



I-80/Exit 308 Realignment

East Stroudsburg Borough,
Monroe County

Tyler Kerstetter

September 10th, 2026





Agenda

- Project Introduction and History
- Sign Structures
- Retaining Walls
- Geosynthetic Reinforced Slopes
- Prospect Street Bridge Construction
- Lincoln Avenue Bridge Construction
- Drone Photography

Design Team

- CDM Smith
- Dawood Engineering, Inc. (Woolpert)
- A.D. Marble and Company
- SAM (So-Deep)





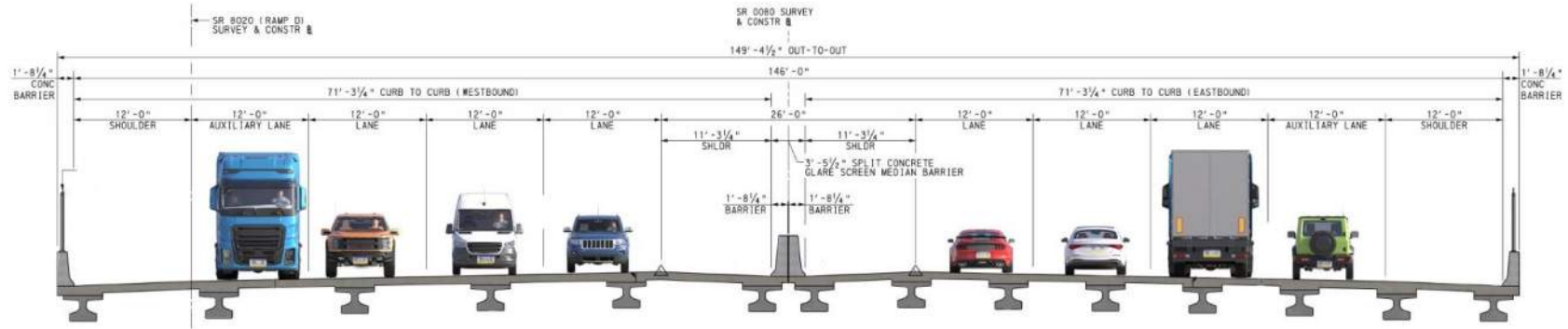
Project Purpose and Need

- Exit 308 interchange was constructed in the 1960s and serves the Borough of East Stroudsburg and the surrounding communities.
- The interchange has reached capacity and experiences traffic bottlenecks due to:
 - Ramp lengths
 - Roadway geometry
 - Vertical clearances

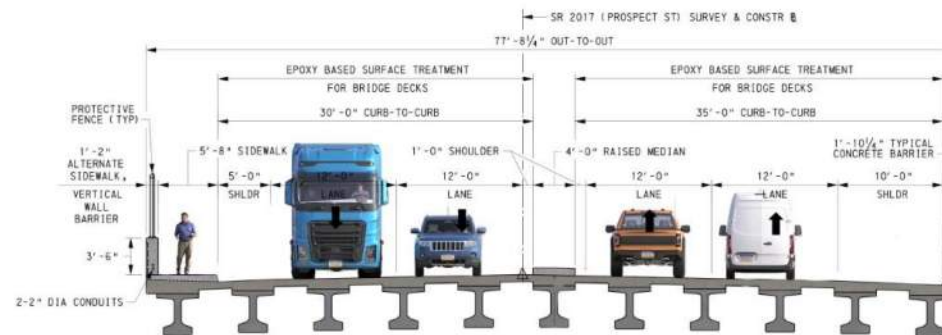
Project Overview



Typical Sections

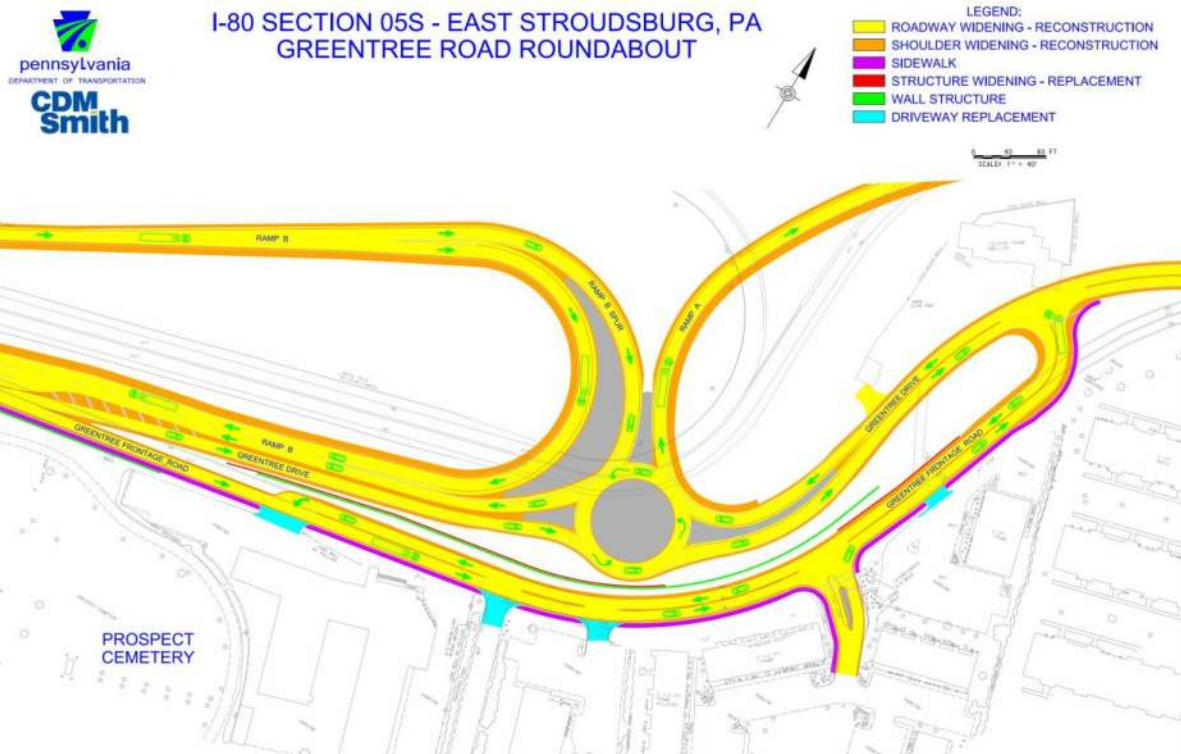
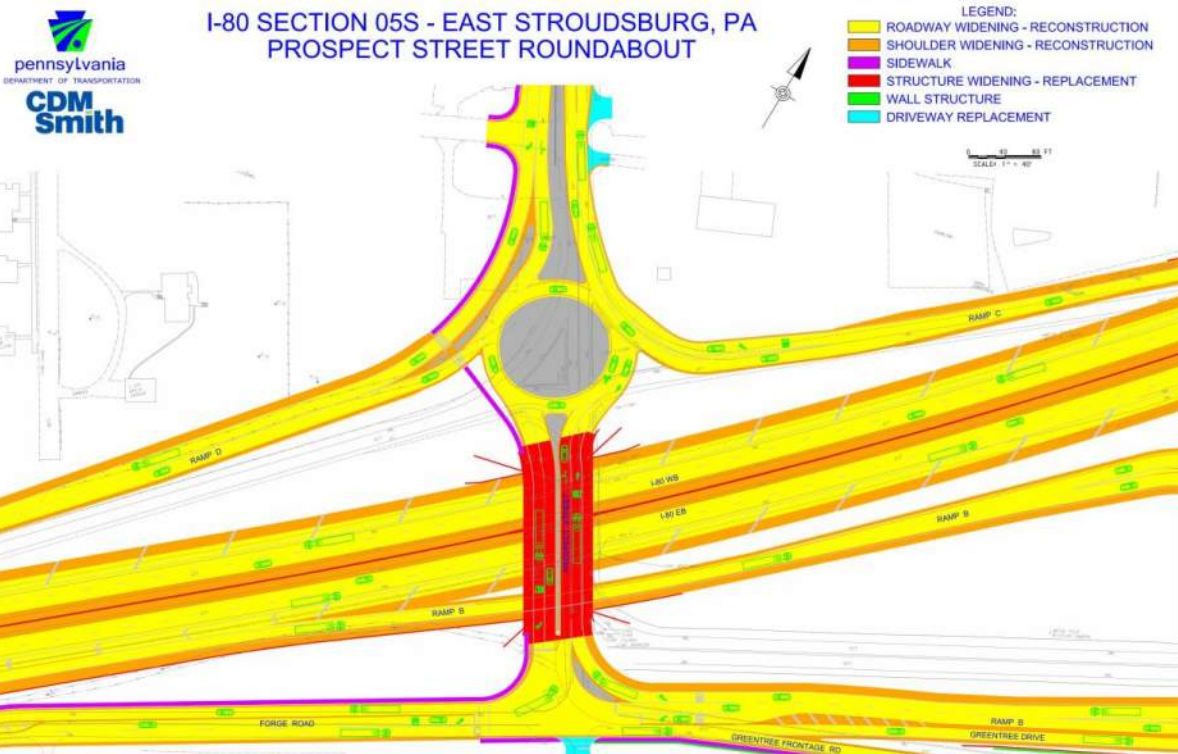


SR 0080 BRIDGE TYPICAL SECTION



SR 2017 (PROSPECT ST) BRIDGE TYPICAL SECTION

Roundabout Details





Traffic Control

- Construction will be completed in five stages over 5 years
- Two lanes of traffic are maintained on SR 0080 throughout construction
- Long-term detours are required for Lincoln Avenue, Forge Road, northbound Prospect Street, Orchard Street, the western section of East Brown, and Centre Street
- Short-term detours using Exit 309 as an alternative route will be required

Bid Package

- Structure Plans 314 Sheets
 - 2 Bridges 157 Sheets
 - S-35465 Bridge (Mainline over RR & Lincoln Ave)
 - S-35466 Bridge (Prospect Street)
 - 9 Sign Structures 41 Sheets
 - 5 Retaining Walls 102 sheets
 - 1 Sound Wall 14 Sheets
- Total Plans of 1590 Sheets
- Low Bid – JD Eckman - **\$93,887,482.48**
- Traffic Control Plan 354 Sheets
- Cross Sections 176 Sheets
- Roadway Plans 292 Sheets
- Other Plans 463 Sheets
- 176 Special Provisions
- 687 Contract Pay Items

Large Project in a Small Footprint





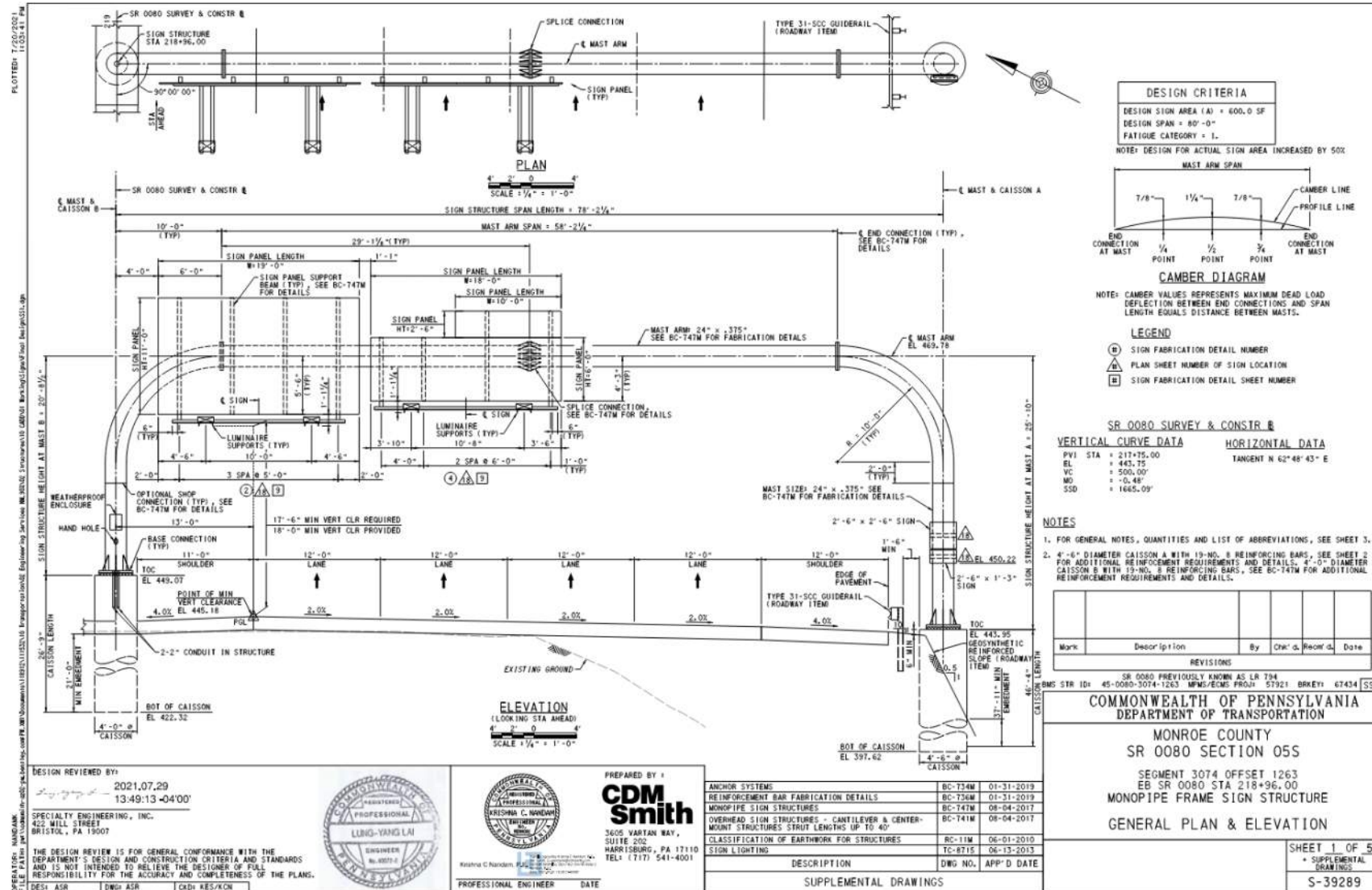
Sign Structures





Sign Structures

- 5 Monopipe Frames with spans from 55' to 78'
- 1 Cantilever Monopipe Structures
- 2 Cantilever Single Strut Structures Construct 9 new sign structures
- 1 Centermount DMS Structure with Modular Architectural Block Wall
- 3 Caissons within the steepened slopes
- Largest caisson is 4'-6" diameter at 46.33' Long in a near vertical GRS slope



Sign Structure Construction in Steepened Slopes



Sign Structure Construction in Steep Slopes

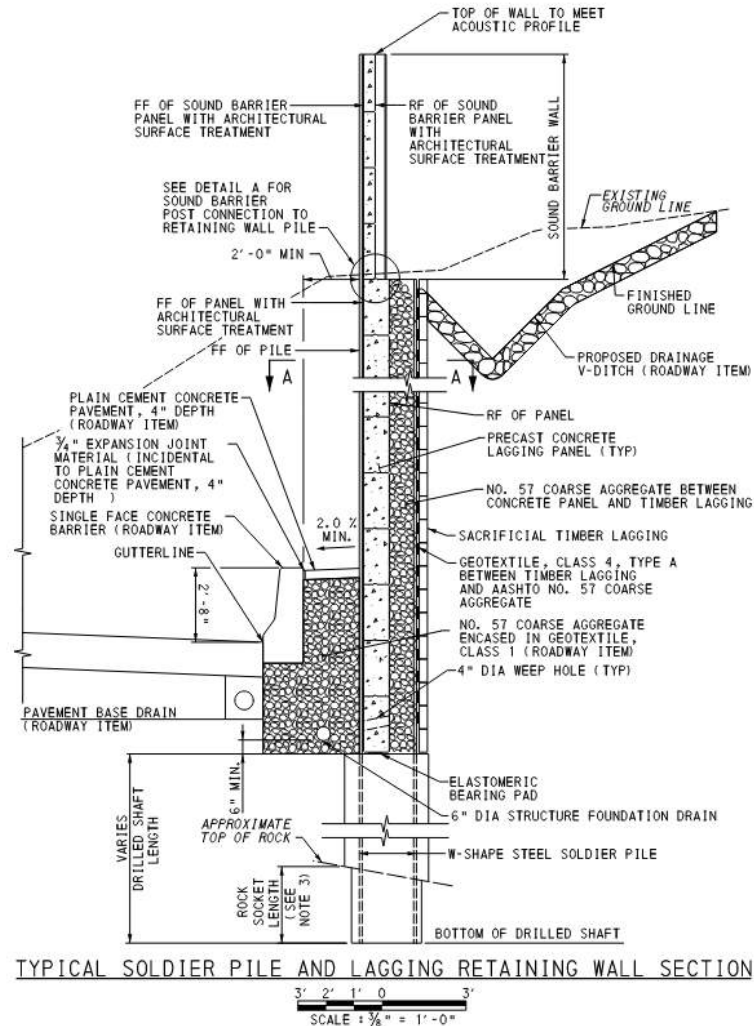




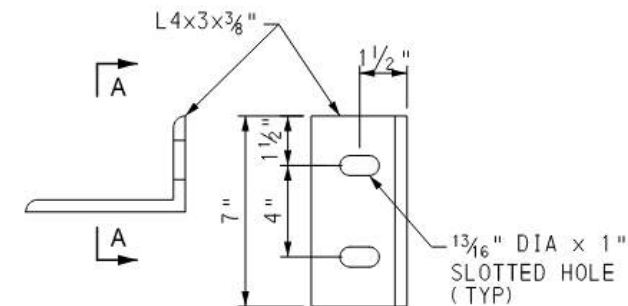
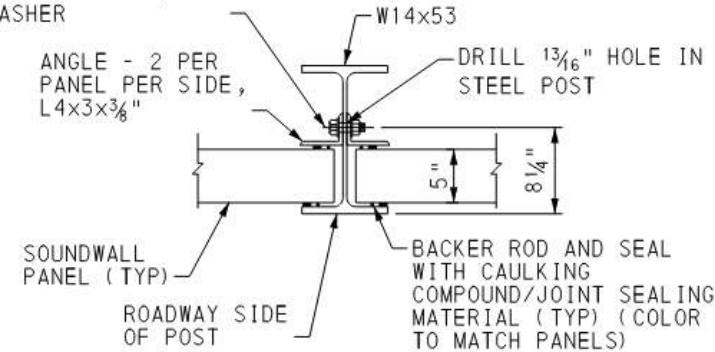
Retaining Walls



Soldier Pile Walls



3/4" DIA HS BOLT, NUT AND WASHER



ANGLE DETAIL

NTS



Soldier Pile Wall Design

■ Site Restraints

- Available R/W did not allow for use of and anchored wall system
- Top down construction was preferred to eliminate large amounts of TESPS
- Varying rock profile
- CIP wall was considered for walls 4 and 5 to allow for an integrated soundwall
- Unique concept for installing a soundwall on top of soldier piles was selected which required significant field welding

Soldier Pile Wall Design

■ Retaining Wall Quantities

- 3,816 LF of Soldier Pile Wall between the 4 walls
- Total of 63,918 SF of precast concrete panels
- Total of 1,426,530 LB of galvanized structural steel

■ Optimized Pile Design

- Iterative design approach for maximizing pile deflections within limits and varying pile spacing.
- Maximum pile spacing of 12' used so reasonable sacrificial lagging could be designed
- Varying spacing of 12', 10', and 8'
- Minimum depth of 6' rock sockets was considered
- Design resulted in reasonable W24x68, W27x102, and W30x132 beam sizes

Drilling



Tooling



Retaining Walls



Drilling Challenges



Installation Progress April 2024



Concrete Placement



Reasons for Top-Down Construction



Completed Panel Installation



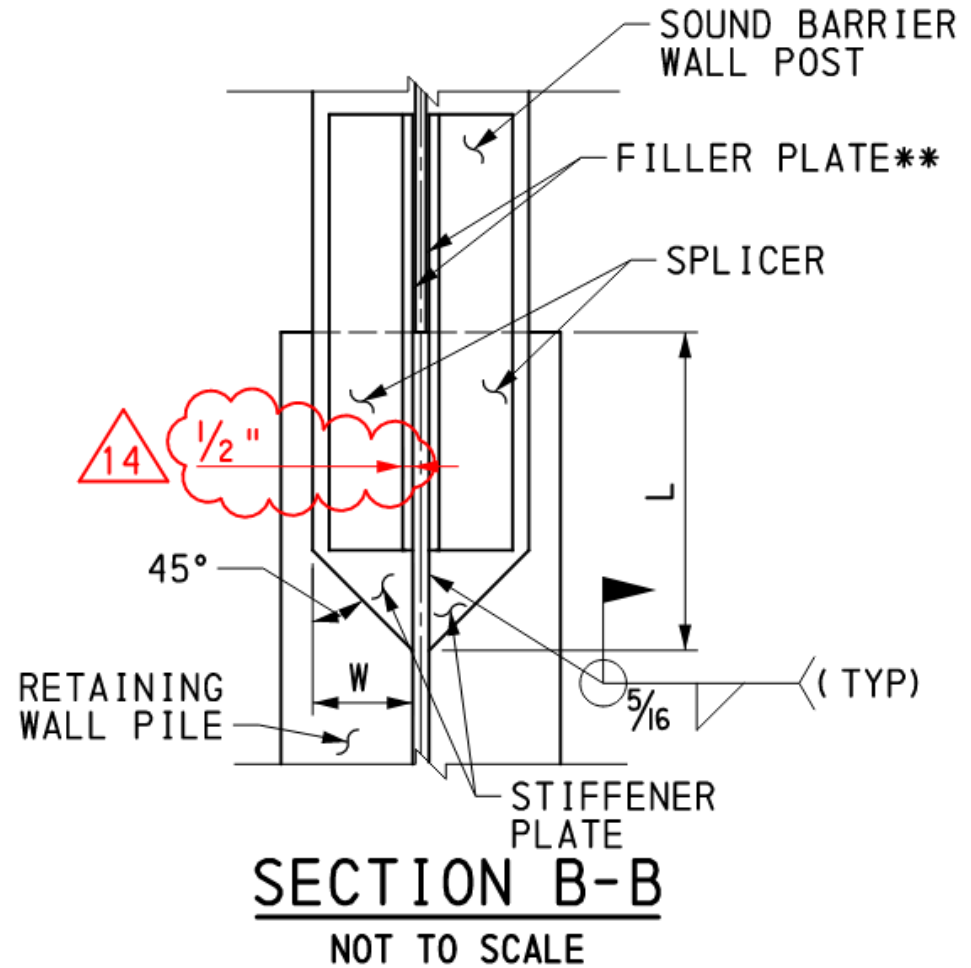
Completed Walls



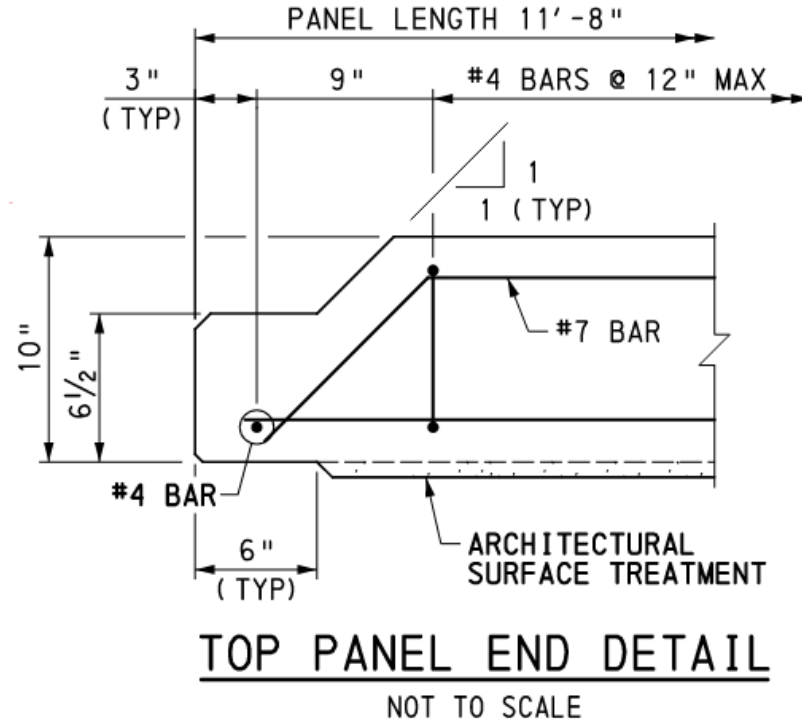
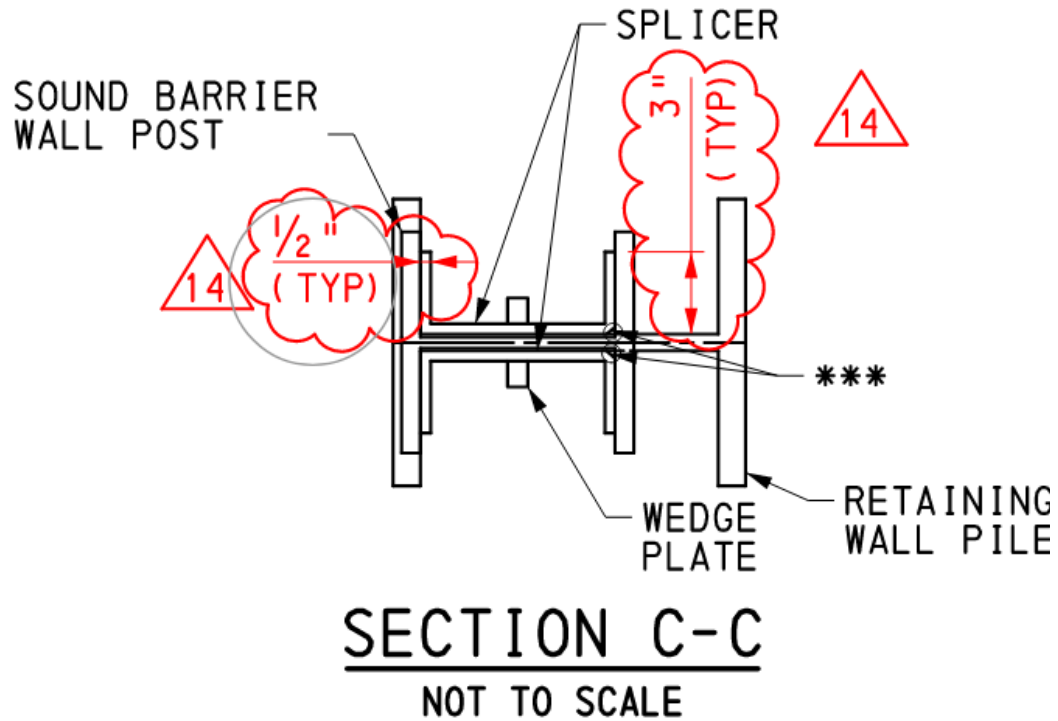
Completed Walls



100



Soundwall Splice

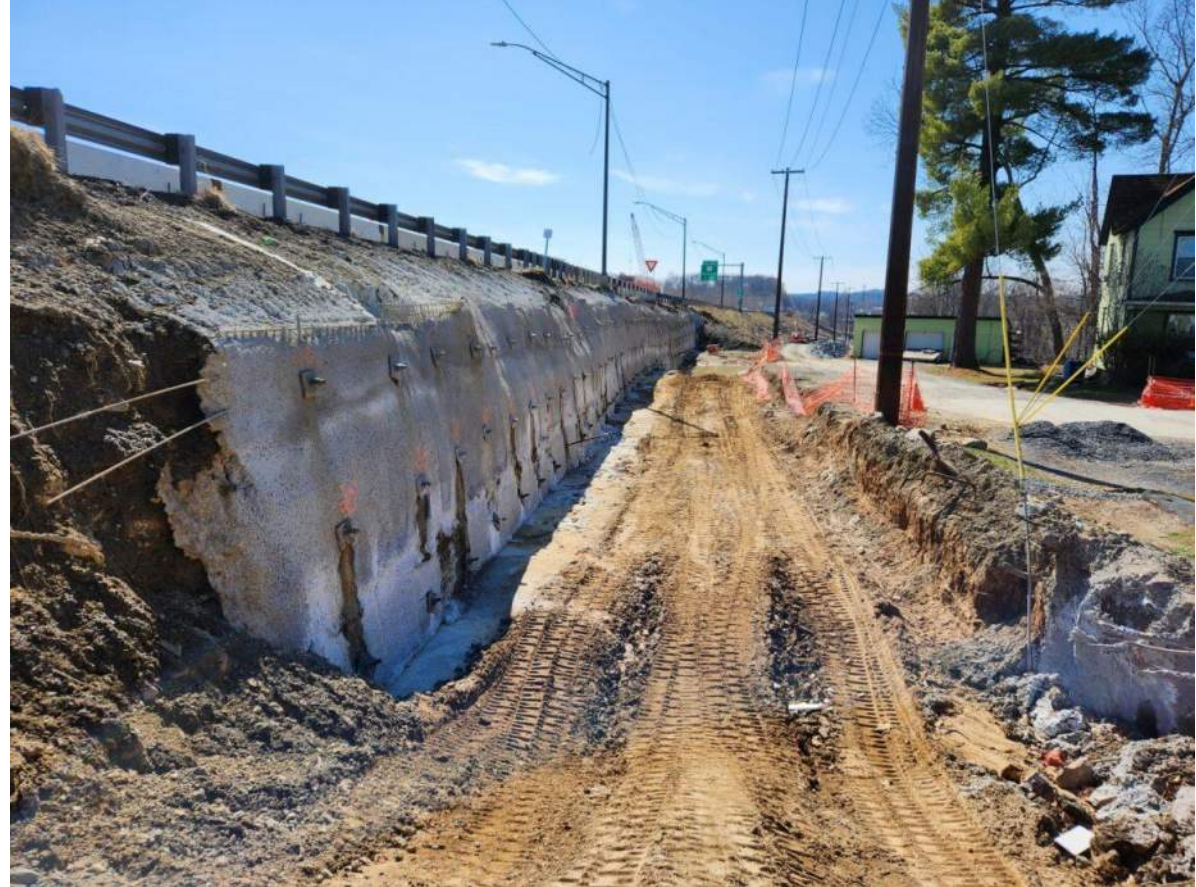


* PROVIDE TOP PANEL END DETAIL FOR TOP 4'-0" OF RETAINING WALL PANELS AT LOCATIONS WHERE THE SOUND BARRIER STEEL POSTS ARE WELDED TO THE RETAINING WALL STEEL POSTS.

Soundwall Splice



T-Wall Construction



T-Wall Construction





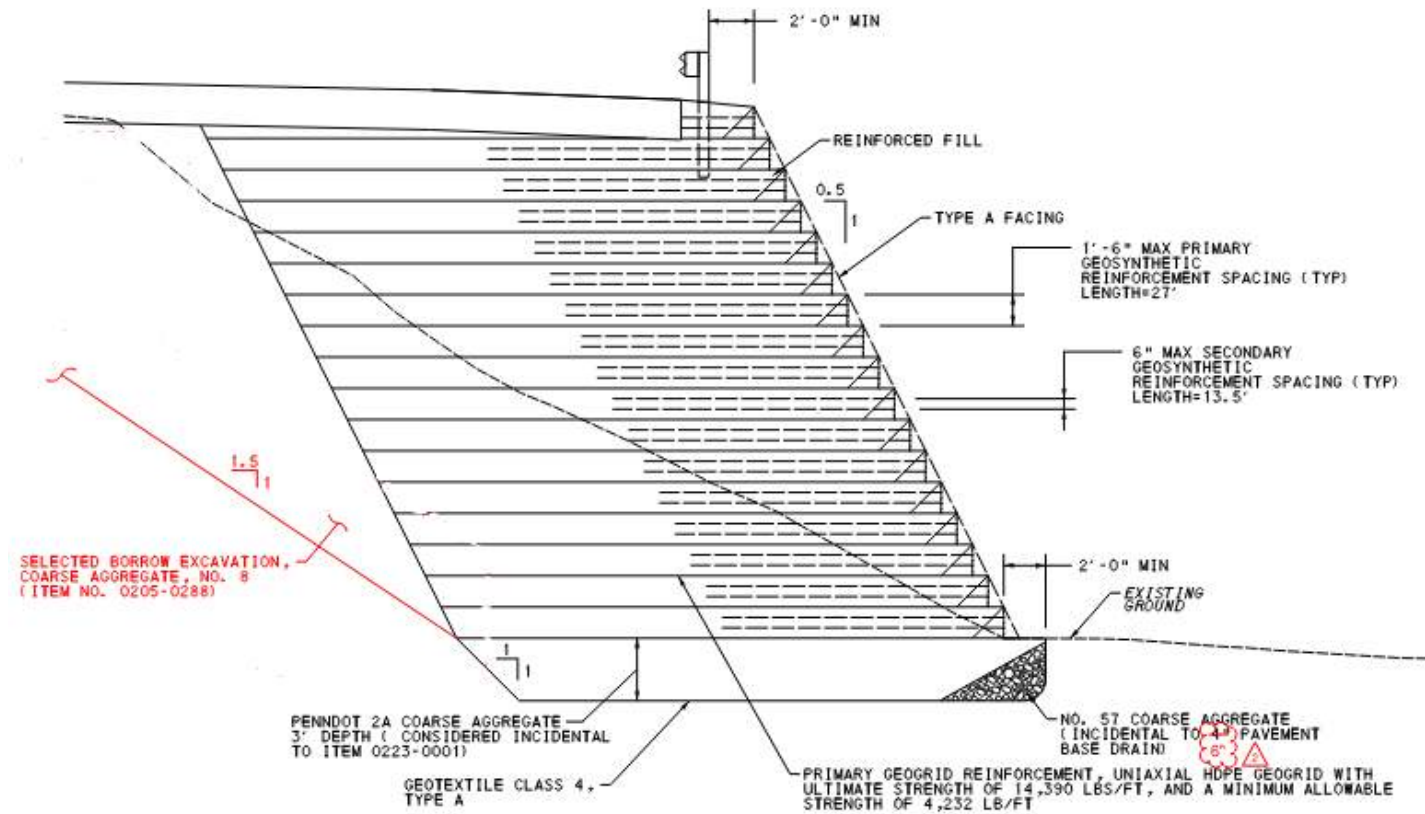
Geosynthetic Reinforced Slopes



Geosynthetic Reinforced Slopes (GRS) – Design Details

- Maximum Height of Slopes is 33'
- 1200' LF of GRS between the two steepened slopes
- 0.5H : 1.0V Slopes
- Primary Reinforcement
 - Minimum of 27'
 - Ultimate Tensile Strength = 14,390lb/ft
- Factor of Safety
 - Sliding = 5.4
 - Slope Stability = 1.36
- Contractor selected Tensar as the GRS supplier
- Structural Geogrid UX1800HS was used (Ultimate Tensile Strength = 14,390 lb/ft)
- Reduction factors were used per PennDOT Pub 408, Section 738.2 Table B
- Contractor tested on-site material to be used in the reinforced zone but, the material did not meet minimum density

GRS Typical Section – As-Designed



GEOSYNTHETIC REINFORCED SLOPE DETAIL

ITEM NO. 0223-0001

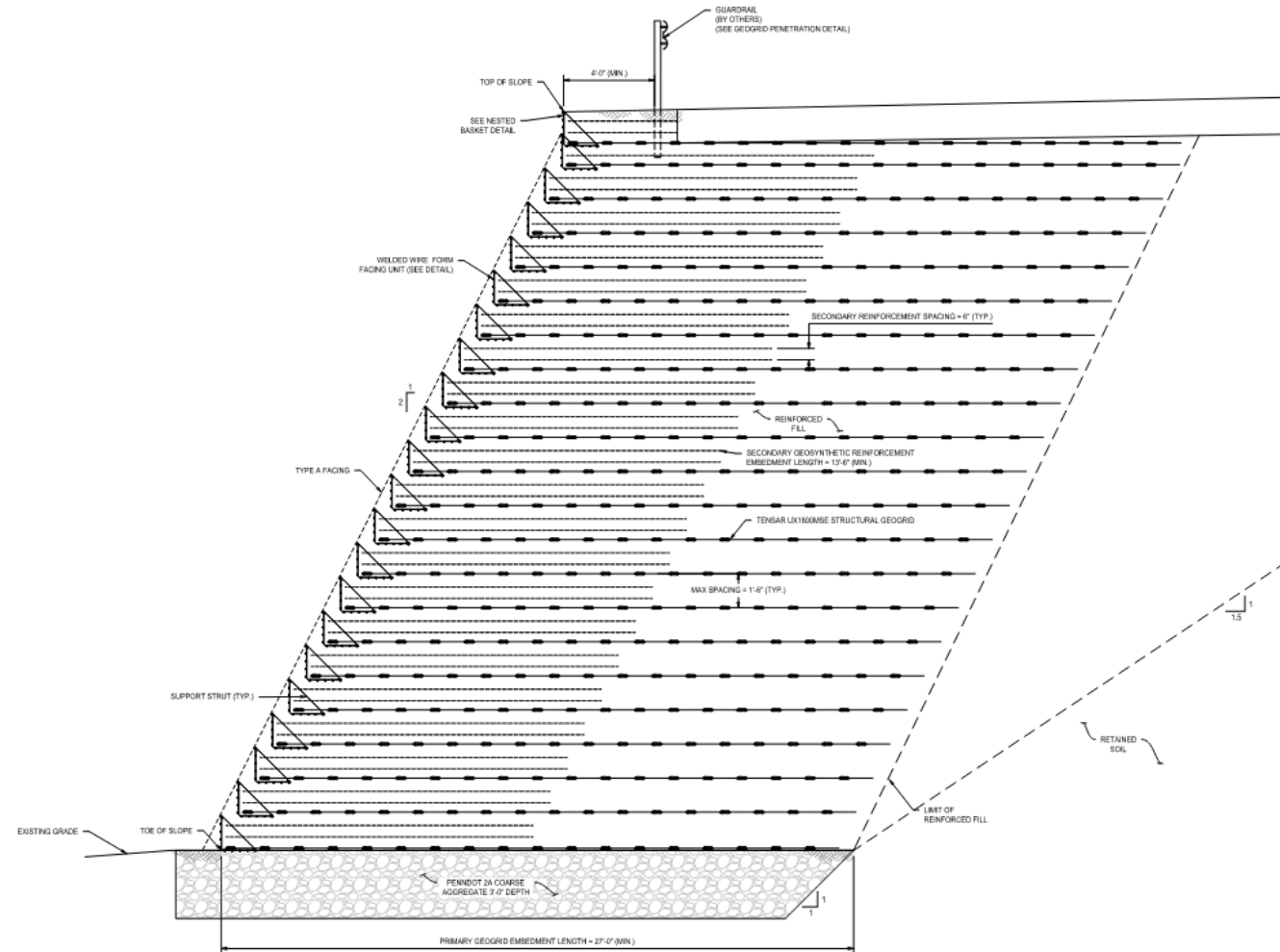
NOT TO SCALE

STA 211+21 TO STA 216+57 RT
STA 218+32 TO STA 223+60 RT

NOTES:

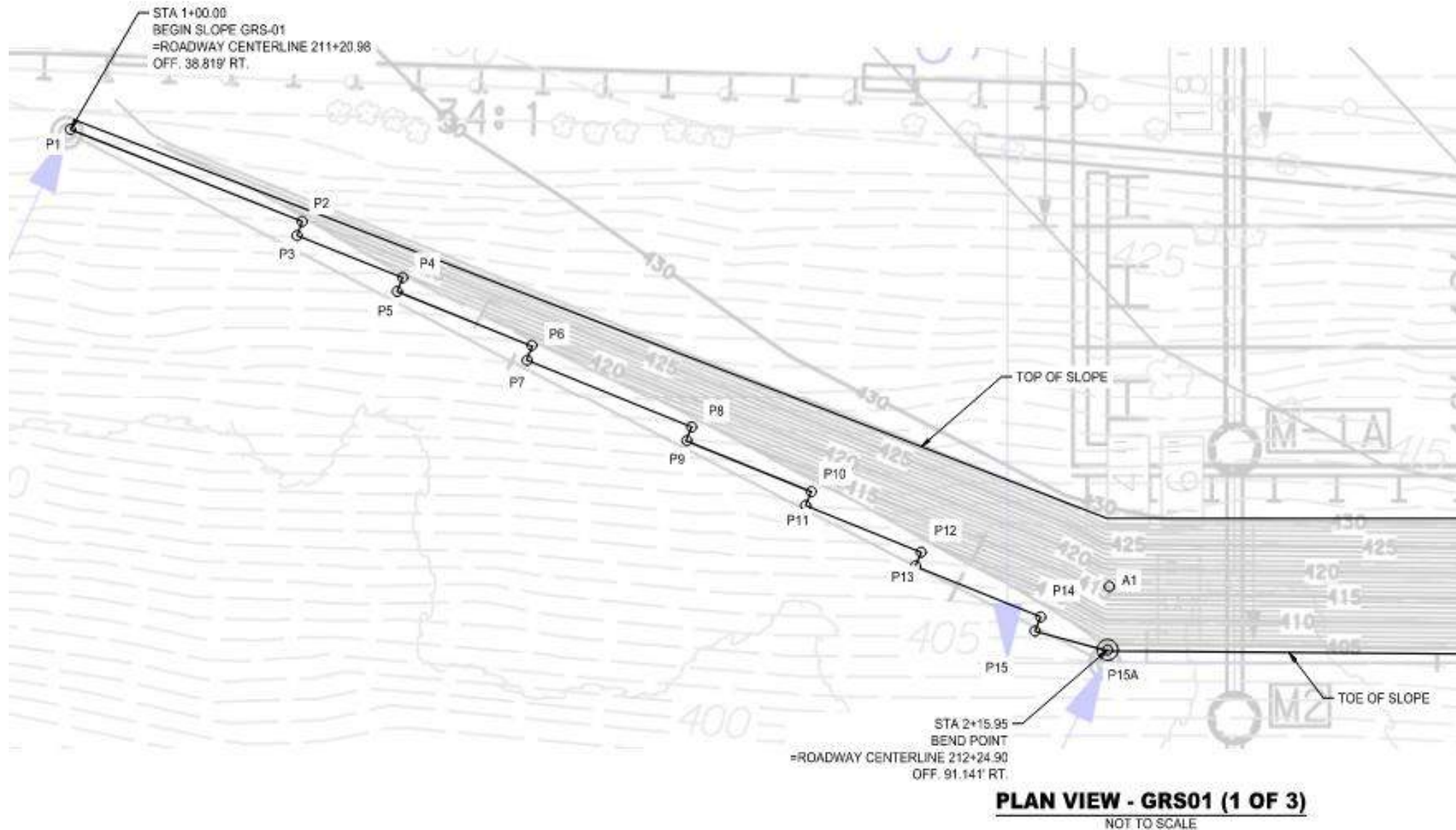
1. FOR DETAILS NOT SHOWN, SEE RC-14M, GEOSYNTHETIC REINFORCED SOIL SLOPE.

GRS Typical Section – As-Built

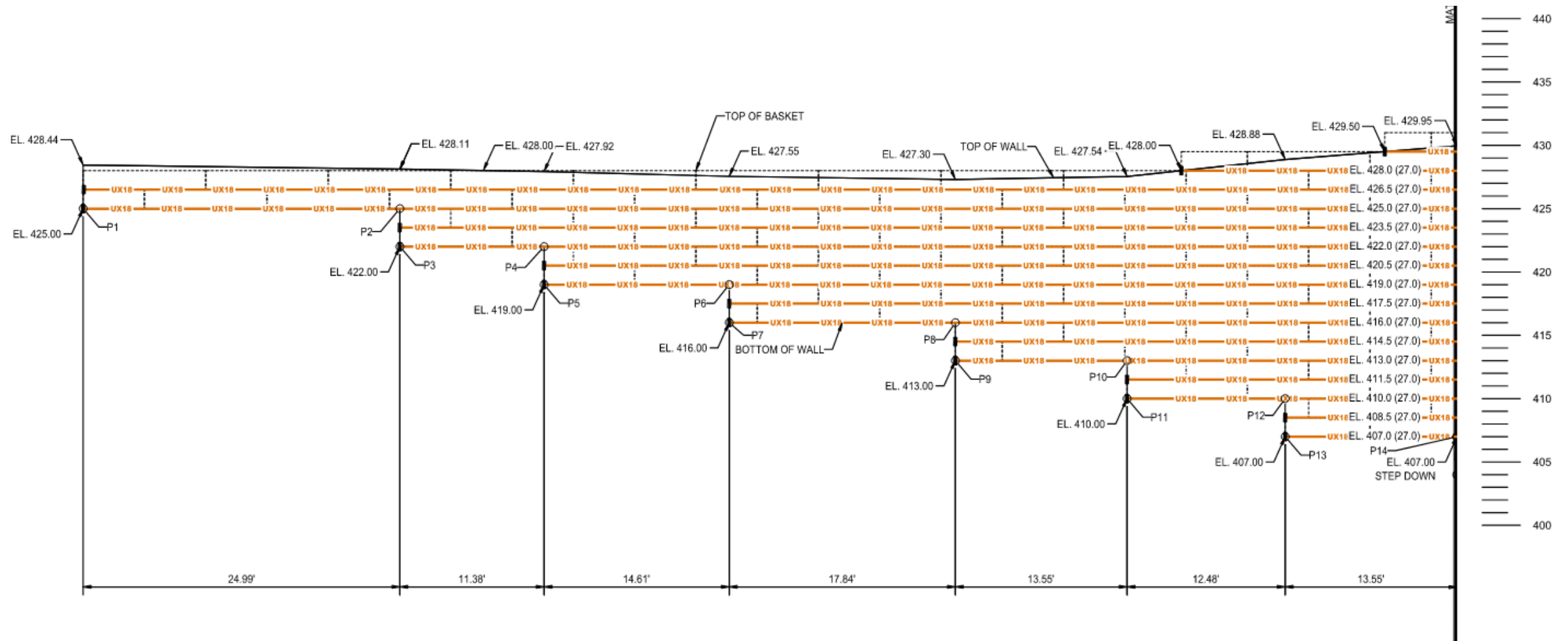


TYPICAL CROSS-SECTION
NOT TO SCALE

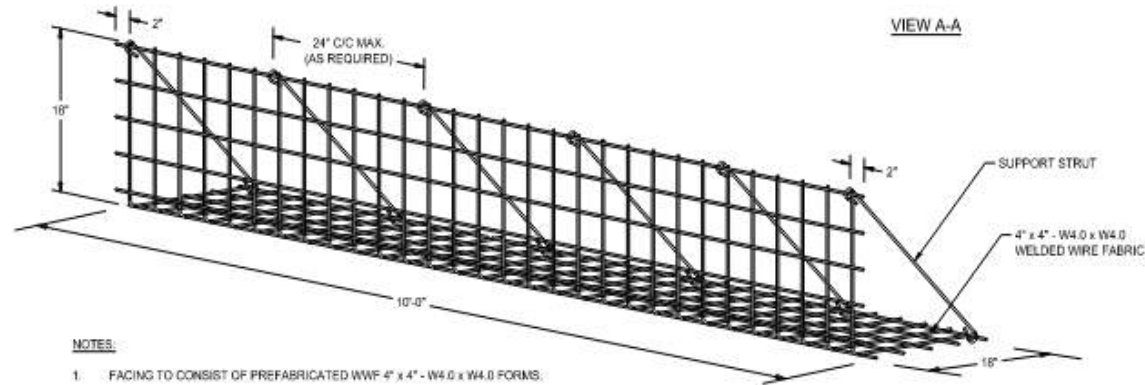
GRS Typical Plan - As-Built



GRS Elevation- As-Built

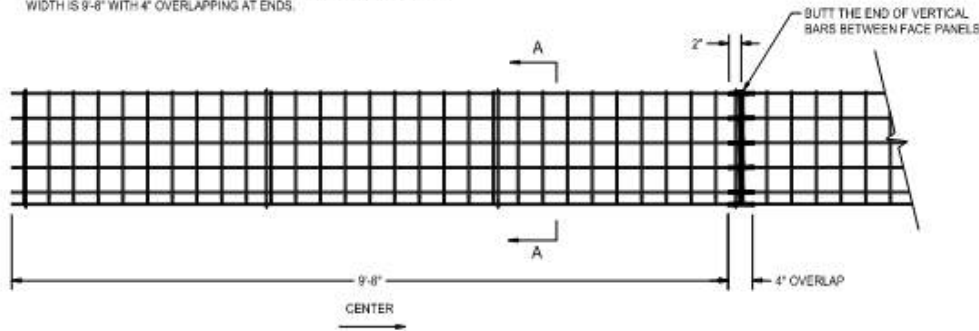


GRS Typical Details

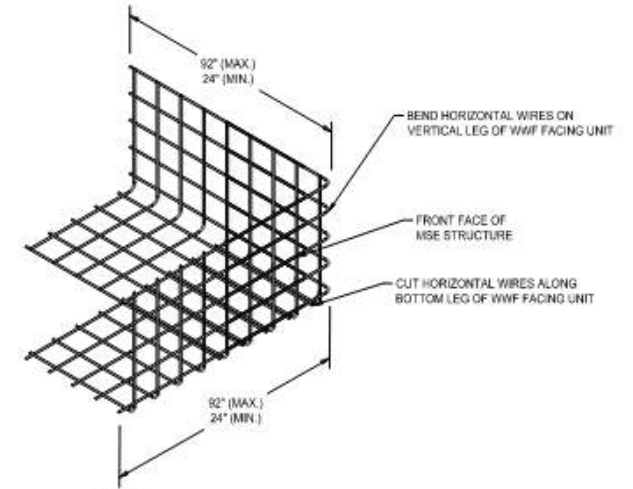
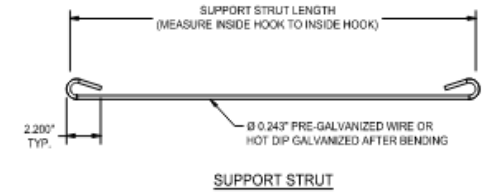
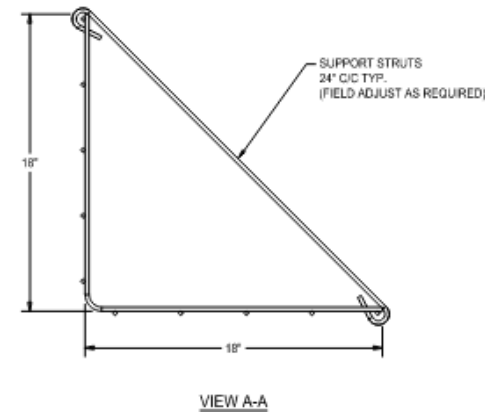


NOTES:

1. FACING TO CONSIST OF PREFABRICATED WWF 4" x 4" - W4.0 x W4.0 FORMS.
2. WWF'S ARE MANUFACTURED OF ASTM A82 (AASHTO M32) STEEL WIRE AND ARE WELDED IN ACCORDANCE WITH ASTM A185 (AASHTO M30).
3. ALL FORMS SHALL BE HOT DIP GALVANIZED AFTER BENDING IN ACCORDANCE WITH ASTM A123 (AASHTO M11).
4. STRUTS ARE MANUFACTURED OF MEDIUM TEMPER PRE-GALVANIZED WIRE, IN ACCORDANCE WITH ASTM A641 OR ARE HOT-DIP GALVANIZED AFTER BENDING IN ACCORDANCE WITH ASTM A153 (AASHTO M232).
5. OVERALL LENGTH OF WIRE FORMS IS 10'-0". EFFECTIVE CONSTRUCTED WIDTH IS 9'-8" WITH 4" OVERLAPPING AT ENDS.



WELDED WIRE FORM FACING UNIT
NOT TO SCALE



NOTES:

1. MAINTAIN 24" (MIN.) OF WIRE FORM ON EACH SIDE OF BEND.
2. SEE WELDED WIRE FORM (WWF) FACING UNIT DETAIL FOR FACING MATERIAL AND DIMENSIONS.

WELDED WIRE FORM OUTSIDE CORNER UNIT
NOT TO SCALE

GRS Slope Construction



GRS Slope Construction



GRS Slope Construction



Sign Structure Caisson Within GRS



GRS Slope Construction



GRS Slope One Week after Seeding



GRS Slope - 1 Month After Seeding



GRS Slope – 18 Months After Seeding

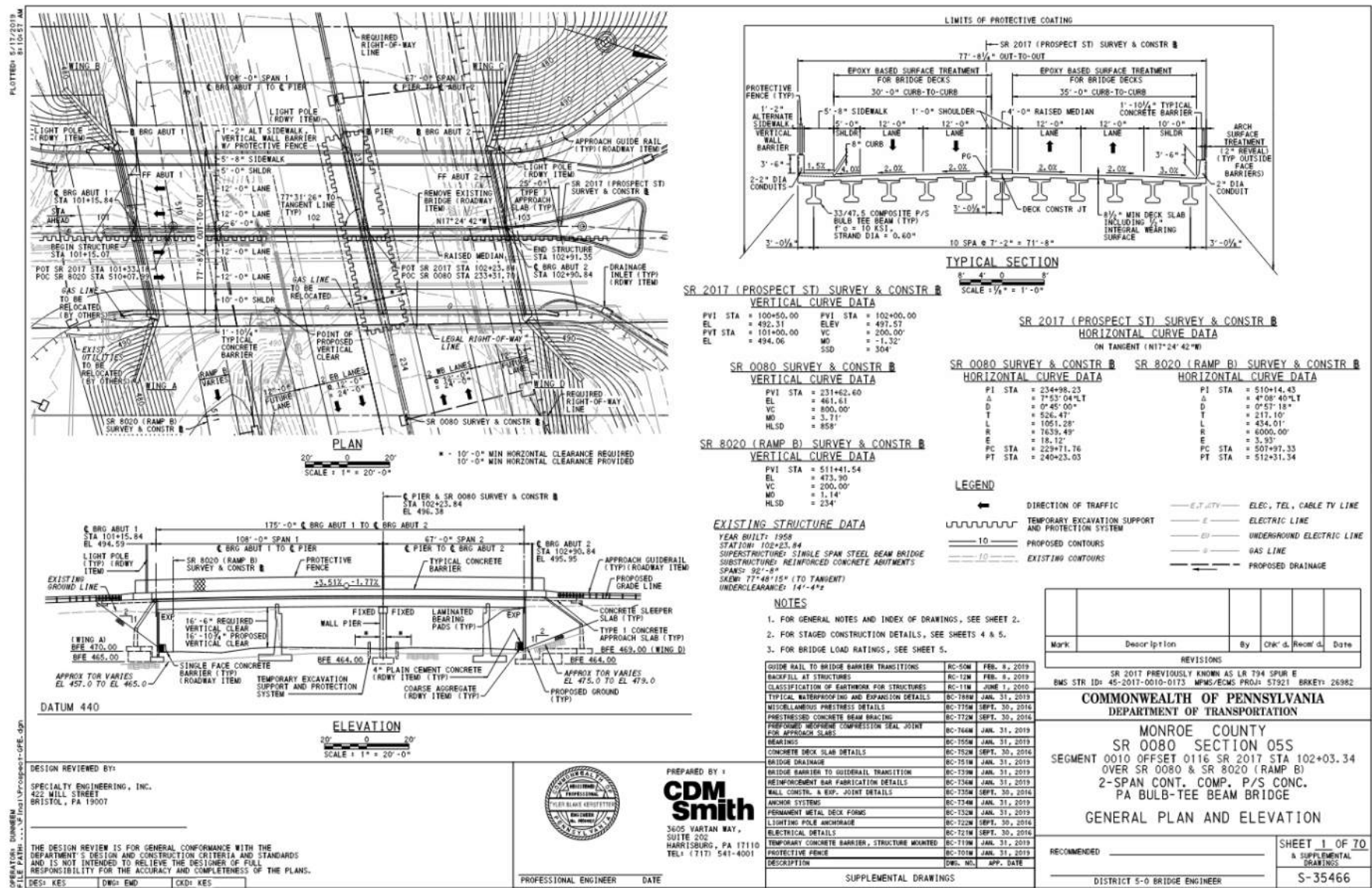




Prospect Street Bridge Construction



Prospect Street



Prospect Street March 2023



Prospect Street March 2023



Prospect Street Abutment Excavation



April 2023



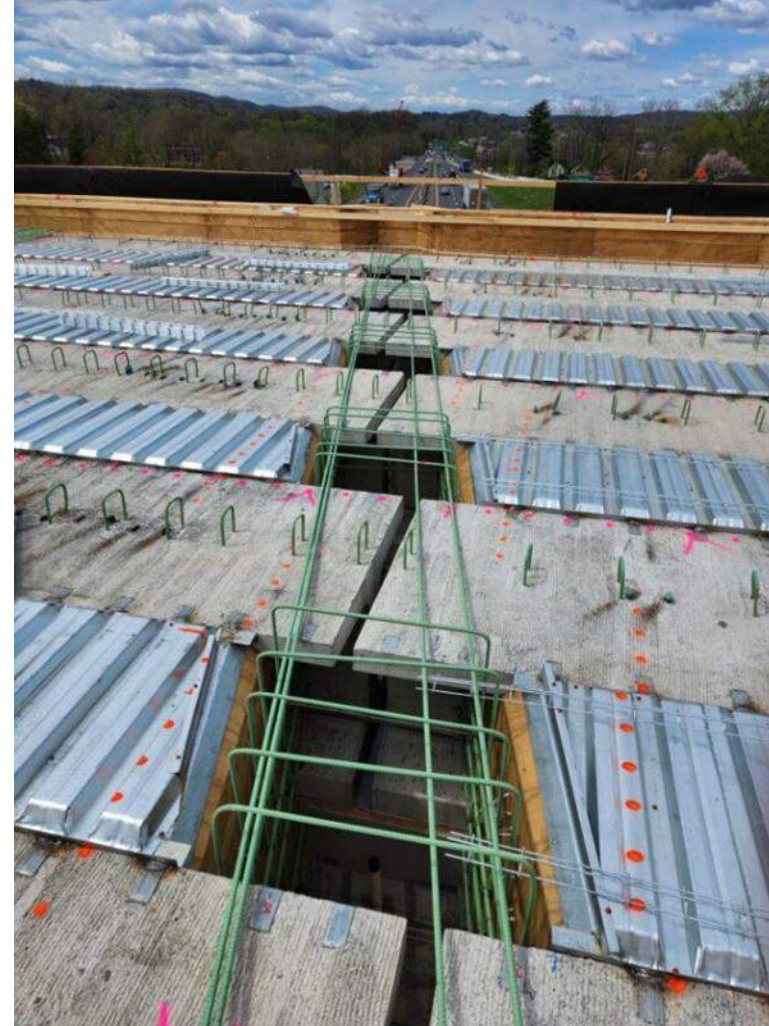
Prospect Street Soil Nail Wall



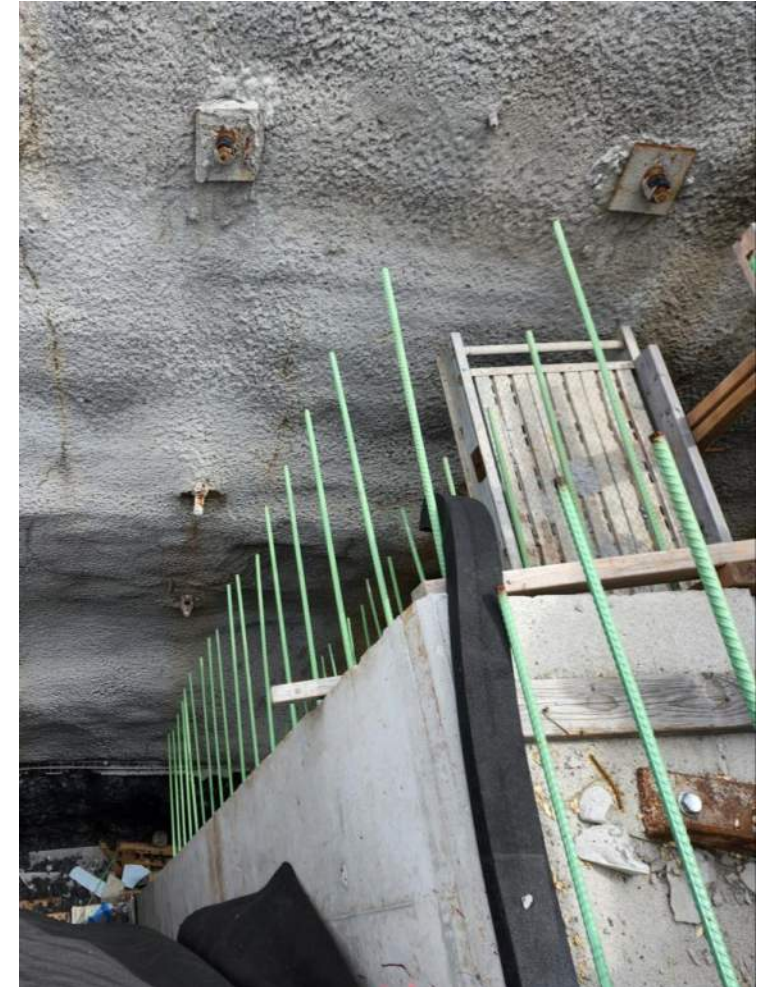
Prospect Street Abutments May 2023



Prospect Street Deck Preparation



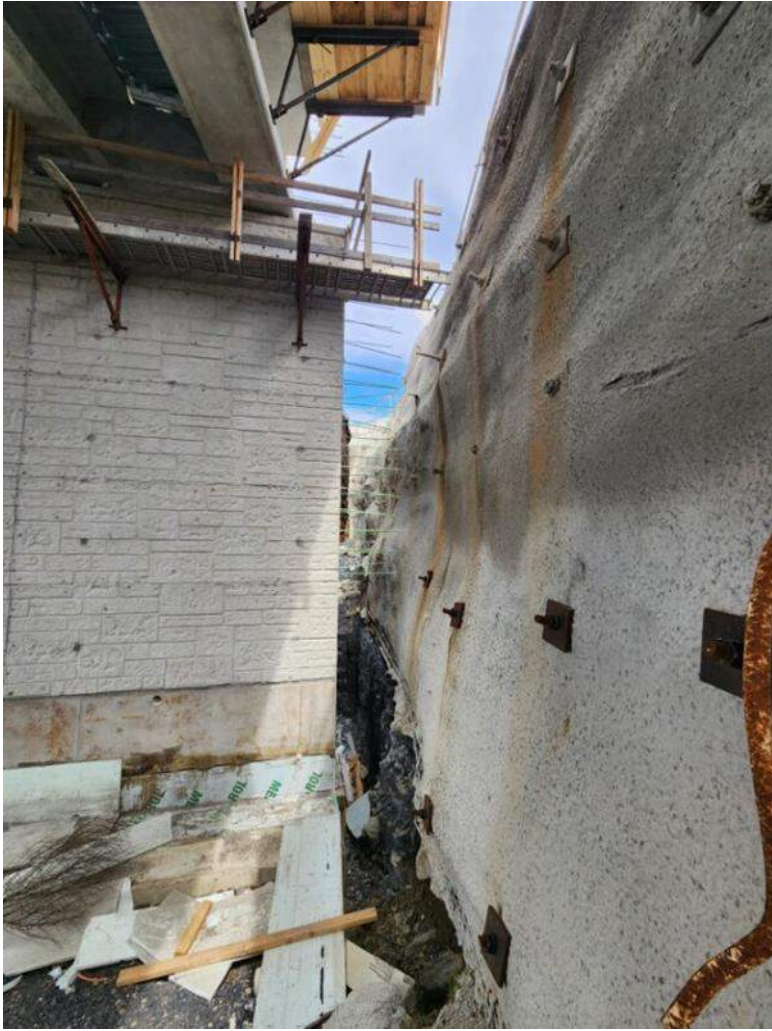
Prospect Street Phase Line



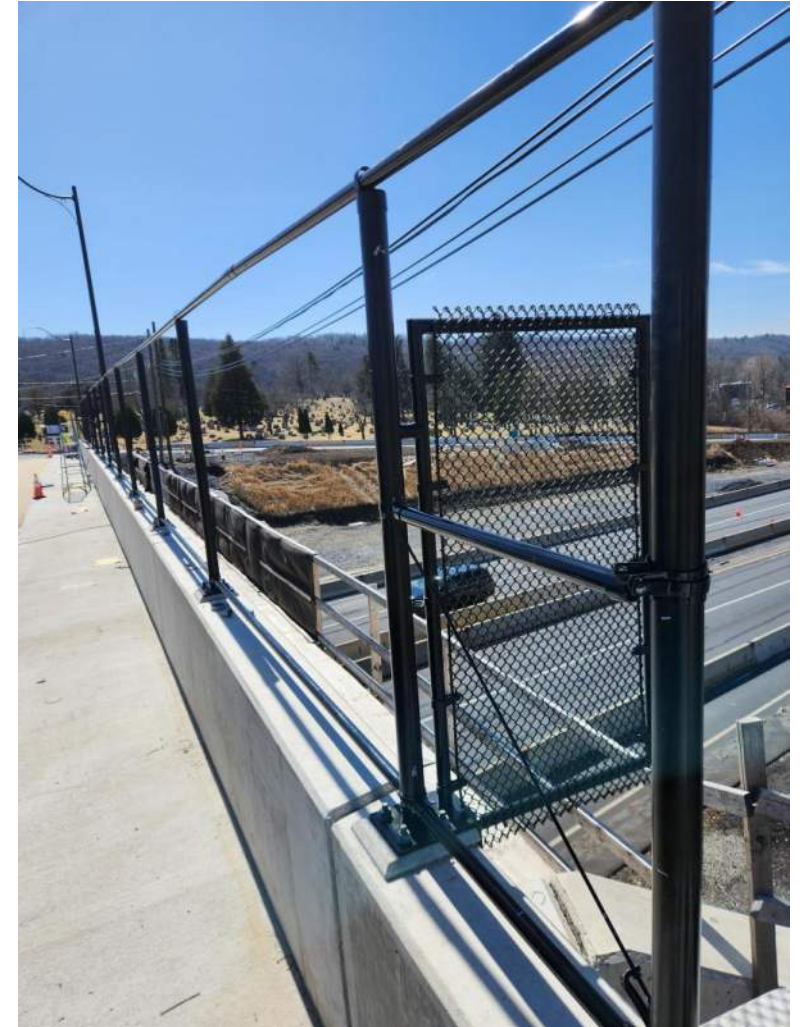
Prospect Street



Prospect Street



Prospect Street



Removing the “Plug”



I-80 Height Restriction at Prospect Street is Removed



Prospect Street Completed Deck





Lincoln Avenue Bridge Construction



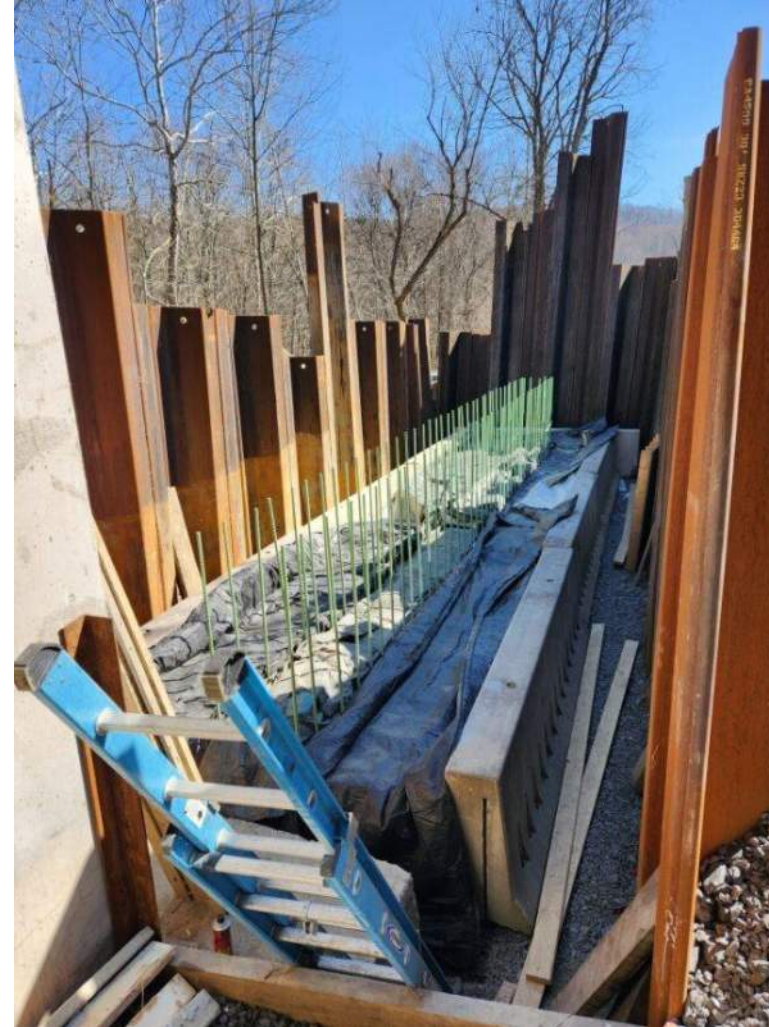
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Lincoln Avenue



Lincoln Avenue



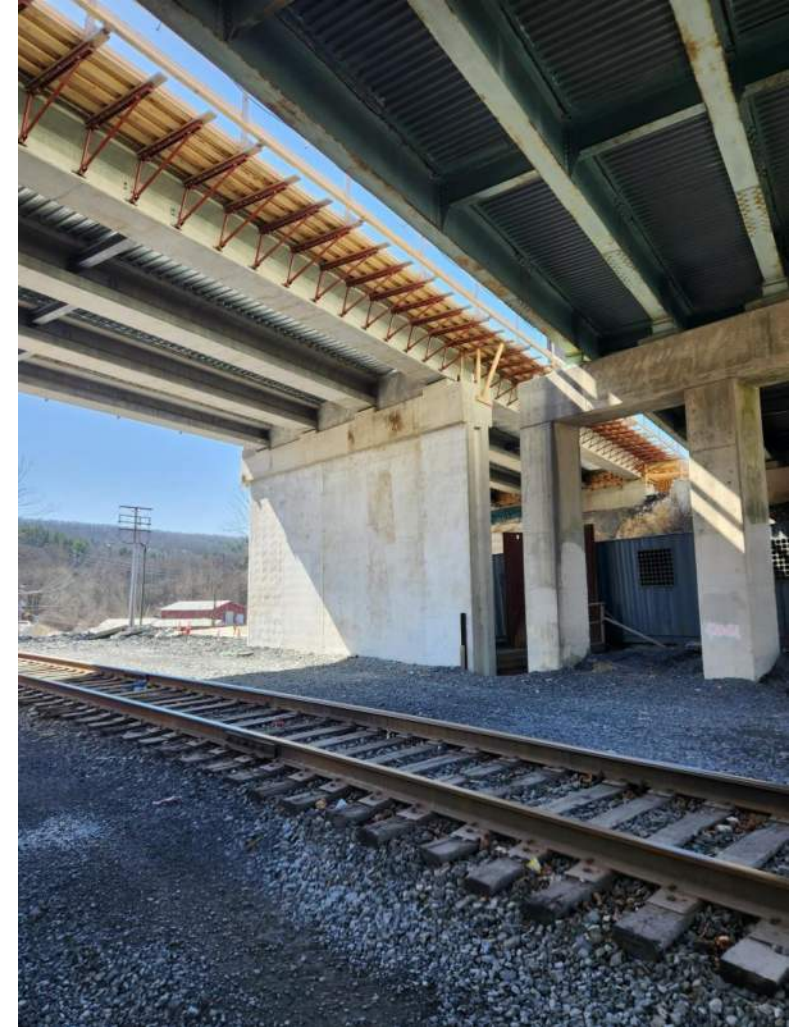
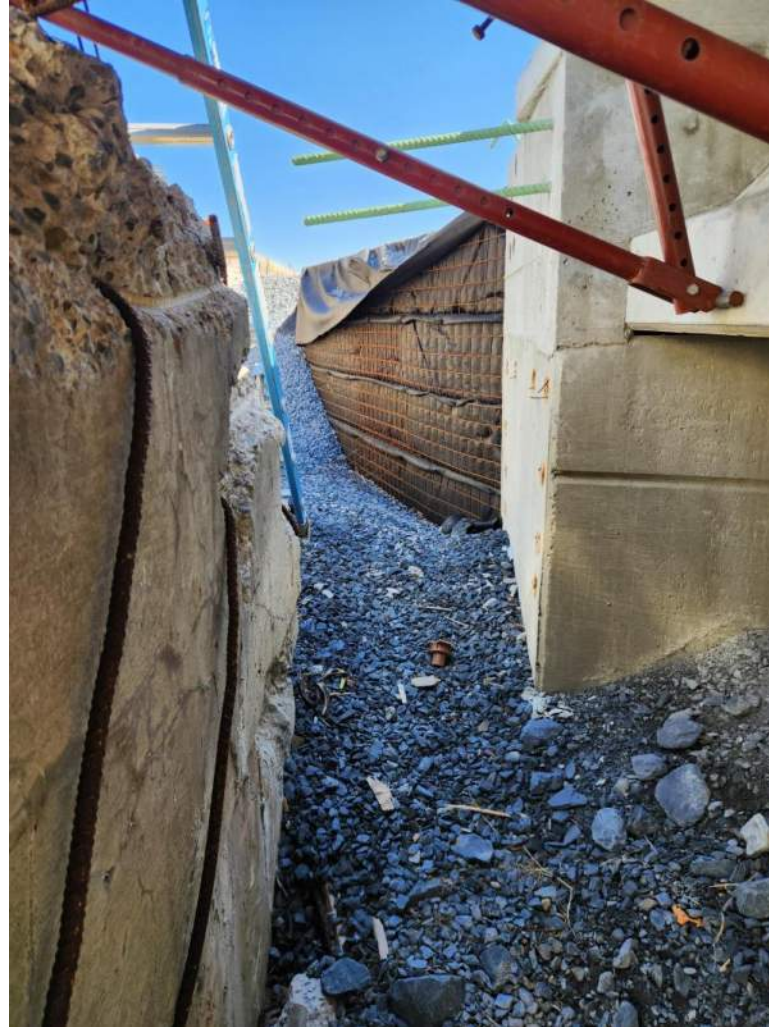
Lincoln Avenue



Lincoln Avenue Bridge Railroad Coordination



Superstructure and Railroad Coordination



Lincoln Avenue Friction Piles

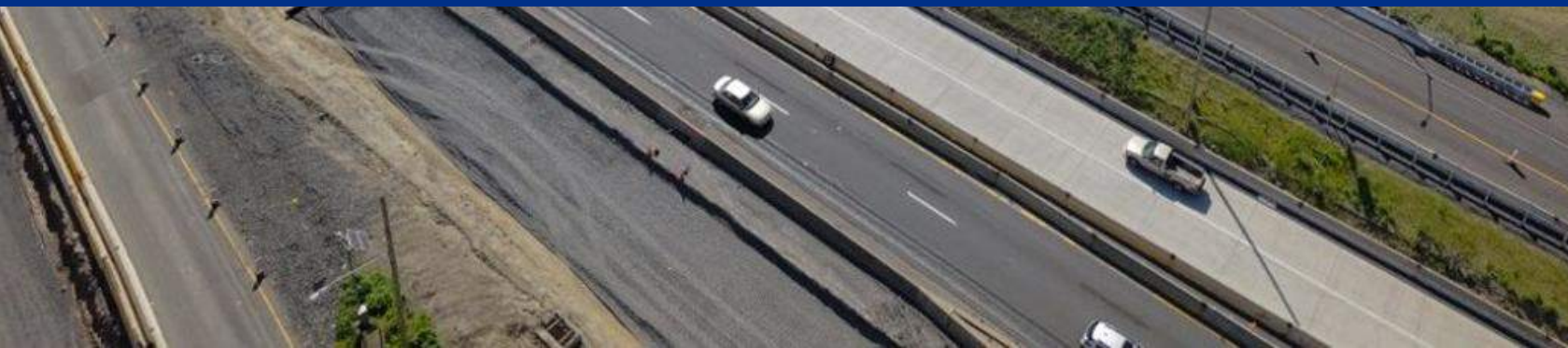


Preparation for the Largest Deck Pour on the Project





Drone Photography



New Greentree Roundabout



New Eastbound Interchange Layout



New Eastbound Interchange Layout



Prospect Street Bridge and Roundabout



Completed GRS Widening



Completed GRS Widening



Perspective on Vertical Grade Within the Project



Do Roundabouts Fit Here?





Q&A Session

Thank You!