Southbound US-191
Cold Creek Canyon Bridge
Mile Post 154.9 Structure Number 258

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SOUTHBOUND COLD CREEK CANYON BRIDGE
191 GE 154 H8231 01C
US 191
Roadway ID Looking South
Roadway ID Looking North
Elevation ID looking Northwest
Exterior View of East Girder
Exterior Pin Connection
Interior Pin Connection
Roadway ID Showing Northbound and Southbound
Deck Settlement at Span #3
Northwest Corner
Close-up View of Deck Settlement
Deck Settlement at Span #3 Northwest Corner
Deck Settlement at NW Corner of Span #3 (approx 8")
Plate Girder Settlement Looking East
Barrier Settlement Looking East
Bearing separation
Concrete Surface
Failure of Pier #3
South Face
Spalled Concrete from Pier #3
Pier #3 Top View of SW Bearing
NE Bearing at Pier #3
NE Bearing at Pier #3
New Southbound Bridge

Design Considerations
- Structure Cost
- Constructability
- Bridge Aesthetics
- Construction Duration
- Traffic Impacts
- Environmental Impacts
- Channel Hydraulics
- Bridge Drainage
- Roadway Geometry
- Seismic Performance Category

Structure Types Considered
- Precast AASHTO Girder Bridge
- Steel Girder Bridge
- CIP Post-Tensioned Box Girder Bridge
Alternative #1 - CIP Post-Tensioned Box Girder Bridge

Cost Estimate: $2,358,376
Alternative #2 - Steel Girder Bridge

Cost Estimate: $2,411,033
Alternative #3 - Precast AASHTO Type IV Girder Bridge

Cost Estimate: $2,181,991
Northbound Bridge

- 413-foot Five Span Bridge built in 1982
- Hammerhead Piers with 7-foot Diameter Columns
- AASHTO Type IV Precast Girders
Northbound Bridge Underside of Structure
Bridge Structure Alternative Selected
Prestressed Precast AASHTO Type IV Girder Bridge

- Total Bridge Length: 403-feet (5-Span Bridge)
- Horizontal Curve (R = 2022 ft  L = 1678 ft)
- Vertical Sag Curve (g1 = -5.0000%  g2 = 5.7628%)
- Seismic Performance Category: A (acc = 0.05 g)
Foundations

- Rock Socketed Drilled Shafts
- Gila Group Conglomerate Bedrock
- RQD = 82% to 100% (mostly 100%)
- Unconfined Compressive Strength of 2000 psi
Construction Access Road.
NB Bridge remained open during girder erection (one lane with flaggers).
78’ to 80’ Type IV AASHTO Girders (High Performance SCC Concrete).
Deck Reinforcing
Deck Overhang Formwork
• 400-foot Continuous Deck Pour.
• Recover Hydration Stabilizer Concrete Retardant.
Forming 34-inch F-Shape Barriers and Transitions
Hammerhead Piers (42-foot Wide Cap, 7-foot Diameter Columns)
Stepped Pier Cap to accommodate a 6.6% Superelevation.
Matching Span and Pier Configuration
New Bridge Looking South
New Bridge Looking North
Stay-in-Place Deck Forms
- NB roadway alignment before SB bridge closure (2001).
- Note the lower SB alignment.
New SB Roadway Alignment (5-feet higher than NB Alignment).
Cold Creek Canyon Bridge to Old Safford Road
Bridge Replacement and Pavement Preservation

- New SB Bridge expected to open to traffic by Fall of 2013.
- Bridge Removal $164,000 ($22/sqft).
- Cost of New Southbound Bridge $1.9 M ($167/sqft).
Questions?