

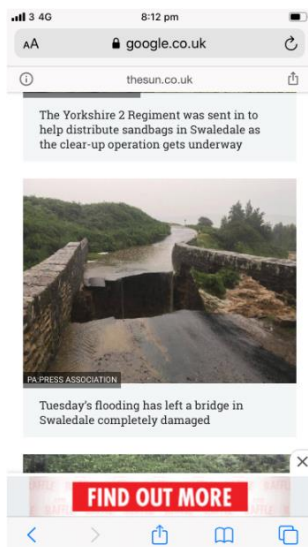
**Project Name:** Grinton South Bridge

**Client:** North Yorkshire County Council

**Value:** £90,000

**Date:** Aug 2019 – Sept 2019

In July 2019 the town of Grinton (North Yorkshire) and surrounding areas suffered severe flooding due to a 1:1000 year flood event. Such was the force of the water that it caused Grinton South Bridge to collapse. The event received coverage from national tabloids and the BBC.



Particular attention to the collapse was made by the media as the bridge was located on the world cycling championship route.

The bridge had been an iconic part of the route and lies halfway up what will be a major climb in the men's race and provides a natural amphitheatre for the race to unfold.

The route feeds the cyclists through Grinton and Reeth which is essential to local business who rely on the championships to boost their income.



The event occurred on Tuesday the 30<sup>th</sup> July 2019 the damage was assessed by NYCC engineers on Wednesday 31<sup>st</sup> July 2019 and on Friday 2<sup>nd</sup> August 2019 Hinko were appointed under emergency powers to address the problem.

Hinko mobilised to site on Monday the 5<sup>th</sup> Aug 2019 and commenced with the remediation.

The primary aim was to build a bypass road around the collapsed bridge, which had a twofold benefit. Engineering principals and norms could be used to quickly design the bypass road and the install of a new bypass would allow the collapsed bridge to be re-built at a later date without impacting local traffic.

The works involved funnelling the watercourse through a temporary culvert then using reinforced earth construction techniques over the top to create the new road.



Hinko found that Pre-cast concrete culverts or pipes were not readily available, but the Hinko team quickly sourced large steel tubes from Cleveland Steel and Tubes, near Thirsk, had two disused parts of a Scottish wind turbine, which were cut to length, transported to the remote site and lowered into place so the road could be built over them.

Pre-Cast concrete 'lego' blocks were used to retain the fill materials at each side of the new bypass road, these were installed one level at a

time trapping a later of tensar reinforced geotextile between the upper and lower block to create the reinforced earth embankment.

To get the desired road alignment and tie over 1500t of material had to be excavated and stored for reinstatement at a later date.

Due to the restricted access, Hinko used 6t Dumpers to move the material, the Hinko teams worked 7 days per week to ensure that the works would be finished within the 4-week period the site teams had agreed with North Yorkshire County Council.







The bypass road was constructed to formation level and compacted. Note using locally sourced, plant, and materials. Hinko have found by building local relationship's people genuinely take an interest in your works and will react quickly to your requests.

Level control was agreed between the Hinko engineer and NYCC Engineering team, ensuring that alignment and level complied with current standards.

By spending time getting the sub-formation correct the surfacing works could be executed much quicker than originally anticipated full depth construction completed within two days. Allowing for white lining and TVCB install to be undertaken quickly and efficiently which lead to the early opening of the bypass.

The temporary crossing, opened on the 6<sup>th</sup> September 2019), some 4 weeks after the Hinko team mobilised to site.

It was an incredible effort by all involved to execute these works in such a short timescale.



The design of the replacement for the damaged bridge is being finalised. It is hoped to begin construction of the replacement bridge in early 2020. Because of the temporary culvert, which is now in place, there will be no adverse impact on the travelling public while the permanent repairs take place.