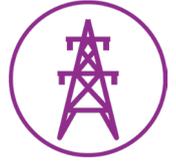




# CASE STUDY APPERLEY LANE BRIDGE



## RESTRICTED ACCESS

### CLIENT

**BAM Nuttall**

### SCOPE OF WORKS

**Elemex Drilling System for  
upgrade to bridge  
foundations**

### KEY ACHIEVEMENTS

**Completed on time  
Completed on budget  
Completed to Engineer's  
design & specification**

## Project Brief

As part of the Leeds Flood Alleviation Scheme Phase 2, RB North East was employed to provide a restricted access mini-piling solution to the existing Apperley Bridge to support an extension of the bridge deck.

Using the Elemex Drilling System, the team successfully installed 20 No. 323mm/280mm diameter drill and case rock socket piles to depths of up to 28m, utilising a combination of vertical and raking piles. This system greatly reduces the risk of undermining existing abutments, which is not achievable with conventional drill and case techniques.



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## Key Issues/Requirements

- The technical challenges included forming the pile on a rake across the width of the historic bridge into the bridge abutments, then advancing the casing through the bridge road surface and continuing through the abutment into the River Aire to the competent bed rock.

## Solution

- The team provided a design proposal to install the piles using the Elemex system, a concentric system designed for down the hole hammer drilling in urban areas or sensitive ground. The unique concept behind the Elemex design is built on redirection of the air flow. Once the air reaches the bit face it is blown against the extended ring bit walls which redirects the flow across the face. This way the air pressure is decreased just enough to allow an efficient flushing of the bit face without escaping to the surrounding ground.
- A Casagrande C5 XP-2 drill rig was used to achieve the 8 degrees for the raking piles and the 6m rock socket. To reduce the use of manual handling the site team utilise a mobile rod handler for the 3.0m drill rods.
- Pile installation was completed with a 50t handling crane installing the reinforcement cage consisting of 5No. B25mm main bars, 17.0m long and spliced in two sections, a full length 50mm GEWI bar and an 8.5m circular hollow section steel tube, all in accordance with the Engineer's design and specification.



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