



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

J. ERIC BOYETTE  
SECRETARY

July 06, 2023

**Addendum No. 2**

RE: Contract # C204851

WBS # 34497.3.12

STATE FUNDED

**Cleveland County (R-2707D, R-2707E)**

US-74 SHELBY BYPASS FROM EAST OF NC-150 TO WEST OF SR-1001  
(STONE POINT ROAD).

**July 18, 2023 Letting**

To Whom It May Concern:

Reference is made to the plans furnished to you on this project.

The following revisions have been made to the Traffic Management Plans.

Sheet No.	Revision
(R-2707E) TMP-1	Revised Index of Sheets.
(R-2707E) TMP-2A	Revised the TMP sheet references for Temporary Shoring 2 & 3.
(R-2707E) TMP-3	Revised the following phasing – Phase I, Step 1C); Phase I, Steps 3A), 3B), 3C), and 3D); Phase II, Step 3Phase III, Step 2B).
(R-2707E) TMP-6	Added -L- Sta. 852+00 cross-section view detail.
(R-2707E) TMP-8	Removed outside widening on -L- from Sta. 884+50 to 887+25.
(R-2707E) TMP-9	Removed outside widening on -L- from Sta. 887+25 to 896+50 on both sides and from Sta. 896+50 to 898+50 on the right side.
(R-2707E) TMP-17	Removed ongoing outside widening on -L- from Sta. 884+50 to 887+25.
(R-2707E) TMP-18	Removed ongoing outside widening on -L- from Sta. 887+25 to 896+50 on both sides and from Sta. 896+50 to 898+50 on the right side.
(R-2707E) TMP-20, TMP-21	New detail for Phase I, Steps 3A & 3B added.

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RALEIGH, NC 27610

Website: [www.ncdot.gov](http://www.ncdot.gov)

Sheet No.	Revision
(R-2707E) TMP-22	Old sheet TMP-23.
(R-2707E) TMP-23	Old sheet TMP-24.
(R-2707E) TMP-24, TMP-24A (New), TMP-24B (New)	New detail for Phase I, Step 3C. This shows construction of -L- Sta. 884+50 to 896+50 (both sides) and from 896+50 to Sta. 898+50 (right side) while traffic is run up and down the new ramps. Constructing -Y42- Bridge.
(R-2707E) TMP-24C (New), TMP-24D (New), TMP-24E (New)	New detail for Phase I, Step 3D. New traffic pattern and construction of -L- Median Left from Sta. 896+50 to Sta. 909+00.
(R-2707E) TMP-26, TMP-27, TMP-28	Revised detail for Phase II, Step 1: Shows construction of -L- Median Right from Sta. 898+50 to Sta. 909+00.
(R-2707E) TMP-34, TMP-35, TMP-36	Revised Phase III, Step 2 detail. Shows additional median construction, and removed construction that was completed earlier.
(R-2707E) TMP-37, TMP-38	Revised Phase III, Step 2 detail. Removed -L- Median Right work that was constructed in Phase II, Step 2.

Please void the above listed Sheets in your Plans and staple the revised Sheets thereto. Staple New Sheets TMP-24A thru TMP-24-E after revised Sheet TMP-24 in your plans.

The following plan sheets have been added to the Structures Wall Plans.

Sheet No.	Revision
(R-2707D) W-1 thru W-7 (New)	Wall Plan Sheets added.

Staple New Sheets W-1 thru W-7 after existing Sheet NW3A-4 in your plans.

The contract will be prepared accordingly.

Sincerely,

DocuSigned by:  
  
 F81B6038A47A442...

Ronald E. Davenport, Jr., PE  
 State Contract Officer

RED/cms  
 Attachments

cc: Mr. Boyd Tharrington, PE  
Mr. Mark Stafford, PE  
Mr. Ken Kennedy, PE  
Mr. Mike Gwyn  
Project File (2)

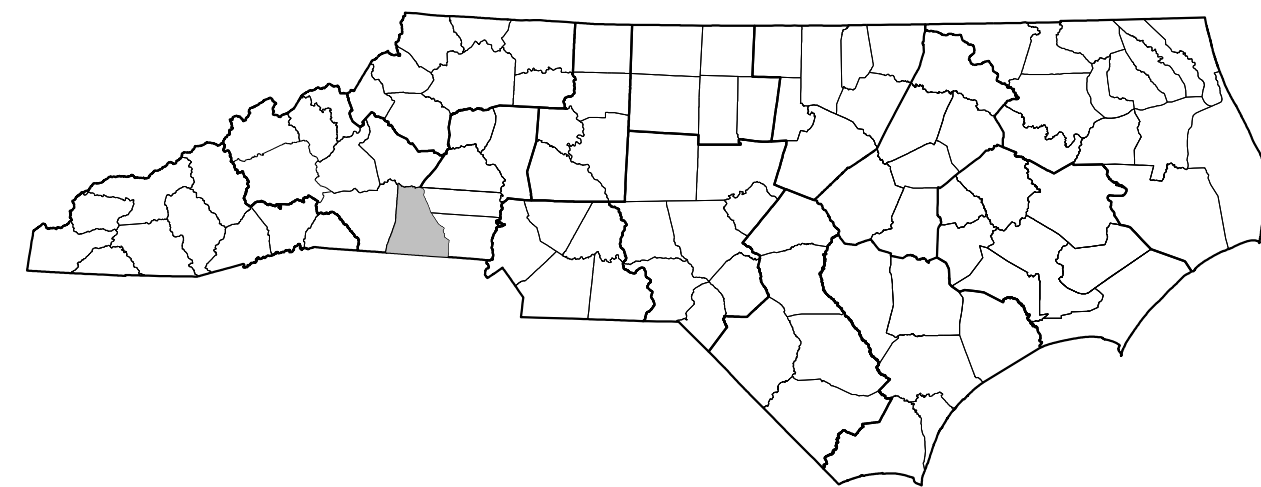
Mr. Forrest Dungan, PE  
Ms. Jaci Kincaid  
Mr. Jon Weathersbee, PE

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

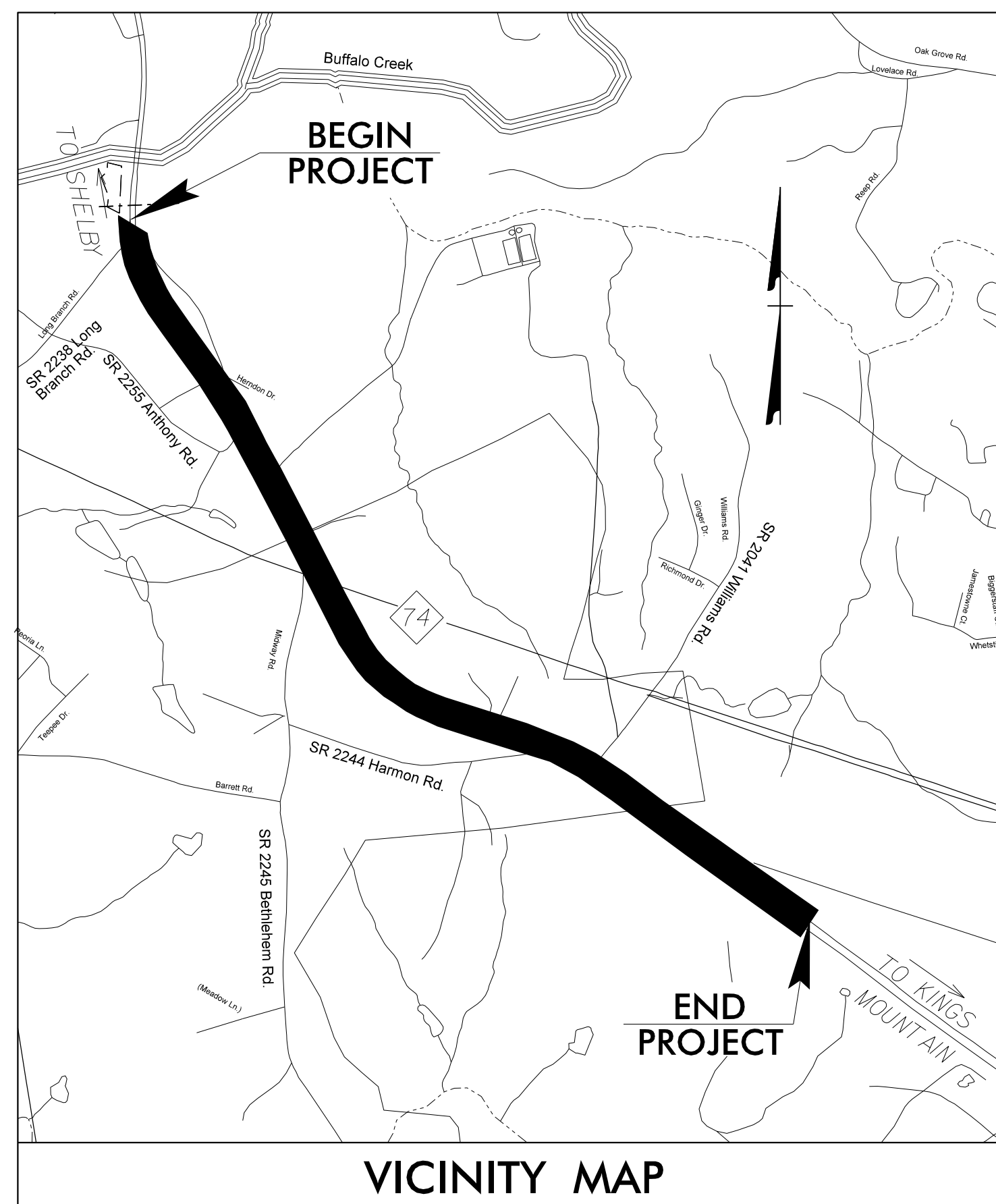
**TRANSPORTATION MANAGEMENT PLAN**

**CLEVELAND COUNTY**

**DIVISION 12**



**US 74 FROM EXISTING US 74 WEST OF SR 2238  
(LONG BRANCH ROAD) TO WEST OF SR 1001**

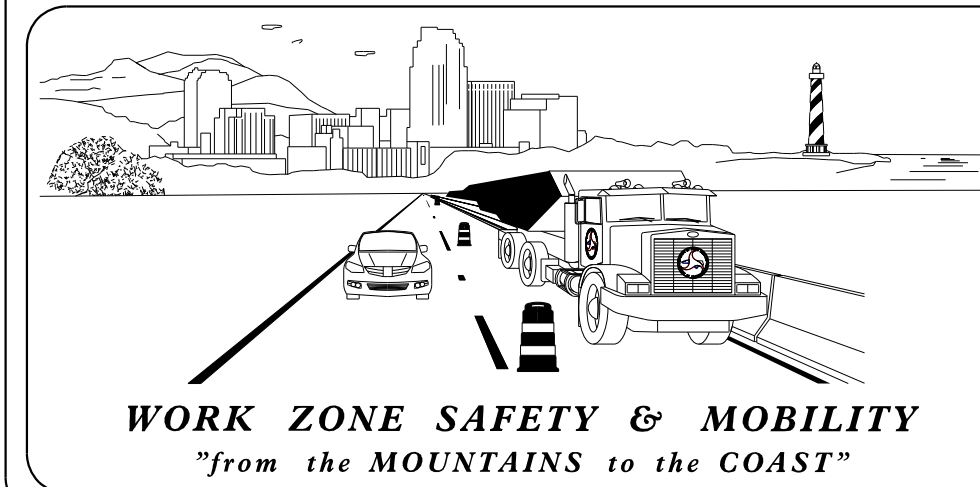


VICINITY MAP

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B, 1C	GENERAL NOTES
TMP-1D	SPECIAL SIGN DESIGNS
TMP-2	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
TMP-2A	TEMPORARY SHORING NOTES
TMP-3	TEMPORARY TRAFFIC CONTROL PHASING
TMP-4	-SR6- AND -SR7- PHASE 1 STEP 1A, 1B
TMP-5	-Y41- POTTS CREEK ROAD DETOUR ROUTE
TMP-6-15	-L- US 74 PHASE I STEP 1C
TMP-16	-SR9A- ANTHONY ROAD DETOUR ROUTE
TMP-17-19	-L- US 74 PHASE I STEP 2
TMP-20-22	-L- US 74 PHASE I STEP 3AB
TMP-23	-SR10- BETHLEHEM ROAD DETOUR ROUTE
TMP-24-24B	-L- US 74 PHASE I STEP 3C
TMP-24C-24E	-L- US 74 PHASE I STEP 3D
TMP-25-30	-L- US 74 PHASE II STEP 1
TMP-31-32	-L- US 74 PHASE II STEP 2
TMP-33	-L- US 74 PHASE III STEP 1
TMP-34-41	-L- US 74 PHASE III STEP 2

**INDEX OF SHEETS**

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angood



**PLANS PREPARED BY:**  
JAY W. WOOLARD, PE  
SENIOR TRANSPORTATION ENGINEER  
ANDREW N. GOOD  
TRANSPORTATION DESIGNER

**NCDOT CONTACTS:**  
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PROJECT DESIGN ENGINEER



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7/3/2023

**TIP PROJECT: R-2707E**

SEE SHEETS TMP-18-19

TEMPORARY SHORING LOCATION NO. 01 ESTIMATED QUANTITY = 4323.0 SF

-L- STA. 897+00, 28.0' LT TO -L- STA. 908+00, 28.0' LT  
 LENGTH=1100.0' AVERAGE HEIGHT = 3.93' MAX HEIGHT = 5.52'

- FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.
- BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OR SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.
- DESIGN TEMPORARY SHORING FROM -L- STATION 897+00, 28' LT TO STATION 908+00, 28' LT FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:
 

UNIT WEIGHT, ( $\gamma$ ) = 120 LB/CF  
 FRICTION ANGLE, ( $\phi$ ) = 30 DEGREES  
 COHESION, c = 0 LB/SF  
 GROUNDWATER ELEVATION = N/A
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM -L- STATION 897+00, 28' LT TO STATION 908+00, 28' LT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

SEE SHEETS TMP-24D

TEMPORARY SHORING LOCATION NO. 02 ESTIMATED QUANTITY = 336.0 SF

-L- STA. 892+23, 9.0' LT TO -L- STA. 892+65, 9.0' LT  
 LENGTH=42.0' AVERAGE HEIGHT = 8.00' MAX HEIGHT = 8.00'

- FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.
- BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OR SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.
- DESIGN TEMPORARY SHORING FROM -L- STATION 892+23, 9' LT TO STATION 892+65, 9' LT FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:
 

UNIT WEIGHT, ( $\gamma$ ) = 120 LB/CF  
 FRICTION ANGLE, ( $\phi$ ) = 30 DEGREES  
 COHESION, c = 0 LB/SF  
 GROUNDWATER ELEVATION = N/A
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM -L- STATION 892+23, 9' LT TO STATION 892+65, 9' LT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

SEE SHEETS TMP-24D

TEMPORARY SHORING LOCATION NO. 03 ESTIMATED QUANTITY = 336.0 SF

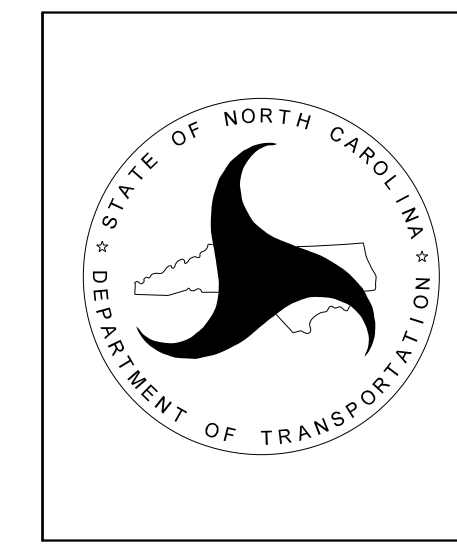
-L- STA. 892+23, 9.0' RT TO -L- STA. 892+65, 9.0' RT  
 LENGTH=42.0' AVERAGE HEIGHT = 8.00' MAX HEIGHT = 8.00'

- FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.
- BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OR SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.
- DESIGN TEMPORARY SHORING FROM -L- STATION 892+23, 9' RT TO STATION 892+65, 9' RT FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:
 

UNIT WEIGHT, ( $\gamma$ ) = 120 LB/CF  
 FRICTION ANGLE, ( $\phi$ ) = 30 DEGREES  
 COHESION, c = 0 LB/SF  
 GROUNDWATER ELEVATION = N/A
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM -L- STATION 892+23, 9' RT TO STATION 892+65, 9' RT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

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THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEER. THE DOCUMENT WAS SUBMITTED TO STANTEC CONSULTING ON MARCH 7, 2023 AND SEALED BY A PROFESSIONAL ENGINEER, (JEREMY R. HAMM), LICENSE #039779.



TEMPORARY SHORING NOTES

# PHASING

## PHASE I (TMP-4 THRU TMP-24)

PRIOR TO ANY WORK OPERATIONS, INSTALL WORK ZONE ADVANCE WARNING SIGNS ON -L- US 74 AND ALL -Y- LINES, PER ROADWAY STANDARD DRAWING 1101.01, SHEET 3 OF 3.

### STEP 1 (SEE TMP-4 THRU TMP-16)

#### A) (-SR6-, -Y41-)

- USING RSD 1101.02, SHEET 1 OF 14 AS NECESSARY, BEGIN CONSTRUCTION OF -SR6- AS SHOWN ON TMP-4.
- USING RSD 1101.03, SHEET 1 OF 9 AND TMP-4, PERFORM THE FOLLOWING:
  - 1- INSTALL AND COVER DETOUR ROUTE SIGNS AS SHOWN ON TMP-5
  - 2- UNCOVER DETOUR ROUTE SIGNS, PLACE TRAFFIC ONTO DETOUR ROUTE, AND CLOSE -Y41- (POTTS CREEK RD).
  - 3- CONSTRUCT -Y41- POTTS CREEK RD UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE.
  - 4- PLACE TEMPORARY PAVMENT MARKINGS IN THE FINAL PATTERN.
  - 5- COVER/REMOVE ALL DETOUR SIGNS AND OPEN -Y41- AND -SR6- TO TRAFFIC SIMULTANEOUSLY AS SHOWN ON TMP-8 AND TMP-9.

#### B) (-SR7-, -Y46-)

- 1- USING RSD 1101.02, SHEET 1 OF 14 AS NECESSARY, BEGIN CONSTRUCTION OF -SR7- FROM 16+00± TO 56+00± AND 57+00± TO 82+00±.
- 2- USING RSD 1101.02, SHEET 1 OF 14 AS NECESSARY, COMPLETE -SR7- FROM 57+00± TO 82+00± AND CONSTRUCT -Y46- AS SHOWN ON TMP-4.
- 3- COMPLETE CONSTRUCTION OF -SR7- FROM 16+00± TO 56+00±
- 4- SHIFT TRAFFIC TO PATTERN SHOWN ON TMP-9 THRU TMP-11.

#### C) (-L-, -RABT1-, -RABT2-, -SR6-, -SR7-, -SR8-, -SR9-, -SR10-, RAMPS)

- USING RSD 1101.02, SHEET 3 OF 14, BEGIN CONSTRUCTION OF -L- UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS FOLLOWS (WEDGE EXISTING PAVEMENT AS NEEDED TO MAINTAIN TRAFFIC. REPLACE ANY EXISTING MARKINGS COVERED UP BY THE WEDGING):

- L- STA 851+00± TO 857+50± (OUTSIDE RT)
- L- STA 859+50± TO 876+50± (OUTSIDE RT)
- L- STA 881+20± TO 898+50± (OUTSIDE RT)
- L- STA 900+00± TO 932+90± (OUTSIDE RT)

- L- STA 851+00± TO 857+50± (OUTSIDE LT)
- L- STA 859+50± TO 896+50± (OUTSIDE LT)
- L- STA 909+00± TO 957+00± (OUTSIDE LT)

- L- STA 889+16± TO 896+74± (MEDIAN TEMP ASPHALT PAD)
- L- STA 893+37± TO 898+96± (MEDIAN TEMP PVMT)
- L- STA 899+40± TO 912+32± (MEDIAN TEMP PVMT)
- L- STA 899+57± TO 909+00± (MEDIAN TEMP ASPHALT PAD)

NOTE: CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL EXISTING ACCESSES ON EXISTING BETHLEHEM ROAD. PRIOR TO BEGINNING CONSTRUCTION ON -SR10-, THE CONTRACTOR SHALL SUBMIT AND HAVE APPROVED BY THE ENGINEER A PLAN TO MAINTAIN ALL EXISTING ACCESS ON EXISTING BETHLEHEM ROAD.

- AWAY FROM TRAFFIC, BEGIN CONSTRUCTION OF THE FOLLOWING AS SHOWN:

- RABT1-, -Y42RPC-, -Y42RPD-, -SR9-, -SR10-, -RABT2-, -Y42RPA-, -Y42RPB-, -SR6-, AND -SR7- (SEE TMP-8, TMP-9, AND TMP-10)

- USING RSD 1101.02, SHEET 1 OF 14, CONSTRUCT THE FOLLOWING:

- PVTENT2- (SEE TMP-6)
- Y9A- 17+50± TO 29+37± (SEE TMP-14,15)
- SR8- 15+50± TO 36+16± (SEE TMP-12,13)

- USING RSD 1101.03, SHEET 1 OF 9 AND TMP-14 AND TMP-15, PERFORM THE FOLLOWING:

- 1- INSTALL AND COVER DETOUR ROUTE SIGNS AS SHOWN ON TMP-16.
- 2- UNCOVER DETOUR ROUTE SIGNS, PLACE TRAFFIC ONTO DETOUR ROUTE, AND CLOSE -SR9A- (ANTHONY RD).
- 3- CONSTRUCT -SR9A- FROM 10+18± TO 17+50± UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. (SEE TMP-14)
- 4- PLACE TEMPORARY PAVMENT MARKINGS IN THE FINAL PATTERN.
- 5- COVER/REMOVE ALL DETOUR SIGNS AND OPEN -SR9A- TO TRAFFIC.

## PHASE I (CONT'D)

### STEP 2 (SEE TMP-17 THRU TMP-19)

#### -L-

- A- USING LAW ENFORCEMENT TO DIRECT TRAFFIC, DEACTIVATE SIGNAL AT BETHLEHEM RD INTERSECTION.
- B- USING RSD 1101.02, SHEET 3 OF 14, INSTALL PCB ALONG US 74 EB MEDIAN.
- C- USING RSD 1101.02, SHEET 3 OF 14, INSTALL PCB ALONG US 74 WB MEDIAN.
- D- USING RSD 1101.02, SHEET 3 OF 14, RESTRIPE US 74 WB AS SHOWN ON TMP-18,19 AND SHIFT TRAFFIC TO NEW PATTERN.
- E- USING RSD 1101.02, SHEET 3 OF 14, INSTALL PCB ALONG US 74 WB OUTSIDE.
- F- BEHIND BARRIER, INSTALL TEMPORARY SHORING 01 AND CONSTRUCT -L- WB AND -Y42RPA- AS SHOWN.

#### -Y43-, -SR9-, -PVTENT1-

- A- USING RSD 1101.03, SHEET 1 OF 9 AND TMP-17, CLOSE ANTHONY RD TO TRAFFIC.
- B- USING RSD 1101.02, SHEET 1 OF 14 AS NECESSARY, CONSTRUCT -SR9-, -Y43-, AND -PVTENT1- AS SHOWN ON TMP-17 AND TMP18. WEDGE -Y43 TIE IN TO EXISTING MIDWAY LAKE ROAD AS NEEDED TO MAINTAIN TRAFFIC.

### STEP 3 (SEE TMP-20 THRU TMP-24E)

#### A) -Y42RPC-

- 1- WITH MIDWAY LAKE TRAFFIC SHIFTED TO -SR9-, USING RSD 1101.02, SHEET 3 OF 14, CONSTRUCT FROM -L- 876+50± TO 881+20± AND -Y42RPC- FROM 10+00± TO 24+00±.

#### -SR10-

- 1- INSTALL AND COVER DETOUR ROUTE SIGNS AS SHOWN ON TMP-23.
- 2- UNCOVER DETOUR ROUTE SIGNS, PLACE TRAFFIC ONTO DETOUR ROUTE, AND CLOSE BETHLEHEM RD.
- 3- CONSTRUCT -SR10- FROM 22+00± TO 28+50± AND -Y42RPD- FROM 20+50± TO 22+50± UP TO, BUT NOT INCLUDING, THE FINAL LAYER OF SURFACE COURSE.
- 4- PLACE TEMPORARY PAVEMENT MARKINGS IN THE FINAL PATTERN.
- 5- COVER/REMOVE ALL DETOUR SIGNS AND OPEN -SR10- TO TRAFFIC FROM 14+00± TO 28+50±.

#### -L-

- 1- COMPLETE ALL WORK BEGUN IN PHASE I, STEP 1C.

#### B) COMPLETE THE FOLLOWING UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE:

- RABT 1-, -RABT 2-, -Y42-, -Y42RPA-, -Y42RPB-, -Y42RPC-, AND -Y42RPD- (FROM THE BACK OF THE GORE TO THE TERMINUS), -SR6-, -SR7-, -SR9-, AND -SR10-.

#### C) USING RSD 1101.03, SHEET 7 OF 9 NIGHTLY, DETOUR EACH DIRECTION US 74 TRAFFIC UP AND DOWN PROPOSED RAMPS. (SEE ICT FOR TIME RESTRICTIONS) CONSTRUCT -L- UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS FOLLOWS (SEE TMP-24, 24A, 24B):

- L- FROM STA. 884+50± TO 896+50±
- L- RIGHT FROM STA. 896+50± TO 898+50±

(NOTE: PLACE TEMPORARY MARKINGS AND REOPEN TRAFFIC ON -L- [US 74] AT THE END OF EACH NIGHTLY WORK PERIOD. REPEAT THIS STEP UNTIL CONSTRUCTION IS COMPLETE.)

#### D) -L- (SEE TMP-24C, 24D, 24E)

- 1- USING RSD 1101.02, SHEET 3 OF 14, REMOVE PCB ALONG US 74 WB OUTSIDE.
- 2- USING RSD 1101.02, SHEET 3 OF 14, RESTRIPE US 74 WB AS SHOWN ON TMP-20,21,22 AND SHIFT TRAFFIC TO NEW PATTERN.
- 3- USING RSD 1101.02, SHEET 3 OF 14, INSTALL PCB ALONG US 74 WB MEDIAN.
- 4- USING RSD 1101.02, SHEET 3 OF 14, REMOVE PCB ALONG US 74 EB MEDIAN.

## D) (CONT'D)

- 5- BEHIND BARRIER, CONSTRUCT -L- MEDIAN INCLUDING TEMPORARY SHORING FOR BRIDGE MEDIAN BENT AS SHOWN ON TMP-21, 22.
- 6- CONSTRUCT PROPOSED -Y42- BRIDGE OVER US 74. USE RSD 1101.03, SHEET 7 OF 9, TO DETOUR EACH DIRECTION US 74 TRAFFIC UP AND DOWN PROPOSED RAMPS WHEN HANGING PROPOSED GIRDERS. (SEE ICT FOR TIME RESTRICTIONS)

## PHASE II (TMP-25 - 32)

### STEP 1)

- A) USING RSD 1101.02, SHEET 3 OF 14, INSTALL PAVEMENT MARKINGS AS SHOWN ON TMP-25 THRU 30 AND SHIFT TRAFFIC TO PATTERN SHOWN. INSTALL FINAL PAVEMENT MARKINGS (SEE FINAL PAVEMENT MARKING PLAN) ON -Y42-, -Y42RPA-, -Y42RPB-, -Y42RPC-, -Y42RPD-, -SR6-, -SR7-, -SR9-, AND -SR10-.

- B) USING RSD 1101.02, SHEET 3 OF 14, INSTALL PCB ON US 74 EB MEDIAN AS SHOWN ON TMP-27,28.

#### C) USING RSD 1101.02, SHEET 3 OF 14, CONSTRUCT THE FOLLOWING:

- L- STA 898+50± TO 909+00± (EB MEDIAN)

### STEP 2) (-L-, -SR8-)

- 1- CLOSE HARMON RD AS SHOWN ON TMP-31.
- 2- USING RSD 1101.02, SHEET 3 OF 14, CONSTRUCT -L- STA 932+90± TO 955+00± (EB OUTSIDE) (SEE TMP-31 AND TMP-32)
  - AWAY FROM TRAFFIC, CONSTRUCT -SR8- FROM 10+75± TO 17+50± UP TO, BUT NOT INCLUDING, THE FINAL LAYER OF SURFACE COURSE.
  - AWAY FROM TRAFFIC, COMPLETE CONSTRUCTION OF -SR8- FROM 17+50± TO 35+75±
- 3- AWAY FROM TRAFFIC, INSTALL TEMPORARY PAVEMENT MARKINGS.
- 4- OPEN NEWLY CONSTRUCTED -SR8- TO TRAFFIC.

## PHASE III (TMP-33 THRU TMP-41)

### STEP 1 (SEE TMP-33)

- 1- USING LAW ENFORCEMENT TO DIRECT TRAFFIC, DEACTIVATE EXISTING SIGNAL AT LONGBRANCH RD.
- 2- USING RSD RSD 1101.02, SHEET 3 OF 14, CONSTRUCT -L- FROM 857+50± TO 859+50± UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE
  - AWAY FROM TRAFFIC, CONSTRUCT CUL DE SAC ON -SR11- AND SHIFT -SR6- TRAFFIC TO INCLUDE -PVTENT2-

### STEP 2 (SEE TMP- 34 THRU TMP-41)

- A- USING RSD 1101.02, SHEET 3 OF 14, SHIFT TRAFFIC TO PATTERN SHOWN.
- B- USING RSD 1101.02, SHEET 3 OF 14, CONSTRUCT MEDIAN WIDENING ON -L- UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS SHOWN AND REMOVE BARRIER AS NEEDED. WEDGE EXISTING -L- AS NEEDED TO BRING IT UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE.

## PHASE IV (NOT SHOWN)

### STEP 1

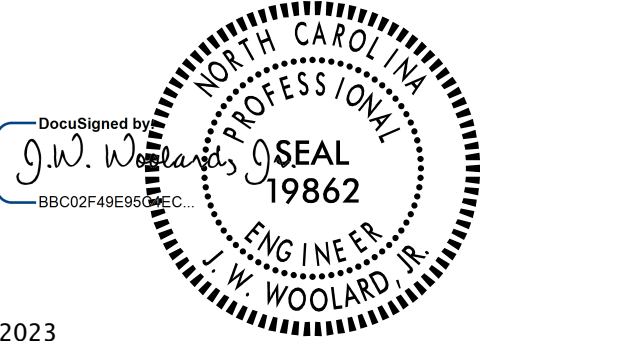
- 1- USING RSD 1101.02, SHEET 3 OF 14, REMOVE ANY REMAINING PCB ON -L-
- 2- USING RSD 1101.02, SHEET 3 OF 14, INSTALL FINAL LAYER OF SURFACE COURSE ON -L- AND INSTALL FINAL PAVEMENT MARKINGS AND MARKERS.
  - USING BRSD 1101.02, SHEET 1 OF 14, INSTALL FINAL LAYER OF SURFACE COURSE ON ALL -Y- LINES AND INSTALL FINAL PAVEMENT MARKINGS AND MARKERS.
- 3- REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN ALL ROADS TO THE FINAL TRAFFIC PATTERN.

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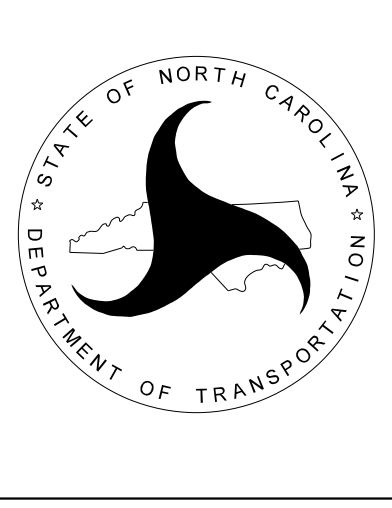


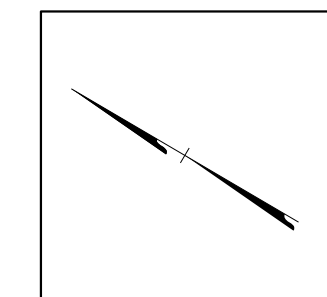
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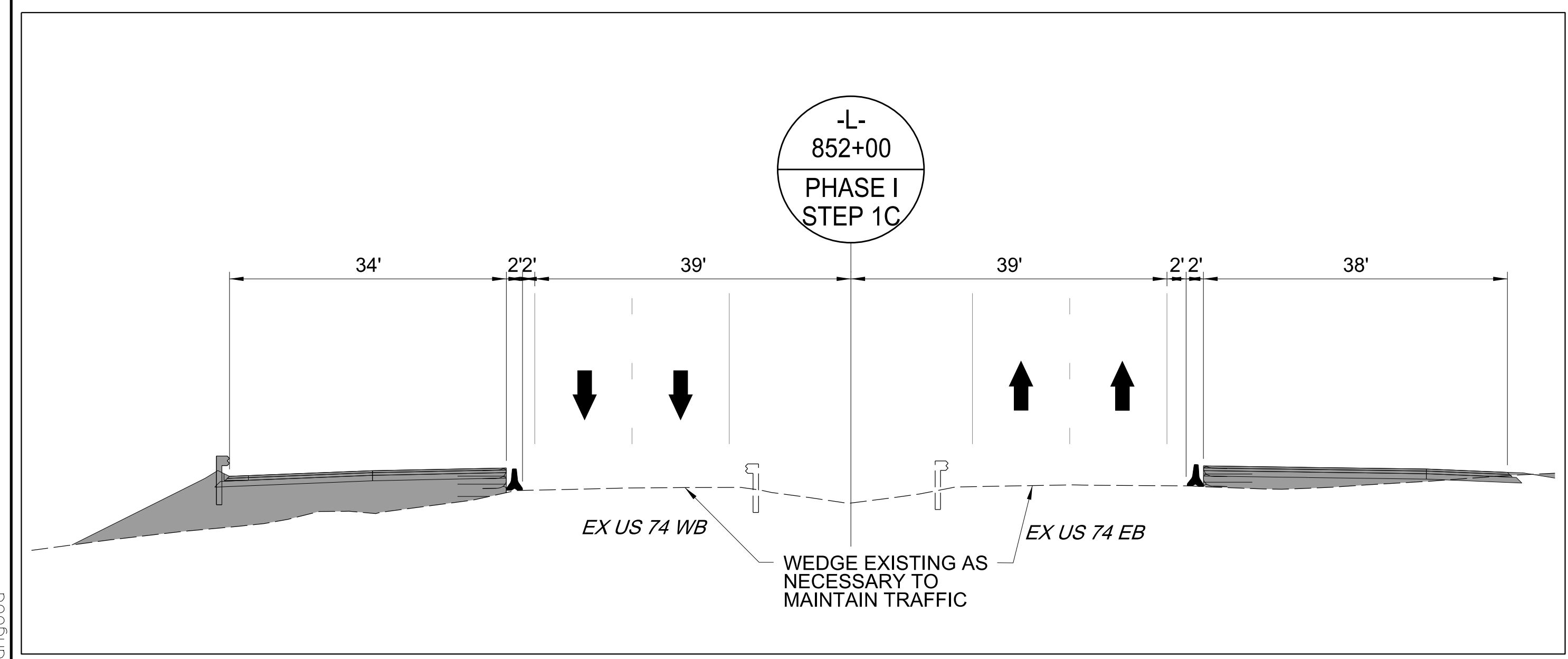
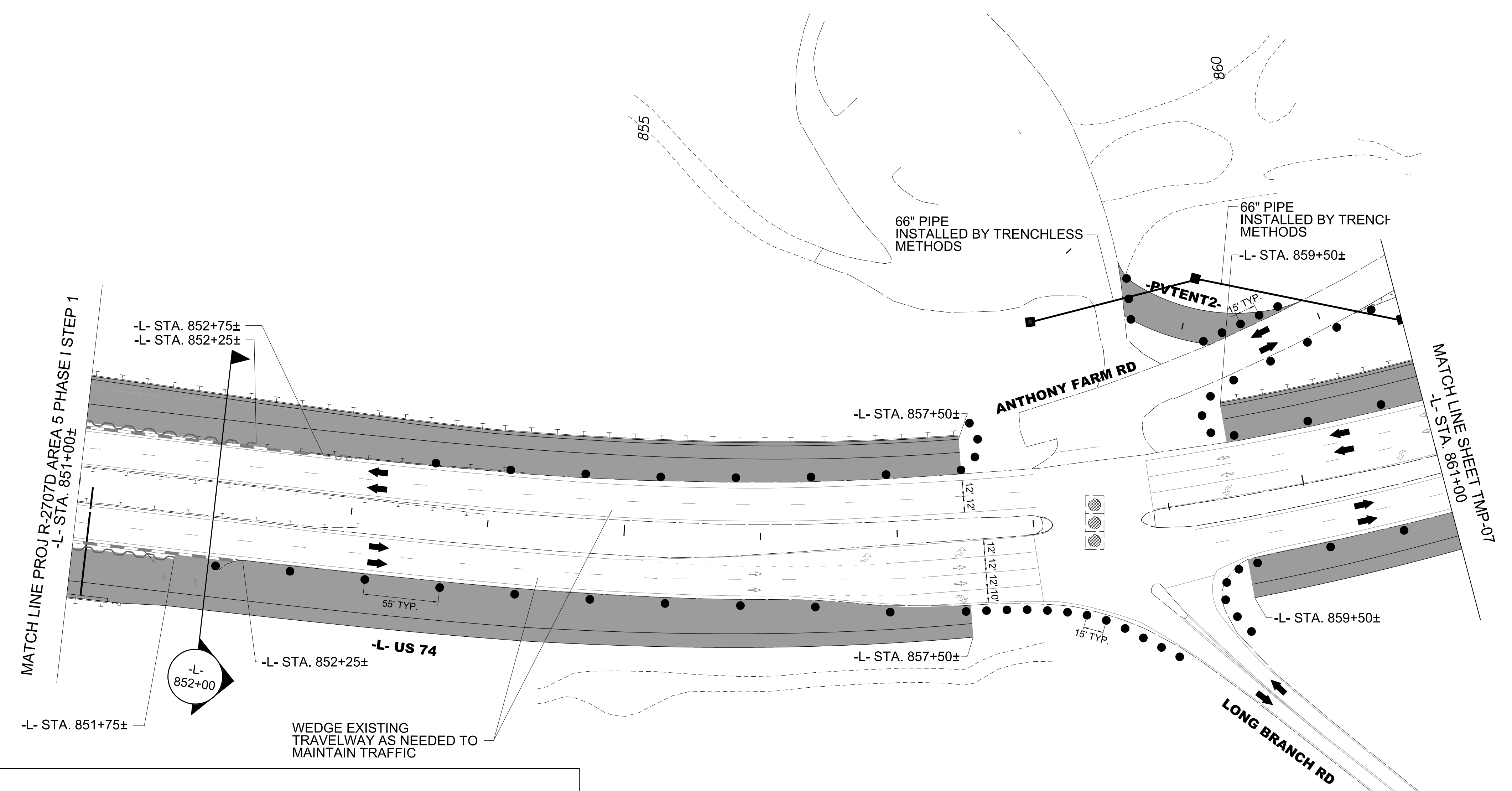


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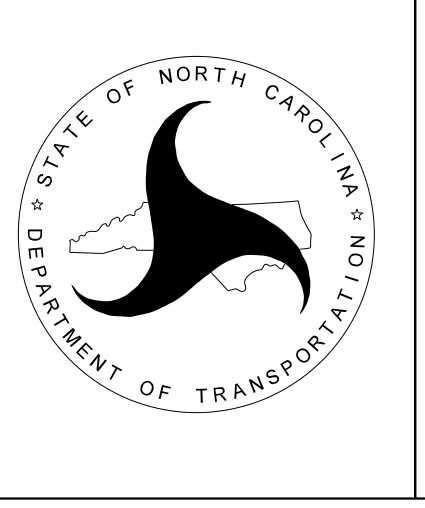
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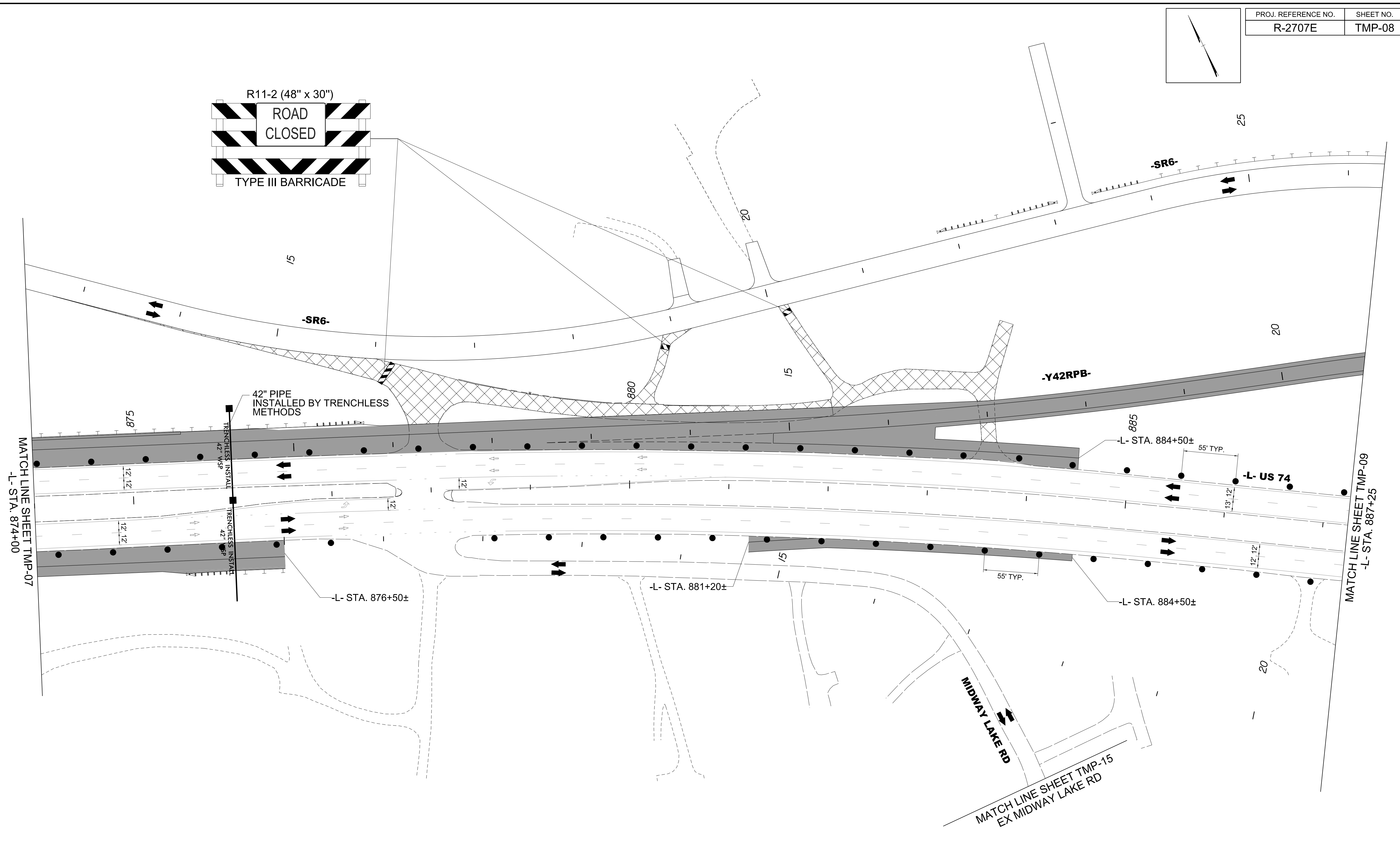
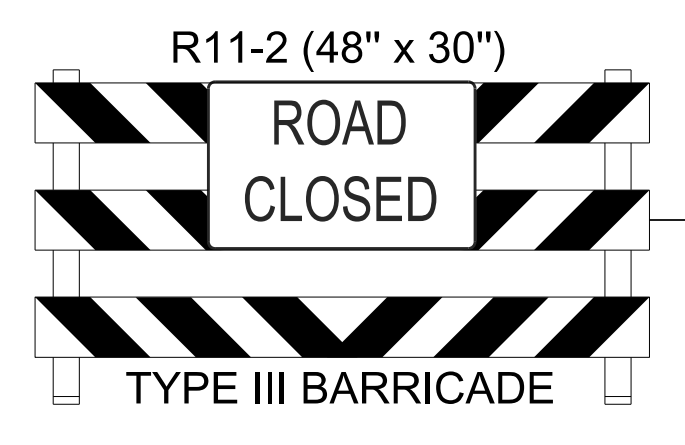
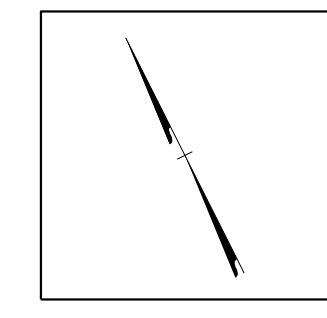
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angood

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-L- US 74  
PHASE I  
STEP 1C

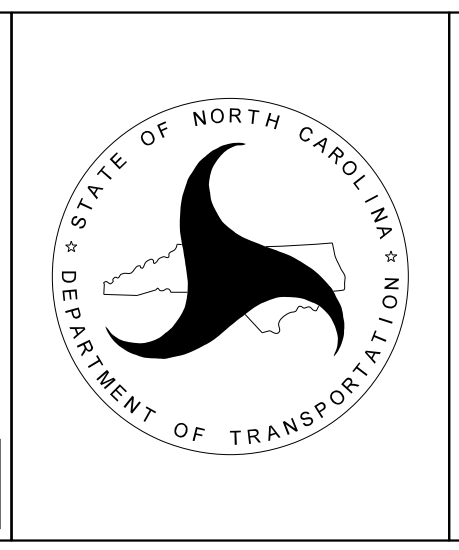


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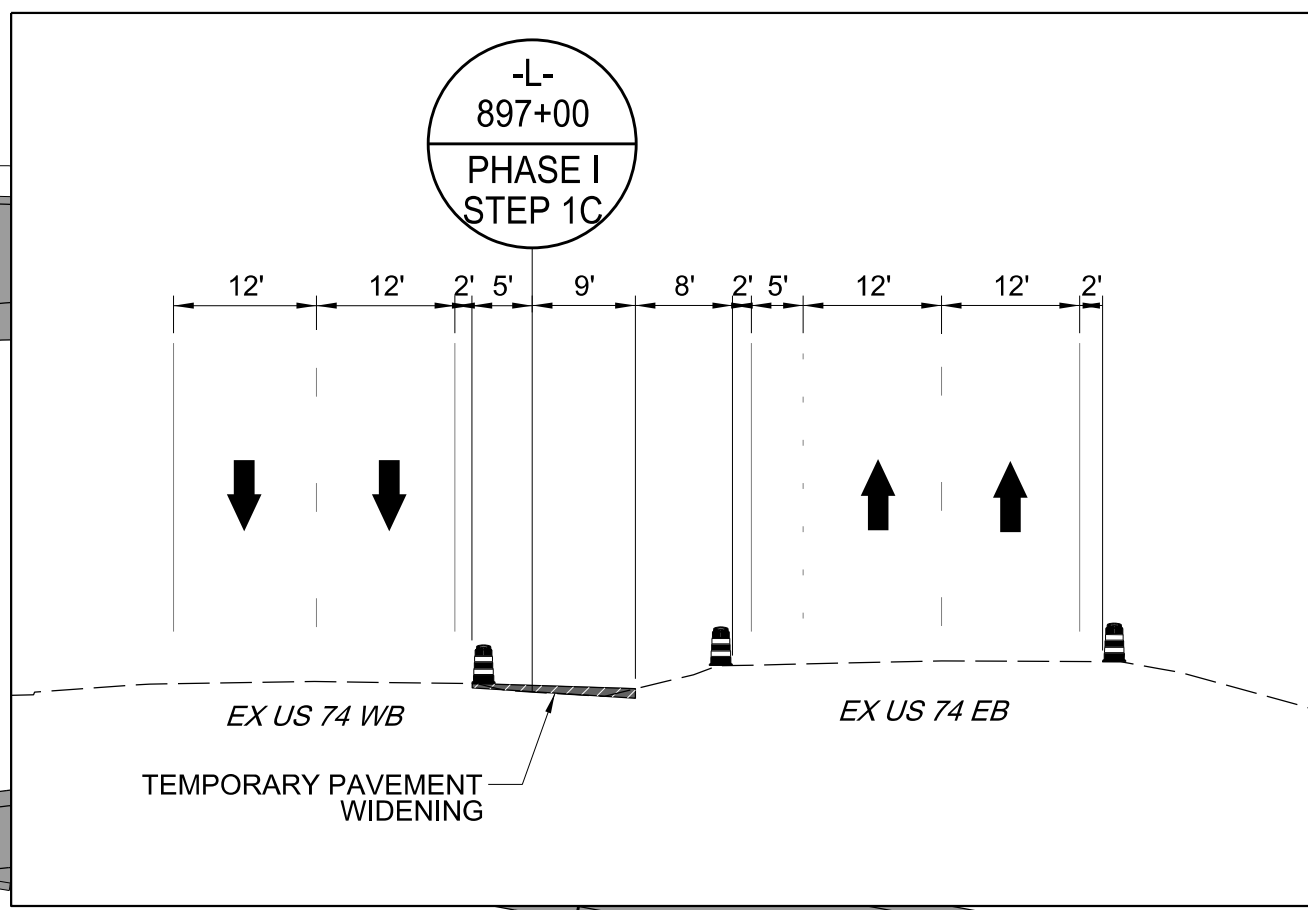
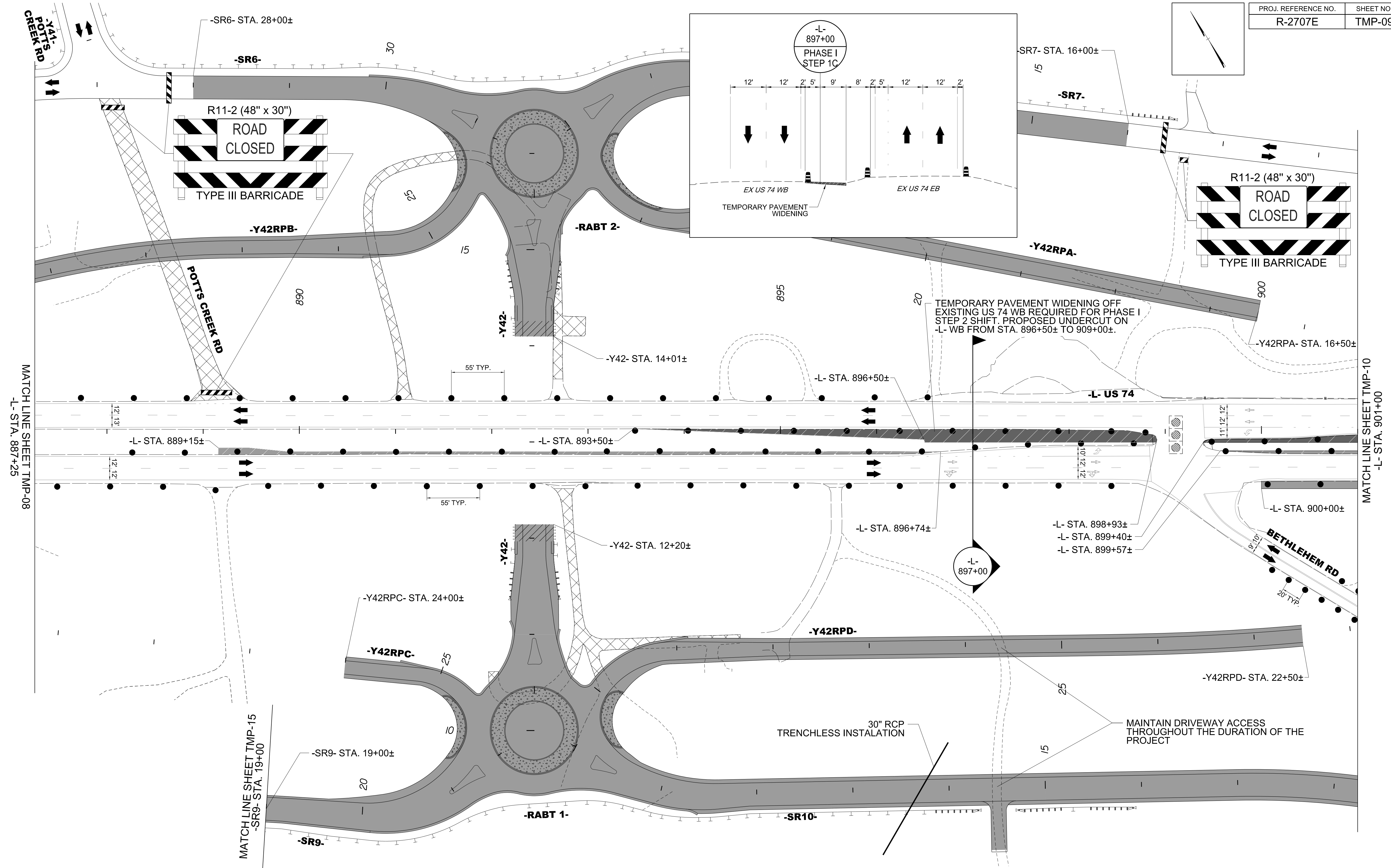
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**-L- US 74  
 PHASE I  
 STEP 1C**





MATCH LINE SHEET TMP-08  
-L- STA. 887+25

MATCH LINE SHEET TMP-10  
-L- STA. 901+00

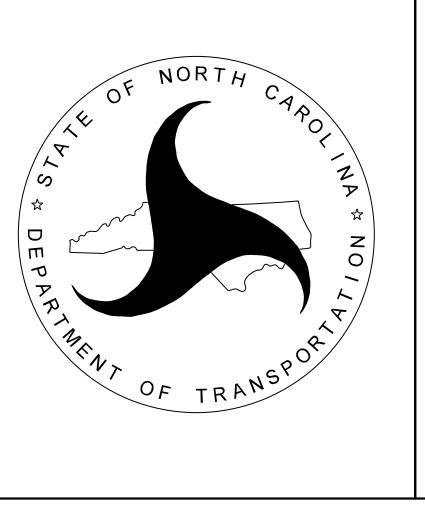
MATCH LINE SHEET TMP-15  
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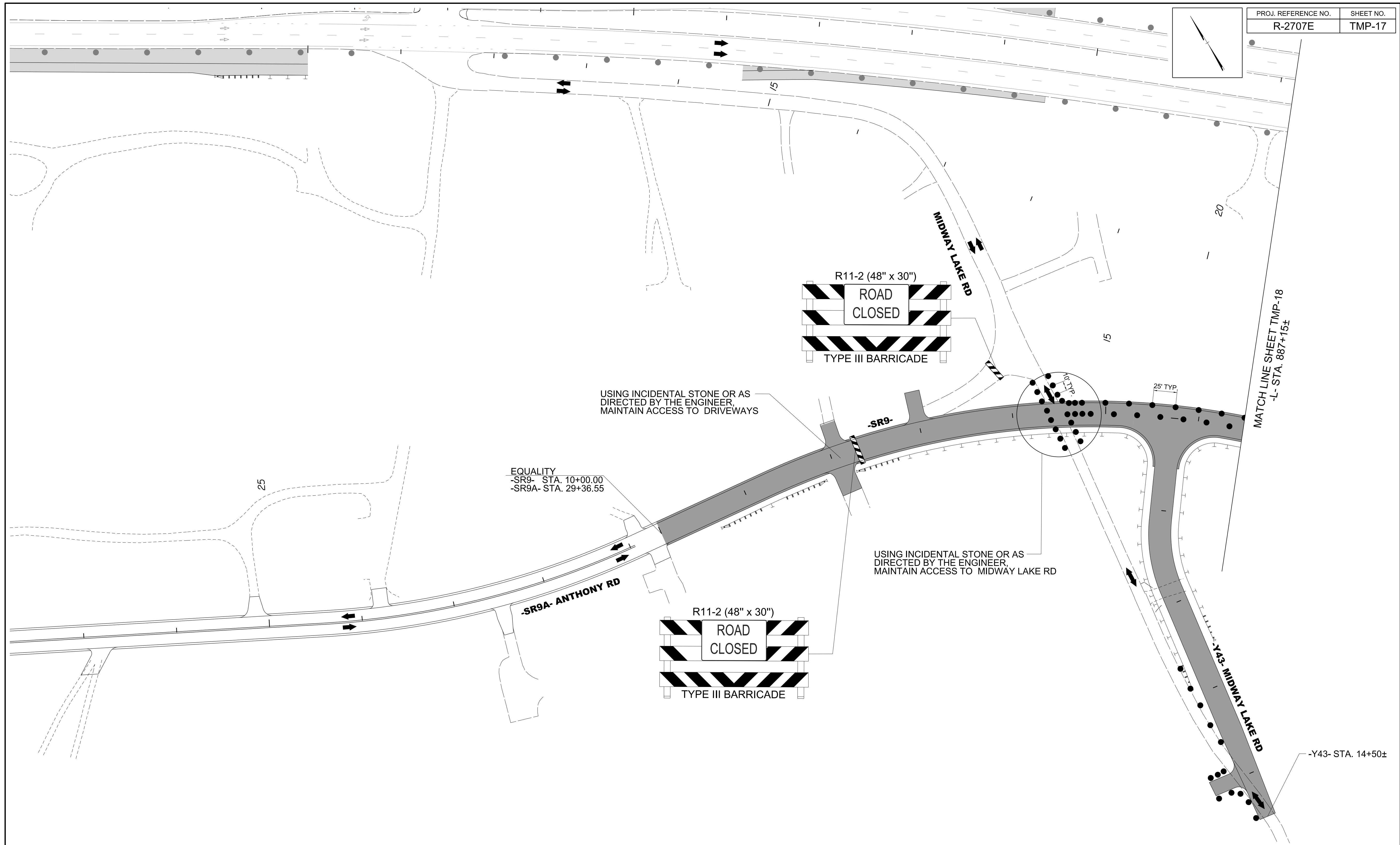
■ SPRING 1

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**-L- US 74  
 PHASE I  
 STEP 1C**

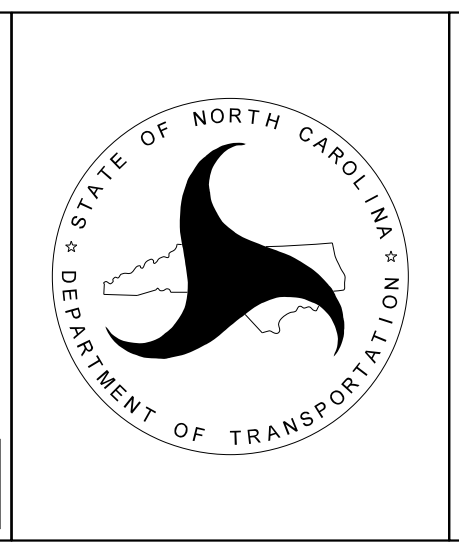


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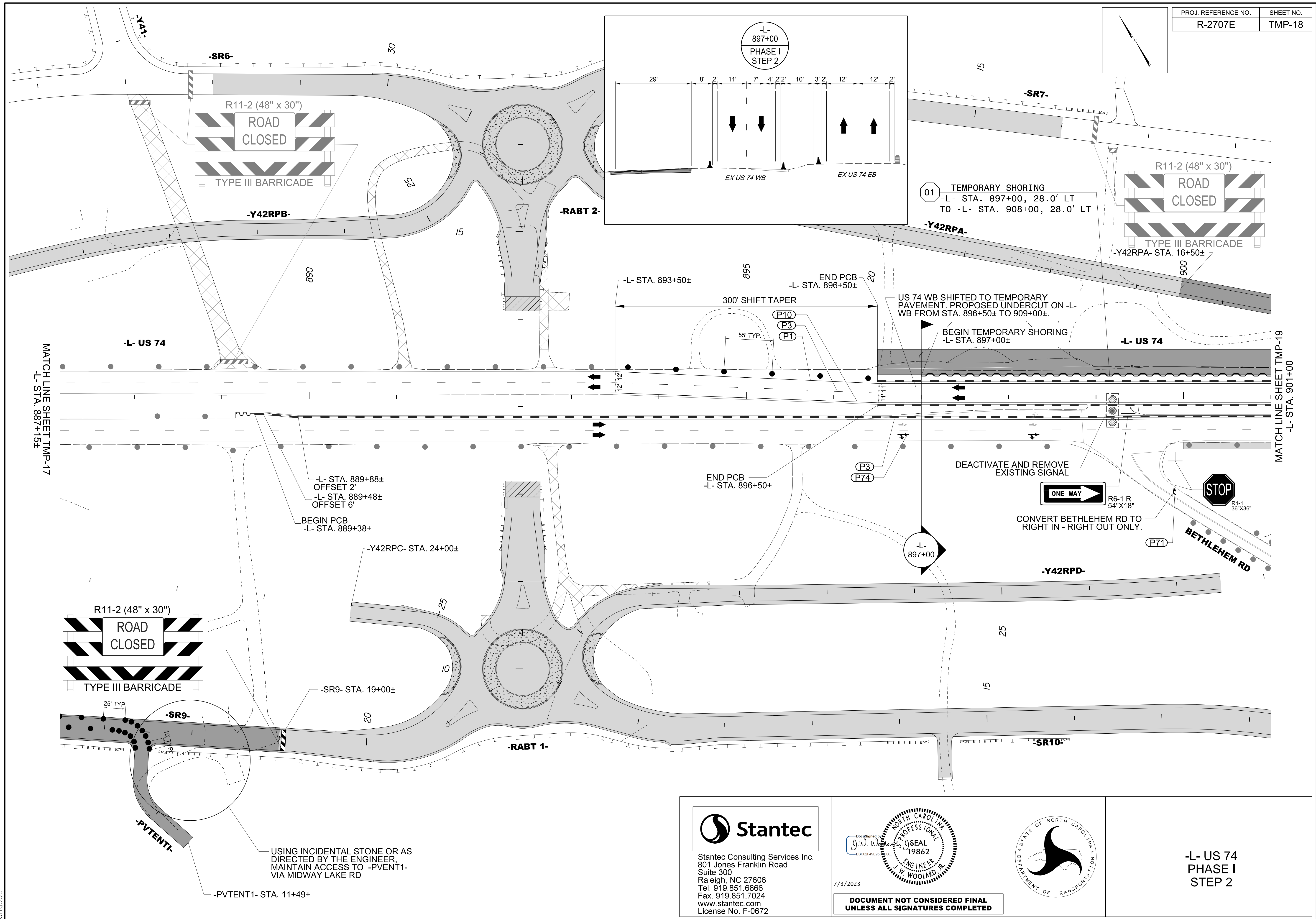
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-L- US 74  
 PHASE I  
 STEP 2



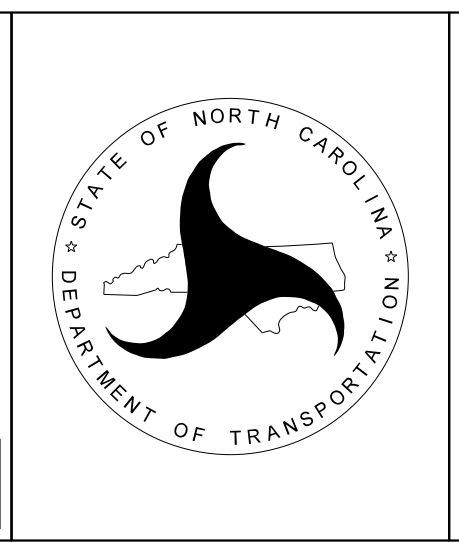
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-L- STA. 887+15±

MATCH LINE SHEET TMP-19  
-L- STA. 901+00±

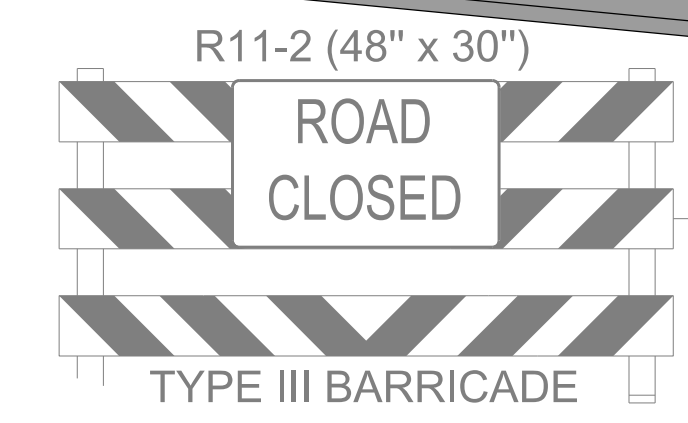
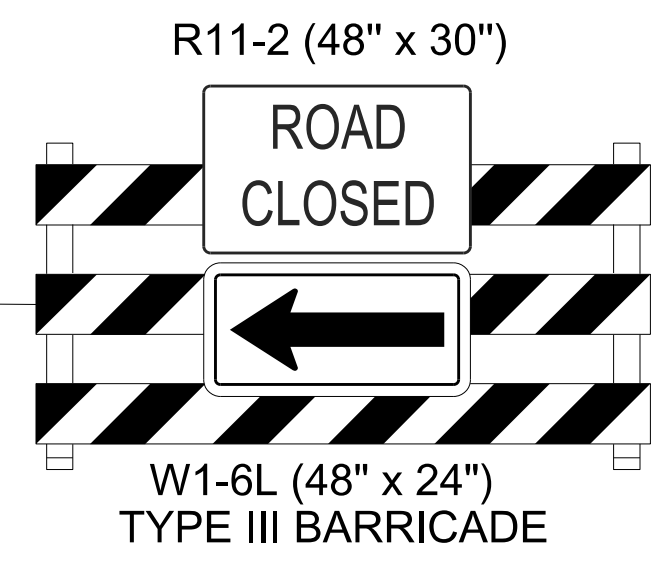
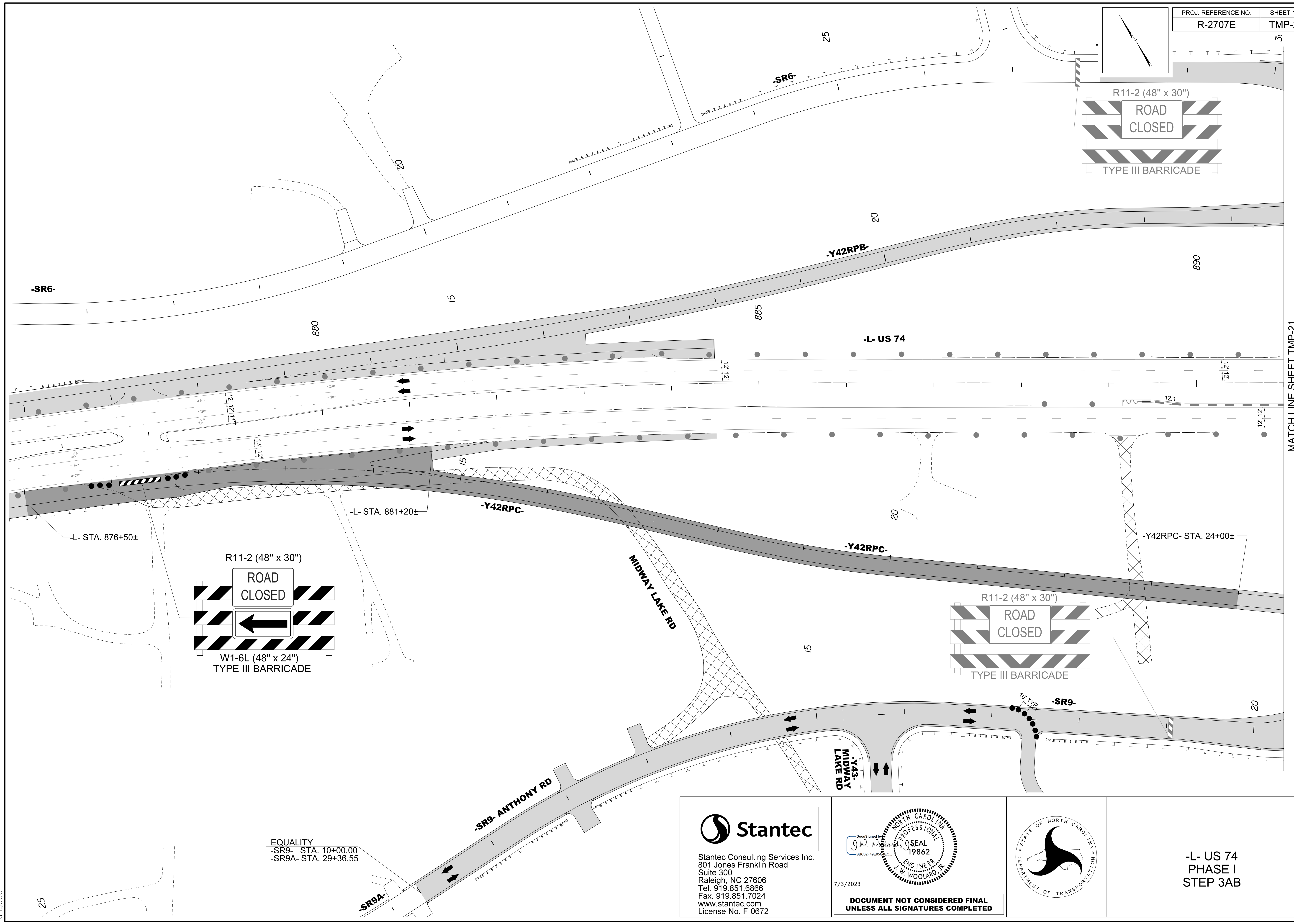
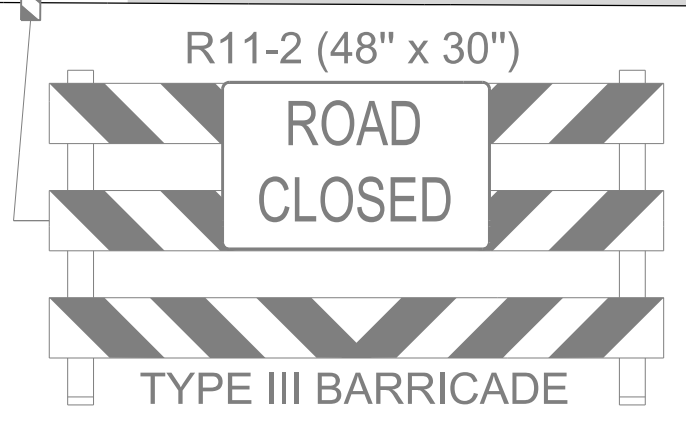
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**-L- US 74  
 PHASE I  
 STEP 2**



EQUALITY  
 -SR9- STA. 10+00.00  
 -SR9A- STA. 29+36.55

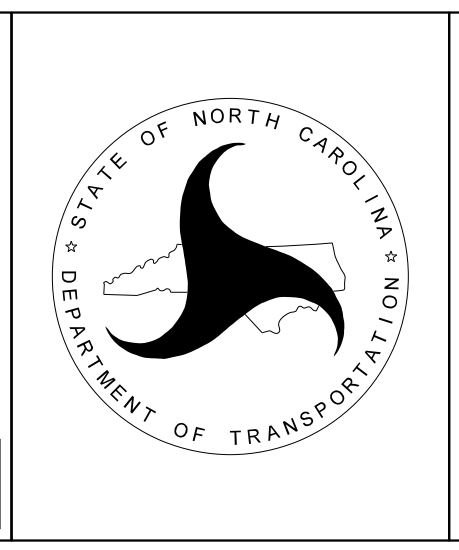
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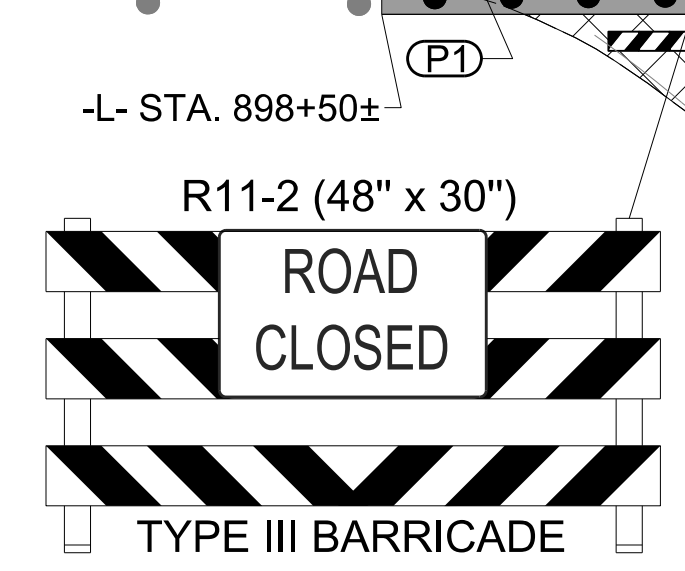
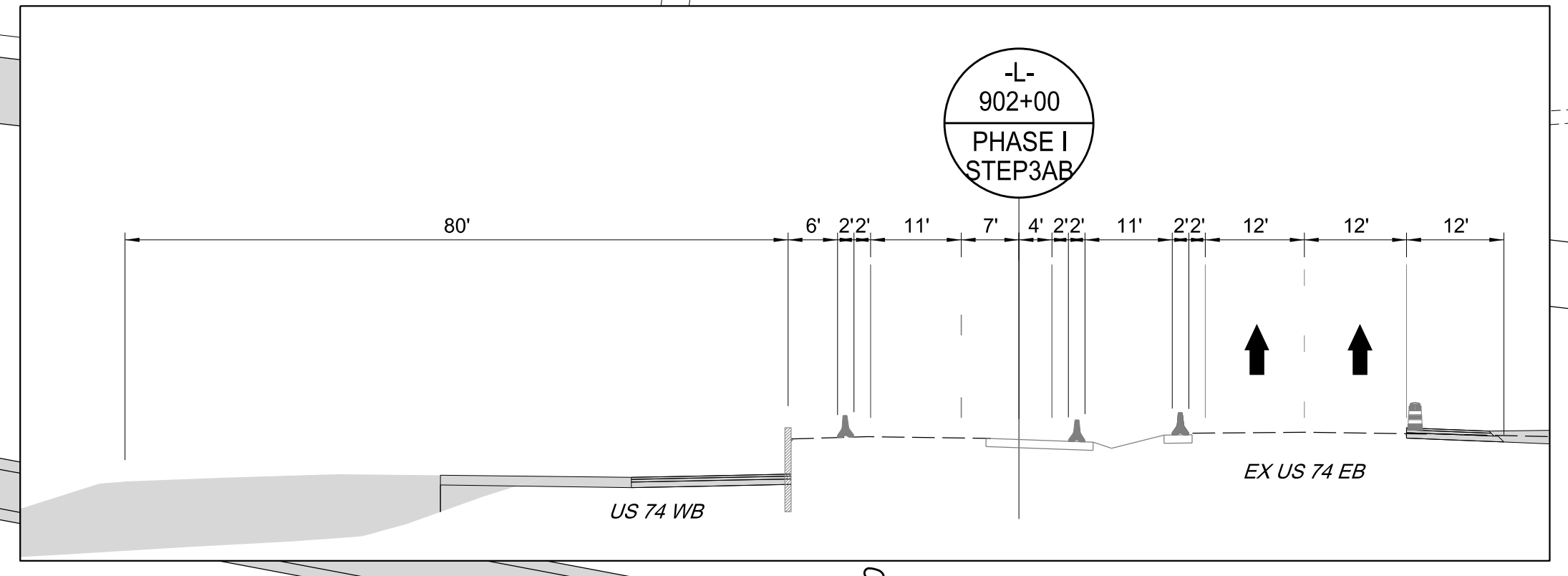
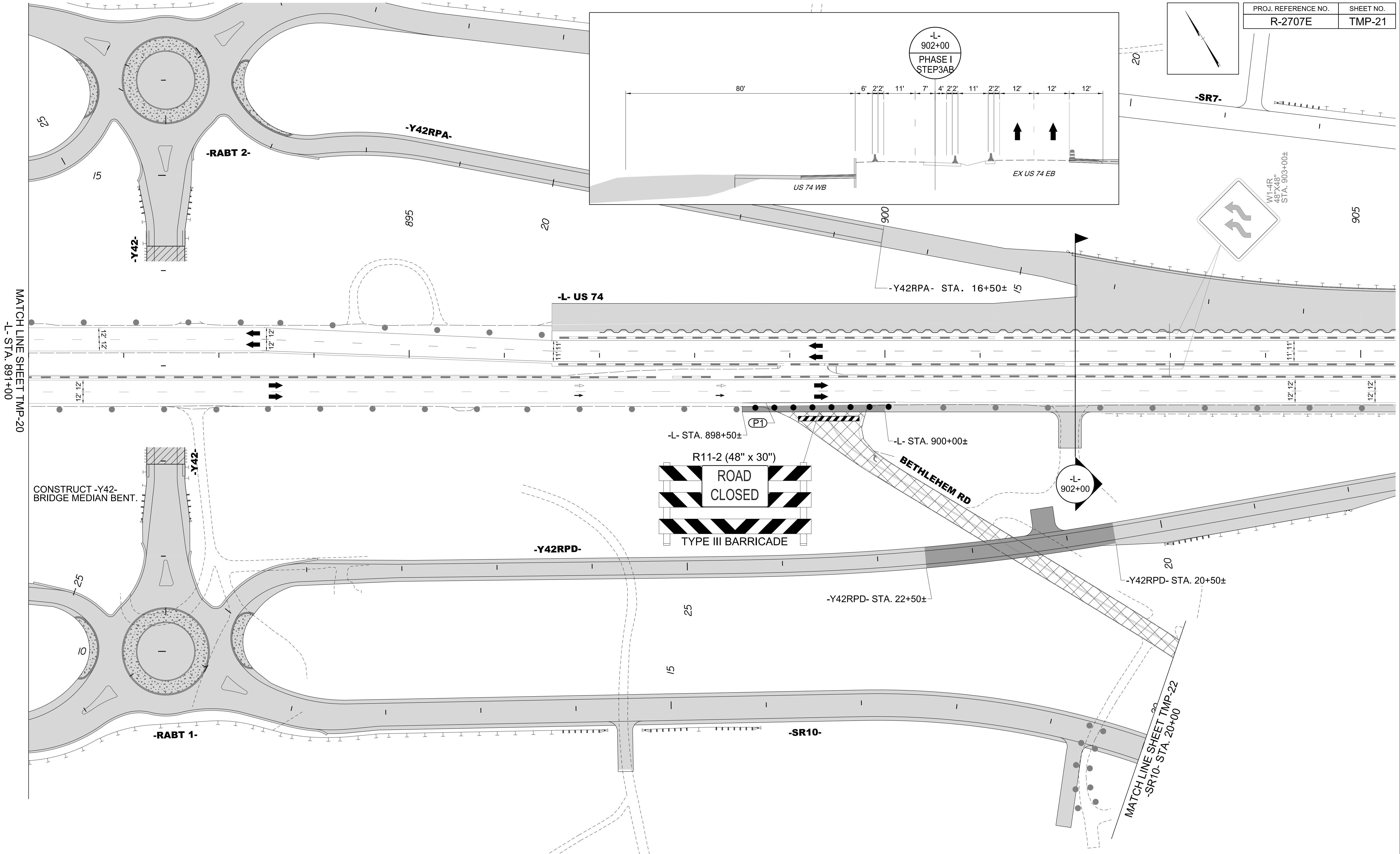
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-L- US 74  
 PHASE I  
 STEP 3AB



MATCH LINE SHEET TMP-20  
-L- STA. 891+00

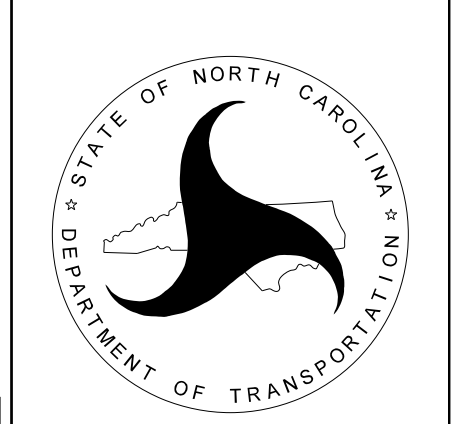
CONSTRUCT -Y42-  
BRIDGE MEDIAN BENT.

MATCH LINE SHEET TMP-22  
-SR10- STA. 20+00

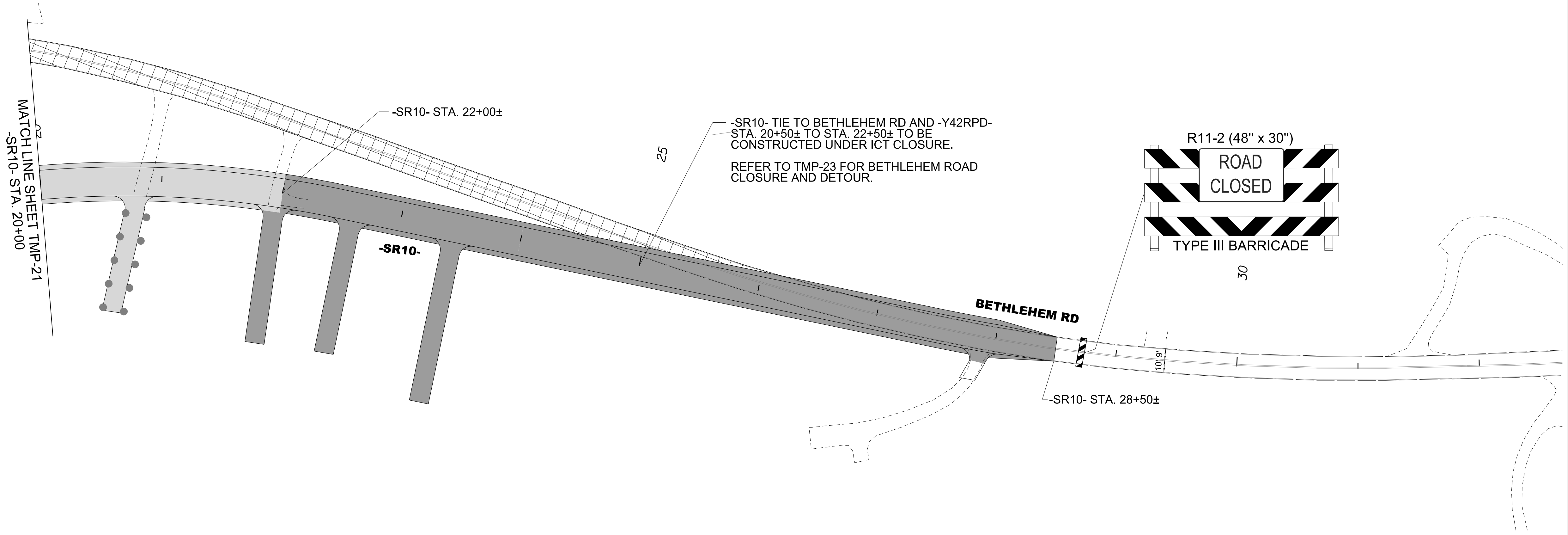
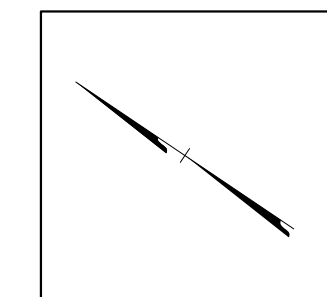
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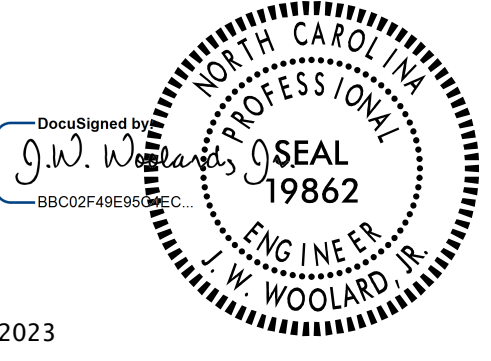
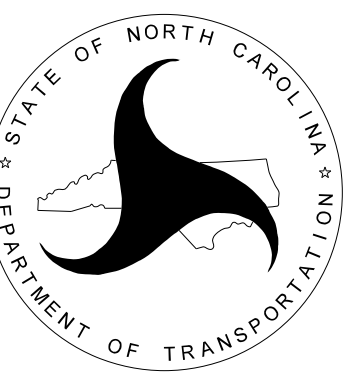


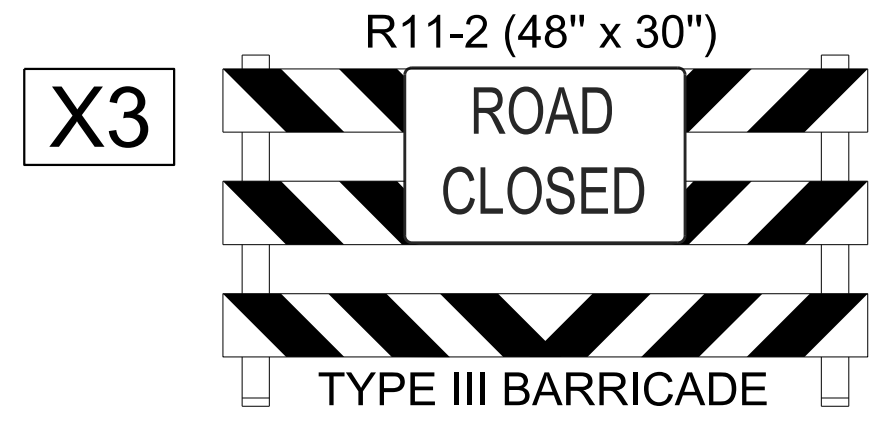
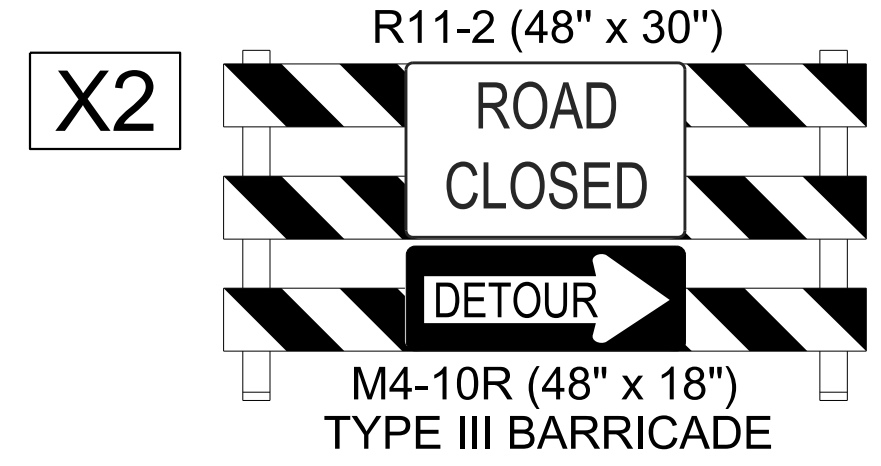
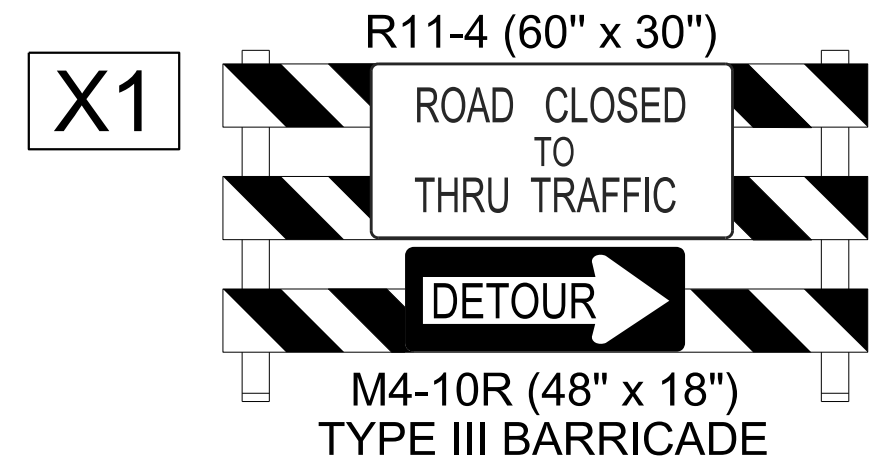
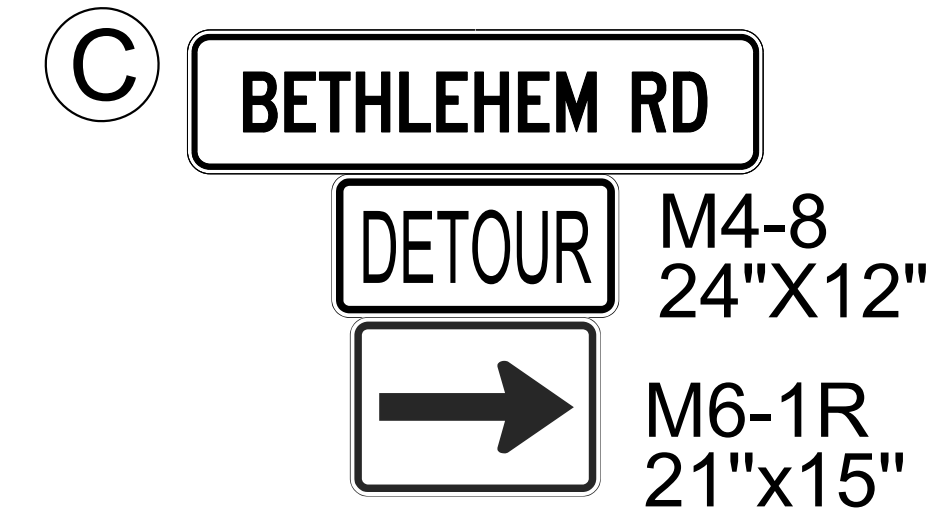
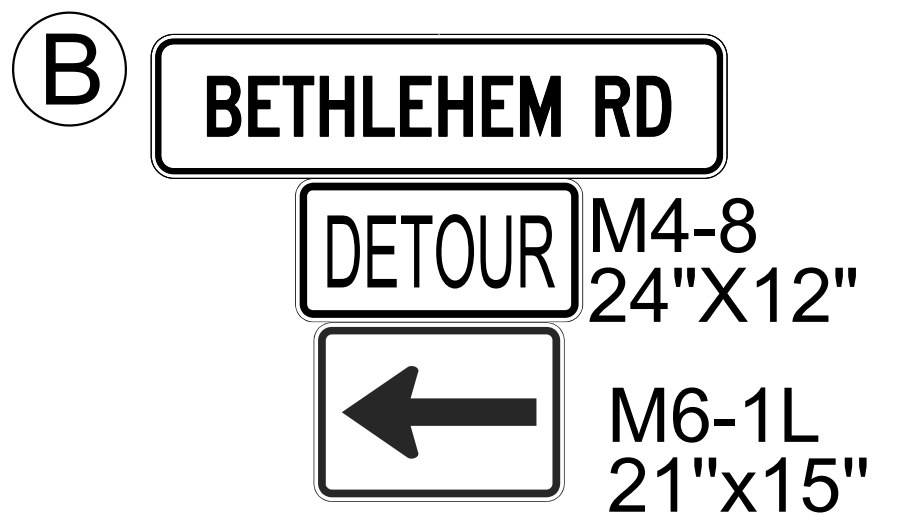
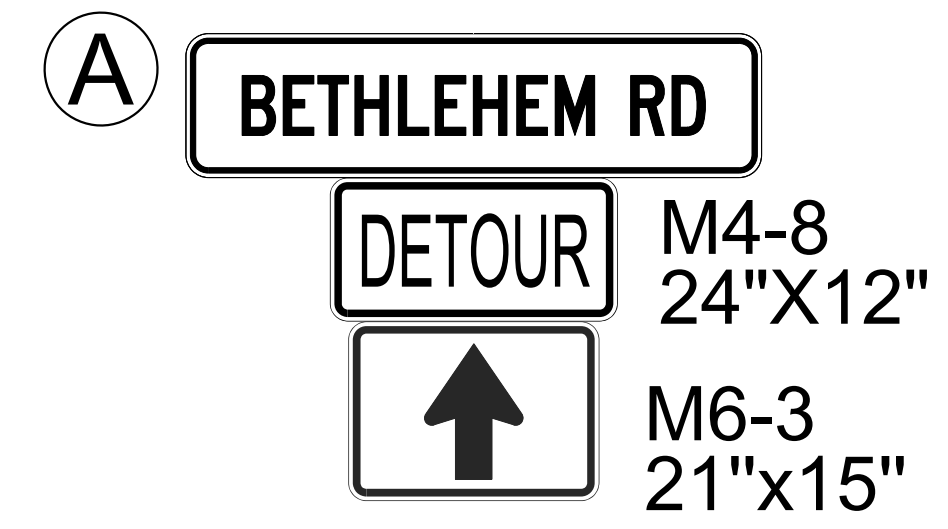
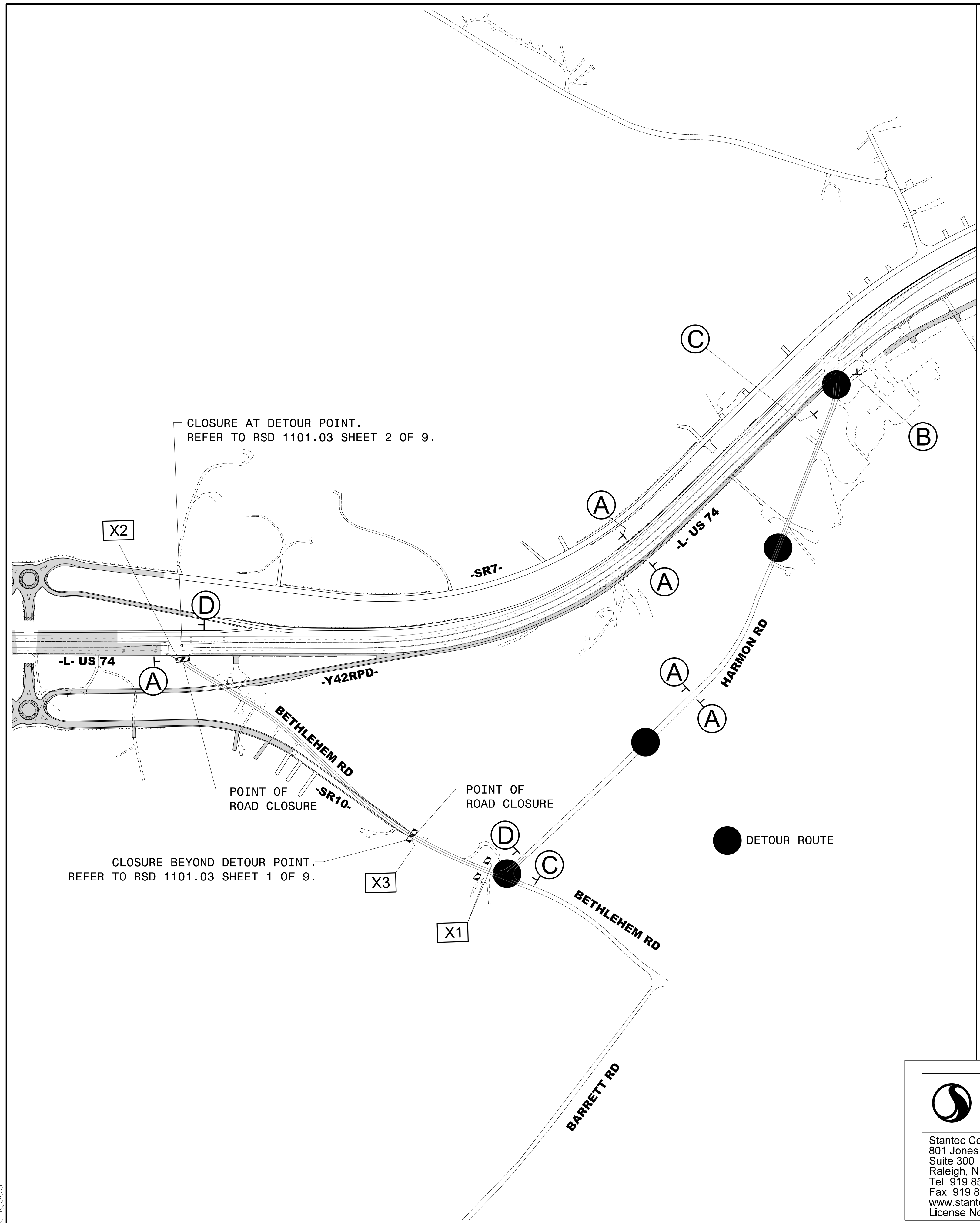
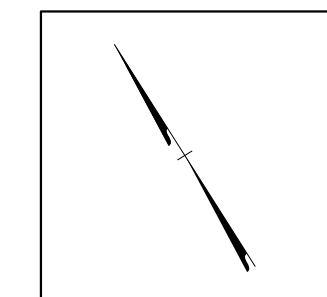
**-L- US 74  
 PHASE I  
 STEP 3AB**



MATCH LINE SHEET TMP-21  
-SR10- STA. 20+00

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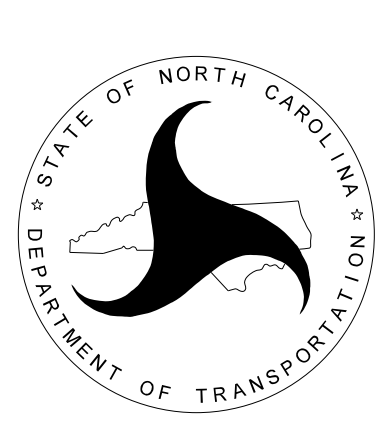


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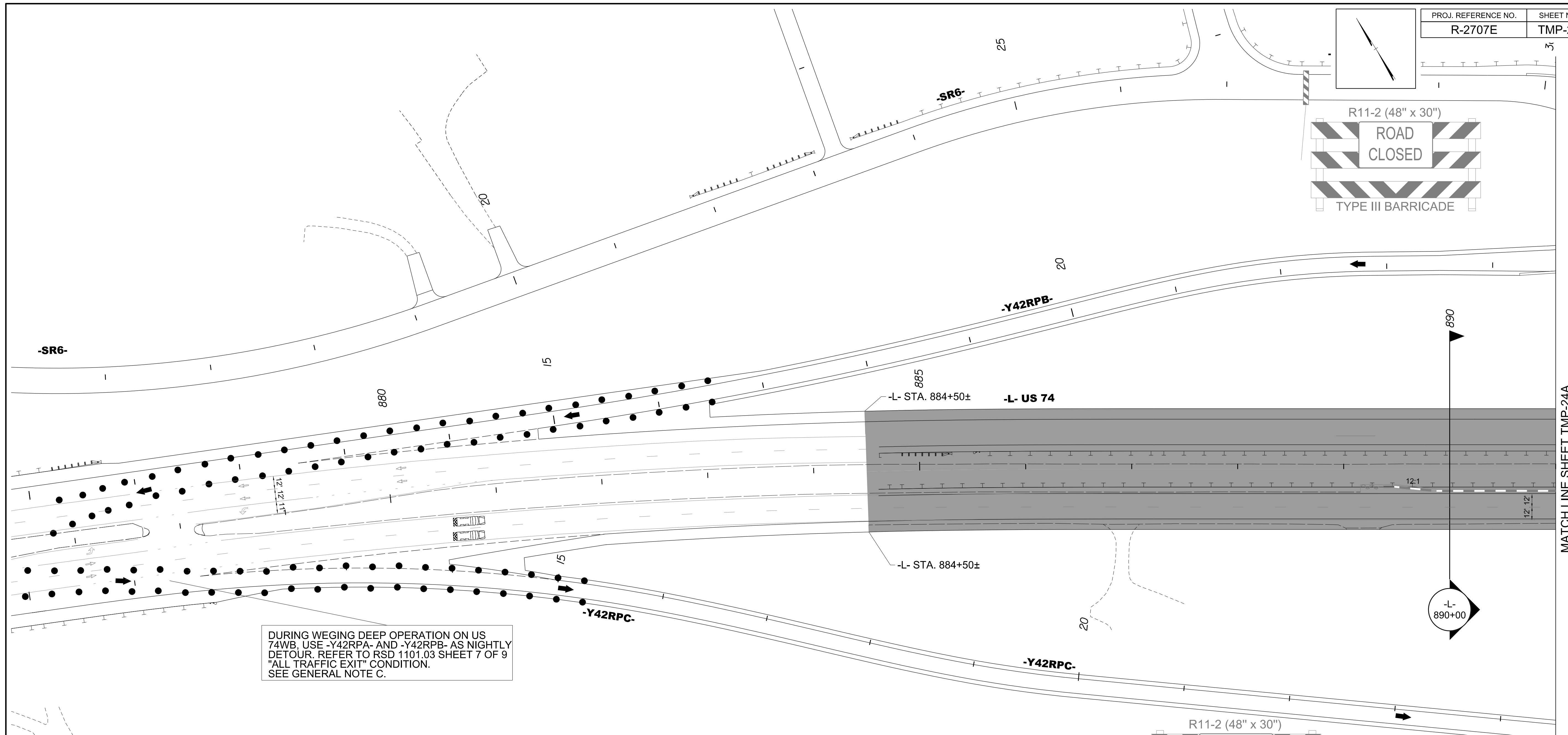
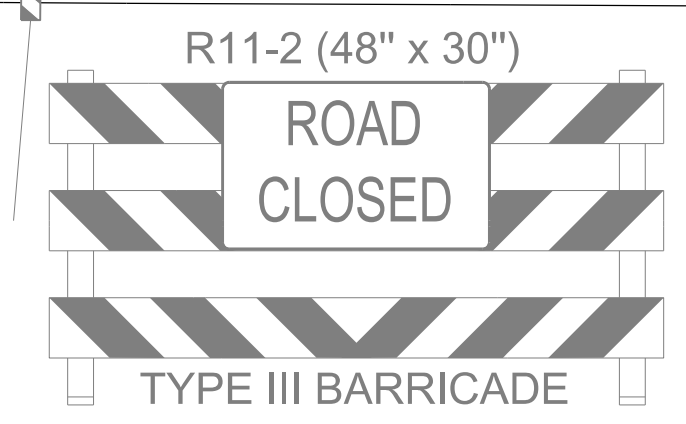
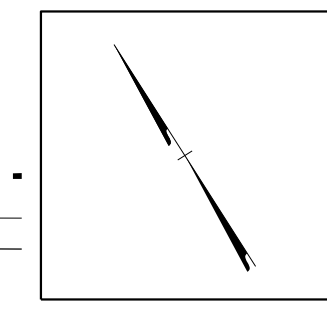
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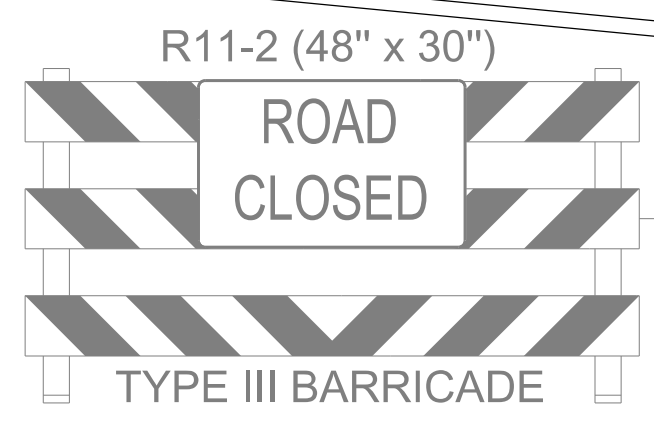
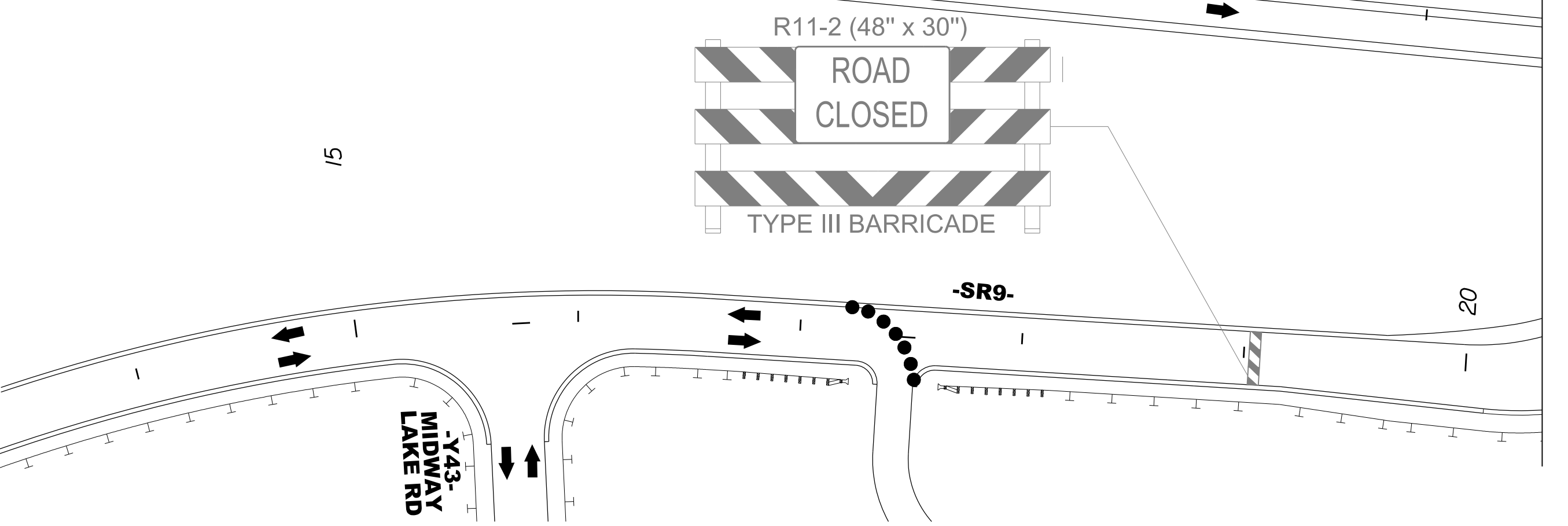
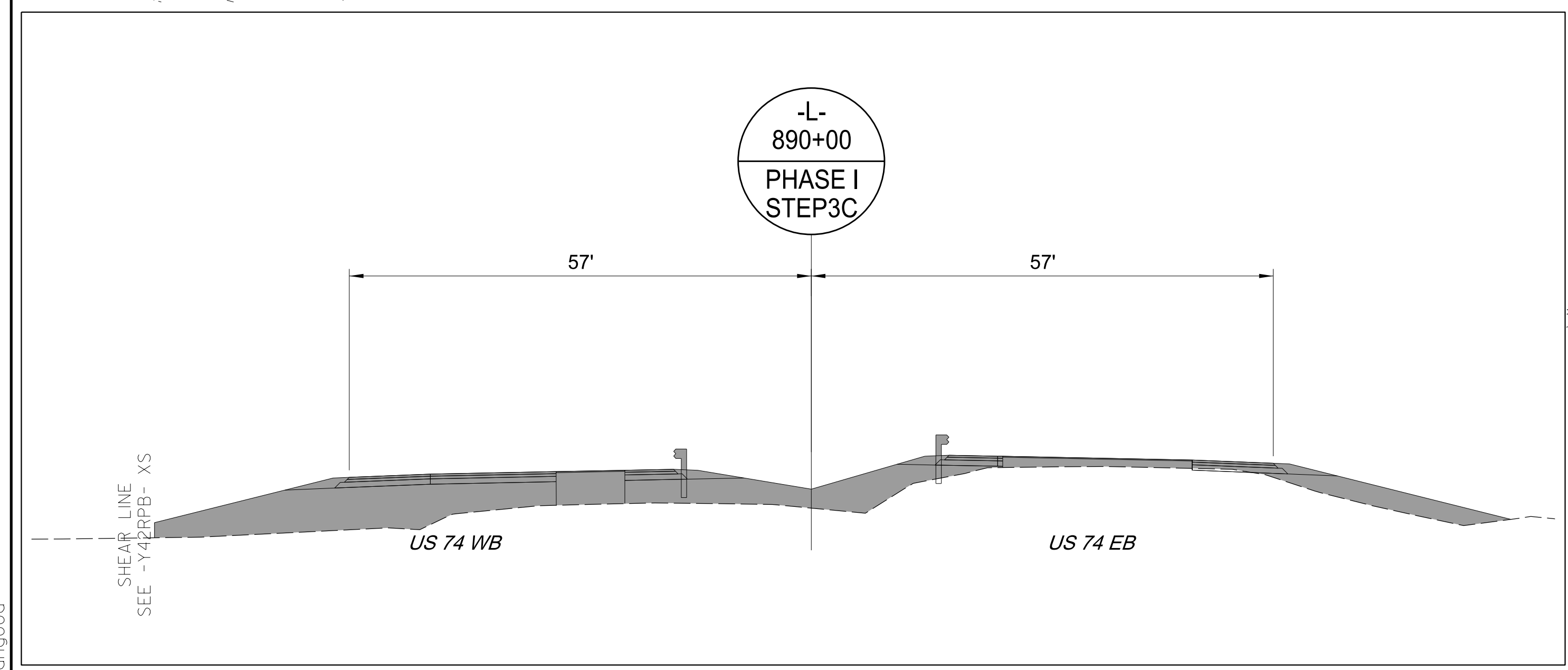


-SR10- BETHLEHEM RD  
DETOUR ROUTE



DURING WEGING DEEP OPERATION ON US 74WB, USE -Y42RPA- AND -Y42RPB- AS NIGHTLY DETOUR. REFER TO RSD 1101.03 SHEET 7 OF 9 "ALL TRAFFIC EXIT" CONDITION. SEE GENERAL NOTE C.

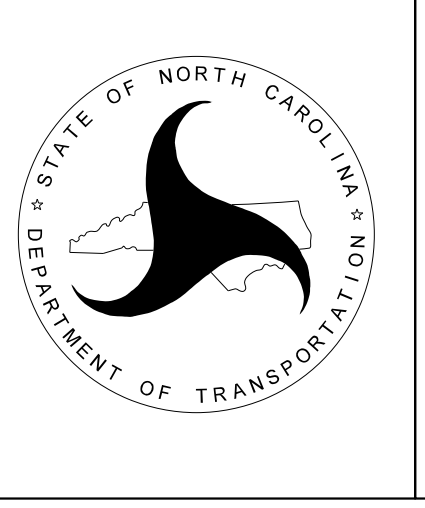
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angood

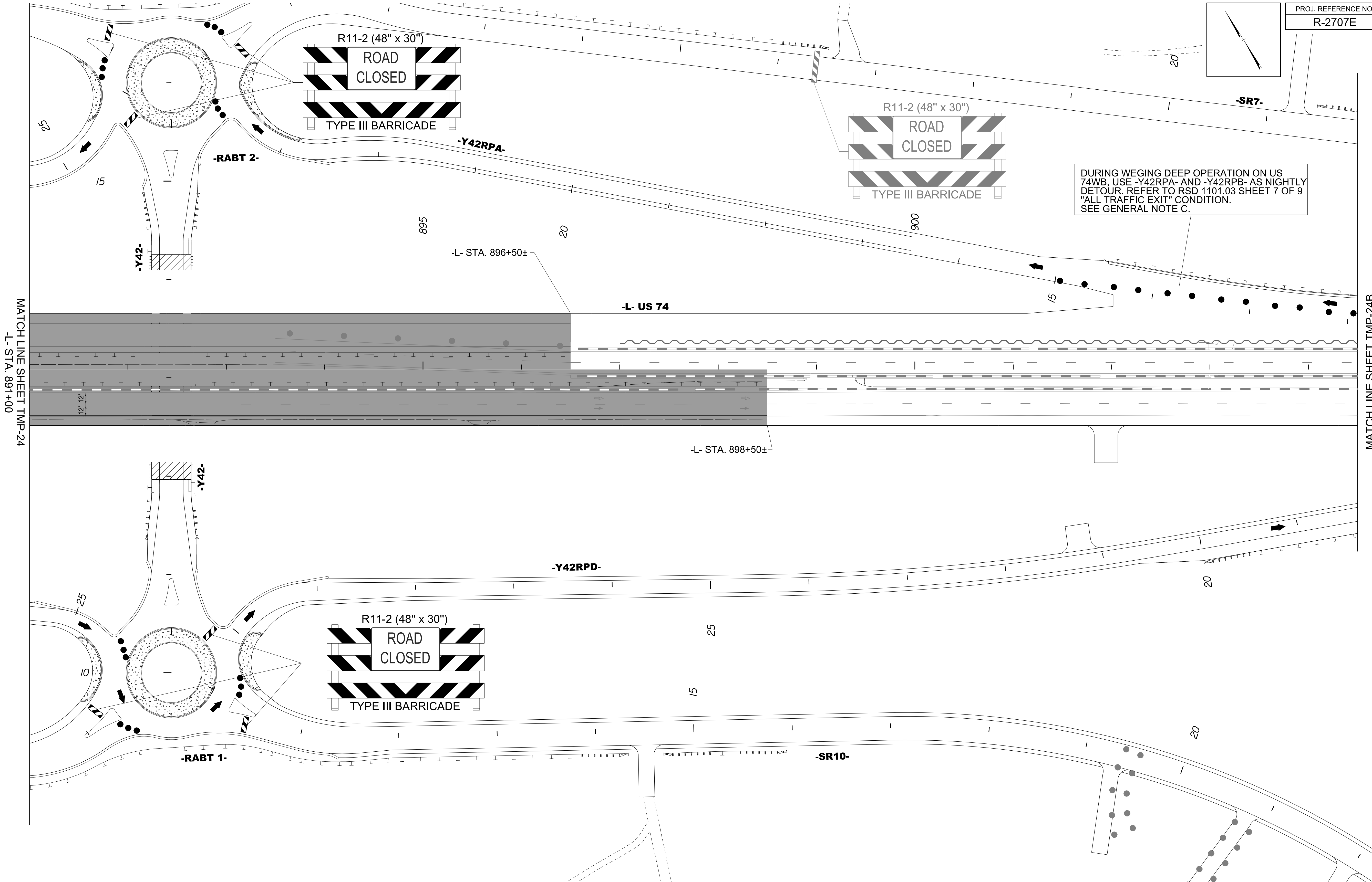
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-L- US 74  
PHASE I  
STEP 3C




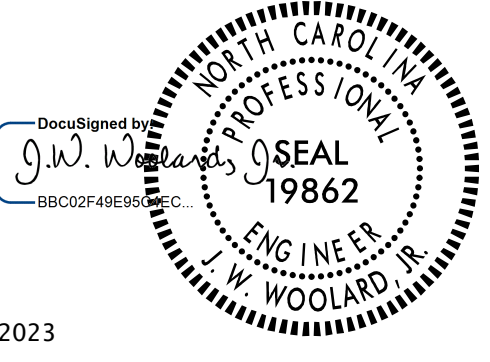
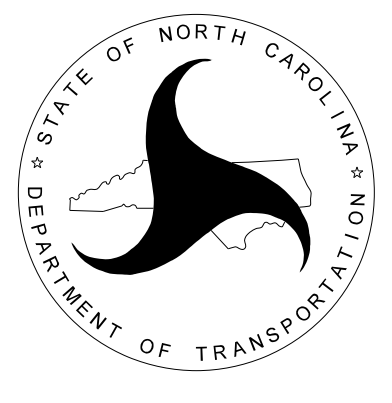


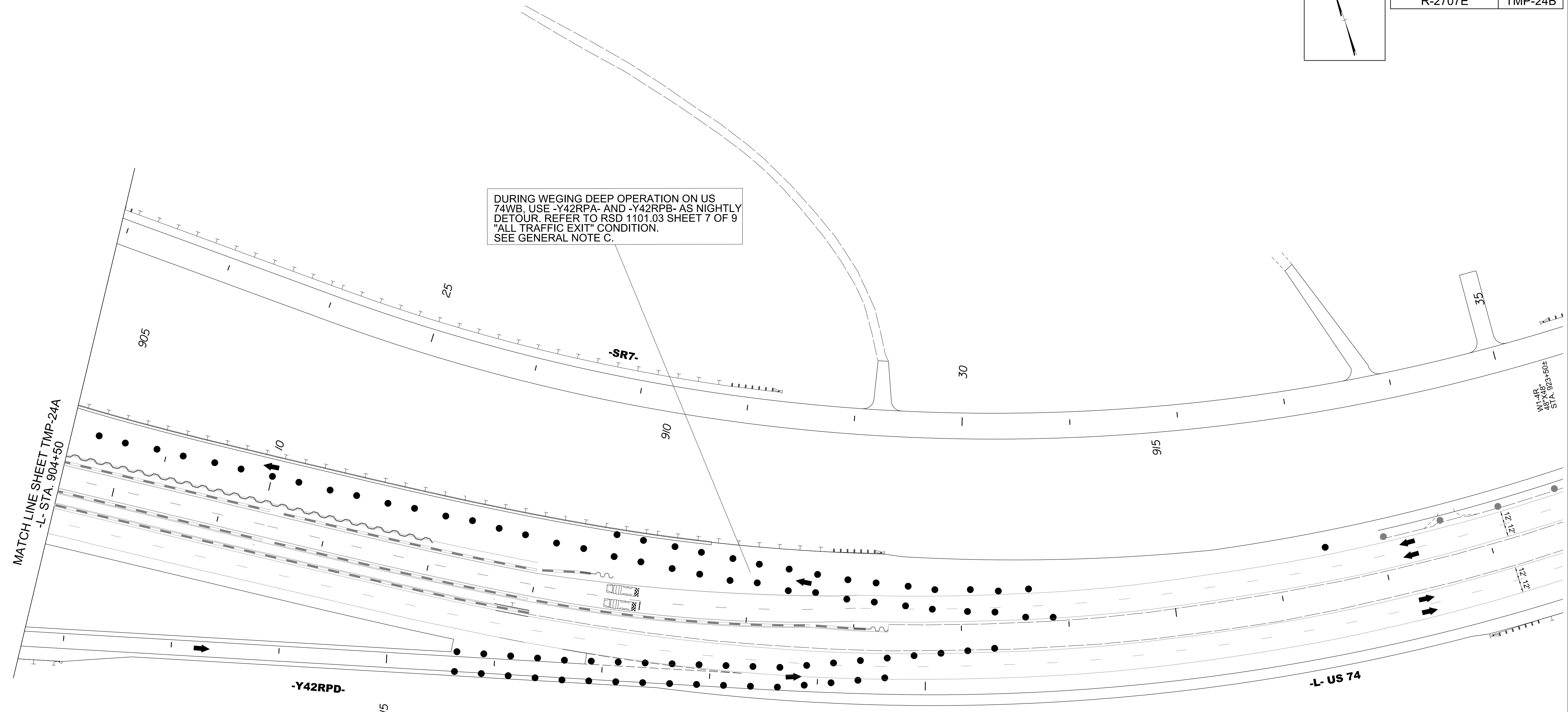
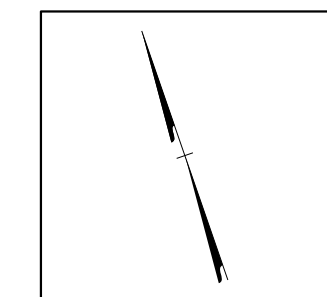
DURING WEGING DEEP OPERATION ON US 74WB, USE -Y42RPA- AND -Y42RPB- AS NIGHTLY DETOUR. REFER TO RSD 1101.03 SHEET 7 OF 9 "ALL TRAFFIC EXIT" CONDITION. SEE GENERAL NOTE C.

MATCH LINE SHEET TMP-24  
-L- STA. 891+00

MATCH LINE SHEET TMP-24B  
-L- STA. 904+50

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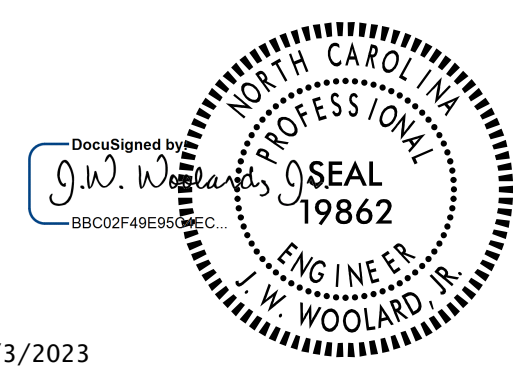
MATCHLINE SHEET TMP-24A  
-L- STA. 904+50

W/AR  
48'X45'  
STA. 923+50±

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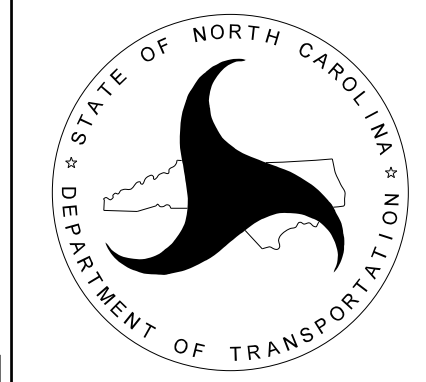


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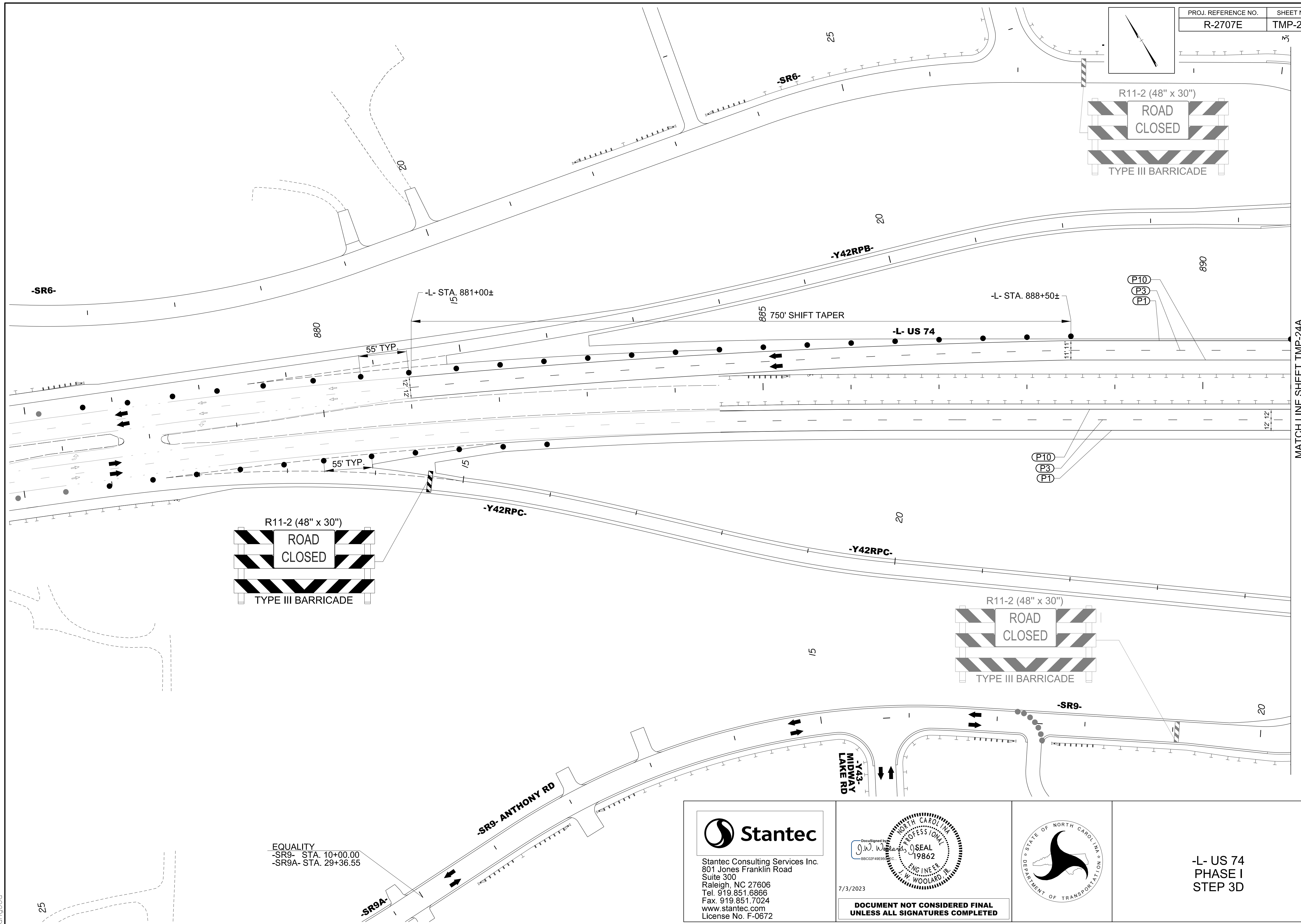
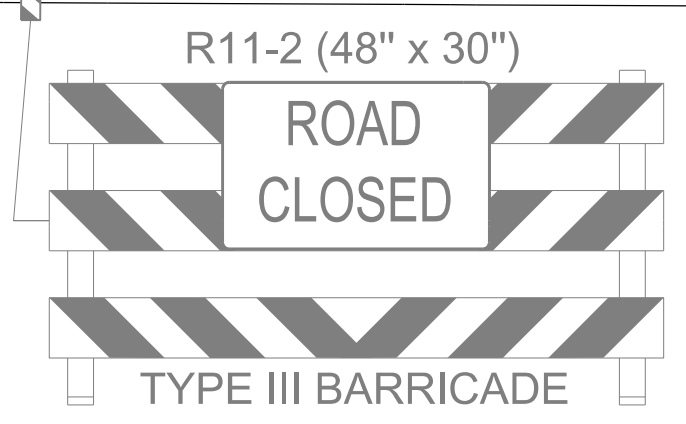
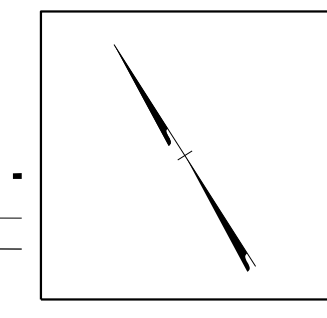


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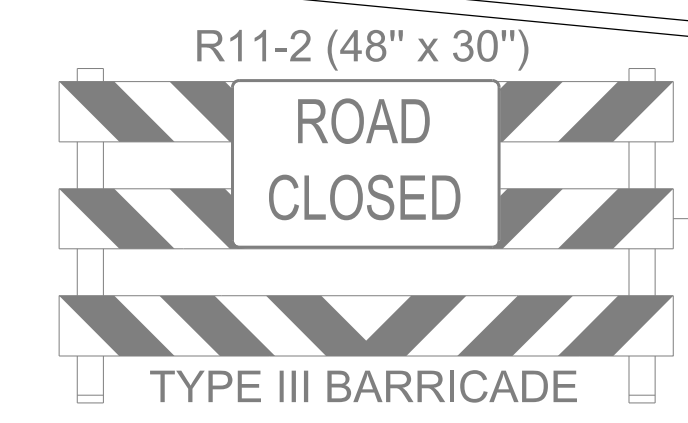


-L- US 74  
PHASE I  
STEP 3C



MATCH LINE SHEET TMP-24A  
-L- STA. 891+00

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angood

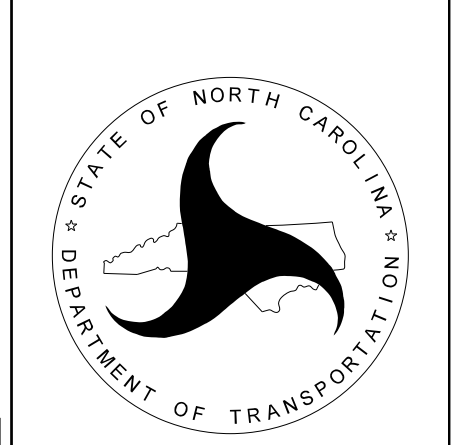


EQUALITY  
-SR9- STA. 10+00.00  
-SR9A- STA. 29+36.55

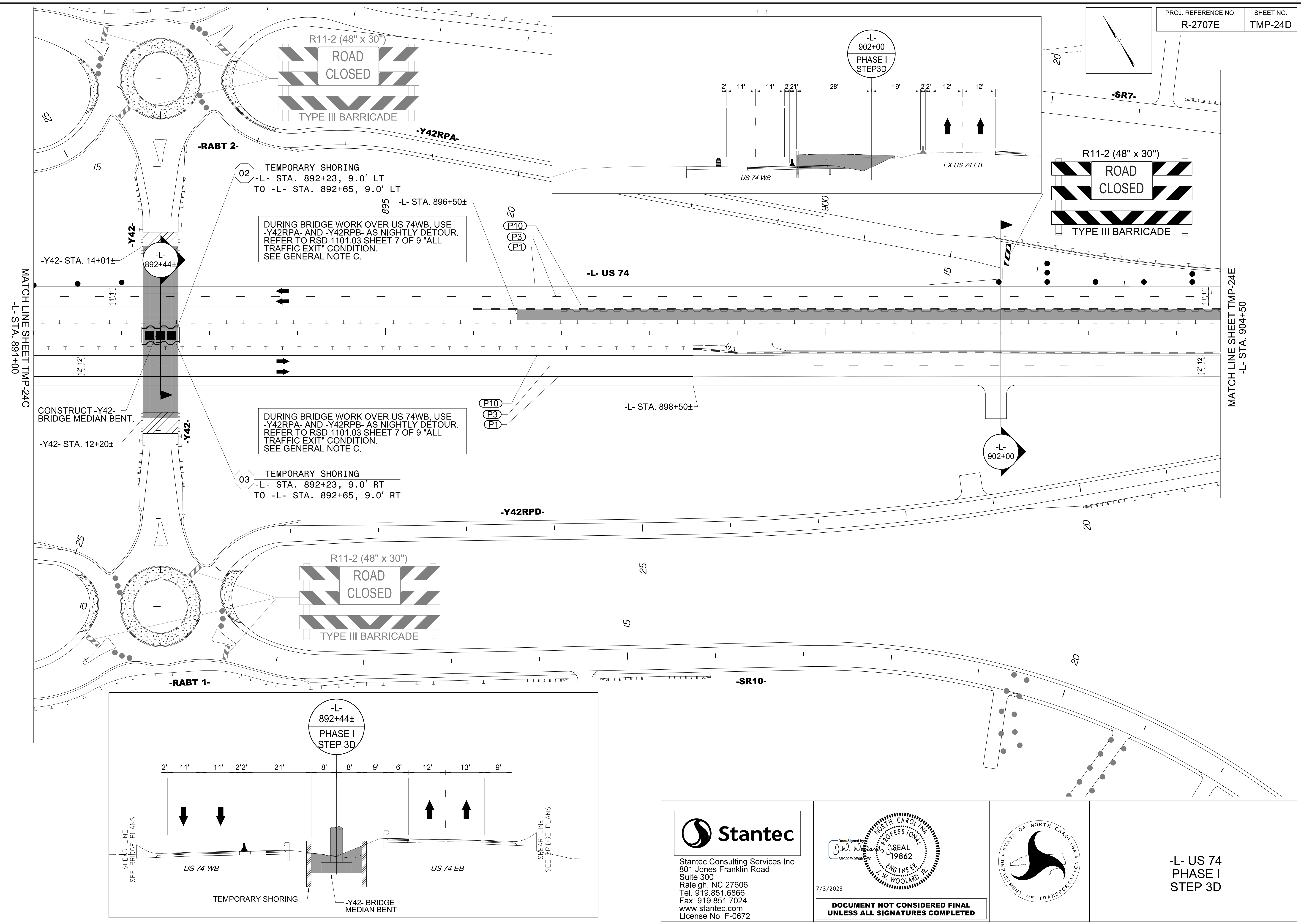
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-L- US 74  
PHASE I  
STEP 3D



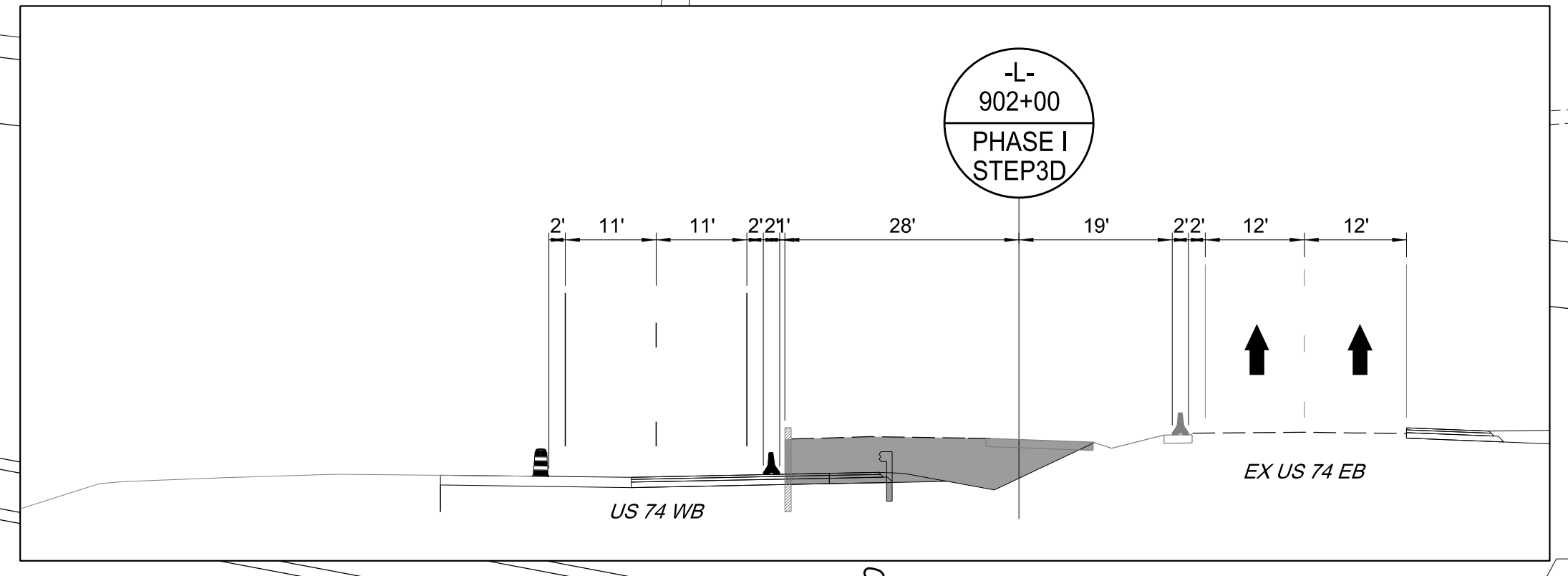
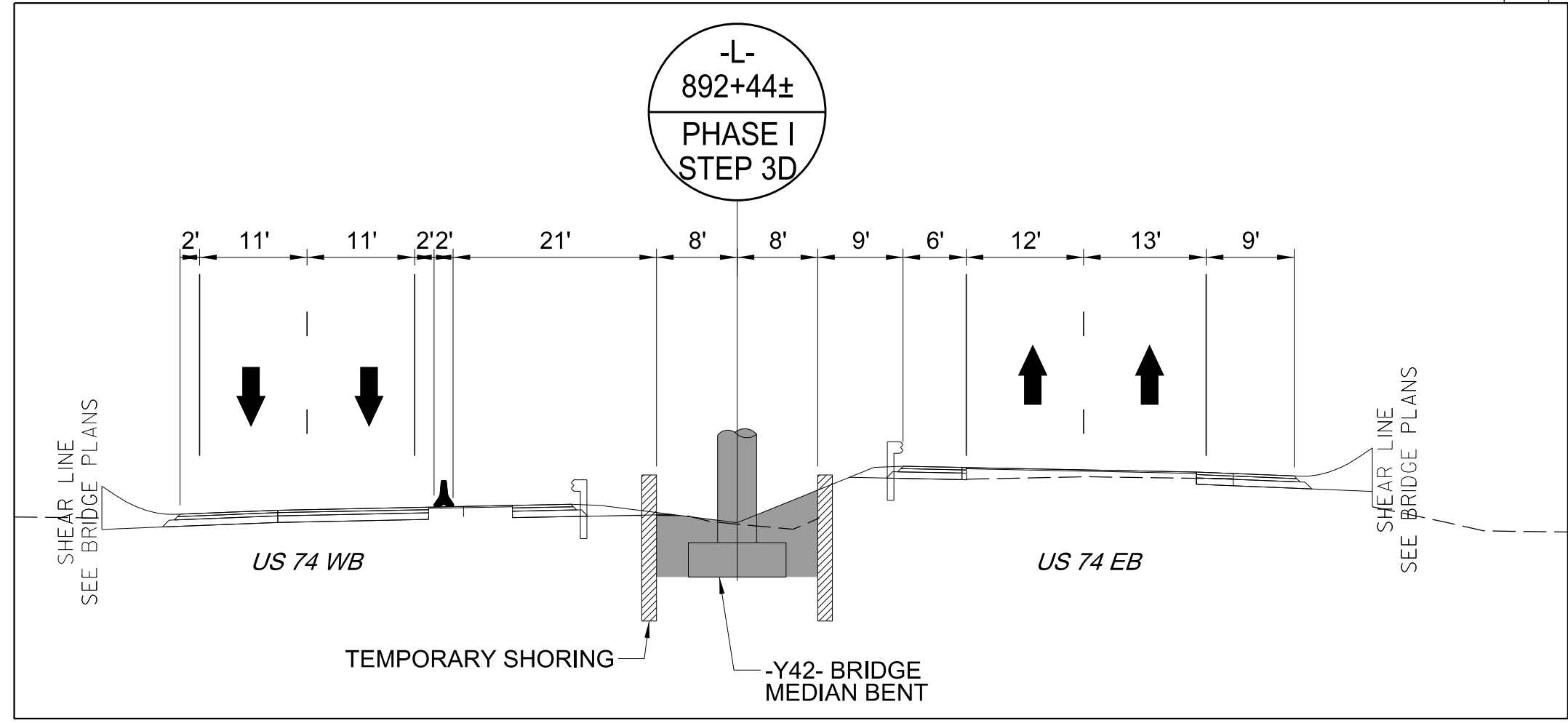
02 TEMPORARY SHORING  
 -L- STA. 892+23, 9.0' LT  
 TO -L- STA. 892+65, 9.0' LT

DURING BRIDGE WORK OVER US 74WB, USE -Y42RPA- AND -Y42RPB- AS NIGHTLY DETOUR. REFER TO RSD 1101.03 SHEET 7 OF 9 "ALL TRAFFIC EXIT" CONDITION. SEE GENERAL NOTE C.

03 TEMPORARY SHORING  
 -L- STA. 892+23, 9.0' RT  
 TO -L- STA. 892+65, 9.0' RT

DURING BRIDGE WORK OVER US 74WB, USE -Y42RPA- AND -Y42RPB- AS NIGHTLY DETOUR. REFER TO RSD 1101.03 SHEET 7 OF 9 "ALL TRAFFIC EXIT" CONDITION. SEE GENERAL NOTE C.

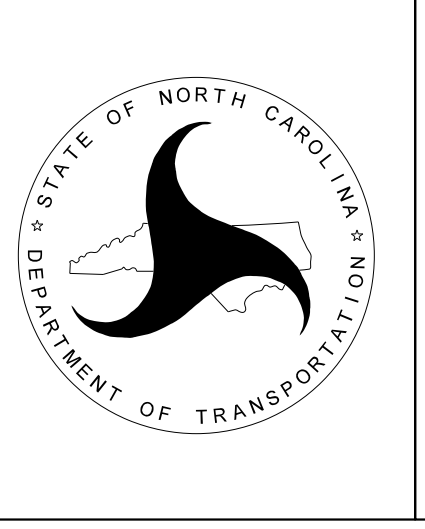
CONSTRUCT -Y42- BRIDGE MEDIAN BENT.  
 -Y42- STA. 12+20±



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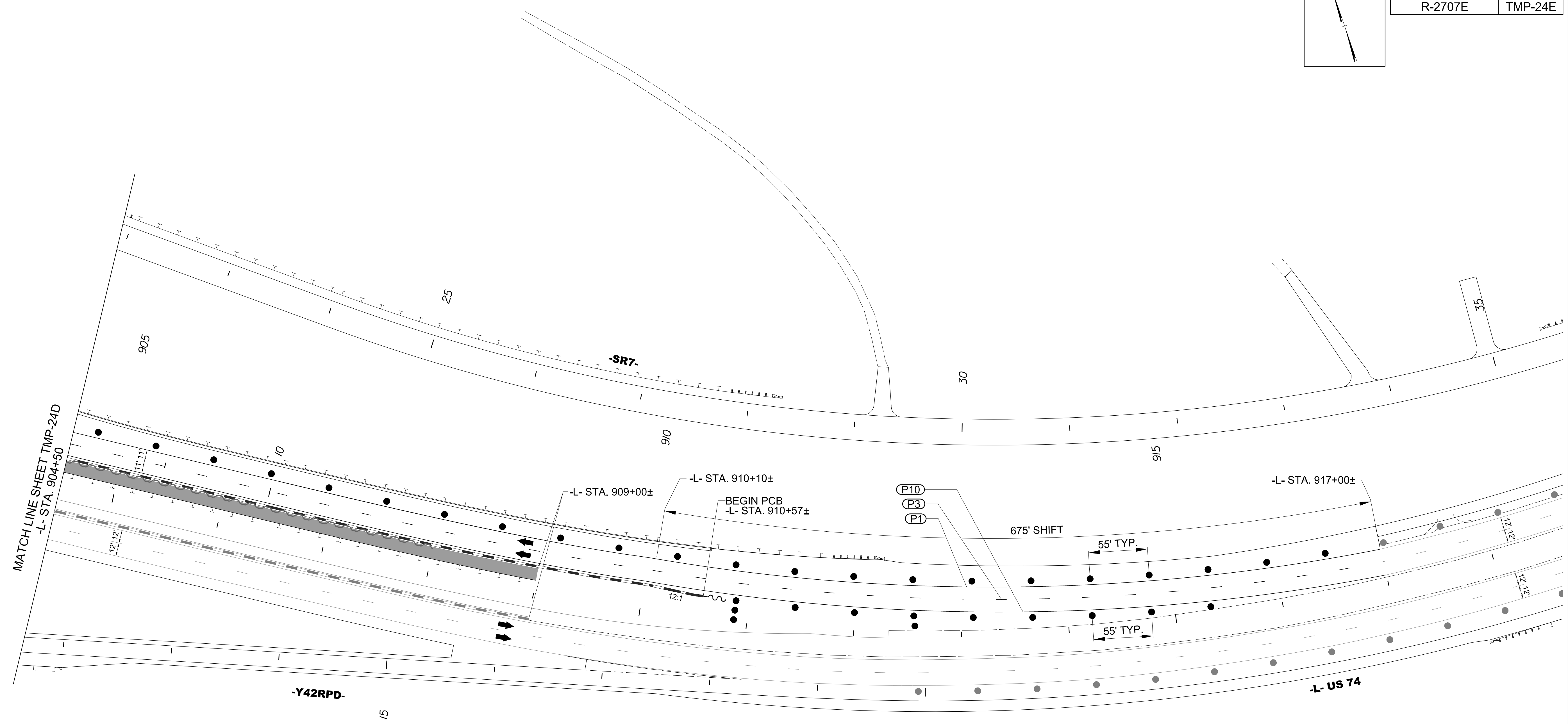
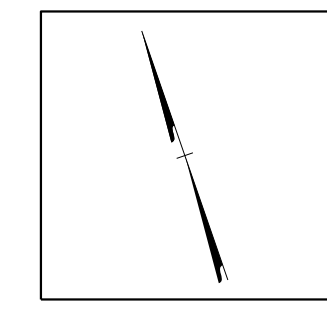
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**-L- US 74  
 PHASE I  
 STEP 3D**

PROJ. REFERENCE NO.	SHEET NO.
R-2707E	TMP-24E

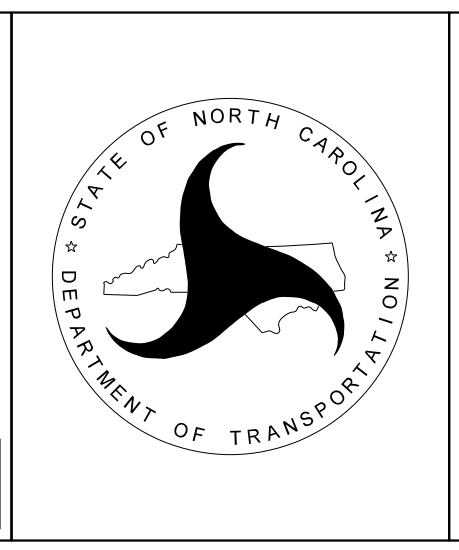


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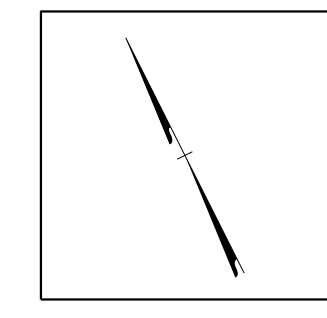
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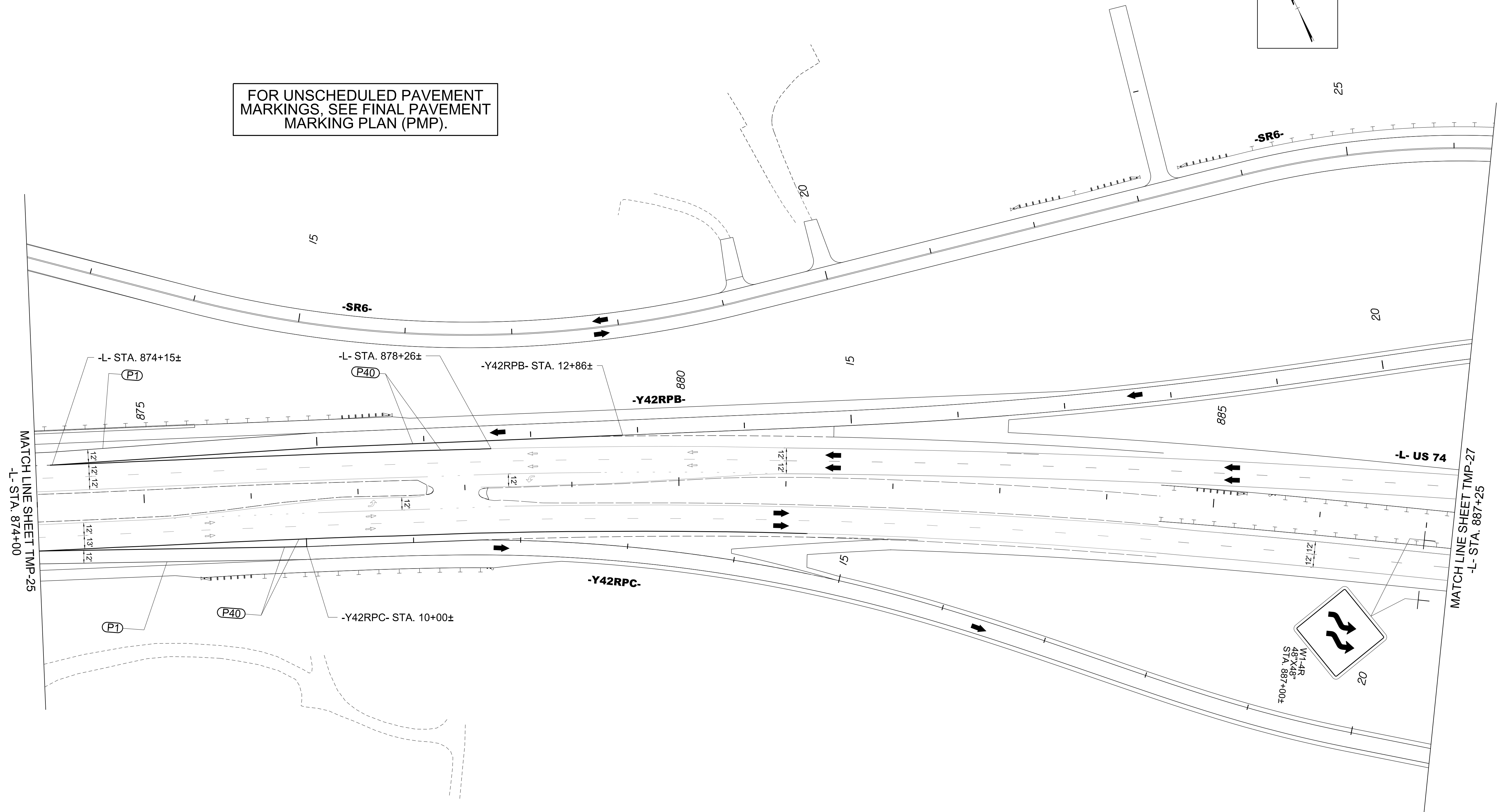


-L- US 74  
 PHASE I  
 STEP 3D

PROJ. REFERENCE NO.	SHEET NO.
R-2707E	TMP-26

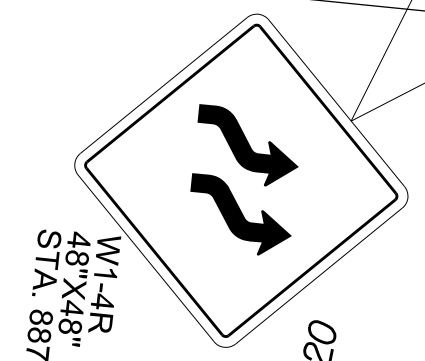


FOR UNSCHEDULED PAVEMENT MARKINGS, SEE FINAL PAVEMENT MARKING PLAN (PMP).



MATCH LINE SHEET TMP-25  
-L- STA. 874+00

MATCH LINE SHEET TMP-27  
-L- STA. 887+25

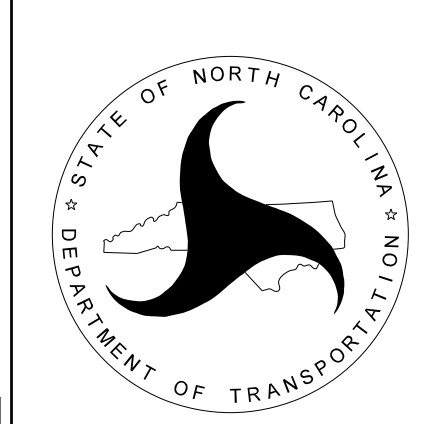


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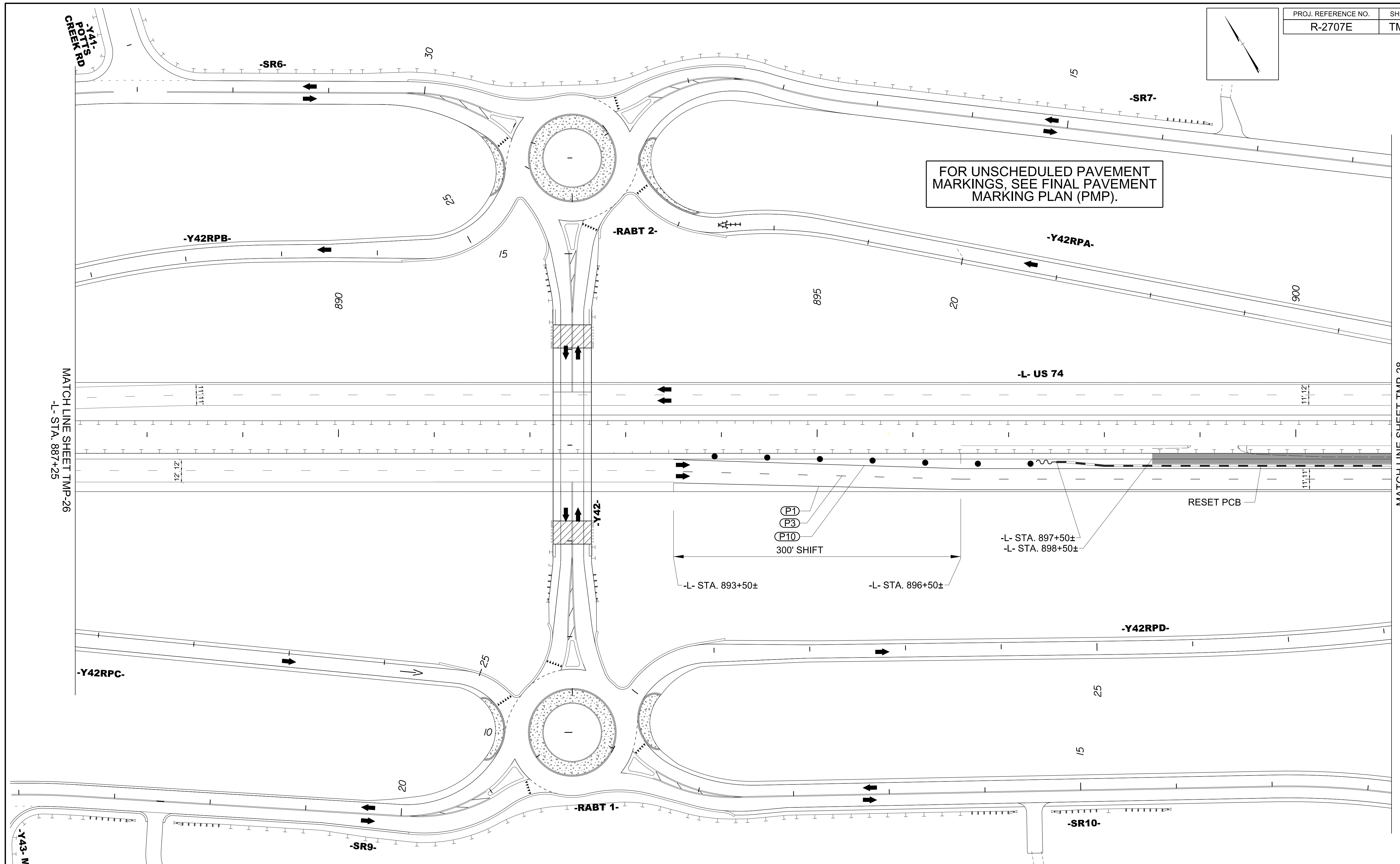
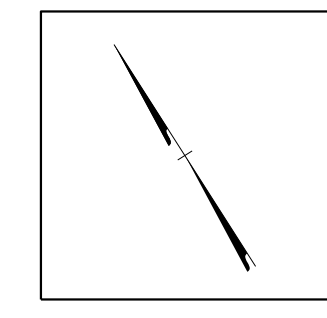
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-L- US 74  
PHASE II  
STEP 1



FOR UNSCHEDULED PAVEMENT MARKINGS, SEE FINAL PAVEMENT MARKING PLAN (PMP).

(P1)  
(P3)  
(P10)  
300' SHIFT

-L- STA. 897+50±  
-L- STA. 898+50±

-L- STA. 893+50±      -L- STA. 896+50±

RESET PCB

MATCH LINE SHEET TMP-26  
-L- STA. 887+25

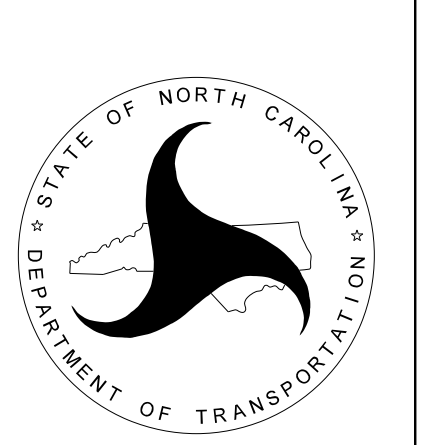
MATCH LINE SHEET TMP-28  
-L- STA. 901+00

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angood

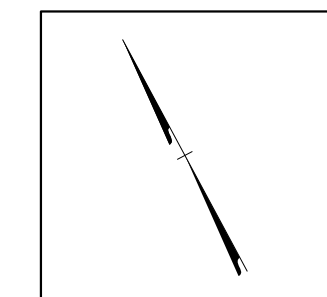
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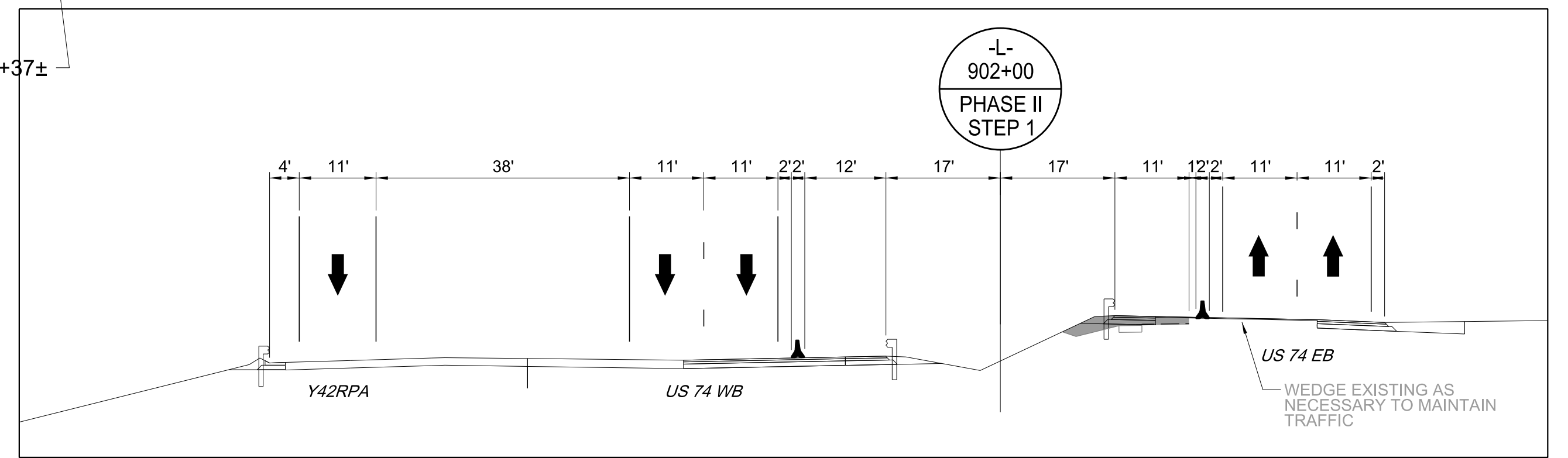
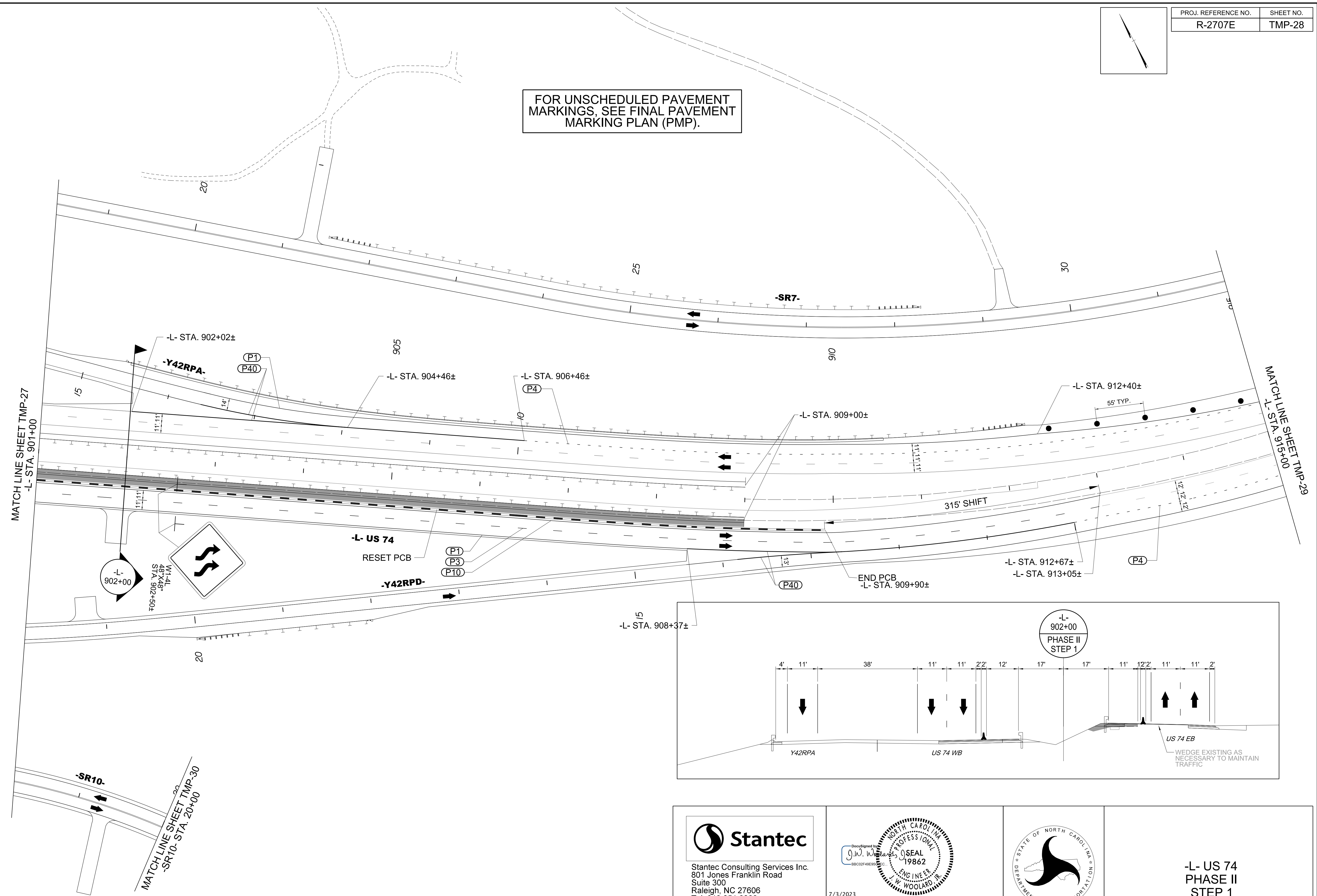
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-L- US 74  
PHASE II  
STEP 1



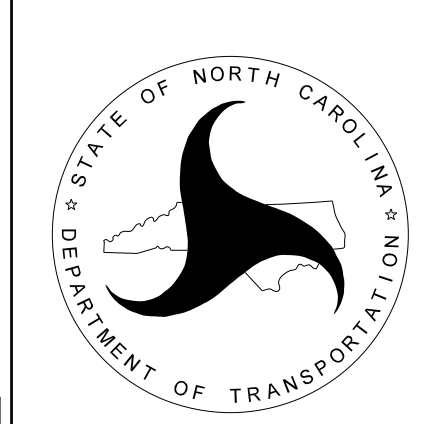
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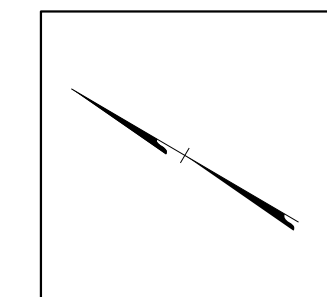
DocuSigned by:  
J.W. Woolard  
PROFESSOR  
SEAL  
19862  
ENGINEER  
W. WOOLARD, R.  
7/3/2023



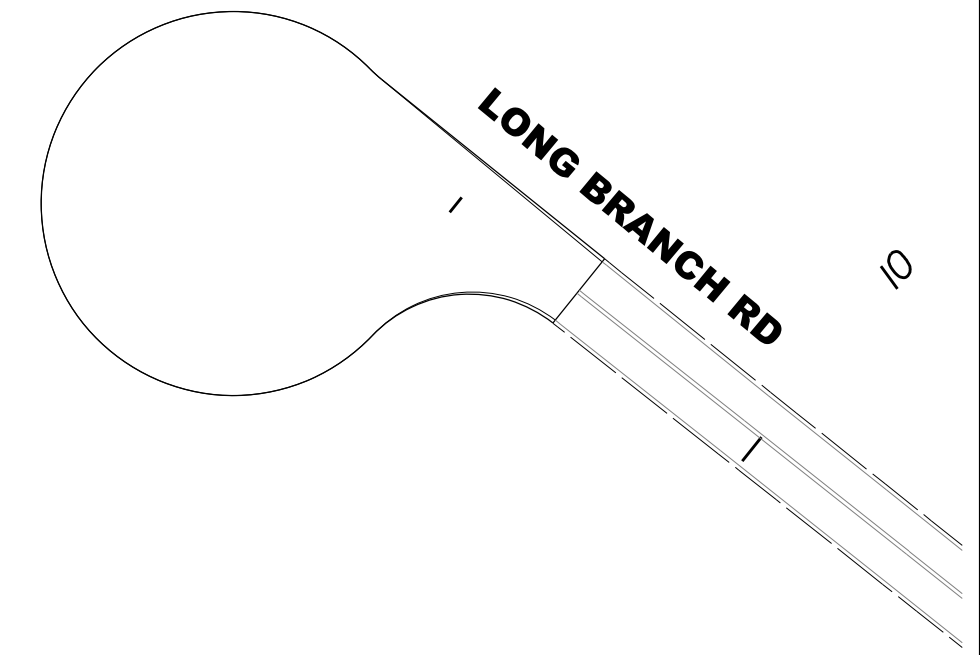
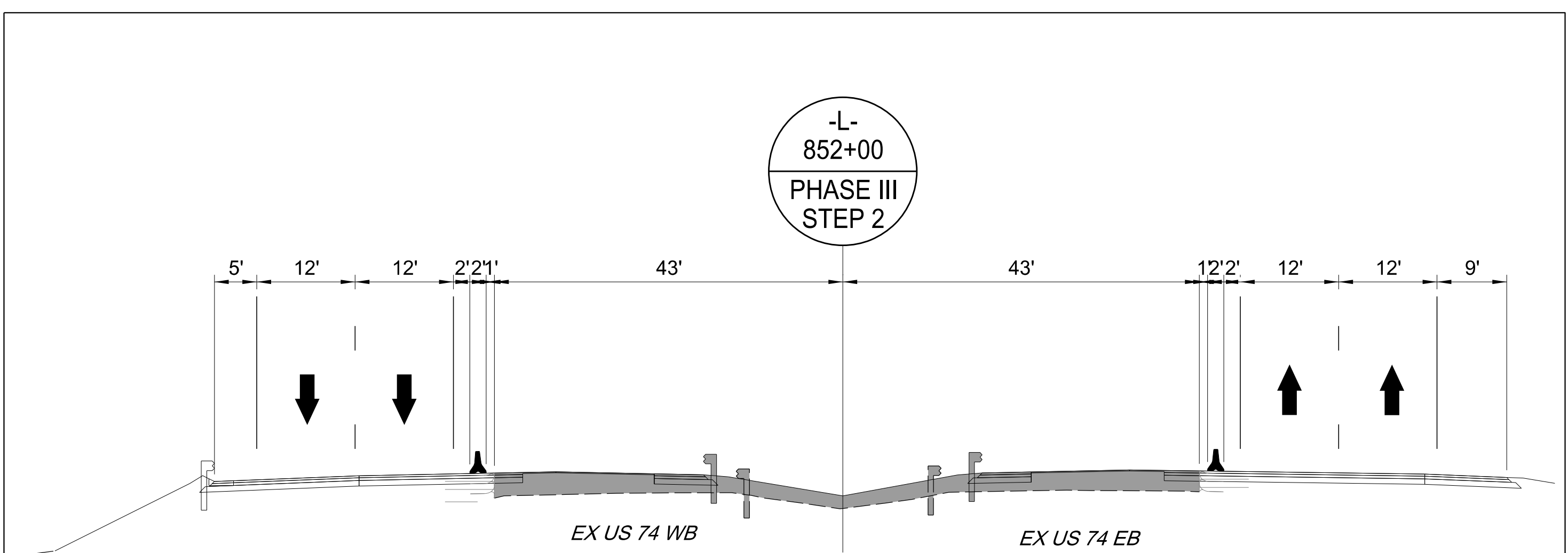
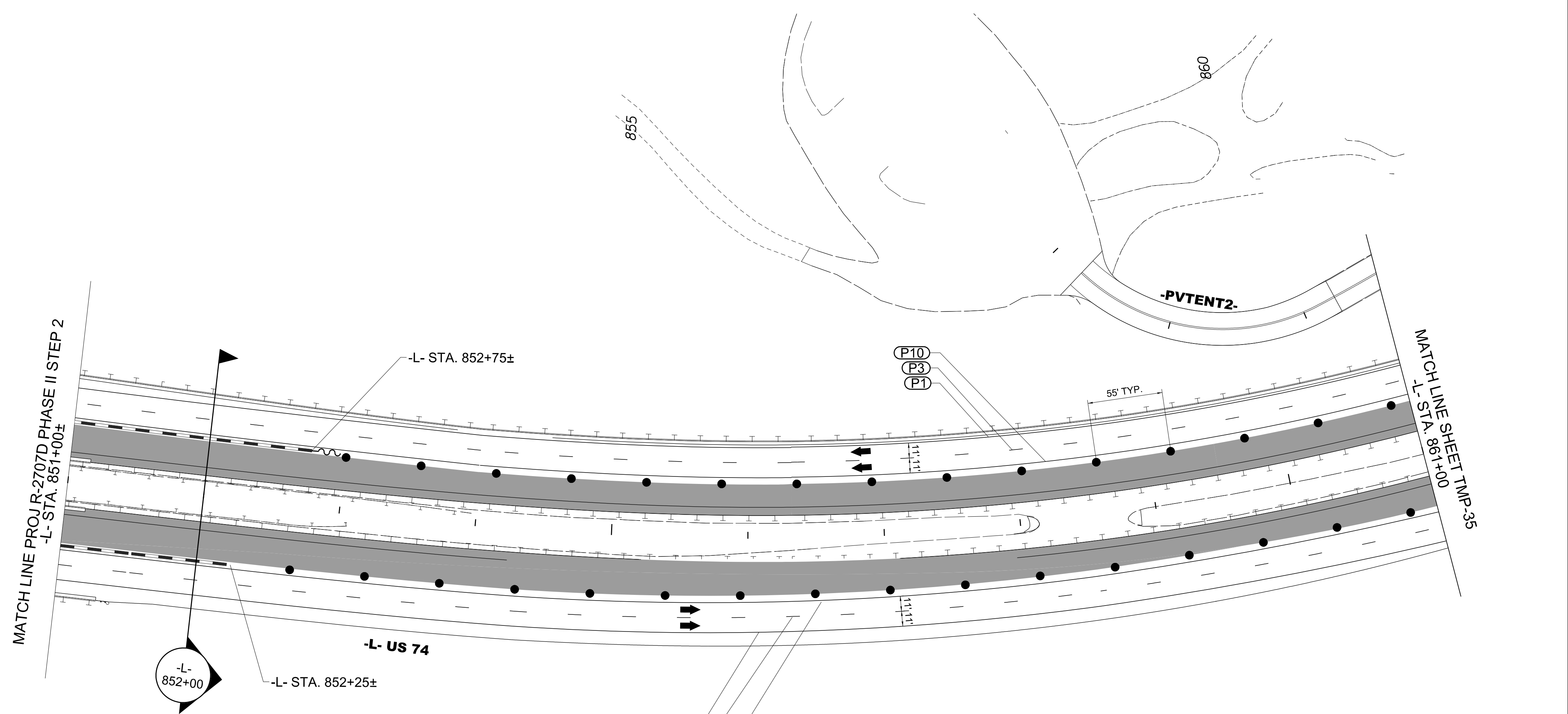
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PHASE II  
STEP 1**

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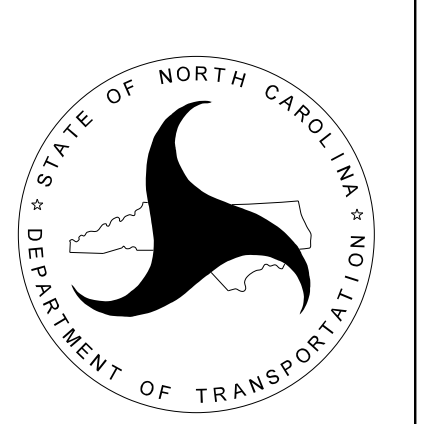
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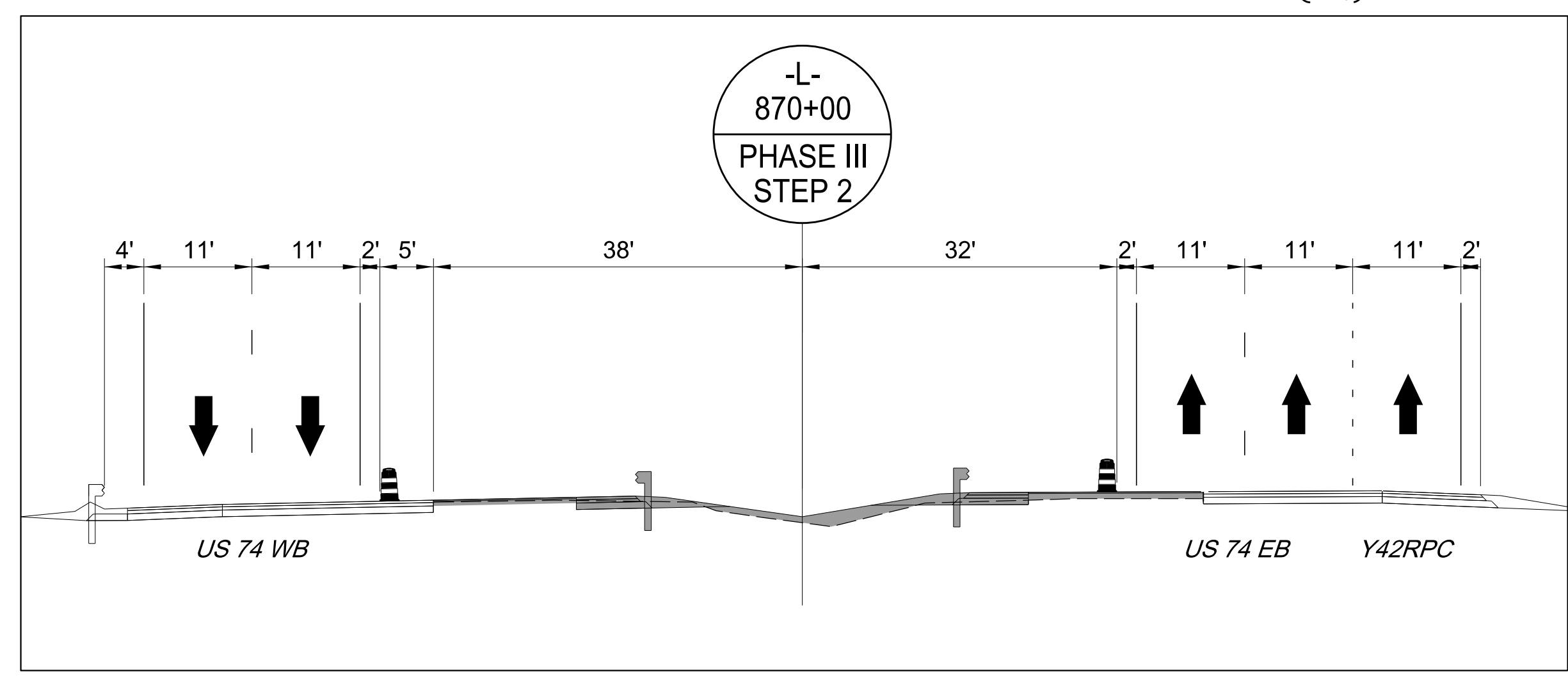
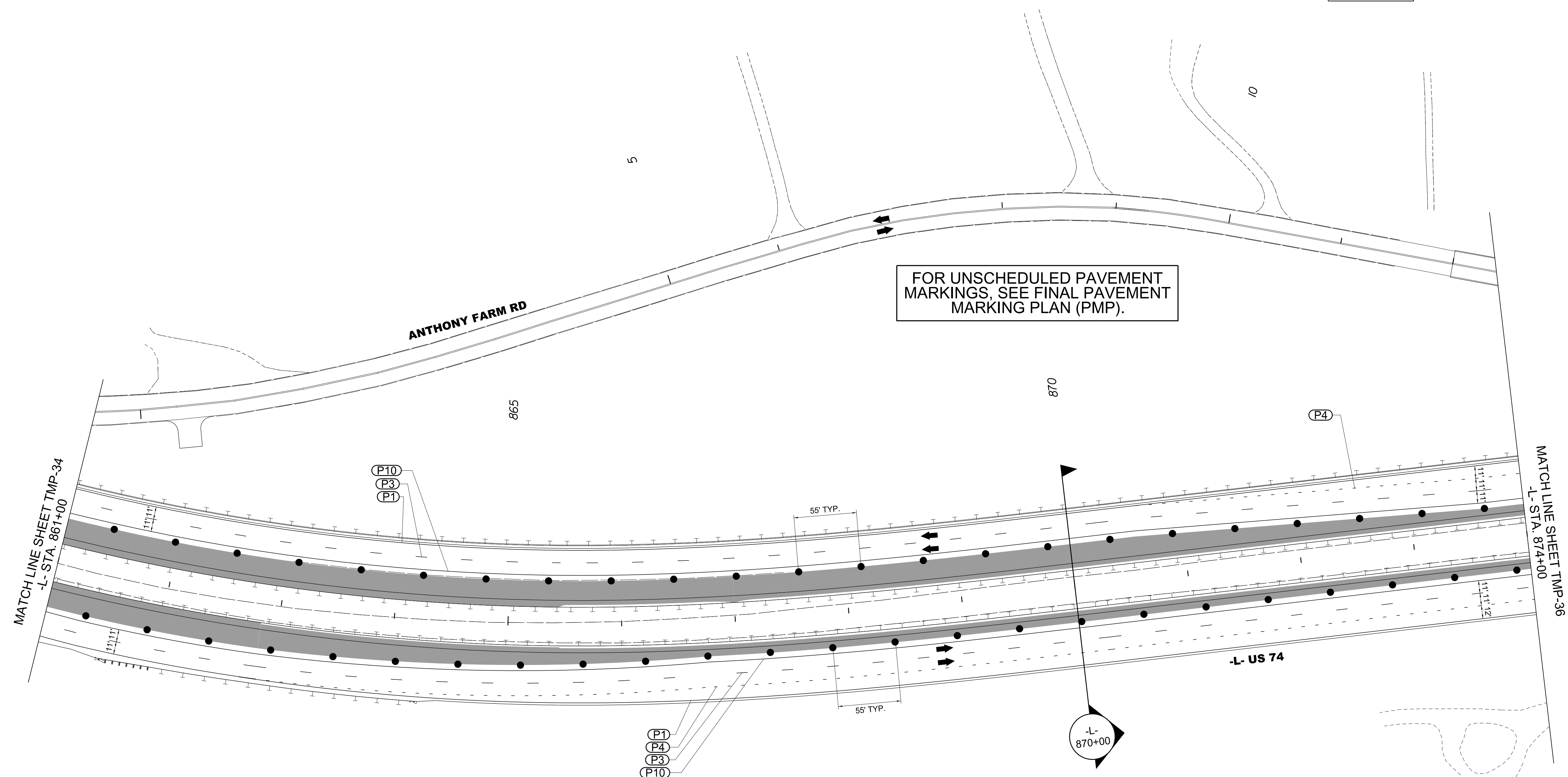
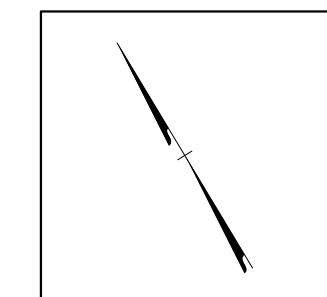
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DocuSigned by:  
 J.W. Woolard  
 19862  
 ENGINEER  
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 NORTH CAROLINA  
 PROFESSIONAL  
 SEAL  
 19862  
 7/3/2023  
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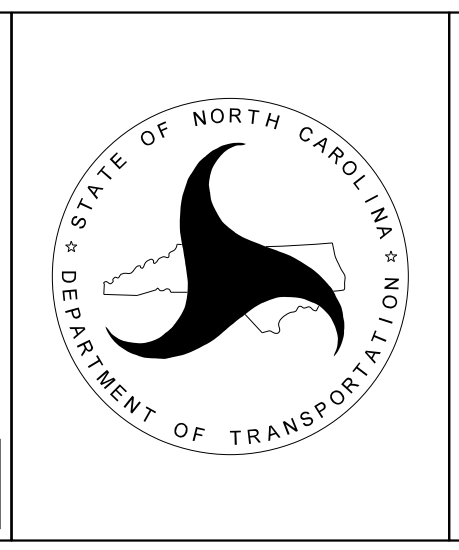


-L- US 74  
 PHASE III  
 STEP 2



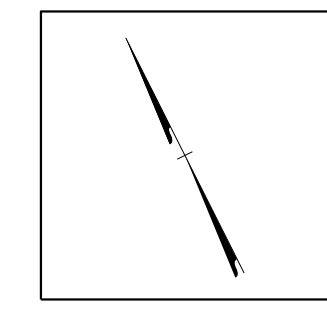
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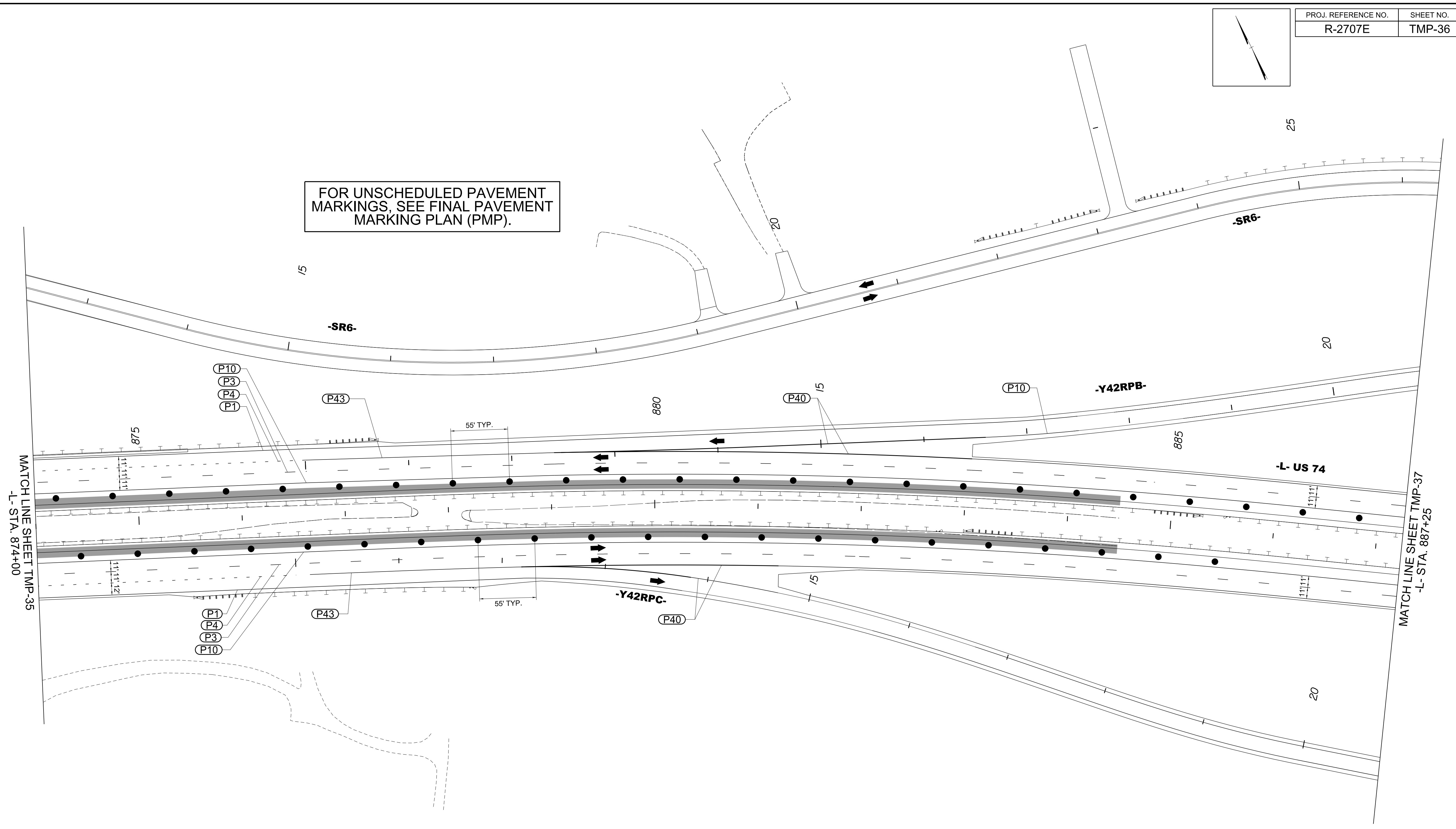


**-L- US 74  
 PHASE III  
 STEP 2**

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FOR UNSCHEDULED PAVEMENT MARKINGS, SEE FINAL PAVEMENT MARKING PLAN (PMP).

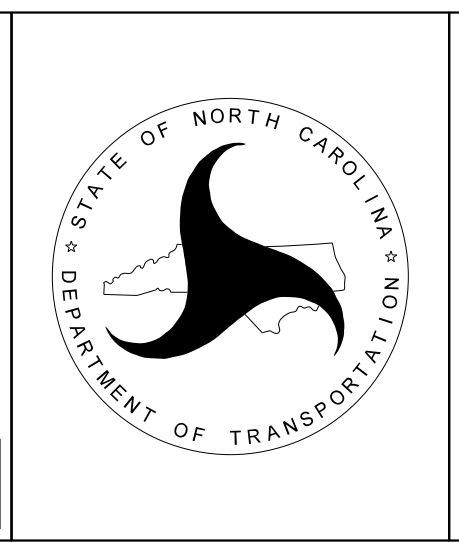


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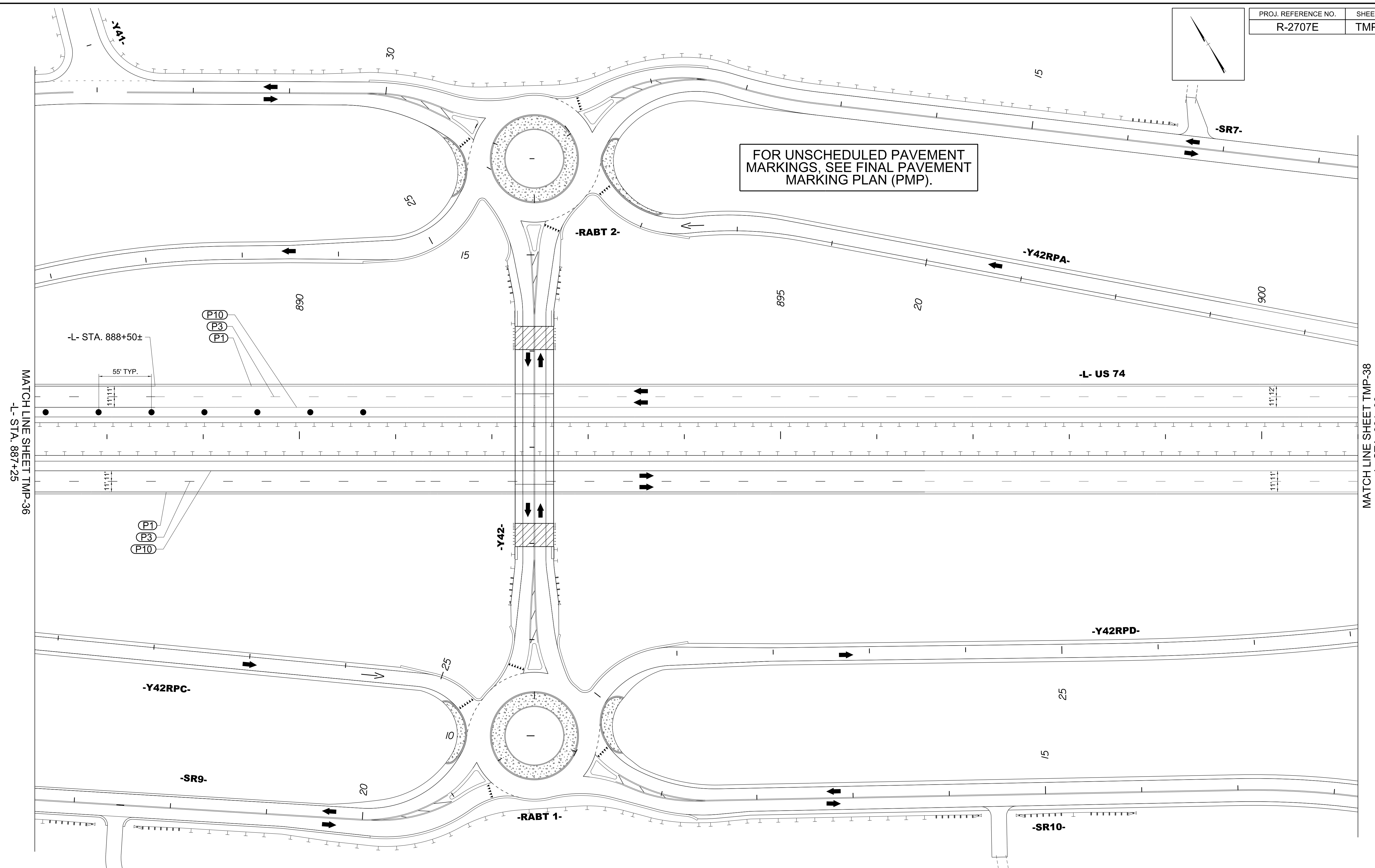
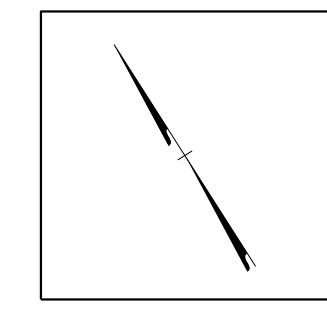
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-L- US 74  
 PHASE III  
 STEP 2



FOR UNSCHEDULED PAVEMENT MARKINGS, SEE FINAL PAVEMENT MARKING PLAN (PMP).

MATCH LINE SHEET TMP-36  
-L- STA. 887+25

MATCH LINE SHEET TMP-38  
-L- STA. 901+00

-L- STA. 888+50±

55' TYP.

P10  
P3  
P1

P1  
P3  
P10

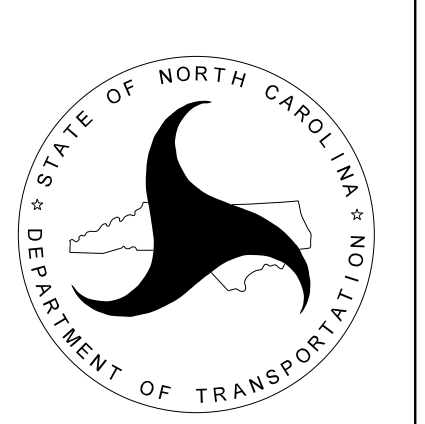
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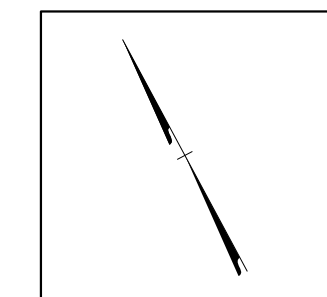
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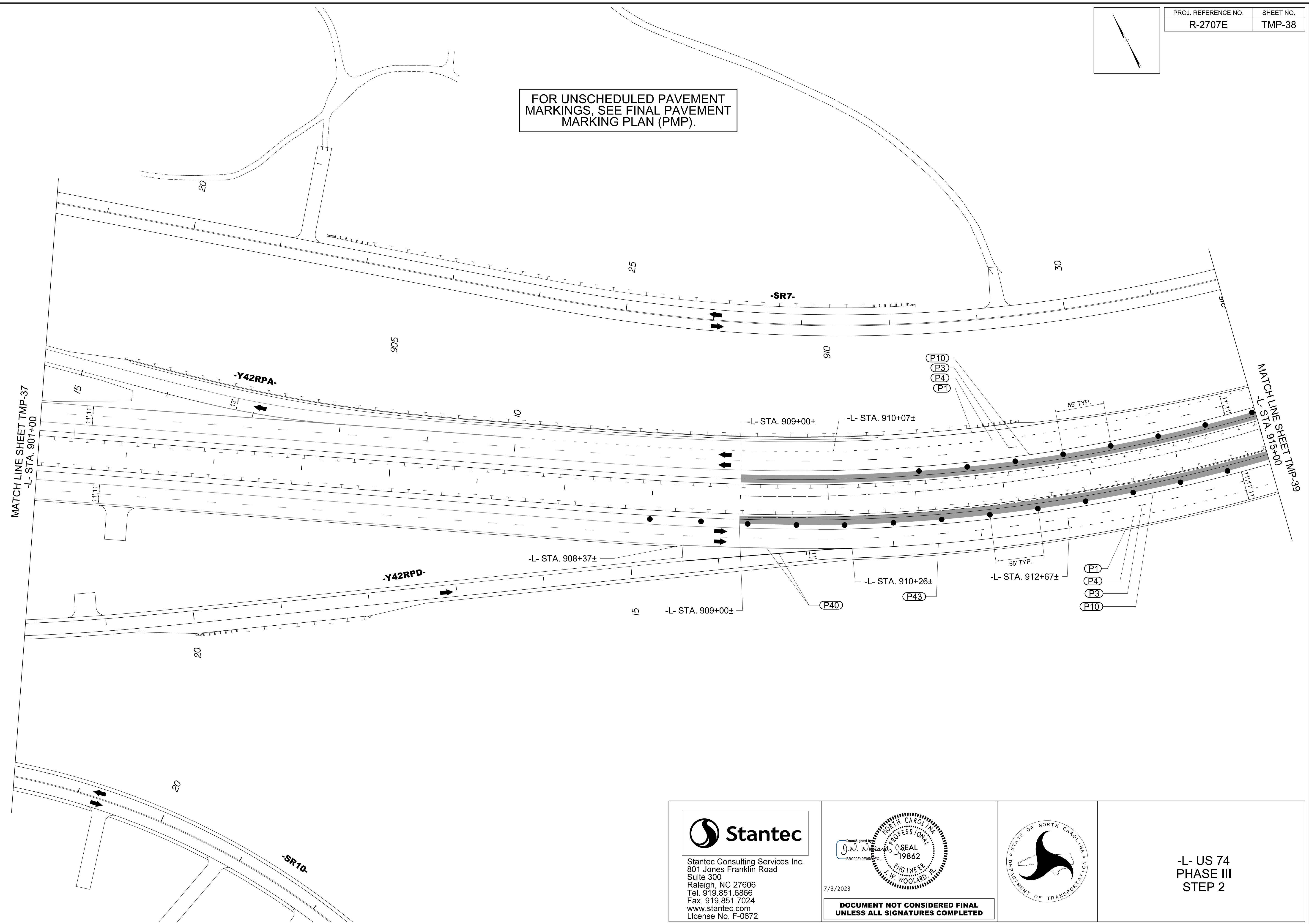
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-L- US 74  
PHASE III  
STEP 2



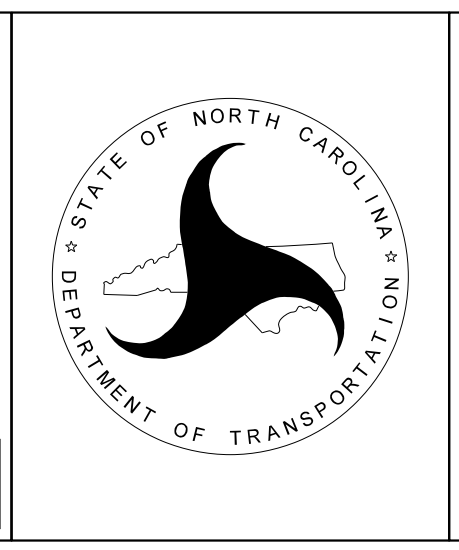
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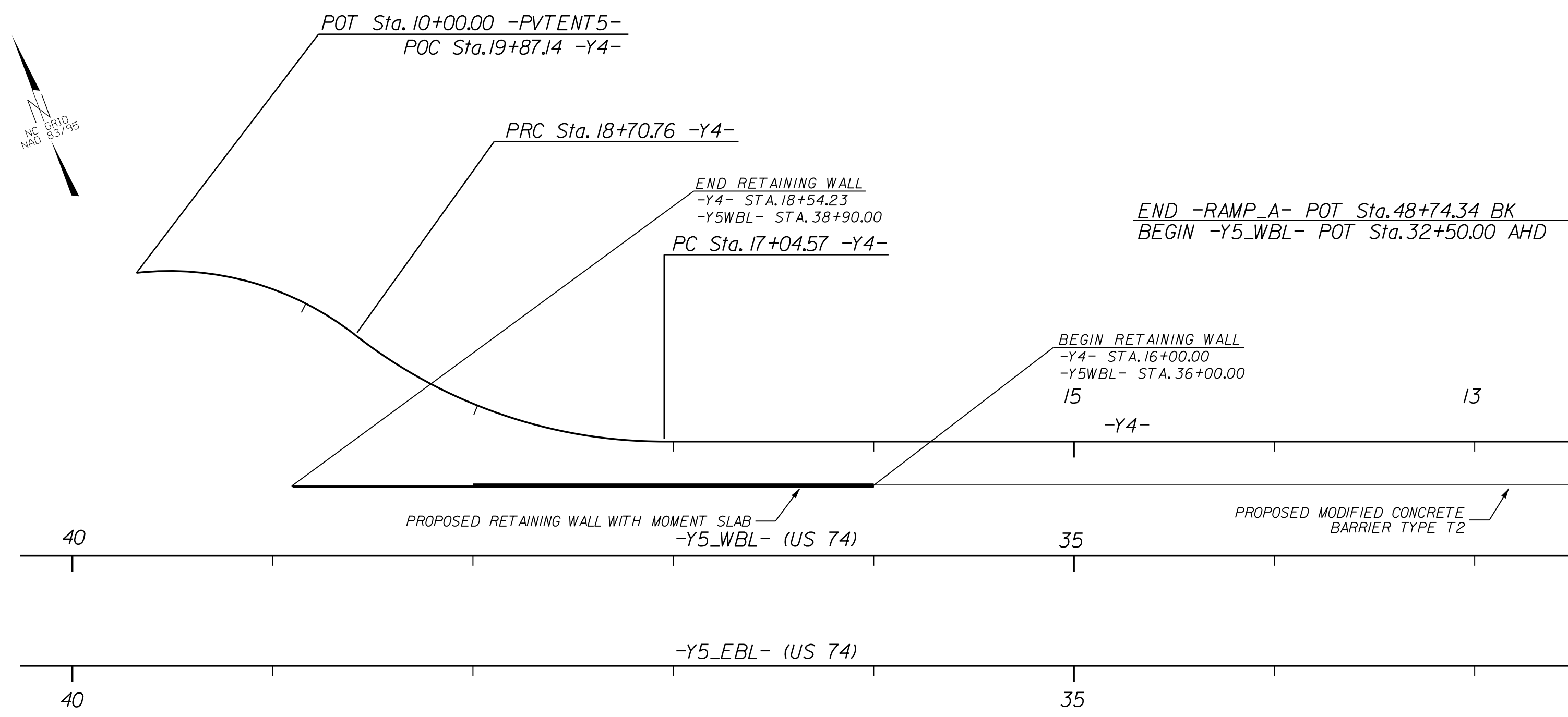
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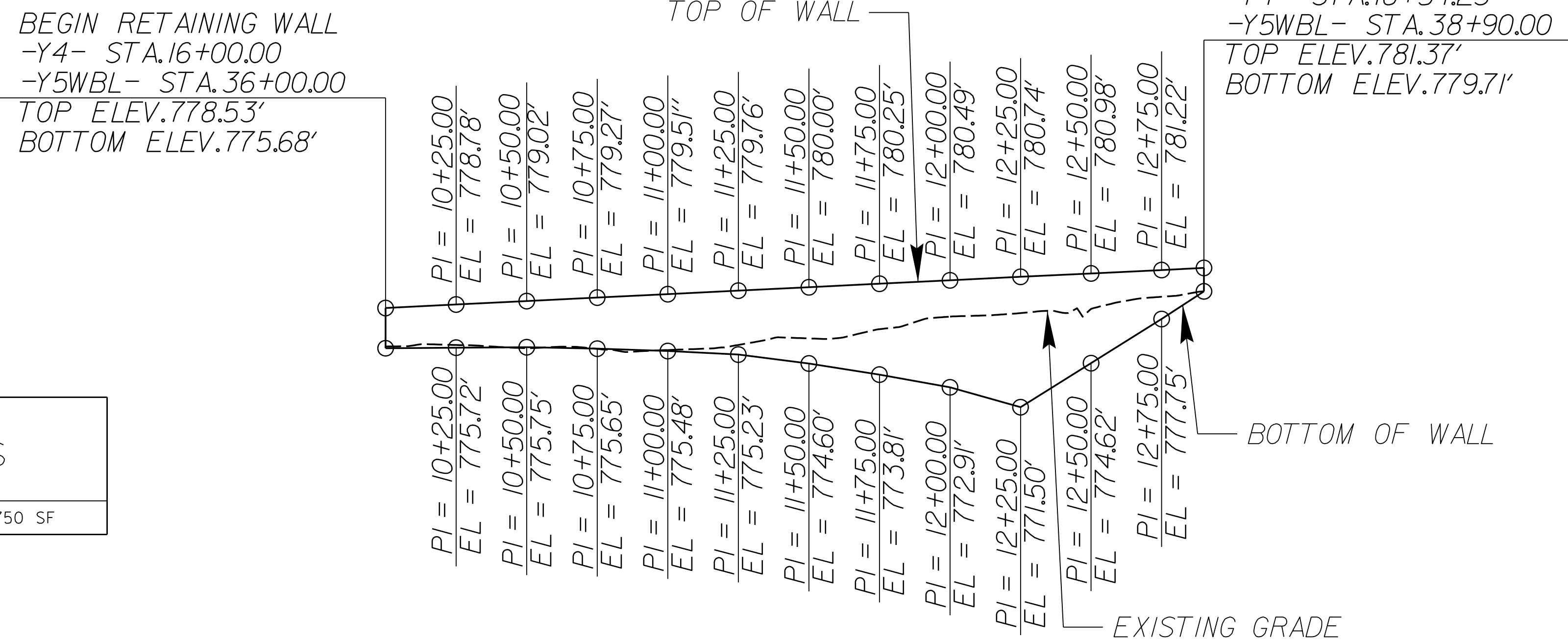
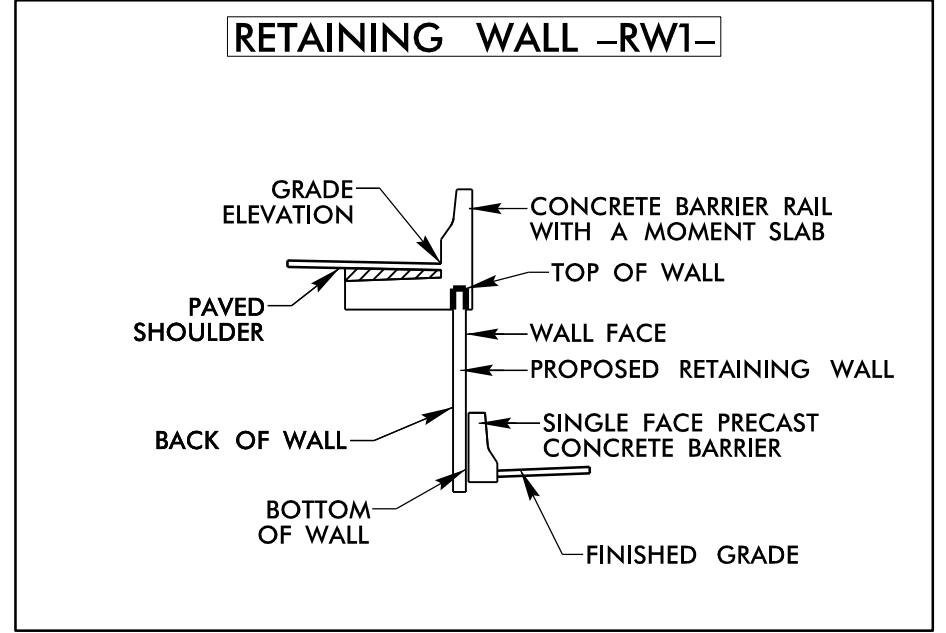
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-L- US 74  
 PHASE III  
 STEP 2



# RETAINING WALL RW1 PLAN



ESTIMATED MSE WALL QUANTITIES (SQUARE FEET)	
MSE RETAINING WALL RW1	1,750 SF

# RETAINING WALL RW1 ENVELOPE

THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL

GEOTECHNICAL ENGINEER

ENGINEER

SEAL 048207

STEPHEN C. CROCKETT

DocuSigned by: Stephen Crockett 7/5/2023

DATE 7/5/2023

SIGNATURE DATE

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

PROJECT NO.: R-2707D

CLEVELAND COUNTY

STATION: -Y4- 16+00.00

SHEET 1 OF 5

WALL ID RW1

PREPARED BY: STEPHEN CROCKETT DATE: 1/13/23

REVIEWED BY: JEREMY HAMM DATE: 1/13/23

**FALCON ENGINEERING**

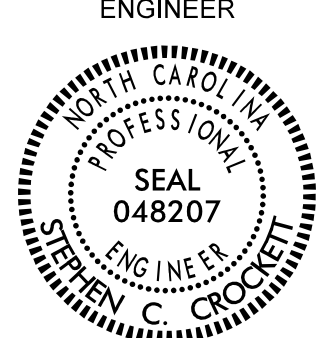
FALCON ENGINEERING, INC.  
1210 TRINITY ROAD, SUITE 110  
GARY, NC 27513

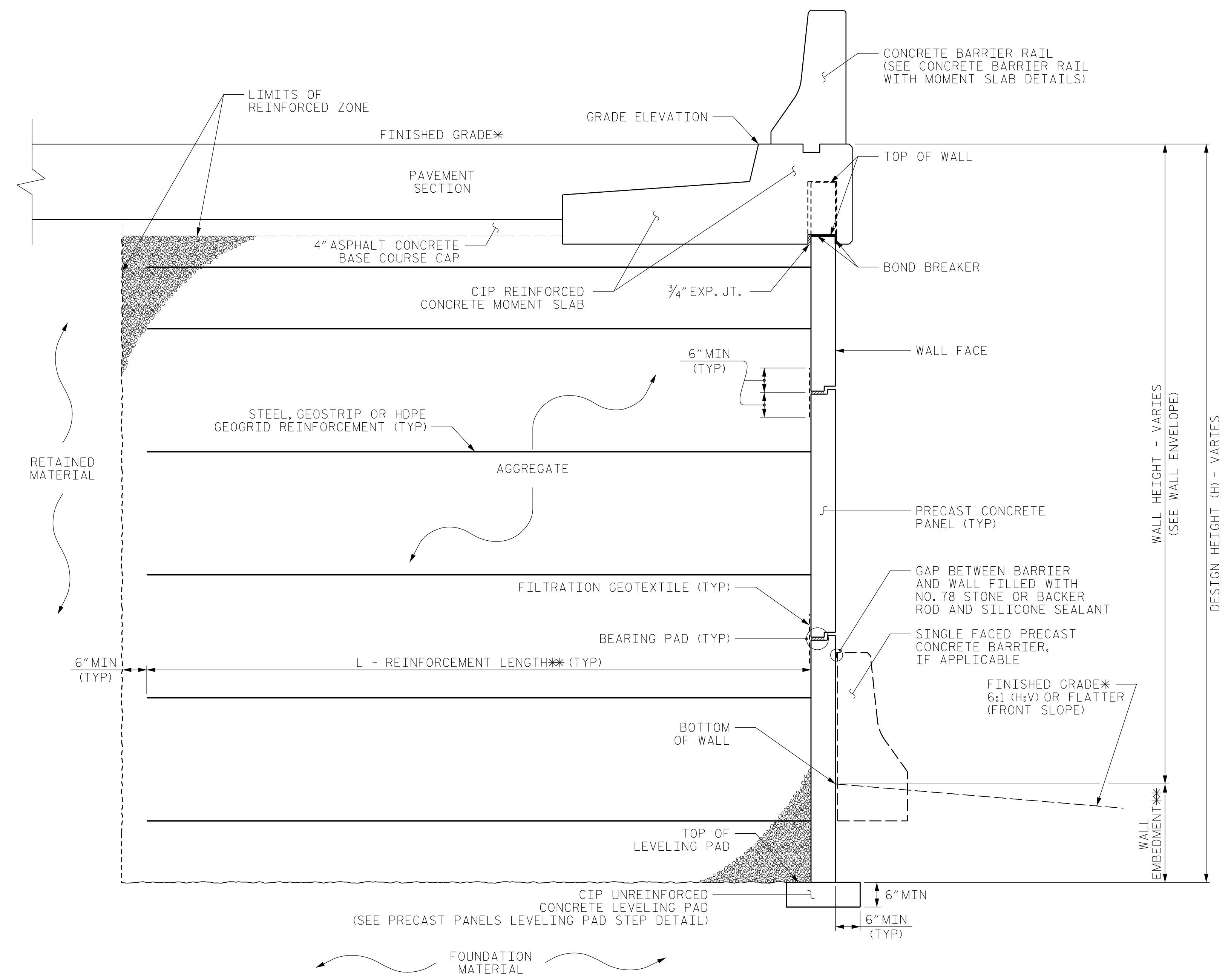
PHONE: 919.871.0800  
www.falconengineers.com

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

**GEOTECHNICAL ENGINEERING UNIT**

REVISIONS						SHEET NO. W-1
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

GEOTECHNICAL ENGINEER  SEAL 048207 ENGINEER STEPHEN C. CROCKETT	ENGINEER    _____ SIGNATURE      DATE
DocuSigned by: Stephen Crockett 7/5/2023 CSCASPE048207 SIGNATURE      DATE      SIGNATURE      DATE	
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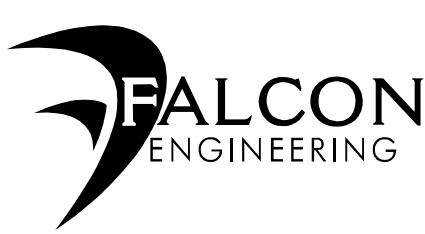


MSE WALL WITH PANELS AND MOMENT SLAB AND BARRIER RAIL - TYPICAL SECTION RW1 STA. 10+00 TO 12+00

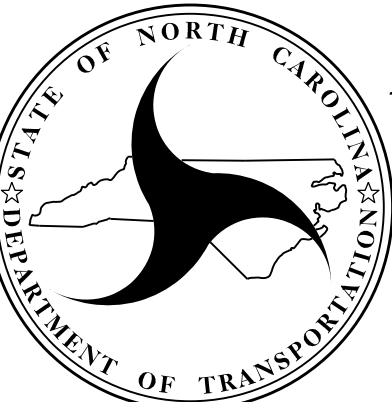
\*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

PROJECT NO.: R-2707D  
 CLEVELAND COUNTY  
 STATION: -Y4- 16+00.00  
 SHEET 2 OF 5      WALL ID RW1

PREPARED BY: STEPHEN CROCKETT	DATE: 1/13/23
REVIEWED BY: JEREMY HAMM	DATE: 1/13/23



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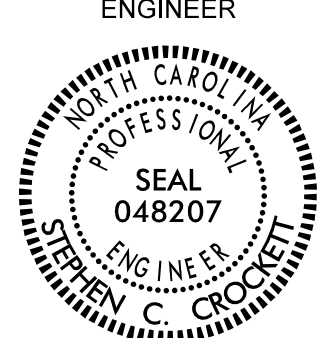


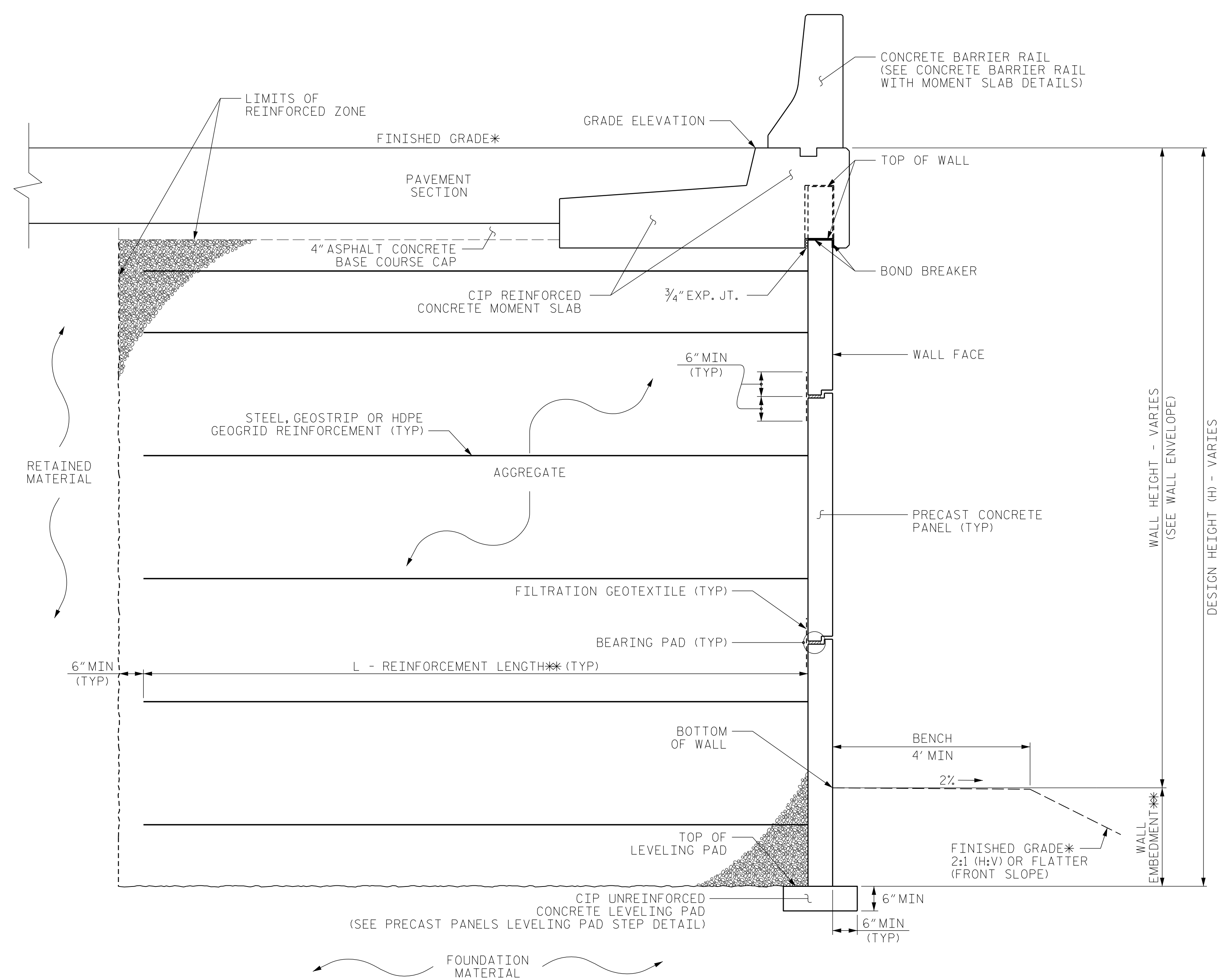
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**GEOTECHNICAL  
 ENGINEERING UNIT**

**MSE WALL WITH PANELS AND  
MOMENT SLAB AND CONCRETE  
BARRIER RAIL TYPICAL  
RW1 STA. 10+00 TO 12+00**

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. W-2

GEOTECHNICAL ENGINEER  SEAL 048207 ENGINEER STEPHEN C. CROCKETT	ENGINEER    _____ SIGNATURE      DATE
DocuSigned by: Stephen Crockett      7/5/2023 SIGNATURE      DATE	
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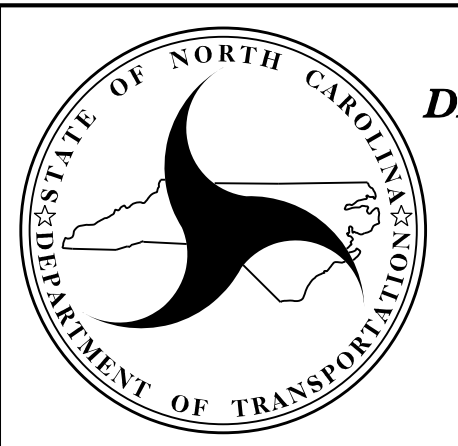
MSE WALL WITH PANELS AND MOMENT SLAB AND BENCH - TYPICAL SECTION RW1 STA. 12+00 TO 12+90

\*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

PROJECT NO.: R-2707D  
 CLEVELAND COUNTY  
 STATION: -Y4- 16+00.00  
 SHEET 3 OF 5      WALL ID RW1

PREPARED BY: STEPHEN CROCKETT	DATE: 1/13/23
REVIEWED BY: JEREMY HAMM	DATE: 1/13/23

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 DIVISION OF HIGHWAYS**  
  
**GEOTECHNICAL  
 ENGINEERING UNIT**

REVISIONS						SHEET NO. W-3
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			



**NOTES:**

- FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.
- FOR SINGLE FACED PRECAST CONCRETE BARRIER, SEE ROADWAY PLANS AND SECTION 857 OF THE STANDARD SPECIFICATIONS.
- A CONCRETE BARRIER RAIL WITH MOMENT SLAB IS REQUIRED ABOVE RETAINING WALL NO.1. SEE PLANS FOR CONCRETE BARRIER RAIL WITH MOMENT SLAB DETAILS.
- AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO.1.
- A SEPARATION GEOTEXTILE IS NOT REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO.1.
- A DRAIN IS NOT REQUIRED FOR RETAINING WALL NO.1.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO.1, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

- DESIGN RETAINING WALL NO.1 FOR THE FOLLOWING:
- 1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
  - 2) DESIGN LIFE = 100 YEARS
  - 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 2,750 PSF
  - 4) MINIMUM REINFORCEMENT LENGTH (L) = 0.8H OR 6 FT, WHICHEVER IS LONGER
  - 5) MINIMUM EMBEDMENT DEPTH = 1 FT
  - 6) REINFORCED ZONE AGGREGATE PARAMETERS:

AGGREGATE TYPE*	UNIT WEIGHT ( $\gamma$ ) PCF	FRICTION ANGLE ( $\phi$ ) DEGREES	COHESION (c) PSF
COARSE	110	38	0
FINE	115	34	0

\*SEE MSE RETAINING WALLS PROVISION FOR COARSE AND FINE AGGREGATE MATERIAL REQUIREMENTS.

7) IN-SITU ASSUMED MATERIAL PARAMETERS:

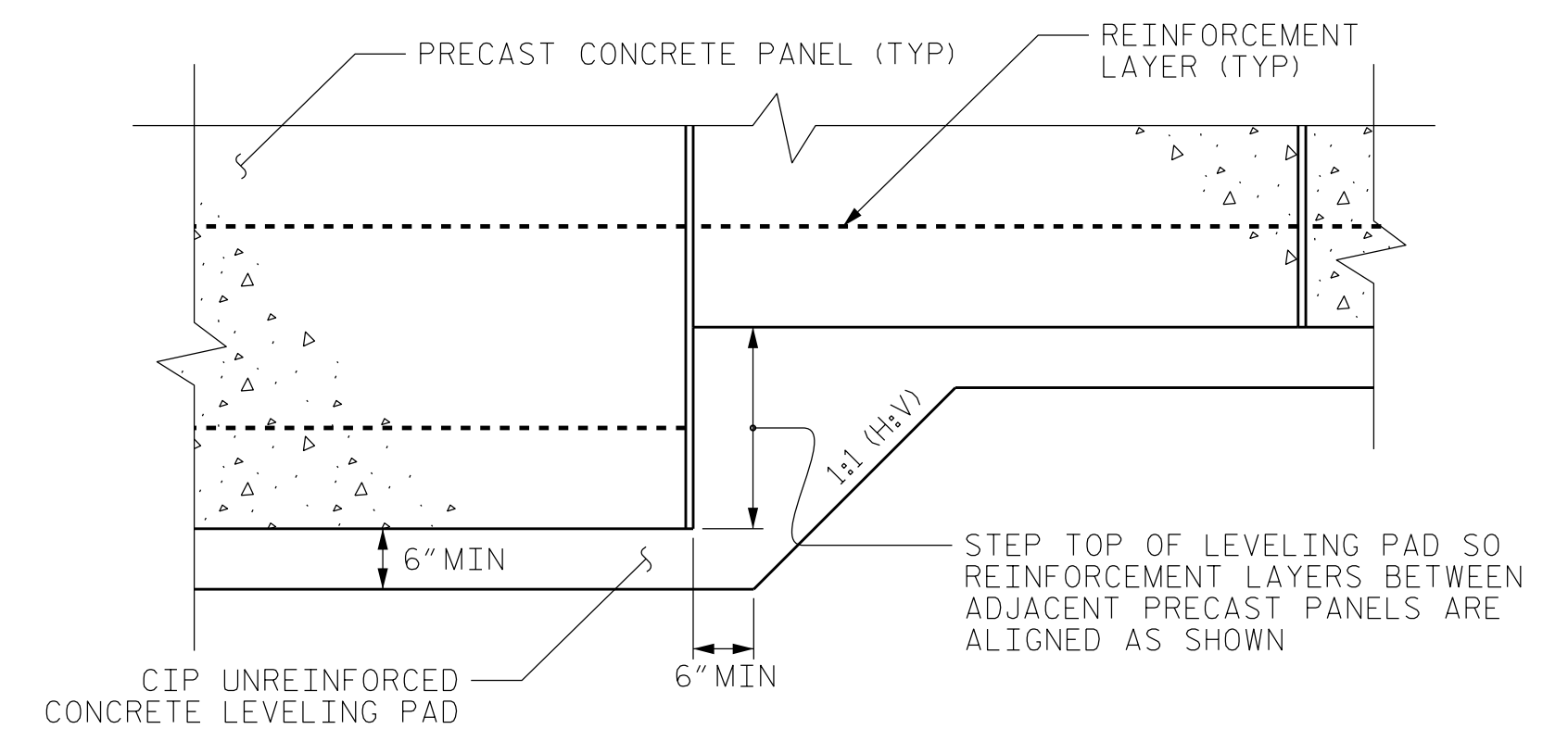
MATERIAL TYPE	UNIT WEIGHT ( $\gamma$ ) PCF	FRICTION ANGLE ( $\phi$ ) DEGREES	COHESION (c) PSF
RETAINED	120	30	0
FOUNDATION	115	28	0

DESIGN RETAINING WALL NO.1 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO.1.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO.1 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

AT THE CONTRACTOR'S OPTION, "TEMPORARY SHORING FOR WALL CONSTRUCTION" MAY BE USED TO CONSTRUCT RETAINING WALL NO.1. SEE MSE RETAINING WALLS PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.



PRECAST PANELS  
LEVELING PAD STEP DETAIL

GEOTECHNICAL ENGINEER   DocuSigned by: Stephen Crockett CSCAS45ED48E6A3E SIGNATURE	ENGINEER  7/5/2023 DATE SIGNATURE DATE
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

PROJECT NO.: R-2707D  
 CLEVELAND COUNTY  
 STATION: -Y4- 16+00.00  
 SHEET 4 OF 5 WALL ID RW1

PREPARED BY: STEPHEN CROCKETT	DATE: 1/13/23
REVIEWED BY: JEREMY HAMM	DATE: 1/13/23

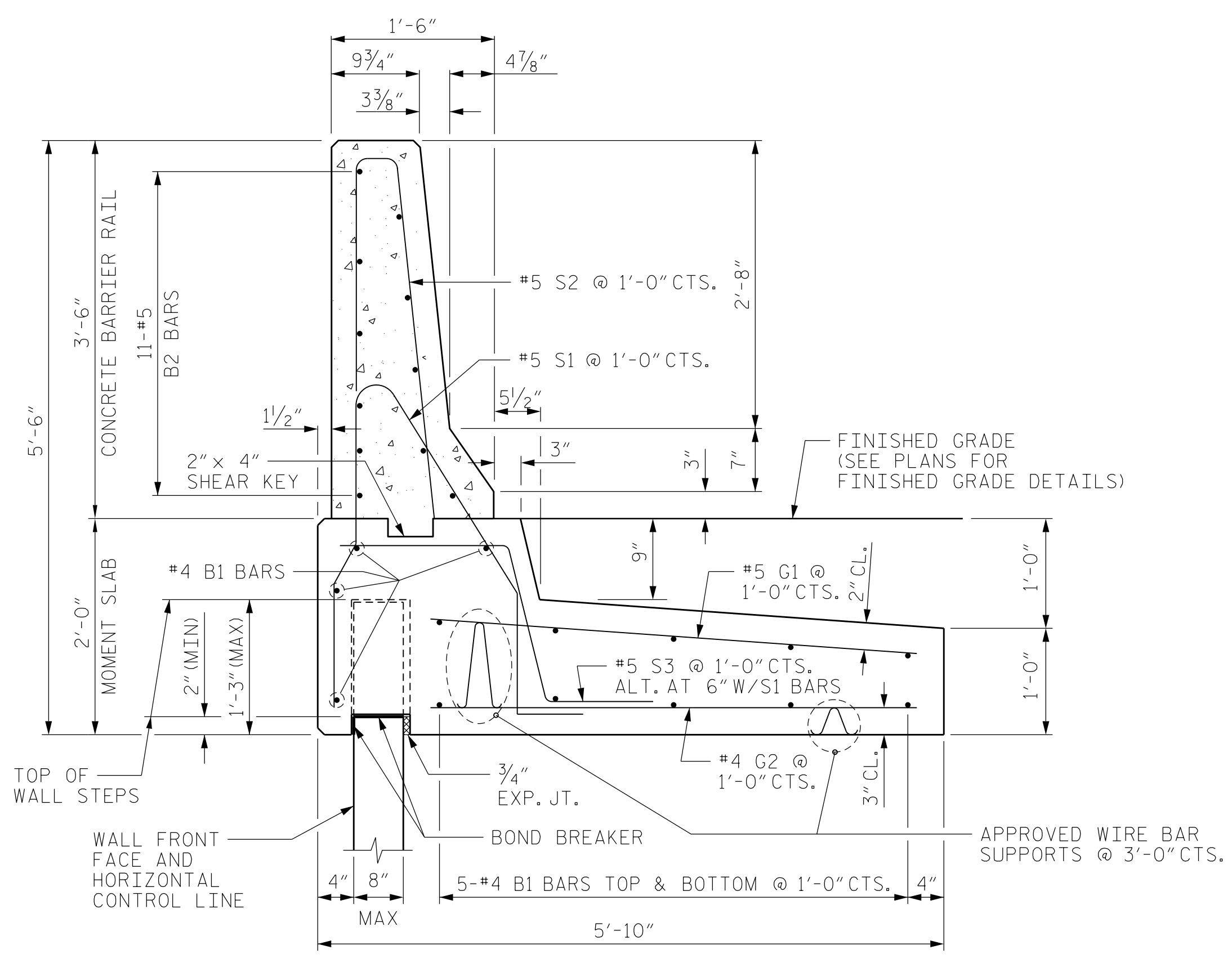
FALCON ENGINEERING, INC.  
 1210 TRINITY ROAD, SUITE 110  
 GARY, NC 27513  
 PHONE: 919.871.0800  
 www.falconengineers.com

**NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS**

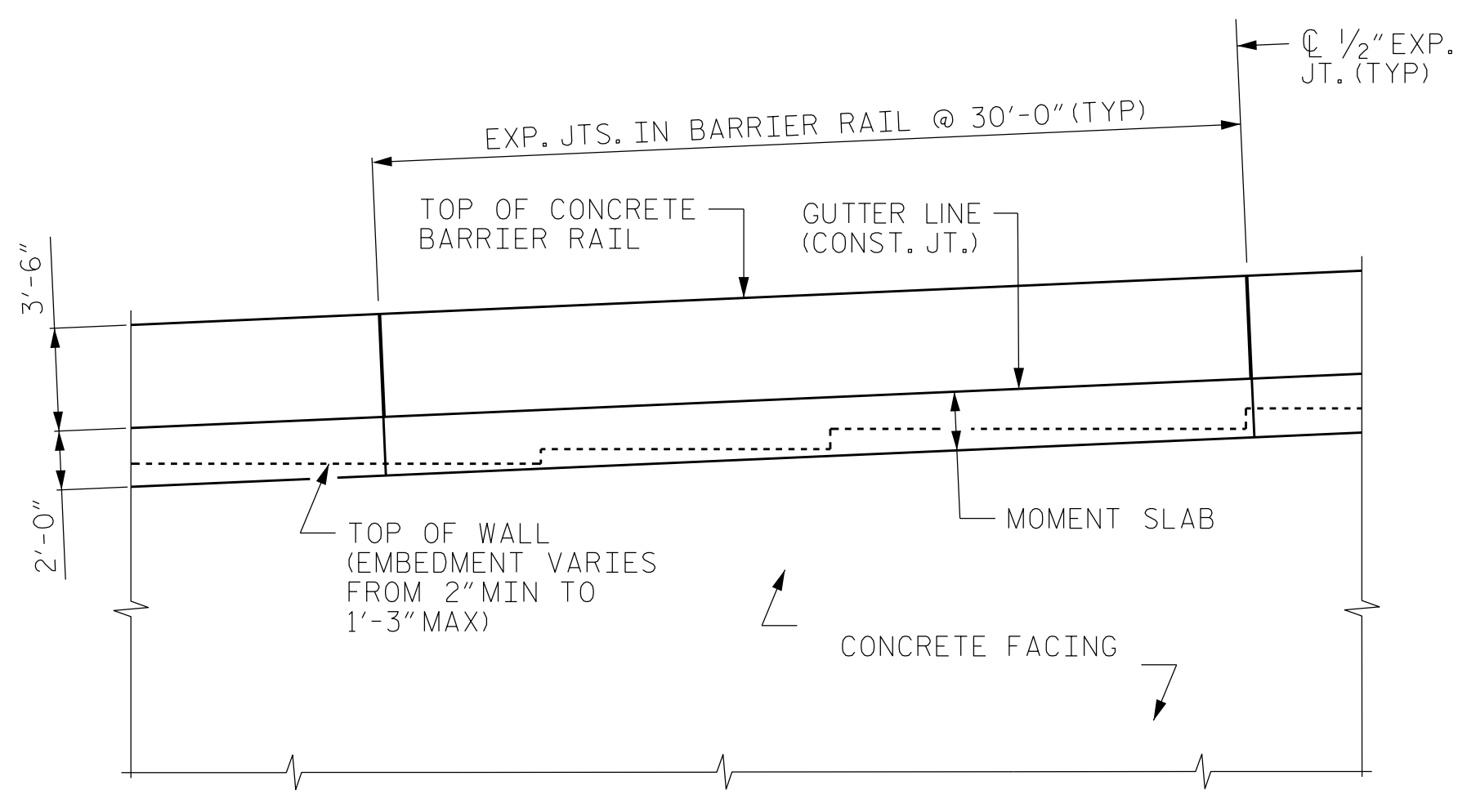
**GEOTECHNICAL  
 ENGINEERING UNIT**

**MSE WALL WITH PANELS NOTES  
 AND LEVELING PAD STEP DETAIL**

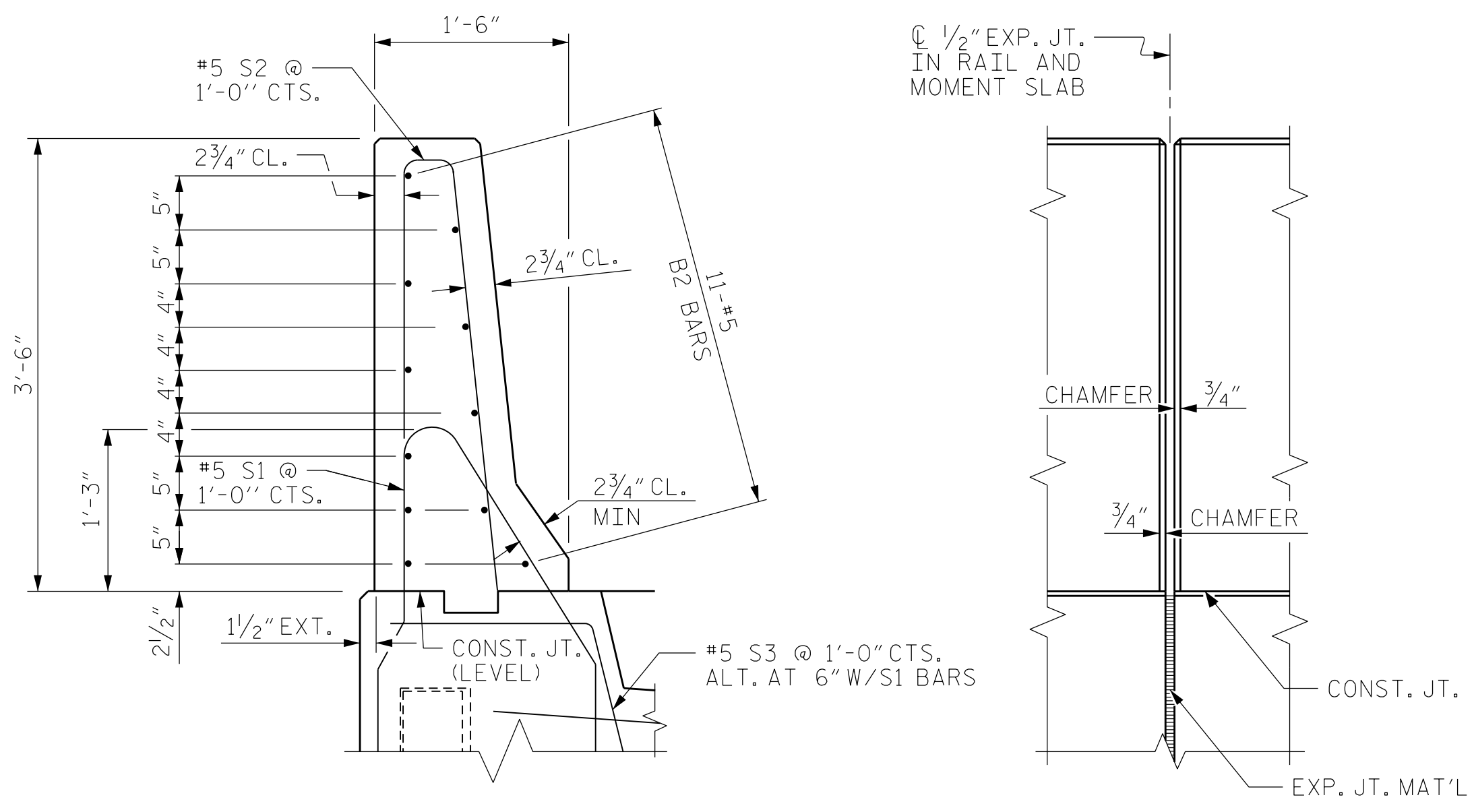
REVISIONS						SHEET NO. W-4
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			



CONCRETE BARRIER RAIL WITH MOMENT SLAB



CONCRETE BARRIER RAIL WITH MOMENT SLAB - PARTIAL ELEVATION



SECTION THRU RAIL

ELEV. @ EXP. JOINTS

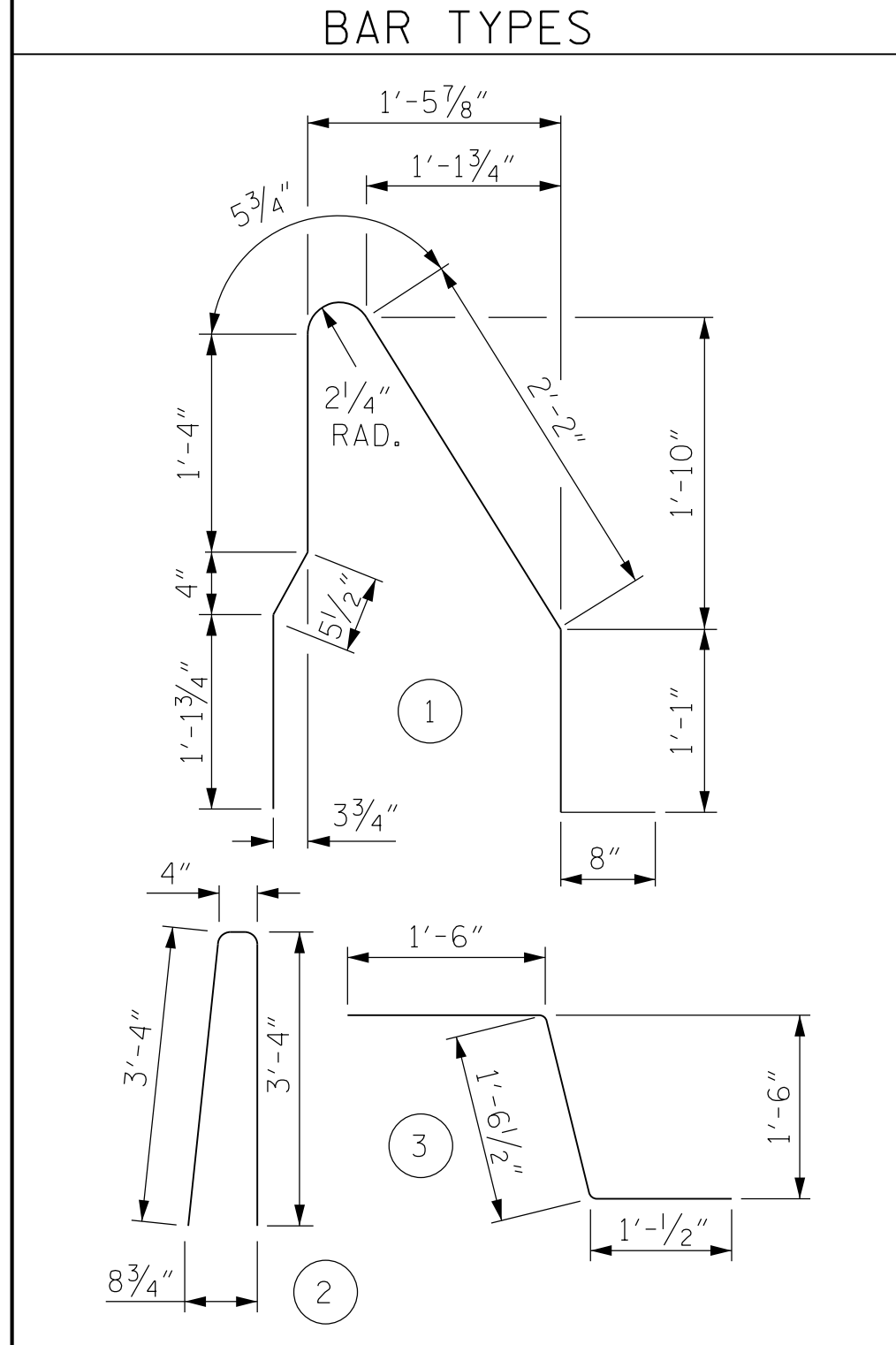
BARRIER RAIL DETAILS

**NOTES:**  
 FOR CONCRETE BARRIER RAIL WITH MOMENT SLAB, SEE SECTION 460 OF THE STANDARD SPECIFICATIONS.  
 CONCRETE BARRIER RAIL WITH MOMENT SLAB SHALL BE A MINIMUM OF 15' IN LENGTH.  
 EXPANSION JOINTS SHALL BE PLACED IN THE BARRIER RAIL AND MOMENT SLAB AT A MAXIMUM SPACING OF 30'.  
 GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED SURFACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MID-POINT OF BARRIER RAIL SEGMENTS LESS THAN 20' IN LENGTH.  
 EXPANSION OR CONTRACTION JOINTS IN THE BARRIER RAIL AND MOMENT SLAB SHALL BE ALIGNED WITH JOINTS IN WALL FACING BELOW.  
 THE BARRIER RAIL SHALL NOT BE CAST UNTIL THE MOMENT SLAB HAS ATTAINED AN AGE OF THREE CURING DAYS OR A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI. IN ADDITION, NO FILL MATERIAL, ASPHALT, OR CONSTRUCTION EQUIPMENT IS ALLOWED ON THE MOMENT SLAB PRIOR TO SATISFYING THE MINIMUM CONCRETE CURING AND STRENGTH REQUIREMENTS.  
 ALL REINFORCING STEEL IN THE BARRIER RAIL SHALL BE EPOXY COATED.  
 IF EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, BARRIERS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH CONCRETE BARRIER RAIL WITH MOMENT SLAB OR CONCRETE FACING FOR RETAINING WALL WILL BE THICKER THAN 8", CONCRETE BARRIER RAIL WITH MOMENT SLAB DETAILS SHALL BE REVISED AND SUBMITTED FOR APPROVAL.

CONCRETE BARRIER RAIL WITH MOMENT SLAB  
 PAY LENGTH = 290 LIN FT

STRUCTURE ENGINEER  
 ENGINEER  
  
 DocuSigned by: Stephen Crockett 7/5/2023  
 SIGNATURE DATE SIGNATURE DATE

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**



ALL BAR DIMENSIONS ARE OUT TO OUT

**BILL OF MATERIAL**  
 FOR ONE 30'-0" SECTION OF CONCRETE BARRIER RAIL WITH MOMENT SLAB

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	14	#4	STR	29'-7"	277
* B2	11	#5	STR	29'-7"	339
G1	31	#5	STR	4'-4"	140
G2	31	#4	STR	4'-4"	90
* S1	31	#5	1	7'-4"	237
* S2	31	#5	2	7'-0"	226
S3	30	#5	3	4'-1"	128
REINFORCING STEEL					635 LB
* EPOXY COATED REINFORCING STEEL					802 LB
CLASS AA CONCRETE BARRIER RAIL					4.1 CY
CLASS A CONCRETE MOMENT SLAB					9.1 CY
CONCRETE BARRIER RAIL WITH MOMENT SLAB					30 LIN FT

PROJECT NO.: R-2707D  
 CLEVELAND COUNTY  
 STATION: -Y4- 16+00.00  
 SHEET 5 OF 5 WALL ID RW1

PREPARED BY: STEPHEN CROCKETT DATE: 1/13/23  
 REVIEWED BY: JEREMY HAMM DATE: 1/13/23

FALCON ENGINEERING, INC.  
 1210 TRINITY ROAD, SUITE 110  
 GARY, NC 27513  
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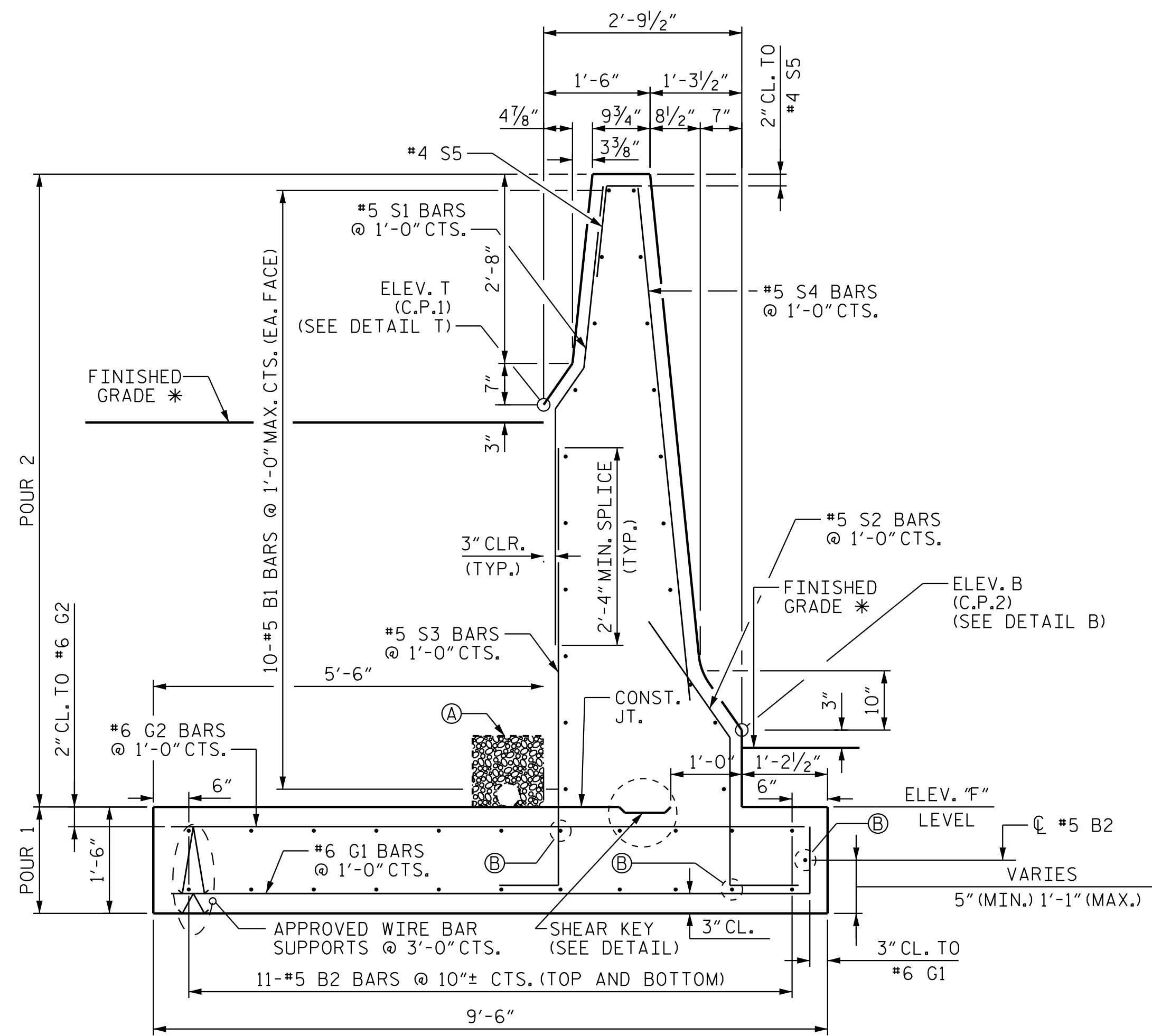
NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
**GEOTECHNICAL ENGINEERING UNIT**

**CONCRETE BARRIER RAIL WITH MOMENT SLAB FOR CIP GRAVITY WALL**

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

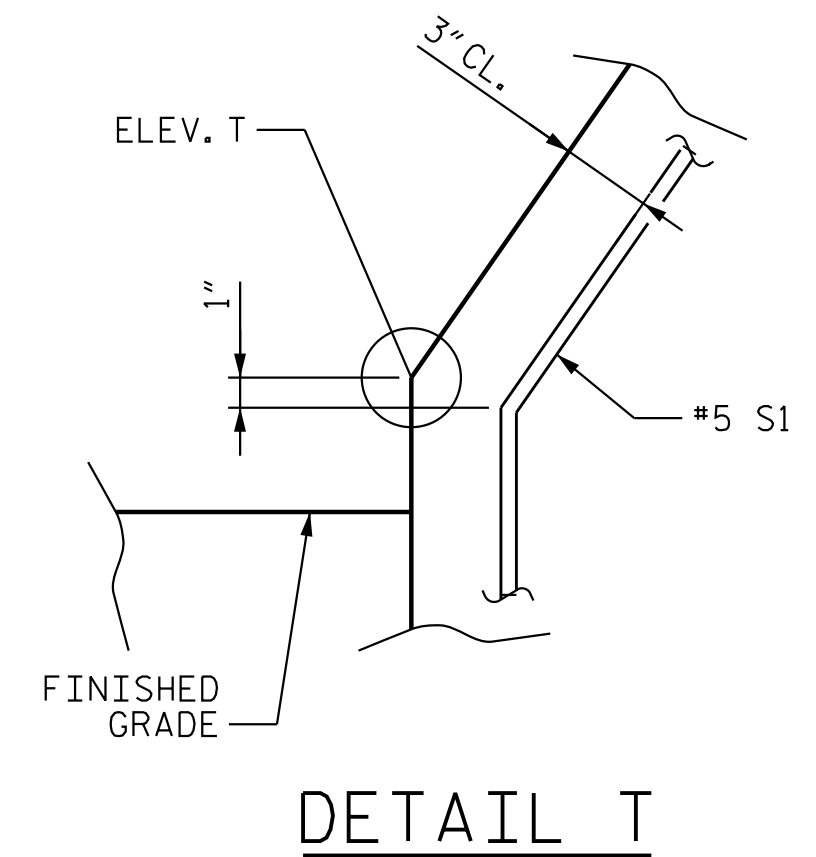
SHEET NO. W-5

CONTROL POINT STATIONS, OFFSETS & ELEVATIONS				TYPE T2 WALL PANEL DATA				
CONTROL POINT 1			CONTROL POINT 2			PANEL I.D.	APPROX. PANEL LENGTH	ELEV. F
ALIGNMENT	STATION	OFFSET	ALIGNMENT	STATION	OFFSET			
-RAMP_A-	47+00.00	33.83 FT.	775.22 FT.	-Y4-	10+99.36	44.25 FT.	770.93 FT.	
-RAMP_A-	47+25.00	33.83 FT.	775.52 FT.	-Y4-	11+13.43	31.28 FT.	771.60 FT.	A
-RAMP_A-	47+50.00	33.83 FT.	775.78 FT.	-Y4-	11+30.71	22.82 FT.	772.12 FT.	B
-RAMP_A-	47+75.00	33.83 FT.	775.91 FT.	-Y4-	11+50.66	20.17 FT.	772.24 FT.	C
-RAMP_A-	48+00.00	33.83 FT.	776.04 FT.	-Y4-	11+75.66	20.17 FT.	772.39 FT.	D
-RAMP_A-	48+25.00	33.83 FT.	776.21 FT.	-Y4-	12+00.66	20.17 FT.	772.56 FT.	E
-RAMP_A-	48+50.00	33.83 FT.	776.40 FT.	-Y4-	12+25.66	20.17 FT.	772.73 FT.	F
-Y5-	32+50.00	33.83 FT.	776.62 FT.	-Y4-	12+50.00	20.17 FT.	773.06 FT.	G
-Y5-	32+75.00	33.83 FT.	776.84 FT.	-Y4-	12+75.00	20.17 FT.	773.38 FT.	H
-Y5-	33+00.00	33.83 FT.	777.06 FT.	-Y4-	13+00.00	20.17 FT.	773.70 FT.	I
-Y5-	33+25.00	33.83 FT.	777.27 FT.	-Y4-	13+25.00	20.17 FT.	774.00 FT.	J
-Y5-	33+50.00	33.83 FT.	777.48 FT.	-Y4-	13+50.00	20.17 FT.	774.29 FT.	K
-Y5-	33+75.00	33.83 FT.	777.68 FT.	-Y4-	13+75.00	20.17 FT.	774.57 FT.	L
-Y5-	34+00.00	33.83 FT.	777.87 FT.	-Y4-	14+00.00	20.17 FT.	774.84 FT.	M
-Y5-	34+25.00	33.83 FT.	778.06 FT.	-Y4-	14+25.00	20.17 FT.	775.09 FT.	N
-Y5-	34+50.00	33.83 FT.	778.25 FT.	-Y4-	14+50.00	20.17 FT.	775.34 FT.	O
-Y5-	34+75.00	33.83 FT.	778.44 FT.	-Y4-	14+75.00	20.17 FT.	775.57 FT.	P
-Y5-	35+00.00	33.83 FT.	778.64 FT.	-Y4-	15+00.00	20.17 FT.	775.76 FT.	Q
-Y5-	35+25.00	33.83 FT.	778.86 FT.	-Y4-	15+25.00	20.17 FT.	775.90 FT.	R
-Y5-	35+50.00	33.83 FT.	779.08 FT.	-Y4-	15+50.00	20.17 FT.	775.98 FT.	S
-Y5-	35+75.00	33.83 FT.	779.31 FT.	-Y4-	15+75.00	20.17 FT.	776.01 FT.	Y
-Y5-	36+00.00	33.83 FT.	779.54 FT.	-Y4-	16+00.00	20.17 FT.	775.99 FT.	U

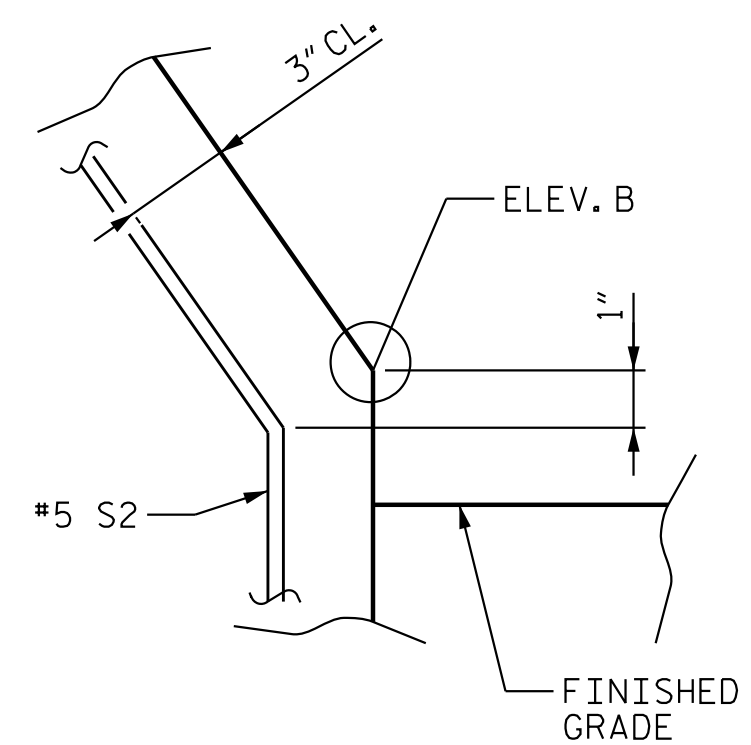


**MODIFIED TYPE T2 TYPICAL SECTION**

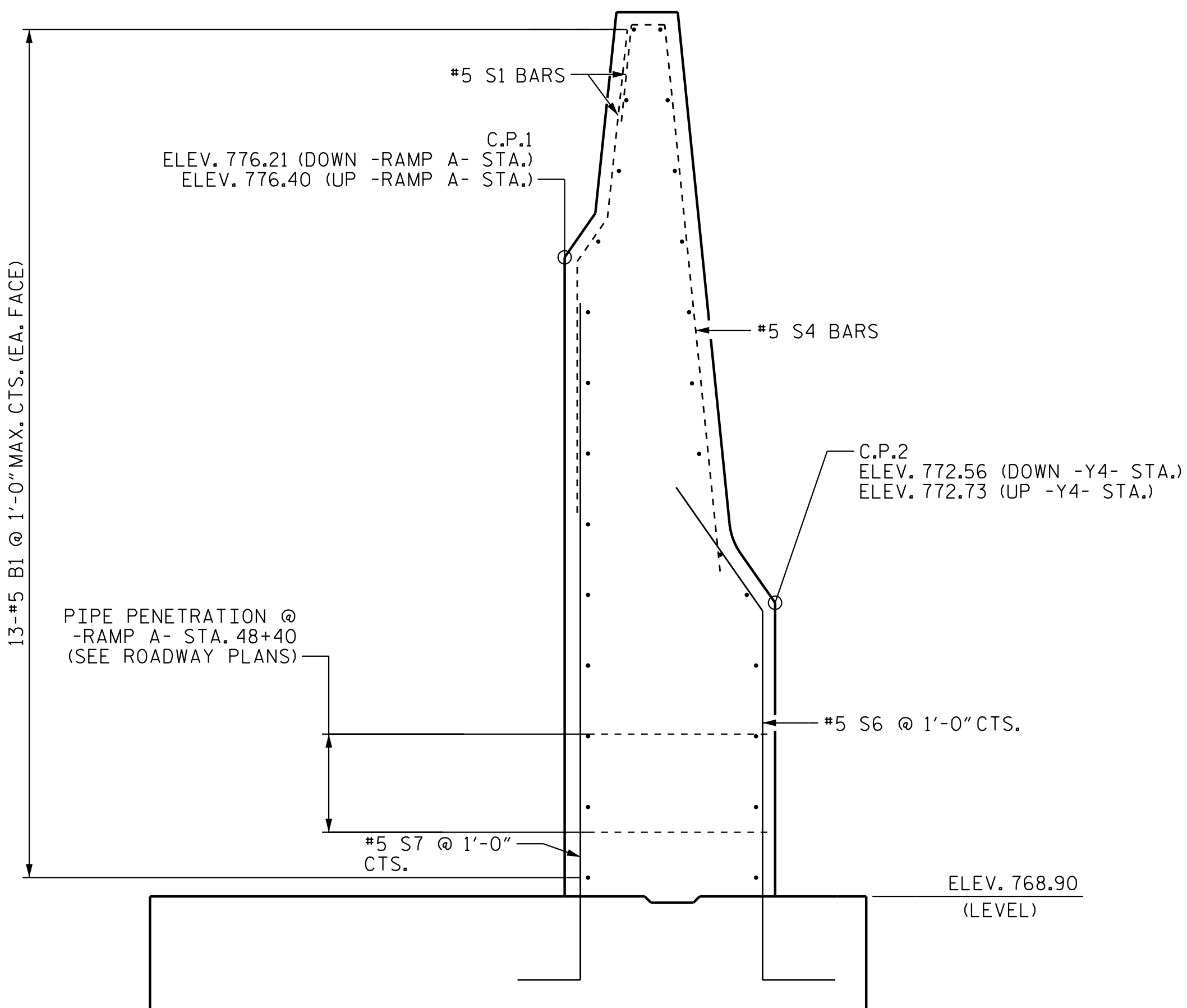
SEE RETAINING WALL NO.1 AND ROADWAY DRAWINGS FOR LOCATIONS



**DETAIL T**



**DETAIL B**



**MODIFIED TYPE T2 SECTION - PANEL F  
SPECIAL DETAIL**

NOTE: ALL DIMENSIONS AND DETAILS NOT SHOWN ARE TYPICAL OF ALL OTHER WALL AND FOOTING PANEL SECTIONS

**NOTES:**

1/2" EXPANSION JOINT SHALL BE PLACED BETWEEN MODIFIED TYPE T2 BARRIER WALL PANELS.

ALL CONCRETE IN BARRIER WALL FOOTING AND BARRIER WALL SHALL BE CLASS AA.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED SURFACES OF THE BARRIER WALL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER WALL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MID-POINT OF BARRIER WALL SEGMENTS LESS THAN 20' IN LENGTH.

\*SEE ROADWAY PLANS FOR MODIFIED TYPE T2 LAYOUT AND LIMITS.

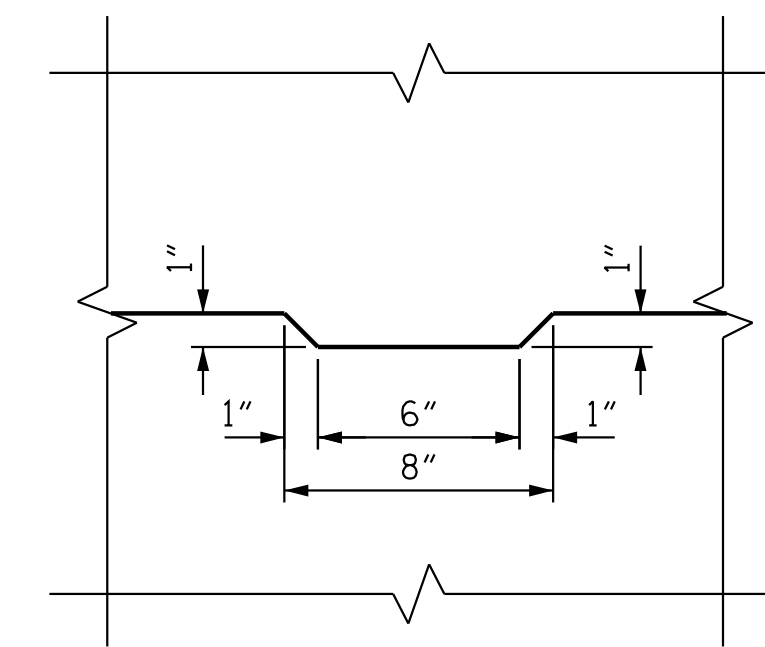
FOR PAYMENT OF MODIFIED TYPE T2 BARRIER SEE ROADWAY DRAWINGS.

(A) AGGREGATE SHOULDER DRAIN SHALL BE CONSTRUCTED IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 816.02. DRAIN SHALL OUTLET INTO ROADWAY DRAINAGE STRUCTURES OR DAYLIGHT @ END OF WALL.

(B) #5 B2 BARS MAY BE REPOSITIONED SLIGHTLY AS NECESSARY TO FACILITATE PLACEMENT OF "S" BARS IN THE FOOTING.

CONTRACTOR SHALL FIELD VERIFY CONTROL POINT STATIONS, OFFSETS, AND ELEVATIONS PRIOR TO THE START OF WALL CONSTRUCTION.

VERTICAL AND HORIZONTAL BARS IN PANEL F MAY BE REPOSITIONED TO CLEAR THE DRAIN PIPE PENETRATION @ -RAMP A- STA. 48+40.



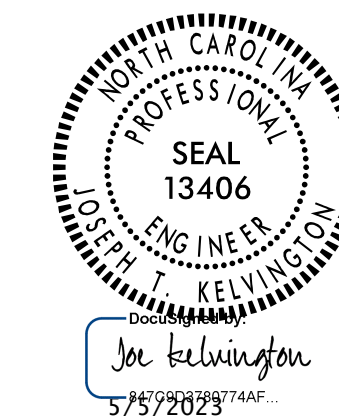
**SHEAR KEY DETAIL**

PROJECT NO. R-2707D  
CLEVELAND COUNTY  
STATION: -Y4- 16+00.00

SHEET 1 OF 2

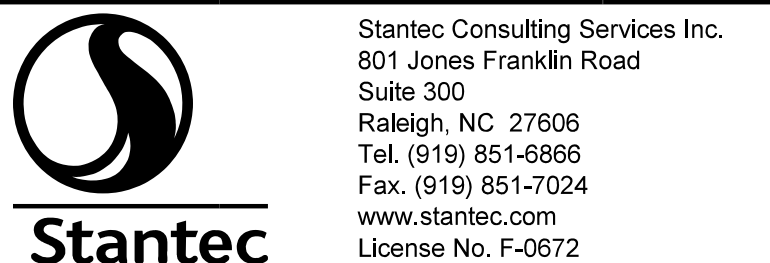
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**MODIFIED TYPE T2  
BARRIER**

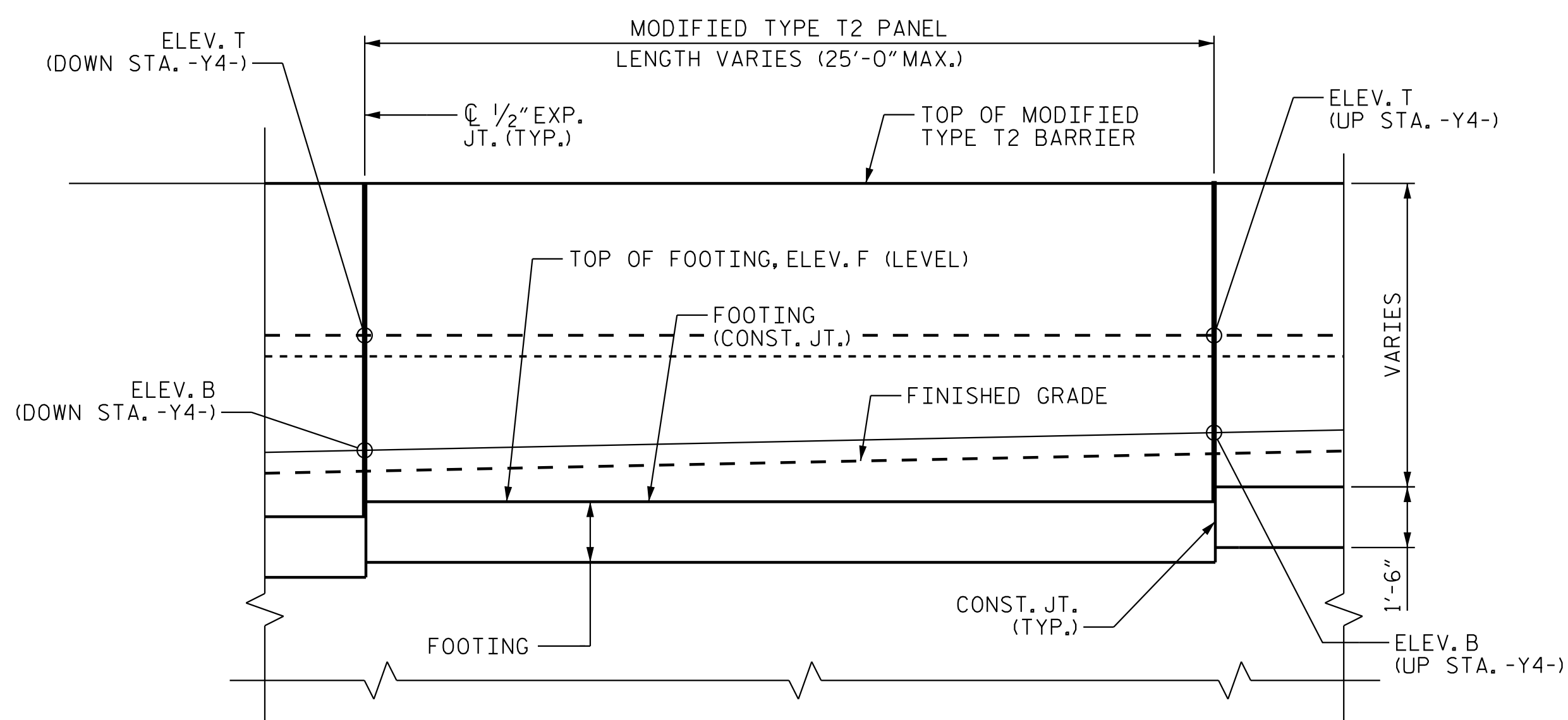


REVISIONS						SHEET NO.
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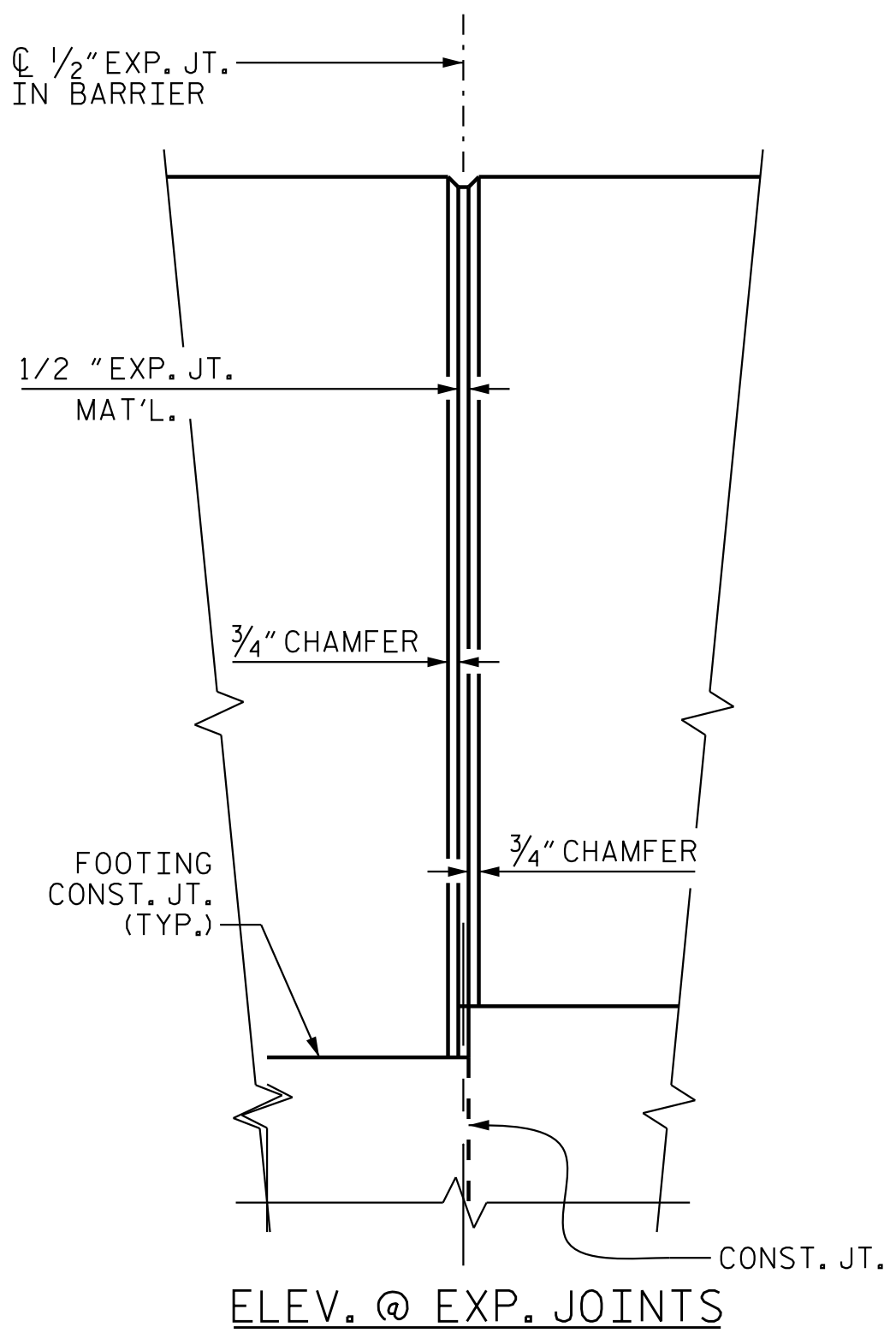
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DRAWN BY: J.E. HAGENBUSH DATE: 4/14/23  
CHECKED BY: J. KELVINGTON DATE: 4/17/23  
DESIGN ENGINEER OF RECORD: J. KELVINGTON DATE: 05/05/23



**MODIFIED TYPE T2 BARRIER RAIL TYPICAL ELEVATION**



**MODIFIED TYPE T2 BARRIER DETAILS**

**BILL OF MATERIAL FOR ONE PANEL Δ**

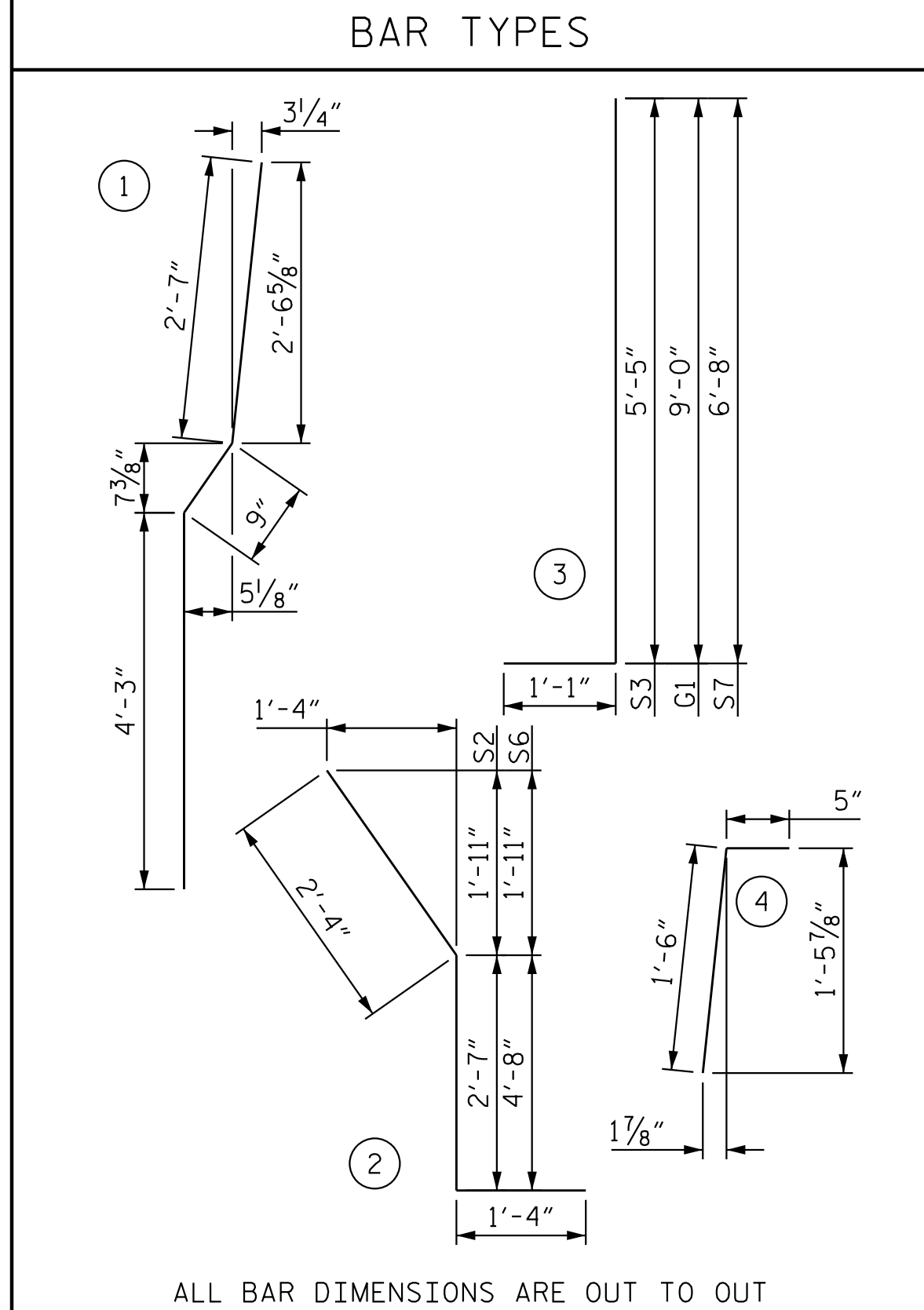
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	20	#5	STR.	23'-11"	499
B2	23	#5	STR.	23'-11"	574
G1	24	#6	3	10'-1"	363
G2	24	#6	STR.	9'-0"	324
S1	24	#5	1	7'-7"	190
S2	24	#5	2	6'-3"	156
S3	24	#5	3	6'-6"	163
S4	24	#5	STR.	7'-8"	192
S5	24	#4	4	1'-11"	31
<b>TOTAL REINFORCING STEEL (FOR SINGLE PANEL)</b>					<b>2,492 LB</b>

Δ MODIFIED TYPE T2 BARRIER PANEL G FROM -Y4-STA.12+25.66 TO STA.12+50.00

**BILL OF MATERIAL FOR ONE PANEL □**

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	26	#5	STR.	24'-7"	667
B2	23	#5	STR.	24'-7"	590
G1	25	#6	3	10'-1"	379
G2	25	#6	STR.	9'-0"	338
S1	25	#5	1	7'-7"	198
S4	25	#5	STR.	7'-8"	200
S5	25	#4	4	1'-11"	32
S6	25	#5	2	8'-4"	217
S7	25	#5	3	7'-9"	202
<b>TOTAL REINFORCING STEEL (FOR SINGLE PANEL)</b>					<b>2,823 LB</b>

□ MODIFIED TYPE T2 BARRIER PANEL F FROM -Y4- STA.12+00.66 TO STA.12+25.66

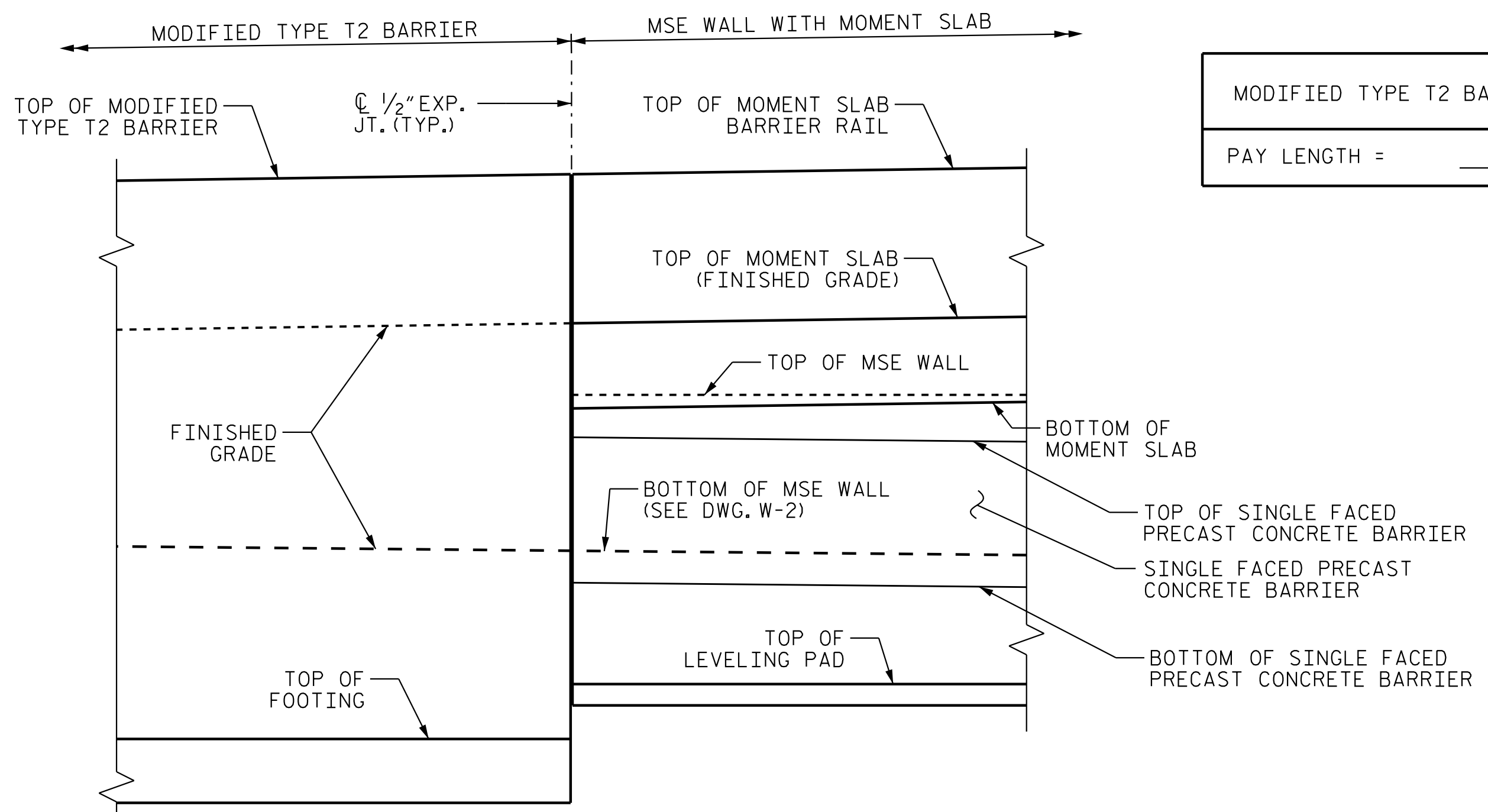


ALL BAR DIMENSIONS ARE OUT TO OUT

**BILL OF MATERIAL FOR ONE PANEL Δ**

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	20	#5	STR.	24'-7"	513
B2	23	#5	STR.	24'-7"	590
G1	25	#6	3	10'-1"	379
G2	25	#6	STR.	9'-0"	338
S1	25	#5	1	7'-7"	198
S2	25	#5	2	6'-3"	163
S3	25	#5	3	6'-6"	169
S4	25	#5	STR.	7'-8"	200
S5	25	#4	4	1'-11"	32
<b>TOTAL REINFORCING STEEL (FOR SINGLE PANEL)</b>					<b>2,582 LB</b>

Δ ALL MODIFIED TYPE T2 BARRIERS PANELS EXCEPT FROM -Y4-STA.12+00.66 TO STA.12+50.00



**BEGIN MSE WALL & END MODIFIED TYPE T2 BARRIER PARTIAL ELEVATION**

**MODIFIED TYPE T2 BARRIER RAIL**

PAY LENGTH = 525 LIN FT

**CLASS AA CONCRETE BREAK-DOWN**

PANEL I.D.	FROM -Y4- STA.	TO -Y4- STA.	POUR 1	POUR 2
Δ Δ MODIFIED TYPE T2 BARRIER PANEL G	FROM -Y4-STA.12+25.66	TO STA.12+50.00		
□ MODIFIED TYPE T2 BARRIER PANEL F	FROM -Y4-STA.12+00.66	TO STA.12+25.66		
F	12+00.66	12+25.66	13.1 CY	20.6 CY
G	12+25.66	12+50.00	12.8 CY	15.0 CY

**Δ CLASS AA CONCRETE BREAK-DOWN**

Δ ALL MODIFIED TYPE T2 BARRIERS PANELS EXCEPT FROM -Y4-STA.12+00.66 TO STA.12+50.00

PANEL I.D.	FROM -Y4- STA.	TO -Y4- STA.	POUR 1	POUR 2
A	10+99.36	11+13.43	13.1 CY	16.7 CY
B	11+13.43	11+30.71	13.1 CY	15.9 CY
C	11+30.71	11+50.66	13.1 CY	15.2 CY
D	11+50.66	11+75.66	13.1 CY	15.2 CY
E	11+75.66	12+00.66	13.1 CY	15.2 CY
H	12+50.00	12+75.00	13.1 CY	15.2 CY
I	12+75.00	13+00.00	13.1 CY	15.0 CY
J	13+00.00	13+25.00	13.1 CY	14.8 CY
K	13+25.00	13+50.00	13.1 CY	14.7 CY
L	13+50.00	13+75.00	13.1 CY	14.5 CY
M	13+75.00	14+00.00	13.1 CY	14.4 CY
N	14+00.00	14+25.00	13.1 CY	14.2 CY
O	14+25.00	14+50.00	13.1 CY	14.1 CY
P	14+50.00	14+75.00	13.1 CY	14.0 CY
Q	14+75.00	15+00.00	13.1 CY	13.9 CY
R	15+00.00	15+25.00	13.1 CY	13.9 CY
S	15+25.00	15+50.00	13.1 CY	14.1 CY
Y	15+50.00	15+75.00	13.1 CY	14.3 CY
U	15+75.00	16+00.00	13.1 CY	14.7 CY

**CLASS AA CONCRETE SUMMARY**

	POUR 1	POUR 2
TOTAL CLASS AA CONCRETE (ALL PANELS EXCEPT F & G)	248.9 CY	280.0 CY
TOTAL CLASS AA CONCRETE (PANELS F & G)	25.9 CY	35.6 CY
TOTAL CLASS AA CONCRETE	274.8 CY	315.6 CY
COMBINED TOTAL CLASS AA CONCRETE		590.4 CY



PROJECT NO. R-2707D  
 CLEVELAND COUNTY  
 STATION: -Y4- 16+00.00

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**MODIFIED TYPE T2 BARRIER DETAILS**

REVISIONS						SHEET NO. W-7
NO.	BY:	DATE:	NO.	BY:	DATE:	
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 www.stantec.com  
 License No. F-0672

DRAWN BY: J.E. HAGENBUSH DATE: 4/14/23  
 CHECKED BY: J. KELVINGTON DATE: 4/17/23  
 DESIGN ENGINEER OF RECORD: J. KELVINGTON DATE: 05/05/23