Utility Coordination And Design

Case Study – Neches River Bridge Reconstruction

Beaumont and Rose City, Texas

April 30, 2012
Monica Silver, P.E.
CobbFendley Introduction

- Civil Engineering Firm with 170+ Problem Solvers
- 6 Texas offices and an Albuquerque, New Mexico office
- 32 years of Utility Coordination and Design experience for telecommunications, Gas/Pipeline, Electric and Municipal facilities.
- Multiple and renewed UC contracts with DOT continuously for over 15 years
- Former DOT/Private Utility Company Staff
Project Limits

Entry Point
Exit Point
4000' Directional Bore
Project Characteristics

- Funding came after I-35 Mississippi bridge collapse in Minnesota
- Needed bridge construction with no utility delays to receive funding
- Homeland security issues and communication issues after Hurricane Rita prompted decision for underground crossing
Project Characteristics

- Reimbursable Utility Relocations due to federal funds on Interstate Highway
- Historical sunken ship on north side/Superfund site on southwest corner
- Existing utility crossings on bridge, under bridge on poles and under the river
Project Characteristics

- Not enough right-of-way width for 7 separate utility crossings – joint relocation
- TxDOT took lead in design of joint bore
- CobbFendley became TxDOT’s consultant
  - TxDOT’s UC process
  - Communication design expertise
  - Directional drilling design experience
Utility Coordination

- Conducted Utility coordination meetings
- Project Schedule
  - Critical to bridge reconstruction letting
  - TxDOT’s and Utility Owner’s schedule
- Consensus for joint directional bore
  - Tie-In’s to existing facilities
  - TxDOT right-of-way division support
Utility Coordination

- Utility engineering investigation (SUE)
  - Level D through A
  - Verify Tie-In locations

- Conflict Assessment
  - Longitudinal communications lines – prove conflicts
  - Crossings - 18” Mobile Oil, 30” Mobile Water and AT&T ductbank
Utility Coordination

- Assist in Utility Agreement preparation
  - Contained both TxDOT and Utility Owner work
- Review Utility Owner relocation plans
- Programming and detailed Cost Estimate
Utility Coordination

- Execute Plan approval Memorandum with Utility Owner’s
- Construction phase services
  - As-builts
  - Observation
- Review of Utility Reimbursement Invoices
TELECOMMUNICATION SYSTEM RELOCATION PLAN APPROVAL
MEMORANDUM

District: Beaumont
County: Orange
Federal Project No. C-28-9-114
ROW CSJ: 0028-09-114
Highway: IH 10
Limits: At Neches River Bridge
Utility Owner: Utility (use company’s official name)
Southwestern Bell Telephone Company, Inc. AT&T Texas

The Texas Department of Transportation (TxDOT) Beaumont District has designed relocation plans, specifications and estimate (PS&E) for the existing communication lines within the limits of the referenced project above to facilitate the demolition of the existing bridge and the construction of the new IH-10 Neches River Bridge.

The proposed Telecommunication System consists of a joint utility directional bore of approximately four thousand (4000) feet across the Neches River along IH 10. It includes facilities west of Neches River along Pine Street and east of Neches River across IH 10 to enable the connection back to existing Utility Owner facilities. The system will house 17-4” ducts where 2-4” ducts with 3-1.25” inner ducts each will be property of Utility AT&T Texas.

By signing this memorandum, Utility confirms they have reviewed the TxDOT PS&E package dated 04/14/2010, agrees and approves the like for like design to their Communication System. Utility also AT&T Texas consents that the design is in accordance with Utility policy and the Texas Administrative Code Part 1:
Title 43 Chapter 21 Subchapter C.

The signatory to this memorandum warrants that they have the authority to sign this memorandum on behalf of the party represented.

UTILITY

Utility: Southwestern Bell Telephone Company, Inc. AT&T Texas

By: [Signature]
Title: Director Construction & Engineering
Date: 5/6/2010
Utility Design

- TxDOT stand alone PS&E package for utility relocation separate from bridge reconstruction
- Discussed Design issues at Utility Coordination meetings and within Owner specific meetings
- Utility Owner specifications, contractor’s and inspector
Utility Design

- Site Visit to determine entry and exit points
  - 4000’ of pipe layout for Outer Casing, Ducts and Innerducts
  - Rig Setup
- Determined number of ducts/innerducts for each Utility Owner to size outer casing
- Filled casing with TxDOT duct for future crossing requests
Utility Design

- Color-coded innerducts for each Utility Owner
- Handholes designed at ends of bore – fiber placement
- Traffic Control
- Maxi Directional Drilling contractor input for proposed alignment and material selection
- Rodding inspection
Construction

- $3.9 million construction bid and $200k in change orders
- Construction Observation
  - Schedule and progress tracking for both TxDOT and Utility Owners
- Submittal review
  - Pipe material, Welding, etc.
Construction

- RFI response
- Change order review
  - Traffic control, tie-in alignment modification, etc.
- Assist in Construction Challenges
  - 4” duct collapse after pull
- Mandrel innerducts in bore for Utility Owner acceptance
Success

- Cost savings - $5 million
- Schedule – One year ahead
  - Bridge currently under construction
- Received AASHTO 2011 Excellence in Utility Relocation and Accommodation Award in the Construction Management Category
Thank you

Contact Information:

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