

Taylor Creek Culvert Extension

2017 Ohio Bridge Conference

August 24, 2017

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Taylor Creek Culvert



July 12, 2011



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Taylor Creek Culvert



September 19, 2014



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Presentation Outline

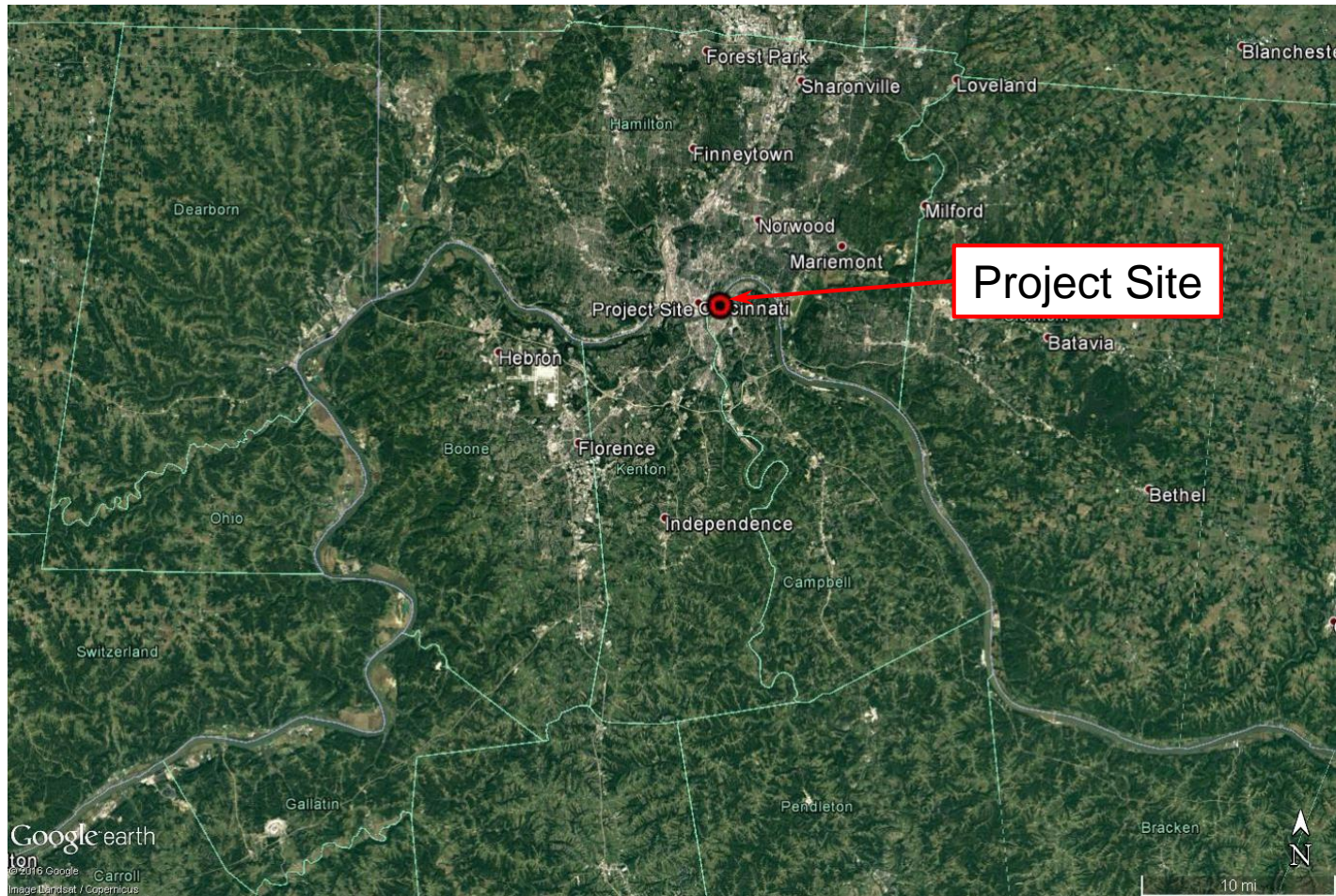
- Project History
- Culvert Extension Design
- Construction



Taylor Creek Culvert History



Taylor Creek Culvert History



2016 Aerial (from Google Earth)



Taylor Creek Culvert History



1963 NKAPC Topography Over 2007 NKAPC Aerial



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Taylor Creek Culvert History



2007 Aerial (from Google Earth)



Taylor Creek Culvert History



July 2010 Aerial (from Google Earth)



Taylor Creek Culvert Combined Sewer Crossing



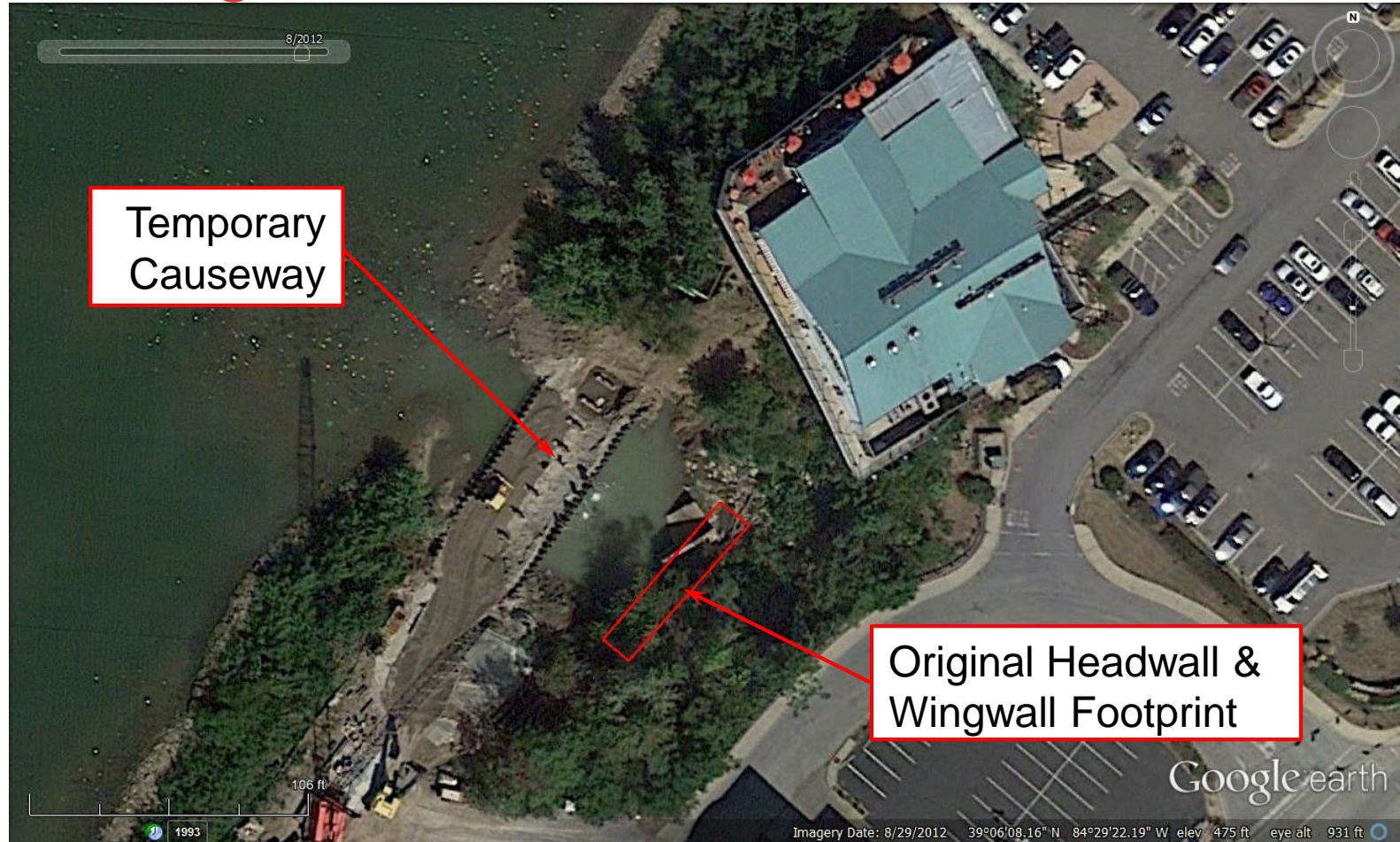
July 12, 2011



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Taylor Creek Culvert Combined Sewer Crossing



August 2012 Aerial (from Google Earth)



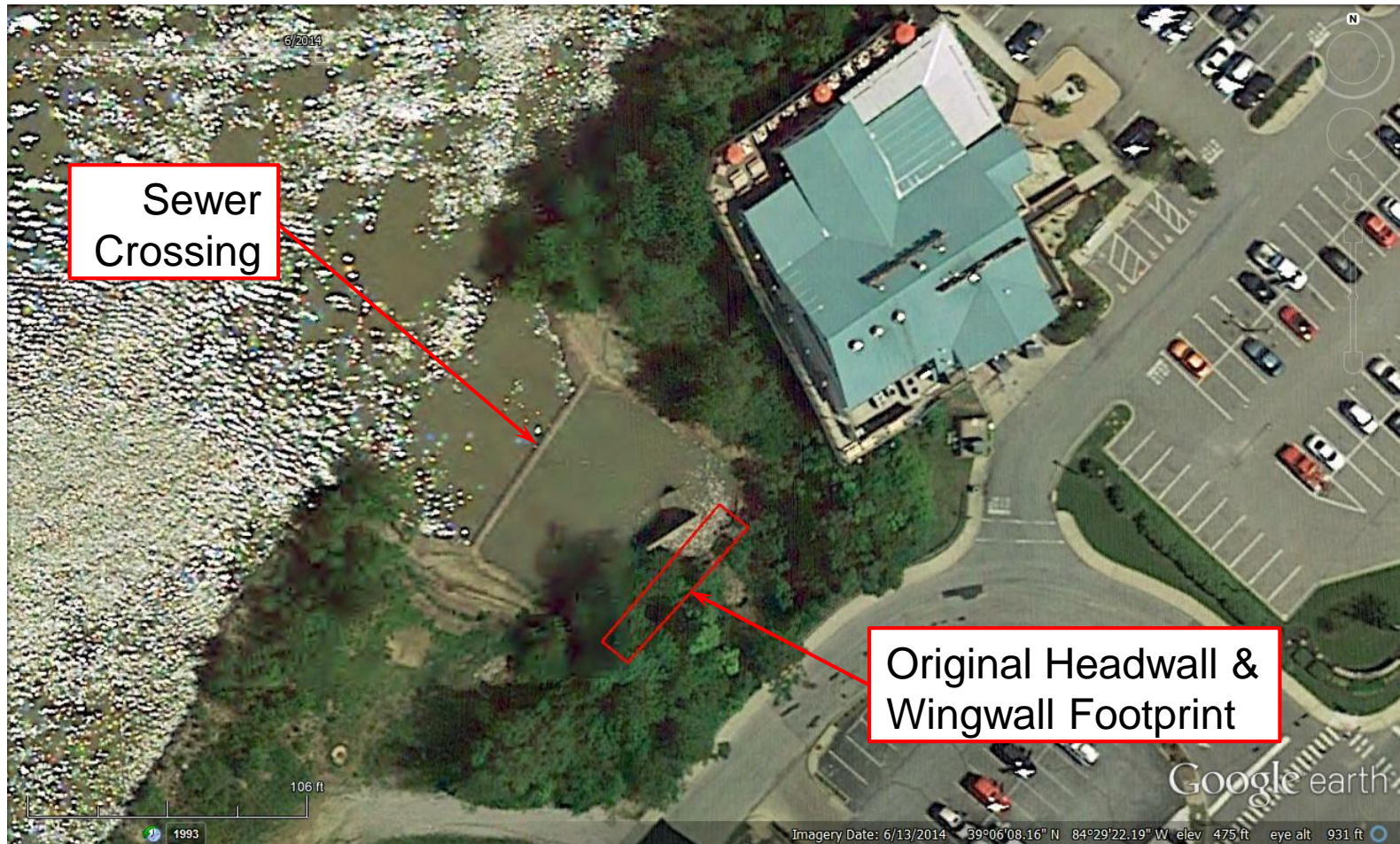
Taylor Creek Culvert Combined Sewer Crossing



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Taylor Creek Culvert History



June 2014 Aerial (from Google Earth)



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Culvert Extension Design



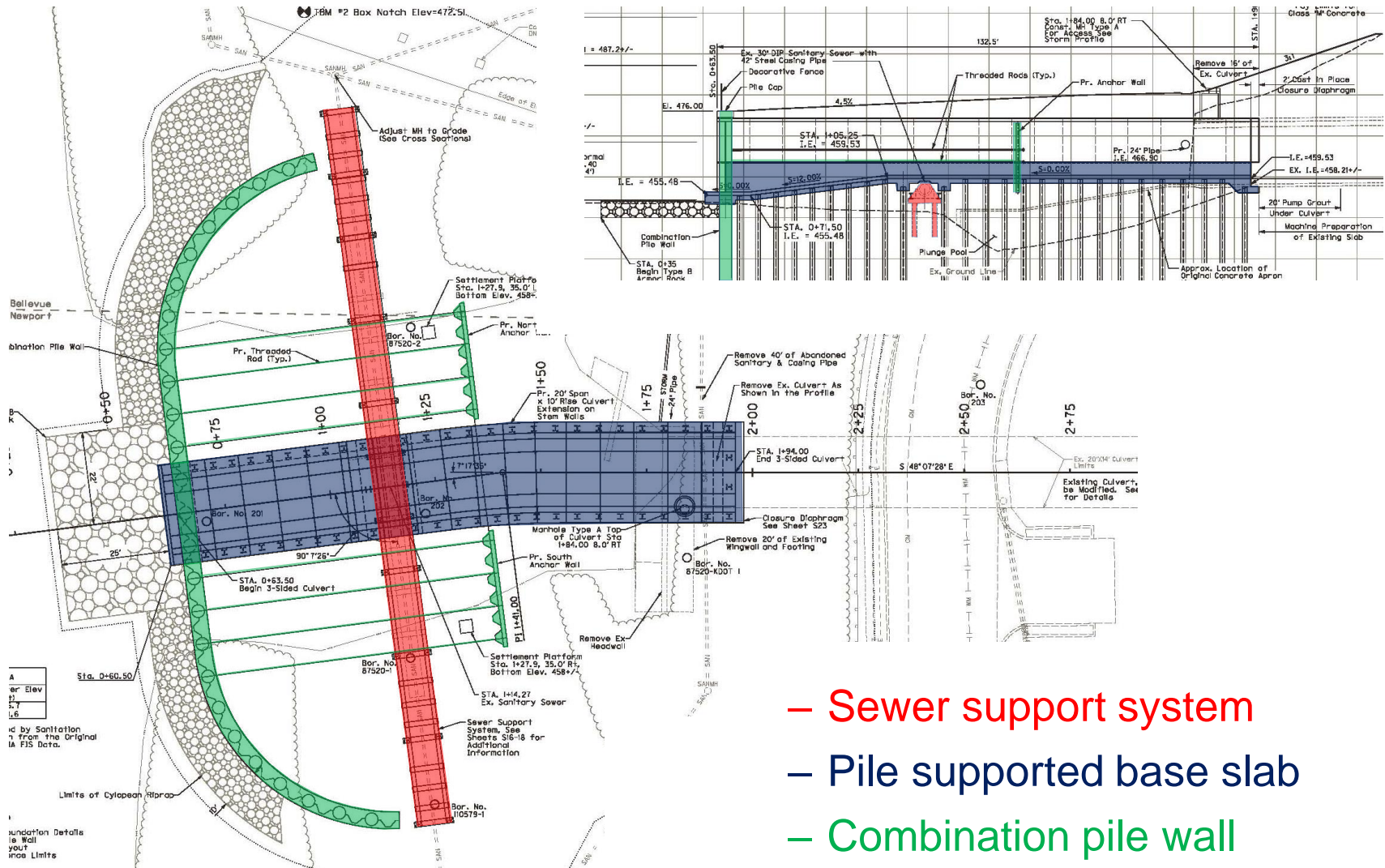
Taylor Creek Culvert Extension

- Features:

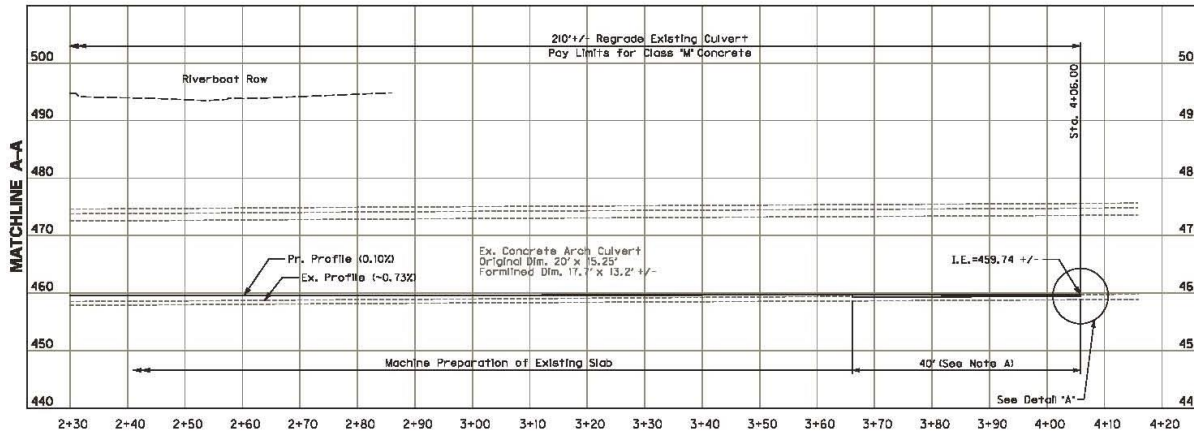
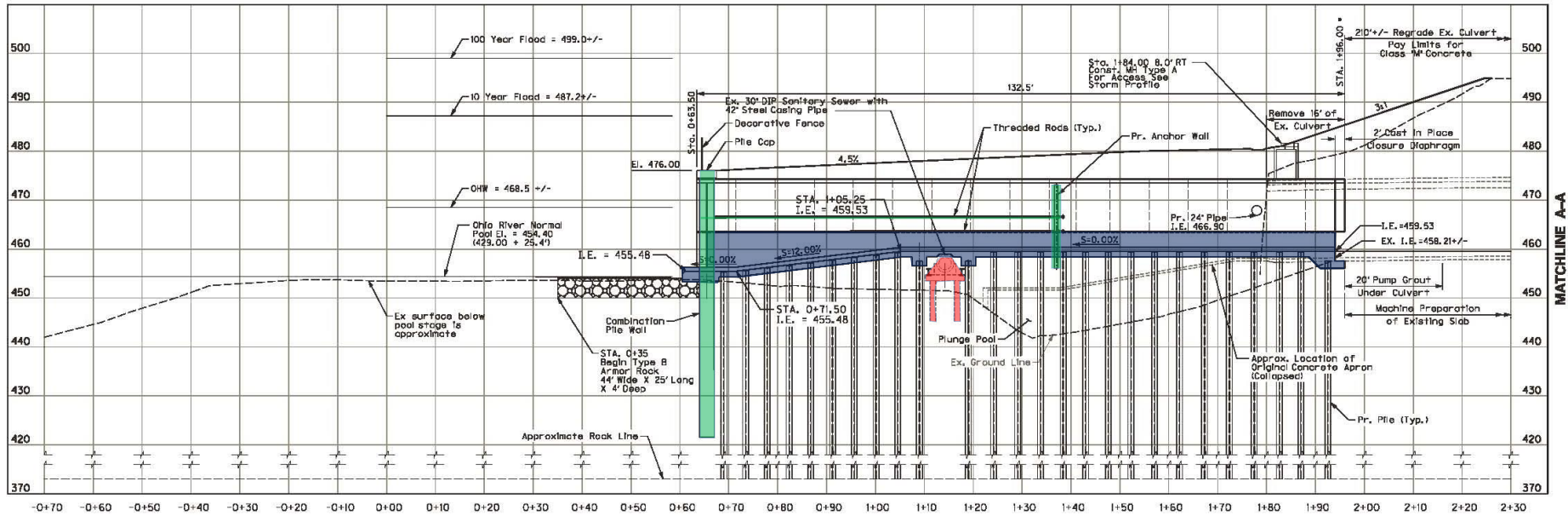
- Pile-supported culvert
 - 90'± long HP14x117
- Cast-in-place base slab & knee walls
- 3-sided precast culvert arches
- Sewer support system
- Anchored combination pile wall (cutoff wall/wingwalls)
 - 20'± high above normal pool
 - 10' ± estimated scour below normal pool
- 35-40' of fill in center of plunge pool



- Sewer support system
- Pile supported base slab
- Combination pile wall

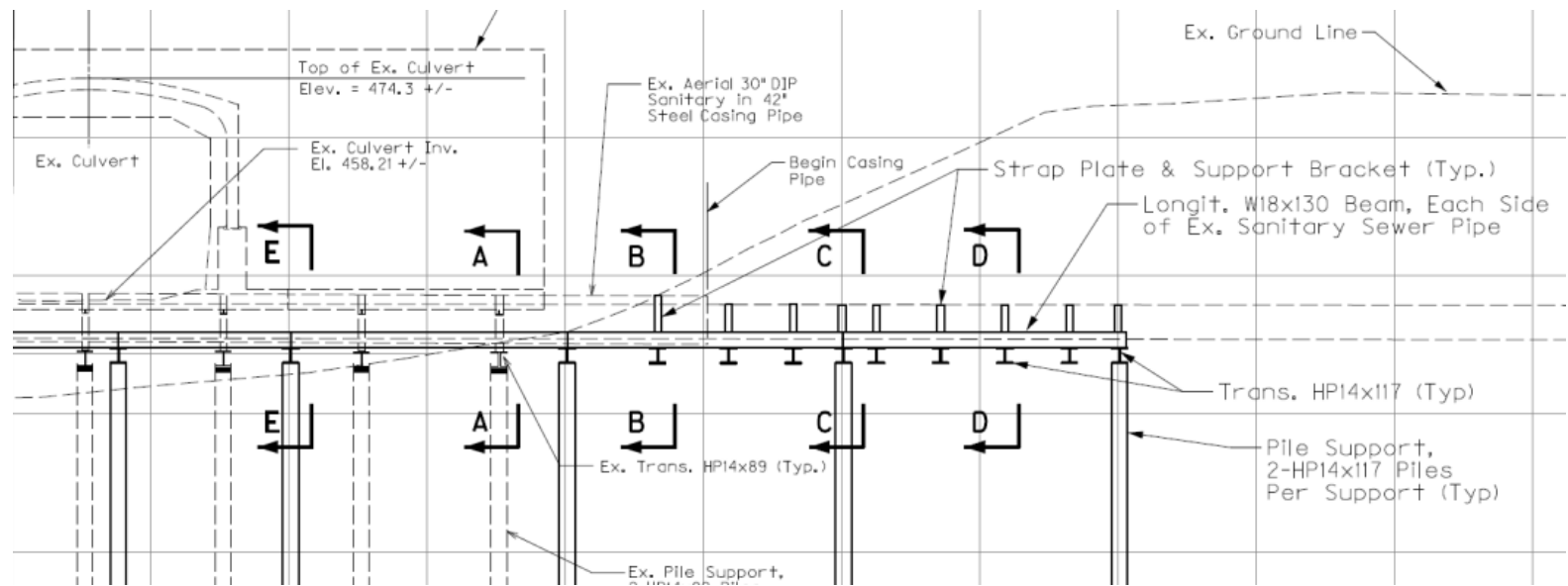
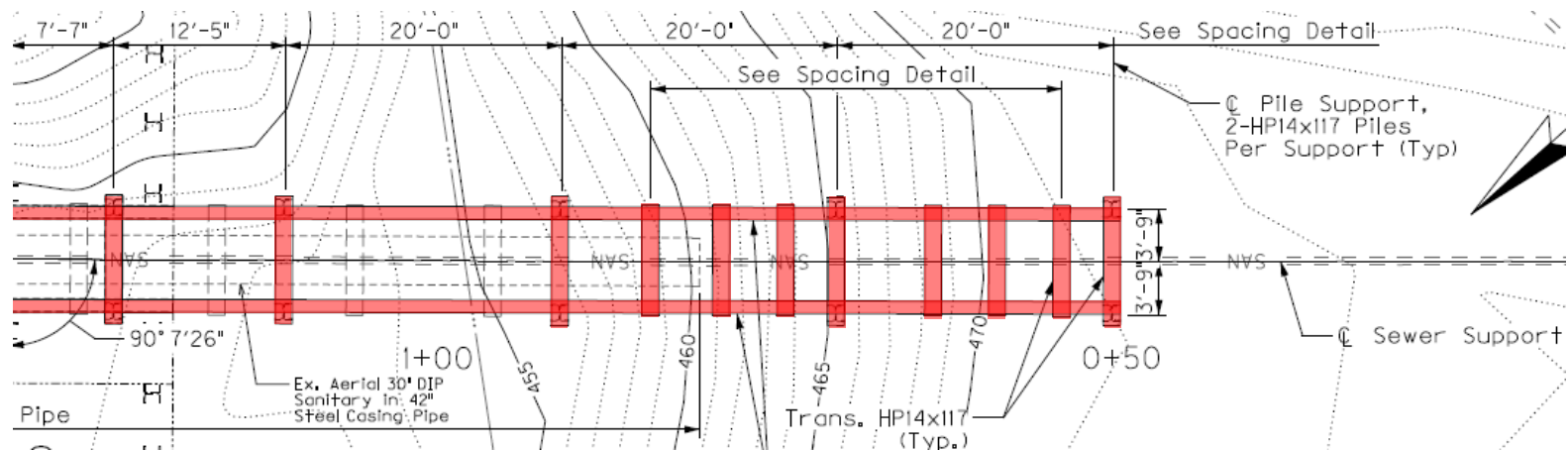


Culvert Extension Profile

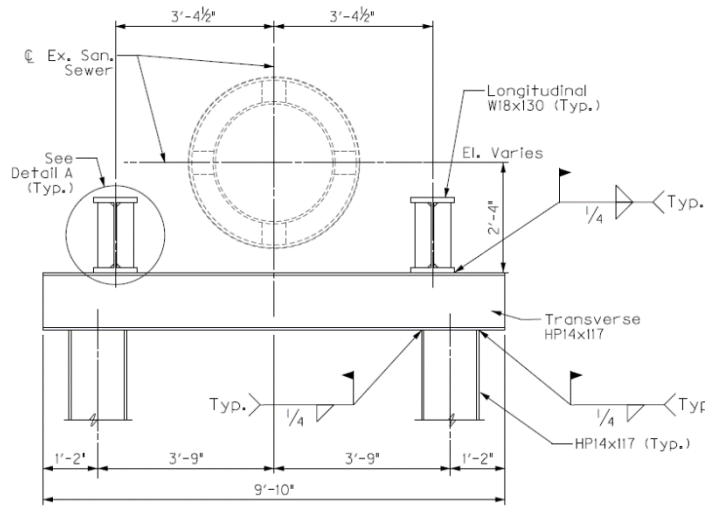


- Sewer support system
- Pile supported base slab
- Combination pile wall

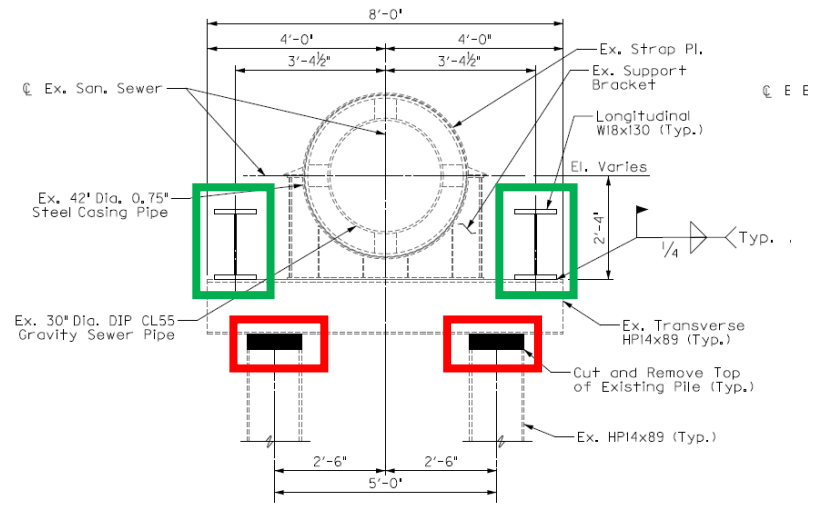
Sewer Support System



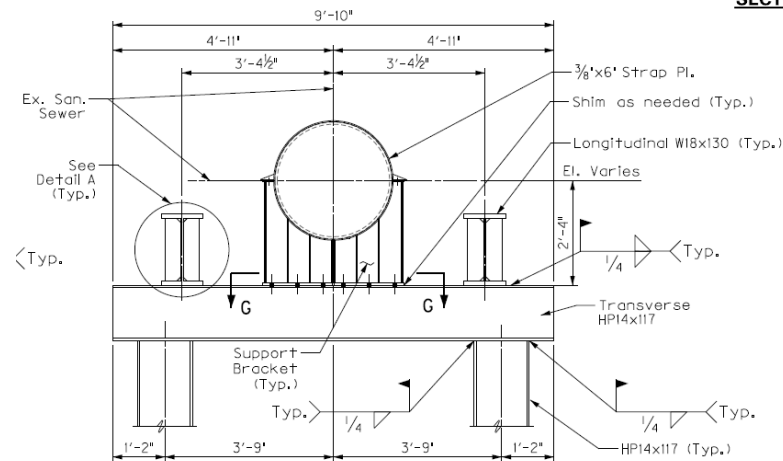
Sewer Support System



SECTION E-E



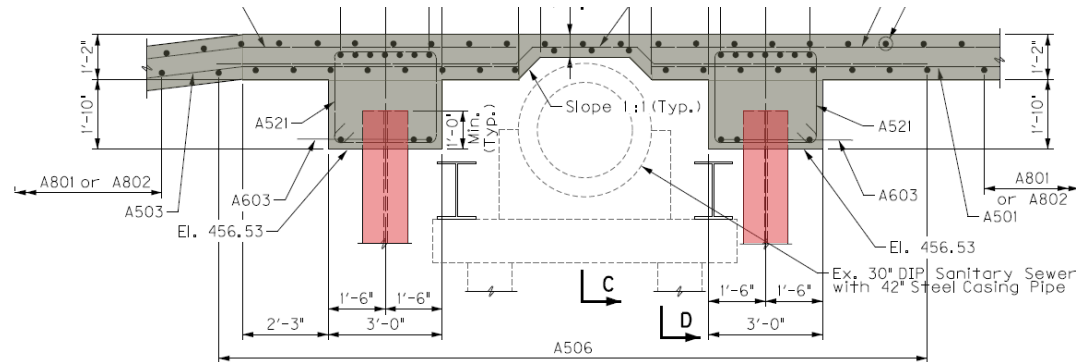
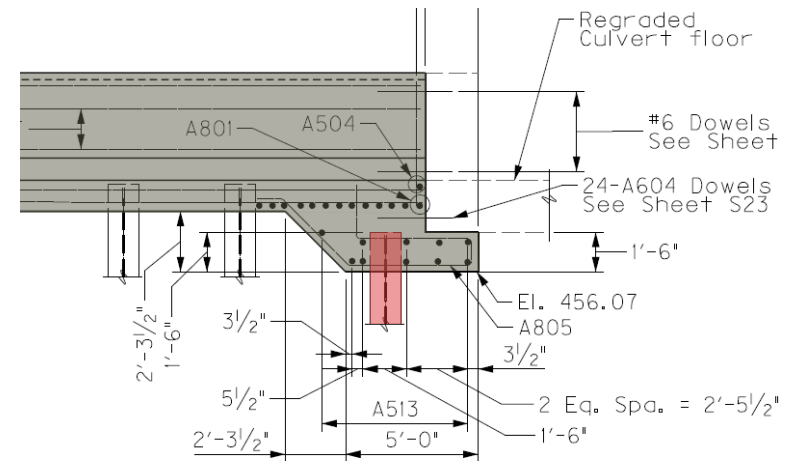
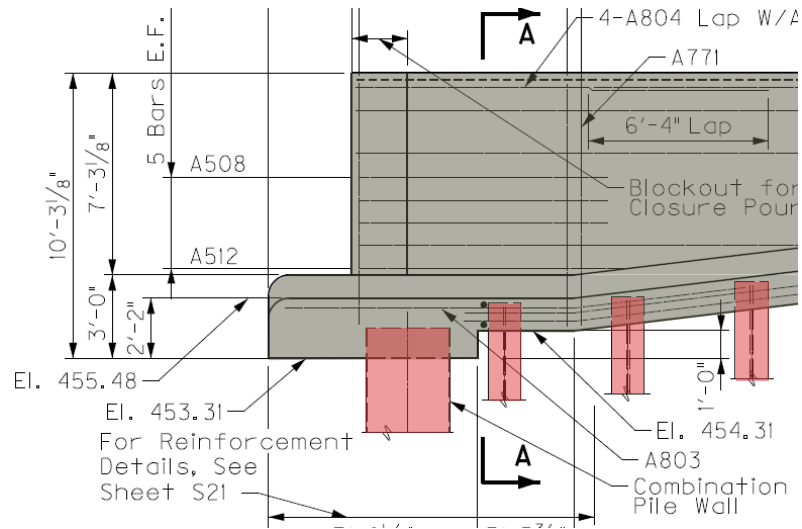
SECTION A-A



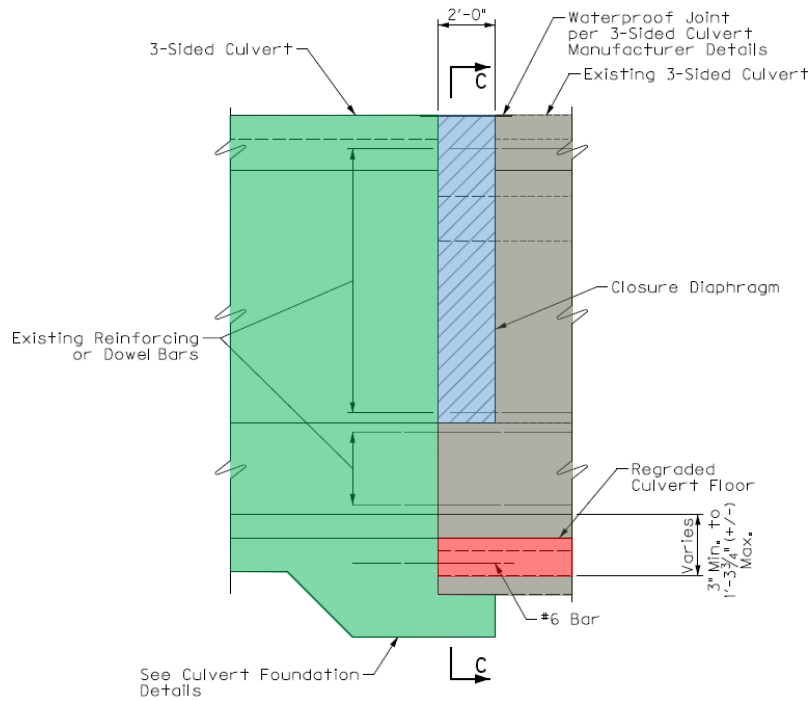
SECTION C-C

Structural cross-section drawing of a bridge pier and abutment. The drawing shows a central pier with two abutments on either side. Key components labeled include: 3-Sided Culvert, A601 (Anchor Angle), A701 (Keyed Const. Jt.), A505 (3 Spacing @ 9 3/4" = 2'-5 1/4"), A504 (3" Typ.), A801 (20 Spacing @ 11 5/8" (-) = 19'-4"), A502 (Top) and A501 (Bottom), C Piles (3 Spacing @ 9 3/4" = 2'-5 1/4"), HP 14x117 (Typ.), and El. 458.36. Dimensions are given in feet and inches. The total width of the structure is 23'-10". The total height of the structure is 9'-0".

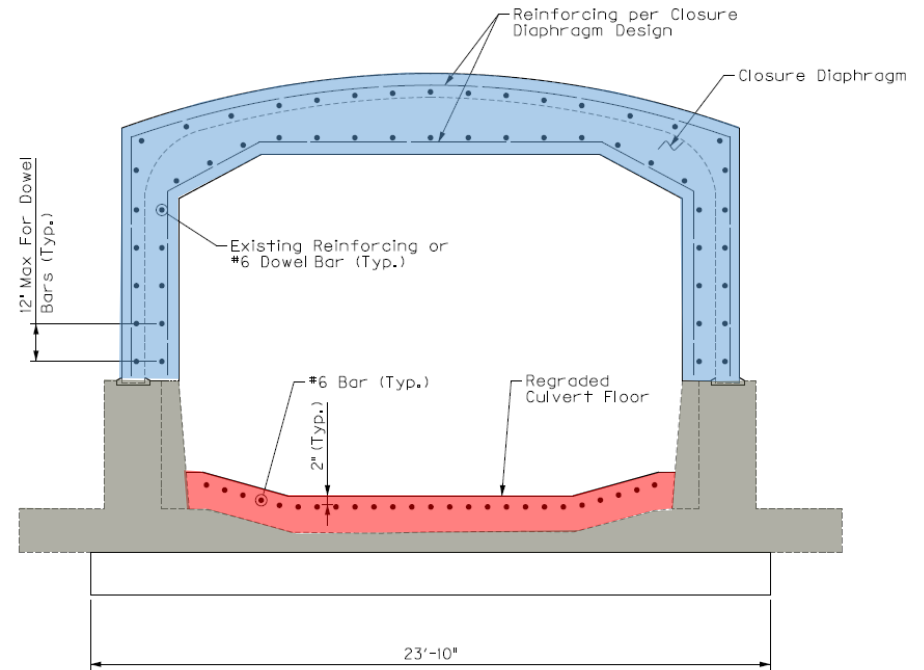
Pile-Supported Base Slab



Closure Diaphragm

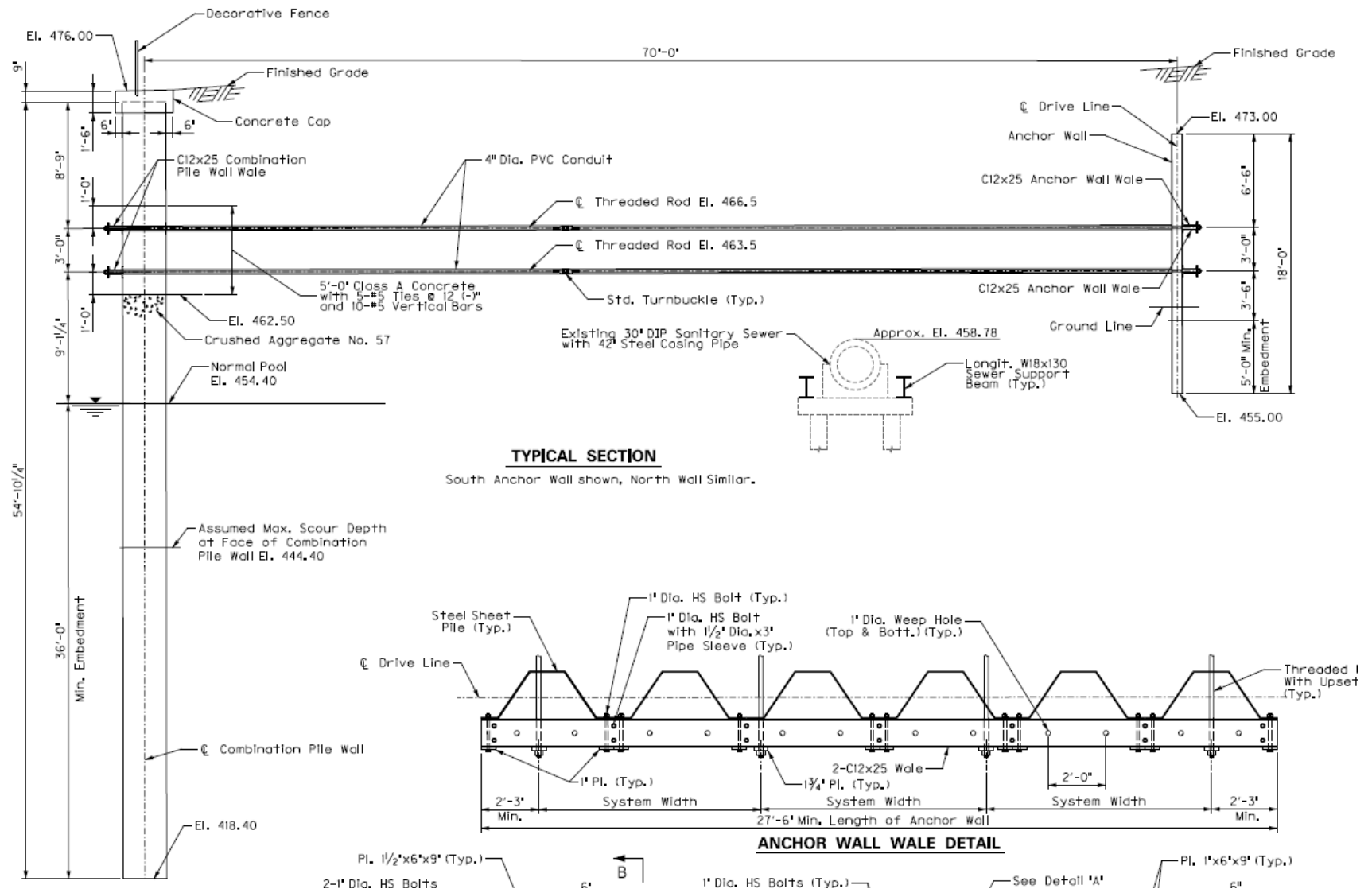


CLOSURE DIAPHRAGM ELEVATION



SECTION C-C

Combination Pile Wall



Culvert Extension Construction



Construction Overview

- Engineer's estimate = \$3,595,203
- Awarded to Sunesis Construction Co. for \$3,759,586 in December 2014
- Combination pile wall fabrication by LB Foster
- Precast culvert fabrication by CONTECH
- Taylor Creek Overlook Park dedicated on November 30, 2016



Temporary Shoring of Riverboat Row



May 2015



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Temporary Shoring of Culvert



May 2015



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Combination Pile Wall



August 2015



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Combination Pile Wall



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September 2015

Culvert Piles



September 2015



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Sewer Support System



November 2015



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Mud Mat for Concrete Base Slab



December 2015



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Knee Walls



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April 2016

Precast Arches



June 2016



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Closure Pour



June 2016



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Anchor Wall Ties



PVC Conduit for
Threaded Rod Ties

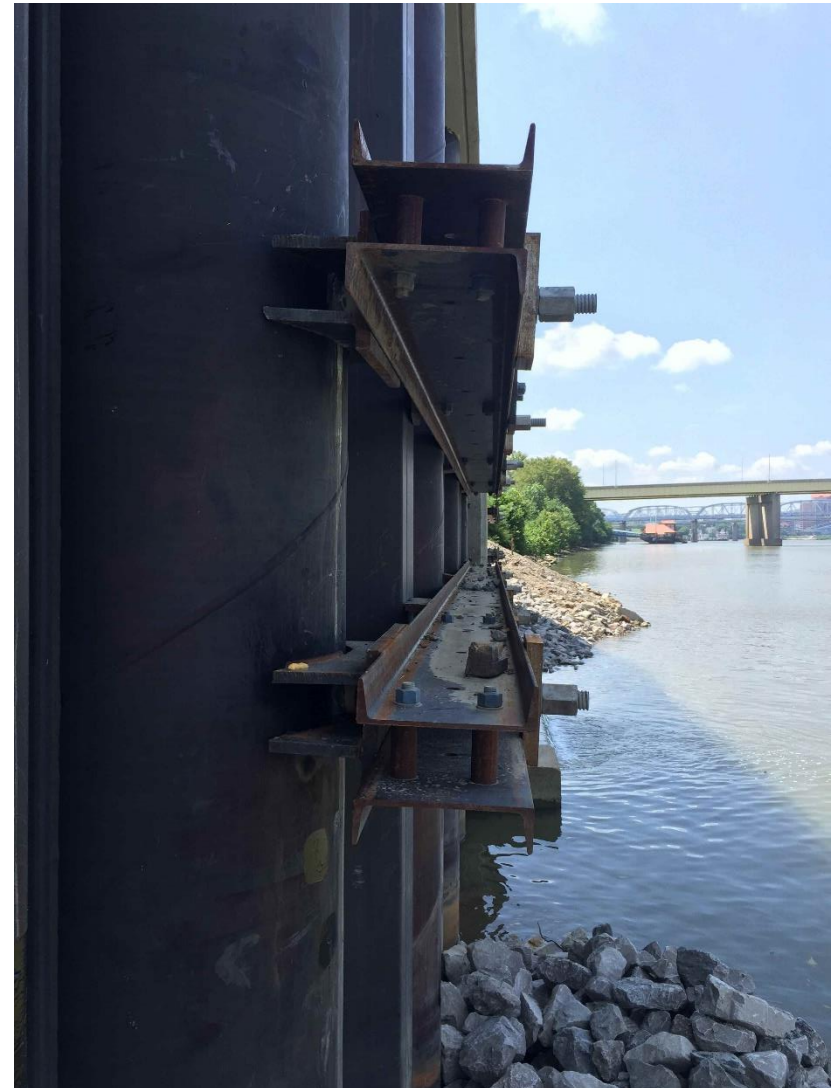


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July 2016

Tie Connections to Combination Pile Wall



August 2016



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Complete Culvert Extension



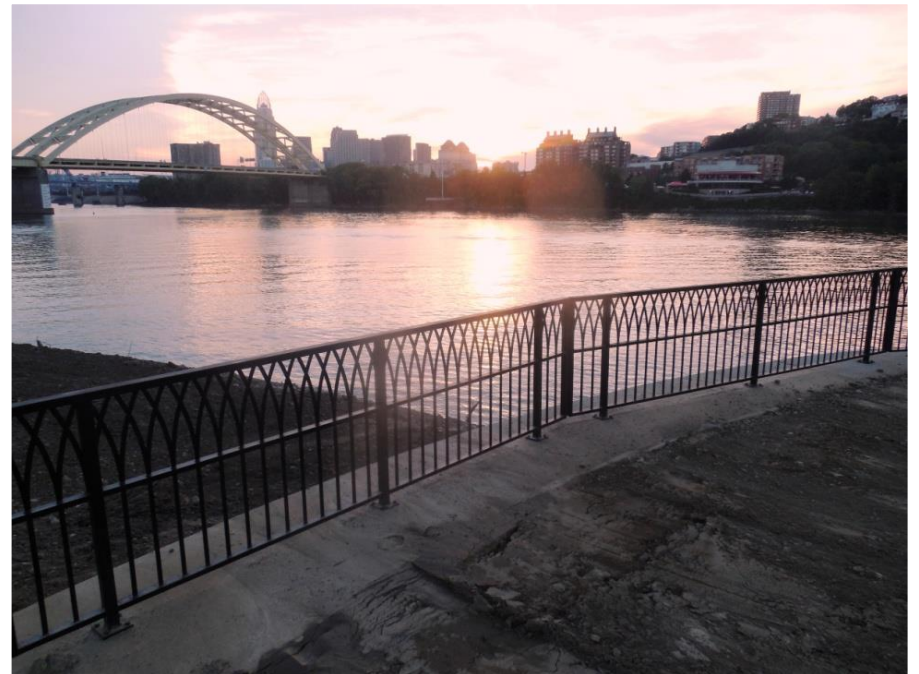
August 2016



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Complete Culvert Extension



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Culvert Extension



Riverside Construction



Riverside Construction



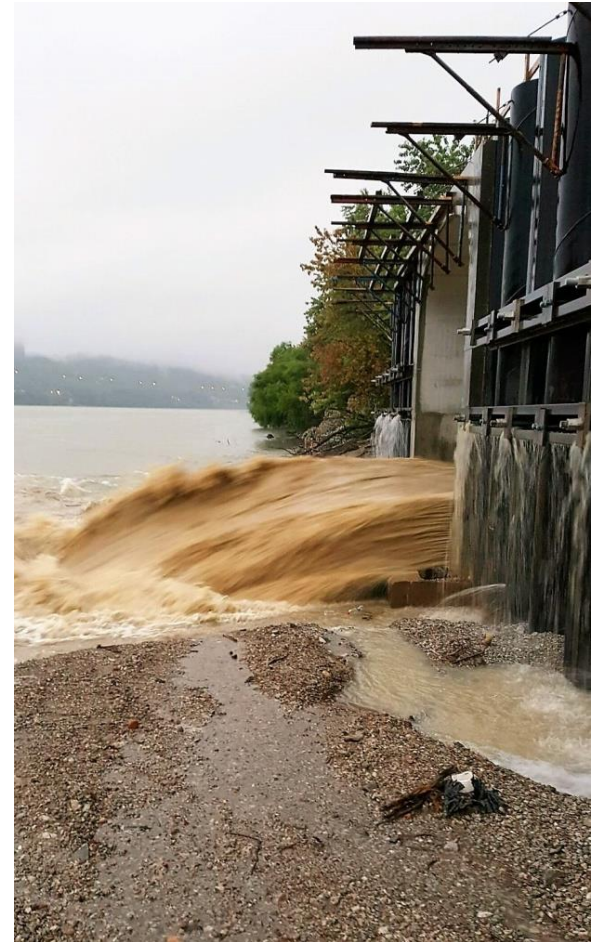
June 22, 2015



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Riverside Construction



July/August 2016 (courtesy of AECOM)

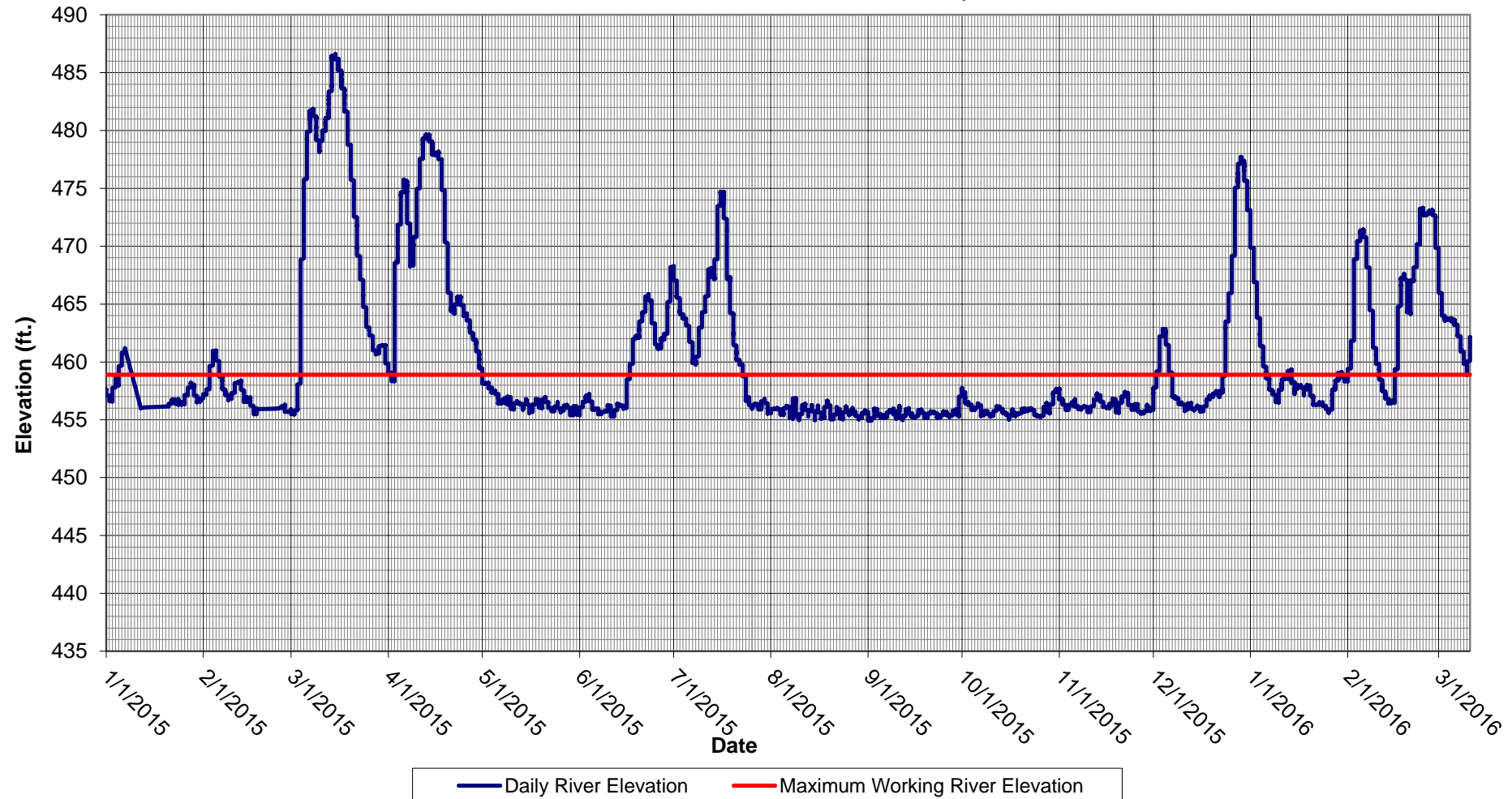


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Ohio River Gage

USGS 03255000 Ohio River at Cincinnati, Ohio



Questions?

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