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Successful Installation of CFRP and GFRP on Pipe Bridges in Scotland, UK

Abstract:

In 2017, Environmental Techniques approached Scottish Water about utilizing carbon fiber (CFRP) and glass fiber (GFRP) to provide a 60-year rehabilitation technique to an existing pipe bridge, an approach that has never been used before in the UK Water Industry. Traditionally, pipe bridges are replaced, but this one was located on an environmentally sensitive area on a golf course and the owner was concerned of the impact of standard construction process. The CFRP/GFRP system provides a robust, sustainable solution that creates a new pipe. After receiving the initial estimates, which included a 10% savings in cost and a 25% reduced on-site construction time, the owner was excited to move forward with the CFRP/GFRP design options. Nevertheless, this began an 18-month approval process for the CFRP and GFRP systems. This paper will focus on two major aspects of this project: (1) the engineered solution, and (2) the quality and expediency of the installation to meet the client's timeline.