Ground Engineering aspects of the Grane Valley Reservoir Safety Improvements

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SYNOPSIS A recently completed improvement project on two United Utilities owned dams in the Grane Valley Cascade in Haslingden, Lancashire had to overcome many design and construction challenges due to geotechnical constraints. The works included;

Ogden Reservoir: Improvements to the overflow and spillway facilities by the construction of a 32m wide wedge block central auxiliary overflow and appurtenant structures, improvements to the northern spillway and southern by-wash channel, and a new combined transition channel to connect all of the structures.

Holden Wood: Improvements to the stability of the embankment and its susceptibility to internal erosion by slope slackening with an integral weighted filter, improvements to the overflow by the construction of a 15m wide reinforced concrete (RC) central overflow and improvements to the scour facilities.

This paper describes the background of the scheme, and how the key ground engineering challenges were overcome throughout each stage of the project to improve the overall safety of the dams.