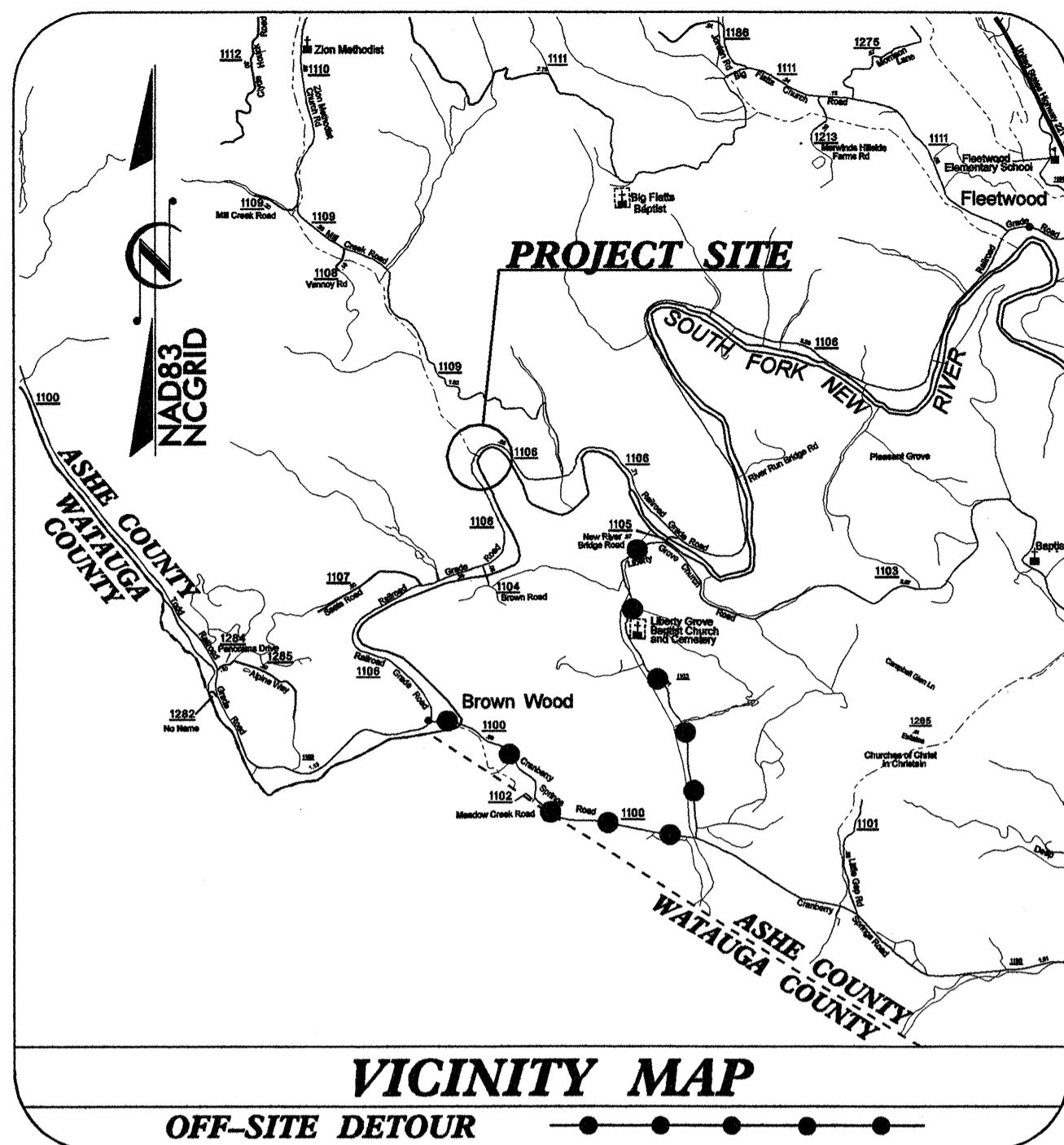


09/08/99

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ASHE COUNTY

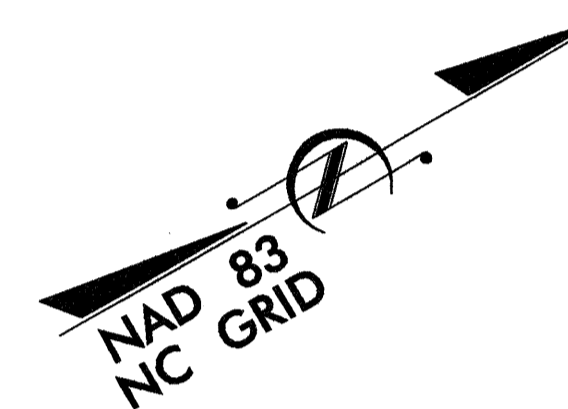
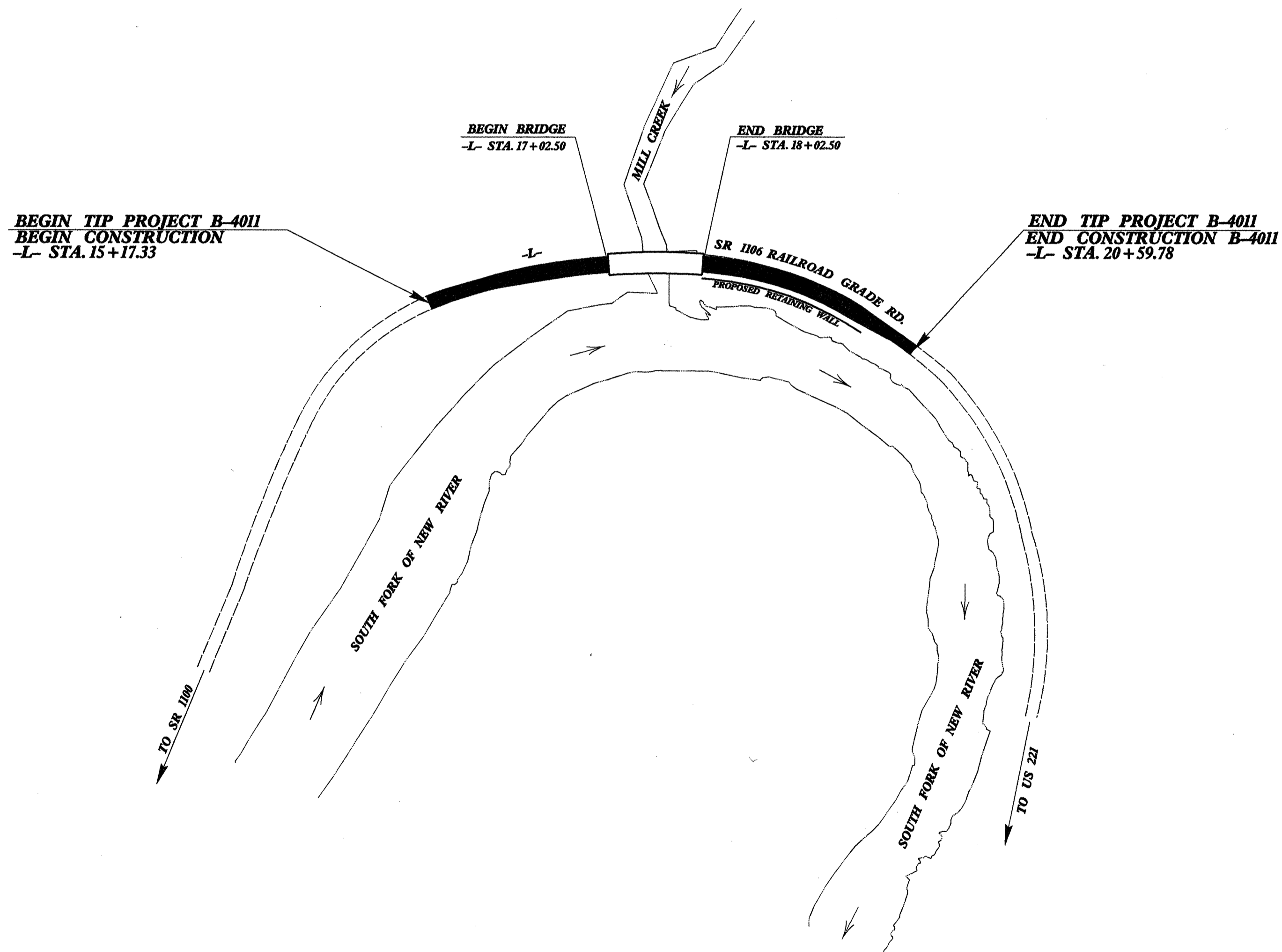
**LOCATION: BRIDGE NO. 85 OVER MILL CREEK ON SR 1106
(RAILROAD GRADE RD.)**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE &
RETAINING WALL**

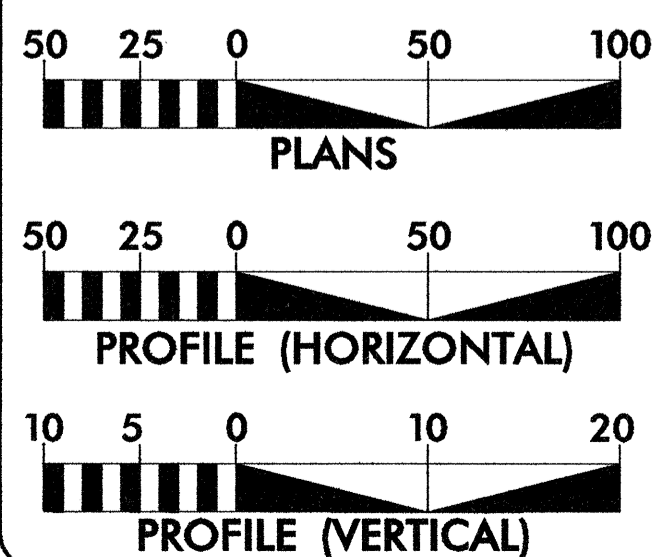
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4011	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33379.1.1	BRZ-1106(4)	PE	
33379.3.1	BRZ-1106(4)	UTIL. & RW	
33379.2.2	BRZ-1106(4)	CONST.	

TIP PROJECT: B-4011

CONTRACT: C202138



GRAPHIC SCALES



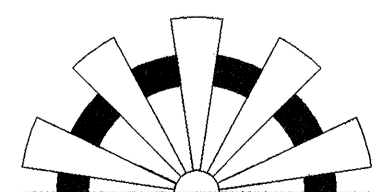
DESIGN DATA

ADT 2008 = 360
ADT 2028 = 525
DHV = 12 %
D = 60 %
T = 3 % *
V = 35 MPH
* TTST 1% DUAL 2%
FUNC. CLASS. = LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4011 = 0.084 MILES
LENGTH STRUCTURE TIP PROJECT B-4011 = 0.019 MILES
TOTAL LENGTH TIP PROJECT B-4011 = 0.103 MILES

SUNGATE DESIGN GROUP, P.A.



915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243 FAX (919) 859-6258



Prepared for the North Carolina Department of Transportation in the Office of:

559 JONES FRANKLIN ROAD
SUITE 164
RALEIGH, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 17, 2006.

LETTING DATE:
NOVEMBER 18, 2008

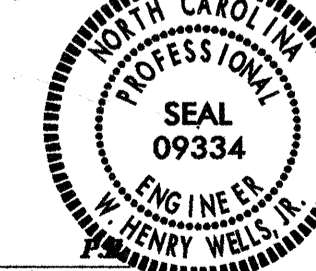
NCDOT CONTACT

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

BOB A. MAY, PE
PROJECT DESIGN ENGINEER

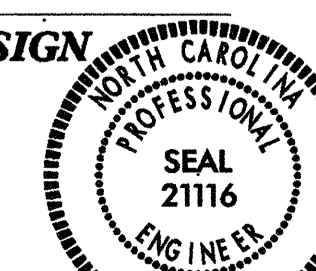
DOUG TAYLOR, PE
ROADWAY DESIGN
STATE ENGINEERING COORD.
SECTION ENGINEER

HYDRAULICS ENGINEER



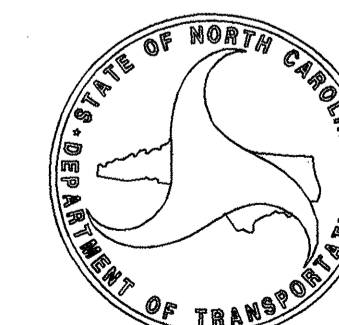
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ROADWAY DESIGN ENGINEER



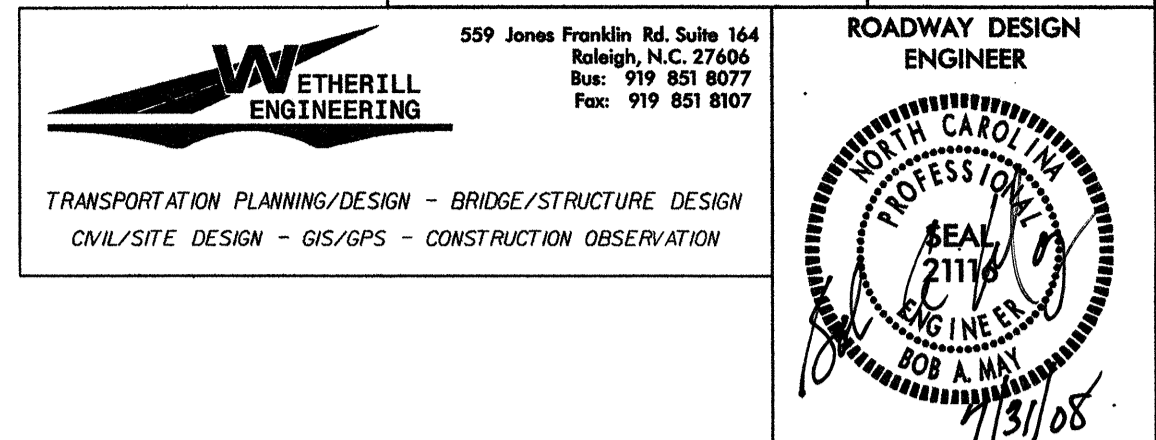
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**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**



STATE HIGHWAY DESIGN ENGINEER

7:24:57 AM
P:\B-4011\Roadway\Proj\B-4011_L_Cdy_tsh.dgn
7/31/2008



WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27605
Bus: 919 851 8077
Fax: 919 851 8107

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 21118
BOB A. MA
11/31/08

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

EFF. 07-18-06
REV. 01-02-07

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 Sheets
2	Typical Sections, Pavement Schedule and Miscellaneous Details not covered by Roadway Standards
2-A	Detail for Anchorage for Frames
3 Thru 3-A	Summary of Quantities, Summary of Drainage, Summary of Guardrail, Summary of Earthwork and Summary of Pavement Removal
4 Thru 5	Plan and Profile Sheets
TCP-1 Thru TCP-2	Traffic Control Plans/Pavement Marking Plans
SD-1	Special Sign Detail
EC-1 Thru EC-5	Erosion Control Plans
RF-1	Reforestation Plan Sheet
UO-1 Thru UO-2	Utilities By Others
X-1A	Cross-Section Summary Sheet
X-1 Thru X-8	Cross-Sections
S-1 Thru S-25	Structure Plans
W-1 Thru W-6	Retaining Wall Plans

GENERAL NOTES:

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

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:

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.

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 Superlevation - Two Lane Pavement
- DIVISION 3 - PIPE CULVERTS
 - 300.01 Method of Pipe Installation - Method 'A'
 - 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 6 - ASPHALT BASES AND PAVEMENTS
 - 654.01 Pavement Repairs
- DIVISION 8 - INCIDENTALS
 - 806.01 Concrete Right-of-Way Marker
 - 806.02 Granite Right-of-Way Marker
 - 815.03 Pipe Underdrain and Blind Drain
 - 816.04 Markers for Drainage Structure and Concrete Pad
 - 840.00 Concrete Base Pad for Drainage Structures
 - 840.19 Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
 - 840.24 Frames and Narrow Slot Sag Grates
 - 840.28 Brick Grated Drop Inlet Type 'D' - 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
 - 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
 - 862.03 Structure Anchor Units
 - 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

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.

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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

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
SKYLINE TELEPHONE
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.

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	○ EIP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	(23)
Existing Fence Line	-----
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	----- HG 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	----- FLW
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 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
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	○ 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	○ W
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	----- A/G Water

TV:

TV Satellite Dish	□
TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	□ 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

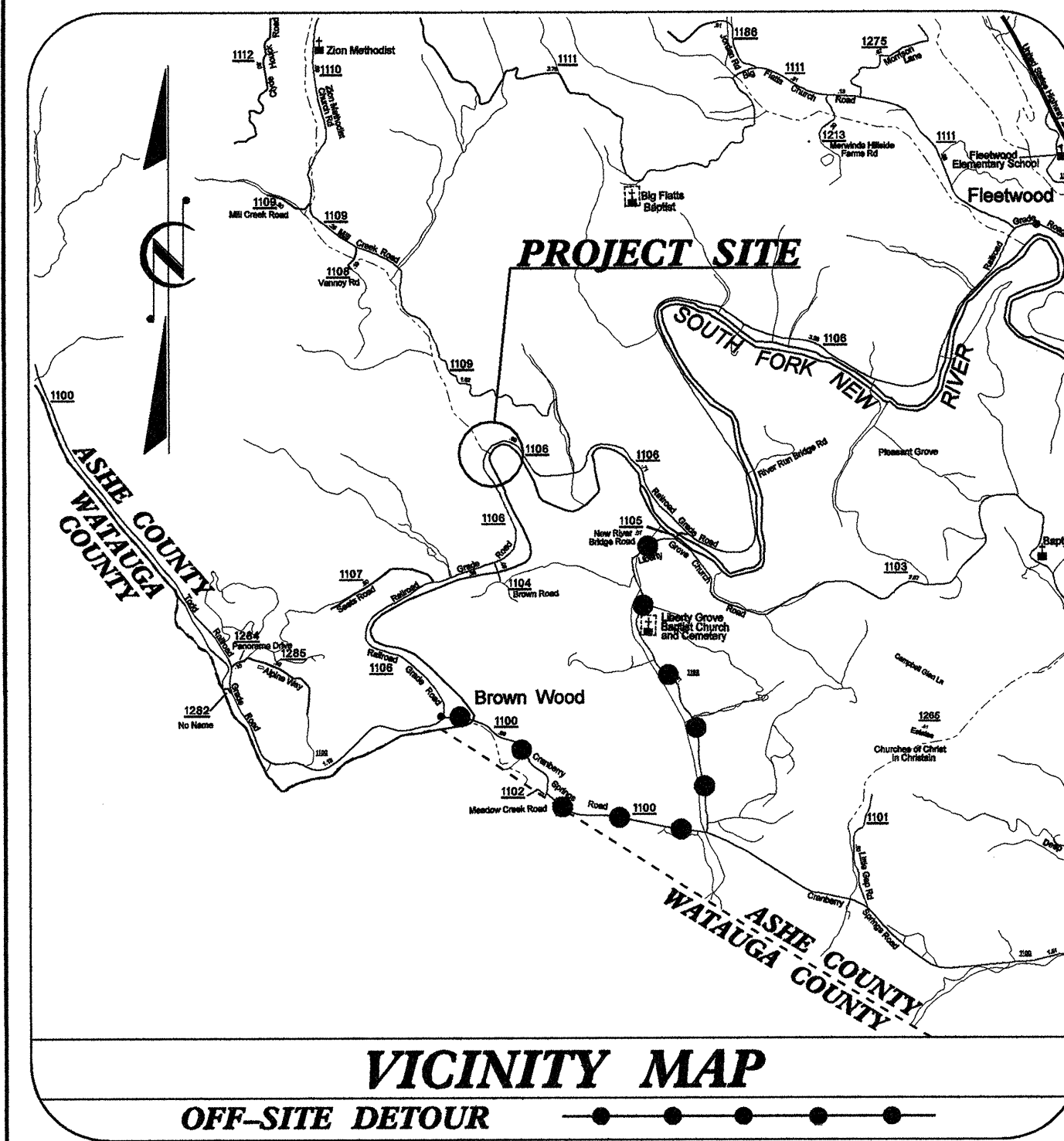
SANITARY SEWER:

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:

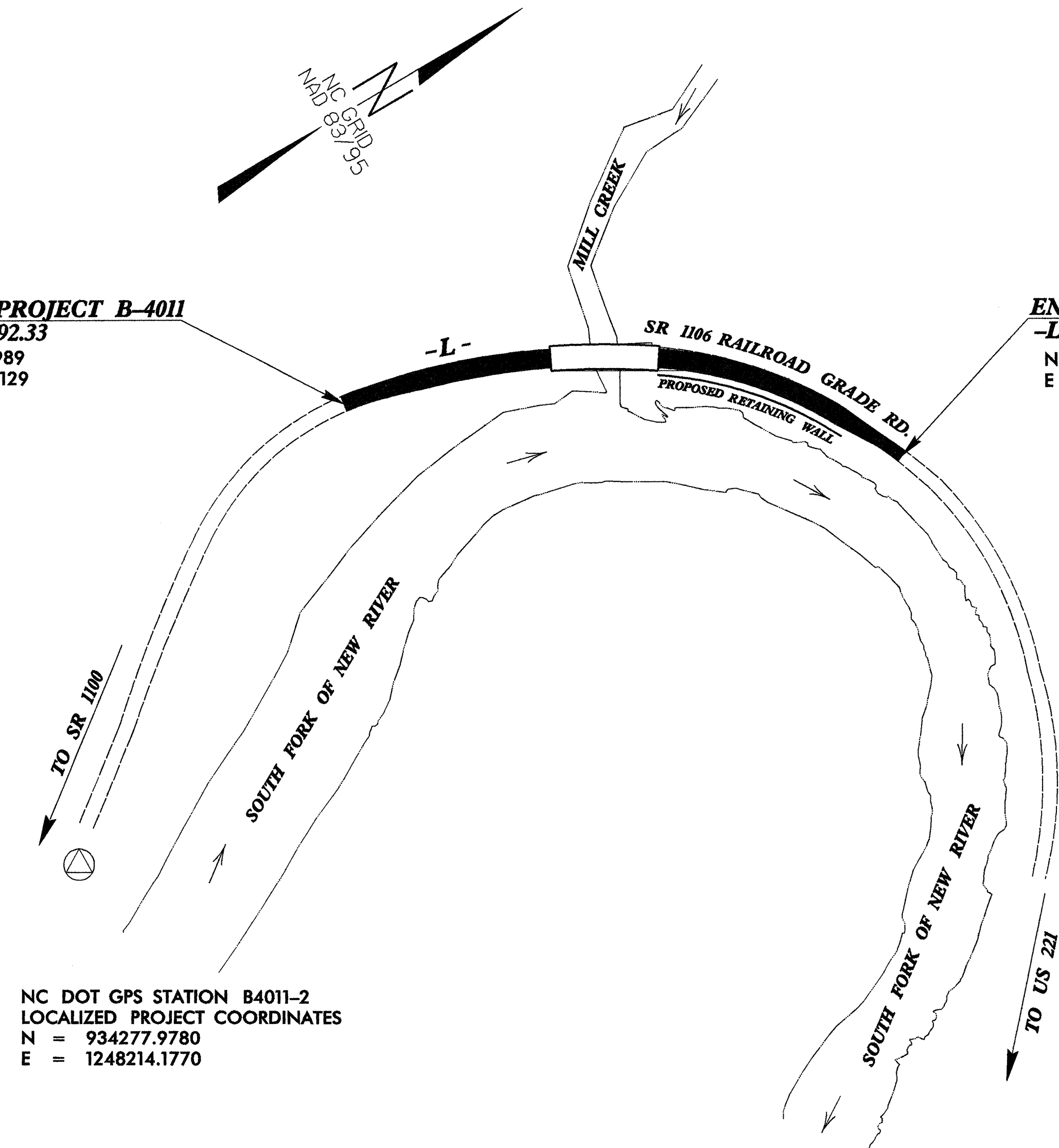
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line	----- 2UTL
U/G Tank; Water, Gas, Oil	□
A/G Tank; Water, Gas, Oil	□
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

SURVEY CONTROL SHEET B-4011



BEGIN TIP PROJECT B-4011
-L- STA. 14+92.33
N = 934723.8989
E = 1247958.6129

END TIP PROJECT B-4011
-L- STA. 20+59.78
N = 935165.4691
E = 1248273.6944



BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
201	GPS B4011-1		933288.3130	1248661.1070	2913.19'	OUTSIDE PROJECT LIMITS	
202	GPS B4011-2		934277.9780	1248214.1770	2911.22'	OUTSIDE PROJECT LIMITS	
100	BL-100		934621.1670	1247954.3890	2911.97'	13+91.49	10.88 LT
101	BL-101		934919.4180	1248031.8470	2910.03'	17+03.05	9.03 RT
102	BL-102		935182.0850	1248397.3530	2909.92'	21+86.92	8.71 RT
103	BL-103		935115.3480	1248624.3910	2908.72'	24+30.79	10.35 RT

 BM#1 ELEVATION = 2899.43'
 N 935000 E 1248728
 OUTSIDE PROJECT LIMITS
 -BL- STATION 31+44.01 80.99' RIGHT
 R/R SPIKE SET IN 18" TREE

 BM#3 ELEVATION = 2916.41'
 N 934279 E 1248179
 OUTSIDE PROJECT LIMITS
 -BL- STATION 16+08.27 26.52' RIGHT
 R/R SPIKE SET IN 18" WHITE PINE TREE

 BM#2 ELEVATION = 2906.47'
 N 934914 E 1248040
 L STATION 17+03 19' RIGHT
 -BL- STATION 23+22.14 9.78' RIGHT
 R/R SPIKE SET IN POWER POLE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4011-1"
 WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
 NORTHING: 933288.3130(ft) EASTING: 1248661.1070(ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99990237
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4011-1" TO -L- STATION 14+92.33 IS
 N 26°04'28" W 1598.25'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

NC DOT GPS STATION B4011-1
 LOCALIZED PROJECT COORDINATES
 N = 933288.3130
 E = 1248661.1070

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/LOCATION/PROJECT
 B4011_LS_CONTROL_050223.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 USER SERVICE (OPUS)

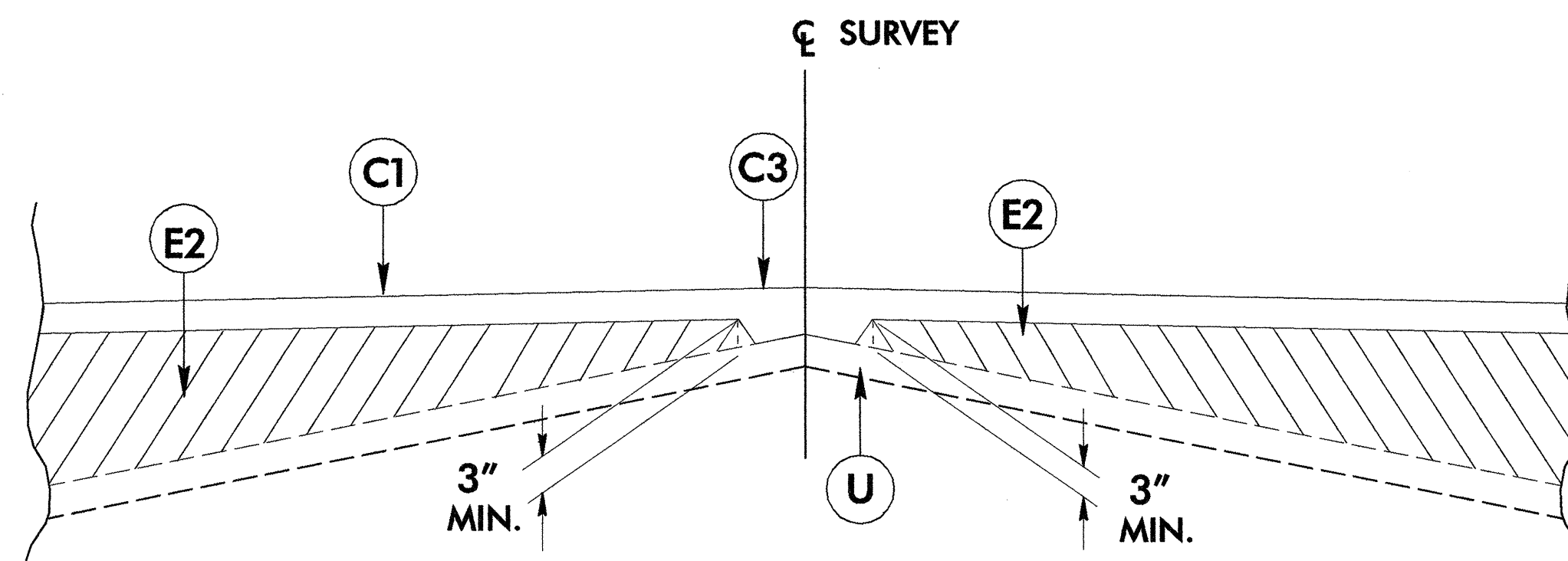
NOTE: DRAWING NOT TO SCALE

6/2/09

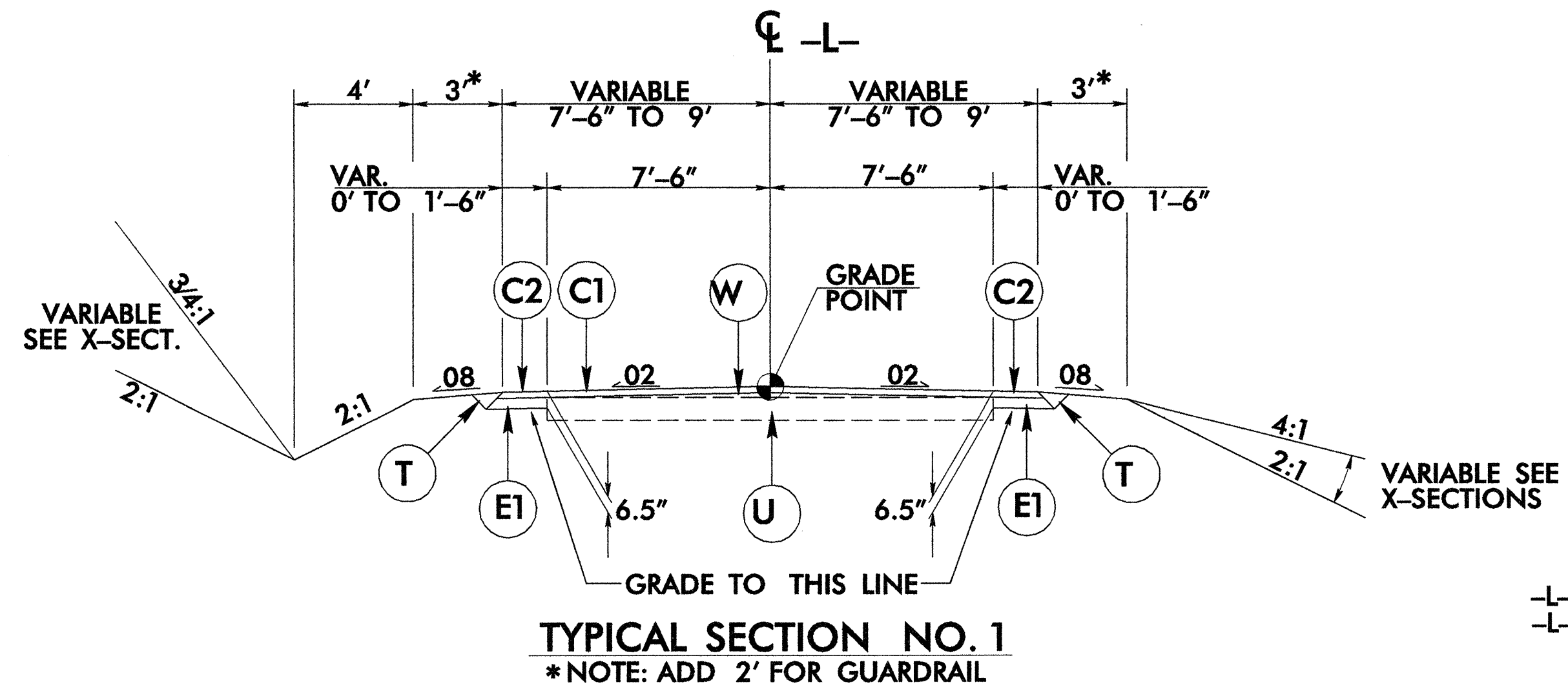
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	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.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT

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



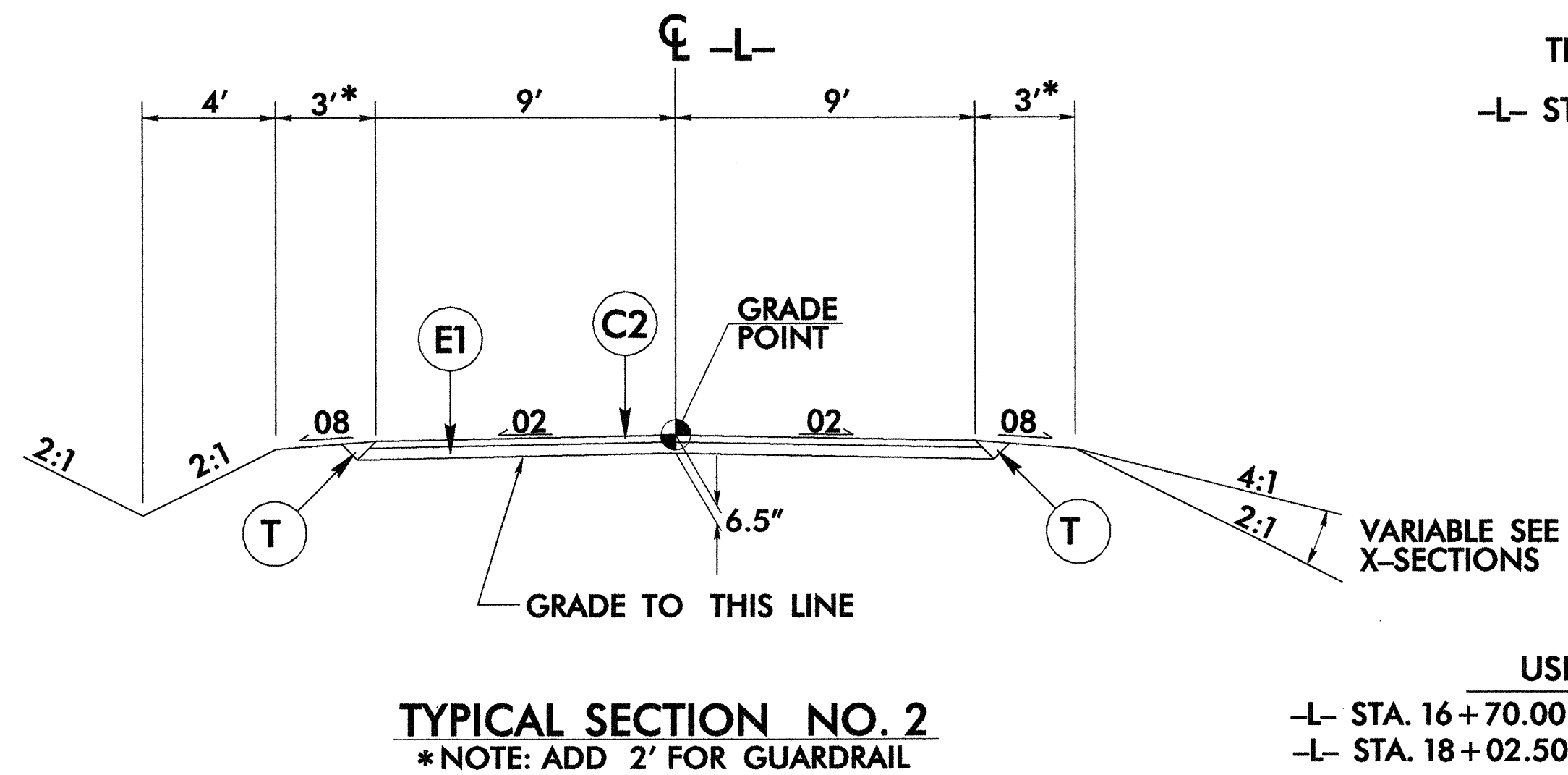
Detail Showing Method of Wedging



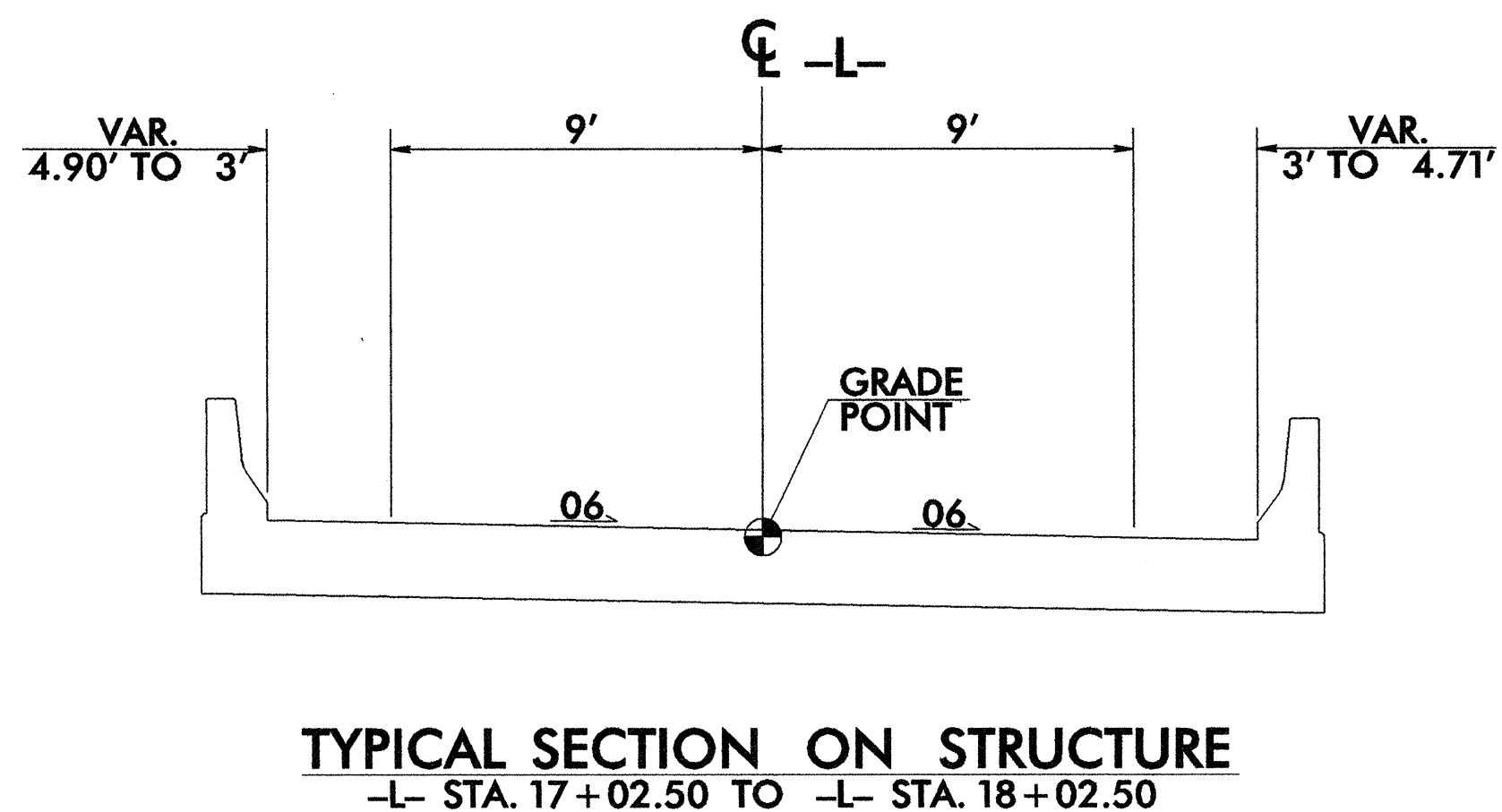
USE TYPICAL SECTION NO. 1
 -L- STA. 15+60.00 TO -L- STA. 16+70.00
 -L- STA. 18+30.00 TO -L- STA. 20+34.78

TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
 -L- STA. 15+17.33 TO -L- STA. 15+60.00

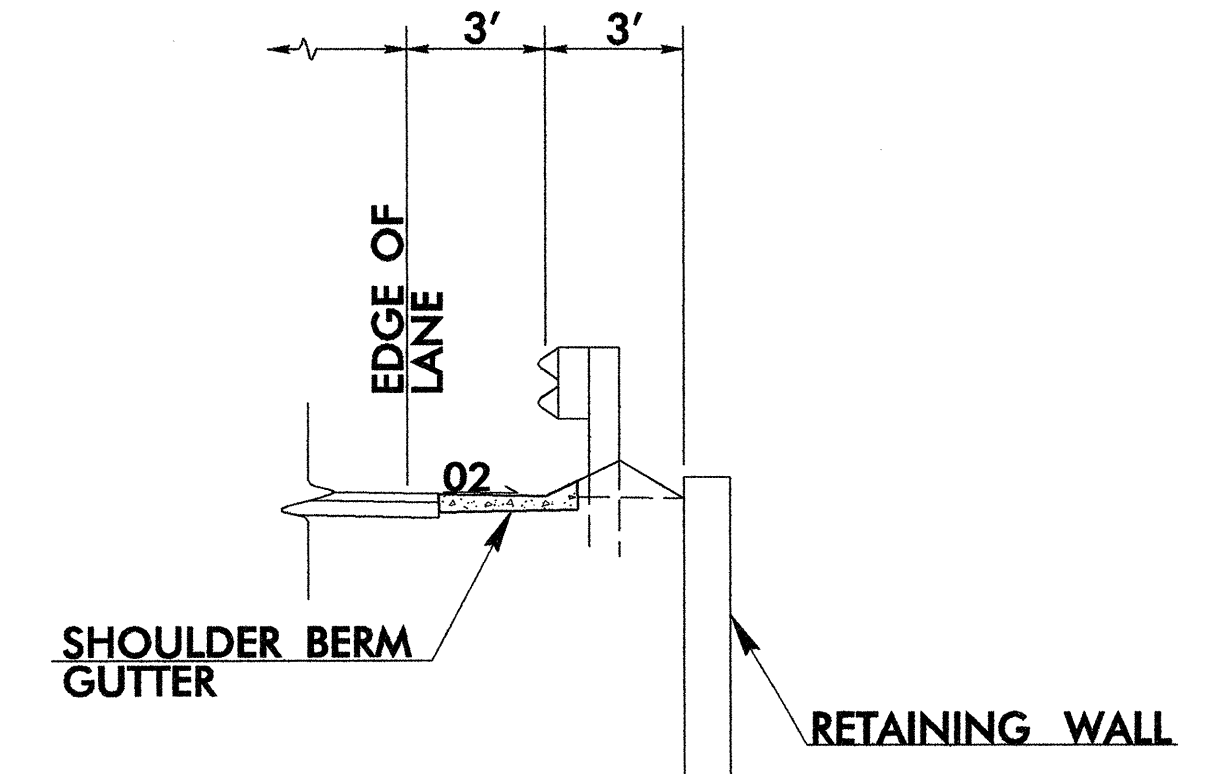
TRANSITION FROM TYPICAL NO. 1 TO EXISTING
 -L- STA. 20+34.78 TO -L- STA. 20+59.78



USE TYPICAL SECTION NO. 2
 -L- STA. 16+70.00 TO -L- STA. 17+02.50 (BEGIN BRIDGE)
 -L- STA. 18+02.50 (END BRIDGE) TO -L- STA. 18+30.00



TYPICAL SECTION ON STRUCTURE
 -L- STA. 17+02.50 TO -L- STA. 18+02.50



PARTIAL TYPICAL SECTION NO. 1
 USE IN CONJUNCTION W/TYPICAL SECTION NO. 1 & 2
 USE PARTIAL TYPICAL SECTION NO. 1 AS FOLLOWS:
 -L- STA. 18+12.58 TO -L- STA. 20+06.60

PROJECT REFERENCE NO. B-4011	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
559 Jones Franklin Rd. Suite 164 Raleigh, N.C. 27606 Bus: 919 851 8077 Fax: 919 851 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	

I5745_BK
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 11/26/2007

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

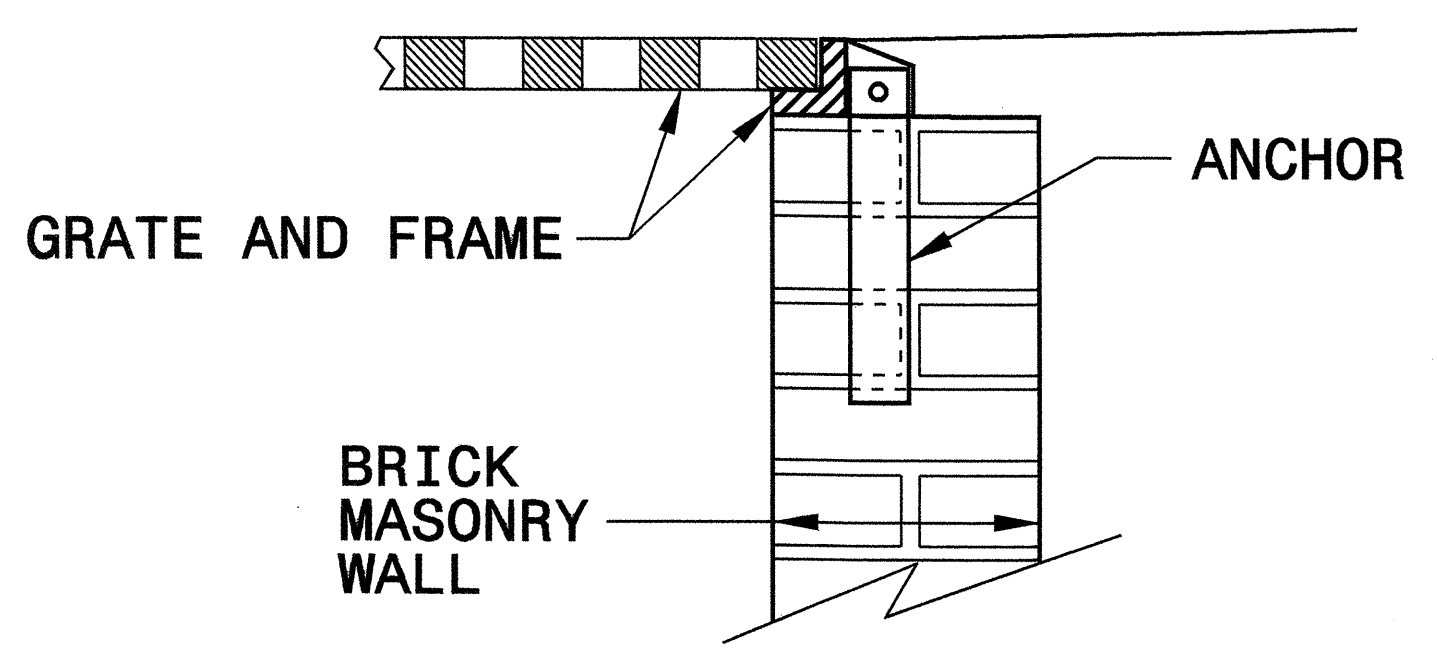
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

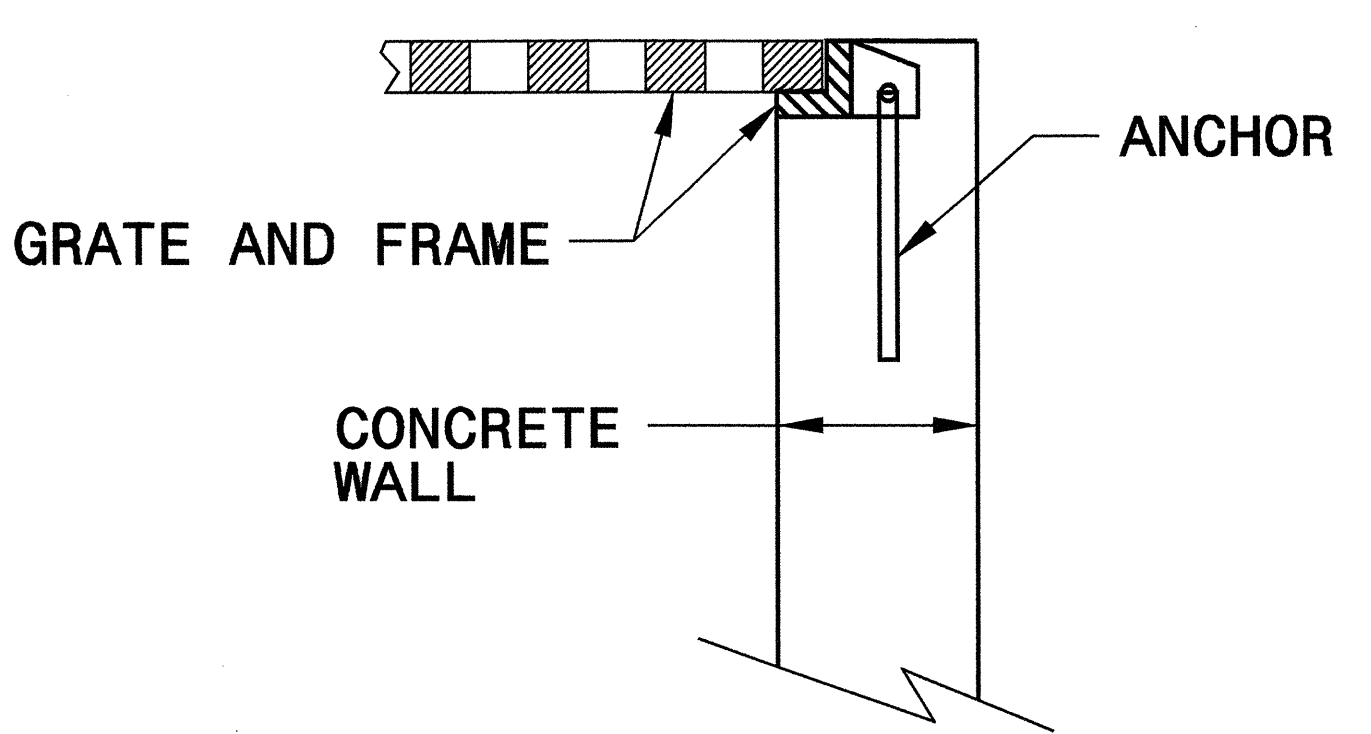
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

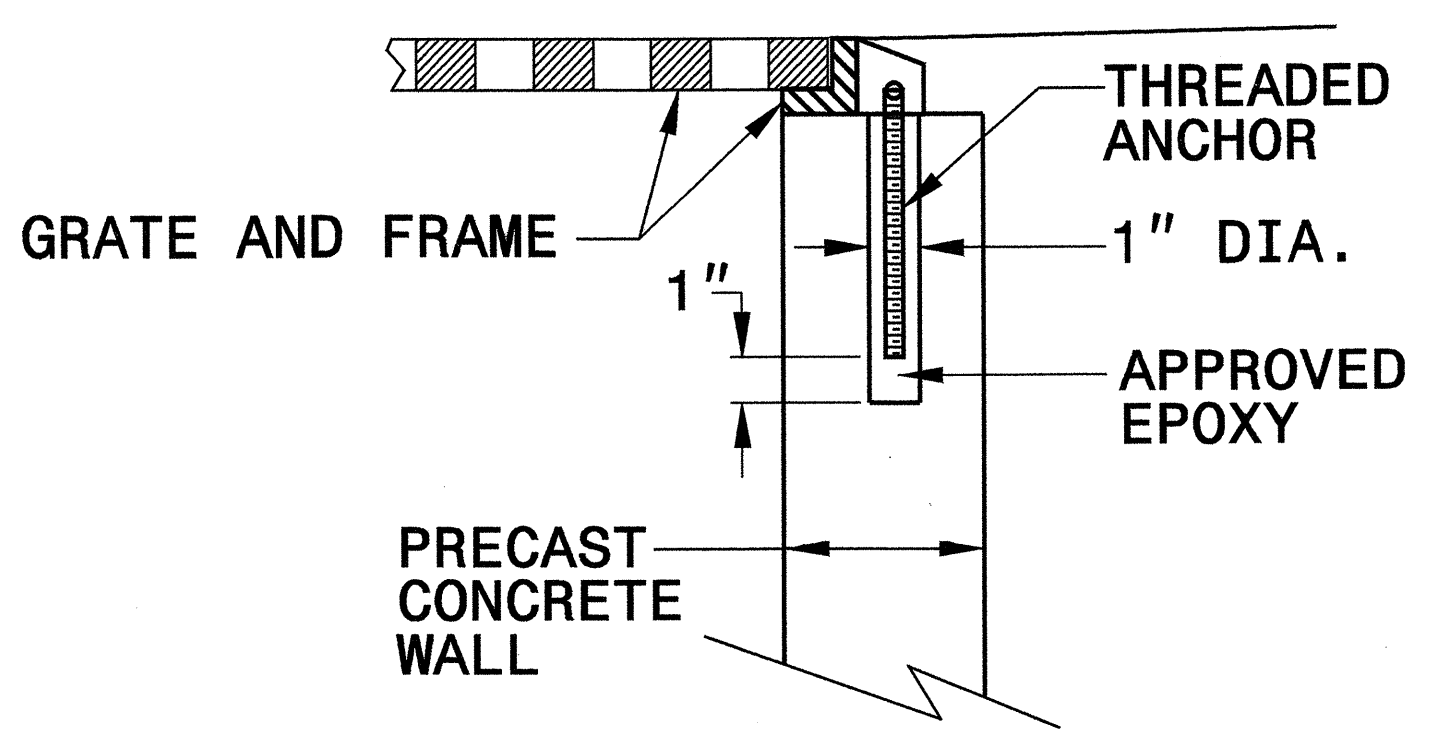
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



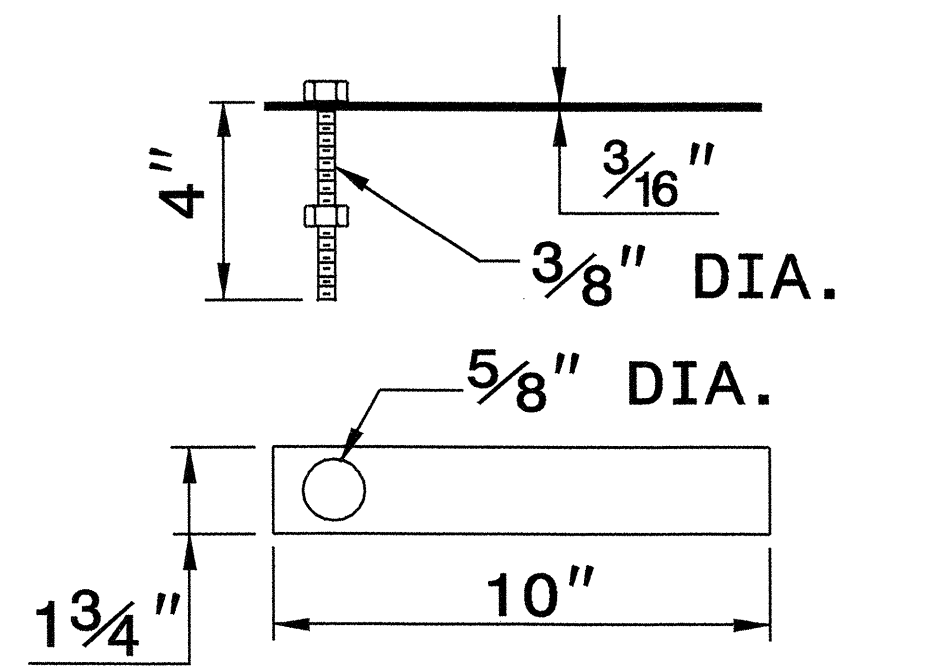
CONCRETE CONSTRUCTION



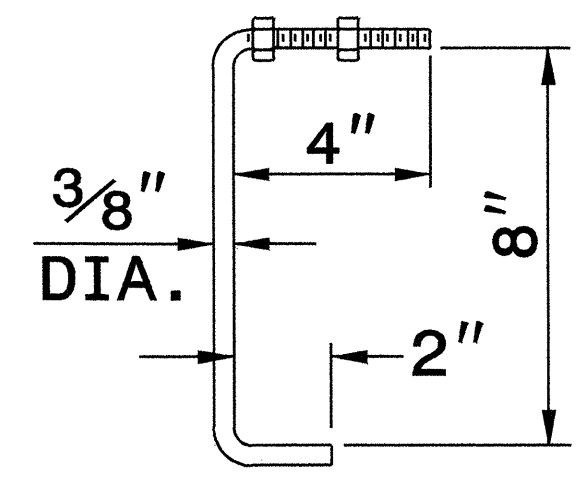
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

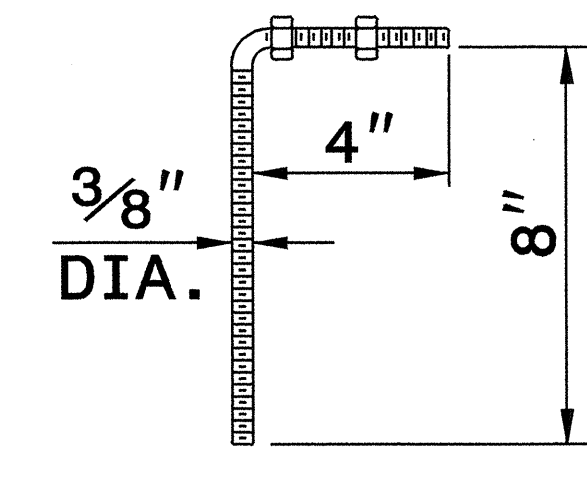
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



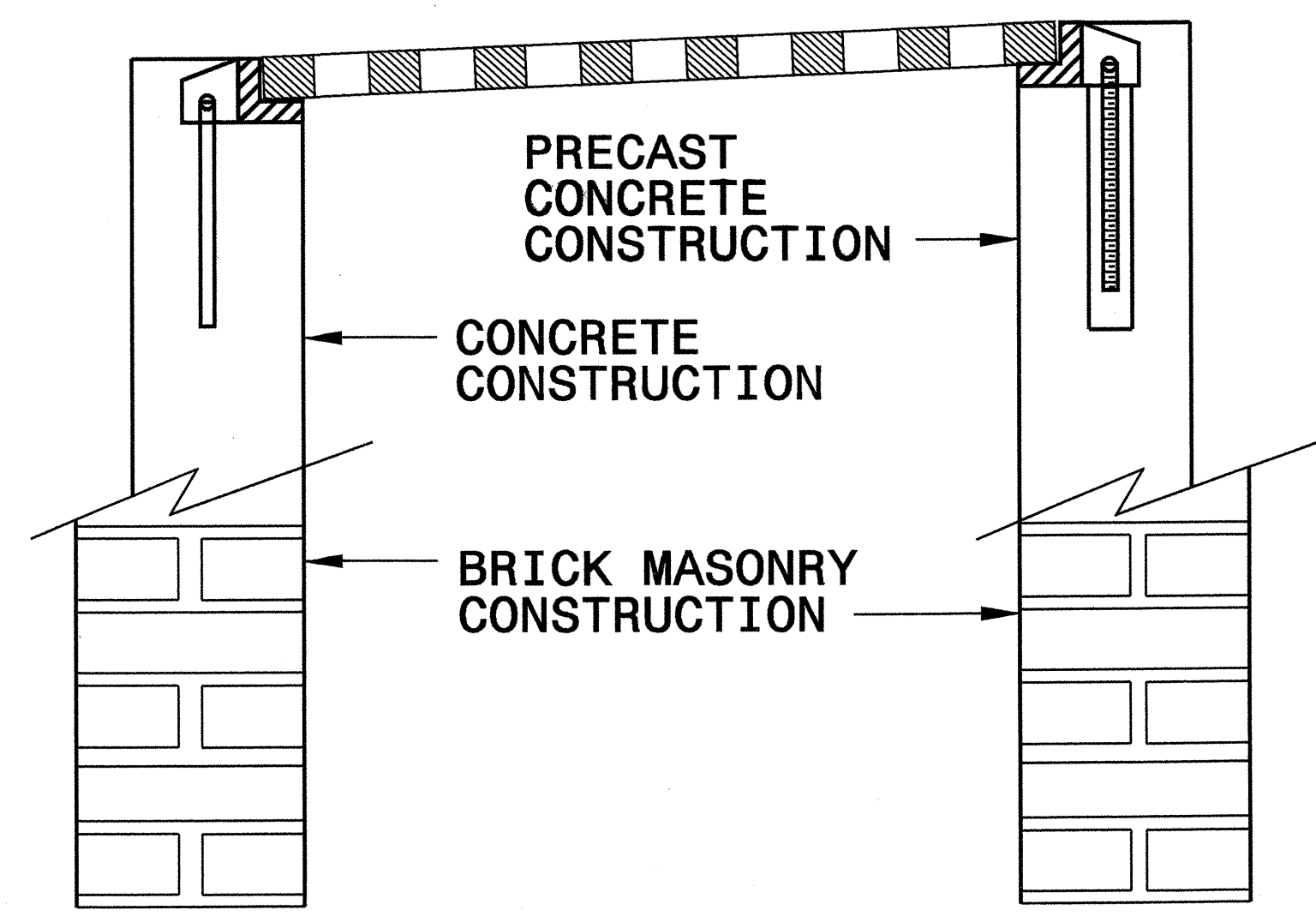
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR

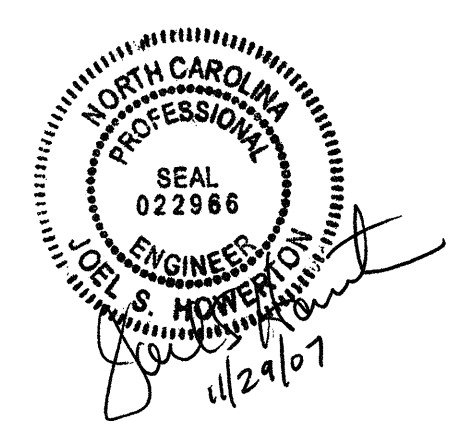


PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

C:\MAR-2007\08:04 2\work\trac\stds\special details\erickar\d\stds\06\stds to special details\840d25 anchor-age for Frames\0840d25.dgn jhower-ton



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

SEE PLATE FOR TITLE

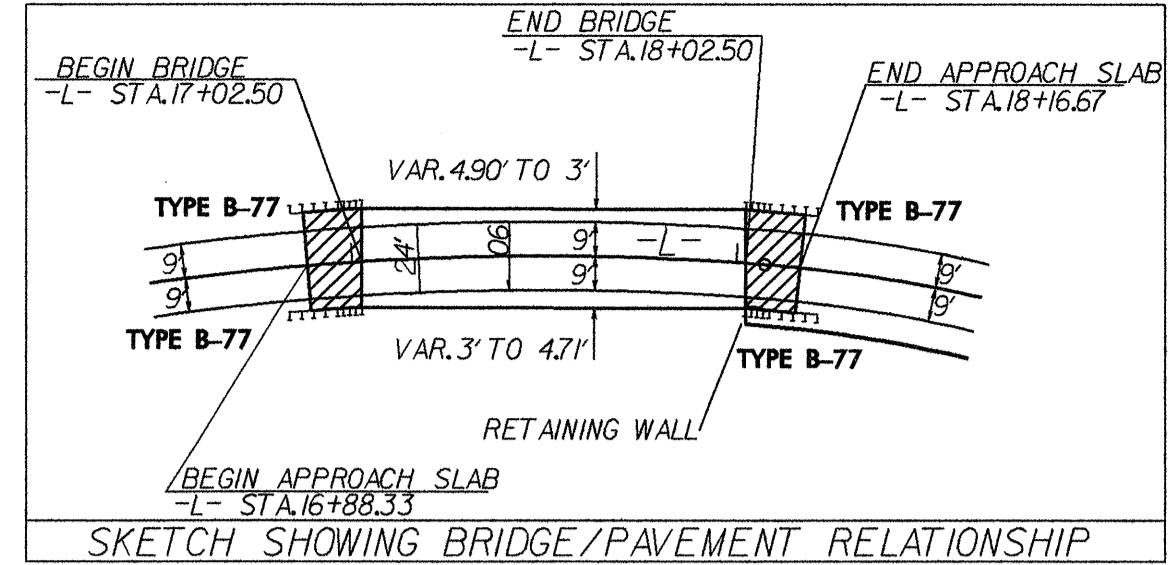
ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
MODIFIED BY: E.E. WARD DATE: 9/25/06
CHECKED BY: DATE:
FILE SPEC.:

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

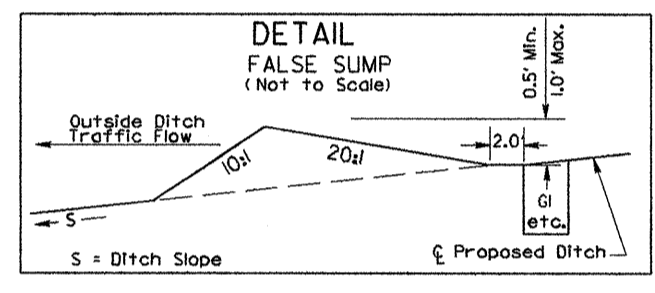
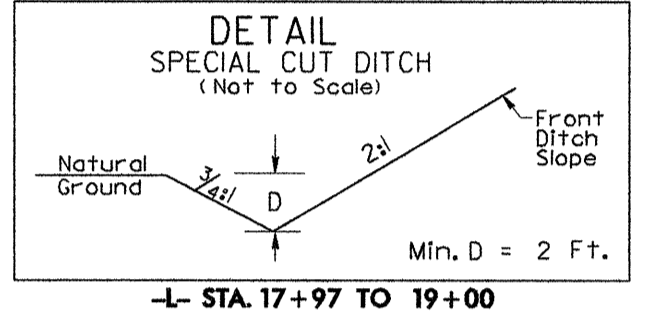
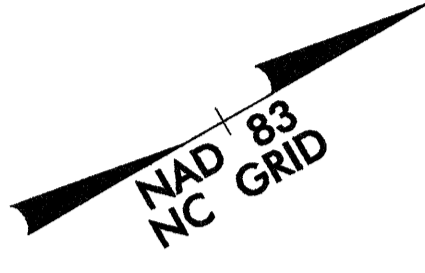
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201766														
ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)	6027000000-N	1622	1	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING	2286000000-N	840	3	EA	MASONRY DRAINAGE STRUCTURES	6029000000-E	SP	280	LF	SAFETY FENCE
0022000000-E	225	1,700	CY	UNCLASSIFIED EXCAVATION	2354200000-N	840	1	EA	FRAME WITH GRATE, STD 840.24	6030000000-E	1630	265	CY	SILT EXCAVATION
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (17+52.500)	2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29	6036000000-E	1631	500	SY	MATTING FOR EROSION CONTROL
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING	2556000000-E	846	184	LF	SHOULDER BERM GUTTER	6037000000-E	SP	30	SY	COIR FIBER MAT
0057000000-E	226	500	CY	UNDERCUT EXCAVATION	3030000000-E	862	300	LF	STEEL BM GUARDRAIL	6042000000-E	1632	255	LF	1/4" HARDWARE CLOTH
0063000000-N	SP	Lump Sum		GRADING	3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS	6071030000-E	SP	45	LF	COIR FIBER BAFFLES
0080000000-E	SP	600	TON	CLASS IV SUBGRADE STABILIZATION	3165000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** (TEST LEVEL 2)	6071050000-E	SP	3	EA	*** SKIMMER (1-1/2")
0195000000-E	265	500	CY	SELECT GRANULAR MATERIAL	3270000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	6084000000-E	1660	2	ACR	SEEDING & MULCHING
0196000000-E	270	500	SY	FABRIC FOR SOIL STABILIZATION	3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77	6087000000-E	1660	1	ACR	MOWING
0318000000-E	300	16	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	3628000000-E	876	9	TON	RIP RAP, CLASS I	6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
0343000000-E	310	24	LF	15" SIDE DRAIN PIPE	3649000000-E	876	3	TON	RIP RAP, CLASS B	6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
0366000000-E	310	120	LF	15" RC PIPE CULVERTS, CLASS III	3656000000-E	876	250	SY	FILTER FABRIC FOR DRAINAGE	6108000000-E	1665	1.25	TON	FERTILIZER TOPDRESSING
1220000000-E	545	45	TON	INCIDENTAL STONE BASE	4400000000-E	1110	242	SF	WORK ZONE SIGNS (STATIONARY)	6114000000-N	SP	2	HR	SPECIALIZED HAND MOWING
1489000000-E	610	60	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	4410000000-E	1110	94	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
1525000000-E	610	105	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	4445000000-E	1145	96	LF	BARRICADES (TYPE III)	6123000000-E	1670	0.1	ACR	REFORESTATION
1560000000-E	620	10	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	4810000000-E	1205	4,400	LF	PAINT PAVEMENT MARKING LINES (4")					
1693000000-E	654	10	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR	6000000000-E	1605	260	LF	TEMPORARY SILT FENCE					
2000000000-N	806	12	EA	RIGHT OF WAY MARKERS	6006000000-E	1610	75	TON	STONE FOR EROSION CONTROL, CLASS A					
2022000000-E	815	68	CY	SUBDRAIN EXCAVATION	6009000000-E	1610	135	TON	STONE FOR EROSION CONTROL, CLASS B					
2033000000-E	815	51	CY	SUBDRAIN FINE AGGREGATE	6012000000-E	1610	110	TON	SEDIMENT CONTROL STONE					
2044000000-E	815	300	LF	6" PERFORATED SUBDRAIN PIPE	6015000000-E	1615	1.5	ACR	TEMPORARY MULCHING					
2055000000-E	815	9	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS	6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING					
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET	6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING					
					6024000000-E	1622	40	LF	TEMPORARY SLOPE DRAINS					

8/17/99

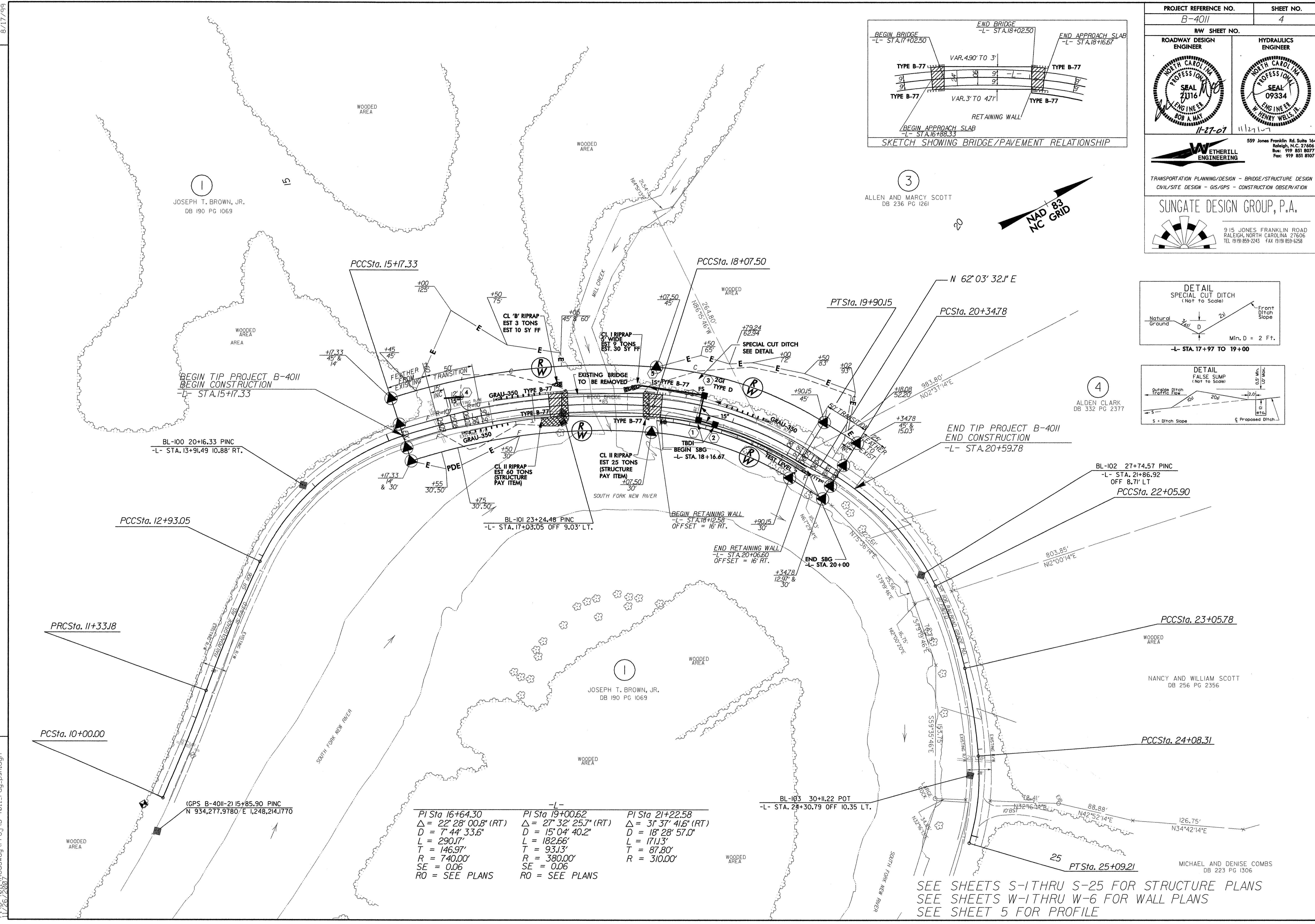
PROJECT REFERENCE NO. B-4011		SHEET NO. 4	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		SEAL 09334	
559 Jones Franklin Rd. Suite 164 Raleigh, N.C. 27606 Bus: 919 851 8077 Fax: 919 851 8107			
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION			
SUNGATE DESIGN GROUP, P.A.			
915 JONES FRANKLIN ROAD RALEIGH, NORTH CAROLINA 27606 TEL 919 859-2243 FAX 919 859-6258			



3
ALLEN AND MARCY SCOTT
DB 236 PG 1261



4
ALDEN CLARK
DB 332 PG 2377



-L-		
PI Sta 16+64.30	PI Sta 19+00.62	PI Sta 21+22.58
$\Delta = 22^\circ 28' 00.8''$ (RT)	$\Delta = 27^\circ 32' 25.7''$ (RT)	$\Delta = 31^\circ 37' 41.6''$ (RT)
D = 7' 44' 33.6"	D = 15' 04' 40.2"	D = 18' 28' 57.0"
L = 290.17'	L = 182.66'	L = 171.13'
T = 146.97'	T = 93.13'	T = 87.80'
R = 740.00'	R = 380.00'	R = 310.00'
SE = 0.06	SE = 0.06	
RO = SEE PLANS	RO = SEE PLANS	

SEE SHEETS S-1 THRU S-25 FOR STRUCTURE PLANS
 SEE SHEETS W-1 THRU W-6 FOR WALL PLANS
 SEE SHEET 5 FOR PROFILE

REVISIONS

I:\5445 PM Roadway\Proj\B-4011_r.dwg_psh.dgn
 1/25/2007

5/28/99

BM #3
RR SPIKE SET IN 18" WHITE PINE
BL- STA. 16+08.27 26.52' RT.
ELEV. 2916.41'
N 934279 E 1248179

BM #2
RR SPIKE SET IN POWER POLE
BL- STA. 23+22.14, 9.78' RT.
ELEV. 2906.47'
N 934914 E 1248040
L- STA. 17+01.80 18.7393' RT

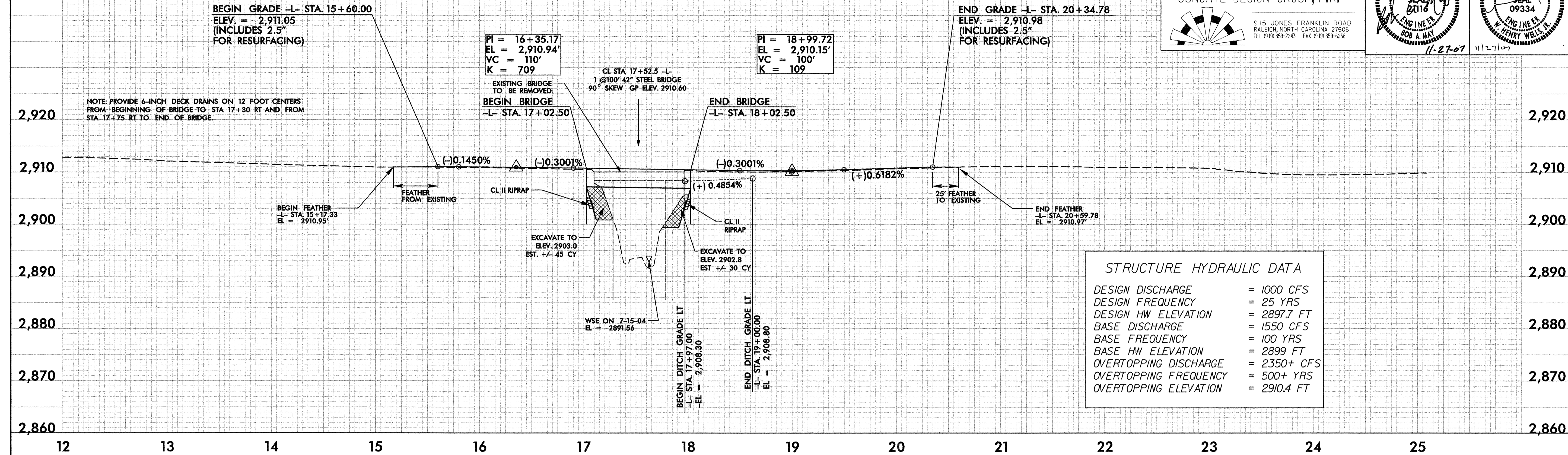
BM #1
RR SPIKE SET IN 18" TREE
BL- STA. 31+44.01, 80.99' RT.
ELEV. 2899.43'
N 935000 E 1248728

ETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27605
Phone: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL 919 859-2243 FAX 919 859-6538

PROJECT REFERENCE NO. B-4011	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



NOTE: PROVIDE 6-INCH DECK DRAINS ON 12 FOOT CENTERS FROM BEGINNING OF BRIDGE TO STA 17+30 RT AND FROM STA 17+75 RT TO END OF BRIDGE.

BEGIN GRADE -L- STA. 15+60.00
ELEV. = 2,911.05
(INCLUDES 2.5" FOR RESURFACING)

PI = 16+35.17
EL = 2,910.94'
VC = 110'
K = 709

PI = 18+99.72
EL = 2,910.15'
VC = 100'
K = 109

END GRADE -L- STA. 20+34.78
ELEV. = 2,910.98
(INCLUDES 2.5" FOR RESURFACING)

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 1000 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 2897.7 FT
BASE DISCHARGE	= 1550 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 2899 FT
OVERTOPPING DISCHARGE	= 2350+ CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 2910.4 FT

SEE SHEET 4 FOR HORIZONTAL ALIGNMENT

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