

# ***WEST OF ORKNEY WINDFARM***

## **Onshore EIA Report, Volume 3, Outline Management Plan 3: Outline Peat Management Plan**

<b>OWPL Document Number</b>	<b>Originator Document Number</b>	<b>Revision</b>	<b>Status</b>	<b>Date</b>
WO1-WOW-CON-EV-RP-0122	2760759-P8.1 (04)	2	IFU	06/10/2023

**Important Notice and Disclaimer:** This document and any information therein are confidential property of West of Orkney Windfarm and without infringement neither the whole nor any extract may be disclosed, loaned, copied or used for manufacturing, provision of services or other purposes whatsoever without prior written consent of West of Orkney Windfarm, and no liability is accepted for loss or damage from any cause whatsoever from the use of the document. West of Orkney Windfarm retains the right to alter the document at any time unless a written statement to the contrary has been appended.

**Approved by S. Kerr**

Document Control 25/10/2023

## Document Role

Role	Company	Name	Aconex Signature
Author	RSK	Giles Exley (Author) Lucy McCulloch (Author) Catherine Isherwood (Technical Reviewer)	N/A
Checker	Xodus Group	Ashleigh Fenton	N/A
Acceptor	OWPL	Stephen Kerr	N/A

## OWPL Revision History

Revision Number	Issue Date	Document Status
1	13/07/2023	Issued for Review
2	06/10/2023	Issued for Use

## Revision Record

Revision Number	Revised Section	Description of Changes
1	Various	Changes made to content and figures based on feedback from Project.

---

# Contents

1.	Introduction.....	1
1.1	Site location.....	1
1.2	Development proposals.....	3
2.	Peat condition.....	4
2.1	Developments on peat.....	4
2.2	Development setting.....	5
2.3	Peat at the onshore study area.....	8
3.	Peat Handling & storage.....	13
3.1	Peat excavation.....	13
3.2	Peat reuse.....	14
3.3	Temporary storage.....	14
3.4	Peat reinstatement and restoration.....	15
3.5	Updated peat management.....	15
4.	Summary.....	16
5.	References.....	17
6.	Abbreviations and acronyms.....	18

---

# 1. Introduction

This document provides an Outline Peat Management Plan (PMP) for West of Orkney Windfarm and associated onshore Project infrastructure (hereafter referred to as the onshore Project). The Outline PMP is intended to be a working document that evolves during the construction period; for example, as new details emerge the PMP should incorporate these. This current version can therefore be viewed as an outline which will be subject to further updates post planning consent.

The report forms an Outline Management Plan (OMP) submitted alongside the application for Planning Permission in Principle (PPP). It has been produced to address the potential requirement for excavation of peat and peaty soils during the construction process. The report also supports and underpins the Onshore Environmental Impact Assessment (EIA) Report for the onshore Project and should be read in conjunction with this document. This OMP will be finalised post consent once the final design of the onshore Project is established.

This outline plan provides a summary of key findings with relation to peat depth and condition across the onshore study area. Additionally, it sets out options for reuse of excavated material as well as providing guidance on management and handling of excavated peat. Soil management measures are discussed within OMP1: Outline Construction Environmental Management Plan (CEMP), which has also been submitted alongside the application for PPP.

As detailed in Figure 1-1, buffers around the onshore Project area appropriate to individual effects are used to assess impact. The onshore study area for geology and hydrology is the onshore Project area plus a buffer zone of 2 kilometre (km) (Figure 1-1). The onshore study area for Groundwater-Dependent Terrestrial Ecosystems (GWDTE) is the onshore Project area plus a buffer zone of 250 metre (m) (Figure 1-1). The onshore study area for considering potential effects on water resources, including Private Water Supplies (PWS) and waterbodies is the onshore Project area plus a buffer zone of 5 km (Figure 1-1).

## 1.1 Site location

The onshore study area is situated within Caithness, in the far north-eastern part of the Scottish Highlands. The onshore study area extends from two landfall options, the western landfall at Greeny Geo and the eastern landfall at Crosskirk, which merge at Forss. The onshore study area follows a generally south-easterly direction, branching into two corridor options south-east of the Moss of Geise, with one passing to the east and one to the west of Halkirk. These corridors merge just north of the onshore substation search area at Achalone (Figure 1-1). The onshore study area lies within a Farmed Lowland Plain Landscape Character Area, which is described as a 'generally open, low-lying plain, gently undulating to form shallow broad valleys, which are often filled with lochs and mosses, and subtle low ridges' (Scottish Natural Heritage, 2019).

Current land use within the onshore study area involves arable farming, livestock pasture, rough grazing, areas of unproductive ground and the local road and rail networks.

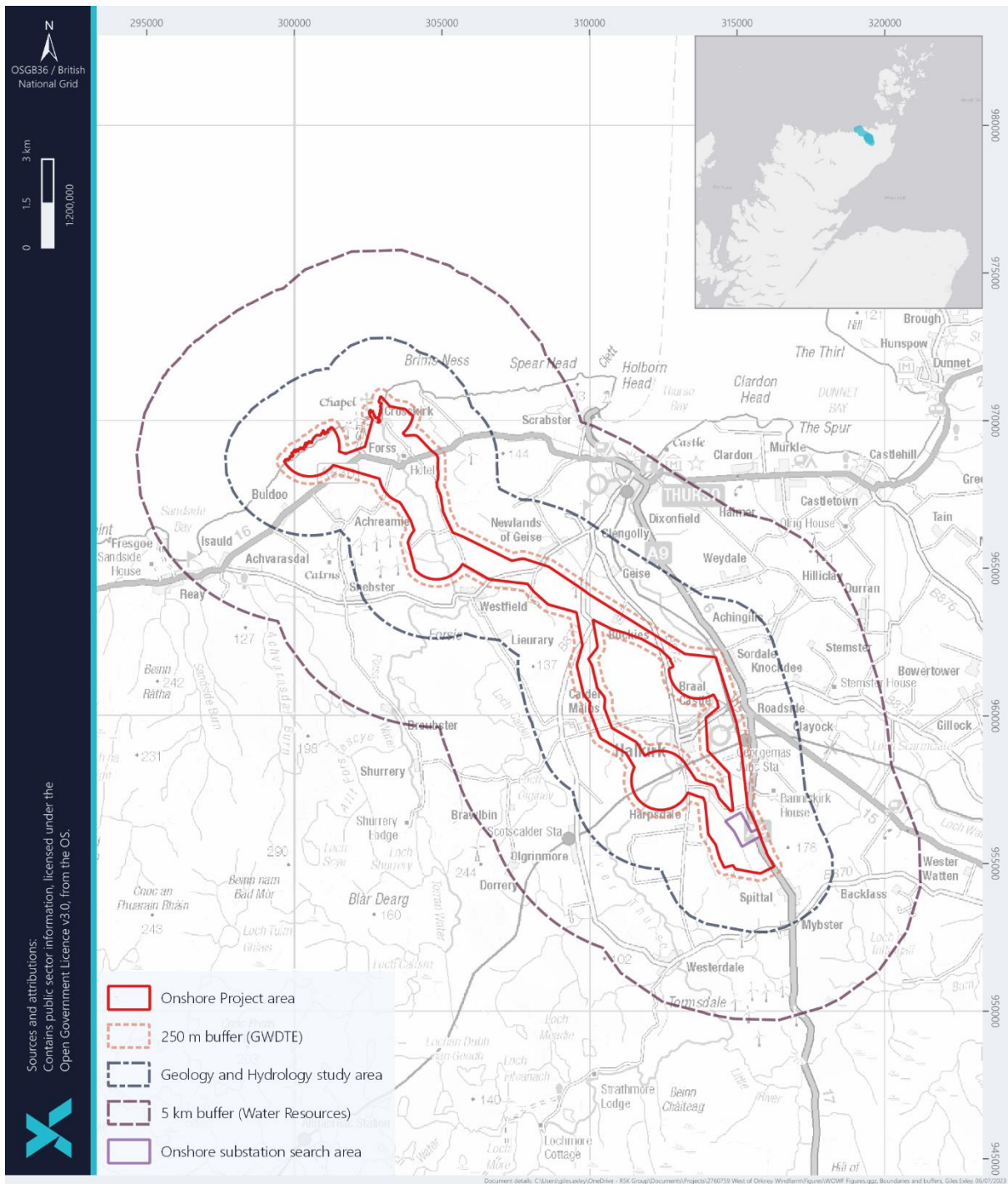


Figure 1-1 Onshore Project area and buffers for study areas

---

## 1.2 Development proposals

The onshore Project includes:

- Landfalls – the locations at Greeny Geo and Crosskirk where the offshore export cables will be brought ashore. One or both options may be utilised. The temporary working area for the construction compound at each landfall is expected to be 22,500 m<sup>2</sup>.
- Onshore export cables – five onshore export cables will be buried underground in separate trenches, with each onshore export cable comprising of three separate power cables and a one fibre optic communications cable. Each onshore export cable will be up to 33 km across a working corridor width of up to 100 m. The total working corridor area is 3,300,000 m<sup>2</sup>. Temporary laydown compounds of 100 m x 100 m will be placed along the route every 2 km.
- Onshore substation – contains the electrical components for transforming the power supplied from the Project via the export cables to meet the export requirements. The full size of development area (including substation screening, Sustainable Drainage Systems (SuDS) and bunding) is 239,200 m<sup>2</sup>. During construction, the temporary construction compound (22,500 m<sup>2</sup>), site office and car park (40,000 m<sup>2</sup>) will total 62,500 m<sup>2</sup>.
- Temporary access (not including haul roads) tracks up to 3,300 m in length at the landfall, the entry and exit points of the Horizontal Directional Drilling (HDD) points and the onshore substation. Lengths are indicative only.
- It is anticipated that up to six new permanent access tracks will be required for HDD sites and one permanent access track will be required at the onshore substation This consists of approximately 5 km in length of permanent access tracks. 24% (1.2 km) are existing tracks, 44% (2.21 km) are existing tracks that require improvements and 33% (1.67 km) will be newly installed tracks.

Full details of the Project description are provided in chapter 5: Project description of the Onshore EIA Report.

The final cable route and substation location will be defined during the detailed design stage, post-consent.

### 1.2.1 Aims

This outline plan reviews available peat depth information for the onshore study area and immediate environs, and provides a summary of key findings with relation to peat depth and condition across the study area. Specific calculations to determine volumes of peat that will require excavation in order to allow the onshore Project to progress cannot be provided at this stage as detailed infrastructure design is not currently available. However, options will be provided to address use of any excavated peat within necessary restoration of the onshore Project's infrastructure. A series of good practice measures relating to peat and soil handling and storage will also be provided.

### 1.2.2 Assessment method

The assessment has involved the following stages:

- Desk study to determine and verify the baseline conditions;
- Phase 1 peat depth surveys undertaken in September and October 2022 which involved taking peat depth measurements by inserting a hand-held probe vertically at predetermined points across a 100 m grid, where access permitted. The depth of refusal, taken to indicate peat depth, was recorded. Surveys covered all areas where peat was expected or considered possible as a result of ground conditions, plus a buffer zone around these areas. The survey method was discussed and agreed with the Scottish Environment Protection Agency (SEPA);
- Options for peat reuse; and
- Peat handling and storage guidance.

---

## 2. Peat condition

### 2.1 Developments on peat

#### 2.1.1 Definition of peat

Scotland's Soils (2022) classifies peat as:

*An accumulation of partially decomposed organic material, usually formed in waterlogged conditions. Peat soils have an organic layer more than 50 centimetre (cm) deep from the soil surface which has an organic matter content of more than 60%.*

Organic soils which are 50 cm or thinner can also support peatland vegetation and, as a result, are also considered within Scotland's broader peatland system in Scotland's National Peatland Plan (NatureScot, 2015). These are often described as 'peaty gleys' or 'peaty podzols', reflecting key aspects of the underlying soil. Peaty soils have a higher plant fibre content and are less decomposed than peat.

Active peatland typically consists of two layers: the surface layer (acrotelm) and the deeper layer (catotelm). The acrotelm contains the living vegetation and consists of living and partially decayed plant material. It typically has a low but variable hydraulic conductivity and allows some throughflow of water within the plant material. The underlying catotelm is denser, with very low hydraulic conductivity, and is formed from older decayed plant material. The catotelm varies in structure, in some areas retaining a proportion of fibrous material and in others being more humified and amorphous. The degree of humification typically increases with depth.

Underneath the peat-forming layers, the basal substrate can be a mineral soil, a superficial deposit such as glacial material, or bedrock. There may be a transition zone through a mineral-rich peaty layer at the base of the peat, although this is usually no more than 5 cm thick.

#### 2.1.2 Importance of peat

Peatland forms a key part of the Scottish landscape, covering more than 20% of the country's land area, and forming a significant carbon store (Scotland's Soils, 2019). In addition, peatland is an internationally important habitat.

Active and healthy peatlands develop continuously, removing carbon dioxide from the atmosphere and storing it within the peat soil. Peatland protection and restoration form key parts of the Scottish Government's Climate Change Plan, which targets restoration of 250,000 hectares (ha) by 2030 (Scottish Government, 2018). As of March 2020, over 25,000 ha of peatland had begun restoration. In 2020 the government announced a £250 million ten-year funding package to support the restoration of degraded peat (Scottish Government, 2020). Restoration will need to be conducted at a faster pace to reach these targets.

Under Scotland's National Planning Framework 4 (NPF4) (Scottish Government, 2023), specific provision is included for the following, with direct relation to peat and major infrastructure developments:

- Restoration of degraded habitats as part of biodiversity enhancement (Policy 3),
- Protection and restoration of valued soils to enhance soil capabilities to capture and store carbon and maintain soil health (Policy 5);
- Development proposals on peatland, carbon-rich soils and priority peatland habitat will only be supported for essential infrastructure, generation of renewable energy or restoration of peatland habitats (Policy 5).

It is therefore important that developments in peatland areas recognise the importance of peatland and peat soils as a habitat and carbon store. Careful planning of developments, and careful infrastructure design, can remove or minimise the disturbance of peat that would be needed to allow the development to proceed.

---

## 2.2 Development setting

### 2.2.1 Topography and geomorphology

The onshore study area lies on relatively low ground, with elevations ranging from sea level to around 115 m Above Ordnance Datum (AOD). The lowest point within the onshore study area is at the eastern landfall area in Crosskirk, where the Forss Water meets the sea. The highest point within the onshore study area is to the west of Spittal Hill, at the southern extent of the onshore export cable corridor.

The two landfall locations are both characterised by rocky shorelines and low cliffs of around 10-20 m in height. Inland, the topography is characterised by low-lying rolling hills and valleys. Steeper slopes are present within the Forss Water valley, on both sides of the river, and in the eastern part of the onshore export cable corridor along the side of Buckies Hill. The southern part of the onshore export cable corridor, near and to the south of Halkirk, is nearly flat in nature.

The onshore substation search area has an elevation that ranges from around 60 m to 95 m AOD.

### 2.2.2 Habitats and vegetation

Much of the onshore study area is under agricultural use for arable crop production or as improved pasture for grazing.

National Vegetation Classification (NVC) survey mapping for other parts of the onshore study area indicates that the following habitats provide most of the ground cover:

- M15: *Scirpus cespitosus* – *Erica tetralix* wet heath;
- M25: *Molinia caerulea* – *Potentilla erecta* mire;
- M27: *Filipendula ulmaria* – *Angelica sylvestris* mire;
- MG10: *Holcus lanatus* – *Juncus effusus* rush-pasture.

Other habitats are present with smaller coverage. NVC mapping for the onshore study area is described in detail in chapter 10: Terrestrial non-avian ecology within the Onshore EIA Report and shown below in Figure 2-1 and Figure 2-2.



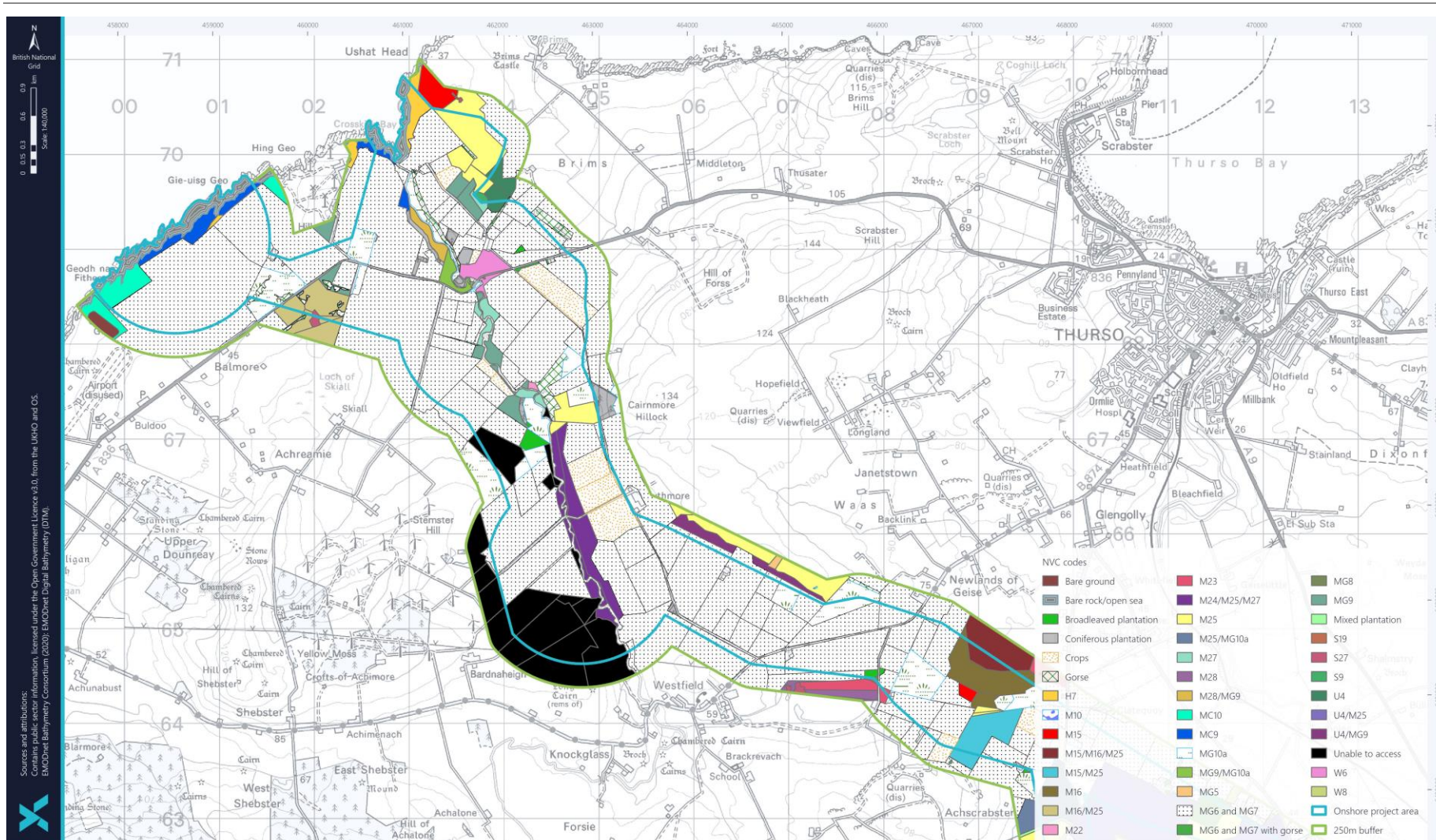


Figure 2-1 NVC habitats recorded within the northern section of the GWDTE study area



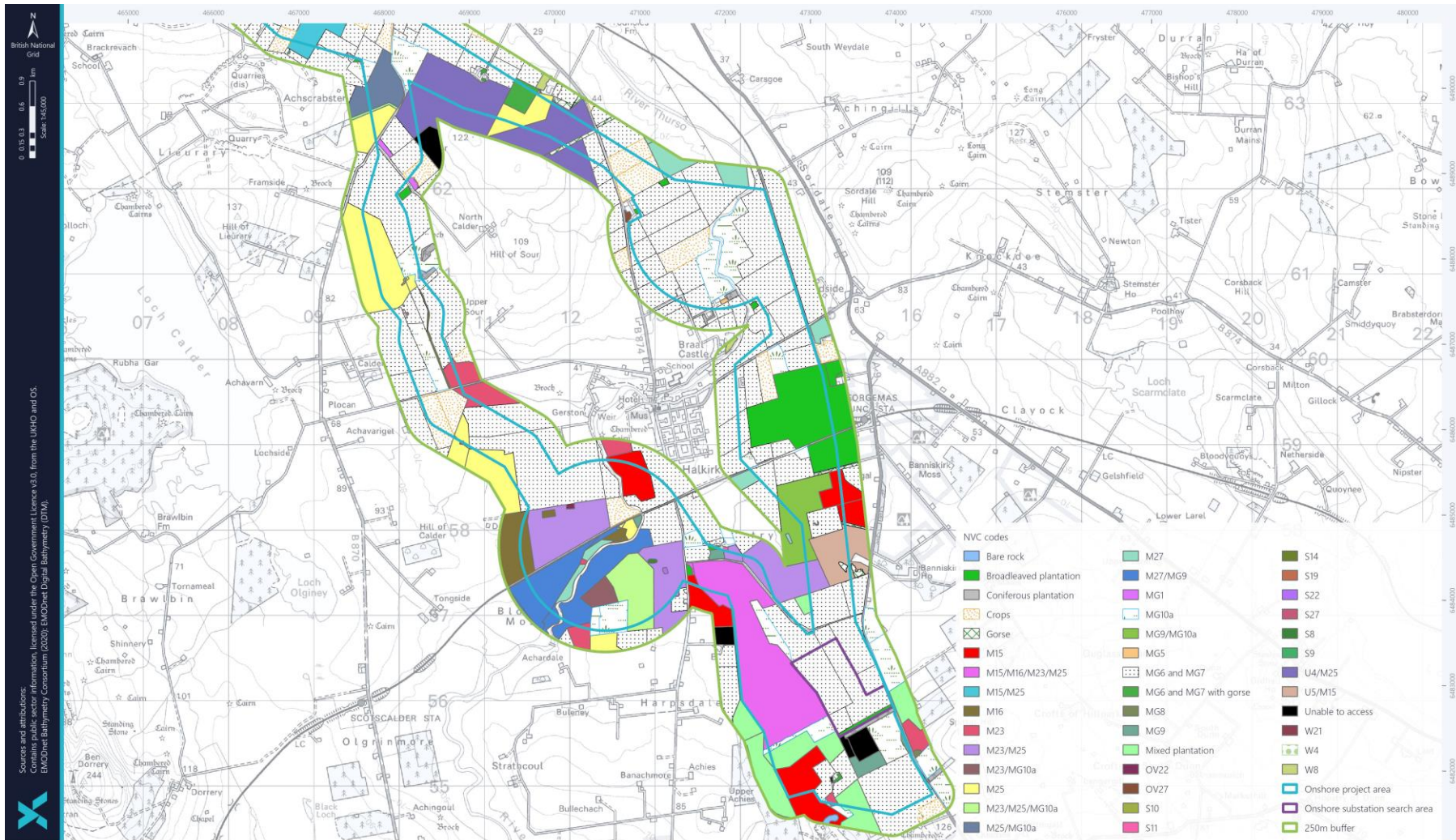


Figure 2-2 NVC habitats recorded within the southern section of the GWDE study area

---

The soils underlying the onshore export cable corridor are dominated by noncalcareous gleys and brown forest soils of the Thurso Association (Soil Survey of Scotland, 1981). The onshore substation search area is predominantly underlain by noncalcareous gleys of the Thurso Association.

### 2.2.3 Hydrology

The onshore Project area lies within five catchments: the River Thurso, Forss Water, Burn of Brims, Thurso Coastal between Forss Water and Dounreay Burn, and Thurso Coastal between Burnside Burn and Forss Water.

#### 2.2.3.1 River Thurso

The River Thurso catchment has a total area of 487.0 km<sup>2</sup> and drains 53.5% of the land within the onshore Project area (Centre for Ecology and Hydrology (CEH), 2022). The River Thurso catchment is located in the part of the onshore Project area that is south-east of Moss of Geise, this includes the onshore substation search area.

Several smaller tributaries drain into the River Thurso through the onshore Project area, including the Burn of Achanarras/Burn of Halkirk<sup>1</sup>, Burn of Geise, Burn of Carnavagry and Calder Burn. Several unnamed tributaries drain into the River Thurso within the onshore Project area to the west of Houstry, south of Aimster and north-east of Clatequoy.

#### 2.2.3.2 Forss Water

The Forss Water catchment has a total area of 139.5 km<sup>2</sup> and drains 36.2% of the land within the onshore Project area (CEH, 2022), to the north-west of Achscrabster to the coast at Crosskirk Bay.

Several smaller tributaries drain into the Forss Water through the onshore Project area, including the Burn of Baillie, Burn of Brimside and Craigan Well.

#### 2.2.3.3 Burn of Brims

The Burn of Brims catchment has a total area of 5.0 km<sup>2</sup> and drains 2.4% of the onshore Project area (CEH, 2022), located north of Forss, near the eastern landfall for the onshore cable export corridor.

#### 2.2.3.4 Coastal areas

The two landfalls of the onshore cable export corridor are drained by minor watercourses. The Greeny Geo landfall of the onshore study area lies in the Thurso Coastal between Forss Water and Dounreay Burn catchment (SEPA, 2022). In total this catchment drains 6.8% of the onshore Project area.

To the east, the landfall area at Crosskirk, to the east of Crosskirk Bay, lies in the Thurso Coastal between Burnside Burn and Forss Water catchment, draining 1.0% of the onshore Project area (SEPA, 2022).

#### 2.2.3.5 Catchment statistics

Catchment statistics are derived from the Flood Estimation Handbook Web Service (CEH, 2022). The catchment wetness index (the proportion of time soils are wet) for all the catchment areas ranges from 0.50 to 0.56, indicating that soils within the onshore Project area are wet 50 to 56% of the time. The area has a base flow index of between 0.32 and 0.34, indicating a moderate to low input of groundwater baseflow to surface watercourses. The standard percentage runoff is 39 to 53%, indicating that this percentage of rainfall is converted into surface runoff from rainfall events; this represents a high runoff risk where soils have a limited capacity to store rainfall and/or a slow infiltration rate and will quickly saturate, leading to rapid runoff, and more 'flashy' watercourses.

## 2.3 Peat at the onshore study area

### 2.3.1 Peat depth distribution

The onshore study area was identified to include areas of peat at an early stage, as indicated by superficial geology and soils mapping for the region. A broad-scale Phase 1 peat depth survey on a 100 m grid was undertaken by RSK in September and October 2022 to develop a picture of the overall pattern of peat deposits within the onshore study area. Hydrology and rockhead information were also collected for each point.

The combined peat depth data were used to generate a detailed map of peaty soil and peat depths for the onshore study area; this is provided in Figure 2-3 and Figure 2-4. A total of 1,154 peat depth measurements were recorded for the onshore

---

<sup>1</sup> The Burn of Achanarras is an important water feature with relevance to the onshore Project, but forms part of the Halkirk Burn catchment in SEPA's terminology. This document refers principally to the Burn of Achanarras.

---

study area and immediate surroundings. Table 2-1 provides a breakdown of the peat depths recorded within the onshore study area.

**Table 2-1 Recorded peat depths for the onshore study area**

Peat depth band (m)	Number of records	Percentage of records
0 – 0.50	996	86.31
0.51 – 1.00	108	9.36
1.01 – 1.50	24	2.08
1.51 – 2.00	13	1.13
2.01 – 2.50	4	0.34
2.51 – 3.00	3	0.26
3.01 – 3.50	3	0.26
3.51 – 4.00	3	0.26
<b>All records</b>	<b>1,154</b>	<b>100</b>

Measured peat and soil depths range from 0 (bedrock at surface) to 4 m. The majority of depths recorded were less than 0.5 m. The most common depth value recorded was 0.1 m. The deepest value recorded (4.0 m) was found in the largest area of peat which is located in the south of the onshore study area to the east of Harpsdale. North of this and south of Houstry, another area of deep peat was recorded with a maximum depth of 3.1 m. Some other substantial areas of peat were recorded at Yellow Moss and Moss of Halkirk, with peat depths up to 2.4 m. North of this, across the railway line and east of Drakerous an area of peat with a maximum depth of 1.85 m was recorded.

Some smaller areas of peat were found across the onshore export cable corridor, notably:

- Along the Forss Water valley, mainly adjacent to the river;
- Along the south-western margin of the Moss of Geise;
- Adjacent to the River Thurso north-east of Halkirk; and
- Around the Calder Water east of Calder Mains.

Areas with shallow or no peat recorded were generally consistent with well-drained, heavily-grazed land and areas used for crops. Deep peat was generally associated with boggy areas which were not associated with agriculture, or which appeared to be used for rough grazing only.

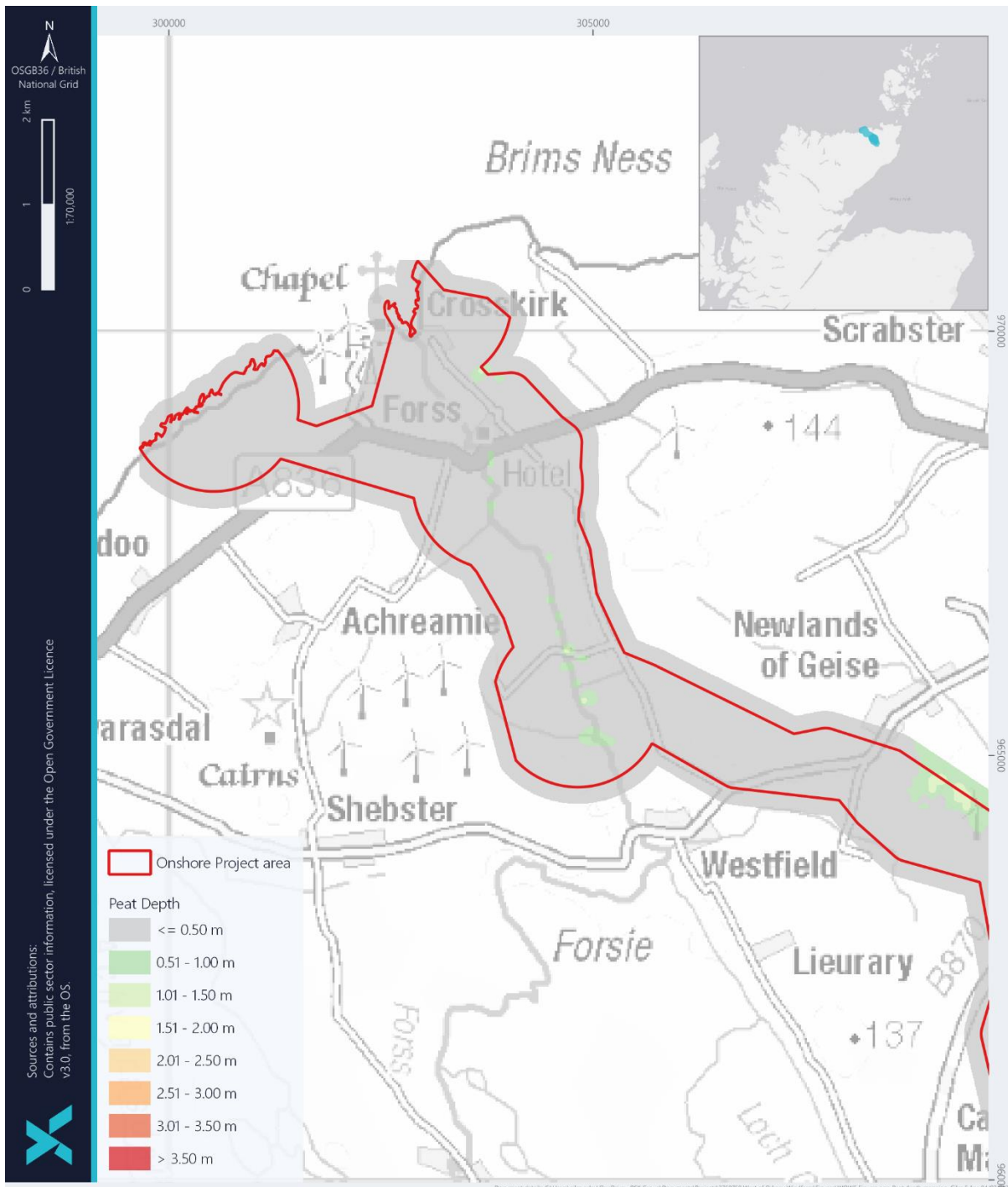


Figure 2-3 Interpolated peat depth mapping for the northern extent of the onshore Project area during Phase 1 peat surveys



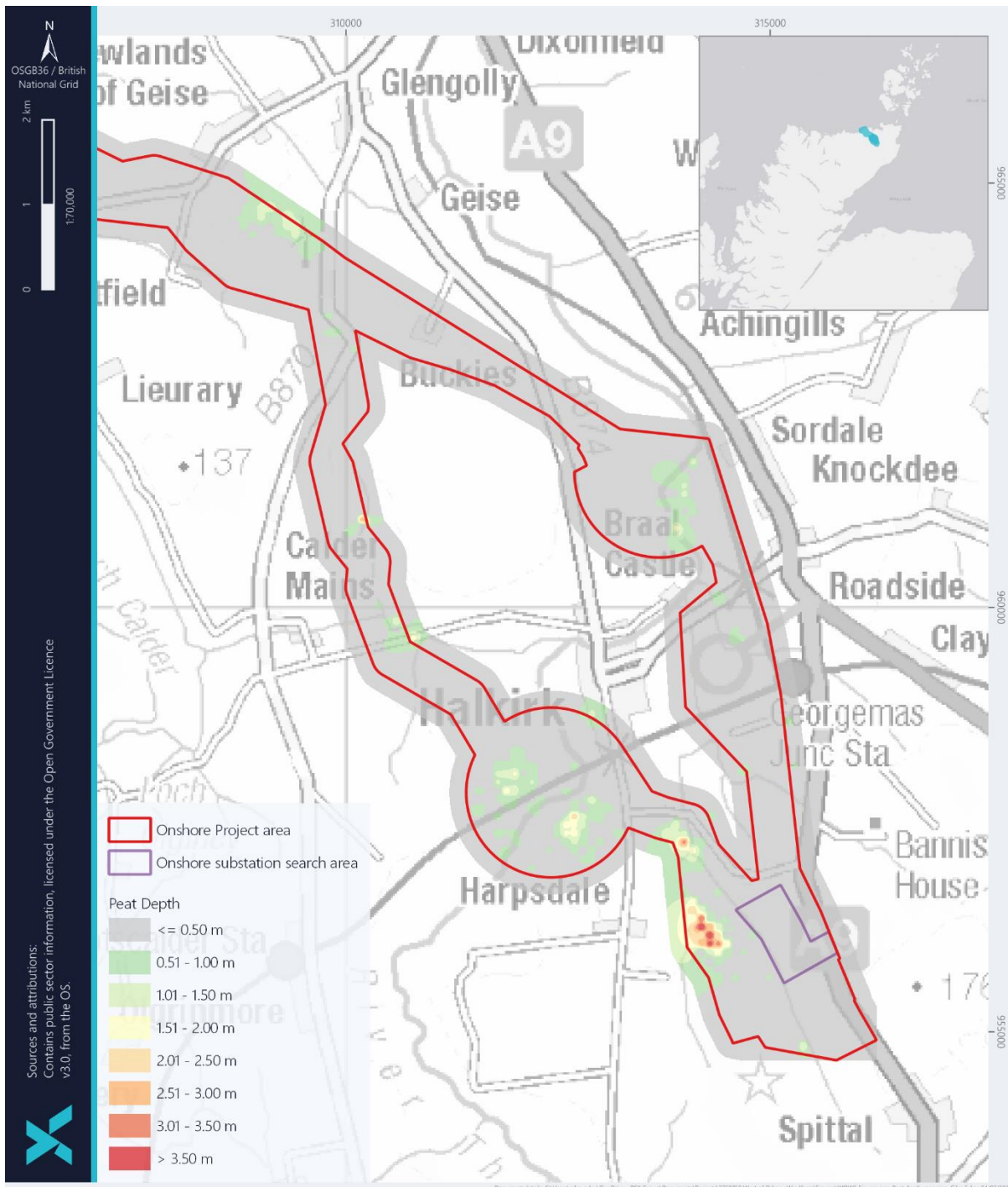


Figure 2-4 Interpolated peat depth mapping for the southern extent of the onshore Project area during Phase 1 peat surveys

---

### 2.3.2 Peatland condition

The Carbon and Peatland Map (NatureScot, 2016) classifies the majority of the onshore study area as Class 0 which is described as mineral soil with no peatland vegetation where peatland habitats are not typically found.

Some small areas of Class 1, described as nationally important carbon-rich soils, deep peat and priority peatland habitat, are associated with Yellow Moss and Moss of Halkirk.

Some areas of Class 3, described as carbon-rich soils with some areas of deep peat, are found in the south-west of the onshore study area, particularly around the large areas of deep peat at Yellow Moss, Moss of Halkirk and east of Harpsdale. A small area of Class 4 (unlikely to include carbon-rich soils) is present to the east of Carnavagry on the western section of the onshore export cable corridor, and in pockets of the onshore export cable corridor south of Halkirk.

As part of the peat depth surveys, information was collected concerning the condition of the peat present within the Site. NatureScot recognises five categories of peatland condition: (1) Near-natural; (2) Modified; (3) Drained; (4) Actively eroding; and (5) Forested/Previously Afforested (NatureScot, 2018).

The Phase 1 peat surveys recorded a limited presence of *Sphagnum* mosses, even in areas with more extensive peat deposits. The widespread farming land use and areas of forestry indicate that much of the peatland would be classed as category 2 or 3. No areas of category 1 near-natural peatland were identified within the onshore study area. Most of the onshore study area is not peatland.

Modified and drained peatlands are usually associated with peat deposits that are in a poor or degraded condition.

---

## 3. Peat Handling & storage

### 3.1 Peat excavation

Due to a lack of infrastructure design at this stage of the onshore Project it is not possible to calculate specific volumes of peat that would require excavation. It should be noted that peat within the onshore study area is limited and where it is present it does not extend across the full width of the onshore export cable corridor. Therefore, by careful design it is expected to be possible to avoid incursion into areas of peat deeper than 1.0 m.

While it would be the preference to avoid all areas of peat of any depth, it may not be possible to avoid all smaller pockets or shallower margins of peat, as the final route for the onshore export cable cables will be dependent on agreement with landowners and achieving a balance between environmental constraints and engineering requirements. Verification of soil depths will be undertaken in focused areas to determine extent of any potentially problematic ground conditions prior to construction works beginning.

With this in mind, this section outlines good practice methods should excavation of peat be required for the onshore Project to proceed.

During the construction of the onshore Project infrastructure, the Contractor would adopt the following good practice guidelines with relation to peat excavation:

- Where peat conditions are suitable, peat turves would be excavated as intact blocks of the uppermost 0.5 m including the vegetated surface acrotelm layer and the upper part of the catotelm. This will promote quicker regeneration of disturbed areas following reinstatement.
- In areas where peat conditions do not allow clean removal of peat turves, the upper layer of peat would be removed as divots or mulch rather than as turves. Careful handling would help to keep the vegetated blocks largely the right way up.
- Underlying peat would be extracted as close to intact as is feasible within the constraints of the area. Remoulding of the peat by the excavator would be kept to a minimum.
- Excavated materials would be classified by the Principal Contractor, or appropriately qualified and authorised deputy, depending on their composition, and each type would be stored separately. Anticipated material classes will depend on the final cable route, but may comprise: peaty soils and topsoil, subsoil, acrotelmic peat, catotelmic peat, mineral soil, and rock.
- Excavated peat would be temporarily stored close to, but outwith the excavation working area in order to minimise loss of structure during transport.

Peat excavation and storage can be adversely affected by wet weather. The following 'stop' conditions are recommended to guide any peat and soil stripping activity (Table 3-1; CH2M & Fairhurst, 2018).

**Table 3-1 Recommended 'Stop' Conditions for Peat Excavation (CH2M & Fairhurst, 2018)**

'Stop' Rule	Requirements
High intensity rainfall	Rainfall during construction greater than 10 mm per hour
Long duration rainfall	Rainfall in the preceding 24 hours greater than 25 mm
Seven-day cumulative rainfall (1)	Preceding seven days of rainfall greater than 50% of the monthly average
Seven-day cumulative rainfall (2)	Preceding seven days of rainfall greater than 50 mm

Monitoring of rainfall for 'stop' conditions would require access to a suitable local source of data, such as the Met. Office's monitoring stations at Wick John O'Groats Airport or Strathy East, or a site-specific rainfall station if proposed, to allow identification of these conditions being exceeded in order to allow appropriate action to be taken.



---

## 3.2 Peat reuse

The guidance document *'Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste'* (Scottish Renewables/SEPA, 2012) identifies a number of reuse options for excavated peat within developments on peat. These have all been tested in practice and found to be effective, if undertaken with care and appropriate handling of the peat.

Dependent on finalised peat excavation volumes from the onshore Project it may be possible to use some or all of the following options to reuse excavated peat within the onshore study area.

### 3.2.1 Reinstatement of cable trenches and working corridor

The preferred use of excavated peat would be as part of the reinstatement of the cable trenches and working corridor in the areas where the peat was excavated. This would minimise transportation of excavated peat and would promote re-establishment of peat in continuity with the adjacent undisturbed peat bodies.

### 3.2.2 Dressing-off edges of constructed infrastructure

Should use of peat for reinstatement of cable trenches and the working corridor not be possible, or in the event that additional excavated peat remains following the reinstatement, excavated peat could be used for dressing-off and reinstating slopes and edges of constructed long-term infrastructure. For the onshore Project, this would be the onshore substation and associated access.

Such work should be undertaken as soon as practicable after construction and should be managed such that a suitable tie-in to the surrounding topography is created as part of the process. This has a twofold purpose – to reduce the visual effect of the infrastructure and to retain as much of the existing habitat as possible.

A secondary part of this would involve full reinstatement of elements of infrastructure only required for the construction phase, principally temporary construction compounds.

### 3.2.3 Peatland restoration

Peat can provide valuable material for ditch and peat channel blocking, as part of a peatland restoration plan on blanket bog. In areas with wider ditches, it may be appropriate to use saturated or unconsolidated peat behind dams in order to speed up the restoration process and regeneration of associated vegetation. There may be opportunities for peatland restoration within some of the areas of peat identified during the surveys.

## 3.3 Temporary storage

Temporary storage of peat should be avoided or minimised wherever possible. This is best achieved by transporting the peat to an allocated reuse location as soon as practicable following excavation. This would help to retain its structural integrity as far as possible, would minimise volumes of peat requiring storage and would help to prevent the peat drying out.

The Environmental Clerk of Works (ECoW) would maintain a schedule of reuse and restoration areas and would direct whether excavated peat should be stored or transported directly to a suitable reuse location. Immediate reuse is likely to be more practicable in the later stages of construction.

Soils, peat turves/divots and peat would all be stored separately. The following outline good practice will be applied to all areas of peat and soil storage:

- Excavated materials would not be stored immediately above excavation faces, in order to prevent overburden-induced failure.
- Local drainage lines, areas of very wet ground and locally steep slopes would be avoided for excavated material storage, including peat.
- Careful handling of upper-layer peat divots, from areas where peat turves cannot be excavated, would help to retain vegetated blocks the right way up.
- Catotelmic peat would be stored separately from vegetated peat blocks, in mounds up to 1 m high.
- Limited smoothing or 'blading' of stockpiled catotelmic peat, topsoil and subsoil would help to shed rainwater and prevent ponding of water on the stockpile.
- During periods of dry weather, light spraying of the temporary peat stores would be applied in order to minimise drying.

- 
- All temporary storage areas for excavated peat and soils would be at least 50 m from any watercourse.
  - Temporary water control measures will be implemented as necessary adjacent to areas of excavation. These will include the onshore substation search area and all sections of cable trench. These measures will include filter drains, temporary settlement ponds, or proprietary treatment measures such as SiltBusters. The drainage strategy for the onshore substation search area and wider onshore Project is outlined in the Onshore EIA Report, Supporting Study (SS) 3: Flood Risk and Drainage Assessment. Final details will be provided within the CEMP and suitability will be determined following appropriate on-site soil tests.
  - Monitoring of peat storage areas may be required during wet weather or snowmelt. This would be undertaken by the Contractor, with findings reported to the ECoW.

Storage areas would be assessed for suitability during construction works and priority would be given to areas near to the material source; key constraints would be slope angles, location of watercourses and sensitive habitats.

### 3.4 Peat reinstatement and restoration

The following principles would be applied to soil and turf reinstatement:

- Excavated material would be reinstated in the reverse order of excavation i.e., catotelmic peat first in excavations deeper than 0.5 m, followed by acrotelmic peat, and peat turves and vegetated divots.
- It is anticipated that all excavated material would be required in the reinstatement of the working area.
- As the working area has a comparatively small footprint, no additional measures are anticipated.

Monitoring of the reinstated area is recommended, to check that the vegetation mat is becoming re-established. An appropriate monitoring schedule will be prepared as part of the detailed design. Water sprays may be required if there are periods of dry weather immediately following reinstatement, as the turf layer may dry out under these conditions. Re-seeding of any significant areas of bare peat would be undertaken with a suitable species mix appropriate to the surrounding habitats. Careful planning of reinstatement should minimise areas of bare peat by appropriate distribution of vegetated peat turves and divots.

### 3.5 Updated peat management

The Outline Peat Management Plan presented here will be updated and refined as necessary with further site-specific detail once infrastructure design becomes available (post consent). This would involve calculation of peat volumes requiring excavation and storage. Location-specific reinstatement would be directed by the ECoW, taking account of specific local variation in topography and natural ground conditions. The PMP will be updated post-consent and appended to the Construction Environmental Management Plan which will be a live document, with revisions added as necessary during the construction process.

---

## 4. Summary

This Outline Peat Management Plan provides an assessment of the depth, distribution and condition of peat within the onshore study area. It sets out options for reuse of any excavated material and provides guidance on management and handling of excavated peat and soils.

Once the final infrastructure design for the onshore Project becomes available, this Outline Peat Management Plan will be updated to calculate the specific peat volumes requiring excavation and storage for the onshore Project.

---

## 5. References

Centre for Ecology and Hydrology (CEH) (2022). Flood Estimation Handbook Web Service. Centre for Ecology and Hydrology. Available at: <https://fehweb.ceh.ac.uk/> (subscription service), accessed December 2022.

CH2M & Fairhurst (2018). Outline Peat Management Plan. Appendix 10.6, A9 Dualling – Dalwhinnie to Crubenmore, DMRB Stage 3 Environmental Impact Assessment. Available at: <https://www.transport.gov.scot/media/41104/appendix-a106-outline-peat-management-plan.pdf>, accessed February 2023.

NatureScot (2015). Scotland's National Peatland Plan: Working for our future. Scottish Natural Heritage. Available at: <https://www.nature.scot/climate-change/taking-action/carbon-management/restoring-scotlands-peatlands/scotlands-national-peatland-plan>, accessed December 2022.

NatureScot (2016). Scotland's Soils, Carbon and Peatland 2016 Map. Available at: <https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/>, accessed December 2022.

NatureScot (2018). Peatland Condition Assessment guide. Peatland Action, Scottish Natural Heritage. Available at <https://www.nature.scot/climate-change/taking-action/peatland-action/peatland-action-2018-2019>, accessed December 2022.

Scotland's Soils (2019). Peatland restoration. Available at: <https://soils.environment.gov.scot/resources/peatland-restoration/>, accessed December 2022.

Scotland's Soils (2022). Glossary: peat. Available at: <https://soils.environment.gov.scot/about-us/glossary/#15>, accessed December 2022.

Scottish Government (2018). Climate Change Plan. Third report on proposals and policies 2018-2032. Available at: <https://www.gov.scot/publications/scottish-governments-climate-change-plan-third-report-proposals-policies-2018-9781788516488/>, accessed February 2023.

Scottish Government (2020). Securing a green recovery on a path to net zero: climate change plan 2018-2032 – update. Available at: <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/>, accessed February 2023.

Scottish Government (2023). National Planning Framework 4. Available at: <https://www.gov.scot/publications/national-planning-framework-4/documents/>, accessed September 2023.

Scottish Natural Heritage (2019). SNH National Landscape Character Assessment Landscape Character Type 143 Farmed Lowland Plain. Available at: <https://www.nature.scot/sites/default/files/LCA/LCT%20143%20-%20Farmed%20Lowland%20Plain%20-%20Final%20pdf.pdf>, accessed January 2023.

Scottish Renewables/Scottish Environmental Protection Agency (SEPA) (2012). Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste. Available at: <https://www2.gov.scot/Topics/Business-Industry/Energy/Energy-sources/19185/17852-1/CSavings/guidancepeatwaste>, accessed February 2023.

SEPA (2022). SEPA Data Publication, Baseline Confluences Nested Catchments., Available at: <https://www.sepa.org.uk/environment/environmental-data/> © SEPA. Some features of this information are based on digital spatial data licensed from the Centre for Ecology and Hydrology © NERC (CEH), accessed December 2022.

Soil Survey of Scotland (1982). Soil maps of Scotland at a scale of 1:250,000. Macaulay Institute for Soil Research, Aberdeen. Northern Scotland. Sheet 3. Available at: [https://www.hutton.ac.uk/sites/default/files/files/soils/Soil250k\\_3\\_Northern\\_Scotland\\_A4.pdf](https://www.hutton.ac.uk/sites/default/files/files/soils/Soil250k_3_Northern_Scotland_A4.pdf), accessed February 2023.

---

## 6. Abbreviations and acronyms

Term	Definition
AOD	Above Ordnance Datum
CEH	Centre for Ecology and Hydrology
CEMP	Construction Environmental Management Plan
cm	Centimetre
ECoW	Environmental Clerk of Works
EIA	Environmental Impact Assessment
GWDTE	Groundwater-Dependent Terrestrial Ecosystems
ha	Hectares
HDD	Horizontal Directional Drilling
km	Kilometre
m / m <sup>2</sup>	Metre / Metre squared
NPF4	National Planning Framework 4
NVC	National Vegetation Classification
OMP	Outline Management Plan
PMP	Peat Management Plan
PPP	Planning Permission in Principle
PWS	Private Water Supply
SEPA	Scottish Environment Protection Agency
SS	Supporting Study

