FEHILY TIMONEY

DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

# APPENDIX 9

## Land, Soils and Geology

## Appendix 9.1 – Peat Stability Report

# APPENDIX 9.1

## Peat Stability Report


ENVIRONMENTAL BALANCE IN DESIGN AND CONSTRUCTION

# DREHID WIND FARM AND SUBSTATION, CO. KILDARE

# PEAT STABILITY REPORT

# MARCH 2025

FEHILY TIMONEY & COMPANY

# DREHID WIND FARM, CO. KILDARE

# PEAT STABILITY REPORT

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**Client:** North Kildare Wind Farm Ltd.

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**Abstract:** A Peat Stability Assessment has been undertaken to inform the risks associated with peat instability at the proposed infrastructure locations where peat deposits occur associated with the proposed Drehid Windfarm development. A site walkover was undertaken which included a number of peat probes and shear vane tests. A qualitative risk assessment was undertaken in addition to a quantitative slope stability assessment. The findings of the geotechnical and peat stability assessment showed that the site has an acceptable margin of safety and is suitable for the proposed wind farm development.

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# 1 INTRODUCTION

The Proposed Development consists of 11 No. turbines with a tip height of 147.9 m to 167 m, access tracks, a substation and associated works, as well as minor alterations to the public road for the delivery of turbines to the site (turbine delivery route) and the laying of an underground cable. The proposed site is located approximately 4.3km from Carbury in County Kildare and can be seen below in Figure 1.1. The Proposed Development site includes lands in the townlands of Ballynamullagh, Kilmurry, Killyon, Coolree, Mulgeeth, Drehid and Dunfierth and is ca. 79ha in size.

The site of the proposed development is located in relatively low-lying but undulating land with the majority of proposed turbines located beneath the 80m contour line. The landcover is classified in Corine as 2.3.1 Pastures; 3.1.2 Coniferous Forest and 3.2.4 Transitional Woodland shrub. The Corine land cover for the wind farm site is illustrated in Chapter 3, Description of Proposed Development, Figure 3.1. The east of the site is adjacent to a cutover bog (Timahoe Bog). The Fear English River passes through the site. The Proposed Substation is within a flat to undulating surface of young forest comprising 23ha. It is located immediately to north of the Proposed Wind Farm and to south of Dysart Road.

The information obtained during the assessment and desk study shows that most of the wind farm study area is covered by deposits of cutover raised peat where the original basin peat has been removed, although the area has been extensively planted by coniferous forestry, including the Proposed Substation, located at land described as cutover peat with mixed forest and semi-natural areas according to the Environemntasl Protection Agency of Ireland.

The northern extent of the proposed wind farm site is underlain by cut peat. The southern extent of the site is predominantly underlain by till derived from limestone (surface water gleys and ground water gleys). The land use in the southern area is predominantly for agricultural purposes and forestry.

No landslides have been identified on the GSI's landslides database or on aerial photographsfor the study area, however several landslides are shown on the GSI database nearby. The database shows that the nearest recorded geohazard is a landslide at Derrymullen, approximately 6.8km south of the Drehid site boundary. This was a landslide which occurred in peat bog adjacent to the Grand Canal in 1839.

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**Legend**

Proposed Development Boundary


| | | | |
|---|---|---|---|
| **TITLE:** Site Location | | | |
| **PROJECT:** Drehid Wind Farm and Substation | | | |
| **FIGURE NO:** | 1.1 | | |
| **CLIENT:** | North Kildare Wind Farm Ltd. | | |
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# 2 METHODOLOGY FOR THE PEAT STABILITY ASSESSMENT

The Peat Stability Assessment was carried out by an Engineering Geologist from Fehily Timoney & Company. The Peat Stability Assessment was required due to the presence of peat across the site and the potential risks posed to peat stability and particularly the risk of peat slides from the development of wind farms and the associated infrastructure on existing peatlands.

Peat is defined by The Soil Survey of Scotland as having a surface horizon greater than 0.5m thick with an organic content of more than 60%, dry peat can typically have an organic content of 90-95%. Peat also has a very low density, is often very fibrous in nature and has a high-water content (90%).

Peat is formed where the natural decay processes fail to keep up with the volumes of organic matter being produced - often in waterlogged, oxygen starved land. This prevents the dead organic matter from decaying as normal and instead accumulates year on year as layers of peat. Within peatlands the in-situ peat is often highly variable, both horizontally and vertically. Variations occur from the origins of the peat, plant type it was formed from, mineral content and degree of decay or humification. This heterogeneity is noticeable with depth with fresh fibrous peat occurring at the top of the deposit (Acrotelm) with the underlying layers (Catotelm) comprising soft, relatively dense highly humified material.

These properties make peat susceptible to instability from a number of preparatory causal factors which increase the risk of peat instability. These preparatory factors include increases in peat mass from vertical accumulation (peat formation), increases in water content, changes in physical structure of the peat, sloping ground, loss of surface vegetation and increase in buoyancy of a peat slope. These underlying factors can be assessed through desk and field surveys and a risk rating calculated.

Triggering factors change the state of the slope and can be considered to be causes of a failure in a peat slope. The trigger factors acting to initiate such failures may be natural or anthropogenic (human induced).

Natural triggers include the following:

(i) Intense rainfall events;

(ii) Unloading of peat mass by a fluvial incision of a peat slope;

(iii) Loading of a peat mass by landslide debris causing an increase in shear stress.

Anthropogenic triggers include some of the following:

(i) Alteration of drainage patterns focusing drainage and generating high pore water pressures along pre-existing or potential slip surfaces;

(ii) Rapid ground accelerations (blasting or mechanical vibrations) causing an increase in shear stresses;

(iii) Unloading of peat mass by cutting of peat at the toe of the slope;

(iv) Loading of peat mass by heavy plant, structures or overburden;

(v) Digging and tipping undermining or loading the peat mass during building, engineering, farming or mining activities;

(vi) Cutting or excavating in peat using steep side slopes;

(vii) Afforestation of peat areas reduces water held in the peat body and increases the potential for the formation of desiccation cracks which are exploited by rainfall on forest harvesting; and

(viii) Changes to vegetation cover or stripping of surface peat cover, reducing tensile strength.

The Peat Stability Assessment was undertaken with particular reference to the following reports, papers and guide documents:

- General Soil Map of Ireland [2]
- DoEHLG Wind Energy Development Planning Guidelines [3]
- IWEA Best Practice Guidelines for the Irish Wind Energy Industry [4]
- IGI – Geology in Environmental Impact Statements [5]
- Scottish Executive – Peat Landslide Hazard and Risk Assessments [1]
- Welsh DoE - PPG14 – Development on Unstable Land [6]
- Landslides in Ireland [7]
- Guidelines for the risk management of peat slips on the construction of low volume/low cost roads over peat [8]
- Hydrological controls of surficial mass movements in peat [9]
- Slope Instability in Ireland with particular reference to peat failures [10]
- Peat slope failure in Ireland [11]
- Eurocode 7: Geotechnical Design [12]
- Craig, R.F. (2004). Craig's Soil Mechanics (7th ed.) [16]
- BS: 6031:1981: Code of practice for Earthworks [17]

The primary elements of the assessment include:

1. Undertaking a desk study assessment to obtain information available on existing geological conditions at the proposed site location.
2. Undertaking a site assessment to identify geological constraints across the site.
3. Undertaking several walkovers for a complete campaign of peat testing
4. Preparation of a peat stability assessment report.

# 3 DESK STUDY

## 3.1 Bedrock Geology

The GSI 1:100,000 scale bedrock geology map shows that Lucan Formation (Calp) and the Waulsortian Limestone underly the Drehid Proposed Development.

The Lucan Formation comprises varied dark grey to black basinal limestone and shale beds. The Waulsortian Limestone is only present at the southern end of the site, and comprises a massive unbedded lime-mudstone.

## 3.2 Overburden Geology

The main soil associations within this part of Co. Kildare are Gleys, Basin Peat and Podzolics. The main underlying Quaternary sediments present within the study area are taken from the GSI online mapping and comprise:

- Till derived from Limestones (TLs);
- Cut over raised peat (Cut).

## 3.3 Hydrogeology

Groundwater is an important natural resource, with increasing dependence on it as a drinking water supply source. The Proposed Development site is located within the Trim groundwater body.

The GSI classifications for the aquifer in the study area, including the principal aquifer characteristics are summarised in Table 3-1. All aquifers in the study area are bedrock aquifers; there are no gravel aquifers within the study area (i.e. a gravel deposit of greater than 1 $km^2$ with a saturated thickness of greater than 5 m).

### Table 3-1: Summary of Aquifer Classifications & Characteristics

| Aquifer Name | GSI Aquifer Classification | Groundwater Body | Transmissivity ($m^2$/day) | Well Yields |
|---|---|---|---|---|
| Unnamed | Locally important aquifer- bedrock which is moderately productive only in local zones | Trim | 2- 20 $m^2/d$ | Generally Poor for domestic wells |

According to the GSI online database, there are 24 wells located in the area surrounding the site boundary. A locally important aquifer such as the one which occurs on the site would normally be capable of yielding sufficient quantities of water to supply domestic wells only (10-20$m^3/d$), although failed wells can be expected. There may be other wells in the study area in addition to those included in the GSI dataset. The available details for these wells are summarised in Table 3-2.

## Table 3-2: Summary of Wells within the Study Area

| Well ID | ITM Co-ordinates | Well Type | Well Use | Total Depth (m) | Depth to Bedrock (m) | Yield ($m^3$/day) | Yield Class |
|---|---|---|---|---|---|---|---|
| 2623SEW169 | E: 676333<br>N: 737827 | Borehole | Unknown | 77 | 6.0 | 436 | Excellent |
| 2623SEW176 | E: 6759223<br>N: 737411 | Borehole | Unknown | 91 | 6.0 | 45.8 | Moderate |
| 2623SEW174 | E: 675983<br>N: 737307 | Borehole | Unknown | 89.6 | 52.0 | 82.0 | Moderate |
| 2623SEW175 | E: 675994<br>N: 737308 | Borehole | Unknown | 76.5 | 45.7 | 65.0 | Moderate |
| 2623SWW416 | E: 674409<br>N: 735262 | Dug well | Unknown | 5.1 | Unknown | - | Unknown |
| 2623SEW195 | E: 676454<br>N: 739065 | Borehole | Unknown | 51.8 | 47.6 | - | Moderate |
| 2623SEW101 | E: 677524<br>N: 738706 | Dug well | Unknown | 9.1 | Unknown | - | Unknown |
| 2623SEW105 | E: 675464<br>N: 739535 | Dug well | Unknown | 14.9 | Unknown | - | Moderate |
| 2623SEW138 | E: 677264<br>N: 736067 | Borehole | Unknown | 9.5 | Unknown | 27.3 | Poor |
| 2623SEW165 | E: 677304<br>N: 735966 | Borehole | Unknown | 42.7 | Unknown | - | Unknown |
| 2623SEW127 | E: 677154<br>N: 732197 | Borehole | Unknown | 30.5 | Unknown | - | Unknown |
| 2623SEW128 | E: 677274<br>N: 732127 | Dug well | Unknown | 4.9 | 4.9 | 16.37 | Poor |
| 2623SEW130 | E: 677404<br>N: 731907 | Borehole | Unknown | 30.5 | 13.7 | 327.30 | Good |
| 2623SWW246 | E: 672615<br>N: 733307 | Unknown | Unknown | 15.2 | Unknown | - | Unknown |
| 2623SWW267 | E: 672135<br>N: 735376 | Borehole | Unknown | 10.4 | 7.3 | - | Unknown |
| 2623SWW265 | E: 672414<br>N: 735466 | Borehole | Unknown | 26.2 | 21.9 | - | Unknown |
| 2623SWW233 | E: 671815<br>N: 735466 | Borehole | Unknown | 10.4 | 7.3 | 87.3 | Moderate |

| Well ID | ITM Co-ordinates | Well Type | Well Use | Total Depth (m) | Depth to Bedrock (m) | Yield ($m^3$/day) | Yield Class |
|---|---|---|---|---|---|---|---|
| 2623SWW272 | E: 671795<br>N: 735376 | Borehole | Unknown | 36.8 | - | 20.7 | Poor |
| 2623SWW213 | E: 672165<br>N: 736665 | Borehole | Unknown | 14.6 | - | 16.37 | Poor |
| 2623SWW235 | E: 672155<br>N: 735476 | Borehole | Unknown | 39 | 8.2 | 5.46 | Poor |
| 2623SWW236 | E: 672434<br>N: 735576 | Borehole | Unknown | 26.2 | 21.9 | 65.5 | Moderate |
| 2623SWW234 | E: 672145<br>N: 735566 | Borehole | Unknown | 18.3 | - | - | Unknown |
| 2623SWW266 | E: 672414<br>N: 735406 | Borehole | Unknown | 39 | 8.2 | 5.4 | Poor |
| 2623SWW232 | E: 671815<br>N: 735596 | Borehole | Unknown | 26.2 | 16.5 | 65.46 | Moderate |

According to the GSI datasets, there are no karst features recorded within the Proposed Development site. The closest karst feature recorded to the proposed site boundary is a spring that is located approximately 6km north east of the site boundary (678376E 740265N).

There is a public supply source protection zone (SPZ) area directly to the north-east of the site that covers approximately 10 square kilometres. The SPZ comprises an Outer Protection Zone which underlies turbines T09, T10, T11. The Proposed Substation is located in both the Outer and Inner Protection Zones.

Groundwater vulnerability, as defined by the GSI, is the term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater could be contaminated by human activities.

The vulnerability of an aquifer to contamination is influenced by the leaching characteristics of the topsoil, the permeability and thickness of the subsoil, the presence of an unsaturated zone, the type of aquifer, and the amount and form of recharge (the hydrologic process where water moves downward from surface water to groundwater).

Groundwater vulnerability is determined mainly according to the thickness and permeability of the subsoil that underlies the topsoil, as both properties strongly influence the travel times and attenuation processes of contaminants that could be released into the subsurface from below the topsoil.

Groundwater vulnerability for the site is classified by the GSI as ranging from 'Low' to 'High' across the site, 'low' in areas covered by peat and 'moderate' to 'high' in the areas composed of farmland.

Based on the GSI aquifer vulnerability mapping, overburden depths are generally between 3 m and 10 m.

A summary of the groundwater vulnerability for the site is presented in Table 3-3. This table outlines the standard ratings of vulnerability used by the GSI, with the existing site conditions highlighted based on the findings of the site investigations.

### Table 3-3: Groundwater Vulnerability

| Vulnerability Rating | Hydrogeological Conditions | | |
|---|---|---|---|
| | Subsoil Permeability (Type) and Thickness | | |
| | High Permeability (sand/gravel) | Moderate Permeability (sandy soil) | Low Permeability (clayey subsoil, clay, peat) |
| extreme (E) | 0 - 3.0 m | 0 - 3.0 m | 0 - 3.0 m |
| high (H) | > 3.0 m | 3.0 -10.0 m | **3.0 - 5.0 m** |
| moderate (M) | N/A | >10.0 m | **5.0 - 10.0 m** |
| low (L) | N/A | N/A | >10 m |

Notes: 1. N/A = not applicable.
2. Precise permeability values cannot be given at present.

## 3.4 Slope Stability

The Geological Survey of Ireland[i] provides information on historic peat landslides in Ireland, listing 621 No occurrences throughout the island of Ireland. The GSI online database shows that there were no recorded landslides within the study area.

The nearest recorded landslide was the Derrymullen slide which occurred approximately 6.8km south of the site boundary. The Derrymullen slide was a peat slide that occurred at the Grand Canal embankment on a bridge in Derrymullen in 1839.

The landslide susceptibility of the site was classified by the GSI (2024) as low susceptibility, which is expected given the flat terrain present.

## 3.5 Topography

From the desk-based study, the topography of the site is generally flat to gently sloping with typical slope angles of between 0-2°. All turbines and the Substation are located in areas where slopes do not exceed 2°.

Aerial photographs of the study area and surrounding area also show that the primary land use in the area comprises cut peat bog, young, semi-mature and mature forestry plantation and agricultural land. The turbine locations are located either within cutover peat, young forestry, semi-mature forestry, mature forestry plantation or agricultural land. The Proposed Substation is located within semi-natural young foresty plantation.

# 4 FIELD SURVEYS

Several site walkovers and peat testing for the proposed development site were undertaken to determine the presence/depth of peat and/or soft soils on the site along with recording slope angles, in-situ shear strength, and potential geotechnical instability.

The site walkovers are summarised below:

- 31-07-2018 and 01-08-2018: The northern turbines were peat probed, including T7, T8, T09, T10, T11, also few points between T8 and T9 (superseded access track location), substation (superseded location), and one point near T7 location (due to accessibility limitations);
- 24-02-2023: Peat testing at Substation (superseded location);
- 27-10-2023: Peat testing at Substation (current proposed location);
- 23-01-2024 and 26-01-2024: General walkover and peat testing for updated alignments and turbine locations, excluding Coillte area;
- 30-09-2024: General walkover and peat testing carried out for the area in Coillte ownership and the revised access road alignment at the northern entrance for oversized turbine components delivery , and the secondary site access from public road entrance to T4/T5.

The site assessment works undertaken comprised the following:

- Walkover inspection of the study area with recording of salient geomorphological features;
- Peat depth probing at and adjacent to the proposed development footprint and at various locations across the study area, including all the turbines, access routes, and substation;
- Probing and in-situ testing of peat/soft soil depth at 182 locations within the development boundary, including 71 No. hand shear vanes at selected areas of peat at proposed turbine locations, and classification of the peat;
- Recording of GPS co-ordinates of site investigation locations using a hand-held GPS.

The potential for a landslide risk is defined in the Scottish Executive Best Practice Guide for Proposed Electricity Generation Developments [(1)] as the following:

- *Peat is present at the development site in excess of 0.5m depth, and;*
  - *There is evidence of current or historical landslide activity of the site, or;*
  - *Slopes > 2° are present on-site, or;*
  - *The works will impinge on the peat covered areas and cannot be relocated to avoid peat covered areas;*

The findings of the site assessment surveys are summarised in Table 4-1 below.

During the assessment, records were made of the land use, peat depth, drainage features, geomorphology, slope, and any other features that could affect slope stability, such as streams, flushes etc.

Peat probing (depth to bedrock and/or competent subsoils) was carried out at proposed turbine locations (where accessible), the proposed substation and along the route of proposed access tracks at the site. Hand shear vane readings were taken at the probe locations and measurements of slope were made using a hand-held inclinometer.

The assessment and preliminary ground investigations found extensive cut peat across the northern area (north of T6), with an average depth of 2.4m. The maximum peat depth recorded was 5.4m (turbine T8).

In the southern area (south of T6), peat was generally not encountered, with the exception of a limited zone in an area of forestry between T4 and T6/T7; and along access track between T3 and T4.

The site generally comprised low slopes (up to 2°) and moderately to well drained ground with the northern portion of the site underlain by cutover peat. The southern section of the wind farm study area is underlain by till derived from limestone (surface water gleys and ground water gleys).

## Table 4-1: Site Assessment Summary – Proposed Infrastructure Locations

| Turbine No | Ground Conditions (Aerial Photography) | Soils (GSI) | Peat Depth (Min. – Max.) [Charact. Value] (m) | Minimum Peat Strength (kPa) | Max Slope (°) | Von Post Classification | |
|---|---|---|---|---|---|---|---|
| T1 | Grassland | Limestone Till | (0.0 – 0.7) [0.3] | - | <3° | - | - |
| T2 | Grassland | Limestone Till | (0.0 – 0.8) [0.2] | | <3° | - | - |
| T3 | Grassland | Limestone Till | - | - | <3° | - | - |
| T4 | Grassland | Limestone Till | (0.3 – 0.5) [0.4] | - | <3° | - | - |
| T5 | Grassland | Limestone Till | - | - | <3° | - | - |
| T6 | Forestry | Limestone Till | (0.3 – 0.9) [0.9] | 38 | <3° | H8 | B3 |
| T7 | Forestry | Cutover Peat | (1.1 – 1.8) [1.5] | 44 | <3° | H7 | B2 |
| T8 | Peat Bog | Cutover Peat | (1.8 – 5.4) [5.4] | 10 | <3° | H7 | B3 |
| T09 | Peat Bog | Cutover Peat | (1.5 – 4.2) [4.2] | 8 | <3° | H7 | B2 |
| T10 | Peat Bog | Cutover Peat | (1.8 – 4.4) [4.4] | 14 | <3° | H8 | B3 |
| T11 | Forestry | Cutover Peat | (0.2 – 1.1) [1.1] | 10 | <3° | H8 | B3 |
| Substation | Forestry | Cutover Peat /Limestone Till | (0.3 – 1.5) [1.0] | 14 | <3° | H8 | B3 |
| Access Track T01 to T02 | Grassland | Limestone Till | (0.0 – 0.6) [0.4] | - | <3° | H7/H8 | B2/B3 |
| Access Track T02 to T03 | Grassland | Limestone Till | (0.0 – 0.7) [0.4] | - | <3° | H7/H8 | B2/B3 |
| Access Tracks Southern Entrance to T04 and T05 | Grassland | Limestone Till | - | - | <3° | - | - |
| Access Track T04 to T06/T07 | Peat Bog/Grassland | Cutover Peat /Limestone Till | (0.0 – 2.3) [1.5] | 51 | <3° | H7/H8 | B2/B3 |
| Access Track T07 to T10/T11 | Peat Bog | Cutover Peat | (0.5 – 4.5) [3.0] | 15 | <3° | H7/H8 | B2/B3 |
| Northern access track to substation and T11 | Grassland/Forestry | Limestone Till | (0.0 – 1.0) [1.0] | 14 | <3° | H8 | B3 |

## 4.1 Peat Condition

The peat encountered was described using the Von Post Humification Scale as a method of describing the physical characteristics of peat material. The Von Post scale uses the units H and B, whereby H ranges from 1 to 10 and describes the humification of the peat material and the B units range from 1 to 5 and describes the moisture content of the peat. In the Von Post scale H1 describes completely undecomposed peat with H10 describing completely decomposed peat. In the moisture content scale B1 describes dry peat and B5 denoting peat with a very high moisture content.

The peat encountered during the site assessment was classified as having a humification scale of H7 to H8 (highly decomposed peat to very highly decomposed peat) and a moisture scale of B2 to B3 (low moisture content to moderate moisture content).

Hand shear vane tests were carried out by FT using a Geonor H-60 shear vane and provide indicative results for the in-situ shear strength of the peat at preliminary investigation stage. The peak shear strength values recorded ranged from 8kPa to 65kPa with an average of 31kPa. The remoulded strength values ranged from 6kPa and 65kPa with average of 24kPa.

## 4.2 Topography, Geomorphology and Drainage

The topography of the site is generally level with slopes typically between 0 – 2°. The turbine locations are located either within cutover peat, young forestry, semi-mature forestry, mature forestry plantation or agricultural land. No rock outcrops were encountered during the site walkover.

Geomorphology and drainage features were noted from aerial photographs and during the site assessment. The forestry drainage comprises a (mostly) regular pattern of shallow ribbon drains and at the time of the assessment, both standing and flowing water during different walkovers was recorded in the several drains encountered during the walkovers. Shallow flooding was occasionally identified at low points, and peat layer typical had high moisture content with water saturation in some areas. On the agricultural land, drainage mainly comprised ditches along field boundaries which flow into the rivers to the south and northeast of the study area.

# 5 QUANTITATIVE SLOPE STABILITY ANALYSES

## 5.1 Methodology of Analysis

FT undertook the assessment following the principles in Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (2nd edition, PLHRAG, 2017). The Peat Landslide Hazard and Risk Assessment Guide (PLHRAG) is used in this report as it provides best practice methods to identify, mitigate and manage peat slide hazards and associated risks in respect of consent applications for electricity generation projects.

The best practice guide was produced following peat failures in the Shetland Islands, Scotland in September 2003 but more pertinently following the peat failure in October 2003, during the construction of a wind farm at Derrybrien, County Galway, Ireland.

This peat stability assessment has been undertaken taking into account peat failures that have occurred on peatland sites (such as recent failures at Shass Mountain (2020), Co. Leitrim and Meenbog (2020), Co. Donegal). The lessons learned from both peat slide events have been incorporated into the design of this project and the construction methodologies to be implemented. The Meenbog failure occurred during the construction of a section of floating road on a wind farm on sidelong ground in an area of weak peat. This construction technique is not proposed on sidelong ground on the Drehid site. Given the flat nature of the site, a failure similar to Shass Mountain (caused by heavy rainfall) is considered highly unlikely, however, it is important that the existing site drainage is maintained during construction, and this is referenced in the Risk Assessments for the turbines/access roads.

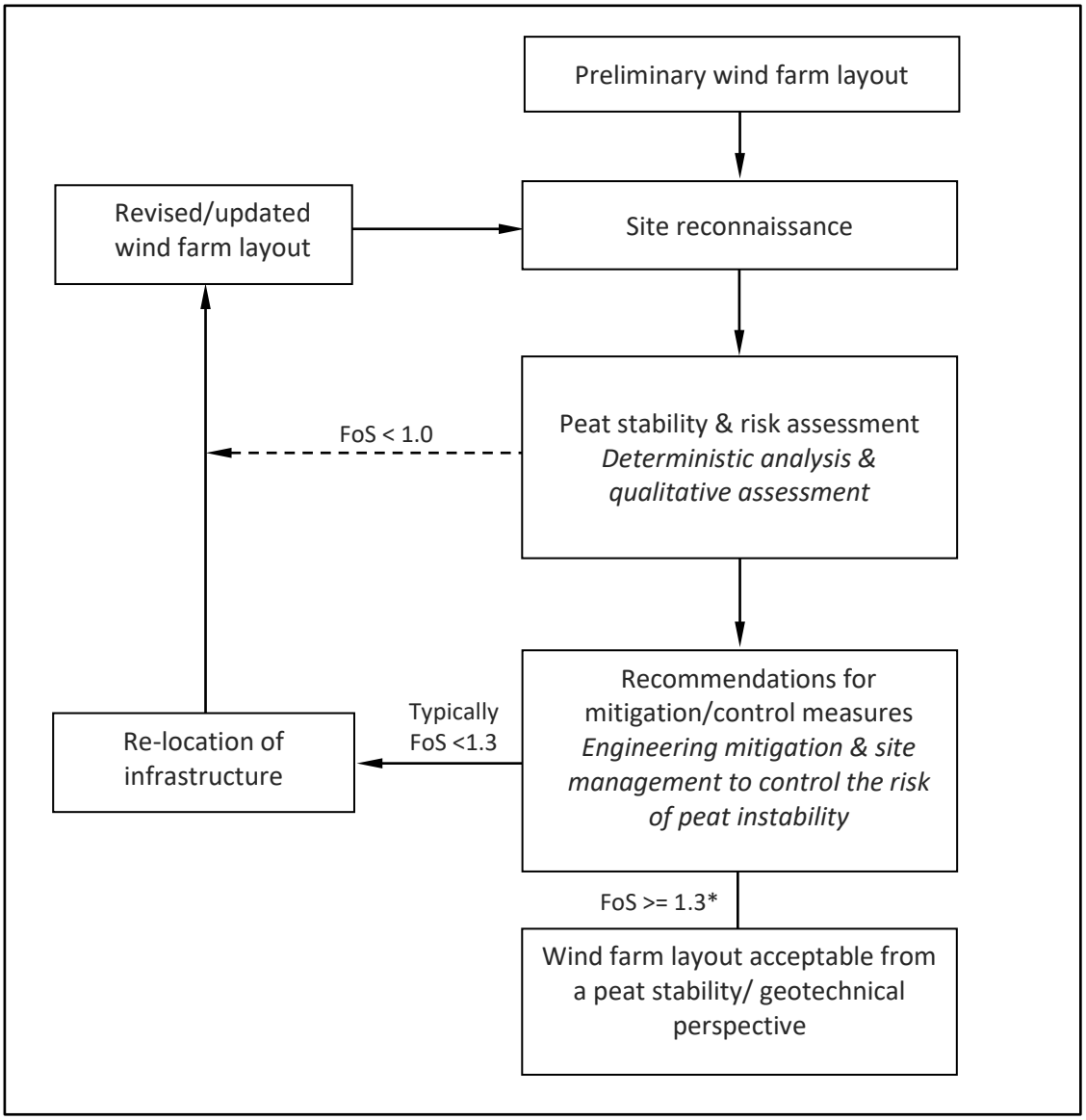
The extent of the peat stability analysis by FT has been undertaken in accordance with guidance within Eurocode 7 and PLHRAG (2017), to investigate peat slopes that have the potential to impact on the development, as applicable. Sufficient peat depth data has been recorded during the site walkovers to enable the characterisation of the peat depth across the site. The peat stability assessment is undertaken within the proposed development to identify peat slope at risk from the development, and to identify peat slopes that may pose a risk to the proposed development.

The geotechnical and peat stability assessment at the site included the following activities:

- Desk study involving the review of publicly available soils and geology maps, records of historical peat failures, aerial photography
- Site reconnaissance including shear strength and peat depth measurements undertaken
- Peat stability assessment of the peat slopes on site using a deterministic and qualitative approach
- Factor of safety plan – compiled for the short-term and long-term critical condition (undrained and drained) for 182 no. FoS points analysed along the proposed infrastructure envelope on site
- A peat stability risk register was compiled to assess the potential design/construction risks at the infrastructure locations and determine adequate mitigation/control measures for each location to minimise the potential risks and ensure they are kept within an acceptable range, where necessary

A flow diagram showing the general methodology for peat stability assessment is shown in Figure 5-1. The methodology illustrates the optimisation of the wind farm and substation layouts based on the findings from the site reconnaissance and stability analysis and subsequent feedback.

## Figure 5-1: Methodology for Peat Stability Assessment




*A FoS of between 1.0 and 1.3 does not mean that a failure will occur, but that the area requires attention. Mitigation measures can be provided for areas with an FoS of between 1.0 and 1.3 to reduce the risk of failure.

As for all construction projects, a detailed engineering construction design must be carried out by the appointed construction stage designer prior to any construction work commencing on site. This must take account of the consented project details and any conditions imposed by that consent. This must include a detailed peat stability assessment to account for any changes in the environment which may have occurred in the time leading up to the commencement of construction and a peat and spoil management plan to allow for the most appropriate geotechnical and environmental led solutions to be developed for the management of peat and spoil.

## 5.2 Limitations of Slope Stability Analyses

The application of traditional stability analysis should be used with caution due to the compressibility of peat and because the analysis does not account for the fibrous nature of the peat.

Cognisant of the organic and highly variable nature of peat, uncertainties related to the directional dependence on which the strength of peat is based, the reliability of traditional methods of field shear strength measurement, presence of gas within the peat and the combination of factors (some not quantifiable or applicable in a calculation matrix) triggering slope failure, the failure mechanisms being employed in the traditional analysis may not necessarily be representative of in-situ failure mechanisms.

Despite the limitations outlined above, this method of slope analysis is still considered useful as an indicator of possible areas of instability and its use is in accordance with current industry best practice.

## 5.3 Analysis to Determine Factor of Safety (FoS)

The purpose of the analysis was to determine the Factor of Safety (FoS) of the peat slopes using infinite slope analysis. The analysis was carried out at the turbine locations and the substation, along the proposed access roads and at various locations across the site.

The FoS provides a direct measure of the degree of stability of the slope. A FoS of less than unity indicates that a slope is unstable, a FoS of greater than unity indicates a stable slope.

The previous code of practice for earthworks BS 6031:1981 (BSI, 1981), provided advice on design of earthworks slopes. It stated that for a first-time failure with a good standard of site investigation the design FoS should be between 1.3 and 1.4.

As a general guide the FoS limits for peat slopes in this report are summarised in Table 5-1.

### Table 5-1: Factor of Safety Limits for Slopes

| Factor of Safety (FoS) | Degree of Stability |
|---|---|
| Less than 1.0 | Unstable (red) |
| Between 1.0 and 1.3 | Marginally stable (yellow) |
| 1.3 or greater | Acceptable (green) |

Eurocode 7 (EC7) (IS EN 1997-1:2005) now serves as the reference document and the basis for design geotechnical engineering works. The design philosophy used in EC7 applies partial factors to soil parameters, actions and resistances. Unlike the traditional approach, EC7 does not provide a direct measure of stability, since global Factors of Safety are not used.

As such, and in order to provide a direct measure of the level of safety on a site, EC7 partial factors have not been used in this stability assessment. The results are given in terms of FoS.

## 5.4 Shear Strength Values

The shear strength values were obtained using a Geonor H-60 hand-held shear vane.

Shear strength at the base of a peat mass is often the governing factor in peat stability and analysis; therefore shear strength values chosen for the stability analysis are based on a characteristic value representative of the shear strength of the peat recorded generally within 0.5m of the base of the peat body in the vicinity of the studied element, unless this is significantly higher than the typical shear strengths recorded at other depths, in which case the lower value is normally used.

Based on the field vane shear strength data, an undrained shear strength value of 8kPa has been assumed as the characteristic value for the slope stability analysis. A drained shear strength value of 3kPa has been used for the drained stability assessment. No differentiation between the upper acrotelm (where present)

and lower catotelm layers has been assumed for the purpose of the stability analysis in order to provide a more conservative analysis.

## 5.5 Slope Stability Analyses Results

The calculated in-situ factor of safety ratios (FoS) at the proposed turbines and substation locations placed on peat are presented in Table 5-2 along with the typical peat depth, characteristic corrected shear strength and slope angle.

In order to replicate the effect of temporary stockpiling of peat during construction, surcharge loads equivalent to berms and clearfell areas height have been applied to the calculation (see Appendix B). The resulting safety ratio is also presented in Table 5-2. This is considered to represent the worst-case scenario during construction.

### Table 5-2: Slope Stability Inputs and Safety Ratios

| Infrastructure Location | Minimum Factor of Safety | | | |
|---|---|---|---|---|
| | Undrained Analysis | | Drained Analysis | |
| | No Applied Load | With Equivalent Placed Fill Surcharge | No Applied Load | Equivalent Placed Fill Surcharge |
| T1 | 32.77 | 10.92 | 29.74 | 18.81 |
| T2 | 28.67 | 10.43 | 27.69 | 18.57 |
| T3 | No peat encountered | | | |
| T4 | 45.87 | 12.07 | 30.56 | 17.88 |
| T5 | No peat encountered | | | |
| T6 | 25.49 | 9.97 | 26.10 | 18.34 |
| T7 | 12.74 | 7.17 | 19.72 | 16.94 |
| T8 | 13.85 | 9.53 | 31.91 | 30.29 |
| T9 | 10.92 | 8.04 | 30.81 | 29.73 |
| T10 | 14.27 | 10.64 | 41.95 | 40.59 |
| T11 | 59.81 | 17.69 | 59.02 | 43.23 |
| Substation | 15.29 | 7.91 | 21.00 | 17.31 |
| Access Tracks: T1 to T2 | 38.23 | 11.47 | 32.47 | 19.09 |
| Access Tracks: T2 to T3 | 32.77 | 10.92 | 29.74 | 18.81 |
| Access Tracks: Southern Entrance to T4 and T5 | No peat encountered | | | |
| Access Tracks: T5 to T6/T7 | 12.74 | 7.17 | 17.26 | 16.94 |
| Access Tracks: T7 to T10/T11 | 3.22 | 2.38 | 8.79 | 6.77 |
| Northern access track to substation and T11 | 22.94 | 9.56 | 24.82 | 18.13 |

# 6 PEAT STABILITY RISK ASSESSMENT

A peat stability risk assessment was carried out for the infrastructure elements at the Proposed Development. This approach adheres to best practice guidance for geotechnical/peat stability risk assessments as given in PLHRA (2017) and MacCulloch (2005).

The risk assessment uses the results of the stability analysis (deterministic approach) in combination with qualitative factors, which cannot be reasonably included in a stability calculation but nevertheless may affect the occurrence of peat instability, to assess the risk for each infrastructure element.

For each of the main infrastructure elements, a risk rating (product of probability and impact) is calculated and rated as shown in Table 6.1. Where a subsection is rated 'Medium' or 'High', control measures are required to reduce the risk to at least a 'Low' risk rating. Where a subsection is rated 'Low' or 'Negligible', only routine control measures are required.

### Table 6-1: Risk Rating Legend

| | |
|---|---|
| 17 to 25 | High: avoid works in area or significant control measures required |
| 11 to 16 | Medium: notable control measures required |
| 5 to 10 | Low: only routine control measures required |
| 1 to 4 | Negligible: none or only routine control measures required |

## 6.1 Summary of Risk Assessment Results

The results of the peat stability risk assessment for potential peat failure at the main infrastructure elements is presented as a Geotechnical Risk Register in Appendix D and summarised in Table 6-2.

The risk rating for each infrastructure element at the Proposed Development is designated negligible following appropriate mitigation/control measures being implemented. Sections of access roads to the nearest infrastructure element will be subject to the same mitigation/control measures that apply to the nearest infrastructure element.

Details of the required mitigation/control measures can be found in the Geotechnical Risk Register for each infrastructure element (Appendix D).

Nevertheless, it is advised to give special attention to peat conditions in design of floating elements such as access tracks between T7 and T10/T11, and hardstands at T8, T9 and T10, in order to support heavy traffic consisting of turbines transportation and high tonnage machinery.

It is also advised to follow safety measures for slopes at excavations deeper than 1.5m, consisting of appropriate benching or safe slopes angles, specifically at turbines T7, T11, gravity founded, the proposed substation, where competent founding level may be deeper than 1.5m according to peat probing results.

Related recommendations are described in Section 7.

## Table 6-2: Slope Summary of Peat Stability Risk Register

| Infrastructure | Pre-Control Measure Implementation Risk Rating | Pre-Control Measure Implementation Risk Rating Category | Notable Control Measures Required | Post-Control Measure Implementation Risk Rating | Post-Control Measure Implementation Risk Rating Category |
|---|---|---|---|---|---|
| T01 | Negligible | 1 to 4 | No | Negligible | 1 to 4 |
| T02 | Negligible | 1 to 4 | No | Negligible | 1 to 4 |
| T04 | Negligible | 1 to 4 | No | Negligible | 1 to 4 |
| T06 | Negligible | 1 to 4 | No | Negligible | 1 to 4 |
| T07 | Negligible | 1 to 4 | No | Negligible | 1 to 4 |
| T08 | Negligible | 1 to 4 | No | Negligible | 1 to 4 |
| T09 | Negligible | 1 to 4 | No | Negligible | 1 to 4 |
| T10 | Negligible | 1 to 4 | No | Negligible | 1 to 4 |
| T11 | Negligible | 1 to 4 | No | Negligible | 1 to 4 |
| Substation | Negligible | 1 to 4 | No | Negligible | 1 to 4 |
| Access Tracks: T1 to T2 | Negligible | 1 to 4 | No | Negligible | 1 to 4 |
| Access Tracks: T2 to T3 | Negligible | 1 to 4 | No | Negligible | 1 to 4 |
| Access Tracks: T5 to T6/T7 | Negligible | 1 to 4 | No | Negligible | 1 to 4 |
| Access Tracks: T7 to T10/T11 | Negligible | 1 to 4 | No | Negligible | 1 to 4 |
| Northern access track to substation and T11 | Negligible | 1 to 4 | No | Negligible | 1 to 4 |

# 7 FOUNDING DETAILS FOR INFRASTRUCTURE ELEMENTS

This section provides a summary of the founding details for various elements of the proposed infrastructure across the Proposed Development site. The detailed methodologies for the construction of these elements of the Proposed Development are included in Chapter 3 of the EIAR.

## 7.1 Foundations

Based on Peat Probing results, Appendix C shows Preliminary Foundation Solutions. A summary of these is shown below.

### Table 7-1: Summary of Proposed Turbine Foundation Type and Founding Depths

| Turbine No. | Turbine Foundation Type | Relevant GI | Proposed founding depth (m bgl) | Comment |
|---|---|---|---|---|
| T1 | Gravity foundation | Peat Probes | 3.0 | The site investigation works carried out indicate that a gravity foundation will be required. |
| T2 | Gravity foundation | Peat Probes | 3.0 | The site investigation works carried out indicate that a gravity foundation will be required. |
| T3 | Gravity foundation | Peat Probes | 3.0 | The site investigation works carried out indicate that a gravity foundation will be required. |
| T4 | Gravity foundation | Peat Probes | 3.0 | The site investigation works carried out indicate that a gravity foundation will be required. |
| T5 | Gravity foundation | Peat Probes | 3.0 | The site investigation works carried out indicate that a gravity foundation will be required. |
| T6 | Gravity foundation | Peat Probes | 3.0 | The site investigation works carried out indicate that a gravity foundation will be required. |
| T7 | Gravity foundation | Peat Probes | 3.0 | The site investigation works carried out indicate that a gravity foundation will be required. |
| T8 | Piled foundation | Peat Probes | - | The site investigation works carried out indicate that a piled foundation will be required. |
| T9 | Piled foundation | Peat Probes | - | The site investigation works carried out indicate that a piled foundation will be required. |
| T10 | Piled foundation | Peat Probes | - | The site investigation works carried out indicate that a piled foundation will be required. |
| T11 | Gravity foundation | Peat Probes | 3.0 | The site investigation works carried out indicate that a gravity foundation will be required. |

| Turbine No. | Turbine Foundation Type | Relevant GI | Proposed founding depth (m bgl) | Comment |
|---|---|---|---|---|
| Substation | Gravity foundation | Peat Probes | 1.0 | The site investigation works carried out indicate that a gravity foundation will be required. |

It should be noted that confirmatory ground investigation will be carried out prior to construction at each turbine location in the form of a borehole with in-situ SPT testing in the overburden and follow-on rotary core through bedrock to confirm the foundation types and founding stratums assumed in Table 7-1. Based on professional judgement it is likely that following the completion of confirmatory ground investigation prior to construction that the turbine bases will be deemed suitable for gravity type foundations.

For gravity type turbine foundations, where the depth of excavation exceeds the required founding depth for the proposed turbine base, up-fill material consisting of granular fill (6N) will be used to backfill the excavation to the required founding depth.

For the piled turbine foundations, a typical piling type and configuration could be up to 16 no. 900-1200mm diameter rotary bored piles.

## 7.2 Access Roads

The access roads on site will mainly be constructed as both excavate and replace (founded) and floating type construction, which, given the ground conditions and type of terrain present, is deemed the most appropriate construction approach.

The total length of new proposed access road to be constructed on site is 9.67 km.

The proposed make-up of the founded access roads is anticipated to be a minimum stone thickness of 750mm. Floating roads will require a layer of geotextile and geogrid, and the necessary stone thickness will be confirmed at pre-construction stage.

See the Peat & Spoil Management Plan for the Proposed Development for further details on the proposed access roads on site.

## 7.3 Crane Hardstands

The crane hardstands will be constructed using the founded technique (i.e. not floated) technique.

Crane hardstands are constructed using compacted Class 1/6F material on a suitable sub-formation to achieve the required bearing resistance. The hardstands will be designed for the most critical loading combinations from the crane.

The hardstands will be founded on competent material underlying the peat deposits. The founding levels for the hardstands will be variable across the site and will be confirmed at pre-construction stage.

The make-up of the hardstands will include a minimum of 1000mm of granular stone fill with a layer of geotextile and/or geogrid, if deemed necessary by the Designer.

## 7.4 Substation Foundations & Platforms

The substation platform will be constructed using the founded technique (i.e. not floated technique). The substation foundations will comprise strip/raft foundations under the main footprint of the building with a basement/pit for cable connections.

Substation platforms are constructed using compacted Class 1/6F material on a suitable sub-formation to achieve the required bearing resistance.

The substation platform will be founded on competent material underlying the peat deposits.

Given the ground conditions present at the proposed substation, the foundations will be founded on firm glacial till or medium dense granular material. The peat will not be a be a suitable founding stratum for the substation foundations. The founding depth for substation platforms is to be 1.0-1.5m.

The make-up of the substation platform will include a minimum of 1000mm of granular stone fill with a layer of geotextile and/or geogrid if deemed necessary by the Designer. At the underside of the substation foundations, a layer of structural up-fill (class 6N) will be required.

## 7.5 Construction Compound Platforms

The construction compound platforms will be constructed using floated technique. The construction compound platforms are constructed using compacted Class 1/6F material on a suitable sub-formation to achieve the required bearing resistance.

The construction compound platforms will be founded on material underlying the peat deposits.

Founding depth for construction compound platforms will require excavations from 0.5m to 1.0m bgl.

The typical make-up of the construction compound platform will include up to 750mm of granular stone fill with possibly a layer of geotextile and/or geogrid.

## 7.6 Peat Placement Areas

A number of peat storage/remediation locations were reviewed as part of the assessment of the Proposed Development. These are located within clear fell area around a number of the turbines (4 no.) in the Proposed Development. The placement of peat in these areas will be limited to a maximum of 1.0m in height, and the stability of these areas is covered under load condition 2 as reported in Section 5 of this report.

Additional discussion of the peat placement areas is provided in the Peat and Spoil Management Plan (FT, 2024) for the Proposed Development.

# 8 CONCLUSION AND RECOMMENDATIONS

## 8.1 Conclusions

Based on the analyses presented, the Proposed Development is considered stable since no data points were recorded to have a FoS of less than 1.3, as shown in Table 5-2 and Appendix B.

In summary, the results give rise to in-situ safety ratios for translational slides which are above the minimum required value for all infrastructure locations analysed. Calculated safety ratios when an additional surcharge is included in the analysis give rise to lower safety ratios as shown in Table 5-2 with no FoS results falling below 1.3.

It should be noted that vehicular access to any areas of deep peat (>1m) during construction will be restricted to low ground pressure vehicles, with all construction vehicles travelling on existing access tracks whenever possible.

Given the limitations of measuring the shear strength of peat and the variability of the ground conditions (slope, peat depth, groundwater levels etc.), the slope stability calculations should not be regarded as definitive.

## 8.2 Recommendations

With regard to slope stability issues, detailed design best practice should be implemented as follows:

- The works must be designed and checked by a suitably qualified and experienced geotechnical engineer or engineering geologist working with a multidisciplinary team which includes an ecologist and hydrologist or drainage engineer.
- A CEMP including Soil Management Plan (including ground stability) is being submitted in the EIAR. Prior to construction, a site-specific environmental management plan for construction will be prepared, which will incorporate all measures set out in the CEMP, in consultation with the relevant statutory bodies, including the planning authority, Inland Fisheries Ireland and the NPWS where required.
- Intrusive ground investigation, related sampling, in-situ testing, and laboratory testing are recommended to evaluate underlying ground conditions for appropriate foundations proposal and geotechnical detailed design.
- Appendix C shows a proposal for foundation solutions at proposed turbines, substation, and access roads.
- Identified risks must be minimised by the application of the principles of avoidance, prevention and protection. Information on risks should be highlighted in the CEMP which is being submitted in the EIAR.
- A detailed method statement for each element of the works must be prepared prior to any element of the work being carried out. Descriptions of the construction methodologies should be included in the CEMP which is being submitted in the EIAR. This must be reviewed and updated prior to commencement of construction.
- Details of the relevant assumptions, relating to methods and sequencing of work are provided in the CEMP. This must be reviewed and updated prior to commencement of construction.
- No amendments to the designed works should be made without the prior approval of a suitably qualified and experienced engineering geologist or geotechnical engineer, in consultation with the wider multidisciplinary team familiar with wind farm and substation construction works.
- The environmental management plan for construction must provide for the checking by suitably qualified and experienced staff of equipment, materials storage areas, as well as drainage structures and their attenuation ability, on a regular basis.
- Excavation works must be monitored by suitably qualified and experienced geotechnical personnel.
- An appropriate testing regime should be planned and followed during construction stage to confirm design geotechnical assumptions and ensure sufficient quality control to guarantee materials quality and correct construction procedures.

- The programming of the works must be such that earthworks are not scheduled to be carried out during severe weather conditions. Where such weather is forecast, suitable measures must be taken to secure the works.
- An inspection of site stability and drainage by the Environmental Engineer or Geotechnical Engineer must be carried out on site when a daily rainfall of over 25mm is recorded on site.
- Drainage infrastructure must be put in place in advance of turbine excavations. Drains must divert surface water and groundwater away from excavations into the surface drainage network.
- Uncontrolled, direct and concentrated discharges of water onto the surface of the peat must be avoided.
- Loading or stockpiling on the surface of the peat must be avoided without first establishing the adequacy of the ground to support loads by an appropriately qualified geotechnical engineer experienced in construction within peatlands.
- Surplus topsoil/peat/subsoil recovered from excavations will be used for landscaping berms along existing and new access tracks and for reinstatement proposes around turbine bases and hardstands. Prior to the construction of the proposed berms the suitability of the ground to support loads in these areas where peat deposits occur will be assessed by an appropriately qualified geotechnical engineer.
- Turbines located in areas adjacent to deep bodies of peat must incorporate drainage measures such that surface water must be drained away from the main peat body and must not be allowed to collect adjacent to the peat mass.
- Excavation must be carried out from access roads or hardstanding areas with preference being given to operation from access roads by machine operatives with experience working with peat.
- A detailed assessment of the stability must be undertaken by a suitably qualified and experienced geotechnical engineer prior to cable trenching or other ancillary works to ensure that it does not result in or contribute to slope failure.

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# Appendix A

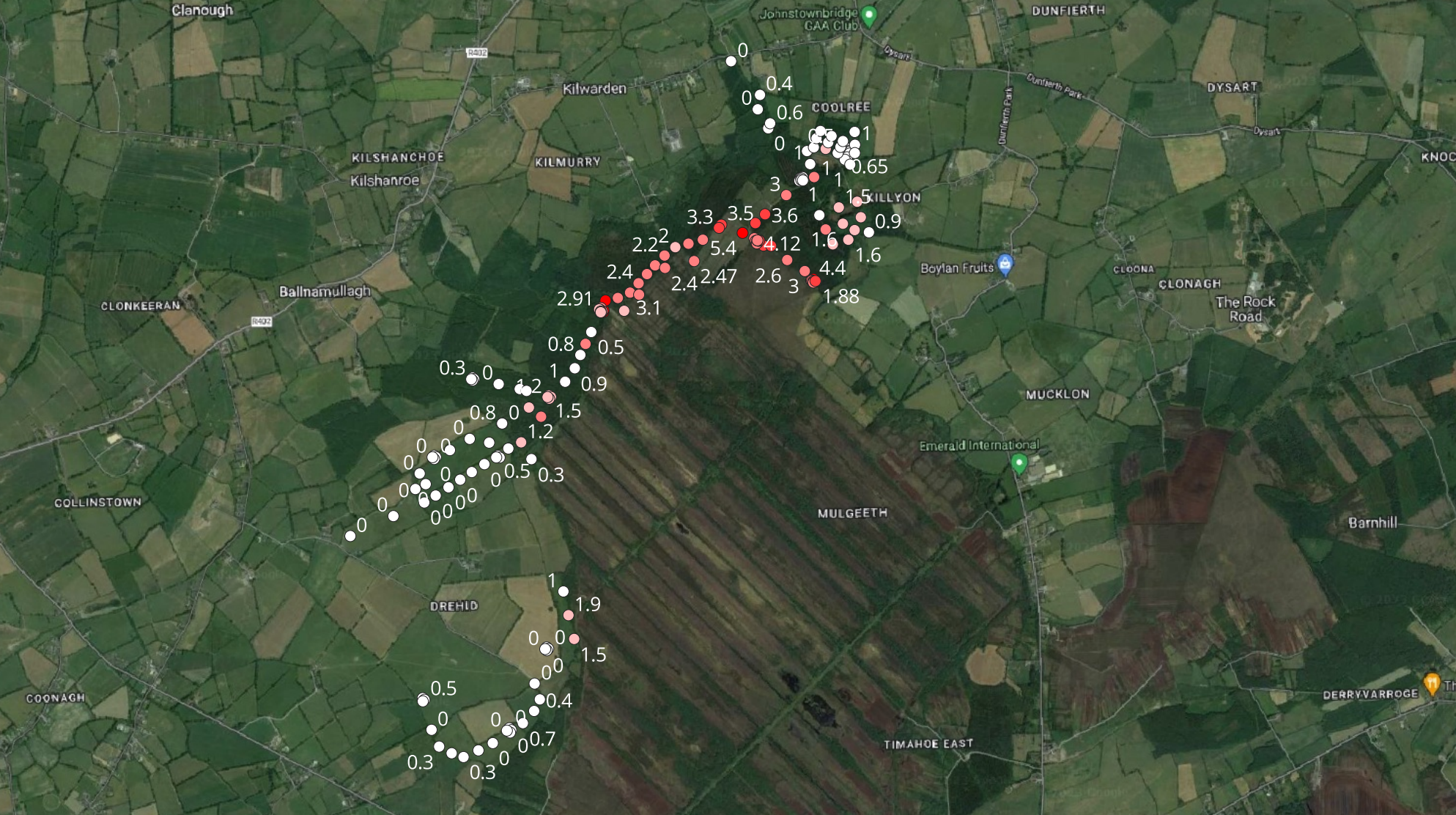
## Peat Probe Data


| Easting (ITM) | Northing (ITM) | Location ID | Infrastructure ID | Data Captured By | Date | Peat Probe Depth (mbgl) | *HSV Depth (mbgl)* | *HSV Factored Peak Cu (kPa)* | *HSV Peak Cu (kPa)* | *HSV Remoulded Cu (kPa)* | Slope (°) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 676083 | 737981 | PP200 | Access Route | JB/BC | 30/09/2024 | 0.00 | | | | | 0 | |
| 676017 | 738101 | PP201 | Access Route | JB/BC | 30/09/2024 | 0.00 | | | | | 0 | |
| 675848 | 738405 | PP202 | Access Route | JB/BC | 30/09/2024 | 0.00 | | | | | 0 | |
| 675921 | 737320 | PP203 | Access Route | JB/BC | 30/09/2024 | 5.40 | | | | | 0 | Young forest |
| 675787 | 737372 | PP204 | Access Route | JB/BC | 30/09/2024 | 3.50 | 0.50 | 8 | 20 | 10 | 2 | Young forest |
| | | | | | | | 1.00 | 6 | 15 | 10 | | |
| | | | | | | | 1.50 | 9 | 22 | 15 | | |
| | | | | | | | 2.00 | 11 | 28 | 20 | | |
| | | | | | | | 2.50 | 10 | 25 | 15 | | |
| | | | | | | | 3.00 | 8 | 20 | 16 | | |
| 674513 | 736334 | PP205 | Access Route | JB/BC | 30/09/2024 | 0.80 | 0.50 | 21 | 53 | 23 | 0 | Topsoil. Sandy sound. Mature forest |
| 674380 | 736365 | PP206 | Access Route | JB/BC | 30/09/2024 | 0.00 | 0.00 | | | | 0 | Mature forest |
| 674648 | 736159 | PP207 | Access Route | JB/BC | 30/09/2024 | 2.30 | 0.50 | 20 | 51 | 30 | 0 | Shifted due to ditch berm. Mature forest |
| | | | | | | | 1.00 | 26 | 65 | 48 | | |
| | | | | | | | 1.50 | 26 | 65 | 52 | | |
| | | | | | | | 2.00 | 26 | 65 | 65 | | |
| 673443 | 735405 | PP208 | Access Route | JB/BC | 30/09/2024 | 0.00 | | | | | 0 | Livestock greenfield |
| 673715 | 735531 | PP209 | Access Route | JB/BC | 30/09/2024 | 0.00 | | | | | 0 | Livestock greenfield |
| 673919 | 735733 | PP210 | Access Route | JB/BC | 30/09/2024 | 0.00 | | | | | 0 | Livestock greenfield |
| 674861 | 736465 | PP130 | Access Route | JB/BC | 30/09/2024 | 0.90 | | | | | 2 | Mature forest |
| 674800 | 736380 | PP131 | Access Route | JB/BC | 30/09/2024 | 1.00 | | | | | 5 | Mature forest |
| 675670 | 737277 | PP117 | Access Route | JB/BC | 30/09/2024 | 2.40 | | | | | 3 | Cut down forest |
| 675579 | 737252 | PP118 | Access Route | JB/BC | 30/09/2024 | 2.30 | | | | | 0 | Cut down forest |
| 675496 | 737230 | PP119 | Access Route | JB/BC | 30/09/2024 | 2.00 | 0.50 | 24 | 60 | 25 | 2 | Mature forest |
| | | | | | | | 1.00 | 12 | 31 | 22 | | |
| | | | | | | | 1.50 | 22 | 55 | 30 | | |
| | | | | | | | 2.00 | 26 | Refusal | | | |
| 675428 | 737177 | PP120 | Access Route | JB/BC | 30/09/2024 | 2.20 | | | | | 0 | Mature forest |
| 674965 | 736694 | PP127 | Access Route | JB/BC | 30/09/2024 | 0.50 | | | | | 0 | Mature forest |
| 674929 | 736619 | PP128 | Access Route | JB/BC | 30/09/2024 | 2.70 | | | | | 0 | Mature forest |
| 674896 | 736549 | PP129 | Access Route | JB/BC | 30/09/2024 | 0.80 | | | | | 0 | Mature forest |
| 675043 | 736821 | T08-1 | Turbine | JB/BC | 30/09/2024 | 4.60 | 0.50 | 6 | 14 | 7 | 0 | Forest clear |
| | | | | | | | 1.00 | 6 | 14 | 10 | | |
| | | | | | | | 1.50 | 6 | 15 | 12 | | |
| | | | | | | | 2.00 | 5 | 13 | 10 | | |
| | | | | | | | 2.50 | 8 | 21 | 11 | | |
| | | | | | | | 3.00 | 9 | 22 | 15 | | |
| 675043 | 736831 | T08-2 | Turbine | JB/BC | 30/09/2024 | 5.40 | | | | | 0 | Forest clear |
| 675052 | 736821 | T08-3 | Turbine | JB/BC | 30/09/2024 | | | | | | | Skipped |
| 675043 | 736812 | T08-4 | Turbine | JB/BC | 30/09/2024 | | | | | | | Skipped |
| 675033 | 736821 | T08-5 | Turbine | JB/BC | 30/09/2024 | 5.40 | | | | | 0 | Forest clear |
| 675368 | 737115 | PP121 | Access Route | JB/BC | 30/09/2024 | 2.40 | | | | | 0 | Mature forest |
| 675317 | 737060 | PP122 | Access Route | JB/BC | 30/09/2024 | 2.70 | | | | | 0 | Mature forest |
| 675264 | 737002 | PP123 | Access Route | JB/BC | 30/09/2024 | 2.40 | 0.50 | 20 | 51 | 42 | 0 | Mature forest |
| | | | | | | | 1.00 | 11 | 27 | 19 | | |
| | | | | | | | 1.50 | 8 | 19 | 18 | | |
| | | | | | | | 2.00 | 12 | 30 | 25 | | |
| 675210 | 736943 | PP124 | Access Route | JB/BC | 30/09/2024 | 3.10 | | | | | 3 | Mature forest |
| 675133 | 736909 | PP125 | Access Route | JB/BC | 30/09/2024 | 2.80 | | | | | 3 | Mature forest |
| 675055 | 736893 | PP126 | Access Route | JB/BC | 30/09/2024 | 4.70 | | | | | 0 | Mature forest |
| 675173 | 736828 | AT1 | Access Route | EA/CH | 01/08/2018 | 2.04 | | 8 | 20 | | 0.2 | |
| 675267 | 736930 | AT2 | Access Route | EA/CH | 01/08/2018 | 2.95 | | 9 | 22 | | 0.2 | |
| 675431 | 737099 | AT3 | Access Route | EA/CH | 01/08/2018 | 2.40 | | 8 | 20 | | 0.2 | |
| 675615 | 737142 | AT4 | Access Route | EA/CH | 01/08/2018 | 2.47 | | 6 | 14 | | 0.2 | |
| 675772 | 737352 | AT5 | Access Route | EA/CH | 01/08/2018 | 3.30 | | 3.20 | 8 | | 0.2 | |
| 675995 | 737286 | AT6 | Access Route | EA/CH | 01/08/2018 | 3.04 | | 8 | 20 | | 0.2 | |
| 676053 | 737240 | AT7 | Access Route | EA/CH | 01/08/2018 | 3.95 | | 6 | 14 | | 0.2 | |
| 676563 | 737812 | Sub_St1 | Substation | EA/CH | 01/08/2018 | 0.67 | | 12 | 30 | | 0.2 | Superseded |
| 676568 | 737836 | Sub_St2 | Substation | EA/CH | 01/08/2018 | 0.65 | | 7 | 18 | | 0.2 | Superseded |
| 676580 | 737854 | Sub_St3 | Substation | EA/CH | 01/08/2018 | 0.57 | | 8 | 20 | | 0.2 | Superseded |
| 676601 | 737841 | Sub_St4 | Substation | EA/CH | 01/08/2018 | 0.55 | | 12 | 30 | | 0.2 | Superseded |
| 676602 | 737835 | Sub_St5 | Substation | EA/CH | 01/08/2018 | 0.70 | | 10 | 26 | | 0.2 | Superseded |

| Easting (ITM) | Northing (ITM) | Location ID | Infrastructure ID | Data Captured By | Date | Peat Probe Depth (mbgl) | *HSV Depth (mbgl)* | *HSV Factored Peak Cu (kPa)* | *HSV Peak Cu (kPa)* | *HSV Remoulded Cu (kPa)* | Slope (°) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 676598 | 737822 | Sub_St6 | Substation | EA/CH | 01/08/2018 | 0.94 | | 14 | 34 | | 0.2 | Superseded |
| 676581 | 737798 | Sub_St7 | Substation | EA/CH | 01/08/2018 | 0.50 | | 11 | 28 | | 0.2 | Superseded |
| 676567 | 737783 | Sub_St8 | Substation | EA/CH | 01/08/2018 | 0.62 | | 13 | 32 | | 0.2 | Superseded |
| 674556 | 736322 | T08A | Turbine | EA/CH | 01/08/2018 | 0.32 | | 18 | 44 | | 0.2 | Currently T07 |
| 675022 | 736831 | T09A | Turbine | EA/CH | 01/08/2018 | 3.11 | | 4 | 10 | | 0.2 | Currently T08 |
| 675023 | 736835 | T09B | Turbine | EA/CH | 01/08/2018 | 2.12 | | 8 | 20 | | 0.2 | Currently T08 |
| 675027 | 736846 | T09C | Turbine | EA/CH | 01/08/2018 | 2.84 | | 4 | 10 | | 0.2 | Currently T08 |
| 675028 | 736828 | T09D | Turbine | EA/CH | 01/08/2018 | 3.31 | | 6 | 14 | | 0.2 | Currently T08 |
| 675034 | 736826 | T09E | Turbine | EA/CH | 01/08/2018 | 3.20 | | 6 | 16 | | 0.2 | Currently T08 |
| 675018 | 736836 | T09F | Turbine | EA/CH | 01/08/2018 | 2.91 | | 6 | 16 | | 0.2 | Currently T08 |
| 675015 | 736837 | T09G | Turbine | EA/CH | 01/08/2018 | 1.82 | | 6 | 14 | | 0.2 | Currently T08 |
| 675025 | 736824 | T09H | Turbine | EA/CH | 01/08/2018 | 3.23 | | 10 | 24 | | 0.2 | Currently T08 |
| 675025 | 736819 | T09I | Turbine | EA/CH | 01/08/2018 | 1.85 | | 10 | 24 | | 0.2 | Currently T08 |
| 676014 | 737267 | T10 | Turbine | EA/CH | 01/08/2018 | 1.49 | | - | - | | 0.2 | Currently T09 |
| 676014 | 737267 | T10A | Turbine | EA/CH | 01/08/2018 | 3.04 | | 6 | 16 | | 0.2 | Currently T09 |
| 676009 | 737267 | T10B | Turbine | EA/CH | 01/08/2018 | 4.20 | | 8 | 20 | | 0.2 | Currently T09 |
| 676004 | 737270 | T10C | Turbine | EA/CH | 01/08/2018 | 2.50 | | 7 | 18 | | 0.2 | Currently T09 |
| 676016 | 737260 | T10D | Turbine | EA/CH | 01/08/2018 | 4.12 | | 5 | 12 | | 0.2 | Currently T09 |
| 676011 | 737254 | T10E | Turbine | EA/CH | 01/08/2018 | 2.40 | | 3 | 8 | | 0.2 | Currently T09 |
| 676023 | 737271 | T10F | Turbine | EA/CH | 01/08/2018 | 3.05 | | 6 | 16 | | 0.2 | Currently T09 |
| 676026 | 737272 | T10G | Turbine | EA/CH | 01/08/2018 | 4.00 | | 8 | 20 | | 0.73 | Currently T09 |
| 676014 | 737272 | T10H | Turbine | EA/CH | 01/08/2018 | 2.90 | | 6 | 16 | | 0.73 | Currently T09 |
| 676015 | 737273 | T10I | Turbine | EA/CH | 01/08/2018 | 2.65 | | 7 | 18 | | 0.73 | Currently T09 |
| 676384 | 737016 | T11 | Turbine | EA/CH | 01/08/2018 | 1.88 | | - | - | | 0.73 | Currently T10 |
| 676373 | 737673 | T11A | Turbine | EA/CH | 01/08/2018 | 2.35 | | 6 | 16 | | 0.73 | Currently T10 |
| 676371 | 737019 | T11B | Turbine | EA/CH | 01/08/2018 | 4.35 | | 8 | 20 | | 0.73 | Currently T10 |
| 676368 | 737029 | T11C | Turbine | EA/CH | 01/08/2018 | 4.40 | | - | - | | 0.73 | Currently T10 |
| 676354 | 737021 | T11D | Turbine | EA/CH | 01/08/2018 | 2.95 | | 6 | 16 | | 0.73 | Currently T10 |
| 676359 | 737019 | T11E | Turbine | EA/CH | 01/08/2018 | 3.20 | | 9 | 22 | | 0.73 | Currently T10 |
| 676367 | 737014 | T11F | Turbine | EA/CH | 01/08/2018 | 3.76 | | 6 | 14 | | 0.73 | Currently T10 |
| 676368 | 737007 | T11G | Turbine | EA/CH | 01/08/2018 | 2.90 | | 11 | 28 | | 0.73 | Currently T10 |
| 676381 | 737016 | T11H | Turbine | EA/CH | 01/08/2018 | 3.35 | | 7 | 18 | | 0.73 | Currently T10 |
| 676300 | 737672 | T12 | Turbine | EA/CH | 01/08/2018 | 0.21 | | - | - | | 0.73 | Currently T11 |
| 676300 | 737672 | T12A | Turbine | EA/CH | 01/08/2018 | 0.60 | | 14 | 34 | | 0.73 | Currently T11 |
| 676284 | 737657 | T12B | Turbine | EA/CH | 01/08/2018 | 0.77 | | 4 | 10 | | 0.73 | Currently T11 |
| 676285 | 737665 | T12C | Turbine | EA/CH | 01/08/2018 | 0.90 | | 13 | 32 | | 0.73 | Currently T11 |
| 676280 | 737652 | T12D | Turbine | EA/CH | 01/08/2018 | 0.64 | | 9 | 22 | | 0.73 | Currently T11 |
| 676280 | 737650 | T12E | Turbine | EA/CH | 01/08/2018 | 0.75 | | 12 | 30 | | 0.73 | Currently T11 |
| 676292 | 737662 | T12F | Turbine | EA/CH | 01/08/2018 | 1.00 | | 10 | 24 | | 0.73 | Currently T11 |
| 676293 | 737664 | T12G | Turbine | EA/CH | 01/08/2018 | 0.85 | | 11 | 28 | | 0.73 | Currently T11 |
| 676292 | 737655 | T12H | Turbine | EA/CH | 01/08/2018 | 1.05 | | 9 | 22 | | 0.73 | Currently T11 |
| 676302 | 737652 | T12I | Turbine | EA/CH | 01/08/2018 | 0.54 | | 15 | 38 | | 0.73 | Currently T11 |
| 676406 | 737432 | P01 | Substation | EA/AW | 24/02/2023 | 0.90 | | | | | 2 | Superseded |
| 676529 | 737481 | P02 | Substation | EA/AW | 24/02/2023 | 1.50 | | | | | 2 | Superseded |
| 676645 | 737517 | P03 | Substation | EA/AW | 24/02/2023 | 1.40 | 0.50 | 13 | 32 | 25 | 2 | Superseded |
| | | | | | | | 1.00 | 23 | 58 | 34 | | |
| | | | | | | | 1.50 | 26 | 65 | 55 | | |
| 676446 | 737342 | P04 | Substation | EA/AW | 24/02/2023 | 2.30 | 0.50 | | | | 2 | Superseded |
| | | | | | | | 1.00 | | | | | |
| | | | | | | | 1.50 | | | | | |
| | | | | | | | 2.00 | | | | | |
| 676555 | 737378 | P05 | Substation | JB/BC | 24/02/2023 | 1.60 | | | | | 3 | Superseded |
| 676668 | 737419 | P06 | Substation | JB/BC | 24/02/2023 | 1.20 | 0.50 | 21 | 52 | 45 | 3 | Superseded |
| | | | | | | | 1.00 | 19 | 48 | 24 | | |
| 676491 | 737248 | P07 | Substation | EA/AW | 24/02/2023 | 2.00 | | | | | 3 | Superseded |
| 676589 | 737277 | P08 | Substation | EA/AW | 24/02/2023 | 1.60 | | | | | 2 | Superseded |
| 676629 | 737338 | P09 | Substation | EA/AW | 24/02/2023 | 1.10 | 0.50 | 19 | 48 | 23 | 2 | Superseded |
| | | | | | | | 1.00 | 17 | 43 | 26 | | |
| 676719 | 737324 | P10 | Substation | EA/AW | 24/02/2023 | 0.90 | | | | | 2 | Superseded |
| 673973 | 735903 | T5-1 | Turbine | JB/BC | 26/01/2024 | 0.00 | | | | | 2 | |
| 673973 | 735913 | T5-2 | Turbine | JB/BC | 26/01/2024 | 0.00 | | | | | 2 | |
| 673983 | 735904 | T5-3 | Turbine | JB/BC | 26/01/2024 | 0.00 | | | | | 2 | |

| Easting (ITM) | Northing (ITM) | Location ID | Infrastructure ID | Data Captured By | Date | Peat Probe Depth (mbgl) | *HSV Depth (mbgl)* | *HSV Factored Peak Cu (kPa)* | *HSV Peak Cu (kPa)* | *HSV Remoulded Cu (kPa)* | Slope (°) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 673972 | 735892 | T5-4 | Turbine | JB/BC | 26/01/2024 | 0.00 | | | | | 2 | |
| 673962 | 735903 | T5-5 | Turbine | JB/BC | 26/01/2024 | 0.00 | | | | | 2 | |
| 673881 | 735800 | PP139 | Access Route | JB/BC | 26/01/2024 | 0.00 | | | | | 2 | |
| 674072 | 735948 | PP138 | Access Route | JB/BC | 26/01/2024 | 0.00 | | | | | 2 | |
| 674197 | 736019 | PP137 | Access Route | JB/BC | 26/01/2024 | 0.00 | | | | | 2 | |
| 674402 | 736116 | PP136 | Access Route | JB/BC | 26/01/2024 | 0.80 | 0.50 | 26 | 65 | 41 | 2 | TOPSOIL. HSV Cu value out of range |
| 674320 | 735995 | PP170 | Access Route | JB/BC | 26/01/2024 | 0.30 | | | | | 2 | |
| 674441 | 735958 | PP147 | Access Route | JB/BC | 26/01/2024 | 0.70 | | | | | 2 | Sandy and slisghtly gravelly (no peat) |
| 674376 | 735902 | T4-1 | Turbine | JB/BC | 26/01/2024 | 0.30 | | | | | 2 | |
| 674376 | 735912 | T4-2 | Turbine | JB/BC | 26/01/2024 | 0.50 | | | | | 2 | |
| 674386 | 735901 | T4-3 | Turbine | JB/BC | 26/01/2024 | 0.50 | | | | | 2 | |
| 674587 | 735891 | T4-4 | Turbine | JB/BC | 26/01/2024 | 0.30 | | | | | 2 | |
| 674365 | 735902 | T4-5 | Turbine | JB/BC | 26/01/2024 | 0.50 | | | | | 2 | |
| 674290 | 735859 | PP146 | Access Route | JB/BC | 26/01/2024 | 0.00 | | | | | 2 | |
| 674210 | 735809 | PP145 | Access Route | JB/BC | 26/01/2024 | 0.30 | | | | | 2 | |
| 674137 | 735761 | PP144 | Access Route | JB/BC | 26/01/2024 | 0.00 | | | | | 2 | |
| 674063 | 735713 | PP143 | Access Route | JB/BC | 26/01/2024 | 0.00 | | | | | 2 | |
| 673982 | 735661 | PP142 | Access Route | JB/BC | 26/01/2024 | 0.00 | | | | | 2 | |
| 673910 | 735617 | PP141 | Access Route | JB/BC | 26/01/2024 | 0.00 | | | | | 2 | |
| 673854 | 735702 | PP140 | Access Route | JB/BC | 26/01/2024 | 0.00 | | | | | 2 | |
| 676031 | 738192 | PP100 | Access Route | JB/BC | 26/01/2024 | 0.40 | | | | | 2 | |
| 676095 | 738012 | PP102 | Access Route | JB/BC | 26/01/2024 | 0.60 | | | | | 2 | |
| 676328 | 737837 | PP105 | Access Route | JB/BC | 26/01/2024 | 0.90 | 0.50 | 8 | 20 | 18 | 2 | |
| | | | | | | | 0.80 | 26 | 65 | 20 | | HSV Cu value out of range |
| 676348 | 737755 | PP106 | Access Route | JB/BC | 26/01/2024 | 1.00 | | | | | 2 | |
| 676197 | 737559 | PP107 | Access Route | JB/BC | 26/01/2024 | 3.00 | 0.50 | 14 | 35 | 21 | 2 | |
| | | | | | | | 1.00 | 11 | 28 | 24 | | |
| | | | | | | | 1.50 | 11 | 27 | 18 | | |
| | | | | | | | 2.00 | 9 | 22 | 16 | | |
| | | | | | | | 2.50 | 16 | 40 | 21 | | |
| | | | | | | | 3.00 | 26 | 65 | 60 | | |
| 676063 | 737438 | PP109 | Access Route | JB/BC | 26/01/2024 | 3.60 | | | | | 2 | |
| 676002 | 737382 | PP110 | Access Route | JB/BC | 26/01/2024 | 3.60 | | | | | 2 | |
| 676101 | 737238 | PP112 | Access Route | JB/BC | 26/01/2024 | 3.60 | 0.50 | 6 | 15 | 10 | 2 | |
| | | | | | | | 1.00 | 4 | 10 | 7 | | |
| | | | | | | | 1.50 | 4 | 10 | 9 | | |
| | | | | | | | 2.00 | 6 | 15 | 10 | | |
| | | | | | | | 2.50 | 4 | 11 | 10 | | |
| | | | | | | | 3.00 | 12 | 30 | 14 | | |
| 676203 | 737149 | PP114 | Access Route | JB/BC | 26/01/2024 | 2.60 | | | | | 2 | |
| 676314 | 737079 | PP116 | Access Route | JB/BC | 26/01/2024 | 3.00 | | | | | 2 | |
| 673900 | 734371 | T1-1 | Turbine | JB/BC | 23/01/2024 | 0.00 | | | | | 2 | |
| 673900 | 734381 | T1-2 | Turbine | JB/BC | 23/01/2024 | 0.00 | | | | | 2 | |
| 673911 | 734371 | T1-3 | Turbine | JB/BC | 23/01/2024 | 0.50 | | | | | 2 | |
| 673901 | 734361 | T1-5 | Turbine | JB/BC | 23/01/2024 | 0.70 | | | | | 2 | |
| 673956 | 734181 | PP169 | Access Route | JB/BC | 23/01/2024 | 0.00 | | | | | 2 | |
| 674004 | 734075 | PP168 | Access Route | JB/BC | 23/01/2024 | 0.30 | | | | | 2 | |
| 674083 | 734033 | PP167 | Access Route | JB/BC | 23/01/2024 | 0.60 | | | | | 2 | |
| 674158 | 734009 | PP166 | Access Route | JB/BC | 23/01/2024 | 0.30 | | | | | 2 | |
| 674252 | 734051 | PP165 | Access Route | JB/BC | 23/01/2024 | 0.30 | | | | | 2 | |
| 674448 | 734178 | T2-1 | Turbine | JB/BC | 23/01/2024 | 0.00 | | | | | 2 | |
| 674447 | 734191 | T2-2 | Turbine | JB/BC | 23/01/2024 | 0.00 | | | | | 2 | |
| 674459 | 734179 | T2-3 | Turbine | JB/BC | 23/01/2024 | 0.00 | | | | | 2 | |
| 674452 | 734164 | T2-4 | Turbine | JB/BC | 23/01/2024 | 0.80 | 0.50 | | | | 2 | Refusal due to gravelly material |
| 674432 | 734176 | T2-5 | Turbine | JB/BC | 23/01/2024 | 0.00 | | | | | 2 | |
| 674343 | 734097 | PP164 | Access Route | JB/BC | 23/01/2024 | 0.00 | | | | | 2 | |
| 674533 | 734223 | PP163 | Access Route | JB/BC | 23/01/2024 | 0.70 | 0.50 | | | | 2 | Refusal due to gravelly material |
| 674604 | 734300 | PP162 | Access Route | JB/BC | 23/01/2024 | 0.40 | | | | | 2 | |
| 674640 | 734373 | PP161 | Access Route | JB/BC | 23/01/2024 | 0.40 | | | | | 2 | |
| 674607 | 734473 | PP160 | Access Route | JB/BC | 23/01/2024 | 0.00 | | | | | 2 | |
| 674683 | 734692 | T3-1 | Turbine | JB/BC | 23/01/2024 | 0.00 | | | | | 2 | |
| 674683 | 734702 | T3-2 | Turbine | JB/BC | 23/01/2024 | 0.00 | | | | | 2 | |

| Easting (ITM) | Northing (ITM) | Location ID | Infrastructure ID | Data Captured By | Date | Peat Probe Depth (mbgl) | *HSV Depth (mbgl)* | *HSV Factored Peak Cu (kPa)* | *HSV Peak Cu (kPa)* | *HSV Remoulded Cu (kPa)* | Slope (°) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 674693 | 734693 | T3-3 | Turbine | JB/BC | 23/01/2024 | 0.00 | | | | | 2 | |
| 674684 | 734683 | T3-4 | Turbine | JB/BC | 23/01/2024 | 0.00 | | | | | 2 | |
| 674674 | 734691 | T3-5 | Turbine | JB/BC | 23/01/2024 | 0.00 | | | | | 2 | |
| 674857 | 734755 | PP159 | Access Route | JB/BC | 23/01/2024 | 1.50 | 0.50 | 26 | 65 | 40 | 2 | HSV Cu value out of range |
| | | | | | | | 1.00 | 26 | 65 | > 65 | | HSV Cu value out of range |
| | | | | | | | 1.50 | 26 | 65 | > 65 | | HSV Cu value out of range |
| 674821 | 734905 | PP158 | Access Route | JB/BC | 23/01/2024 | 1.90 | | | | | 2 | |
| 674789 | 735055 | PP157 | Access Route | JB/BC | 23/01/2024 | 1.00 | | | | | 2 | |
| 674215 | 736397 | T6-1 | Turbine | JB/BC | 23/01/2024 | 0.90 | 0.50 | | 65 | 38 | 2 | HSV Cu value out of range |
| | | | | | | | 0.90 | | 65 | > 65 | | HSV Cu value out of range |
| 674215 | 736406 | T6-2 | Turbine | JB/BC | 23/01/2024 | 0.40 | | | | | 2 | |
| 674224 | 736397 | T6-3 | Turbine | JB/BC | 23/01/2024 | 0.30 | | | | | 2 | |
| 674215 | 736388 | T6-4 | Turbine | JB/BC | 23/01/2024 | 0.30 | | | | | 2 | |
| 674207 | 736396 | T6-5 | Turbine | JB/BC | 23/01/2024 | 0.30 | | | | | 2 | |
| 674699 | 736283 | T7-1 | Turbine | JB/BC | 23/01/2024 | 1.80 | 0.50 | | 65 | 42 | 2 | HSV Cu value out of range |
| | | | | | | | 1.00 | | 65 | > 65 | | HSV Cu value out of range |
| | | | | | | | 1.50 | | 65 | > 65 | | HSV Cu value out of range |
| 674698 | 736293 | T7-2 | Turbine | JB/BC | 23/01/2024 | 1.50 | | | | | 2 | |
| 674710 | 736284 | T7-3 | Turbine | JB/BC | 23/01/2024 | 1.10 | | | | | 2 | |
| 674699 | 736273 | T7-4 | Turbine | JB/BC | 23/01/2024 | 1.50 | | | | | 2 | |
| 674689 | 736283 | T7-5 | Turbine | JB/BC | 23/01/2024 | 1.20 | | | | | 2 | |
| 674571 | 736217 | PP132 | Access Route | JB/BC | 23/01/2024 | 1.80 | | | | | 2 | |
| 674522 | 735997 | PP148 | Access Route | JB/BC | 23/01/2024 | 1.20 | | | | | 2 | |
| 674402 | 736116 | PP135 | Access Route | JB/BC | 23/01/2024 | 0.00 | | | | | 2 | |
| 676371 | 737861 | PP01A | Substation | JB/BC | 27/10/2023 | 0.45 | | | | | 2 | |
| 676446 | 737851 | PP02A | Substation | JB/BC | 27/10/2023 | 1.50 | 0.50 | 25 | 62 | 30 | 2 | |
| | | | | | | | 1.00 | 26 | 65 | 42 | | HSV Cu value out of range |
| | | | | | | | 1.50 | 26 | 65 | 47 | | HSV Cu value out of range |
| 676522 | 737825 | PP03A | Substation | JB/BC | 27/10/2023 | 1.00 | 0.50 | 15 | 38 | 15 | 2 | |
| | | | | | | | 1.00 | 12 | 30 | 16 | | |
| 676388 | 737918 | PP04A | Substation | JB/BC | 27/10/2023 | 0.30 | | | | | 2 | |
| 676462 | 737892 | PP05A | Substation | JB/BC | 27/10/2023 | 0.80 | | | | | 2 | |
| 676539 | 737863 | PP06A | Substation | JB/BC | 27/10/2023 | 0.50 | | | | | 2 | |
| 676413 | 737964 | PP07A | Substation | JB/BC | 27/10/2023 | 0.30 | | | | | 2 | |
| 676483 | 737932 | PP08A | Substation | JB/BC | 27/10/2023 | 0.80 | 0.50 | 6 | 14 | 6 | 2 | |
| 676555 | 737900 | PP09A | Substation | JB/BC | 27/10/2023 | 0.60 | 0.50 | 8 | 19 | 10 | 2 | |
| 676601 | 737752 | PP10A | Substation | JB/BC | 27/10/2023 | 1.00 | 0.50 | 15 | 38 | 20 | 2 | |
| | | | | | | | 1.00 | 22 | 55 | 25 | | |
| 676631 | 737877 | PP11A | Substation | JB/BC | 27/10/2023 | 1.00 | | | | | 2 | |
| 676629 | 737958 | PP12A | Substation | JB/BC | 27/10/2023 | 0.30 | | | | | 2 | |
| 676685 | 738128 | PP13A | Substation | JB/BC | 27/10/2023 | | | | | | 2 | This location was not accessible |
| 676630 | 737825 | PP14A | Substation | JB/BC | 27/10/2023 | 0.80 | | | | | 2 | Additional location |
| | | | | | | | | | | | | |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Johnstownbridge GAA Club
DUNFIERTH
Kilwarden
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KILSHANCHOE
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KILLYON
Boylan Fruits
CLOONA
CLONAGH
The Rock Road
CLONKEERAN
Ballnamullagh
MUCKLON
Emerald International
COLLINSTOWN
MULGEETH
Barnhill
DREHID
COONAGH
DERRYVARROGE
TIMAHOE EAST
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Don Baker
Auto Engineer
Castlebridge Stud
Mulgeeth Wetland
SAC (WMI KE112)
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0.94
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0.6
2.35
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0.75
3
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1.5
0.9
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0.9
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2
3.6
3.6
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3.04
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4.12
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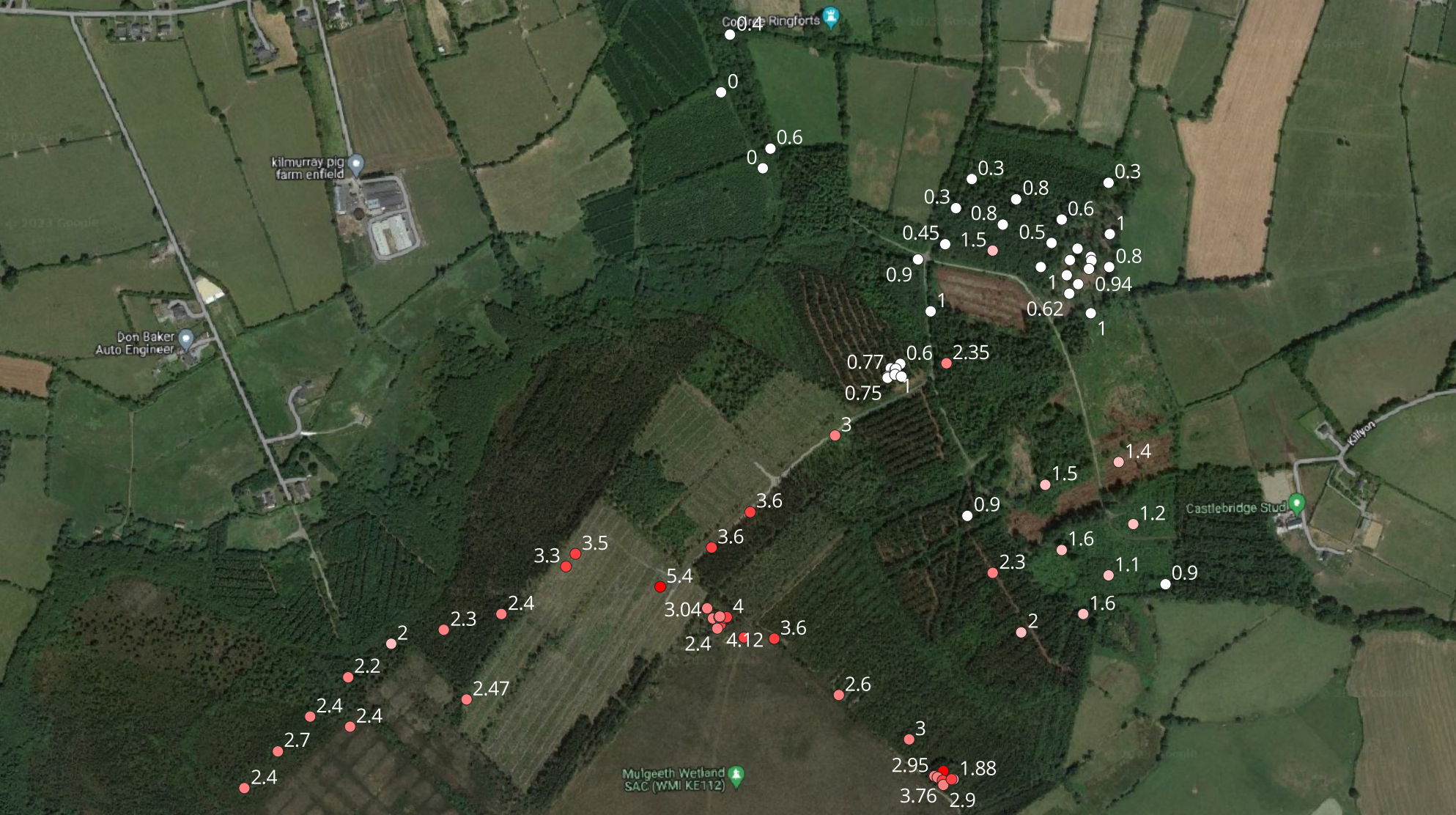
Coolrue Ringforts
kilmurray pig farm enfield
Don Baker Auto Engineer
Castlebridge Stud
Killyon
Mulgeeth Wetland SAC (WMI KE112)
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2.9

# Appendix B

## Factor of Safety results


# Calculated FoS of Natural Peat Slopes for Proposed Drehid Wind Farm Site - Undrained Analysis

| Turbine No./Waypoint | Easting | Northing | Slope | Undrained shear strength | Bulk unit weight of Peat | Peat Depth | Surcharge Equivalent Placed Fill Depth (m) | Factor of Safety for Load Condition | |
|---|---|---|---|---|---|---|---|---|---|
| | | | β (deg) | $c_u$ (kPa) | γ (kN/m$^3$) | (m) | Condition (2) | Condition (1) | Condition (2) |
| PP200 | 676083 | 737981 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP201 | 676017 | 738101 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP202 | 675848 | 738405 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP203 | 675921 | 737320 | 1 | 8 | 10 | 5.4 | 6.8 | **8.49** | **6.74** |
| PP204 | 675787 | 737372 | 2 | 8 | 10 | 3.5 | 4.9 | **6.55** | **4.68** |
| PP205 | 674513 | 736334 | 1 | 8 | 10 | 0.8 | 2.2 | **57.31** | **20.84** |
| PP206 | 674380 | 736365 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP207 | 674648 | 736159 | 1 | 8 | 10 | 2.3 | 3.7 | **19.93** | **12.39** |
| PP208 | 673443 | 735405 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP209 | 673715 | 735531 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP210 | 673919 | 735733 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP130 | 674861 | 736465 | 2 | 8 | 10 | 0.9 | 2.3 | **25.49** | **9.97** |
| PP131 | 674800 | 736380 | 5 | 8 | 10 | 1.0 | 2.4 | **9.21** | **3.84** |
| PP117 | 675670 | 737277 | 3 | 8 | 10 | 2.4 | 3.8 | **6.38** | **4.03** |
| PP118 | 675579 | 737252 | 0 | 8 | 10 | 2.3 | 3.7 | **199.29** | **123.88** |
| PP119 | 675496 | 737230 | 2 | 8 | 10 | 2.0 | 3.4 | **11.47** | **6.75** |
| PP120 | 675428 | 737177 | 1 | 8 | 10 | 2.2 | 3.6 | **20.84** | **12.73** |
| PP127 | 674965 | 736694 | 1 | 8 | 10 | 0.5 | 1.9 | **91.69** | **24.13** |
| PP128 | 674929 | 736619 | 1 | 8 | 10 | 2.7 | 4.1 | **16.98** | **11.18** |
| PP129 | 674896 | 736549 | 1 | 8 | 10 | 0.8 | 2.2 | **57.31** | **20.84** |
| T08-1 | 675043 | 736821 | 1 | 8 | 10 | 4.6 | 6.1 | **9.97** | **7.52** |
| T08-2 | 675043 | 736831 | 1 | 8 | 10 | 5.4 | 6.9 | **8.49** | **6.64** |
| T08-5 | 675033 | 736821 | 1 | 8 | 10 | 5.4 | 6.9 | **8.49** | **6.64** |
| PP121 | 675368 | 737115 | 1 | 8 | 10 | 2.4 | 3.8 | **19.10** | **12.06** |
| PP122 | 675317 | 737060 | 1 | 8 | 10 | 2.7 | 4.1 | **16.98** | **11.18** |
| PP123 | 675264 | 737002 | 1 | 8 | 10 | 2.4 | 3.8 | **19.10** | **12.06** |
| PP124 | 675210 | 736943 | 3 | 8 | 10 | 3.1 | 4.5 | **4.94** | **3.40** |
| PP125 | 675133 | 736909 | 3 | 8 | 10 | 2.8 | 4.2 | **5.47** | **3.64** |
| PP126 | 675055 | 736893 | 1 | 8 | 10 | 4.7 | 6.1 | **9.75** | **7.52** |
| AT1 | 675173 | 736828 | 1 | 8 | 36 | 2.0 | 3.4 | **6.24** | **3.70** |
| AT2 | 675267 | 736930 | 1 | 8 | 36 | 3.0 | 4.4 | **4.32** | **2.93** |
| AT3 | 675431 | 737099 | 1 | 8 | 36 | 2.4 | 3.8 | **5.31** | **3.35** |
| AT4 | 675615 | 737142 | 1 | 8 | 36 | 2.5 | 3.9 | **5.16** | **3.29** |
| AT5 | 675772 | 737352 | 1 | 8 | 36 | 3.3 | 4.7 | **3.86** | **2.71** |
| AT6 | 675995 | 737286 | 1 | 8 | 36 | 3.0 | 4.4 | **4.19** | **2.87** |
| AT7 | 676053 | 737240 | 1 | 8 | 36 | 4.0 | 5.4 | **3.22** | **2.38** |
| Sub_St1 | 676563 | 737812 | 1 | 8 | 10 | 0.7 | 2.1 | **68.43** | **22.15** |
| Sub_St2 | 676568 | 737836 | 1 | 8 | 10 | 0.7 | 2.1 | **70.53** | **22.36** |
| Sub_St3 | 676580 | 737854 | 1 | 8 | 10 | 0.6 | 2.0 | **80.43** | **23.27** |
| Sub_St4 | 676601 | 737841 | 1 | 8 | 10 | 0.6 | 2.0 | **83.36** | **23.51** |
| Sub_St5 | 676602 | 737835 | 1 | 8 | 10 | 0.7 | 2.1 | **65.49** | **21.83** |
| Sub_St6 | 676598 | 737822 | 1 | 8 | 10 | 0.9 | 2.3 | **48.77** | **19.59** |
| Sub_St7 | 676581 | 737798 | 1 | 8 | 10 | 0.5 | 1.9 | **91.69** | **24.13** |
| Sub_St8 | 676567 | 737783 | 1 | 8 | 10 | 0.6 | 2.0 | **73.95** | **22.70** |
| T08A | 674556 | 736322 | 1 | 8 | 10 | 0.3 | 1.7 | **143.27** | **26.65** |
| T09A | 675022 | 736831 | 1 | 8 | 10 | 3.1 | 4.6 | **14.74** | **9.94** |
| T09B | 675023 | 736835 | 1 | 8 | 10 | 2.1 | 3.6 | **21.63** | **12.66** |
| T09C | 675027 | 736846 | 1 | 8 | 10 | 2.8 | 4.3 | **16.14** | **10.56** |
| T09D | 675028 | 736828 | 1 | 8 | 10 | 3.3 | 4.8 | **13.85** | **9.53** |
| T09E | 675034 | 736826 | 1 | 8 | 10 | 3.2 | 4.7 | **14.33** | **9.75** |
| T09F | 675018 | 736836 | 1 | 8 | 10 | 2.9 | 4.4 | **15.75** | **10.40** |
| T09G | 675015 | 736837 | 1 | 8 | 10 | 1.8 | 3.3 | **25.19** | **13.81** |
| T09H | 675025 | 736824 | 1 | 8 | 10 | 3.2 | 4.7 | **14.19** | **9.69** |
| T09I | 675025 | 736819 | 1 | 8 | 10 | 1.9 | 3.4 | **24.78** | **13.69** |
| T10 | 676014 | 737267 | 1 | 8 | 10 | 1.5 | 3.0 | **30.77** | **15.33** |
| T10A | 676014 | 737267 | 1 | 8 | 10 | 3.0 | 4.5 | **15.08** | **10.10** |
| T10B | 676009 | 737267 | 1 | 8 | 10 | 4.2 | 5.7 | **10.92** | **8.04** |
| T10C | 676004 | 737270 | 1 | 8 | 10 | 2.5 | 4.0 | **18.34** | **11.46** |
| T10D | 676016 | 737260 | 1 | 8 | 10 | 4.1 | 5.6 | **11.13** | **8.16** |
| T10E | 676011 | 737254 | 1 | 8 | 10 | 2.4 | 3.9 | **19.10** | **11.76** |
| T10F | 676023 | 737271 | 1 | 8 | 10 | 3.1 | 4.6 | **15.03** | **10.08** |
| T10G | 676026 | 737272 | 1 | 8 | 10 | 4.0 | 5.5 | **15.70** | **11.42** |
| T10H | 676014 | 737272 | 1 | 8 | 10 | 2.9 | 4.4 | **21.65** | **14.27** |
| T10I | 676015 | 737273 | 1 | 8 | 10 | 2.7 | 4.2 | **23.70** | **15.13** |
| T11 | 676384 | 737016 | 1 | 8 | 10 | 1.9 | 3.4 | **33.40** | **18.58** |
| T11A | 676373 | 737673 | 1 | 8 | 10 | 2.4 | 3.9 | **26.72** | **16.31** |
| T11B | 676371 | 737019 | 1 | 8 | 10 | 4.4 | 5.9 | **14.44** | **10.73** |
| T11C | 676368 | 737029 | 1 | 8 | 10 | 4.4 | 5.9 | **14.27** | **10.64** |
| T11D | 676354 | 737021 | 1 | 8 | 10 | 3.0 | 4.5 | **21.29** | **14.11** |
| T11E | 676359 | 737019 | 1 | 8 | 10 | 3.2 | 4.7 | **19.62** | **13.36** |
| T11F | 676367 | 737014 | 1 | 8 | 10 | 3.8 | 5.3 | **16.70** | **11.94** |
| T11G | 676368 | 737007 | 1 | 8 | 10 | 2.9 | 4.4 | **21.65** | **14.27** |
| T11H | 676381 | 737016 | 1 | 8 | 10 | 3.4 | 4.9 | **18.75** | **12.95** |

# Calculated FoS of Natural Peat Slopes for Proposed Drehid Wind Farm Site - Undrained Analysis

| Turbine No./Waypoint | Easting | Northing | Slope | Undrained shear strength | Bulk unit weight of Peat | Peat Depth | Surcharge Equivalent Placed Fill Depth (m) | Factor of Safety for Load Condition | |
|---|---|---|---|---|---|---|---|---|---|
| | | | β (deg) | $c_u$ (kPa) | γ (kN/m$^3$) | (m) | Condition (2) | Condition (1) | Condition (2) |
| T12 | 676300 | 737672 | 1 | 8 | 10 | 0.2 | 2.7 | **299.03** | **23.17** |
| T12A | 676300 | 737672 | 1 | 8 | 10 | 0.6 | 3.1 | **104.66** | **20.26** |
| T12B | 676284 | 737657 | 1 | 8 | 10 | 0.8 | 3.3 | **81.55** | **19.20** |
| T12C | 676285 | 737665 | 1 | 8 | 10 | 0.9 | 3.4 | **69.77** | **18.47** |
| T12D | 676280 | 737652 | 1 | 8 | 10 | 0.6 | 3.1 | **98.12** | **20.00** |
| T12E | 676280 | 737650 | 1 | 8 | 10 | 0.8 | 3.3 | **83.73** | **19.32** |
| T12F | 676292 | 737662 | 1 | 8 | 10 | 1.0 | 3.5 | **62.80** | **17.94** |
| T12G | 676293 | 737664 | 1 | 8 | 10 | 0.9 | 3.4 | **73.88** | **18.75** |
| T12H | 676292 | 737655 | 1 | 8 | 10 | 1.1 | 3.6 | **59.81** | **17.69** |
| T12I | 676302 | 737652 | 1 | 8 | 10 | 0.5 | 3.0 | **116.29** | **20.66** |
| P01 | 676406 | 737432 | 2 | 8 | 10 | 0.9 | 2.3 | **25.49** | **9.97** |
| P02 | 676529 | 737481 | 2 | 8 | 10 | 1.5 | 2.9 | **15.29** | **7.91** |
| P03 | 676645 | 737517 | 2 | 8 | 10 | 1.4 | 2.8 | **16.38** | **8.19** |
| P04 | 676446 | 737342 | 2 | 8 | 10 | 2.3 | 3.7 | **9.97** | **6.20** |
| P05 | 676555 | 737378 | 3 | 8 | 10 | 1.6 | 3.0 | **9.57** | **5.10** |
| P06 | 676668 | 737419 | 3 | 8 | 10 | 1.2 | 2.6 | **12.76** | **5.89** |
| P07 | 676491 | 737248 | 3 | 8 | 10 | 2.0 | 3.4 | **7.65** | **4.50** |
| P08 | 676589 | 737277 | 2 | 8 | 10 | 1.6 | 3.0 | **14.34** | **7.65** |
| P09 | 676629 | 737338 | 2 | 8 | 10 | 1.1 | 2.5 | **20.85** | **9.17** |
| P10 | 676719 | 737324 | 2 | 8 | 10 | 0.9 | 2.3 | **25.49** | **9.97** |
| T5-1 | 673973 | 735903 | **NO PEAT ENCOUNTERED** | | | | | | |
| T5-2 | 673973 | 735913 | **NO PEAT ENCOUNTERED** | | | | | | |
| T5-3 | 673983 | 735904 | **NO PEAT ENCOUNTERED** | | | | | | |
| T5-4 | 673972 | 735892 | **NO PEAT ENCOUNTERED** | | | | | | |
| T5-5 | 673962 | 735903 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP139 | 673881 | 735800 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP138 | 674072 | 735948 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP137 | 674197 | 736019 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP136 | 674402 | 736116 | 2 | 8 | 10 | 0.8 | 2.2 | **28.67** | **10.43** |
| PP170 | 674320 | 735995 | 2 | 8 | 10 | 0.3 | 1.7 | **76.46** | **13.49** |
| PP147 | 674441 | 735958 | 2 | 8 | 10 | 0.7 | 2.1 | **32.77** | **10.92** |
| T4-1 | 674376 | 735902 | 2 | 8 | 10 | 0.3 | 1.7 | **76.46** | **13.49** |
| T4-2 | 674376 | 735912 | 2 | 8 | 10 | 0.5 | 1.9 | **45.87** | **12.07** |
| T4-3 | 674386 | 735901 | 2 | 8 | 10 | 0.5 | 1.9 | **45.87** | **12.07** |
| T4-4 | 674587 | 735891 | 2 | 8 | 10 | 0.3 | 1.7 | **76.46** | **13.49** |
| T4-5 | 674365 | 735902 | 2 | 8 | 10 | 0.5 | 1.9 | **45.87** | **12.07** |
| PP146 | 674290 | 735859 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP145 | 674210 | 735809 | 2 | 8 | 10 | 0.3 | 1.7 | **76.46** | **13.49** |
| PP144 | 674137 | 735761 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP143 | 674063 | 735713 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP142 | 673982 | 735661 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP141 | 673910 | 735617 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP140 | 673854 | 735702 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP100 | 676031 | 738192 | 2 | 8 | 10 | 0.4 | 1.8 | **57.34** | **12.74** |
| PP102 | 676095 | 738012 | 2 | 8 | 10 | 0.6 | 2.0 | **38.23** | **11.47** |
| PP105 | 676328 | 737837 | 2 | 8 | 10 | 0.9 | 2.3 | **25.49** | **9.97** |
| PP106 | 676348 | 737755 | 2 | 8 | 10 | 1.0 | 2.4 | **22.94** | **9.56** |
| PP107 | 676197 | 737559 | 2 | 8 | 10 | 3.0 | 4.4 | **7.65** | **5.21** |
| PP109 | 676063 | 737438 | 2 | 8 | 10 | 3.6 | 5.0 | **6.37** | **4.59** |
| PP110 | 676002 | 737382 | 2 | 8 | 10 | 3.6 | 5.0 | **6.37** | **4.59** |
| PP112 | 676101 | 737238 | 2 | 8 | 10 | 3.6 | 5.0 | **6.37** | **4.59** |
| PP114 | 676203 | 737149 | 2 | 8 | 10 | 2.6 | 4.0 | **8.82** | **5.73** |
| PP116 | 676314 | 737079 | 2 | 8 | 10 | 3.0 | 4.4 | **7.65** | **5.21** |
| T1-1 | 673900 | 734371 | **NO PEAT ENCOUNTERED** | | | | | | |
| T1-2 | 673900 | 734381 | **NO PEAT ENCOUNTERED** | | | | | | |
| T1-3 | 673911 | 734371 | 2 | 8 | 10 | 0.5 | 1.9 | **45.87** | **12.07** |
| T1-5 | 673901 | 734361 | 2 | 8 | 10 | 0.7 | 2.1 | **32.77** | **10.92** |
| PP169 | 673956 | 734181 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP168 | 674004 | 734075 | 2 | 8 | 10 | 0.3 | 1.7 | **76.46** | **13.49** |
| PP167 | 674083 | 734033 | 2 | 8 | 10 | 0.6 | 2.0 | **38.23** | **11.47** |
| PP166 | 674158 | 734009 | 2 | 8 | 10 | 0.3 | 1.7 | **76.46** | **13.49** |
| PP165 | 674252 | 734051 | 2 | 8 | 10 | 0.3 | 1.7 | **76.46** | **13.49** |
| T2-1 | 674448 | 734178 | **NO PEAT ENCOUNTERED** | | | | | | |
| T2-2 | 674447 | 734191 | **NO PEAT ENCOUNTERED** | | | | | | |
| T2-3 | 674459 | 734179 | **NO PEAT ENCOUNTERED** | | | | | | |
| T2-4 | 674452 | 734164 | 2 | 8 | 10 | 0.8 | 2.2 | **28.67** | **10.43** |
| T2-5 | 674432 | 734176 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP164 | 674343 | 734097 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP163 | 674533 | 734223 | 2 | 8 | 10 | 0.7 | 2.1 | **32.77** | **10.92** |
| PP162 | 674604 | 734300 | 2 | 8 | 10 | 0.4 | 1.8 | **57.34** | **12.74** |
| PP161 | 674640 | 734373 | 2 | 8 | 10 | 0.4 | 1.8 | **57.34** | **12.74** |
| PP160 | 674607 | 734473 | **NO PEAT ENCOUNTERED** | | | | | | |
| T3-1 | 674683 | 734692 | **NO PEAT ENCOUNTERED** | | | | | | |
| T3-2 | 674683 | 734702 | **NO PEAT ENCOUNTERED** | | | | | | |

# Calculated FoS of Natural Peat Slopes for Proposed Drehid Wind Farm Site - Undrained Analysis

| Turbine No./Waypoint | Easting | Northing | Slope | Undrained shear strength | Bulk unit weight of Peat | Peat Depth | Surcharge Equivalent Placed Fill Depth (m) | Factor of Safety for Load Condition | |
|---|---|---|---|---|---|---|---|---|---|
| | | | β (deg) | $c_u$ (kPa) | γ (kN/m$^3$) | (m) | Condition (2) | Condition (1) | Condition (2) |
| T3-3 | 674693 | 734693 | **NO PEAT ENCOUNTERED** | | | | | | |
| T3-4 | 674684 | 734683 | **NO PEAT ENCOUNTERED** | | | | | | |
| T3-5 | 674674 | 734691 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP159 | 674857 | 734755 | 2 | 8 | 10 | 1.5 | 2.9 | **15.29** | **7.91** |
| PP158 | 674821 | 734905 | 2 | 8 | 10 | 1.9 | 3.3 | **12.07** | **6.95** |
| PP157 | 674789 | 735055 | 2 | 8 | 10 | 1.0 | 2.4 | **22.94** | **9.56** |
| T6-1 | 674215 | 736397 | 2 | 8 | 10 | 0.9 | 2.3 | **25.49** | **9.97** |
| T6-2 | 674215 | 736406 | 2 | 8 | 10 | 0.4 | 1.8 | **57.34** | **12.74** |
| T6-3 | 674224 | 736397 | 2 | 8 | 10 | 0.3 | 1.7 | **76.46** | **13.49** |
| T6-4 | 674215 | 736388 | 2 | 8 | 10 | 0.3 | 1.7 | **76.46** | **13.49** |
| T6-5 | 674207 | 736396 | 2 | 8 | 10 | 0.3 | 1.7 | **76.46** | **13.49** |
| T7-1 | 674699 | 736283 | 2 | 8 | 10 | 1.8 | 3.2 | **12.74** | **7.17** |
| T7-2 | 674698 | 736293 | 2 | 8 | 10 | 1.5 | 2.9 | **15.29** | **7.91** |
| T7-3 | 674710 | 736284 | 2 | 8 | 10 | 1.1 | 2.5 | **20.85** | **9.17** |
| T7-4 | 674699 | 736273 | 2 | 8 | 10 | 1.5 | 2.9 | **15.29** | **7.91** |
| T7-5 | 674689 | 736283 | 2 | 8 | 10 | 1.2 | 2.6 | **19.11** | **8.82** |
| PP132 | 674571 | 736217 | 2 | 8 | 10 | 1.8 | 3.2 | **12.74** | **7.17** |
| PP148 | 674522 | 735997 | 2 | 8 | 10 | 1.2 | 2.6 | **19.11** | **8.82** |
| PP135 | 674402 | 736116 | **NO PEAT ENCOUNTERED** | | | | | | |
| PP01A | 676371 | 737861 | 2 | 8 | 10 | 0.5 | 1.9 | **50.97** | **12.40** |
| PP02A | 676446 | 737851 | 2 | 8 | 10 | 1.5 | 2.9 | **15.29** | **7.91** |
| PP03A | 676522 | 737825 | 2 | 8 | 10 | 1.0 | 2.4 | **22.94** | **9.56** |
| PP04A | 676388 | 737918 | 2 | 8 | 10 | 0.3 | 1.7 | **76.46** | **13.49** |
| PP05A | 676462 | 737892 | 2 | 8 | 10 | 0.8 | 2.2 | **28.67** | **10.43** |
| PP06A | 676539 | 737863 | 2 | 8 | 10 | 0.5 | 1.9 | **45.87** | **12.07** |
| PP07A | 676413 | 737964 | 2 | 8 | 10 | 0.3 | 1.7 | **76.46** | **13.49** |
| PP08A | 676483 | 737932 | 2 | 8 | 10 | 0.8 | 2.2 | **28.67** | **10.43** |
| PP09A | 676555 | 737900 | 2 | 8 | 10 | 0.6 | 2.0 | **38.23** | **11.47** |
| PP10A | 676601 | 737752 | 2 | 8 | 10 | 1.0 | 2.4 | **22.94** | **9.56** |
| PP11A | 676631 | 737877 | 2 | 8 | 10 | 1.0 | 2.4 | **22.94** | **9.56** |
| PP12A | 676629 | 737958 | 2 | 8 | 10 | 0.3 | 1.7 | **76.46** | **13.49** |
| PP13A | 676685 | 738128 | 2 | 8 | 10 | 0.3 | 1.7 | **76.46** | **13.49** |
| PP14A | 676630 | 737825 | 2 | 8 | 10 | 0.8 | 2.2 | **28.67** | **10.43** |
| | | | | | | | | | |
| | | | | | | | **Minimum =** | **3.22** | **2.38** |
| | | | | | | | **Maximum =** | **299.03** | **123.88** |
| | | | | | | | **Average =** | **37.71** | **12.35** |

**Notes:**

(1) Assuming a bulk unit weight for peat of 10kN/m$^3$

(2) Assuming a surcharge equivalent to bearms and clearfell height. Typically 1.4m for berms, 1.5m for clearfell areas around T8, T9, T10 and 2.5m for clearfell area around T11

(3) Slope inclination (β) based on site readings and site contour plans.

(4) A lower bound undrained shear strength, cu for the peat of 8kPa was selected for the assessment. It should be noted that a cu of 8kPa for the peat is considered a conservative value for the analysis and is not representative of all peat present across the site. In reality the peat has a significantly higher undrained strength.

(5) Peat depths based on probes carried out by FT.

(6) For load conditions see report text.

# Calculated FoS of Natural Peat Slopes for Proposed Drehid Wind Farm Site - Drained Analysis

| Turbine No./Waypoint | Slope | Design c' | Bulk unit weight of Peat | Unit weight of Water | Depth of In situ Peat | Friction Angle | Surcharge Equivalent Placed Fill | Equivalent Total Depth of Peat (m) | Factor of Safety for Load Condition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | α (deg) | c' (kPa) | γ (kN/m$^3$) | $\gamma_w$ (kN/m$^3$) | (m) | ø' (deg) | Condition (2) | Condition (2) | Condition (1) | Condition (2) |
| | | | | | | | | | 100% Water | 100% Water |
| PP200 | NO PEAT ENCOUNTERED | | | | | | | | | |
| PP201 | NO PEAT ENCOUNTERED | | | | | | | | | |
| PP202 | NO PEAT ENCOUNTERED | | | | | | | | | |
| PP203 | 1 | 3 | 10.0 | 10.0 | 5.4 | 25 | 1.4 | 6.8 | **29.90** | **29.24** |
| PP204 | 2 | 3 | 10.0 | 10.0 | 3.5 | 25 | 1.4 | 4.9 | **15.81** | **15.11** |
| PP205 | 1 | 3 | 10.0 | 10.0 | 0.8 | 25 | 1.4 | 2.2 | **48.21** | **34.53** |
| PP206 | NO PEAT ENCOUNTERED | | | | | | | | | |
| PP207 | 1 | 3 | 10.0 | 10.0 | 2.3 | 25 | 1.4 | 3.7 | **34.19** | **31.36** |
| PP208 | NO PEAT ENCOUNTERED | | | | | | | | | |
| PP209 | NO PEAT ENCOUNTERED | | | | | | | | | |
| PP210 | NO PEAT ENCOUNTERED | | | | | | | | | |
| PP130 | 2 | 3 | 10.0 | 10.0 | 0.9 | 25 | 1.4 | 2.3 | **22.91** | **17.09** |
| PP131 | 5 | 3 | 10.0 | 10.0 | 1.0 | 25 | 1.4 | 2.4 | **8.79** | **6.77** |
| PP117 | 3 | 3 | 10.0 | 10.0 | 2.4 | 25 | 1.4 | 3.8 | **11.29** | **10.41** |
| PP118 | 0 | 3 | 10.0 | 10.0 | 2.3 | 25 | 1.4 | 3.7 | **341.91** | **313.63** |
| PP119 | 2 | 3 | 10.0 | 10.0 | 2.0 | 25 | 1.4 | 3.4 | **17.65** | **15.88** |
| PP120 | 1 | 3 | 10.0 | 10.0 | 2.2 | 25 | 1.4 | 3.6 | **34.53** | **31.49** |
| PP127 | 1 | 3 | 10.0 | 10.0 | 0.5 | 25 | 1.4 | 1.9 | **61.10** | **35.76** |
| PP128 | 1 | 3 | 10.0 | 10.0 | 2.7 | 25 | 1.4 | 4.1 | **33.08** | **30.91** |
| PP129 | 1 | 3 | 10.0 | 10.0 | 0.8 | 25 | 1.4 | 2.2 | **48.21** | **34.53** |
| T08-1 | 1 | 3 | 10.0 | 10.0 | 4.6 | 25 | 1.5 | 6.1 | **30.45** | **29.53** |
| T08-2 | 1 | 3 | 10.0 | 10.0 | 5.4 | 25 | 1.5 | 6.9 | **29.90** | **29.21** |
| T08-5 | 1 | 3 | 10.0 | 10.0 | 5.4 | 25 | 1.5 | 6.9 | **29.90** | **29.21** |
| PP121 | 1 | 3 | 10.0 | 10.0 | 2.4 | 25 | 1.4 | 3.8 | **33.88** | **31.24** |
| PP122 | 1 | 3 | 10.0 | 10.0 | 2.7 | 25 | 1.4 | 4.1 | **33.08** | **30.91** |
| PP123 | 1 | 3 | 10.0 | 10.0 | 2.4 | 25 | 1.4 | 3.8 | **33.88** | **31.24** |
| PP124 | 3 | 3 | 10.0 | 10.0 | 3.1 | 25 | 1.4 | 4.5 | **10.75** | **10.17** |
| PP125 | 3 | 3 | 10.0 | 10.0 | 2.8 | 25 | 1.4 | 4.2 | **10.95** | **10.26** |
| PP126 | 1 | 3 | 10.0 | 10.0 | 4.7 | 25 | 1.4 | 6.1 | **30.37** | **29.53** |
| AT1 | 1 | 3 | 10.0 | 10.0 | 2.0 | 25 | 1.4 | 3.4 | **35.14** | **31.71** |
| AT2 | 1 | 3 | 10.0 | 10.0 | 3.0 | 25 | 1.4 | 4.4 | **32.54** | **30.67** |
| AT3 | 1 | 3 | 10.0 | 10.0 | 2.4 | 25 | 1.4 | 3.8 | **33.88** | **31.24** |
| AT4 | 1 | 3 | 10.0 | 10.0 | 2.5 | 25 | 1.4 | 3.9 | **33.68** | **31.16** |
| AT5 | 1 | 3 | 10.0 | 10.0 | 3.3 | 25 | 1.4 | 4.7 | **31.92** | **30.37** |
| AT6 | 1 | 3 | 10.0 | 10.0 | 3.0 | 25 | 1.4 | 4.4 | **32.37** | **30.59** |
| AT7 | 1 | 3 | 10.0 | 10.0 | 4.0 | 25 | 1.4 | 5.4 | **31.07** | **29.93** |
| Sub_St1 | 1 | 3 | 10.0 | 10.0 | 0.7 | 25 | 1.4 | 2.1 | **52.37** | **35.02** |
| Sub_St2 | 1 | 3 | 10.0 | 10.0 | 0.7 | 25 | 1.4 | 2.1 | **53.16** | **35.10** |
| Sub_St3 | 1 | 3 | 10.0 | 10.0 | 0.6 | 25 | 1.4 | 2.0 | **56.88** | **35.44** |
| Sub_St4 | 1 | 3 | 10.0 | 10.0 | 0.6 | 25 | 1.4 | 2.0 | **57.97** | **35.53** |
| Sub_St5 | 1 | 3 | 10.0 | 10.0 | 0.7 | 25 | 1.4 | 2.1 | **51.28** | **34.90** |
| Sub_St6 | 1 | 3 | 10.0 | 10.0 | 0.9 | 25 | 1.4 | 2.3 | **45.00** | **34.06** |
| Sub_St7 | 1 | 3 | 10.0 | 10.0 | 0.5 | 25 | 1.4 | 1.9 | **61.10** | **35.76** |
| Sub_St8 | 1 | 3 | 10.0 | 10.0 | 0.6 | 25 | 1.4 | 2.0 | **54.44** | **35.23** |
| T08A | 1 | 3 | 10.0 | 10.0 | 0.3 | 25 | 1.4 | 1.7 | **80.44** | **36.71** |
| T09A | 1 | 3 | 10.0 | 10.0 | 3.1 | 25 | 1.5 | 4.6 | **32.24** | **30.44** |
| T09B | 1 | 3 | 10.0 | 10.0 | 2.1 | 25 | 1.5 | 3.6 | **34.82** | **31.46** |
| T09C | 1 | 3 | 10.0 | 10.0 | 2.8 | 25 | 1.5 | 4.3 | **32.77** | **30.68** |
| T09D | 1 | 3 | 10.0 | 10.0 | 3.3 | 25 | 1.5 | 4.8 | **31.91** | **30.29** |
| T09E | 1 | 3 | 10.0 | 10.0 | 3.2 | 25 | 1.5 | 4.7 | **32.09** | **30.37** |
| T09F | 1 | 3 | 10.0 | 10.0 | 2.9 | 25 | 1.5 | 4.4 | **32.62** | **30.61** |
| T09G | 1 | 3 | 10.0 | 10.0 | 1.8 | 25 | 1.5 | 3.3 | **36.16** | **31.89** |
| T09H | 1 | 3 | 10.0 | 10.0 | 3.2 | 25 | 1.5 | 4.7 | **32.04** | **30.35** |
| T09I | 1 | 3 | 10.0 | 10.0 | 1.9 | 25 | 1.5 | 3.4 | **36.01** | **31.85** |
| T10 | 1 | 3 | 10.0 | 10.0 | 1.5 | 25 | 1.5 | 3.0 | **38.25** | **32.46** |
| T10A | 1 | 3 | 10.0 | 10.0 | 3.0 | 25 | 1.5 | 4.5 | **32.37** | **30.50** |
| T10B | 1 | 3 | 10.0 | 10.0 | 4.2 | 25 | 1.5 | 5.7 | **30.81** | **29.73** |
| T10C | 1 | 3 | 10.0 | 10.0 | 2.5 | 25 | 1.5 | 4.0 | **33.59** | **31.01** |
| T10D | 1 | 3 | 10.0 | 10.0 | 4.1 | 25 | 1.5 | 5.6 | **30.89** | **29.77** |
| T10E | 1 | 3 | 10.0 | 10.0 | 2.4 | 25 | 1.5 | 3.9 | **33.88** | **31.12** |
| T10F | 1 | 3 | 10.0 | 10.0 | 3.1 | 25 | 1.5 | 4.6 | **32.35** | **30.49** |
| T10G | 1 | 3 | 10.0 | 10.0 | 4.0 | 25 | 1.5 | 5.5 | **42.48** | **40.88** |
| T10H | 1 | 3 | 10.0 | 10.0 | 2.9 | 25 | 1.5 | 4.4 | **44.72** | **41.95** |
| T10I | 1 | 3 | 10.0 | 10.0 | 2.7 | 25 | 1.5 | 4.2 | **45.48** | **42.27** |
| T11 | 1 | 3 | 10.0 | 10.0 | 1.9 | 25 | 1.5 | 3.4 | **49.12** | **43.56** |
| T11A | 1 | 3 | 10.0 | 10.0 | 2.4 | 25 | 1.5 | 3.9 | **46.62** | **42.71** |
| T11B | 1 | 3 | 10.0 | 10.0 | 4.4 | 25 | 1.5 | 5.9 | **42.01** | **40.62** |
| T11C | 1 | 3 | 10.0 | 10.0 | 4.4 | 25 | 1.5 | 5.9 | **41.95** | **40.59** |
| T11D | 1 | 3 | 10.0 | 10.0 | 3.0 | 25 | 1.5 | 4.5 | **44.58** | **41.89** |
| T11E | 1 | 3 | 10.0 | 10.0 | 3.2 | 25 | 1.5 | 4.7 | **43.96** | **41.61** |
| T11F | 1 | 3 | 10.0 | 10.0 | 3.8 | 25 | 1.5 | 5.3 | **42.86** | **41.07** |
| T11G | 1 | 3 | 10.0 | 10.0 | 2.9 | 25 | 1.5 | 4.4 | **44.72** | **41.95** |
| T11H | 1 | 3 | 10.0 | 10.0 | 3.4 | 25 | 1.5 | 4.9 | **43.63** | **41.45** |
| T12 | 1 | 3 | 10.0 | 10.0 | 0.2 | 25 | 2.5 | 2.7 | **148.73** | **45.29** |
| T12A | 1 | 3 | 10.0 | 10.0 | 0.6 | 25 | 2.5 | 3.1 | **75.85** | **44.19** |
| T12B | 1 | 3 | 10.0 | 10.0 | 0.8 | 25 | 2.5 | 3.3 | **67.18** | **43.80** |
| T12C | 1 | 3 | 10.0 | 10.0 | 0.9 | 25 | 2.5 | 3.4 | **62.76** | **43.52** |
| T12D | 1 | 3 | 10.0 | 10.0 | 0.6 | 25 | 2.5 | 3.1 | **73.39** | **44.10** |
| T12E | 1 | 3 | 10.0 | 10.0 | 0.8 | 25 | 2.5 | 3.3 | **68.00** | **43.84** |
| T12F | 1 | 3 | 10.0 | 10.0 | 1.0 | 25 | 2.5 | 3.5 | **60.15** | **43.33** |
| T12G | 1 | 3 | 10.0 | 10.0 | 0.9 | 25 | 2.5 | 3.4 | **64.30** | **43.63** |
| T12H | 1 | 3 | 10.0 | 10.0 | 1.1 | 25 | 2.5 | 3.6 | **59.02** | **43.23** |
| T12I | 1 | 3 | 10.0 | 10.0 | 0.5 | 25 | 2.5 | 3.0 | **80.21** | **44.34** |
| P01 | 2 | 3 | 10.0 | 10.0 | 0.9 | 25 | 1.4 | 2.3 | **22.91** | **17.09** |
| P02 | 2 | 3 | 10.0 | 10.0 | 1.5 | 25 | 1.4 | 2.9 | **19.09** | **16.32** |
| P03 | 2 | 3 | 10.0 | 10.0 | 1.4 | 25 | 1.4 | 2.8 | **19.50** | **16.43** |
| P04 | 2 | 3 | 10.0 | 10.0 | 2.3 | 25 | 1.4 | 3.7 | **17.09** | **15.68** |
| P05 | 3 | 3 | 10.0 | 10.0 | 1.6 | 25 | 1.4 | 3.0 | **12.49** | **10.81** |
| P06 | 3 | 3 | 10.0 | 10.0 | 1.2 | 25 | 1.4 | 2.6 | **13.68** | **11.11** |
| P07 | 3 | 3 | 10.0 | 10.0 | 2.0 | 25 | 1.4 | 3.4 | **11.77** | **10.59** |

# Calculated FoS of Natural Peat Slopes for Proposed Drehid Wind Farm Site - Drained Analysis

| Turbine No./Waypoint | Slope | Design c' | Bulk unit weight of Peat | Unit weight of Water | Depth of In situ Peat | Friction Angle | Surcharge Equivalent Placed Fill | Equivalent Total Depth of Peat (m) | Factor of Safety for Load Condition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | α (deg) | c' (kPa) | γ (kN/m$^3$) | $\gamma_w$ (kN/m$^3$) | (m) | ø' (deg) | Condition (2) | Condition (2) | Condition (1) | Condition (2) |
| | | | | | | | | | 100% Water | 100% Water |
| P08 | 2 | 3 | 10.0 | 10.0 | 1.6 | 25 | 1.4 | 3.0 | **18.73** | **16.22** |
| P09 | 2 | 3 | 10.0 | 10.0 | 1.1 | 25 | 1.4 | 2.5 | **21.17** | **16.79** |
| P10 | 2 | 3 | 10.0 | 10.0 | 0.9 | 25 | 1.4 | 2.3 | **22.91** | **17.09** |
| T5-1 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| T5-2 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| T5-3 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| T5-4 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| T5-5 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| PP139 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| PP138 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| PP137 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| PP136 | 2 | 3 | 10.0 | 10.0 | 0.8 | 25 | 1.4 | 2.2 | **24.10** | **17.26** |
| PP170 | 2 | 3 | 10.0 | 10.0 | 0.3 | 25 | 1.4 | 1.7 | **42.02** | **18.41** |
| PP147 | 2 | 3 | 10.0 | 10.0 | 0.7 | 25 | 1.4 | 2.1 | **25.64** | **17.45** |
| T4-1 | 2 | 3 | 10.0 | 10.0 | 0.3 | 25 | 1.4 | 1.7 | **42.02** | **18.41** |
| T4-2 | 2 | 3 | 10.0 | 10.0 | 0.5 | 25 | 1.4 | 1.9 | **30.56** | **17.88** |
| T4-3 | 2 | 3 | 10.0 | 10.0 | 0.5 | 25 | 1.4 | 1.9 | **30.56** | **17.88** |
| T4-4 | 2 | 3 | 10.0 | 10.0 | 0.3 | 25 | 1.4 | 1.7 | **42.02** | **18.41** |
| T4-5 | 2 | 3 | 10.0 | 10.0 | 0.5 | 25 | 1.4 | 1.9 | **30.56** | **17.88** |
| PP146 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| PP145 | 2 | 3 | 10.0 | 10.0 | 0.3 | 25 | 1.4 | 1.7 | **42.02** | **18.41** |
| PP144 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| PP143 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| PP142 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| PP141 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| PP140 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| PP100 | 2 | 4 | 10.0 | 10.0 | 0.4 | 25 | 1.4 | 1.8 | **42.02** | **19.72** |
| PP102 | 2 | 4 | 10.0 | 10.0 | 0.6 | 25 | 1.4 | 2.0 | **32.47** | **19.09** |
| PP105 | 2 | 4 | 10.0 | 10.0 | 0.9 | 25 | 1.4 | 2.3 | **26.10** | **18.34** |
| PP106 | 2 | 4 | 10.0 | 10.0 | 1.0 | 25 | 1.4 | 2.4 | **24.82** | **18.13** |
| PP107 | 2 | 4 | 10.0 | 10.0 | 3.0 | 25 | 1.4 | 4.4 | **17.18** | **15.96** |
| PP109 | 2 | 4 | 10.0 | 10.0 | 3.6 | 25 | 1.4 | 5.0 | **16.54** | **15.65** |
| PP110 | 2 | 4 | 10.0 | 10.0 | 3.6 | 25 | 1.4 | 5.0 | **16.54** | **15.65** |
| PP112 | 2 | 4 | 10.0 | 10.0 | 3.6 | 25 | 1.4 | 5.0 | **16.54** | **15.65** |
| PP114 | 2 | 4 | 10.0 | 10.0 | 2.6 | 25 | 1.4 | 4.0 | **17.76** | **16.22** |
| PP116 | 2 | 4 | 10.0 | 10.0 | 3.0 | 25 | 1.4 | 4.4 | **17.18** | **15.96** |
| T1-1 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| T1-2 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| T1-3 | 2 | 4 | 10.0 | 10.0 | 0.5 | 25 | 1.4 | 1.9 | **36.29** | **19.39** |
| T1-5 | 2 | 4 | 10.0 | 10.0 | 0.7 | 25 | 1.4 | 2.1 | **29.74** | **18.81** |
| PP169 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| PP168 | 2 | 4 | 10.0 | 10.0 | 0.3 | 25 | 1.4 | 1.7 | **51.58** | **20.10** |
| PP167 | 2 | 4 | 10.0 | 10.0 | 0.6 | 25 | 1.4 | 2.0 | **32.47** | **19.09** |
| PP166 | 2 | 4 | 10.0 | 10.0 | 0.3 | 25 | 1.4 | 1.7 | **51.58** | **20.10** |
| PP165 | 2 | 4 | 10.0 | 10.0 | 0.3 | 25 | 1.4 | 1.7 | **51.58** | **20.10** |
| T2-1 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| T2-2 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| T2-3 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| T2-4 | 2 | 4 | 10.0 | 10.0 | 0.8 | 25 | 1.4 | 2.2 | **27.69** | **18.57** |
| T2-5 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| PP164 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| PP163 | 2 | 4 | 10.0 | 10.0 | 0.7 | 25 | 1.4 | 2.1 | **29.74** | **18.81** |
| PP162 | 2 | 4 | 10.0 | 10.0 | 0.4 | 25 | 1.4 | 1.8 | **42.02** | **19.72** |
| PP161 | 2 | 4 | 10.0 | 10.0 | 0.4 | 25 | 1.4 | 1.8 | **42.02** | **19.72** |
| PP160 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| T3-1 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| T3-2 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| T3-3 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| T3-4 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| T3-5 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| PP159 | 2 | 4 | 10.0 | 10.0 | 1.5 | 25 | 1.4 | 2.9 | **21.00** | **17.31** |
| PP158 | 2 | 4 | 10.0 | 10.0 | 1.9 | 25 | 1.4 | 3.3 | **19.39** | **16.83** |
| PP157 | 2 | 4 | 10.0 | 10.0 | 1.0 | 25 | 1.4 | 2.4 | **24.82** | **18.13** |
| T6-1 | 2 | 4 | 10.0 | 10.0 | 0.9 | 25 | 1.4 | 2.3 | **26.10** | **18.34** |
| T6-2 | 2 | 4 | 10.0 | 10.0 | 0.4 | 25 | 1.4 | 1.8 | **42.02** | **19.72** |
| T6-3 | 2 | 4 | 10.0 | 10.0 | 0.3 | 25 | 1.4 | 1.7 | **51.58** | **20.10** |
| T6-4 | 2 | 4 | 10.0 | 10.0 | 0.3 | 25 | 1.4 | 1.7 | **51.58** | **20.10** |
| T6-5 | 2 | 4 | 10.0 | 10.0 | 0.3 | 25 | 1.4 | 1.7 | **51.58** | **20.10** |
| T7-1 | 2 | 4 | 10.0 | 10.0 | 1.8 | 25 | 1.4 | 3.2 | **19.72** | **16.94** |
| T7-2 | 2 | 4 | 10.0 | 10.0 | 1.5 | 25 | 1.4 | 2.9 | **21.00** | **17.31** |
| T7-3 | 2 | 4 | 10.0 | 10.0 | 1.1 | 25 | 1.4 | 2.5 | **23.78** | **17.94** |
| T7-4 | 2 | 4 | 10.0 | 10.0 | 1.5 | 25 | 1.4 | 2.9 | **21.00** | **17.31** |
| T7-5 | 2 | 4 | 10.0 | 10.0 | 1.2 | 25 | 1.4 | 2.6 | **22.91** | **17.76** |
| PP132 | 2 | 4 | 10.0 | 10.0 | 1.8 | 25 | 1.4 | 3.2 | **19.72** | **16.94** |
| PP148 | 2 | 4 | 10.0 | 10.0 | 1.2 | 25 | 1.4 | 2.6 | **22.91** | **17.76** |
| PP135 | **NO PEAT ENCOUNTERED** | | | | | | | | | |
| PP01A | 2 | 4 | 10.0 | 10.0 | 0.5 | 25 | 1.4 | 1.9 | **38.84** | **19.55** |
| PP02A | 2 | 4 | 10.0 | 10.0 | 1.5 | 25 | 1.4 | 2.9 | **21.00** | **17.31** |
| PP03A | 2 | 4 | 10.0 | 10.0 | 1.0 | 25 | 1.4 | 2.4 | **24.82** | **18.13** |
| PP04A | 2 | 4 | 10.0 | 10.0 | 0.3 | 25 | 1.4 | 1.7 | **51.58** | **20.10** |
| PP05A | 2 | 4 | 10.0 | 10.0 | 0.8 | 25 | 1.4 | 2.2 | **27.69** | **18.57** |
| PP06A | 2 | 4 | 10.0 | 10.0 | 0.5 | 25 | 1.4 | 1.9 | **36.29** | **19.39** |
| PP07A | 2 | 4 | 10.0 | 10.0 | 0.3 | 25 | 1.4 | 1.7 | **51.58** | **20.10** |
| PP08A | 2 | 4 | 10.0 | 10.0 | 0.8 | 25 | 1.4 | 2.2 | **27.69** | **18.57** |
| PP09A | 2 | 4 | 10.0 | 10.0 | 0.6 | 25 | 1.4 | 2.0 | **32.47** | **19.09** |
| PP10A | 2 | 4 | 10.0 | 10.0 | 1.0 | 25 | 1.4 | 2.4 | **24.82** | **18.13** |
| PP11A | 2 | 4 | 10.0 | 10.0 | 1.0 | 25 | 1.4 | 2.4 | **24.82** | **18.13** |
| PP12A | 2 | 4 | 10.0 | 10.0 | 0.3 | 25 | 1.4 | 1.7 | **51.58** | **20.10** |
| PP13A | 2 | 4 | 10.0 | 10.0 | 0.3 | 25 | 1.4 | 1.7 | **51.58** | **20.10** |
| PP14A | 2 | 4 | 10.0 | 10.0 | 0.8 | 25 | 1.4 | 2.2 | **27.69** | **18.57** |
| | | | | | | | | | | |

# Calculated FoS of Natural Peat Slopes for Proposed Drehid Wind Farm Site - Drained Analysis

| Turbine No./Waypoint | Slope | Design c' | Bulk unit weight of Peat | Unit weight of Water | Depth of In situ Peat | Friction Angle | Surcharge Equivalent Placed Fill | Equivalent Total Depth of Peat (m) | Factor of Safety for Load Condition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | α (deg) | c' (kPa) | γ (kN/m$^3$) | $\gamma_w$ (kN/m$^3$) | (m) | ø' (deg) | Condition (2) | Condition (2) | Condition (1) | Condition (2) |
| | | | | | | | | | 100% Water | 100% Water |
| | | | | | | | | Minimum = | 8.79 | 6.77 |
| | | | | | | | | Maximum = | 341.91 | 313.63 |
| | | | | | | | | Average = | 38.62 | 27.90 |

**Notes:**

(1) Assuming a bulk unit weight of peat of 10kN/m$^3$

(2) Assuming a surcharge equivalent to bearms and clearfell height. Typically 1.4m for berms, 1.5m for clearfell areas around T8, T9, T10 and 2.5m for clearfell area around T11

(3) Slope inclination (β) based on site readings and contour survey plans of site.

(4) FoS is based on slope inclination and shear test results obtained from published data.

(5) Peat depths based on probes carried out by FT.

(6) For load conditions see Report text.

(7) Minimum acceptable factor of safety required of 1.3 for first-time failures based on BS: 6031:1981 Code of practice for Earthworks.

# Appendix C

## Preliminary Foundation Solutions


| Project Element | ITM Coordinates | | Peat Depth (m) | | | | Slope (o) | Measured HSV (kPa) | | Notes | SOLUTION | COMMENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Easting | Northing | Min | Max | Ave | No. tests | | P | R | | | |
| T1 | 673900 | 734371 | 0 | 0.7 | 0.3 | 5 | ≈2 | - | - | Agricultural field | **GRAVITY** | Compacted 6N |
| T2 | 674448 | 734178 | 0 | 0.8 | 0.2 | 5 | ≈2 | - | - | Agricultural field | **GRAVITY** | Compacted 6N |
| T3 | 674683 | 734692 | 0 | 0 | 0 | 5 | ≈2 | - | - | Agricultural field | **GRAVITY** | Compacted 6N |
| T4 | 674376 | 735902 | 0.3 | 0.5 | 0.4 | 5 | ≈2 | - | - | Agricultural field | **GRAVITY** | Compacted 6N |
| T5 | 673973 | 735903 | 0 | 0 | 0 | 5 | ≈2 | - | - | Agricultural field | **GRAVITY** | Compacted 6N |
| T6 | 674215 | 736397 | 0.3 | 0.9 | 0.4 | 5 | ≈0 | >65 | 38 | Forestry | **GRAVITY** | Possible mixed ground-compacted 6N |
| T7 | 674699 | 736283 | 1.1 | 1.8 | 1.4 | 5 | ≈0 | 51 | 44 | Forestry | **GRAVITY** | Thick compacted 6N |
| T8 | 675037 | 736824 | 1.8 | 5.4 | 3.3 | 12 | ≈0 | 10 | 7 | Forestry | **PILED** | Expected deep top of bedrock, so skin friction may be required. Related hardstand is also proposed to be piled |
| T9 | 676010 | 737264 | 1.5 | 4.2 | 3 | 11 | 0-1 | 8 | - | Cut over raised peat | **PILED** | Expected deep top of bedrock, so skin friction may be required. Related hardstand is also proposed to be piled |
| T10 | 676385 | 737017 | 1.8 | 4.4 | 3.3 | 8 | ≈1 | 14 | - | Cut over raised peat | **PILED** | Expected deep top of bedrock, so skin friction may be required. Related hardstand is also proposed to be piled |

| Project Element | ITM Coordinates | | Peat Depth (m) | | | | Slope (o) | Measured HSV (kPa) | | Notes | SOLUTION | COMMENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Easting | Northing | Min | Max | Ave | No. tests | | P | R | | | |
| T11 | 676290 | 737676 | 0.2 | 1.1 | 0.7 | 10 | ≈1 | 10 | - | Cut over raised peat | **GRAVITY** | Compacted 6N |
| SS P03 | 676525 | 737896 | 0.3 | 1.5 | 0.7 | 13 | ≈2 | 14 | 6 | Final proposal | **GRAVITY** | Compacted 6N |
| AR T1-T2 | 674140 | 734014 | 0 | 0.6 | 0.3 | 6 | ≈0 | 20 | - | Agricultural field | **FLOATED** | |
| AR T2-T3 | 674640 | 734419 | 0 | 0.7 | 0.3 | 4 | ≈0 | 22 | - | Agricultural field | **FLOATED** | |
| AR T4-T5 | 674137 | 735761 | 0 | 0.8 | 0.1 | 14 | ≈0 | 65 | 41 | Agricultural field | **FLOATED** | |
| AR T6-T7 | 674469 | 736151 | 0 | 2.3 | 1 | 6 | 0 | 53 | 23 | Forestry | **FLOATED** | |
| AR T8-T9 | 676002 | 737382 | 3.6 | 3.6 | 3.6 | 17 | 0-3 | 15 | 10 | Cut over raised peat | **FLOATED** | |
| AR T9-T10-T11 | 676382 | 737020 | 2.6 | 4.5 | 3.5 | 8 | ≈0 | 19 | 14 | Cut over raised peat | **FLOATED** | |
| AR PR-T04 | 673716 | 735535 | 0 | 0 | 0 | 2 | ≈0 | - | - | Agricultural field | **FLOATED** | |
| AR T7-T8 | 674929 | 736619 | 0.5 | 2.7 | 1.2 | 5 | ≈2 | 14 | 7 | Forestry | **FLOATED** | |
| AR PR-T11 | 676220 | 737902 | 0 | 1 | 0.4 | 7 | 7 | 20 | 18 | Forestry | **FLOATED** | |
| Compound 1 (South) | 673900 | 734111 | 0 | 0 | 0 | 1 | ≈0 | - | - | Agricultural field | **FLOATED** | |
| Compound 2 (North) | 676691 | 737831 | 1 | 1 | 1 | 1 | ≈2 | 38 | 20 | Agricultural field | **FLOATED** | |

SS = Substation; AR = Access Road; T = Turbine; PR = Public Road

These foundation solutions are preliminary and subjected to be confirmed as per actual ground conditions

# Appendix D

## Peat Stability Risk Registers


## Drehid Wind Farm - Peat Stability Risk Register (Rev 0)

| Location: | Turbine T1 |
|---|---|

| | |
|---|---|
| **Distance to Watercourse (m)** | **> 150** |
| **Min & Max Measured Peat Depth (m):** | **0.0 – 0.7** |
| **Control Required:** | **No** |

| | | Pre-Control Measure Implementation | | | | | | Post-Control Measure Implementation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Contributory/Qualitative Factors to Potential Peat Failure | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating | Control Required | Control measures to be implemented during construction | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating |
| 1 | FOS = 13.49 (u), 20.10 (d) | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 2 | Evidence of sub peat water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 3 | Evidence of surface water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 4 | Evidence of previous failures/slips | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 5 | Type of vegetation | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 6 | General slope characteristics upslope/downslope from infrastructure location | 1 | 1 | 1 | Negligible | No | See Below | 1 | 1 | 1 | Negligible |
| 7 | Evidence of very soft/soft clay at base of peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 8 | Evidence of mechanically cut peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 9 | Evidence of quaking or buoyant peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 10 | Evidence of bog pools | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 11 | Other | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |

| | Control Measures to be Implemented Prior to/and During Construction for **Turbine T1** |
|---|---|
| i | Maintain hydrology of area as far as possible; |
| ii | Use of experienced geotechnical staff for site investigation; |
| iii | Use of experienced contractors and trained operators to carry out the work; |
| iv | Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties. |

**Note**
(1) FOS abbreviations are: u: FOS for undrained analysis, d: FOS for drained analysis.
(2) Probability assessed as per Table A and B of Appendix E.
(3) Impact based on distance of infrastructure element to nearest watercourse.

## Drehid Wind Farm - Peat Stability Risk Register (Rev 0)

| Location: | Turbine T2 |
|---|---|

| | |
|---|---|
| **Distance to Watercourse (m)** | **> 150** |
| **Min & Max Measured Peat Depth (m):** | **0.0 – 0.8** |
| **Control Required:** | **No** |

| | | Pre-Control Measure Implementation | | | | | | Post-Control Measure Implementation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Contributory/Qualitative Factors to Potential Peat Failure | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating | Control Required | Control measures to be implemented during construction | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating |
| 1 | FOS = 12.74 (u), 19.72 (d) | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 2 | Evidence of sub peat water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 3 | Evidence of surface water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 4 | Evidence of previous failures/slips | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 5 | Type of vegetation | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 6 | General slope characteristics upslope/downslope from infrastructure location | 1 | 1 | 1 | Negligible | No | See Below | 1 | 1 | 1 | Negligible |
| 7 | Evidence of very soft/soft clay at base of peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 8 | Evidence of mechanically cut peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 9 | Evidence of quaking or buoyant peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 10 | Evidence of bog pools | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 11 | Other | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |

| | Control Measures to be Implemented Prior to/and During Construction for **Turbine T2** |
|---|---|
| i | Maintain hydrology of area as far as possible; |
| ii | Use of experienced geotechnical staff for site investigation; |
| iii | Use of experienced contractors and trained operators to carry out the work; |
| iv | Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties. |

**Note**
(1) FOS abbreviations are: u: FOS for undrained analysis, d: FOS for drained analysis.
(2) Probability assessed as per Table A and B of Appendix E.
(3) Impact based on distance of infrastructure element to nearest watercourse.

## Drehid Wind Farm - Peat Stability Risk Register (Rev 0)

| Location: | Turbine T4 |
|---|---|

| | |
|---|---|
| **Distance to Watercourse (m)** | **50 - 100** |
| **Min & Max Measured Peat Depth (m):** | **0.3 – 0.5** |
| **Control Required:** | **No** |

| | | Pre-Control Measure Implementation | | | | | | Post-Control Measure Implementation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Contributory/Qualitative Factors to Potential Peat Failure | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating | Control Required | Control measures to be implemented during construction | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating |
| 1 | FOS = 15.29 (u), 19.09 (d) | 1 | 3 | 3 | Negligible | No | | 1 | 3 | 3 | Negligible |
| 2 | Evidence of sub peat water flow | 1 | 3 | 3 | Negligible | No | | 1 | 3 | 3 | Negligible |
| 3 | Evidence of surface water flow | 1 | 3 | 3 | Negligible | No | | 1 | 3 | 3 | Negligible |
| 4 | Evidence of previous failures/slips | 0 | 3 | 0 | Not Applicable | No | | 0 | 3 | 0 | Not Applicable |
| 5 | Type of vegetation | 1 | 3 | 3 | Negligible | No | | 1 | 3 | 3 | Negligible |
| 6 | General slope characteristics upslope/downslope from infrastructure location | 1 | 3 | 3 | Negligible | No | See Below | 1 | 3 | 3 | Negligible |
| 7 | Evidence of very soft/soft clay at base of peat | 0 | 3 | 0 | Not Applicable | No | | 0 | 3 | 0 | Not Applicable |
| 8 | Evidence of mechanically cut peat | 0 | 3 | 0 | Not Applicable | No | | 0 | 3 | 0 | Not Applicable |
| 9 | Evidence of quaking or buoyant peat | 0 | 3 | 0 | Not Applicable | No | | 0 | 3 | 0 | Not Applicable |
| 10 | Evidence of bog pools | 0 | 3 | 0 | Not Applicable | No | | 0 | 3 | 0 | Not Applicable |
| 11 | Other | 0 | 3 | 0 | Not Applicable | No | | 0 | 3 | 0 | Not Applicable |

| | Control Measures to be Implemented Prior to/and During Construction for **Turbine T4** |
|---|---|
| i | Maintain hydrology of area as far as possible; |
| ii | Use of experienced geotechnical staff for site investigation; |
| iii | Use of experienced contractors and trained operators to carry out the work; |
| iv | Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties. |

**Note**
(1) FOS abbreviations are: u: FOS for undrained analysis, d: FOS for drained analysis.
(2) Probability assessed as per Table A and B of Appendix E.
(3) Impact based on distance of infrastructure element to nearest watercourse.

## Drehid Wind Farm - Peat Stability Risk Register (Rev 0)

| Location: | Turbine T6 |
|---|---|

| | |
|---|---|
| **Distance to Watercourse (m)** | **100 - 150** |
| **Min & Max Measured Peat Depth (m):** | **0.3 – 0.9** |
| **Control Required:** | **No** |

| | | Pre-Control Measure Implementation | | | | | | Post-Control Measure Implementation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Contributory/Qualitative Factors to Potential Peat Failure | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating | Control Required | Control measures to be implemented during construction | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating |
| 1 | FOS = 12.07 (u), 19.39 (d) | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 2 | Evidence of sub peat water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 3 | Evidence of surface water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 4 | Evidence of previous failures/slips | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 5 | Type of vegetation | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 6 | General slope characteristics upslope/downslope from infrastructure location | 1 | 1 | 1 | Negligible | No | See Below | 1 | 1 | 1 | Negligible |
| 7 | Evidence of very soft/soft clay at base of peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 8 | Evidence of mechanically cut peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 9 | Evidence of quaking or buoyant peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 10 | Evidence of bog pools | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 11 | Other | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |

| | Control Measures to be Implemented Prior to/and During Construction for **Turbine T6** |
|---|---|
| i | Maintain hydrology of area as far as possible; |
| ii | Use of experienced geotechnical staff for site investigation; |
| iii | Use of experienced contractors and trained operators to carry out the work; |
| iv | Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties. |

**Note**
(1) FOS abbreviations are: u: FOS for undrained analysis, d: FOS for drained analysis.
(2) Probability assessed as per Table A and B of Appendix E.
(3) Impact based on distance of infrastructure element to nearest watercourse.

## Drehid Wind Farm - Peat Stability Risk Register (Rev 0)

| Location: | Turbine T7 |
|---|---|

| | |
|---|---|
| **Distance to Watercourse (m)** | **> 150** |
| **Min & Max Measured Peat Depth (m):** | **1.1 – 1.8** |
| **Control Required:** | **No** |

| | | Pre-Control Measure Implementation | | | | | | Post-Control Measure Implementation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Contributory/Qualitative Factors to Potential Peat Failure | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating | Control Required | Control measures to be implemented during construction | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating |
| 1 | FOS = 8.19 (u), 17.45 (d) | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 2 | Evidence of sub peat water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 3 | Evidence of surface water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 4 | Evidence of previous failures/slips | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 5 | Type of vegetation | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 6 | General slope characteristics upslope/downslope from infrastructure location | 1 | 1 | 1 | Negligible | No | See Below | 1 | 1 | 1 | Negligible |
| 7 | Evidence of very soft/soft clay at base of peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 8 | Evidence of mechanically cut peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 9 | Evidence of quaking or buoyant peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 10 | Evidence of bog pools | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 11 | Other | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |

| | Control Measures to be Implemented Prior to/and During Construction for **Turbine T7** |
|---|---|
| i | Maintain hydrology of area as far as possible; |
| ii | Use of experienced geotechnical staff for site investigation; |
| iii | Use of experienced contractors and trained operators to carry out the work; |
| iv | Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties. |
| v | Follow recommendations for excavations in peat material |

**Note**
(1) FOS abbreviations are: u: FOS for undrained analysis, d: FOS for drained analysis.
(2) Probability assessed as per Table A and B of Appendix E.
(3) Impact based on distance of infrastructure element to nearest watercourse.

## Drehid Wind Farm - Peat Stability Risk Register (Rev 0)

| Location: | Turbine T8 |
|---|---|

| | |
|---|---|
| **Distance to Watercourse (m)** | **> 150** |
| **Min & Max Measured Peat Depth (m):** | **1.8 – 5.4** |
| **Control Required:** | **No** |

| | | Pre-Control Measure Implementation | | | | | | Post-Control Measure Implementation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Contributory/Qualitative Factors to Potential Peat Failure | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating | Control Required | Control measures to be implemented during construction | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating |
| 1 | FOS = 10.64 (u), 30.70 (d) | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 2 | Evidence of sub peat water flow | 3 | 1 | 3 | Negligible | No | | 3 | 1 | 3 | Negligible |
| 3 | Evidence of surface water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 4 | Evidence of previous failures/slips | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 5 | Type of vegetation | 3 | 1 | 3 | Negligible | No | | 2 | 1 | 2 | Negligible |
| 6 | General slope characteristics upslope/downslope from infrastructure location | 1 | 1 | 1 | Negligible | No | See Below | 1 | 1 | 1 | Negligible |
| 7 | Evidence of very soft/soft clay at base of peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 8 | Evidence of mechanically cut peat | 2 | 1 | 2 | Negligible | No | | 2 | 1 | 2 | Negligible |
| 9 | Evidence of quaking or buoyant peat | 3 | 1 | 3 | Negligible | No | | 3 | 1 | 3 | Negligible |
| 10 | Evidence of bog pools | 2 | 1 | 2 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 11 | Other | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |

| | Control Measures to be Implemented Prior to/and During Construction for **Turbine T8** |
|---|---|
| i | Maintain hydrology of area as far as possible; |
| ii | Use of experienced geotechnical staff for site investigation; |
| iii | Use of experienced contractors and trained operators to carry out the work; |
| iv | Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties. |
| v | Mind possible flooding at working area |

**Note**
(1) FOS abbreviations are: u: FOS for undrained analysis, d: FOS for drained analysis.
(2) Probability assessed as per Table A and B of Appendix E.
(3) Impact based on distance of infrastructure element to nearest watercourse.

## Drehid Wind Farm - Peat Stability Risk Register (Rev 0)

| Location: | Turbine T9 |
|---|---|

| | |
|---|---|
| **Distance to Watercourse (m)** | **> 150** |
| **Min & Max Measured Peat Depth (m):** | **1.5 – 4.2** |
| **Control Required:** | **No** |

| | | Pre-Control Measure Implementation | | | | | | Post-Control Measure Implementation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Contributory/Qualitative Factors to Potential Peat Failure | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating | Control Required | Control measures to be implemented during construction | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating |
| 1 | FOS = 8.82 (u), 30.02 (d) | 1 | 1 | 1 | Negligible | No | See Below | 1 | 1 | 1 | Negligible |
| 2 | Evidence of sub peat water flow | 4 | 1 | 4 | Negligible | No | | 4 | 1 | 4 | Negligible |
| 3 | Evidence of surface water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 4 | Evidence of previous failures/slips | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 5 | Type of vegetation | 3 | 1 | 3 | Negligible | No | | 2 | 1 | 2 | Negligible |
| 6 | General slope characteristics upslope/downslope from infrastructure location | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 7 | Evidence of very soft/soft clay at base of peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 8 | Evidence of mechanically cut peat | 2 | 1 | 2 | Negligible | No | | 2 | 1 | 2 | Negligible |
| 9 | Evidence of quaking or buoyant peat | 2 | 1 | 2 | Negligible | No | | 2 | 1 | 2 | Negligible |
| 10 | Evidence of bog pools | 2 | 1 | 2 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 11 | Other | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |

| | Control Measures to be Implemented Prior to/and During Construction for **Turbine T9** |
|---|---|
| i | Maintain hydrology of area as far as possible; |
| ii | Use of experienced geotechnical staff for site investigation; |
| iii | Use of experienced contractors and trained operators to carry out the work; |
| iv | Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties. |
| v | Mind possible flooding at working area |

**Note**
(1) FOS abbreviations are: u: FOS for undrained analysis, d: FOS for drained analysis.
(2) Probability assessed as per Table A and B of Appendix E.
(3) Impact based on distance of infrastructure element to nearest watercourse.

## Drehid Wind Farm - Peat Stability Risk Register (Rev 0)

| Location: | Turbine T10 |
|---|---|

| | |
|---|---|
| **Distance to Watercourse (m)** | **> 150** |
| **Min & Max Measured Peat Depth (m):** | **1.8 – 4.4** |
| **Control Required:** | **No** |

| | | Pre-Control Measure Implementation | | | | | | Post-Control Measure Implementation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Contributory/Qualitative Factors to Potential Peat Failure | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating | Control Required | Control measures to be implemented during construction | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating |
| 1 | FOS = 11.63 (u), 40.96 (d) | 1 | 1 | 1 | Negligible | No | See Below | 1 | 1 | 1 | Negligible |
| 2 | Evidence of sub peat water flow | 3 | 1 | 3 | Negligible | No | | 3 | 1 | 3 | Negligible |
| 3 | Evidence of surface water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 4 | Evidence of previous failures/slips | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 5 | Type of vegetation | 3 | 1 | 3 | Negligible | No | | 2 | 1 | 2 | Negligible |
| 6 | General slope characteristics upslope/downslope from infrastructure location | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 7 | Evidence of very soft/soft clay at base of peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 8 | Evidence of mechanically cut peat | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 9 | Evidence of quaking or buoyant peat | 3 | 1 | 3 | Negligible | No | | 3 | 1 | 3 | Negligible |
| 10 | Evidence of bog pools | 3 | 1 | 3 | Negligible | No | | 3 | 1 | 3 | Negligible |
| 11 | Other | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |

| | Control Measures to be Implemented Prior to/and During Construction for **Turbine T10** |
|---|---|
| i | Maintain hydrology of area as far as possible; |
| ii | Use of experienced geotechnical staff for site investigation; |
| iii | Use of experienced contractors and trained operators to carry out the work; |
| iv | Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties. |
| v | Mind possible flooding at working area |

**Note**
(1) FOS abbreviations are: u: FOS for undrained analysis, d: FOS for drained analysis.
(2) Probability assessed as per Table A and B of Appendix E.
(3) Impact based on distance of infrastructure element to nearest watercourse.

## Drehid Wind Farm - Peat Stability Risk Register (Rev 0)

| Location: | Turbine T11 |
|---|---|

| | |
|---|---|
| **Distance to Watercourse (m)** | **> 150** |
| **Min & Max Measured Peat Depth (m):** | **0.2 – 1.1** |
| **Control Required:** | **No** |

| | | Pre-Control Measure Implementation | | | | | | Post-Control Measure Implementation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Contributory/Qualitative Factors to Potential Peat Failure | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating | Control Required | Control measures to be implemented during construction | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating |
| 1 | FOS = 30.63 (u), 48.08 (d) | 1 | 1 | 1 | Negligible | No | See Below | 1 | 1 | 1 | Negligible |
| 2 | Evidence of sub peat water flow | 2 | 1 | 2 | Negligible | No | | 2 | 1 | 2 | Negligible |
| 3 | Evidence of surface water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 4 | Evidence of previous failures/slips | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 5 | Type of vegetation | 3 | 1 | 3 | Negligible | No | | 2 | 1 | 2 | Negligible |
| 6 | General slope characteristics upslope/downslope from infrastructure location | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 7 | Evidence of very soft/soft clay at base of peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 8 | Evidence of mechanically cut peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 9 | Evidence of quaking or buoyant peat | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 10 | Evidence of bog pools | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 11 | Other | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |

| | Control Measures to be Implemented Prior to/and During Construction for **Turbine T11** |
|---|---|
| i | Maintain hydrology of area as far as possible; |
| ii | Use of experienced geotechnical staff for site investigation; |
| iii | Use of experienced contractors and trained operators to carry out the work; |
| iv | Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties. |
| v | Mind possible flooding at working area |
| vi | Follow recommendations for excavations in peat material |

**Note**
(1) FOS abbreviations are: u: FOS for undrained analysis, d: FOS for drained analysis.
(2) Probability assessed as per Table A and B of Appendix E.
(3) Impact based on distance of infrastructure element to nearest watercourse.

## Drehid Wind Farm - Peat Stability Risk Register (Rev 0)

| Location: | Substation |
|---|---|

| | |
|---|---|
| **Distance to Watercourse (m)** | **< 50** |
| **Min & Max Measured Peat Depth (m):** | **0.3 – 1.5** |
| **Control Required:** | **No** |

| | | Pre-Control Measure Implementation | | | | | | Post-Control Measure Implementation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Contributory/Qualitative Factors to Potential Peat Failure | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating | Control Required | Control measures to be implemented during construction | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating |
| 1 | FOS = 9.17 (u), 17.94 (d) | 1 | 1 | 1 | Negligible | No | See Below | 1 | 1 | 1 | Negligible |
| 2 | Evidence of sub peat water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 3 | Evidence of surface water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 4 | Evidence of previous failures/slips | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 5 | Type of vegetation | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 6 | General slope characteristics upslope/downslope from infrastructure location | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 7 | Evidence of very soft/soft clay at base of peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 8 | Evidence of mechanically cut peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 9 | Evidence of quaking or buoyant peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 10 | Evidence of bog pools | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 11 | Other | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |

| | Control Measures to be Implemented Prior to/and During Construction for **Substation** |
|---|---|
| i | Maintain hydrology of area as far as possible; |
| ii | Use of experienced geotechnical staff for site investigation; |
| iii | Use of experienced contractors and trained operators to carry out the work; |
| iv | Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties. |
| v | Follow recommendations for excavations in peat material |

**Note**
(1) FOS abbreviations are: u: FOS for undrained analysis, d: FOS for drained analysis.
(2) Probability assessed as per Table A and B of Appendix E.
(3) Impact based on distance of infrastructure element to nearest watercourse.

## Drehid Wind Farm - Peat Stability Risk Register (Rev 0)

| Location: | Access Tracks: T1 to T2 |
|---|---|

| | |
|---|---|
| **Distance to Watercourse (m)** | **< 50** |
| **Min & Max Measured Peat Depth (m):** | **0.4 – 0.7** |
| **Control Required:** | **No** |

| | | Pre-Control Measure Implementation | | | | | | Post-Control Measure Implementation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Contributory/Qualitative Factors to Potential Peat Failure | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating | Control Required | Control measures to be implemented during construction | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating |
| 1 | FOS = 14.34 (u), 20.52 (d) | 1 | 1 | 1 | Negligible | No | See Below | 1 | 1 | 1 | Negligible |
| 2 | Evidence of sub peat water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 3 | Evidence of surface water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 4 | Evidence of previous failures/slips | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 5 | Type of vegetation | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 6 | General slope characteristics upslope/downslope from infrastructure location | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 7 | Evidence of very soft/soft clay at base of peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 8 | Evidence of mechanically cut peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 9 | Evidence of quaking or buoyant peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 10 | Evidence of bog pools | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 11 | Other | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |

| | Control Measures to be Implemented Prior to/and During Construction for **Access Tracks: T1 to T2** |
|---|---|
| i | Maintain hydrology of area as far as possible; |
| ii | Use of experienced geotechnical staff for site investigation; |
| iii | Use of experienced contractors and trained operators to carry out the work; |
| iv | Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties. |

**Note**
(1) FOS abbreviations are: u: FOS for undrained analysis, d: FOS for drained analysis.
(2) Probability assessed as per Table A and B of Appendix E.
(3) Impact based on distance of infrastructure element to nearest watercourse.

## Drehid Wind Farm - Peat Stability Risk Register (Rev 0)

| Location: | Access Tracks: T2 to T3 |
|---|---|

| | |
|---|---|
| **Distance to Watercourse (m)** | **< 50** |
| **Min & Max Measured Peat Depth (m):** | **0.4 – 0.7** |
| **Control Required:** | **No** |

| | | Pre-Control Measure Implementation | | | | | | Post-Control Measure Implementation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Contributory/Qualitative Factors to Potential Peat Failure | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating | Control Required | Control measures to be implemented during construction | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating |
| 1 | FOS = 13.49 (u), 20.10 (d) | 1 | 1 | 1 | Negligible | No | See Below | 1 | 1 | 1 | Negligible |
| 2 | Evidence of sub peat water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 3 | Evidence of surface water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 4 | Evidence of previous failures/slips | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 5 | Type of vegetation | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 6 | General slope characteristics upslope/downslope from infrastructure location | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 7 | Evidence of very soft/soft clay at base of peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 8 | Evidence of mechanically cut peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 9 | Evidence of quaking or buoyant peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 10 | Evidence of bog pools | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 11 | Other | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |

| | Control Measures to be Implemented Prior to/and During Construction for **Access Tracks: T2 to T3** |
|---|---|
| i | Maintain hydrology of area as far as possible; |
| ii | Use of experienced geotechnical staff for site investigation; |
| iii | Use of experienced contractors and trained operators to carry out the work; |
| iv | Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties. |

**Note**
(1) FOS abbreviations are: u: FOS for undrained analysis, d: FOS for drained analysis.
(2) Probability assessed as per Table A and B of Appendix E.
(3) Impact based on distance of infrastructure element to nearest watercourse.

## Drehid Wind Farm - Peat Stability Risk Register (Rev 0)

| Location: | Access Tracks: T5 to T6/T7 |
|---|---|

| | |
|---|---|
| **Distance to Watercourse (m)** | **< 50** |
| **Min & Max Measured Peat Depth (m):** | **0.0 – 2.3** |
| **Control Required:** | **No** |

| | | Pre-Control Measure Implementation | | | | | | Post-Control Measure Implementation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Contributory/Qualitative Factors to Potential Peat Failure | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating | Control Required | Control measures to be implemented during construction | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating |
| 1 | FOS = 8.19 (u), 17.45 (d) | 1 | 1 | 1 | Negligible | No | See Below | 1 | 1 | 1 | Negligible |
| 2 | Evidence of sub peat water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 3 | Evidence of surface water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 4 | Evidence of previous failures/slips | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 5 | Type of vegetation | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 6 | General slope characteristics upslope/downslope from infrastructure location | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 7 | Evidence of very soft/soft clay at base of peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 8 | Evidence of mechanically cut peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 9 | Evidence of quaking or buoyant peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 10 | Evidence of bog pools | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 11 | Other | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |

| | Control Measures to be Implemented Prior to/and During Construction for **Access Tracks: T5 to T6/T7** |
|---|---|
| i | Maintain hydrology of area as far as possible; |
| ii | Use of experienced geotechnical staff for site investigation; |
| iii | Use of experienced contractors and trained operators to carry out the work; |
| iv | Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties. |

**Note**
(1) FOS abbreviations are: u: FOS for undrained analysis, d: FOS for drained analysis.
(2) Probability assessed as per Table A and B of Appendix E.
(3) Impact based on distance of infrastructure element to nearest watercourse.

## Drehid Wind Farm - Peat Stability Risk Register (Rev 0)

| **Location:** | **Access Tracks: T7 to T10/T11** |
|---|---|

| | |
|---|---|
| **Distance to Watercourse (m)** | **> 150** |
| **Min & Max Measured Peat Depth (m):** | **0.5 – 4.5** |
| **Control Required:** | **No** |

| | | Pre-Control Measure Implementation | | | | | | Post-Control Measure Implementation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Contributory/Qualitative Factors to Potential Peat Failure | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating | Control Required | Control measures to be implemented during construction | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating |
| 1 | FOS = 2.57 (u), 7.06 (d) | 1 | 1 | 1 | Negligible | No | See Below | 1 | 1 | 1 | Negligible |
| 2 | Evidence of sub peat water flow | 3 | 1 | 3 | Negligible | No | | 3 | 1 | 3 | Negligible |
| 3 | Evidence of surface water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 4 | Evidence of previous failures/slips | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 5 | Type of vegetation | 3 | 1 | 3 | Negligible | No | | 2 | 1 | 2 | Negligible |
| 6 | General slope characteristics upslope/downslope from infrastructure location | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 7 | Evidence of very soft/soft clay at base of peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 8 | Evidence of mechanically cut peat | 3 | 1 | 3 | Negligible | No | | 3 | 1 | 3 | Negligible |
| 9 | Evidence of quaking or buoyant peat | 3 | 1 | 3 | Negligible | No | | 3 | 1 | 3 | Negligible |
| 10 | Evidence of bog pools | 3 | 1 | 3 | Negligible | No | | 2 | 1 | 2 | Negligible |
| 11 | Other | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |

| | Control Measures to be Implemented Prior to/and During Construction for **Access Tracks: T7 to T10/T11** |
|---|---|
| i | Maintain hydrology of area as far as possible; |
| ii | Use of experienced geotechnical staff for site investigation; |
| iii | Use of experienced contractors and trained operators to carry out the work; |
| iv | Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties. |

**Note**
(1) FOS abbreviations are: u: FOS for undrained analysis, d: FOS for drained analysis.
(2) Probability assessed as per Table A and B of Appendix E.
(3) Impact based on distance of infrastructure element to nearest watercourse.

## Drehid Wind Farm - Peat Stability Risk Register (Rev 0)

| Location: | Northern Access Track to Substation and T11 |
|---|---|

| | |
|---|---|
| **Distance to Watercourse (m)** | **< 50** |
| **Min & Max Measured Peat Depth (m):** | **0.0 – 1.0** |
| **Control Required:** | **No** |

| | | Pre-Control Measure Implementation | | | | | | Post-Control Measure Implementation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Contributory/Qualitative Factors to Potential Peat Failure | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating | Control Required | Control measures to be implemented during construction | Prob (Note 2) | Impact (Note 3) | Risk | Risk Rating |
| 1 | FOS = 11.47 (u), 19.09 (d) | 1 | 1 | 1 | Negligible | No | See Below | 1 | 1 | 1 | Negligible |
| 2 | Evidence of sub peat water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 3 | Evidence of surface water flow | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 4 | Evidence of previous failures/slips | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 5 | Type of vegetation | 2 | 1 | 2 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 6 | General slope characteristics upslope/downslope from infrastructure location | 1 | 1 | 1 | Negligible | No | | 1 | 1 | 1 | Negligible |
| 7 | Evidence of very soft/soft clay at base of peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 8 | Evidence of mechanically cut peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 9 | Evidence of quaking or buoyant peat | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 10 | Evidence of bog pools | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |
| 11 | Other | 0 | 1 | 0 | Not Applicable | No | | 0 | 1 | 0 | Not Applicable |

| | Control Measures to be Implemented Prior to/and During Construction for **Northern Access Track to Substation and T11** |
|---|---|
| i | Maintain hydrology of area as far as possible; |
| ii | Use of experienced geotechnical staff for site investigation; |
| iii | Use of experienced contractors and trained operators to carry out the work; |
| iv | Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties. |

**Note**
(1) FOS abbreviations are: u: FOS for undrained analysis, d: FOS for drained analysis.
(2) Probability assessed as per Table A and B of Appendix E.
(3) Impact based on distance of infrastructure element to nearest watercourse.