

## A simply complicated bridge

Hanover, IL isn't a one-horse town. But it is a one-bridge town, and when that bridge had aged and deteriorated beyond repair, WHKS was asked to design its replacement.

Normally, a simple river crossing like this wouldn't pose any particular challenge. But the Hanover bridge wasn't going to let the design team off that easily.

As the only river crossing for miles, it wasn't feasible to demolish the old one and let traffic wait until the new one was completed. Carefully orchestrated, sequential demolition allowed a single lane of traffic to continue using the existing bridge as the new one was constructed alongside.

But even that wasn't going to go easily. The old concrete arch bridge had been structurally modified over the years. The modifications made it challenging to demolish just half of the bridge while maintaining structural integrity to support the traffic that needed to continue using it.

An old masonry building sat very close to one end of the bridge that was very vulnerable to excess vibration. To protect the building, the team specified vibration-monitoring equipment at the site and set strict limits. The specifications even included a vibration baseline that couldn't be exceeded during construction. This meant that instead of the normal driven piles, the new structure would have to be set on shafts bored with a rotary drill.

Having overcome all these obstacles, the old bridge still wouldn't go quietly. An existing city pump station, located too close, would have to be moved. While WHKS worked on the bridge, the city engineer designed the pump station relocation and both design projects had to be integrated into a single construction contract.

But all has ended well as the new bridge, built with an alignment that gently curves across the river where the old bridge sat, carries traffic safely and even preserves some of the decorative flavor of its predecessor.



IL 84 Bridge Prior to Construction



IL 84 Bridge After Construction