Technical Appendix 8.3: Peat & Slope Stability Risk Assessment

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Peat & Slope Stability Risk Assessment
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1. Introduction

Minerex Environmental Limited (MEL) (the Sub- Consultant) has been commissioned by Jennings O'Donovan (JOD) (the Consultant) on behalf of ScottishPower Renewables (SPR) to carry out an Environmental Impact Assessment (EIA) in regard to the Development; Barnesmore Windfarm Repowering. MEL have been commissioned to assess the Site in terms of Soils & Geology (EIIAR Chapter 8), and Hydrology & Hydrogeology (EIAR Chapter 9). This report, Slope Stability & Risk Assessment, assesses the existing baseline conditions and potential impact of the Development on same with respect to slope and peat stability, and will supplement the EIA Report as an appendix (Chapter 8: Soils and Geology).

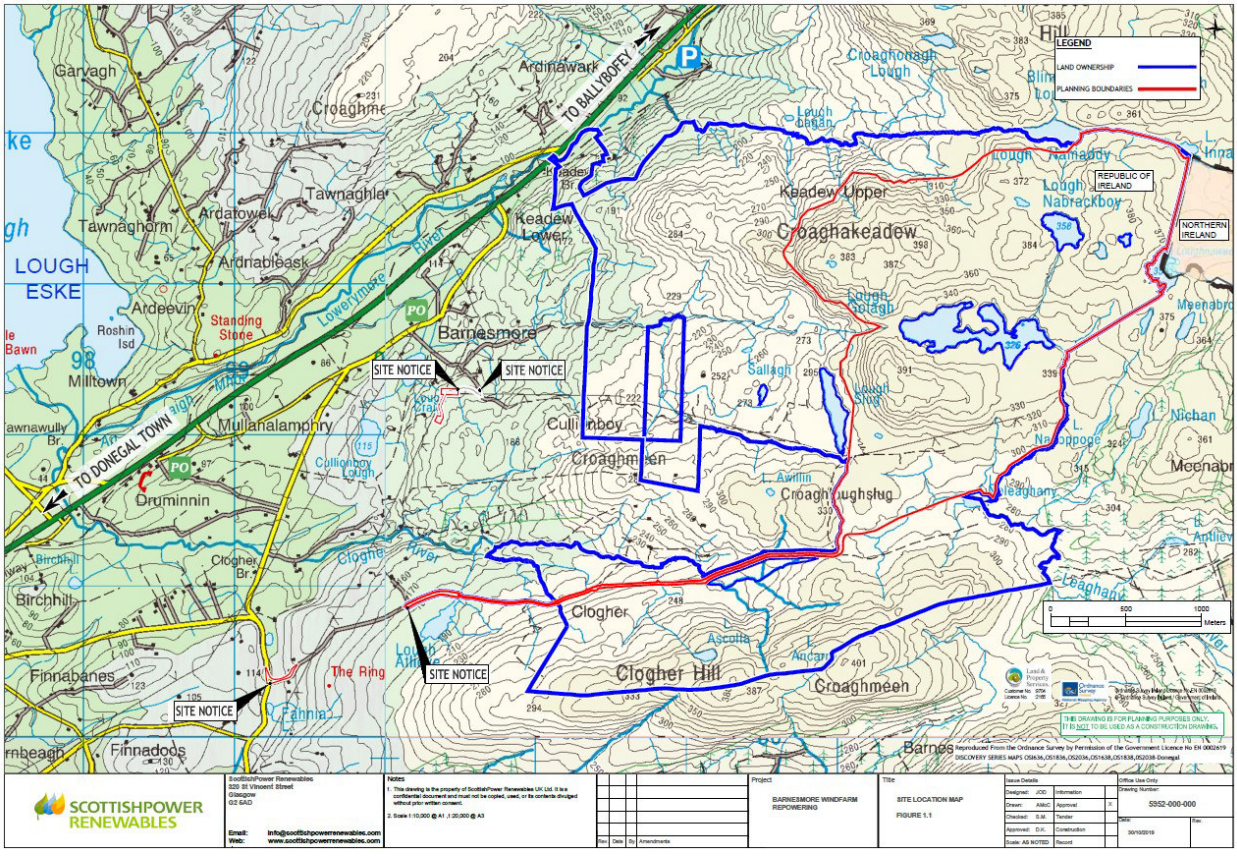

Figure 1.1: Site Location Map

2. Assessment Methodology

The following assessment methodology has been formulated following, inter alia, the following guidance documents;

a) Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments – Prepared for: Energy Consents Unit Scottish Government – Second Edition, April 2017 (Ref. 1).

The assessment architecture is as follows;

a) Baseline desk study to determine nature of the Site in terms of history of land stability issues.

b) Consider existing pressures on the receiving environment.

c) Assess the Site in terms of peat depth at and near proposed infrastructure locations.

d) Assess the Site in terms of peat quality and condition at and near proposed infrastructure locations.

e) Assess laboratory data for peat sample obtained on the Site.

f) Assess proposed infrastructure locations in terms of distance to receptors.

g) Assess the Site in terms of topography and substrate topology.

h) Identify an appropriate, and run data through a numerical evaluation system (peat stability).

i) Derive risk matrices for the purposes of consolidating parameters, including defining parameters and inferred values.

j) Identify caveats.

k) Conclusions on slope stability and potential impact of the Development on same.

2.1 Methodology for assessing site conditions

2.1.1 Peat depth probing & topography assessments

Peat depth probing and gouge coring surveys were undertaken at each proposed potential turbine location, and at proposed locations for other infrastructure including an Energy Storage Unit. Depth probing was conducted using a fibreglass depth probe and at each survey point the depth of peat, local incline (incline within a c. 5-10 m radius of the survey point) and grid reference (Irish Grid) were recorded. Notes on observations were also recorded including time of taking photographs, presence of drains etc.

2.1.2 Peat gouge coring & qualitative assessments

Gouge coring surveys were also undertaken at each proposed potential turbine location, that is, obtaining peat core by means of a handheld gouge core for the purpose of observing, logging, qualifying (Von Post Scale) and sampling peat across the entire peat depth profile. At each survey

point the depth of peat, the degree of humification and fibre content (Von Post Scale), the moisture content observed, colour and grid reference (Irish Grid) were recorded. Photos and samples of each 0.5 m core were also taken and samples were sent to an accredited laboratory to analysis (pH and moisture content). Gouge coring survey points were limited to approximately four points per proposed infrastructure location, which is an adequate number of sampling points to determine peat condition on the site. In situ shear strength of the peat was also undertaken at several locations across the proposed site.

2.1.3 Piezometer installation & groundwater assessments

At a limited number of gouge coring sampling locations, a phreatic piezometer was installed and groundwater levels were monitored using a dip meter.

2.1.4 Topography & substrate topology

Using available topographical data provided for the site, and peat thickness / depth data obtained during MEL surveys, the topology (characteristics of a surface) of the substrate underlying the peat on site was assessed and cross sections generated to evaluate variance from the surface topology.

2.1.5 Peat stability numerical assessment

This stability assessment has been undertaken using a relatively simple infinite slope stability approach (Ref. 12) (derived from Bromhead's formula (Ref. 1)), as follows;

$$FoS = \frac{c_u}{yz \sin\alpha \cos\alpha}$$

For the purpose of this assessment, the above formula will be referred to as the *FoS Formula*.

Qualifying peat stability at all peat survey points was done using the following parameters;

Table 1: Formula Parameters & Symbols

Symbol	Description	Unit
FoS	Factor of Safety	FoS
c_u	Effective cohesion or Undrained Shear Strength	kPa
y	Bulk Unit Weight of Peat	kN/m3
z	Depth to failure plain	m
α	Slope Angle	Degrees

The Factor of Safety (FoS) result will range from 0 to infinity, however the following ranges are prescribed ratings as follows;

Table 2: Factor of Safety (FoS) Classifications (Ref. 1)

Description	FoS Value Range	Classification
Stable	>1.3	Acceptable
Marginally Stable	1.0 > < 1.3	Acceptable
Unstable	<1.0	Unacceptable

As per the guidance listed in Section 2 of this report, FoS values of 1.0 or greater are considered acceptable in terms of peat stability (Ref. 1).

The assessment has been completed on the basis of 2 no. scenarios, which are as follows;

1. Scenario A – Peat stability in terms of the receiving environment as is, that is using the depth of peat observed and recorded during site surveys.

2. Scenario B – Peat stability in terms of the in situ peat with 1m fill (presumed peat) placed on top, that is using the depth of peat observed and recorded during site surveys plus 1 metre fill (depth + 1.0m). This is the assessment worst case scenario and this will be used to assess stability at proposed infrastructure locations.

Undrained shear strength (effective cohesion) (c_u) has been derived by means of assessing moisture content results, that is; there is a correlation between peat moisture content and shear strength (effective cohesion). Shear vane testing has been carried out on the site however, shear vane test, or in situ barrel shear tests are not considered representative of shear strength characteristics of the peat being assessed in terms of stability assessment given numerous flaws with the test itself, namely; the shear vane test evaluates the shear strength where by the force is exerted in a vertical and cylindrical plane, which is not indicative of forces at play with respect slope stability or mass movement; and fibres and roots within the peat will effect the test itself, potentially exaggerating, or giving misleading data. The following graph presents conceptual shear strength values for peat (Ref. 2).

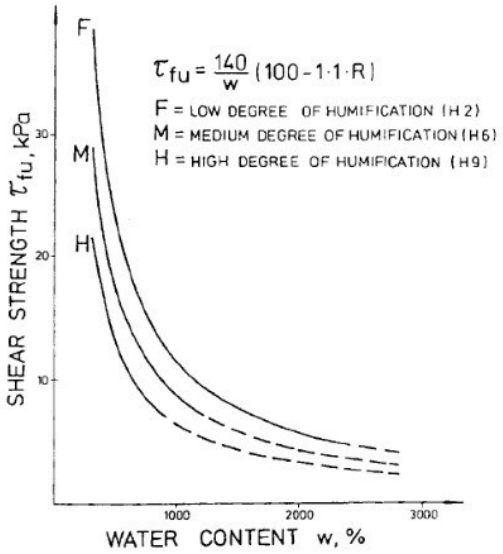

Figure 2: Correlation Between Moisture Content and Shear Strength of Peat (Ref. 2)

The following table presents the minimum, average and maximum moisture content which been used to determine an indicative shear strength values for the Site. Laboratory certificates are presented in **Attachment A**.

Table 3: Peat Moisture Content Range & Indicative Shear Strength

Category	Moisture Content (%)	Indicative Shear Strength (kPa)
Minimum	200	>20
Median	760	10-20

Average	781	10-20
Maximum	1515	<10

For the purpose of assessing peat stability for the Site a conservative undrained shear strength (effective cohesion) value will be used in numerical assessments; i.e. 3.5 kPa.

In situ bulk density (kg/m^3), or bulk unit weight (kN/m^3) of peat (y) is typically within the range of 900-1100 kg/m^3 (Ref. 3), or 8.8-10.8kN/m^3. For the purpose of assessing peat stability for the Site a conservative bulk unit weight value will be used in numerical assessments i.e. 11kN/m^3.

The depth to failure plane (z) is presumed to be thickness or depth of peat at any given sampling point being assessed, however it should be noted that the failure plane can potentially be within peat (peat on peat movement), or the substrate i.e. weathered rock or underlying soils.

Slope angle (α) is presumed to be topographical incline measured on site at any given sampling point being assessed, however it should be noted that the slope angle (α) relates to the failure plane angle, which is presumed to be the peat and substrate interface, and which is presumed to be parallel to the surface when using FoS Formula (Infinite Slope Formula). In reality the underlying substrate is unlikely to be parallel to the surface topology.

It should be noted that FoS Formula does not account for forces related to the toe and head of an area or mass of soil with the potential for mass movement, that is; in reality the Infinite Slope formula will likely exaggerate stability conditions negatively.

The following table lists parameter values, including inferred conservative parameter values used in numerical assessments.

Table 4: Formula Parameters, Symbols & Inferred Conservative Values

Symbol	Description	Value	Unit
c_u	Effective cohesion	3.5	kPa
y	Bulk Unit Weight of Peat	11	kN/m3
z	Depth to failure plain	Depth of Peat	m
α	Slope Angle	Surface Topography	Degrees

2.1.6 Risk Matrices & Ranking

In assessing the risk in relation to stability on site it is important to rate the risk in terms of the hazard, the likelihood and the consequences if any such issue should arise. Therefore, the slope stability risk assessment considers the following parameters, which are assessed by means of a series of risk matrices (Ref. 1).

Table 5: Parameters Included In Risk Matrices and Assessed

Category	Description
Landslide History	Considers the likelihood of landslide events occurring based on the history of the site, including the current site use.
Factor of Safety	As described above, includes the following; • Peat depth • Peat quality / condition • Moisture content • Incline (surface topography) • Shear strength • Bulk unit weight of peat

Substrate Topology	Identifying and qualifying variance in substrate topology and qualifying variance from theory underlining the stability formula used i.e. Infinite Slope (Parallel and no foot and head forces)
Significance of Receptor	Qualifying potential receptors in terms of significance.
Distance to Receptor	Qualifying localised proposed development areas in terms of distance to nearest receptor.

Considering the above parameters, the stability assessment follows the following steps;

1. FoS_{RAW} - Assess the site in terms of soil stability using the FoS Formula and calculate a Factor of Safety (FoS) using the *raw* data. This step is considered as preparation of the data obtained for the site i.e. translating the data to a value related to stability, and is not considered the final output of the stability assessment.

2. $FoS_{ADJUSTED}$ - Assess the FoS_{RAW} values in terms of suitability of the application of FoS Formula by considering the history of landslides in relation to the proposed site, and the topology of the substrate compared to the surface topology of the site. This is done by means of a risk matrix which qualifies the point, and also applies a coefficient for the next risk assessment step.

3. Risk Ranking RR_{SF} - The $FoS_{ADJUSTED}$ data is assessed in terms of significance of associated receptor. This is done by means of a risk matrix which qualifies the point, and also applies a coefficient for the next risk assessment step.

4. Risk Ranking RR_D – The RR_{SF} data is assessed in terms of distance to associated receptor. This is done by means of a risk matrix which qualifies the point.

Results and conclusions made by means of the above risk assessment are viewed as two tiered, that is;

1. The likelihood of a stability issue or landslide while considering the significance of the receptor (RR_{SF}).

2. The consequence of a stability issue or landslide while considering the distance to the receptor (RR_D).

For example; (1) The risk of a stability issues or landslide occurring at location X and impacting on receptor Y is negligible. (2) Considering the short distance from location X to receptor Y, in the unlikely event that an issue did arise the risk of adverse impacts effecting receptor Y is moderate.

Risk Matrices are presented in **Attachment B**.

3. Baseline Conditions

3.1 Site Description & History

There are no recorded landslide events within or directly adjacent to the Site (Ref. 4).

There were no indication of stability issues or mass movement observed on the Site during site surveys. There are indications of soil creep.

The Site is mapped as having areas ranging from Low Risk (LR), Moderately Low Risk (MLR), Moderately High Risk (MHR), and High Risk (HR) in terms of Landslide Stability, that is full spectrum of slope stability risk categories (GSI, ND). The infrastructure associated with the existing Barnesmore Windfarm is within areas mapped as being LR, MLR and MLR, no existing infrastructure is within HR areas (Ref. 4). Mapped Landslide Susceptibility (GSI) is presented in **Attachment C**.

Refer to EIAR baseline section for further information (**Chapter 8: Soils and Geology**).

3.2 Site Geology

Consultation with Geological Survey Ireland Spatial Resources (Ref. 4) indicates that the bedrock at 1:1,000,000 scale the Site is underlain by Neoproterzoic Metasedimentary rocks – Dalradian, and at 1:100,000 scale the Site is underlain by the Lough Mourne Formation, described succinctly as; Quartz and feldspar pebbles, green matrix, which occurs chiefly in the western limb of the major Ballybofey Nappe fold structure.

The region contains a multitude of complex geological features however, there are no mapped faults or other significant features underlying the area of the Site.

Rocky outcrops are common within the Site Boundary.

Refer to EIAR baseline section for further information (**Chapter 8: Soils and Geology**).

3.3 Site Soils & Subsoils

Consultation with available maps (Ref. 4) indicate that the soil type across the entire area of the Site, and the general area in the region is Blanket Peat (GSI/Teagasc ref. = BktPt), with several significant areas mapped as being Bedrock at Surface (Rck).

Peat depths observed on the Site range from 0.0m (Rock at surface) to >5.0 m (Extremely deep peat), however depths at most sampling points are within the range of 0.0-2.0 m and areas with deeper, particularly extremely deep peat have been avoided in terms of the Development footprint. Peat depths are mapped and presented in **Attachment D**.

Peat quality assessment (by gouge coring) indicate high Von Post values (generally H7 to H8) across the Site. Gouge core graphical logs have been prepared and are presented in **Attachment E**.

Refer to EIAR baseline section for further information (**Chapter 8: Soils and Geology**).

3.4 Topography & Substrate Topology

The topography at and in the immediate area surrounding the Site is highly variable with multiple peaks, ridges with variable elevations and inclines. At lower elevations the topography is relatively

flat or comprising of low magnitude inclines, however at mid and high elevation relative to the Site, steep high magnitude inclines are common place.

Surface topology has been compared to substrate topology, conceptual cross sections are presented in **Attachment F**. Locations of cross sections are mapped and presented in **Attachment D**.

Conceptual cross sections indicate that the substrate topology varies significantly to surface topology. Highest rates of variance are associated with areas which include deeper peat, that is; areas of deeper peat are contained with "pockets" delineated by areas or ridges of shallow bedrock. Areas with generally shallower peat have less variance from the substrate however such areas are indicatively low risk in terms of stability given the peat is shallow.

3.5 Hydrology & Climate

The Site is associated with two catchments; Donegal Bay North catchment (EPA ID = 37, Area = 805.36km2) and Foyle catchment (EPA ID = 01, Area = 1105.66km2). A detailed flow chart describing; sub-catchments, river sub-basins, and the surface water features contained in each catchment is presented in **Chapter 9: Hydrology and Hydrogeology – Technical Appendix 9.4** (Ref. 5, Ref. 6). The chart also indicates which turbines are associated with each surface water system, note: a small number of proposed turbine locations are on or close to surface water catchment boundaries, and are therefore accounted for more than once. The surface water features associated with the Site are mapped and presented in **Attachment G**.

Maximum effective rainfall data (Ardnawarak Barnesmore) indicates that the Site could potentially receive approximately 206 mm/month of effective rain fall during the wettest months, or approximately an average of 13 mm of effective rainfall per day during the wettest months. However, 100 year return periods, or 1 in100 year storm event data indicates that the site could potentially receive up to or more than 150 mm of rainfall in a day, and potentially 40 mm of rainfall in hour during extreme weather events (Ref. 7).

In 2018 Ireland experienced a significant drought, with absolute drought conditions recorded at twenty one stations at various times between the 22nd May and 14th July. The Site generally experienced drier than average conditions between March and July 2018, with wetter than average conditions in the following months, August and September 2018. This can be viewed as a natural "stress test" for slope stability given that such conditions are indicative triggering mechanisms for peat failure and landslides (Ref. 8, Ref. 9, Ref. 10, Ref. 11).

Refer to EIAR baseline section for further information (**Chapter 9: Hydrology and Hydrogeology**).

3.6 Receptors

Receptors associated with the Development are limited to non-critical infrastructure and water bodies. There are no communities, dwellings, or other similar facilities at risk in terms of slope stability at the Site. Receptors associated with the proposed development, that is; streams, rivers, lakes and groundwater, are considered highly sensitive receptors considering;

- High or good WFD status and objective to protect same.
- Moderate WFD status and objective to restore same to at least good status by 2021.
- The numerous downgradient designations (sensitive protected areas) associated with each of the two associated catchments and the sensitive habitats and species associated with same.
- Designation of some downgradient surface water bodies and all groundwater bodies as sources of drinking water.

Ultimately, all surface water and groundwater associated with the Site is considered sensitive and must be protected as per numerous legislative instruments relating to same. However, risk to receptors must consider both the hazard, and likelihood of adversely impacting on any given sensitive receptor, and therefore parameters such as; distance from potential source of hazard to receptor, pathway directness and/or connectivity, and assimilative capacity of the receiving water body should also be considered.

Distance of proposed turbine and hard stand areas have been assessed in terms of distance to associates receptors (surface water features), the results for which are presented in **Attachment H**.

Refer to EIAR baseline section for further information (**Chapter 9: Hydrology and Hydrogeology)**.

4. Results

The following results are related to Scenario B, that is; peat depth + 1m fill (assessment worst case scenario)

4.1 Factor of Safety Adjusted ($FoS_{ADJUSTED}$).

There are no recorded landslide events within or in the vicinity of the area Development. The Site experienced extreme weather conditions in 2018 and despite this there were no indications of stability issues observed on the Site during site surveys in 2019. The Site includes the Operational Barnesmore Windfarm and associated infrastructure, and despite it's installation c. 1997 there are no indications of stability issues as a product of the existing windfarm. Considering the above points, within the risk matrix *Accounting for Landslide History and Substrate Topology with a view to adjusting calculated FoS*, the Landslide History Coefficient (μ_{His}) prescribed for the Site is 1 for all sampling points.

As presented in Conceptual Cross Sections (**Attachment F**) there is significant variance between surface topology and substrate topology, therefore the Substrate Topology Characteristics (μ_{Topo}) for the site is 1 for all sampling points.

The resulting FoS Adjustment Coefficient prescribed is 1, that is; $FoS_{RAW} + 0.5 = FoS_{ADJUSTED}$.

4.2 Risk Ranking Considering Significance of Receptor (RR_{SF})

Each proposed infrastructure unit has been assessed in terms of significance of associated receptor. The Site is remote with no dwellings, populations etc in the vicinity, therefore the most sensitive receptor associated to each infrastructure unit is the closest surface water system, and therefore within *Ranking Risk re Potential for Adverse Consequences on Sensitive Receptors* the Significant Feature Coefficient (μ_{SF}) prescribed to each location is 2, which is assessed against the $FoS_{ADJUSTED}$ value for each sampling point.

Results for the prescription of Significant Feature Coefficient (μ_{SF}) are presented in **Attachment H**.

Results for RR_{SF} are presented in **Attachment I**.

4.3 Risk Ranking Considering Distance to Receptor (RR_D)

Each proposed infrastructure unit has been assessed in terms of distance to associated receptor and prescribed a Distance to Significant Feature Coefficient ($\mu_{Dist.}$). Thereafter, within *Accounting for distance to Sensitive Receptors* risk matrix, $\mu_{Dist.}$ is assessed against the RR_{SF} Coefficient (μ_{RRSF}) value for each sampling point.

Results for the prescription of Distance to Significant Feature Coefficient (μ_D) are presented in **Attachment H**.

Results for RR_D are presented in **Attachment I**.

4.4 Results Summary

A summary table detailing results has been drafted and is presented in **Attachment J**.

5. Conclusions

The following table further distills and clarifies results as presented in **Attachments I** and **Attachment J**.

Table 6: Stability Risk Assessment Conclusions

Stability Risk Assessment Conclusion Table Prepared by: SK. Date: 22/08/19. File Ref.: 3006-011.xls		
Turbine No. / Unit	**RR_{SF}** **Ranked Risk Considering Sensitive Receptor**	**RR_{D}** **Ranked Risk Considering Distance to Sensitive Receptor**
1	The risk of stability issues arising at this location is **NEGLIGIBLE** (with a degree of **LOW** risk)	The risk of significant impact on receptor in the **UNLIKELY** event of stability issues at this location is **NEGLIGIBLE** (with a degree of **LOW** risk)
2	The risk of stability issues arising at this location is **NEGLIGIBLE** (with a degree of **LOW** risk)	The risk of significant impact on receptor in the **UNLIKELY** event of stability issues at this location is **LOW** (with a degree of **MODERATE** risk)
3	The risk of stability issues arising at this location is **NEGLIGIBLE**	The risk of significant impact on receptor in the **UNLIKELY** event of stability issues at this location is **MODERATE**
4	The risk of stability issues arising at this location is **NEGLIGIBLE**	The risk of significant impact on receptor in the **UNLIKELY** event of stability issues at this location is **LOW**
5	The risk of stability issues arising at this location is **NEGLIGIBLE** (with a degree of **LOW** risk)	The risk of significant impact on receptor in the **UNLIKELY** event of stability issues at this location is **NEGLIGIBLE** (with a degree of **LOW** risk)
6	The risk of stability issues arising at this location is **NEGLIGIBLE** (with a degree of **LOW** risk)	The risk of significant impact on receptor in the **UNLIKELY** event of stability issues at this location is **NEGLIGIBLE** (with a degree of **LOW** risk)
7	The risk of stability issues arising at this location is **NEGLIGIBLE** (with a degree of **LOW** risk)	The risk of significant impact on receptor in the **UNLIKELY** event of stability issues at this location is **NEGLIGIBLE** (with a degree of **LOW** risk)
8	The risk of stability issues arising at this location is **NEGLIGIBLE**	The risk of significant impact on receptor in the **UNLIKELY** event of stability issues at this location is **NEGLIGIBLE**
9	The risk of stability issues arising at this location is **NEGLIGIBLE** (with a degree of **LOW** risk)	The risk of significant impact on receptor in the **UNLIKELY** event of stability issues at this location is **NEGLIGIBLE** (with a degree of **LOW** risk)
10	The risk of stability issues arising at this location is **NEGLIGIBLE**	The risk of significant impact on receptor in the **UNLIKELY** event of stability issues at this location is **NEGLIGIBLE**
11	The risk of stability issues arising at this location is **NEGLIGIBLE** (with a degree of **LOW** risk)	The risk of significant impact on receptor in the **UNLIKELY** event of stability issues at this location is **NEGLIGIBLE** (with a degree of **LOW** risk)
12	The risk of stability issues arising at this location is **NEGLIGIBLE**	The risk of significant impact on receptor in the **UNLIKELY** event of stability issues at this location is **LOW**
13	The risk of stability issues arising at this location is **NEGLIGIBLE**	The risk of significant impact on receptor in the **UNLIKELY** event of stability issues at this location is **MODERATE**
Met Mast	The risk of stability issues arising at this location is **NEGLIGIBLE** (with a degree of **LOW** risk)	The risk of significant impact on receptor in the **UNLIKELY** event of stability issues at this location is **NEGLIGIBLE** (with a degree of **LOW** risk)
Battery Unit	The risk of stability issues arising at this location is **NEGLIGIBLE**	The risk of significant impact on receptor in the **UNLIKELY** event of stability issues at this location is **LOW**

To conclude;

- The risk of stability issues arising at all proposed infrastructure unit location is **NEGLIGABLE**.
- The risk of significant impact on associated receptors in the **UNLIKLEY** event of stability issues arising ranges from **NEGLIGIBLE** to **MODERATE**.

6. Caveats & Recommendations

The risk of landslides occurring on the proposed site under worst case scenario conditions (plus 1m fill) has been determined to be low (negligible) however, the following points should be noted;

1. The low risk classification is largely driven by shallow peat depths at proposed infrastructure locations, and by the undulating nature of the substrate topology, however the peat condition i.e. highly humified peat (high Von Post values) and the evidence of soil creep on the site suggest that soil stability at a highly localized scale may give rise to some difficulty e.g. collapse of side walls in excavations, and subsidence over time under newly installed floating hardstands (on peat), etc. Such potential issues give rise to the need for vigilance during and after the construction phase of the proposed development and it is recommended that all works are supervised by a competent person (Geotechnical Engineer) and that the site is monitored at a reasonable frequency during the operational phase of the proposed development.
2. The purpose of this report is to assess the proposed infrastructure units associated with the proposed development; Barnesmore Windfarm Repower. The proposed site contains an existing windfarm and associated infrastructure; the existing Barnesmore Windfarm. The proposed development will utilize the existing trackways, therefore the assessment reported here is limited to the proposed locations of new infrastructure units. The proposed site is mapped as having areas classified as high risk in terms of landslide susceptibility however, although stability would likely be an issue in these areas, the footprint of the existing and proposed development does not include these high risk areas.

7. References

No.	Description
1.	Scottish Government (2017) *Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments*
2.	N. Boylan, P. Jennings & M. Long (2008) *Peat slope failure in Ireland*. Quarterly Journal of Engineering Geology and Hydrogeology. Available at https://www.researchgate.net/publication/245379146_Peat_slope_failure_in_Ireland Accessed: 20/08/19
3.	R. Munro (2004) *Dealing with bearing capacity problems on low volume roads constructed on peat.* Roadex, Northern Periphery.
4.	GSI Map Viewer. Available at: http://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228 Accessed: 20/08/19
5.	EPA Map Viewer. Available at: https://gis.epa.ie/EPAMaps/ Accessed: 20/08/19
6.	EANI River Basin Viewer. Available at https://appsd.daera-ni.gov.uk/RiverBasinViewer/. Accessed; 20/08/19
7.	D. L. Fitzgerald (2007) *Estimation of point rainfall frequencies.* Irish Meteorological Service Technical Note 61
8.	R. A. Lindsay (2005) *Wind Farms and Blanket Peat - The Bog Slide of 16th October 2003 at Derrybrien, Co. Galway, Ireland*. University of East London and The Derrybrien Development Cooperative Ltd.
9.	Farrell, E.R., Long, M., Gavin, K. Henry, T.; (2006) 'Chapter 4: Geotechnics of Landslides' In: Creighton, R (eds). Landslides in Ireland . Dublin: Geological Survey of Ireland. , pp.23-31
10.	Met Eireann (MET) (2018) *2018, A summer of Heat Waves and Droughts*
11.	Met Eireann (MET) (2018) *Available Data.* Available: https://www.met.ie Accessed: 06/08/19
12.	Boylan, N. and Long, M. (2012) *Evaluation of peat strength for stability assessments.* Geotechnical Engineering Volume 167 Issue GE5, Institution of Civil Engineers (ICE)

Attachment A

Element Materials Technology
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Minerex Environmental Ltd
Taney Hall
Eglinton Terrace
Dundrum
Dublin 14
Ireland

Attention :	Jen Caleno
Date :	15th July, 2019
Your reference :	3006-028 (COC3)
Our reference :	Test Report 19/11021 Batch 1
Location :	Barnesmore WF RP, Co. Donegal
Date samples received :	8th July, 2019
Status :	Final report
Issue :	1

Fifty three samples were received for analysis on 8th July, 2019 of which fifty three were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Phil Sommerton BSc
Senior Project Manager

Element Materials Technology

Client Name: Minerex Environmental Ltd
Reference: 3006-028 (COC3)
Location: Barnesmore WF RP, Co. Donegal
Contact: Jen Caleno
EMT Job No: 19/11021

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1	2	3	4	5	6	7	8	9	10	LOD/LOR	Units	Method No.
Sample ID	3006-GC104-SS1-COC3	3006-GC104-SS2-COC3	3006-GC104-SS3-COC3	3006-GC104-SS4-COC3	3006-GC104-SS5-COC3	3006-GC107-SS1-COC3	3006-GC107-SS2-COC3	3006-GC107-SS3-COC3	3006-GC107-SS4-COC3	3006-GC113-SS1-COC3			
Depth	0.00-0.50	0.50-1.00	1.00-1.50	1.50-2.00	2.00-2.45	0.00-0.50	0.50-1.00	1.00-1.50	1.50-2.15	0.00-0.50			
COC No / misc													
Containers	T	T	T	T	T	T	T	T	T	T			
Sample Date	02/07/2019	02/07/2019	02/07/2019	02/07/2019	02/07/2019	02/07/2019	02/07/2019	02/07/2019	02/07/2019	02/07/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019			
Natural Moisture Content	826.1	1164.7	825.0	980.0	643.3	1052.6	886.4	942.9	667.9	603.2	<0.1	%	PM4/PM0
pH #	4.99	4.36	4.35	4.52	5.24	4.37	4.67	4.46	4.63	4.36	<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Minerex Environmental Ltd
Reference: 3006-028 (COC3)
Location: Barnesmore WF RP, Co. Donegal
Contact: Jen Caleno
EMT Job No: 19/11021

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	11	12	13	14	15	16	17	18	19	20	LOD/LOR	Units	Method No.
Sample ID	3006-GC113-SS2-COC3	3006-GC113-SS3-COC3	3006-GC113-SS4-COC3	3006-GC116-SS1-COC3	3006-GC116-SS2-COC3	3006-GC116-SS3-COC3	3006-GC123-SS1-COC3	3006-GC123-SS2-COC3	3006-GC128-SS1-COC3	3006-GC128-SS2-COC3			
Depth	0.50-1.00	1.00-1.50	1.50-1.90	0.10-0.50	0.50-1.00	1.00-1.30	0.15-0.50	0.50-1.15	0.00-0.50	0.50-1.00			
COC No / misc													
Containers	T	T	T	T	T	T	T	T	T	T			
Sample Date	02/07/2019	02/07/2019	02/07/2019	02/07/2019	03/07/2019	03/07/2019	03/07/2019	03/07/2019	03/07/2019	03/07/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019			
Natural Moisture Content	1077.8	1158.8	551.5	617.2	464.1	928.6	1135.3	760.0	872.7	1340.0	<0.1	%	PM4/PM0
pH #	4.44	4.62	4.72	4.27	4.27	4.31	4.17	4.37	4.32	4.63	<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Minerex Environmental Ltd
Reference: 3006-028 (COC3)
Location: Barnesmore WF RP, Co. Donegal
Contact: Jen Caleno
EMT Job No: 19/11021

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	21	22	23	24	25	26	27	28	29	30	LOD/LOR	Units	Method No.
Sample ID	3006-GC128-SS3-COC3	3006-GC128-SS4-COC3	3006-GC128-SS5-COC3	3006-GC130-SS1-COC3	3006-GC130-SS2-COC3	3006-GC138-SS1-COC3	3006-GC138-SS2-COC3	3006-GC138-SS3-COC3	3006-GC138-SS4-COC3	3006-GC144-SS1-COC3			
Depth	1.00-1.50	1.50-2.00	2.00-2.50	0.00-0.50	0.50-1.20	0.00-0.50	0.50-1.00	1.00-1.50	1.50-1.75	0.00-0.50			
COC No / misc													
Containers	T	T	T	T	T	T	T	T	T	T			
Sample Date	03/07/2019	03/07/2019	03/07/2019	03/07/2019	03/07/2019	03/07/2019	03/07/2019	03/07/2019	03/07/2019	04/07/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019			
Natural Moisture Content	1346.7	1287.5	813.0	345.7	869.6	940.0	1047.4	760.0	696.4	491.7	<0.1	%	PM4/PM0
pH #	5.00	4.84	5.11	4.70	4.61	4.03	4.15	4.31	4.45	3.94	<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Minerex Environmental Ltd
Reference: 3006-028 (COC3)
Location: Barnesmore WF RP, Co. Donegal
Contact: Jen Caleno
EMT Job No: 19/11021

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	31	32	33	34	35	36	37	38	39	40	LOD/LOR	Units	Method No.
Sample ID	3006-GC144-SS2-COC3	3006-GC144-SS3-COC3	3006-GC147-SS1-COC3	3006-GC147-SS2-COC3	3006-GC151-SS1-COC3	3006-GC151-SS2-COC3	3006-GC151-SS3-COC3	3006-GC151-SS4-COC3	3006-GC151-SS5-COC3	3006-GC153-SS1-COC3			
Depth	0.50-1.00	1.00-1.70	0.00-0.50	0.50-1.00	0.00-0.50	0.50-1.00	1.00-1.50	1.50-2.00	2.00-2.50	0.00-0.50			
COC No / misc													
Containers	T	T	T	T	T	T	T	T	T	T			
Sample Date	04/07/2019	04/07/2019	04/07/2019	04/07/2019	04/07/2019	04/07/2019	04/07/2019	04/07/2019	04/07/2019	04/07/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019			
Natural Moisture Content	600.0	603.3	583.9	674.1	750.0	1031.6	553.1	590.3	596.7	620.7	<0.1	%	PM4/PM0
pH #	3.97	4.18	4.17	4.27	4.28	4.34	4.43	4.75	5.17	4.12	<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

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All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Minerex Environmental Ltd
Reference: 3006-028 (COC3)
Location: Barnesmore WF RP, Co. Donegal
Contact: Jen Caleno
EMT Job No: 19/11021

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	41	42	43	44	45	46	47	48	49	50	LOD/LOR	Units	Method No.
Sample ID	3006-GC153-SS2-COC3	3006-GC163-SS1-COC3	3006-GC164-SS1-COC3	3006-GC164-SS2-COC3	3006-GC164-SS3-COC3	3006-GC164-SS4-COC3	3006-GC167-SS1-COC3	3006-GC167-SS2-COC3	3006-GC167-SS3-COC3	3006-GC137-SS1-COC3			
Depth	0.50-0.90	0.00-0.65	0.00-0.50	0.50-1.00	1.00-1.50	1.50-2.10	0.00-0.50	0.50-1.00	1.00-1.30	0.00-0.50			
COC No / misc													
Containers	T	T	T	T	T	T	T	T	T	T			
Sample Date	04/07/2019	04/07/2019	04/07/2019	04/07/2019	04/07/2019	04/07/2019	04/07/2019	04/07/2019	04/07/2019	04/07/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019	08/07/2019			
Natural Moisture Content	200.0	345.8	685.2	715.4	471.1	664.3	411.6	505.9	568.8	525.7	<0.1	%	PM4/PM0
pH #	4.45	4.16	4.71	4.63	5.38	5.45	5.10	4.54	5.27	4.37	<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Minerex Environmental Ltd
Reference: 3006-028 (COC3)
Location: Barnesmore WF RP, Co. Donegal
Contact: Jen Caleno
EMT Job No: 19/11021

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	51	52	53									
Sample ID	3006-GC137-SS2-COC3	3006-GC137-SS3-COC3	3006-GC137-SS4-COC3									
Depth	0.50-1.00	1.00-1.50	1.50-2.00									
COC No / misc												
Containers	T	T	T									
Sample Date	04/07/2019	04/07/2019	04/07/2019									
Sample Type	Soil	Soil	Soil									
Batch Number	1	1	1									
Date of Receipt	08/07/2019	08/07/2019	08/07/2019									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Natural Moisture Content	1515.4	1250.0	850.0								<0.1	%	PM4/PM0
pH #	4.42	4.53	4.52								<0.01	pH units	TM73/PM11

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Minerex Environmental Ltd
Reference: 3006-028 (COC3)
Location: Barnesmore WF RP, Co. Donegal
Contact: Jen Caleno

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 19/11021						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 19/11021

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 19/11021

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No

Attachment B

Stability Risk Matrices and Ratings.

Minerex Environmental

Accounting for Landslide History and Substrate Topology with a view to adjusting calculated FoS (FoS Adjustment = μ_{STop} * μ_{His})		Landslide History (μ_{His})		
		No History of Landslides in the vicinity of site.	Some instances of landslides in the vicinity of site	Recorded landslides occerences within the site
Substrate Topology Characteristics (μ_{Topo})	μ	1	2	4
Substrate is parallel to surface topology.	4	FoS + 0	FoS - 0.25	FoS - 0.5
Substrate varies from surface topology to a minor extent.	2	FoS + 0.25	FoS + 0	FoS - 0.25
Substrate varies from surface topology to a significant extent.	1	FoS + 0.5	FoS + 0.25	FoS + 0

FoS Adjustment Coefficient (μ)			
4	8	16
2	4	8
1	2	4

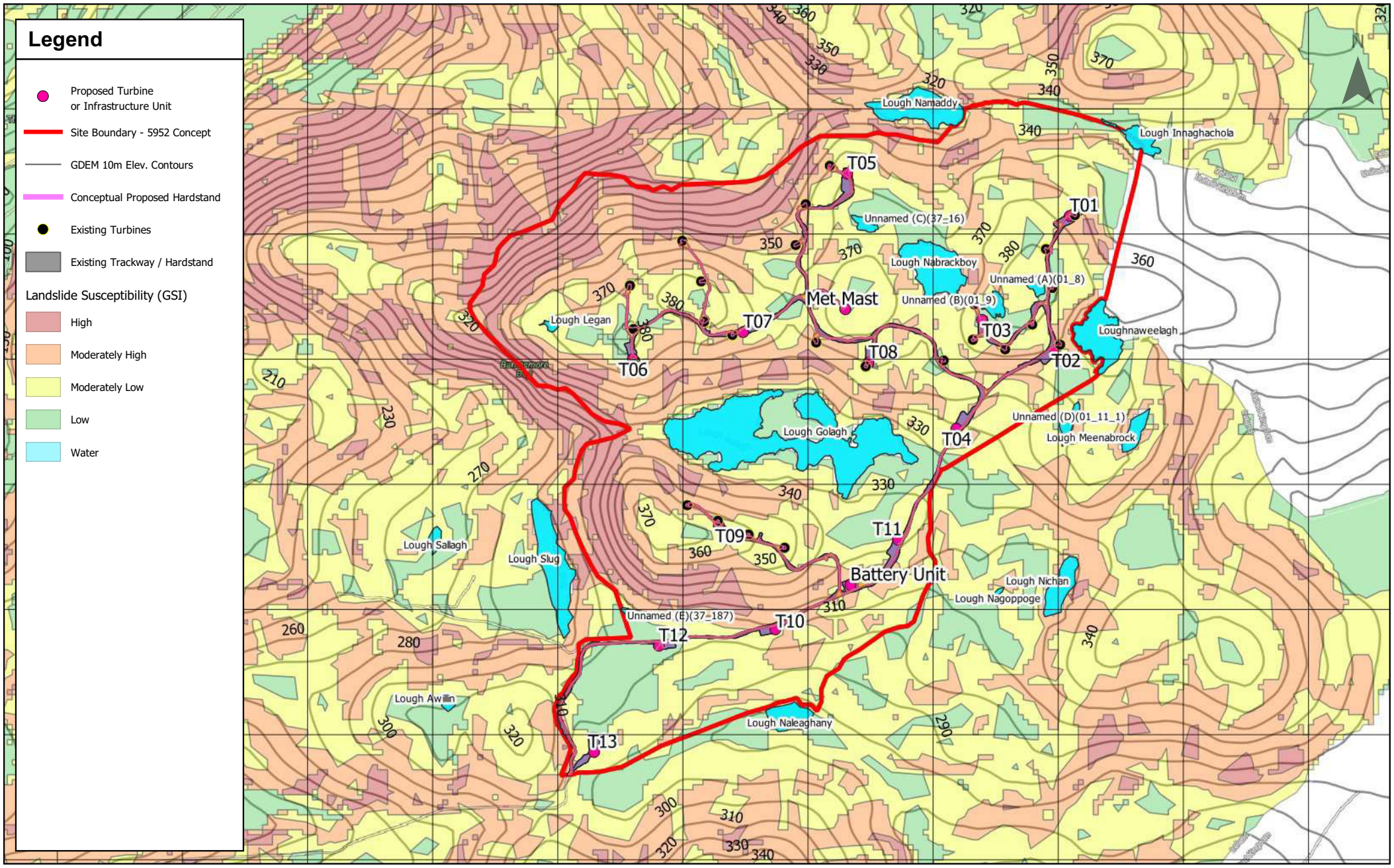
Ranking Risk re Potential for Adverse Consequences on Sensitive Receptors (RR_{SF} = μ_{FoS} * μ_{SF})		FoS re Slope Stability (μ_{FoS})		
		Acceptable (FoS = >1.3)	Marginally Stable (Acceptable) (FoS = 1-1.3)	Unstable (FoS = <1)
Significant Feature (μ_{SF})	μ	1	2	4
Non-critical infrastructure.	1	Neg.	Neg.	Low
Sensitive receptors e.g. surface water feature	2	Neg.	Low	Mod.
Community, dwellings and buildings.	4	Low	Mod.	High

RR_{SF} Coefficient (μ)		
1	2	4
2	4	8
4	8	16

Acounting for distance to Sensitive Receptors (RR_D = μ_{RRSF} * $\mu_{Dist.}$)		Distance to Sig. Feature ($\mu_{Dist.}$)		
		>150m	50-150m	<50m
Risk Ranking re Significant Feature (μ_{RRSF})	μ	1	2	4
Neg. (RR_{SF} = 1-2)	1	Neg.	Low	Mod.
Low (RR_{SF} = 4)	2	Low	Mod.	High
Mod. (RR_{SF} = 8)	4	Mod.	High	High
High (RR_{SF} = 16)	8	High	High	High

RR_D Coefficient (μ)		
1	2	4
2	4	8
4	8	16
8	16	32

Attachment C



SCOTTISHPOWER RENEWABLES

Rev	Date	By	Comment
0	11/11/19	SK	

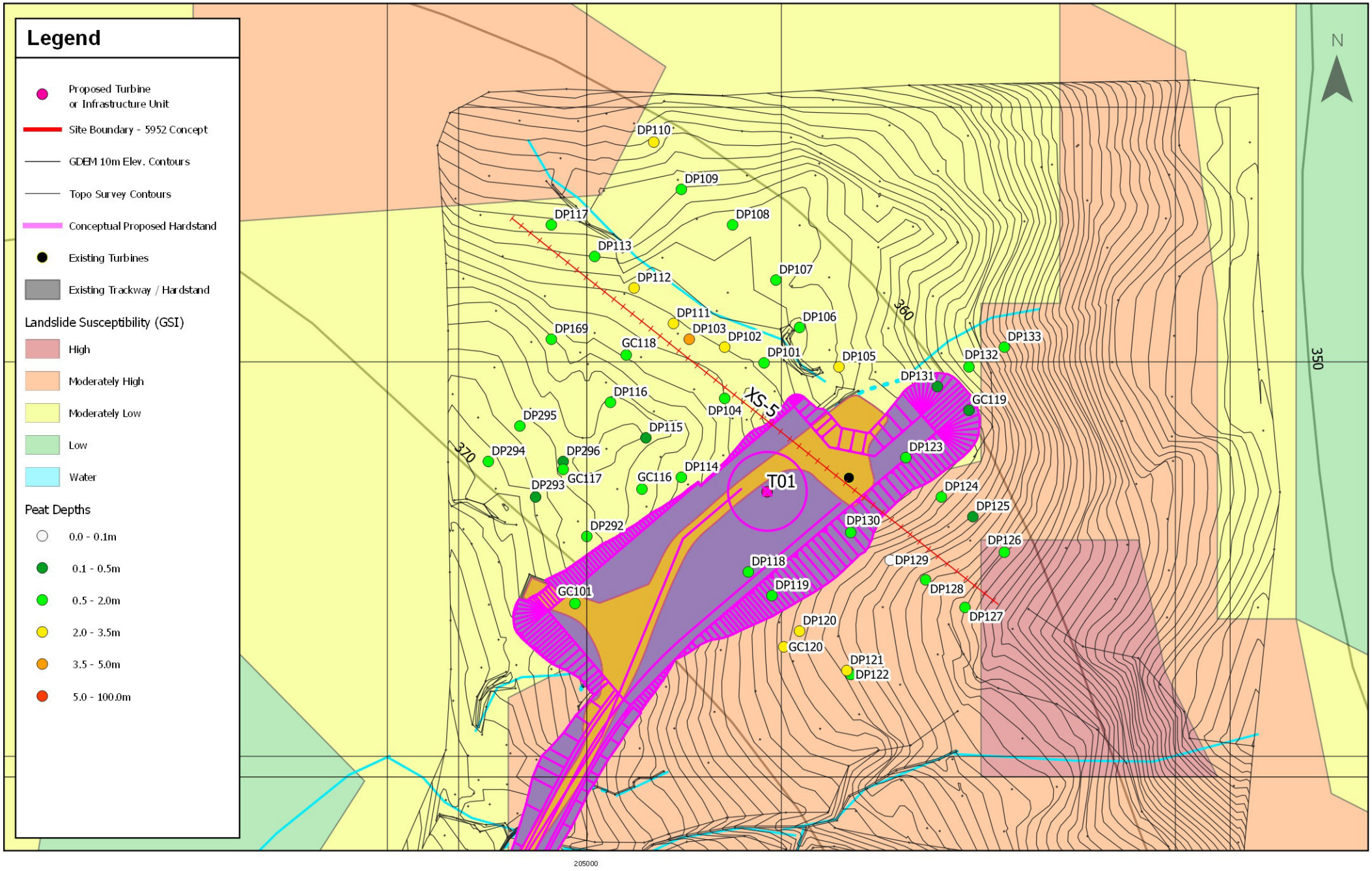
0 0.2 0.4 0.6 0.8 km

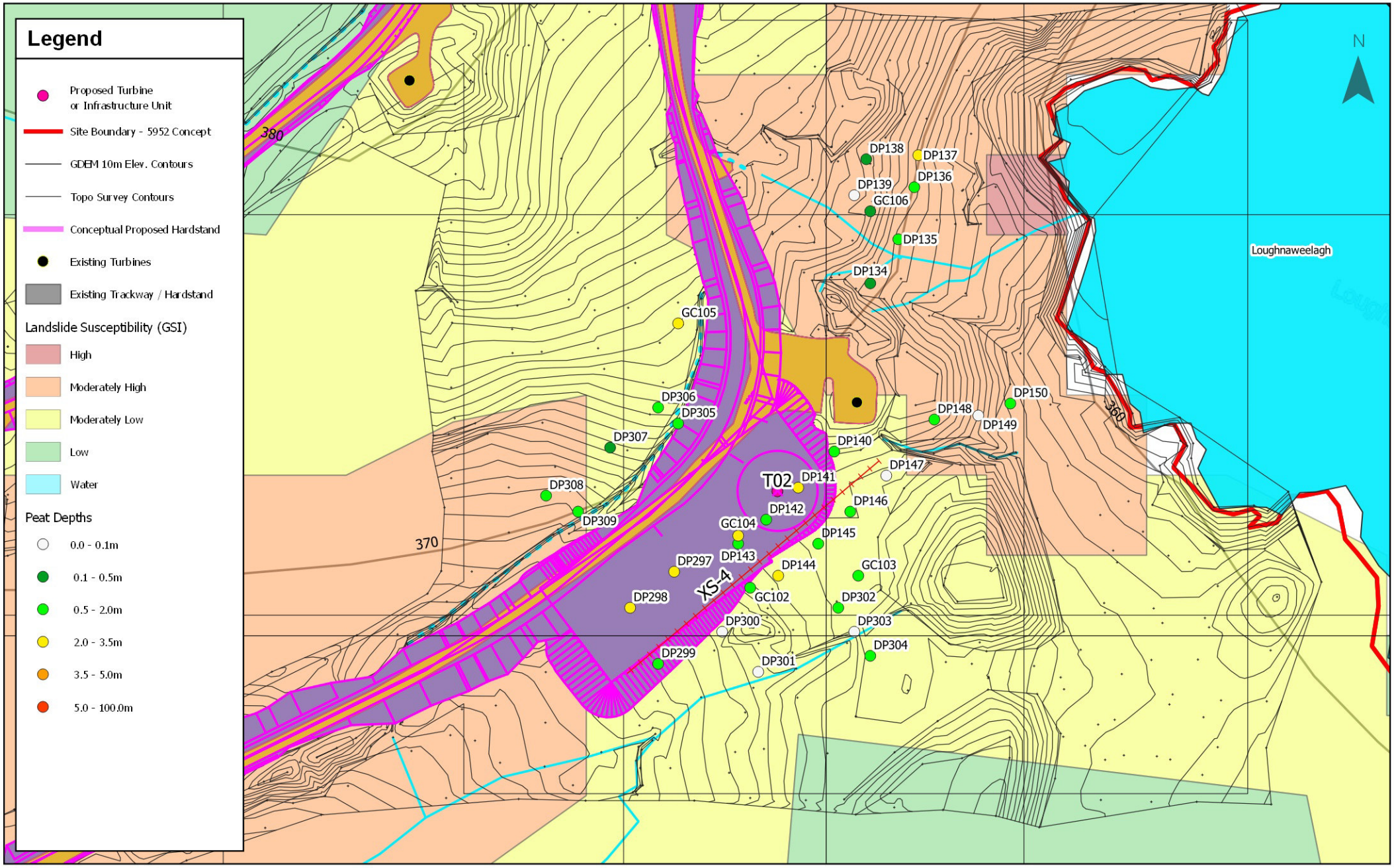
Barnesmore Windfarm Repowering
Landsldie Susceptibility (GSI)

Drwaing Number:	Datum	Projection
3006-008	TM65	Irish Grid TNM65
Scale @ A3 1:20,000	Drawing Produced by **Minerex Environmental Ltd. www.minerex.ie**	

3006-008 Slope Stability Risk Assessment Database & Maps

Attachment D

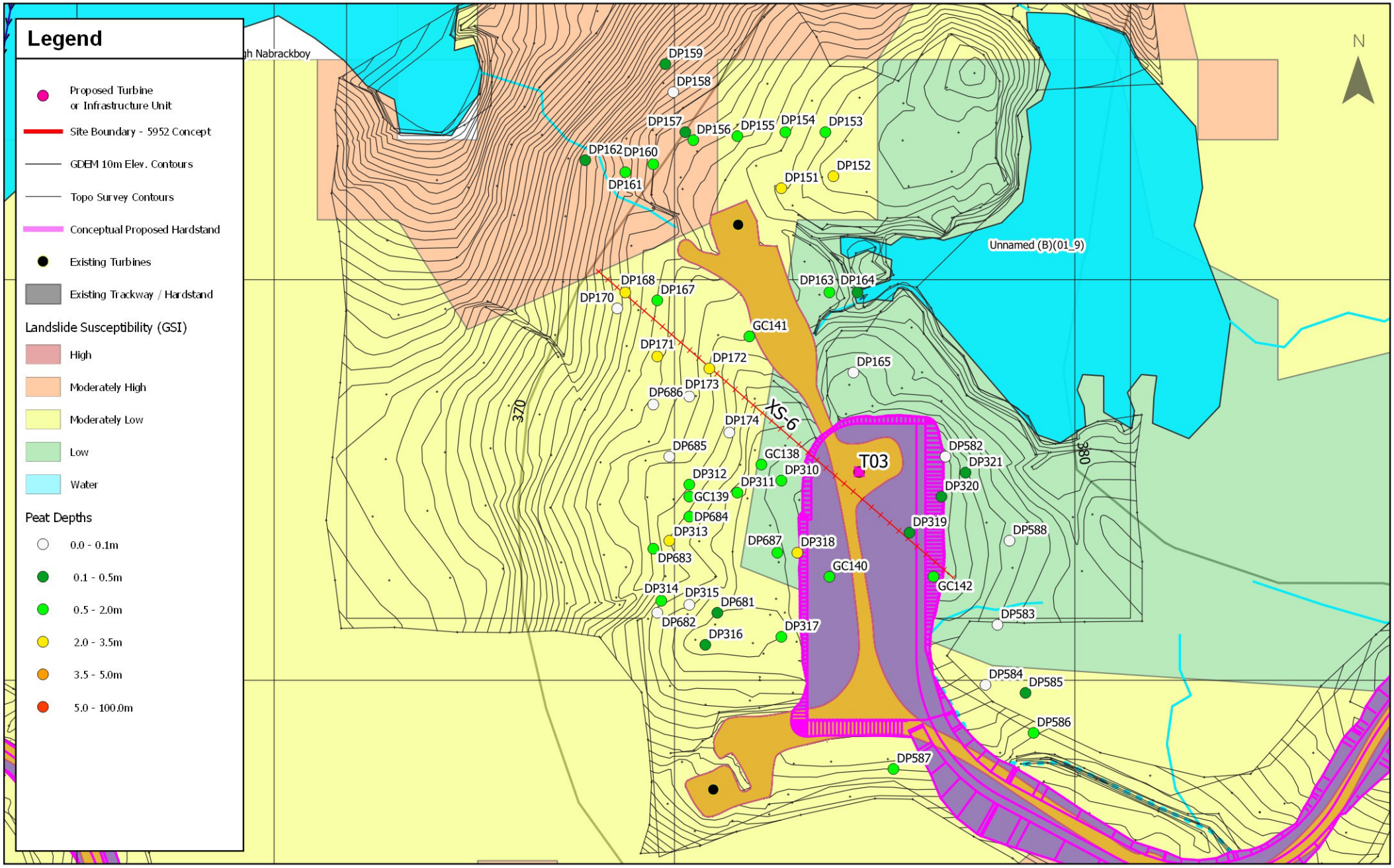

205000
Legend
Proposed Turbine or Infrastructure Unit
Site Boundary - 5952 Concept
GDEM 10m Elev. Contours
Topo Survey Contours
Conceptual Proposed Hardstand
Existing Turbines
Existing Trackway / Hardstand
Landslide Susceptibility (GSI)
High
Moderately High
Moderately Low
Low
Water
Peat Depths
0.0 - 0.1m
0.1 - 0.5m
0.5 - 2.0m
2.0 - 3.5m
3.5 - 5.0m
5.0 - 100.0m
N
383500
205000
DP110
DP109
DP108
DP117
DP113
DP107
DP112
DP111
DP106
DP103
DP102
DP169
GC118
DP101
DP105
DP133
DP132
DP131
GC119
DP116
DP104
XS-5
DP295
DP115
DP294
DP296
DP123
DP114
GC117
GC116
T01
DP293
DP124
DP125
DP292
DP130
DP126
DP118
DP129
DP119
DP128
GC101
DP127
DP120
GC120
DP121
DP122
360
350
370
0
25
50 m
Barnesmore Windfarm Repowering
Peat Depths & Landsldie Susceptibility (GSI)
T1
Drwaing Number: 3006-008
Datum TM65
Projection Irish Grid TNM65
Scale @ A3 1:1,250
Drawing Produced by Minerex Environmental Ltd. www.minerex.ie
SCOTTISHPOWER RENEWABLES
Rev
Date
By
Comment
0
23/08/19
SK
3006-008 Slope Stability Risk Assessment Database & Maps



SCOTTISHPOWER RENEWABLES				0 25 50 m	**Barnesmore Windfarm Repowering** Peat Depths & Landsldie Susceptibility (GSI) T2
	0	23/08/19	SK		
	Rev	Date	By	Comment	

Drwaing Number: 3006-008	Datum TM65	Projection Irish Grid TNM65
Scale @ A3 1:1,250	Drawing Produced by **Minerex Environmental Ltd. www.minerex.ie**	

3006-008 Slope Stability Risk Assessment Database & Maps



0 25 50 m

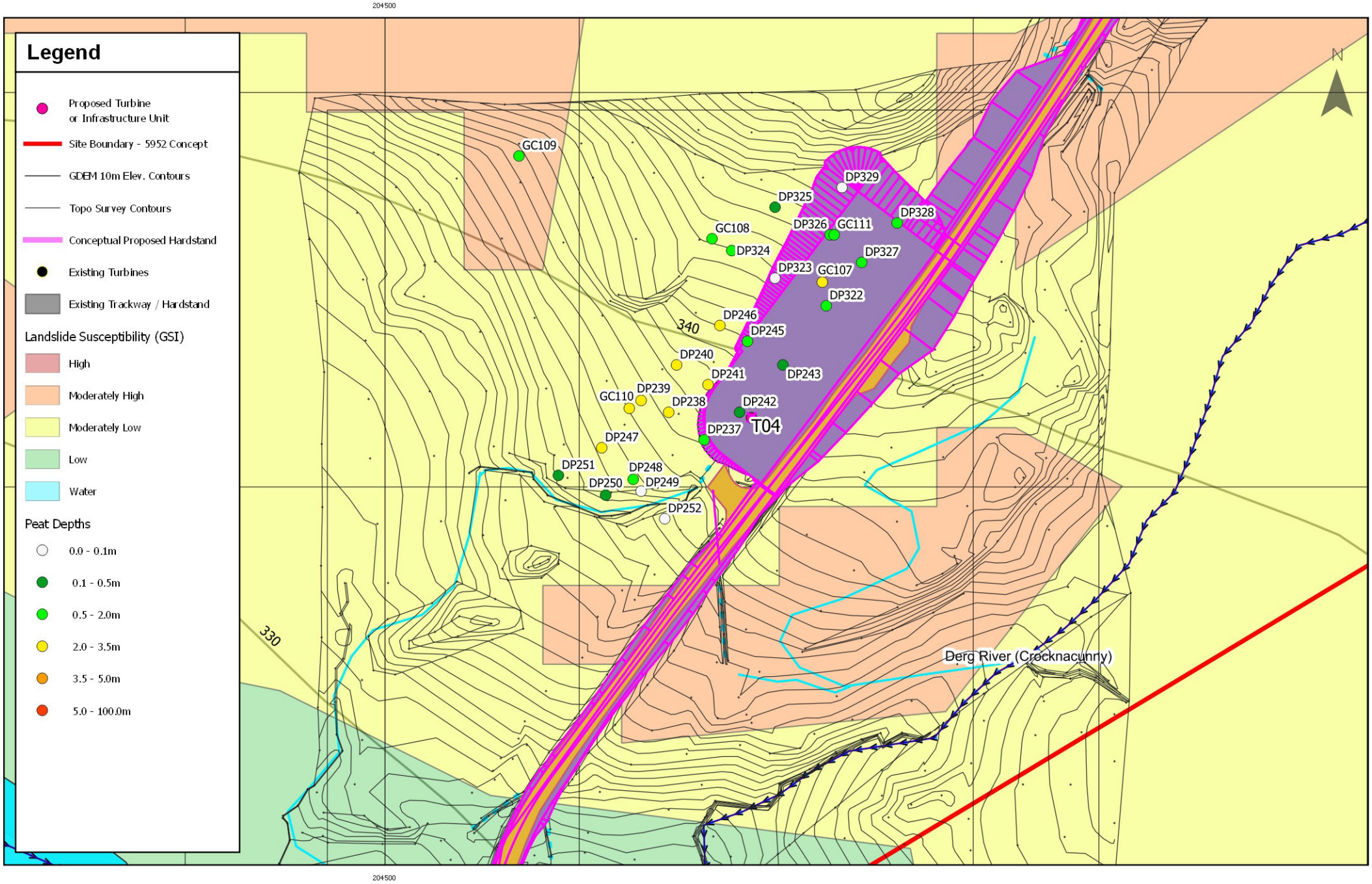
SCOTTISHPOWER RENEWABLES

Rev	Date	By	Comment
0	23/08/19	SK	

Barnesmore Windfarm Repowering
Peat Depths & Landsldie Susceptibility (GSI)
T3

Drwaing Number:	Datum	Projection
3006-008	TM65	Irish Grid TNM65
Scale @ A3 1:1,250	Drawing Produced by Minerex Environmental Ltd. www.minerex.ie	

3006-008 Slope Stability Risk Assessment Database & Maps



SCOTTISHPOWER RENEWABLES

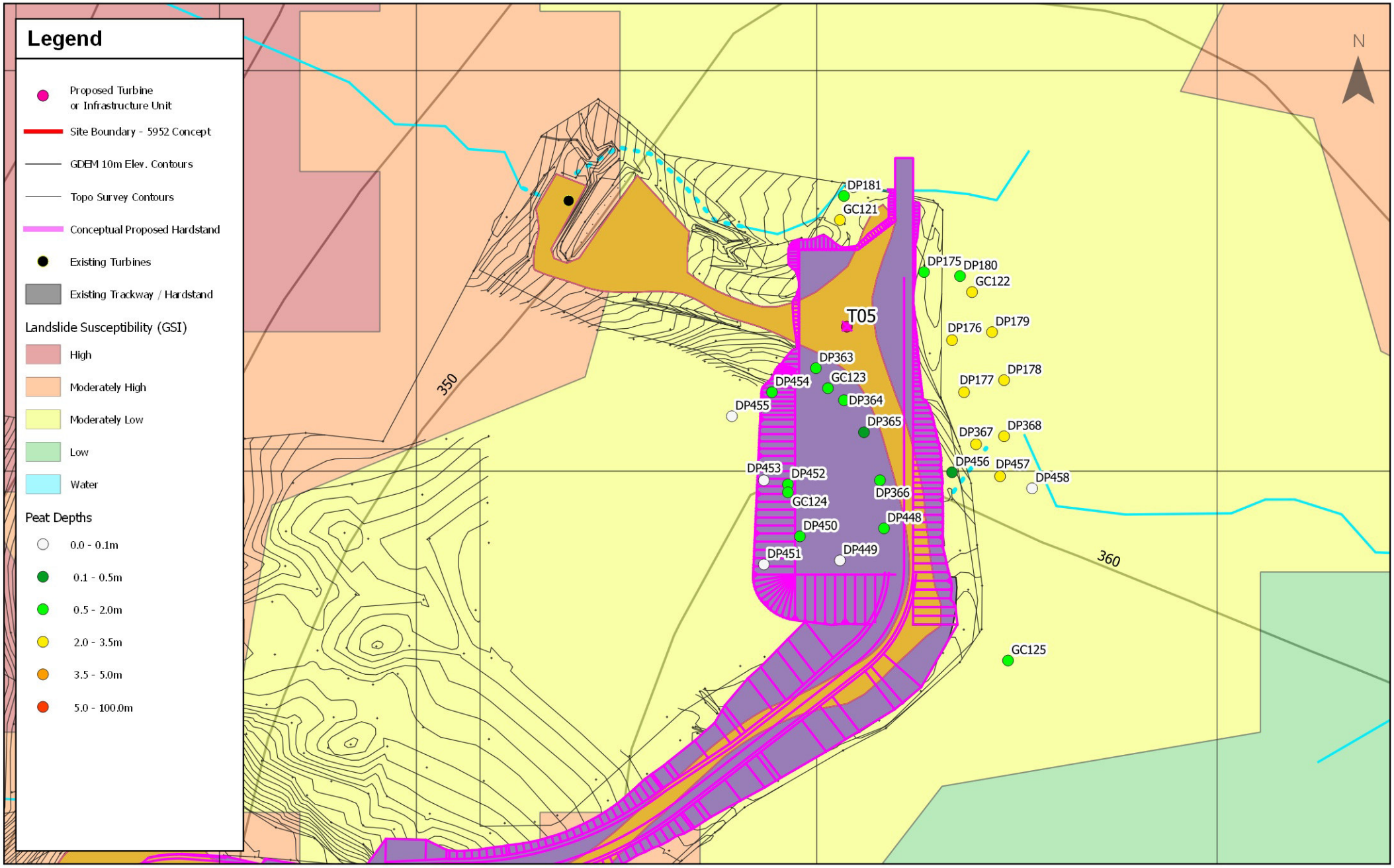
Rev	Date	By	Comment
0	23/08/19	SK	

0 25 50 m

Barnesmore Windfarm Repowering
Peat Depths & Landsldie Susceptibility (GSI)
T4

Drwaing Number:	Datum	Projection
3006-008	TM65	Irish Grid TNM65
Scale @ A3 1:1,250	Drawing Produced by Minerex Environmental Ltd. www.minerex.ie	

3006-008 Slope Stability Risk Assessment Database & Maps



SCOTTISHPOWER RENEWABLES

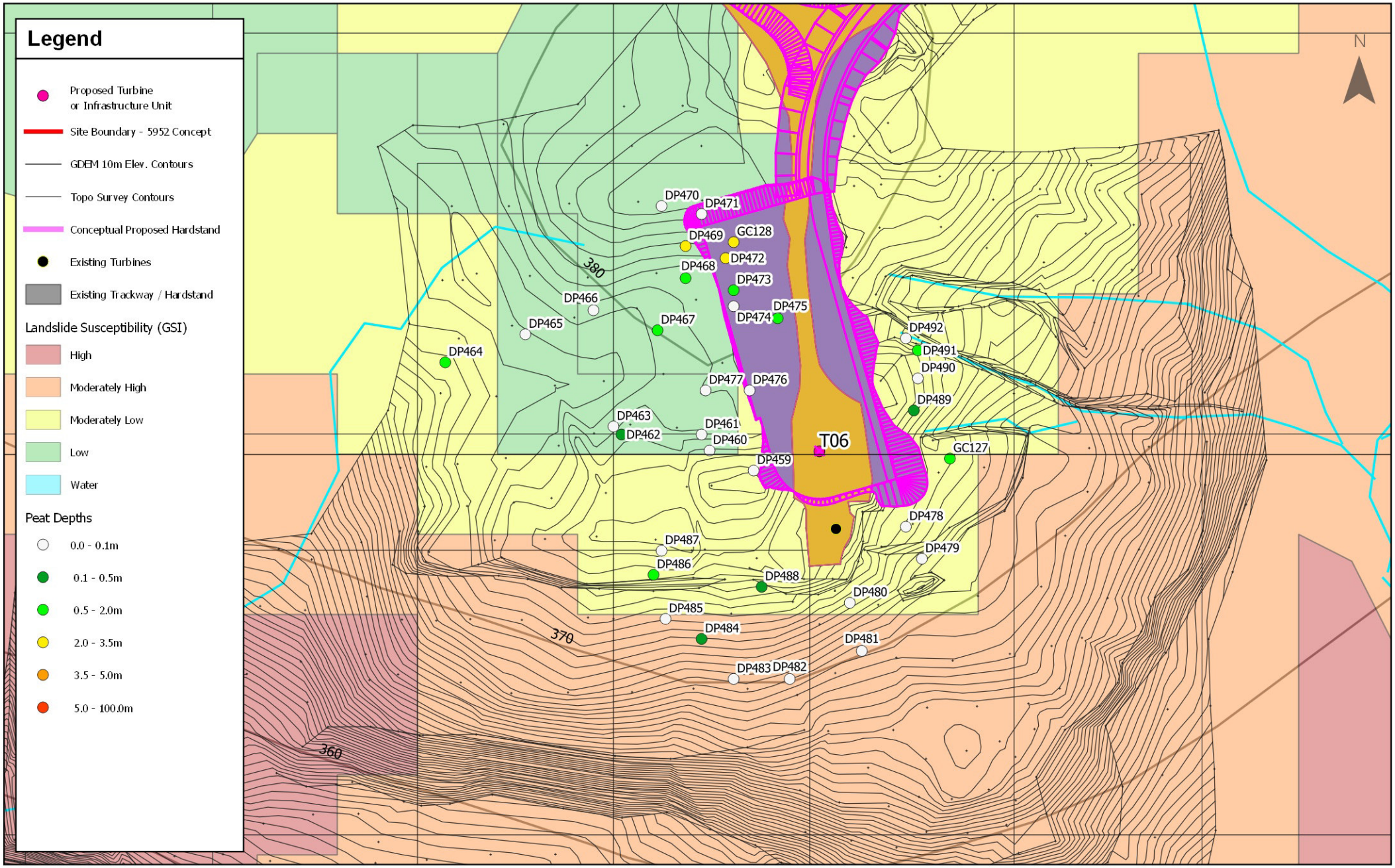
Rev	Date	By	Comment
0	23/08/19	SK	

0 25 50 m

Barnesmore Windfarm Repowering
Peat Depths & Landsldie Susceptibility (GSI)
T5

Drwaing Number:	Datum	Projection
3006-008	TM65	Irish Grid TNM65
Scale @ A3 1:1,250	Drawing Produced by Minerex Environmental Ltd. www.minerex.ie	

3006-008 Slope Stability Risk Assessment Database & Maps



SCOTTISHPOWER RENEWABLES

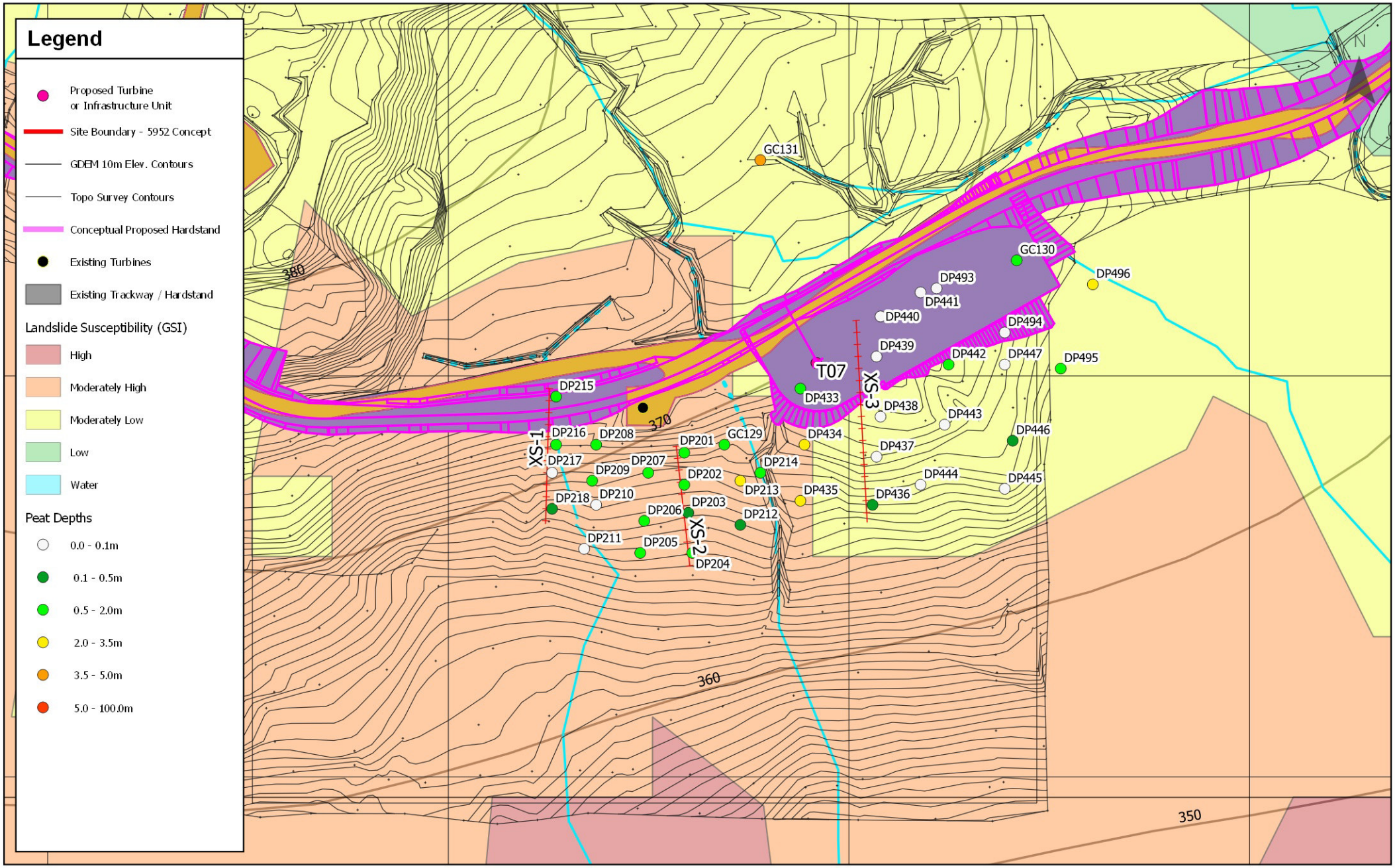
Rev	Date	By	Comment
0	23/08/19	SK	

0 25 50 m

Barnesmore Windfarm Repowering
Peat Depths & Landsldie Susceptibility (GSI)
T6

Drwaing Number:	Datum	Projection
3006-008	TM65	Irish Grid TNM65
Scale @ A3 1:1,250	Drawing Produced by Minerex Environmental Ltd. www.minerex.ie	

3006-008 Slope Stability Risk Assessment Database & Maps



SCOTTISHPOWER RENEWABLES

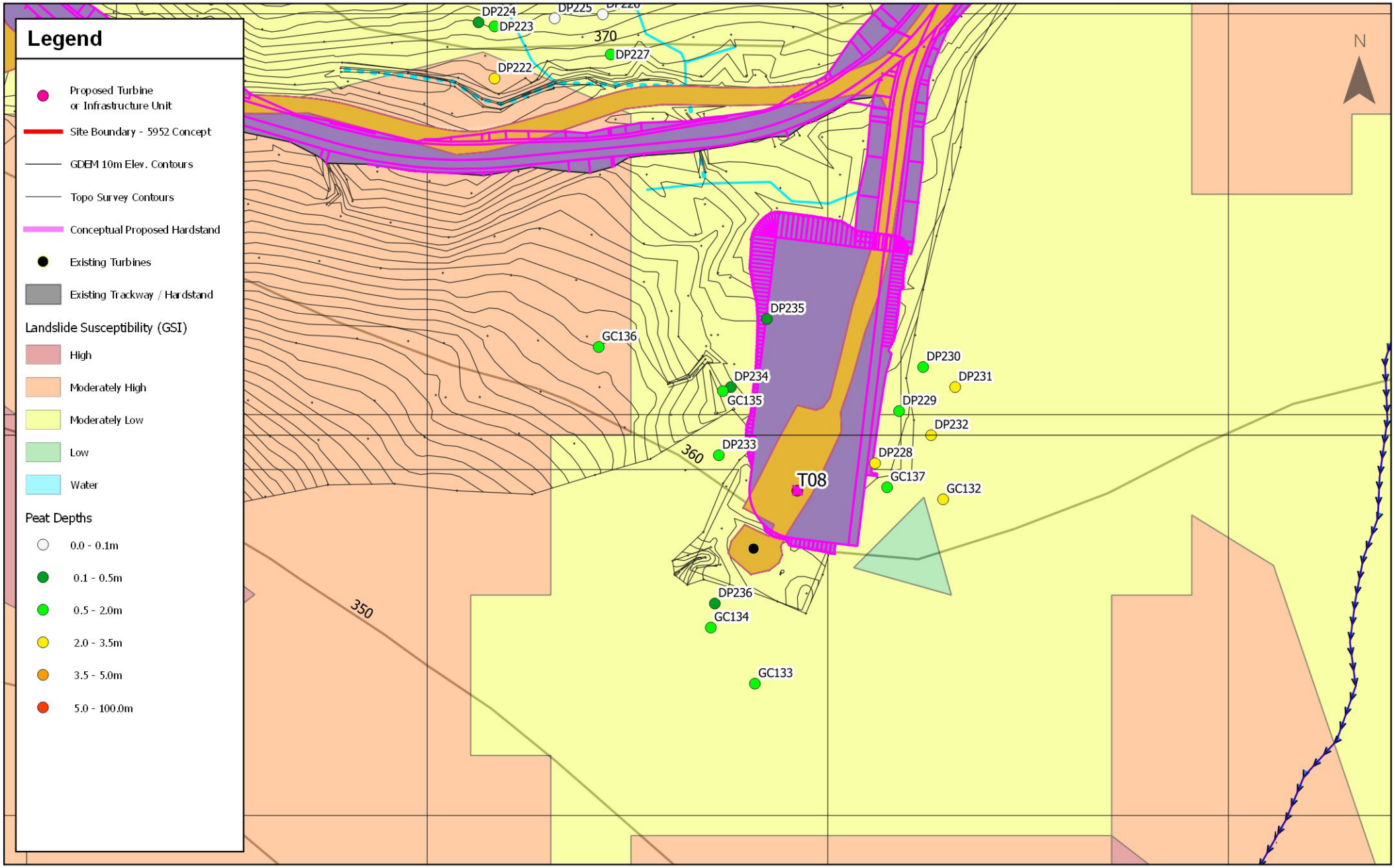
Rev	Date	By	Comment
0	23/08/19	SK	

0 25 50 m

Barnesmore Windfarm Repowering
Peat Depths & Landsldie Susceptibility (GSI)
T7

Drwaing Number:	Datum	Projection
3006-008	TM65	Irish Grid TNM65
Scale @ A3 1:1,250	Drawing Produced by Minerex Environmental Ltd. www.minerex.ie	

3006-008 Slope Stability Risk Assessment Database & Maps 383000



SCOTTISHPOWER RENEWABLES

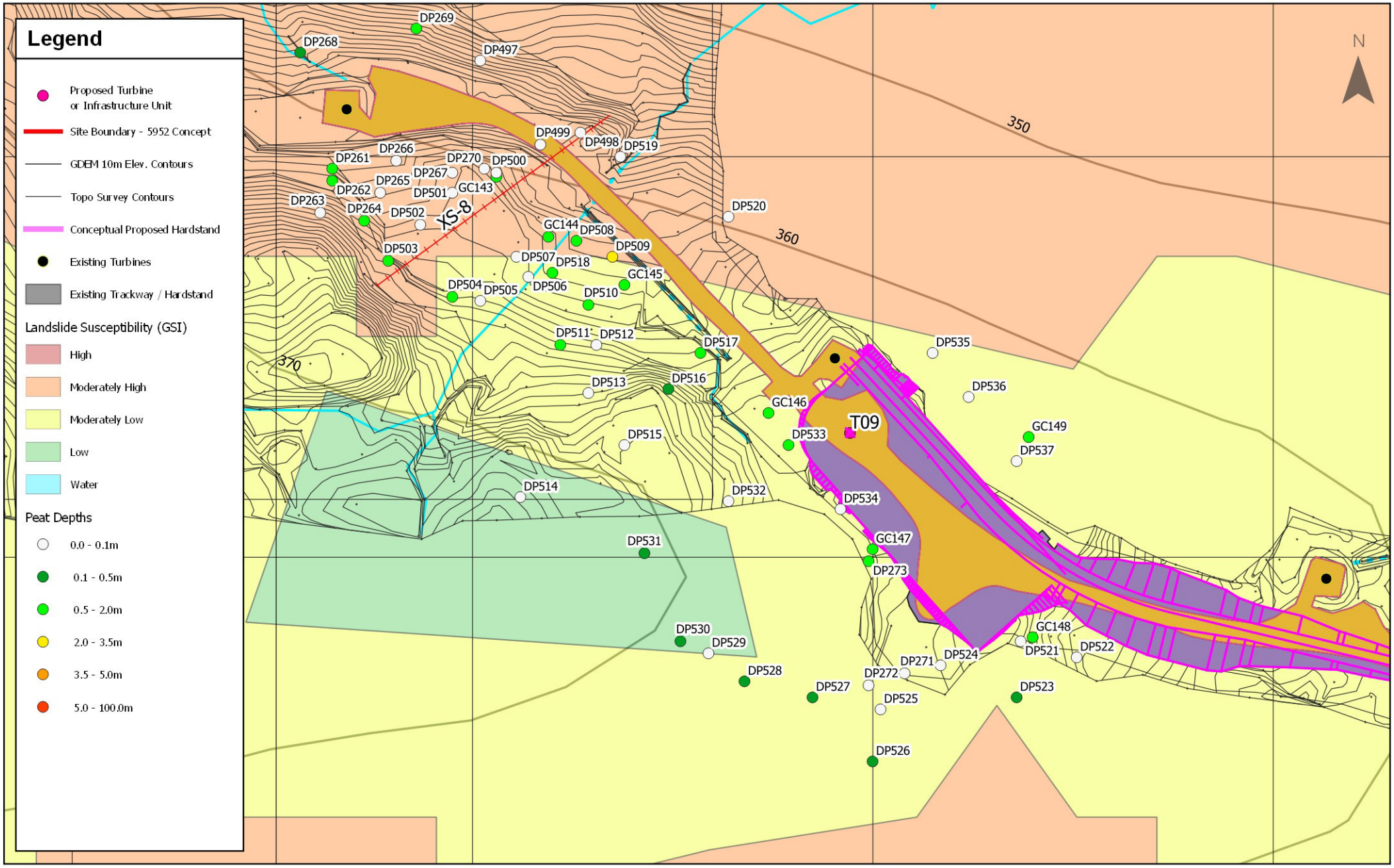
Rev	Date	By	Comment
0	23/08/19	SK	

0 25 50 m

Barnesmore Windfarm Repowering
Peat Depths & Landsldie Susceptibility (GSI)
T8

Drwaing Number:	Datum	Projection
3006-008	TM65	Irish Grid TNM65
Scale @ A3 1:1,250	Drawing Produced by Minerex Environmental Ltd. www.minerex.ie	

3006-008 Slope Stability Risk Assessment Database & Maps



SCOTTISHPOWER RENEWABLES

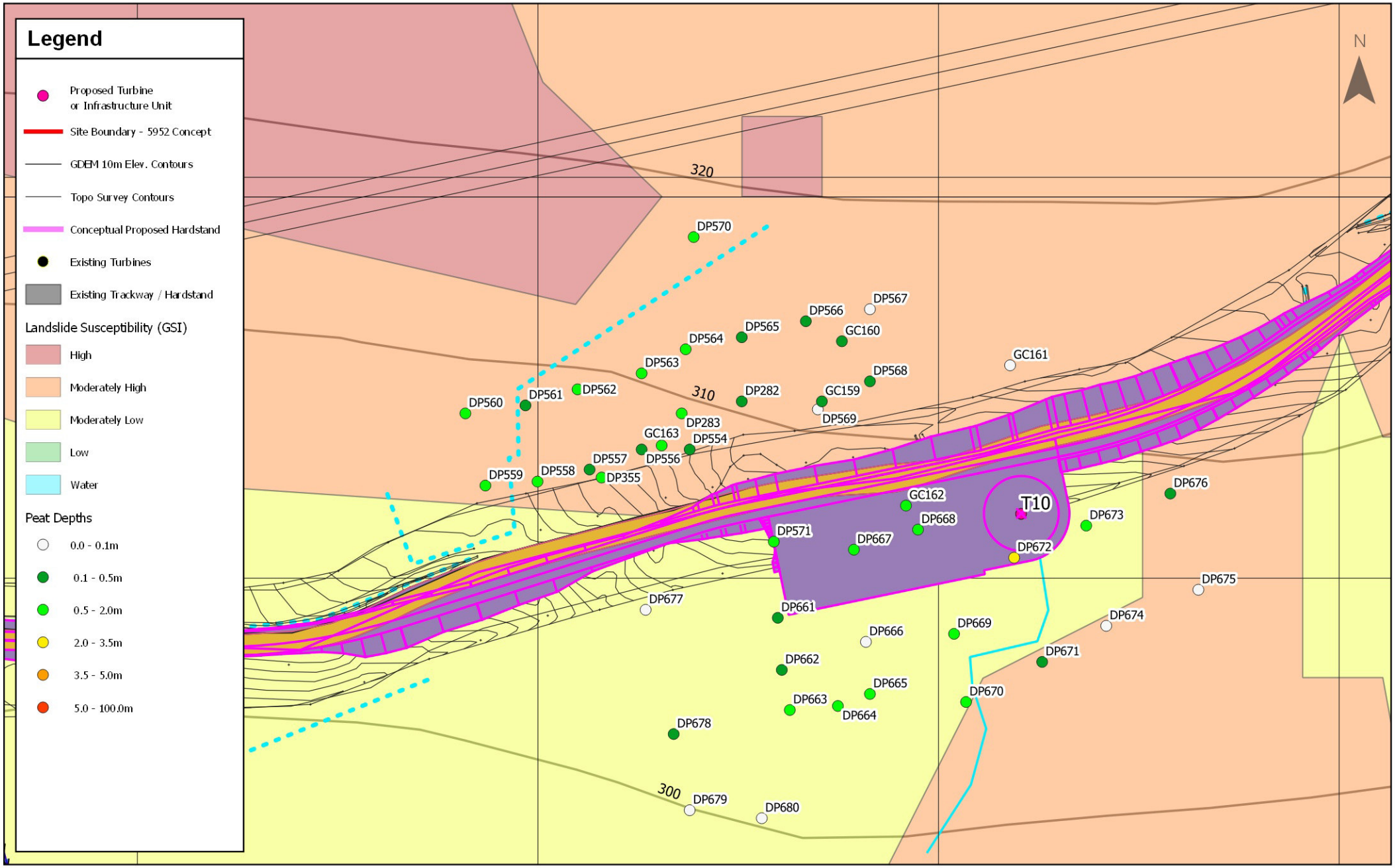
Rev	Date	By	Comment
0	23/08/19	SK	

0 25 50 m

Barnesmore Windfarm Repowering
Peat Depths & Landsldie Susceptibility (GSI)
T9

Drwaing Number:	Datum	Projection
3006-008	TM65	Irish Grid TNM65
Scale @ A3 1:1,250	Drawing Produced by Minerex Environmental Ltd. www.minerex.ie	

3006-008 Slope Stability Risk Assessment Database & Maps



SCOTTISHPOWER RENEWABLES

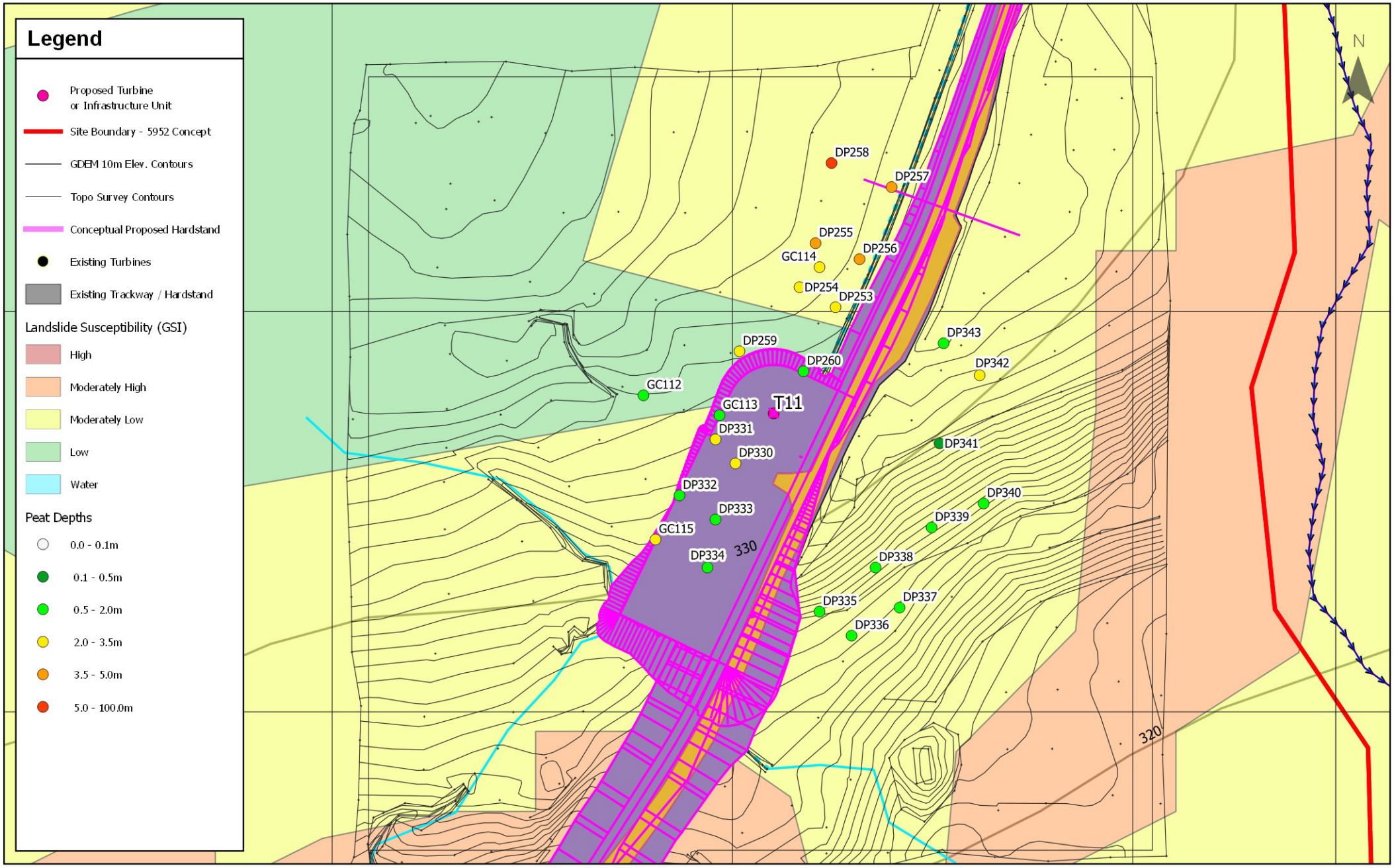
Rev	Date	By	Comment
0	23/08/19	SK	

0 25 50 m

Barnesmore Windfarm Repowering
Peat Depths & Landsldie Susceptibility (GSI)
T10B

Drwaing Number:	Datum	Projection
3006-008	TM65	Irish Grid TNM65
Scale @ A3 1:1,250	Drawing Produced by Minerex Environmental Ltd. www.minerex.ie	

3006-008 Slope Stability Risk Assessment Database & Maps



SCOTTISHPOWER RENEWABLES

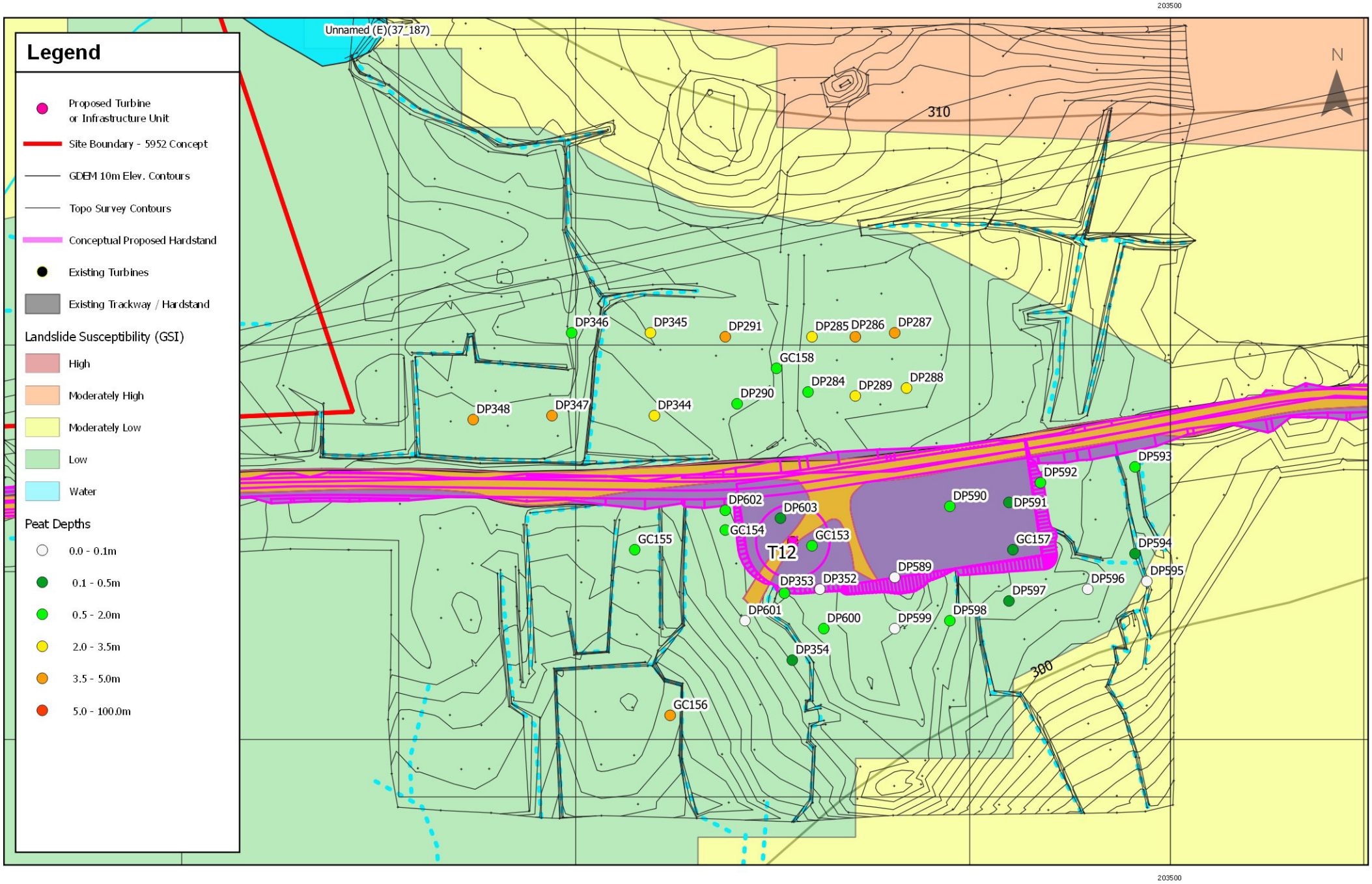
Rev	Date	By	Comment
0	23/08/19	SK	

0 25 50 m

Barnesmore Windfarm Repowering
Peat Depths & Landsldie Susceptibility (GSI)
T11

Drwaing Number:	Datum	Projection
3006-008	TM65	Irish Grid TNM65
Scale @ A3 1:1,250	Drawing Produced by Minerex Environmental Ltd. www.minerex.ie	

3006-008 Slope Stability Risk Assessment Database & Maps



SCOTTISHPOWER RENEWABLES

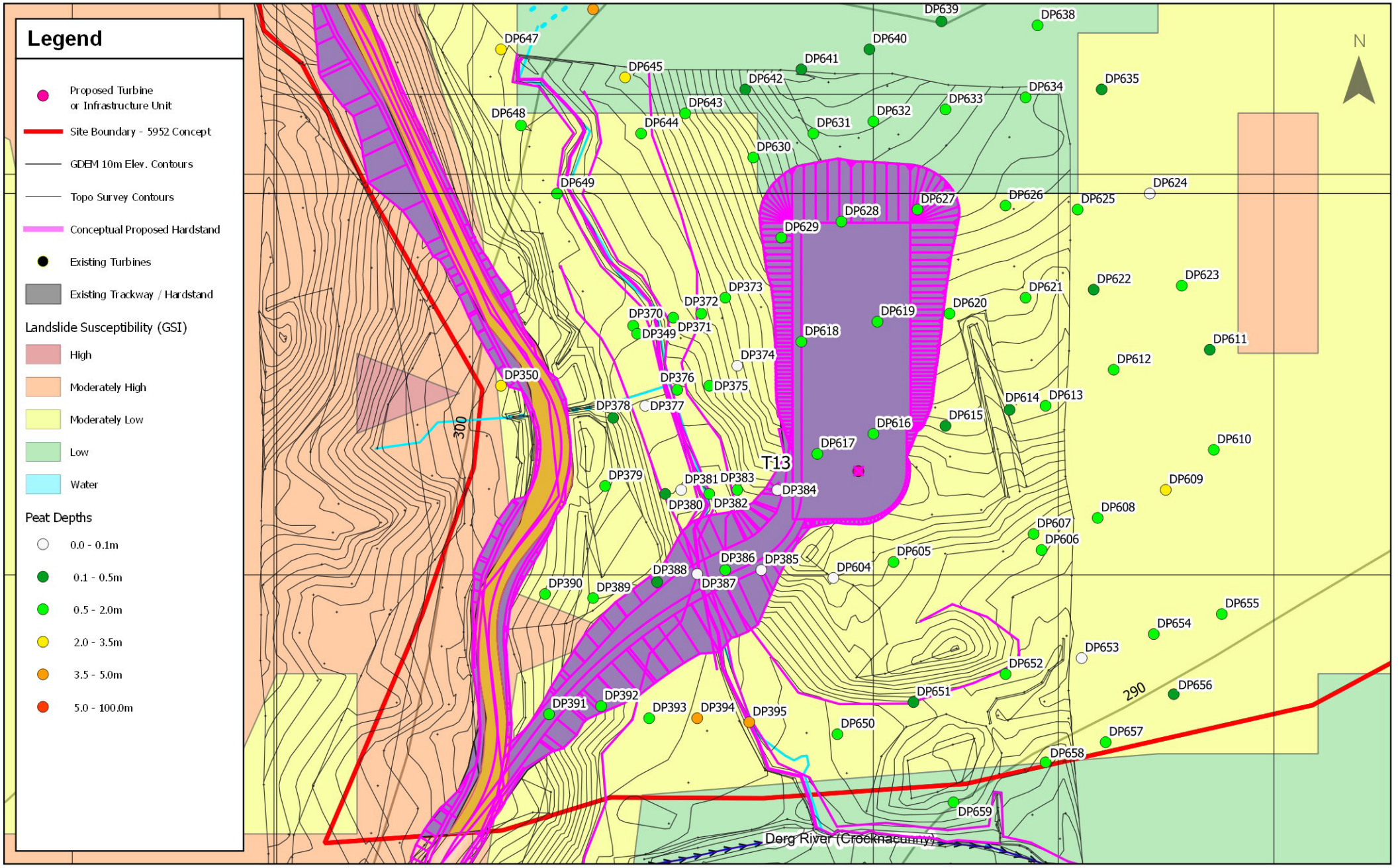
Rev	Date	By	Comment
0	23/08/19	SK	

0 25 50 m

Barnesmore Windfarm Repowering
Peat Depths & Landsldie Susceptibility (GSI)
T12

Drwaing Number:	Datum	Projection
3006-008	TM65	Irish Grid TNM65
Scale @ A3 1:1,250	Drawing Produced by Minerex Environmental Ltd. www.minerex.ie	

3006-008 Slope Stability Risk Assessment Database & Maps



SCOTTISHPOWER RENEWABLES

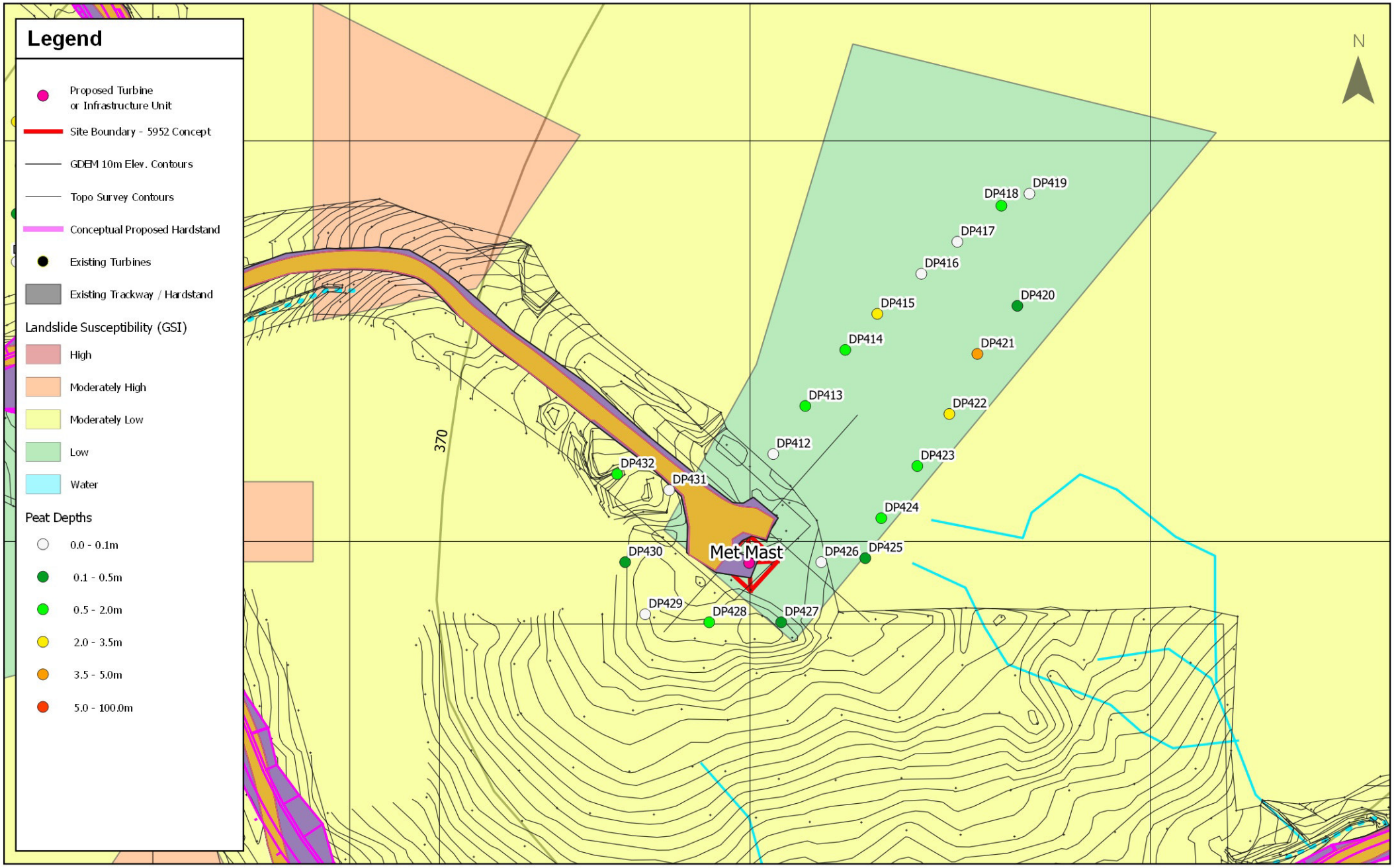
Rev	Date	By	Comment
0	23/08/19	SK	

0 25 50 m

Barnesmore Windfarm Repowering
Peat Depths & Landsldie Susceptibility (GSI)
T13

Drwaing Number:	Datum	Projection
3006-008	TM65	Irish Grid TNM65
Scale @ A3 1:1,250	Drawing Produced by Minerex Environmental Ltd. www.minerex.ie	

3006-008 Slope Stability Risk Assessment Database & Maps



SCOTTISHPOWER RENEWABLES

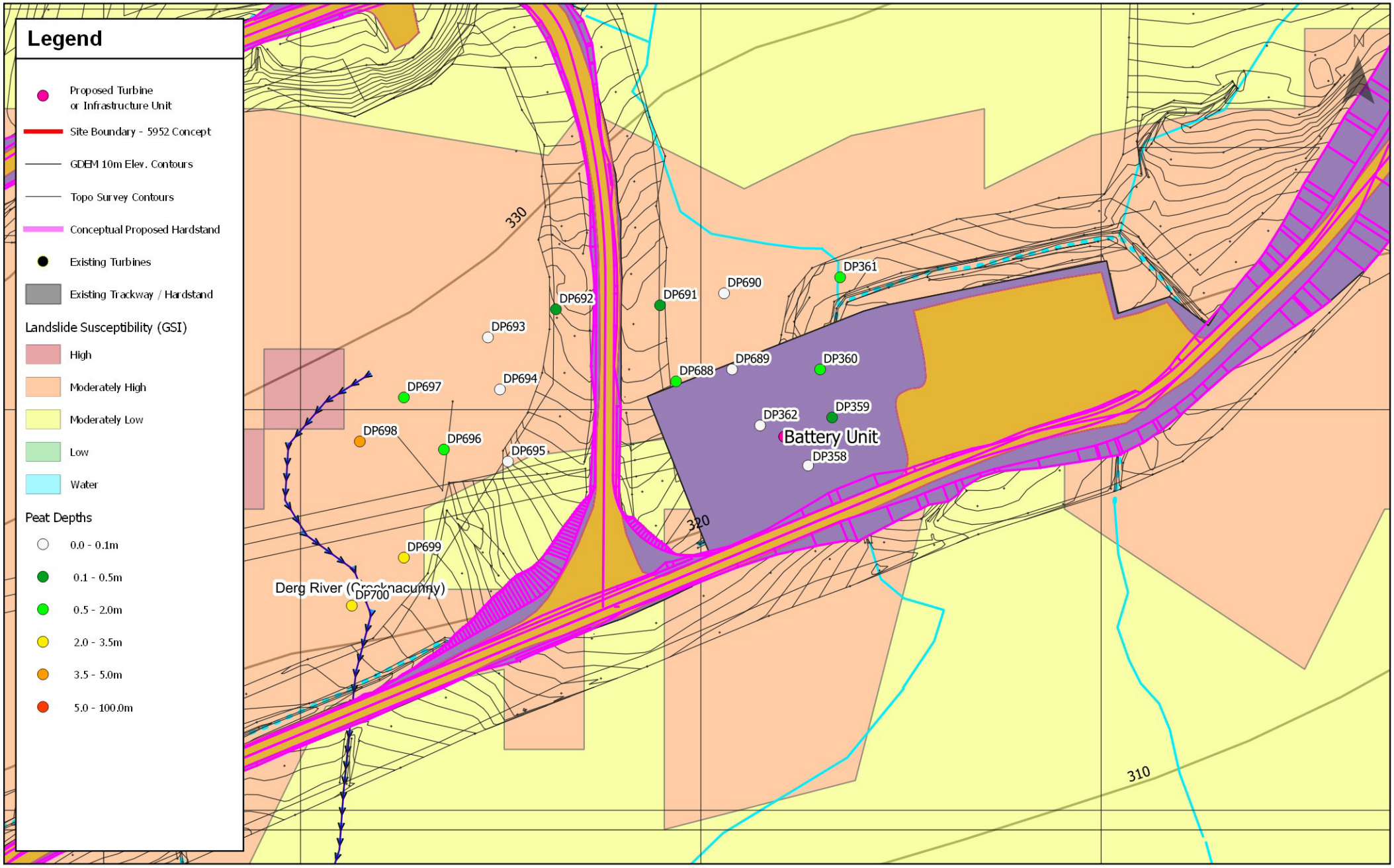
Rev	Date	By	Comment
0	23/08/19	SK	

0 25 50 m

Barnesmore Windfarm Repowering
Peat Depths & Landsldie Susceptibility (GSI)
Met Mast

Drwaing Number:	Datum	Projection
3006-008	TM65	Irish Grid TNM65
Scale @ A3 1:1,250	Drawing Produced by Minerex Environmental Ltd. www.minerex.ie	

3006-008 Slope Stability Risk Assessment Database & Maps



Rev	Date	By	Comment
0	23/08/19	SK	

SCOTTISHPOWER RENEWABLES

0 25 50 m

Barnesmore Windfarm Repowering
Peat Depths & Landsldie Susceptibility (GSI)
Battery Compound

Drwaing Number:	Datum	Projection
3006-008	TM65	Irish Grid TNM65
Scale @ A3 1:1,250	Drawing Produced by Minerex Environmental Ltd. www.minerex.ie	

3006-008 Slope Stability Risk Assessment Database 382000

Attachment E

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling						
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* **Red line** = Single channel sample (from field) **Blue line** = Composite sample (generated in office or lab) **Green line** = Grab sample (acquired on site)	**Shear Vane Testing** values (shear strength in kilopascals (kPa))	**Groundwater** occurrence (See legend for symbols used for dry, damp and wet)	**Depth** in metres below ground level & *[Thickness]*	Geology (graphical log)		
Ground level Upstand 0.85m 0.15 Black coloured 17mm ID/33.5mm OD PVC casing	SS1		Wet	0.2 *[0.5]* 0.5		H8	Fibrous ie high root content; Medium brown
	SS2		Saturated	*[0.65]* 1.0 1.15		H8	Fibrous ie moderate root content; Medium brown
1.15m = End of Installation (EOI)				1.5 2.0 2.5 3.0 3.5 4.0		**1.15m Obstruction / Rock**	

INVESTIGATION POINT LOG NUMBER	**GC101 (SP101)**
Client, Project, Location	**JOD/SPR, Barnesmore, Donegal**
Minerex work item	**3006-A1**
Page No.	**Page 1 of 1**
Date & time drilled / formed:	**19/06/19**
Logged by (drawn by) [checked by]:	**Sven Klinkenbergh (SK) [JC]**
Drilling / Trial pitting co. & equipment	**Gouge core**
Minerex Doc. Ref.	**3006-024.ppt**
Irish Grid (IG)**	**IH 04997 83544 (1)**

Geological description

VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS

* **Non-natural material %s with total % in ( )**

NON-DEGRADABLE % (ND): 1 = **Brick**, 2 = **Concrete**, 3 = **Glass**, 4 = **Ceramic tiles,** 5 = **ACMs** (asbestos containing materials such as roof tiles, piping). 6 = **Blue Bangor slate.**

DEGRADABLE % (D): 7 = **Plastic**, 8 = **Metal**, 9 = **Wood / Organic / Leaves / Twigs / Peat**, 10 = **Ash & Clinker**, 11 = **Charcoal**, 12 = **Tarmacadam**, 13 = **Leather.**

** 1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

20/06/19 Well dipped at 9:20am: water level at 0.52mbGL

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

INVESTIGATION POINT LOG NUMBER	**GC102 (SP102)**
Client, Project, Location	**JOD/SPR, Barnesmore, Donegal**
Minerex work item	**3006-A1**
Page No.	**Page 1 of 1**
Date & time drilled / formed:	**19/06/19**
Logged by (drawn by) [checked by]:	**Sven Klinkenbergh (SK) [JC]**
Drilling / Trial pitting co. & equipment	**Gouge core**
Minerex Doc. Ref.	**3006-024.ppt**
Irish Grid (IG)**	**IH 04981 83012 (1)**

Borehole/ Standpipe Design & Completion

Ground level

Upstand 0.90m

0.10

Black coloured 17mm ID/33.5mm OD PVC casing

1.10m = End of Installation (EOI)

Soil (S) / Water (W) / Vapour (V) Sampling

Sample number & interval (mbGL) ***(Sample 10 kg minimum)***

Red line = Single channel sample (from field)

Blue line = Composite sample (generated in office or lab)

Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

Depth in metres below ground level & *[Thickness]*

Geology (graphical log)

SS1

SS2

SS3

SS4

Wet

Saturated

0.2 *[0.5]*

0.5

1.0

1.5

1.9

2.0

2.5

3.0

3.5

4.0

Geological description

VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
H6-7	Fibrous ie high root content	Medium brown	
H8	Fibrous ie moderate root content	Medium brown	
1.90m Obstruction / Rock			

****1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.**

General notes / Well Head Protection / Plan & Section Sketches

20/06/19 Well dipped at 9:35am: water level at 0.39mbGL

Minerex Environmental

Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC103		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	02/07/19		
						Logged by (drawn by) [checked by]:	Sven Klinkenbergh (SK) [JC & GJ]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 05008 83015 (1)		
						Geological description			
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* **Red line** = Single channel sample (from field) **Blue line** = Composite sample (generated in office or lab) **Green line** = Grab sample (acquired on site)	**Shear Vane Testing** values (shear strength in kilopascals (kPa))	**Groundwater** occurrence (See legend for symbols used for dry, damp and wet)			VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
		14, 31, 8	Wet ▼ Saturated	[0.5] 0.3 **0.5**		H8-9	Fibrous ie moderate root content	Medium brown	
		10, 9, 10		[0.65] **1.0**		H9	Fibrous ie moderate root content	Dark brown	
				[0.5] **1.5**		H9	Fibrous ie minor root content	Dark brown	
				2.0 **2.5** **3.0** **3.5** **4.0**		**1.50m Obstruction / Rock**			

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC104		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	02/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04978 83025 (1)		
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)			Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	SS1		Damp	0.2		H4-5	Fibrous ie high root content	Medium brown	
			Saturated	[0.5]					
		20, 21, 14		0.5		H8	Fibrous ie high root content	Medium brown	
	SS2			[0.5]					
				1.0		H8-9	Fibrous ie high root content	Medium brown	
	SS3			[0.4]					
				1.4					
				1.5		H9	Minor root content	Dark brown	
	SS4			[0.60]					
				2.0		H9-10	Minor root content	Dark brown	
	SS5			[0.45]					
				2.45					
				2.5		**2.45m Obstruction / Rock**			
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling: Sample number & interval (mbGL) *(Sample 10 kg minimum)* — Red line = Single channel sample (from field); Blue line = Composite sample (generated in office or lab); Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)	Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER: **GC105**
						Client, Project, Location: **JOD/SPR, Barnesmore, Donegal**
						Minerex work item: **3006-A1**
						Page No.: **Page 1 of 1**
						Date & time drilled / formed: **02/07/19**
						Logged by (drawn by) [checked by]: **Gero Jahns (GJ) [JC]**
						Drilling / Trial pitting co. & equipment: **Gouge core**
						Minerex Doc. Ref.: **3006-024.ppt**
						Irish Grid (IG)**: **IH 04963 83078 (1)**

Geological description

VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS	Depth (m)
				0.0
H3	High root content	Light brown		[0.15] 0.15
H5	Fibrous ie high root content	Medium brown		0.3 [0.35] 0.5
H8	Fibrous ie high root content	Medium brown		[0.5] 1.0
H9	Fibrous ie high root content	Dark brown/ black		[0.4] 1.4
H9	Minor root content	Dark brown		1.5 [1.55] 2.0 2.5 2.95
2.95m Obstruction / Rock				3.0 3.5 4.0

Damp

Saturated

12, 7, 10

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC106		
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)			Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	02/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 05011 83106 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Dry	[0.1] 0.1		Acrotelm			
				[0.2] **0.3**		H2	Sandy Peat	Dark brown	
						0.30m Rock			
				0.5					
				1.0					
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

* **Non-natural material %s with total % in ( )**

NON-DEGRADABLE % (ND): 1 = **Brick**, 2 = **Concrete**, 3 = **Glass**, 4 = **Ceramic tiles,** 5 = **ACMs** (asbestos containing materials such as roof tiles, piping). 6 = **Blue Bangor slate.**

DEGRADABLE % (D): 7 = **Plastic**, 8 = **Metal**, 9 = **Wood / Organic / Leaves / Twigs / Peat**, 10 = **Ash & Clinker**, 11 = **Charcoal**, 12 = **Tarmacadam**, 13 = **Leather.**

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

20/06/19

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

INVESTIGATION POINT LOG NUMBER	**GC107 (SP103)**		
Client, Project, Location	**JOD/SPR, Barnesmore, Donegal**		
Minerex work item	**3006-A1**		
Page No.	**Page 1 of 1**		
Date & time drilled / formed:	**02/07/19**		
Logged by (drawn by) [checked by]:	**Gero Jahns (GJ) [JC]**		
Drilling / Trial pitting co. & equipment	**Gouge core**		
Minerex Doc. Ref.	**3006-024.ppt**		
Irish Grid (IG)**	**IH 04611 82757 (1)**		

Borehole/ Standpipe Design & Completion

Ground level

Upstand 0.90m

Black coloured 17mm ID/33.5mm OD PVC casing

1.00m = End of Installation (EOI)

Soil (S) / Water (W) / Vapour (V) Sampling

Sample number & interval (mbGL) ***(Sample 10 kg minimum)***

Red line = Single channel sample (from field)

Blue line = Composite sample (generated in office or lab)

Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

Depth in metres below ground level & *[Thickness]*

Geology (graphical log)

Geological description

VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
Acrotelm			
H8-9	Fibrous ie high root content	Medium brown	
H9	Fibrous ie high root content	Medium brown	
2.15m Obstruction / Rock			

Sample	Depth (m)	Shear Vane Testing (kPa)	Groundwater
SS1	0.1	14, 14, 16	Damp
	0.3		Saturated
SS2	0.5		
SS3	1.0		
SS4	1.5		
	2.0		
	2.15		

[0.1] *[0.4]* *[1.65]*

General notes / Well Head Protection / Plan & Section Sketches

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

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Borehole/ Standpipe Design & Completion	**Soil (S) / Water (W) / Vapour (V) Sampling**				**INVESTIGATION POINT LOG NUMBER**		**GC108 (SP104)**	
					Client, Project, Location		**JOD/SPR, Barnesmore, Donegal**	
					Minerex work item		**3006-A1**	
					Page No.		**Page 1 of 1**	
					Date & time drilled / formed:		**02/07/19**	
					Logged by (drawn by) [checked by]:		**Gero Jahns (GJ) [JC]**	
					Drilling / Trial pitting co. & equipment		**Gouge core**	
					Minerex Doc. Ref.		**3006-024.ppt**	
					Irish Grid (IG)**		**IH 04583 82768 (1)**	
					Geological description			
					VON POST VALUE	**PEAT DESCRIPTION**	**COLOUR**	**STIFFNESS**
Ground level; Upstand 0.90m; Black coloured 17mm ID/33.5mm OD PVC casing			Damp; Saturated	[0.1] 0.1	Acrotelm			
				[0.4] 0.4	H8	Moderate root content	Medium brown	
				0.5	H8-9	Moderate root content	Medium brown	
				[0.2] 0.7	H9	Moderate root content	Dark brown	
				[0.2] 0.9		Sandy peat	Black	
1.00m = End of Installation (EOI)				1.10	**1.10m Obstruction / Rock**			
				1.5				
				2.0				
				2.5				
				3.0				
				3.5				
				4.0				

Sample number & interval (mbGL) *(Sample 10 kg minimum)*

Red line = Single channel sample (from field)

Blue line = Composite sample (generated in office or lab)

Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

Depth in metres below ground level & [Thickness]

Geology (graphical log)

General notes / Well Head Protection / Plan & Section Sketches

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

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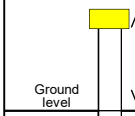
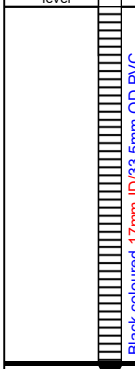
INVESTIGATION POINT LOG NUMBER	**GC109 (SP105)**
Client, Project, Location	**JOD/SPR, Barnesmore, Donegal**
Minerex work item	**3006-A1**
Page No.	**Page 1 of 1**
Date & time drilled / formed:	**02/07/19**
Logged by (drawn by) [checked by]:	**Gero Jahns (GJ) [JC]**
Drilling / Trial pitting co. & equipment	**Gouge core**
Minerex Doc. Ref.	**3006-024.ppt**
Irish Grid (IG)**	**IH 04534 82789 (1)**

Borehole/ Standpipe Design & Completion





1.00m = End of Installation (EOI)

Soil (S) / Water (W) / Vapour (V) Sampling

Sample number & interval (mbGL) ***(Sample 10 kg minimum)***

Red line = Single channel sample (from field)
Blue line = Composite sample (generated in office or lab)
Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

Damp

Saturated

Depth in metres below ground level & [Thickness]

Geology (graphical log)

Geological description

VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
Acrotelm			
H7-8	Moderate root content	Medium brown	
H8	Moderate root content	Medium brown	
H9	Moderate root content	Dark brown	
H9-10	Minor fibres	Black	

[0.1]
[0.25]
0.3
0.35
0.5
[0.35]
0.7
[0.2]
0.9
1.0
[0.35]
1.25

1.25m Obstruction / Rock

1.5
2.0
2.5
3.0
3.5
4.0

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC110		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	02/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04562 82725 (1)		
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)			Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Damp	[0.1]		Acrotelm			
				[0.25]		H5	High root content	Medium brown	
			Wet	0.3					
				0.35		H8	Moderate root content	Medium brown	
				0.5					
				[0.35]					
			Saturated	0.6					
				0.7		H9	Moderate root content	Dark brown	
				[0.8]					
				1.0					
				1.5		H10	Minor fibres	Dark brown	
				[1.0]					
				2.0					
				2.5		**2.50m Obstruction / Rock**			
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC111		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	02/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04614 82769 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Damp ▼ Wet	[0.1] 0.1		Acrotelm			
				0.2		H7-8	High root content	Medium brown	
				[0.5] 0.5					
				0.6		H8-9	Moderate root content	Medium brown	
				[0.7] 1.0					
				1.2		H9	Moderate root content	Dark brown	
				[0.25] 1.45					
				1.5 [0.2] 1.65		H9-10	Minor fibres	Dark brown/ black	
						1.65m Obstruction / Rock			
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC112		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	02/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04327 82284 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Damp	[0.1] 0.1		Acrotelm			
				[0.1] 0.2		H8	High root content	Dark brown	
			Saturated	0.3 [0.3] 0.5		H8	Moderate root content	Medium brown	
				[0.3] 0.8		H9	Moderate root content	Dark brown	
						0.80m Obstruction / Rock			
				1.0					
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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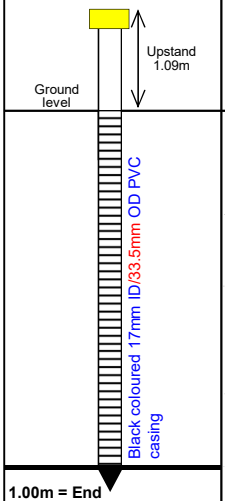
INVESTIGATION POINT LOG NUMBER	**GC113 (SP106)**
Client, Project, Location	**JOD/SPR, Barnesmore, Donegal**
Minerex work item	**3006-A1**
Page No.	**Page 1 of 1**
Date & time drilled / formed:	**02/07/19**
Logged by (drawn by) [checked by]:	**Gero Jahns (GJ) [JC]**
Drilling / Trial pitting co. & equipment	**Gouge core**
Minerex Doc. Ref.	**3006-024.ppt**
Irish Grid (IG)**	**IH 04346 82279 (1)**

Borehole/ Standpipe Design & Completion



Soil (S) / Water (W) / Vapour (V) Sampling

Sample number & interval (mbGL) ***(Sample 10 kg minimum)***

Red line = Single channel sample (from field)
Blue line = Composite sample (generated in office or lab)
Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

Depth in metres below ground level & [Thickness]

Geology (graphical log)

SS1 — Damp / Wet
SS2 — Saturated
SS3
SS4

Depth	Geology	VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
[0.05] 0.05		Acrotelm			
0.2 [0.45]		H8	Moderate root content	Medium brown	
0.5		H9	Moderate root content	Medium brown	
[1.05]					
1.0					
1.25					
1.5					
1.55		H10	Minor fibres	Black	
[0.35]					
1.9		**1.90m Obstruction / Rock**			
2.0					
2.5					
3.0					
3.5					
4.0					

Geological description

******1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC114		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	02/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04371 82316 (1)		
						Geological description			
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)			VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Damp	[0.15]		Acrotelm			
				0.15					
			Wet	0.2		H8	High root content	Medium brown	
			Saturated	0.5					
				[0.35]					
				[0.8]					
				1.0					
				1.5		H9	Moderate root content	Dark brown	
				[1.0]					
				2.0					
				2.5					
				2.6		H10	Minor fibres	Dark brown	
				3.0		H10	Minor fibres	Medium brown	
				3.5					
						3.50m Obstruction / Rock			
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC115		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04330 82248 (1)		
						Geological description			
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)			VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Saturated	[0.5] 0.5		H8	Moderate root content	Medium brown	
				[0.5] 1.0		H9	Moderate root content	Medium brown	
				[1.6] 1.5 2.0 2.5 2.6		H9-10	Moderate root content	Medium brown	
				3.0 3.5 4.0		**2.60m Obstruction / Rock**			

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC116		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 05014 83575 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Saturated	[0.1] 0.1		Acrotelm			
	SS1			[0.4]		H8	Moderate root content	Medium brown	
		10, 9, 9		0.5					
	SS2			[0.5]		H9-10	Moderate root content	Medium brown	
				1.0					
	SS3			[0.3] 1.3		H10	Minor fibres	Dark brown/ black	
						1.30m Obstruction / Rock			
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC117		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04994 83578 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Damp	[0.1] 0.1		Acrotelm			
				0.2 [0.4]		H9	Moderate root content	Medium brown	
			Wet	0.5					
			Saturated			H9-10	Minor root content	Medium brown	
				[0.6]					
				1.0 1.1		**1.10m Obstruction / Rock**			
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC118		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 05010 83607 (1)		
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* **Red line** = Single channel sample (from field) **Blue line** = Composite sample (generated in office or lab) **Green line** = Grab sample (acquired on site)	**Shear Vane Testing** values (shear strength in kilopascals (kPa))	**Groundwater** occurrence (See legend for symbols used for dry, damp and wet)			**Geological description**			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Damp	[0.1] 0.1		Acrotelm			
			▼ Wet	0.2 [0.25]		H8	Moderate root content	Dark brown/ black	
			Saturated	0.35		H9	Minor root content	Dark brown	
				0.5					
				[0.6]					
						H9		Medium brown	
				1.0					
				1.1		H9-10		Brown/beige	
						1.10m Rock			
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC119		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 05097 83593 (1)		
						Geological description			
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* **Red line** = Single channel sample (from field) **Blue line** = Composite sample (generated in office or lab) **Green line** = Grab sample (acquired on site)	**Shear Vane Testing** values (shear strength in kilopascals (kPa))	**Groundwater** occurrence (See legend for symbols used for dry, damp and wet)			VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Damp Wet	[0.1] 0.25 0.45		H8	Fibrous ie moderate root content	Dark brown	
				0.5		0.45m Rock			
				1.0					
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC120		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 05050 83533 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Wet	0.10					
				[0.5]		H8-9	Moderate root content	Medium brown	
				0.5					
				[1.0]		H9	Moderate root content	Medium brown	
				1.0					
				1.5					
				[1.35]		H9-10	Moderate root content	Medium brown	
				2.0					
				2.5					
				2.85		2.85m Obstruction / Rock			
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC121		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04155 83768 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* **Red line** = Single channel sample (from field) **Blue line** = Composite sample (generated in office or lab) **Green line** = Grab sample (acquired on site)	**Shear Vane Testing** values (shear strength in kilopascals (kPa))	**Groundwater** occurrence (See legend for symbols used for dry, damp and wet)						
			Damp Wet	[0.3] 0.2 0.3		H8	Moderate root content	Dark brown	
				0.5 [1.0]		H9	Minor root content	Medium brown	
				1.0		H9	Minor root content	Dark brown	
				1.3 1.5 [0.8]		H9-10	Moderate root content	Dark brown/ black	
				2.0 2.1					
				2.5 3.0 3.5 4.0		**2.10m Obstruction / Rock**			

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC122 (SP107)		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04188 83750 (1)		
	Sample number & interval (mbGL) *(Sample 10 kg minimum)*	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)			Geological description			
	Red line = Single channel sample (from field)					VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
Ground level / Upstand 1.03m	Blue line = Composite sample (generated in office or lab)					Acrotelm			
Black coloured 17mm ID/33.5mm OD PVC casing	Green line = Grab sample (acquired on site)			[0.15] 0.15					
			Damp			H8	Fibrous ie moderate root content	Medium brown	
			Saturated	[0.35] 0.35					
				0.5		H9	Fibrous ie minor root content	Medium brown	
				[1.0]					
				1.0					
1.00m = End of Installation (EOI)				1.5		H10	Fibrous ie minor root content	Medium brown	
				[1.1]					
				2.0					
				2.5					
				2.6		H10	Minor root content	Dark brown	
				[0.3] 2.9					
				3.0		2.90m Obstruction / Rock			
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC123
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal
						Minerex work item	3006-A1
						Page No.	Page 1 of 1
						Date & time drilled / formed:	03/07/19
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]
						Drilling / Trial pitting co. & equipment	Gouge core
						Minerex Doc. Ref.	3006-024.ppt
						Irish Grid (IG)**	IH 04152 83726 (1)

Sample number & interval (mbGL) *(Sample 10 kg minimum)*

Red line = Single channel sample (from field)

Blue line = Composite sample (generated in office or lab)

Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

Geological description

VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
Acrotelm			
H8	Moderate root content	Dark brown	
H9	Minor root content	Dark brown	
1.15m Obstruction / Rock			

SS1

SS2

Damp

Wet

[0.15]

0.15

0.3

[0.35]

0.5

[0.65]

1.0

1.15

1.5

2.0

2.5

3.0

3.5

4.0

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC124		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04142 83700 (1)		
						Geological description			
	Sample number & interval (mbGL) (Sample 10 kg minimum) Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)			VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Damp	[0.5]		H8	Moderate root content	Medium brown	
			Wet	0.4 0.5					
				[0.4]		H9	Minor root content	Dark brown	
				0.9		0.90m Obstruction / Rock			
				1.0					
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC124		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04197 83658 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Damp ▼ Wet	[0.1] 0.1		Acrotelm			
				0.2		H9	Moderate root content	Medium brown	
				[1.2]					
				0.5					
				1.0					
				1.3		**1.30m Obstruction / Rock**			
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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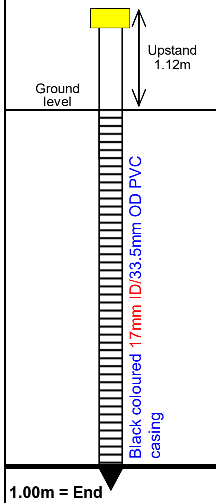
INVESTIGATION POINT LOG NUMBER	**GC126 (SP108)**
Client, Project, Location	**JOD/SPR, Barnesmore, Donegal**
Minerex work item	**3006-A1**
Page No.	**Page 1 of 1**
Date & time drilled / formed:	**03/07/19**
Logged by (drawn by) [checked by]:	**Gero Jahns (GJ) [JC]**
Drilling / Trial pitting co. & equipment	**Gouge core**
Minerex Doc. Ref.	**3006-024.ppt**
Irish Grid (IG)**	**IH 04008 83598 (1)**

Borehole/ Standpipe Design & Completion



1.00m = End of Installation (EOI)

Soil (S) / Water (W) / Vapour (V) Sampling

Sample number & interval (mbGL) ***(Sample 10 kg minimum)***

Red line = Single channel sample (from field)
Blue line = Composite sample (generated in office or lab)
Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

Depth in metres below ground level & *[Thickness]*

Geology (graphical log)

Geological description

Depth	Groundwater	VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
[0.5] 0.3	Damp ▼ Wet	H3	Moderate root content	Medium brown	
0.5 *[0.5]*		H4	Minor root content	Dark brown	
1.0		**1.00m Obstruction / Rock**			
1.5					
2.0					
2.5					
3.0					
3.5					
4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Could not get core out due to slippage ie peat highly saturated

Minerex Environmental

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC127		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03333 82999 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* **Red line** = Single channel sample (from field) **Blue line** = Composite sample (generated in office or lab) **Green line** = Grab sample (acquired on site)	**Shear Vane Testing** values (shear strength in kilopascals (kPa))	**Groundwater** occurrence (See legend for symbols used for dry, damp and wet)						
			Damp Wet	*[0.5]* 0.3 **0.5**		H6	Moderate root content	Medium brown	
				[1.0] **1.0**		H8	Moderate root content	Medium brown	
				1.5		H9	Minor root content	Medium brown	
				1.7		H10	Minor fibres	Medium brown	
				2.0 **2.5** **3.0** **3.5** **4.0**		**1.70m Obstruction / Rock**			

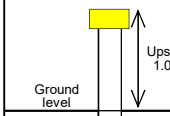
**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

INVESTIGATION POINT LOG NUMBER	**GC128 (SP109)**
Client, Project, Location	**JOD/SPR, Barnesmore, Donegal**
Minerex work item	**3006-A1**
Page No.	**Page 1 of 1**
Date & time drilled / formed:	**02/07/19**
Logged by (drawn by) [checked by]:	**Gero Jahns (GJ) [JC]**
Drilling / Trial pitting co. & equipment	**Gouge core**
Minerex Doc. Ref.	**3006-024.ppt**
Irish Grid (IG)**	**IH 03279 83053 (1)**

Borehole/ Standpipe Design & Completion



Soil (S) / Water (W) / Vapour (V) Sampling

Sample number & interval (mbGL) ***(Sample 10 kg minimum)***

Red line = Single channel sample (from field)
Blue line = Composite sample (generated in office or lab)
Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

Depth in metres below ground level & *[Thickness]*

Geology (graphical log)

SS1	SS2	SS3	SS4	SS5

Damp
Wet

Geological description

Depth	VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
[0.5] (0.3) – 0.5	H8	Moderate root content	Medium brown	
[1.0] – 1.0	H9	Moderate root content	Dark brown	
[1.0] – 2.0	H10	Minor fibres	Dark brown/ black	
2.5	**2.50m Obstruction / Rock**			
3.0				
3.5				
4.0				

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC129		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03718 83088 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Damp ▼ Wet	0.2 [0.5] 0.5		H7	Moderate root content	Dark brown	
				[0.4] 0.9		H8	Minor root content	Dark brown	
				1.0		0.90m Obstruction / Rock			
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

Red line = Single channel sample (from field)
Blue line = Composite sample (generated in office or lab)
Green line = Grab sample (acquired on site)

Sample number & interval (mbGL) *(Sample 10 kg minimum)*

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Could not get core out due to slippage ie peat highly saturated

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC130 (SP110)		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03791 83134 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
Ground level; Upstand 0.96m; Black coloured 17mm ID/33.5mm OD PVC casing; 1.00m = End of Installation (EOI)	Sample number & interval (mbGL) (Sample 10 kg minimum). Red line = Single channel sample (from field). Blue line = Composite sample (generated in office or lab). Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
	SS1	14, 16, 16	Damp ▼ Wet	[0.25] 0.2 0.25 [0.25] 0.5		H8	Moderate root content	Dark brown/ black	
						H8	Moderate root content	Medium brown	
	SS2			[0.7] 1.0 1.2		H9	Minor root content	Dark brown	
				1.5 2.0 2.5 3.0 3.5 4.0		**1.20m Obstruction / Rock**			

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC131		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03727 83159 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Damp Wet	0.2 [1.0] 0.5		H8	Moderate root content	Medium brown	
				1.0 [0.5] 1.5		H9	Minor root content	Medium brown	
				[2.5] 2.0 2.5 3.0 3.5		H10	Minor root content	Medium/ dark brown	
				4.0		4.00m Obstruction / Rock			

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC132		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04278 82984 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* **Red line** = Single channel sample (from field) **Blue line** = Composite sample (generated in office or lab) **Green line** = Grab sample (acquired on site)	**Shear Vane Testing** values (shear strength in kilopascals (kPa))	**Groundwater** occurrence (See legend for symbols used for dry, damp and wet)						
			Damp ▼ Wet	[0.1] 0.1		Acrotelm			
				[0.4] 0.3		H8	High root content	Medium brown	
		4.5, 5.5, 6		0.5		H9	Moderate root content	Medium brown	
				[2.0] 1.0					
				1.5					
				2.0		H10	Minor root content	Medium brown	
				[0.55] 2.55					
						2.55m Obstruction / Rock			
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC133		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04231 82938 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* **Red line** = Single channel sample (from field) **Blue line** = Composite sample (generated in office or lab) **Green line** = Grab sample (acquired on site)	**Shear Vane Testing** values (shear strength in kilopascals (kPa))	**Groundwater** occurrence (See legend for symbols used for dry, damp and wet)						
			Damp Wet	[0.15]		H3	Moderate root content	Dark brown	
				[0.25] 0.3		H7	Minor root content	Dark brown	
				0.55		Peaty Loam			
						0.55m Obstruction / Rock			
				1.0					
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Could not get core out due to slippage ie peat highly saturated

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC134		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04220 82952 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Damp	[0.1] 0.2 0.1		Acrotelm			
						H8	Moderate root content	Medium brown	
				[1.2] 0.5					
				1.0		H9	Minor root content	Dark brown	
				1.25		**1.25m Obstruction / Rock**			
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC135		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04223 83011 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Damp	[0.2]		H8	Moderate root content	Dark brown	
				0.2 0.2					
				[0.3]		H8	Minor root content	Medium brown	
				0.5					
				[0.2]		H9	Minor root content	Dark brown	
			Wet	0.7					
						0.70m Obstruction / Rock			
				1.0					
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC136		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04192 83022 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* **Red line** = Single channel sample (from field) **Blue line** = Composite sample (generated in office or lab) **Green line** = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Damp Wet	[0.1] 0.1 [0.4] 0.3 0.5		Acrotelm			
						H7	Fibrous ie high root content	Medium brown	
				[0.5] 1.0		H8	Moderate root content	Dark brown	
				[0.5] 1.5		H8	Moderate root content	Dark brown	
				[0.35] 1.85		H9-10	Minor root content	Dark brown/ black	
				2.0 3.0 3.5 4.0		**1.85m Obstruction / Rock**			

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC137 (SP111)		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04264 82987 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
Ground level; Upstand 1.02m; Black coloured 17mm ID/33.5mm OD PVC casing	SS1		Damp ▼ Wet	0.2 [1.0] 0.5		H8	Moderate root content	Medium brown	
	SS2			1.0					
1.00m = End of Installation (EOI)	SS3			[0.5] 1.5		H9	Moderate root content	Medium brown	
	SS4			[0.5] 2.0		H9-10	Minor fibres	Medium brown	
				2.5 3.0 3.5 4.0		**2.00m Obstruction / Rock**			

Red line = Single channel sample (from field)
Blue line = Composite sample (generated in office or lab)
Green line = Grab sample (acquired on site)

Sample number & interval (mbGL) *(Sample 10 kg minimum)*

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

INVESTIGATION POINT LOG NUMBER	**GC138 (SP112)**
Client, Project, Location	**JOD/SPR, Barnesmore, Donegal**
Minerex work item	**3006-A1**
Page No.	**Page 1 of 1**
Date & time drilled / formed:	**03/07/19**
Logged by (drawn by) [checked by]:	**Gero Jahns (GJ) [JC]**
Drilling / Trial pitting co. & equipment	**Gouge core**
Minerex Doc. Ref.	**3006-024.ppt**
Irish Grid (IG)**	**IH 04671 83159 (1)**

Borehole/ Standpipe Design & Completion

Ground level

Upstand 1.04m

Black coloured 17mm ID/33.5mm OD PVC casing

1.00m = End of Installation (EOI)

Soil (S) / Water (W) / Vapour (V) Sampling

Sample number & interval (mbGL) ***(Sample 10 kg minimum)***

Red line = Single channel sample (from field)

Blue line = Composite sample (generated in office or lab)

Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

Depth in metres below ground level & *[Thickness]*

Geology (graphical log)

Geological description

VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
Acrotelm			
H8	Moderate root content	Medium brown	
H9	Moderate root content	Medium brown	
1.75m Obstruction / Rock			

SS1

SS2

SS3

SS4

13, 10, 14

Damp

Wet

[0.1]

0.1

[0.4]

0.3

0.5

[1.25]

1.0

1.5

1.75

2.0

2.5

3.0

3.5

4.0

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental

Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC139		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	03/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04653 83151 (1)		
						Geological description			
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)			VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Wet	0.1					
				[0.5]		H8	Fibrous ie high root content	Medium brown	
				0.5					
				[0.5]		H8-9	Moderate root content	Medium brown	
				1.0					
				[0.35]		H9	Moderate root content	Dark brown	
				1.35					
						1.35m Obstruction / Rock			
				1.5					
				2.0					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC140		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04688 83131 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* **Red line** = Single channel sample (from field) **Blue line** = Composite sample (generated in office or lab) **Green line** = Grab sample (acquired on site)	**Shear Vane Testing** values (shear strength in kilopascals (kPa))	**Groundwater** occurrence (See legend for symbols used for dry, damp and wet)						
			Wet	[0.2]		H8	Moderate root content	Dark brown	
				0.2					
				0.3		H9	Moderate root content	Medium brown	
				[0.7]					
				0.5					
				0.9					
				1.0 [0.1]		H10	Fibrous	Dark brown	
						1.00m Obstruction / Rock			
				1.5					
				2.0					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC141		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04668 83191 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Wet	[0.1] 0.1 0.1		H5	Moderate root content	Dark brown	
				[5.55] 0.5 0.65		H9	Moderate root content	Medium brown	
				1.0 1.5 2.0 3.0 3.5 4.0		**0.65m Obstruction / Rock**			

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC142		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 04714 83131 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Damp Wet	[0.4] 0.2 0.4		H8	Moderate root content	Medium brown	
				0.5 [0.4] 0.8		H9	Minor root content	Dark brown	
				1.0 1.5 2.0 3.0 3.5 4.0		**0.80m Obstruction / Rock**			

Sample number & interval (mbGL) *(Sample 10 kg minimum)*

Red line = Single channel sample (from field)

Blue line = Composite sample (generated in office or lab)

Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC143		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03555 82400 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Damp	[0.05] 0.05		H5	High root content	Med brown	
				[0.3]		H8	Moderate root content	Medium brown	
			Wet	0.35 0.35					
				[0.25] 0.5		H9	Minor root content	Medium brown	
				0.6		**0.60m Obstruction / Rock**			
				1.0					
				1.5					
				2.0					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

INVESTIGATION POINT LOG NUMBER	**GC144 (SP113)**
Client, Project, Location	**JOD/SPR, Barnesmore, Donegal**
Minerex work item	**3006-A1**
Page No.	**Page 1 of 1**
Date & time drilled / formed:	**04/07/19**
Logged by (drawn by) [checked by]:	**Gero Jahns (GJ) [JC]**
Drilling / Trial pitting co. & equipment	**Gouge core**
Minerex Doc. Ref.	**3006-024.ppt**
Irish Grid (IG)**	**IH 03568 82385 (1)**

Borehole/ Standpipe Design & Completion

Ground level

Upstand 1.06m

Black coloured 17mm ID/33.5mm OD PVC casing

1.00m = End of Installation (EOI)

Soil (S) / Water (W) / Vapour (V) Sampling

Sample number & interval (mbGL) ***(Sample 10 kg minimum)***

Red line = Single channel sample (from field)

Blue line = Composite sample (generated in office or lab)

Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

Depth in metres below ground level & [Thickness]

Geology (graphical log)

Geological description

VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
Acrotelm			
H7	Moderate root content	Medium brown	
H8	Moderate root content	Medium brown	
H8-9	Moderate root content	Medium brown	
H9	Moderate root content	Medium brown	
1.70m Obstruction / Rock			

SS1

SS2

SS3

Damp

Wet

20, 10, 24

[0.1] 0.1

[0.3]

0.4 0.4

0.5

[0.35]

0.75

[0.25]

1.0

[0.7]

1.5

1.7

2.0

2.5

3.0

3.5

4.0

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

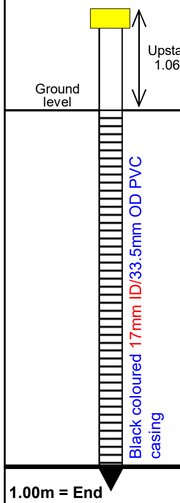
General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental

Tel: 01-2964435, Web: www.minerex.ie

INVESTIGATION POINT LOG NUMBER	GC145 (SP114)
Client, Project, Location	JOD/SPR, Barnesmore, Donegal
Minerex work item	3006-A1
Page No.	Page 1 of 1
Date & time drilled / formed:	04/07/19
Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]
Drilling / Trial pitting co. & equipment	Gouge core
Minerex Doc. Ref.	3006-024.ppt
Irish Grid (IG)**	IH 03587 82373 (1)

Borehole/ Standpipe Design & Completion



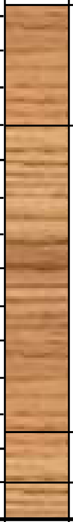
1.00m = End of Installation (EOI)

Soil (S) / Water (W) / Vapour (V) Sampling

Sample number & interval (mbGL) *(Sample 10 kg minimum)*

Red line = Single channel sample (from field)
Blue line = Composite sample (generated in office or lab)
Green line = Grab sample (acquired on site)

Geological description



Sample number & interval (mbGL)	**Shear Vane Testing** values (shear strength in kilopascals (kPa))	**Groundwater** occurrence (See legend for symbols used for dry, damp and wet)	**Depth** in metres below ground level & *[Thickness]*	Geology (graphical log)	VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			[0.05] 0.05		Acrotelm			
		Damp ▼ Wet	0.2 *[0.35]* 0.4		H7	Moderate root content	Dark brown	
	19, 17, 14		0.5 *[0.85]* 1.0 1.25		H8	Moderate root content	Medium brown	
			[0.15]		H8	Moderate root content	Dark brown/ black	
			[0.1] 1.5		Peaty sand/H9			
			2.0 2.5 3.0 3.5 4.0		**1.50m Obstruction / Rock**			

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC146		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03623 82341 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Damp ▼ Wet	0.2 [0.8]		H8	Moderate root content	Medium brown	
		9, 9, 8		0.5					
				0.8 [0.2]		H9	Moderate root content	Dark brown	
				1.0 [0.3]		H9	Moderate to minor root content	Medium brown	
				1.3 [0.25]		H10	Minor root content	Dark brown	
				1.55		**1.55m Obstruction / Rock**			
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC147 (SP115)		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03649 82307 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
Ground level; Upstand 1.08m; Black coloured 17mm ID/33.5mm OD PVC casing	SS1		Damp; Wet	[0.25] 0.2 0.25 [0.75] 0.5		H7	Moderate root content	Medium brown	
	SS2			1.0		H8	Moderate root content	Dark brown	
1.00m = End of Installation (EOI)				1.5 2.0 2.5 3.0 3.5 4.0		1.00m Obstruction / Rock			

Red line = Single channel sample (from field)
Blue line = Composite sample (generated in office or lab)
Green line = Grab sample (acquired on site)

Sample number & interval (mbGL) (Sample 10 kg minimum)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC148		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03689 82285 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Damp ▼ Wet	0.2 [0.5]		H8	Moderate root content	Medium brown	
				0.5 [0.5]		H9	Moderate root content	Dark brown	
				1.0 [0.35]		H10	Minor root content	Dark brown	
				1.35		**1.35m Obstruction / Rock**			
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

Sample number & interval (mbGL) *(Sample 10 kg minimum)*

Red line = Single channel sample (from field)

Blue line = Composite sample (generated in office or lab)

Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC149		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03688 82335 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Damp	0.0		H7	Moderate root content	Medium brown	
				[0.5]					
			Wet	0.5		H8	Moderate root content	Medium brown	
				[0.8]					
				1.0					
				1.3		H9	Minor root content	Dark brown	
				[0.2]					
				1.5		**1.50m Obstruction / Rock**			
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC150		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03876 82274 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Damp	[0.15]		H2	Moderate root content	Med brown	
				0.15					
				0.2		H4	Moderate root content	Medium brown	
				[0.25]					
				0.4		H7	Minor root content	Medium brown	
			Wet	0.5					
				[0.25]					
				0.65		**0.65m Obstruction / Rock**			
				1.0					
				1.5					
				2.0					
				3.0					
				3.5					
				4.0					

Red line = Single channel sample (from field)
Blue line = Composite sample (generated in office or lab)
Green line = Grab sample (acquired on site)

Sample number & interval (mbGL) *(Sample 10 kg minimum)*

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

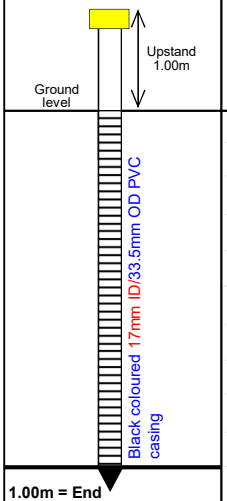
**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

INVESTIGATION POINT LOG NUMBER	**GC151 (SP116)**
Client, Project, Location	**JOD/SPR, Barnesmore, Donegal**
Minerex work item	**3006-A1**
Page No.	**Page 1 of 1**
Date & time drilled / formed:	**04/07/19**
Logged by (drawn by) [checked by]:	**Gero Jahns (GJ) [JC]**
Drilling / Trial pitting co. & equipment	**Gouge core**
Minerex Doc. Ref.	**3006-024.ppt**
Irish Grid (IG)**	**IH 03891 82288 (1)**

Borehole/ Standpipe Design & Completion



Soil (S) / Water (W) / Vapour (V) Sampling

Sample number & interval (mbGL) ***(Sample 10 kg minimum)***

Red line = Single channel sample (from field)
Blue line = Composite sample (generated in office or lab)
Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

Depth in metres below ground level & *[Thickness]*

Geology (graphical log)

SS1
SS2
SS3
SS4
SS5

Damp
Wet

Depth (m)	[Thickness]	VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
0.2	[0.2]	H5	High root content	Dark brown	
0.5	[0.3]	H8	Moderate root content	Medium brown	
1.0	[0.5]	H8-9	Moderate root content	Medium brown	
1.5	[0.5]	H9	Minor root content	Dark brown	
2.0	[0.5]	H10	Minor fibres	Dark brown	
2.5		**2.50m Obstruction / Rock**			
3.0					
3.5					
4.0					

Geological description

General notes / Well Head Protection / Plan & Section Sketches

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC152		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03835 82281 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Damp			H8	Moderate root content	Medium brown	
			Wet	[1.3] 0.3					
				0.5					
				1.0					
				1.3		H9	Minor root content	Light brown	
				[0.2] 1.5					
				[0.3] 1.8		H9	Minor root content	Dark brown	
						1.80m Obstruction / Rock			
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC153		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03409 81854 (1)		
						Geological description			
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)			VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	SS1		Damp	[0.2] 0.2 0.20		H7	Moderate root content	Dark brown	
			Wet	[0.5] 0.5		H8	Minor root content	Dark brown	
	SS2	9, 10, 12		0.70 [0.2] 0.9		H9	Minor root content	Dark brown	
				1.0		**0.90m Obstruction / Rock**			
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Sample taken on a mound surrounded by cut back peat and rocky outcrops

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC154 (SP117)		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03387 81858 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
Ground level; Upstand 1.28m; Black coloured 17mm ID/33.5mm OD PVC casing			Wet	0.1 [0.3]		H7	Moderate root content	Dark brown	
				0.30		H8-9	Minor root content	Dark brown	
0.90m = End of Installation (EOI)				0.5 [0.6] 0.9		0.90m Obstruction / Rock			
				1.0					
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

Sample number & interval (mbGL) *(Sample 10 kg minimum)*

Red line = Single channel sample (from field)

Blue line = Composite sample (generated in office or lab)

Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

Depth in metres below ground level & [Thickness]

Geology (graphical log)

INVESTIGATION POINT LOG NUMBER **GC154 (SP117)**

Geological description

VON POST VALUE | PEAT DESCRIPTION | COLOUR | STIFFNESS

Borehole/ Standpipe Design & Completion

Ground level; Upstand 1.28m; Black coloured 17mm ID/33.5mm OD PVC casing

Wet

0.1 [0.3]

0.30

H7 | Moderate root content | Dark brown

H8-9 | Minor root content | Dark brown

0.5 [0.6] 0.9

0.90m Obstruction / Rock

0.90m = End of Installation (EOI)

1.0 1.5 2.0 2.5 3.0 3.5 4.0

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC155		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03364 81853 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Dry						
			Wet	0.2 [1.0]		H8	Moderate root content	Medium brown	
		19, 12, 6		0.5					
				1.0 [0.4]		H9	Moderate root content	Medium brown	
				1.4					
				1.5 [0.45]		H9	High root content	Dark brown	
				1.85					
				1.95		H10	High root content	Dark brown	
				2.0		**1.95m Obstruction / Rock**			
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC156		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03373 81811 (1)		
						Geological description			
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)			VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Dry	[0.1] 0.1		H7		Black	
			Wet	0.2 [0.4]		H7	High root content	Light brown	
		12, 19, 12		0.5 [0.5]		H8	Moderate root content	Medium brown	
				1.0 [1.0]		H8	Moderate root content	Medium brown	
				2.0 [0.4]		H9	Minor root content	Medium brown	
				2.5					
				3.0		H9	Minor root content and pieces of timber	Dark brown	
				3.5 3.65					
				4.0		**3.65m Obstruction / Rock**			

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC157		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03460 81853 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
			Wet	[0.1] 0.1		H8	Moderate root content	Dark brown	
				[0.2] 0.3		H8	Moderate root content	Medium brown	
				[0.2] 0.5		H8		Dark brown	
						0.50m Obstruction / Rock			
				[0.5] 1.0					
				[1.0] 1.5					
				[0.4] 2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC158		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03460 81853 (1)		
						Geological description			
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)			VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Wet	[0.5] 0.2		H9	High root content	Dark brown	
				0.5 [0.25]		H10	Moderate root content	Dark brown	
						0.75m Obstruction / Rock			
				1.0					
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC159		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03820 81949 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Wet	[0.2]		H8	Moderate root content	Medium brown	
						0.20m Obstruction / Rock			

Sample number & interval (mbGL) *(Sample 10 kg minimum)*

Red line = Single channel sample (from field)

Blue line = Composite sample (generated in office or lab)

Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC160		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03825 81964 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Wet	[0.2]		H8	Moderate root content	Dark brown	
						0.20m Obstruction / Rock			
				0.5					
				1.0					
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

Red line = Single channel sample (from field)
Blue line = Composite sample (generated in office or lab)
Green line = Grab sample (acquired on site)

Sample number & interval (mbGL) (Sample 10 kg minimum)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC161		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03867 81958 (1)		
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)			Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Wet	[0.1]		H7	Moderate root content	Dark brown	
				0.5		0.10m Obstruction / Rock			
				1.0					
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC162		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03841 81923 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)	[0.1] 0.1		H6	Moderate root content	Dark brown	
			Wet	0.3		H7	Moderate root content	Dark brown	
				0.5		**0.55m Obstruction / Rock**			
				1.0					
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC163 (SP118)		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03780 81938 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
Upstand 1.30m; Ground level; Black coloured 17mm ID / 33.5mm OD PVC casing	SS1		Wet	[0.55] 0.2 0.5		H6	Moderate root content	Medium brown	
				0.55 [0.15] 0.7		H7	Minor root content	Dark brown	
0.70m = End of Installation (EOI)						0.70m Obstruction / Rock			
				1.0					
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

Sample number & interval (mbGL) *(Sample 10 kg minimum)*

Red line = Single channel sample (from field)

Blue line = Composite sample (generated in office or lab)

Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC164		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03023 81607 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
Ground level; Upstand 1.06m; Black coloured 17mm ID/33.5mm OD PVC casing	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)						
	SS1	8, 6, 10	Dry Wet	0.2 [0.55] 0.5		H7	High root content	Medium brown	
	SS2			0.55 [0.45] 1.0		H8	Moderate root content	Dark brown	
1.00m = End of Installation (EOI)	SS3			[0.7] 1.5		H9	Moderate root content	Dark brown	
	SS4			1.7 [0.3] 2.0		H9	Minor root content	Dark brown	
				2.1		H10	Minor root content	Dark brown	
				2.5 3.0 3.5 4.0		**2.10m Obstruction / Rock**			

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC165		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03032 81643 (1)		
						Geological description			
	Sample number & interval (mbGL) *(Sample 10 kg minimum)*	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)			VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Red line = Single channel sample (from field)		Wet	0.1					
	Blue line = Composite sample (generated in office or lab)			[0.6]		H7	High root content	Medium brown	
	Green line = Grab sample (acquired on site)			0.5					
				0.6					
				[0.4]		H8	High root content	Medium brown	
				1.0					
				[0.45]		H9	Moderate root content	Dark brown	
				1.45					
				1.5		**1.45m Obstruction / Rock**			
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC166		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03050 81621 (1)		
						Geological description			
	Sample number & interval (mbGL) (Sample 10 kg minimum) Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)			VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Wet	[0.1] 0.1		H9	High root content	Dark brown	
				0.3 [0.6] 0.5		H8	High root content	Medium brown	
				0.7 [0.6] 1.0		H9	Moderate root content	Dark brown	
				1.30		1.30m Obstruction / Rock			
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

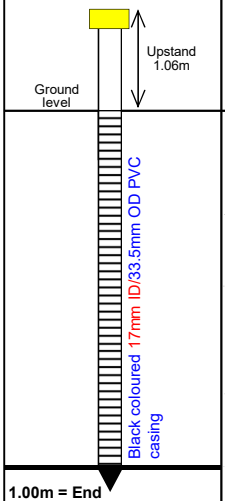
**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

INVESTIGATION POINT LOG NUMBER	**GC167**
Client, Project, Location	**JOD/SPR, Barnesmore, Donegal**
Minerex work item	**3006-A1**
Page No.	**Page 1 of 1**
Date & time drilled / formed:	**04/07/19**
Logged by (drawn by) [checked by]:	**Gero Jahns (GJ) [JC]**
Drilling / Trial pitting co. & equipment	**Gouge core**
Minerex Doc. Ref.	**3006-024.ppt**
Irish Grid (IG)**	**IH 03116 81884 (1)**

Borehole/ Standpipe Design & Completion



Soil (S) / Water (W) / Vapour (V) Sampling

Sample number & interval (mbGL) ***(Sample 10 kg minimum)***

Red line = Single channel sample (from field)
Blue line = Composite sample (generated in office or lab)
Green line = Grab sample (acquired on site)

Shear Vane Testing values (shear strength in kilopascals (kPa))

Groundwater occurrence (See legend for symbols used for dry, damp and wet)

Depth in metres below ground level & [Thickness]

Geology (graphical log)

Sample number & interval (mbGL)	Shear Vane Testing (kPa)	Groundwater	Depth (m)	Geology	VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
		Dry	[0.2]		H8	Minor root content	Dark brown	
SS1			0.2 0.2					
			[0.5]		H8	Moderate root content	Light/ medium brown	
	8, 6, 10		0.5					
SS2			0.7					
			[0.6]		H9	Moderate root content	Dark brown / black	
SS3		Wet	1.0					
			1.3					
					1.30m Obstruction / Rock			
			1.5					
			2.0					
			2.5					
			3.0					
			3.5					
			4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
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Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC168		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03158 81882 (1)		
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* **Red line** = Single channel sample (from field) **Blue line** = Composite sample (generated in office or lab) **Green line** = Grab sample (acquired on site)	**Shear Vane Testing** values (shear strength in kilopascals (kPa))	**Groundwater** occurrence (See legend for symbols used for dry, damp and wet)			**Geological description**			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
			Dry			H8	Moderate root content	Dark brown / black	
				[0.4]					
			Wet	0.4 0.4					
				0.5		H9	Moderate root content	Medium brown	
				[0.6]					
				1.0		H9	Minor root content	Medium brown	
				[1.0]					
				1.5					
				2.0		H9	Minor root content	Dark brown	
				[0.35]					
				2.35		**2.35m Obstruction / Rock**			
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

Minerex Environmental
Tel: 01-2964435, Web: www.minerex.ie

Borehole/ Standpipe Design & Completion	Soil (S) / Water (W) / Vapour (V) Sampling			Depth in metres below ground level & [Thickness]	Geology (graphical log)	INVESTIGATION POINT LOG NUMBER	GC169		
						Client, Project, Location	JOD/SPR, Barnesmore, Donegal		
						Minerex work item	3006-A1		
						Page No.	Page 1 of 1		
						Date & time drilled / formed:	04/07/19		
						Logged by (drawn by) [checked by]:	Gero Jahns (GJ) [JC]		
						Drilling / Trial pitting co. & equipment	Gouge core		
						Minerex Doc. Ref.	3006-024.ppt		
						Irish Grid (IG)**	IH 03077 81868 (1)		
						Geological description			
						VON POST VALUE	PEAT DESCRIPTION	COLOUR	STIFFNESS
	Sample number & interval (mbGL) *(Sample 10 kg minimum)* Red line = Single channel sample (from field) Blue line = Composite sample (generated in office or lab) Green line = Grab sample (acquired on site)	Shear Vane Testing values (shear strength in kilopascals (kPa))	Groundwater occurrence (See legend for symbols used for dry, damp and wet)	[0.3]		H9	Moderate root content	Dark brown / black	
				0.3		H9	Moderate root content	Medium brown	
			Wet	0.5 (0.5)					
				0.8		H9	Minor root content	Dark brown	
						0.8m Obstruction / Rock			
				1.0					
				1.5					
				2.0					
				2.5					
				3.0					
				3.5					
				4.0					

**1-From hand held GPS, 2-Estimated from google maps or 3-Surveyed with theodolite.

General notes / Well Head Protection / Plan & Section Sketches

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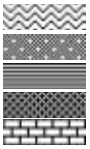
GENERAL LEGEND, ABBREVIATIONS AND INSTALLATION DETAILS

BEDROCK

Metamorphic bedrock
Igneous bedrock
Mudstone / Shale bedrock
Siltstone / Sandstone bedrock
Limestone bedrock



COLOUR

Brown (Light, medium, dark)
Grey (Light, medium, dark)
Mustard
Beige (tan)
Olive
Mottled
Orange

GRAIN SIZE (Soil)

Clay (% of)	C(20)
Silt (% of)	St(20)
Sand (% of)	Sd(20)
Gravel (% of)	G(20)
Sand (Fine to Medium)	Sd_{F-M}
Gravel (Fine to Coarse Subangular to angular)	$G_{F-C\ SA-A}$

MONITORING POINT COMPLETIONS

TS/C1/PH1	Terminal Site/Couple no./Phreatic no.
PR/C2/P2	Peat Repository/Couple no./Piezometer no.
H7	Von Post humification scale
	Push-on cap
	Screen
	Casing
	Porous tip
	Drive cone
P1 PH1	Piezometer no. and Phreatic tube no.
	Bentonite pellets
	Cement-Bentonite grout
	Gravel pack, nominal 2-5mm in diameter
	Damp, wet and water strike respectively
1/2/03	Static water table (with date measured and hours since installation)

PLAN SKETCHES

PWS1	Hand dug trial pits / Shallow pit excavations (JCB)
TP1	Percussion Window Sampler (PWS) boreholes
100 BG	FID/PID in ppm Hydrocarbons with BG = background
99.791	Reduced levels - maOD Malin
	Oil pipeline
	Storage tanks (Overground and underground)

OVERBURDEN

(Description uses BS 5930 and GSI guidelines)

BOULDER(S) (>200mm)

COBBLES (60 to 200mm)

GRAVEL (Homogeneous larger sized particles from 2 to 60 mm)

SAND (General, if without grain size description) Particle sizes: 2 to 0.06mm. Three sub-categories distinguishable to the eye)

Coarse **SAND** (2-0.6mm)

Medium **SAND** (0.6-0.2mm)

Fine **SAND** (0.2-0.06mm)

SILT (0.06 - 0.002mm)

CLAYS (<0.002mm)

CONCRETE

TARMACADAM

CRUSHED STONE or AGGREGATE

LANDFILL (eg plastic, glass, wood, domestic waste, concrete etc.)

FILL OR BACKFILLED GROUND (unspecified)

COLLAPSED FORMATION (with possible voids) or **DRILL CHIPPINGS / MATERIAL RETURNED BY AIR FLUSH DRILLING**

LOSS (Blank - white)

TOP SOIL

PEAT (General) (with descriptions such as colour, plant remains evident, distinct H_2S smell etc) (H (Von Post) value associated commonly)

MONITORING POINT DESIGN FOR PEAT SUBSOILS

Push-on, female cap

The cap is loosely fitted to allow easy removal. The piezometer is labelled using indellible ink inside and outside the cap. A small hole is drilled in the side to enable air movement in and out of the piezometer.

Casing up-stand

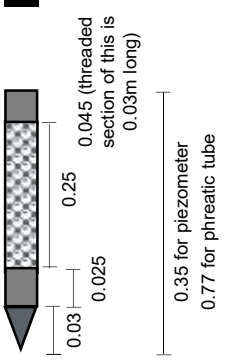
The upstand is the height of the casing above ground level in meters. The height depends on local groundwater and surface water circumstances. The piezometer number is scrapped onto the side of the casing near the cap as with time the writing on the cap wears off. Upstands vary from 0.3 to 1.0m in height. The convention is allow a higher upstand for those piezometers positioned at a higher level.

Casing

The casing is black or dark grey coloured, flush-threaded, uPVC. The OD is 26.80mm and the ID is 18.40. The casing is flush-threaded to the piezometer tip.

Tube or Piezometer tip

This section is installed opposite the required formation. There are two sections to the piezometer tip. The inner tube section is 18.40mm ID, white in colour and involves extruded microporous polyethylene. The outer comprises grey or black coloured uPVC with 10 x 0.013m diameter holes per 0.10m of piezometer tip. Therefore the surface area exposed to the formation (peat) is small. The piezometer tube tip is flush-threaded, either male or female, to the piezometer casing. Threaded part is 0.03m long. The phreatic tube tip is longer than the piezometer tube tip to allow for greater water level fluctuations.



Drive cone

This is grey coloured, solid, uPVC, pushed or screwed into the tube or piezometer tip. No glue has been used. If the ground is soft, a push-in button cap may be used instead of a drive cone.

NOTES:-

The phreatic tubes are pushed by hand into the peat. The piezometers are pushed or driven into the peat and mineral soil after a narrow diameter hole has been formed using overburden drilling (Cobra or Percussion Window Sampler) / coring equipment (Gouge corer). The tubes and piezometers have three main functions: water table measurements, water sampling, permeability measurements.

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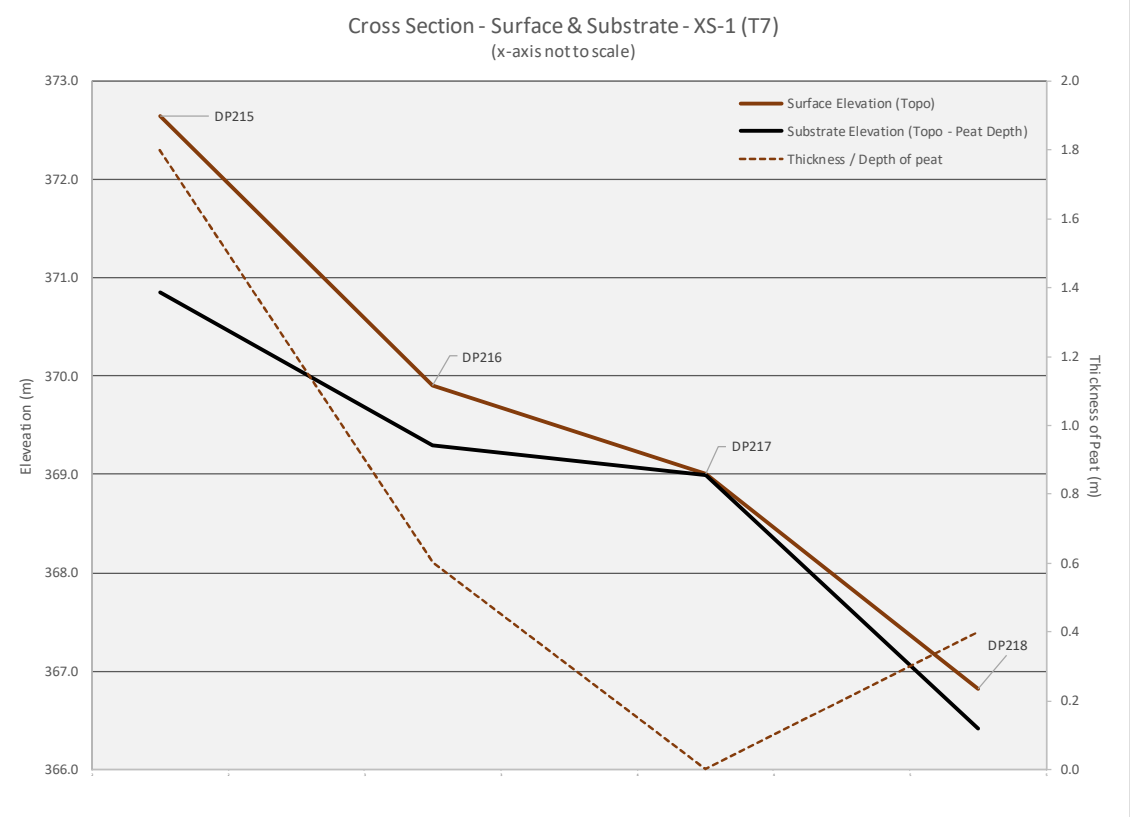
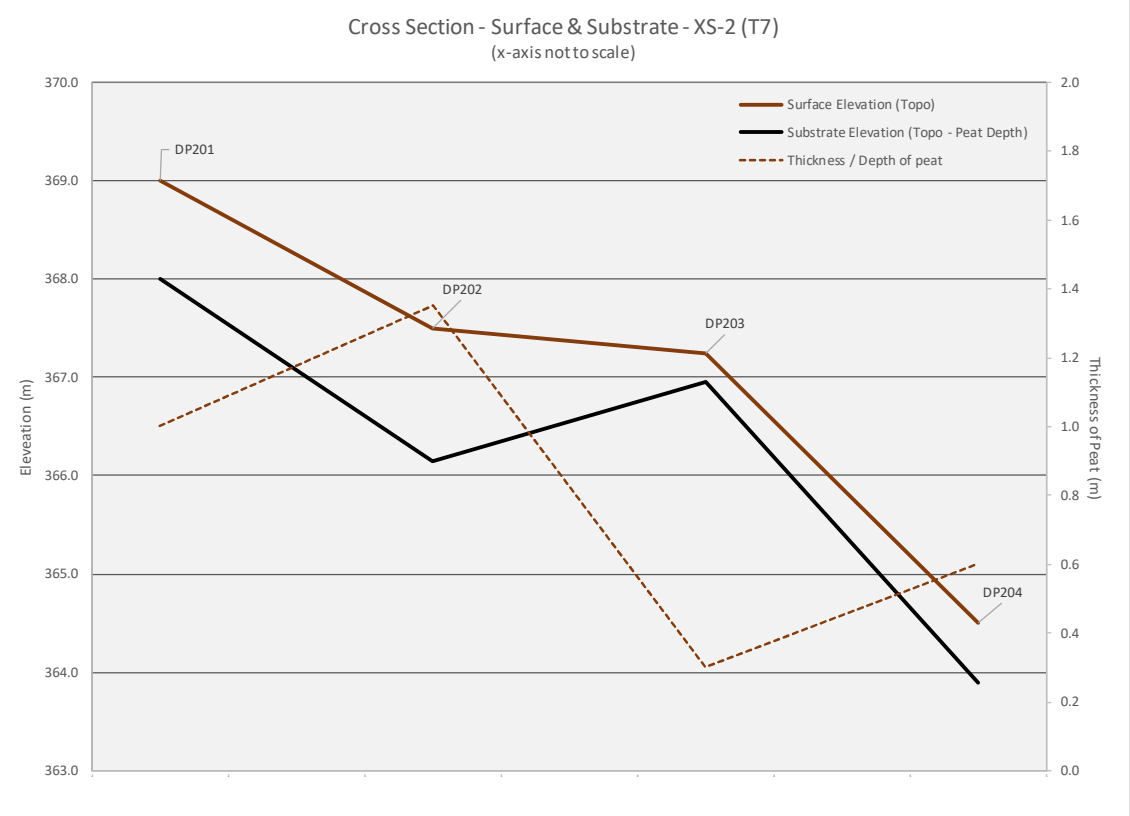
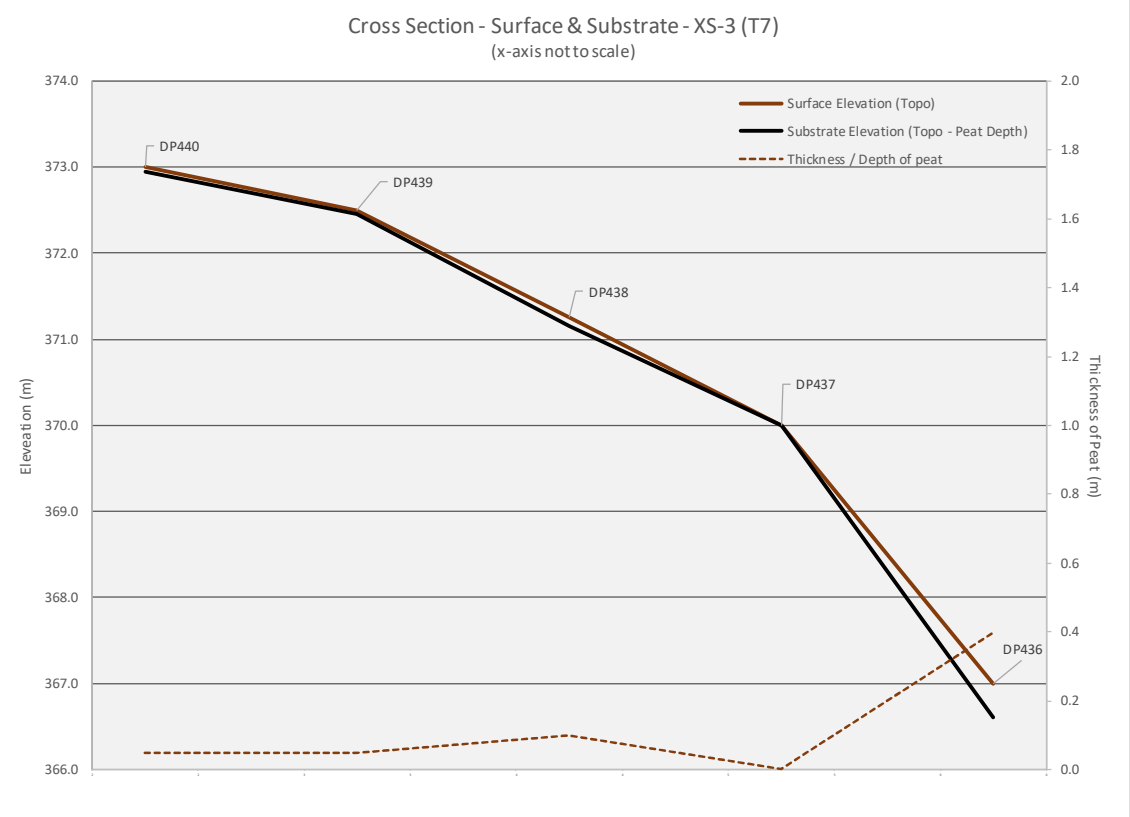
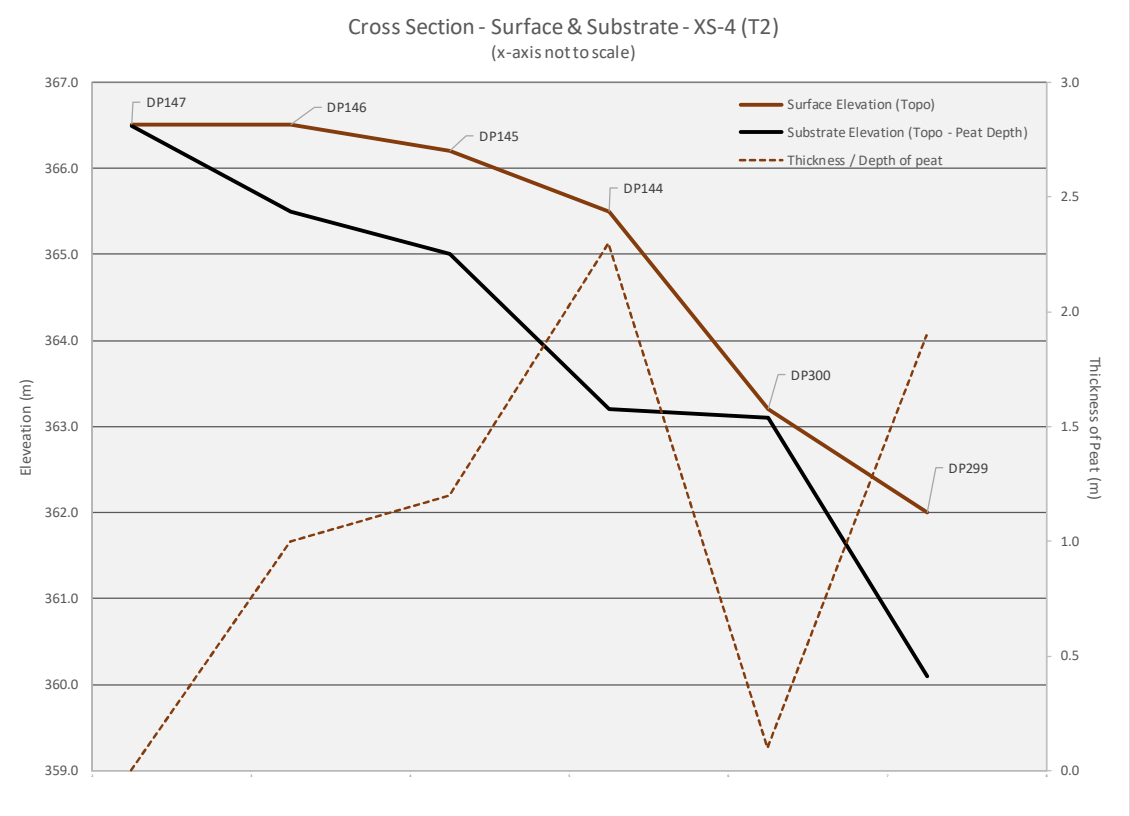
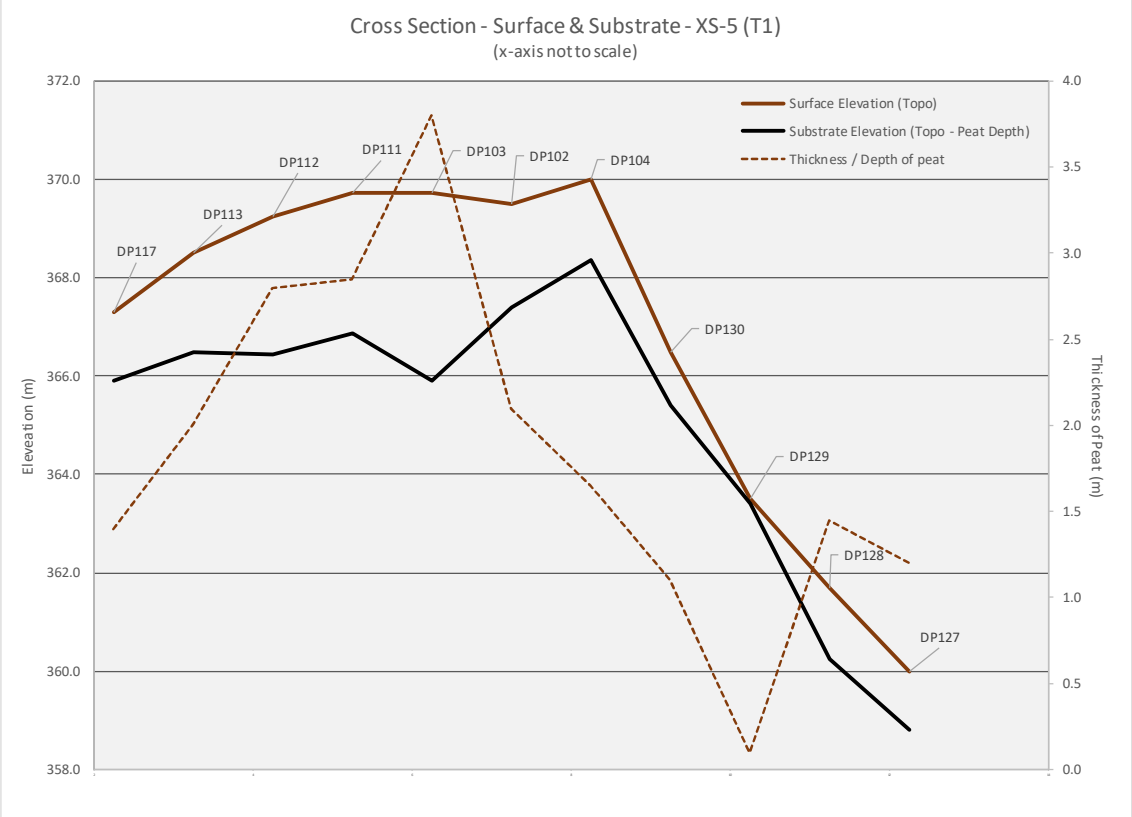
Attachment F

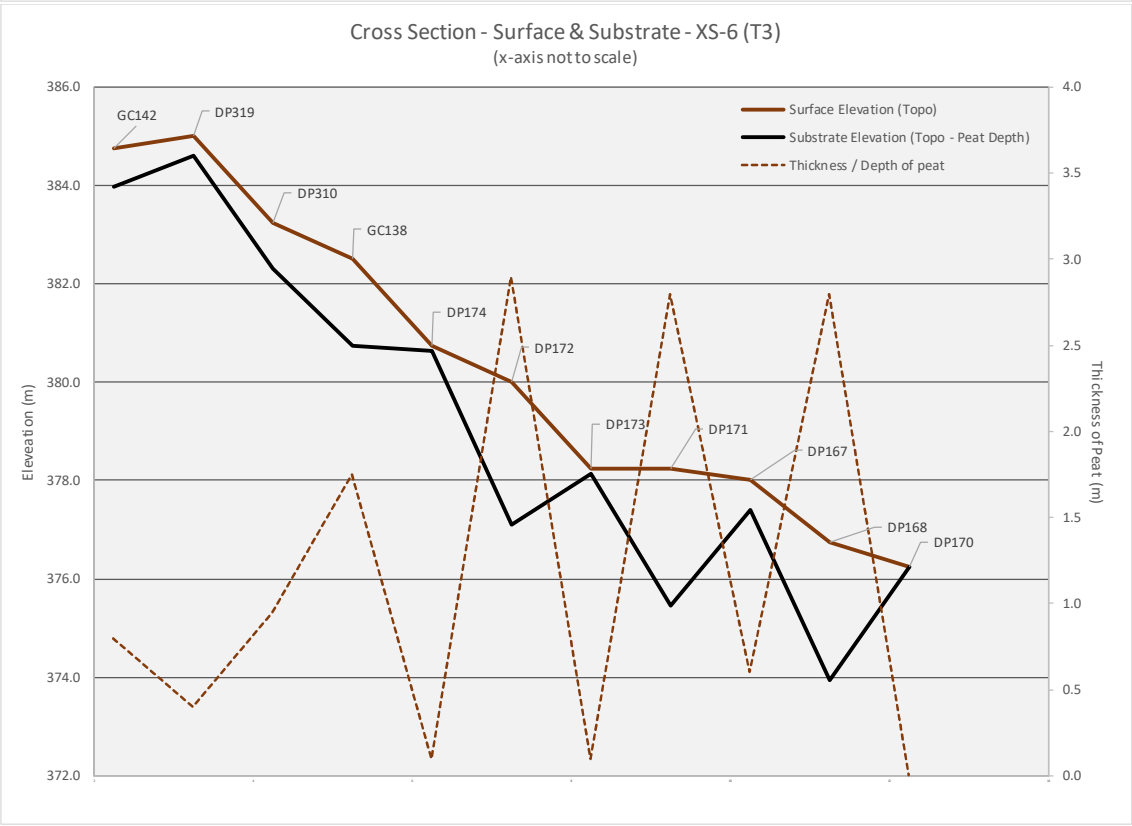

Cross Section - Surface & Substrate - XS-1 (T7)
(x-axis not to scale)
Surface Elevation (Topo)
Substrate Elevation (Topo - Peat Depth)
Thickness / Depth of peat
DP215
DP216
DP217
DP218
Elevation (m)
Thickness of Peat (m)
373.0
372.0
371.0
370.0
369.0
368.0
367.0
366.0
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0

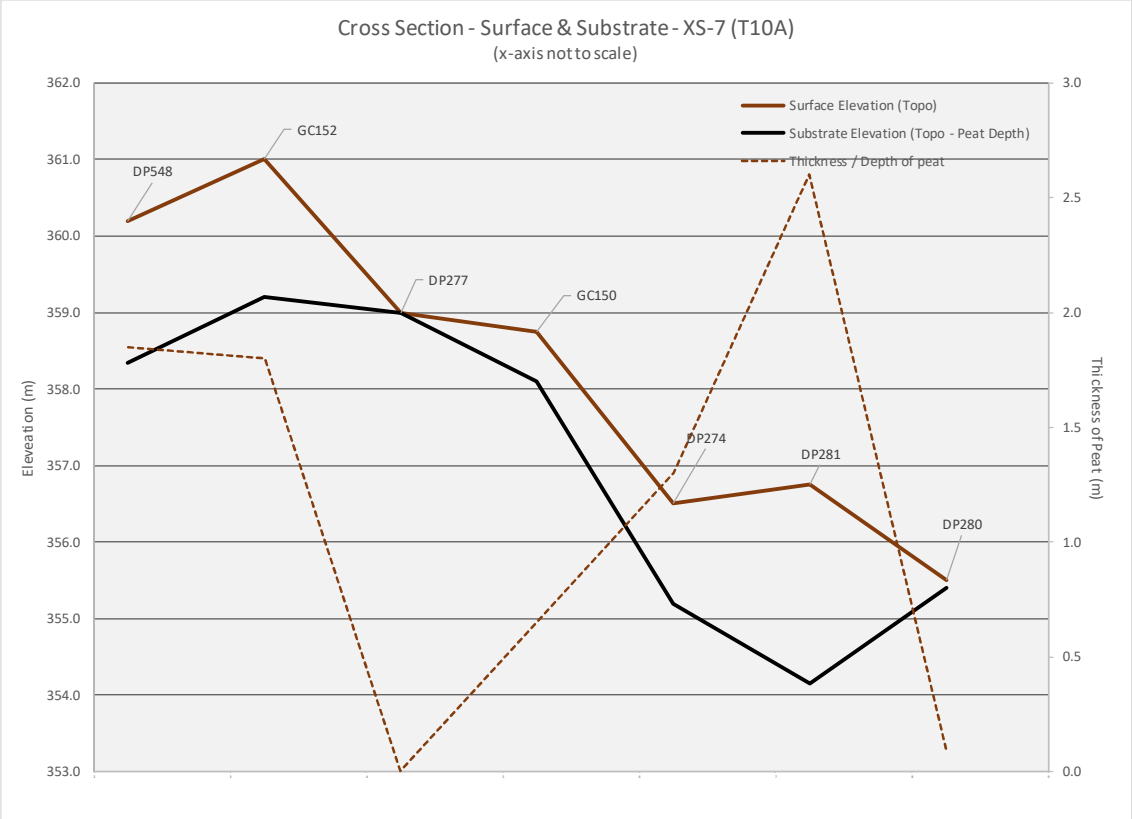

Cross Section - Surface & Substrate - XS-2 (T7)
(x-axis not to scale)
Surface Elevation (Topo)
Substrate Elevation (Topo - Peat Depth)
Thickness / Depth of peat
DP201
DP202
DP203
DP204
Elevation (m)
Thickness of Peat (m)
370.0
369.0
368.0
367.0
366.0
365.0
364.0
363.0
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0

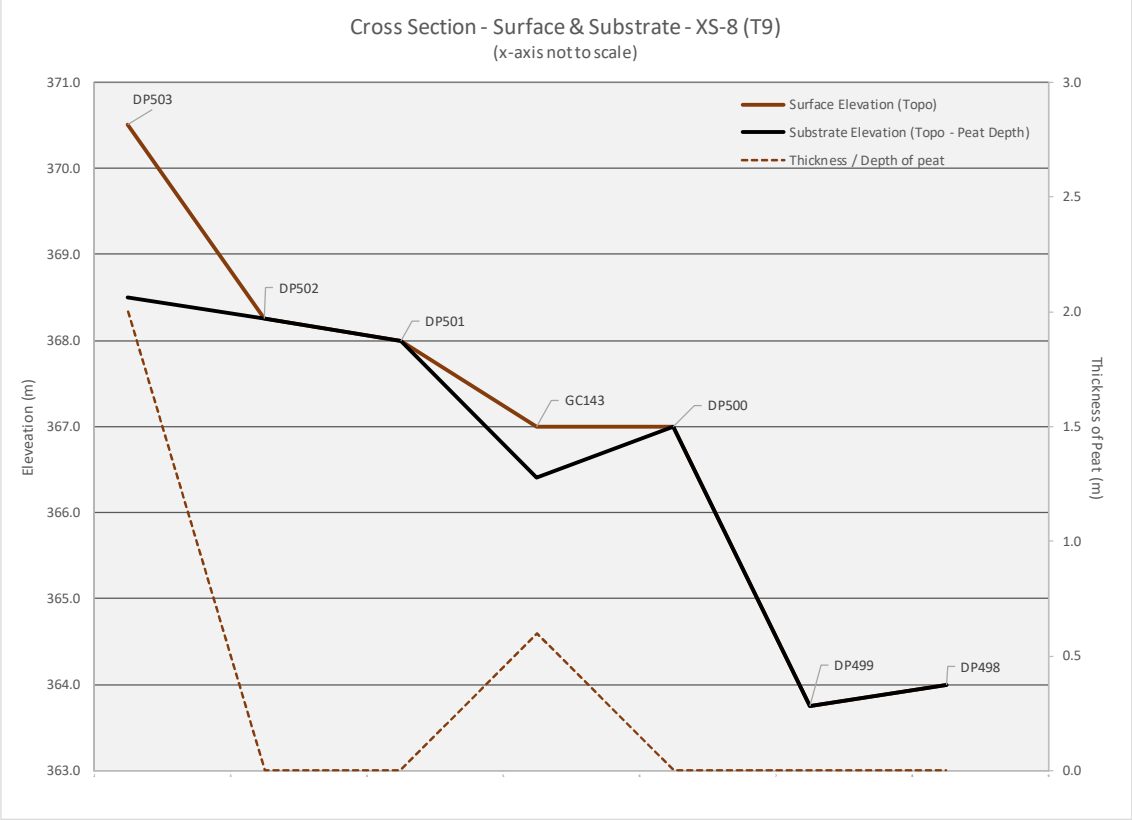

Cross Section - Surface & Substrate - XS-3 (T7)
(x-axis not to scale)
Surface Elevation (Topo)
Substrate Elevation (Topo - Peat Depth)
Thickness / Depth of peat
DP440
DP439
DP438
DP437
DP436
Elevation (m)
Thickness of Peat (m)
374.0
373.0
372.0
371.0
370.0
369.0
368.0
367.0
366.0
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0


Cross Section - Surface & Substrate - XS-4 (T2)
(x-axis not to scale)
Surface Elevation (Topo)
Substrate Elevation (Topo - Peat Depth)
Thickness / Depth of peat
DP147
DP146
DP145
DP144
DP300
DP299
Elevation (m)
Thickness of Peat (m)
367.0
366.0
365.0
364.0
363.0
362.0
361.0
360.0
359.0
3.0
2.5
2.0
1.5
1.0
0.5
0.0

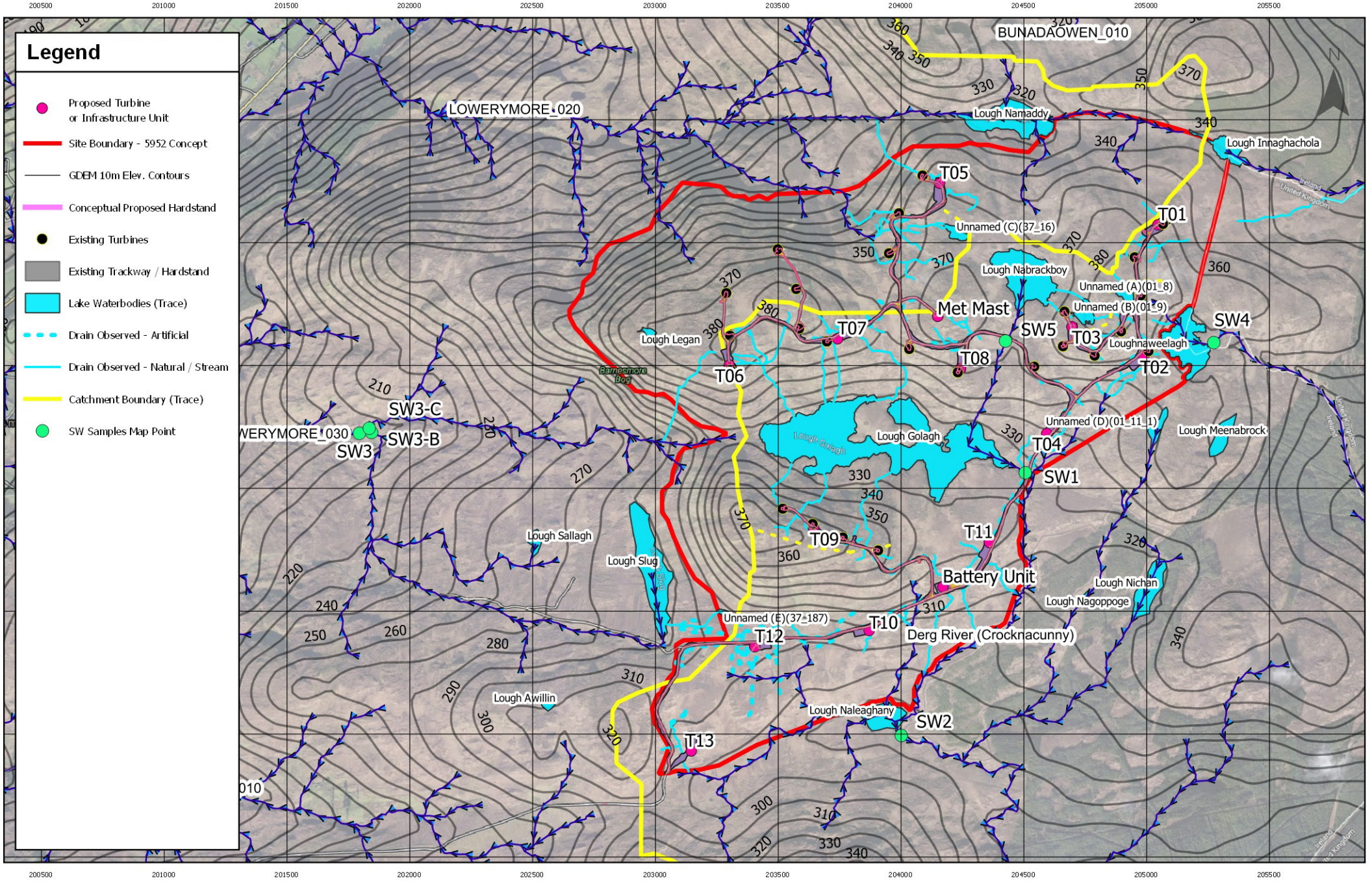

Cross Section - Surface & Substrate - XS-5 (T1)
(x-axis not to scale)
Surface Elevation (Topo)
Substrate Elevation (Topo - Peat Depth)
Thickness / Depth of peat
Elevation (m)
Thickness of Peat (m)
372.0
370.0
368.0
366.0
364.0
362.0
360.0
358.0
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
DP117
DP113
DP112
DP111
DP103
DP102
DP104
DP130
DP129
DP128
DP127


Cross Section - Surface & Substrate - XS-6 (T3)
(x-axis not to scale)
Surface Elevation (Topo)
Substrate Elevation (Topo - Peat Depth)
Thickness / Depth of peat
Elevation (m)
Thickness of Peat (m)
386.0
384.0
382.0
380.0
378.0
376.0
374.0
372.0
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
GC142
DP319
DP310
GC138
DP174
DP172
DP173
DP171
DP167
DP168
DP170


Cross Section - Surface & Substrate - XS-7 (T10A)
(x-axis not to scale)
Surface Elevation (Topo)
Substrate Elevation (Topo - Peat Depth)
Thickness / Depth of peat
Eleveation (m)
Thickness of Peat (m)
362.0
361.0
360.0
359.0
358.0
357.0
356.0
355.0
354.0
353.0
3.0
2.5
2.0
1.5
1.0
0.5
0.0
DP548
GC152
DP277
GC150
DP274
DP281
DP280


Cross Section - Surface & Substrate - XS-8 (T9)
(x-axis not to scale)
Surface Elevation (Topo)
Substrate Elevation (Topo - Peat Depth)
Thickness / Depth of peat
Elevation (m)
Thickness of Peat (m)
371.0
370.0
369.0
368.0
367.0
366.0
365.0
364.0
363.0
3.0
2.5
2.0
1.5
1.0
0.5
0.0
DP503
DP502
DP501
GC143
DP500
DP499
DP498

Attachment G


Legend
Proposed Turbine or Infrastructure Unit
Site Boundary - 5952 Concept
GDEM 10m Elev. Contours
Conceptual Proposed Hardstand
Existing Turbines
Existing Trackway / Hardstand
Lake Waterbodies (Trace)
Drain Observed - Artificial
Drain Observed - Natural / Stream
Catchment Boundary (Trace)
SW Samples Map Point
BUNADAOWEN_010
LOWERYMORE_020
LOWERYMORE_030
Lough Namaddy
Lough Innaghachola
T05
T01
Unnamed (C)(37_16)
Lough Nabrackboy
Unnamed (A)(01_8)
Unnamed (B)(01_9)
Met Mast
SW5
T03
SW4
Loughnaweelagh
T07
T08
T02
Lough Legan
T06
Barnesmore Bog
SW3-C
SW3-B
SW3
Unnamed (D)(01_11_1)
Lough Meenabrock
Lough Golagh
T04
SW1
T11
T09
Lough Sallagh
Lough Slug
Battery Unit
Lough Nichan
Lough Nagoppoge
Unnamed (E)(37_187)
T10
T12
Derg River (Crocknacunny)
Lough Awillin
Lough Naleaghany
SW2
T13
Ireland
United Kingdom
0 0.2 0.4 0.6 0.8 km
SCOTTISHPOWER RENEWABLES
Barnesmore Windfarm Repowering
Surface Water Features
Drwaing Number: 3006-008
Datum TM65
Projection Irish Grid TNM65
Scale @ A3 1:20,000
Drawing Produced by Minerex Environmental Ltd. www.minerex.ie
Rev 0 Date 23/08/19 By SK Comment
3006-008 Slope Stability Risk Assessment Figure 8 Maps

Attachment H

Receptor Distance & Significance.

Turbine No.	Feature Considered	Feature Name / Association	Coeficient (μ_{SF})	Distance (m) (From Proposed T to nearest significant (mapped) feature) (Approximate)	Coeficient ($\mu_{Dist.}$)
T1	Surface Water	Glendergan River	2	450	1
T2	Surface Water	Unnamed lake (Glendergan River)	2	75	2
T3	Surface Water	Unnamed lake (Derg River)	2	30	4
T4	Surface Water	Derg River	2	80	2
T5	Surface Water	Lowerymore River	2	300	1
T6	Surface Water	Lowerymore River	2	300	1
T7	Surface Water	Lough Gologh	2	250	1
T8	Surface Water	Lough Gologh	2	225	1
T9	Surface Water	Lough Gologh	2	200	1
T10	Surface Water	Unnamed lake (Derg River)	2	340	1
T11	Surface Water	Derg River	2	200	1
T12	Surface Water	Derg River	2	130	2
T13	Surface Water	Derg River	2	20	4
Met Mast	Surface Water	Derg River	2	300	1
Battery Unit	Surface Water	Derg River	2	100	2

Attachment I

Peat Survey Database

Peat Database (Data obtained on site)

Prepared by: SK
Mineerex File Ref.: 3006-011.xls

Minerex Environmental

Peat & Slope Stability Database

Prepared by: SK
Mineerex File Ref.: 3006-011.xls

Minerex Environmental

Slope Stability Risk Assessment/s

Sample / Test Date	Sample / Test Category	Associated Proposed Turbine	Sample / Test Point ID No.	Piezometer	IG Ref.	IG Easting	IG Northing	Thickness / Depth of peat	Classification of Thickness / Depth of peat	Local Incline (c.5m rad.)	Elevation (GPS)	XS	Note	Shear Vane Test Depth	Shear Vane No. 1	Shear Vane No. 2	Shear Vane No. 3	Shear Vane Average
ddmmyy								m		Degrees	mOD	No.		m	kPa	kPa	kPa	kPa
09/05/2019	Depth Probe	T1	DP101		IH	5045	83605	1.20	C - Shallow (0.5-2.0m)	3								
09/05/2019	Depth Probe	T1	DP102		IH	5035	83609	2.10	D - Moderately Deep (2.0-3.5m)	3								
09/05/2019	Depth Probe	T1	DP103		IH	5026	83611	3.80	E - Deep (3.5-5.0m)	3		XS-5						
09/05/2019	Depth Probe	T1	DP104		IH	5035	83596	1.65	C - Shallow (0.5-2.0m)	3		XS-5						
11/06/2019	Depth Probe	T1	DP105		IH	5064	83604	2.15	D - Moderately Deep (2.0-3.5m)	3								
11/06/2019	Depth Probe	T1	DP106		IH	5054	83614	1.85	C - Shallow (0.5-2.0m)	0								
11/06/2019	Depth Probe	T1	DP107		IH	5048	83626	1.85	C - Shallow (0.5-2.0m)	0								
11/06/2019	Depth Probe	T1	DP108		IH	5037	83640	1.30	C - Shallow (0.5-2.0m)	6			Photo 12:44					
11/06/2019	Depth Probe	T1	DP109		IH	5024	83649	1.25	C - Shallow (0.5-2.0m)	5								
11/06/2019	Depth Probe	T1	DP110		IH	5017	83661	2.30	D - Moderately Deep (2.0-3.5m)	13								
11/06/2019	Depth Probe	T1	DP111		IH	5022	83615	2.85	D - Moderately Deep (2.0-3.5m)	3		XS-5						
11/06/2019	Depth Probe	T1	DP112		IH	5012	83624	2.80	D - Moderately Deep (2.0-3.5m)	3		XS-5						
11/06/2019	Depth Probe	T1	DP113		IH	5002	83632	2.00	C - Shallow (0.5-2.0m)	5		XS-5						
11/06/2019	Depth Probe	T1	DP114		IH	5024	83576	1.50	C - Shallow (0.5-2.0m)	3								
11/06/2019	Depth Probe	T1	DP115		IH	5015	83586	0.40	B - Very Shallow (0.01-0.5m)	0								
11/06/2019	Depth Probe	T1	DP116		IH	5006	83595	0.90	C - Shallow (0.5-2.0m)	2								
11/06/2019	Depth Probe	T1	DP117		IH	4991	83640	1.40	C - Shallow (0.5-2.0m)	3		XS-5	Photo 13:44					
11/06/2019	Depth Probe	T1	DP118		IH	5041	83552	1.00	C - Shallow (0.5-2.0m)	9			Backfill at track					
11/06/2019	Depth Probe	T1	DP119		IH	5047	83546	1.90	C - Shallow (0.5-2.0m)	9								
11/06/2019	Depth Probe	T1	DP120		IH	5054	83537	2.40	D - Moderately Deep (2.0-3.5m)	5								
11/06/2019	Depth Probe	T1	DP121		IH	5066	83527	2.50	D - Moderately Deep (2.0-3.5m)	4								
11/06/2019	Depth Probe	T1	DP122		IH	5067	83526	1.60	C - Shallow (0.5-2.0m)	4								
11/06/2019	Depth Probe	T1	DP123		IH	5081	83581	0.60	C - Shallow (0.5-2.0m)	14			Mag Compass. Previous data using inclinometer incorrect, need cal.					
11/06/2019	Depth Probe	T1	DP124		IH	5090	83571	0.60	C - Shallow (0.5-2.0m)	14								
11/06/2019	Depth Probe	T1	DP125		IH	5098	83566	0.20	B - Very Shallow (0.01-0.5m)	12			Photo 14:32, egg?					
11/06/2019	Depth Probe	T1	DP126		IH	5106	83557	1.70	C - Shallow (0.5-2.0m)	5								
11/06/2019	Depth Probe	T1	DP127		IH	5096	83543	1.20	C - Shallow (0.5-2.0m)	7		XS-5						
11/06/2019	Depth Probe	T1	DP128		IH	5086	83550	1.45	C - Shallow (0.5-2.0m)	5		XS-5						
11/06/2019	Depth Probe	T1	DP129		IH	5077	83555	0.10	B - Very Shallow (0.01-0.5m)	7		XS-5						
11/06/2019	Depth Probe	T1	DP130		IH	5067	83562	1.10	C - Shallow (0.5-2.0m)	8		XS-5	Phpoto 14:38					
11/06/2019	Depth Probe	T1	DP131		IH	5089	83599	0.20	B - Very Shallow (0.01-0.5m)	8								
11/06/2019	Depth Probe	T1	DP132		IH	5097	83604	0.95	C - Shallow (0.5-2.0m)	8								
11/06/2019	Depth Probe	T1	DP133		IH	5106	83609	1.10	C - Shallow (0.5-2.0m)	25			Point at top of severe drop i.e. 25deg slope.					
11/06/2019	Depth Probe	T1	DP134		IH	5011	83088	0.40	B - Very Shallow (0.01-0.5m)	2								
11/06/2019	Depth Probe	T2	DP135		IH	5018	83099	0.80	C - Shallow (0.5-2.0m)	3								
11/06/2019	Depth Probe	T2	DP136		IH	5022	83112	1.30	C - Shallow (0.5-2.0m)	3								
11/06/2019	Depth Probe	T2	DP137		IH	5023	83120	2.10	D - Moderately Deep (2.0-3.5m)	5								
11/06/2019	Depth Probe	T2	DP138		IH	5010	83119	0.15	B - Very Shallow (0.01-0.5m)	3								
11/06/2019	Depth Probe	T2	DP139		IH	5007	83110	0.10	B - Very Shallow (0.01-0.5m)	0								
11/06/2019	Depth Probe	T2	DP140		IH	5002	83046	1.50	C - Shallow (0.5-2.0m)	1								
11/06/2019	Depth Probe	T2	DP141		IH	4993	83037	2.10	D - Moderately Deep (2.0-3.5m)	1								
11/06/2019	Depth Probe	T2	DP142		IH	4985	83029	1.90	C - Shallow (0.5-2.0m)	2								
11/06/2019	Depth Probe	T2	DP143		IH	4978	83023	1.80	C - Shallow (0.5-2.0m)	2								
11/06/2019	Depth Probe	T2	DP144		IH	4988	83015	2.30	D - Moderately Deep (2.0-3.5m)	3		XS-4						
11/06/2019	Depth Probe	T2	DP145		IH	4998	83023	1.20	C - Shallow (0.5-2.0m)	1		XS-4						
11/06/2019	Depth Probe	T2	DP146		IH	5006	83031	1.00	C - Shallow (0.5-2.0m)	0		XS-4	Photo 15:28					
11/06/2019	Depth Probe	T2	DP147		IH	5015	83040	0.00	A - Rock (0.0m)	0		XS-4	Sig. drain area - Phpt 15:30					
11/06/2019	Depth Probe	T2	DP148		IH	5027	83054	1.50	C - Shallow (0.5-2.0m)	5								
12/06/2019	Depth Probe	T2	DP149		IH	5038	83055	0.10	B - Very Shallow (0.01-0.5m)	4								
11/06/2019	Depth Probe	T2	DP150		IH	5046	83058	1.15	C - Shallow (0.5-2.0m)	3								
11/06/2019	Depth Probe	T3	DP151		IH	4676	83228	2.40	D - Moderately Deep (2.0-3.5m)	1								
11/06/2019	Depth Probe	T3	DP152		IH	4689	83231	2.10	D - Moderately Deep (2.0-3.5m)	1								
11/06/2019	Depth Probe	T3	DP153		IH	4687	83242	0.60	C - Shallow (0.5-2.0m)	2								
11/06/2019	Depth Probe	T3	DP154		IH	4677	83242	1.10	C - Shallow (0.5-2.0m)	3								
11/06/2019	Depth Probe	T3	DP155		IH	4665	83241	0.90	C - Shallow (0.5-2.0m)	4								
11/06/2019	Depth Probe	T3	DP156		IH	4654	83240	0.90	C - Shallow (0.5-2.0m)	3								
11/06/2019	Depth Probe	T3	DP157		IH	4652	83242	0.20	B - Very Shallow (0.01-0.5m)	0			Drain area					
11/06/2019	Depth Probe	T3	DP158		IH	4649	83252	0.05	B - Very Shallow (0.01-0.5m)	11								
11/06/2019	Depth Probe	T3	DP159		IH	4647	83259	0.30	B - Very Shallow (0.01-0.5m)	27								
11/06/2019	Depth Probe	T3	DP160		IH	4644	83234	1.30	C - Shallow (0.5-2.0m)	3								
11/06/2019	Depth Probe	T3	DP161		IH	4637	83232	0.60	C - Shallow (0.5-2.0m)	5			Photo 16:40					
11/06/2019	Depth Probe	T3	DP162		IH	4627	83235	0.40	B - Very Shallow (0.01-0.5m)	26			Start of severe drop i.e. 26deg incline					
11/06/2019	Depth Probe	T3	DP163		IH	4688	83202	1.90	C - Shallow (0.5-2.0m)	0								
11/06/2019	Depth Probe	T3	DP164		IH	4695	83202	0.20	B - Very Shallow (0.01-0.5m)	2			VERY EDGE OF WATER BODY I.E. SMALL LAKE					
11/06/2019	Depth Probe	T3	DP165		IH	4694	83182	0.10	B - Very Shallow (0.01-0.5m)	2								
11/06/2019	Depth Probe	T3	DP167		IH	4645	83200	0.60	C - Shallow (0.5-2.0m)	2		XS-6						
11/06/2019	Depth Probe	T3	DP168		IH	4637	83202	2.80	D - Moderately Deep (2.0-3.5m)	8		XS-6						
11/06/2019	Depth Probe	T3	DP169		IH	4991	83611	1.20	C - Shallow (0.5-2.0m)	6								
11/06/2019	Depth Probe	T3	DP170		IH	4635	83198	0.00	A - Rock (0.0m)	5		XS-6	Bare rock i.e. drain + erosion					
11/06/2019	Depth Probe	T3	DP171		IH	4645	83186	2.80	D - Moderately Deep (2.0-3.5m)	3		XS-6						
11/06/2019	Depth Probe	T3	DP172		IH	4658	83183	2.90	D - Moderately Deep (2.0-3.5m)	2		XS-6						
11/06/2019	Depth Probe	T3	DP173		IH	4653	83176	0.10	B - Very Shallow (0.01-0.5m)	2		XS-6	Many drains in this area + ersosion.					
11/06/2019	Depth Probe	T3	DP174		IH	4663	83167	0.10	B - Very Shallow (0.01-0.5m)	3		XS-6	Photo - Sundew					
12/06/2019	Depth Probe	T5	DP175		IH	4176	83755	1.50	C - Shallow (0.5-2.0m)	0								
12/06/2019	Depth Probe	T5	DP176		IH	4183	83738	3.30	D - Moderately Deep (2.0-3.5m)	1								
12/06/2019	Depth Probe	T5	DP177		IH	4186	83725	2.85	D - Moderately Deep (2.0-3.5m)	2								
12/06/2019	Depth Probe	T5	DP178		IH	4196	83728	3.35	D - Moderately Deep (2.0-3.5m)	1								
12/06/2019	Depth Probe	T5	DP179		IH	4193	83740	3.45	D - Moderately Deep (2.0-3.5m)	1								
12/06/2019	Depth Probe	T5	DP180		IH	4185	83754	1.55	C - Shallow (0.5-2.0m)	1								
12/06/2019	Depth Probe	T5	DP181		IH	4156	83774	1.90	C - Shallow (0.5-2.0m)	0								
12/06/2019	Depth Probe	n/a (Potential Alternative (T5)	DP182		IH	3985	83587	4.30	E - Deep (3.5-5.0m)	0			Saturated, pools adjacent					
12/06/2019	Depth Probe	n/a (Potential Alternative (T5)	DP183		IH	3982	83576	3.90	E - Deep (3.5-5.0m)	0								
12/06/2019	Depth Probe	n/a (Potential Alternative (T5)	DP184		IH	3982	83563	0.30	B - Very Shallow (0.01-0.5m)	0			Photo 10:58 (0.1l/sec)					
12/06/2019	Depth Probe	n/a (Potential Alternative (T5)	DP185		IH	3988	83545	0.05	B - Very Shallow (0.01-0.5m)	3			Drains in this area					
12/06/2019	Depth Probe	n/a (Potential Alternative (T5)	DP186		IH	4004	83538	1.10	C - Shallow (0.5-2.0m)	4								
12/06/2019	Depth Probe	n/a (Potential Alternative (T5)	DP187		IH	4005	83549	0.10	B - Very Shallow (0.01-0.5m)	3			Within Drain					
12/06/2019	Depth Probe	n/a (Potential Alternative (T5)	DP188		IH	4005	83559	2.00	C - Shallow (0.5-2.0m)	2								
12/06/2019	Depth Probe	n/a (Potential Alternative (T5)	DP189		IH	4003	83570	2.95	D - Moderately Deep (2.0-3.5m)	1								
12/06/2019	Depth Probe	n/a (Potential Alternative (T5)	DP190		IH	4006	83580	4.70	E - Deep (3.5-5.0m)	0								
12/06/2019	Depth Probe	n/a (Potential Alternative (T5)	DP191		IH	4006	83596	5.70	F - Extremely Deep (>5m)	0								
12/06/2019	Depth Probe	n/a (Potential Alternative (T5)	DP192		IH	3981	83636	1.90	C - Shallow (0.5-2.0m)	6								
12/06/2019	Depth Probe	n/a (Potential Alternative (T7)	DP193		IH	3987	83273	0.20	B - Very Shallow (0.01-0.5m)	1								
12/06/2019	Depth Probe	n/a (Potential Alternative (T7)	DP194		IH	3974	83272	0.05	B - Very Shallow (0.01-0.5m)	2								
12/06/2019	Depth Probe	n/a (Potential Alternative (T7)	DP195		IH	3966	83275	0.10	B - Very Shallow (0.01-0.5m)	3								
12/06/2019	Depth Probe	n/a (Potential Alternative (T7)	DP196		IH	3966	83287	0.40	B - Very Shallow (0.01-0.5m)	3								
12/06/2019	Depth Probe	n/a (Potential Alternative (T7)	DP197		IH	3967	83299	1.90	C - Shallow (0.5-2.0m)	4								
12/06/2019	Depth Probe	n/a (Potential Alternative (T7)	DP198		IH	3966	83310	2.85	D - Moderately Deep (2.0-3.5m)	3								
12/06/2019	Depth Probe	n/a (Potential Alternative (T7)	DP199		IH	3979	83312	2.80	D - Moderately Deep (2.0-3.5m)	3								
12/06/2019	Depth Probe	n/a (Potential Alternative (T7)	DP200		IH	3982	83298	1.25	C - Shallow (0.5-2.0m)	2								
12/06/2019	Depth Probe	T7	DP201		IH	3708	83086	1.00	C - Shallow (0.5-2.0m)	15		XS-2						
12/06/2019	Depth Probe	T7	DP202		IH	3708	83078	1.35	C - Shallow (0.5-2.0m)	5		XS-2						
12/06/2019	Depth Probe	T7	DP203		IH	3709	83071	0.30	B - Very Shallow (0.01-0.5m)	0		XS-2	Flat immediately upgradient of rocky outcrop - Photo 12:25					
12/06/2019	Depth Probe	T7	DP204		IH	3710	83061	0.60	C - Shallow (0.5-2.0m)	8		XS-2						
12/06/2019	Depth Probe	T7	DP205		IH	3697	83061	0.90	C - Shallow (0.5-2.0m)	8								
12/06/2019	Depth Probe	T7	DP206		IH	3698	83069	0.80	C - Shallow (0.5-2.0m)	2								
12/06/2019	Depth Probe	T7	DP207		IH	3699	83081	1.40	C - Shallow (0.5-2.0m)	3								
12/06/2019	Depth Probe	T7	DP208		IH	3686	83088	0.70	C - Shallow (0.5-2.0m)	10								
12/06/2019	Depth Probe	T7	DP209		IH	3685	83079	0.70	C - Shallow (0.5-2.0m)	5								
12/06/2019	Depth Probe	T7	DP210		IH	3686	83073	0.05	B - Very Shallow (0.01-0.5m)	2			Drain - Flat immediately upgradient of rocky outcrop					
12/06/2019	Depth Probe	T7	DP211		IH	3683	83062	0.10	B - Very Shallow (0.01-0.5m)	5								
12/06/2019	Depth Probe	T7	DP212		IH	3722	83068	0.40	B - Very Shallow (0.01-0.5m)	5								
12/06/2019	Depth Probe	T7	DP213		IH	3722	83079	2.40	D - Moderately Deep (2.0-3.5m)	5								
12/06/2019	Depth Probe	T7	DP214		IH	3727	83081	0.80	C - Shallow (0.5-2.0m)	5			DRAIN					
12/06/2019	Depth Probe	T7	DP215		IH	3676	83100	1.80	C - Shallow (0.5-2.0m)	3		XS-1						
12/06/2019	Depth Probe	T7	DP216		IH	3676	83088	0.60	C - Shallow (0.5-2.0m)	5		XS-1						
12/06/2019	Depth Probe	T7	DP217		IH	3675	83081	0.00	A - Rock (0.0m)	2		XS-1	Rocky outcrop					
12/06/2019	Depth Probe	T7	DP218		IH	3675	83072	0.40	B - Very Shallow (0.01-0.5m)	3		XS-1	Minor DRAIN					
12/06/2019	Depth Probe	T7	DP219		IH	3307	83287	4.40	E - Deep (3.5-5.0m)	4								
12/06/2019	Depth Probe	T7	DP220		IH	3303	83268	4.70	E - Deep (3.5-5.0m)	4								
12/06/2019	Depth Probe	T7	DP221		IH	3265	83277	3.75	E - Deep (3.5-5.0m)	5								
12/06/2019	Depth Probe	n/a (Potential Alternative (T8)	DP222		IH	4166	83089	2.20	D - Moderately Deep (2.0-3.5m)	8								
12/06/2019	Depth Probe	n/a (Potential Alternative (T8)	DP223		IH	4166	83102	0.90	C - Shallow (0.5-2.0m)	8								
12/06/2019	Depth Probe	n/a (Potential Alternative (T8)	DP224		IH	4162	83103	0.20	B - Very Shallow (0.01-0.5m)	8			DRAIN					
12/06/2019	Depth Probe	n/a (Potential Alternative (T8)	DP225		IH	4181	83104	0.10	B - Very Shallow (0.01-0.5m)	4								
12/06/2019	Depth Probe	n/a (Potential Alternative (T8)	DP226		IH	4193	83105	0.10	B - Very Shallow (0.01-0.5m)	4								
12/06/2019	Depth Probe	n/a (Potential Alternative (T8)	DP227		IH	4195	83095	1.90	C - Shallow (0.5-2.0m)	6			Photo 13:35					
12/06/2019	Depth Probe	T8	DP228		IH	4261	82993	2.30	D - Moderately Deep (2.0-3.5m)	1								
12/06/2019	Depth Probe	T8	DP229		IH	4267	83006	0.60	C - Shallow (0.5-2.0m)	1								
12/06/2019	Depth Probe	T8	DP230		IH	4273	83017	1.30	C - Shallow (0.5-2.0m)	1								

Parameter Values					Scenario A	Scenario B
Slope Angle (For Excel Formula)	Slope Angle	Undrained Shear Strenght (Conservative Value)	Bulk Unit weight of Peat (Conservative Value)		Depth to failure plane i.e. Peat Depth	Surcharge Equivalent Placed Fill Depth i.e. +1m
α	α	c'	y		z	z
Degrees	Radians	kPa	kN/m3		m	m
3	0.0523599	3.5	11		1.20	2.20
3	0.0523599	3.5	11		2.10	3.10
3	0.0523599	3.5	11		3.80	4.80
3	0.0523599	3.5	11		1.65	2.65
3	0.0523599	3.5	11		2.15	3.15
0.1	0.0017453	3.5	11		1.85	2.85
0.1	0.0017453	3.5	11		1.85	2.85
6	0.1047198	3.5	11		1.30	2.30
5	0.0872665	3.5	11		1.25	2.25
13	0.2268928	3.5	11		2.30	3.30
3	0.0523599	3.5	11		2.85	3.85
3	0.0523599	3.5	11		2.80	3.80
5	0.0872665	3.5	11		2.00	3.00
3	0.0523599	3.5	11		1.50	2.50
0.1	0.0017453	3.5	11		0.40	1.40
2	0.0349066	3.5	11		0.90	1.90
3	0.0523599	3.5	11		1.40	2.40
9	0.1570796	3.5	11		1.00	2.00
9	0.1570796	3.5	11		1.90	2.90
5	0.0872665	3.5	11		2.40	3.40
4	0.0698132	3.5	11		2.50	3.50
4	0.0698132	3.5	11		1.60	2.60
14	0.2443461	3.5	11		0.60	1.60
14	0.2443461	3.5	11		0.60	1.60
12	0.2094395	3.5	11		0.20	1.20
5	0.0872665	3.5	11		1.70	2.70
7	0.122173	3.5	11		1.20	2.20
5	0.0872665	3.5	11		1.45	2.45
7	0.122173	3.5	11		0.10	1.10
8	0.1396263	3.5	11		1.10	2.10
8	0.1396263	3.5	11		0.20	1.20
8	0.1396263	3.5	11		0.95	1.95
25	0.4363323	3.5	11		1.10	2.10
2	0.0349066	3.5	11		0.40	1.40
3	0.0523599	3.5	11		0.80	1.80
3	0.0523599	3.5	11		1.30	2.30
5	0.0872665	3.5	11		2.10	3.10
3	0.0523599	3.5	11		0.15	1.15
0	0.0017453	3.5	11		0.10	1.10
1	0.0174533	3.5	11		1.50	2.50
1	0.0174533	3.5	11		2.10	3.10
2	0.0349066	3.5	11		1.90	2.90
2	0.0349066	3.5	11		1.80	2.80
3	0.0523599	3.5	11		2.30	3.30
1	0.0174533	3.5	11		1.20	2.20
0.1	0.0017453	3.5	11		1.00	2.00
0	0.0017453	3.5	11		0.001	1.00
5	0.0872665	3.5	11		1.50	2.50
4	0.0698132	3.5	11		0.10	1.10
3	0.0523599	3.5	11		1.15	2.15
1	0.0174533	3.5	11		2.40	3.40
1	0.0174533	3.5	11		2.10	3.10
2	0.0349066	3.5	11		0.60	1.60
3	0.0523599	3.5	11		1.10	2.10
4	0.0698132	3.5	11		0.90	1.90
3	0.0523599	3.5	11		0.90	1.90
0.1	0.0017453	3.5	11		0.20	1.20
0.1	0.0017453	3.5	11		4.30	5.30
0.1	0.0017453	3.5	11		3.90	4.90
0.1	0.0017453	3.5	11		0.30	1.30
3	0.0523599	3.5	11		0.05	1.05
4	0.0698132	3.5	11		1.10	2.10
3	0.0523599	3.5	11		0.10	1.10
2	0.0349066	3.5	11		2.00	3.00
1	0.0174533	3.5	11		2.95	3.95
0.1	0.0017453	3.5	11		4.70	5.70
0.1	0.0017453	3.5	11		5.70	6.70
6	0.1047198	3.5	11		1.90	2.90
1	0.0174533	3.5	11		0.20	1.20
2	0.0349066	3.5	11		0.05	1.05
3	0.0523599	3.5	11		0.10	1.10
3	0.0523599	3.5	11		0.40	1.40
4	0.0698132	3.5	11		1.90	2.90
3	0.0523599	3.5	11		2.85	3.85
3	0.0523599	3.5	11		2.80	3.80
2	0.0349066	3.5	11		1.25	2.25
15	0.2617994	3.5	11		1.00	2.00
5	0.0872665	3.5	11		1.35	2.35
0	0.0017453	3.5	11		0.30	1.30
8	0.1396263	3.5	11		0.60	1.60
8	0.1396263	3.5	11		0.90	1.90
2	0.0349066	3.5	11		0.80	1.80
3	0.0523599	3.5	11		1.40	2.40
10	0.1745329	3.5	11		0.70	1.70
5	0.0872665	3.5	11		0.70	1.70
2	0.0349066	3.5	11		0.05	1.05
5	0.0872665	3.5	11		0.10	1.10
5	0.0872665	3.5	11		0.40	1.40
5	0.0872665	3.5	11		2.40	3.40
5	0.0872665	3.5	11		0.80	1.80
3	0.0523599	3.5	11		1.80	2.80
5	0.0872665	3.5	11		0.60	1.60
2	0.0349066	3.5	11		0.001	1.00
3	0.0523599	3.5	11		0.40	1.40
4	0.0698132	3.5	11		4.40	5.40
4	0.0698132	3.5	11		4.70	5.70
5	0.0872665	3.5	11		3.75	4.75
8	0.1396263	3.5	11		2.20	3.20
8	0.1396263	3.5	11		0.90	1.90
8	0.1396263	3.5	11		0.20	1.20
4	0.0698132	3.5	11		0.10	1.10
4	0.0698132	3.5	11		0.10	1.10
6	0.1047198	3.5	11		1.90	2.90
1	0.0174533	3.5	11		2.30	3.30
1	0.0174533	3.5	11		0.60	1.60
1	0.0174533	3.5	11		1.30	2.30

Scenario A				Scenario B						Scenario A		Scenario B			Scenario A	Scenario B
FoS_{RAW} Factor of Safety (FoS) for Peat Stability	COEFFICIENT			FoS_{RAW} Factor of Safety (FoS) for Peat Stability	COEFFICIENT			FoS Adjustment Coefficient	FoS Adjustment Value	FoS_{ADJ} Adjusted Factor of Safety (FoS) for Peat Stability	COEFFICIENT	FoS_{ADJ} Adjusted Factor of Safety (FoS) for Peat Stability	COEFFICIENT	Significant Feature Ranking Cefficient	RR_{SF} Ranking Risk re Potential for Adverse Consequences on Sensitive Receptors	COEFFICIENT	RR_{SF} Ranking Risk re Potential for Adverse Consequences on Sensitive Receptors	COEFFICIENT	Distance to Sensitive Receptor Coefficient	RR_D Risk Ranking Acounting for Distance to Sensitive Receptors	RR_D Risk Ranking Acounting for Distance to Sensitive Receptors
$FoS = \frac{c_u}{\gamma z \sin\alpha \cos\alpha}$										$FoS = \frac{c_u}{\gamma z \sin\alpha \cos\alpha}$ + Adjustment Value				μ_{SF}					$\mu_{Dist.}$		
FoS	μ	FoS	μ	μ	#	FoS	μ	FoS	μ	μ					RR-SF	μ	RR-SF	μ	μ	RR-D	RR-D
5.07	1.0	2.77	1.0	1.0	0.5	5.57	1.0	3.27	1.0	2.0		

Peat Survey Database

Peat Database (Data obtained on site)

Prepared by: SK
Mineerex File Ref.: 3006-011.xls

Minerex Environmental

Peat & Slope Stability Database

Prepared by: SK
Mineerex File Ref.: 3006-011.xls

Slope Stability Risk Assessment/s

Minerex Environmental

																		Parameter Values					Scenario A	Scenario B	Scenario A		Scenario B				Scenario A		Scenario B			Scenario A	Scenario B
Sample / Test Date	Sample / Test Category	Associated Proposed Turbine	Sample / Test Point ID No.	Piezometer	IG Ref.	IG Easting	IG Northing	Thickness / Depth of peat	Classification of Thickness / Depth of peat	Local Incline (c.5m rad.)	Elevation (GPS)	XS	Note	Shear Vane Test Depth	Shear Vane No. 1	Shear Vane No. 2	Shear Vane No. 3	Shear Vane Average	Slope Angle (For Excel Formula)	Slope Angle	Undrained Shear Strenght (Conservative Value)	Bulk Unit weight of Peat (Conservative Value)	Depth to failure plane i.e. Peat Depth	Surcharge Equivalent Placed Fill Depth i.e. +1m	FoS_{RAW} Factor of Safety (FoS) for Peat Stability	COEFFICIENT	FoS_{RAW} Factor of Safety (FoS) for Peat Stability	COEFFICIENT	FoS Adjustment Coefficient	FoS Adjustment Value	FoS_{ADJ} Adjusted Factor of Safety (FoS) for Peat Stability	COEFFICIENT	FoS_{ADJ} Adjusted Factor of Safety (FoS) for Peat Stability	COEFFICIENT	Significant Feature Ranking Cefficient	RR_{SF} Ranking Risk re Potential for Adverse Consequences on Sensitive Receptors	COEFFICIENT	RR_{SF} Ranking Risk re Potential for Adverse Consequences on Sensitive Receptors	COEFFICIENT	Distance to Sensitive Receptor Coefficient	RR_D Risk Ranking Acounting for Distance to Sensitive Receptors	RR_D Risk Ranking Acounting for Distance to Sensitive Receptors
																									$FoS = \frac{c_u}{\gamma z \sin\alpha \cos\alpha}$						$FoS = \frac{c_u}{\gamma z \sin\alpha \cos\alpha}$ + Adjustment Value				μ_{SF}					$\mu_{Dist.}$		
dd/mm/yy								m		Degrees	mOD	No.		m	kPa	kPa	kPa	kPa	Degrees	Radians	kPa	kN/m3	m	m	FoS		FoS				FoS		FoS			RR-SF		RR-SF			RR-D	RR-D
12/06/2019	Depth Probe	T8	DP231		IH	4281	83012	2.90	D - Moderately Deep (2.0-3.5m)	1									1	0.0174533	3.5	11	2.90	3.90	6.29	1.0	4.68	1.0	1.0	0.5	6.79	1.0	5.18	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T8	DP232		IH	4275	83000	2.80	D - Moderately Deep (2.0-3.5m)	1									1	0.0174533	3.5	11	2.80	3.80	6.51	1.0	4.80	1.0	1.0	0.5	7.01	1.0	5.30	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T8	DP233		IH	4222	82995	0.80	C - Shallow (0.5-2 0m)	5									5	0.0872665	3.5	11	0.80	1.80	4.58	1.0	2.04	1.0	1.0	0.5	5.08	1.0	2.54	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T8	DP234		IH	4225	83012	0.40	B - Very Shallow (0.01-0.5m)	3									3	0.0523599	3.5	11	0.40	1.40	15.22	1.0	4.35	1.0	1.0	0.5	15.72	1.0	4.85	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T8	DP235		IH	4234	83029	0.20	B - Very Shallow (0.01-0.5m)	2			DRAIN (Natural)						2	0.0349066	3.5	11	0.20	1.20	45.61	1.0	7.60	1.0	1.0	0.5	46.11	1.0	8.10	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T8	DP236		IH	4221	82958	0.50	B - Very Shallow (0.01-0.5m)	5			Getting steeper						5	0.0872665	3.5	11	0.50	1.50	7.33	1.0	2.44	1.0	1.0	0.5	7.83	1.0	2.94	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T4	DP237		IH	4581	82717	1.40	C - Shallow (0.5-2 0m)	3									3	0.0523599	3.5	11	1.40	2.40	4.35	1.0	2.54	1.0	1.0	0.5	4.85	1.0	3.04	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T4	DP238		IH	4572	82724	2.20	D - Moderately Deep (2.0-3.5m)	3									3	0.0523599	3.5	11	2.20	3.20	2.77	1.0	1.90	1.0	1.0	0.5	3.27	1.0	2.40	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T4	DP239		IH	4565	82727	2.60	D - Moderately Deep (2.0-3.5m)	3									3	0.0523599	3.5	11	2.60	3.60	2.34	1.0	1.69	1.0	1.0	0.5	2.84	1.0	2.19	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T4	DP240		IH	4574	82736	2.50	D - Moderately Deep (2.0-3.5m)	3									3	0.0523599	3.5	11	2.50	3.50	2.44	1.0	1.74	1.0	1.0	0.5	2.94	1.0	2.24	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T4	DP241		IH	4582	82731	2.60	D - Moderately Deep (2.0-3.5m)	3									3	0.0523599	3.5	11	2.60	3.60	2.34	1.0	1.69	1.0	1.0	0.5	2.84	1.0	2.19	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T4	DP242		IH	4590	82724	0.50	B - Very Shallow (0.01-0.5m)	4									4	0.0698132	3.5	11	0.50	1.50	9.14	1.0	3.05	1.0	1.0	0.5	9.64	1.0	3.55	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T4	DP243		IH	4601	82736	0.50	B - Very Shallow (0.01-0.5m)	4									4	0.0698132	3.5	11	0.50	1.50	9.14	1.0	3.05	1.0	1.0	0.5	9.64	1.0	3.55	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T4	DP245		IH	4592	82742	1.90	C - Shallow (0.5-2 0m)	4									4	0.0698132	3.5	11	1.90	2.90	2.41	1.0	1.58	1.0	1.0	0.5	2.91	1.0	2.08	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T4	DP246		IH	4585	82746	2.10	D - Moderately Deep (2.0-3.5m)	4									4	0.0698132	3.5	11	2.10	3.10	2.18	1.0	1.47	1.0	1.0	0.5	2.68	1.0	1.97	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T4	DP247		IH	4555	82715	2.70	D - Moderately Deep (2.0-3.5m)	4									4	0.0698132	3.5	11	2.70	3.70	1.69	1.0	1.24	2.0	1.0	0.5	2.19	1.0	1.74	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T4	DP248		IH	4563	82707	1.60	C - Shallow (0.5-2 0m)	4									4	0.0698132	3.5	11	1.60	2.60	2.86	1.0	1.70	1.0	1.0	0.5	3.36	1.0	2.25	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T4	DP249		IH	4565	82704	0.10	B - Very Shallow (0.01-0.5m)	4			DRAIN						4	0.0698132	3.5	11	0.10	1.10	45.72	1.0	4.16	1.0	1.0	0.5	46.22	1.0	4.66	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T4	DP250		IH	4556	82703	0.50	B - Very Shallow (0.01-0.5m)	4			DRAIN						4	0.0698132	3.5	11	0.50	1.50	9.14	1.0	3.05	1.0	1.0	0.5	9.64	1.0	3.55	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T4	DP251		IH	4544	82708	0.50	B - Very Shallow (0.01-0.5m)	4			DRAIN						4	0.0698132	3.5	11	0.50	1.50	9.14	1.0	3.05	1.0	1.0	0.5	9.64	1.0	3.55	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T4	DP252		IH	4571	82697	0.10	B - Very Shallow (0.01-0.5m)	4			DRAIN - Photos 14:54						4	0.0698132	3.5	11	0.10	1.10	45.72	1.0	4.16	1.0	1.0	0.5	46.22	1.0	4.66	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T11	DP253		IH	4375	82306	3.20	D - Moderately Deep (2.0-3.5m)	3			Photos 15:05 - drain						3	0.0523599	3.5	11	3.20	4.20	1.90	1.0	1.45	1.0	1.0	0.5	2.40	1.0	1.95	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T11	DP254		IH	4366	82311	3.20	D - Moderately Deep (2.0-3.5m)	3									1.78	0.0310669	3.5	11	3.20	4.20	3.20	1.0	2.44	1.0	1.0	0.5	3.70	1.0	2.94	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T11	DP255		IH	4370	82322	4.50	E - Deep (3.5-5.0m)	3									3	0.0523599	3.5	11	4.50	5.50	1.35	1.0	1.11	2.0	1.0	0.5	1.85	1.0	1.61	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T11	DP256		IH	4381	82318	3.80	E - Deep (3.5-5.0m)	3									3	0.0523599	3.5	11	3.80	4.80	1.60	1.0	1.27	2.0	1.0	0.5	2.10	1.0	1.77	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T11	DP257		IH	4389	82336	4.40	E - Deep (3.5-5.0m)	2									2	0.0349066	3.5	11	4.40	5.40	2.07	1.0	1.69	1.0	1.0	0.5	2.57	1.0	2.19	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T11	DP258		IH	4374	82342	5.70	F - Extremely Deep (>5m)	2									2	0.0349066	3.5	11	5.70	6.70	1.60	1.0	1.36	1.0	1.0	0.5	2.10	1.0	1.86	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T11	DP259		IH	4351	82295	2.30	D - Moderately Deep (2.0-3.5m)	3									3	0.0523599	3.5	11	2.30	3.30	2.65	1.0	1.84	1.0	1.0	0.5	3.15	1.0	2.34	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T11	DP260		IH	4367	82290	1.90	C - Shallow (0.5-2 0m)	3									3	0.0523599	3.5	11	1.90	2.90	3.20	1.0	2.10	1.0	1.0	0.5	3.70	1.0	2.60	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T9)	DP261		IH	3514	82402	0.80	C - Shallow (0.5-2 0m)	25									25	0.4363323	3.5	11	0.80	1.80	1.04	2.0	0.46	4.0	1.0	0.5	1.54	2.0	0.96	4.0	2.0	2.0	1.0	8.0	4.0	1.0	4.0	4.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T9)	DP262		IH	3514	82399	1.40	C - Shallow (0.5-2 0m)	5									5	0.0872665	3.5	11	1.40	2.40	2.62	1.0	1.53	1.0	1.0	0.5	3.12	1.0	2.03	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T9)	DP263		IH	3511	82391	0.10	B - Very Shallow (0.01-0.5m)	36									36	0.6283185	3.5	11	0.10	1.10	6.69	1.0	0.61	4.0	1.0	0.5	7.19	1.0	1.11	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T9)	DP264		IH	3522	82389	1.10	C - Shallow (0.5-2 0m)	8									8	0.1396263	3.5	11	1.10	2.10	2.10	1.0	1.10	2.0	1.0	0.5	2.60	1.0	1.60	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T9)	DP265		IH	3526	82396	0.10	B - Very Shallow (0.01-0.5m)	5									5	0.0872665	3.5	11	0.10	1.10	36.65	1.0	3.33	1.0	1.0	0.5	37.15	1.0	3.83	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T9)	DP266		IH	3530	82404	0.00	A - Rock (0.0m)	7			Rock						7	0.122173	3.5	11	0.001	1.00	2630.45	1.0	2.63	1.0	1.0	0.5	2630.95	1.0	3.13	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T9)	DP267		IH	3544	82401	0.10	B - Very Shallow (0.01-0.5m)	2									2	0.0349066	3.5	11	0.10	1.10	91.23	1.0	8.29	1.0	1.0	0.5	91.73	1.0	8.79	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T9)	DP268		IH	3506	82431	0.30	B - Very Shallow (0.01-0.5m)	10									10	0.1745329	3.5	11	0.30	1.30	6.20	1.0	1.43	1.0	1.0	0.5	6.70	1.0	1.93	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T9)	DP269		IH	3535	82437	0.60	C - Shallow (0.5-2 0m)	24									24	0.4188879	3.5	11	0.60	1.60	1.43	1.0	0.54	4.0	1.0	0.5	1.93	1.0	1.04	2.0	2.0	2.0	1.0	4.0	2.0	1.0	2.0	2.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T9)	DP270		IH	3552	82402	0.10	B - Very Shallow (0.01-0.5m)	20									20	0.3490659	3.5	11	0.10	1.10	9.90	1.0	0.90	4.0	1.0	0.5	10.40	1.0	1.40	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T9	DP271		IH	3657	82276	0.10	B - Very Shallow (0.01-0.5m)	0									0.1	0.0017453	3.5	11	0.10	1.10	1823.05	1.0	165.73	1.0	1.0	0.5	1823.55	1.0	166.23	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T9	DP272		IH	3648	82273	0.10	B - Very Shallow (0.01-0.5m)	3									3	0.0523599	3.5	11	0.10	1.10	60.88	1.0	5.53	1.0	1.0	0.5	61.38	1.0	6.03	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T9	DP273		IH	3648	82304	1.30	C - Shallow (0.5-2 0m)	0			Saturated Area						0.1	0.0017453	3.5	11	1.30	2.30	140.23	1.0	79.26	1.0	1.0	0.5	140.73	1.0	79.76	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP274		IH	3897	82269	1.30	C - Shallow (0.5-2 0m)	1		XS-7							1	0.0174533	3.5	11	1.30	2.30	14.03	1.0	7.93	1.0	1.0	0.5	14.53	1.0	8.43	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP275		IH	3892	82280	1.70	C - Shallow (0.5-2 0m)	1									1	0.0174533	3.5	11	1.70	2.70	10.73	1.0	6.75	1.0	1.0	0.5	11.23	1.0	7.25	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP276		IH	3886	82285	2.20	D - Moderately Deep (2.0-3.5m)	2									2	0.0349066	3.5	11	2.20	3.20	4.15	1.0	2.85	1.0	1.0	0.5	4.65	1.0	3.35	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP277		IH	3871	82277	0.00	A - Rock (0.0m)	3		XS-7	Rock						3	0.0523599	3.5	11	0.001	1.00	6087.95	1.0	6.08	1.0	1.0	0.5	6088.45	1.0	6.58	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP278		IH	3908	82226	0.10	B - Very Shallow (0.01-0.5m)	4			Backfill potentially						4	0.0698132	3.5	11	0.10	1.10	45.72	1.0	4.16	1.0	1.0	0.5	46.22	1.0	4.66	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP279		IH	3925	82234	0.50	B - Very Shallow (0.01-0.5m)	5									5	0.0872665	3.5	11	0.50	1.50	7.33	1.0	2.44	1.0	1.0	0.5	7.83	1.0	2.94	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP280		IH	3931	82255	0.10	B - Very Shallow (0.01-0.5m)	8		XS-7							8	0.1396263	3.5	11	0.10	1.10	23.09	1.0	2.10	1.0	1.0	0.5	23.59	1.0	2.60	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP281		IH	3914	82267	2.60	D - Moderately Deep (2.0-3.5m)	3		XS-7							3	0.0523599	3.5	11	2.60	3.60	2.34	1.0	1.69	1.0	1.0	0.5	2.84	1.0	2.19	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T10	DP282		IH	3800	81949	0.30	B - Very Shallow (0.01-0.5m)	8									8	0.1396263	3.5	11	0.30	1.30	7.70	1.0	1.78	1.0	1.0	0.5	8.20	1.0	2.28	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T10	DP283		IH	3785	81946	0.60	C - Shallow (0.5-2 0m)	8									8	0.1396263	3.5	11	0.60	1.60	3.85	1.0	1.44	1.0	1.0	0.5	4.35	1.0	1.94	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/06/2019	Depth Probe	T12	DP284		IH	3408	81893	1.00	C - Shallow (0.5-2 0m)	0									0.1	0.0017453	3.5	11	1.00	2.00	182.31	1.0	91.15	1.0	1.0	0.5	182.81	1.0	91.65	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T12	DP285		IH	3409	81907	2.30	D - Moderately Deep (2.0-3.5m)	0									0.1	0.0017453	3.5	11	2.30	3.30	79.26	1.0	55.24	1.0	1.0	0.5	79.76	1.0	55.74	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T12	DP286		IH	3420	81907	3.80	E - Deep (3.5-5.0m)	1									1	0.0174533	3.5	11	3.80	4.80	4.80	1.0	3.80	1.0	1.0	0.5	5.30	1.0	4.30	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T12	DP287		IH	3430	81908	3.75	E - Deep (3.5-5.0m)	1									1	0.0174533	3.5	11	3.75	4.75	4.86	1.0	3.84	1.0	1.0	0.5	5.36	1.0	4.34	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T12	DP288		IH	3433	81894	3.00	D - Moderately Deep (2.0-3.5m)	1									1	0.0174533	3.5	11	3.00	4.00	6.08	1.0	4.56	1.0	1.0	0.5	6.58	1.0	5.06	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T12	DP289		IH	3420	81892	2.70	D - Moderately Deep (2.0-3.5m)	1									1	0.0174533	3.5	11	2.70	3.70	6.75	1.0	4.93	1.0	1.0	0.5	7.25	1.0	5.43	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T12	DP290		IH	3390	81893	1.10	C - Shallow (0.5-2 0m)	0			Satuarated quaking peat						0.1	0.0017453	3.5	11	1.10	2.10	165.73	1.0	86.81	1.0	1.0	0.5	166.23	1.0	87.31	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
12/06/2019	Depth Probe	T12	DP291		IH	3387	81907	3.85	E - Deep (3.5-5.0m)	0									0.1	0.0017453	3.5	11	3.85	4.85	47.35	1.0	37.59	1.0	1.0	0.5	47.85	1.0	38.09	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
19/06/2019	Depth Probe	T1	DP292		IH	5000	83561	1.40	C - Shallow (0.5-2 0m)	4									4	0.0698132	3.5	11	1.40	2.40	3.27	1.0	1.91	1.0	1.0	0.5	3.77	1.0	2.41	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
19/06/2019	Depth Probe	T1	DP293		IH	4987	83571	0.50	B - Very Shallow (0.01-0.5m)	4									4	0.0698132	3.5	11	0.50	1.50	9.14	1.0	3.05	1.0	1.0	0.5	9.64	1.0	3.55	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
19/06/2019	Depth Probe	T1	DP294		IH	4975	83580	1.95	C - Shallow (0.5-2 0m)	5									5	0.0872665	3.5	11	1.95	2.95	1.88	1.0	1.24	2.0	1.0	0.5	2.38	1.0	1.74	1.0	2.0	2.0	1.0	4.0	2.0	1.0	2.0	2.0
19/06/2019	Depth Probe	T1	DP295		IH	4983	83589	0.95	C - Shallow (0.5-2 0m)	3									3	0.0523599	3.5	11	0.95	1.95	6.41	1.0	3.12	1.0	1.0	0.5	6.91	1.0	3.62	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
19/06/2019	Depth Probe	T1	DP296		IH	4994	83580	0.50	B - Very Shallow (0.01-0.5m)	2									2	0.0349066	3.5	11	0.50	1.50	18.25	1.0	6.08	1.0	1.0	0.5	18.75	1.0	6.58	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
19/06/2019	Depth Probe	T2	DP297		IH	4962	83016	2.30	D - Moderately Deep (2.0-3.5m)	7									7	0.122173	3.5	11	2.30	3.30	1.14	2.0	0.80	4.0	1.0

Peat Survey Database

Peat Database (Data obtained on site)

Prepared by: SK
Mineerex File Ref.: 3006-011.xls

Minerex Environmental

Peat & Slope Stability Database

Prepared by: SK
Mineerex File Ref.: 3006-011.xls

Slope Stability Risk Assessment/s

Minerex Environmental

																Parameter Values				Scenario A	Scenario B	Scenario A				Scenario A				Scenario A		Scenario B				Scenario A		Scenario B				Scenario A	Scenario B
Sample / Test Date	Sample / Test Category	Associated Proposed Turbine	Sample / Test Point ID No.	Piezometer	IG Ref.	IG Easting	IG Northing	Thickness / Depth of peat	Classification of Thickness / Depth of peat	Local Incline (c.5m rad.)	Elevation (GPS)	XS	Note	Shear Vane Test Depth	Shear Vane No. 1	Shear Vane No. 2	Shear Vane No. 3	Shear Vane Average	Slope Angle (For Excel Formula)	Slope Angle	Undrained Shear Strenght (Conservative Value)	Bulk Unit weight of Peat (Conservative Value)	Depth to failure plane i.e. Peat Depth	Surcharge Equivalent Placed Fill Depth i.e. +1m	FoS_{RAW} Factor of Safety (FoS) for Peat Stability	COEFFICIENT	FoS_{RAW} Factor of Safety (FoS) for Peat Stability	COEFFICIENT	FoS Adjustment Coefficient	FoS Adjustment Value	FoS_{ADJ} Adjusted Factor of Safety (FoS) for Peat Stability	COEFFICIENT	FoS_{ADJ} Adjusted Factor of Safety (FoS) for Peat Stability	COEFFICIENT	Significant Feature Ranking Cefficient	RR_{SF} Ranking Risk re Potential for Adverse Consequences on Sensitive Receptors	COEFFICIENT	RR_{SF} Ranking Risk re Potential for Adverse Consequences on Sensitive Receptors	COEFFICIENT	Distance to Sensitive Receptor Coefficient	RR_D Risk Ranking Acounting for Distance to Sensitive Receptors	RR_D Risk Ranking Acounting for Distance to Sensitive Receptors
																										$FoS = \frac{C_u}{\gamma z \sin\alpha \cos\alpha}$						$FoS = \frac{c'}{\gamma z \sin\alpha \cos\alpha} + \text{Adjustment Value}$				μ_{SF}				$\mu_{Dist.}$		
dd/mm/yy								m		Degrees	mOD	No.		m	kPa	kPa	kPa	kPa	Degrees	Radians	kPa	kN/m3	m	m	FoS		FoS				FoS		FoS			RR-SF		RR-SF			RR-D	RR-D
20/06/2019	Depth Probe	BATTERY	DP361		IH	4184	82138	1.40	C - Shallow (0.5-2.0m)	3			Drain + Saturated						3	0.0523599	3.5	11	1.40	2.40	4.35	1.0	2.54	1.0	1.0	0.5	4.85	1.0	3.04	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
20/06/2019	Depth Probe	BATTERY	DP362		IH	4164	82101	0.10	B - Very Shallow (0.01-0.5m)	10			Rocky area						10	0.1745329	3.5	11	0.10	1.10	18.61	1.0	1.69	1.0	1.0	0.5	19.11	1.0	2.19	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
20/06/2019	Depth Probe	T5	DP363		IH	4149	83731	1.50	C - Shallow (0.5-2.0m)	13									13	0.2268928	3.5	11	1.50	2.50	0.97	4.0	0.58	4.0	1.0	0.5	1.47	1.0	1.08	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
20/06/2019	Depth Probe	T5	DP364		IH	4156	83723	1.50	C - Shallow (0.5-2.0m)	10									10	0.1745329	3.5	11	1.50	2.50	1.24	2.0	0.74	4.0	1.0	0.5	1.74	1.0	1.24	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
20/06/2019	Depth Probe	T5	DP365		IH	4161	83715	0.50	B - Very Shallow (0.01-0.5m)	8									8	0.1396263	3.5	11	0.50	1.50	4.62	1.0	1.54	1.0	1.0	0.5	5.12	1.0	2.04	1.0	2.0	2.0	1.0	2.0	1.0	2.0	1.0	1.0
20/06/2019	Depth Probe	T5	DP366		IH	4165	83703	1.30	C - Shallow (0.5-2.0m)	8									8	0.1396263	3.5	11	1.30	2.30	1.78	1.0	1.00	2.0	1.0	0.5	2.28	1.0	1.50	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
20/06/2019	Depth Probe	T5	DP367		IH	4189	83712	2.40	D - Moderately Deep (2.0-3.5m)	6									6	0.1047198	3.5	11	2.40	3.40	1.28	2.0	0.90	4.0	1.0	0.5	1.78	1.0	1.40	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
20/06/2019	Depth Probe	T5	DP368		IH	4196	83714	2.10	D - Moderately Deep (2.0-3.5m)	5									5	0.0872665	3.5	11	2.10	3.10	1.75	1.0	1.18	2.0	1.0	0.5	2.25	1.0	1.68	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
20/06/2019	Depth Probe	n/a (Potential Alternative (T7)	DP369		IH	4013	83290	1.10	C - Shallow (0.5-2.0m)	4									4	0.0698132	3.5	11	1.10	2.10	4.16	1.0	2.19	1.0	1.0	0.5	4.66	1.0	2.69	1.0	2.0	2.0	1.0	2.0	1.0	n/a	n/a	n/a
02/07/2019	Depth Probe	T13	DP370		IH	3089	81467	1.50	C - Shallow (0.5-2.0m)	3									3	0.0523599	3.5	11	1.50	2.50	4.06	1.0	2.44	1.0	1.0	0.5	4.56	1.0	2.94	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP371		IH	3099	81469	1.10	C - Shallow (0.5-2.0m)	3									3	0.0523599	3.5	11	1.10	2.10	5.53	1.0	2.90	1.0	1.0	0.5	6.03	1.0	3.40	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP372		IH	3106	81470	1.10	C - Shallow (0.5-2.0m)	10									10	0.1745329	3.5	11	1.10	2.10	1.69	1.0	0.89	4.0	1.0	0.5	2.19	1.0	1.39	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP373		IH	3112	81474	1.40	C - Shallow (0.5-2.0m)	10									10	0.1745329	3.5	11	1.40	2.40	1.33	1.0	0.78	4.0	1.0	0.5	1.83	1.0	1.29	2.0	2.0	2.0	1.0	4.0	2.0	4.0	8.0	8.0
02/07/2019	Depth Probe	T13	DP374		IH	3115	81457	0.10	B - Very Shallow (0.01-0.5m)	20									20	0.3490659	3.5	11	0.10	1.10	9.90	1.0	0.90	4.0	1.0	0.5	10.40	1.0	1.40	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP375		IH	3108	81452	1.50	C - Shallow (0.5-2.0m)	3									3	0.0523599	3.5	11	1.50	2.50	4.06	1.0	2.44	1.0	1.0	0.5	4.56	1.0	2.94	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP376		IH	3100	81451	1.80	C - Shallow (0.5-2.0m)	3									3	0.0523599	3.5	11	1.80	2.80	3.38	1.0	2.17	1.0	1.0	0.5	3.88	1.0	2.67	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP377		IH	3092	81447	0.10	B - Very Shallow (0.01-0.5m)	15			base ofbackfill?						15	0.2617994	3.5	11	0.10	1.10	12.73	1.0	1.18	2.0	1.0	0.5	13.23	1.0	1.68	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP378		IH	3084	81444	0.20	B - Very Shallow (0.01-0.5m)	8									8	0.1396263	3.5	11	0.20	1.20	11.54	1.0	1.92	1.0	1.0	0.5	12.04	1.0	2.42	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP379		IH	3082	81427	1.00	C - Shallow (0.5-2.0m)	2									2	0.0349066	3.5	11	1.00	2.00	9.12	1.0	4.56	1.0	1.0	0.5	9.62	1.0	5.06	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP380		IH	3097	81425	0.50	B - Very Shallow (0.01-0.5m)	5			Top of steep bank						5	0.0872665	3.5	11	0.50	1.50	7.33	1.0	2.44	1.0	1.0	0.5	7.83	1.0	2.94	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP381		IH	3101	81426	0.00	A - Rock (0.0m)	15			Rock 13:25						15	0.2617994	3.5	11	0.001	1.00	1272.73	1.0	1.27	2.0	1.0	0.5	1273.23	1.0	1.77	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP382		IH	3108	81425	0.95	C - Shallow (0.5-2.0m)	3			Next to drain / stream						3	0.0523599	3.5	11	0.95	1.95	6.41	1.0	3.12	1.0	1.0	0.5	6.91	1.0	3.62	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP383		IH	3115	81426	1.00	C - Shallow (0.5-2.0m)	5									5	0.0872665	3.5	11	1.00	2.00	3.66	1.0	1.83	1.0	1.0	0.5	4.16	1.0	2.33	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP384		IH	3125	81426	0.10	B - Very Shallow (0.01-0.5m)	10									10	0.1745329	3.5	11	0.10	1.10	18.61	1.0	1.69	1.0	1.0	0.5	19.11	1.0	2.19	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP385		IH	3121	81406	0.10	B - Very Shallow (0.01-0.5m)	10									10	0.1745329	3.5	11	0.10	1.10	18.61	1.0	1.69	1.0	1.0	0.5	19.11	1.0	2.19	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP386		IH	3112	81406	1.60	C - Shallow (0.5-2.0m)	3			Next to drain / stream						3	0.0523599	3.5	11	1.60	2.60	3.80	1.0	2.34	1.0	1.0	0.5	4.30	1.0	2.84	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP387		IH	3105	81405	0.05	B - Very Shallow (0.01-0.5m)	5			Base of steep bank						5	0.0872665	3.5	11	0.05	1.05	73.29	1.0	3.49	1.0	1.0	0.5	73.79	1.0	3.99	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP388		IH	3095	81403	0.30	B - Very Shallow (0.01-0.5m)	8									8	0.1396263	3.5	11	0.30	1.30	7.70	1.0	1.78	1.0	1.0	0.5	8.20	1.0	2.28	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP389		IH	3079	81399	1.10	C - Shallow (0.5-2.0m)	10									10	0.1745329	3.5	11	1.10	2.10	1.69	1.0	0.89	4.0	1.0	0.5	2.19	1.0	1.39	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP390		IH	3067	81400	1.05	C - Shallow (0.5-2.0m)	8									8	0.1396263	3.5	11	1.05	2.05	2.20	1.0	1.13	2.0	1.0	0.5	2.70	1.0	1.63	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP391		IH	3068	81370	0.80	C - Shallow (0.5-2.0m)	15									15	0.2617994	3.5	11	0.80	1.80	1.59	1.0	0.71	4.0	1.0	0.5	2.09	1.0	1.21	2.0	2.0	2.0	1.0	4.0	2.0	4.0	8.0	8.0
02/07/2019	Depth Probe	T13	DP392		IH	3081	81372	0.90	C - Shallow (0.5-2.0m)	5									5	0.0872665	3.5	11	0.90	1.90	4.07	1.0	1.93	1.0	1.0	0.5	4.57	1.0	2.43	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP393		IH	3093	81369	1.90	C - Shallow (0.5-2.0m)	3									3	0.0523599	3.5	11	1.90	2.90	3.20	1.0	2.10	1.0	1.0	0.5	3.70	1.0	2.60	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP394		IH	3105	81369	4.30	E - Deep (3.5-5.0m)	2									2	0.0349066	3.5	11	4.30	5.30	2.12	1.0	1.72	4.0	1.0	0.5	2.62	1.0	2.22	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	T13	DP395		IH	3118	81368	4.50	E - Deep (3.5-5.0m)	2									2	0.0349066	3.5	11	4.50	5.50	2.03	1.0	1.66	1.0	1.0	0.5	2.53	1.0	2.16	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP396		IH	3033	81645	1.45	C - Shallow (0.5-2.0m)	8									8	0.1396263	3.5	11	1.45	2.45	1.59	1.0	0.94	4.0	1.0	0.5	2.09	1.0	1.44	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP397		IH	3044	81639	0.40	B - Very Shallow (0.01-0.5m)	15									15	0.2617994	3.5	11	0.40	1.40	3.18	1.0	0.91	4.0	1.0	0.5	3.68	1.0	1.41	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP398		IH	3056	81640	0.20	B - Very Shallow (0.01-0.5m)	8									8	0.1396263	3.5	11	0.20	1.20	11.54	1.0	1.92	1.0	1.0	0.5	12.04	1.0	2.42	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP399		IH	3056	81624	0.00	A - Rock (0.0m)	5			Rock						5	0.0872665	3.5	11	0.001	1.00	3664.67	1.0	3.66	1.0	1.0	0.5	3665.17	1.0	4.16	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP400		IH	3041	81624	1.00	C - Shallow (0.5-2.0m)	10									10	0.1745329	3.5	11	1.00	2.00	1.86	1.0	0.93	4.0	1.0	0.5	2.36	1.0	1.43	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP401		IH	3026	81626	3.70	E - Deep (3.5-5.0m)	5									5	0.0872665	3.5	11	3.70	4.70	0.99	4.0	0.78	4.0	1.0	0.5	1.49	1.0	1.28	2.0	2.0	2.0	1.0	4.0	2.0	2.0	2.0	2.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP402		IH	3018	81611	3.50	D - Moderately Deep (2.0-3.5m)	5									5	0.0872665	3.5	11	3.50	4.50	1.06	2.0	0.81	4.0	1.0	0.5	1.55	1.0	1.31	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP403		IH	3031	81606	1.10	C - Shallow (0.5-2.0m)	12									12	0.2094395	3.5	11	1.10	2.10	1.42	1.0	0.75	4.0	1.0	0.5	1.92	1.0	1.25	2.0	2.0	2.0	1.0	4.0	2.0	2.0	2.0	4.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP404		IH	3018	81611	0.10	B - Very Shallow (0.01-0.5m)	15			To of steep >25deg - Photo 15:27						15	0.2617994	3.5	11	0.10	1.10	12.73	1.0	1.16	2.0	1.0	0.5	13.23	1.0	1.66	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP405		IH	3014	81591	2.90	D - Moderately Deep (2.0-3.5m)	3			Beside drain and track - Photo 15:31						3	0.0523599	3.5	11	2.90	3.90	2.10	1.0	1.56	1.0	1.0	0.5	2.60	1.0	2.06	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP406		IH	3031	81586	1.50	C - Shallow (0.5-2.0m)	8									8	0.1396263	3.5	11	1.50	2.50	1.54	1.0	0.92	4.0	1.0	0.5	2.04	1.0	1.42	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP407		IH	3044	81582	1.00	C - Shallow (0.5-2.0m)	5									5	0.0872665	3.5	11	1.00	2.00	3.66	1.0	1.83	1.0	1.0	0.5	4.16	1.0	2.33	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP408		IH	3050	81577	0.30	B - Very Shallow (0.01-0.5m)	5									5	0.0872665	3.5	11	0.30	1.30	12.22	1.0	2.82	1.0	1.0	0.5	12.72	1.0	3.32	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP409		IH	3042	81571	1.00	C - Shallow (0.5-2.0m)	5									5	0.0872665	3.5	11	1.00	2.00	3.66	1.0	1.83	1.0	1.0	0.5	4.16	1.0	2.33	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP410		IH	3030	81565	1.10	C - Shallow (0.5-2.0m)	8									8	0.1396263	3.5	11	1.10	2.10	2.10	1.0	1.92	2.0	1.0	0.5	2.60	1.0	1.60	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
02/07/2019	Depth Probe	n/a (Potential Alternative (T13A)	DP411		IH	3021	81559	0.20	B - Very Shallow (0.01-0.5m)	8			Drain - Photo 15:38						8	0.1396263	3.5	11	0.20	1.20	11.54	1.0	1.92	1.0	1.0	0.5	12.04	1.0	2.42	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0
02/07/2019	Depth Probe	Met Mast	DP412		IH	4155	83227	0.10	B - Very Shallow (0.01-0.5m)	1	380		Photo 16:32						1	0.0174533	3.5	11	0.10	1.10	182.34	1.0	16.58	1.0	1.0	0.5	182.84	1.0	17.08	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
02/07/2019	Depth Probe	Met Mast	DP413		IH	4163	83239	1.00	C - Shallow (0.5-2.0m)	0	378		Drain / eroded area						0.1	0.0017453	3.5	11	1.00	2.00	182.31	1.0	91.15	1.0	1.0	0.5	182.81	1.0	91.65	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
02/07/2019	Depth Probe	Met Mast	DP414		IH	4173	83253	1.20	C - Shallow (0.5-2.0m)	0	377		Drain / eroded area						0.1	0.0017453	3.5	11	1.20	2.20	151.92	1.0	82.87	1.0	1.0	0.5	152.42	1.0	83.37	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
02/07/2019	Depth Probe	Met Mast	DP415		IH	4181	83262	2.70	D - Moderately Deep (2.0-3.5m)	0	377		Drain / eroded area						0.1	0.0017453	3.5	11	2.70	3.70	67.52	1.0	49.27	1.0	1.0	0.5	68.02	1.0	49.77	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
02/07/2019	Depth Probe	Met Mast	DP416		IH	4192	83272	0.10	B - Very Shallow (0.01-0.5m)	5	378		Rocky						5	0.0872665	3.5	11	0.10	1.10	36.65	1.0	3.33	1.0	1.0	0.5	37.15	1.0	3.83	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
02/07/2019	Depth Probe	Met Mast	DP417		IH	4201	83280	0.10	B - Very Shallow (0.01-0.5m)	5	380								5	0.0872665	3.5	11	0.10	1.10	36.65	1.0	3.33	1.0	1.0	0.5	37.15	1.0	3.83	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
02/07/2019	Depth Probe	Met Mast	DP418		IH	4212	83289	0.80	C - Shallow (0.5-2.0m)	0	383		Peak - Photo 16:40						0.1	0.0017453	3.5	11	0.80	1.80	227.88	1.0	101.28	1.0	1.0	0.5	228.38	1.0	101.78	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
02/07/2019	Depth Probe	Met Mast	DP419		IH	4219	83292	0.00	A - Rock (0.0m)	0	383		Peak - Rock						0.1	0.0017453	3.5	11	0.001	1.00	182305.12	1.0	182.12	1.0	1.0	0.5	182305.62	1.0	182.62	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
02/07/2019	Depth Probe	Met Mast	DP420		IH	4216	83264	0.30	B - Very Shallow (0.01-0.5m)	8	379								8	0.1396263	3.5	11	0.30	1.30	7.70	1.0	1.78	1.0	1.0	0.5	8.20	1.0	2.28	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
02/07/2019	Depth Probe	Met Mast	DP421		IH	4206	83252	3.60	E - Deep (3.5-5.0m)	5	376		Photo 16:40						5	0.0872665	3.5	11	3.60	4.60	1.02	2.0	0.80	4.0	1.0	0.5	1.52	1.0	1.30	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
02/07/2019	Depth Probe	Met Mast	DP422		IH	4199	83237	2.50	D - Moderately Deep (2.0-3.5m)	5	376								5	0.0872665	3.5	11	2.50	3.50	1.47	1.0	1.08	2.0	1.0	0.5	1.97	1.0	1.55	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
02/07/2019	Depth Probe	Met Mast	DP423		IH	4191	83224	1.60	C - Shallow (0.5-2.0m)	8	376								8	0.1396263	3.5	11	1.60	2.60	1.44	1.0	0.89	4.0	1.0	0.5	1.94	1.0	1.39	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
02/07/2019	Depth Probe	Met Mast	DP424		IH	4182	83211	1.80	C - Shallow (0.5-2.0m)	5	377		Drain / erdoed - Photo 16:47						5	0.0872665	3.5	11	1.80	2.80	2.04	1.0	1.31	1.0	1.0	0.5	2.54	1.0	1.81	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
02/07/2019	Depth Probe	Met Mast	DP425		IH	4178	83201	0.20	B - Very Shallow (0.01-0.5m)	3	376		Drain / eroded area						3	0.0523599	3.5	11	0.20	1.20	30.44	1.0	5.07	1.0	1.0	0.5	30.94	1.0	5.57	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0

Peat Survey Database

Peat Database (Data obtained on site)

Prepared by: SK
Mineerex File Ref.: 3006-011.xls

Minerex Environmental

Peat & Slope Stability Database

Prepared by: SK
Mineerex File Ref.: 3006-011.xls

Slope Stability Risk Assessment/s

Minerex Environmental

													Parameter Values					Scenario A	Scenario B	Scenario A								Scenario A		Scenario B				Scenario A	Scenario B
Sample / Test Date	Sample / Test Category	Associated Proposed Turbine	Sample / Test Point ID No.	Piezometer	IG Ref.	IG Easting	IG Northing	Thickness / Depth of peat	Classification of Thickness / Depth of peat	Local Incline (c.5m rad.)	Elevation (GPS)	XS	Note	Shear Vane Test Depth	Shear Vane No. 1	Shear Vane No. 2	Shear Vane No. 3	Shear Vane Average	Slope Angle (For Excel Formula)	Slope Angle	Undrained Shear Strenght (Conservative Value)	Bulk Unit weight of Peat (Conservative Value)	Depth to failure plane i.e. Peat Depth	Surcharge Equivalent Placed Fill Depth i.e. +1m												
ddmmyy								m		Degrees	mOD	No.		m	kPa	kPa	kPa	kPa	Degrees	Radians	kPa	kN/m3	m	m											
03/07/2019	Depth Probe	T6	DP490		IH	3325	83019	0.00	A - Rock (0.0m)	10	382		Rock						10	0.1745329	3.5	11	0.001	1.00	1860.60	1.0	1.86	1.0	1.0	0.5	1861.10	1.0	2.36	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T6	DP491		IH	3325	83026	1.40	C - Shallow (0.5-2.0m)	10	382								10	0.1745329	3.5	11	1.40	2.40	1.33	1.0	0.78	4.0	1.0	0.5	1.83	1.0	1.28	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
03/07/2019	Depth Probe	T6	DP492		IH	3322	83029	0.00	A - Rock (0.0m)	8	381		Rock						8	0.1396263	3.5	11	0.001	1.00	2308.70	1.0	2.31	1.0	1.0	0.5	2309.20	1.0	2.81	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T7	DP493		IH	3771	83127	0.10	B - Very Shallow (0.01-0.5m)	5	373								5	0.0872665	3.5	11	0.10	1.10	36.65	1.0	3.33	1.0	1.0	0.5	37.15	1.0	3.83	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T7	DP494		IH	3788	83116	0.10	B - Very Shallow (0.01-0.5m)	8	370								8	0.1396263	3.5	11	0.10	1.10	23.09	1.0	2.10	1.0	1.0	0.5	23.59	1.0	2.60	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T7	DP495		IH	3802	83107	1.30	C - Shallow (0.5-2.0m)	8	367								8	0.1396263	3.5	11	1.30	2.30	1.78	1.0	1.00	2.0	1.0	0.5	2.28	1.0	1.50	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T7	DP496		IH	3810	83128	2.80	D - Moderately Deep (2.0-3.5m)	8	367								8	0.1396263	3.5	11	2.80	3.80	0.82	4.0	0.61	4.0	1.0	0.5	1.32	1.0	1.11	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T9)	DP497		IH	3551	82429	0.00	A - Rock (0.0m)	25	363		Rock - Top of 25deg - Photo 11:40						25	0.4363323	3.5	11	0.001	1.00	830.71	1.0	0.83	4.0	1.0	0.5	831.21	1.0	1.33	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T9)	DP498		IH	3576	82411	0.00	A - Rock (0.0m)	5	365	XS-8	Rock						5	0.0872665	3.5	11	0.001	1.00	3664.67	1.0	3.66	1.0	1.0	0.5	3665.17	1.0	4.16	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T9)	DP499		IH	3566	82408	0.00	A - Rock (0.0m)	5	366	XS-8	Rock						5	0.0872665	3.5	11	0.001	1.00	3664.67	1.0	3.66	1.0	1.0	0.5	3665.17	1.0	4.16	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T9)	DP500		IH	3555	82401	0.00	A - Rock (0.0m)	5	367	XS-8	Rock						5	0.0872665	3.5	11	0.001	1.00	3664.67	1.0	3.66	1.0	1.0	0.5	3665.17	1.0	4.16	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T9)	DP501		IH	3544	82396	0.00	A - Rock (0.0m)	5	367	XS-8	Rock						5	0.0872665	3.5	11	0.001	1.00	3664.67	1.0	3.66	1.0	1.0	0.5	3665.17	1.0	4.16	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T9)	DP502		IH	3536	82388	0.00	A - Rock (0.0m)	5	368	XS-8	Rock						5	0.0872665	3.5	11	0.001	1.00	3664.67	1.0	3.66	1.0	1.0	0.5	3665.17	1.0	4.16	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T9)	DP503		IH	3528	82379	2.00	C - Shallow (0.5-2.0m)	8	371	XS-8	Drain						8	0.1396263	3.5	11	2.00	3.00	1.15	2.0	0.77	4.0	1.0	0.5	1.65	1.0	1.27	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T9)	DP504		IH	3544	82370	0.60	C - Shallow (0.5-2.0m)	15	372								15	0.2617994	3.5	11	0.60	1.60	2.12	1.0	0.80	4.0	1.0	0.5	2.62	1.0	1.30	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T9)	DP505		IH	3551	82369	0.00	A - Rock (0.0m)	5	371		Rock						5	0.0872665	3.5	11	0.001	1.00	3664.67	1.0	3.66	1.0	1.0	0.5	3665.17	1.0	4.16	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T9)	DP506		IH	3563	82375	0.10	B - Very Shallow (0.01-0.5m)	5	370								5	0.0872665	3.5	11	0.10	1.10	36.65	1.0	3.33	1.0	1.0	0.5	37.15	1.0	3.83	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T9)	DP507		IH	3560	82380	0.00	A - Rock (0.0m)	5	369								5	0.0872665	3.5	11	0.001	1.00	3664.67	1.0	3.66	1.0	1.0	0.5	3665.17	1.0	4.16	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T9)	DP508		IH	3575	82384	2.00	C - Shallow (0.5-2.0m)	8	367								8	0.1396263	3.5	11	2.00	3.00	1.15	2.0	0.77	4.0	1.0	0.5	1.65	1.0	1.27	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T9)	DP509		IH	3584	82380	2.69	D - Moderately Deep (2.0-3.5m)	8	367								8	0.1396263	3.5	11	2.69	3.69	0.86	4.0	0.63	4.0	1.0	0.5	1.36	1.0	1.13	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
03/07/2019	Depth Probe	T9	DP510		IH	3578	82368	1.80	C - Shallow (0.5-2.0m)	12	367								12	2.0094395	3.5	11	1.80	2.80	0.87	4.0	0.56	4.0	1.0	0.5	1.37	1.0	1.06	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
03/07/2019	Depth Probe	T9	DP511		IH	3571	82358	1.20	C - Shallow (0.5-2.0m)	10	372								10	0.1745329	3.5	11	1.20	2.20	1.55	1.0	0.85	4.0	1.0	0.5	2.05	1.0	1.35	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
03/07/2019	Depth Probe	T9	DP512		IH	3580	82358	0.00	A - Rock (0.0m)	8	373		Rock - Top of steep bank						8	0.1396263	3.5	11	0.001	1.00	2308.70	1.0	2.31	1.0	1.0	0.5	2309.20	1.0	2.81	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP513		IH	3578	82346	0.00	A - Rock (0.0m)	8	375		Rock						8	0.1396263	3.5	11	0.001	1.00	2308.70	1.0	2.31	1.0	1.0	0.5	2309.20	1.0	2.81	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP514		IH	3561	82320	0.00	A - Rock (0.0m)	0	381		Rock - Peak						0.1	0.0017453	3.5	11	0.001	1.00	182305.12	1.0	182.12	1.0	1.0	0.5	182305.62	1.0	182.62	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP515		IH	3587	82333	0.10	B - Very Shallow (0.01-0.5m)	3	377								3	0.0523599	3.5	11	0.10	1.10	60.88	1.0	5.53	1.0	1.0	0.5	61.38	1.0	6.03	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP516		IH	3598	82347	0.30	B - Very Shallow (0.01-0.5m)	25	377								25	0.4363323	3.5	11	0.30	1.30	2.77	1.0	0.64	4.0	1.0	0.5	3.27	1.0	1.14	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
03/07/2019	Depth Probe	T9	DP517		IH	3606	82356	0.60	C - Shallow (0.5-2.0m)	8	370								8	0.1396263	3.5	11	0.60	1.60	3.85	1.0	1.44	1.0	1.0	0.5	4.35	1.0	1.94	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP518		IH	3569	82376	1.90	C - Shallow (0.5-2.0m)	5	367								5	0.0872665	3.5	11	1.90	2.90	1.93	1.0	1.28	2.0	1.0	0.5	2.43	1.0	1.76	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP519		IH	3586	82405	0.00	A - Rock (0.0m)	10	364		Rock						10	0.1745329	3.5	11	0.001	1.00	1860.60	1.0	1.86	1.0	1.0	0.5	1861.10	1.0	2.36	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP520		IH	3613	82390	0.05	B - Very Shallow (0.01-0.5m)	8									8	0.1396263	3.5	11	0.05	1.05	46.17	1.0	2.20	1.0	1.0	0.5	46.67	1.0	2.70	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP521		IH	3686	82284	0.00	A - Rock (0.0m)	10	391		Backfill - elev incorrect?						10	0.1745329	3.5	11	0.001	1.00	1860.60	1.0	1.86	1.0	1.0	0.5	1861.10	1.0	2.36	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP522		IH	3700	82280	0.10	B - Very Shallow (0.01-0.5m)	5	368								5	0.0872665	3.5	11	0.10	1.10	36.65	1.0	3.33	1.0	1.0	0.5	37.15	1.0	3.83	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP523		IH	3685	82270	0.40	B - Very Shallow (0.01-0.5m)	10	369								10	0.1745329	3.5	11	0.40	1.40	4.65	1.0	1.33	1.0	1.0	0.5	5.15	1.0	1.83	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP524		IH	3666	82278	0.00	A - Rock (0.0m)	2	370		Rock						2	0.0349066	3.5	11	0.001	1.00	9122.65	1.0	9.11	1.0	1.0	0.5	9123.15	1.0	9.61	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP525		IH	3651	82267	0.05	B - Very Shallow (0.01-0.5m)	2	370								2	0.0349066	3.5	11	0.05	1.05	182.45	1.0	8.69	1.0	1.0	0.5	182.95	1.0	9.19	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP526		IH	3649	82254	0.40	B - Very Shallow (0.01-0.5m)	20	369		Top of 20deg						20	0.3490659	3.5	11	0.40	1.40	2.48	1.0	0.71	4.0	1.0	0.5	2.98	1.0	1.21	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
03/07/2019	Depth Probe	T9	DP527		IH	3634	82270	0.20	B - Very Shallow (0.01-0.5m)	10	372								10	0.1745329	3.5	11	0.20	1.20	9.30	1.0	1.55	1.0	1.0	0.5	9.80	1.0	2.05	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP528		IH	3617	82274	0.20	B - Very Shallow (0.01-0.5m)	5	374								5	0.0872665	3.5	11	0.20	1.20	18.32	1.0	3.05	1.0	1.0	0.5	18.82	1.0	3.55	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP529		IH	3608	82281	0.00	A - Rock (0.0m)	0	373		Rock						0.1	0.0017453	3.5	11	0.001	1.00	182305.12	1.0	182.12	1.0	1.0	0.5	182305.62	1.0	182.62	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP530		IH	3601	82284	0.20	B - Very Shallow (0.01-0.5m)	0	373		Base of 15deg						0.1	0.0017453	3.5	11	0.20	1.20	911.53	1.0	151.92	1.0	1.0	0.5	912.03	1.0	152.42	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP531		IH	3592	82306	0.50	B - Very Shallow (0.01-0.5m)	8	378								8	0.1396263	3.5	11	0.50	1.50	4.62	1.0	1.54	1.0	1.0	0.5	5.12	1.0	2.04	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP532		IH	3613	82319	0.10	B - Very Shallow (0.01-0.5m)	5	374								5	0.0872665	3.5	11	0.10	1.10	36.65	1.0	3.33	1.0	1.0	0.5	37.15	1.0	3.83	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP533		IH	3628	82333	1.80	C - Shallow (0.5-2.0m)	3	371								3	0.0523599	3.5	11	1.80	2.80	3.36	1.0	2.17	1.0	1.0	0.5	3.88	1.0	2.67	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP534		IH	3641	82317	0.00	A - Rock (0.0m)	2	371		Rock						2	0.0349066	3.5	11	0.001	1.00	9122.65	1.0	9.11	1.0	1.0	0.5	9123.15	1.0	9.61	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP535		IH	3664	82356	0.05	B - Very Shallow (0.01-0.5m)	10	367		Backfill?						10	0.1745329	3.5	11	0.05	1.05	37.21	1.0	1.77	1.0	1.0	0.5	37.71	1.0	2.27	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP536		IH	3673	82345	0.10	B - Very Shallow (0.01-0.5m)	10	367								10	0.1745329	3.5	11	0.10	1.10	18.61	1.0	1.69	1.0	1.0	0.5	19.11	1.0	2.19	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T9	DP537		IH	3685	82329	0.00	A - Rock (0.0m)	10	367		Rock						10	0.1745329	3.5	11	0.001	1.00	1860.60	1.0	1.86	1.0	1.0	0.5	1861.10	1.0	2.36	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP538		IH	3877	82220	0.10	B - Very Shallow (0.01-0.5m)	30	354		Top of 30deg						30	0.5235988	3.5	11	0.10	1.10	7.35	1.0	0.67	4.0	1.0	0.5	7.85	1.0	1.17	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP539		IH	3859	82215	0.10	B - Very Shallow (0.01-0.5m)	30	355		Top of 30deg						30	0.5235988	3.5	11	0.10	1.10	7.35	1.0	0.67	4.0	1.0	0.5	7.85	1.0	1.17	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP540		IH	3852	82221	0.50	B - Very Shallow (0.01-0.5m)	8	353								8	0.1396263	3.5	11	0.50	1.50	4.62	1.0	1.54	1.0	1.0	0.5	5.12	1.0	2.04	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP541		IH	3850	82223	0.80	C - Shallow (0.5-2.0m)	8	353		Drain						8	0.1396263	3.5	11	0.80	1.80	2.89	1.0	1.28	2.0	1.0	0.5	3.39	1.0	1.78	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP542		IH	3837	82232	3.60	E - Deep (3.5-5.0m)	5	351								5	0.0872665	3.5	11	3.60	4.60	1.02	2.0	0.80	4.0	1.0	0.5	1.52	1.0	1.30	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP543		IH	3826	82235	0.05	B - Very Shallow (0.01-0.5m)	25	355								25	0.4363323	3.5	11	0.05	1.05	16.61	1.0	0.79	4.0	1.0	0.5	17.11	1.0	1.29	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP544		IH	3820	82241	0.05	B - Very Shallow (0.01-0.5m)	2	358		Top of 25deg						2	0.0349066	3.5	11	0.05	1.05	182.45	1.0	8.69	1.0	1.0	0.5	182.95	1.0	9.19	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP545		IH	3830	82254	0.30	B - Very Shallow (0.01-0.5m)	3	358								3	0.0523599	3.5	11	0.30	1.30	20.29	1.0	4.68	1.0	1.0	0.5	20.79	1.0	5.18	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP546		IH	3844	82252	0.70	C - Shallow (0.5-2.0m)	3	356								3	0.0523599	3.5	11	0.70	1.70	8.70	1.0	3.58	1.0	1.0	0.5	9.20	1.0	4.08	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP548		IH	3842	82278	1.85	C - Shallow (0.5-2.0m)	5	355	XS-7							5	0.0872665	3.5	11	1.85	2.85	1.98	1.0	1.29	2.0	1.0	0.5	2.48	1.0	1.79	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP549		IH	3845	82288	0.60	C - Shallow (0.5-2.0m)	5	355		Drain / eroded area						5	0.0872665	3.5	11	0.60	1.60	6.11	1.0	2.29	1.0	1.0	0.5	6.61	1.0	2.79	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP550		IH	3851	82291	0.00	A - Rock (0.0m)	5	355		Rock - Photo 15:50						5	0.0872665	3.5	11	0.001	1.00	3664.67	1.0	3.66	1.0	1.0	0.5	3665.17	1.0	4.16	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP551		IH	3860	82285	0.60	C - Shallow (0.5-2.0m)	5	354		Drain / eroded area						5	0.0872665	3.5	11	0.60	1.60	6.11	1.0	2.29	1.0	1.0	0.5	6.61	1.0	2.79	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP552		IH	3861	82281	0.00	A - Rock (0.0m)	5	354		Rock						5	0.0872665	3.5	11	0.001	1.00	3664.67	1.0	3.66	1.0	1.0	0.5	3665.17	1.0	4.16	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	n/a (Potential Alternative (T10A)	DP553		IH	3874	82280	0.00	A - Rock (0.0m)	5	355		Rock						5	0.0872665	3.5	11	0.001	1.00	3664.67	1.0	3.66	1.0	1.0	0.5	3665.17	1.0	4.16	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T10	DP554		IH	3787	81937	0.20	B - Very Shallow (0.01-0.5m)	5	308								5	0.0872665	3.5	11	0.20	1.20	18.32	1.0	3.05	1.0	1.0	0.5	18.82	1.0	3.55	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T10	DP556		IH	3775	81937	0.50	B - Very Shallow (0.01-0.5m)	8	308								8	0.1396263	3.5	11	0.50	1.50	4.62	1.0	1.54	1.0	1.0	0.5	5.12	1.0	2.04	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
03/07/2019	Depth Probe	T10	DP557		IH	3762	81932	0.50	B - Very Shallow (0.01-0.5m)	8	306								8	0.1396263	3.5	11	0.50	1.50	4.62	1.0	1.54	1.0	1.0	0.5	5.12	1.0	2.04	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0

Peat Survey Database

Peat Database (Data obtained on site)

Prepared by: SK
Mineerex File Ref.: 3006-011.xls

Minerex Environmental

Peat & Slope Stability Database

Prepared by: SK
Mineerex File Ref.: 3006-011.xls

Slope Stability Risk Assessment/s

Minerex Environmental

Sample / Test Date	Sample / Test Category	Associated Proposed Turbine	Sample / Test Point ID No.	Piezometer	IG Ref.	IG Easting	IG Northing	Thickness / Depth of peat	Classification of Thickness / Depth of peat	Local Incline (c.5m rad.)	Elevation (GPS)	XS	Note	Shear Vane Test Depth	Shear Vane No. 1	Shear Vane No. 2	Shear Vane No. 3	Shear Vane Average	Parameter Values: Slope Angle	Slope Angle (For Excel Formula)	Undrained Shear Strenght (Conservative Value)	Bulk Unit weight of Peat (Conservative Value)	Scenario A: Depth to failure plane i.e. Peat Depth	Scenario B: Surcharge Equivalent Placed Fill Depth i.e. +1m	Scenario A: FoS_{RAW} Factor of Safety (FoS) for Peat Stability	COEFFICIENT	Scenario B: FoS_{RAW} Factor of Safety (FoS) for Peat Stability	COEFFICIENT	FoS Adjustment Coefficient	FoS Adjustment Value	Scenario A: FoS_{ADJ} Adjusted Factor of Safety (FoS) for Peat Stability	COEFFICIENT	Scenario B: FoS_{ADJ} Adjusted Factor of Safety (FoS) for Peat Stability	COEFFICIENT	Significant Feature Ranking Cefficient	Scenario A: RR_{SF} Ranking Risk re Potential for Adverse Consequences on Sensitive Receptors	COEFFICIENT	Scenario B: RR_{SF} Ranking Risk re Potential for Adverse Consequences on Sensitive Receptors	COEFFICIENT	Distance to Sensitive Receptor Coefficient	Scenario A: RR_D Risk Ranking Acounting for Distance to Sensitive Receptors	Scenario B: RR_D Risk Ranking Acounting for Distance to Sensitive Receptors
																			α	α	c'	y	z	z	$FoS = \frac{C_u}{\gamma z \sin\alpha \cos\alpha}$	μ	$FoS = \frac{C_u}{\gamma z \sin\alpha \cos\alpha}$	μ	μ	#	$FoS = \frac{C_u}{\gamma z \sin\alpha \cos\alpha}$ + Adjustment Value	μ	$FoS = \frac{C_u}{\gamma z \sin\alpha \cos\alpha}$ + Adjustment Value	μ	μ_{SF}		μ		μ	$\mu_{Dist.}$		
dd/mm/yy								m		Degrees	mOD	No.		m	kPa	kPa	kPa	kPa	Degrees	Radians	kPa	kN/m3	m	m	FoS		FoS				FoS		FoS			RR-SF		RR-SF			RR-D	RR-D
12/09/2019	Depth Probe	T13	DP620		IH	3168	81470	1.10	C - Shallow (0.5-2 0m)	4									4	0.0698132	3.5	11	1.10	2.10	4.16	1.0	2.18	1.0	1.0	0.5	4.66	1.0	2.68	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP621		IH	3187	81474	1.70	C - Shallow (0.5-2 0m)	4									4	0.0698132	3.5	11	1.70	2.70	2.69	1.0	1.69	1.0	1.0	0.5	3.19	1.0	2.19	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP622		IH	3204	81476	0.40	B - Very Shallow (0.01-0.5m)	4									4	0.0698132	3.5	11	0.40	1.40	11.43	1.0	3.27	1.0	1.0	0.5	11.93	1.0	3.77	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP623		IH	3226	81477	0.80	C - Shallow (0.5-2 0m)	5									5	0.0872665	3.5	11	0.80	1.80	4.58	1.0	2.04	1.0	1.0	0.5	5.08	1.0	2.54	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP624		IH	3218	81500	0.10	B - Very Shallow (0.01-0.5m)	5									5	0.0872665	3.5	11	0.10	1.10	36.65	1.0	3.33	1.0	1.0	0.5	37.15	1.0	3.83	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP625		IH	3200	81496	1.00	C - Shallow (0.5-2 0m)	4									4	0.0698132	3.5	11	1.00	2.00	4.57	1.0	2.29	1.0	1.0	0.5	5.07	1.0	2.79	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP626		IH	3182	81497	2.00	C - Shallow (0.5-2 0m)	3									3	0.0523599	3.5	11	2.00	3.00	3.04	1.0	2.03	1.0	1.0	0.5	3.54	1.0	2.53	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP627		IH	3160	81496	1.00	C - Shallow (0.5-2 0m)	3									3	0.0523599	3.5	11	1.00	2.00	6.09	1.0	3.04	1.0	1.0	0.5	6.59	1.0	3.54	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP628		IH	3141	81493	1.10	C - Shallow (0.5-2 0m)	5									5	0.0872665	3.5	11	1.10	2.10	3.33	1.0	1.75	1.0	1.0	0.5	3.83	1.0	2.25	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP629		IH	3126	81489	0.80	C - Shallow (0.5-2 0m)	10									10	0.1745329	3.5	11	0.80	1.80	2.33	1.0	1.03	2.0	1.0	0.5	2.83	1.0	1.53	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP630		IH	3119	81509	1.00	C - Shallow (0.5-2 0m)	10									10	0.1745329	3.5	11	1.00	2.00	1.86	1.0	0.93	4.0	1.0	0.5	2.36	1.0	1.43	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP631		IH	3134	81515	0.90	C - Shallow (0.5-2 0m)	8									8	0.1396263	3.5	11	0.90	1.90	2.57	1.0	1.22	2.0	1.0	0.5	3.07	1.0	1.72	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP632		IH	3149	81518	0.90	C - Shallow (0.5-2 0m)	3									3	0.0523599	3.5	11	0.90	1.90	6.76	1.0	3.20	1.0	1.0	0.5	7.26	1.0	3.70	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP633		IH	3167	81521	1.60	C - Shallow (0.5-2 0m)	3									3	0.0523599	3.5	11	1.60	2.60	3.80	1.0	2.34	1.0	1.0	0.5	4.30	1.0	2.84	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP634		IH	3187	81524	1.50	C - Shallow (0.5-2 0m)	3									3	0.0523599	3.5	11	1.50	2.50	4.06	1.0	2.44	1.0	1.0	0.5	4.56	1.0	2.94	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP635		IH	3206	81526	0.50	B - Very Shallow (0.01-0.5m)	3									3	0.0523599	3.5	11	0.50	1.50	12.18	1.0	4.06	1.0	1.0	0.5	12.68	1.0	4.56	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP636		IH	3206	81548	1.00	C - Shallow (0.5-2 0m)	3									3	0.0523599	3.5	11	1.00	2.00	6.09	1.0	3.04	1.0	1.0	0.5	6.59	1.0	3.54	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP637		IH	3212	81560	2.80	D - Moderately Deep (2.0-3.5m)	1									1	0.0174533	3.5	11	2.80	3.80	6.51	1.0	4.80	1.0	1.0	0.5	7.01	1.0	5.30	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP638		IH	3190	81542	1.70	C - Shallow (0.5-2 0m)	5									5	0.0872665	3.5	11	1.70	2.70	2.16	1.0	1.36	1.0	1.0	0.5	2.66	1.0	1.86	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP639		IH	3166	81543	0.50	B - Very Shallow (0.01-0.5m)	6									6	0.1047198	3.5	11	0.50	1.50	6.12	1.0	2.04	1.0	1.0	0.5	6.62	1.0	2.54	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP640		IH	3148	81536	0.20	B - Very Shallow (0.01-0.5m)	4									4	0.0698132	3.5	11	0.20	1.20	22.86	1.0	3.81	1.0	1.0	0.5	23.36	1.0	4.31	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP641		IH	3131	81531	0.30	B - Very Shallow (0.01-0.5m)	4									4	0.0698132	3.5	11	0.30	1.30	15.24	1.0	3.52	1.0	1.0	0.5	15.74	1.0	4.02	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP642		IH	3117	81526	0.40	B - Very Shallow (0.01-0.5m)	10									10	0.1745329	3.5	11	0.40	1.40	4.65	1.0	1.33	1.0	1.0	0.5	5.15	1.0	1.83	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP643		IH	3102	81520	1.10	C - Shallow (0.5-2 0m)	6									6	0.1047198	3.5	11	1.10	2.10	2.78	1.0	1.46	1.0	1.0	0.5	3.28	1.0	1.96	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP644		IH	3091	81515	1.00	C - Shallow (0.5-2 0m)	2									2	0.0349066	3.5	11	1.00	2.00	9.12	1.0	4.56	1.0	1.0	0.5	9.62	1.0	5.06	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP645		IH	3087	81529	2.10	D - Moderately Deep (2.0-3.5m)	2									2	0.0349066	3.5	11	2.10	3.10	4.34	1.0	2.94	1.0	1.0	0.5	4.84	1.0	3.44	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP646		IH	3079	81546	3.80	E - Deep (3.5-5.0m)	2									2	0.0349066	3.5	11	3.80	4.80	2.40	1.0	1.90	1.0	1.0	0.5	2.90	1.0	2.40	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP647		IH	3056	81536	3.50	D - Moderately Deep (2.0-3.5m)	2									2	0.0349066	3.5	11	3.50	4.50	2.61	1.0	2.03	1.0	1.0	0.5	3.11	1.0	2.53	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP648		IH	3061	81517	1.60	C - Shallow (0.5-2 0m)	2									2	0.0349066	3.5	11	1.60	2.60	5.70	1.0	3.51	1.0	1.0	0.5	6.20	1.0	4.01	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP649		IH	3070	81500	0.60	C - Shallow (0.5-2 0m)	2									2	0.0349066	3.5	11	0.60	1.60	15.20	1.0	5.70	1.0	1.0	0.5	15.70	1.0	6.20	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP650		IH	3140	81365	1.20	C - Shallow (0.5-2 0m)	3									3	0.0523599	3.5	11	1.20	2.20	5.07	1.0	2.77	1.0	1.0	0.5	5.57	1.0	3.27	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP651		IH	3159	81373	0.40	B - Very Shallow (0.01-0.5m)	3									3	0.0523599	3.5	11	0.40	1.40	15.22	1.0	4.35	1.0	1.0	0.5	15.72	1.0	4.85	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP652		IH	3182	81380	1.00	C - Shallow (0.5-2 0m)	3			11.45 Photo Drain						3	0.0523599	3.5	11	1.00	2.00	6.09	1.0	3.04	1.0	1.0	0.5	6.59	1.0	3.54	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP653		IH	3201	81384	0.10	B - Very Shallow (0.01-0.5m)	3									3	0.0523599	3.5	11	0.10	1.10	60.88	1.0	5.53	1.0	1.0	0.5	61.38	1.0	6.03	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP654		IH	3219	81390	1.20	C - Shallow (0.5-2 0m)	3									3	0.0523599	3.5	11	1.20	2.20	5.07	1.0	2.77	1.0	1.0	0.5	5.57	1.0	3.27	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP655		IH	3236	81395	0.60	C - Shallow (0.5-2 0m)	3									3	0.0523599	3.5	11	0.60	1.60	10.15	1.0	3.80	1.0	1.0	0.5	10.65	1.0	4.30	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP656		IH	3224	81375	0.40	B - Very Shallow (0.01-0.5m)	5									5	0.0872665	3.5	11	0.40	1.40	9.16	1.0	2.62	1.0	1.0	0.5	9.66	1.0	3.12	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP657		IH	3207	81363	0.90	C - Shallow (0.5-2 0m)	3									3	0.0523599	3.5	11	0.90	1.90	6.76	1.0	3.20	1.0	1.0	0.5	7.26	1.0	3.70	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP658		IH	3192	81358	0.90	C - Shallow (0.5-2 0m)	3									3	0.0523599	3.5	11	0.90	1.90	6.76	1.0	3.20	1.0	1.0	0.5	7.26	1.0	3.70	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T13	DP659		IH	3169	81348	1.10	C - Shallow (0.5-2 0m)	4			Next to river						4	0.0698132	3.5	11	1.10	2.10	4.16	1.0	2.18	1.0	1.0	0.5	4.66	1.0	2.68	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T10	DP660		IH			0.50	B - Very Shallow (0.01-0.5m)	2									2	0.0349066	3.5	11	0.50	1.50	18.25	1.0	6.08	1.0	1.0	0.5	18.75	1.0	6.58	1.0	2.0	2.0	1.0	2.0	1.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T10	DP661		IH	3809	81895	0.50	B - Very Shallow (0.01-0.5m)	2									2	0.0349066	3.5	11	0.50	1.50	18.25	1.0	6.08	1.0	1.0	0.5	18.75	1.0	6.58	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP662		IH	3810	81882	0.50	B - Very Shallow (0.01-0.5m)	2									2	0.0349066	3.5	11	0.50	1.50	18.25	1.0	6.08	1.0	1.0	0.5	18.75	1.0	6.58	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP663		IH	3812	81872	1.60	C - Shallow (0.5-2 0m)	2									2	0.0349066	3.5	11	1.60	2.60	5.70	1.0	3.51	1.0	1.0	0.5	6.20	1.0	4.01	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP664		IH	3824	81873	1.60	C - Shallow (0.5-2 0m)	2			Cut Drain Here						2	0.0349066	3.5	11	1.60	2.60	5.70	1.0	3.51	1.0	1.0	0.5	6.20	1.0	4.01	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP665		IH	3832	81876	1.90	C - Shallow (0.5-2 0m)	2									2	0.0349066	3.5	11	1.90	2.90	4.80	1.0	3.15	1.0	1.0	0.5	5.30	1.0	3.65	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP666		IH	3831	81889	0.00	A - Rock (0.0m)	2									2	0.0349066	3.5	11	0.001	1.00	9122.60	1.0	9.11	1.0	1.0	0.5	9123.15	1.0	9.61	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP667		IH	3828	81912	1.10	C - Shallow (0.5-2 0m)	3									3	0.0523599	3.5	11	1.10	2.10	5.53	1.0	2.90	1.0	1.0	0.5	6.03	1.0	3.40	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP668		IH	3844	81917	1.50	C - Shallow (0.5-2 0m)	2									2	0.0349066	3.5	11	1.50	2.50	6.08	1.0	3.65	1.0	1.0	0.5	6.58	1.0	4.15	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP669		IH	3853	81891	1.60	C - Shallow (0.5-2 0m)	2									2	0.0349066	3.5	11	1.60	2.60	5.70	1.0	3.51	1.0	1.0	0.5	6.20	1.0	4.01	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP670		IH	3856	81874	1.90	C - Shallow (0.5-2 0m)	2									2	0.0349066	3.5	11	1.90	2.90	4.80	1.0	3.15	1.0	1.0	0.5	5.30	1.0	3.65	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP671		IH	3875	81884	0.50	B - Very Shallow (0.01-0.5m)	2									2	0.0349066	3.5	11	0.50	1.50	18.25	1.0	6.08	1.0	1.0	0.5	18.75	1.0	6.58	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP672		IH	3868	81910	2.80	D - Moderately Deep (2.0-3.5m)	4									4	0.0698132	3.5	11	2.80	3.80	1.63	1.0	1.20	2.0	1.0	0.5	2.13	1.0	1.70	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP673		IH	3886	81918	1.70	C - Shallow (0.5-2 0m)	1									1	0.0174533	3.5	11	1.70	2.70	10.73	1.0	6.75	1.0	1.0	0.5	11.23	1.0	7.25	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP674		IH	3891	81893	0.00	A - Rock (0.0m)	1									1	0.0174533	3.5	11	0.001	1.00	18234.18	1.0	18.22	1.0	1.0	0.5	18234.68	1.0	18.72	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP675		IH	3914	81902	0.10	B - Very Shallow (0.01-0.5m)	2									2	0.0349066	3.5	11	0.10	1.10	91.23	1.0	8.29	1.0	1.0	0.5	91.73	1.0	8.79	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP676		IH	3907	81926	0.20	B - Very Shallow (0.01-0.5m)	3									3	0.0523599	3.5	11	0.20	1.20	30.44	1.0	5.07	1.0	1.0	0.5	30.94	1.0	5.57	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP677		IH	3776	81897	0.00	A - Rock (0.0m)	3									3	0.0523599	3.5	11	0.001	1.00	6087.95	1.0	6.08	1.0	1.0	0.5	6088.45	1.0	6.58	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP678		IH	3783	81866	0.20	B - Very Shallow (0.01-0.5m)	3									3	0.0523599	3.5	11	0.20	1.20	30.44	1.0	5.07	1.0	1.0	0.5	30.94	1.0	5.57	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP679		IH	3787	81847	0.00	A - Rock (0.0m)	3									3	0.0523599	3.5	11	0.001	1.00	6087.95	1.0	6.08	1.0	1.0	0.5	6088.45	1.0	6.58	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T10	DP680		IH	3805	81845	0.00	A - Rock (0.0m)	3									3	0.0523599	3.5	11	0.001	1.00	6087.95	1.0	6.08	1.0	1.0	0.5	6088.45	1.0	6.58	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0
12/09/2019	Depth Probe	T3	DP681		IH	4660	83122	0.20	B - Very Shallow (0.01-0.5m)	5									5	0.0872665	3.5	11	0.20	1.20	18.32	1.0	3.05	1.0	1.0	0.5	18.82	1.0	3.55	1.0	2.0	2.0	1.0	4.0	4.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T3	DP682		IH	4645	83122	0.10	B - Very Shallow (0.01-0.5m)	5			Getting steeper						5	0.0872665	3.5	11	0.10	1.10	36.65	1.0	3.33	1.0	1.0	0.5	37.15	1.0	3.83	1.0	2.0	2.0	1.0	4.0	4.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T3	DP683		IH	4644	83138	0.80	C - Shallow (0.5-2 0m)	5									5	0.0872665	3.5	11	0.80	1.80	4.58	1.0	2.04	1.0	1.0	0.5	5.08	1.0	2.54	1.0	2.0	2.0	1.0	4.0	4.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T3	DP684		IH	4653	83146	1.90	C - Shallow (0.5-2 0m)	5									5	0.0872665	3.5	11	1.90	2.90	1.93	1.0	1.26	2.0	1.0	0.5	2.43	1.0	1.76	1.0	2.0	2.0	1.0	4.0	4.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T3	DP685		IH	4648	83161	0.10	B - Very Shallow (0.01-0.5m)	5									5	0.0872665	3.5	11	0.10	1.10	36.65	1.0	3.33	1.0	1.0	0.5	37.15	1.0	3.83	1.0	2.0	2.0	1.0	4.0	4.0	4.0	4.0	4.0
12/09/2019	Depth Probe	T3	DP686		IH	4644	83174	0.00	A - Rock (0.0m)	5									5	0.0872665	3.5	11	0.001	1.00	3664.67	1.0	3.66	1.0	1.0	0.5	3665.17	1.0	4.16	1.0	2.0	2.0	1.0	4.0	4.0

Peat Survey Database

Peat Database (Data obtained on site)

Prepared by: SK
Mineerex File Ref.: 3006-011.xls

Peat & Slope Stability Database

Prepared by: SK
Mineerex File Ref.: 3006-011.xls

Slope Stability Risk Assessment/s

Sample / Test Date	Sample / Test Category	Associated Proposed Turbine	Sample / Test Point ID No.	Piezometer	IG Ref.	IG Easting	IG Northing	Thickness / Depth of peat	Classification of Thickness / Depth of peat	Local Incline (c.5m rad.)	Elevation (GPS)	XS	Note	Shear Vane Test Depth	Shear Vane No. 1	Shear Vane No. 2	Shear Vane No. 3	Shear Vane Average	Parameter Values: Slope Angle	Slope Angle (For Excel Formula)	Undrained Shear Strenght (Conservative Value)	Bulk Unit weight of Peat (Conservative Value)	Scenario A: Depth to failure plane i.e. Peat Depth	Scenario B: Surcharge Equivalent Placed Fill Depth i.e. +1m	Scenario A: FoS_{RAW} Factor of Safety (FoS) for Peat Stability	COEFFICIENT	Scenario B: FoS_{RAW} Factor of Safety (FoS) for Peat Stability	COEFFICIENT	FoS Adjustment Coefficient	FoS Adjustment Value	Scenario A: FoS_{ADJ} Adjusted Factor of Safety (FoS) for Peat Stability	COEFFICIENT	Scenario B: FoS_{ADJ} Adjusted Factor of Safety (FoS) for Peat Stability	COEFFICIENT	Significant Feature Ranking Cefficient	Scenario A: RR_{SF} Ranking Risk re Potential for Adverse Consequences on Sensitive Receptors	COEFFICIENT	Scenario B: RR_{SF} Ranking Risk re Potential for Adverse Consequences on Sensitive Receptors	COEFFICIENT	Distance to Sensitive Receptor Coefficient	Scenario A: RR_D Risk Ranking Acounting for Distance to Sensitive Receptors	Scenario B: RR_D Risk Ranking Acounting for Distance to Sensitive Receptors
																			α	α	c'	γ	z	z	$FoS = \frac{C_u}{\gamma z \sin\alpha \cos\alpha}$						$FoS = \frac{C_u}{\gamma z \sin\alpha \cos\alpha}$ + Adjustment Value				μ_{SF}				$\mu_{Dist.}$		
ddmmyy								m		Degrees	mOD	No.		m	kPa	kPa	kPa	kPa	Degrees	Radians	kPa	kN/m3	m	m	FoS	μ	FoS	μ	μ	#	FoS	μ	FoS	μ	μ	RR-SF	μ	RR-SF	μ	μ	RR-D	RR-D
04/07/2019	Gouge Core	T9	GC149		IH	3688	82335	1.5	C - Shallow (0.5-2.0m)	10	367								10	0.1745329	3.5	11	1.50	2.50	1.24	2.0	0.74	4.0	1.0	0.5	1.74	1.0	1.24	2.0	2.0	2.0	1.0	4.0	2.0	1.0	1.0	2.0	
04/07/2019	Gouge Core	n/a (Potential Alternative (T10A)	GC150		IH	3876	82274	0.65	C - Shallow (0.5-2.0m)	3	358	XS-7							3	0.0523599	3.5	11	0.65	1.65	9.37	1.0	3.69	1.0	1.0	0.5	9.87	1.0	4.19	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0	
04/07/2019	Gouge Core	n/a (Potential Alternative (T10A)	GC151	SP116	IH	3891	82288	2.5	D - Moderately Deep (2.0-3.5m)	2	354			0.5	15	15	14	14.7	2	0.0349066	3.5	11	2.50	3.50	3.65	1.0	2.61	1.0	1.0	0.5	4.15	1.0	3.11	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0	
04/07/2019	Gouge Core	n/a (Potential Alternative (T10A)	GC152		IH	3835	82281	1.8	C - Shallow (0.5-2.0m)	5	360	XS-7							5	0.0872665	3.5	11	1.80	2.80	2.04	1.0	1.31	1.0	1.0	0.5	2.54	1.0	1.81	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0	
04/07/2019	Gouge Core	T12	GC153		IH	3409	81854	0.9	C - Shallow (0.5-2.0m)	1	305			0.5	9	10	12	10.3	1	0.0174533	3.5	11	0.90	1.90	20.26	1.0	9.60	1.0	1.0	0.5	20.76	1.0	10.10	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	
04/07/2019	Gouge Core	T12	GC154	SP117	IH	3387	81858	0.9	C - Shallow (0.5-2.0m)	4	303								4	0.0698132	3.5	11	0.90	1.90	5.08	1.0	2.41	1.0	1.0	0.5	5.58	1.0	2.91	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	
04/07/2019	Gouge Core	T12	GC155		IH	3364	81853	1.95	C - Shallow (0.5-2.0m)	4	301			0.5	19	12	6	12.3	4	0.0698132	3.5	11	1.95	2.95	2.34	1.0	1.55	1.0	1.0	0.5	2.84	1.0	2.05	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	
04/07/2019	Gouge Core	T12	GC156		IH	3373	81811	3.65	E - Deep (3.5-5.0m)	2	301			0.5	12	19	12	14.3	2	0.0349066	3.5	11	3.65	4.65	2.50	1.0	1.96	1.0	1.0	0.5	3.00	1.0	2.46	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	
04/07/2019	Gouge Core	T12	GC157		IH	3460	81853	0.5	B - Very Shallow (0.01-0.5m)	1									1	0.0174533	3.5	11	0.50	1.50	36.47	1.0	12.16	1.0	1.0	0.5	36.97	1.0	12.66	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	
04/07/2019	Gouge Core	T12	GC158		IH	3400	81899	0.75	C - Shallow (0.5-2.0m)	0	305								0.1	0.0017453	3.5	11	0.75	1.75	243.07	1.0	104.17	1.0	1.0	0.5	243.57	1.0	104.67	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	
04/07/2019	Gouge Core	T10	GC159		IH	3820	81949	0.2	B - Very Shallow (0.01-0.5m)	5									5	0.0872665	3.5	11	0.20	1.20	18.32	1.0	3.05	1.0	1.0	0.5	18.82	1.0	3.55	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0	
04/07/2019	Gouge Core	T10	GC160		IH	3825	81964	0.2	B - Very Shallow (0.01-0.5m)	5									5	0.0872665	3.5	11	0.20	1.20	18.32	1.0	3.05	1.0	1.0	0.5	18.82	1.0	3.55	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0	
04/07/2019	Gouge Core	T10	GC161		IH	3867	81958	0.1	B - Very Shallow (0.01-0.5m)	3									3	0.0523599	3.5	11	0.10	1.10	60.88	1.0	5.53	1.0	1.0	0.5	61.38	1.0	6.03	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0	
04/07/2019	Gouge Core	T10	GC162		IH	3841	81923	0.55	C - Shallow (0.5-2.0m)	5	306			0.5	46	51	30	42.3	5	0.0872665	3.5	11	0.55	1.55	6.66	1.0	2.36	1.0	1.0	0.5	7.16	1.0	2.86	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0	
04/07/2019	Gouge Core	T10	GC163	SP118	IH	3780	81938	0.7	C - Shallow (0.5-2.0m)	0	306								0.1	0.0017453	3.5	11	0.70	1.70	260.44	1.0	107.24	1.0	1.0	0.5	260.94	1.0	107.74	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0	
04/07/2019	Gouge Core	n/a (Potential Alternative (T13A)	GC164	SP119	IH	3023	81607	2.1	D - Moderately Deep (2.0-3.5m)	5	298			0.5	8	6	10	8.0	5	0.0872665	3.5	11	2.10	3.10	1.75	1.0	1.18	2.0	1.0	0.5	2.25	1.0	1.68	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	
04/07/2019	Gouge Core	n/a (Potential Alternative (T13A)	GC165		IH	3032	81643	1.45	C - Shallow (0.5-2.0m)	8	301								8	0.1396263	3.5	11	1.45	2.45	1.59	1.0	0.94	4.0	1.0	0.5	2.09	1.0	1.44	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	
04/07/2019	Gouge Core	n/a (Potential Alternative (T13A)	GC166		IH	3050	81621	1.3	C - Shallow (0.5-2.0m)	5	304								5	0.0872665	3.5	11	1.30	2.30	2.82	1.0	1.59	1.0	1.0	0.5	3.32	1.0	2.09	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	
04/07/2019	Gouge Core	n/a (Potential Alternative (T13B)	GC167	SP120	IH	3116	81884	1.3	C - Shallow (0.5-2.0m)	5	296			0.5	12	12	16	13.3	5	0.0872665	3.5	11	1.30	2.30	2.82	1.0	1.59	1.0	1.0	0.5	3.32	1.0	2.09	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	
04/07/2019	Gouge Core	n/a (Potential Alternative (T13B)	GC168		IH	3158	81882	2.35	D - Moderately Deep (2.0-3.5m)	5	300								5	0.0872665	3.5	11	2.35	3.35	1.56	1.0	1.09	2.0	1.0	0.5	2.06	1.0	1.59	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	
04/07/2019	Gouge Core	n/a (Potential Alternative (T13B)	GC169		IH	3077	81868	0.8	C - Shallow (0.5-2.0m)	5	293								5	0.0872665	3.5	11	0.80	1.80	4.58	1.0	2.04	1.0	1.0	0.5	5.08	1.0	2.54	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	

Attachment J

Summary Table of Stability Assessment Results

Prepared by: SK. Date: 11/11/19. File Ref.: 3006-011.xls

Minerex Environmental

Turbine No.	FoS (Adjusted) for Scenarion B	No. of Points	Conclusion & Comment	RR_{SF} - Ranked Risk Considering Sensitive Receptor	No. of Points	Conclusion & Comment	RR_{D} - Ranked Risk Considering Distance to Sensitive Receptor	No. of Points	Conclusion & Comment
T1	Stable (Acceptable)	41	Area of proposed hardstand is acceptable in terms of peat stability. Low number (2 no.) unstable points, but as a whole risk is negligible. Unstable points are at the limits of the survey area and are not within the area of proposed infrastructure.	Negligible Risk	41	Area of proposed hardstand is negligible risk in terms of peat stability. Significance of receptor has not influenced risk rating. Moderate risk points are not within area of propsoed infrastructure.	Negligible Risk	41	Area of proposed hardstand is negligible risk in terms of peat stability when considering distance to recptor. Distnace to receptor has not influenced risk rating. Moderate risk points are not within area of propsoed infrastructure.
	Marginally Stable (Acceptable)	1		Low Risk	1		Low Risk	1	
	Unstable (Unacceptable)	2		Moderate Risk	2		Moderate Risk	2	
				High Risk	0		High Risk	0	
T2	Stable (Acceptable)	32	Area of proposed hardstand is acceptable in terms of peat stability.	Negligible Risk	32	Area of proposed hardstand is of negligible risk in terms of peat stability. Significance of receptor has not influenced risk rating.	Negligible Risk	0	Area of proposed hardstand is low risk in terms of peat stability when considering distance to recptor. Distnace to receptor has influenced risk rating.
	Marginally Stable (Acceptable)	3		Low Risk	3		Low Risk	32	
	Unstable (Unacceptable)	0		Moderate Risk	0		Moderate Risk	3	
				High Risk	0		High Risk	0	
T3	Stable (Acceptable)	51	Area of proposed hardstand is acceptable in terms of peat stability. Low number (3 no.) marginally stable points, but as a whole risk is negligible. mMarginally stable points are at the limits of the survey area and are not within the area of proposed infrastructure.	Negligible Risk	51	Area of proposed hardstand is of negligible risk in terms of peat stability. Significance of receptor has not influenced risk rating.	Negligible Risk	0	Area of proposed hardstand is moderate risk in terms of peat stability when considering distance to recptor. Distnace to receptor has influenced risk rating. High Risk points are located at the limit of the survey area and are not within the area of proposed infrastructure.
	Marginally Stable (Acceptable)	3		Low Risk	3		Low Risk	0	
	Unstable (Unacceptable)	0		Moderate Risk	0		Moderate Risk	51	
				High Risk	0		High Risk	3	
T4	Stable (Acceptable)	28	Area of proposed hardstand is acceptable in terms of peat stability.	Negligible Risk	28	Area of proposed hardstand is of negligible risk in terms of peat stability. Significance of receptor has not influenced risk rating.	Negligible Risk	0	Area of proposed hardstand is low risk in terms of peat stability when considering distance to recptor. Distnace to receptor has influenced risk rating.
	Marginally Stable (Acceptable)	0		Low Risk	0		Low Risk	28	
	Unstable (Unacceptable)	0		Moderate Risk	0		Moderate Risk	0	
				High Risk	0		High Risk	0	
T5	Stable (Acceptable)	26	Area of proposed hardstand is acceptable in terms of peat stability.	Negligible Risk	26	Area of proposed hardstand is of negligible risk in terms of peat stability. Significance of receptor has not influenced risk rating.	Negligible Risk	26	Area of proposed hardstand is negligible risk in terms of peat stability when considering distance to recptor. Distnace to receptor has not influenced risk rating.
	Marginally Stable (Acceptable)	3		Low Risk	3		Low Risk	3	
	Unstable (Unacceptable)	0		Moderate Risk	0		Moderate Risk	0	
				High Risk	0		High Risk	0	
T6	Stable (Acceptable)	34	Area of proposed hardstand is acceptable in terms of peat stability.	Negligible Risk	34	Area of proposed hardstand is of negligible risk in terms of peat stability. Significance of receptor has not influenced risk rating.	Negligible Risk	34	Area of proposed hardstand is negligible risk in terms of peat stability when considering distance to recptor. Distnace to receptor has not influenced risk rating.
	Marginally Stable (Acceptable)	2		Low Risk	2		Low Risk	2	
	Unstable (Unacceptable)	0		Moderate Risk	0		Moderate Risk	0	
				High Risk	0		High Risk	0	
T7	Stable (Acceptable)	37	Area of proposed hardstand is acceptable in terms of peat stability.	Negligible Risk	37	Area of proposed hardstand is of negligible risk in terms of peat stability. Significance of receptor has not influenced risk rating.	Negligible Risk	37	Area of proposed hardstand is negligible risk in terms of peat stability when considering distance to recptor. Distnace to receptor has not influenced risk rating.
	Marginally Stable (Acceptable)	6		Low Risk	6		Low Risk	6	
	Unstable (Unacceptable)	0		Moderate Risk	0		Moderate Risk	0	
				High Risk	0		High Risk	0	
T8	Stable (Acceptable)	15	Area of proposed hardstand is acceptable in terms of peat stability.	Negligible Risk	15	Area of proposed hardstand is of negligible risk in terms of peat stability. Significance of receptor has not influenced risk rating.	Negligible Risk	15	Area of proposed hardstand is negligible risk in terms of peat stability when considering distance to recptor. Distnace to receptor has not influenced risk rating.
	Marginally Stable (Acceptable)	0		Low Risk	0		Low Risk	0	
	Unstable (Unacceptable)	0		Moderate Risk	0		Moderate Risk	0	
				High Risk	0		High Risk	0	

Summary Table of Stability Assessment Results

Prepared by: SK. Date: 11/11/19. File Ref.: 3006-011.xls

Minerex Environmental

Turbine No.	FoS (Adjusted) for Scenarion B	No. of Points	Conclusion & Comment	RR_{SF} - Ranked Risk Considering Sensitive Receptor	No. of Points	Conclusion & Comment	RR_{D} - Ranked Risk Considering Distance to Sensitive Receptor	No. of Points	Conclusion & Comment
T9	Stable (Acceptable)	30	Area of proposed hardstand is acceptable in terms of peat stability.	Negligible Risk	30	Area of proposed hardstand is of negligible risk in terms of peat stability. Significance of receptor has not influenced risk rating.	Negligible Risk	30	Area of proposed hardstand is negligible risk in terms of peat stability when considering distance to recptor. Distnace to receptor has not influenced risk rating.
	Marginally Stable (Acceptable)	6		Low Risk	6		Low Risk	6	
	Unstable (Unacceptable)	0		Moderate Risk	0		Moderate Risk	0	
				High Risk	0		High Risk	0	
T10	Stable (Acceptable)	45	Area of proposed hardstand is acceptable in terms of peat stability.	Negligible Risk	45	Area of proposed hardstand is of negligible risk in terms of peat stability. Significance of receptor has not influenced risk rating.	Negligible Risk	45	Area of proposed hardstand is negligible risk in terms of peat stability when considering distance to recptor. Distnace to receptor has not influenced risk rating.
	Marginally Stable (Acceptable)	0		Low Risk	0		Low Risk	0	
	Unstable (Unacceptable)	0		Moderate Risk	0		Moderate Risk	0	
				High Risk	0		High Risk	0	
T11	Stable (Acceptable)	21	Area of proposed hardstand is acceptable in terms of peat stability. Low number (1 no.) unstable points, but as a whole risk is negligible. Marginally stable point is not within area of proposed infrastructure.	Negligible Risk	21	Area of proposed hardstand is negligible risk in terms of peat stability. Significance of receptor has not influenced risk rating. Moderate risk point is not within area of propsoed infrastructure.	Negligible Risk	25	Area of proposed hardstand is negligible risk in terms of peat stability when considering distance to recptor. Distnace to receptor has not influenced risk rating. Moderate risk point is not within area of propsoed infrastructure.
	Marginally Stable (Acceptable)	4		Low Risk	4		Low Risk	4	
	Unstable (Unacceptable)	1		Moderate Risk	1		Moderate Risk	1	
				High Risk	0		High Risk	0	
T12	Stable (Acceptable)	37	Area of proposed hardstand is acceptable in terms of peat stability.	Negligible Risk	37	Area of proposed hardstand is of negligible risk in terms of peat stability. Significance of receptor has not influenced risk rating.	Negligible Risk	0	Area of proposed hardstand is low risk in terms of peat stability when considering distance to recptor. Distnace to receptor has influenced risk rating.
	Marginally Stable (Acceptable)	0		Low Risk	0		Low Risk	37	
	Unstable (Unacceptable)	0		Moderate Risk	0		Moderate Risk	0	
				High Risk	0		High Risk	0	
T13	Stable (Acceptable)	82	Area of proposed hardstand is acceptable in terms of peat stability.	Negligible Risk	82	Area of proposed hardstand is of negligible risk in terms of peat stability. Significance of receptor has not influenced risk rating.	Negligible Risk	0	Area of proposed hardstand is moderate risk in terms of peat stability when considering distance to recptor. Distnace to receptor has influenced risk rating.
	Marginally Stable (Acceptable)	3		Low Risk	3		Low Risk	0	
	Unstable (Unacceptable)	0		Moderate Risk	0		Moderate Risk	82	
				High Risk	0		High Risk	3	
Met Mast	Stable (Acceptable)	20	Area of proposed hardstand is acceptable in terms of peat stability.	Negligible Risk	20	Area of proposed hardstand is of negligible risk in terms of peat stability. Significance of receptor has not influenced risk rating.	Negligible Risk	20	Area of proposed hardstand is negligible risk in terms of peat stability when considering distance to recptor. Distnace to receptor has not influenced risk rating.
	Marginally Stable (Acceptable)	1		Low Risk	1		Low Risk	1	
	Unstable (Unacceptable)	0		Moderate Risk	0		Moderate Risk	0	
				High Risk	0		High Risk	0	
Battery Compound	Stable (Acceptable)	18	Area of proposed hardstand is acceptable in terms of peat stability.	Negligible Risk	18	Area of proposed hardstand is of negligible risk in terms of peat stability. Significance of receptor has not influenced risk rating.	Negligible Risk	0	Area of proposed hardstand is low risk in terms of peat stability when considering distance to recptor. Distnace to receptor has influenced risk rating.
	Marginally Stable (Acceptable)	0		Low Risk	0		Low Risk	18	
	Unstable (Unacceptable)	0		Moderate Risk	0		Moderate Risk	0	
				High Risk	0		High Risk	0	

Note: The above assessment and commentary does not consider the potential for fill required significantly increasing the effective area of the propsoed hardstand. This will need to be considered as part of the final design phase when establisging frozen layout.