SR 141 IMPROVEMENTS, I-95 INTERCHANGE TO JAY DRIVE
DelDOT Contract No. T201109001
Pre-Bid Meeting
May 16, 2019
• Introduction
• Future Addendum to Bid Proposal
• Sequence of Construction Phases
• Accelerated Bridge Construction
• Unique Bridge Components
  • Precast Pier Caps
  • Precast Pier Columns
  • Superstructure Module Construction
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Sequence of Construction Phases

- Phases 1-3 (SR 141 and Commons Blvd Intersection)
- Phases 4-6 (SR 141 / SB I-95 Interchange)
  - 845 days to complete Phases 4-6
- Sequence of Construction
  - Phase 5A begins the construction activity
  - Phase 4 – Stage II – Maintain Airport Road access to SR 141
  - Phase 1 will begin as parcels are cleared and/or after utility relocations are completed by others as directed by the engineer
  - Notes throughout phasing plans stating when activities may begin/occur concurrently
  - Expectation is that multiple crews will work concurrently in different areas
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Accelerated Bridge Construction (ABC)

- Why ABC?
  - Keep bridge structures off critical path
  - FHWA and DelDOT initiative

- ABC Elements
  - Precast pier columns
  - Precast pier caps
  - Prefabricated superstructure modules
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Unique Bridge Components

- Aesthetic treatments
  - Ideally to match BR 1-675/678
- Modular units
- UHPC link slabs
  - Eliminate joint (continuous across deck)
- Bearing Configuration
  - Fixed bearings over Pier 1 (1-676/677)
  - Expansion bearings (no joint) across Pier 2, 3, and both abutments
  - Expansion accommodated off bridge between approach slab and sleeper slab
- Multiple Sole Plate Configurations
  - Anchor bolt locations and bevel
  - Attempted to limit number of unique configurations
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Precast Pier Caps

- Anchor bolt blockouts to be precast in pier cap

> 3. USE SWEDGED ANCHOR BOLTS. ANCHOR BOLTS FOR ABUTMENT A AND ABUTMENT B MAY BE CAST-IN-PLACE OR GROUTED IN PREFORMED (SLEEVED OR DRILLED) HOLES. WHEN DRILLING HOLES, DO NOT COME INTO CONTACT WITH REINFORCING BARS. SLEEVED HOLES SHALL BE CORRUGATED TO PREVENT SLIPPAGE. ANCHOR BOLT BLOCKOUT HOLES SHALL HAVE A DIAMETER OF 4\*. ANCHOR BOLTS FOR PIER 1 AND PIER 2 MUST BE GROUTED IN PREFORMED SLEEVED HOLES. DRILLING INTO THE PRECAST PIER CAP WILL NOT BE ACCEPTED. SEE DWG. NO. PR-09 AND PR-10 FOR LOCATION OF SLEEVED ANCHOR BOLT HOLE LOCATIONS.

- Designated as Mass Concrete Pour
  - Requires Temperature Control Plan, Refer to Special Provision 612500 for further guidance

> 2. PIER CAP FABRICATION
  PRECAST PIER CAPS ARE DESIGNATED AS MASS CONCRETE POURS. A TEMPERATURE CONTROL PLAN IS REQUIRED TO CONSTRUCT THE PIER CAPS. REFER TO SPECIAL PROVISION 612500 FOR FURTHER GUIDANCE.

- NOTE: 612500 - PRECAST CONCRETE PIER CAP special provision addendum forthcoming

Precast Pier Columns

- NOTE: 612501 - PRECAST CONCRETE PIER COLUMN special provision addendum forthcoming
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Precast Pier Caps cont.

- Anchor bolt blockouts example detail:
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Pier Construction

- Closure pour between CIP footer and precast columns
- Closure pour between precast columns and precast pier caps
- Closure pour between precast caps
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Superstructure Module Construction

- First use in DE, but has been successfully constructed in the local region
- Longitudinal closure pours with UHPC
- Transverse closure pours over piers with UHPC (Link Slab Detail)
- Many options exist for Means and Methods of module construction, but one idea…
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Superstructure Module Construction Visual

https://www.youtube.com/watch?v=oV6NuoxARf4&feature=youtu.be

Video Credit: IowaDOT

• Further information provided in special provision 615501 – Prefabricated Superstructure Modules.
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Thank you!

Questions?