Numerical Analysis of Key Indicators to Determine HAZARD for the Purposes of Peat Slide Risk Evaluation

Guidance Notes: Controlled Circulation Only ***Confidential***

HAZARD is essentially the apportioning of risk where certain factors contribute to the triggering of a peat slide.

Since peat instability is caused by a number of factors it is necessary to apply factors to each contributing element.

The following key indicators are the predominant causes of peat slides:-

1. Peat Thickness
2. Topography (i.e steepness of ground in the vicinity of the construction zone)
3. Drainage Issues
4. Historic, Active or Incipient Peat Landforms
5. Sonic / Seismic Activity (e.g. Quarrying, blasting etc.)
6. Degradation of Peat (i.e. Von Post classification)
7. Shear Strength of Peat (i.e Vane test data)

For the purposes of assessment all factors are deemed to be additive and severity of certain factors yields a higher contribution to HAZARD.

e.g. Peat thickness of 3.10m; slope id 8º and Drainage Issues are SIGNIFICANT

HAZARD = +2 +1 +1 = 4

The table below illustrates the Factors associated with the Key Indicators for the site of the proposed Letter Wind Farm.

Item	Key Indicator	Numerical HAZARD Factor
1	Peat Thickness. (0.5 – 2.5m)	+1
2	Peat Thickness. (> 2.5m < 4.0m)	+2
3	Peat Thickness (> 4.0m)	+3
4	Topography. Slopes of < 5º to horizontal	0
5	Topography. Slopes of 5º to 10º to horizontal	+1
6	Topography. Slopes of > 10º < 22.5º to horizontal	+2
7	Topography. Slopes of > 22.5º to horizontal	+3
8	Drainage Issues are SIGNIFICANT	+1
9	Relic Peat Landforms present in vicinity of construction zone	+1
10	Sonic / Seismic Activity. (Quarrying / Piling within 500m, blasting within 500m, earthquake risk etc.)	+1
11	Von Post Classification Of Peat Degradation = >H8 at base	+1
12	Von Post Classification Of Peat Degradation = <H3 at base	- 0.5
13	Vane Test Classification Of Shear Strength = <20 at 1.5m depth	+1
14	Vane Test Classification Of Shear Strength = >60 at 1.5m depth	-0.5

Table X1 – Numerical Calculation of Risk Parameters