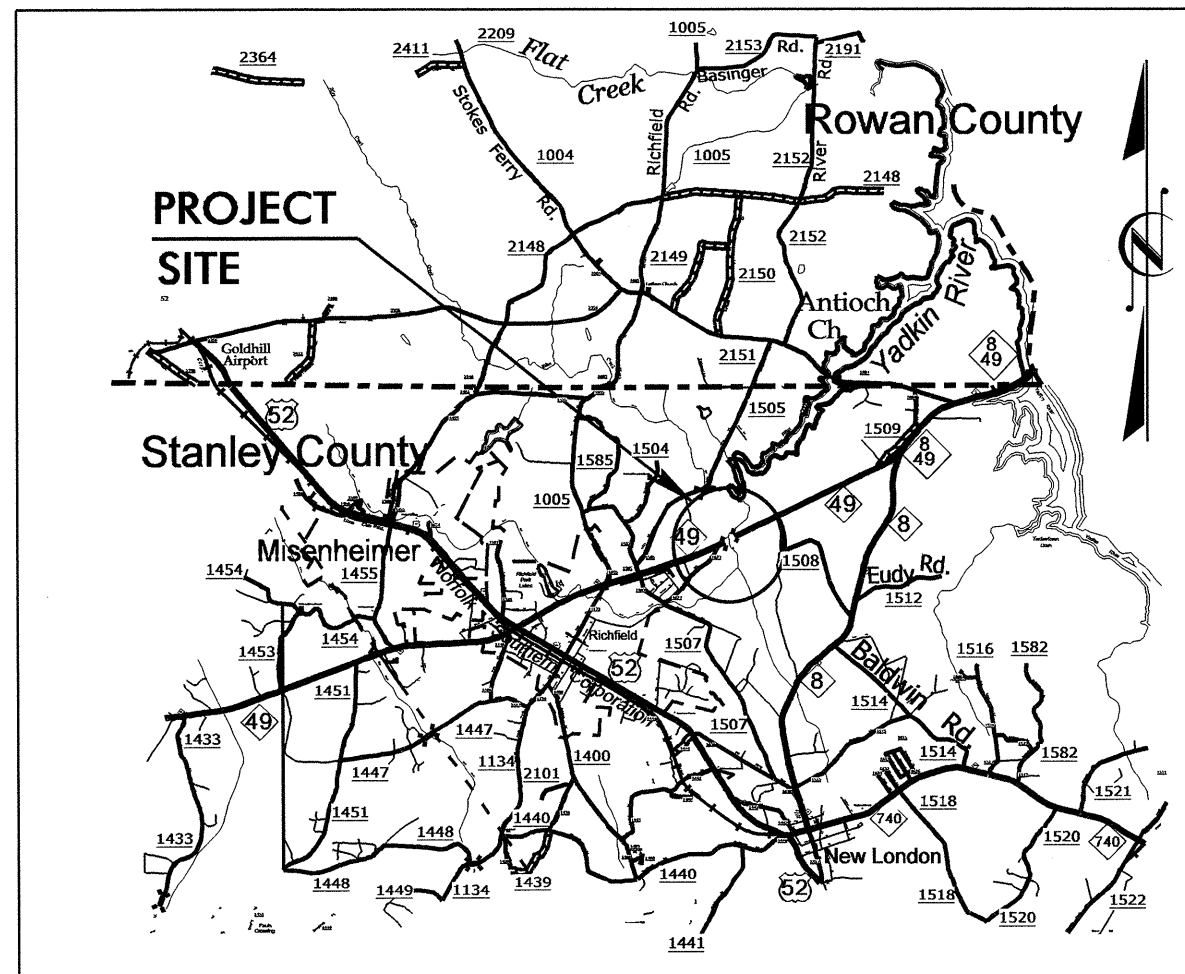


09/08/99

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# STANLY COUNTY

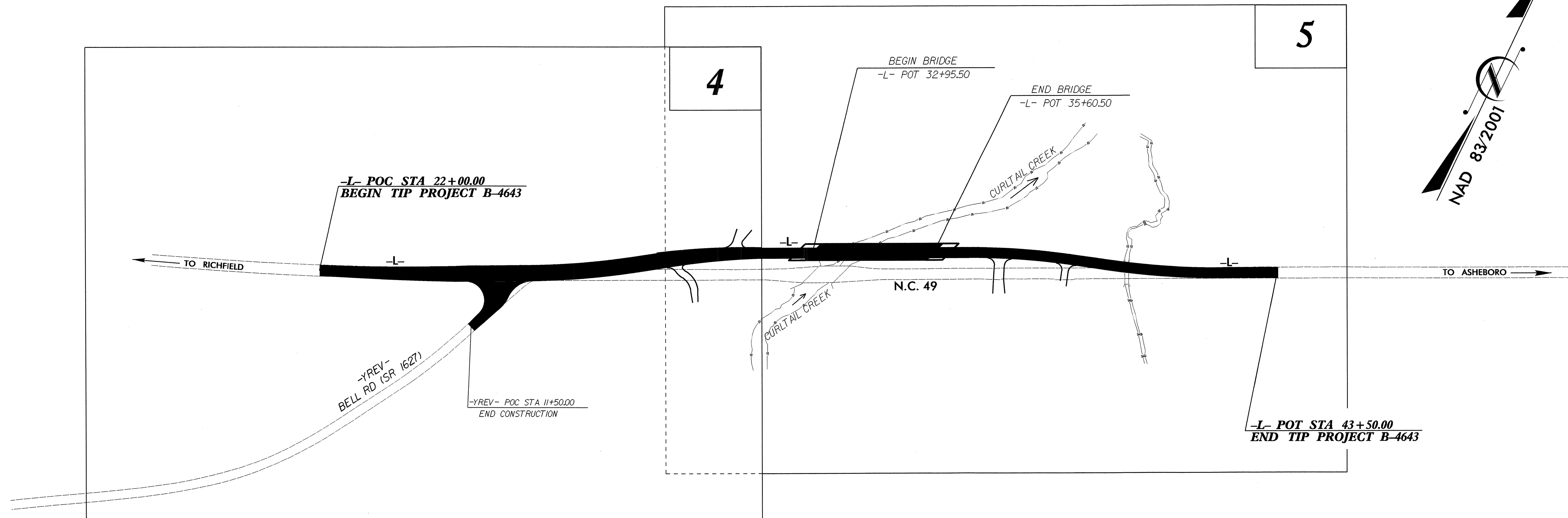
LOCATION: BRIDGE 24 AND APPROACHES ON NC 49  
OVER CURL TAIL CREEK

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURES

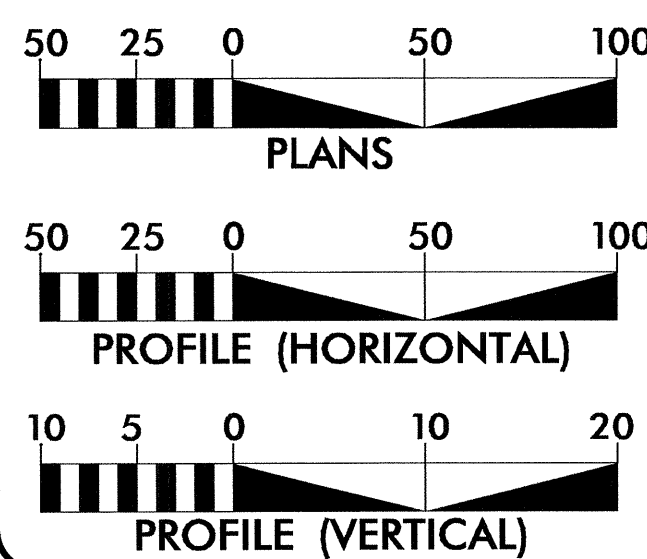
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4643	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38451.1.1	BRNHS-49(22)	P.E.	
38451.2.1	BRNHS-0049(22)	RW & UTIL	
38451.3.1	BRNHS-0049(22)	CONST.	

TIP PROJECT: B-4643

CONTRACT: C203156



**GRAPHIC SCALES**



**DESIGN DATA**

ADT 2013 = 5,800  
ADT 2030 = 10,900  
DHV = 12 %  
D = 55 %  
T = 14 % \*  
V = 60 MPH  
\* TTST = 10% DUAL 4%  
FUNC CLASS = ARTERIAL  
REGIONAL TIER

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT B-4643 = 0.357 MILES  
LENGTH OF STRUCTURE TIP PROJECT B-4643 = 0.050 MILES  
TOTAL LENGTH OF TIP PROJECT B-4643 = 0.407 MILES

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

2012 STANDARD SPECIFICATIONS

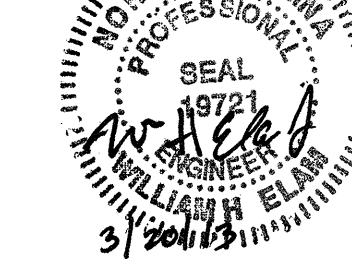
RIGHT OF WAY DATE:  
JUNE 15, 2012

LETTING DATE:  
JUNE 18, 2013

G.E. BREW, PE  
PROJECT ENGINEER

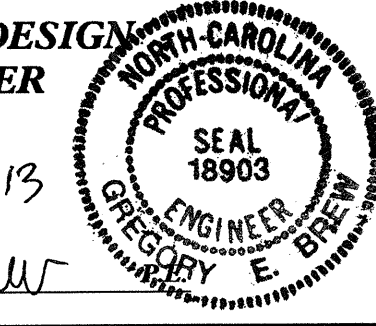
I.T. YOUNIS  
PROJECT DESIGN ENGINEER

HYDRAULIC ENGINEER



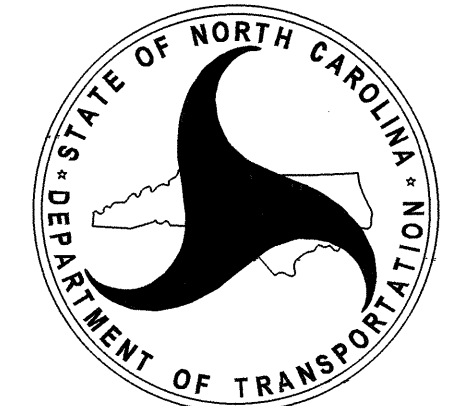
SIGNATURE: \_\_\_\_\_ P.E.

ROADWAY DESIGN ENGINEER



3-21-13  
SIGNATURE: *G. Brew*

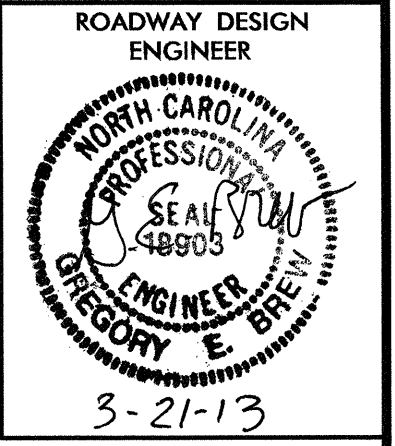
DIVISION OF HIGHWAYS



STATE OF NORTH CAROLINA

I:\MAR-2013\1510 R:\Roadway\Proj\B4643\_Rdy\_T.sh.dgn USER:NAME\$

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS



SHEET NUMBER	INDEX OF SHEETS SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
1-D	CENTERLINE COORDINATE LIST
2 THRU 2-A	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-B	DETAIL OF STRUCTURE ANCHOR UNITS
2-C THRU 2-D	DETAIL OF TEMPORARY ANCHOR UNITS
2-E	DETAIL OF TEMPORARY SHORING
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES
3-B	SUMMARY OF EARTHWORK, GUARDRAIL SUMMARY, AND SUMMARY OF ASPHALT PAVEMENT REMOVAL
3-C	PARCEL INDEX SHEET
4 THRU 5	PLAN SHEETS
6 THRU 7	PROFILE SHEETS
TMP-1 THRU TMP-18	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-3	PAVEMENT MARKING PLANS
EC-1 THRU EC-8	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-4	SIGNING PLANS
UO-1 THRU UO-3	UTILITY BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-10	CROSS-SECTIONS
S-1 THRU S-37	STRUCTURE PLANS
C-1 THRU C-3	CULVERT PLANS

**GENERAL NOTES:**

2012 SPECIFICATIONS  
EFFECTIVE: 01-17-2012  
REVISED: 07-30-2012

**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. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

**CLEARING:**  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

**SUPERELEVATION:**  
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

**SHOULDER CONSTRUCTION:**  
ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO 560.01 DETAIL IN THE PLANS.

**SIDE ROADS:**  
THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

**UNDERDRAINS:**  
UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

**GUARDRAIL:**  
THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

**TEMPORARY SHORING:**  
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

**END BENTS:**  
THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

**UTILITIES:**  
UTILITY OWNERS ON THIS PROJECT ARE:  
Union Power, Windstream, Time Warner & City of Albemarle

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

**RIGHT-OF-WAY MARKERS:**  
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

**ROCK**  
ROCK IS ANTICIPATED BETWEEN -L- 28+00 TO 30+00 LT. BLASTING MAY BE REQUIRED FOR EXCAVATION ON THE PROJECT. SEE SECTION 220 OF THE STANDARD SPECIFICATIONS AND IF APPLICABLE, ROCK BLASTING PROVISION.

2012 ROADWAY ENGLISH STANDARD DRAWINGS  
EFF. 01-17-2012  
REV. 10-30-2012

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
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
422.10	Reinforced Bridge Approach Fills
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
654.01	Pavement Repairs
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.02	Concrete Endwall and Sluice Gate - 15" thru 36" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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	○
Property Corner	✕
Property Monument	EDM
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	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	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	○
Proposed Right of Way Line with Concrete or Granite RW Marker	▲
Proposed Control of Access Line with Concrete CA Marker	▲
Existing Control of Access	○
Proposed Control of Access	○
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	▭
Single Tree	☼
Single Shrub	☼
Hedge	~~~~~
Woods Line	~~~~~

**VEGETATION:**

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

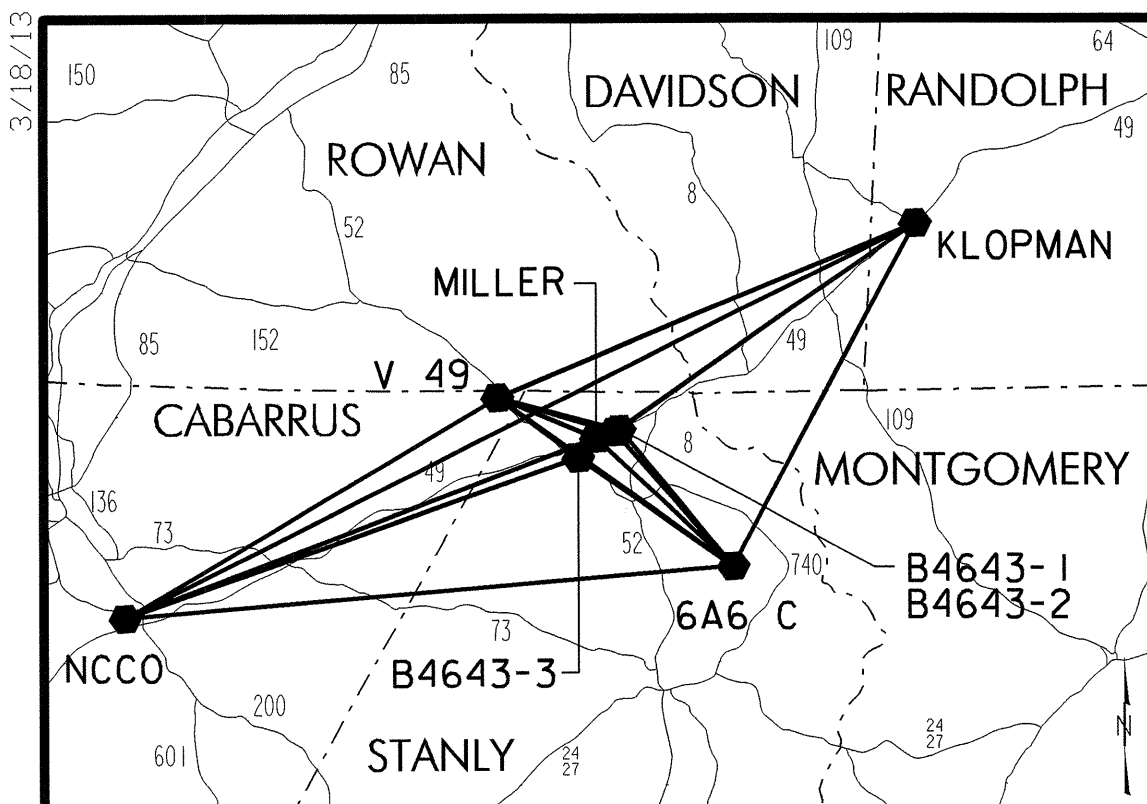
**MISCELLANEOUS:**

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.	UST
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.

04/16/11

# SURVEY CONTROL SHEET

**-Final-**



**VECTOR MAP**

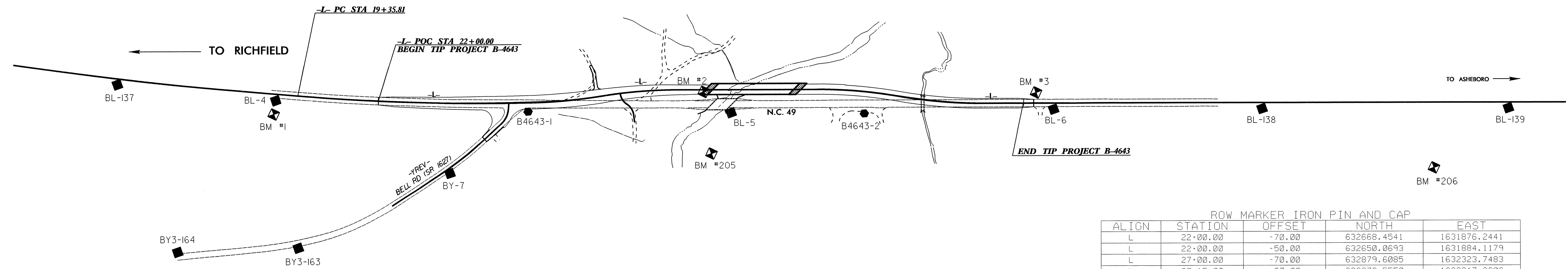
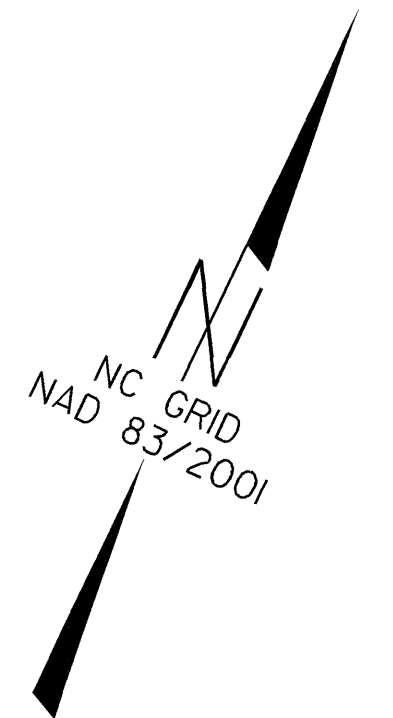
.....	
BM1	ELEVATION = 602.75
N 632417	E 1631614
L STATION 18+62 66 RIGHT	
RR SPIKE IN 20' SWEETGUM	
.....	
BM2	ELEVATION = 571.02
N 633094	E 1632850
L STATION 32+67 6 RIGHT	
RR SPIKE IN 20' OAK	
.....	
BM3	ELEVATION = 574.75
N 633561	E 1633832
L STATION 43+57 35 LEFT	
RR SPIKE IN 15' CEDER	
.....	
BM205	ELEVATION = 572.96
N 632922	E 1632960
L STATION 32+92 209 RIGHT	
RR SPIKE IN BASE OF 24' OAK	
.....	
BM206	ELEVATION = 604.63
N 633901	E 1635113
L STATION 56+59 215 RIGHT	
RR SPIKE IN BASE OF POWER POLE	
.....	
B4643-3	ELEVATION = 652.82
N 627633.994	E 1624930.484
L STATION 10+00	
S 52°03'10.7" W DIST 7413.85	
B4643-3	
.....	

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
137	BL-137		632282.8750	1631110.6740	615.46	13+44.93	18.13 RT
4	BL-4		632459.6860	1631600.1680	603.53	18+64.72	21.01 RT
1	B4643-1		632785.1090	1632360.0830	583.10	26+88.93	30.64 RT
5	BL-5		633070.7220	1632959.7890	574.50	33+56.20	75.06 RT
2	B4643-2		633256.2690	1633354.2750	575.27	37+99.83	71.17 RT
6	BL-6		633536.6070	1633906.9510	575.89	44+14.43	19.79 RT
138	BL-138		633833.0090	1634521.3510	587.96	50+96.59	19.60 RT
139	BL-139		634183.6540	1635246.9240	610.48	59+02.45	18.81 RT

BY	POINT	DESC.	NORTH	EAST	ELEVATION	YREV STATION	OFFSET
E01	B4643-1		632785.1090	1632360.0830	583.10	10+22.75	65.24 LT
7	BY-7		632490.6650	1632217.5770	600.89	13+08.97	15.06 LT
163	BY3-163		632052.5350	1631876.6470	612.87		OUTSIDE PROJECT LIMITS
164	BY3-164		631869.9910	1631526.8920	611.87		OUTSIDE PROJECT LIMITS

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCCS FOR MONUMENT "MILLER" WITH NAD 83/2001 STATE PLANE GRID COORDINATES OF NORTHING: 631522.398(FT) EASTING: 1628531.799(FT) ELEVATION: 630.88(FT) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999857 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "MILLER" TO -L- STATION 22+00.00 IS N 72°12'51.2" E 3,541.257' 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: [HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/](https://connect.ncdot.gov/resources/location) THE FILES TO BE FOUND ARE AS FOLLOWS: **B4643\_LS\_CONTROL.TXT** , **B4643\_LS\_LOCAL.TXT** , **B4643\_LS\_WGS84.TXT**
  - PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM. NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
  - SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION & SURVEYS UNIT.
- ◆ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
  - ◆ INDICATES TRAVERSE MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
  - ◆ INDICATES BENCHMARKS USED OR SET FOR VERTICAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

L			
TYPE	STATION	NORTH	EAST
PC	10+00.00	632193.0109	1630776.8930
PT	17+55.83	632440.3021	1631490.9828
PC	19+35.81	632504.7732	1631659.0184
PCC	27+32.09	632832.2293	1632384.3679
PRC	29+33.51	632936.8692	1632556.2994
PT	31+85.38	633064.1595	1632773.3252
PC	36+38.02	633260.7131	1633181.0556
PRC	39+07.97	633356.2247	1633433.1838
PT	41+77.93	633451.7364	1633685.3119
POT	60+91.20	634282.5662	1635408.7839

YREV			
TYPE	STATION	NORTH	EAST
POT	10+00.00	632784.2191	1632290.8139
PC	10+22.09	632763.5193	1632298.5169
PT	10+77.69	632709.1851	1632297.7317
PC	11+74.59	632619.3851	1632261.3275
PT	13+78.65	632437.2924	1632169.7169
POT	15+25.40	632311.9680	1632093.3790

ROW MARKER IRON PIN AND CAP				
ALIGN	STATION	OFFSET	NORTH	EAST
L	22+00.00	-70.00	632668.4541	1631876.2441
L	22+00.00	-50.00	632650.0693	1631884.1179
L	27+00.00	-70.00	632879.6085	1632323.7483
L	37+15.00	-87.00	633372.5550	1633217.3606
L	43+50.00	-85.00	633603.0264	1633803.4052
L	31+85.38	-85.00	633140.7271	1632736.4144
L	29+50.00	-85.00	633016.3718	1632521.7841
L	43+50.00	-50.00	633571.4986	1633818.6038
L	24+85.00	50.47	632676.1508	1632185.1645
L	27+15.00	56.05	632774.5891	1632395.0596
L	41+77.93	-85.00	633528.3040	1633648.4011
L	22+00.00	50.00	632558.1449	1631923.4869
L	43+50.00	50.00	633481.4191	1633862.0282
L	36+38.02	96.90	633173.4283	1633223.1328

ROW MARKER IRON PIN AND CAP				
ALIGN	STATION	OFFSET	NORTH	EAST
YREV	11+50.00	30.00	632653.4443	1632242.7634
YREV	11+50.00	-45.00	632625.2672	1632312.2692
YREV	11+50.00	-20.00	632634.6595	1632289.1006

PERMANENT EASEMENT MARKER IRON PIN AND CAP				
ALIGN	STATION	OFFSET	NORTH	EAST
L	27+01.00	65.44	632759.7598	1632386.8376
L	27+50.00	75.00	632774.5599	1632435.7041
L	28+20.00	75.00	632810.7594	1632499.5347
L	28+50.00	65.55	632835.1649	1632521.3765
L	39+55.00	-91.44	633456.8956	1633450.7510
L	39+55.00	-112.00	633476.4996	1633444.5711
L	40+28.00	-92.67	633480.2287	1633515.3343
L	40+28.00	-113.00	633499.3131	1633508.3144

NOTE: DRAWING NOT TO SCALE

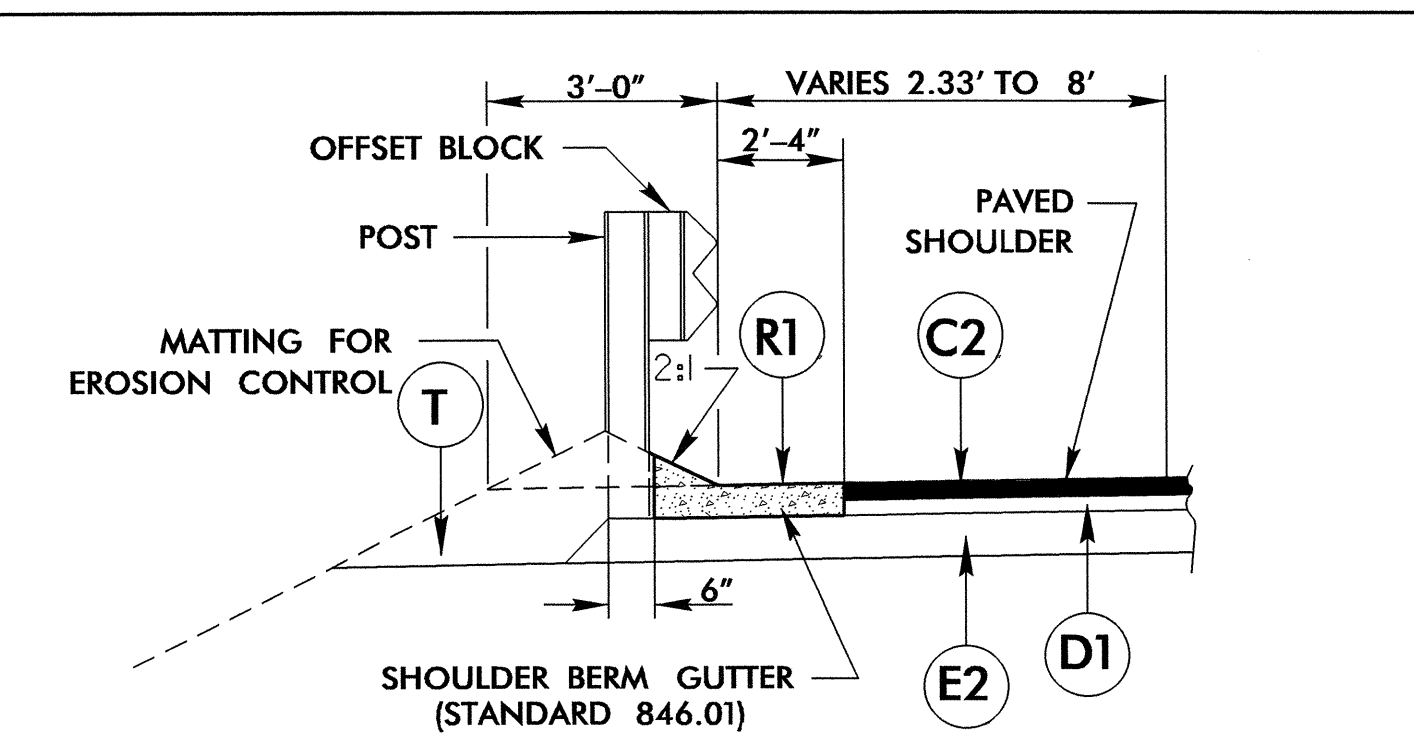
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 6333101001



**FINAL PAVEMENT SCHEDULE**

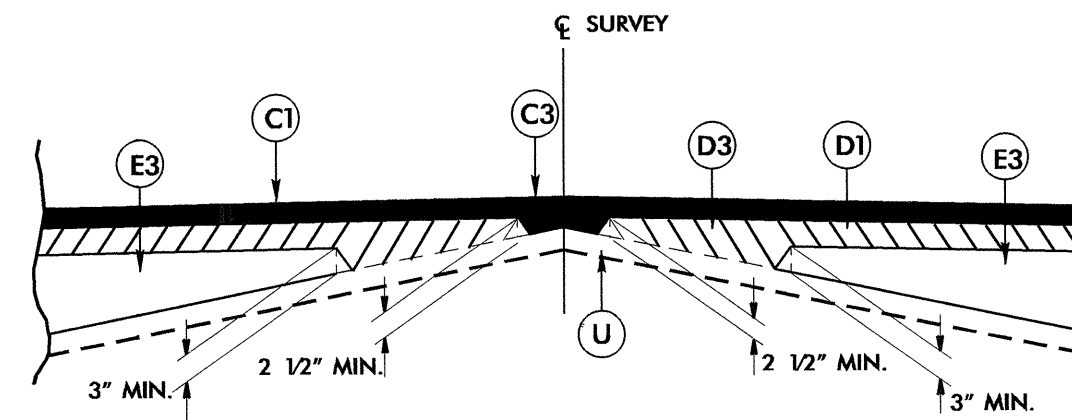
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	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.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
E3	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 5½" IN DEPTH.
J	PROP. 6" AGGREGATE BASE COURSE.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT.

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

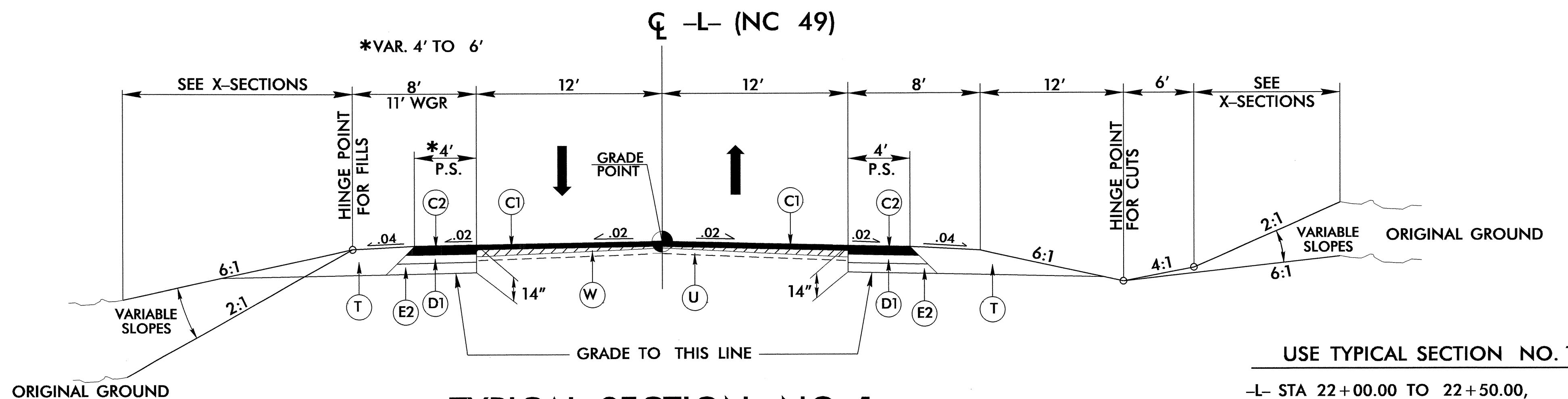


**DETAIL SHOWING SHOULDER BERM GUTTER**

USE WITH TYPICAL SECTION NO. 2  
 -L- STA. 36+13.15 TO 37+50.00 LEFT  
 -L- STA. 32+00.00 TO 32+45.43 RIGHT



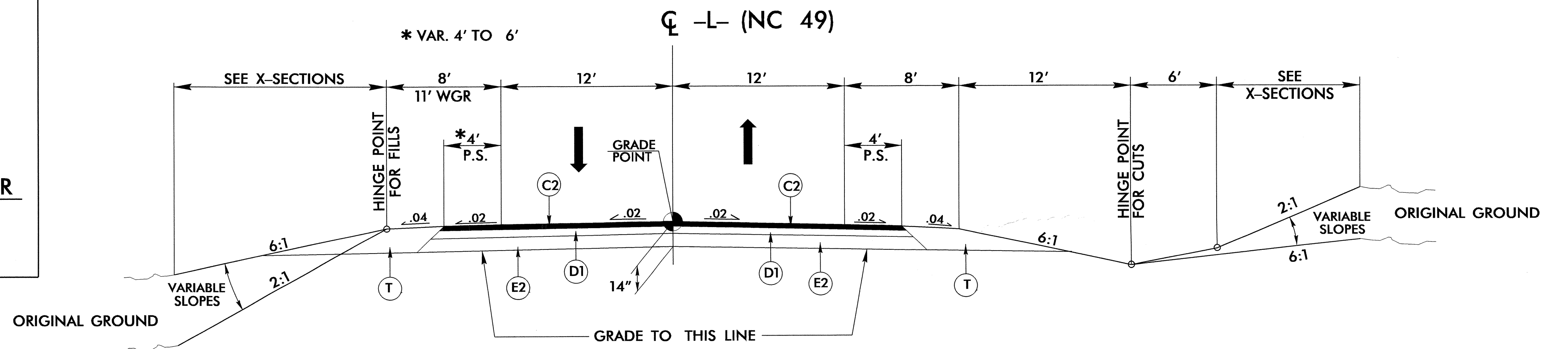
**Detail Showing Method of Wedging**



**TYPICAL SECTION NO. 1**

USE TYPICAL SECTION NO. 1

- L- STA 22+00.00 TO 22+50.00, TRANSITION FROM EXISTING TO T.S.1
- L- STA 22+50.00 TO 27+00.00
- \*-L- STA 27+00.00 TO 28+50.00
- L- STA 40+00.00 TO 43+00.00
- L- STA 43+00.00 TO 43+50.00 TRANSITION FROM T.S.1 TO EXISTING



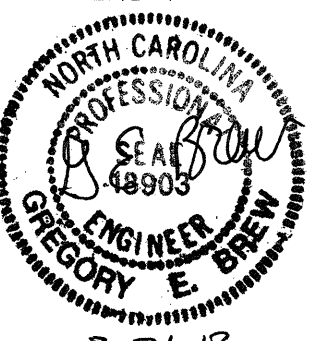

**TYPICAL SECTION NO. 2**

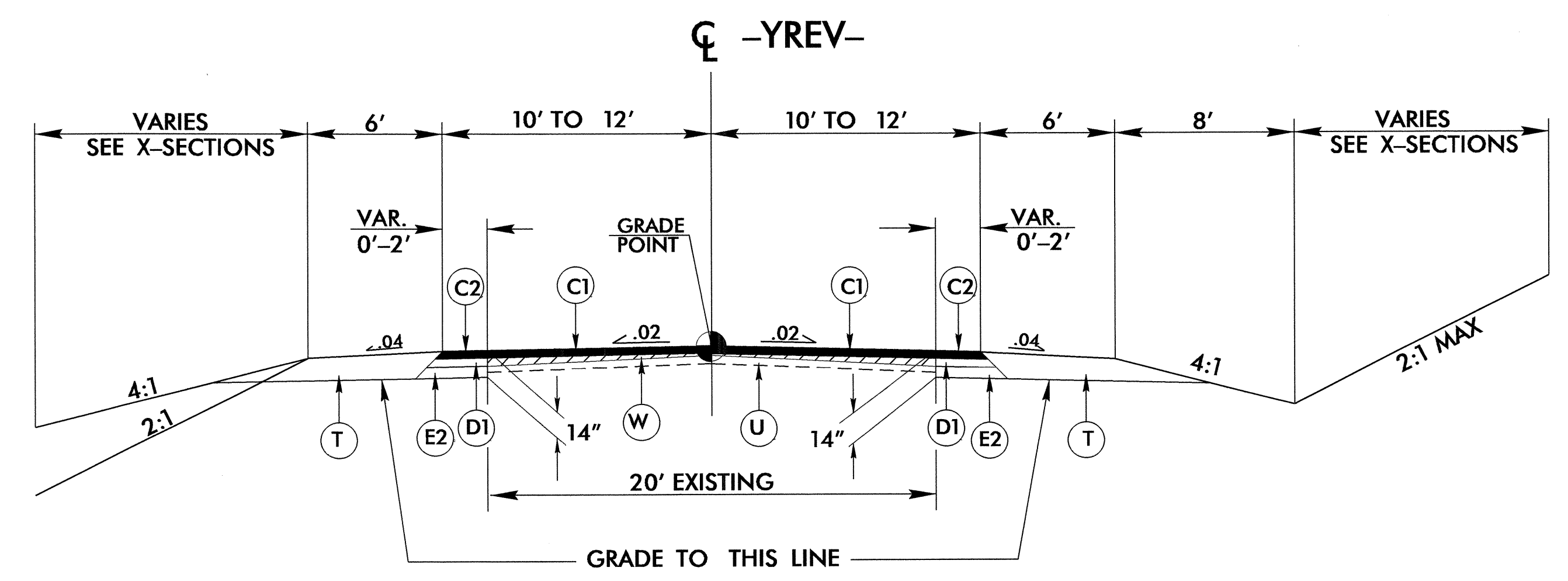
- \*-L- STA 28+50.00 TO 29+00.00
- L- STA 29+00.00 TO 32+95.50 (BEGIN BRIDGE)
- L- STA 35+60.50 (END BRIDGE) TO 40+00.00

PROJECT REFERENCE NO. B-4643	SHEET NO. 2
ROADWAY DESIGN ENGINEER GREGORY E. BRIN SEAL 18903 9-21-13	PAVEMENT DESIGN ENGINEER CLARK S. MORRISON SEAL 22898 9-21-13

6/2/09 20-MAR-2013 13:59 P:\B4643-1\rdy-1\typ.dgn

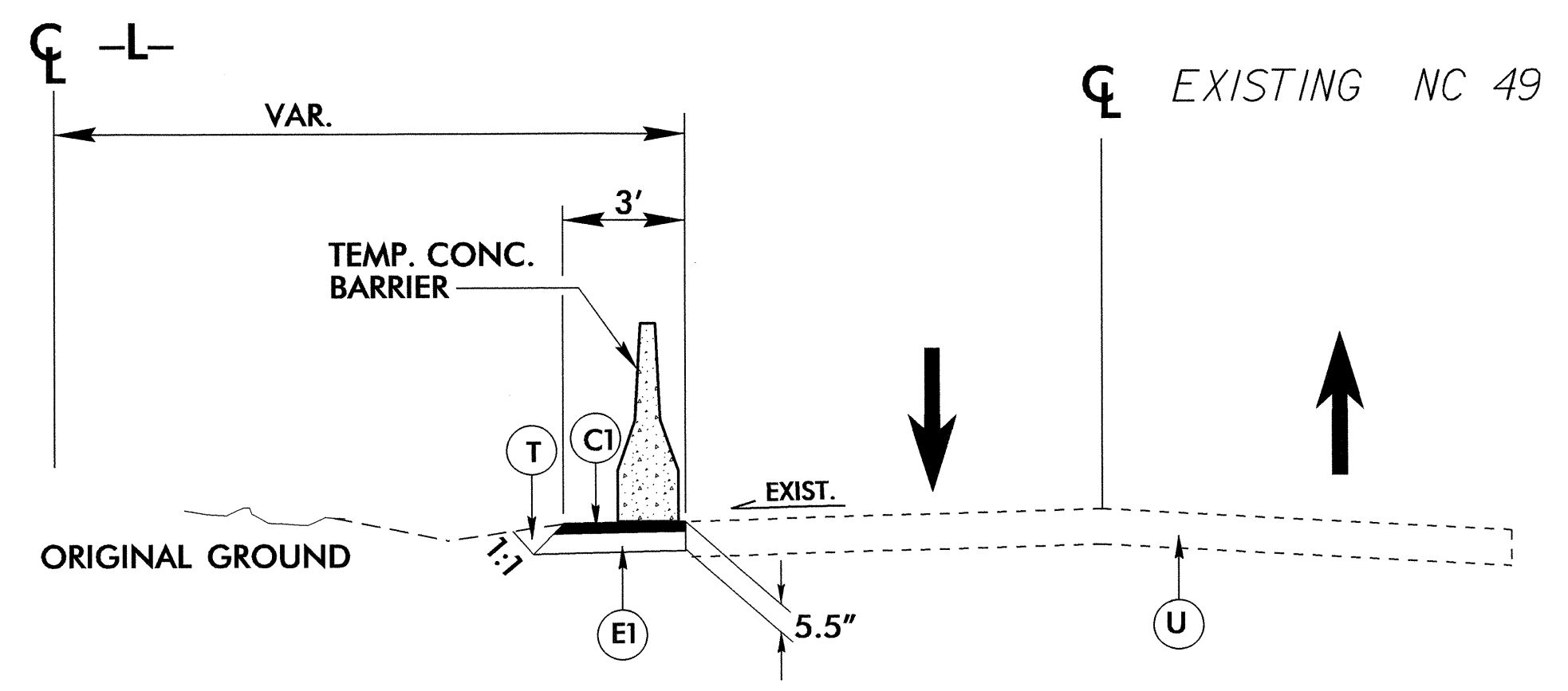
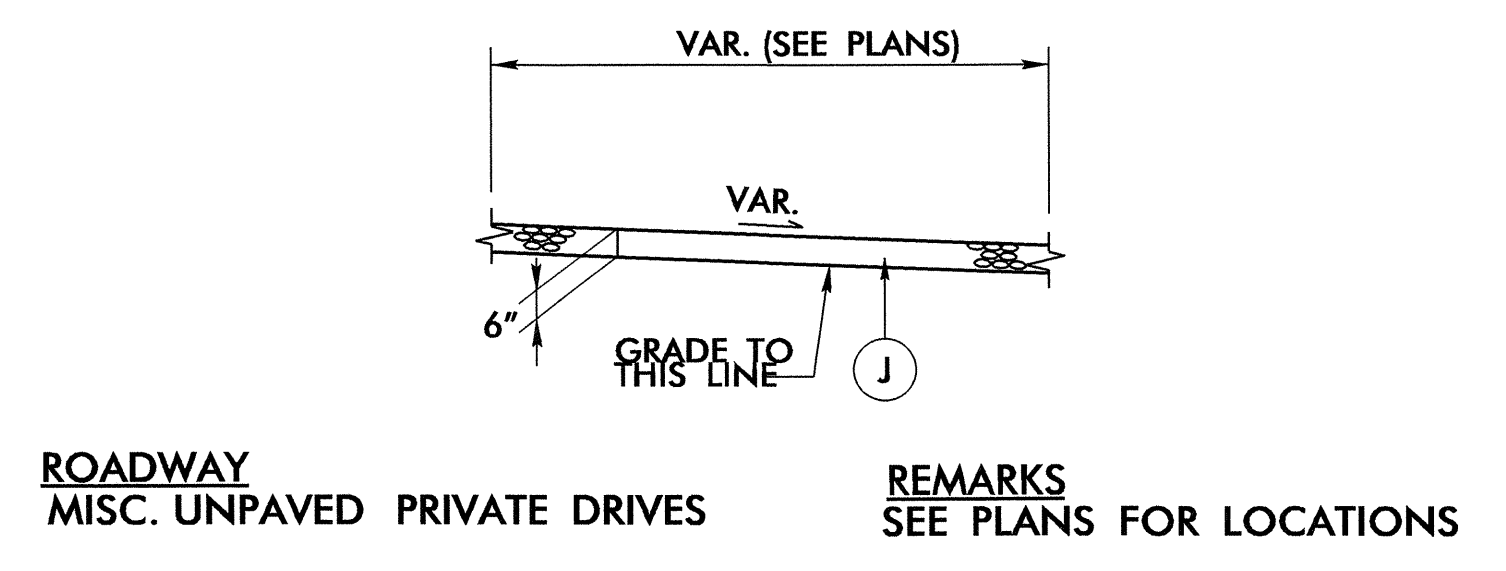
6/2/99

PROJECT REFERENCE NO. B-4643	SHEET NO. 2-A
ROADWAY DESIGN ENGINEER  GREGORY E. BREW 3.21.13	PAVEMENT DESIGN ENGINEER  CLARK S. MORRISON 3.21.13



**TYPICAL SECTION NO. 3**  
-YREV- STA. 10+18.11 TO 11+50.00

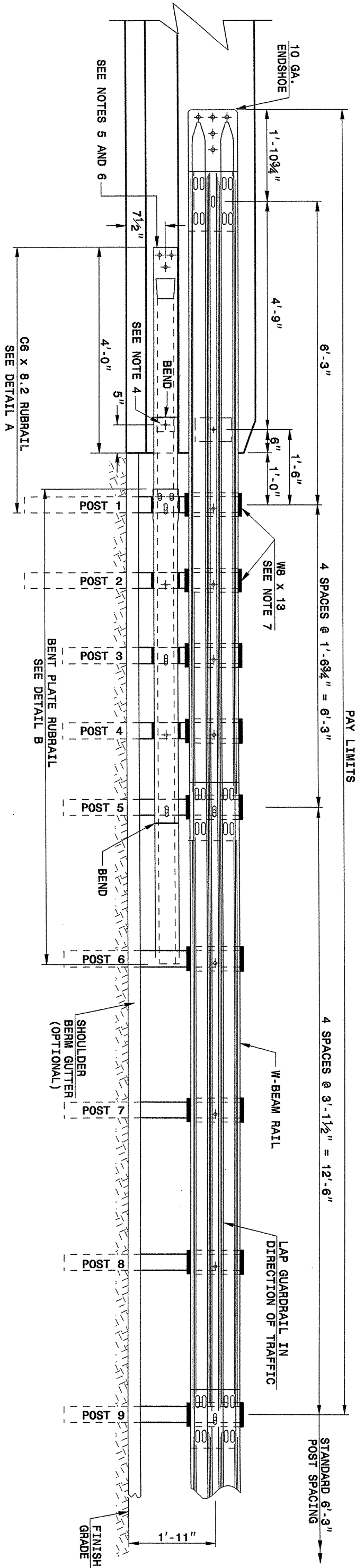
C1	1.5" S9.5C
C2	3" S9.5C
D1	4" I19.0C
E1	4" B25.0C
E2	7" B25.0C
J	6" ABC
T	EARTH MATERIAL
U	EXISTING PAV'T.
W	WEDGING



**TEMPORARY WIDENING TYPICAL SECTION**  
-L- STA. 31+39 TO 32+70 RT  
-L- STA. 34+10 TO 38+44 RT

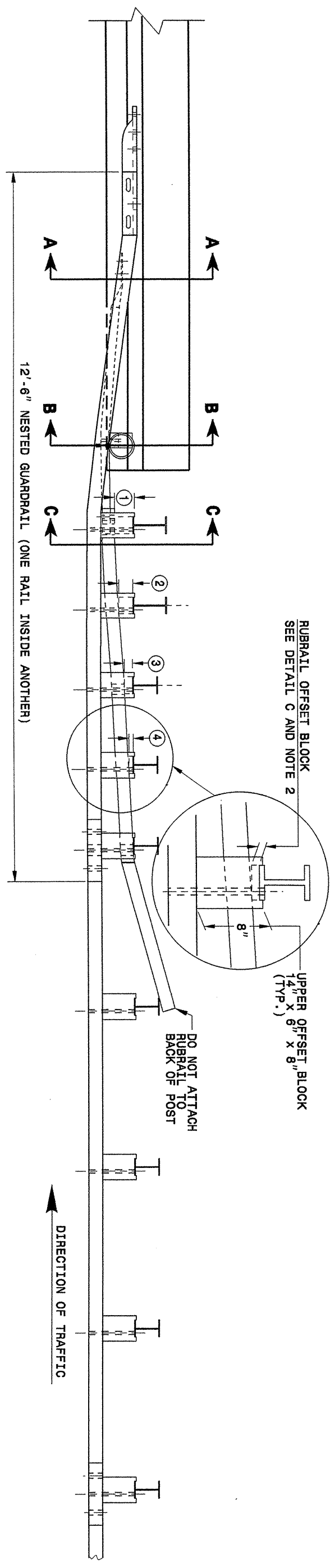
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 \$\$\$\$13FERNANDEZ\$\$\$

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.



ELEVATION

- GENERAL NOTES:
- 1) THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
  - 2) RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH 3/8" BUTTONEHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKOUTS ONLY TO POSTS 2 AND 4, SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED TO POST 5 WITH A 9/8" x 4 1/2" BUTTONEHEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
  - 3) STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" INSIDE DIAMETER X 9" LONG. ATTACH TUBE TO GUARDRAIL ONLY WITH 3/8" DIA. ONE SLOPED RUBRAIL AND NOT ANCHOR BLOCKOUTS AS SHOWN. TO RAIL ELEMENT ONLY, USE 3/8" X 3" LAG BOLT WITH FLAT WASHER.
  - 4) SEE DETAIL A FOR ONE SLOPED RUBRAIL AND NOT ANCHOR BLOCKOUTS AS SHOWN. TO SLOPE OF THE F SHAPE AND ATTACH FLUSH WITH THE SLOPED TOE OF THE BARRIER OR BRIDGE RAIL.
  - 5) SHOP FABRICATE THE C6 X 8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE F SHAPE AND ATTACH FLUSH WITH THE SLOPED ANCHORAGE.
  - 6) ANCHORAGE:
    - (a) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR RUBRAIL USING THREE 5/8" X 6" CHEMICALLY ANCHORED BOLTS.
    - (b) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD DOWN PLATE (SEE STD. DWG. 882-04).
    - (c) AT NEW BRIDGE RAIL, ANCHOR THE W-BEAM END SHOE BEHIND THE NESTED W-BEAM ELEMENTS.
  - 7) POSTS 1 AND 2 ARE WB X 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE WB X 8.5.



PLAN

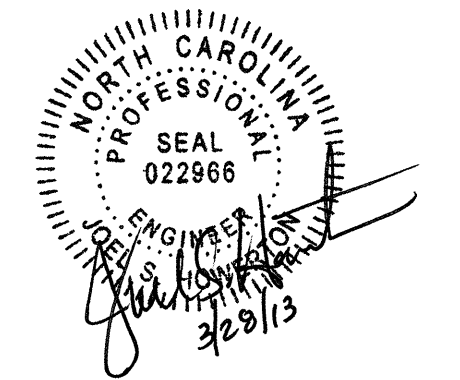
ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNIT GUARDRAIL ANCHOR UNIT TYPE B-77 FOR F-SHAPE BARRIER

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

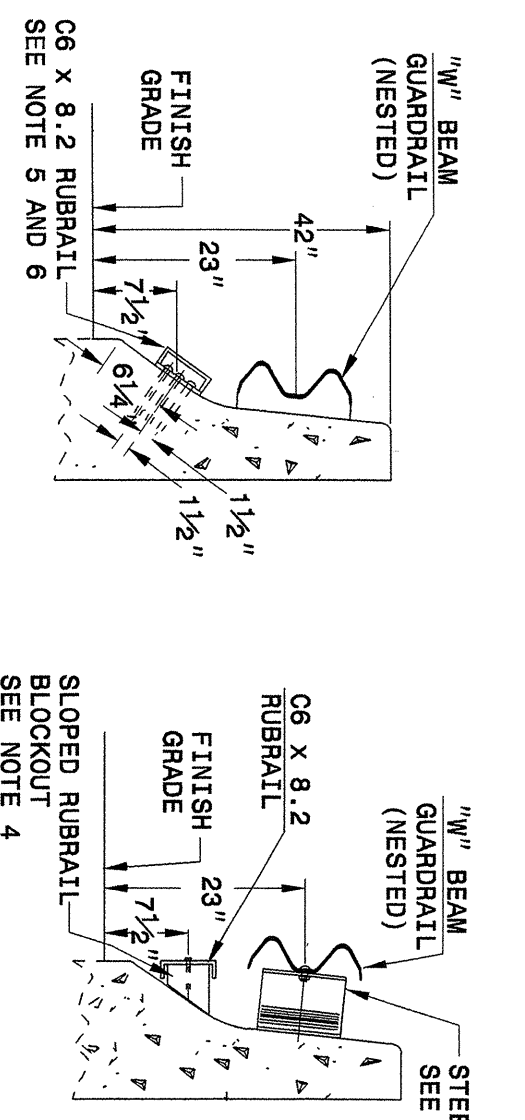
CONTRACT STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON DATE: 06-22-12  
 MODIFIED BY: DATE:   
 CHECKED BY: DATE: 11/13/12  
 FILE SPEC.:



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

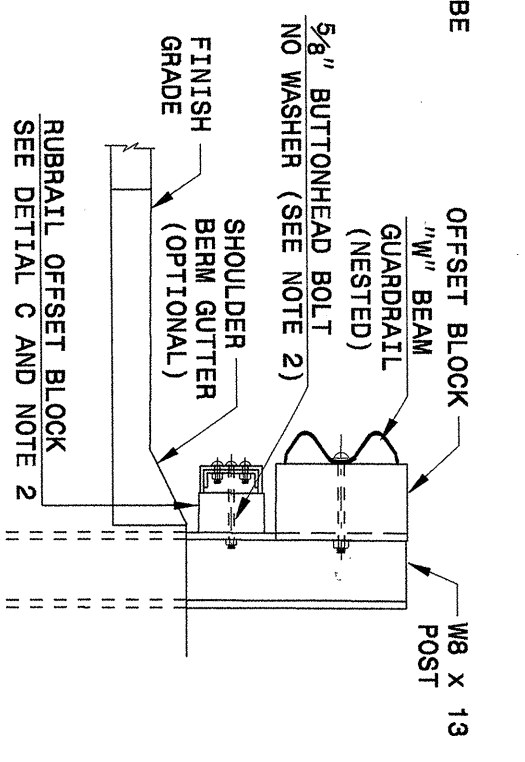


SECTION A-A

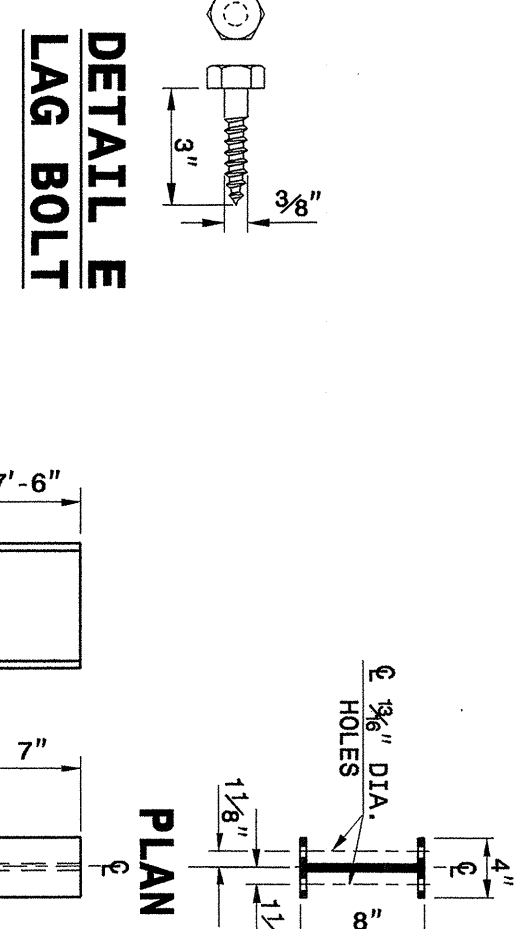
SECTION B-B

RUBRAIL BLOCKS 7" HIGH X 4" WIDE	POST	THICKNESS	BOLT LENGTH
(1)	4 1/4"	9"	5'*
(2)	3 1/4"	5'*	5'*
(3)	2"	2"	3'*
(4)	1"	1"	3'*

\* BOLTS FOR POSTS 2 AND 4 ARE USED TO ATTACH BLOCK TO RUBRAIL.



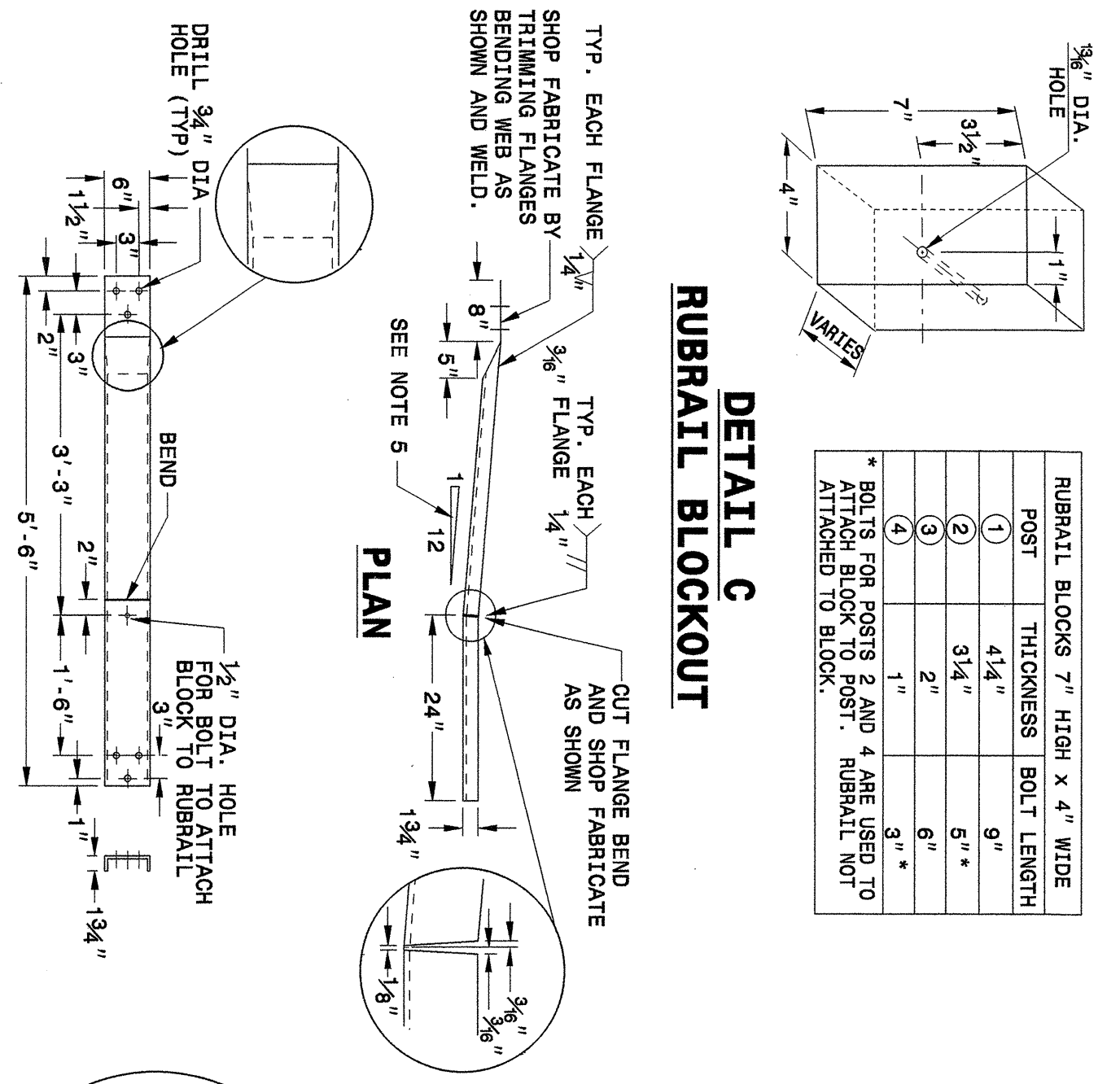
SECTION C-C



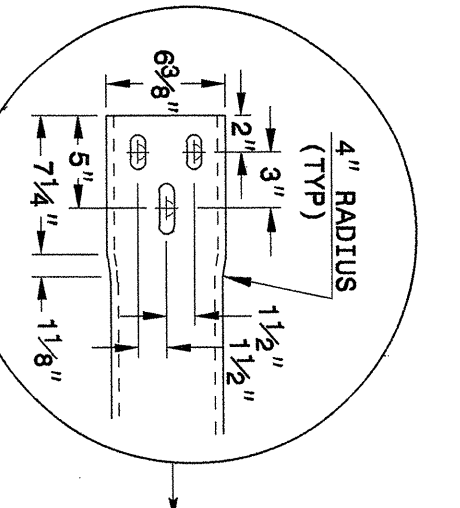
DETAIL E LAG BOLT

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

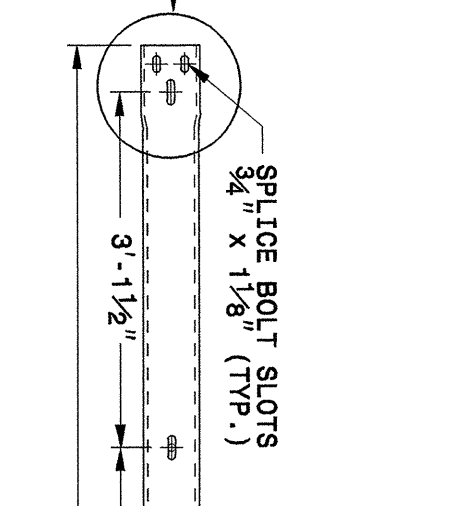
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.



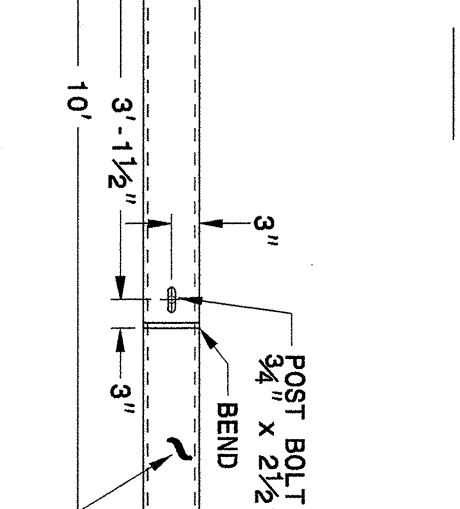
DETAIL C RUBRAIL BLOCKOUT



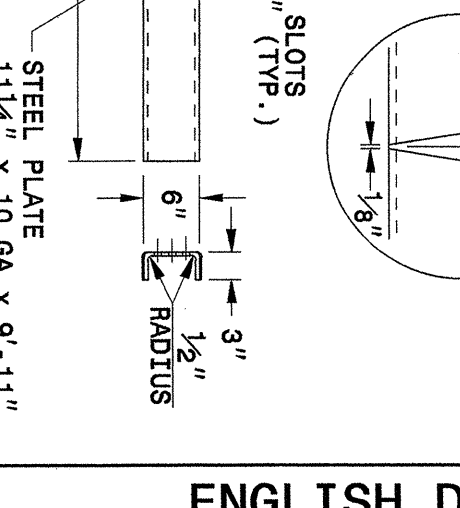
DETAIL D SLOPED RUBRAIL BLOCKOUT



DETAIL F STEEL POST



DETAIL B BENT PLATE RUBRAIL



DETAIL A ELEVATION

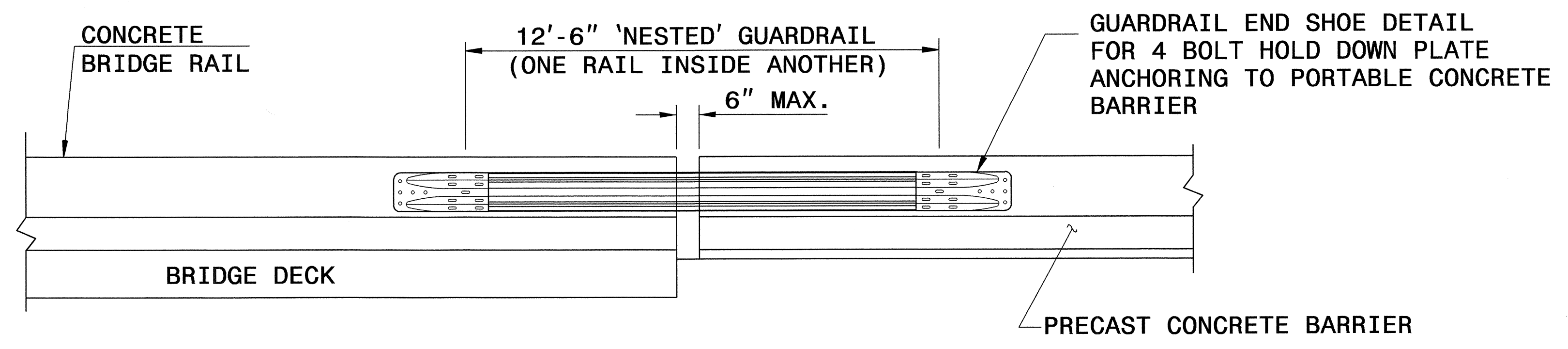
ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNIT GUARDRAIL ANCHOR UNIT TYPE B-77 FOR F-SHAPE BARRIER

SHEET 5 OF 7 862D003

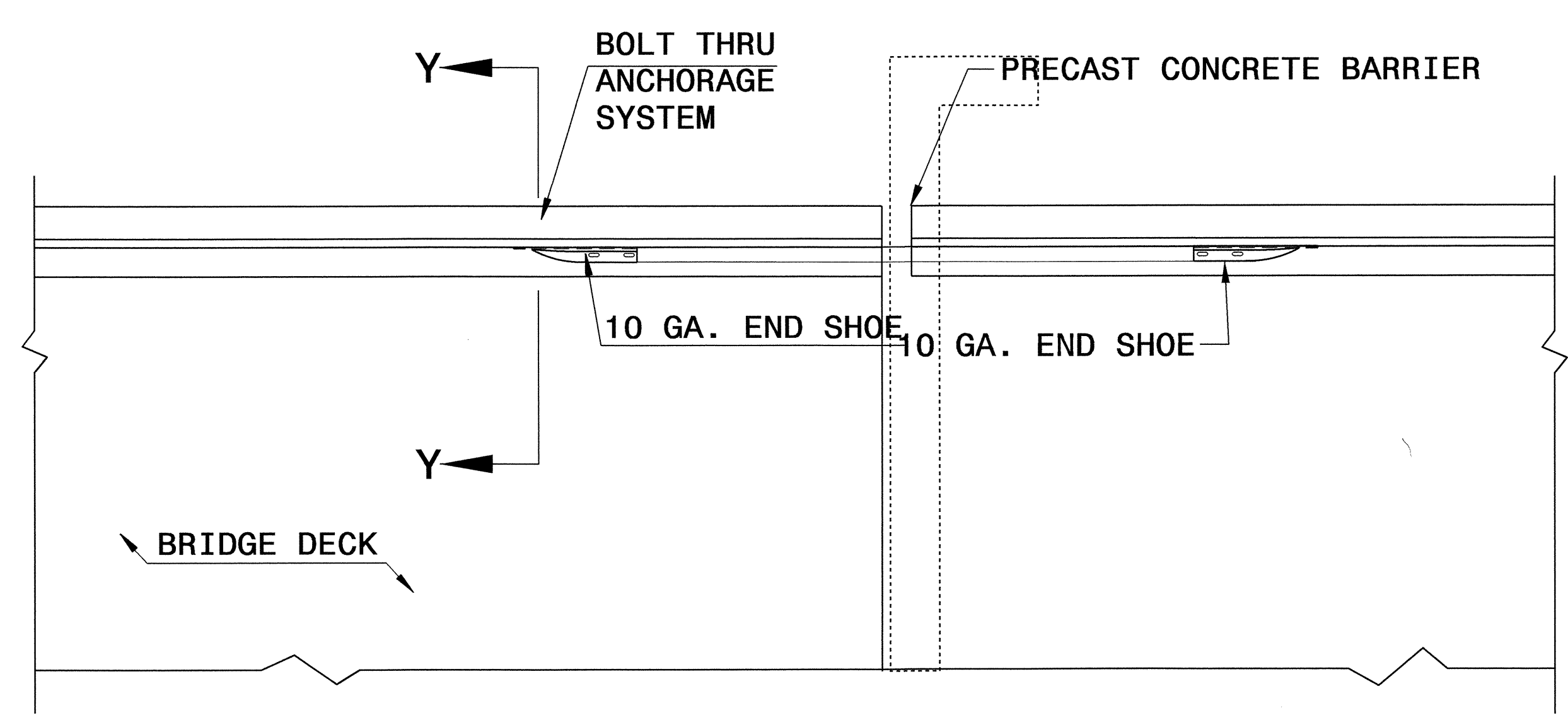
SHEET 5 OF 7 862D003

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**ELEVATION VIEW**



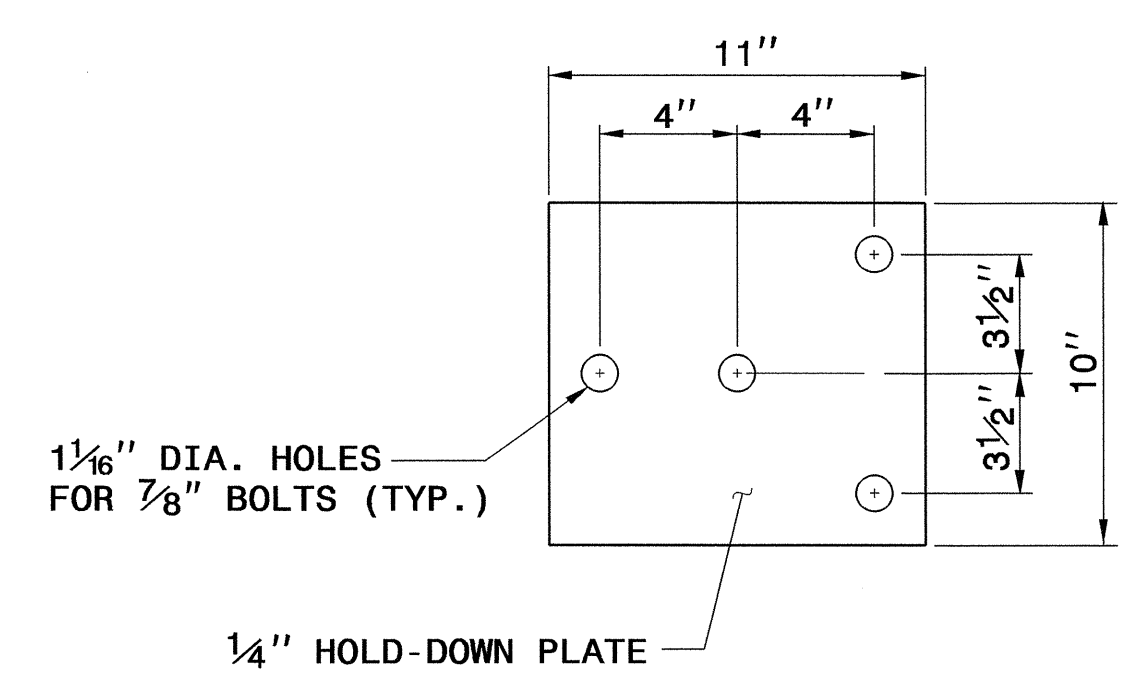
**PLAN VIEW**

**NOTES FOR 4 BOLT HOLD DOWN PLATE**

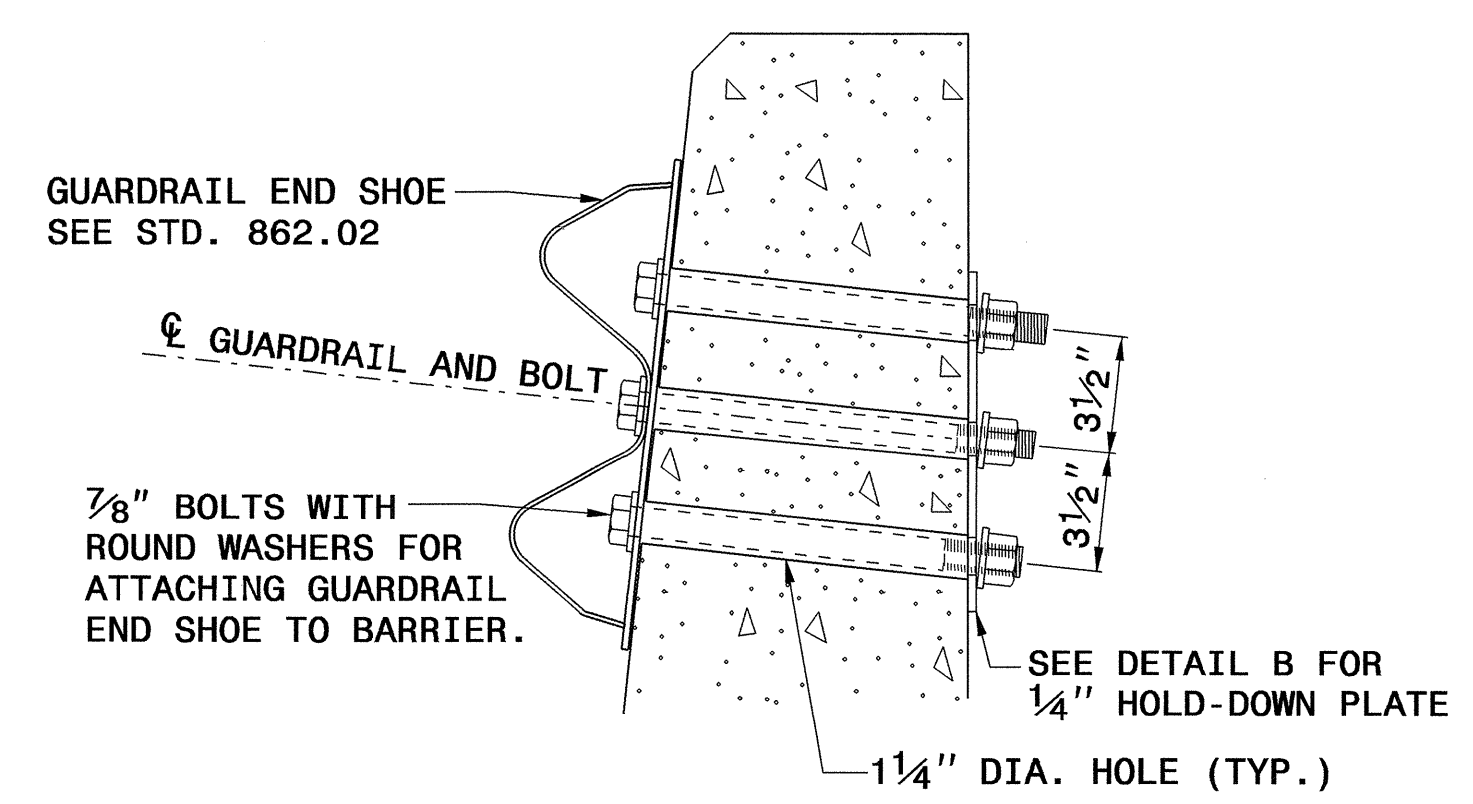
THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 7/8" DIA. BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

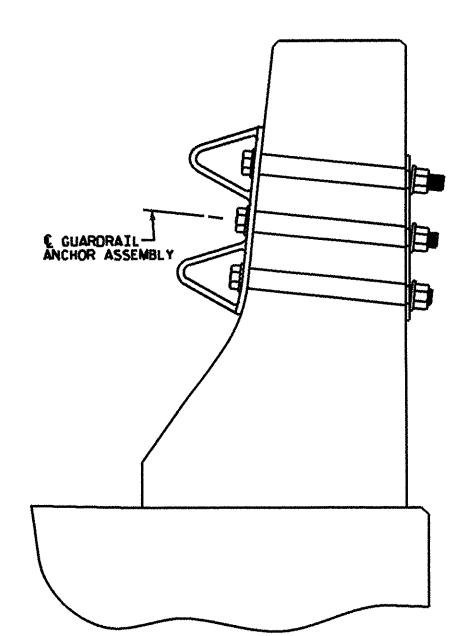
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL. THE 1 1/4" DIA. HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



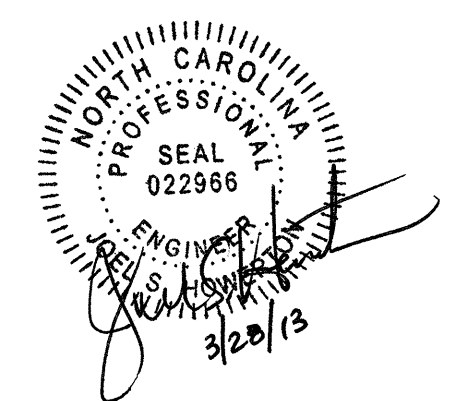
**4 BOLT HOLD DOWN PLATE**



**PART SECTION OF BARRIER OR RAIL THRU END SHOE SECTION AND 4 BOLT HOLD DOWN PLATE**



**SECTION Y-Y**

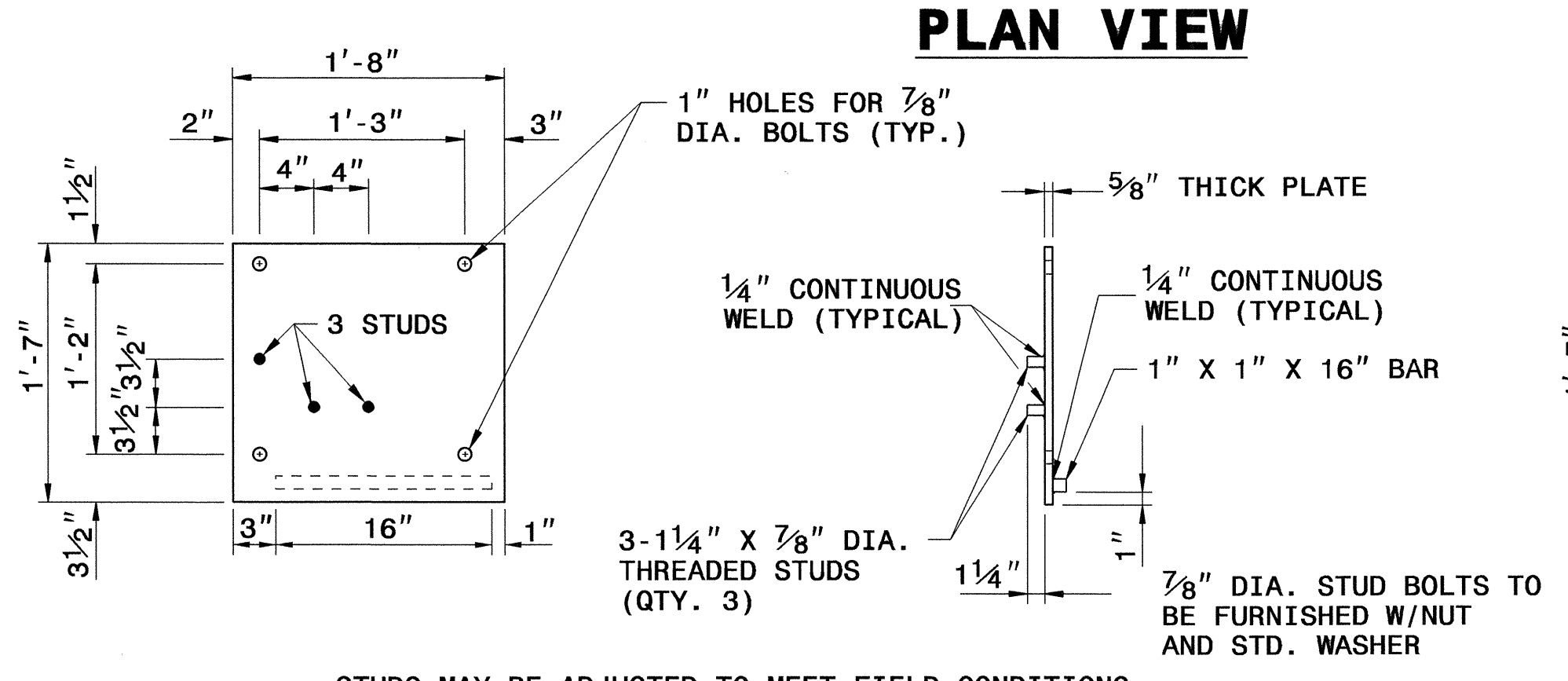
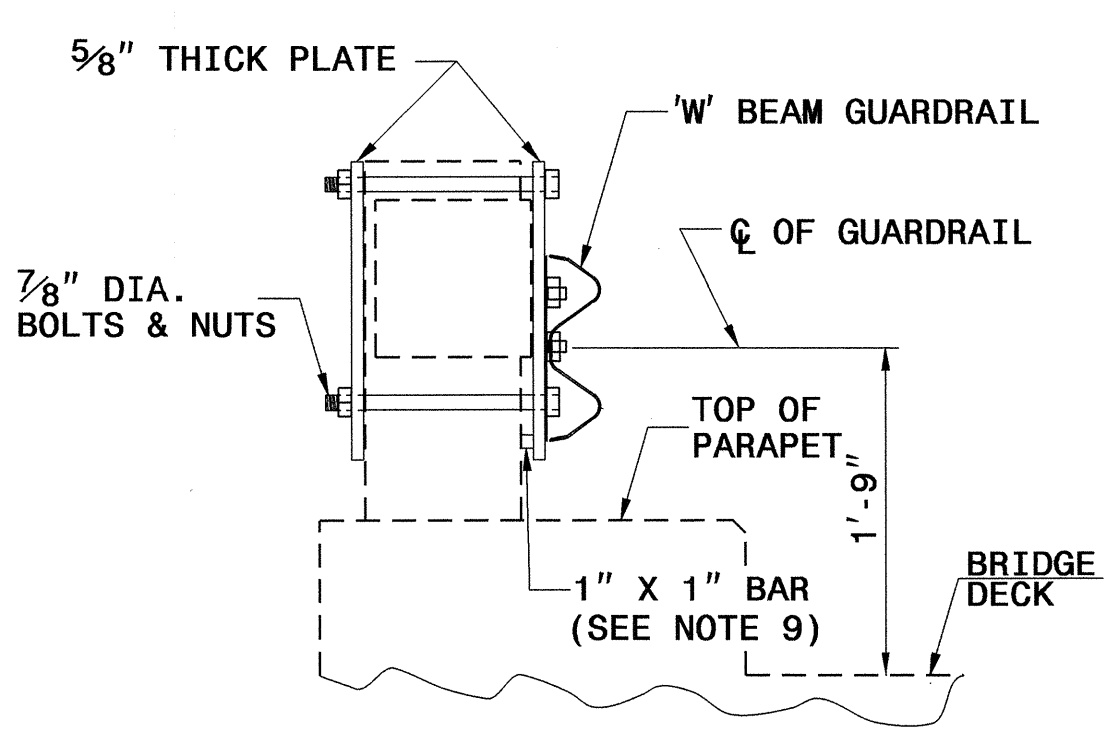
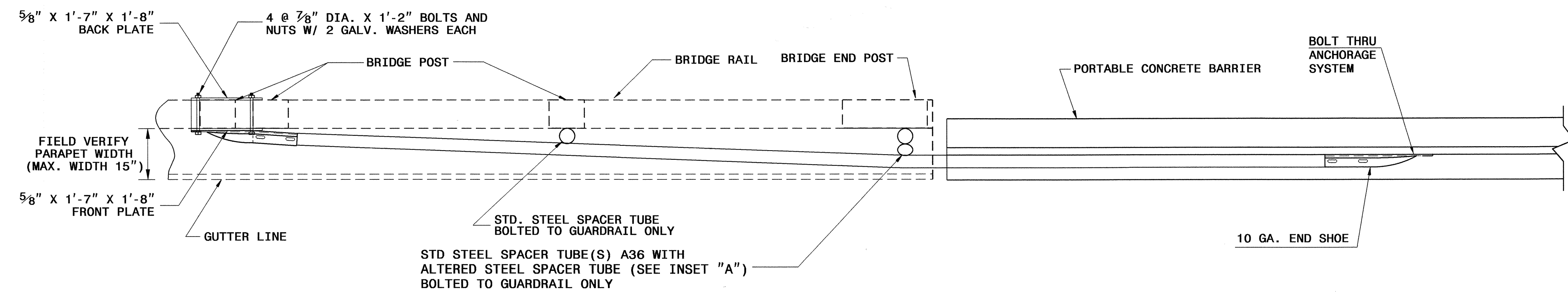
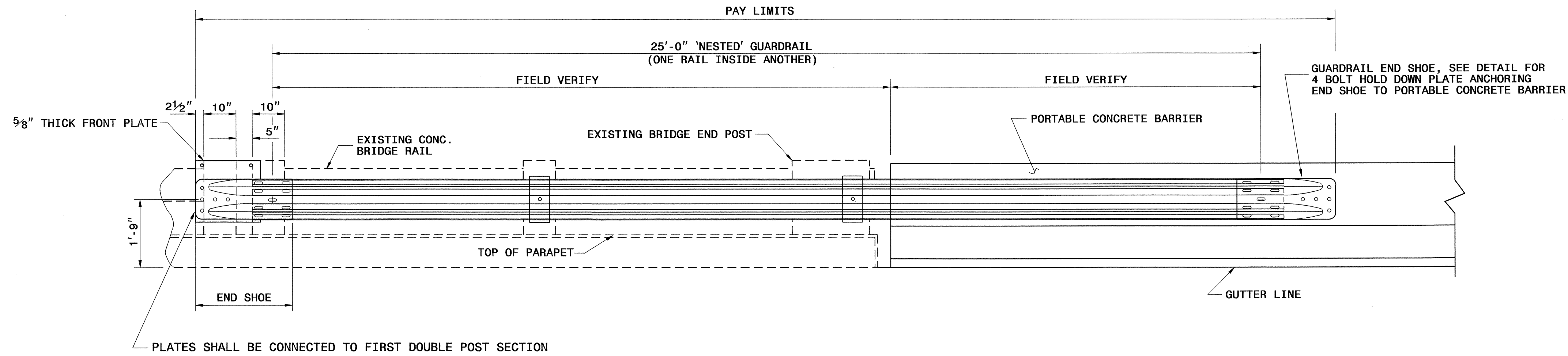


**CONTRACT STANDARDS AND DEVELOPMENT UNIT**  
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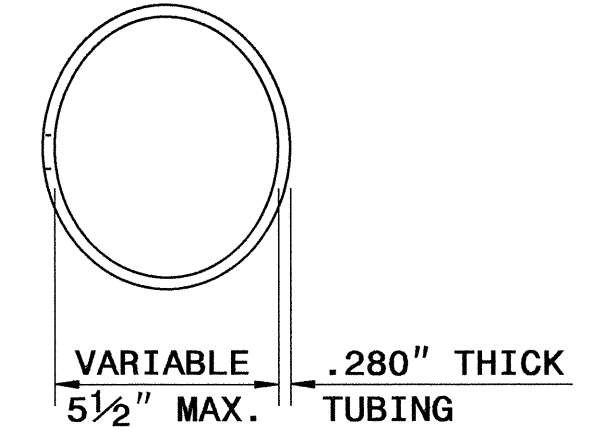
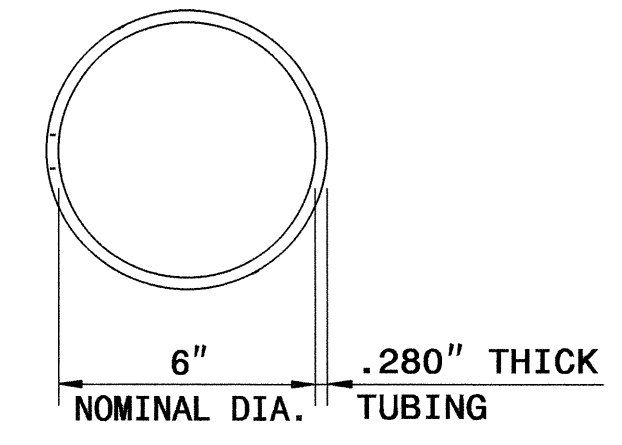
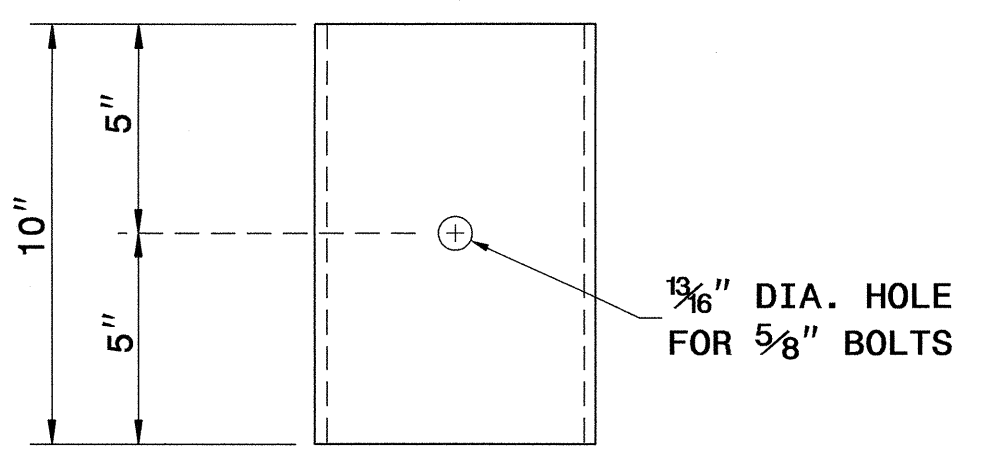
**TEMPORARY ANCHOR UNIT TYPE W-BEAM**

ORIGINAL BY: C.O. CUEVAS DATE: 8-99  
 MODIFIED BY: E.E. WARD DATE: 8-03  
 CHECKED BY: *[Signature]* DATE: 2/13/13  
 FILE SPEC.: Usr/details/stand/862stds/anc.dgn

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**FRONT PLATE**



**STEEL SPACER TUBE**

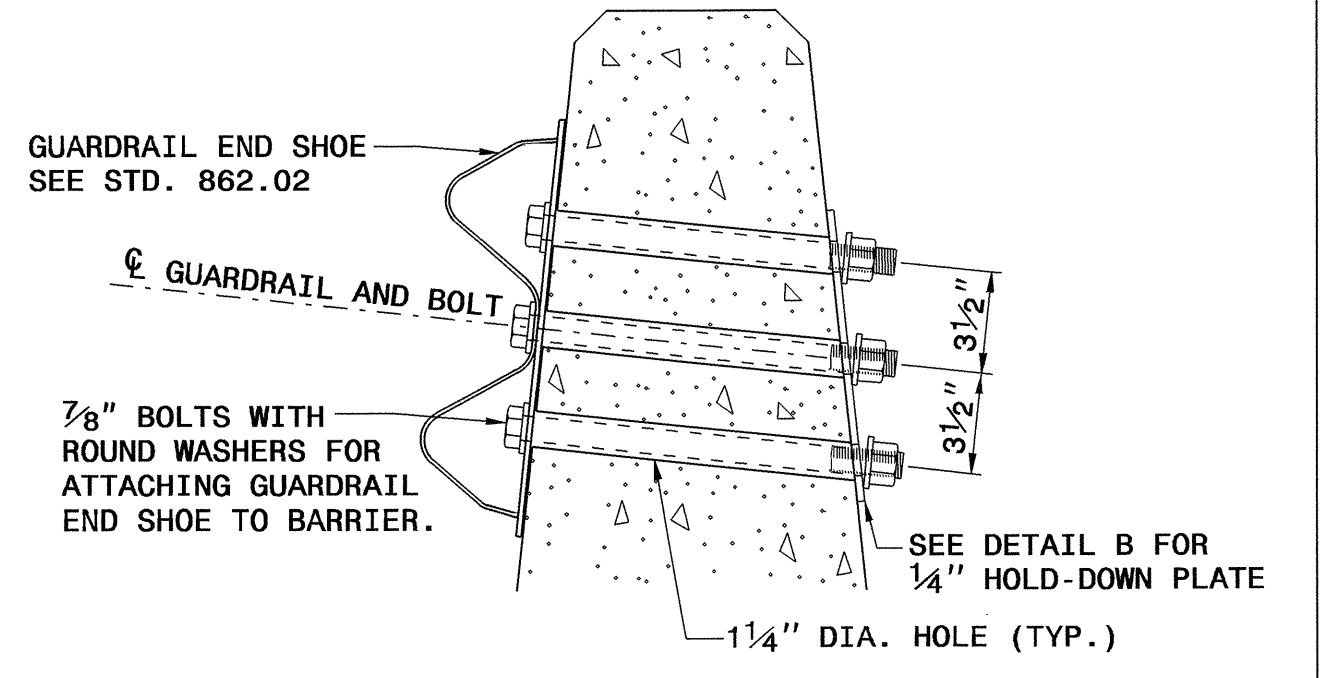
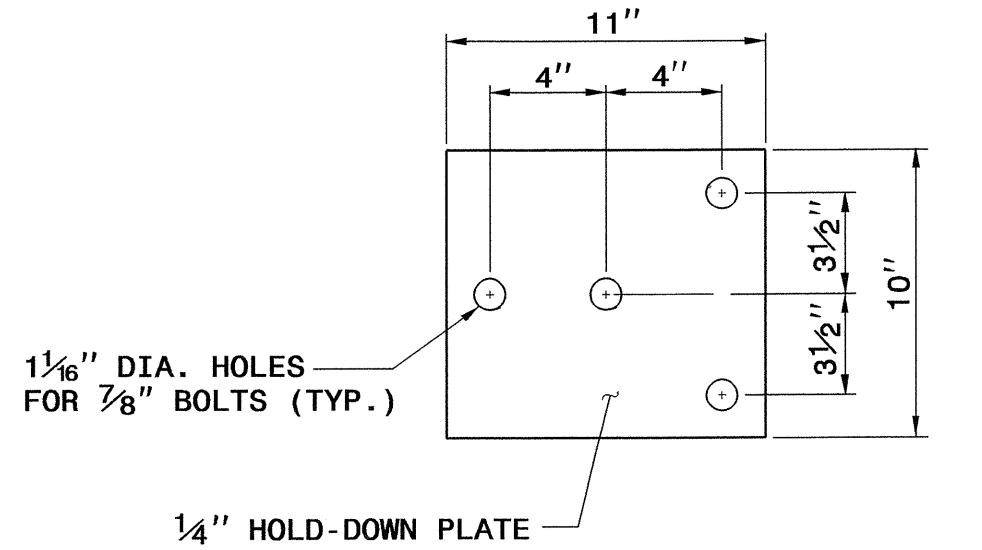
- GENERAL NOTES:**
1. USE NUTS, BOLTS, AND WASHERS CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-307 AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS.
  2. TAP NUTS FOR THE 7/8" DIA. STUDS AND BOLTS AFTER GALVANIZING SEE A.S.T.M. A-563.
  3. USE PLATES AND TUBES CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-36 AND GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS.
  4. ADDITIONAL FIELD HOLES MAY BE DRILLED IN STEEL RAIL AS DIRECTED BY THE ENGINEER.
  5. INSTALL FACE OF GUARDRAIL AS NEAR AS POSSIBLE TO PLUMB WITH THE PARAPET FACE AT BRIDGE END POST SPACER TUBE LOCATION BY USING STANDARD OR ALTERED SPACER TUBES OR A COMBINATION THEREOF OR AS DIRECTED BY THE ENGINEER. FOR VERY SMALL PARAPET WIDTHS, GUARDRAIL MAY BE INSTALLED AGAINST BRIDGE RAIL WITHOUT SPACER TUBES.
  6. DO NOT DRILL BRIDGE RAIL IN ORDER TO INSTALL GUARDRAIL ANCHOR UNIT.
  7. KEEP TOE OF PORTABLE CONCRETE BARRIER FLUSH WITH FACE OF PARAPET.
  8. ATTACH 1" X 1" BAR AND THREADED STUDS TO PLATE WITH 1/4" WELDS ALL AROUND.
  9. 1" X 1" BAR MAY NOT BE NEEDED ON BRIDGE RAILS WHERE FACE OF RAIL DOES NOT PROJECT BEYOND FACE OF POST.

**NOTES FOR 4 BOLT HOLD DOWN PLATE**

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 7/8" DIA. BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

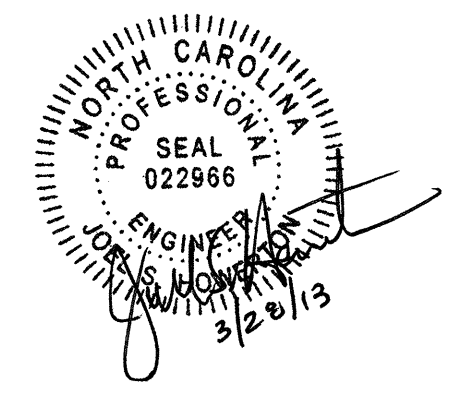
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL. THE 1/4" DIA. HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



**CONTRACT STANDARDS AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

**TEMPORARY ANCHOR UNIT TYPE W-BEAM**

ORIGINAL BY: E.E. WARD DATE: 4-03  
 MODIFIED BY: E.E. WARD DATE: 6-04  
 CHECKED BY: [Signature] DATE: 2/13/13  
 FILE SPEC.: \\usf\details\stand\862stds\anc.dgn



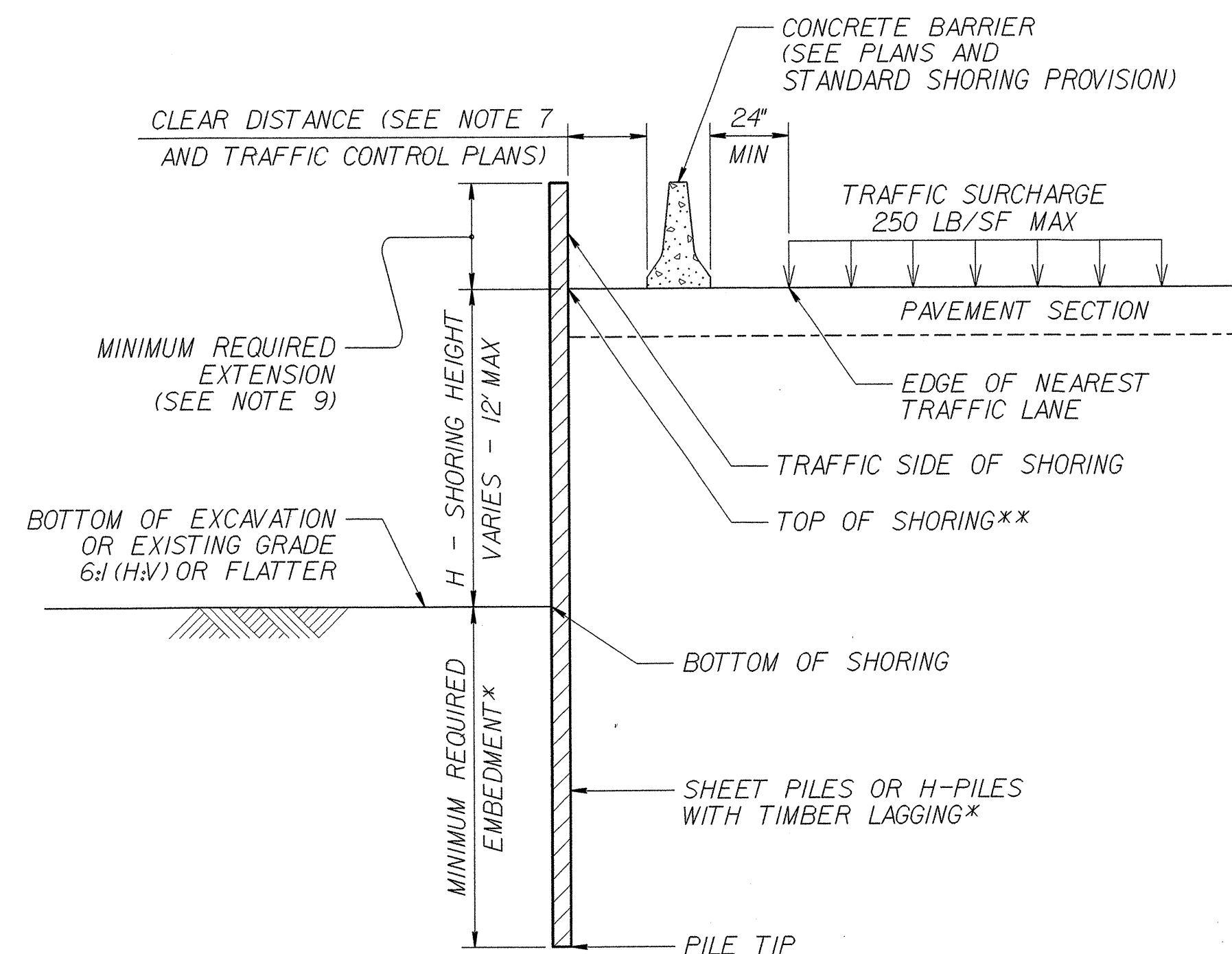
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT* (FT)	MINIMUM REQUIRED SECTION MODULUS (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
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**

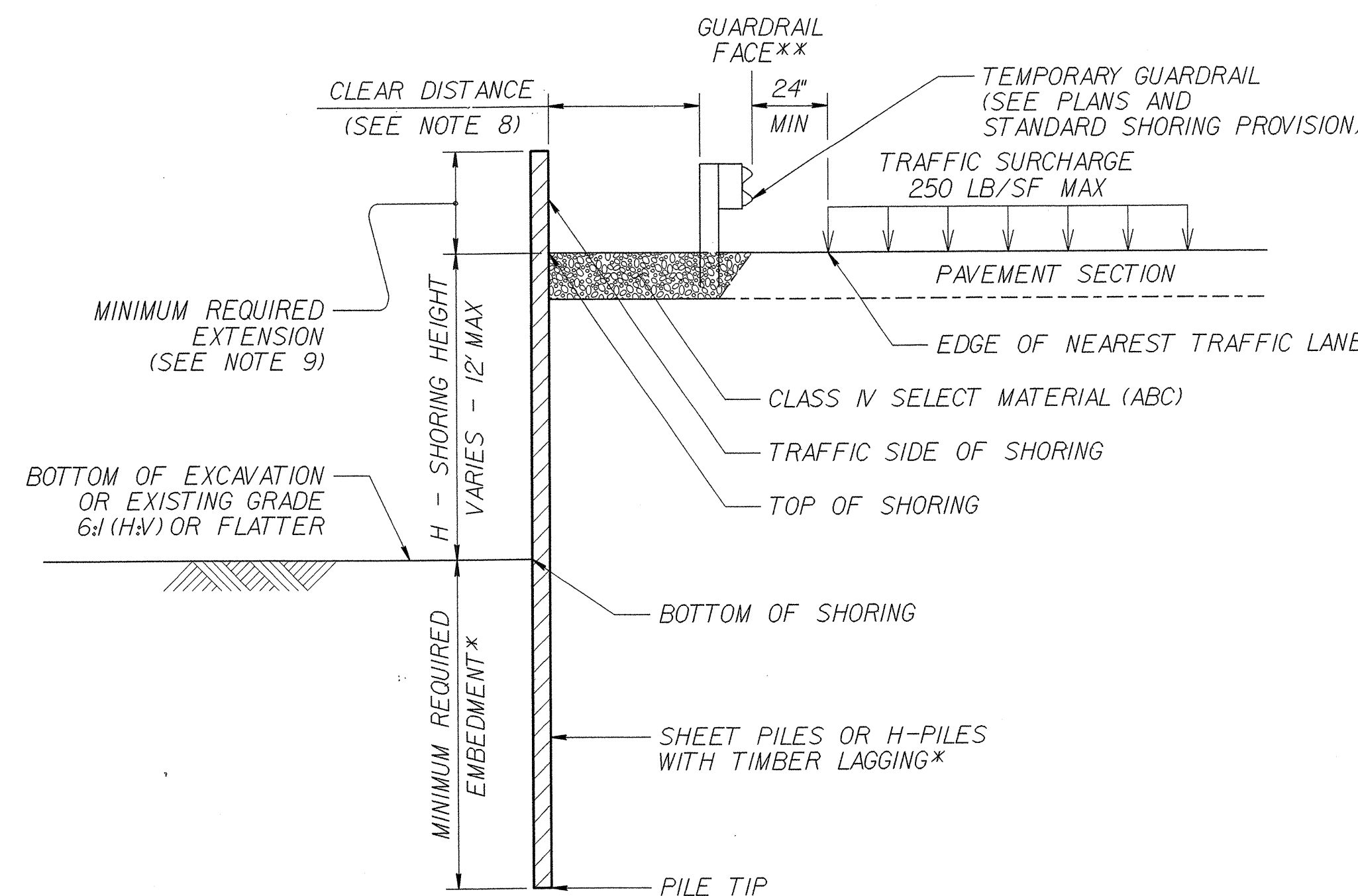
**\*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".**

**NOTES:**

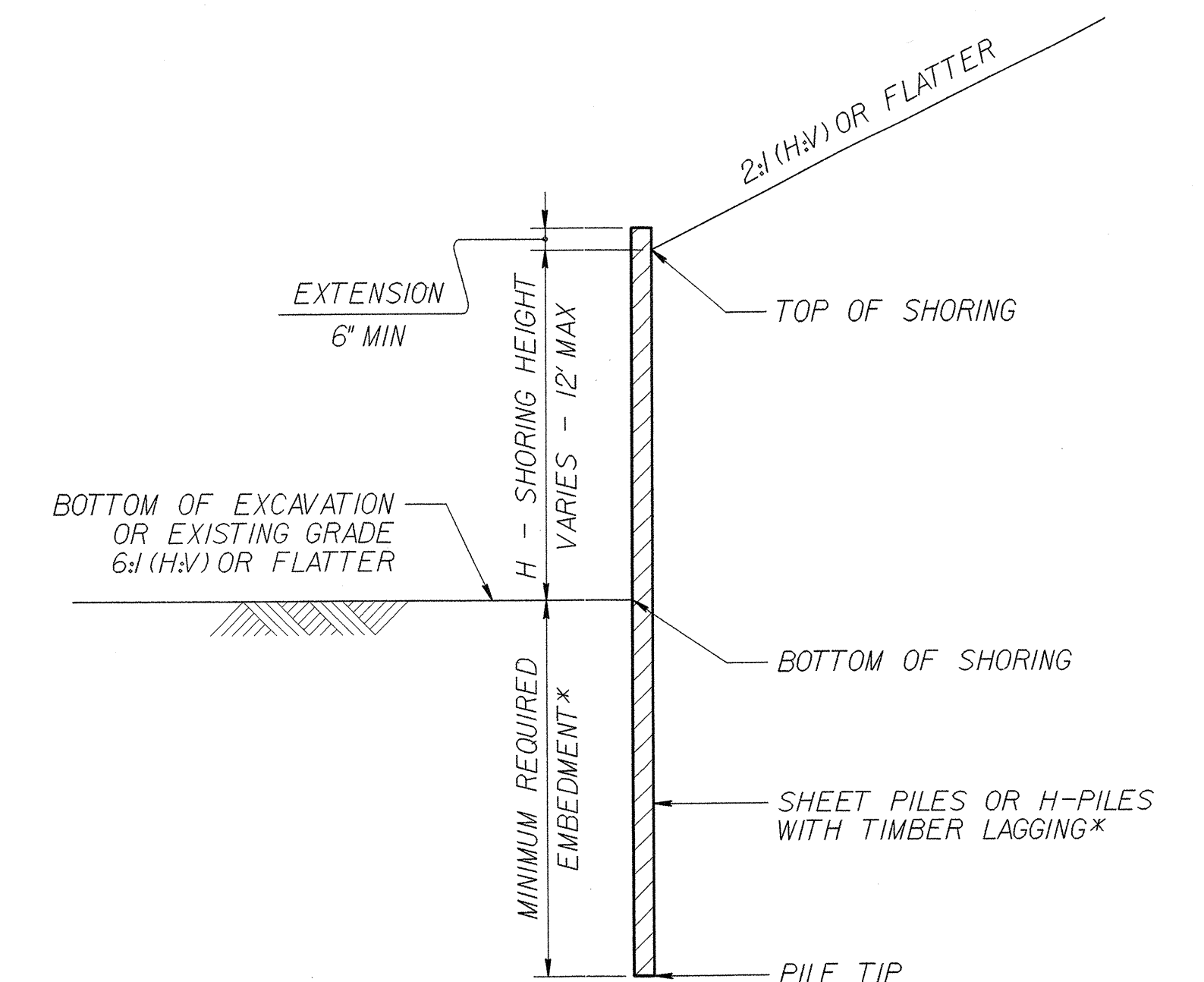
1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:  
UNIT WEIGHT,  $\gamma = 120$  LB/CF  
FRICTION ANGLE,  $\phi = 30$  DEGREES  
COHESION,  $c = 0$  LB/SF
4. DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
6. 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.
7. 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".
8. 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".
9. MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
10. 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.
11. 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.
12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



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

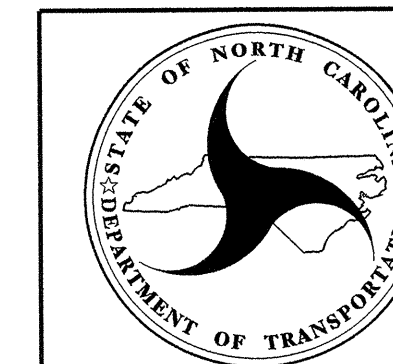


**TEMPORARY GUARDRAIL**  
**\*\*GUARDRAIL FACE =**  
**EDGE OF PAVEMENT**



**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**

DATE: 1-17-12

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203156

ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (34+28-L-)
004300000-N	226	Lump Sum		GRADING
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
005700000-E	226	700	CY	UNDERCUT EXCAVATION
013400000-E	240	739	CY	DRAINAGE DITCH EXCAVATION
019500000-E	265	500	CY	SELECT GRANULAR MATERIAL
019600000-E	270	2,300	SY	GEOTEXTILE FOR SOIL STABILIZATION
019900000-E	SP	1,180	SF	TEMPORARY SHORING
031800000-E	300	85	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
032000000-E	300	260	SY	FOUNDATION CONDITIONING GEOTEXTILE
033520000-E	305	36	LF	15" DRAINAGE PIPE
033530000-E	305	80	LF	18" DRAINAGE PIPE
033585000-E	305	2	EA	*** DRAINAGE PIPE ELBOWS (15")
034300000-E	310	140	LF	15" SIDE DRAIN PIPE
036600000-E	310	240	LF	15" RC PIPE CULVERTS, CLASS III
044820000-E	310	104	LF	15" RC PIPE CULVERTS, CLASS IV
044840000-E	310	56	LF	24" RC PIPE CULVERTS, CLASS IV
044870000-E	310	120	LF	42" RC PIPE CULVERTS, CLASS IV
099500000-E	340	214	LF	PIPE REMOVAL
109950000-E	505	500	CY	SHALLOW UNDERCUT
109970000-E	505	1,000	TON	CLASS IV SUBGRADE STABILIZATION
112100000-E	520	100	TON	AGGREGATE BASE COURSE
122000000-E	545	200	TON	INCIDENTAL STONE BASE
133000000-E	607	100	SY	INCIDENTAL MILLING

SUMMARY OF QUANTITIES - B-4643

ItemNumber	Sec #	Quantity	Unit	Description
149100000-E	610	2,570	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C
150300000-E	610	1,475	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C
152300000-E	610	1,325	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C
157500000-E	620	262	TON	ASPHALT BINDER FOR PLANT MIX
169300000-E	654	70	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
202200000-E	815	115	CY	SUBDRAIN EXCAVATION
203300000-E	815	85	CY	SUBDRAIN FINE AGGREGATE
204400000-E	815	500	LF	6" PERFORATED SUBDRAIN PIPE
207000000-N	815	1	EA	SUBDRAIN PIPE OUTLET
207700000-E	815	6	LF	6" OUTLET PIPE
220900000-E	838	8	CY	ENDWALLS
225300000-E	840	2	CY	PIPE COLLARS
226400000-E	840	1	CY	PIPE PLUGS
227500000-E	SP	3	CY	FLOWABLE FILL
228600000-N	840	4	EA	MASONRY DRAINAGE STRUCTURES
236600000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.24
236700000-N	840	3	EA	FRAME WITH TWO GRATES, STD 840.29
246200000-E	SP	3	EA	*** SLUICE GATE (18")
255600000-E	846	190	LF	SHOULDER BERM GUTTER
303000000-E	862	550	LF	STEEL BM GUARDRAIL
315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
327000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
331700000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
338700000-N	862	2	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (W-BEAM)

ItemNumber	Sec #	Quantity	Unit	Description
362800000-E	876	63	TON	RIP RAP, CLASS I
364900000-E	876	57	TON	RIP RAP, CLASS B
365600000-E	876	2,184	SY	GEOTEXTILE FOR DRAINAGE
407200000-E	903	120	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
409600000-N	904	2	EA	SIGN ERECTION, TYPE D
410200000-N	904	4	EA	SIGN ERECTION, TYPE E
415500000-N	907	9	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
440000000-E	1110	104	SF	WORK ZONE SIGNS (STATIONARY)
440500000-E	1110	176	SF	WORK ZONE SIGNS (PORTABLE)
441000000-E	1110	26	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
443000000-N	1130	53	EA	DRUMS
444500000-E	1145	32	LF	BARRICADES (TYPE III)
445000000-N	1150	1,200	HR	FLAGGER
446500000-N	1160	6	EA	TEMPORARY CRASH CUSHIONS
447000000-N	1160	2	EA	RESET TEMPORARY CRASH CUSHION
449000000-E	1170	1,090	LF	PORTABLE CONCRETE BARRIER (ANCHORED)
450500000-E	1170	560	LF	RESET PORTABLE CONCRETE BARRIER (ANCHORED)
465000000-N	1251	62	EA	TEMPORARY RAISED PAVEMENT MARKERS
468500000-E	1205	2,893	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
468600000-E	1205	3,938	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
469500000-E	1205	730	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
477000000-E	1205	1,060	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (II)
481000000-E	1205	16,730	LF	PAINT PAVEMENT MARKING LINES (4")
484500000-N	1205	2	EA	PAINT PAVEMENT MARKING SYMBOL

ItemNumber	Sec #	Quantity	Unit	Description
490000000-N	1251	24	EA	PERMANENT RAISED PAVEMENT MARKERS
600000000-E	1605	2,800	LF	TEMPORARY SILT FENCE
600600000-E	1610	450	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	465	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	660	TON	SEDIMENT CONTROL STONE
601500000-E	1615	6	ACR	TEMPORARY MULCHING
601800000-E	1620	250	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	2.25	TON	FERTILIZER FOR TEMPORARY SEEDING
602400000-E	1622	360	LF	TEMPORARY SLOPE DRAINS
602900000-E	SP	800	LF	SAFETY FENCE
603000000-E	1630	2,500	CY	SILT EXCAVATION
603600000-E	1631	14,000	SY	MATTING FOR EROSION CONTROL
603700000-E	SP	800	SY	COIR FIBER MAT
603800000-E	SP	1,000	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	475	LF	1/4" HARDWARE CLOTH
604500000-E	SP	70	LF	*** TEMPORARY PIPE (18")
606900000-E	1638	100	CY	STILLING BASINS
607000000-N	1639	18	EA	SPECIAL STILLING BASINS
607101000-E	SP	575	LF	WATTLE
607102000-E	SP	200	LB	POLYACRYLAMIDE (PAM)
607103000-E	1640	700	LF	COIR FIBER BAFFLE
607105000-E	SP	7	EA	*** SKIMMER (1-1/2")
608400000-E	1660	6	ACR	SEEDING & MULCHING
608700000-E	1660	3	ACR	MOWING
609000000-E	1661	100	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING

ItemNumber	Sec #	Quantity	Unit	Description
609600000-E	1662	150	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	4.25	TON	FERTILIZER TOPDRESSING
611100000-E	SP	75	LF	IMPERVIOUS DIKE
611450000-N	1667	10	MHR	SPECIALIZED HAND MOWING
611700000-N	SP	25	EA	RESPONSE FOR EROSION CONTROL



RD223184

COMPUTED BY: IY DATE: 2/4/2013  
 CHECKED BY: KDA DATE: 2/7/2013

PROJECT NO. B-4643 SHEET NO. 3-B

## STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

### SUMMARY OF EARTHWORK

CUBIC YARDS				
Station to Station	Uncl. Exc. C.Y.	Embank. +% C.Y.	Borrow C.Y.	Waste C.Y.
<b>SUMMARY NO. 1</b>				
<b>PHASE I</b>				
-L- 22+00.00 TO 32+95.50	3,370	4,102	732	
-L- 35+60.50 TO 43+50.00	165	7,788	7,623	
<b>SUMMARY NO. 1 TOTALS</b>	<b>3,535</b>	<b>11,890</b>	<b>8,355</b>	
<b>SUMMARY NO. 2</b>				
<b>PHASE II</b>				
-L- 22+50.00 TO 33+00.00	349	602	253	
-L- 33+00.00 TO 43+50.00	4,190	269		3,921
-YREV- 10+18.00 TO 11+50.00	108	92		16
<b>SUMMARY NO. 2 TOTALS</b>	<b>4,647</b>	<b>963</b>	<b>253</b>	<b>3,937</b>
<b>PROJECT SUB TOTAL</b>	<b>8,182</b>	<b>12,853</b>	<b>8,608</b>	<b>3,937</b>
Material For Shoulder Construction		1,346	1,346	
Loss due to Clearing&Grubbing	-600		600	
Est 5% To Replace Topsoil at Borrow Pit			528	
<b>GRAND TOTALS</b>	<b>7,582</b>		<b>11,082</b>	<b>3,937</b>
<b>SAY</b>	<b>8,000</b>		<b>11,500</b>	
CLASS IV SUBGRADE STABILIZATION = 1,000 TONS GEOTEXTILE FOR SOIL STABILIZATION = 2,000 SY ESTIMATED SHALLOW UNDERCUT = 500 CY ESTIMATED UNDERCUT = 700 CY ESTIMATED SELECT GRANULAR MATERIAL = 500 CY ESTIMATED DRAINAGE DITCH EXCAVATION = 739 CY				

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

Note: 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.

### SUMMARY OF ASPHALT PAVEMENT REMOVAL

LINE	Station to Station	LOC LT/RT/CL	Ashalt Removal SQ. YDS.
-L-	27+89 TO 33+09.38	RT	1,661.66
-L-	33+40.90 TO 40+66.05	RT	1,101.20
-YREV-	10+16.72 TO 10+52.13	LT	30.99
*-L-	31+39.00 TO 32+70.00	RT	43.67
*-L-	34+10.11 TO 38+44.00	RT	144.67
<b>PROJECT TOTAL</b>			<b>2982.19</b>
<b>SAY</b>			<b>2,990.00</b>

\* DENOTES TEMPORARY PAVEMENT

### GUARDRAIL SUMMARY

"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

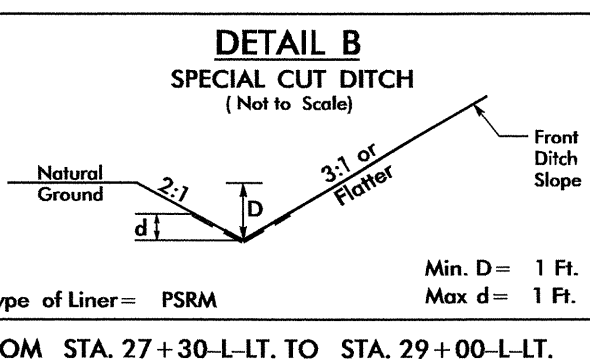
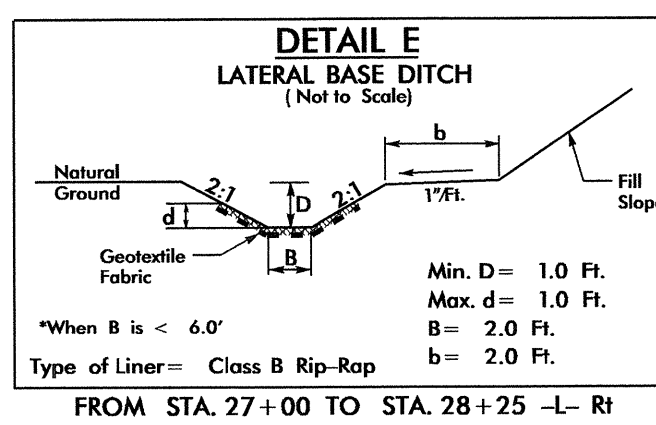
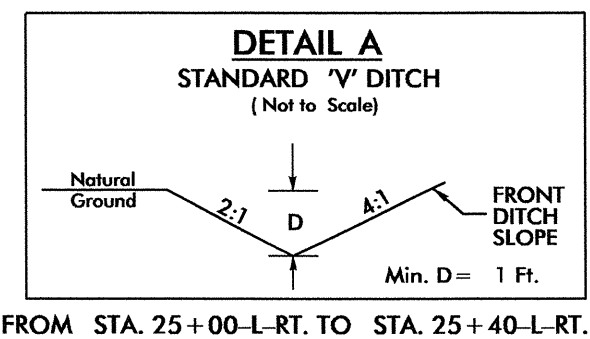
LINE	BEG. STA.	END STA.	LOC.	LENGTH (FT.)			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHLDR WIDTH	FLARE LENGTH		W		ANCHORS				IMP. ATTEN. TYPE 350			REMOVE EXISTING GUARDRAIL	REMARKS	
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPR. END	TRAIL. END	APPR. END	TRAIL. END	GRAU 350	TYPE B-77	W BEAM	EA	G	NG				
L	31+78.00	33+15.50	LT	137.50				33+150.50	8'	11'	50'	1'			1	1								
L	35+80.50	38+80.50	LT	300.00				38+80.50	8'	11'	50'	1'			1	1								
L	30+29.50	32+79.50	RT	250.00				32+79.50	8	11'	231.25	5'			1	1								SHORTENED DUE TO DRIVEWAY
L	35+44.50	36+82.00	RT	137.5				35+44.50	8	11'	118.75'	2.375'			1	1								TEMPORARY ANCHOR UNIT- SEE TMP
L	33+10.48		RT													1								TEMPORARY ANCHOR UNIT. SEE TMP
L	33+77.36		RT													1								TEMPORARY ANCHOR UNIT. SEE TMP
				<b>SUBTOTALS</b>											4	4	2							TOTAL
				<b>DEDUCTION FOR ANCHOR UNITS</b>																				
				(4 GRAU@50')																				
				(4 TYPE 77 @18.75')																				
				(1 TYPE CAT-1 @6.25')																				
				<b>PROJECT TOTAL</b>											4	4	2							PROJECT TOTAL
				<b>SAY</b>																				
ADDITIONAL GUARDRAIL POSTS= 5 EA																								



\* NOTE: USE 6' PAVED SHOULDER FOR TEMPORARY MAINTENANCE OF TRAFFIC DURING CONSTRUCTION.

-L-		
PI Sta 23+34.40 Δ = 6° 36' 43.6" (LT) D = 0' 49' 49.3" L = 796.28' T = 398.58' R = 6,900.00' e = SEE PLAN	PI Sta 28+32.94 Δ = 7° 26' 42.8" (LT) D = 3' 4' 47.4" L = 201.4' T = 100.85' R = 1,550.00' e = SEE PLAN	PI Sta 30+59.72 Δ = 9° 18' 38.4" (RT) D = 3' 4' 47.4" L = 251.88' T = 126.22' R = 1,550.00' e = SEE PLAN

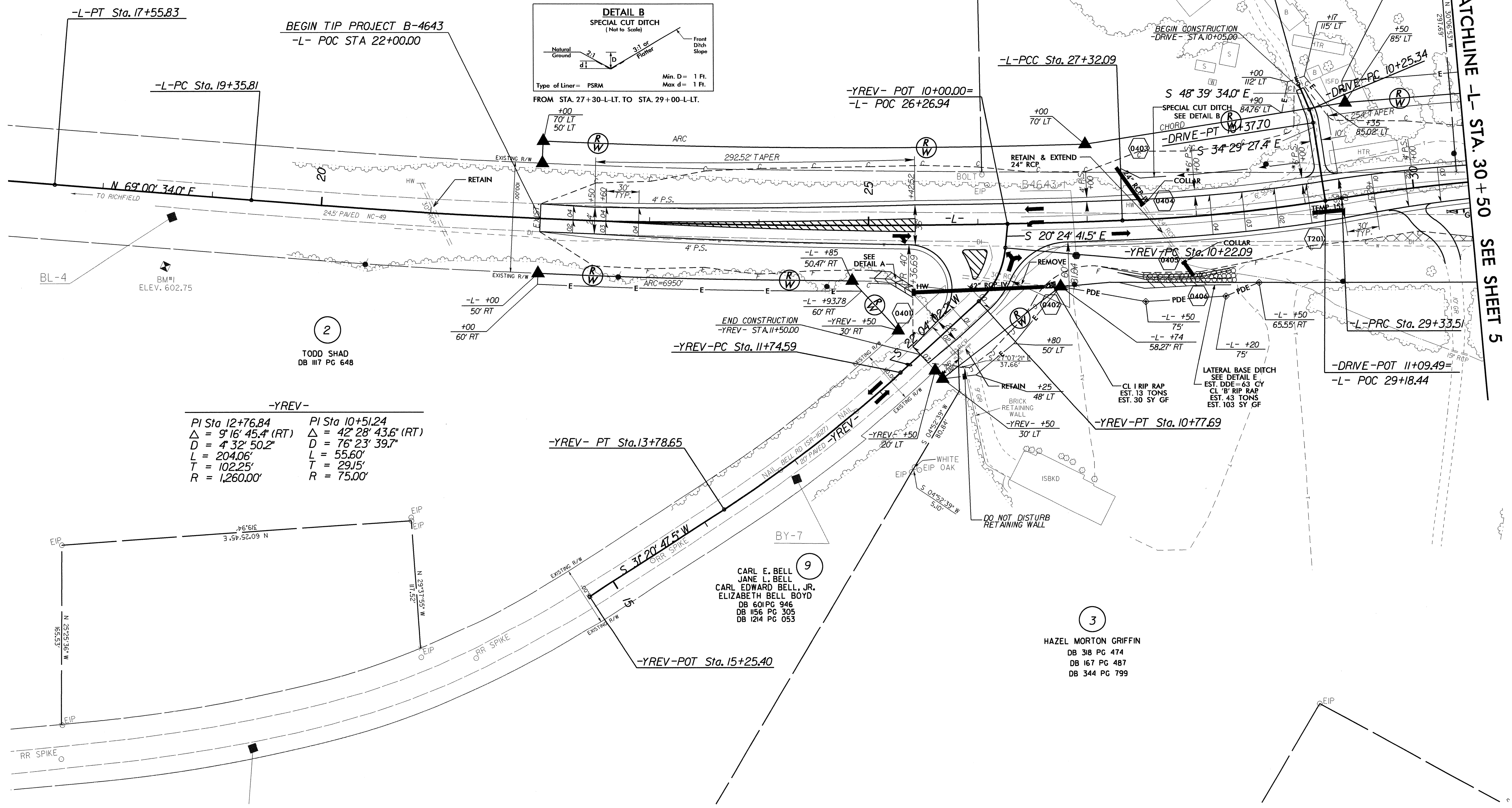
1  
TODD SHAD  
DB III7 PG 648



4  
DONNIE G. SMITH  
DORIS E. SMITH  
DB 354 PG 810

-DRIVE-  
PI Sta 10+31.55  
Δ = 14° 10' 06.6" (RT)  
D = 114° 35' 29.6"  
L = 12.36'  
T = 6.21'  
R = 50.00'

SEE SHEET 6 FOR PROFILE OF -L-  
SEE SHEET 7 FOR PROFILE OF -YREV-



2  
TODD SHAD  
DB III7 PG 648

-YREV-	
PI Sta 12+76.84 Δ = 9° 16' 45.4" (RT) D = 4' 32' 50.2" L = 204.06' T = 102.25' R = 1,260.00'	PI Sta 10+51.24 Δ = 42° 28' 43.6" (RT) D = 76' 23' 39.7" L = 55.60' T = 29.15' R = 75.00'

9  
CARL E. BELL  
JANE L. BELL  
CARL EDWARD BELL, JR.  
ELIZABETH BELL BOYD  
DB 601 PG 946  
DB 1156 PG 305  
DB 1214 PG 053

3  
HAZEL MORTON GRIFFIN  
DB 318 PG 474  
DB 167 PG 487  
DB 344 PG 799

MATCHLINE -L- STA. 30 + 50 SEE SHEET 5

REVISIONS

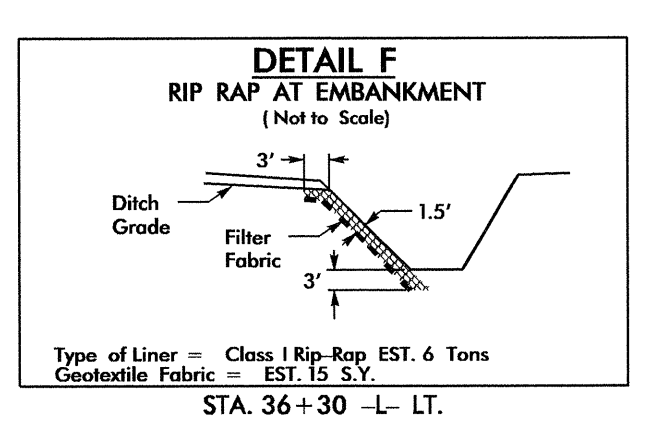
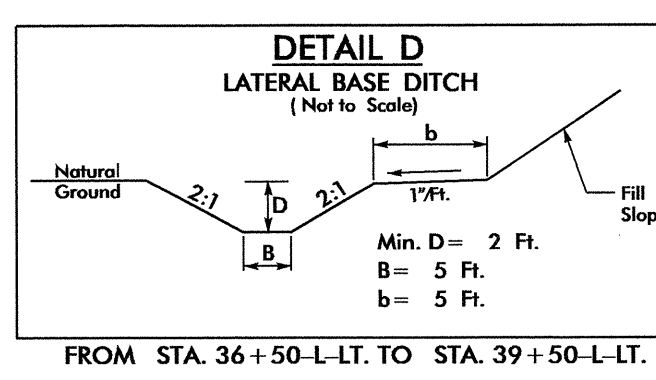
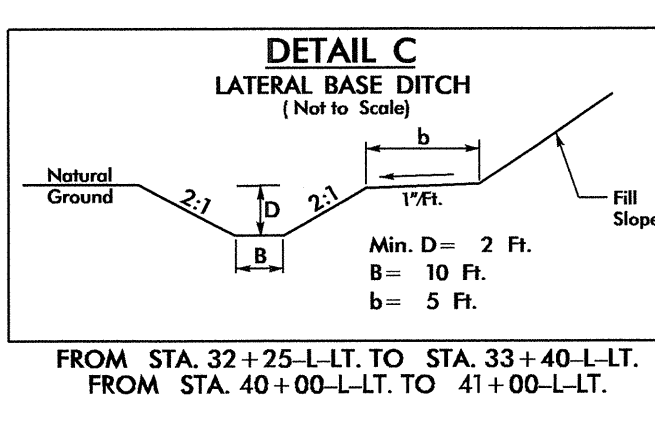
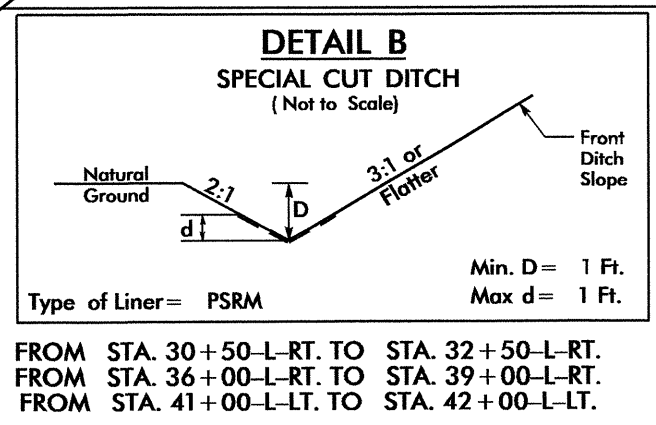
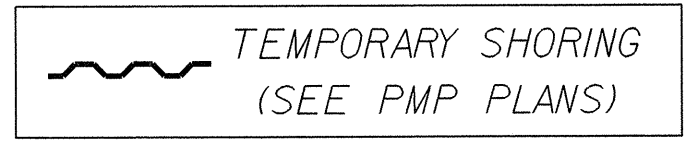
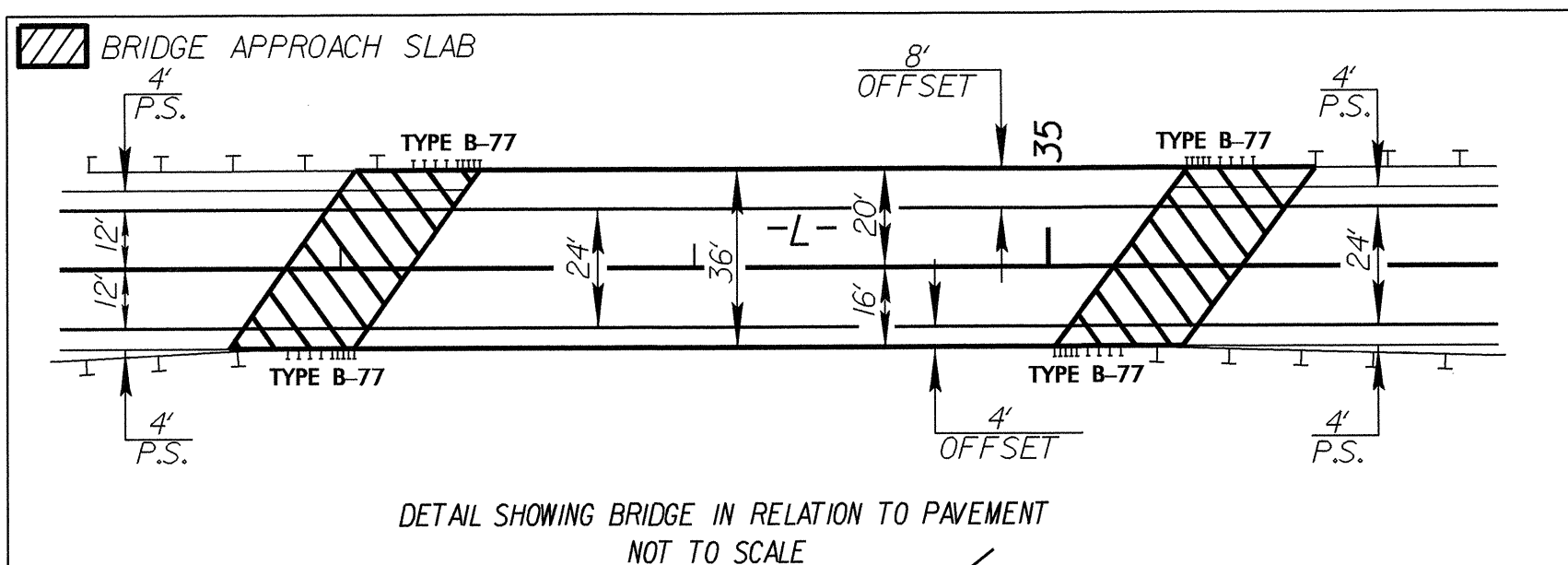
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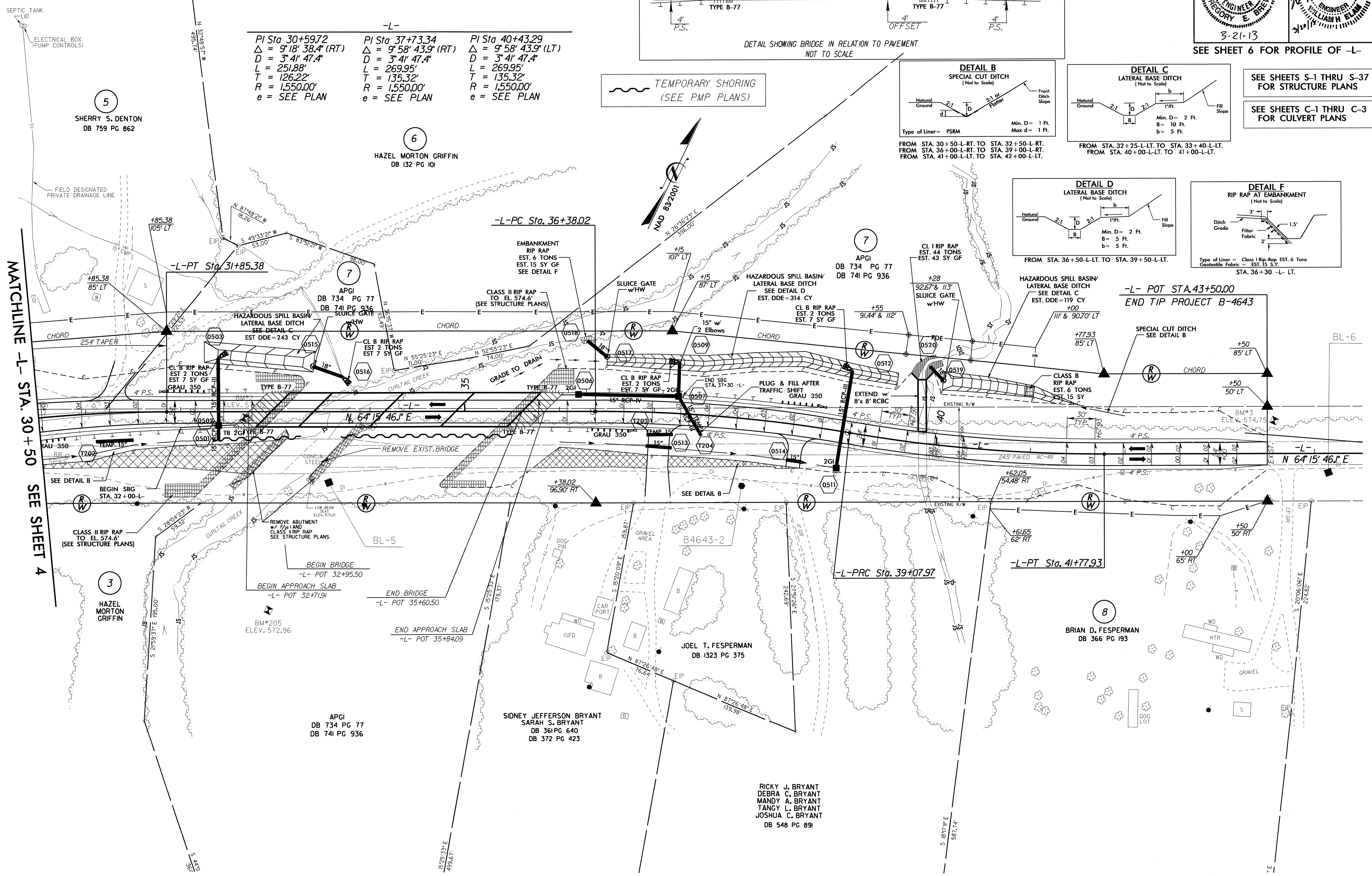


**NOTE: MAINTAIN TRAFFIC DURING CONSTRUCTION UTILIZING EXISTING ROADWAY**

-L-		
PI Sta 30+59.72	PI Sta 37+73.34	PI Sta 40+43.29
$\Delta = 9' 18" 38.4" (RT)$	$\Delta = 9' 58" 43.9" (RT)$	$\Delta = 9' 58" 43.9" (LT)$
$D = 3' 4" 47.4"$	$D = 3' 4" 47.4"$	$D = 3' 4" 47.4"$
$L = 251.88'$	$L = 269.95'$	$L = 269.95'$
$T = 126.22'$	$T = 135.32'$	$T = 135.32'$
$R = 1,550.00'$	$R = 1,550.00'$	$R = 1,550.00'$
$e = \text{SEE PLAN}$	$e = \text{SEE PLAN}$	$e = \text{SEE PLAN}$



SEE SHEET 6 FOR PROFILE OF -L-  
SEE SHEETS S-1 THRU S-37 FOR STRUCTURE PLANS  
SEE SHEETS C-1 THRU C-3 FOR CULVERT PLANS



8/17/99  
18-MAR-2013 13:56 B:\4643\_Roadway\psh05.dgn  
GREGORY E. BREW

REVISIONS

5  
SHERRY S. DENTON  
DB 759 PG 862

6  
HAZEL MORTON GRIFFIN  
DB 132 PG 101

7  
APGI  
DB 734 PG 77  
DB 741 PG 936

3  
HAZEL MORTON GRIFFIN

APGI  
DB 734 PG 77  
DB 741 PG 936

SIDNEY JEFFERSON BRYANT  
SARAH S. BRYANT  
DB 361 PG 640  
DB 372 PG 423

RICKY J. BRYANT  
DEBRA C. BRYANT  
MANDY A. BRYANT  
TANGY L. BRYANT  
JOSHUA C. BRYANT  
DB 548 PG 891

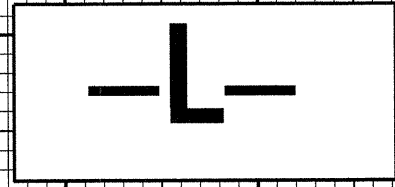
8  
BRIAN D. FESPERMAN  
DB 366 PG 193

BL-6

5/28/99

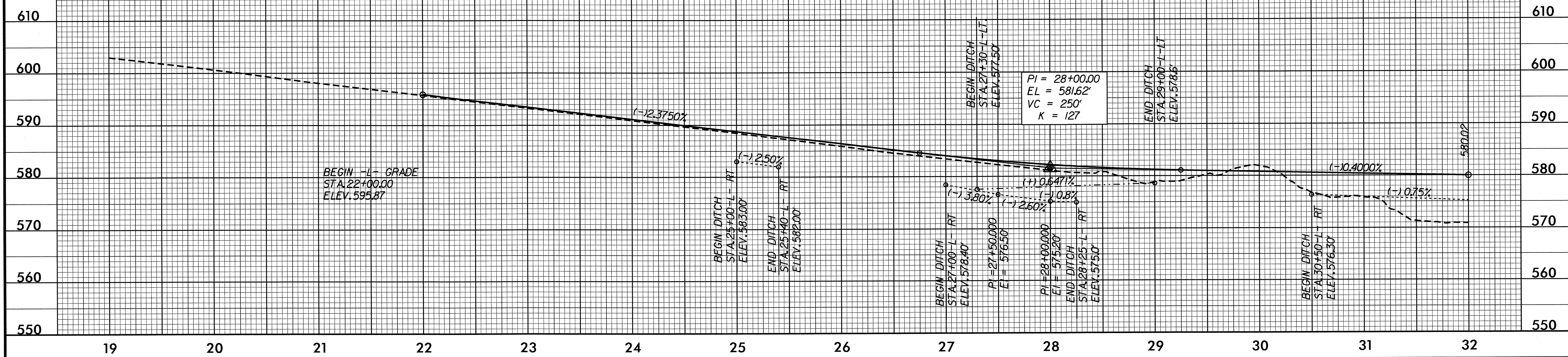
DITCH LEGEND	
LEFT DITCH	-----
RIGHT DITCH	-----

BM \* 1 ELEVATION = 602.75'  
 N = 632.417 E = 1,631.614  
 -L- STATION 18+62.21 (O/S 66.24' RT)  
 RR SPIKE IN 20' SWEETGUM TREE

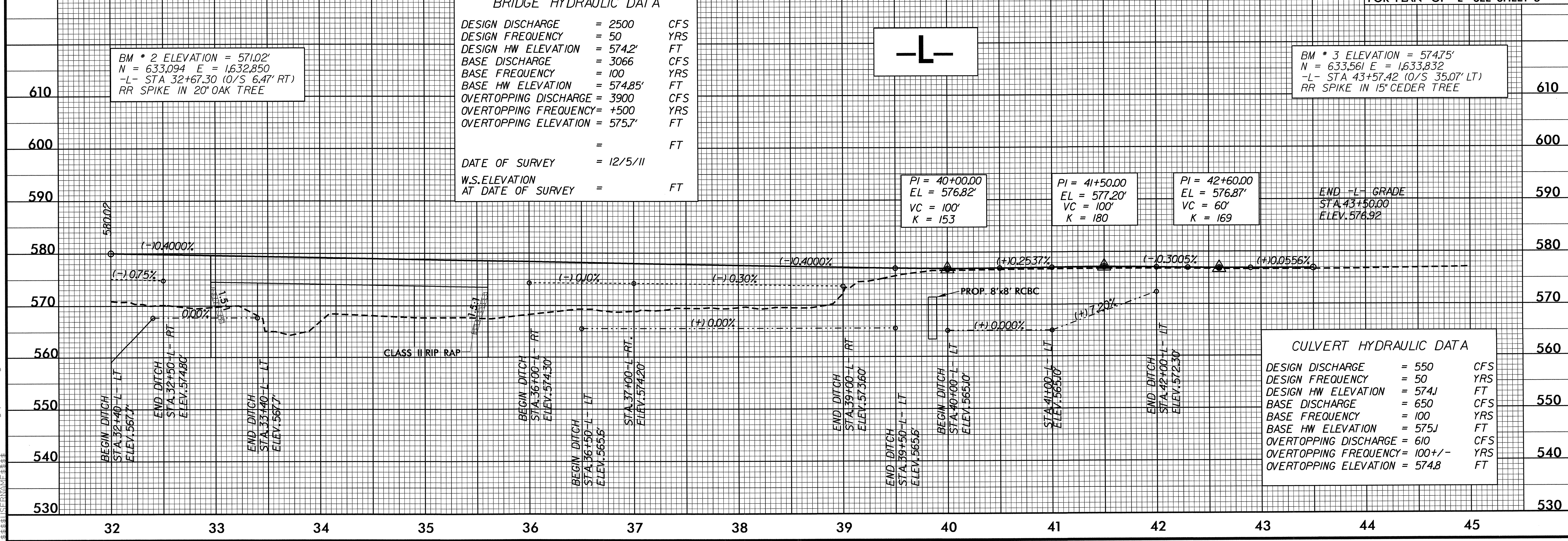


PROJECT REFERENCE NO.	B-4643	SHEET NO.	6
ROADWAY DESIGN ENGINEER			
HYDRAULICS ENGINEER			
DATE	3-21-13		

FOR PLAN OF -L- SEE SHEET 4



FOR PLAN OF -L- SEE SHEET 5



**BRIDGE HYDRAULIC DATA**

DESIGN DISCHARGE	= 2500	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 574.2'	FT
BASE DISCHARGE	= 3066	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 574.85'	FT
OVERTOPPING DISCHARGE	= 3900	CFS
OVERTOPPING FREQUENCY	= +500	YRS
OVERTOPPING ELEVATION	= 575.7'	FT
DATE OF SURVEY	= 12/5/11	
W.S. ELEVATION AT DATE OF SURVEY	=	FT

BM \* 2 ELEVATION = 571.02'  
 N = 633.094 E = 1,632.850  
 -L- STA 32+67.30 (O/S 6.47' RT)  
 RR SPIKE IN 20' OAK TREE

BM \* 3 ELEVATION = 574.75'  
 N = 633.561 E = 1,633.832  
 -L- STA 43+57.42 (O/S 35.07' LT)  
 RR SPIKE IN 15' CEDER TREE

**CULVERT HYDRAULIC DATA**

DESIGN DISCHARGE	= 550	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 574.1	FT
BASE DISCHARGE	= 650	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 575.1	FT
OVERTOPPING DISCHARGE	= 610	CFS
OVERTOPPING FREQUENCY	= 100 +/-	YRS
OVERTOPPING ELEVATION	= 574.8	FT

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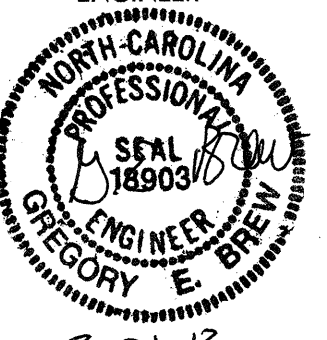
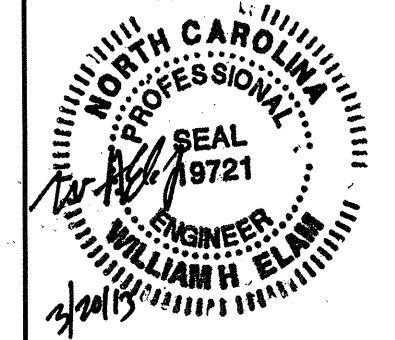
5/28/99

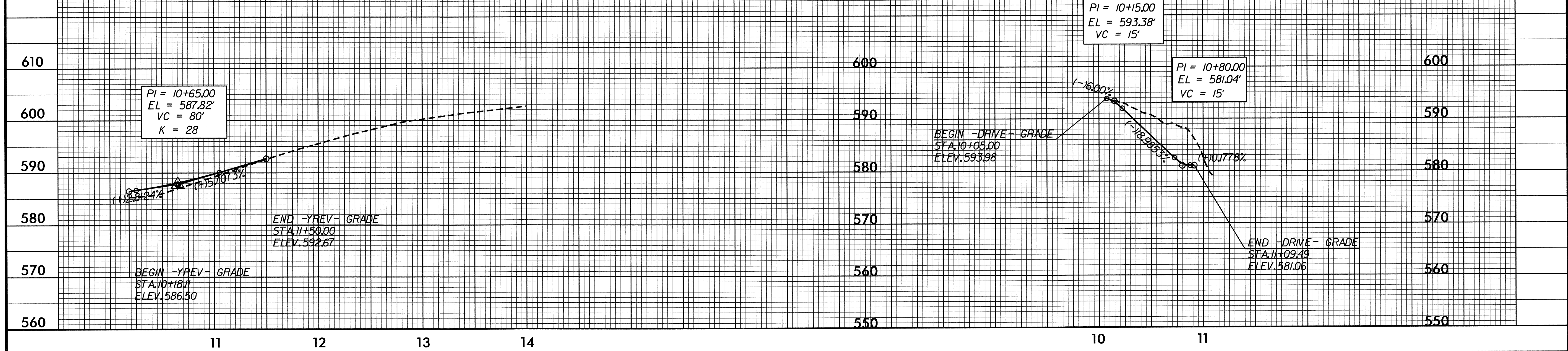
FOR PLAN OF -YREV- SEE SHEET 4

**-YREV-**

BM \* I ELEVATION = 602.75'  
N = 632.417 E = 1,631.614  
-L- STATION 18+62.21 (O/S 66.24' RT)  
RR SPIKE IN 20' SWEETGUM TREE

**-DRIVE-**

PROJECT REFERENCE NO. B-4643	SHEET NO. 7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
3-21-13	
FOR PLAN OF -DRIVE- SEE SHEET 4	



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