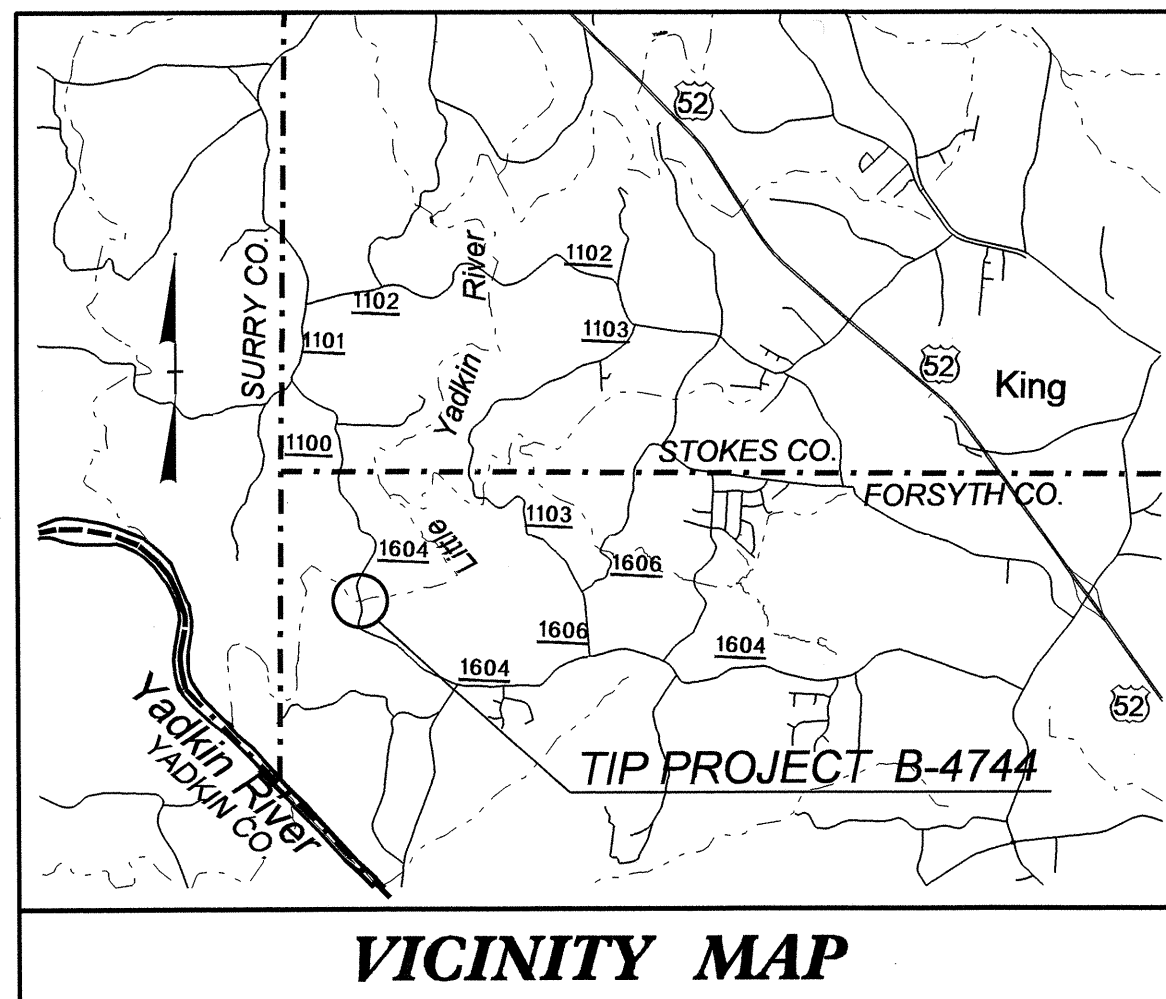


09/08/09

See Sheet 1-A For Index of Sheets



VICINITY MAP

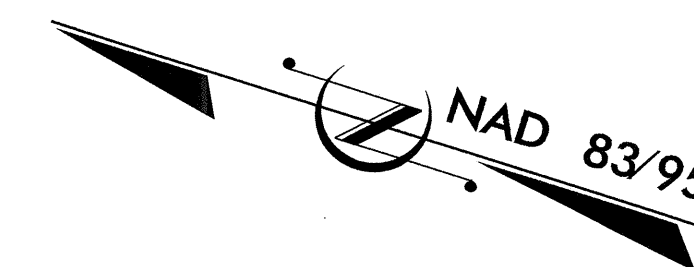
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

LOCATION: BRIDGE #15 OVER LITTLE YADKIN RIVER
ON SR 1604 (SPAINHOUR MILL RD.)

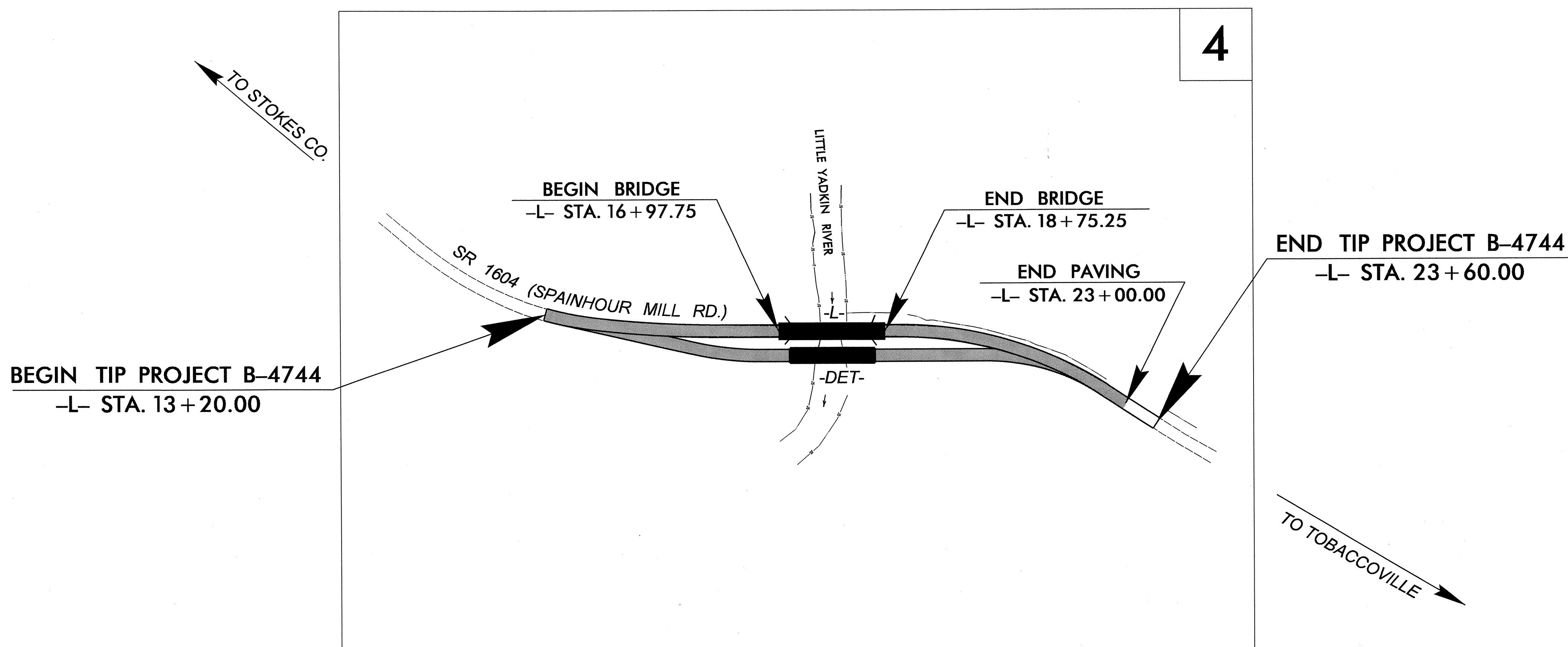
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4744	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38517.1.1	BRZ-1604(4)	P.E.	
38517.2.1	BRZ-1604(4)	RW; UTIL	
38517.3.1	BRZ-1604(4)	CONST.	



TIP PROJECT: B-4744

CONTRACT: C203039

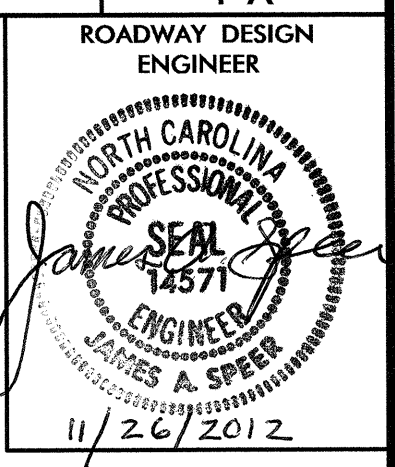


DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE K-VALUES AND ASSOCIATED NIGHTTIME SSD.

<p>GRAPHIC SCALES</p> <p>50 25 0 50 100 PLANS</p> <p>50 25 0 50 100 PROFILE (HORIZONTAL)</p> <p>10 5 0 10 20 PROFILE (VERTICAL)</p>	<p>DESIGN DATA</p> <p>ADT 2013 = 1200 VPD ADT 2035 = 1800 VPD DHV = 12 % D = 65 % T = 12 % * V = 40 MPH V_{DET} = 35 MPH * TTST 2 % DUAL 10 % FUNC CLASS = COLLECTOR SUBREGIONAL TIER</p>	<p>PROJECT LENGTH</p> <p>LENGTH ROADWAY TIP PROJECT B-4744 = 0.163 MI LENGTH STRUCTURE TIP PROJECT B-4744 = 0.034 MI TOTAL LENGTH OF TIP PROJECT B-4744 = 0.197 MI</p>	<p>Prepared in the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610</p> <p>2012 STANDARD SPECIFICATIONS</p> <p>RIGHT OF WAY DATE: JANUARY 13, 2012</p> <p>LETTING DATE: FEBRUARY 19, 2013</p> <p>JAMES A. SPEER, PE PROJECT ENGINEER</p> <p>ALLISON K. WHITE PROJECT DESIGN ENGINEER</p>	<p>HYDRAULICS ENGINEER</p> <p>PROFESSIONAL SEAL 18775 19 NOV 2012 P.E.</p> <p>ROADWAY DESIGN ENGINEER</p> <p>PROFESSIONAL SEAL 18775 11/19/12 P.E.</p>	
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02-NOV-2012 09:21 R:\Roadway\Projects\B4744_rdy_tsh.dgn \$\$\$USERNAME\$\$\$

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS INDEX OF SHEETS



INDEX OF SHEETS

Table with 2 columns: SHEET NUMBER and SHEET. Lists sheets 1 through S-1 with their respective titles.

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS EFFECTIVE: 01-17-12 REVISED: 07/30/12. GRADING AND SURFACING OR RESURFACING AND WIDENING: THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS...

STANDARD DRAWINGS

2012 ROADWAY ENGLISH STANDARD DRAWINGS. The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - 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

04/16/11

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	②③
Existing Fence Line	-x-x-x-
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	○
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	○ 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	○ RW
Proposed Right of Way Line with Concrete or Granite RW Marker	▲ RW
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	□ 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	○
Storm Sewer	-S-

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○
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	○
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	○
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	-W-
Designated U/G Water Line (S.U.E.*)	-W-
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.

SURVEY CONTROL SHEET B-4744

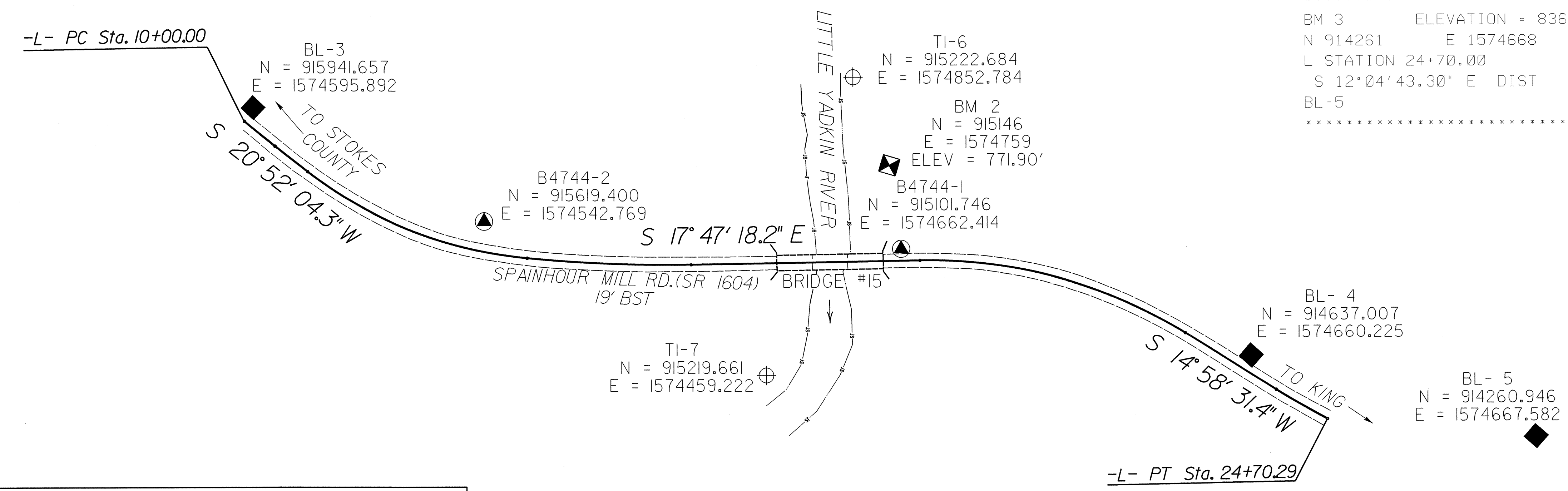
BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	BL-3	915941.6570	1574595.8920	834.78	OUTSIDE PROJECT LIMITS	
2	B4744-2	915619.4000	1574542.7690	814.25	13+42.21	37.97 LT
1	B4744-1	915101.7460	1574662.4140	781.33	18+81.76	15.37 LT
4	BL-4	914637.0070	1574660.2250	807.63	23+45.72	19.50 LT
5	BL-5	914260.9460	1574667.5820	836.51	OUTSIDE PROJECT LIMITS	

T-LINE POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
6	T1-6	915222.6840	1574852.7840	767.42	18+24.76	233.59 LT
7	T1-7	915219.6610	1574459.2220	768.75	17+07.41	142.08 RT

 BM 1 ELEVATION = 834.78
 N 915942 E 1574596
 L STATION 10+00.00 TO BM1
 S 74°41'16.23" E DIST 20.36'
 BL-3

 BM 2 ELEVATION = 771.90
 N 915146 E 1574759
 L STATION 18+69.00 122 LEFT
 R/R SPIKE SET IN BASE OF 48" FORKED
 SYCAMORE NEAR BLOCK TOBACCO BARN

 BM 3 ELEVATION = 836.51
 N 914261 E 1574668
 L STATION 24+70.00
 S 12°04'43.30" E DIST 266.00'
 BL-5



DATUM DESCRIPTION

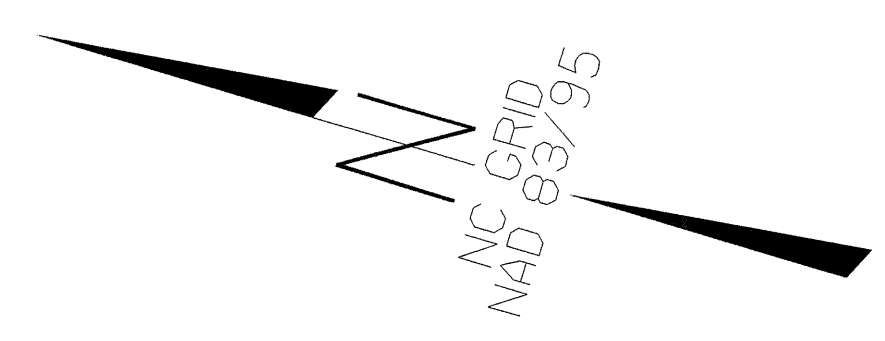
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4744-1"

WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
 NORTHING: 915101.746(±) EASTING: 1574662.414(±)
 ELEVATION: 781.33(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99999404

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4744-1" TO -L- STATION 10+00.00 IS
 N 5°49'12.19" W 849.67'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88



- NOTES:**
- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/doh/preconstruct/highway/location/project/)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 B4744_LS_CONTROL_110113.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- ▲ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION

NOTE: DRAWING NOT TO SCALE

09-OCT-2012 10:40:00 B4744-LS-1c.dgn
 11/11/2012 10:40:00 B4744-LS-1c.dgn

SURVEY CONTROL SHEET B-4744

FINAL

L

TYPE	STATION	NORTH	EAST
PC	10+00.00	915947.0339	1574576.2539
PT	10+50.00	915900.7783	1574557.2828
PC	11+02.39	915851.8202	1574538.6190
PCC	14+05.78	915553.4464	1574513.7070
PT	16+14.56	915351.4779	1574566.1480
PC	19+05.35	915074.5921	1574654.9844
PT	22+59.88	914724.9703	1574663.5687
PC	23+95.48	914593.9778	1574628.5297
PT	24+70.29	914521.0594	1574611.9197

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	14+05.78	-30.00	915559.3363	1574543.1231
L	14+05.78	30.00	915547.5565	1574484.2908
L	15+50.00	-30.00	915421.4437	1574576.3700
L	15+80.00	-52.00	915399.4387	1574605.7005
L	16+14.56	30.00	915342.3128	1574537.5823
L	16+14.56	50.00	915336.2028	1574518.5385
L	16+50.00	-67.00	915338.1988	1574640.7725
L	17+02.00	-104.00	915299.9884	1574691.8897
L	17+02.00	-57.00	915285.6298	1574647.1367
L	18+50.00	-70.00	915148.6770	1574704.7296
L	19+05.35	50.00	915059.3170	1574607.3749
L	19+05.35	30.00	915065.4270	1574626.4187
L	20+05.00	-30.00	914982.1440	1574707.3529
L	22+59.88	-30.00	914717.2181	1574692.5498
L	22+59.88	30.00	914732.7224	1574634.5876

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	18+12.70	131.00	915122.7862	1574501.9444
L	18+19.03	50.00	915141.5058	1574581.0053
L	21+05.00	65.00	914878.7666	1574619.5887
L	22+47.00	30.00	914744.5984	1574637.6324

DATUM DESCRIPTION

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WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
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[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/doh/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:
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▲ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION

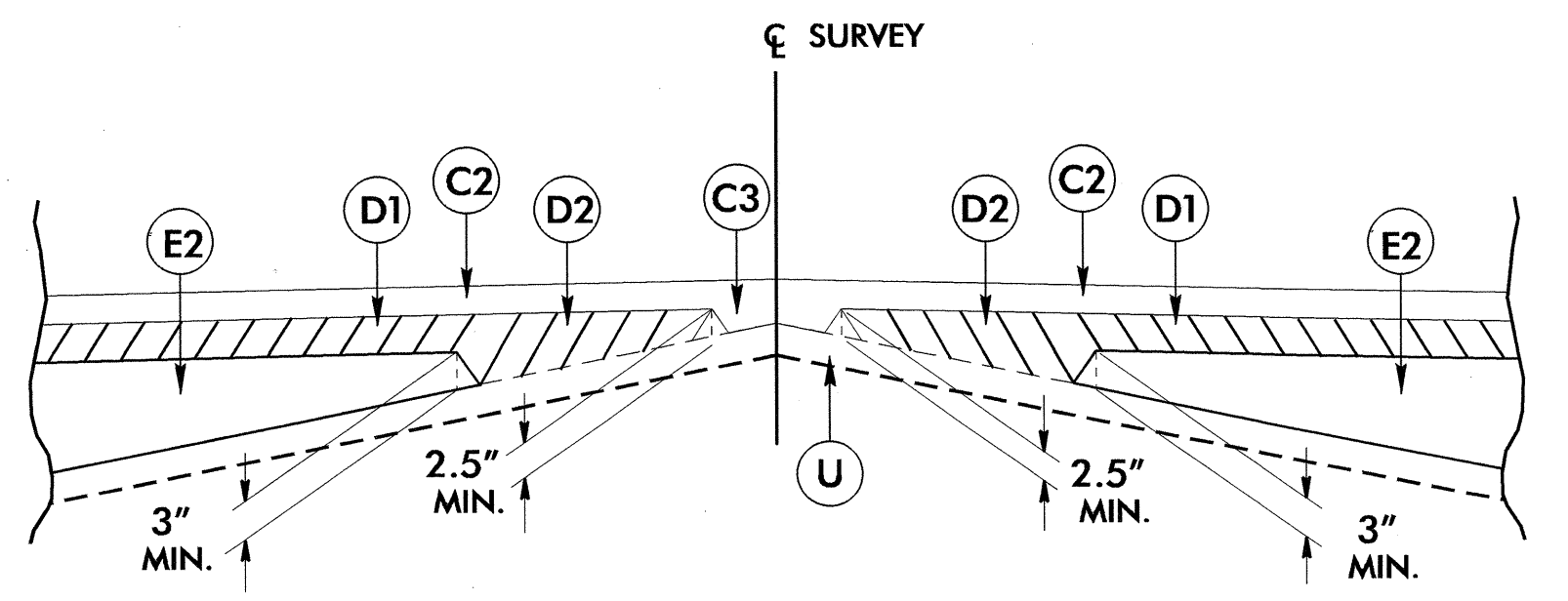
NOTE: DRAWING NOT TO SCALE

6/2/99

PROJECT REFERENCE NO. B-4744	SHEET NO. 2
ROADWAY DESIGN ENGINEER <i>James A. Speer</i>	PAVEMENT DESIGN ENGINEER <i>Clark S. Morrison</i>

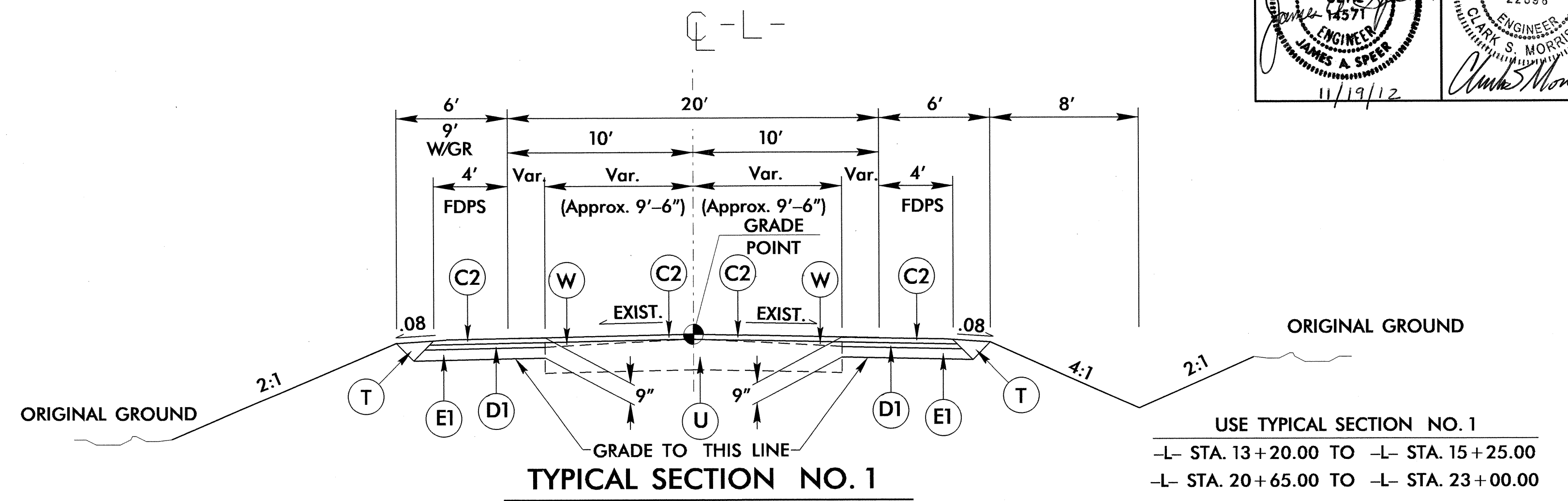
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, 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 5.5" IN DEPTH.
J1	PROP. 6" AGGREGATE BASE COURSE.
J2	PROP. 8" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF .35 GAL PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL NO. 1)

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



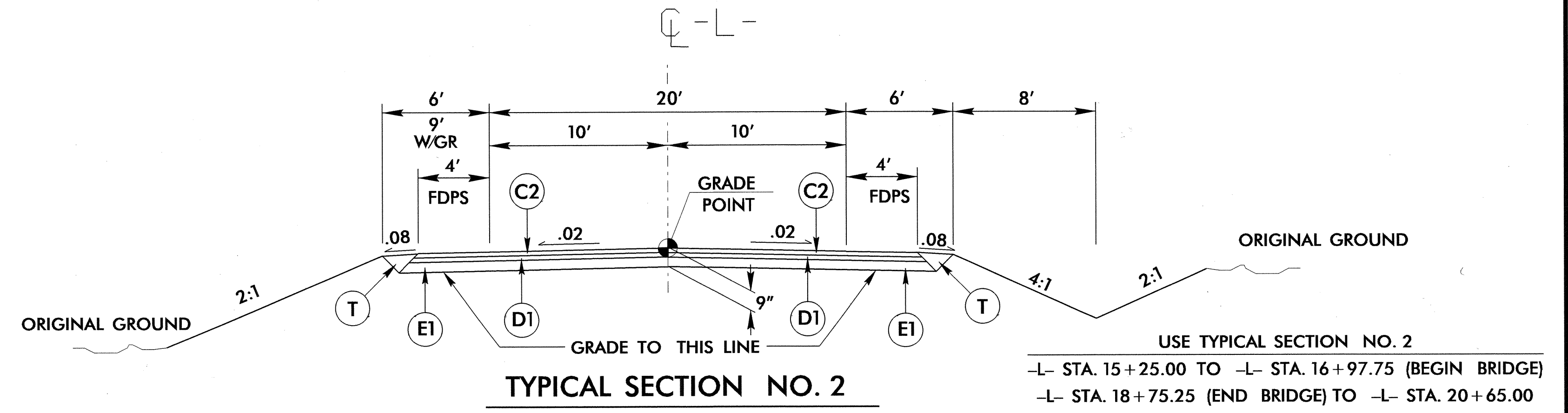
Detail Showing Method of Wedging

DETAIL 1



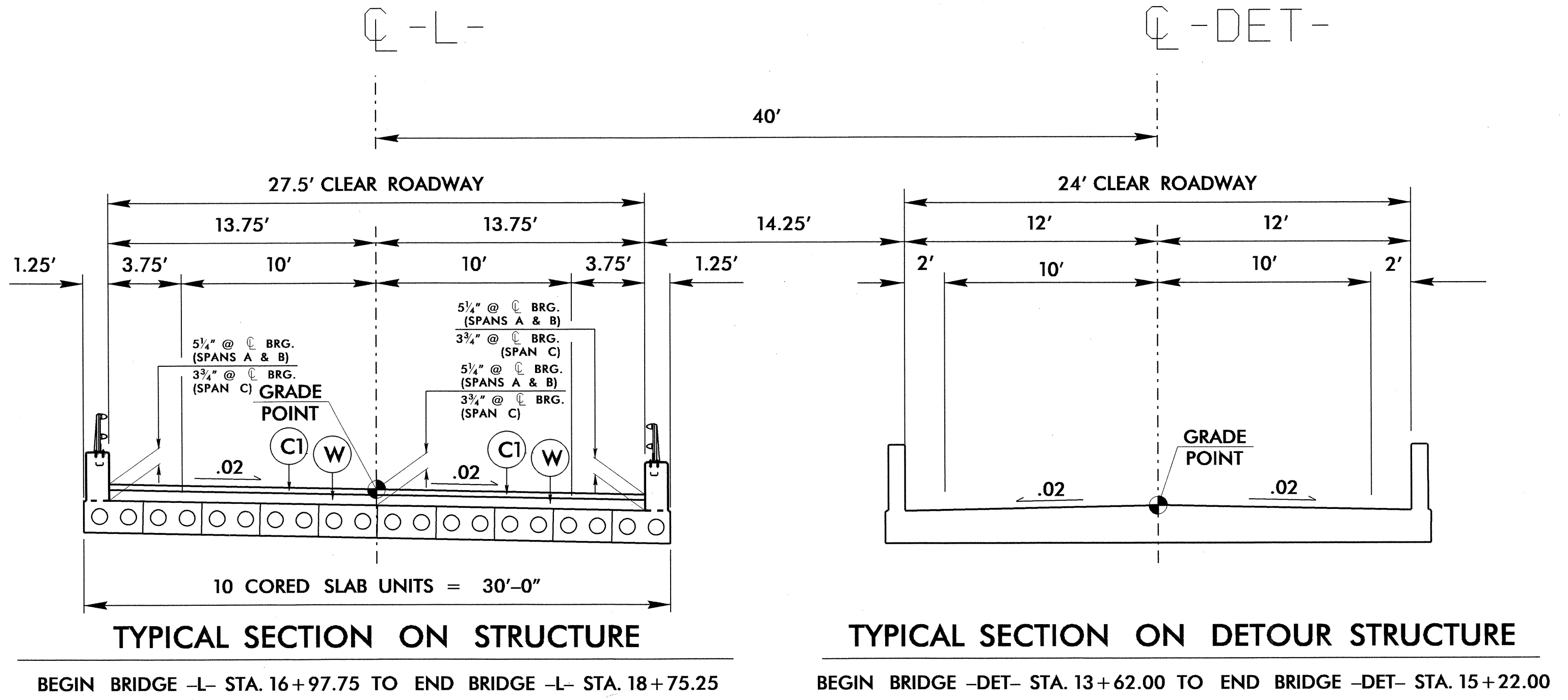
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
 -L- STA. 13+20.00 TO -L- STA. 15+25.00
 -L- STA. 20+65.00 TO -L- STA. 23+00.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
 -L- STA. 15+25.00 TO -L- STA. 16+97.75 (BEGIN BRIDGE)
 -L- STA. 18+75.25 (END BRIDGE) TO -L- STA. 20+65.00



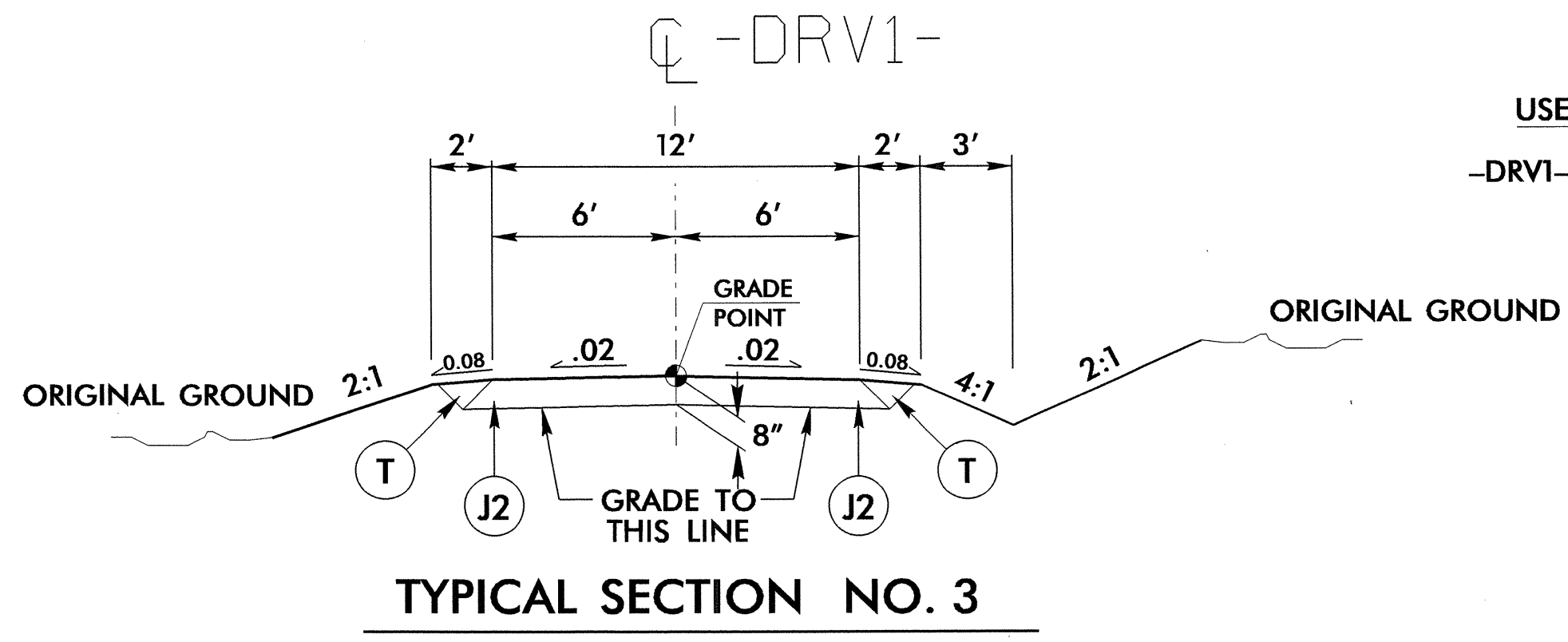
TYPICAL SECTION ON STRUCTURE

BEGIN BRIDGE -L- STA. 16+97.75 TO END BRIDGE -L- STA. 18+75.25

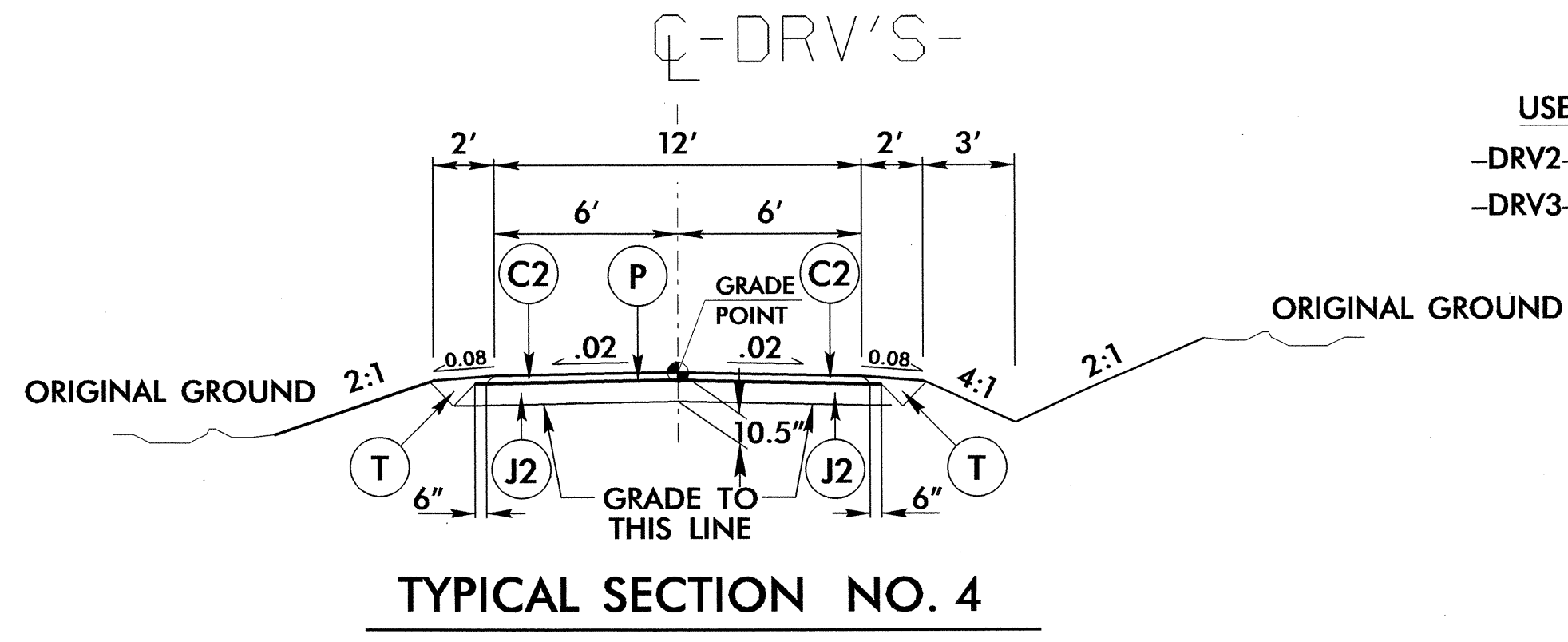
TYPICAL SECTION ON DETOUR STRUCTURE

BEGIN BRIDGE -DET- STA. 13+62.00 TO END BRIDGE -DET- STA. 15+22.00

15-NOV-2012 14:25
 R:\Roadway\Projects\B4744-r.dwg: typ.dgn
 11/19/12

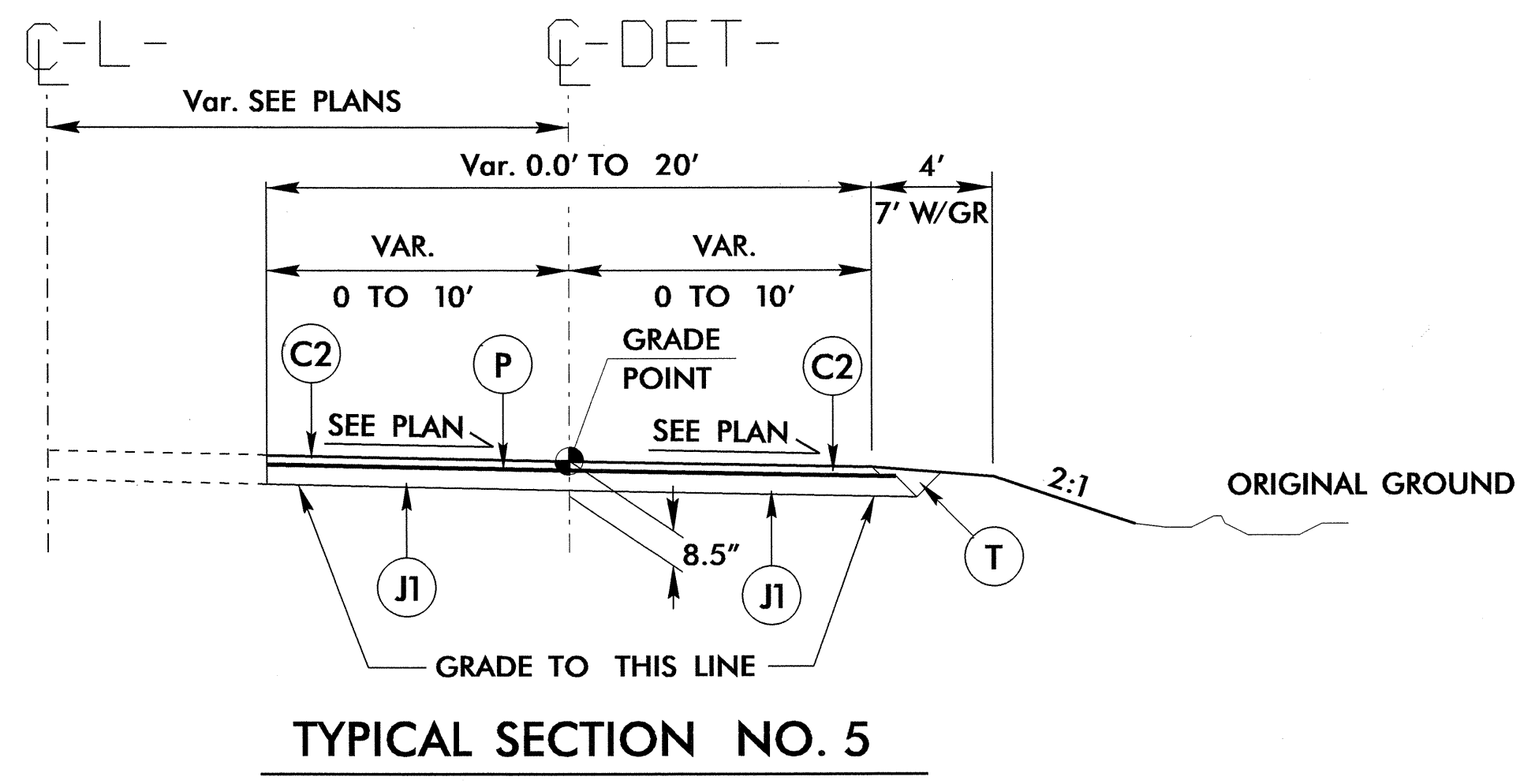


USE TYPICAL SECTION NO. 3
-DRV1- STA. 10+10.00 TO 11+09.17

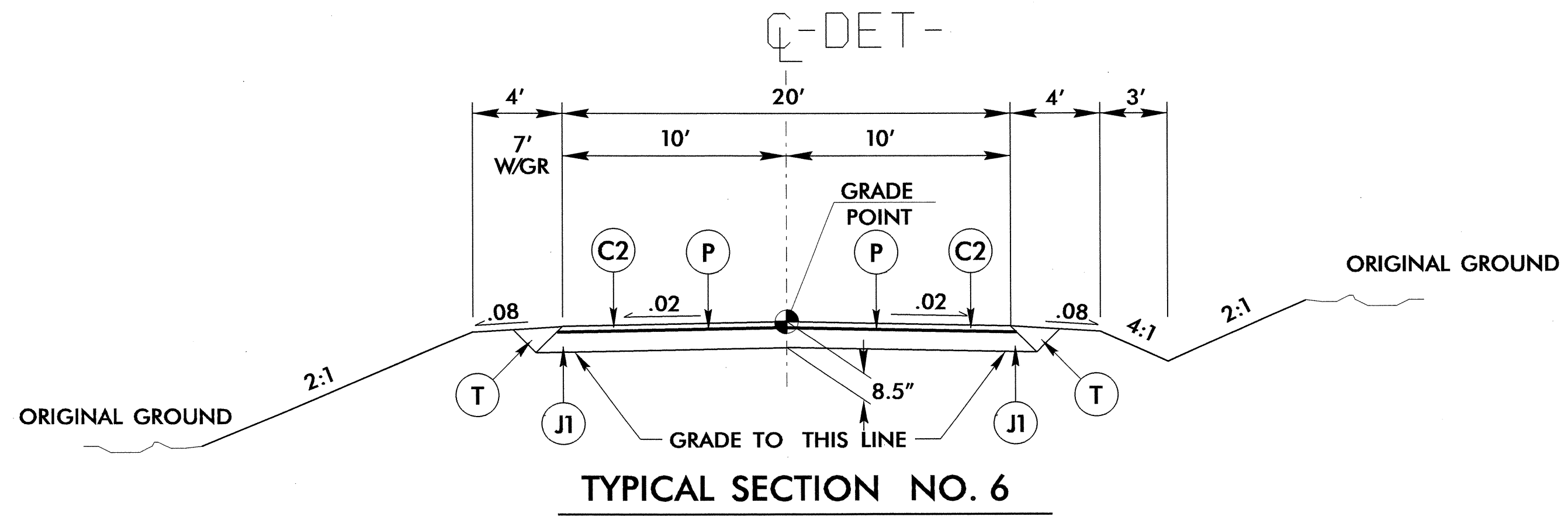


USE TYPICAL SECTION NO. 4
-DRV2- STA. 10+65.00 TO 11+33.66
-DRV3- STA. 10+06.00 TO 11+90.00

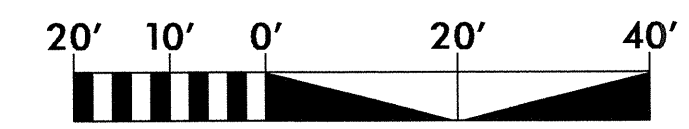
PAVEMENT SCHEDULE	
C1	1.25" SF9.5A
C2	2.5" SF9.5A
C3	VAR. SF9.5A
D1	2.5" I19.0B
D2	VAR. I19.0B
E1	4" B25.0B
E2	VAR. B25.0B
J1	6" ABC
J2	8" ABC
P	PRIME COAT
T	EARTH MATERIAL
U	EXIST PAVEMENT
W	WEDGING



USE TYPICAL SECTION NO. 5
-DET- STA. 11+10.00 TO STA. 11+73.85
-DET- STA. 17+23.95 TO STA. 18+98.45

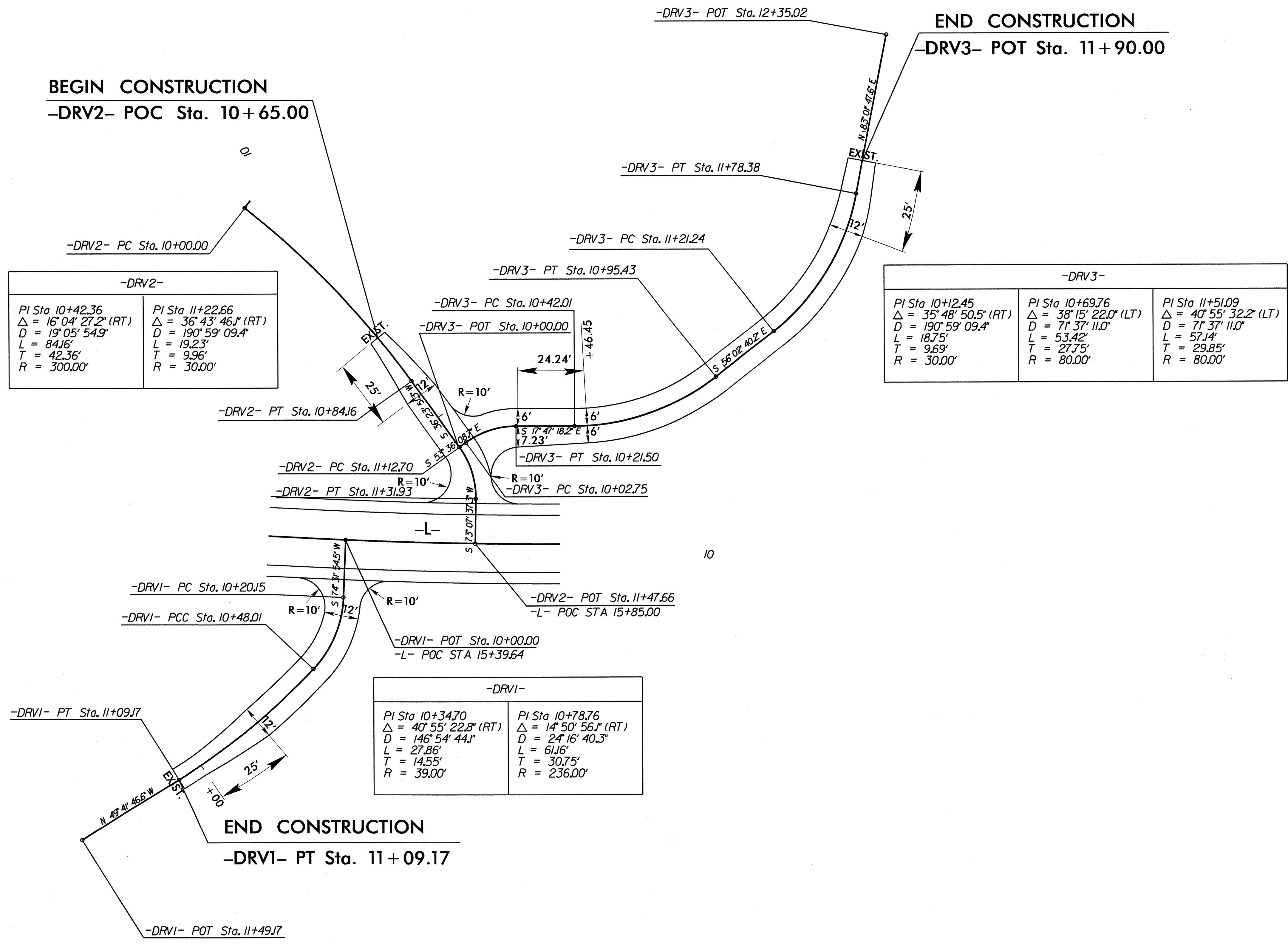


USE TYPICAL SECTION NO. 6
-DET- STA. 11+73.85 TO BEGIN TEMP BRDG 13+62.00
END TEMP BRDG 15+22.00 TO-L- STA. 17+23.95



DRIVEWAY DETAIL

SCALE 1" = 20'



-DRV2-	
PI Sta 10+42.36	PI Sta 11+22.66
$\Delta = 16^{\circ} 04' 27.2''$ (RT)	$\Delta = 36^{\circ} 43' 46.1''$ (RT)
$D = 19^{\circ} 05' 54.9''$	$D = 190^{\circ} 59' 09.4''$
$L = 84.16'$	$L = 19.23'$
$T = 42.36'$	$T = 9.96'$
$R = 300.00'$	$R = 30.00'$

-DRV3-		
PI Sta 10+12.45	PI Sta 10+69.76	PI Sta 11+51.09
$\Delta = 35^{\circ} 48' 50.5''$ (RT)	$\Delta = 38^{\circ} 15' 22.0''$ (LT)	$\Delta = 40^{\circ} 55' 32.2''$ (LT)
$D = 190^{\circ} 59' 09.4''$	$D = 71^{\circ} 37' 11.0''$	$D = 71^{\circ} 37' 11.0''$
$L = 18.75'$	$L = 53.42'$	$L = 57.14'$
$T = 9.69'$	$T = 27.75'$	$T = 29.85'$
$R = 30.00'$	$R = 80.00'$	$R = 80.00'$

-DRV1-	
PI Sta 10+34.70	PI Sta 10+78.76
$\Delta = 40^{\circ} 55' 22.8''$ (RT)	$\Delta = 14^{\circ} 50' 56.1''$ (RT)
$D = 146^{\circ} 54' 44.1''$	$D = 24^{\circ} 16' 40.3''$
$L = 27.86'$	$L = 61.16'$
$T = 14.55'$	$T = 30.75'$
$R = 39.00'$	$R = 236.00'$

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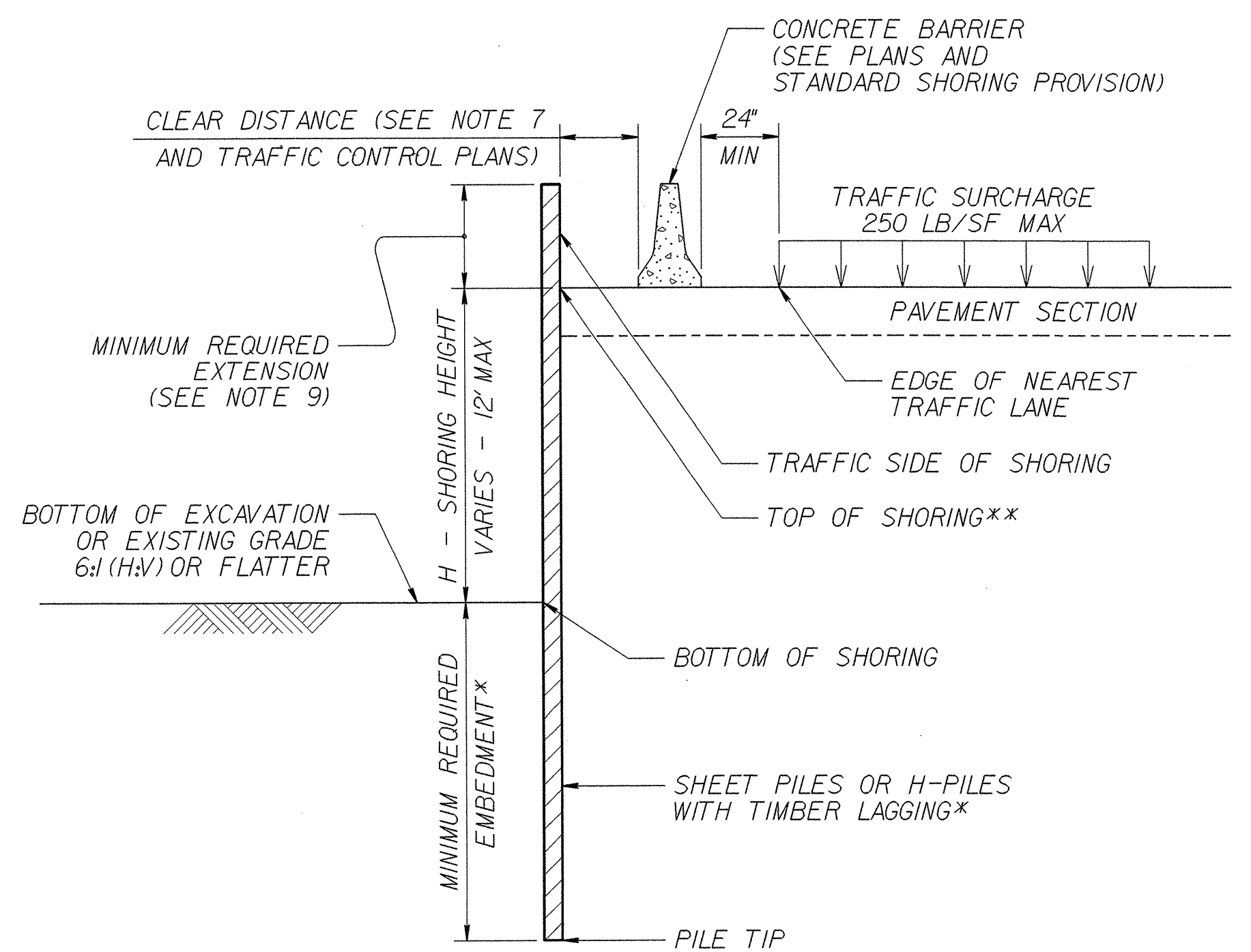
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /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
	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
	12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

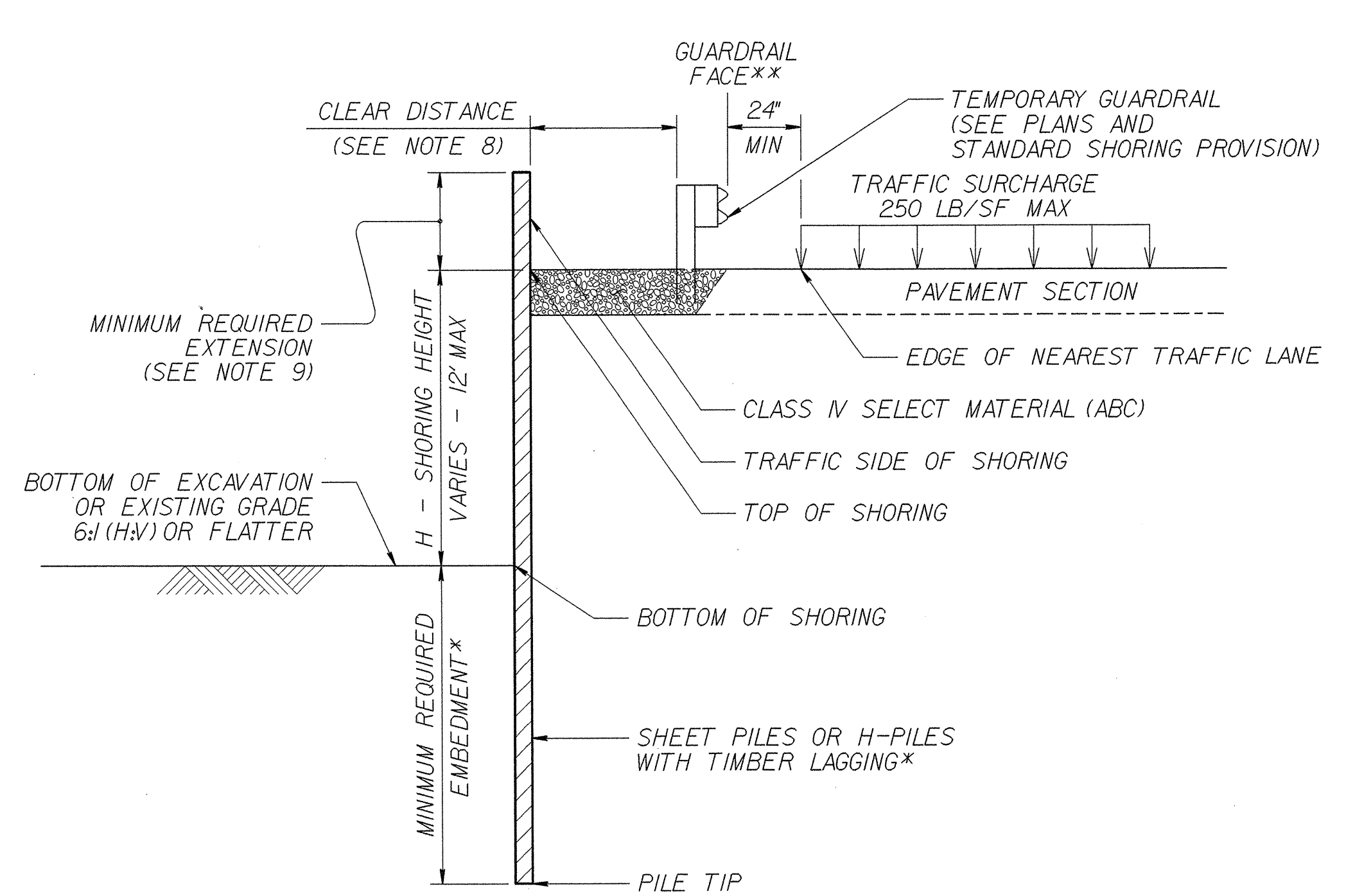
***DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".**

NOTES:

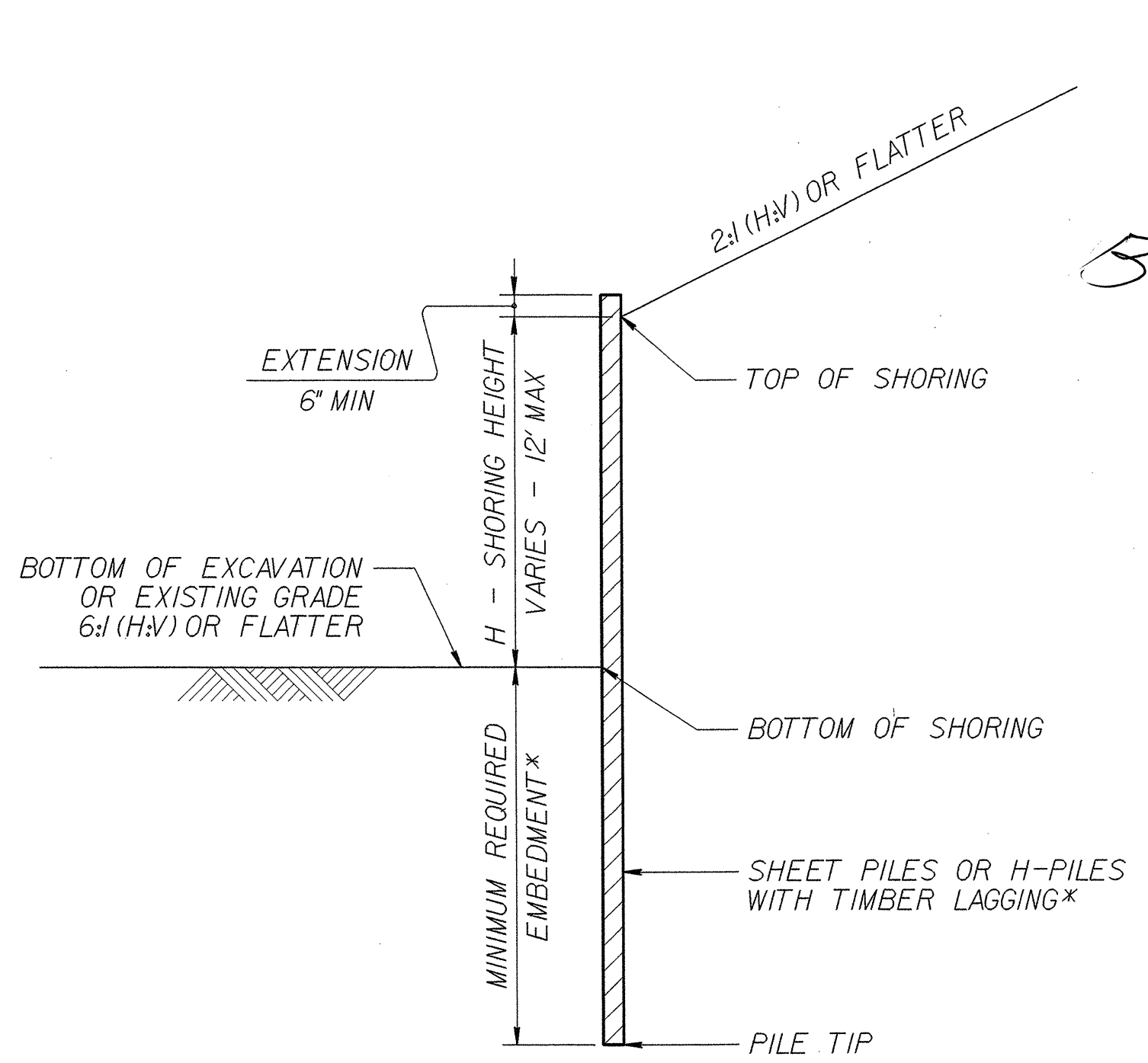
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
 UNIT WEIGHT, $\gamma = 120$ LB/CF
 FRICTION ANGLE, $\phi = 30$ 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.
- 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.**

B-4744-X

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203039

ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
003000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (17+86.50)
004300000-N	226	Lump Sum		GRADING
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
005700000-E	226	400	CY	UNDERCUT EXCAVATION
013400000-E	240	1,281	CY	DRAINAGE DITCH EXCAVATION
019600000-E	270	400	SY	GEOTEXTILE FOR SOIL STABILIZATION
019900000-E	SP	205	SF	TEMPORARY SHORING
031800000-E	300	60	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
032000000-E	300	170	SY	FOUNDATION CONDITIONING GEOTEXTILE
033510000-E	305	80	LF	12" DRAINAGE PIPE
034300000-E	310	148	LF	15" SIDE DRAIN PIPE
034400000-E	310	28	LF	18" SIDE DRAIN PIPE
036000000-E	310	16	LF	12" RC PIPE CULVERTS, CLASS III
058200000-E	310	220	LF	15" CS PIPE CULVERTS, 0.064" THICK
063600000-E	310	2	EA	*** CS PIPE ELBOWS, ***** THICK (15", 0.064")
099500000-E	340	360	LF	PIPE REMOVAL
109950000-E	505	70	CY	SHALLOW UNDERCUT
109970000-E	505	380	TON	CLASS IV SUBGRADE STABILIZATION
112100000-E	520	640	TON	AGGREGATE BASE COURSE
122000000-E	545	400	TON	INCIDENTAL STONE BASE
127500000-E	600	539	GAL	PRIME COAT
133000000-E	607	100	SY	INCIDENTAL MILLING

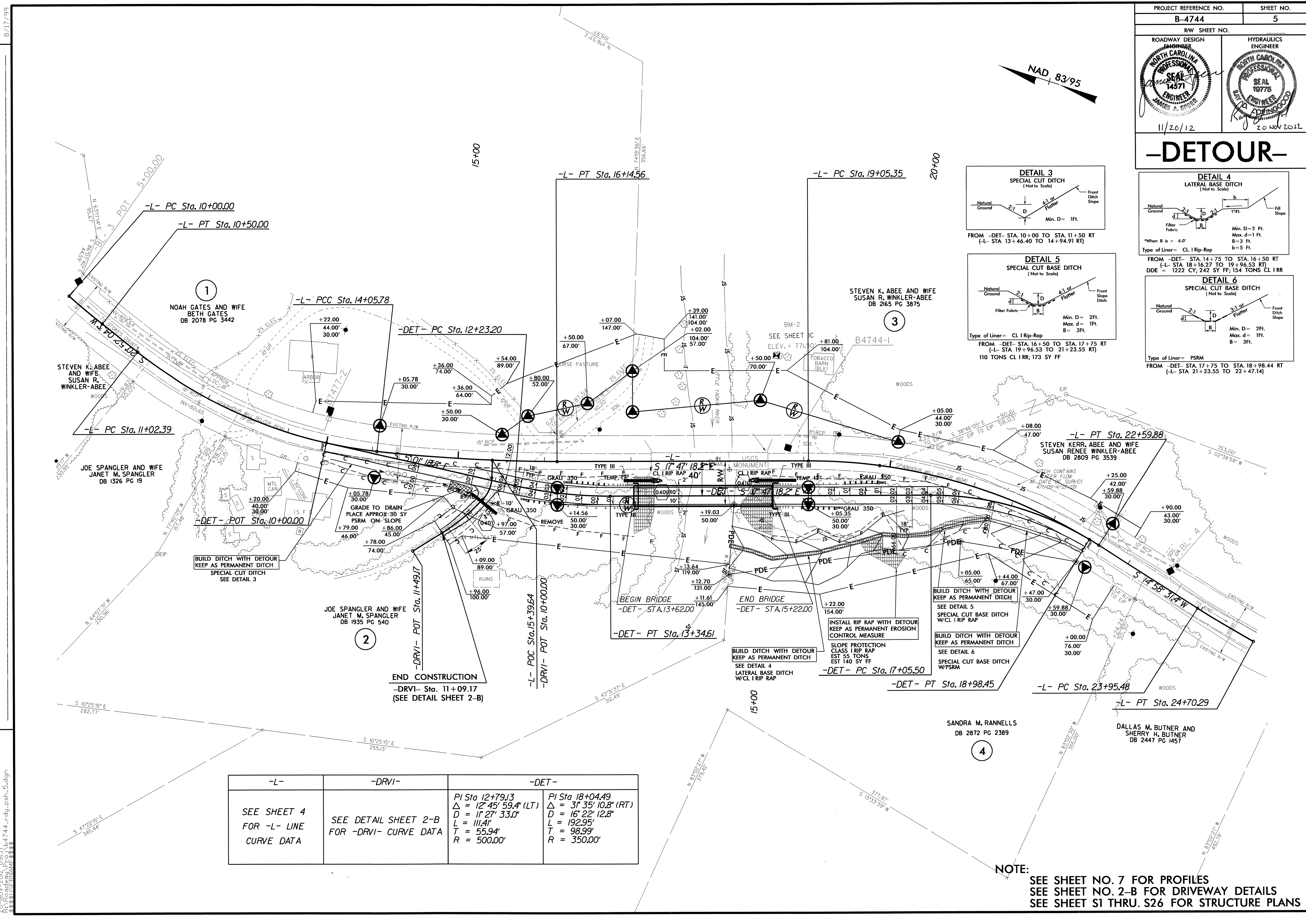
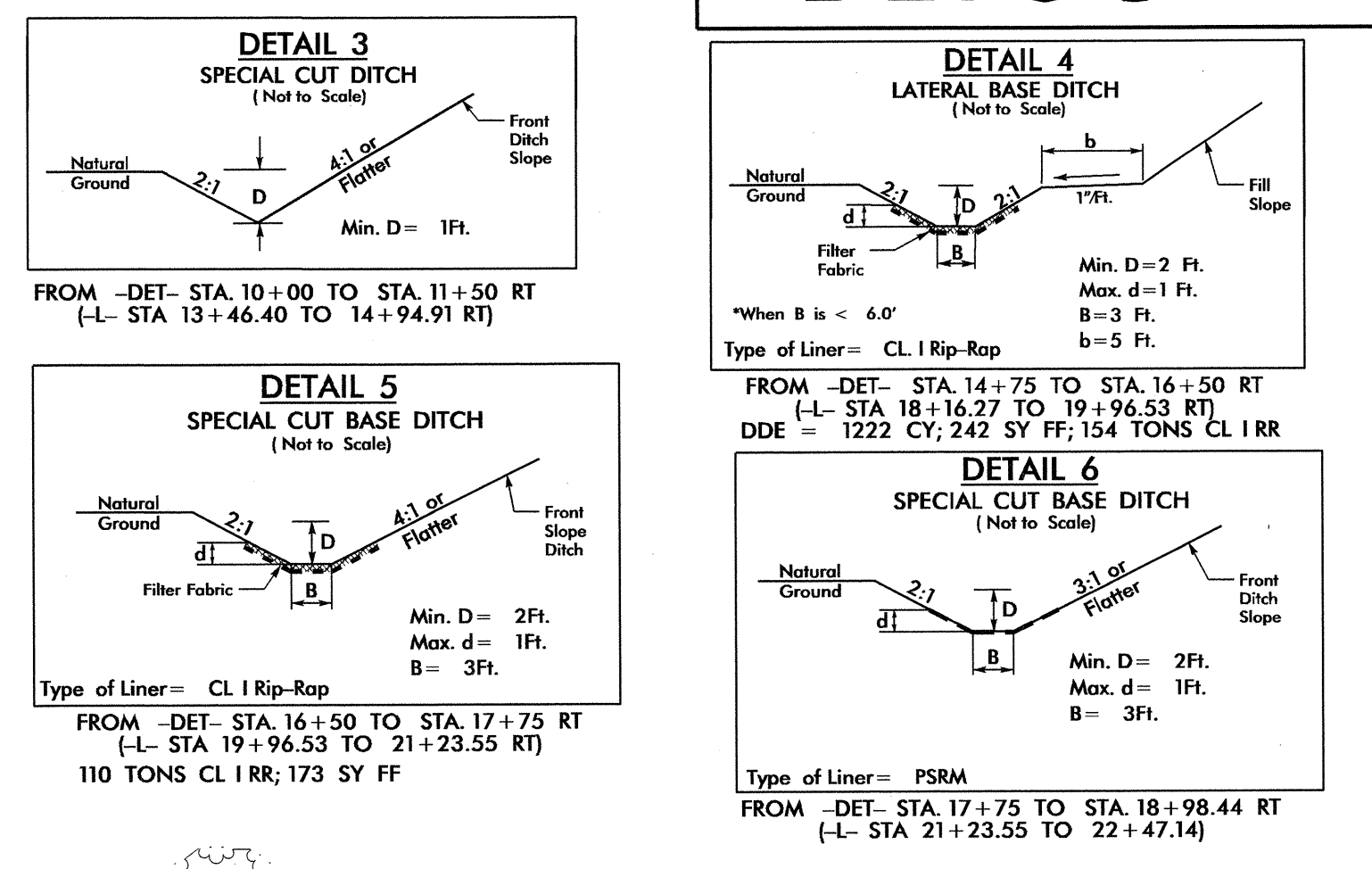
SUMMARY OF QUANTITIES - B-4744

ItemNumber	Sec #	Quantity	Unit	Description
148900000-E	610	460	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
149800000-E	610	200	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
152500000-E	610	680	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
157500000-E	620	80	TON	ASPHALT BINDER FOR PLANT MIX
169300000-E	654	10	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
200000000-N	806	15	EA	RIGHT OF WAY MARKERS
228600000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES
236700000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.29
255600000-E	846	34	LF	SHOULDER BERM GUTTER
303000000-E	862	100	LF	STEEL BM GUARDRAIL
315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
321500000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
327000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
338000000-E	862	150	LF	TEMPORARY STEEL BM GUARDRAIL
338700000-N	862	4	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (III)
338910000-N	SP	4	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350
362800000-E	876	550	TON	RIP RAP, CLASS 1
365600000-E	876	2,180	SY	GEOTEXTILE FOR DRAINAGE
407200000-E	903	83	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
409600000-N	904	2	EA	SIGN ERECTION, TYPE D
410200000-N	904	3	EA	SIGN ERECTION, TYPE E
415500000-N	907	9	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
440000000-E	1110	446	SF	WORK ZONE SIGNS (STATIONARY)
441000000-E	1110	110	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)

ItemNumber	Sec #	Quantity	Unit	Description
443000000-N	1130	40	EA	DRUMS
444500000-E	1145	80	LF	BARRICADES (TYPE III)
445500000-N	1150	60	DAY	FLAGGER
465000000-N	1251	66	EA	TEMPORARY RAISED PAVEMENT MARKERS
481000000-E	1205	18,440	LF	PAINT PAVEMENT MARKING LINES (4")
485000000-E	1205	3,610	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
600000000-E	1605	1,715	LF	TEMPORARY SILT FENCE
600600000-E	1610	225	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	430	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	445	TON	SEDIMENT CONTROL STONE
601500000-E	1615	3	ACR	TEMPORARY MULCHING
601800000-E	1620	150	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	1.5	TON	FERTILIZER FOR TEMPORARY SEEDING
602400000-E	1622	500	LF	TEMPORARY SLOPE DRAINS
602900000-E	SP	100	LF	SAFETY FENCE
603000000-E	1630	860	CY	SILT EXCAVATION
603600000-E	1631	4,000	SY	MATTING FOR EROSION CONTROL
603700000-E	SP	1,850	SY	COIR FIBER MAT
603800000-E	SP	1,100	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	300	LF	1/4" HARDWARE CLOTH
607000000-N	1639	14	EA	SPECIAL STILLING BASINS
6071012000-E	SP	150	LF	COIR FIBER WATTLE
6071020000-E	SP	45	LB	POLYACRYLAMIDE (PAM)
6071030000-E	1640	400	LF	COIR FIBER BAFFLE
6071050000-E	SP	5	EA	*** SKIMMER (1-1/2")
608400000-E	1660	4.5	ACR	SEEDING & MULCHING

ItemNumber	Sec #	Quantity	Unit	Description
608700000-E	1660	2	ACR	MOWING
609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	100	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	2.5	TON	FERTILIZER TOPDRESSING
611450000-N	1667	10	MHR	SPECIALIZED HAND MOWING
611700000-N	SP	25	EA	RESPONSE FOR EROSION CONTROL

-DETOUR-



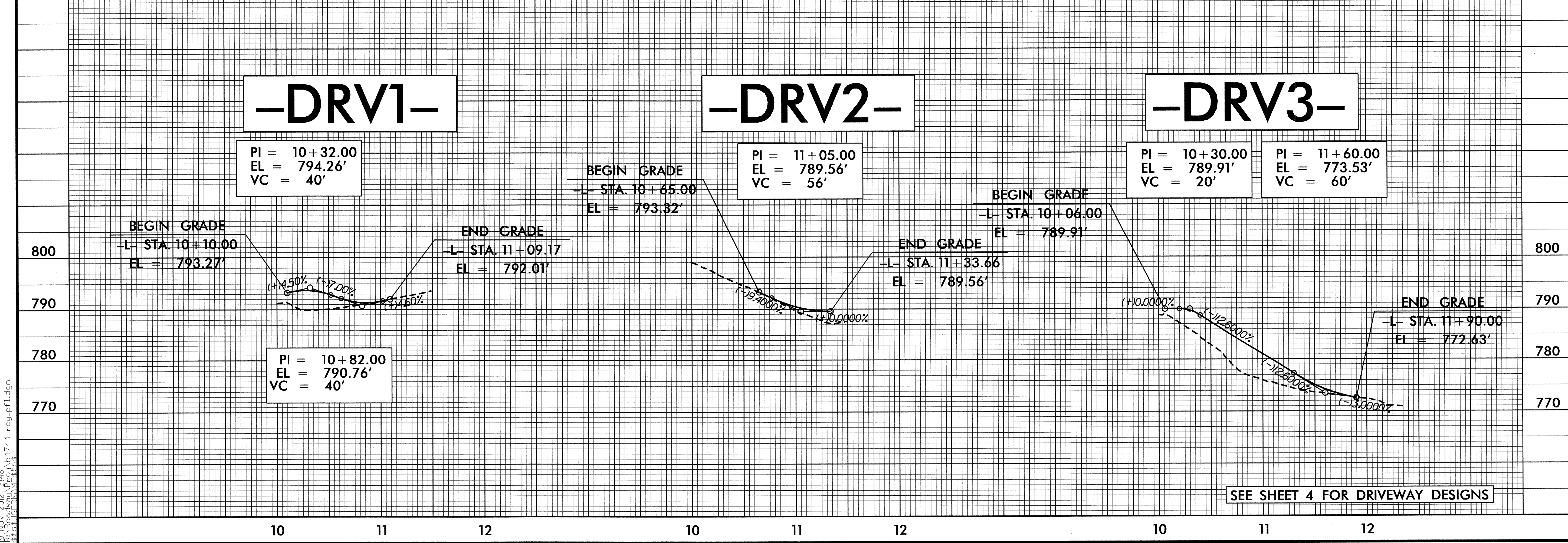
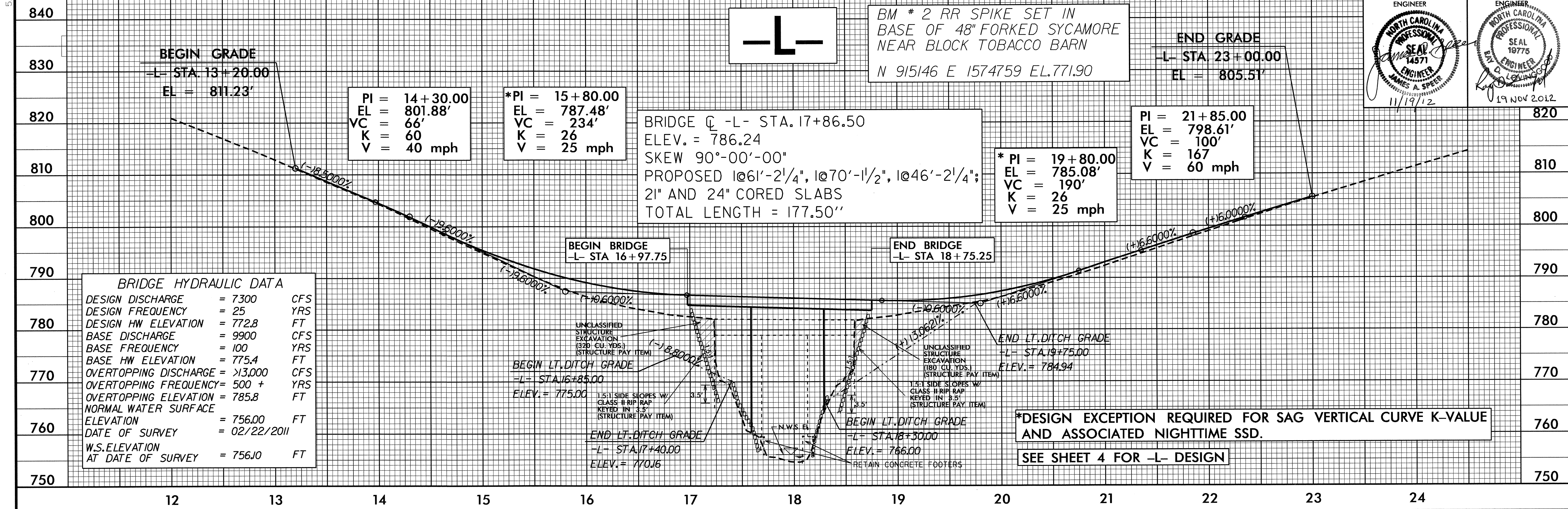
REVISIONS

-L-	-DRVI-	-DET-												
SEE SHEET 4 FOR -L- LINE CURVE DATA	SEE DETAIL SHEET 2-B FOR -DRVI- CURVE DATA	<table border="0"> <tr> <td>PI Sta 12+79.13</td> <td>PI Sta 18+04.49</td> </tr> <tr> <td>$\Delta = 12^\circ 45' 59.4"$ (LT)</td> <td>$\Delta = 31^\circ 35' 10.8"$ (RT)</td> </tr> <tr> <td>$D = 11' 27' 33.0"$</td> <td>$D = 16' 22' 12.8"$</td> </tr> <tr> <td>$L = 111.41'$</td> <td>$L = 192.95'$</td> </tr> <tr> <td>$T = 55.94'$</td> <td>$T = 98.99'$</td> </tr> <tr> <td>$R = 500.00'$</td> <td>$R = 350.00'$</td> </tr> </table>	PI Sta 12+79.13	PI Sta 18+04.49	$\Delta = 12^\circ 45' 59.4"$ (LT)	$\Delta = 31^\circ 35' 10.8"$ (RT)	$D = 11' 27' 33.0"$	$D = 16' 22' 12.8"$	$L = 111.41'$	$L = 192.95'$	$T = 55.94'$	$T = 98.99'$	$R = 500.00'$	$R = 350.00'$
PI Sta 12+79.13	PI Sta 18+04.49													
$\Delta = 12^\circ 45' 59.4"$ (LT)	$\Delta = 31^\circ 35' 10.8"$ (RT)													
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$R = 500.00'$	$R = 350.00'$													

NOTE:
SEE SHEET NO. 7 FOR PROFILES
SEE SHEET NO. 2-B FOR DRIVEWAY DETAILS
SEE SHEET S1 THRU. S26 FOR STRUCTURE PLANS

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