FDOT Transportation Innovation Initiative:
UHPC – Design Innovation

Fast Facts:
Ultra-High Performance Concrete

Project Location: FDOT District Six
Southwest Miami
Miami-Dade, Florida

Agency: Florida Department of Transportation

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

Project Name: SR994/Quail Roost Dr over Canal C-102
Bridge Nos. 870628
FPID: 441961-1 (E6M47)

Project Description: Sonovoid PSB longitudinal joint repairs with UHPC.

Project Purpose & Need: Numerous reflective cracks in the asphalt overlay, indicating separation of the sonovoid units at the joints between the units. Bridge work activities involved hydro-demolition of longitudinal joints between PSB precast units and filling connections with supplemental tie bars and UHPC.

Overall Budget/Cost Estimate: $291,080 (Construction Contract)
$130,000 (258 LF. Joint Repair w/ UHPC)
What was unique about this project? Second use of UHPC for existing sonovoid PSB joint repairs in Florida.

Describe Traditional Approach:
Traditional approach includes using hooked and lacing reinforcing bars within wider concrete closure pours using high early strength concrete.

Describe New Approach:
Exposure of existing reinforcing bars by hydro-demolition, with addition of supplemental tie bars enclosed in a UHPC closure pour.

Top Innovations Employed:
Utilization of UHPC connections for rapid and robust repair of damage longitudinal joint connections.

Primary Benefits Realized/Expected:
More robust and longer service life from UHPC connections. Shorter closure time for bridge repairs.

Project Start Date/Substantial Completion Date:
02/9/2021 – 06/03/21

Affiliations:
PE Consultant: Bolton Perez & Associates
Construction Contractor: Sieg & Ambachtsheer, Inc.
Construction Engineering Inspection: FDOT D6 - North Dade

Project Contact:
Engineer of Record: Luis Vargas, P.E.
FDOT Construction Project Manager: Dru Badri (District 6)
FDOT Construction Project Administrator: Leo Bermudez (District 6)

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