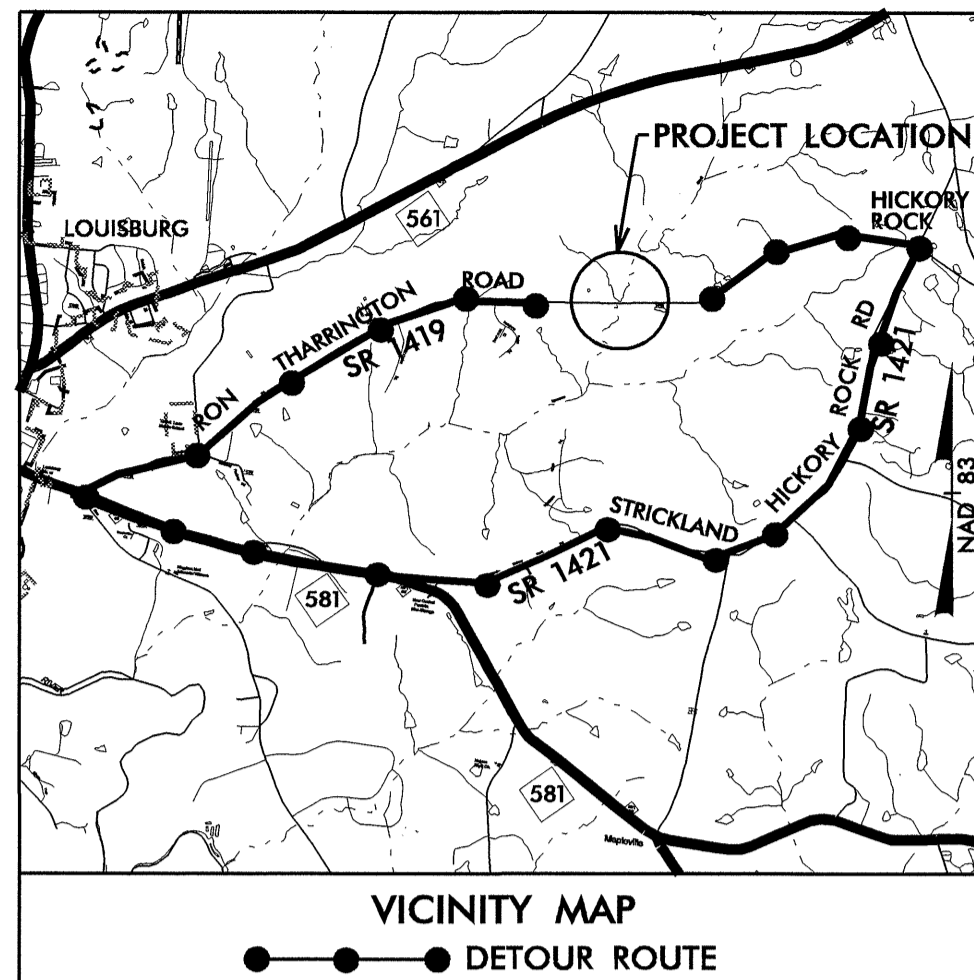


09/08/09

SEE SHEET 1-A FOR INDEX OF SHEETS  
 SEE SHEET 1-B FOR CONVENTIONAL SHEET SYMBOLS  
 SEE SHEET 1-C FOR SURVEY CONTROL SHEETS



STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

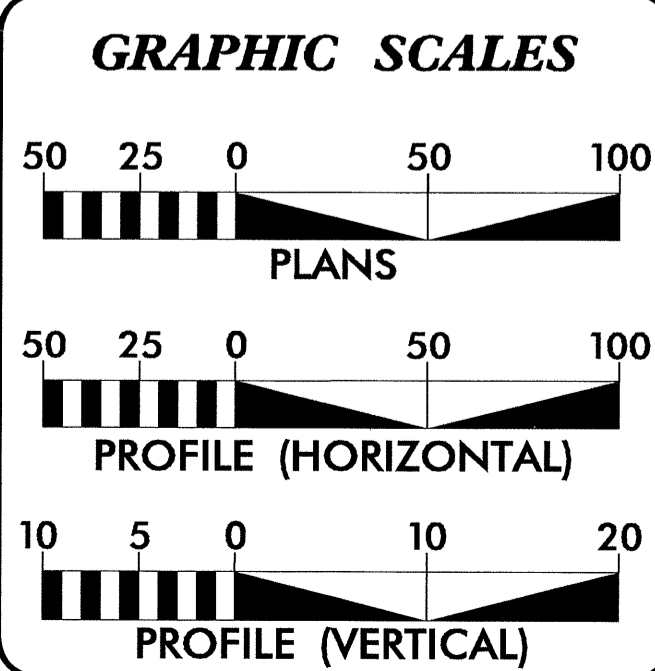
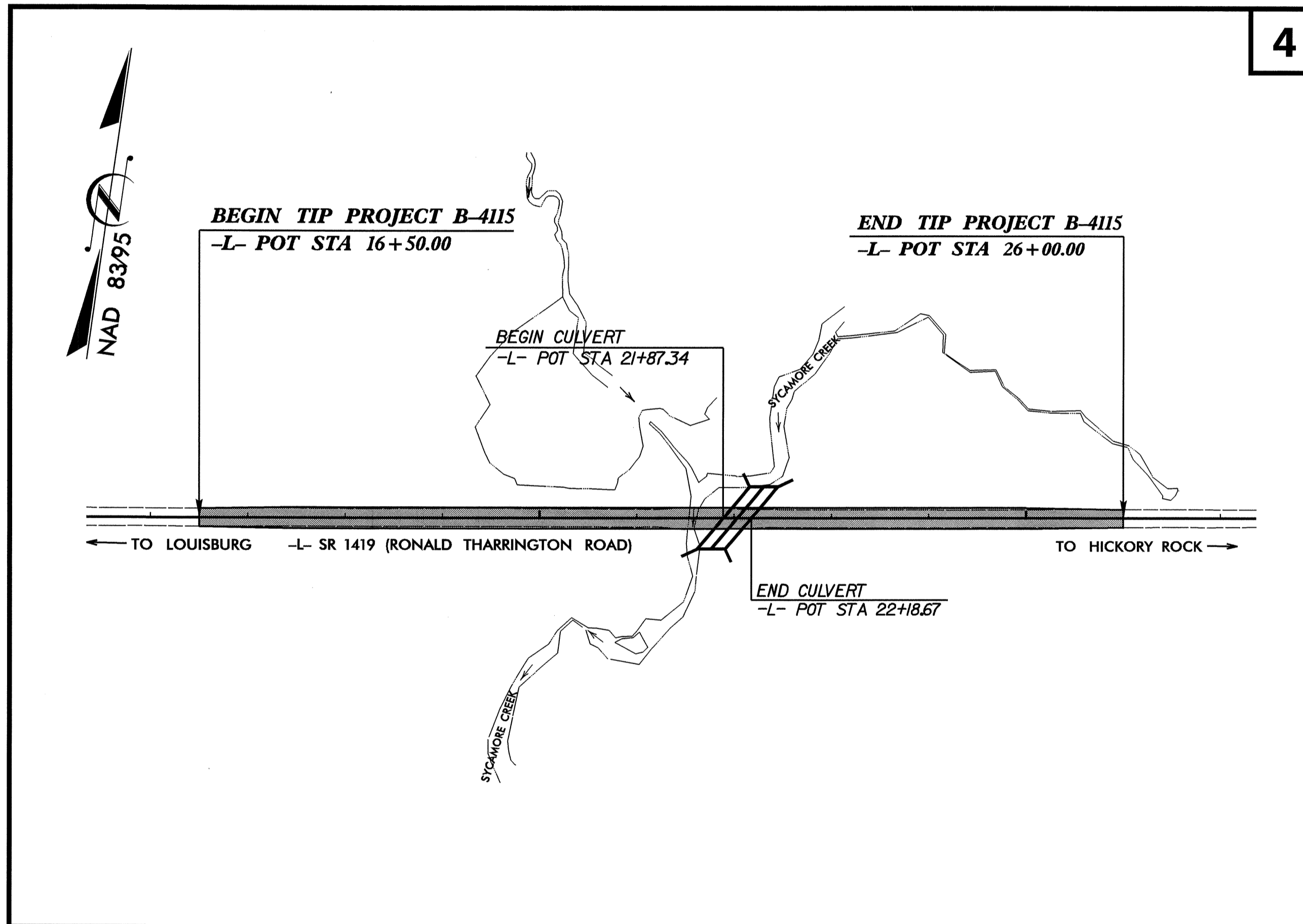
**FRANKLIN COUNTY**

**LOCATION: BRIDGE NO. 57 OVER SYCAMORE CREEK ON SR 1419**  
**TYPE OF WORK: GRADING, DRAINAGE, CULVERT AND PAVING**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4115	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33470.1.1	BRZ-1419(2)	PE	
33470.2.1	BRZ-1419(2)	UTIL & ROW	
33470.3.1	BRZ-1419(2)	CONST.	

**TIP PROJECT: B-4115**

**CONTRACT: C201925**



**DESIGN DATA**

ADT 2008 = 646  
 ADT 2028 = 1063  
 DHV = 10 %  
 D = 60 %  
 T = 5 % \*  
 V = 60 MPH  
 RURAL MINOR COLLECTOR  
 \* TTST 3% DUAL 2%

**PROJECT LENGTH**

ROADWAY LENGTH TIP PROJECT B-4115 = 0.174 MI  
 STRUCTURE LENGTH TIP PROJECT B-4115 = 0.006 MI  
 TOTAL LENGTH TIP PROJECT B-4115 = 0.180 MI

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

2006 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
 SEPTEMBER 10, 2007

**LETTING DATE:**  
 SEPTEMBER 16, 2008

**GARY LOVERING, PE**  
 PROJECT ENGINEER

**ANTHONY C. WEST**  
 PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

*Max T. Shown*  
 SIGNATURE

**ROADWAY DESIGN ENGINEER**

*Anthony C. West*  
 SIGNATURE

Professional Engineer Seals for Gary T. Shown and Anthony C. West.

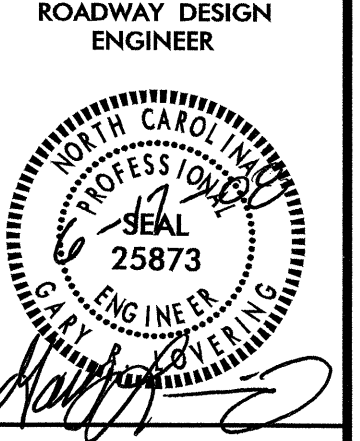
**DIVISION OF HIGHWAYS**  
 STATE OF NORTH CAROLINA

Professional Engineer Seal for Gary T. Shown.

*Anthony C. West*  
 P.E.  
 STATE HIGHWAY DESIGN ENGINEER

30-MAY-2008 08:35  
 F:\roadway\proj\115-4115\_rdy\_tsh.dgn  
 \$\$\$USERNAME\$\$\$

# INDEX OF SHEETS



## INDEX OF SHEETS

2006 ROADWAY ENGLISH STANDARD DRAWINGS

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

GENERAL NOTES:

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

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 Sheet
2	Typical Sections, Pavement Schedule and Wedging Detail
2-A	Anchorage for Frames Detail
3	Summary of Quantities
3-A	Summary of Earthwork Summary of Shoulder Berm Gutter Summary of Existing Asphalt Pavement Removal Summary of Existing Asphalt Pavement Breakup Drainage Summary - Pipes 48" & under Drainage Summary - Pipes 54" & over Guardrail Summary
4	Plan Sheet
5	Profile Sheet
TCP-1 to TCP-3	Traffic Control Plans
SD-1	Special Sign Design Plans
EC-1 to EC-6	Erosion Control Plans
RF-1	Reforestation
UO-1 to UO-2	Utilities by Others Plans
X-1A	Cross Section Summary Sheet
X-1 to X-5	-L- Cross Sections
C-1 to C-5	Culvert Plans
w-1 to w-2	Retaining wall

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'
310.10	Driveway Pipe Construction
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
838.27	Reinforced Concrete Endwall - for Single 60" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall - Std. Dwg 838.21 thru 838.40
838.57	Reinforced Brick Endwall - for Single 60" Pipe 90 Skew
838.75	Notes for Reinforced Brick Endwall - Std. Dwg 838.51 thru 838.70
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
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
876.01	Rip Rap in Channels
876.04	Drainage Ditches with Class 'B' Rip Rap

### GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

### CLEARING:

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

### SUPERELEVATION:

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

### 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.

### SUBSURFACE PLANS:

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

### UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE EMBARQ - 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	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 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	○
Swamp Marsh	⌵
Proposed Lateral, Tail, Head Ditch	▭
False Sump	▭

## RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
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	-----
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	⊕
Proposed Wheel Chair Ramp Curb Cut	⊕
Curb Cut for Future Wheel Chair Ramp	⊕
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	▭

## EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	▭
Bridge Wing Wall, Head Wall and End Wall	▭
MINOR:	
Head and End Wall	▭
Pipe Culvert	▭
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□
Paved Ditch Gutter	-----
Storm Sewer Manhole	○
Storm Sewer	-----

## UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊕
Power Transformer	⊕
U/G Power Cable Hand Hole	⊕
H-Frame Pole	●
Recorded U/G Power Line	-----
Designated U/G Power Line (S.U.E.*)	-----

## TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Booth	⊕
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	⊕
Recorded U/G Telephone Cable	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

## WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊕
Water Hydrant	⊕
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	-----

## TV:

TV Satellite Dish	⊕
TV Pedestal	⊕
TV Tower	⊕
U/G TV Cable Hand Hole	⊕
Recorded U/G TV Cable	-----
Designated U/G TV Cable (S.U.E.*)	-----
Recorded U/G Fiber Optic Cable	-----
Designated U/G Fiber Optic Cable (S.U.E.*)	-----

## GAS:

Gas Valve	⊕
Gas Meter	⊕
Recorded U/G Gas Line	-----
Designated U/G Gas Line (S.U.E.*)	-----
Above Ground Gas Line	-----

## SANITARY SEWER:

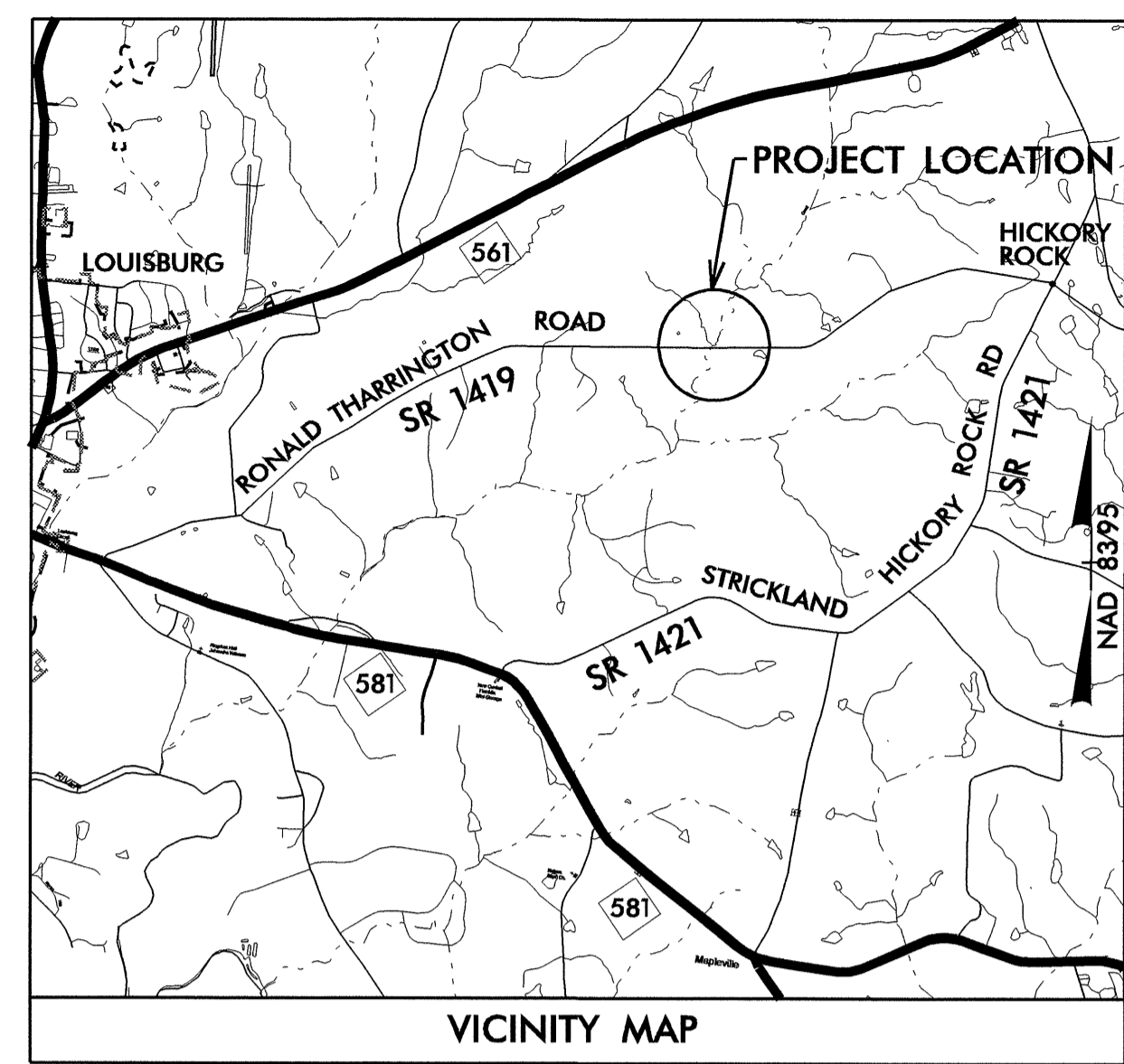
Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
Recorded SS Forced Main Line	-----
Designated SS Forced Main Line (S.U.E.*)	-----

## MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	⊕
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	-----
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.

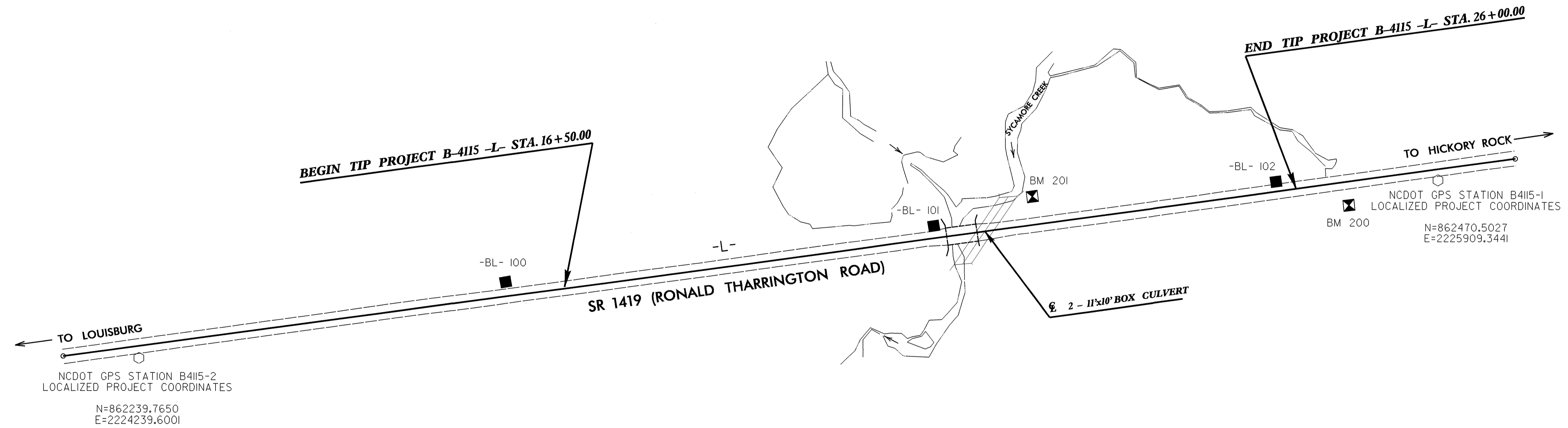
# SURVEY CONTROL SHEET B-4115 FRANKLIN COUNTY

**LOCATION: BRIDGE NO. 57 OVER SYCAMORE CREEK  
AND APPROACHES ON SR 1419 (RONALD THARRINGTON RD.)**



B-4115

VICINITY MAP



NCDOT GPS STATION B4115-2  
LOCALIZED PROJECT COORDINATES  
N=862239.7650  
E=2224239.6001

NCDOT GPS STATION B4115-1  
LOCALIZED PROJECT COORDINATES  
N=862470.5027  
E=2225909.3441

BASELINE POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
2	B4115-2	862239.7650	2224239.6001	279.86	10+96.09	15.77 RT
100	BL-100	862339.3400	2224710.6010	262.12	15+76.25	18.84 LT
101	BL-101	862412.1320	2225261.1150	243.36	21+31.55	16.12 LT
102	BL-102	862468.9240	2225701.0930	250.53	25+75.17	12.56 LT
1	B4115-1	862470.5027	2225909.3441	255.75	27+81.70	14.18 RT

.....  
 BM 200 ELEVATION = 255.18  
 N 862439 E 2225795  
 L STATION 26+64 30 RIGHT  
 R/R SPIKE IN 8' ELM  
 .....  
 BM 201 ELEVATION = 240.55  
 N 862450 E 2225388  
 L STATION 22+62 36 LEFT  
 R/R SPIKE IN 20' POPLAR  
 .....

### DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4115-1" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 862470.5027(ft) EASTING: 2225909.3441(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99997902 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4115-1" TO -L- STATION 10+00.00 IS S 82°38'32.9" W 1781.75' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

**NOTES:**

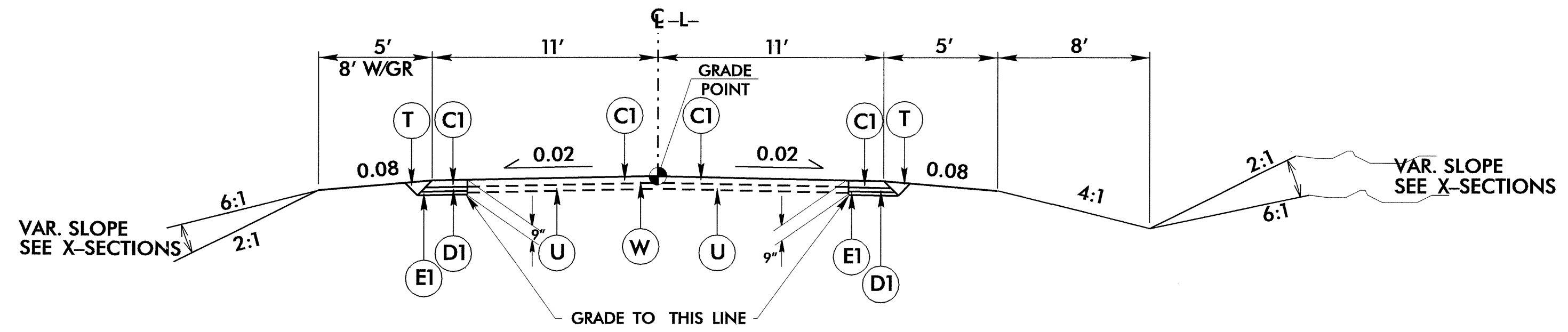
- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/B-4115\\_ls\\_control\\_060322.txt](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/B-4115_ls_control_060322.txt)
- 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)

NOTE: DRAWING NOT TO SCALE

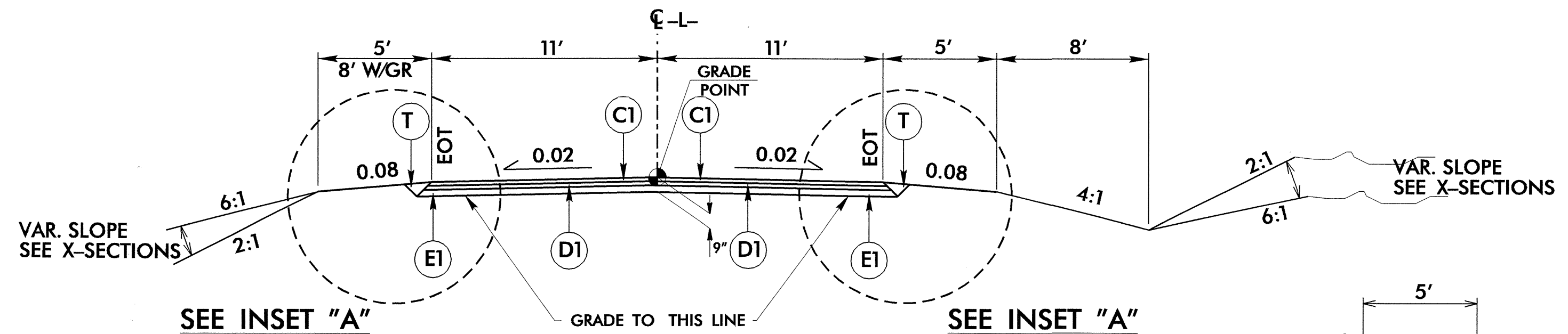
22-APR-2008 08:25 A:\115-1s-1c-070823.dgn

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LIFTS.
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 BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET.)

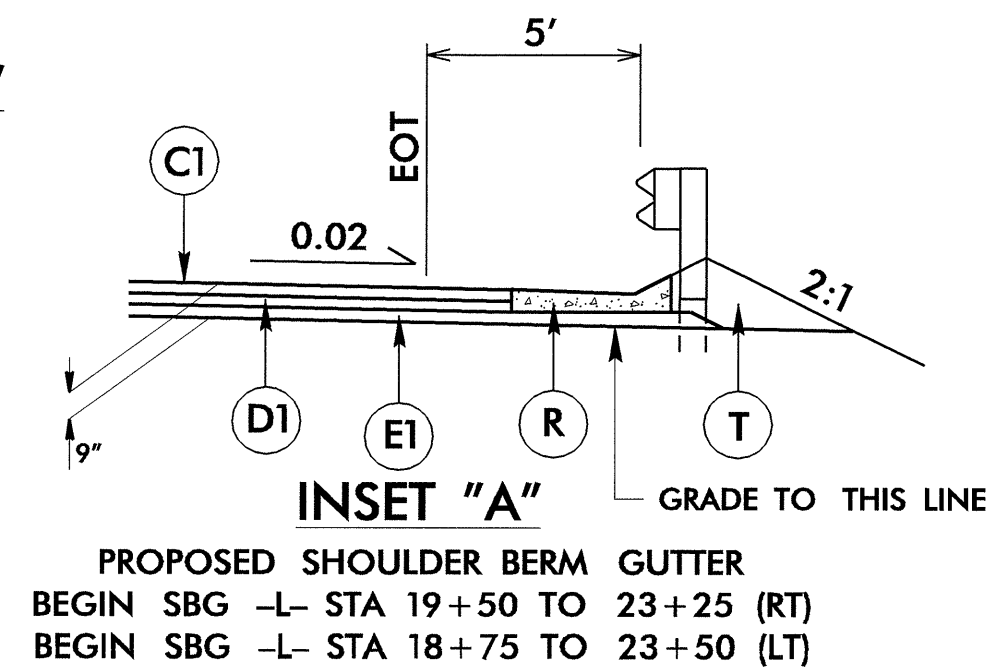
ALL PAVEMENT EDGE SLOPES ARE 1:1



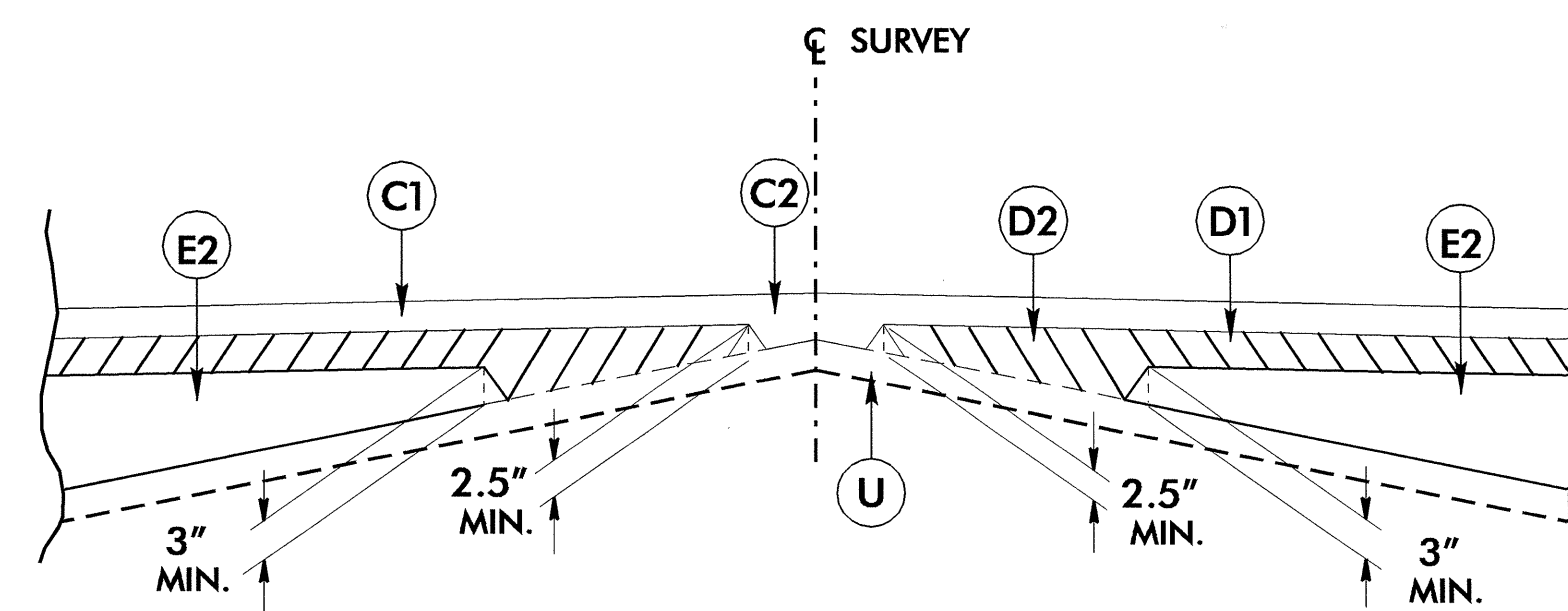
**ROADWAY TYPICAL SECTION NO. 1**  
 -L- STA. 16+50.00 TO STA. 18+00.00  
 -L- STA. 25+00.00 TO STA. 26+00.00



**ROADWAY TYPICAL SECTION NO. 2**  
 -L- STA. 18+00.00 TO 25+00.00



**PROPOSED SHOULDER BERM GUTTER**  
 BEGIN SBG -L- STA 19+50 TO 23+25 (RT)  
 BEGIN SBG -L- STA 18+75 TO 23+50 (LT)



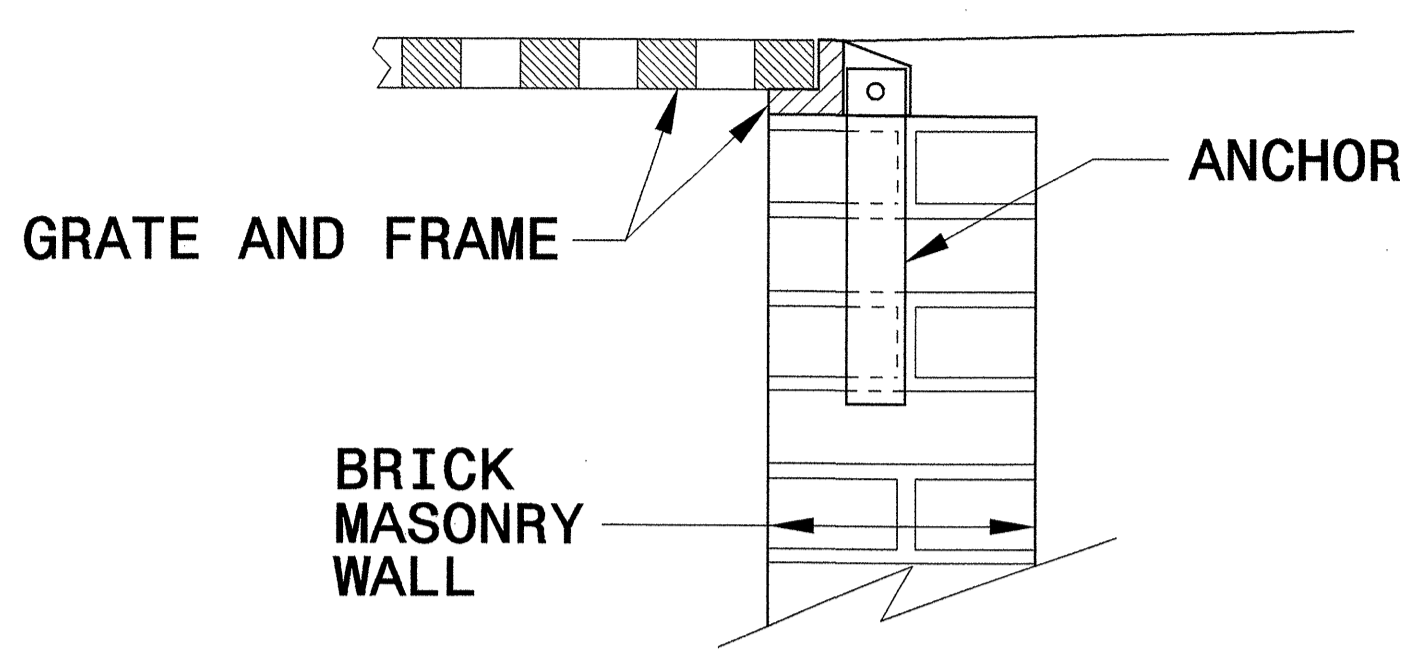
**Detail Showing Method of Wedging**

REVISIONS

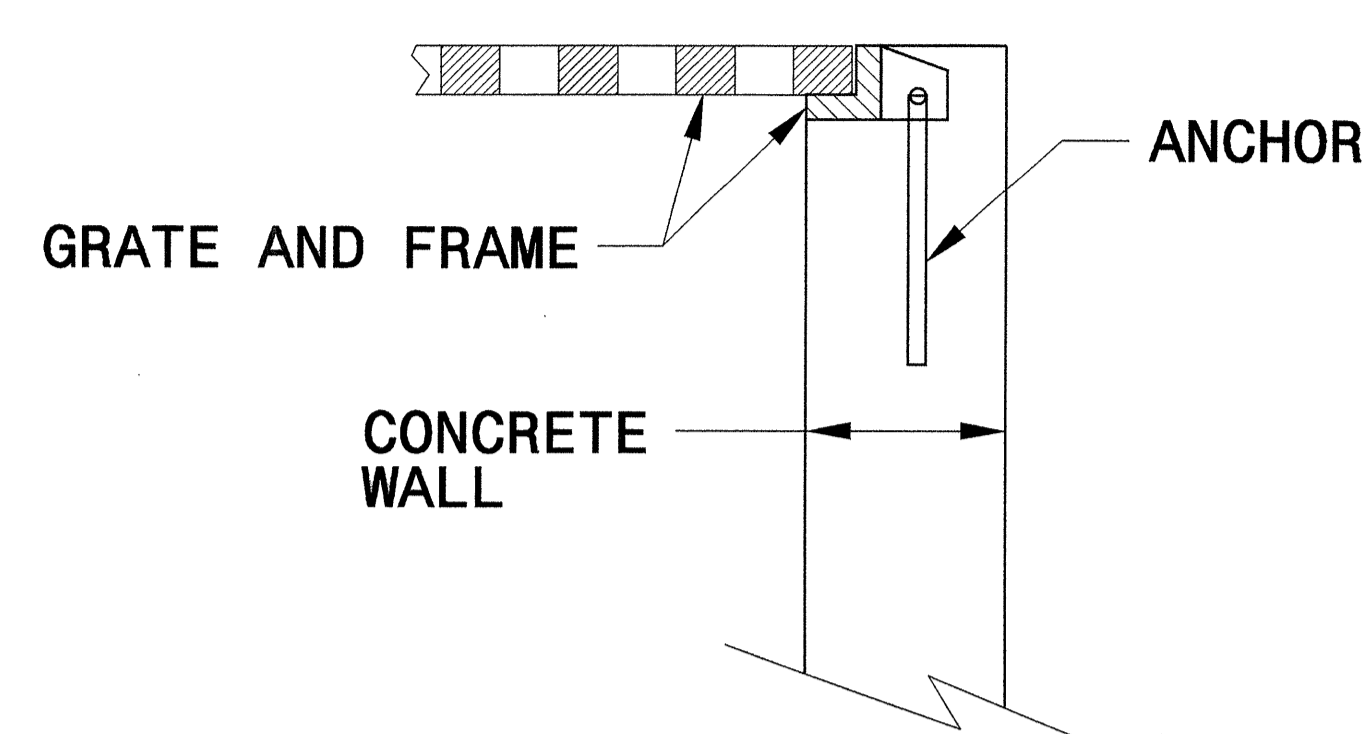
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

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

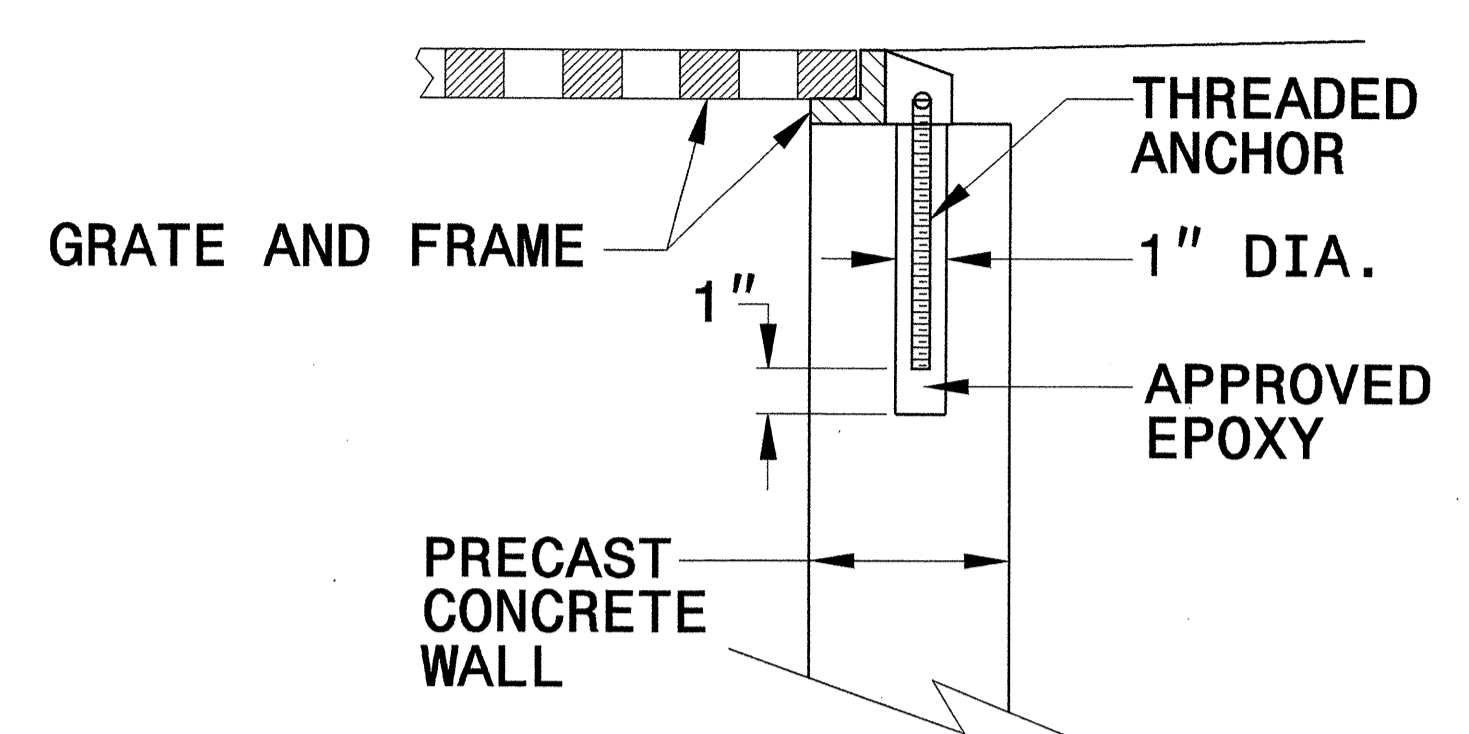
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY CONSTRUCTION**



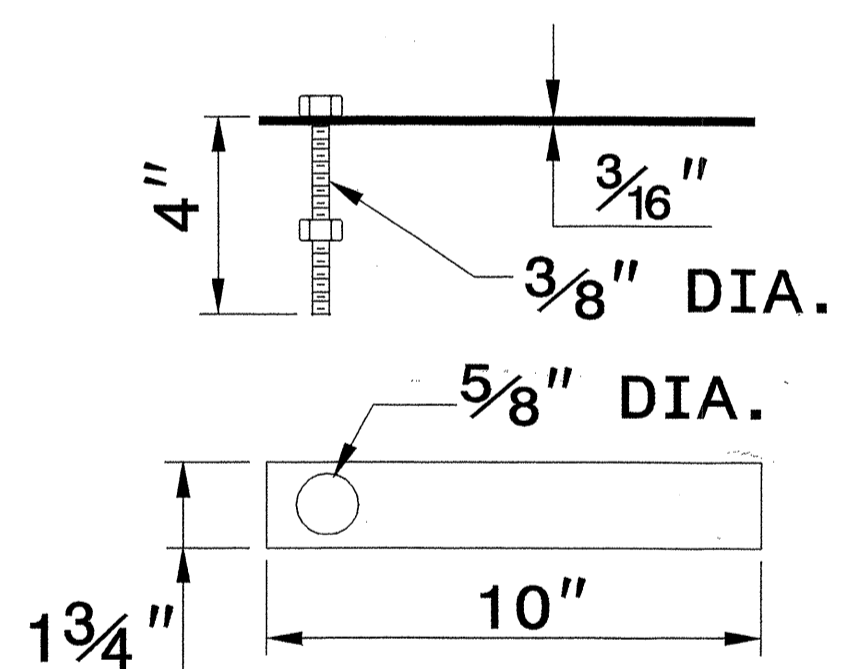
**CONCRETE CONSTRUCTION**



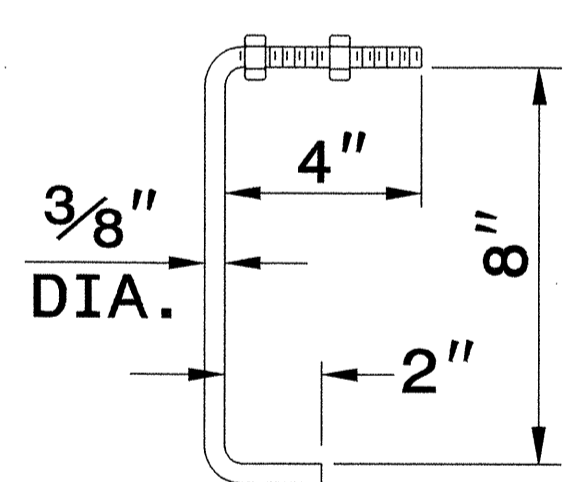
**PRECAST CONCRETE CONSTRUCTION**

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

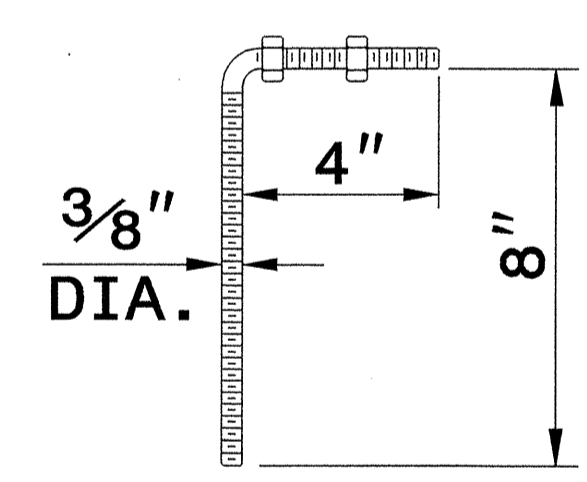
NOTE:  
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



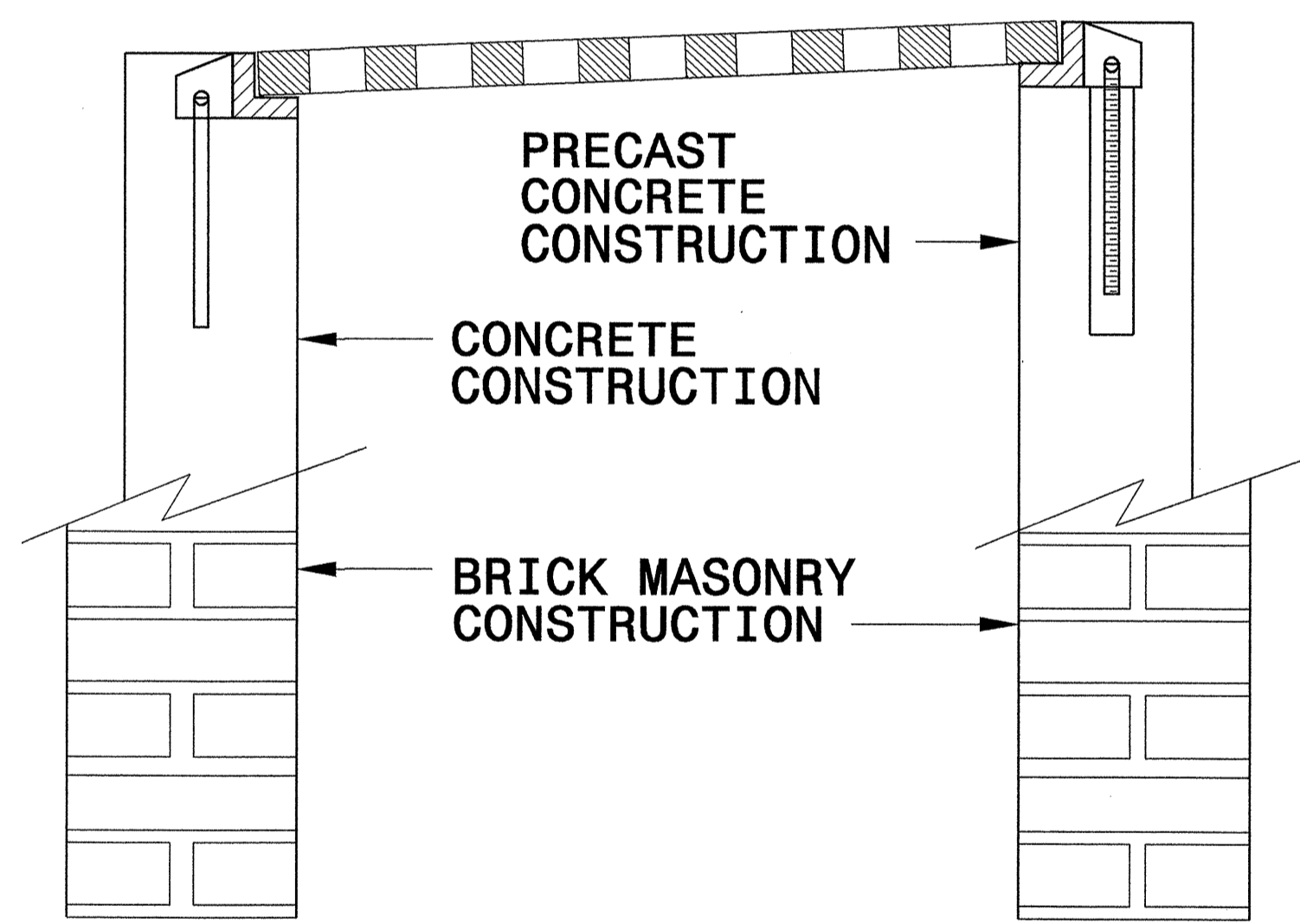
**MASONRY ANCHOR**  
3/8" DIA. BOLT WITH PLATE



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



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



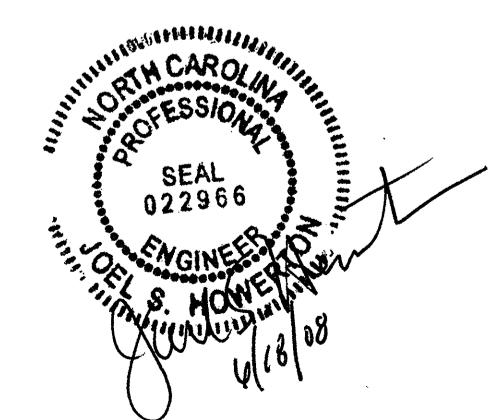
**FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS**

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**

SYSTEMS  
CONSULTANTS  
INCORPORATED  
1000 W. GARRISON  
AVENUE  
SUITE 100  
RALEIGH, NC 27601  
TEL: 919-250-4128  
FAX: 919-250-4119  
WWW.CSISYSTEMS.COM



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.:

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201925

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	500	CY	UNDERCUT EXCAVATION
0134000000-E	240	20	CY	DRAINAGE DITCH EXCAVATION
0196000000-E	270	500	SY	FABRIC FOR SOIL STABILIZATION
0234000000-E	SP	1,300	CY	GENERIC GRADING ITEM SELECT GRANULAR MATERIAL
0318000000-E	300	30	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0343000000-E	310	36	LF	15" SIDE DRAIN PIPE
0414000000-E	310	56	LF	60" RC PIPE CULVERTS, CLASS III
0708000000-E	310	100	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0995000000-E	340	22	LF	PIPE REMOVAL
1220000000-E	545	100	TON	INCIDENTAL STONE BASE
1489000000-E	610	590	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	320	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1525000000-E	610	380	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1560000000-E	620	70	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
2000000000-N	806	12	EA	RIGHT OF WAY MARKERS
2022000000-E	815	22.4	CY	SUBDRAIN EXCAVATION
2033000000-E	815	16.8	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	100	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	3	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)

ItemNumber	Sec #	Quantity	Unit	Description
2220000000-E	838	5.7	CY	REINFORCED ENDWALLS
2286000000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	2.5	LF	MASONRY DRAINAGE STRUCTURES
2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	875	LF	SHOULDER BERM GUTTER
3030000000-E	862	1,000	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3360000000-E	863	820	LF	REMOVE EXISTING GUARDRAIL
3628000000-E	876	115	TON	RIP RAP, CLASS I
3649000000-E	876	125	TON	RIP RAP, CLASS B
3656000000-E	876	505	SY	FILTER FABRIC FOR DRAINAGE
3659000000-N	SP	1	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
4400000000-E	1110	437	SF	WORK ZONE SIGNS (STATIONARY)
4410000000-E	1110	94	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4445000000-E	1145	64	LF	BARRICADES (TYPE III)
4810000000-E	1205	166,400	LF	PAINT PAVEMENT MARKING LINES (4")
4850000000-E	1205	79,400	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4900000000-N	1251	24	EA	PERMANENT RAISED PAVEMENT MARKERS
6000000000-E	1605	900	LF	TEMPORARY SILT FENCE
6006000000-E	1610	150	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	150	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	230	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	2	ACR	TEMPORARY MULCHING
6018000000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING

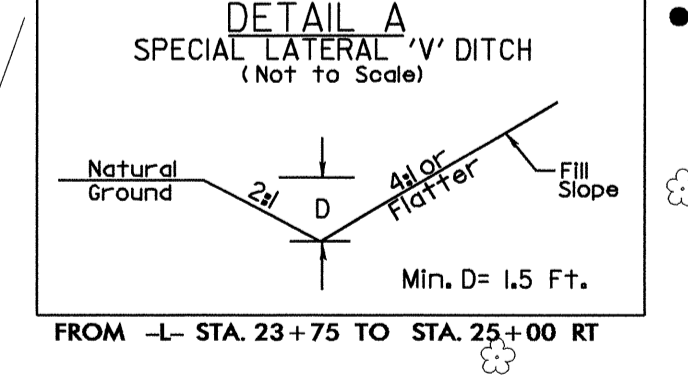
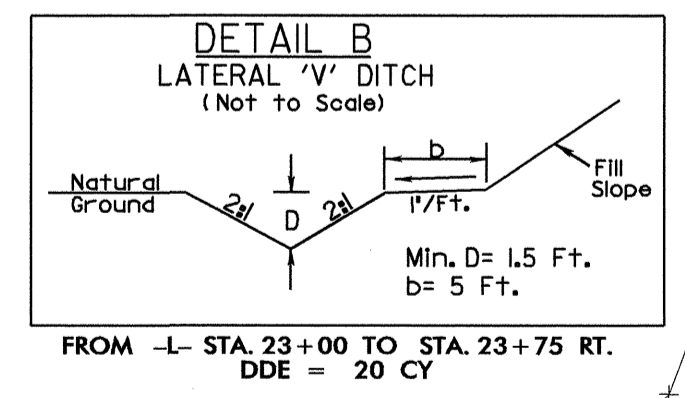
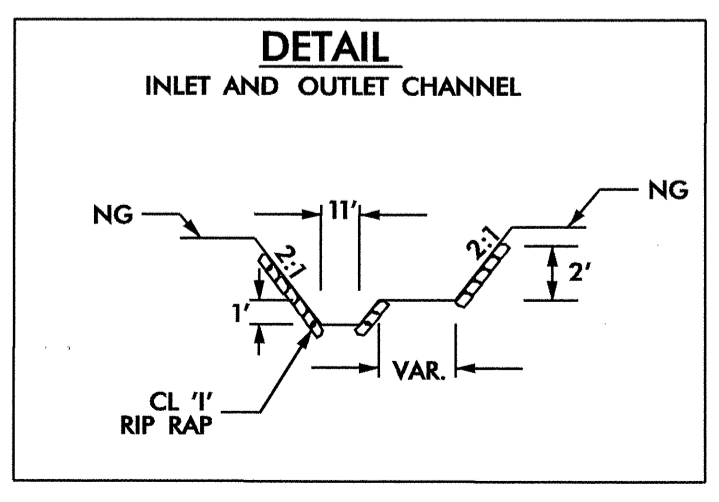
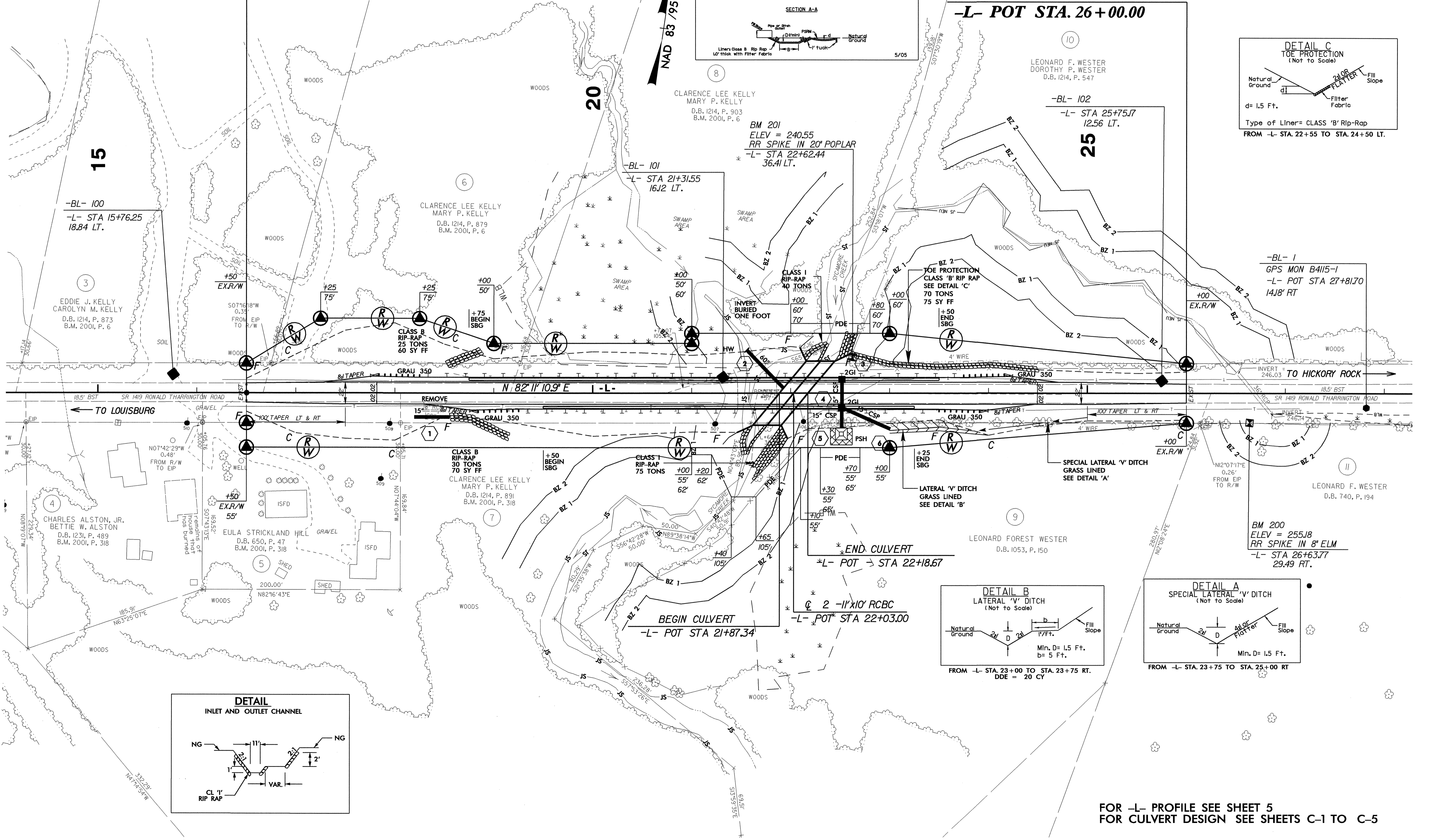
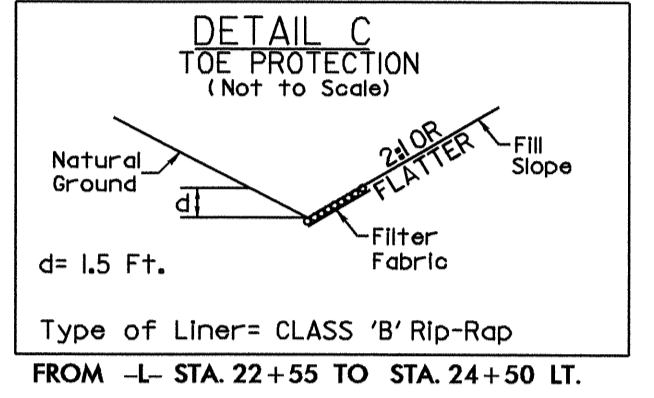
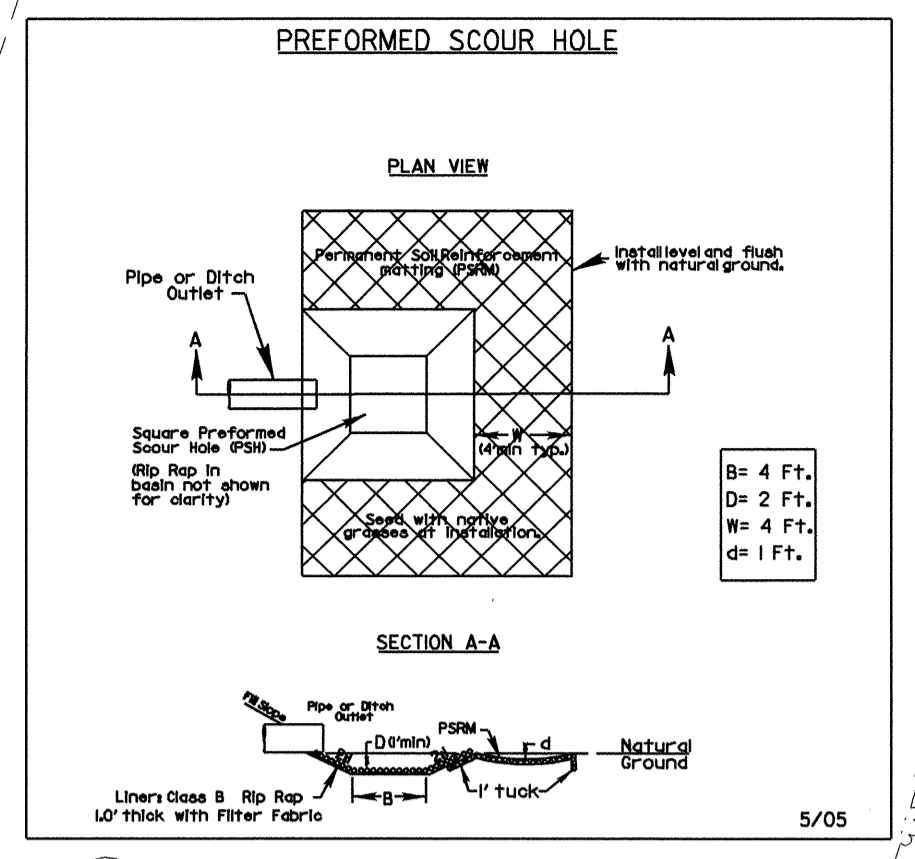
ItemNumber	Sec #	Quantity	Unit	Description
6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	125	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	4	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	925	LF	SAFETY FENCE
6030000000-E	1630	290	CY	SILT EXCAVATION
6036000000-E	1631	1,400	SY	MATting FOR EROSION CONTROL
6042000000-E	1632	300	LF	1/4" HARDWARE CLOTH
6070000000-N	SP	4	EA	SPECIAL STILLING BASINS
6071030000-E	SP	170	LF	COIR FIBER BAFFLES
6084000000-E	1660	2	ACR	SEEDING & MULCHING
6087000000-E	1660	1.5	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	1.5	TON	FERTILIZER TOPDRESSING
6111000000-E	SP	275	LF	IMPERVIOUS DIKE
6114000000-N	SP	2.5	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.1	ACR	REFORESTATION





**BEGIN TIP PROJECT B-4115**  
**-L- POT STA. 16+50.00**

**END TIP PROJECT B-4115**  
**-L- POT STA. 26+00.00**



FOR -L- PROFILE SEE SHEET 5  
FOR CULVERT DESIGN SEE SHEETS C-1 TO C-5

REVISIONS

8/17/09  
10-JUN-2008 13:14  
B-4115\_rdy\_psh04.dgn

5/14/99

PROJECT REFERENCE NO. <b>B-4115</b> ROADWAY DESIGN ENGINEER	SHEET NO. <b>5</b> HYDRAULICS ENGINEER
	6-17-03

**CULVERT HYDRAULIC DATA**

DESIGN DISCHARGE = 1100 CFS  
 DESIGN FREQUENCY = 25 YRS  
 DESIGN HW ELEVATION = 238.6 FT  
 BASE DISCHARGE = 1700 CFS  
 BASE FREQUENCY = 100 YRS  
 BASE HW ELEVATION = 240.8 FT  
 OVERTOPPING DISCHARGE = N/A CFS  
 OVERTOPPING FREQUENCY = 500+ YRS  
 OVERTOPPING ELEVATION = 247.96 FT

**BM # 201**  
RR SPIKE IN 20" POPLAR  
ELEV. 240.55'  
-L- STA 22+62.44, 36.41' LT

**BM # 200**  
RR SPIKE IN 8" ELM  
ELEV. 255.18'  
-L- STA 26+63.77, 29.49' RT

**-L-**

RIGHT DITCH -----

**BEGIN GRADE**  
-L- STA 16+50.00  
ELEV = 259.99'

**END GRADE**  
-L- STA 26+00.00  
ELEV = 252.08'

PI = 21+75.00  
EL = 242.00'  
VC = 850'  
K = 146

(-)-13.426%      (+)-2.3718%

**PROP. 2 @ 11'x10' RCBC**  
**BURIED 1' WITH 2' SILL**  
**IN WESTERN MOST**  
**BARREL ENTRANCE**

BEGIN DITCH GRADE RIGHT  
-L- STA 23+00  
ELEV = 240.40

DITCH GRADE RIGHT  
-L- STA 23+50  
ELEV = 242.00

DITCH GRADE RIGHT  
-L- STA 24+00  
ELEV = 243.40

DITCH GRADE RIGHT  
-L- STA 24+50  
ELEV = 245.40

END DITCH GRADE RIGHT  
-L- STA 25+00  
ELEV = 247.40

FOR -L- ALIGNMENT SEE SHEET 4

02\_MAY\_2008 14:2 b-4115\_r-dg-pl.dgn

