climate change

Environment Agency

Carbon reduction case studies

Case Study Reference: IEM/2012/006	*these case studies highlight actions we are taking to reduce our carbon footprint within the Environment Agency, including benefits and lessons learnt*

Usk Carbon Reduction Case Study

Background

The South Wales, Usk Town Flood Wall project adopted an innovative approach to refurbish 120m of existing flood walls that was in danger of collapse during a 1 in 20 year event. The new wall was designed to protect 38 properties from a 1 in 100 year flood event.

Reducing the Carbon Footprint

Instead of replacing the old walls with a new wall, the project team applied innovative design and construction techniques to identify a way to reuse the failing existing walls by structurally tying them together. This avoided requirement for additional new materials and waste removal off-site.

To address the risk of wall failure, the overall weight of the combined structure was reduced by replacing fill material with polystyrene fill (low carbon-footprint lightweight material).

The historic setting dictated a high quality finish to the upper wall. A coloured, textured concrete finish was selected (using a form liner) to mimic adjacent stone features. This solution was also cost-effective in comparison to masonry.

The project saved 66% (£1,316,000) of the cost of replacing both the upper and lower walls and reduced the overall carbon footprint by 60%.

The solution significantly reduced disruption to the adjacent residents and reduced health, safety and environmental risks by avoiding works within the River Usk SAC and SSSI.

The lessons to take away

The Usk Town Flood Wall case study provides an example of a project applying innovative design and construction techniques to make the problem part of the solution thereby significantly reducing costs and the carbon footprint.

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