

LT14 LEWIS HUB (AC SUBSTATION AND HVDC CONVERTER STATION) TECHNICAL APPENDIX 10.4 PEAT CARBON CALCULATOR

This peat carbon calculator has been prepared to support the assessment of carbon emissions from peatland disturbance. SSEN Transmission prepared a methodology for peat carbon assessments for Accelerated Strategic Transmission Infrastructure (ASTI) Projects in 2024.

This methodology was developed in response to National Planning Framework 4 (NPF4) Policy 5 which states that:

d) Where development on peatland, carbon-rich soils or priority peatland habitat is proposed, a detailed site specific assessment will be required to identify:

- i. the baseline depth, habitat condition, quality and stability of carbon rich soils;*
- ii. the likely effects of the development on peatland, including on soil disturbance; and*
- iii. the likely net effects of the development on climate emissions and loss of carbon.*

Peat surveys and peat probing has been carried out for the project, with methodology following Scottish Government Peatland Survey Guidance, 2017 (Technical Appendix 10.2 Outline Peat Management Plan (EIAR Volume 4)). This survey data has been used to inform peatland carbon values within this assessment.

The calculation includes peat which has been:

- directly impacted: comprising a loss of resource i.e. peatland habitat removed from the development footprint;
- indirectly impacted: comprising a loss of function arising from temporary or permanent changes in drainage patterns and the quality or quantity of surface and ground water. i.e. areas of temporary development; and
- not impacted: areas of the Site not affected by the Proposed Development but located within the Site red line boundary (including proposed restoration).

The results of the peat carbon assessment are presented in this Technical Appendix, and has used the ASTI Framework Peat Carbon Calculator Version 3.

Peatland carbon values are presented for two scenarios:

- a. No impact scenario – baseline emissions with no project impact; and
- b. Project impact scenario – emissions including the impact of the project over four timeframes (preconstruction, construction, and post construction at 2-5 years, and post construction at 50 years).

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TA 10.4 PEAT CARBON CALCULATOR - INPUT PARAMETERS AND ASSUMPTIONS USED

BASELINE CALCULATION

	Directly Impacted	Source/Comment	Indirectly Impacted	Source/Comment	Not Impacted	Source/Comment
		Based on areas of permanent development included in EIAR Chapter 2 Project Description Table 2.1		Based on areas of temporary development included in EIAR Chapter 2 Project Description Table 2.1		Based on total site area within RLB with areas of permanent and temporary land removed) (285ha-23ha-25.1ha=236.9ha)
Total Area of Peat Impacted (m2)	230000	(1.6ha+7.2ha+9.4ha+4.8=23.0ha)	251000	(3.0ha+16.3ha+5.8ha=25.1ha)	2369000	
Average depth of peat surveyed (m)	1.56	Average peat depth based on peat depth surveys	1.56	Average peat depth based on peat depth surveys	1.56	Average peat depth based on peat depth surveys
Carbon content of dry peat (%)	42	Calculator suggested default value	42	Calculator suggested default value	42	Calculator suggested default value
Bulk density of peat (kg/m3)	175	Calculator suggested default value	175	Calculator suggested default value	175	Calculator suggested default value

POST CONSTRUCTION CALCULATION

	Restored Peatland	Source/Comment	Indirectly Impacted	Source/Comment	Not Impacted	Source/Comment
		Based on areas of restored peatland at Creed North and restored temporary impacted areas (laydown areas, borrow pits etc) as stated in TA 10.2 OPMP and EIAR Chapter 2 (4.7581ha+25.1=29.8581ha)		Assumed that these areas are covered in the restored peatland 0 area.		Based on total site area within RLB less areas of restored peat, (285ha-29.8581ha=255.1419). Assumed area areas affected by permanent impacted areas (23ha) are removed by tool
Total Area of Peatland (m2)	298581		0		2551419	
Average depth of peat surveyed (m)	1.56	Average peat depth based on peat depth surveys	1.56	Average peat depth based on peat depth surveys	1.56	Average peat depth based on peat depth surveys
Carbon content of dry peat (%)	42	Calculator suggested default value	42	Calculator suggested default value	42	Calculator suggested default value
Bulk density of peat (kg/m3)	175	Calculator suggested default value	175	Calculator suggested default value	175	Calculator suggested default value

Assumptions:

Directly impacted' refers to areas of the Site that are permanently affected by infrastructure associated with the Proposed Development (and permanently removed)

Indirectly impacted' has been assumed to be areas of the Site that are subject to temporary loss from infrastructure but can be reinstated/restored

Not Impacted' has been assumed as areas of the Site located within the site red line boundary but not subject to Proposed Development (includes both Arnish and Creed North areas)

Assumed that site is entirely classified as 'modified' on peatland carbon code condition criteria

TA7.4 Habitat Management Plan indicates that a 'minimum of 24.4ha' of peat restoration will be undertaken so is consistent with the restoration areas in OPMP.

Peatland condition survey information has been estimated based on the Geomorphology and Land Use plan in PLHRA (in the absence of a formal peatland condition survey)