

Project Name: Winterburn Bridge

Client: North Yorkshire County Council

Hinko were awarded this Grade II listed structure refurbishment in Dec 2017 as part of the NYCC Civil Engineering Framework.

Winterburn Bridge was in a poor state of repair, the stone arch had started to spread causing several key stones to dislodge and drop down severely impeding the structure ability to support traffic flows above. The problem was



made worse by the steep camber over the bridge causing

vehicles to “bottom put” applying an impact load to the structure. In addition to this the parapet had been damaged and was bowing outwards and had been struck several times by passing vehicles.



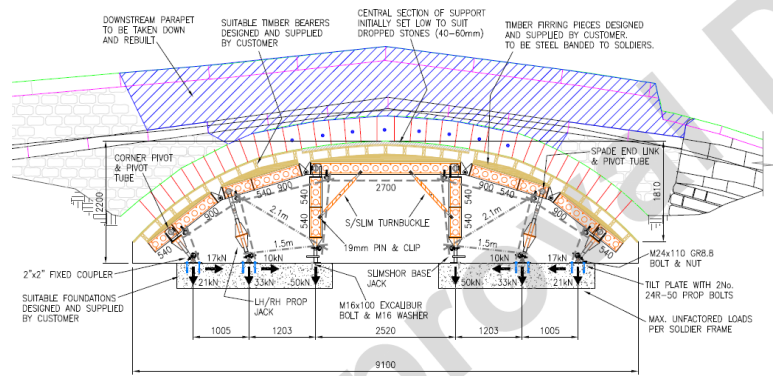
To address the problem several operations, need to be undertaken to stabilise this structure. This included the. Supporting of the structure with a propping system, allowing for heavy plant to access the

bridge to removed the existing surfacing, jacking the fallen stones back onto position, installing tie rods through the structure to ensure its integrity was maintained, parapet re-build works and resurfacing, including raising the carriageway levels at each side of the bridge to prevent due to vehicles bottoming out on the bridges camber.



the first operation was the design and install of a temporary works propping system to hold the arch in place allowing access above with plant and equipment and to allow the fallen stones to be jacked back into position.

Working with our supply chain the Hinko site team developed a propping system that was sufficient to undertake the task in hand.



Once installed the surfacing from the structure could be removed exposing the bridge arch, this then allowed the engineering team to monitor accurately the jacking of the bridge structure back to its correct alignment.

Once to line and level, any voids were filled with rapid setting high strength grout and concrete infilled.

this then allowed for tie bars to be drilled and fixed through the structure holding the bridge together. Specialist contractor was utilized to undertake these works.



This involved core drilling through the entire structure, installing 40mm dia stainless steel tie rods then tensioning them and grouting them into position. To do this the Hinko scaffolding team installed a walkway across the watercourse allowing access for this operation.



The process worked well and simultaneously work to the damaged parapet could be undertaken by suitably qualified stone masons. As the structure is grade II listed, careful cataloguing of each stone was required to ensure that it was replaced in the correct position. Hinko's in-house resource carried out these works.

Once the structural works were complete the surfacing of the bridge and associated tie-ins could be undertaken.

This element of the works was undertaken in-house utilising Hinko's surfacing capability.

The works comprised of raising the levels at each side of the bridge by 200mm and with binder course tying into existing levels on top of the bridge to allow for a minimum of 50mm of surface course to be laid over the bridge arch.



The works had to be undertaken under a full road closure due to the width of the road and 3 x Tie-ins cold milled to accept 100mm AC 32 HDM 40/60 Base Course, 50mm of AC 20 HDM 40/60 and 50mm of HRA 30/14 PMB WTR2 and 60 PSV Pre Coated Chippings. Tanker applied bond coat were used for each layer before surfacing commenced.



The project was executed in line with budget, programme and safety and quality standards.

By utilising the in-house surfacing resource Hinko was able to deliver the works to a quality standard beyond our client's expectations.