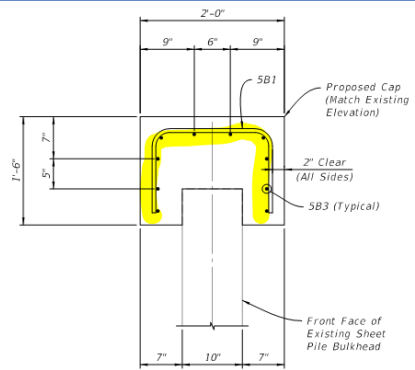


FDOT Transportation Innovation Initiative: FRP – Design Innovation



TYPICAL SECTION THROUGH BULKHEAD CAP

Fast
Facts:
Glass
Fiber
Reinforced
Polymer



Project Location: FDOT District Five
Brevard County
City of Cocoa, Florida

Agency: Florida Department of Transportation

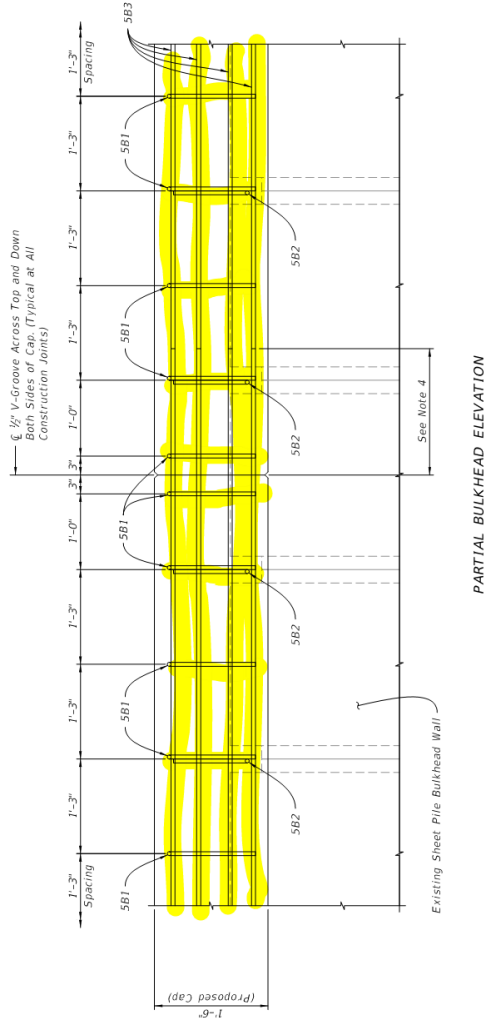
URL: <http://www.fdot.gov/structures/innovation/FRP.shtm>

Project Name: SR 520 over Indian River
Bridge Nos. 700061 & 700137
FPID: 440969-1

Project Description: Rehabilitation of bridge bulkhead-seawalls

Project Purpose & Need: Bridge Inspection Reports identified deterioration, including evidence of corroded steel reinforcement in the bulkhead cap on bridge. Work activities included removal of the existing bulkhead cap and installation of a new bulkhead cap with GFRP reinforcement. Other rehabilitation work (lateral beam bracing and bearing retrofits) is being conducted on the bridge, unrelated to FRP-RC/PC.

Overall Budget/Cost Estimate: \$1,563,424 (Construction Contract)



What was unique about this project? GFRP reinforcement is used in the bulkhead cap, which is within the splash zone, to reduce future maintenance requirements.

Describe Traditional Approach: Traditional approach includes installation of Grade 60 carbon-steel rebar in a cast-in-place bulkhead cap.

Describe New Approach: Utilization of GFRP bars in lieu of traditional grade 60 steel rebar in the bulkhead cap, located in the splash zone.

Top Innovations Employed: Utilization of GFRP bars within the splash zone/marine environment.

Primary Benefits Realized/Expected: Longer service life of the bulkhead cap and sheet pile wall, especially at vulnerable corners where cracking and more severe exposure occurs.

Project Start Date/Substantial Completion Date:

April 2019 – November 2019

0400 - 4 - 8	CONC CLASS IV, BULKHEAD	CY	100.000	100.000
0415 - 10 - 5	FIBER REINFORCED POLYMER BARS, #5 BAR	LF	13379.000	13379.000

Affiliations:

PE Consultant: Greenman-Pedersen, Inc.
 Construction Contractor: Olympus Painting Contractors, Inc.
 Construction Engineering Inspection: Rummel Klepper & Kahl, LLP

Project Contact:

Engineer of Record: Juan Ortega-Rosales, P.E.
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