



Atlantic Industries Limited

# PROJECT PROFILE



February 29, 2020

## AIL and Algonquin Bridge team up on NSTIR's East River Bridge replacement project

**AIL provided the Super•Cor Arch with MSE headwalls, Algonquin Bridge supplied a rental detour bridge**

Nova Scotia Transportation and Infrastructure Renewal needed to replace an older wooden span bridge at East River on Highway 3, near Chester. AIL designed and supplied a Super•Cor Arch with Best•Kote Polymer Coating and our MSE Precast Panel Walls for the headwalls. AIL Group sister company, Algonquin Bridge, supplied a rental Modular Panel Bridge as a detour bridge for the project duration.

The existing bridge sat on a very narrow isthmus between an ocean cove and a small lake. The site was complicated to work in, with a very limited right-of-way, constant traffic flow, low overhead power lines, tidal water control requirements and rather unique geotechnical conditions.

### Project at a glance:

**Name:** East River Bridge Replacement

**Location:** East River, Nova Scotia

**Owner:** Nova Scotia Transportation and Infrastructure Renewal

**Engineers:** Harbourside Engineering Consultants

**Geotechnical Consultants:** EXP

**Contractor:** Nova Construction

**Products:** Super•Cor Arch, MSE Precast Panel Walls, Algonquin Modular Panel Bridge and Abutments

**Arch Dimensions:** Span 18 m, Rise 5.4 m, Length 12.2 m

**Sector:** Transportation

**Application:** Stream Crossing

**Installation Time:** Five months





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## Many challenges to overcome

Arrangements had to be made with local landowners to place the detour bridge just outside of the narrow NSTIR right of way. Due to the site limitations, a single-lane bridge was used, with remote signals to alternate the traffic flow.

Design-build projects have many unknowns in the bidding process and during construction. In this case, the rock elevation was not clearly described at the time of bidding and geotechnical investigation was needed to verify both the detour bridge abutments and the foundations for the permanent Super•Cor crossing. The geotechnical firm, EXP, was contracted to visit the site during both excavations to validate the bearing capacities.

When a late change was required to the planned abutment system for the detour bridge, Algonquin and AIL teams quickly collaborated and came back with a Bolt-A-Bin precast bridge seat solution with timber backwalls.

The Super•Cor Arch foundation treatment also required some rather special measures. This involved the installation of sheet pile coffer dams, then tremie concrete installation to block water infiltration, then a cast-in-place footing. As well, the plate was supplied with ports to inject concrete into a pre-formed cast-in-place wall from the exterior of the structure — also quite a unique feature.

With the geotechnical complexities and the additional time needed for the site preparation, installation and removal of the detour bridge, the entire project spanned five months from June 30, 2019 to November 30, 2019. The various collaborations ensured the best possible outcomes and the new East River Bridge now provides a wider roadway with better horizontal and vertical alignments, as well as an increased hydraulic flow design that exceeds the contract's requirements.

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A couple of years prior to this, AIL had also designed and supplied a similar Super•Cor crossing in this area on the newly constructed Exit 5A connector at Ingramport.

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Fly over, around and through this  
new Super•Cor Arch with a 360°  
video tour



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