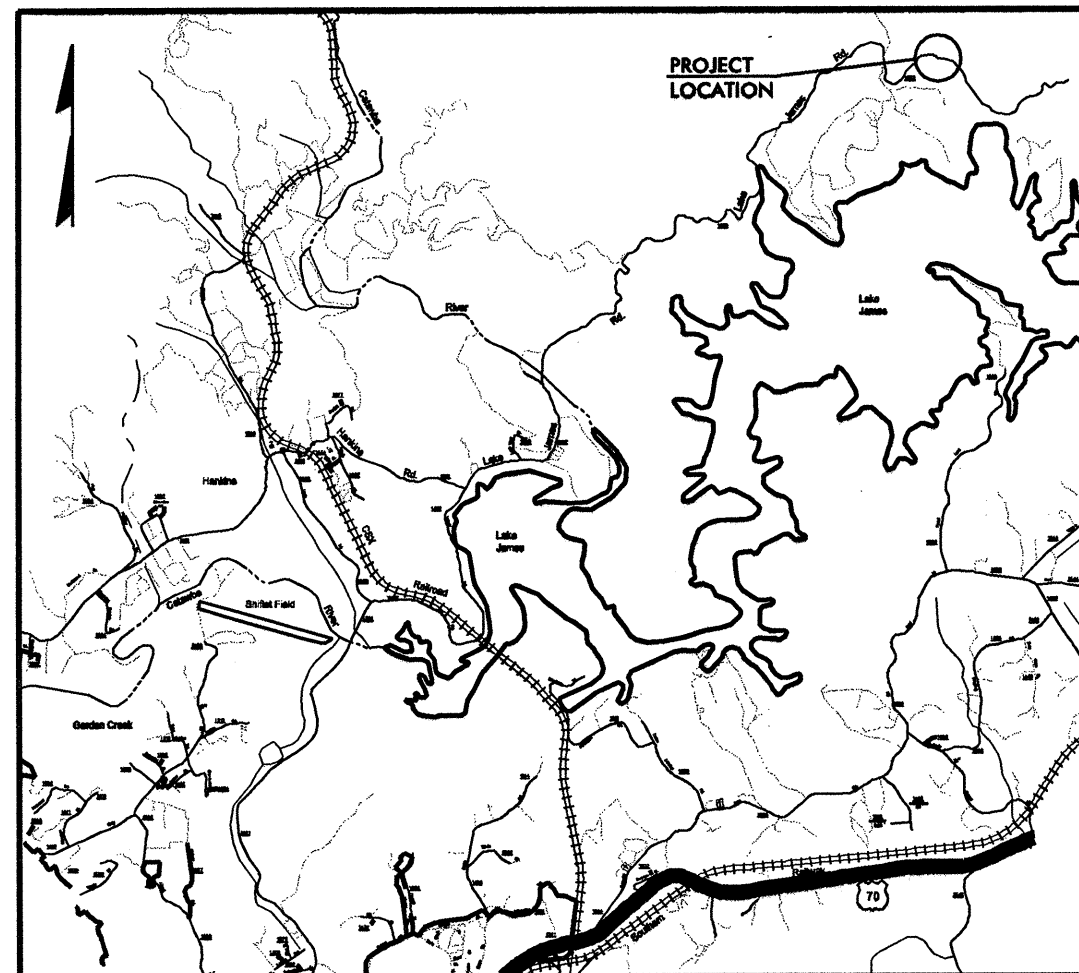


TIP PROJECT: B-4197

CONTRACT: C201806

See Sheet 1-A For Index of Sheets  
See Sheet 1-B For Conventional Symbols



VICINITY MAP



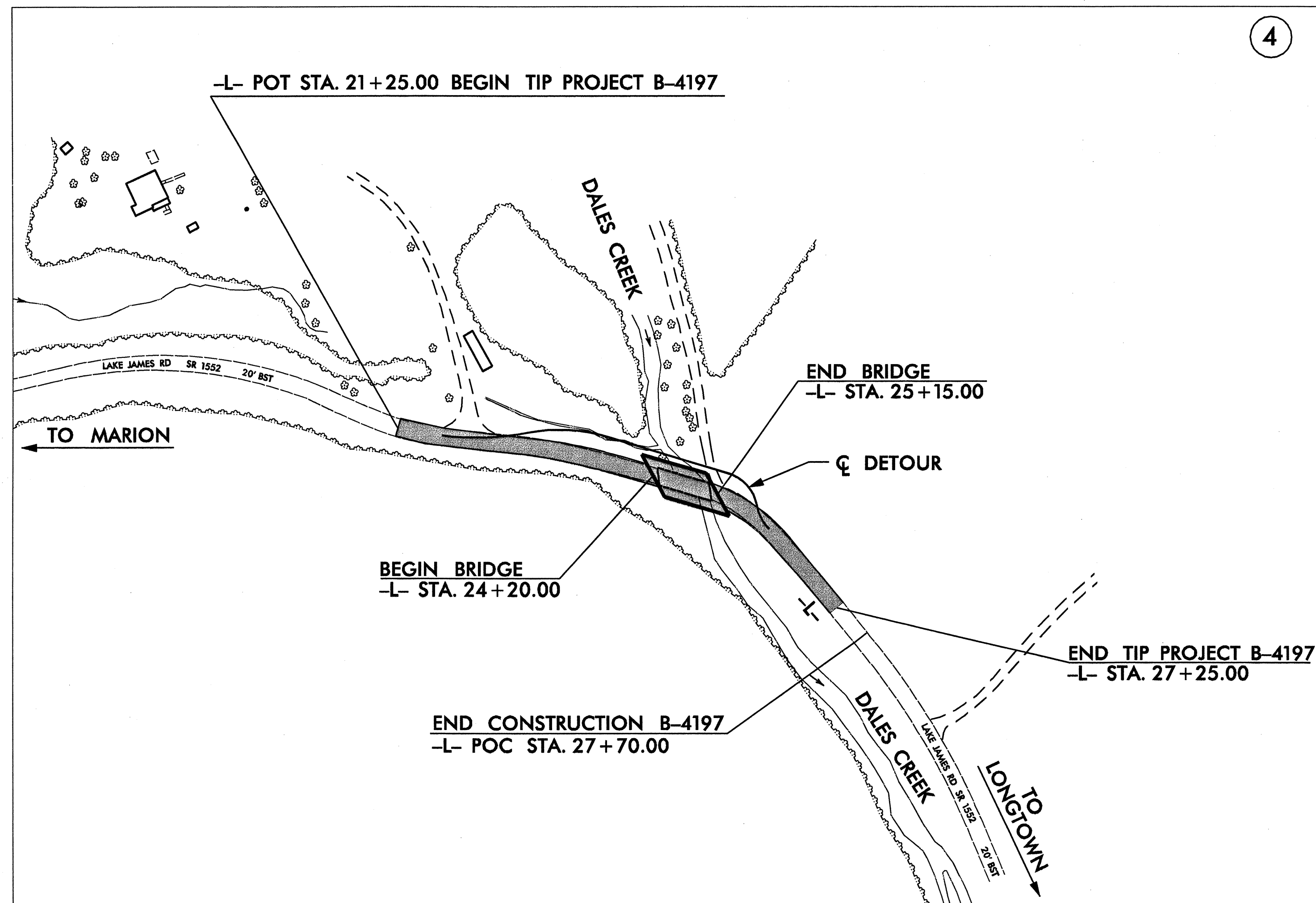
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**McDOWELL COUNTY**

**LOCATION: BRIDGE NO. 73 OVER DALES CREEK ON SR 1552 (LAKE JAMES RD.)**

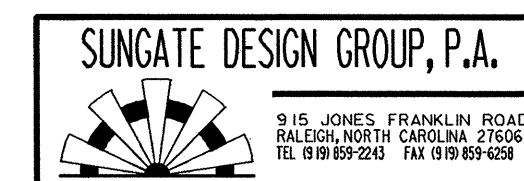
**TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4197	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33544.1.1	BRZ-1552(9)	P.E.	
33544.2.2	BRZ-1552(9)	RW & UTIL.	
33544.3.1	BRZ-1552(9)	CONST.	



\*\* DESIGN EXCEPTION FOR DESIGN SPEED

NCDOT CONTACT: CATHY S. HOUSER, P.E



<p><b>GRAPHIC SCALES</b></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><b>DESIGN DATA</b></p> <p>ADT 2008 = 258 ADT 2028 = 425 DHV = 10% D = 60% T = 3% * ** V = 60 MPH * TTST 1% DUAL 2%</p>	<p><b>PROJECT LENGTH</b></p> <p>LENGTH ROADWAY TIP PROJECT B-4197 = 0.096mi LENGTH STRUCTURE TIP PROJECT B-4197 = 0.018 mi TOTAL LENGTH TIP PROJECT B-4197 = 0.114 mi</p>	<p>Prepared In the Office of:</p> <p><b>RAMEY KEMP ASSOCIATES, INC.</b></p> <p>2006 STANDARD SPECIFICATIONS</p> <p>RIGHT OF WAY DATE: OCTOBER 20, 2006</p> <p>LETTING DATE: JULY 15, 2008</p> <p>SCOTT CLARK, P.E. PROJECT ENGINEER</p> <p>MATTHEW COPPLE, P.E. PROJECT DESIGN ENGINEER</p>	<p><b>HYDRAULIC ENGINEER</b></p> <p>4/15/08 HENRY WELLS, JR. P.E.</p> <p><b>ROADWAY DESIGN ENGINEER</b></p> <p>MATTHEW B. COPPLE P.E. 3/1/08</p>	<p><b>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA</b></p> <p>STATE HIGHWAY DESIGN ENGINEER</p>
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5/28/99

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 July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
<u>DIVISION 2 - EARTHWORK</u>	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
<u>DIVISION 3 - PIPE CULVERTS</u>	
300.01	Method of Pipe Installation - Method 'A'
<u>DIVISION 4 - MAJOR STRUCTURES</u>	
422.10	Reinforced Bridge Approach Fills
<u>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</u>	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
<u>DIVISION 8 - INCIDENTALS</u>	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
840.29	Frames and Narrow Slot Flat Grates
840.36	Traffic Bearing Grated Drop Inlet - for Steel (840.37) Double Frame and Grates
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.02	Driveway Turnout - Radius Type
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

INDEX OF SHEETS

<u>SHEET NUMBER</u>	<u>SHEET</u>
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, AND TYPICAL SECTIONS
2-A	TYPICAL SECTIONS AND STRUCTURE DETAILS
2-B	ANCHORAGE FOR FRAMES DETAIL
2-C	STANDARD TEMPORARY SHORING DETAIL
2-D	GUARDRAIL ANCHOR UNIT B-77 (SHOP CURVED)
3	SUMMARY OF QUANTITIES
3-A THRU 3-B	SUMMARY OF DRAINAGE QUANTITIES GUARDRAIL, PAVEMENT REMOVAL, AND EARTHWORK
4	PLAN SHEET
5	DETOUR PLAN SHEET
6	PROFILE SHEET
TCP-1 THRU TCP-9	TRAFFIC CONTROL PLANS
EC-2, EC-2A, EC-3 THRU EC-7	EROSION CONTROL PLANS
SIG-1 THRU SIG-4	SIGNAL PLANS
UO-1 THRU UO-2	UTILITY BY OTHERS PLAN
X-1	CROSS-SECTION SUMMARY
X-2 THRU X-17	CROSS-SECTIONS
S-1 THRU S-27	STRUCTURE PLANS

ROADWAY DESIGN ENGINEER	PROJECT REFERENCE NO. B-4197	SHEET NO. 1-A

GENERAL NOTES: 2006 SPECIFICATIONS  
EFFECTIVE: 7-18-06

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 II.

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.

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. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 LOCATIONS OF DRIVES WILL BE SHOWN ON THE PLANS OR AS 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" OR "TEMPORARY SHORING-BARRIER SUPPORTED" DEPENDING UPON THE LOCATION OF THE 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: DUKE POWER AND BELL SOUTH. 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 CONTRACT.

**RAMEY KEMP & ASSOCIATES, INC.**  
Transportation Engineers  
5808 Farington Place, Suite 100  
Raleigh, North Carolina 27609  
919-872-8118 Tel. 919-875-6416 Fax.  
www.rameykemp.com



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	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-

### 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	○
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 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 Utility Easement	-PUE-

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
Proposed Wheel Chair Ramp	WCR
Proposed Wheel Chair Ramp Curb Cut	WCC
Curb Cut for Future Wheel Chair Ramp	CCFR
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	PH
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	PH
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	PH
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-

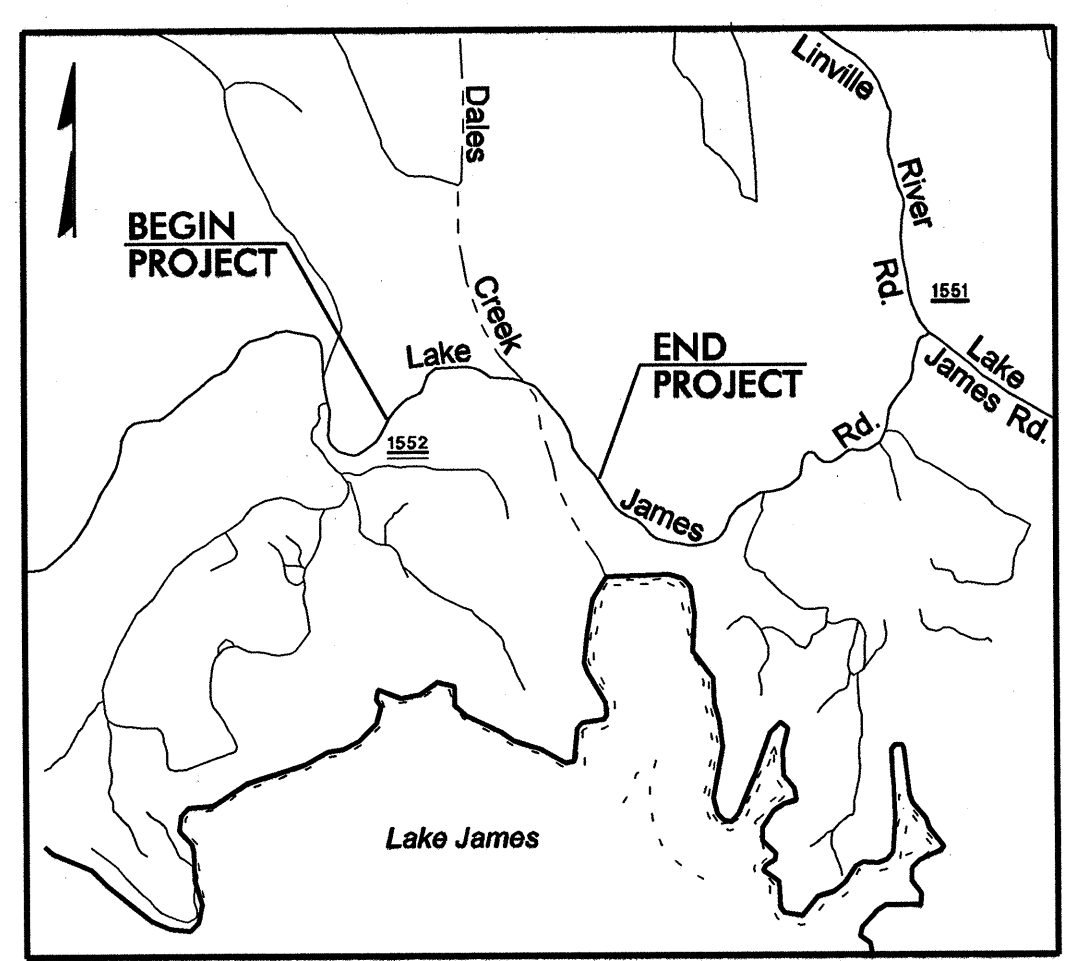
### SANITARY SEWER:

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	□
A/G Tank; Water, Gas, Oil	□
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

# SURVEY CONTROL SHEET B-4197



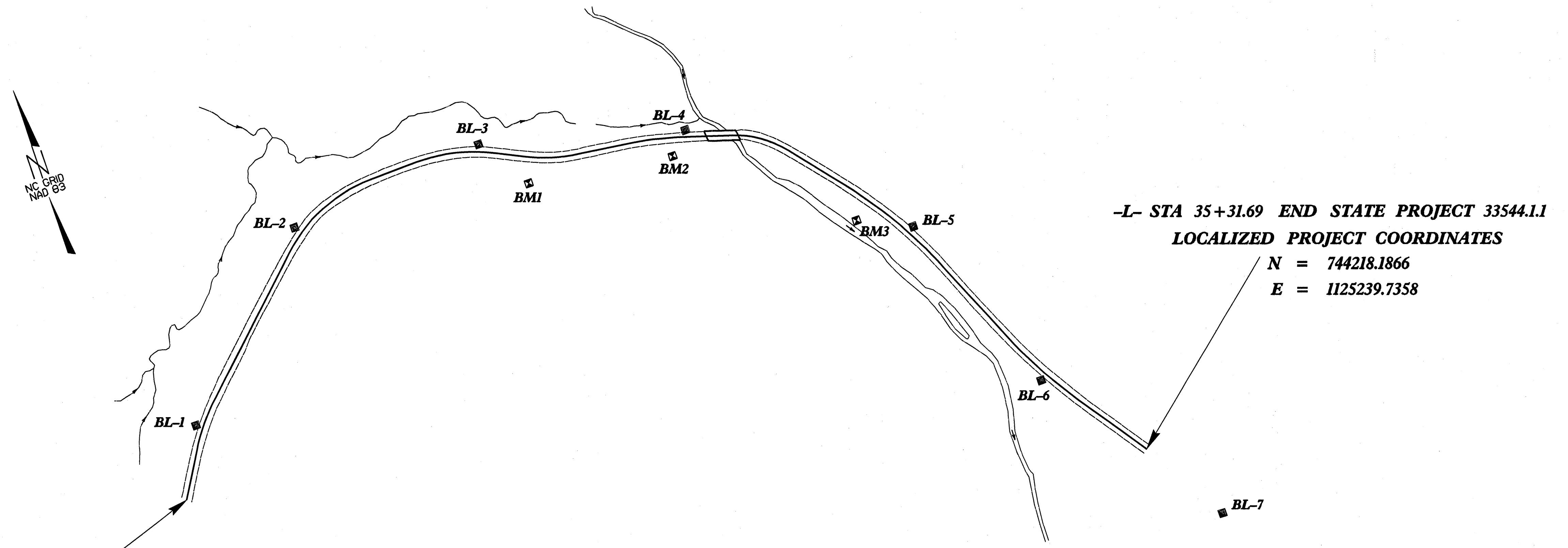
**VICINITY MAP**

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	744865.2103	1123468.7950	1332.31	11+46.23	14.54 LT
2	BL-2	745174.6990	1123780.0595	1296.68	15+80.68	17.67 LT
3	BL-3	745214.6945	1124178.3203	1262.94	19+77.58	15.23 LT
4	BL-4	745110.4810	1124575.5538	1237.91	23+92.27	13.84 LT
5	BL-5	744784.4980	1124943.3200	1230.44	28+90.56	15.12 LT
6	BL-6	744413.4807	1125085.4220	1220.05	32+84.35	15.66 RT
7	BL-7	744049.9513	1125341.2335	1218.54	OUTSIDE PROJECT LIMITS	

***** BM1    ELEVATION = 1268.32 N 745109    E 1124248 L STATION 20+83 53 RIGHT NAIL IN BASE OF 18" WHITE OAK *****	***** BM2    ELEVATION = 1242.23 N 745069    E 1124536 L STATION 23+64 37 RIGHT NAIL IN BASE OF 12" POPLAR *****	***** BM3    ELEVATION = 1227.86 N 744832    E 1124840 L STATION 27+93 46 RIGHT NAIL IN BASE OF TRIPLE POPLAR ON CREEK BANK *****
--	---	--

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3001-BL-2" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 74518.9950(Ft) EASTING: 1128062.7930(Ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99984783 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3001-BL-2" TO L- STATION 10+00.00 IS S 80°24'35.5" W 472479 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88



**-L- STA 10+00.00 BEGIN STATE PROJECT 33544.1.1**  
**LOCALIZED PROJECT COORDINATES**  
 N = 744731.8494  
 E = 1123404.0284

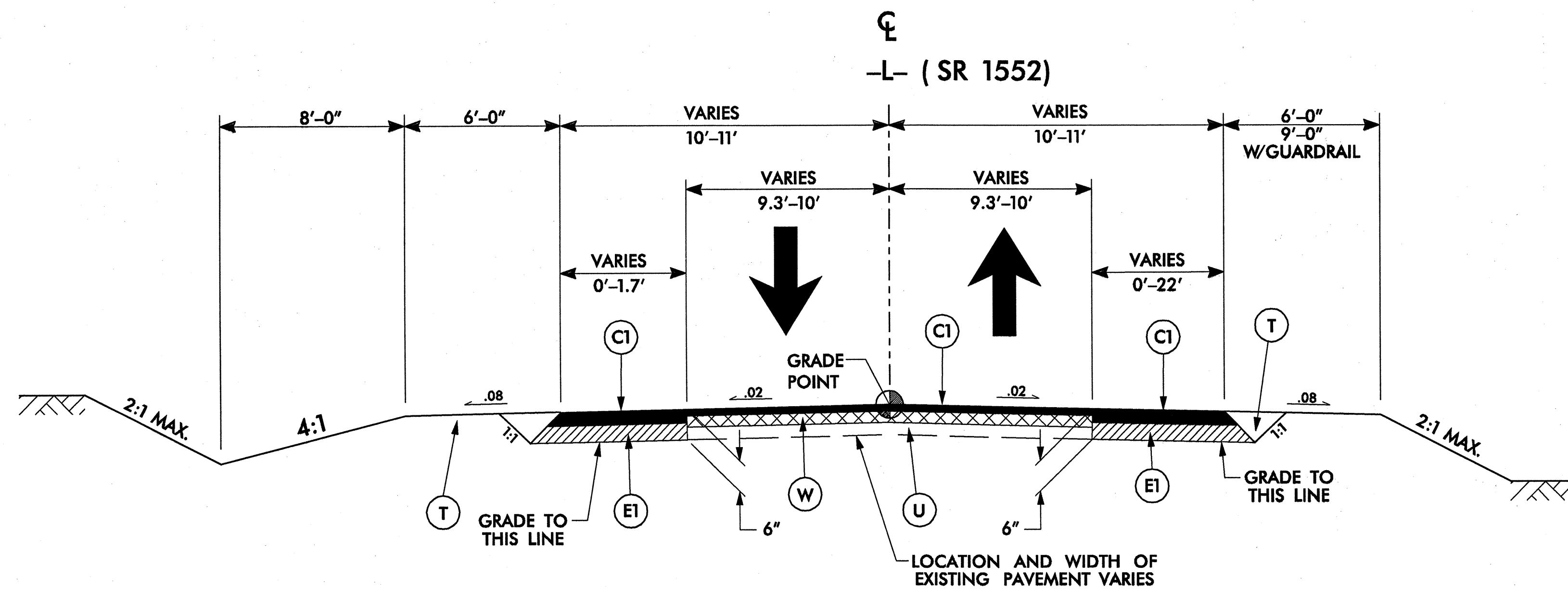
**-L- STA 35+31.69 END STATE PROJECT 33544.1.1**  
**LOCALIZED PROJECT COORDINATES**  
 N = 744218.1866  
 E = 1125239.7358

**NOTES:**

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.NCDOT.ORG/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT](http://www.ncdot.org/preconstruct/highway/location/project)  
 B4197\_LS\_CONTROL\_050304.TXT

INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.  
 SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT.  
 IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.





TRANSITION FROM EXISTING PAVEMENT TO TYPICAL SECTION NO. 1 FROM:  
-L- STA. 21+25.00 TO STA. 21+50.00

USE TYPICAL SECTION NO. 1

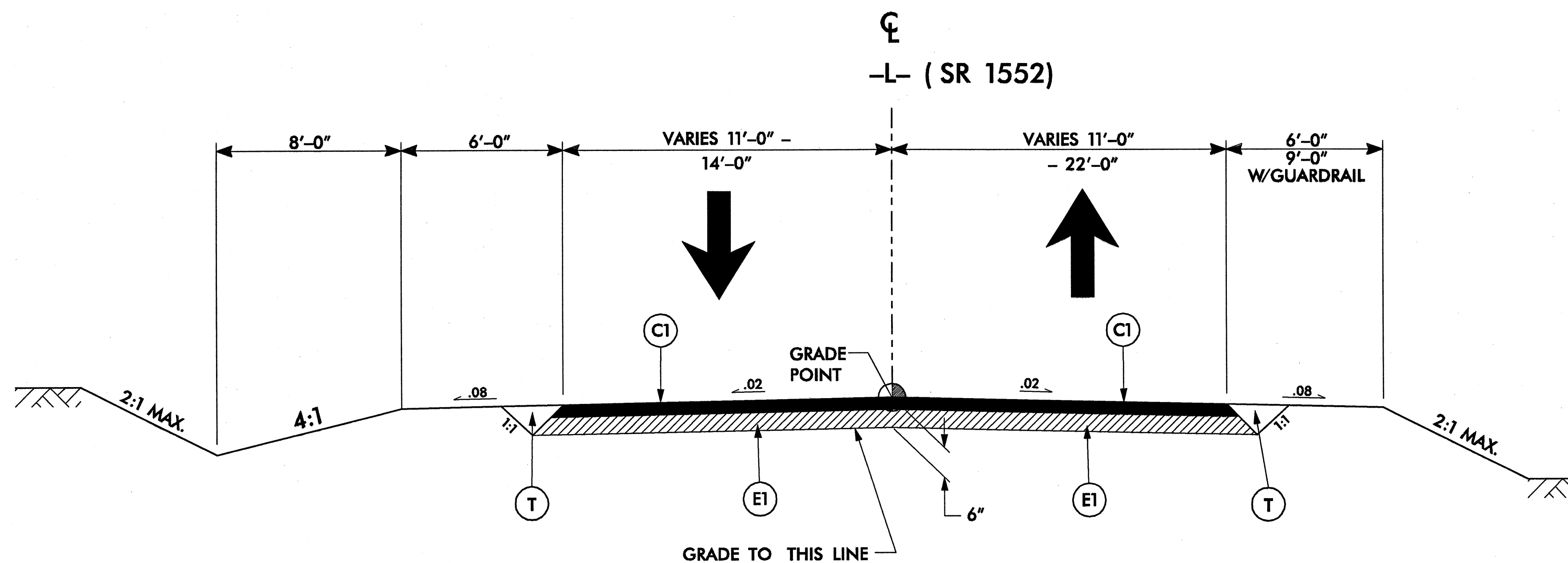
-L- STA. 21+50.00 TO STA. 23+50.00  
-L- STA. 26+00.00 TO STA. 27+00.00

TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING PAVEMENT FROM:  
-L- STA. 27+00.00 TO STA. 27+25.00

**TYPICAL SECTION NO. 1**

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
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 PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J	PROPOSED 8" AGGREGATE BASE COURSE
J1	PROPOSED 6" AGGREGATE BASE COURSE
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL THIS SHEET)

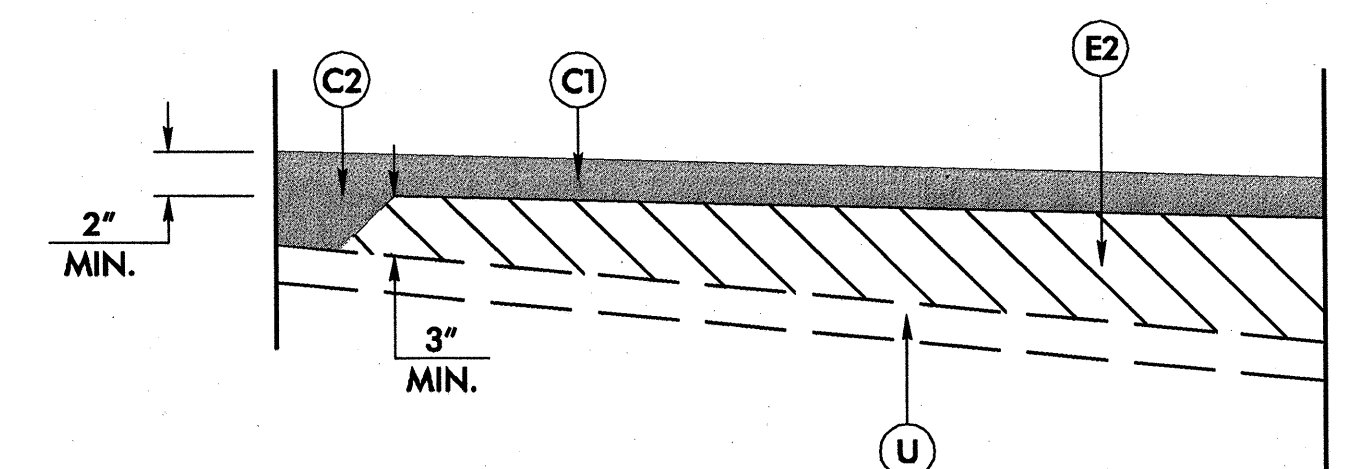
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



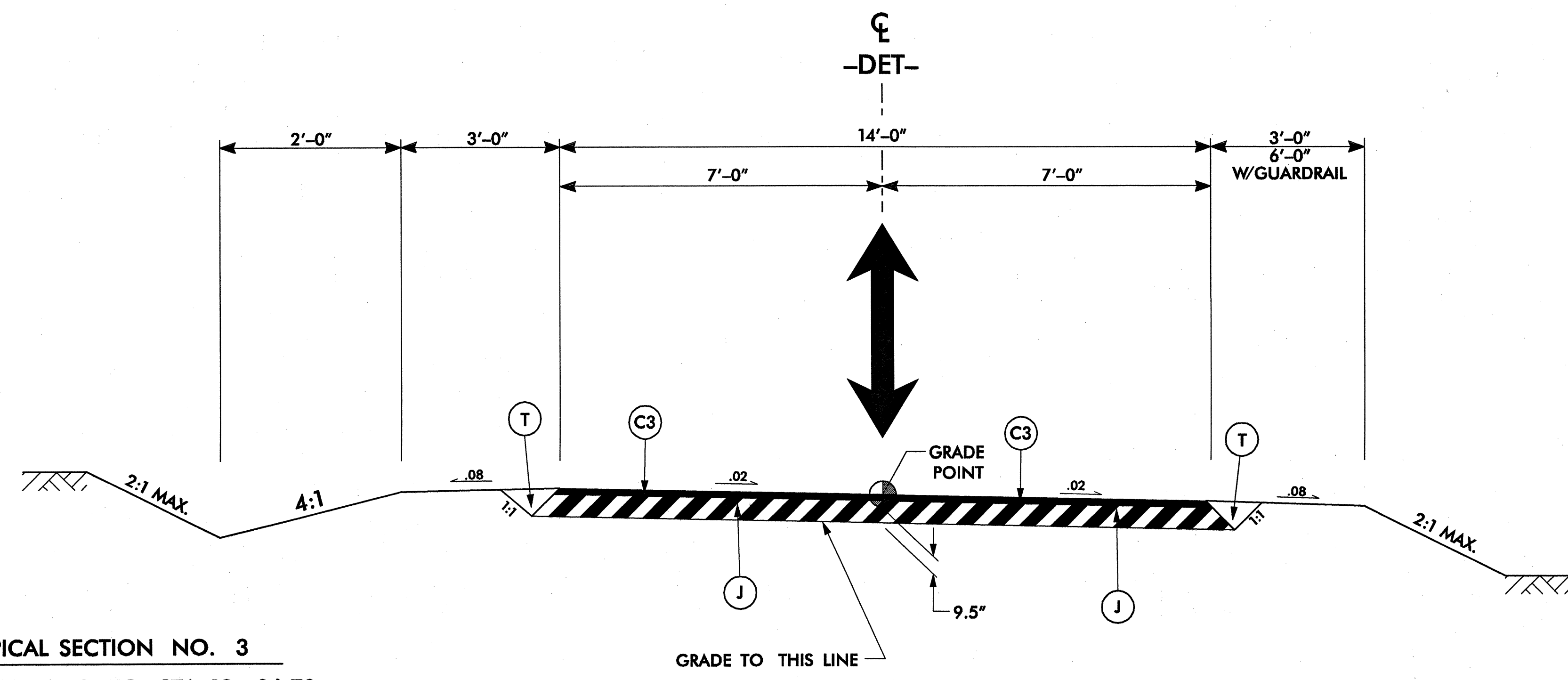
USE TYPICAL SECTION NO. 2

-L- STA. 23+50.00 TO STA. 24+20.00 (BEGIN BRIDGE)  
-L- STA. 25+15.00 (END BRIDGE) TO STA. 26+00.00

**TYPICAL SECTION NO. 2**



Detail Showing Method of Wedging

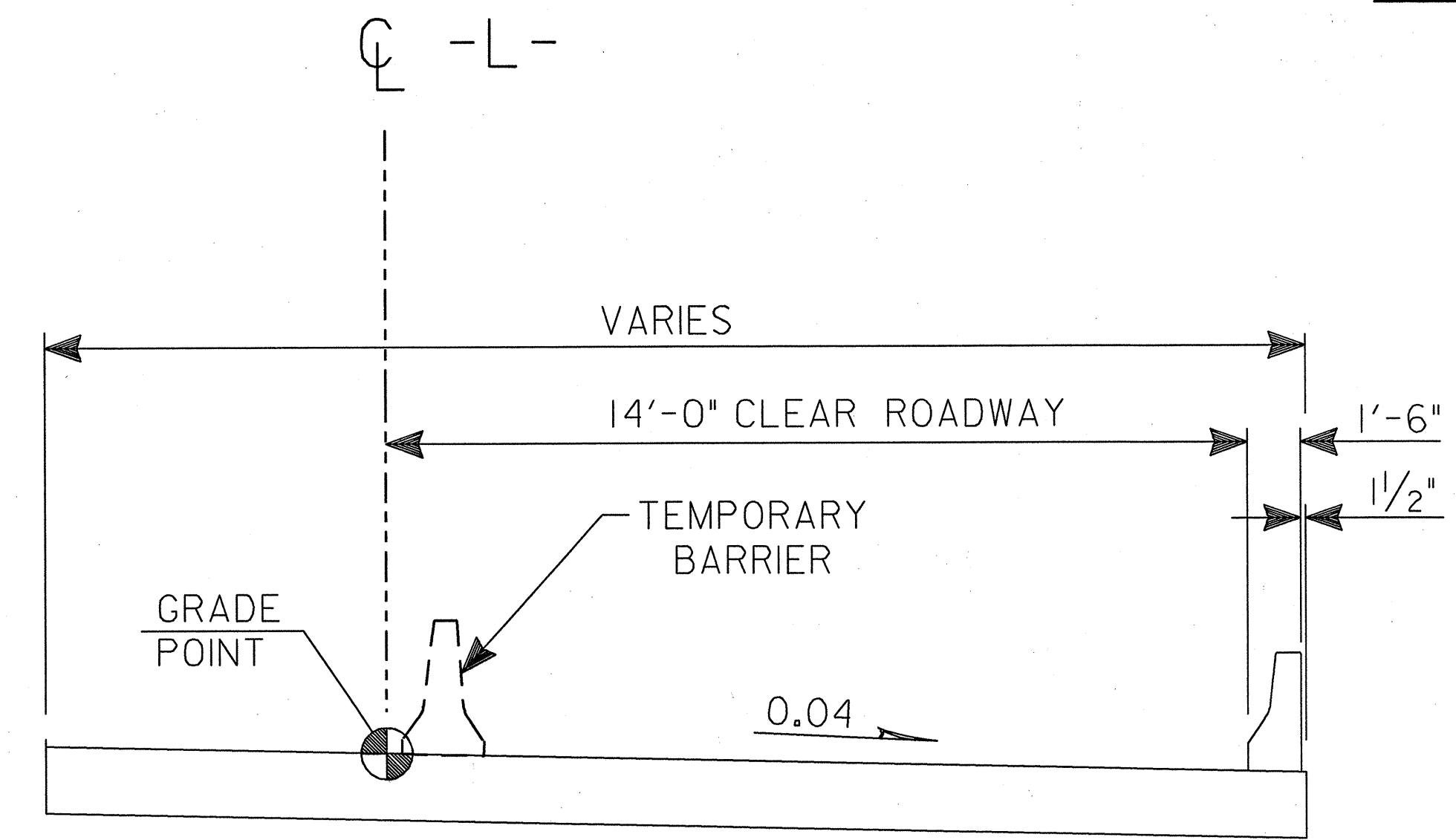


USE TYPICAL SECTION NO. 3  
-DET- STA. 10+85.01 TO STA. 13+96.78

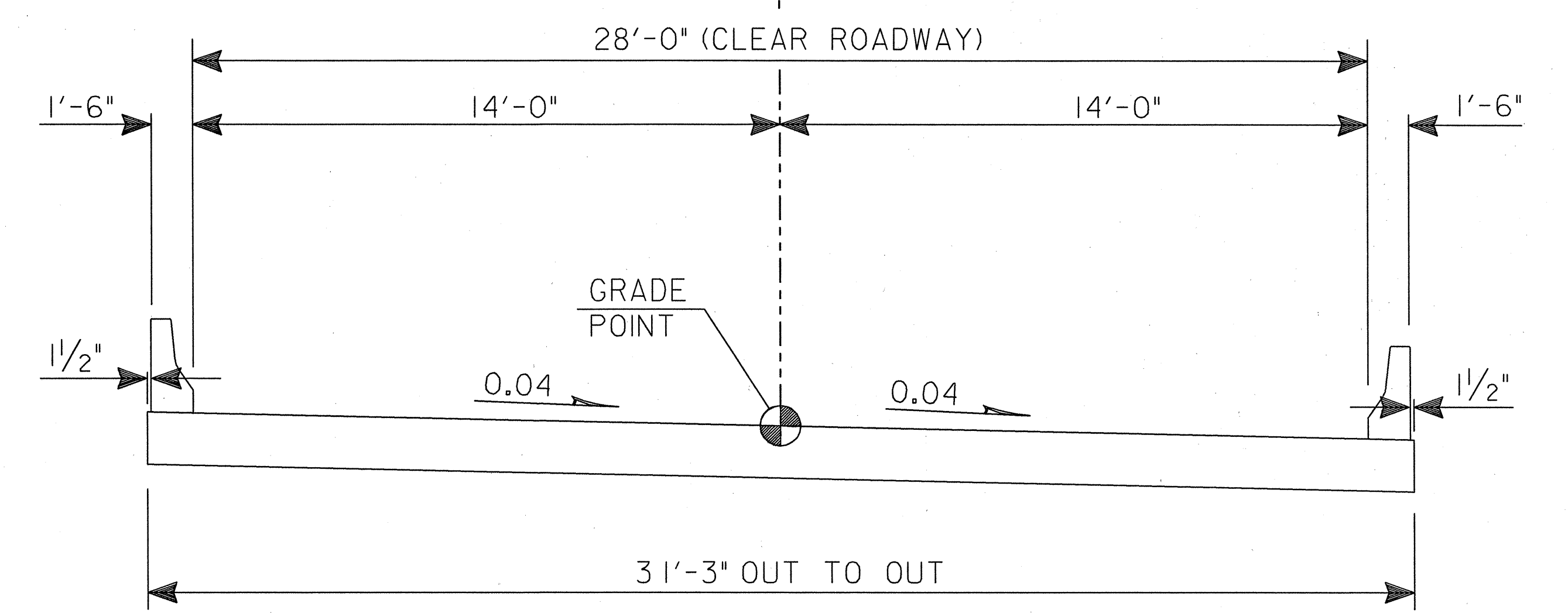
TYPICAL SECTION NO. 3

PAVEMENT SCHEDULE	
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
J	PROPOSED 8" AGGREGATE BASE COURSE.
J1	PROPOSED 6" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.

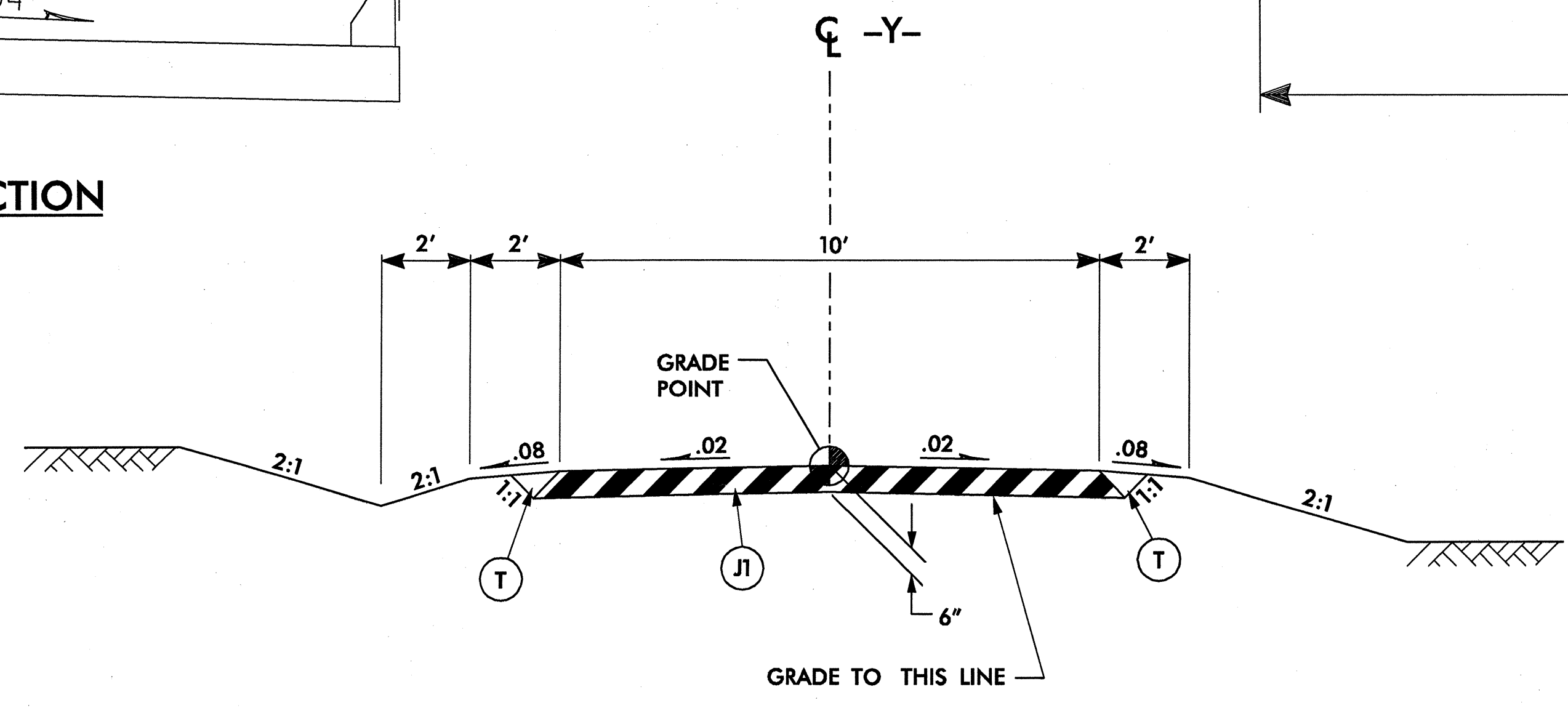
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



STAGED CONSTRUCTION



STEEL GIRDER DETAIL



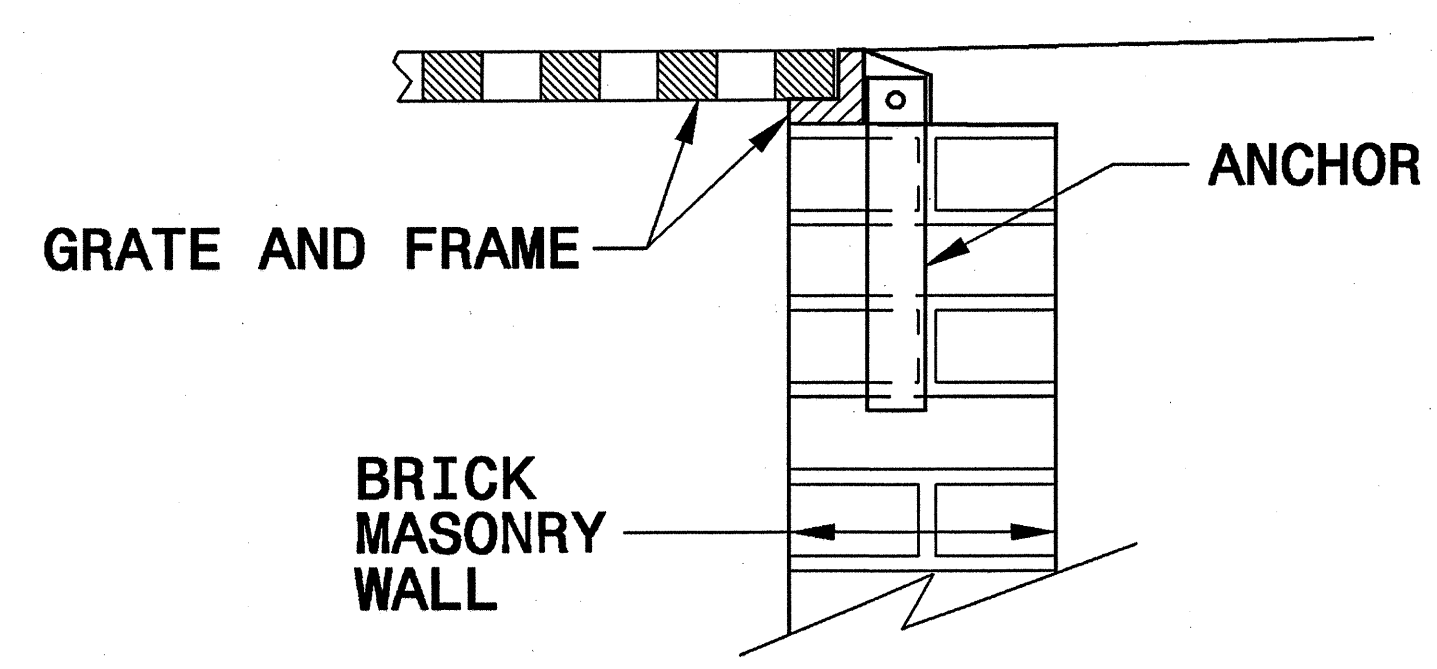
USE TYPICAL SECTION NO. 4  
-Y- STA. 10+00.00 TO STA. 11+18.05

TYPICAL SECTION NO. 4

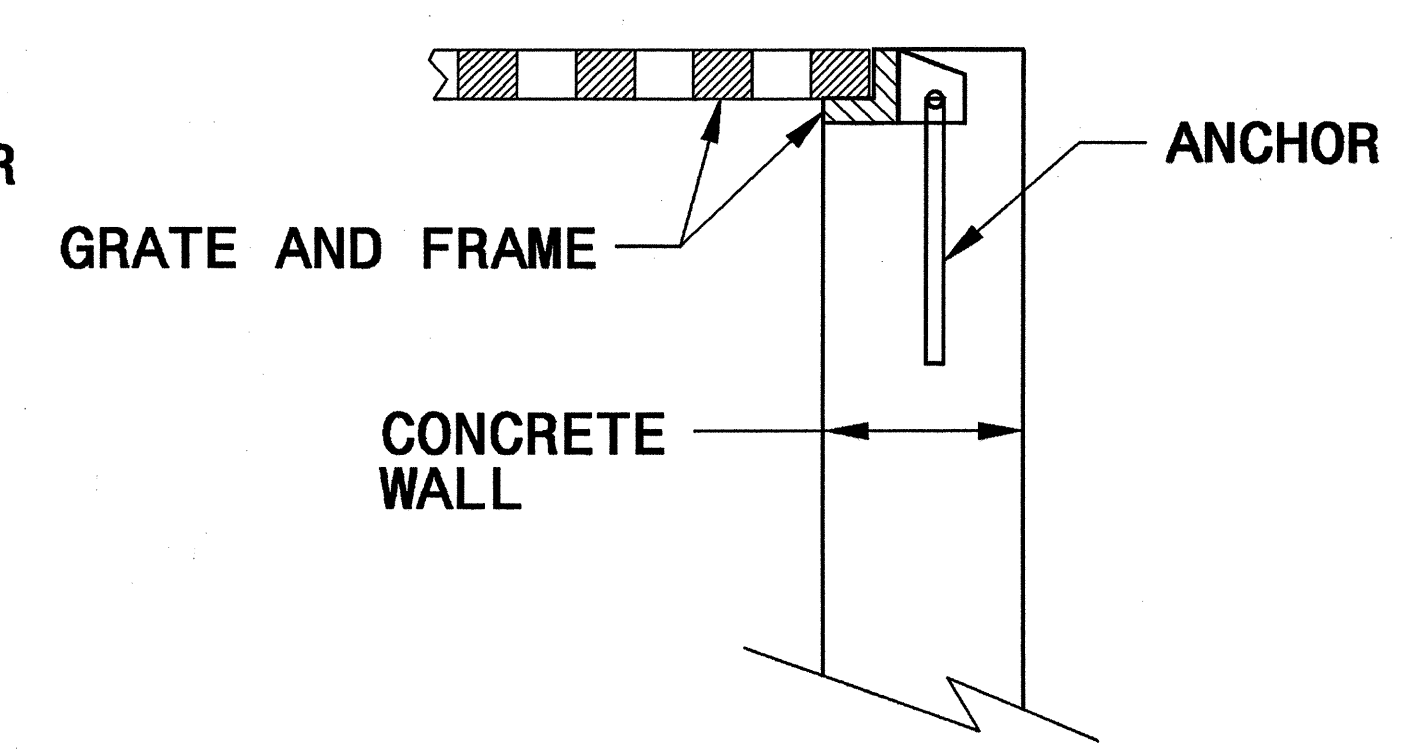
STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**ANCHORAGE FOR FRAMES**  
BRICK/CONCRETE/PRECAST CONCRETE

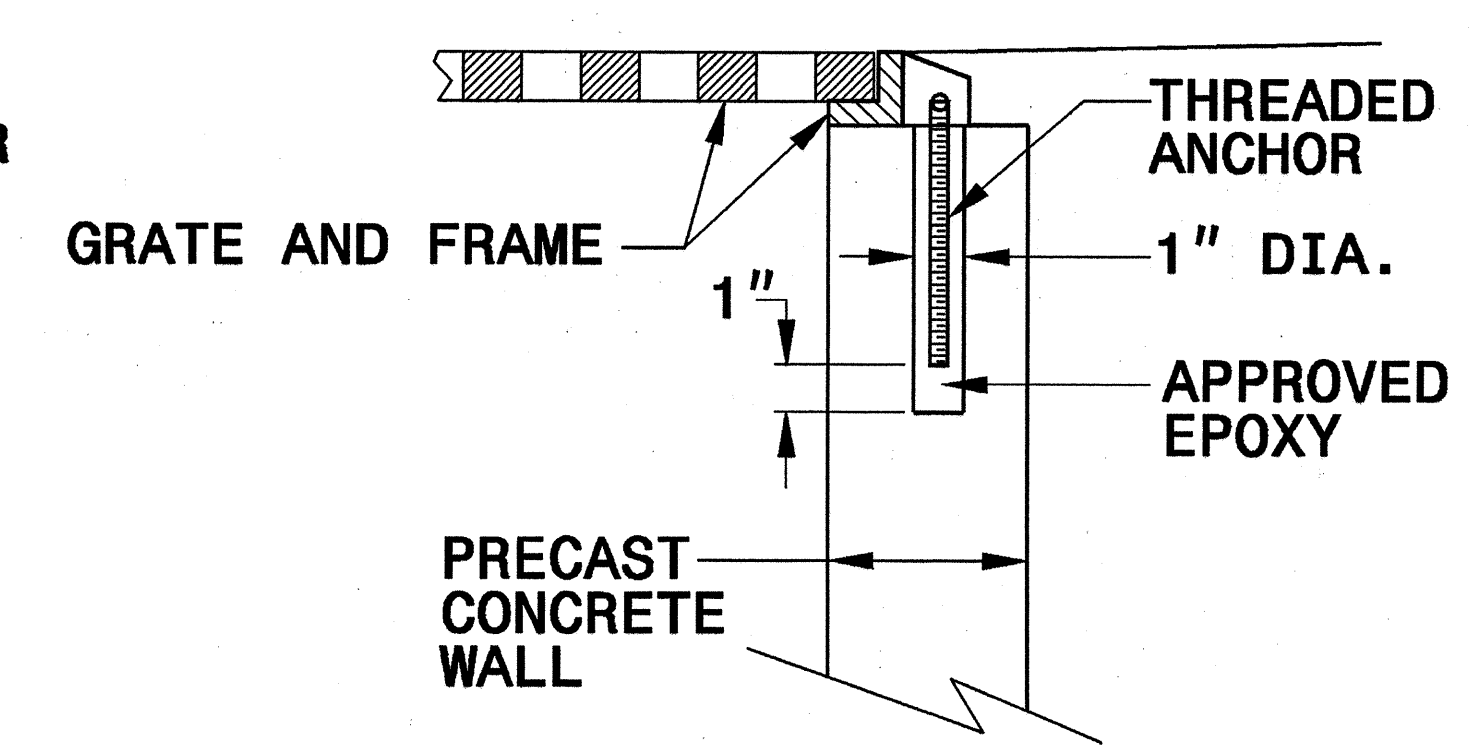
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY  
CONSTRUCTION**



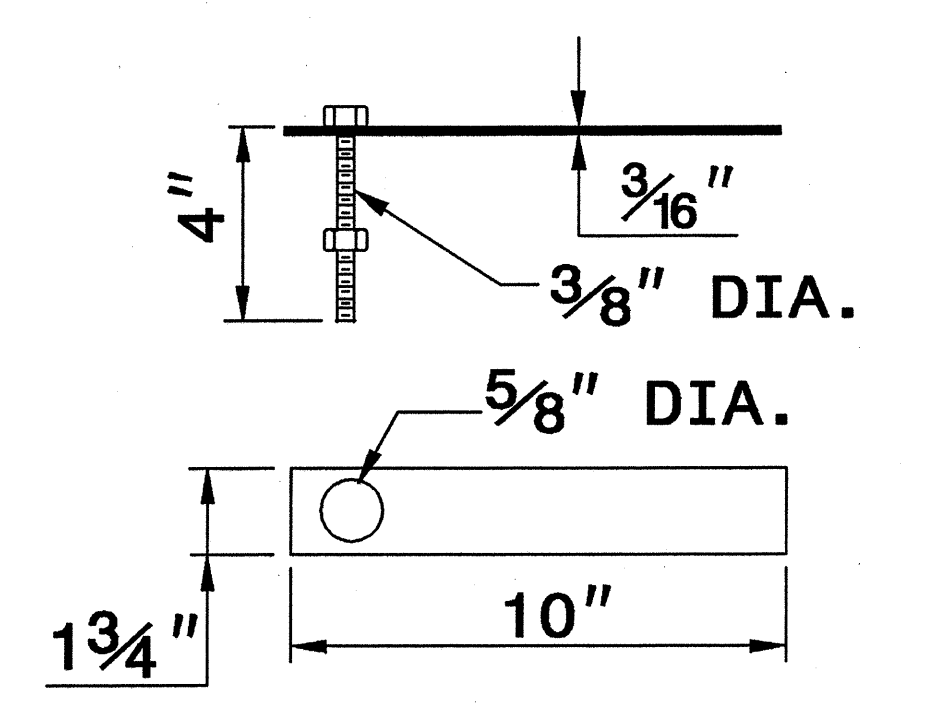
**CONCRETE  
CONSTRUCTION**



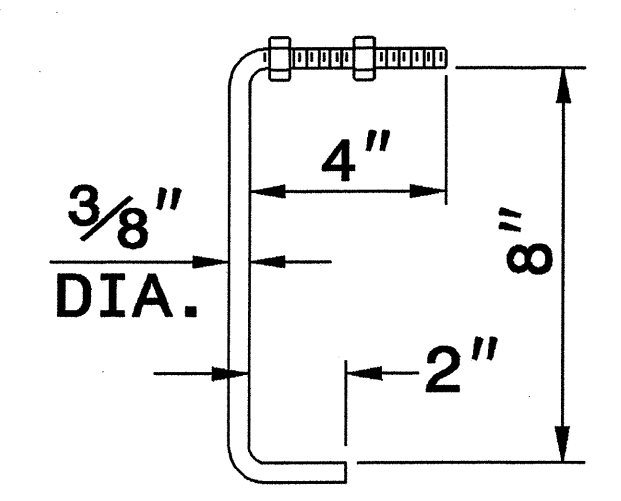
**PRECAST CONCRETE  
CONSTRUCTION**

**DETAIL SHOWING ANCHORAGE OF  
FRAME FOR GRATED DROP INLET**

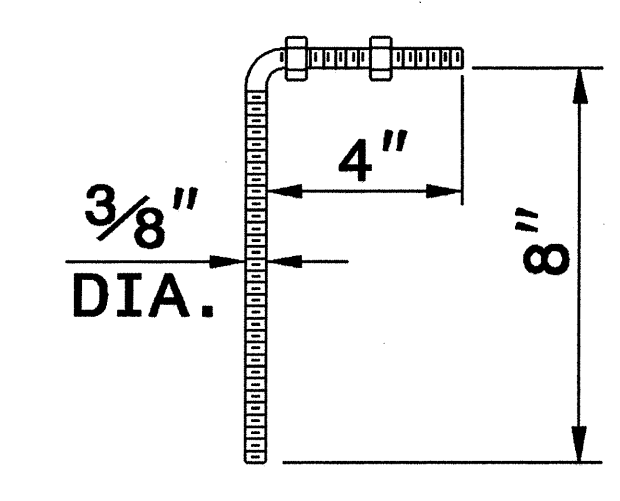
NOTE:  
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL  
OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



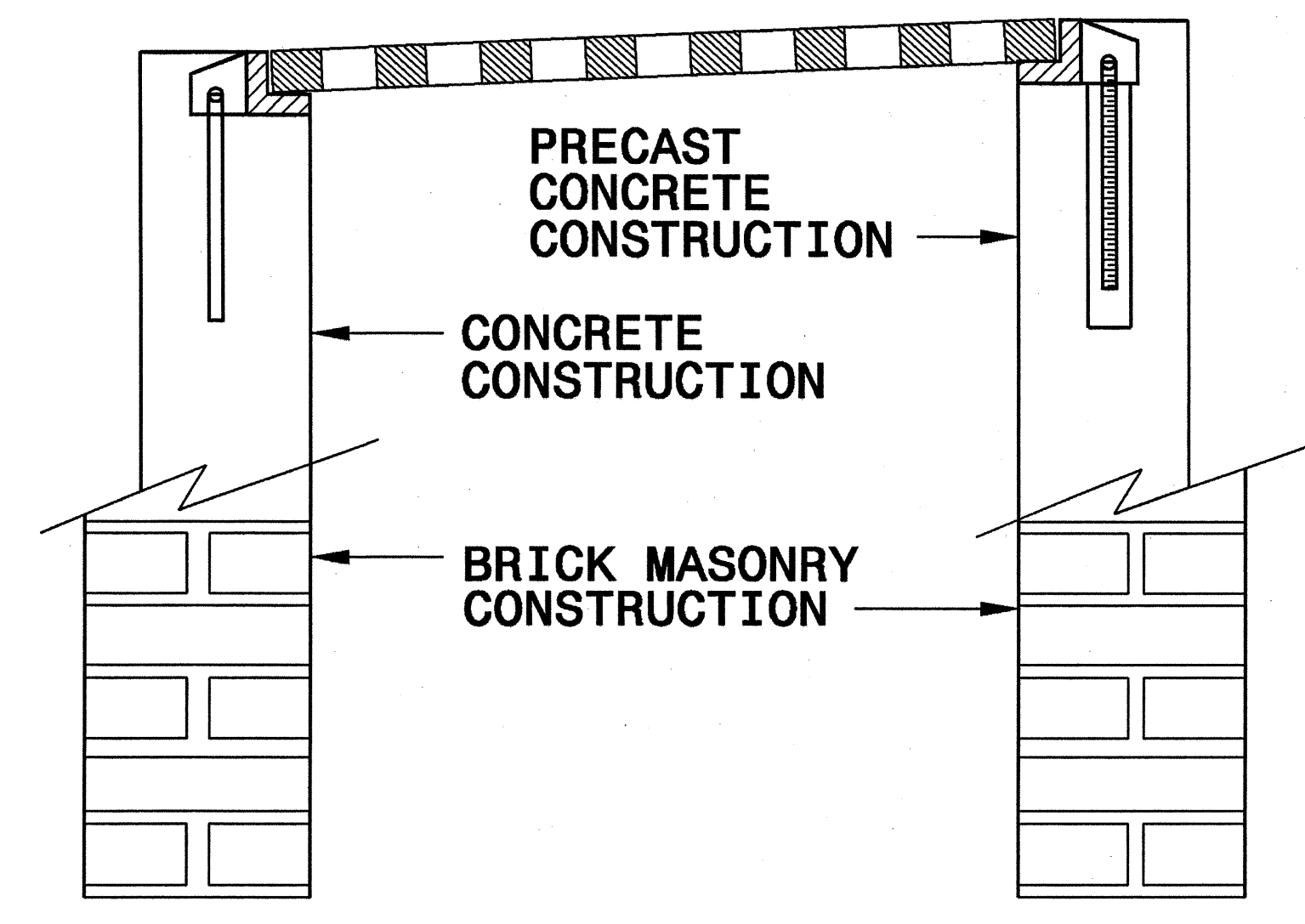
**MASONRY ANCHOR**  
3/8" DIA. BOLT WITH PLATE



**CONCRETE ANCHOR**  
3/8" DIA. BENT BAR



**PRECAST  
CONCRETE ANCHOR**  
3/8" DIA. BENT BAR



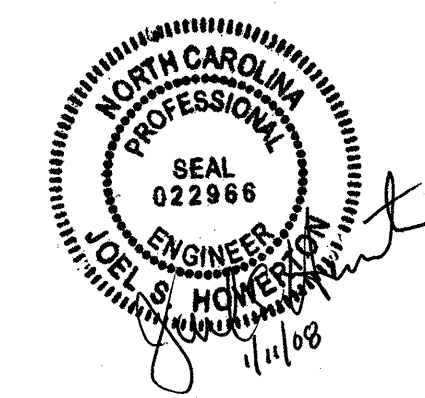
**FRAME AND GRATE INSTALLATION  
FOR NORMAL CROWN AND  
SUPERELEVATED SECTIONS**

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

ENGLISH DETAIL DRAWING FOR  
**ANCHORAGE FOR FRAMES**  
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1  
**840D25**

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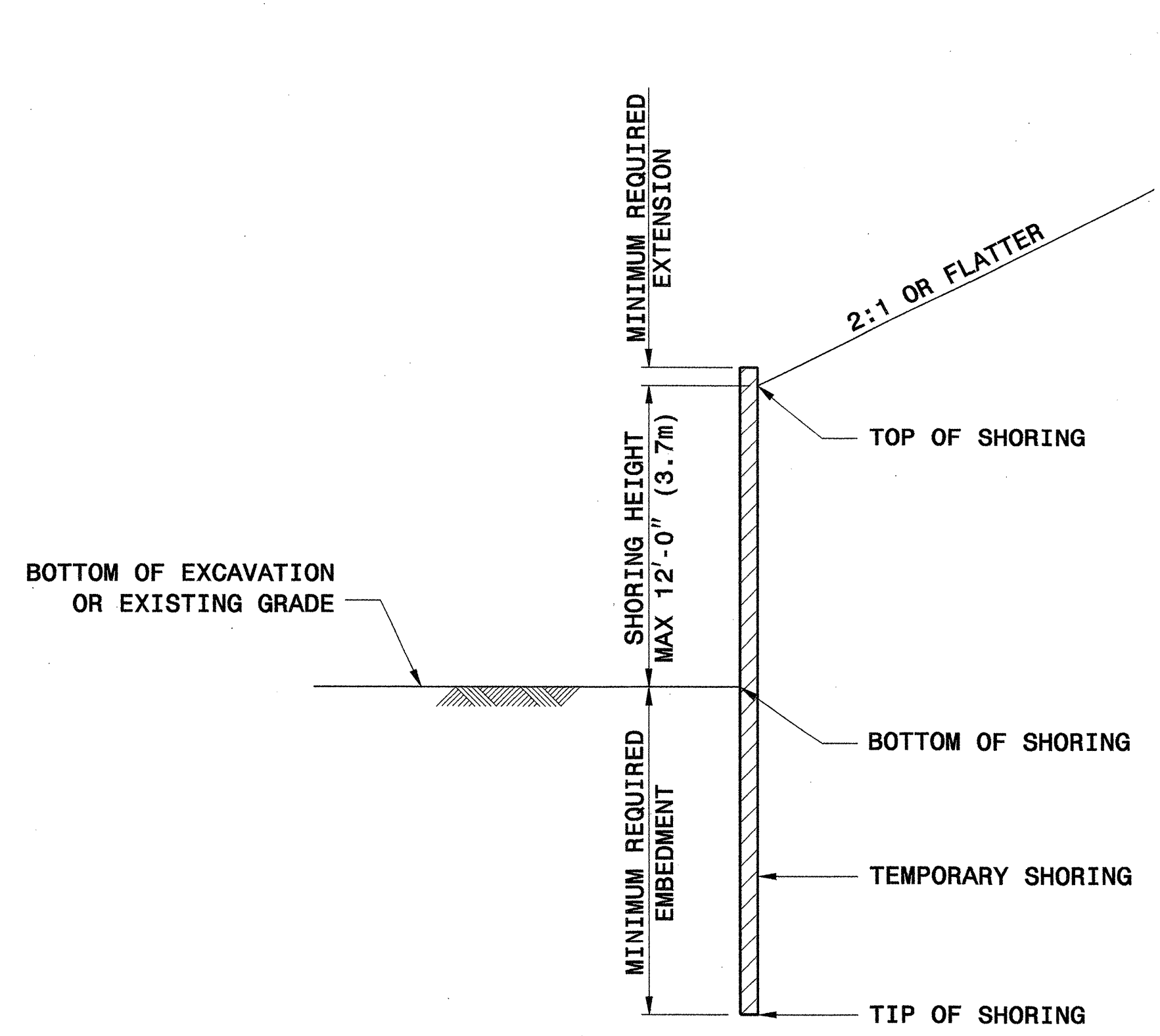


PROJECT SERVICES UNIT  
STANDARDS AND SPECIAL DESIGN  
Office 919-250-4128 FAX 919-250-4119

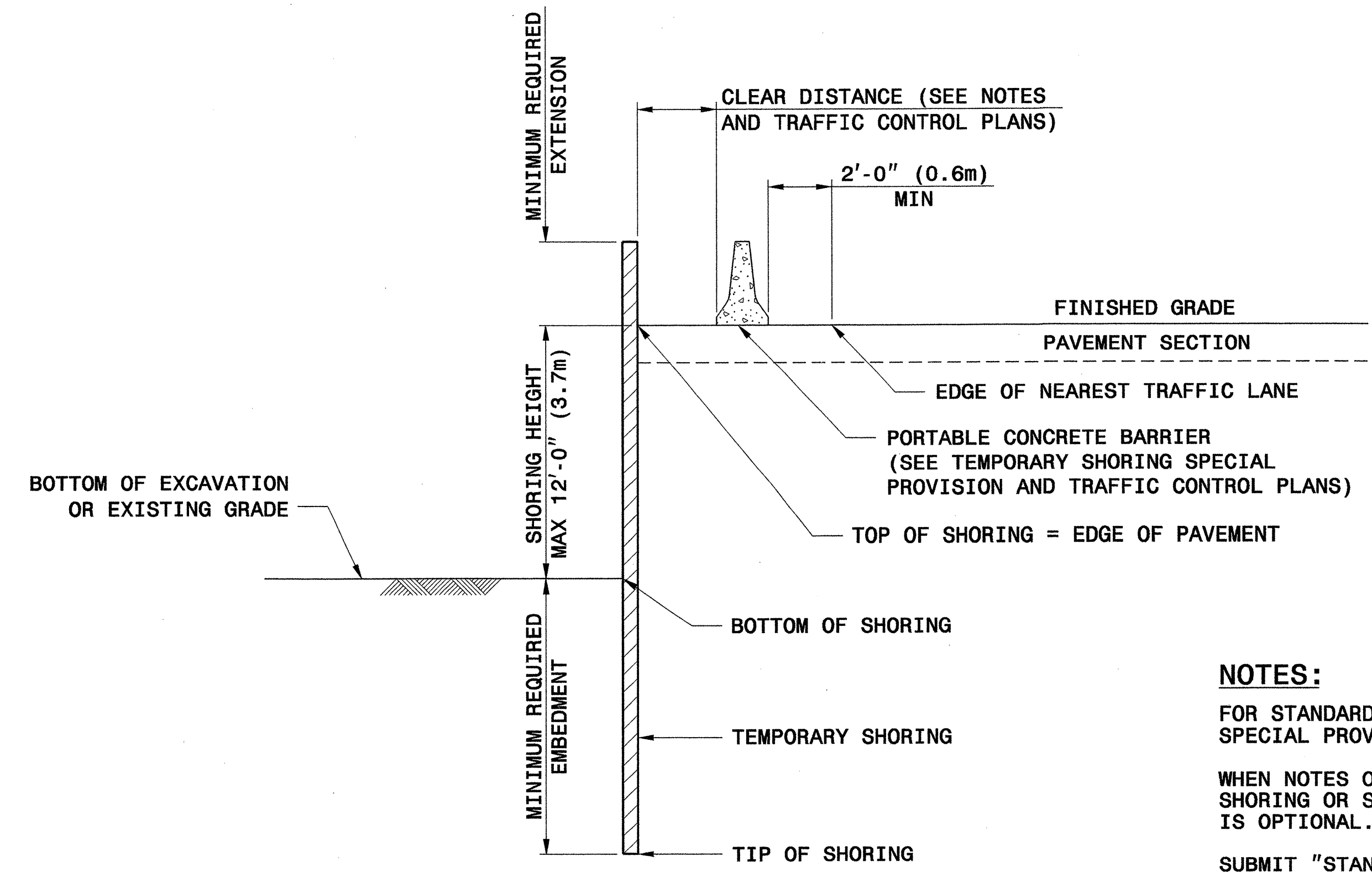
**SEE PLATE FOR TITLE**

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06  
MODIFIED BY: E.E. WARD DATE: 9/25/06  
CHECKED BY: DATE:  
FILE SPEC.:





**SLOPE CASE**



**SURCHARGE CASE**

**NOTES:**

FOR STANDARD TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

WHEN NOTES ON PLANS DO NOT PROHIBIT STANDARD TEMPORARY SHORING OR STANDARD SHORING, STANDARD TEMPORARY SHORING IS OPTIONAL.

SUBMIT "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 14 DAYS BEFORE BEGINNING SHORING CONSTRUCTION. UP TO THREE LOCATIONS MAY BE INCLUDED ON EACH SELECTION FORM.

- STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING CONDITIONS:
- 1) MAXIMUM SHORING HEIGHT IS 12'-0" (3.7m).
  - 2) TRAFFIC SURCHARGE IS 240 PSF (11.5 KPA) MAXIMUM OR BACKSLOPE IS 2:1 (H:V) OR FLATTER.
  - 3) BOTTOM OF EXCAVATION OR EXISTING GRADE IN FRONT OF SHORING IS 6:1 (H:V) SLOPE OR FLATTER.
  - 4) H PILE SPACING IS 6'-0" (1.8m).
  - 5) H PILE EMBEDMENT DEPTHS ARE FOR DRIVEN PILES.
  - 6) TIMBER LAGGING IS A MINIMUM OF 3" (75mm) THICK.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:  
 TOTAL UNIT WEIGHT = 120 PCF (18.8 KN/M<sup>3</sup>)  
 FRICTION ANGLE = 30 DEGREES  
 COHESION = 0 PSF (0 KPA)  
 GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE THE BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT WITHIN THE EMBEDMENT DEPTH.

VERIFY GROUNDWATER ELEVATION BEFORE BEGINNING SHORING CONSTRUCTION.

IF THE CLEAR DISTANCE AVAILABLE IS LESS THAN THE MINIMUM REQUIRED IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS, SET THE BARRIER AGAINST THE TRAFFIC SIDE OF THE SHORING AND USE THE "SURCHARGE CASE WITH TRAFFIC IMPACT".

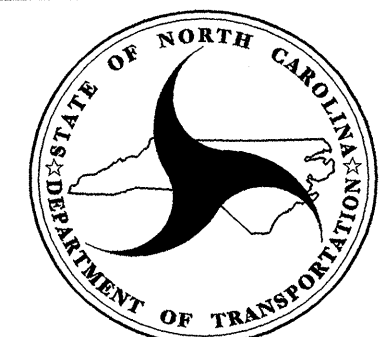
AT THE CONTRACTOR'S OPTION, H PILE EMBEDMENT DEPTHS FOR PILES SET IN DRILLED HOLES MAY BE REDUCED BY 25%. FOR PILE EXCAVATION, SEE TEMPORARY SHORING SPECIAL PROVISION.

CONTROL DRAINAGE DURING CONSTRUCTION IN THE VICINITY OF THE SHORING. COLLECT AND DIRECT RUNOFF AWAY FROM SHORING.

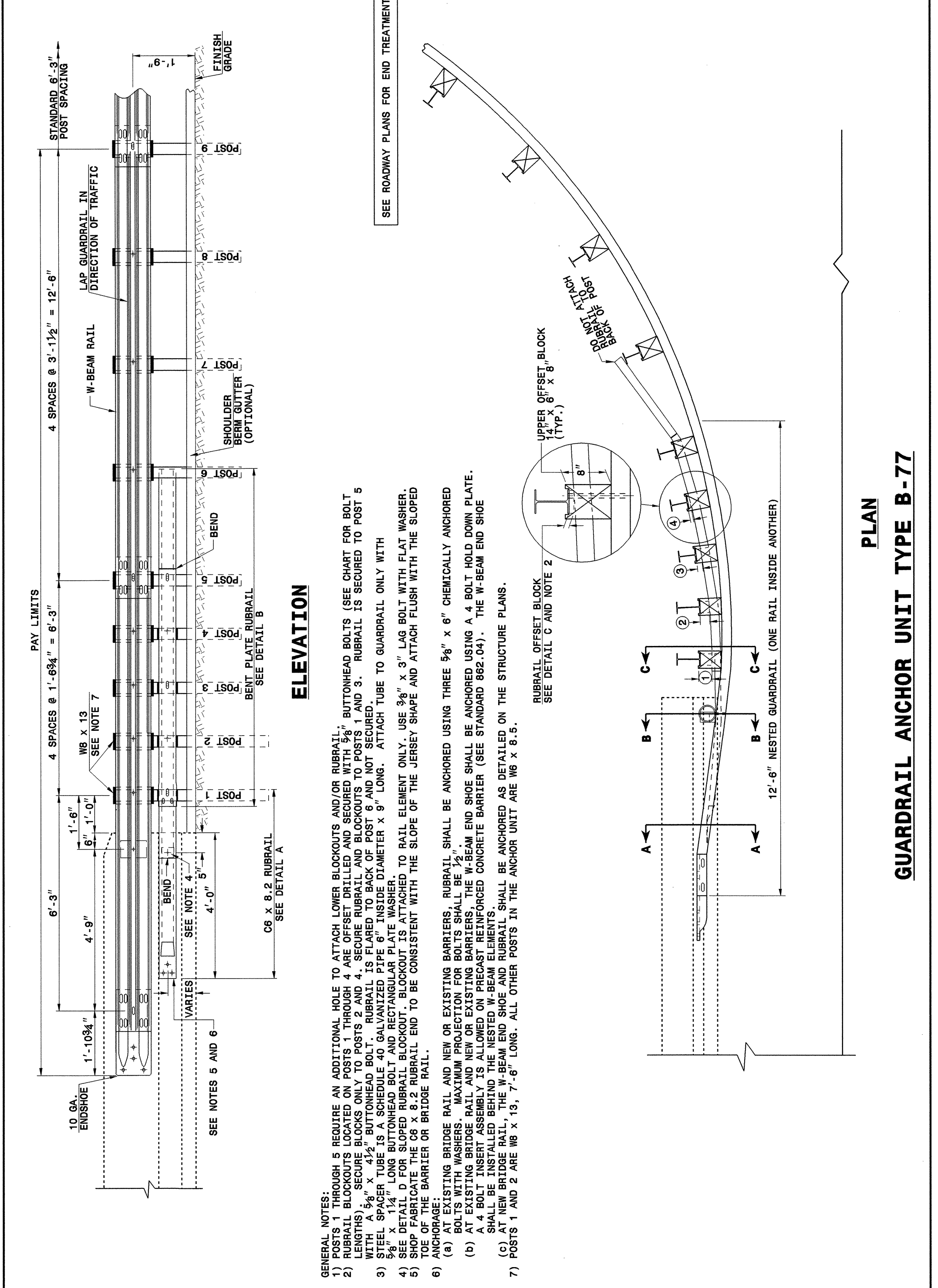
CONTACT THE ENGINEER IF MINIMUM REQUIRED EMBEDMENT IS NOT ACHIEVED.

GROUNDWATER CONDITION	SHORING HEIGHT FT (m)	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 (m)	MINIMUM REQUIRED SECTION MODULUS IN <sup>3</sup> /FT (cm <sup>3</sup> /m)	MINIMUM REQUIRED EMBEDMENT FT (m)			MINIMUM REQUIRED EMBEDMENT FT (m)	MINIMUM REQUIRED SECTION MODULUS IN <sup>3</sup> /FT (cm <sup>3</sup> /m)	MINIMUM REQUIRED EMBEDMENT FT (m)		
GROUNDWATER ELEVATION BELOW TIP OF SHORING	< 6 (1.8)	7.5 (2.3)	3.0 (161)	8.0 (2.4)	8.0 (2.4)	8.0 (2.4)	11.0 (3.4)	10.0 (538)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)
	7 (2.1)	8.5 (2.6)	4.5 (242)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)	12.0 (3.7)	12.0 (645)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)
	8 (2.4)	10.0 (3.0)	6.5 (349)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)	12.5 (3.8)	14.0 (753)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)
	9 (2.7)	11.0 (3.4)	9.5 (511)	--	12.0 (3.7)	12.0 (3.7)	13.5 (4.1)	16.5 (887)	--	12.5 (3.8)	12.5 (3.8)
	10 (3.0)	12.5 (3.8)	13.0 (699)	--	--	13.5 (4.1)	14.0 (4.3)	19.5 (1048)	--	13.5 (4.1)	13.5 (4.1)
	11 (3.4)	13.5 (4.1)	17.0 (914)	--	--	14.5 (4.4)	15.0 (4.6)	22.5 (1210)	--	--	14.5 (4.4)
	12 (3.7)	15.0 (4.6)	21.5 (1156)	--	--	16.0 (4.9)	16.0 (4.9)	25.5 (1371)	--	--	15.5 (4.7)
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND TIP OF SHORING	< 6 (1.8)	11.5 (3.5)	4.5 (242)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)	16.0 (4.9)	12.0 (645)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)
	7 (2.1)	13.0 (4.0)	7.0 (376)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)	17.0 (5.2)	14.5 (780)	14.5 (4.4)	14.5 (4.4)	14.5 (4.4)
	8 (2.4)	15.0 (4.6)	10.0 (538)	--	15.0 (4.6)	15.0 (4.6)	18.0 (5.5)	17.0 (914)	--	15.5 (4.7)	15.5 (4.7)
	9 (2.7)	17.0 (5.2)	14.0 (753)	--	17.0 (5.2)	17.0 (5.2)	19.0 (5.8)	20.0 (1075)	--	17.0 (5.2)	17.0 (5.2)
	10 (3.0)	18.5 (5.6)	19.5 (1048)	--	--	18.5 (5.6)	20.0 (6.1)	23.5 (1263)	--	--	18.5 (5.6)
	11 (3.4)	20.5 (6.3)	26.0 (1398)	--	--	--	21.0 (6.4)	28.0 (1505)	--	--	20.0 (6.1)
	12 (3.7)	22.5 (6.9)	33.0 (1774)	--	--	--	22.0 (6.7)	33.0 (1774)	--	--	21.5 (6.6)

NOTE: MINIMUM REQUIRED EXTENSION IS 6" (150mm) FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" (800 mm) FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".

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

**STANDARD DRAWING NO. 1801.01**  
**STANDARD TEMPORARY SHORING**  
 DATE: 2-20-07

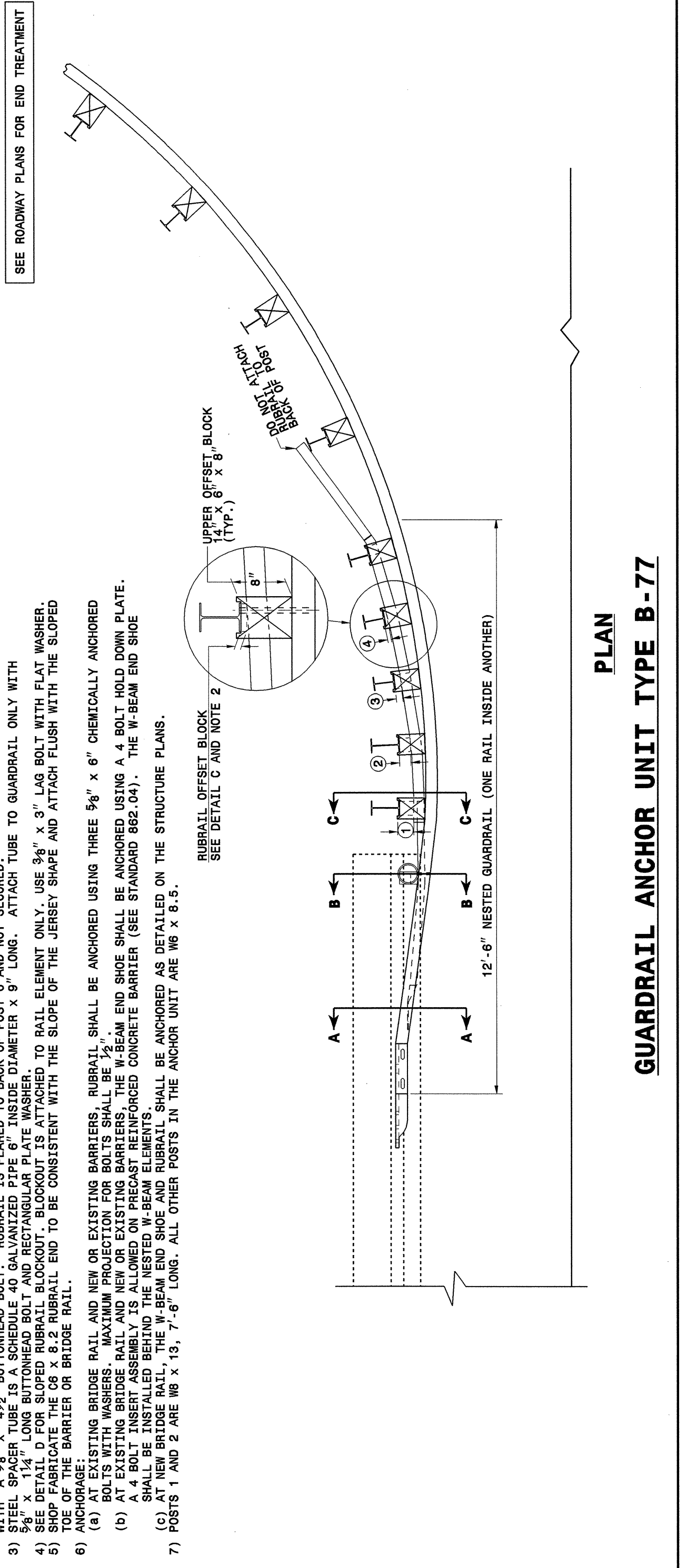


ELEVATION

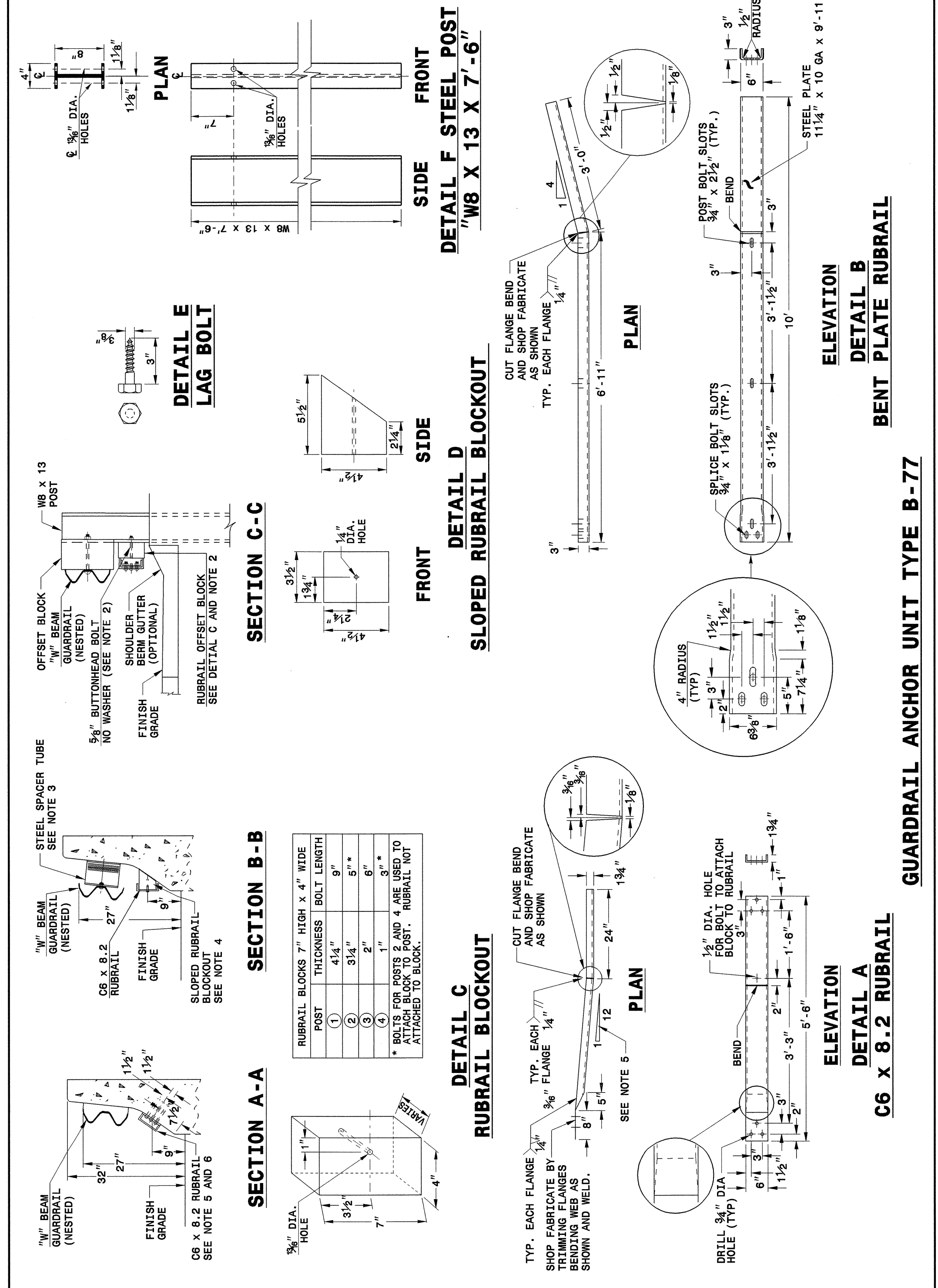
PLAN

- GENERAL NOTES:** 5. REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL BLOCKOUTS LOCATED ON POSTS THROUGH 4. ARE OFFSET, DRILLED AND SECURED WITH 5/8" BUTT WASHERS. (SEE CHART FOR BOLT LENGTHS). 6. RUBRAIL BLOCKOUTS THROUGH 4. ARE OFFSET, DRILLED AND SECURED WITH 5/8" BUTT WASHERS TO POSTS 1, 2 AND 3. RUBRAIL IS SECURED TO POST 5 WITH A 3/8" x 4 1/2" BUTT WASHERS. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED. 7. STEEL WASHERS ARE ON THE SAME SIDE OF THE RUBRAIL AS THE WASHERS ON THE INSIDE DIAMETER X 9" LONG. ATTACH TUBE TO GUARDRAIL ONLY WITH 5/8" BUTT WASHERS. 8. SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE 3/8" x 3" LAG BOLT WITH FLAT WASHER. TOE OF THE BRIDGE RAIL OR BRIDGE RAIL. 9. (a) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, RUBRAIL SHALL BE ANCHORED USING THREE 5/8" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS SHALL BE 1/2". (b) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, THE W-BEAM END SHOE SHALL BE ANCHORED USING A BOLT HOLD DOWN PLATE. SHALL BE INSTALLED BEHIND THE NESTED W-BEAM ELEMENTS. (c) AT NEW BRIDGE RAIL, THE W-BEAM END SHOE AND RUBRAIL SHALL BE ANCHORED AS DETAILED ON THE STRUCTURE PLANS. (d) POSTS 1 AND 2 ARE W8 X 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W8 X 8.5.

PAV LIMITS  
4 SPACES @ 3'-1 1/2" = 12'-6"  
4 SPACES @ 1'-6 3/4" = 6'-3"  
10' OC ENDSHORE  
1'-10 1/2"  
4'-9"  
1'-6"  
6" TYP.  
1'-9"  
W-BEAM RAIL  
W8 X 13  
SHOULDER BERM CUTTER (OPTIONAL)  
POST 6  
POST 5  
POST 4  
POST 3  
POST 2  
POST 1  
FINISH GRADE  
STANDARD 6'-3" POST SPACING  
LAP GUARDRAIL IN DIRECTION OF TRAFFIC  
W-BEAM RAIL  
POST 6  
POST 5  
POST 4  
POST 3  
POST 2  
POST 1  
BEND  
BENT PLATE RUBRAIL  
SEE DETAIL B  
C6 X 8.2 RUBRAIL  
SEE DETAIL A  
VARIES  
SEE NOTES 5 AND 6  
4'-0"  
SEE NOTE 7  
4 SPACES @ 3'-1 1/2" = 12'-6"  
FINISH GRADE



GUARDRAIL ANCHOR UNIT TYPE B-77



SECTION A-A

SECTION B-B

SECTION C-C

DETAIL C

DETAIL D

DETAIL E

DETAIL F

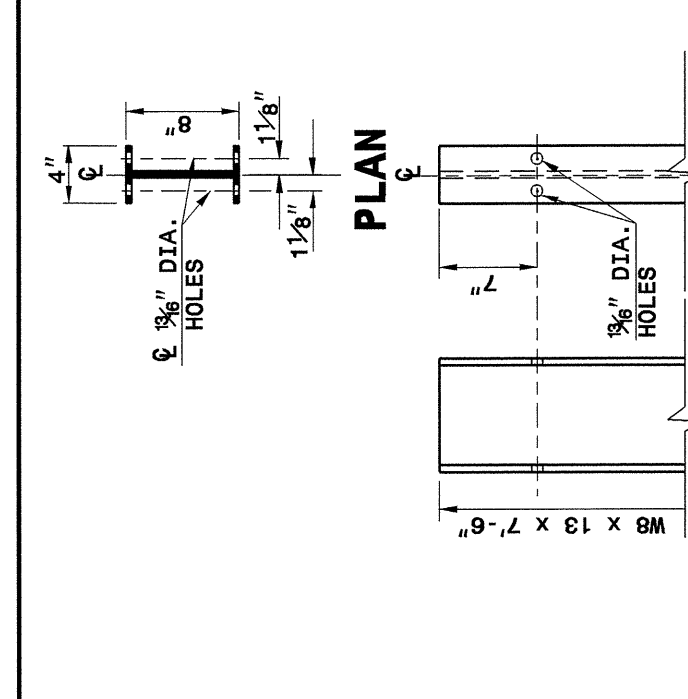
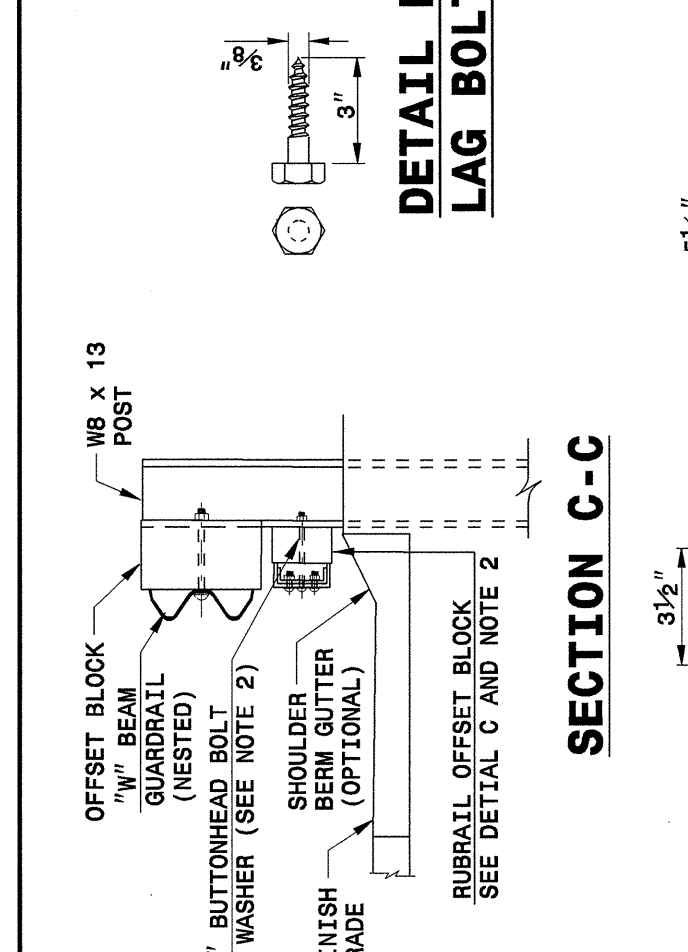
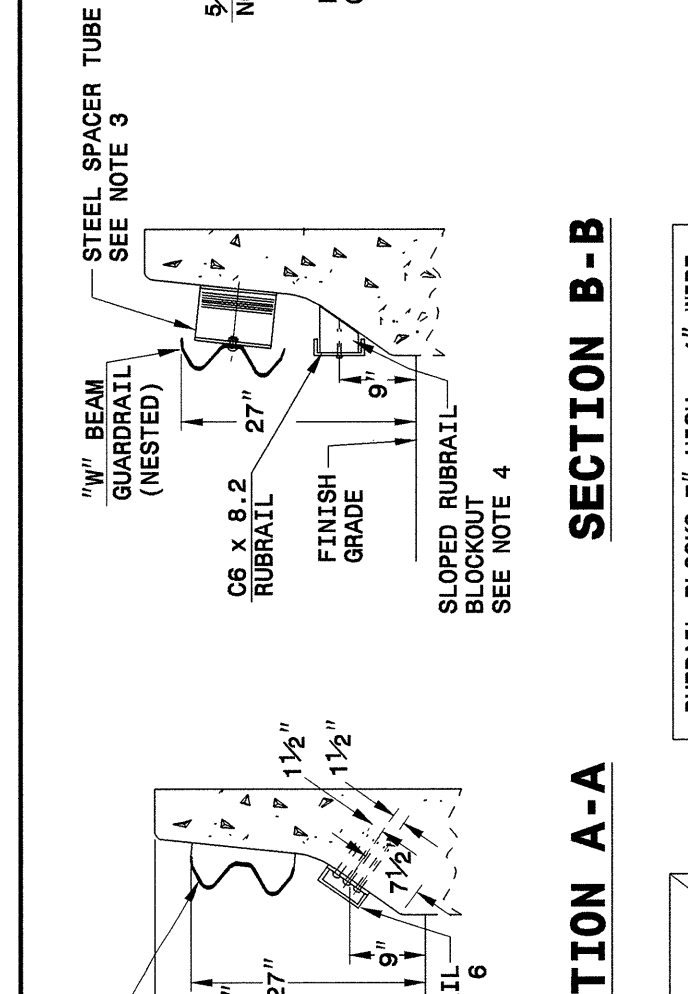
ELEVATION

ELEVATION

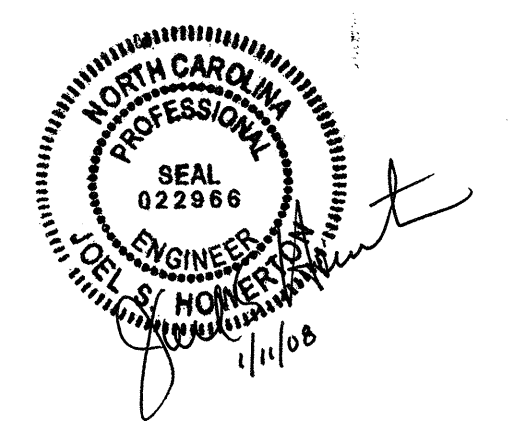
SECTION B-B

RUBRAIL BLOCKS 7" HIGH X 4" WIDE	POST	THICKNESS	BOLT LENGTH
(1)	4 1/2"	3 1/4"	9"
(2)	3 1/4"	5"	6"
(3)	2"	1"	3"
(4)		1"	3"

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



SEE PLATE FOR TITLE





# SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201806

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (24+67.500)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	100	CY	UNDERCUT EXCAVATION
0080000000-E	SP	500	TON	CLASS IV SUBGRADE STABILIZATION
0134000000-E	240	25	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	500	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	500	SY	FABRIC FOR SOIL STABILIZATION
0199000000-E	SP	1,000	SF	TEMPORARY SHORING
0318000000-E	300	34	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0720000000-E	310	60	LF	24" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0987000000-E	310	228	LF	GENERIC PIPE ITEM 84" CS PIPE CULVERTS, 0.168" THICK
0995000000-E	340	228	LF	PIPE REMOVAL
1121000000-E	520	285	TON	AGGREGATE BASE COURSE
1220000000-E	545	25	TON	INCIDENTAL STONE BASE
1489000000-E	610	135	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	200	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1560000000-E	620	19	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
2000000000-N	806	7	EA	RIGHT OF WAY MARKERS
2022000000-E	815	170	CY	SUBDRAIN EXCAVATION
2033000000-E	815	224	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	1,000	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	30	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS

ItemNumber	Sec #	Quantity	Unit	Description
2066000000-N	815	2	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	12	LF	6" OUTLET PIPE (SUBDRAINS)
2286000000-N	840	1	EA	MASONRY DRAINAGE STRUCTURES
2556000000-E	846	20	LF	SHOULDER BERM GUTTER
3030000000-E	862	150	LF	STEEL BM GUARDRAIL
3045000000-E	862	25	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3270000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3380000000-E	862	62.5	LF	TEMPORARY STEEL BM GUARDRAIL
3389100000-N	SP	6	EA	GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY
3649000000-E	876	90	TON	RIP RAP, CLASS B
3656000000-E	876	340	SY	FILTER FABRIC FOR DRAINAGE
4400000000-E	1110	256	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	20	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	50	EA	DRUMS
4435000000-N	1135	25	EA	CONES
4445000000-E	1145	48	LF	BARRICADES (TYPE III)
4455000000-N	1150	20	MD	FLAGGER
4465000000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS
4485000000-E	1170	40	LF	PORTABLE CONCRETE BARRIER
4507000000-E	SP	100	LF	WATER FILLED BARRIER
4650000000-N	1251	40	EA	TEMPORARY RAISED PAVEMENT MARKERS

ItemNumber	Sec #	Quantity	Unit	Description
4810000000-E	1205	5,240	LF	PAINT PAVEMENT MARKING LINES (4")
4835000000-E	1205	48	LF	PAINT PAVEMENT MARKING LINES (24")
4850000000-E	1205	400	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4900000000-N	1251	4	EA	PERMANENT RAISED PAVEMENT MARKERS
6000000000-E	1605	1,200	LF	TEMPORARY SILT FENCE
6006000000-E	1610	90	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	300	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	200	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	0.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6029000000-E	SP	300	LF	SAFETY FENCE
6030000000-E	1630	885	CY	SILT EXCAVATION
6036000000-E	1631	560	SY	MATTING FOR EROSION CONTROL
6042000000-E	1632	20	LF	1/4" HARDWARE CLOTH
6070000000-N	SP	4	EA	SPECIAL STILLING BASINS
6071030000-E	SP	270	LF	COIR FIBER BAFFLES
6084000000-E	1660	0.5	ACR	SEEDING & MULCHING
6087000000-E	1660	0.5	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	0.25	TON	FERTILIZER TOPDRESSING
6111000000-E	SP	290	LF	IMPERVIOUS DIKE
6114000000-N	SP	2	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	27	EA	RESPONSE FOR EROSION CONTROL
7060000000-E	1705	710	LF	SIGNAL CABLE
7120000000-E	1705	6	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
7264000000-E	1710	480	LF	MESSENGER CABLE (3/8")
7360000000-N	1720	4	EA	WOOD POLE
7372000000-N	1721	8	EA	GUY ASSEMBLY
7408000000-E	1722	1	EA	1" RISER WITH WEATHERHEAD
7420000000-E	1722	3	EA	2" RISER WITH WEATHERHEAD
7444000000-E	1725	270	LF	INDUCTIVE LOOP SAWCUT
7456000000-E	1726	730	LF	LEAD-IN CABLE (***** (14-2))
7484000000-N	SP	1	EA	MICROWAVE VEHICLE DETECTOR
7636000000-N	1745	4	EA	SIGN FOR SIGNALS
7768000000-N	1751	1	EA	CONTROLLER WITH CABINET (TYPE 2070L, POLE MOUNTED)
7780000000-N	1751	3	EA	DETECTOR CARD (TYPE 2070L)

***** BEGIN SCHEDULE AA ***** (3 ALTERNATES)				
0366000000-E	310	32	LF	15" RC PIPE CULVERTS, CLASS III
AA1				
*** OR ***				
0536000000-E	SP	32	LF	*** HDPE PIPE CULVERTS (15")
AA2				
*** OR ***				
0540000000-E	SP	32	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (15", 0.064")
AA3				
***** END SCHEDULE AA *****				



5/28/99





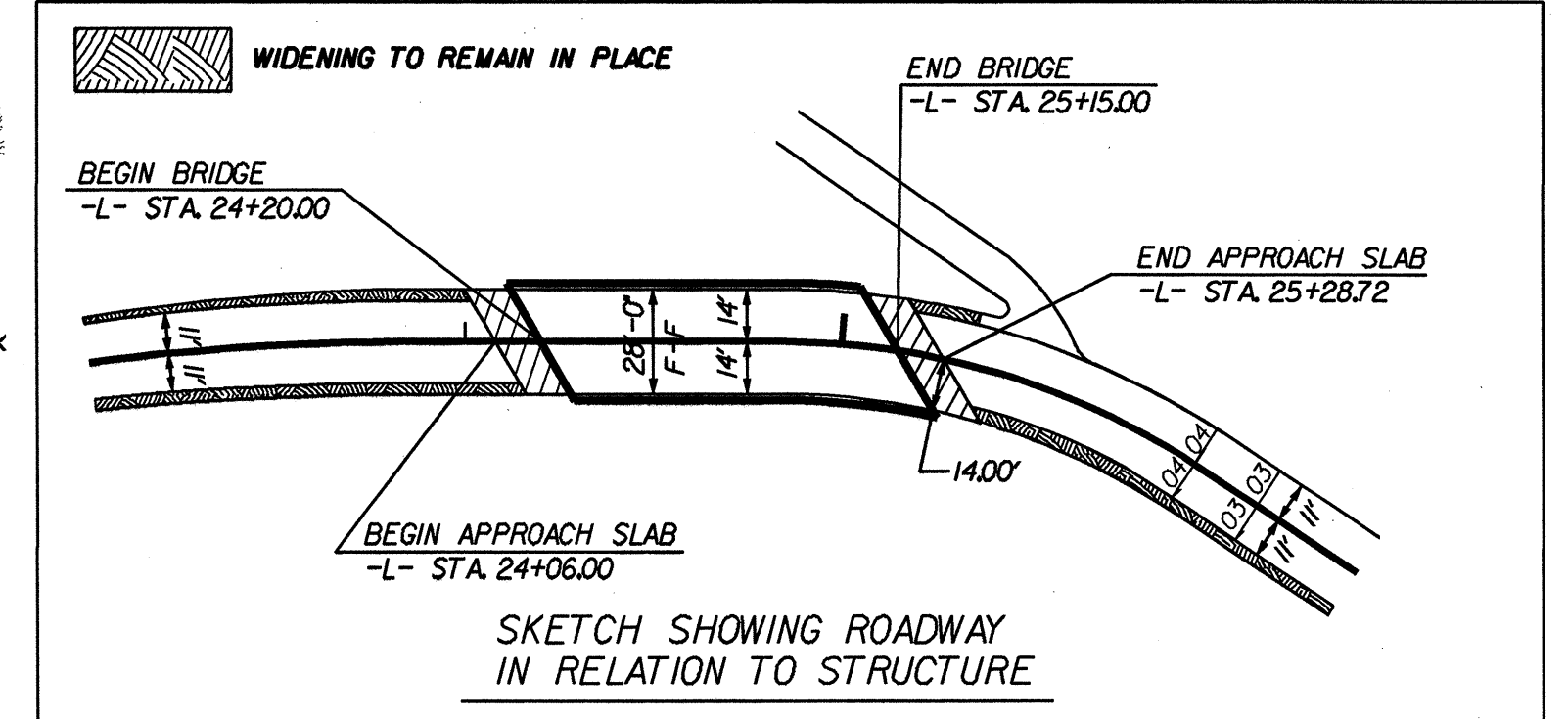
**LIST OF PIPE, ENDWALLS, ETC. (FOR PIPE 54" & OVER)**

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO.	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE)						C.S. PIPE				STRUCTURAL PLATE PIPE						REINFORCED HEADWALLS STD. 838.34		PIPE REMOVAL	REMARKS					
			54"	60"	66"	72"	78"	84"	54"	60"	66"	84"	60"	66"	72"	WITH R.C. - C.Y.	WITH C.S. - C.Y.										
SIZE	FROM TO		SHOP ELONGATED												12	10	12	10	12	10							
THICKNESS OR GAUGE			.109	.138	.168	.138	.168	.138	.168	.138	.168	.138	.168	.138	.168												
-DET- STA. 12 + 83	LT./RT.	4																									228'

- ABBREVIATIONS**
- C.B. CATCH BASIN
  - N.D.I. NARROW DROP INLET
  - D.I. DROP INLET
  - M.D.I. MEDIAN DROP INLET
  - M.D.I. (N.S.) MEDIAN DROP INLET (NARROW SLOT)
  - J.B. JUNCTION BOX
  - M.H. MANHOLE
  - T.B.D.I. TRAFFIC BEARING DROP INLET
  - T.B.J.B. TRAFFIC BEARING JUCTION BOX



②  
 MARY TEAGUE ADAMS  
 STEVEN RAY ADAMS  
 DB 391 PG 583  
 DB 762 PG 169  
 DB 598 PG 365

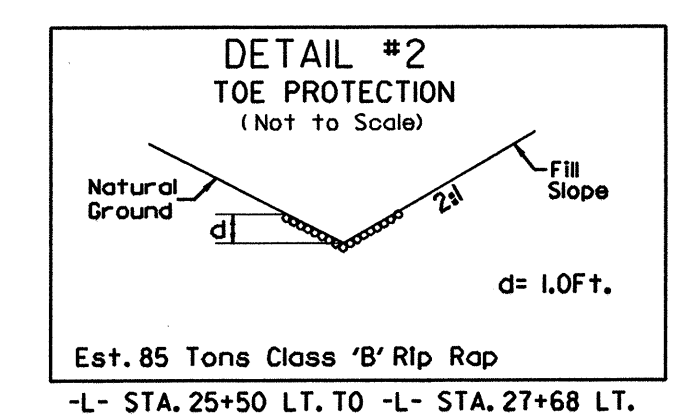
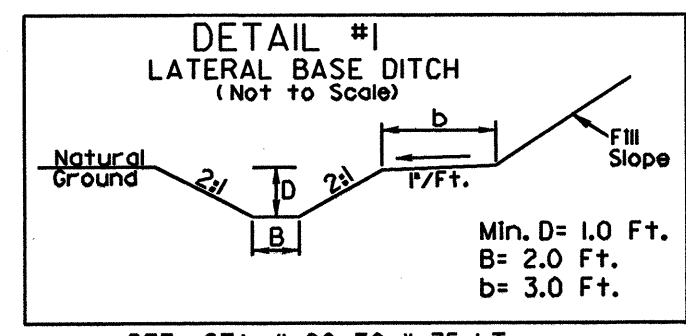
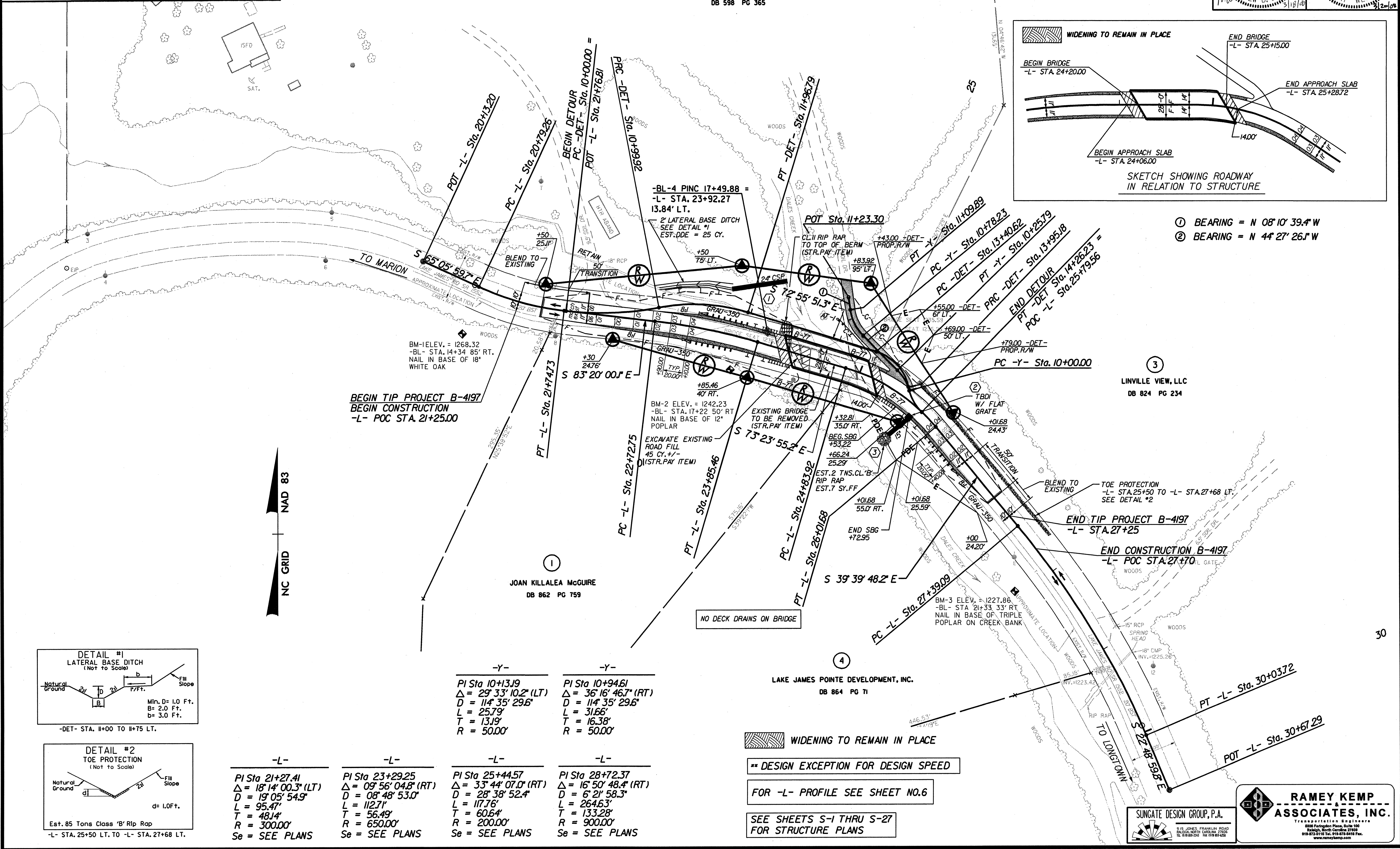


- ① BEARING = N 08° 10' 39.4" W
- ② BEARING = N 44° 27' 26.1" W

③  
 LINVILLE VIEW, LLC  
 DB 824 PG 234

④  
 LAKE JAMES POINTE DEVELOPMENT, INC.  
 DB 864 PG 71

REVISIONS



-Y-	-Y-	-L-	-L-
PI Sta 10+13.19	PI Sta 10+94.61	PI Sta 25+44.57	PI Sta 28+72.37
Δ = 29° 33' 10.2" (LT)	Δ = 36° 16' 46.7" (RT)	Δ = 33° 44' 07.0" (RT)	Δ = 16° 50' 48.4" (RT)
D = 114° 35' 29.6"	D = 114° 35' 29.6"	D = 28° 38' 52.4"	D = 6° 21' 58.3"
L = 25.79'	L = 31.66'	L = 117.76'	L = 264.63'
T = 13.19'	T = 16.38'	T = 60.64'	T = 133.28'
R = 50.00'	R = 50.00'	R = 200.00'	R = 900.00'
Se = SEE PLANS	Se = SEE PLANS	Se = SEE PLANS	Se = SEE PLANS

WIDENING TO REMAIN IN PLACE

\*\* DESIGN EXCEPTION FOR DESIGN SPEED

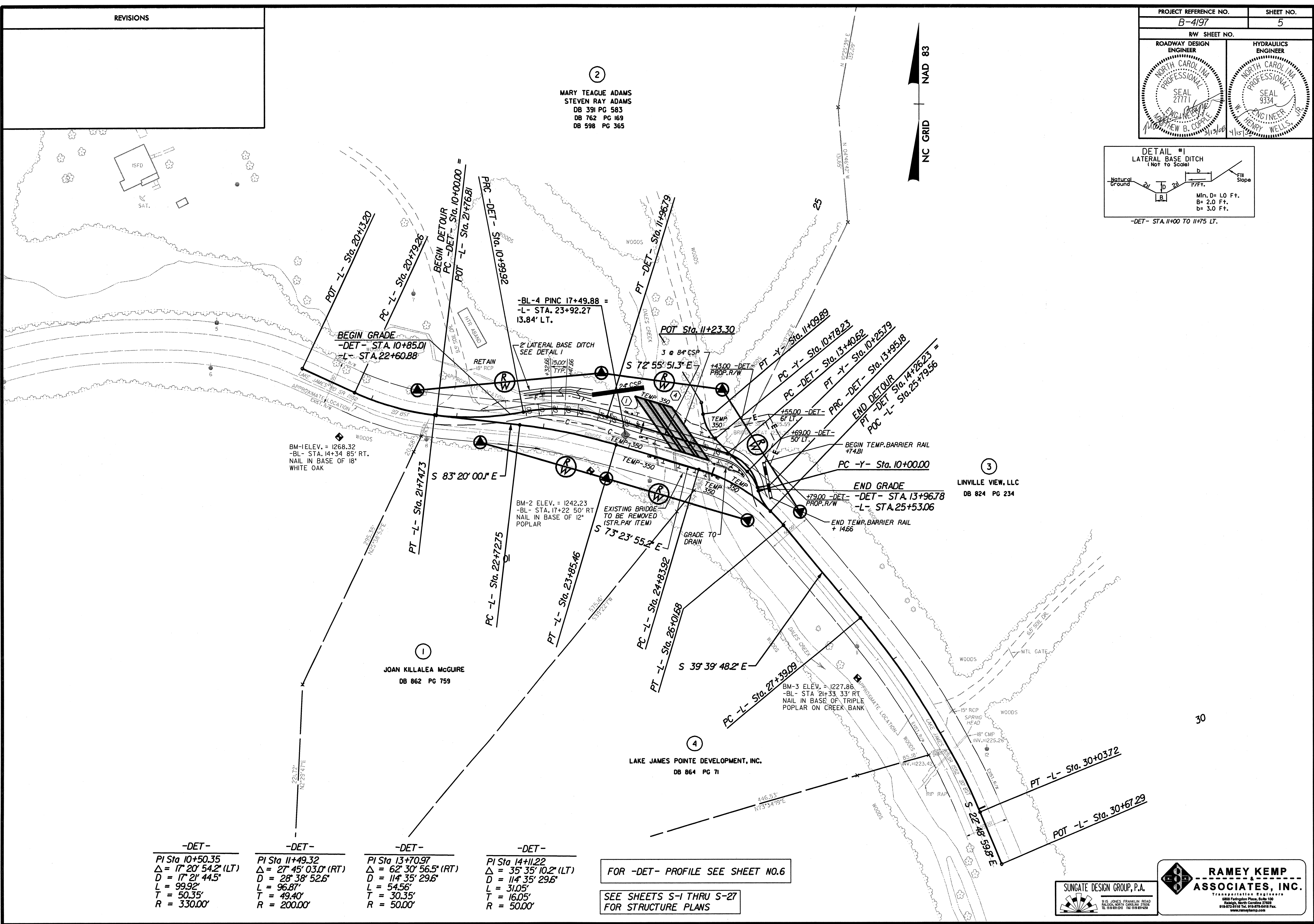
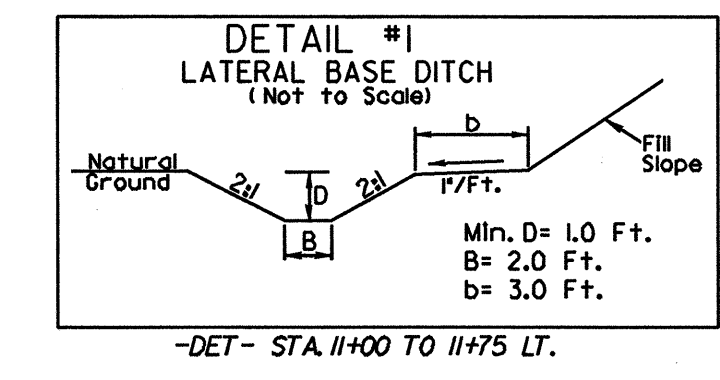
FOR -L- PROFILE SEE SHEET NO.6

SEE SHEETS S-1 THRU S-27 FOR STRUCTURE PLANS



2  
 MARY TEAGUE ADAMS  
 STEVEN RAY ADAMS  
 DB 391 PG 583  
 DB 762 PG 169  
 DB 598 PG 365

NAD 83  
 NC GRID



BM-1 ELEV. = 1268.32  
 -BL- STA. 14+34 85' RT.  
 NAIL IN BASE OF 18" WHITE OAK

BM-2 ELEV. = 1242.23  
 -BL- STA. 17+22 50' RT.  
 NAIL IN BASE OF 12" POPLAR

BM-3 ELEV. = 1227.86  
 -BL- STA. 21+33 33' RT.  
 NAIL IN BASE OF TRIPLE POPLAR ON CREEK BANK

-DET- PI Sta 10+50.35 Δ = 17° 20' 54.2" (LT) D = 17' 21' 44.5" L = 99.92' T = 50.35' R = 330.00'	-DET- PI Sta 11+49.32 Δ = 27° 45' 03.0" (RT) D = 28' 38' 52.6" L = 96.87' T = 49.40' R = 200.00'	-DET- PI Sta 13+70.97 Δ = 62° 30' 56.5" (RT) D = 114' 35' 29.6" L = 54.56' T = 30.35' R = 50.00'	-DET- PI Sta 14+11.22 Δ = 35° 35' 10.2" (LT) D = 114' 35' 29.6" L = 31.05' T = 16.05' R = 50.00'
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FOR -DET- PROFILE SEE SHEET NO.6

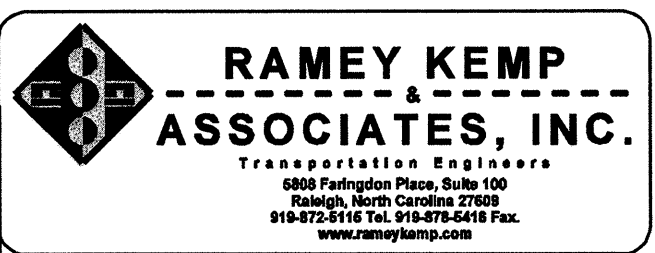
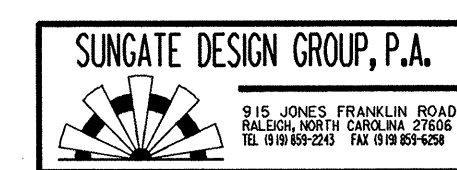
SEE SHEETS S-1 THRU S-27 FOR STRUCTURE PLANS

3  
 LINVILLE VIEW, LLC  
 DB 824 PG 234

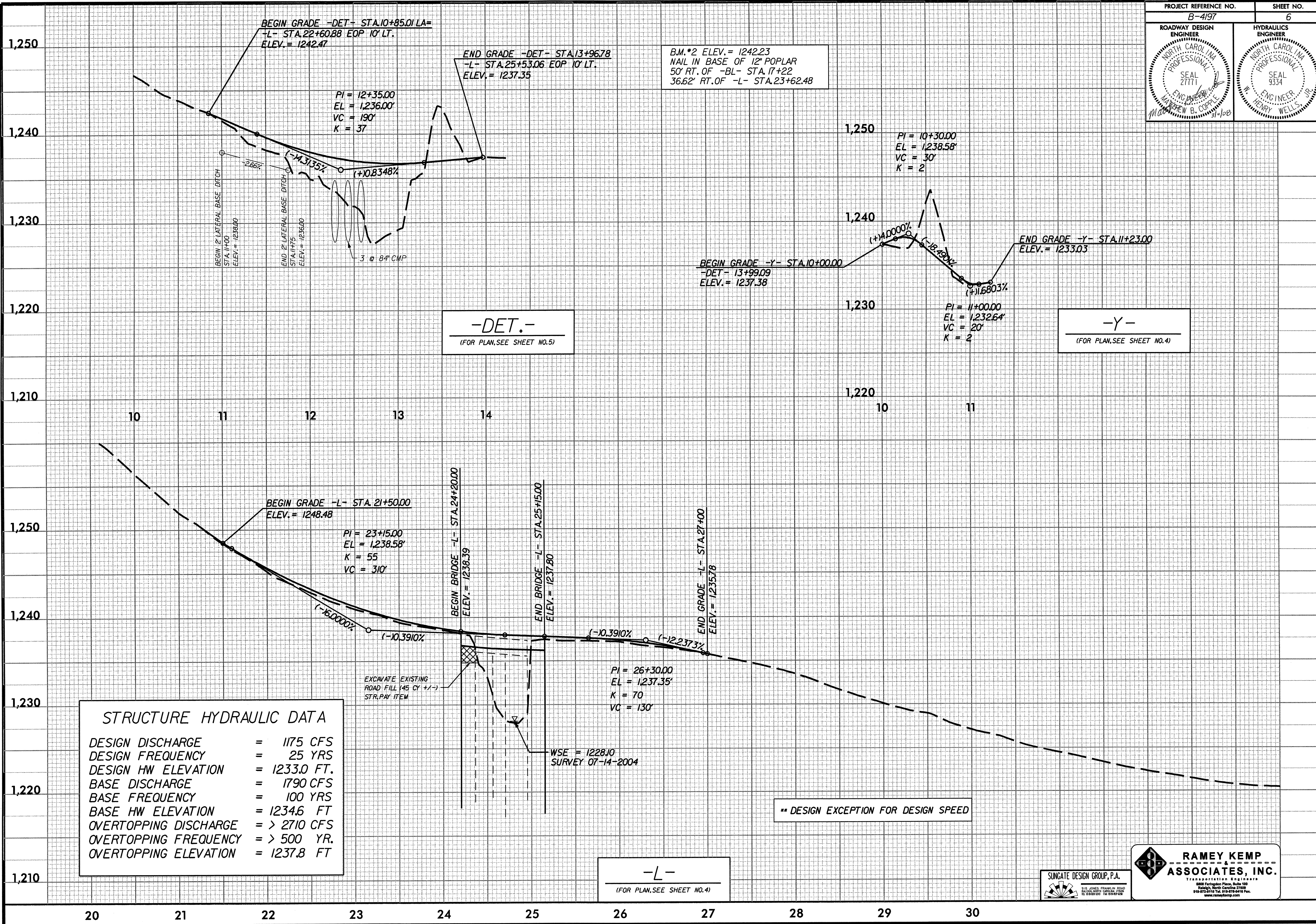
JOAN KILLALEA MCGUIRE  
 DB 862 PG 759

LAKE JAMES POINTE DEVELOPMENT, INC.  
 DB 864 PG 71

30







**-DET.-**  
(FOR PLAN, SEE SHEET NO. 5)

**-Y-**  
(FOR PLAN, SEE SHEET NO. 4)

**-L-**  
(FOR PLAN, SEE SHEET NO. 4)

STRUCTURE HYDRAULIC DATA	
DESIGN DISCHARGE	= 1175 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 1233.0 FT.
BASE DISCHARGE	= 1790 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 1234.6 FT
OVERTOPPING DISCHARGE	= > 2710 CFS
OVERTOPPING FREQUENCY	= > 500 YR.
OVERTOPPING ELEVATION	= 1237.8 FT

\*\* DESIGN EXCEPTION FOR DESIGN SPEED

WSE = 1228.10  
SURVEY 07-14-2004

EXCAVATE EXISTING ROAD FILL (45 CY +/-) STR. PAY ITEM

B.M.\*2 ELEV. = 1242.23  
NAIL IN BASE OF 12" POPLAR  
50' RT. OF -BL- STA. 17+22  
36.62' RT. OF -L- STA. 23+62.48

BEGIN GRADE -DET- STA. 10+85.01 LA=  
-L- STA. 22+60.88 EOP 10' LT.  
ELEV. = 1242.47

END GRADE -DET- STA. 13+96.78  
-L- STA. 25+53.06 EOP 10' LT.  
ELEV. = 1237.35

PI = 12+35.00  
EL = 1236.00  
VC = 190'  
K = 37

PI = 10+30.00  
EL = 1238.58  
VC = 30'  
K = 2

END GRADE -Y- STA. 11+23.00  
ELEV. = 1233.03

BEGIN GRADE -Y- STA. 10+00.00  
-DET- 13+99.09  
ELEV. = 1237.38

PI = 11+00.00  
EL = 1232.64  
VC = 20'  
K = 2

BEGIN GRADE -L- STA. 21+50.00  
ELEV. = 1248.48

PI = 23+15.00  
EL = 1238.58  
K = 55  
VC = 310'

BEGIN BRIDGE -L- STA. 24+20.00  
ELEV. = 1238.39

END BRIDGE -L- STA. 25+15.00  
ELEV. = 1237.80

END GRADE -L- STA. 27+00  
ELEV. = 1235.78

PI = 26+30.00  
EL = 1237.35  
K = 70  
VC = 130'