

FDOT Transportation Innovation Initiative: FRP – Design Innovation



Fast Facts:

Glass
Fiber Reinforced
Polymer
&
Carbon
Fiber
Reinforced
Polymer



Project Location: FDOT District Three
Bay County
Lynn Haven, Florida

Agency: Florida Department of Transportation

URL: <http://www.fdot.gov/structures/innovation/FRP.shtm>

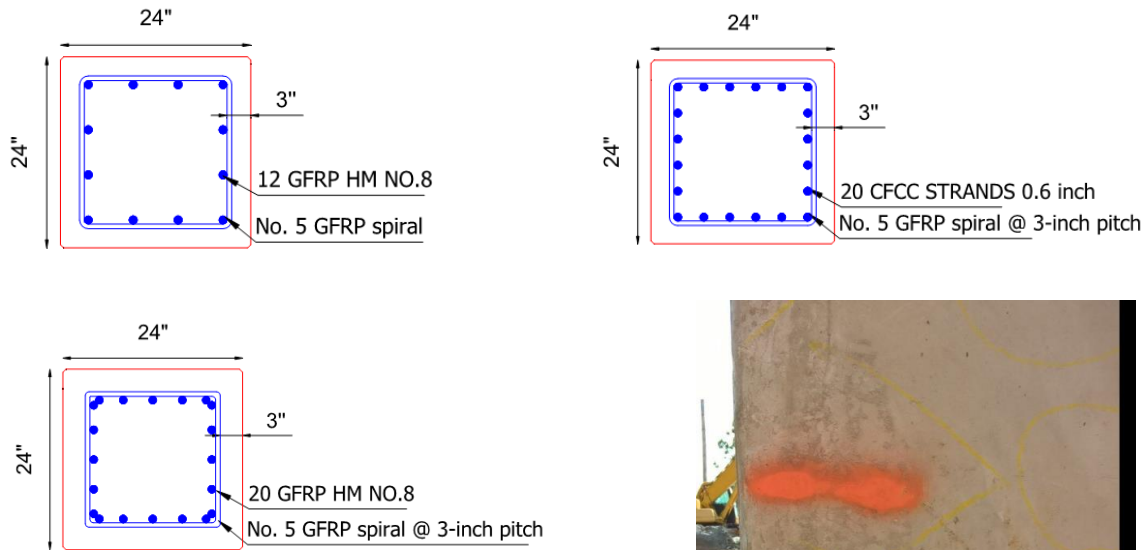
Project Name: Arthur Drive over Lynn Haven Bayou
Bridge No.: 464143
FPID: 430463-1

Project Description: Field testing of GFRP and CFRP reinforced concrete piles.

Project Purpose & Need:

Three FRP reinforced precast concrete demonstration piles were manufactured and driven to test performance. One pile was prestressed with CFRP tendons, and two piles were non-prestressed with GFRP bars.

Overall Budget/Cost Estimate: 180 linear feet of precast pile for a lump sum cost of \$28,904.00 + Tax. Cost of driving piles by contractor and FRP reinforcement unknown.



What was unique about this project?

Three demonstration piles were driven at a project site to assess the driving axial capacity of full-scale square FRP reinforced concrete precast piles in the field. The piles were not production piles, but were allowed to remain in place behind the backwall, under the approach slab.

Describe Traditional Approach:

Precast concrete piles with prestressed steel strand and mild steel stirrups is common for bridge deep foundations.

Describe New Approach:

Two of the demonstration piles contained non-prestressed GFRP reinforcement with GFRP stirrups. One pile was prestressed with CFRP strand with GFRP stirrups.

Top Innovations Employed:

Use of non-prestressed concrete piles, reinforced with GFRP bars.

Primary Benefits Realized/Expected:

Project Start Date/Substantial Completion Date:

FRP Pile Driving: 3/2/2017 – 3/3/2017



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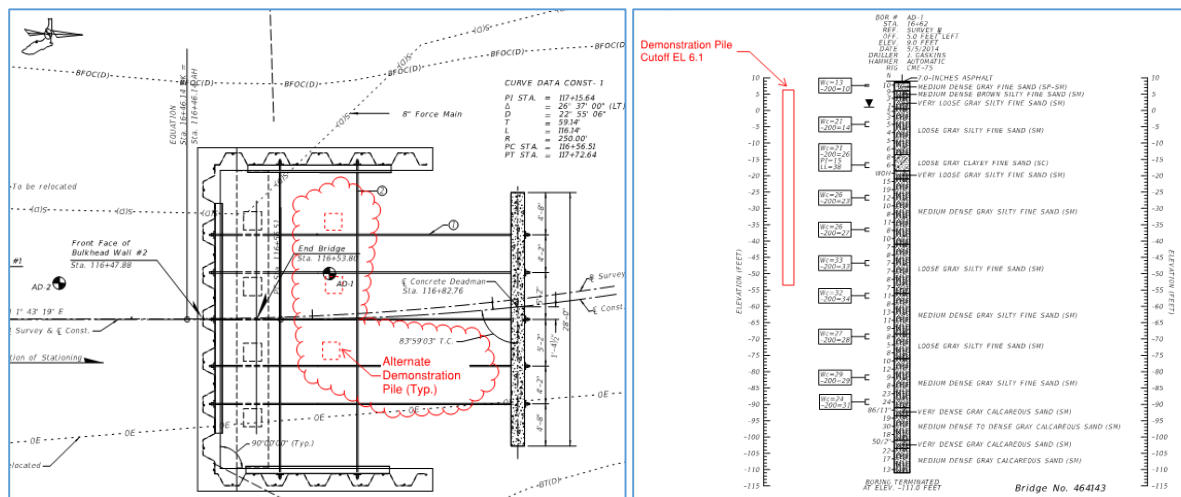
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Research Project:

A Laboratory and Field Study of Precast Concrete Piles Reinforced with GFRP Bars, Ties, and Spirals



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