DEFRA ELMS T&T 400 – Peat management decision making and options testing

***Health warning – PLEASE READ***

***This is an exploratory phase only.***

*The following is a conceptual sketch only, to promote discussion and debate. All proposals are as a result of initial discussions with key stakeholders, both institutional and landowner but no commitments of any kind have yet been made****. Terminology is a suggestion only.***

*These proposals would apply only in times of “normality”, when the wider system is capable of being operated in a managed and controlled state. At times of high risk, all protocols will be abandoned, and the Flood Risk Management agencies will take full control.*

***The payment rates proposed in the following document are only an indicative starting point and still subject to negotiation. The project has a fixed budget and so will likely have to moderate both the areas that are allowed to participate in the trial and the final payment rates to ensure that funds are not overcommitted.***

## Document intent

The following endeavours to describe in exact language what is required of Peatland Management DEFRA ELMS Test & Trial participants and what payments they will receive in return.

This work sits centrally in a vision to ensure that Somerset Levels and Moors thrive as the joint pressures of climate and economic change apply increasing stress to the pre-existing challenges of landscape management in this complex, sensitive and nuanced region.

It is hoped that this paper will function as a live document, allowing key stakeholders to understand and contribute to the proposals.

**Please offer any suggestions you see fit to better reflect:**

* **What is happening now**
* **What might be achieved through this peat management Test and Trial**
* **How best to achieve that**
* **Any material corrections you consider important**

**The trial is for 1 year only and no obligation real or implied exists for any party beyond the dates of these experimental trials (Start Date 1st December 2022 to End date 30th November 2023]). In order to successfully deliver this trial for landowners in the challenging and dynamic space that is the Somerset Levels and Moors, FWAG reserve the right to amend any and all details as required, within the spirit of the endeavour.**

### Version change log

01: Initial draft for comment and discussion

02: Second draft for comment and further discussion

03: Updated with proposed payment rates & source data, removed retainer payment. Updated “Winter option intent”, added Freeboard as disambiguation, incorporated appendices. Doc landing page expanded.

04: SharePoint version created

05: Deliverability and flood risk exclusions added to summer and winter pen.

06: Summer pen payment rates, removal of Red suggestion text

07: Publication

# T&T 400 intention

This trial forms part of a series of efforts to develop a “sweet spot” between traditional agricultural food production practices and the need to ensure that Somerset’s peat is retained in good condition, in perpetuity.

The following options should be considered strong, first step candidates in better defining that balance point within a local context and are to likely be foundational elements of the final framework. That said, this process is firmly evidenced based therefore these are not beyond challenge, addition or alteration, so please view them in that spirit.

## DISAMBIGUATION:

Freeboard - In the context of this document, the term “freeboard” exclusively means the difference between spot average water height in the local ditch network and spot average field level of each land parcel. It is most readily calculated using IDB water level telemetry and LiDAR scans of each land parcel.

## Options specification

### Option 1 – Summer water pen increase

#### Value

|  |  |
| --- | --- |
| **Freeboard after increasing water level** | **Payment rate £/ha** |
| 599-500 | 20 |
| 499-400 | 30 |
| 399-300 | 60 |
| 299-200 | 120 |
| 199-100 | 190 |
| 99-0 | 420 |

#### Option intent

**IMPORTANT NOTE – This trial is about changes to in-channel water levels only i.e. modest changes that allow the continuation of extensive farming. There is no intent to overtop dich banks and spread water on the land at any point.**

When peats soils are exposed to oxygen in the air, they begin an irreversible process of decomposition, turning the peat soil into atmospheric CO2.

A higher water table reduces the amount of peat exposed to the oxygen and thus reduces the amount of peat that is able to decompose. By raising water tables, less peat is exposed and so less eCO2 is emitted each year[[1]](#footnote-2) by the soil.

This peat management option is intended to minimise the quantity of subsurface peat exposed to the air, whilst minimising the disruption to existing farming on the surface.

A key component of this option is a novel field by field calculation of freeboard, to more accurately represent the impact on the farming systems on the surface of the land. This approach has been coupled with high accuracy LiDAR data collection to ensure that field levels are mapped as accurately as is possible.

The sliding scale of payment rates is intended to reflect the increased challenge of farming on soils with a higher water table. This will mean that landowners who are willing and able to tolerate a very high water table will be better rewarded for keeping more peat stable. It is also intended that those with the most low lying fields will be better rewarded for accepting low freeboard levels thereby unlocking the potential for wider change across a hydrological block, and thus the preservation of more peat soil.

#### Option description

The raising of summer pen water level across a hydrological block to facilitate the preservation of peat soil under existing agricultural management.

Payment to only cover instances where the average mean water table is increased above that listed in the most current IBD WLMP for that area, or the measured average level from the last three years. Where possible, IDB in ditch water level telemetry will be deemed a full and fair record of ditch levels unless agreed in writing with the FWAG team in advance. In the absence of IDB telemetry, monthly photos of water levels at pre-agreed gauge boards will suffice.

#### Qualification requirements

Qualification for payment will be dependent on all following trigger points being met:

*On or before the implementation of summer pen [1st May] a minimum water level as agreed to be reached.*

*Water levels to recorded via IDB telemetry where possible recorded In the absence of IDB telemetry, monthly photos of water levels at pre-agreed gauge boards will suffice.*

**Major flood event exclusion:**

If the flood risk increases beyond the limits of the trial, any additional water stored over and above typical seasonal levels will be released and all control will be returned to the relevant Flood Risk management Authorities. Once flood risk has returned to normal the trial program will be resumed. Money to be paid in any case.

**Double funding**

Fields already receiving DEFRA funding that duplicates these options (primarily [HLS HK10 & HK19; CS - SW18]) will not be eligible for this measure.

**Flood risk, deliverability and unanimous consensus required for scheme**

Acceptance of this option does not guarantee that payment will be available, or that any particular option is achievable. It is an agreement to participate in a scheme on the provisos that :

1. The IDB and EA consent to run said scheme are granted,
2. The water level management system is capable of delivering the changes required.
3. There is agreement amongst all landowners regarding the specific changes to the water level management plan are also a prerequisite for commencement of the scheme and thus payment.

### Option 3 – Winter water pen increase:

#### Value

|  |  |
| --- | --- |
| **Freeboard after increasing water level** | **Payment rate £/ha** |
| 599-500 | 5 |
| 499-400 | 10 |
| 399-300 | 20 |
| 299-200 | 40 |
| 199-100 | 60 |
| 99-0 | 80 |

#### Option intent

**IMPORTANT NOTE – This trial is about changes to in channel water levels only i.e. modest changes that allow the continuation of extensive farming. There is no intent to overtop dich banks and spread water on the land.**

When peats soils are exposed to air, they begin an irreversible process of decomposition, turning the peat soil into atmospheric CO2.

A higher water table reduces the amount of peat exposed to the air and thus reduce the amount of peat that is able to decompose. By raising water tables, less peat is exposed and so less eCO2 is emitted each year[[2]](#footnote-3) by the soil.

This peat management option is intended to minimise the quantity of subsurface peat exposed to the air, whilst minimising the disruption to existing farming above the surface.

The differential in payments between summer and winter rates is intended to reflect the fact that, in general, grass species are more tolerant of high water tables in winter than summer and the loss of peat through decomposition is substantially lower than in summer.

A key component of this option is the novel field by field calculation of freeboard, to more accurately represent the impact on the farming systems on the surface of the land. This approach has been coupled with high accuracy LiDAR data collection to ensure that field levels are mapped as accurately as is possible.

The sliding scale of payments rates is intended to reflect the increased challenge of farming on soils with a higher water table. This will mean that landowners who are willing and able to tolerate a very high water table will be better rewarded for keeping more peat stable. It is also hoped that those with the most low lying fields will be better rewarded for unlocking the potential for wider change across a hydrological block, and thus the preservation of more peat soil.

#### Option description

The raising of winter pen water level across a hydrological block to facilitate the preservation of peat soil under existing agricultural management.

Payment to only cover instances where the average mean water table is increased above that listed in the most current IBD WLMP for that area, or the measured average level from the last three years. Where possible, IDB in ditch water level telemetry will be deemed a full and fair record of ditch levels unless agreed in writing with the FWAG team in advance. In the absence of IDB telemetry, monthly photos of water levels at pre-agreed gauge boards will suffice.

#### Qualification requirements

Qualification for payment will be dependent on all following trigger points being met:

*On or before the implementation of winter pen [1st December] a minimum water level as agreed to be reached.*

*Water levels to recorded via IDB telemetry where possible recorded In the absence of IDB telemetry, monthly photos of water levels at pre-agreed gauge boards will suffice.*

**Major flood event exclusion:**

If the flood risk increases beyond the limits of the trial, any additional water stored over and above typical seasonal levels will be released and all control will be returned to the relevant Flood Risk management Authorities. Once flood risk has returned to normal the trial program will be resumed. Money to be paid in any case.

**Double funding**

Fields already receiving DEFRA funding that duplicates these options (primarily [HLS HK10 & HK19; CS - SW18]) will not be eligible for this measure.

**Flood risk, deliverability and unanimous consensus required for scheme**

Acceptance of this option does not guarantee that payment will be available, or that any particular option is achievable. It is an agreement to participate in a scheme on the provisos that :

1. The IDB and EA consent to run said scheme are granted,
2. The water level management system is capable of delivering the changes required.
3. There is agreement amongst all landowners regarding the specific changes to the water level management plan are also a prerequisite for commencement of the scheme and thus payment.

### Option 4 – Peat sensitive grazing management

#### Value

£ Value: £130/ha.

#### Option intent

Current evidence suggests that a strong cover of permanent pasture will help peat stay moist, thus reducing the level of decomposition of peat soil. In parallel the microbial component of healthy sward will help to break down any methane produced by any decomposition [[3]](#footnote-4), further reducing eCO2 emissions from peat soils.

Rather than define exactly how the 0.25% bare peat target is met, this Test & Trial seeks to give maximum flexibility to those managing the land on how best to ensure delivery that target.

An example would be removal of livestock at the end of the grazing season. The optimum date for stock removal for protection of sward is not a set date, rather it is derived from an understanding of what the land can/can not accommodate. In this respect, it would be up to the farmer to balance weather conditions, grass growth and stocking rates to ensure that no peat is exposed.

#### Option description

Enhanced option (£130/ha): Less than 0.25% exposed peat across whole field parcel at any time during the period 1st Dec 2022 to 1st Dec 2023.

It is the farmers responsibility to track and manage all field operations including grazing to ensure that this is not breached at any time.

Acceptance of this management option explicitly agrees to the inspection of any and all parcels under this option by a member of the FWAG SW team at any point, with 48hrs notice.

#### Qualification requirements

Land parcel is under grass cover at or by 1st Dec 2022

Agreement that at no point between the dates 1st Dec 2022 to 1st Dec 2023 will there be any more than 0.25% exposed peat soil.

Agreement that at any time within the agreement (with 48hrs notice), a member of the FWAG SW team is able to access the land parcel to assess the extent (or otherwise) of any bare peat.

**Double funding**

Fields already receiving DEFRA funding that duplicates these options (primarily [HLS HK10 & HK19; CS - GS2, etc.]) will not be eligible for this measure.

## Option 5 – Collaboration payment (discretionary)

Value £[15 ]/ha

#### Option description

A one-off payment, to be awarded at the discretion of FWAG SW senior staff, dependant on the level of collaboration displayed by an individual moor as a whole.

#### Qualification requirements

Only to be awarded after completion of the trial time window (1st Dec 2023), at the discretion of senior advisor of FWAG, using the following criteria:

### Primary criteria

Ability of all participants in a given hydrological block to make and consolidate around collective decisions.

### Secondary criteria:

How well trial was physically implemented

Results of the trial

1. Recent evidence highlights that an extra 4 Tonnes of eCO2/Ha/Yr is emitted from peatlands for every. Summer decomposition rate circa 75% total annual emissions. [↑](#footnote-ref-2)
2. Recent evidence highlights that an extra 4 Tonnes of eCO2/Ha/Yr is emitted from peatlands for every. Winter decomposition rate circa 25% total annual emissions. [↑](#footnote-ref-3)
3. Methane (CH4)is roughly 25-100 times more impactful than CO2 over it’s lifetime in the atmosphere with respect to climate change, therefore encouraging the rapid transition of methane to CO2 helps reduce the impact of the gasses produced by peat soil loss. <https://climate.mit.edu/ask-mit/why-do-we-compare-methane-carbon-dioxide-over-100-year-timeframe-are-we-underrating> [↑](#footnote-ref-4)