



## 1999 – Sedley Bridge

### Description

#### Meta Fields

**Construction Schedule 0 Construction Schedule File :** 2281

**Specifications 0 Spec File :** 2284

**Abc Construction Equipment :** Conventional

**Miscellaneous Prefabricated :** CIP reinforced concrete closure joints; Grouted key closure joints; PT ducts/bonded; Micro-silica concrete overlay

**Prefabricated Bridge Elements :** PT concrete through-girder; MSE walls

**Contracting :** Full lane closure

**Project Delivery :** Design-bid-build

**Longitude :** -87.1579742

**Latitude :** 41.5038605

**Nbi # :** 6400117

**State Id # :** Porter 210

**Construction Equipment :** Conventional

**Total Bridge Length Ft :** 110.5

**Max Span Length Ft :** 110.5

**Beam Material :** Concrete

**Spans :** One-span

**Location :** Rural

**Owner :** Porter County

**State :** IN

**Year Abc Built :** 1999

**Construction Schedule :** 1

**Contract Plans :** 1

**Incentive Program :** 80% Federal and 20% LPA

**Funding Source :** Other

**Costs :** The engineer's estimate for the project was \$ 2.35 million. The low bid was \$2.29 million (\$64,000 = 2.7% lower than engineer's estimate). There were six bidders. The overall cost was \$1 million less than the next alternative design solution.

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**Stakeholder Feedback :** Use of the through-girder with its shallow depth below deck resulted in

significant cost savings. The north approach construction alone was reduced in length by almost a quarter mile.

**Construction Method :** The existing bridge was closed and traffic detoured. The bridge was demolished conventionally. The new bridge substructure was comprised of 14-inch steel-encased concrete piles with MSE walls on concrete leveling pads. First the deck panel and work platform support assemblies were installed on the girders. The girders were then erected with cranes onto the abutment bearings. Steel struts were attached at the abutments as temporary lateral supports, and the first stage of post-tensioning was done. The deck panels were erected with a crane onto temporary wooden shelves that were attached to the girder bottoms with high-strength steel bars. After all panels were placed, the closure joints between the panels and girders were grouted, and the bridge was post-tensioned transversely and longitudinally. Post-tensioning ducts and recess pockets were then grouted. Traffic barriers and microsilica overlay were installed. The temporary deck panel support assemblies were removed and the bridge was opened to traffic. The project was let on February 23, 1999. The Notice to Proceed was given on March 29, 1999. The construction was substantially complete on March 3, 2001. The last work was on March 18, 2002. The contract allowed 140 work days; 136 work days were used.

**Replacement Or New Bridge :** This project was the first use of precast concrete through-girders in Indiana; the precast elements were post-tensioned edge girders and drop-in deck panels. The bridge has two 12-ft-wide traffic lanes, a 3-ft-wide shoulder, and a 3.83-ft-wide shoulder. The cross-section consists of two 3.08-ft-wide 6.56-ft-deep precast post-tensioned concrete box girders spaced at 36.5 ft and connected at the bottom by twelve 34-ft-long by 8-ft-wide by average 1.14-ft-deep precast post-tensioned deck panels cast with a crown at the middle of the roadway. This cross-section maximized the vertical clearance under the bridge; the distance from the top of the deck to its lowest point was only 14 inches.

**Existing Bridge Description :** The existing one-lane nine-span timber trestle bridge was 201 ft long and 21.2 ft wide with a bridge roadway width of 14 ft. Built in 1915, the bridge had only one lane for traffic and also had a vertical clearance of only 19 ft over the railroad tracks, and required replacement.

**Traffic Management :** Traffic management alternative, if constructed conventionally: extended use of 3-mile detour

**Average Daily Traffic At Time Of Construction :** 2200

**Dimensions :** 110.5-ft-long and 39.3-ft-wide single-span precast post-tensioned through-girder bridge

**Primary Drivers :** reduced traffic impacts – no required falsework allowed vertical clearance to be maintained throughout construction; reduced onsite construction time; improved work-zone safety; improved site constructability – 14-inch-deep section provided greater vertical clearance over railroad tracks; improved material quality and product durability; minimized environmental impacts; reduced cost – shallow section depth allowed shorter approaches to meet railroad grade requirements

**Impact Category :** Tier 6 (longer but reduced by months/years)

**Project Location :**

Sedley Road (CR 475W) over the Norfolk/Southern/CSX railroad tracks in Porter County near Wheeler in northern Indiana