

The Foundations for the A. Max Brewer Bridge Replacement and Enhancement Project

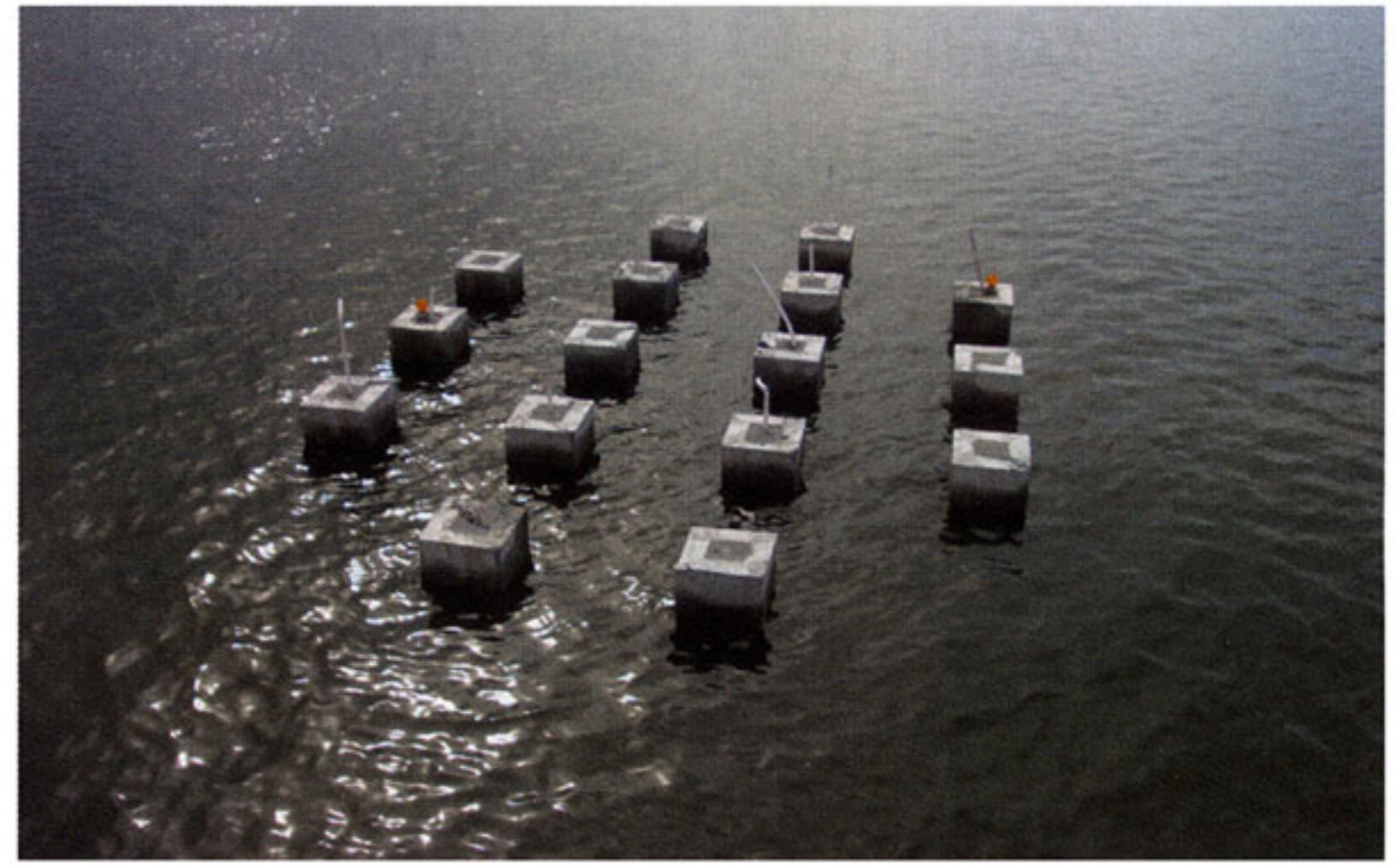
Right across from the Kennedy Space Center, from where NASA launches the Space Shuttle, along Florida's Atlantic coast, the Florida Department of Transportation (FDOT) is replacing one of the last 2 swing span bridges of the State. The new A. Max Brewer Bridge will span the Indian River with a 977-meter long fixed span bridge that will provide river traffic with an almost 20-meter vertical clearance.

Construction of the US\$45 million replacement bridge began in May 2009 for a Spring 2011 expected conclusion. The Design-Build team comprises Lane Construction Corporation, DRMP, Ardaman & Associates and Parsons Brinckerhoff. **GRL Engineers, Inc. (GRL)** performed Dynamic Load Testing and related engineering recommendations for the foundations work.

The bridge design was the only one among the bidders that involved a single bridge structure, said Lane Construction project superintendent *Paul Roux*. This solution required 64 of the largest pre-stressed concrete piles ever used in the area (0.91m, up to 55m long) to support the main span. Each pile, with 5171 kN required ultimate capacity, has one remarkably large mechanical splice. Because of their size, piles could not be land-transported, and were shipped from Savannah, Georgia, on barges. The bridge foundation also includes 610 mm and 762 mm square pre-stressed concrete piles for 22 bents and piers.

GRL tested pilot piles and developed driving criteria recommendations for the installation of the production piles. Due to the large pile sizes, FDOT also required Dynamic Load Tests on all spliced production piles, not only to verify their load bearing capacity but also to confirm the structural integrity of the pile and splice. Dynamic Testing was performed with a Pile Driving Analyzer®, a **Pile Dynamics, Inc.** product, and data analyzed with CAP-WAP® and GRLWEAP software.

Lane Construction Corporation, founded in 1890, performs US\$800 million of mostly transportation work. GRL Engineers, Inc. analyzes and tests deep foundations throughout the USA and worldwide, using wave equation and dynamic testing methods developed by its founders in the 1970s. Pile Dynamics has been manufacturing testing instruments for deep foundations for more than 35 years. Best known for having disseminated Dynamic Load Testing with the Pile Driving Analyzer to more than 90 countries around the world, the company produces several other quality assurance and quality control products for the deep foundations industry. Pile Dynamics is located in Cleveland, Ohio, USA, and has commercial representatives in all continents. ■



Photos courtesy of Lane Construction Corp.