

Freedom of Information Query – flood storage reservoirs – GN Hawkes

20 August 2008

Dear GN Hawkes

I refer to your Freedom of Information query regarding flood storage reservoirs.

The Environment Agency is the Undertaker for 183 flood storage reservoirs in England and Wales that come under the terms of the Reservoirs Act 1975. Around half are on-line and half are off-line flood storage reservoirs. Northern Ireland and Scotland have separate bodies responsible for managing flood storage reservoirs and I am therefore unable to comment on these parts of the United Kingdom.

You asked how many of our flood storage reservoirs are constructed to cause upstream flooding in order to reduce downstream flooding. They are all designed to hold flood water upstream that would otherwise pass downstream unimpeded. However we choose the location of our flood storage reservoirs carefully and design them so that they will not cause or increase flooding to properties upstream, generally building them where they will flood marsh land, park areas or poor quality farmland. When we plan to construct a new flood storage reservoir we work closely with landowners in the proposed storage area and pay them compensation for the intermittent use of their land as a reservoir. We also obtain planning permission, which includes public consultation on our proposals.

Flood storage reservoirs are one of many methods of reducing overall flood risk and can be used alone or to complement other measures such as flood defence walls. They are designed to allow flows up to a certain rate to flow unimpeded, with this flow determined by the amount that can flow onwards without causing significant flooding. This amount is specific to each reservoir and depends on the local circumstances.

On-line reservoirs have a dam across the river valley with an outfall to allow certain flows to continue unimpeded. When the incoming flow exceeds this capacity, levels rise behind the dam and flood the designated area upstream. Most of our reservoirs have the capacity to store floods with up to a 1% chance of happening in any year, also known as a 1 in 100 year flood. If flows exceed the design capacity then water overflows and enters the watercourse downstream. These spillways are designed to allow water to overflow to a set standard without causing the dam to fail or water levels to significantly increase upstream. This spillway standard depends on what is at risk downstream but is generally in excess of the 1 in 10,000 year flood.

Off-line reservoirs are constructed alongside the river without damming the flow. There is an inlet weir or structure that allows excess flows to enter the

bank side storage area or areas. When the storage area or areas are full then water overflows back into the river downstream, either over a weir or through an outfall structure. These overflows follow the same design standards as for on-line reservoirs, in other words they are designed to overflow without causing collapse of the embankments that still contain flood water or exacerbating flooding.

Flooding of property may occur downstream when the storage reservoirs are full and their overflows come into action, but this will be no worse, and mostly a lot less extensive, than would have occurred without the reservoir being in place.

Yours sincerely

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Environment Agency