2009 – Route 31 Bridge over Canandaigua Outlet

Description

Meta Fields
Other Related Url 0 Other Related Link : http://aspirebridge.com/magazine/2009Fall/
Abc Construction Equipment : Conventional
Miscellaneous Prefabricated : CIP reinforced closure joints, UHPC closure joints, asphalt overlay w/membrane
Prefabricated Bridge Elements : Adjacent deck bulb T beams
Project Delivery : Design-bid-build
Longitude : -76.996666
Latitude : 43.0600014
Nbi # : 1021750
State Id # : 1021750
Construction Equipment : Conventional
Total Bridge Length Ft : 87.42
Max Span Length Ft : 87.42
Beam Material : Concrete
Spans : One-span
Location : Rural
Owner : State
State : NY
Year Abc Built : 2009
Other Related Url : 1
Contract Plans : 1
Costs : The low bid was $933,441.
Contacts : Richard Marchione, P.E. Director, Office of Structures New York State Department of Transportation Richard.Marchione@dot.ny.gov 518-457-6827 **Submitter:** Mary Lou Ralls P.E. Principal Ralls Newman, LLC ralls-newman@sbcglobal.net 512-422-9080 **Designer:** NYSDOT **Fab1:** Northeast Prestressed Products LLC, Cressona, Pa., (formally Schuylkill Products Inc.) Fabricated deck bulb T beams **Sub1:** Lafarge North America, Calgary, AB, Canada UHPC **Subcon1:** Erdman Anthony and Associates Inc., Rochester, N.Y. Contractor's Engineering Consultant **Contractor:** Ramsey Construction Inc., Lakeville, N.Y.
High Performance Material : UHPC
Stakeholder Feedback : The onsite construction time was reduced because deck forming was not

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needed. The bridge was closed to traffic for only 57 days during which the old bridge was removed, the substructure reconstructed and the new superstructure placed.
Construction Method : The deck bulb-tee beams were fabricated with epoxy-coated bars projecting from the edge of each flange to lap within the closure joint between beams. The mid-depth #6 bars lap six inches and the lower #4 bars lap four inches. The bars are offset longitudinally to avoid conflicts. Epoxy-coated reinforcement for the concrete railing protruded from the outside flanges of the edge beams on one side; the opposite side had bolted steel railing. After the beams were erected, a jacking system was used to even out the camber between the beams. Formwork was placed underneath the closure joints, the joints were filled with UHPC and then covered and cured. After the joints were cured, the deck surface was ground and a waterproof membrane and asphalt overlay were installed.The beam concrete compressive strength was 10 ksi. The UHPC compressive strength was 22 to 24 ksi without heat curing, with an initial compressive strength of 14 ksi at four days. The contract allowed a maximum of three months for onsite construction due to the upcoming annual fall festival.
Replacement Or New Bridge : The two-lane replacement bridge is New York State’s first use of deck bulb-tee beams and ultra-high-performance concrete (UHPC) deck closure joints. The bridge consists of eight 41-inch-deep pretensioned concrete deck bulb-tee beams with 58-inch-wide top flange on interior beams and 61-inch-wide top flange on exterior beams. The beams are spaced with a longitudinal six-inch-wide cast-in-place concrete joint joining the flanges which are six inches thick at the edges.
Existing Bridge Description : The superstructure of the existing two-lane single-span steel jack-arch bridge, built in 1936, was deteriorated and required replacement.
Traffic Management : Extended use of off-site detour if constructed conventionally
Average Daily Traffic At Time Of Construction : 7196
Dimensions : 87.42-ft long and 42.75-ft wide single-span prestressed concrete adjacent deck bulb-tee beam bridge; skewed
Primary Drivers : reduced traffic impacts, improved material quality and product durability, improved site constructability
Impact Category : Tier 5 (within 3 months)
Mobility Impact Time : ABC: 57-day closure
Project Location :

NYS Route 31 in the village of Lyons in Wayne County

Project Summary :

New York State's first use of deck bulb-tee beams and ultra-high performance concrete (UHPC) deck closure joints

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