



AMERICAN SOCIETY OF HIGHWAY ENGINEERS

National Project of the Year Award

OFFICIAL ENTRY FORM

AWARD CATEGORY (Check One): Under \$20 Million Over \$20 Million

SPONSORING REGION (Check One):

- | | | |
|---|--|---|
| <input checked="" type="checkbox"/> Northeast | <input type="checkbox"/> Great Lakes | <input type="checkbox"/> Northwest |
| <input type="checkbox"/> Mid-Atlantic | <input type="checkbox"/> North Central | <input type="checkbox"/> Rocky Mountain |
| <input type="checkbox"/> Southeast | <input type="checkbox"/> South Central | <input type="checkbox"/> Southwest |

CONTACT INFORMATION FOR SUBMITTING REGION:

Contact Name: Scott R. Eshenaur ASHE Region Position: Judging Committee Chairperson
Phone (Office): 717.790.9565 Phone (Mobile): 717.580.8426 E-Mail Address: sreshenaur@modjeski.com
ext. 10422

PROJECT INFORMATION:

ENTERING AGENCY/COMPANY'S NAME: AECOM Technical Services, Inc.
PROJECT NAME: Dookers Hollow Bridge Replacement TYPE: Bridge Replacement
PROJECT LOCATION: Bell Avenue, East Pittsburgh & North Braddock
CITY: Pittsburgh COUNTY: Allegheny STATE: PA
FINAL CONSTRUCTION COST: \$9,966,780 BUDGETED CONSTRUCTION COST: \$11,947,553
PROJECT COMPLETION DATE: Opened 12/16/2021

PROJECT ASHE SECTION: Pittsburgh ASHE SECTION CONTACT NAME: Jason Zang
PHONE (OFFICE): 412.429.5007 PHONE (MOBILE): _____ E-MAIL: jzang@pa.gov

PROJECT TEAM:

PROJECT OWNER: Allegheny County
STREET ADDRESS: 542 Forbes Avenue, COB 509B
CITY: Pittsburgh STATE: PA ZIP: 15219
CONTACT PERSON: Michael Burdelsky PHONE: 412.639.0193 (m), 412.350.5914 (o)
E-MAIL ADDRESS: Michael.burdelsky@alleghenycounty.us

PROJECT DESIGN FIRM: AECOM Technical Services, Inc.
STREET ADDRESS: Gulf Tower, 707 Grant Street, 5th Floor
CITY: Pittsburgh STATE: PA ZIP: 15219
CONTACT PERSON: Lori Rossetti PHONE: 412.400.8836
E-MAIL ADDRESS: lori.rossetti2@aecom.com

PRIME CONTRACTOR: Allison Park Contractors, Inc.
STREET ADDRESS: 4383 Gibsonia Road
CITY: Gibsonia STATE: PA ZIP: 15044
CONTACT PERSON: Ken Greb PHONE: 412.965.3870
E-MAIL ADDRESS: KGreb@allisonparkcontractors.com

Entry Form Completed By: Lori Rossetti **Date:** 1/27/2023



DOOKER'S HOLLOW BRIDGE REPLACEMENT

[AECOM, ALLEGHENY COUNTY, ALLISON PARK CONTRACTORS]

2023 National Project of the Year—ASHE Pittsburgh

Executive Summary

Originally built in 1940, the Dooker's Hollow Bridge functions as an important community connector between Bell Avenue in North Braddock to Center Avenue in East Pittsburgh. The bridge is owned by Allegheny County and was rehabilitated in 1979, 1984 and 2001. The existing bridge was rated poor in recent inspection reports and was posted for a 31-ton weight limit.

In 2010, Allegheny County selected the AECOM team to design the bridge. In preliminary design, AECOM explored both rehabilitation and replacement options. Ultimately the County selected replacement as the most cost-effective solution. An active business and several residences sit on the East Pittsburgh side of the bridge and a church on the North Braddock side. Maintaining access between these locations throughout construction was key to the success of the project. The new bridge is a five-span steel girder bridge with two 12-foot traffic lanes with four-foot shoulders, along with a sidewalk separated by a traffic barrier on the eastbound side. The bridge carries 2500 vehicles per day and spans O'Connell Boulevard 140 feet below the deck surface.

Complexity

The original Dooker's Hollow Bridge was a three-span, 598-foot-long steel deck truss. The five-span replacement structure is both narrower and longer than the original structure. The new super structure is made of four 66-inch-deep welded steel plate girders while the existing structure was 16 feet, 10 inches deep at each abutment and 60 feet deep at each pier. Due to the significant reduction in superstructure depth, lengthening the new structure to 660 feet from centerline to centerline of abutment bearings was required to catch up with the steep hillside and allow for an economical abutment design.

The original bridge had a cantilever sidewalk on both sides of the bridge, one of which was removed by the County in 2001. The new sidewalk on the eastbound side of the bridge has narrowed the overall bridge width by ten feet compared to the original. Narrowing the bridge allowed for significant cost savings but increased the technical complexity of the design. At the Abutment 1 end of the bridge the approach slab width is flared to match the existing wider approach roadway. The driveway of a local business is located approximately 15 feet, 6 inches from the centerline of the bearing at Abutment 2. This required the deck to be flared to meet the existing roadway width at the beginning of the bridge. The deck overhang in this flared section was greater than that allowed to use the deck rebar tables in BD-601 so a separate custom design check was completed.



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The new five-span steel girder bridge is founded on full depth abutments with H-piles at Abutment 1 and a spread footing at Abutment 2. The different types of foundations required unique designs for each abutment. The four piers are configured as dual columns with a cap with Piers 1 and 4 founded on drilled caissons, Pier 2 founded on a footing with H-Piles and Pier 3 on a spread footing. Pier 2 and Pier 3 provide consecutively fixed support conditions, are both over 120 feet tall, and required a special design to check second order effects due to their height. Multiple software programs were used to design the piers.

The plate girders are made of weathering steel rather than typical painted steel.

New Application of Existing Techniques/Originality/Innovation

The Dooker's Hollow project was constructed as a standard design-bid-build project with Allison Park Contractors, Inc. (APC) awarded the construction contract in April 2020.

The steep site conditions presented several challenges for contractor access. Allegheny County Landslide Susceptibility Mapping indicated ancient landslides throughout the Dooker's Hollow Valley. With this in mind, the hillside was benched, and access roads were added to bring in the required materials and equipment. Due to the unique conditions of the valley, conventional demolition methods were ruled out and the existing bridge was imploded on February 13, 2021, after a two-day delay due to wintry conditions. The contractor placed timber pads on O'Connell Boulevard to protect it and the utilities below from the nearly 500-ton weight of the falling steel structure. A thermal imaging drone provided by Michael Baker was utilized the day of the demolition to verify onlookers were outside of the blast radius and determine where the detonators did not detonate.

Bell Avenue is the main pedestrian route for residents of North Braddock to cross into East Pittsburgh and catch the P68 or P76 bus into downtown Pittsburgh. During its closure pedestrians were left with essentially no way to move between communities. As an innovative solution, the County established a free shuttlebus service to run Monday through Friday during peak commuting hours, serving pedestrians who typically cross the bridge on foot. The shuttle service operated throughout the entire duration of construction.

A temporary driveway constructed behind the business adjacent to Abutment 2 provided access to the business owner throughout construction.

The project was designed to avoid addition of new paved area thereby avoiding the need for stormwater management measures. All road runoff drains to a 66" brick teardrop combined sewer under O'Connell Blvd at the bottom of the valley. No watercourse remains on the surface



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in the valley bottom. Because brick sewers are delicate, AECOM developed a special detail for connection of new storm pipes.

Given limited space in the valley bottom, compost sock sediment traps were specified. Use of stacked socks allow a narrower, steeper embankment to confine ponded water in the trap compared to an earthen sediment trap. Compost sock traps also disperse overflow over a wider width than earthen embankment traps, which helps prevent downstream erosion where there is no defined channel to receive the flow.

Social/Economic Considerations

Coordination was required with multiple entities. In the early design stages, AECOM held two pro-team meetings with representatives from Allegheny County and PennDOT D-11 to determine the direction of the project. A public meeting was held in 2015 with officials from North Braddock, East Pittsburgh, the owners of the business adjacent to the bridge and other members of the community. The team presented the project and listened to the community's concerns. AECOM maintained constant communication with APC, Allegheny County and the Michael Baker International construction inspection team throughout construction to efficiently work through 45 different RFIs and over 90 different shop drawing submittals.

Safety

The Dooker's Hollow Bridge included upgraded sidewalks to meet current ADA requirements along with LED luminaires and poles. The street light pole foundations on the bridge were incorporated into the bridge barrier to maintain ADA requirements between the foundations and the pedestrian fence. The existing cable guide rail was replaced with Type 31-S guide rail with an impact attenuator at the western end of the bridge. AECOM worked with Allegheny County, PennDOT and Gumpher, Inc. at the northeast corner to accommodate access at this location while keeping safety and mobility in mind when entering and exiting the business.

Aesthetics and Sustainable Features

Allegheny County designated Bell Avenue as a possible future bike route as part of its "Active Allegheny" plan. The deck width accommodates future striping of a five-foot bike lane on both sides and a fence was added on the non-sidewalk side to protect future cyclists.

Several design choices will minimize future maintenance. Weathering steel was used in the girders to eliminate the need for future painting. high-load multi-rotational disc bearings provide superstructure support. Drain troughs were installed directly under the neoprene strip



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seal joints at both abutments to divert runoff and debris away from the girders, bearings and substructure members. The drain trough adds the environmental benefit of carrying runoff into a designed drainage system rather than directly out into the surrounding landscape.

From an aesthetic point of view, the new bridge is very different from the original structure. The increased height of the new piers (from 40 feet to over 100 feet) gives the structure a grand feel for observers looking at it from below. While the new piers may be taller, they retain the two-column with a cap look of the original bridge for historical continuity.

Meeting and Exceeding Owner's/Client's Needs

The contractor maintained an aggressive schedule to open the bridge to traffic within 14 months of closure. At the ribbon cutting ceremony to open the bridge on December 16, 2021, County Executive Rich Fitzgerald and officials from East Pittsburgh and North Braddock Borough expressed gratitude that the communities were once again connected.

Conclusion

The importance of the new \$9.96m Dooker's Hollow Bridge can be summed up in a statement made by County Executive Rich Fitzgerald at the opening ceremony. He said ***"We are thrilled to celebrate completion of this important infrastructure project. Connecting folks to jobs and amenities is so important, especially in places like the Mon Valley that haven't seen as much growth and investment. The previous bridge was in poor condition and eventually would have needed to be closed. Instead, by working together at the federal, state and local levels, we have ensured that this vital transportation link between two communities can be used for generations to come."***



DOOKER'S HOLLOW BRIDGE REPLACEMENT

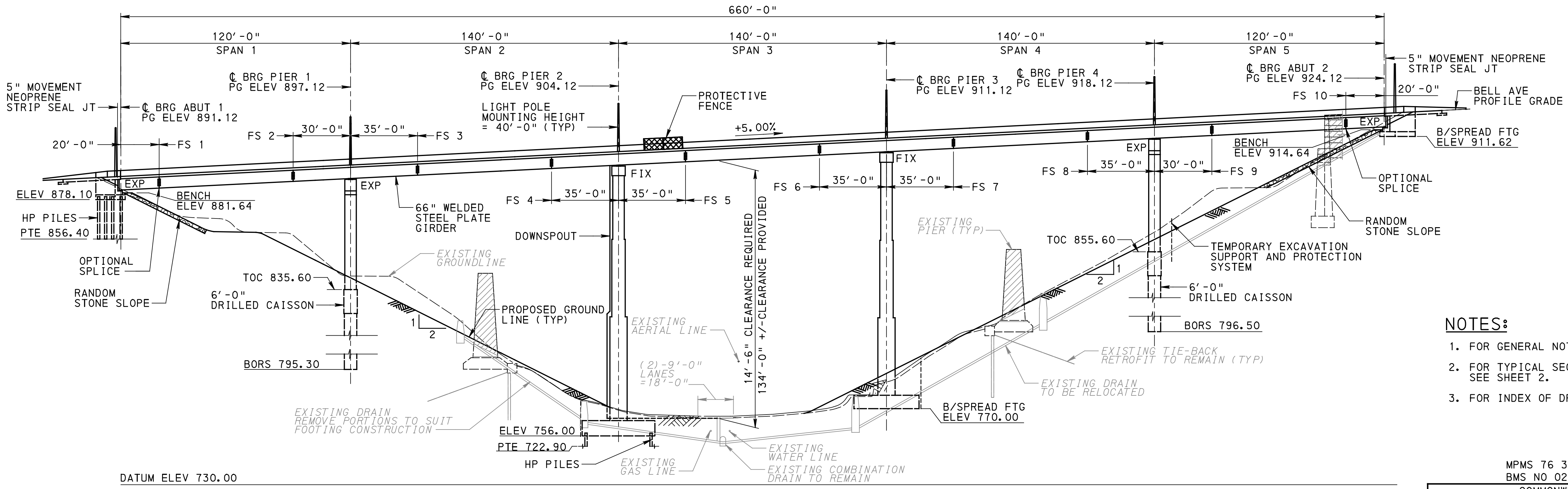
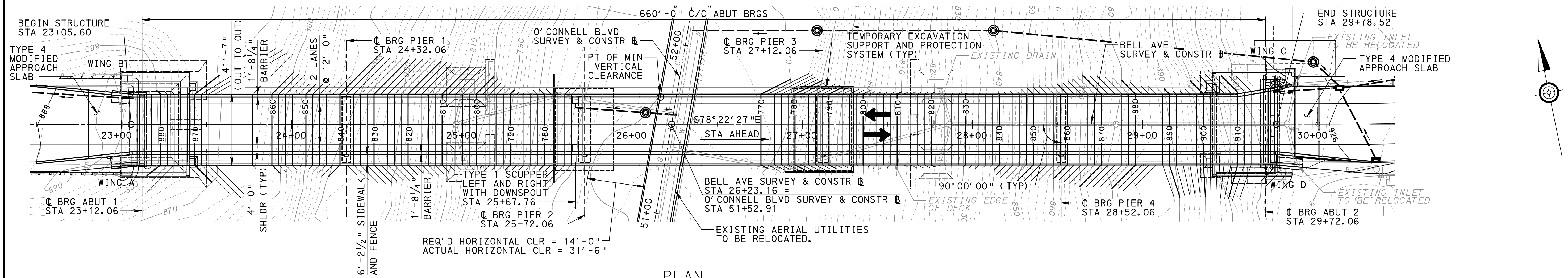
[AECOM, ALLEGHENY COUNTY, ALLISON PARK CONTRACTORS]

2023 National Project of the Year—ASHE Pittsburgh

Statement of Commitment

AECOM commits that at least one representative of our project team will attend the awards luncheon.

PLOTTED: \$\$\$DATE\$\$\$



- NOTES:**
1. FOR GENERAL NOTES, SEE SHEET 3.
 2. FOR TYPICAL SECTION AND LOAD RATING TABLES, SEE SHEET 2.
 3. FOR INDEX OF DRAWINGS, SEE SHEET 2.

HORIZONTAL ALIGNMENT DATA
 BELL AVE SURVEY & CONSTRUCTION
 TANGENT

HORIZONTAL ALIGNMENT DATA
 O'CONNELL BLVD CONSTR
 TANGENT

PROFILE GRADE DATA
 BELL AVE SURVEY & CONSTRUCTION

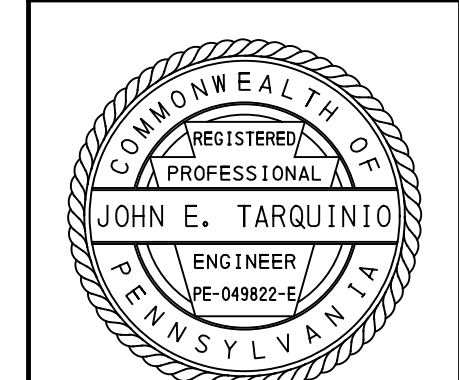
PROFILE GRADE DATA
 O'CONNELL BLVD CONSTR
 TANGENT

SCOPE OF WORK

1. RELOCATE STORM DRAIN.
2. DEMOLISH EXISTING BRIDGE.
3. CONSTRUCT NEW SUBSTRUCTURE AND REGRADE SLOPES.
4. ERECT SUPERSTRUCTURE AND COMPLETE APPROACH WORK.

LEGEND:

- DENOTES DIRECTION OF TRAFFIC
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING STRUCTURE TO BE REMOVED
- TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM
- BORS BOTTOM OF ROCK SOCKET
- PTE PILE TIP ELEVATION
- TOC TOP OF CAISSON
- FS FIELD SPLICE



REVISIONS

MPMS 76 393
 BMS NO 02 7449 0000 2147
 COMMONWEALTH OF PENNSYLVANIA
 DEPARTMENT OF TRANSPORTATION

APPROVED _____ 2019
 FOR STRUCTURAL ADEQUACY ONLY
 DISTRICT BRIDGE ENGINEER _____

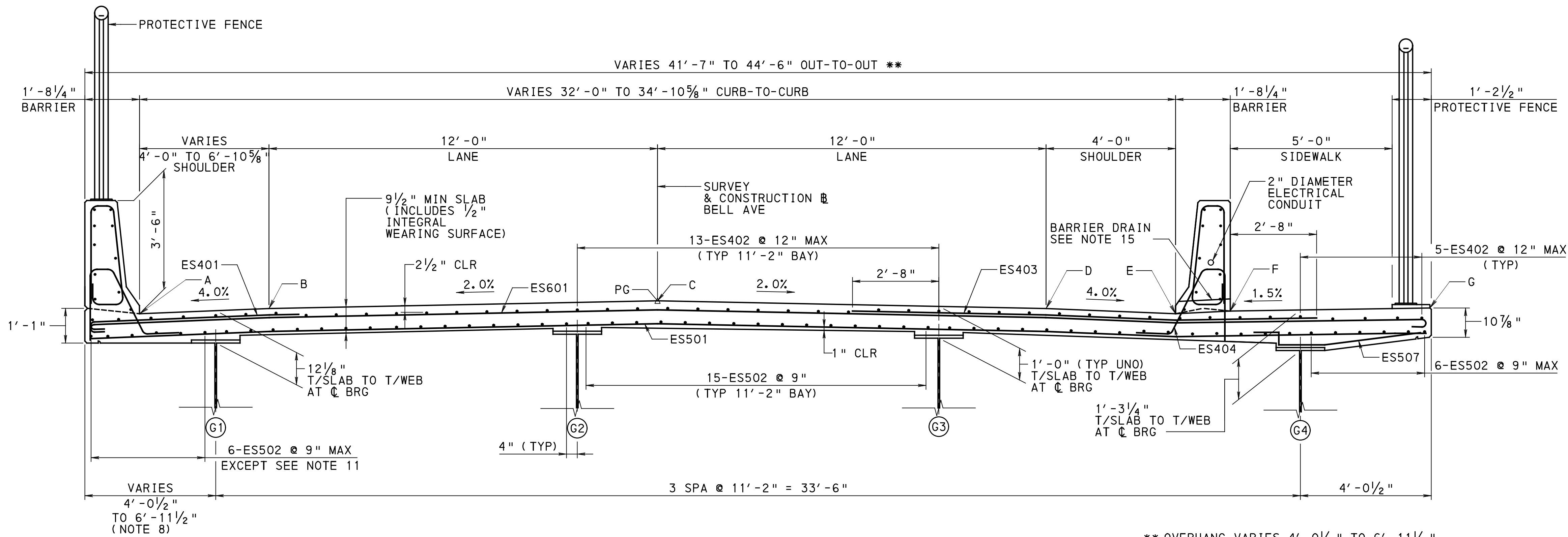
County of Allegheny
 Pittsburgh, Pennsylvania
 Department of Public Works

CONSTRUCTION DRAWINGS
 STRUCTURAL PLANS
 GENERAL PLAN & ELEVATION
 STRUCTURE NO. L33
 DOOKER'S HOLLOW BRIDGE
 DK01-0303

DR. BY: HCF	DATE: 01/16/2019	26135
CH. BY: JAK	SCALE: AS NOTED SHEET 1 OF 73	

FILE NAME: \$\$\$design.f11e\$\$\$

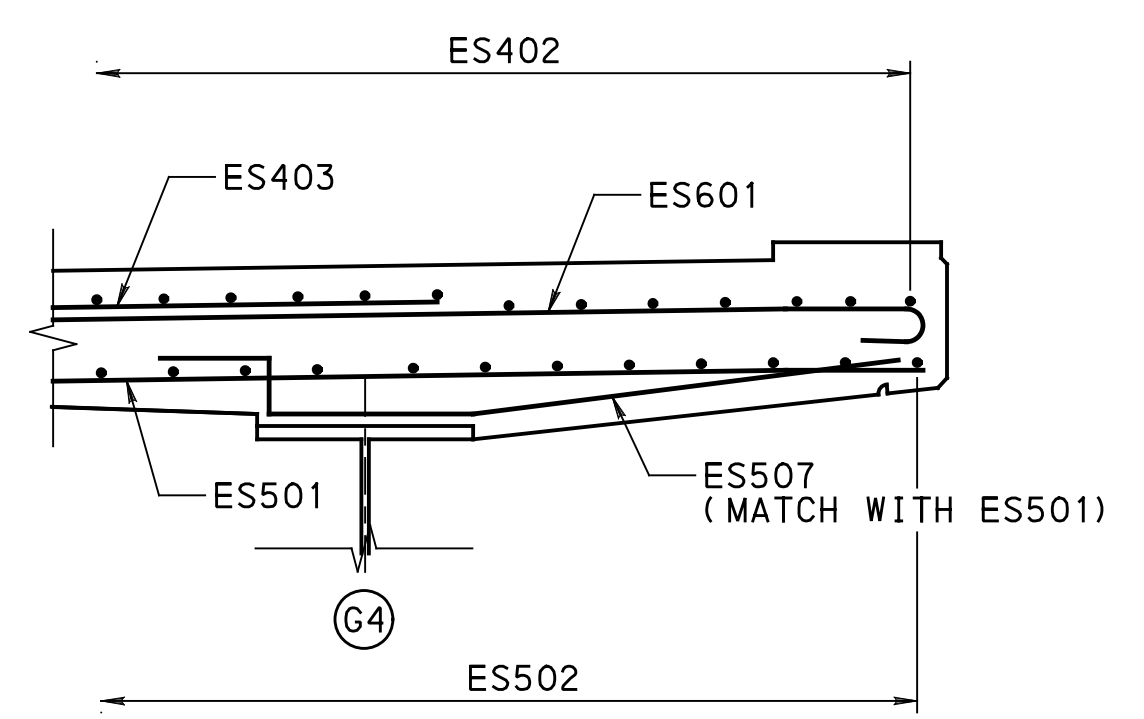
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TYPICAL SLAB SECTION POSITIVE MOMENT

SCALE: 1/2" = 1'-0"

** OVERHANG VARIES 4'-0 1/2" TO 6'-11 1/2"
SHOULDER VARIES 4'-0" TO 6'-10 5/8"
FOR L=16'-10 3/4" AT ABUTMENT 2
MAX OUT-TO-OUT AT ABUTMENT 2 = 44'-6"

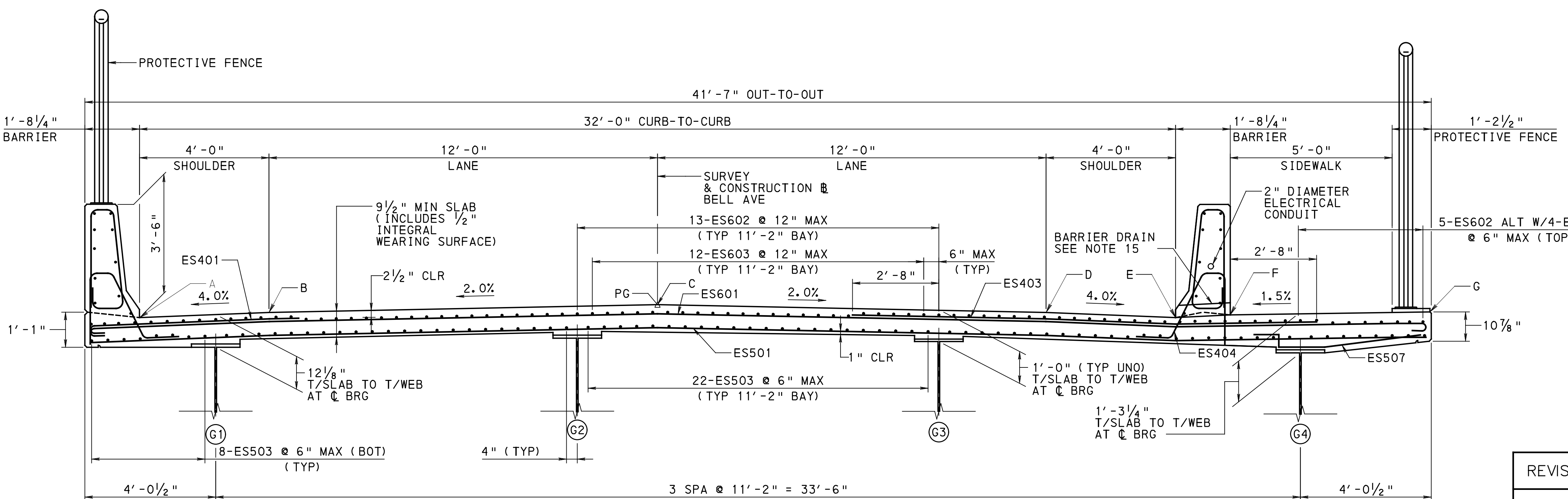


HAUNCH DETAIL

SCALE: 3/4" = 1'-0"

NOTES

1. FOR GENERAL PLAN AND ELEVATION, SEE SHEET 1.
2. FOR GENERAL NOTES, SEE SHEET 3.
3. FOR FRAMING PLAN, SEE SHEET 41.
4. FOR GIRDER ELEVATIONS, SEE SHEETS 42-43.
5. FOR SLAB PLAN, SEE SHEETS 49-52.
6. FOR TYPICAL CONCRETE BARRIER DETAIL, SEE SHEET 49.
7. FOR DECK PLACEMENT SEQUENCE, SEE SHEET 51.
8. FOR ADDITIONAL REINFORCEMENT IN THE TAPER REGION, SEE DETAIL E SHEET 52.
9. FOR FENCE DETAIL, SEE SHEET 58.
10. FOR FINISHED DECK ELEVATIONS, SEE SHEET 59.
11. FOR SUPERSTRUCTURE REBAR SCHEDULE, SEE SHEETS 61-63.
12. FOR ADDITIONAL DECK SLAB DETAILS, SEE STANDARD DRAWING BC-752M.
13. FOR DRIP NOTCH DETAIL, SEE SHEET 52.
14. SPACE BARRIER DRAINS AT 2'-0" MIN FROM MODIFIED DEFLECTION JOINT V-NOTCHES AND OPEN JOINTS, AND 20'-0" MAX BETWEEN DRAINS.



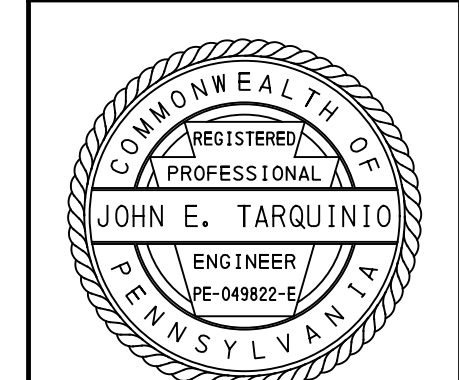
TYPICAL SLAB SECTION NEGATIVE MOMENT

SCALE: 1/2" = 1'-0"

REVISIONS

County of Allegheny
Pittsburgh, Pennsylvania
Department of Public Works

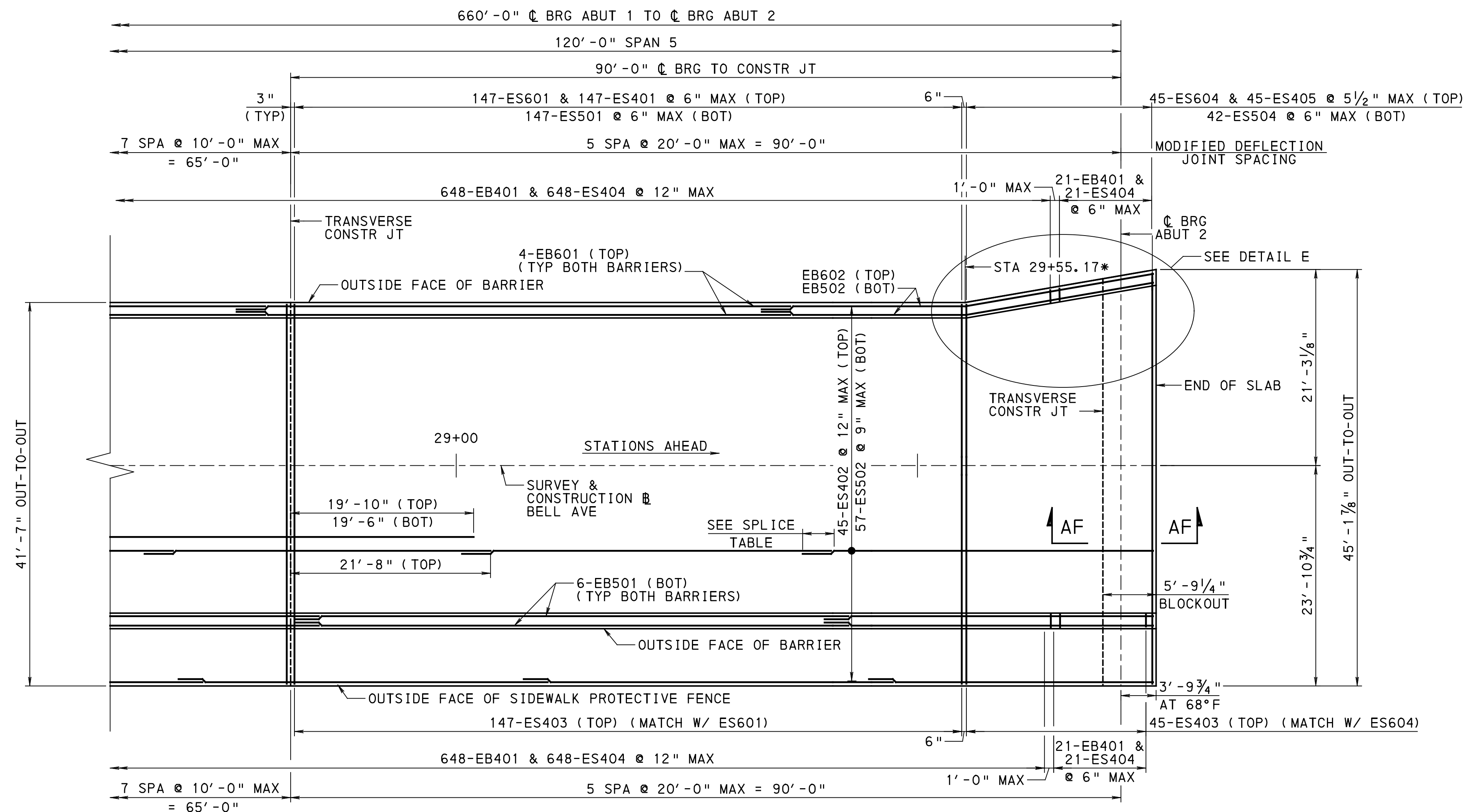
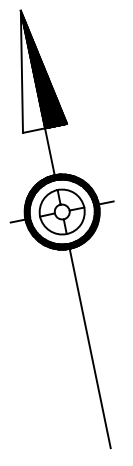
CONSTRUCTION DRAWINGS
STRUCTURAL PLANS
TYPICAL SLAB SECTIONS
STRUCTURE NO. L33
DOOKER'S HOLLOW BRIDGE
DK01-0303



DR. BY: HCF	DATE: 01/16/2019	26135
CH. BY: JAK	SHEET 48 OF 73	

FILE NAME: \$\$\$des 1gn f 1 le\$\$\$

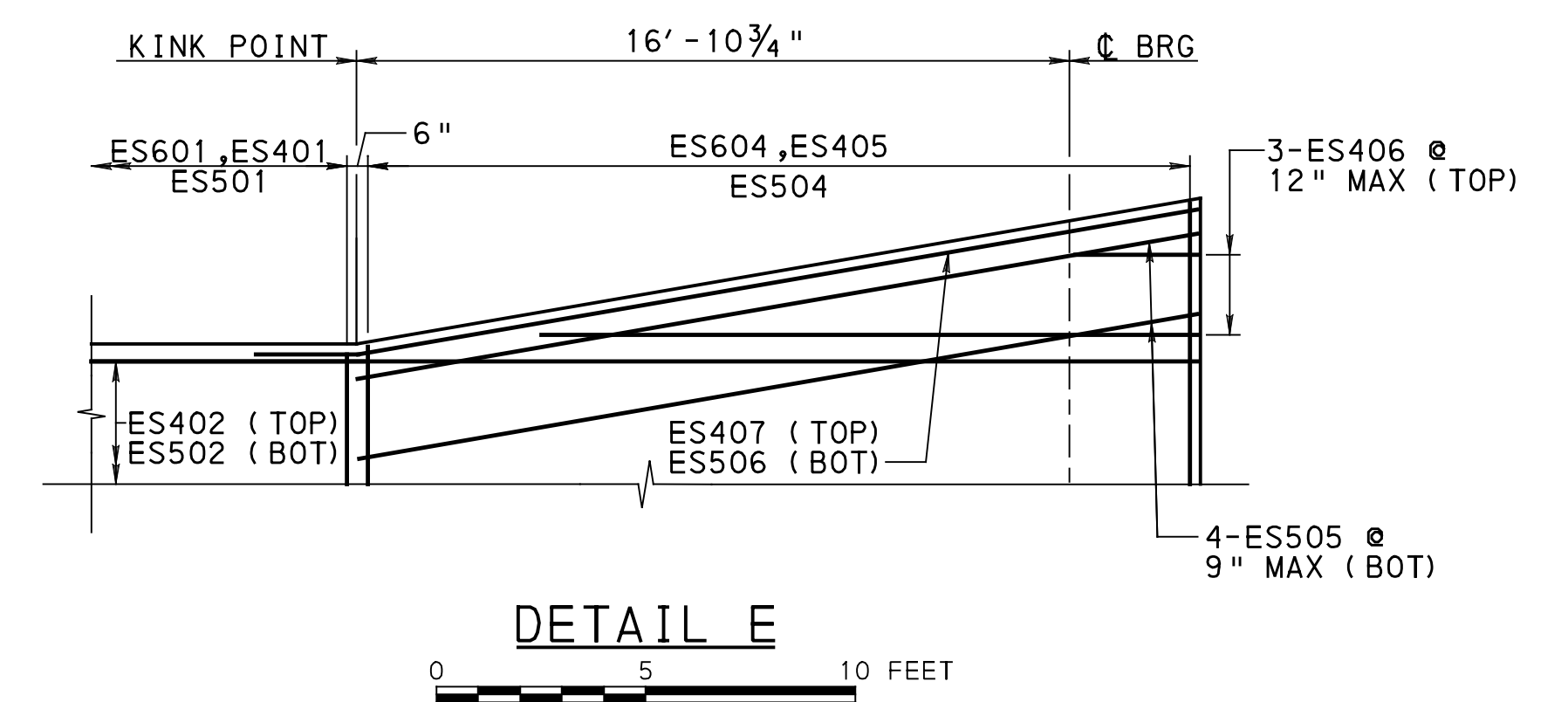
PLOTTED: ##DATE##



* MEASURED AT REAR FACE OF BARRIER

DECK PLAN PARTIAL SPAN 5

MIN LAP LENGTHS (UNLESS NOTED OTHERWISE)		
	TYPICAL	BARRIER
#4 BARS	2' - 1"	
#5 BARS	2' - 7"	3' - 7"
#6 BARS	3' - 1"	4' - 4"

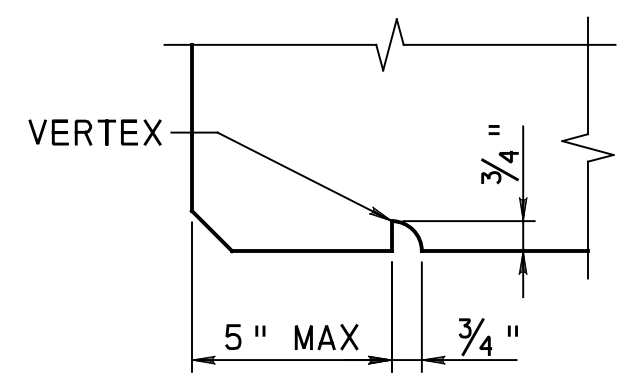


DETAIL E

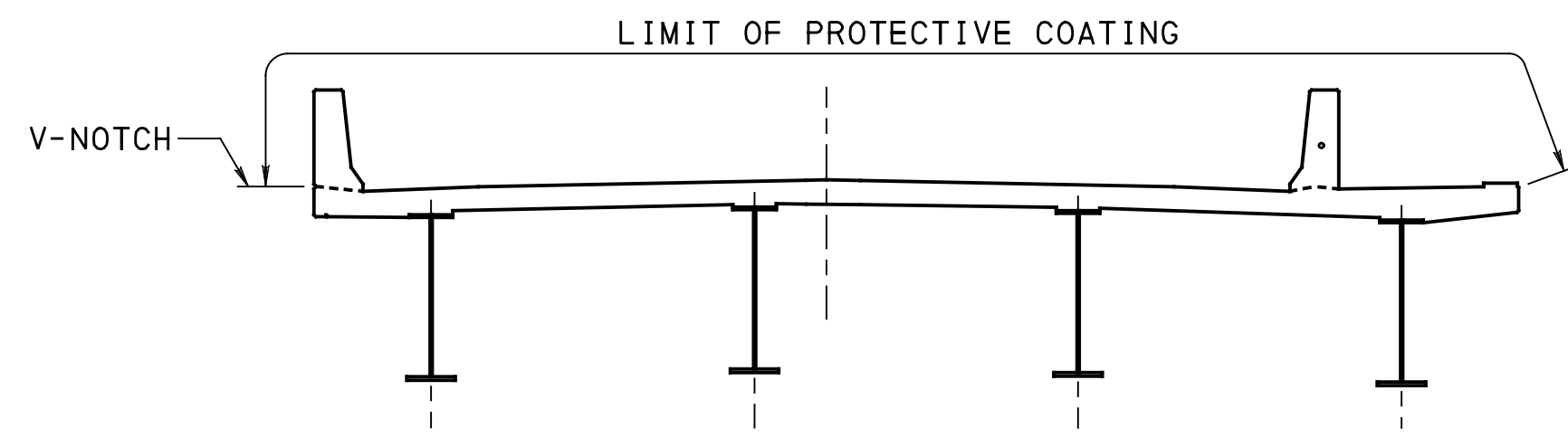
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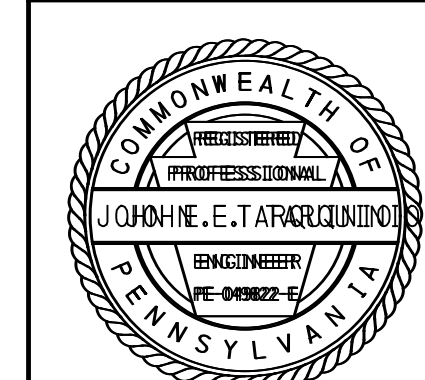
1. FOR GENERAL PLAN & ELEVATION, SEE SHEET 1.
2. FOR GENERAL NOTES, SEE SHEET 3.
3. FOR TYPICAL SLAB SECTIONS, SEE SHEET 48.
4. FOR SECTION AF-AF, SEE SHEET 53.
5. FOR FENCE DETAIL, SEE SHEET 58.
6. FOR FINISHED DECK ELEVATIONS, SEE SHEET 59.
7. FOR SUPERSTRUCTURE REBAR SCHEDULE, SEE SHEETS 61-63.
8. FOR ADDITIONAL ELECTRICAL AND LIGHTING POLE ANCHORAGE DETAILS, SEE BC-721M & BC-722M.
9. FOR ADDITIONAL DECK SLAB DETAILS, SEE STANDARD DRAWING BC-752M.



DRIP NOTCH DETAIL
NO SCALE



PROTECTIVE COATING DETAIL
NO SCALE



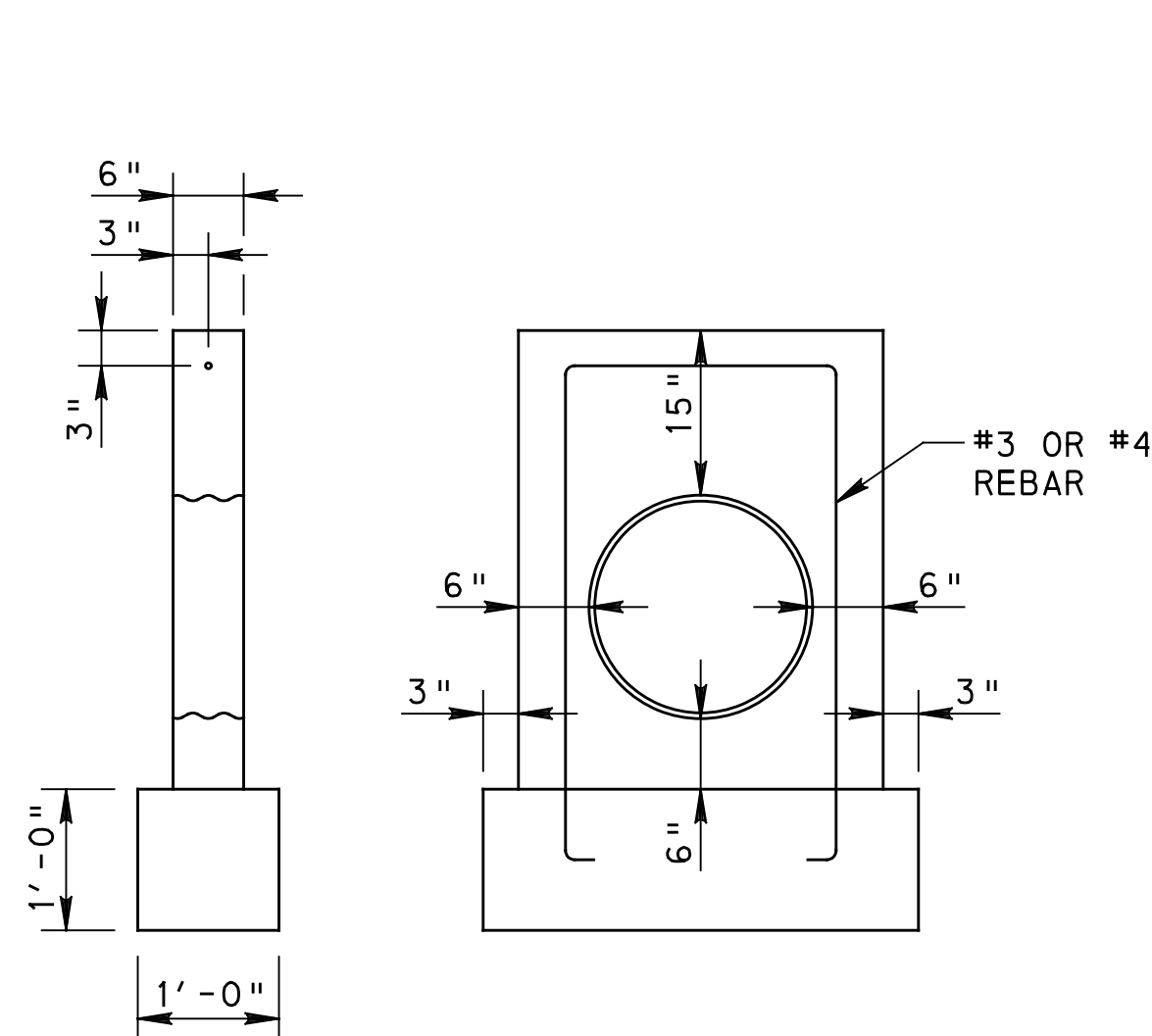
REVISIONS

County of Allegheny
Pittsburgh, Pennsylvania
Department of Public Works

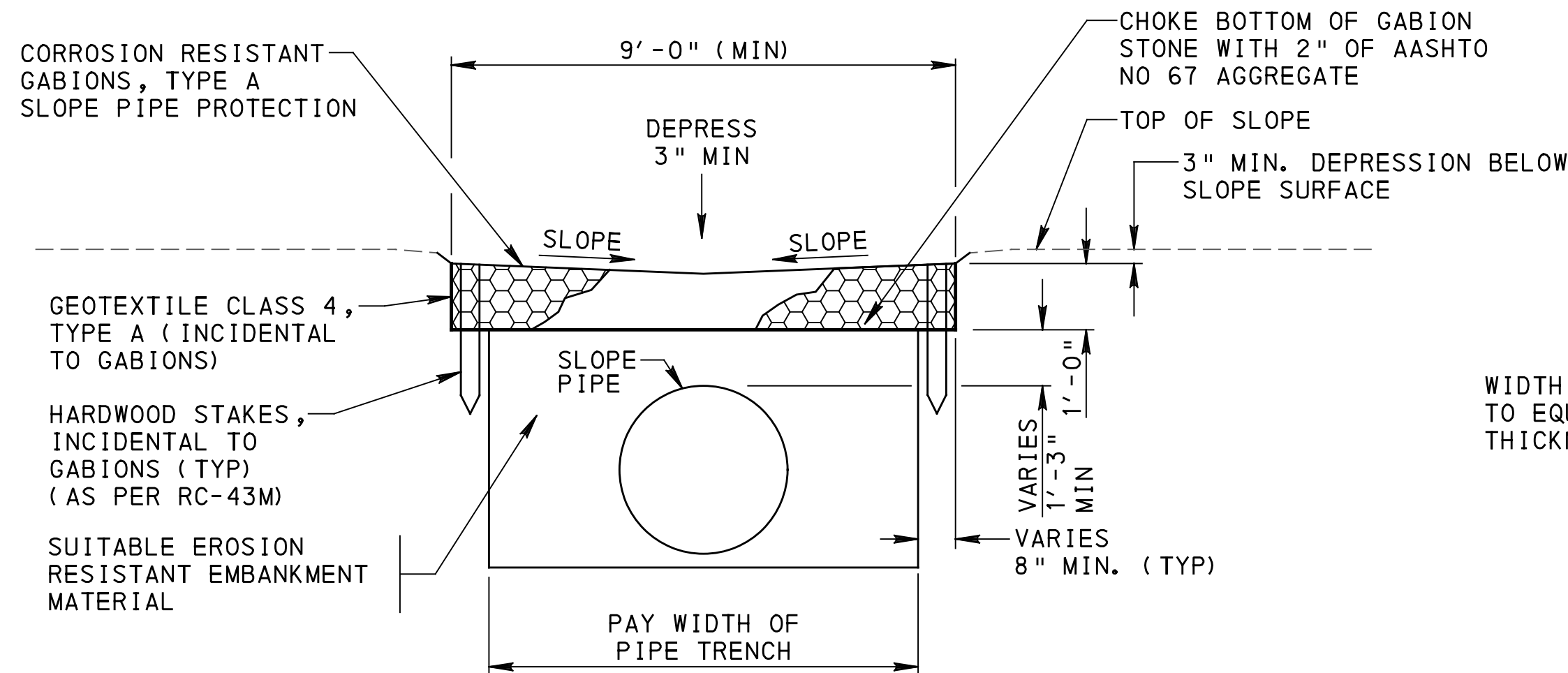
CONSTRUCTION DRAWINGS
STRUCTURAL PLANS
SLAB PLAN 4
STRUCTURE NO. L33
DOOKER'S HOLLOW BRIDGE
DK01-0303

DR. BY: HCF	DATE: 01/16/2019	26135
CH. BY: JAK	SCALE: AS NOTED SHEET 52 OF 73	

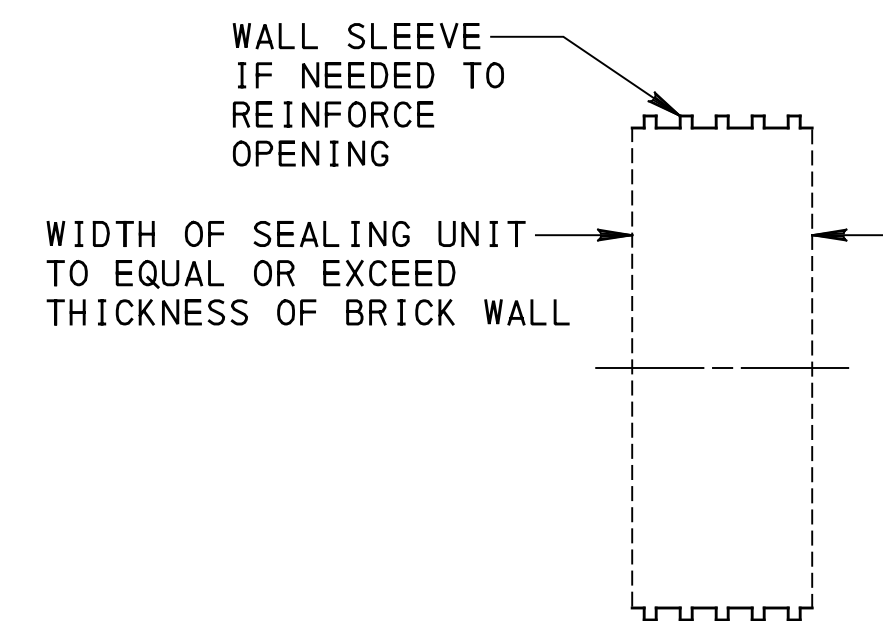
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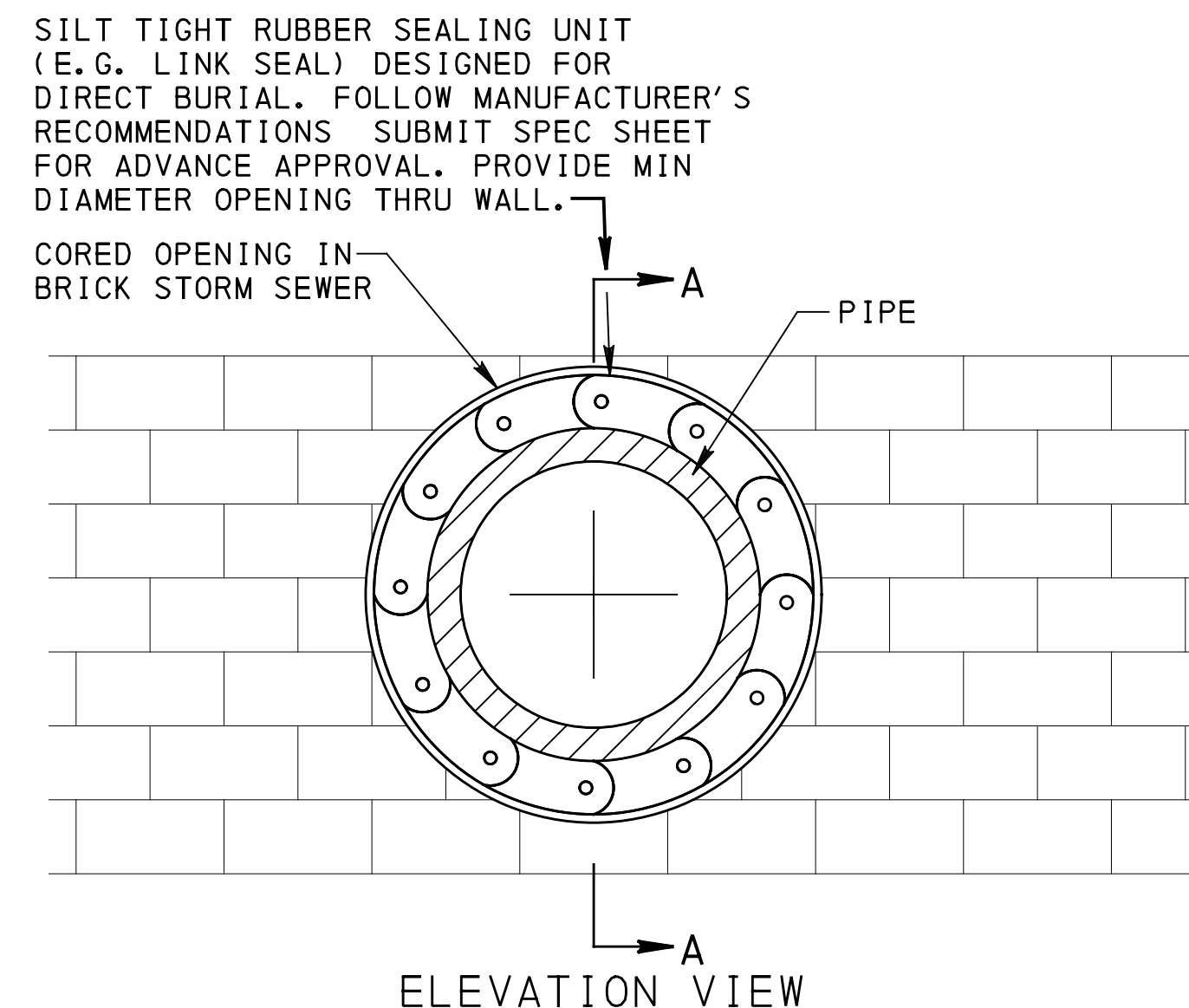
SLOPE PIPE ANCHOR DETAIL
(ITEM 9000-0005)
NOT TO SCALE
(13 LOCATIONS AS INDICATED)



**SECTION VIEW
CORROSION RESISTANT GABIONS,
TYPE A FOR SLOPE PIPE PROTECTION**
NOT TO SCALE



SECTION A-A

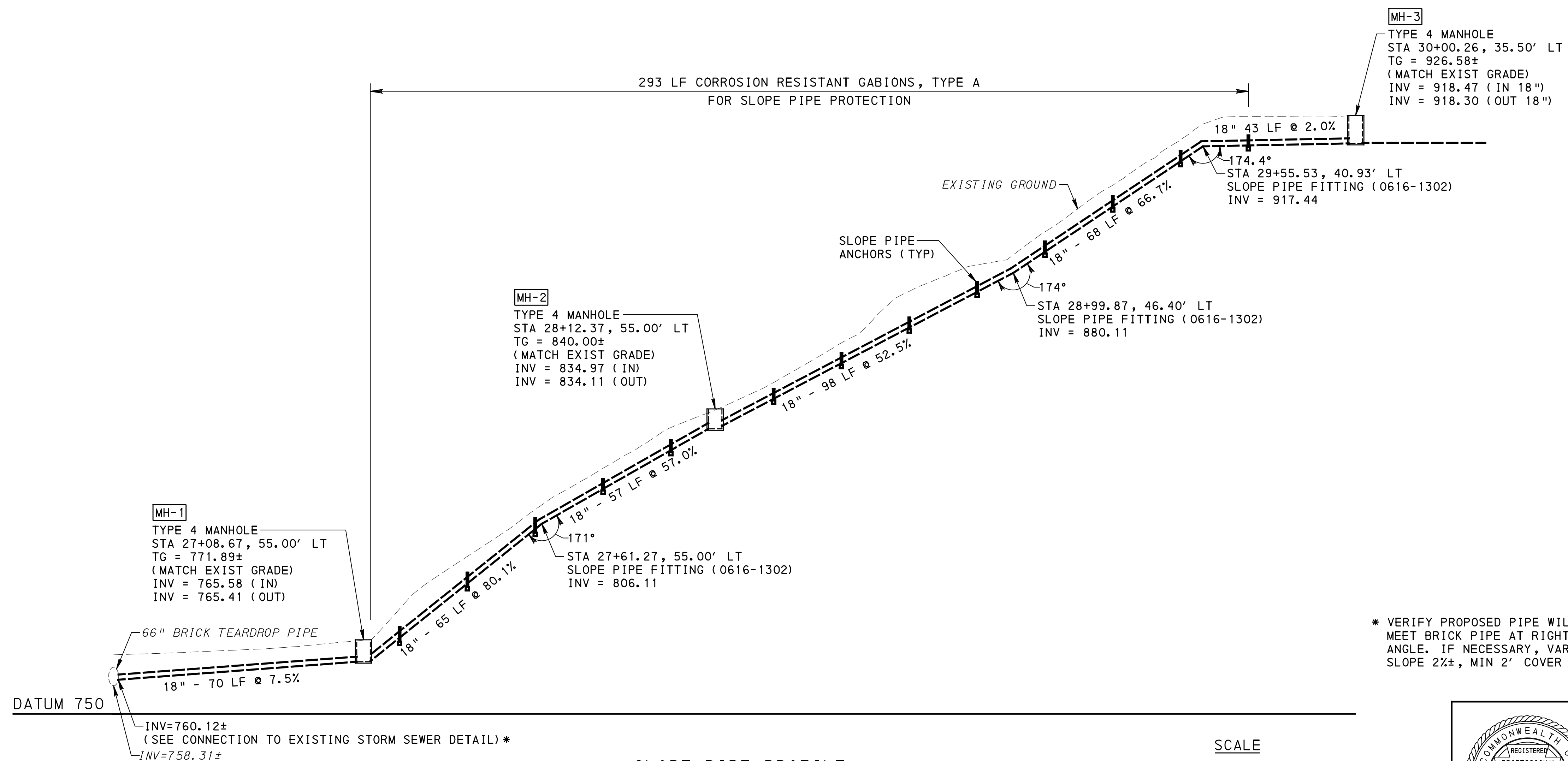


**CONNECTION TO EXISTING
STORM SEWER**
(ITEM 9000-0006)
NOT TO SCALE

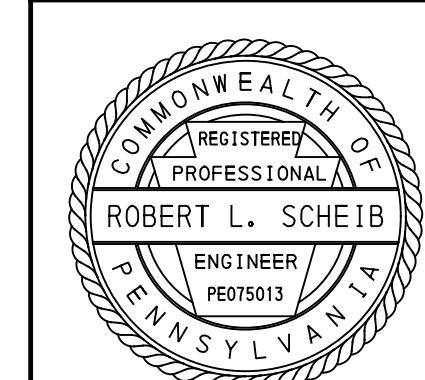
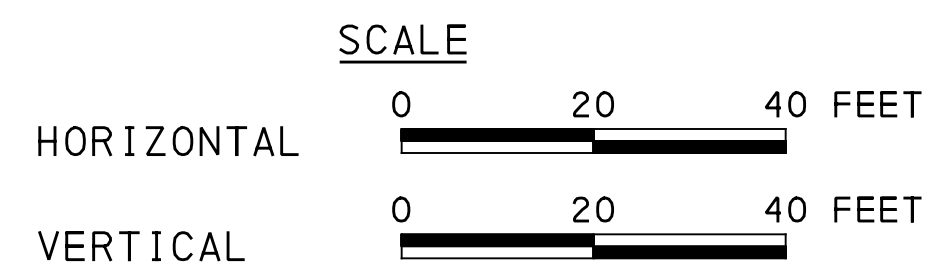
NOTE:
CORE DRILL INTO EXISTING BRICK STORM SEWER TAKING PRECAUTIONS TO AVOID DAMAGE IN COORDINATION W/ MUNICIPAL ENGINEER. APPLY PORTLAND CEMENT GROUT TO REINFORCE AND CREATE UNIFORM CIRCULAR OPENING IN BRICK WALL.

SUMMARY OF DRAINAGE DEVICES

Device	Location / Description	Stationing	Length	Top Grade (TG)	Inlet Invert (IN)	Outlet Invert (OUT)
I-1	TYPE C CONCRETE TOP UNIT AND BICYCLE SAFE GRATE, STANDARD INLET BOX, HEIGHT $\leq 10'$	STA 22+02.77	22.08' LT	884.78	881.28 (IN)	881.16 (OUT)
I-2	TYPE C CONCRETE TOP UNIT AND BICYCLE SAFE GRATE, STANDARD INLET BOX, HEIGHT $\leq 10'$	STA 30+15.81	22.21' LT	925.66	921.81 (IN 18" E) 921.75 (IN 18" S)	918.83 (IN 12" W) 918.66 (OUT)
I-3	TYPE C CONCRETE TOP UNIT AND BICYCLE SAFE GRATE, STANDARD INLET BOX, HEIGHT $\leq 10'$	STA 30+36.66	22.00' RT	926.67	922.67 (OUT)	
MH-1	TYPE 4 MANHOLE	STA 27+08.67	55.00' LT	771.89±	765.58 (IN) 765.41 (OUT)	
MH-2	TYPE 4 MANHOLE	STA 28+12.37	55.00' LT	840.00±	834.97 (IN) 834.11 (OUT)	
MH-3	TYPE 4 MANHOLE	STA 30+00.26	35.50' LT	926.58±	918.47 (IN 18") 918.30 (OUT 18")	
MH-4	TYPE 4 MANHOLE	STA 29+07.93	6.90' LT	765.8±	762.34 (IN 10") 760.53 (OUT 10")	



SLOPE PIPE PROFILE



* VERIFY PROPOSED PIPE WILL MEET BRICK PIPE AT RIGHT ANGLE. IF NECESSARY, VARY SLOPE 2%±, MIN 2' COVER

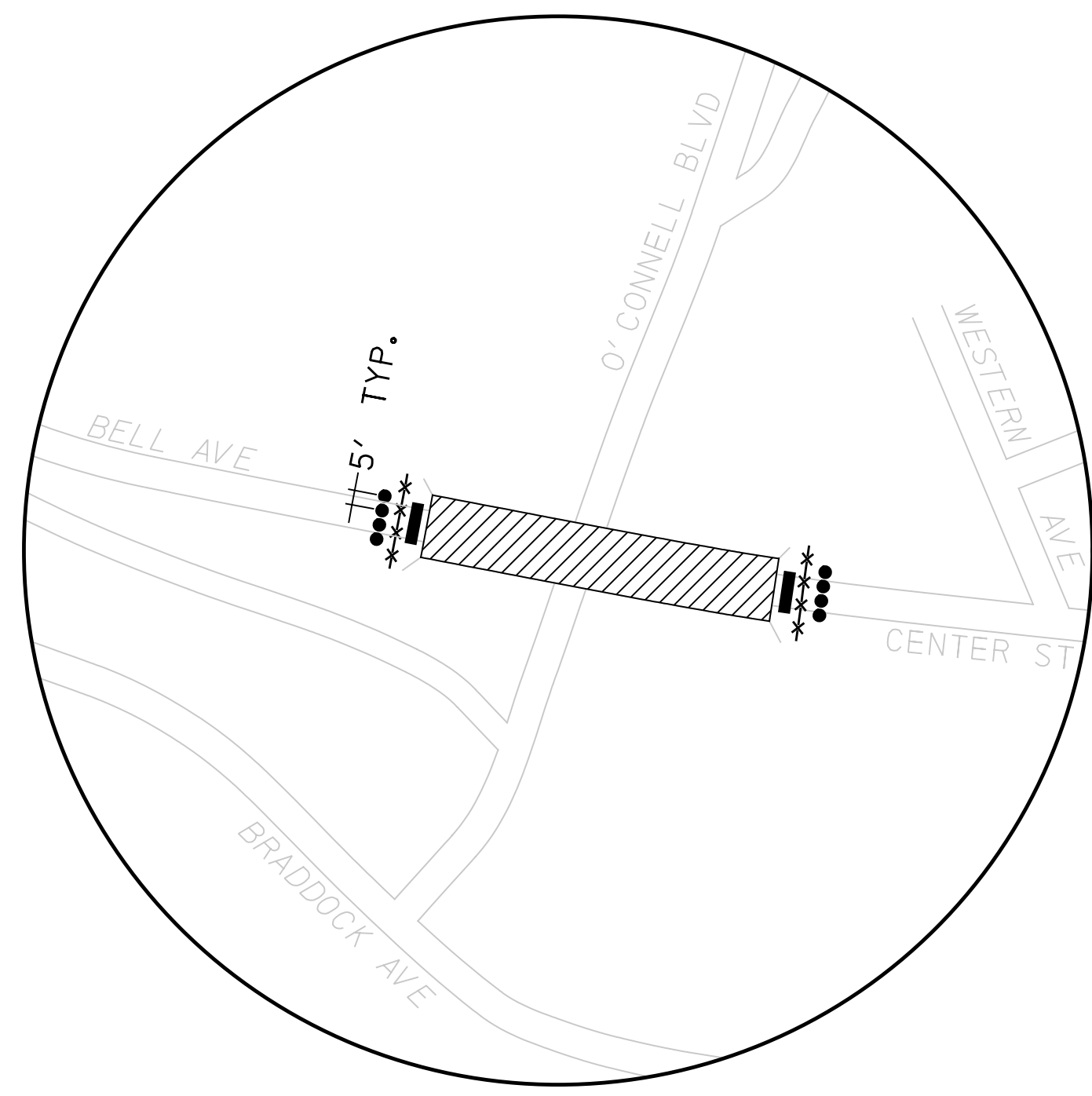
NOTE:
RESTORE GROUND SURFACE WITH SMOOTH UNIFORM SLOPES.

REVISIONS

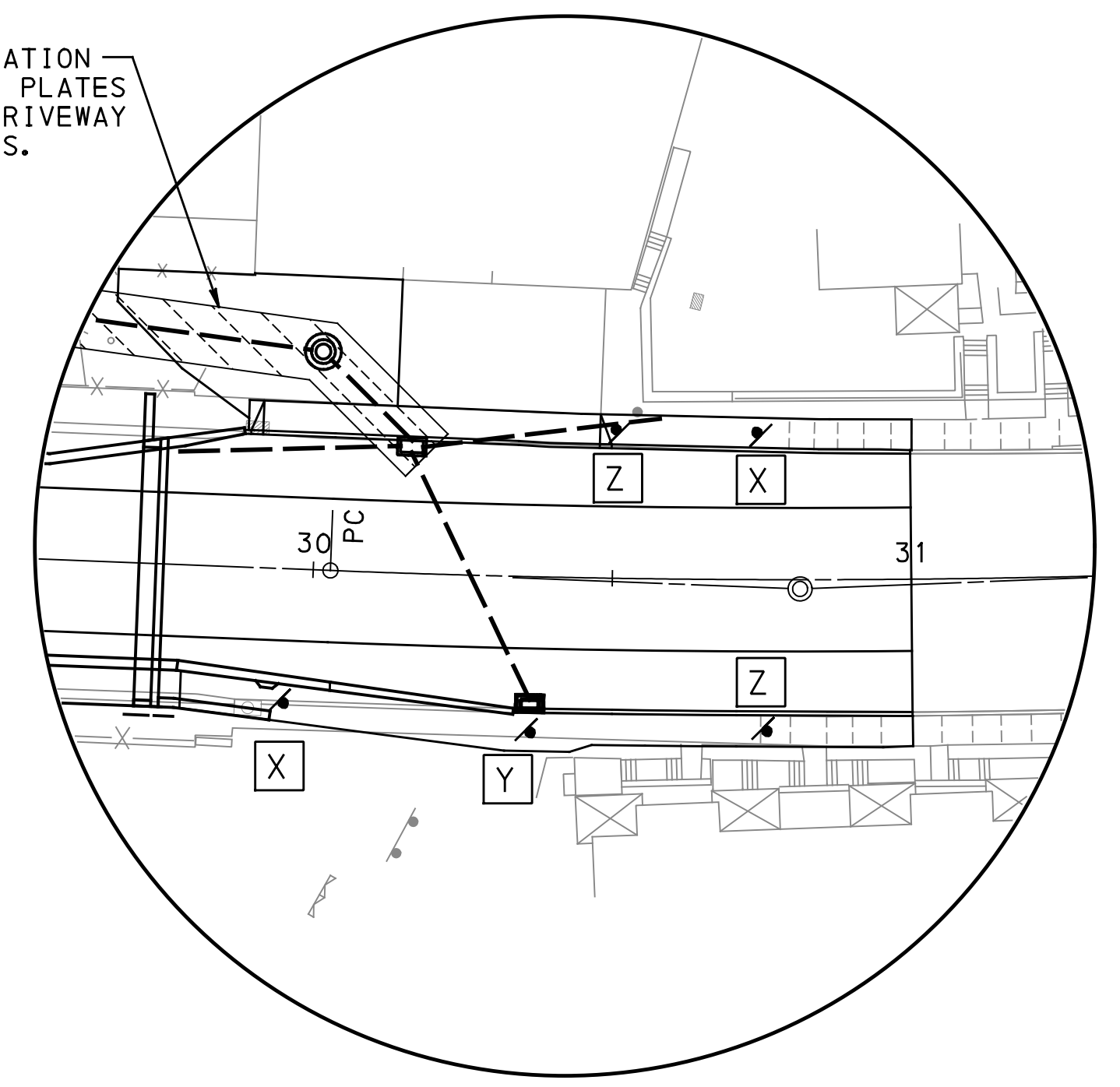
County of Allegheny
Pittsburgh, Pennsylvania
Department of Public Works

CONSTRUCTION DRAWINGS
CONSTRUCTION PLANS
DETAILS
STRUCTURE NO. L33
DOOKER'S HOLLOW BRIDGE
DK01-0303

DR. BY: MAE	TR. BY:	DATE: 7/28/2017	76393
CH. BY: RLS	SCALE: AS NOTED	SHEET 7 OF 17	

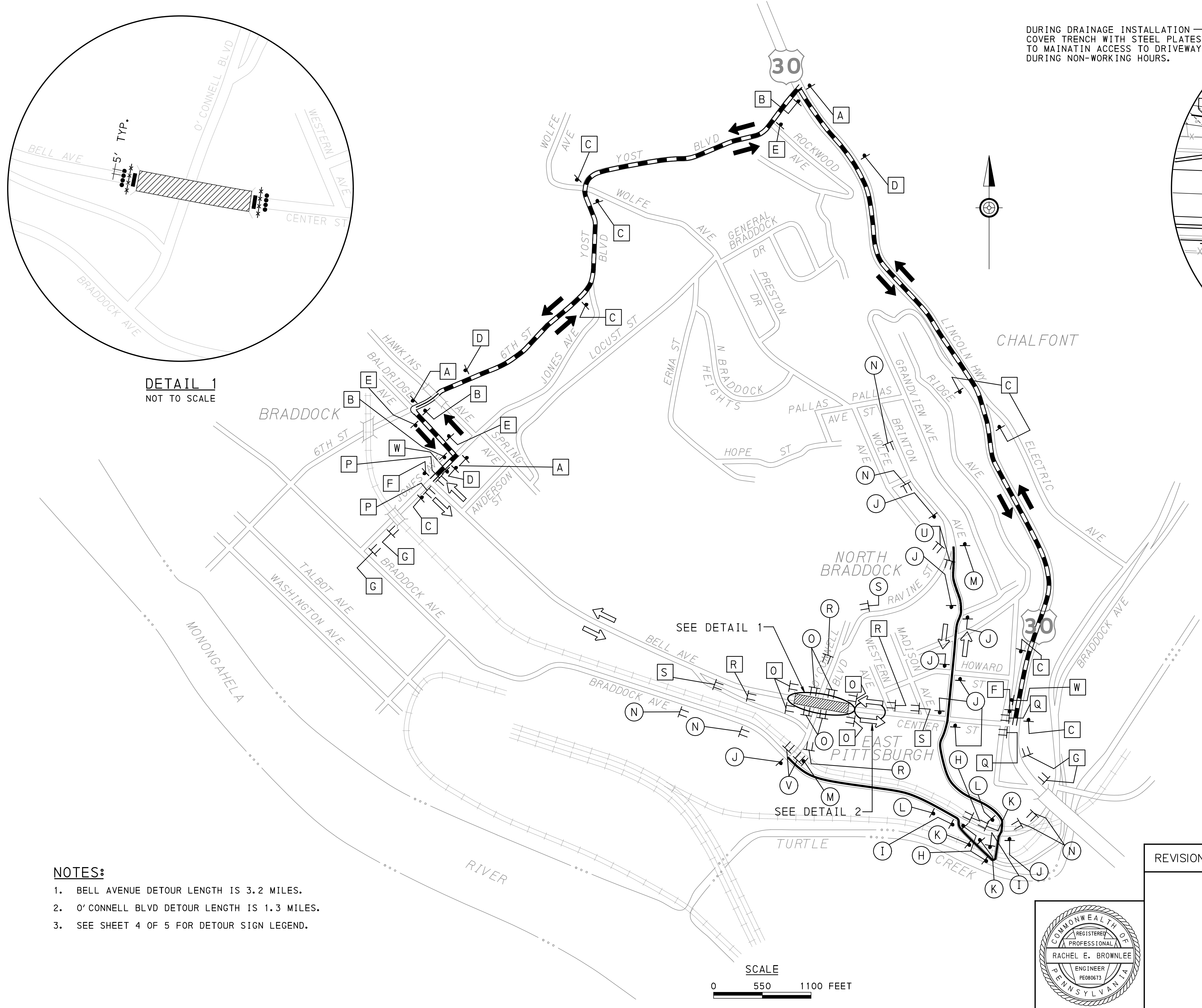


DETAIL 1
NOT TO SCALE



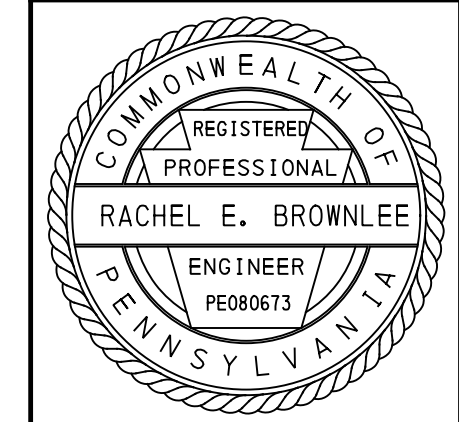
DETAIL 2
NOT TO SCALE

DURING DRAINAGE INSTALLATION
COVER TRENCH WITH STEEL PLATES
TO MAINTAIN ACCESS TO DRIVEWAY
DURING NON-WORKING HOURS.



- LEGEND**
- BELL AVENUE DETOUR
 - O'CONNELL BLVD DETOUR
 - CLOSURE
 - DIRECTION OF TRAVEL
 - DIRECTION OF TRAVEL (LOCAL TRAFFIC ONLY)
 - TYPE III BARRICADE
 - BELL AVENUE DETOUR SIGN
 - O'CONNELL BLVD DETOUR SIGN
 - TEMPORARY PROTECTIVE FENCE
 - CHANNELIZING DEVICE
 - STEEL PLATES
 - TEMPORARY CONCRETE BARRIER

- NOTES:**
1. BELL AVENUE DETOUR LENGTH IS 3.2 MILES.
 2. O'CONNELL BLVD DETOUR LENGTH IS 1.3 MILES.
 3. SEE SHEET 4 OF 5 FOR DETOUR SIGN LEGEND.



County of Allegheny
Pittsburgh, Pennsylvania
Department of Public Works

CONSTRUCTION DRAWINGS
TRAFFIC CONTROL PLAN
DETOUR PLAN (SHEET 1 OF 2)
STRUCTURE NO. L33
DOOKER'S HOLLOW BRIDGE
DK01-0303

REVISIONS			

DR. BY: REB	TR. BY:	DATE: 03/24/2017	76393
CH. BY: MCU	SCALE: AS NOTED	SHEET 3 OF 5	



01 - Completed Dooker's Hollow Bridge



02 - Imploded Bridge Lands on O'Connell Boulevard



03 - Earthmoving Required on Steep Hillside



04 - Girder Erection over the Valley



05 - Proximity of Adjacent Local Business to New Bridge



ALLEGHENY COUNTY

ALWAYS INSPIRING

FOR IMMEDIATE RELEASE

December 16, 2021

Contact: Amie M. Downs
412-350-3711 (office)
412-327-3700 (cell)
amie.downs@alleghenycounty.us

Fitzgerald, Officials Celebrate New Dooker's Hollow Bridge with Ribbon Cutting

PITTSBURGH – County Executive Rich Fitzgerald was joined today by Senator Jim Brewster, officials from East Pittsburgh and North Braddock, and Public Works department staff to cut the ribbon and open the newly replaced Dooker's Hollow Bridge. The bridge carries Bell Avenue in North Braddock and Center Street in East Pittsburgh over O'Connell Boulevard.

"We are thrilled to celebrate completion of this important infrastructure project," said Fitzgerald. "Connecting folks to jobs and amenities is so important, especially in places like the Mon Valley that haven't seen as much growth and investment. The previous bridge was in poor condition and eventually would have needed to be closed. Instead, by working together at the federal, state, and local levels, we have ensured that this vital transportation link between two communities can be used for generations to come."

The old structure, which opened in 1940, was a 635-foot arched cantilever truss bridge with three spans. It had deteriorated to the point where a 31-ton weight limit needed to be implemented and rehabilitation was no longer a cost-effective option. It was closed for construction on October 19, 2020 and imploded on February 13, 2021 using 96 explosives placed at 54 locations – safely bringing down 470 tons of debris into the valley below.

The new structure is a 660-foot steel girder bridge with five spans. The added length and number of spans makes it more structurally sound and brings its design up to current standards. The bridge is expected to carry about 3,000 vehicles daily.

Construction of the new bridge, which began last March, required laborers and ironworkers to perform some of their work 140 feet – or about 13 stories – above the valley floor. More than 3,500 cubic yards of concrete was used to complete the structure – enough to fill about 17,000 standard bathtubs. Also, 1.7 million pounds of steel was used, which is the weight of about 500 passenger cars. In addition to replacing the bridge, crews also installed new drainage, pavement, sidewalk, curb, fencing, lighting, pavement markings, and signage. A section of O'Connell Boulevard will be repaved next spring.

"Removing the old structure and constructing a new bridge of this size over the steep valley presented immense challenges, but I'm proud to say Public Works and its partners were more than up to the task," said Stephen Shanley, P.E., Public Works Director. "Thank you to everyone involved who made this very necessary project possible through hard work and collaboration."

The \$9.95 million project, which began on July 13, 2020, was funded by the Federal Highway Administration, PennDOT, and Allegheny County. It was led by Public Works and done by Allison Park Contractors (contractor), AECOM (consultant designer), and Michael Baker International (construction management and inspection).

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