

Bradford Area Reservoirs' Group - Flood Routing Remedial Works at Leeming, Doe Park and Hewenden Reservoirs

M.AIREY, Mott MacDonald Ltd, Cambridge, UK
G.CARRUTHERS, J N Bentley Ltd, Skipton, UK

SYNOPSIS. Following detailed flood study investigations and extensive physical model testing, it was demonstrated that the overflow works at three existing Yorkshire Water reservoirs situated to the west of Bradford were inadequate to handle the PMF design flood. A programme of design and construction of remedial works was therefore carried out to overcome the deficiencies.

In each case, remedial works were required to increase the capacity of the spillway and to provide adequate embankment freeboard for both still water flood rise and wave surcharge in order to prevent overtopping. However, whilst the three projects had certain similarities, there were also differences in the nature of the works and the approach that was adopted. This paper describes the remedial works carried out at each of the sites as delivered by the MMB joint venture team. For each project the emphasis was on the development of innovative solutions in order to reduce costs and minimize construction time, whilst providing a viable technical solution which was in keeping with the local environment.

At Leeming reservoir the solution involved deepening and widening of the tumble bay and the enlargement of the spillway using conventional reinforced concrete and masonry cladding construction. At Doe Park there were extensive works to raise the dam crest and a pre-cast wave wall solution was adopted to facilitate the construction and to maintain access for local residents during the works. At Hewenden the spillway walls were heightened in in-situ concrete using molded formwork and concrete staining to give the appearance of stone. In the lower section of the spillway there was a certain amount of out of channel flow that was tolerable and appropriate protection works were included at the embankment toe.