FDOT Transportation Innovation Initiative:
FRP – Design Innovation

Project Location: FDOT District Three
Port St Joe, Florida

Agency: Florida Department of Transportation

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

Project Name: SR 30 over St Joe Inlet
Bridge No. 510014 (old), 510075 (new)
FPID: 435815-1

Project Description: Replace bridge and bulkhead seawalls

Project Purpose & Need: Bridge Inspection Reports identified poor condition rating (4) of the substructure, superstructure, and deck due to corrosion. Additional steel sheet pile and rubble for wave scour protection on the bay side was added in 2013. Work activities included roadway approaches, replacement of existing bridge and bulkheads. New seawall-bulkhead CFRP-PC sheet piles and GFRP-RC cap.

Budget/Cost Estimate: $4,360,516 (Proposed Budget Estimate)

Fast Facts:
Glass & Carbon Fiber Reinforced Polymer

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What was unique about this project? GFRP reinforcement is used in the bulkhead cap, and CFRP/GFRP or HSSS/GFRP in the prestressed concrete sheet piles located in the splash zone, to reduce future maintenance requirements.

Describe Traditional Approach: Traditional approach includes installation of grade 60 steel rebar in a cast-in-place bulkhead cap and precast sheet pile stirrups, and prestressing with ASTM A416 carbon-steel strands.

Describe New Approach: Utilization of GFRP bars in lieu of traditional carbon-steel rebar in the bulkhead cap and precast sheet pile stirrups, and prestressing with CFRP strands or HSSS strands.

Top Innovations Employed: Utilization of GFRP bars and corrosion-resistant prestressing within the splash zone/marine environment.

Primary Benefits Realized/Expected: Longer service life of the bulkhead-seawall.

Project Start Date/Substantial Completion Date: 1/1/2020 – 12/12/2020 (estimated)

TABLE OF FRP RELATED QUANTITIES:

<table>
<thead>
<tr>
<th>SUBSTRUCTURE</th>
<th>0415 14 23 CONCRETE SHEET PILING, CFRP/GFRP 10’x30’ W/FRP STRAND &amp; REINFORCING</th>
<th></th>
<th>0415 10 5 FIBER REINFORCED POLYMER BAR, #5 BAR</th>
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Affiliations:  
PE Consultant: Registe, Sliger Engineering, Inc.  
Construction Contractor: TBA  
Construction Engineering Inspection: TBA

Project Contacts:  
Engineer of Record: Jacques Registe, P.E.  
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