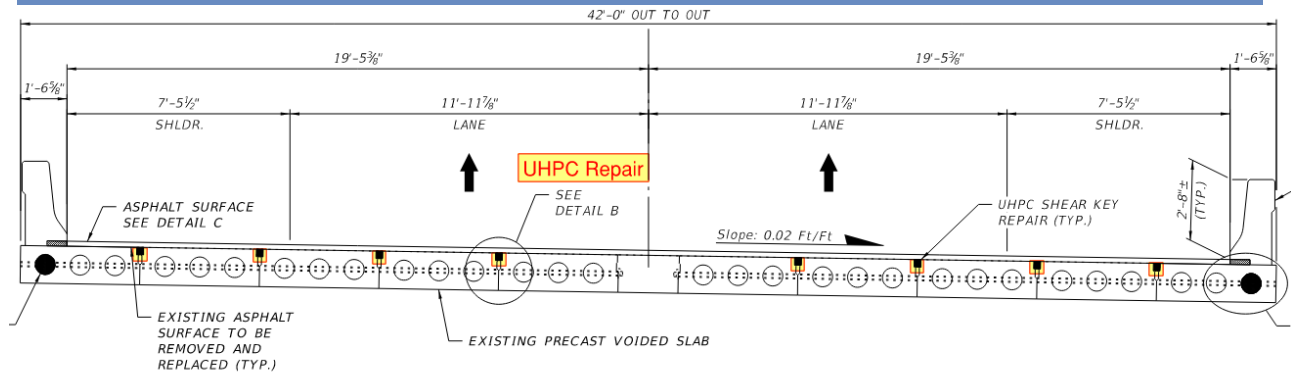


FDOT Transportation Innovation Initiative: UHPC – Design Innovation



TYPICAL SECTION

Fast
Facts:
Ultra-High
Performance
Concrete



Project Location: FDOT District 1
Palmdale
Glades County, Florida

Agency: Florida Department of Transportation

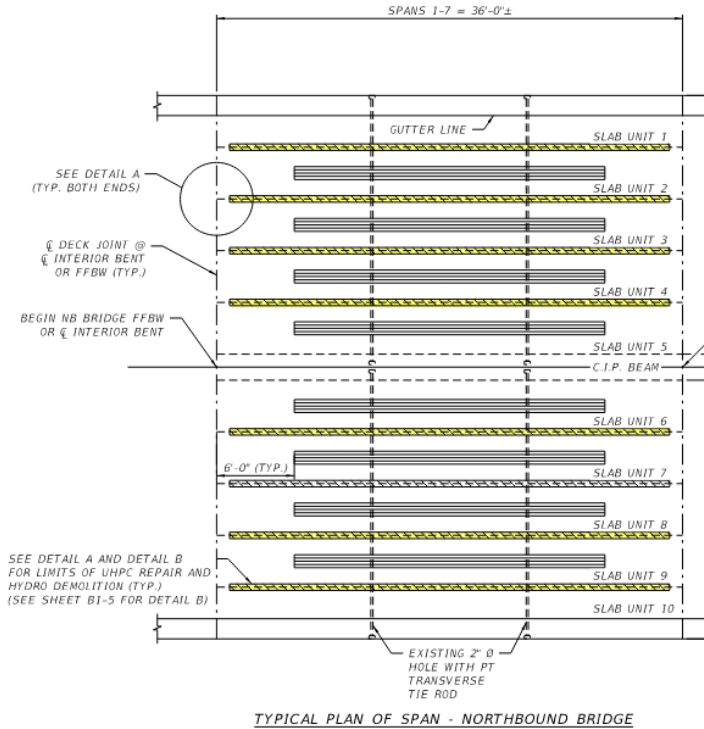
URL: <http://www.fdot.gov/structures/innovation/UHPC.shtm>

Project Name: SR25(US27) NB over Fisheating Creek Overflow
Bridge No. [050050](#)
FPID: 445925-1 (T1848)

Project Description: Sonovoid PSB longitudinal joint repairs with UHPC.

Project Purpose & Need: 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. Other rehabilitation work involves expansion joint repairs and installation of pile jackets to the substructure that is unrelated to UHPC.

**Overall Budget/
Cost Estimate:** \$1.5M (Construction Contract), goes with
FPID 445932-1 (\$13.5 M)



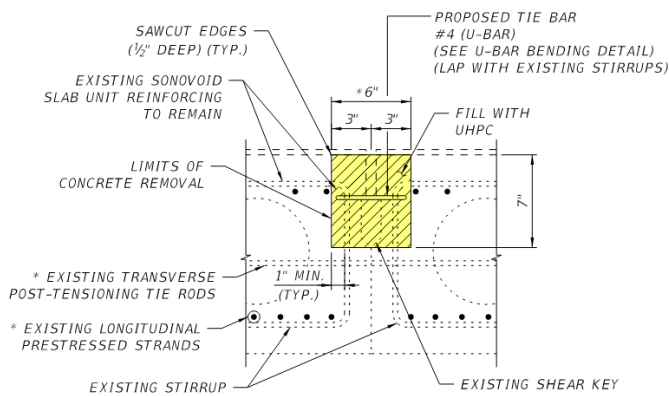
TYPICAL PLAN OF SPAN - NORTHBOUND BRIDGE

NOTE:

1. ALL SHEAR KEYS WITHIN THE REPAIR LIMITS DENOTED ON THIS SHEET MAY BE DEMOLISHED PRIOR TO THE POURING OF UHPC.
2. HYDRODEMOLITION SHALL NOT BE PERFORMED WHEN UHPC IS BEING POURED ON ADJACENT SPANS.

LEGEND:

- AREAS OF HYDRODEMOLITION AND UHPC REPAIR
- AREAS OF PRE-LOAD



DETAIL B
SLAB UNIT CONNECTION DETAIL USING UHP-CONCRETE

What was unique about this project?

2nd largest FDOT project use of UHPC (21 CY) for existing sonovoid PSB joint repairs. 7-spans with 8-joints each = approx. 1,900 LF.

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 highway system bridges.

Project Estimated Start Date/Completion Date:

Early 2023 – Late 2023

Affiliations:

PE Consultant:
Construction Contractor:
Construction Engineering Inspection:

WSP USA, Inc.
TBA
TBA

Project Contact:

Engineer of Record:

Trevor Johnson, P.E. (WSP)



FDOT Design Project Manager:

Katharine Sampson, E.I.
FDOT District 1