Technical Note

Project Name:	Lynemore Wind Energy Hub
Document Title:	AI Technical Appendix 8.4 Peat Landslide Hazard Risk Assessment (PLHRA)
Client Name:	Galileo 05 Limited
Document No.:	036408-TN-001v01
Document Status:	Draft
Contracted Entity:	East Point Geo Ltd (OWC), No. 10112772 in England, at 1st Floor, The Northern & Shell Building, 10 Lower Thames Street, London, England, EC3R 6EN

Confidentiality Notice and Disclaimer

This document is **confidential** and may contain proprietary information and intellectual property of Client and/or East Point Geo.

The document has been produced by East Point Geo for the exclusive use and benefit of Client and may not be relied on by any third party. East Point Geo does not accept any liability or duty of care to any other person or entity other than Client.

The document should not be reproduced (in whole or in part), referred to or disclosed in any other document or made available to any third party (in any format) without the prior written consent of East Point Geo.

Document History

Rev	Date	Authored	Reviewed	Approved	Notes
A	2025-12-19	AJM	ST	DS	Draft

1 Introduction

1.1 Scope

Following submission of the EIA for Lynemore Wind Farm, the Proposed Development has been updated to reflect stakeholder feedback on turbine positions and track alignments. These updates require revision of the peat landslide hazard and risk assessment (PLHRA).

The original assessment (the '**EIA PLHRA'**) was provided as **Technical Appendix 8.4** and was prepared by East Point Geo (Report No. 036408-D-001v01, dated March 2025).

This update prepared as part of Additional Information (AI) has the following scope:

- Revision of the assessment to reflect changes in layout and updates in supporting data (peat depth probing results).
- Comments provided by Ironside Farrar on the **EIA PLHRA** in a Stage 1 Checking Report ('the Checking Report'; Doc. No. 63358, July 2025).

Results from this assessment inform the revisions to **Chapter 8 ('Hydrology, geology, hydrogeology and peat**').

1.2 Structure

The updated assessment is presented first, with, where possible, commentary from Ironside Farrar included in the updated assessment. This is flagged in the appropriate sections. The updated assessment comprises:

Section 2 – a brief description of the layout updates and changes to supporting data.

Section 3 – the revised assessment.

Section 4 – addressing of residual comments following from the Checking Report.

2 Updated layout and supporting data

2.1 Changes to layout

Following stakeholder feedback, the Proposed Development has undergone the following key changes:

- Removal of the westernmost turbines and adjoining tracks (T4 and T5).
- Adjustment to the positions of all remaining turbines (other than T9 and T14) to optimise placement with respect to peat, habitats and other constraints.
- Associated adjustments in track alignment, including an entirely new access route aligned c. 1 km east of the original route and ascending to Carn na Loinne.
- Removal of a majority of floated track sections due to the increased cross-slope gradients over which revised track alignments are now placed.

Detailed descriptions of the layout adjustments and justification for changes is provided in the AI Report Volume 2.

© 2026 East Point Geo

2.2 Updated probing

In order to support these adjustments, Phase 2 probing was fully updated to reflect the new turbine positions and track alignments adding a further 925 points (see 'Lynemore Peat Survey Report December 2025'). The updates comprised:

- Probing along tracks at 50 m intervals with 10 m offsets.
- 10 m grids across all other infrastructure and at 20 m grids outside these footprints within a 50 m buffer.

These probing intervals are to-specification. During survey, the field team undertook additional site photography and checked for evidence of localised peat instability (none being noted).

Figure A8.4.6 provides an updated map of EIA Figure 8.4.6 ('Peat Depths') with all probe locations shown. This addresses recommendation 2 of Ironside Farrar's Checking Report.

3 Updated assessment

3.1 Approach

The revised assessment comprised updates to relevant sections of the **EIA PLHRA** assessment (for full description of methodology refer to the **EIA Report, Technical Appendix 8.4**) as follows:

i) Incorporation of updated peat depth probing data into the site peat depth model.

ii) Update of peat contributory factor scores supporting the likelihood assessment.

iii) Update of factor of safety assessments using the updated peat depth model.

iv) Revision of source zones based on ii) and iii).

v) Revision of runout zones and risk calculations following iv).

None of the source zones in the **EIA PLHRA** are carried forward into the revised assessment due to the almost complete refresh of the proposed development layout.

3.2 Results

3.2.1 Factor of Safety

Figure A8.4.7 shows the updated Factor of Safety ('FoS') Best Estimate and Low Estimate parameter assessments for the refreshed layout.

The top right inset of **Figure A8.4.7** shows the updated crane-loaded FoS for the one section of floating track between T14 and T13.

As in the previous assessment, the Best Estimate parameters indicate the majority of the Site to be stable, with FoS >1.4. Localised areas of FoS <1.4 (marginal stability) are present below T1, on the gully sides of the Allt na Slanaich and in minor pockets elsewhere.

3.2.2 Likelihood assessment

Figure A8.4.10 shows the updated likelihood results. As previously, likelihoods are generally Low or Very Low over the vast majority of the Site with smaller areas of Moderate likelihood in local positions mid-slope, typically in association with drains.

© 2026 East Point Geo

3.2.3 Combined likelihood assessment, source and runout zones

Figure A8.4.11 shows source and runout zones updated to reflect the results of the FoS and likelihood assessments. Source zones are identified where two contiguous 25 m FoS cells of FoS <1.4 are overlapped by infrastructure, or where >25 m of overlap of infrastructure occurs with areas of Moderate likelihood. The basis for this approach is documented in the EIA PLHRA.

In total, six source zones have been identified:

- **SZ1:** within the main hardstanding footprint of T7.
- **SZ2:** bordering in an area of proposed fill on the upslope side of the track approaching T7.
- **SZ3:** under the floating track on approach to T13.
- **SZ4:** within the main hardstanding of T12.
- **SZ5:** within the ancillary hardstanding area of T12.
- **SZ6:** on the main access track above Allt na Loinne

Potential runout zones of 0-50 m, 50-100 m, 100-250 m and 250-500 m are shown below each potential source zone. These runout zones describe the most likely pathway for landslide debris to follow were a landslide to occur. With increasing distance from the source zone, landslide debris is expected to thin (due to conservation of volume – peat slides do not typically erode the underlying soils in their runout zones, ultimately stalling when thin enough that surface roughness exceeds the thickness of debris. For the runout assessment in the PLHRA, this thickness is assumed to be 0.2 m.

In addition to thickness, runout is assumed to terminate where it reaches a watercourse (at which point this receptor is judged to be impacted), where slopes become strongly concave (i.e. reduce in gradient, decreasing energy of the moving material) and where runout encounters physical barriers such as walls or treelines. None of these constraints apply to the six runout zones identified.

3.2.4 Calculated risk

Risk is calculated as the likelihood of the peat slide (once it is assumed to have occurred) reaching the receptor, and the consequences should it do so (the **EIA PLHRA** provides further detail on the approach, which has been repeated based on the updated peat depth model, layout, FoS and likelihood assessments).

Receptors to potential runout are the Allt na Loinne Moire (from runout originating in Source Zones 3, 4, 5 and 6) and open slope habitats (from Source Zones 1 and 2). The open habitats are not designated but are priority peatland habitats and assigned a Medium sensitivity.

The Allt na Loinne Moire is not a designated watercourse and is assigned a Medium sensitivity in **EIA Chapter 8** (and in the revised chapter). Accordingly, this receptor is assigned a Medium consequence score.

Figure A8.4.12 shows the calculated risks for the six runout zones. Risks are calculated to be Low in the runout zones nearest to their corresponding source zones, reducing to Negligible downslope. Risks are lower for this revised layout because a majority of the source zones in the **EIA PLHRA** were associated with crane-loaded floating track FoS <1.0 (modelled as a likelihood score of 4, i.e. ‘high’). This is not the case for the revised layout in which floating track is largely avoided. The exception is Source Zone 3, however FoS here are 1.0–1.4 (‘marginal stability’) and therefore equivalent to a likelihood score of 3 (Moderate likelihood).

Based on the revised calculations, risks are lower for the revised layout than for the EIA layout.

© 2026 East Point Geo

4 Checking report comments

Four recommendations requiring a response from the Developer were provided in the Checking Report. These are highlighted in the italicised bullets below, with responses thereafter:

- *Figure 8.4.5 on geomorphology should be updated if drains or instability are identified (refer to Section 2.5).*

Drains are shown on **Figure 8.4.4** ('hydrology') of the **EIA PLHRA** and are relatively few in number, in likelihood due to the amount of natural drainage present on site. The drain features on **Figure 8.4.4** correspond to the buffered areas on the Drains panel of **EIA PLHRA Figure 8.4.9.**

No instability was identified during any of the field surveys and hence no instability features are shown on Figure 8.4.5. We have reviewed the coordinate supplied in the Checking Report and the feature in question appears to be a small soil slide on the western side of the Allt na Loinne Moire. Peat depth probing (which is on a 100 m grid around this location, so potentially not representative of the location) indicates non peat in and around this area. LIDAR data indicates slope angles in excess of 15° at the location, and on this basis, peat is very unlikely to be present and the feature is almost certainly not a peat mass movement.

- *Figure 8.4.6 on peat depths should be revised to include interpolated depths around T12 and T14 as well as the floating track adjacent to T12 (refer to Section 2.6).*

Figure A8.4.6 shows all probe locations with the full site interpolated peat depth model.

- *A sense check/review of the risks to development infrastructure that crosses peat on areas of slope (refer to Paragraphs 2 and 3 of Section 3.3).*

The purpose of the FoS assessments and likelihood assessment are to assess the potential for instability at locations intersecting areas that are of relatively higher susceptibility to landslides, which appears to be the point being made in para 2 of the Checking report. This assessment identifies such locations as source zones.

The PLHRA assesses risks at the time of construction, when site personnel are present, including to areas downslope of source zones that may have personnel present (e.g. tracks crossing the runout pathways below source zones upslope). However, there are no such areas of infrastructure for this layout in this assessment, and so this risk is not present. Risks at the source zones are assessed as described. The use of toolbox talks to raise awareness, banksmen during construction and more post-consent ground investigation is intended to further mitigate risks to personnel and the infrastructure they are constructing.

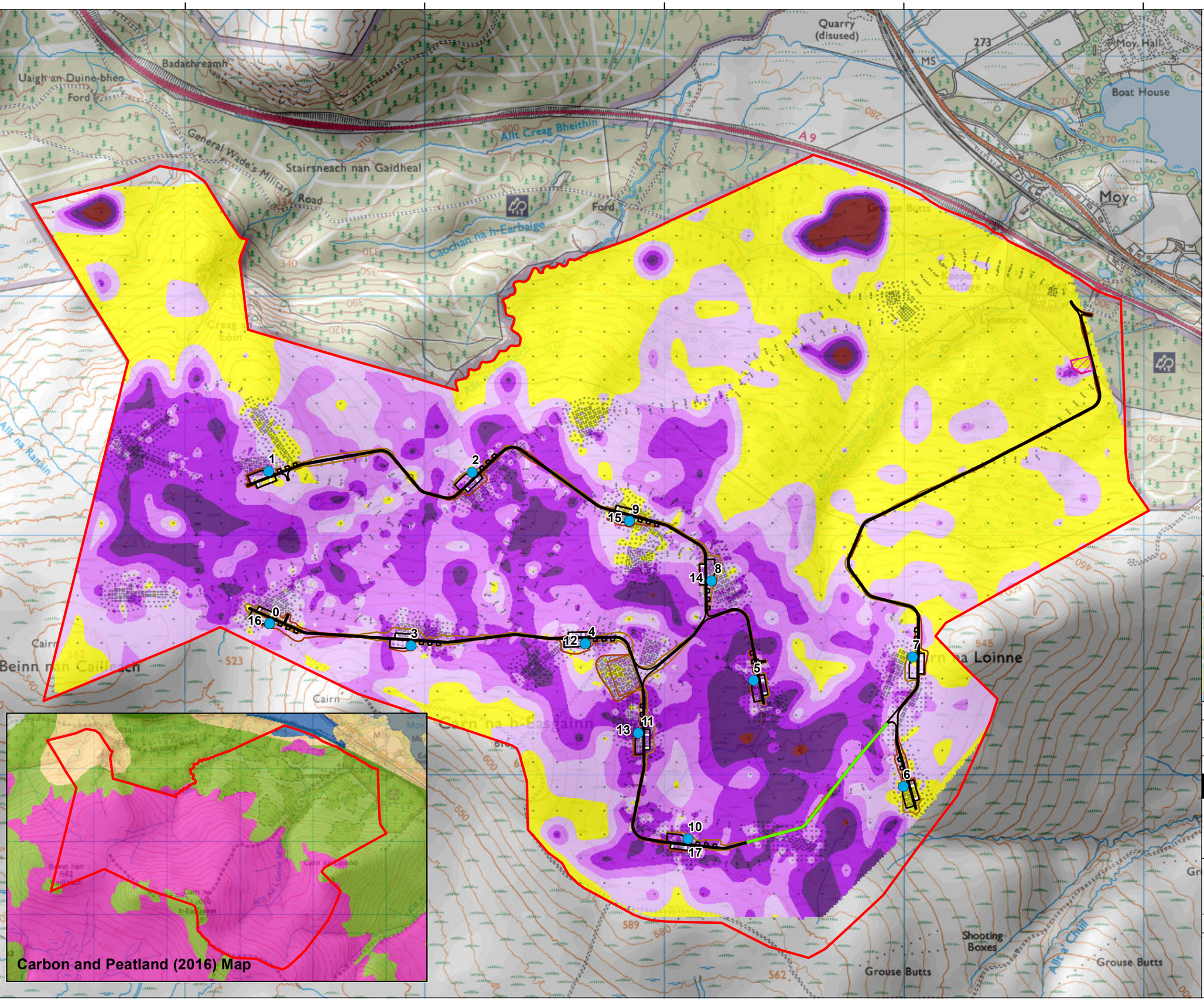
- *Any associated risks and mitigation measures for construction compound 2 near T2 and the watercourse below Source Zone 3 should be reviewed, given the assessed medium likelihood in the area near the new tracks and the potential for runoff into the Allt na Slanaich (refer to Sections 3.2 to 3.4).*

The track on which Source Zone 3 was located has now been removed c. 1 km to the east, and the track no longer passes in proximity to the Moderate likelihood areas referenced above it.

© 2026 East Point Geo

273000 274000 275000 276000 277000

835000 834000 833000 832000



Legend:

- Site boundary
- Turbines
- Standard track
- Floating track
- Hardstandings
- Borrow pit & Substation
- Construction Compound
- Earthworks

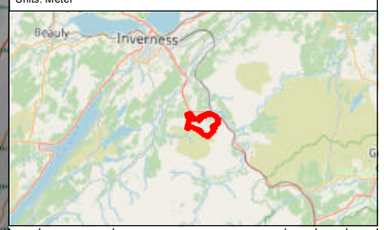
Interpolated depth (m)

- < 0.5 m
- > 0.5 - 1.0 m
- > 1.0 - 1.5 m
- > 1.5 - 2.0 m
- > 2.0 - 3.0 m
- > 3.0
- Probing locations

Carbon and Peatland Map (Inset)

- Class 1
- Class 3
- Class 4
- Class 5
- Non Soil

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



Rev	Date	Description	Drn	Chk	App
00	18/12/2025	First Draft	AM	ST	DS

Lynemore Wind Farm

GALILEO EMPOWER

EAST POINT GEO
An ABL Group Company

TITLE:
Figure A8.4.6
Peat depths

ID:P663510_TAG000_Layout_A3_L

0 0.25 0.5
Kilometres
SCALE: 1:15,000 @ A3

N W E S

REV 00

© Crown copyright and database rights 2024 Ordnance Survey 0100031673. © OpenStreetMap (and) contributors, CC-BY-SA

273000 274000 275000 276000 277000

835000 834000 833000 832000

Legend:

- Site boundary
- Turbines
- Standard track
- Floating track
- Hardstandings
- Borrow pit & Substation
- Construction Compound
- Earthworks

Factor of Safety (Best Estimate)

- < 1.0 (Unstable)
- 1.0 - 1.4 (Marginally unstable)
- 1.4 - 2.0 (Stable)
- 2.0 - 3.0 (Stable)
- > 3.0 (Stable)

Left inset panel shows worst-case (conservative parameter) results.

Right inset panel shows crane-loaded (floating track) parameters.

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter

Lower Bound Parameters

Crane-Loaded Parameters

Rev	Date	Description	Drn	Chk	App
00	18/12/2025	First Draft	AM	ST	DS

Lynemore Wind Farm

GALILEO EMPOWER

EAST POINT GEO
An ABL Group Company

TITLE:
Figure A8.4.7
Factor of Safety (Best Estimate)

ID:P663510_TAG000_Layout_A3_L

0 0.25 0.5
Kilometres
SCALE: 1:15,000 @ A3

REV 00

© Crown copyright and database rights 2024 Ordnance Survey 0100031673. © OpenStreetMap (and) contributors, CC-BY-SA

273000 274000 275000 276000 277000

835000 834000 833000 832000

Legend:

- Site boundary
- Turbines
- Standard track
- Floating track
- Hardstandings
- Borrow pit & Substation
- Construction Compound
- Earthworks

Likelihood

- Very Low
- Low
- Moderate
- High
- Very High

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter

Rev	Date	Description	Drn	Chk	App
00	18/12/2025	First Draft	AM	ST	DS

Lynemore Wind Farm

GALILEO EMPOWER

EAST POINT GEO
An ABL Group Company

TITLE:
Figure A8.4.10
Peat Landslide Likelihood

ID:P663510_TAG000_Layout_A3_L

0 0.25 0.5
Kilometres
SCALE: 1:15,000 @ A3

N W E S

REV 00

© Crown copyright and database rights 2024 Ordnance Survey 0100031673. © OpenStreetMap (and) contributors, CC-BY-SA

273000 274000 275000 276000 277000

835000 834000 833000 832000

Legend:

- Site boundary
- Turbines
- Standard track
- Floating track
- Hardstandings
- Borrow pit & Substation
- Construction Compound
- Earthworks

Runout zones

- 0 - 50 m
- 50 - 100 m
- 100 - 250 m
- 250 - 500 m
- Source zone

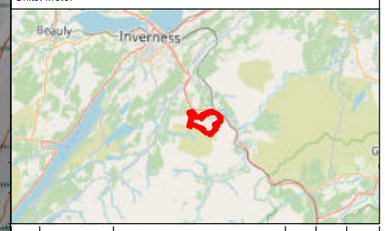
Likelihood

- Moderate

Factor of Safety (Best Estimate / Crane Loaded)

- < 1.0 (Unstable)
- 1.0 - 1.4 (Marginally unstable)

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



Rev	Date	Description	Drn	Chk	App
00	18/12/2025	First Draft	AM	ST	DS

Lynemore Wind Farm

GALILEO EMPOWER

EAST POINT GEO
An ABL Group Company

TITLE:
Figure A8.4.11
Source and Runout Zones

ID:P663510_TAG000_Layout_A3_L

0 0.25 0.5
Kilometres
SCALE: 1:15,000 @ A3

N W E S

REV 00

© Crown copyright and database rights 2024 Ordnance Survey 0100031673. © OpenStreetMap (and) contributors, CC-BY-SA

273000 274000 275000 276000 277000

835000 834000 833000 832000

Legend:

- Site boundary
- Turbines
- Standard track
- Floating track
- Hardstandings
- Borrow pit & Substation
- Construction Compound 1 & 2
- Earthworks

Calculated Risk

- Negligible
- Low
- Medium
- High
- Source zone

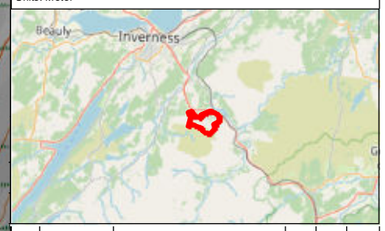
Likelihood

- Moderate

Factor of Safety (Best Estimate / Crane Loaded)

- < 1.0 (Unstable)
- 1.0 - 1.4 (Marginally unstable)

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



Rev	Date	Description	Drn	Chk	App
00	19/12/2025	First Draft	AM	RH	DS

Lynemore Wind Farm

GALILEO EMPOWER

EAST POINT GEO
An ABL Group Company

TITLE:
Figure A8.4.12
Calculated Risk

ID:P663510_TAG000_Layout_A3_L

0 0.25 0.5
Kilometres
SCALE: 1:15,000 @ A3

N W E S

REV 00

© Crown copyright and database rights 2024 Ordnance Survey 0100031673. © OpenStreetMap (and) contributors, CC-BY-SA