further Minimisation

The disturbance of peat by the construction of the tracks, crane hardstandings, turbine foundations and other infrastructure will be minimised as far as practicably possible, taking into account the other constraints to the Proposed Varied Development, to try and reduce any peat waste on site and the need for a waste management licence, and reduce potential carbon losses from the peat excavation process.

Throughout the construction process, the appointed Principal Contractor (and / or Designer) will aim to minimise the volumes of excavated peat. Appropriate handling and storage of excavated materials will be undertaken such that their integrity and subsequent reuse is not jeopardised.

Adjustment of infrastructure within the micrositing limits (proposed as 100 m) is likely to allow further improvements. Further measures to minimise peat disturbance will be incorporated in the development and construction process. The principles of the waste hierarchy (outlined above) will be applied to:

- avoid and/or minimise production of excavated peat;
- reuse, where possible, excavated peat on site to facilitate habitat, ecological and hydrogeological restoration, improvement and enhancement; and
- avoid waste peat being sent for disposal, recovery and/or reuse off site.

All contractors will be made aware of the sensitivity of peat and wetland habitats and will be required to work within the narrowest practical construction corridor when working in or near areas of peat.

All plans and method statements will be accompanied by justification of the final design and/or construction methods identified by the Contractor, including reasons for discounting alternative methods. This is required to demonstrate that all avenues for avoiding hydrological disruption and reducing the disturbance and excavation of peat have been considered.

It is anticipated that an Ecological Clerk of Works (ECoW) will be appointed and will:

- Identify areas of sensitive habitat;

- Clearly mark sensitive habitats near to construction areas and make the Principal Contractor aware of the sensitivity of peat habitats and inform all sub-contractors;
- Walk the areas affected by the Proposed Varied Development with engineers before construction commences;
- Authorise minor movement of infrastructure within the 100m micro-siting areas where impact can be reduced; and
- Monitor construction to ensure that any micro-siting does not result in movements into more sensitive habitats and deep peat unless unavoidable.

7 Peat Excavation Areas and Assumptions

The Proposed Varied Development infrastructure and dimensions including associated earthworks used in the peat balance calculations are summarised in **Table 3**.

Table 3: Infrastructure and Associated Earthworks Dimension Final Layout

Infrastructure	Dimensions (m)	Area (m^2)
11 Turbine and Crane Hardstanding Areas (permanent)	Irregular Shape	20,022
11 Turbine and Crane Hardstanding Areas (temporary)	Irregular Shape	32,210
Access Track (Hardstanding Areas)	Rectangular (~ 250 x 6)	20,972
11 Hardstanding Clearance Areas	Irregular multipart bigger section (~ 77x15)	69,422
11 Turbine Earthworks	Irregular Shape	77,715
Substation and BESS Compound	Irregular (~120x70)	10,745
Earthworks Substation and BESS Compound	Irregular (~ 40x12)	4,861
Construction Compound	Rectangular (~ 150x100)	4,997
Earthworks Construction Compound	Irregular (~.30x60)	1,417
Borrow Pit (North)	Rectangular (~ 150x50)	8,174
Earthworks Borrow Pit (North)	Irregular (~210x40)	9,352
Borrow Pit (South)	Irregular (~.175x75)	13,228
Earthworks Borrow Pit (South)	Irregular (~220x30)	9,191
Access Bellmouth	2 Sections (~ 6x6 each)	89
Standard New Track	Irregular multipart (~6x4460)	32,624

Infrastructure	Dimensions (m)	Area (m^2)
Earthworks Standard New Track	Irregular multipart	21,932
Existing Track to Upgrade (widened part requiring excavation)	Irregular multipart	5,169
Earthworks Existing Track to Upgrade (widening widened part requiring excavation)	Irregular multipart	4,048
Floating New Track	Irregular (~ 6x213)	1,279
Earthworks Floating New Track	Irregular	695
Existing Track (not requiring excavation)	Irregular	10,535
Total		**358,677**

The calculations are based on the GIS shapefile footprint and earthworks provided for Proposed Varied Development, access track within the hardstanding areas has been included within the turbine area for the purpose of calculations so track areas may vary when compared with the track lengths described within **Chapter 4: Proposed Varied Development**, or as noted in **Section 1** above.

8 Excavation Volume Estimates

8.1 Excavated Volumes

Peat excavation volumes associated with the project have been calculated using the GIS package QGIS based on the data in **Table 3** and these further assumptions:

- A contour map of assumed peat depth based on interpolation of values from probing across the site (shown in **Figure 12.6a-b** of the EIA Report).
- Dimensions of the proposed areas for excavation for site infrastructure on peat of >0.5 m based on the Final layout shape files provided (shown in **Figure 12.6a-b** of the EIA Report) and detailed in **Table 3**.
- An estimated acrotelm depth of 0.09 m across infrastructure area where peat (>0.5 m organic soil) is present based on the peat core data.
- An estimated catotelm thickness of the average depth of the peat minus the acrotelm (0.09 m) across infrastructure areas where peat is present and based on the peat core data.
- An assumption that the probe depth is representative of the actual depth of the peat (validated by the spatial coverage of 22 cores).

- Any peat excavated for cable trenches is stored adjacent to the trench while the track is laid and then replaced, therefore this volume is not applicable to the excavated volume.

Using the interpreted peat depth contour map (**Figure 12.6a-b** of the **EIA Report),** the volumes of peat that would be excavated during construction were calculated based on the final layout infrastructure dimensions (ESRI shapefiles) as shown in **Table 3**. These calculations produced the following volume estimates and are detailed in **Table 4**.

- A total volume of peat to be excavated of 80,074 m^3. This comprises:
    - Total volume of acrotelm which will be excavated = 7,240 m^3; and
    - Total volume of catotelm which will be excavated = 72,834 m^3.

These values are estimates based on the available data and the above assumptions.

- A bulking factor of 10% is applied to these values which increases them to a total volume of peat once excavated = **88,081 m^3**. This comprises:
    - Total volume of acrotelm once excavated = 7,964 m^3; and
    - Total volume of catotelm once excavated = 80,117 m^3.

8.2 Peat Sensitivity

The sensitivity of the peat was determined by both the depth and the quality of the peat. Unmodified peat greater than 1 m in depth is of High sensitivity, while modification (such as peat cutting or forestry) and less than 1 m depth of peat reduces the sensitivity of the peat for excavation. All peat within the Site is in a modified condition largely due to commercial forestry (**Chapter 9: Ecology**). The sensitivity 1of the peat across the infrastructure is detailed below in **Table 5**.

Table 5: Peat Disturbance Sensitivity

Peat Presence	Ground / Peat Condition	Infrastructure	Sensitivity
Minor pockets or no average peat <0.5m depth by average	Heavily modified	T1, T2, T4, T7 (except permanent hardstanding area), T8, T9 (except temporary hardstanding area), T10 and T11 hardstanding. Substation and BESS, Temporary Construction Compound, Borrow Pit (North), Borrow pit (South) and Construction Compound and Sections of Access Track.	Low

Peat Presence	Ground / Peat Condition	Infrastructure	Sensitivity
Peat <1m	Heavily modified	T3 temporary and permanent hardstanding, T6 hardstanding area, T7 permanent hardstanding, T9 temporary hardstanding. Sections of Floating Track.	Low
	Unmodified	None	Medium
Peat >1m	Heavily Modified	T5 hardstanding and earthworks area and T6 clearance area and earthworks. Sections of Floating Track.	Medium
	Unmodified	None	Very High

Table 4: Excavated Peat Volumes Based on Actual Footprint of Infrastructure and Earthworks

Infrastructure		Infrastructure area (m^2)	Average peat depth over infrastructure area (m)	Percentage of infrastructure with >0.5m depth of peat	Area of infrastructure with >0.5m depth of peat (m^2)	Average peat depth over area of infrastructure with >0.5m depth of peat (m)	Volume of peat excavated (m^3)	Volume of acrotelm peat excavated (m^3)	Volume of catotelm peat excavated (m^3)
T1	Hardstanding Permanent T1	1,839	0.42	17	319	0.56	178	29	149
	Hardstanding Temporary T1	2,964	0.40	22	655	0.59	388	59	329
	Standard Track T1	1,757	0.32	14	247	0.65	161	22	139
	Hardstanding Clearance T1	6,329	0.41	24	1,532	0.62	946	138	808
	Earthworks T1	7,351	0.36	30	2,233	0.64	1,419	201	1,218
T2	Hardstanding Permanent T2	1,793	0.11	0	0	0.00	0	0	0
	Hardstanding Temporary T2	2,884	0.14	1	17	0.61	10	2	9
	Standard Track T2	1,894	0.13	3	54	0.63	34	5	29
	Hardstanding Clearance T2	6,246	0.10	0	24	0.54	13	2	11

Infrastructure		Infrastructure area (m^2)	Average peat depth over infrastructure area (m)	Percentage of infrastructure with >0.5m depth of peat	Area of infrastructure with >0.5m depth of peat (m^2)	Average peat depth over area of infrastructure with >0.5m depth of peat (m)	Volume of peat excavated (m^3)	Volume of acrotelm peat excavated (m^3)	Volume of catotelm peat excavated (m^3)
	Earthworks T2	17,117	0.14	2	400	0.68	271	36	235
T3	Hardstanding Permanent T3	1,790	0.67	71	1,271	0.80	1,020	114	906
	Hardstanding Temporary T3	2,864	0.55	41	1,188	0.87	1,029	107	922
	Standard Track T3	2,381	0.59	56	1,340	0.79	1,062	121	942
	Hardstanding Clearance T3	6,227	0.46	31	1,952	0.87	1,702	176	1,527
	Earthworks T3	3,672	0.49	39	1,414	0.82	1,155	127	1,028
T4	Hardstanding Permanent T4	1,783	0.23	3	59	0.57	34	5	28
	Hardstanding Temporary T4	2,902	0.18	0	0	0.00	0	0	0
	Standard Track T4	1,992	0.16	0	0	0.00	0	0	0
	Hardstanding Clearance T4	6,296	0.23	9	545	0.65	352	49	303

Infrastructure		Infrastructure area (m^2)	Average peat depth over infrastructure area (m)	Percentage of infrastructure with >0.5m depth of peat	Area of infrastructure with >0.5m depth of peat (m^2)	Average peat depth over area of infrastructure with >0.5m depth of peat (m)	Volume of peat excavated (m^3)	Volume of acrotelm peat excavated (m^3)	Volume of catotelm peat excavated (m^3)
	Earthworks T4	2,937	0.17	1	17	0.56	10	2	8
T5	Hardstanding Permanent T5	1,846	0.82	84	1,549	0.91	1,413	139	1,274
	Hardstanding Temporary T5	2,986	0.84	77	2,309	0.98	2,271	208	2,063
	Standard Track T5	1,714	1.08	86	1,470	1.19	1,754	132	1,622
	Hardstanding Clearance T5	6,353	1.36	98	6,241	1.38	8,614	562	8,053
	Earthworks T5	2,457	1.13	81	1,978	1.32	2,609	178	2,431
T6	Hardstanding Permanent T6	1,836	0.52	59	1,079	0.60	652	97	555
	Hardstanding Temporary T6	2,934	0.78	76	2,218	0.91	2,027	200	1,827
	Standard Track T6	1,797	0.79	67	1,205	1.03	1,240	108	1,131
	Hardstanding Clearance T6	6,299	1.29	85	5,382	1.46	7,836	484	7,351

Infrastructure		Infrastructure area (m^2)	Average peat depth over infrastructure area (m)	Percentage of infrastructure with >0.5m depth of peat	Area of infrastructure with >0.5m depth of peat (m^2)	Average peat depth over area of infrastructure with >0.5m depth of peat (m)	Volume of peat excavated (m^3)	Volume of acrotelm peat excavated (m^3)	Volume of catotelm peat excavated (m^3)
	Earthworks T6	3,894	1.12	81	3,164	1.30	4,124	285	3,839
T7	Hardstanding Permanent T7	1,810	0.76	70	1,274	0.92	1,175	115	1,060
	Hardstanding Temporary T7	2,928	0.24	12	337	0.68	230	30	200
	Standard Track T7	1,854	0.28	14	260	0.78	202	23	178
	Hardstanding Clearance T7	6,300	0.19	5	291	0.82	239	26	212
	Earthworks T7	7,559	0.27	12	917	1.12	1,023	83	940
T8	Hardstanding Permanent T8	1,835	0.11	1	22	0.51	11	2	9
	Hardstanding Temporary T8	2,954	0.28	16	483	0.81	393	43	350
	Standard Track T8	1,776	0.31	13	234	0.92	216	21	195
	Hardstanding Clearance T8	6,317	0.33	22	1,379	0.96	1,318	124	1,194

Infrastructure		Infrastructure area (m^2)	Average peat depth over infrastructure area (m)	Percentage of infrastructure with >0.5m depth of peat	Area of infrastructure with >0.5m depth of peat (m^2)	Average peat depth over area of infrastructure with >0.5m depth of peat (m)	Volume of peat excavated (m^3)	Volume of acrotelm peat excavated (m^3)	Volume of catotelm peat excavated (m^3)
	Earthworks T8	6,066	0.57	56	3,367	0.83	2,806	303	2,503
T9	Hardstanding Permanent T9	1,817	0.26	1	23	0.53	12	2	10
	Hardstanding Temporary T9	2,949	0.58	45	1,334	1.02	1,362	120	1,242
	Standard Track T9	1,834	0.37	22	402	0.87	349	36	313
	Hardstanding Clearance T9	6,311	0.34	21	1,328	0.91	1,204	120	1,085
	Earthworks T9	4,879	0.49	35	1,700	1.04	1,776	153	1,623
T10	Hardstanding Permanent T10	1,826	0.24	0	1	0.50	1	0	0
	Hardstanding Temporary T10	2,983	0.28	9	258	0.59	152	23	128
	Standard Track T10	1,798	0.24	2	40	0.58	23	4	20
	Hardstanding Clearance T10	6,350	0.33	21	1,364	0.63	859	123	736

Infrastructure		Infrastructure area (m^2)	Average peat depth over infrastructure area (m)	Percentage of infrastructure with >0.5m depth of peat	Area of infrastructure with >0.5m depth of peat (m^2)	Average peat depth over area of infrastructure with >0.5m depth of peat (m)	Volume of peat excavated (m^3)	Volume of acrotelm peat excavated (m^3)	Volume of catotelm peat excavated (m^3)
	Earthworks T10	5,364	0.34	19	993	0.84	834	89	745
T11	Hardstanding Permanent T11	1,847	0.15	0	0	0.00	0	0	0
	Hardstanding Temporary T11	2,862	0.13	0	0	0.00	0	0	0
	Standard Track T11	2,175	0.14	0	2	0.52	1	0	1
	Hardstanding Clearance T11	6,394	0.10	0	0	0.00	0	0	0
	Earthworks T11	16,419	0.16	1	107	0.57	61	10	51
	Substation and BESS Compound	10,745	0.42	31	3,330	0.87	2,893	300	2,594
	Earthworks Substation and BESS Compound	4,861	0.38	27	1,322	0.90	1,195	119	1,076
	Construction Compound	4,997	0.13	2	106	0.58	61	10	52

Infrastructure		Infrastructure area (m^2)	Average peat depth over infrastructure area (m)	Percentage of infrastructure with >0.5m depth of peat	Area of infrastructure with >0.5m depth of peat (m^2)	Average peat depth over area of infrastructure with >0.5m depth of peat (m)	Volume of peat excavated (m^3)	Volume of acrotelm peat excavated (m^3)	Volume of catotelm peat excavated (m^3)
	Earthworks Construction Compound	1,417	0.21	12	167	0.69	116	15	101
	Borrow Pit (North)	8,174	0.15	0	0	0.00	0	0	0
	Earthworks Borrow Pit (North)	9,352	0.18	1	58	0.55	32	5	27
	Borrow Pit (South)	13,228	0.29	12.8	1,698	0.76	1,284	153	1,131
	Earthworks Borrow Pit (South)	9,191	0.32	15	1,338	0.97	1,299	120	1,178
	Access Bellmouth	89	0.16	0	0	0.00	0	0	0
	Standard Track	32,624	0.40	25	8,162	0.94	7,679	735	6,945
	Earthworks Standard Track	21,932	0.49	33	7,253	1.05	7,587	653	6,935
	Existing Track to Upgrade (widening part)	5,169	0.25	12	642	1.33	855	58	797

Infrastructure		Infrastructure area (m^2)	Average peat depth over infrastructure area (m)	Percentage of infrastructure with >0.5m depth of peat	Area of infrastructure with >0.5m depth of peat (m^2)	Average peat depth over area of infrastructure with >0.5m depth of peat (m)	Volume of peat excavated (m^3)	Volume of acrotelm peat excavated (m^3)	Volume of catotelm peat excavated (m^3)
	Earthworks Existing Track to Upgrade	4,048	0.20	10	393	1.28	502	35	467
	Floating Track	1,279	1.61	100	1,279	1.61	0	0	0
	Earthworks Floating Track	695	1.79	100	695	1.79	0	0	0
	Existing Track	10,535	0.00	0	0	0.00	0	0	0
	Total	**358,677**			**82,421**	**0.74**	**80,074**	**7,240**	**72,834**

Note: Where rows do not exactly add up this is due to rounding up of values.

9 Peat Reuse Volume Estimates

9.1 Peat Reuse Volumes

From **Table 3** and **Table 4** above, the amount of peat that will be removed by the excavation of the infrastructure is 7,240 m³ acrotelm and 72,834 m³ catotelm. This will increase in size due to bulking by an estimated 10% once excavated to 7,964 m³ of acrotelm and 80,117 m³ of catotelm.

The areas identified for peat reinstatement are those that have been excavated and are linked to existing areas of peat. The peat will be reinstated to the average depth of peat present in these areas. The areas are outlined in **Table 6** below and include:

- Reinstatement within areas of temporary hardstanding and associated earthworks, which gives a total volume of 27,430 m³. The depth will be consistent with the surrounding peatland habit and so vary with each area.
- Reinstatement of all clearance areas, aside from the clearance areas of Turbine 2, and Turbine 11.
- Reinstatement of peat within the southern borrow pit and its associated earthworks to a depth of 0.3 m.

Table 6: Estimated Potential Peat Reuse Volumes

Reuse Location	Reuse Summary	Total Volume (m^3)	Acrotelm volume (m^3)	Catotelm volume (m^3)
Hardstanding Clearance T1	Infilling clearance areas with 0.80m depth peat	4,287	482	3,805
Hardstanding Clearance T3	Infilling clearance areas with 1.00m depth peat	6,252	563	5,689
Hardstanding Clearance T5	Infilling clearance areas with 1.50m depth peat	9,530	572	8,958
Hardstanding Clearance T6	Infilling clearance areas with 1.50m depth peat	9,449	567	8,882
Hardstanding Clearance T7	Infilling clearance areas with 1.00m depth peat	1,230	111	1,119
Hardstanding Clearance T8	Infilling clearance areas with 1.00m depth peat	5,086	458	4,628
Hardstanding Clearance T9	Infilling clearance areas with 1.00m depth peat	2,197	198	1,999
Hardstanding Clearance T10	Infilling clearance areas with 0.80m depth peat	3,299	371	2,928

Reuse Location	Reuse Summary	Total Volume (m^3)	Acrotelm volume (m^3)	Catotelm volume (m^3)
Hardstanding Clearance T11	Infilling clearance areas with 0.00m depth peat	0	0	0
Hardstanding Temporary T1	Infilling clearance areas with 0.80m depth peat	1,908	215	1,693
Hardstanding Temporary T2	Infilling clearance areas with 0.80m depth peat	0	0	0
Hardstanding Temporary T3	Peat reinstatement areas with 1.00m depth peat	2,879	259	2,620
Hardstanding Temporary T4	Peat reinstatement areas with 0.00m depth peat	0	0	0
Hardstanding Temporary T5	Peat reinstatement areas with 1.00m depth peat	2,986	269	2,717
Hardstanding Temporary T6	Peat reinstatement areas with 1.00m depth peat	2,934	264	2,670
Hardstanding Temporary T7	Peat reinstatement areas with 0.80m depth peat	790	89	701
Hardstanding Temporary T8	Peat reinstatement areas with 1.00m depth peat	1,908	172	1,736
Hardstanding Temporary T9	Peat reinstatement areas with 1.02m depth peat	2,773	244	2,528
Hardstanding Temporary T10	Peat reinstatement areas with 0.80m depth peat	1,069	120	949
Hardstanding Temporary T11	Peat reinstatement areas with 0.00m depth peat	0	0	0
Earthworks Construction Compound	Peat reinstatement areas with 0.80m depth peat	134	15	119
Earthworks Substation and BESS Compound	Peat reinstatement areas with 1.00m depth peat	2,125	191	1,934
Borrow Pit (South)	Peat reinstatement areas with 1.00m depth peat	13,228	1,191	12,037
Earthworks Borrow Pit (South)	Peat reinstatement areas with 1.00m depth peat	9,180	826	8,354

Reuse Location	Reuse Summary	Total Volume (m^3)	Acrotelm volume (m^3)	Catotelm volume (m^3)
Earthworks Existing Track to Upgrade	Peat reinstatement areas with 1.00m depth peat	393	35	358
Earthworks Standard Track	Peat reinstatement areas with 1.05m depth peat	7,964	685	7,279
Total		**91,600**	**7,896**	**83,703**

Where rows to do not add up it is due to rounding of values.

9.2 Net Peat Balance

The excavated peat volumes and reuse volumes are summarised in **Table 7** below.

Table 7: Net Peat Balance

	Acrotelm volume (m^3)	Catotelm volume (m^3)	Total Volume (m^3)
Excavated Peat (including bulking factor)	7,964	80,117	88,081
Peat Reuse	7,896	83,703	91,600
Total Balance	**-68**	**3,586**	**3,519**

The total volume of peat predicted to be excavated, 88,081 m^3 including the earthworks, clearance area and bulking factor, does not exceed the total potential peat reuse volume, 91,600 m^3, so no disposal of excess peat off-site is expected for the final layout of the Proposed Varied Development.

10 Handling Excavated Materials

10.1 Excavation

The following methodologies for excavation of peat are recommended:

- Areas of peat within the footprint of any excavation will have the top layer of vegetation stripped off as turf, prior to construction by an experienced specialist contractor. When excavating areas of peat, the excavated turfs should be kept as intact as possible. Often it is easiest to achieve this by removing large turfs up to 500 mm to keep the peat intact.
- These turfs should be stored adjacent to the construction area such that they remain moist and viable (see temporary storage below). Excavated turfs should be as intact as possible

so as to minimise carbon losses. Stacking of turfs will be avoided in order to best preserve the viability of the vegetation layer.

- Peat will then be removed, stored separately and kept damp (Carbon and Water Guidelines, 2012).
- Excavated soils and turfs will be handled so as to avoid cross contamination between distinct horizons and allow reuse potential to be maximised.
- Mineral soil and aggregate will be kept separate from peat or peaty soils in order to avoid contamination (which could result in a change in chemical or hydrological properties in the peat, reducing the likelihood of successful reinstatement on placement).
- Prior to any excavations, the Principal Contractor will produce a detailed Method Statement identifying where and how excavated peat will be used in reinstatement works. Specific requirements for the excavation, handling, storage and reinstatement of peat will be outlined in this Method Statement. The Principal Contractor will consider potential impacts on downstream hydrological receptors in consultation with ECoW, and the potential for instability issues with the excavated material.

10.2 Temporary Storage

Where additional preparation of restoration areas is required at the time of excavation, peat may be required to be temporarily stored before reuse. Likewise, material will be required to be temporarily stored if there is any additional excavated peat beyond the volume that can be placed within the peat restoration areas and the material is instead planned for placement in either the temporary construction compound or the areas of temporary hardstanding, as these will not be available until after the construction period. Excavated peat should be stored in stockpiles to minimise carbon losses while being stored. Peat excavation will be scheduled so as to avoid all temporary storage of peat as much as possible, with a preference for excavated peat being transported directly to restoration areas.

Where possible, excavated turfs will be stored adjacent to the construction area such that they remain moist and viable.

Areas of temporary storage required for peat will be identified in the Principal Contractor's Method Statement considering constraints and mitigation requirements identified in further pre-construction investigations. This will describe any intended drainage, pollution prevention and material stability mitigation measures that may be required. The following general guidelines will apply:

- The appropriate temporary storage areas for excavated peat will be as close to the excavation as practicable.
- Temporary peat storage areas require the ground conditions to be suitable for loading, the peat slide risk and the topographical gradients to be low and to be located outside of the main watercourse buffers.
- The design and location of stockpiles, including incorporated drainage elements, will be agreed with the ECoW and Geotechnical Consultant / Geotechnical Clerk of Works prior to excavation works commencing.

- Temporary peat storage areas should be located so that erosion and run off is limited, leachate from the material is controlled, and stability of the existing peatland in the vicinity is not affected.
- Excavated material is to be stockpiled at least 50 m away from watercourses. This will ensure that any wetting required on stored peat does not runoff and discharge into adjacent watercourses.
- Any edges of cut peat that may remain exposed, or areas of peat excavation on steep slopes, will be covered with geotextile or similar approved. This will allow re-turfing and re-vegetation and reduce erosion risks.
- Suitable storage areas are more appropriately sited in areas with lower ecological value and low slopes. Cleared areas of forestry are preferred to areas of higher ecological value or areas close to watercourses.
- An up-gradient cut off ditch should be installed around the edge of the storage bund in order to collect up-gradient surface water runoff and divert water runoff from eroding the toe of the bund.
- It is desirable to keep haul distances of excavated peat as short as possible, and as close as possible to intended re-use destinations, to minimise plant movements in relation to any earthworks activity, including peat management, in order to minimise the potential impact on the peat structure. It is important that temporary storage is safe and keeps the material suitable for its planned reuse.
- The handling and storage of peat will seek to ensure that excavated peat does not lose either its structure or moisture content. Peat turfs require careful storage and wetting and to be maintained to prevent drying out and subsequent oxidisation to ensure that they remain fit for re-use.
- Stockpiling of peat should be in large volumes, taking due regard to potential loading effects. Piles should be bladed off at the side to minimise the available drying surface area.

11 Reuse of Peat in Infrastructure Restoration

As stated above, priority for peat reuse will be given to the peat restoration areas shown in **Figure 12.7a-b**. The following methodologies apply to any potential excess excavated peat that may be reused within infrastructure excavations.

11.1 Bare Peat

There are several important methodologies regarding the exposure of bare peat including:

- The amount of time any bare peat will be exposed will be minimised to preserve its integrity.
- The phasing of work should be carried out to minimise the total amount of exposed ground at any one time. By stripping turf and replacing as soon as reasonably possible after peat has been re-distributed there will be minimal areas of bare peat.
- Any peat areas on steep ground or that remains partially bare will be covered using geotextile or a similar method to stop erosion.

- Any areas of bare peat, where vegetation is not re-growing, will be seeded with a seed mixture obtained from the existing habitat. Stock exclusion in these areas will continue until vegetation is properly established.
- The re-vegetated areas will be monitored.
- Areas where full recovery is complete will have fences removed.

This approach has been shown to be effective on other peat sites and the turfs re-grow quickly both establishing vegetation and consolidating the peat.

11.2 Peat Re-use around Infrastructure

Peat reuse infrastructure within infrastructure areas allows a further opportunity to maintain the integrity of the excavated peat, enhance habitats and create new habitats beyond use of peat in restoration of already degraded areas. This will be undertaken through:

- The Principal Contractor will be required to provide appropriate plant for undertaking all reinstatement works such that no unnecessary disturbance of the ground surface occurs. To minimise disturbance and damage to the ground surface, any mobile plant required for reinstatement works will be positioned on constructed access tracks, hardstanding areas or existing disturbed areas wherever possible. The use of a long reach excavator for excavations and reinstatement works is preferable as it enables sufficient room to allow initial side casting and subsequent pulling back of turfs over reinstated peat or soil.
- Excavated catotelm or amorphous peat will only be used in restoration works where the topography allows straight forward deposition with no pre-treatment or containment measures and without risk to the environment. Suitable scenarios may be present in those disturbed areas where natural topography profile allows such use. A fibrous layer of acrotelm and turf will be placed above any catotelm or amorphous peat reinstated.
- Reinstatement of vegetation will be focused on natural regeneration utilising peat vegetated turfs. To encourage stabilisation and early establishment of vegetation cover, where available, peat turfs (acrotelmic material) or other topsoil and vegetation turfs in keeping with the surrounding vegetation type will be used to provide a dressing for the final surface.
- Any reinstatement and re-profiling proposals will consider, and mitigate against, identified significant risks to environmental receptors. In particular, in areas of replaced peat, water management will be considered in the Principal Contractor's Construction Method Statements to ensure that as far as possible an appropriate hydrological regime is re-established within areas of disturbance. Particular attention will be paid to maintaining hydrological continuity and preventing the creation of preferential subsurface flow paths (for instance within backfilled cable trenches).
- When cutting the track the vegetation layer (approx. 500 mm thick) will be undercut and rolled back. A geotextile layer will then be installed on the side slopes of the track immediately after track construction to prevent erosion. The undercut vegetation layer will then be rolled back over the verge of the installed track. Through careful management of upgradient water and track cambers to shed water to the peat on the verges the level of saturation can be maintained.

- Peat placed on track verges should gently taper into the adjacent landform, with the peat blocks placed snugly together and the edge of the peat placed furthest from the track should be firmed into the adjacent ground to form a seal, in order to minimise water loss through evaporation.
- Track edges and passing places would be reinstated post construction through the removal of capping material and the reuse of peat turfs. Where peat turfs are used to reinstate track edges this will be done in a manner to ensure works tie in with the surrounding topography, landscape and ground conditions.
- The design and construction of tracks on peat shall be done in such a way so as to reduce impacts on the existing peat hydrology at the site. The built track should allow for the transmittance of water, so natural drainage can be maintained as far as possible.
- Where possible drains will be blocked as soon as they are no longer required to reduce impacts on adjacent peat habitat and allow recovery of the drains to peat habitat.

12 Summary

Peat depth penetration probing has been undertaken at 7,778 locations with associated cores comprising a high-density grid over at all site infrastructure and a 100 m grid across the Study Area to obtain a detailed understanding of peat variability, depth and characteristics of the Study Area.

The total area of the Proposed Varied Development infrastructure footprint (229,466 m^2) and associated earthworks (129,211 m^2) is 358,677 m^2, including 10,535 m^2 of existing tracks. The previous Consented 17 turbine development had a total footprint area of 158,300 m^2 without earthworks and a peat excavation calculated (Arcus, 2019) to be 93,687 m^3 for the 17 smaller turbines, without earthworks or a bulking factor.

The infrastructure has avoided peat where possible with deep peat (>1.0 m depth) present across only 8.98% of the Proposed Varied Development infrastructure and any peat >0.5 m depth) present across 23.67% of the Proposed Varied Development infrastructure.

The total volume of excavated peat associated with the footprint of the infrastructure and associated earthworks has been calculated at approximately 88,081 m^3 with approximately 7,964 m^3 of acrotelmic peat and approximately 80,117 m^3 of catotelmic peat when allowing for a 10% bulking factor. All of which is modified due to historic and current commercial forestry.

The potential reuse of excavated peat has been calculated based on SEPA guidance. The peat reinstatement areas that have been identified within the temporary infrastructure, clearance areas, earthworks and southern borrow pit could accommodate an estimated total volume of 91,600 m^3 of excavated peat. This is comprised of about 7,896 m^3 of acrotelmic peat and about 83,703 m^3 of catotelmic peat.

The total reuse volume therefore exceeds the peat excavation volumes with a balance of 3,159 m^3 additional peat reinstatement area available after all the calculated excavated peat has been reinstated.

Based on the peat depth, characteristics and distribution investigations undertaken across the Site and the final layout, a surplus of peat is not expected to be generated by the Proposed

Varied Development. All estimated excavated peat is planned for re-use during the construction and post-construction phases of the Proposed Varied Development.

Further investigations will be undertaken prior to works commencing to confirm peat depth, distribution and characterisation. The additional survey data will be used to inform any micro-siting, and potentially further minimise the volume of peat extracted. The peat management plan will be further updated using the additional survey data and detailed infrastructure design. The detailed PMP will be approved by Dumfries and Galloway Council (DGC) in consultation with the relevant regulators, such as SEPA and NatureScot, as part of the CEMP pursuant to the imposition of a planning condition.

The Principal Contractor will maintain a record of actual peat volumes excavated and the subsequent peat re-use to compare the predicted and actual peat volumes. This record during the construction, operation, decommissioning and restoration phases of the Proposed Varied Development will be made available for review by regulators as and when required.

13 References

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- National Planning Framework 4 (NPF4), Scottish Government, 2023;
- Scotland's National Peatland Plan Working for our future. Scottish Natural Heritage 2015;
- Best Practice Guidance to Planning Policy Statement 18 'Renewable Energy', August 2009;
- Good practice during windfarm construction (Scottish Renewables, SNH, SEPA & Forestry Commission Scotland, 4th Edition 2019);
- Scottish Government, Scottish Natural Heritage, SEPA (2017) Peatland Survey. Guidance on Developments on Peatland;
- SEPA Regulatory Position Statement – Developments on Peat. February 2010;
- WAS-G-11 Construction and Remediation: On-site Management of Excavated Peat Version 1, (revised guidance on the on-site use of excavated peat) SEPA, March 2026;
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- WAS-G-52 SEPA Guidance: Developments on Peat and Off-Site Uses of Waste Peat Version 2 (August, 2025);

- Scottish Government Environmental Authorisation (Scotland) Regulations 2018 (EASR) as amended by Environmental Authorisation (Scotland) Amendment Regulations 2025 (came into effect 1st November 2025);
- SEPA Planning Advice Note - Assessing the Impact of Developments on Peatland and Carbon-Rich Soils (December 2025);
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- Floating Roads on Peat: A Report into Good Practice in Design, Construction and Use of Floating Roads in Peat with particular reference to Windfarm Developments in Scotland. Forestry Civil Engineering and SNH, 2010;
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