

09/08/99

See Sheet 1-A For Index of Sheets

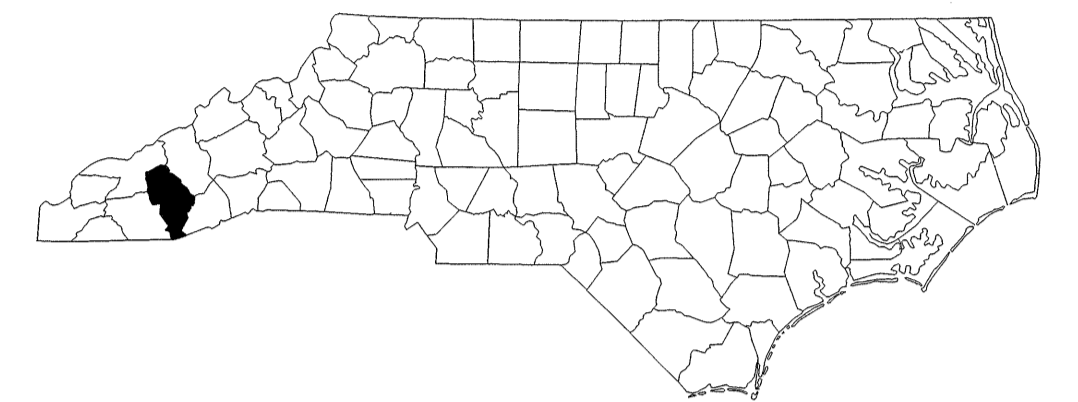
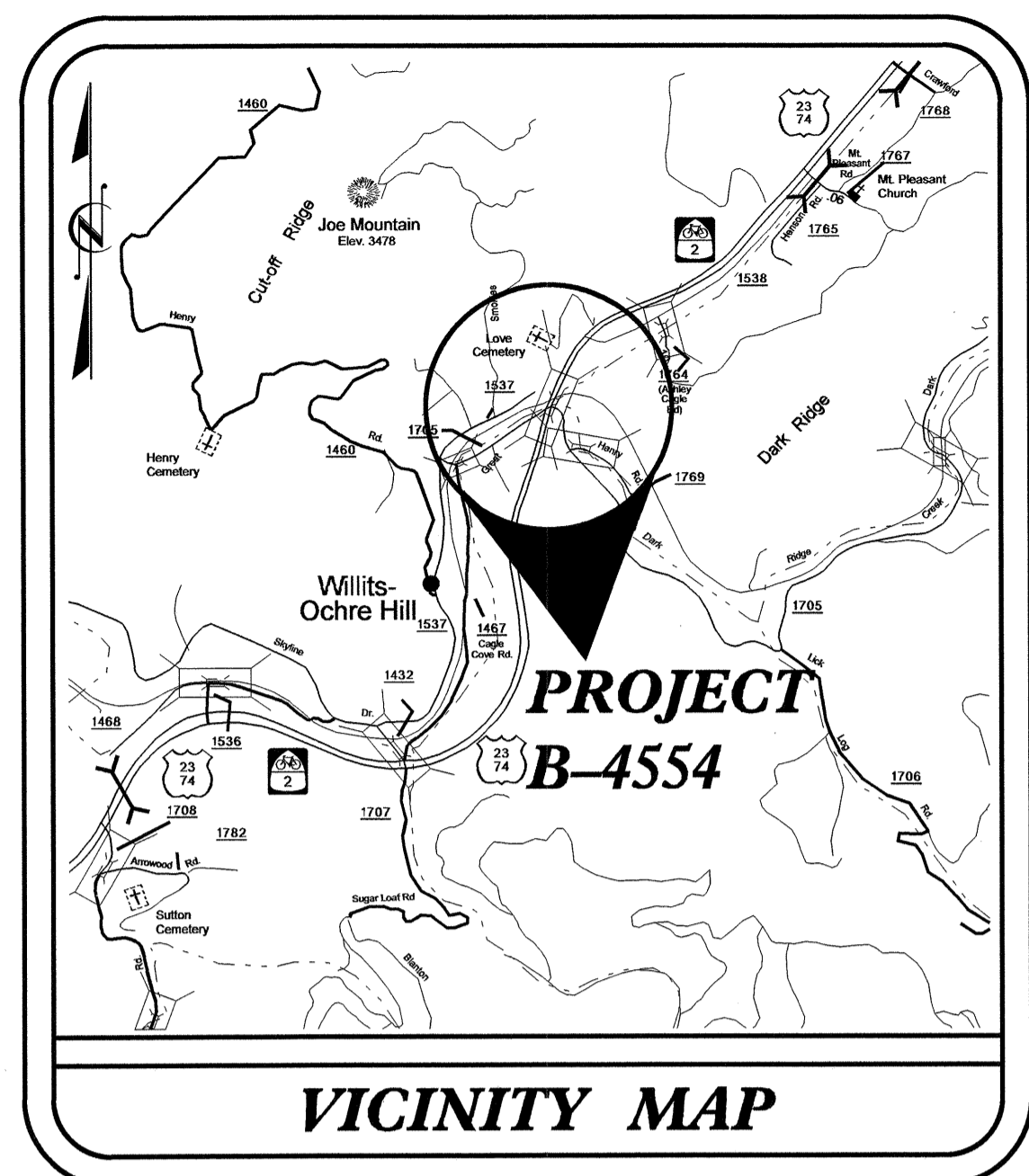
# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## JACKSON COUNTY

**LOCATION: BRIDGE NO. 145 ON US 23-74 OVER SR 1705,  
SOUTHERN RAILROAD AND SCOTT CREEK.**

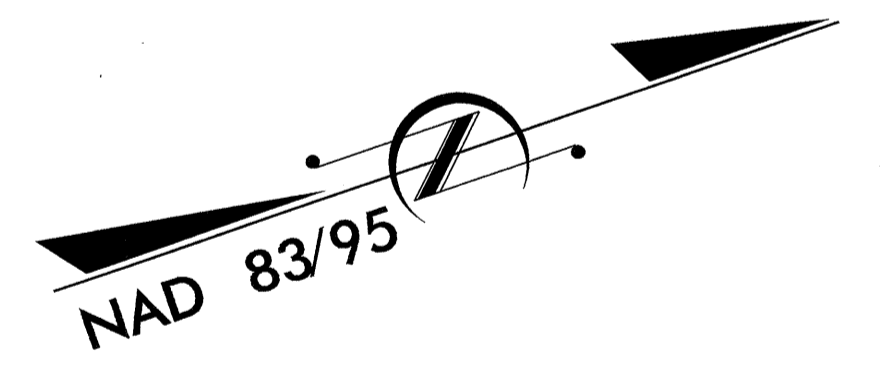
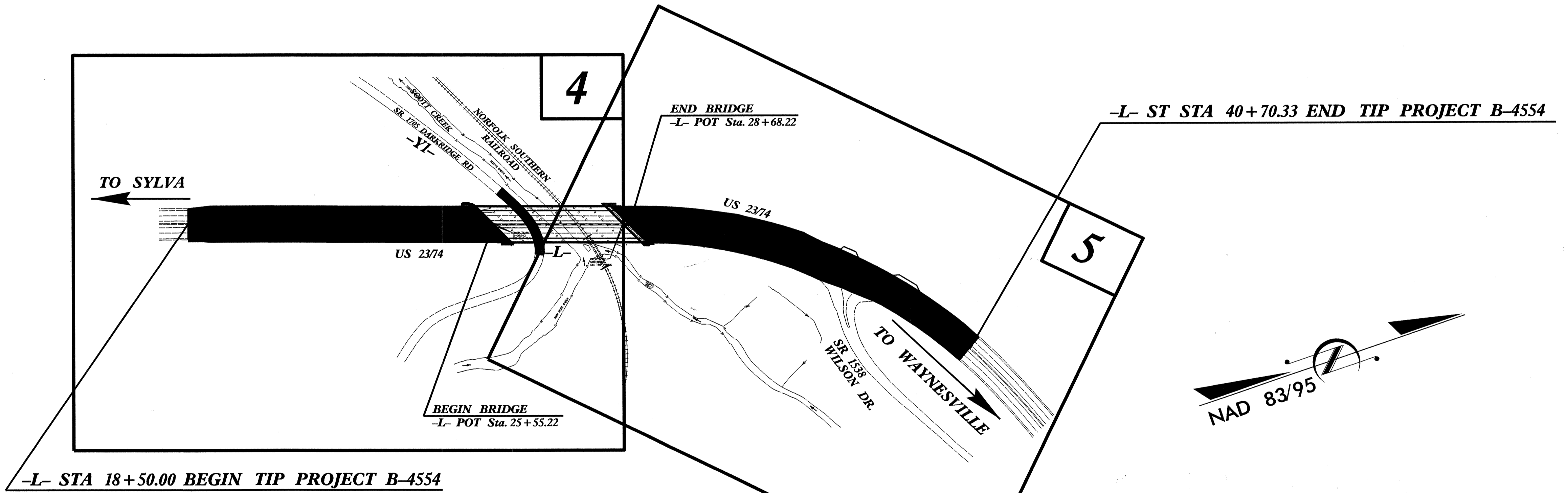
**TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE.**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4554	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38408.1.1	BRZ-1705(1)	P.E.	
38408.2.1	BRZ-1705(1)	R/W&UTIL.	
38408.3.FS1	BRZ-1705(1)	CONST.	

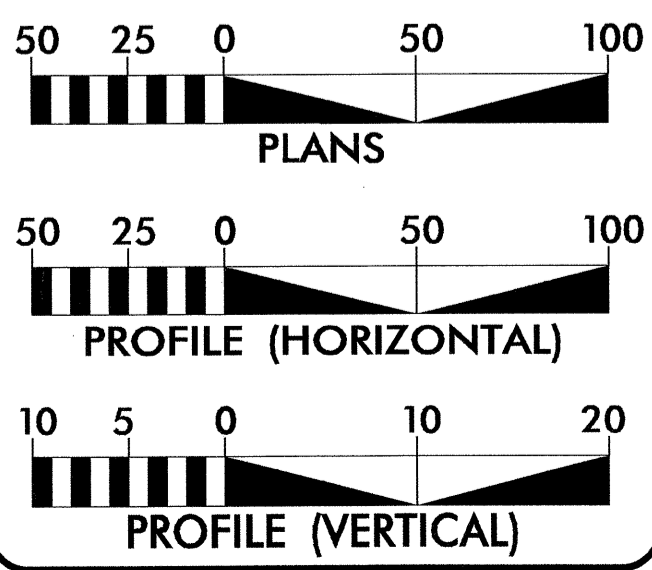


**TIP PROJECT: B-4554**

**CONTRACT: C203409**



### GRAPHIC SCALES



### DESIGN DATA

ADT 2012 = 27,912  
 ADT 2030 = 40,800  
 K = 12 %  
 D = 55 %  
 T = 8 % \*  
 V = 60 MPH  
 \* TTST = 4% DUAL = 4%  
 FUNC CLASS = MAJOR ARTERIAL

### PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4554 = 0.362 Miles  
 LENGTH STRUCTURE TIP PROJECT B-4554 = 0.059 Miles  
 TOTAL LENGTH TIP PROJECT B-4554 = 0.421 Miles

Prepared In the Office of:  
**DIVISION OF HIGHWAYS**  
 1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
 AUGUST 23, 2012

LETTING DATE:  
 JULY 15, 2014

KEVIN MOORE, P.E.  
 PROJECT ENGINEER

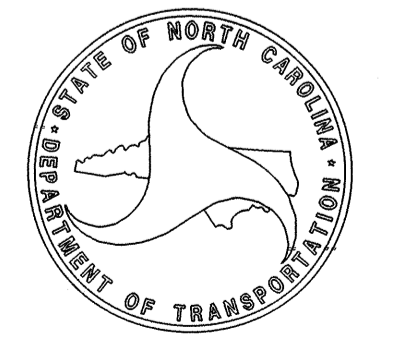
MARK HUSSEY  
 PROJECT DESIGN ENGINEER

### HYDRAULICS ENGINEER

SIGNATURE: *Kevin Moore* 3/27/14

### ROADWAY DESIGN ENGINEER

SIGNATURE: *Kevin E. Moore* 3/21/14



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 R:\Roadway\Proj\B4554\_Rdy.tsh.dgn  
 \$\$\$USERNAME\$\$\$





STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

*Note: Not to Scale*

\*S.U.E. = *Subsurface Utility Engineering*

### BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	(123)
Existing Fence Line	-----
Proposed Woven Wire Fence	-----
Proposed Chain Link Fence	-----
Proposed Barbed Wire Fence	-----
Existing Wetland Boundary	----- WLB
Proposed Wetland Boundary	----- WLB
Existing Endangered Animal Boundary	----- EAB
Existing Endangered Plant Boundary	----- EPB
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ?

### BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○ W
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	⊕
Building	□
School	□
Church	□
Dam	□

### HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	----- JS
Buffer Zone 1	----- BZ 1
Buffer Zone 2	----- BZ 2
Flow Arrow	←
Disappearing Stream	-----
Spring	○
Wetland	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	-----

### RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ CSX TRANSPORTATION MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

### RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	○ R/W
Proposed Right of Way Line with Concrete or Granite RW Marker	○ R/W
Proposed Control of Access Line with Concrete CA Marker	○ CA
Existing Control of Access	○ CA
Proposed Control of Access	○ CA
Existing Easement Line	----- E
Proposed Temporary Construction Easement	----- E
Proposed Temporary Drainage Easement	----- TDE
Proposed Permanent Drainage Easement	----- PDE
Proposed Permanent Drainage / Utility Easement	----- DUE
Proposed Permanent Utility Easement	----- PUE
Proposed Temporary Utility Easement	----- TUE
Proposed Aerial Utility Easement	----- AUE
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	----- C
Proposed Slope Stakes Fill	----- F
Proposed Curb Ramp	○ CR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	-----
VEGETATION:	
Single Tree	○
Single Shrub	○
Hedge	-----
Woods Line	-----

Orchard	-----
Vineyard	-----

### EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	----- CONC
Bridge Wing Wall, Head Wall and End Wall	----- CONC WW
MINOR:	
Head and End Wall	----- CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○ S
Storm Sewer	----- S

### UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○ P
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	□
H-Frame Pole	●
Recorded U/G Power Line	----- P
Designated U/G Power Line (S.U.E.*)	----- P

### TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○ T
Telephone Booth	□
Telephone Pedestal	□
Telephone Cell Tower	⊗
U/G Telephone Cable Hand Hole	□
Recorded U/G Telephone Cable	----- T
Designated U/G Telephone Cable (S.U.E.*)	----- T
Recorded U/G Telephone Conduit	----- TC
Designated U/G Telephone Conduit (S.U.E.*)	----- TC
Recorded U/G Fiber Optics Cable	----- T FO
Designated U/G Fiber Optics Cable (S.U.E.*)	----- T FO

### WATER:

Water Manhole	○ W
Water Meter	○
Water Valve	⊗
Water Hydrant	○
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	----- A/G Water

### TV:

TV Satellite Dish	⊗
TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	□
Recorded U/G TV Cable	----- TV
Designated U/G TV Cable (S.U.E.*)	----- TV
Recorded U/G Fiber Optic Cable	----- TV FO
Designated U/G Fiber Optic Cable (S.U.E.*)	----- TV FO

### GAS:

Gas Valve	◇
Gas Meter	◇
Recorded U/G Gas Line	----- G
Designated U/G Gas Line (S.U.E.*)	----- G
Above Ground Gas Line	----- A/G Gas

### SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	----- SS
Above Ground Sanitary Sewer	----- A/G Sanitary Sewer
Recorded SS Forced Main Line	----- FSS
Designated SS Forced Main Line (S.U.E.*)	----- FSS

### MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line	----- ?UTL
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊗
U/G Test Hole (S.U.E.*)	⊗
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.



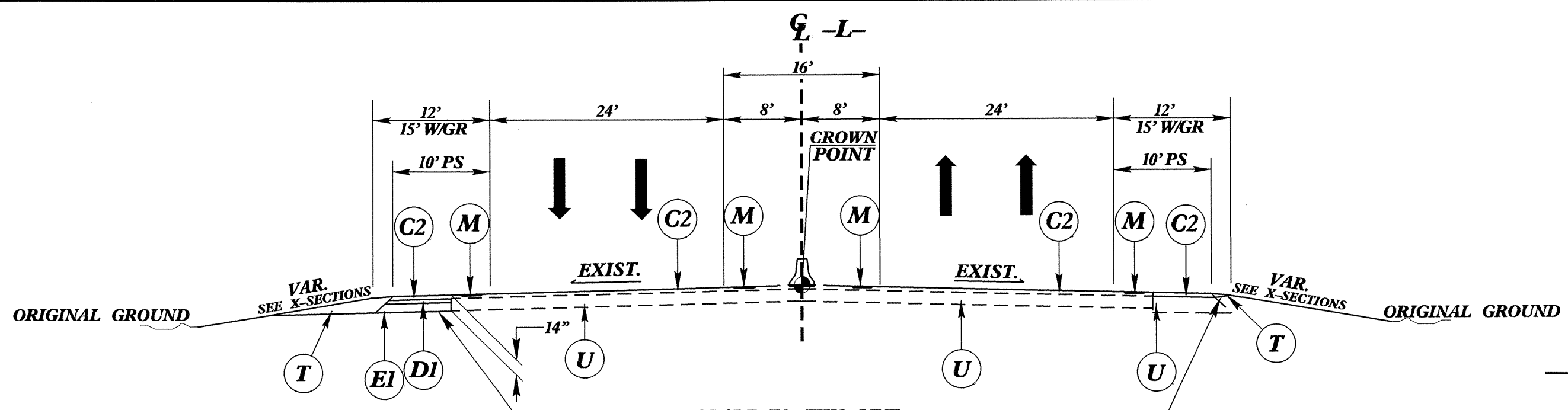


8/17/99

PROJECT REFERENCE NO. <b>B-4554</b>	SHEET NO. <b>2</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <b>SEAL 24912 KIM E. MOORE</b> 4-17-94	PAVEMENT DESIGN ENGINEER <b>SEAL 22888 CLARK S. MORRISON</b> 4/17/94

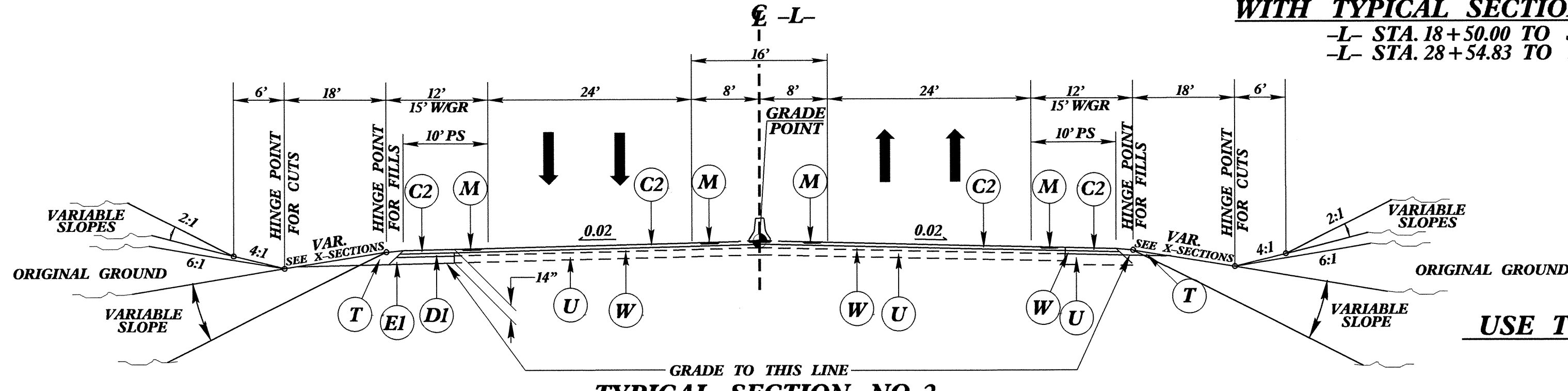
FINAL PAVEMENT SCHEDULE	
<b>C1</b>	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
<b>C2</b>	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
<b>C3</b>	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
<b>D1</b>	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
<b>D2</b>	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2-1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
<b>E1</b>	PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
<b>E2</b>	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
<b>M</b>	MILLED RUMBLE STRIPS (SEE STANDARD 665.01 AND PLANS FOR LOCATION)
<b>T</b>	EARTH MATERIAL.
<b>U</b>	EXISTING PAVEMENT.
<b>V</b>	MILLING EXISTING ASPHALT PAVEMENT 3" DEPTH
<b>W</b>	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



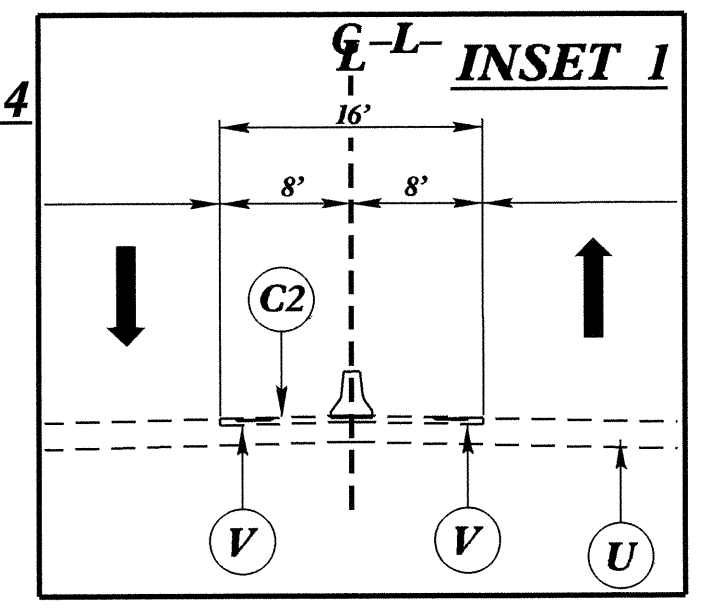
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS  
-L- STA. 18+50.00 TO STA. 23+00.00

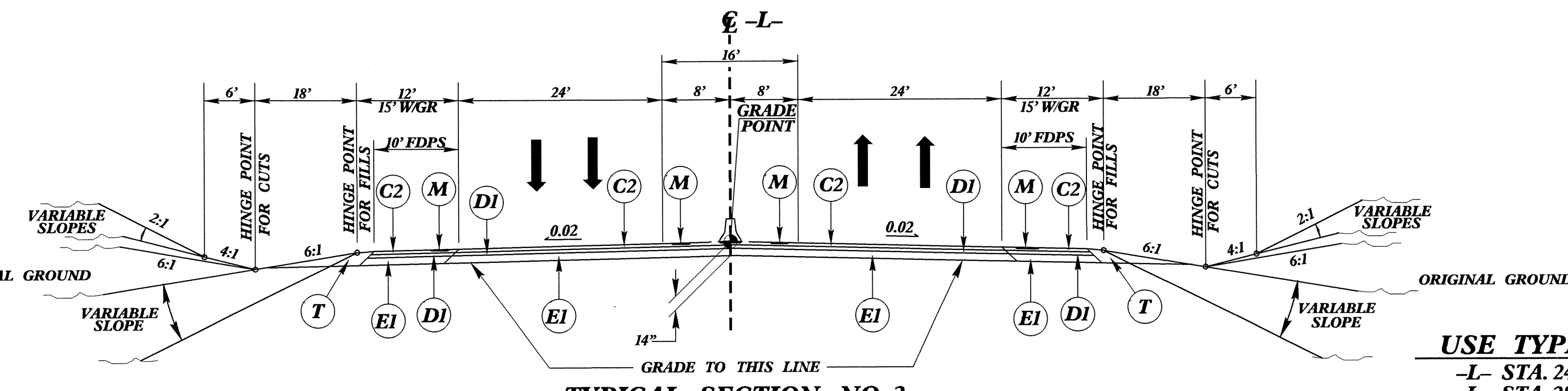


TYPICAL SECTION NO. 2

USE INSET 1 IN CONJUNCTION WITH TYPICAL SECTION 1, 2 AND 4  
-L- STA. 18+50.00 TO STA. 25+48.50  
-L- STA. 28+54.83 TO STA. 40+70.33

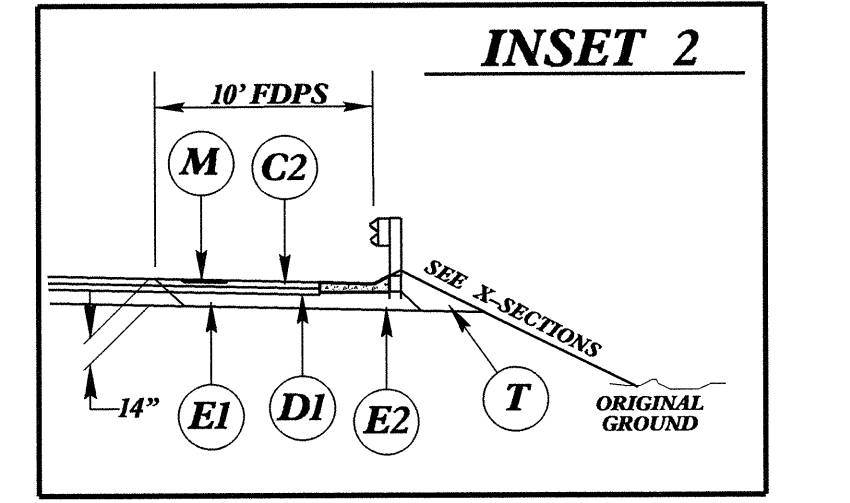


USE TYPICAL SECTION NO. 2 AS FOLLOWS  
-L- STA. 23+00.00 TO STA. 24+45.00  
-L- STA. 30+50.00 TO STA. 32+60.00

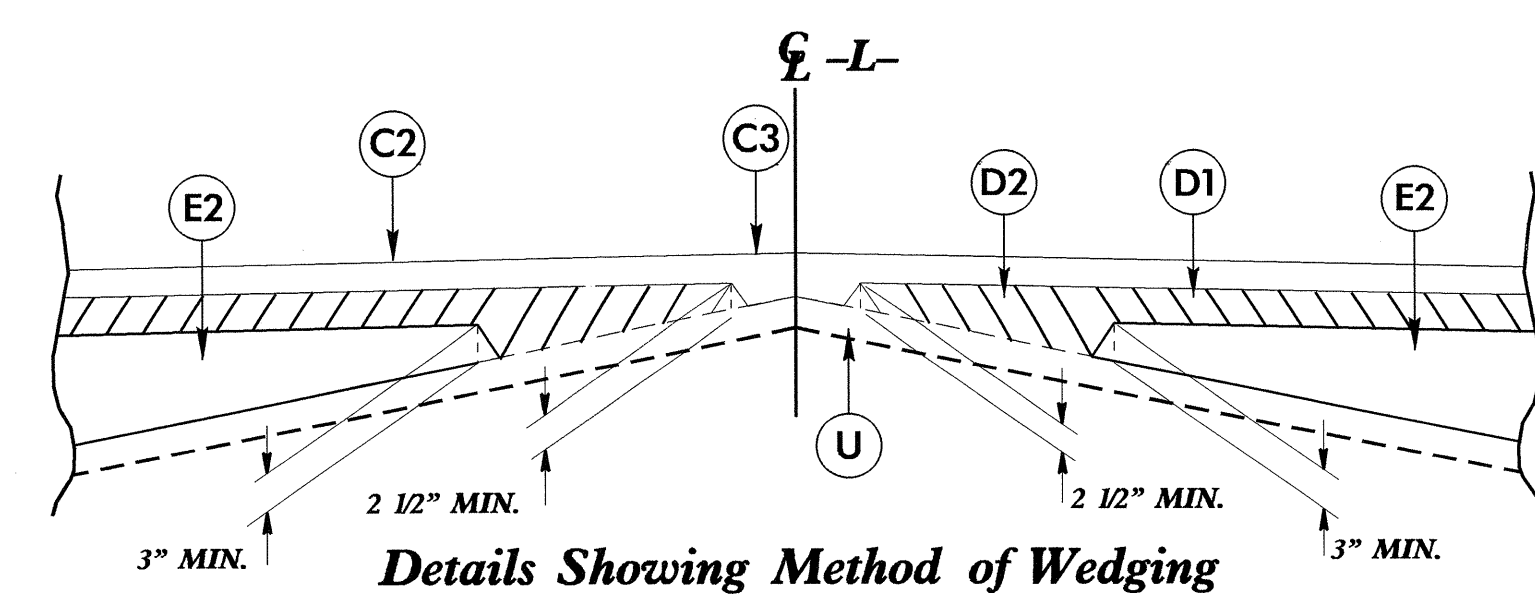


TYPICAL SECTION NO. 3

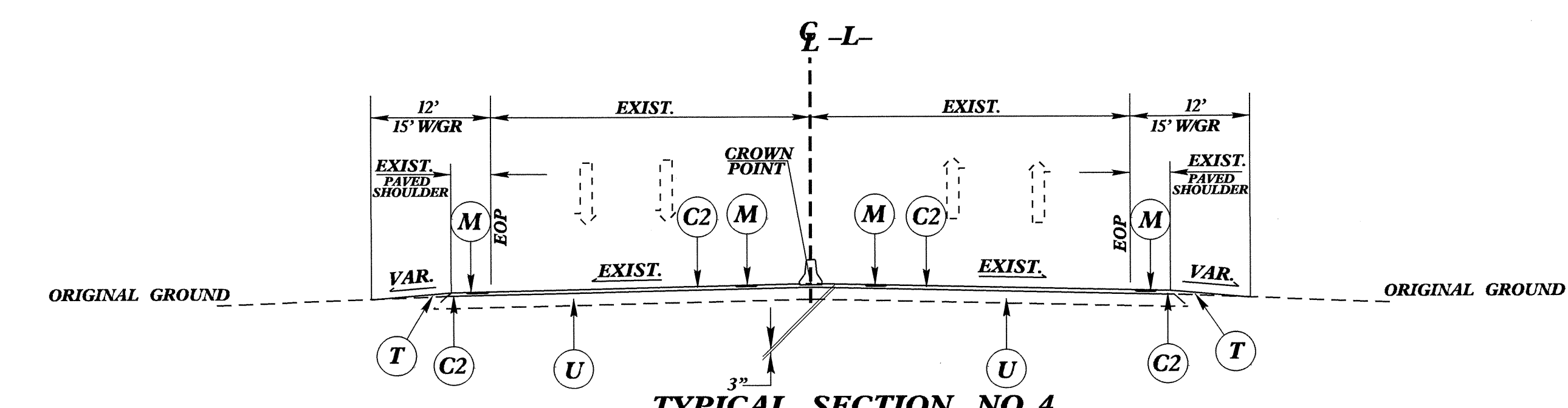
USE INSET 2 IN CONJUNCTION WITH TYPICAL SECTION 3  
-L- RT STA. 29+36.07 (END APP. SLAB) TO STA. 29+51.07



USE TYPICAL SECTION NO. 3 AS FOLLOWS  
-L- STA. 24+45.00 TO STA. 25+55.22 (BEGIN BRIDGE)  
-L- STA. 28+68.22 (END BRIDGE) TO STA. 30+50.00

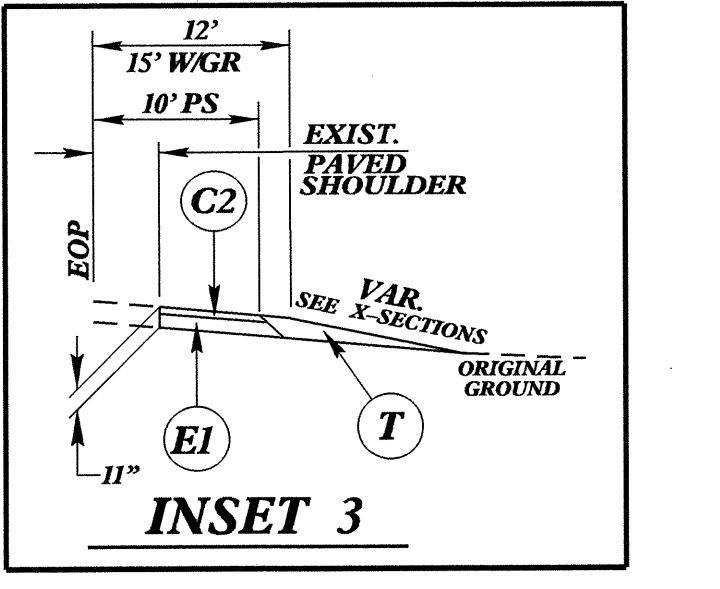


Details Showing Method of Wedging

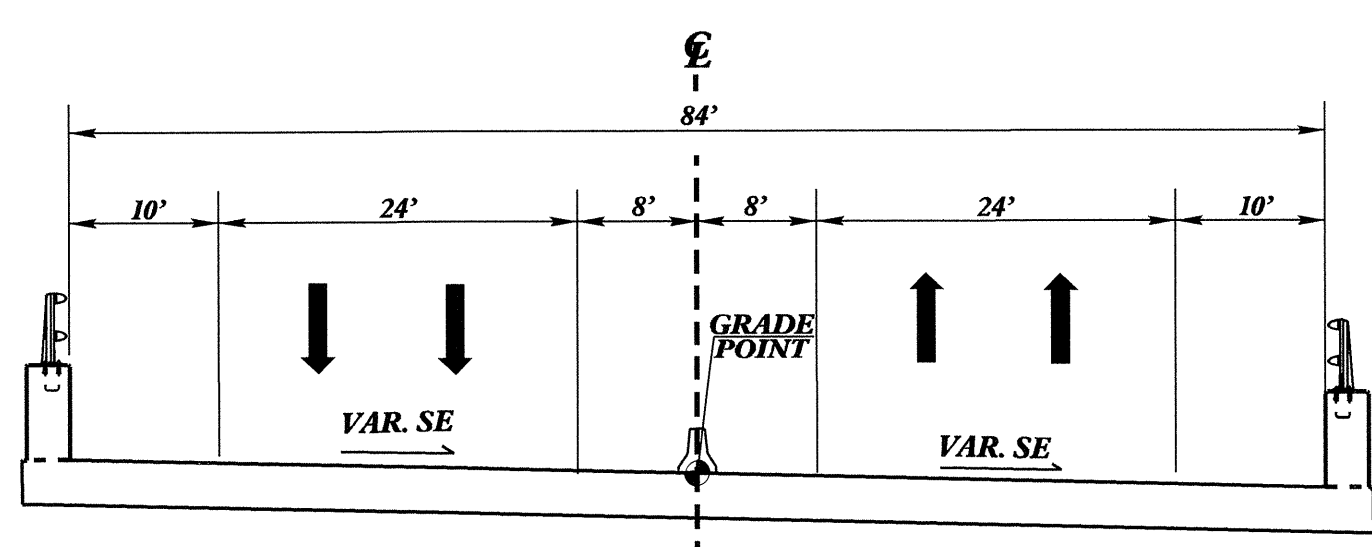


TYPICAL SECTION NO. 4

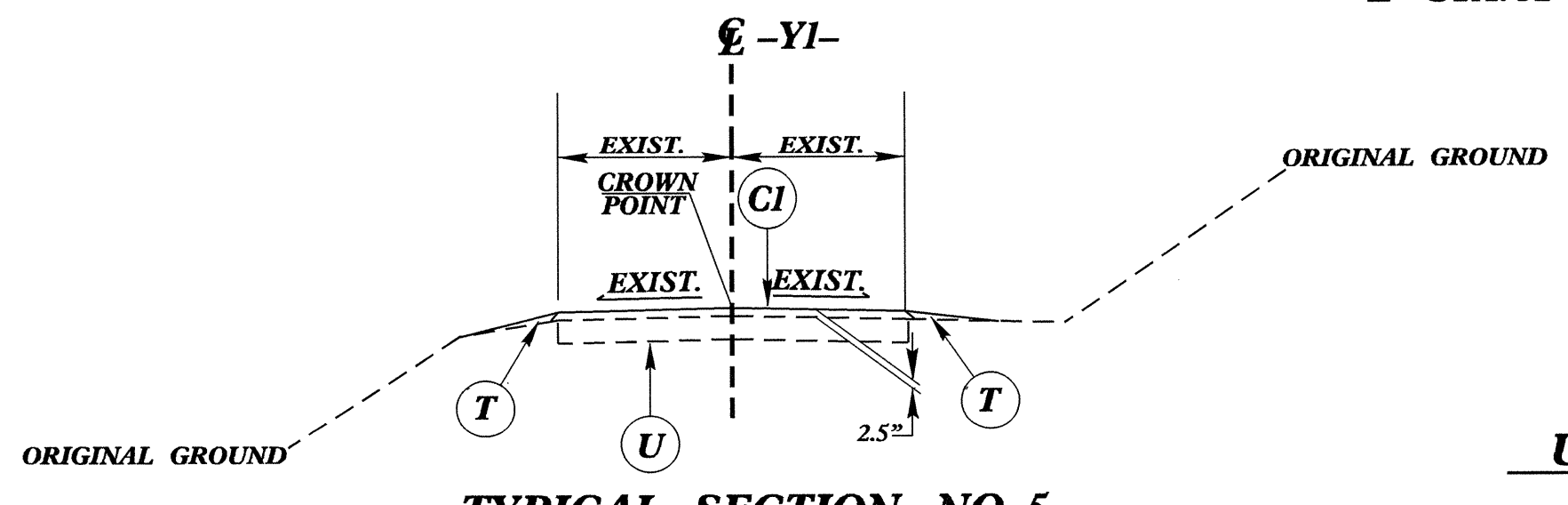
USE TYPICAL SECTION NO. 4 AS FOLLOWS  
-L- STA. 32+60.00 TO STA. 40+70.33



USE INSET 3 IN CONJUNCTION WITH TYPICAL SECTIONS 1, 2 AND 3 DURING PHASE CONSTRUCTION  
-L- RT. STA. 18+50.00 TO STA. 25+88.54 (BEGIN EXIST. BRIDGE)  
-L- RT. STA. 28+96.84 (END EXIST. BRIDGE) TO STA. 32+36.68



STRUCTURE TYPICAL SECTION  
-L- STA. 25+55.22 TO STA. 28+68.22

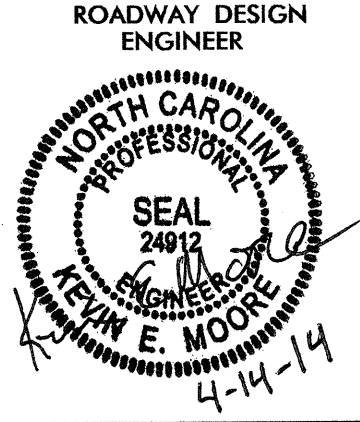


TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 AS FOLLOWS  
-YI- STA. 11+83.16 TO STA. 13+64.34

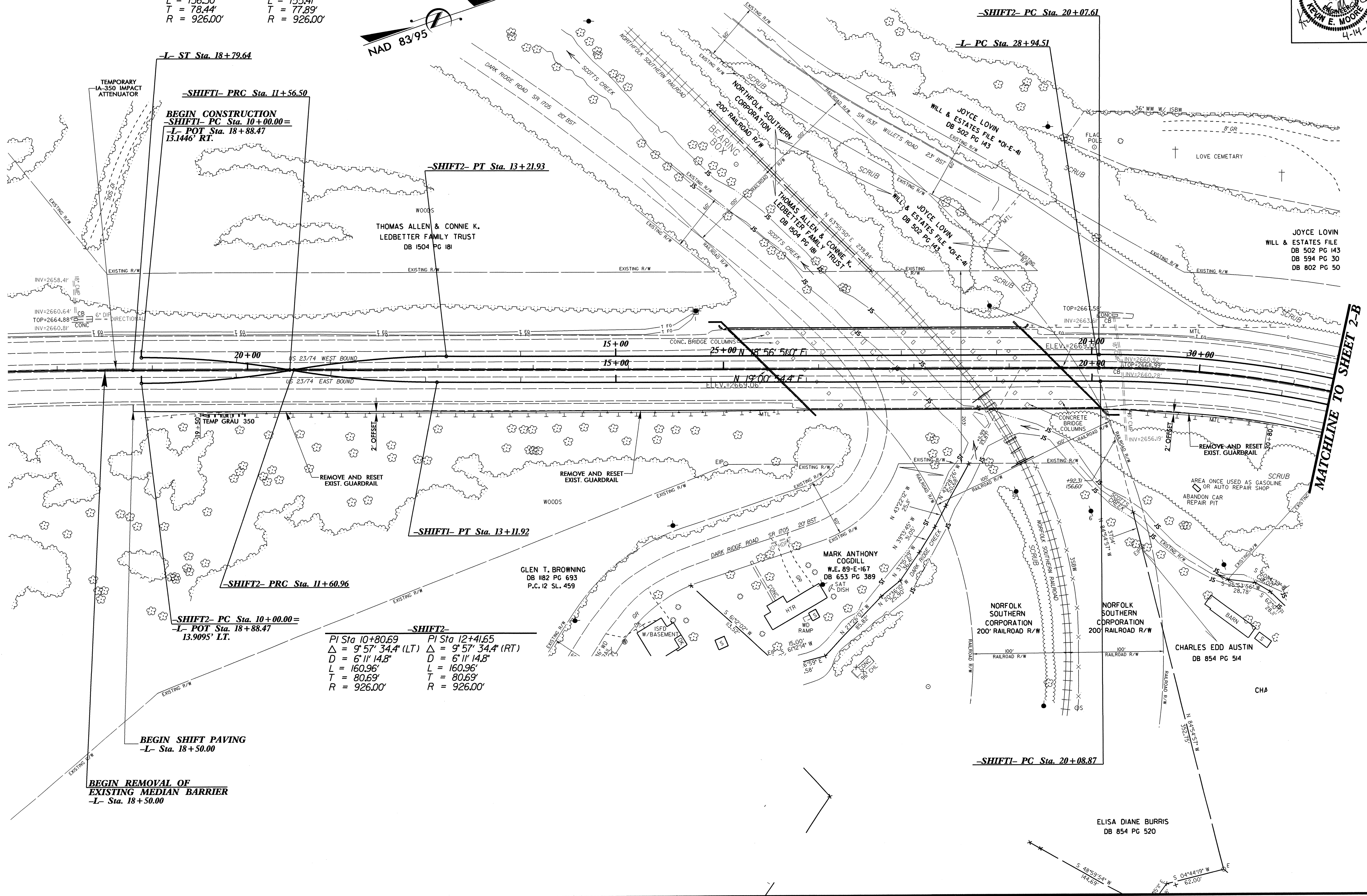
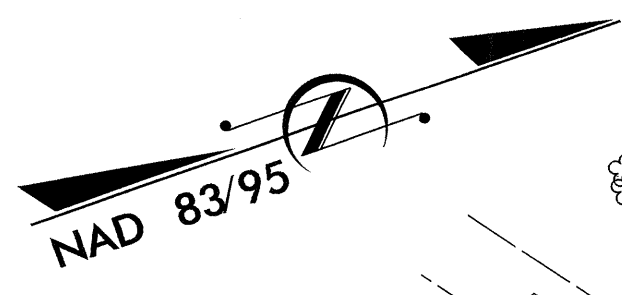
REVISIONS

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# DETAIL SHOWING ALIGNMENT SHIFTS FOR USE DURING STAGE CONSTRUCTION

-SHIFT1-	
PI Sta 10+78.44	PI Sta 12+34.39
$\Delta = 9^{\circ} 41' 01.2''$ (RT)	$\Delta = 9^{\circ} 36' 57.8''$ (LT)
D = 6' 11" 14.8"	D = 6' 11" 14.8"
L = 156.50'	L = 155.41'
T = 78.44'	T = 77.89'
R = 926.00'	R = 926.00'



REVISIONS

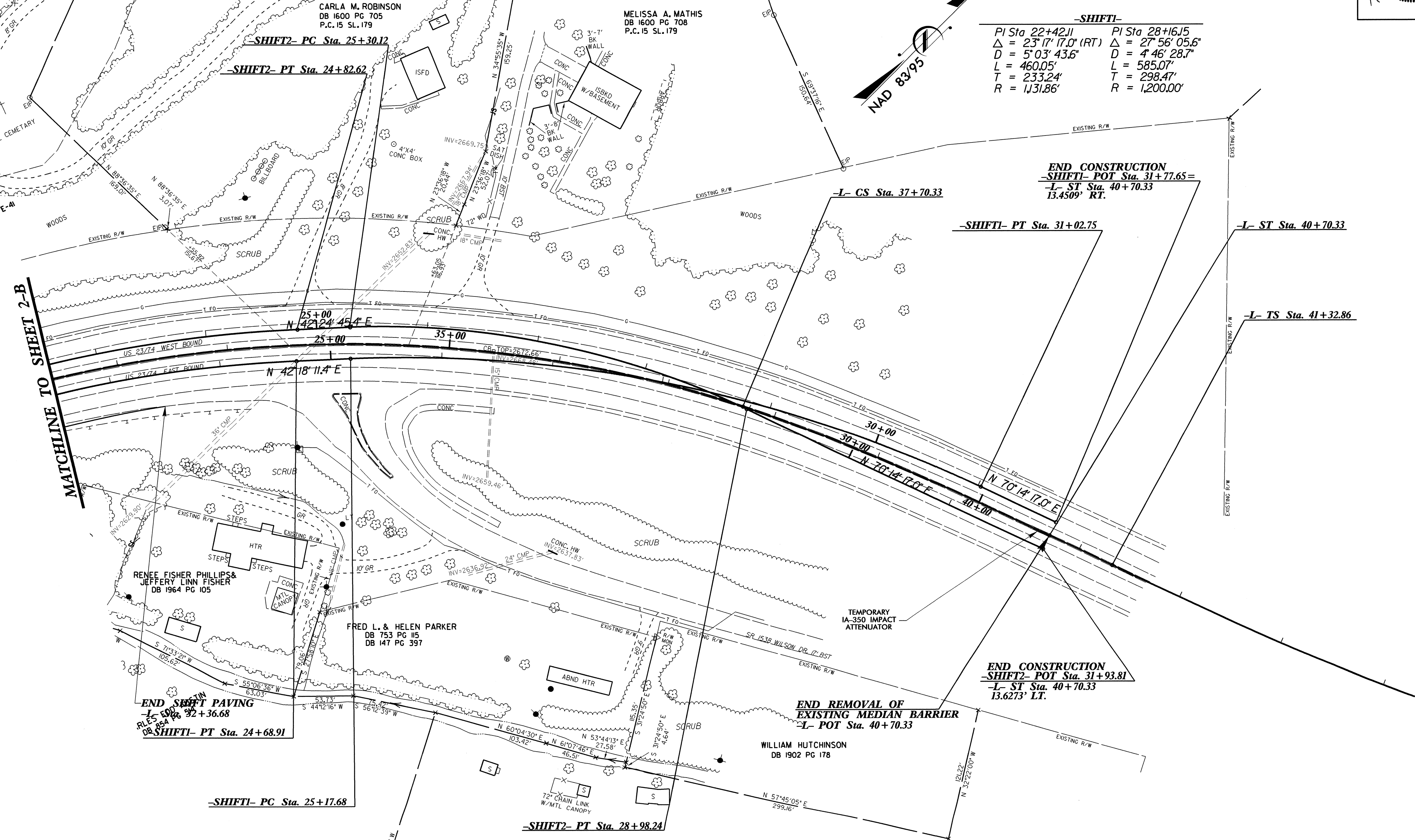
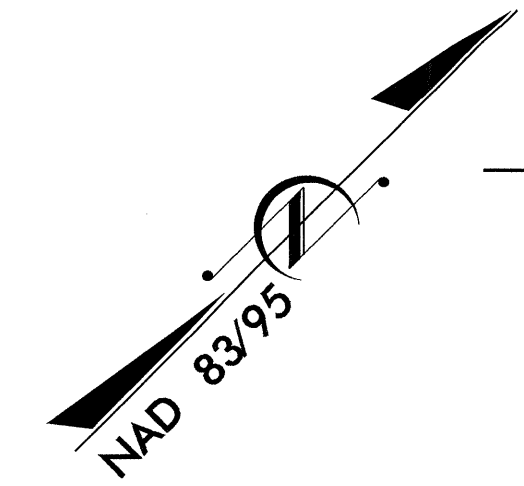
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MARK E. MOORE





# DETAIL SHOWING ALIGNMENT SHIFTS FOR USE DURING STAGE CONSTRUCTION

-SHIFT1-	
PI Sta 22+42.11	PI Sta 28+16.15
$\Delta = 23^{\circ}17'17.0"$ (RT)	$\Delta = 27^{\circ}56'05.6"$
D = 5'03'43.6"	D = 4'46'28.7"
L = 460.05'	L = 585.07'
T = 233.24'	T = 298.47'
R = 1,131.86'	R = 1,200.00'



-SHIFT2-	
PI Sta 22+48.49	PI Sta 27+17.89
$\Delta = 23^{\circ}27'54.4"$ (RT)	$\Delta = 27^{\circ}49'31.6"$ (RT)
D = 4'56'23.7"	D = 7'33'31.7"
L = 475.01'	L = 368.12'
T = 240.88'	T = 187.76'
R = 1,159.86'	R = 758.00'

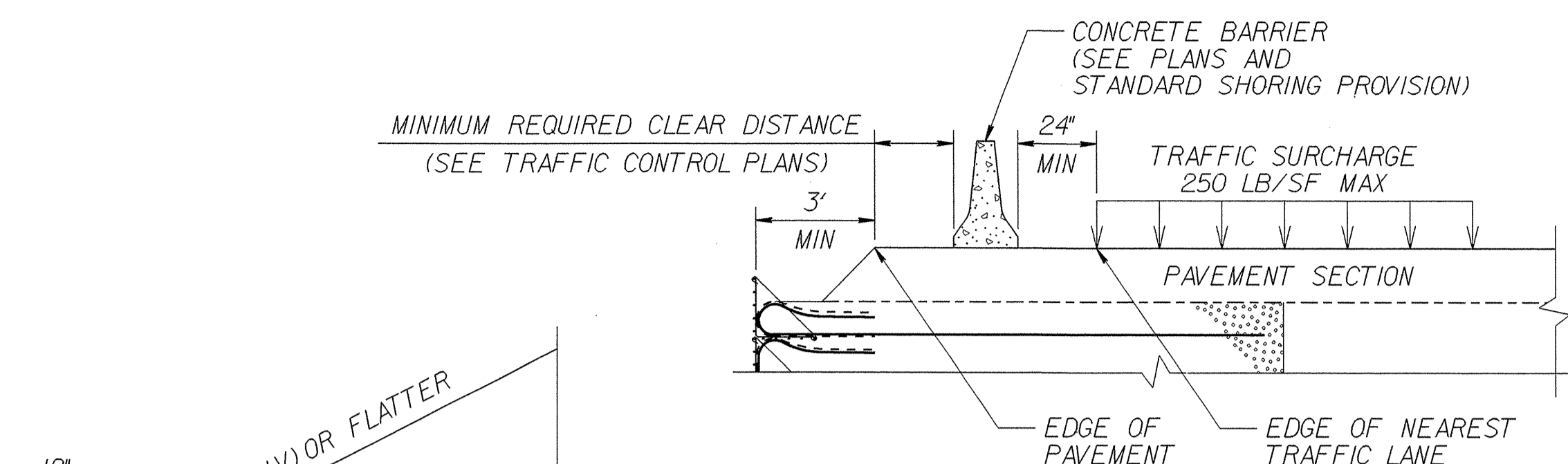
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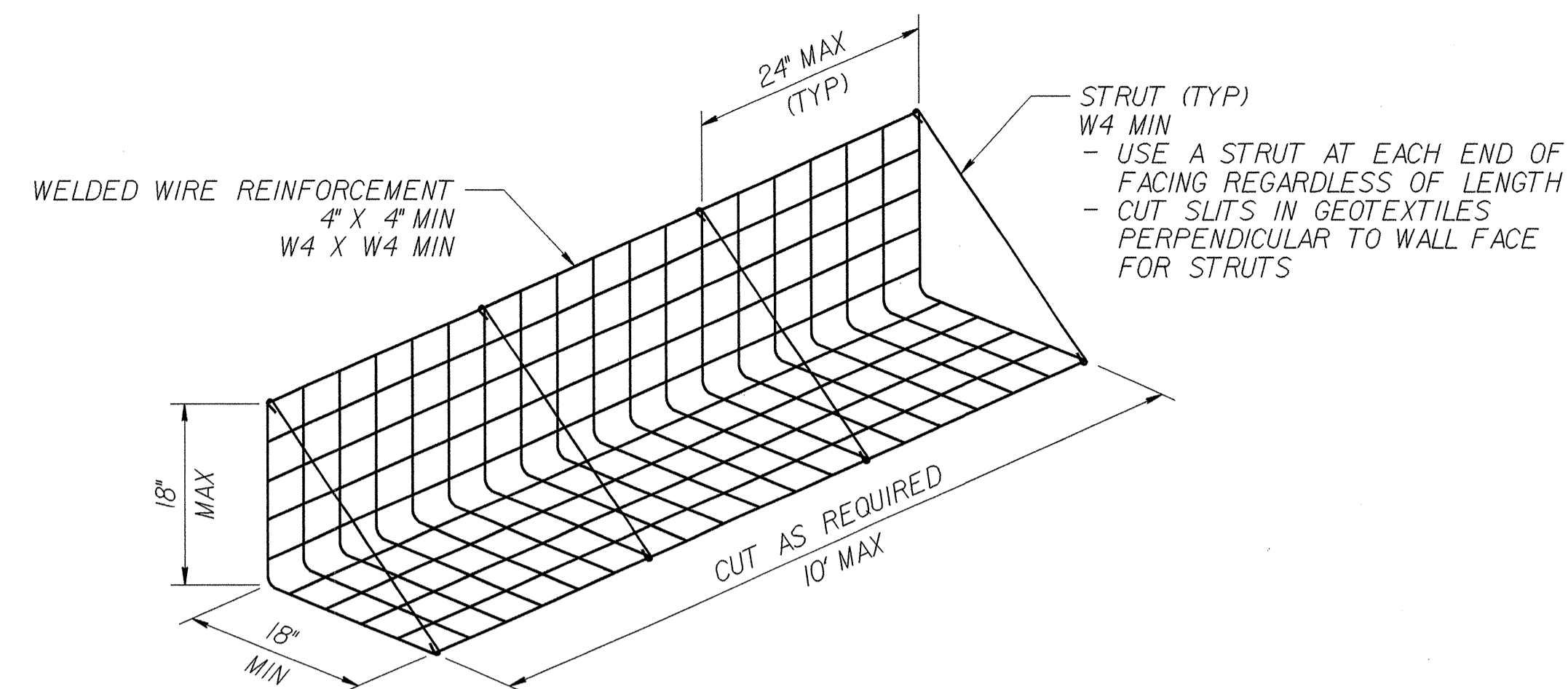


Signature: Scott A. Hadden Date: 7/22/13

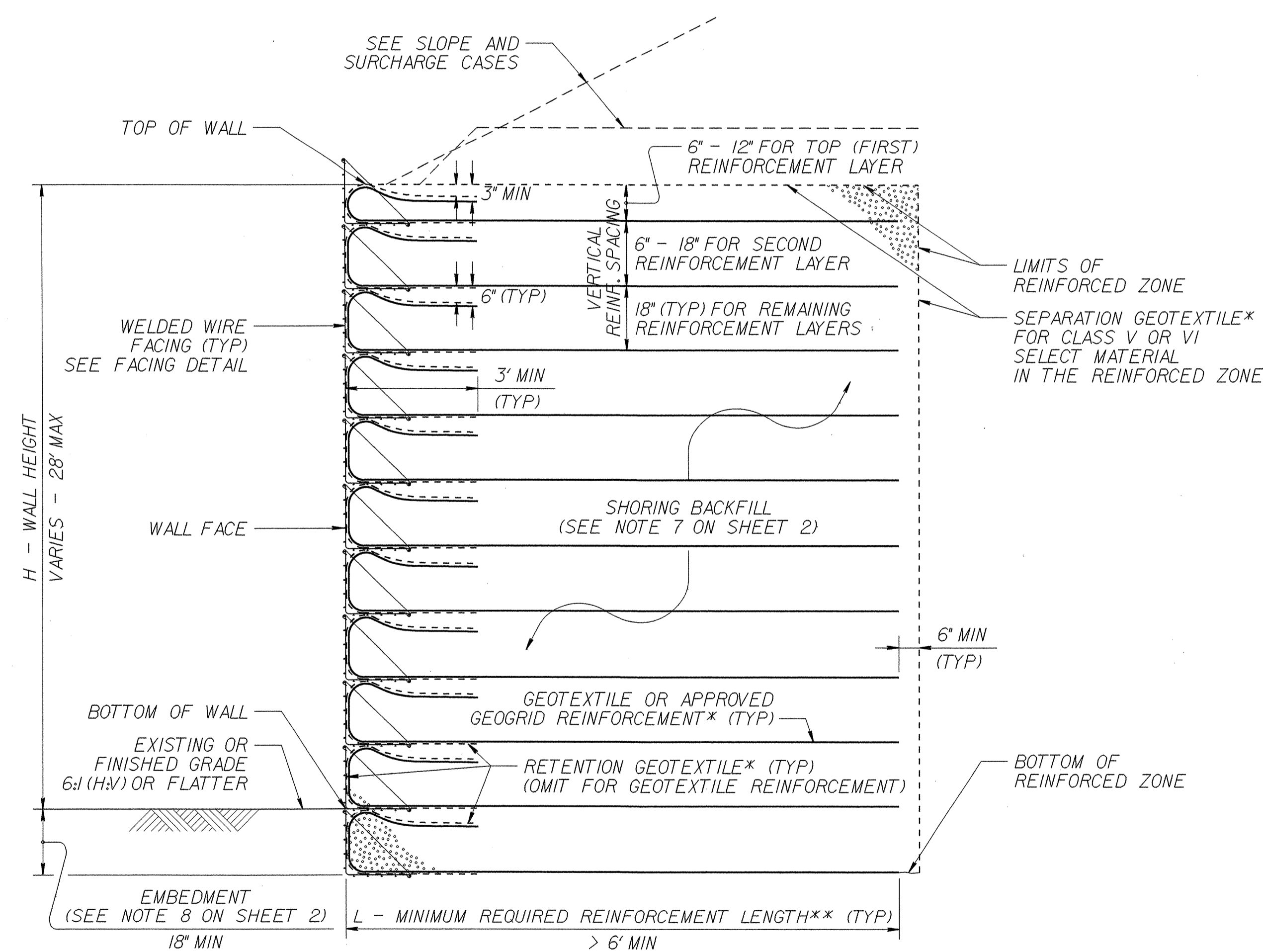


**SURCHARGE CASE**

**SLOPE CASE**



**FACING DETAIL**

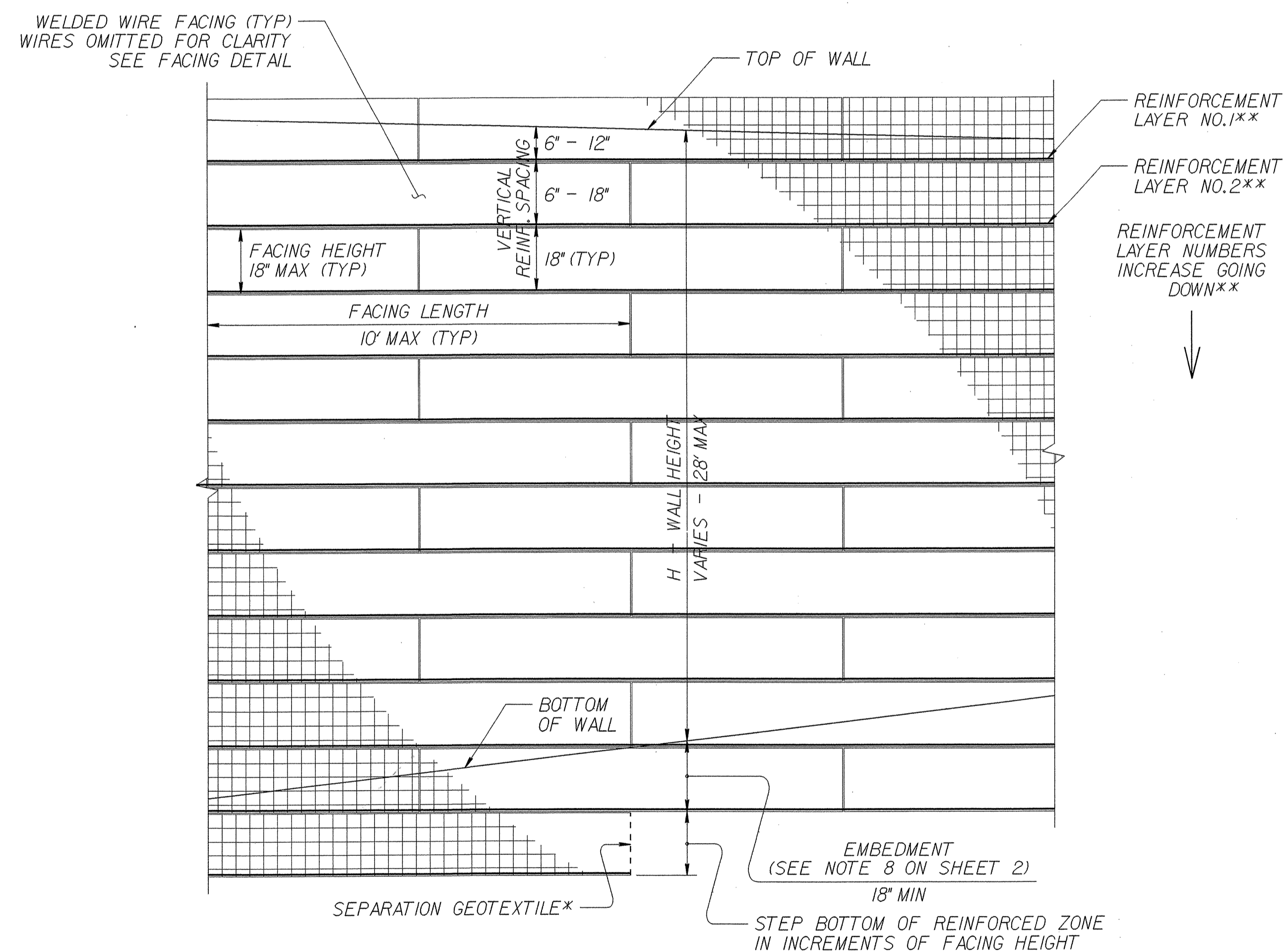


**STANDARD TEMPORARY WALL**

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)

\*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.

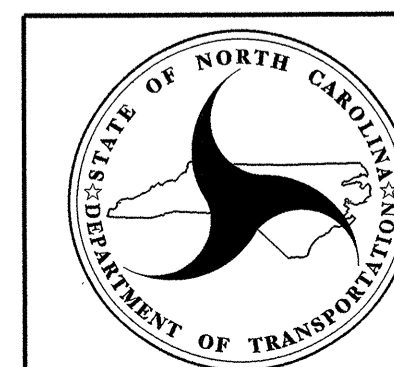
\*\*SEE REINFORCEMENT TABLES ON SHEET 3.



**STANDARD TEMPORARY WALL - PARTIAL ELEVATION**

\*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.

\*\*SEE REINFORCEMENT TABLES ON SHEET 3.



**GEOTECHNICAL ENGINEERING UNIT**  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD DRAWING NO. 1801.02

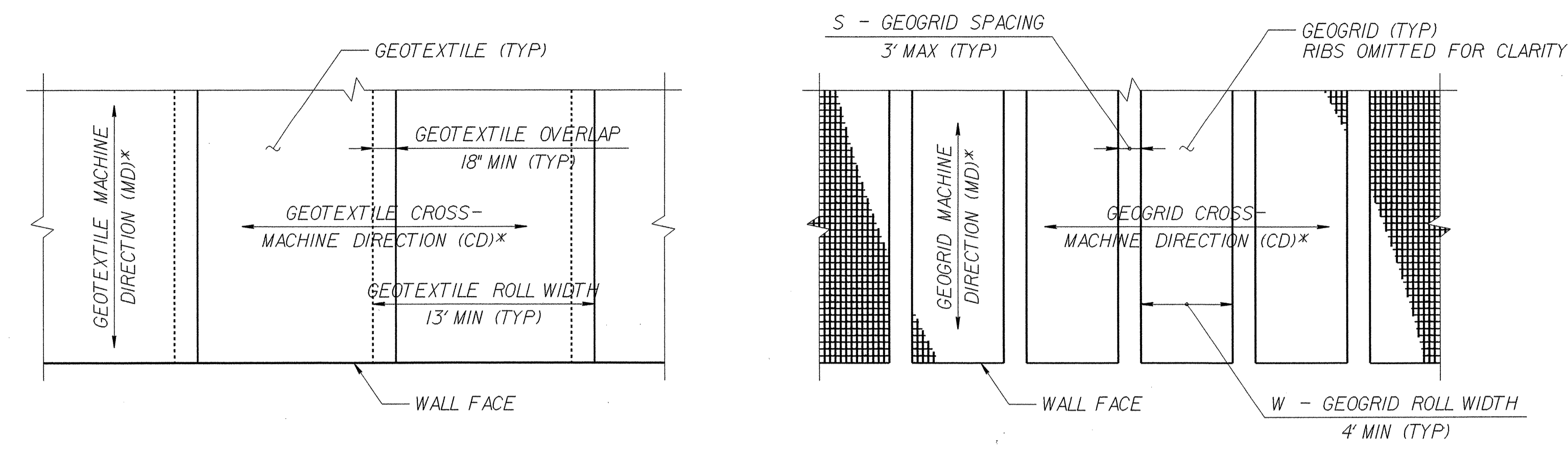
STANDARD TEMPORARY WALL  
Sheet 1 of 3

DATE: 11-19-13



GEOTECHNICAL ENGINEER ENGINEER

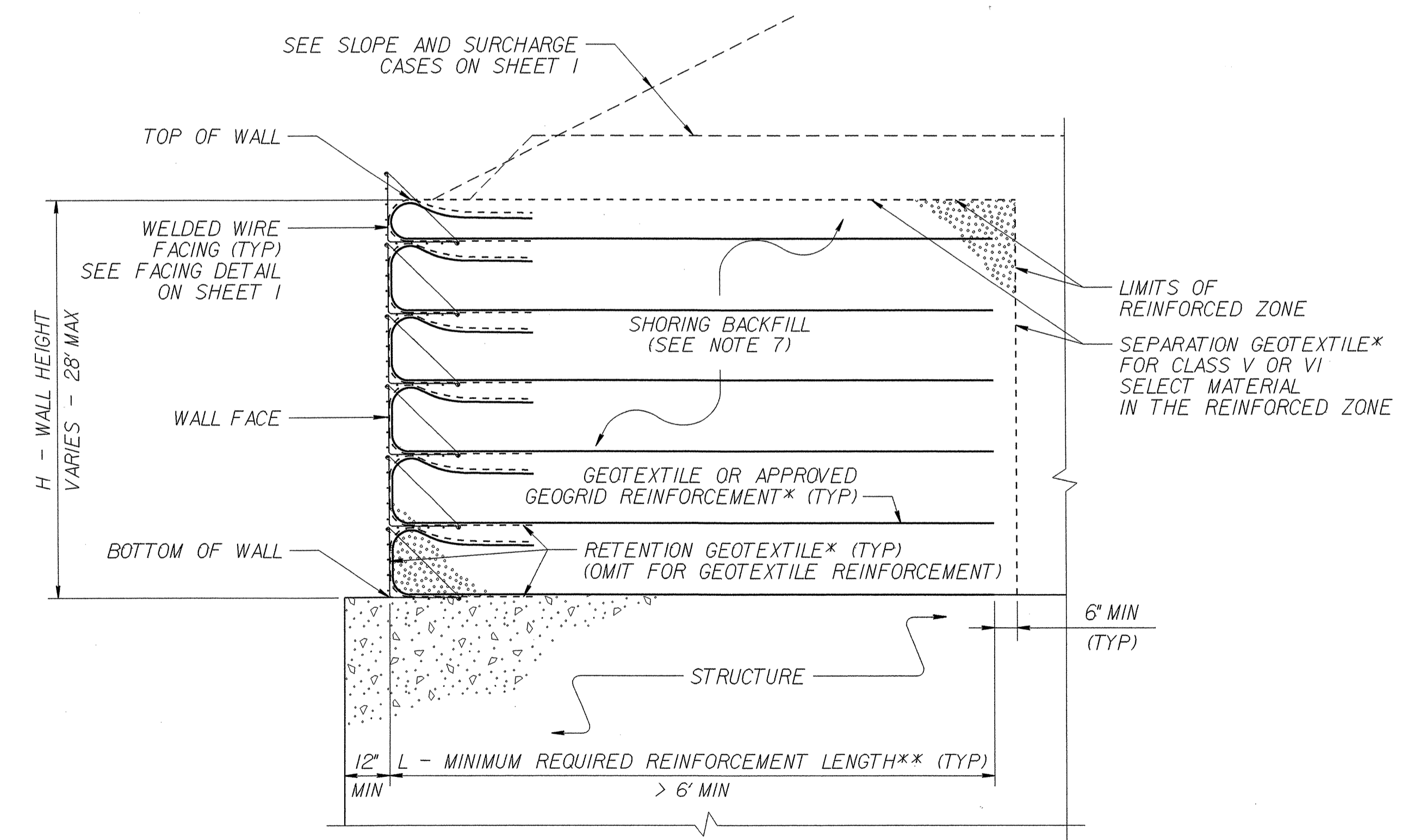
Scott A. Hidden 7/22/13



**GEOTEXTILE PLACEMENT**  
(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)

**GEOGRID PLACEMENT**  
(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT -  
 $\frac{W}{W+S} \times 100 \geq 80\%$ ,  
SEE NOTE 11)

**GEOSYNTHETIC PLACEMENT DETAILS**  
(PLAN VIEW)  
\*SEE NOTE 12.



**TEMPORARY WALL ON STRUCTURE DETAIL**  
\*SEE GEOSYNTHETIC PLACEMENT DETAILS.  
\*\*SEE REINFORCEMENT TABLES ON SHEET 3.

**NOTES:**

- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:  
UNIT WEIGHT,  $\gamma = 120$  LB/CF  
FRICTION ANGLE,  $\phi = 30$  DEGREES  
COHESION,  $c = 0$  LB/SF
- DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER IS ABOVE BOTTOM OF REINFORCED ZONE.
- DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
- EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
- DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
- GEOGRIDS ARE TYPICALLY APPROVED FOR ULTIMATE TENSILE STRENGTHS IN THE MACHINE DIRECTION (MD) AND CROSS-MACHINE DIRECTION (CD) OR SHORT-TERM DESIGN STRENGTHS FOR A 3-YEAR DESIGN LIFE IN THE MD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM:  
[connect.ncdot.gov/resources/Materials/Pages/SoilsLaboratory.aspx](http://connect.ncdot.gov/resources/Materials/Pages/SoilsLaboratory.aspx)  
DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

- IF THE WEBSITE DOES NOT LIST A SHORT-TERM DESIGN STRENGTH FOR AN APPROVED GEOGRID, USE A SHORT-TERM DESIGN STRENGTH EQUAL TO THE ULTIMATE TENSILE STRENGTH DIVIDED BY 3.5 FOR THE GEOGRID REINFORCEMENT.
- FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
  - AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:  
-  $W$  (REINFORCEMENT ROLL WIDTH)  $\geq$  (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND  
- REINFORCEMENT STRENGTH IN CD  $\geq$  MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
  - SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM:  
[connect.ncdot.gov/resources/Geological/Pages/Geotech\\_Forms\\_Details.aspx](http://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx)
  - DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
  - FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
  - DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
  - CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
  - FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
  - FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.

**GEOTECHNICAL ENGINEERING UNIT**  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD TEMPORARY WALL  
Sheet 2 of 3

DATE: 11-19-13



Scott A. Nidden 7/22/13  
SIGNATURE DATE

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																									
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
SLOPE CASE	> 0	CLASS II, TYPE I, CLASS III, CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27	
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H ≥ 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22	
		A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21	
		CLASS II, TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20	
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19	

**L - MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)**  
(FOR ALL REINFORCEMENT TYPES)

WALL HEIGHT (H) + EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

\*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

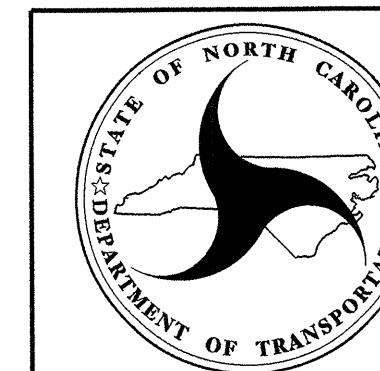
REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

**GEOTEXTILE REINFORCEMENT**  
**ULTIMATE TENSILE STRENGTH (LB/FT)**

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

**GEOGRID REINFORCEMENT**  
**SHORT-TERM DESIGN STRENGTH (LB/FT)**  
(SEE NOTE 10 ON SHEET 2.)

**MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD**  
(SEE NOTE 9 ON SHEET 2.)  
\*SEE PARTIAL ELEVATION ON SHEET 1 FOR REINFORCEMENT LAYER NUMBERING.



**GEOTECHNICAL ENGINEERING UNIT**  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD TEMPORARY WALL  
Sheet 3 of 3

DATE: 11-19-13





Scott A. Hilder 1/22/13  
SIGNATURE DATE

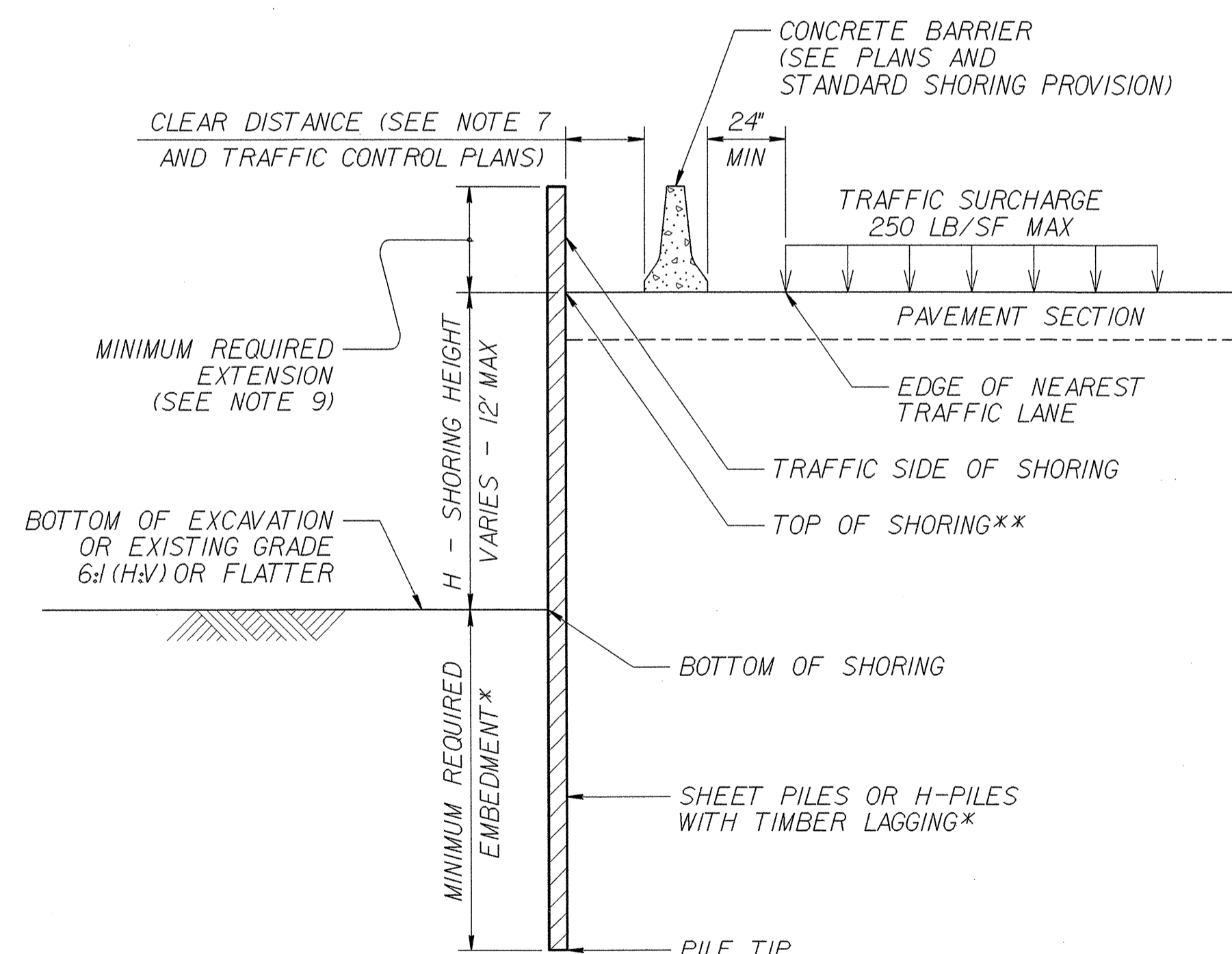
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5	
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5	

**MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS**

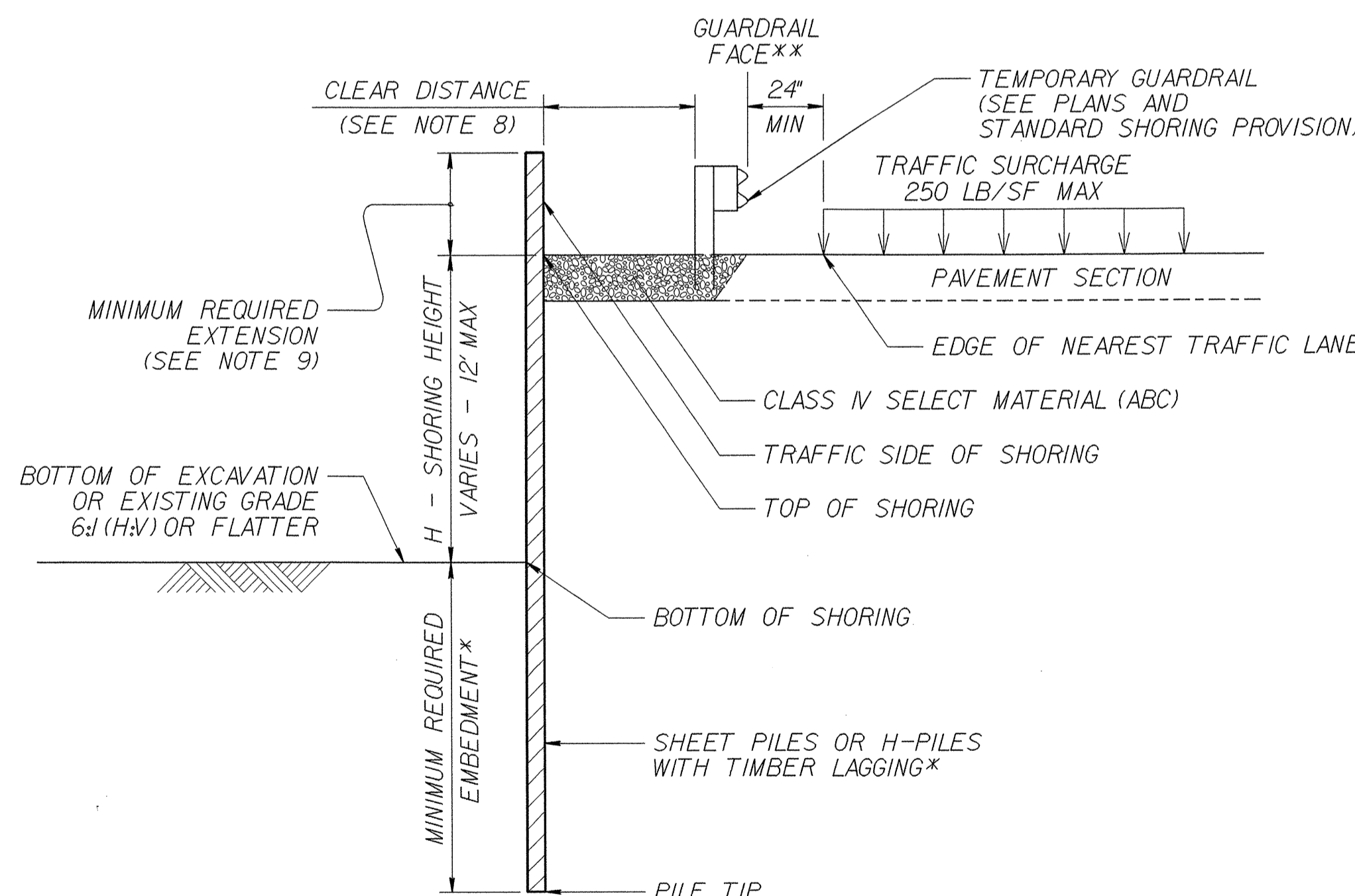
**\*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".**

**NOTES:**

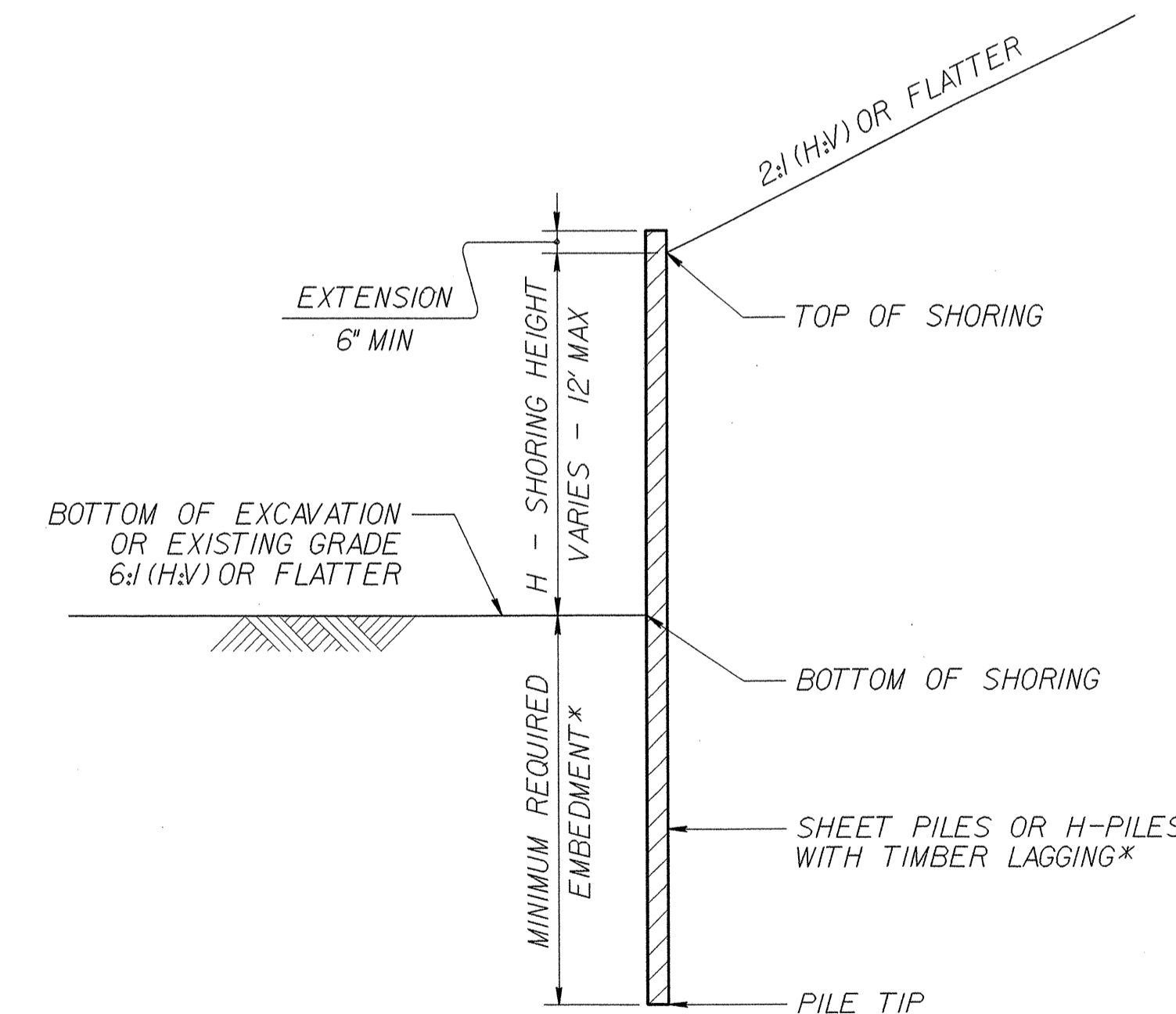
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:  
UNIT WEIGHT,  $\gamma = 120$  LB/CF  
FRICTION ANGLE,  $\phi = 30$  DEGREES  
COHESION,  $c = 0$  LB/SF
- DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EXTENSION IS 6' FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32' FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
- SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM:  
[connect.ncdot.gov/resources/Geological/Pages/Geotech\\_Forms\\_Details.aspx](http://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx)
- CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



**CONCRETE BARRIER**  
\*\*TOP OF SHORING =  
EDGE OF PAVEMENT

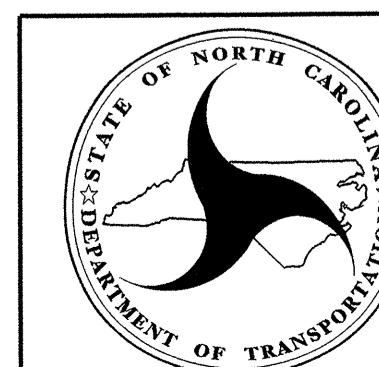


**TEMPORARY GUARDRAIL**  
\*\*GUARDRAIL FACE =  
EDGE OF PAVEMENT



**STANDARD TEMPORARY SHORING (SLOPE CASE)**  
\*SEE TABLE ABOVE.

**STANDARD TEMPORARY SHORING (SURCHARGE CASE)**  
\*SEE TABLE ABOVE.



**GEOTECHNICAL ENGINEERING UNIT**  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD DRAWING NO. 1801.01

STANDARD TEMPORARY SHORING



12/06/07

COMPUTED BY: GLL DATE: 3/2014  
CHECKED BY: MRH DATE: 3/2014

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. B-4554  
SHEET NO. 3-A

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".  
**LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)**

Main table listing pipe details including Station, Location, Structure No., Top Elevation, Invert Elevation, Slope, Pipe Size (12" to 48"), Material (R.C.P., C.S.P.), Endwalls, Quantities, Frame/Grates, and Remarks.

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.  
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.  
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.  
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.  
G = GATING IMPACT ATTENUATOR TYPE 350  
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

**GUARDRAIL SUMMARY**

Table summarizing guardrail details: Survey Line, Beg. Sta., End Sta., Location, Length (Straight, Shop Curved, Double Faced), Warrant Point (Approach End, Trailing End), Flare Length, Anchors (Type III, Temp Type III, VI Mod, BIC, AT-1), Temporary Impact Attenuator, and Remarks.

**SUMMARY OF PAVEMENT REMOVAL**

Table showing pavement removal details: Survey Line, Station, Location, and SQ. YD.

**SUMMARY OF SUBSURFACE DRAINAGE**

Table showing subsurface drainage details: Line, Station, Location, Drain Type, and LF.

**SUMMARY OF EARTHWORK**

Table summarizing earthwork quantities: Station, Uncl. Excav., Embank. +%, Borrow, Unsuitable Waste, and Waste.

**SUMMARY OF SHOULDER BERM GUTTER**

Table showing shoulder berm gutter details: Survey Line, Station, Length.

**SUMMARY OF PARCEL INDEX**

Table showing parcel index details: Parcel No., Sheet, and Parcel Owner Name.

IF APR-2014, B-40, R:\Roadway\B-40\B-4554\_Rdy\_sum.dgn

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.  
NOTE: APPROXIMATE QUANTITIES ONLY. BORROW EXCAVATION, FINE GRADING, UNCLASSIFIED EXCAVATION, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING"



Pls Sta 12+00.18	PI Sta 14+40.52	Pls Sta 16+79.80	PI Sta 33+55.06	Pls Sta 38+70.49	Pls Sta 43+32.97	PI Sta 46+54.24	Pls Sta 49+72.25
$\Theta_s = 7' 29'' 59.9''$	$\Delta = 13' 58'' 55.2''$ (RT)	$\Theta_s = 7' 29'' 59.9''$	$\Delta = 43' 47'' 26.1''$ (RT)	$\Theta_s = 7' 29'' 59.9''$	$\Theta_s = 6' 00'' 00.0''$	$\Delta = 17' 34'' 17.9''$ (LT)	$\Theta_s = 6' 00'' 00.0''$
$L_s = 300.00'$	$D = 4' 59'' 59.9''$	$L_s = 300.00'$	$D = 4' 59'' 59.9''$	$L_s = 300.00'$	$L_s = 300.00'$	$D = 4' 00'' 00.0''$	$L_s = 300.00'$
$LT = 200.18'$	$L = 279.64'$	$LT = 200.18'$	$L = 875.82'$	$LT = 200.18'$	$L = 200.12'$	$L = 439.29'$	$LT = 200.12'$
$ST = 100.16'$	$T = 140.52'$	$ST = 100.16'$	$T = 460.55'$	$ST = 100.16'$	$T = 100.10'$	$T = 221.38'$	$ST = 100.10'$
	$R = 1,145.92'$		$R = 1,145.92'$			$R = 1,432.39'$	
		RUNOUT = 93.34'				SE = SEE PLANS	

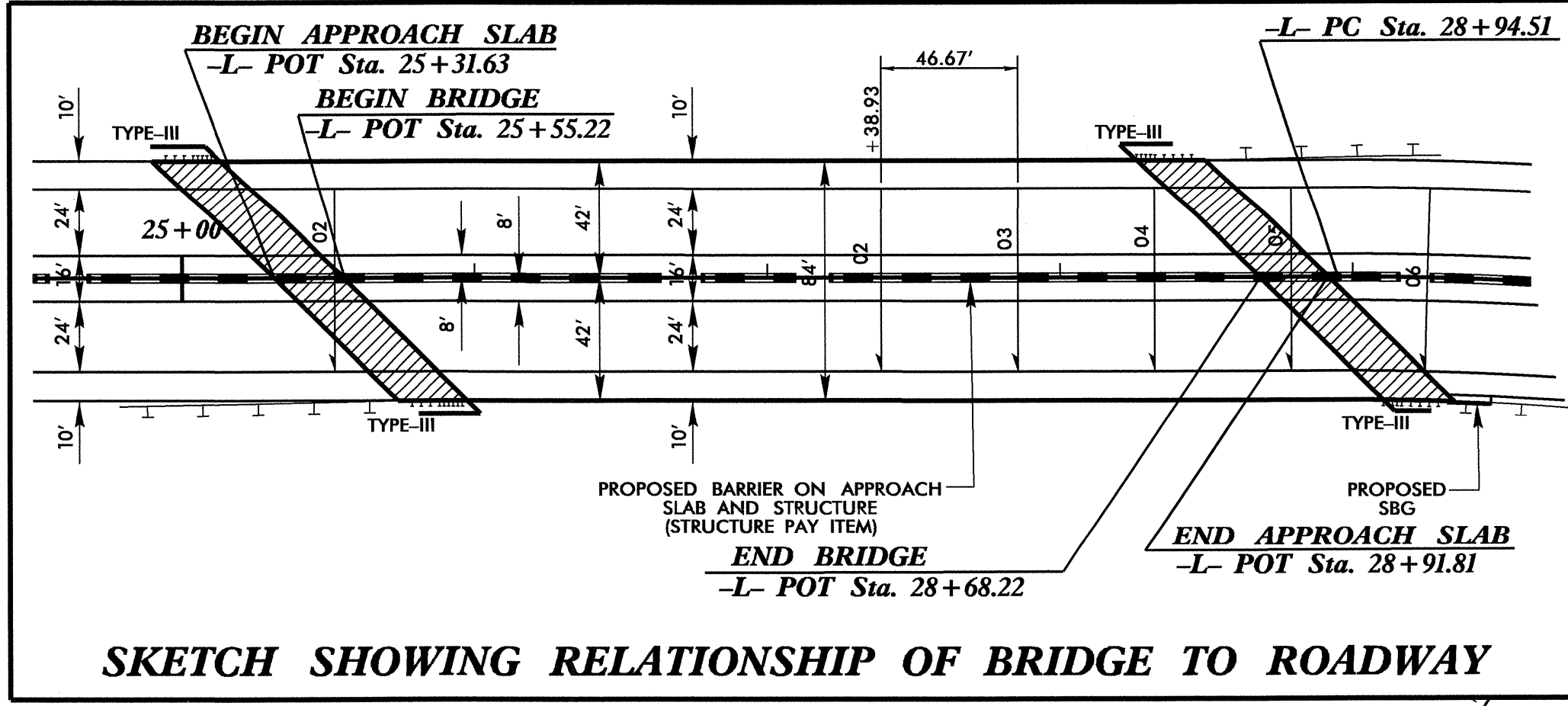
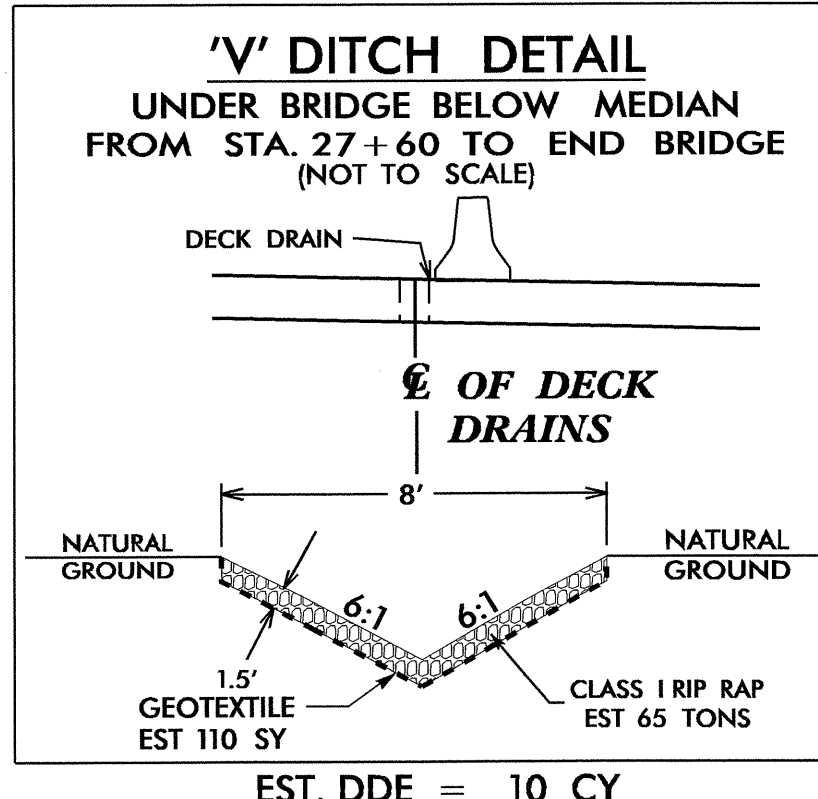
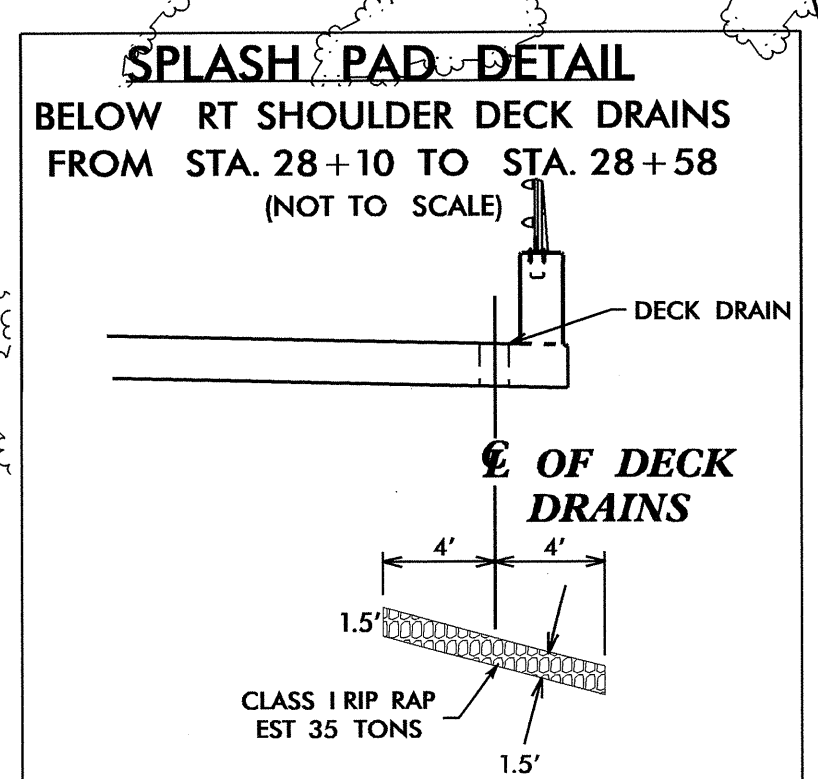
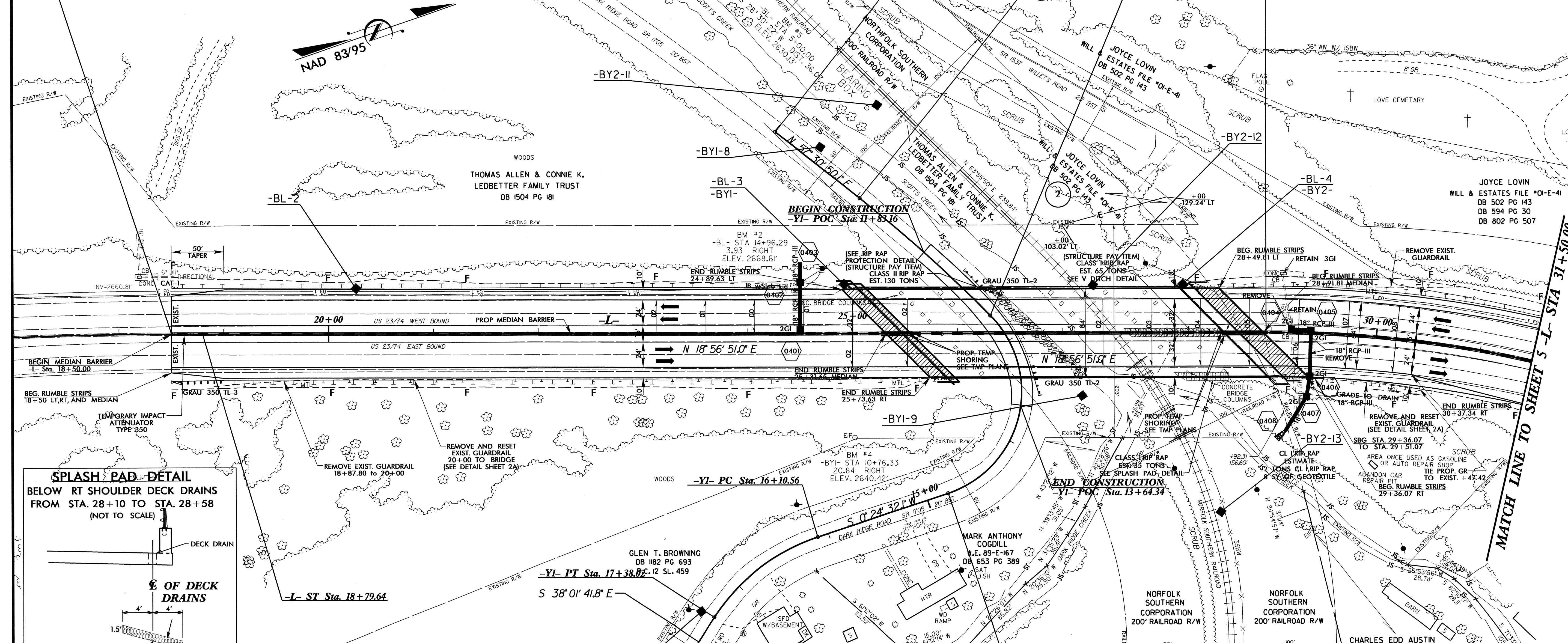
BRIDGE DESCRIPTION  
 CONCRETE DECK WITH BST SURFACE  
 CONCRETE RAIL ON WEST BOUND  
 METAL GUARDRAIL ON WEST BOUND SIDE  
 CONCRETE JERSEY WALL EAST BOUND  
 CONCRETE COLUMNS  
 METAL I-BEAMS  
 CONCRETE END BENTS  
 CONCRETE WING WALLS

PROJECT LOCATION  
 VERIZON BUSINESS  
 1000 SAINT ALBANS DRIVE, SUITE 300  
 RALEIGH, N.C. 27609

POWER  
 DUKE ENERGY CORPORATION  
 526 S. CHURCH STREET  
 PO BOX 1006, ECHD  
 CHARLOTTE, N.C. 28202

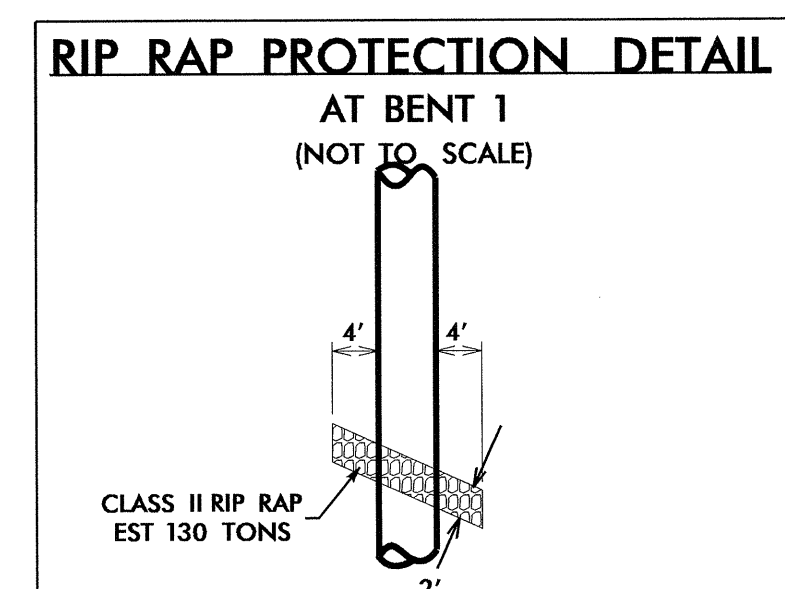
GAS  
 PUBLIC SERVICE CO. OF NORTH CAROLINA  
 2451 SCHEFFLIN RD.  
 APEX, N.C. 27502

**BEGIN TIP PROJECT -L- Sta. 18+50.00**



PI Sta 11+86.98	PI Sta 14+35.61	PI Sta 16+76.80
$\Delta = 6' 51'' 25.1''$ (RT)	$\Delta = 116' 02'' 17.0''$ (RT)	$\Delta = 38' 26'' 13.9''$ (LT)
$D = 4' 05'' 33.2''$	$D = 55' 37'' 37.1''$	$D = 30' 09'' 20.4''$
$L = 167.55'$	$L = 208.60'$	$L = 127.46'$
$T = 83.87'$	$T = 164.96'$	$T = 66.23'$
$R = 1,400.00'$	$R = 103.00'$	$R = 190.00'$
	SE = EXIST.	

**NOTE**  
 1) SEE SHEET 6 FOR -L- PROFILE.  
 2) SEE SHEETS S-1 THROUGH S-6I FOR STRUCTURE PLANS.



NOTE: PARCEL NO.1 REMOVED FROM PLANS

MATCH LINE TO SHEET S-1 STA 31+50.00

JOYCE LOVIN  
 WILL & ESTATES FILE #01-E-41  
 DB 502 PG 143  
 DB 594 PG 30  
 DB 802 PG 507

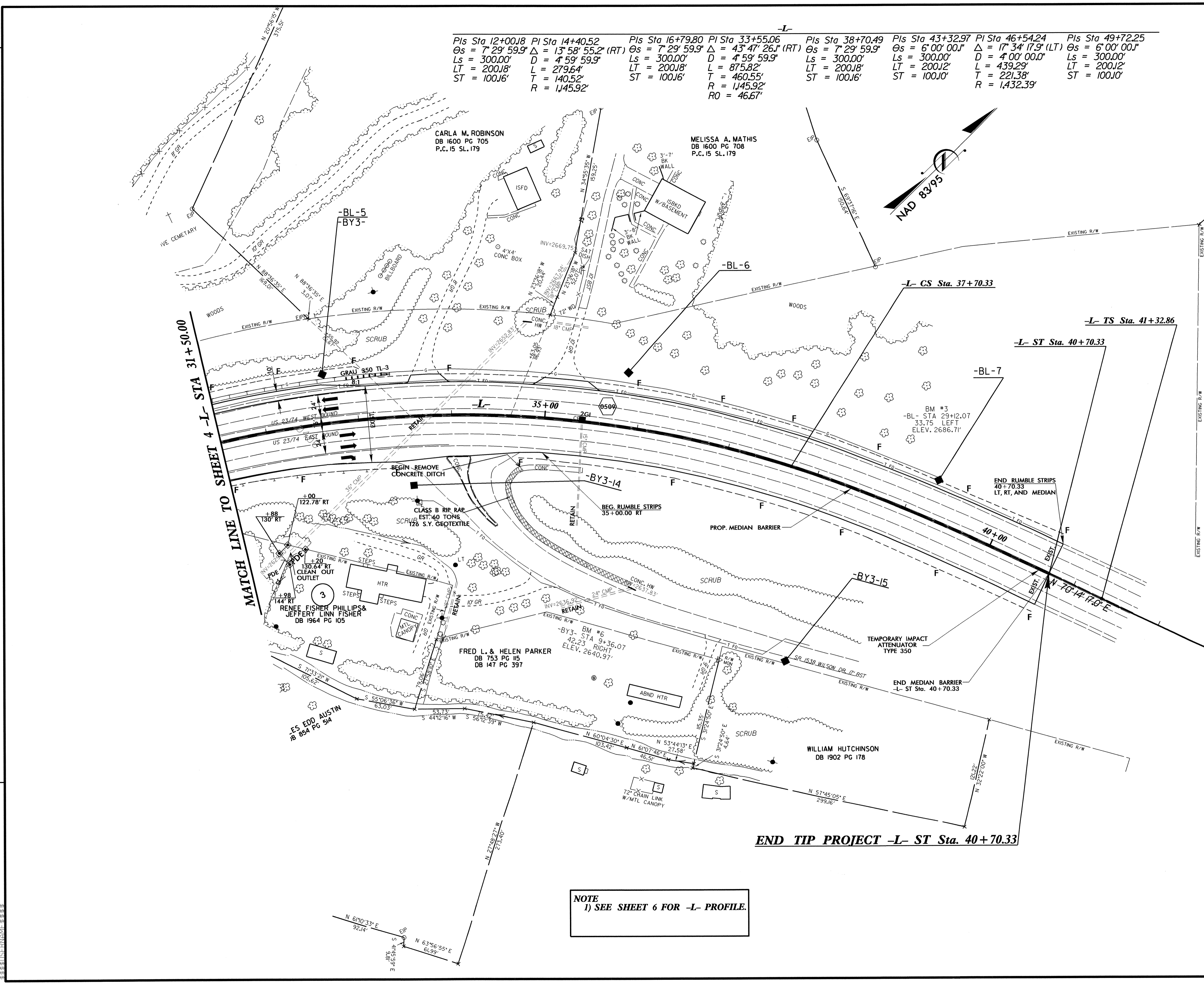
CHARLES EDD AUSTIN  
 DB 854 PG 514

ELISA DIANE BURRIS  
 DB 854 PG 520

14-APR-2014 14:22  
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 8/17/99



-L-		-L-		-L-		-L-		-L-	
PIs Sta 12+00.18	PI Sta 14+40.52	PIs Sta 16+79.80	PI Sta 33+55.06	PIs Sta 38+70.49	PIs Sta 43+32.97	PI Sta 46+54.24	PIs Sta 49+72.25		
$\Theta_s = 7^\circ 29' 59.9''$	$\Delta = 13^\circ 58' 55.2''$ (RT)	$\Theta_s = 7^\circ 29' 59.9''$	$\Delta = 43^\circ 47' 26.1''$ (RT)	$\Theta_s = 7^\circ 29' 59.9''$	$\Delta = 6^\circ 00' 00.0''$	$\Delta = 17^\circ 34' 17.9''$ (LT)	$\Theta_s = 6^\circ 00' 00.0''$		
$L_s = 300.00'$	$D = 4^\circ 59' 59.9''$	$L_s = 300.00'$	$D = 4^\circ 59' 59.9''$	$L_s = 300.00'$	$L_s = 300.00'$	$D = 4^\circ 00' 00.0''$	$L_s = 300.00'$		
$LT = 200.18'$	$L = 279.64'$	$LT = 200.18'$	$L = 875.82'$	$LT = 200.18'$	$LT = 200.12'$	$L = 439.29'$	$LT = 200.12'$		
$ST = 100.16'$	$T = 140.52'$	$ST = 100.16'$	$R = 460.55'$	$ST = 100.16'$	$ST = 100.10'$	$T = 221.38'$	$ST = 100.10'$		
	$R = 1,445.92'$		$R = 1,445.92'$			$R = 1,432.39'$			
			$RO = 46.67'$						

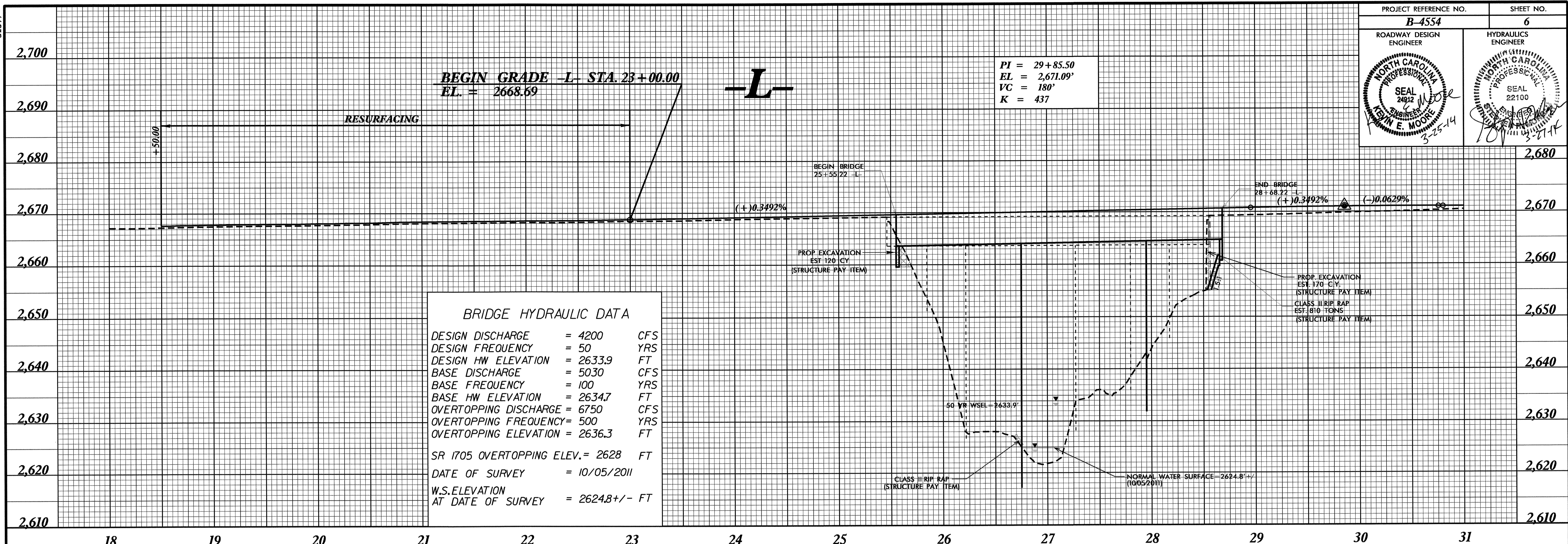


REVISIONS

**NOTE**  
1) SEE SHEET 6 FOR -L- PROFILE.

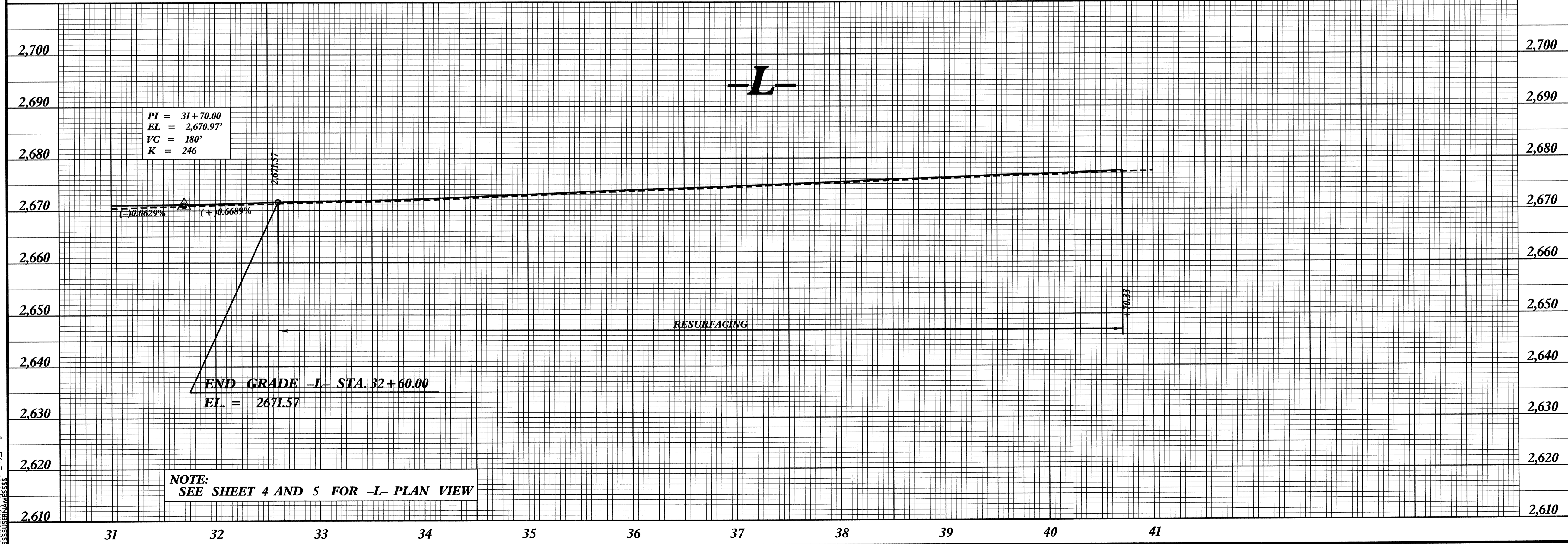
8/17/99  
 21-MAR-2014 16:32  
 P:\Projects\B4554\B4554\_r.dwg\_psh5.dgn  
 \$\$\$\$





**BRIDGE HYDRAULIC DATA**

DESIGN DISCHARGE	= 4200	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 2633.9	FT
BASE DISCHARGE	= 5030	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2634.7	FT
OVERTOPPING DISCHARGE	= 6750	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 2636.3	FT
SR 1705 OVERTOPPING ELEV.	= 2628	FT
DATE OF SURVEY	= 10/05/2011	
W.S. ELEVATION AT DATE OF SURVEY	= 2624.8 +/-	FT



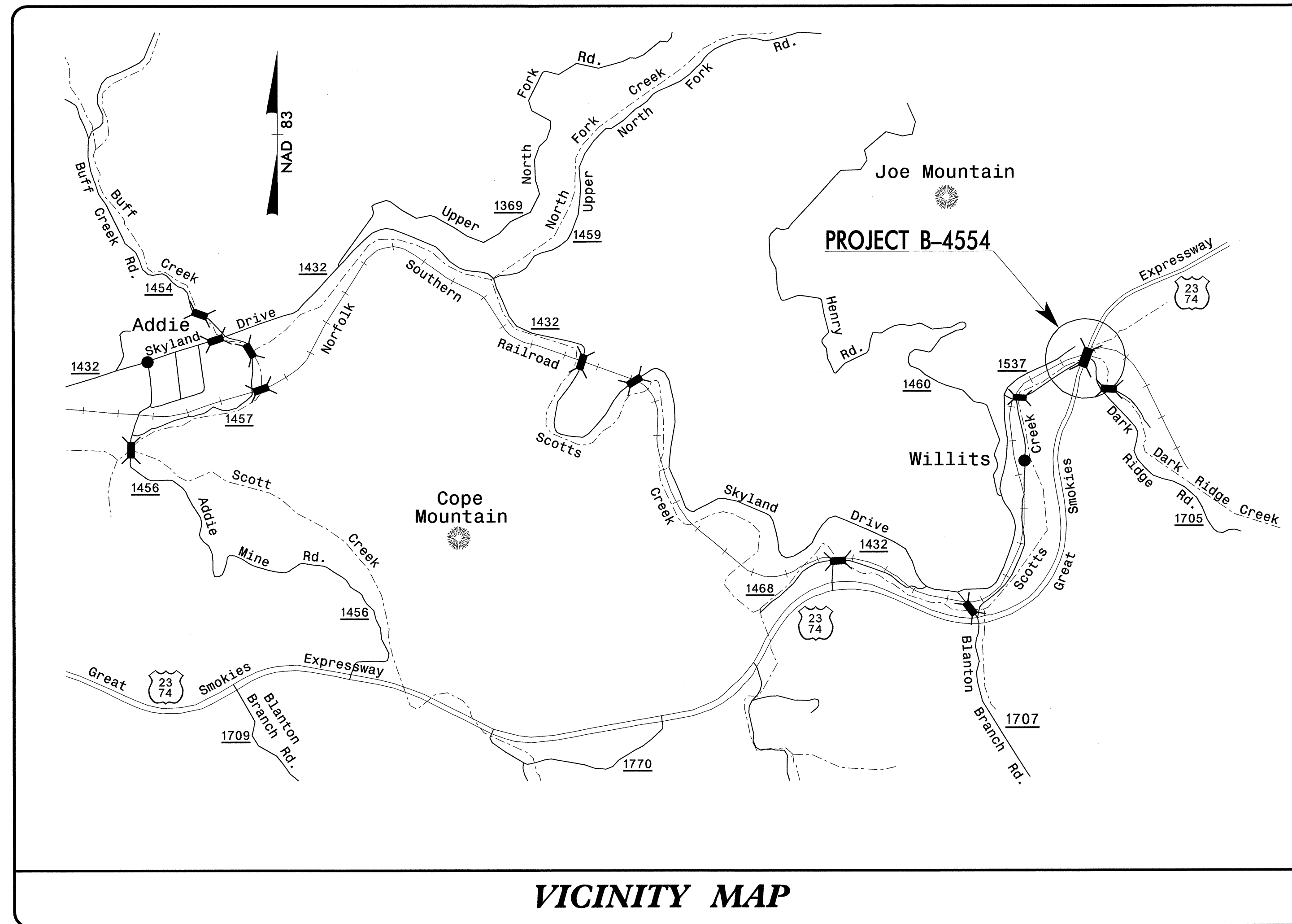
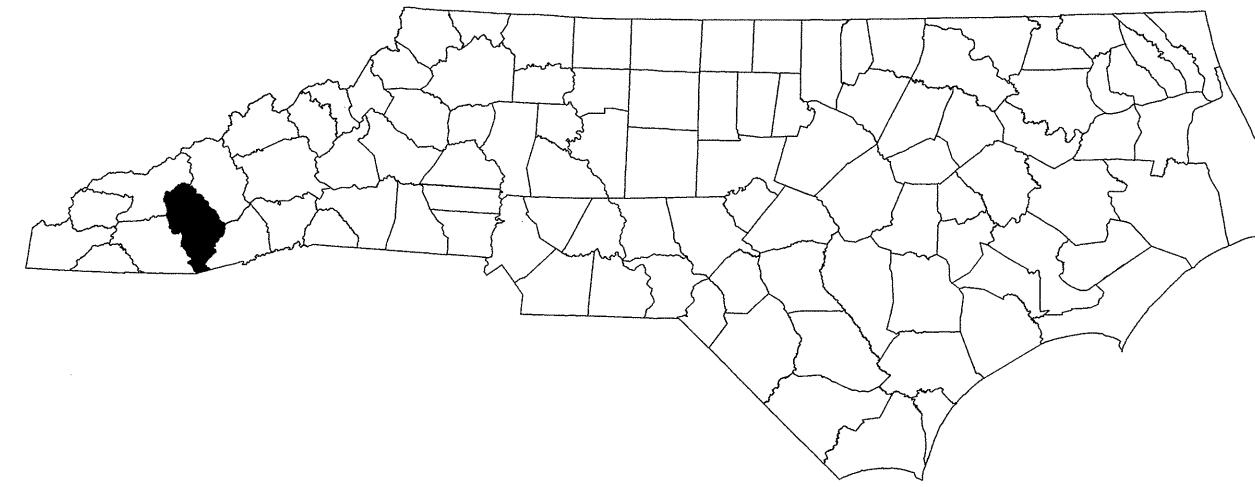
**NOTE:**  
SEE SHEET 4 AND 5 FOR -L- PLAN VIEW



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**JACKSON COUNTY**



**VICINITY MAP**

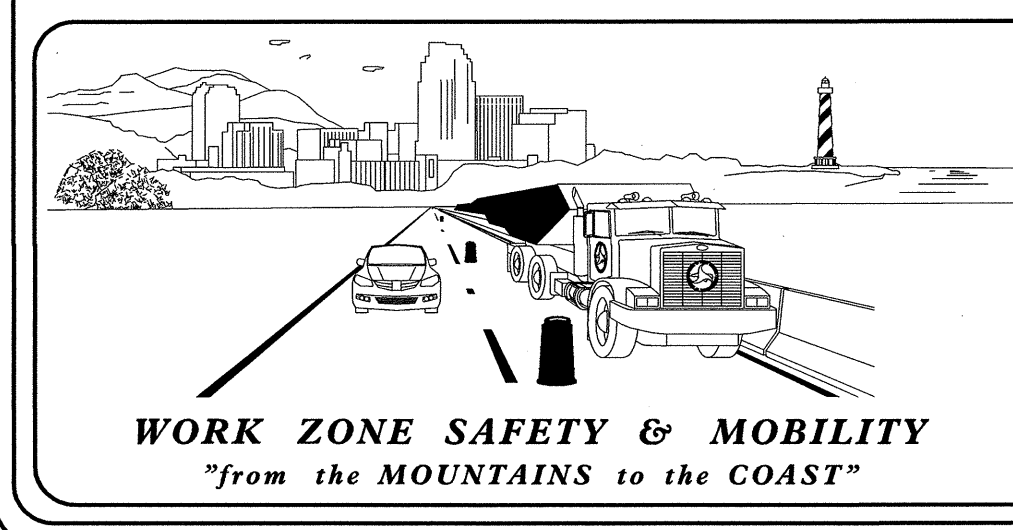
SHEET NO.	TITLE
TMP-1	TITLE SHEET, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TEMPORARY PAVEMENT MARKING
TMP-1B	TRANSPORTATION OPERATIONS AND PROJECT NOTES: GENERAL NOTES AND LOCAL NOTES
TMP-2	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
TMP-2A	TEMPORARY SHORING DATA
TMP-2B	SPECIAL SIGN DESIGN - WILSON DRIVE - SR 1538 AND DARK RIDGE ROAD - SR 1705
TMP-2C	"WORK ZONE" SPEED LIMIT REDUCTION
TMP-3	TEMPORARY TRAFFIC CONTROL PHASING
TMP-4	PHASE I DETAILS
TMP-5	PHASE I - OFF-SITE DETOUR - WILSON DRIVE
TMP-6	PHASE II DETAILS
TMP-7	PHASE II DETAILS
TMP-8	PHASE II - OFF-SITE DETOUR - DARK RIDGE ROAD
TMP-9	PHASE III DETAILS
TMP-10	PHASE III DETAILS
TMP-11	PHASE IV DETAILS

SHEET NO.  
TMP-1

**B-4554**

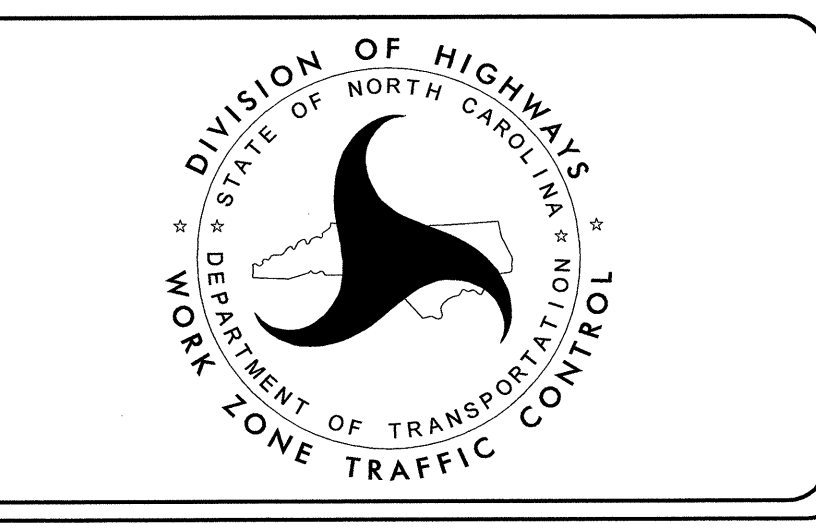
**TIP PROJECT:**

3/14/2014  
ps:\tipprojects-b\4554\trafficcontrol\top\B4554\_TC\_GEN\_TMP01.dgn  
User:scots



**N.C.D.O.T. WORK ZONE TRAFFIC CONTROL**  
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561  
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)  
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. STATE TRAFFIC MANAGEMENT ENGINEER  
G. L. GETTIER, P.E. TRAFFIC CONTROL PROJECT ENGINEER  
J. W. WOOLARD, P.E. TRAFFIC CONTROL PROJECT DESIGN ENGINEER  
S. B. COATS TRAFFIC CONTROL DESIGN ENGINEER



APPROVED: \_\_\_\_\_  
DATE: 3/14/14

SEAL



## ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	POSITIVE PROTECTION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

## LEGEND

### GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)

WORK AREA

REMOVAL

USER DEFINED (IF NEEDED)

USER DEFINED (IF NEEDED)

### SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

### PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

### TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

### TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

### PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

### PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

### TEMPORARY PAVEMENT MARKING

- CA - WHITE EDGELINE (COLD APPLIED PLASTIC-TYPE 4) - 4"
- CB - YELLOW EDGELINE (COLD APPLIED PLASTIC-TYPE 4) - 4"
- PA - WHITE EDGELINE (PAINT) - 4"
- PB - YELLOW EDGELINE (PAINT) - 4"
- PD - 3 FT. WHITE MINISKIP (PAINT) - 4"
- PE - WHITE SOLID LANE LINE (PAINT) - 4"
- PI - YELLOW DOUBLE CENTER (PAINT) - 4"
- QB - RIGHT TURN ARROW (PAINT)

APPROVED: SEAL	DATE: 2/20/14		<b>ROADWAY STANDARD DRAWINGS &amp; LEGEND</b>
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## GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRABLE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

### TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME  
SR 1705 (-Y1-)

#### HOLIDAY

- FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- FOR NEW YEAR'S, BETWEEN THE HOURS OF 7:00 A.M. DECEMBER 31st TO 6:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 6:00 P.M. THE FOLLOWING TUESDAY.
- FOR EASTER, BETWEEN THE HOURS OF 7:00 A.M. THURSDAY TO 6:00 P.M. MONDAY.
- FOR MEMORIAL DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY TO 6:00 P.M. TUESDAY.
- FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 7:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE DAY AFTER INDEPENDENCE DAY.  
  
IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 7:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
- FOR LABOR DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY TO 6:00 P.M. TUESDAY.
- FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 7:00 A.M. TUESDAY TO 6:00 P.M. MONDAY.
- FOR CHRISTMAS, BETWEEN THE HOURS OF 7:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 6:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

### TIME RESTRICTIONS

B) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION AND OPERATION
US 23/US 74 (-L-)	MONDAY THRU FRIDAY 5:00 A.M. TO 11:00 P.M.	30 MINUTES TRAFFIC OPERATIONS
US 23/US 74 (-L-) SR 1705 (-Y1-)	MONDAY THRU FRIDAY 5:00 A.M. TO 11:00 P.M.	30 MINUTES GIRDER PLACEMENT

C) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

### LANE AND SHOULDER CLOSURE REQUIREMENTS

- D) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.  
  
WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

- H) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.
- I) DO NOT INSTALL MORE THAN 1/2 MILE OF LANE CLOSURE ON US 74/US 23 MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.
- J) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

### PAVEMENT EDGE DROP OFF REQUIREMENTS

K) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

L) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 500 FT. IN ADVANCE AND A MINIMUM OF ONCE EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

### TRAFFIC PATTERN ALTERATIONS

M) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

### SIGNING

- N) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- O) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.  
  
PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.
- P) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.  
  
COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.
- Q) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- R) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 500 FT. IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

### TRAFFIC BARRIER

S) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

T) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

### TRAFFIC CONTROL DEVICES

- U) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- V) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- W) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES DRUMS PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT. CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

### PAVEMENT MARKINGS AND MARKERS

X) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
US 23/US 74	COLD APPLIED PLASTIC	TEMPORARY
US 23/US 74	PAINT	TEMPORARY
SR 1705	PAINT	N/A

- Y) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- Z) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- AA) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

### MISCELLANEOUS

BB) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

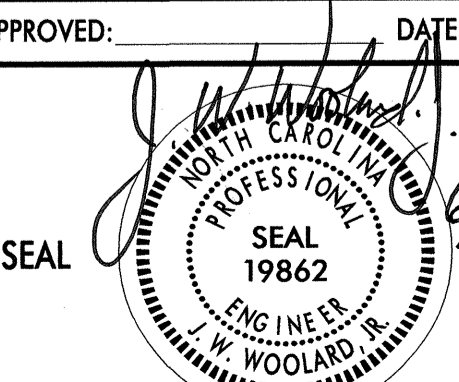


## TRANSPORTATION OPERATIONS

### CONSTRUCTION

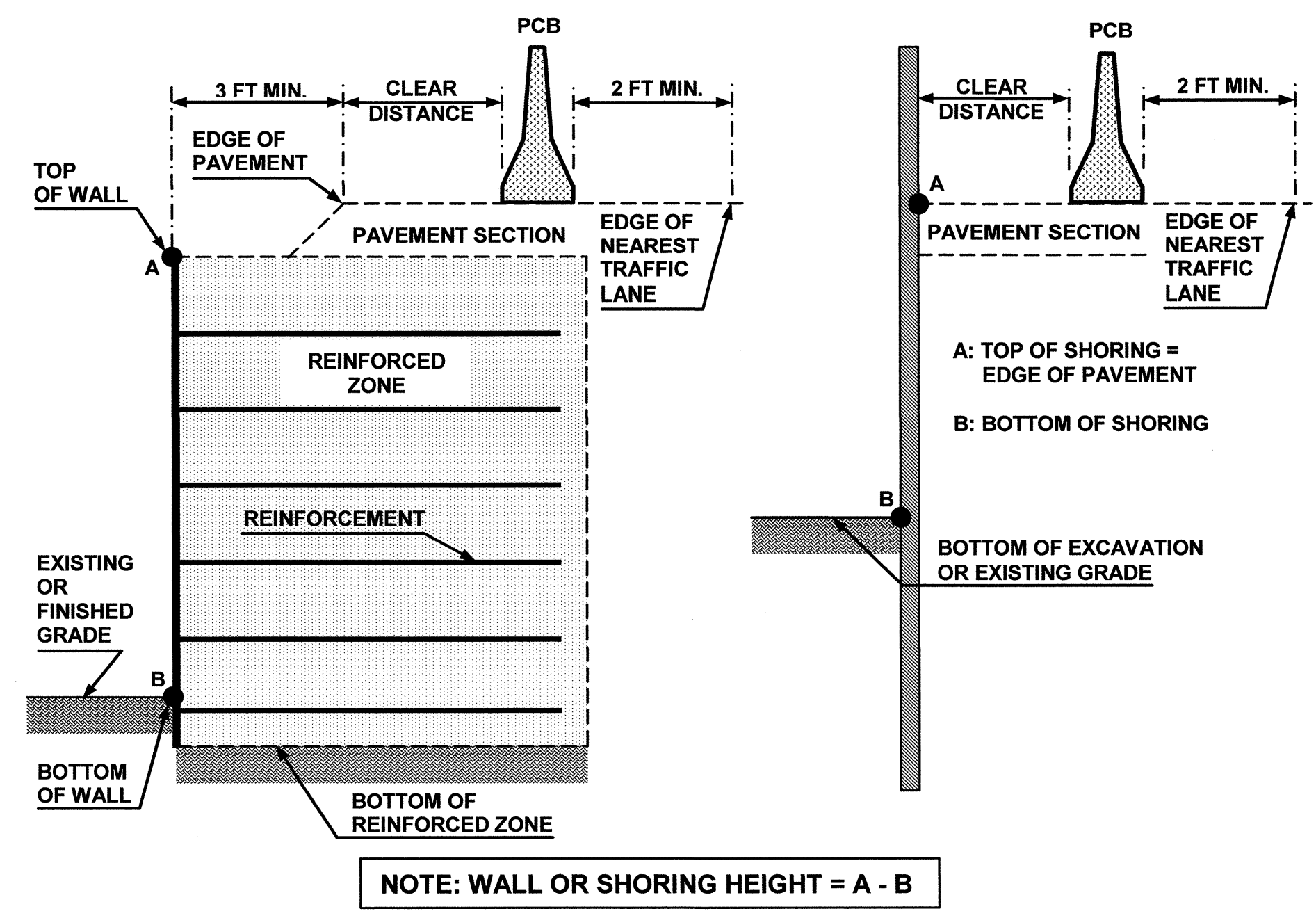
REPLACE EXISTING BRIDGE NO.145 ON US 23/US 74, INCLUDING DRAINAGE USING STAGED CONSTRUCTION AND CROSS-OVERS, AND CONSTRUCT SR 1705 (DARK RIDGE RD.) USING AN OFF-SITE DETOUR AS SHOWN IN THE CONSTRUCTION PLANS AND TRAFFIC CONTROL PLANS.

### TMP DESIGN PARAMETERS

UTILIZE CHANGEABLE MESSAGE SIGNS, FLASHING ARROW BOARDS, TMA's, BARRICADES, PORTABLE CONCRETE BARRIER, TEMPORARY SIGNAGE, DETOUR SIGNAGE AND TRAFFIC CONTROL DEVICES, TO CONSTRUCT NEW BRIDGE ON US 23/US 74 AND SR 1705 (SEE SHEET TMP-4 THRU TMP-11).

APPROVED:  DATE: 6/19/14 SEAL: 		<h2 style="margin: 0;">TRANSPORTATION OPERATIONS PLAN</h2>
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**FIGURE A**

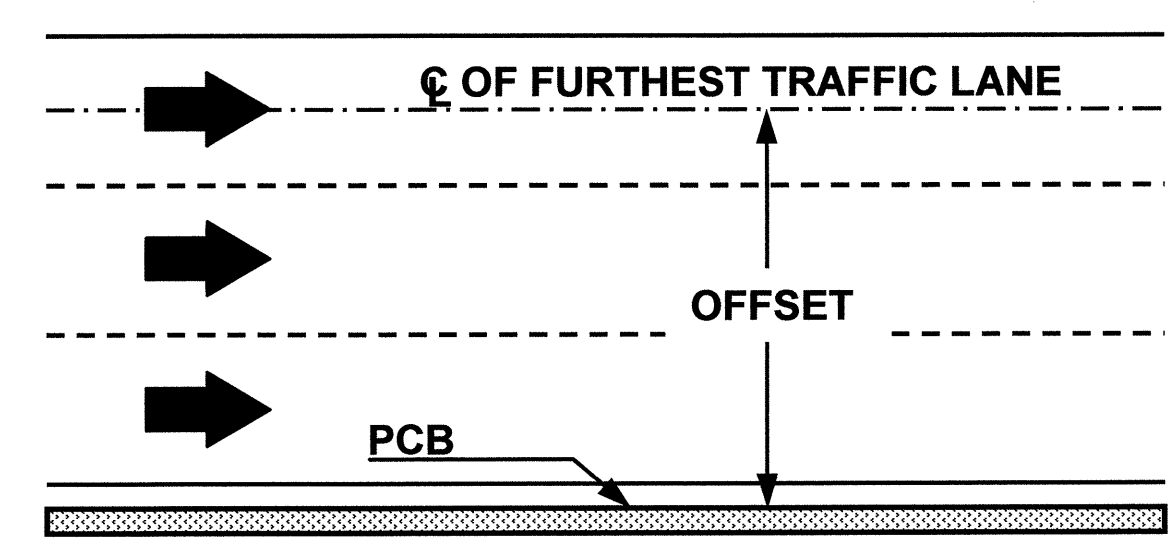
**NOTES**

- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.
- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).
- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).
- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.
- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.
- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.
- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.
- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS AND OR AS APPROVED BY THE ENGINEER.
- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.
- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200 FT IN LENGTH AND WET OR DRY PAVEMENT.

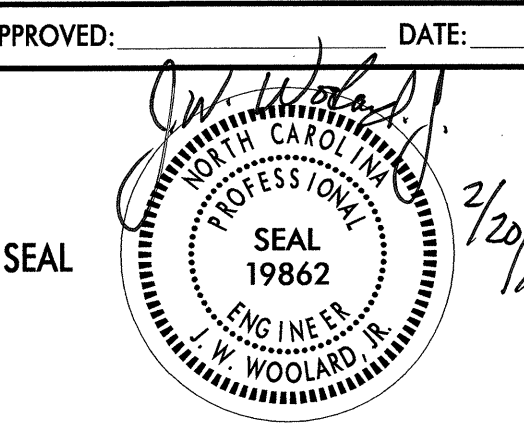
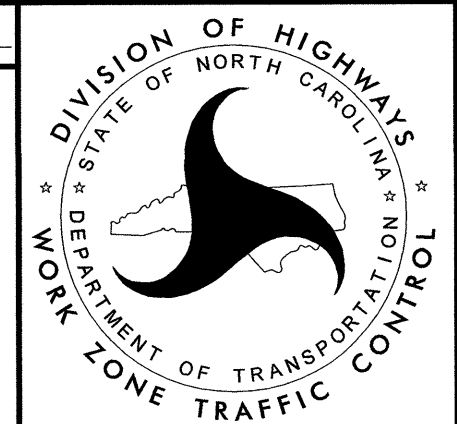
**MINIMUM REQUIRED CLEAR DISTANCE, inches**

Barrier Type	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
	44-50	31	35	41	43	46	49	
	50-56	32	36	42	44	47	50	
	>56	32	36	42	45	47	51	
	Concrete	<8	17	18	21	22	25	26
	8-14	19	20	23	25	26	29	
	14-20	22	22	24	26	28	31	
	20-26	23	24	26	27	30	34	
26-32	24	25	27	28	32	35		
32-38	24	26	27	30	33	36		
38-44	25	26	28	30	34	37		
44-50	26	26	28	32	35	37		
50-56	26	26	28	32	35	38		
>56	26	27	29	32	36	38		
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

\* See Figure Below



**FIGURE B**

APPROVED:  DATE: 2/20/14		PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
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SHORING LOCATION NO.	BEGIN STATION AND OFFSET	END STATION AND OFFSET	ESTIMATED AVERAGE HEIGHT	ESTIMATED MAXIMUM HEIGHT	SHORING LOCATION TYPE
NO. 1	STA. 25+27 -L- 1.0 FT. LT.	STA. 25+57 -L- 1.0 FT. LT.	6.6 FT.	10.7 FT.	STRUCTURES
NO. 2	STA. 28+52 -L- 1.0 FT. LT.	STA. 28+92 -L- 1.0 FT. LT.	6.6 FT.	10.7 FT.	STRUCTURES
NO. 3	STA. 25+27 -L- 2.0 FT. RT.	STA. 25+57 -L- 2.0 FT. RT.	6.6 FT.	10.7 FT.	STRUCTURES
NO. 4	STA. 28+52 -L- 2.0 FT. RT.	STA. 28+92 -L- 2.0 FT. RT.	6.6 FT.	10.7 FT.	STRUCTURES

### TEMPORARY SHORING NOTES

#### SHORING LOCATION NO. 1

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 OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION 25+27+/- -L-, 1.0 FT. LEFT, TO STATION 25+57+/- -L-, 1.0 FT. LEFT, 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

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 25+27+/- -L-, 1.0 FT. LEFT, TO STATION 25+57+/- -L-, 1.0 FT. LEFT. THE INFORMATION PROVIDED FOR THE TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DO NOT USE CANTILEVER SHORING FOR TEMPORARY SHORING FROM STATION 25+27+/- -L-, 1.0 FT. LEFT, TO STATION 25+57+/- -L-, 1.0 FT. LEFT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION 25+27+/- -L-, 1.0 FT. LEFT, TO STATION 25+57+/- -L-, 1.0 FT. LEFT. SEE STANDARD DRAWING NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

WHEN BACKFILL FOR BRIDGE APPROACH FILLS OVERLAPS WITH THE REINFORCED ZONE OF TEMPORARY WALLS, USE SHORING BACKFILL OR BACKFILL MATERIAL REQUIRED FOR BRIDGE APPROACH FILLS, WHICHEVER IS BETTER, IN THE REINFORCED ZONE OF TEMPORARY WALLS.

#### SHORING LOCATION NO. 2

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 OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION 28+52+/- -L-, 1.0 FT. LEFT, TO STATION 28+92+/- -L-, 1.0 FT. LEFT, 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

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 28+52+/- -L-, 1.0 FT. LEFT, TO STATION 28+92+/- -L-, 1.0 FT. LEFT. THE INFORMATION PROVIDED FOR THE TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

WHEN BACKFILL FOR BRIDGE APPROACH FILLS OVERLAPS WITH THE REINFORCED ZONE OF TEMPORARY WALLS, USE SHORING BACKFILL OR BACKFILL MATERIAL REQUIRED FOR BRIDGE APPROACH FILLS, WHICHEVER IS BETTER, IN THE REINFORCED ZONE OF TEMPORARY WALLS.

DO NOT USE CANTILEVER SHORING FOR TEMPORARY SHORING FROM STATION 28+52+/- -L-, 1.0 FT. LEFT, TO STATION 28+92+/- -L-, 1.0 FT. LEFT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALL FOR TEMPORARY SHORING STATION 28+52+/- -L-, 1.0 FT. LEFT, TO STATION 28+92+/- -L-, 1.0 FT. LEFT. SEE STANDARD DRAWING NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

#### SHORING LOCATION NO. 3

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 OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION 25+27+/- -L-, 2.0 FT. RIGHT, TO STATION 25+57+/- -L-, 2.0 FT. RIGHT, 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

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 25+27+/- -L-, 2.0 FT. RIGHT, TO STATION 25+57+/- -L-, 2.0 FT. RIGHT. THE INFORMATION PROVIDED FOR THE TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION 25+27+/- -L-, 2.0 FT. RIGHT, TO STATION 25+57+/- -L-, 2.0 FT. RIGHT WILL NOT PENETRATE BELOW ELEVATION 2665 FT. DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 25+27+/- -L-, 2.0 FT. RIGHT, TO STATION 25+57+/- -L-, 2.0 FT. RIGHT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION 25+27+/- -L-, 2.0 FT. RIGHT, TO STATION 25+57+/- -L-, 2.0 FT. RIGHT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

#### SHORING LOCATION NO. 4

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 OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION 28+52+/- -L-, 2.0 FT. RIGHT, TO STATION 28+92+/- -L-, 2.0 FT. RIGHT, 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

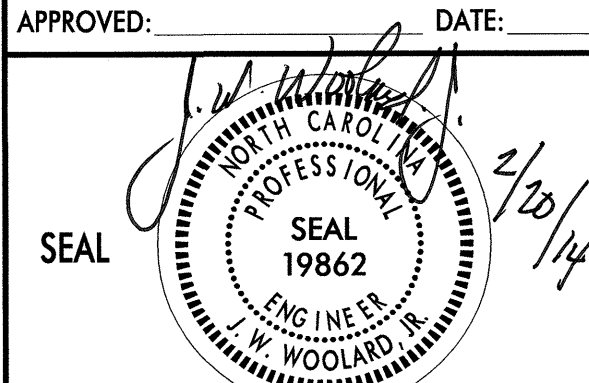
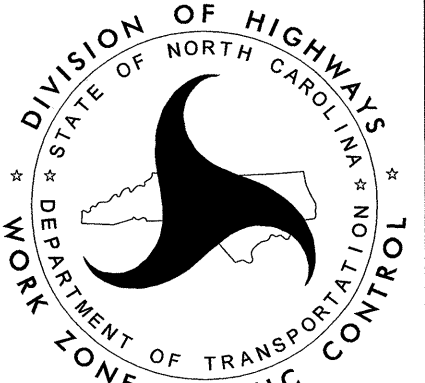
LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 28+52+/- -L-, 2.0 FT. RIGHT, TO STATION 28+92+/- -L-, 2.0 FT. RIGHT. THE INFORMATION PROVIDED FOR THE TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION 28+52+/- -L-, 2.0 FT. RIGHT, TO STATION 28+92+/- -L-, 2.0 FT. RIGHT WILL NOT PENETRATE BELOW ELEVATION 2645 FT. DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 28+52+/- -L-, 2.0 FT. RIGHT, TO STATION 28+92+/- -L-, 2.0 FT. RIGHT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION 28+52+/- -L-, 2.0 FT. RIGHT, TO STATION 28+92+/- -L-, 2.0 FT. RIGHT FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENT WAS SUBMITTED TO THE WZTC SECTION ON 01-30-2014 AND SEALED BY A PROFESSIONAL ENGINEER, SHANE C. CLARK, LICENSE # 029869.

APPROVED:  DATE: 2/20/14		TEMPORARY SHORING DATA
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SIGN NUMBER: SP13241 TYPE: STATIONARY QUANTITY: SEE PLANS SIGN WIDTH: 4'-0" HEIGHT: 2'-0" TOTAL AREA: 8.0 Sq.Ft. BORDER TYPE: INSET RECESS: 0.38" WIDTH: 0.63" RADII: 1.5" NO. Z BARS: LENGTH:	BACKG COLOR: Fluorescent Orange COPY COLOR: Black SYMBOL	DESIGN BY: MT PROJECT ID: B-4554	CHECKED BY: DIV: 14	DATE: Oct 09, 2013
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**Dark Ridge Rd**

BORDER  
R=1.5"  
TH=0.63"  
IN=0.38"

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter											Series/Size Text Length
D	a	r	k								D 2000 16.4
15.8	5	4.6	3	3.8	15.8						
R	i	d	g	e		R	d				D 2000 31.9
8	5	1.9	4.6	4.6	3.5	4	4.7	3.6	8.1		

FILENAME: B-4554\_Wilson Rd\_Dark Ridge Rd

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: SP13240 TYPE: STATIONARY QUANTITY: SEE PLANS SIGN WIDTH: 3'-0" HEIGHT: 2'-0" TOTAL AREA: 6.0 Sq.Ft. BORDER TYPE: INSET RECESS: 0.38" WIDTH: 0.63" RADII: 1.5" NO. Z BARS: LENGTH:	BACKG COLOR: Fluorescent Orange COPY COLOR: Black SYMBOL	DESIGN BY: MT PROJECT ID: B-4554	CHECKED BY: DIV: 14	DATE: Oct 08, 2013
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**Wilson Drive**

BORDER  
R=1.5"  
TH=0.63"  
IN=0.38"

Spacing Factor is 1 unless specified otherwise

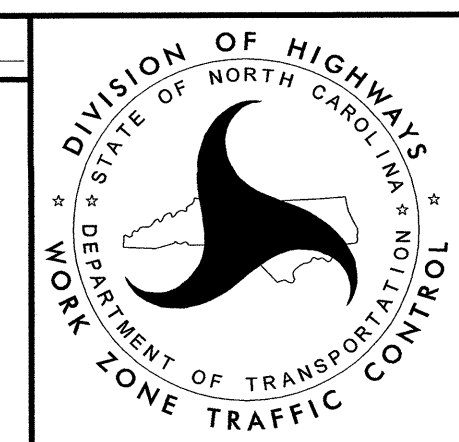
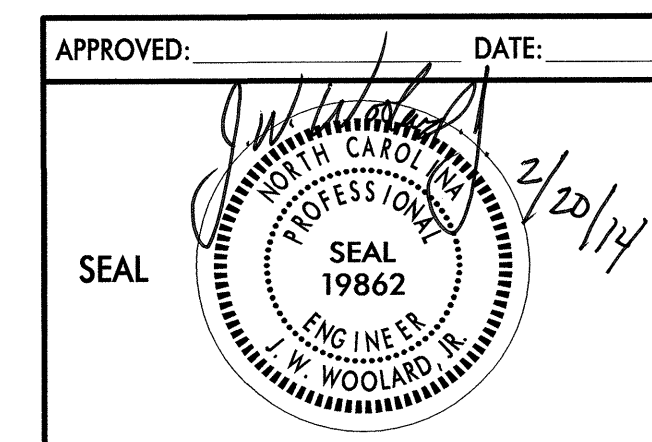
LETTER POSITIONS

Letter spacings are to start of next letter											Series/Size Text Length
W	i	l	s	o	n						D 2000 21.6
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D	r	i	v	e							D 2000 18.2
8.9	5.3	3	1.7	4.7	3.5	8.9					

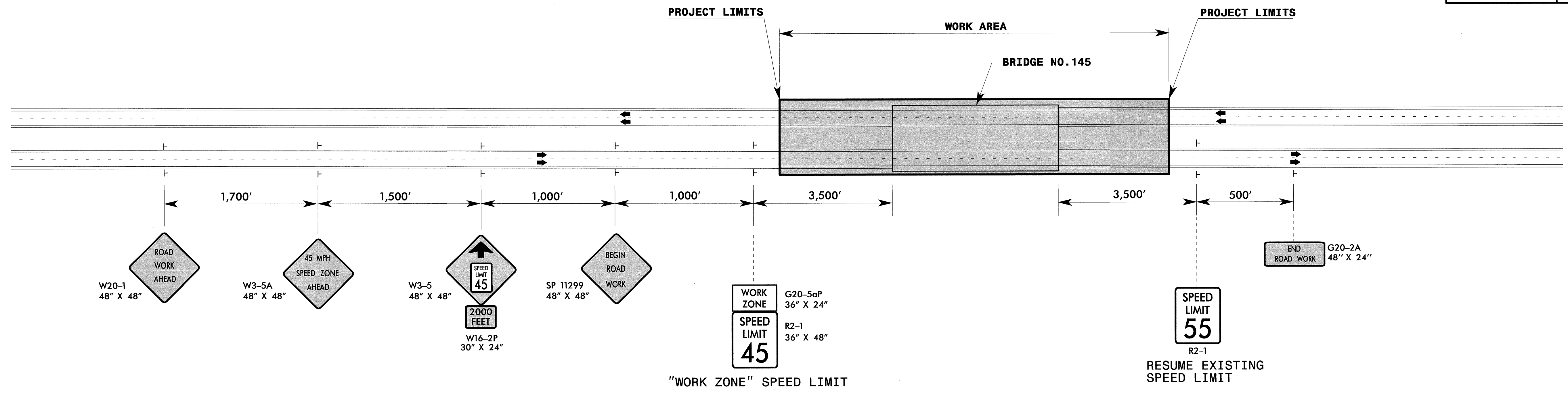
FILENAME: B-4554\_Wilson Rd\_Dark Ridge Rd

NORTH CAROLINA D.O.T. SIGN DETAIL

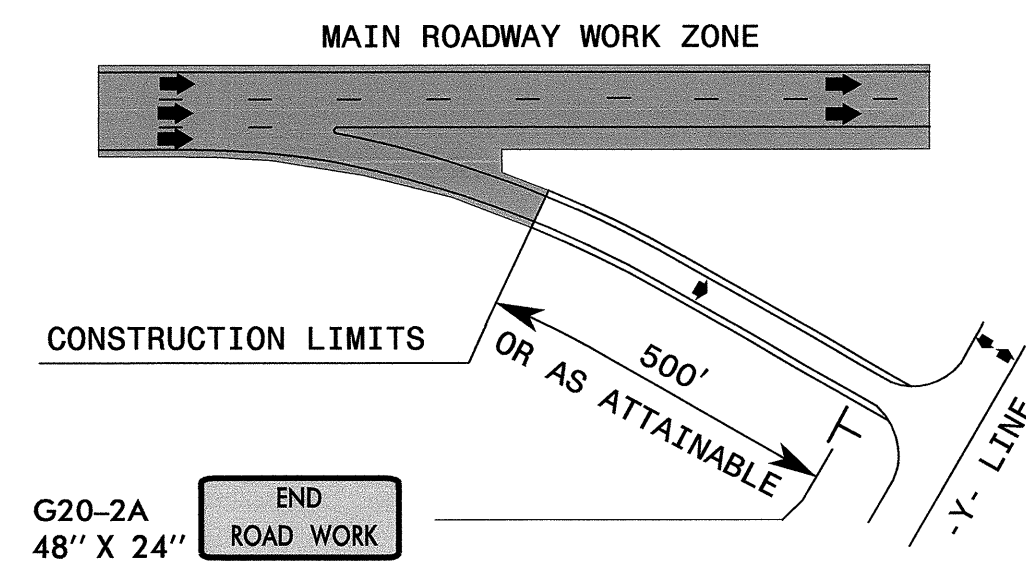
THE SPECIAL SIGN DESIGN SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM SIGNING AND DELINEATION. THE DOCUMENT WAS SUBMITTED TO WZTC ON 10-11-2013 AND SEALED BY A PROFESSIONAL ENGINEER, RONALD W. KING, P.E., LICENSE #022959.



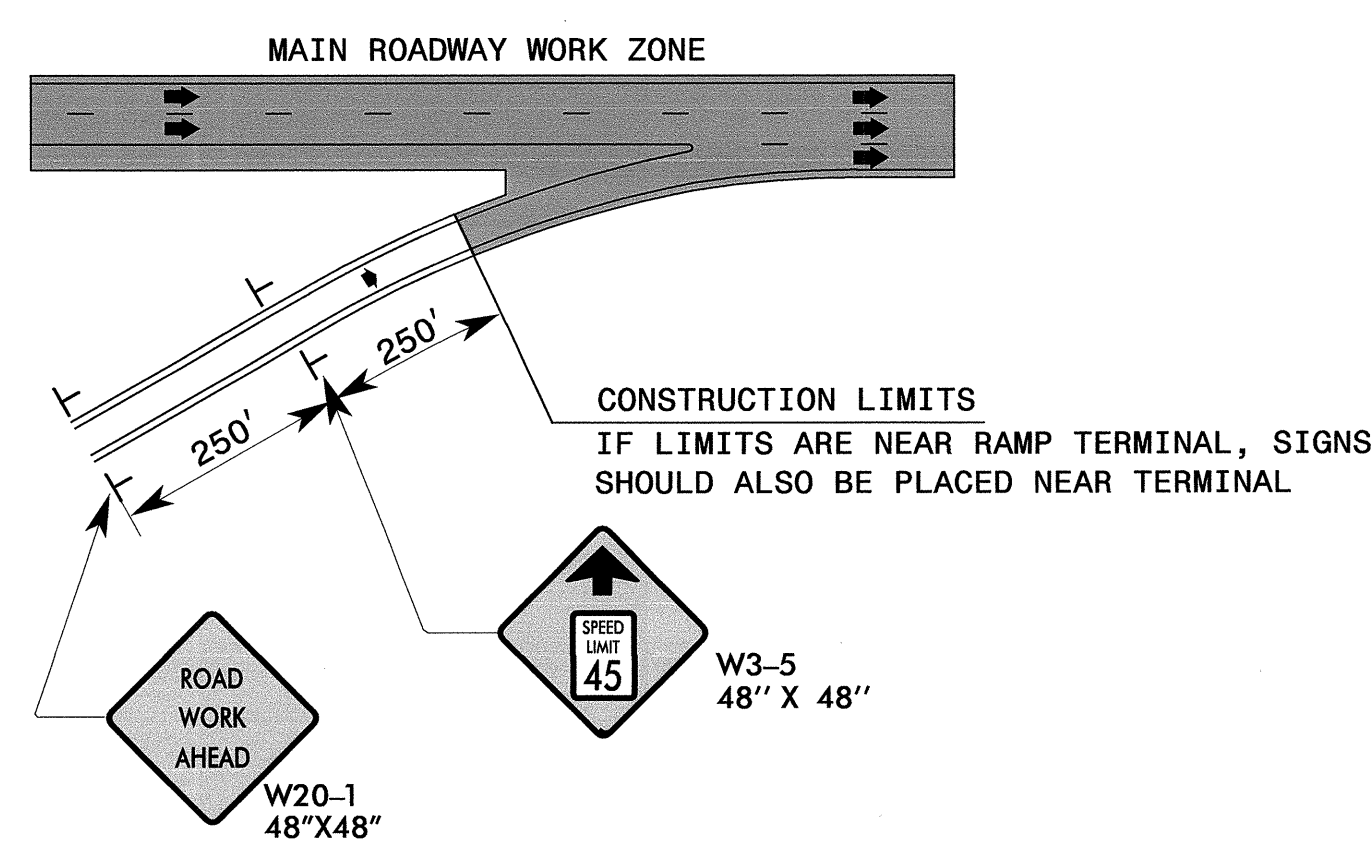
**SPECIAL SIGN DESIGN  
DARK RIDGE ROAD  
AND  
WILSON ROAD**



### EXIT RAMP



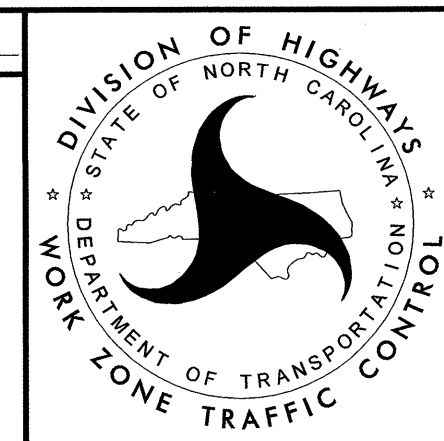
### ENTRANCE RAMP



### NOTES

- 1) THE WORK ZONE SPEED LIMIT WILL BE ESTABLISHED IN COLLABORATION BETWEEN THE REGIONAL TRAFFIC ENGINEER, THE DIVISION AND THE WORK ZONE TRAFFIC CONTROL SECTION. THIS DRAWING SHOWS THE TYPICAL APPLICATION OF REDUCING THE "WORK ZONE SPEED LIMIT" TO 45 MPH.
- 2) IF THE "WORK ZONE SPEED LIMIT" ONLY APPLIES TO A SPECIFIC PORTION AND NOT THE ENTIRE PROJECT, THE EXISTING SPEED LIMIT IS TO BE REESTABLISHED INSIDE THE PROJECT LIMITS. THE EXISTING SPEED LIMIT SIGNS ARE TO BE INSTALLED AT THE LOCATION WHERE THE EXISTING SPEED LIMIT IS TO RESUME. (SEE GUIDELINE- D)
- 3) IF THE WORK ZONE SPEED LIMIT REDUCTION IS INSIDE THE WORK AREA, SIGNS W3-5A, W3-5, AND THE R2-1'S ALONG WITH THE SPEEDING FINE SIGNS ARE TO BE INSTALLED AT THE DISTANCE SHOWN ABOVE IN ADVANCE OF WHERE THE SPEED LIMIT IS REDUCED.
- 4) THE WORK ZONE SPEED LIMIT SIGNS ARE TO BE MOUNTED FROM 7' ABOVE EDGE OF PAVEMENT ELEVATION.
- 5) WHEN TEMPORARY LANE CLOSURES ARE INSTALLED AT THE BEGINNING OF THE PROJECT LIMITS, THE PORTABLE LANE CLOSURE SIGNS ARE TO BE ADJUSTED TO AVOID SIGN OVERLAP/CLUTTER
- 6) THE NEED AND LOCATION OF ADDITIONAL POSTED "WORK ZONE SPEED LIMIT" SIGNS WITHIN THE WORK AREA IS TO BE DETERMINED BY THE REGIONAL TRAFFIC ENGINEER.

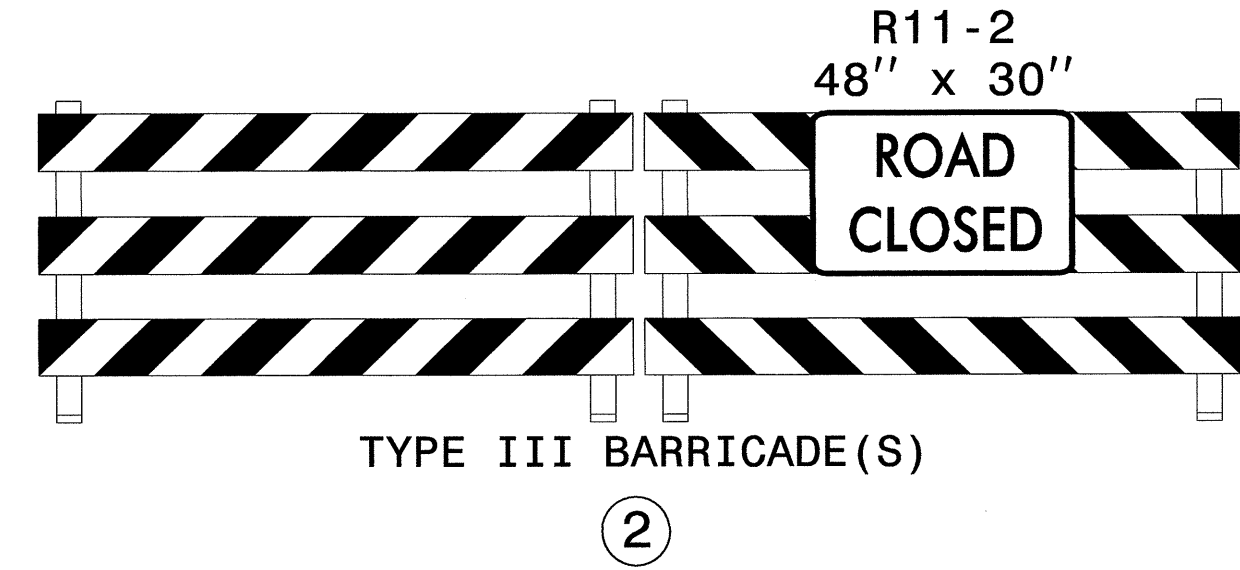
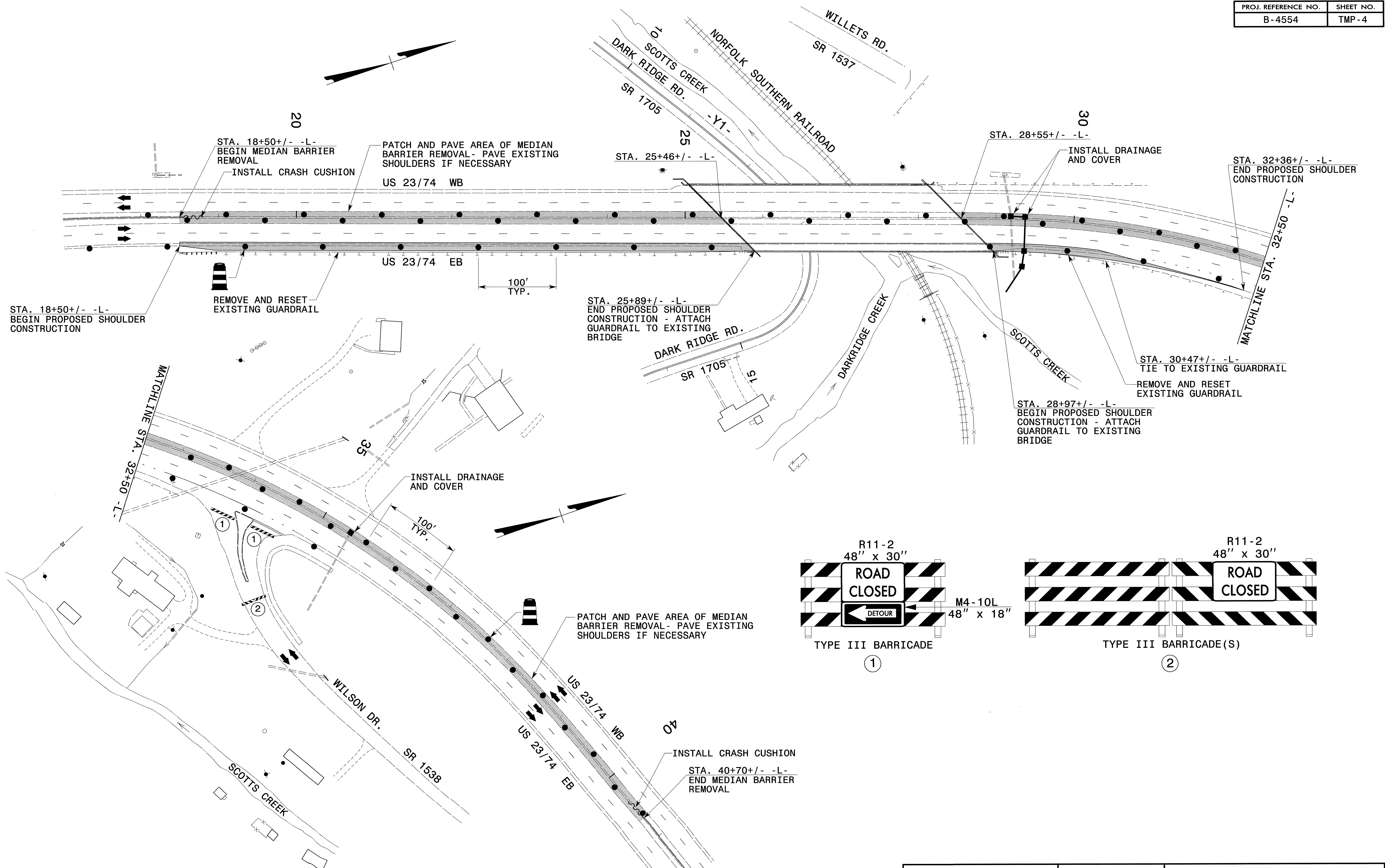
APPROVED: *[Signature]* DATE: 3/14/14  
 SEAL  
 PROFESSIONAL ENGINEER  
 W. WOOLARD, JR.  
 19862



"WORK ZONE" SPEED LIMIT REDUCTION

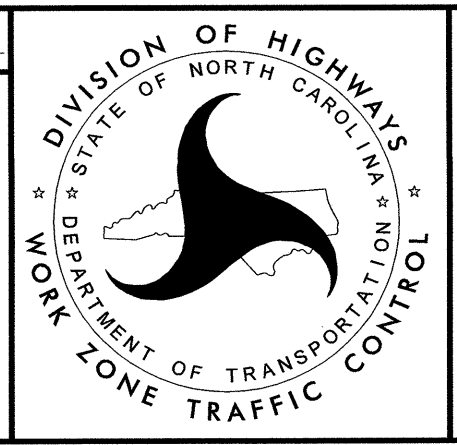






NOTE: FOR OFF-SITE DETOUR OF WILSON DR., DETOUR SIGNAGE, AND BARRICADES, SEE TMP-5.

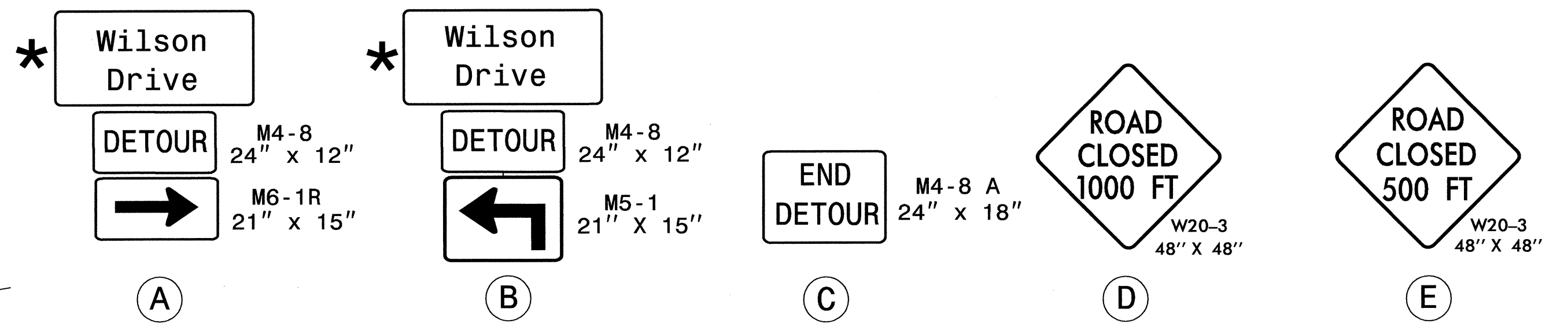
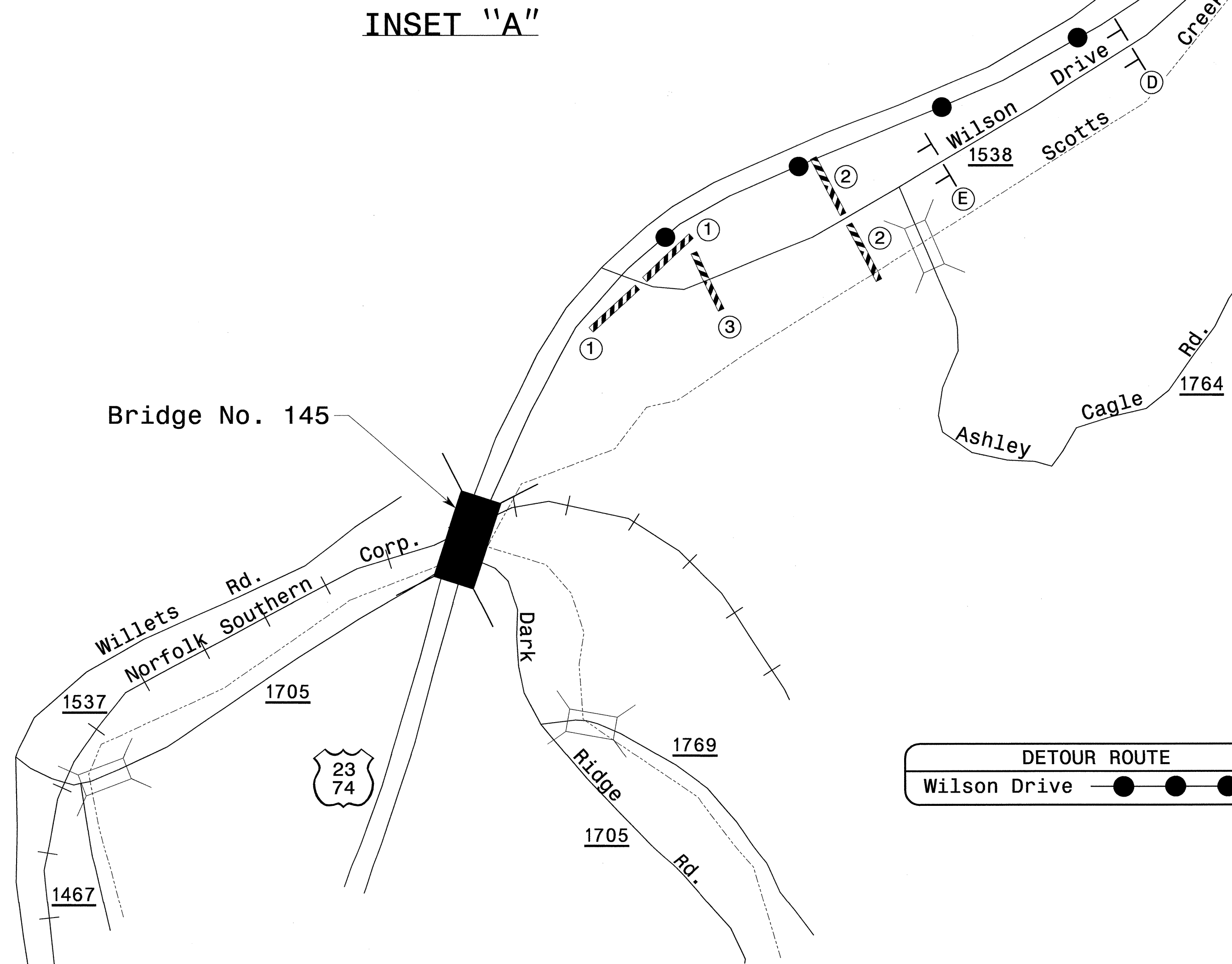
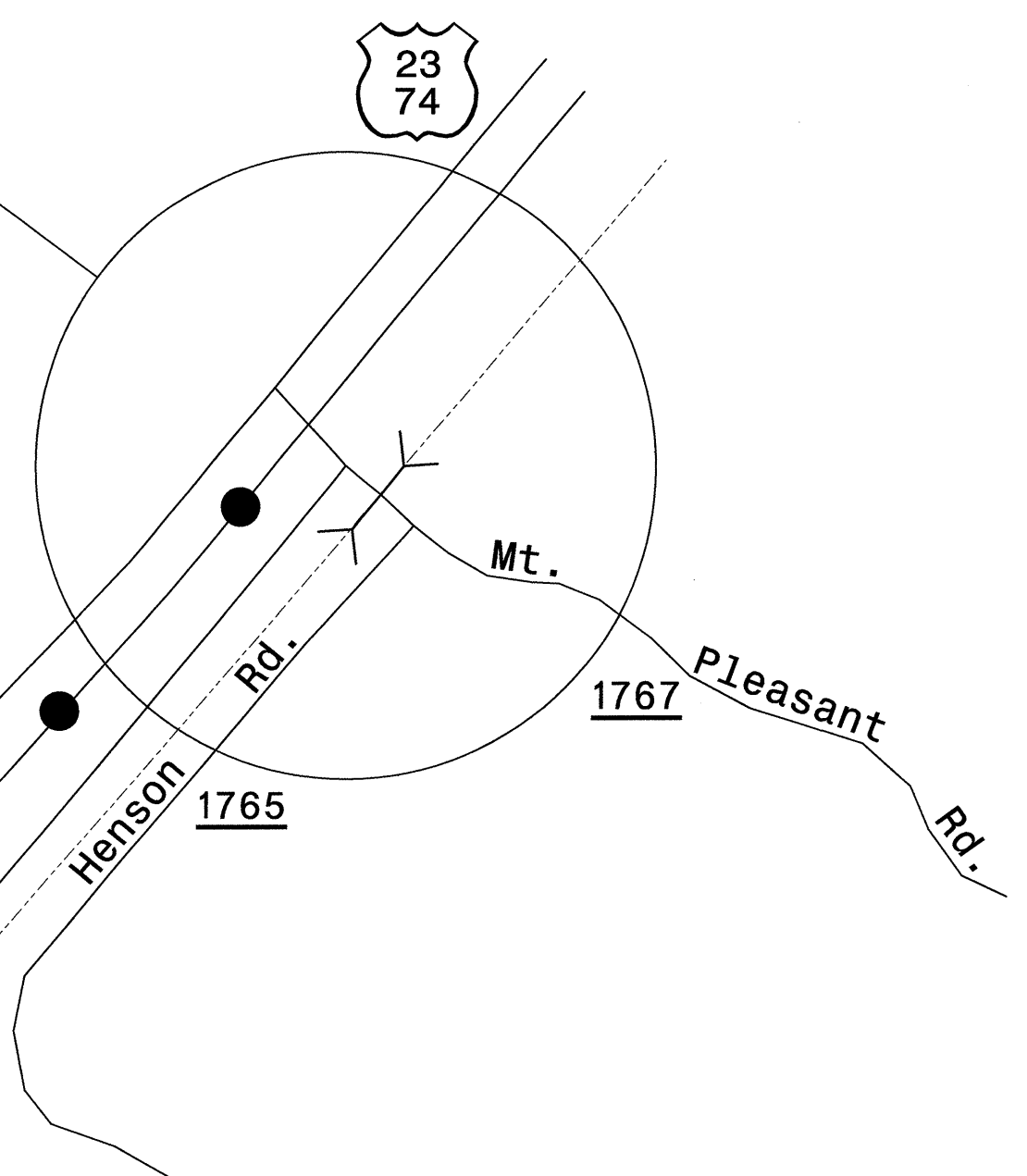
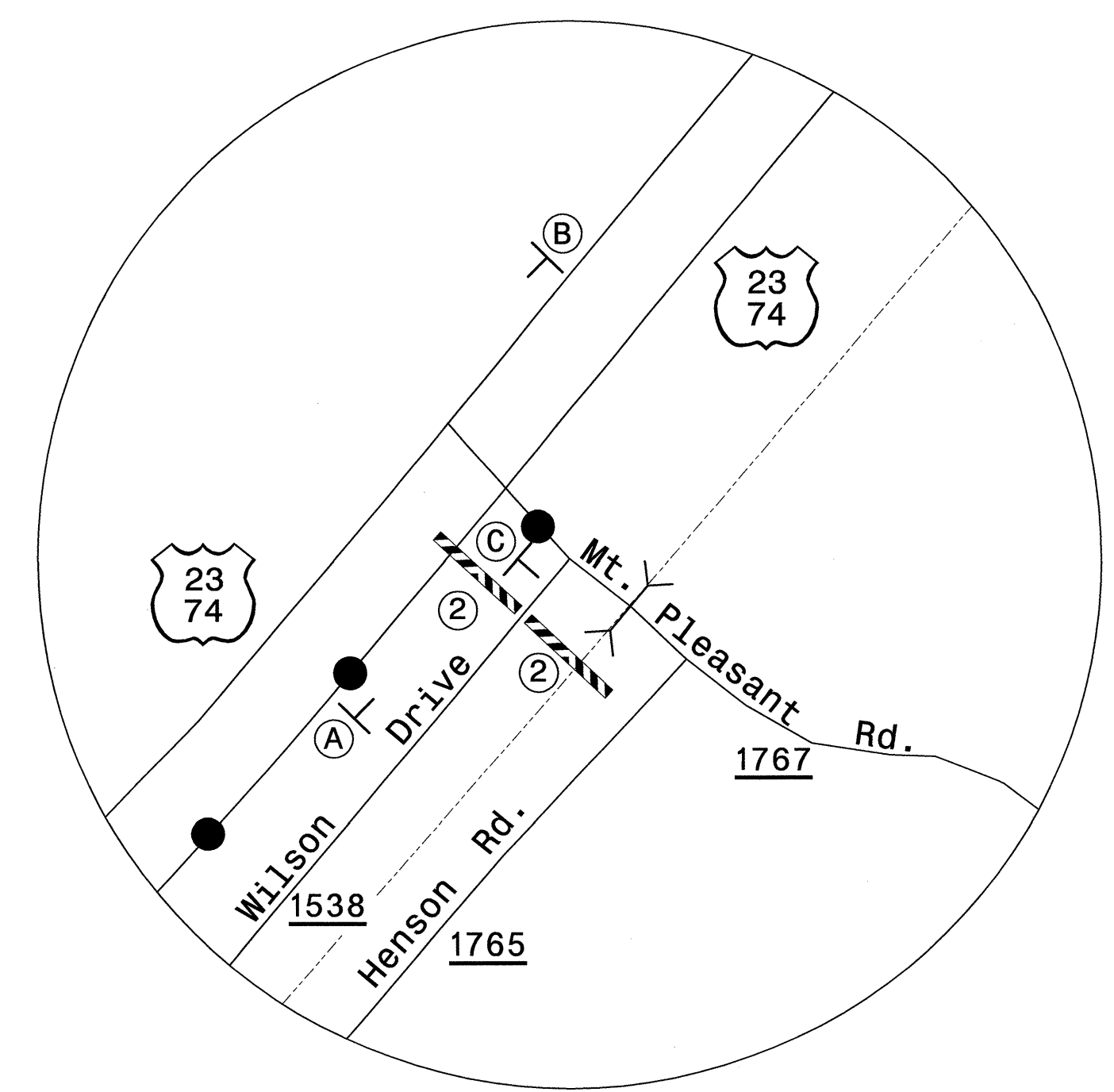
APPROVED: *[Signature]* DATE: 4/10/14  
 SEAL  
 PROFESSIONAL ENGINEER  
 J.W. WOOLARD JR.  
 19862



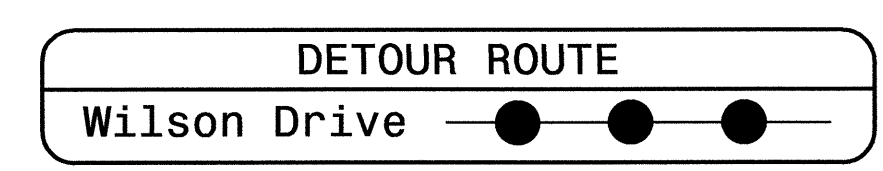
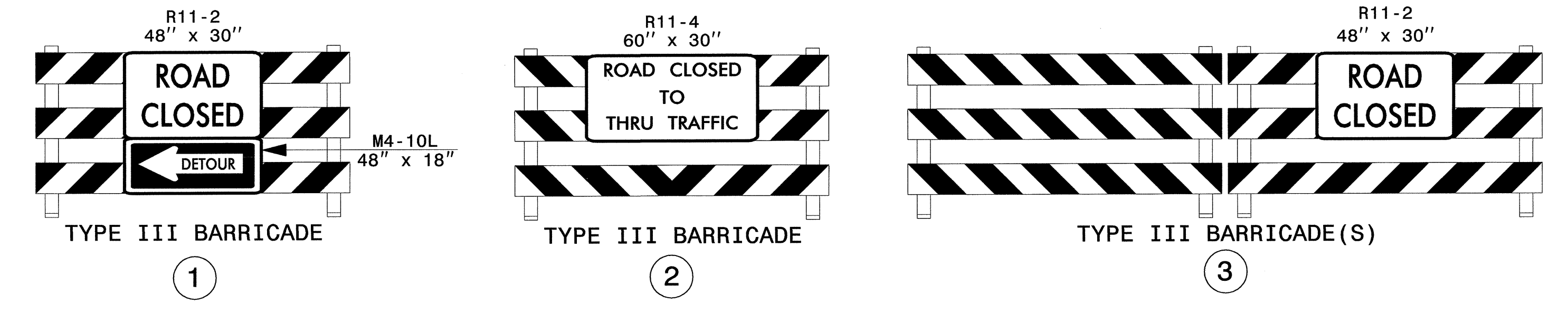
PHASE I DETAILS

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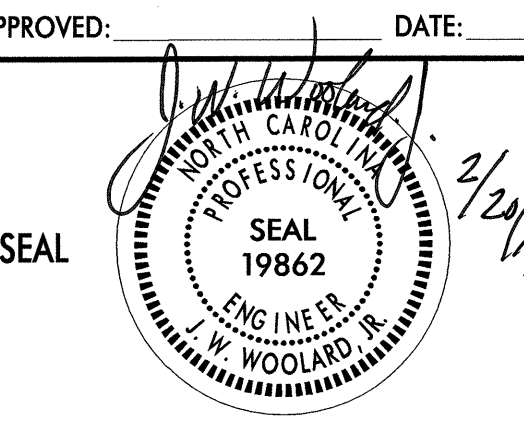





\*SEE SHEET TMP-2B FOR SIGN DESIGN

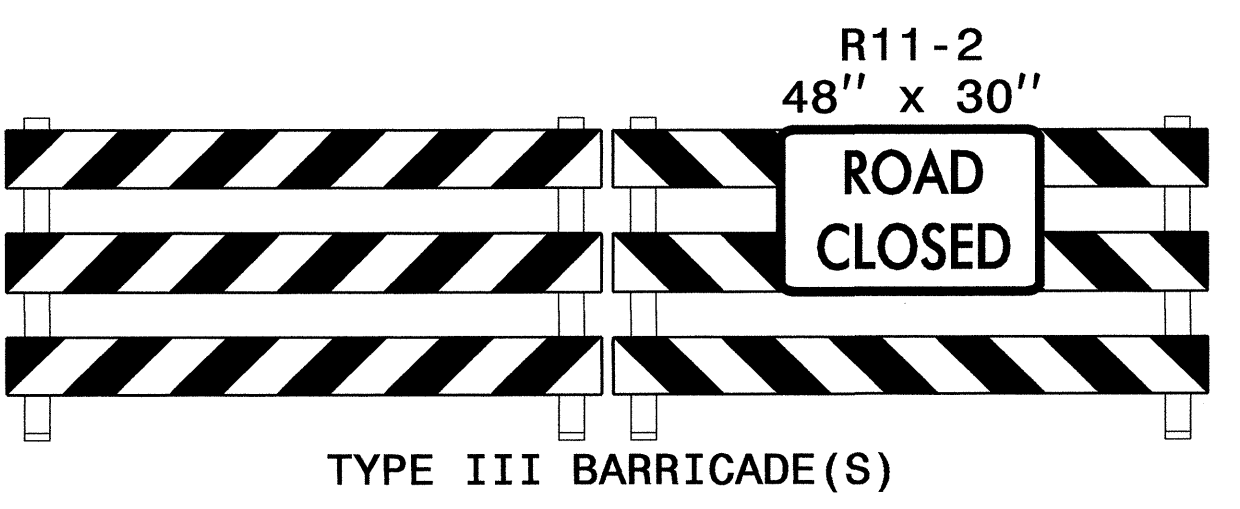
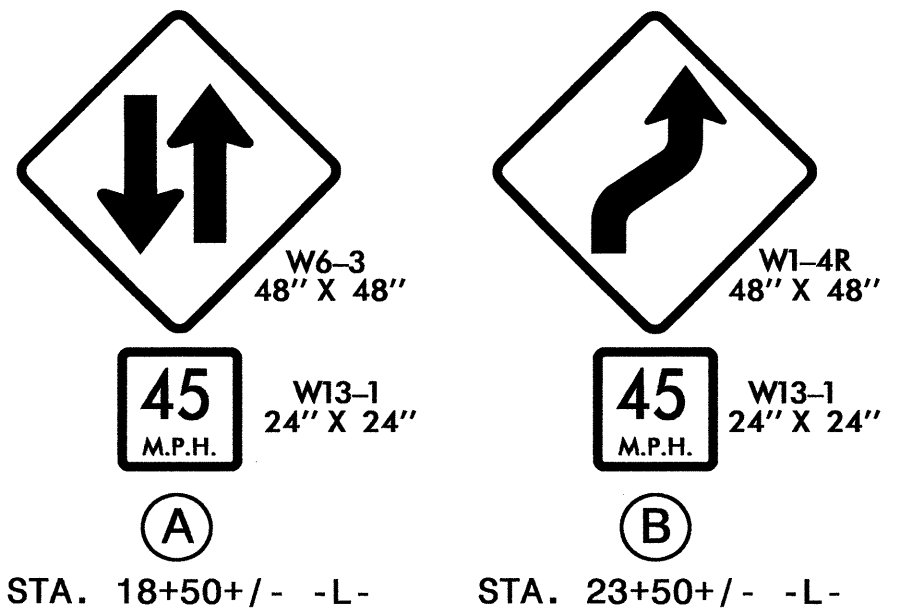


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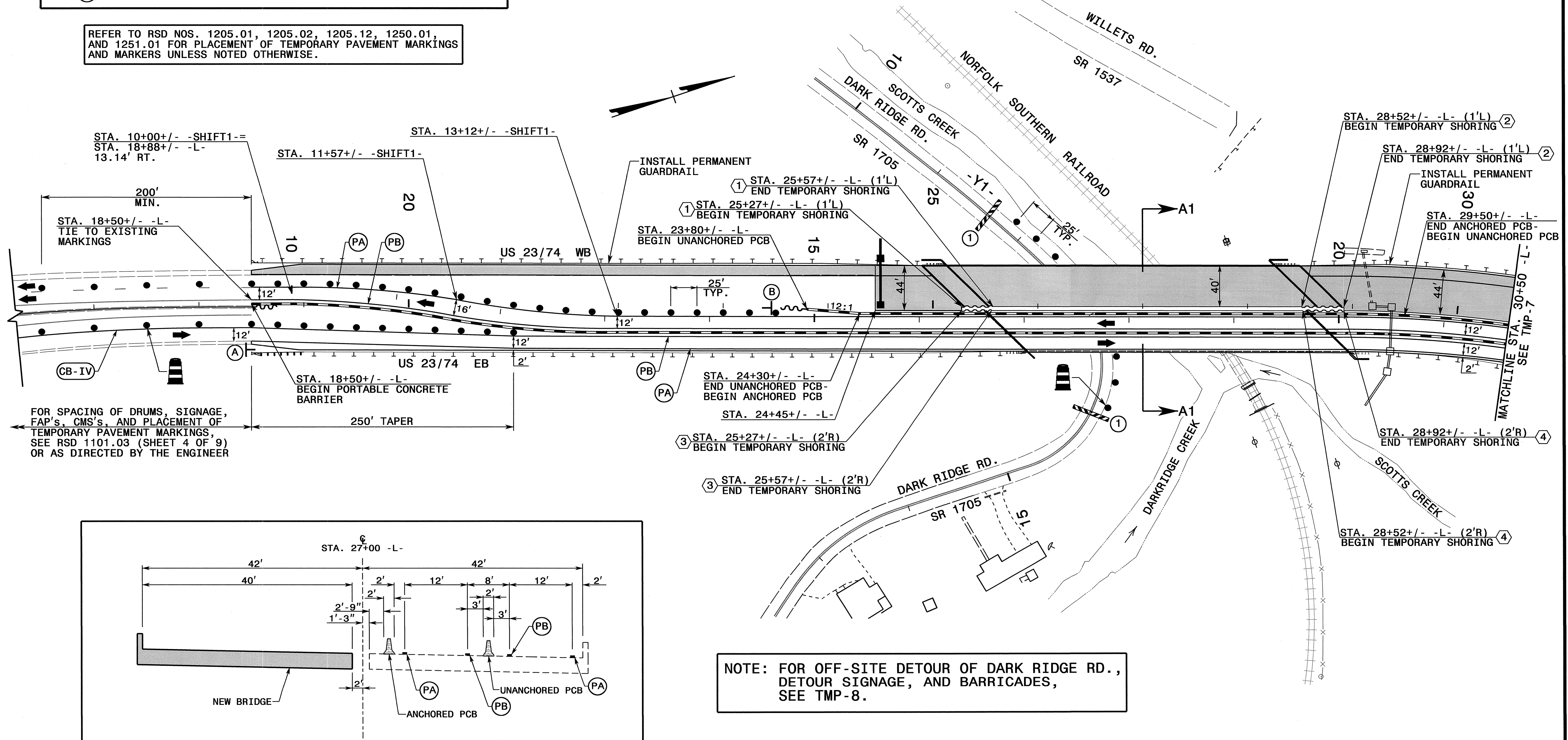
APPROVED:  DATE: 2/20/14		<p align="center"><b>PHASE I OFF-SITE DETOUR WILSON DRIVE SR 1538</b></p>
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TEMPORARY PAVEMENT MARKING LEGEND	
(CB-IV)	COLD APPLIED PLASTIC (TYPE 4) - YELLOW EDGELINE - (4")
(PA)	PAINT - WHITE EDGELINE - (4")
(PB)	PAINT - YELLOW EDGELINE - (4")

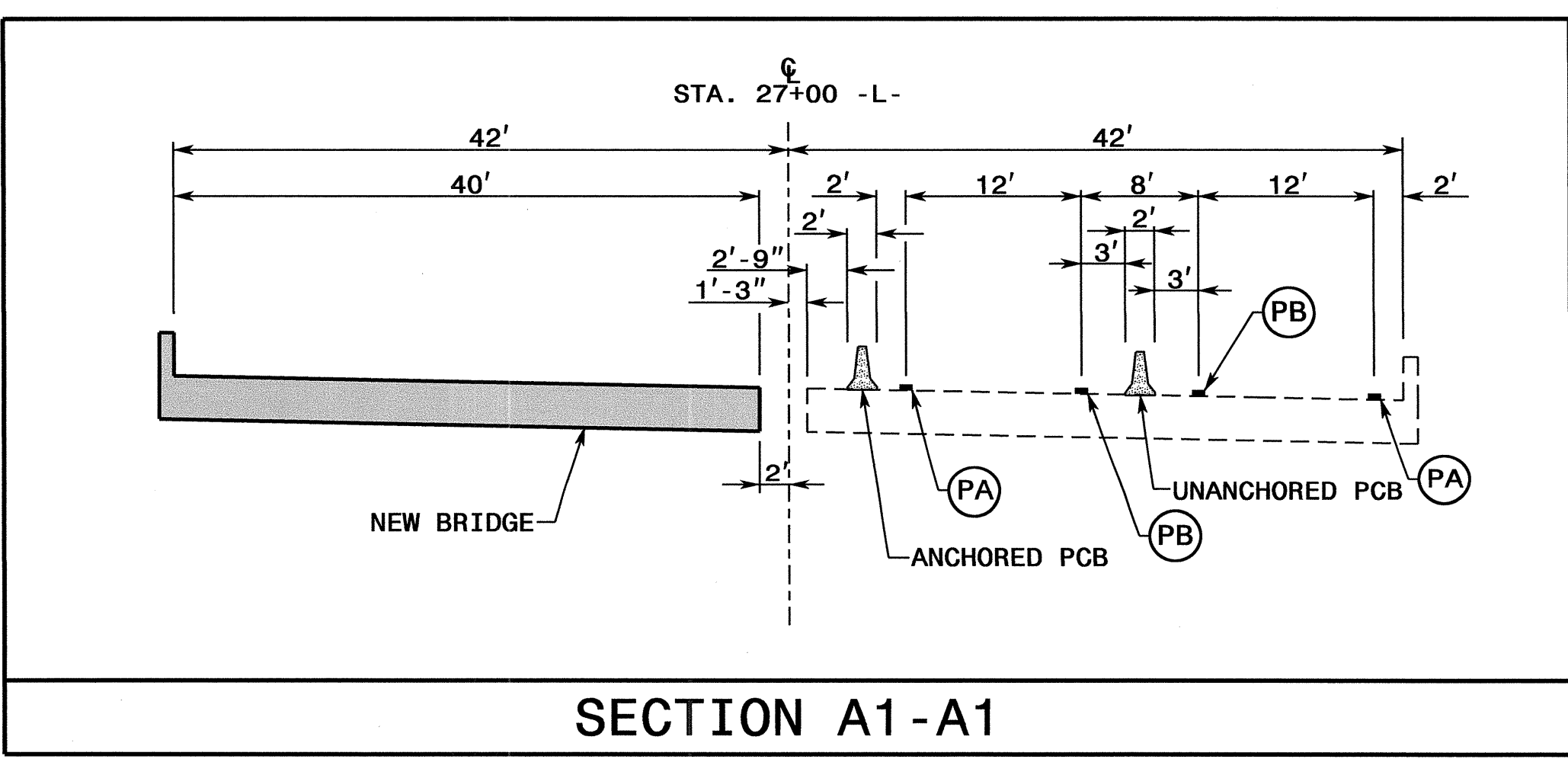
REFER TO RSD NOS. 1205.01, 1205.02, 1205.12, 1250.01, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.



Shoring I.D. No.	Estimated Average Height (ft.)	Quantity (sq. ft.)
①	6.6 FT.	198 SQ. FT.
②	6.6 FT.	264 SQ. FT.
③	6.6 FT.	198 SQ. FT.
④	6.6 FT.	264 SQ. FT.



FOR SPACING OF DRUMS, SIGNAGE, FAP'S, CMS'S, AND PLACEMENT OF TEMPORARY PAVEMENT MARKINGS, SEE RSD 1101.03 (SHEET 4 OF 9) OR AS DIRECTED BY THE ENGINEER



NOTE: FOR OFF-SITE DETOUR OF DARK RIDGE RD., DETOUR SIGNAGE, AND BARRICADES, SEE TMP-8.

02-JUL-2014 15:45 \\dot\disk\010\proj\TIP\Projects-B\4554\TrafficControl\B4554\_TC\_Ph2\_TMP06.dgn

APPROVED: \_\_\_\_\_ DATE: 7/3/14

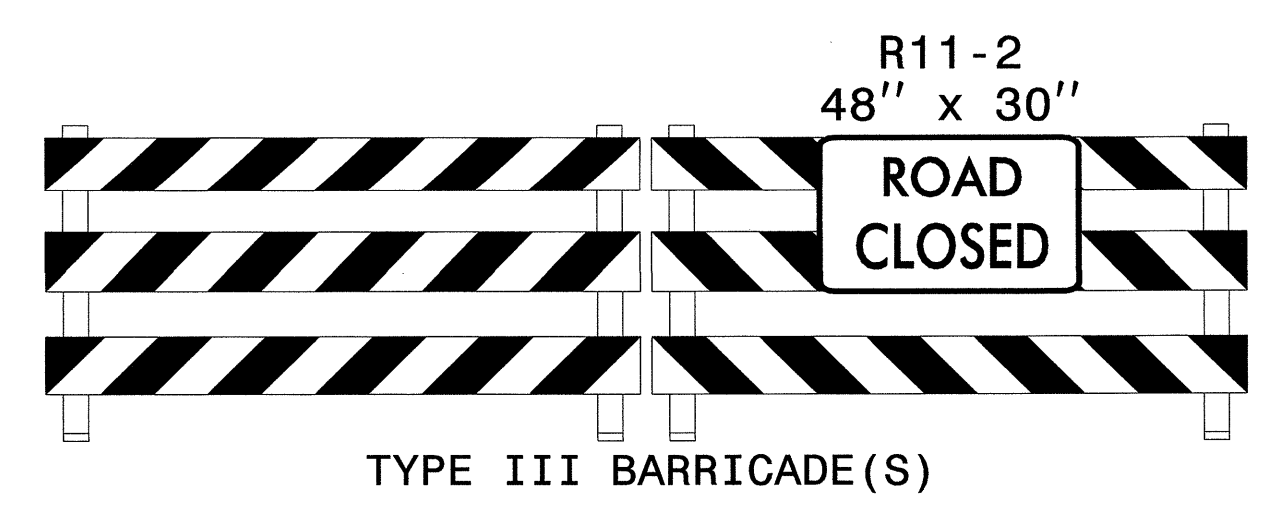
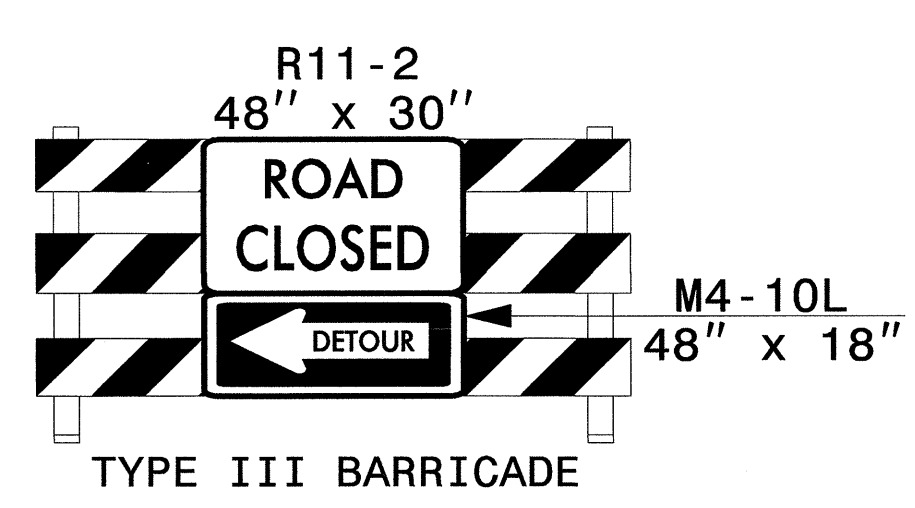
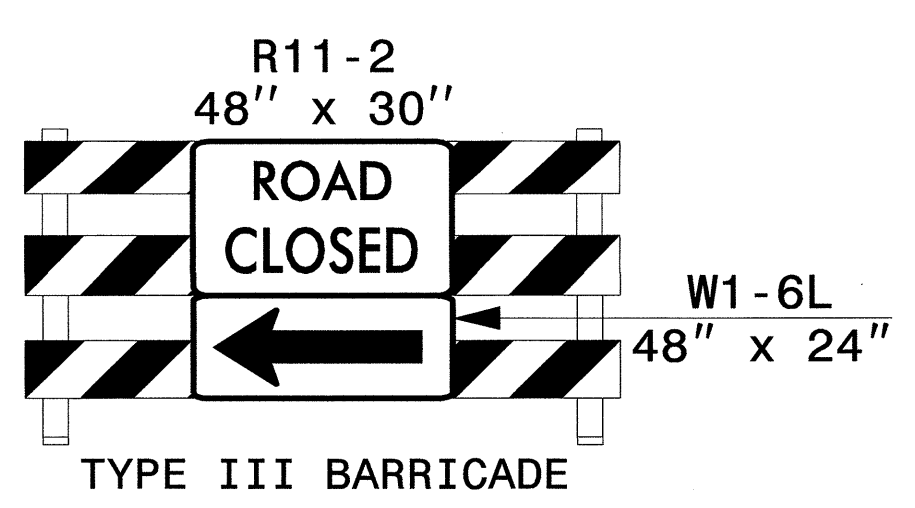
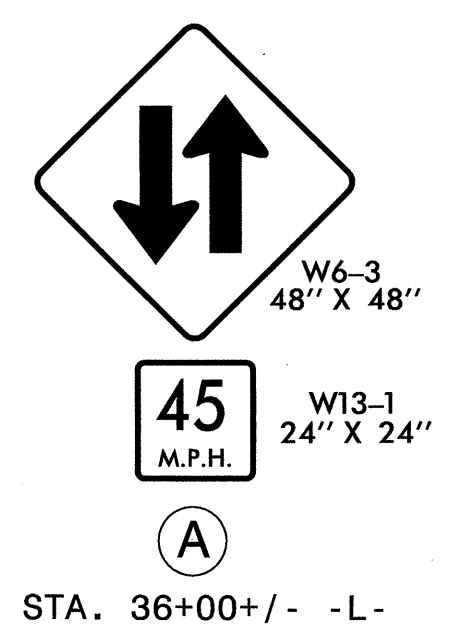
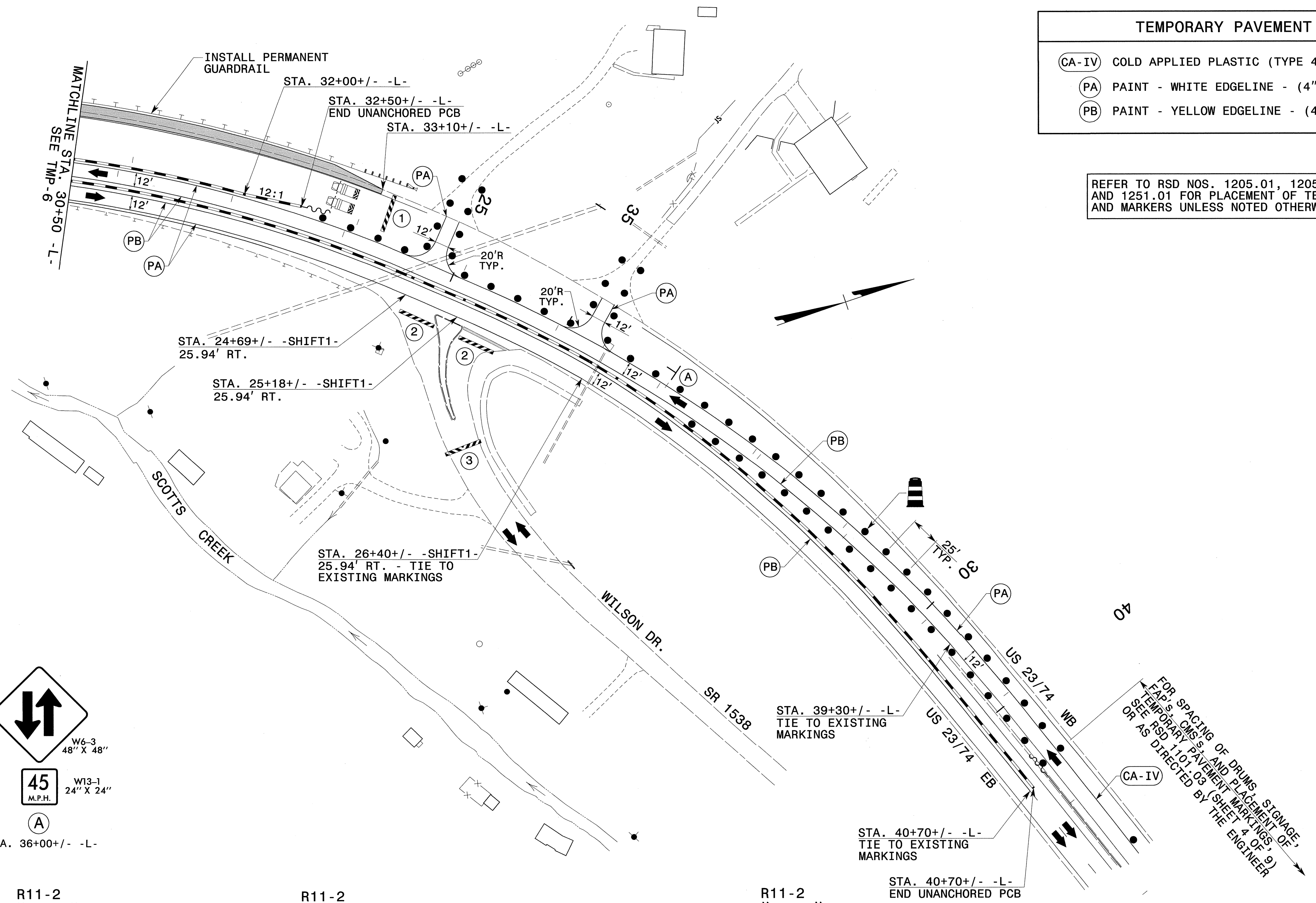
SEAL

PHASE II DETAILS



TEMPORARY PAVEMENT MARKING LEGEND	
(CA-IV)	COLD APPLIED PLASTIC (TYPE 4) - WHITE EDGELINE - (4")
(PA)	PAINT - WHITE EDGELINE - (4")
(PB)	PAINT - YELLOW EDGELINE - (4")

REFER TO RSD NOS. 1205.01, 1205.02, 1205.12, 1250.01, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.



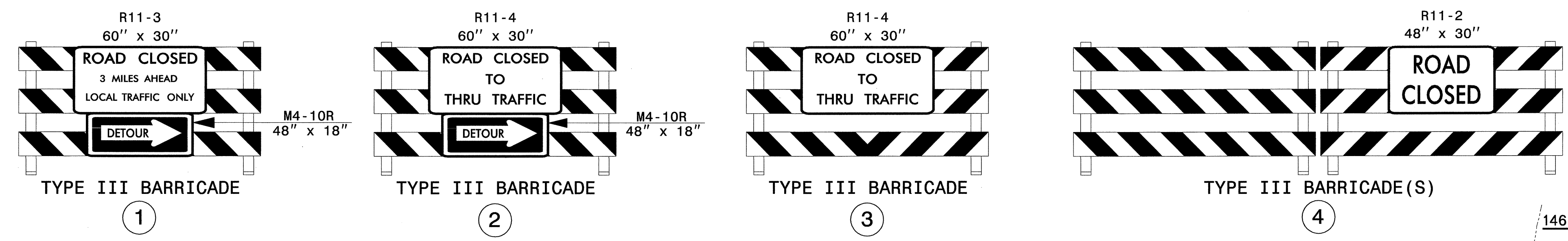
FOR SPACING OF DRUMS, SIGNAGE, FAB, S, CNG, S, AND PLACEMENT OF TEMPORARY PAVEMENT MARKINGS, SEE RSD 1101.03 (SHEET 7 OF 9) OR AS DIRECTED BY THE ENGINEER

APPROVED: \_\_\_\_\_ DATE: 2/20/14

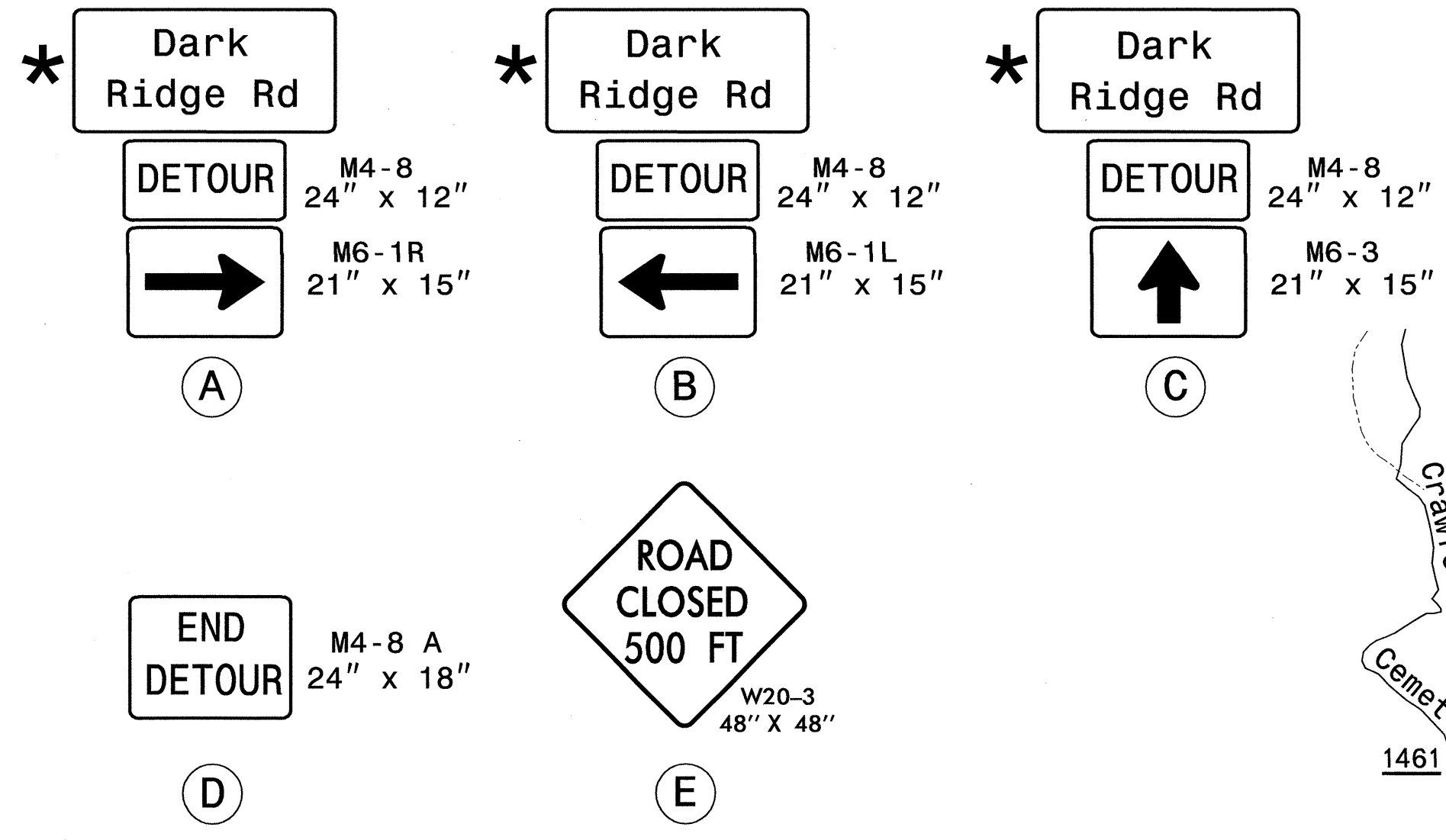
SEAL

PHASE II DETAILS

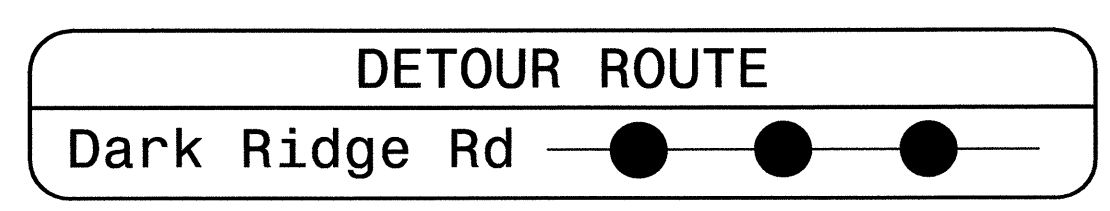
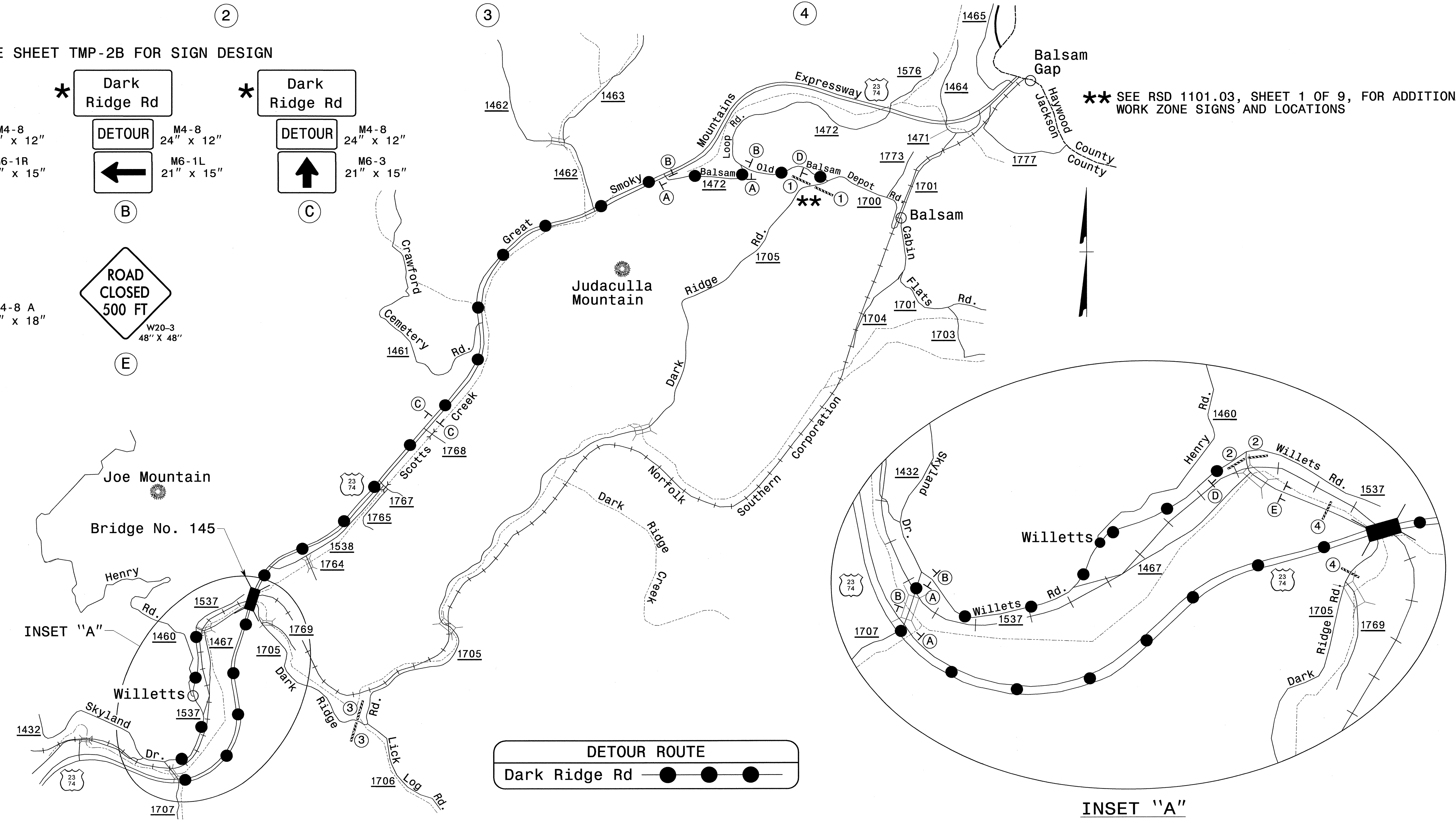
2/20/2014 p:\tip\projects-b\4554\traffic\trafficcontrol\top\B4554\_TC\_Ph2\_TMP07.dgn User:iscodts



\* SEE SHEET TMP-2B FOR SIGN DESIGN

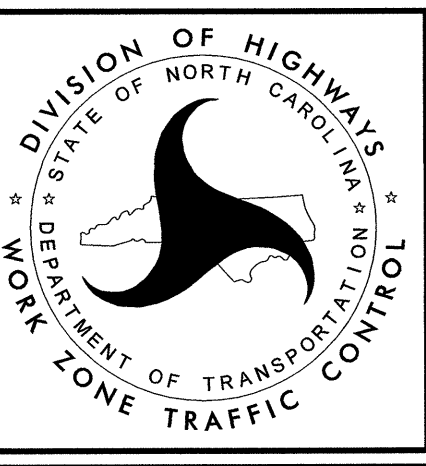


\*\* SEE RSD 1101.03, SHEET 1 OF 9, FOR ADDITIONAL WORK ZONE SIGNS AND LOCATIONS



2/20/2014 P:\Tipp\projects-b\4554\trafficoontrol\top\B4554\_TC\_PH2\_TMP08.dgn User:scodts

APPROVED: DATE: 2/20/14

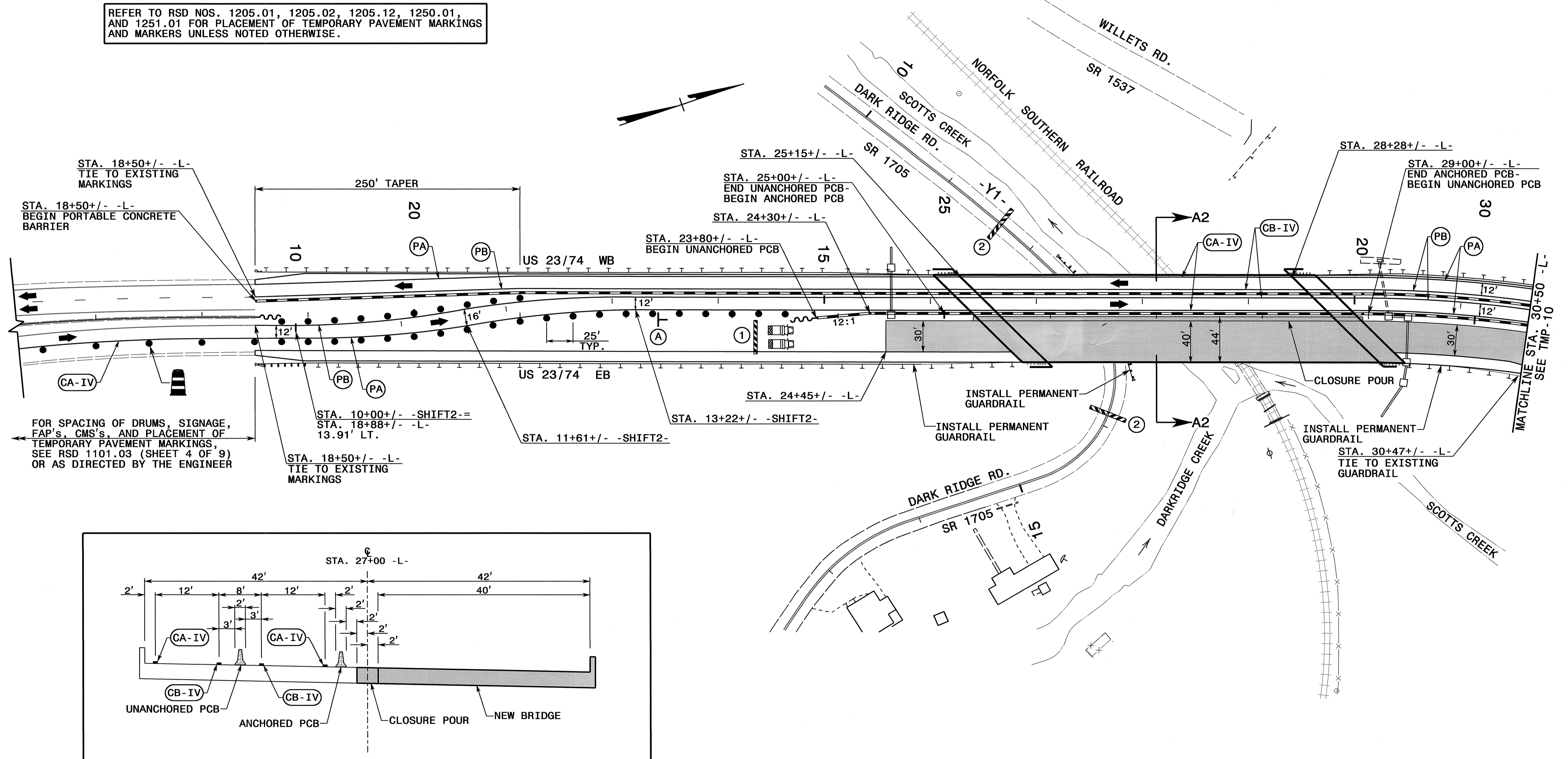
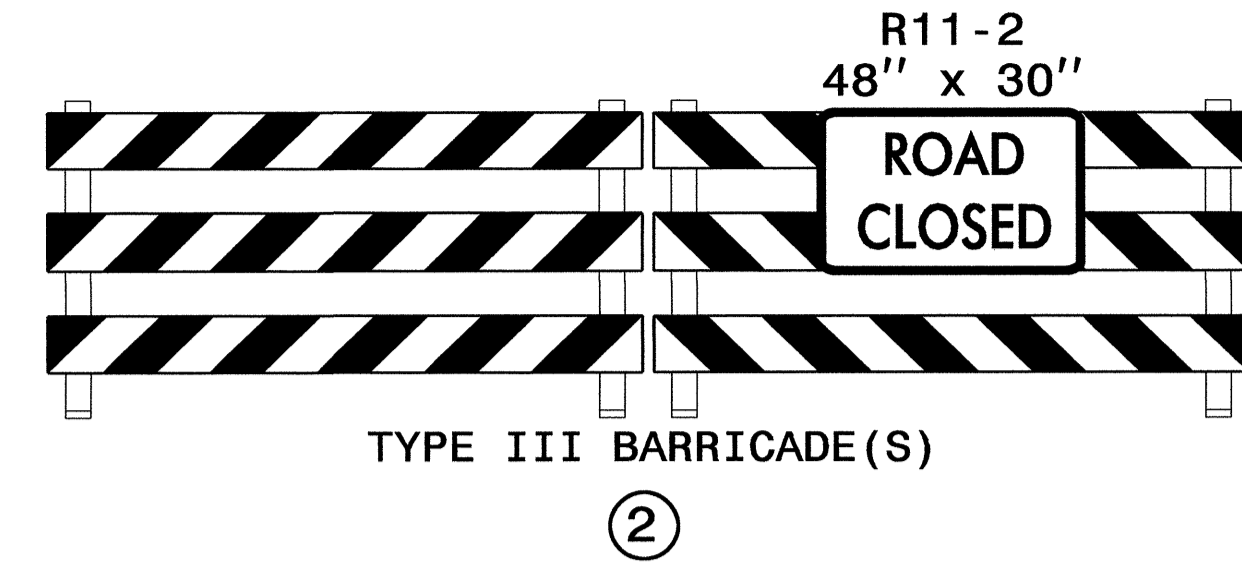
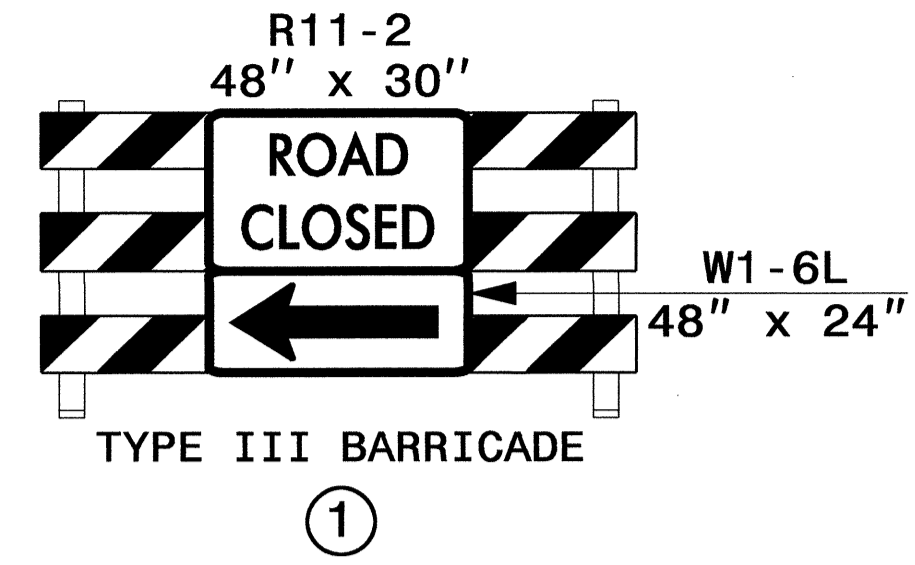
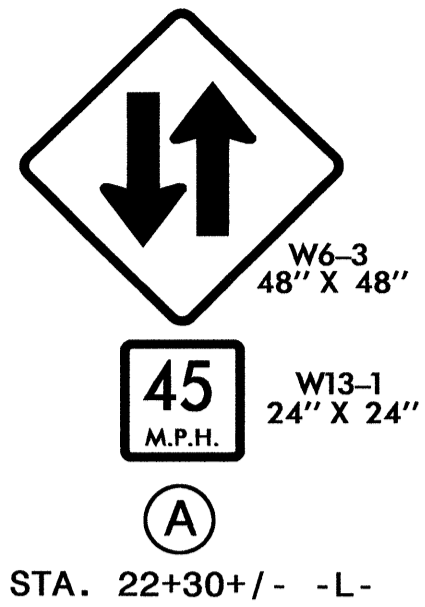


**PHASE II  
OFF-SITE DETOUR  
DARK RIDGE ROAD  
SR 1705**

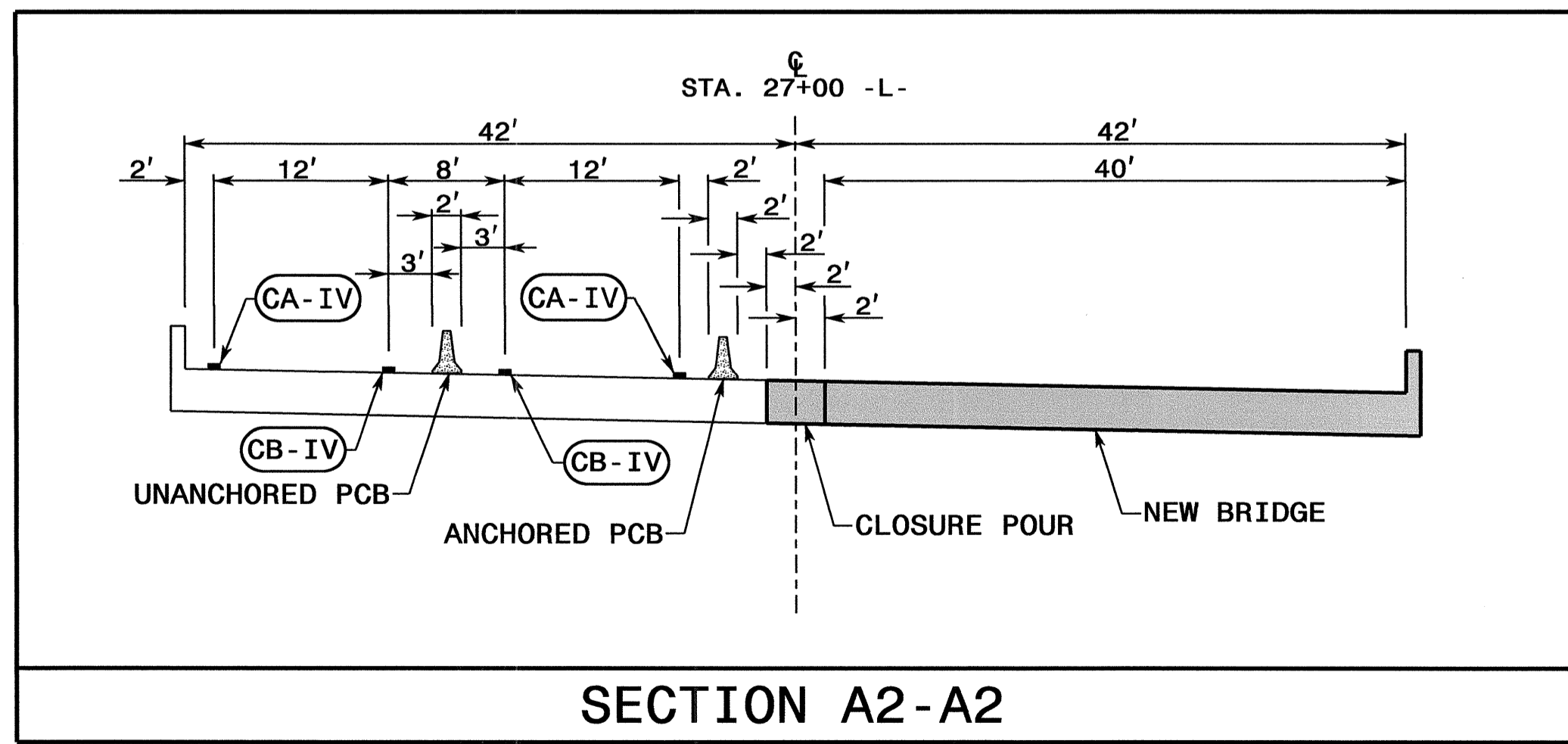


TEMPORARY PAVEMENT MARKING LEGEND	
(CA-IV)	COLD APPLIED PLASTIC (TYPE 4) - WHITE EDGELINE - (4")
(CB-IV)	COLD APPLIED PLASTIC (TYPE 4) - YELLOW EDGELINE - (4")
(PA)	PAINT - WHITE EDGELINE - (4")
(PB)	PAINT - YELLOW EDGELINE - (4")

REFER TO RSD NOS. 1205.01, 1205.02, 1205.12, 1250.01, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.



FOR SPACING OF DRUMS, SIGNAGE, FAP'S, CMS'S, AND PLACEMENT OF TEMPORARY PAVEMENT MARKINGS, SEE RSD 1101.03 (SHEET 4 OF 9) OR AS DIRECTED BY THE ENGINEER



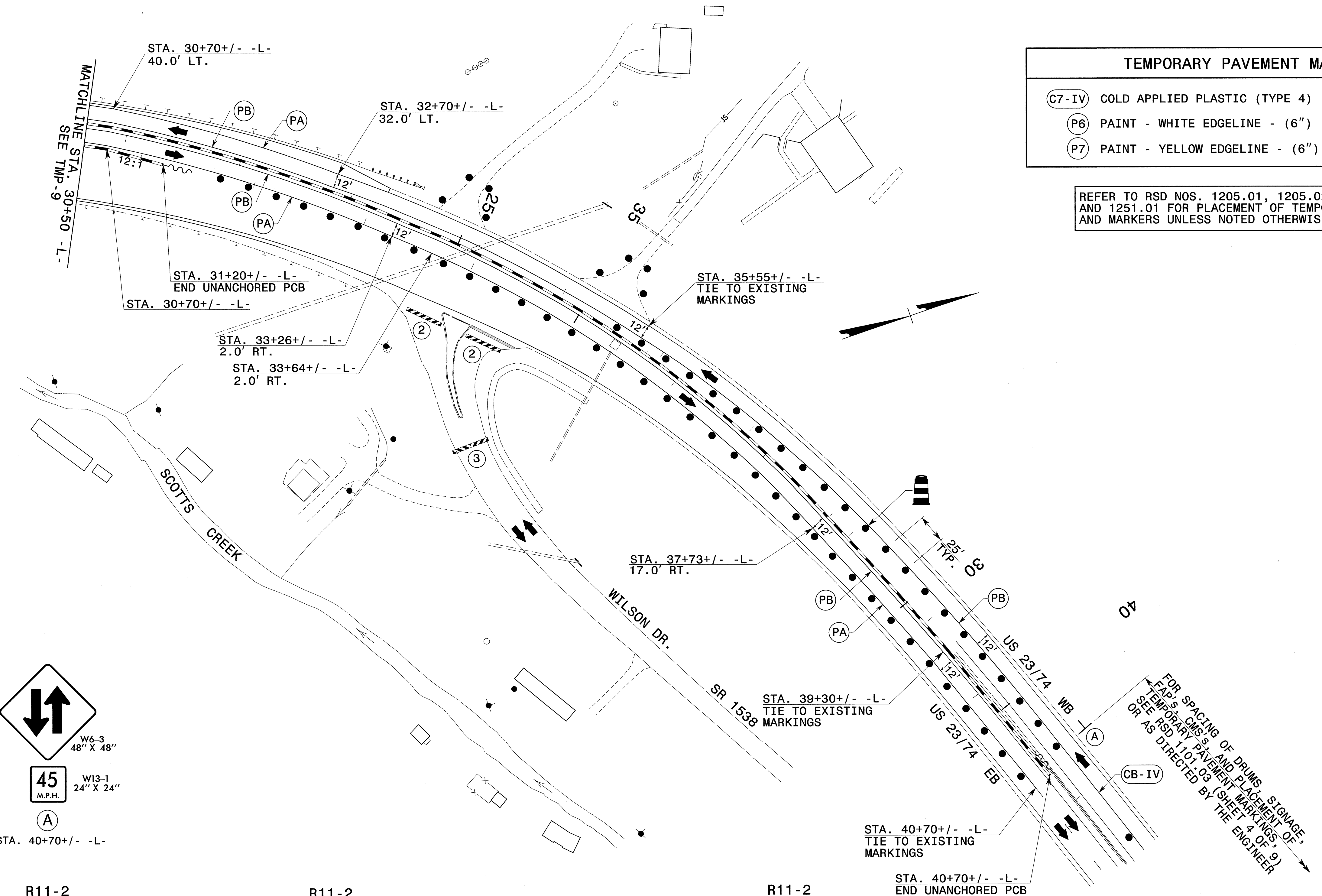
SECTION A2-A2

APPROVED: \_\_\_\_\_ DATE: 7/3/14

SEAL

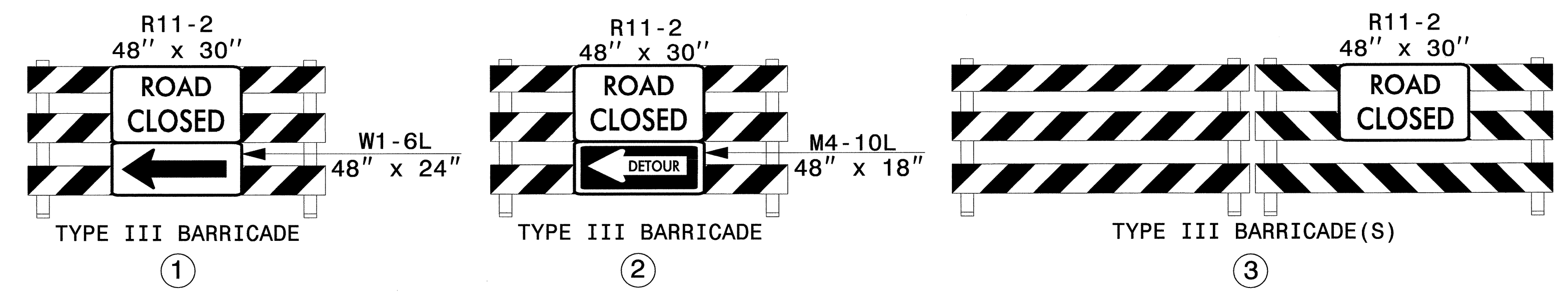
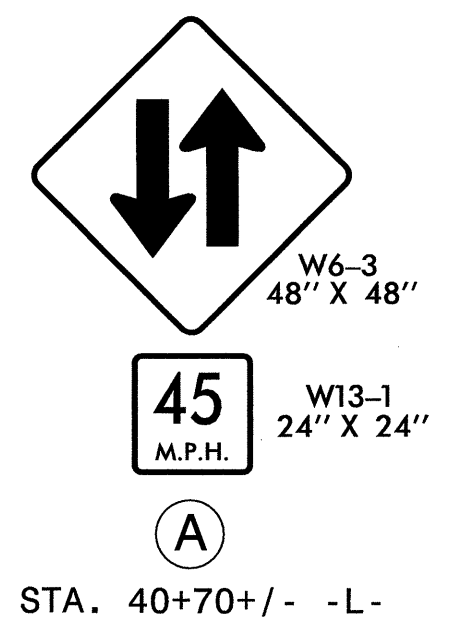
PHASE III DETAILS

02-JUL-2014 15:38 C:\JUL-2014\01\01\IPPr-projects\B4554\TrafficControl\TCP\B4554\_TC\_Ph3\_TMP09.dgn



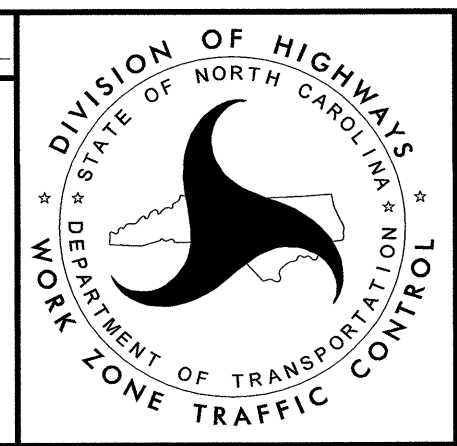
TEMPORARY PAVEMENT MARKING LEGEND	
(C7-IV)	COLD APPLIED PLASTIC (TYPE 4) - YELLOW EDGELINE - (6")
(P6)	PAINT - WHITE EDGELINE - (6")
(P7)	PAINT - YELLOW EDGELINE - (6")

REFER TO RSD NOS. 1205.01, 1205.02, 1205.12, 1250.01, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.



FOR SPACING OF DRUMS, SIGNAGE, LEADS, CMS'S, AND PLACEMENT OF TEMPORARY PAVEMENT MARKINGS, SEE RSD 1101-03 (SHEET 4 OF 9) OR AS DIRECTED BY THE ENGINEER

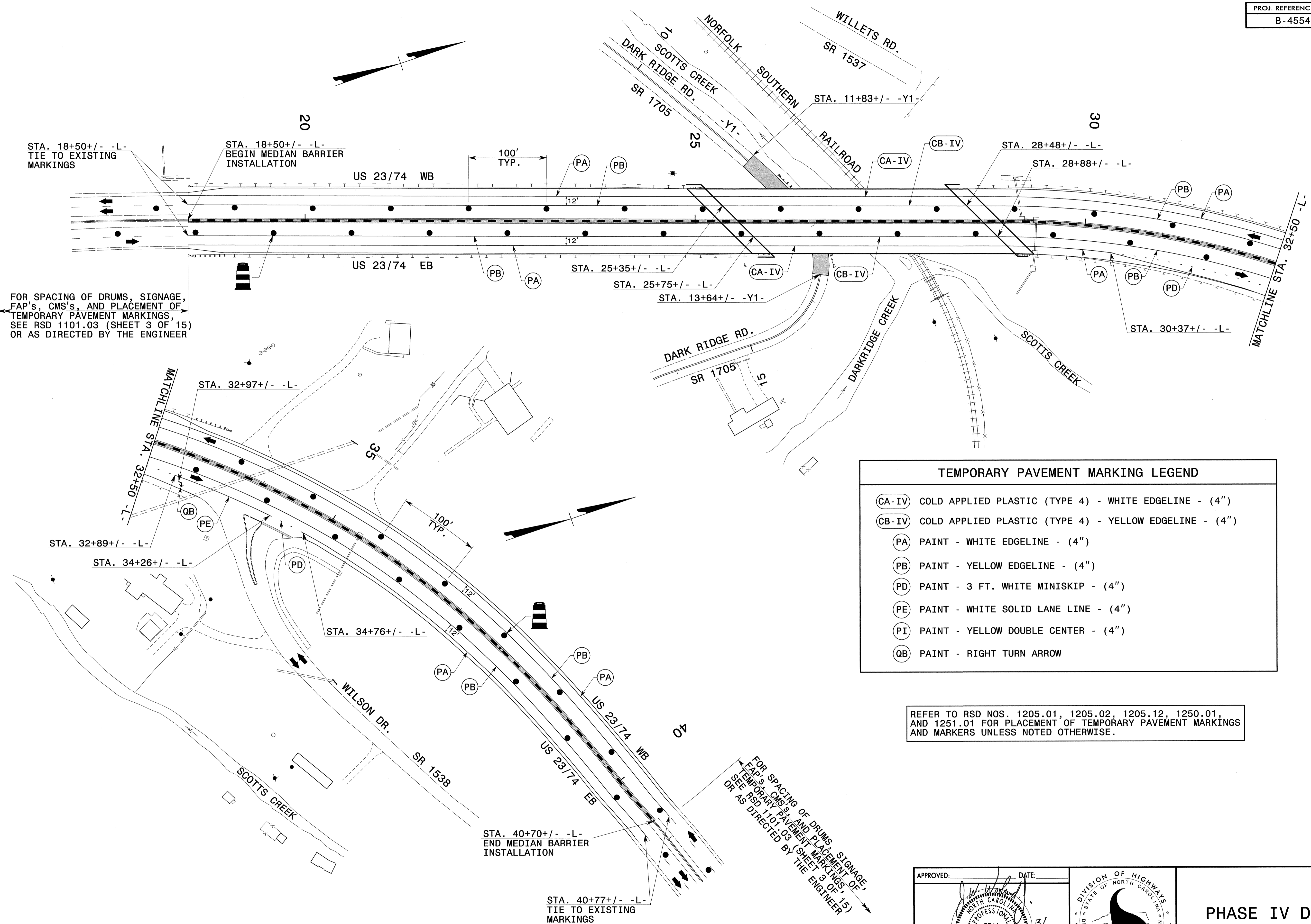
APPROVED: DATE: 2/20/14



PHASE III DETAILS

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FOR SPACING OF DRUMS, SIGNAGE, FAP'S, CMS'S, AND PLACEMENT OF TEMPORARY PAVEMENT MARKINGS, SEE RSD 1101.03 (SHEET 3 OF 15) OR AS DIRECTED BY THE ENGINEER

FOR SPACING OF DRUMS, SIGNAGE, FAP'S, CMS'S, AND PLACEMENT OF TEMPORARY PAVEMENT MARKINGS, SEE RSD 1101.03 (SHEET 3 OF 15) OR AS DIRECTED BY THE ENGINEER

TEMPORARY PAVEMENT MARKING LEGEND	
CA-IV	COLD APPLIED PLASTIC (TYPE 4) - WHITE EDGELINE - (4")
CB-IV	COLD APPLIED PLASTIC (TYPE 4) - YELLOW EDGELINE - (4")
PA	PAINT - WHITE EDGELINE - (4")
PB	PAINT - YELLOW EDGELINE - (4")
PD	PAINT - 3 FT. WHITE MINISKIP - (4")
PE	PAINT - WHITE SOLID LANE LINE - (4")
PI	PAINT - YELLOW DOUBLE CENTER - (4")
QB	PAINT - RIGHT TURN ARROW

REFER TO RSD NOS. 1205.01, 1205.02, 1205.12, 1250.01, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.

3/14/2014 P:\projects\projects-b\4554\traffic\trafficcontrol\top\4554\_Tc\_Ph4\_TMP1.dgn User:SCOOTS

APPROVED:	DATE:			<h2>PHASE IV DETAILS</h2>

**STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION**

TIP NO. B-4554	SHEET NO. PMP-1
APPROVED: <i>[Signature]</i>	
DATE: 2/25/14	
SEAL	



**PAVEMENT MARKING PLAN  
JACKSON COUNTY**

**LOCATION: BRIDGE NO. 145 ON US 23-74 OVER SR 1705  
SOUTHERN RAILROAD AND SCOTT CREEK**

**T.I.P.: B-4554**

**CONTRACT:**

**PAVEMENT MARKING SCHEDULE**

SYMBOL	DESCRIPTION
<b>POLYUREA</b>	
VA	WHITE EDGELINE (4")
VB	YELLOW EDGELINE (4")
VD	3 FT. -9FT./SP WHITE MINISKIP (4")
VE	WHITE SOLID LANE LINE (4")
VC	10 FT. WHITE SKIP (4")
V8	2 FT. -6FT./SP WHITE MINISKIP (4")
<b>PAINT</b>	
PA	WHITE EDGELINE (4")
PI	YELLOW DOUBLE CENTER (4")
<b>THERMOPLASTIC (120 MIL)</b>	
T2	WHITE STOPBAR (24")
<b>THERMOPLASTIC SYMBOL (90 MIL)</b>	
UB	RIGHT TURN ARROW
<b>MARKERS</b>	
<b>SNOWPLOWABLE</b>	
ME	YELLOW & YELLOW

**ROADWAY STANDARD DRAWING**

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

**GENERAL NOTES**

- THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.
- A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
US 23-74 and Bridge	Polyurea with Highly Reflective Elements	Snowplowable (Raided on Bridge Deck)
Dark Ridge Rd	Paint	None
  - B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.
  - C) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
  - D) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
  - E) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.
  - F) STOP BAR LOCATION AT NON-SIGNALIZED INTERSECTIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.
  - G) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON CONCRETE BRIDGE DECKS PRIOR TO PLACING POLYUREA PAVEMENT MARKING MATERIAL.
  - H) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF EXTRUDED THERMOPLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE EXTRUDED THERMOPLASTIC PAY ITEM.

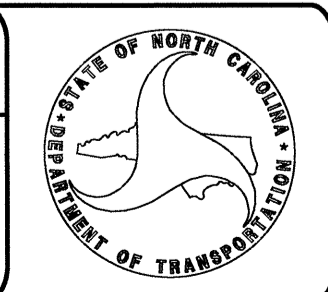
**INDEX**

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN TITLE AND SCHEDULE SHEET
PMP-2	PAVEMENT MARKING DETAIL

PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT


     K. JORDAN      SIGNING & DELINEATION REGIONAL ENGINEER

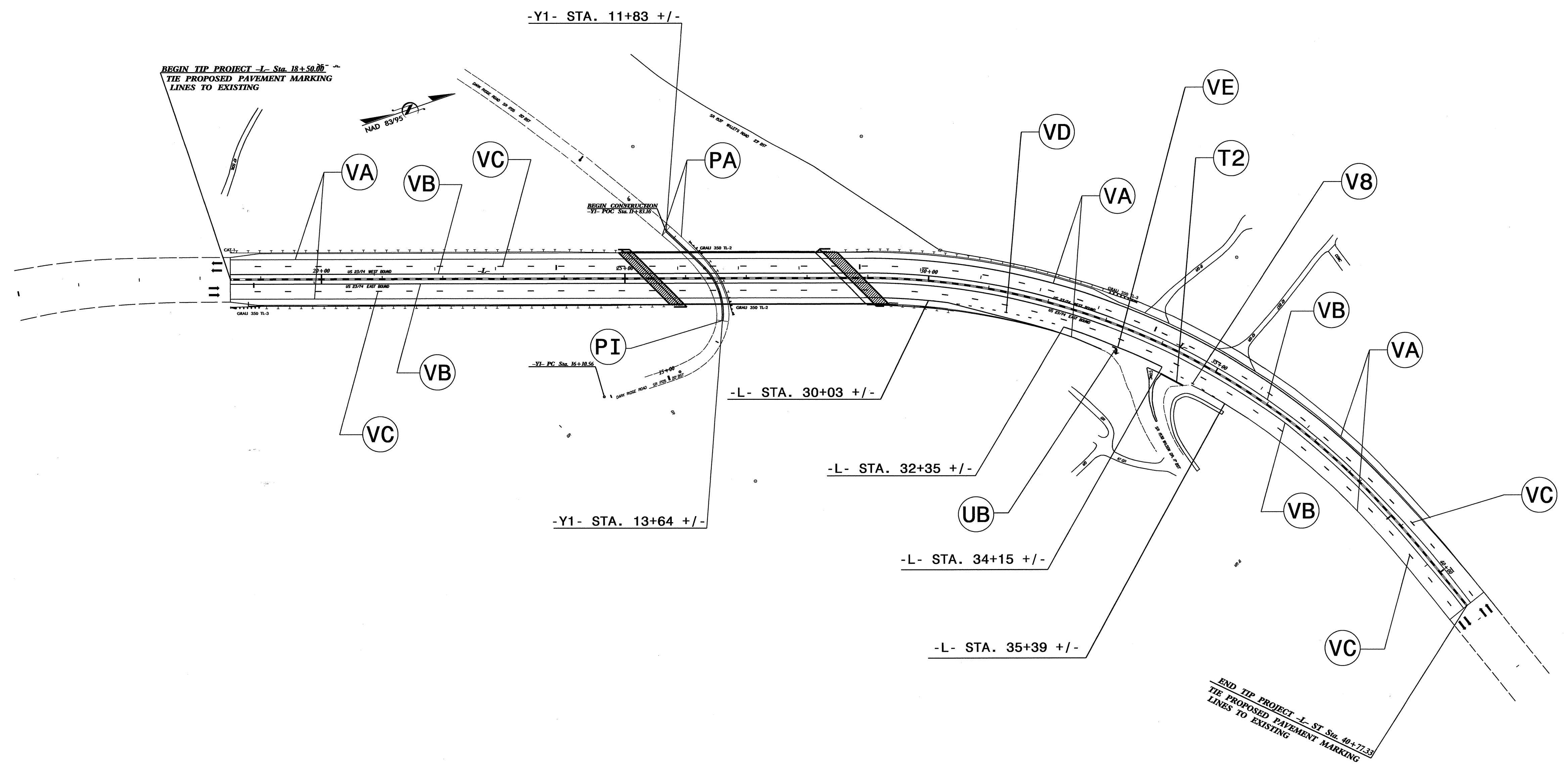
     M. TRACEY      SIGNING & DELINEATION PROJECT DESIGN ENGINEER



24-FEB-2014 11:06 AM \\FB\c0\jects\B4554\Traffic\Signing\CADD\PM\B-4554-Sgn-BPMP-1.dgn mtracey AT 1271923



TIP NO. B - 4554	SHEET NO. PMP - 2
APPROVED: <i>RWT</i>	
DATE: 3/19/14	
SEAL	
	



**PAVEMENT MARKING DETAIL**

18-MAR-2014 10:06  
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 mrooney AT TELH923

**TIP PROJECT: B-4554**

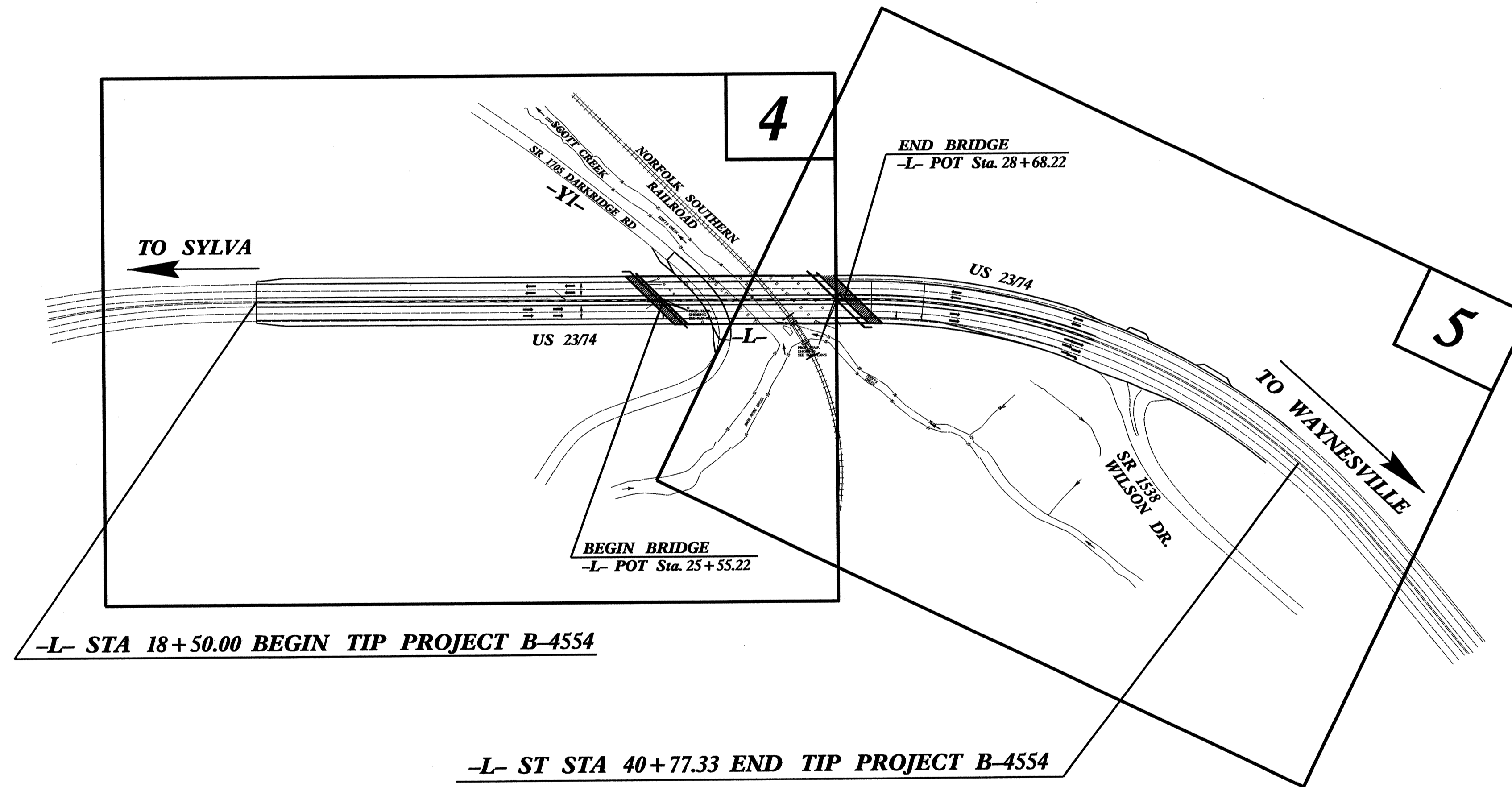
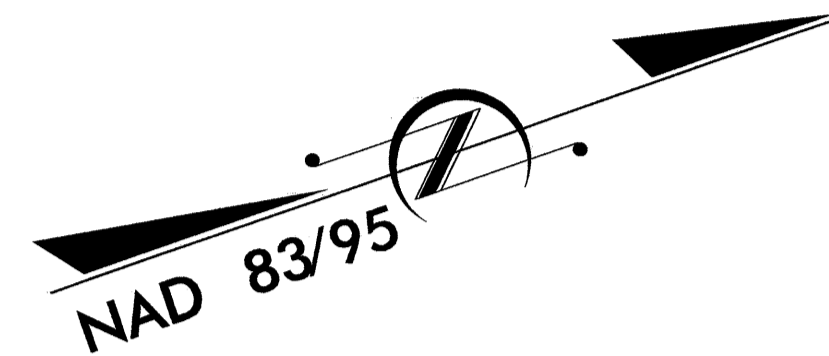
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL

**JACKSON COUNTY**

LOCATION: BRIDGE NO. 145 ON US 23-74 OVER SR 1705,  
SOUTHERN RAILROAD AND SCOTT CREEK.

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE.



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4554	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

**EROSION AND SEDIMENT CONTROL MEASURES**

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	△△△△△
1622.01	Temporary Berms and Slope Drains	T
1630.02	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	⊗
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	⊗
1633.02	Temporary Rock Silt Check Type-B	▶
	Wattle/Coir Fiber Wattle	⌒
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	⌒
1634.01	Temporary Rock Sediment Dam Type-A	⊞
1634.02	Temporary Rock Sediment Dam Type-B	⊞
1635.01	Rock Pipe Inlet Sediment Trap Type-A	⊞
1635.02	Rock Pipe Inlet Sediment Trap Type-B	⊞
1630.04	Stilling Basin	⊞
1630.06	Special Stilling Basin	⊞
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	⊞
	Tiered Skimmer Basin	⊞
	Infiltration Basin	⊞

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT  
Refer To E. C. Special Provisions for Special Considerations.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

**GRAPHIC SCALE**

0  
PLANS

0  
PROFILE (HORIZONTAL)

0  
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT  
DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:  
**ROADSIDE ENVIRONMENTAL UNIT**  
1 South Wilmington St.  
Raleigh, NC 27611  
**2012 STANDARD SPECIFICATIONS**

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

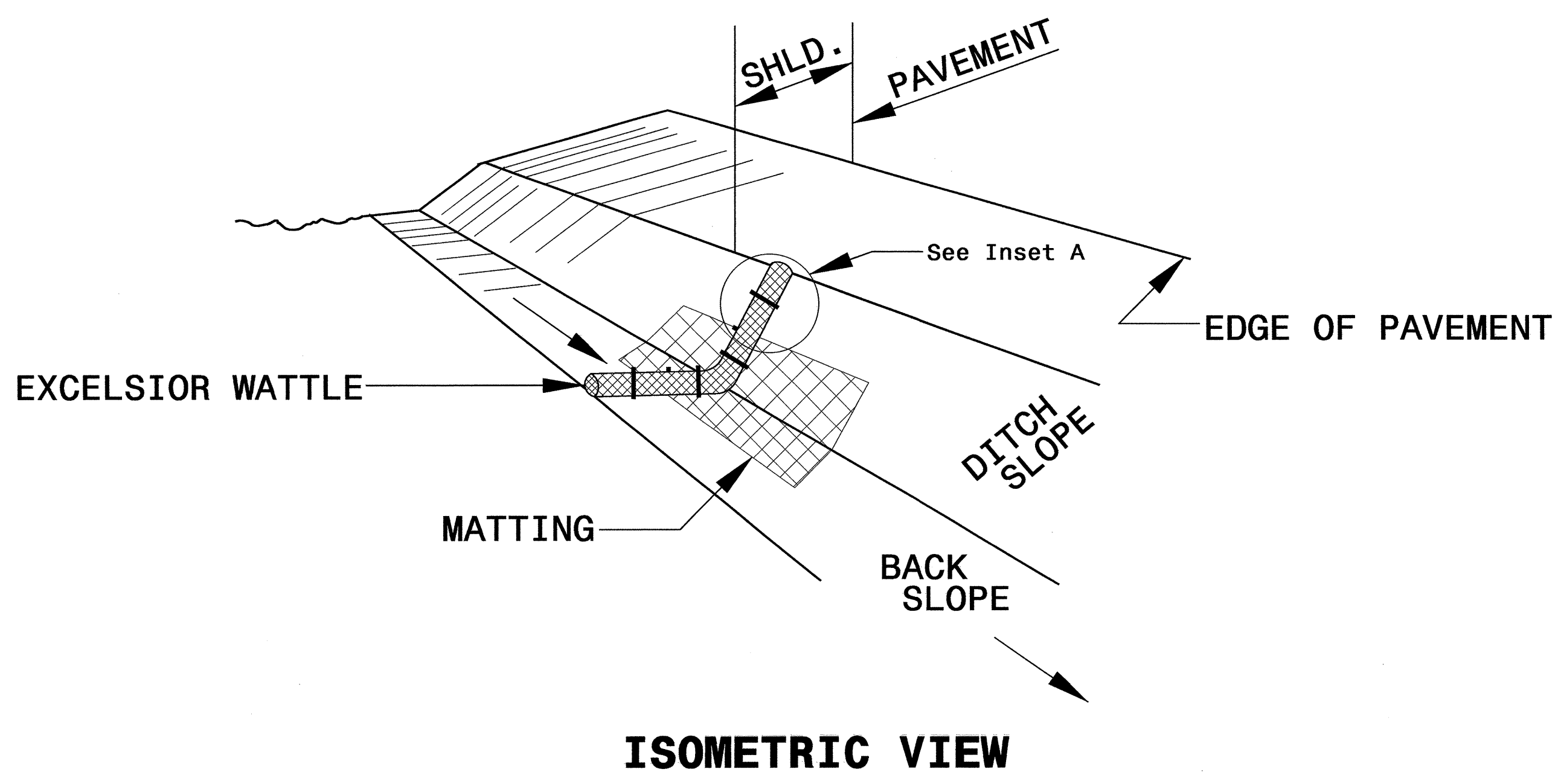
1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

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nring

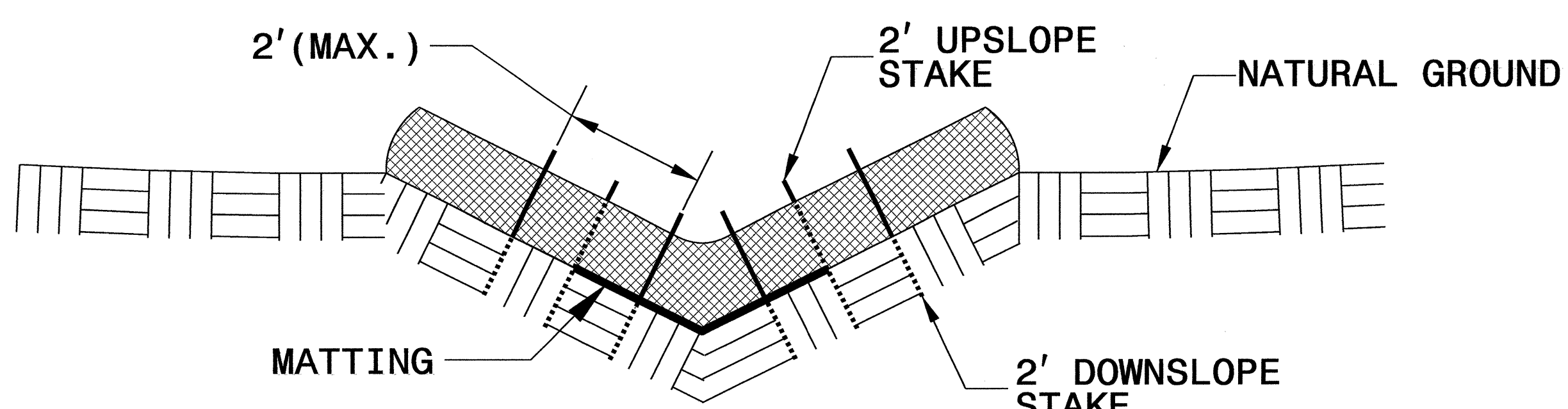


PROJECT REFERENCE NO. B-4554	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

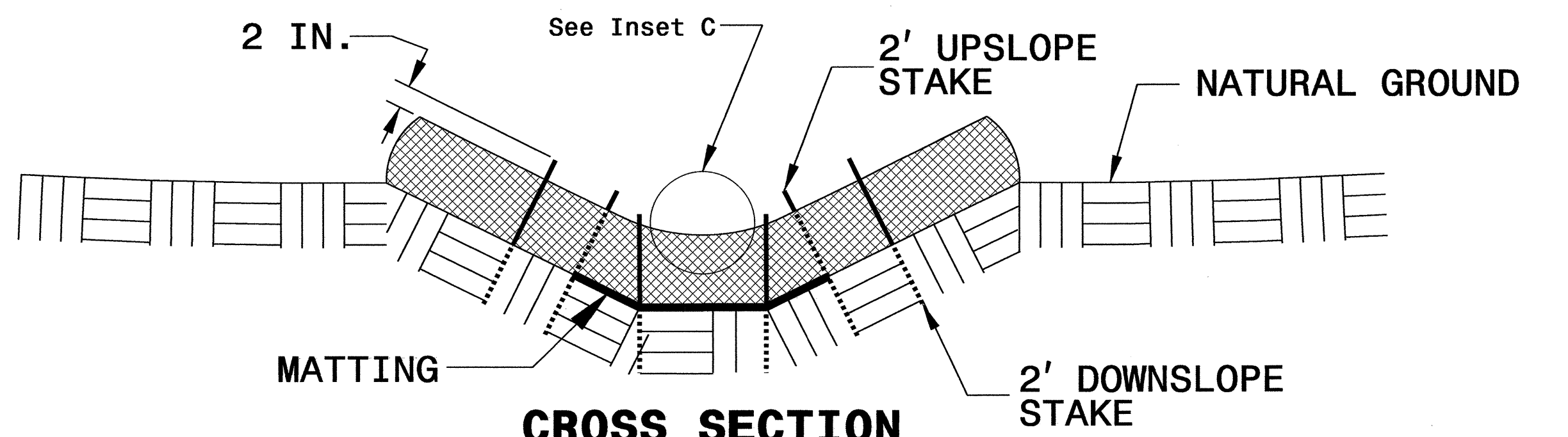
# WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



**ISOMETRIC VIEW**



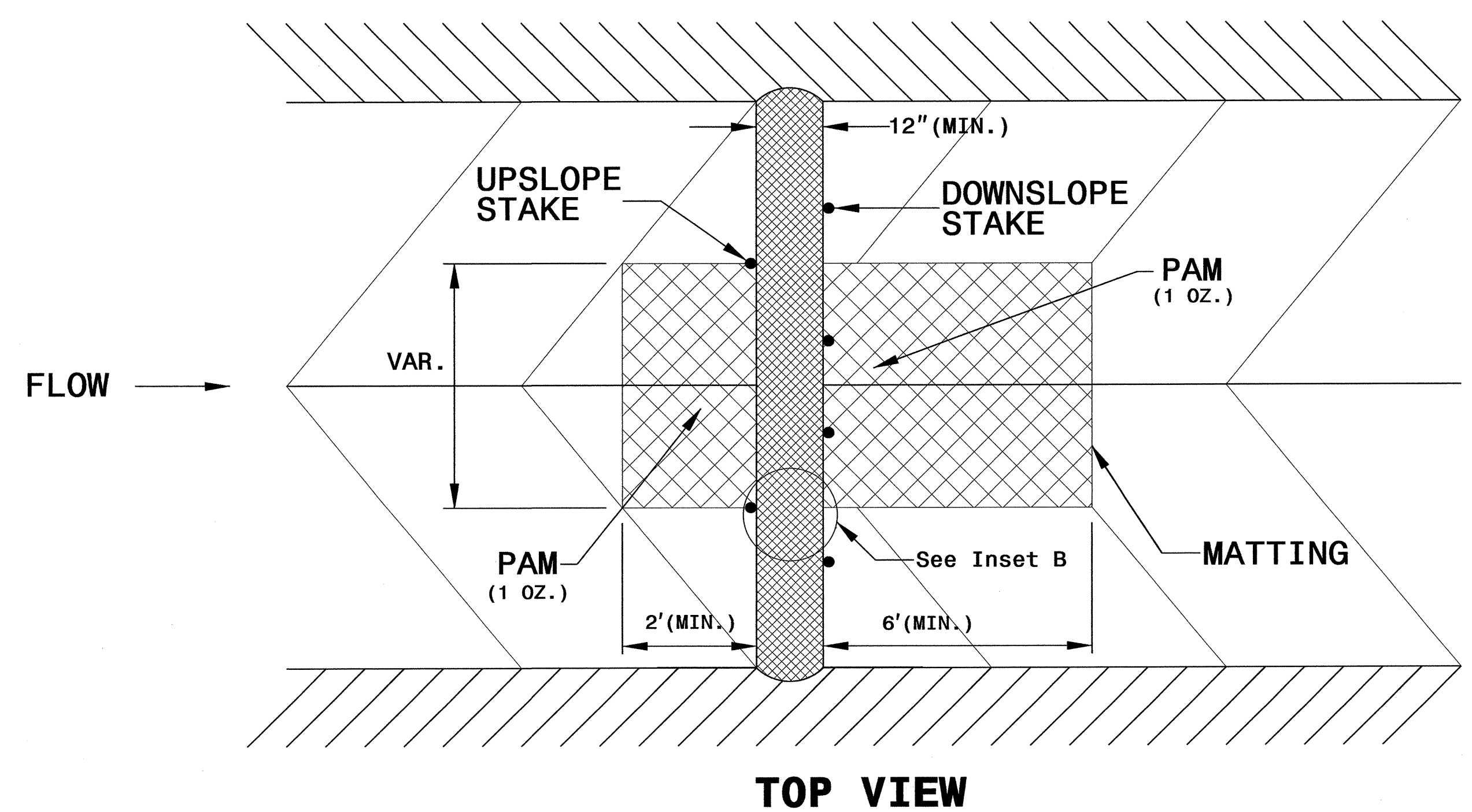
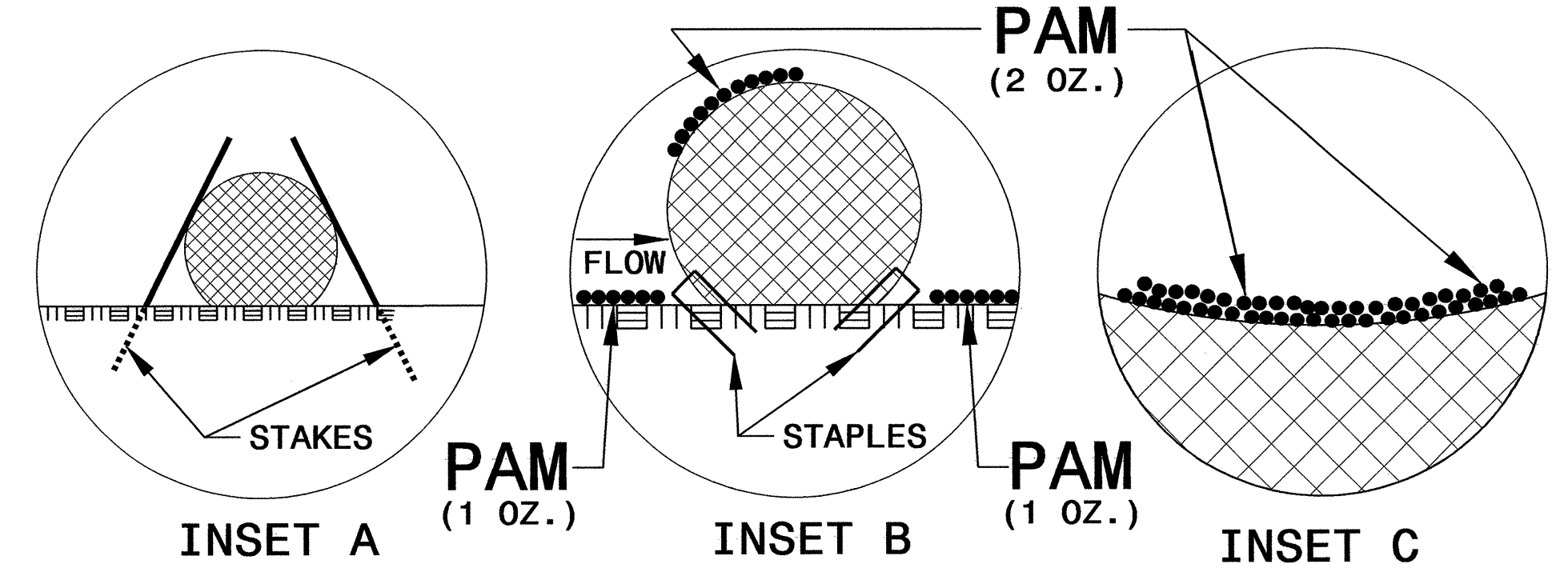
**CROSS SECTION VEE DITCH**



**CROSS SECTION TRAPEZOIDAL DITCH**

**NOTES:**

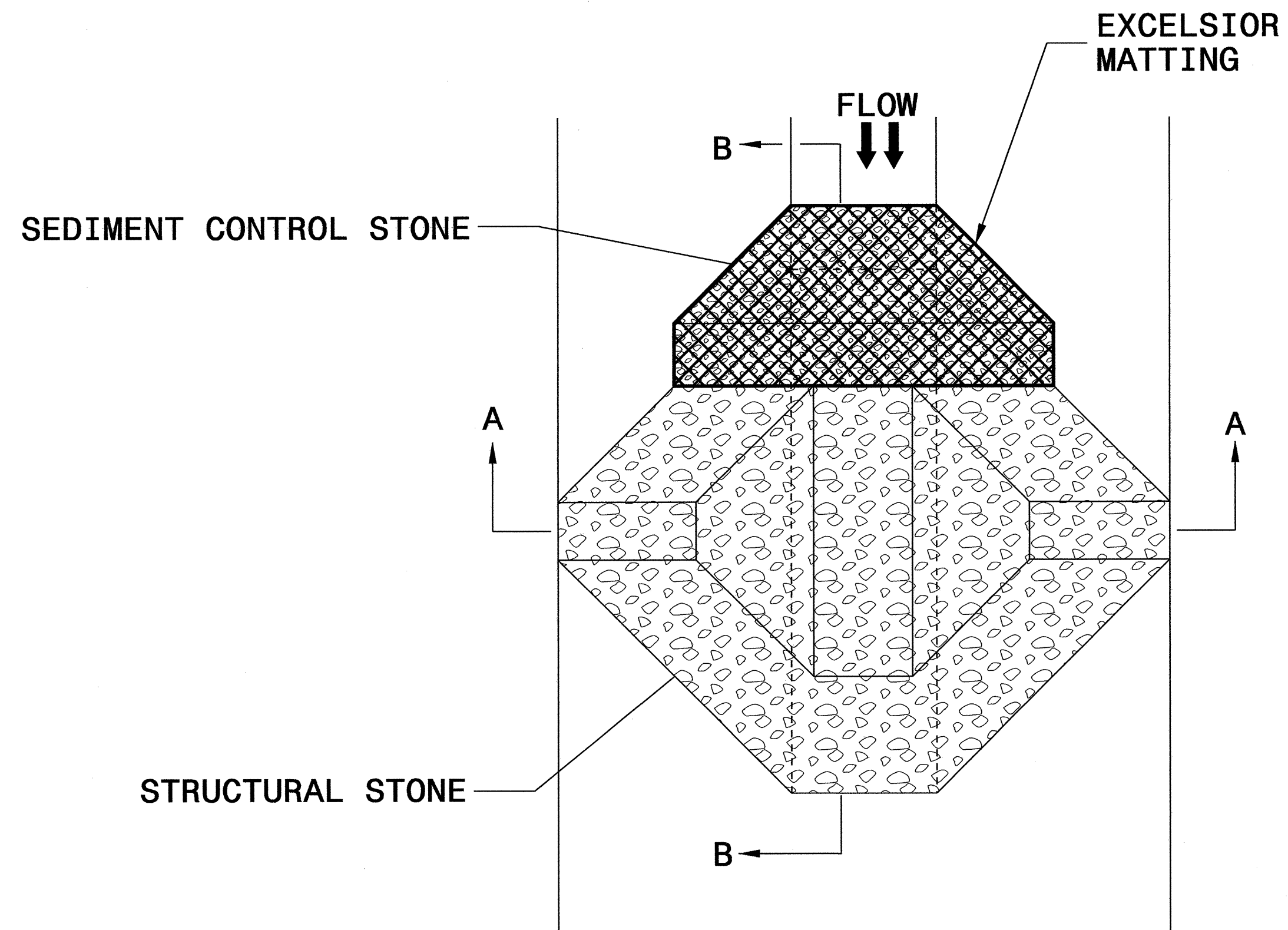
- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.
- PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.
- INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



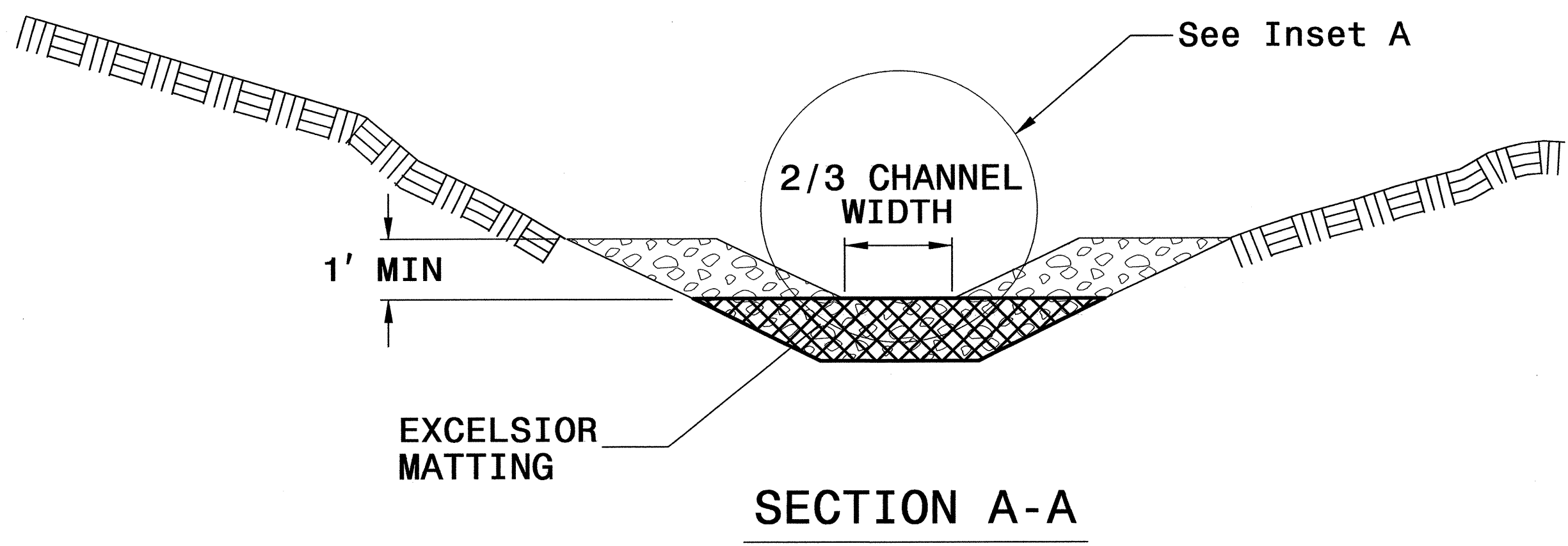
**TOP VIEW**

PROJECT REFERENCE NO. B-4554	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN



SECTION A-A

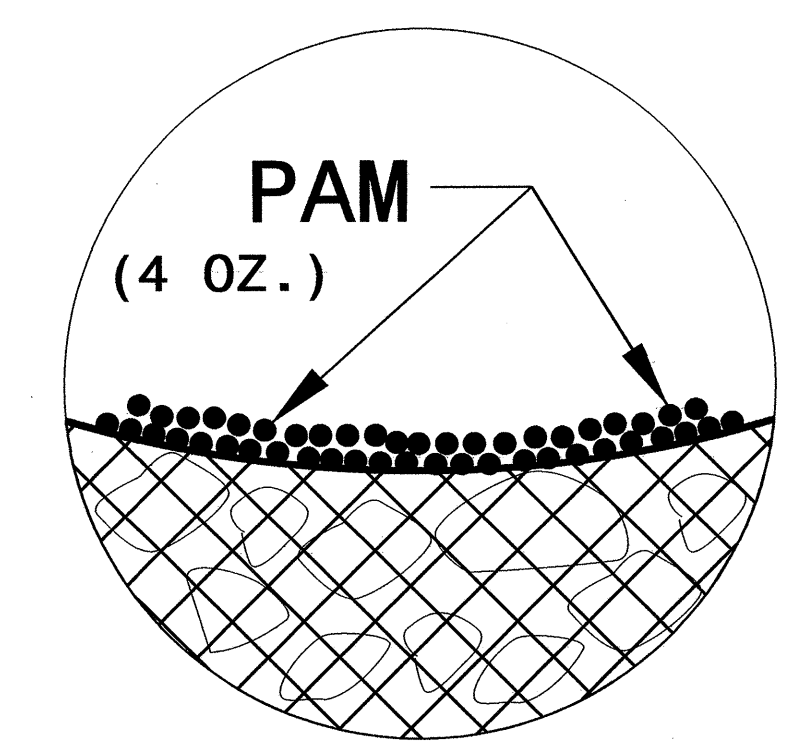
**NOTES:**

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

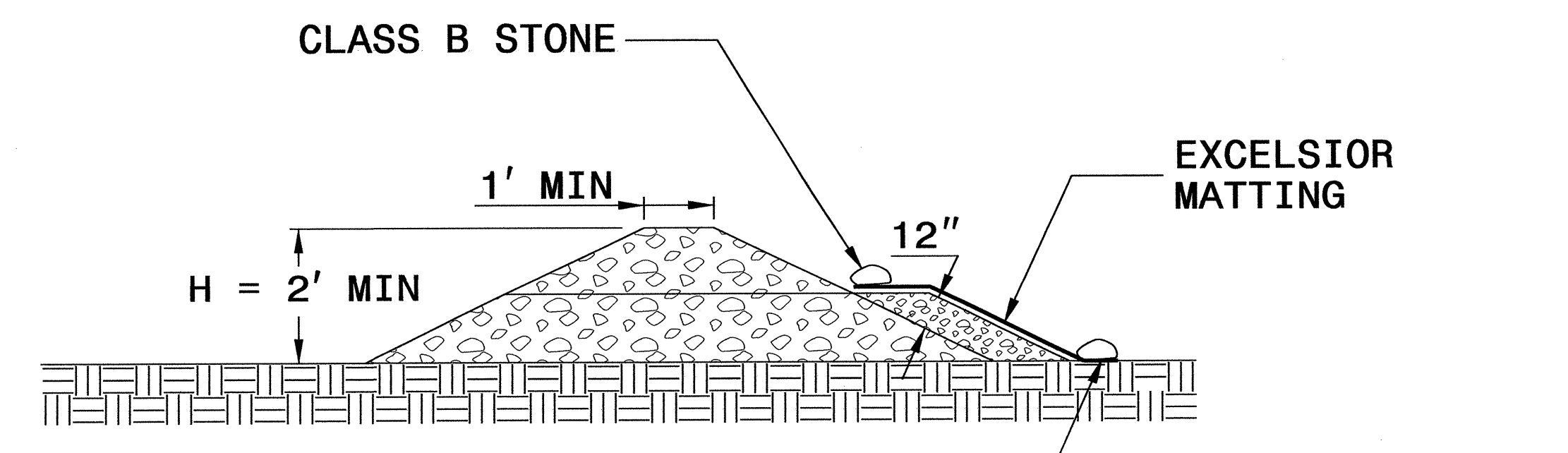
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION B-B

NOT TO SCALE



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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PROJECT REFERENCE NO. <i>B-4554</i>	SHEET NO. <i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# ***SOIL STABILIZATION TIMEFRAMES***

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.



PROJECT REFERENCE NO.	SHEET NO.
<b>B-4554</b>	EC-4/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

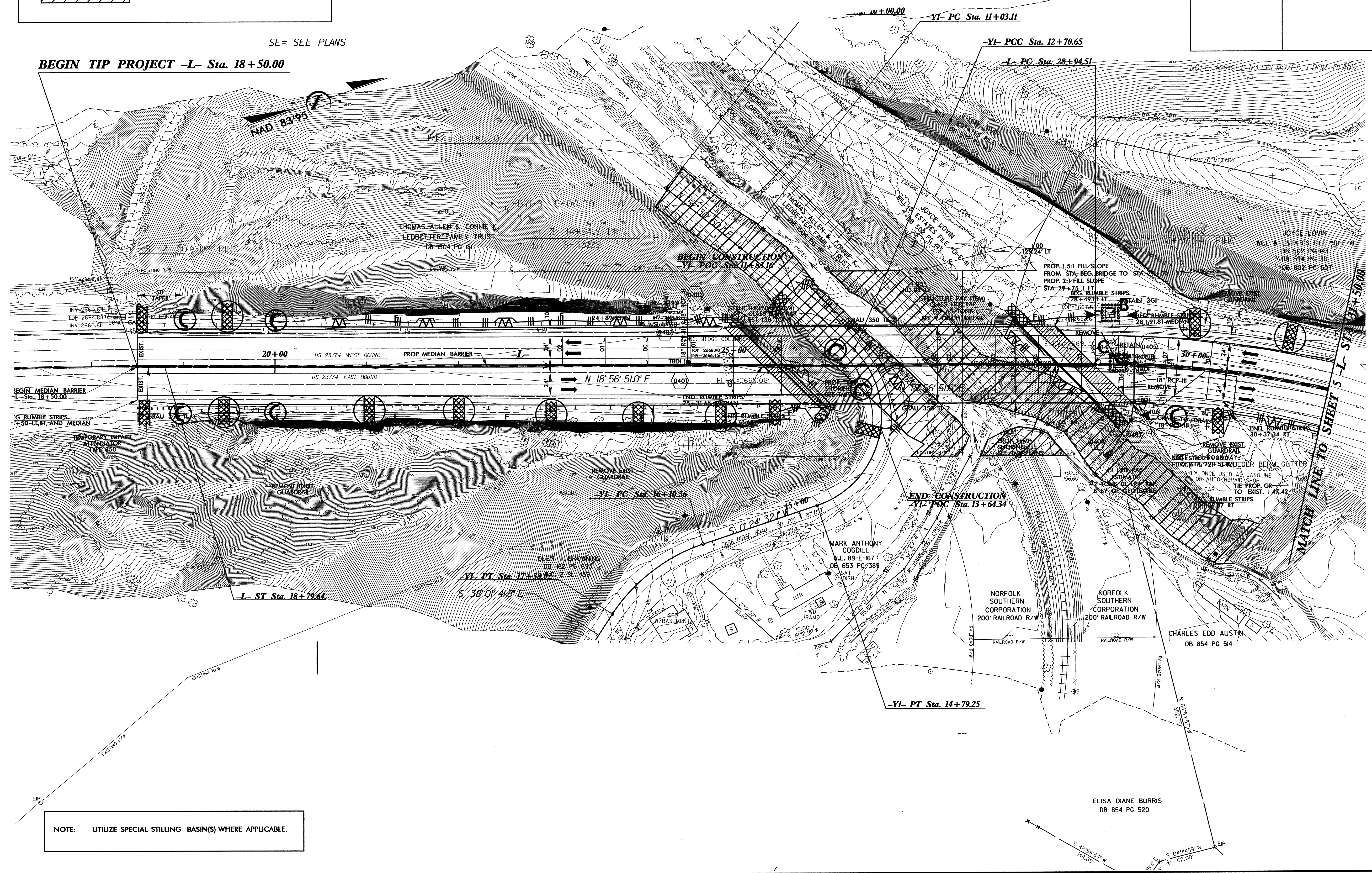
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

 ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

SE = SEE PLANS

**BEGIN TIP PROJECT -L- Sta. 18+50.00**



REVISIONS

NOTE: UTILIZE SPECIAL STILLING BASIN(S) WHERE APPLICABLE.

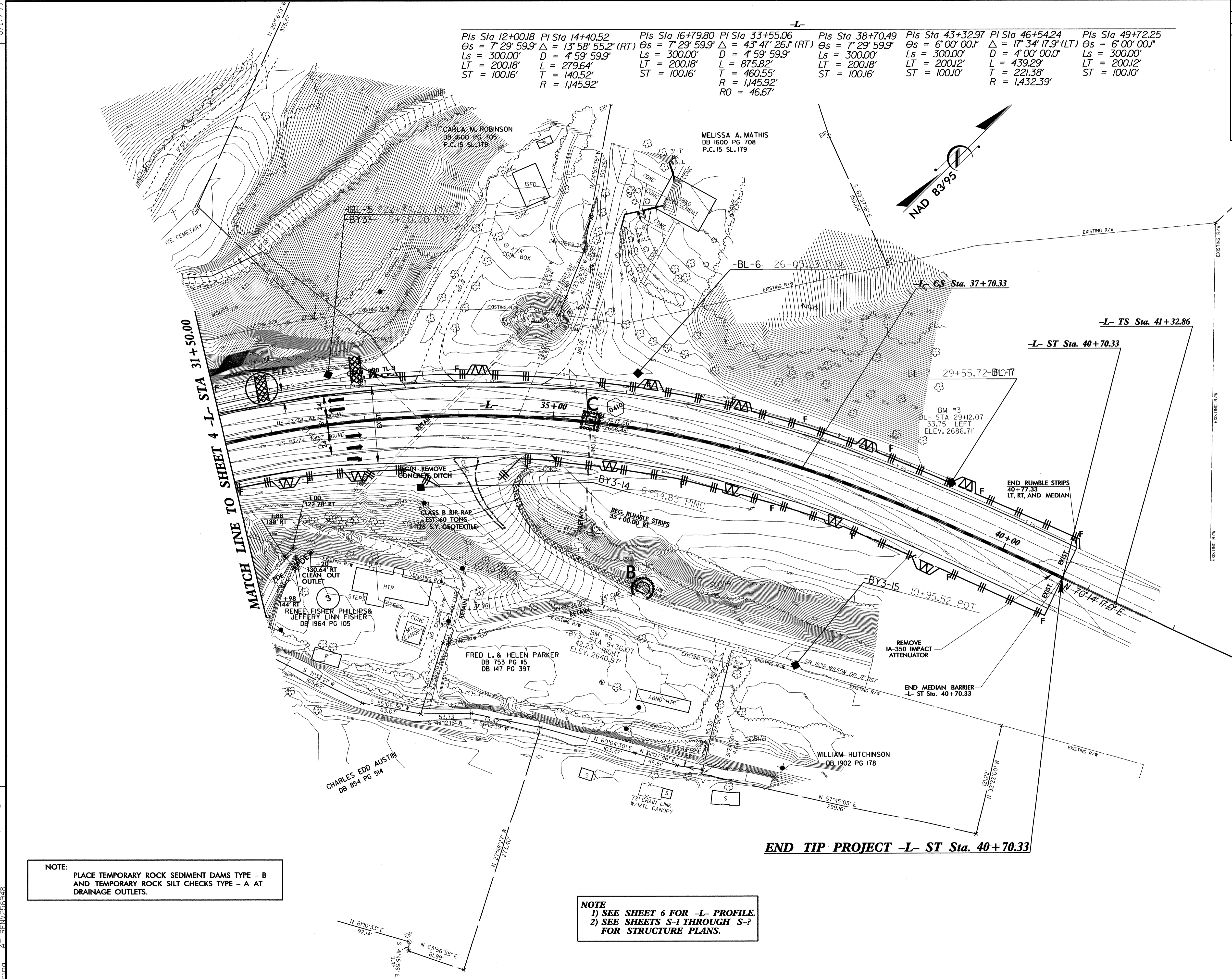
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 PROJECT NO.: B-4554-EC-CONST.4



PROJECT REFERENCE NO.	SHEET NO.
<b>B-4554</b>	EC-5/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 5

Pls Sta	PI Sta	Pls Sta	PI Sta	Pls Sta	PI Sta	Pls Sta	PI Sta	Pls Sta
12+00.18	14+40.52	16+79.80	33+55.06	38+70.49	43+32.97	46+54.24	49+72.25	
$\Theta_s = 7^\circ 29' 59.9''$	$\Delta = 13^\circ 58' 55.2''$ (RT)	$\Theta_s = 7^\circ 29' 59.9''$	$\Delta = 43^\circ 47' 26.1''$ (RT)	$\Theta_s = 7^\circ 29' 59.9''$	$\Theta_s = 6^\circ 00' 00.1''$	$\Delta = 17^\circ 34' 17.9''$ (LT)	$\Theta_s = 6^\circ 00' 00.1''$	
$L_s = 300.00'$	$D = 4^\circ 59' 59.9''$	$L_s = 300.00'$	$D = 4^\circ 59' 59.9''$	$L_s = 300.00'$	$L_s = 300.00'$	$D = 4^\circ 00' 00.0''$	$L_s = 300.00'$	
$LT = 200.18'$	$L = 279.64'$	$LT = 200.18'$	$L = 279.64'$	$LT = 200.18'$	$L = 875.82'$	$L = 439.29'$	$LT = 200.12'$	
$ST = 100.16'$	$T = 140.52'$	$ST = 100.16'$	$T = 460.55'$	$ST = 100.16'$	$ST = 100.10'$	$T = 221.38'$	$ST = 100.10'$	
	$R = 1,145.92'$		$R = 1,145.92'$			$R = 1,432.39'$		



NOTE:  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
DRAINAGE OUTLETS.

NOTE  
1) SEE SHEET 6 FOR -L- PROFILE.  
2) SEE SHEETS S-1 THROUGH S-?  
FOR STRUCTURE PLANS.

REVISIONS

8/17/99  
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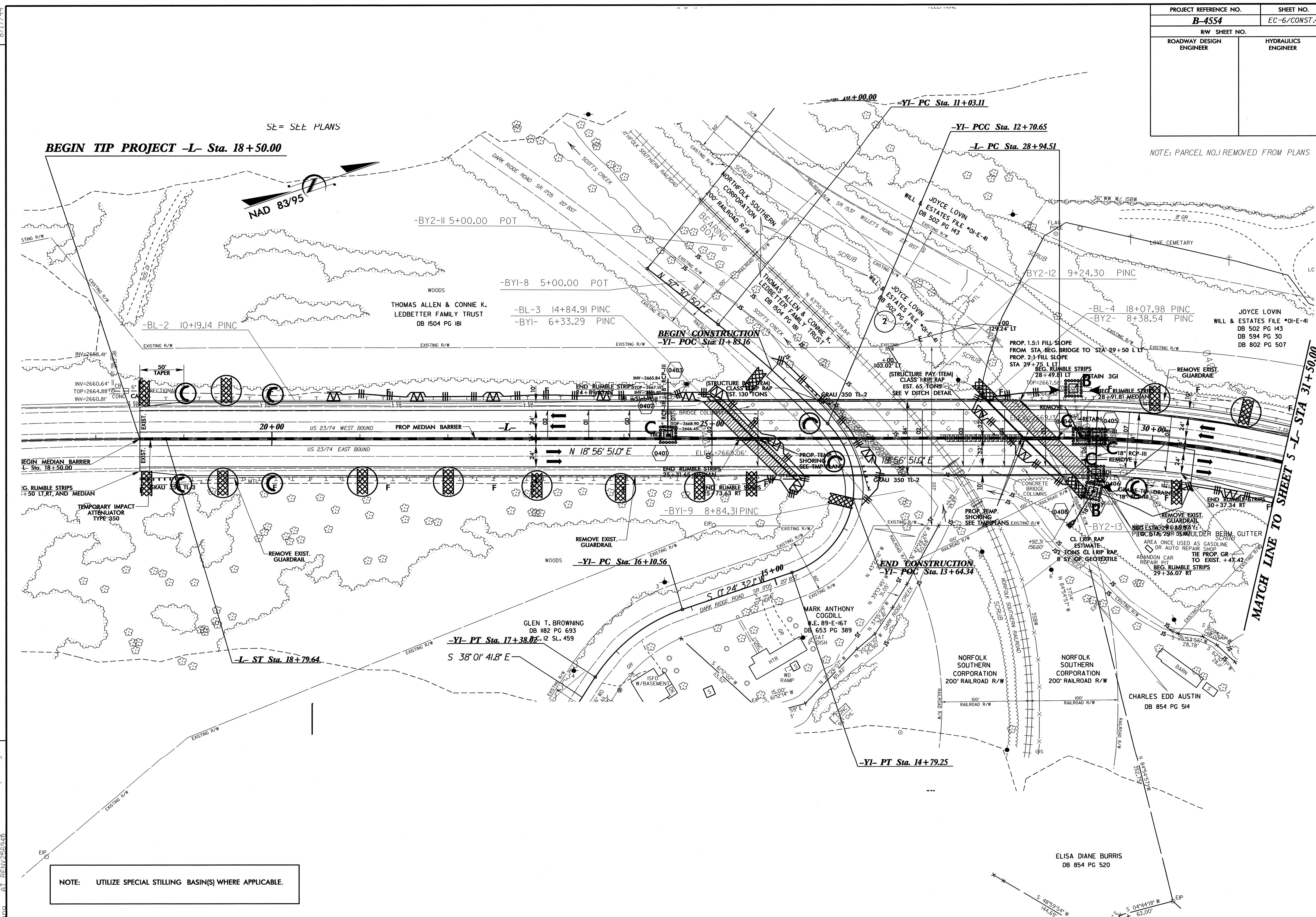
MATCH LINE TO SHEET 4 -L- STA 31+50.00

END TIP PROJECT -L- ST Sta. 40+70.33



PROJECT REFERENCE NO.	SHEET NO.
<b>B-4554</b>	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE: PARCEL NO.1 REMOVED FROM PLANS



NOTE: UTILIZE SPECIAL STILLING BASIN(S) WHERE APPLICABLE.

REVISIONS

8/17/99

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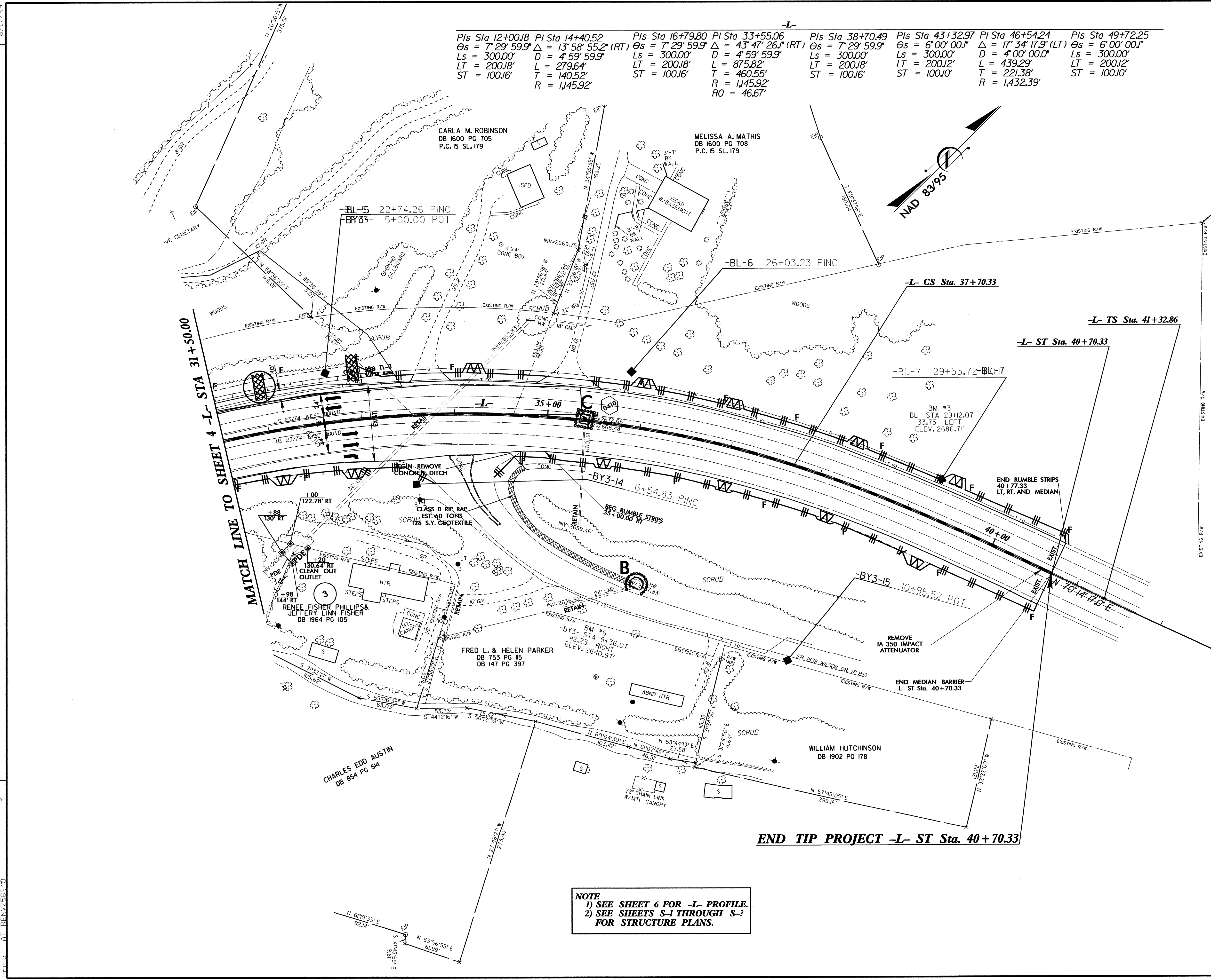


PROJECT REFERENCE NO.	SHEET NO.
<b>B-4554</b>	EC-7/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Pls Sta 12+00.18 PI Sta 14+40.52  $\theta_s = 7^\circ 29' 59.9''$   $\Delta = 13^\circ 58' 55.2''$  (RT)  $L_s = 300.00'$   $D = 4^\circ 59' 59.9''$   $LT = 200.18'$   $ST = 100.16'$   $T = 140.52'$   $R = 1,145.92'$   
 Pls Sta 16+79.80 PI Sta 33+55.06  $\theta_s = 7^\circ 29' 59.9''$   $\Delta = 43^\circ 47' 26.1''$  (RT)  $L_s = 300.00'$   $D = 4^\circ 59' 59.9''$   $LT = 200.18'$   $L = 875.82'$   $T = 460.55'$   $ST = 100.16'$   $R = 1,145.92'$   $RO = 46.67'$   
 Pls Sta 38+70.49 PI Sta 43+32.97  $\theta_s = 7^\circ 29' 59.9''$   $\Delta = 6^\circ 00' 00.1''$   $L_s = 300.00'$   $D = 4^\circ 00' 00.0''$   $LT = 200.12'$   $ST = 100.10'$   
 Pls Sta 46+54.24 PI Sta 49+72.25  $\theta_s = 6^\circ 00' 00.1''$   $\Delta = 17^\circ 34' 17.9''$  (LT)  $L_s = 300.00'$   $D = 4^\circ 00' 00.0''$   $LT = 200.12'$   $L = 439.29'$   $T = 221.38'$   $ST = 100.10'$   $R = 1,432.39'$

REVISIONS

8/17/99  
 25 FEB-2014 15:03  
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 25 FEB-2014 15:03  
 D:\env\proj\comp\B-4554-EC.pst\5.dgn



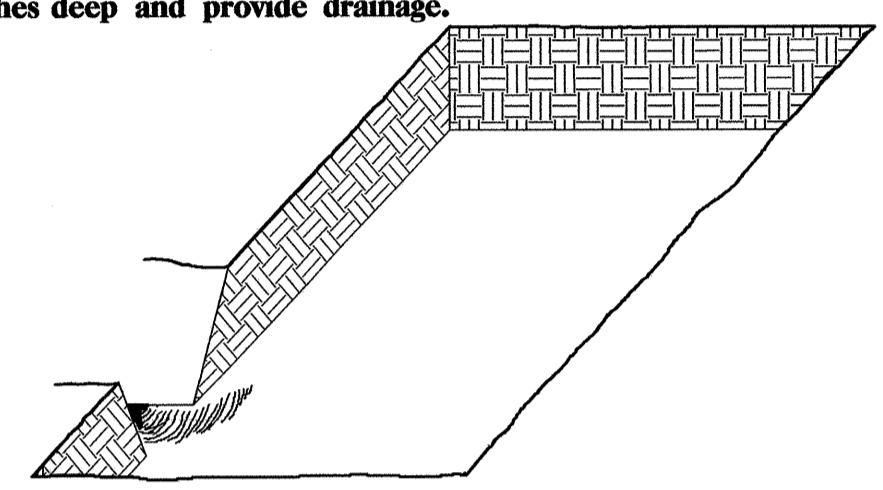
**NOTE**  
 1) SEE SHEET 6 FOR -L- PROFILE.  
 2) SEE SHEETS S-1 THROUGH S-7 FOR STRUCTURE PLANS.

## PLANTING DETAILS

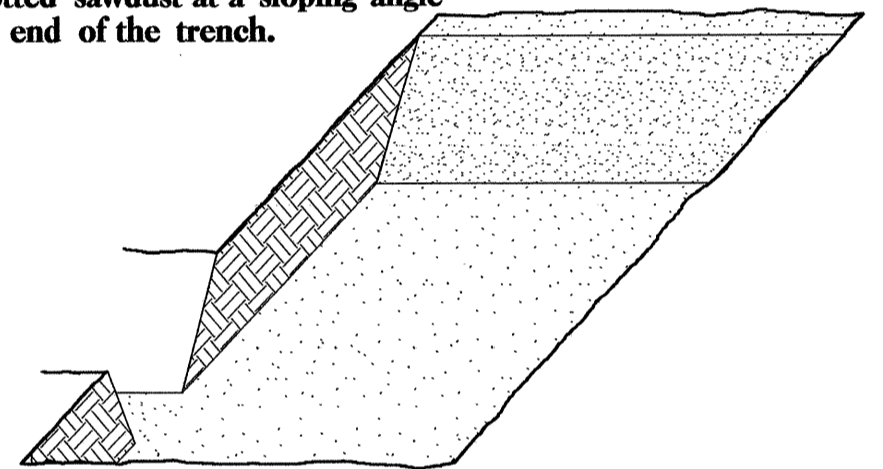
### SEEDLING / LINER BAREROOT PLANTING DETAIL

#### HEALING IN

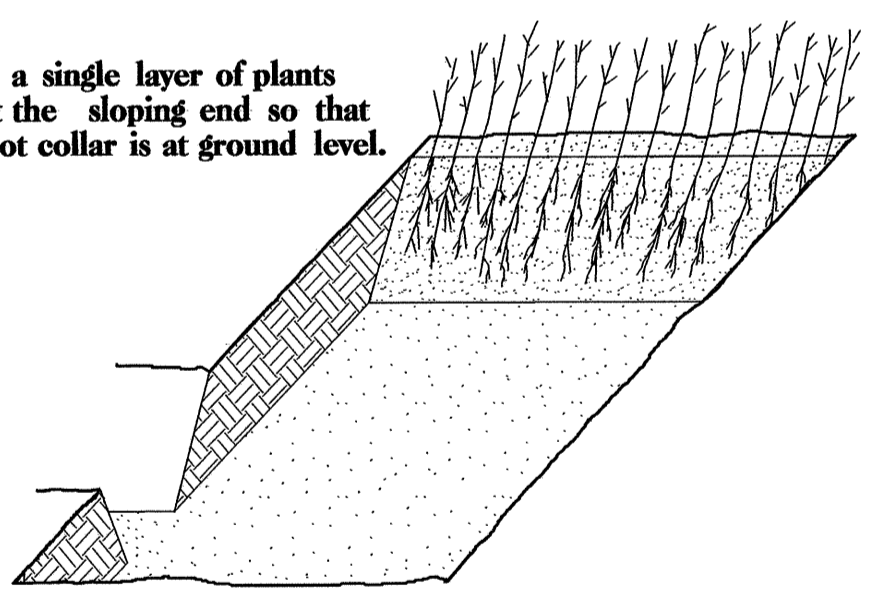
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



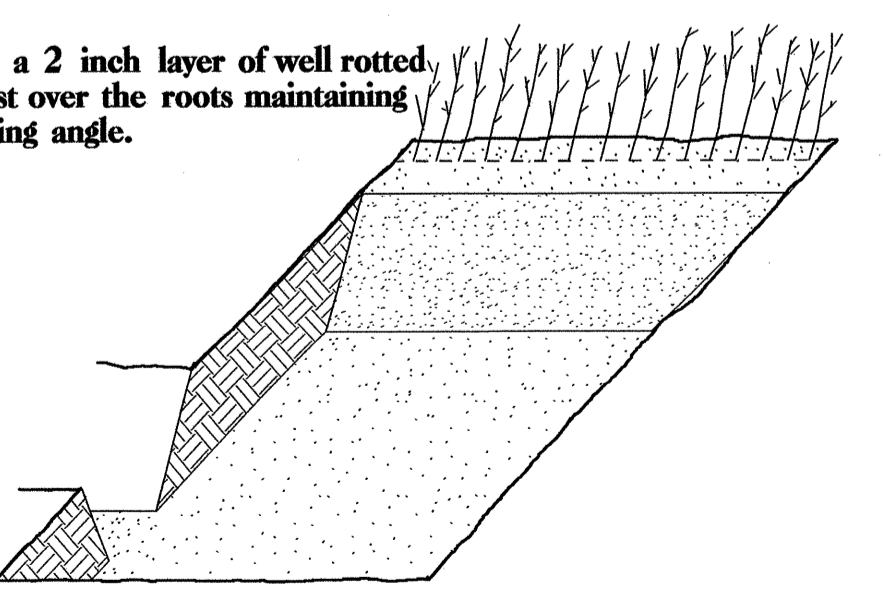
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

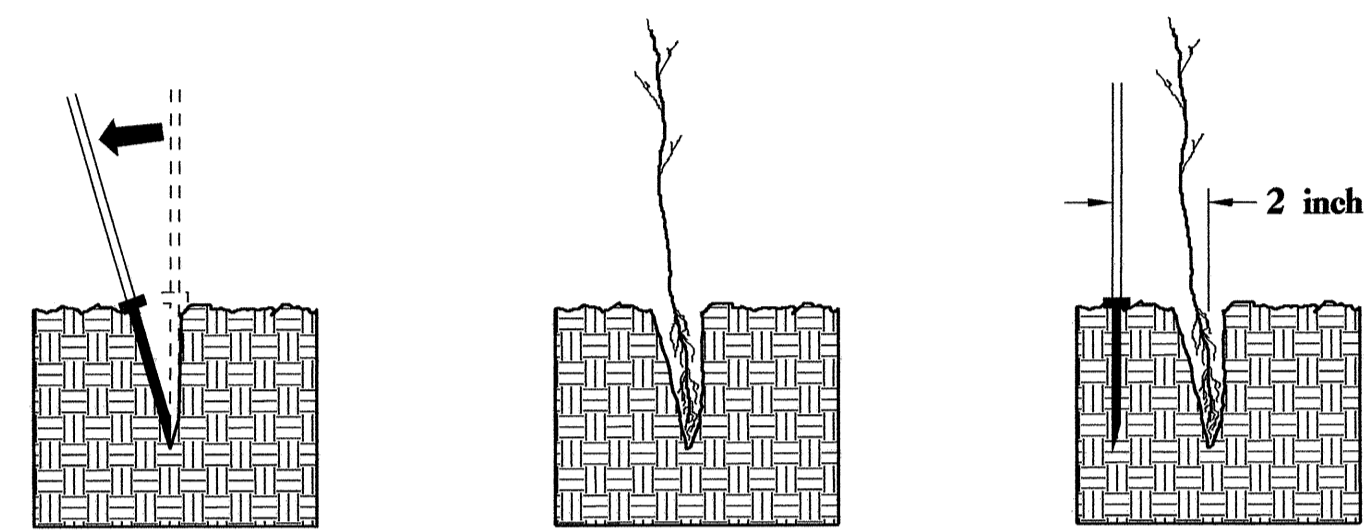


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

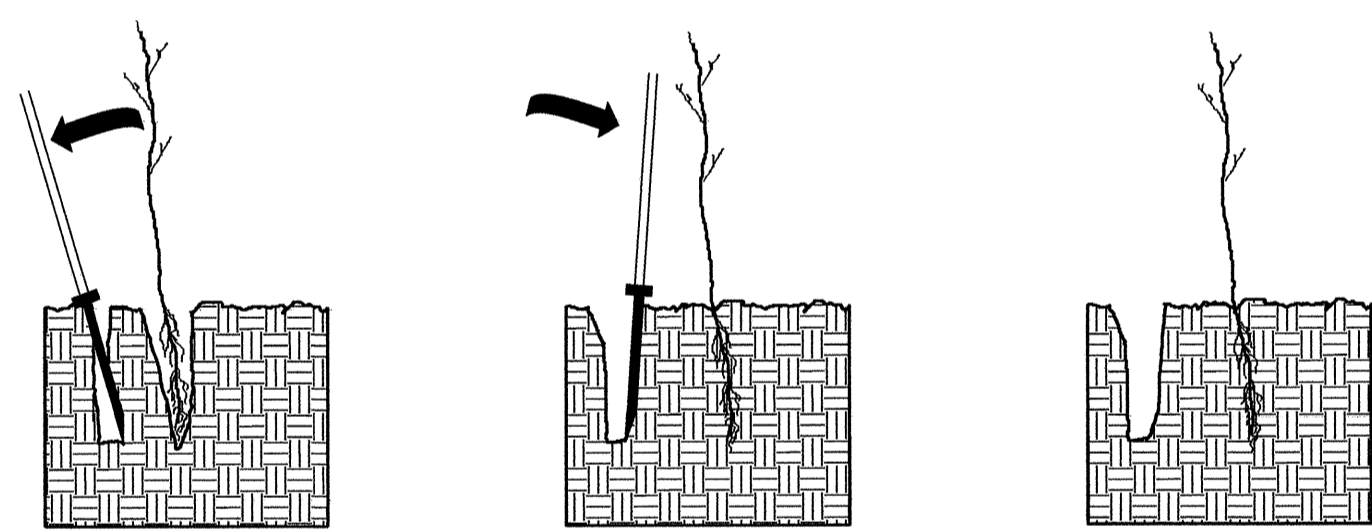


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

#### DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



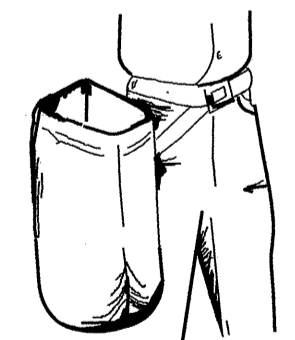
1. Insert planting bar as shown and pull handle toward planter.
2. Remove planting bar and place seedling at correct depth.
3. Insert planting bar 2 inches toward planter from seedling.



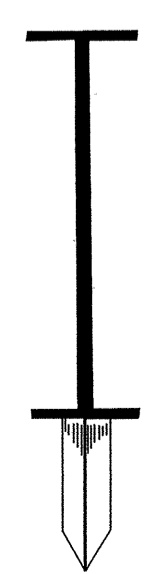
4. Pull handle of bar toward planter, firming soil at bottom.
5. Push handle forward firming soil at top.
6. Leave compaction hole open. Water thoroughly.

#### PLANTING NOTES:

**PLANTING BAG**  
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



**KBC PLANTING BAR**  
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



**ROOT PRUNING**  
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

## REFORESTATION

- TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

#### REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

33% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in BR
33% LIRIODENDRON TULIPIFERA	YELLOW POPLAR	12 in - 18 in BR
34% QUERCUS RUBRA	NORTHERN RED OAK	12 in - 18 in BR




T.I.P.: B-4554

CONTRACT:

**STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION**

**SIGNING PLAN  
JACKSON COUNTY**

**LOCATION: BRIDGE NO. 145 ON US 23-74 OVER SR 1705  
SOUTHERN RAILROAD AND SCOTT CREEK**

TIP NO. B-4554	SHEET NO. SIGN-1
APPROVED: <i>Rdw. 17</i>	
DATE: 2/25/14	
	

**SUMMARY OF QUANTITIES**

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	194	L.F.
4102000000	904	SIGN ERECTION, TYPE E	5	EA.
4096000000	904	SIGN ERECTION, TYPE D	2	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	5	EA.
4238000000	907	DISPOSAL OF SIGN, D, E OR F	1	EA.

**PROJECT NOTES**

- 1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL
- 2 DISPOSAL OF SIGN, D, E OR F

**GENERAL NOTES**

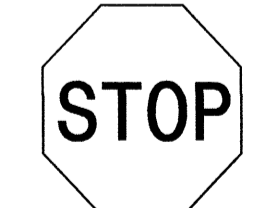

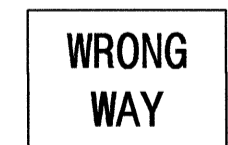

- SIGNS FURNISHED BY STATE
- ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TOW U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
- IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

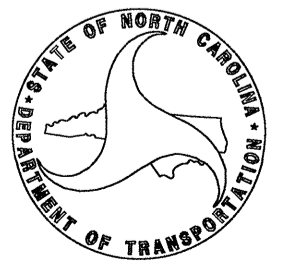
**ROADWAY STANDARD DRAWING**

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

**TYPE E SIGNS**

<p>(401) QUANTITY REQ'D <u>2</u></p> <div style="text-align: center;">  <p>36 X 36 W1-4R</p> </div> <p style="font-size: x-small;">ONE "U" POST PER SIGN</p>	<p>(402) QUANTITY REQ'D <u>1</u></p> <div style="text-align: center;">  <p>54 X 18 R6-1 (R)</p> </div> <p style="font-size: x-small;">TWO "U" POSTS PER SIGN</p>	<p>(403) QUANTITY REQ'D <u>1</u></p> <div style="text-align: center;">  <p>42 X 30 R5-1a</p> </div> <p style="font-size: x-small;">ONE "U" POST PER SIGN</p>	<p>(404) QUANTITY REQ'D <u>1</u></p> <div style="text-align: center;">  <p>36 X 36 R3-2</p> </div> <p style="font-size: x-small;">ONE "U" POST PER SIGN</p>
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PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT		
K. JORDAN	SIGNING & DELINEATION REGIONAL ENGINEER	
M. TRACEY	SIGNING & DELINEATION PROJECT DESIGN ENGINEER	

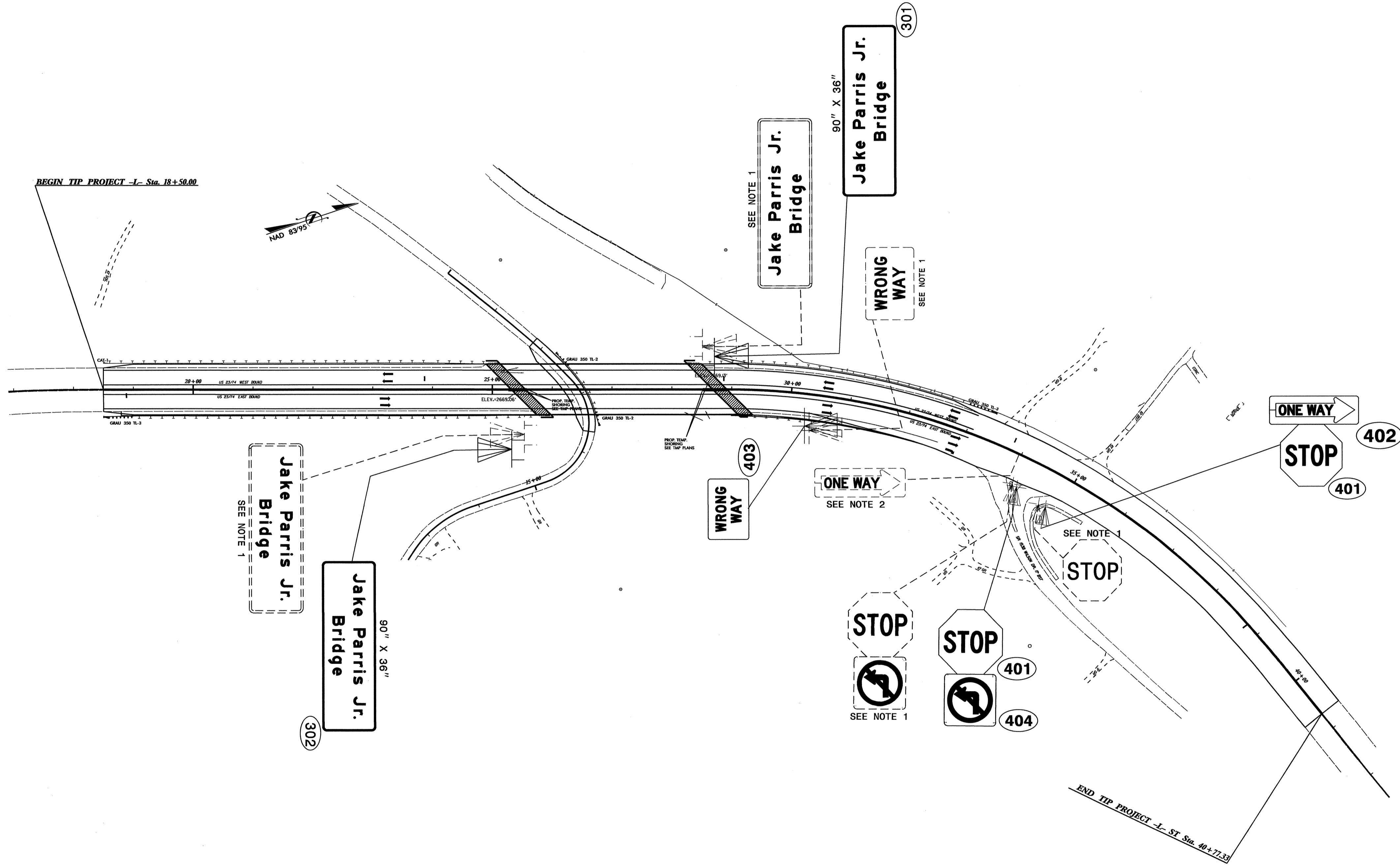
**INDEX**

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET
SIGN-2	SIGN DESIGNS
SIGN-3	SIGN PLAN SHEET





TIP NO. B-4554	SHEET NO. SIGN-3
APPROVED: <i>[Signature]</i>	
DATE: 2/25/14	
SEAL	
	



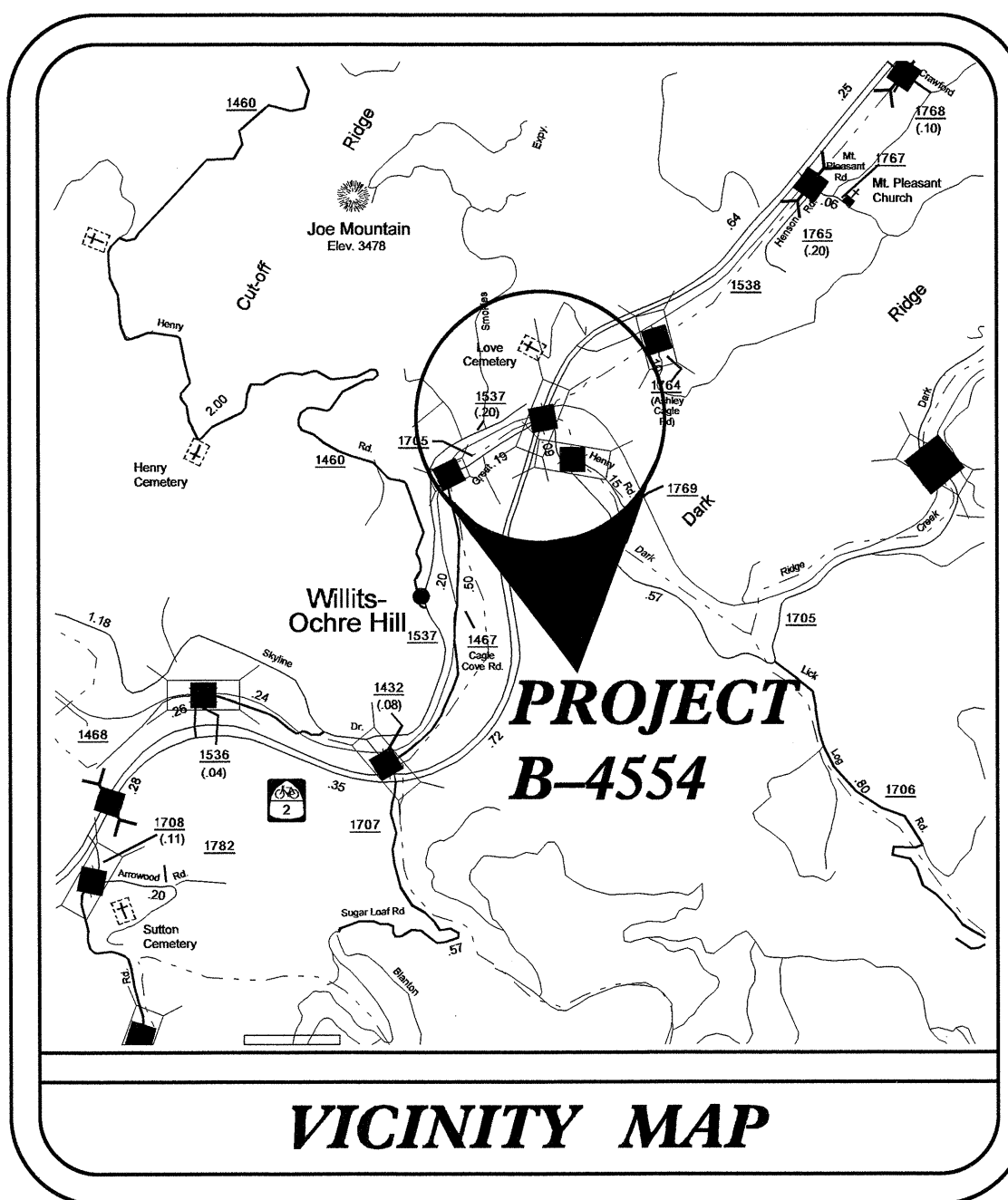
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**SIGN DETAIL SHEET**

03/08/99

See Sheet I-A For Index of Sheets

T.I.P. NO.	SHEET NO.
B-4554	UO-1

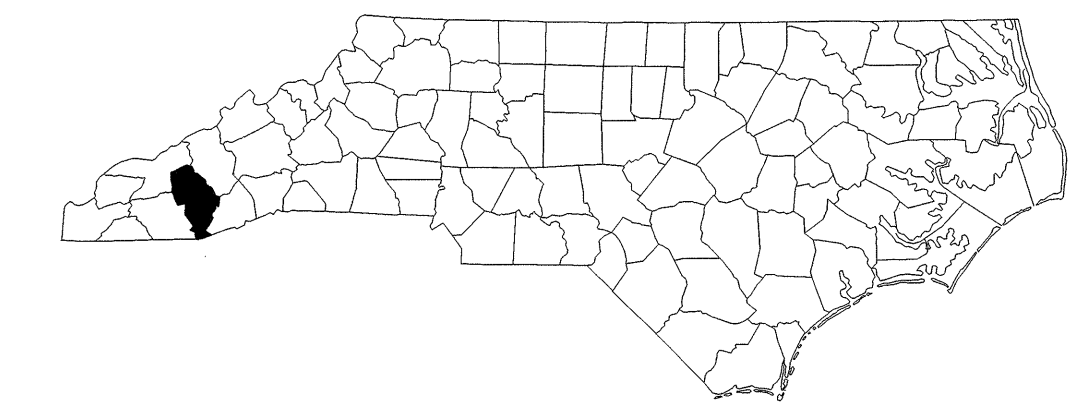


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

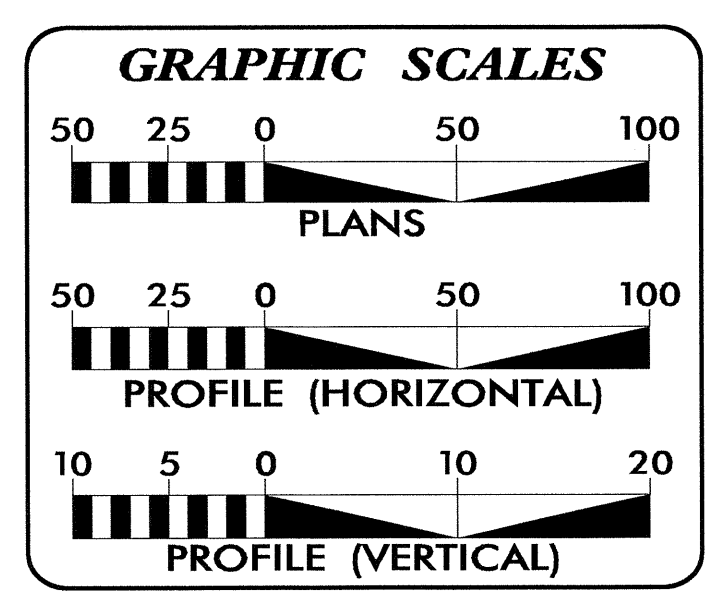
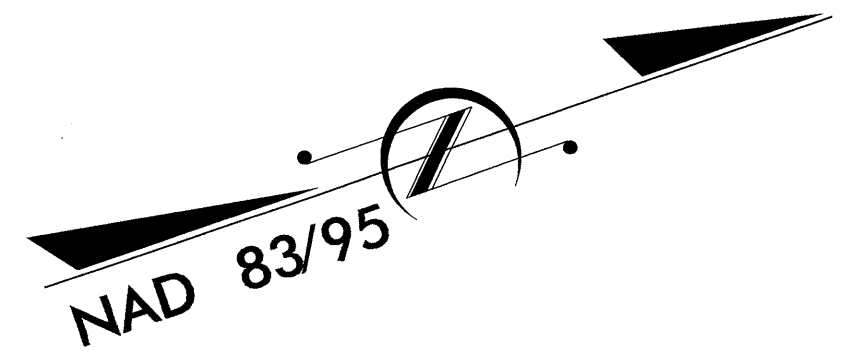
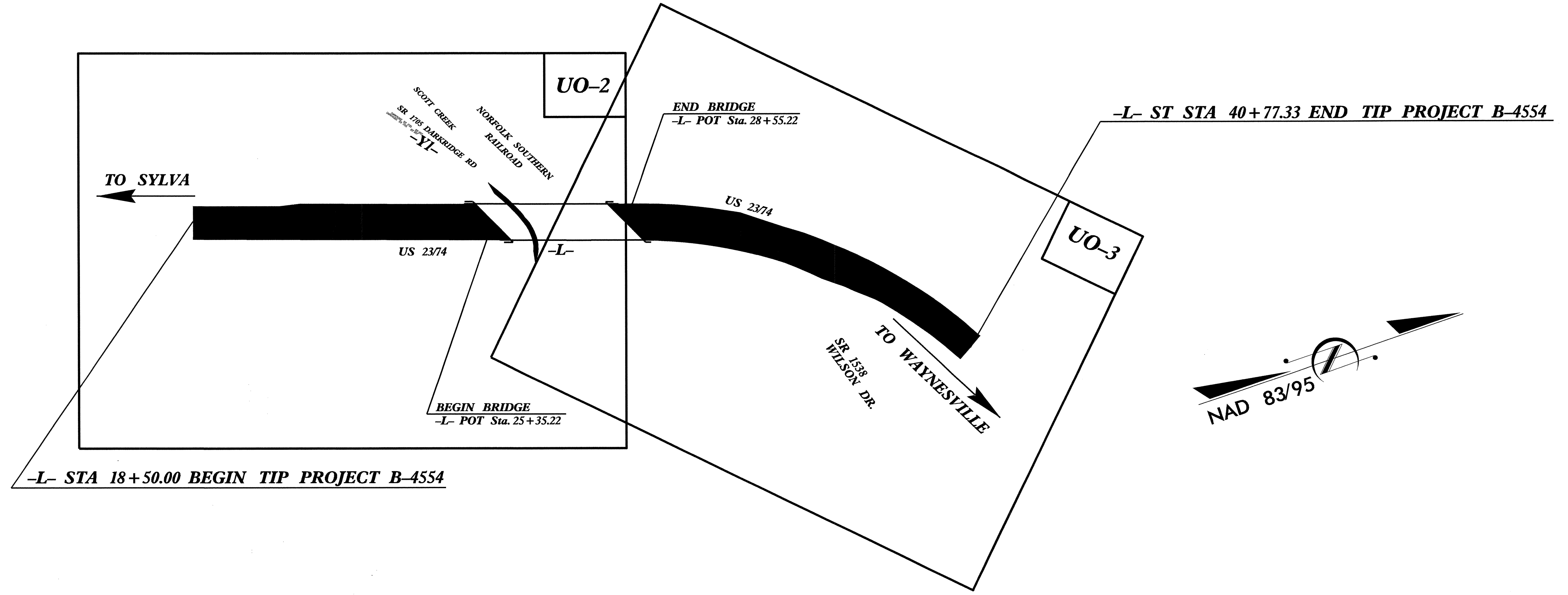
**UTILITIES BY OTHERS PLANS  
JACKSON COUNTY**

**LOCATION: BRIDGE NO. 145 ON US 23-74 OVER SR 1705,  
SOUTHERN RAILROAD AND SCOTT CREEK.**

**TYPE OF WORK: AERIAL POWER /TELEPHONE AND GAS**



**TIP PROJECT: B-4554**



**INDEX OF SHEETS**

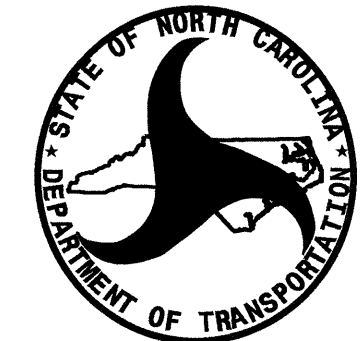
SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2, UO-3	UTILITIES BY OTHERS PLAN SHEETS

- UTILITY OWNERS ON PROJECT**
- (1) FRONTIER COMMUNICATIONS (TELEPHONE)
  - (2) DUKE ENERGY (POWER DISTRIBUTION)
  - (3) PSNC ENERGY - (GAS)
  - (4) MCNC - (FIBER OPTIC COMMUNICATION)



**Cardno**  
CARDNO (NC), INC.  
7606 WHITEHALL EXECUTIVE CENTER DR  
SUITE 800  
CHARLOTTE NC 28273  
PHONE (704) 927-9700  
FAX (704) 529-3272

Thomas J. Yocom, P.L.S. SENIOR PROJECT MANAGER



PREPARED IN THE OFFICE OF:  
**DIVISION OF HIGHWAYS  
UTILITIES UNIT  
UTILITIES ENGINEERING**

1555 MAIL SERVICES CENTER  
RALEIGH NC 27699-1555  
PHONE (919) 707-6690  
FAX (919) 250-4151

Roger Worthington, P.E. UTILITIES SECTION ENGINEER  
Carl Barclay, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER  
Bo Hemphill, P.E. UTILITIES PROJECT DESIGNER

03-APR-2014 14:41 R:\Utilities\Engineering\UB0\Pro\B4554\_ut\_tsh\_u01.dgn \$\$\$USERNAME\$\$\$



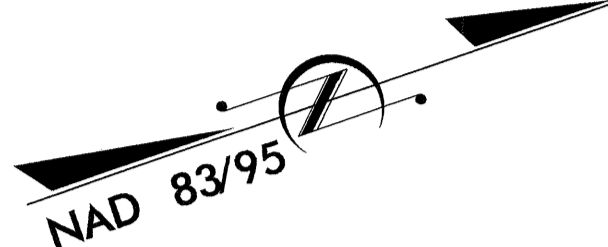
**UTILITIES BY OTHERS**

**NOTE:**  
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

VERIZON BUSINESS  
1000 SAINT ALBANS DRIVE, SUITE 300  
RALEIGH, N.C. 27603  
POWER  
DUKE ENERGY CORPORATION  
526 S. CHURCH STREET  
PO BOX 1006, ECHOO  
CHARLOTTE, N.C. 28202  
GAS  
PUBLIC SERVICE CO. OF NORTH CAROLINA  
2451 SCHEFFLIN RD.  
APEX, N.C. 27502

**BEGIN TIP PROJECT -L- Sta. 18+50.00**

RUN



RETAIN 600' OF EXIST. COPPER AND FIBER ROUTE REQUEST NDOT TO MARK NEW GUARD RAIL LOCATION FRONTIER TO ADJUST BURIED CABLE(S) AS NEEDED

TEMPORARY BURIED 2" COPPER & FIBER CABLES -BY2-II

LASH 540' TEMP. CABLES TO EXIST. OVERHEAD

-L- PC Sta. 28+94.51

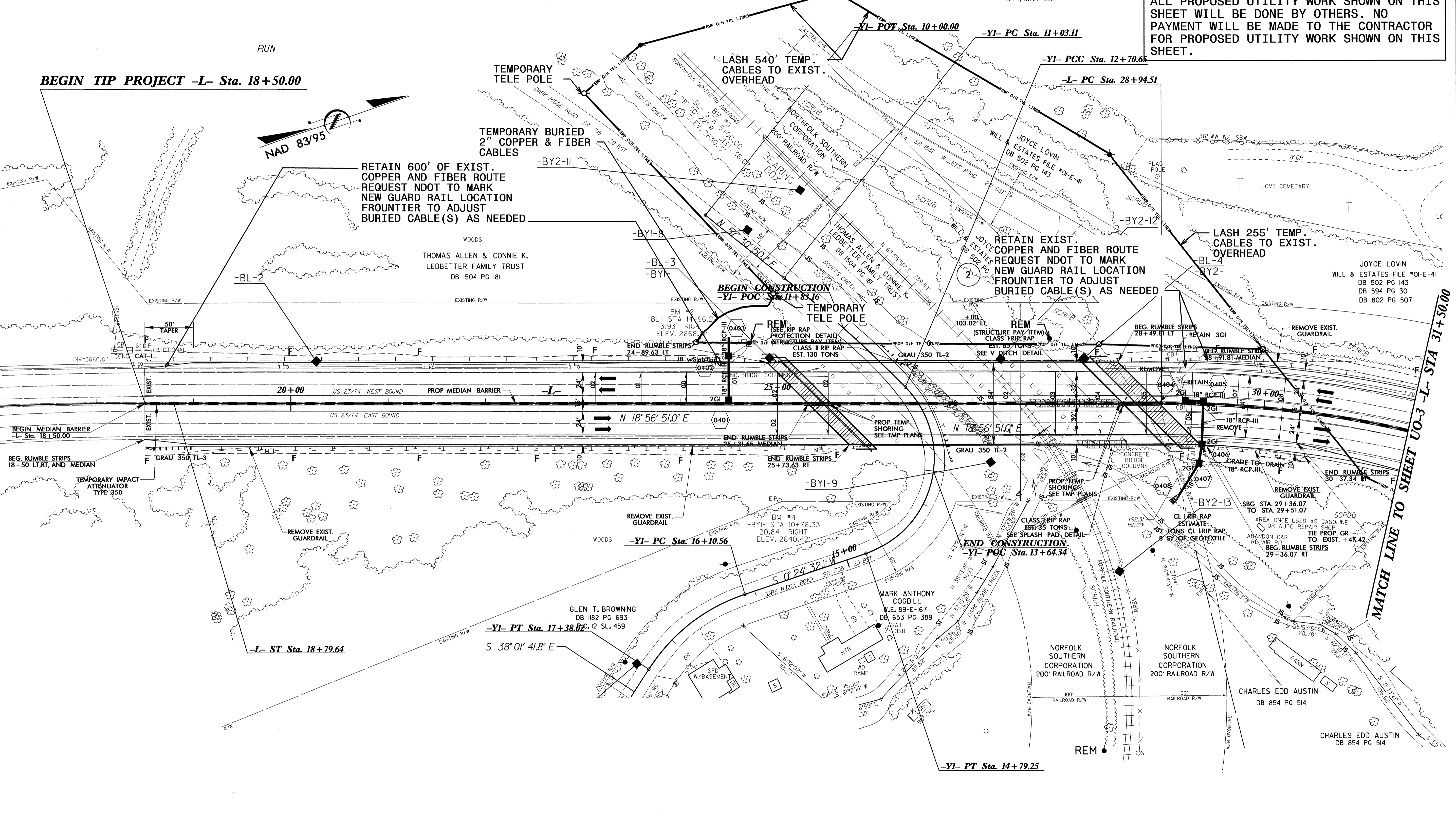
LASH 255' TEMP. CABLES TO EXIST. OVERHEAD

RETAIN EXIST. COPPER AND FIBER ROUTE REQUEST NDOT TO MARK NEW GUARD RAIL LOCATION FRONTIER TO ADJUST BURIED CABLE(S) AS NEEDED

**BEGIN CONSTRUCTION -YI- POC Sta. 11+83.16**

TEMPORARY TELE POLE

BEG. RUMBLE STRIPS 28+49.81 LT



MATCH LINE TO SHEET UO-3 -L- STA 31+50.00

5/14/09  
03-APR-2014 10:56:00 J:\B-4554\Uo-2-B.UO2.psh.dgn

**Cardno**  
CARDNO (NC), INC.  
1606 WHITEHALL EXECUTIVE CENTER DR  
SUITE 900  
CHARLOTTE NC 28273  
PHONE (704) 927-9700  
FAX (704) 529-3272

