

# ROUTE 8 NAUGATUCK RIVER BRIDGE STRENGTHENING

## Pier cap shear reinforcement

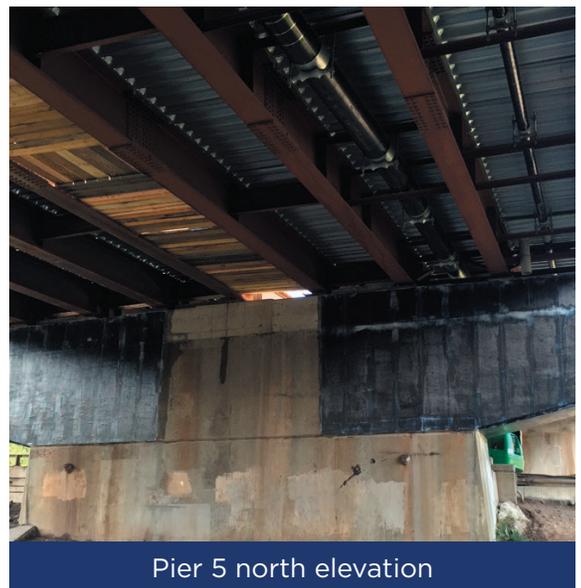
### OVERVIEW

Fyfe engineering was contacted by the engineer of record, CDR Maguire, to assist in developing an fiber-reinforced polymer (FRP) solution for a bridge strengthening project. The existing bridge is getting a full restoration with new girders and bridge deck. The pier caps required additional shear reinforcement due to the increased load rating on the bridge. The project bid in 2015 and was slated to last for two years due to multiple lane closures and logistics. Because the bridge traverses the Naugatuck River, an Amtrak right of way and Route 8, logistical challenges were expected throughout the install. Mohawk Northeast was the low bid general contractor for the project and was ultimately selected as the general contractor on the project.

Five pier caps required shear reinforcement for a total of 5,500 square feet of carbon fiber. In addition to performing the installation on the pier caps, Fyfe engineering was required to send a certified material representative onsite to oversee the ASTM D4541 pull off adhesion testing on site. The minimum psi requirement for the adhesion testing was 200 psi. All of the pucks that were tested achieved over 400 psi and showed a superior bond to the substrate of the concrete pier caps. Carbon fiber was finished off with the Tyfo® A acrylic paint.



ASTM D 4541 adhesion results



Pier 5 north elevation

Project Overview	
Project	Route 8 Naugatuck River Bridge Strengthening
Location	Naugatuck, Connecticut
Installation	Wet lay up
Owner	Connecticut Department of Transportation
Contractor	Mohawk Northeast