

Temporary Acrow Bridge Permits Emergency Access During Lengthy Construction in North Vancouver

Detour bridge installed quickly despite confined work zone



Infrastructure construction can come with many challenges, and such was the case when it was necessary to replace the 60-year-old Montroyal Bridge over Mosquito Creek in the District of North Vancouver in British Columbia.

Because the construction site is in close proximity to a fire station, it was critical that a detour structure be in place before demolition began in order to provide continuous passage for emergency vehicles. In addition, a very tight work zone meant a modular structure provided the best detour option over more traditional structures and an Acrow bridge was selected and rented for the project.

The two-lane TL24 structure from Acrow is 39.6 meters (130 feet) long by 7.3 meters (24 feet) wide curb to curb, with TL-4 guard rails and a 1.5 meter (4.9 feet) sidewalk. "The Acrow structure was chosen over other temporary bridge options due to its light weight modular components, allowing for staged installation that otherwise would have presented many challenges with a beam structure," said Lyle Johnson, Manager of Field Operations for Eurovia BC. "The bearing to finished deck clearance at each end of the bridge minimized the excavation required for foundation installation."

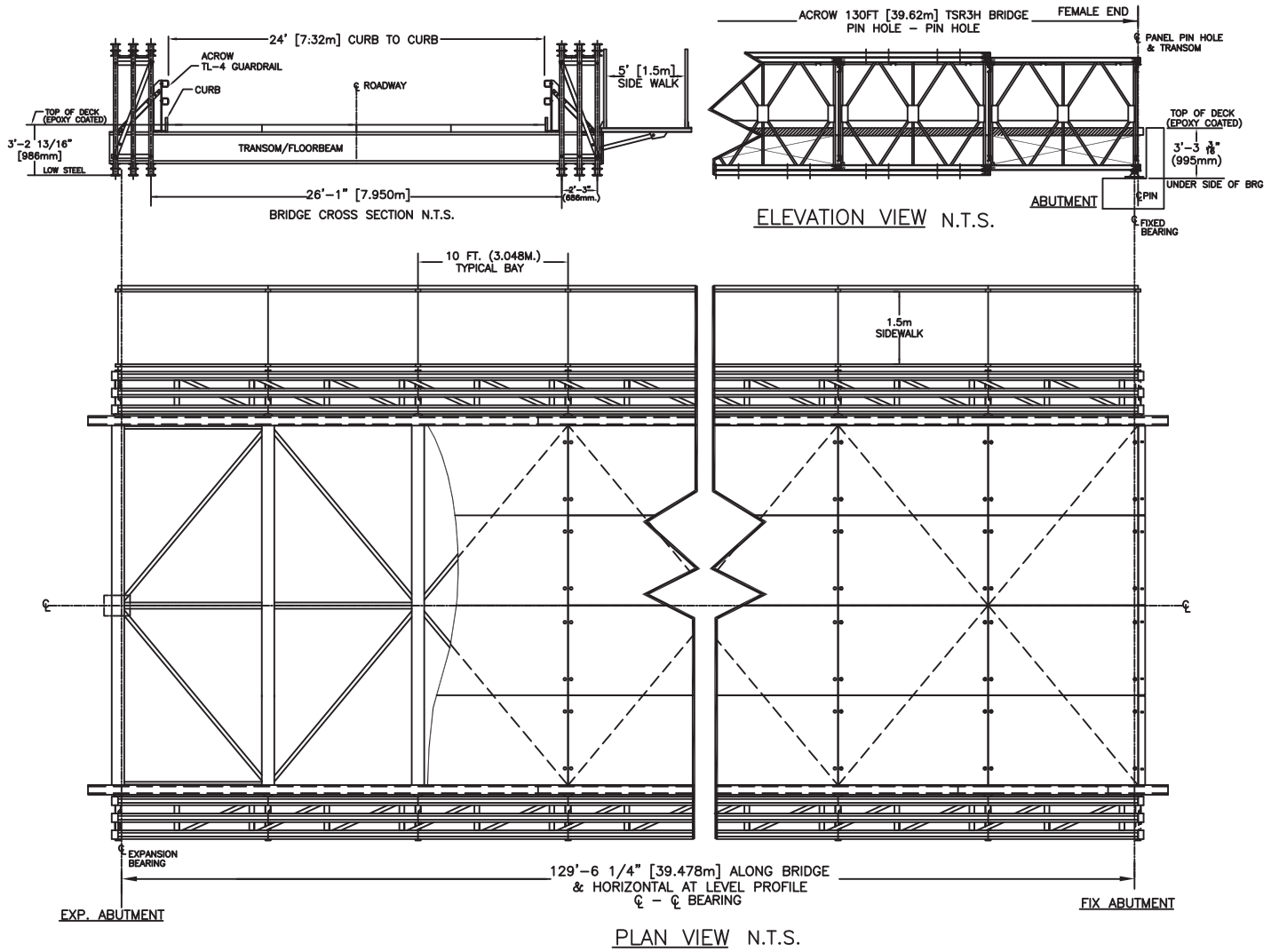
The launching and erection of the detour bridge posed numerous challenges. Because no room was available to stage components on-site, the Acrow components were delivered to a laydown area 4 kilometers (2.5 miles) from the site and brought to the work zone

as needed. The build area for the bridge was limited to 12.2 meters (40 feet) by 9.75 meters (32 feet) on the west approach. The bridge was erected on rollers, with additional rollers on top of a temporary launching pier necessary for ease of erection and a safe launch. For the final launch, a large crane positioned on the east approach was attached to the east end of the bridge. The bridge was moved to final position and held 2 meters (6.6 feet) above the east bearings while the temporary pier was removed. The bridge was then lowered and set on both abutment bearings.

The Acrow bridge installation was started on June 21, 2017 and completed in less than three weeks. It is anticipated that the temporary bridge will be in place throughout the construction, which is scheduled for completion in summer 2018.

"We are pleased to have been involved in this important job," said Ken Scott, President of Acrow Limited. "It was particularly gratifying to have helped overcome the challenges of a difficult installation and assist with a solution for Eurovia BC and the stakeholders."

The owner of the project is the Corporation of the District of North Vancouver, BC. The contractor is Eurovia BC Inc., which selected the Acrow bridge for the job. Eurovia's design engineers for the detour were All-Span Engineering & Construction Ltd. and McElhanney Consulting Services Ltd. The design engineer for the owners was WSP Canada Inc.



Specifications

Bridge length:

39.6 meters (130 feet)

Bridge width:

7.3 meters (24 feet) curb to curb plus guard rail and 1.5 meter (4.91 feet) sidewalk

Live load:

Two lanes of BCL625 plus 2 large diameter Watermains supported on Contractor supplied Super Studs fastened to the underside of the South Side Truss of the Acrow Bridge with a Load of 3.5 kN per meter.

Deck Surface:

Orthotropic steel deck with aggregate anti-skid epoxy finish.

Bridge finish:

- All major components galvanized to AASHTO M111 – ASTM A 123
- All bolts are hot dipped galvanized
- All pins are electro galvanized

Bridge erection:

Crane Assist Launch

Bridge design:

- Panel chords, diagonals, verticals, panel reinforcing chords, rakers to AASHTO M223 GD 65
- Raker brace, transom, top chord brace, swaybrace, transom brace, diagonal chord brace to AASHTO GD 50
- Panel pins to ASTM A 193 GD b7
- Bolts to AASHTO M164M – A325

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