

In-channel water retention options

In-channel water retention options available

Item Code	Description	Indicative Item Cost
NFM08	In channel seepage barriers	£300/barrier
NFM09	Leaky Dams	£25-£400/dam

The table above details the infield water retention options available through the NFM Reverse Auction.

NFM08: In channel seepage barriers

Objective: An in channel wetland barrier is a dam that allows the slow passage of water through it. By slowing down the flow, sediment can be deposited helping to remove nutrients and pesticides from the water.

Specifications: Advice and assistance from the Environment Agency may be required for this item. Email: <u>dartmoornfm@environment-agency.gov.uk</u>

- In channel wetland barriers should be located within field ditches, preferably where land on either side is owned by the applicant.
- They are best placed where the channel carries a fast flow of water during intensive rain events.
- The number of barriers in any one channel would depend on the gradient, with steep gradients benefiting from more structures.
- In channel wetland barriers must not be constructed on natural watercourses, or where there is a high risk to land or property if the structure was to cause local flooding.
- The in channel wetland barrier should be no more than 4 m wide and 1 m high.
- Wooden slats should be formed either vertically or horizontally (if less than 2 m wide) leaving 1-2 mm gap between each barrier. The slats must be of sufficient strength to resist the force of fast flowing water and be durable.
- Any purchased wood must not be treated with a chemical wood preservative product as these are toxic to aquatic life.
- Materials other than timber may be used for construction as long as they allow water to percolate through at a suitable speed.

NFM09: Leaky Dams

Objective: Leaky woody dams will slow the movement of water and help push flows onto the floodplain during floods. This will increase temporary storage of flood waters within water



channels and out on to the floodplain, help delay the passage of flood water downstream, allow sediment to settle out, and reduce downstream flood risk.

Specifications:

The size, design and construction techniques for leaky dams are site specific. This therefore affects the cost of installing each leaky dam. The value available for leaky dams will be dealt with on a case-by-case basis and ranges from $\pounds 25$ / dam to $\pounds 400$ /dam, with the average dam costing around $\pounds 150$ /dam.

Please note that additional information, along with a quote detailing the costs associated with this item MUST be submitted as part of this application.

Pictures of example leaky dams, which form part of the Stroud Rural Sustainable Drainage Project, are shown below. Site specific advice will be given to the applicant to determine the size and design of leaky dams which would be suitable at their site. Where possible locally sourced materials should be used to construct the leaky dams.

General design principles:

- The leaky dam should be 2 times the width of the channel.
- Construct the dam from logs large enough to span the water channel and out on to the floodplain to provide a stable and long-lasting structure.
- Align dams at right angles to channel banks to reduce bank scour.
- Build dams to allow low flows and fish to pass unimpeded at all times. Site dams on slow flowing reaches of the watercourse.
- Build dams to a height sufficient to encourage water to spread onto the floodplain upstream of the dam or hold water within the channel itself. Note it is not advised to build the dam higher than approximately 0.5 m.
- Steel pins can be used to secure the structure to the ground and create to a large mass of logs which is unlikely to move during high flows.
- Build dams in series (minimum 3 dams) at a spacing between dams of about 5-7 times the width of the channel.
- Make sure dams are not installed directly upstream of pinch points such as bridges or culverts that back up flows and are likely to swamp the dam.
- Check and maintain dams to keep the structure effective.

Flood Defence Consent is required for this item. The Project Team will apply for the ordinary watercourse FDC on behalf of the applicant. Works on main rivers require consent from the Environment Agency. Applications involving such works will be dealt with on a case-by-case basis.

Please see pages **19 and 28** of the following guide for further information:

https://www.yorkshiredales.org.uk/__data/assets/pdf_file/0003/1010991/11301_flood_mana gement_guide_WEBx.pdf