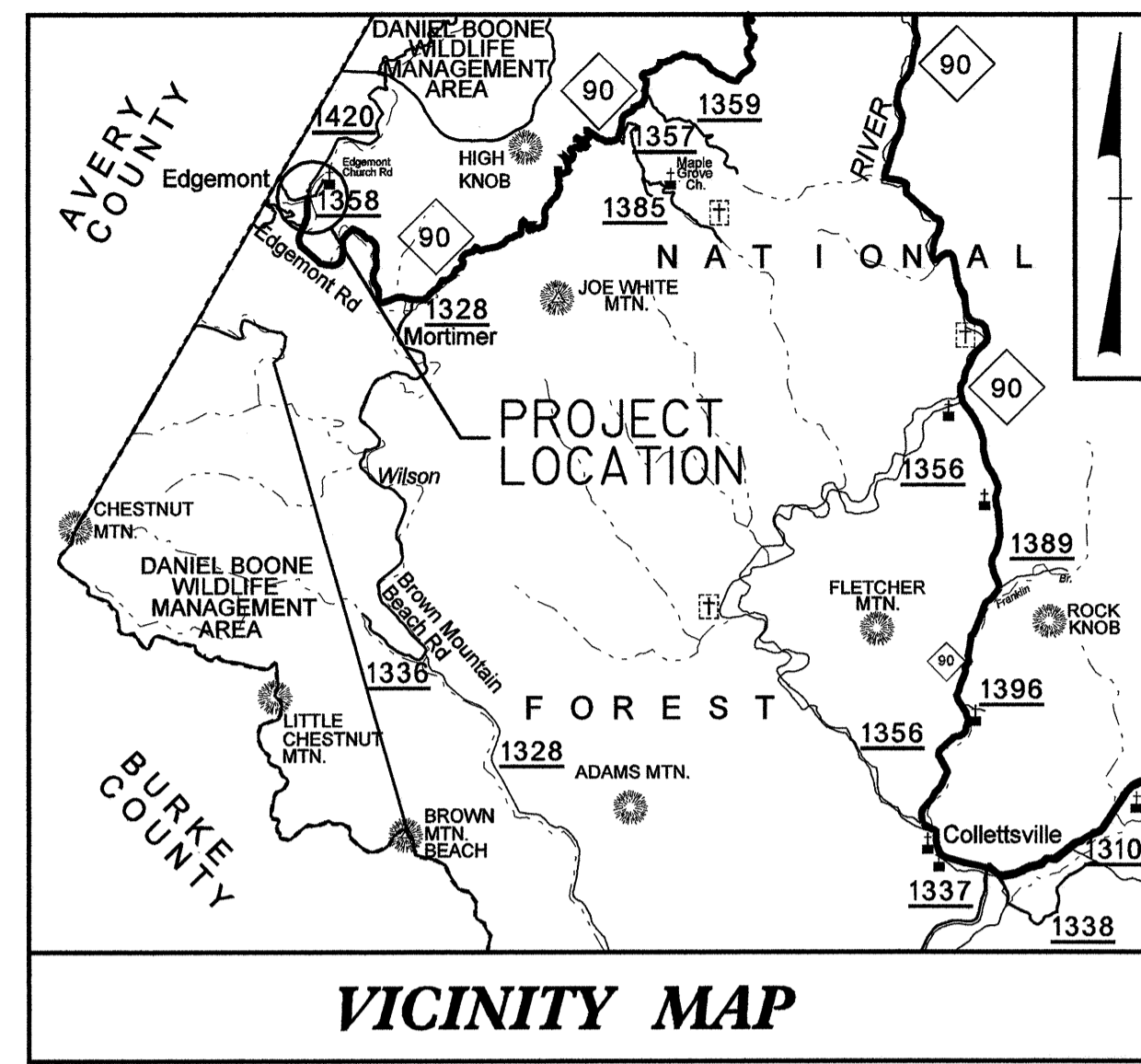


09/08/99

**TIP PROJECT: B-3818**

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



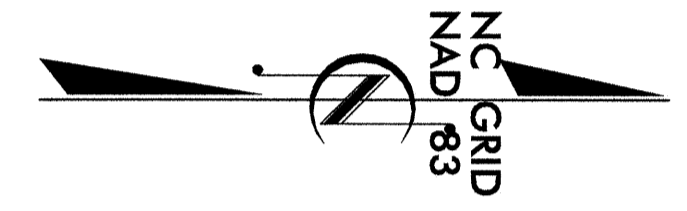
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CALDWELL COUNTY

**LOCATION: BRIDGE NO. 3 OVER LOST COVE CREEK  
ON NC 90**

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

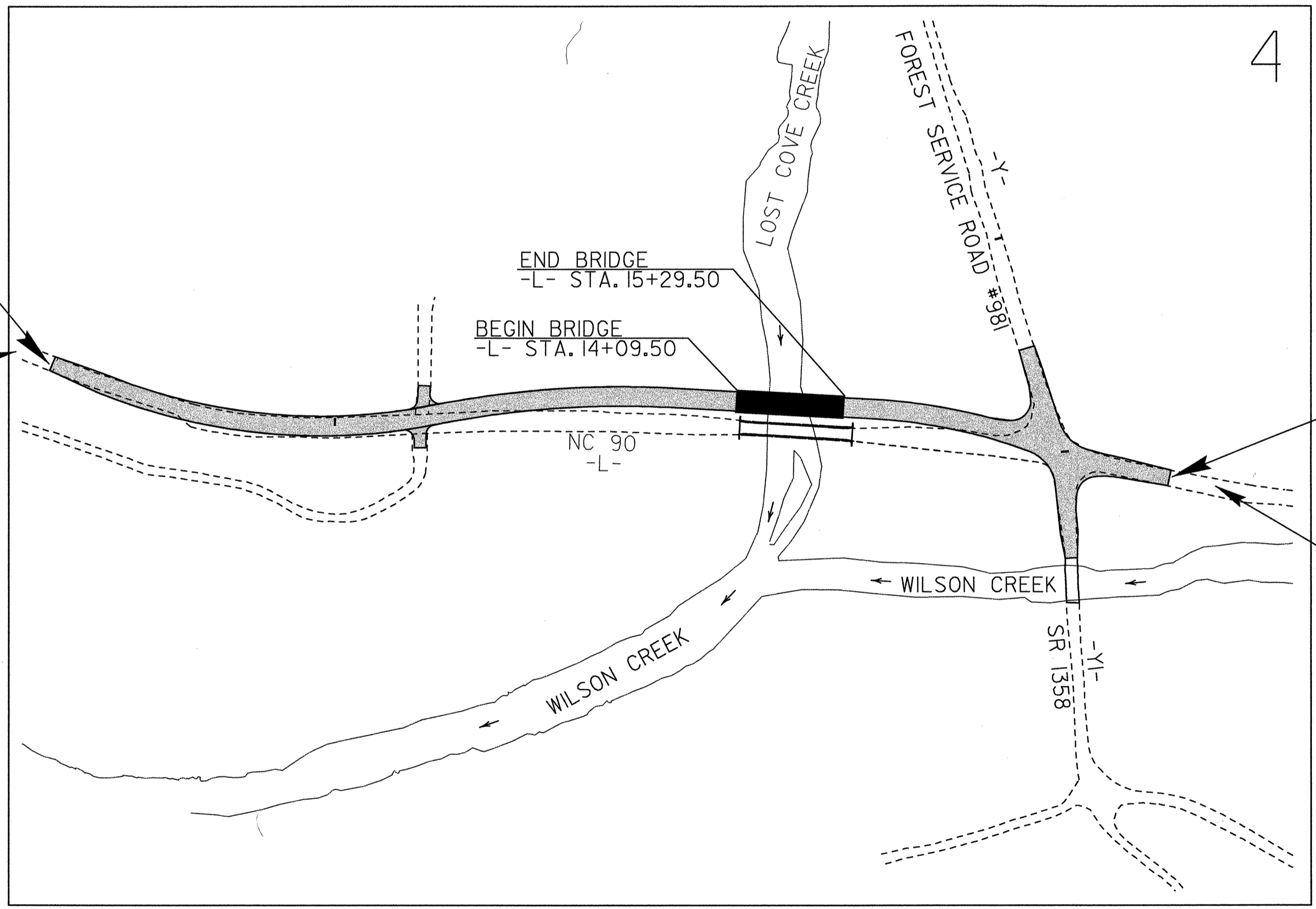
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	<b>B-3818</b>	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
33271.1.1	BRZ-90(1)	PE	
33271.2.2	BRZ-90(1)	RW & UTIL	
33271.3.1	BRZ-90(1)	CONST	



POT -L- STA. 7+04.17  
BEGIN TIP PROJECT B-3818

POT -L- STA. 6+54.17  
BEGIN CONSTRUCTION

TO  
MORTIMER



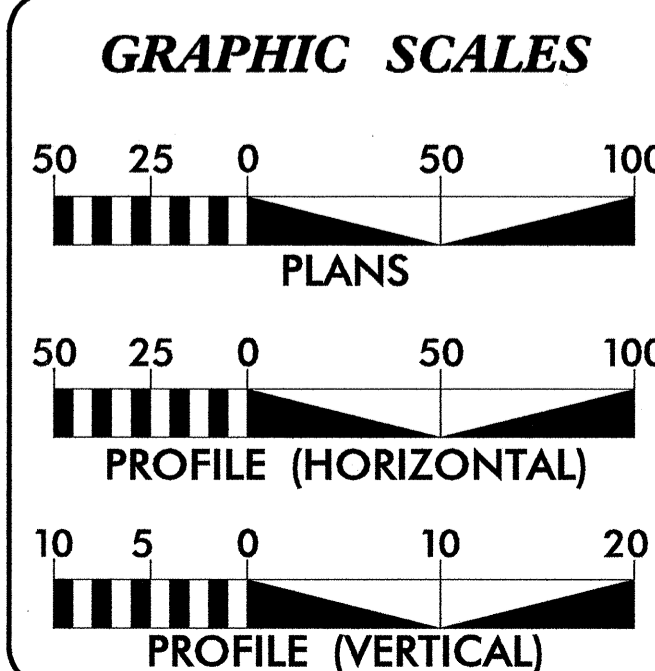
TO  
EDGEMONT

POT -L- STA. 18+58.13  
END TIP PROJECT B-3818

POT -L- STA. 19+08.13  
END CONSTRUCTION

**NCDOT CONTACT: CATHY S. HOUSER, PE  
PROJECT ENGINEER  
ROADWAY DESIGN**

**CONTRACT: C201602**



**DESIGN DATA**

ADT 2008 =	130
ADT 2030 =	230
DHV =	20 %
D =	60 %
T =	3 % *
V =	30 MPH
* TTST 1%	DUAL 2%

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-3818 =	0.196 MILES
LENGTH STRUCTURES TIP PROJECT B-3818 =	0.023 MILES
TOTAL LENGTH TIP PROJECT B-3818 =	0.219 MILES

Prepared in the Office of:  
**PBS&J** 1616 EAST MILLBROOK ROAD, SUITE 310  
RALEIGH, NORTH CAROLINA 27609  
PHONE: (919) 876-6888

2006 STANDARD SPECIFICATIONS

<b>RIGHT OF WAY DATE:</b> November 29, 2005	<b>Steve A. Drum, PE</b> PROJECT ENGINEER
<b>LETTING DATE:</b> January 15, 2008	<b>David W. Bass, PE</b> PROJECT DESIGN ENGINEER

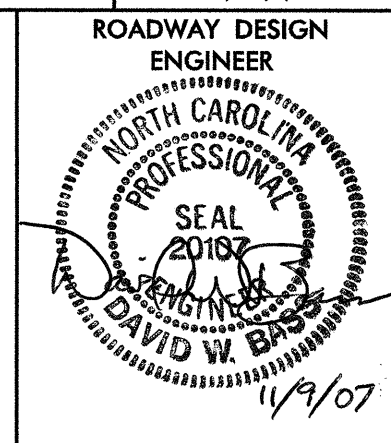
**HYDRAULICS ENGINEER**

**ROADWAY DESIGN ENGINEER**

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

*Steve A. Drum*  
P.E.  
STATE HIGHWAY DESIGN ENGINEER

01 NOV 2007 15:47 153818.rdy\_tsh.dgn



INDEX OF SHEETS

Sheet Number	Sheet
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARDS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL PLAN SHEET
1-D	CENTERLINE COORDINATE LIST
2	TYPICALS SECTIONS AND PAVEMENT SCHEDULE
2-A	INTERSECTION DETAIL
2-B	ANCHORAGE FOR FRAMES
2-C	STD. TEMP. SHORING
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES
3-B	SUMMARY OF EARTHWORK AND GUARDRAIL
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-6	TRAFFIC CONTROL PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL
SIGN-1 THRU SIGN-4	SIGNING PLANS
X-0	CROSS-SECTION SUMMARY SHEETS
X-1 THRU X-9	CROSS-SECTIONS
S-1 THRU S-21	STRUCTURE PLANS

GENERAL NOTES: 2006 SPECIFICATIONS  
 EFFECTIVE: 07-18-06  
 REVISED: 07-18-06

GRADE LINE:  
 GRADING AND SURFACING:  
 THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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.

DRIVEWAYS:  
 DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3' RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS 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.

SUBSURFACE PLANS:  
 NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

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

2006 ROADWAY 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
DIVISION 2 - EARTHWORK	
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
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
310.02	Parallel Pipe End Section - Precast Concrete Section for 15" to 24" Pipe
310.03	Cross Pipe End Section - Precast Concrete Section for 18" to 30" Pipe
310.04	Parallel Pipe End Section - Prefabricated Steel Section for 15" to 24" Pipe
310.05	Cross Pipe End Section - Prefabricated Steel Section for 18" to 30" Pipe
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.22	Frames and Wide Slot Sag Grates
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.36	Traffic Bearing Grated Drop Inlet - for Steel (840.37) Double Frame and Grates
840.37	Steel Grate and Frame
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.01	Rip Rap in Channels
876.04	Drainage Ditches with Class 'B' Rip Rap

848.02 Driveway Turnout - Radius

Note: Not to Scale

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

### BOUNDARIES AND PROPERTY:

State Line	—————
County Line	—————
Township Line	—————
City Line	—————
Reservation Line	—————
Property Line	—————
Existing Iron Pin	○ EP
Property Corner	→
Property Monument	□ ECM
Parcel/Sequence Number	(123)
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 High Quality Wetland Boundary	-HQ WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-

### BUILDINGS AND OTHER CULTURE:

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

### HYDROLOGY:

Stream or Body of Water	—————
Hydro, Pool or Reservoir	□
River Basin Buffer	-RBB-
Flow Arrow	←
Disappearing Stream	→
Spring	○
Swamp Marsh	→
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	○ R/W
Proposed Right of Way Line with Iron Pin and Cap Marker	○ R/W ▲
Proposed Right of Way Line with Concrete or Granite Marker	○ R/W ▲
Existing Control of Access	○ CA
Proposed Control of Access	○ CA
Existing Easement Line	-E-
Proposed Temporary Construction Easement	-E-
Proposed Temporary Drainage Easement	-TDE-
Proposed Permanent Drainage Easement	-PDE-
Proposed Permanent 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
Curb Cut for Future Wheel Chair Ramp	CCFR
Existing Metal Guardrail	—————
Proposed Guardrail	—————
Existing Cable Guiderail	—————
Proposed Cable Guiderail	—————
Equaility 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	○ S
Storm Sewer	-S-

### UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○ P
Power Line Tower	⊗
Power Transformer	⊠
U/G Power Cable Hand Hole	□ 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	○ T
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-

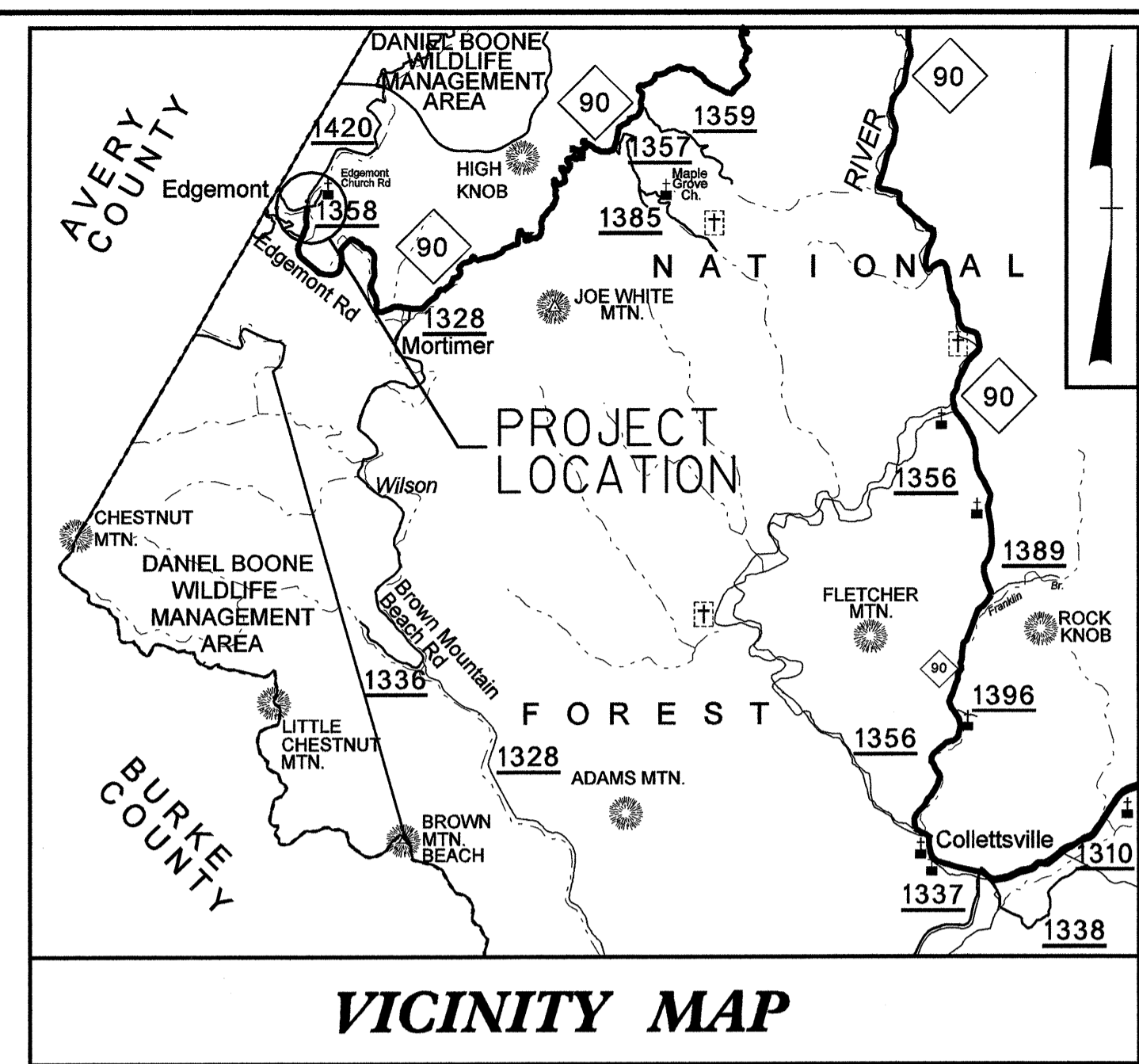
### SANITARY SEWER:

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	————— UTIL
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-3818



BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
	3	-BL-3	830251.4195	1179330.6372	1562.90	8+46.97	13.64 RT
	4	-BL-4	830808.6094	1179341.7785	1568.78	14+06.29	33.33 RT
	1	GPS B3818-1	831166.6382	1179341.5291	1565.99	17+62.33	24.88 LT
	5	-BL5-	831336.8658	1179387.1933	1568.34	OUTSIDE PROJECT LIMITS	

BY	POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
	6	-BL6-	831051.7316	1179085.1580	1570.89	OUTSIDE PROJECT LIMITS	
	20	GPS B3818-1	831166.6382	1179341.5291	1565.99	12+15.54	29.20 LT

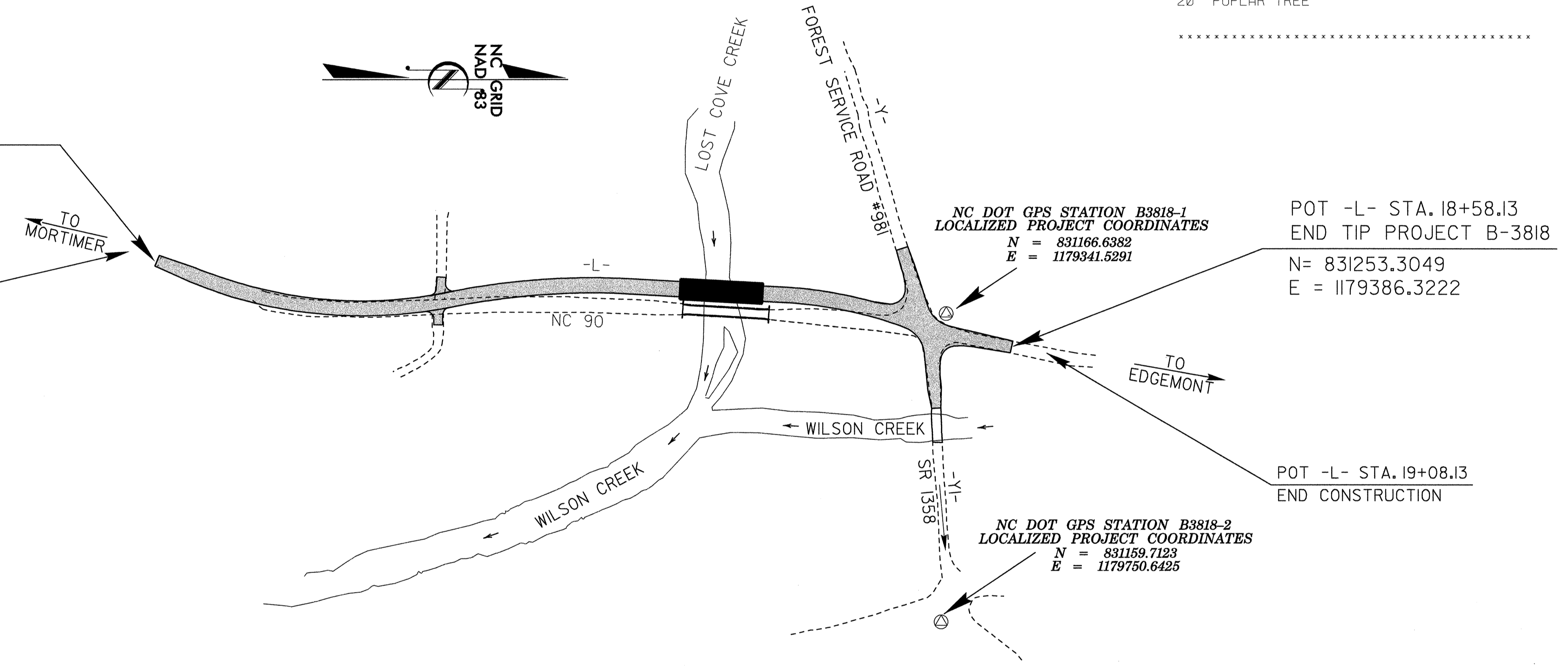
BY1	POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
	21	GPS B3818-1	831166.6382	1179341.5291	1565.99	OUTSIDE PROJECT LIMITS	
	2	GPS B3818-2	831159.7123	1179750.6425	1564.35	OUTSIDE PROJECT LIMITS	

\*\*\*\*\*  
 BM #1 ELEVATION = 1567.01  
 N 830386 E 1179244  
 BL STATION 6+33 89' LEFT  
 8" SPIKE IN SOUTHEAST ROOT OF  
 15' WHITE PINE TREE  
 \*\*\*\*\*  
 BM #2 ELEVATION = 1556.67  
 N 830885 E 1179261  
 BL STATION 11+33 81' LEFT  
 8" SPIKE IN SOUTH ROOT OF A  
 15' SYCAMORE TREE  
 \*\*\*\*\*  
 BM #3 ELEVATION = 1582.67  
 N 831247 E 1179278  
 BL STATION 14+77 82' LEFT  
 8" SPIKE IN NORTH ROOT OF A  
 20" POPLAR TREE  
 \*\*\*\*\*

POT -L- STA. 7+04.17  
 BEGIN TIP PROJECT B-3818

N = 830120.3165  
 E = 1179269.4316

POT -L- STA. 6+54.17  
 BEGIN CONSTRUCTION



**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-3818-1"

WITH NAD 83 STATE PLANE GRID COORDINATES OF  
 NORTHING: 831166.6382(±) EASTING: 1179341.529(±)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988851

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-3818-1" TO -L- STATION 7+04.17 IS  
 S 03°56'30" W 1,048.80

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NGVD 29

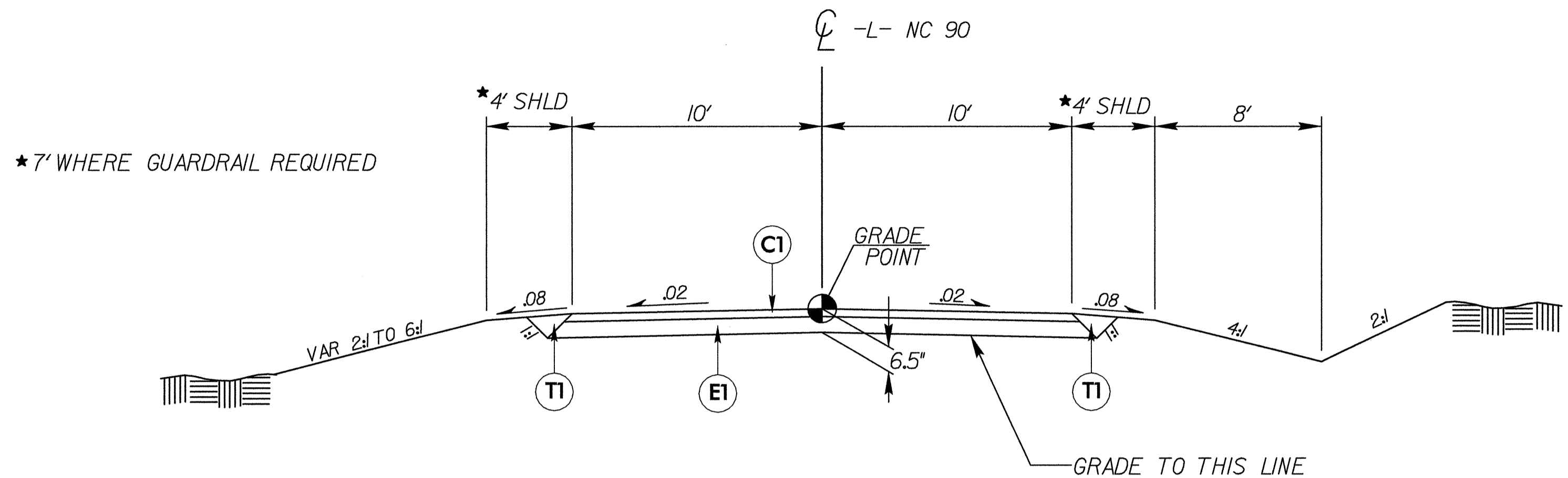
- NOTES:**
- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATIONPROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/locationproject/)  
 THE FILES TO BE FOUND ARE AS FOLLOWS:  
 TIP B3818\_LS\_CONTROL\_051006.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- ⊙ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.  
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.  
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)  
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

6/7/2/99  
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 11/15/07 10:51:07.dgn  
 11/15/07 10:51:07.dgn



PROJECT REFERENCE NO. B-3818	SHEET NO. 2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER DAVID W. BASS 11/9/07	PAVEMENT DESIGN ENGINEER ALAN R. FRIGGS 11/15/07
<b>PBS</b> 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 PHONE: (919) 876-6888	

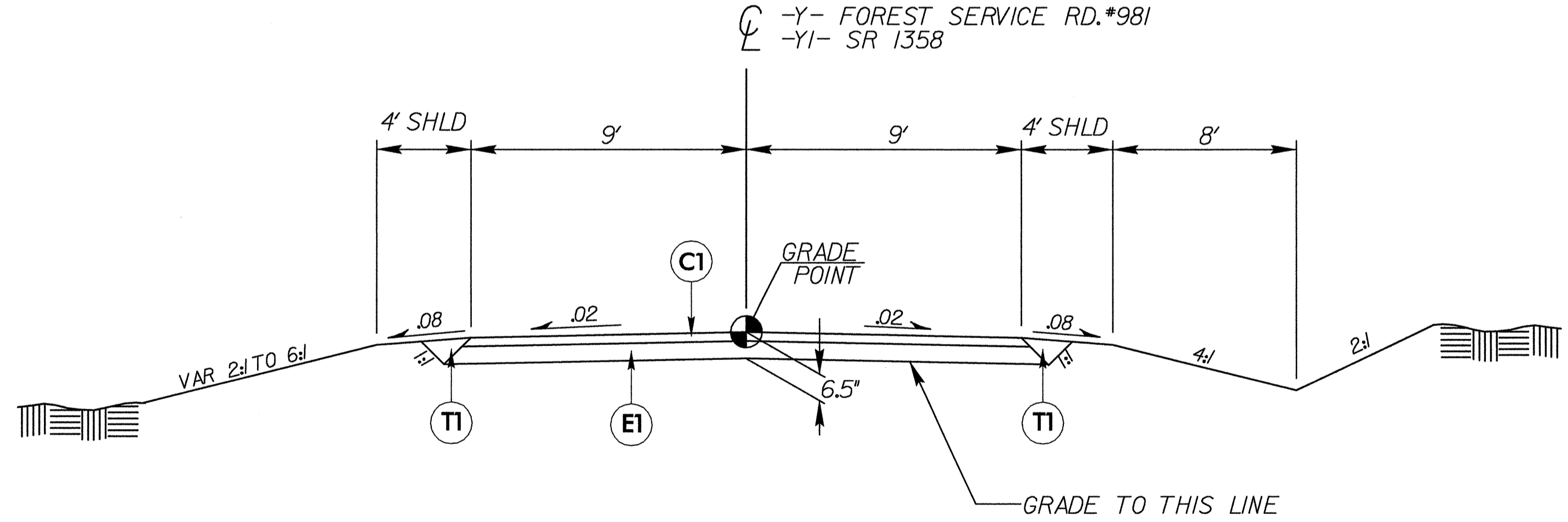


**TYPICAL SECTION NO. 1**

USE TYPICAL SECTION NO.1 AS FOLLOWS:  
 TRANSITION FROM EXISTING TO T.S.#1  
 -L- STA.6+54.17 TO STA.7+04.17  
 -L- STA.7+04.17 TO STA.14+09.50 (BEGIN BRIDGE)  
 -L- STA.15+29.50 (END BRIDGE) TO STA.18+58.13  
 TRANSITION FROM T.S.#1 TO EXISTING  
 -L- STA.18+58.13 TO STA.19+08.13

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
T1	EARTH MATERIAL.

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



**TYPICAL SECTION NO. 2**

USE TYPICAL SECTION NO.2 AS FOLLOWS:  
 TRANSITION FROM EXISTING TO T.S.#2  
 -Y- STA.10+65.00 TO STA.11+15.00  
 -Y- STA.11+15.00 TO STA.12+13.24  
 -YI- STA.10+10.89 TO STA.11+07.31

8/17/99

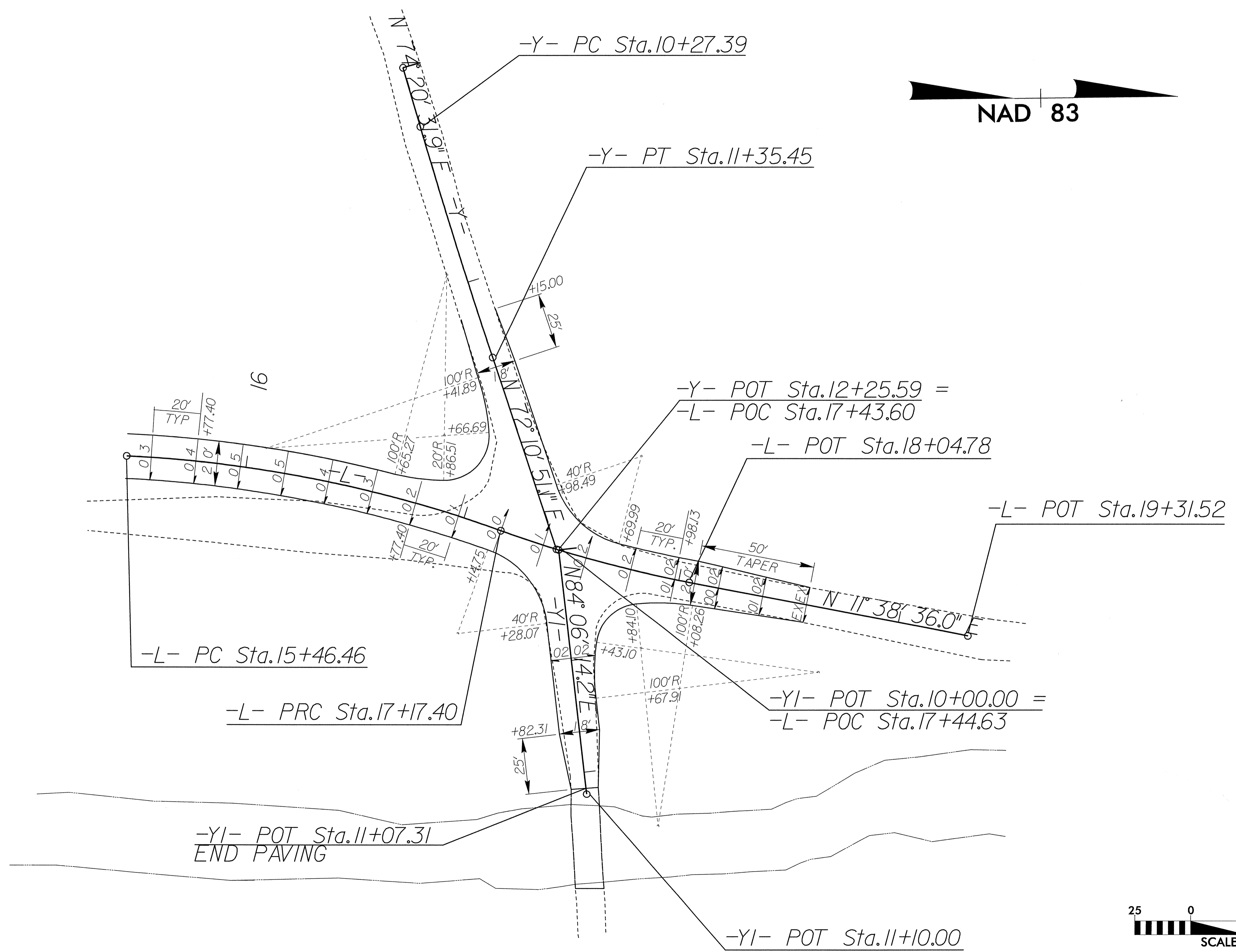
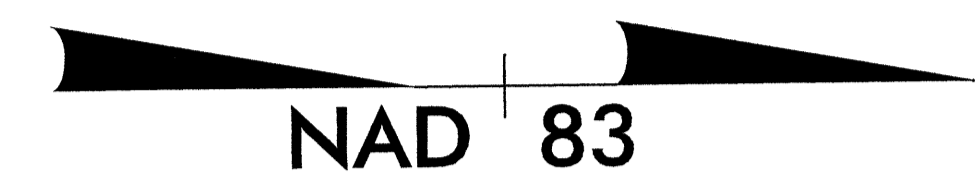
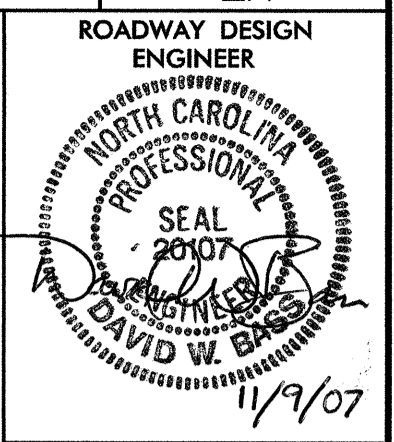
PBS 1616 EAST MILLBROOK ROAD, SUITE 310  
RALEIGH, NORTH CAROLINA 27609  
PHONE: (919) 876-6888

PROJECT REFERENCE NO.  
B-3818

SHEET NO.  
2A

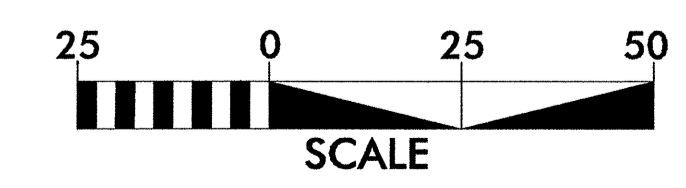
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# INTERSECTION DETAIL SHEET



REVISIONS

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15:20 AT:RALCMBW41

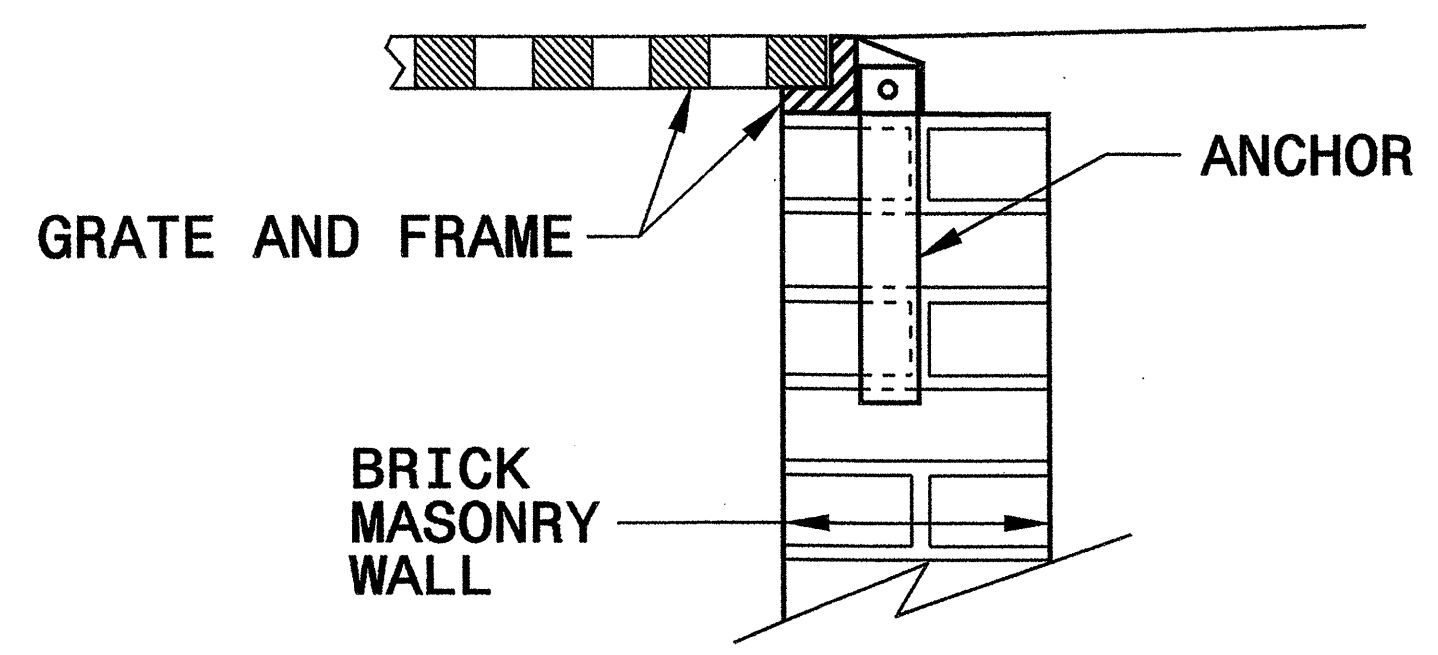


SEE SHEET 4 FOR PLAN VIEW

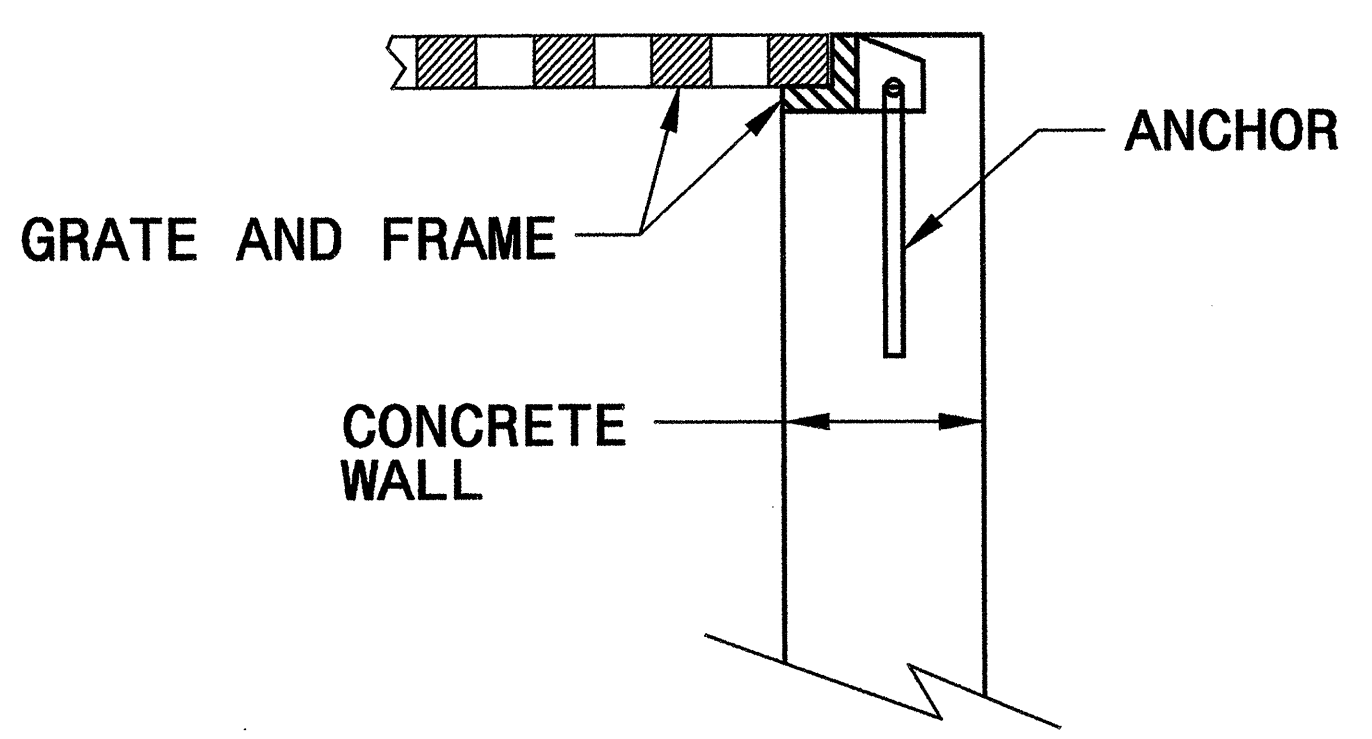
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

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

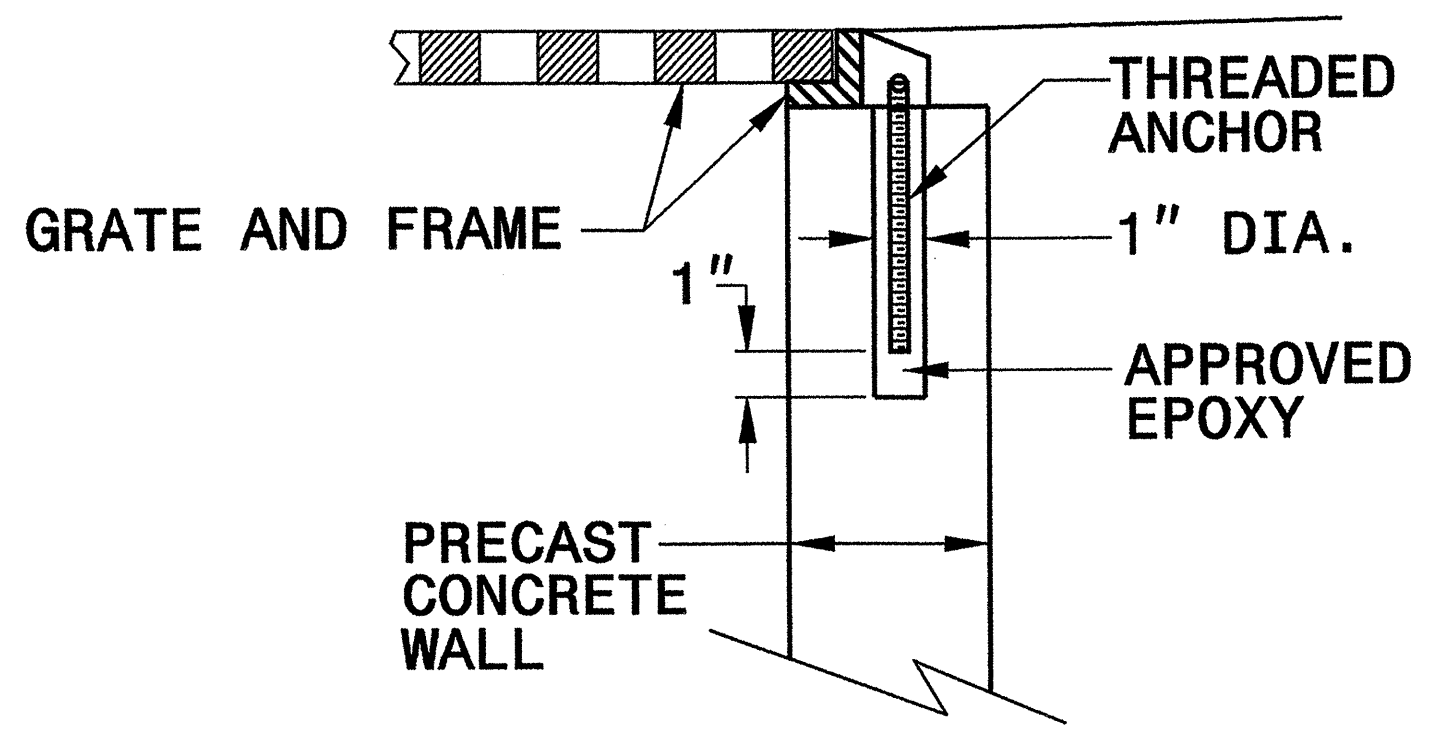
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY CONSTRUCTION**



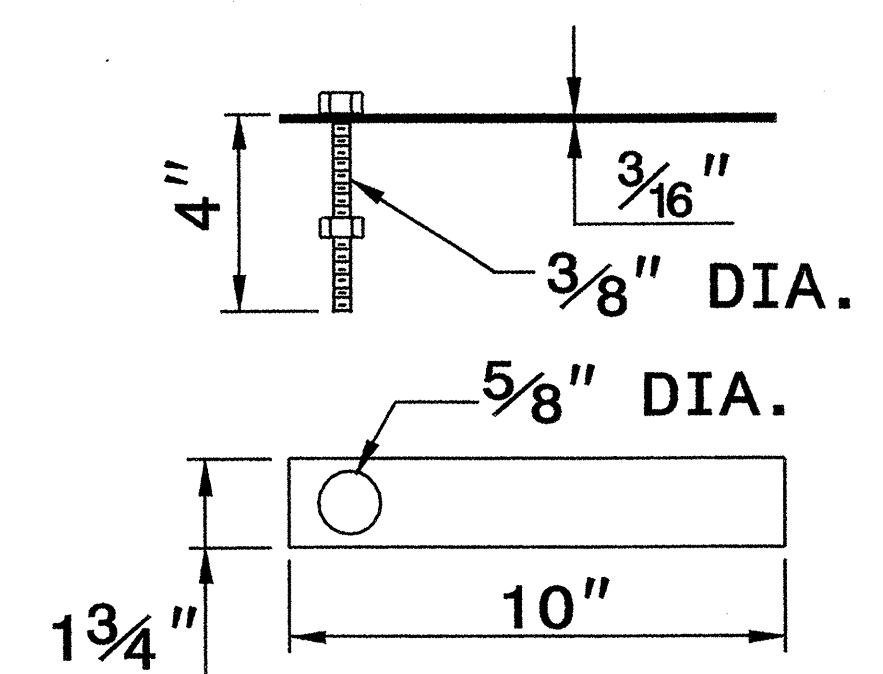
**CONCRETE CONSTRUCTION**



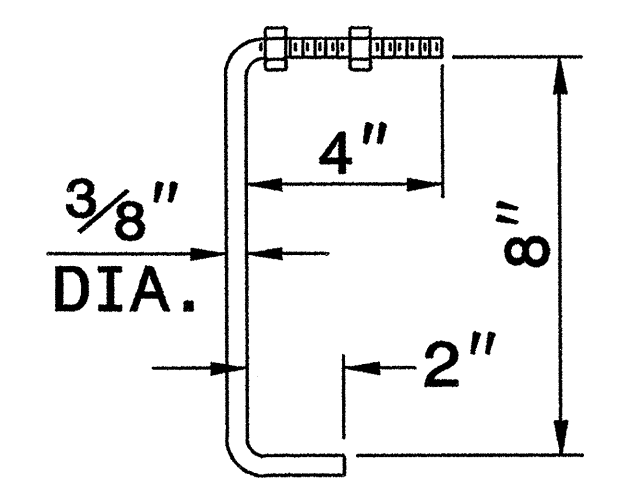
**PRECAST CONCRETE CONSTRUCTION**

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

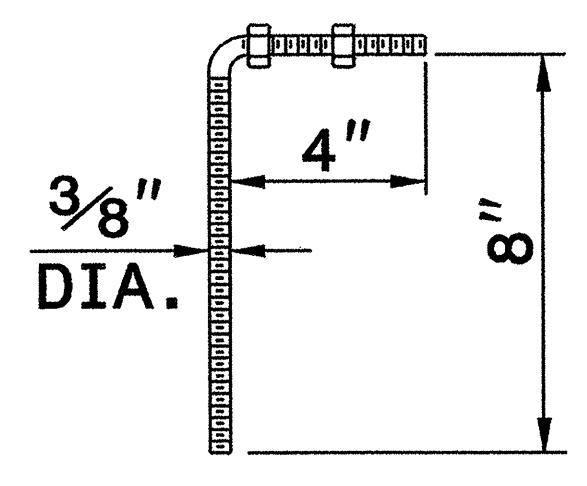
NOTE:  
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



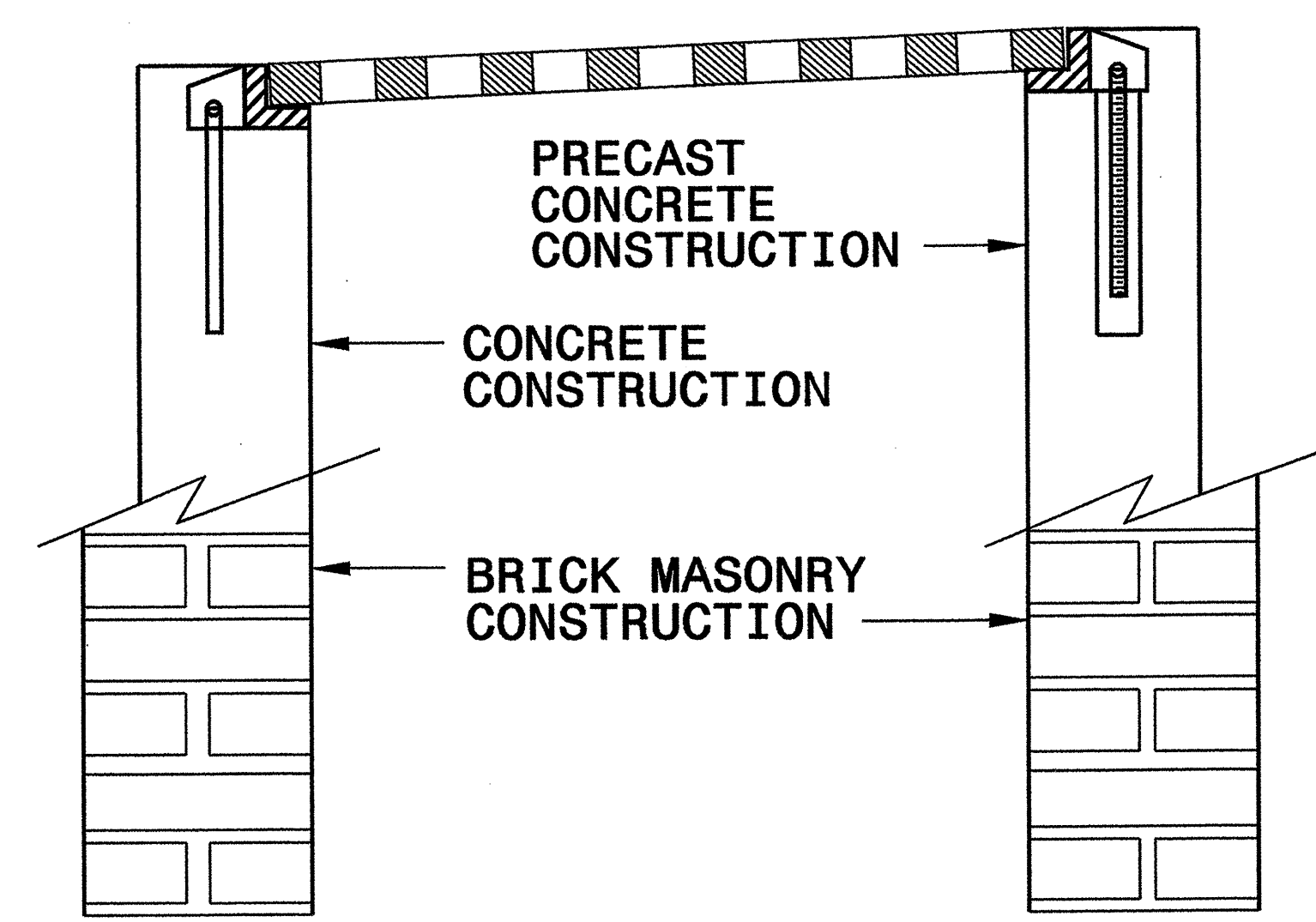
**MASONRY ANCHOR**  
3/8" DIA. BOLT WITH PLATE



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



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



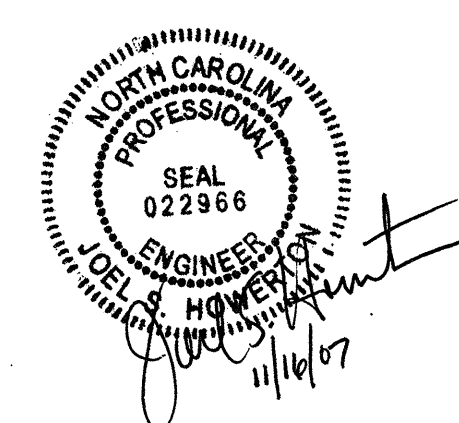
**FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS**

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**

01-MAR-2007 09:04 s:\contracts\contract\stds\ericward\stds\06\stds to special details\ericward\stds\84025 anchor-ge for frames\0840d25.dgn .jhover-ton AT P5212260



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

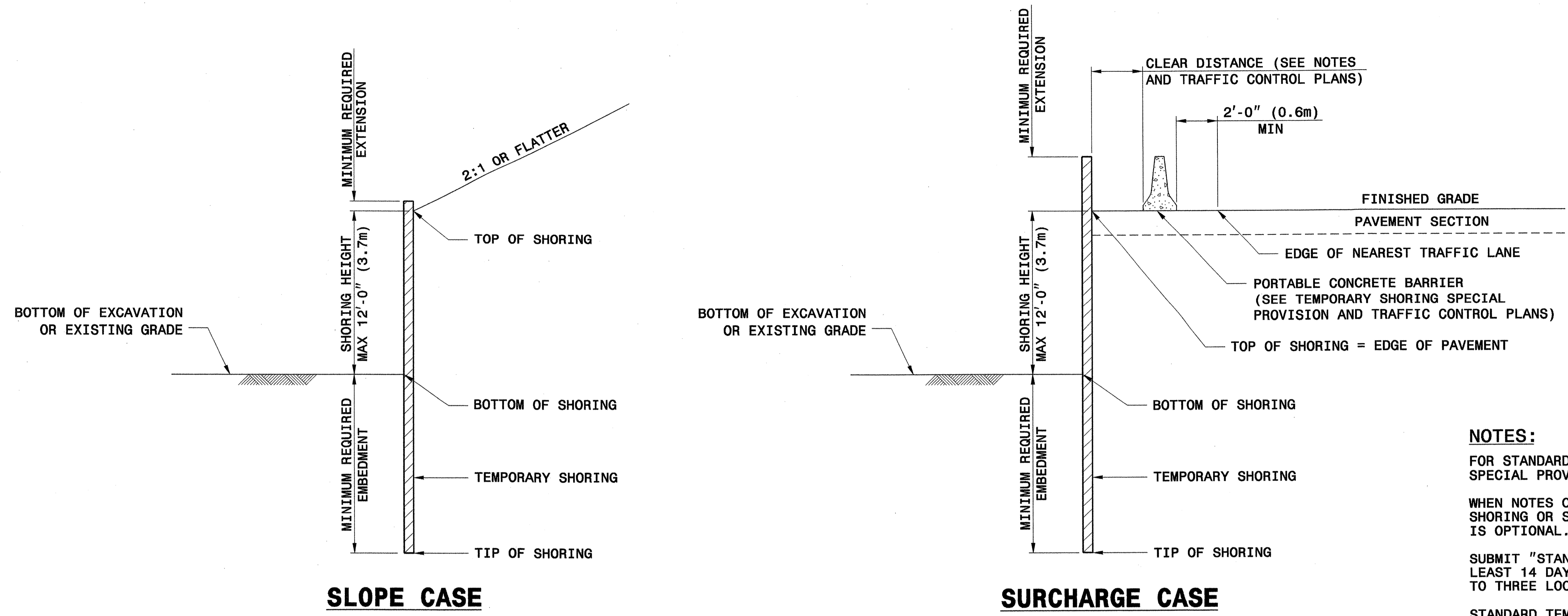
**SEE PLATE FOR TITLE**

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



GEOTECHNICAL ENGINEER ENGINEER

Scott A. Hadden 3/29/07



**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	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT						SURCHARGE CASE WITH TRAFFIC IMPACT					
	SHORING HEIGHT FT (m)	SHEET PILES		H PILES WITH TIMBER LAGGING			MINIMUM REQUIRED EMBEDMENT FT (m)	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 SECTION MODULUS IN <sup>3</sup> /FT (cm <sup>3</sup> /m)	MINIMUM REQUIRED EMBEDMENT FT (m)			
				HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)			HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)	
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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**SUMMARY OF QUANTITIES**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201602

ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (14+69.500-L-)
004300000-N	226	Lump Sum		GRADING
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
013400000-E	240	85	CY	DRAINAGE DITCH EXCAVATION
019900000-E	SP	270	SF	TEMPORARY SHORING
031800000-E	300	45	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
034300000-E	310	20	LF	15" SIDE DRAIN PIPE
045300000-E	310	2	EA	*** PIPE END SECTION (15")
045300000-E	310	1	EA	*** PIPE END SECTION (24")
070800000-E	310	24	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
080600000-E	310	2	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
099500000-E	340	36	LF	PIPE REMOVAL
122000000-E	545	50	TON	INCIDENTAL STONE BASE
148900000-E	610	642	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
152500000-E	610	385	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
156000000-E	620	53	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
200000000-N	806	30	EA	RIGHT OF WAY MARKERS
228600000-N	840	3	EA	MASONRY DRAINAGE STRUCTURES
236500000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.22
239600000-N	840	1	EA	FRAME WITH COVER, STD 840.54
240700000-N	840	1	EA	STEEL FRAME WITH TWO GRATES, STD 840.37
255600000-E	846	30	LF	SHOULDER BERM GUTTER

ItemNumber	Sec #	Quantity	Unit	Description
303000000-E	862	137.5	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
364900000-E	876	18	TON	RIP RAP, CLASS B
365600000-E	876	240	SY	FILTER FABRIC FOR DRAINAGE
365900000-N	SP	1	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
402500000-E	901	37.5	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (E)
402500000-E	901	6	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (F)
407200000-E	903	110	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
410200000-N	904	6	EA	SIGN ERECTION, TYPE E
410800000-N	904	1	EA	SIGN ERECTION, TYPE F
411610000-N	904	2	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (E)
415500000-N	907	11	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
419200000-N	907	1	EA	DISPOSAL OF SUPPORT, U-CHANNEL
440000000-E	1110	109	SF	WORK ZONE SIGNS (STATIONARY)
440500000-E	1110	192	SF	WORK ZONE SIGNS (PORTABLE)
441000000-E	1110	20	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
443000000-N	1130	20	EA	DRUMS
443500000-N	1135	50	EA	CONES
444500000-E	1145	48	LF	BARRICADES (TYPE III)
445000000-N	1150	750	HR	FLAGGER
446500000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS
448000000-N	1165	2	EA	TMIA

ItemNumber	Sec #	Quantity	Unit	Description
448500000-E	1170	170	LF	PORTABLE CONCRETE BARRIER
451600000-N	1180	50	EA	SKINNY DRUM
481000000-E	1205	10,074	LF	PAINT PAVEMENT MARKING LINES (4")
483500000-E	1205	84	LF	PAINT PAVEMENT MARKING LINES (24")
484700000-E	1205	5,037	LF	POLYUREA PAVEMENT MARKING LINES (4", *****) (STANDARD GLASS BEADS)
4847140000-E	1205	42	LF	POLYUREA PAVEMENT MARKING LINES (24", *****) (STANDARD GLASS BEADS)
490000000-N	1251	82	EA	PERMANENT RAISED PAVEMENT MARKERS
600000000-E	1605	750	LF	TEMPORARY SILT FENCE
600600000-E	1610	105	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	155	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	60	TON	SEDIMENT CONTROL STONE
601500000-E	1615	2	ACR	TEMPORARY MULCHING
601800000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	0.5	TON	FERTILIZER FOR TEMPORARY SEEDING
602900000-E	SP	200	LF	SAFETY FENCE
603000000-E	1630	665	CY	SILT EXCAVATION
603600000-E	1631	2,000	SY	MATting FOR EROSION CONTROL
603700000-E	SP	40	SY	COIR FIBER MAT
604200000-E	1632	40	LF	1/4" HARDWARE CLOTH
6071030000-E	SP	170	LF	COIR FIBER BAFFLES
6071050000-E	SP	5	EA	*** SKIMMER (1-1/2")
6071050000-E	SP	1	EA	*** SKIMMER (2")
608400000-E	1660	2	ACR	SEEDING & MULCHING
608700000-E	1660	1.5	ACR	MOWING
609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	1.5	TON	FERTILIZER TOPDRESSING
611400000-N	SP	2	HR	SPECIALIZED HAND MOWING
611700000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
612300000-E	1670	0.1	ACR	REFORESTATION

***** BEGIN SCHEDULE AA *****				
(3 ALTERNATES)				
036600000-E	310	208	LF	15" RC PIPE CULVERTS, CLASS III
AA1				
037800000-E	310	172	LF	24" RC PIPE CULVERTS, CLASS III
AA1				
*** OR ***				
037800000-E	310	116	LF	24" RC PIPE CULVERTS, CLASS III
AA2				
053600000-E	SP	208	LF	**** HDPE PIPE CULVERTS (15")
AA2				
053600000-E	SP	56	LF	**** HDPE PIPE CULVERTS (24")
AA2				
*** OR ***				
037800000-E	310	116	LF	24" RC PIPE CULVERTS, CLASS III
AA3				
054000000-E	SP	208	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (15")
AA3				
054000000-E	SP	56	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (24")
AA3				
***** END SCHEDULE AA *****				

5/28/99

01-NOV-2007 15:50 63818.rdy tsh.dgn  
\$\$\$\$\$SYTIME\$\$\$\$\$



COMPUTED BY: D. W. BASS, PE DATE: AUGUST 10, 2007  
 CHECKED BY: C. J. MORGAN, PE DATE: AUGUST 10, 2007

PROJECT NO. B-3818 SHEET NO. 3-B

## STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

### SUMMARY OF EARTHWORK

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
<b>-L- LEFT</b>					
-L- 6+54.17	-L- 14+09.50	370	833	463	0
-L- 15+29.50	-L- 17+50.00	41	1,024	983	0
-L- 17+50.00	-L- 19+08.13	218	0	0	218
<b>-Y-</b>					
-Y- 11+15.00 LT	-Y- 12+06.00 LT	116	3	0	113
-Y- 11+15.00 RT	-Y- 12+06.00 RT	27	6	0	21
<b>SUBTOTALS #1:</b>		772	1,866	1,446	352
<b>-L- RIGHT</b>					
-L- 6+54.17	-L- 14+09.50	174	569	395	0
-L- 15+29.50	-L- 17+50.00	9	281	272	0
-L- 17+50.00	-L- 19+08.13	67	0	0	67
<b>-Y1-</b>					
-Y1- 10+12.00 LT	-Y1- 11+07.31 LT	39	27	0	12
-Y1- 10+12.00 RT	-Y1- 11+07.31 RT	21	20	0	1
<b>SUBTOTALS #2:</b>		310	897	667	80
REMOVAL OF EX. ROADBED					
-L- 14+00.00	-L- 17+00.00	716	0	0	716
<b>SUBTOTALS #3:</b>		716	0	0	716
<b>PROJECT TOTALS:</b>		1,798	2,763	2,113	1,148
USE SUITABLE WASTE TO REPLACE BORROW				-432	-432
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT				84	
<b>GRAND TOTALS:</b>		1,798	2,763	1,765	716
<b>SAY:</b>		1,800		1,800	

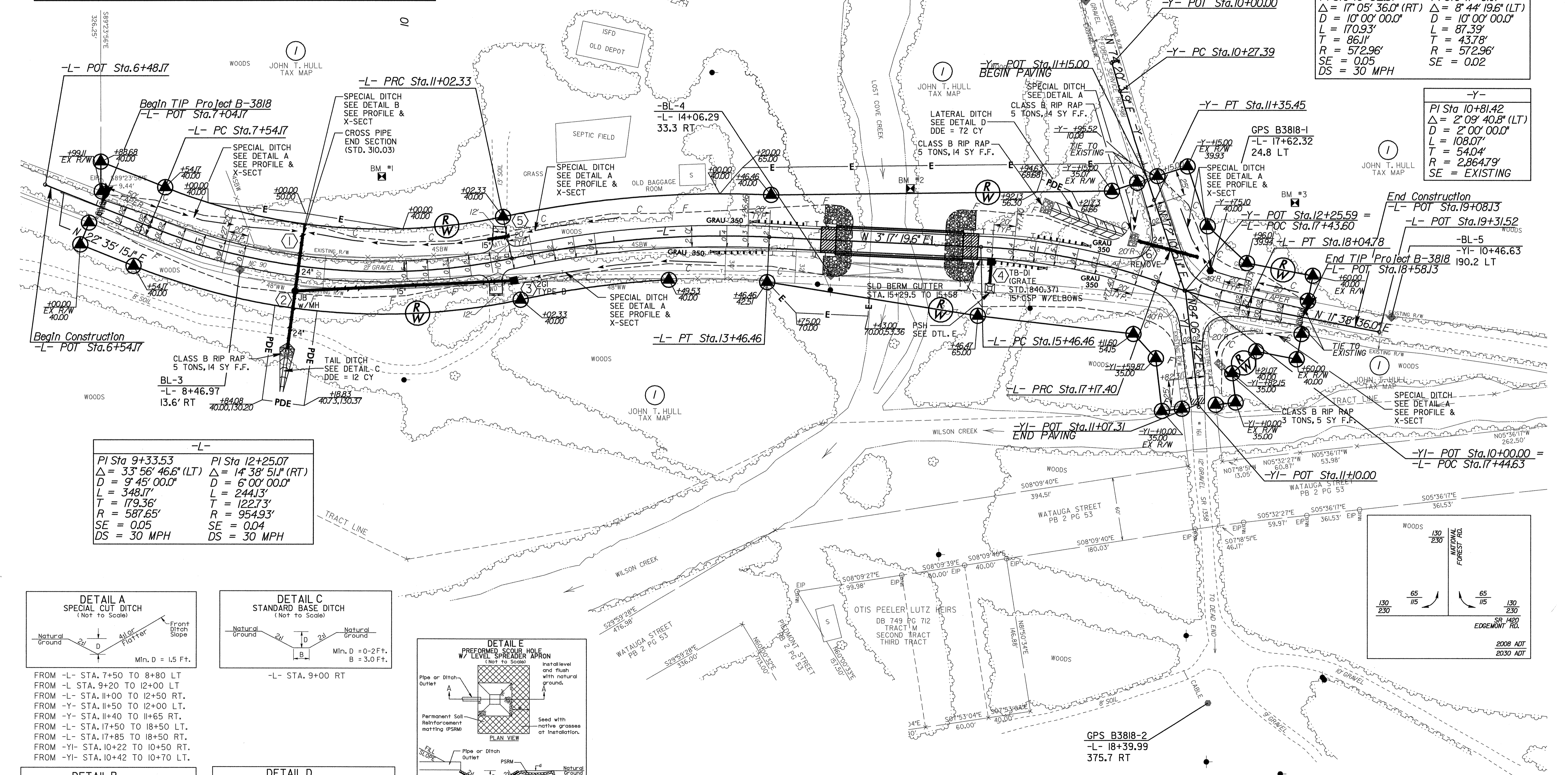
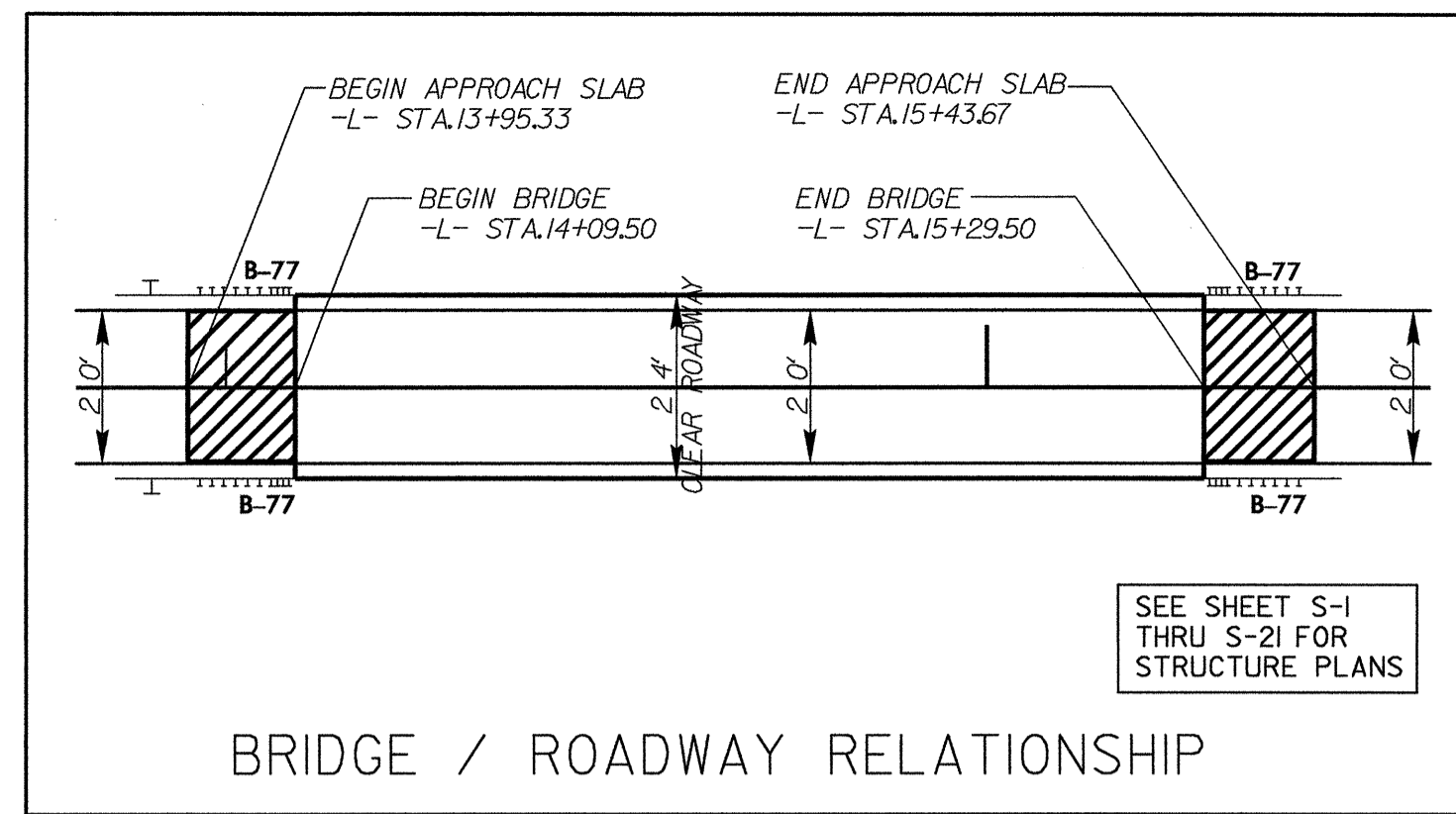
Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, and Clearing and Grubbing will be paid for at the contract lump sum price for "Grading".

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

### GUARDRAIL SUMMARY

LINE	BEG. STA.	END STA.	LOC.	LENGTH			WARRANT POINT		"N" DIST FROM E.O.L.	TOTAL SHLDR WIDTH	FLAIR LENGTH		W		ANCHORS						IMP. ATTEN. TYPE 350			REMOVE EXISTING GRDRAIL	REMARKS				
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPR. END	TRAIL. END	APPR. END	TRAIL. END	XI MOD	B-77	GRAU 350	M-350	XII	CAT-1	VI MOD	EA	G			NG			
-L-	12+90.75	14+09.50	RT	118.75			14+09.50		4'	7'	50'		1'																
-L-	13+28.25	14+09.50	LT	81.25			14+09.50		4'	7'		12.5'		0.25'															
-L-	15+29.50	16+10.75	RT	81.25				15+29.50	4'	7'		12.5'		0.25'															
-L-	15+29.50	16+48.25	LT	118.75				15+29.50	4'	7'	50'		1'																
<b>SUBTOTALS:</b>				400.00																									
LESS 4 GRAU-350 @ 50' EACH				-200.00																									
LESS 4 B-77 @ 18.75' EACH				-75.00																									
<b>PROJECT TOTALS:</b>				125.00																									
<b>SAY:</b>				137.50																									

NOTE: 5 ADDITIONAL GUARDRAIL POST



10

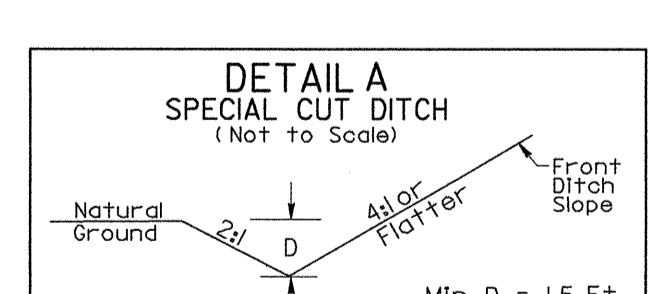
-L-	-L-
PI Sta 16+32.57 Δ = 17° 05' 36.0" (RT) D = 10' 00' 00.0" L = 170.93' T = 86.11' R = 572.96' SE = 0.05 DS = 30 MPH	PI Sta 17+61.17 Δ = 8° 44' 19.6" (LT) D = 10' 00' 00.0" L = 87.39' T = 43.78' R = 572.96' SE = 0.02

-Y-

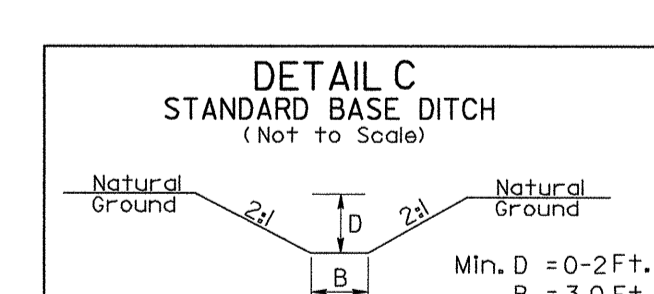
PI Sta 10+81.42 Δ = 2° 09' 40.8" (LT) D = 108.07' T = 54.04' R = 2,864.79' SE = EXISTING
---------------------------------------------------------------------------------------------------------

-L-

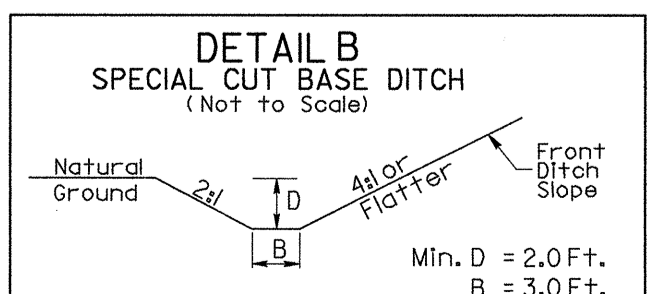
PI Sta 9+33.53 Δ = 33° 56' 46.6" (LT) D = 9' 45' 00.0" L = 348.17' T = 179.36' R = 587.65' SE = 0.05 DS = 30 MPH	PI Sta 12+25.07 Δ = 14° 38' 51.1" (RT) D = 6' 00' 00.0" L = 244.13' T = 122.73' R = 954.93' SE = 0.04 DS = 30 MPH
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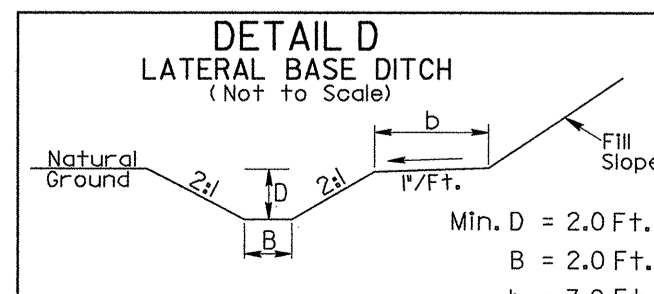
FROM -L- STA. 7+50 TO 8+80 LT  
FROM -L- STA. 9+20 TO 12+00 LT  
FROM -L- STA. 11+00 TO 12+50 RT.  
FROM -Y- STA. 11+50 TO 12+00 LT.  
FROM -Y- STA. 11+40 TO 11+65 RT.  
FROM -L- STA. 17+50 TO 18+50 LT.  
FROM -L- STA. 17+85 TO 18+50 RT.  
FROM -YI- STA. 10+22 TO 10+50 RT.  
FROM -YI- STA. 10+42 TO 10+70 LT.



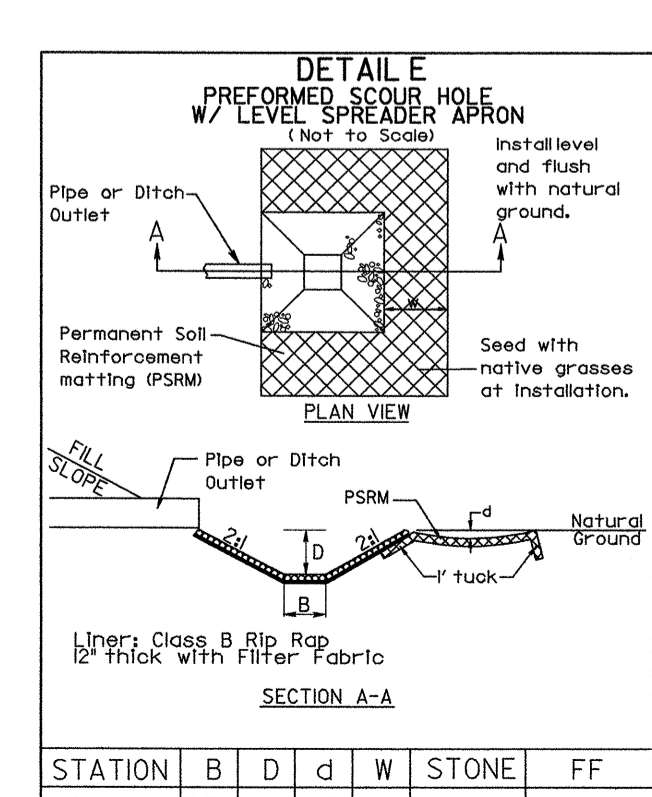
-L- STA. 9+00 RT



FROM -L- STA. 8+80 TO 9+20 LT



FROM -L- STA. 16+00 TO 16+85 LT



NOTE: GRADING OF EXISTING ROAD MAY BE NECESSARY TO PROPERLY TIE TO PAVEMENT.

ALL RADIUS ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET 5 FOR -L-, -Y-, & -YI- PROFILE

02-NOV-2007 09:22  
 T:\p\dw\dw\p\proj\B-3818\_rdu\_psh04.dgn  
 8/17/99  
 REVISIONS

**STRUCTURE HYDRAULIC DATA**

DESIGN DISCHARGE = 3900 CFS  
 DESIGN FREQUENCY = 50 YRS  
 DESIGN HW ELEVATION = 1561.8 FT  
 BASE DISCHARGE = 4700 CFS  
 BASE FREQUENCY = 100 YRS  
 BASE HW ELEVATION = 1562.9 FT  
 OVERTOPPING DISCHARGE = 6200 CFS  
 OVERTOPPING FREQUENCY = >100 YRS  
 OVERTOPPING ELEVATION = 1565 FT

BM \*1 - 8" SPIKE IN SOUTHEAST ROOT OF 15' WHITE PINE  
 -BL- STA.6+33 89.5' LT.  
 N 830386 E 1179244  
 ELEV = 1567.0'

BM \*2 - 8" SPIKE IN SOUTH ROOT OF A 15' SYCAMORE TREE  
 -BL- STA.11+33 81' LT.  
 N 830885 E 1179261  
 ELEV = 1556.67'

BM \*3 - 8" SPIKE IN NORTH ROOT OF A 20' POPLAR TREE  
 -BL- STA.14+77 82' LT.  
 N 831247 E 1179278  
 ELEV = 1582.67'

PI = 7+25.00  
 EL = 1565.02'  
 VC = 40'  
 K = 52  
 DS = 35 MPH

PI = 8+50.00  
 EL = 1565.75'  
 VC = 75'  
 K = 70  
 DS = 45 MPH

PI = 11+50.00  
 EL = 1564.30'  
 VC = 120'  
 K = 37  
 DS = 30 MPH

PI = 13+75.00  
 EL = 1569.75'  
 VC = 75'  
 K = 26  
 DS = 30 MPH

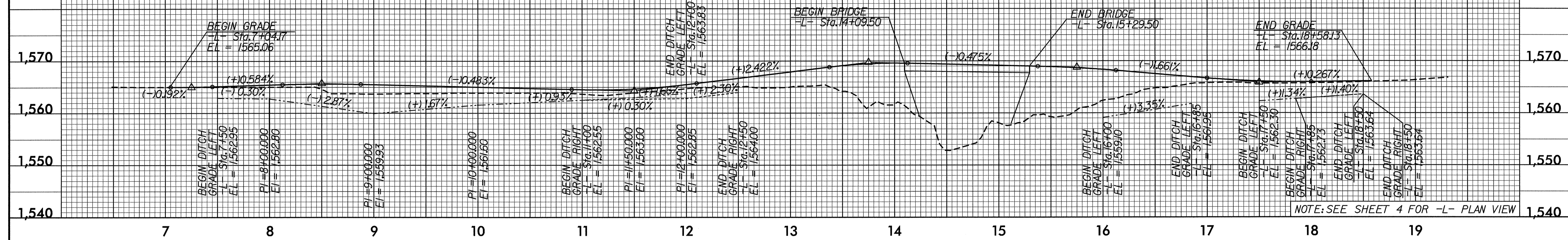
PI = 15+75.00  
 EL = 1568.80'  
 VC = 75'  
 K = 63  
 DS = 45 MPH

PI = 17+50.00  
 EL = 1565.89'  
 VC = 100'  
 K = 52  
 DS = 35 MPH

**DITCH LEGEND**

LEFT DITCH -----

RIGHT DITCH -----

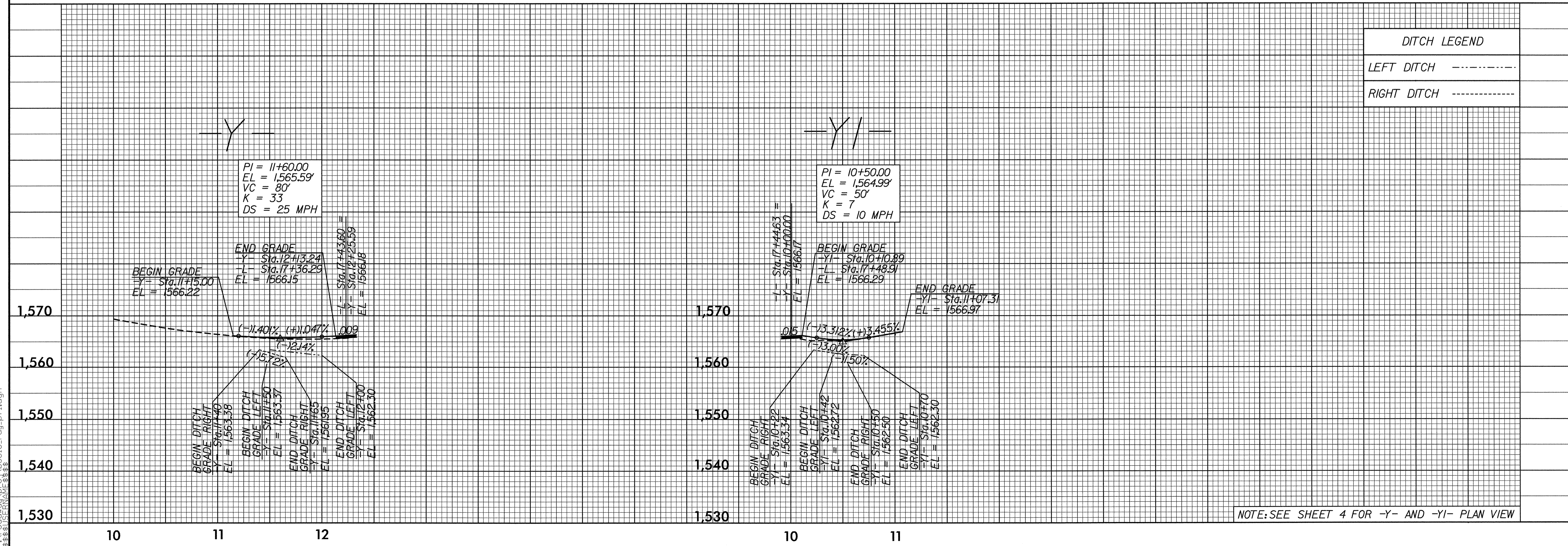


NOTE: SEE SHEET 4 FOR -L- PLAN VIEW

**DITCH LEGEND**

LEFT DITCH -----

RIGHT DITCH -----



NOTE: SEE SHEET 4 FOR -Y- AND -YI- PLAN VIEW