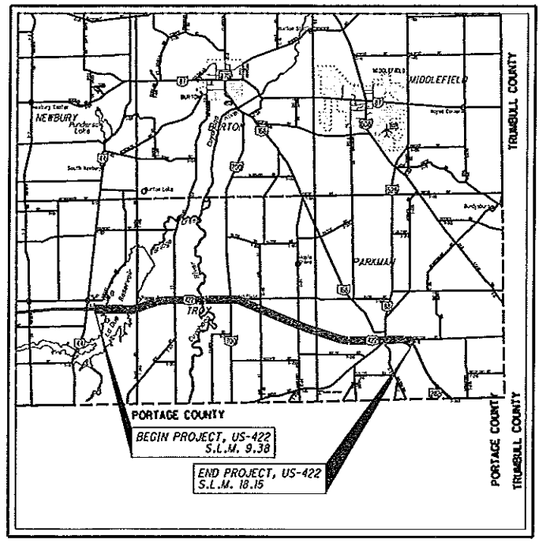
STATE OF OHIO

DEPARTMENT OF TRANSPORTATION

GEA-422-9.38

AUBURN TOWNSHIP
TROY TOWNSHIP
PARKMAN TOWNSHIP
GEAUGA COUNTY



LOCATION MAP

LATITUDE: 41°23'01" LONGITUDE: 81°07'48"

SCALE IN MILES
0 2 4 6 8

N

PORTION TO BE IMPROVED
INTERSTATE HIGHWAY
FEDERAL ROUTES
STATE ROUTES
COUNTY & TOWNSHIP ROADS
OTHER ROADS

DESIGN DESIGNATION

	S.L.M. 9.38-13.04	S.L.M. 13.04-17.35	S.L.M. 17.35-18.15
CURRENT ADT (2017)	13000	11000	9900
DESIGN YEAR ADT (2037)	14000	13000	9900
DESIGN HOURLY VOLUME (2037)	1400	1300	990
DIRECTIONAL DISTRIBUTION	0.58	0.58	0.53
TRUCKS (24 HOUR B&C)	0.09	0.08	0.09
DESIGN SPEED	60 MPH	50 MPH	50 MPH
LEGAL SPEED	55 MPH	45 MPH	45 MPH

DESIGN FUNCTIONAL CLASSIFICATION:
OTHER FREEWAY AND EXPRESSWAY (S.L.M. 9.38 TO S.L.M. 10.63)
PRINCIPAL ARTERIAL (S.L.M. 10.63 TO S.L.M. 18.15)
NHS PROJECT ..... YES

DESIGN EXCEPTIONS

NONE

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES TWO WORKING DAYS BEFORE YOU DIG.

OHIO Utilities Protection SERVICE — Call Before You Dig 1-800-362-2764
(Non-members must be called directly)

OIL & GAS PRODUCERS UNDERGROUND PROTECTION SERVICE
1-800-925-0988

PLAN PREPARED BY:
ODOT DISTRICT 12
PLANNING & ENGINEERING
5500 TRANSPORTATION BLVD.
GARFIELD HEIGHTS, OH 44125

ENGINEERS SEAL:

STATE OF OHIO
Eric M. Kallio
E-59990
REGISTERED PROFESSIONAL ENGINEER

SIGNED: Eric M. Kallio
DATE: 02-03-2017

INDEX OF SHEETS:

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF THE PREVENTATIVE MAINTENANCE TREATMENT OF 8.77 MILES OF MAIN-MARKET ST. (US-422) FROM EAST OF RAVENNA RD (SR-44) TO EAST OF MAIN ST. (SR-88) IN AUBURN, TROY, AND PARKMAN TOWNSHIPS.

PROJECT EARTH DISTURBED AREA: N/A (MAINTENANCE PROJECT)
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: N/A (MAINTENANCE PROJECT)
NOTICE OF INTENT EARTH DISTURBED AREA: N/A (MAINTENANCE PROJECT)

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2016 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

APPROVED _____
DATE 02-02-17 DISTRICT DEPUTY DIRECTOR

APPROVED _____
DATE 2-17-17 DIRECTOR, DEPARTMENT OF TRANSPORTATION

STANDARD CONSTRUCTION DRAWINGS

BP-3.1	7/18/14	MT-95.30	7/15/16	TC-41.20	10/18/13				
BP-5.1	7/19/13	MT-95.31	7/18/14	TC-41.30	10/18/13				
BP-9.1	7/19/13	MT-95.32	7/18/14	TC-41.40	10/18/13				
		MT-95.50	10/16/15	TC-42.20	10/18/13				
RM-1.1	7/18/14	MT-95.60	7/19/13	TC-52.10	10/18/13				
		MT-97.12	7/18/14	TC-52.20	7/15/16				
		MT-98.10	7/18/14	TC-64.10	7/17/15				
		MT-98.11	7/18/14	TC-65.10	1/17/14				
		MT-98.20	7/18/14	TC-65.11	7/15/16				
		MT-98.22	7/18/14	TC-71.10	7/15/16				
		MT-99.20	7/19/13	TC-72.20	7/15/16				
		MT-101.90	7/17/15	TC-82.10	7/17/15				
		MT-104.10	10/16/15						
		MT-105.10	7/19/13						

SUPPLEMENTAL SPECIFICATIONS		SPECIAL PROVISIONS
800	1/20/17	
821	4/20/12	
832	1/17/14	
875	1/17/14	
897	1/16/15	
921	4/20/12	

FEDERAL PROJECT NO. E161081
PID NO. 22221
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NONE
GEA-422-9.38
1 / 42

GEA - US-US 422-09.38
170315 PID - 22221
Dist 12 5/11/2017

Contract Proposal Available @ www.Contracts.dot.state.oh.us/home

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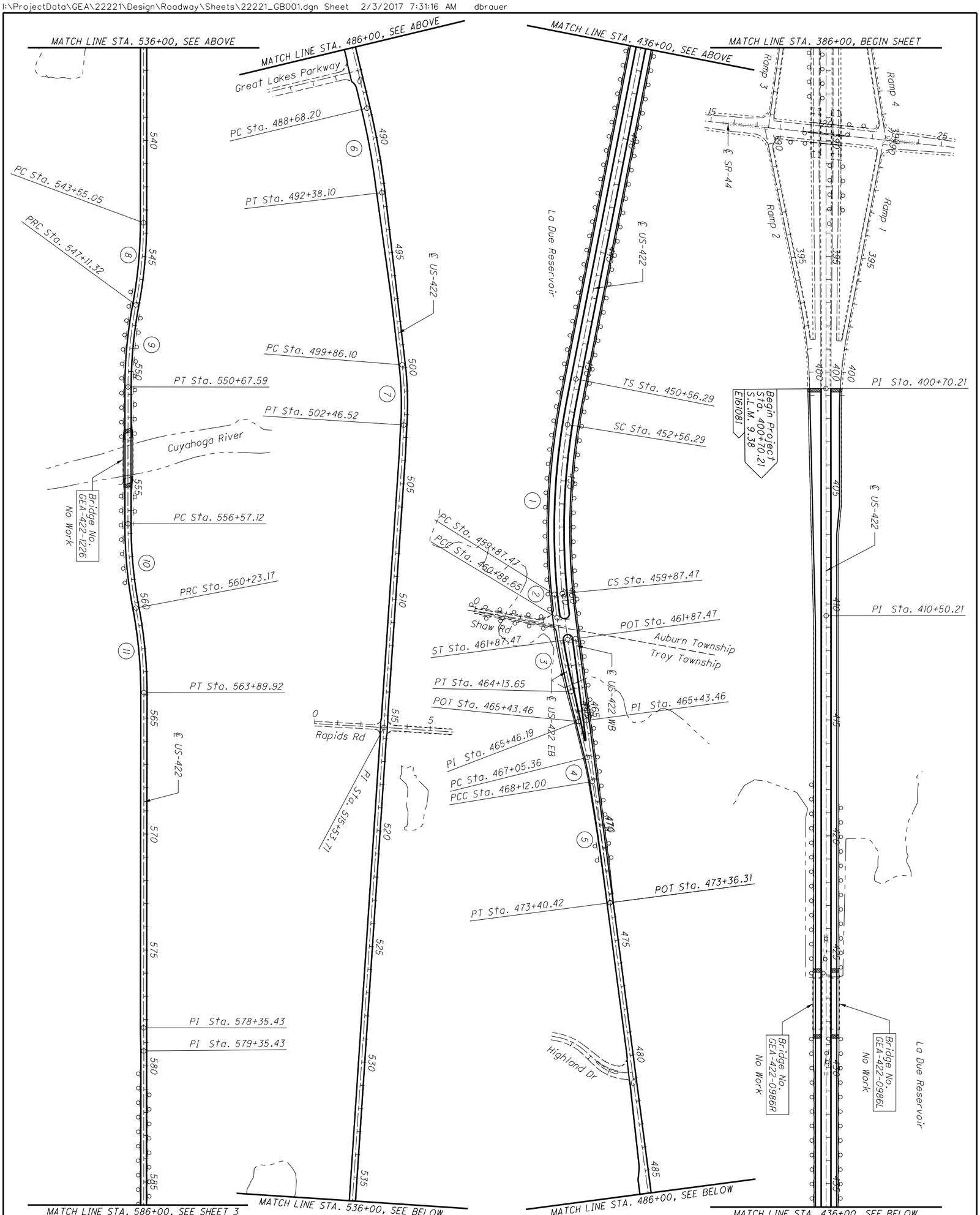


Approximate Existing Curve Data:

① ℄ US-422
P.I. Sta. 456+26.11
Δ = 18° 37' 25" (LT)
Dc = 2° 00' 00"
R = 2,864.79'
Ls = 200.00'
T = 50.60'
L = 101.18'
E = 0.44'
LT = 133.34'
ST = 66.67'
x = 199.98'
y = 2.33'
k = 100.00'
P = 0.58'
Δc = 14° 37' 25" (LT)
Lc = 731.18'
Ts = 569.82'
Es = 38.84'
C1 = C2 = 199.99'
C1: l = N 89° 52' 56" E
C.B.: l = N 81° 14' 14" E
C.B.: 2 = S 72° 35' 31" W

② ℄ US-422 EB
P.I. Sta. 460+38.07
Δ = 2° 00' 00" (LT)
Dc = 2° 00' 00"
R = 2,898.79'
T = 50.60'
L = 101.18'
E = 0.44'
C = 101.17'
C.B. = N 72° 55' 32" E

③ ℄ US-422 EB
P.I. Sta. 462+51.32
Δ = 6° 30' 00" (LT)
Dc = 2° 00' 00"
R = 2,864.79'
L = 325.00'
C = 324.83'
C.B. = N 68° 40' 32" E

④ ℄ US-422 EB
P.I. Sta. 467+58.71
Δ = 4° 42' 23" (RT)
Dc = 4° 24' 48"
R = 1,298.23'
T = 53.35'
L = 106.64'
E = 1.10'
C = 106.61'
C.B. = N 67° 51' 04" E

⑤ ℄ US-422 EB
P.I. Sta. 470+76.23
Δ = 1° 47' 38" (RT)
Dc = 0° 20' 22"
R = 16,878.00'
T = 264.23'
L = 528.42'
E = 2.07'
C = 528.40'
C.B. = N 71° 06' 04" E

⑥ ℄ US-422
P.I. Sta. 490+53.36
Δ = 6° 45' 36" (RT)
Dc = 1° 49' 39"
R = 3,135.18'
T = 185.16'
L = 369.90'
E = 5.46'
C = 369.69'
C.B. = N 75° 22' 40" E

⑦ ℄ US-422
P.I. Sta. 501+16.67
Δ = 10° 25' 00" (RT)
Dc = 4° 00' 00"
R = 1,432.40'
T = 130.57'
L = 260.42'
E = 5.94'
C = 260.06'
C.B. = N 83° 57' 59" E

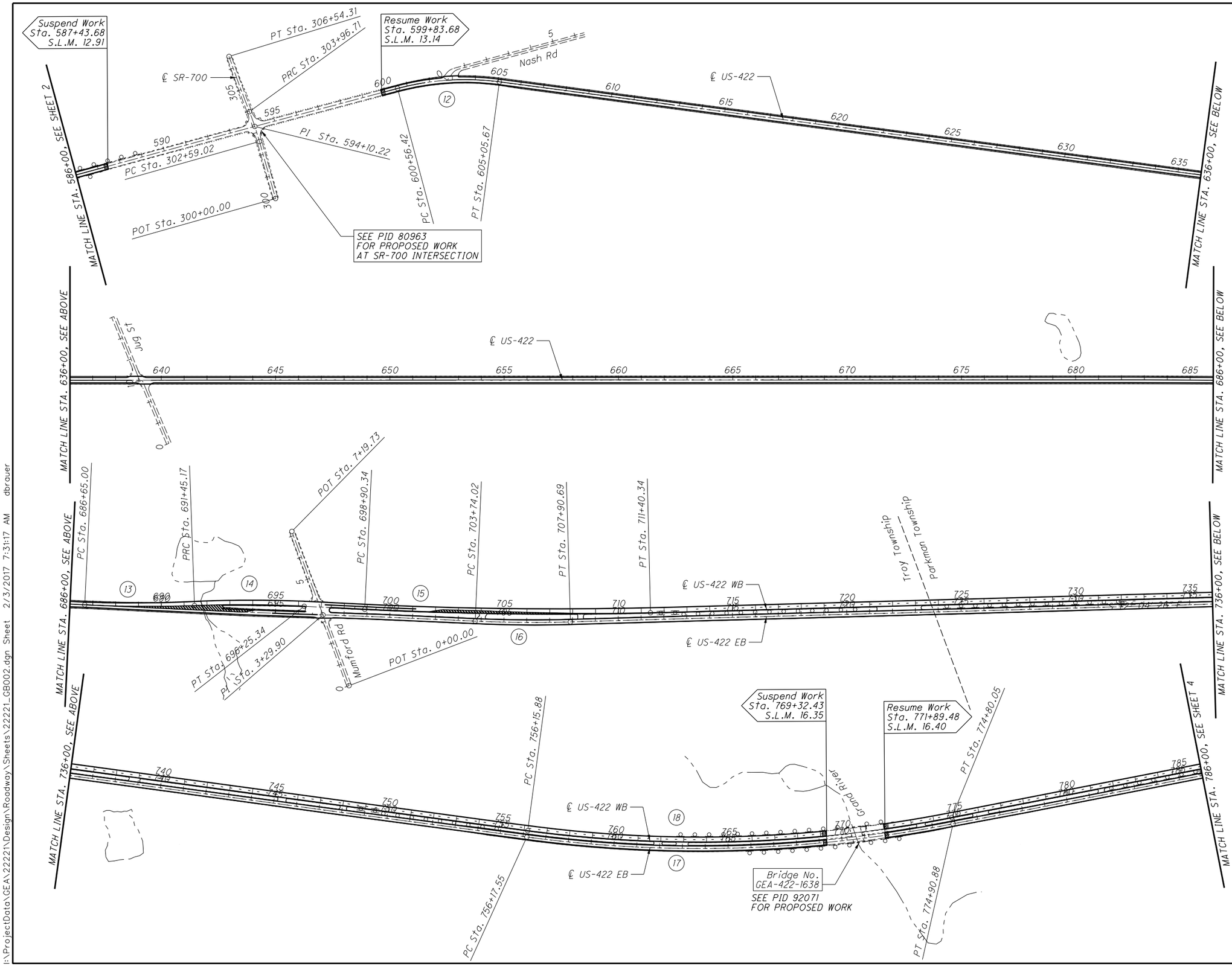
⑧ ℄ US-422
P.I. Sta. 545+33.70
Δ = 10° 40' 18" (RT)
Dc = 2° 59' 43"
R = 1,912.80'
T = 178.65'
L = 356.27'
E = 8.32'
C = 355.76'
C.B. = S 85° 22' 33" E

⑨ ℄ US-422
P.I. Sta. 548+89.97
Δ = 10° 40' 18" (LT)
Dc = 2° 59' 43"
R = 1,912.80'
T = 178.65'
L = 356.27'
E = 8.32'
C = 355.76'
C.B. = S 85° 22' 33" E

⑩ ℄ US-422
P.I. Sta. 558+40.70
Δ = 10° 50' 45" (LT)
Dc = 2° 57' 47"
R = 1,933.76'
T = 183.57'
L = 366.05'
E = 8.69'
C = 365.50'
C.B. = N 83° 51' 56" E

⑪ ℄ US-422
P.I. Sta. 562+07.10
Δ = 10° 51' 59" (RT)
Dc = 2° 57' 47"
R = 1,933.76'
T = 183.92'
L = 366.74'
E = 8.73'
C = 366.20'
C.B. = N 83° 52' 33" E

2 / 42	GEA-422-9.38	SCHEMATIC PLAN SHEET US-422, STA. 400+70.21 TO STA. 586+00.00	CALCULATED DAB CHECKED EMK	0 200 100 400 HORIZONTAL SCALE IN FEET	N



Approximate Existing Curve Data:

(12) ℄ US-422

P.I. Sta. 602+83.97
Δ = 22° 27' 45" (RT)
Dc = 5° 00' 00"
R = 1,145.92'
T = 227.55'
L = 449.25'
E = 22.37'
C = 446.38'
C.B. = S 79° 11' 09" E

(13) ℄ US-422 WB

P.I. Sta. 689+05.23
Δ = 4° 48' 06" (LT)
Dc = 1° 00' 00"
R = 5,729.58'
T = 240.23'
L = 480.17'
E = 5.03'
C = 480.03'
C.B. = S 70° 05' 22" E

(14) ℄ US-422 WB

P.I. Sta. 693+85.40
Δ = 4° 48' 06" (RT)
Dc = 1° 00' 00"
R = 5,729.58'
T = 240.23'
L = 480.17'
E = 5.03'
C = 480.03'
C.B. = S 70° 05' 22" E

(15) ℄ US-422 WB

P.I. Sta. 705+15.62
Δ = 4° 10' 00" (LT)
Dc = 0° 20' 00"
R = 17,188.74'
T = 625.28'
L = 1,250.00'
E = 11.37'
C = 1,249.72'
C.B. = S 69° 46' 19" E

(16) ℄ US-422 EB

P.I. Sta. 705+82.45
Δ = 4° 10' 00" (LT)
Dc = 1° 00' 00"
R = 5,729.58'
T = 208.43'
L = 416.67'
E = 3.79'
C = 416.58'
C.B. = S 70° 00' 44" E

(17) ℄ US-422 EB

P.I. Sta. 765+62.65
Δ = 18° 44' 00" (LT)
Dc = 1° 00' 00"
R = 5,729.60'
T = 945.10'
L = 1,873.33'
E = 77.42'
C = 1,865.00'
C.B. = S 81° 34' 22" E

(18) ℄ US-422 WB

P.I. Sta. 765+56.36
Δ = 18° 44' 00" (LT)
Dc = 1° 00' 18"
R = 5,701.60'
T = 940.48'
L = 1,864.18'
E = 77.05'
C = 1,855.88'
C.B. = S 81° 34' 22" E

HORIZONTAL SCALE IN FEET
0 100 200 400

CALCULATED DAB
CHECKED EMK

SCHEMATIC PLAN SHEET
US-422, STA. 586+00.00 TO STA. 786+00.00
GEA-422-9.38

3
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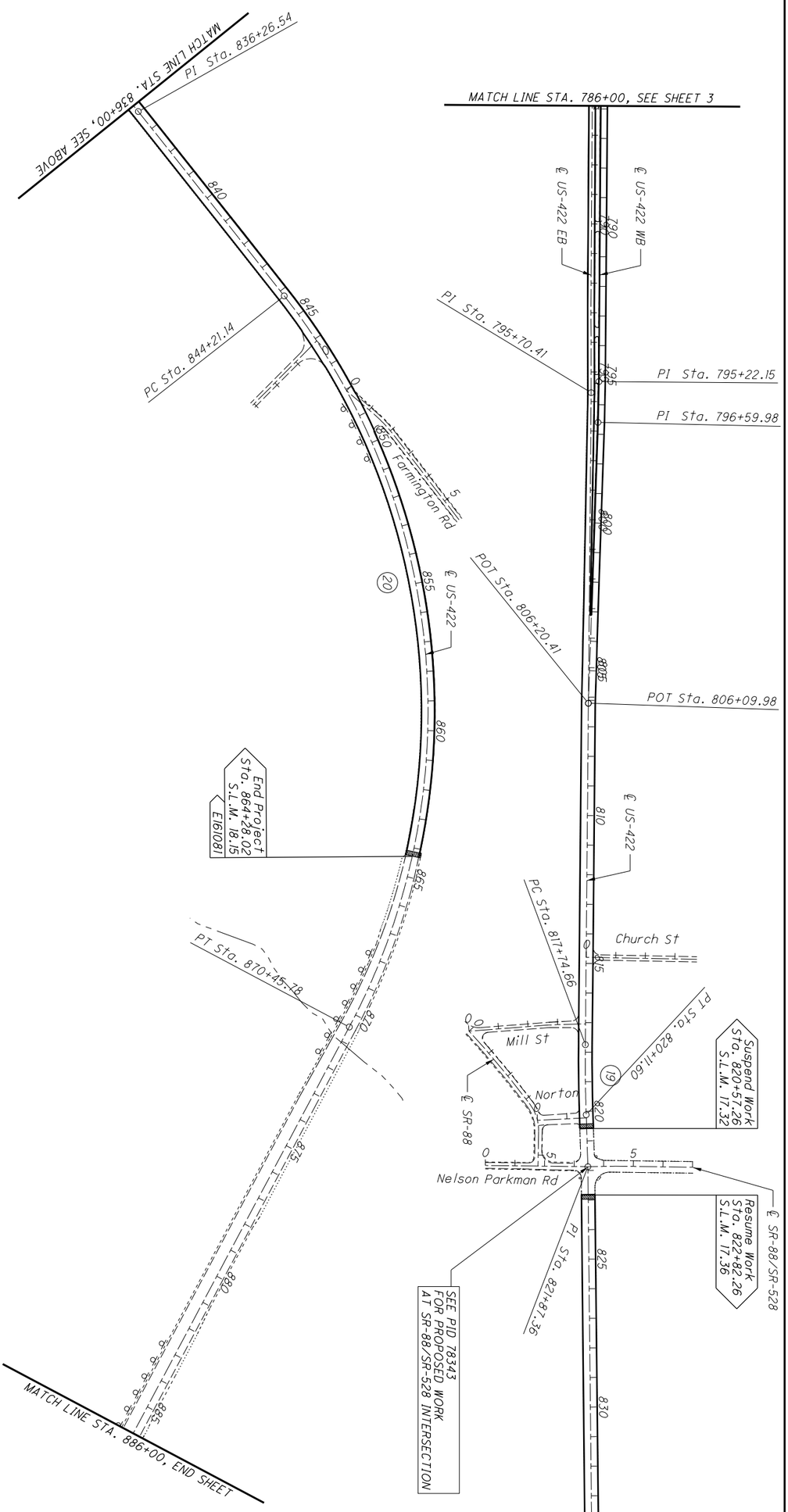
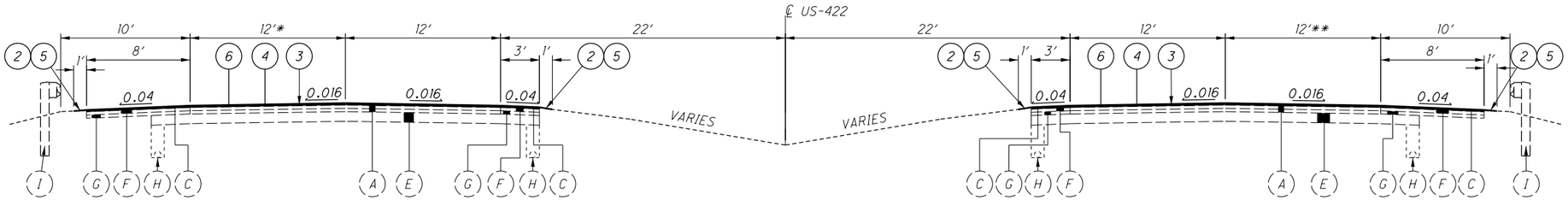


Approximate Existing Curve Data:

(19) ℄ US-422
P.I. Sta. 818+93.15
Δ = 2° 22' 10" (LT)
Dc = 1° 00' 00"
R = 5,729.60'
T = 118.49'
L = 236.94'
E = 1.23'
C = 236.92'
C.B. = N 88° 05' 50" E

(20) ℄ US-422
P.I. Sta. 859+01.62
Δ = 66° 08' 12" (RT)
Dc = 2° 31' 11"
R = 2,273.78'
T = 1,480.47'
L = 2,624.64'
E = 439.50'
C = 2,481.33'
C.B. = S 58° 02' 26" E

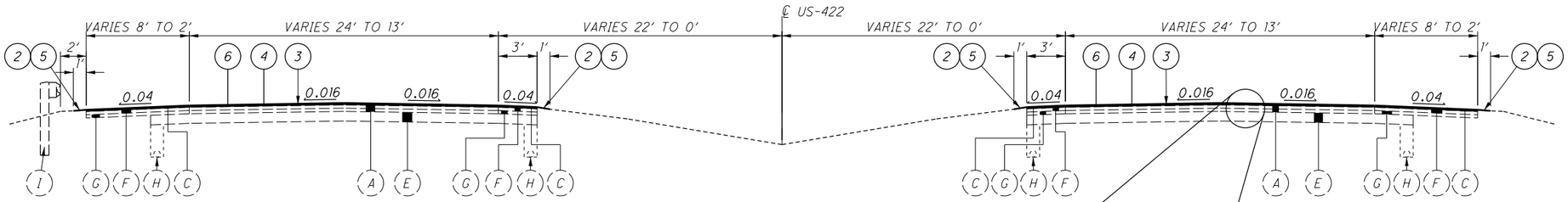


NORMAL SECTION - US-422

* VARIES:
27.70′ TO 24′ STA. 400+70.21 TO STA. 401+88.95
24′ TO 12′ STA. 405+75 TO STA. 407+00

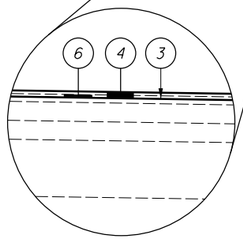
STA. 400+70.21 TO STA. 425+88.00
STA. 428+58.00 TO STA. 461+87.47

** VARIES:
36.51′ TO 12′ STA. 400+70.21 TO STA. 411+00

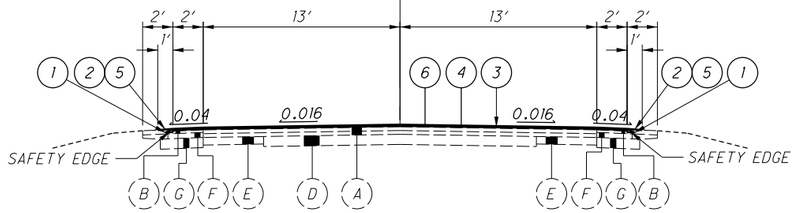


NORMAL SECTION - US-422

STA. 461+87.47 TO STA. 473+36.31

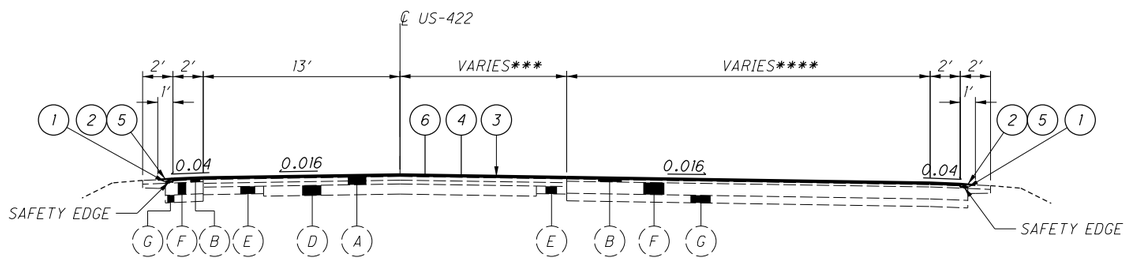


TYPICAL OVERLAY DETAIL



NORMAL SECTION - US-422

STA. 473+36.31 TO STA. 479+91.48
STA. 497+60.00 TO STA. 552+64.00
STA. 554+84.00 TO STA. 578+35.43



NORMAL SECTION - US-422

STA. 479+91.48 TO STA. 497+60.00

*** VARIES:
0′ TO 11′ STA. 479+91.48 TO STA. 484+85.60
11′ TO 0′ STA. 492+00.00 TO STA. 497+60.00

**** VARIES:
13′ TO 12′ STA. 479+91.48 TO STA. 481+16.18
12′ TO 24′ STA. 484+85.60 TO STA. 485+36.41
24′ TO 12′ STA. 487+40.80 TO STA. 487+75.50
12′ TO 13′ STA. 497+10.00 TO STA. 497+60.00

EXISTING LEGEND

- (A) $5\frac{1}{4}$"-$7\frac{1}{4}$"± ASPHALT CONCRETE OVERLAY
- (B) 3"-$4\frac{1}{4}$"± ASPHALT CONCRETE OVERLAY
- (C) $1\frac{1}{4}$"± ASPHALT CONCRETE OVERLAY
- (D) 7"-10"± CONCRETE BASE
- (E) BITUMINOUS BASE COURSE
- (F) BITUMINOUS AGGREGATE BASE
- (G) AGGREGATE BASE
- (H) 6" PIPE UNDERDRAINS
- (I) GUARDRAIL
- (J) ASPHALT CURB
- (K) TYPE 6 CURB

PROPOSED LEGEND

- (1) ITEM 209 - PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN
- (2) ITEM 209 - LINEAR GRADING, AS PER PLAN
- (3) ITEM 407 - NON-TRACKING TACK COAT
- (4) ITEM 424 - FINE GRADED POLYMER ASPHALT CONCRETE, TYPE B, 1"
- (5) ITEM 617 - COMPACTED AGGREGATE, AS PER PLAN
- (6) ITEM 897 - PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A, AS PER PLAN (VARIES 0" TO 1")

TYPICAL SECTIONS

GEA-422-9.38

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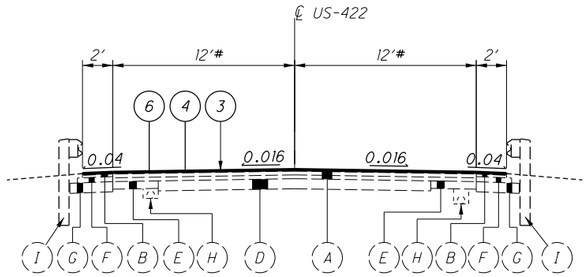
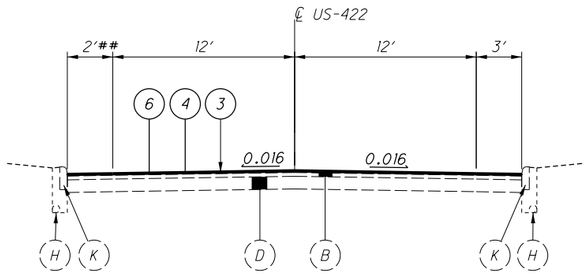


NORMAL SECTION - US-422

STA. 578+35.43 TO STA. 590+70.00

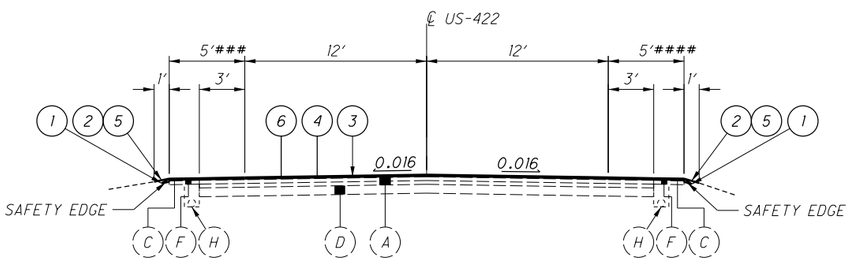
VARIES:
13′ TO 12′ STA. 578+35.43 TO STA. 579+35.43



NORMAL SECTION - US-422

STA. 590+70.00 TO STA. 599+83.68

VARIES:
BEGIN CURB AND 3′ SHOULDER STA. 594+50.00

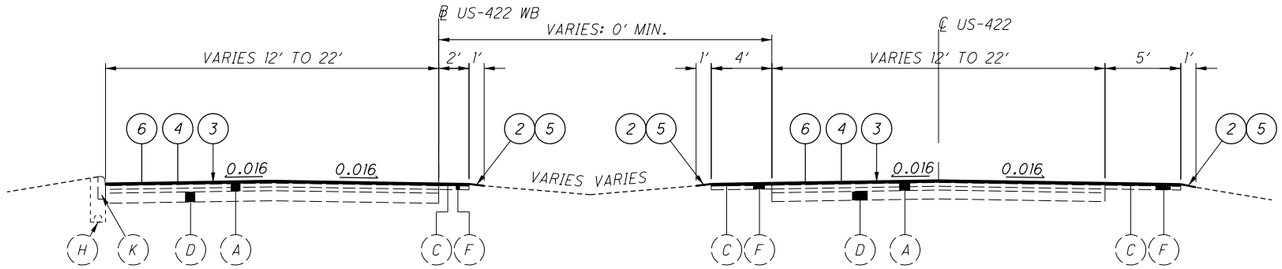


NORMAL SECTION - US-422

STA. 599+83.68 TO STA. 686+00.00

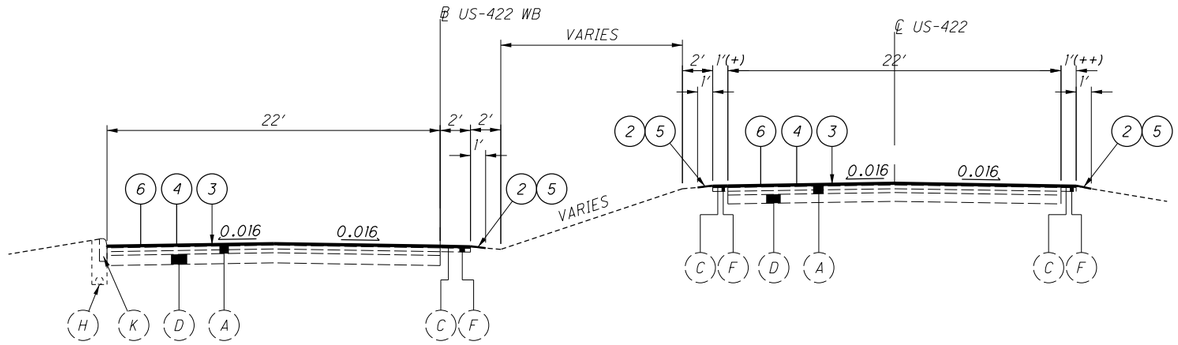
VARIES:
3′ TO 5′ STA. 601+25.00 TO STA. 602+25.00
5′ TO 0′ STA. 686+65.00 TO STA. 689+70.00

VARIES:
3′ TO 5′ STA. 605+00.00 TO STA. 606+00.00



NORMAL SECTION - US-422

STA. 686+00.00 TO STA. 697+08.00

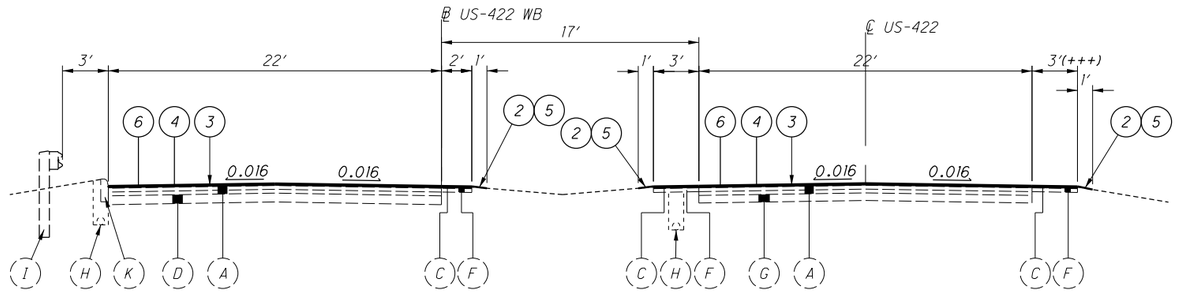


NORMAL SECTION - US-422

STA. 697+08.00 TO STA. 756+17.55
STA. 774+90.88 TO STA. 792+74.53

(+) VARIES:
1′ TO 3′ STA. 753+00.00 TO STA. 754+00.00
3′ TO 1′ STA. 776+75.00 TO STA. 777+75.00

(++) VARIES:
1′ TO 3′ STA. 753+50.00 TO STA. 754+50.00



NORMAL SECTION - US-422

STA. 756+17.55 TO STA. 770+22.00
STA. 771+18.12 TO STA. 774+90.88

(+++) VARIES:
3′ TO 1′ STA. 774+00.00 TO STA. 775+00.00

FOR LEGEND AND TYPICAL OVERLAY DETAIL, SEE SHEET 5

TYPICAL SECTIONS

GEA-422-9.38

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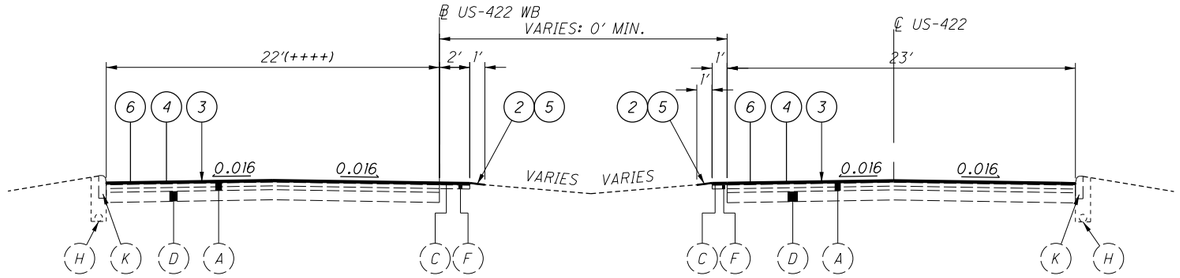
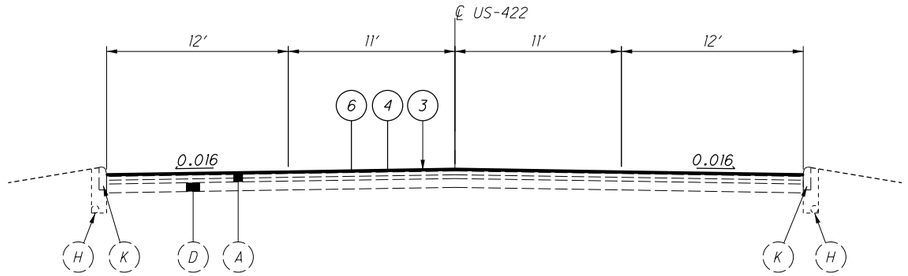


NORMAL SECTION - US-422

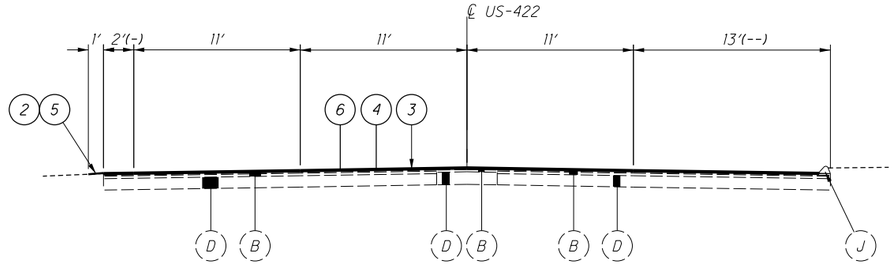
(++++) VARIES:
22' TO 23' STA. 802+00.00 TO STA. 806+20.41

STA. 792+74.53 TO STA. 806+20.41



NORMAL SECTION - US-422

STA. 806+20.41 TO STA. 834+30.00



NORMAL SECTION - US-422

(-) VARIES:
1' TO 2' STA. 834+30.00 TO STA. 835+30.00

STA. 834+30.00 TO STA. 864+28.02

(--) VARIES:
12.5' TO 13' STA. 834+30.00 TO STA. 835+30.00

FOR LEGEND AND TYPICAL OVERLAY DETAIL, SEE SHEET 5

TYPICAL SECTIONS

GEA-422-9.38

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GENERAL

Project Description

This project consists of the preventative maintenance treatment of 8.77 miles of Main-Market St. (US-422) from east of Ravenna Rd. (SR-44) to east of Main St. (SR-88) in Auburn, Troy, and Parkman Townships.

Existing Typical Sections

Existing typical sections have been taken from the records and are believed to represent the existing pavement, but the State of Ohio does not guarantee the accuracy of the same.

For further information in regard to the existing typical sections, the contractor shall refer to the previous construction plans.

These plans may be reviewed at the

Ohio Department Transportation
District 12 Office
5500 Transportation Boulevard
Garfield Heights, Ohio 44125

Contingency Quantities

The contractor shall not order materials or perform work for items designated by plan note to be used “as directed by the engineer” unless authorized by the engineer. The actual work locations and quantities used for such items shall be incorporated into the final change order governing completion of this project.

Equipment and Material Storage

In order to provide for the safety of the traveling public the Contractor's attention is directed to 614.03. In addition the following provisions shall apply:

1. Any removed items shall not be stored on the right of way for more than thirty (30) days.
2. The storage of equipment, materials, and vehicles within the highway right of way will be permitted. The number of areas and exact locations shall be approved by the Engineer.
3. All disturbed areas shall be returned to their original condition at no expense to the state.

Cooperation Between Contractors

The contractor shall cooperate and coordinate operations with the contractors on other projects that may be in force during the life of the contract.

Work Limits

The work limits shown on these plans are for physical construction only. The installation and operation of all temporary traffic control and temporary traffic control devices required by these plans shall be provided by the contractor whether inside or outside these work limits.

Right Of Way

All work shall be performed within the existing right of way or easements.

Plan Sheet Stationing

The roadway was not surveyed prior to the preparation of these plans. Stationing was provided to prepare plan sheets and calculate pavement and pavement marking quantities.

Construction Noise

Activities and land use adjacent to this project may be affected by construction noise. In order to minimize any adverse construction noise impacts, do not operate power-operated construction-type devices between the hours of 9:00pm and 7:00am. In addition, do not operate at any time any device in such a manner that the noise created substantially exceeds the noise customarily and necessarily attendant to the reasonable and efficient performance of such equipment.

Staging Areas

There are no specific areas given in the plans for the Contractor to use as a staging area(s). If the Contractor wants to use an area(s) for staging, regardless if it falls within the project limits or not, the Contractor is to contact Jill Powers at 216-584-2195 at District 12 in order to apply for a permit per Section 107.02 of the CMS.

If a permit is granted, all conditions of the permit shall be met in addition to the requirements of 104.04 of the CMS, at no additional cost to the State. If the Project Engineer deems that all the conditions of the permit were not met, then 10% of the Contract bid amount for mobilization shall be withheld until all the conditions of the permit are satisfied.

Item 619 – Field Office, Type B, As Per Plan

A Type B Field Office is required for this project. The following revisions to equipment supplied with the Type B Field Office, as specified in Table 619.02-1, Field Office, shall apply:

- The broadband internet connection must meet a minimum upload speed of 5MB per second.
- Contractor shall furnish and set up a Wi-Fi router meeting the requirements of IEEE 802.11ac for the exclusive use of the Department.

All other field office items supplied shall meet the requirements of a Type B, Field Office.

Item 619 – Field Office, Type B, As Per Plan ..... **6 Months**

Utilities

The following utilities and owners are located within the work limits of this project. The Ohio Department of Transportation has used the best available information to determine the utility companies serving this area, but cannot guarantee the utility company list is complete.

Dominion East Ohio Gas Company
320 Springside Dr.
Fairlawn, Ohio 44333
Attn: Ed Goubeaux
Phone: (330) 664-2494

Alltel
245 North Main St.
Hudson, Ohio 44236
Attn: Rick Andrego
Phone: (440) 993-1621

The Illuminating Company
7755 Auburn Rd.
Painesville, Ohio 44077
Attn: Ralph Delligatti
Phone: (440) 358-4991

Geauga County Sanitary Engineer
237 Main St. – Courthouse Annex
Chardon, Ohio 44024
Attn: Zane Lee
Phone: (440) 285-2222

AT&T
13630 Lorain Ave. – 2nd Floor
Cleveland, Ohio 44111
Attn: James Janis
Phone: (216) 476-6142

Star Cable
4720 Mahoning Avenue
Youngstown, Ohio 44515
Attn: Gary Walsh
Phone: (800) 569-0200

EnerVest Operating, LLC
125 State Route 43, Suite 100
Hartville, Ohio 44632
Attn: Tom Lorentz
Phone: (330) 587-1208

Brainard Gas Corp.
4369 Brainard Road
Orange Village, Ohio 44022
Attn: Ed Bonk
Phone: (216) 591-9110

City of Akron Watershed Office
1570 Ravenna Road
Kent, Ohio 44240
Attn: Kim C. Coy
Phone: (330) 678-0077

Time Warner Cable
7820 Division Dr.
Mentor, Ohio 44060
Attn: Charles Sullivan
Phone: (440) 974-3401, Ext. 125

Geauga County Department of Water Resources
470 Center Street, Building #3
Chardon, Ohio 44024
Attn: Gerard R. Morgan
Phone: (440) 285-2222, Ext. 6335

There are no underground utilities shown on this plan. The nature of the work required by this project will not affect any known underground utilities that exist under or adjacent to the work area.

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Roadway

Item 209 – Linear Grading, As Per Plan

This item of work shall consist of grading along the outside edge of the paved shoulder to back-up the safety edge, eliminate high spots, fill –in low areas and provide positive sheet flow off the pavement and shoulder into roadside ditches or drainage structures. This item is not intended to be used to excavate a uniform depth to place Item 617 – Compacted Aggregate, As Per Plan.

Any excess debris collected shall be removed and disposed of as specified in Section 105.16 & 105.17 of the Construction and Material Specifications. A contingency quantity of Item 617 – Compacted Aggregate, As Per Plan has been provided to be used as directed by the Engineer to fill in any remaining low areas after Item 209 – Linear Grading, As Per Plan is completed.

Payment for the above work shall be made at the unit bid price for Item 209 - Linear Grading, As Per Plan and shall include all labor, tools, equipment and materials necessary to perform this item of work.

The estimated quantity in the general summary shall be used as directed by the Engineer.

Item 209 – Preparing Subgrade for Shoulder Paving, As Per Plan

Prepare the shoulder for paving a consistent safety edge in both thickness and width.

Prior to paving the safety edge, grade an area 10" wide, beginning at the edge of the paved roadway, to provide a level surface free of vegetation for construction of the safety edge. If necessary, excavate the graded area to the depth necessary to construct the safety edge. Compact the graded shoulder according to 617.05, or as directed by the engineer.

Payment for the above work shall be made at the unit bid price for Item 209 – Preparing Subgrade for Shoulder Paving, As Per Plan and shall include all labor, tools, equipment and materials necessary to perform this item of work.

The estimated quantity in the general summary shall be used as directed by the Engineer.

Drainage

Review of Drainage Facilities

Before any work is started on the project and again before final acceptance by the State, representatives of the State and the Contractor, along with local representatives, shall make an inspection of all existing sewers which are to remain in service and which may be affected by the work. The condition of the existing conduits and their appurtenances shall be determined from field observations. Records of the inspection shall be kept in writing by the State.

All new conduits, inlets, catch basins and manholes constructed as part of the project shall be free of all foreign matter and in a clean condition before the project will be accepted by the State.

All existing sewers inspected initially by the above mentioned parties shall be maintained and left in a condition reasonably comparable to that determined by the original inspection. Any change in the condition resulting from the Contractor's operations shall be corrected by the Contractor to the satisfaction of the Engineer.

Payment for all operations described above shall be included in the contract price for the pertinent 611 drainage items.

Castings Adjusted to Grade, As Per Plan

All castings, within the asphalt overlay section, shall be adjusted to the finished roadway elevation by the Contractor. The time between adjusting the castings and resurfacing shall be kept to an absolute minimum. No adjusting rings shall be permitted.

The following estimated quantities have been carried to the General Summary:

Item 611 – Catch Basin Adjusted to Grade, As Per Plan..... **41 Each**
Item 611 – Inlet Adjusted to Grade, As Per Plan..... **54 Each**
Item 623 – Monument Box Adjusted to Grade, As Per Plan..... **1 Each**

Castings Reconstructed to Grade

The Contractor and Field Engineer shall field check all existing catch basins, manholes, or monument boxes located within the limits of the project. Any casting found that exhibits substantial deterioration and requires more work than is specified under "Castings Adjusted to Grade" shall be "Reconstructed to Grade", as directed by the Engineer.

The following estimated quantities have been carried to the General Summary for use as directed by the Engineer:

Item 611 – Catch Basin Reconstructed to Grade..... **5 Each**
Item 611 – Inlet Reconstructed to Grade..... **6 Each**

Item Special – Miscellaneous Metal

Existing castings may prove to be unsuitable for reuse, as determined by the Engineer. It shall be the Contractor's responsibility to provide the castings of the required type, size, and strength (heavy duty) for the particular structure in question. All materials must meet Item 611 of the CMS and shall have the prior approval of the Engineer.

The Contractor is cautioned to use extreme care in the removal, storage, and replacement of all existing castings. Castings damaged by the negligence of the Contractor, as determined by the Engineer, shall be replaced with the proper new castings at the expense of the Contractor.

The Contractor shall not order materials until authorized by the Engineer, and if none are needed, the item shall be non-performed.

The following estimated quantity has been carried to the General Summary for use as directed by the Engineer:

Item Special – Miscellaneous Metal..... **5000 Lbs**

Pavement

Profile and Alignment

Place the proposed pavement to follow the alignment of the existing pavement. Place the proposed asphalt concrete with a uniform thickness as shown on the typical sections.

Planed Surfaces

The duration of time between milling and placement of the surface course shall be no longer than fourteen (14) days. The time limit shall begin on the first day of planing, and shall continue based on calendar days, minus any bad weather days, until completion of the asphalt concrete surface course.

Item 251 – Partial Depth Pavement Repair

Use this item to repair unsound, cold patch, or pop-out areas of longitudinal and transverse joints as directed by the Engineer. Perform repairs before the planing operation. Make standard repairs at a depth of 3" and at a minimum width of 12". Center the repair over the existing joint.

Use Type 2 material for this item.

The following estimated quantity has been carried to the General Summary to complete this item of work:

Item 251 – Partial Depth Pavement Repair..... **2225 Sq Yd**

Longitudinal Joints (Flexible Pavement)

Longitudinal joints between a pavement lane and adjoining shoulder or speed change lane, and between a speed change lane and the adjoining shoulder shall be made the same day. All longitudinal joints shall be hot with the exception of one cold joint per roadway. Locate the cold joint along the centerline or a lane line. Longitudinal joint locations shall be as approved by the Engineer. Each ramp shall have a maximum of one longitudinal cold joint located approximately halfway across the ramp.

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Safety Edge

In addition to the requirements of 401.12, attach a device to the screed of the paver that confines the material at the end gate and extrudes the asphalt material in such a way that results in a compacted wedge shape pavement edge of approximately 30 degrees (not steeper than 40 degrees). Ensure the device maintains contact with the existing surface, and allow for automatic transition to cross roads, driveways and obstructions. Do not use conventional single plate strike off.

Construction of safety edge can be omitted at locations where existing width of graded shoulder or berm is less than 12". Projects with varying conditions should use safety edge where possible. Plan preparation has made every reasonable attempt to identify possible safety edge locations.

Use the TransTech Shoulder Wedge Maker, the Carlson Safety Edge End Gate, the Advant-Edger, the Troxler SafeTSlope or a similar approved-equal device that produces the same wedge consolidation results. Contact information for these wedge shape compaction devices is the following:

TransTech Systems, Inc.
1594 State Street
Schenectady, NY 12304
1-800-724-6306
www.transtechsys.com

Advant-Edge Paving Equipment LLC
P.O. Box 9163
Niskayuna, NY 12309-0163
518-280-6090
www.advantaedgepaving.com

Carlson Safety Edge End Gate
18425 50th Avenue East
Tacoma, WA 98446
253-875-8000

Troxler Electronic Laboratories, Inc.
3008 E. Cornwallis Rd.
Research Triangle Park, NC 27709
1-877-TROXLER
www.troxlerlabs.com

If electing to use a similar device, provide proof that the device has been used on previous projects with acceptable results or construct a test section prior to the beginning of work and demonstrate wedge compaction to the satisfaction of the Engineer. Short sections of handwork will be allowed when necessary for transitions and turnouts or otherwise authorized by the Engineer.

In addition to the requirements of 401.16, make the first roller pass 8 to 12 inches (200 to 300 mm) away from tapered edge. Do not roll the taper.

Item 618 – Rumble Strips, (Asphalt Concrete), As Per Plan

For all freeways, the lateral position of edge line rumble strips shown in SCD BP-9.1 is revised as follows:

1. Median and Outside Shoulder Offset for shoulders less than 6': Dimension A and B are equal to 6".
2. Median and Outside Shoulder Offset for shoulders 6' to 12': Dimension A and B are equal to half the shoulder width minus 12".
3. Median and Outside Shoulder Offset for shoulders greater than 12': Dimension A and B are equal to 5'.

The following estimated quantity shall be used to construct Item 618 – Rumble Strips, (Asphalt Concrete), As Per Plan:

Item 618 – Rumble Strips, (Asphalt Concrete), As Per Plan ..... **4.65 Miles**

Item 618 – Center Line, Rumble Stripe (Asphalt Concrete)

The following estimated quantity has been carried to the General Summary:

Item 618 – Center Line, Rumble Stripe (Asphalt Concrete) ..... **1.75 Miles**

Asphalt Concrete Surface Course Sealing Requirements

In addition to the gutter sealing requirements specified in SCD BP-3.1 and C&MS 401.15, after completion of the surface course, the contractor shall use a certified 702.01 PG binder to seal the following locations:

- All castings including but not limited to monuments, manholes, water valves, catch basins, curb inlets.
- Butt joints and feather joints including bridge approaches.
- Forward joint for driveway asphalt and trailing joint when butting to existing asphalt drive.
- Perimeter of all pavement repairs or other asphalt inlays when pavement repairs/inlays are not overlaid with an asphalt concrete surface course.
- All cold longitudinal joints between paved shoulders and guardrail asphalt.

The material used shall be a certified 702.01 PG binder. The width of the sealer shall be 2-3 inches.

Any additional costs associated with the work identified in this note shall be included in the appropriate asphalt concrete surface course item of work.

Item 617 – Compacted Aggregate, As Per Plan

This item shall be used along the shoulders. Material shall be limited to reclaimed asphalt concrete pavement.

The actual depth of compacted aggregate placed will vary depending upon existing conditions. For estimating purposes, an average depth of one half inches (0.5") has been used. Water, if needed, shall be applied as per 617.05 and included under Item 617 – Compacted Aggregate, As Per Plan.

This item is a contingency that shall be used, as directed by the Engineer to fill any remaining low areas after Item 209 – Linear Grading, As Per Plan is completed.

Item 897 – Pavement Planing, Asphalt Concrete, Class A, As Per Plan (Varies 0" to 1")

The intent of this item is to plane 1" at the edge of shoulder to butt the overlay into paved side roads and paved driveway aprons and to maintain or establish as close as possible a std. 3/16 inch per foot roadway crown/cross slope.

Taper planing depth from 1" at the outer edge of pavement (edge of shoulder) to a 0" min. to 0.5" max. depth at the centerline. The pavement slope shall be 0.010 minimum and 0.016 preferred continuous between the crown and the edge of shoulder.

Special attention shall be given to superelevated curves. The superelevation shall be maintained and/or restored, if necessary, as directed by the Engineer. If there is no information in the plans to change the superelevation, the intent is to maintain the existing superelevation.

The contractor shall maintain positive drainage to all catch basins and/or inlets.

All labor, equipment and materials necessary to perform the pavement planing detailed in the plans and described in this note shall be included for payment under Item 897 – Pavement Planing, Asphalt Concrete, Class A, As Per Plan (Varies 0" to 1").

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GENERAL NOTES

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Traffic Control

Item Special – Misc.: Inventory Existing Pavement Markings

Prior to planing and paving operations, the Contractor is responsible for conducting a field survey of the existing permanent markings excluding center line markings. This inventory shall be used for the placement of temporary markings and proposed final pavement markings. It is the intent of this plan to replace the pavement markings in the same location as the existing pavement markings excluding center line markings. Any staking or marking required to establish control points to ensure that markings are accurately placed is the responsibility of the Contractor.

The field survey shall be provided to the Engineer at least two weeks prior to the disturbance of the existing pavement markings for verification and approval. The Engineer will provide written concurrence once the inventory has been approved. The Engineer will also verify all permanent marking locations prior to the actual installation.

The Contractor must lay out all center lines using the most recent copy of the No Passing Zone log. Copies of the No Passing Zone log can be obtained from the District 12 Roadway Services Department or can be found on the web at: http://www.dot.state.oh.us/districts/D12/HighwayManagement/Pages/NoPassingZones.aspx

Install transverse lines at the spacing indicated on SCD TC-71.10.

The following quantity has been carried to the General Summary to be used as directed by the Engineer:

Item Special – Misc.: Inventory Existing Pavement Markings ..... **Lump Sum**

Permanent Pavement Markings on Bridges

Proposed pavement markings on bridges shall be placed on top of existing markings.

Raised Pavement Markers

Install raised pavement markers for lane lines at a spacing of eighty feet (80') center-to-center.

Item 621 – Raised Pavement Marker Removed

This item shall include the removal and disposal of RPM's.

The following estimated quantity has been carried to the General Summary:

Item 621 – Raised Pavement Marker Removed ..... **830 Each**

Item 632 – Detector Loop, As Per Plan

Prior to planing the pavement, the Contractor shall field survey the locations of the existing loop detectors within the project limits. The Project Engineer shall confirm these locations. The survey shall include the location of the loop, size of the loop, offset from curb and/or centerline and the location of the stub. A copy of this survey shall be given to the Project Engineer.

An estimated quantity of Item 632 – Detector Loop, As Per Plan has been provided as a contingency when wire is cut, broken, or destroyed due to pavement planing operations.

All stop line inductance detector loops shown in the plans shall be the powerhead configuration shown on TC-82.10. The stop line detector loops shall not be wired to any other loops and shall have its own detector channel. The location of these loops shall be such that the powerhead is located at the stop line, not past it.

All dilemma zone inductance detector loops called for in the plans shall be the Angular Design Detection (ADD) loop as shown on TC-82.10.

System loops shall be as depicted in the plans.

All stop line detection shall be tested for a bicycle target and all dilemma detection zones shall be tested for a motorcycle target.

When replacing the loop detectors, the loop detector wire shall be replaced to the pull box or pole, whichever is applicable, under Item 632 and Standard Drawing TC-82.10. The new cable splice kits shall be included in this pay item.

The Contractor shall contact the Project Engineer and Tony Toth, (216) 584-2220, District 12 Traffic Engineer, seven (7) days prior to planing through an intersection to adjust signal operation as needed. The detector loops shall be placed in the surface course.

Refer to plan sheets for approximate locations. These locations are from record plans and field verification is needed.

The following estimated quantity has been carried to the General Summary:

Item 632 – Detector Loop, As Per Plan..... **3 Each**

Detector Loop Locations

REFERENCE NO.	SEE SHEET NO.	LOCATION	632 6' X 20' POWERHEAD DETECTOR LOOP	632 4.5' X 9' ANGULAR DESIGN DETECTION LOOP
			EACH	EACH
L-1	38	US-422 West Approach between Mill St. & Norton		2
		Extra for Damaged Apron Loops, Use As Directed by the Engineer	1	
SUBTOTALS			1	2
TOTAL CARRIED TO GENERAL SUMMARY			3	

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GENERAL NOTES

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Maintenance of Traffic

Item 614 – Maintaining Traffic

Generally the Contractor shall conduct his operations as to complete the proposed improvement with a minimum of hazard, delay and inconvenience to the motorists using the highway affected by the work done under this contract. In addition to the construction and material specifications, the following specific provisions are mandatory.

I. Notification

Since functional traffic control is a major concern on this project, it is essential that the motoring public be adequately forewarned of future lane closures and traffic constrictions. Therefore, the Contractor shall submit a written schedule to the Engineer, responsible law enforcement agencies, and the ODOT Public Information Office (216-584-2007) indicating the locations and dates of the lane closures at least 3 days prior to the implementation of any such closures.

Use portable changeable message signs to alert motorists 3 days prior to the implementation of any changes such as lane closures or other restrictions.

II. Work Hours

The Contractor is not permitted to work at night. Limit work hours to daylight hours between 7:00 AM and 9:00 PM, Monday through Friday or between 8:30 AM and 7:00 PM on Saturday and Sunday.

III. Lane Closure, Planing and Paving Restrictions

1. All closures shall be in accordance with the applicable Standard Construction Drawing(s).
2. All through traffic lanes shall be kept open at all times except during hours of construction.
3. Pedestrian traffic shall be permitted and accommodated on at least one side at all times.

Notwithstanding the above, no lane closures shall occur during the period beginning at 12:00 noon on the day preceding and continuing until noon on the following legal holidays and holiday weekends such as Memorial Day, Fourth of July and Labor Day. Furthermore, no lane closures shall be implemented or in place during increased traffic volumes caused by special events or when the Engineer deems the climatological conditions too hazardous.

IV. Maintenance of Traffic Systems

A. When Required

Whenever any part of the traveled surface is being worked upon or is otherwise not suitable for safe and convenient use by vehicles, traffic control devices sufficient to protect such areas to assure the safe and convenient passage of vehicular traffic shall be installed and maintained. Such traffic control devices and the manner in which they are used shall be consistent with these plans and the Ohio Manual of Uniform Traffic Control Devices for Streets and Highways, hereinafter referred to as the OMUTCD. The traffic control device system shall constitute the minimum provisions for traffic control for each particular situation. Whenever the Engineer deems it necessary especially where a grade, curve, or merge conditions exists, he may direct that additional or alternative devices be used.

B. Conditions

During all parts of this project, flaggers, signing, barricades, flashing arrows, etc. shall be located as indicated in the OMUTCD or as shown in the Standard Construction Drawings. Two-way traffic shall be maintained at all times.

C. Advance Warning Signs

All advance warning signs for any condition which restricts traffic shall be erected before any such restriction is put into effect. All such signs shall be covered or removed from the view of traffic whenever they are not applicable.

D. Flashing Arrow Requirement

Whenever any part of the traveled surface is closed, the motorists shall be warned and directed by the Contractor through the use of one flashing arrow for each lane closed. Additionally, the provisions set forth in the OMUTCD and the applicable Standard Construction Drawings shall be met.

E. Flaggers and Law Enforcement Officers

At least two flaggers are required for each closure. The Contractor shall furnish additional flaggers as directed by the Engineer. Law Enforcement Officers (LEO's) shall be required for traffic direction only under the following circumstances: (1) if signals are non-operational, or (2) if traffic must move against signal phasing.

F. Protection of Public

Personal cars shall not be parked within the R/W.

G. Failure to Comply

If there is any failure to comply with provisions for traffic control set out in these plans and notes, or with the provisions of the OMUTCD, the highway in the vicinity of the work area shall not be considered in a condition for the safe and convenient use by the traveling public. Any failure to keep the highway, in the vicinity of the work area, in a condition for the safe and convenient use by the traveling public shall be considered a breach of this contract. Work shall be suspended until the Contractor complies with the provisions of the aforementioned items.

V. Maintenance of Traffic Materials

A. Signs

Sign dimensions and specifications, including letter sizes, shall be as provided in the OMUTCD or in design drawings provided by the Department of Transportation. The signs shall be subject to approval of the Engineer prior to the start of the project.

B. Sign Supports

Sign supports shall be of sufficient size and mass as to support the signs at the appropriate height. Supports shall be as shown on the Standard Construction Drawings.

C. Flashing Arrows

Whenever any part of the traveled surface is closed, the motorist shall be warned and diverted by the Contractor through the use of one flashing arrow barricade for each lane closed. The Contractor shall refer to Supplemental Specification 821 and 921 and the provisions set forth in the OMUTCD for all information regarding furnishing, maintaining, and use of flashing arrow barricades. Payment for the above shall be included in the lump sum bid for Item 614 – Maintaining Traffic.

D. Drums

Drums shall be in accordance with pertinent sections of the OMUTCD. All costs for installing, maintaining and subsequent removal of said drums shall be included in the lump sum bid price for Item 614 – Maintaining Traffic.

E. Cones

Cones, if utilized, shall be located as shown in the OMUTCD and the Standard Construction Drawings.

F. Flashers

Flashers shall be 12 volt battery-operated models with 7 inch diameter yellow lenses illuminated by rapid intermittent flashers of short duration and shall be placed on all signs at all times as required by the OMUTCD and the Standard Construction Drawings.

VI. Payment

Payment for providing, erecting, maintaining and removing temporary maintenance of traffic control devices shall be made under the lump sum price bid for Item 614 – Maintaining Traffic.

Lanes Open During Holidays or Special Events

No work shall be performed and all existing lanes shall be open to traffic during the following designated holidays or events:

Christmas	New Years	Mother's Day
Memorial Day	Fourth of July	Easter
Labor Day	Thanksgiving	

The period of time that the lanes are to be open depends on the day of the week on which the holiday or event falls. The following schedule shall be used to determine this period:

Day of the Week	Times All Lanes Must Be Open to Traffic
Sunday	12:00 Noon Friday through 6:00 AM Monday
Monday	12:00 Noon Friday through 6:00 AM Tuesday
Tuesday	12:00 Noon Monday through 6:00 AM Wednesday
Wednesday	12:00 Noon Tuesday through 6:00 AM Thursday
Thursday	12:00 Noon Wednesday through 6:00 AM Monday
Friday	12:00 Noon Thursday through 6:00 AM Monday
Saturday	12:00 Noon Friday through 6:00 AM Monday

No extensions of time shall be granted for delays in material deliveries, unless such delays are industry-wide, or for labor strikes, unless such strikes are area-wide.

Should the Contractor fail to meet any of these requirements, the Contractor shall be assessed a disincentive in the amount of $50 for each minute the above described lane closure restrictions are violated.

Suspension of Work

If the Contractor fails to comply with the provisions for traffic control as set forth in these plans or with provisions of the OMUTCD, the Engineer shall suspend work until the Contractor complies with the necessary requirements.

Maintenance of Traffic Control Zones

The Contractor shall be responsible to maintain the signs, drums and temporary pavement markings at the locations detailed in the plans or specified in the Standard Drawings. When the Contractor is notified of deficiencies he shall correct the deficiencies as soon as possible, preferably within 12 hours and no later than 24 hours.

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MAINTENANCE OF TRAFFIC GENERAL NOTES

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Construction Traffic

All construction traffic shall use acceptable truck routes to access the construction area. Use of local residential streets is strictly prohibited unless allowed in writing by the local enforcement authority.

Contractor's Equipment – Operation and Storage

Vehicles and equipment shall always move with, and not across or against the flow of traffic. Vehicles and other equipment shall not park or stop except within designated work areas; and shall not enter and leave work areas in a manner which will be hazardous to, or interfere with the normal traffic flow. Personal vehicles will not be permitted to park within the right-of-way except in specific areas designated by the Engineer.

Equipment, vehicles and materials shall not be stored or parked within 30 feet of the traveled way unless 6 feet behind PCB or guardrail.

All work vehicles and equipment that enters the work zone more than once a day must be equipped with at least one flashing, rotating, or oscillating amber light that is visible in all directions of traffic for at least one quarter of a mile, day or night.

Work Zone Markings

The following estimated quantities have been carried to the General Summary for use at locations identified by the Engineer for work zone pavement markings per the requirements of CMS 614.04 and 614.11. Place temporary markings at the same locations as the proposed permanent markings.

After the planing is completed, use the following temporary markings:

Item 614 – Work Zone Lane Line, Class I, 642 Paint ..... **8.19 Mile**
Item 614 – Work Zone Center Line, Class I, 642 Paint ..... **5.76 Mile**
Item 614 – Work Zone Edge Line, Class I, 642 Paint ..... **20 Mile**
Item 614 – Work Zone Channelizing Line, Class I, 642 Paint ..... **1789 Ft**
Item 614 – Work Zone Dotted Line, Class I, 642 Paint ..... **1415 Ft**
Item 614 – Work Zone Transverse/Diagonal Line, Class I, 642 Paint ... **2480 Ft**
Item 614 – Work Zone Stop Line, Class I, 642 Paint ..... **116 Ft**
Item 614 – Work Zone Arrow, Class I, 642 Paint ..... **16 Each**

After the surface course is placed, use the following temporary markings:

Item 614 – Work Zone Lane Line, Class III, 642 Paint ..... **8.19 Mile**
Item 614 – Work Zone Center Line, Class III, 642 Paint ..... **5.76 Mile**
Item 614 – Work Zone Edge Line, Class III, 642 Paint ..... **20 Mile**
Item 614 – Work Zone Channelizing Line, Class III, 642 Paint ..... **1789 Ft**
Item 614 – Work Zone Dotted Line, Class III, 642 Paint ..... **1415 Ft**
Item 614 – Work Zone Transverse/Diagonal Line, Class III, 642 Paint . **2480 Ft**
Item 614 – Work Zone Stop Line, Class III, 642 Paint ..... **116 Ft**
Item 614 – Work Zone Arrow, Class III, 642 Paint ..... **16 Each**

Permanent Pavement Markings

After placing the surface course, the Contractor may place permanent pavement markings instead of placing work zone pavement markings, which shall be non-performed at these locations.

Major Work Items

The following major work items will require traffic maintenance which shall be incorporated into the Contractor's sequence of operations.

A. Removal of existing RPMs
B. Completion of pavement repairs
C. Planing of asphalt concrete
D. Adjustment/reconstruction of existing castings
E. Placing of asphalt concrete
F. Placing proposed pavement markings and raised pavement markers

Maintaining Traffic and Sequence of Operations

All asphalt concrete operations shall be conducted in a manner that will assure minimum danger and inconvenience to highway users. The procedure for the removal or placement of any existing or proposed asphalt course shall be such that no greater than 1-1/2" discontinuity in the elevation of the travelled surface shall be exposed to traffic.

Traffic shall not be permitted to cross any partial-width removal or resurfacing joint during the actual removal or paving operation except as necessary. Any partial-width longitudinal joints which must be exposed to traffic shall be ramped using Item 614 – Asphalt Concrete for Maintaining Traffic at a rate not steeper than 6:1.

Temporary transverse removal or paving joints which must be exposed to traffic shall be ramped using Item 614 – Asphalt Concrete for Maintaining Traffic as a rate not to exceed 1" in 10'.

For removal of existing overlays, a transition may be planed into the existing overlay and may be substituted for the asphalt ramps previously described, provided the transition is removed in a subsequent operation within 24 hours.

Whenever traffic is subject to partial width removals or overlays prior to full width completion, the Contractor shall provide W8-11-48 "UNEVEN LANES" signs (dual sign installation). Placement shall be as directed by the Engineer and included in the lump sum payment for Item 614 – Maintaining Traffic.

Whenever any part of the traveled surface is closed, the motorists shall be warned and diverted by the Contractor through the use of a flashing arrow, in addition to those provisions set forth in the OMUTCD, the Traffic Engineering Manual and the applicable Standard Construction Drawings.

Continuous Access

The Contractor shall maintain safe and adequate driveways and walkways in order to provide continuous access for pedestrians, passenger vehicles, trucks, and safety equipment to all adjoining properties

The cost for all materials, equipment, and labor necessary to provide continuous access shall be included in the lump sum price for Item 614 – Maintaining Traffic.

Item 614 – Asphalt Concrete for Maintaining Traffic

This item shall be used to install and remove temporary asphalt ramps at butt joints, and drainage/utility castings, where required. Material shall be removed prior to the placement of the next course of asphalt. The following estimated quantity has been carried to the general summary to accomplish this item of work.

Item 614 – Asphalt Concrete for Maintaining Traffic..... **50 Cu Yd**

Covering of Ground-Mounted Signs – General

When required by other items or incidentally to Item 614 – Maintaining Traffic, cover existing ground-mounted signs with plywood or OSB blanks (1/2" minimum thickness) covering 80% of the sign area and all of the sign legend. The use of low quality materials such as duct tape and black plastic is not permitted.

Item 630 – Signing Misc.: Additional Signs, Ground Mounted, As Directed by the Engineer

When additional signing is needed to maintain traffic, the Contractor shall furnish the sign or signs as directed by the Engineer. These signs shall be ground mounted and meet all the specifications of the plan, proposal and current year CMS.

Payment for this item shall include, but not be limited to, the cost to furnish and erect the sign, including driving posts or other approved methods of sign support, maintaining the sign and removal of the sign. The following estimated quantity has been carried to the General Summary for use as directed by the Engineer:

Item 630 – Signing Misc.: Additional Signs, Ground Mounted, As Directed by the Engineer..... **300 Sq Ft**

Alternate Methods

If the Contractor so elects, he may submit alternate methods for the maintenance of traffic, provided the intent of the provisions is followed and no additional inconvenience to the traveling public results there from. No alternate plan shall be placed into effect until approval has been granted, in writing, by the Director.

All items proposed for use under these provisions must comply with current Department standards for their use when the plan detail, Standard Construction Drawing or other bid document governing their use is not provided as part of the bid package.

Truck Mounted Attenuator

When the Contractor is setting short term work zones and the shoulders (right or left shoulder) are less than 10 feet in width and are on a road with speeds 45 mph or higher, a Truck Mounted Attenuator (TMA) must trail the operation of setting the advance warning signs up or taking them down. This same truck must have a Type B flashing arrow panel mounted on it facing the rear of the truck.

The TMA must meet NCHRP 350 TL-3 criteria. The manufacturer's specification must be followed concerning the size of the truck and the connections to the TMA.

Floodlighting

Floodlighting of the work site for operations conducted during nighttime periods shall be accomplished so that the lights do not cause glare to the drivers on the roadway. To ensure the adequacy of the floodlight placement, the Contractor and the Engineer shall drive through the work site each night when the lighting is in place and operative prior to commencing any work. If glare is detected, the light placement and shielding shall be adjusted to the satisfaction of the Engineer before work proceeds.

Payment for all labor, equipment and materials shall be included in the lump sum contract price for Item 614 – Maintaining Traffic.

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MAINTENANCE OF TRAFFIC GENERAL NOTES

GEA-422-9.38

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Item 614 – Law Enforcement Officer (With Patrol Car) For Assistance

Use of law enforcement officers (LEOs) by Contractors other than the uses specified below will not be permitted at project cost. LEOs should not be used where the OMUTCD intends that flaggers be used.

In addition to the requirements of CMS 614 and the OMUTCD, a uniformed LEO with an official patrol car (car with top-mounted emergency flashing lights and complete markings of the appropriate law enforcement agency) shall be provided for the following traffic control tasks:

- During the entire advance preparation and closure sequence where complete blockage of traffic is required.
- During a traffic signal installation when impacting the normal function of the signal or the flow of traffic or when traffic needs to be directed through an energized traffic signal contrary to the signal display (e.g., directing motorists through a red light).

In addition to the requirement of CMS 614 and the OMUTCD, a uniformed LEO with an official patrol car (car with top-mounted emergency flashing lights and complete markings of the appropriate law enforcement agency) should be provided for the following traffic control tasks:

- For lane closures: during initial set-up periods, tear down periods, substantial shifts of a closure point or when new lane closure arrangements are initiated for long-term lane closures/shifts (for the first and last day of major changes in traffic control setup).

In general, LEOs should be positioned at the point of lane restriction or road closure and to manually control traffic movements through intersections in work zones.

LEOs should not forgo their traffic control responsibilities to apprehend motorists for routine traffic violations. However, if a motorist's actions are considered to be reckless, then pursuit of the motorist is appropriate.

The LEOs work at the direction of the Contractor. The Contractor is responsible for securing the services of the LEOs with the appropriate agencies and communicating the intentions of the plans with respect to duties of the LEOs. The Engineer shall have final control over the LEOs' duties and placement, and will resolve any issues that may arise between the two parties.

The LEO should report in to the Contractor prior to the start of the shift, in order to receive instructions regarding specific work assignments during his/her shift. The LEO is expected to stay at the project site for the entire duration of his/her shift. The LEO shall report to the Contractor at the end of his/her shift. Once the LEO has completed the duties described above and still has time remaining on his/her shift, the LEO may be asked to patrol through the work zone (with flashing lights off) or be placed at a location to deter motorists from speeding. Should it be necessary to leave the project site, the LEO shall notify the Engineer. The Contractor shall provide the LEO with a two-way communication device which shall be returned to the Contractor at the end of his/her shift.

LEOs with patrol car required by the traffic maintenance tasks above shall be paid for on a unit price (hourly) basis under Item 614, Law Enforcement Officer with Patrol Car for Assistance. The following estimated quantity has been carried to the General Summary.

Item 614 – Law Enforcement Officer
with Patrol Car for Assistance..... ..... **100 Hours**

The hours paid shall include any minimum show-up time required by the law enforcement agency involved.

Any additional costs (administrative or otherwise) incurred by the Contractor to obtain the services of an LEO are included with the bid unit price for Item 614, Law Enforcement Officer with Patrol Car for Assistance.

Item 614 – Portable Changeable Message Signs, As Per Plan

The Contractor shall furnish, install, maintain and remove, when no longer needed, a changeable message sign. The sign shall be of a type shown on a list of approved PCMS units available on the Office of Materials Management web page. The list contains Class A and B units with minimum legibility distances of 800 feet and 650 feet, respectively.

Each sign shall be trailer-mounted and equipped with a functional dimming mechanism, to dim the sign during darkness, and a tamper and vandal proof enclosure. Each sign shall be provided with appropriate training and operation instructions to enable on-site personnel to operate and troubleshoot the unit. The sign shall also be capable of being powered by an electrical service drop from a local utility company. The PCMS shall be delineated in accordance with C&MS 614.03.

The probable PCMS locations and work limits for those locations are shown on sheet(s) of the plan. Placement, operation, maintenance and all activation of the signs by the Contractor shall be as directed by the Engineer. The PCMS shall be located in a highly visible position yet protected from traffic. The Contractor shall, at the direction of the Engineer, relocate the PCMS to improve visibility or accommodate changed conditions. When not in use, the PCMS shall be turned off. Additionally, when not in use for extended periods of time, the PCMS shall be turned away from all traffic.

The Engineer shall be provided access to each sign unit and shall be provided with appropriate training and operation instructions to enable ODOT personnel to operate and troubleshoot the unit, and to revise sign messages, if necessary.

All messages to be displayed on the sign will be provided by the Engineer. A list of all required pre-programmed messages will be given to the Contractor at the project preconstruction conference. The sign shall have the capability to store up to 99 messages. Message memory or pre-programmed displays shall not be lost as a result of power failures to the on-board computer. The sign legend shall be capable of being changed in the field. Three-line presentation formats with up to six message phases shall be supported. PCMS format shall permit the complete message for each phase to be read at least twice.

The PCMS shall contain an accurate clock and programming logic which will allow the sign to be activated, deactivated or messages changed automatically at different times of the day for different days of the week.

The PCMS unit shall be maintained in good working order by the Contractor in accordance with the provisions of C&MS 614.07. The Contractor shall, prior to activating the unit, make arrangements, with an authorized service agent for the PCMS, to assure prompt service in the event of failure. Any failure shall not result in the sign being out of service for more than 12 hours, including weekends. Failure to comply may result in an order to stop work and open all traffic lanes and/or in the Department taking appropriate action to safely control traffic. The entire cost to control traffic, accrued by the Department due to the Contractor's noncompliance, will be deducted from moneys due, or to become due the Contractor on his contract.

The Contractor shall be responsible for 24-hour-per-day operation and maintenance of these signs on the project for the duration of the phases when the plan requires their use.

Payment for the above described item shall be at the contract unit price. Payment shall include all labor, materials, equipment, fuels, lubricating oils, software, hardware and incidentals to perform the above described work.

Item 614, Portable Changeable Message Sign, as per plan ..... **2 Sign Month(s)**
Assuming 2 PCMS Sign(s) for 1 Month(s)

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SHEET NUM.												PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
8	9	10	11	13	14	17	18	19	20	21		01/NHS/PV							
																		ROADWAY	
						150	709					859		209	60201	859	STA	LINEAR GRADING, AS PER PLAN	9
							7.56					7.56		209	72051	7.56	MILE	PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN	9
	1											1		623	39501	1	EACH	MONUMENT BOX ADJUSTED TO GRADE, AS PER PLAN	9
																		EROSION CONTROL	
												1,000		832	30000	1,000	EACH	EROSION CONTROL	
																		DRAINAGE	
	41											41		611	98631	41	EACH	CATCH BASIN ADJUSTED TO GRADE, AS PER PLAN	9
	5											5		611	98634	5	EACH	CATCH BASIN RECONSTRUCTED TO GRADE	
	54											54		611	99151	54	EACH	INLET ADJUSTED TO GRADE, AS PER PLAN	9
	6											6		611	99154	6	EACH	INLET RECONSTRUCTED TO GRADE	
	5,000											5,000		SPECIAL	61199820	5,000	LB	MISCELLANEOUS METAL	9
																		PAVEMENT	
	2,225											2,225		251	01000	2,225	SY	PARTIAL DEPTH PAVEMENT REPAIR (441)	
						12,805	8,937	177				21,919		407	20000	21,919	GAL	NON-TRACKING TACK COAT	
						3,557	2,568	50				6,175		424	12000	6,175	CY	FINE GRADED POLYMER ASPHALT CONCRETE, TYPE B	
						18	73					91		617	10101	91	CY	COMPACTED AGGREGATE, AS PER PLAN	10
		4.65										4.65		618	40601	4.65	MILE	RUMBLE STRIPS, (ASPHALT CONCRETE), AS PER PLAN	10
		1.75										1.75		618	44000	1.75	MILE	CENTER LINE, RUMBLE STRIPE (CONCRETE)	
						5,628	4,578					10,206		875	10000	10,206	LB	LONGITUDINAL JOINT ADHESIVE	
						647	414	61				1,122		897	01010	1,122	SY	PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A, 1/2" TO 1"	
						127,399	88,954	1,712				218,065		897	01011	218,065	SY	PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A, AS PER PLAN, VARIES (0" TO 1")	10
																		TRAFFIC CONTROL	
									843	255		1,098		621	00100	1,098	EACH	RPM	
		830										830		621	54000	830	EACH	RAISED PAVEMENT MARKER REMOVED	
			3									3		632	26501	3	EACH	DETECTOR LOOP, AS PER PLAN	11
									1,378			1,378		644	00400	1,378	FT	CHANNELIZING LINE, 8"	
									116			116		644	00500	116	FT	STOP LINE	
									2,480			2,480		644	00700	2,480	FT	TRANSVERSE/DIAGONAL LINE	
									57			57		644	00900	57	SF	ISLAND MARKING	
									16			16		644	01300	16	EACH	LANE ARROW	
									18.77	1.23		20		646	10010	20	MILE	EDGE LINE, 6"	
									5.96	2.23		8.19		646	10110	8.19	MILE	LANE LINE, 6"	
									4.74	1.02		5.76		646	10200	5.76	MILE	CENTER LINE	
									411			411		646	10310	411	FT	CHANNELIZING LINE, 12"	
									1,415			1,415		646	20504	1,415	FT	DOTTED LINE, 6"	
		LS										LS		SPECIAL	69098400	LS		INVENTORY EXISTING PAVEMENT MARKINGS	10

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GENERAL SUMMARY

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SHEET NUM.												PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
8	9	10	11	13	14	17	18	19	20	21		01/NHS/PV							
																		MAINTENANCE OF TRAFFIC	
					100							100		614	11110	100	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
				50								50		614	13000	50	CY	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
					2							2		614	18601	2	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	14
				8.19								8.19		614	20100	8.19	MILE	WORK ZONE LANE LINE, CLASS I, 642 PAINT	
				8.19								8.19		614	20550	8.19	MILE	WORK ZONE LANE LINE, CLASS III, 642 PAINT	
				5.76								5.76		614	21100	5.76	MILE	WORK ZONE CENTER LINE, CLASS I, 642 PAINT	
				5.76								5.76		614	21550	5.76	MILE	WORK ZONE CENTER LINE, CLASS III, 642 PAINT	
				20								20		614	22100	20	MILE	WORK ZONE EDGE LINE, CLASS I, 642 PAINT	
				20								20		614	22350	20	MILE	WORK ZONE EDGE LINE, CLASS III, 642 PAINT	
				1,789								1,789		614	23200	1,789	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 642 PAINT	
				1,789								1,789		614	23680	1,789	FT	WORK ZONE CHANNELIZING LINE, CLASS III, 642 PAINT	
				1,415								1,415		614	24200	1,415	FT	WORK ZONE DOTTED LINE, CLASS I, 642 PAINT	
				1,415								1,415		614	24610	1,415	FT	WORK ZONE DOTTED LINE, CLASS III, 642 PAINT	
				2,480								2,480		614	25200	2,480	FT	WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I, 642 PAINT	
				2,480								2,480		614	25620	2,480	FT	WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS III, 642 PAINT	
				116								116		614	26200	116	FT	WORK ZONE STOP LINE, CLASS I, 642 PAINT	
				116								116		614	26610	116	FT	WORK ZONE STOP LINE, CLASS III, 642 PAINT	
				16								16		614	30200	16	EACH	WORK ZONE ARROW, CLASS I, 642 PAINT	
				16								16		614	30650	16	EACH	WORK ZONE ARROW, CLASS III, 642 PAINT	
				300								300		630	97800	300	SF	SIGNING, MISC.: ADDITIONAL SIGNS, GROUND MOUNTED, AS DIRECTED BY THE ENGINEER	13
																		INCIDENTALS	
												LS		614	11000	LS		MAINTAINING TRAFFIC	
6												6		619	16011	6	MNTH	FIELD OFFICE, TYPE B, AS PER PLAN	8
												LS		623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
												LS		624	10000	LS		MOBILIZATION	

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GENERAL SUMMARY

GEA-422-9.38

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REF. NO.	SHEET NO.	PLAN SPLIT NO.	STATION TO STATION		LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA	209 LINEAR GRADING, AS PER PLAN	209 PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN		407 NON-TRACKING TACK COAT	424 FINE GRADED POLYMER ASPHALT CONCRETE, TYPE B, 1"			617 COMPACTED AGGREGATE, AS PER PLAN	875 LONGITUDINAL JOINT ADHESIVE	897 PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A, AS PER PLAN, VARIES 10" TO 1")	897 PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A, 1/2" TO 1"	
					FT.	FT.	FT.	FT.	SQ. YD.	STA	MILE		GAL	CY			CY	LB	SY	SY	
			US-422 EASTBOUND																		
		1	400+70.21	411+00.00	1029.79	59.51	35.00	47.26	5406.97	20.60			540.70	150.20			1.59	171.64	5308.08	98.89	
		1	411+00.00	424+00.00	1300.00	35.00	35.00	35.00	5055.56	19.50			505.56	140.44			2.01	216.67	5055.56		
		1	424+00.00	425+00.00	100.00	35.00	37.00	36.00	400.00	1.00			40.00	11.12			0.16	16.67	400.00		
		1	425+00.00	425+88.00	88.00	37.00	37.00	37.00	361.78	0.88			36.18	10.05			0.14	14.67	300.11	61.67	
			BRIDGE NO. GEA-422-0986R																		
		1	428+58.00	429+22.00	64.00	37.00	37.00	37.00	263.12	0.64			26.32	7.31			0.10	10.67	201.45	61.67	
		1	429+22.00	430+18.00	96.00	37.00	33.00	35.00	373.34	0.96			37.34	10.38			0.15	16.00	373.34		
		1	430+18.00	459+87.47	2969.47	33.00	33.00	33.00	10888.06	29.70			1088.81	302.45			4.59	494.92	10888.06		
			US-422 WESTBOUND																		
		1	400+70.21	401+88.95	118.74	50.71	47.00	48.86	644.57	2.38			64.46	17.91			0.19	19.79	560.80	83.77	
		1	401+88.95	405+75.00	386.05	47.00	47.00	47.00	2016.04	7.73			201.61	56.01			0.60	64.35	2016.04		
		1	405+75.00	407+00.00	125.00	47.00	35.00	41.00	569.45	2.50			56.95	15.82			0.20	20.84	569.45		
		1	407+00.00	424+00.00	1700.00	35.00	35.00	35.00	6611.12	28.50			661.12	183.65			2.63	283.34	6611.12		
		1	424+00.00	425+00.00	100.00	35.00	37.00	36.00	400.00	1.00			40.00	11.12			0.16	16.67	400.00		
		1	425+00.00	425+88.00	88.00	37.00	37.00	37.00	361.78	0.88			36.18	10.05			0.14	14.67	300.11	61.67	
			BRIDGE NO. GEA-422-0986L																		
		1	428+58.00	429+22.00	64.00	37.00	37.00	37.00	263.12	0.64			26.32	7.31			0.10	10.67	201.45	61.67	
		1	429+22.00	430+18.00	96.00	37.00	33.00	35.00	373.34	0.96			37.34	10.38			0.15	16.00	373.34		
		1	430+18.00	461+87.47	3169.47	33.00	33.00	33.00	11621.39	31.70			1162.14	322.82			4.90	528.25	11621.39		
			US-422 EB CENTERLINE																		
		1	459+87.47	460+53.06	65.59	33.00	33.00	33.00	240.50	0.66			24.05	6.69			0.11	10.94	240.50		
		1	460+53.06	461+46.56	93.50	33.00	35.00	34.00	353.23				35.33	9.82				15.59	353.23		
		1	461+46.56	464+13.65	267.09	35.00	35.00	35.00	1038.69				103.87	28.86				44.52	1038.69		
		1	464+13.65	466+33.59	219.94	35.00	33.00	34.00	830.89				83.09	23.09				36.66	830.89		
			US-422 WB CENTERLINE																		
		1	461+87.47	466+29.73	442.26	33.00	33.00	33.00	1621.63				162.17	45.05				73.72	1621.63		
			US-422																		
		1	466+29.73	473+36.31	706.58	60.00	30.00	45.00	3532.90				353.29	98.14				117.77	3532.90		
		1	473+36.31	479+91.48	655.17	30.00	30.00	30.00	2183.91				218.40	60.67				109.20	2183.91		
		1	479+91.48	484+85.60	494.12	30.00	40.00	35.00	1921.58				192.16	53.38				82.36	1921.58		
		1	484+85.60	485+36.41	50.81	40.00	52.00	46.00	259.70				25.97	7.22				8.47	259.70		
		1	485+36.41	487+43.00	206.59	52.00	52.00	52.00	1193.64				119.37	33.16				34.44	1193.64		
		1	487+43.00	487+75.50	32.50	52.00	40.00	46.00	166.12				16.62	4.62				5.42	166.12		
		1	487+75.50	492+00.00	424.50	40.00	40.00	40.00	1886.67				188.67	52.41				70.75	1886.67		
		1	492+00.00	496+84.11	484.11	40.00	30.00	35.00	1882.65				188.27	52.30				80.69	1882.65		
		1	496+84.11	552+14.00	5529.89	30.00	30.00	30.00	18432.97				1843.30	512.03				921.65	18432.97		
		1	552+14.00	552+64.00	50.00	30.00	41.00	35.50	197.23				19.73	5.48				8.34	136.87	60.36	
			BRIDGE NO. GEA-422-1226																		
		1	554+84.00	555+34.00	50.00	41.00	30.00	35.50	197.23				19.73	5.48				8.34	136.87	60.36	
		1	555+34.00	578+35.43	2301.43	30.00	30.00	30.00	7671.44				767.15	213.10				383.58	7671.44		
		1	578+35.43	579+35.43	100.00	30.00	28.00	29.00	322.23				32.23	8.96				16.67	322.23		
		1	579+35.43	587+43.68	808.25	28.00	28.00	28.00	2514.56				251.46	69.85				134.71	2467.89	46.67	
			SUSPEND WORK STA. 587+43.68 TO STA. 599+83.68																		
		1	599+83.68	601+25.00	141.32	30.00	30.00	30.00	471.07				47.11	13.09				23.56	421.07	50.00	
		1	601+25.00	602+25.00	100.00	30.00	32.00	31.00	344.45				34.45	9.57				16.67	344.45		
		1	602+25.00	605+00.00	275.00	32.00	32.00	32.00	977.78				97.78	27.17				45.84	977.78		
		1	605+00.00	606+00.00	100.00	32.00	34.00	33.00	366.67				36.67	10.19				16.67	366.67		
		1	606+00.00	686+00.00	8000.00	34.00	34.00	34.00	30222.23				3022.23	839.51				1333.34	30222.23		
		1	686+00.00	692+70.00	670.00	34.00	62.88	48.44	3606.09				360.61	100.17				111.67	3606.09		
SUBTOTALS										150			12805	3557			18	5628	127399	647	
TOTALS CARRIED TO GENERAL SUMMARY										150			12805	3557			18	5628	127399	647	
PLAN SPLIT #1 TOTAL										150			12805	3557			18	5628	127399	647	
PLAN SPLIT #2 TOTAL																					

CALCULATED DAB
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PAVEMENT SUBSUMMARY

GEA-422-9.38

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REF. NO.	SHEET NO.	PLAN SPLIT NO.	STATION TO STATION	LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA	209 LINEAR GRADING, AS PER PLAN	209 PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN		407 NON-TRACKING TACK COAT	424 FINE GRADED POLYMER ASPHALT CONCRETE, TYPE B, 1"			617 COMPACTED AGGREGATE, AS PER PLAN	875 LONGITUDINAL JOINT ADHESIVE	897 PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A, AS PER PLAN, VARIES 10" TO 1")	897 PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A, 1/2" TO 1"	
				FT.	FT.	FT.	FT.	SQ. YD.	STA	MILE		GAL	CY			CY	LB	SY	SY	
			US-422 EB CENTERLINE																	
		1	692+70.00 694+00.00	130.00	33.00	31.00	32.00	462.23	2.60			46.23	12.84			0.21	21.67	462.23		
		1	694+00.00 696+60.00	260.00	31.00	31.00	31.00	895.56	5.20			89.56	24.88			0.41	43.34	895.56		
		1	696+60.00 697+68.00	108.00	31.00	24.00	27.50	330.00				33.00	9.17				18.00	330.00		
		1	697+68.00 753+00.00	5532.00	24.00	24.00	24.00	14752.00	102.21			1475.20	409.78			8.54	922.00	14752.00		
		1	753+00.00 754+50.00	150.00	24.00	28.00	26.00	433.34	3.00			43.34	12.04			0.24	25.00	433.34		
		1	754+50.00 769+32.43	1482.43	28.00	28.00	28.00	4612.01	26.07			461.21	128.12			2.29	247.08	4565.25	46.76	
			SUSPEND WORK STA. 769+32.43 TO STA. 771+89.48																	
		1	771+89.48 774+00.00	210.52	28.00	28.00	28.00	654.96	3.40			65.50	18.20			0.33	35.09	608.29	46.67	
		1	774+00.00 775+00.00	100.00	28.00	26.00	27.00	300.00	2.00			30.00	8.34			0.16	16.67	300.00		
		1	775+00.00 776+75.00	175.00	26.00	26.00	26.00	505.56	3.50			50.56	14.05			0.28	29.17	505.56		
		1	776+75.00 777+75.00	100.00	26.00	24.00	25.00	277.78	2.00			27.78	7.72			0.16	16.67	277.78		
		1	777+75.00 803+22.75	2547.75	24.00	24.00	24.00	6794.00	38.02			679.40	188.73			3.94	424.63	6794.00		
			US-422 WB CENTERLINE																	
		1	692+70.00 696+35.00	365.00	22.15	24.00	23.08	935.82	3.65			93.59	26.00			0.57	60.84	935.82		
		1	696+35.00 769+24.33	7289.33	24.00	24.00	24.00	19438.22	57.34			1943.83	539.96			11.25	1214.89	19398.15	40.07	
			SUSPEND WORK STA. 769+24.33 TO STA. 771+80.12																	
		1	771+80.12 802+00.00	3019.88	24.00	24.00	24.00	8053.02	30.20			805.31	223.70			4.67	503.32	8013.02	40.00	
		1	802+00.00 803+12.28	112.28	24.00	24.27	24.14	301.10	1.13			30.11	8.37			0.18	18.72	301.10		
			US-422																	
		1	803+22.75 806+20.41	297.66	49.65	46.00	47.83	1581.74				158.18	43.94				49.62	1581.74		
		1	806+20.41 820+57.26	1436.85	46.00	46.00	46.00	7343.90				734.39	204.00				239.48	7267.23	76.67	
			SUSPEND WORK STA. 820+57.26 TO STA. 822+82.26																	
		1	822+82.26 834+30.00	1147.74	46.00	46.00	46.00	5866.23				586.63	162.96				191.30	5789.56	76.67	
		1	834+30.00 835+30.00	100.00	46.00	47.50	46.75	519.45	1.00			51.95	14.43			0.16	16.67	519.45		
		1	835+30.00 862+69.45	2739.45	47.50	47.50	47.50	14458.21	27.40			1445.83	401.62			4.23	456.58	14458.21		
		1	862+69.45 864+13.02	143.57	48.00	48.00	48.00	765.71	1.44			76.58	21.27			0.23	23.93	765.71		
		1	864+13.02 864+28.02	15.00	52.00	52.00	52.00	86.67	0.15			8.67	2.41			0.03	2.50		86.67	
			SAFETY EDGE																	
			US-422 EB CENTERLINE																	
		1	460+53.06 466+33.59	580.53	0.50	0.50	0.50	32.26	10.68	0.21			2.25			0.90				
			US-422 WB CENTERLINE																	
		1	461+87.47 466+29.73	442.26	0.50	0.50	0.50	24.58	4.43	0.09			1.71			0.69				
			US-422																	
		1	466+29.73 552+64.00	8634.27	0.50	0.50	0.50	479.69	153.95	2.92			33.32			13.33				
			BRIDGE NO. GEA-422-1226																	
		1	554+84.00 587+43.68	3259.68	0.50	0.50	0.50	181.10	45.92	0.87			12.58			5.04				
			SUSPEND WORK STA. 587+43.68 TO STA. 599+83.68																	
		1	599+83.68 692+70.00	9286.32	0.50	0.50	0.50	515.91	182.72	3.47			35.83			14.34				
SUBTOTALS									709	7.56		8937	2568			73	4578	88954	414	
TOTALS CARRIED TO GENERAL SUMMARY									709	7.56		8937	2568			73	4578	88954	414	
			PLAN SPLIT #1 TOTAL						709	7.56		8937	2568			73	4578	88954	414	
			PLAN SPLIT #2 TOTAL																	

CALCULATED DAB
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PAVEMENT SUBSUMMARY

GEA-422-9.38

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REF. NO.	SHEET NO.	PLAN SPLIT NO.	STATION TO STATION	LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA	209 LINEAR GRADING, AS PER PLAN	209 PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN		407 NON-TRACKING TACK COAT	424 FINE GRADED POLYMER ASPHALT CONCRETE, TYPE B, 1"			617 COMPACTED AGGREGATE, AS PER PLAN	875 LONGITUDINAL JOINT ADHESIVE	897 PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A, AS PER PLAN, VARIES 10" TO 1"	897 PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A, 1/2" TO 1"	
				FT.	FT.	FT.	FT.	SQ. YD.	STA	MILE		GAL	CY			CY	LB	SY	SY	
			EXTRA AREAS																	
		1	SHAW RD. 461+32.04 MED.				CAD AREA	325.93				32.60	9.06					325.93		
		1	BRIDGE NO. GEA-422-1226				CAD AREA	61.12				6.12	1.70						61.12	
		1	MUMFORD RD. 697+08.00 MED.				CAD AREA	217.56				21.76	6.05					217.56		
			MEDIAN CROSSOVERS																	
		1	STA. 703+99				CAD AREA	77.40				7.74	2.15					77.40		
		1	STA. 708+35				CAD AREA	58.16				5.82	1.62					58.16		
		1	STA. 722+31				CAD AREA	358.44				35.85	9.96					358.44		
		1	STA. 738+81				CAD AREA	85.21				8.53	2.37					85.21		
		1	STA. 745+34				CAD AREA	64.87				6.49	1.81					64.87		
		1	STA. 748+02				CAD AREA	52.62				5.27	1.47					52.62		
		1	STA. 761+92				CAD AREA	49.01				4.91	1.37					49.01		
		1	STA. 762+98				CAD AREA	71.49				7.15	1.99					71.49		
		1	STA. 773+52				CAD AREA	52.13				5.22	1.45					52.13		
		1	STA. 776+17				CAD AREA	99.47				9.95	2.77					99.47		
		1	STA. 781+52				CAD AREA	50.53				5.06	1.41					50.53		
		1	STA. 790+10				CAD AREA	57.70				5.77	1.61					57.70		
		1	STA. 793+65				CAD AREA	50.66				5.07	1.41					50.66		
		1	STA. 795+25				CAD AREA	40.36				4.04	1.13					40.36		
SUBTOTALS												177	50					1712	61	
TOTALS CARRIED TO GENERAL SUMMARY												177	50					1712	61	
PLAN SPLIT #1 TOTAL												177	50					1712	61	
PLAN SPLIT #2 TOTAL																				

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PAVEMENT SUBSUMMARY

GEA-422-9.38

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SHEET NO.	PLAN SPLIT NO.	LOCATION	STATION FROM	STATION TO	646 EDGE LINE, 6", WHITE	646 EDGE LINE, 6", YELLOW	646 LANE LINE, 6"	646 CENTER LINE	646 CHANNELIZING LINE, 12"	646 DOTTED LINE, 6"	644 CHANNELIZING LINE, 8"	644 STOP LINE		644 TRANSVERSE/DIAGONAL LINE, YELLOW	644 ISLAND MARKING	644 LANE ARROW		621 RPM (YELLOW/YELLOW)	621 RPM (WHITE/RED)	621 RPM (WHITE)
			FROM	TO	FT	FT	MILE	MILE	FT	FT	FT	FT		FT	SF	EACH		EACH	EACH	EACH
	1	US-422 EASTBOUND	400+70.21	401+49.59	80	159	0.02		80										2	2
	1		401+49.59	402+60.00	111	111	0.03		221										6	2
	1		402+60.00	411+00.00	840	840	0.16			840										11
	1		411+00.00	459+87.47	4888	4888	0.93													62
	1	US-422 WESTBOUND	400+70.21	401+25.00	55	55	0.02		110										3	2
	1		401+25.00	407+00.00	575	575	0.11			575										8
	1		407+00.00	461+87.47	5488	5392	1.04				11								1	69
	1	US-422 EASTBOUND CENTERLINE	459+87.47	460+91.02	81	104	0.02													2
	1	SHAW RD.	460+91.02	461+29.55	52			0.01				68						2		
	1		461+29.55	466+33.59	505	455												6	7	
	1	US-422 WESTBOUND CENTERLINE	461+87.47	464+43.47	256	256		0.01			256					3		4	7	
	1		464+43.47	466+29.73	187	187		0.04						201				5		
	1	US-422	466+29.73	468+67.00	475	475		0.05						227				7		
	1		468+67.00	473+36.31	939			0.18										12	5	
	1		473+36.31	479+91.48	1311			0.13										9		
	1	HIGHLAND DR.	479+91.48	485+47.00	1112			0.22						131				15		
	1		485+47.00	486+47.00	200			0.04			100	24		102		2		3	3	16
	1	GREAT LAKES PARKWAY	486+47.00	487+75.00	177										57					
	1		487+75.00	491+88.76	828			0.08			411	24				3		6	11	16
	1		491+88.76	497+60.00	1143			0.22						147				15		
	1		497+60.00	515+16.00	3512			0.34										23		16
	1	RAPIDS RD.	515+16.00	515+88.00	60															
	1	SUSPEND WORK STA. 587+43.68	515+88.00	587+43.68	14312			1.36										90		16
	1	RESUME WORK STA. 599+83.68	599+83.68	601+80.00	393			0.04										3		
	1	NASH RD.	601+80.00	602+77.00	236															
	1		602+77.00	638+70.00	7078			0.69										46		
	1	JUG ST.	638+70.00	639+55.00	75															
	1		639+55.00	686+65.00	9420			0.90										60	5	
	1		686+65.00	692+70.00	915			0.23						682				16		
	1	US-422 EASTBOUND CENTERLINE	692+70.00	694+25.00	155			0.03						221				2		
	1		694+25.00	694+85.00	60	60														
	1		694+85.00	696+85.00	200	150					200					3			5	
	1	MUMFORD RD.	696+85.00	697+45.54	18															
	1	SUSPEND WORK STA. 769+32.43	697+45.54	769+32.43	7187	7187	1.37												91	
	1	RESUME WORK STA. 771+89.48	771+89.48	803+22.74	2261	3134	0.60												40	
	1	US-422 WESTBOUND CENTERLINE	692+70.00	696+31.00		351		0.01												
	1	MUMFORD RD.	696+31.00	697+15.00		5														
	1		697+15.00	701+50.00		424					400					5				
	1		701+50.00	709+50.00				0.16						769						
	1		709+50.00	713+40.00		390														
	1	SUSPEND WORK STA. 769+24.33	713+40.00	769+24.33		5585	1.06												70	
	1	RESUME WORK STA. 771+80.12	771+80.12	803+12.25		3133	0.60												41	
SUBTOTALS					65185	33916	5.96	4.74	411	1415	1378	116		2480	57	16		324	297	222
TOTALS CARRIED TO GENERAL SUMMARY					18.77 MI		5.96	4.74	411	1415	1378	116		2480	57	16		843		
PLAN SPLIT #1 TOTAL					18.77 MI		5.96	4.74	411	1415	1378	116		2480	57	16		843		
PLAN SPLIT #2 TOTAL																				

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PAVEMENT MARKING SUBSUMMARY

GEA-422-9.38

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SHEET NO.	PLAN SPLIT NO.	LOCATION	STATION FROM	STATION TO	646 EDGE LINE, 6", WHITE	646 EDGE LINE, 6", YELLOW	646 LANE LINE, 6"	646 CENTER LINE	646 CHANNELIZING LINE, 12"	646 DOTTED LINE, 6"	644 CHANNELIZING LINE, 8"	644 STOP LINE		644 TRANSVERSE/DIAGONAL LINE, YELLOW	644 ISLAND MARKING	644 LANE ARROW		621 RPM (YELLOW/YELLOW)	621 RPM (WHITE/RED)	621 RPM (WHITE)
					MILE	MILE	MILE	MILE	FT	FT	FT	FT		FT	SF	EACH		EACH	EACH	EACH
	1	US-422	803+12.25	806+20.41		617	0.12												8	
	1		806+20.41	814+45.00			0.32	0.16										11	22	
	1	CHURCH ST.	814+45.00	815+09.00			0.02												2	
	1		815+09.00	816+72.00			0.07	0.04										3	5	
	1	MILL ST.	816+72.00	817+32.00			0.02												2	
	1	NORTON/SUSPEND WORK STA. 820+57.26	817+32.00	820+57.26			0.13	0.07										5	9	16
	1	RESUME WORK STA. 822+82.26	822+82.26	845+90.00	1162		0.88	0.44										30	59	16
	1	GRAND RIVER DR.	845+90.00	846+53.00	63		0.02												2	
	1		846+53.00	847+84.00	131		0.05	0.03										2	4	
	1	FARMINGTON RD.	847+84.00	849+75.00			0.04												3	
	1		849+75.00	864+28.02	1611	2907	0.56	0.28										19	37	
SUBTOTALS					2967	3524	2.23	1.02										70	153	32
TOTALS CARRIED TO GENERAL SUMMARY					1.23 MI		2.23	1.02										255		
PLAN SPLIT #1 TOTAL					1.23 MI		2.23	1.02										255		
PLAN SPLIT #2 TOTAL																				

CALCULATED DAB
CHECKED EMK

PAVEMENT MARKING SUBSUMMARY

GEA-422-9.38

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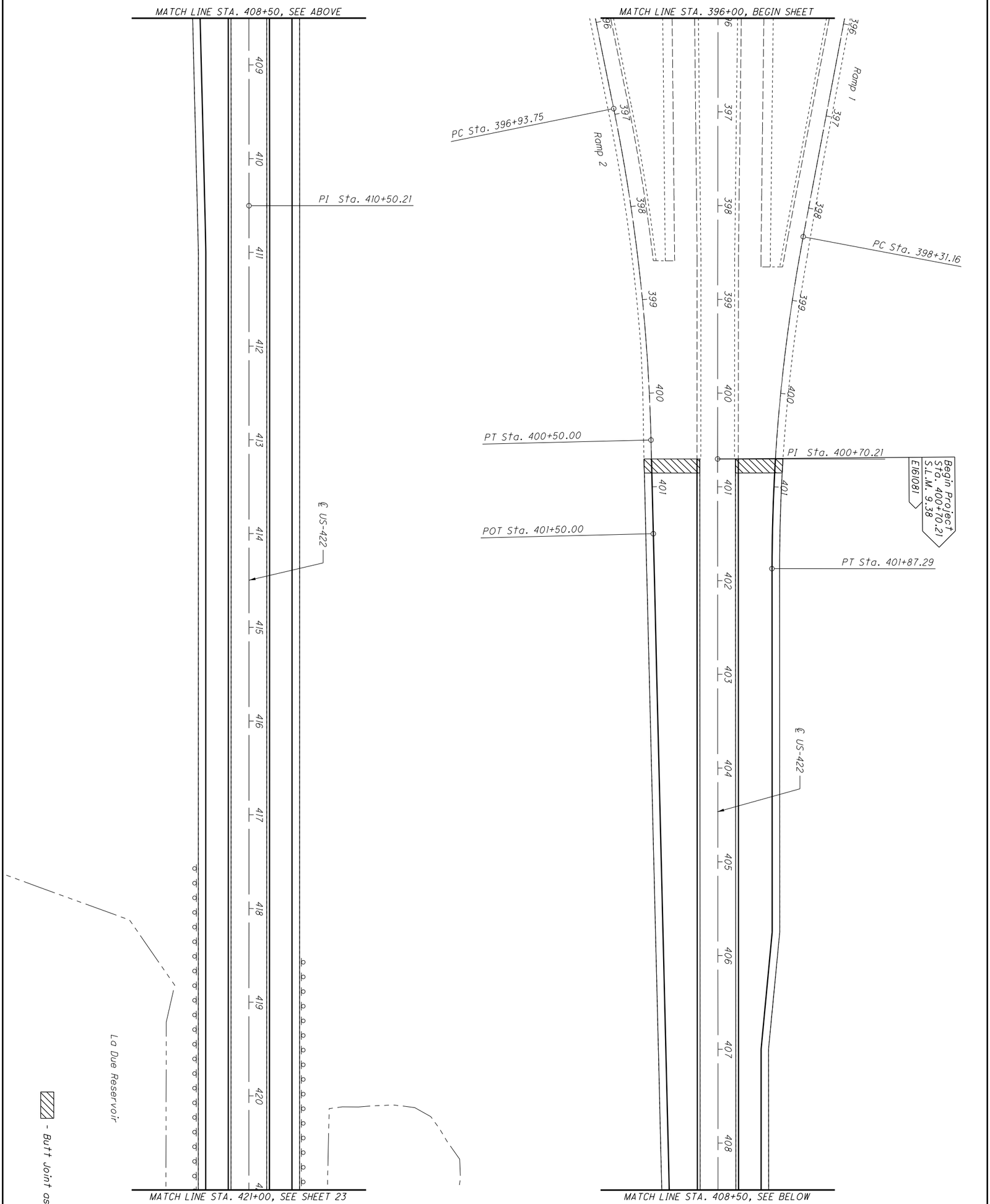
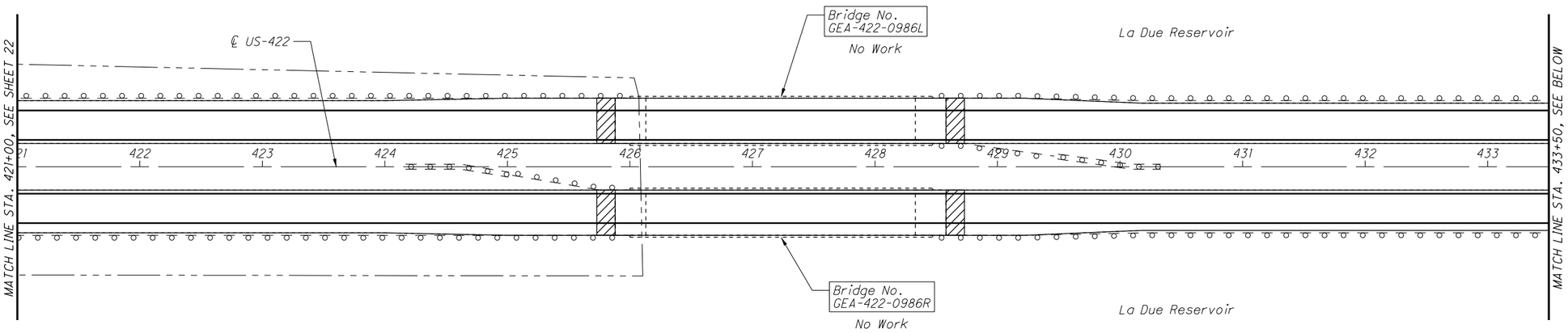
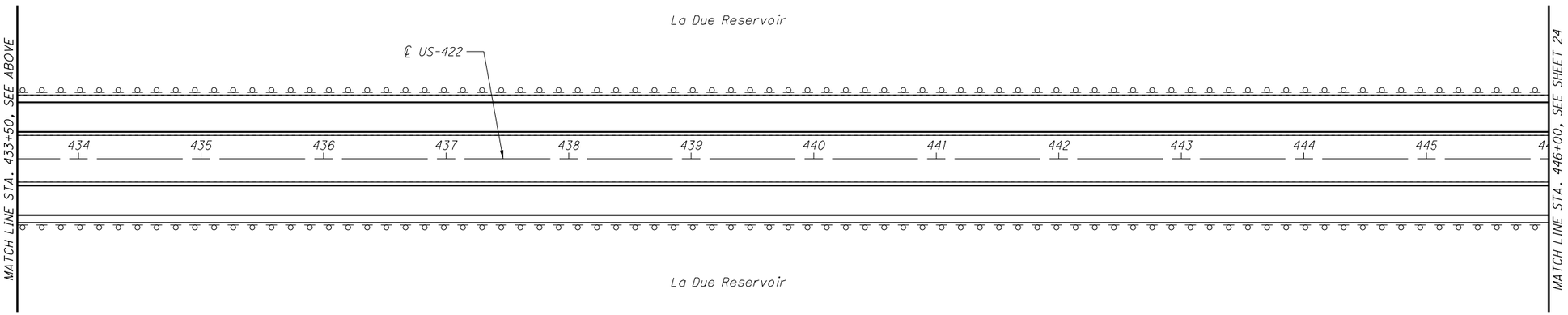
I:\ProjectData\GEA\22221\Design\Roadway\Sheets\22221_GS005.dgn Sheet 2/3/2017 7:32:32 AM dbrauer



22 / 42	GEA-422-9.38	GENERAL PLAN US-422, STA. 400+70.21 TO STA. 421+00	CALCULATED DAB CHECKED EMK	0 50 25 100 HORIZONTAL SCALE IN FEET





▨ - Butt Joint as per SCD BP-3.1

N

0 25 50 100
HORIZONTAL SCALE IN FEET

CALCULATED DAB
CHECKED EMK

GENERAL PLAN
US-422, STA. 421+00 TO STA. 446+00

GEA-422-9.38

23
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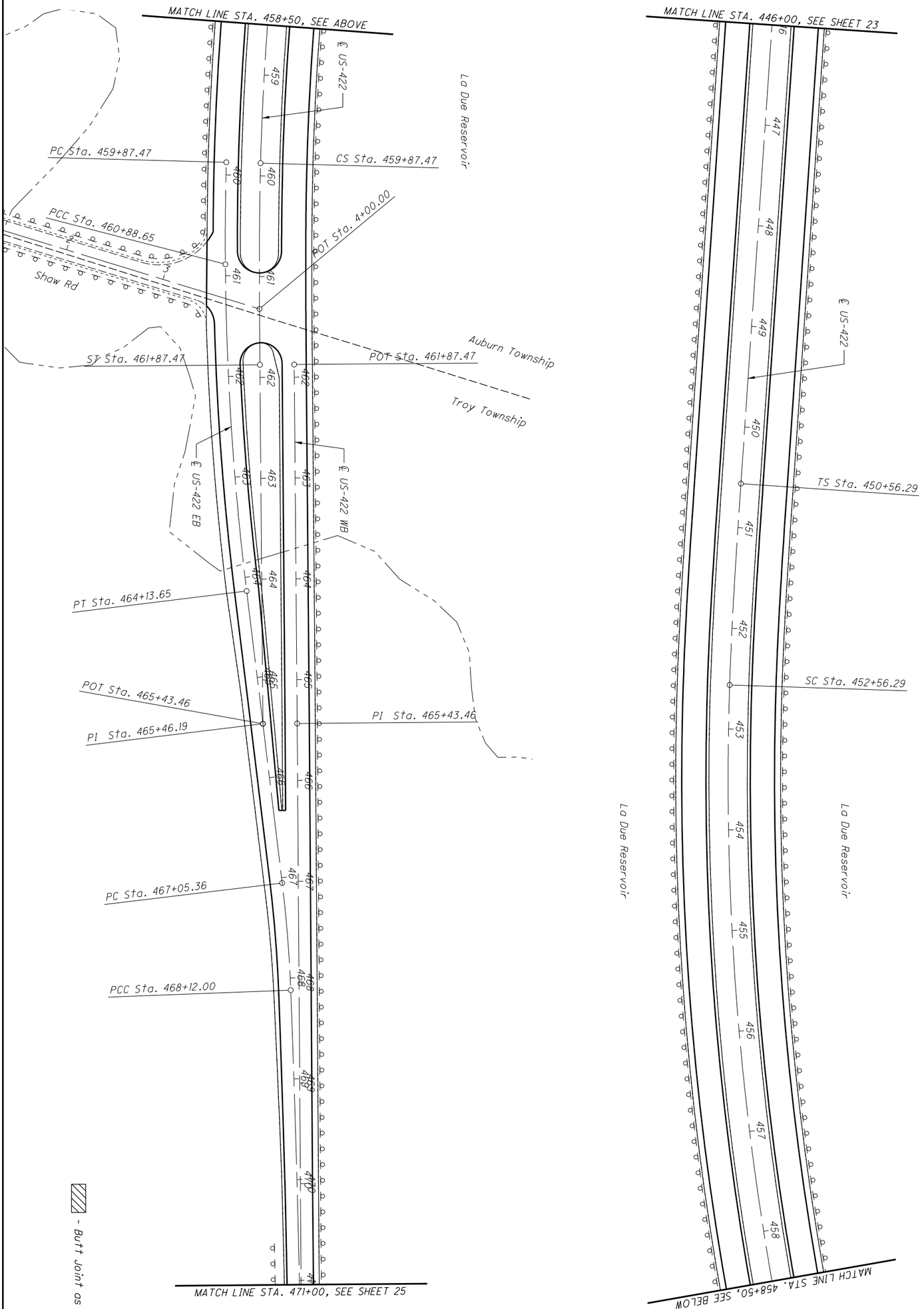

- Butt Joint as per SCD BP-3.1

24/42	GEA-422-9.38	GENERAL PLAN US-422, STA. 446+00 TO STA. 471+00	CALCULATED DAB CHECKED EMK	0 50 25 100 HORIZONTAL SCALE IN FEET

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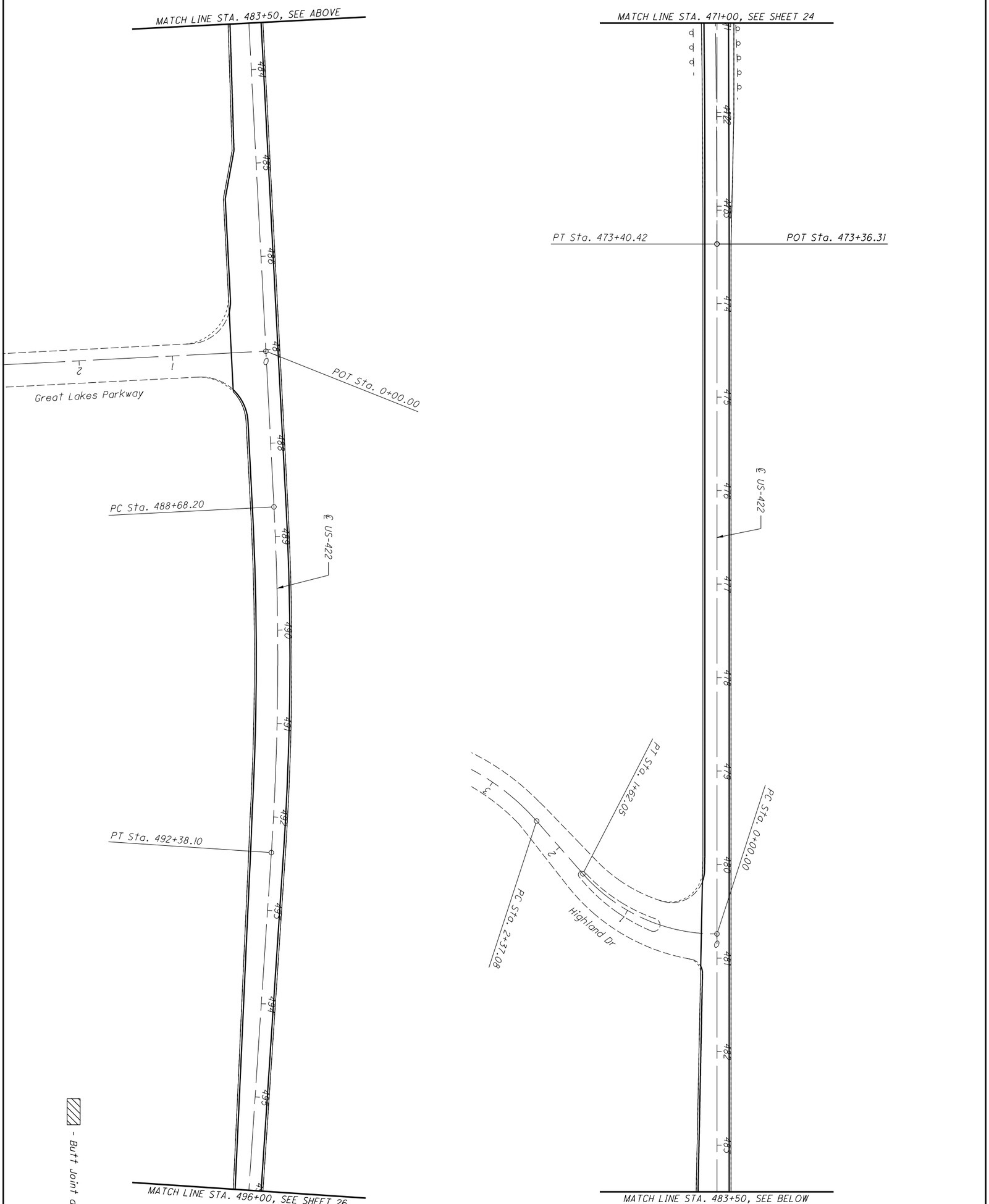

25/42	GEA-422-9.38	GENERAL PLAN US-422, STA. 471+00 TO STA. 496+00	CALCULATED DAB CHECKED EMK	0 50 25 100 HORIZONTAL SCALE IN FEET

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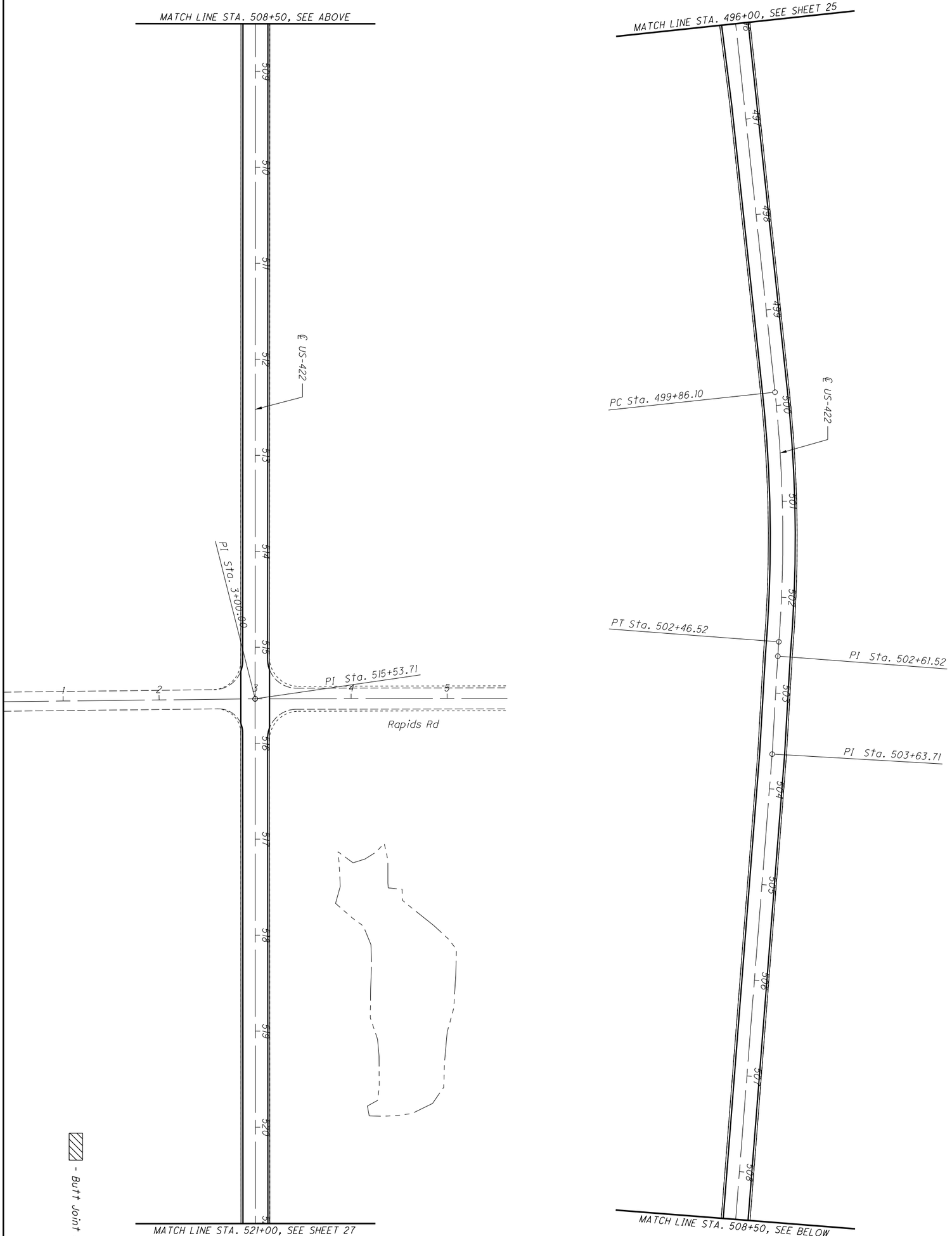
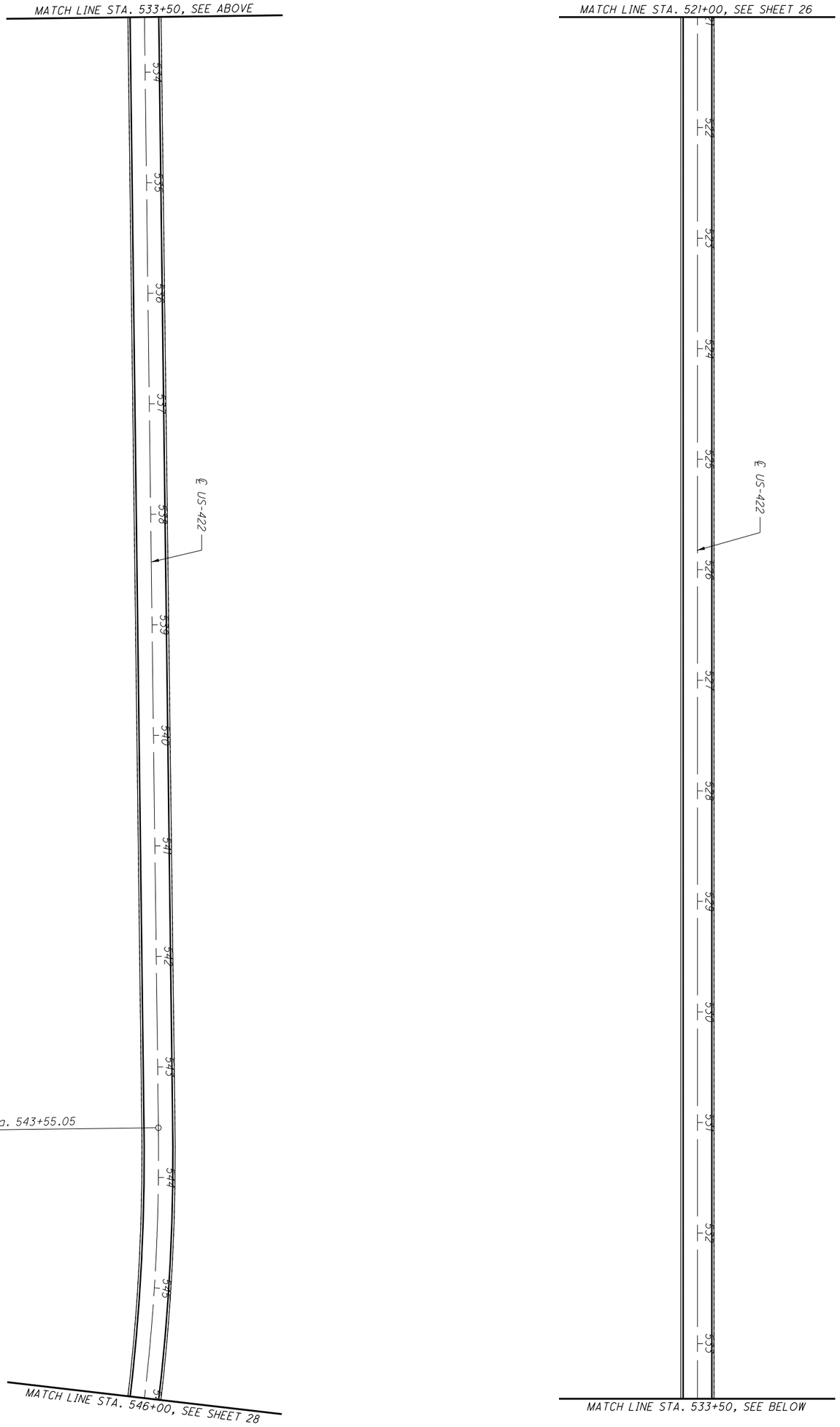
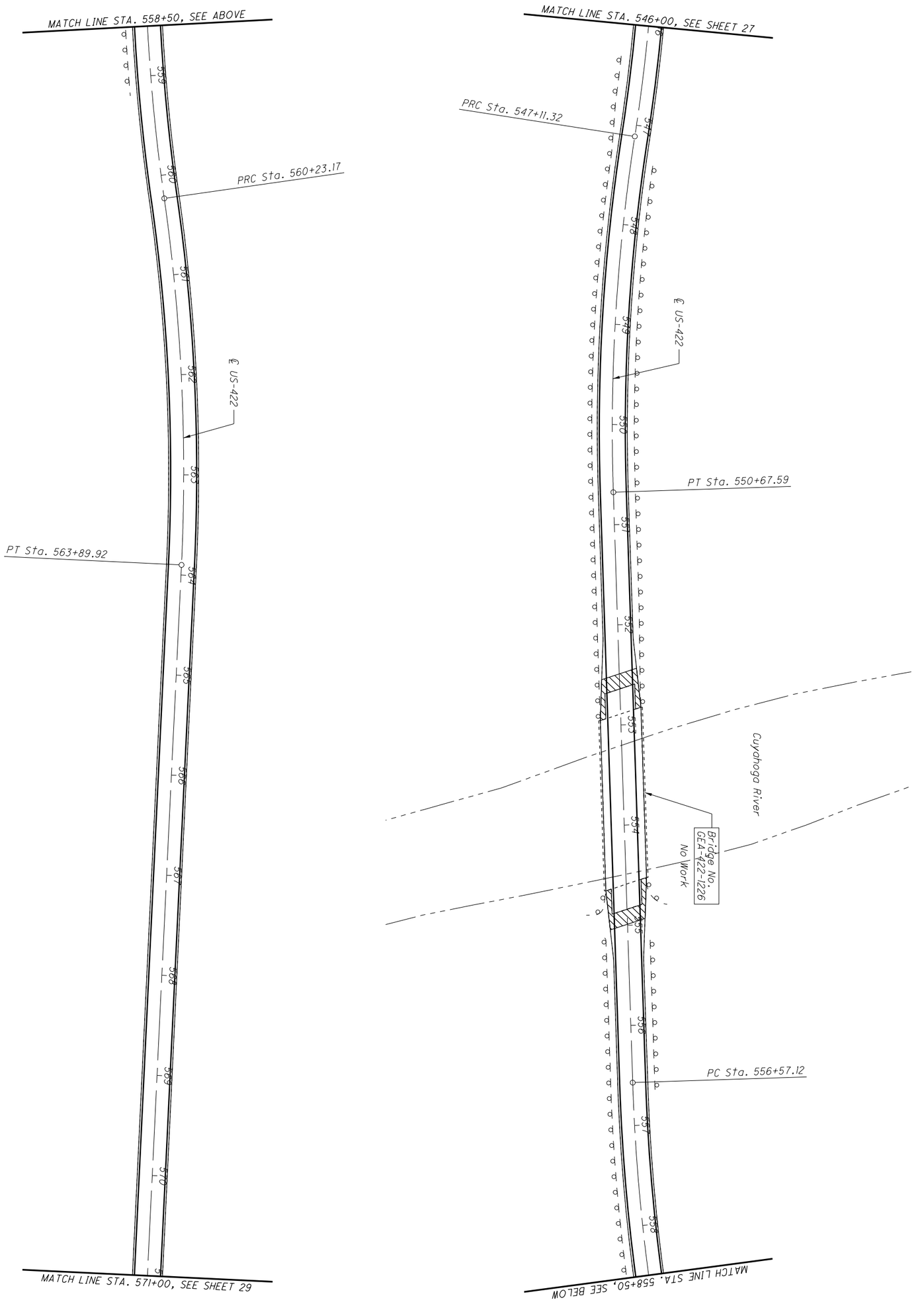


26/42	GEA-422-9.38	GENERAL PLAN US-422, STA. 496+00 TO STA. 521+00	CALCULATED DAB CHECKED EMK	0 50 25 100 HORIZONTAL SCALE IN FEET



27 / 42	GEA-422-9.38	GENERAL PLAN US-422, STA. 521+00 TO STA. 546+00	CALCULATED DAB CHECKED EMK	0 50 25 100 HORIZONTAL SCALE IN FEET



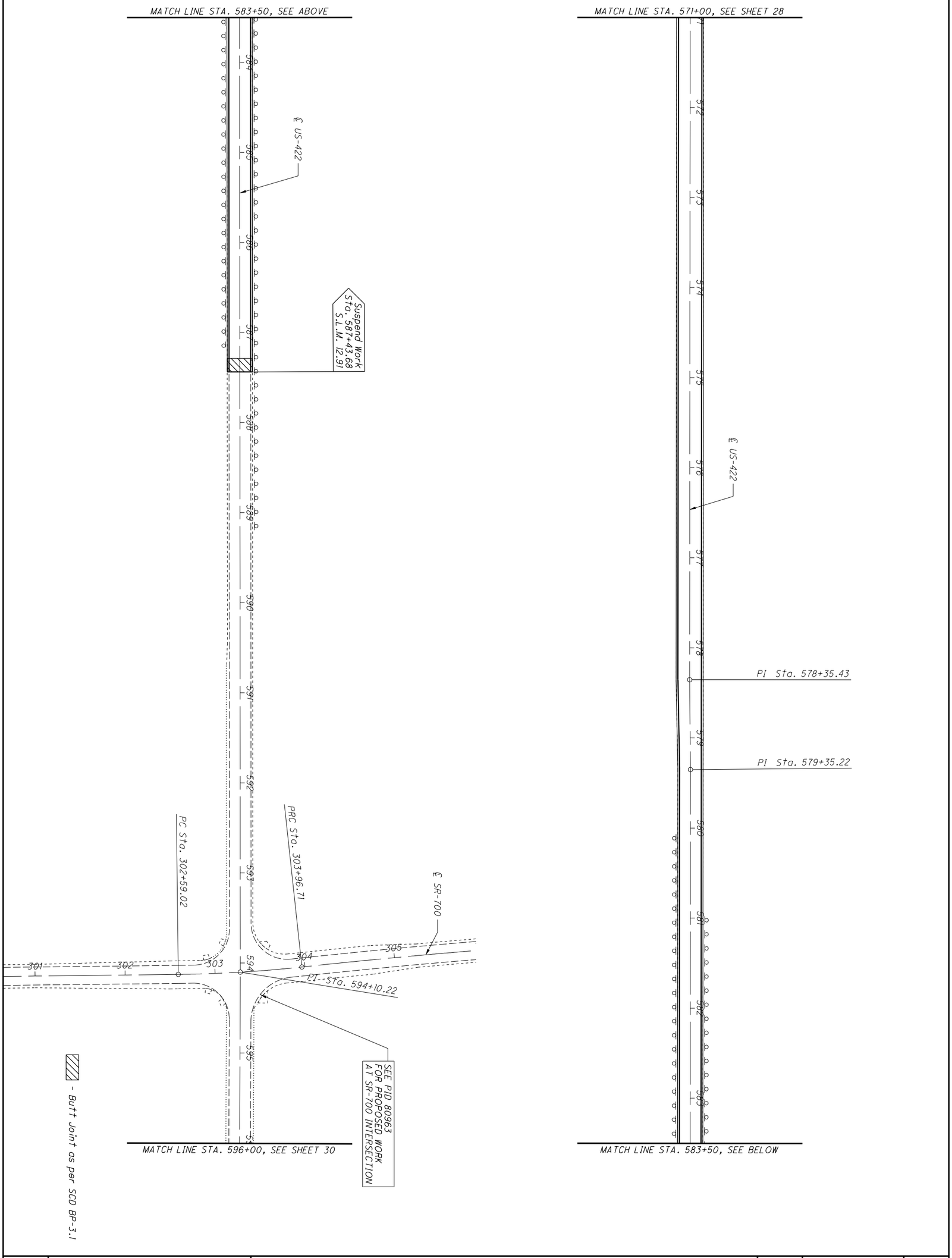
▨ - Butt Joint as per SCD BP-3.1

GEA-422-9.38

GENERAL PLAN
US-422, STA. 546+00 TO STA. 571+00

CALCULATED DAB
CHECKED EMK

0 25 50 100
HORIZONTAL SCALE IN FEET



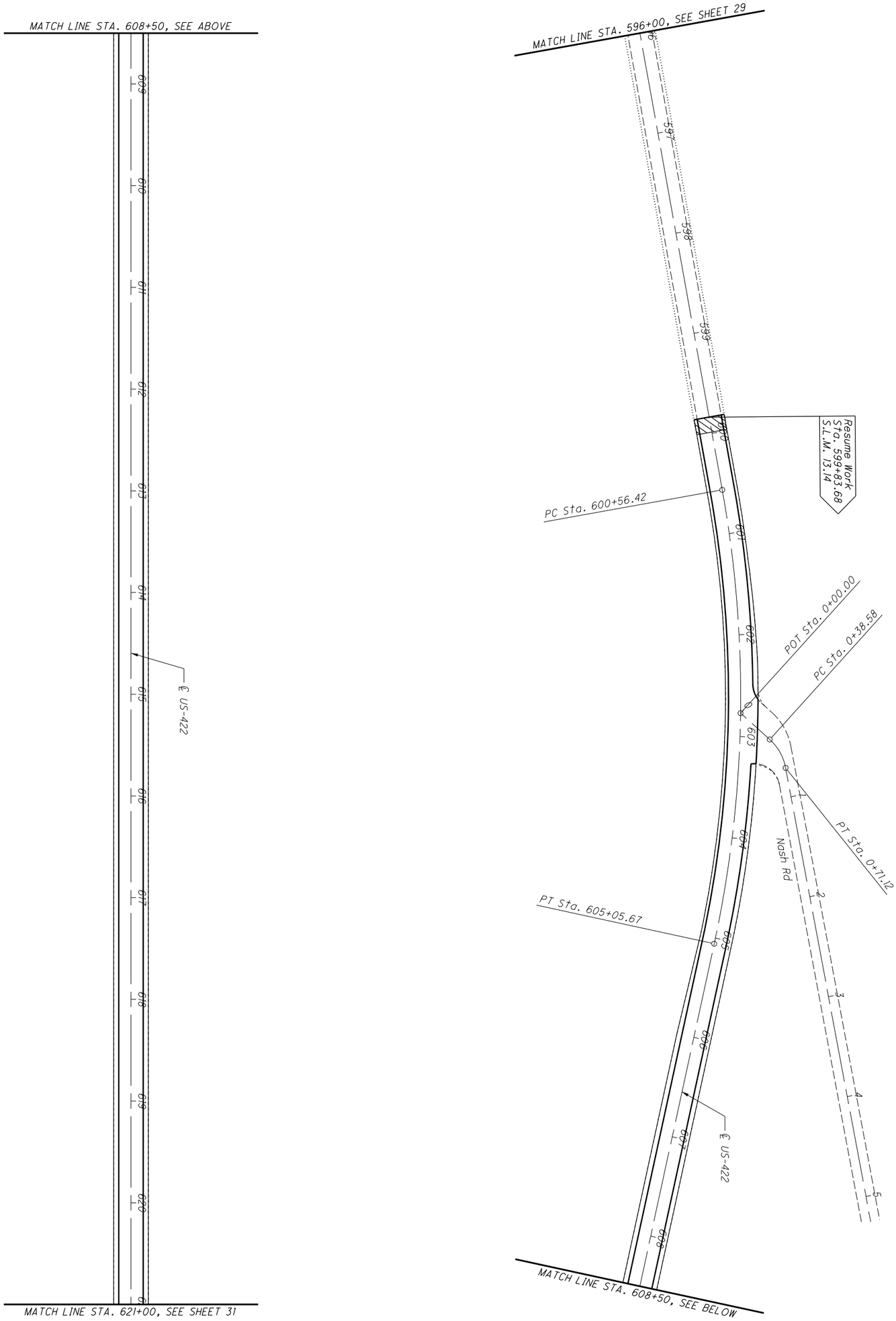
GEA-422-9.38

GENERAL PLAN
US-422, STA. 571+00 TO STA. 596+00

CALCULATED DAB
CHECKED EMK

0 50
25 100
HORIZONTAL SCALE IN FEET

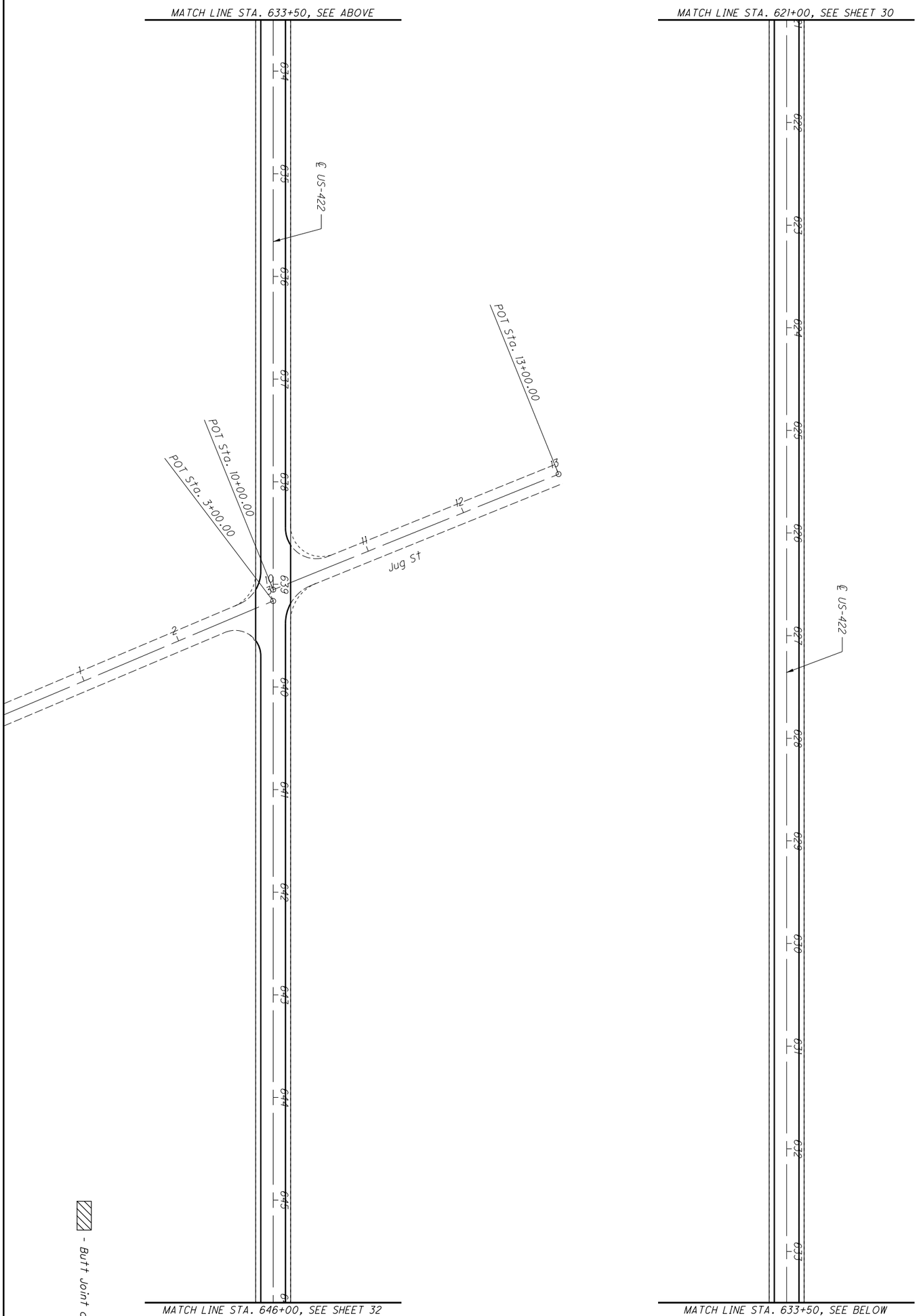
N



- Butt Joint as per SCD BP-3.1

30/42	GEA-422-9.38	GENERAL PLAN US-422, STA. 596+00 TO STA. 621+00	CALCULATED DAB CHECKED EMK	0 50 25 100 HORIZONTAL SCALE IN FEET

I:\ProjectData\GEA\22221\Design\Roadway\Sheets\22221_GP010.dgn Sheet 2/3/2017 7:32:41 AM dbrauer



▨ - Butt Joint as per SCD BP-3.1

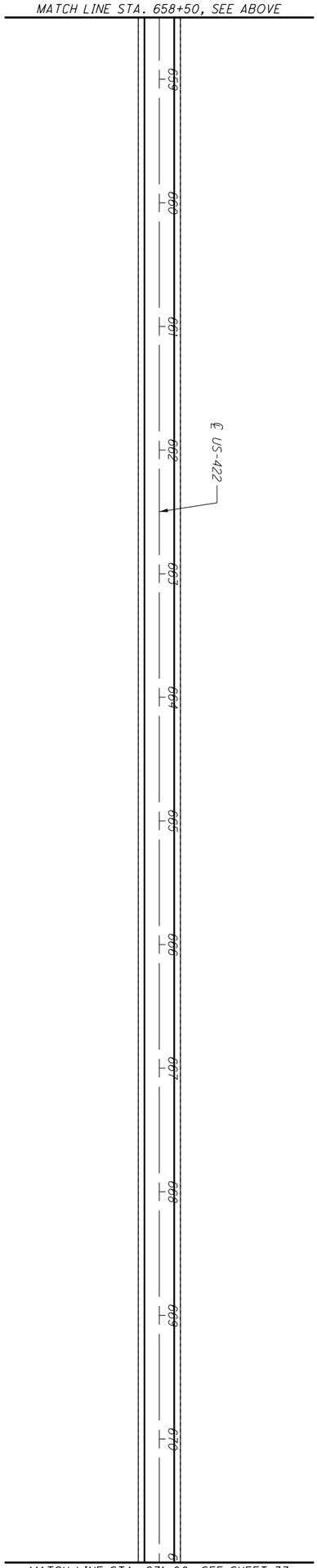
GEA-422-9.38

GENERAL PLAN
US-422, STA. 621+00 TO STA. 646+00

CALCULATED DAB
CHECKED EMK

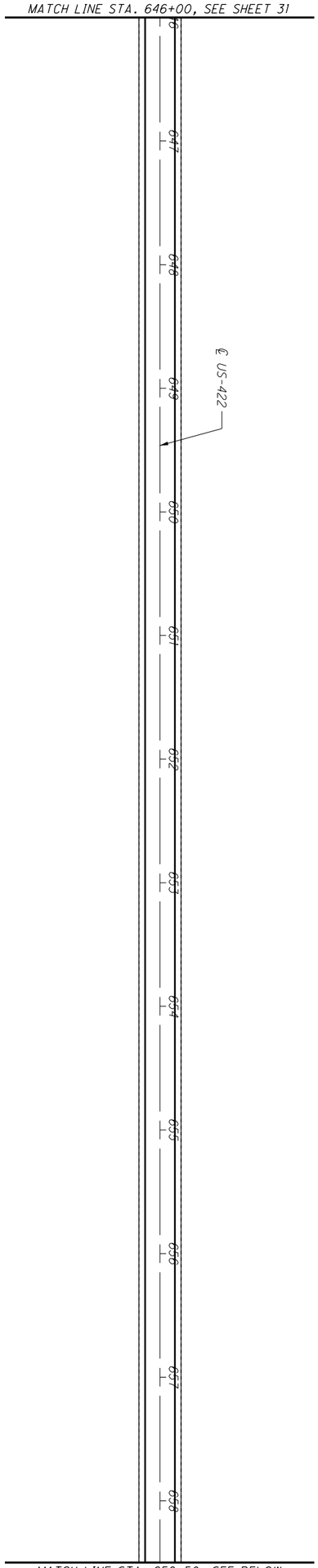
0 25 50 100
HORIZONTAL SCALE IN FEET

MATCH LINE STA. 658+50, SEE ABOVE



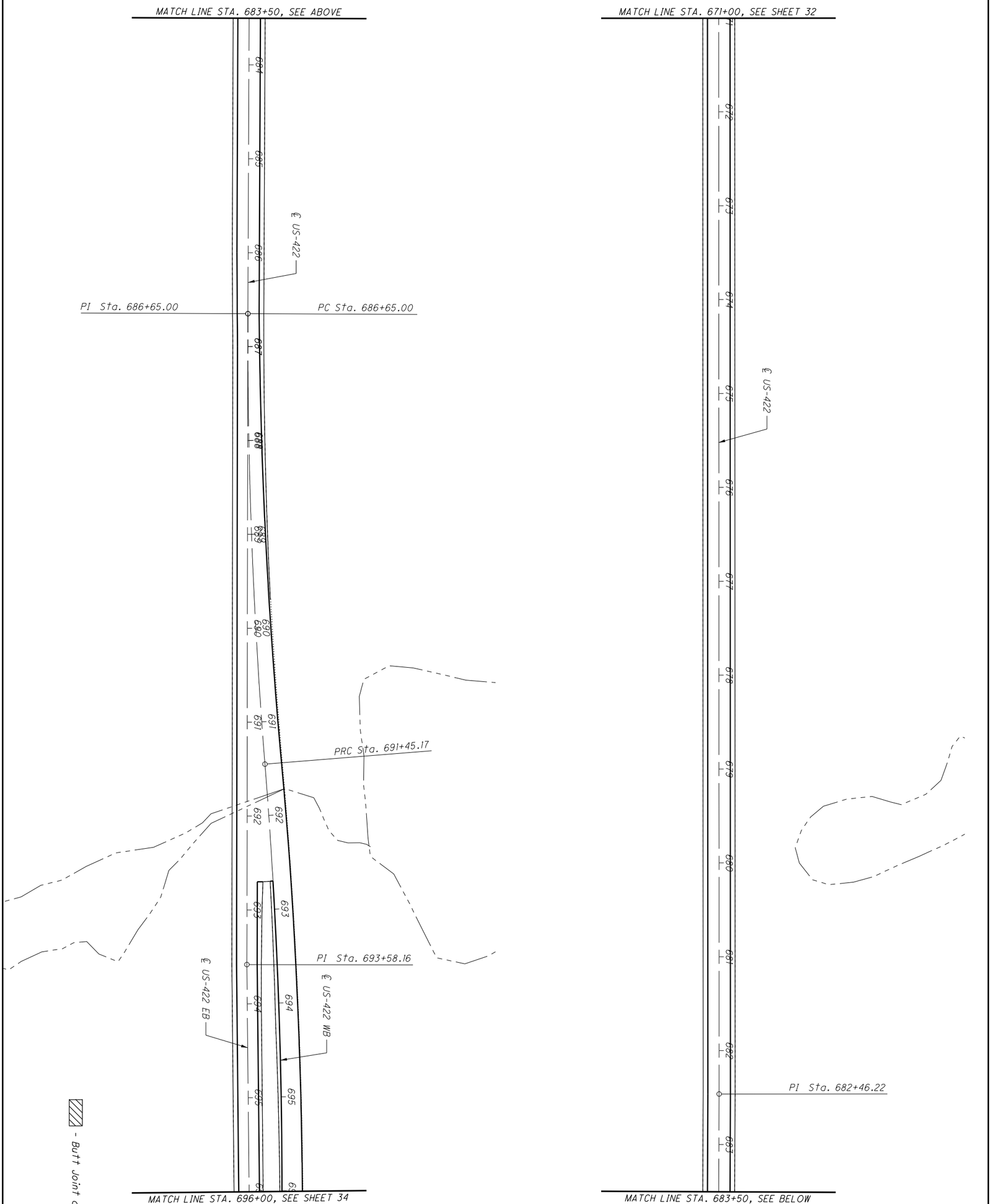
MATCH LINE STA. 671+00, SEE SHEET 33

MATCH LINE STA. 646+00, SEE SHEET 31



MATCH LINE STA. 658+50, SEE BELOW

▨ - Butt Joint as per SCD BP-3.1

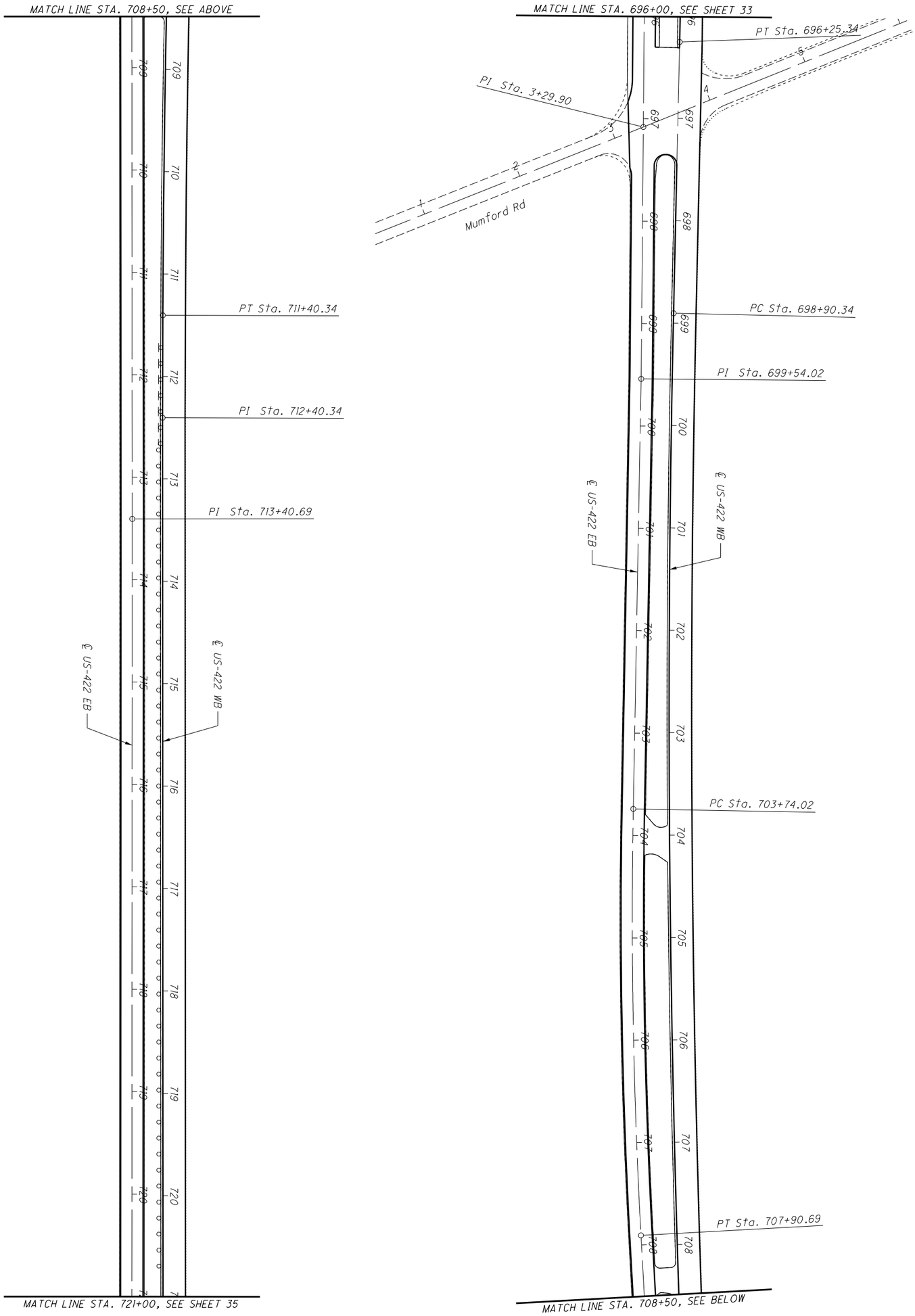


GEA-422-9.38

GENERAL PLAN
US-422, STA. 671+00 TO STA. 696+00

CALCULATED DAB
CHECKED EMK

0 50
25 100
HORIZONTAL SCALE IN FEET



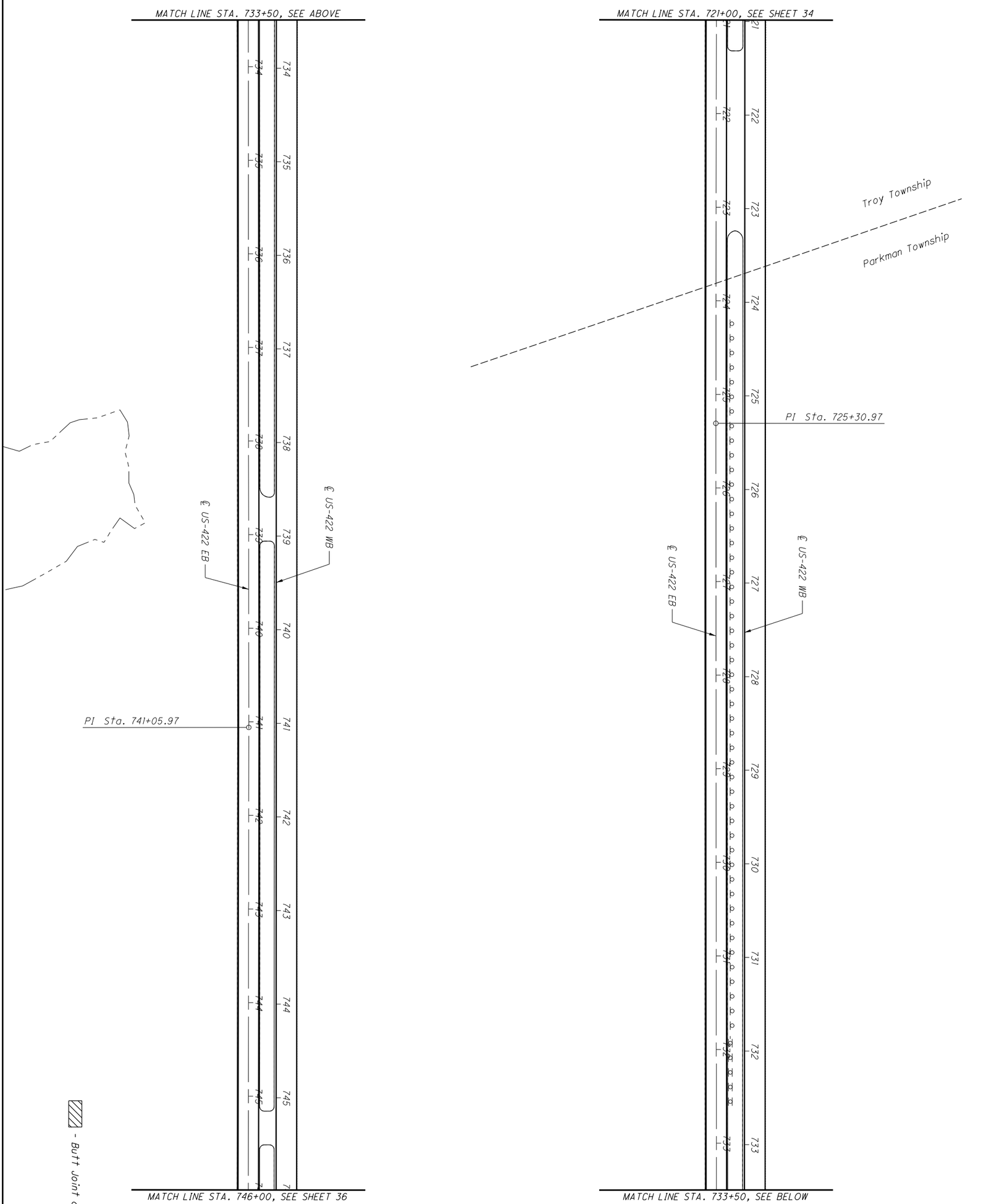
▨ - Butt Joint as per SCD BP-3.1

GEA-422-9.38

GENERAL PLAN
US-422, STA. 696+00 TO STA. 721+00

CALCULATED DAB
CHECKED EMK

0 50
25 100
HORIZONTAL SCALE IN FEET



GEA-422-9.38

GENERAL PLAN
US-422, STA. 721+00 TO STA. 746+00

CALCULATED DAB
CHECKED EMK

0 25 50 100
HORIZONTAL SCALE IN FEET

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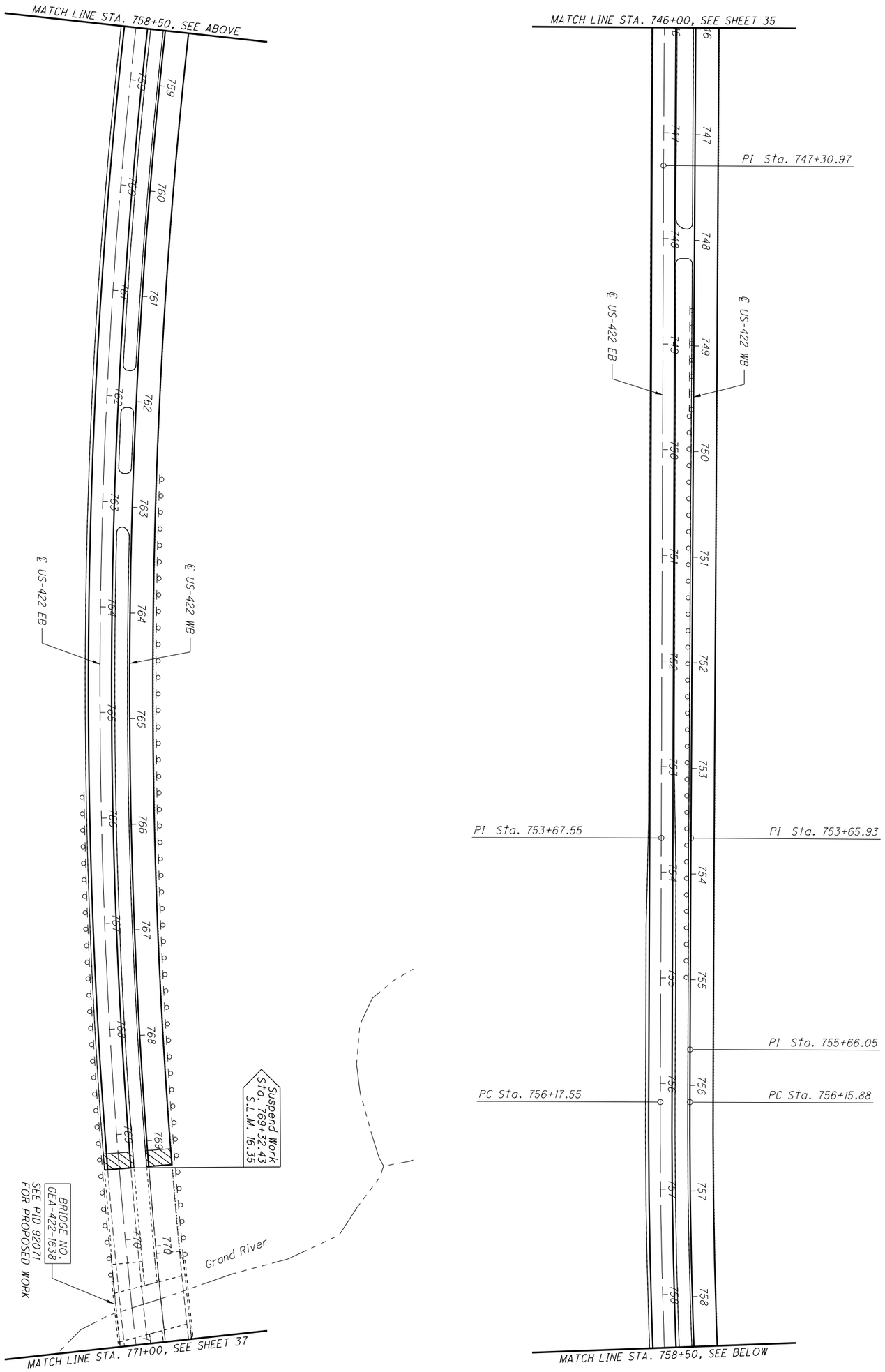
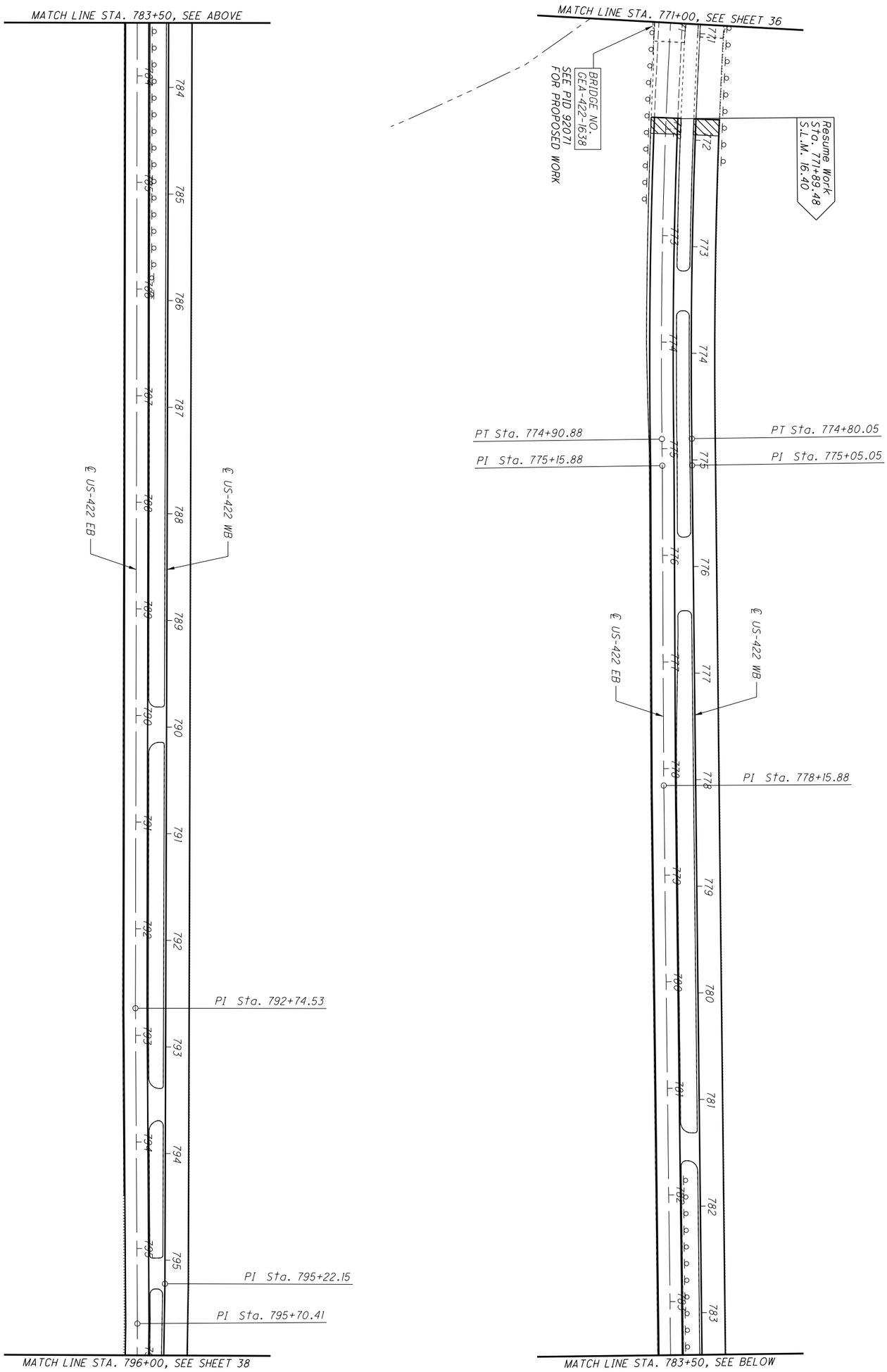


GEA-422-9.38

GENERAL PLAN
US-422, STA. 746+00 TO STA. 771+00

CALCULATED DAB
CHECKED EMK

0 25 50 100
HORIZONTAL SCALE IN FEET



- Butt Joint as per SCD BP-3.1

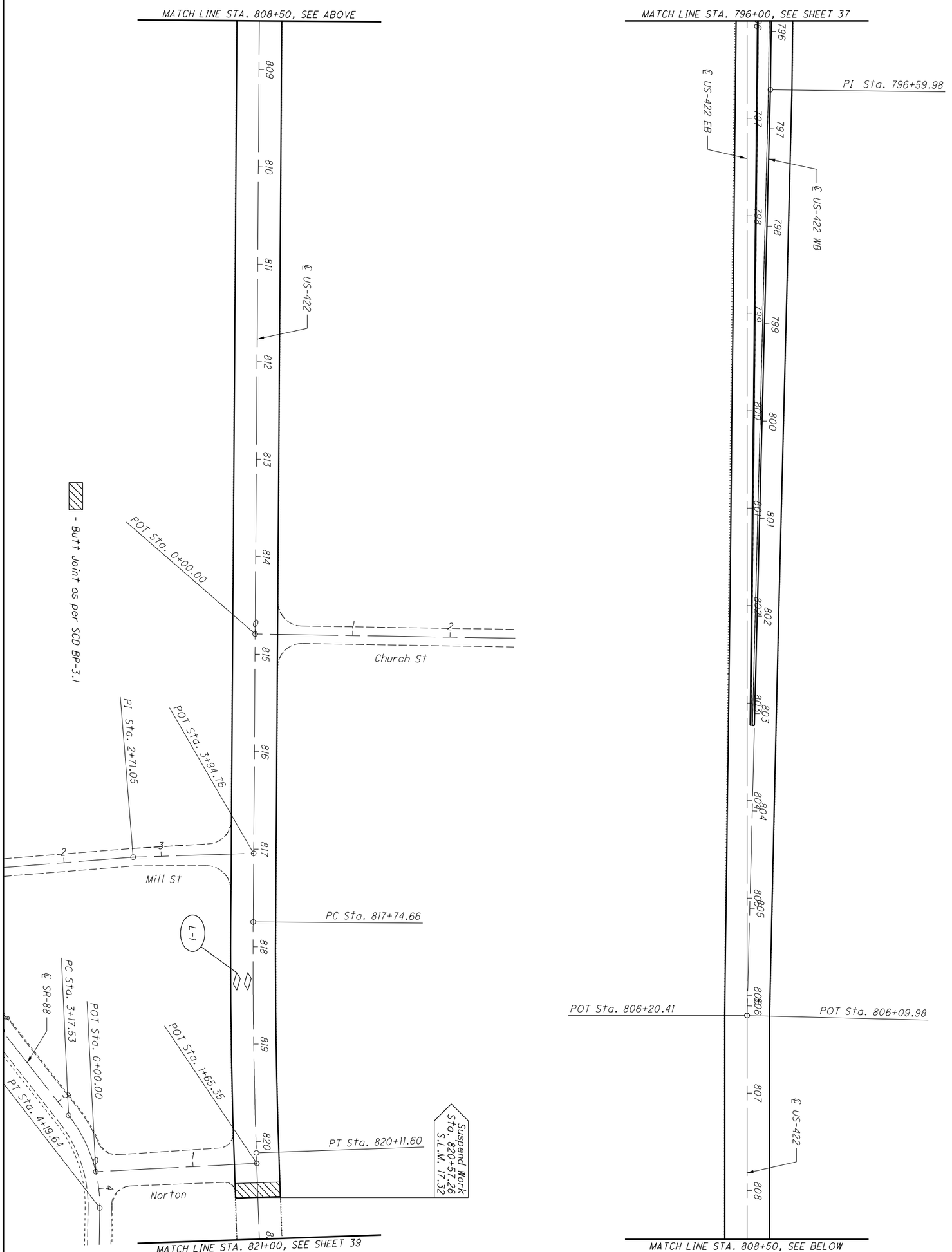
GEA-422-9.38

GENERAL PLAN
US-422, STA. 771+00 TO STA. 796+00

CALCULATED DAB
CHECKED EMK

0 25 50 100
HORIZONTAL SCALE IN FEET

N



GEA-422-9.38

GENERAL PLAN
US-422, STA. 796+00 TO STA. 821+00

CALCULATED DAB
CHECKED EMK

0 25 50 100
HORIZONTAL SCALE IN FEET

N

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N

0 25 50 100
HORIZONTAL SCALE IN FEET

CALCULATED DAB
CHECKED EMK

GENERAL PLAN
US-422, STA. 821+00 TO STA. 846+00

GEA-422-9.38

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED DAB
CHECKED EMK

GENERAL PLAN
US-422, STA. 846+00 TO STA. 871+00

GEA-422-9.38

40
42

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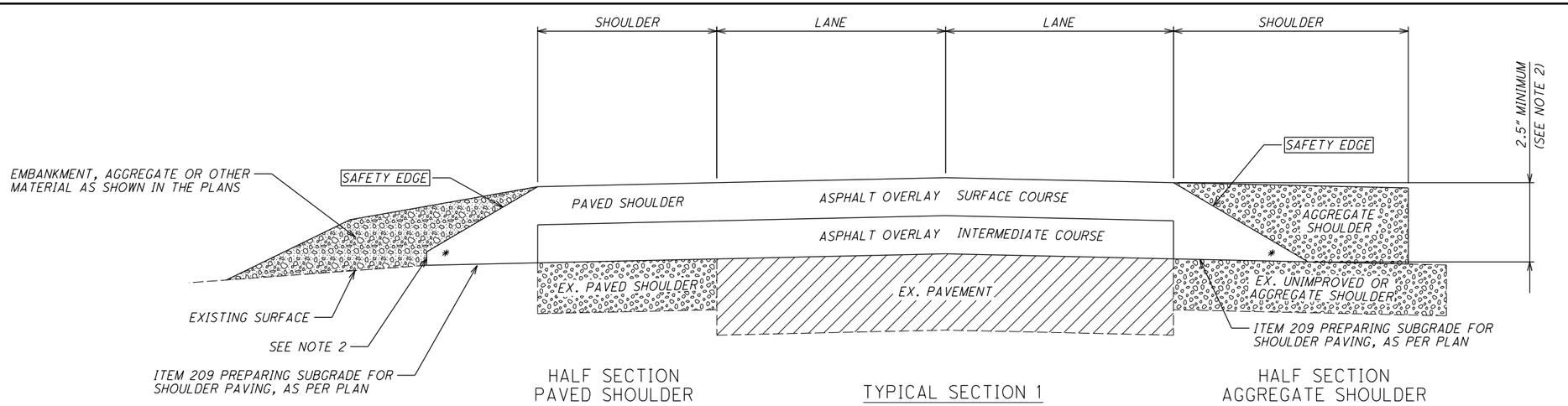
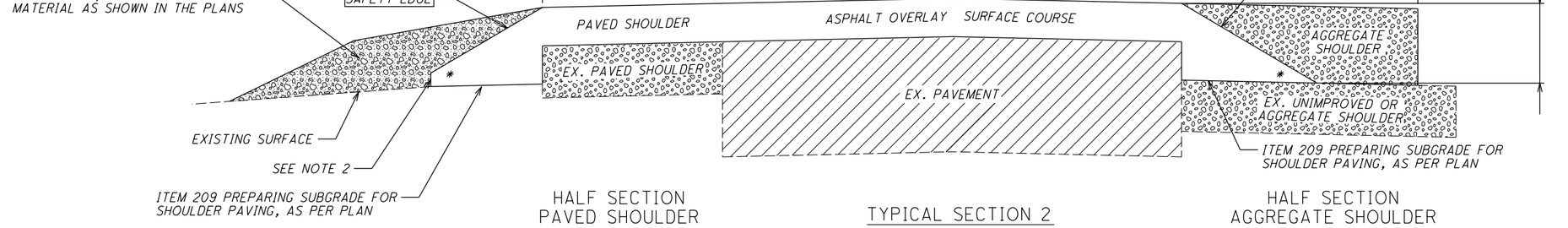


HALF SECTION
PAVED SHOULDER

TYPICAL SECTION 1

N.T.S.

HALF SECTION
AGGREGATE SHOULDER

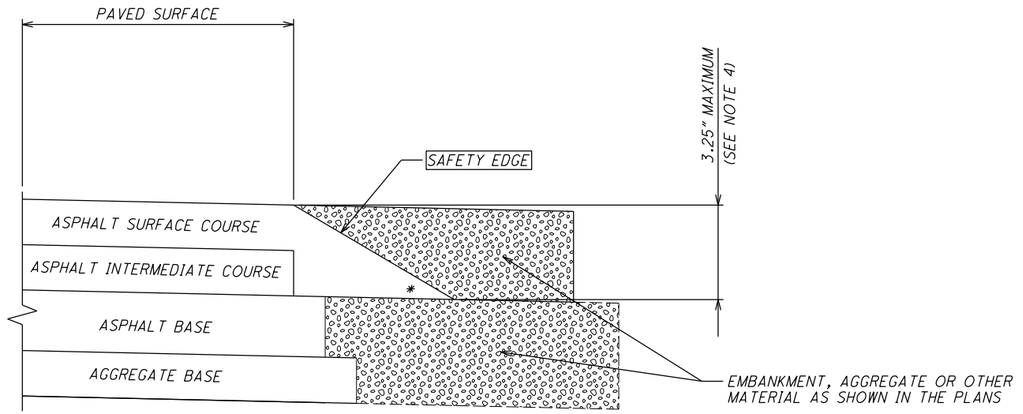


HALF SECTION
PAVED SHOULDER

TYPICAL SECTION 2

N.T.S.

HALF SECTION
AGGREGATE SHOULDER



HALF SECTION
NEW CONSTRUCTION

TYPICAL SECTION 3

N.T.S.

NOTES:

1.) SAFETY EDGES ARE REQUIRED AT THE OUTSIDE EDGES OF THE PAVED ROADWAY (EDGE OF TRAVEL LANE OR EDGE OF PAVED SHOULDER).

2.) CONSTRUCT THE SAFETY EDGE THE FULL ASPHALT CONCRETE OVERLAY THICKNESS OR 2.5" (63MM) WHICHEVER IS GREATER, NOT TO EXCEED THE MAXIMUM SAFETY EDGE THICKNESS OF 6" (150MM). CONSTRUCT A NEAR-VERTICAL FACE BELOW THE SAFETY EDGE FOR THICKNESS GREATER THAN 6" (150 MM).

3.) BLADE AND SHAPE EXISTING SHOULDER MATERIAL TO FORM A UNIFORM SURFACE UNDER THE SAFETY EDGE PRIOR TO PLACEMENT OF THE ASPHALT CONCRETE OVERLAY.

4.) FOR NEW PAVEMENT CONSTRUCT THE SAFETY EDGE THE FULL THICKNESS OF THE SURFACE AND INTERMEDIATE COURSES, NOT TO EXCEED 3.25" (82 MM).

* 40° MAX

CALCULATED DAB
CHECKED EMK

ASPHALT SAFETY EDGE DETAIL

GEA-422-9.38

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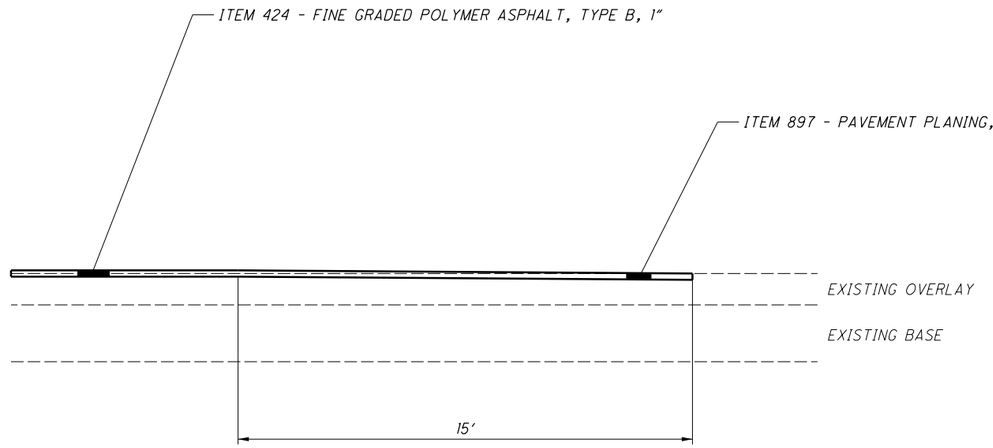

PLANING MEETING EXISTING PAVEMENT

CALCULATED DAB
CHECKED EMK

PAVEMENT DETAILS - TRANSITIONS

GEA-422-9.38

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