

Mitigating Riverbank Erosion on the River Swale

Our client, an operator of a strategic sand and gravel quarry along the River Swale, was facing imminent flooding of their site due to riverbank erosion. Having previously approached the Environment Agency to gain regulatory approval, without success, they contacted Envireau Water for technical and regulatory support.



The Challenge

Our sand and gravel quarry operator faced a real risk of the eroding riverbank breaching, which would have caused the quarry to flood, severely impacting operations. Our expert team therefore had to act quickly and pragmatically to gain the Environment Agency's support.

Whilst Envireau Water are expert when it comes to regulatory negotiations, this case had the added complexity that previous negotiations with the Environment Agency had been unsuccessful. The River Swale is a very dynamic and mobile river, meaning its river course frequently changes. It was therefore vital that a thorough understanding of the causes and controls on the bank erosion was gained as this would determine the appropriate options to mitigate erosion and obtain 'buy in' from the Environment Agency.

Given the timescales, the solutions also needed to be practical to work around the needs of the quarry. The Environment Agency also required that sustainable, soft-engineering solutions be considered as part of the solution.



The Envireau Way

Our geomorphologists began by carrying out a 'Historic Trends Analysis' of the river. This was carried out to understand the extent and controls of the riverbank erosion and the likely future river course, helping to identify the different types of measures that would be suitable.

Having gained an in-depth understanding of the causes of the bank erosion, an optioneering exercise was then undertaken which identified the most appropriate options, based around resilience, practicality, and cost. From these options, a conceptual design for the preferred solution was developed and taken forward to consultation. With informed knowledge of the bank erosion and a practical and pragmatic design proposal in place, an engagement event was held with the Environment Agency and the client to present the proposal.



The Result

Our expert geomorphologists' thorough understanding of the water environment and regulatory framework was the key to finding a practical solution to this long-standing problem; enabling our client to progress with preparing a Flood Risk Activity Permit for the bank erosion work that would gain regulatory approval. By adopting this approach, our client can now benefit from a dry quarry and uninterrupted operations.

