APPENDIX 8-1

Geotechnical & Peat Stability Report

FEHILY TIMONEY

DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

GEOTECHNICAL & PEAT STABILITY REPORT

BALLYDERMOT WIND FARM, CO. OFFALY & CO. KILDARE

Prepared for: **MKO Ltd**

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Abstract: Fehily Timoney and Company (FT) were engaged by McCarthy Keville O'Sullivan (MKO) to undertake a geotechnical assessment of the Project Site with respect to peat stability. As part of the geotechnical assessment of the Proposed Project, FT completed a walkover survey at the Site as well as a ground investigation comprising boreholes and trial pits. The findings of the geotechnical and peat stability assessment showed that the Project Site has an acceptable margin of safety and is suitable for the Proposed Project.

TABLE OF CONTENTS

1. NON-TECHNICAL SUMMARY 1

2. INTRODUCTION 1

2.1 Fehily Timoney and Company 1

2.2 Project Description 1

2.3 Peat Stability Assessment Methodology 2

2.4 Peat Failure Definition 5

2.5 Main Approaches to Assessing Peat Stability 5

2.6 Peat Stability Assessment – Deterministic Approach 6

2.7 Applicability of the Factor of Safety (Deterministic) Approach for Peat Slopes 6

2.8 Assessment of Intense Rainfall and Extreme Dry Events on the Peat Slope 7

3. DESK STUDY 8

3.1 Desk Study 8

3.2 Soils, Subsoil & Bedrock 8

3.3 Ground Conditions along the Proposed Grid Connection 9

3.4 Previous Failures 9

4. FINDINGS OF SITE RECONNAISSANCE 10

4.1 Site Reconnaissance 10

4.2 Findings of Site Reconnaissance 10

5. GROUND INVESTIGATION 12

5.1 Summary of Ground Conditions 12

5.2 Summary of Laboratory Tests 13

5.3 Summary of Geotechnical Parameters 13

6. PEAT DEPTHS, STRENGTH & SLOPE AT PROPOSED INFRASTRUCTURE LOCATIONS 15

6.1 Peat Depth 15

6.2 Peat Strength 15

6.3 Slope Angle 15

6.4 Summary of Findings 15

7. PEAT STABILITY ASSESSMENTS 20

7.1 Methodology for Peat Stability Assessment 20
7.2 Analysis to Determine Factor of Safety (Deterministic Approach) 22
7.3 Results of Analysis 24
7.3.1 Undrained Analysis for the Peat 24
7.3.2 Drained Analysis for the Peat 26
8. PEAT STABILITY RISK ASSESSMENT 29
8.1 Summary of Risk Assessment Results 29
9. INDICTATIVE FOUNDATION TYPE AND FOUNDATION DEPTH FOR TURBINES 33
9.1 Summary 33
10. FOUNDING DETAILS FOR OTHER INFRASTRUCTURE ELEMENTS 38
10.1 Access Roads 38
10.2 Crane Hardstands 38
10.3 Substation Foundations & Platforms 38
10.4 Temporary Construction Compound Platforms 39
10.5 Met Mast/Relay Foundations 39
11. SUMMARY AND RECOMMENDATIONS 40
11.1 Summary 40
11.2 Recommendations 41
12. REFERENCES 42

DRAWINGS

P2319-0600-0001 to 0004: Peat Depth
P2319-0600-0005 to 0008: Construction Buffer Zone Plan
P2319-0600-0009 to 0012: Ground Investigation Location Plan
P2319-0600-0013 to 0016: Factor of Safety Plan – Short Term Critical Condition (Undrained)

LIST OF APPENDICES

Appendix A: Photos from Site Walkover
Appendix B: Peat Stability Risk Registers
Appendix C: Calculated FoS for Peat Slopes
Appendix D: Methodology for Peat Stability Risk Assessment
Appendix E: Substation Ground Investigation (August 2020) – Trial Pit Logs, Photographs and Laboratory Test Results
Appendix F: Infrastructure Ground Investigation (August 2021) - IDL Factual Report

LIST OF FIGURES

Figure 2.1: Methodology for Peat Stability Assessment 4
Figure 2.2: Peat Slope Showing Balance of Forces to Maintain Stability 6
Figure 6.1: Undrained Shear Strength (c_u) Profile for Peat with Depth 19

LIST OF TABLES

Table 5.1: Laboratory Testing 13
Table 5-2: Summary of Geotechnical Parameters 13
Table 6.1: Peat Depth & Slope Angle at Proposed Infrastructure Locations 16
Table 7.1: List of Effective Cohesion and Friction Angle Values for Peat 21
Table 7.2: Factor of Safety Limits for Slopes 22
Table 7.3: Factor of Safety Results (Undrained Condition) 24
Table 7.4: Factor of Safety Results (Drained Conditions) 26
Table 8.1: Risk Rating Legend 29
Table 8.2: Summary of Peat Stability Risk Register 30
Table 9.1: Summary of Indicative Turbine Foundation Type and Founding Depths 33

1. NON-TECHNICAL SUMMARY

Fehily Timoney and Company (FT) was engaged by McCarthy Keville O'Sullivan (MKO) on behalf of Bord na Mona (BnM) (the Applicant) to undertake a geotechnical and peat stability assessment of the proposed Ballydermot Wind Farm (the 'Proposed Project'). In accordance with planning guidelines compiled by the Department of the Housing, Planning and Local Government (Draft Revised Wind Energy Development Guidelines, DoHPLG, 2019), where peat >0.5m in thickness is present on a proposed wind farm development, a peat stability assessment is required.

As detailed in Section 1.1.1 in Chapter 1, for the purposes of this EIAR, the various project components are described and assessed using the following references: 'Proposed Project', 'Proposed Enhancement Areas', 'Proposed Construction Haul Routes', 'Proposed Turbine Delivery Route', 'Project Site', 'Proposed Wind Farm', 'Proposed Turbines', 'Proposed Grid Connection', 'Proposed Onsite Substation' and 'Proposed Offsite Substation'.

A walkover including intrusive peat depth probing, desk study, stability analysis and risk assessment was carried out to assess the susceptibility of the Project Site to peat failure following the principles in Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (PLHRAG, 2nd Edition, Scottish Government, 2017).

The remainder of the Proposed Project infrastructure, i.e., the Proposed Grid Connection (underground electrical cabling route and Proposed Offsite Substation), and Proposed Turbine Delivery Route accommodation areas are not considered to be at risk from peat failure due to ground conditions, works proposed, and/or presence of existing infrastructure. The Proposed Grid Connection underground electrical cabling route is primarily located within the public road corridor, which is wide enough to accommodate the trench required without impacting on the stability of the road. The slopes in the area are flat (less than 2 degrees) and the sections of existing road actually constructed on peat are limited in extent. The Proposed Enhancement Areas relating to peatland restoration have been included within the stability risk assessment in Section 7 below; all other ecological and ornithological enhancement measures will not present a stability risk to the Proposed Wind Farm site due to the nature of the measures proposed, please refer to Appendix 6-4 Biodiversity Management Plan for all details on enhancement.

Therefore, there is not considered to be a significant peat stability risk associated with the Proposed Project infrastructure located outside of the part of the Allen Bog Group comprising part of the Project Site, hereafter referred to as the Proposed Wind Farm site (i.e., encompassing the Proposed Wind Farm and Proposed Onsite Substation).

The findings, which involved a stability analysis of 805 locations, shows that the Proposed Wind Farm site has an acceptable margin of safety and is suitable for the Proposed Project. Based on the findings, mitigation measures will be implemented for construction work in peat lands to ensure that all works adhere to an acceptable standard of safety.

The Proposed Wind Farm comprises 46 no. wind turbines and associated infrastructure. A detailed description of the Proposed Project is included in Chapter 4 of the EIAR.

The Proposed Wind Farm site, which is typically flat, consists predominantly of bare locally re-vegetated cut-away peat and intact peat. The Proposed Wind Farm and the Proposed Onsite Substation are located on BnM cutover peat bogs which have been extensively modified and drained as a result of historical industrial peat extraction.

The Proposed Wind Farm site is relatively flat-lying with drainage channels running typically east-west. Current land use within the Proposed Wind Farm comprises natural recolonisation of cutaway and degraded bog, a small area of active turbary and public road corridor.

BnM has considerable experience in the handling of peat in these circumstances, both during peat production operations and during wind farm construction projects. This experience has shown that the most environmentally sensitive and stable way of handling and moving of peat is its placement across a site and at locations as close as possible to the excavation areas.

A walkover including intrusive peat depth probing, a ground investigation including boreholes and trial pits, desk study, stability analysis and risk assessment was carried out to assess the susceptibility of the Proposed Wind Farm site to peat failure following the principles in Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (PLHRAG, 2nd Edition, Scottish Government, 2017).

Between March 2022 and July 2026, 1026 no. peat depth readings were taken within the Proposed Wind Farm site by FT, Hydro-Environmental Services (HES), and MKO. Peat depth recorded during the site walkovers and from the ground investigation ranged from 0.0 to 6.0m with an average peat depth of 1.6m. 40% of the probes recorded peat depths of less than 1.0m, with 70% of peat depth probes recorded peat depths of less than 2.0m and 90% of peat depth probes recorded peat depths of less than 3.0m. A number of localised readings recorded peat depths from 3.5 to 6.0m.

Slope inclinations at the main infrastructure locations range from 2 to 5 degrees. The flat topography/nature of the terrain on the Proposed Wind Farm site reflects the low risk of peat failure. Ground conditions comprised mainly of peat overlying lacustrine clay overlying fluvioglacial sands and gravel.

The purpose of the stability analysis was to determine the stability i.e. Factor of Safety (FoS), of the peat slopes. The FoS provides a direct measure of the degree of stability of a peat slope. A FoS of less than 1.0 indicates that a slope is unstable; a FoS of greater than 1.0 indicates a stable slope. An acceptable FoS for slopes is generally taken as a minimum of 1.3. The stability analysis, which analysed the Proposed Turbine locations, access roads and proposed Onsite Substation, resulted in FoS above the minimum acceptable value of 1.3 and hence the Proposed Wind Farm site has a satisfactory margin of safety.

The risk assessment uses the results of the stability analysis 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 of peat failure at a particular site. The results of the risk assessment are given in Appendix B. A construction buffer zone plan based on qualitative factors identified during the site walkover is included as Drawing P2319-0600-0005 to 0008.

The findings of the peat assessment (which combines the FoS and the risk assessment), which involved analysis of 805 no. locations, showed that the Proposed Wind Farm site has an acceptable margin of safety and that the Proposed Wind Farm site is suitable for wind farm development. Notwithstanding the above, the management of peat stability and appropriate construction practices will be inherent in the construction phase of the wind farm to ensure peat failures do not occur on site.

In summary, the Proposed Wind Farm site has an acceptable margin of safety and is considered to be at **low** risk of peat failure providing appropriate mitigation measures and construction controls are implemented, and is suitable for wind farm development.

2. INTRODUCTION

2.1 Fehily Timoney and Company

Fehily Timoney and Company (FT) is an Irish engineering, environmental science and planning consultancy with offices in Cork, Dublin and Carlow. The practice was established in 1990 and currently has c.110 members of staff, including engineers, scientists, planners and technical support staff. FT deliver projects in Ireland and internationally in our core competency areas of Waste Management, Environment and Energy, Civils Infrastructure, Planning and GIS and Data Management.

FT have been involved in over 100 wind farm developments in both Ireland and the UK at various stages of development i.e. preliminary feasibility, planning, design, construction and operational stage and have established themselves as one of the leading engineering consultancies in peat stability assessment, geohazard mapping in peat land areas, investigation of peat failures and site assessment of peat.

This Report was written by Ian Higgins (FT Technical Director, PGeo, MSc in Geotechnical Engineering) and Emily Archer (FT Senior Geologist, PGeo, BSc Geology, MSc Applied Environmental Geology). Ian is a Principal Geotechnical Engineer with Fehily Timoney and has 25 years' experience in geotechnical engineering. Emily is a Senior Geologist with Fehily Timoney and has seven years' experience in geotechnical engineering.

2.2 Project Description

FT was engaged in February 2021 by MKO on behalf of BnM to undertake a geotechnical & peat stability assessment of the Proposed Wind Farm Site. As detailed in Section 1.1.1 in Chapter 1, for the purposes of this EIAR, the various project components are described and assessed using the following references: 'Proposed Project', 'Proposed Enhancement Areas', 'Proposed Construction Haul Routes', 'Proposed Turbine Delivery Route', 'Project Site', 'Proposed Wind Farm', 'Proposed Turbines', 'Proposed Grid Connection', 'Proposed Onsite Substation', and 'Proposed Offsite Substation'.

The Proposed Project is located approximately 2.2km south south-east of Edenderry, on the border between Co. Offaly and Co. Kildare.

The Proposed Wind Farm site represents the area encompassing the Proposed Wind Farm, Proposed Enhancement Areas, and the Proposed Onsite Substation; this area spans a large suite of bogs, comprising of a total of 14 no, individual bog basins, which form part of the Allen Bog Group. The Proposed Wind Farm site is located between the towns of Rathangan and Allenwood, Co. Kildare and Edenderry, Co. Offaly. The Proposed Wind Farm and the Proposed Onsite Substation are located on BnM cutover peat bogs, which, have been extensively modified and drained as a result of historical industrial peat extraction.

Current land use within the Proposed Wind Farm site comprises natural recolonisation of cutaway and degraded bog, a small area of active turbary and public road corridor. Current land use on and along the Proposed Grid Connection comprises degraded raised bog, land principally used for agriculture, and public road corridor. Land use associated with the Proposed Enhancement Areas includes natural recolonisation of cutaway and degraded bog and forestry. Land-use in the wider landscape of the Project Site comprises of BnM landholdings, forestry, agricultural land, cutover and cutaway peatland, peatland rehabilitation, one-off rural housing, small village settlements, and existing energy infrastructure, including power plants, solar farms, and wind energy developments.

The Proposed Project will comprise 46 no. wind turbines, 19 no. turbines will have a blade tip height of 200 metres (m) above the top of the foundation and 27 no. turbines will have a blade tip height of 220 metres (m) above the top of the foundation, the Proposed Onsite Substation, and Proposed Offsite Substation, and associated works, including a total of 13.1km of underground electrical grid cabling and 0.12km of OHL (comprising 0.06km of OHL loop-in from the Proposed Offsite Substation to the existing Maynooth-Dunstown 220kV OHL) to connect to the national grid, internal access roads and hardstand areas, temporary construction compounds, ecological and ornithological enhancement, amenity track and all ancillary works and apparatus. The full description of the Proposed Project is detailed in Chapter 4 of the EIAR.

2.3 Peat Stability Assessment Methodology

FT undertook this assessment for the Proposed Project infrastructure within the Allen Bog Group, i.e., the Proposed Wind Farm and Proposed Onsite Substation (hereafter referred to collectively as the Proposed Wind Farm site), following the principles in Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (PLHRAG, 2nd edition, Scottish Government, 2017). The remainder of the Proposed Project infrastructure, i.e., the Proposed Grid Connection (underground electrical cabling route and Proposed Offsite Substation), and Proposed Turbine Delivery Route accommodation areas are not considered to be at risk from peat failure due to the ground conditions, the works proposed and/or the presence of existing infrastructure. The Proposed Grid Connection underground electrical cable route is primarily located within the public road corridor, which is wide enough to accommodate the trench required without impacting on the stability of the road. The slopes in the area are flat (less than 2 degrees) and the sections of existing road actually constructed on peat are limited in extent. The Proposed Enhancement Areas relating to peatland restoration have been included within the stability risk assessment in Section 7 below; all other ecological and ornithological enhancement measures will not present a stability risk to the Proposed Wind Farm site due to the nature of the measures proposed, please refer to Appendix 6-4 Biodiversity Management Plan for all details on enhancement.

Therefore, there is not considered to be a significant peat stability risk associated with the Proposed Project infrastructure located outside of the part of the Allen Bog Group comprising the Proposed Wind Farm site.

The PLHRAG (2nd Edition, Scottish Government, 2017) 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 aforementioned 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 upland 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 peat present on the Proposed Wind Farm site is an area of raised bog which has been historically used for large-scale peat extraction. The Proposed Wind Farm site is flat in nature, and the areas where peat has been extracted have been drained to locally lower the water level within the peat. This has led to an increase in the strength of the in-situ peat when compared to undrained areas. Given the flat topography and the higher strength of the peat, the site conditions at the Proposed Wind Farm site are not considered to be similar to Shass Mountain or Meenbog, nor is it considered likely that a similar type of failure could occur at the Proposed Wind Farm site.

It is important that the existing site drainage is maintained during both the construction phase and the operational phase of the Proposed Wind Farm to avoid a similar failure to that on Shass Mountain, which occurred following heavy rainfall; this is referenced in the Risk Assessments for the Proposed Turbines/access roads. However, the topography of the Proposed Wind Farm site is also different to that at Shass Mountain and does not contain any areas where a large catchment area is focussed into a localised area of deep peat.

It is also noted that there have been numerous wind farms successfully constructed on historically worked raised bog sites over the past 15 years without any issues relating to peat failure, such as Derrinlough Wind Farm, Cloncreen Wind Farm and Mount Lucas Wind farm.

A constraints study was initially undertaken by the Environmental, Hydrogeological and Ecological members of the design team to determine the developable area within the Proposed Wind Farm site, prior to the site reconnaissance by engineering geologists/geotechnical engineers from FT. The extent and depth of ground investigation and peat stability analysis by FT have been undertaken in accordance with guidance within Eurocode 7 and PLHRAG (2nd Edition, Scottish Government, 2017) to investigate the ability of the Proposed Wind Farm site to receive the Proposed Project infrastructure and to assess the peat slopes that have the potential to impact on the Proposed Wind Farm site, as applicable. Sufficient peat depth data has been recorded during the site walkovers to enable the characterisation of the peat depth across the Proposed Wind Farm site, with additional detail at infrastructure locations. The peat stability assessment is undertaken to identify peat slopes at risk from the Proposed Project, and to identify peat slopes that may pose a risk to the Proposed Project infrastructure located within the Allen Bog Group.

As noted above, the Proposed Grid Connection underground electrical cable route has not been considered as part of the stability assessment due to its location primarily within the public road corridor, which is wide enough to accommodate the trench required without impacting on the stability of the road and the flat slopes which characterise the areas identified to be mapped for peat.

The geotechnical and peat stability assessment for the Proposed Wind Farm site included the following activities:

(1) Desk study. Desk study involving the review of publicly available soils and geology maps, records of historical peat failures, aerial photography.

(2) Site reconnaissance including shear strength and peat depth measurements undertaken following initial constraints study (by design team) to determine the proposed construction envelope within the Proposed Wind Farm site, i.e., the area within the overall site where development is possible following multidisciplinary review and assessment of constraints (refer to Chapter 4 of the EIAR).

(3) Review of ground investigation carried out at the Proposed Wind Farm site by Irish Drilling Ltd (IDL).

(4) Peat stability assessment of the peat slopes using a deterministic and qualitative approach.

(5) Peat contour depth plan – compiled based on the peat depth probes carried out across the Proposed Wind Farm site by FT, MKO and HES between 2022 and 2026.

(6) Factor of safety plan – compiled for the short-term critical condition (undrained) for 805 no. FoS points analysed along the proposed infrastructure envelope.

(7) Construction buffer zone plan – identifies areas with an elevated or higher construction risk where mitigation/control measures will need to be implemented during construction to minimise the potential risks and ensure they are kept within an acceptable range.

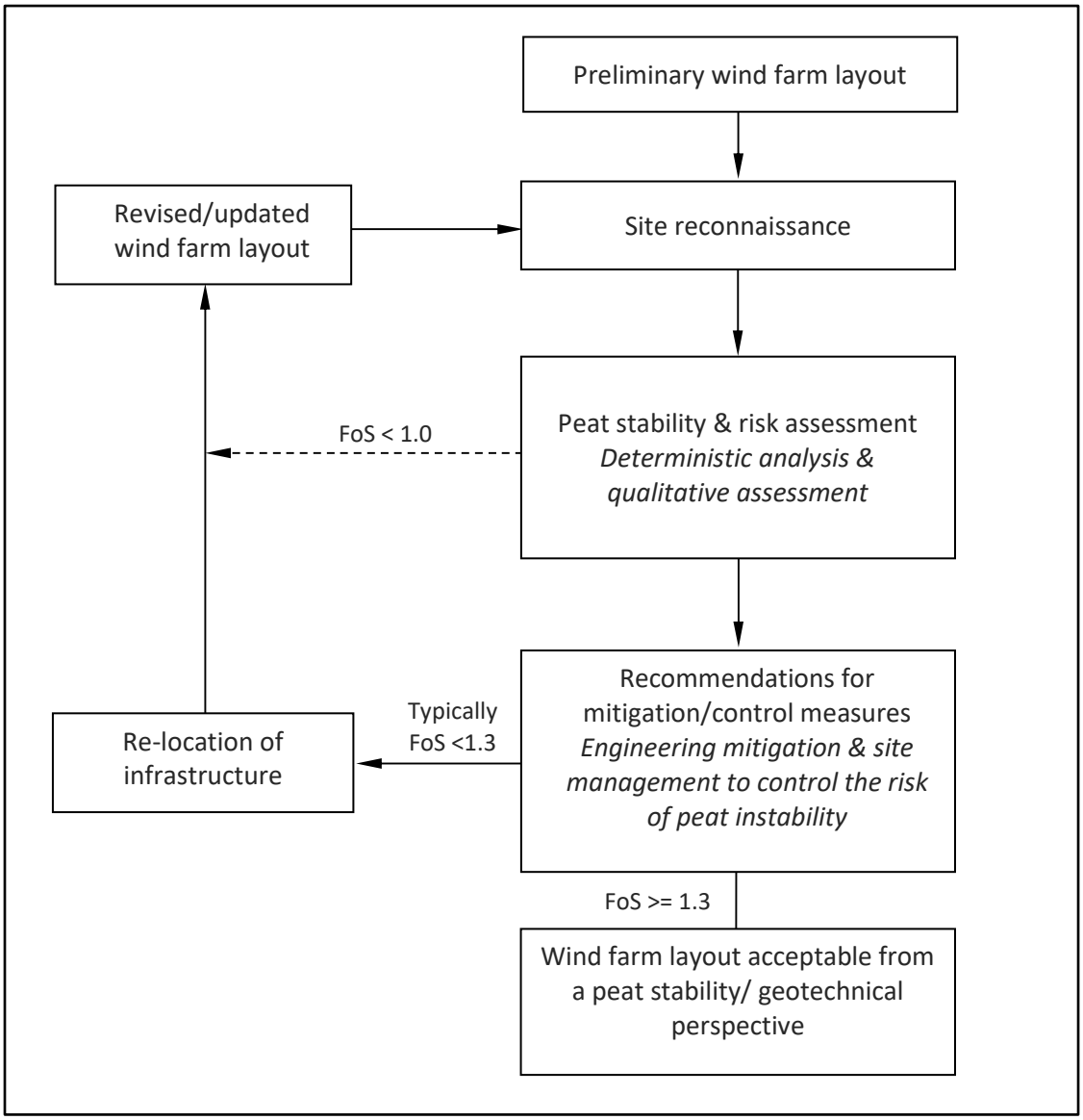
(8) A peat stability risk register was compiled to assess the potential design/construction risks at the infrastructure locations and determine adequate mitigation/control measures for each location to minimise the potential risks and ensure they are kept within an acceptable range, where necessary.

(9) Preliminary assessment of foundation type for turbines.

(10) Commentary of founding details for other infrastructure elements such as access roads, crane hardstands, onsite substation, and temporary construction compound platforms and met mast foundation.

A flow diagram showing the general methodology for the peat stability assessment is shown in Figure 2.1. The methodology illustrates the optimisation of the wind farm layout based on the findings from the site reconnaissance and stability analysis and subsequent feedback.

Figure 2.1: Methodology for Peat Stability Assessment



*An 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 the Proposed Wind farm site. This must take account of the consented project details and any conditions imposed by that consent. This must include a confirmatory 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.

2.4 Peat Failure Definition

Peat failure in this report refers to a significant mass movement of a body of peat that would have an adverse impact on a proposed wind farm development or the surrounding environment. Peat failure excludes localised movement of peat that would occur below an access road, creep movement or erosion type events.

The potential for peat failure at the Proposed Wind Farm site is examined with respect to construction of the Proposed Wind Farm and Proposed Onsite Substation and all associated activity.

2.5 Main Approaches to Assessing Peat Stability

The main approaches for assessing peat stability for wind farm developments include the following:

(1) Geomorphological

(2) Qualitative (judgement)

(3) Index/Probabilistic (probability)

(4) Deterministic (factor of safety)

Approaches (1) to (3) listed above are considered subjective and do not provide a definitive indication of stability; in addition, a high level of judgement/experience is required which makes it difficult to relate the findings to real conditions. FT apply a more objective approach, the deterministic approach (as discussed in Section 2.6).

As part of FT's deterministic approach, a qualitative risk assessment is also carried out taking into account qualitative factors, which cannot necessarily be quantified, such as the presence of mechanically cut peat, quaking peat, bog pools, sub peat water flow, slope characteristics and numerous other factors. The qualitative factors used in the risk assessment are compiled based on FT's experience of assessments and construction in peat land sites and peat failures throughout Ireland and the UK. FT have been involved with in excess of 100 wind farm developments across Ireland and the UK at various stages of development, from preliminary feasibility stage through planning and from scheme development at tender design and detailed design stage, through to the construction and operational stages. This approach follows the guidelines for geotechnical risk management as given in Clayton (2001), as referenced in the best practice for Peat Landslide Hazard and Risk Assessment Guide (PLHRAG, 2nd Edition, Scottish Government, 2017) and takes into account the approach of MacCulloch (2005).

The risk assessment uses the results of the 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 of instability on a peat land site.

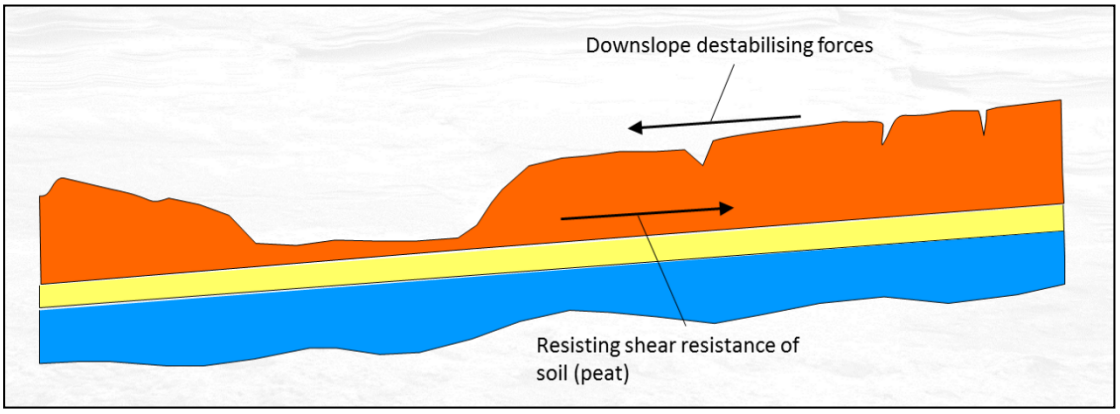
2.6 Peat Stability Assessment – Deterministic Approach

The peat stability assessment is carried out across a wide area of peatland to determine the stability of peat slopes and to identify areas of peatland that are suitable for development; this allows the layout of infrastructure on a particular wind farm site to be optimised. The assessment provides a numerical value (factor of safety) of the stability of individual parcels of peatland. The findings of the assessment discriminate between areas of stable and unstable peat, and areas of marginal stability where restrictions may apply. This allows for the identification of the most suitable locations for turbines, access roads and infrastructure.

A deterministic assessment requires geotechnical information and site characteristics which are obtained from desk study and site walkover, e.g. properties of peat/soil/rock, slope geometry, depth of peat, underlying strata, groundwater, etc. An adverse combination of the factors listed above could potentially result in instability. Using the information above, a factor of safety is calculated for the stability of individual parcels of peatland on a site (as discussed in Section 7).

The factor of safety is a measure of the stability of a particular slope. For any slope, the degree of stability depends on the balance of forces between the weight of the soil/peat working downslope (destabilising force) and the inherent strength of the peat/soil (shear resistance) to resist the downslope weight, see Figure 2.2.

Figure 2.2: Peat Slope Showing Balance of Forces to Maintain Stability



The factor of safety provides a direct measure of the degree of stability of a slope and is the ratio of the shear resistance over the downslope destabilising force. Provided the available shear resistance is greater than the downslope destabilising force then the factor of safety will be greater than 1.0 and the slope will remain stable. If the factor of safety is less than 1.0 the slope is unstable and liable to fail. The acceptable range for factor of safety is typically from 1.3 to 1.4 (BS6031, 1981).

2.7 Applicability of the Factor of Safety (Deterministic) Approach for Peat Slopes

The factor of safety approach is a standard engineering approach in assessing slopes which is applied to many engineering materials, such as peat, soil, rock, etc.

The factor of safety approach is included in the PLHRAG (2nd Edition, Scottish Government, 2017); see Section 5.3.1 of the guide. This guide provides best practice methods to identify, mitigate and manage peat slide hazards and associated risks in respect of consent applications for electricity generation projects.

Furthermore, the best practice guide (PLHRAG (2nd Edition, Scottish Government, 2017)) notes that the results from the factor of safety approach 'has provided the most informative results' with respect to analysing peat stability (see Section 5.3.1 of the guide).

The factor of safety approach in this report includes undrained (short-term stability) and drained (long-term stability) analyses. The undrained condition is the critical condition for the development. The purpose of the drained analysis is to identify the relative susceptibility of rainfall-induced failures at a site.

Notwithstanding the above, the stability analysis used by FT in this report also includes qualitative factors to determine the potential for peat stability i.e. the analysis used does not solely rely on the factor of safety approach.

The deterministic analysis is considered an acceptable engineering design approach. This concurs with the best practice guide referenced above.

2.8 Assessment of Intense Rainfall and Extreme Dry Events on the Peat Slope

The deterministic approach carried out by FT examines intense rainfall and extreme dry events. The deterministic approach includes an undrained (short-term stability) and drained (long-term stability) analysis to assess the factor of safety for the peat slopes against a peat failure.

The drained loading condition applies in the long-term. This condition examines the effect of the change in groundwater level as a result of rainfall on the existing stability of the natural peat slopes. For the drained analysis the level of the water table above the failure surface is required to calculate the factor of safety for the peat slope.

In order to represent varying water levels within the peat slopes, a sensitivity analysis is carried out which assesses varying water level in the peat slopes i.e. water levels ranging from 0 to 100% of the peat depth is conducted, where 0% equates to the peat being completely dry and 100% equates to the peat being fully saturated.

By carrying out such a sensitivity analysis with varying water level in the peat slopes, the effects of intense rainfall and extreme dry events are considered and analysed. The results of which are presented in Section 7 of this report.

3. DESK STUDY

3.1 Desk Study

The main relevant sources of interest with respect to the Proposed Wind Farm site include:

- Geological plans and Geological Survey of Ireland (GSI) database
- Ordnance survey plans
- Literature review of peat failures

The GSI online dataset viewer (GSI, 2026) and geological plans (GSI, 1999) for the Proposed Wind Farm site were used to verify the soil and bedrock conditions.

The Ordnance Survey plans were reviewed to determine if any notable features or areas of particular interest (from a geotechnical point of view) are present on the Proposed Wind Farm site .

The desk study also includes a review of both published literature and GSI online dataset viewer (GSI, 2026) on peat failures/landslides in the vicinity of the Proposed Wind Farm site . There are no limitations associated with the desk study information.

3.2 Soils, Subsoil & Bedrock

A review of the GSI online database and published documents from the GSI was carried out.

The GSI subsoils maps indicates that the Proposed Wind Farm site is underlain by a combination of predominantly cut over raised peat with small pockets of till derived from limestones, gravels derived from limestones, alluvium and an area with Eskers comprised of gravels of basic reaction.

In relation to bedrock, the Proposed Wind Farm site and surrounding area is predominantly underlain by the Lucan Formation, a dark limestone and shale. The south-eastern portion of the Proposed Wind Farm site is underlain by three other geological formations. These are; Waulsortian Limestones which comprises a massive, unbedded lime-mudstone, the Ballyadams Formation which comprises medium to dark-grey thick bedded to massive crinoidal calcarenite wackestones and packstones and the Allenwood Formation which comprises pale-grey massive shelf limestones.

There is a quarry recorded approximately 6km southeast of the Proposed Wind farm site (Roadstone Allen), with three sand and gravel pits located approximately 2km south of the Proposed Wind farm site (Drinnanstown).

There are two no. fault-lines indicated within the bedrock of the Proposed Wind Farm site, one trending northwest-southeast through the centre of the Proposed Wind Farm site and the other trending north-south along the eastern side of the Proposed Wind Farm site.

No karst features were identified on the survey area. The nearest karst feature was recorded 2.2km to the west of the Proposed Wind farm site and is described as a spring. This feature is associated with the boundary between the Lucan Formation and the Edenderry Oolite Member to the west. The Edenderry Oolite Member is not mapped within the Proposed Wind Farm site and the karst risk is considered to be low on the Proposed Wind Farm site.

No geological heritage sites are noted within 5km of the Proposed Project.

3.3 Ground Conditions along the Proposed Grid Connection

The Proposed Project will connect to the grid via:

- An underground grid cable (13.1km in length) running from the Proposed Onsite Substation to the Proposed Offsite Substation along degraded raised bog, land principally used for agriculture, and public road corridor . Horizontal directional drilling is proposed at 1 no. location to pass beneath the Grand Canal 0.4km west of the Shee bridge.

The GSI mapping indicates that the Proposed Grid Connection is underlain by a combination of cut over raised peat and glacial till derived from limestones. The Proposed Offsite Substation is underlain by glacial till derived from limestone and alluvium.

3.4 Previous Failures

There are no recorded peat failures within the Proposed Wind Farm site(GSI, 2026). The nearest recorded failure is located at the Grand Canal embankment, approximately 3km west of the Proposed Wind Farm site . This failure described as a flow slide failure. It occurred in 1989 and there have been no other recorded failures since.

The landslide susceptibility of the Proposed Wind Farm site was classified by the GSI (2026) as low susceptibility, which is expected given the flat terrain present.

The presence, or otherwise, of relict peat failures or clustering of relict failures within an area is an indicator that particular site conditions exist that pre-dispose a site to failure or not as the case may be. Hence based on the historical data reviewed and the terrain and ground conditions present on site it can be concluded that site conditions in the area of the Proposed Wind Farm site have a limited potential of peat failure.

4. FINDINGS OF SITE RECONNAISSANCE

4.1 Site Reconnaissance

As part of the assessment of potential peat failure at the Proposed Wind Farm site, FT carried out a site reconnaissance in conjunction with the desk study review described in Section 3. This comprised walkover inspections of the Proposed Wind Farm site with recording of salient geomorphological features with respect to the Proposed Wind Farm site which included peat depth and preliminary assessment of peat strength. General photographs of the Proposed Wind Farm site are included as Appendix A to this report. The information gathered from these site visits provide sufficient information for a site-wide assessment of the extent, depth and strength of peat present at the Proposed Wind Farm site.

The following salient geomorphological features were considered:

- Active, incipient or relict instability (where present) within the peat deposits
- Presence of shallow valley or drainage line
- Wet areas
- Any change in vegetation
- Peat depth
- Slope inclination and break in slope (concave/convex)

The survey covered the proposed locations for the turbine bases and associated infrastructure.

The method adopted for carrying out the site reconnaissance relied on experienced practitioners carrying out a visual assessment of the Proposed Wind Farm site supplemented with measurement of slope inclinations.

4.2 Findings of Site Reconnaissance

The site reconnaissance comprised a walkover inspection undertaken by experienced geotechnical engineers from FT (Emily Archer (FT Senior Geologist, PGeo), Aaron Clarke (FT Principal Geologist, PGeo), Alan Whelan (FT Senior Project Engineer), Gary Lawlor (FT Senior Project Engineer)) on several different days from February to June 2022, and an additional site visit in June 2023. Site visits have also been undertaken by MKO and HES from 2020 to 2026; please see all statement of authorities for relevant personnel in Section 1.9 of Chapter 1. Weather conditions for the site visits ranged from dry to wet.

The findings from the site walkover have been used to optimise the layout of the infrastructure on site.

The main findings from the site walkovers are as follows:

(1) The Proposed Wind Farm site is typically covered in a layer of peat and relatively flat. Peat depths vary across the Proposed Wind Farm site depending mainly on topography. Generally deeper peat was encountered in the flatter areas of the Proposed Wind Farm site with thinner peat on the few areas of higher ground. Bare cutover and cutaway peat and re-vegetation of bare peat is present across the Proposed Wind Farm site (see Appendix A).

(2) A total of 1,026 no. peat depth probes were carried out on site. Peat depths recorded from peat probing across the Proposed Wind Farm site ranged from 0.0 to 5.8m with an average depth of 1.6m

(Drawings P2319-0600-0001 to 0004). Approximately 90 percent of peat depth probes recorded peat depths of less than 3.0m. A number of localised readings were recorded where peat depths were 3.5 to 6.0m.

(3) The peat depths recorded at the Proposed Turbine locations varied from 0.1 to 3.5m with an average depth of 1.2m.

(4) With respect to the new proposed access roads, peat depths are typically less than 3.5m with localised depths of up to 4.0m recorded.

(5) The access roads for the Proposed Wind Farm and Proposed Onsite Substation comprise of existing access roads and the construction of new proposed access roads. The construction of new proposed access roads will be carried out using either a floating or an excavate & replace construction technique which involves the removal and replacement of peat or soft ground where encountered.

(6) Slope angles at the Proposed Turbine locations ranged from 2 to 5 degrees. These slope angle readings were obtained using a combination of readings taken during the site reconnaissance by FT using handheld equipment, such as the Silva Clino Master which has an accuracy of +/- 0.25 degrees and from contour survey plans for the Proposed Wind Farm site.

(7) The slope angle quoted typically reflects the slope within the footprint of each infrastructure location. The flat topography/nature of the terrain on site highlights the low risk of peat failure.

(8) Localised areas of ponded water were recorded. This is not unexpected given the ground conditions and the flat terrain present across the Proposed Wind Farm site.

(9) No evidence of past failures or any significant signs of peat instability were noted during the site walkovers.

(10) A summary of the site walkover findings are as follows:

(a) The Proposed Wind Farm site is typically covered in a layer of peat with typically flat terrain and open peatland. Peat depths recorded across the Proposed Wind Farm site ranged from 0.0 to 6.0m with an average depth of 1.6m.

(b) A construction buffer zone plan has been produced for the Proposed Wind Farm site (Drawing P2319-0600-0005 to 0008). This shows areas on the Proposed Wind Farm site where no development is advised and areas with an elevated or higher construction risk. The above identified buffer areas are based on qualitative factors identified during the walkover survey e.g. relatively deep peat, quaking peat, mechanically cut peat, recent peat landslide, etc.

(c) The results of the peat depth probing, shear strength testing of the peat and qualitative factors identified on site have been used in the stability and risk assessments, see Sections 6, 7 and 8 of this report for details.

(d) Based on the findings from the walkover survey, the Proposed Wind Farm site is considered to have a **low** risk of peat failure.

5. GROUND INVESTIGATION

There were 5 no. rounds of intrusive SI carried out on the Project Site, as follows:

- The first round of SI consisting of 9 no. trial pits, was undertaken on the 25th of May 2021 by Fehily Timoney & Company Ltd. (FT) and Tobar Archaeological Services Ltd. (Tobar).
- The second round of SI, consisting of 53 no. trial pits and 1 no. rotary core borehole, commenced on the 8th of November 2021 and was completed on 7th of December 2021. Works were carried out by IDL under the supervision of FT and Tobar.
- The third round of SI, consisting of 2 no. rotary-core boreholes, commenced on 21st of June 2022 and was completed on 23rd of June 2022. Works were carried out by IDL under the supervision of FT.
- The fourth round of SI, consisting of 6 no. rotary-core boreholes, was completed by IDL over the time period 9th of September 2022 to 16th of September 2022 under the supervision FT.
- The fifth and final round of SI was carried out between 30th November 2022 and 1st December 2022 and comprised 3 no. rotary-core boreholes. Works were carried out by IDL under the supervision of FT. Please see Section 1.8.2 of Chapter 1 for detailed biographies of all involved persons in the SI.

The laboratory testing included the following:

- Classification testing for overburden material
- Minimum and maximum density values for overburden material
- Determination of dry density/moisture content relationship

The trial pits logs, photographs and associated laboratory testing are included within Appendix E and F of this report.

The purpose of the ground investigation was to assess the ground conditions at the main infrastructure locations and potential borrow pit locations across the Proposed Wind Farm site . A ground investigation location plan is included as Drawings P2319-0600-0009 to 0012 in this report.

5.1 Summary of Ground Conditions

The ground conditions can be typically categorised into the following deposits:

Peat – Typically described as light brown to dark brown amorphous to fibrous peat. Peat thicknesses ranged from 0.2m to 4m from trial pits.

Lacustrine Clay – Light grey to brown, soft to stiff slightly gravelly Silt/Clay with some cobbles and boulders. The thickness of the layer is variable across the Proposed Wind Farm site.

Fluvioglacial Sand and Gravel – Typically described as grey silty sandy Gravel with fine to coarse Sand with cobbles and some boulders. The thickness of the layer is variable across the Proposed Wind Farm site.

Limestone Bedrock – Strong massive dark blackish grey fine grained calp limestone. The upper 2m of the bedrock is described as weathered.

Groundwater was recorded in twenty - three of the trial pits and varied between 0.6 and 4m bgl.

5.2 Summary of Laboratory Tests

Following completion of intrusive site investigations by FT and IDL laboratory testing was scheduled by FT and undertaken by IDL. Soil testing was carried out in accordance with BS1377 (1990) - *Methods of Test for Soils for Civil Engineering Purposes* in IDL's Materials Laboratory, accredited in accordance with the Irish National Accreditation Board (INAB).

The samples of the overburden material were analysed for a range of parameters which included Particle Size Distribution (PSD), Moisture Content and Atterberg Limits.

The results are summarised in Table 5.1. Atterberg limit tests carried out on the samples classify the material as Clay of low to high plasticity, or non-plastic (Silt). No elevated sulphate levels were detected in the samples tested.

Table 5.1: Laboratory Testing

Type	N	Min	Max	Remarks
Natural Moisture Content (%)	31	6.6	665	Typical % lower from gravel dominated soil and higher for silt dominated soil.
Atterberg Limits	24	0	27	Low plasticity Clay and intermediate-to-high plasticity Silt.
Particle Size Distribution	28	-	-	% passing 63 µm ranged from 4 to 72%
Point Load	18			
Soil Organic Content (%)	3	2.5	17	
Sulphate Total (mg/kg)	4	382	2680	
Water Soluble Sulphate as SO_4 (g/L)	4	0.0073	0.455	
pH	4	6.4	8.76	

5.3 Summary of Geotechnical Parameters

Table 5-2 contains characteristic geotechnical parameters for the main material types likely to be encountered on the Proposed Wind Farm site. Where direct measurement of parameters has not been carried out, established correlations with measured properties have been used to derive values. Characteristic values are defined as a cautious estimate of the value affecting the occurrence of limit state based on clause 2.4.5.2 from Eurocode 7.

Table 5-2: Summary of Geotechnical Parameters

Material Type/Strata	Unit Weight	Geotechnical Parameters		
		Undrained Parameters	Drained Parameters	
	γ (kN/m^3)	c_u (kPa)	ϕ' (°)	c' (kPa)
Peat	11	8 [3]	25	4
Lacustrine Soil	18	20	26	0

Fluvioglacial – Sand & Gravel	20	-	32	0

Notes

Note (1) The above parameters are indicative only and have been derived based on experience and from a review of the ground investigation carried out.

Note (2) Where direct measurement of parameters has not been carried out, established correlations with measured properties have been used to derive values.

Note (3) A lower bound undrained shear strength, c_u for the peat of 8kPa was selected. The lowest recorded value at the Proposed Wind Farm site was 18kPa hence a value of 8kPa is a conservative value.

6. PEAT DEPTHS, STRENGTH & SLOPE AT PROPOSED INFRASTRUCTURE LOCATIONS

As part of the site walkover, peat depth, in-situ peat strength and slope angles were recorded at various locations across the Proposed Wind Farm site.

6.1 Peat Depth

Peat depth probes were carried out at Proposed Turbine locations and along access roads and other main infrastructure elements to determine the peat depth . At Proposed Turbine locations a total of 5 no. probes were carried out at the centre point and around the Proposed Turbine, and an average peat depth was calculated.

6.2 Peat Strength

The strength testing was carried out in-situ using a Geonor H-60 Hand-Field Vane Tester. From FT's experience hand vanes give indicative results for in-situ strength of peat and would be considered best practice for the field assessment of peat strength. Strength testing was carried out at selected locations across the Proposed Wind Farm site to provide representative coverage of indicative peat strengths. The results of the vane testing with depth are presented in Figure 6.1.

6.3 Slope Angle

The slope angles at each of the main infrastructure locations were obtained using a combination of readings taken during the site reconnaissance by FT using handheld equipment, such as the Silva Clino Master and from contour survey plans for Proposed Wind Farm site.

The slope angle quoted typically reflects the slope within the footprint of each infrastructure location. It should be noted that slope angles derived from contour survey plans would be considered approximate, as such surveys are dependent on the density of survey data and do not always reflect local variations in ground topography. Slope angles recorded during the site reconnaissance by FT using handheld equipment would generally be deemed more accurate and representative of local topography.

6.4 Summary of Findings

Based on the peat depths recorded across the Proposed Wind Farm site by FT and the trial pits excavated by IDL, the peat varied in depth from 0.0 to 6.0m with an average depth of 1.6m. All peat depth probes carried out have been utilised to produce a peat depth contour plan for the Proposed Wind Farm site (Drawings P2319-0600-0001 to 0004).

A summary of the peat depths at the proposed infrastructure locations is given in Table 6.1. The data presented in Table 6.1 is used in the peat stability assessment.

Table 6.1: Peat Depth & Slope Angle at Proposed Infrastructure Locations

Turbine	Easting	Northing	Peat Depth Range (m) (1)	Average Peat Depth (m)	Slope Angle (°) (2)
T01	669577	723417	1 – 1.4	1.1	3
T02	667966	722318	2.3 – 4.0	2.8	2
T03	668652	722904	0.6 -0.9	0.7	2
T04	667122	722389	2.4 – 3.6	2.7	3
T05	666811	722918	0.4 – 0.6	0.5	4
T06	667272	723632	0.2 – 1.0	0.5	3
T07	666843	724155	0.1 – 0.15	0.1	2
T08	666062	723362	2.4 – 3.2	2.7	3
T09	665993	724419	1.4 – 3.5	2.2	3
T10	665722	725145	1.5 – 2.6	2.2	2
T11	665245	723070	0.8 – 1.3	0.9	5
T12	665675	722587	2.2 – 4.0	3.1	1
T13	664725	722393	1.8 – 2.4	2.1	1
T14	665129	721837	0.4 – 1.9	1.0	5
T15	664797	723510	0.7 – 1.5	1.2	2
T16	664366	723995	0.5 – 2.4	0.9	2
T17	664368	724900	0.8 – 2.7	1.8	3
T18	665151	724290	1.9 – 3.8	2.6	3
T19	663527	724680	0.4 – 1.0	0.7	3
T20	663228	725279	0.2 – 0.7	0.3	4
T21	664020	725419	0.7 – 1.5	1.1	3
T22	663076	726129	0.4 – 1.4	1.0	4
T23	665568	728222	2.2 – 3.5	2.7	2
T24	664901	727516	1.3 – 2.2	1.8	3
T25	664557	726842	2.3 – 2.9	2.6	3
T26	663924	727245	0.2 – 2.2	0.8	3
T27	666654	728789	0.2 – 1.9	0.9	3
T28	667453	728387	0.3 – 1.6	1.1	4
T29	667535	729311	0.2 – 0.5	0.4	4
T30	667317	730151	3.2 – 3.8	3.5	4
T31	666424	729892	2.3 – 3.2	2.5	4

Turbine	Easting	Northing	Peat Depth Range (m) (1)	Average Peat Depth (m)	Slope Angle (°) (2)
T32	665913	730395	1.6 - 3	2.3	4
T33	668791	723754	0.4 – 0.9	0.6	2
T34	668234	724133	0.5 – 1.2	0.8	3
T35	667696	724705	0.9 – 2	1.7	2
T36	667700	725703	1.2 – 1.3	1.25	2
T37	668428	725406	0.8 – 1.5	1.0	4
T38	666932	725059	0.4 – 1.0	0.7	2
T39	666484	725794	0.8 – 2.4	1.9	2
T40	667297	726306	1.6 – 2.2	1.8	3
T41	666699	726708	0.6 – 0.9	0.7	2
T42	667233	727483	0.2 – 2.3	1.9	2
T43	668319	727108	1.0– 1.8	1.5	4
T44	668927	727701	0.5 – 1.8	1.3	2
T45	668094	727874	0.4 – 1.1	0.6	3
T46	669561	728266	0.7 – 2.3	1.7	2
Met Mast 1	667735	726740	1.1	1.1	2
Met Mast 2	664363	723502	1.8 - 4.7	3.2	2
Relay Mast	665885	727689	4.1	4.1	2
Proposed Onsite Substation and associated Temporary Construction Compound	672480	725674	1.1 – 1.8	1.4	1
Proposed Offsite Substation and associated Temporary Construction Compound	683275	725942	0.1 – 0.9	0.5	4
Temporary Construction Compound 1	667299	729202	0.5 – 0.8	0.6	3
Temporary Construction Compound 2	665284	727834	3.0 – 3.3	3.15	6
Temporary Construction Compound 3	662797	726383	1.8 – 3.5	2.2	4

Turbine	Easting	Northing	Peat Depth Range (m) (1)	Average Peat Depth (m)	Slope Angle (°) (2)
Temporary Construction Compound 4	666981	725978	1.8 -2.1	1.9	4
Temporary Construction Compound 5	664050	724328	0.6 – 1.0	0.8	2
Temporary Construction Compound 6	665840	723670	1.8 – 2.4	2.0	2
Temporary Construction Compound 7	667818	723648	0.6 – 1.4	1.0	2
Temporary Construction Compound 8	665879	721662	0.15 – 1.8	1.0	1

Note (1) Based on probe results from the site walkovers. The range of peat depths for the infrastructure locations are typically based on a 10m grid carried out around the infrastructure element.

Note (2) The slope angles at each of the main infrastructure locations were obtained using a combination of readings taken during the site reconnaissance by FT using handheld equipment, such as the Silva Clino Master (which has an accuracy of +/- 0.25 degrees) and from contour survey plans for Proposed Wind Farm site. The slope angle quoted typically reflects the slope within the footprint of each infrastructure location.

Note (3) The data presented in the Table above is used in the peat stability assessment of the Proposed Wind Farm site.

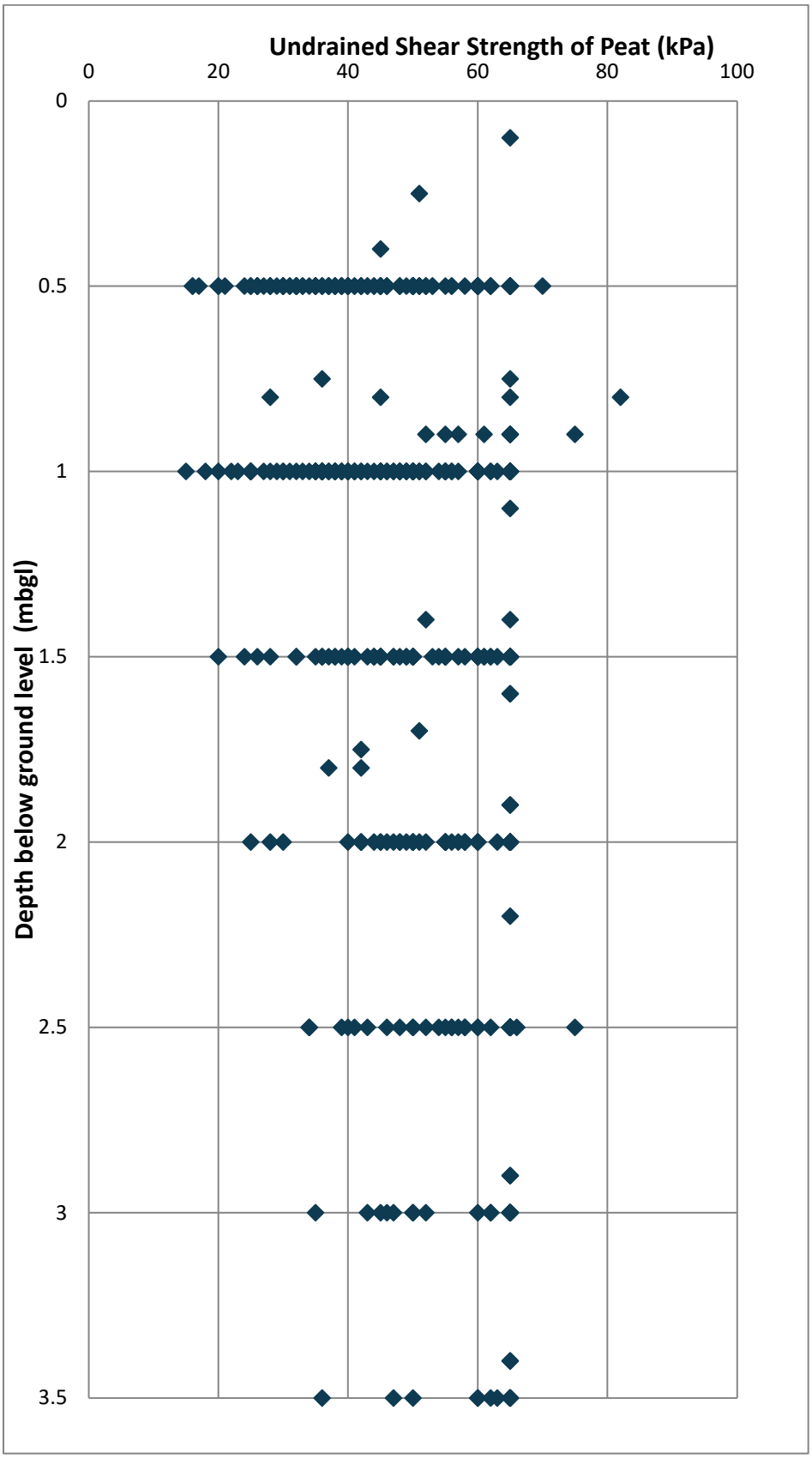
Note (4) Where the Proposed Onsite and Proposed Offsite Substations are referred to, this also includes all ancillary infrastructure within the substation platform required for the OHL connection, such as end masts and crane pads, as well as any temporary construction compounds.

In addition to probing, in-situ shear vane testing was carried out across the Proposed Wind Farm site as part of the ground investigation. Strength testing was carried out at selected locations across the Proposed Wind Farm site to provide representative coverage of indicative peat strengths. The results of the vane testing with depth are presented in Figure 6.1.

The hand vane results indicate undrained shear strengths in the range 15 to 82kPa, with an average value of about 50kPa. The strengths recorded would be typical of well drained peat as is present on the Proposed Wind Farm site.

Peat strength at sites of known peat failures (assuming undrained loading failure) are generally very low, for example the undrained shear strength at the Derrybrien failure (AGEC, 2004) as derived from back-analysis, was estimated at 2.5kPa. The recorded undrained strength at the Proposed Wind Farm site is significantly greater than the lower bound values for Derrybrien indicating that there is no close correlation to the peat conditions at the Derrybrien site and that there is significantly less likelihood of failure on the Proposed Wind Farm site.

Figure 6.1: Undrained Shear Strength (c_u) Profile for Peat with Depth



7. PEAT STABILITY ASSESSMENTS

The peat stability assessment includes an assessment of the stability of the natural peat slopes for individual parcels across the Proposed Wind Farm site including at the Proposed Turbine locations and along the proposed access roads. The assessment also analyses the stability of the natural peat slopes with a surcharge loading of 10kPa, equivalent to placing 1m of stockpiled peat on the surface of the peat slope.

7.1 Methodology for Peat Stability Assessment

Stability of a peat slope is dependent on several factors working in combination. The main factors that influence peat stability are slope angle, shear strength of peat, depth of peat, pore water pressure and loading conditions.

An adverse combination of factors could potentially result in peat sliding. An adverse condition of one of the above-mentioned factors alone is unlikely to result in peat failure. The infinite slope model (Skempton and DeLory, 1957) is used to combine these factors to determine a FoS for peat sliding. This model is based on a translational slide, which is a reasonable representation of the dominant mode of movement for peat failures.

To assess the FoS for a peat slide, an undrained (short-term stability) and drained (long-term stability) analysis has been undertaken to determine the stability of the peat slopes on site.

1. The undrained loading condition applies in the short-term during construction and until construction induced pore water pressures dissipate.

2. The drained loading condition applies in the long-term. The condition examines the effect of the change in groundwater level as a result of rainfall on the existing stability of the natural peat slopes.

Undrained shear strength values (c_u) for peat are used for the total stress analysis. Based on the findings of the 2003 Derrybrien failure and other failures in peat, undrained loading during construction was found to be the critical failure mechanism.

A drained analysis requires effective cohesion (c') and effective friction angle (ø') values for the calculations. These values can be difficult to obtain because of disturbance experienced when sampling peat and the difficulties in interpreting test results due to the excessive strain induced within the peat. To determine suitable drained strength values a review of published information on peat was carried out. Table 7.1 shows a summary of the published information on peat together with drained strength values.

From Table 7.1 the values for c' ranged from 1.1 to 8.74kPa and ø' ranged from 21.6 to 43°. The average c' and ø' values are 4.5kPa and 30° respectively. Based on the above, it was considered to adopt a conservative approach and to use design values below the averages. For design the following general drained strength values have been used for the Proposed Wind Farm site:

c' = 4kPa
$ø'$ = 25°

Table 7.1: List of Effective Cohesion and Friction Angle Values for Peat

Reference	Cohesion, c' (kPa)	Friction Angle, ø' (degs)	Testing Apparatus/ Comments
Hanrahan et al (1967)	5 to 7	36 to 43	From triaxial apparatus
Rowe and Mylleville (1996)	2.5	28	From simple shear apparatus
Landva (1980)	2 to 4	27.1 to 32.5	Mainly ring shear apparatus for normal stress greater than 13kPa
	5 to 6	-	At zero normal stress
Carling (1986)	6.5	0	-
Farrell and Hebib (1998)	0	38	From ring shear and shear box apparatus. Results are not considered representative.
	0.61	31	From direct simple shear (DSS) apparatus. Result considered too low therefore DSS not considered appropriate
Rowe, Maclean and Soderman (1984)	1.1	26	From simple shear apparatus
	3	27	From DSS apparatus
McGreever and Farrell (1988)	6	38	From triaxial apparatus using soil with 20% organic content
	6	31	From shear box apparatus using soil with 20% organic content
Hungr and Evans (1985)	3.3	-	Back-analysed from failure
Dykes and Kirk (2006)	3.2	30.4	Test within acrotelm
Dykes and Kirk (2006)	4	28.8	Test within catotelm
Warburton et al (2003)	5	23.9	Test in basal peat
Warburton et al (2003)	8.74	21.6	Test using fibrous peat
Hendry et al (2012)	0	31	Remoulded test specimen
Komatsu et al (2011)	8	34	Remoulded test specimen
Zwanenburg et al (2012)	2.3	32.3	From DSS apparatus
Den Haan & Grognet (2014)	-	37.4	From large DSS apparatus
O'Kelly & Zhang (2013)	0	28.9 to 30.3	Tests carried out on reconstituted, undisturbed and blended peat samples

7.2 Analysis to Determine Factor of Safety (Deterministic Approach)

The purpose of the analysis was to determine the FoS of the peat slopes using infinite slope analysis. The analysis was carried out at the Proposed Turbine locations, along the proposed access roads and at various locations across the Proposed Wind Farm 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 acceptable safe range for FoS typically ranges from 1.3 to 1.4. 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 greater than 1.3.

As a general guide the FoS limits for peat slopes in this report are summarised in Table 7.2.

Table 7.2: 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.

A lower bound undrained shear strength, c_u for the peat of 8kPa was selected for the assessment based on the c_u values recorded at the Proposed Wind Farm site. It should be noted that a c_u of 8kPa for the peat is considered a conservative value for the analysis and is not representative of all peat present across the Proposed Wind Farm site. In reality the peat generally has a higher undrained strength.

The formula used to determine the factor of safety for the undrained condition in the peat (Bromhead, 1986) is as follows:

$$F = \frac{c_u}{\gamma z \sin\alpha \cos\alpha}$$

Where:

F = Factor of Safety
c_u = Undrained strength
γ = Bulk unit weight of material

z = Depth to failure plane assumed as depth of peat

α = Slope angle

The formula used to determine the factor of safety for the drained condition in the peat (Bromhead, 1986) is as follows:

$$F = \frac{c' + (\gamma z - \gamma_w h_w)\cos^2 \alpha \tan \phi'}{\gamma z \sin \alpha \cos \alpha}$$

Where:

F = Factor of Safety

c' = Effective cohesion

γ = Bulk unit weight of material

z = Depth to failure plane assumed as depth of peat

γ_w = Unit weight of water

h_w = Height of water table above failure plane

α = Slope angle

ϕ' = Effective friction angle

For the drained analysis the level of the water table above the failure surface is required to calculate the FoS for the slope. Since the water level in blanket peat can be variable and can be recharged by rainfall, it is not feasible to establish its precise location throughout the Proposed Wind Farm site. Therefore, a sensitivity analysis using water level ranging between 0% and 100% of the peat depth was conducted, where 0% equates to the peat being completely dry and 100% equates to the peat been fully saturated, corresponding to the ground conditions during the winter months.

The following general assumptions were used in the analysis of peat slopes at each location:

(1) Peat depths are based on the maximum peat depth recorded at each location from the walkover surveys and ground investigation.

(2) The slope angles used in the peat stability assessment were obtained using a combination of readings taken during the site reconnaissance by FT using handheld equipment and from contour survey plans for site. It should be noted that slope angles derived from contour survey plans would be considered approximate, as such surveys are dependent on the density of survey data and do not always reflect local variations in ground topography.

(3) Slope angle at base of sliding assumed to be parallel to ground surface.

(4) A lower bound undrained shear strength, c_u for the peat of 8kPa was selected for the assessment. The lowest recorded value on the Proposed Wind Farm site during the site walkover was 15kPa. It should be noted that a c_u of 8kPa for the peat is considered a conservative value for the analysis and is not representative of all peat present. In reality, the peat has a significantly higher undrained strength as a result of the extensive drainage & extraction works which have been carried across the Proposed Wind Farm site.

For the stability analysis two load conditions were examined, namely

Condition (1): no surcharge loading

Condition (2): surcharge of 10 kPa, equivalent to 1m of stockpiled peat assumed as a worst case.

7.3 Results of Analysis

7.3.1 Undrained Analysis for the Peat

The results of the undrained analysis for the natural peat slopes are presented in Appendix C and the results of the undrained analysis for the most critical load case (load condition 2) are shown on Drawing P2319-0600-0013 to 0016. The undrained analysis for load condition 2 is considered the most critical load case as most peat failures occur in the short term upon loading of the peat surface. The results from the main infrastructure locations are summarised in Table 7.3.

The calculated FoS for load condition 1 is in excess of 1.30 for each of the locations (805 no. locations) analysed with a range of FoS of 2.65 to 229.37, indicating a low risk of peat instability.

The calculated FoS for load condition 2 is in excess of 1.30 for each of the locations (805 no. locations) analysed with a range of FoS of 1.97 to 38.20, indicating a low risk of peat instability.

Table 7.3: Factor of Safety Results (Undrained Condition)

Turbine No./Location	Easting	Northing	Factor of Safety for Load Condition	
			Condition (1)	Condition (2)
T01	669577	723417	**10.93**	**6.38**
T02	667966	722318	**8.50**	**6.20**
T03	668652	722904	**25.49**	**12.07**
T04	667122	722389	**7.65**	**5.10**
T05	666811	722918	**19.16**	**7.19**
T06	667272	723632	**17.01**	**8.06**
T07	666843	724155	**152.91**	**19.95**
T08	666062	723362	**6.38**	**4.50**
T09	665993	724419	**6.38**	**4.50**
T10	665722	725145	**8.82**	**6.37**
T11	665245	723070	**7.09**	**4.01**
T12	665675	722587	**16.98**	**12.39**
T13	664725	722393	**19.10**	**13.48**
T14	665129	721837	**4.85**	**3.18**
T15	664797	723510	**15.29**	**9.17**
T16	664366	723995	**32.77**	**13.49**
T17	664368	724900	**5.67**	**4.14**
T18	665151	724290	**4.03**	**3.19**

Turbine No./Location	Easting	Northing	Factor of Safety for Load Condition	
			Condition (1)	Condition (2)
T19	663527	724680	15.31	7.65
T20	663228	725279	38.32	8.84
T21	664020	725419	11.77	6.66
T22	663076	726129	38.32	8.84
T23	665568	728222	7.40	5.59
T24	664901	727516	5.89	4.25
T25	664557	726842	5.28	3.92
T26	663924	727245	9.57	5.89
T27	666654	728789	13.92	7.29
T28	667453	728387	22.99	7.66
T29	667535	729311	22.99	7.66
T30	667317	730151	3.03	2.40
T31	666424	729892	3.59	2.74
T32	665913	730395	3.83	2.87
T33	668791	723754	25.49	12.07
T34	668234	724133	12.76	6.96
T35	667696	724705	12.07	7.91
T36	667700	725703	17.64	9.97
T37	668428	725406	7.66	4.60
T38	666932	725059	32.77	13.49
T39	666484	725794	9.17	6.55
T40	667297	726306	6.96	4.78
T41	666699	726708	25.49	12.07
T42	667233	727483	9.97	6.95
T43	668319	727108	6.39	4.11
T44	668927	727701	12.74	8.19
T45	668094	727874	13.92	7.29
T46	669561	728266	22.94	11.47
Met Mast 1	667735	726740	12.74	8.19
Met Mast 2	664363	723502	4.88	4.02
Relay Mast	665885	727689	5.59	4.50
Proposed Onsite Substation and associated Temporary Construction Compound	672491	725533	45.85	22.92

Turbine No./Location	Easting	Northing	Factor of Safety for Load Condition	
			Condition (1)	Condition (2)
Proposed Offsite Substation and associated Temporary Construction Compound	683275	725942	12.07	6.05
Temporary Construction Compound 1	667300	729202	25.51	9.57
Temporary Construction Compound 2	665284	727834	2.85	2.08
Temporary Construction Compound 3	662797	726383	6.76	4.26
Temporary Construction Compound 4	666981	725978	6.39	4.11
Temporary Construction Compound 5	664050	724328	22.94	11.47
Temporary Construction Compound 6	665840	723670	11.47	7.65
Temporary Construction Compound 7	667818	723648	16.38	9.56
Temporary Construction Compound 8	665879	721662	25.47	16.37
Peatland Enhancement Area A	666930	730706	3.48	2.83
Peatland Enhancement Area B	663183	727850	3.06	2.55
Peatland Enhancement Area C	662620	726745	3.26	2.69
Peatland Enhancement Area D	663757	723818	4.49	3.82

7.3.2 Drained Analysis for the Peat

The results of the drained analysis for the peat are presented in Appendix C. The results from the main infrastructure locations are summarised in Table 7.4. As stated previously, the drained loading condition examines the effect of rainfall and water on the existing stability of the natural peat slopes.

The calculated FoS for load condition 1 is in excess of 1.30 for each of the locations (805 no. locations) analysed with a range of FoS of 1.33 to 114.68, indicating a low risk of peat instability.

The calculated FoS for load condition 2 is in excess of 1.30 for each of the locations (805 no. locations) analysed with a range of FoS of 2.12 to 41.36, indicating a low risk of peat instability.

Table 7.4: Factor of Safety Results (Drained Conditions)

Turbine No./Location	Easting	Northing	Factor of Safety for Load Condition	
			Condition (1)	Condition (2)
T01	669577	723417	5.47	6.90
T02	667966	722318	4.25	6.71
T03	668652	722904	12.74	13.06
T04	667122	722389	3.83	5.52

Turbine No./Location	Easting	Northing	Factor of Safety for Load Condition	
			Condition (1)	Condition (2)
T05	666811	722918	9.58	7.76
T06	667272	723632	8.50	8.71
T07	666843	724155	76.46	21.58
T08	666062	723362	3.19	4.87
T09	665993	724419	3.19	4.87
T10	665722	725145	4.41	6.89
T11	665245	723070	3.54	4.32
T12	665675	722587	8.49	13.42
T13	664725	722393	9.55	14.60
T14	665129	721837	2.42	3.43
T15	664797	723510	7.65	9.93
T16	664366	723995	16.38	14.60
T17	664368	724900	2.83	4.47
T18	665151	724290	2.01	3.45
T19	663527	724680	7.65	8.28
T20	663228	725279	19.16	9.55
T21	664020	725419	5.89	7.20
T22	663076	726129	19.16	9.55
T23	665568	728222	3.70	6.05
T24	664901	727516	2.94	4.60
T25	664557	726842	2.64	4.24
T26	663924	727245	4.78	6.37
T27	666654	728789	6.96	8.08
T28	667453	728387	11.50	8.28
T29	667535	729311	11.50	8.28
T30	667317	730151	1.51	2.59
T31	666424	729892	1.80	2.96
T32	665913	730395	1.92	3.10
T33	668791	723754	12.74	13.06
T34	668234	724133	6.38	7.52
T35	667696	724705	6.04	8.56
T36	667700	725703	8.82	10.79
T37	668428	725406	3.83	4.97
T38	666932	725059	16.38	14.60

Turbine No./Location	Easting	Northing	Factor of Safety for Load Condition	
			Condition (1)	Condition (2)
T39	666484	725794	**4.59**	**7.09**
T40	667297	726306	**3.48**	**5.17**
T41	666699	726708	**12.74**	**13.06**
T42	667233	727483	**4.99**	**7.52**
T43	668319	727108	**3.19**	**4.43**
T44	668927	727701	**6.37**	**8.86**
T45	668094	727874	**6.96**	**7.88**
T46	669561	728266	**11.47**	**12.41**
Met Mast 1	667735	726740	**6.37**	**8.86**
Met Mast 2	664363	723502	**2.44**	**4.46**
Relay Mast	665885	727689	**2.80**	**4.87**
Proposed Onsite Substation and associated Temporary Construction Compound	672491	725533	**22.92**	**24.82**
Proposed Offsite Substation and associated Temporary Construction Compound	683275	725942	**6.39**	**6.86**
Temporary Construction Compound 1	667300	729202	**12.76**	**10.34**
Temporary Construction Compound 2	665284	727834	**1.43**	**2.24**
Temporary Construction Compound 3	662797	726383	**3.38**	**4.60**
Temporary Construction Compound 4	666981	725978	**3.19**	**4.43**
Temporary Construction Compound 5	664050	724328	**11.47**	**12.41**
Temporary Construction Compound 6	665840	723670	**5.73**	**8.27**
Temporary Construction Compound 7	667818	723648	**8.19**	**10.34**
Temporary Construction Compound 8	665879	721662	**12.73**	**18.17**
Peatland Enhancement Area A	666930	730706	**1.74**	**3.07**
Peatland Enhancement Area B	663183	727850	**1.53**	**2.76**
Peatland Enhancement Area C	662620	726745	**1.63**	**2.90**
Peatland Enhancement Area D	663757	723818	**2.29**	**4.14**

8. PEAT STABILITY RISK ASSESSMENT

A peat stability risk assessment was carried out for the main infrastructure elements at the Proposed Wind Farm site. This approach takes into account guidelines for geotechnical/peat stability risk assessments as given in PLHRAG (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 8.1. 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 8.1: 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

A full methodology for the peat stability risk assessment is given in Appendix D.

8.1 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 B and summarised in Table 8.2.

The risk rating for each infrastructure element at the Proposed Wind Farm site is designated Negligible or Low following mitigation/control measures being implemented. Sections of access roads to the nearest infrastructure element have also been assessed, and are included in Appendix B.

Details of the required mitigation/control measures can be found in the Geotechnical Risk Register for each infrastructure element (Appendix B) and are summarised below:

- Detailed ground investigation to confirm peat, mineral soil and bedrock condition and properties.
- Use of experienced geotechnical staff for site investigation.
- Excavations in deeper peat areas will require temporary support and regular inspection.
- Side casting of excavated material only in designated areas.
- Maintain hydrology of area as far as possible by maintaining existing drains to prevent the build-up of water pressures in the peat, leading to the peat becoming "buoyant".
- Use of experienced contractors and trained operators to carry out the work.
- Monitoring upslope and downslope of open excavations.
- Limits on the length of excavation (25m) left open before backfilling along access roads.

Table 8.2: 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
T1	Negligible	1 to 4	No	Negligible	1 to 4
T2	Negligible	1 to 4	No	Negligible	1 to 4
T3	Negligible	1 to 4	No	Negligible	1 to 4
T4	Negligible	1 to 4	No	Negligible	1 to 4
T5	Negligible	1 to 4	No	Negligible	1 to 4
T6	Negligible	1 to 4	No	Negligible	1 to 4
T7	Negligible	1 to 4	No	Negligible	1 to 4
T8	Negligible	1 to 4	No	Negligible	1 to 4
T9	Negligible	1 to 4	No	Negligible	1 to 4
T10	Low	5 to 10	No	Low	5 to 10
T11	Negligible	1 to 4	No	Negligible	1 to 4
T12	Negligible	1 to 4	No	Negligible	1 to 4
T13	Negligible	1 to 4	No	Negligible	1 to 4
T14	Negligible	1 to 4	No	Negligible	1 to 4
T15	Negligible	1 to 4	No	Negligible	1 to 4
T16	Negligible	1 to 4	No	Negligible	1 to 4
T17	Negligible	1 to 4	No	Negligible	1 to 4
T18	Negligible	1 to 4	No	Negligible	1 to 4
T19	Negligible	1 to 4	No	Negligible	1 to 4
T20	Negligible	1 to 4	No	Negligible	1 to 4
T21	Negligible	1 to 4	No	Negligible	1 to 4
T22	Negligible	1 to 4	No	Negligible	1 to 4
T23	Negligible	1 to 4	No	Negligible	1 to 4
T24	Negligible	1 to 4	No	Negligible	1 to 4
T25	Negligible	1 to 4	No	Negligible	1 to 4
T26	Negligible	1 to 4	No	Negligible	1 to 4
T27	Negligible	1 to 4	No	Negligible	1 to 4
T28	Negligible	1 to 4	No	Negligible	1 to 4
T29	Negligible	1 to 4	No	Negligible	1 to 4

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
T30	Negligible	1 to 4	No	Negligible	1 to 4
T31	Negligible	1 to 4	No	Negligible	1 to 4
T32	Negligible	1 to 4	No	Negligible	1 to 4
T33	Negligible	1 to 4	No	Negligible	1 to 4
T34	Low	5 to 10	No	Negligible	1 to 4
T35	Negligible	1 to 4	No	Negligible	1 to 4
T36	Low	5 to 10	No	Negligible	1 to 4
T37	Negligible	1 to 4	No	Negligible	1 to 4
T38	Negligible	1 to 4	No	Negligible	1 to 4
T39	Negligible	1 to 4	No	Negligible	1 to 4
T40	Negligible	1 to 4	No	Negligible	1 to 4
T41	Negligible	1 to 4	No	Negligible	1 to 4
T42	Negligible	1 to 4	No	Negligible	1 to 4
T43	Negligible	1 to 4	No	Negligible	1 to 4
T44	Negligible	1 to 4	No	Negligible	1 to 4
T45	Negligible	1 to 4	No	Negligible	1 to 4
T46	Negligible	1 to 4	No	Negligible	1 to 4
Met Mast 1	Negligible	1 to 4	No	Negligible	1 to 4
Met Mast 2	Negligible	1 to 4	No	Negligible	1 to 4
Relay Mast	Negligible	1 to 4	No	Negligible	1 to 4
Proposed Onsite Substation and associated Temporary Construction Compound	Negligible	1 to 4	No	Negligible	1 to 4
Proposed Offsite Substation and associated Temporary Construction Compound	Negligible	1 to 4	No	Negligible	1 to 4
Temporary Construction Compound 1	Negligible	1 to 4	No	Negligible	1 to 4

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
Temporary Construction Compound 2	Negligible	1 to 4	No	Negligible	1 to 4
Temporary Construction Compound 3	Negligible	1 to 4	No	Negligible	1 to 4
Temporary Construction Compound 4	Negligible	1 to 4	No	Negligible	1 to 4
Temporary Construction Compound 5	Negligible	1 to 4	No	Negligible	1 to 4
Temporary Construction Compound 6	Negligible	1 to 4	No	Negligible	1 to 4
Temporary Construction Compound 7	Negligible	1 to 4	No	Negligible	1 to 4
Temporary Construction Compound 8	Low	5 to 10	No	Negligible	1 to 4
Peatland Enhancement Area A	Negligible	1 to 4	No	Negligible	1 to 4
Peatland Enhancement Area B	Negligible	1 to 4	No	Negligible	1 to 4
Peatland Enhancement Area C	Negligible	1 to 4	No	Negligible	1 to 4
Peatland Enhancement Area D	Medium	11 to 16	No	Low	5 to 10

9. INDICTATIVE FOUNDATION TYPE AND FOUNDATION DEPTH FOR TURBINES

9.1 Summary

Based on a review of the ground investigation information for the Proposed Wind Farm site, a preliminary assessment of the likely foundation type and founding depths for each Proposed Turbine location was carried out. This assessment is based on trial pits and peat probe data. A summary of this assessment is provided in Table 9.1.

Table 9.1: Summary of Indicative Turbine Foundation Type and Founding Depths

Turbine No.	Turbine Foundation Type	Relevant GI	Indicative founding depth (m bgl)	Comment
T01	Piled foundation*	TP 2C	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
T02	Piled foundation*	TP 2R	>4.0	The site investigation works carried out indicate that a piled foundation may be required.
T03	Piled foundation*	TP 2L	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
T04	Piled foundation*	TP 2Q	>3.5	The site investigation works carried out indicate that a piled foundation may be required.
T05	Piled foundation*	TP 2P	>2.0	The site investigation works carried out indicate that a piled foundation may be required.
T06	Piled foundation*	TP 2O	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
T07	Piled foundation*	TP 2F	>2.0	The site investigation works carried out indicate that a piled foundation may be required.
T08	Piled foundation*	TP 2D	>3.0	The site investigation works carried out indicate that a piled foundation may be required.
T09	Piled foundation*	TP 2G	>3.5	The site investigation works carried out indicate that a piled foundation may be required.
T10	Piled foundation*	TP 1T	>2.5	The site investigation works carried out indicate that a piled foundation may be required.

Turbine No.	Turbine Foundation Type	Relevant GI	Indicative founding depth (m bgl)	Comment
T11	Piled foundation*	TP 2T	>3.0	The site investigation works carried out indicate that a piled foundation may be required.
T12	Piled foundation*	TP 2N	>4.0	The site investigation works carried out indicate that a piled foundation may be required.
T13	Piled foundation*	TP 2J	>3.0	The site investigation works carried out indicate that a piled foundation may be required.
T14	Piled foundation*	TP 2I	>3.0	The site investigation works carried out indicate that a piled foundation may be required.
T15	Piled foundation*	TP 2H	>3.0	The site investigation works carried out indicate that a piled foundation may be required.
T16	Piled foundation*	TP 2S	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
T17	Piled foundation*	TP 2B	>3.0	The site investigation works carried out indicate that a piled foundation may be required.
T18	Piled foundation*	TP 2A	<4.0	The site investigation works carried out indicate that a piled foundation may be required.
T19	Piled foundation*	TP 2U	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
T20	Piled foundation*	TP 1V	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
T21	Piled foundation*	TP 1Z	>3.0	The site investigation works carried out indicate that a piled foundation may be required.
T22	Piled foundation*	TP 1W	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
T23	Piled foundation*	TP 1I	>4.0	The site investigation works carried out indicate that a piled foundation may be required.

Turbine No.	Turbine Foundation Type	Relevant GI	Indicative founding depth (m bgl)	Comment
T24	Piled foundation*	TP 1L	>3.5	The site investigation works carried out indicate that a piled foundation may be required.
T25	Piled foundation*	TP 1K	>3.5	The site investigation works carried out indicate that a piled foundation may be required.
T26	Piled foundation*	TP 1Q	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
T27	Piled foundation*	TP 1H	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
T28	Piled foundation*	TP 1G	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
T29	Piled foundation*	TP 1F	>3.0	The site investigation works carried out indicate that a piled foundation may be required.
T30	Piled foundation*	TP 1A	>4.0	The site investigation works carried out indicate that a piled foundation may be required.
T31	Piled foundation*	TP 1B	>3.0	The site investigation works carried out indicate that a piled foundation may be required.
T32	Piled foundation*	TP 1C	>3.2	The site investigation works carried out indicate that a piled foundation may be required.
T33	Piled foundation*	TP 2M	>2.0	The site investigation works carried out indicate that a piled foundation may be required.
T34	Piled foundation*	TP 2K	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
T35	Piled foundation*	TP 1Y	>3.0	The site investigation works carried out indicate that a piled foundation may be required.
T36	Piled foundation*	Peat probes	>2.5	The site investigation works carried out indicate that a piled foundation may be required.

Turbine No.	Turbine Foundation Type	Relevant GI	Indicative founding depth (m bgl)	Comment
T37	Piled foundation*	TP 1X	>3.0	The site investigation works carried out indicate that a piled foundation may be required.
T38	Piled foundation*	TP 1U	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
T39	Piled foundation*	TP 2E	>3.5	The site investigation works carried out indicate that a piled foundation may be required.
T40	Piled foundation*	TP 1M	>3.0	The site investigation works carried out indicate that a piled foundation may be required.
T41	Piled foundation*	TP 1R	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
T42	Piled foundation*	TP 1N	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
T43	Piled foundation*	TP 1O	>3.0	The site investigation works carried out indicate that a piled foundation may be required.
T44	Piled foundation*	TP 1P	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
T45	Piled foundation*	TP 1J	>2.5	The site investigation works carried out indicate that a either a gravity or piled foundation may be required.
T46	Piled foundation*	TP 1D	>2.5	The site investigation works carried out indicate that a piled foundation may be required.
Proposed Onsite Substation and all ancillary infrastructure	Gravity/Piled foundations	TPA-TPI	-	The site investigation works carried out indicate that either a gravity or a piled foundation will be required.
Proposed Offsite Substation and all ancillary infrastructure	Gravity foundations	Peat probes		The site investigation works carried out indicate that a gravity foundation will be suitable due to the absence of peat.
Met Mast 1	Gravity/Piled foundations	Peat probes	-	The site investigation works carried out indicate that either a gravity or a piled foundation will be required.

Turbine No.	Turbine Foundation Type	Relevant GI	Indicative founding depth (m bgl)	Comment
Met Mast 2	Gravity/Piled foundations	Peat probes	-	The site investigation works carried out indicate that either a gravity or a piled foundation will be required.
Relay Mast	Piled Foundation*	Peat probes	>4m bgl	The site investigation works carried out indicate that a piled foundation may be required.

*Gravity foundation may be suitable following confirmatory investigation

It should be noted that confirmatory ground investigation will be carried out prior to construction at each Proposed Turbine location in the form of a borehole with in-situ SPT testing at 1m intervals in the overburden and follow-on rotary core through bedrock to confirm the foundation types and founding stratums assumed in Table 9.1. It is likely that following the completion of further ground investigation prior to construction that a number of the Proposed 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 would be up to 16 no. 1200-1600mm diameter rotary bored piles.

10. FOUNDING DETAILS FOR OTHER INFRASTRUCTURE ELEMENTS

This section provides a summary of the founding details for various elements of the proposed infrastructure across the Proposed Project. The detailed methodologies for the construction of these elements of the proposed development are included in Chapter 4 of the EIAR.

10.1 Access Roads

Floating access roads are the predominant road construction type proposed for the Proposed Project which given the ground conditions and type of terrain present is deemed an appropriate construction approach.

The total length of new proposed access road to be constructed is 59.08km, covering both the Proposed Wind Farm and the Proposed Grid Connection (see Drawing P2319-0600-0017 to 0020 of the Peat & Spoil Management Plan).

The typical make-up of the founded access roads is an average stone thickness of 800mm. The requirement for a layer of geotextile and geogrid and the necessary stone thickness will be confirmed at detailed design stage.

Refer to the Peat & Spoil Management Plan for the Proposed Project (Appendix 4-2) for further details on the proposed access roads.

10.2 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 require to be founded on competent material underlying the peat deposits. The founding levels for the hardstands will be variable across the Proposed Wind Farm site and will be determined at pre-construction stage.

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

10.3 Substation Foundations & Platforms

The platforms of the Proposed Onsite Substation and Proposed Offsite Substation and associated infrastructure will be constructed using the founded technique (i.e. not floated technique). The foundations may comprise strip/raft foundations under the main footprint of the building with possibly a basement/pit for cable connections.

Substation platforms are constructed using compacted Class 1/6F material in accordance with Eirgrid/ESB network requirements on a suitable sub-formation to achieve the required bearing resistance.

The platforms will require to be founded on competent material underlying the peat deposits.

Given the ground conditions present at the Proposed Onsite Substation, it is envisaged that the foundations will require to be founded on glacial till. The peat and lacustrine soils also present will not be a suitable founding stratum for the substation foundations.

Typical founding depth for the Proposed Onsite Substation platform is likely to be 1.5-2.5m. Typical founding depth for the Proposed Offsite Substation platform is likely to be 1.0-1.5m.

The typical make-up of the Proposed Onsite Substation platform will require approximately 2.0-3.0m of granular stone fill with possibly a layer of geotextile and/or geogrid. At the underside of the substation foundations, a layer of structural up-fill (class 6N/6P) in accordance with Eirgrid requirements will likely be required.

10.4 Temporary Construction Compound Platforms

The temporary construction compound platforms will be constructed using the founded or floated technique as appropriate.

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

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

Typical founding depth for the temporary construction compound platforms will require excavations up to 1.5m bgl.

The make-up of the temporary construction compound platforms will include a minimum of 1000mm of granular stone fill with possibly a layer of geotextile and/or geogrid.

10.5 Met Mast/Relay Foundations

Given the ground conditions present at the proposed met mast and relay mast locations, it is envisaged that the foundation will require to be founded on a competent stratum below the peat. The met mast foundations will comprise either a gravity type or piled foundation.

Typical founding depth for a gravity foundation for the met mast foundations is envisaged to be 3m to 4m bgl. At the underside of the met mast foundation, a layer of structural up-fill (class 6N) will be required.

11. SUMMARY AND RECOMMENDATIONS

11.1 Summary

The following summary is given.

FT was engaged by MKO to undertake a geotechnical and peat stability assessment of the Proposed Wind Farm site (covering the Proposed Wind Farm and Proposed Onsite 220kV Substation).

The findings of the peat assessment showed that the Proposed Wind Farm site has a **low** risk of peat failure and is suitable for the Proposed Project. The findings include recommendations and control measures for construction work in peat lands, all of which will be implemented in full to ensure that all works adhere to an acceptable standard of safety.

The Proposed Wind Farm site, which is typically flat consists predominantly of bare locally re-vegetated cut-away peat and intact shallow peat. The Proposed Wind Farm and the Proposed Onsite Substation are located on BnM cutover peat bogs, which, have been extensively modified and drained as a result of historical industrial peat extraction.

Peat thicknesses recorded during the site walkover and from the ground investigation ranged from 0.0 to 6.0m with an average peat depth of 1.6m. 40% of the probes recorded peat depths of less than 1.0m, with 70% of peat depth probes recorded peat depths of less than 2.0m and 90% of peat depth probes recorded peat depths of less than 3.0m. A number of localised readings recorded peat depths from 3.5 to 5.8m.

Slope inclinations at the main infrastructure locations range from 2 to 5 degrees.

An analysis of peat sliding was carried out at the main infrastructure locations across the Proposed Wind Farm site for both the undrained and drained conditions. The purpose of the analysis was to determine the FoS of the peat slopes.

An undrained analysis was carried out, which applies in the short-term during construction. For the undrained condition, the calculated FoS for load conditions (1) and (2) for the locations analysed, showed that all locations have an acceptable FoS of greater than 1.3, indicating a low risk of peat failure. The undrained analysis would be considered the most critical condition for the peat slopes.

A drained analysis was also carried out, which examined the effect of in particular, rainfall on the existing stability of the natural peat slopes on site. For the drained condition, the calculated FoS for load conditions (1) & (2) for the locations analysed, showed that all infrastructure locations have an acceptable FoS of greater than 1.3.

The peat stability risk assessment at each infrastructure location identified a number of mitigation/control measures to reduce the potential risk of peat failure. See Appendix B for details of the required mitigation/control measures for each infrastructure element.

In summary, the findings of the peat assessment showed that the Proposed Wind Farm site has an acceptable margin of safety, is suitable for the Proposed Project and is considered to be at **low** risk of peat failure provided appropriate mitigation measures are implemented. The findings include recommendations and mitigation/control measures for construction work in peat lands, all of which will be implemented in full to ensure that all works adhere to an acceptable standard of safety.

11.2 Recommendations

The following recommendations are given, all of which will be implemented in full.

Notwithstanding that the Proposed Wind Farm site has a low risk of peat failure a number of mitigation/control measures are given to ensure that all works adhere to an acceptable standard of safety for work in peatlands. Mitigation/control measures identified for each of the infrastructure elements in the risk assessment will be implemented throughout design and construction works, which will reduce the risk of peat failure to Low or Negligible (Appendix B).

Recommendations and guidelines given in FT's report 'Peat & Spoil Management Plan - Ballydermot Wind Farm (FT 2026), included as Appendix 4.2 of the EIAR, will be implemented during the design and construction phase of the Proposed Project.

To minimise the risk of construction activity causing potential peat instability the Construction Method Statements (CMSs) for the project will take into account, but not be limited, to the recommendations above. This will ensure that best practice guidance regarding the management of peat stability will be inherent in the construction phase.

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DESIGNING AND DELIVERING,
A SUSTAINABLE FUTURE

DRAWINGS

Peat Enhancement Area Block A

Peat Enhancement Area Block B

Peat Enhancement Area Block C

Edenderry Entrance

Relay Mast

Offsite Substation

T23

T24

T25

T26

T27

T31

T32

T41

T42

0m 106m 211m 317m 422m 528m 634m 739m 845m 950m 1056m

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PLAN

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Legend:

- Project Site
- TXX — Proposed Turbine Location
- Proposed Internal Access Road
- Existing Site Road to be Upgraded
- Proposed Passing Bay
- Proposed Met Mast
- Temporary Construction Compound
- Proposed Car Park
- Proposed Peat and Spoil Area
- Proposed Peat Enhancement Area
- Proposed Amenity Track
- Proposed Equestrian Amenity Track
- Proposed Amenity Board Walk
- Existing Drain

Peat Depth Legend:

- ≥ 0 < 0.5
- ≥ 0.5 < 1
- ≥ 1 < 1.5
- ≥ 1.5 < 2
- ≥ 2 < 2.5
- ≥ 2.5 < 3
- ≥ 3 < 3.5
- ≥ 3.5 < 4
- ≥ 4 < 4.5
- ≥ 4.5 < 5
- ≥ 5 < 5.5
- ≥ 5.5 ≤ 5.8

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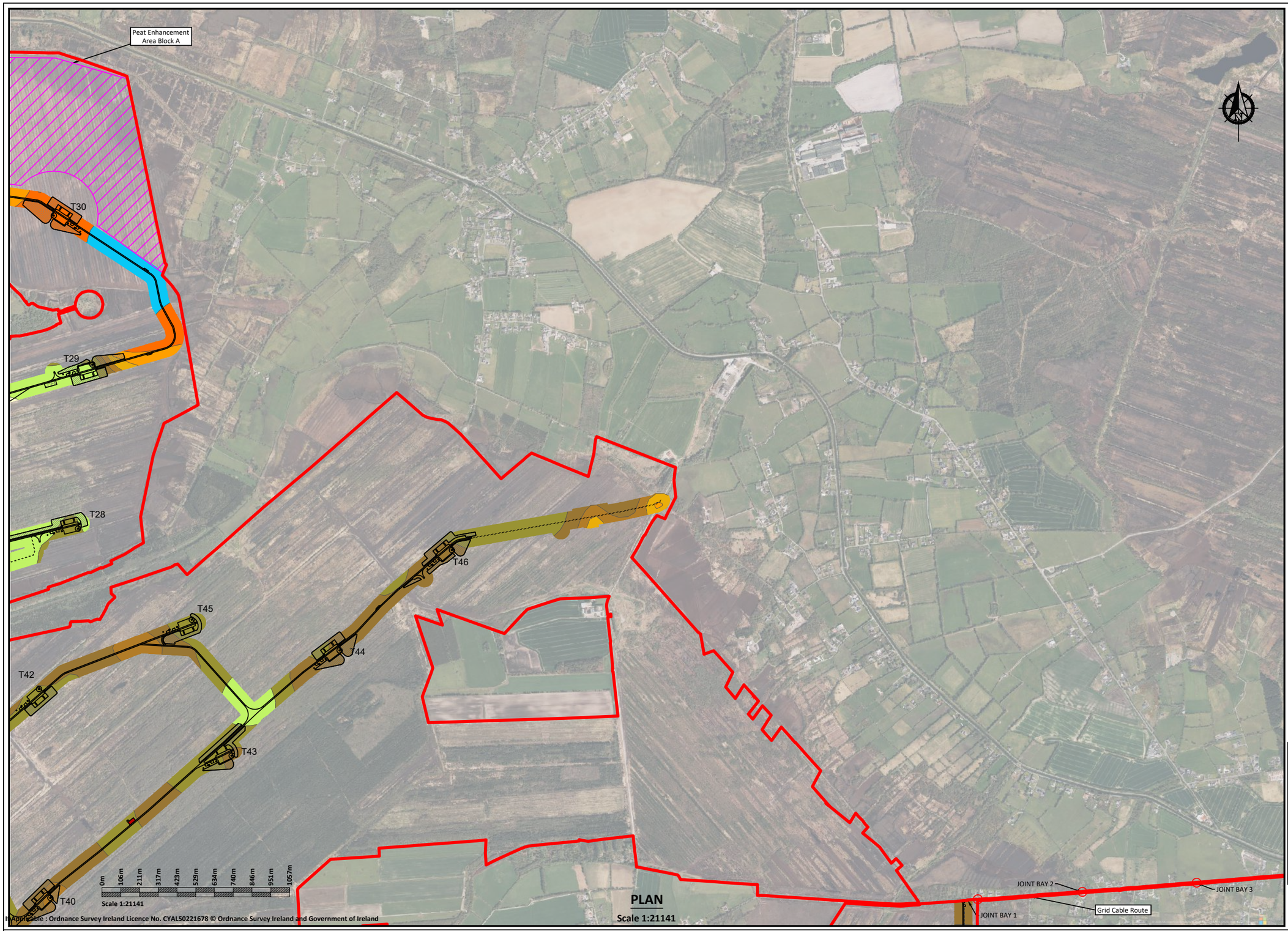
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B	FOR INFORMATION	BDH	09.10.26

PROJECT	BALLYDERMOT WIND FARM
CLIENT	MKO
SHEET	PEAT DEPTH SHEET 1 OF 4
Date	09.10.26
Project number	P2319
Scale (@ A3)	As Shown
Drawn by	POR
Drawing Number	P2319-0600-0001
Rev	B
Checked by	IH

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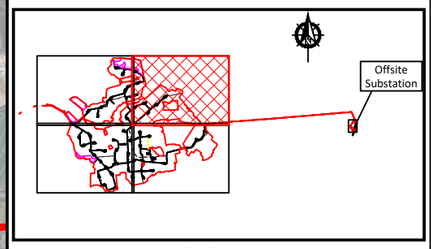
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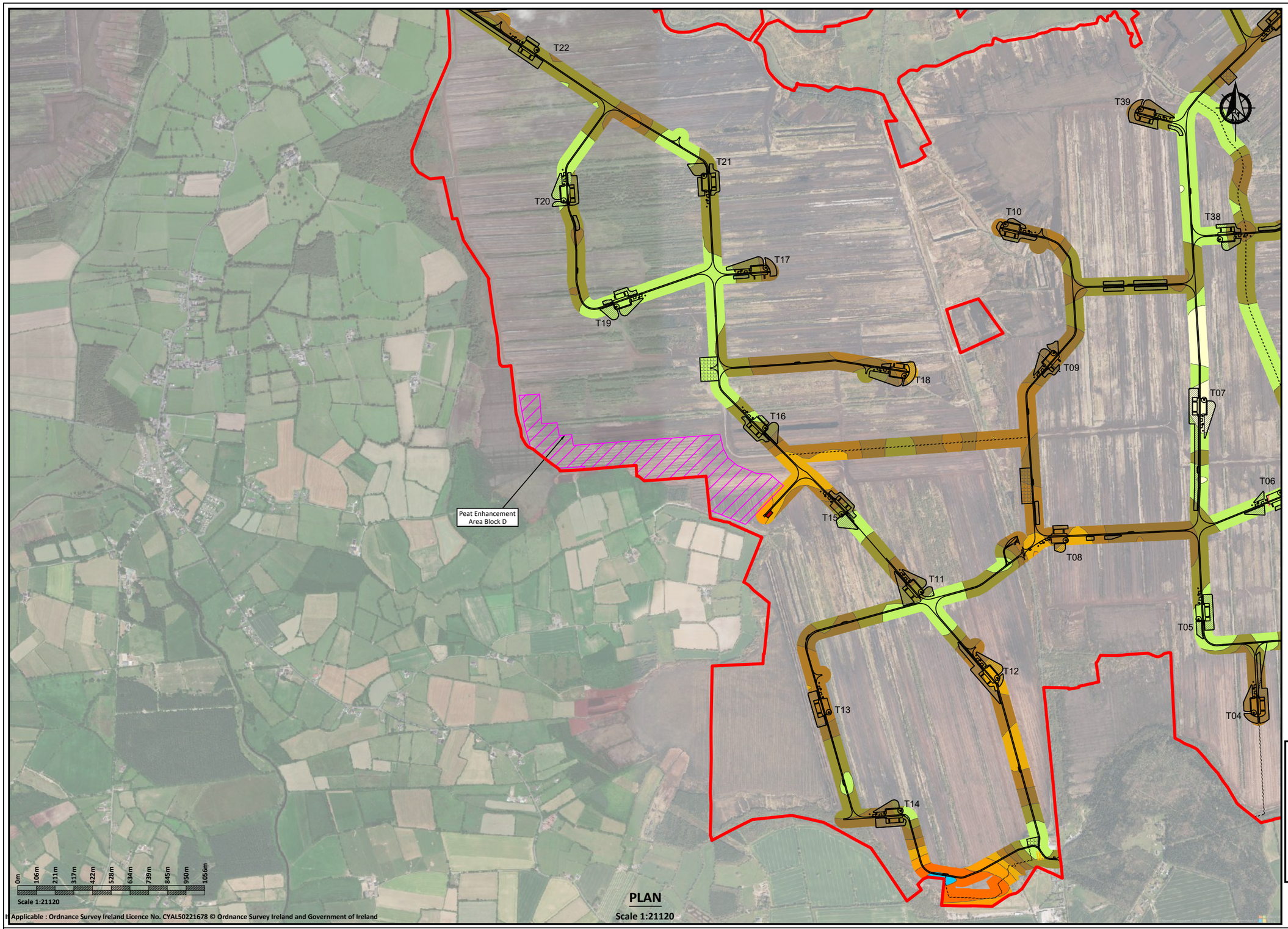
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SHEET	PEAT DEPTH SHEET 2 OF 4

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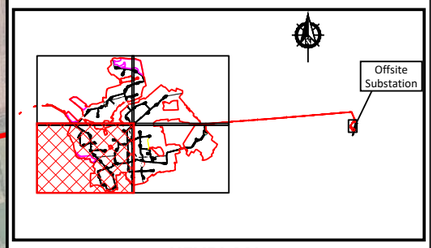
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T40
T36
T37
T35
T34
T33
T06
T01
T03
T02
JOINT BAY 1
Grid Cable Route
Substation
Contractors Compounds
Temporary Set Down Area
Side Cast Peat

0m 106m 211m 317m 422m 528m 634m 739m 845m 950m 1056m

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PLAN

Scale 1:21120

PLAN - OFFSITE SUBSTATION

Scale 1:10000

Public Road

Offsite Substation

KEYPLAN

Scale 1:450000

Legend:

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- Existing Drain

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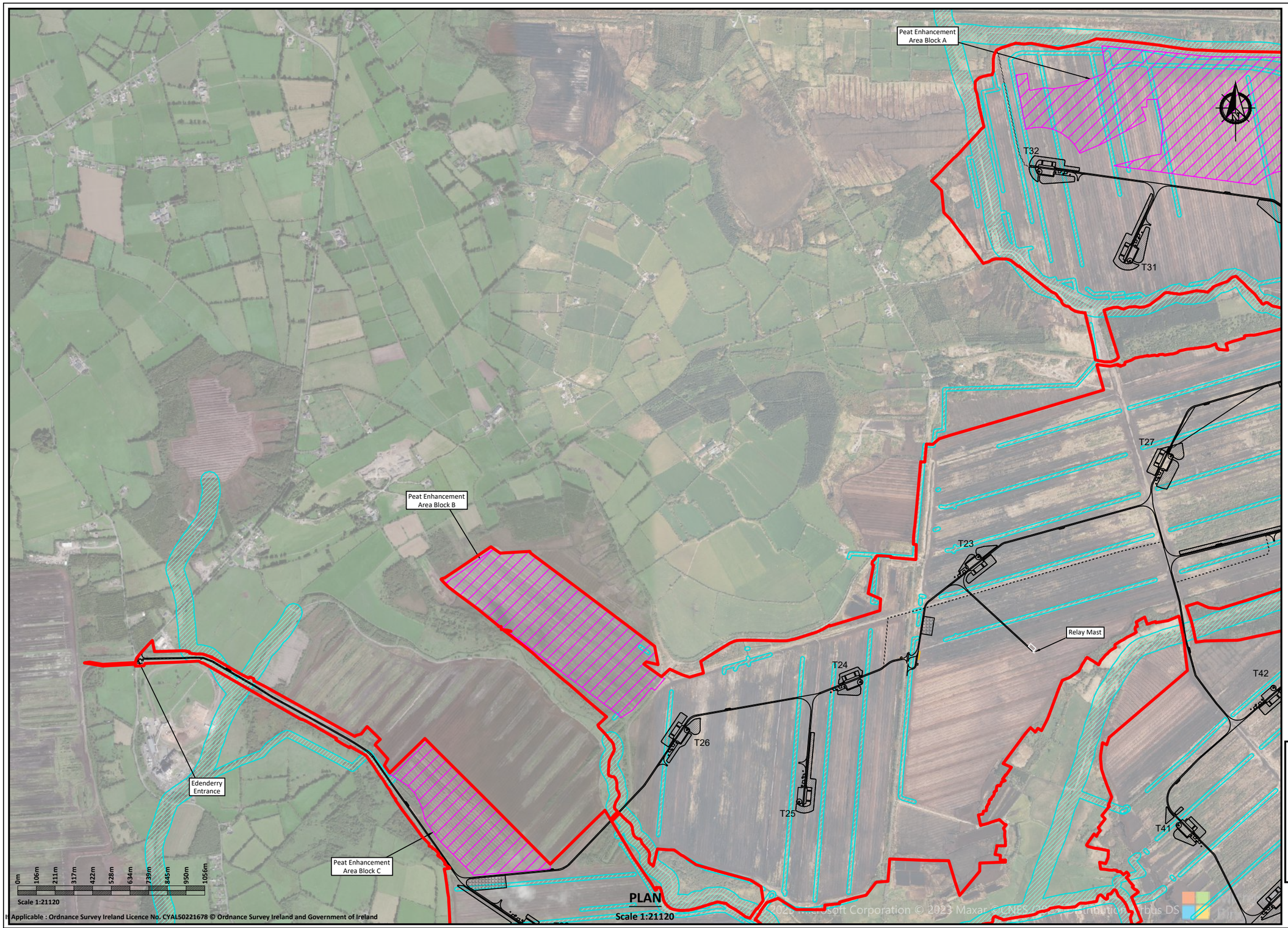
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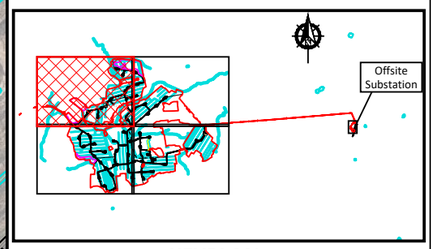
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- Proposed Amenity Track
- Proposed Equestrian Amenity Track
- Proposed Amenity Board Walk
- Existing Drain

Construction Buffer Zone Legend:

- Watercourses / Lakes with 50m buffer
- Drains with 10m buffer



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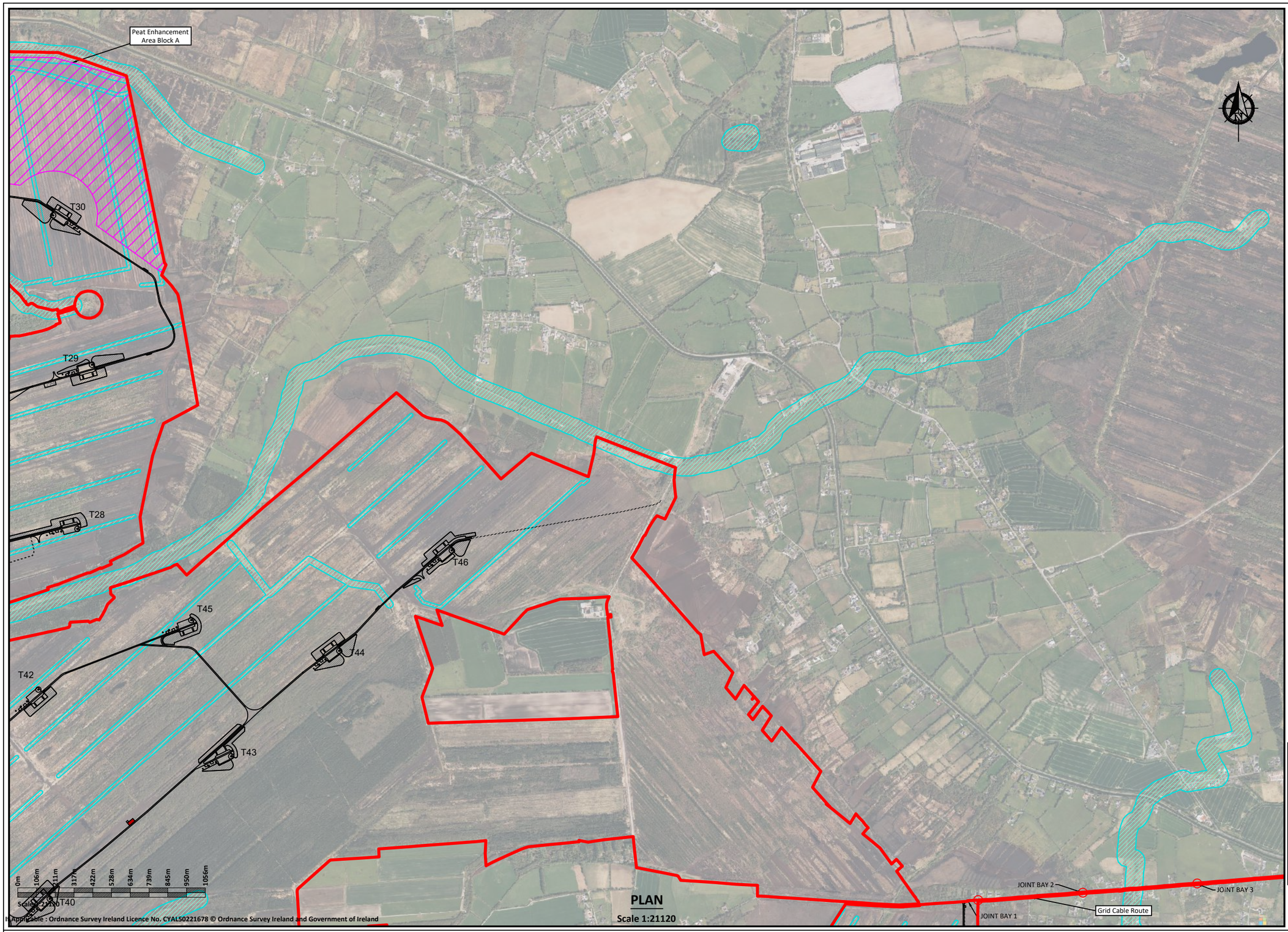
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SHEET
CONSTRUCTION BUFFER ZONE PLAN SHEET 1 OF 4

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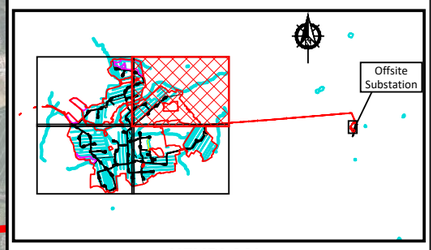
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- Proposed Equestrian Amenity Track
- Proposed Amenity Board Walk
- Existing Drain

Construction Buffer Zone Legend:

- Watercourses / Lakes with 50m buffer
- Drains with 10m buffer



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Scale 1:450000

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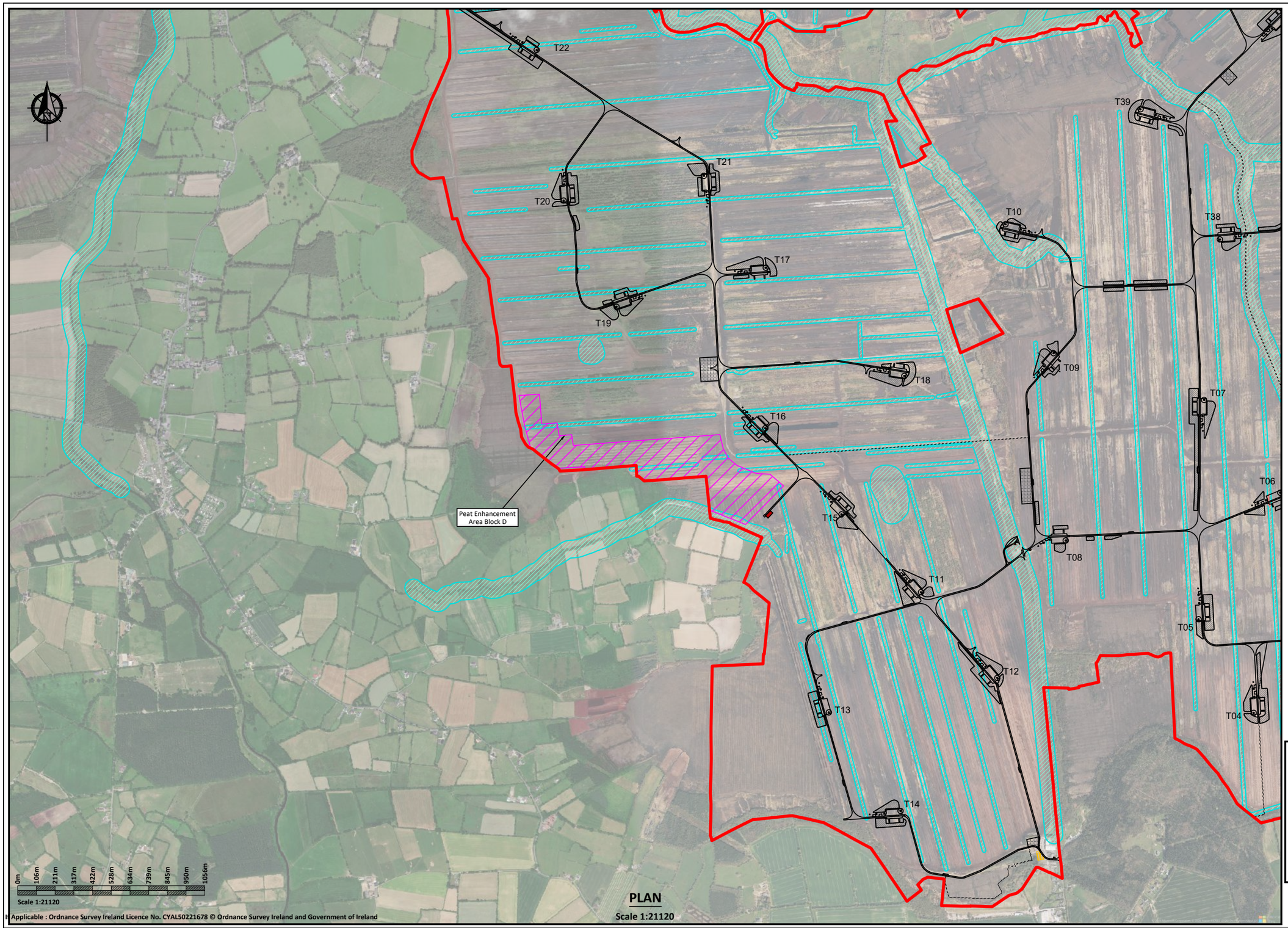
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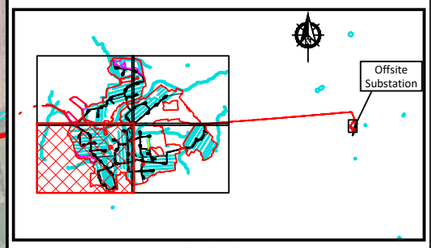
PLAN
Scale 1:21120

Legend:

- Project Site
- TXX — Proposed Turbine Location
- Proposed Internal Access Road
- Existing Site Road to be Upgraded
- Proposed Passing Bay
- Proposed Met Mast
- Temporary Construction Compound
- Proposed Car Park
- Proposed Peat and Spoil Area
- Proposed Peat Enhancement Area
- Proposed Amenity Track
- Proposed Equestrian Amenity Track
- Proposed Amenity Board Walk
- Existing Drain

Construction Buffer Zone Legend:

- Watercourses / Lakes with 50m buffer
- Drains with 10m buffer



KEYPLAN
Scale 1:450000

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Rev.	Description	App By	Date
A	FOR INFORMATION	BDH	28.05.26
B	FOR INFORMATION	BDH	09.10.26

PROJECT: BALLYDERMOT WIND FARM

CLIENT: MKO

SHEET: CONSTRUCTION BUFFER ZONE PLAN SHEET 3 OF 4

Date: 09.10.26
Drawn by: POR
Checked by: IH
Project number: P2319
Scale (@ A3): As Shown
Drawing Number: P2319-0600-0007
Rev: B

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9 October 2026

T40
T36
T37
T35
T34
T33
T06
T01
T03
T02
JOINT BAY 1
Grid Cable Route
Substation
Contractors Compounds
Temporary Set Down Area
Side Cast Peat

0m 106m 211m 317m 422m 528m 634m 739m 845m 950m 1056m

Scale 1:21120

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PLAN

Scale 1:21120

Legend:

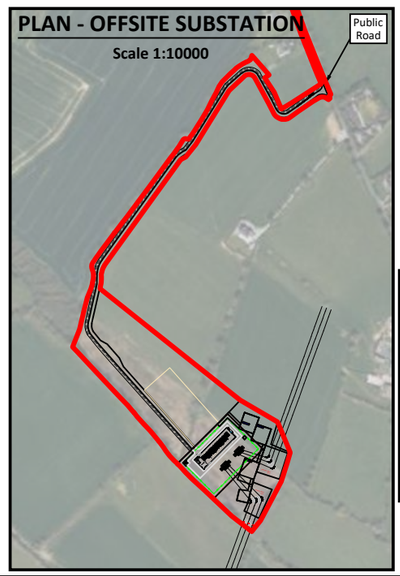
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- Proposed Amenity Board Walk
- Existing Drain

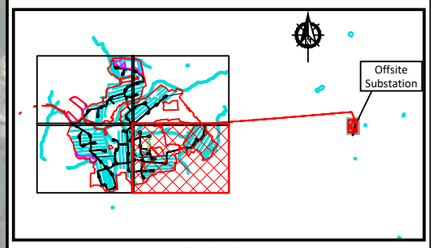
Construction Buffer Zone Legend:

- Watercourses / Lakes with 50m buffer
- Drains with 10m buffer

PLAN - OFFSITE SUBSTATION

Scale 1:10000





KEYPLAN

Scale 1:450000

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PROJECT: BALLYDERMOT WIND FARM

CLIENT: MKO

SHEET: CONSTRUCTION BUFFER ZONE PLAN SHEET 4 OF 4

Date: 09.10.26

Project number: P2319

Scale (@ A3): As Shown

Drawn by: POR

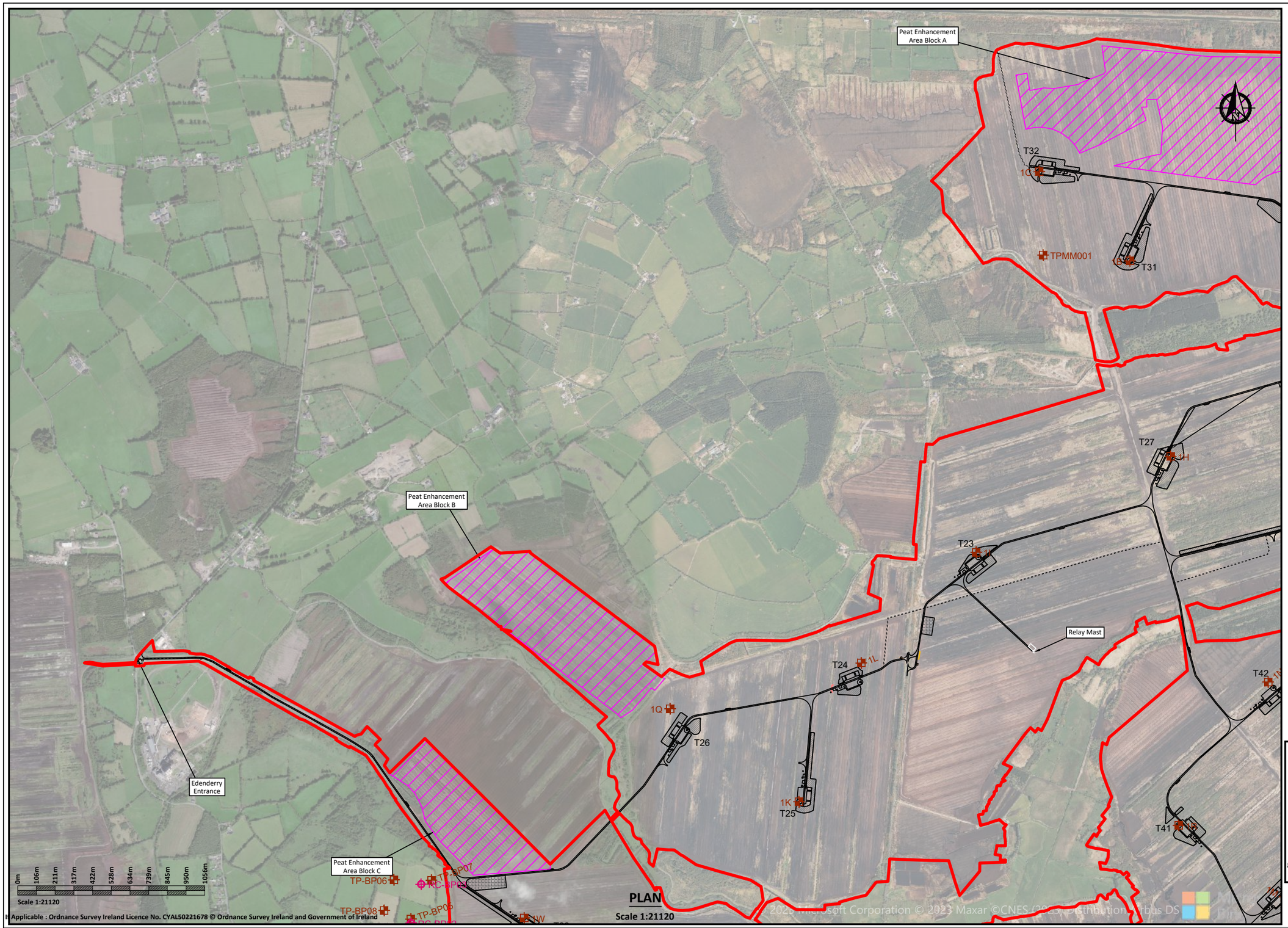
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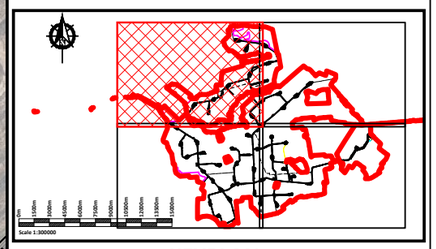


Legend:

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- Existing Drain

Ground Investigation Legend:

- XX — Trial Pit Location
- XX — Rotary Corehole Location



KEYPLAN
Scale 1:300000

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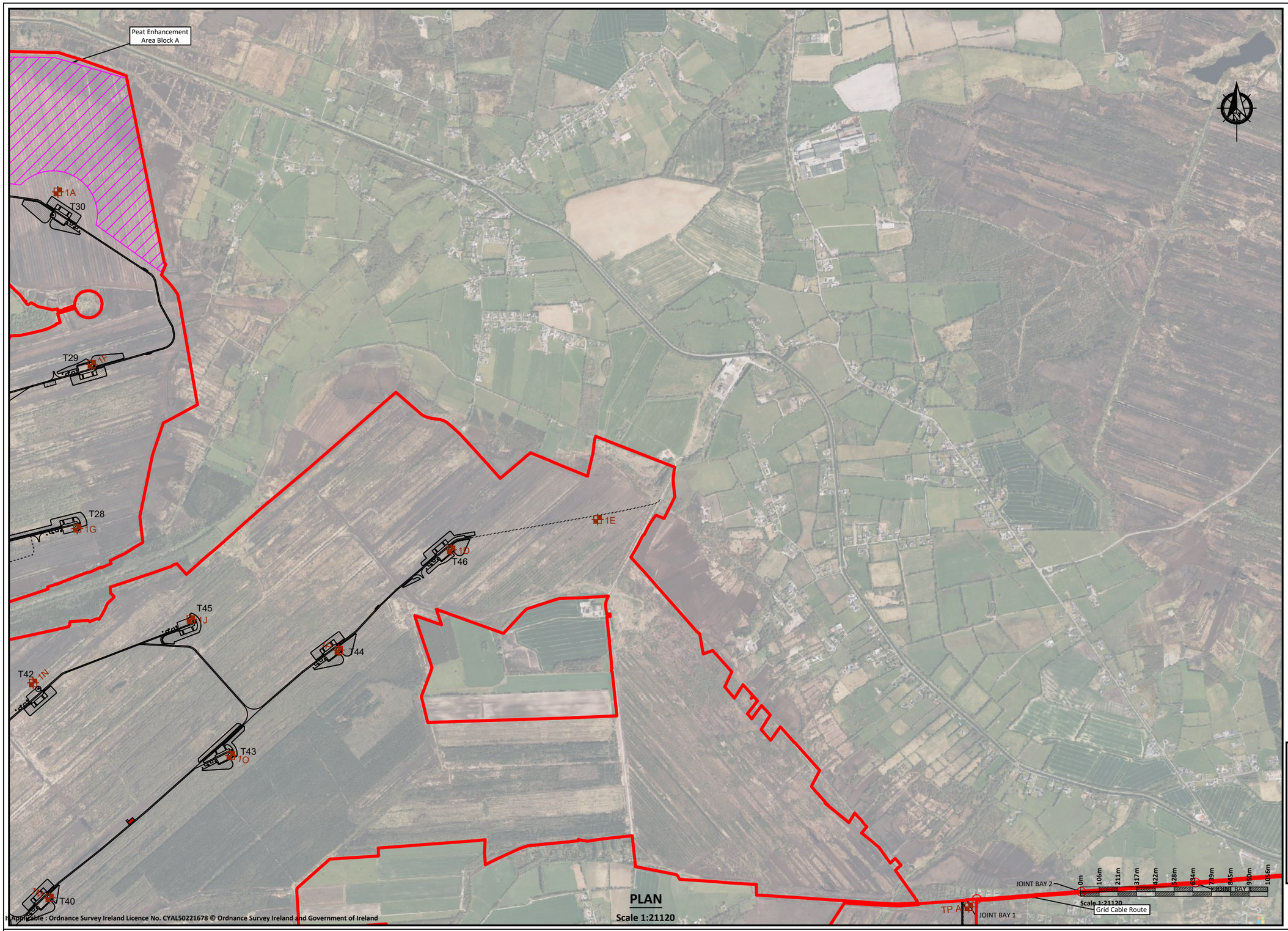
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A	FOR INFORMATION	BDH	28.05.26
B	FOR INFORMATION	BDH	09.10.26

PROJECT	BALLYDERMOT WIND FARM
CLIENT	MKO
SHEET	GROUND INVESTIGATION LOCATION PLAN SHEET 1 OF 4

Date 09.10.26	Project number P2319	Scale (@ A3)	
Drawn by POR	Drawing Number P2319-0600-0009		Rev B
Checked by IH			

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PLAN
Scale 1:21120

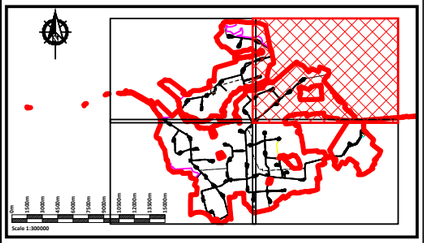
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Legend:

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KEYPLAN
Scale 1:300000

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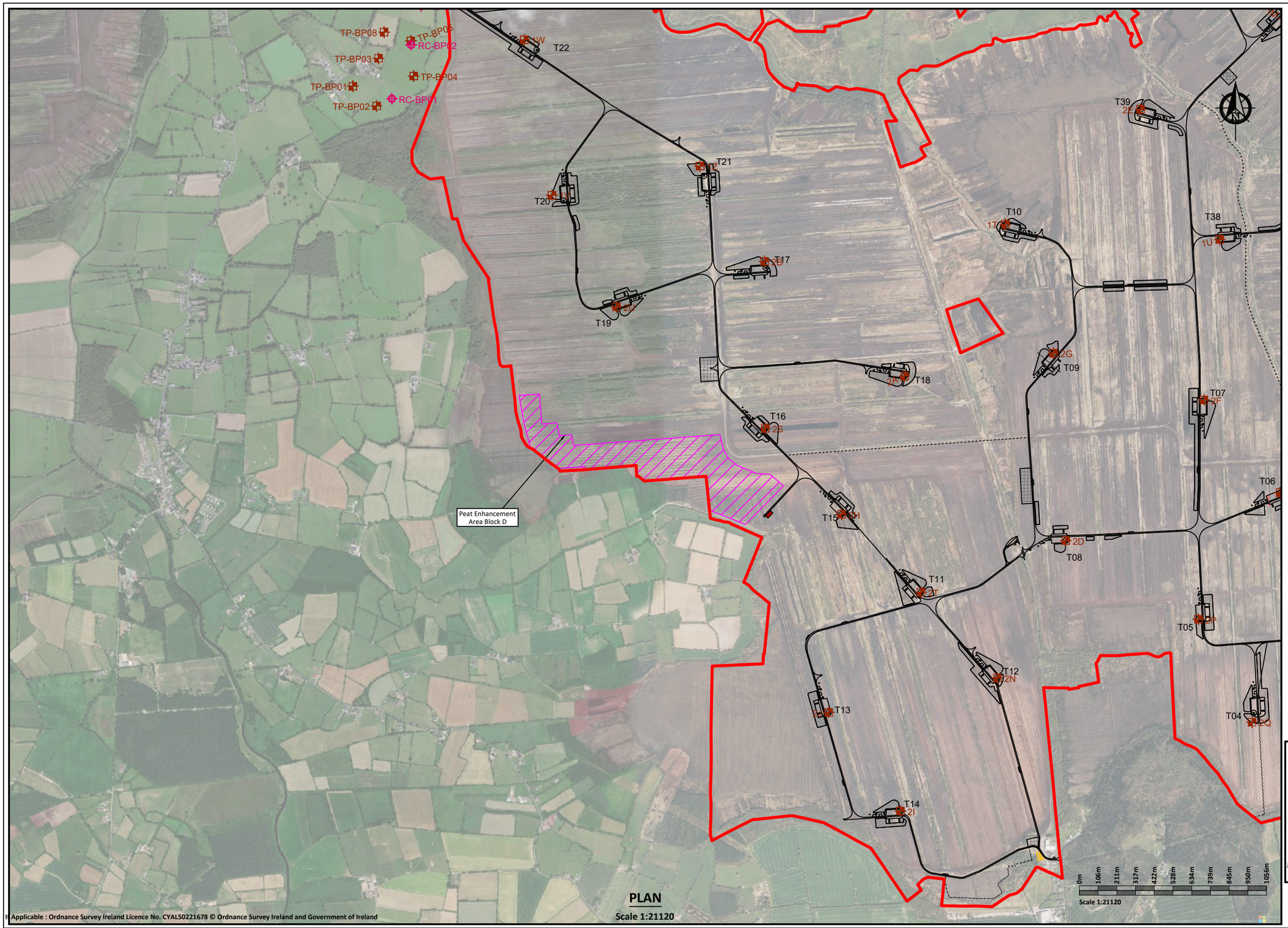
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B	FOR INFORMATION	BDH	09.10.26

PROJECT	BALLYDERMOT WIND FARM
CLIENT	MKO
SHEET	GROUND INVESTIGATION LOCATION PLAN SHEET 2 OF 4
Date	09.10.26
Project number	P2319
Scale (@ A3)	
Drawn by	POR
Checked by	IH
Drawing Number	P2319-0600-0010
Rev	B

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PLAN
Scale 1:21120

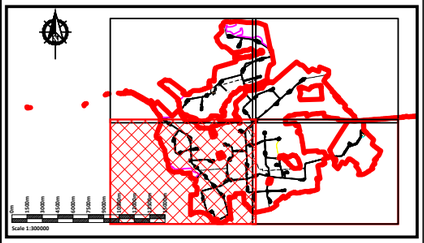
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Legend:

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KEYPLAN
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PROJECT: **BALLYDERMOT WIND FARM**

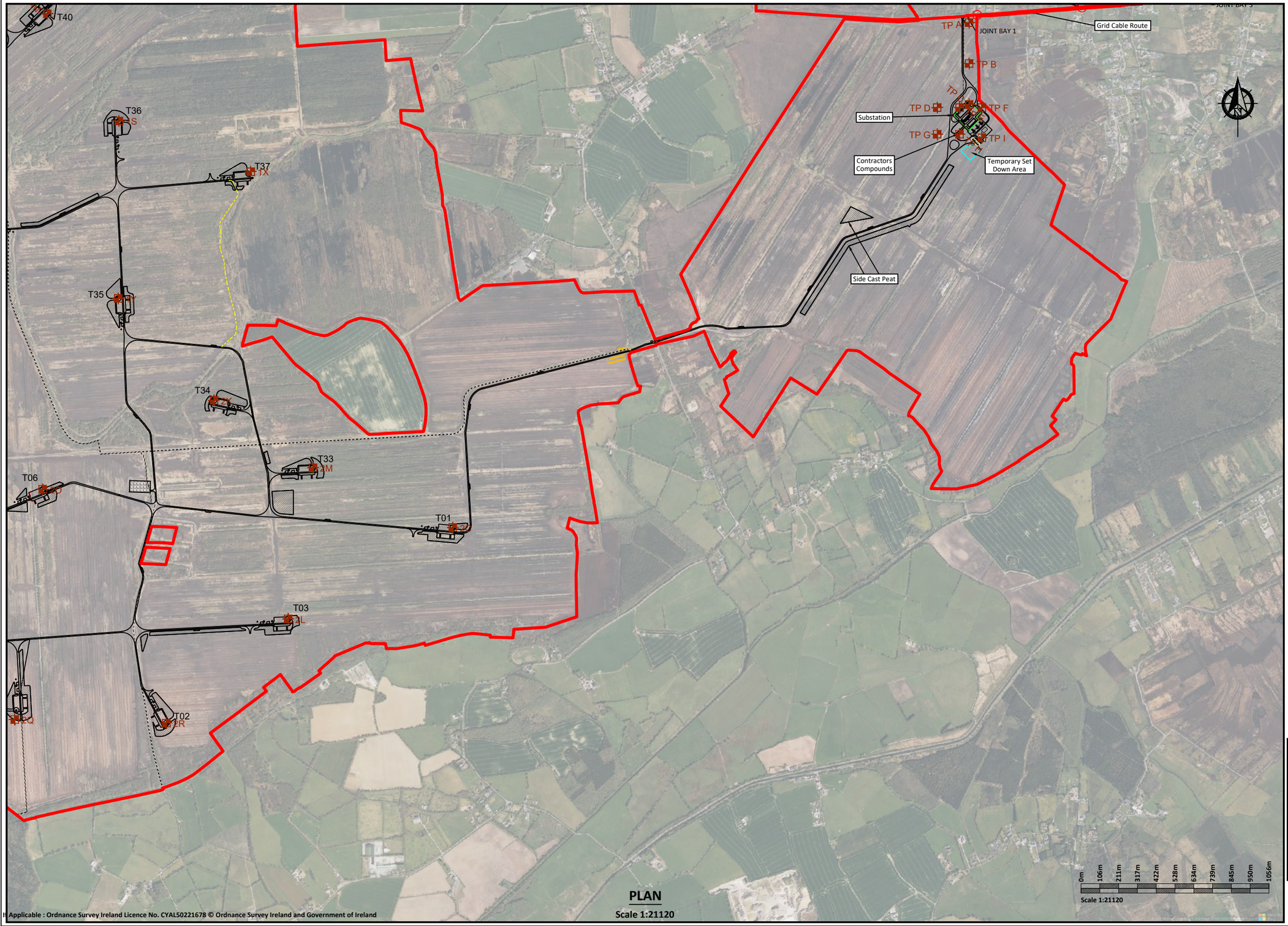
CLIENT: **MKO**

SHEET: **GROUND INVESTIGATION LOCATION PLAN SHEET 3 OF 4**

Date: 09.10.26	Project number: P2319	Scale (@ A3):	
Drawn by: POR	Drawing Number: P2319-0600-0011		Rev: B
Checked by: IH			

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Scale 1:21120

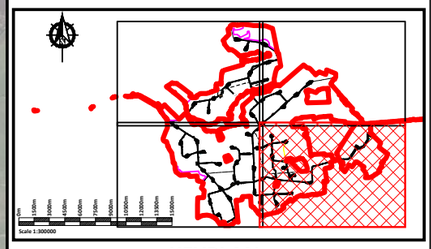
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Scale 1:300000

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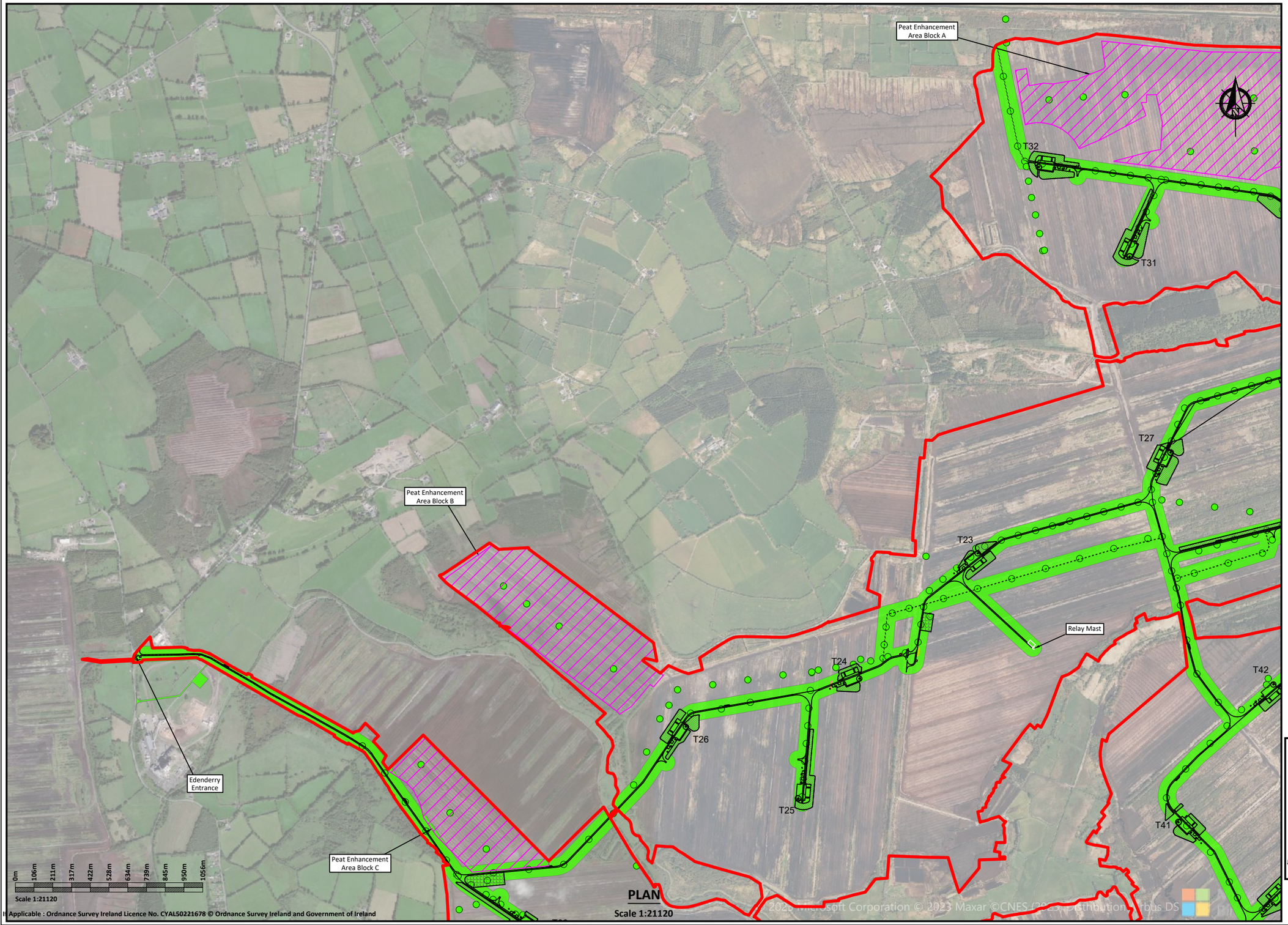
CLIENT: MKO

SHEET: GROUND INVESTIGATION LOCATION PLAN SHEET 4 OF 4

Date: 09.10.26
Project number: P2319
Scale (@ A3):
Drawn by: POR
Drawing Number: P2319-0600-0012
Rev: B
Checked by: IH

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Legend:

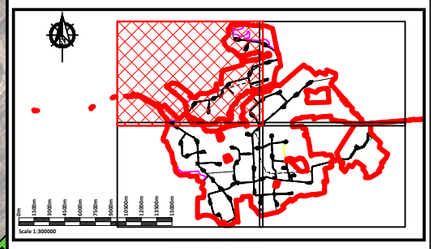
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- Proposed Peat Enhancement Area
- Proposed Amenity Track
- Proposed Equestrian Amenity Track
- Proposed Amenity Board Walk
- Existing Drain

Factor of Safety Legend:

- 0 < 1.0
- ≥ 1.0 < 1.3
- ≥ 1.3

Increasing Stability

No Peat Recorded At This Location



KEYPLAN
Scale 1:300000

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PROJECT: BALLYDERMOT WIND FARM

CLIENT: MKO

SHEET: FACTOR OF SAFETY PLAN – SHORT TERM CRITICAL CONDITION (UNDRAINED) SHEET 1 OF 4

Date: 09.10.26	Project number: P2319	Scale (@ A3):	
Drawn by: POR	Drawing Number: P2319-0600-0013	Rev: B	
Checked by: IH			

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9 October 2026

Peat Enhancement Area Block A

T30

T29

T28

T46

T45

T44

T42

T43

T40

Legend:

- Project Site
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- Proposed Amenity Board Walk
- Existing Drain

Factor of Safety Legend:

- 0 < 1.0
- ≥ 1.0 < 1.3
- ≥ 1.3

Increasing Stability

No Peat Recorded At This Location

JOINT BAY 2

0m 106m 211m 317m 422m 528m 634m 739m 845m 950m 1056m

JOINT BAY 1

Scale 1:21120

Grid Cable Route

PLAN

Scale 1:21120

KEYPLAN

Scale 1:300000

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PROJECT: BALLYDERMOT WIND FARM

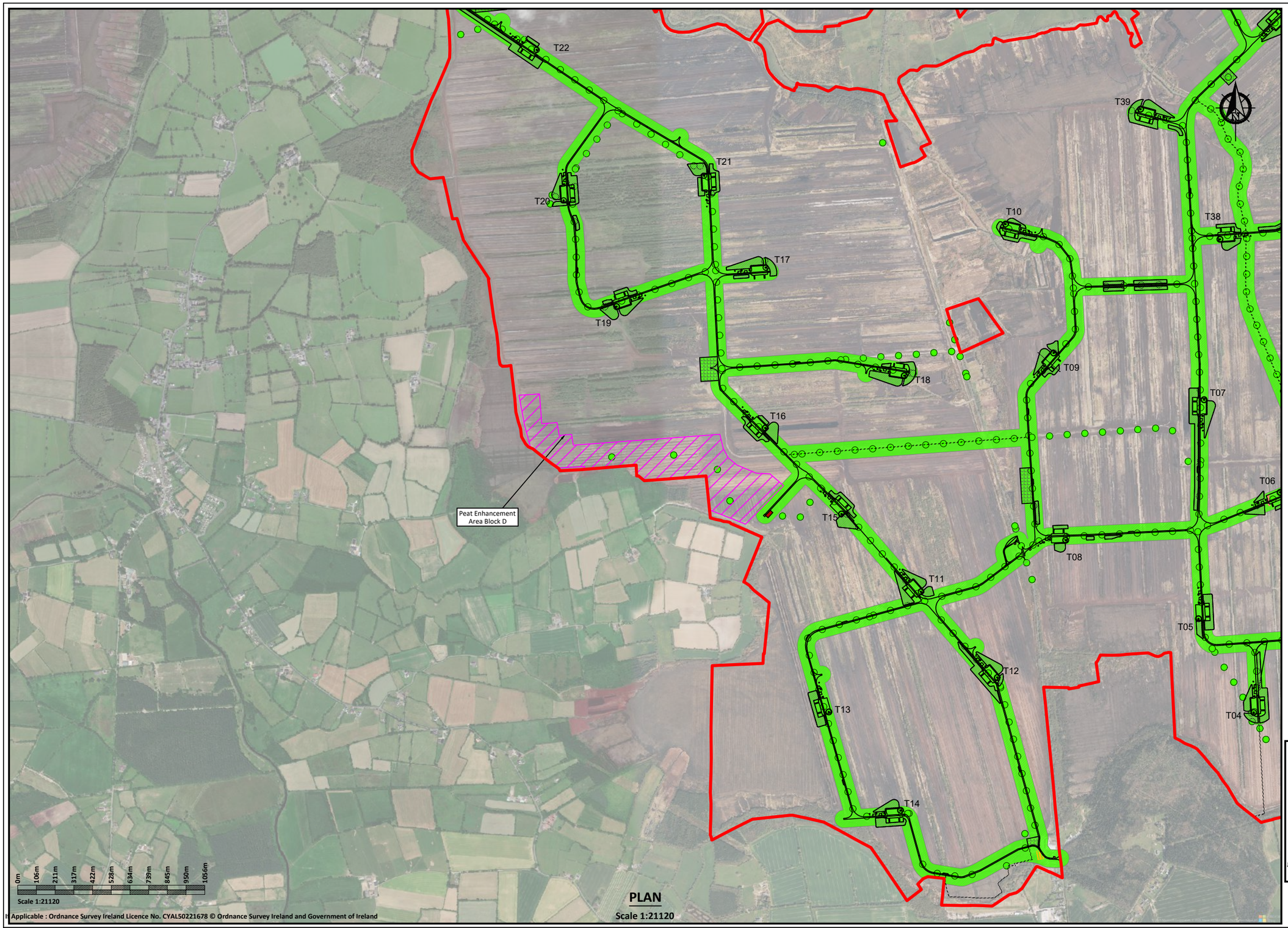
CLIENT: MKO

SHEET: FACTOR OF SAFETY PLAN – SHORT TERM CRITICAL CONDITION (UNDRAINED) SHEET 2 OF 4

Date 09.10.26	Project number P2319	Scale (@ A3)	
Drawn by POR	Drawing Number P2319-0600-0014	Rev B	
Checked by IH			

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PLAN
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Legend:

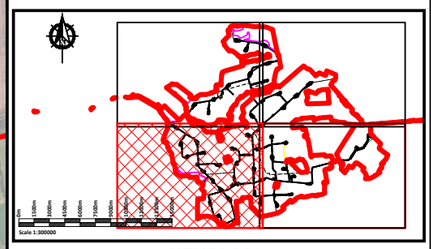
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Increasing Stability

No Peat Recorded At This Location



KEYPLAN
Scale 1:300000

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CLIENT: MKO

SHEET: FACTOR OF SAFETY PLAN – SHORT TERM CRITICAL CONDITION (UNDRAINED) SHEET 3 OF 4

Date: 09.10.26	Project number: P2319	Scale (@ A3):	
Drawn by: POR	Drawing Number: P2319-0600-0015		Rev: B
Checked by: IH			

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9 October 2026

T40
T36
T37
T35
T34
T33
T06
T01
T03
T02
Substation
Contractors Compounds
Temporary Set Down Area
Side Cast Peat
JOINT BAY 1
Grid Cable Route

0m 106m 211m 317m 422m 528m 634m 739m 845m 950m 1056m

Scale 1:21120

PLAN
Scale 1:21120

PLAN - OFFSITE SUBSTATION
Scale 1:10000

Public Road

KEYPLAN
Scale 1:450000

Offsite Substation

Legend:
- Project Site
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Factor of Safety Legend:
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- ≥ 1.3

Increasing Stability

No Peat Recorded At This Location

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CLIENT: MKO

SHEET: FACTOR OF SAFETY PLAN – SHORT TERM CRITICAL CONDITION (UNDRAINED) SHEET 4 OF 4

Date: 09.10.26
Project number: P2319
Scale (@ A3): As Shown
Drawn by: POR
Drawing Number: P2319-0600-0016
Rev: B
Checked by: IH

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DESIGNING AND DELIVERING,
A SUSTAINABLE FUTURE

APPENDIX A

Photos from Site Walkover



Photo 1: Partially revegetated worked peatland



Photo 2: Open worked peatland



Photo 3: Open peatland with ponded water



Photo 4: Revegetated worked peatland

FEHILY TIMONEY

DESIGNING AND DELIVERING,
A SUSTAINABLE FUTURE

APPENDIX B

Peat Stability Risk Registers

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T01

Grid Reference (Eastings, Northings):	669577	723418
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	1.0	1.4
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 = 13.92 (u), 6.96 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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 T01**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T02

Grid Reference (Eastings, Northings):	667967	722319
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	2.3	4.0
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 = 8.82(u), 4.41 (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	3	1	3	Negligible	No		3	1	3	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No	See Below	3	1	3	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Turbine T02**
i	Due to relatively deep peat at this turbine location, additional construction measures such as the following may be required: - excavation side walls to be supported (e.g. boulders, sheet piles) or excavation face battered to a shallow angle - temporary works designer may be required to provide excavation support design -daily detailed inspection of excavation faces -potential for greater water inflow into excavation requiring removal of water using pumping -increased exclusion zone around excavation to avoid accidental loading of crest of slope
ii	Maintain hydrology of area as far as possible;
iii	Use of experienced geotechnical staff for site investigation;
iv	Use of experienced contractors and trained operators to carry out the work;
v	Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties.
vi	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vii	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T03

Grid Reference (Eastings, Northings):	668652	722904
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.6	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 = 32.77 (u), 16.38 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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 T03**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T04

Grid Reference (Eastings, Northings):	667122	722390
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	2.4	3.6
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 = 5.89 (u), 2.94 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No	See Below	3	1	3	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Turbine T04**
i	Due to relatively deep peat at this turbine location, additional construction measures such as the following may be required: - excavation side walls to be supported (e.g. boulders, sheet piles) or excavation face battered to a shallow angle - temporary works designer may be required to provide excavation support design -daily detailed inspection of excavation faces -potential for greater water inflow into excavation requiring removal of water using pumping -increased exclusion zone around excavation to avoid accidental loading of crest of slope
ii	Maintain hydrology of area as far as possible;
iii	Use of experienced geotechnical staff for site investigation;
iv	Use of experienced contractors and trained operators to carry out the work;
v	Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties.
vi	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vii	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T05

Grid Reference (Eastings, Northings):	666811	722919
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.4	0.6
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 = 22.99 (u), 11.50 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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	Relatively deep peat	0	1	0	Not Applicable	No		0	1	0	Not Applicable

	Control Measures to be Implemented Prior to/and During Construction for **Turbine T05**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T06

Grid Reference (Eastings, Northings):	667272	723632
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.2	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 = 30.61 (u), 15.31 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		2	1	2	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 T06**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T07

Grid Reference (Eastings, Northings):	**666843**	**724155**
Distance to Watercourse (m)	**> 150**	
Min & Max Measured Peat Depth (m):	**0.1**	**0.2**
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 = 20.85 (u), 22.57 (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	2	1	2	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	1	2	Negligible	No		2	1	2	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 T07**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T08

Grid Reference (Eastings, Northings):	666062	723362
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	2.4	3.2
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 = 5.47 (u), 2.73 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		2	1	2	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Turbine T08**
i	Due to relatively deep peat at this turbine location, additional construction measures such as the following may be required: - excavation side walls to be supported (e.g. boulders, sheet piles) or excavation face battered to a shallow angle - temporary works designer may be required to provide excavation support design -daily detailed inspection of excavation faces -potential for greater water inflow into excavation requiring removal of water using pumping -increased exclusion zone around excavation to avoid accidental loading of crest of slope
ii	Maintain hydrology of area as far as possible;
iii	Use of experienced geotechnical staff for site investigation;
iv	Use of experienced contractors and trained operators to carry out the work;
v	Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties.
vi	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vii	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T09

Grid Reference (Eastings, Northings):	665994	724419
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	1.4	3.5
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 = 7.65 (u), 3.83 (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	3	1	3	Negligible	No		3	1	3	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No	See Below	3	1	3	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Turbine T09**
i	Due to relatively deep peat at this turbine location, additional construction measures such as the following may be required: - excavation side walls to be supported (e.g. boulders, sheet piles) or excavation face battered to a shallow angle - temporary works designer may be required to provide excavation support design -daily detailed inspection of excavation faces -potential for greater water inflow into excavation requiring removal of water using pumping -increased exclusion zone around excavation to avoid accidental loading of crest of slope
ii	Maintain hydrology of area as far as possible;
iii	Use of experienced geotechnical staff for site investigation;
iv	Use of experienced contractors and trained operators to carry out the work;
v	Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties.
vi	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vii	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T10

Grid Reference (Eastings, Northings):	665722	725146
Distance to Watercourse (m)	50 - 100	
Min & Max Measured Peat Depth (m):	1.5	2.6
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 = 10.43 (u), 8.50 (d)	1	3	3	Negligible	No	See Below	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	3	3	9	Low	No		2	3	6	Low
4	Evidence of previous failures/slips	0	3	0	Not Applicable	No		0	3	0	Not Applicable
5	Type of vegetation	2	3	6	Low	No		2	3	6	Low
6	General slope characteristics upslope/downslope from infrastructure location	3	3	9	Low	No		3	3	9	Low
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		2	3	6	Low
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 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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T11

Grid Reference (Eastings, Northings):	665245	723070
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.8	1.3
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 = 9.21 (u), 4.61 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		2	1	2	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 T13**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T12

Grid Reference (Eastings, Northings):	665676	722587
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	2.2	4.0
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 = 20.84 (u), 10.42 (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	3	1	3	Negligible	No		3	1	3	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		2	1	2	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Turbine T12**
i	Due to relatively deep peat at this turbine location, additional construction measures such as the following may be required: - excavation side walls to be supported (e.g. boulders, sheet piles) or excavation face battered to a shallow angle - temporary works designer may be required to provide excavation support design -daily detailed inspection of excavation faces -potential for greater water inflow into excavation requiring removal of water using pumping -increased exclusion zone around excavation to avoid accidental loading of crest of slope
ii	Maintain hydrology of area as far as possible;
iii	Use of experienced geotechnical staff for site investigation;
iv	Use of experienced contractors and trained operators to carry out the work;
v	Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties.
vi	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vii	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T13

Grid Reference (Eastings, Northings):	664725	722393
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	1.8	2.4
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 = 21.83 (u), 10.92 (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	3	1	3	Negligible	No		3	1	3	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		2	1	2	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		2	1	2	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 T13**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T14

Grid Reference (Eastings, Northings):	665130	721837
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.4	1.9
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 = 7.68 (u), 3.84(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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		2	1	2	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 T14**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T15

Grid Reference (Eastings, Northings):	664797	723510
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.7	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 = 19.11 (u), 9.56(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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		2	1	2	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 T15**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T16

Grid Reference (Eastings, Northings):	664367	723995
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.5	2.4
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 = 38.23 (u), 19.11 (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	3	1	3	Negligible	No		3	1	3	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		2	1	2	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		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 T16**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T17

Grid Reference (Eastings, Northings):	664369	724901
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.8	2.7
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 = 13.92 (u), 6.96 (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	3	1	3	Negligible	No		3	1	3	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No	See Below	2	1	2	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 T17**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T18

Grid Reference (Eastings, Northings):	665151	724290
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	1.9	3.8
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 = 6.38 (u), 3.19 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		2	1	2	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Turbine T18**
i	Due to relatively deep peat at this turbine location, additional construction measures such as the following may be required: - excavation side walls to be supported (e.g. boulders, sheet piles) or excavation face battered to a shallow angle - temporary works designer may be required to provide excavation support design -daily detailed inspection of excavation faces -potential for greater water inflow into excavation requiring removal of water using pumping -increased exclusion zone around excavation to avoid accidental loading of crest of slope
ii	Maintain hydrology of area as far as possible;
iii	Use of experienced geotechnical staff for site investigation;
iv	Use of experienced contractors and trained operators to carry out the work;
v	Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties.
vi	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vii	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T19

Grid Reference (Eastings, Northings):	663527	724680
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.4	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 = 25.51 (u), 12.76 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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 T19**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T20

Grid Reference (Eastings, Northings):	663229	725279
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.2	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 = 28.74(u), 14.37 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		2	1	2	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 T20**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigaiton, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T21

Grid Reference (Eastings, Northings):	664021	725419
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.7	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 = 13.92 (u), 6.96 (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	3	1	3	Negligible	No		3	1	3	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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 T21**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T22

Grid Reference (Eastings, Northings):	663077	726129
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.9	1.4
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 = 10.45 (u), 5.23(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	3	1	3	Negligible	No		3	1	3	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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 T22**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T23

Grid Reference (Eastings, Northings):	665569	728222
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	2.2	3.5
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 = 8.19 (u), 4.10 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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		2	1	2	Negligible
10	Evidence of bog pools	0	1	0	Not Applicable	No		0	1	0	Not Applicable
11	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Turbine T23**
i	Due to relatively deep peat at this turbine location, additional construction measures such as the following may be required: - excavation side walls to be supported (e.g. boulders, sheet piles) or excavation face battered to a shallow angle - temporary works designer may be required to provide excavation support design -daily detailed inspection of excavation faces -potential for greater water inflow into excavation requiring removal of water using pumping -increased exclusion zone around excavation to avoid accidental loading of crest of slope
ii	Maintain hydrology of area as far as possible;
iii	Use of experienced geotechnical staff for site investigation;
iv	Use of experienced contractors and trained operators to carry out the work;
v	Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties.
vi	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vii	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T24

Grid Reference (Eastings, Northings):	**664902**	**727516**
Distance to Watercourse (m)	**> 150**	
Min & Max Measured Peat Depth (m):	**1.3**	**2.2**
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 = 5.47 (u), 5.91 (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	2	1	2	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	1	2	Negligible	No		2	1	2	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 T24**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T25

Grid Reference (Eastings, Northings):	664557	726842
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	2.3	2.9
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 = 4.25 (u), 4.60 (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	2	1	2	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	1	2	Negligible	No	See Below	2	1	2	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Turbine T25**
i	Due to relatively deep peat at this turbine location, additional construction measures such as the following may be required: - excavation side walls to be supported (e.g. boulders, sheet piles) or excavation face battered to a shallow angle - temporary works designer may be required to provide excavation support design -daily detailed inspection of excavation faces -potential for greater water inflow into excavation requiring removal of water using pumping -increased exclusion zone around excavation to avoid accidental loading of crest of slope
ii	Maintain hydrology of area as far as possible;
iii	Use of experienced geotechnical staff for site investigation;
iv	Use of experienced contractors and trained operators to carry out the work;
v	Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties.
vi	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vii	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T26

Grid Reference (Eastings, Northings):	663924	727246
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.2	2.2
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 = 7.65 (u), 8.28 (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	2	1	2	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	1	2	Negligible	No		2	1	2	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 T26**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T27

Grid Reference (Eastings, Northings):	666655	728789
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.2	1.9
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 = 15.31 (u), 7.65 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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		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 T27**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T28

Grid Reference (Eastings, Northings):	667453	728387
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.3	1.6
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 = 9.58 (u), 4.79 (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	3	1	3	Negligible	No		3	1	3	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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 T28**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T29

Grid Reference (Eastings, Northings):	667536	729311
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.2	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 = 28.74 (u), 14.37 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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		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 T29**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T30

Grid Reference (Eastings, Northings):	667317	730151
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	3.2	3.8
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 = 3.28 (u), 1.64 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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		0	1	0	Not Applicable
10	Evidence of bog pools	0	1	0	Not Applicable	No		0	1	0	Not Applicable
11	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Turbine T30**
i	Due to relatively deep peat at this turbine location, additional construction measures such as the following may be required: - excavation side walls to be supported (e.g. boulders, sheet piles) or excavation face battered to a shallow angle - temporary works designer may be required to provide excavation support design -daily detailed inspection of excavation faces -potential for greater water inflow into excavation requiring removal of water using pumping -increased exclusion zone around excavation to avoid accidental loading of crest of slope
ii	Maintain hydrology of area as far as possible;
iii	Use of experienced geotechnical staff for site investigation;
iv	Use of experienced contractors and trained operators to carry out the work;
v	Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties.
vi	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vii	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T26

Grid Reference (Eastings, Northings):	**668235**	**724133**
Distance to Watercourse (m)	**100 - 150**	
Min & Max Measured Peat Depth (m):	**0.5**	**1.2**
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 = 19.13 (u), 9.57 (d)	1	2	2	Negligible	No	See Below	1	2	2	Negligible
2	Evidence of sub peat water flow	1	2	2	Negligible	No		1	2	2	Negligible
3	Evidence of surface water flow	3	2	6	Low	No		2	2	4	Negligible
4	Evidence of previous failures/slips	0	2	0	Not Applicable	No		0	2	0	Not Applicable
5	Type of vegetation	2	2	4	Negligible	No		2	2	4	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	2	6	Low	No		3	2	6	Low
7	Evidence of very soft/soft clay at base of peat	0	2	0	Not Applicable	No		0	2	0	Not Applicable
8	Evidence of mechanically cut peat	0	2	0	Not Applicable	No		0	2	0	Not Applicable
9	Evidence of quaking or buoyant peat	1	2	2	Negligible	No		0	2	0	Not Applicable
10	Evidence of bog pools	0	2	0	Not Applicable	No		0	2	0	Not Applicable
11	Other	0	2	0	Not Applicable	No		0	2	0	Not Applicable

	Control Measures to be Implemented Prior to/and During Construction for **Turbine T26**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T32

Grid Reference (Eastings, Northings):	665913	730396
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	1.6	3.0
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 = 4.60 (u), 2.30(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	2	1	2	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	1	2	Negligible	No	See Below	2	1	2	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Turbine T32**
i	Due to relatively deep peat at this turbine location, additional construction measures such as the following may be required: - excavation side walls to be supported (e.g. boulders, sheet piles) or excavation face battered to a shallow angle - temporary works designer may be required to provide excavation support design -daily detailed inspection of excavation faces -potential for greater water inflow into excavation requiring removal of water using pumping -increased exclusion zone around excavation to avoid accidental loading of crest of slope
ii	Maintain hydrology of area as far as possible;
iii	Use of experienced geotechnical staff for site investigation;
iv	Use of experienced contractors and trained operators to carry out the work;
v	Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties.
vi	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vii	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T33

Grid Reference (Eastings, Northings):	668792	723754
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.4	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 = 14.34 (u), 15.90 (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	2	1	2	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	1	2	Negligible	No		2	1	2	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 T33**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T34

Grid Reference (Eastings, Northings):	**668234**	**724133**
Distance to Watercourse (m)	**100 - 150**	
Min & Max Measured Peat Depth (m):	**0.5**	**1.2**
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 = 19.13 (u), 9.57 (d)	1	2	2	Negligible	No	See Below	1	2	2	Negligible
2	Evidence of sub peat water flow	1	2	2	Negligible	No		1	2	2	Negligible
3	Evidence of surface water flow	3	2	6	Low	No		2	2	4	Negligible
4	Evidence of previous failures/slips	0	2	0	Not Applicable	No		0	2	0	Not Applicable
5	Type of vegetation	2	2	4	Negligible	No		2	2	4	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	2	6	Low	No		2	2	4	Negligible
7	Evidence of very soft/soft clay at base of peat	0	2	0	Not Applicable	No		0	2	0	Not Applicable
8	Evidence of mechanically cut peat	0	2	0	Not Applicable	No		0	2	0	Not Applicable
9	Evidence of quaking or buoyant peat	1	2	2	Negligible	No		0	2	0	Not Applicable
10	Evidence of bog pools	0	2	0	Not Applicable	No		0	2	0	Not Applicable
11	Other	0	2	0	Not Applicable	No		0	2	0	Not Applicable

	Control Measures to be Implemented Prior to/and During Construction for **Turbine T34**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T35

Grid Reference (Eastings, Northings):	667697	724705
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.9	2.0
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 = 13.49 (u), 6.75 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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		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 T35**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T36

Grid Reference (Eastings, Northings):	667701	725703
Distance to Watercourse (m)	100 - 150	
Min & Max Measured Peat Depth (m):	1.2	1.3
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 = 17.64 (u), 8.82 (d)	1	2	2	Negligible	No	See Below	1	2	2	Negligible
2	Evidence of sub peat water flow	1	2	2	Negligible	No		1	2	2	Negligible
3	Evidence of surface water flow	3	2	6	Low	No		2	2	4	Negligible
4	Evidence of previous failures/slips	0	2	0	Not Applicable	No		0	2	0	Not Applicable
5	Type of vegetation	2	2	4	Negligible	No		2	2	4	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	2	6	Low	No		3	2	6	Low
7	Evidence of very soft/soft clay at base of peat	0	2	0	Not Applicable	No		0	2	0	Not Applicable
8	Evidence of mechanically cut peat	0	2	0	Not Applicable	No		0	2	0	Not Applicable
9	Evidence of quaking or buoyant peat	1	2	2	Negligible	No		0	2	0	Not Applicable
10	Evidence of bog pools	0	2	0	Not Applicable	No		0	2	0	Not Applicable
11	Relatively deep peat	3	2	6	Low	No		2	2	4	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Turbine T36**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T37

Grid Reference (Eastings, Northings):	668429	725406
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.8	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 = 12.77(u), 6.39 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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		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 T37**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T38

Grid Reference (Eastings, Northings):	666932	725060
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.4	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 = 38.23 (u), 19.11 (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	3	1	3	Negligible	No		3	1	3	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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 T38**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T39

Grid Reference (Eastings, Northings):	666484	725795
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.8	2.4
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 = 8.19 (u), 8.86 (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	2	1	2	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	1	2	Negligible	No		2	1	2	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 T39**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T40

Grid Reference (Eastings, Northings):	667298	726307
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	1.6	2.2
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 = 5.28 (u), 5.71 (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	2	1	2	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	1	2	Negligible	No		2	1	2	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 T40**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T41

Grid Reference (Eastings, Northings):	666700	726709
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.6	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 = 32.77 (u), 16.38 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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		2	1	2	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 T41**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T42

Grid Reference (Eastings, Northings):	**667234**	**727483**
Distance to Watercourse (m)	**> 150**	
Min & Max Measured Peat Depth (m):	**1.0**	**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 = 12.07 (u), 6.04 (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	3	1	3	Negligible	No		3	1	3	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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 T42**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T43

Grid Reference (Eastings, Northings):	668319	727108
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	1.0	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 = 7.19 (u), 6.04 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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		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 T43**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T44

Grid Reference (Eastings, Northings):	668928	727701
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.5	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 = 15.29 (u), 7.65 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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		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 T44**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T45

Grid Reference (Eastings, Northings):	668094	727875
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.4	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 = 21.87 (u), 10.93 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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		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 T45**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Turbine T46

Grid Reference (Eastings, Northings):	669561	728267
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.7	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 = 12.07 (u), 6.04 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	Negligible	No		3	1	3	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		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 T46**
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	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vi	Based on available ground investigaiton, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Met. Mast 1

Grid Reference (Eastings, Northings):	667735	726740
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	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 = 6.37 (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	3	1	3	Negligible	No		3	1	3	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		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	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	Relatively deep peat	1	1	1	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Met. Mast 1**
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	Inspection & approval of sub-formation by a competent person where a shallow foundation base is constructed.
vi	Based on available ground investigation, a piled foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Met. Mast 2

Grid Reference (Eastings, Northings):	**664363**	**723502**
Distance to Watercourse (m)	**100 - 150**	
Min & Max Measured Peat Depth (m):	**1.8-4.7**	
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 = 2.32 (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	3	1	3	Negligible	No		3	1	3	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		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	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	Relatively deep peat	4	1	4	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Met. Mast 2**
i	Due to relatively deep peat at this turbine location, additional construction measures such as the following may be required: - excavation side walls to be supported (e.g. boulders, sheet piles) or excavation face battered to a shallow angle - temporary works designer may be required to provide excavation support design -daily detailed inspection of excavation faces -potential for greater water inflow into excavation requiring removal of water using pumping -increased exclusion zone around excavation to avoid accidental loading of crest of slope
ii	Maintain hydrology of area as far as possible;
iii	Use of experienced geotechnical staff for site investigation;
iv	Use of experienced contractors and trained operators to carry out the work;
v	Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties.
vi	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vii	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Relay Mast

Grid Reference (Eastings, Northings):	665884	727689
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	4.1	
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 = 4.50 (u), 2.80 (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	3	1	3	Negligible	No		2	1	2	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		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	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	Relatively deep peat	4	1	4	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Relay Mast**
i	Due to relatively deep peat at this turbine location, additional construction measures such as the following may be required: - excavation side walls to be supported (e.g. boulders, sheet piles) or excavation face battered to a shallow angle - temporary works designer may be required to provide excavation support design -daily detailed inspection of excavation faces -potential for greater water inflow into excavation requiring removal of water using pumping -increased exclusion zone around excavation to avoid accidental loading of crest of slope
ii	Maintain hydrology of area as far as possible;
iii	Use of experienced geotechnical staff for site investigation;
iv	Use of experienced contractors and trained operators to carry out the work;
v	Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties.
vi	Inspection & approval of turbine base sub-formation by a competent person where a gravity type foundation base is constructed.
vii	Based on available ground investigation, a piled turbine foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**Onsite 110kV Substation**

Grid Reference (Eastings, Northings):	**672480**	**725674**
Distance to Watercourse (m)	**> 150**	
Min & Max Measured Peat Depth (m):	**1.0 - 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 = 10.93(u), 5.47 (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	3	1	3	Negligible	No		3	1	3	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		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	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 **Onsite 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	Inspection & approval of sub-formation by a competent person where a shallow foundation base is constructed.
vi	Based on available ground investigation, a piled foundation may be required.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**Offsite 110kV Substation**

Grid Reference (Eastings, Northings):	**683317**	**725674**
Distance to Watercourse (m)	**> 150**	
Min & Max Measured Peat Depth (m):	**0.1-0.9**	
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 = 4.05 (u), 4.28 (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	3	1	3	Negligible	No		3	1	3	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		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	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 **Offsite 110kV 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	Inspection & approval of sub-formation by a competent person where a shallow foundation base is constructed.

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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Const. Comp. (1)

Grid Reference (Eastings, Northings):	667299	729202
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	0.5-0.8	
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 =9.57 (u), 10.34 (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	3	1	3	Negligible	No		3	1	3	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	3	1	3	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 **Construction Compound 1**
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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Const. Comp. (2)

Grid Reference (Eastings, Northings):	665284	727834
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	3.0 -3.3	
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 = 6.76(u), 3.38 (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	3	1	3	Negligible	No		3	1	3	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		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	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 **Construction Compound 2**
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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Const. Comp. (3)

Grid Reference (Eastings, Northings):	662797	726383
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	1.8-3.5	
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 = 9.57 (u), 4.78 (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	3	1	3	Negligible	No		3	1	3	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		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	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 **Construction Compound 3**
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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Const. Comp. (4)

Grid Reference (Eastings, Northings):	**666981**	**725978**
Distance to Watercourse (m)	**> 150**	
Min & Max Measured Peat Depth (m):	**1.8 - 2.1**	
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 = 4.11 (u), 3.19 (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	3	1	3	Negligible	No		3	1	3	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		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	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 **Construction Compound 4**
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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Const. Comp. (5)

Grid Reference (Eastings, Northings):	**664050**	**724328**
Distance to Watercourse (m)	**> 150**	
Min & Max Measured Peat Depth (m):	**1.8 - 2.5**	
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 = 11.47 (u), 11.47 (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	3	1	3	Negligible	No		3	1	3	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		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	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 **Construction Compound 5**
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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Const. Comp. (6)

Grid Reference (Eastings, Northings):	**665879.12**	**721662.2**
Distance to Watercourse (m)	**> 150**	
Min & Max Measured Peat Depth (m):	**1.8 - 2.4**	
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 = 25.51 (u), 12.76 (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	3	1	3	Negligible	No		3	1	3	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		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	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 **Construction Compound 6**
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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**Const. Comp. (7)**

Grid Reference (Eastings, Northings):	**667818.46**	**723648**
Distance to Watercourse (m)	**> 150**	
Min & Max Measured Peat Depth (m):	**0.6 - 1.4**	
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 = 9.56 (u), 8.19 (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	3	1	3	Negligible	No		3	1	3	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		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	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 **Construction Compound 7**
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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Const. Comp. (8)

Grid Reference (Eastings, Northings):	665879	721662
Distance to Watercourse (m)	**100 - 150**	
Min & Max Measured Peat Depth (m):	**0.6 - 1.4**	
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 = 16.37 (u), 12.73 (d)	1	2	2	Negligible	No	See Below	1	2	2	Negligible
2	Evidence of sub peat water flow	1	2	2	Negligible	No		1	2	2	Negligible
3	Evidence of surface water flow	3	2	6	Low	No		3	2	6	Low
4	Evidence of previous failures/slips	0	2	0	Not Applicable	No		0	2	0	Not Applicable
5	Type of vegetation	2	2	4	Negligible	No		2	2	4	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	1	2	2	Negligible	No		1	2	2	Negligible
7	Evidence of very soft/soft clay at base of peat	0	2	0	Not Applicable	No		0	2	0	Not Applicable
8	Evidence of mechanically cut peat	0	2	0	Not Applicable	No		0	2	0	Not Applicable
9	Evidence of quaking or buoyant peat	0	2	0	Not Applicable	No		0	2	0	Not Applicable
10	Evidence of bog pools	0	2	0	Not Applicable	No		0	2	0	Not Applicable
11	Other	0	2	0	Not Applicable	No		0	2	0	Not Applicable

	Control Measures to be Implemented Prior to/and During Construction for **Construction Compound 8**
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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**Site Entrance to T22**

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0-2.9**
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 = 2.95 (u), 1.98 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	1	2	Negligible	No		2	1	2	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	3	1	3	Negligible	No		2	1	2	Negligible
10	Evidence of bog pools	0	1	0	Not Applicable	No		0	1	0	Not Applicable
11	Relatively deep peat	3	1	3	Negligible	No		0	1	0	Not Applicable

	Control Measures to be Implemented Prior to/and During Construction for **Main Entrance Road to T22**
i	Maintain hydrology of area as far as possible;
ii	Installation of appropriate drainge measures to alleviate ingress of surface water into excavations
iii	Use of experienced geotechnical staff for site investigation;
iv	Use of experienced contractors and trained operators to carry out the work;
v	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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T06 to T01

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.4-1.9**
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 = 5.00 (u), 4.42 (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	2	1	2	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	2	1	2	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 **T06 to T01**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**T02 to T03**

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**1.1-2.5**
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 = 4.03 (u), 2.73 (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	2	1	2	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	2	1	2	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **T02 to T03**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T02 to T04

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.6-2.4**
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 = 3.54 (u), 2.83 (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	2	1	2	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	2	1	2	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **T02 to T04**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**T04 to T05**

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.8-2.4**
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 = 3.54 (u), 2.88 (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	2	1	2	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	2	1	2	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 **T04 to T05**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T05 to T07

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.4-1.4**
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 = 5.75 (u), 4.61 (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	2	1	2	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	2	1	2	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 **T05 to T07**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T07 to T38

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.1-2.2**
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 = 5.75 (u), 5.21 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	1	2	Negligible	No		2	1	2	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	3	1	3	Negligible	No		2	1	2	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 **T07 to T38**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T08 to T09

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**1.6-2.7**
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 = 5.73 (u), 3.82 (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	2	1	2	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	2	1	2	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **T08 to T09**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T09 to T10

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**< 50**
Min & Max Measured Peat Depth (m):	**0.6-2.6**
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 = 5.10 (u), 4.03 (d)	1	4	4	Negligible	No	See Below	1	4	4	Negligible
2	Evidence of sub peat water flow	1	4	4	Negligible	No		1	4	4	Negligible
3	Evidence of surface water flow	2	4	8	Low	No		1	4	4	Negligible
4	Evidence of previous failures/slips	0	4	0	Not Applicable	No		0	4	0	Not Applicable
5	Type of vegetation	2	4	8	Low	No		1	4	4	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	4	8	Low	No		1	4	4	Negligible
7	Evidence of very soft/soft clay at base of peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
8	Evidence of mechanically cut peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
9	Evidence of quaking or buoyant peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
10	Evidence of bog pools	0	4	0	Not Applicable	No		0	4	0	Not Applicable
11	Relatively deep peat	3	4	12	Medium	No		2	4	8	Low

	Control Measures to be Implemented Prior to/and During Construction for **T09 to 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.

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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**T11 to T12**

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.9-2.6**
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 = 5.28 (u), 4.03 (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	2	1	2	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	2	1	2	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **T11 to T12**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**T11 to T14**

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.7-2.0**
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 = 5.47 (u), 4.19 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	1	2	Negligible	No		2	1	2	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	3	1	3	Negligible	No		2	1	2	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 **T11 to T14**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T11 to T06

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**< 50**
Min & Max Measured Peat Depth (m):	**0.8-2.4**
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 = 3.28 (u), 2.40 (d)	1	4	4	Negligible	No	See Below	1	4	4	Negligible
2	Evidence of sub peat water flow	1	4	4	Negligible	No		1	4	4	Negligible
3	Evidence of surface water flow	2	4	8	Low	No		1	4	4	Negligible
4	Evidence of previous failures/slips	0	4	0	Not Applicable	No		0	4	0	Not Applicable
5	Type of vegetation	2	4	8	Low	No		1	4	4	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	4	8	Low	No		1	4	4	Negligible
7	Evidence of very soft/soft clay at base of peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
8	Evidence of mechanically cut peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
9	Evidence of quaking or buoyant peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
10	Evidence of bog pools	0	4	0	Not Applicable	No		0	4	0	Not Applicable
11	Relatively deep peat	3	4	12	Medium	No		1	4	4	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **T11 to T05**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**T15 to T11**

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.4-1.8**
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 = 6.96 (u), 6.37 (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	2	1	2	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	2	1	2	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 **T15 to 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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**T16 to T18**

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.8-2.7**
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 = 3.28 (u), 2.30 (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	2	1	2	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	2	1	2	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **T16 to T18**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**T17 to T16**

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.6-1.0**
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 = 5.47 (u), 5.23 (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	2	1	2	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	2	1	2	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 **T17 to T16**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**T17 to T19**

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.5-1.0**
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 = 7.19 (u), 76.5 (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	2	1	2	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	2	1	2	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 **T17 to T19**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T19 to T20

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.6-1.8**
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 = 4.11 (u), 3.19 (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	2	1	2	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	2	1	2	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 **T19 to T20**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**T21 to T17**

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.5-1.6**
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 = 5.75 (u), 5.75 (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	2	1	2	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	2	1	2	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 **T21 to T17**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**T22 to T21**

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.3-2.3**
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 = 3.48 (u), 2.87 (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	2	1	2	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	2	1	2	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 **T22 to T21**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**T22 to T26**

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**< 50**
Min & Max Measured Peat Depth (m):	**1.6-3.8**
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 = 2.55 (u), 1.64 (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	2	1	2	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	2	1	2	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **T21 to T26**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T22 to T29

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.5-1.5**
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 = 5.75 (u), 5.10 (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	2	1	2	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	2	1	2	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 **T22 to T29**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**T24 to T25**

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.3-1.8**
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 = 7.65 (u), 6.37 (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	2	1	2	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	2	1	2	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 **T24 to T25**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T26 to T25

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.4-2.9**
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 = 4.60 (u), 3.95 (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	2	1	2	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	2	1	2	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **T26 to T25**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T25 to T26

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**< 50**
Min & Max Measured Peat Depth (m):	**0.2-2.5**
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 = 2.26 (u), 1.60 (d)	1	4	4	Negligible	No	See Below	1	4	4	Negligible
2	Evidence of sub peat water flow	1	4	4	Negligible	No		1	4	4	Negligible
3	Evidence of surface water flow	2	4	8	Low	No		1	4	4	Negligible
4	Evidence of previous failures/slips	0	4	0	Not Applicable	No		0	4	0	Not Applicable
5	Type of vegetation	2	4	8	Low	No		1	4	4	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	4	8	Low	No		1	4	4	Negligible
7	Evidence of very soft/soft clay at base of peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
8	Evidence of mechanically cut peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
9	Evidence of quaking or buoyant peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
10	Evidence of bog pools	0	4	0	Not Applicable	No		0	4	0	Not Applicable
11	Other	0	4	0	Not Applicable	No		0	4	0	Not Applicable

	Control Measures to be Implemented Prior to/and During Construction for **T25 to T26**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T25 to T27

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**1.0-4.1**
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 = 2.08 (u), 1.87 (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	2	1	2	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	2	1	2	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **T25 to T27**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T26 to T27

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
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), 6.38 (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	2	1	2	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	2	1	2	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 **T26 to T27**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T28 to T29

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.2-1.0**
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 = 5.75 (u), 5.75 (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	2	1	2	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	2	1	2	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 **T28 to T29**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T29 to T30

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**< 50**
Min & Max Measured Peat Depth (m):	**0.6-2.0**
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 = 3.83 (u), 2.87 (d)	1	4	4	Negligible	No	See Below	1	4	4	Negligible
2	Evidence of sub peat water flow	1	4	4	Negligible	No		1	4	4	Negligible
3	Evidence of surface water flow	2	4	8	Low	No		1	4	4	Negligible
4	Evidence of previous failures/slips	0	4	0	Not Applicable	No		0	4	0	Not Applicable
5	Type of vegetation	2	4	8	Low	No		1	4	4	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	4	8	Low	No		1	4	4	Negligible
7	Evidence of very soft/soft clay at base of peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
8	Evidence of mechanically cut peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
9	Evidence of quaking or buoyant peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
10	Evidence of bog pools	0	4	0	Not Applicable	No		0	4	0	Not Applicable
11	Other	0	4	0	Not Applicable	No		0	4	0	Not Applicable

	Control Measures to be Implemented Prior to/and During Construction for **T29 to T30**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T28 to T42

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**< 50**
Min & Max Measured Peat Depth (m):	**0.1-5.8**
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 = 2.50 (u), 1.60 (d)	1	4	4	Negligible	No	See Below	1	4	4	Negligible
2	Evidence of sub peat water flow	1	4	4	Negligible	No		1	4	4	Negligible
3	Evidence of surface water flow	2	4	8	Low	No		1	4	4	Negligible
4	Evidence of previous failures/slips	0	4	0	Not Applicable	No		0	4	0	Not Applicable
5	Type of vegetation	2	4	8	Low	No		1	4	4	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	4	8	Low	No		1	4	4	Negligible
7	Evidence of very soft/soft clay at base of peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
8	Evidence of mechanically cut peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
9	Evidence of quaking or buoyant peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
10	Evidence of bog pools	0	4	0	Not Applicable	No		0	4	0	Not Applicable
11	Relatively deep peat	3	4	12	Medium	No		2	4	8	Low

	Control Measures to be Implemented Prior to/and During Construction for **T28 to T42**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T29 to T31

Grid Reference (Eastings, Northings):	**Varies**
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 = 2.78 (u), 1.34 (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	2	1	2	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	2	1	2	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **T29 to T31**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T30 to T31

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**1.0-1.6**
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 = 3.08 (u), 2.57 (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	2	1	2	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	2	1	2	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 **T30 to T31**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T31 to T32

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**1.2-5.8**
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 = 2.87 (u), 1.92 (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	2	1	2	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	2	1	2	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **T31 to T32**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T36 to T37

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**0.3-1.7**
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 = 5.67 (u), 4.50 (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	2	1	2	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	2	1	2	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 **T36 to 37**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**T36 to T38**

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**< 50**
Min & Max Measured Peat Depth (m):	**0.2-1.6**
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 = 5.67 (u), 4.50 (d)	1	4	4	Negligible	No	See Below	1	4	4	Negligible
2	Evidence of sub peat water flow	1	4	4	Negligible	No		1	4	4	Negligible
3	Evidence of surface water flow	2	4	8	Low	No		1	4	4	Negligible
4	Evidence of previous failures/slips	0	4	0	Not Applicable	No		0	4	0	Not Applicable
5	Type of vegetation	2	4	8	Low	No		1	4	4	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	4	8	Low	No		1	4	4	Negligible
7	Evidence of very soft/soft clay at base of peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
8	Evidence of mechanically cut peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
9	Evidence of quaking or buoyant peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
10	Evidence of bog pools	0	4	0	Not Applicable	No		0	4	0	Not Applicable
11	Other	0	4	0	Not Applicable	No		0	4	0	Not Applicable

	Control Measures to be Implemented Prior to/and During Construction for **T36 to T38**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**T40 to T43**

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**1.2-2.3**
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 = 2.15 (u), 2.87 (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	2	1	2	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	2	1	2	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 **T40 to T43**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	T40 to T46

Grid Reference (Eastings, Northings):	**Varies**
Distance to Watercourse (m)	**> 150**
Min & Max Measured Peat Depth (m):	**1.0-2.2**
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 = 4.26 (u), 3.83 (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	3	1	3	Negligible	No		2	1	2	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		2	1	2	Negligible
6	General slope characteristics upslope/downslope from infrastructure location	2	1	2	Negligible	No		2	1	2	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	3	1	3	Negligible	No		2	1	2	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 **T40 to T46**
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 D in PSA.
(3) Impact based on distance of infrastructure element to nearest watercourse.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Peatland Enhancement Area A

Grid Reference (Eastings, Northings):	**666930**	**730706**
Distance to Watercourse (m)	**> 150**	
Min & Max Measured Peat Depth (m):	**2.2-4.6**	
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 = 2.83 (u), 1.74 (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	3	1	3	Negligible	No		2	1	2	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		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	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	Relatively deep peat	3	1	3	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Peatland Enhancement Area A**
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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**Peatland Enhancement Area B**

Grid Reference (Eastings, Northings):	**663183**	**727850**
Distance to Watercourse (m)	**100 - 150**	
Min & Max Measured Peat Depth (m):	**4.2-5.0**	
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 = 2.55 (u), 1.53 (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	3	1	3	Negligible	No		2	1	2	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		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	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	Relatively deep peat	4	1	4	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Peatland Enhancement Area B**
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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	Peatland Enhancement Area C

Grid Reference (Eastings, Northings):	662620	726745
Distance to Watercourse (m)	> 150	
Min & Max Measured Peat Depth (m):	4.7-5.0	
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 = 2.69 (u), 1.63 (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	3	1	3	Negligible	No		2	1	2	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		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	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	Relatively deep peat	4	1	4	Negligible	No		2	1	2	Negligible

	Control Measures to be Implemented Prior to/and During Construction for **Peatland Enhancement Area C**
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.

Ballydermot Wind Farm - Peat Stability Risk Register (Rev 0)

Location:	**Peatland Enhancement Area D**

Grid Reference (Eastings, Northings):	**663757**	**723818**
Distance to Watercourse (m)	**< 50**	
Min & Max Measured Peat Depth (m):	**2.2-5.0**	
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 = 3.82 (u), 2.29 (d)	1	4	4	Negligible	No	See Below	1	4	4	Negligible
2	Evidence of sub peat water flow	1	4	4	Negligible	No		1	4	4	Negligible
3	Evidence of surface water flow	3	4	12	Medium	No		2	4	8	Low
4	Evidence of previous failures/slips	0	4	0	Not Applicable	No		0	4	0	Not Applicable
5	Type of vegetation	2	4	8	Low	No		2	4	8	Low
6	General slope characteristics upslope/downslope from infrastructure location	1	4	4	Negligible	No		1	4	4	Negligible
7	Evidence of very soft/soft clay at base of peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
8	Evidence of mechanically cut peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
9	Evidence of quaking or buoyant peat	0	4	0	Not Applicable	No		0	4	0	Not Applicable
10	Evidence of bog pools	0	4	0	Not Applicable	No		0	4	0	Not Applicable
11	Relatively deep peat	3	4	12	Medium	No		2	4	8	Low

	Control Measures to be Implemented Prior to/and During Construction for **Peatland Enhancement Area D**
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.

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APPENDIX C

Calculated FOS for Peat Slopes on Site

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)
T01	669577	723418	3	8	10	1.4	2.4	**10.93**	**6.38**
T02	667967	722319	2	8	10	3	4.0	**7.65**	**5.73**
T03	668652	722904	2	8	10	2	3.0	**11.47**	**7.65**
T04	667122	722390	3	8	10	3.7	4.7	**4.14**	**3.26**
T05	666811	722919	4	8	10	0.6	1.6	**19.16**	**7.19**
T06	667272	723632	3	8	10	0.9	1.9	**17.01**	**8.06**
T07	666843	724155	2	8	10	0.15	1.2	**152.91**	**19.95**
T08	666062	723362	3	8	10	3.2	4.2	**4.78**	**3.64**
T09	665994	724419	3	8	10	2.4	3.4	**6.38**	**4.50**
T10	665722	725146	2	8	10	2.6	3.6	**8.82**	**6.37**
T11	665245	723071	5	8	10	1.3	2.3	**7.09**	**4.01**
T12	665676	722587	1	8	10	3.2	4.2	**14.33**	**10.92**
T13	664725	722393	1	8	10	2.4	3.4	**19.10**	**13.48**
T14	665130	721837	5	8	10	1.9	2.9	**4.85**	**3.18**
T15	664797	723510	2	8	10	1.5	2.5	**15.29**	**9.17**
T16	664367	723995	2	8	10	0.8	1.8	**28.67**	**12.74**
T17	664369	724901	3	8	10	1.6	2.6	**9.57**	**5.89**
T18	665151	724290	3	8	10	3	4.0	**5.10**	**3.83**
T19	663527	724680	3	8	10	0.9	1.9	**17.01**	**8.06**
T20	663229	725279	4	8	10	1	2.0	**11.50**	**5.75**
T21	664021	725419	3	8	10	1.3	2.3	**11.77**	**6.66**
T22	663077	726129	4	8	10	1.2	2.2	**9.58**	**5.23**
T23	665569	728222	2	8	10	3.1	4.1	**7.40**	**5.59**
T24	664902	727516	3	8	10	2.6	3.6	**5.89**	**4.25**
T25	664557	726842	3	8	10	2.9	3.9	**5.28**	**3.92**
T26	663924	727246	3	8	10	1.6	2.6	**9.57**	**5.89**
T27	666655	728789	3	8	10	1.1	2.1	**13.92**	**7.29**
T28	667453	728387	4	8	10	1.6	2.6	**7.19**	**4.42**
T29	667536	729311	4	8	10	1	2.0	**11.50**	**5.75**
T30	667317	730151	4	8	10	3.8	4.8	**3.03**	**2.40**
T31	666425	729892	4	8	10	3.2	4.2	**3.59**	**2.74**
T32	665913	730396	4	8	10	3	4.0	**3.83**	**2.87**
T33	668792	723754	2	8	10	1.2	2.2	**19.11**	**10.43**
T34	668235	724133	3	8	10	1.1	2.1	**13.92**	**7.29**
T35	667697	724705	2	8	10	1.9	2.9	**12.07**	**7.91**
T36	667701	725703	2	8	10	1.2	2.2	**19.11**	**10.43**
T37	668429	725406	4	8	10	1.1	2.1	**10.45**	**5.47**
T38	666932	725060	2	8	10	0.7	1.7	**32.77**	**13.49**
T39	666484	725795	2	8	10	2.5	3.5	**9.17**	**6.55**
T40	667298	726307	3	8	10	2.2	3.2	**6.96**	**4.78**
T41	666700	726709	2	8	10	1.8	2.8	**12.74**	**8.19**
T42	667234	727483	2	8	10	2.3	3.3	**9.97**	**6.95**
T43	668319	727108	4	8	10	1.8	2.8	**6.39**	**4.11**
T44	668928	727701	2	8	10	1.8	2.8	**12.74**	**8.19**
T45	668094	727875	3	8	10	1.1	2.1	**13.92**	**7.29**
T46	669561	728267	2	8	10	2.2	3.2	**10.43**	**7.17**
Met Mast 1	667735	726740	2	8	10	1.8	2.8	**12.74**	**8.19**
Met Mast 2	664363	723502	2	8	10	4.7	5.7	**4.88**	**4.02**
Relay Mast	665884	727689	2	8	10	4.1	5.1	**5.59**	**4.50**
Onsite Substation	672480	725674	3	8	10	1.4	2.4	**10.93**	**6.38**
Offsite Substation	683339	725855	5	8	10	0.9	1.9	**10.24**	**4.85**
Construction Compound 1	667300	729202	3	8	10	0.6	1.6	**25.51**	**9.57**
Construction Compound 2	665284	727834	5	8	10	3.3	4.3	**2.79**	**2.14**
Construction Compound 3	662797	726383	4	8	10	3.5	4.5	**3.28**	**2.55**
Construction Compound 4	666981	725978	4	8	10	1.8	2.8	**6.39**	**4.11**
Construction Compound 5	664050	724328	2	8	10	1	2.0	**22.94**	**11.47**
Construction Compound 6	665840	723670	2	8	10	2	3.0	**11.47**	**7.65**
Construction Compound 7	667818	723648	2	8	10	1.4	2.4	**16.38**	**9.56**
Construction Compound 8	665879	721662	1	8	10	1.8	2.8	**25.47**	**16.37**
Construction Compound (Onsite SS)	672491	725533	1	8	10	1	2.0	**45.85**	**22.92**
Construction Compound (Offsite Substation)	683275	725942	4	8	10	0.9	1.9	**12.77**	**6.05**
1A	668492	725404	3	8	10	0.9	1.9	**17.01**	**8.06**
2A	668591	725411	4	8	10	1	2.0	**11.50**	**5.75**
4A	668791	725426	3	8	10	2.1	3.1	**7.29**	**4.94**
6A	668990	725433	3	8	10	1.9	2.9	**8.06**	**5.28**
8A	669188	725404	4	8	10	1	2.0	**11.50**	**5.75**
9A	669287	725390	3	8	10	0.9	1.9	**17.01**	**8.06**
10A	669386	725376	4	8	10	0.8	1.8	**14.37**	**6.39**
12A	667227	728297	4	8	10	1	2.0	**11.50**	**5.75**
13A	667172	728223	2	8	10	0.8	1.8	**28.67**	**12.74**
15A	666980	728167	4	8	10	0.8	1.8	**14.37**	**6.39**
17A	666788	728110	3	8	10	0.5	1.5	**30.61**	**10.20**
18A	666692	728082	3	8	10	0.6	1.6	**25.51**	**9.57**
20A	666527	728305	2	8	10	1	2.0	**22.94**	**11.47**
22A	666335	728249	3	8	10	1.4	2.4	**10.93**	**6.38**
24A	666143	728192	4	8	10	3.7	4.7	**3.11**	**2.45**
26A	665951	728136	4	8	10	3.5	4.5	**3.28**	**2.55**
28A	665760	728079	4	8	10	2.5	3.5	**4.60**	**3.28**
30A	665568	728023	3	8	10	3	4.0	**5.10**	**3.83**
32A	665376	727967	4	8	10	1.8	2.8	**6.39**	**4.11**
34A	665183	727912	4	8	10	3.8	4.8	**3.03**	**2.40**
35A	665087	727885	4	8	10	3.5	4.5	**3.28**	**2.55**
36A	665052	727807	3	8	10	3.8	4.8	**4.03**	**3.19**
37A	665042	727707	2	8	10	3.6	4.6	**6.37**	**4.99**
38A	665035	727631	2	8	10	3.7	4.7	**6.20**	**4.88**
1	672443	726234	3	8	10	2	3.0	**7.65**	**5.10**
3	672441	726034	2	8	10	0.7	1.7	**32.77**	**13.49**
5	672440	725834	3	8	10	2.3	3.3	**6.66**	**4.64**
8	672395	725552	2	8	10	0.95	2.0	**24.14**	**11.76**
10	672290	725383	2	8	10	1.3	2.3	**17.64**	**9.97**
12	672182	725214	3	8	10	0.25	1.3	**61.23**	**12.25**
14	672009	725127	3	8	10	1.9	2.9	**8.06**	**5.28**
16	671820	725061	2	8	10	0.2	1.2	**114.68**	**19.11**
18	671691	724919	2	8	10	1.9	2.9	**12.07**	**7.91**
20	671582	724751	2	8	10	1	2.0	**22.94**	**11.47**
22	671476	724582	3	8	10	0.9	1.9	**17.01**	**8.06**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)
24	671291	724543	3	8	10	1.95	3.0	**7.85**	**5.19**
26	671091	724534	3	8	10	1.6	2.6	**9.57**	**5.89**
28	670895	724503	2	8	10	1.8	2.8	**12.74**	**8.19**
32	670510	724396	2	8	10	3.8	4.8	**6.04**	**4.78**
34	670316	724347	2	8	10	3.2	4.2	**7.17**	**5.46**
36	670122	724298	2	8	10	4	5.0	**5.73**	**4.59**
38	669929	724248	2	8	10	3.8	4.8	**6.04**	**4.78**
40	669735	724197	3	8	10	4.2	5.2	**3.64**	**2.94**
42	669658	724029	4	8	10	2.1	3.1	**5.47**	**3.71**
44	669655	723829	3	8	10	1.9	2.9	**8.06**	**5.28**
46	669667	723630	4	8	10	3	4.0	**3.83**	**2.87**
48	669677	723430	3	8	10	2.8	3.8	**5.47**	**4.03**
50	669496	723404	2	8	10	1.2	2.2	**19.11**	**10.43**
52	669297	723420	2	8	10	0.4	1.4	**57.34**	**16.38**
54	669097	723435	3	8	10	0.9	1.9	**17.01**	**8.06**
56	668898	723449	3	8	10	0.4	1.4	**38.27**	**10.93**
60	668499	723481	2	8	10	1.9	2.9	**12.07**	**7.91**
61	668400	723491	2	8	10	0.8	1.8	**28.67**	**12.74**
62	668300	723502	2	8	10	0.7	1.7	**32.77**	**13.49**
63	668201	723512	2	8	10	0.6	1.6	**38.23**	**14.34**
64	668101	723523	2	8	10	0.6	1.6	**38.23**	**14.34**
65	668002	723534	2	8	10	0.4	1.4	**57.34**	**16.38**
66	667902	723545	3	8	10	1.8	2.8	**8.50**	**5.47**
67	667807	723570	3	8	10	0.6	1.6	**25.51**	**9.57**
68	667710	723597	4	8	10	0.1	1.1	**114.96**	**10.45**
69	667614	723624	4	8	10	0.7	1.7	**16.42**	**6.76**
70	667518	723651	3	8	10	1.1	2.1	**13.92**	**7.29**
71	667420	723664	4	8	10	1.3	2.3	**8.84**	**5.00**
72	667325	723631	5	8	10	0.8	1.8	**11.52**	**5.12**
73	667232	723594	3	8	10	0.6	1.6	**25.51**	**9.57**
74	667140	723557	5	8	10	0.7	1.7	**13.16**	**5.42**
75	667047	723518	4	8	10	0.9	1.9	**12.77**	**6.05**
76	666955	723480	5	8	10	0.8	1.8	**11.52**	**5.12**
77	666862	723444	3	8	10	1.3	2.3	**11.77**	**6.66**
78	666765	723418	3	8	10	1.6	2.6	**9.57**	**5.89**
79	666665	723412	4	8	10	2.5	3.5	**4.60**	**3.28**
80	666566	723407	4	8	10	1.3	2.3	**8.84**	**5.00**
81	666466	723402	4	8	10	2.4	3.4	**4.79**	**3.38**
82	666366	723397	3	8	10	1.2	2.2	**12.76**	**6.96**
83	666266	723392	2	8	10	2.4	3.4	**9.56**	**6.75**
84	666166	723387	2	8	10	2.4	3.4	**9.56**	**6.75**
85	666066	723382	2	8	10	3.2	4.2	**7.17**	**5.46**
86	665966	723376	2	8	10	1.3	2.3	**17.64**	**9.97**
87	665877	723335	2	8	10	2.9	3.9	**7.91**	**5.88**
88	665799	723272	2	8	10	0.5	1.5	**45.87**	**15.29**
89	665719	723213	2	8	10	0.8	1.8	**28.67**	**12.74**
90	665639	723153	2	8	10	0.9	1.9	**25.49**	**12.07**
91	665555	723099	2	8	10	1.6	2.6	**14.34**	**8.82**
92	665459	723072	2	8	10	0.3	1.3	**76.46**	**17.64**
93	665363	723046	1	8	10	0.2	1.2	**229.23**	**38.20**
94	665266	723019	2	8	10	1.7	2.7	**13.49**	**8.50**
95	665170	722993	1	8	10	2.5	3.5	**18.34**	**13.10**
96	665073	722966	1	8	10	1.6	2.6	**28.65**	**17.63**
97	664977	722939	2	8	10	0.7	1.7	**32.77**	**13.49**
98	664881	722912	2	8	10	1.8	2.8	**12.74**	**8.19**
99	664784	722886	2	8	10	1.9	2.9	**12.07**	**7.91**
100	664688	722859	5	8	10	1.1	2.1	**8.38**	**4.39**
101	664606	722809	2	8	10	2	3.0	**11.47**	**7.65**
102	664615	722712	2	8	10	1.9	2.9	**12.07**	**7.91**
103	664642	722616	2	8	10	2.6	3.6	**8.82**	**6.37**
104	664669	722519	2	8	10	2	3.0	**11.47**	**7.65**
105	664696	722423	2	8	10	2.1	3.1	**10.92**	**7.40**
106	664723	722327	1	8	10	2	3.0	**22.92**	**15.28**
107	664750	722231	3	8	10	1.8	2.8	**8.50**	**5.47**
108	664778	722135	2	8	10	0.7	1.7	**32.77**	**13.49**
109	664806	722039	2	8	10	1.1	2.1	**20.85**	**10.92**
110	664833	721942	2	8	10	0.9	1.9	**25.49**	**12.07**
111	664861	721846	2	8	10	1.3	2.3	**17.64**	**9.97**
112	664939	721804	3	8	10	1.1	2.1	**13.92**	**7.29**
113	665039	721811	5	8	10	1.8	2.8	**5.12**	**3.29**
114	665138	721817	2	8	10	1.9	2.9	**12.07**	**7.91**
115	665178	721820	2	8	10	0.4	1.4	**57.34**	**16.38**
116	665691	722538	1	8	10	2.7	3.7	**16.98**	**12.39**
117	665625	722613	1	8	10	2.3	3.3	**19.93**	**13.89**
118	665559	722688	1	8	10	2.6	3.6	**17.63**	**12.73**
119	665493	722763	1	8	10	1.7	2.7	**26.97**	**16.98**
120	665426	722837	1	8	10	0.9	1.9	**50.94**	**24.13**
121	665359	722912	3	8	10	1.9	2.9	**8.06**	**5.28**
123	665226	723061	5	8	10	1	2.0	**9.21**	**4.61**
124	665160	723136	2	8	10	1.8	2.8	**12.74**	**8.19**
125	665094	723211	2	8	10	1.8	2.8	**12.74**	**8.19**
126	665027	723285	3	8	10	1.1	2.1	**13.92**	**7.29**
127	664960	723360	3	8	10	1.2	2.2	**12.76**	**6.96**
128	664894	723435	2	8	10	0.4	1.4	**57.34**	**16.38**
129	664827	723509	2	8	10	0.7	1.7	**32.77**	**13.49**
130	664756	723580	2	8	10	1.8	2.8	**12.74**	**8.19**
131	664685	723650	3	8	10	3.2	4.2	**4.78**	**3.64**
132	664614	723720	4	8	10	2.9	3.9	**3.96**	**2.95**
133	664543	723791	4	8	10	2.6	3.6	**4.42**	**3.19**
134	664472	723861	4	8	10	2.7	3.7	**4.26**	**3.11**
136	664330	724002	3	8	10	0.8	1.8	**19.13**	**8.50**
137	664259	724073	4	8	10	1	2.0	**11.50**	**5.75**
138	664189	724144	2	8	10	0.9	1.9	**25.49**	**12.07**
139	664126	724219	3	8	10	0.8	1.8	**19.13**	**8.50**
140	664123	724319	3	8	10	1	2.0	**15.31**	**7.65**
141	664116	724419	4	8	10	1.1	2.1	**10.45**	**5.47**
142	664109	724519	3	8	10	1	2.0	**15.31**	**7.65**
143	664103	724618	3	8	10	0.9	1.9	**17.01**	**8.06**
144	664097	724718	3	8	10	0.7	1.7	**21.87**	**9.00**
145	664091	724818	3	8	10	0.7	1.7	**21.87**	**9.00**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)
146	664085	724918	3	8	10	0.8	1.8	**19.13**	**8.50**
147	664079	725018	3	8	10	1.2	2.2	**12.76**	**6.96**
148	664074	725118	4	8	10	1	2.0	**11.50**	**5.75**
149	664068	725217	3	8	10	1.2	2.2	**12.76**	**6.96**
150	664062	725317	3	8	10	1.1	2.1	**13.92**	**7.29**
151	664042	725413	3	8	10	1.3	2.3	**11.77**	**6.66**
152	663963	725475	2	8	10	1.7	2.7	**13.49**	**8.50**
153	663884	725537	3	8	10	0.3	1.3	**51.02**	**11.77**
154	663804	725596	3	8	10	0.9	1.9	**17.01**	**8.06**
155	663722	725653	4	8	10	0.8	1.8	**14.37**	**6.39**
156	663641	725711	4	8	10	2.3	3.3	**5.00**	**3.48**
157	663559	725769	3	8	10	2.2	3.2	**6.96**	**4.78**
158	663536	725785	3	8	10	1.8	2.8	**8.50**	**5.47**
159	663536	725785	3	8	10	1.8	2.8	**8.50**	**5.47**
160	663475	725705	4	8	10	1.9	2.9	**6.05**	**3.96**
161	663416	725625	3	8	10	0.9	1.9	**17.01**	**8.06**
162	663357	725544	4	8	10	0.9	1.9	**12.77**	**6.05**
163	663299	725463	3	8	10	1	2.0	**15.31**	**7.65**
164	663241	725381	3	8	10	1	2.0	**15.31**	**7.65**
165	663182	725300	4	8	10	0.3	1.3	**38.32**	**8.84**
166	663153	725260	4	8	10	0.8	1.8	**14.37**	**6.39**
167	663295	725457	3	8	10	1.1	2.1	**13.92**	**7.29**
168	663289	725358	2	8	10	1.1	2.1	**20.85**	**10.92**
169	663279	725259	4	8	10	1	2.0	**11.50**	**5.75**
170	663288	725159	4	8	10	1.8	2.8	**6.39**	**4.11**
171	663296	725060	5	8	10	1.2	2.2	**7.68**	**4.19**
172	663300	724960	4	8	10	1.7	2.7	**6.76**	**4.26**
173	663301	724860	4	8	10	0.9	1.9	**12.77**	**6.05**
174	663316	724762	4	8	10	1.7	2.7	**6.76**	**4.26**
175	663365	724679	4	8	10	0.6	1.6	**19.16**	**7.19**
176	663461	724679	4	8	10	0.7	1.7	**16.42**	**6.76**
177	663556	724712	3	8	10	0.9	1.9	**17.01**	**8.06**
178	663650	724745	3	8	10	1	2.0	**15.31**	**7.65**
179	663744	724778	4	8	10	0.5	1.5	**22.99**	**7.66**
180	663839	724811	4	8	10	0.6	1.6	**19.16**	**7.19**
181	663933	724844	3	8	10	0.7	1.7	**21.87**	**9.00**
182	664028	724876	4	8	10	0.6	1.6	**19.16**	**7.19**
183	664087	724884	3	8	10	0.5	1.5	**30.61**	**10.20**
184	664122	724331	3	8	10	0.6	1.6	**25.51**	**9.57**
185	664222	724338	3	8	10	1	2.0	**15.31**	**7.65**
186	664321	724345	3	8	10	2.1	3.1	**7.29**	**4.94**
187	664421	724351	3	8	10	1.8	2.8	**8.50**	**5.47**
188	664521	724357	2	8	10	2.1	3.1	**10.92**	**7.40**
189	664621	724365	3	8	10	1.5	2.5	**10.20**	**6.12**
190	664720	724374	3	8	10	1.8	2.8	**8.50**	**5.47**
191	664820	724382	3	8	10	2.3	3.3	**6.66**	**4.64**
192	664920	724390	3	8	10	2	3.0	**7.65**	**5.10**
193	665019	724397	3	8	10	2.5	3.5	**6.12**	**4.37**
194	665119	724404	2	8	10	2.5	3.5	**9.17**	**6.55**
195	665219	724411	2	8	10	2.2	3.2	**10.43**	**7.17**
196	665318	724420	3	8	10	1.8	2.8	**8.50**	**5.47**
197	665418	724427	2	8	10	1.5	2.5	**15.29**	**9.17**
199	665407	724590	2	8	10	0.6	1.6	**38.23**	**14.34**
200	665436	724494	2	8	10	0.9	1.9	**25.49**	**12.07**
201	665466	724399	2	8	10	0.7	1.7	**32.77**	**13.49**
202	665498	724304	2	8	10	0.7	1.7	**32.77**	**13.49**
203	665504	724285	2	8	10	0.8	1.8	**28.67**	**12.74**
204	664793	724380	4	8	10	2.5	3.5	**4.60**	**3.28**
205	664889	724355	3	8	10	1.1	2.1	**13.92**	**7.29**
206	664988	724338	3	8	10	1.2	2.2	**12.76**	**6.96**
207	665087	724322	4	8	10	1.5	2.5	**7.66**	**4.60**
208	665185	724306	2	8	10	2.8	3.8	**8.19**	**6.04**
209	665201	724303	2	8	10	3	4.0	**7.65**	**5.73**
210	665872	723140	3	8	10	2.4	3.4	**6.38**	**4.50**
211	665841	723235	3	8	10	3.2	4.2	**4.78**	**3.64**
212	665811	723330	2	8	10	2.8	3.8	**8.19**	**6.04**
213	665780	723426	2	8	10	2.4	3.4	**9.56**	**6.75**
214	665775	723443	2	8	10	2.4	3.4	**9.56**	**6.75**
215	665911	723358	2	8	10	3	4.0	**7.65**	**5.73**
216	665888	723454	1	8	10	1.9	2.9	**24.13**	**15.81**
217	665881	723554	1	8	10	2.4	3.4	**19.10**	**13.48**
218	665874	723654	1	8	10	2	3.0	**22.92**	**15.28**
219	665867	723754	1	8	10	1.8	2.8	**25.47**	**16.37**
220	665860	723853	1	8	10	1.9	2.9	**24.13**	**15.81**
221	665854	723953	2	8	10	2	3.0	**11.47**	**7.65**
222	665847	724053	2	8	10	2.4	3.4	**9.56**	**6.75**
223	665841	724153	2	8	10	2.7	3.7	**8.50**	**6.20**
224	665864	724246	2	8	10	2	3.0	**11.47**	**7.65**
225	665931	724319	2	8	10	1.6	2.6	**14.34**	**8.82**
227	666063	724470	3	8	10	1	2.0	**15.31**	**7.65**
228	666116	724553	2	8	10	1.8	2.8	**12.74**	**8.19**
229	666112	724653	2	8	10	1	2.0	**22.94**	**11.47**
230	666107	724753	3	8	10	1.9	2.9	**8.06**	**5.28**
231	666100	724853	3	8	10	1.6	2.6	**9.57**	**5.89**
232	666085	724951	2	8	10	0.6	1.6	**38.23**	**14.34**
233	666025	725031	1	8	10	2.4	3.4	**19.10**	**13.48**
234	665936	725075	2	8	10	2.6	3.6	**8.82**	**6.37**
235	665839	725097	3	8	10	0.6	1.6	**25.51**	**9.57**
236	665741	725120	2	8	10	1.9	2.9	**12.07**	**7.91**
238	666789	724811	2	8	10	2.2	3.2	**10.43**	**7.17**
239	666689	724807	5	8	10	2	3.0	**4.61**	**3.07**
240	666589	724804	3	8	10	1.6	2.6	**9.57**	**5.89**
241	666489	724802	3	8	10	0.8	1.8	**19.13**	**8.50**
242	666390	724799	2	8	10	1.5	2.5	**15.29**	**9.17**
243	666290	724795	3	8	10	1.3	2.3	**11.77**	**6.66**
244	666190	724792	2	8	10	1.2	2.2	**19.11**	**10.43**
245	666105	724785	3	8	10	1.9	2.9	**8.06**	**5.28**
246	666434	725787	2	8	10	1.7	2.7	**13.49**	**8.50**
247	666530	725760	3	8	10	1.5	2.5	**10.20**	**6.12**
248	666626	725734	3	8	10	1.3	2.3	**11.77**	**6.66**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)
249	666721	725702	2	8	10	0.7	1.7	**32.77**	**13.49**
250	666743	725607	2	8	10	0.8	1.8	**28.67**	**12.74**
251	666749	725508	4	8	10	0.7	1.7	**16.42**	**6.76**
252	666755	725408	2	8	10	0.4	1.4	**57.34**	**16.38**
253	666761	725308	2	8	10	0.5	1.5	**45.87**	**15.29**
254	666767	725208	2	8	10	0.5	1.5	**45.87**	**15.29**
255	666773	725108	2	8	10	0.8	1.8	**28.67**	**12.74**
256	666779	725008	3	8	10	1.1	2.1	**13.92**	**7.29**
257	666784	724909	2	8	10	1	2.0	**22.94**	**11.47**
258	666789	724809	3	8	10	1.2	2.2	**12.76**	**6.96**
259	666797	724709	3	8	10	0.5	1.5	**30.61**	**10.20**
260	666802	724609	2	8	10	0.1	1.1	**229.37**	**20.85**
261	666807	724509	2	8	10	0.4	1.4	**57.34**	**16.38**
262	666812	724409	3	8	10	0.2	1.2	**76.53**	**12.76**
263	666817	724310	3	8	10	0.8	1.8	**19.13**	**8.50**
264	666821	724210	2	8	10	0.3	1.3	**76.46**	**17.64**
265	666823	724110	2	8	10	0.15	1.2	**152.91**	**19.95**
266	666823	724010	2	8	10	0.4	1.4	**57.34**	**16.38**
267	666823	723910	2	8	10	0.6	1.6	**38.23**	**14.34**
268	666823	723810	2	8	10	1.5	2.5	**15.29**	**9.17**
269	666820	723710	2	8	10	0.3	1.3	**76.46**	**17.64**
270	666817	723610	2	8	10	0.9	1.9	**25.49**	**12.07**
271	666814	723510	2	8	10	1	2.0	**22.94**	**11.47**
272	666808	723410	3	8	10	1.2	2.2	**12.76**	**6.96**
273	666811	723310	3	8	10	1.6	2.6	**9.57**	**5.89**
274	666816	723210	3	8	10	1.4	2.4	**10.93**	**6.38**
275	666822	723111	4	8	10	1	2.0	**11.50**	**5.75**
276	666827	723011	5	8	10	1	2.0	**9.21**	**4.61**
278	666849	722814	3	8	10	0.7	1.7	**21.87**	**9.00**
279	666903	722730	4	8	10	0.8	1.8	**14.37**	**6.39**
280	666956	722645	2	8	10	2.6	3.6	**8.82**	**6.37**
281	667010	722561	5	8	10	1.6	2.6	**5.76**	**3.54**
282	667062	722476	3	8	10	2.4	3.4	**6.38**	**4.50**
283	667110	722388	3	8	10	2	3.0	**7.65**	**5.10**
284	667158	722300	3	8	10	2.4	3.4	**6.38**	**4.50**
285	667192	722238	3	8	10	2.2	3.2	**6.96**	**4.78**
286	666889	722751	4	8	10	0.8	1.8	**14.37**	**6.39**
287	666984	722775	3	8	10	0.5	1.5	**30.61**	**10.20**
288	667084	722783	5	8	10	1.8	2.8	**5.12**	**3.29**
289	667183	722790	4	8	10	0.6	1.6	**19.16**	**7.19**
290	667283	722798	3	8	10	0.6	1.6	**25.51**	**9.57**
291	667383	722805	3	8	10	2.6	3.6	**5.89**	**4.25**
292	667483	722813	2	8	10	2.4	3.4	**9.56**	**6.75**
293	667582	722820	4	8	10	1.4	2.4	**8.21**	**4.79**
294	667682	722828	3	8	10	1.1	2.1	**13.92**	**7.29**
295	667782	722834	3	8	10	2.2	3.2	**6.96**	**4.78**
296	667882	722840	2	8	10	1.92	2.9	**11.95**	**7.86**
297	667982	722846	2	8	10	1.7	2.7	**13.49**	**8.50**
298	668081	722852	2	8	10	1.8	2.8	**12.74**	**8.19**
299	668181	722858	2	8	10	1.6	2.6	**14.34**	**8.82**
300	668281	722864	2	8	10	1.1	2.1	**20.85**	**10.92**
301	668381	722870	2	8	10	1.7	2.7	**13.49**	**8.50**
302	668481	722876	2	8	10	1.8	2.8	**12.74**	**8.19**
303	668581	722880	2	8	10	2	3.0	**11.47**	**7.65**
305	668700	722886	2	8	10	0.7	1.7	**32.77**	**13.49**
307	667917	722052	3	8	10	1.6	2.6	**9.57**	**5.89**
308	667892	722149	3	8	10	1.4	2.4	**10.93**	**6.38**
309	667873	722247	2	8	10	2.1	3.1	**10.92**	**7.40**
310	667857	722346	3	8	10	1.8	2.8	**8.50**	**5.47**
311	667841	722444	3	8	10	2.3	3.3	**6.66**	**4.64**
312	667825	722543	3	8	10	2.7	3.7	**5.67**	**4.14**
313	667810	722642	3	8	10	2.6	3.6	**5.89**	**4.25**
314	667795	722741	3	8	10	2.8	3.8	**5.47**	**4.03**
315	667784	722840	3	8	10	2.2	3.2	**6.96**	**4.78**
316	667792	722939	4	8	10	1.7	2.7	**6.76**	**4.26**
317	667813	723037	3	8	10	2.6	3.6	**5.89**	**4.25**
318	667835	723135	4	8	10	0.8	1.8	**14.37**	**6.39**
319	667822	723233	4	8	10	1	2.0	**11.50**	**5.75**
320	667847	723330	3	8	10	1.3	2.3	**11.77**	**6.66**
321	667873	723427	4	8	10	3.6	4.6	**3.19**	**2.50**
322	667898	723523	3	8	10	1.8	2.8	**8.50**	**5.47**
323	667905	723621	3	8	10	1.4	2.4	**10.93**	**6.38**
324	667897	723721	4	8	10	3.2	4.2	**3.59**	**2.74**
325	667889	723821	4	8	10	1.4	2.4	**8.21**	**4.79**
326	667880	723920	4	8	10	1	2.0	**11.50**	**5.75**
327	667834	724007	4	8	10	0.7	1.7	**16.42**	**6.76**
328	667769	724082	3	8	10	0.6	1.6	**25.51**	**9.57**
329	667740	724174	2	8	10	1.7	2.7	**13.49**	**8.50**
330	667736	724274	2	8	10	0.6	1.6	**38.23**	**14.34**
331	667732	724374	2	8	10	0.5	1.5	**45.87**	**15.29**
332	667727	724474	2	8	10	0.3	1.3	**76.46**	**17.64**
333	667723	724574	2	8	10	1.2	2.2	**19.11**	**10.43**
336	667710	724874	2	8	10	1.2	2.2	**19.11**	**10.43**
337	667706	724974	3	8	10	0.3	1.3	**51.02**	**11.77**
338	667702	725074	2	8	10	1.8	2.8	**12.74**	**8.19**
339	667699	725174	2	8	10	0.8	1.8	**28.67**	**12.74**
340	667693	725273	2	8	10	1	2.0	**22.94**	**11.47**
341	667693	725373	3	8	10	1.7	2.7	**9.00**	**5.67**
342	667687	725473	3	8	10	1.5	2.5	**10.20**	**6.12**
343	667684	725573	5	8	10	0.2	1.2	**46.07**	**7.68**
346	666776	725066	4	8	10	1	2.0	**11.50**	**5.75**
347	666875	725077	2	8	10	1	2.0	**22.94**	**11.47**
348	666975	725083	2	8	10	0.7	1.7	**32.77**	**13.49**
349	667075	725089	2	8	10	1.6	2.6	**14.34**	**8.82**
350	667175	725096	2	8	10	1	2.0	**22.94**	**11.47**
351	667271	725116	2	8	10	1.6	2.6	**14.34**	**8.82**
352	667361	725160	2	8	10	1.3	2.3	**17.64**	**9.97**
353	667451	725204	2	8	10	1.4	2.4	**16.38**	**9.56**
355	667632	725289	2	8	10	1.3	2.3	**17.64**	**9.97**
357	667826	725331	2	8	10	1.4	2.4	**16.38**	**9.56**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)
358	667925	725339	2	8	10	1.5	2.5	**15.29**	**9.17**
359	668025	725347	2	8	10	1.1	2.1	**20.85**	**10.92**
360	668125	725356	3	8	10	1	2.0	**15.31**	**7.65**
361	668224	725370	2	8	10	0.4	1.4	**57.34**	**16.38**
362	668323	725383	2	8	10	0.3	1.3	**76.46**	**17.64**
366	667827	724472	2	8	10	1	2.0	**22.94**	**11.47**
367	667927	724463	2	8	10	0.4	1.4	**57.34**	**16.38**
368	668026	724454	2	8	10	0.4	1.4	**57.34**	**16.38**
369	668126	724444	2	8	10	0.3	1.3	**76.46**	**17.64**
370	668226	724435	2	8	10	0.5	1.5	**45.87**	**15.29**
371	668325	724425	2	8	10	0.2	1.2	**114.68**	**19.11**
372	668393	724357	2	8	10	0.7	1.7	**32.77**	**13.49**
373	668415	724260	3	8	10	0.8	1.8	**19.13**	**8.50**
375	668450	724063	2	8	10	0.4	1.4	**57.34**	**16.38**
376	668473	723965	2	8	10	0.7	1.7	**32.77**	**13.49**
377	668499	723869	2	8	10	0.3	1.3	**76.46**	**17.64**
378	668524	723772	2	8	10	0.4	1.4	**57.34**	**16.38**
379	668540	723674	2	8	10	1	2.0	**22.94**	**11.47**
380	668545	723574	2	8	10	1.8	2.8	**12.74**	**8.19**
381	668546	723476	2	8	10	0.3	1.3	**76.46**	**17.64**
382	668538	723717	3	8	10	0.8	1.8	**19.13**	**8.50**
383	668638	723727	3	8	10	0.6	1.6	**25.51**	**9.57**
384	668737	723731	3	8	10	1.2	2.2	**12.76**	**6.96**
385	668837	723736	2	8	10	0.7	1.7	**32.77**	**13.49**
386	668839	723736	2	8	10	0.8	1.8	**28.67**	**12.74**
387	668450	724063	2	8	10	0.8	1.8	**28.67**	**12.74**
388	668353	724087	2	8	10	1.5	2.5	**15.29**	**9.17**
389	668255	724108	3	8	10	1.1	2.1	**13.92**	**7.29**
390	668184	724123	3	8	10	1	2.0	**15.31**	**7.65**
391	666793	725845	2	8	10	0.6	1.6	**38.23**	**14.34**
392	666880	725796	2	8	10	0.8	1.8	**28.67**	**12.74**
393	666940	725718	2	8	10	0.6	1.6	**38.23**	**14.34**
394	666978	725626	2	8	10	0.4	1.4	**57.34**	**16.38**
395	667045	725553	2	8	10	1	2.0	**22.94**	**11.47**
396	667063	725457	2	8	10	2.2	3.2	**10.43**	**7.17**
397	667042	725359	2	8	10	1.8	2.8	**12.74**	**8.19**
398	667047	725260	3	8	10	0.3	1.3	**51.02**	**11.77**
399	667071	725163	2	8	10	2.6	3.6	**8.82**	**6.37**
400	667083	725064	2	8	10	1.6	2.6	**14.34**	**8.82**
401	667083	724964	3	8	10	1.2	2.2	**12.76**	**6.96**
402	667083	724864	3	8	10	1	2.0	**15.31**	**7.65**
403	667082	724764	2	8	10	1.6	2.6	**14.34**	**8.82**
404	667102	724667	2	8	10	0.8	1.8	**28.67**	**12.74**
405	667140	724575	2	8	10	0.2	1.2	**114.68**	**19.11**
406	667178	724482	3	8	10	1.1	2.1	**13.92**	**7.29**
407	667215	724390	3	8	10	1	2.0	**15.31**	**7.65**
408	667253	724297	3	8	10	0.7	1.7	**21.87**	**9.00**
409	667291	724204	2	8	10	1.2	2.2	**19.11**	**10.43**
410	667328	724112	2	8	10	1.2	2.2	**19.11**	**10.43**
411	667367	724019	2	8	10	0.7	1.7	**32.77**	**13.49**
412	667414	723932	2	8	10	1.6	2.6	**14.34**	**8.82**
413	667502	723890	3	8	10	0.5	1.5	**30.61**	**10.20**
414	667596	723917	3	8	10	0.5	1.5	**30.61**	**10.20**
415	667668	723987	3	8	10	0.4	1.4	**38.27**	**10.93**
416	667737	724058	2	8	10	1.6	2.6	**14.34**	**8.82**
417	667787	724063	2	8	10	0.6	1.6	**38.23**	**14.34**
418	664955	722930	2	8	10	0.7	1.7	**32.77**	**13.49**
430	664531	723846	2	8	10	2.8	3.8	**8.19**	**6.04**
431	664574	723849	2	8	10	2.4	3.4	**9.56**	**6.75**
432	664674	723857	3	8	10	2.2	3.2	**6.96**	**4.78**
433	664774	723864	2	8	10	3	4.0	**7.65**	**5.73**
434	664873	723871	3	8	10	2.2	3.2	**6.96**	**4.78**
435	664973	723878	2	8	10	1.6	2.6	**14.34**	**8.82**
436	665073	723886	3	8	10	1.4	2.4	**10.93**	**6.38**
437	665173	723893	2	8	10	1.3	2.3	**17.64**	**9.97**
438	665272	723900	2	8	10	1.6	2.6	**14.34**	**8.82**
439	665372	723907	1	8	10	2.3	3.3	**19.93**	**13.89**
440	665472	723914	3	8	10	2	3.0	**7.65**	**5.10**
441	665572	723922	2	8	10	1.8	2.8	**12.74**	**8.19**
442	665671	723929	2	8	10	2.7	3.7	**8.50**	**6.20**
443	665771	723936	2	8	10	2.3	3.3	**9.97**	**6.95**
444	665871	723943	2	8	10	2	3.0	**11.47**	**7.65**
445	665971	723950	2	8	10	1.7	2.7	**13.49**	**8.50**
446	666070	723958	2	8	10	2	3.0	**11.47**	**7.65**
447	666170	723965	2	8	10	1.6	2.6	**14.34**	**8.82**
448	666270	723972	2	8	10	1.1	2.1	**20.85**	**10.92**
449	666370	723979	2	8	10	1.2	2.2	**19.11**	**10.43**
450	666469	723987	2	8	10	1.4	2.4	**16.38**	**9.56**
451	666569	723994	2	8	10	0.6	1.6	**38.23**	**14.34**
452	666665	723980	1	8	10	1.3	2.3	**35.27**	**19.93**
454	666753	723807	2	8	10	0.8	1.8	**28.67**	**12.74**
455	666821	723788	2	8	10	1.5	2.5	**15.29**	**9.17**
456	665171	721820	2	8	10	0.4	1.4	**57.34**	**16.38**
459	665255	721533	2	8	10	0.6	1.6	**38.23**	**14.34**
460	665337	721482	2	8	10	4.3	5.3	**5.33**	**4.33**
461	665436	721468	2	8	10	4	5.0	**5.73**	**4.59**
462	665534	721476	3	8	10	3.6	4.6	**4.25**	**3.33**
464	665728	721525	2	8	10	3.4	4.4	**6.75**	**5.21**
466	665833	721625	2	8	10	0.15	1.2	**152.91**	**19.95**
467	665832	721706	1	8	10	1.8	2.8	**25.47**	**16.37**
468	665888	721754	1	8	10	2.9	3.9	**15.81**	**11.76**
469	665864	721851	1	8	10	2.4	3.4	**19.10**	**13.48**
470	665840	721948	1	8	10	2.3	3.3	**19.93**	**13.89**
471	665815	722045	1	8	10	2.5	3.5	**18.34**	**13.10**
472	665791	722142	1	8	10	2.9	3.9	**15.81**	**11.76**
473	665767	722239	1	8	10	2.8	3.8	**16.37**	**12.06**
474	665742	722336	1	8	10	2.2	3.2	**20.84**	**14.33**
475	665718	722433	1	8	10	2	3.0	**22.92**	**15.28**
476	665694	722530	1	8	10	2.7	3.7	**16.98**	**12.39**
477	665692	722538	1	8	10	2.7	3.7	**16.98**	**12.39**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)
495	664679	723656	3	8	10	3.2	4.2	**4.78**	**3.64**
496	664619	723576	3	8	10	1.3	2.3	**11.77**	**6.66**
497	664564	723493	2	8	10	1.9	2.9	**12.07**	**7.91**
498	664464	723499	3	8	10	1.8	2.8	**8.50**	**5.47**
577	664579	726852	2	8	10	2.9	3.9	**7.91**	**5.88**
578	664587	726952	2	8	10	2.9	3.9	**7.91**	**5.88**
579	664595	727051	2	8	10	2.8	3.8	**8.19**	**6.04**
580	664603	727151	2	8	10	2.7	3.7	**8.50**	**6.20**
581	664611	727251	2	8	10	2.1	3.1	**10.92**	**7.40**
582	664618	727350	2	8	10	2	3.0	**11.47**	**7.65**
583	664626	727450	3	8	10	2.3	3.3	**6.66**	**4.64**
584	664634	727550	3	8	10	2.2	3.2	**6.96**	**4.78**
585	664634	727554	3	8	10	2.2	3.2	**6.96**	**4.78**
586	663536	725786	3	8	10	1.8	2.8	**8.50**	**5.47**
587	663455	725844	4	8	10	0.3	1.3	**38.32**	**8.84**
588	663373	725902	4	8	10	2.2	3.2	**5.23**	**3.59**
589	663292	725960	4	8	10	0.8	1.8	**14.37**	**6.39**
590	663210	726018	3	8	10	1	2.0	**15.31**	**7.65**
591	663129	726075	4	8	10	2	3.0	**5.75**	**3.83**
592	663047	726133	4	8	10	0.3	1.3	**38.32**	**8.84**
593	662965	726190	4	8	10	1.8	2.8	**6.39**	**4.11**
594	662882	726246	3	8	10	2	3.0	**7.65**	**5.10**
595	662799	726301	3	8	10	0.9	1.9	**17.01**	**8.06**
596	662715	726356	3	8	10	1.8	2.8	**8.50**	**5.47**
597	662634	726414	4	8	10	1.6	2.6	**7.19**	**4.42**
598	662576	726495	4	8	10	0.7	1.7	**16.42**	**6.76**
600	662461	726659	4	8	10	2.9	3.9	**3.96**	**2.95**
602	662345	726822	4	8	10	1.8	2.8	**6.39**	**4.11**
604	662229	726985	4	8	10	1.2	2.2	**9.58**	**5.23**
606	662103	727138	3	8	10	1.4	2.4	**10.93**	**6.38**
608	661931	727241	3	8	10	1.8	2.8	**8.50**	**5.47**
610	661757	727338	3	8	10	1.8	2.8	**8.50**	**5.47**
612	661582	727435	3	8	10	2.5	3.5	**6.12**	**4.37**
614	661411	727538	4	8	10	1.5	2.5	**7.66**	**4.60**
616	661237	727637	3	8	10	1.5	2.5	**10.20**	**6.12**
617	661140	727655	2	8	10	1.4	2.4	**16.38**	**9.56**
618	661040	727651	3	8	10	1.4	2.4	**10.93**	**6.38**
619	660940	727650	3	8	10	1.1	2.1	**13.92**	**7.29**
622	662642	726406	4	8	10	1.6	2.6	**7.19**	**4.42**
624	662841	726424	4	8	10	3.5	4.5	**3.28**	**2.55**
626	663040	726443	2	8	10	3.8	4.8	**6.04**	**4.78**
628	663237	726471	3	8	10	3.5	4.5	**4.37**	**3.40**
630	663378	726612	2	8	10	3.1	4.1	**7.40**	**5.59**
632	663516	726757	2	8	10	1.8	2.8	**12.74**	**8.19**
634	663631	726918	3	8	10	2.2	3.2	**6.96**	**4.78**
636	663704	727104	4	8	10	2.3	3.3	**5.00**	**3.48**
638	663778	727290	3	8	10	1.6	2.6	**9.57**	**5.89**
640	663878	727454	4	8	10	0.7	1.7	**16.42**	**6.76**
642	664076	727482	6	8	10	0.4	1.4	**19.24**	**5.50**
644	664274	727510	3	8	10	1	2.0	**15.31**	**7.65**
646	664472	727537	4	8	10	1.5	2.5	**7.66**	**4.60**
648	664671	727565	3	8	10	2.4	3.4	**6.38**	**4.50**
649	664770	727579	4	8	10	2.4	3.4	**4.79**	**3.38**
650	664868	727597	2	8	10	2.6	3.6	**8.82**	**6.37**
651	664966	727616	3	8	10	2.2	3.2	**6.96**	**4.78**
652	665063	727640	2	8	10	3.7	4.7	**6.20**	**4.88**
653	665161	727662	3	8	10	4.1	5.1	**3.73**	**3.00**
654	665233	727722	2	8	10	3.8	4.8	**6.04**	**4.78**
655	665249	727821	4	8	10	3.3	4.3	**3.48**	**2.67**
656	665264	727920	3	8	10	3	4.0	**5.10**	**3.83**
657	665296	728012	2	8	10	1.3	2.3	**17.64**	**9.97**
658	665373	728076	2	8	10	1	2.0	**22.94**	**11.47**
659	665450	728139	2	8	10	1.2	2.2	**19.11**	**10.43**
660	665529	728201	2	8	10	1.2	2.2	**19.11**	**10.43**
661	665608	728261	3	8	10	2.7	3.7	**5.67**	**4.14**
662	665701	728296	3	8	10	2.8	3.8	**5.47**	**4.03**
663	665797	728323	2	8	10	1.4	2.4	**16.38**	**9.56**
664	665894	728350	3	8	10	1	2.0	**15.31**	**7.65**
665	665990	728376	3	8	10	1.1	2.1	**13.92**	**7.29**
666	666087	728403	2	8	10	0.9	1.9	**25.49**	**12.07**
667	666183	728429	2	8	10	1	2.0	**22.94**	**11.47**
668	666279	728456	4	8	10	0.9	1.9	**12.77**	**6.05**
669	666376	728483	3	8	10	0.2	1.2	**76.53**	**12.76**
670	666472	728509	2	8	10	0.2	1.2	**114.68**	**19.11**
671	666553	728509	2	8	10	0.5	1.5	**45.87**	**15.29**
673	666607	728316	2	8	10	0.5	1.5	**45.87**	**15.29**
674	666634	728220	4	8	10	0.2	1.2	**57.48**	**9.58**
675	666661	728123	3	8	10	0.4	1.4	**38.27**	**10.93**
676	666688	728027	6	8	10	0.2	1.2	**38.48**	**6.41**
677	666711	727930	6	8	10	0.1	1.1	**76.96**	**7.00**
679	666746	727733	8	8	10	0.1	1.1	**58.05**	**5.28**
681	666803	727543	2	8	10	5.8	6.8	**3.95**	**3.37**
683	666924	727383	4	8	10	3.6	4.6	**3.19**	**2.50**
685	667054	727342	4	8	10	1.6	2.6	**7.19**	**4.42**
687	667195	727482	4	8	10	1.2	2.2	**9.58**	**5.23**
689	667367	727581	2	8	10	1.5	2.5	**15.29**	**9.17**
691	667554	727650	2	8	10	1.7	2.7	**13.49**	**8.50**
693	667742	727719	2	8	10	2.3	3.3	**9.97**	**6.95**
696	668021	727825	3	8	10	1	2.0	**15.31**	**7.65**
699	667992	727797	3	8	10	2	3.0	**7.65**	**5.10**
702	668029	727724	8	8	10	1.7	2.7	**3.41**	**2.15**
704	668191	727620	4	8	10	1.5	2.5	**7.66**	**4.60**
705	668257	727545	4	8	10	1.2	2.2	**9.58**	**5.23**
707	668391	727396	6	8	10	0.4	1.4	**19.24**	**5.50**
710	668598	727405	3	8	10	1	2.0	**15.31**	**7.65**
712	668741	727546	3	8	10	2	3.0	**7.65**	**5.10**
714	668883	727686	3	8	10	1.2	2.2	**12.76**	**6.96**
716	669027	727825	3	8	10	1.9	2.9	**8.06**	**5.28**
718	669172	727963	2	8	10	1.5	2.5	**15.29**	**9.17**
771	670737	728541	2	8	10	3.7	4.7	**6.20**	**4.88**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)
772	670741	728548	2	8	10	3.7	4.7	**6.20**	**4.88**
773	670765	728592	2	8	10	2.4	3.4	**9.56**	**6.75**
774	670812	728680	3	8	10	1.2	2.2	**12.76**	**6.96**
775	670843	728774	3	8	10	1	2.0	**15.31**	**7.65**
776	670936	728807	3	8	10	0.7	1.7	**21.87**	**9.00**
777	670994	728886	2	8	10	0.5	1.5	**45.87**	**15.29**
778	671034	728977	3	8	10	0.5	1.5	**30.61**	**10.20**
779	671076	729068	3	8	10	0.6	1.6	**25.51**	**9.57**
780	671124	729155	2	8	10	0.6	1.6	**38.23**	**14.34**
781	671179	729239	2	8	10	0.6	1.6	**38.23**	**14.34**
782	671234	729321	2	8	10	0.3	1.3	**76.46**	**17.64**
783	671327	729290	2	8	10	0.3	1.3	**76.46**	**17.64**
784	671419	729300	2	8	10	0.2	1.2	**114.68**	**19.11**
785	671485	729375	2	8	10	0.3	1.3	**76.46**	**17.64**
787	670740	728546	2	8	10	3.7	4.7	**6.20**	**4.88**
788	670647	728515	3	8	10	1.5	2.5	**10.20**	**6.12**
790	670452	728471	2	8	10	1.2	2.2	**19.11**	**10.43**
792	670256	728435	2	8	10	1.6	2.6	**14.34**	**8.82**
794	670059	728400	4	8	10	1.1	2.1	**10.45**	**5.47**
795	669960	728383	2	8	10	1.4	2.4	**16.38**	**9.56**
797	669763	728349	2	8	10	1.2	2.2	**19.11**	**10.43**
799	669571	728302	2	8	10	1	2.0	**22.94**	**11.47**
801	669418	728172	4	8	10	1.7	2.7	**6.76**	**4.26**
803	669334	728102	4	8	10	1.5	2.5	**7.66**	**4.60**
804	668482	727292	4	8	10	1	2.0	**11.50**	**5.75**
805	668411	727221	4	8	10	1.2	2.2	**9.58**	**5.23**
808	668180	727031	4	8	10	1.1	2.1	**10.45**	**5.47**
810	668018	726913	2	8	10	1.5	2.5	**15.29**	**9.17**
812	667856	726795	2	8	10	1.8	2.8	**12.74**	**8.19**
814	667702	726669	3	8	10	1.1	2.1	**13.92**	**7.29**
816	667548	726541	4	8	10	1.7	2.7	**6.76**	**4.26**
818	667394	726413	3	8	10	1.6	2.6	**9.57**	**5.89**
820	667243	726282	3	8	10	1.5	2.5	**10.20**	**6.12**
821	667171	726213	4	8	10	1.4	2.4	**8.21**	**4.79**
823	667027	726074	4	8	10	1.5	2.5	**7.66**	**4.60**
825	666883	725936	4	8	10	1.5	2.5	**7.66**	**4.60**
830	667031	726283	4	8	10	1	2.0	**11.50**	**5.75**
831	666986	726372	6	8	10	1.5	2.5	**5.13**	**3.08**
833	666880	726540	4	8	10	1.6	2.6	**7.19**	**4.42**
835	666746	726689	4	8	10	1.8	2.8	**6.39**	**4.11**
837	666632	726846	4	8	10	0.4	1.4	**28.74**	**8.21**
839	666740	727008	4	8	10	2	3.0	**5.75**	**3.83**
841	666878	727152	3	8	10	1.8	2.8	**8.50**	**5.47**
843	666973	727251	2	8	10	1	2.0	**22.94**	**11.47**
857	666546	728580	3	8	10	0.1	1.1	**153.07**	**13.92**
858	666574	728674	3	8	10	1	2.0	**15.31**	**7.65**
859	666619	728763	2	8	10	1	2.0	**22.94**	**11.47**
860	666660	728854	3	8	10	0.8	1.8	**19.13**	**8.50**
861	666696	728947	2	8	10	0.2	1.2	**114.68**	**19.11**
862	666734	729039	2	8	10	0.7	1.7	**32.77**	**13.49**
863	666824	729080	2	8	10	0.8	1.8	**28.67**	**12.74**
864	666920	729108	3	8	10	0.4	1.4	**38.27**	**10.93**
865	667015	729137	2	8	10	0.1	1.1	**229.37**	**20.85**
866	667111	729165	2	8	10	1	2.0	**22.94**	**11.47**
867	667207	729194	3	8	10	0.5	1.5	**30.61**	**10.20**
868	667303	729222	3	8	10	0.7	1.7	**21.87**	**9.00**
869	667399	729251	3	8	10	0.5	1.5	**30.61**	**10.20**
870	667495	729278	4	8	10	1	2.0	**11.50**	**5.75**
871	667591	729306	2	8	10	0.9	1.9	**25.49**	**12.07**
872	667655	729373	2	8	10	3.5	4.5	**6.55**	**5.10**
873	667644	729473	4	8	10	4	5.0	**2.87**	**2.30**
874	667631	729572	3	8	10	4.5	5.5	**3.40**	**2.78**
875	667619	729671	3	8	10	3	4.0	**5.10**	**3.83**
876	667599	729769	3	8	10	4.5	5.5	**3.40**	**2.78**
877	667540	729849	4	8	10	4.2	5.2	**2.74**	**2.21**
878	667478	729928	4	8	10	4	5.0	**2.87**	**2.30**
879	667416	730006	4	8	10	3.6	4.6	**3.19**	**2.50**
880	667351	730082	4	8	10	4.3	5.3	**2.67**	**2.17**
881	667285	730157	4	8	10	3.7	4.7	**3.11**	**2.45**
882	667218	730231	4	8	10	3.2	4.2	**3.59**	**2.74**
883	667123	730257	4	8	10	3.9	4.9	**2.95**	**2.35**
884	667024	730270	6	8	10	2.9	3.9	**2.65**	**1.97**
885	666925	730283	4	8	10	4.2	5.2	**2.74**	**2.21**
886	666826	730296	2	8	10	3.4	4.4	**6.75**	**5.21**
887	666726	730309	2	8	10	3.5	4.5	**6.55**	**5.10**
888	666627	730322	2	8	10	3.1	4.1	**7.40**	**5.59**
889	666528	730335	2	8	10	2	3.0	**11.47**	**7.65**
890	666429	730348	2	8	10	2.2	3.2	**10.43**	**7.17**
891	666330	730361	2	8	10	1.8	2.8	**12.74**	**8.19**
892	666231	730374	4	8	10	3	4.0	**3.83**	**2.87**
893	666131	730388	4	8	10	3.1	4.1	**3.71**	**2.80**
894	666032	730401	4	8	10	2.7	3.7	**4.26**	**3.11**
895	665933	730414	4	8	10	1.2	2.2	**9.58**	**5.23**
896	665834	730428	4	8	10	1.5	2.5	**7.66**	**4.60**
897	665794	730514	4	8	10	2.6	3.6	**4.42**	**3.19**
899	665753	730710	3	8	10	2.5	3.5	**6.12**	**4.37**
901	665713	730906	3	8	10	0.7	1.7	**21.87**	**9.00**
903	665730	731095	3	8	10	1.2	2.2	**12.76**	**6.96**
905	665726	731228	2	8	10	5	6.0	**4.59**	**3.82**
906	666602	730326	2	8	10	4.6	5.6	**4.99**	**4.10**
907	666560	730235	2	8	10	5.8	6.8	**3.95**	**3.37**
908	666518	730144	3	8	10	4.5	5.5	**3.40**	**2.78**
909	666476	730053	3	8	10	3.8	4.8	**4.03**	**3.19**
910	666434	729962	3	8	10	3.4	4.4	**4.50**	**3.48**
926	666606	728522	2	8	10	1	2.0	**22.94**	**11.47**
927	666705	728509	2	8	10	0.6	1.6	**38.23**	**14.34**
929	666903	728482	2	8	10	0.5	1.5	**45.87**	**15.29**
931	667101	728456	4	8	10	0.5	1.5	**22.99**	**7.66**
933	667299	728429	2	8	10	0.7	1.7	**32.77**	**13.49**
936	667502	728401	2	8	10	0.5	1.5	**45.87**	**15.29**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)
956	662839	726274	4	8	10	1.6	2.6	**7.19**	**4.42**
957	662744	726245	4	8	10	1	2.0	**11.50**	**5.75**
958	662648	726216	4	8	10	0.9	1.9	**12.77**	**6.05**
961	661250	727632	3	8	10	1.5	2.5	**10.20**	**6.12**
962	661188	727553	2	8	10	1.6	2.6	**14.34**	**8.82**
963	661143	727501	2	8	10	1.2	2.2	**19.11**	**10.43**
CC3-C	666979	725975	4	8	10	2	3.0	**5.75**	**3.83**
CC3-N			4	8	10	1.8	2.8	**6.39**	**4.11**
CC3-S			4	8	10	2.1	3.1	**5.47**	**3.71**
CC3-E			4	8	10	2	3.0	**5.75**	**3.83**
CC3-W			4	8	10	1.5	2.5	**7.66**	**4.60**
CC4 - C	662807	726380	4	8	10	1.8	2.8	**6.39**	**4.11**
CC4 - N			4	8	10	1.8	2.8	**6.39**	**4.11**
CC4 - S			4	8	10	1.4	2.4	**8.21**	**4.79**
CC4 - E			4	8	10	1.9	2.9	**6.05**	**3.96**
CC4 - W			4	8	10	1.7	2.7	**6.76**	**4.26**
CC5 - C	661142	727544	3	8	10	1.8	2.8	**8.50**	**5.47**
CC5 - N			3	8	10	1.8	2.8	**8.50**	**5.47**
CC5 - S			3	8	10	2	3.0	**7.65**	**5.10**
CC5 - E			3	8	10	1.3	2.3	**11.77**	**6.66**
CC5 - W			3	8	10	1.4	2.4	**10.93**	**6.38**
CC6 - C	665300	727867	4	8	10	2.8	3.8	**4.11**	**3.03**
CC6 - N			4	8	10	2.5	3.5	**4.60**	**3.28**
CC6 - S			4	8	10	2.6	3.6	**4.42**	**3.19**
CC6 - E			4	8	10	3	4.0	**3.83**	**2.87**
CC6 - W			4	8	10	2.5	3.5	**4.60**	**3.28**
CC7 - C	670536	728516	4	8	10	2.4	3.4	**4.79**	**3.38**
CC7 - N			4	8	10	2	3.0	**5.75**	**3.83**
CC7 - S			4	8	10	1.8	2.8	**6.39**	**4.11**
CC7 - E			4	8	10	2.2	3.2	**5.23**	**3.59**
CC7 - W			4	8	10	2.5	3.5	**4.60**	**3.28**
CC8 - C	667300	729199	3	8	10	0.7	1.7	**21.87**	**9.00**
CC8 - N			3	8	10	0.8	1.8	**19.13**	**8.50**
CC8 - S			3	8	10	0.8	1.8	**19.13**	**8.50**
CC8 - E			3	8	10	0.5	1.5	**30.61**	**10.20**
CC8 - W			3	8	10	0.4	1.4	**38.27**	**10.93**
PS01 - C	665277	728205	2	8	10	0.2	1.2	**114.68**	**19.11**
PS01 - N			2	8	10	0.4	1.4	**57.34**	**16.38**
PS01 - S			2	8	10	0.5	1.5	**45.87**	**15.29**
PS01 - E			2	8	10	0.2	1.2	**114.68**	**19.11**
PS01 - W			2	8	10	0.4	1.4	**57.34**	**16.38**
PS02	663647	726462	2	8	10	2.1	3.1	**10.92**	**7.40**
PS03-C	665029	725605	3	8	10	3	4.0	**5.10**	**3.83**
MM0001	665944	729927	2	8	10	0.3	1.3	**76.46**	**17.64**
MM0002	665917	730021	3	8	10	0.25	1.3	**61.23**	**12.25**
MM0003	665894	730126	3	8	10	1.3	2.3	**11.77**	**6.66**
MM0004	665872	730224	3	8	10	1.7	2.7	**9.00**	**5.67**
MM0005	665855	730316	2	8	10	1.7	2.7	**13.49**	**8.50**
SS0001	683446	726492	6	8	10	0.1	1.1	**76.96**	**7.00**
SS0002	683296	726369	5	8	10	No peat recorded at this location			
SS0003	683176	726214	4	8	10	No peat recorded at this location			
SS0004	683121	726040	6	8	10	0.25	1.3	**30.78**	**6.16**
SS0005	683221	726016	5	8	10	0.15	1.2	**61.43**	**8.01**
SS0006	683256	725890	4	8	10	0.2	1.2	**57.48**	**9.58**
SS0007	683358	725789	4	8	10	0.15	1.2	**76.64**	**10.00**
SS0008	683367	725878	5	8	10	0.1	1.1	**92.14**	**8.38**
MKO (2025)									
L28	667669.5481	729323.6574	2	8	10	2.4	3.4	**9.56**	**6.75**
L29	667762.3165	729348.5675	2	8	10	2.9	3.9	**7.91**	**5.88**
L30	667858.5209	729376.9134	2	8	10	3.0	4.0	**7.65**	**5.73**
L31	667949.5714	729403.9709	2	8	10	3.5	4.5	**6.55**	**5.10**
L32	667998.5325	729474.4062	2	8	10	6.0	7.0	**3.82**	**3.28**
L33	667974.4814	729557.726	2	8	10	3.0	4.0	**7.65**	**5.73**
L34	667932.392	729635.892	2	8	10	6.0	7.0	**3.82**	**3.28**
L35	667909.1999	729714.058	2	8	10	5.0	6.0	**4.59**	**3.82**
L36	667885.1488	729803.3906	2	8	10	4.0	5.0	**5.73**	**4.59**
L38	667718.5092	729916.7743	2	8	10	4.8	5.8	**4.78**	**3.95**
L40	667560.4593	730021.5683	2	8	10	4.4	5.4	**5.21**	**4.25**
L42	667374.0634	730143.9711	2	8	10	3.9	4.9	**5.88**	**4.68**
L43	667304.9165	730190.7848	2	8	10	3.9	4.9	**5.88**	**4.68**
L47	667129.902	722728.5076	2	8	10	0.9	1.9	**25.49**	**12.07**
L48	667138.9211	722622.8547	6	8	10	1.5	2.5	**5.13**	**3.08**
L49	667142.1423	722528.1535	3	8	10	4.6	5.6	**3.33**	**2.73**
L105	667125.6071	722393.6178	3	8	10	3.7	4.7	**4.14**	**3.26**
MKO (2026)									
975	683371	725866	5	8	10	0.3	1.3	**30.71**	**7.09**
976	683330	725825	5	8	10	0.3	1.3	**30.71**	**7.09**
977	683279	725848	4	8	10	0.7	1.7	**16.42**	**6.76**
978	683306	725914	6	8	10	0.9	1.9	**8.55**	**4.05**
979	683342	725903	6	8	10	0.4	1.4	**19.24**	**5.50**
980	671977	725849	2	8	10	1.7	2.7	**13.49**	**8.50**
981	671851	725632	3	8	10	2.4	3.4	**6.38**	**4.50**
982	671702	725402	2	8	10	2.8	3.8	**8.19**	**6.04**
983	665970	730774	2	8	10	3.6	4.6	**6.37**	**4.99**
984	666163	730790	2	8	10	2.2	3.2	**10.43**	**7.17**
985	666398	730803	3	8	10	3.1	4.1	**4.94**	**3.73**
986	667124	730784	3	8	10	3.4	4.4	**4.50**	**3.48**
987	667475	730811	2	8	10	3.1	4.1	**7.40**	**5.59**
988	667495	730440	3	8	10	4.4	5.4	**3.48**	**2.83**
989	667127	730487	2	8	10	4.6	5.6	**4.99**	**4.10**
990	666767	730483	3	8	10	3.7	4.7	**4.14**	**3.26**
991	666814	728236	3	8	10	0.6	1.6	**25.51**	**9.57**
992	666916	728270	4	8	10	1.1	2.1	**10.45**	**5.47**
993	667014	728300	2	8	10	2.1	3.1	**10.92**	**7.40**
994	667196	728352	4	8	10	1.0	2.0	**11.50**	**5.75**
995	667286	728378	4	8	10	1.2	2.2	**9.58**	**5.23**
996	667443	728416	4	8	10	1.2	2.2	**9.58**	**5.23**
997	667130	728330	2	8	10	2.4	3.4	**9.56**	**6.75**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)
998	663517	727572	3	8	10	0.2	1.2	**76.53**	**12.76**
999	662897	728038	2	8	10	5.0	6.0	**4.59**	**3.82**
1000	663028	727937	3	8	10	5.0	6.0	**3.06**	**2.55**
1001	663211	727812	2	8	10	4.2	5.2	**5.46**	**4.41**
1002	663952	727322	4	8	10	1.9	2.9	**6.05**	**3.96**
1003	664125	727346	6	8	10	2.4	3.4	**3.21**	**2.26**
1004	664288	727383	3	8	10	2.4	3.4	**6.38**	**4.50**
1005	662801	726558	2	8	10	5.0	6.0	**4.59**	**3.82**
1006	662597	726761	2	8	10	5.0	6.0	**4.59**	**3.82**
1007	662433	727032	3	8	10	4.7	5.7	**3.26**	**2.69**
1008	663501	723832	2	8	10	5.0	6.0	**4.59**	**3.82**
1009	663850	723843	2	8	10	4.9	5.9	**4.68**	**3.89**
1010	664096	723762	3	8	10	2.2	3.2	**6.96**	**4.78**
1011	664168	723585	2	8	10	1.0	2.0	**22.94**	**11.47**
							Minimum =	**2.65**	**1.97**
							Maximum =	**229.37**	**38.20**
							Average =	**19.62**	**7.97**
							count	805.0	805.0
							count if >1.3	805.0	805.0

Notes:

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

(2) Assuming a surcharge equivalent to fill depth of 1m of peat i.e. 10kPa.

(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 Ballydermot Wind Farm - 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)	γ_w (kN/m^3)	(m)	ø' (deg)	Condition (2)	Condition (2)	Condition (1)	Condition (2)
									100% Water	100% Water
T01	3	4	10.0	10.0	1.4	25	1.0	2.4	**5.47**	**6.90**
T02	2	4	10.0	10.0	3	25	1.0	4.0	**3.82**	**6.21**
T03	2	4	10.0	10.0	2	25	1.0	3.0	**5.73**	**8.27**
T04	3	4	10.0	10.0	3.7	25	1.0	4.7	**2.07**	**3.52**
T05	4	4	10.0	10.0	0.6	25	1.0	1.6	**9.58**	**7.76**
T06	3	4	10.0	10.0	0.9	25	1.0	1.9	**8.50**	**8.71**
T07	2	4	10.0	10.0	0.15	25	1.0	1.2	**76.46**	**21.58**
T08	3	4	10.0	10.0	3.2	25	1.0	4.2	**2.39**	**3.94**
T09	3	4	10.0	10.0	2.4	25	1.0	3.4	**3.19**	**4.87**
T10	2	4	10.0	10.0	2.6	25	1.0	3.6	**4.41**	**6.89**
T11	5	4	10.0	10.0	1.3	25	1.0	2.3	**3.54**	**4.32**
T12	1	4	10.0	10.0	3.2	25	1.0	4.2	**7.16**	**11.82**
T13	1	4	10.0	10.0	2.4	25	1.0	3.4	**9.55**	**14.60**
T14	5	4	10.0	10.0	1.9	25	1.0	2.9	**2.42**	**3.43**
T15	2	4	10.0	10.0	1.5	25	1.0	2.5	**7.65**	**9.93**
T16	2	4	10.0	10.0	0.8	25	1.0	1.8	**14.34**	**13.79**
T17	3	4	10.0	10.0	1.6	25	1.0	2.6	**4.78**	**6.37**
T18	3	4	10.0	10.0	3	25	1.0	4.0	**2.55**	**4.14**
T19	3	4	10.0	10.0	0.9	25	1.0	1.9	**8.50**	**8.71**
T20	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
T21	3	4	10.0	10.0	1.3	25	1.0	2.3	**5.89**	**7.20**
T22	4	4	10.0	10.0	1.2	25	1.0	2.2	**4.79**	**5.64**
T23	2	4	10.0	10.0	3.1	25	1.0	4.1	**3.70**	**6.05**
T24	3	4	10.0	10.0	2.6	25	1.0	3.6	**2.94**	**4.60**
T25	3	4	10.0	10.0	2.9	25	1.0	3.9	**2.64**	**4.24**
T26	3	4	10.0	10.0	1.6	25	1.0	2.6	**4.78**	**6.37**
T27	3	4	10.0	10.0	1.1	26	1.0	2.1	**6.96**	**8.08**
T28	4	4	10.0	10.0	1.6	25	1.0	2.6	**3.59**	**4.78**
T29	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
T30	4	4	10.0	10.0	3.8	25	1.0	4.8	**1.51**	**2.59**
T31	4	4	10.0	10.0	3.2	25	1.0	4.2	**1.80**	**2.96**
T32	4	4	10.0	10.0	3	25	1.0	4.0	**1.92**	**3.10**
T33	2	4	10.0	10.0	1.2	25	1.0	2.2	**9.56**	**11.28**
T34	3	4	10.0	10.0	1.1	25	1.0	2.1	**6.96**	**7.88**
T35	2	4	10.0	10.0	1.9	25	1.0	2.9	**6.04**	**8.56**
T36	2	4	10.0	10.0	1.2	25	1.0	2.2	**9.56**	**11.28**
T37	4	4	10.0	10.0	1.1	25	1.0	2.1	**5.23**	**5.91**
T38	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
T39	2	4	10.0	10.0	2.5	25	1.0	3.5	**4.59**	**7.09**
T40	3	4	10.0	10.0	2.2	25	1.0	3.2	**3.48**	**5.17**
T41	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
T42	2	4	10.0	10.0	2.3	25	1.0	3.3	**4.99**	**7.52**
T43	4	4	10.0	10.0	1.8	25	1.0	2.8	**3.19**	**4.43**
T44	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
T45	3	4	10.0	10.0	1.1	25	1.0	2.1	**6.96**	**7.88**
T46	2	4	10.0	10.0	2.2	25	1.0	3.2	**5.21**	**7.76**
Met Mast 1	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
Met Mast 2	2	4	10.0	10.0	4.7	25	1.0	5.7	**2.44**	**4.35**
Relay Mast	2	4	10.0	10.0	4.1	25	1.0	5.1	**2.80**	**4.87**
Onsite Substation	3	4	10.0	10.0	1.4	25	1.0	2.4	**5.47**	**6.90**
Offsite substation	5	4	10.0	10.0	0.9	25	1.0	1.9	**5.12**	**5.23**
Construction Compound 1	3	4	10.0	10.0	0.6	25	1.0	1.6	**12.76**	**10.34**
Construction Compound 2	5	4	10.0	10.0	3.3	25	1.0	4.3	**1.40**	**2.31**
Construction Compound 3	4	4	10.0	10.0	3.5	25	1.0	4.5	**1.64**	**2.76**
Construction Compound 4	4	4	10.0	10.0	1.8	25	1.0	2.8	**3.19**	**4.43**
Construction Compound 5	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
Construction Compound 6	2	4	10.0	10.0	2	25	1.0	3.0	**5.73**	**8.27**
Construction Compound 7	2	4	10.0	10.0	1.4	25	1.0	2.4	**8.19**	**10.34**
Construction Compound 8	1	4	10.0	10.0	1.8	26	1.0	2.8	**12.73**	**18.17**
Construction Compound (Onsite substation)	1	4	10.0	10.0	1	25	1.0	2.0	**22.92**	**24.82**
Construction Compound (offsite substation)	4	4	10.0	10.0	0.9	27	1.0	1.9	**6.39**	**6.86**
1A	3	4	10.0	10.0	0.9	25	1.0	1.9	**8.50**	**8.71**
2A	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
4A	3	4	10.0	10.0	2.1	25	1.0	3.1	**3.64**	**5.34**
6A	3	4	10.0	10.0	1.9	25	1.0	2.9	**4.03**	**5.71**
8A	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
9A	3	4	10.0	10.0	0.9	25	1.0	1.9	**8.50**	**8.71**
10A	4	4	10.0	10.0	0.8	25	1.0	1.8	**7.19**	**6.90**
12A	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
13A	2	4	10.0	10.0	0.8	25	1.0	1.8	**14.34**	**13.79**
15A	4	4	10.0	10.0	0.8	25	1.0	1.8	**7.19**	**6.90**
17A	3	4	10.0	10.0	0.5	25	1.0	1.5	**15.31**	**11.03**
18A	3	4	10.0	10.0	0.6	25	1.0	1.6	**12.76**	**10.34**
20A	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
22A	3	4	10.0	10.0	1.4	25	1.0	2.4	**5.47**	**6.90**
24A	4	4	10.0	10.0	3.7	25	1.0	4.7	**1.55**	**2.64**
26A	4	4	10.0	10.0	3.5	25	1.0	4.5	**1.64**	**2.76**
28A	4	4	10.0	10.0	2.5	25	1.0	3.5	**2.30**	**3.55**
30A	3	4	10.0	10.0	3	25	1.0	4.0	**2.55**	**4.14**
32A	4	4	10.0	10.0	1.8	25	1.0	2.8	**3.19**	**4.43**
34A	4	4	10.0	10.0	3.8	25	1.0	4.8	**1.51**	**2.59**
35A	4	4	10.0	10.0	3.5	25	1.0	4.5	**1.64**	**2.76**
36A	3	4	10.0	10.0	3.8	25	1.0	4.8	**2.01**	**3.45**
37A	2	4	10.0	10.0	3.6	25	1.0	4.6	**3.19**	**5.40**
38A	2	4	10.0	10.0	3.7	25	1.0	4.7	**3.10**	**5.28**
1	3	4	10.0	10.0	2	25	1.0	3.0	**3.83**	**5.52**
3	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
5	3	4	10.0	10.0	2.3	25	1.0	3.3	**3.33**	**5.02**
8	2	4	10.0	10.0	0.95	25	1.0	2.0	**12.07**	**12.73**
10	2	4	10.0	10.0	1.3	25	1.0	2.3	**8.82**	**10.79**
12	3	4	10.0	10.0	0.25	25	1.0	1.3	**30.61**	**13.24**
14	3	4	10.0	10.0	1.9	25	1.0	2.9	**4.03**	**5.71**
16	2	4	10.0	10.0	0.2	25	1.0	1.2	**57.34**	**20.68**
18	2	4	10.0	10.0	1.9	25	1.0	2.9	**6.04**	**8.56**
20	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
22	3	4	10.0	10.0	0.9	25	1.0	1.9	**8.50**	**8.71**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)	γ_w (kN/m^3)	(m)	ø' (deg)	Condition (2)	Condition (2)	Condition (1)	Condition (2)
									100% Water	100% Water
24	3	4	10.0	10.0	1.95	25	1.0	3.0	**3.92**	**5.61**
26	3	4	10.0	10.0	1.6	25	1.0	2.6	**4.78**	**6.37**
28	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
32	2	4	10.0	10.0	3.8	25	1.0	4.8	**3.02**	**5.17**
34	2	4	10.0	10.0	3.2	25	1.0	4.2	**3.58**	**5.91**
36	2	4	10.0	10.0	4	25	1.0	5.0	**2.87**	**4.96**
38	2	4	10.0	10.0	3.8	25	1.0	4.8	**3.02**	**5.17**
40	3	4	10.0	10.0	4.2	25	1.0	5.2	**1.82**	**3.18**
42	4	4	10.0	10.0	2.1	25	1.0	3.1	**2.74**	**4.01**
44	3	4	10.0	10.0	1.9	25	1.0	2.9	**4.03**	**5.71**
46	4	4	10.0	10.0	3	25	1.0	4.0	**1.92**	**3.10**
48	3	4	10.0	10.0	2.8	25	1.0	3.8	**2.73**	**4.36**
50	2	4	10.0	10.0	1.2	25	1.0	2.2	**9.56**	**11.28**
52	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
54	3	4	10.0	10.0	0.9	25	1.0	1.9	**8.50**	**8.71**
56	3	4	10.0	10.0	0.4	25	1.0	1.4	**19.13**	**11.82**
60	2	4	10.0	10.0	1.9	25	1.0	2.9	**6.04**	**8.56**
61	2	4	10.0	10.0	0.8	25	1.0	1.8	**14.34**	**13.79**
62	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
63	2	4	10.0	10.0	0.6	25	1.0	1.6	**19.11**	**15.51**
64	2	4	10.0	10.0	0.6	25	1.0	1.6	**19.11**	**15.51**
65	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
66	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
67	3	4	10.0	10.0	0.6	25	1.0	1.6	**12.76**	**10.34**
68	4	4	10.0	10.0	0.1	25	1.0	1.1	**57.48**	**11.29**
69	4	4	10.0	10.0	0.7	25	1.0	1.7	**8.21**	**7.30**
70	3	4	10.0	10.0	1.1	25	1.0	2.1	**6.96**	**7.88**
71	4	4	10.0	10.0	1.3	25	1.0	2.3	**4.42**	**5.40**
72	5	4	10.0	10.0	0.8	25	1.0	1.8	**5.76**	**5.52**
73	3	4	10.0	10.0	0.6	25	1.0	1.6	**12.76**	**10.34**
74	5	4	10.0	10.0	0.7	25	1.0	1.7	**6.58**	**5.85**
75	4	4	10.0	10.0	0.9	25	1.0	1.9	**6.39**	**6.54**
76	5	4	10.0	10.0	0.8	25	1.0	1.8	**5.76**	**5.52**
77	3	4	10.0	10.0	1.3	25	1.0	2.3	**5.89**	**7.20**
78	3	4	10.0	10.0	1.6	25	1.0	2.6	**4.78**	**6.37**
79	4	4	10.0	10.0	2.5	25	1.0	3.5	**2.30**	**3.55**
80	4	4	10.0	10.0	1.3	25	1.0	2.3	**4.42**	**5.40**
81	4	4	10.0	10.0	2.4	25	1.0	3.4	**2.40**	**3.65**
82	3	4	10.0	10.0	1.2	25	1.0	2.2	**6.38**	**7.52**
83	2	4	10.0	10.0	2.4	25	1.0	3.4	**4.78**	**7.30**
84	2	4	10.0	10.0	2.4	25	1.0	3.4	**4.78**	**7.30**
85	2	4	10.0	10.0	3.2	25	1.0	4.2	**3.58**	**5.91**
86	2	4	10.0	10.0	1.3	25	1.0	2.3	**8.82**	**10.79**
87	2	4	10.0	10.0	2.9	25	1.0	3.9	**3.95**	**6.36**
88	2	4	10.0	10.0	0.5	25	1.0	1.5	**22.94**	**16.55**
89	2	4	10.0	10.0	0.8	25	1.0	1.8	**14.34**	**13.79**
90	2	4	10.0	10.0	0.9	25	1.0	1.9	**12.74**	**13.06**
91	2	4	10.0	10.0	1.6	25	1.0	2.6	**7.17**	**9.55**
92	2	4	10.0	10.0	0.3	25	1.0	1.3	**38.23**	**19.09**
93	1	4	10.0	10.0	0.2	25	1.0	1.2	**114.61**	**41.36**
94	2	4	10.0	10.0	1.7	25	1.0	2.7	**6.75**	**9.19**
95	1	4	10.0	10.0	2.5	25	1.0	3.5	**9.17**	**14.18**
96	1	4	10.0	10.0	1.6	25	1.0	2.6	**14.33**	**19.09**
97	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
98	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
99	2	4	10.0	10.0	1.9	25	1.0	2.9	**6.04**	**8.56**
100	5	4	10.0	10.0	1.1	25	1.0	2.1	**4.19**	**4.73**
101	2	4	10.0	10.0	2	25	1.0	3.0	**5.73**	**8.27**
102	2	4	10.0	10.0	1.9	25	1.0	2.9	**6.04**	**8.56**
103	2	4	10.0	10.0	2.6	25	1.0	3.6	**4.41**	**6.89**
104	2	4	10.0	10.0	2	25	1.0	3.0	**5.73**	**8.27**
105	2	4	10.0	10.0	2.1	25	1.0	3.1	**5.46**	**8.01**
106	1	4	10.0	10.0	2	25	1.0	3.0	**11.46**	**16.55**
107	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
108	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
109	2	4	10.0	10.0	1.1	25	1.0	2.1	**10.43**	**11.82**
110	2	4	10.0	10.0	0.9	25	1.0	1.9	**12.74**	**13.06**
111	2	4	10.0	10.0	1.3	25	1.0	2.3	**8.82**	**10.79**
112	3	4	10.0	10.0	1.1	25	1.0	2.1	**6.96**	**7.88**
113	5	4	10.0	10.0	1.8	25	1.0	2.8	**2.56**	**3.55**
114	2	4	10.0	10.0	1.9	25	1.0	2.9	**6.04**	**8.56**
115	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
116	1	4	10.0	10.0	2.7	25	1.0	3.7	**8.49**	**13.42**
117	1	4	10.0	10.0	2.3	25	1.0	3.3	**9.97**	**15.04**
118	1	4	10.0	10.0	2.6	25	1.0	3.6	**8.82**	**13.79**
119	1	4	10.0	10.0	1.7	25	1.0	2.7	**13.48**	**18.38**
120	1	4	10.0	10.0	0.9	25	1.0	1.9	**25.47**	**26.13**
121	3	4	10.0	10.0	1.9	25	1.0	2.9	**4.03**	**5.71**
123	5	4	10.0	10.0	1	25	1.0	2.0	**4.61**	**4.97**
124	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
125	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
126	3	4	10.0	10.0	1.1	25	1.0	2.1	**6.96**	**7.88**
127	3	4	10.0	10.0	1.2	25	1.0	2.2	**6.38**	**7.52**
128	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
129	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
130	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
131	3	4	10.0	10.0	3.2	25	1.0	4.2	**2.39**	**3.94**
132	4	4	10.0	10.0	2.9	25	1.0	3.9	**1.98**	**3.18**
133	4	4	10.0	10.0	2.6	25	1.0	3.6	**2.21**	**3.45**
134	4	4	10.0	10.0	2.7	25	1.0	3.7	**2.13**	**3.36**
136	3	4	10.0	10.0	0.8	25	1.0	1.8	**9.57**	**9.20**
137	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
138	2	4	10.0	10.0	0.9	25	1.0	1.9	**12.74**	**13.06**
139	3	4	10.0	10.0	0.8	25	1.0	1.8	**9.57**	**9.20**
140	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
141	4	4	10.0	10.0	1.1	25	1.0	2.1	**5.23**	**5.91**
142	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
143	3	4	10.0	10.0	0.9	25	1.0	1.9	**8.50**	**8.71**
144	3	4	10.0	10.0	0.7	25	1.0	1.7	**10.93**	**9.74**
145	3	4	10.0	10.0	0.7	25	1.0	1.7	**10.93**	**9.74**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)	γ_w (kN/m^3)	(m)	ø' (deg)	Condition (2)	Condition (2)	Condition (1)	Condition (2)
									100% Water	100% Water
146	3	4	10.0	10.0	0.8	25	1.0	1.8	**9.57**	**9.20**
147	3	4	10.0	10.0	1.2	25	1.0	2.2	**6.38**	**7.52**
148	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
149	3	4	10.0	10.0	1.2	25	1.0	2.2	**6.38**	**7.52**
150	3	4	10.0	10.0	1.1	25	1.0	2.1	**6.96**	**7.88**
151	3	4	10.0	10.0	1.3	25	1.0	2.3	**5.89**	**7.20**
152	2	4	10.0	10.0	1.7	25	1.0	2.7	**6.75**	**9.19**
153	3	4	10.0	10.0	0.3	25	1.0	1.3	**25.51**	**12.73**
154	3	4	10.0	10.0	0.9	25	1.0	1.9	**8.50**	**8.71**
155	4	4	10.0	10.0	0.8	25	1.0	1.8	**7.19**	**6.90**
156	4	4	10.0	10.0	2.3	25	1.0	3.3	**2.50**	**3.76**
157	3	4	10.0	10.0	2.2	25	1.0	3.2	**3.48**	**5.17**
158	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
159	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
160	4	4	10.0	10.0	1.9	25	1.0	2.9	**3.03**	**4.28**
161	3	4	10.0	10.0	0.9	25	1.0	1.9	**8.50**	**8.71**
162	4	4	10.0	10.0	0.9	25	1.0	1.9	**6.39**	**6.54**
163	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
164	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
165	4	4	10.0	10.0	0.3	25	1.0	1.3	**19.16**	**9.55**
166	4	4	10.0	10.0	0.8	25	1.0	1.8	**7.19**	**6.90**
167	3	4	10.0	10.0	1.1	25	1.0	2.1	**6.96**	**7.88**
168	2	4	10.0	10.0	1.1	25	1.0	2.1	**10.43**	**11.82**
169	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
170	4	4	10.0	10.0	1.8	25	1.0	2.8	**3.19**	**4.43**
171	5	4	10.0	10.0	1.2	25	1.0	2.2	**3.84**	**4.52**
172	4	4	10.0	10.0	1.7	25	1.0	2.7	**3.38**	**4.60**
173	4	4	10.0	10.0	0.9	25	1.0	1.9	**6.39**	**6.54**
174	4	4	10.0	10.0	1.7	25	1.0	2.7	**3.38**	**4.60**
175	4	4	10.0	10.0	0.6	25	1.0	1.6	**9.58**	**7.76**
176	4	4	10.0	10.0	0.7	25	1.0	1.7	**8.21**	**7.30**
177	3	4	10.0	10.0	0.9	25	1.0	1.9	**8.50**	**8.71**
178	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
179	4	4	10.0	10.0	0.5	25	1.0	1.5	**11.50**	**8.28**
180	4	4	10.0	10.0	0.6	25	1.0	1.6	**9.58**	**7.76**
181	3	4	10.0	10.0	0.7	25	1.0	1.7	**10.93**	**9.74**
182	4	4	10.0	10.0	0.6	25	1.0	1.6	**9.58**	**7.76**
183	3	4	10.0	10.0	0.5	25	1.0	1.5	**15.31**	**11.03**
184	3	4	10.0	10.0	0.6	25	1.0	1.6	**12.76**	**10.34**
185	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
186	3	4	10.0	10.0	2.1	25	1.0	3.1	**3.64**	**5.34**
187	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
188	2	4	10.0	10.0	2.1	25	1.0	3.1	**5.46**	**8.01**
189	3	4	10.0	10.0	1.5	25	1.0	2.5	**5.10**	**6.62**
190	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
191	3	4	10.0	10.0	2.3	25	1.0	3.3	**3.33**	**5.02**
192	3	4	10.0	10.0	2	25	1.0	3.0	**3.83**	**5.52**
193	3	4	10.0	10.0	2.5	25	1.0	3.5	**3.06**	**4.73**
194	2	4	10.0	10.0	2.5	25	1.0	3.5	**4.59**	**7.09**
195	2	4	10.0	10.0	2.2	25	1.0	3.2	**5.21**	**7.76**
196	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
197	2	4	10.0	10.0	1.5	25	1.0	2.5	**7.65**	**9.93**
199	2	4	10.0	10.0	0.6	25	1.0	1.6	**19.11**	**15.51**
200	2	4	10.0	10.0	0.9	25	1.0	1.9	**12.74**	**13.06**
201	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
202	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
203	2	4	10.0	10.0	0.8	25	1.0	1.8	**14.34**	**13.79**
204	4	4	10.0	10.0	2.5	25	1.0	3.5	**2.30**	**3.55**
205	3	4	10.0	10.0	1.1	25	1.0	2.1	**6.96**	**7.88**
206	3	4	10.0	10.0	1.2	25	1.0	2.2	**6.38**	**7.52**
207	4	4	10.0	10.0	1.5	25	1.0	2.5	**3.83**	**4.97**
208	2	4	10.0	10.0	2.8	25	1.0	3.8	**4.10**	**6.53**
209	2	4	10.0	10.0	3	25	1.0	4.0	**3.82**	**6.21**
210	3	4	10.0	10.0	2.4	25	1.0	3.4	**3.19**	**4.87**
211	3	4	10.0	10.0	3.2	25	1.0	4.2	**2.39**	**3.94**
212	2	4	10.0	10.0	2.8	25	1.0	3.8	**4.10**	**6.53**
213	2	4	10.0	10.0	2.4	25	1.0	3.4	**4.78**	**7.30**
214	2	4	10.0	10.0	2.4	25	1.0	3.4	**4.78**	**7.30**
215	2	4	10.0	10.0	3	25	1.0	4.0	**3.82**	**6.21**
216	1	4	10.0	10.0	1.9	25	1.0	2.9	**12.06**	**17.12**
217	1	4	10.0	10.0	2.4	25	1.0	3.4	**9.55**	**14.60**
218	1	4	10.0	10.0	2	25	1.0	3.0	**11.46**	**16.55**
219	1	4	10.0	10.0	1.8	25	1.0	2.8	**12.73**	**17.73**
220	1	4	10.0	10.0	1.9	25	1.0	2.9	**12.06**	**17.12**
221	2	4	10.0	10.0	2	25	1.0	3.0	**5.73**	**8.27**
222	2	4	10.0	10.0	2.4	25	1.0	3.4	**4.78**	**7.30**
223	2	4	10.0	10.0	2.7	25	1.0	3.7	**4.25**	**6.71**
224	2	4	10.0	10.0	2	25	1.0	3.0	**5.73**	**8.27**
225	2	4	10.0	10.0	1.6	25	1.0	2.6	**7.17**	**9.55**
227	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
228	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
229	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
230	3	4	10.0	10.0	1.9	25	1.0	2.9	**4.03**	**5.71**
231	3	4	10.0	10.0	1.6	25	1.0	2.6	**4.78**	**6.37**
232	2	4	10.0	10.0	0.6	25	1.0	1.6	**19.11**	**15.51**
233	1	4	10.0	10.0	2.4	25	1.0	3.4	**9.55**	**14.60**
234	2	4	10.0	10.0	2.6	25	1.0	3.6	**4.41**	**6.89**
235	3	4	10.0	10.0	0.6	25	1.0	1.6	**12.76**	**10.34**
236	2	4	10.0	10.0	1.9	25	1.0	2.9	**6.04**	**8.56**
238	2	4	10.0	10.0	2.2	25	1.0	3.2	**5.21**	**7.76**
239	5	4	10.0	10.0	2	25	1.0	3.0	**2.30**	**3.31**
240	3	4	10.0	10.0	1.6	25	1.0	2.6	**4.78**	**6.37**
241	3	4	10.0	10.0	0.8	25	1.0	1.8	**9.57**	**9.20**
242	2	4	10.0	10.0	1.5	25	1.0	2.5	**7.65**	**9.93**
243	3	4	10.0	10.0	1.3	25	1.0	2.3	**5.89**	**7.20**
244	2	4	10.0	10.0	1.2	25	1.0	2.2	**9.56**	**11.28**
245	3	4	10.0	10.0	1.9	25	1.0	2.9	**4.03**	**5.71**
246	2	4	10.0	10.0	1.7	25	1.0	2.7	**6.75**	**9.19**
247	3	4	10.0	10.0	1.5	25	1.0	2.5	**5.10**	**6.62**
248	3	4	10.0	10.0	1.3	25	1.0	2.3	**5.89**	**7.20**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)	γ_w (kN/m^3)	(m)	ø' (deg)	Condition (2)	Condition (2)	Condition (1)	Condition (2)
									100% Water	100% Water
249	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
250	2	4	10.0	10.0	0.8	25	1.0	1.8	**14.34**	**13.79**
251	4	4	10.0	10.0	0.7	25	1.0	1.7	**8.21**	**7.30**
252	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
253	2	4	10.0	10.0	0.5	25	1.0	1.5	**22.94**	**16.55**
254	2	4	10.0	10.0	0.5	25	1.0	1.5	**22.94**	**16.55**
255	2	4	10.0	10.0	0.8	25	1.0	1.8	**14.34**	**13.79**
256	3	4	10.0	10.0	1.1	25	1.0	2.1	**6.96**	**7.88**
257	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
258	3	4	10.0	10.0	1.2	25	1.0	2.2	**6.38**	**7.52**
259	3	4	10.0	10.0	0.5	25	1.0	1.5	**15.31**	**11.03**
260	2	4	10.0	10.0	0.1	25	1.0	1.1	**114.68**	**22.57**
261	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
262	3	4	10.0	10.0	0.2	25	1.0	1.2	**38.27**	**13.79**
263	3	4	10.0	10.0	0.8	25	1.0	1.8	**9.57**	**9.20**
264	2	4	10.0	10.0	0.3	25	1.0	1.3	**38.23**	**19.09**
265	2	4	10.0	10.0	0.15	25	1.0	1.2	**76.46**	**21.58**
266	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
267	2	4	10.0	10.0	0.6	25	1.0	1.6	**19.11**	**15.51**
268	2	4	10.0	10.0	1.5	25	1.0	2.5	**7.65**	**9.93**
269	2	4	10.0	10.0	0.3	25	1.0	1.3	**38.23**	**19.09**
270	2	4	10.0	10.0	0.9	25	1.0	1.9	**12.74**	**13.06**
271	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
272	3	4	10.0	10.0	1.2	25	1.0	2.2	**6.38**	**7.52**
273	3	4	10.0	10.0	1.6	25	1.0	2.6	**4.78**	**6.37**
274	3	4	10.0	10.0	1.4	25	1.0	2.4	**5.47**	**6.90**
275	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
276	5	4	10.0	10.0	1	25	1.0	2.0	**4.61**	**4.97**
278	3	4	10.0	10.0	0.7	25	1.0	1.7	**10.93**	**9.74**
279	4	4	10.0	10.0	0.8	25	1.0	1.8	**7.19**	**6.90**
280	2	4	10.0	10.0	2.6	25	1.0	3.6	**4.41**	**6.89**
281	5	4	10.0	10.0	1.6	25	1.0	2.6	**2.88**	**3.82**
282	3	4	10.0	10.0	2.4	25	1.0	3.4	**3.19**	**4.87**
283	3	4	10.0	10.0	2	25	1.0	3.0	**3.83**	**5.52**
284	3	4	10.0	10.0	2.4	25	1.0	3.4	**3.19**	**4.87**
285	3	4	10.0	10.0	2.2	25	1.0	3.2	**3.48**	**5.17**
286	4	4	10.0	10.0	0.8	25	1.0	1.8	**7.19**	**6.90**
287	3	4	10.0	10.0	0.5	25	1.0	1.5	**15.31**	**11.03**
288	5	4	10.0	10.0	1.8	25	1.0	2.8	**2.56**	**3.55**
289	4	4	10.0	10.0	0.6	25	1.0	1.6	**9.58**	**7.76**
290	3	4	10.0	10.0	0.6	25	1.0	1.6	**12.76**	**10.34**
291	3	4	10.0	10.0	2.6	25	1.0	3.6	**2.94**	**4.60**
292	2	4	10.0	10.0	2.4	25	1.0	3.4	**4.78**	**7.30**
293	4	4	10.0	10.0	1.4	25	1.0	2.4	**4.11**	**5.17**
294	3	4	10.0	10.0	1.1	25	1.0	2.1	**6.96**	**7.88**
295	3	4	10.0	10.0	2.2	25	1.0	3.2	**3.48**	**5.17**
296	2	4	10.0	10.0	1.92	25	1.0	2.9	**5.97**	**8.50**
297	2	4	10.0	10.0	1.7	25	1.0	2.7	**6.75**	**9.19**
298	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
299	2	4	10.0	10.0	1.6	25	1.0	2.6	**7.17**	**9.55**
300	2	4	10.0	10.0	1.1	25	1.0	2.1	**10.43**	**11.82**
301	2	4	10.0	10.0	1.7	25	1.0	2.7	**6.75**	**9.19**
302	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
303	2	4	10.0	10.0	2	25	1.0	3.0	**5.73**	**8.27**
305	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
307	3	4	10.0	10.0	1.6	25	1.0	2.6	**4.78**	**6.37**
308	3	4	10.0	10.0	1.4	25	1.0	2.4	**5.47**	**6.90**
309	2	4	10.0	10.0	2.1	25	1.0	3.1	**5.46**	**8.01**
310	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
311	3	4	10.0	10.0	2.3	25	1.0	3.3	**3.33**	**5.02**
312	3	4	10.0	10.0	2.7	25	1.0	3.7	**2.83**	**4.47**
313	3	4	10.0	10.0	2.6	25	1.0	3.6	**2.94**	**4.60**
314	3	4	10.0	10.0	2.8	25	1.0	3.8	**2.73**	**4.36**
315	3	4	10.0	10.0	2.2	25	1.0	3.2	**3.48**	**5.17**
316	4	4	10.0	10.0	1.7	25	1.0	2.7	**3.38**	**4.60**
317	3	4	10.0	10.0	2.6	25	1.0	3.6	**2.94**	**4.60**
318	4	4	10.0	10.0	0.8	25	1.0	1.8	**7.19**	**6.90**
319	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
320	3	4	10.0	10.0	1.3	25	1.0	2.3	**5.89**	**7.20**
321	4	4	10.0	10.0	3.6	25	1.0	4.6	**1.60**	**2.70**
322	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
323	3	4	10.0	10.0	1.4	25	1.0	2.4	**5.47**	**6.90**
324	4	4	10.0	10.0	3.2	25	1.0	4.2	**1.80**	**2.96**
325	4	4	10.0	10.0	1.4	25	1.0	2.4	**4.11**	**5.17**
326	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
327	4	4	10.0	10.0	0.7	25	1.0	1.7	**8.21**	**7.30**
328	3	4	10.0	10.0	0.6	25	1.0	1.6	**12.76**	**10.34**
329	2	4	10.0	10.0	1.7	25	1.0	2.7	**6.75**	**9.19**
330	2	4	10.0	10.0	0.6	25	1.0	1.6	**19.11**	**15.51**
331	2	4	10.0	10.0	0.5	25	1.0	1.5	**22.94**	**16.55**
332	2	4	10.0	10.0	0.3	25	1.0	1.3	**38.23**	**19.09**
333	2	4	10.0	10.0	1.2	25	1.0	2.2	**9.56**	**11.28**
336	2	4	10.0	10.0	1.2	25	1.0	2.2	**9.56**	**11.28**
337	3	4	10.0	10.0	0.3	25	1.0	1.3	**25.51**	**12.73**
338	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
339	2	4	10.0	10.0	0.8	25	1.0	1.8	**14.34**	**13.79**
340	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
341	3	4	10.0	10.0	1.7	25	1.0	2.7	**4.50**	**6.13**
342	3	4	10.0	10.0	1.5	25	1.0	2.5	**5.10**	**6.62**
343	5	4	10.0	10.0	0.2	25	1.0	1.2	**23.04**	**8.28**
346	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
347	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
348	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
349	2	4	10.0	10.0	1.6	25	1.0	2.6	**7.17**	**9.55**
350	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
351	2	4	10.0	10.0	1.6	25	1.0	2.6	**7.17**	**9.55**
352	2	4	10.0	10.0	1.3	25	1.0	2.3	**8.82**	**10.79**
353	2	4	10.0	10.0	1.4	25	1.0	2.4	**8.19**	**10.34**
355	2	4	10.0	10.0	1.3	25	1.0	2.3	**8.82**	**10.79**
357	2	4	10.0	10.0	1.4	25	1.0	2.4	**8.19**	**10.34**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)	γ_w (kN/m^3)	(m)	ø' (deg)	Condition (2)	Condition (2)	Condition (1)	Condition (2)
									100% Water	100% Water
358	2	4	10.0	10.0	1.5	25	1.0	2.5	**7.65**	**9.93**
359	2	4	10.0	10.0	1.1	25	1.0	2.1	**10.43**	**11.82**
360	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
361	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
362	2	4	10.0	10.0	0.3	25	1.0	1.3	**38.23**	**19.09**
366	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
367	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
368	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
369	2	4	10.0	10.0	0.3	25	1.0	1.3	**38.23**	**19.09**
370	2	4	10.0	10.0	0.5	25	1.0	1.5	**22.94**	**16.55**
371	2	4	10.0	10.0	0.2	25	1.0	1.2	**57.34**	**20.68**
372	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
373	3	4	10.0	10.0	0.8	25	1.0	1.8	**9.57**	**9.20**
375	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
376	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
377	2	4	10.0	10.0	0.3	25	1.0	1.3	**38.23**	**19.09**
378	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
379	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
380	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
381	2	4	10.0	10.0	0.3	25	1.0	1.3	**38.23**	**19.09**
382	3	4	10.0	10.0	0.8	25	1.0	1.8	**9.57**	**9.20**
383	3	4	10.0	10.0	0.6	25	1.0	1.6	**12.76**	**10.34**
384	3	4	10.0	10.0	1.2	25	1.0	2.2	**6.38**	**7.52**
385	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
386	2	4	10.0	10.0	0.8	25	1.0	1.8	**14.34**	**13.79**
387	2	4	10.0	10.0	0.8	25	1.0	1.8	**14.34**	**13.79**
388	2	4	10.0	10.0	1.5	25	1.0	2.5	**7.65**	**9.93**
389	3	4	10.0	10.0	1.1	25	1.0	2.1	**6.96**	**7.88**
390	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
391	2	4	10.0	10.0	0.6	25	1.0	1.6	**19.11**	**15.51**
392	2	4	10.0	10.0	0.8	25	1.0	1.8	**14.34**	**13.79**
393	2	4	10.0	10.0	0.6	25	1.0	1.6	**19.11**	**15.51**
394	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
395	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
396	2	4	10.0	10.0	2.2	25	1.0	3.2	**5.21**	**7.76**
397	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
398	3	4	10.0	10.0	0.3	25	1.0	1.3	**25.51**	**12.73**
399	2	4	10.0	10.0	2.6	25	1.0	3.6	**4.41**	**6.89**
400	2	4	10.0	10.0	1.6	25	1.0	2.6	**7.17**	**9.55**
401	3	4	10.0	10.0	1.2	25	1.0	2.2	**6.38**	**7.52**
402	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
403	2	4	10.0	10.0	1.6	25	1.0	2.6	**7.17**	**9.55**
404	2	4	10.0	10.0	0.8	25	1.0	1.8	**14.34**	**13.79**
405	2	4	10.0	10.0	0.2	25	1.0	1.2	**57.34**	**20.68**
406	3	4	10.0	10.0	1.1	25	1.0	2.1	**6.96**	**7.88**
407	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
408	3	4	10.0	10.0	0.7	25	1.0	1.7	**10.93**	**9.74**
409	2	4	10.0	10.0	1.2	25	1.0	2.2	**9.56**	**11.28**
410	2	4	10.0	10.0	1.2	25	1.0	2.2	**9.56**	**11.28**
411	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
412	2	4	10.0	10.0	1.6	25	1.0	2.6	**7.17**	**9.55**
413	3	4	10.0	10.0	0.5	25	1.0	1.5	**15.31**	**11.03**
414	3	4	10.0	10.0	0.5	25	1.0	1.5	**15.31**	**11.03**
415	3	4	10.0	10.0	0.4	25	1.0	1.4	**19.13**	**11.82**
416	2	4	10.0	10.0	1.6	25	1.0	2.6	**7.17**	**9.55**
417	2	4	10.0	10.0	0.6	25	1.0	1.6	**19.11**	**15.51**
418	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
430	2	4	10.0	10.0	2.8	25	1.0	3.8	**4.10**	**6.53**
431	2	4	10.0	10.0	2.4	25	1.0	3.4	**4.78**	**7.30**
432	3	4	10.0	10.0	2.2	25	1.0	3.2	**3.48**	**5.17**
433	2	4	10.0	10.0	3	25	1.0	4.0	**3.82**	**6.21**
434	3	4	10.0	10.0	2.2	25	1.0	3.2	**3.48**	**5.17**
435	2	4	10.0	10.0	1.6	25	1.0	2.6	**7.17**	**9.55**
436	3	4	10.0	10.0	1.4	25	1.0	2.4	**5.47**	**6.90**
437	2	4	10.0	10.0	1.3	25	1.0	2.3	**8.82**	**10.79**
438	2	4	10.0	10.0	1.6	25	1.0	2.6	**7.17**	**9.55**
439	1	4	10.0	10.0	2.3	25	1.0	3.3	**9.97**	**15.04**
440	3	4	10.0	10.0	2	25	1.0	3.0	**3.83**	**5.52**
441	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
442	2	4	10.0	10.0	2.7	25	1.0	3.7	**4.25**	**6.71**
443	2	4	10.0	10.0	2.3	25	1.0	3.3	**4.99**	**7.52**
444	2	4	10.0	10.0	2	25	1.0	3.0	**5.73**	**8.27**
445	2	4	10.0	10.0	1.7	25	1.0	2.7	**6.75**	**9.19**
446	2	4	10.0	10.0	2	25	1.0	3.0	**5.73**	**8.27**
447	2	4	10.0	10.0	1.6	25	1.0	2.6	**7.17**	**9.55**
448	2	4	10.0	10.0	1.1	25	1.0	2.1	**10.43**	**11.82**
449	2	4	10.0	10.0	1.2	25	1.0	2.2	**9.56**	**11.28**
450	2	4	10.0	10.0	1.4	25	1.0	2.4	**8.19**	**10.34**
451	2	4	10.0	10.0	0.6	25	1.0	1.6	**19.11**	**15.51**
452	1	4	10.0	10.0	1.3	25	1.0	2.3	**17.63**	**21.58**
454	2	4	10.0	10.0	0.8	25	1.0	1.8	**14.34**	**13.79**
455	2	4	10.0	10.0	1.5	25	1.0	2.5	**7.65**	**9.93**
456	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
459	2	4	10.0	10.0	0.6	25	1.0	1.6	**19.11**	**15.51**
460	2	4	10.0	10.0	4.3	25	1.0	5.3	**2.67**	**4.68**
461	2	4	10.0	10.0	4	25	1.0	5.0	**2.87**	**4.96**
462	3	4	10.0	10.0	3.6	25	1.0	4.6	**2.13**	**3.60**
464	2	4	10.0	10.0	3.4	25	1.0	4.4	**3.37**	**5.64**
466	2	4	10.0	10.0	0.15	25	1.0	1.2	**76.46**	**21.58**
467	1	4	10.0	10.0	1.8	25	1.0	2.8	**12.73**	**17.73**
468	1	4	10.0	10.0	2.9	25	1.0	3.9	**7.90**	**12.73**
469	1	4	10.0	10.0	2.4	25	1.0	3.4	**9.55**	**14.60**
470	1	4	10.0	10.0	2.3	25	1.0	3.3	**9.97**	**15.04**
471	1	4	10.0	10.0	2.5	25	1.0	3.5	**9.17**	**14.18**
472	1	4	10.0	10.0	2.9	25	1.0	3.9	**7.90**	**12.73**
473	1	4	10.0	10.0	2.8	25	1.0	3.8	**8.19**	**13.06**
474	1	4	10.0	10.0	2.2	25	1.0	3.2	**10.42**	**15.51**
475	1	4	10.0	10.0	2	25	1.0	3.0	**11.46**	**16.55**
476	1	4	10.0	10.0	2.7	25	1.0	3.7	**8.49**	**13.42**
477	1	4	10.0	10.0	2.7	25	1.0	3.7	**8.49**	**13.42**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)	γ_w (kN/m^3)	(m)	ø' (deg)	Condition (2)	Condition (2)	Condition (1)	Condition (2)
									100% Water	100% Water
495	3	4	10.0	10.0	3.2	25	1.0	4.2	**2.39**	**3.94**
496	3	4	10.0	10.0	1.3	25	1.0	2.3	**5.89**	**7.20**
497	2	4	10.0	10.0	1.9	25	1.0	2.9	**6.04**	**8.56**
498	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
577	2	4	10.0	10.0	2.9	25	1.0	3.9	**3.95**	**6.36**
578	2	4	10.0	10.0	2.9	25	1.0	3.9	**3.95**	**6.36**
579	2	4	10.0	10.0	2.8	25	1.0	3.8	**4.10**	**6.53**
580	2	4	10.0	10.0	2.7	25	1.0	3.7	**4.25**	**6.71**
581	2	4	10.0	10.0	2.1	25	1.0	3.1	**5.46**	**8.01**
582	2	4	10.0	10.0	2	25	1.0	3.0	**5.73**	**8.27**
583	3	4	10.0	10.0	2.3	25	1.0	3.3	**3.33**	**5.02**
584	3	4	10.0	10.0	2.2	25	1.0	3.2	**3.48**	**5.17**
585	3	4	10.0	10.0	2.2	25	1.0	3.2	**3.48**	**5.17**
586	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
587	4	4	10.0	10.0	0.3	25	1.0	1.3	**19.16**	**9.55**
588	4	4	10.0	10.0	2.2	25	1.0	3.2	**2.61**	**3.88**
589	4	4	10.0	10.0	0.8	25	1.0	1.8	**7.19**	**6.90**
590	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
591	4	4	10.0	10.0	2	25	1.0	3.0	**2.87**	**4.14**
592	4	4	10.0	10.0	0.3	25	1.0	1.3	**19.16**	**9.55**
593	4	4	10.0	10.0	1.8	25	1.0	2.8	**3.19**	**4.43**
594	3	4	10.0	10.0	2	25	1.0	3.0	**3.83**	**5.52**
595	3	4	10.0	10.0	0.9	25	1.0	1.9	**8.50**	**8.71**
596	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
597	4	4	10.0	10.0	1.6	25	1.0	2.6	**3.59**	**4.78**
598	4	4	10.0	10.0	0.7	25	1.0	1.7	**8.21**	**7.30**
600	4	4	10.0	10.0	2.9	25	1.0	3.9	**1.98**	**3.18**
602	4	4	10.0	10.0	1.8	25	1.0	2.8	**3.19**	**4.43**
604	4	4	10.0	10.0	1.2	25	1.0	2.2	**4.79**	**5.64**
606	3	4	10.0	10.0	1.4	25	1.0	2.4	**5.47**	**6.90**
608	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
610	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
612	3	4	10.0	10.0	2.5	25	1.0	3.5	**3.06**	**4.73**
614	4	4	10.0	10.0	1.5	25	1.0	2.5	**3.83**	**4.97**
616	3	4	10.0	10.0	1.5	25	1.0	2.5	**5.10**	**6.62**
617	2	4	10.0	10.0	1.4	25	1.0	2.4	**8.19**	**10.34**
618	3	4	10.0	10.0	1.4	25	1.0	2.4	**5.47**	**6.90**
619	3	4	10.0	10.0	1.1	25	1.0	2.1	**6.96**	**7.88**
622	4	4	10.0	10.0	1.6	25	1.0	2.6	**3.59**	**4.78**
624	4	4	10.0	10.0	3.5	25	1.0	4.5	**1.64**	**2.76**
626	2	4	10.0	10.0	3.8	25	1.0	4.8	**3.02**	**5.17**
628	3	4	10.0	10.0	3.5	25	1.0	4.5	**2.19**	**3.68**
630	2	4	10.0	10.0	3.1	25	1.0	4.1	**3.70**	**6.05**
632	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
634	3	4	10.0	10.0	2.2	25	1.0	3.2	**3.48**	**5.17**
636	4	4	10.0	10.0	2.3	25	1.0	3.3	**2.50**	**3.76**
638	3	4	10.0	10.0	1.6	25	1.0	2.6	**4.78**	**6.37**
640	4	4	10.0	10.0	0.7	25	1.0	1.7	**8.21**	**7.30**
642	6	4	10.0	10.0	0.4	25	1.0	1.4	**9.62**	**5.92**
644	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
646	4	4	10.0	10.0	1.5	25	1.0	2.5	**3.83**	**4.97**
648	3	4	10.0	10.0	2.4	25	1.0	3.4	**3.19**	**4.87**
649	4	4	10.0	10.0	2.4	25	1.0	3.4	**2.40**	**3.65**
650	2	4	10.0	10.0	2.6	25	1.0	3.6	**4.41**	**6.89**
651	3	4	10.0	10.0	2.2	25	1.0	3.2	**3.48**	**5.17**
652	2	4	10.0	10.0	3.7	25	1.0	4.7	**3.10**	**5.28**
653	3	4	10.0	10.0	4.1	25	1.0	5.1	**1.87**	**3.25**
654	2	4	10.0	10.0	3.8	25	1.0	4.8	**3.02**	**5.17**
655	4	4	10.0	10.0	3.3	25	1.0	4.3	**1.74**	**2.89**
656	3	4	10.0	10.0	3	25	1.0	4.0	**2.55**	**4.14**
657	2	4	10.0	10.0	1.3	25	1.0	2.3	**8.82**	**10.79**
658	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
659	2	4	10.0	10.0	1.2	25	1.0	2.2	**9.56**	**11.28**
660	2	4	10.0	10.0	1.2	25	1.0	2.2	**9.56**	**11.28**
661	3	4	10.0	10.0	2.7	25	1.0	3.7	**2.83**	**4.47**
662	3	4	10.0	10.0	2.8	25	1.0	3.8	**2.73**	**4.36**
663	2	4	10.0	10.0	1.4	25	1.0	2.4	**8.19**	**10.34**
664	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
665	3	4	10.0	10.0	1.1	25	1.0	2.1	**6.96**	**7.88**
666	2	4	10.0	10.0	0.9	25	1.0	1.9	**12.74**	**13.06**
667	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
668	4	4	10.0	10.0	0.9	25	1.0	1.9	**6.39**	**6.54**
669	3	4	10.0	10.0	0.2	25	1.0	1.2	**38.27**	**13.79**
670	2	4	10.0	10.0	0.2	25	1.0	1.2	**57.34**	**20.68**
671	2	4	10.0	10.0	0.5	25	1.0	1.5	**22.94**	**16.55**
673	2	4	10.0	10.0	0.5	25	1.0	1.5	**22.94**	**16.55**
674	4	4	10.0	10.0	0.2	25	1.0	1.2	**28.74**	**10.35**
675	3	4	10.0	10.0	0.4	25	1.0	1.4	**19.13**	**11.82**
676	6	4	10.0	10.0	0.2	25	1.0	1.2	**19.24**	**6.90**
677	6	4	10.0	10.0	0.1	25	1.0	1.1	**38.48**	**7.53**
679	8	4	10.0	10.0	0.1	25	1.0	1.1	**29.02**	**5.65**
681	2	4	10.0	10.0	5.8	25	1.0	6.8	**1.98**	**3.65**
683	4	4	10.0	10.0	3.6	25	1.0	4.6	**1.60**	**2.70**
685	4	4	10.0	10.0	1.6	25	1.0	2.6	**3.59**	**4.78**
687	4	4	10.0	10.0	1.2	25	1.0	2.2	**4.79**	**5.64**
689	2	4	10.0	10.0	1.5	25	1.0	2.5	**7.65**	**9.93**
691	2	4	10.0	10.0	1.7	25	1.0	2.7	**6.75**	**9.19**
693	2	4	10.0	10.0	2.3	25	1.0	3.3	**4.99**	**7.52**
696	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
699	3	4	10.0	10.0	2	25	1.0	3.0	**3.83**	**5.52**
702	8	4	10.0	10.0	1.7	25	1.0	2.7	**1.71**	**2.30**
704	4	4	10.0	10.0	1.5	25	1.0	2.5	**3.83**	**4.97**
705	4	4	10.0	10.0	1.2	25	1.0	2.2	**4.79**	**5.64**
707	6	4	10.0	10.0	0.4	25	1.0	1.4	**9.62**	**5.92**
710	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
712	3	4	10.0	10.0	2	25	1.0	3.0	**3.83**	**5.52**
714	3	4	10.0	10.0	1.2	25	1.0	2.2	**6.38**	**7.52**
716	3	4	10.0	10.0	1.9	25	1.0	2.9	**4.03**	**5.71**
718	2	4	10.0	10.0	1.5	25	1.0	2.5	**7.65**	**9.93**
771	2	4	10.0	10.0	3.7	25	1.0	4.7	**3.10**	**5.28**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)	γ_w (kN/m^3)	(m)	ø' (deg)	Condition (2)	Condition (2)	Condition (1)	Condition (2)
									100% Water	100% Water
772	2	4	10.0	10.0	3.7	25	1.0	4.7	**3.10**	**5.28**
773	2	4	10.0	10.0	2.4	25	1.0	3.4	**4.78**	**7.30**
774	3	4	10.0	10.0	1.2	25	1.0	2.2	**6.38**	**7.52**
775	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
776	3	4	10.0	10.0	0.7	25	1.0	1.7	**10.93**	**9.74**
777	2	4	10.0	10.0	0.5	25	1.0	1.5	**22.94**	**16.55**
778	3	4	10.0	10.0	0.5	25	1.0	1.5	**15.31**	**11.03**
779	3	4	10.0	10.0	0.6	25	1.0	1.6	**12.76**	**10.34**
780	2	4	10.0	10.0	0.6	25	1.0	1.6	**19.11**	**15.51**
781	2	4	10.0	10.0	0.6	25	1.0	1.6	**19.11**	**15.51**
782	2	4	10.0	10.0	0.3	25	1.0	1.3	**38.23**	**19.09**
783	2	4	10.0	10.0	0.3	25	1.0	1.3	**38.23**	**19.09**
784	2	4	10.0	10.0	0.2	25	1.0	1.2	**57.34**	**20.68**
785	2	4	10.0	10.0	0.3	25	1.0	1.3	**38.23**	**19.09**
787	2	4	10.0	10.0	3.7	25	1.0	4.7	**3.10**	**5.28**
788	3	4	10.0	10.0	1.5	25	1.0	2.5	**5.10**	**6.62**
790	2	4	10.0	10.0	1.2	25	1.0	2.2	**9.56**	**11.28**
792	2	4	10.0	10.0	1.6	25	1.0	2.6	**7.17**	**9.55**
794	4	4	10.0	10.0	1.1	25	1.0	2.1	**5.23**	**5.91**
795	2	4	10.0	10.0	1.4	25	1.0	2.4	**8.19**	**10.34**
797	2	4	10.0	10.0	1.2	25	1.0	2.2	**9.56**	**11.28**
799	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
801	4	4	10.0	10.0	1.7	25	1.0	2.7	**3.38**	**4.60**
803	4	4	10.0	10.0	1.5	25	1.0	2.5	**3.83**	**4.97**
804	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
805	4	4	10.0	10.0	1.2	25	1.0	2.2	**4.79**	**5.64**
808	4	4	10.0	10.0	1.1	25	1.0	2.1	**5.23**	**5.91**
810	2	4	10.0	10.0	1.5	25	1.0	2.5	**7.65**	**9.93**
812	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
814	3	4	10.0	10.0	1.1	25	1.0	2.1	**6.96**	**7.88**
816	4	4	10.0	10.0	1.7	25	1.0	2.7	**3.38**	**4.60**
818	3	4	10.0	10.0	1.6	25	1.0	2.6	**4.78**	**6.37**
820	3	4	10.0	10.0	1.5	25	1.0	2.5	**5.10**	**6.62**
821	4	4	10.0	10.0	1.4	25	1.0	2.4	**4.11**	**5.17**
823	4	4	10.0	10.0	1.5	25	1.0	2.5	**3.83**	**4.97**
825	4	4	10.0	10.0	1.5	25	1.0	2.5	**3.83**	**4.97**
830	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
831	6	4	10.0	10.0	1.5	25	1.0	2.5	**2.57**	**3.31**
833	4	4	10.0	10.0	1.6	25	1.0	2.6	**3.59**	**4.78**
835	4	4	10.0	10.0	1.8	25	1.0	2.8	**3.19**	**4.43**
837	4	4	10.0	10.0	0.4	25	1.0	1.4	**14.37**	**8.87**
839	4	4	10.0	10.0	2	25	1.0	3.0	**2.87**	**4.14**
841	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
843	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
857	3	4	10.0	10.0	0.1	25	1.0	1.1	**76.53**	**15.05**
858	3	4	10.0	10.0	1	25	1.0	2.0	**7.65**	**8.28**
859	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
860	3	4	10.0	10.0	0.8	25	1.0	1.8	**9.57**	**9.20**
861	2	4	10.0	10.0	0.2	25	1.0	1.2	**57.34**	**20.68**
862	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
863	2	4	10.0	10.0	0.8	25	1.0	1.8	**14.34**	**13.79**
864	3	4	10.0	10.0	0.4	25	1.0	1.4	**19.13**	**11.82**
865	2	4	10.0	10.0	0.1	25	1.0	1.1	**114.68**	**22.57**
866	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
867	3	4	10.0	10.0	0.5	25	1.0	1.5	**15.31**	**11.03**
868	3	4	10.0	10.0	0.7	25	1.0	1.7	**10.93**	**9.74**
869	3	4	10.0	10.0	0.5	25	1.0	1.5	**15.31**	**11.03**
870	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
871	2	4	10.0	10.0	0.9	25	1.0	1.9	**12.74**	**13.06**
872	2	4	10.0	10.0	3.5	25	1.0	4.5	**3.28**	**5.52**
873	4	4	10.0	10.0	4	25	1.0	5.0	**1.44**	**2.48**
874	3	4	10.0	10.0	4.5	25	1.0	5.5	**1.70**	**3.01**
875	3	4	10.0	10.0	3	25	1.0	4.0	**2.55**	**4.14**
876	3	4	10.0	10.0	4.5	25	1.0	5.5	**1.70**	**3.01**
877	4	4	10.0	10.0	4.2	25	1.0	5.2	**1.37**	**2.39**
878	4	4	10.0	10.0	4	25	1.0	5.0	**1.44**	**2.48**
879	4	4	10.0	10.0	3.6	25	1.0	4.6	**1.60**	**2.70**
880	4	4	10.0	10.0	4.3	25	1.0	5.3	**1.34**	**2.34**
881	4	4	10.0	10.0	3.7	25	1.0	4.7	**1.55**	**2.64**
882	4	4	10.0	10.0	3.2	25	1.0	4.2	**1.80**	**2.96**
883	4	4	10.0	10.0	3.9	25	1.0	4.9	**1.47**	**2.53**
884	6	4	10.0	10.0	2.9	25	1.0	3.9	**1.33**	**2.12**
885	4	4	10.0	10.0	4.2	25	1.0	5.2	**1.37**	**2.39**
886	2	4	10.0	10.0	3.4	25	1.0	4.4	**3.37**	**5.64**
887	2	4	10.0	10.0	3.5	25	1.0	4.5	**3.28**	**5.52**
888	2	4	10.0	10.0	3.1	25	1.0	4.1	**3.70**	**6.05**
889	2	4	10.0	10.0	2	25	1.0	3.0	**5.73**	**8.27**
890	2	4	10.0	10.0	2.2	25	1.0	3.2	**5.21**	**7.76**
891	2	4	10.0	10.0	1.8	25	1.0	2.8	**6.37**	**8.86**
892	4	4	10.0	10.0	3	25	1.0	4.0	**1.92**	**3.10**
893	4	4	10.0	10.0	3.1	25	1.0	4.1	**1.85**	**3.03**
894	4	4	10.0	10.0	2.7	25	1.0	3.7	**2.13**	**3.36**
895	4	4	10.0	10.0	1.2	25	1.0	2.2	**4.79**	**5.64**
896	4	4	10.0	10.0	1.5	25	1.0	2.5	**3.83**	**4.97**
897	4	4	10.0	10.0	2.6	25	1.0	3.6	**2.21**	**3.45**
899	3	4	10.0	10.0	2.5	25	1.0	3.5	**3.06**	**4.73**
901	3	4	10.0	10.0	0.7	25	1.0	1.7	**10.93**	**9.74**
903	3	4	10.0	10.0	1.2	25	1.0	2.2	**6.38**	**7.52**
905	2	4	10.0	10.0	5	25	1.0	6.0	**2.29**	**4.14**
906	2	4	10.0	10.0	4.6	25	1.0	5.6	**2.49**	**4.43**
907	2	4	10.0	10.0	5.8	25	1.0	6.8	**1.98**	**3.65**
908	3	4	10.0	10.0	4.5	25	1.0	5.5	**1.70**	**3.01**
909	3	4	10.0	10.0	3.8	25	1.0	4.8	**2.01**	**3.45**
910	3	4	10.0	10.0	3.4	25	1.0	4.4	**2.25**	**3.76**
926	2	4	10.0	10.0	1	25	1.0	2.0	**11.47**	**12.41**
927	2	4	10.0	10.0	0.6	25	1.0	1.6	**19.11**	**15.51**
929	2	4	10.0	10.0	0.5	25	1.0	1.5	**22.94**	**16.55**
931	4	4	10.0	10.0	0.5	25	1.0	1.5	**11.50**	**8.28**
933	2	4	10.0	10.0	0.7	25	1.0	1.7	**16.38**	**14.60**
936	2	4	10.0	10.0	0.5	25	1.0	1.5	**22.94**	**16.55**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)	γ_w (kN/m^3)	(m)	ø' (deg)	Condition (2)	Condition (2)	Condition (1)	Condition (2)
									100% Water	100% Water
956	4	4	10.0	10.0	1.6	25	1.0	2.6	**3.59**	**4.78**
957	4	4	10.0	10.0	1	25	1.0	2.0	**5.75**	**6.21**
958	4	4	10.0	10.0	0.9	25	1.0	1.9	**6.39**	**6.54**
961	3	4	10.0	10.0	1.5	25	1.0	2.5	**5.10**	**6.62**
962	2	4	10.0	10.0	1.6	25	1.0	2.6	**7.17**	**9.55**
963	2	4	10.0	10.0	1.2	25	1.0	2.2	**9.56**	**11.28**
CC3-C	4	4	10.0	10.0	2	25	1.0	3.0	**2.87**	**4.14**
CC3-N	4	4	10.0	10.0	1.8	25	1.0	2.8	**3.19**	**4.43**
CC3-S	4	4	10.0	10.0	2.1	25	1.0	3.1	**2.74**	**4.01**
CC3-E	4	4	10.0	10.0	2	25	1.0	3.0	**2.87**	**4.14**
CC3-W	4	4	10.0	10.0	1.5	25	1.0	2.5	**3.83**	**4.97**
CC4 - C	4	4	10.0	10.0	1.8	25	1.0	2.8	**3.19**	**4.43**
CC4 - N	4	4	10.0	10.0	1.8	25	1.0	2.8	**3.19**	**4.43**
CC4 - S	4	4	10.0	10.0	1.4	25	1.0	2.4	**4.11**	**5.17**
CC4 - E	4	4	10.0	10.0	1.9	25	1.0	2.9	**3.03**	**4.28**
CC4 - W	4	4	10.0	10.0	1.7	25	1.0	2.7	**3.38**	**4.60**
CC5 - C	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
CC5 - N	3	4	10.0	10.0	1.8	25	1.0	2.8	**4.25**	**5.91**
CC5 - S	3	4	10.0	10.0	2	25	1.0	3.0	**3.83**	**5.52**
CC5 - E	3	4	10.0	10.0	1.3	25	1.0	2.3	**5.89**	**7.20**
CC5 - W	3	4	10.0	10.0	1.4	25	1.0	2.4	**5.47**	**6.90**
CC6 - C	6	4	10.0	10.0	2.8	25	1.0	3.8	**1.37**	**2.18**
CC6 - N	6	4	10.0	10.0	2.5	25	1.0	3.5	**1.54**	**2.37**
CC6 - S	6	4	10.0	10.0	2.6	25	1.0	3.6	**1.48**	**2.30**
CC6 - E	6	4	10.0	10.0	3	25	1.0	4.0	**1.37**	**2.22**
CC6 - W	6	4	10.0	10.0	2.5	25	1.0	3.5	**1.54**	**2.37**
CC7 - C	4	4	10.0	10.0	2.4	25	1.0	3.4	**2.40**	**3.65**
CC7 - N	4	4	10.0	10.0	2	25	1.0	3.0	**2.87**	**4.14**
CC7 - S	4	4	10.0	10.0	1.8	25	1.0	2.8	**3.19**	**4.43**
CC7 - E	4	4	10.0	10.0	2.2	25	1.0	3.2	**2.61**	**3.88**
CC7 - W	4	4	10.0	10.0	2.5	25	1.0	3.5	**2.30**	**3.55**
CC8 - C	3	4	10.0	10.0	0.7	25	1.0	1.7	**10.93**	**9.74**
CC8 - N	3	4	10.0	10.0	0.8	25	1.0	1.8	**9.57**	**9.20**
CC8 - S	3	4	10.0	10.0	0.8	25	1.0	1.8	**9.57**	**9.20**
CC8 - E	3	4	10.0	10.0	0.5	25	1.0	1.5	**15.31**	**11.03**
CC8 - W	3	4	10.0	10.0	0.4	25	1.0	1.4	**19.13**	**11.82**
PS01 - C	2	4	10.0	10.0	0.2	25	1.0	1.2	**57.34**	**20.68**
PS01 - N	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
PS01 - S	2	4	10.0	10.0	0.5	25	1.0	1.5	**22.94**	**16.55**
PS01 - E	2	4	10.0	10.0	0.2	25	1.0	1.2	**57.34**	**20.68**
PS01 - W	2	4	10.0	10.0	0.4	25	1.0	1.4	**28.67**	**17.73**
PS02	2	4	10.0	10.0	2.1	25	1.0	3.1	**5.46**	**8.01**
PS03-C	3	4	10.0	10.0	3	25	1.0	4.0	**2.55**	**4.14**
MM0001	2	4	10.0	10.0	0.3	25	1.0	1.3	**38.23**	**19.09**
MM0002	3	4	10.0	10.0	0.25	25	1.0	1.3	**30.61**	**13.24**
MM0003	3	4	10.0	10.0	1.3	25	1.0	2.3	**5.89**	**7.20**
MM0004	3	4	10.0	10.0	1.7	25	1.0	2.7	**4.50**	**6.13**
MM0005	2	4	10.0	10.0	1.7	25	1.0	2.7	**6.75**	**9.19**
SS0001	6	4	10.0	10.0	0.1	26	1.0	1.1	**38.48**	**7.72**
SS0002	5	4	10.0	10.0	No peat recorded at this location					
SS0003	4	4	10.0	10.0	No peat recorded at this location					
SS0004	6	4	10.0	10.0	0.25	29	1.0	1.3	**20.67**	**8.35**
SS0005	5	4	10.0	10.0	0.15	30	1.0	1.2	**37.31**	**10.61**
SS0006	4	4	10.0	10.0	0.2	31	1.0	1.2	**37.33**	**13.38**
SS0007	4	4	10.0	10.0	0.15	32	1.0	1.2	**47.26**	**13.93**
SS0008	5	4	10.0	10.0	0.1	33	1.0	1.1	**53.49**	**11.61**
MKO (2025)										
L28	2	4	10.0	10.0	2.4	25	1.0	3.4	**4.78**	**7.30**
L29	2	4	10.0	10.0	2.9	25	1.0	3.9	**3.95**	**6.36**
L30	2	4	10.0	10.0	3.0	25	1.0	4.0	**3.82**	**6.21**
L31	2	4	10.0	10.0	3.5	25	1.0	4.5	**3.28**	**5.52**
L32	2	4	10.0	10.0	6.0	25	1.0	7.0	**1.91**	**3.55**
L33	2	4	10.0	10.0	3.0	25	1.0	4.0	**3.82**	**6.21**
L34	2	4	10.0	10.0	6.0	25	1.0	7.0	**1.91**	**3.55**
L35	2	4	10.0	10.0	5.0	25	1.0	6.0	**2.29**	**4.14**
L36	2	4	10.0	10.0	4.0	25	1.0	5.0	**2.87**	**4.96**
L38	2	4	10.0	10.0	4.8	25	1.0	5.8	**2.39**	**4.28**
L40	2	4	10.0	10.0	4.4	25	1.0	5.4	**2.61**	**4.60**
L42	2	4	10.0	10.0	3.9	25	1.0	4.9	**2.94**	**5.07**
L43	2	4	10.0	10.0	3.9	25	1.0	4.9	**2.94**	**5.07**
L47	2	4	10.0	10.0	0.9	25	1.0	1.9	**12.74**	**13.06**
L48	6	4	10.0	10.0	1.5	25	1.0	2.5	**2.57**	**3.31**
L49	3	4	10.0	10.0	4.6	25	1.0	5.6	**1.66**	**2.96**
L105	3	4	10.0	10.0	3.7	25	1.0	4.7	**2.07**	**3.52**
MKO (2026)										
975	5	4	10.0	10.0	0.3	25	1.0	1.3	**15.36**	**7.64**
976	5	4	10.0	10.0	0.3	25	1.0	1.3	**15.36**	**7.64**
977	4	4	10.0	10.0	0.7	25	1.0	1.7	**8.21**	**7.30**
978	6	4	10.0	10.0	0.9	25	1.0	1.9	**4.28**	**4.36**
979	6	4	10.0	10.0	0.4	25	1.0	1.4	**9.62**	**5.92**
980	2	4	10.0	10.0	1.7	25	1.0	2.7	**6.75**	**9.19**
981	3	4	10.0	10.0	2.4	25	1.0	3.4	**3.19**	**4.87**
982	2	4	10.0	10.0	2.8	25	1.0	3.8	**4.10**	**6.53**
983	2	4	10.0	10.0	3.6	25	1.0	4.6	**3.19**	**5.40**
984	2	4	10.0	10.0	2.2	25	1.0	3.2	**5.21**	**7.76**
985	3	4	10.0	10.0	3.1	25	1.0	4.1	**2.47**	**4.04**
986	3	4	10.0	10.0	3.4	25	1.0	4.4	**2.25**	**3.76**
987	2	4	10.0	10.0	3.1	25	1.0	4.1	**3.70**	**6.05**
988	3	4	10.0	10.0	4.4	25	1.0	5.4	**1.74**	**3.07**
989	2	4	10.0	10.0	4.6	25	1.0	5.6	**2.49**	**4.43**
990	3	4	10.0	10.0	3.7	25	1.0	4.7	**2.07**	**3.52**
991	3	4	10.0	10.0	0.6	25	1.0	1.6	**12.76**	**10.34**
992	4	4	10.0	10.0	1.1	25	1.0	2.1	**5.23**	**5.91**
993	2	4	10.0	10.0	2.1	25	1.0	3.1	**5.46**	**8.01**
994	4	4	10.0	10.0	1.0	25	1.0	2.0	**5.75**	**6.21**
995	4	4	10.0	10.0	1.2	25	1.0	2.2	**4.79**	**5.64**
996	4	4	10.0	10.0	1.2	25	1.0	2.2	**4.79**	**5.64**
997	2	4	10.0	10.0	2.4	25	1.0	3.4	**4.78**	**7.30**

Calculated FoS of Natural Peat Slopes for Ballydermot Wind Farm - 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)	γ_w (kN/m^3)	(m)	ø' (deg)	Condition (2)	Condition (2)	Condition (1)	Condition (2)
									100% Water	100% Water
998	3	4	10.0	10.0	0.2	25	1.0	1.2	**38.27**	**13.79**
999	2	4	10.0	10.0	5.0	25	1.0	6.0	**2.29**	**4.14**
1000	3	4	10.0	10.0	5.0	25	1.0	6.0	**1.53**	**2.76**
1001	2	4	10.0	10.0	4.2	25	1.0	5.2	**2.73**	**4.77**
1002	4	4	10.0	10.0	1.9	25	1.0	2.9	**3.03**	**4.28**
1003	6	4	10.0	10.0	2.4	25	1.0	3.4	**1.60**	**2.44**
1004	3	4	10.0	10.0	2.4	25	1.0	3.4	**3.19**	**4.87**
1005	2	4	10.0	10.0	5.0	25	1.0	6.0	**2.29**	**4.14**
1006	2	4	10.0	10.0	5.0	25	1.0	6.0	**2.29**	**4.14**
1007	3	4	10.0	10.0	4.7	25	1.0	5.7	**1.63**	**2.90**
1008	2	4	10.0	10.0	5.0	25	1.0	6.0	**2.29**	**4.14**
1009	2	4	10.0	10.0	4.9	25	1.0	5.9	**2.34**	**4.21**
1010	3	4	10.0	10.0	2.2	25	1.0	3.2	**3.48**	**5.17**
1011	2	4	10.0	10.0	1.0	25	1.0	2.0	**11.47**	**12.41**
								Minimum =	**1.33**	**2.12**
								Maximum =	**114.68**	**41.36**

Notes:

(1) Assuming a bulk unit weight of peat of 10 (kN/m^3)
(2) Assuming a surcharge equivalent to fill depth of 1.0m.
(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.

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APPENDIX D

Methodology for Peat Stability Risk Assessment

Methodology for Peat Stability Risk Assessment

A peat stability risk assessment was carried out for each of the main infrastructure elements at the proposed wind farm development. This approach takes into account guidelines for geotechnical/peat stability risk assessments as given in PLHRAG (2nd Edition, 2017) and MacCulloch (2005). The degree of risk is determined as a Risk Rating (R), which is the product of probability (P) and impact (I). How these factors are determined and applied in the analysis is described below.

The main approaches for assessing peat stability include the following:

(a) Geomorphological

(b) Qualitative (judgement)

(c) Index/Probabilistic (probability)

(d) Deterministic (factor of safety)

Approaches (a) to (c) listed above would be considered subjective and do not provide a definitive indication of stability; in addition, a high level of judgement/experience is required which makes it difficult to relate the findings to real conditions. FT apply a more objective approach, the deterministic approach. As part of FT's deterministic approach, a qualitative risk assessment is also carried out taking into account qualitative factors, which cannot necessarily be quantified.

Probability

The likelihood of a peat failure occurring was assessed based on the results of both the quantitative results of stability calculations (deterministic approach using factors of safety) and the assessment of the severity of several qualitative factors which cannot be reasonably included in a stability calculation but nevertheless may affect the occurrence of peat instability.

The qualitative factors used in the risk assessment are outlined in Table A and have been compiled based on FT's experience of assessments and construction in peat land sites and peat failures throughout Ireland and the UK.

Table A: Qualitative Factors used to Assess Potential for Peat Failure

Qualitative Factor	Type of Feature/Indicator for each Qualitative Factor (1)	Explanation/Description of Qualitative Factor
Evidence of sub peat water flow	No	Based on site walkover observations. Sub peat water flow generally occurs in the form of natural piping at the base of peat. Where there is a constriction or blockage in natural pipes a build-up of water can occur at the base of the peat causing a reduction in effective stress at the base of the peat resulting in failure; this is particularly critical during periods of intense rainfall.
	Possibly	
	Probably	
	Yes	

Qualitative Factor	Type of Feature/Indicator for each Qualitative Factor [1]	Explanation/Description of Qualitative Factor
Evidence of surface water flow	Dry	Based on site walkover observations. The presence of surface water flow indicates if peat in an area is well drained or saturated and if any additional loading from the ponding of surface water onto the peat is likely.
	Localised/Flowing in drains	
	Ponded in drains	
	Springs/surface water	
Evidence of previous failures/slips	No	Based on site walkover observations. The presence of clustering of relict failures may indicate that particular pre-existing site conditions predispose a site to failure.
	In general area	
	On site	
	Within 500m of location	
Type of vegetation	Grass/Crops	Based on site walkover observations. The type of vegetation present indicates if peat in an area is well drained, saturated, etc. Vegetation that indicates wetter ground may also indicate softer underlying peat deposits.
	Improved Grass/Dry Heather	
	Wet Grassland/Juncus (Rushes)	
	Wetlands Sphagnum (Peat moss)	
General slope characteristics upslope/downslope from infrastructure location	Concave	Based on site walkover observations. Slope morphology in the area of the infrastructure location is an important factor. A number of recorded peat failures have occurred in close proximity to a convex break in slope.
	Planar to concave	
	Planar to convex	
	Convex	
Evidence of very soft/soft clay at base of peat	No	Based on inspection of exposures in general area from site walkover. Several reported peat failures identify the presence of a weak layer at the base of the peat along which shear failure has occurred.
	Yes	
Evidence of mechanically cut peat	No	Based on site walkover observations. Mechanically cut peat typically cut using a ‘sausage’ machine to extract

Qualitative Factor	Type of Feature/Indicator for each Qualitative Factor [1]	Explanation/Description of Qualitative Factor
	Yes	peat for harvesting. Areas which have been cut in this manner have been linked to peat instability. The mechanical cuts can notably reduce the intrinsic strength of the peat and also allow ingress of rainfall/surface water.
Evidence of quaking or buoyant peat	No	Based on site walkover observations. Quaking/buoyant peat is indicative of highly saturated peat, which would generally be considered to have a low strength. Quaking peat is a feature on sites that have been previously linked with peat instability.
	Yes	
Evidence of bog pools	No	Based on site walkover observations. Bog pools are generally an indicator of areas of weak, saturated peat. Commonly where there are open areas of water within peat these can be interconnected, with the result that there may be sub-surface bodies of water. The presence of bog pools have been previously linked with peat instability.
	Yes	
Other	Varies	In addition to the above features/ indicators and based on site recordings the following are some of the features which may be identified: Excessively deep peat, weak peat, overly steep slope angles, etc.

Note (1) The list of features/indicators for each qualitative factor are given in increasing order of probability of leading to peat instability/failure.

It should be noted that the presence of one of the qualitative factors alone from Table A is unlikely to lead to peat instability/failure. Peat instability/failure at a site is generally the combination of a number of these factors occurring at the same time at a particular location. The probability rating assigned to the quantitative and qualitative factors is judged on a 5-point scale from 1 (indicating negligible or no probability of failure) to 5 (indicating a very likely failure), as outlined in Table B.

Table B: Probability Scale

Scale	Factor of Safety	Probability
1	1.30 or greater	Negligible/None
2	1.29 to 1.20	Unlikely
3	1.19 to 1.11	Likely
4	1.01 to 1.10	Probable
5	≤1.0	Very Likely

Scale	Likelihood of Qualitative Factor leading to Peat Failure	Probability of Failure
1	Negligible/None	Least
2	Unlikely	
3	Probable	
4	Likely	
5	Very Likely	Greatest

Impact

The severity of the risk is also assessed qualitatively in terms of impact. The impact of a peat failure on the environment within and beyond the immediate wind farm site is assessed based on the potential travel distance of a peat failure. Where a peat failure enters a watercourse, it can travel a considerable distance downstream. Therefore, the proximity of a potential peat failure to a drainage course is a significant indicator of the likely potential impact.

The risk is determined based on the combination of hazard and impact. A qualitative scale has been derived for the impact of the hazard based on distance of infrastructure element to a watercourse (Table C).

The location of watercourses is based on topographic maps and supplemented by site observations from walkover survey. Note that not all watercourses are shown on maps.

Table C: Impact Scale

Scale	Criteria	Impact
1	Proposed infrastructure element greater than 150m of watercourse	Negligible/None
2	Proposed infrastructure element within 150 to 101m of watercourse	Low
3	Proposed infrastructure element within 100 to 51m of watercourse	Medium

4	Proposed infrastructure element within 50 m of watercourse	High
5	Proposed infrastructure element within 50 m of watercourse, in an environmentally sensitive area	Extremely High

Risk Rating

The degree of risk is determined as the product of probability (P) and impact (I), which gives the Risk Rating (R) as follows:

The Risk Rating is calculated from: R = P x I

Due to the 5-point scales used to assess Probability and Impact, the Risk Rating can range from 1 to 25 as shown in Table D.

Table D: Qualitative Risk Rating

		Probability				
		1	**2**	**3**	**4**	**5**
Impact	**5**	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5

Risk Rating & Control Measures	
17 to 25	High: avoid working 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

The risk rating is calculated individually for each contributory factor. Control measures are required to reduce the risk to at least a 'Low' risk rating. The control measures in response to the qualitative risk ratings are included in the peat stability risk registers for each main infrastructure element in Appendix B.

The risk rating is calculated individually for each contributory factor. Control measures are required to reduce the risk to at least a 'Low' risk rating.

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APPENDIX E

Substation Ground Investigation, FT, 2020

Trial Pit Log

Trialpit No **TP A** Sheet 1 of 1

Project Name:	Ballydermot Wind Farm, Co Offaly/ Kildare	Project No. P2319	Co-ords: 672480.27 - 726256.78 Level:	Date 25/05/2021
Location:	Ballydermot, Co Offaly/Kildare	Dimensions (m): Depth 4.70	4.5 / 1.6	Scale 1:25
Client:	MKO			Logged

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Dark brown very soft sandy PEAT. Branches and timber fragments. Hay fragments. Strong organic odor.
	2.50 - 2.60	B					
				3.05			
							Firm slightly gravelly slightly sandy CLAY. Sand is medium to coarse. Gravel is fine to coarse, subangular to subrounded.
	4.00 - 4.10	B					
▼				4.70			End of pit at 4.70 m

1 2 3 4 5

Remarks: Shifted 5m to south due to forestry. Provided coordinates are theoretical. Seepage from bottom (4.7mbgl).

Stability: Walls collapse. Unstable under 3.05mbgl.

Trial Pit Log

Trialpit No **TP B**

Sheet 1 of 1

Project Name:	Ballydermot Wind Farm, Co Offaly/ Kildare	Project No. P2319	Co-ords: 672480.27 - 726026.60 Level:
Location:	Ballydermot, Co Offaly/Kildare	Dimensions (m):	3.7 × 1.6 Depth 3.50
Client:	MKO		

Date 25/05/2021

Scale 1:25

Logged

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			Dark brown/black soft to very soft PEAT with organic matter aspect. Vegetable fibers and wood fragments.
▼				0.75			Grey soft slightly sandy slightly gravelly CLAY. Very wet.
	1.50 - 2.00	B					Grey soft slightly sandy slightly gravelly CLAY with some cobbles of calcarenite and some boulders. Sand is fine to course. Gravel is subangular to subrounded of dark grey and white limestone. Cobbles are angular to subrounded. Occasional orange spots. Horizontal stratification.
				3.50			End of pit at 3.50 m

1 2 3 4 5

Remarks: Provided coordinates are theoretical.
Saturated ground with no seepage.

Stability: Walls collapse. Very unstable

Trial Pit Log

Trialpit No **TP C**

Sheet 1 of 1

Project Name:	Ballydermot Wind Farm, Co Offaly/ Kildare	Project No. P2319	Co-ords: 672480.27 - 725796.41 Level:
Location:	Ballydermot, Co Offaly/Kildare	Dimensions (m): Depth 3.80	4 / 1.6
Client:	MKO		

Date 25/05/2021

Scale 1:25

Logged

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Dark brown soft to very soft PEAT with organic matter aspect. Vegetable fibers and wood fragments.
				0.75			Dark brown soft to very soft PEAT. Branches and timber fragments. Hay fragments.
				1.60			Grey soft sandy very gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded of dark grey and white limestone. Saturated ground.
	2.30 - 2.40	B	HVP=10 HVR=10				Grey soft slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded of dark grey and white limestone. Saturated ground.
				3.80			End of pit at 3.80 m

1 2 3 4 5

Remarks: Difficult to dig under 3.5mbgl. Provided coordinates are theoretical.
Seepage at 0.7mbgl. Moderate water flow at 1.4mbgl. Abundant water flow at 1.8mbgl

Stability: Walls collapse. Very unstable under 1.4mbgl.

Trial Pit Log

Trialpit No **TP D**

Sheet 1 of 1

Project Name:	Ballydermot Wind Farm, Co Offaly/ Kildare	Project No. P2319	Co-ords: 672301.67 - 725779.32 Level:
Location:	Ballydermot, Co Offaly/Kildare	Dimensions (m):	4.1 × 1.6 Depth 4.40
Client:	MKO		

Date 25/05/2021

Scale 1:25

Logged

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Dark brown/black soft to very soft PEAT with organic matter aspect. Vegetable fibers and wood fragments.
							Dark brown soft to very soft PEAT. Branches and timber fragments. Hay fragments.
			HVP=18 HVR=3				
▼	1.30 - 1.40	B					
				1.75			Grey soft to very soft slightly sandy slightly gravelly cobbly CLAY with some boulders. Sand is fine to coarse. Gravel is subangular to subrounded of dark grey and white limestone. Cobbles are angular to subrounded. Saturated ground. Big limestone boulder at 1.9mbgl Grey firm sandy gravelly cobbly CLAY under 3mbgl
▼	2.50 - 2.60	B					
			HVP=25 HVR=14				
				4.40			End of pit at 4.40 m

1 2 3 4 5

Remarks: Provided coordinates are theoretical.
Moderate water flow at 1.4mbgl. Moderate water flow at 2.2mbgl.

Stability: Walls collapse. Unstable under 1.75mbgl

Trial Pit Log

Trialpit No **TP E**

Sheet 1 of 1

Project Name:	Ballydermot Wind Farm, Co Offaly/ Kildare	Project No. P2319	Co-ords: 672426.67 - 725779.32 Level:
Location:	Ballydermot, Co Offaly/Kildare	Dimensions (m):	3.6 x 1.6 Depth 4.10
Client:	MKO		

Date 25/05/2021

Scale 1:25

Logged

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Dark brown soft to very soft PEAT with organic matter aspect. Vegetable fibers and wood fragments.
							Dark brown soft to very soft PEAT. Branches and timber fragments. Hay fragments. Stratified.
▼				0.95			Grey soft to very soft very sandy gravelly CLAY with some subangular to subrounded cobbles and boulders of dark grey limestone. Occasional green spots.
				1.90			Grey soft to very soft slightly sandy gravelly cobbly CLAY with some boulders. Occasional green spots. Granular faction increases in depth.
	3.30 - 3.40	B	HVP=23 HVR=6				
				4.10			End of pit at 4.10 m

1 2 3 4 5

Remarks: Provided coordinates are theoretical.
Seepage at 1.0mbgl.

Stability: Walls collapse. Unstable under 1.5mbgl

Trial Pit Log

Trialpit No **TP F**

Sheet 1 of 1

Project Name:	Ballydermot Wind Farm, Co Offaly/ Kildare	Project No. P2319	Co-ords: 672551.67 - 725779.32 Level:	Date 25/05/2021
Location:	Ballydermot, Co Offaly/Kildare	Dimensions (m): Depth 4.10	4 / 1.6	Scale 1:25
Client:	MKO			Logged

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
▼	0.50 - 0.60	B		0.90			Dark brown soft to very soft PEAT. Big piece of timber.
				1.50			Grey soft sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded of dark grey and white limestone.
	3.10 - 3.20	B		4.10			Grey soft slightly sandy slightly gravelly CLAY with some cobbles and boulders. Sand is medium to coarse. Gravel is fine to coarse, subangular to subrounded of grey limestone. Cobbles and boulders are subangular to subrounded of grey limestone.
							End of pit at 4.10 m

1 2 3 4 5

Remarks: Provided coordinates are theoretical.
Water seepage at 0.5mbgl.

Stability: Walls collapse. Very unstable under 1.5mbgl.

Trial Pit Log

Trialpit No **TP G**

Sheet 1 of 1

Project Name:	Ballydermot Wind Farm, Co Offaly/ Kildare	Project No. P2319	Co-ords: 672301.67 - 725629.32 Level:
Location:	Ballydermot, Co Offaly/Kildare	Dimensions (m):	3.8 × 1.6 Depth 3.80
Client:	MKO		

Date 25/05/2021

Scale 1:25

Logged

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Dark brown soft to very soft PEAT with organic matter aspect. Vegetable fibers and wood fragments.
							Dark brown very soft PEAT. Branches and timber fragments. Hay fragments.
▼	1.10 - 1.20	B					
▼				1.45			
				1.60			Grey soft very sandy gravelly CLAY with some cobbles. Sand is medium to coarse. Gravel is subangular to subrounded of dark grey and white limestone. Cobbles are angular to subrounded. Saturated ground. Slight stratification under 1.1mbgl
	2.20 - 2.30	B					Grey soft slightly gravelly sandy CLAY with some cobbles and boulders. Sand is fine to coarse. Gravel is generally fine and some medium to coarse, subangular of dark grey and white limestone. Cobbles are angular to subrounded. Saturated ground. Some cobbles and boulders under 1.8mbgl. Cobbles are subangular to subrounded. Boulders are subrounded of grey limestone.
				3.80			End of pit at 3.80 m

1 2 3 4 5

Remarks: Provided coordinates are theoretical.
Seepage at 1.2mbgl. Moderate water flow at 1.45mbgl.

Stability: Walls collapse. Unstable between 2.5-3.5mbgl.

Trial Pit Log

Trialpit No **TP H**

Sheet 1 of 1

Project Name:	Ballydermot Wind Farm, Co Offaly/ Kildare	Project No. P2319	Co-ords: 672426.67 - 725629.32 Level:
Location:	Ballydermot, Co Offaly/Kildare	Dimensions (m): Depth 4.00	4 / 1.6
Client:	MKO		

Date 25/05/2021

Scale 1:25

Logged

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.40			Dark brown soft to very soft PEAT with organic matter aspect. Vegetable fibers and wood fragments.
							Dark brown soft to very soft PEAT. Branches and hay fragments. Big timber piece. Strong organic odor.
▼	1.40 - 1.50	B	HVP=6 HVR=4				
▼				2.00			Grey soft to very soft sandy very gravelly cobbly CLAY with some boulders. Sand is fine to coarse. Gravel is subangular to subrounded of dark grey and white limestone. Cobbles are angular to subrounded. Saturated ground.
	2.80 - 2.90	B		2.70			Grey firm slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded of dark grey and white limestone. Cobbles are angular to subrounded. Saturated ground.
				3.30			Grey soft to firm sandy very gravelly cobbly CLAY with some boulders. Sand is fine to coarse. Gravel is subangular to subrounded of dark grey and white limestone. Cobbles are angular to subrounded. Saturated ground.
				4.00			End of pit at 4.00 m

1 2 3 4 5

Remarks: Shifted 3m to west due to drain location.
Provided coordinates are theoretical.
Moderate water flow at 1.5mbgl. Abundant water flow at 1.9mbgl.

Stability: Walls collapse. Very unstable under 2.3mbgl.

Trial Pit Log

Trialpit No **TP I**

Sheet 1 of 1

Project Name:	Ballydermot Wind Farm, Co Offaly/ Kildare	Project No. P2319	Co-ords: 672551.67 - 725629.32 Level:
Location:	Ballydermot, Co Offaly/Kildare	Dimensions (m): 4.7 × 1.6 Depth 4.50	Scale 1:25
Client:	MKO		Logged

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Extra PEAT thickness added due to elevation difference from theoretical location.
	0.50 - 0.60	B	HVP=32 HVR=10	0.50			Dark brown PEAT. Big piece of timber. Black strips.
▼				1.30			Grey soft to very soft slightly sandy slightly gravelly CLAY with some cobbles. Sand is medium. Gravel is subangular, fine to coarse of dark grey limestone. Cobbles are subrounded. More gravel content between 2.8-3.5mbgl.
	2.90 - 3.00	B	HVP=30 HVR=10				
				4.50			End of pit at 4.50 m

1 2 3 4 5

Remarks: Shifted 5m to east due to drain location.
Provided coordinates are theoretical.
Water seepage at 1.3mbgl. Moderate water flow at 4.0mbgl

Stability: Walls collapse. Unstable under 2.8mbgl.

Project ID	2021Lab103		Client		Remarks
Project Name	Ballydermot Wind Farm		Report Date	09/08/2021 15:33	
Schedule ID	2021Lab103_1		Scheduled Date	04/06/2021 11:48	

Sample Details							Classification						Chemical / Concrete								Compaction				
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Density by Small Pyknometer	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship
TP-A	2.50	2.60	B	1			1																		
TP-A	4.00	4.50	B	2			1				1														
TP-B	1.50	2.00	B	1			1	1			1														
TP-C	2.30	2.90	B	1			1	1			1														
TP-D	1.30	1.90	B	1			1																		
TP-D	2.50	2.60	B	2			1	1			1														
TP-E	3.30	3.40	B	1			1	1			1														
TP-F	0.50	1.00	B	1			1																		
TP-F	3.10	3.20	B	2			1	1			1														
TP-G	1.10	1.20	B	1			1																		
TP-G	2.20	2.30	B	2			1	1			1														
TP-H	1.40	1.50	B	1			1																		
TP-H	2.80	2.90	B	2			1				1														
TP-I	0.50	0.60	B	1			1																		
TP-I	2.90	3.00	B	2			1	1			1														
Tests Completed							15	7			9														

0 = test scheduled,

1 = test completed as scheduled,

1* = sample not suitable for scheduled test

Summary of Classification Test Results

Project No.: 2021Lab103

Project Name: Ballydermot Wind Farm

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-A	1	2.50	2.60	B		Black PEAT.			698.0						
TP-A	2	4.00	4.50	B		Grey slightly gravelly slightly sandy SILT.			16.0	62					
TP-B	1	1.50	2.00	B		Grey slightly gravelly slightly sandy SILT.			13.0	69	21	14	7		CL
TP-C	1	2.30	2.90	B		Grey slightly gravelly slightly sandy SILT.			12.0	62	21	13	8		CL
TP-D	1	1.30	1.90	B		Black PEAT.			606.0						
TP-D	2	2.50	2.60	B		Grey slightly sandy slightly gravelly SILT.			11.0	62	23	15	8		CL
TP-E	1	3.30	3.40	B		Grey slightly sandy gravelly SILT. Gravel is medium.			9.1	55	22	11	11		CL
TP-F	1	0.50	1.00	B		Black PEAT.			471.0						
TP-F	2	3.10	3.20	B		Grey slightly sandy slightly gravelly SILT. Gravel is medium.			11.0	59	21	15	6		CL
TP-G	1	1.10	1.20	B		Black PEAT.			532.0						
TP-G	2	2.20	2.30	B		Grey slightly gravelly sandy SILT. Sand is fine.			17.0	87	28	22	6		CL
TP-H	1	1.40	1.50	B		Black PEAT.			572.0						
TP-H	2	2.80	2.90	B		Grey slightly gravelly slightly sandy SILT.			12.0	63					
TP-I	1	0.50	0.60	B		Black PEAT.			434.0						
TP-I	2	2.90	3.00	B		Grey slightly sandy slightly gravelly SILT.			11.0	65	22	14	8		CL

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : Liquid Limit; 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 08/09/2021 00:00

QC From No: R1

Approved By: Administrator

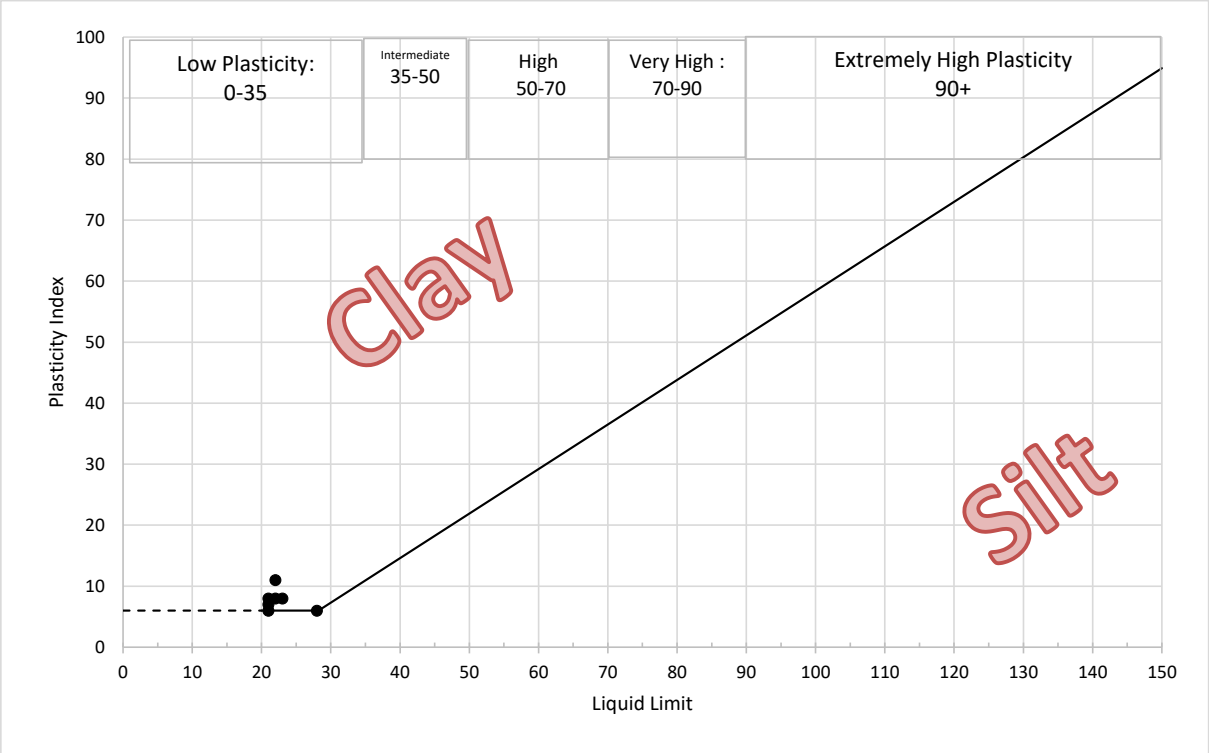
Table 1

sheet 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

	Plasticity (A-Line) Chart	Project Number
Project Name:	**Ballydermot Wind Farm**	
Location:		2021Lab103



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

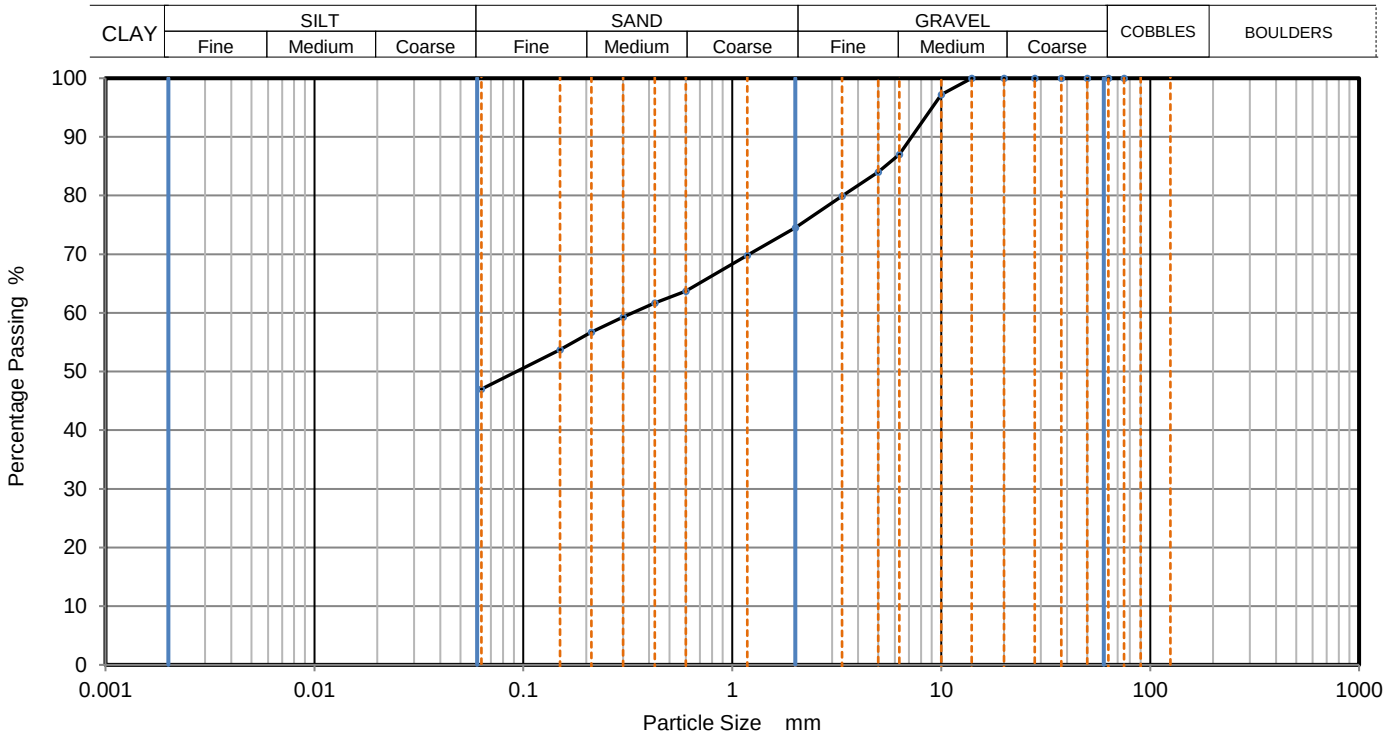
Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

QC Form: R1

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-A
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021060410



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	97		
6.3	87		
5	84		
3.35	80		
2	75		
1.18	70		
0.6	64		
0.425	62		
0.3	59		
0.212	57		
0.15	54		
0.063	47		

Dry Mass of sample, g	379

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	28
Fines <0.063mm	47

Grading Analysis		
D100	mm	
D60	mm	0.332
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

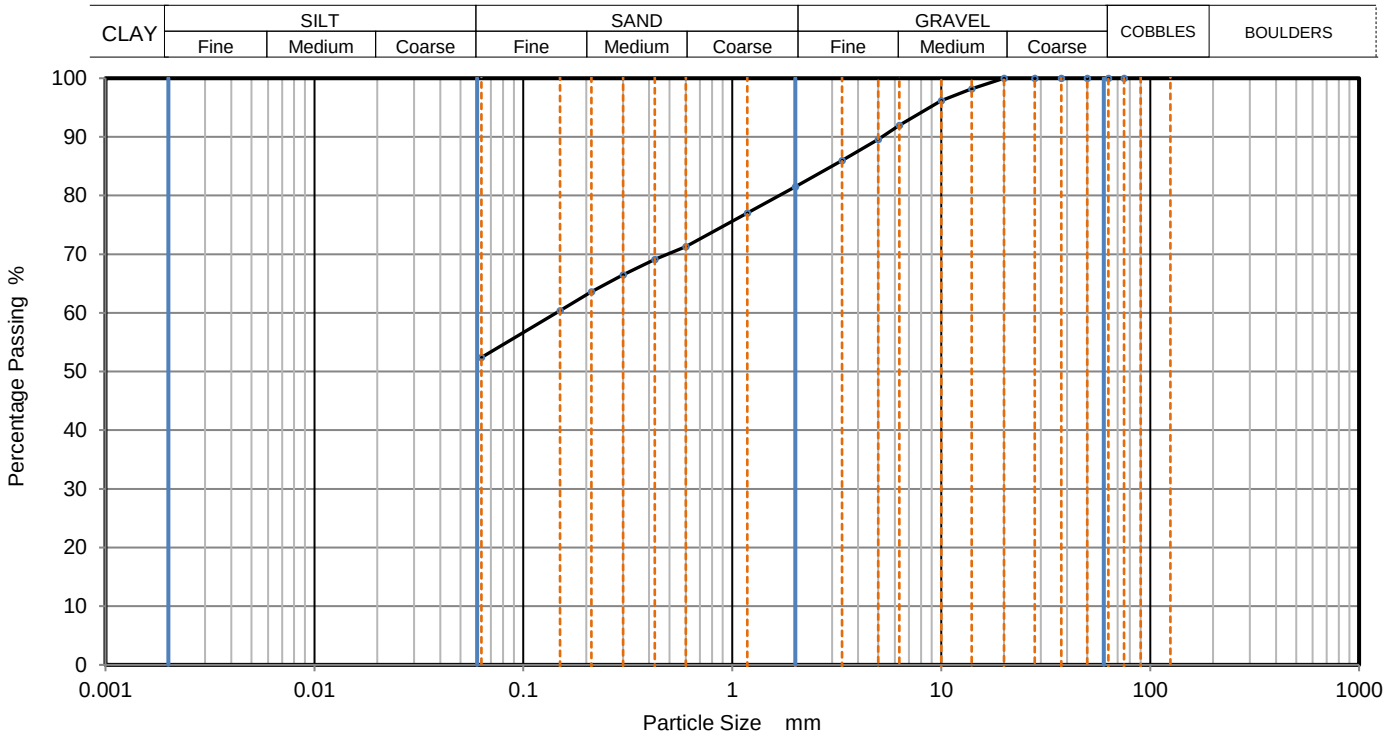
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	09/08/2021 15:31	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-B
Site Name	Ballydermot Wind Farm			Sample No.	1
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202106047



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	96		
6.3	92		
5	90		
3.35	86		
2	82		
1.18	77		
0.6	71		
0.425	69		
0.3	67		
0.212	64		
0.15	60		
0.063	52		

Dry Mass of sample, g	389

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	29
Fines <0.063mm	52

Grading Analysis		
D100	mm	
D60	mm	0.144
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

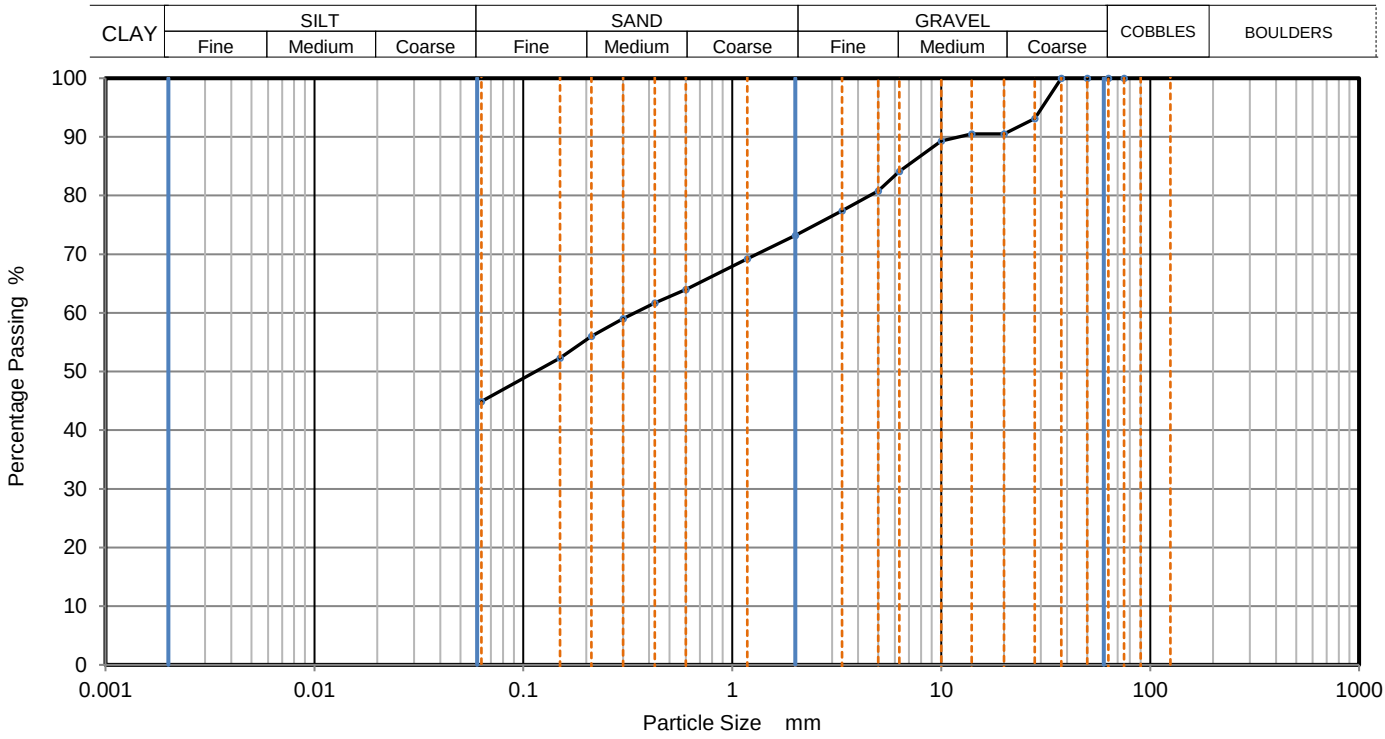
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-C
Site Name	Ballydermot Wind Farm			Sample No.	1
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202106044



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	91		
14	91		
10	89		
6.3	84		
5	81		
3.35	77		
2	73		
1.18	69		
0.6	64		
0.425	62		
0.3	59		
0.212	56		
0.15	52		
0.063	45		

Dry Mass of sample, g	485

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	28
Fines <0.063mm	45

Grading Analysis		
D100	mm	
D60	mm	0.34
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

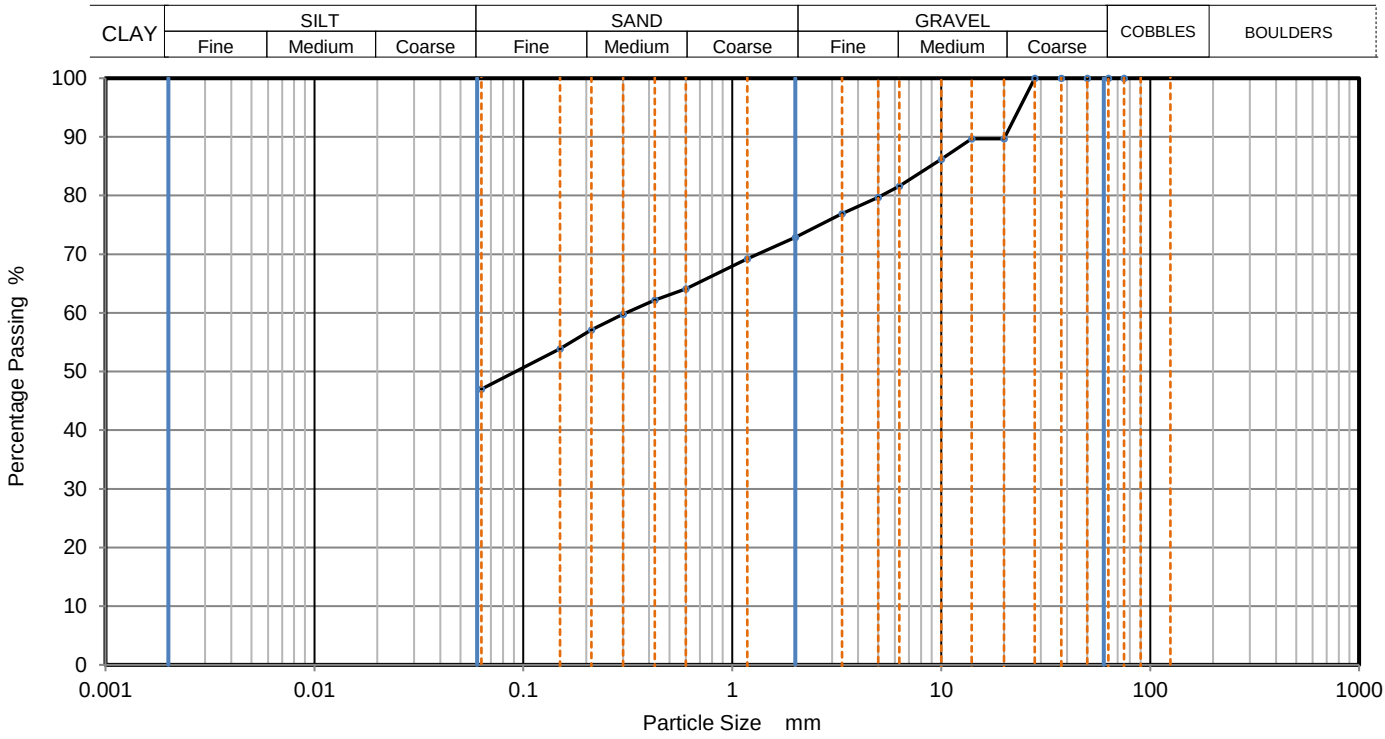
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-D
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly sandy slightly gravelly SILT.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021060812



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	90		
14	90		
10	86		
6.3	82		
5	80		
3.35	77		
2	73		
1.18	69		
0.6	64		
0.425	62		
0.3	60		
0.212	57		
0.15	54		
0.063	47		

Dry Mass of sample, g	451

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	26
Fines <0.063mm	47

Grading Analysis		
D100	mm	
D60	mm	0.31
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

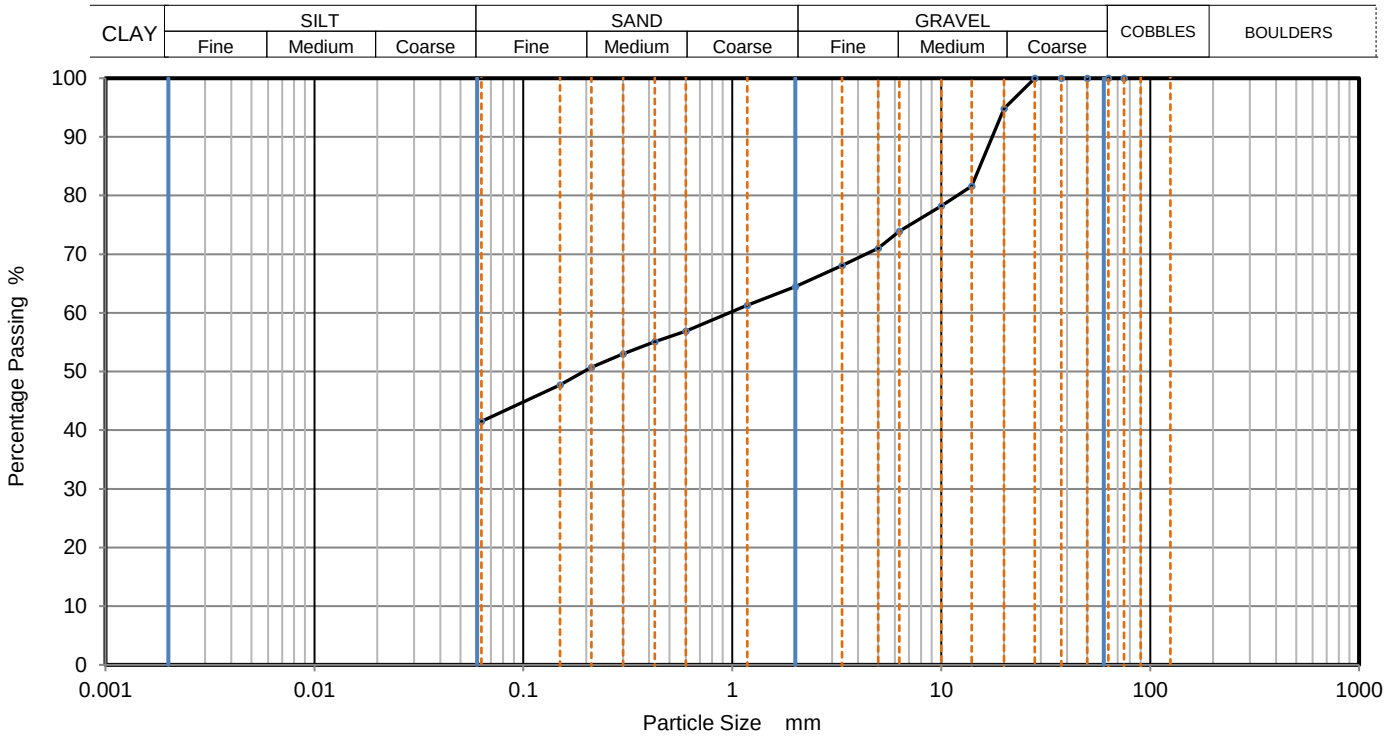
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-E
Site Name	Ballydermot Wind Farm			Sample No.	1
Soil Description	Grey slightly sandy gravelly SILT. Gravel is medium.			Depth, m	3.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021060411



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	82		
10	78		
6.3	74		
5	71		
3.35	68		
2	65		
1.18	61		
0.6	57		
0.425	55		
0.3	53		
0.212	51		
0.15	48		
0.063	42		

Dry Mass of sample, g	454

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	23
Fines <0.063mm	42

Grading Analysis		
D100	mm	
D60	mm	0.963
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

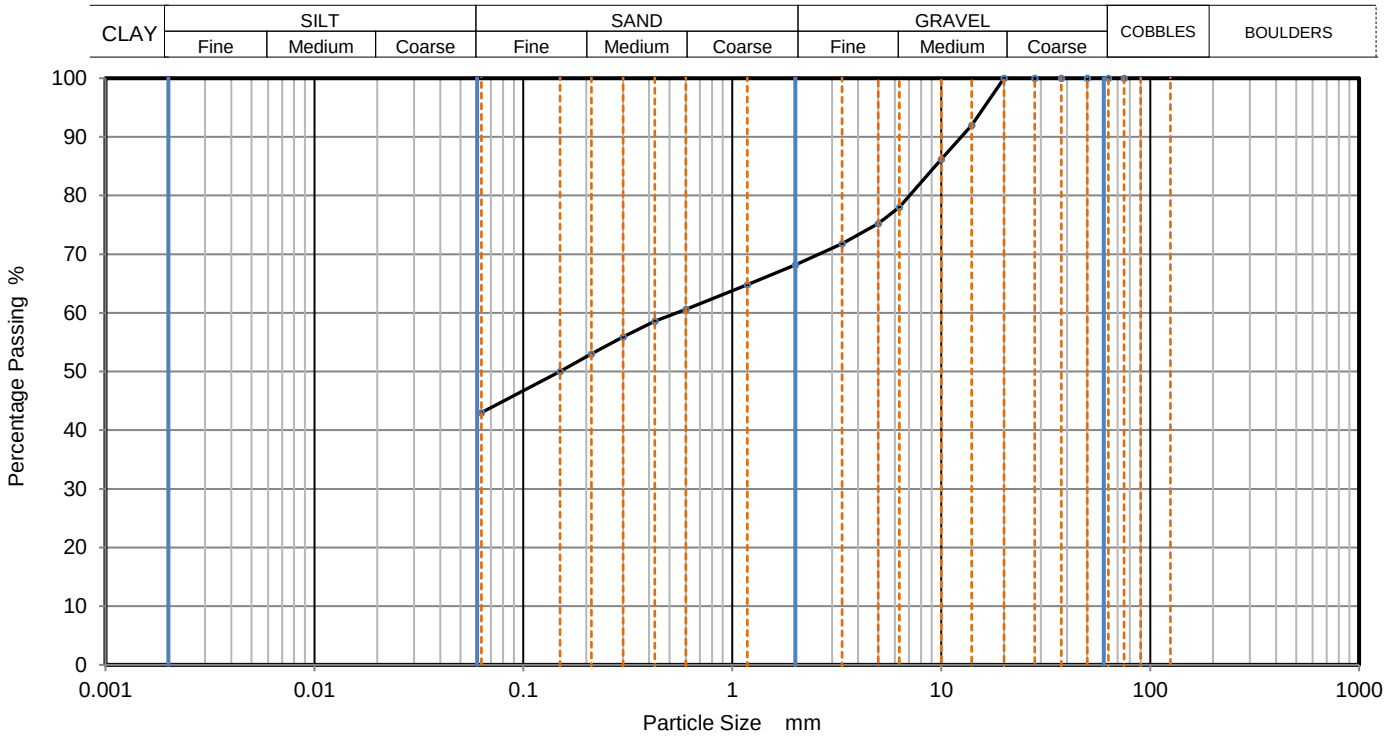
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-F
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly sandy slightly gravelly SILT. Gravel is medium.			Depth, m	3.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021060413



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	92		
10	86		
6.3	78		
5	75		
3.35	72		
2	68		
1.18	65		
0.6	61		
0.425	59		
0.3	56		
0.212	53		
0.15	50		
0.063	43		

Dry Mass of sample, g	272

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	25
Fines <0.063mm	43

Grading Analysis		
D100	mm	
D60	mm	0.543
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

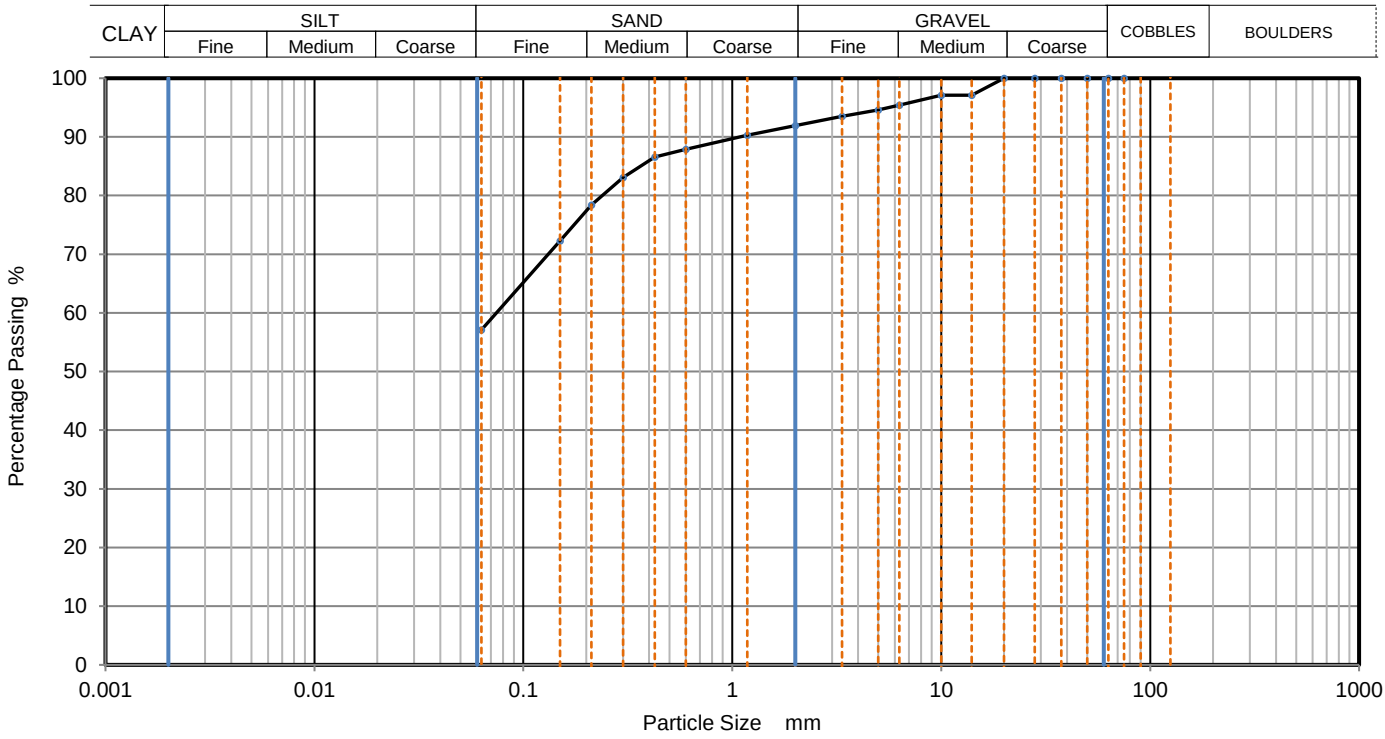
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Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-G
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly gravelly sandy SILT. Sand is fine.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202106046



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	97		
6.3	95		
5	95		
3.35	94		
2	92		
1.18	90		
0.6	88		
0.425	87		
0.3	83		
0.212	78		
0.15	72		
0.063	57		

Dry Mass of sample, g	283

Sample Proportions	% dry mass
Very coarse	0
Gravel	8
Sand	35
Fines <0.063mm	57

Grading Analysis		
D100	mm	
D60	mm	0.0742
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

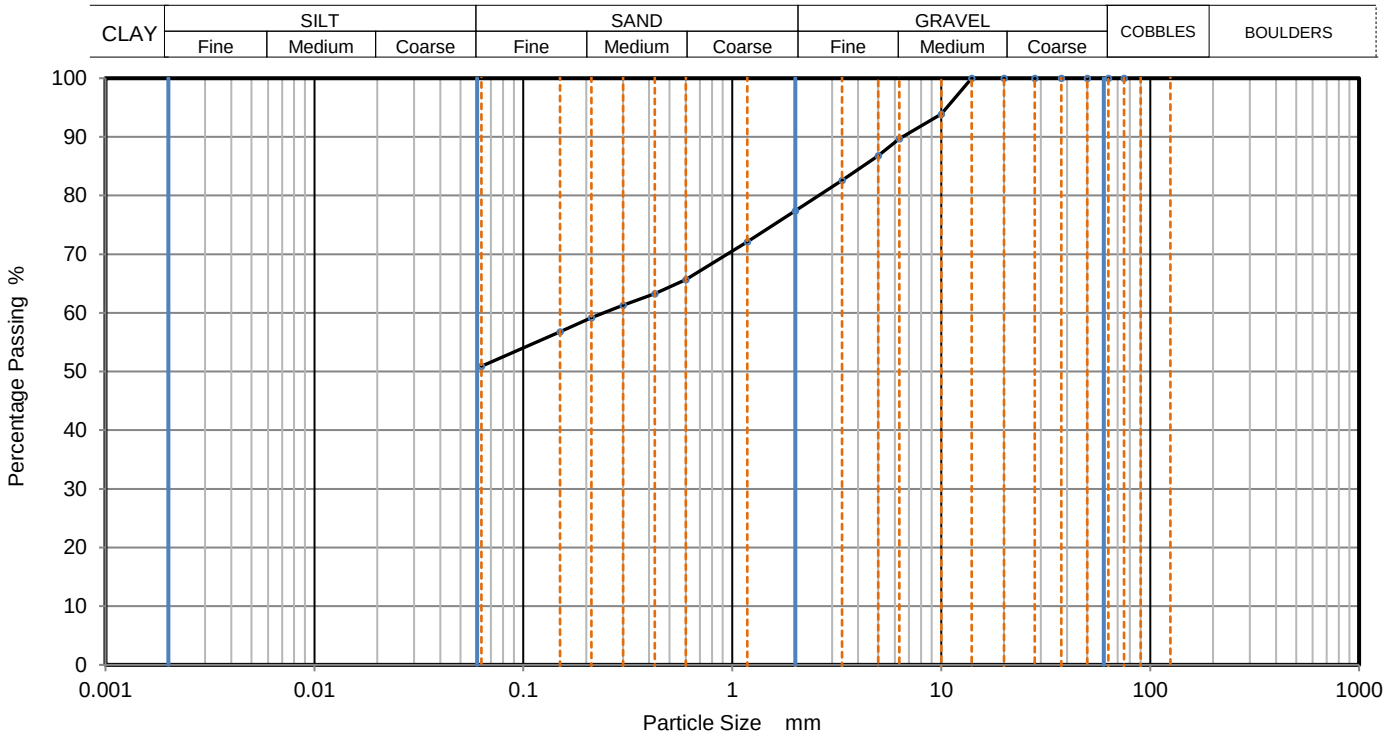
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				QC From No:R2

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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-H
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	2.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202106043



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	94		
6.3	90		
5	87		
3.35	83		
2	77		
1.18	72		
0.6	66		
0.425	63		
0.3	61		
0.212	59		
0.15	57		
0.063	51		

Dry Mass of sample, g	354

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	27
Fines <0.063mm	51

Grading Analysis		
D100	mm	
D60	mm	0.24
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

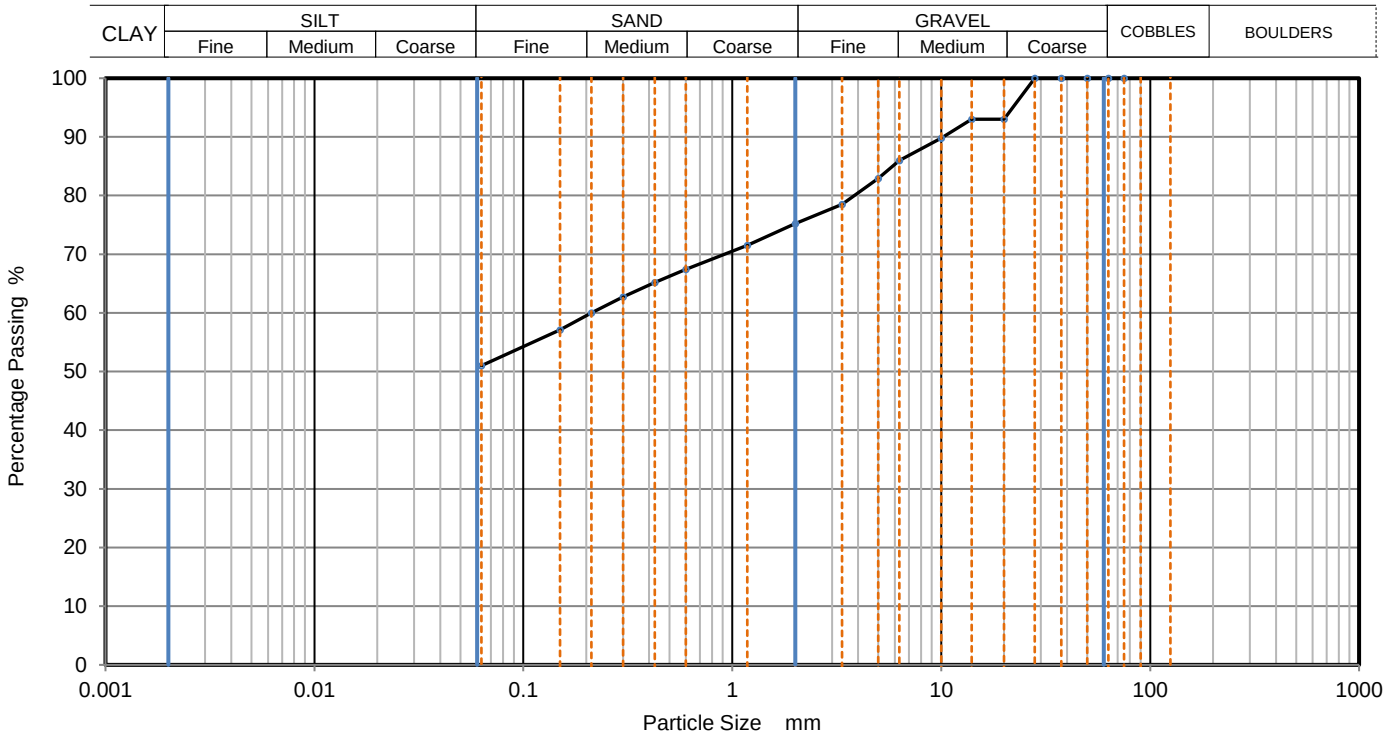
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Operator	Checked	Approved	Sheet printed	
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Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-I
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly sandy slightly gravelly SILT.			Depth, m	2.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021060815



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	93		
14	93		
10	90		
6.3	86		
5	83		
3.35	79		
2	75		
1.18	72		
0.6	67		
0.425	65		
0.3	63		
0.212	60		
0.15	57		
0.063	51		

Dry Mass of sample, g	310

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	24
Fines <0.063mm	51

Grading Analysis		
D100	mm	
D60	mm	0.211
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	09/08/2021 15:31	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.	Project Name
2021Lab103	Ballydermot Wind Farm

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-A	1	2.50	2.60	B		Black PEAT.			698.0						
TP-A	2	4.00	4.50	B		Grey slightly gravelly slightly sandy SILT.			16.0	62					
TP-B	1	1.50	2.00	B		Grey slightly gravelly slightly sandy SILT.			13.0	69					
TP-C	1	2.30	2.90	B		Grey slightly gravelly slightly sandy SILT.			12.0	62					
TP-D	1	1.30	1.90	B		Black PEAT.			606.0						
TP-D	2	2.50	2.60	B		Grey slightly sandy slightly gravelly SILT.			11.0	62					
TP-E	1	3.30	3.40	B		Grey slightly sandy gravelly SILT. Gravel is medium.			9.1	55					
TP-F	1	0.50	1.00	B		Black PEAT.			471.0						
TP-F	2	3.10	3.20	B		Grey slightly sandy slightly gravelly SILT. Gravel is medium.			11.0	59					
TP-G	1	1.10	1.20	B		Black PEAT.			532.0						
TP-G	2	2.20	2.30	B		Grey slightly gravelly sandy SILT. Sand is fine.			17.0	87					
TP-H	1	1.40	1.50	B		Black PEAT.			572.0						
TP-H	2	2.80	2.90	B		Grey slightly gravelly slightly sandy SILT.			12.0	63					
TP-I	1	0.50	0.60	B		Black PEAT.			434.0						
TP-I	2	2.90	3.00	B		Grey slightly sandy slightly gravelly SILT.			11.0	65					

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: Linear measurement unless : wd - water displacement; wi - immersion in water

Liquid Limit: 4pt cone unless : 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 13/07/2021

QC From No: R1

Approved By:

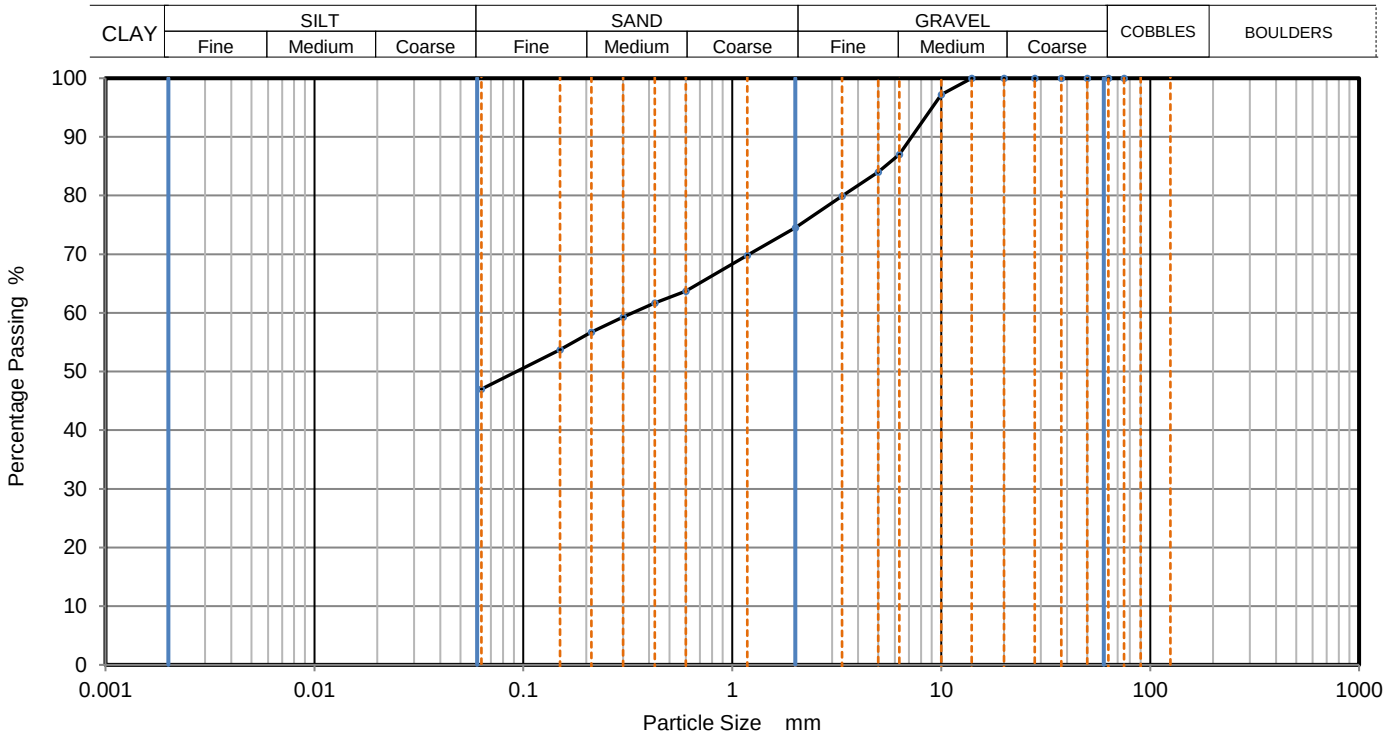
Table 1

sheet 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-A
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021060410



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	97		
6.3	87		
5	84		
3.35	80		
2	75		
1.18	70		
0.6	64		
0.425	62		
0.3	59		
0.212	57		
0.15	54		
0.063	47		

Dry Mass of sample, g	379

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	28
Fines <0.063mm	47

Grading Analysis		
D100	mm	
D60	mm	0.332
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

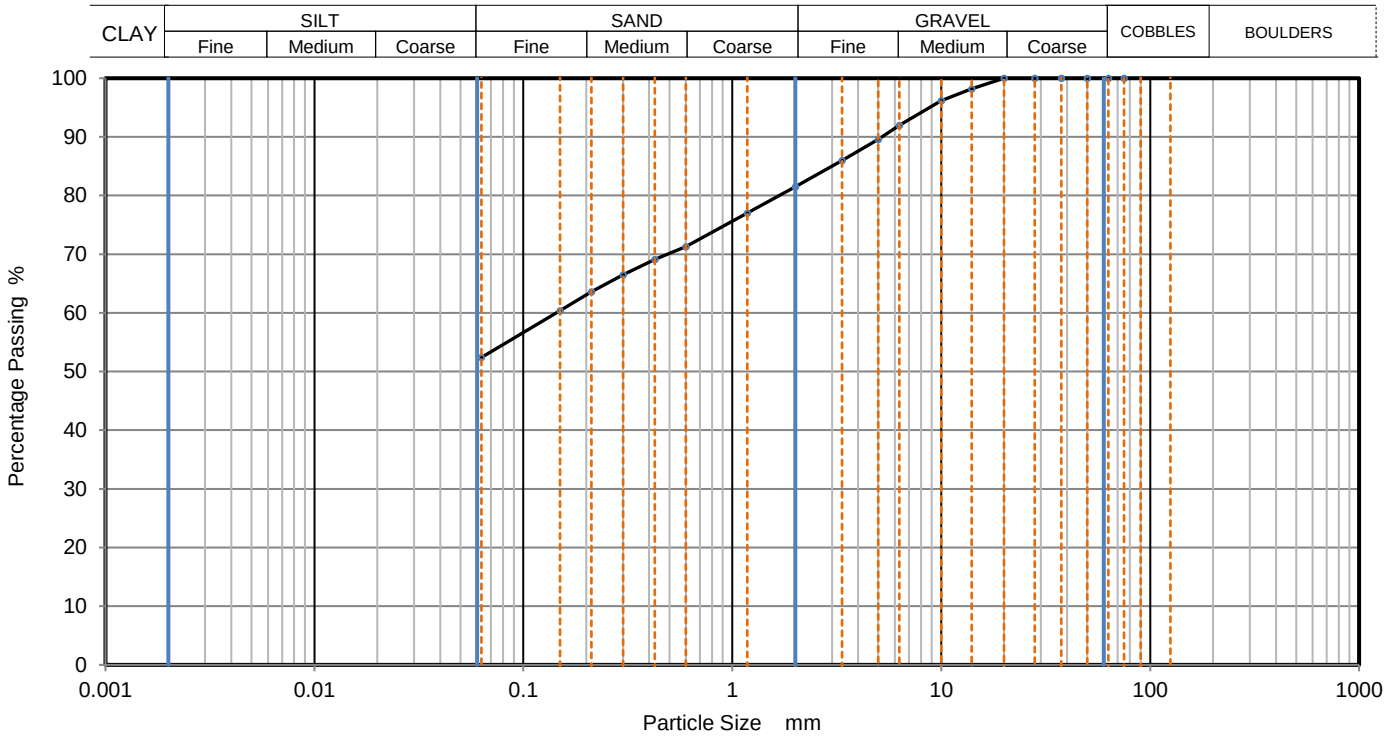
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Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-B
Site Name	Ballydermot Wind Farm			Sample No.	1
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202106047



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	96		
6.3	92		
5	90		
3.35	86		
2	82		
1.18	77		
0.6	71		
0.425	69		
0.3	67		
0.212	64		
0.15	60		
0.063	52		

Dry Mass of sample, g	389

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	29
Fines <0.063mm	52

Grading Analysis		
D100	mm	
D60	mm	0.144
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

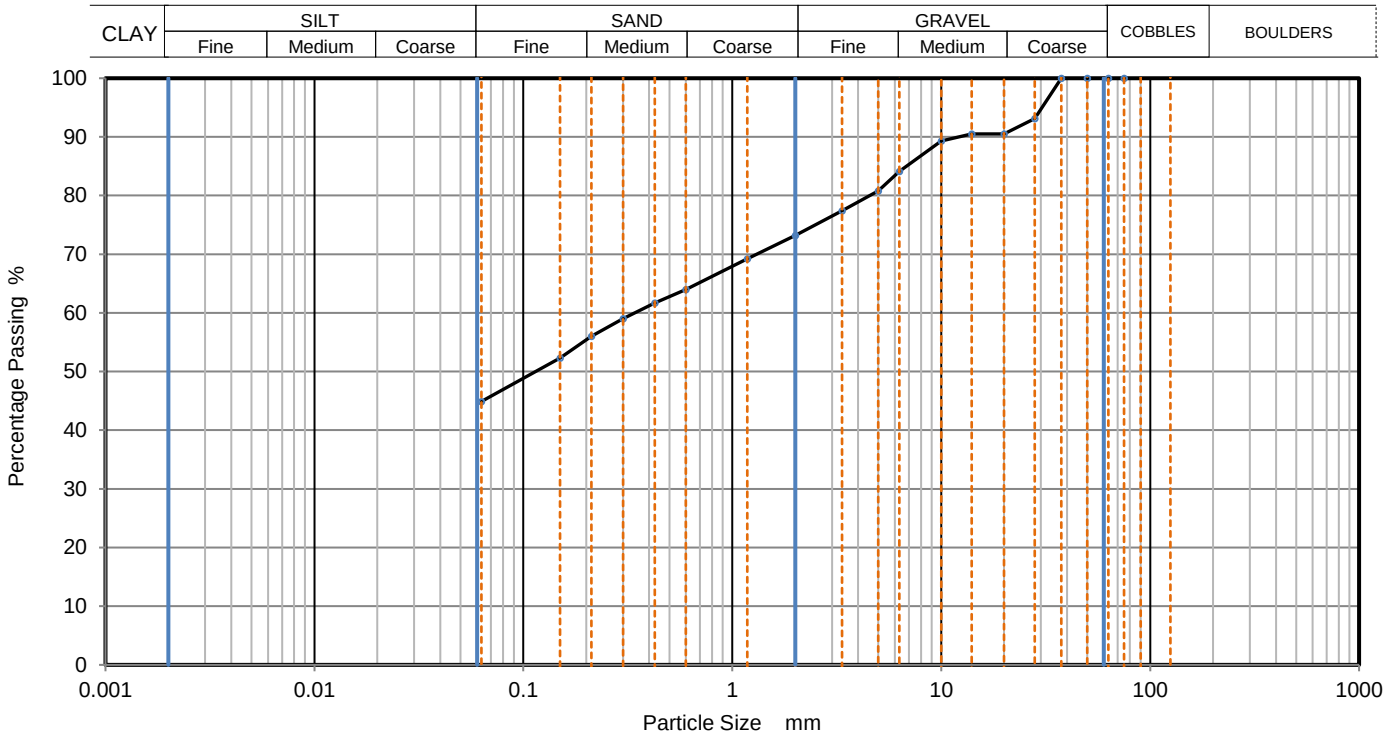
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-C
Site Name	Ballydermot Wind Farm			Sample No.	1
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202106044



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	91		
14	91		
10	89		
6.3	84		
5	81		
3.35	77		
2	73		
1.18	69		
0.6	64		
0.425	62		
0.3	59		
0.212	56		
0.15	52		
0.063	45		

Dry Mass of sample, g	485

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	28
Fines <0.063mm	45

Grading Analysis		
D100	mm	
D60	mm	0.34
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

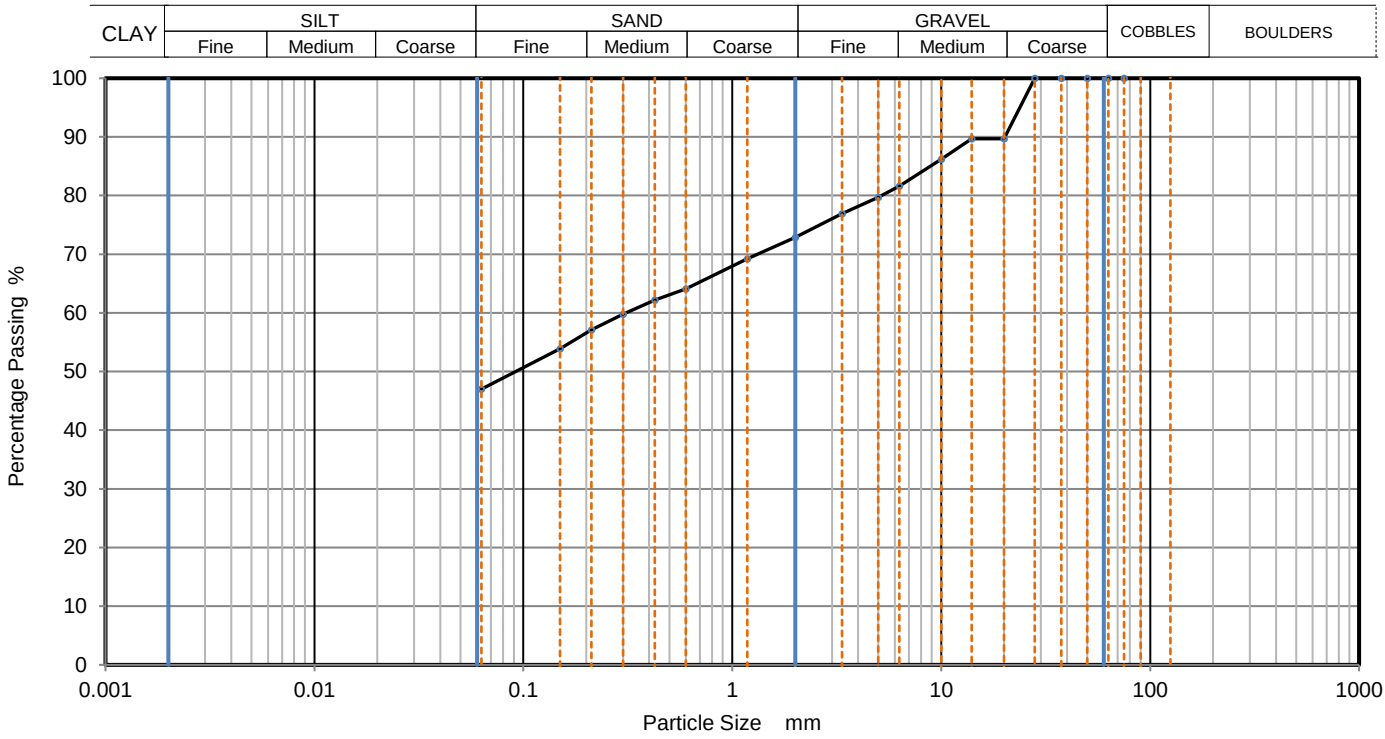
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-D
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly sandy slightly gravelly SILT.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021060812



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	90		
14	90		
10	86		
6.3	82		
5	80		
3.35	77		
2	73		
1.18	69		
0.6	64		
0.425	62		
0.3	60		
0.212	57		
0.15	54		
0.063	47		

Dry Mass of sample, g	451

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	26
Fines <0.063mm	47

Grading Analysis		
D100	mm	
D60	mm	0.31
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

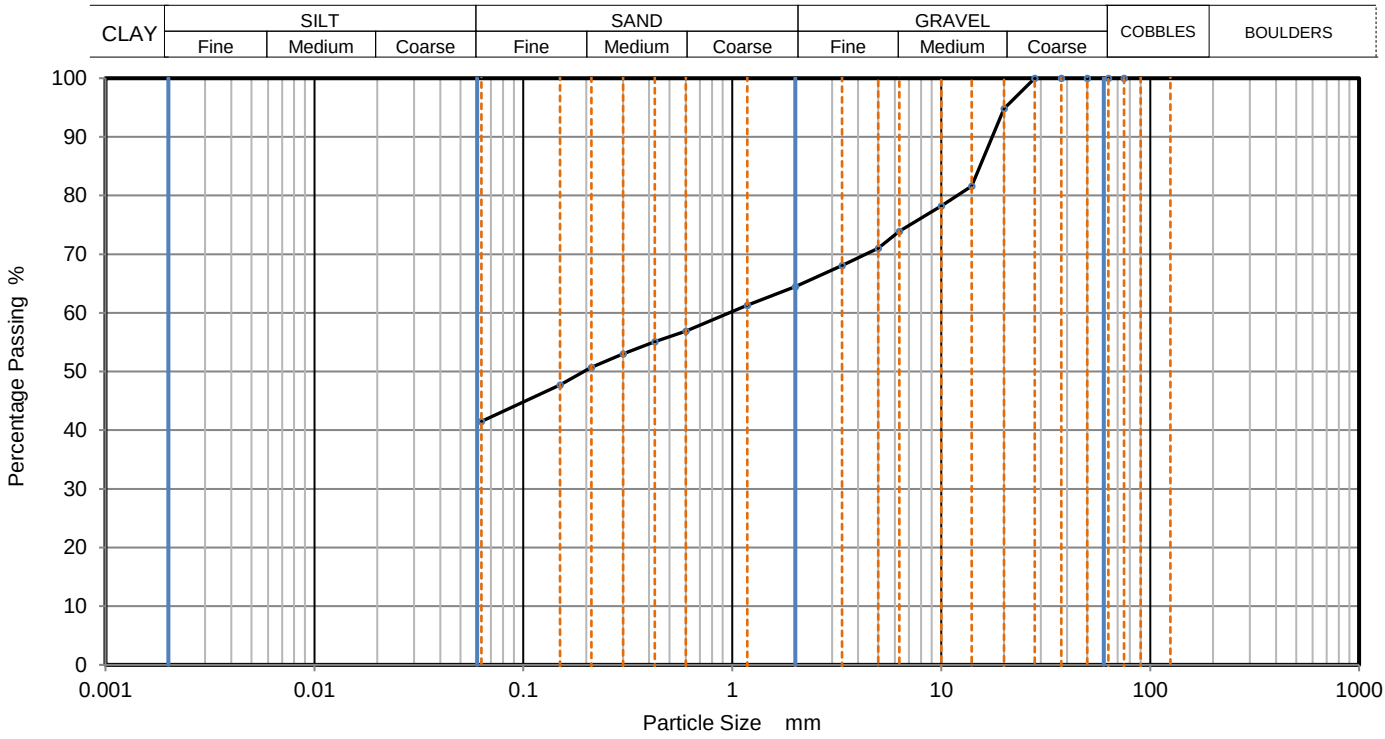
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-E
Site Name	Ballydermot Wind Farm			Sample No.	1
Soil Description	Grey slightly sandy gravelly SILT. Gravel is medium.			Depth, m	3.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021060411



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	82		
10	78		
6.3	74		
5	71		
3.35	68		
2	65		
1.18	61		
0.6	57		
0.425	55		
0.3	53		
0.212	51		
0.15	48		
0.063	42		

Dry Mass of sample, g	454

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	23
Fines <0.063mm	42

Grading Analysis		
D100	mm	
D60	mm	0.963
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

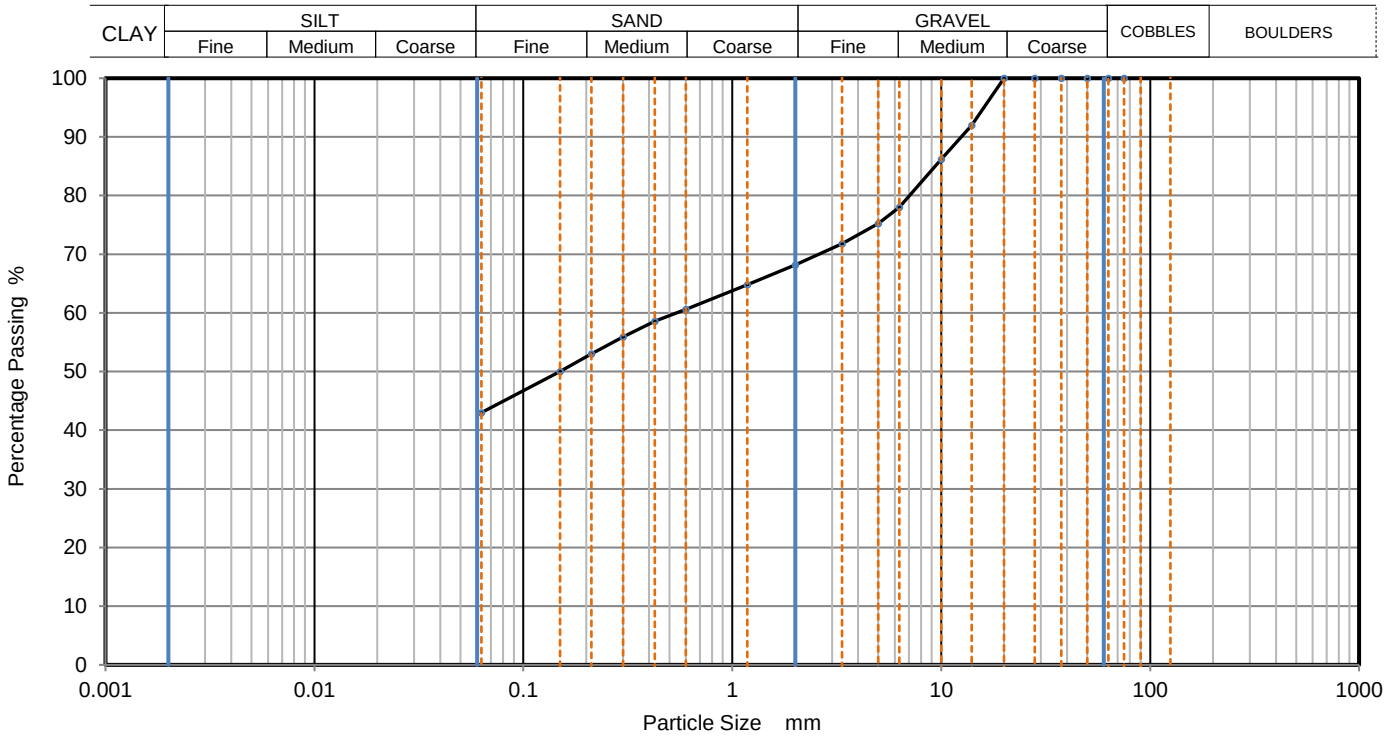
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-F
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly sandy slightly gravelly SILT. Gravel is medium.			Depth, m	3.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021060413



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	92		
10	86		
6.3	78		
5	75		
3.35	72		
2	68		
1.18	65		
0.6	61		
0.425	59		
0.3	56		
0.212	53		
0.15	50		
0.063	43		

Dry Mass of sample, g	272

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	25
Fines <0.063mm	43

Grading Analysis		
D100	mm	
D60	mm	0.543
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

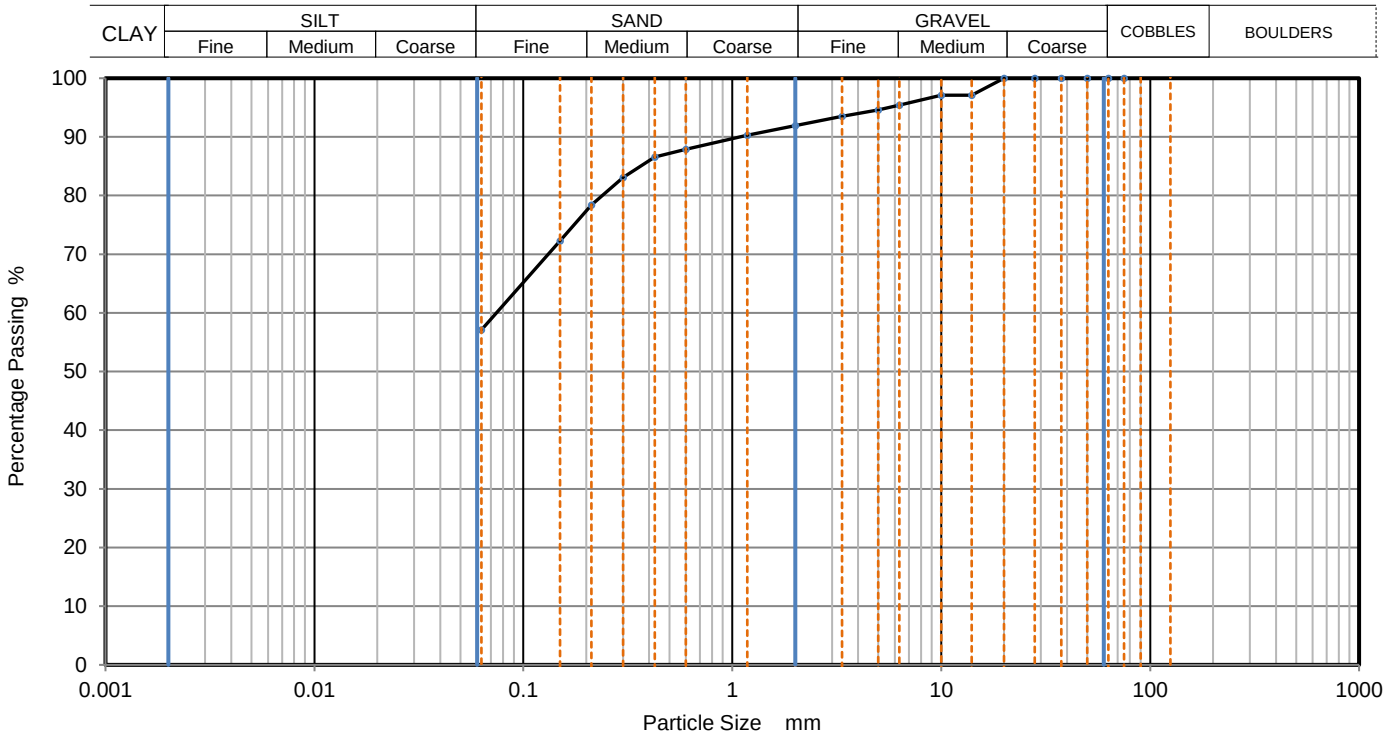
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-G
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly gravelly sandy SILT. Sand is fine.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202106046



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	97		
6.3	95		
5	95		
3.35	94		
2	92		
1.18	90		
0.6	88		
0.425	87		
0.3	83		
0.212	78		
0.15	72		
0.063	57		

Dry Mass of sample, g	283

Sample Proportions	% dry mass
Very coarse	0
Gravel	8
Sand	35
Fines <0.063mm	57

Grading Analysis		
D100	mm	
D60	mm	0.0742
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

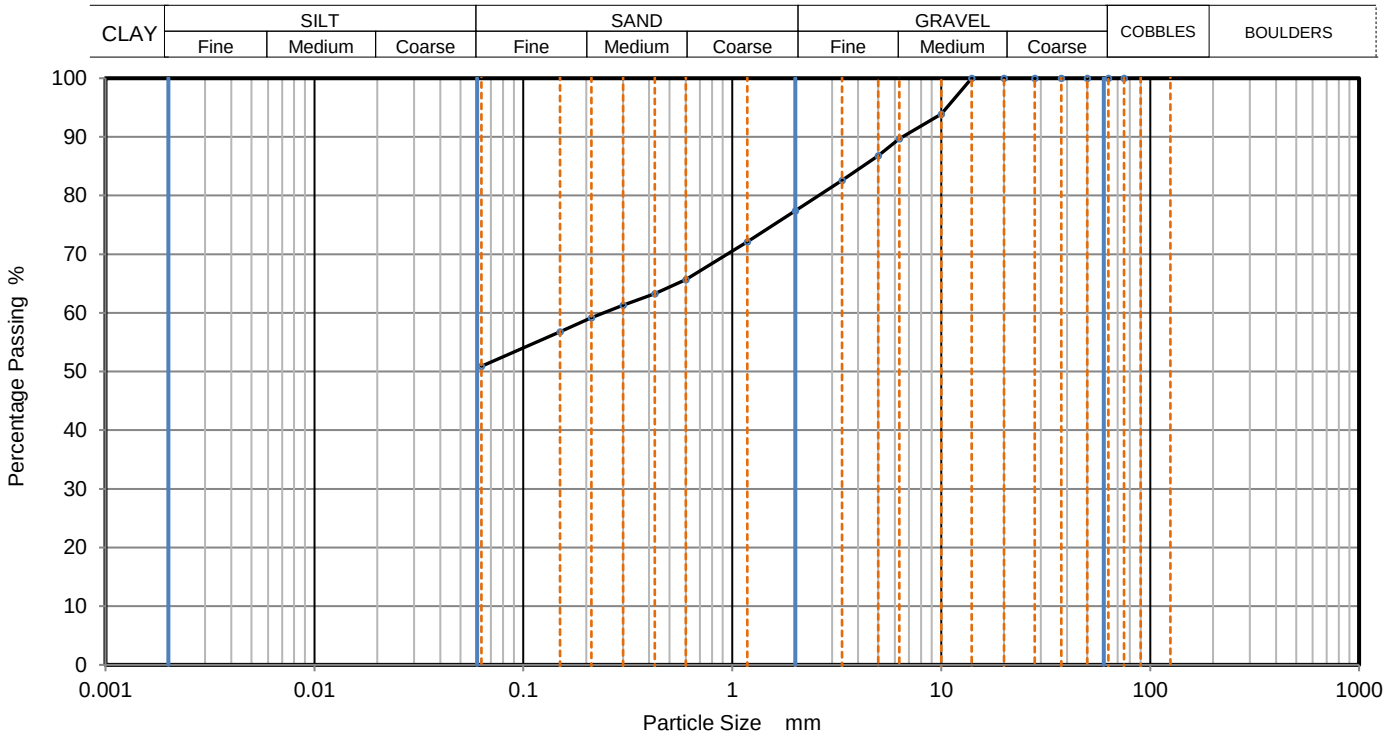
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-H
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	2.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202106043



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	94		
6.3	90		
5	87		
3.35	83		
2	77		
1.18	72		
0.6	66		
0.425	63		
0.3	61		
0.212	59		
0.15	57		
0.063	51		

Dry Mass of sample, g	354

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	27
Fines <0.063mm	51

Grading Analysis		
D100	mm	
D60	mm	0.24
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

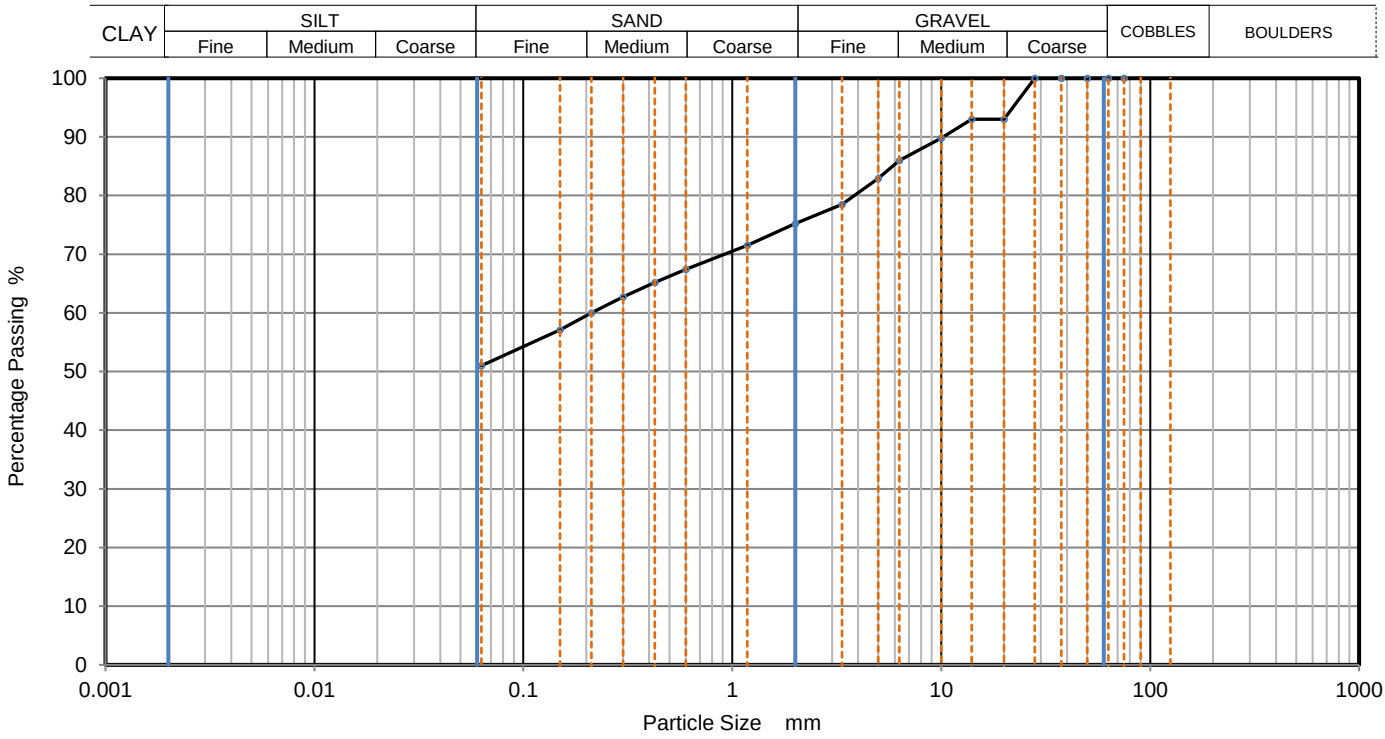
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021Lab103**
				Borehole/Pit No.	TP-I
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly sandy slightly gravelly SILT.			Depth, m	2.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021060815



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	93		
14	93		
10	90		
6.3	86		
5	83		
3.35	79		
2	75		
1.18	72		
0.6	67		
0.425	65		
0.3	63		
0.212	60		
0.15	57		
0.063	51		

Dry Mass of sample, g	310

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	24
Fines <0.063mm	51

Grading Analysis		
D100	mm	
D60	mm	0.211
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	13/07/2021 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

FEHILY TIMONEY

FEHILY TIMONEY AND COMPANY

TRIAL PIT LOG

SITE:	Ballydermot, Co. Offaly	**CLIENT:**	MKO
JOB TITLE:	Ballydermot Wind Farm	**JOB No:**	P2319
SUPERVISOR:	Alan Whelan	**DATE:**	14.06.2023
TRIAL PIT No:	TPMM001	**TIME:**	10:30am
WEATHER:	Sunny, dry	**DIMENSIONS:**	3.5m x 1.1m

EXCAVATION DEPTH (m)		DESCRIPTION	COMMENTS
FROM	TO		
0.0	0.3	Amorphous Peat	Some rootlets
0.3	2.0	Soft, grey, slightly sandy, slightly gravelly, silty CLAY	
2.0	2.6	Soft to firm, grey, slightly sandy, gravelly, silty CLAY with some cobbles and boulders	Slow seepage at 2.1 – 2.2m
2.6	2.9	Soft to firm, grey, slightly sandy, gravelly, clayey SILT with some cobbles and boulders, sub-angular to sub-rounded	Moderate seepage at 2.9m. Many cobbles and boulders after 2.9m.
2.9	3.2	Soft to firm, dark grey, slightly sandy, slightly gravelly clayey SILT with many cobbles and boulders, sub-angular to sub-rounded	Terminated at 3.2m due to collapse of side wall of excavation.

FEHILY TIMONEY

DESIGNING AND DELIVERING,
A SUSTAINABLE FUTURE

APPENDIX F

Infrastructure Ground Investigation, IDL, 2022

IRISH DRILLING LIMITED

LOUGHREA, CO. GALWAY, IRELAND

CONTRACT DRILLING
SITE INVESTIGATION

Phone: (091) 841 274
Fax: (091) 847 687

email: info@irishdrilling.ie

BALLYDERMOT WIND FARM

SITE INVESTIGATION CONTRACT FACTUAL REPORT

MKO,
Tuam Road,
Galway.
H91 VW84

Fehily Timoney & Company,
Consulting Engineers,
Singleton's Lane,
Bagenalstown,
Carlow.

	Prepared by	Approved by	Rev. Issue Date:	Revision No.
	Ronan Killeen	Declan Joyce	12th August 2022	21 _OY_105/02
Signature	RK	DJ		

FOREWORD

The borehole and trial pit records have been compiled from an examination of the samples by a Geotechnical Engineer and from the Drillers' descriptions.

The report presents an opinion on the configuration of the strata within the site based on the borehole and trial pit results. The assumptions, though reasonable, are given for guidance only and no liability can be accepted for changes in conditions not revealed by the trial pits.

The fieldwork was carried out in accordance with IS EN 1997-2 and BS5930, 2015 Code of Practice for Site Investigations with precedence given to IS EN 1997-2 where applicable.

Contents:

1.0	Introduction
2.0	The Site & Geology
3.0	Fieldwork
4.0	Laboratory Testing

Book 1 of 1

Appendix 1	Trial Pit Records
Appendix 2	Borehole Records (Rotary Core)
Appendix 3	Laboratory Test Results
Appendix 4	Photographs (Trial Pits)
Appendix 5	Photographs (Rotary Core)
Appendix 6	Site Plan
Appendix 7	AGS Data

1.0 Introduction.

Irish Drilling Ltd. (IDL) was instructed by Fehily Timoney & Partners, Consulting Engineers, on behalf of MKO, to carry out a site investigation at the site of the proposed Ballydermot Wind Farm Project.

This site investigation was carried out to provide detailed factual geotechnical information of the underlying ground conditions at the location of the proposed works.

The fieldwork was carried out over two phases:

Phase 1 fieldwork activities commenced on November 8th 2021 and was completed on December 7th 2021.

Phase 2 fieldwork activities commenced on June 21st 2022 and was completed on June 23rd 2022.

2.0 Site & Geology

The site is located near Edenderry, County Offaly.

The site is agricultural in nature and the fieldwork was carried out predominantly on agricultural lands and peat bogs.

Weather conditions in general were quite variable with the majority of the fieldwork carried out over a typical winter period in Ireland.

Geological Survey maps of the area indicate that the site is underlain by Limestone Rock Formations.

Site Plans, prepared by the client's representatives to show approximate fieldwork locations, are included with this report.

3.0 Fieldwork.

The following plant was mobilised to site to carry out fieldwork operations:

1nr Hitachi 136 Wide-Tracked Excavator.
1nr CS-14 Rotary Core Drill Rig (Phase 1).
1nr DeltaBase 520 Rotary Core Drill Rig (Phase 2).

Fieldwork carried out to date has included the following:

Phase 1:
Fifty-three trial pits were excavated on site using a tracked excavator.

The pits were logged and photographed by an Engineer with observations made on ground conditions, pit stability, water ingress and services encountered.

Small and bulk disturbed soil samples were recovered at each change in strata and returned to the laboratory and presented for testing.

The pits were excavated to depths ranging from 0.50m to 4.10m below ground level.

One rotary core borehole (BP 01) was carried out to establish overburden conditions and rockhead and to establish the nature and integrity of the underlying rock.

Wireline drilling techniques, using HQ size drill strings, were carried out to recover soil and rock core samples. The core samples recovered consisted of the following core diameters: 64mm (HQ).

The samples were stored in wooden boxes and returned to the laboratory where there were logged and photographed by a Geotechnical Engineer and presented for testing.

The rotary core borehole was carried out to a depth of 15.00m below ground level.

A 50mm diameter standpipe was installed in the borehole and as instructed by the Client's Engineer, to allow for monitoring of groundwater levels over a prolonged period of time.

Phase2:
Two rotary core boreholes (BP 02 & BP 03) were carried out to establish overburden conditions and rockhead and to establish the nature and integrity of the underlying rock.

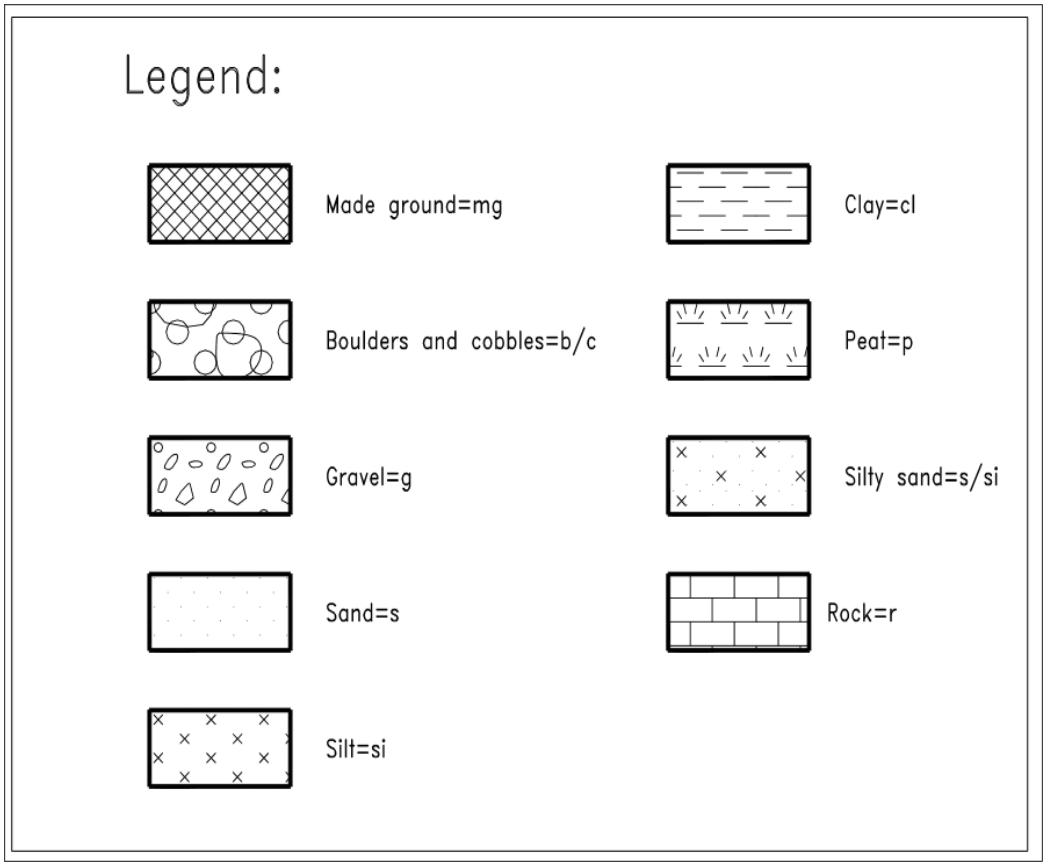
Wireline drilling techniques, using HQ size drill strings, were carried out to recover soil and rock core samples. The core samples recovered consisted of the following core diameters: 64mm (HQ).

The samples were stored in wooden boxes and returned to the laboratory where there were logged and photographed by a Geotechnical Engineer and presented for testing.

The rotary core boreholes were carried out to depths varying from 11.00m to 13.90m below ground level.

A 50mm diameter standpipe was installed in each borehole and as instructed by the Client's Engineer, to allow for monitoring of groundwater levels over a prolonged period of time.

The following Key Legend Table details the symbology used on the engineering logs to describe ground conditions encountered:



Ground conditions encountered during the completion of the fieldwork were typical and as expected for this region and predominantly consisted of Peat overlying Glacial Tills overlying bedrock.

The Glacial Tills in general consisted of grey and brown slightly gravelly sandy silt with cobbles and boulders.

Soft brown peat and/or organic silts were also encountered in many of the trial pits at depths ranging from 0.20m to 4.00m below ground level.

Intact bedrock was also encountered in rotary core boreholes at depths varying from 1.40m to 7.10m below ground level.

Possible weathered bedrock was also encountered in boreholes BP 01 and BP 03 at a shallower depth and for detailed descriptions of bedrock please refer to the engineering log included in the appendices to this report.

Bedding planes are defined as the surface that separates one stratum, layer or bed stratified rock from another. Discontinuity is defined as the plane of physical weakness where the tensile strength perpendicular to the discontinuity or the shear strength along the discontinuity is lower than that of the surrounding soil or rock material.

For detailed descriptions of the ground conditions encountered please refer to the engineering logs included as Appendix 1 and 2 to this report.

The fieldwork was carried out in accordance with IS EN 1997-2 and BS5930, 2015 Code of Practice for Site Investigations with precedence given to IS EN 1997-2 where applicable.

The trial pit and borehole locations were set out on site using a Garmin Handheld GPS Surveying Unit and using co-ordinates as received from the client's representatives.

All fieldwork co-ordinates are reported to Irish Transverse Mercator (ITM).

4.0 Laboratory Testing

Representative samples recovered from the boreholes and trial pits were scheduled for testing in the laboratory.

The test schedules were prepared by the Client's Engineer and included some or all of the following tests on disturbed soil samples:

* Moisture Content.
* Atterberg Limits.
* Particle Size Distribution.
* Organic Content.
* Chemical (pH, Sulphate).

The test schedules also included the following test on rock core samples:

* Point Load.

The records of these laboratory tests results are included as Appendix 3 of this factual report.

The soil descriptions as noted on the trial pit logs are in general visual descriptions as observed and logged by our Engineers and are described in accordance with IS EN 1997-2 and BS5930, 2015 Code of Practice for Site Investigations.

Soils descriptions (cohesive or otherwise) are also initially assessed based on the texture and 'feel' of the soil materials as witnessed by our Geotechnical Engineers and in accordance with IS EN 1997-2 and BS5930.

Where laboratory classification tests have been carried out on soil or rock samples then these visual descriptions have been amended accordingly to take into account the results of these classification tests.

The records of all fieldwork, laboratory test results and photographs are included in the appendices of this Factual Report.

Ronan Killeen

Ronan Killeen
Chartered Engineer
Irish Drilling Limited
August 12th 2022

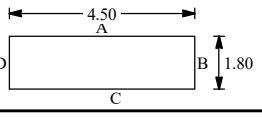
Appendix 01
Trial Pit Records

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-A**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** **Rig: Hitachi 130**
ENGINEER: FTCO	**E 667,344.0 N 730,283.0** **Rev: FINAL**
Ground level: m O.D.	**DATE: 16.11.21**

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 090-270
PIT DIMENSION: 1.80 * 4.50m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft plastic dark brown amorphous PEAT. H8 B1 F1 R0 W0 TV1 TH1 A0.
									Soft brown fibrous PEAT. H3 B2 F3 R2 W1 TV0 TH1 A1.
1									
2									
3			B 1	3.00-4.00					
4								4.00	
						END			TP terminated at 4.00m bgl. Maximum reach of excavator.
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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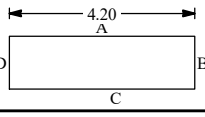
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-B**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 666,425.0 N 729,893.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 17.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: 2.50m
2nd:
3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 4.20m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable to 2.50m bgl. Pit unstable from 2.50m to 3.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft plastic dark brown amorphous PEAT. H9 B1 F1 R0 W0 TV1 TH0 A0.
			B 1	1.50-2.00				2.50	Soft light brown fibrous PEAT. H3 B2 F3 R3 W1 TV0 TH0 A2.
		1	B 2	2.50-3.00					
3			B 3	3.00-3.80				3.80	Soft light grey silty gravelly sandy CLAY with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
						END			TP terminated at 3.80m bgl. Maximum depth reached using grading bucket.
5									

Remarks: Ingress of water at 2.50m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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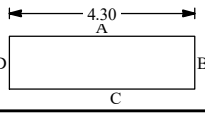
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-C**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 665,913.0 N 730,396.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 17.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: 3.20m
2nd:
3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 4.30m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable to 1.50m bgl. Pit unstable from 1.50m to 3.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.30	Soft plastic dark brown amorphous PEAT. H9 B1 F1 R0 W0 TV1 TH0 A0.
			B 1	0.50-1.00				1.50	Soft brown fibrous PEAT. H3 B2 F3 R3 W1 TV0 TH0 A2.
			B 2	1.50-2.00					Soft light grey slightly gravelly slightly sandy SILT with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
			B 3	2.50-3.00				3.20	
		1				END			TP terminated at 3.20m bgl. Unable to progress TP - sidewall collapse.

Remarks: Ingress of water at 3.20m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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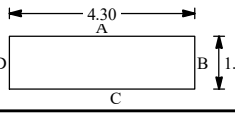
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-D**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** E 669,561.0 N 728,267.0 — **Rig: Hitachi 130**
ENGINEER: FTCO	**Rev: FINAL**
Ground level: m O.D.	**DATE: 16.11.21**

GROUNDWATER

Water strikes: 1st: 2.50m Rose to after: 20min 2.45m
2nd:
3rd:

PIT DIRECTION: 090-270
PIT DIMENSION: 1.80 * 4.30m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft plastic dark brown amorphous PEAT. H9 B1 F1 R0 W0 TV1 TH0 A0.
			B 1	0.20-0.70				0.70	Soft brown fibrous PEAT. H2 B2 F3 R2 W2 TV0 TH0 A2.
			B 2	0.70-1.50					
1									Soft grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse of limestone. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
			B 3	1.50-2.00					
2		1						2.50	
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.
3									
4									
5									

Remarks: Ingress of water at 2.50m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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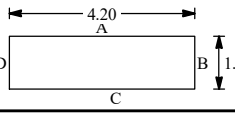
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-E**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 670,388.0 N 728,437.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
	Rev: FINAL
Ground level: m O.D.	**DATE: 15.11.21**

GROUNDWATER

Water strikes:		Rose to after:	
1st:	3.00m	20min	2.97m
2nd:	3.20m	20min	3.10m
3rd:			

PIT DIRECTION: 090-270
PIT DIMENSION: 1.80 * 4.20m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0									Soft brown fibrous PEAT. H2 B2 F2 R2 W2 TV0 TH1 A2.
1									
2									
3		1 2	B 1	3.00-3.20				3.00	
								3.20	Soft grey sandy silty CLAY.
									END TP terminated at 3.20m bgl. Unable to progress TP - ground surface unstable.
4									
5									

Remarks: Ingress of water at 3.00m bgl. Ingress of water at 3.20m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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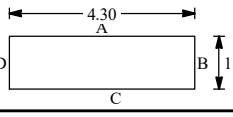
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-F**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** E 667,536.0 N 729,311.0 — **Rig: Hitachi 130**
ENGINEER: FTCO	**Rev: FINAL**
Ground level: m O.D.	**DATE: 16.11.21**

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 4.30m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.10	Soft plastic dark brown amorphous PEAT. H8 B1 F1 R0 W0 TV0 TH1 A0.
								0.40	Soft brown fibrous PEAT. H2 B2 F3 R2 W1 TV0 TH1 A1.
1			B 1	1.00-1.50					Soft grey slightly gravelly slightly sandy SILT with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse of limestone. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
2			B 2	2.00-2.50				2.70	
						END			TP terminated at 2.70m bgl. Maximum depth reached using grading bucket.
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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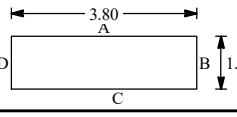
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-G**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 667,453.0 N 728,387.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
	Rev: FINAL
Ground level: m O.D.	**DATE: 16.11.21**

GROUNDWATER

Water strikes:		Rose to after:	
1st:	0.20m	20min	0.18m
2nd:	2.00m	20min	1.97m
3rd:			

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 3.80m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0		1						0.10	Soft plastic dark brown amorphous PEAT. H8 B1 F1 R0 W0 TV0 TH1 A0.
									Soft brown fibrous PEAT. H2 B2 F3 R2 W1 TV0 TH0 A1.
			B 1	0.60-1.00				0.60	
1			B 2	1.00-1.50					Soft light grey slightly gravelly sandy SILT with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
2		2				END		2.00	TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.
3									
4									
5									

Remarks: Ingress of water at 0.20m bgl. Ingress of water at 2.00m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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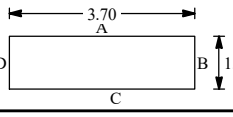
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-H**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 666,655.0 N 728,789.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 17.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: 1.50m
2nd:
3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 3.70m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft brown fibrous PEAT. H2 B1 F3 R2 W0 TV0 TH1 A0.
			B 1	0.50-1.00					Soft light grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
1		1							
			B 2	1.50-2.00					
2								2.50	
									END TP terminated at 2.50m bgl. Maximum depth reached using grading bucket.
3									
4									
5									

Remarks: Ingress of water at 1.50m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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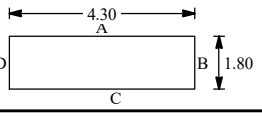
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-I**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** E 665,558.0 N 728,249.0
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 17.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 270-090
PIT DIMENSION: 1.80 * 4.30m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.30	Soft plastic dark brown amorphous PEAT. H8 B1 F1 R0 W0 TV0 TH0 A0.
								2.10	Soft brown fibrous PEAT. H3 B2 F3 R3 W2 TV0 TH1 A1.
1			B 1	1.50-2.00					
2			B 2	2.20-2.70				2.70	Soft whitish yellow organic SILT with many shell fragments and many rootlets.
								3.70	Soft grey slightly sandy thickly laminated SILT. Laminae are 5 to 6mm apart.
3			B 3	3.00-3.50					
						END			TP terminated at 3.70m bgl. Maximum depth reached using grading bucket.
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

Ph.
Fax

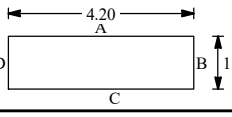
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-J**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 668,094.0 N 727,875.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 16.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 180-360
PIT DIMENSION: 1.80 * 4.20m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.40	Soft brown fibrous PEAT. H2 B2 F2 R2 W1 TV0 TH0 A0.
			B 1	0.50-1.00				1.40	Soft light grey slightly gravelly sandy SILT with high cobble content and medium boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
1						END			TP terminated at 1.40m bgl. Obstruction as boulders.
2									
3									
4									
5									

Remarks: TP dry on excavation. Ingress of surface water. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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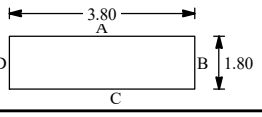
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-K**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** E 664,557.0 N 726,842.0 — **Rig: Hitachi 130**
ENGINEER: FTCO	**Rev: FINAL**
Ground level: m O.D.	**DATE: 17.11.21**

GROUNDWATER

Water strikes: Rose to after:
1st: 3.50m
2nd:
3rd:

PIT DIRECTION: 180-360
PIT DIMENSION: 1.80 * 3.80m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.10	Soft plastic dark brown amorphous PEAT. H8 B1 F1 R0 W0 TV0 TH1 A0.
									Soft light brown fibrous PEAT. H3 B2 F3 R3 W1 TV0 TH1 A1.
1			B 1	1.00-2.00					
2								2.50	
			B 2	2.50-3.00					2.50-3.00m: grey silt. Soft grey slightly gravelly sandy SILT with high cobble content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone.
3			B 3	3.00-3.50				3.50	
						END			TP terminated at 3.50m bgl. Maximum depth reached using grading bucket.
4									
5									

Remarks: Ingress of water at 3.50m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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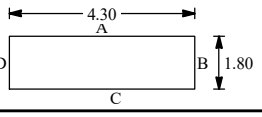
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-L**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** E 664,909.0 N 727,625.0
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 17.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: 3.30m
2nd:
3rd:

PIT DIRECTION: 180-360
PIT DIMENSION: 1.80 * 4.30m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft plastic dark brown amorphous PEAT. H8 B1 F1 R0 W0 TV0 TH1 A0.
								2.10	Soft light brown fibrous PEAT. H3 B2 F3 R2 W2 TV0 TH1 A1.
			B 1	1.50-2.00					
			B 2	2.10-2.50					
			B 3	2.50-3.00				3.30	Soft light grey slightly gravelly slightly sandy SILT with medium cobble content. Sand is medium. Gravel is subrounded to subangular medium. Cobbles are rounded to subrounded of limestone.
		1				END			TP terminated at 3.30m bgl. Maximum depth reached using grading bucket.

Remarks: Ingress of water at 3.30m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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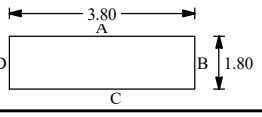
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-M**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** E 667,298.0 N 726,307.0 — **Rig: Hitachi 130**
ENGINEER: FTCO	**Rev: FINAL**
Ground level: m O.D.	**DATE: 12.11.21**

GROUNDWATER

Water strikes: Rose to after:
1st: 2.40m
2nd:
3rd:

PIT DIRECTION: 270-090
PIT DIMENSION: 1.80 * 3.80m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft plastic dark brown amorphous PEAT. H8 B1 F1 R0 W0 TV1 TH0 A0.
			B 1	0.50-1.00				1.20	Soft light brown fibrous PEAT. H2 B2 F3 R2 W1 TV0 TH1 A2.
1			B 2	1.00-1.50					
			B 3	1.50-2.00				2.40	Soft grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
2		▼							
						END			TP terminated at 2.40m bgl. Maximum depth reached using grading bucket.
3									
4									
5									

Remarks: Ingress of water at 2.40m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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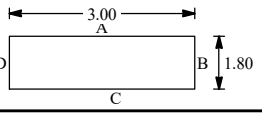
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-N**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 667,205.0 N 727,517.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 12.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 090-270
PIT DIMENSION: 1.80 * 3.00m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft light brown fibrous PEAT. H2 B1 F3 R3 W0 TV1 TH0 A0.
			B 1	0.50-1.00					Soft grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse of limestone. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
1									
			B 2	1.50-2.00					
2								2.20	
						END			TP terminated at 2.20m bgl. Maximum depth reached using grading bucket.
3									
4									
5									

Remarks: TP dry on excavation. Ingress of surface water. TP backfilled with arisings. Co-ordinates provided by client representatives.

Scale: 1:25

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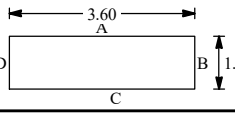
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-O**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E N**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 15.11.21

GROUNDWATER

Water strikes: **Rose to after:**
1st: 2.70m
2nd:
3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 3.60m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.30	Soft plastic dark brown amorphous PEAT. H8 B1 F1 R0 W0 TV1 TH0 A0.
			B 1	0.50-1.00				1.00	Soft brown fibrous PEAT. H2 B1 F3 R2 W1 TV1 TH0 A1.
1									
			B 2	1.50-2.00					Soft grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
2			B 3	2.00-2.50					
		1						2.70	
						END			TP terminated at 2.70m bgl. Maximum depth reached using grading bucket.
3									
4									
5									

Remarks: Ingress of water at 2.70m bgl. TP backfilled with arisings.
Pit location moved 80m due to trees/foliage.

Scale: 1:25

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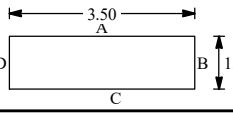
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm		**TRIALPIT: 1-P**
LOCATION: Co Offaly		**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:**	**Rig: Hitachi 130**
ENGINEER: FTCO	**E 668,928.0 N 727,701.0**	**Rev: FINAL**
Ground level: m O.D.		**DATE: 15.11.21**

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 3.50m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft brown fibrous PEAT.
								0.50	Soft brown fibrous PEAT. H2 B2 F3 R2 W1 TV0 TH1 A1.
			B 1	0.50-1.00					Soft grey slightly gravelly sandy SILT with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
1			B 2	1.00-1.50					
2								2.00	
						END			TP terminated at 2.00m bgl. Maximum depth reached using grading bucket.
3									
4									
5									

Remarks: TP dry on excavation. Ingress of surface water. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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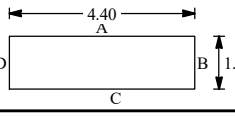
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-Q**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 663,830.0 N 727,367.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 18.11.21

GROUNDWATER

Water strikes: **Rose to after:**
1st: 1.20m
2nd:
3rd:

PIT DIRECTION: 180-360
PIT DIMENSION: 1.80 * 4.40m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft brown fibrous PEAT. H2 B1 F3 R2 W0 TV0 TH1 A0.
			B 1	0.50-1.00					Soft grey slightly gravelly slightly sandy SILT with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
1			B 2	1.00-1.50					
								1.90	
									END TP terminated at 1.90m bgl. Maximum depth reached using grading bucket.
2									
3									
4									
5									

Remarks: Ingress of water at 1.20m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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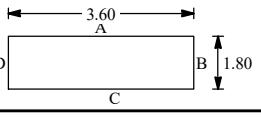
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-R**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 666,699.0 N 726,709.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 12.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 270-090
PIT DIMENSION: 1.80 * 3.60m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.30	Soft plastic dark brown amorphous PEAT. H8 B1 F1 R0 W0 TV1 TH0 A0.
			B 1	0.50-0.90				0.90	Soft brown fibrous PEAT. H2 B1 F2 R2 W1 TV0 TH1 A1.
1			B 2	1.00-1.50					Soft grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
			D 3	1.50-2.00					
2								2.30	
						END			TP terminated at 2.30m bgl. Maximum depth reached using grading bucket.
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

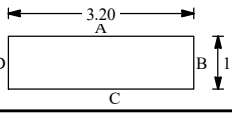
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TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-T**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** E 665,722.0 N 725,146.0
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
GROUNDWATER Water strikes: 1st: dry 2nd: 3rd: Rose to after:	**DATE: 9.11.21**
PIT DIRECTION: 000-180 **PIT DIMENSION: 1.80 * 3.20m** **LOGGED BY: DK**	Shoring/Support: N/A Stability: Pit unstable. Sidewall collapse.



Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.10	Soft brown fibrous PEAT.
								1.50	Soft brown fibrous PEAT. H2 B2 F2 R2 W1 TV0 TH1 A0.
			D 1 B 2	1.50-1.60 1.60-2.20				2.20	Soft light greyish orange slightly sandy SILT with many shell fragments and many rootlets.
						END			TP terminated at 2.00m bgl. Maximum depth reached using grading bucket.
1									
2									
3									
4									
5									

Remarks: TP dry on excavation. Ingress of surface water. TP backfilled with arisings. Co-ordinates provided by client representatives.

Scale: 1:25

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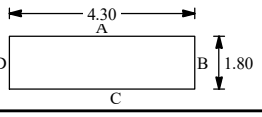
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-U**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** E 666,932.0 N 725,060.0 — **Rig: Hitachi 130**
ENGINEER: FTCO	**Rev: FINAL**
Ground level: m O.D.	**DATE: 9.11.21**

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 180-360
PIT DIMENSION: 1.80 * 4.30m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft plastic dark brown amorphous PEAT. H8 B1 F0 R0 W0 TV1 TH1 A0.
			B 1	0.50-1.00				1.00	Soft brown fibrous PEAT. H3 B1 F2 R2 W2 TV1 TH1 A1.
1									
			B 2	1.50-2.00					Firm grey sliughtly gravelly sandy SILT with high cobble content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone.
2			D 3	2.00-2.50				2.50	
						END			TP terminated at 2.50m bgl. Maximum depth reached using grading bucket.
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

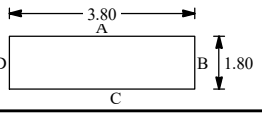
PROJECT: Ballydermot Wind Farm
LOCATION: Co Offaly
TRIALPIT: 1-V
Sheet 1 of 1

CLIENT: Bord na Mona
ENGINEER: FTCO
Co-ordinates: E 663,164.0 N 725,310.0
Rig: Hitachi 130
Rev: FINAL

Ground level: m O.D.
DATE: 18.11.21

GROUNDWATER
Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 180-360
PIT DIMENSION: 1.80 * 3.80m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft brown fibrous PEAT. H1 B1 F2 R1 W0 TV1 TH0 A0.
			B 1	0.50-1.00				1.00	Firm brown mottled grey slightly gravelly sandy SILT with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
1									
			B 2	1.50-2.00				2.20	Soft grey slightly gravelly sandy SILT with high cobble content and low boulder content. Sand is fine. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
2									
						END			TP terminated at 2.20m bgl. Maximum depth reached using grading bucket.
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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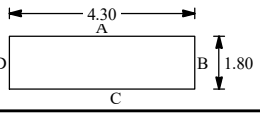
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-W**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 663,007.0 N 726,187.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 18.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: 2.50m 20min 2.48m
2nd:
3rd:

PIT DIRECTION: 270-090
PIT DIMENSION: 1.80 * 4.30m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.40	Soft brown fibrous PEAT. H2 B1 F3 R2 W0 TV0 TH1 A0.
			B 1	0.50-1.00					Soft light grey slightly gravelly sandy SILT with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
1			B 2	1.00-1.50					
2		1.1	B 3	2.00-2.50				2.50	
									END TP terminated at 2.50m bgl. Maximum depth reached using grading bucket.
3									
4									
5									

Remarks: Ingress of water at 2.50m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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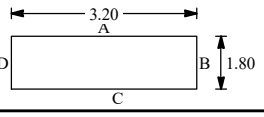
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-X**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** E 668,441.0 N 725,419.0 — **Rig: Hitachi 130**
ENGINEER: FTCO	**Rev: FINAL**
Ground level: m O.D.	**DATE: 15.11.21**

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 180-360
PIT DIMENSION: 1.80 * 3.20m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.10	Firm brown fibrous PEAT.
									Soft brown fibrous PEAT. H2 B1 F3 R2 W1 TV0 TH1 A1.
1			B 1	1.00-1.50				1.50	
			B 2	1.50-2.00					Soft grey slightly gravelly slightly sandy SILT with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular medium. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
2									
			B 3	2.50-3.00					
3								3.20	
									END
									TP terminated at 3.20m bgl. Maximum depth reached using grading bucket.
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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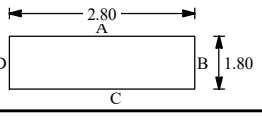
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-Y**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** E 667,697.0 N 724,706.0
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 10.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 090-270
PIT DIMENSION: 1.80 * 2.80m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft brown fibrous PEAT.
			B 1	1.00-1.50					Soft light brown fibrous PEAT. H2 B1 F2 R2 W1 TV0 TH1 A1.
1								1.50	
			B 2	1.50-2.00					Soft grey silty thickly laminated CLAY. Laminae are 5 to 6mm apart.
2								2.40	
			B 3	2.50-3.00					Soft grey slightly gravelly sandy SILT with medium cobble content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone.
3								3.20	
									END TP terminated at 3.20m bgl. Maximum depth reached using grading bucket.
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

Ph.
Fax

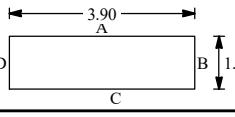
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 1-Z**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 663,999.0 N 725,474.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 18.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: 2.70m
2nd:
3rd:

PIT DIRECTION: 270-090
PIT DIMENSION: 1.80 * 3.90m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.70	Firm brown fibrous PEAT. H2 B1 F3 R2 W0 TV1 TH0 A0.
1			B 1	1.00-1.50					Soft light grey slightly gravelly sandy SILT with high cobble content and low boulder content. Sand is fine. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
2			B 2	2.00-2.50					
		1	B 3	2.50-3.00				3.00	
3						END			TP terminated at 3.00m bgl. Maximum depth reached using grading bucket.
4									
5									

Remarks: Ingress of water at 2.70m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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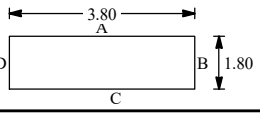
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-A**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:**
ENGINEER: FTCO	**E 665,151.0 N 724,290.0**
	Rig: Hitachi 130
	Rev: FINAL
Ground level: m O.D.	**DATE: 19.11.21**

GROUNDWATER

Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 090-270
PIT DIMENSION: 1.80 * 3.80m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft plastic dark brown amorphous PEAT. H10 B1 F0 R0 W0 TV1 TH0 A0.
									Soft light brown fibrous PEAT. H2 B1 F2 R2 W1 TV0 TH1 A1.
1									
2			B 1	2.00-2.50					
3								3.80	
			B 2	3.80-4.10					Soft grey slightly gravelly very silty CLAY. Gravel is subrounded to subangular medium.
4								4.10	
									END
									TP terminated at 4.10m bgl. Maximum depth reached using grading bucket.
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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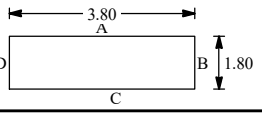
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-B**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:**
ENGINEER: FTCO	**E 664,363.0 N 724,937.0**
Rig: Hitachi 130	
Rev: FINAL	
Ground level: m O.D.	**DATE: 19.11.21**

GROUNDWATER

Water strikes: **Rose to after:**
1st: 1.40m
2nd:
3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 3.80m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft plastic dark brown amorphous PEAT. H9 B1 F1 R0 W0 TV0 TH1 A0.
								2.70	Soft brown fibrous PEAT. H3 B2 F3 R3 W2 TV0 TH1 A2.
1		1	B 1	1.50-2.00					
2									
3			B 2	3.00-3.20				3.20	Soft grey slightly gravelly sandy SILT with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
									END TP terminated at 3.20m bgl. Maximum depth reached using grading bucket.
4									
5									

Remarks: Ingress of water at 1.40m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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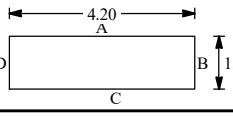
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-C**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 669,577.0 N 723,418.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 11.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: 2.50m 20min 2.41m
2nd:
3rd:

PIT DIRECTION: 090-270
PIT DIMENSION: 1.80 * 4.20m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.10	Soft plastic dark brown amorphous PEAT. H8 B1 F0 R0 W0 TV1 TH0 A0.
									Soft brown fibrous PEAT. H2 B1 F2 R2 W1 TV0 TH1 A2.
1			B 1	1.00-1.40				1.40	
			B 2	1.50-2.00					Soft grey slightly gravelly sandy SILT with high cobble content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone.
2		1	D 3	2.00-2.50				2.50	
		1				END			TP terminated at 2.50m bgl. Unable to progress TP due to ingress of water.
3									
4									
5									

Remarks: Ingress of water at 2.50m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

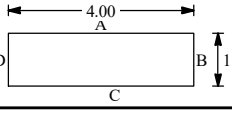
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TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-D**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 666,062.0 N 723,362.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
GROUNDWATER Water strikes: 1st: 1.40m 2nd: 3rd: Rose to after:	**DATE: 9.11.21**
PIT DIRECTION: 000-180 **PIT DIMENSION: 1.80 * 4.00m** **LOGGED BY: DK**	Shoring/Support: N/A Stability: Pit unstable. Sidewall collapse.



Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0			D 1	0.00-0.30				0.30	Soft plastic dark brown amorphous PEAT. H8 B1 F0 R0 W0 TV1 TH0 A0.
									Soft light brown fibrous PEAT. H2 B1 F2 R2 W1 TV1 TH0 A0.
1		1							
2			B 2	2.00-2.50				2.50	
			D 3	2.50-2.60				2.60	Soft light grey organic SILT with many shell fragments and many rootlets.
			B 4	2.60-3.00					Soft grey slightly sandy silty thickly laminated CLAY. Laminae are 5 to 6mm apart.
3								3.20	
									END TP terminated at 3.20m bgl. Unable to progress TP - sidewall collapse.
4									
5									

Remarks: Ingress of water at 1.40m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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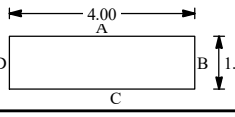
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-E**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** **Rig: Hitachi 130**
ENGINEER: FTCO	**E 666,484.0 N 725,795.0** **Rev: FINAL**
Ground level: m O.D.	**DATE: 9.11.21**

GROUNDWATER

Water strikes: **Rose to after:**
1st: 0.60m
2nd:
3rd:

PIT DIRECTION: 180-360
PIT DIMENSION: 1.80 * 4.00m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft plastic dark brown amorphous PEAT. H8 B1 F0 R0 W0 TV1 TH0 A0.
		1							Soft brown fibrous PEAT. H2 B2 F2 R2 W1 TV0 TH1 A2.
1									
			B 1	1.50-2.00					
2								2.40	
			D 2	2.40-2.50				2.70	Soft light grey organic SILT with many shell fragments and many rootlets.
									Soft dark grey slightly gravelly sandy SILT with medium cobble content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone.
3			B 3	3.00-3.40				3.40	
						END			TP terminated at 3.40m bgl. Unable to progress TP - sidewall collapse.
4									
5									

Remarks: Ingress of water at 0.60m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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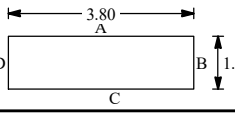
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-F**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** E 666,843.0 N 724,155.0
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 10.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: 1.00m
2nd: 2.00m 20min 1.95m
3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 3.80m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.10	TOPSOIL: Firm brown peaty CLAY.
			B 1	0.50-1.00				1.00	Firm grey silty gravelly sandy CLAY with medium cobble content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone.
1		1							
			B 2	1.50-2.00				2.00	Grey very silty coarse SAND and subrounded to rounded coarse GRAVEL with high cobble content. Cobbles are rounded to subrounded of limestone.
2		2 1				END			TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.
3									
4									
5									

Remarks: Ingress of water at 1.00m bgl. Ingress of water at 2.00m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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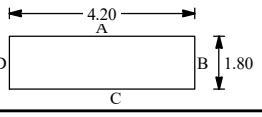
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-G**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 665,994.0 N 724,419.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 9.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 4.20m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0			D 1	0.00-0.40				0.40	Soft plastic dark brown amorphous PEAT. H8 B1 F0 R0 W0 TV1 TH1 A0.
									Soft brown fibrous PEAT. H2 B1 F2 R2 W1 TV1 TH1 A1.
3			B 2	3.00-3.50				3.50	
						END			TP terminated at 3.50m bgl. Maximum reach of excavator.

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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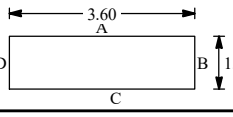
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-H**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 664,797.0 N 723,510.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 8.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 090-270
PIT DIMENSION: 1.80 * 3.60m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0			D 1	0.00-0.10				0.20	Soft plastic dark brown amorphous PEAT. H8 B1 F0 R0 W0 TV1 TH0 A0.
			B 2	0.50-1.00				1.10	Soft light brown fibrous PEAT. H2 B2 F2 R2 W1 TV0 TH1 A1.
1			B 3	1.10-1.50					
									Soft grey slightly sandy gravelly SILT with medium cobble content. Sand is fine. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone.
2			B 4	2.00-2.50					
			D 5	2.50-2.70				2.70	
						END			TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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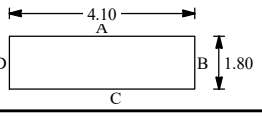
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-I**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:**
ENGINEER: FTCO	**E 665,130.0 N 721,837.0**
Rig: Hitachi 130	
Rev: FINAL	
Ground level: m O.D.	**DATE: 8.11.21**

GROUNDWATER

Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 090-270
PIT DIMENSION: 1.80 * 4.10m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0			D 1	0.00-0.40				0.40	Soft plastic dark brown amorphous PEAT. H8 B1 F0 R0 W0 TV1 TH0 A0.
			B 2	0.40-0.90				0.90	Soft light brown fibrous PEAT. H2 B1 F2 R2 W0 TV0 TH1 A1.
1			B 3	1.00-1.50				1.50	Soft dark grey organic SILT with rootlets.
									Firm dark grey sandy silty thickly laminated CLAY. Laminae are 5 to 6mm apart. Sand is fine.
2			B 4	2.00-2.50					
			D 5	2.50-2.80				2.80	
									END
3									TP terminated at 2.80m bgl on REs instruction.
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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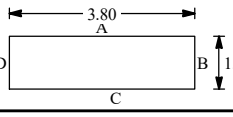
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-J**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 664,725.0 N 722,393.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 8.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 270-090
PIT DIMENSION: 1.80 * 3.80m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0			D 1	0.00-0.30				0.30	Soft plastic dark brown amorphous PEAT. H9 B1 F0 R0 W0 TV1 TH1 A0.
			B 2	1.50-2.00				2.40	Soft light brown fibrous PEAT. H3 B2 F2 R2 W2 TV0 TH1 A1.
			B 3	2.50-3.00					Soft grey sandy SILT. Sand is fine.
3			D 4	3.00-3.20				3.20	
						END			TP terminated at 3.20m bgl. Maximum depth reached using grading bucket.

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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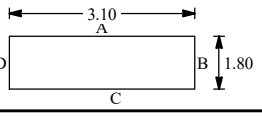
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm		**TRIALPIT: 2-K**
LOCATION: Co Offaly		**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:**	**Rig: Hitachi 130**
ENGINEER: FTCO	**E 668,235.0 N 724,133.0**	**Rev: FINAL**
Ground level: m O.D.		**DATE: 10.11.21**

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 3.10m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.10	TOPSOIL: Brown fibrous PEAT.
			D 1	0.50-1.00				1.20	Soft brown fibrous PEAT. H2 B1 F2 R2 W2 TV0 TH1 A1.
1			B 2	1.00-1.50					
2			B 3	2.00-2.50				2.60	Soft grey slightly sandy gravelly SILT with medium cobble content.
						END			TP terminated at 2.60m bgl. Maximum depth reached using grading bucket.
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

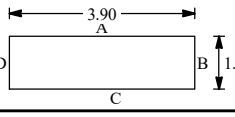
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TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-L**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 668,652.0 N 722,904.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
GROUNDWATER	**DATE: 11.11.21**

Water strikes: **Rose to after:**
1st: 2.50m
2nd:
3rd:

PIT DIRECTION: 090-270
PIT DIMENSION: 1.80 * 3.90m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.30	Soft plastic dark brown amorphous PEAT. H8 B1 F1 R0 W0 TV1 TH0 A0.
			B 1	0.50-0.90				0.90	Soft light brown fibrous PEAT. H2 B1 F2 R2 W1 TV0 TH1 A2.
1			B 2	1.00-1.50					Soft grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
2		1	B 3	2.00-2.50				2.50	
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.
3									
4									
5									

Remarks: Ingress of water at 2.50m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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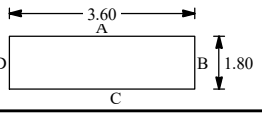
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-M**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 668,792.0 N 723,754.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 11.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 090-270
PIT DIMENSION: 1.80 * 3.60m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.30	Soft plastic dark brown amorphous PEAT. H8 B1 F0 R0 W0 TV1 TH0 A0.
								0.90	Soft brown fibrous PEAT. H2 B1 F3 R3 W1 TV0 TH0 A0.
1			D 1	1.00-1.50					Firm grey slightly sandy gravelly SILT with medium cobble content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone.
			B 2	1.50-2.00					
2								2.00	
						END			TP terminated at 2.00m bgl. Unable to progress TP due to adjacent trees.
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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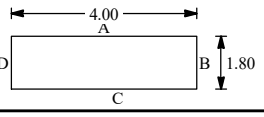
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-N**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 665,676.0 N 722,587.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 8.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 4.00m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0			D 1	0.00-0.20				0.20	Soft plastic dark brown amorphous PEAT. H8 B1 F0 R0 W0 TV1 TH0 A0.
									Soft light brown fibrous PEAT. H2 B2 F2 R2 W1 TV1 TH0 A1.
1									
2			B 2	2.50-3.00					
3									
4								4.00	
						END			TP terminated at 4.00m bgl on REs instruction.
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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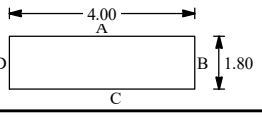
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-O**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 667,272.0 N 723,632.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 11.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 4.00m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft plastic dark brown amorphous PEAT. H8 B1 F0 R0 W0 TV1 TH0 A0.
			B 1	0.50-1.00				1.00	Soft light brown fibrous PEAT. H2 B1 F2 R2 W1 TV0 TH0 A2.
1			B 2	1.00-1.50				2.40	Soft grey slightly sandy slightly gravelly SILT with high cobble content. Sand is medium. Gravel is subrounded to subangular medium. Cobbles are rounded to subrounded of limestone.
2			D 3	2.00-2.40					
						END			TP terminated at 2.40m bgl. Maximum depth reached using grading bucket.
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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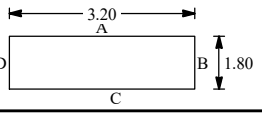
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-P**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 666,811.0 N 722,919.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 10.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: 1.80m
2nd:
3rd:

PIT DIRECTION: 180-360
PIT DIMENSION: 1.80 * 3.20m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0			D 1	0.00-0.50				0.50	Soft plastic dark brown amorphous PEAT. H8 B1 F0 R0 W0 TV1 TH0 A0.
								1.80	Soft grey slightly sandy gravelly SILT with high cobble content. Sand is medium. Gravel is subrounded to subangular medium. Cobbles are rounded to subrounded of limestone.
1			B 2	1.00-1.50					
			D 3	1.50-1.80					
						END			TP terminated at 1.80m bgl. Maximum depth reached using grading bucket.
2									
3									
4									
5									

Remarks: Ingress of water at 1.80m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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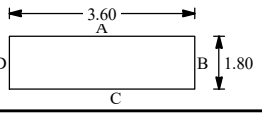
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-Q**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 667,114.0 N 722,339.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 10.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: 3.70m
2nd:
3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 3.60m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.10	Soft plastic dark brown amorphous PEAT. H8 B2 F0 R0 W0 TV1 TH0 A0.
									Soft light brown fibrous PEAT. H2 B2 F2 R2 W1 TV0 TH1 A1.
1			D 1	1.00-1.50					
2			B 2	2.50-3.00					
3			B 3	3.60-3.70				3.60 3.70	Soft grey slightly gravelly sandy SILT. Sand is medium. Gravel is subrounded to subangular medium. TP terminated at 3.70m bgl. Unable to progress TP due unstable ground conditions.
4									
5									

Remarks: Ingress of water at 3.70m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

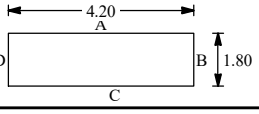
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TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-R**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 667,967.0 N 722,319.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
GROUNDWATER Water strikes: 1st: 4.00m 2nd: 3rd: Rose to after:	**DATE: 11.11.21**
PIT DIRECTION: 090-270 **PIT DIMENSION: 1.80 * 4.20m** **LOGGED BY: DK**	Shoring/Support: N/A Stability: Pit unstable.



Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft plastic dark brown amorphous PEAT. H9 B1 F0 R1 W0 TV0 TH1 A0.
									Soft light brown fibrous PEAT. H2 B2 F3 R3 W1 TV0 TH0 A2.
1			D 1	1.00-1.50					
2									
3			B 2	3.00-3.50					
4		▼						4.00	
						END			TP terminated at 4.00m bgl. Unable to progress TP due unstable ground conditions.
5									

Remarks: Ingress of water at 4.00m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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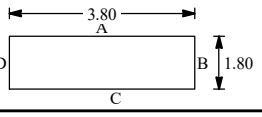
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-S**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:**
ENGINEER: FTCO	**E 664,367.0 N 723,995.0**
Rig: Hitachi 130	
Rev: FINAL	
Ground level: m O.D.	**DATE: 19.1.21**

GROUNDWATER

Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 090-270
PIT DIMENSION: 1.80 * 3.80m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.20	Soft plastic dark brown amorphous PEAT. H9 B1 F1 R0 W0 TV0 TH1 A0.
			B 1	1.50-2.00					Soft light brown fibrous PEAT. H3 B2 F3 R3 W2 TV0 TH1 A1.
2			B 2	2.40-2.60				2.40	
								2.60	Stiff light grey slightly gravelly slightly sandy SILT with low cobble content. Sand is fine. Gravel is subrounded to subangular medium. Cobbles are rounded to subrounded of limestone.
									END TP terminated at 2.60m bgl. Maximum depth reached using grading bucket.
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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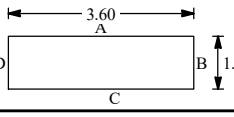
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-T**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 665,246.0 N 723,071.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 8.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: 0.90m
2nd:
3rd:

PIT DIRECTION: 270-090
PIT DIMENSION: 1.80 * 3.60m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0			D 1	0.00-0.30				0.30	Soft plastic dark brown amorphous PEAT. H8 B1 F1 R0 W0 TV1 TH0 A0.
			B 2	0.30-0.90				0.90	Soft light brown fibrous PEAT. H2 B2 F2 R2 W1 TV1 TH0 A0.
1			B 3	1.00-1.50					Soft grey slightly sandy slightly gravelly SILT with medium cobble content. Sand is fine. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of grey limestone.
2			B 4	2.00-2.50					
3			D 5	3.00-3.20				3.20	
						END			TP terminated at 3.20m bgl. Unable to progress TP - sidewall collapse.
4									
5									

Remarks: Ingress of water at 0.90m bgl. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

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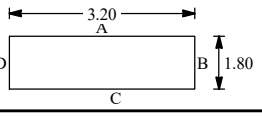
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: 2-U**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 663,527.0 N 724,680.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 19.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 270-090
PIT DIMENSION: 1.80 * 3.20m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0			B 1	0.50-1.00				1.00	Soft dark brown fibrous PEAT. H2 B1 F3 R2 W1 TV0 TH1 A0.
1			B 2	1.50-2.00				2.40	Soft grey slightly gravelly sandy SILT with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
2						END			TP terminated at 2.40m bgl. Maximum depth reached using grading bucket.
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

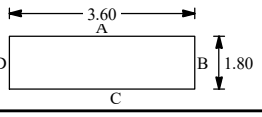
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TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: BP01**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 662,039.0 N 725,925.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
GROUNDWATER	**DATE: 22.11.21**

Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 180-360
PIT DIMENSION: 1.80 * 3.60m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0			D 1	0.00-0.40				0.40	TOPSOIL: Firm brown silty gravelly CLAY.
			B 2	0.40-0.70				0.70	Firm brown slightly sandy very gravelly SILT with medium cobble content. Sand is medium. Gravel is subrounded to subangular medium. Cobbles are rounded to subrounded of limestone.
						END			TP terminated at 0.70m bgl. Obstruction as possible limestone rock.
1									
2									
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

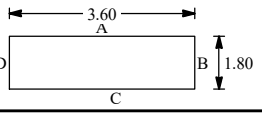
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TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: BP02**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 662,173.0 N 725,813.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
GROUNDWATER	**DATE: 22.11.21**

Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 3.60m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0			D 1	0.00-0.40				0.40	TOPSOIL: Firm brown silty CLAY.
			B 2	0.50-1.00				1.20	Firm light brown slightly sandy gravelly SILT with high cobble content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone.
1						**END**			TP terminated at 1.20m bgl. Obstruction as possible limestone rock.
2									
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

Irish drilling LTD

Ph.
Fax

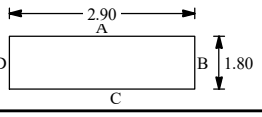
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: BP03**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 662,184.0 N 726,082.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 22.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 270-090
PIT DIMENSION: 1.80 * 2.90m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0									
								0.20	TOPSOIL: Firm brown slightly silty gravelly CLAY.
			B 1	0.20-0.50				0.50	Firm brown slightly sandy slightly gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to subangular medium. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
						END			TP terminated at 0.50m bgl. Obstruction.
1									
2									
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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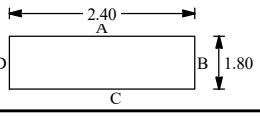
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: BP04**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** **Rig: Hitachi 130**
ENGINEER: FTCO	**E 662,383.0 N 725,982.0** **Rev: FINAL**
Ground level: m O.D.	**DATE: 22.11.21**

GROUNDWATER

Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 090-270
PIT DIMENSION: 1.80 * 2.40m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.10	TOPSOIL: Firm brown silty CLAY.
			D 1	0.10-0.40					Firm light brown slightly sandy slightly gravelly SILT with high cobble content and medium boulder content. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
1			B 2	1.00-1.50					
								1.90	
						END			TP terminated at 1.90m bgl. Obstruction as possible limestone rock.
2									
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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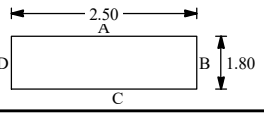
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: BP05**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates: E 662,367.0 N 726,181.0**
ENGINEER: FTCO	**Rig: Hitachi 130**
Ground level: m O.D.	**Rev: FINAL**
	DATE: 22.11.21

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 090-270
PIT DIMENSION: 1.80 * 2.50m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0									
			D 1	0.20-0.45				0.20	TOPSOIL: Firm brown silty CLAY.
								0.45	Firm brown slightly sandy gravelly SILT with low cobble content. Gravel is subrounded to subangular medium. Cobbles are rounded to subrounded of limestone.
1			B 2	1.00-1.50				1.80	Light brown silty very sandy GRAVEL with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
2									**END** TP terminated at 1.80m bgl. Obstruction.
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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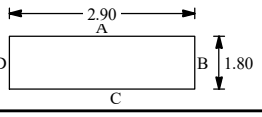
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: BP06**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** E 662,271.0 N 726,402.0 — **Rig: Hitachi 130**
ENGINEER: FTCO	**Rev: FINAL**
Ground level: m O.D.	**DATE: 22.11.21**

GROUNDWATER

Water strikes: Rose to after:
1st: dry
2nd:
3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.80 * 2.90m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.10	TOPSOIL: Firm brown silty CLAY.
			D 1	0.20-0.70				0.70	Firm brown slightly gravelly slightly sandy SILT with low cobble content. Gravel is subrounded to subangular medium. Cobbles are rounded to subrounded of limestone.
			B 2	0.70-1.00				1.00	Soft light brown slightly sandy gravelly SILT with high cobble content and medium boulder content. Gravel is subrounded to subangular coarse. Boulders are angular to subangular of limestone.
1						END			TP terminated at 1.00m bgl. Obstruction as limestone rock.
2									
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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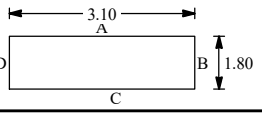
TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

PROJECT: Ballydermot Wind Farm	**TRIALPIT: BP07**
LOCATION: Co Offaly	**Sheet 1 of 1**
CLIENT: Bord na Mona	**Co-ordinates:** **Rig: Hitachi 130**
ENGINEER: FTCO	**E 662,483.0 N 726,400.0** **Rev: FINAL**
Ground level: m O.D.	**DATE: 22.11.21**

GROUNDWATER

Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 090-270
PIT DIMENSION: 1.80 * 3.10m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0								0.30	TOPSOIL: Firm brown silty CLAY.
			D 1	0.30-0.50				1.20	Firm light brown slightly silty gravelly very sandy CLAY with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.
1			B 2	1.20-1.70				2.30	Soft light brown slightly sandy gravelly SILT with low cobble content. Sand is fine. Gravel is subrounded to subangular medium. Cobbles are rounded to subrounded of limestone.
2			B 3	2.30-2.50				2.50	Very soft slightly sandy gravelly SILT. Gravel is subrounded to subangular medium of various lithologies.
						END			TP terminated at 2.50m bgl.
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.
Co-ordinates provided by client representatives.

Scale: 1:25

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TRIAL PIT VANE & WL RISES BALLYDERMOT WF TP FILE 1 DEC 7 2021.GPJ IRISHDRL.GDT 28/4/22

Appendix 02
Borehole Records
(Rotary Core)

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
Ballydermot Wind Farm	Co Offaly	**RC-BP01**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY105	06-12-21 07-12-21		E 662,260.0 N 725,854.0

Engineer	Sheet	Rev.
FTCO	1 of 2	FINAL

RUN DETAILS						STRATA				
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Geology	Instrument/ Backfill
0.00	0 (-) -	NA			(1.00)	0.00 - 1.10 m: overburden		Open hole drilling - no recovery.		
1.00					1.00 1.10					
	47 (15) 0	NR/NI?				1.10 - 3.80 Non-intact as possible weathered rock. No recovery as washout of fines during drilling. No record of cavity.		Subrounded to subangular fine to coarse assorted grey limestone GRAVEL. Possible weathered limestone rock. Recovered as subrounded to angular fine to coarse gravel sized clasts of assorted light and dark grey fine grained limestone with a little dark orangish brown clay.		
2.70		NR/NI?			(2.70)					
3.50	69 (16) 0									
	100 (29) 0	NI			3.80 (0.90)	3.80 - 4.70 Non-intact as probable weathered rock.		Probable weathered LIMESTONE rock. Recovered as angular fine to coarse gravel and cobble sized clasts of dark blackish grey fine grained limestone with a little greyish brown silt.		
4.60		6			4.70	4.70 - 15.00 Discontinuities, medium spaced, locally closely spaced, dipping 10 to 12°, planar, smooth, with 0.5 to 10mm thick orangish brown clay smear and orange and orangish brown iron stain and powder.		Very strong,locally strong apparently massive dark blackish grey fine grained calp LIMESTONE.		
	100 (88) 65	5								
6.20		NI				6.20 - 6.30 Possible joint, subvertical dip, planar, smooth, with 0.5 to 10mm thick orangish brown clay smear, open to wide.		6.20m to 6.30m: medium strong fissile with much orangish brown clay.		
	100 (81) 56	3				7.00 - 7.35 Joint, subvertical dip, planar, smooth, with 0.5 to 2mm thick brownish grey silt smear, open.				
7.30		6						7.50m to 7.55m: orangish brown clay.		
	100 (89) 68	7								
8.80						8.70 - 8.85 Joint, subvertical dip, undulating, tight.		8.95m to 9.00m: weathering penetrating into rock mass as medium strong orangish brown.		
	100 (85) 65	7				9.20 - 9.35 Joint, subvertical dip, undulating, tight.		9.00m to 9.05m: weathering penetrating into rock mass as medium		
					(10.30)					

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing

Rotary Flush

From (m)	To (m)	Type	Return (%)
0	15.00	water	100

GENERAL REMARKS

50mm standpipe installed.
Response zone - 2.70m to 15.00m bgl.
Co-ordinates received from client representatives.

All dimensions in metres Scale 1:62.5	Client: Bord na Mona	Method/ Plant Used: Hydreq	Bit: HQ Design	Driller: DC	Logged By: EAT

IDL AGS UK DH (SPTS) BALLYDERMOT WF RC FILE 1 DEC 10 2021.GPJ IDL TP TEMPLATE.GDT 28/4/22

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
Ballydermot Wind Farm	Co Offaly	**RC-BP01**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY105	06-12-21 07-12-21		E 662,260.0 N 725,854.0

Engineer	Sheet	Rev.
FTCO	2 of 2	FINAL

RUN DETAILS						STRATA				
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Geology	Instrument/ Backfill
10.30								strong orangish brown. Very strong,locally strong apparently massive dark blackish grey fine grained calp LIMESTONE. *(continued)*		
11.30	100 (88) 53	8				10.90 - 11.00 Joint, dipping 60°, planar, smooth, with 0.5 to 1mm thick light grey silt smear and dark orangish brown iron stain and powder, open.		11.25m to 11.28m: dark grey silt.		
12.90	100 (92) 79	3 5				12.05 - 12.20 Joint, subvertical dip, planar, smooth, with 0.5 to 2mm thick orangish brown clay smear, open.		12.20m to 12.28m: orangish brown clay.		
14.40	100 (96) 83	5				12.95 - 13.10 Joint, subvertical dip, planar, smooth, with 0.5 to 2mm thick orangish brown clay smear and orangish brown iron stain and powder, open.		13.22m to 13.30m: black silt.		
06.12 15.00	100 (93) 72	7			15.00	14.75 - 14.90 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear and orangish brown iron stain and powder, open.		BH terminated at 15.00m bgl on REs instruction.		

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
06-12-21	16.30	15.00	1.00	99	63		4.80

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

50mm standpipe installed.
Response zone - 2.70m to 15.00m bgl.
Co-ordinates received from client representatives.

All dimensions in metres Scale 1:62.5	Client: Bord na Mona	Method/ Plant Used: Hydreq	Bit: HQ Design	Driller: DC	Logged By: EAT

IDL AGS UK DH (SPTS) BALLYDERMOT WF RC FILE 1 DEC 10 2021.GPJ IDL TP TEMPLATE.GDT 28/4/22

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
Ballydermot Wind Farm	Co Offaly	**RC-BP02**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY105	22-06-22 23-06-22	76.53	E 662,337.0 N 726,156.5

Engineer	Sheet	Rev.
FTCO	1 of 2	FINAL

RUN DETAILS						STRATA				
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Geology	Instrument/ Backfill
0.00	15 (-) -	NA	76.48		0.05	0.00 - 7.10 m: overburden		Grass over brown slightly sandy SILT. Sand is fine. Subrounded to subangular fine to coarse assorted light grey dark grey and grey limestone GRAVEL with a little grey silt.		
2.00										
	20 (-) -									
3.50					(7.05)					
	23 (-) -									
4.80										
	80 (-) -									
5.80										
	45 (-) -									
6.90			69.43		7.10					
	81 (73) 28	8				7.10 - 13.90 Discontinuities, closely spaced, locally medium spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 2mm thick dark grey silt smear.		Strong locally very strong thinly bedded grey and dark grey slightly bioclastic fine grained calp LIMESTONE.		
8.00										
	100 (70) 59	6								
9.30										
	100	7				9.20 - 9.25 Joint, dipping 45°, stepped, smooth, with 0.5 to 2mm thick brown silt smear, open. 9.30 - 9.40 Joint, dipping 60°,				

Drilling Progress and Water Observations								
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	

Rotary Flush			
From (m)	To (m)	Type	Return (%)
0	5.00	water	100
5	13.90	water	0

GENERAL REMARKS

50mm standpipe installed. Response zone - 1.50m to 13.90m bgl.

All dimensions in metres Scale 1:62.5	Client: Bord na Mona	Method/ Plant Used: Hydreq	Bit: HQ Design	Driller: DK	Logged By: EAT

IDL AGS UK DH (SPTS) BALLYDERMOT WF RC FILE 2 JULY 26 2022.GPJ IDL TP TEMPLATE.GDT 12/8/22

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
Ballydermot Wind Farm	Co Offaly	**RC-BP02**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY105	22-06-22 23-06-22	76.53	E 662,337.0 N 726,156.5

Engineer	Sheet	Rev.
FTCO	2 of 2	FINAL

RUN DETAILS					STRATA				
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities Detail	Main	Geology	Instrument/ Backfill
	(96) 49	6			(6.80)	stepped, smooth, with 0.5 to 1mm thick brown silt smear, open. 9.55 - 9.65 Joint, dipping 60°, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open. 10.20 - 10.35 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open.	Strong locally very strong thinly bedded grey and dark grey slightly bioclastic fine grained calp LIMESTONE. *(continued)*		
10.80									
	100 (90) 83	5							
12.40		5					12.40m to 12.41m: medium strong fissile. 12.88m to 12.92m: grey silt.		
	100 (96) 82	4							
22.06 13.90			62.63		13.90				
23.06							BH terminated at 13.90m bgl on REs instruction.		

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
22-06-22	17.00	13.90	4.00	99	63		
23-06-22	08.00	13.90	4.00	99	63		
23-06-22	10.00	13.90	4.00	99	63		

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

50mm standpipe installed. Response zone - 1.50m to 13.90m bgl.

All dimensions in metres Scale 1:62.5	Client: Bord na Mona	Method/ Plant Used: Hydreq	Bit: HQ Design	Driller: DK	Logged By: EAT

IDL AGS UK DH (SPTS) BALLYDERMOT WF RC FILE 2 JULY 26 2022.GPJ IDL TP TEMPLATE.GDT 12/8/22

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
Ballydermot Wind Farm	Co Offaly	**RC-BP03**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY105	21-06-22 21-06-22	74.65	E 662,429.2 N 726,380.3

Engineer	Sheet	Rev.
FTCO	1 of 2	FINAL

RUN DETAILS						STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION Discontinuities / Detail	DESCRIPTION Main	Geology	Instrument/ Backfill
0.00			74.55		0.10	0.00 - 0.10 m: overburden 0.10 - 1.40 Non-intact as possible weathered rock.	Grass over brown slightly sandy SILT. Sand is fine.		
	77 (18) 0	NA			(1.30)		Possible weathered rock. Recovered as subangular to angular fine to coarse gravel and cobble sized clasts of strong grey fine grained limestone with a little orangish brown silt and surficial orangish brown iron stain.		
1.80		8	73.25		1.40	1.40 - 11.00 Discontinuities, medium spaced, locally closely and very closely spaced, dipping 10 to 12°, stepped, smooth, with 0.5 to 15mm thick light orangish brown clay smear.	Strong and very strong, locally medium strong thinly bedded grey and dark grey slightly bioclastic fine and medium grained calp LIMESTONE.		
	100 (69) 35	6 NI 6				2.10 - 2.25 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open.	2.40m to 2.50m: medium strong thinly laminated fissile fine grained limestone with brown sandy gravelly clay. Sand is coarse. Gravel is subangular and angular fine of calp limestone.		
3.20		NI				2.40 - 2.50 Non-intact as thinly lamianted fissile fine grained limestone.			
	100 (77) 81	8 NI				3.10 - 3.15 Non-intact as thinly lamianted fissile fine grained limestone.	3.10m to 3.15m: medium strong thinly laminated fissile fine grained limestone with brown sandy gravelly clay. Sand is coarse. Gravel is subangular and angular fine of calp limestone.		
4.70		10				3.75 - 3.90 Non-intact as thinly lamianted fissile fine grained limestone.	3.75m to 3.90m: medium strong thinly laminated fissile fine grained limestone with brown sandy gravelly clay. Sand is coarse. Gravel is subangular and angular fine of calp limestone.		
	64 (45) 8	12				4.40 - 4.50 Joint, dipping 60°, planar, smooth, with 0.5 to 3mm thick light brown silt smear, open to moderately wide.			
6.40		NR?			(9.60)	4.70 - 5.45 Joint, subvertical dip, undulating, smooth, with 0.5 to 3mm thick light brown silt smear, open to moderately wide.	5.80m to 6.40m: Possible are of core loss as washout of fines during drilling. No record of cavity.		
	100 (40) 0	NI NI				5.80 - 6.40 Probable area of core loss. No recovery as washout of fine during drilling. No record of cavity.	6.40m to 7.00m: 10 to 20mm wide subvertical white calcitic vein.		
8.00		14				6.40 - 7.00 Joint, subvertical dip, stepped, smooth, with 0.5 to 8mm thick orangish brown clay smear, open to moderately wide.	7.00m to 8.10m: Non-intact as light orangish brown silty clay.		
	100 (89) 43					7.00 - 8.10 Non-intact as light orangish brown silty clay.			
9.50		8				8.10 - 8.25 Joint, subvertical dip, planar, smooth, with 0.5 to 1mm thick grey silt smear, open.	8.20m to 8.45m: medium strong thinly laminated brownish grey fissile.		

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing

Rotary Flush

From (m)	To (m)	Type	Return (%)
0	11.00	water	100

GENERAL REMARKS

50mm standpipe installed. Response zone - 1.50m to 11.00m bgl.

All dimensions in metres Scale 1:62.5	Client: Bord na Mona	Method/ Plant Used: Hydreq	Bit: HQ Design	Driller: DK	Logged By: EAT

IDL AGS UK DH (SPTS) BALLYDERMOT WF RC FILE 2 JULY 26 2022.GPJ IDL TP TEMPLATE.GDT 12/8/22

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
Ballydermot Wind Farm	Co Offaly	**RC-BP03**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY105	21-06-22 21-06-22	74.65	E 662,429.2 N 726,380.3

Engineer	Sheet	Rev.
FTCO	2 of 2	FINAL

RUN DETAILS					STRATA				
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Geology	Instrument/ Backfill
21.06 11.00	100 (94) 69	11	63.65		11.00			Strong and very strong, locally medium strong thinly bedded grey and dark grey slightly bioclastic fine and medium grained calp LIMESTONE. *(continued)* 10.25m to 10.30m: 20mm wide white calcitic veinlet. 10.70m to 10.80m: 5mm wide white calcitic veinlet. BH terminated at 11.00m bgl on REs instruction.		

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
21-06-22	16.00	11.00	0.50	99	63		

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

50mm standpipe installed. Response zone - 1.50m to 11.00m bgl.

All dimensions in metres Scale 1:62.5	Client: Bord na Mona	Method/ Plant Used: Hydreq	Bit: HQ Design	Driller: DK	Logged By: EAT

IDL AGS UK DH (SPTS) BALLYDERMOT WF RC FILE 2 JULY 26 2022.GPJ IDL TP TEMPLATE.GDT 12/8/22

Appendix 03
Laboratory Test Results

Project ID	2021OY105	Client	Bord na Mona	Remarks	Turnaround
Project Name	Ballydermot Wind Farm	Due Date	10/12/2021 16:22		
Schedule ID	2021OY105_2	Scheduled Date	10/12/2021 16:22		

Sample Details							Classification						Chemical / Concrete								Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Rock		Other							
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Density by Small Pyknometer	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undrained	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Consolidated Drained Triaxial Test	Consolidated Undrained Triaxial Test	Consolidated Undrained Triaxial Multis	Rock Uniaxial compression	**Point Load**							
1-A	3.00	4.00	B	1	16/11/21																																										
1-B	1.50	2.00	B	1	17/11/21																																										
1-B	2.50	3.00	B	2	17/11/21						1																																				
1-B	3.00	3.80	B	3	17/11/21																																										
1-C	0.50	1.00	B	1	17/11/21																																										
1-C	1.50	2.00	B	2	17/11/21		1	1																																						
1-C	2.50	3.00	B	3	17/11/21						1																																				
1-D	0.20	0.70	B	1	16/11/21																																										
1-D	0.70	1.50	B	2	16/11/21																																										
1-D	1.50	2.00	B	3	16/11/21		1	1																																						
1-E	3.00	3.20	B	1	15/11/21																																										
1-F	1.00	1.50	B	1	16/11/21		1	1																																						
1-F	2.00	2.50	B	2	16/11/21						1																																				
1-G	0.60	1.00	B	1	16/11/21																																										
1-G	1.00	1.50	B	2	16/11/21										1	1		1																											ALS 220121-101						
1-H	0.50	1.00	B	1	17/11/21		1	1																																						
1-H	1.50	2.00	B	2	17/11/21						1																																				
1-I	1.50	2.00	B	1	17/11/21																																										
1-I	2.20	2.70	B	2	17/11/21		1	1					1																															ALS 220121-101						
1-I	3.00	3.50	B	3	17/11/21		1	1			1																																				
1-J	0.50	1.00	B	1	16/11/21																																										
1-K	1.00	2.00	B	1	17/11/21																																										
1-K	2.50	3.00	B	2	17/11/21		1	1																																						
1-K	3.00	3.50	B	3	17/11/21						1																																				
1-L	1.50	2.00	B	1	17/11/21																																										
1-L	2.10	2.50	B	2	17/11/21																																										
1-L	2.50	3.00	B	3	17/11/21																																										
1-M	0.50	1.00	B	1	12/11/21																																										
1-M	1.00	1.50	B	2	12/11/21																																										
1-M	1.50	2.00	B	3	12/11/21		1	1			1																																				
1-N	0.50	1.00	B	1	12/11/21																																										
1-N	1.50	2.00	B	2	12/11/21																																										
1-O	0.50	1.00	B	1	15/11/21																																										
1-O	1.50	2.00	B	2	15/11/21		1	1																																						
1-O	2.00	2.50	B	3	15/11/21						1																																				
1-P	0.50	1.00	B	1	15/11/21																																										
1-P	1.00	1.50	B	2	15/11/21																																										
1-Q	0.50	1.00	B	1	18/11/21		1	1																																						

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY105	Client	Bord na Mona	Remarks	Turnaround
Project Name	Ballydermot Wind Farm	Due Date	10/12/2021 16:22		
Schedule ID	2021OY105_2	Scheduled Date	10/12/2021 16:22		

Sample Details							Classification						Chemical / Concrete								Compaction					Compressibility			Strength (Total)							Shear Stregth (Effective Stress)			Rock		Other							
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Density by Small Pyknometer	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undrained	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Consolidated Drained Triaxial Test	Consolidated Undrained Triaxial Test	Consolidated Undrained Triaxial Multis	Rock Uniaxial compression	**Point Load**							
1-Q	1.00	1.50	B	2	18/11/21						1																																				
1-R	0.50	0.90	B	1	12/11/21																																										
1-R	1.00	1.50	B	2	12/11/21																																									
1-R	1.50	2.00	D	3	12/11/21																																									
1-T	1.50	1.60	D	1	09/11/21		1	1																																						
1-T	1.60	2.20	B	2	09/11/21						1		1																														ALS 220121-101						
1-U	0.50	1.00	B	1	09/11/21																																									
1-U	1.50	2.00	B	2	09/11/21																																									
1-U	2.00	2.50	D	3	09/11/21																																									
1-V	0.50	1.00	B	1	18/11/21		1	1																																						
1-V	1.50	2.00	B	2	18/11/21						1																																				
1-W	0.50	1.00	B	1	18/11/21																																									
1-W	1.00	1.50	B	2	18/11/21																																									
1-W	2.00	2.50	B	3	18/11/21																																									
1-X	1.00	1.50	B	1	15/11/21																																									
1-X	1.50	2.00	B	2	15/11/21		1	1																																						
1-X	2.50	3.00	B	3	15/11/21						1																																				
1-Y	1.00	1.50	B	1	10/11/21										1	1		1																										ALS 220121-101						
1-Y	1.50	2.00	B	2	10/11/21		1	1																																						
1-Y	2.50	3.00	B	3	10/11/21																																									
1-Z	1.00	1.50	B	1	18/11/21										1	1		1																										ALS 220121-101						
1-Z	2.00	2.50	B	2	18/11/21		1	1																																						
1-Z	2.50	3.00	B	3	18/11/21						1																																				
2-A	2.00	2.50	B	1	19/11/21																																									
2-A	3.80	4.10	B	2	19/11/21																																									
2-B	1.50	2.00	B	1	19/11/21		1	1																																						
2-B	3.00	3.20	B	2	19/11/21						1																																				
2-C	1.00	1.40	B	1	11/11/21																																									
2-C	1.50	2.00	B	2	11/11/21																																									
2-C	2.00	2.50	D	3	11/11/21																																									
2-D	0.00	0.30	D	1	09/11/21																																									
2-D	2.00	2.50	B	2	09/11/21																																									
2-D	2.50	2.60	D	3	09/11/21																																									
2-D	2.60	3.00	B	4	09/11/21		1	1																																						
2-E	1.50	2.00	B	1	09/11/21																																									
2-E	2.40	2.50	D	2	09/11/21																																									
2-E	3.00	3.40	B	3	09/11/21																																									
2-F	0.50	1.00	B	1	10/11/21																																									
2-F	1.50	2.00	B	2	10/11/21		1				1																																			

0 = test scheduled,

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Project ID	2021OY105	Client	Bord na Mona	Remarks	Turnaround
Project Name	Ballydermot Wind Farm	Due Date	10/12/2021 16:22		
Schedule ID	2021OY105_2	Scheduled Date	10/12/2021 16:22		

Sample Details							Classification						Chemical / Concrete								Compaction					Compressibility			Strength (Total)							Shear Stregth (Effective Stress)			Rock		Other							
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Density by Small Pyknometer	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undrained	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Consolidated Drained Triaxial Test	Consolidated Undrained Triaxial Test	Consolidated Undrained Triaxial Multis	Rock Uniaxial compression	**Point Load**							
2-G	0.00	0.40	D	1	09/11/21																																										
2-G	3.00	3.50	B	2	09/11/21																																										
2-H	0.00	0.10	D	1	08/11/21																																										
2-H	0.50	1.00	B	2	08/11/21																																										
2-H	1.10	1.50	B	3	08/11/21		1	1																																							
2-H	2.00	2.50	B	4	08/11/21						1																																				
2-H	2.50	2.70	D	5	08/11/21																																										
2-I	0.00	0.40	D	1	08/11/21																																										
2-I	0.40	0.90	B	2	08/11/21																																										
2-I	1.00	1.50	B	3	08/11/21								1		1	1		1																												ALS 220121-101						
2-I	2.00	2.50	B	4	08/11/21						1																																				
2-I	2.50	2.80	D	5	08/11/21		1	1																																							
2-J	0.00	0.30	D	1	08/11/21																																										
2-J	1.50	2.00	B	2	08/11/21																																										
2-J	2.50	3.00	B	3	08/11/21						1																																				
2-J	3.00	3.20	D	4	08/11/21		1	1																																							
2-K	0.50	1.00	D	1	10/11/21																																										
2-K	1.00	1.50	B	2	10/11/21																																										
2-K	2.00	2.50	B	3	10/11/21																																										
2-L	0.50	0.90	B	1	11/11/21																																										
2-L	1.00	1.50	B	2	11/11/21		1	1																																							
2-L	2.00	2.50	B	3	11/11/21						1																																				
2-M	1.00	1.50	D	1	11/11/21																																										
2-M	1.50	2.00	B	2	11/11/21																																										
2-N	0.00	0.20	D	1	08/11/21																																										
2-N	2.50	3.00	B	2	08/11/21																																										
2-O	0.50	1.00	B	1	11/11/21																																										
2-O	1.00	1.50	B	2	11/11/21						1																																				
2-O	2.00	2.40	D	3	11/11/21		1	1																																							
2-P	0.00	0.50	D	1	10/11/21																																										
2-P	1.00	1.50	B	2	10/11/21																																										
2-P	1.50	1.80	D	3	10/11/21																																										
2-Q	1.00	1.50	D	1	10/11/21																																										
2-Q	2.50	3.00	B	2	10/11/21																																										
2-Q	3.60	3.70	B	3	10/11/21																																										
2-R	1.00	1.50	D	1	11/11/21																																										
2-R	3.00	3.50	B	2	11/11/21																																										
2-S	1.50	2.00	B	1	19/11/21																																										
2-S	2.40	2.60	B	2	19/11/21		1	1			1																																				

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Project ID	2021OY105	Client	Bord na Mona	Remarks	Turnaround
Project Name	Ballydermot Wind Farm	Due Date	10/12/2021 16:22		
Schedule ID	2021OY105_2	Scheduled Date	10/12/2021 16:22		

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Rock		Other								
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Density by Small Pyknometer	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undrained	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Consolidated Drained Triaxial Test	Consolidated Undrained Triaxial Test	Consolidated Undrained Triaxial Multis	Rock Uniaxial compression	**Point Load**							
2-T	0.00	0.30	D	1	08/11/21																																											
2-T	0.30	0.90	B	2	08/11/21																																											
2-T	1.00	1.50	B	3	08/11/21																																											
2-T	2.00	2.50	B	4	08/11/21						1																																					
2-T	3.00	3.20	D	5	08/11/21		1	1																																							
2-U	0.50	1.00	B	1	19/11/21																																											
2-U	1.50	2.00	B	2	19/11/21																																											
BP01	0.00	0.40	D	1	22/11/21	AV72																																										
BP01	0.40	0.70	B	2	22/11/21	AV72																																										
BP02	0.00	0.40	D	1	22/11/21	AV72																																										
BP02	0.50	1.00	B	2	22/11/21	AV72	1				1																																						
BP03	0.20	0.50	B	1	22/11/21	AV72																																										
BP04	0.10	0.40	D	1	22/11/21	AV72																																										
BP04	1.00	1.50	B	2	22/11/21	AV72	1				1																																						
BP05	0.20	0.45	D	1	22/11/21	AV72																																										
BP05	1.00	1.50	B	2	22/11/21	AV72	1				1																																						
BP06	0.20	0.70	D	1	22/11/21	AV72																																										
BP06	0.70	1.00	B	2	22/11/21	AV72	1				1																																						
BP07	0.30	0.50	D	1	22/11/21	AV72																																										
BP07	1.20	1.70	B	2	22/11/21	AV72	1				1																																						
BP07	2.30	2.50	B	3	22/11/21	AV72	1				1																																						
RC-BP01	0.00	1.00	C		06/12/21																																											
RC-BP01	1.00	2.70	C		06/12/21																																											
RC-BP01	2.70	3.50	C		06/12/21																																									**1**					
RC-BP01	3.50	4.60	C		06/12/21																																									**1**					
RC-BP01	4.60	6.20	C		06/12/21																																									**1**					
RC-BP01	6.20	7.30	C		06/12/21																																									**1**					
RC-BP01	7.30	8.80	C		06/12/21																																									**1**					
RC-BP01	8.80	10.30	C		06/12/21																																									**1**					
RC-BP01	10.30	11.30	C		06/12/21																																													
RC-BP01	11.30	12.90	C		06/12/21																																													
RC-BP01	12.90	14.40	C		06/12/21																																													
RC-BP01	14.40	15.00	C		06/12/21																																													

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Project ID	2021OY105	Client	Bord na Mona	Remarks	Turnaround
Project Name	Ballydermot Wind Farm	Due Date	10/12/2021 16:22		
Schedule ID	2021OY105_2	Scheduled Date	10/12/2021 16:22		

Sample Details							Classification						Chemical / Concrete								Compaction					Compressibility			Strength (Total)							Shear Stregth (Effective Stress)			Rock		Other							
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Density by Small Pyknometer	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating Hammer	Moisture Condition Value	Moisture Condition Relationship	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undrained	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Consolidated Drained Triaxial Test	Consolidated Undrained Triaxial Test	Consolidated Undrained Triaxial Multis	Rock Uniaxial compression	**Point Load**							
RC-BP02	0.00	2.00	C		22/06/22																																										
RC-BP02	2.00	3.50	C		22/06/22																																										
RC-BP02	3.50	4.80	C		22/06/22																																										
RC-BP02	4.80	5.80	C		22/06/22																																										
RC-BP02	5.80	6.90	C		22/06/22																																										
RC-BP02	6.90	8.00	C		22/06/22																																									**1**					
RC-BP02	8.00	9.30	C		22/06/22																																									**1**					
RC-BP02	9.30	10.80	C		22/06/22																																									**1**					
RC-BP02	10.80	12.40	C		22/06/22																																									**2**					
RC-BP02	12.40	13.90	C		22/06/22																																									**1**					
RC-BP03	0.00	1.80	C		21/06/22																																														
RC-BP03	1.80	3.20	C		21/06/22																																									**1**					
RC-BP03	3.20	4.70	C		21/06/22																																									**1**					
RC-BP03	4.70	6.40	C		21/06/22																																									**1**					
RC-BP03	6.40	8.00	C		21/06/22																																									**1**					
RC-BP03	8.00	9.50	C		21/06/22																																									**1**					
RC-BP03	9.50	11.00	C		21/06/22																																									**1**					
Tests completed. Reported 12.08.22							31	24	0	0	28	0	3	0	4	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0						

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Summary of Classification Test Results

Project No.	Project Name
2021OY105	Ballydermot Wind Farm

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
1-C	2	1.50	2.00	B		Grey slightly sandy slightly gravelly SILT.			16.0	53	21	18	3		ML
1-D	3	1.50	2.00	B		Grey slightly sandy gravelly SILT.			14.0	70	21	15	6		CL
1-F	1	1.00	1.50	B		Grey slightly gravelly slightly sandy SILT.			14.0	64	23	16	7		CL
1-H	1	0.50	1.00	B		Grey slightly gravelly slightly sandy SILT.			14.0	77	22	15	7		CL
1-I	2	2.20	2.70	B		Grey SILT.			106.0	97	95	79	16		ME
1-I	3	3.00	3.50	B		Grey slightly sandy SILT.			21.0	98	28	17	11		CL
1-K	2	2.50	3.00	B		Grey SILT.			42.0	99	29	27	2		ML
1-M	3	1.50	2.00	B		Grey slightly gravelly sandy SILT.			13.0	64					NP
1-O	2	1.50	2.00	B		Grey SILT.			20.0	69					NP
1-Q	1	0.50	1.00	B		Grey slightly gravelly slightly sandy SILT.			9.8	50	26	16	10		CL
1-T	1	1.50	1.60	D		Orangeish-grey slightly sandy SILT / MARL.			188.0		174	110	64		MEO
1-V	1	0.50	1.00	B		Dark grey slightly gravelly sandy SILT.			11.0	35	28	23	5		ML
1-X	2	1.50	2.00	B		Grey slightly gravelly slightly sandy SILT.			15.0	71					NP
1-Y	2	1.50	2.00	B		Grey SILT.			38.0	95	39	24	15		CI
1-Z	2	2.00	2.50	B		Grey slightly sandy gravelly SILT.			14.0	60	19	14	5		ML
2-B	1	1.50	2.00	B		Black PEAT.			665.0	100	823	729	94		MEO
2-D	4	2.60	3.00	B		Grey slightly sandy SILT.			20.0	99	27	21	6		ML
2-F	2	1.50	2.00	B		Grey very silty very sandy medium and fine GRAVEL.			9.9	33					
2-H	3	1.10	1.50	B		Grey slightly gravelly slightly sandy SILT.			14.0	52	22	15	7		CL
2-I	5	2.50	2.80	D		Grey sandy SILT. Sand is fine.			19.0		29	16	13		CL
2-J	4	3.00	3.20	D		Grey sandy SILT. Sand is fine.			14.0		17	11	6		ML
2-L	2	1.00	1.50	B		Light grey slightly sandy gravelly SILT.			9.5	49	20	13	7		CL
2-O	3	2.00	2.40	D		Light grey slightly sandy slightly gravelly SILT.			11.0		19	14	5		ML
2-S	2	2.40	2.60	B		Grey slightly gravelly slightly sandy SILT.			16.0	95	21	16	5		ML
2-T	5	3.00	3.20	D		Grey slightly gravelly slightly sandy SILT.			14.0		21	18	3		ML
BP02	2	0.50	1.00	B		Brown slightly gravelly slightly sandy SILT.			13.0	65					

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed	Approved By	Table
16/02/2022	DCD	1
QC From No: R1		sheet 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.	Project Name
2021OY105	Ballydermot Wind Farm

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
BP04	2	1.00	1.50	B		Light brown slightly gravelly slightly sandy SILT.			12.0	70					
BP05	2	1.00	1.50	B		Brown silty very sandy medium GRAVEL.			6.6	28					
BP06	2	0.70	1.00	B		Brown slightly sandy gravelly SILT.			12.0	56					
BP07	2	1.20	1.70	B		Brown gravelly slightly sandy SILT.			11.0	71					
BP07	3	2.30	2.50	B		Brown slightly gravelly slightly sandy SILT.			9.6	76					

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

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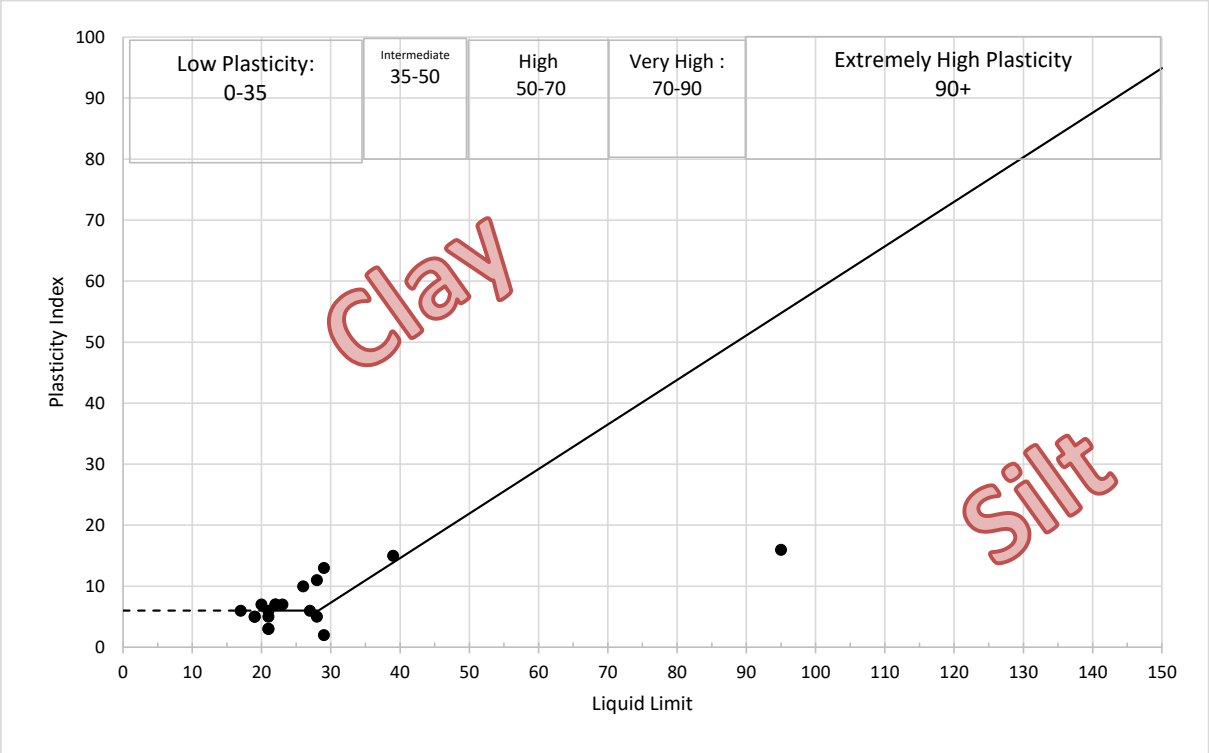
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Table 1 sheet 2

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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

	Plasticity (A-Line) Chart	Project Number
Project Name:	**Ballydermot Wind Farm**	
Location:		2021OY105



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

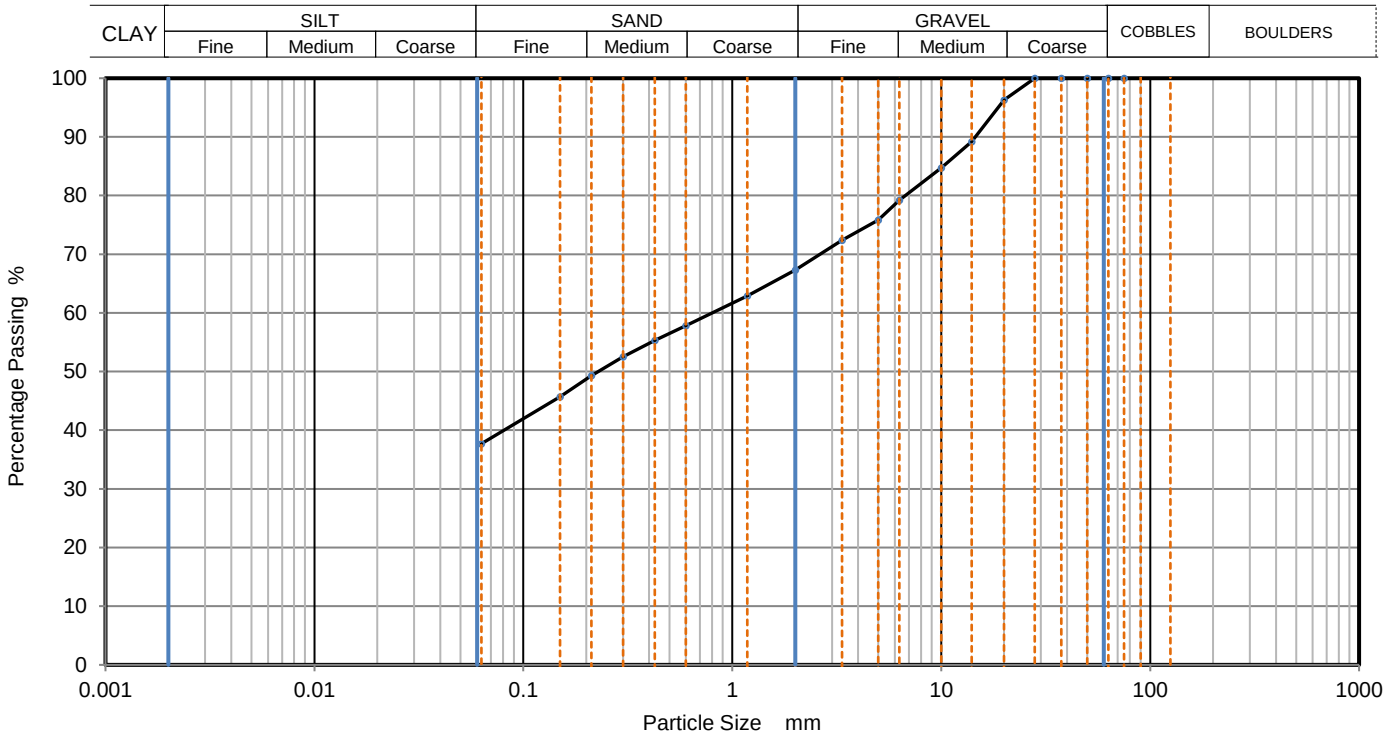
The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

DCD

QC Form: R1

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	1-B
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly sandy slightly gravelly SILT.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021121078



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	89		
10	85		
6.3	79		
5	76		
3.35	72		
2	67		
1.18	63		
0.6	58		
0.425	55		
0.3	53		
0.212	49		
0.15	46		
0.063	38		

Dry Mass of sample, g	563

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	30
Fines <0.063mm	38

Grading Analysis		
D100	mm	
D60	mm	0.806
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

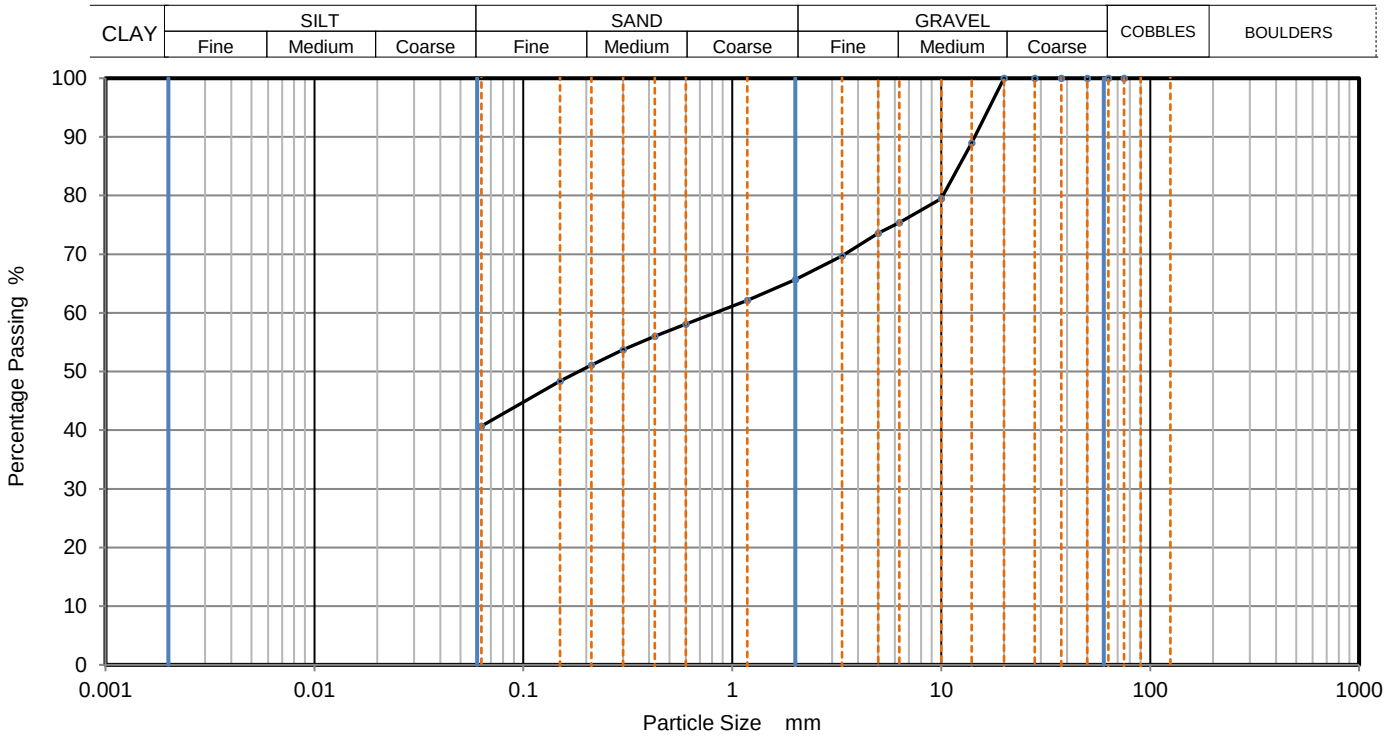
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	1-C
Site Name	Ballydermot Wind Farm			Sample No.	3
Soil Description	Grey slightly sandy gravelly SILT.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021121082



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	89		
10	80		
6.3	75		
5	74		
3.35	70		
2	66		
1.18	62		
0.6	58		
0.425	56		
0.3	54		
0.212	51		
0.15	48		
0.063	41		

Dry Mass of sample, g	502

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	25
Fines <0.063mm	41

Grading Analysis		
D100	mm	
D60	mm	0.823
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

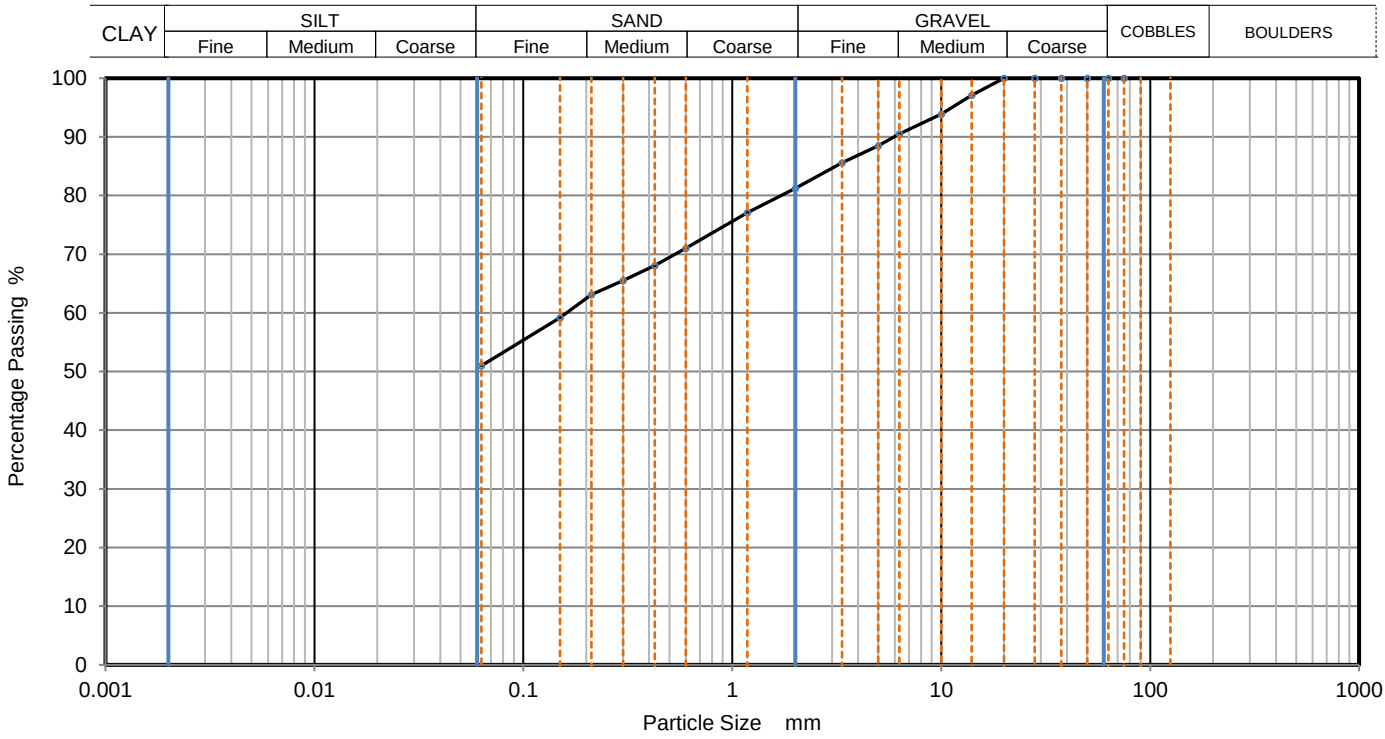
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	1-F
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Light grey slightly gravelly slightly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021121088



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	94		
6.3	91		
5	89		
3.35	86		
2	81		
1.18	77		
0.6	71		
0.425	68		
0.3	66		
0.212	63		
0.15	59		
0.063	51		

Dry Mass of sample, g	467

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	30
Fines <0.063mm	51

Grading Analysis		
D100	mm	
D60	mm	0.161
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

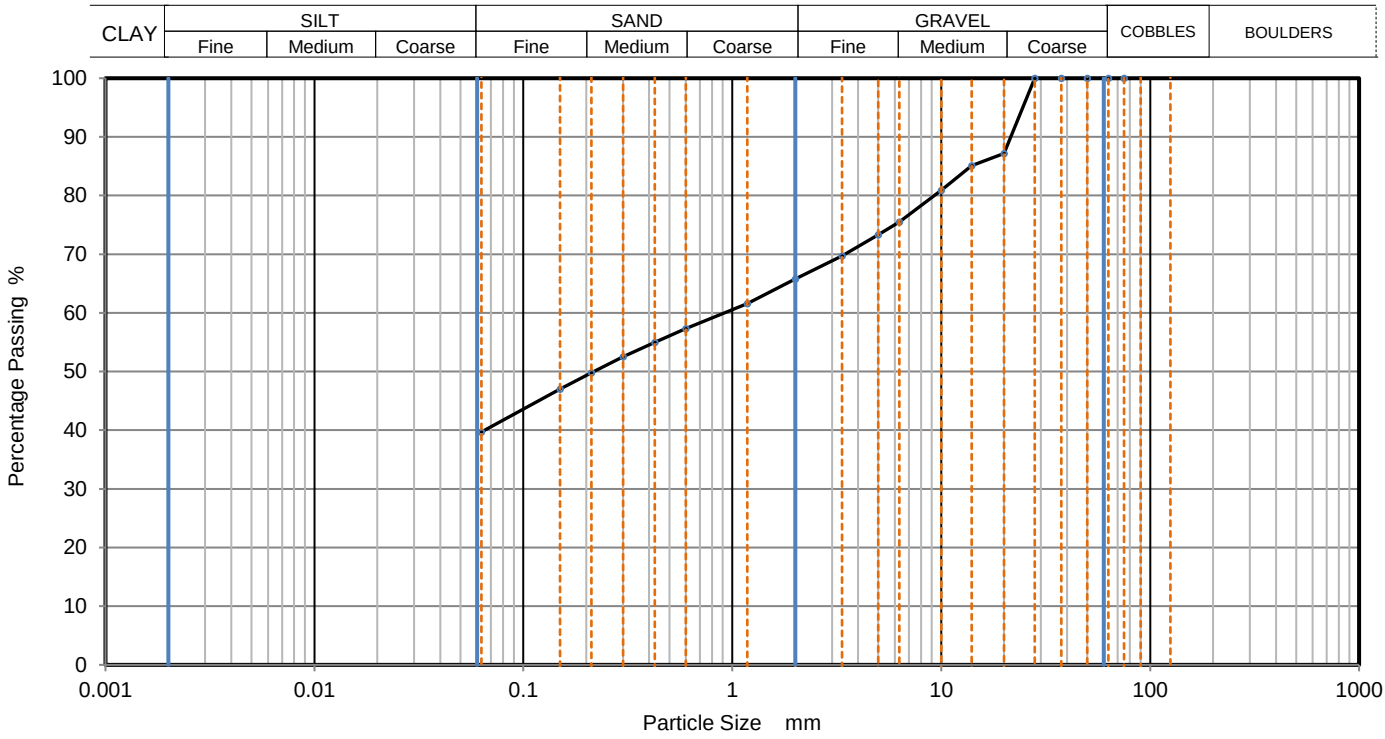
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	1-H
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly sandy gravelly SILT.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021121092



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	87		
14	85		
10	81		
6.3	76		
5	73		
3.35	70		
2	66		
1.18	62		
0.6	57		
0.425	55		
0.3	53		
0.212	50		
0.15	47		
0.063	40		

Dry Mass of sample, g	602

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	26
Fines <0.063mm	40

Grading Analysis		
D100	mm	
D60	mm	0.914
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

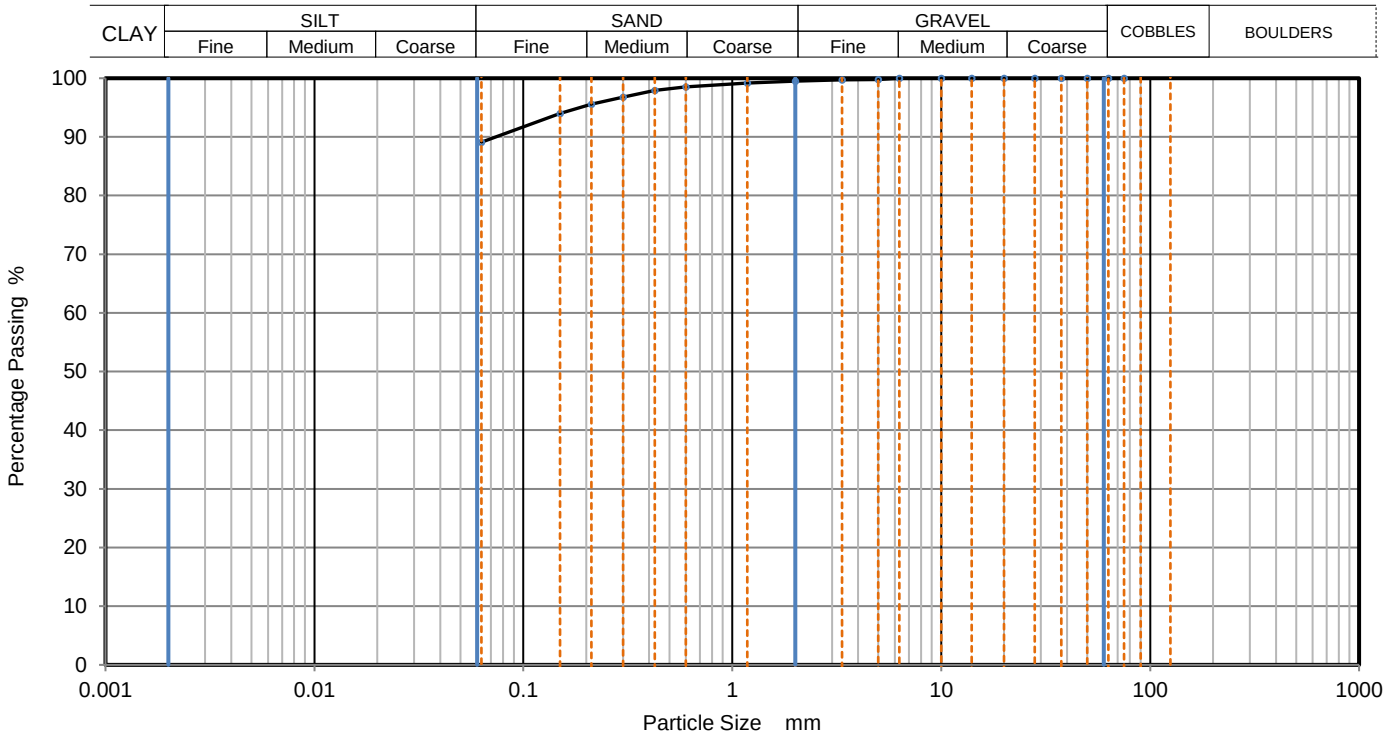
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	1-I
Site Name	Ballydermot Wind Farm			Sample No.	3
Soil Description	Grey slightly sandy SILT.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021121095



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	98		
0.3	97		
0.212	96		
0.15	94		
0.063	89		

Dry Mass of sample, g	360

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	10
Fines <0.063mm	89

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

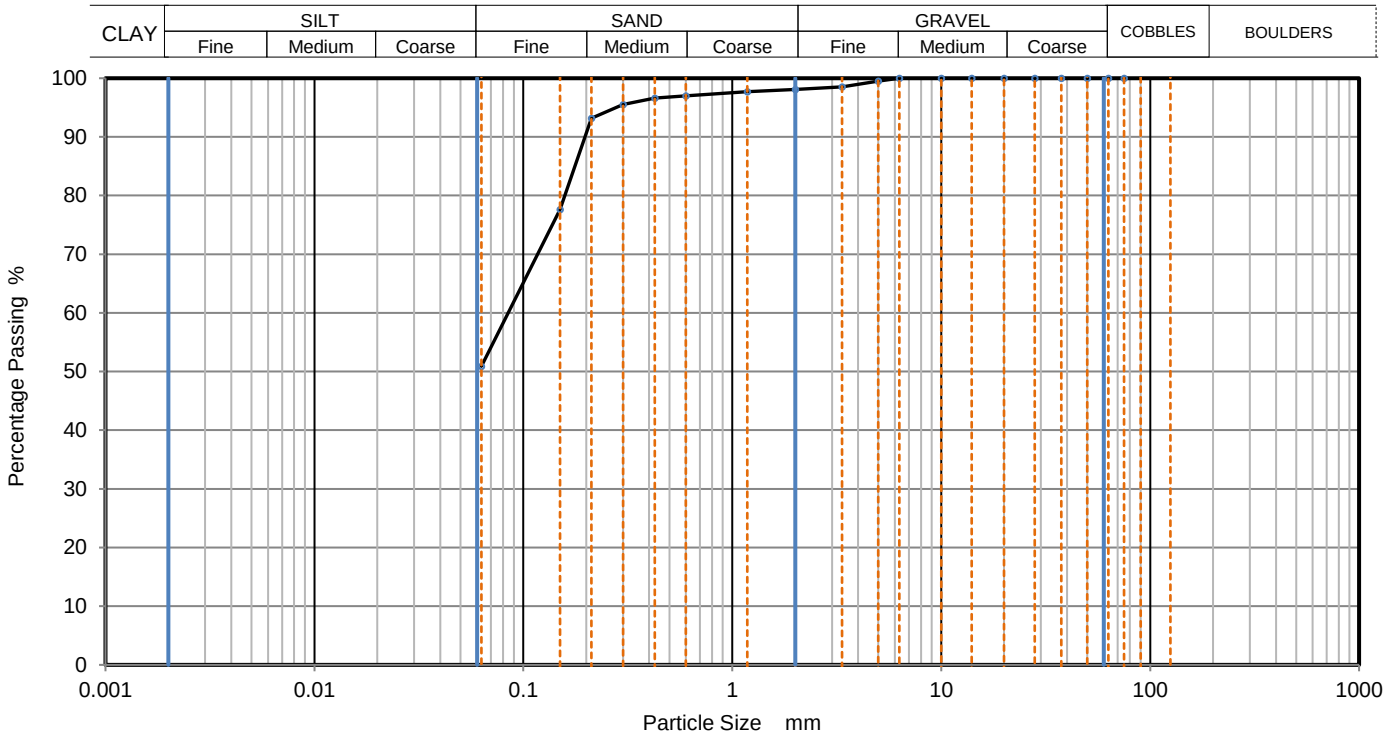
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IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	1-K
Site Name	Ballydermot Wind Farm			Sample No.	3
Soil Description	Grey sandy SILT. Sand is fine.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021121099



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	98		
1.18	98		
0.6	97		
0.425	97		
0.3	96		
0.212	93		
0.15	78		
0.063	51		

Dry Mass of sample, g	230

Sample Proportions	% dry mass
Very coarse	0
Gravel	2
Sand	47
Fines <0.063mm	51

Grading Analysis		
D100	mm	
D60	mm	0.0847
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

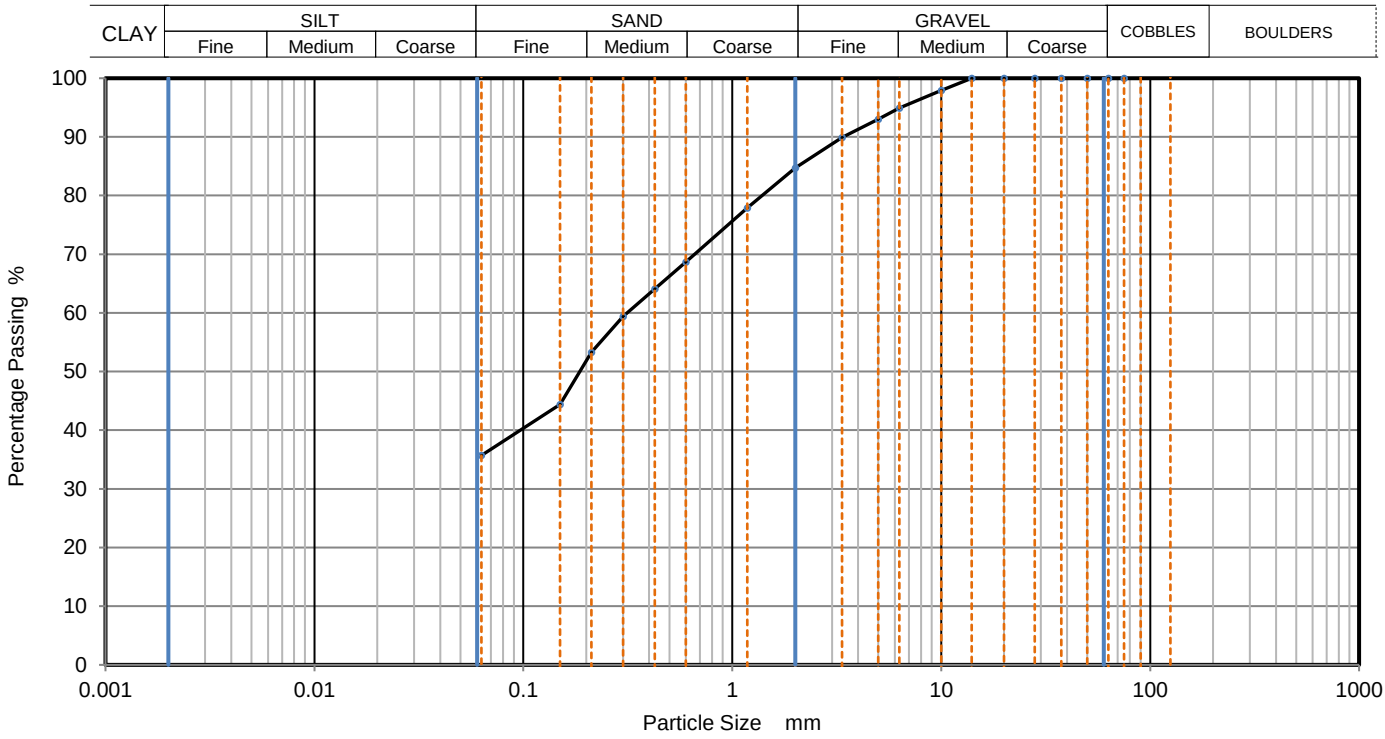
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	1-M
Site Name	Ballydermot Wind Farm			Sample No.	3
Soil Description	Grey slightly gravelly sandy SILT.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210105



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	98		
6.3	95		
5	93		
3.35	90		
2	85		
1.18	78		
0.6	69		
0.425	64		
0.3	59		
0.212	53		
0.15	44		
0.063	36		

Dry Mass of sample, g	357

Sample Proportions	% dry mass
Very coarse	0
Gravel	15
Sand	49
Fines <0.063mm	36

Grading Analysis		
D100	mm	
D60	mm	0.313
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

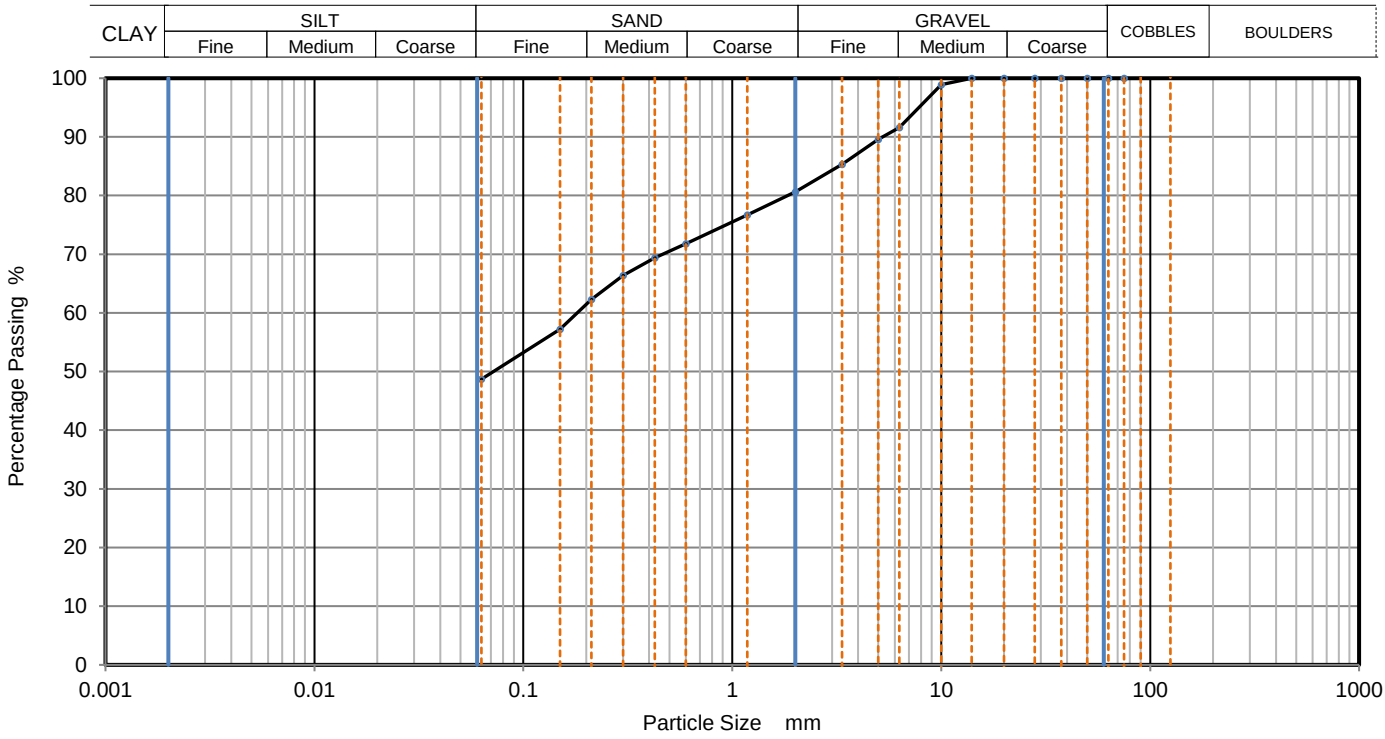
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	1-O
Site Name	Ballydermot Wind Farm			Sample No.	3
Soil Description	Light grey slightly sandy gravelly SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210110



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	92		
5	90		
3.35	85		
2	81		
1.18	77		
0.6	72		
0.425	69		
0.3	66		
0.212	62		
0.15	57		
0.063	49		

Dry Mass of sample, g	444

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	32
Fines <0.063mm	49

Grading Analysis		
D100	mm	
D60	mm	0.181
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

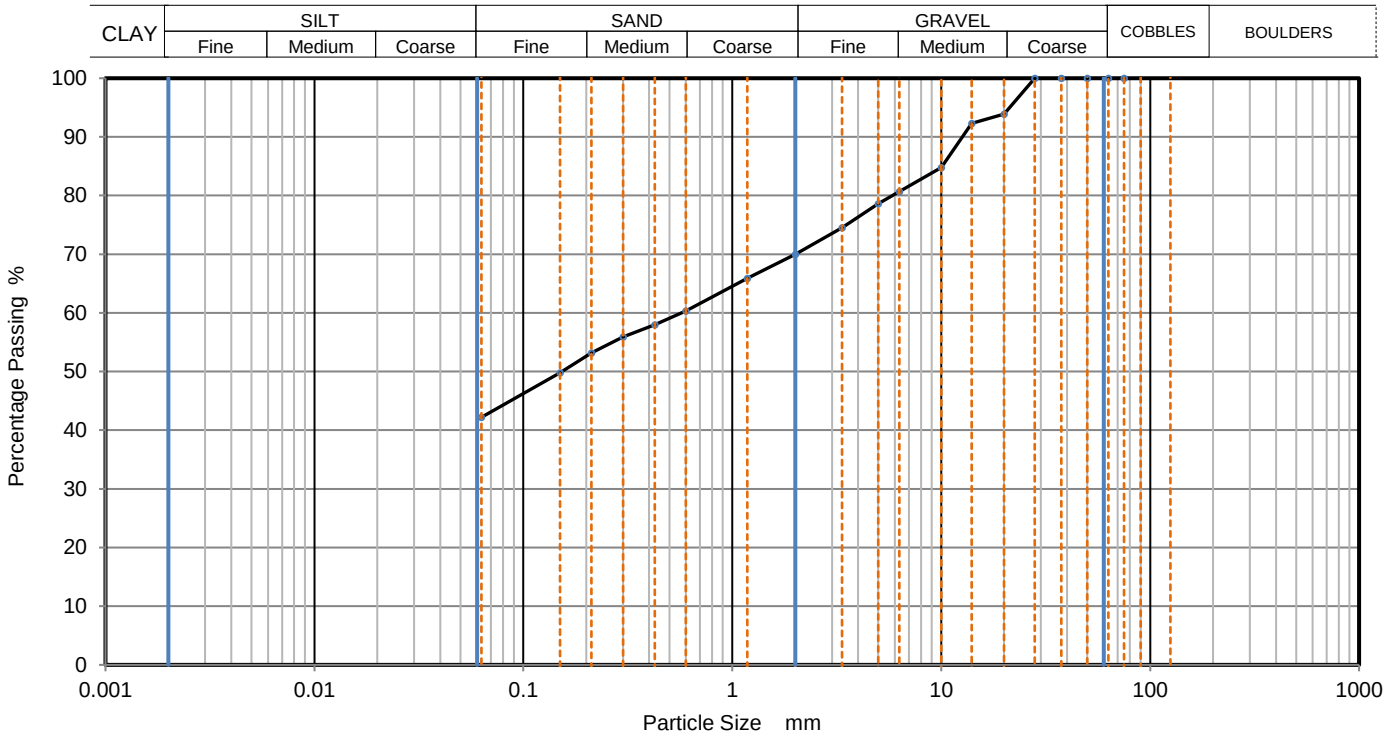
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	1-Q
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Light grey slightly sandy slightly gravelly SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210114



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	92		
10	85		
6.3	81		
5	79		
3.35	75		
2	70		
1.18	66		
0.6	60		
0.425	58		
0.3	56		
0.212	53		
0.15	50		
0.063	42		

Dry Mass of sample, g	637

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	28
Fines <0.063mm	42

Grading Analysis		
D100	mm	
D60	mm	0.57
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

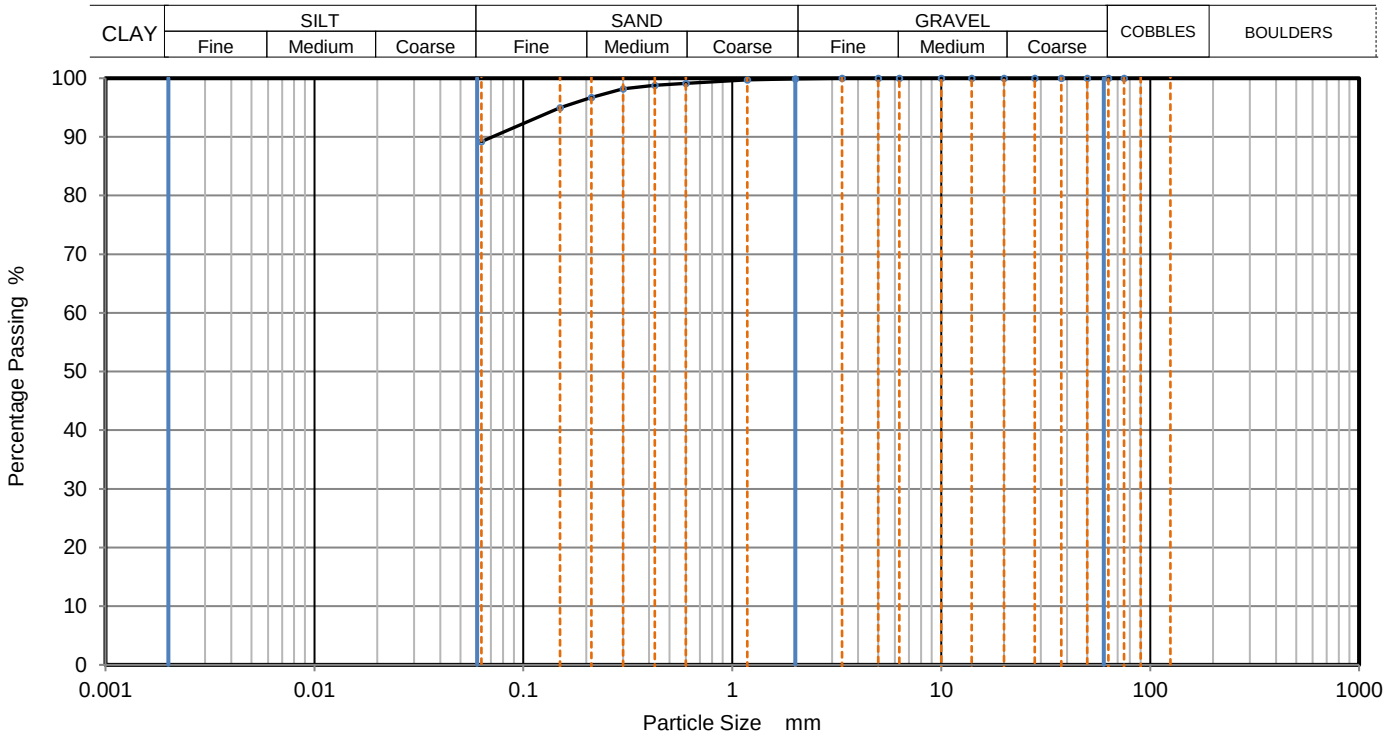
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	1-T
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Orangeish-grey slightly sandy SILT / MARL.			Depth, m	1.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210119



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	98		
0.212	97		
0.15	95		
0.063	89		

Dry Mass of sample, g	90

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	11
Fines <0.063mm	89

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

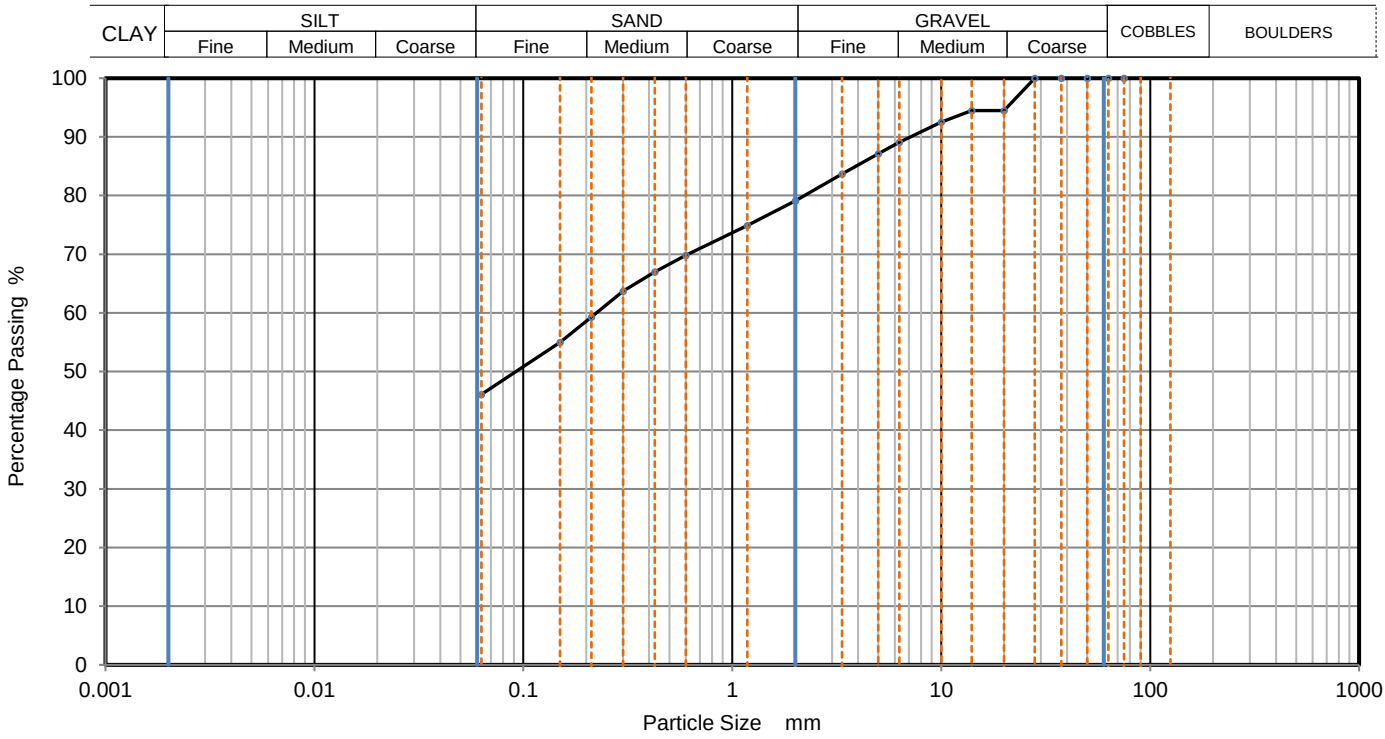
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	1-V
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210124



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	95		
10	93		
6.3	89		
5	87		
3.35	84		
2	79		
1.18	75		
0.6	70		
0.425	67		
0.3	64		
0.212	59		
0.15	55		
0.063	46		

Dry Mass of sample, g	518

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	33
Fines <0.063mm	46

Grading Analysis		
D100	mm	
D60	mm	0.224
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

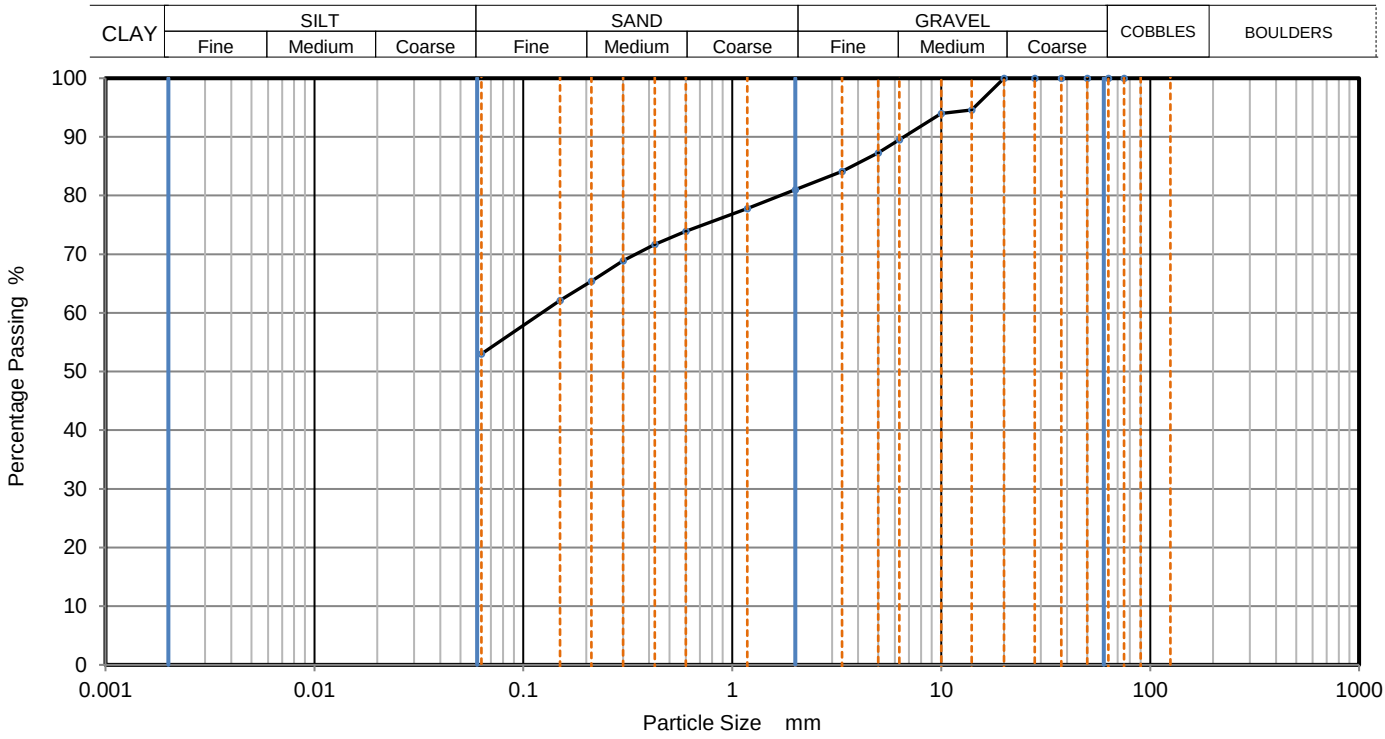
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	1-X
Site Name	Ballydermot Wind Farm			Sample No.	3
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210130



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	95		
10	94		
6.3	90		
5	87		
3.35	84		
2	81		
1.18	78		
0.6	74		
0.425	72		
0.3	69		
0.212	65		
0.15	62		
0.063	53		

Dry Mass of sample, g	546

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	28
Fines <0.063mm	53

Grading Analysis		
D100	mm	
D60	mm	0.123
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

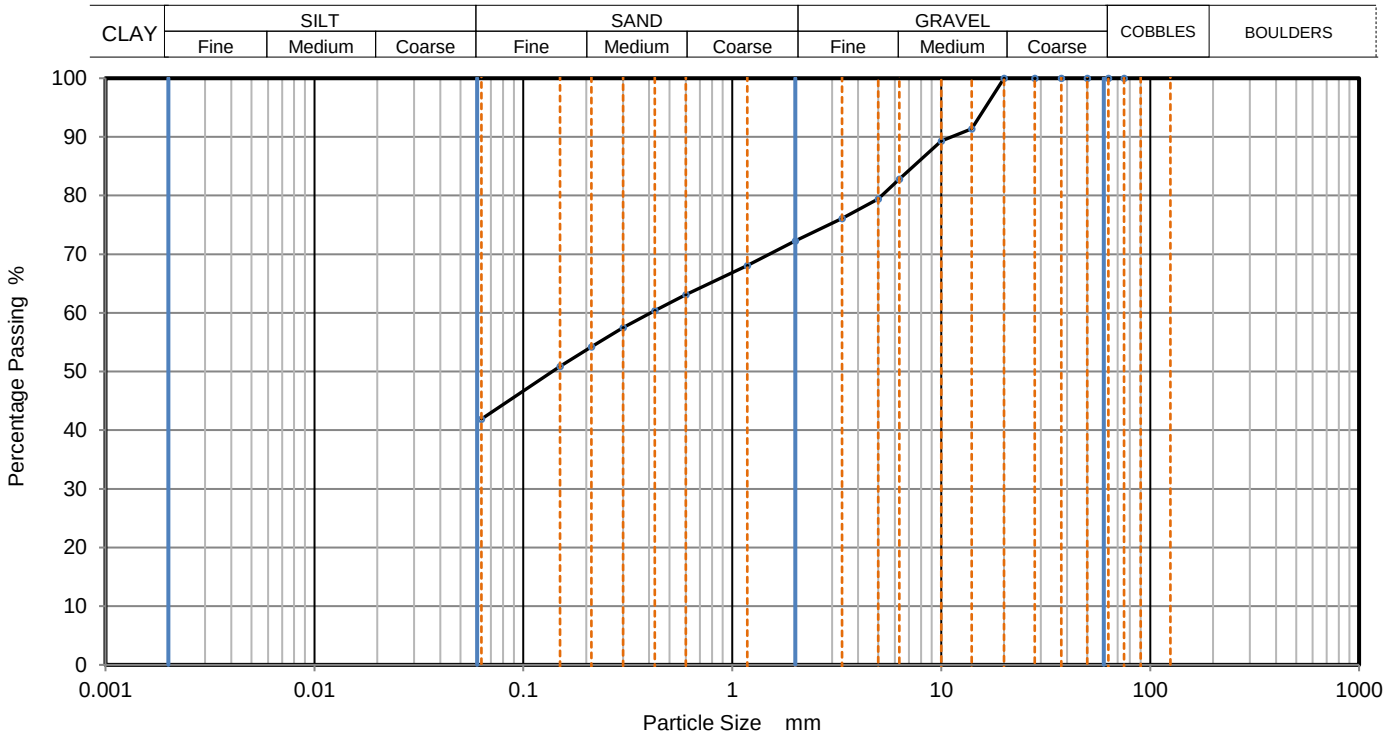
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	1-Z
Site Name	Ballydermot Wind Farm			Sample No.	3
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210136



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	91		
10	89		
6.3	83		
5	79		
3.35	76		
2	72		
1.18	68		
0.6	63		
0.425	60		
0.3	58		
0.212	54		
0.15	51		
0.063	42		

Dry Mass of sample, g	383

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	30
Fines <0.063mm	42

Grading Analysis		
D100	mm	
D60	mm	0.403
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

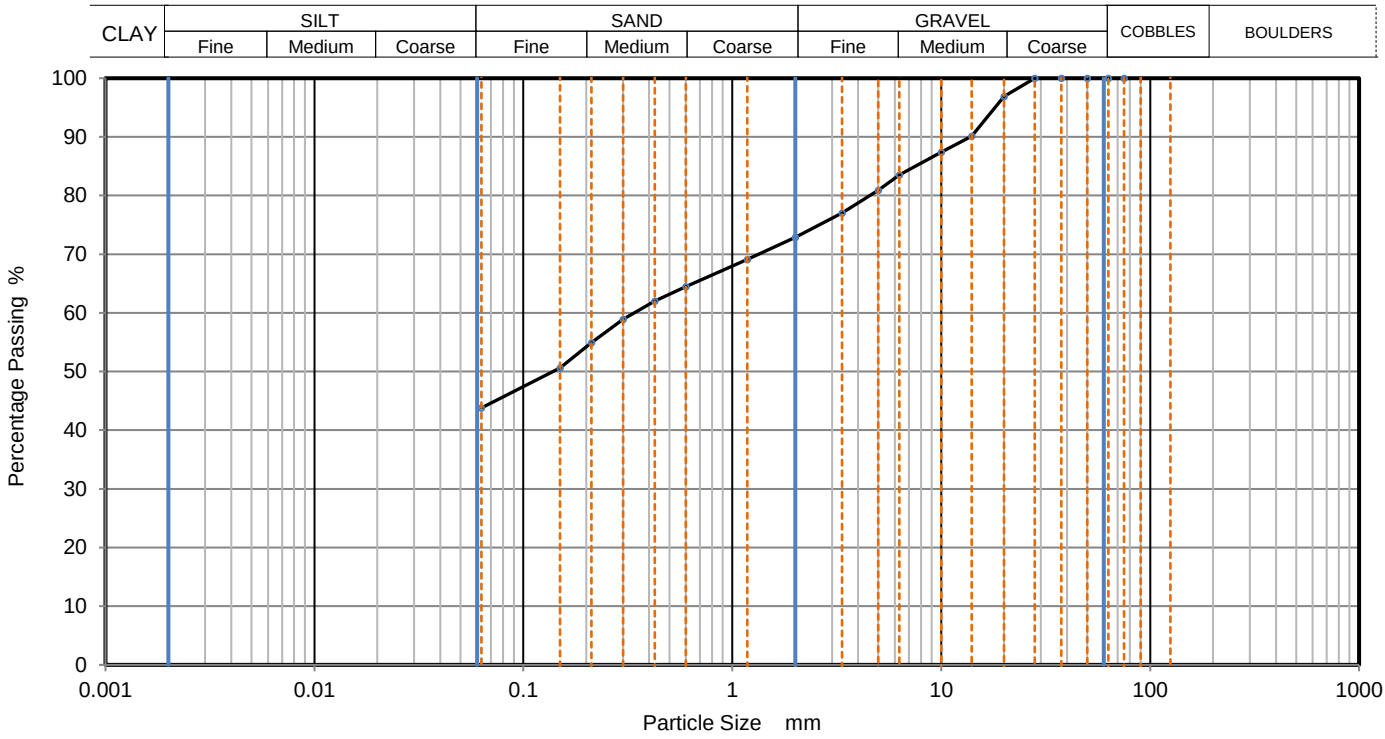
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	2-B
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210140



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	90		
10	87		
6.3	84		
5	81		
3.35	77		
2	73		
1.18	69		
0.6	65		
0.425	62		
0.3	59		
0.212	55		
0.15	51		
0.063	44		

Dry Mass of sample, g	553

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	29
Fines <0.063mm	44

Grading Analysis		
D100	mm	
D60	mm	0.339
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

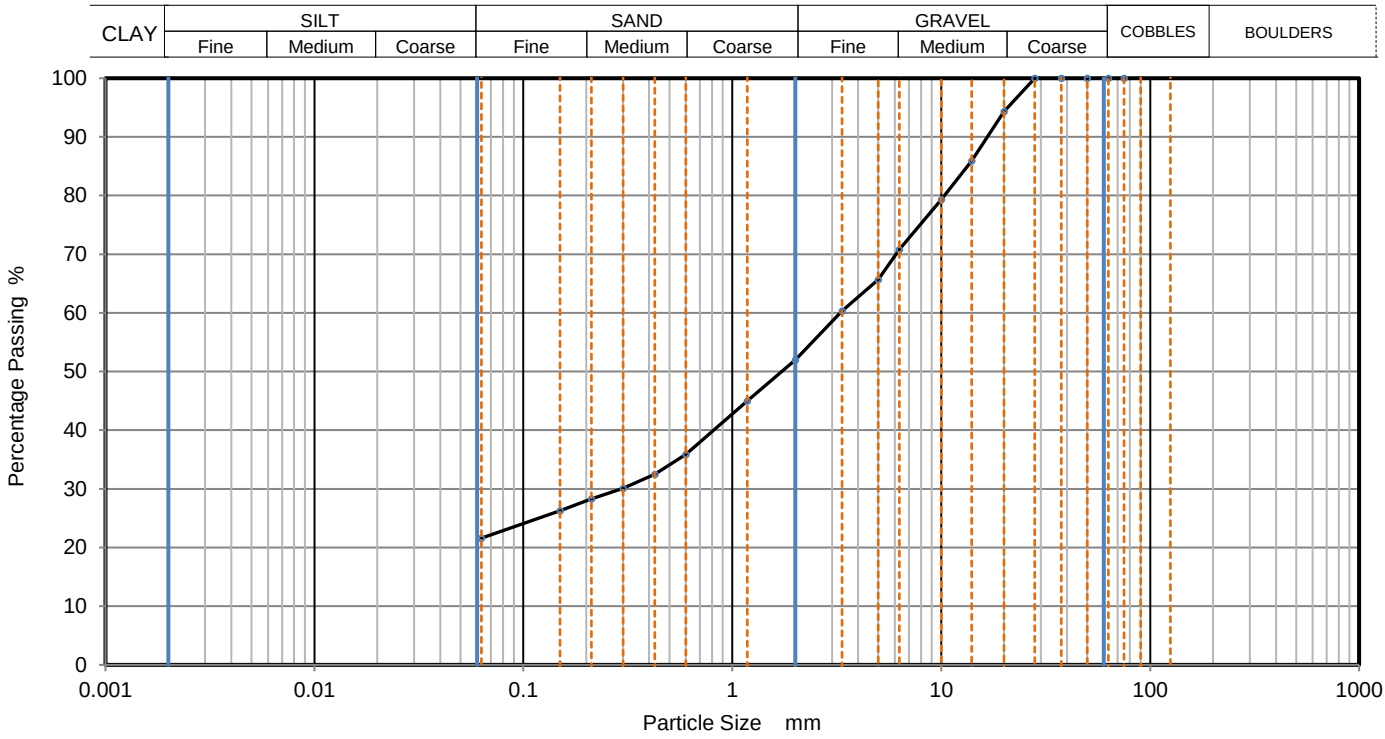
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	2-F
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey very silty very sandy medium and fine GRAVEL.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210152



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	86		
10	79		
6.3	71		
5	66		
3.35	60		
2	52		
1.18	45		
0.6	36		
0.425	33		
0.3	30		
0.212	28		
0.15	26		
0.063	22		

Dry Mass of sample, g	471

Sample Proportions	% dry mass
Very coarse	0
Gravel	48
Sand	30
Fines <0.063mm	22

Grading Analysis		
D100	mm	
D60	mm	3.3
D30	mm	0.293
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

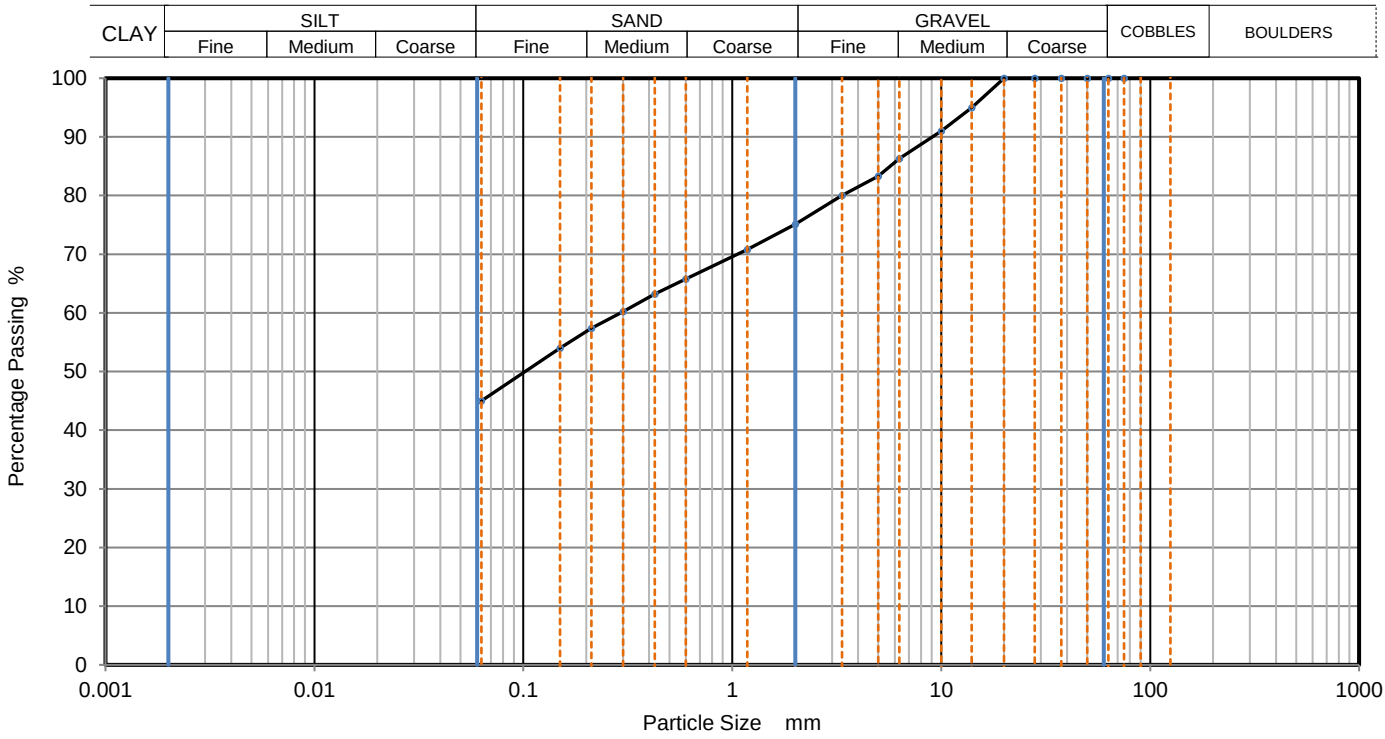
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	2-H
Site Name	Ballydermot Wind Farm			Sample No.	4
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210158



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	95		
10	91		
6.3	86		
5	83		
3.35	80		
2	75		
1.18	71		
0.6	66		
0.425	63		
0.3	60		
0.212	57		
0.15	54		
0.063	45		

Dry Mass of sample, g	502

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	30
Fines <0.063mm	45

Grading Analysis		
D100	mm	
D60	mm	0.293
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

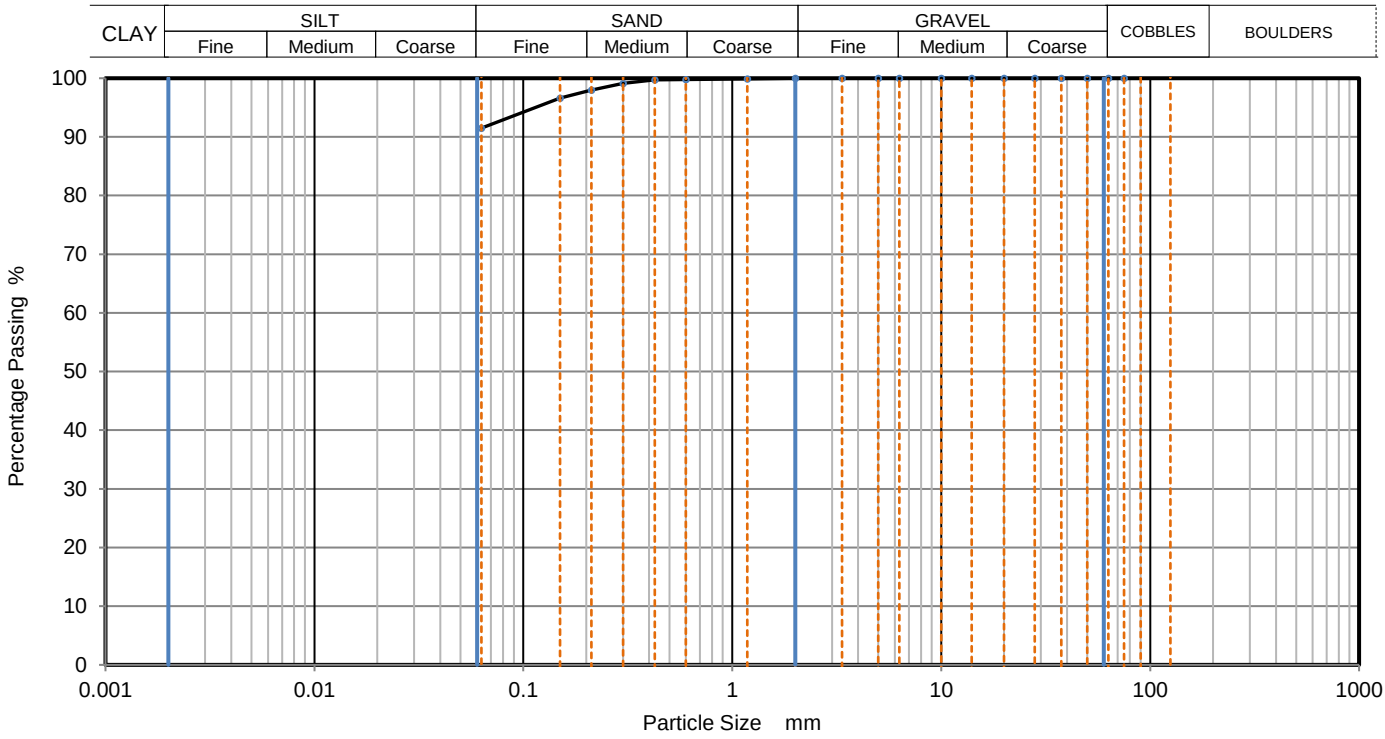
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY105**
				Borehole/Pit No.	2-I
Site Name	Ballydermot Wind Farm			Sample No.	4
Soil Description	Grey slightly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210163



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	99		
0.212	98		
0.15	97		
0.063	92		

Dry Mass of sample, g	380

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	9
Fines <0.063mm	91

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

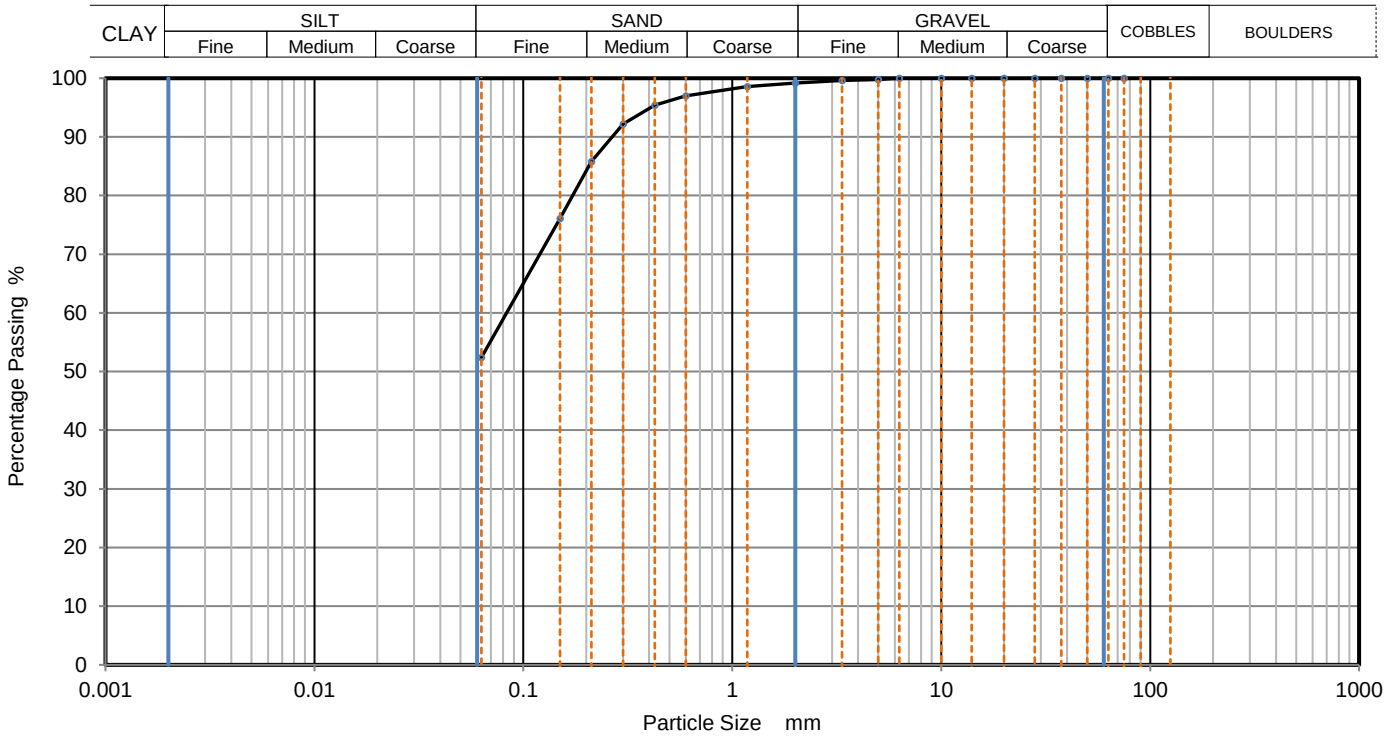
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	2-J
Site Name	Ballydermot Wind Farm			Sample No.	3
Soil Description	Grey sandy SILT. Sand is fine.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210167



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	97		
0.425	95		
0.3	92		
0.212	86		
0.15	76		
0.063	52		

Dry Mass of sample, g	491

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	47
Fines <0.063mm	52

Grading Analysis		
D100	mm	
D60	mm	0.0832
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

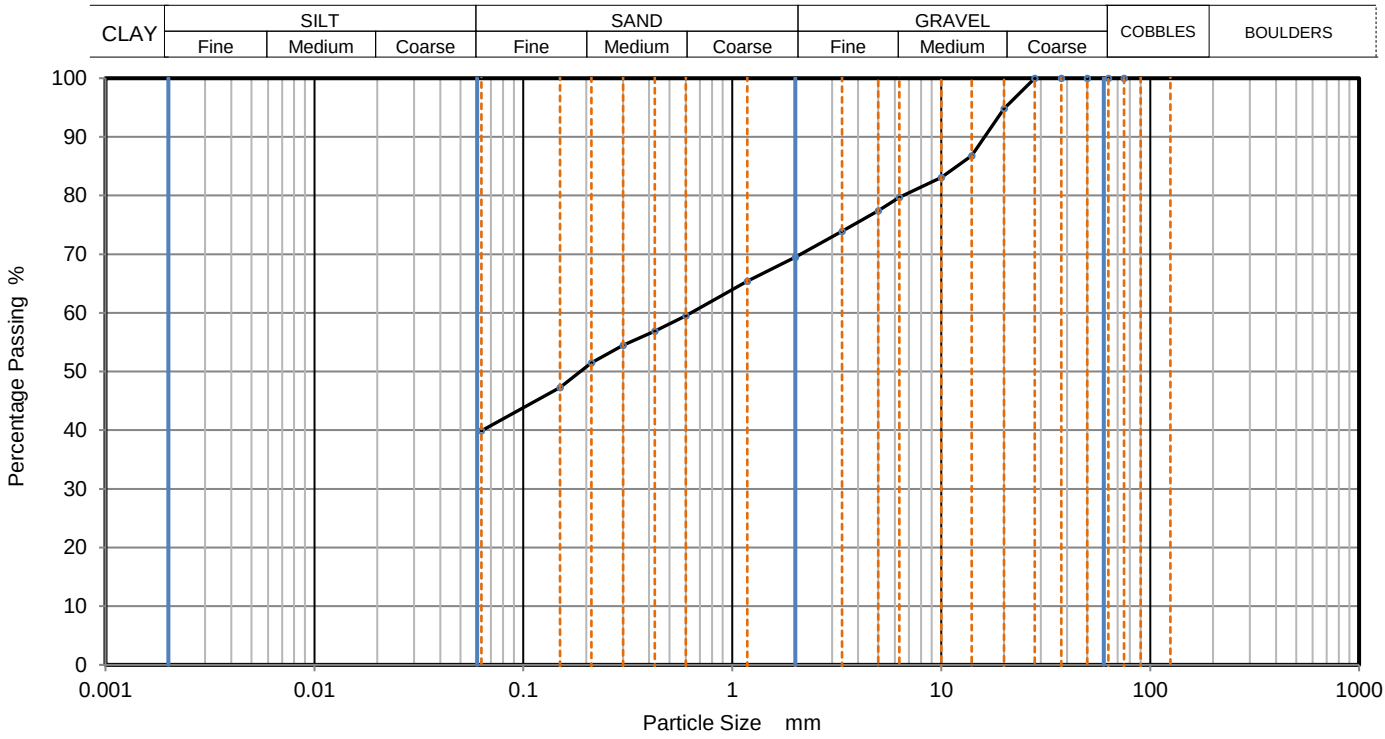
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	2-L
Site Name	Ballydermot Wind Farm			Sample No.	3
Soil Description	Light grey slightly gravelly slightly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210174



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	87		
10	83		
6.3	80		
5	77		
3.35	74		
2	70		
1.18	65		
0.6	60		
0.425	57		
0.3	55		
0.212	52		
0.15	47		
0.063	40		

Dry Mass of sample, g	506

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	30
Fines <0.063mm	40

Grading Analysis		
D100	mm	
D60	mm	0.638
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

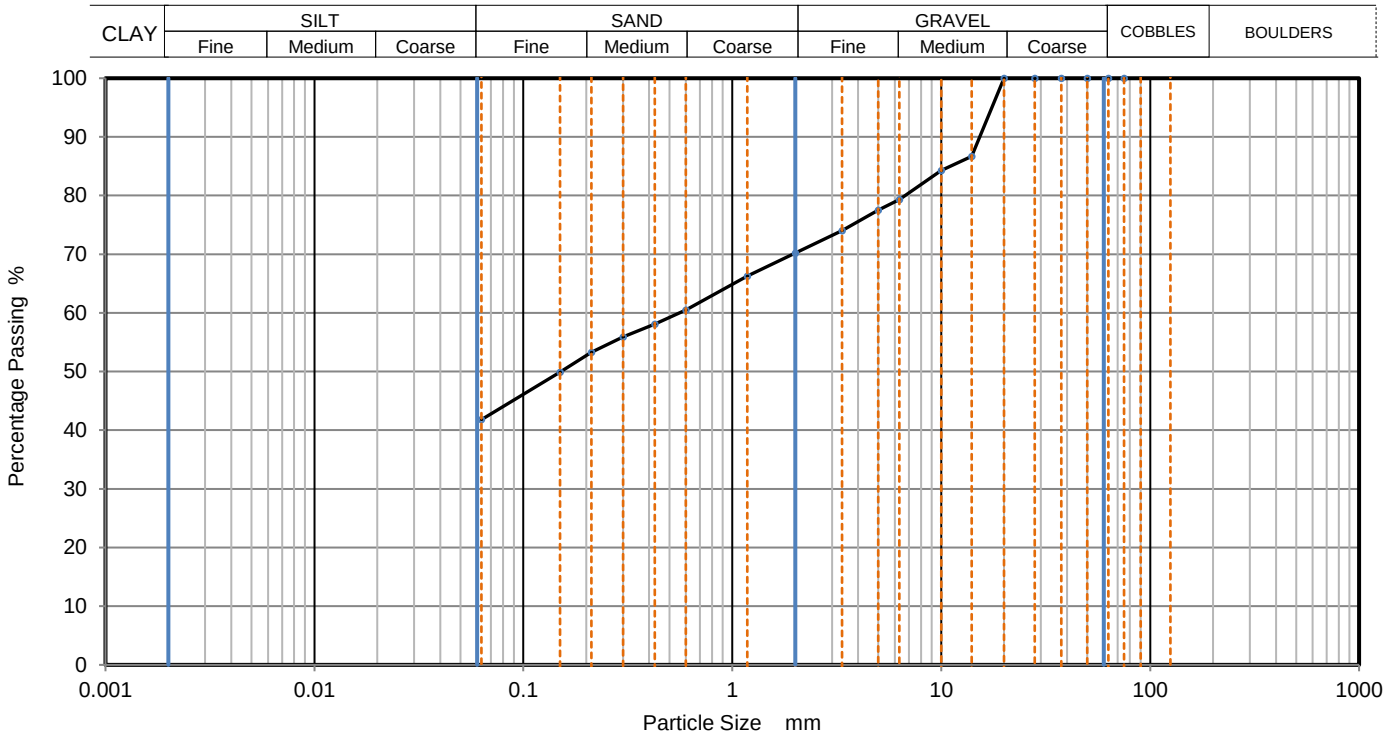
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	2-O
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Light grey slightly sandy slightly gravelly SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210180



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	87		
10	84		
6.3	79		
5	78		
3.35	74		
2	70		
1.18	66		
0.6	61		
0.425	58		
0.3	56		
0.212	53		
0.15	50		
0.063	42		

Dry Mass of sample, g	356

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	28
Fines <0.063mm	42

Grading Analysis		
D100	mm	
D60	mm	0.56
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

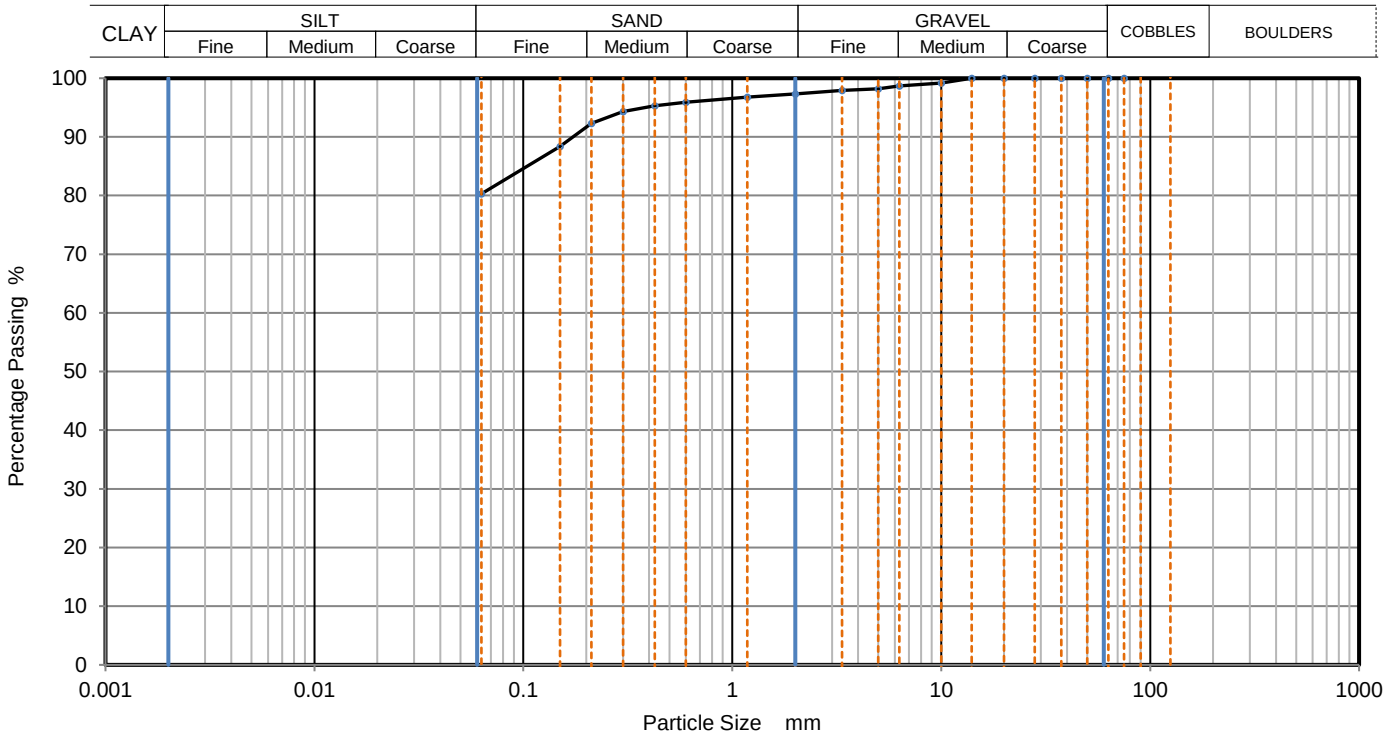
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	2-S
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	2.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210191



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	99		
5	98		
3.35	98		
2	97		
1.18	97		
0.6	96		
0.425	95		
0.3	94		
0.212	92		
0.15	88		
0.063	80		

Dry Mass of sample, g	313

Sample Proportions	% dry mass
Very coarse	0
Gravel	3
Sand	17
Fines <0.063mm	80

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

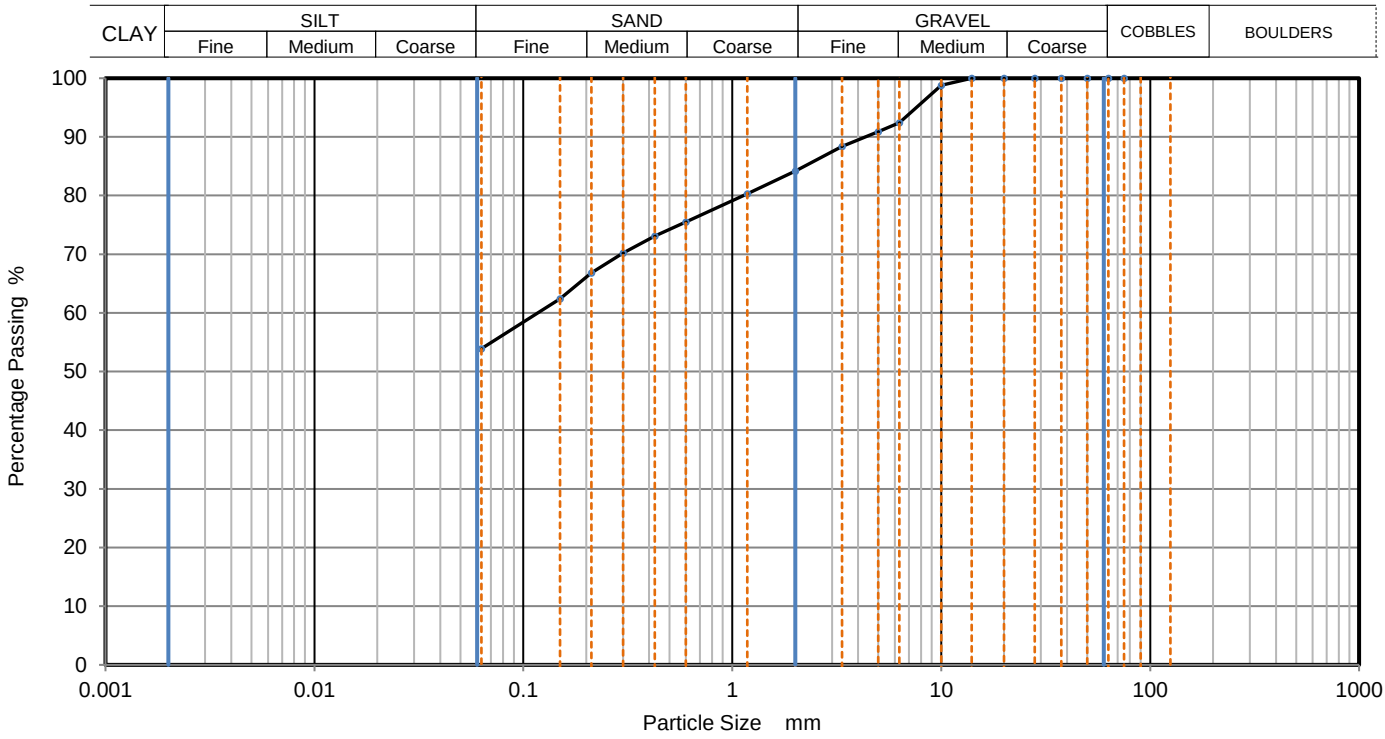
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	2-T
Site Name	Ballydermot Wind Farm			Sample No.	4
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210195



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	92		
5	91		
3.35	88		
2	84		
1.18	80		
0.6	76		
0.425	73		
0.3	70		
0.212	67		
0.15	62		
0.063	54		

Dry Mass of sample, g	398

Sample Proportions	% dry mass
Very coarse	0
Gravel	16
Sand	30
Fines <0.063mm	54

Grading Analysis		
D100	mm	
D60	mm	0.117
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

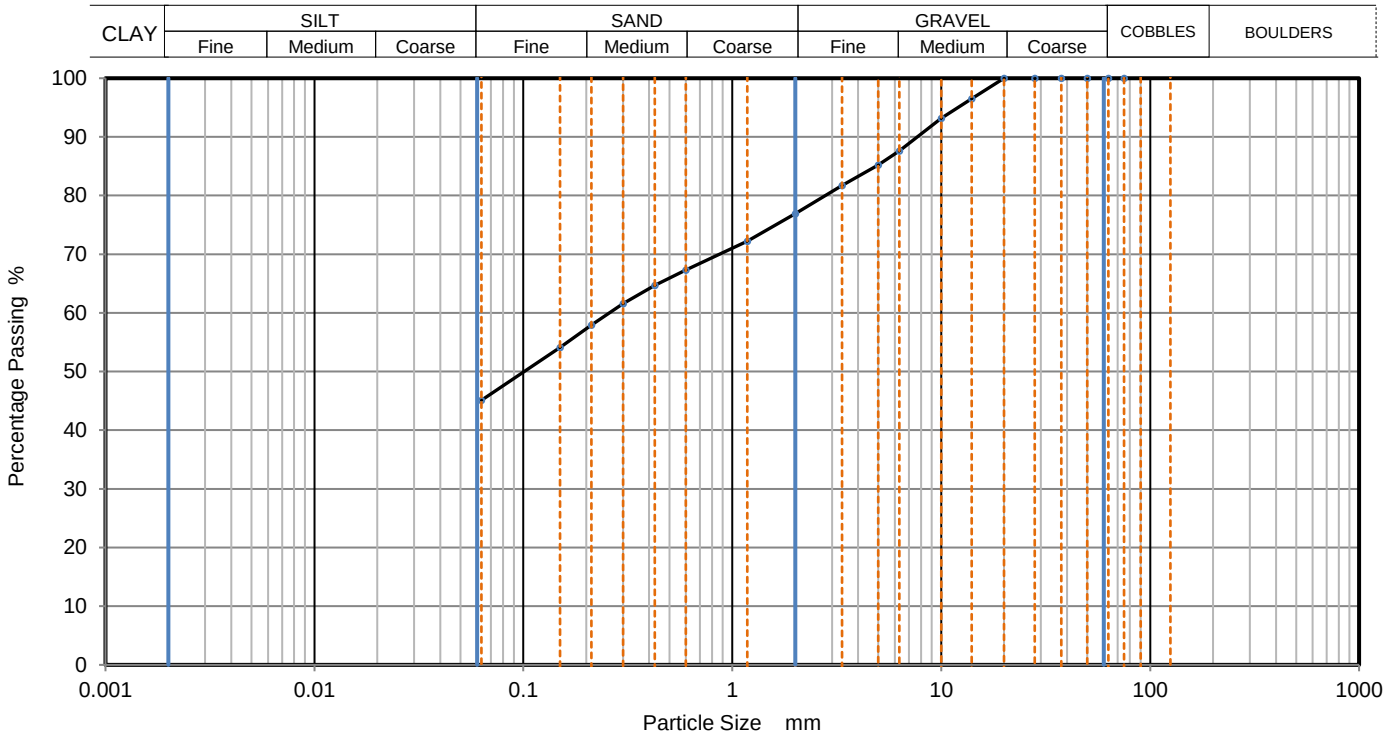
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	16/02/2022 10:09	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	BP02
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210202



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	93		
6.3	88		
5	85		
3.35	82		
2	77		
1.18	72		
0.6	67		
0.425	65		
0.3	62		
0.212	58		
0.15	54		
0.063	45		

Dry Mass of sample, g	456

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	32
Fines <0.063mm	45

Grading Analysis		
D100	mm	
D60	mm	0.258
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

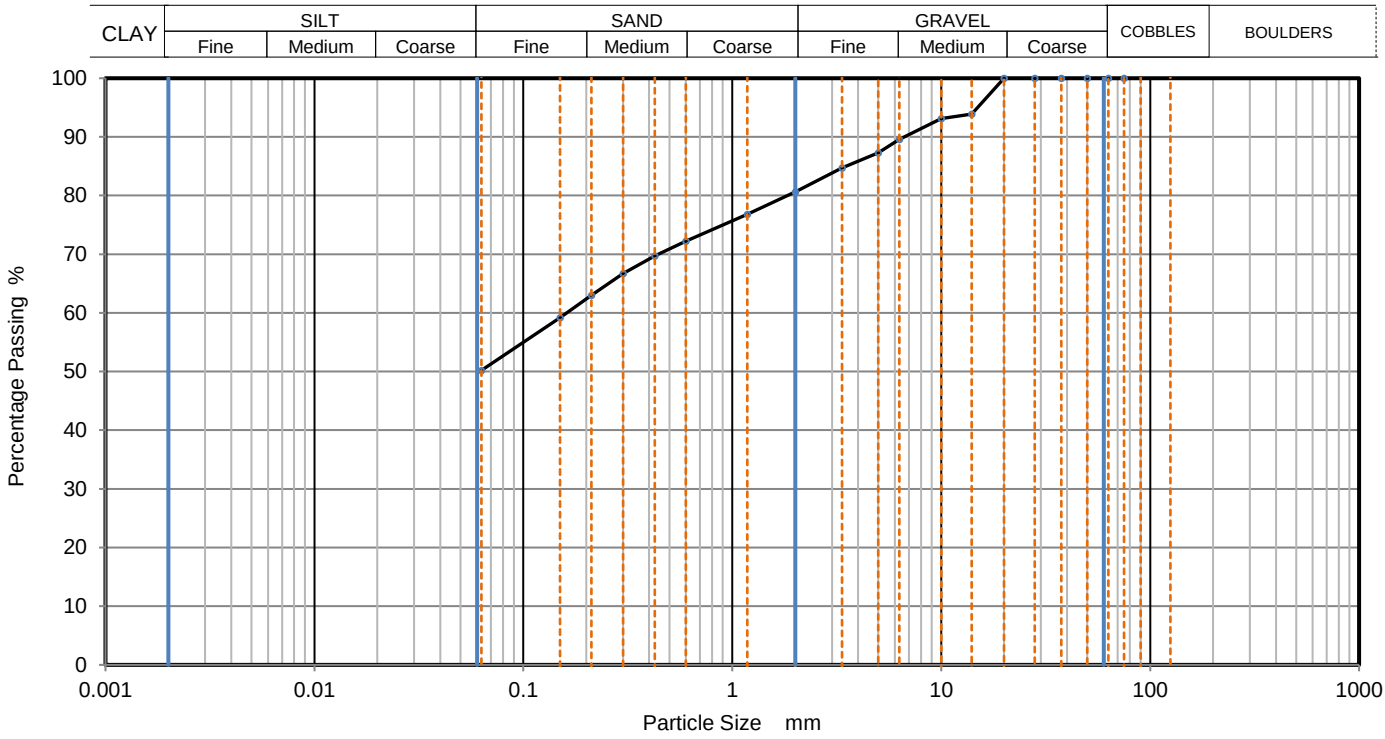
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	16/02/2022 10:10	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	BP04
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210205



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	94		
10	93		
6.3	90		
5	87		
3.35	85		
2	81		
1.18	77		
0.6	72		
0.425	70		
0.3	67		
0.212	63		
0.15	59		
0.063	50		

Dry Mass of sample, g	386

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	30
Fines <0.063mm	50

Grading Analysis		
D100	mm	
D60	mm	0.161
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

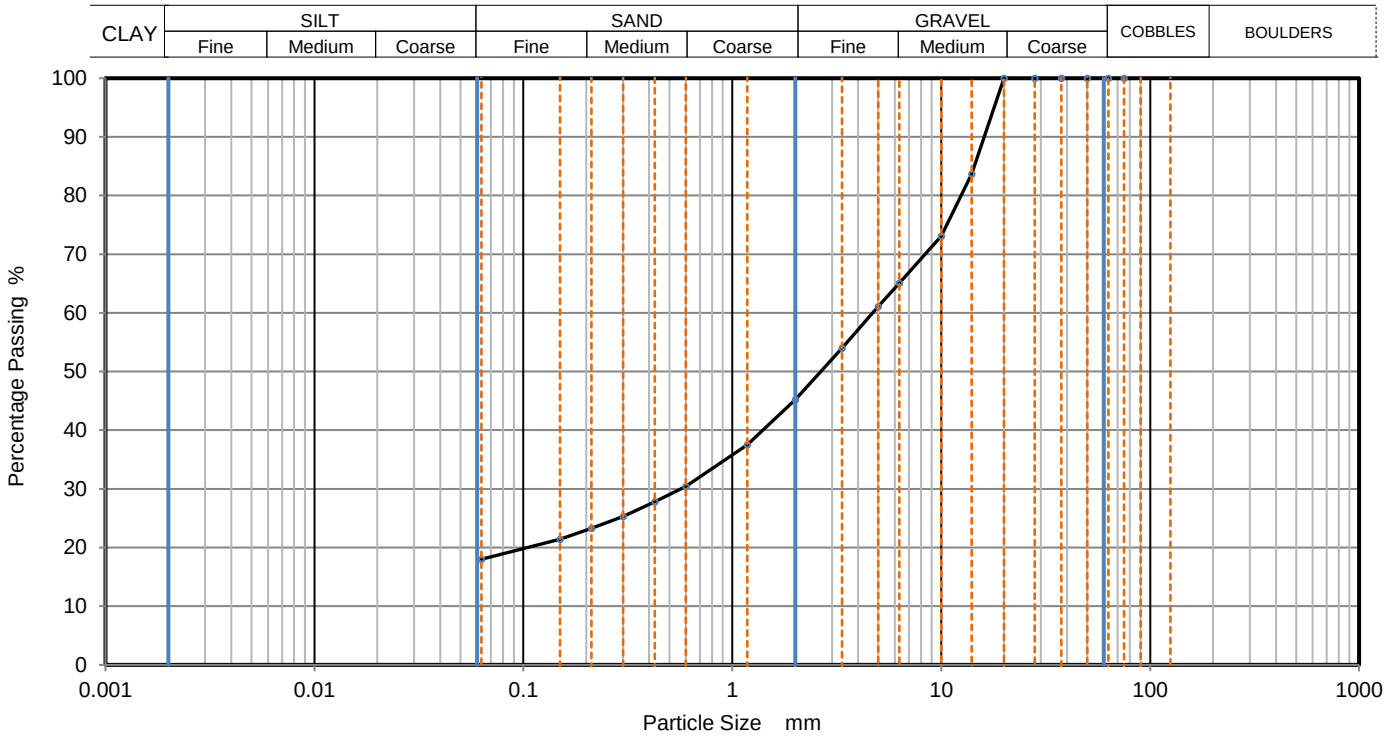
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	16/02/2022 10:10	**1**
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	BP05
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Brown silty very sandy medium GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210207



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	84		
10	73		
6.3	65		
5	61		
3.35	54		
2	45		
1.18	38		
0.6	30		
0.425	28		
0.3	25		
0.212	23		
0.15	21		
0.063	18		

Dry Mass of sample, g	536

Sample Proportions	% dry mass
Very coarse	0
Gravel	55
Sand	27
Fines <0.063mm	18

Grading Analysis		
D100	mm	
D60	mm	4.69
D30	mm	0.567
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

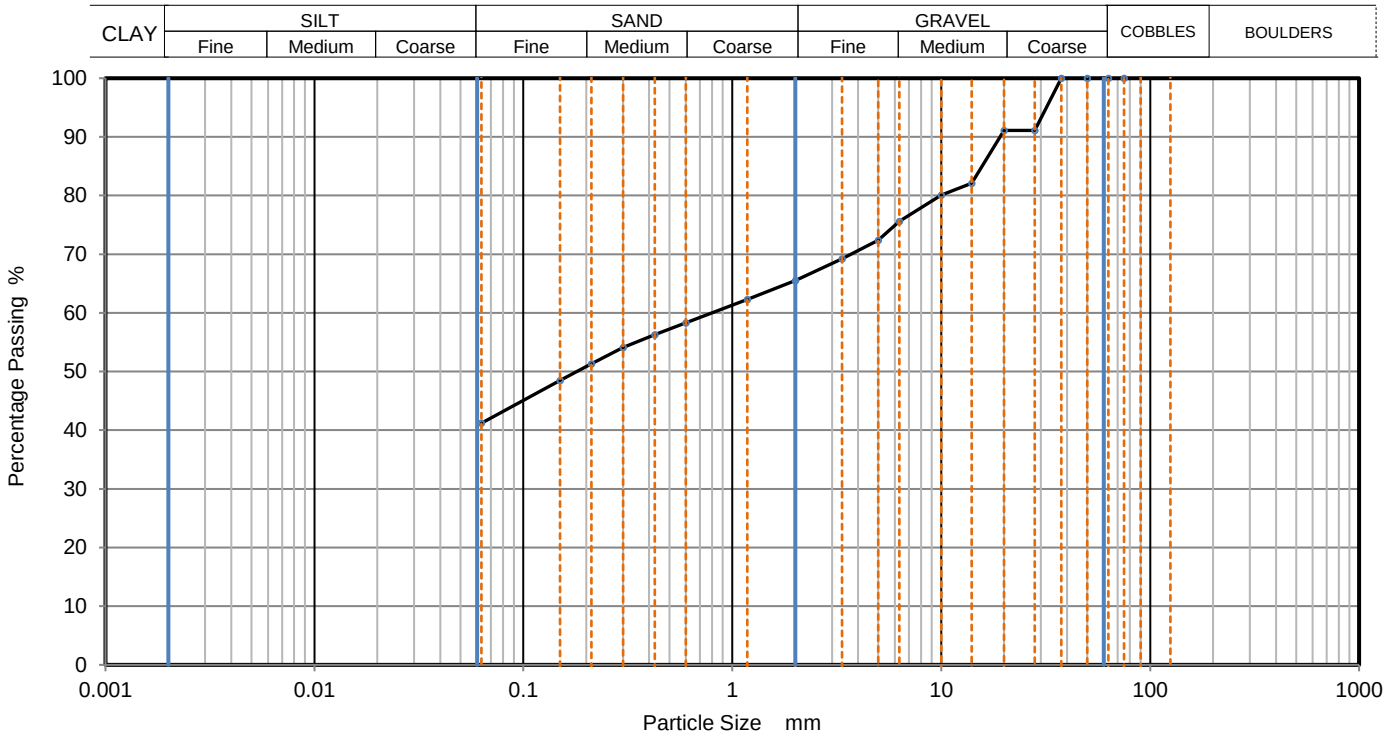
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	16/02/2022 10:10	**1** QC From No:R2

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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	BP06
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Brown slightly sandy gravelly SILT.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210209



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	91		
20	91		
14	82		
10	80		
6.3	76		
5	72		
3.35	69		
2	66		
1.18	62		
0.6	58		
0.425	56		
0.3	54		
0.212	51		
0.15	49		
0.063	41		

Dry Mass of sample, g	444

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	24
Fines <0.063mm	41

Grading Analysis		
D100	mm	
D60	mm	0.802
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

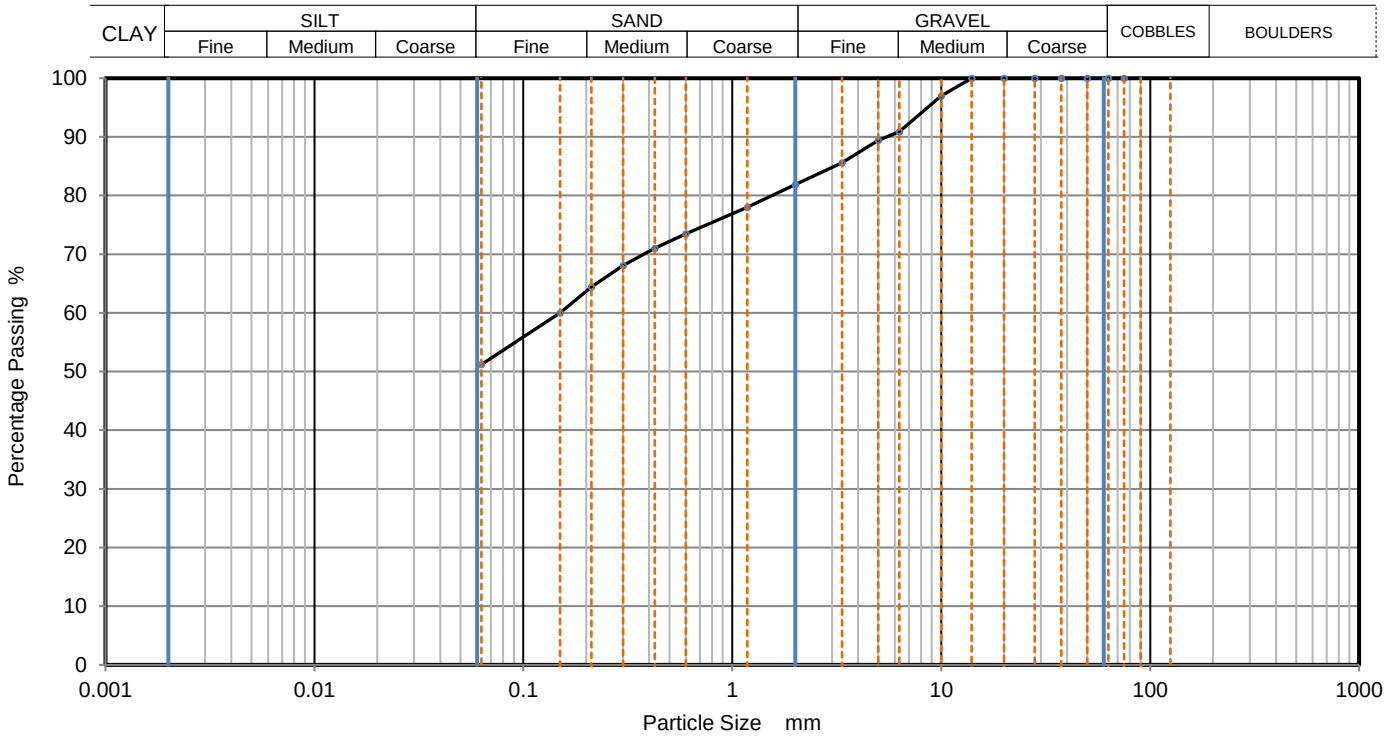
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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				QC From No:R2

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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	BP07
Site Name	Ballydermot Wind Farm			Sample No.	2
Soil Description	Brown gravelly slightly sandy SILT.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210211



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	97		
6.3	91		
5	89		
3.35	86		
2	82		
1.18	78		
0.6	74		
0.425	71		
0.3	68		
0.212	64		
0.15	60		
0.063	51		

Dry Mass of sample, g	449

Sample Proportions	% dry mass
Very coarse	0
Gravel	18
Sand	31
Fines <0.063mm	51

Grading Analysis		
D100	mm	
D60	mm	0.15
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

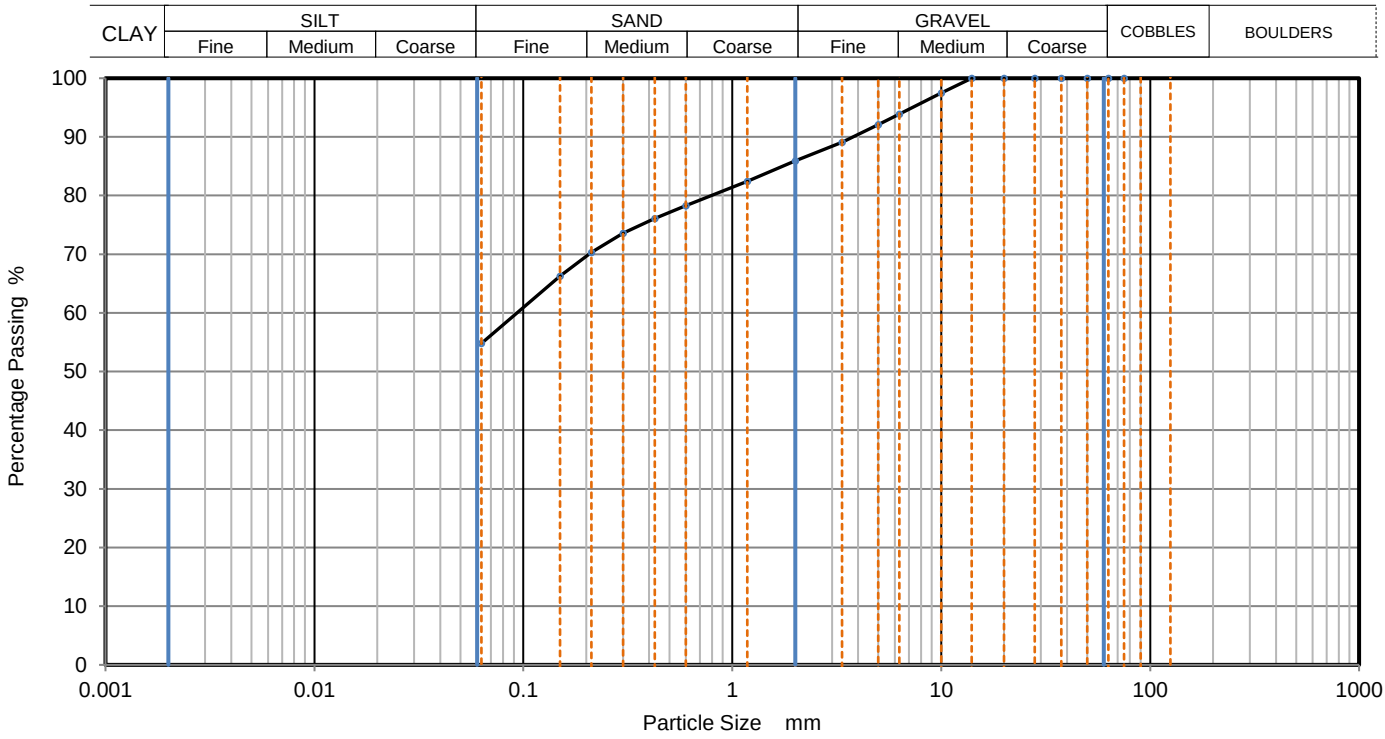
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	16/02/2022 10:10	**1**
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY105**
				Borehole/Pit No.	BP07
Site Name	Ballydermot Wind Farm			Sample No.	3
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211210212



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	98		
6.3	94		
5	92		
3.35	89		
2	86		
1.18	82		
0.6	78		
0.425	76		
0.3	74		
0.212	70		
0.15	66		
0.063	55		

Dry Mass of sample, g	593

Sample Proportions	% dry mass
Very coarse	0
Gravel	14
Sand	31
Fines <0.063mm	55

Grading Analysis		
D100	mm	
D60	mm	0.093
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	16/02/2022 10:10	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
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Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	28 January 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220121-101
Your Reference:	2021OY105
Location:	Ballydermot WF
Report No:	631281
Order Number:	10809

We received 6 samples on Friday January 21, 2022 and 6 of these samples were scheduled for analysis which was completed on Friday January 28, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220121-101 **Report Number:** 631281 **Superseded Report:**
Client Ref.: 2021OY105 **Location:** Ballydermot WF

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
25683366	TP 1-G	B2	1.00 - 1.50	16/11/2021
25683368	TP 1-I	B2	2.20 - 2.70	17/11/2021
25683373	TP 2-I	B3	1.00 - 1.50	08/11/2021
25683382	TP 1-T	B2	1.60 - 2.20	09/11/2021
25683379	TP 1-Y	B1	1.00 - 1.50	10/11/2021
25683377	TP 1-Z	B1	1.00 - 1.50	18/11/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220121-101 **Report Number:** 631281 **Superseded Report:**
Client Ref.: 2021OY105 **Location:** Ballydermot WF

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			2568366	TP 1-G	B2	1.00 - 1.50	250g Amber Jar (ALE210)	S
			2568368	TP 1-I	B2	2.20 - 2.70	250g Amber Jar (ALE210)	S
			2568373	TP 2-I	B3	1.00 - 1.50	250g Amber Jar (ALE210)	S
			2568382	TP 1-T	B2	1.60 - 2.20	250g Amber Jar (ALE210)	S
			2568379	TP 1-Y	B1	1.00 - 1.50	250g Amber Jar (ALE210)	S
			2568377	TP 1-Z	B1	1.00 - 1.50	250g Amber Jar (ALE210)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 4	X		X		X	X
pH	All	NDPs: 0 Tests: 4	X		X		X	X
Sample description	All	NDPs: 0 Tests: 6	X	X	X	X	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 3		X	X	X		
Total Sulphate	All	NDPs: 0 Tests: 4	X		X		X	X

CERTIFICATE OF ANALYSIS

SDG: 220121-101 **Report Number:** 631281 **Superseded Report:**
Client Ref.: 2021OY105 **Location:** Ballydermot WF

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
25683366	TP 1-G	1.00 - 1.50	Grey	Sandy Loam	Stones	Vegetation
25683368	TP 1-I	2.20 - 2.70	Grey	Loamy Sand	Stones	Vegetation
25683373	TP 2-I	1.00 - 1.50	Dark Brown	Loamy Sand	Stones	Vegetation
25683382	TP 1-T	1.60 - 2.20	Grey	Loamy Sand	Stones	Vegetation
25683379	TP 1-Y	1.00 - 1.50	Black	Loamy Sand	Stones	Vegetation
25683377	TP 1-Z	1.00 - 1.50	Grey	Sandy Loam	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220121-101 **Report Number:** 631281 **Superseded Report:**
Client Ref.: 2021OY105 **Location:** Ballydermot WF

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP 1-G	TP 1-I	TP 2-I	TP 1-T	TP 1-Y	TP 1-Z
			Depth (m)	1.00 - 1.50	2.20 - 2.70	1.00 - 1.50	1.60 - 2.20	1.00 - 1.50	1.00 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	16/11/2021	17/11/2021	08/11/2021	09/11/2021	10/11/2021	18/11/2021
			Sample Time	.	.	.	.	.	.
			Date Received	21/01/2022	21/01/2022	21/01/2022	21/01/2022	21/01/2022	21/01/2022
			SDG Ref	220121-101	220121-101	220121-101	220121-101	220121-101	220121-101
			Lab Sample No.(s)	25683366	25683368	25683373	25683382	25683379	25683377
			AGS Reference	B2	B2	B3	B2	B1	B1
Moisture Content Ratio (% of as received sample)	%	PM024		6.9	49	49	61	82	3.7
Soil Organic Matter (SOM)	<0.35 %	TM132			2.5 @ #	17 @ #	5.36 @ #		
pH	1 pH Units	TM133		8.68 @ M		7.75 @ M		6.39 @ M	8.76 @ M
Sulphate, Total	<48 mg/kg	TM221		677 M		1810 M		2680 M	382 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0226 @ M		0.455 @ M		0.0379 @ M	0.0073 @ M

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

CERTIFICATE OF ANALYSIS

SDG: 220121-101 **Report Number:** 631281 **Superseded Report:**
Client Ref.: 2021OY105 **Location:** Ballydermot WF

Test Completion Dates

Lab Sample No(s)	25683366	25683368	25683373	25683382	25683379	25683377
Customer Sample Ref.	TP 1-G	TP 1-I	TP 2-I	TP 1-T	TP 1-Y	TP 1-Z
AGS Ref.	B2	B2	B3	B2	B1	B1
Depth	1.00 - 1.50	2.20 - 2.70	1.00 - 1.50	1.60 - 2.20	1.00 - 1.50	1.00 - 1.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	28-Jan-2022		27-Jan-2022		27-Jan-2022	27-Jan-2022
pH	25-Jan-2022		25-Jan-2022		24-Jan-2022	25-Jan-2022
Sample description	23-Jan-2022	23-Jan-2022	23-Jan-2022	23-Jan-2022	23-Jan-2022	23-Jan-2022
Total Organic Carbon		28-Jan-2022	28-Jan-2022	28-Jan-2022		
Total Sulphate	28-Jan-2022		27-Jan-2022		27-Jan-2022	27-Jan-2022

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

IDL

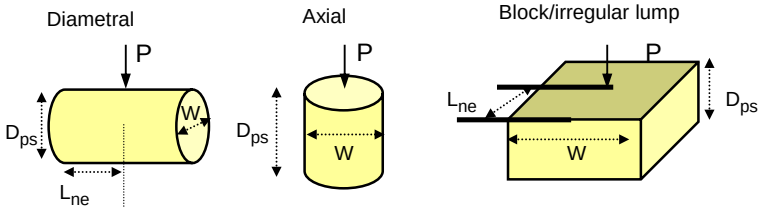
Point Load Strength Index Tests
Summary of Results

Project No.: 2021OY105

Project Name: Ballydermot Wind Farm

Borehole No.	Sample			Specimen		Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
	Top Depth	Base Depth	Type	Top	Base		Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)	
	m	m		m	m					mm	mm	mm	mm	kN	mm	MPa	MPa	
RC-BP01	2.70	3.5	C	3.1	3.22		D	U	YES		63.4		63.4	7.4	63.4	1.8	2.1	Strong
RC-BP01	3.50	4.6	C	4.4	4.60		D	P	YES		63.4		63.4	10.5	63.4	2.6	2.9	Strong
RC-BP01	4.60	6.2	C	5.4	5.60		D	U	YES		63.4		63.4	23.2	63.4	5.8	6.4	Very Strong
RC-BP01	6.20	7.3	C	6.7	6.90		D	U	YES		63.4		63.4	17.1	63.4	4.3	4.7	Very Strong
RC-BP01	7.30	8.8	C	8.2	8.40		D	U	YES		63.4		63.4	15.0	63.4	3.7	4.1	Very Strong
RC-BP01	8.80	10.3	C	9.7	10.00		D	U	YES		63.4		63.4	8.9	63.4	2.2	2.5	Strong

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P



Test performed in accordance with ISRM Suggested Methods : 2007, unless noted otherwise
Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

Date Printed	Approved By	Table
16/02/2022	DCD	1
		sheet 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IDL

Point Load Strength Index Tests
Summary of Results

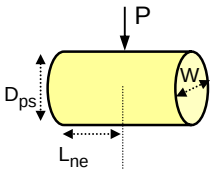
Project No.: 2021OY105

Project Name: Ballydermot Wind Farm

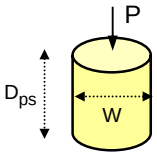
Borehole No.	Sample			Specimen		Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
	Top Depth	Base Depth	Type	Top	Base		Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)	
	m	m		m	m					mm	mm	mm	mm	kN	mm	MPa	MPa	
RC-BP02	6.90	8	C	7.85	8.00		D	U	YES		63.4		63.4	13.9	63.4	3.5	3.9	Strong
RC-BP02	8.00	9.3	C	8.8	9.00		D	U	YES		63.4		63.4	16.2	63.4	4.0	4.5	Very Strong
RC-BP02	9.30	10.8	C	9.4	9.60		D	U	YES		63.4		63.4	16.3	63.4	4.1	4.5	Very Strong
RC-BP02	10.80	12.4	C	11.3	11.45		D	U	YES		63.4		63.4	12.7	63.4	3.2	3.5	Strong
RC-BP02	10.80	12.4	C	12.2	12.40		D	U	YES		63.4		63.4	17.4	63.4	4.3	4.8	Very Strong
RC-BP02	12.40	13.9	C	13	13.25		D	U	YES		63.4		63.4	15.7	63.4	3.9	4.4	Very Strong
RC-BP03	1.80	3.2	C	2.3	2.40		D	U	YES		63.4		63.4	12.5	63.4	3.1	3.5	Strong
RC-BP03	3.20	4.7	C	3.2	3.30		D	U	YES		63.4		63.4	13.9	63.4	3.5	3.8	Strong
RC-BP03	4.70	6.4	C	4.9	5.00		D	U	YES		63.4		63.4	14.8	63.4	3.7	4.1	Very Strong
RC-BP03	6.40	8	C	7	7.20		D	U	YES		63.4		63.4	20.6	63.4	5.1	5.7	Very Strong
RC-BP03	8.00	9.5	C	8	9.50		D	U	YES		63.4		63.4	17.0	63.4	4.2	4.7	Very Strong
RC-BP03	9.50	11	C	9.8	10.00		D	U	YES		63.4		63.4	17.5	63.4	4.4	4.9	Very Strong

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P

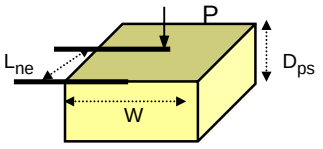
Diametral



Axial



Block/irregular lump



Test performed in accordance with ISRM Suggested Methods : 2007, unless noted otherwise
Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

Date Printed: 08/09/2022 00:00

Approved By: DCD

Table: 1

sheet: 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Appendix 04
Photographs (Trial Pits)



Figure 1 H:\21OY105_Ballydermot WF Photos\TP1A(1).JPG



Figure 2 H:\21OY105_Ballydermot WF Photos\TP1A(2).JPG



Figure 3 H:\21OY105_Ballydermot WF Photos\TP1A(3).JPG



Figure 4 H:\21OY105_Ballydermot WF Photos\TP1B(1).JPG



Figure 5 H:\21OY105_Ballydermot WF Photos\TP1B(2).JPG



Figure 6 H:\21OY105_Ballydermot WF Photos\TP1B(3).JPG



Figure 7 H:\21OY105_Ballydermot WF Photos\TP1C(1).JPG



Figure 8 H:\21OY105_Ballydermot WF Photos\TP1C(2).JPG



Figure 9 H:\21OY105_Ballydermot WF Photos\TP1C(3).JPG



Figure 10 H:\21OY105_Ballydermot WF Photos\TP1D(1).JPG



Figure 11 H:\21OY105_Ballydermot WF Photos\TP1D(2).JPG



Figure 12 H:\21OY105_Ballydermot WF Photos\TP1D(3).JPG



Figure 13 H:\21OY105_Ballydermot WF Photos\TP1D(4).JPG



Figure 14 H:\21OY105_Ballydermot WF Photos\TP1D(5).JPG



Figure 15 H:\21OY105_Ballydermot WF Photos\TP1E(1).JPG



Figure 16 H:\21OY105_Ballydermot WF Photos\TP1E(2).JPG



Figure 17 H:\21OY105_Ballydermot WF Photos\TP1E(3).JPG



Figure 18 H:\21OY105_Ballydermot WF Photos\TP1F(1).JPG



Figure 19 H:\21OY105_Ballydermot WF Photos\TP1F(2).JPG



Figure 20 H:\21OY105_Ballydermot WF Photos\TP1F(3).JPG



Figure 21 H:\21OY105_Ballydermot WF Photos\TP1F(4).JPG



Figure 22 H:\21OY105_Ballydermot WF Photos\TP1G(1).JPG



Figure 23 H:\21OY105_Ballydermot WF Photos\TP1G(2).JPG



Figure 24 H:\21OY105_Ballydermot WF Photos\TP1G(3).JPG



Figure 25 H:\21OY105_Ballydermot WF Photos\TP1H(1).JPG



Figure 26 H:\21OY105_Ballydermot WF Photos\TP1H(2).JPG



Figure 27 H:\21OY105_Ballydermot WF Photos\TP1H(3).JPG



Figure 28 H:\21OY105_Ballydermot WF Photos\TP1I(1).JPG



Figure 29 H:\21OY105_Ballydermot WF Photos\TP1I(2).JPG



Figure 30 H:\21OY105_Ballydermot WF Photos\TP1I(3).JPG



Figure 31 H:\21OY105_Ballydermot WF Photos\TP1J(1).JPG



Figure 32 H:\21OY105_Ballydermot WF Photos\TP1J(2).JPG



Figure 33 H:\21OY105_Ballydermot WF Photos\TP1J(3).JPG



Figure 34 H:\21OY105_Ballydermot WF Photos\TP1K(1).JPG



Figure 35 H:\21OY105_Ballydermot WF Photos\TP1K(2).JPG



Figure 36 H:\21OY105_Ballydermot WF Photos\TP1K(3).JPG



Figure 37 H:\21OY105_Ballydermot WF Photos\TP1L(1).JPG



Figure 38 H:\21OY105_Ballydermot WF Photos\TP1L(2).JPG



Figure 39 H:\21OY105_Ballydermot WF Photos\TP1L(3).JPG



Figure 40 H:\21OY105_Ballydermot WF Photos\TP1M(1).JPG



Figure 41 H:\21OY105_Ballydermot WF Photos\TP1M(2).JPG



Figure 42 H:\21OY105_Ballydermot WF Photos\TP1M(3).JPG



Figure 43 H:\21OY105_Ballydermot WF Photos\TP1N(1).JPG



Figure 44 H:\21OY105_Ballydermot WF Photos\TP1N(2).JPG



Figure 45 H:\21OY105_Ballydermot WF Photos\TP1N(3).JPG



Figure 46 H:\21OY105_Ballydermot WF Photos\TP1O(1).JPG



Figure 47 H:\21OY105_Ballydermot WF Photos\TP1O(2).JPG



Figure 48 H:\21OY105_Ballydermot WF Photos\TP1O(3).JPG



Figure 49 H:\21OY105_Ballydermot WF Photos\TP1P(1).JPG



Figure 50 H:\21OY105_Ballydermot WF Photos\TP1P(2).JPG



Figure 51 H:\21OY105_Ballydermot WF Photos\TP1P(3).JPG



Figure 52 H:\21OY105_Ballydermot WF Photos\TP1Q(1).JPG



Figure 53 H:\21OY105_Ballydermot WF Photos\TP1Q(2).JPG



Figure 54 H:\21OY105_Ballydermot WF Photos\TP1Q(3).JPG



Figure 55 H:\21OY105_Ballydermot WF Photos\TP1R(1).JPG



Figure 56 H:\21OY105_Ballydermot WF Photos\TP1R(2).JPG



Figure 57 H:\21OY105_Ballydermot WF Photos\TP1R(3).JPG



Figure 58 H:\21OY105_Ballydermot WF Photos\TP1T(1).JPG



Figure 59 H:\21OY105_Ballydermot WF Photos\TP1T(2).JPG



Figure 60 H:\21OY105_Ballydermot WF Photos\TP1T(3).JPG



Figure 61 H:\21OY105_Ballydermot WF Photos\TP1U(1).JPG



Figure 62 H:\21OY105_Ballydermot WF Photos\TP1U(2).JPG



Figure 63 H:\21OY105_Ballydermot WF Photos\TP1U(3).JPG



Figure 64 H:\21OY105_Ballydermot WF Photos\TP1V(1).JPG



Figure 65 H:\21OY105_Ballydermot WF Photos\TP1V(2).JPG



Figure 66 H:\21OY105_Ballydermot WF Photos\TP1V(3).JPG



Figure 67 H:\21OY105_Ballydermot WF Photos\TP1W(1).JPG



Figure 68 H:\21OY105_Ballydermot WF Photos\TP1W(2).JPG



Figure 69 H:\21OY105_Ballydermot WF Photos\TP1W(3).JPG



Figure 70 H:\21OY105_Ballydermot WF Photos\TP1X(1).JPG



Figure 71 H:\21OY105_Ballydermot WF Photos\TP1X(2).JPG



Figure 72 H:\21OY105_Ballydermot WF Photos\TP1X(3).JPG



Figure 73 H:\21OY105_Ballydermot WF Photos\TP1Y(1).JPG



Figure 74 H:\21OY105_Ballydermot WF Photos\TP1Y(2).JPG



Figure 75 H:\21OY105_Ballydermot WF Photos\TP1Y(3).JPG



Figure 76 H:\21OY105_Ballydermot WF Photos\TP1Y(4).JPG



Figure 77 H:\21OY105_Ballydermot WF Photos\TP1Z(1).JPG



Figure 78 H:\21OY105_Ballydermot WF Photos\TP1Z(2).JPG



Figure 79 H:\21OY105_Ballydermot WF Photos\TP1Z(3).JPG



Figure 80 H:\21OY105_Ballydermot WF Photos\TP1Z(4).JPG



Figure 81 H:\21OY105_Ballydermot WF Photos\TP2A(1).JPG



Figure 82 H:\21OY105_Ballydermot WF Photos\TP2A(2).JPG



Figure 83 H:\21OY105_Ballydermot WF Photos\TP2A(3).JPG



Figure 84 H:\21OY105_Ballydermot WF Photos\TP2B(1).JPG



Figure 85 H:\21OY105_Ballydermot WF Photos\TP2B(2).JPG



Figure 86 H:\21OY105_Ballydermot WF Photos\TP2B(3).JPG



Figure 87 H:\21OY105_Ballydermot WF Photos\TP2C(1).JPG



Figure 88 H:\21OY105_Ballydermot WF Photos\TP2C(2).JPG



Figure 89 H:\21OY105_Ballydermot WF Photos\TP2C(3).JPG



Figure 90 H:\21OY105_Ballydermot WF Photos\TP2D(1).JPG



Figure 91 H:\21OY105_Ballydermot WF Photos\TP2D(2).JPG



Figure 92 H:\21OY105_Ballydermot WF Photos\TP2D(3).JPG



Figure 93 H:\21OY105_Ballydermot WF Photos\TP2E(1).JPG



Figure 94 H:\21OY105_Ballydermot WF Photos\TP2E(2).JPG



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Figure 96 H:\21OY105_Ballydermot WF Photos\TP2F(1).JPG



Figure 97 H:\21OY105_Ballydermot WF Photos\TP2F(2).JPG



Figure 98 H:\21OY105_Ballydermot WF Photos\TP2F(3).JPG



Figure 99 H:\21OY105_Ballydermot WF Photos\TP2G(1).JPG



Figure 100 H:\21OY105_Ballydermot WF Photos\TP2G(2).JPG



Figure 101 H:\21OY105_Ballydermot WF Photos\TP2G(3).JPG



Figure 102 H:\21OY105_Ballydermot WF Photos\TP2H(1).JPG



Figure 103 H:\21OY105_Ballydermot WF Photos\TP2H(2).JPG



Figure 104 H:\21OY105_Ballydermot WF Photos\TP2H(3).JPG



Figure 105 H:\21OY105_Ballydermot WF Photos\TP2I(1).JPG



Figure 106 H:\21OY105_Ballydermot WF Photos\TP2I(2).JPG



Figure 107 H:\21OY105_Ballydermot WF Photos\TP2I(3).JPG



Figure 108 H:\21OY105_Ballydermot WF Photos\TP2J(1).JPG



Figure 109 H:\21OY105_Ballydermot WF Photos\TP2J(2).JPG



Figure 110 H:\21OY105_Ballydermot WF Photos\TP2J(3).JPG



Figure 111 H:\21OY105_Ballydermot WF Photos\TP2K(1).JPG



Figure 112 H:\21OY105_Ballydermot WF Photos\TP2K(2).JPG



Figure 113 H:\21OY105_Ballydermot WF Photos\TP2K(3).JPG



Figure 114 H:\21OY105_Ballydermot WF Photos\TP2L(1).JPG



Figure 115 H:\21OY105_Ballydermot WF Photos\TP2L(2).JPG



Figure 116 H:\21OY105_Ballydermot WF Photos\TP2L(3).JPG



Figure 117 H:\21OY105_Ballydermot WF Photos\TP2M(1).JPG



Figure 118 H:\21OY105_Ballydermot WF Photos\TP2M(2).JPG



Figure 119 H:\21OY105_Ballydermot WF Photos\TP2M(3).JPG



Figure 120 H:\21OY105_Ballydermot WF Photos\TP2N(1).JPG



Figure 121 H:\21OY105_Ballydermot WF Photos\TP2N(2).JPG



Figure 122 H:\21OY105_Ballydermot WF Photos\TP2N(3).JPG



Figure 123 H:\21OY105_Ballydermot WF Photos\TP2O(1).JPG



Figure 124 H:\21OY105_Ballydermot WF Photos\TP2O(2).JPG



Figure 125 H:\21OY105_Ballydermot WF Photos\TP2O(3).JPG



Figure 126 H:\21OY105_Ballydermot WF Photos\TP2P(1).JPG



Figure 127 H:\21OY105_Ballydermot WF Photos\TP2P(2).JPG



Figure 128 H:\21OY105_Ballydermot WF Photos\TP2P(3).JPG



Figure 129 H:\21OY105_Ballydermot WF Photos\TP2P(4).JPG



Figure 130 H:\21OY105_Ballydermot WF Photos\TP2Q(1).JPG



Figure 131 H:\21OY105_Ballydermot WF Photos\TP2Q(2).JPG



Figure 132 H:\21OY105_Ballydermot WF Photos\TP2Q(3).JPG



Figure 133 H:\21OY105_Ballydermot WF Photos\TP2R(1).JPG



Figure 134 H:\21OY105_Ballydermot WF Photos\TP2R(2).JPG



Figure 135 H:\21OY105_Ballydermot WF Photos\TP2R(3).JPG



Figure 136 H:\21OY105_Ballydermot WF Photos\TP2S(1).JPG



Figure 137 H:\21OY105_Ballydermot WF Photos\TP2S(2).JPG



Figure 138 H:\21OY105_Ballydermot WF Photos\TP2S(3).JPG



Figure 139 H:\21OY105_Ballydermot WF Photos\TP2S(4).JPG



Figure 140 H:\21OY105_Ballydermot WF Photos\TP2S(5).JPG



Figure 141 H:\21OY105_Ballydermot WF Photos\TP2T(1).JPG



Figure 142 H:\21OY105_Ballydermot WF Photos\TP2T(2).JPG



Figure 143 H:\21OY105_Ballydermot WF Photos\TP2T(3).JPG



Figure 144 H:\21OY105_Ballydermot WF Photos\TP2U(1).JPG



Figure 145 H:\21OY105_Ballydermot WF Photos\TP2U(2).JPG



Figure 146 H:\21OY105_Ballydermot WF Photos\TP2U(3).JPG



Figure 147 H:\21OY105_Ballydermot WF Photos\TPBP01(1).JPG



Figure 148 H:\21OY105_Ballydermot WF Photos\TPBP01(2).JPG



Figure 149 H:\21OY105_Ballydermot WF Photos\TPBP01(3).JPG



Figure 150 H:\21OY105_Ballydermot WF Photos\TPBP02(1).JPG



Figure 151 H:\21OY105_Ballydermot WF Photos\TPBP02(2).JPG



Figure 152 H:\21OY105_Ballydermot WF Photos\TPBP02(3).JPG



Figure 153 H:\21OY105_Ballydermot WF Photos\TPBP03(1).JPG



Figure 157 H:\21OY105_Ballydermot WF Photos\TPBP04(2).JPG



Figure 154 H:\21OY105_Ballydermot WF Photos\TPBP03(2).JPG



Figure 158 H:\21OY105_Ballydermot WF Photos\TPBP04(3).JPG

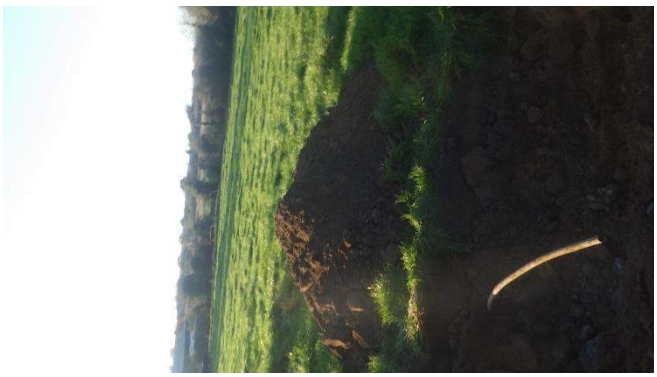


Figure 155 H:\21OY105_Ballydermot WF Photos\TPBP03(3).JPG



Figure 159 H:\21OY105_Ballydermot WF Photos\TPBP05(1).JPG



Figure 156 H:\21OY105_Ballydermot WF Photos\TPBP04(1).JPG



Figure 160 H:\21OY105_Ballydermot WF Photos\TPBP05(2).JPG



Figure 161 H:\21OY105_Ballydermot WF Photos\TPBP05(3).JPG



Figure 162 H:\21OY105_Ballydermot WF Photos\TPBP05(4).JPG



Figure 163 H:\21OY105_Ballydermot WF Photos\TPBP06(1).JPG



Figure 164 H:\21OY105_Ballydermot WF Photos\TPBP06(2).JPG



Figure 165 H:\21OY105_Ballydermot WF Photos\TPBP06(3).JPG



Figure 166 H:\21OY105_Ballydermot WF Photos\TPBP07(1).JPG



Figure 167 H:\21OY105_Ballydermot WF Photos\TPBP07(2).JPG



Figure 168 H:\21OY105_Ballydermot WF Photos\TPBP07(3).JPG

Appendix 05
Photographs (Rotary Core)


Ballydermott
Wind Farm (Edenderry)
Co. Offaly
2021 OY 105
RC BP 0 1
Box
1. 2. 3.
2,7m
3,5m
4-6
6,2
7,3
8,8m


Ballydermott
Wind Farm (Edenderry)
Co. Offaly
2021 OY 105
RC BP 0 1
Box
4. 5.
10,3m
11,3m
12,9m
14,4m
15m
EOH

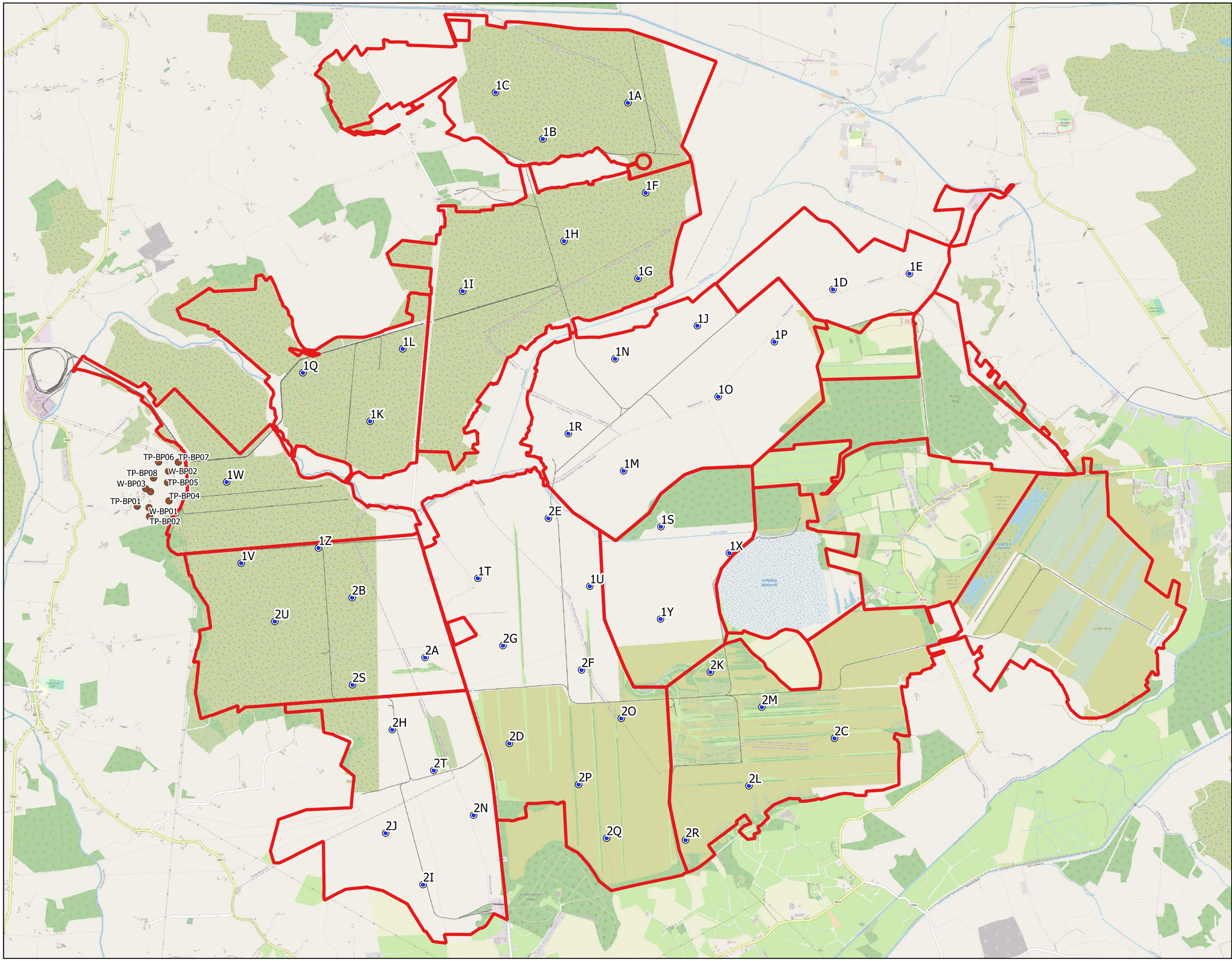

Ballydermot
Wind Farm,
Offally
2021 OY 101
BH BP 2
Box
1. 2.
2m
35
48
58
69
93
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150


Ballydermot
Wind Farm,
Offally
2021 OY 101
BH BP 2
Box
3. 4.
108
10 20 30 40 50 60 70 80 90 100 110 120 130 140


Ballydermot
Wind Farm,
Offally
2021 OY 101
BH BP 3
Box
1. 2.
18
32
47
64


Ballydermot
Wind Farm,
Offally
2021 OY 101
BH BP 3
Box
3. 4.
8
95

Appendix 06
Site Plans



Map Legend

- EIAR Site Boundary
- Onsite 47 trial pit locations
- Off site Trial pit and corehole locations

Drawing Title: Site Investgation Locations Round 2

Project Title: Ballydermot Wind Farm

Drawn By	Checked By
Drawn xxxx	Checkedxxxx
Project No.	Drawing No.
191136	DWGNoxxxx
Scale	Date
1:36,000	02.11.2021

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Website: ww.mkoireland.ie



Map Legend

- EIAR Site Boundary
- Onsite 47 trial pit locations
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Drawing Title
Site Investgation Locations Round 2

Project Title
Ballydermot Wind Farm

Drawn By	Checked By
Drawn xxxx	Checkedxxxx
Project No.	Drawing No.
191136	DWGNoxxxx
Scale	Date
1:5,000	02.11.2021

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Appendix 07
AGS Data

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DESIGNING AND DELIVERING,
A SUSTAINABLE FUTURE

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