Preventing Cross Bores
An Overview of Vectren's Process

Presented By:
Vectren, Jennifer Fisher

5/4/10
Vectren Overview

• Vectren is a natural gas and electric utility operating in Indiana and Ohio
  – Indiana South
    • 140,000 electric customers
    • 110,000 gas customers
  – Indiana North
    • 560,000 gas customers
  – Ohio
    • 315,000 gas customers
Overview

Vectren implemented policies in the 1990s to address the risk of cross bores

Goal

Prevent damage to all foreign facilities

Required

Prior to any trenchless pipe installation
## Boring Safeguards Procedure

### Spot Verifications

<table>
<thead>
<tr>
<th>Crossings</th>
<th>Paralleling Foreign Facilities</th>
<th>Paralleling Natural Gas Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spot within 2 ft of existing facility</td>
<td>Spot at beginning</td>
<td>Spot at beginning</td>
</tr>
<tr>
<td></td>
<td>Spot at end</td>
<td>Spot at end</td>
</tr>
<tr>
<td></td>
<td>Spot every 150ft</td>
<td>Spot every 75ft</td>
</tr>
<tr>
<td></td>
<td>Within 3-5 ft</td>
<td>Within 5-10ft</td>
</tr>
<tr>
<td></td>
<td>Spot every 75ft</td>
<td>Spot every 200 ft</td>
</tr>
<tr>
<td></td>
<td>Within 5-10ft</td>
<td></td>
</tr>
</tbody>
</table>
What sewers are located?

- **Sanitary**
  - Main
  - Laterals

- **Septic**

- **Storm**
Sewer Transections Procedure

Locating Sewers

How are the sewers located?

- Non-Electronic Locate
- Electronic Locate Camera
- Electronic Locate Non-Camera
Sewer Transections Procedure

Protecting Plastic Pipe

- **Sewers Located / No Conflict**: Minimum of 2’ vertical and horizontal clearance.
- **Open Excavation**: Location and depth of sewer is unknown.
- **Spot Hole**: If sewer depth unknown OR New main will be installed within 2’ of the sewer.
- **Insertion**: Insert plastic main or service in metallic piping.
- **Steel Carrier**: Only used if other protective methods unreliable or impractical.

- **No further protective method required**
- **No trenchless installation**
- **Visually verify a cross bore does not occur**
- **Install steel pipe instead of plastic**
Sewer Transections Procedure
Customer Notification

"Important Information" packet delivered to each premise in construction area.
Sewer Transections Procedure
Record Keeping

Form 3651 (Rev 06/06)

SERVICE SEWER CONFLICT RECORD

Property/Street/Alley Crossed: 438 S. Main St.

Proposed * Protective Method: 1
Actual * Protective Method: __________

Field Changes Approved By: __________

Sewer Locate Performed: Dave Walker, Date: 7/29/09

Protective Methods (List by Number):
1. Site evaluation and records research indicate no sewer facilities in construction area
2. Sewer locate performed resulting in:
   a) Clearance greater than 2 ft (vertical & horizontal)
   b) Clearance less than or equal to 2 ft (vertical & horizontal) requiring a spot hole
3. Spot hole used to visually inspect sewer facilities during excavation and/or boring operations
4. Open excavation, crumbly, clear of rocks and other obstructions, inspected.
5. Insertion or conduits
6. Install steel protective sleeve
7. Install steel carrier pipe

* Proposed Protective Method will be used unless changes approved by company representative

Service Sketch Proposal
(with gas main and sewer/laundry systems)
Sewer Transections Procedure

Record Keeping

Form 3801 (Rev. 04/09)

SERVICE SEWER CONFLICT RECORD
Property/Street/Alley Crossed: Inter E. 28th St. & Pearl St.

Proposed * Protective Method: A
Actual * Protective Method: __________

Field Changes Approved By: __________

Sewer Locate Performed: Dave Walker Date: 7/25/09

Protective Methods (List by Number):
1. Site evaluation and records research indicate no sewer facilities in construction area
2. Sewer locate performed resulting in:
   a) Clearance greater than 2 ft (vertical & horizontal)
   b) Clearance less than or equal to 2 ft (vertical & horizontal) requiring a spot hole
3. Spot hole used to visually inspect sewer facilities during excavation and/or boring operations
4. Open excavation, crumbed, clear of roots and other obstructions, inspected.
5. Insertion or conduits
6. Install steel protective sleeve
7. Install steel carrier pipe

Proposed Protective Method will be used unless changes approved by company representative.

Service Sketch Proposal
(with gas mains and sewer/telecom systems)

INDICATE NORTH

C-1-04
# Sewer Transections Procedure Record Keeping

## SEWER CONFLICT RECORD

### Main Installation

<table>
<thead>
<tr>
<th>Operations Center</th>
<th>Project #: 07582152528</th>
<th>Project Proposed By</th>
<th>Date</th>
<th>Sheet # 2 of 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anderson</td>
<td></td>
<td></td>
<td>6-15-09</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property/Street/Alley Crossed</th>
<th>PROPOSED* Protective Method</th>
<th>ACTUAL* Protective Method</th>
<th>Field Changes Approved By</th>
</tr>
</thead>
<tbody>
<tr>
<td>8TH + Brown ST</td>
<td>1</td>
<td>1</td>
<td>Brandon Hastings</td>
</tr>
<tr>
<td>1635 Brown ST</td>
<td>2B</td>
<td>2B</td>
<td></td>
</tr>
<tr>
<td>3431 Brown ST</td>
<td>2B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3625 Brown ST</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broad + Edgemound Dr</td>
<td>2B</td>
<td>2A</td>
<td></td>
</tr>
</tbody>
</table>

**Pre-construction meeting attendees:**

<table>
<thead>
<tr>
<th>Installation Contractor / Company Crew</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brandon Hastings</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Installation Inspector / Crew Leader</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brandon Hastings</td>
<td>6-15-09</td>
</tr>
</tbody>
</table>

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**Protective Measures ([List by Number]):**

1. Site investigation and records research indicate no sewer facilities in construction area
2. Sewer lines performed resulting in:
   a) Crossline greater than 2 ft (vertical & horizontal)
   b) Crossline less than or equal to 2 ft (vertical & horizontal) requiring a spot hole
3. Spot hole used to visually inspect sewer facilities during excavation and/or boring operations
4. Open excavation cradled, door of nole and other obstructions, inspected from within excavation
5. Lowline or conduit
6. Install steel protective sleeve
7. Install steel carrier pipe

**Proposed Protective Measure will be used unless changes approved by company representative**
Project Design Considerations

- Evaluate project paths to reduce the number of foreign facilities in the project area.
- Reconsider the feasibility of trenchless installation for the project.
- Lay new main lines close enough to existing lines to allow inserting both long and short-side services.
Conclusions

- Vectren safely uses trenchless installation for many of its projects
- In 2008, post-construction sewer locates on 7 projects revealed no cross bores