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# THE PEATLAND CODE PROCESS

FROM SITE IDENTIFICATION TO VALIDATION

*Notes from Snowdonia National Park*

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## BEFORE STARTING: ESTABLISH IF THE PROJECT IS ELIGIBLE

Check for the latest information on the IUCN website (search for IUCN Peatland Code and navigate to 'For Peatland Projects'). For a project to be eligible for the Peatland Code the following basic pre-requisites must be met:

- Peat soils must be greater than 50cm deep: a minimum of 75% of the points within each assessment unit should be  $\geq 50$ cm deep<sup>1</sup>
- The peatland type must be blanket or raised bog (no lowland fens, transitional mires)
- Peatland condition must be 'Actively Eroding' or 'Drained'
- Restoration activities must not include forestry removal
- Restoration must not be legally or contractually required
- The project must be able to enter a minimum contract of 30 years
- Restoration activities must not conflict with any other land management agreements (complementing them is okay, e.g. Glas Tir)
- The project must be additional, i.e. it must require carbon finance to take place

For more information on these eligibility criteria, see the Peatland Code document<sup>2</sup> and the IUCN Peatland Code website.<sup>3</sup>

An initial site visit and desktop survey (e.g. confirming the site boundary, looking at aerial or satellite images, checking ownership, checking for designations on the site) will have taken place during this phase too. Landowners and other stakeholders will have been identified and met with face-to-face to discuss restoration plans and the Peatland Code. Permission must be obtained from the landowners and any tenants before moving forward, and they must be kept informed throughout the whole process.

## STEP 1: CREATE A BASELINE MAP

Map the erosion features within the site boundary as accurately as possible as this will be used in the Validation process and will help inform the pre-restoration state of the site. Include flat bare peat, peat hags, gullies and ditches (grips). Create the points for the peatland survey in a grid with 100m intervals between the points, aligning the grid with British National Grid (BNG) lines.

## STEP 2: REGISTER THE PROJECT

If you don't already have an account, register with the Markit UK Land Carbon Registry – this can take some time and they ask for various documents. Once you have an account, register the project under the 'My Projects and Issuance' tab. Select your account name, click on 'New' and choose 'New project'. You'll need to fill in a few forms but start with number 1 and come back to the others as and when you gather the information.

1. On the main form, you need to fill in the project name (usually the site name) and a brief description. You can then add an activity and fill in the form:
 

<b>Category:</b> Carbon	<b>Project type:</b> choose relevant option from the list	<b>Validator:</b> None
<b>Standard:</b> UK Peatland Code	<b>Additional certification:</b> None – Not using at present	<b>Project dates</b>
2. Once this is done, click on the 'Additional Info' button and fill in the fields in the form:
 

Total area of the site (in hectares)	Project duration (years)
Total area of each assessment unit	Predicted emissions figures from the Emissions Calculator
3. Click on the 'Site Details' to fill in details about the location of the site: Country, county, post code, nearest town and grid reference. Latitude, longitude and address are optional here.
4. Click on the save button. Your project will now be 'Under Development' and you can come back and upload documents later.

## STEP 3: SURVEY THE SITE

Conduct a survey at each point in the 100 x 100m grid and ground truth the digitized erosion features where possible, making note of the height and width of gullies and ditches, where gullies and ditches start, and whether gullies are vegetated or not. The survey protocol can vary depending on what other information you want to gather, and basic and more detailed protocols are available. However, for the Peatland Code, follow the field protocol the IUCN provides on the website. As a minimum, at each point the survey should include:

- Peat depth (m)
- A record of peatland condition, e.g. "Actively Eroding: flat bare peat" to ground truth the baseline map.
- *Optional:* a fixed-point photo of the site or the sample point. If you don't do this at every point, make sure you still have plenty of photos of the site.

Other optional parameters could include a record of the vegetation community, the presence and abundance of key species, notes on the steepness of a slope, or the surface wetness at the sample point. The Rapid Assessment Survey is a good baseline survey to use and you can 'bolt on' other methods that will be of use to you or the landowner.

## STEP 4: MAP IN DETAIL AND ASSIGN PEATLAND CODE CATEGORIES

Adjust the erosion features accordingly using the ground truthing data and create a map with the following categories below. Buffers need to be drawn around the linear features to calculate the area affected. However, these categories shouldn't overlap, so you need to 'cookie cut' each layer using the 'Difference' and 'Clip' features of your GPS package. They are in order of precedence below, so 'Non-peatland' layer doesn't get cut, the 'Actively eroding' layer cuts in to the 'Drained: artificial' and so on.

- Hags, gullies and ditches (or grips) – these are digitized linear features but do not get calculated as an 'area of peatland' as themselves. You will have digitized these in step 1, but make sure to incorporate any changes the ground truth survey found. It's useful to know how many km of gullies, hags and ditches there are at each site, and it's vital to know where they all are for the Restoration Plan.
- Non-peatland – use a combination of digitizing and ground truthing to determine these areas. Map any features that are clearly non-peatland such as rock, forest, water courses, non-peatland vegetation (e.g. acid grassland), roads, mines, etc., or they could be areas where you have consistently found less than 5cm of peat depth (e.g. very steep slopes). Calculate the area of non-peatland and subtract this from the Gross Site Area to calculate the Net Project Area.

- Actively eroding peat – this needs to be split in to:
  - Actively eroding: hagg / gully – measure the area of bare peat around the edge of hags and in eroding gullies, if visible (gullies are often vegetated). Bare peat associated with the steep cliff face of a hagg can't be calculated from aerials, so add a 2m buffer to the digitized hags. Merge these 2m buffers with any flat bare peat associated with the hags and gullies that you've just digitized.
  - Actively eroding: flat bare – map any visible peat pans if big enough (if not already identified as 'Actively eroding: hagg / gully').
- Drained: artificial peat – create a 30m buffer around any actively draining artificial ditch. 'Cookie cut' this layer with any actively eroding peat you have digitized. This will leave hollowed out areas within this layer.
- Drained: hagg / gully – create a 30m buffer around any actively draining hagg or gully (eroding and vegetated). 'Cooke cut' this layer with both the actively eroding peat and the drained artificial peat layers.
- Near natural and pristine peatland – this will be rare on restoration sites, but there may be patches of intact peatland away from eroding or drained area. This is where *Sphagnum* dominates, and there is very little heather and little or no bare peat. These areas will be identified during the field survey.
- Modified peatland – this is the remaining peatland area that is not affected directly by the erosion features or associated drainage but is in a modified state due to the erosion and drainage present at the site. It can be identified as:
  - Within 30m of a re-wetted drainage system (e.g, a blocked ditch).
  - Highly degraded with: little or no *Sphagnum*, extensive heather cover and frequent small, discrete patches of bare peat.
  - Moderately degraded with: *Sphagnum* in parts, scattered patches of heather, and bare peat limited to small patches.
 To map this, fill in any remaining gaps between each assessment unit, any non-peat or near natural areas – your whole site boundary should now be filled.

Once these features are mapped, clip each area with the site boundary to avoid any overspill into the area beyond the site boundary. Then calculate the area for each category in hectares. The two actively eroding areas, the two drained areas and the modified area are the Assessment Units you'll be working with though the rest of the process. Near natural and non-peatland areas have no emissions savings associated with them, so they are left out of the calculations but still important to keep on the map. Modified peatland also has no emissions savings and isn't included in the emissions calculator, but it still needs to meet the peat depth criteria below.

#### STEP 5: PEAT DEPTH ASSESSMENT

A minimum of 75% of peat depths within each Assessment Unit must be greater than or equal to 50cm. Treat each Assessment Unit in turn: select the sample points, calculate the average peat depth and work out what percentage of points are greater than 50cm deep. If it's just less than 75% in any of the Assessment Units, check for any points near the edges of the Assessment Unit that are too shallow. Assessment Unit boundaries can be re-drawn to exclude areas of shallow peat, although be sure to note where you do this and justify it (e.g. an Actively Eroding gully might be down to the mineral layer in some points). If your average peat depth is considerably less than 75% in any of the Assessment Units the project might be ineligible – contact the IUCN or the validation body to check.

#### STEP 6: CALCULATE SITE EMISSIONS

Use the Peatland Code Emissions Calculator (available on the website<sup>3</sup>) to determine how much carbon can be saved by restoring the site. Enter the duration of the project in Table 1 (a minimum of 30 years). Enter in the type and area of each Assessment Unit (AU) and post-restoration categories in Table 2. Modified and near natural peatland will not change, but the following will:

- Actively eroding: hagg / gully → Drained: Re-vegetated AE
- Actively eroding: flat bare → Drained: Re-vegetated AE
- Drained: artificial → Modified
- Drained: hagg/gully → Modified

Use the Emissions Lookup Table (tab 3 at the bottom) to find the 'cumulative emissions reduction' values for each category change; copy and paste these values into the appropriate AU columns in Table 3. Table 4 and 5 will then automatically be populated and the cumulative claimable emissions reductions will be calculated for different time periods in Table 5 – the final column is the amount of carbon that can go on to the carbon market. Vintage dates are also calculated here – these outline when and how many carbon units can be converted from Pending Issuance Units (the promise of carbon saved in the future) to Peatland Carbon Units (verified carbon units proving carbon has been saved). Use Tables 2 and 5 in the Project Design Document later.

#### STEP 7: CALCULATE THE PROJECT COSTINGS

This is something of a dark art as each project is unique and prices can vary between previous projects, locations, and contractors. It's important to have decided on the methods to be used at the site and the materials needed before starting on costings. It can take a lot of research, but it's best to come up with a price per metre for hagg, gully and ditch restoration and per metre squared or hectare for re-vegetating bare peat. To do this, estimate a contractor day rate and average length / area of restoration works completed in a day based on other projects. You may also need to factor in cost of materials and transport of these materials if timber, stone, mulch, or other materials are to be used at the site. However, although these costings are important for informing the project and the Peatland Code process, they may change once contractors tender for the work. Therefore, during this process it's best to talk to one or two contractors, or projects that have done this before, to make your cost estimates as accurate as you can.

Costs for ongoing management and maintenance must be included for the duration of the project. Generally, a good rule of thumb is to estimate maintenance fees as around 10% of the original restoration costs. There may also be other eligible project costs, such as the cost of surveys (e.g. ordinary water course consent), consultant fees, fencing for livestock control, or anything that is required for the project to proceed. The costs for Peatland Code verification and validations should also be included here.

## STEP 8: THE ADDITIONALITY CALCULATOR AND PROJECT ELIGIBILITY TESTS

The term additionality is used to show that carbon finance directly led to the carbon savings in a project and that those carbon savings wouldn't have happened without the aid carbon finance. This is important for companies wanting to offset their emissions, as they can't just buy in to projects that would have gone ahead anyway even without their help. Carbon buyers want to know that their input has enabled **more** carbon sequestration than would otherwise have happened under existing legal, financial and business circumstances.

There are 4 steps to check the additionality of the project. Essentially this is to clarify that it would be a bad investment for the landowner / stakeholders without carbon finance and they therefore they would be unlikely to do any work at the site otherwise. These are:

1. There should be no legal requirement specifying that the peatland should be restored – the landowner shouldn't be doing this because they are legally obligated to do so, e.g., a water company that is legally required to reduce peatland erosion to improve the water quality.
2. Proof that the project couldn't happen without financial input from the carbon finance (through the Peatland Code). Carbon finance must therefore cover a minimum of 15% of the total project costs.
3. An assessment of the net present value of the site to identify the investment potential. Essentially, this is to show that without carbon finance, the project won't be the most economically attractive option for that area of land. This figure should be negative to prove that this project isn't being done to just make profit on the land. As peatlands aren't generally profitable pieces of land in the first place, this isn't really a problem for the Peatland Code.
4. Identifying other barriers that prevent the implementation of the project, e.g. legal, practical, social, economic or environmental barriers have been (or will be) overcome.

The Additionality Calculator spreadsheet will help determine if the Project passes the eligibility tests 2 and 3 – it is available on the IUCN Peatland Code website<sup>3</sup>. The costs of restoration and monitoring can be put in here to calculate how much Peatland Code funding is needed. This must be equal or greater than 15% of the total cost of the project to pass Test 2. Test 3 should show a negative value to show the Project isn't economically viable excluding carbon finance, that is that we or the landowner aren't going to be making a profit.

## STEP 9: CREATE THE RESTORATION PLAN

The Restoration Plan is where all the background, locations, detailed plans, methods, and costings are discussed. While the Peatland Code doesn't necessarily require all the details listed below (those that **are** required are written in orange and italicized below), this document can serve as a 'Master Plan' for the stakeholders and partners involved in the project, so things like detailed methods and rationale behind cost estimates may be useful to include. There are also sections or items that, although not required for a Peatland Code plan, are useful additions and will help a Peatland Code Validation go more smoothly – these are highlighted in green below. A basic outline of a Restoration Plan could include<sup>2</sup>:

1. Introduction, covering:
  - a. **Site situation / location**
  - b. *A strategy of project objectives / aims of the project / vision for the site*
  - c. Background rationale for the project – why restore peatlands, and why this one?
  - d. *Photographs of the site. These need to be GPS located (e.g. with a grid reference, or marked on a map).*
2. Quantifying the baseline condition for the site, covering:
  - a. **Descriptive statistics of peat depth (e.g. total sample points, % of points  $\geq 0.5\text{m}$ ), erosion features (total lengths of hags, gullies, ditches), and pre-restoration categories / Assessment Units (total areas of each AU).**
  - b. Details of any previous restoration work carried out on site, or any further work to be carried out beyond the remit of the Peatland Code restoration works.
  - c. *A Peatland Code map of the site showing peat depths (labelled), the location of hags, gullies and ditches, and the different Assessment Units across the site.*
  - d. **Data from your survey in a spreadsheet, with clear ID numbers of your points both here and on the map.**
3. Methods of restoration, covering:
  - a. *A statement of the restoration and management activities to be implemented at the site.* While this section can simply involve a link to details of established methods available online, if this document is to act as the main source of information for project partners, stakeholders and contractors, it is useful to outline the basics here.
  - b. *Identification of any resources and inputs needed.* Include detailed costings and rationale behind them, e.g. figures based on works done on another site.
  - c. *A chronological plan of restoration and management activities.*
4. *A monitoring plan.* This doesn't have to be really detailed, but there needs to be an idea of:
  - a. How often the restoration works and peatland condition will be monitored throughout the duration of the project.
  - b. **Who is going to conduct the monitoring on the site.**
  - c. An idea of how the restoration works and peatland condition will be monitored, for example, include a data collection sheet that could be used.
5. *Statements of impacts, including a statement of environmental and social impacts.* Identify any other impacts here too, such as heritage impacts.
6. *A risk assessment for the Project,* e.g. risks to the maintenance of the improved category and mitigation of these risks. An outline can be found on the IUCN website.
7. *A statement of individuals and stakeholders involved and their expertise.*

## STEP 9: CREATE THE PROJECT DESIGN DOCUMENT (PDD)

This is the overall document to detail all the project plans, eligibility and background. At this stage, consult with the stakeholders and take note of any impacts on them. Also carry out an ecosystem impact assessment, e.g. looking at impacts on flooding and water quality for water companies. The PDD covers:

- Basic site and project details, locations and contacts
- Eligibility and governance including:
  - Project details, ensuring the peatland is blanket or raised bog, actively eroded / drained, and not afforested peat.
  - Minimum peat depth statistics (include % of points equal to or over 0.5m – this must be at least 75%).
  - Details of land management agreements and designations to identify (and avoid) any conflicts.
  - Duration of the project – a minimum of 30 years.
  - Additionality: identifying the economical need for a minimum of 15% Peatland Code (carbon finance) funding for the project to go ahead. This will have been calculated in the Additionality Calculator.
  - Avoidance of double counting by identifying all parties accounting for emissions reduction at the site.
- Project design – all of these are summaries or acknowledgement of additional documents:
  - Summary of the management plan (restoration works) and any environmental or social impacts
  - Brief details of a monitoring plan – this can be expanded on in the Restoration Plan.
  - The risk assessment – this needs to be in both the Restoration Plan and in the PDD.
- Greenhouse gas emissions reduction:
  - Baseline emissions (Table 2 from the Emissions Calculator).
  - GHG leakage – where any land use or management change might cause greater GHG emissions outside of the site area.
  - Net GHG emissions reduction (Table 5 from the Emissions Calculator).

## STEP 10: SUBMIT YOUR DOCUMENTS TO THE PEATLAND CODE VALIDATION

Currently, the certification body approved to validate and verify Peatland Code projects is OF&G. A series of documents (listed below) need to be submitted to them through the Markit UK Land Carbon Registry and subsequently they may arrange a Validation visit to the site. If the information and photos submitted are enough, they may not need to visit the site, although there will be a site visit within one year of the restoration. Amendments to the project plan may be required before the Project can be validated. List of documents to include:

- PDD (including risk assessment and monitoring plan)
- Restoration Plan (including risk assessment and monitoring plan)
- Additionality Calculator
- Emissions Calculator
- A separate PDF version of the Peatland Code map of the site labelled with peat depths for each point (this may also be incorporated into the Restoration Plan)
- A spreadsheet of your data points across the site
- Photos of the site – these need to be GPS located

Ideally, a site will be validated before restoration works start, but this isn't always possible. **It can take a long time to get all the paperwork through, so be sure to do this well in advance of getting work done on the site.** At the very least, the site should be registered, and documents should be submitted to the validation board before works start on site. Once Validated, the carbon credits can be sold through the Carbon Registry at any point a Pending Issuance Units (a promise of carbon), or as Peatland Code Units.

Some points about carbon units:

- At the start of a project, all carbon units are Pending Issuance Units (PIU's) as there have been no carbon savings yet.
- After a verification visit, provided the peatland is still in good condition and has passed the verification, some PIU's will be converted in to verified Peatland Carbon Units (PCU's). The number of units that can be converted is outlined in the Emissions Calculator. Verification visits are in years 5, 15, 25, and every 10 years until the end of the project, although a landowner can request (and pay for) extra verifications in between these mandatory visits should they wish to convert units more frequently.
- Only Peatland Code Units (once verified) can be used to offset carbon emissions, and in theory these will fetch a higher price than Pending Issuance Units. As the Peatland Code is still quite new, nobody has sold any PCU's yet. Pending Issuance Units cannot be used to offset carbon emissions, although they can be useful to plan future carbon accounting and reporting, so buyers will often wish to buy all PIU's up front.
- Carbon credits can only be used by one owner at any one time – they can't be counted twice. For example, if a landowner sells all their units to a buyer that uses them to offset their business, they can't also be used to offset the landowner's farm.
- Both PIU's and PCU's can be sold at any point throughout the project and can even be sold by the original buyer to other buyers until the units are 'retired'. Landowners can sell units in small amounts bit by bit, or in one large batch.
- Landowners do not have to sell their carbon units, but they will still have to get the units verified if they wish to use them in any greenhouse gas reports (i.e. to offset any of their activities).
- Carbon units can be retired once they are converted in to validated Peatland Carbon Units. By retiring a unit, it means they have been used in a greenhouse gas report to contribute to a net emissions figure (i.e. offsetting an activity). Once they have been retired, they are taken off the carbon market and can no longer be traded. The owner of the retired units will get a certificate and can use that in their greenhouse gas reporting.

## REFERENCES

1. IUCN UK Peatland Programme (2017). Peatland Code Field Protocol: assessing eligibility, determining baseline condition category and monitoring change. Version 1.1. [https://www.iucn-uk-peatlandprogramme.org/sites/default/files/header-images/PC\\_Field\\_Protocol\\_v1.1.pdf](https://www.iucn-uk-peatlandprogramme.org/sites/default/files/header-images/PC_Field_Protocol_v1.1.pdf)
2. IUCN UK Peatland Programme (2017). Peatland Code. Version 1.1. [https://www.iucn-uk-peatlandprogramme.org/sites/default/files/header-images/PeatlandCode\\_v1.1\\_FINAL.pdf](https://www.iucn-uk-peatlandprogramme.org/sites/default/files/header-images/PeatlandCode_v1.1_FINAL.pdf)
3. IUCN Peatland Code website: <https://www.iucn-uk-peatlandprogramme.org/funding-finance/peatland-code>. Under the 'Peatland Code' tab, select 'Registry' to see registered projects and 'For Projects' to see the most updated information and access the latest versions of the Peatland Code documents.