



Biloxi Bay Bridge Replacement Biloxi and Ocean Springs, Mississippi

DBA Client: Parsons Transportation Group

DBA Services:

- Developed test pile program and reviewing the results.
- Provided QC and QA review of the geotechnical reports and analysis of the project geotechnical engineer.
- Performed analysis of the lateral load tests.

Project Highlights: Hurricane Katrina caused significant damage to transportation structures on the Gulf coast in August, 2005, including the destruction of the US 90 Bridge over Biloxi Bay, Mississippi. Part of the winning proposal for the replacement bridge included a comprehensive test pile program of indicator piles and load test piles. A total of 21 indicator piles were installed on the project. Each indicator pile was dynamically tested during driving using a PDA. Five load tests were also performed: two Statnamic axial, two Statnamic lateral, and one static axial. The results of the test pile program established driving criteria for production piles that included end of drive blow counts and pile tip elevations with an appropriate allowance for setup. The program also confirmed that the planned installation equipment and techniques of the contractor would install the piles to the design tip elevations. A thorough program of restrike measurements at a range of times after initial driving on the indicator piles provided a systematic documentation of pile setup in the soil profiles on the site. Unit side shear values up to 2.5 ksf in clay and 4 ksf in sand were determined from the load tests and CAPWAP analysis of the restrike data. These resistance values were used to set pile tip elevations. A dimensionless setup factor "S" was calculated by dividing the restrike resistance by the end of drive resistance. This factor varied from 1.5 for piles in sand to 3.0 for piles in clay and helped establish an end-of drive blow count that included an allowance for setup. The effort to establish the setup relationship on the project provided assurance to the MSDOT that piles driven to satisfy the established end of drive criteria would ultimately achieve the required ultimate axial resistance.



Owner:
Mississippi DOT



Designer:
Parsons Transportation Group



Contractor Joint Venture:
Massman Construction
Company



Kiewit Southeast



Traylor Brothers, Inc.



Geotechnical Engineer:
Eustis Engineering Company, Inc.

