

Wyandot County Engineer



Presented by
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Wyandot County Engineer

Wyandot County

Upper Sandusky, Ohio

- Very Rural
- Population 22.6k
- 314 miles County Roads
- 332 miles Township Roads
- 275 Bridges
- \$3.9 Million Budget
- Intersection of US23 & US30



Workforce

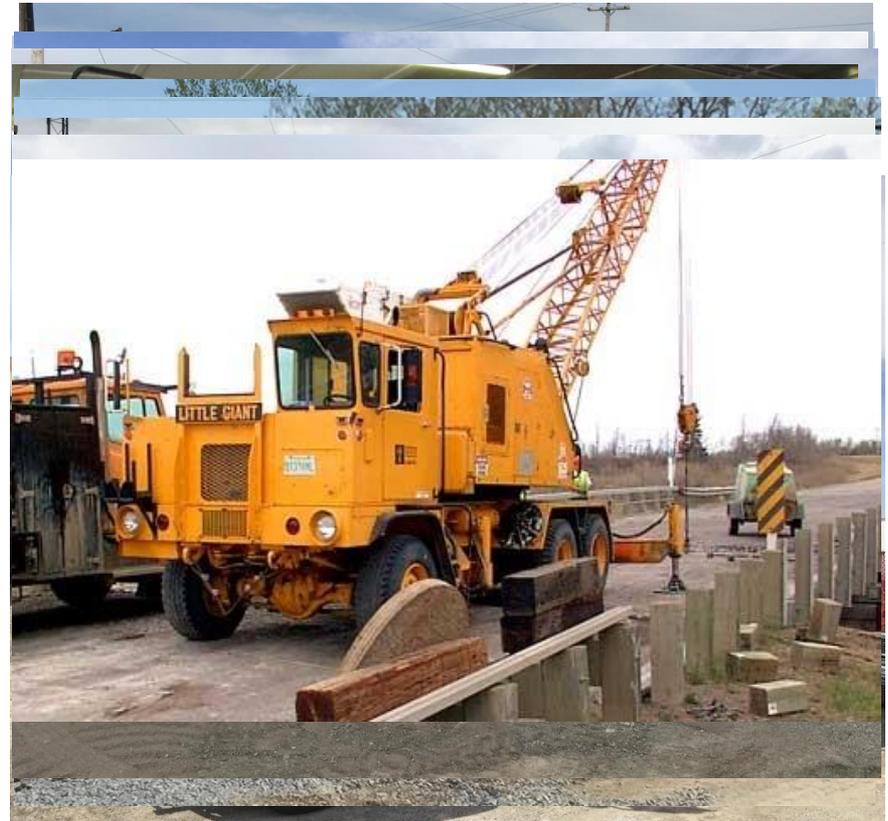
25 1/2 Total Employees

Garage Crew	18
Office Staff	6 (5 Full-time)
Engineer	
Deputy Engineer	
Highway Superintendent	
Admin. Assistant	
Account Clerk	
Pt.Time Account Clerk	
Tax Map Office	2



Equipment

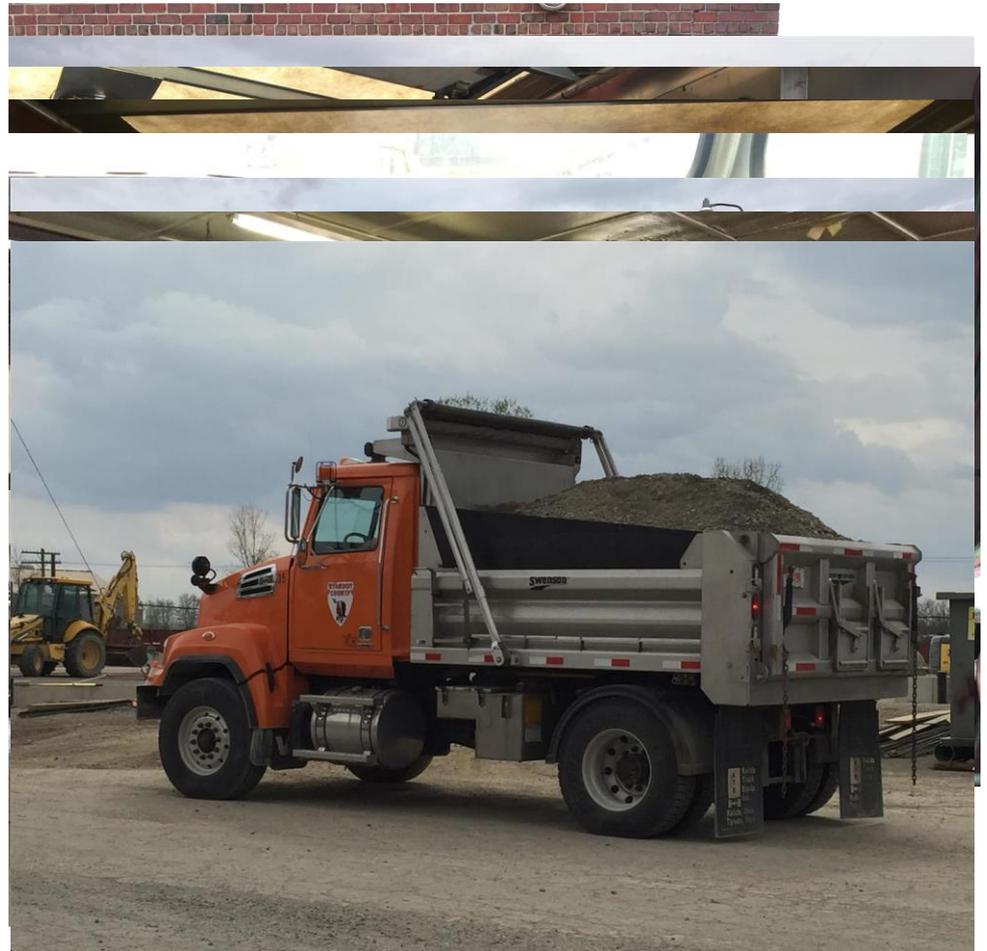
- Paver & Rollers
- Variable Chip Spreader
- Distributor
- D4 Dozer
- Wheel Loaders (2)
- Backhoe
- Excavators (2)
- Compact Track Loader
- Road Graders (2)
- 20 Ton Crane
- 50' Bucket Truck



Equipment

Continued

- Power Broom (2)
- Bridge Truck
- Mix of Single & Tandem Trucks
- Truck Mounted and Pull Behind Air Compressors and Welders



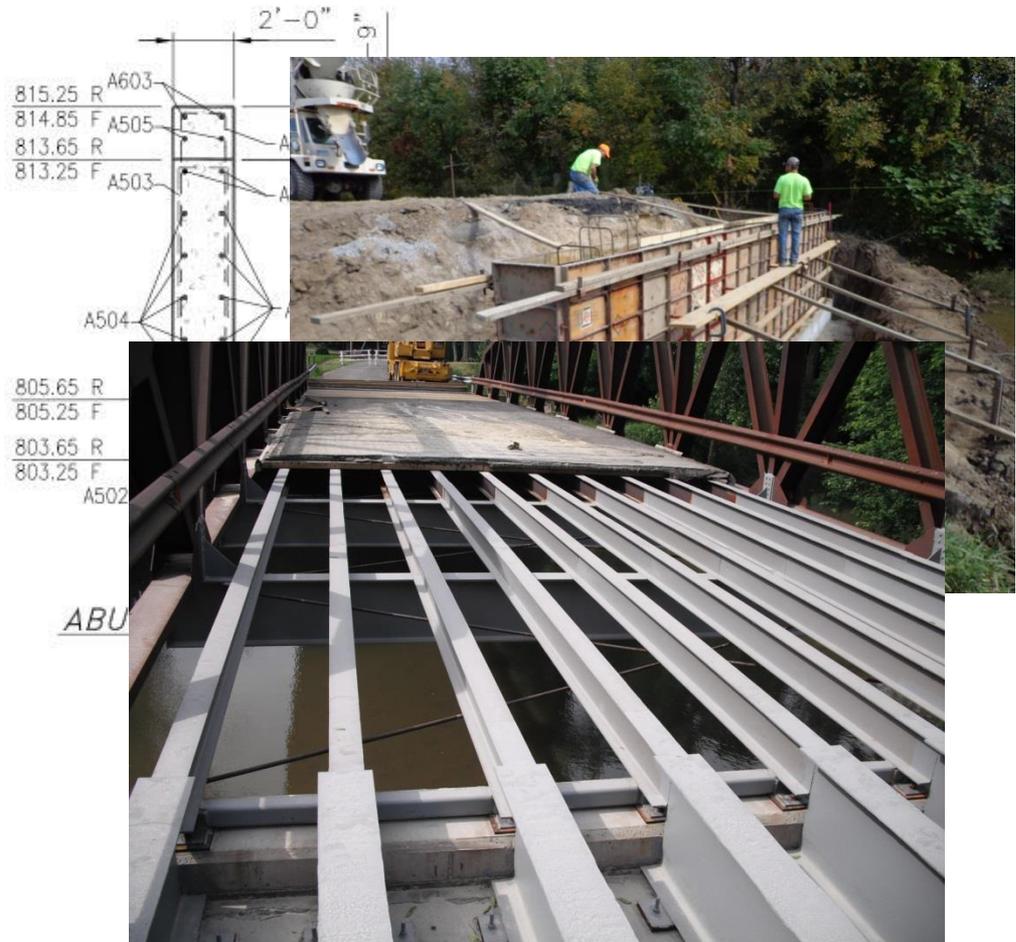
Project Processes

Three Main Areas

Design

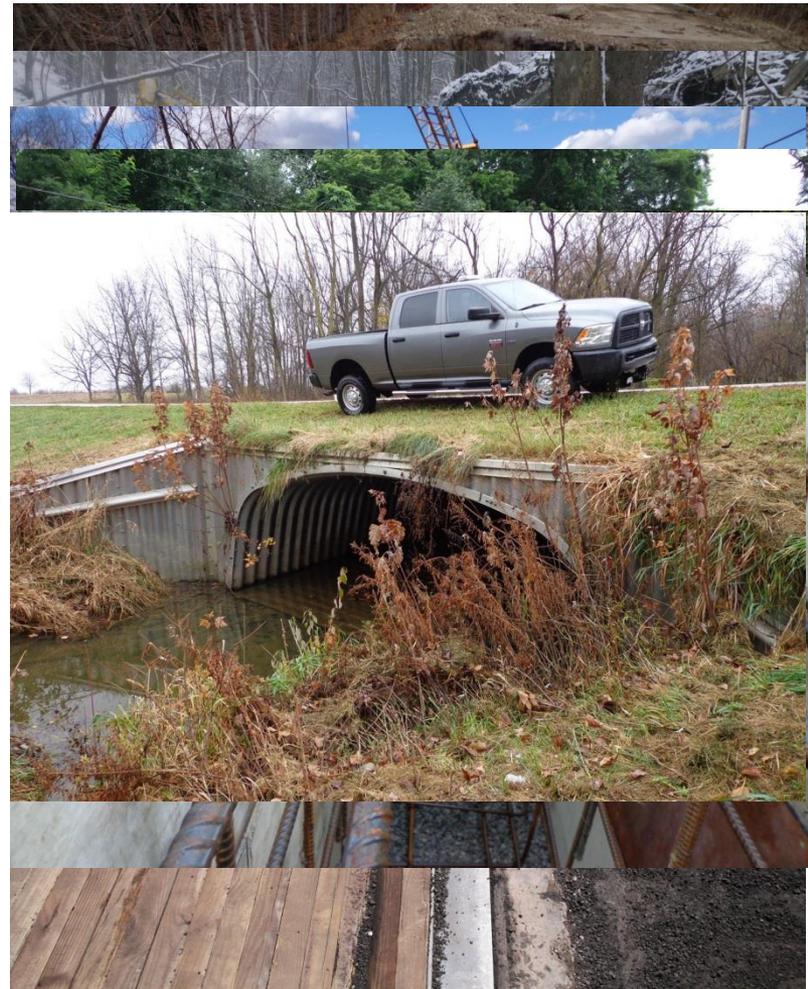
Construction

Maintenance



Typical Project Design Criteria

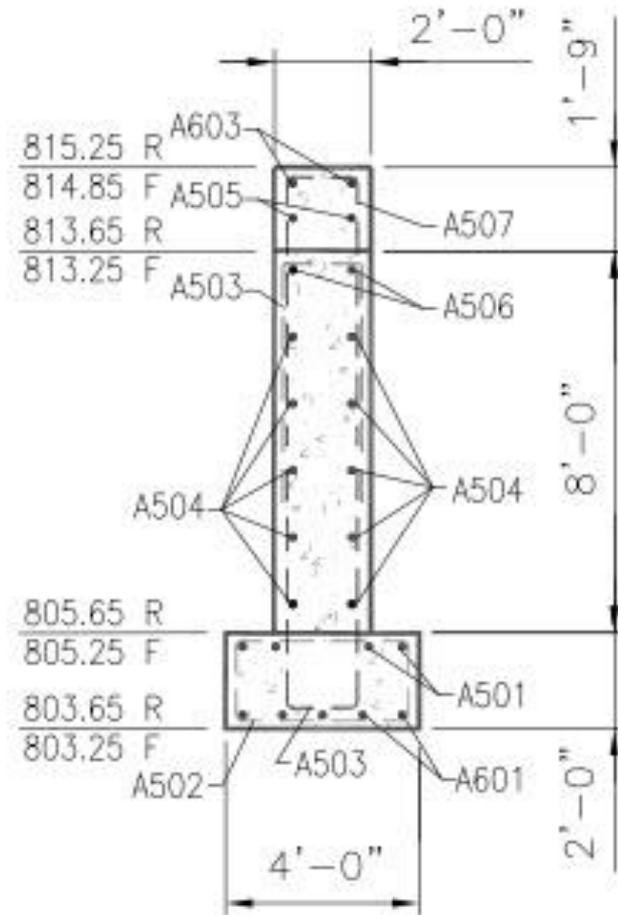
- Standards
 - Designed for 100 Yr. Event
 - 24' Min. Bridge Width
 - Culvert Width - R/W to R/W
- Culverts
 - 2-Pc Concrete Box Culvert
 - Pipe-Arch ALT2 CMP
 - Aluminum Box Culvert
- Bridges
 - Rehab or New Superstructure
 - Capped Pile or Spread Footer
 - Wood or Concrete Deck
 - Go After Bridge Credit \$\$\$\$



Typical Foundation Designs

Spread Footer

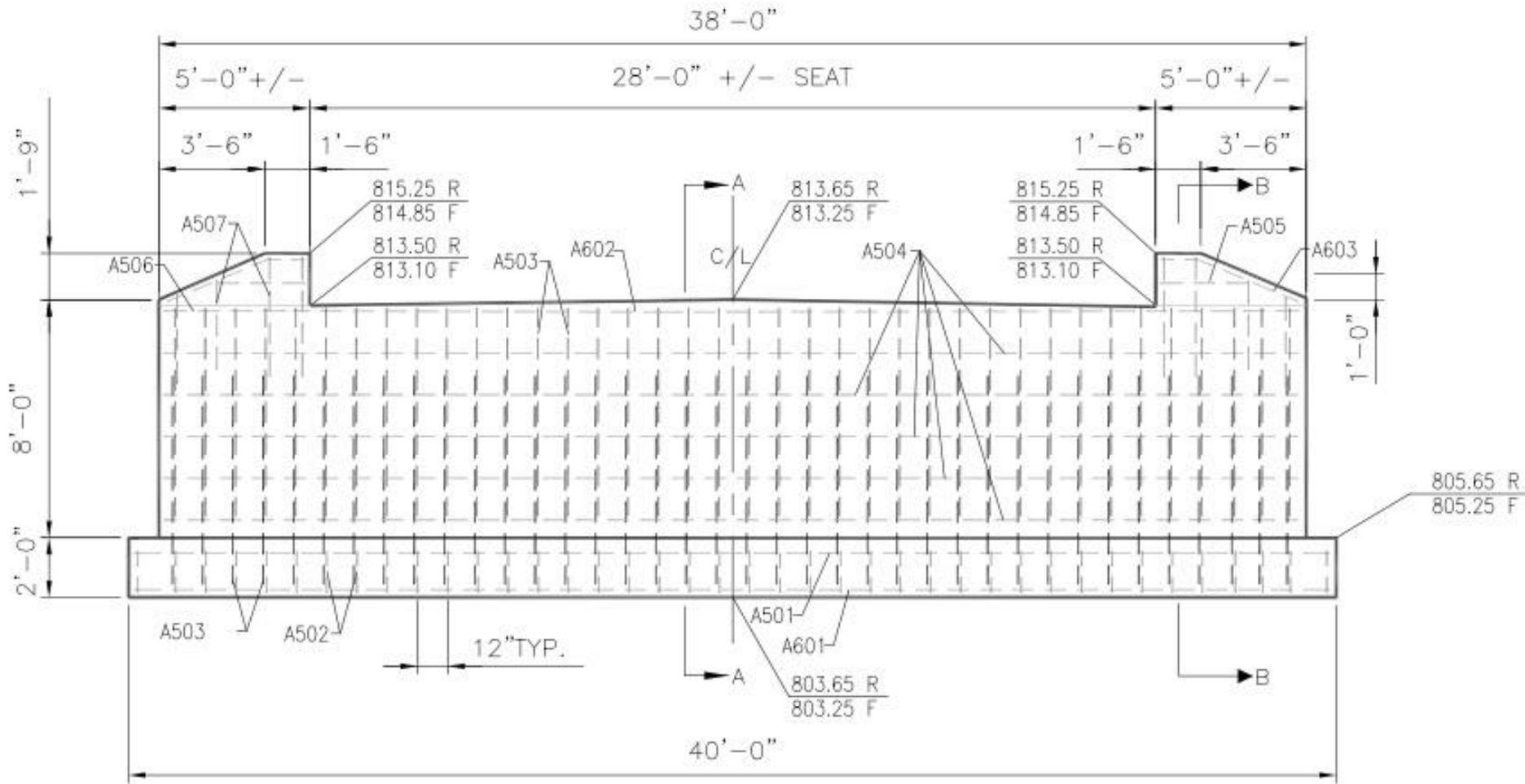
- Used when wall height is less than 8 feet or less
- Suitable base required
- Footer steel is assembled on the ground and set in trench
- Simple design with only a few different bars



ABUTMENT SECTION B

Typical Foundation Designs

Spread Footer Cont.

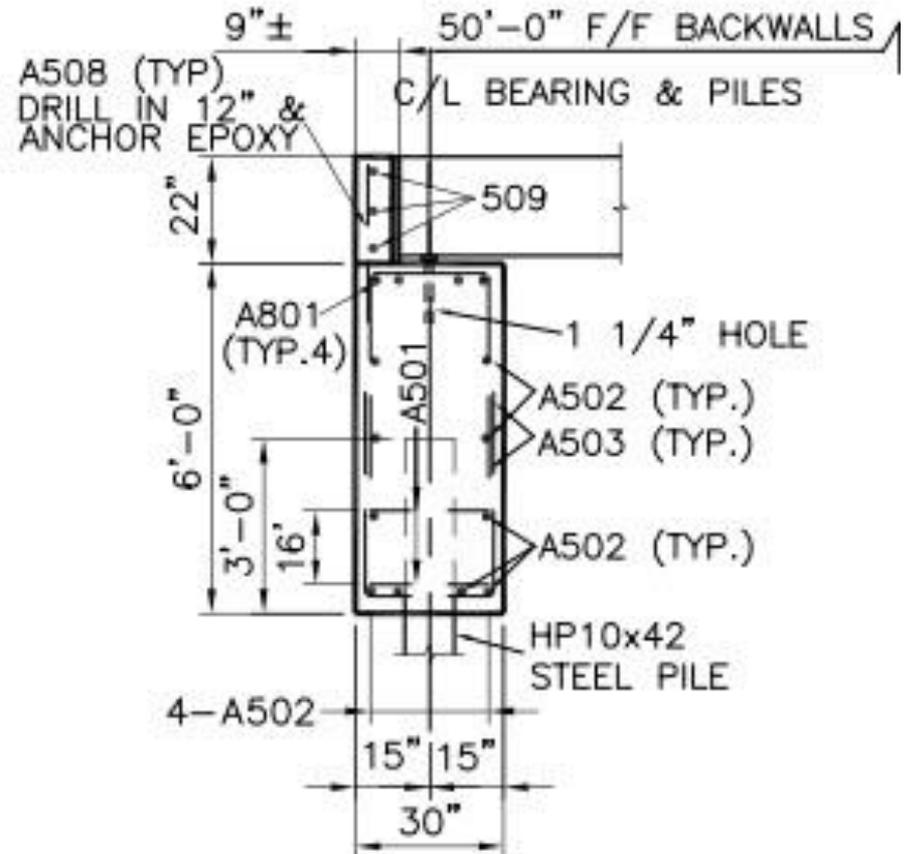


ABUTMENT ELEVATION

Typical Foundation Designs

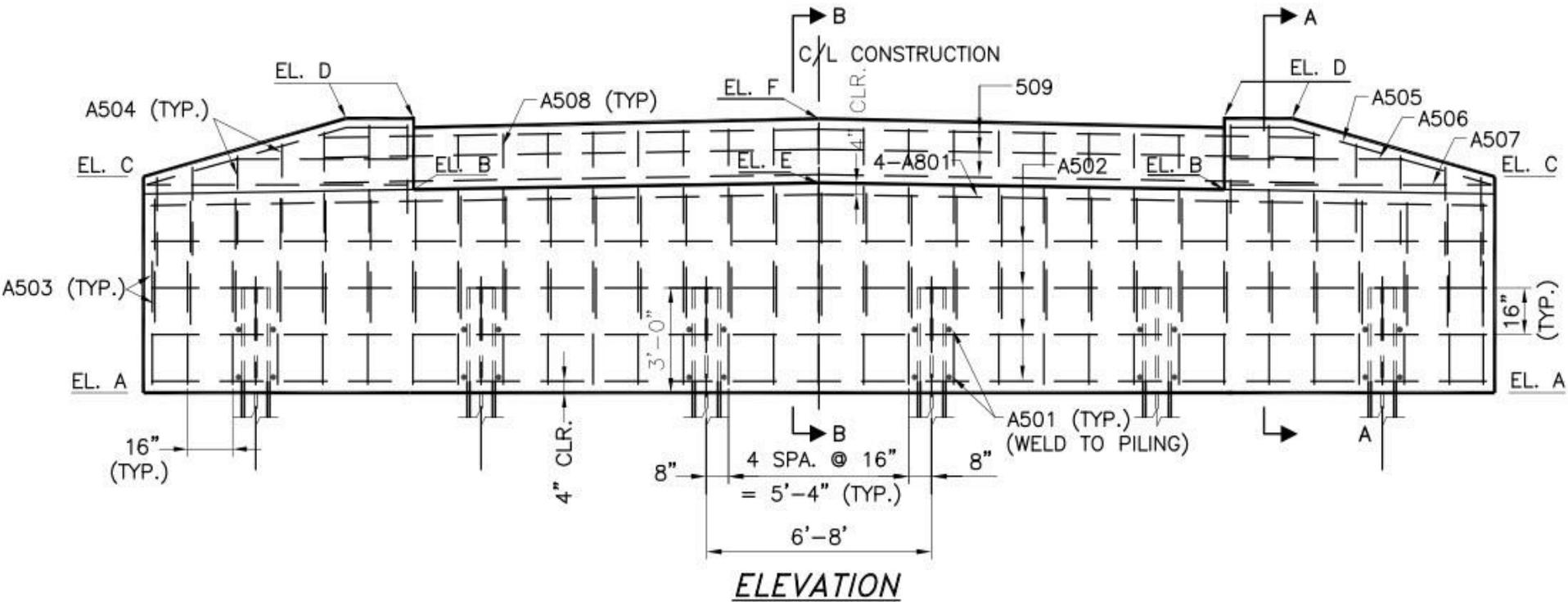
Capped Pile

- Used when suitable base is unavailable or increased bearing capacity is required
- Simple Design with only a few different bars
- Pile driven with County Forces or Contracted



Typical Foundation Designs

Capped Pile Cont.



Typical Force Account Projects

New Construction

- Prestressed Box Beam
- Galvanized Steel Beam with Timber or Reinforced Concrete Deck on Rehabilitated Beams
- 2-Piece Concrete Box Culvert
- ALT2 CM Pipe Arch
- Aluminum Box Culvert
- Everything in Between

Construction

Prestressed Box Beam

- Placed on Capped Pile or Spread Footer Foundation



Construction

Prestressed Box Beam

- Sandstone Substructure Failing
- Location Suitable for Spread Footer
- Need to Increase Waterway adequacy



Construction

Prestressed Box Beam

- Remove Existing Structure & Install Spread Footings



Construction

Prestressed Box Beam

- Prepare for Delivery and Installation of Box Beams



Construction

Prestressed Box Beam

- Grout Keyways and Install Waterproofing



Construction

Prestressed Box Beam

- Pave and Install TST Rail for Bridge Credit



Construction

Prestressed Box Beam

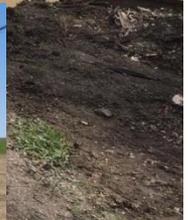
- Finished Project, \$83,000 Bridge Credit



Construction

Rehabilitated Steel Beam

- Beams salvaged from previous job
- Beams sent to US Bridge for fabrication and Galvanizing



Construction

Rehabilitated Steel Beam

- Existing Sub-Structure Failing



Construction

Rehabilitated Steel Beam

- Remove Existing Structure Keep for the Next Project



Construction

Rehabilitated Steel Beam

- Drive Bearing Pile and Sheet Pile



Construction

Rehabilitated Steel Beam

- Trim Sheet Pile, Place Steel in Cap and Pour



Construction

Rehabilitated Steel Beam

- Set Beams and Install Floor



Construction

Rehabilitated Steel Beam

- Install Deck Reinforcing Steel and Pour Deck



Construction

Rehabilitated Steel Beam

- Finished Project



Construction

2-Pc. Box Culvert

- Existing Concrete Bridge with 10 Feet of Fill



Construction

2-Pc. Box Culvert

- Excavate to Remove Existing Bridge



Construction

2-Pc. Box Culvert

- Prepare bed for Box Culvert Installation



Construction

2-Pc. Box Culvert

- Install Box Culvert Sections and Waterproofing



Construction

2-Pc. Box Culvert

- Install Headwalls and Wingwalls



Construction

2-Pc. Box Culvert

- Finished Project



Typical Maintenance Projects

- Floor/Deck Replacements
- Partial Truss Rehab
- Abutment caps/seats
- Wingwall replacement/extensions
- Waterproofing
- Blasting & Painting
- Annual Cleaning
 - Trusses, Abutment seats & Expansion Joints

Maintenance

Partial Truss Rehab

- Included a Large Number of Different Maintenance Items In One Project
 - Floor / Deck Replacement
 - Member Replacement
 - Blasting & Painting
 - Waterproofing



Maintenance

Partial Truss Rehab

- Typical Weathering Steel Failures



Maintenance

Partial Truss Rehab

- Remove Deteriorated Stringers from First Two Bays & Prep Floor Beams for New Galvanized Stringers



Maintenance

Partial Truss Rehab

- Blast & Paint Beam Ends & First Two Bays of Stringers



Maintenance

Partial Truss Rehab

- Install Flooring



Maintenance

Partial Truss Rehab

- Pave Scratch Course
Install Waterproofing
& Pave Surface Course
the Next Day



Maintenance

Partial Truss Rehab

- Finished Product



