Accelerated Bridge Construction in Alabama: an update on ALDOT projects
ACCELERATED BRIDGE CONSTRUCTION -

- innovative planning,
- design,
- materials,
- construction methods

- safe and cost-effective

★ reduce the onsite construction time
ABC technologies being promoted under EDC2:

- Geosynthetic Reinforced Soil – Integrated Bridge System (GRS-IBS),
- Prefabricated Bridge Elements and Systems (PBES),
- Slide-In Bridge Construction
Project 1

Bridge Over Culvert on State Route 210, Ross Clark Circle, over Beaver Creek, in Dothan

Slide-in-Bridge Construction
3-BBL 10 x 6 Culvert

~ 20 feet of fill (max)

Designed for H-15 Loads

1950 ADT – 5000 vpd
2013 ADT – 40,000+ vpd
2033 ADT – 73,000 vpd
Culvert Issues

- Water / Sewer, Power, Telephone, & other utilities on both sides
- Upstream flooding has occurred, immersing culvert entrance, upstream parking lots.
- Culvert is structurally deficient – must be replaced
Consultant Solution #1:

Extend both ends for 2:1 backslope.
Half of culvert at a time.
Consultant Solution #2:

Replace culvert to original length, use 20’ high retaining walls.
Half of culvert at a time.
ALDOT #1 STONE, 24'' THICK W/ FILTER BLANKET (ROADWAY ITEM)

BEAVER CREEK

¾'' OPEN BARRIER RAIL JOINTS

SBR PROFILE GRADE LINE

4'' Ø DECK DRAINS @ 4'-0'' O.C.
ALIGNMENT: 0°-45'-00" CURVE RT
OVERALL BRIDGE LENGTH = 120'-0"
GRADE: SEE V.C. SKETCH
PRETENSIONED-PRESTRESSED CONCRETE GIRDERS, TYPE BT-63

ELEVATION
SCALE: 1" = 10'-0"

IN PLACE CT6X10 CULVERT (TO REMAIN)

EXCAVATE (RDWY. ITEM)

2:1
3:1
Three ABC Issues:

1. Temporary Shoring for Abutments
2. Falsework to support Superstructure
3. Slide
Building abutments under traffic?
Contractor provides engineered design.
US-34 Bridge Replacement outside Wray, Colorado
US-34 Bridge Replacement outside Wray, Colorado
2. Falsework

PROBLEM?
3. Slide

PROBLEM?
3. Slide or Roll
Threaded rod pulls bridge

Position PTFE sliding pads ahead of bridge
Rollers under Girders

Jacks in Jacking Bays
STAGE 1
INITIAL PICKUP

STAGE 2
SLIDE OPERATION

LIFT JACK (SHIM AS NEEDED)
TEMPORARY SHIMS
FORMWORK/WORK PLATFORM
ROLLER W/ GUIDE RAIL
STAGE 3
ROLLER AND GUIDE REMOVAL, THEN INSTALLATION OF BEARING PADS
Ross Clark Circle Bridge Slide
Dothan, Alabama

ASCE Montgomery Branch Meeting
March 17, 2015

Click here to see the animation:
http://www.montgomery-asce.org/documents/meetings/2015/march/rcc_animation.mp4
Project 2

Bridge over I-85 on Moore’s Mill Road, County Road 146, in Auburn

Pre-fabricated Bridge Elements
★ Built 1958
★ 1960 ADT < 500
★ 2013 ADT > 12,000
★ 20 year projection > 18,000 ADT
Columns ≈ 41,000 lbs each
Caps ≈ 108,000 lbs each
Project 3

Bridge over Calhuga Creek on SR-9, just south of I-20 & Heflin, in Cleburne County

Slide-in-Bridge Construction
• Built in 1942
• On the Bridge Replacement List,
• 2014 ADT - 3680
Project Challenges

• Straddle Bents
• Pre-fabricated Abutment Caps
• Three span slide/roll
  • Alignment
  • Separation
• Technology transfer
• Maintain September letting
Cahulga Creek Bridge Slide Concept
Heflin, Alabama

ASCE Montgomery Branch Meeting
March 17, 2015

Click here to see the animation:
http://www.montgomery-asce.org/documents/meetings/2015/march/caulga_animation.mp4
Accelerated Bridge Construction in Alabama: An update on ALDOT projects