S.R. 66 STORM
SEWER TUNNEL

In
Evansville, Indiana

S.R. 66 (Diamond Avenue) Storm
Sewer Tunnel

- Project No. STP-006-7(018)
- Contract R-26480
- Des. No. 0200534
- October 2003 Letting
- Completed September 2004
PROJECT TEAM

- FHWA – Washington D.C. and Indiana Offices
- INDOT – Design, Materials and Tests, Vincennes District
- Woolpert, Inc. – Prime Consultant
- Lyman Henn, Inc. – Tunnel Design Consultant
- Earth Exploration, Inc. – Geotechnical Consultant
- Affholder, Inc. – Prime Tunnel Contractor
Typical Section of Diamond Avenue
Typical Section of Diamond Avenue

Cross Section of Diamond Avenue Showing Storm Sewer Location

- Proposed Storm Sewer
- Varies 20' to 40'
- Exist Comb. Sewer
- Exist R/W
- Centerline Diamond Ave.
- 3 WB Lanes: 12' - 12' - 12' - 16' - 12' - 12' - 12'
- 3 EB Lanes
- Exist Concrete Pavement
WHY TUNNELING?

Typical Open Cut Construction

- Centerline Diamond Ave.
- Traffic Crossover Required
- WB Lanes Closed
- Existing R/W
- Trench Box or Sheeting
- Temporary Pavement
- Temporary Conc. Barrier
- Sheeting

Dimensions:
- 12’ WB
- 12’ EB
- 12’ WB
- 12’ EB
Cost Estimate for Open Cut

- Construction Cost = $9.5 Million
- User Costs = $5 Million
- Utility Relocation Costs = $0.5 Million

TOTAL OPEN CUT COST = $15 Million

Cost Estimate for Tunneling

Based on $1,500 per linear foot estimated from previous tunnel project in Evansville times 4,850 linear feet of tunnel.

TOTAL TUNNEL COST = $7.3 Million
Estimated Cost Savings

Open Cut = $15 Million
Tunneling = $7.3 Million

Estimated Savings = $7.7 Million

Design Issues

- Traffic Impacts
- Subsidence
- Alignment
- Manholes
- Utilities
Traffic Maintenance at Exit Shaft

Settlement Monitoring

- Structure Monitoring Points (at pedestrian bridge)
- Monitoring Points and Monitoring Arrays (along centerline of tunnel)
- Utility Monitoring (above critical utility facilities)
Resurfacing Typical Cross Section

Pedestrian Bridge
Manholes

Tunnel Horizontal Curve

Manholes and Laterals To Be Built With SR 66 SEC. 2 Road Contract

8' gap in tunnel

Future Connections by City of Evansville

Street Approach

Tunnel in Place

S.R. 66

EB Lanes

WB Lanes

Flow
Utilities

- SBC – not affected.
- Vectren Power – two street lights were relocated for staging area.
- Vectren Gas – three crossing locations where settlement of cast iron pipe was a concern.
- Evansville Water – water mains were located above potential tunnel conflicts.
- Evansville Sewer – combined sewer at Evans Street had to be relocated.

October 2003 Letting

Affholder, Inc. of Missouri awarded contract with a bid of $6.95 Million.
Reality Check
(Actual Tunnel Costs)

- Construction Costs = $7.5 Million
- User Costs = $1.2 Million
- Utility Relocation Costs = $0.8 Million

TOTAL TUNNEL COST = $9.5 MILLION
(Savings of $5.5 Million over Open Cut)

July 2004 Site Visit