

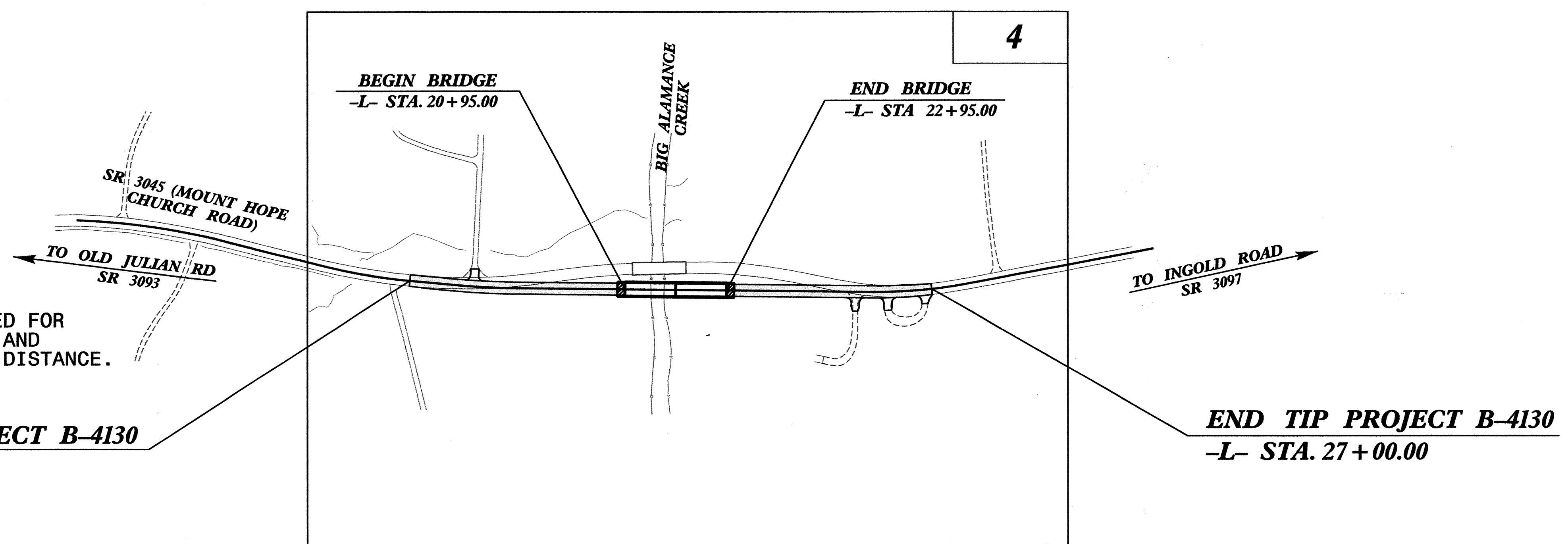
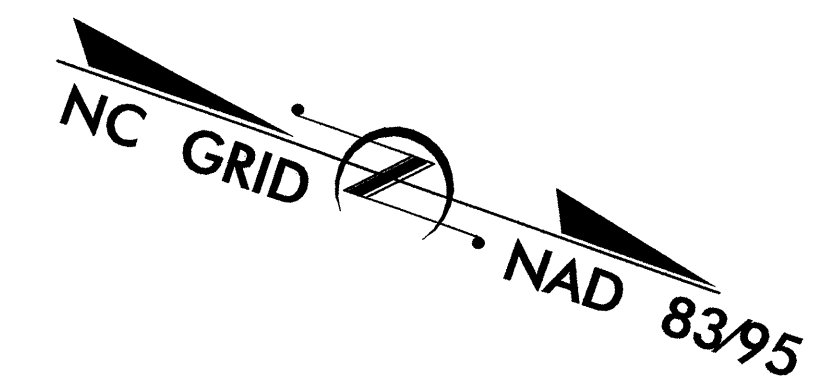
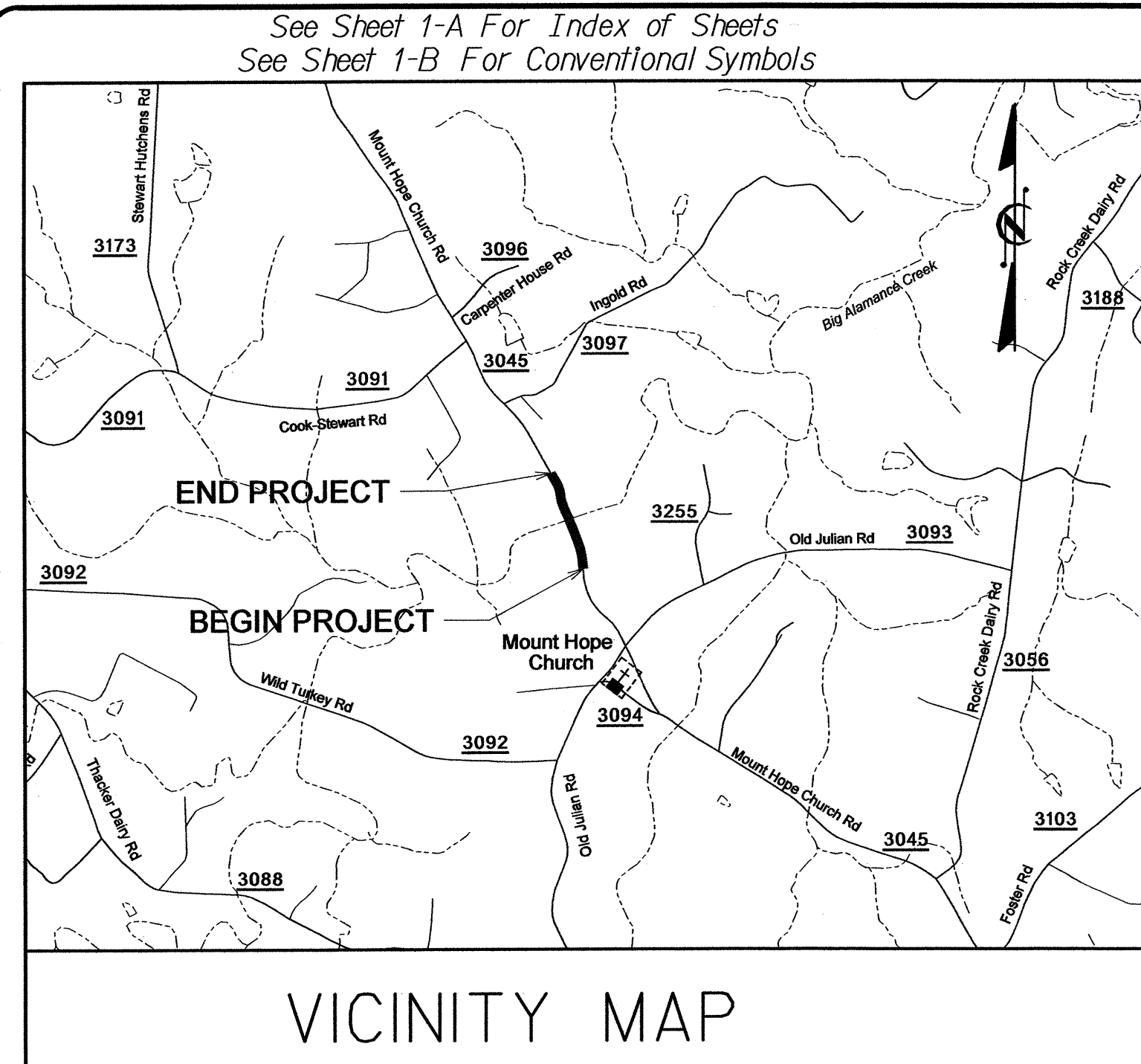
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4130	1	
WBS PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33483.1.1	BRZ-3045(2)	P.E.	
33483.2.1	BRZ-3045(2)	RW & UTIL.	
33483.3.1	BRZ-3045(2)	CONST.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

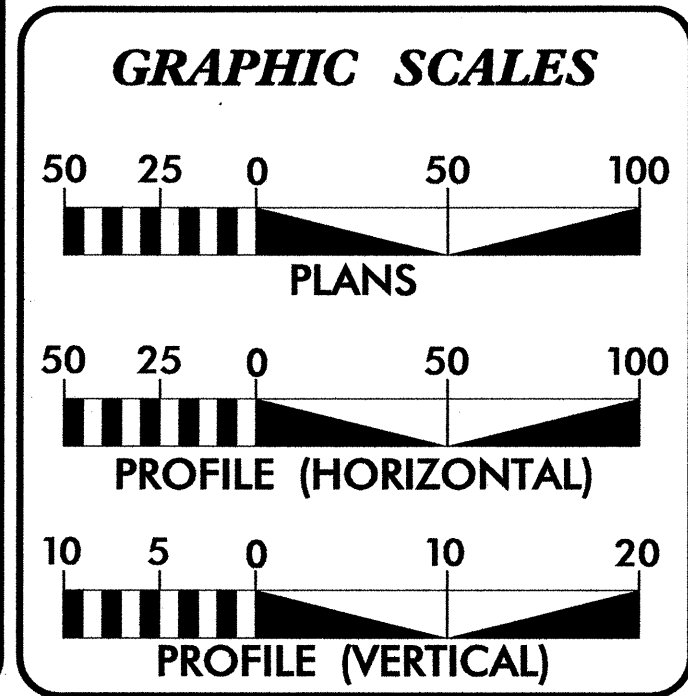
LOCATION: BRIDGE NO. 228 OVER BIG ALAMANCE CREEK ON SR 3045 (MOUNT HOPE CHURCH ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



NC DOT CONTACT: CATHY HOUSER, P.E.
ROADWAY DESIGN - ENGINEERING COORDINATION

CONTRACT: C201769 TIP PROJECT: B-4130



DESIGN DATA
(RURAL MINOR COLLECTOR)

ADT 2008 =	2350
ADT 2028 =	3950
DHV =	10 %
D =	65 %
T =	4 % *
** V =	50 MPH
* TTST 1%	DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4130	=	0.157 MI.
LENGTH STRUCTURE TIP PROJECT B-4130	=	0.038 MI.
TOTAL LENGTH OF TIP PROJECT B-4130	=	0.195 MI.

Prepared In the Office of:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 Schaub Dr., Suite 202 Raleigh NC 27606
(919) 851-6066

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 15, 2006

LETTING DATE: FEBRUARY 19, 2008

BRIAN A. WILES, P.E.
PROJECT ENGINEER

STEPHEN R. WHITLEY, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *Stephen R. Whitley* 9-07-07

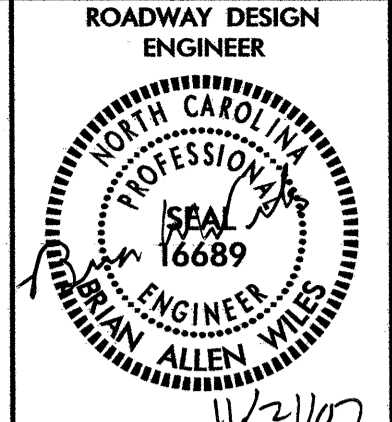
ROADWAY DESIGN ENGINEER

SIGNATURE: *Brian Allen Wiles* 9/17/07

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Art W. Miller
P.E.
STATE HIGHWAY DESIGN ENGINEER

8/31/2007 R:\Roadway\Proj\B4130_Rdy_tsh.dgn Ko & Associates, P.C.



INDEX OF SHEETS

SHEET NUMBER	DESCRIPTION
1	Title Sheet
1-A	Index of Sheets, General Notes and List of Standards
1-B	Conventional Symbols
1-C	Survey Control Sheet
1-D	Centerline Coordinate List
2	Typical Sections, Wedging Detail and Pavement Schedule
2-A	Anchorage for Frames Detail
3	Summary of Quantities
3-A	List of Pipes, Endwalls, Etc. (for Pipes 48" and Under) and Guardrail Summary
3-B	Summary of Earthwork and Summary of Pavement Removal
4	Plan Sheet
5	Profile Sheet
TCP-1 thru TCP-8	Traffic Control Plans
PM-1	Pavement Marking Plan
EC-1 thru EC-5	Erosion Control Plans
RF-1	Reforestation Plans
SIGN-1 thru SIGN-3	Signing Plans
UO-1 thru UO-2	Utility by Others
X-1	Cross Section Summary Sheet
X-2 thru X-7	Cross Sections
S-1 thru S-27	Structure Plans

GENERAL NOTES:

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

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUBSURFACE PLANS:

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

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 AT&T, Duke Energy and Time Warner.

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.

2006 ROADWAY STANDARD DRAWINGS

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

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'
310.10	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
815.03	Pipe Underdrain and Blind Drain
816.01	Concrete Pads - for Shoulder Drain Installation
816.04	Markers for Drainage Structure and Concrete Pad
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drainage 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

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	○
Property Corner	⊗
Property Monument	□
Parcel/Sequence Number	(23)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-WLB-
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	⊗
Foundation	□
Area Outline	□
Cemetery	⊕
Building	□
School	⊕
Church	⊕
Dam	⊕

HYDROLOGY:

Stream or Body of Water	_____
Hydro, Pool or Reservoir	□
Jurisdictional Stream	-JS-
Buffer Zone 1	-BZ 1-
Buffer Zone 2	-BZ 2-
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	*
Proposed Lateral, Tail, Head Ditch	_____
False Sump	◊

RAILROADS:

Standard Gauge	_____
RR Signal Milepost	○
Switch	□
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	⊕
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.

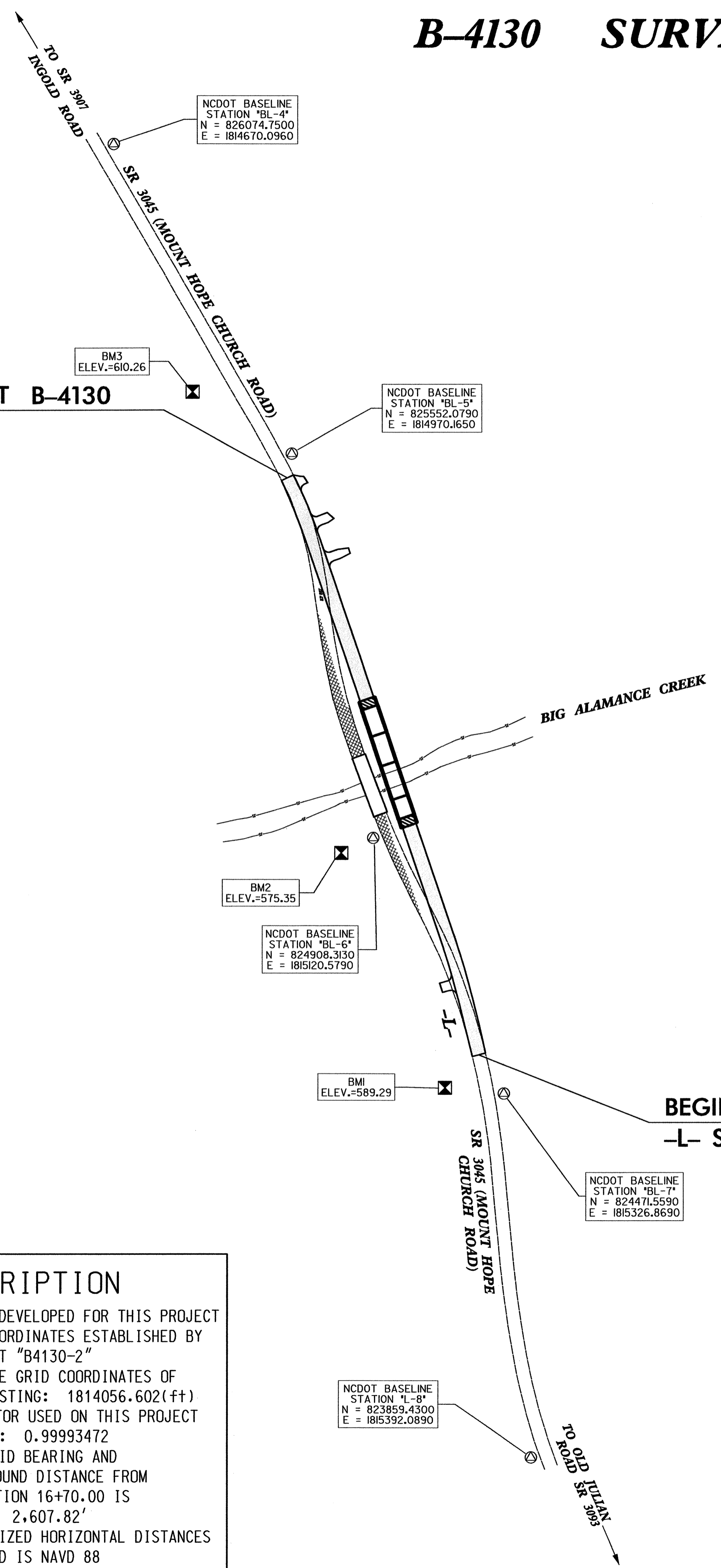
12/01/2005

PROJECT REFERENCE NO.	SHEET NO.
B-4130	1C
Location and Surveys	

B-4130 SURVEY CONTROL SHEET

END STATE PROJECT B-4130
-L- STA. 27+00.00

NC GRID
NAD 83/95



BASILINE DATA

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
8	B4130-8		823859.4300	1815392.0890	625.58	OUTSIDE PROJECT LIMITS	
7			824471.5590	1815326.8690	594.88	15+97.73	14.60 RT
6			824908.3130	1815120.5790	576.28	20+76.41	61.11 LT
5			825552.0790	1814970.1650	604.21	27+32.68	14.80 RT
4	B4130-4		826074.7500	1814670.0960	645.53	OUTSIDE PROJECT LIMITS	

BENCHMARK DATA

```

.....
BM1      ELEVATION = 589.29
N 824484      E 1815239
L STATION 16+27 69 LEFT
RR SPIKE IN BASE OF 18 INCH SYCAMORE
.....
BM2      ELEVATION = 575.35
N 824894      E 1815058
L STATION 20+83 125 LEFT
RR SPIKE IN BASE OF TWIN POPLAR
.....
BM3      ELEVATION = 610.26
N 825661      E 1814811
L STATION 29+06 69 LEFT
RR SPIKE IN BASE OF 8 INCH CEDAR
.....
    
```

BEGIN STATE PROJECT B-4130
-L- STA. 16+70.00

NOTES

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.NC.DOT.ORG/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.nc.dot.org/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:
b4030_ls_control_060206.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)

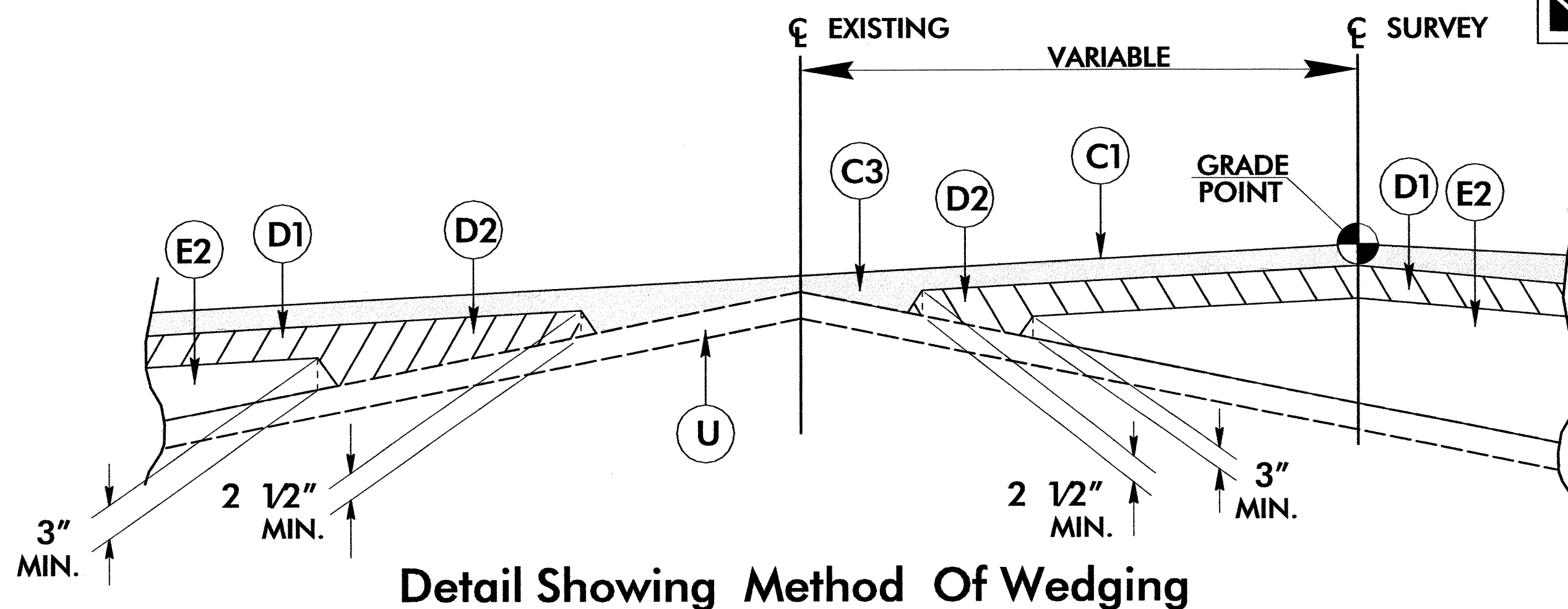
DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4130-2"
 WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
 NORTHING: 826833.363(ft) EASTING: 1814056.602(ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99993472
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4130-2" TO -L- STATION 16+70.00 IS
 S 28°24'21.8" E 2,607.82'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

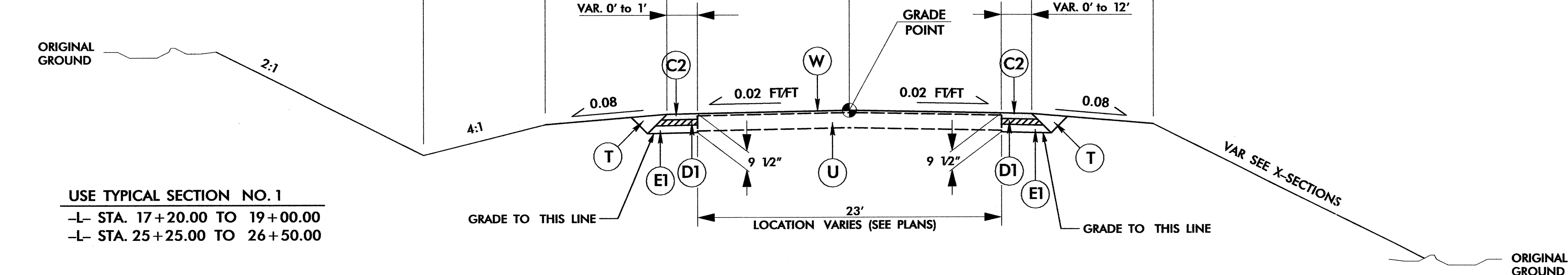
8/3/2007
P:\Roadway\Proj\B4130\ls-1c.dgn
C. A. ESCOBAR, P.E.

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 4" IN DEPTH.
D1	PROP. APPROX. 2½" 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 2½" 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 5½" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT.

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



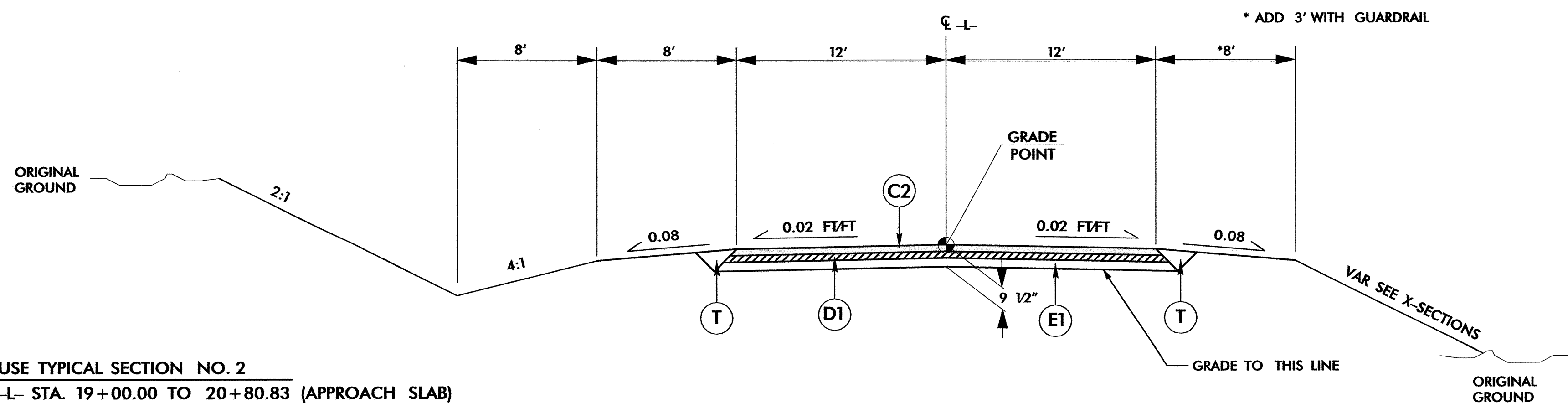
TRANSITION FROM EXISTING TO T.S. NO. 1
 -L- STA. 16+70.00 TO 17+20.00



USE TYPICAL SECTION NO. 1
 -L- STA. 17+20.00 TO 19+00.00
 -L- STA. 25+25.00 TO 26+50.00

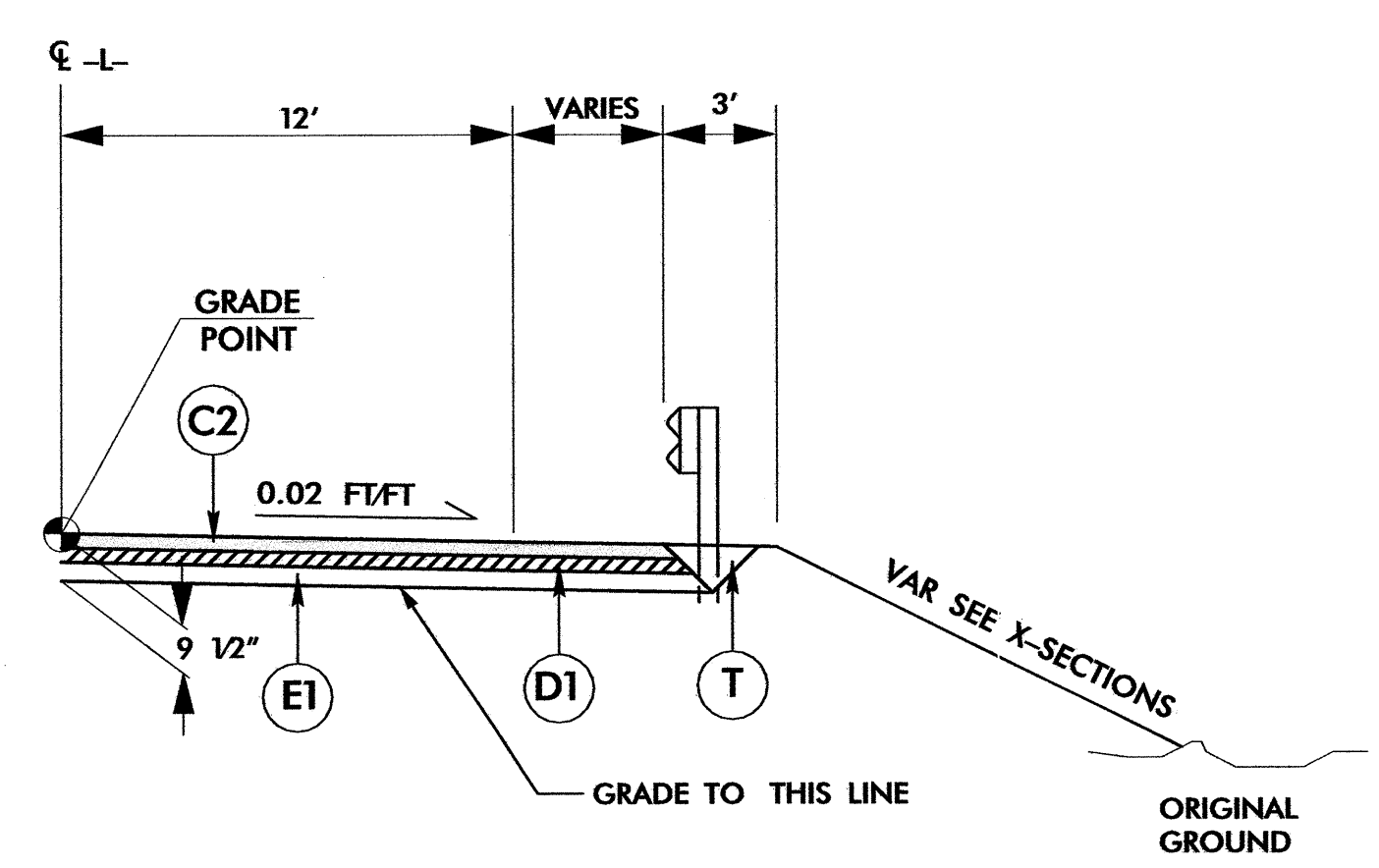
TYPICAL SECTION NO. 1
 -L- (SR 3045)

TRANSITION FROM T.S. NO. 1 TO EXISTING
 -L- STA. 26+50.00 TO 27+00.00



USE TYPICAL SECTION NO. 2
 -L- STA. 19+00.00 TO 20+80.83 (APPROACH SLAB)
 -L- STA. 23+09.17 (APPROACH SLAB) TO 25+25.00

TYPICAL SECTION NO. 2
 -L- (SR 3045)



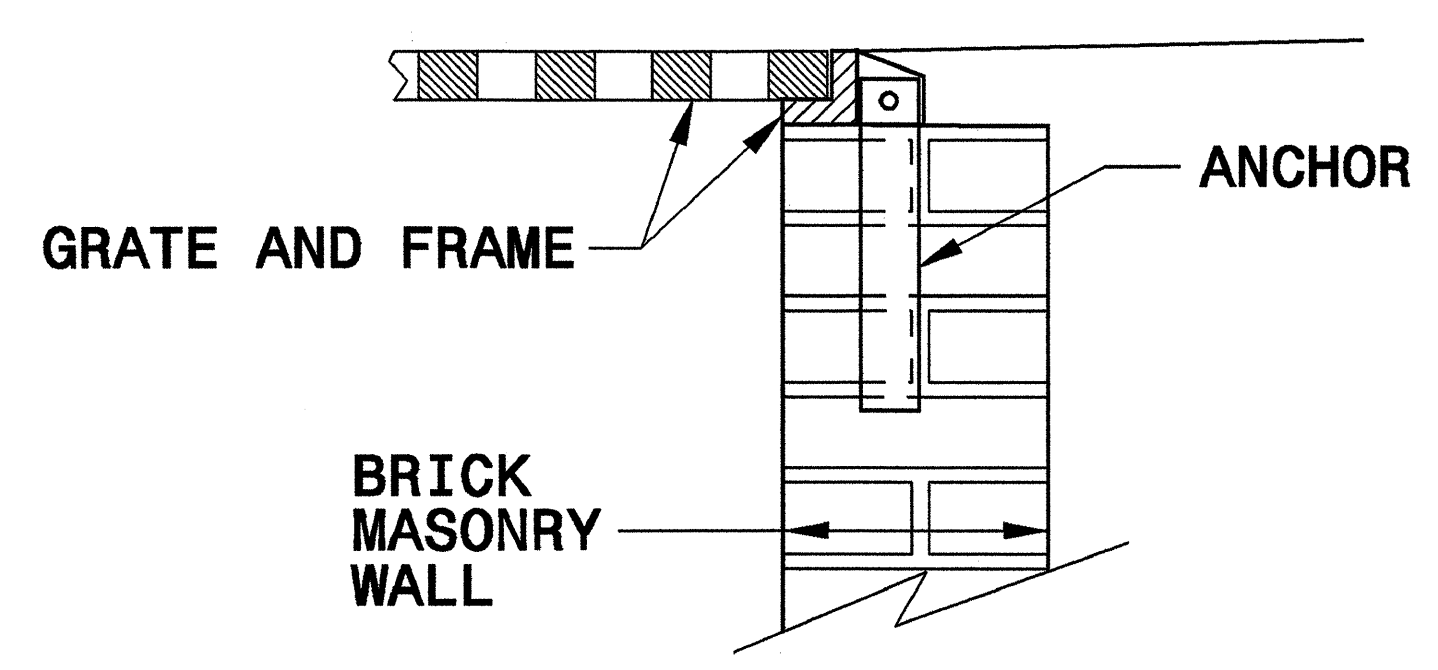
PAVED SHOULDER DETAIL

6/2/09
 11/27/2007
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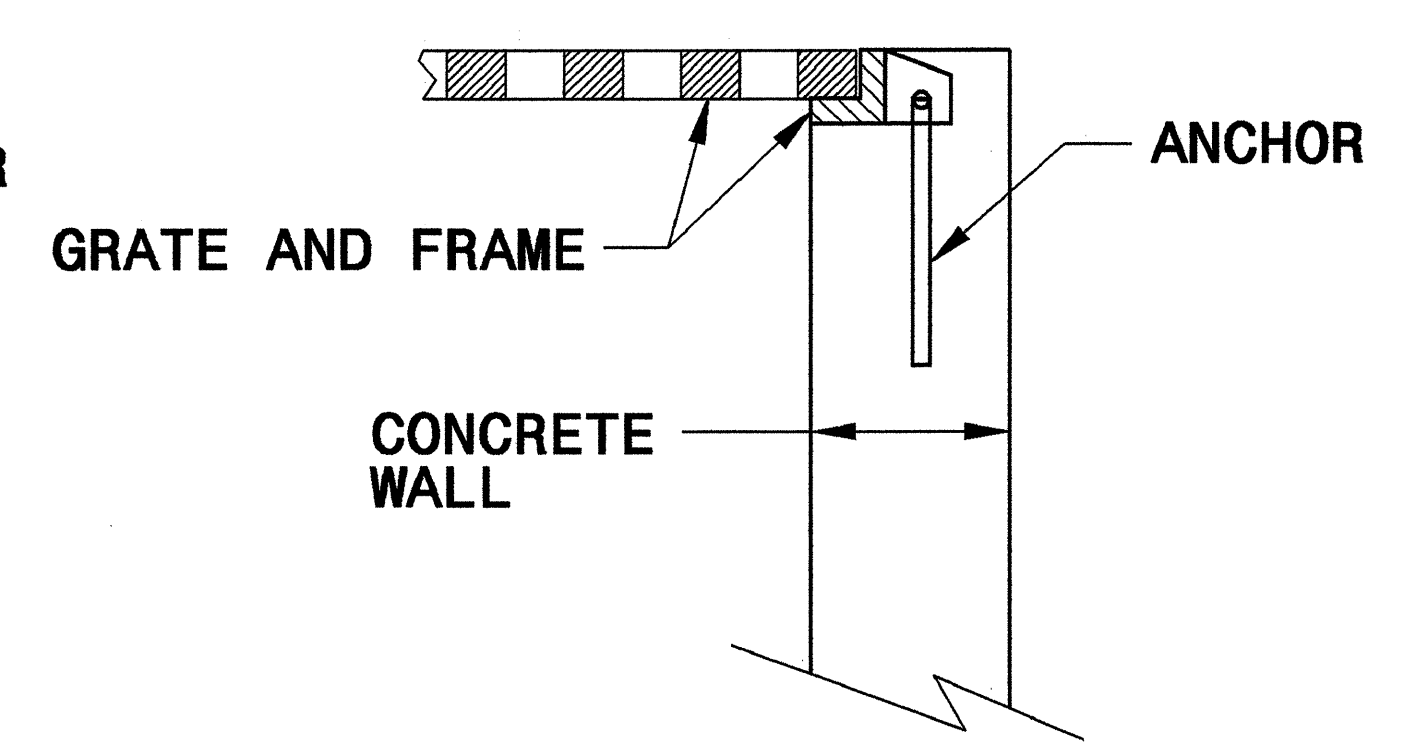
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

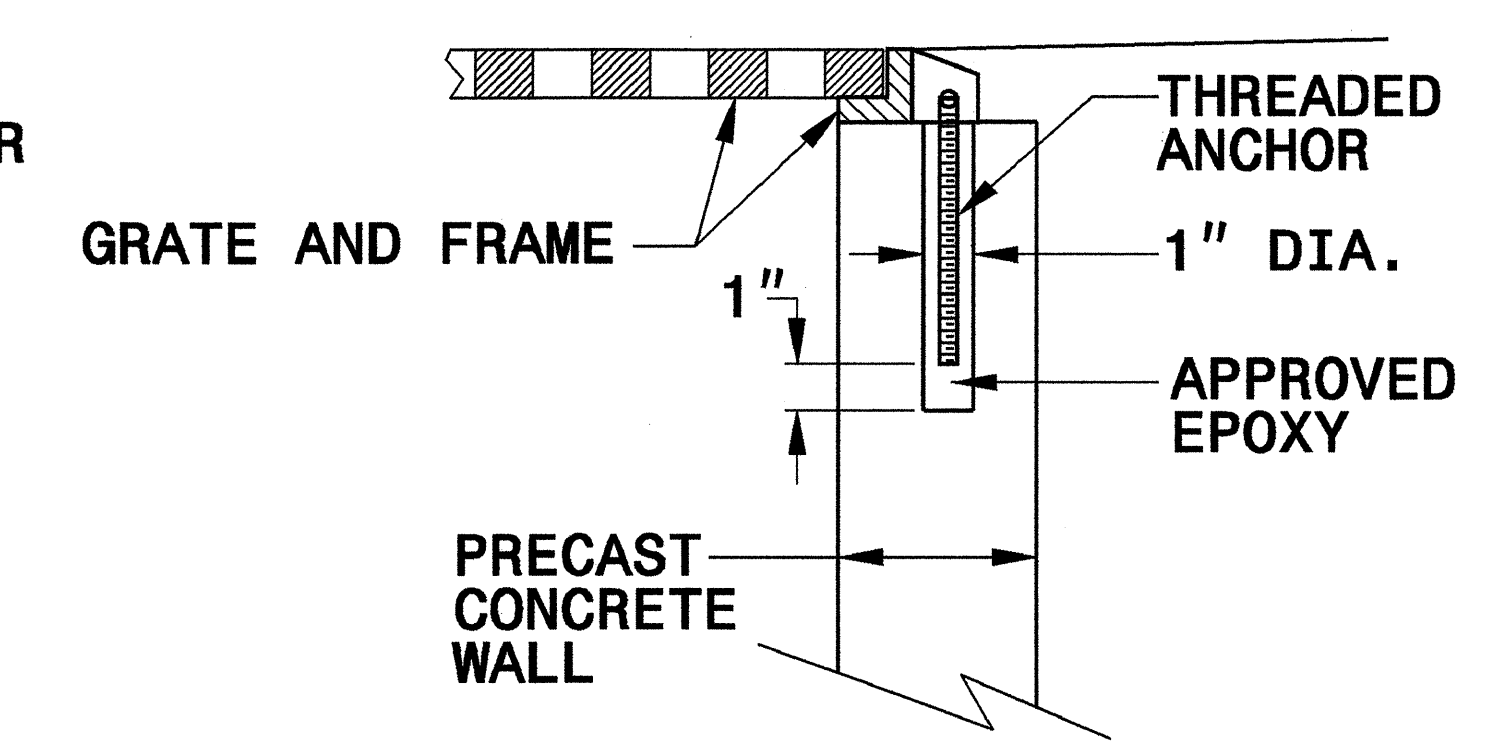
SHEET 1 OF 1
840D25



**BRICK MASONRY
CONSTRUCTION**



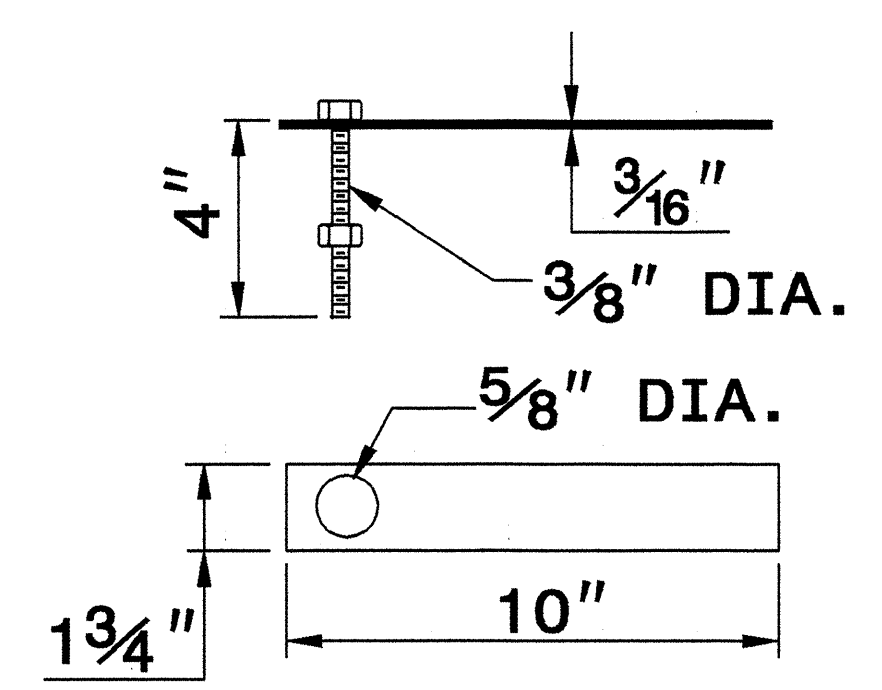
**CONCRETE
CONSTRUCTION**



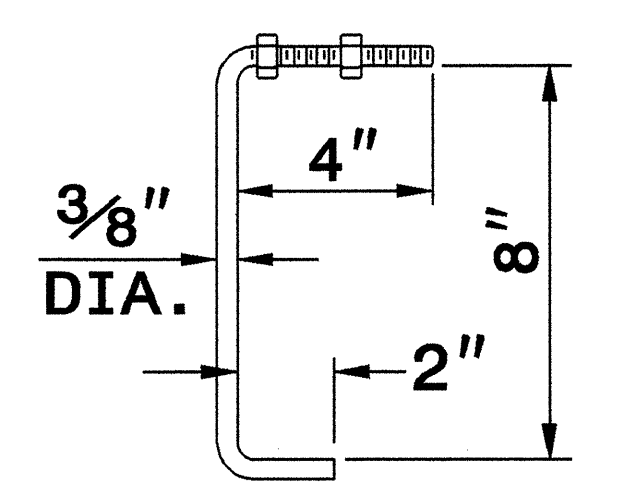
**PRECAST CONCRETE
CONSTRUCTION**

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

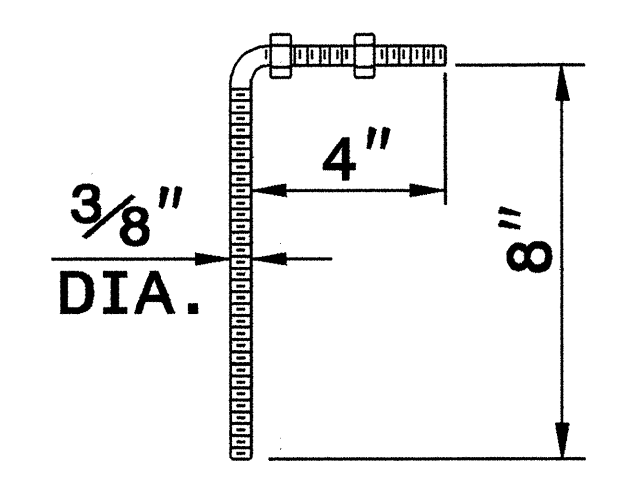
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL
OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



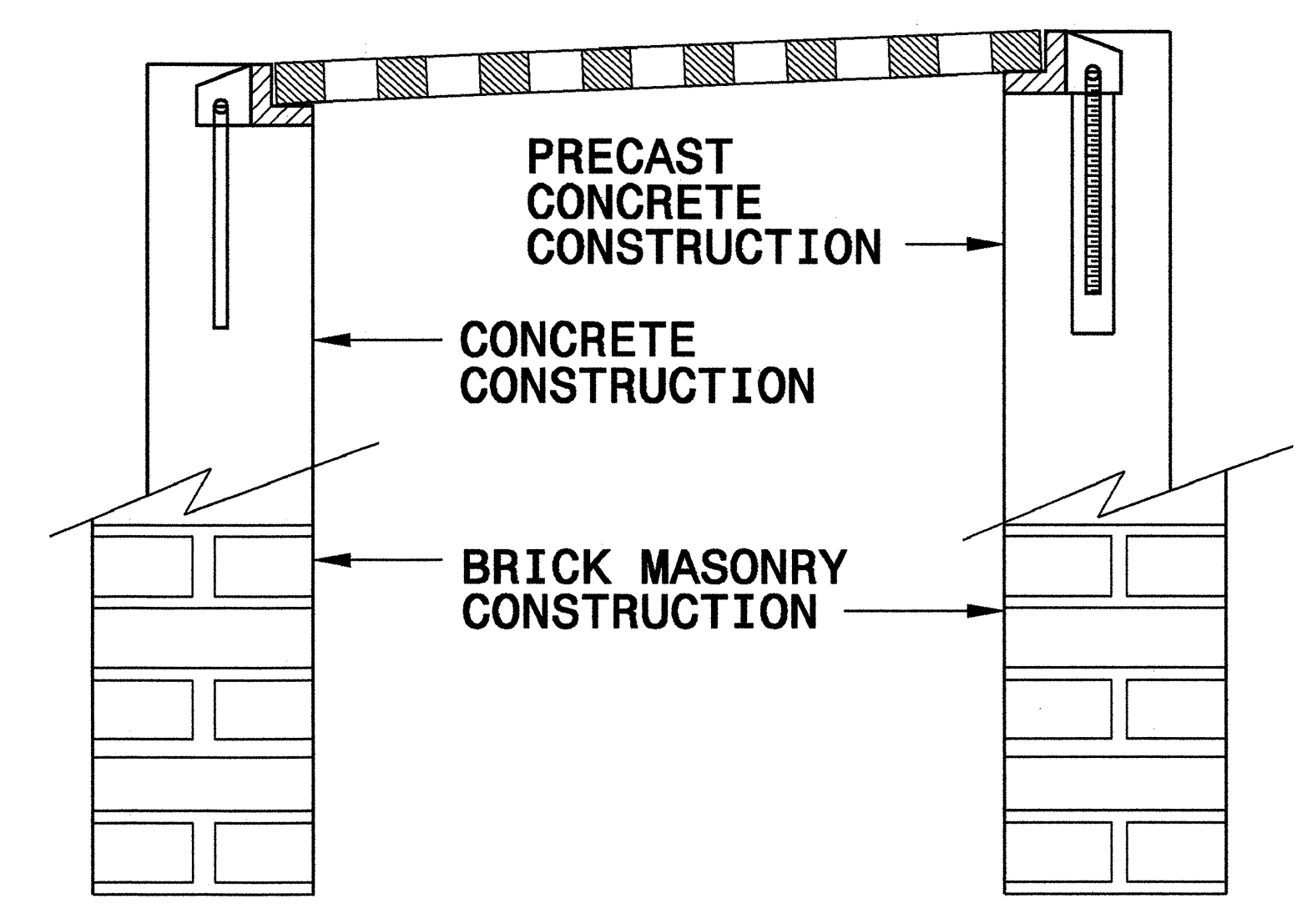
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



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



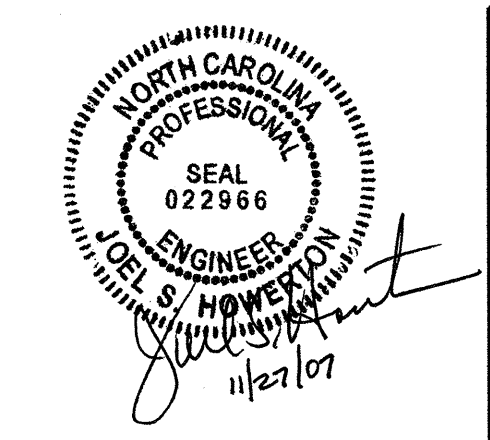
**FRAME AND GRATE INSTALLATION
FOR NORMAL CROWN AND
SUPERELEVATED SECTIONS**

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

27-SEP-2006 08:59 S:\Contracts\Standards\Special Details\ward\stds\06: Stds to Special Details\840D25 Anchorage for Frames\0840d25.dgn AT PS222293



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 - C201769

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (21+95.00)
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	500	CY	UNDERCUT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING
0080000000-E	SP	100	TON	CLASS IV SUBGRADE STABILIZATION
0106000000-E	230	5,500	CY	BORROW EXCAVATION
0134000000-E	240	40	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	400	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	400	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	20	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0344000000-E	310	72	LF	18" SIDE DRAIN PIPE
0708000000-E	310	52	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0995000000-E	340	61	LF	PIPE REMOVAL
1220000000-E	545	100	TON	INCIDENTAL STONE BASE
1330000000-E	607	100	SY	INCIDENTAL MILLING
1489000000-E	610	600	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	350	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE 119.0B
1519000000-E	610	450	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1560000000-E	620	70	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
2000000000-N	806	19	EA	RIGHT OF WAY MARKERS
2022000000-E	815	70	CY	SUBDRAIN EXCAVATION
2033000000-E	815	55	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	300	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	9	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS

ItemNumber	Sec #	Quantity	Unit	Description
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
2286000000-N	840	3	EA	MASONRY DRAINAGE STRUCTURES
2366000000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.24
2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	56	LF	SHOULDER BERM GUTTER
3030000000-E	862	450	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3628000000-E	876	30	TON	RIP RAP, CLASS I
3649000000-E	876	75	TON	RIP RAP, CLASS B
3656000000-E	876	580	SY	FILTER FABRIC FOR DRAINAGE
4025000000-E	901	5	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (E)
4072000000-E	903	13	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4102000000-N	904	1	EA	SIGN ERECTION, TYPE E
4155000000-N	907	11	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4400000000-E	1110	48	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	52	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4420000000-N	1120	2	EA	CHANGEABLE MESSAGE SIGN
4430000000-N	1130	50	EA	DRUMS
4435000000-N	1135	50	EA	CONES
4445000000-E	1145	32	LF	BARRICADES (TYPE III)
4450000000-N	1150	640	HR	FLAGGER

ItemNumber	Sec #	Quantity	Unit	Description
4465000000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS
4480000000-N	1165	2	EA	TMA
4485000000-E	1170	650	LF	PORTABLE CONCRETE BARRIER
4650000000-N	1251	103	EA	TEMPORARY RAISED PAVEMENT MARKERS
4810000000-E	1205	23,420	LF	PAINT PAVEMENT MARKING LINES (4")
4900000000-N	1251	13	EA	PERMANENT RAISED PAVEMENT MARKERS
6000000000-E	1605	1,000	LF	TEMPORARY SILT FENCE
6006000000-E	1610	75	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	310	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	190	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	2.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.5	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	35	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	1	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	250	LF	SAFETY FENCE
6030000000-E	1630	1,025	CY	SILT EXCAVATION
6036000000-E	1631	885	SY	MATTING FOR EROSION CONTROL
6038000000-E	SP	210	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	60	LF	1/4" HARDWARE CLOTH
6070000000-N	SP	4	EA	SPECIAL STILLING BASINS
6071030000-E	SP	300	LF	COIR FIBER BAFFLES
6084000000-E	1660	2.5	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	2	TON	FERTILIZER TOPDRESSING
6114000000-N	SP	2	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.5	ACR	REFORESTATION

***** BEGIN SCHEDULE AA *****				
***** (3 ALTERNATES) *****				
0366000000-E	310	44	LF	15" RC PIPE CULVERTS, CLASS III
AA1				
*** OR ***				
0366000000-E	310	28	LF	15" RC PIPE CULVERTS, CLASS III
AA2				
0536000000-E	SP	16	LF	*** HDPE PIPE CULVERTS (15")
AA2				
*** OR ***				
0366000000-E	310	28	LF	15" RC PIPE CULVERTS, CLASS III
AA3				
0540000000-E	SP	16	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (15", 0.064")
AA3				
***** END SCHEDULE AA *****				

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8/3/2007
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C & Associates, P.C.

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK
 IN CUBIC YARDS

SUMMARY OF PAVEMENT REMOVAL
 IN SQUARE YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
SUMMARY NO. 1					
-L- 16+70 TO 20+95	1274		1769	495	
TOTAL SUMMARY NO. 1	1274		1769	495	
SUMMARY NO. 2					
-L- 22+95 TO 27+00	181		4553	4372	
TOTAL SUMMARY NO. 2	181		4553	4372	
SUB-TOTAL SUMMARY NOS. 1 & 2	1455		6322	4867	
LOSS DUE TO CLEARING & GRUBBING	-300			300	
EST. 5% REPLACE TOPSOIL ON BORROW PITS				258	
GRAND TOTALS	1155		6322	5425	
SAY	1200			5500	

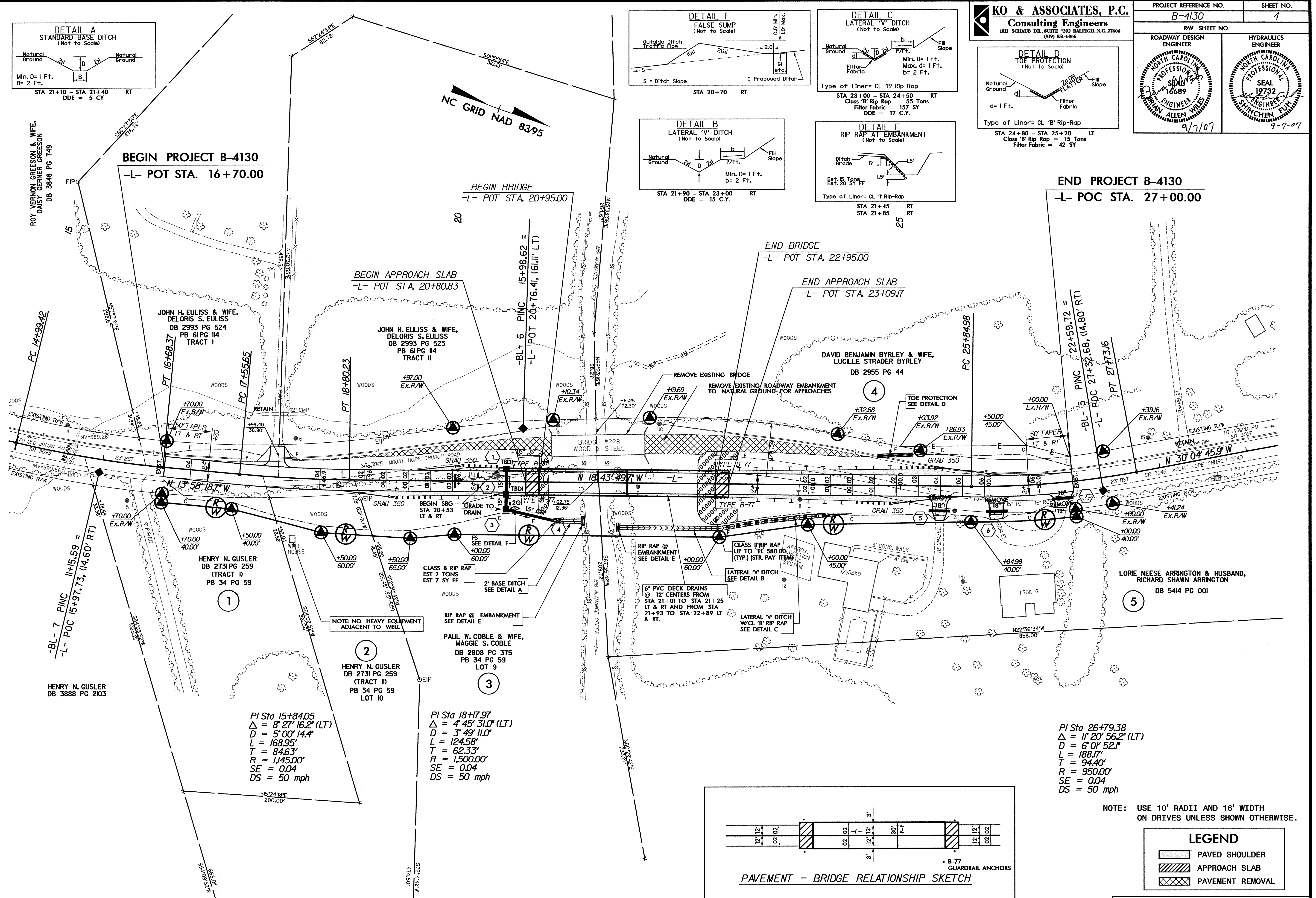
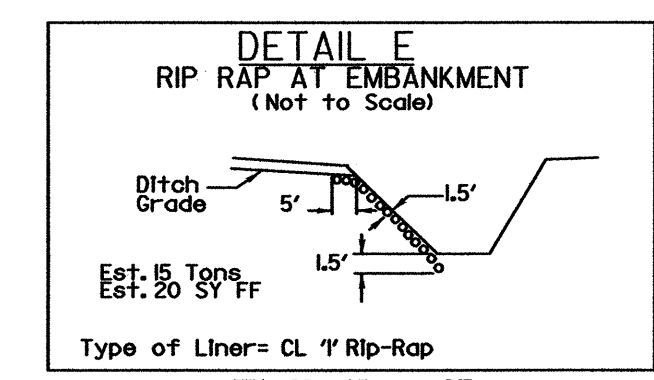
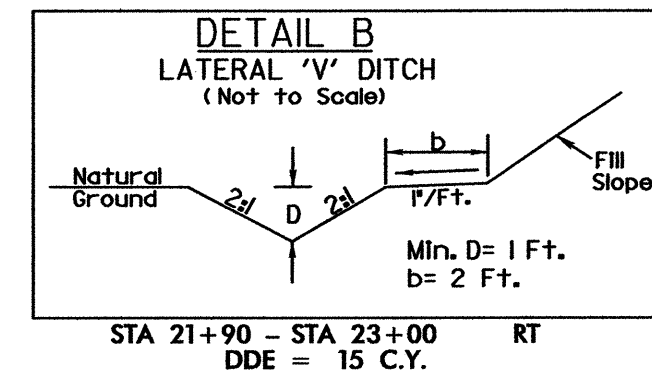
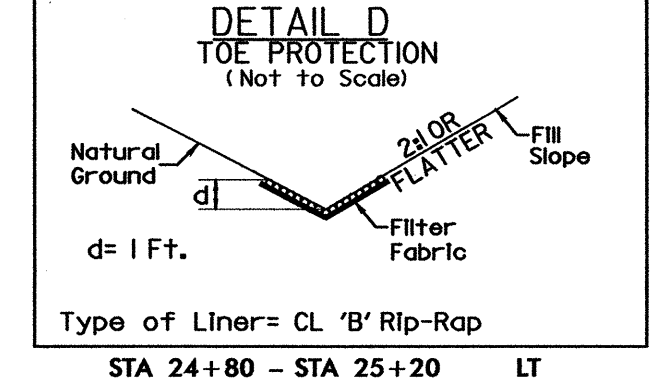
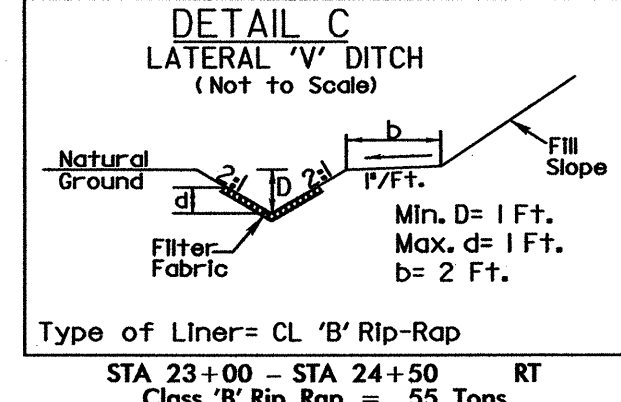
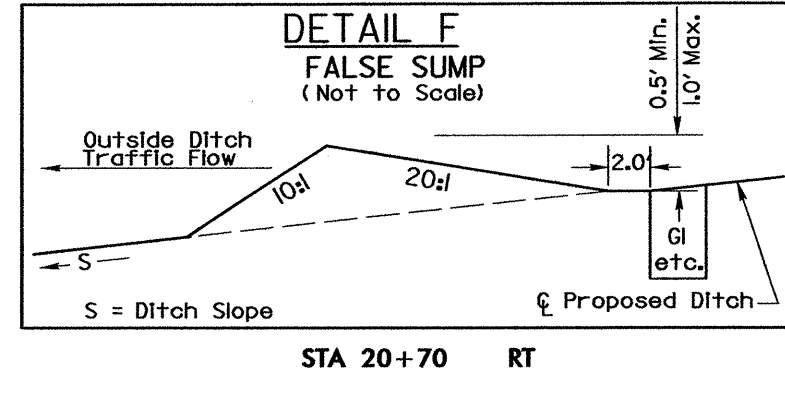
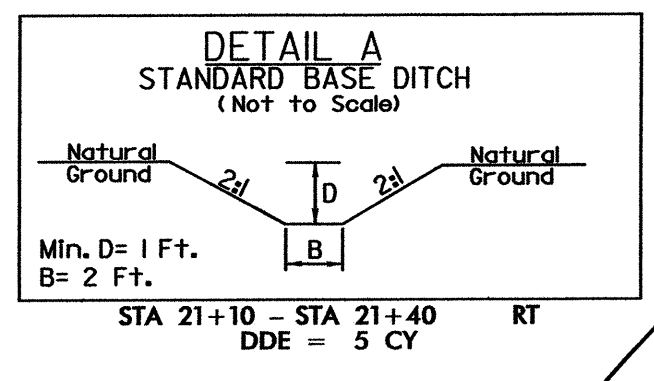
LOCATION	ASPHALT REMOVAL	ASPHALT BREAK-UP	CONCRETE REMOVAL	CONCRETE BREAK-UP
-L- 17+50 TO -L- 19+00	139			
-L- 19+00 TO -L- 21+10	513			
-L- 22+15 TO -L- 25+25	758			
-L- 25+25 TO -L- 26+00	36			
TOTAL	1446			
SAY	1450			

ESTIMATED DRAINAGE DITCH EXCAVATION = 40 CY
 ESTIMATED UNDERCUT EXCAVATION = 500 CY
 SELECT GRANULAR MATERIAL = 400 CY
 CL IV SUBGRADE STABILIZATION = 100 TONS

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

Note: Approximate quantities only. Unclassified Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

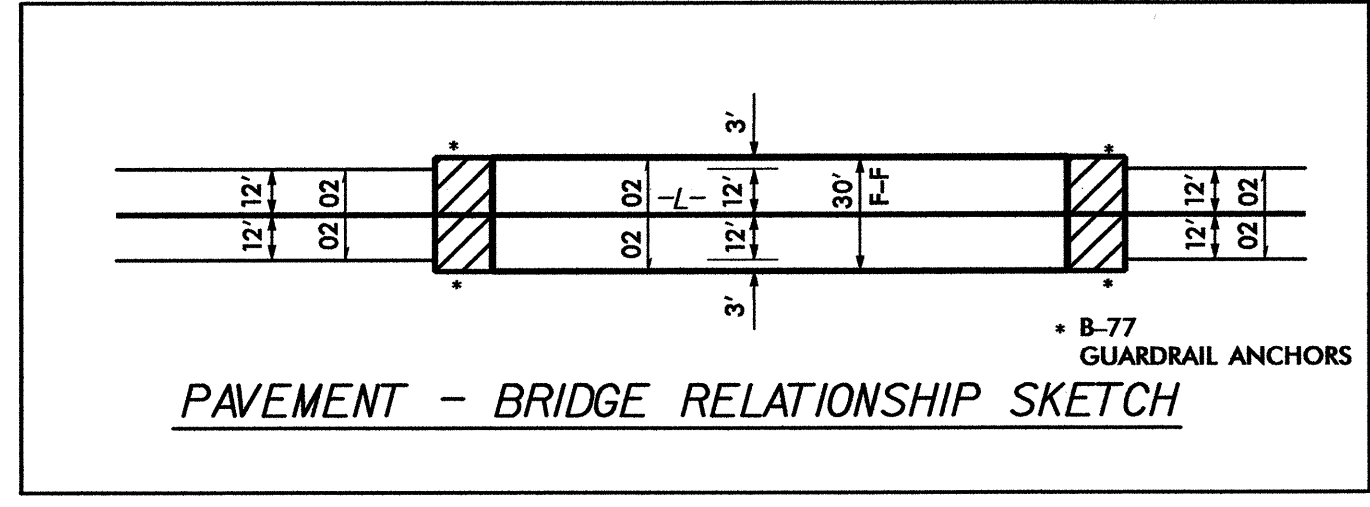
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 R. A. WILES



PI Sta 15+84.05
 $\Delta = 8' 27' 16.2''$ (LT)
 $D = 5' 00' 14.4''$
 $L = 168.95'$
 $T = 84.63'$
 $R = 1,450.00'$
 $SE = 0.04$
 $DS = 50$ mph

PI Sta 18+17.97
 $\Delta = 4' 45' 31.0''$ (LT)
 $D = 3' 49' 11.0''$
 $L = 124.58'$
 $T = 62.33'$
 $R = 1,500.00'$
 $SE = 0.04$
 $DS = 50$ mph

PI Sta 26+79.38
 $\Delta = 11' 20' 56.2''$ (LT)
 $D = 6' 01' 52.1''$
 $L = 188.17'$
 $T = 94.40'$
 $R = 950.00'$
 $SE = 0.04$
 $DS = 50$ mph



NOTE: USE 10' RADII AND 16' WIDTH ON DRIVES UNLESS SHOWN OTHERWISE.

LEGEND	
	PAVED SHOULDER
	APPROACH SLAB
	PAVEMENT REMOVAL

FOR -L- PROFILE, SEE SHEET NO. 5
 FOR STRUCTURE PLANS, SEE SHEETS S-1 THRU S-27

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 8/2/2007
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5/28/99

B.M.*1 EL = 589.29'
RR SPIKE IN BASE OF 18" SYCAMORE TREE
7'4" LT OF -BL- STA 11+64
69' LT OF -L- STA 16+27

KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUER DR., SUITE 202 RALEIGH, N.C. 27606
(919) 881-6066

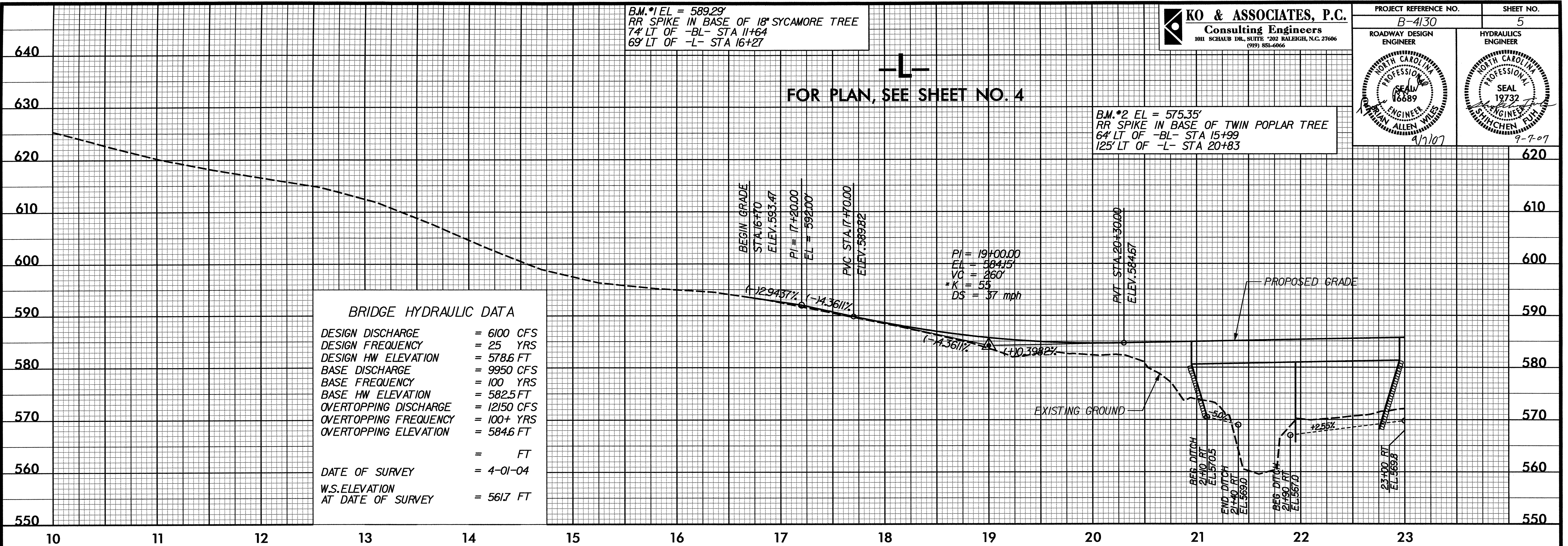
PROJECT REFERENCE NO. B-4130	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

FOR PLAN, SEE SHEET NO. 4

B.M.*2 EL = 575.35'
RR SPIKE IN BASE OF TWIN POPLAR TREE
6'4" LT OF -BL- STA 15+99
125' LT OF -L- STA 20+83

BRIDGE HYDRAULIC DATA

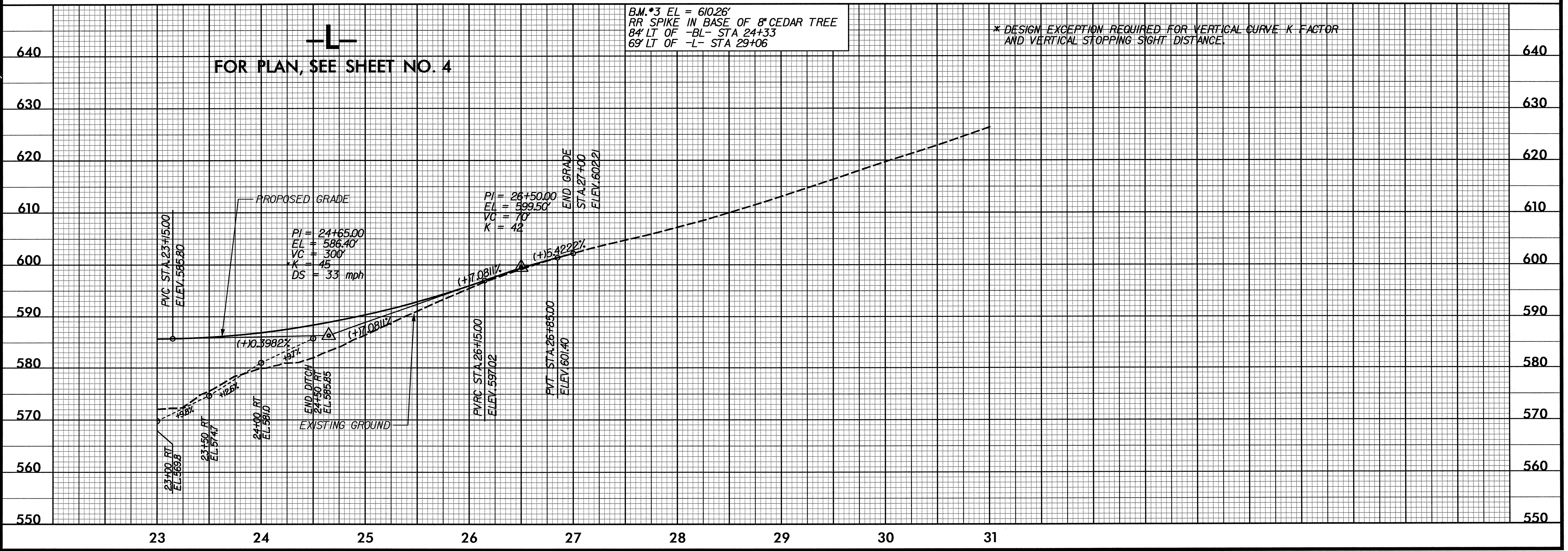
DESIGN DISCHARGE	= 6100 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 578.6 FT
BASE DISCHARGE	= 9950 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 582.5 FT
OVERTOPPING DISCHARGE	= 12150 CFS
OVERTOPPING FREQUENCY	= 100+ YRS
OVERTOPPING ELEVATION	= 584.6 FT
DATE OF SURVEY	= 4-01-04
W.S. ELEVATION AT DATE OF SURVEY	= 561.7 FT



B.M.*3 EL = 610.26'
RR SPIKE IN BASE OF 8" CEDAR TREE
8'4" LT OF -BL- STA 24+33
69' LT OF -L- STA 29+06

* DESIGN EXCEPTION REQUIRED FOR VERTICAL CURVE K FACTOR AND VERTICAL STOPPING SIGHT DISTANCE.

FOR PLAN, SEE SHEET NO. 4



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