PEATLAND CODE

Field Protocol

Assessing eligibility,
determining baseline condition category
and monitoring change.

Version 1.2

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Contents

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Assessing Eligibility and Determining Baseline Condition Category

Pre-Restoration (Baseline) Condition Categories

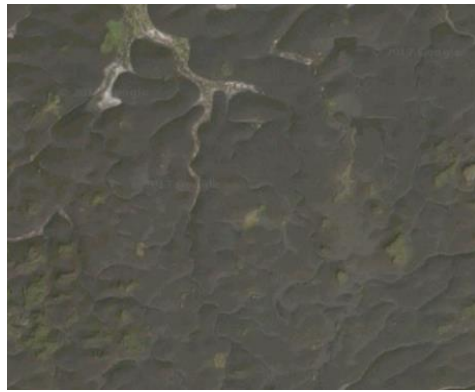| Pre-Restoration Condition Category	Description	Emission Factor (tCO$_2$e/ha/yr)
Actively Eroding: Hagg/Gully	• Extensive bare peat within hagg/gully system (e.g. steep bare peat cliffs and/or bare gully bottoms)	23.84
Actively Eroding: Flat Bare	• Extensive continuous bare peat (e.g. peat pan or former cutting site)	23.84
Drained: Artificial	• Within 30m of an active artificial drain (grip)	4.54
Drained: Hagg/Gully	• Within 30m of hagg/gully drainage system	4.54
Modified*	Highly Degraded: • No/little *Sphagnum* • *Calluna vulgaris* extensive • Small discrete patches of bare peat frequent (micro-erosion) Moderately Degraded: • *Sphagnum* in parts • Scattered patches of *Calluna vulgaris* • Extent of bare peat limited to small patches	2.54
Near Natural*	• *Sphagnum* dominated • *Calluna vulgaris* absent or scarce • Little or no bare peat	1.08

Ineligible for Peatland Code Restoration - these condition categories may be present within the project site and can be included within the restoration plan but any claims of emissions reduction as a result of their restoration cannot be validated/verified under the Peatland Code.

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Actively Eroding Hagg/Gully		
Actively Eroding Flat Bare		
Drained: Artificial		

Drained: Hagg/Gully		
Modified		
Near Natural		

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Assessment Unit Mapping

The purpose of desk-based mapping using aerial photography and other data sources is to start to identify the peatland condition categories present at a potential project site. This section describes the steps to take, in sequential order, to produce a map of assessment units on which to base the field survey.

General notes on mapping:
Add the project name, scale, a North arrow, the grid reference of the central point and the access point onto site (if this is relevant) to your map. Add the assessment units' areas in the legend to align with the PDD and emissions' calculator and use very distinct colours for the different assessment units. Also state which method has been used to create the map (e.g. satellite imagery, drone imagery, etc.).

|		
1.	**Using Google Earth or other digital aerial imagery, produce a base map**	Assume minimum mapping unit for the restoration site; 0.01ha (10mx10m resolution).
2.	**Define project Area(s)**	Map as a polygon(s) and calculate gross project area in ha.
3.	**Map non-peatland Features**	Map features that are clearly non-peatland such as rock, forest, water courses, etc. Calculate area of non-peatland and subtract from Gross Area to calculate Net Project Area in ha.
4.	**Map 'Actively Eroding: Hagg/Gully' Peatland**	Trace the crest of any visible hagg/gully or peatbank. Repeat the traced line every 2m downslope until the bare peat area is covered. Measure length and width and calculate area. If the extent of bare peat cannot be determined from aerials, e.g. if bare peat is restricted to the steep bare cliffs, use a default width of 2m (Birnie, et al. 2014).
5.	**Map 'Actively Eroding: Flat Bare' Peatland**	Map visible peat pans as polygons if they are big enough, otherwise map as per 'Actively Eroding: Hagg/Gully'.
6.	**Map 'Drained: Artificial' Peatland**	Trace the lines of any visible drain. Map drained area as 30m from outer drain (or where applicable stop at a fence, boundary of restoration site, break of slope or a natural water course or for raised bogs the ring-ditch if it's before this). For wandering drains across

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	otherwise undrained land, map 30m each side of the drain, creating a 60m strip.
7. Map 'Drained: Hagg/Gully' Peatland	After tracing the lines of any visible hagg/gully or peatbank in step 4, now map the drained area as 30m from outer gully (or where applicable stop at a fence, boundary of restoration site, break of slope or a natural water course or for raised bogs the ring-ditch if it's before this). For wandering hagg/gullys across otherwise undrained land, map 30m each side of the gully, creating a 60m strip.
8. Map 'Modified' Peatland	Map as all remaining peatland within the project site.
9. Identify Assessment Units	Map the boundary of each assessment unit. Each Assessment Unit should reflect one condition category only. The number of Assessment Units should be the minimum achievable (join Assessment Units of same condition categories where possible and spatially appropriate). Calculate the area of each Assessment Unit in ha (the sum of each assessment area unit should be equal to the Net Project Area).

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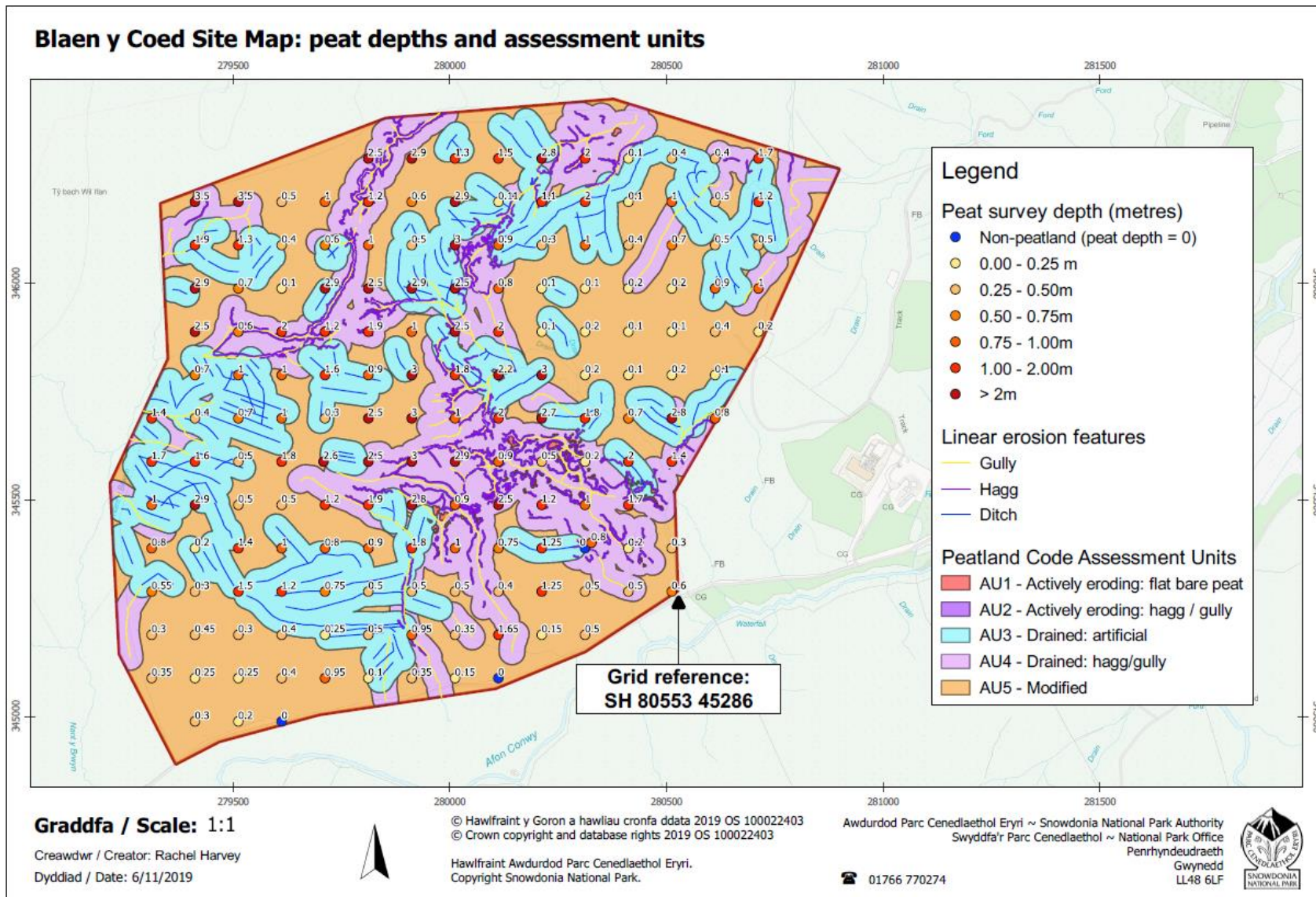
Figure 1. An example Project Site map with the project name and grid refence included, as well as 5 separate assessment units, peat depths at each survey point and survey points have been identified for use in the Field Survey as per the requirements overleaf. This map was created by Snowdonia National Park Authority and the Welsh Peatlands SMS project (see the Blaen y Coed project on the Land carbon registry (https://mer.markit.com/br-reg/public/project.jsp?project_id=104000000027002)).

Field Survey

A project site will always have to be surveyed in the field to ensure the peatland present is of eligible depth and to confirm the pre-restoration (baseline) peatland condition categories present. The Assessment Unit map, described in the previous section, provides the structure for the field survey.

This section describes the steps to take, in sequential order, to produce a map of Assessment Units on which to base the field survey.

1.	**Establish location of survey points**	Place a 100mx100m grid overlay upon assessment unit map. Each intersection of the grid represents a survey point. Peat Depth and Condition category Assessment to be made at each survey point. Each survey point to be waymarked using GPS/Grid Reference to allow return for monitoring purposes. When the exact survey point cannot be reached due to ground conditions, record the actual grid reference of the point.
2.	**Peat Depth Assessment**	At each survey point measure the full peat depth using a rod and record. (Additional depth measurements may be required to accurately establish depth of bare peat cliffs for use in 'Actively Eroding: Hagg/Gully' area calculation or to determine the boundary of the project site). Add these peat depths to your map with assessment units and supply a spreadsheet with all peat depth measurements in every assessment unit. A minimum of 75% of the peat depths recorded within all Assessment Units must be greater than or equal to 50cm for the site to meet Peatland Code eligibility requirements. Assessment Unit boundaries may be redrawn to exclude areas of shallower peat and meet the required threshold. For projects over 50 years, projects need to show that at least 75% of peat depth points within all assessment units exceed the minimum peat depth needed for the project duration (see guidance in Peatland Code section 1.2).
3.	**Peatland Condition Assessments**	At each survey point determine and record the condition category present using the pre-restoration (baseline) condition category definitions. Fixed point photos should also be taken. These photos should be numbered, and these numbered points should be shown on the map.

If condition assessments recorded within each assessment unit do not match the expected condition further field survey is required to establish the cause. Assessment Unit boundaries shall be redrawn to reflect the condition in the field.

4. Confirm Assessment Units

Re-map the boundary(s) of each assessment unit, if necessary, and calculate the area of each in ha (for use within the Peatland Code Emissions Calculator). Overlay the peat depth points over your assessment units.

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Monitoring Condition Category Change

Post-Restoration Condition Categories

Pre-Restoration Condition Category	Description	Emission Factor (tCO$_2$e/ha/yr)
Actively Eroding: Hagg/Gully	• Extensive bare peat within hagg/gully system (e.g. steep bare peat cliffs and bare gully bottoms)	23.84
Actively Eroding: Flat Bare	• Extensive continuous bare peat (e.g. peat pan or Former cutting site)	23.84
Drained: Artificial	• Within 30m of an active artificial drain (grip)	4.54
Drained: Hagg/Gully	• Within 30m of hagg/gully drainage system	4.54
Drained: Re-vegetated Actively Eroding	• Bare peat no longer extensive and continuous	4.54
Modified	• Within 30m of a re-wetted artificial drainage system (active flow interrupted by restoration activities) **OR** Highly Degraded: • No/little *Sphagnum* • *Calluna vulgaris* extensive • Small discrete patches of bare peat frequent (micro-erosion) Moderately Degraded: • *Sphagnum* in parts • Scattered patches of *Calluna vulgaris* • Extent of bare peat limited to small patches	2.54
Near Natural	• *Sphagnum* dominated • *Calluna vulgaris* absent or scarce • Little or no bare peat	1.08

Field Survey

This section describes the steps to take, in sequential order, to produce a condition change monitoring report, required for the purposes of ongoing verification (year 5 after finishing restoration and at least every 10 years thereafter for project duration).

1.	**Locate survey points**	Using GPS/Grid References recorded at each survey point when establishing eligibility and determining baseline condition category locate the same survey points.
2.	**Peatland Condition Assessment**	At each survey point determine and record the condition category present using the post-restoration condition category definitions. Fixed point photos should also be taken. A minimum of 75% of the condition categories recorded within each Assessment Unit must correspond for the Assessment Unit to achieve said condition category.
3.	**Condition Category Change**	Compare condition category present to condition category predicted at validation. If predicted condition category has not been achieved further field survey is required to establish the cause and identify remedial action required.

References

Crichton Carbon Centre (2015) Annex 1 Field Protocol and Guidance, *Developing Peatland Carbon Metrics and Financial Modelling to Inform the Pilot Phase UK Peatland Code' Report to Defra for Project NR0165*. Available at http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=19063&FromSearch=Y&Publisher=1&SearchText=peatland&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description

Birnie, R, Smyth, M-A and Taylor, E (2014) INTERIM REPORT Chapter 1: UK Metric for Peatland Restoration. Available at: https://www.iucn-uk-peatlandprogramme.org/peatland-code/introduction-peatland-code/peatland-code-governance

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