

## **Design and Performance of Elvington Balancing and Settling Lagoons**

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**SYNOPSIS.** The three Elvington Balancing and Settling Reservoirs are each capable of storing 205,000 Ml. of water and were constructed in the period 1992 to 1995 to provide the owner, Yorkshire Water Services Limited, with security of supply to the major treatment works at the site. The reservoirs are of earth embankment construction with the material being won partly from excavation on the site and partly from adjacent borrow areas. A bentonite cement slurry wall was constructed as a cut-off through underlying sand and gravel layers, and the internal face of the lagoons were lined with an HDPE membrane. The total area of liner was around 95,000 m<sup>2</sup>.

The reservoirs have been operational for around eight years and the paper will concentrate on the design aspects, in particular the bentonite cement cut-off and geomembrane. A brief description of the overall performance of the reservoirs to date will be given.