



# Back in Action

BY JIM TALBOT



## STEEL CENTURIONS SPANNING 100 YEARS

Our nation's rich past was built on immovable determination and innovation that found a highly visible expression in the construction of steel bridges. The Steel Centurions series offers a testament to notable accomplishments of prior generations and celebrates the durability and strength of steel by showcasing bridges more than 100 years old that are still in service today.

**A 1913 Indiana steel truss bridge, neglected for years, was rescued from demolition for renewal and reuse in a new Indiana nature park.**

**BRIDGE NUMBER 15** almost didn't become a centurion.

Now called the McCloud Nature Park Bridge, this steel truss was nearly cut up and sold for scrap in 2006. Indiana's Pulaski County—its original location—had even scheduled road personnel for the job. A last-minute reprieve, however, came from renowned Indiana bridge historian Dr. James L. Cooper, professor emeritus of history at DePauw University in Greencastle, Ind. He asked John Camden of general contractor John T. Camden Construction Co. to dismantle and store the bridge; Camden collects historical metal bridges like others collect stamps.

Camden paid Pulaski County \$10 for the bridge, which was comprised of 15 tons of steel. His crew first removed the

wooden deck and its supporting steel stringers, which represented substantial weight, then two cranes lifted the bridge from the metal-capped caissons that supported the four corners. Once the bridge was rested on nearby ground, workers marked the major members to be dismantled in order to ease future assembly in the original configuration. They used rivet guns with chisel-like heads to break and remove major riveted connections, then trucked the bridge parts to the company's shop for storage.

### Big Monon Ditch

The bridge's history began in 1913, when Pulaski County began dredging the Big Monon Ditch, deepening and widening



it; the ditch serves to drain water from an aquifer, lowering the water table to avoid the flooding of crops. This project required a new bridge to replace the existing one, and F. M. Williams Contracting Company of Winamac won the contract to build the new metal substructure and superstructure for \$2,898.

For the superstructure, Williams erected a riveted Warren through-truss steel span, 120 ft in length. The truss has eight panels with light verticals and the diagonal members are all bolted at their ends to gusset plates. Struts and round-rod lateral braces stiffen the trusses at the other upper panel points. Steel floor beams, bolted to the lower gussets, carry rolled I-beam stringers that support a 14-ft-wide timber deck. Vertical clearance above the deck is 17.6 ft; the structure had no railings.

#### Renewal

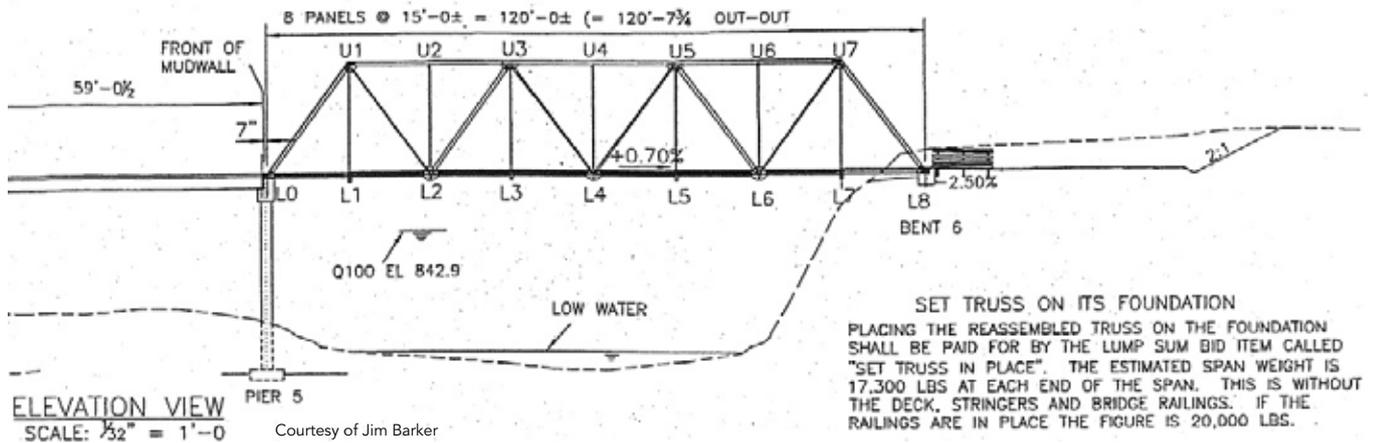
Years later Pulaski County abandoned the road, and the bridge stood neglected for about 30 years before being pur-

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Jim Barker



Courtesy of Jim Barker

chased by Camden. And recently, Indiana Landmarks recommended that it serve in a park project in Hendricks County as part of a pedestrian and maintenance vehicle trail. The bridge was the right size and of a relatively rare design—and certainly worth preserving.

The park, the McCloud Nature Park in North Salem, Ind., consists of 232 acres of woods, glacial ravines, prairie and creek; the Hendricks County Park Board has developed a visionary plan for the park, which is scheduled to be completed in small stages over 20 years. The plan called for the bridge to cross Big Walnut Creek, which divides the park in two. Without such a crossing, visitors would have to leave the park to reach the other half by a different entrance, so the refurbished bridge would tie the park together.

Hendricks County Parks hired Jim Barker of J. A. Barker Engineering for the project, as he has extensive experience in the repair and restoration of historical bridges of all types. The county contracted with Camden Construction, paying for the removal and dismantling work that was already completed, as well as for refurbishing the parts for future assembly.

The company replaced some of the steel bridge members that were beyond repair. These included the deck stringers, top and bottom lateral bracing rods and some of the gusset plates. Lower chord members were also replicated in new steel. Workers then cleaned, prepared and added a first coat of paint to the remaining and new parts.

Landscape architectural firm of Rundell Ernstberger Associates, LLC, headquartered in Indianapolis, created a master plan for the McCloud Nature Park, including placement of the bridge. However, a retired engineer and volunteer for the Indiana Parks, John McCoy, suggested a new location for the bridge. While the original site would have been less expensive, having minimal side spans, it was on relatively low ground and

therefore would have been subject to possible flooding and marshy conditions that could potentially limit its use. The new site allowed the bridge to be used year-round regardless of flood conditions, thus Rundell Ernstberger incorporated McCoy's recommendation into its final plan.

The revised plan put one end of the bridge on a high bluff in the park. This end sits on a small, concrete "end bent" set several feet beyond the creek bank, and the other side of the bridge rests on a relatively high concrete pier. Four 59-ft steel approach spans, using a total of 33 tons of weathering steel, reach another point in the park on high ground. The stringers supporting these approaches consist of W27x84 rolled beams of unpainted weathering steel. The approach spans have a composite reinforced concrete deck, and the truss span has a wood plank deck to maintain historical accuracy.

In 2009 Camden received a new contract to locate the refurbished bridge parts to the park site, reassemble them and add a final coat of red paint. This effort took place on level ground near the high bluff. Another contract went to Force Construction Co. to build piers, approach spans and approach trails, as well as to set the truss on its new foundations and construct the bridge floor and railing. Work on these contracts was completed by 2010. The total cost for the bridge project was \$817,000, with Camden's relocation, refurbishment and assembly role totaling \$193,000 and engineering services accounting for approximately \$111,000.

The McCloud Nature Park has become a premier recreational attraction in central Indiana. Visitors can enjoy over six miles of hiking trails, access to Big Walnut Creek, year-round programs at the nature center and a wide variety of wildlife viewing opportunities—and the newly refurbished truss helps bring it all together.