Considerations for Pipe Replacement in Maintenance

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Presented by: Russell A. Fowler, P.E.
Pre-Job Considerations

- Utility Location
- Detour Requirements
- Structure Size
- Pipe Material Selection
- Special Equipment Requirements
- Establishment of Grade
Utility Locations

* Local Utilities
* Holey Moley
  1-800-382-5544
Detour Requirements

- Project to be performed under traffic?
- Closure required through Traffic Section
Structure Size

- Minimum 15” under highway
- Match existing unless flood history, then use HY 8
- Maintenance typically installs < 48”
Pipe Material Selection

Maintenance

- Purchase by Quantity Purchase Award
  (Pre-bid prices for specific items)
- Polymer Pre-coated Galvanized Steel
  - 12, 14, 16 gauge
- Aluminized (ACS2) Corrugated Steel
  - 12, 14, 16 gauge
Pipe Material Selection

Contracts

- Cover
- Abrasiveness
- pH
- Service Life: 50/75 yrs
- Pipe Type
- % Slope
- Circular/Deformed
- Interior Requirements
- Pay Diameter

Material Options
Special Equipment Requirements

- Excavator
- Trench Boxes/Shoring
- Compaction Equipment
Establishment of Grade

- Match Existing
- Re-adjust based on eroded flowlines
On-Site Considerations

- Trenching
- Backfill
- Patching
- Erosion Control
Trenching

- Saw cut pavement (Minimum 12” either side of structure)
- Backslope (Typical 1:1)
- Undercut to remove unstable material (Typical 12”)
- Disposal Site
Backfill

- Sand - Not recommended in Maintenance
- Open Graded Stone (#11 or #12) in less than 6” mechanically compacted lifts
- Dirt Plugs (Typical 2’)
- Flowable fill
  - New Alternative
  - Low Density Concrete
Erosion Control

- Seed/straw mat
- Excelsior blanket
- Hydroseed
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