



Above: Installing a tiltmeter on a bridge pier. Right: Drilling on the piers.

Amtrak Bridge over the Thames River

Groton/New London, CT

Mueser Rutledge Consulting Engineers (MRCE) was consulted during the construction of the Amtrak Bridge after settlements were observed. This project entails geotechnical engineering to determine the cause of settlement, as well as the design of a remedial grouting program. The bridge foundations are 1920s timber, open-well caissons founded on sand, and gravel at 130 feet deep.

MRCE developed and implemented a comprehensive bridge pier monitoring program in response to lift system mechanical problems coinciding with adjacent deep foundation construction for the new bridge. Sixteen vibrating wire tilt sensors (each with internal thermistors to compensate for temperature effects of the bridge) were installed at the bridge pier corners to track and evaluate ongoing movement of the piers on each side of the main span. Fifteen minute readings were evaluated and then linked to less frequent manual survey readings collected by others. The remote location above the water and adjacent to the electrified rail complicated installation, power, and communications with data loggers. Solar power, wireless radios, and internet connections were used to overcome these complications. Additionally, data was received in our New York City office every twelve hours with threshold alarming capabilities available upon request.