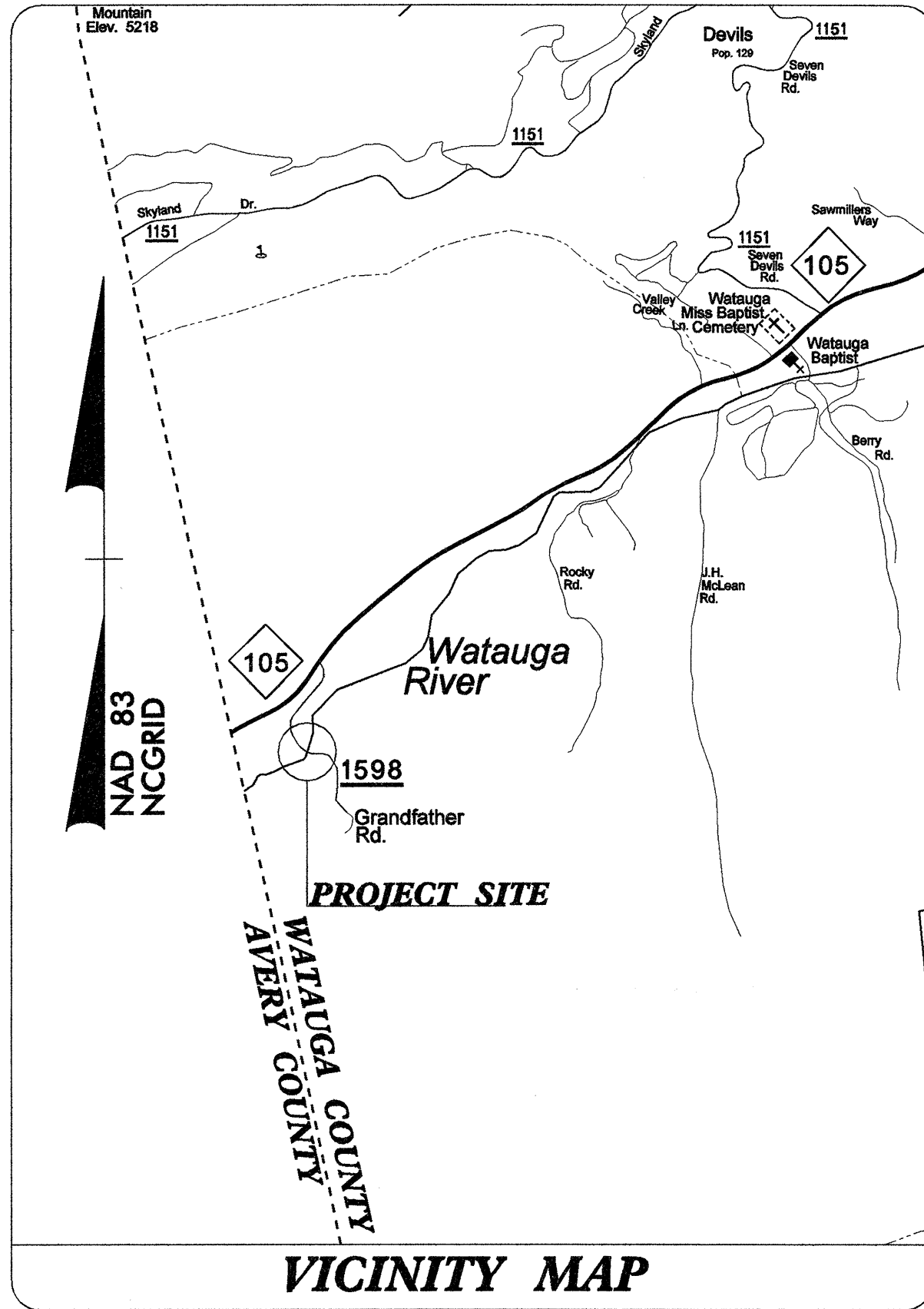


09/08/09

See Sheet 1-A For Index of Sheets



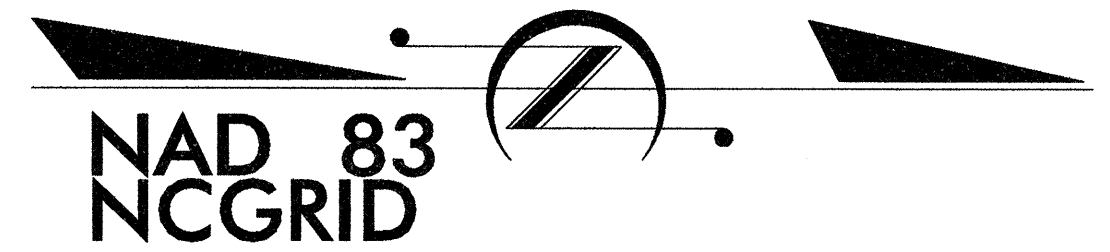
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WATAUGA COUNTY

LOCATION: BRIDGE NO. 321 OVER WATAUGA RIVER ON SR 1598
(GRANDFATHER ROAD)

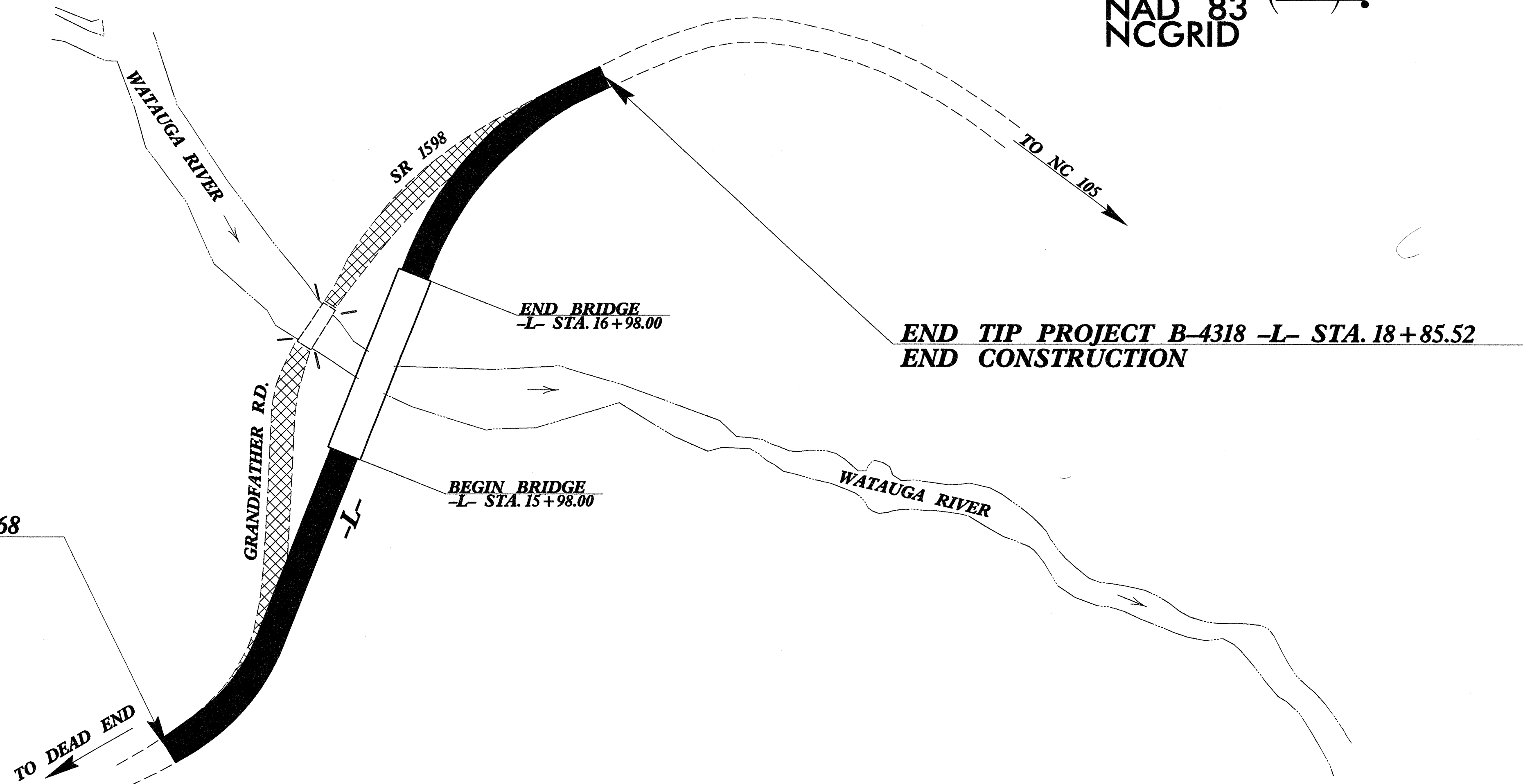
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4318	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33655.1.1	BRZ-1598(1)	PE	
33655.2.1	BRZ-1598(1)	UTIL., & RW	
33655.3.1	BRZ-1598(1)	CONST.	



TIP PROJECT: B-4318

CONTRACT: C201972



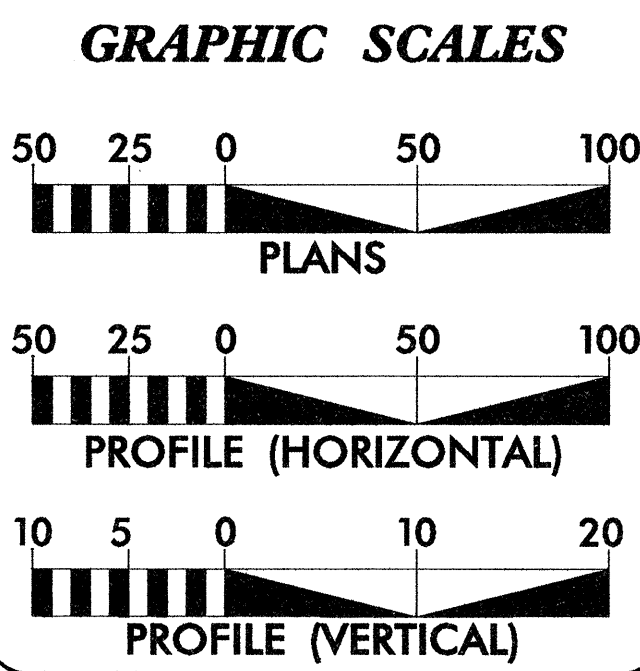
BEGIN TIP PROJECT B-4318 -L- STA. 13+58.68
BEGIN CONSTRUCTION

END BRIDGE
-L- STA. 16+98.00

END TIP PROJECT B-4318 -L- STA. 18+85.52
END CONSTRUCTION

BEGIN BRIDGE
-L- STA. 15+98.00

NOTE: A DESIGN EXCEPTION IS REQUIRED FOR THE SAG VERTICAL CURVE K,
VERTICAL STOPPING SIGHT DISTANCE AND SUPER ELEVATION.



DESIGN DATA

ADT 2008 =	130
ADT 2028 =	220
DHV =	12 %
D =	55 %
T =	3 % *
V =	30 MPH
* TTST 1%	DUAL 2%
FUNC. CLASS. =	LOCAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4318	=	0.081 MILES
LENGTH OF STRUCTURE TIP PROJECT B-4318	=	0.019 MILES
TOTAL LENGTH OF TIP PROJECT B-4318	=	0.100 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:

WETHERILL ENGINEERING
559 JONES FRANKLIN ROAD
SUITE 164
RALEIGH, N.C. 27606
Box 919 851 8077
Fax 919 851 8107

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: **EDWARD G. WETHERILL, PE**
PROJECT ENGINEER
JUNE 17, 2005

LETTING DATE: **BOB A. MAY, PE**
PROJECT DESIGN ENGINEER
NOVEMBER 18, 2008

NCDOT CONTACT: **DOUG TAYLOR, PE**
ROADWAY DESIGN - ENGINEERING
COORD. SECTION ENGINEER

HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

SIGNATURE: *[Signature]* 8/26/08

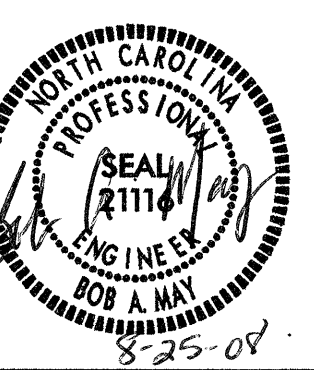
SIGNATURE: *[Signature]* 8-25-08

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

[Seal of North Carolina Department of Transportation]

[Signature]
STATE HIGHWAY DESIGN ENGINEER

8:37:35 AM
P:\B-4318\Roadway\Proj\B4318_rdy_tsh.dgn
7/18/2008



GENERAL NOTES

GENERAL NOTES: 2006 SPECIFICATIONS EFFECTIVE: 07-18-06
REVISED: 07-30-08

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.

RIGHT-OF-WAY MARKERS:

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

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
1-D	Centerline Coordinate List
2 Thru 2-A	Typical Sections, Pavement Schedule and Miscellaneous Details not covered by Roadway Standards
2-B	W-Beam Bridge Rail Transition
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-6	Traffic Control Plans
EC-1 Thru EC-5	Erosion Control Plans
RF-1	Reforestation Plan
X-1A	Cross-Section Summary Sheet
X-1 Thru X-7	Cross-Sections
S-1 Thru S-16	Structure Plans

LIST ROADWAY STANDARDS

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

2006 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
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 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
862.01	Guardrail Placement
862.02	Guardrail Installation

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	EDM
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	○
Well	○
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	CSX TRANSPORTATION 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	⊗
Storm Sewer	S

UTILITIES:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

Gas Valve	◇
Gas Meter	⊗
Recorded U/G Gas Line	G
Designated U/G Gas Line (S.U.E.*)	G
Above Ground Gas Line	A/G Gas

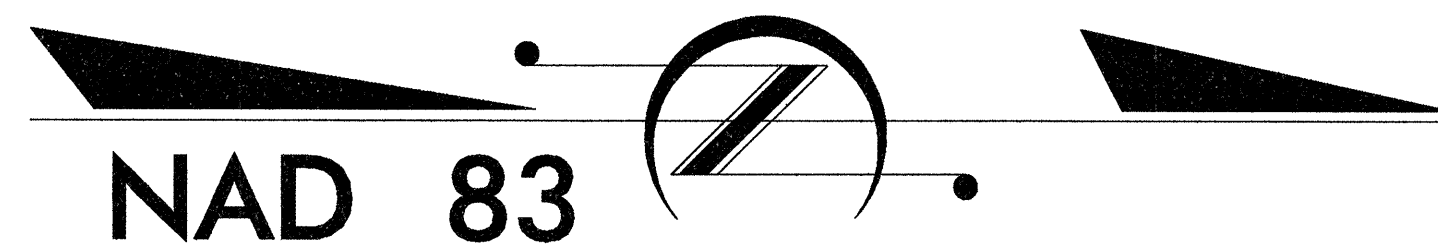
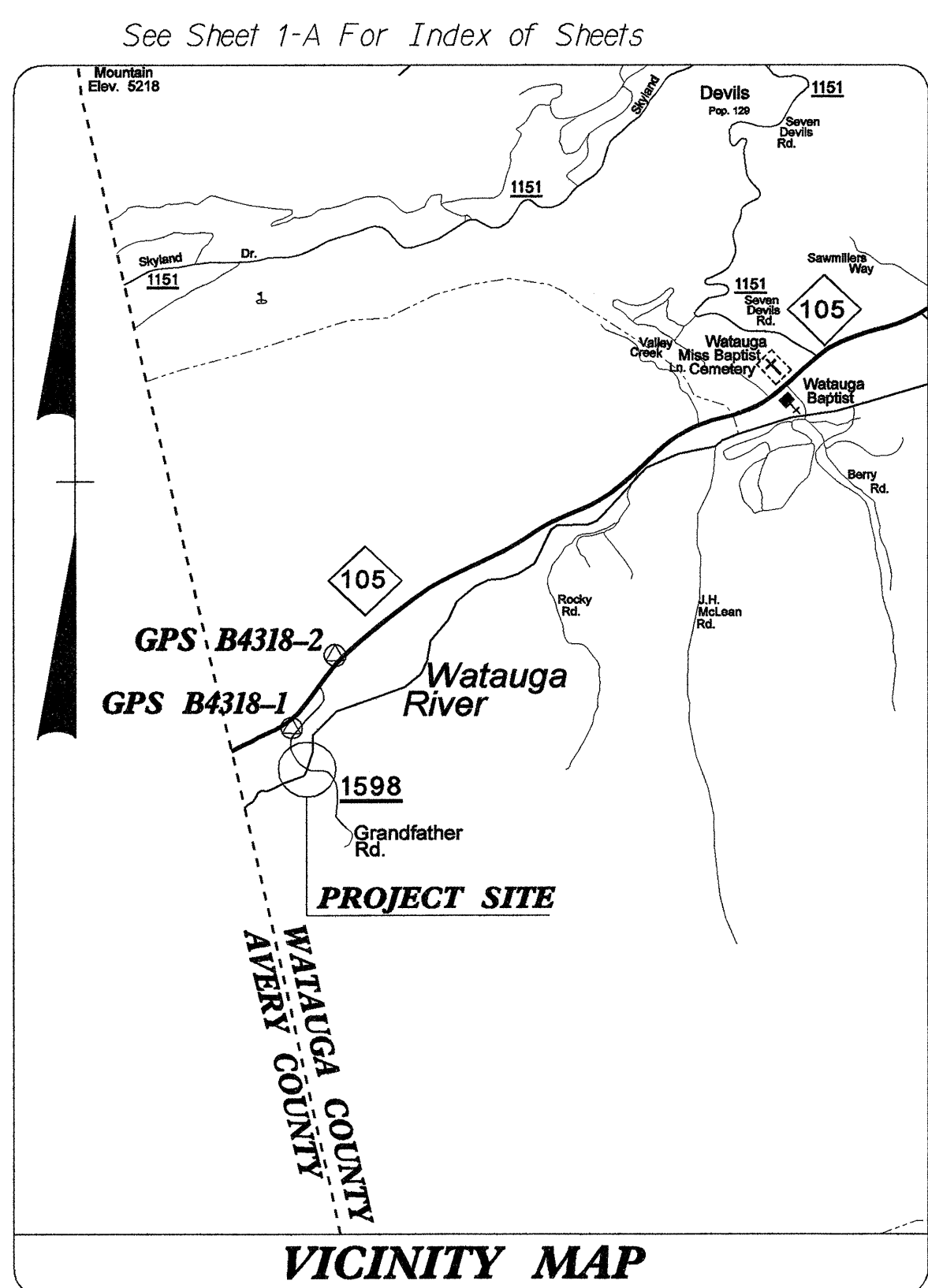
SANITARY SEWER:

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

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊗
Utility Unknown U/G Line	ZUL
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-4318



BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3		BL-3	878549.5769	1169079.3520	3590.57	10+48.09	31.70 RT
4		BL-4	878895.5267	1168990.5464	3538.51	13+95.84	21.13 RT
5		BL-5	878920.5430	1168749.0376	3527.67	16+22.11	60.83 LT
6		BL-6	879083.6026	1168560.5284	3546.23	18+50.52	26.82 LT
7		BL-7	879265.1220	1168532.7878	3549.95	20+25.65	10.55 LT
1		GPS B4318-1	879517.3260	1168577.8670	3616.86	22+46.95	104.83 LT
2		GPS B4318-2	880224.8310	1169053.3690	3554.13		OUTSIDE PROJECT LIMITS

.....
 BM *1 ELEVATION = 3587.40
 N 878581 E 1169080
 L STATION 10+80 30' RIGHT
 R/R SPIKE SET IN 16' MAPLE

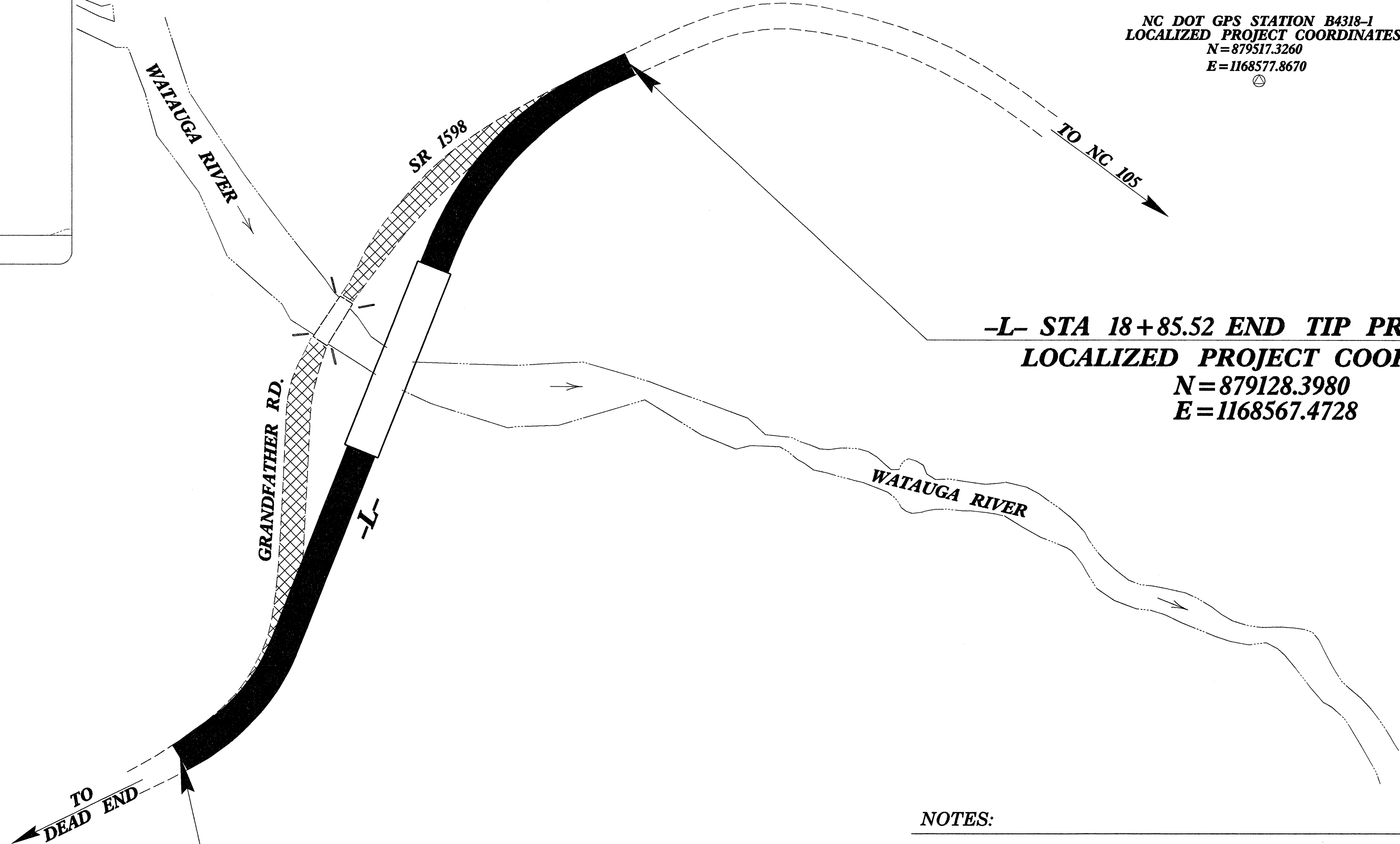
 BM *2 ELEVATION = 3528.97
 N 878860 E 1168695
 L STATION 16+50 137' LEFT
 R/R SPIKE SET IN 15' BLACK GUM

 BM *3 ELEVATION = 3551.73
 N 879449 E 1168723
 OUTSIDE PROJECT LIMITS
 R/R SPIKE SET IN 17' POPLAR

**NC DOT GPS STATION B4318-1
 LOCALIZED PROJECT COORDINATES**
 N=879517.3260
 E=1168577.8670

**-L- STA 18+85.52 END TIP PROJECT B-4318
 LOCALIZED PROJECT COORDINATES**
 N=879128.3980
 E=1168567.4728

**NC DOT GPS STATION B4318-2
 LOCALIZED PROJECT COORDINATES**
 N=880224.8310
 E=1169053.3690



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4318-1"

WITH NAD 83 STATE PLANE GRID COORDINATES OF
 NORTHING: 879517.326(f1) EASTING: 1168577.867(f1)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99982509

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4318-1" TO -L- L STATION 13+58.68 IS
 S 32°07'01" E 786.42'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

**-L- STA 13+58.68 BEGIN TIP PROJECT B-4318
 LOCALIZED PROJECT COORDINATES**
 N=878851.2546
 E=1168995.9687

NOTES:

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCTHIGHWAY/LOCATION/PROJECT B4318_LS_CONTROL_050308.TXT](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/B4318_LS_CONTROL_050308.TXT)

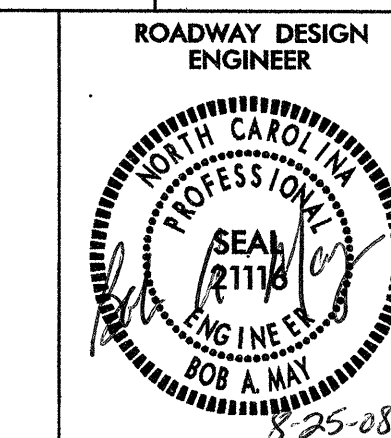
SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

Ⓞ 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

8:43:02 AM Roadway\Proj\B4318-1s-1c-050309.dgn



Disclaimer: This coordinate list is provided for the convenience of interested contractors and is intended for use during the project bidding process only. Coordinates are localized to this particular project and any conversion to state grid coordinates or other formats will be the responsibility of the recipient. While every effort has been made to provide up-to-date, accurate information, NCDOT makes no express guarantee as to the validity or potential for revision of this information prior to project letting.

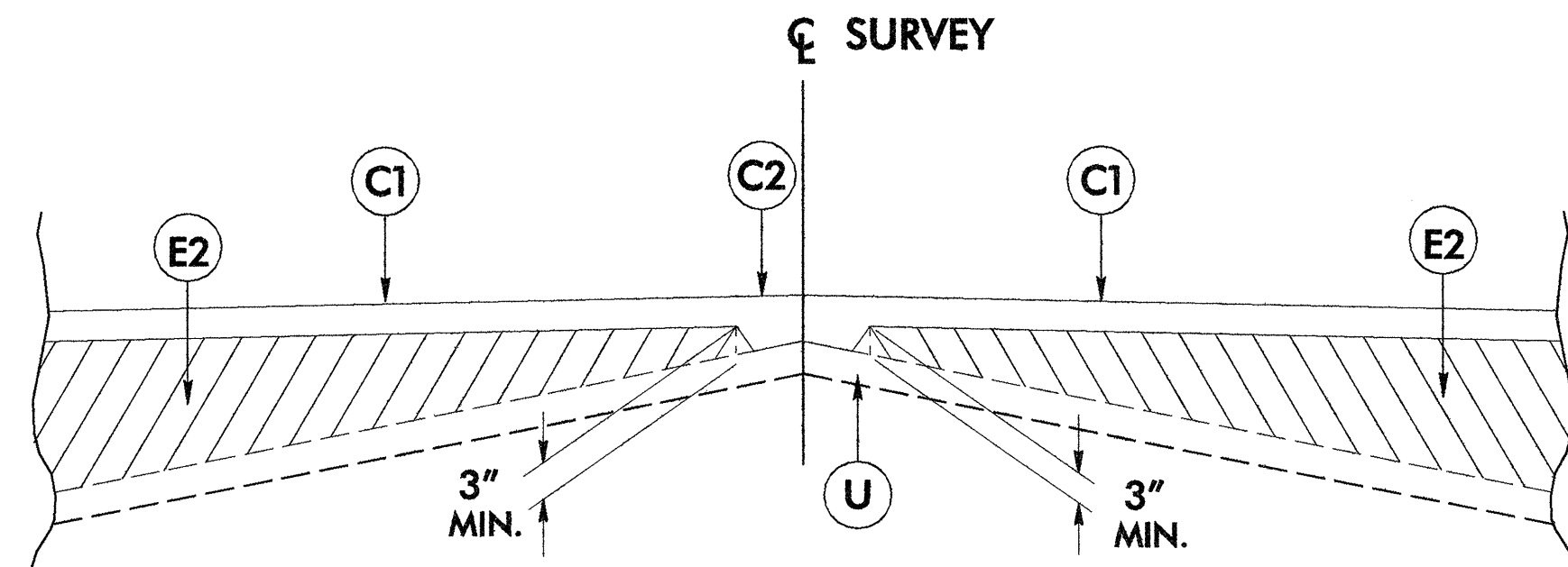
Point #	Chain	Station	Northing(Y)	Easting(X)
1	L	10+00.00	878504.7600	1169043.1800
2	L	11+00.00	878604.2969	1169052.7928
3	L	12+00.00	878703.9634	1169052.4291
4	L	13+00.00	878799.2295	1169023.0420
5	L	14+00.00	878884.7160	1168971.8413
6	L	15+00.00	878932.0916	1168884.9708
7	L	16+00.00	878968.9463	1168792.0099
8	L	17+00.00	879005.8009	1168699.0490
9	L	18+00.00	879057.5445	1168614.4910
10	L	19+00.00	879141.5936	1168561.5118
11	L	20+00.00	879237.5683	1168539.0784
12	L	21+00.00	879332.2835	1168569.2263
13	L	22+00.00	879413.5693	1168627.1404
14	L	22+87.10	879479.8300	1168683.6700

5/14/99

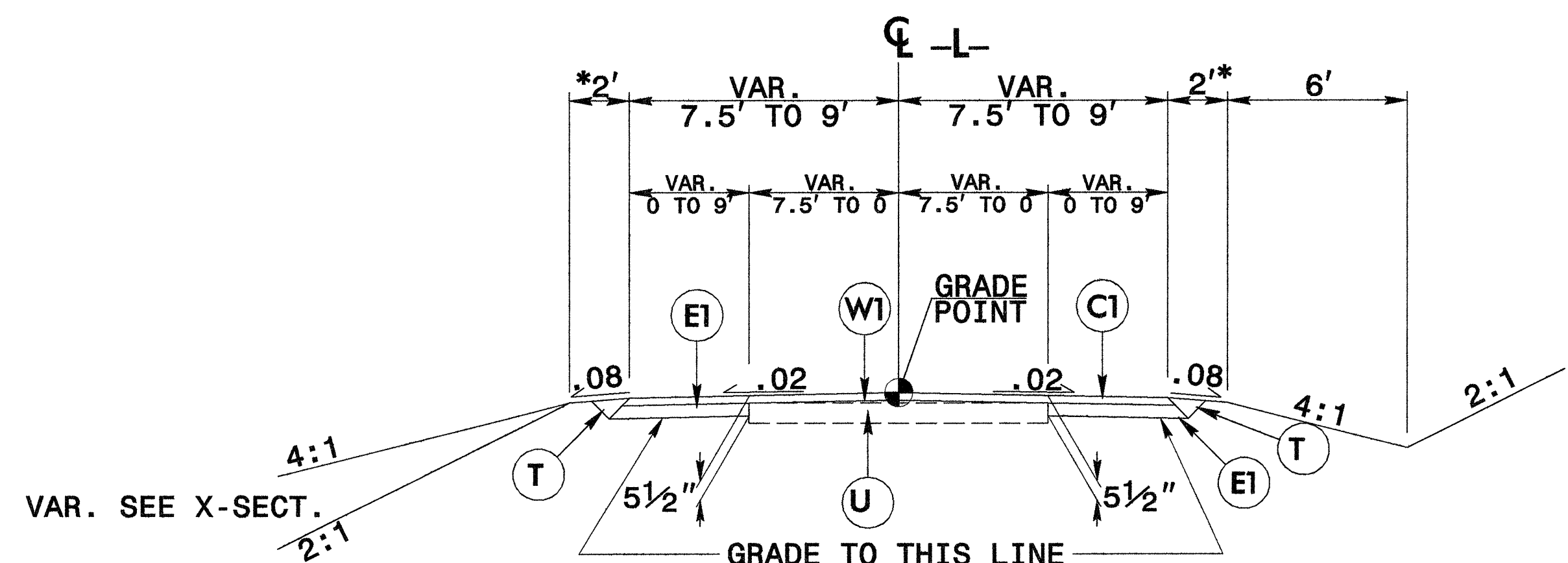
PROJECT REFERENCE NO. B-4318	SHEET NO. 2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER
 559 Jones Franklin Rd. Suite 164 Raleigh, N.C. 27605 Dist: 919 851 8077 Fax: 919 851 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
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.
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.
J	8" AGGREGATE BASE COURSE
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

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



Detail Showing Method of Wedging



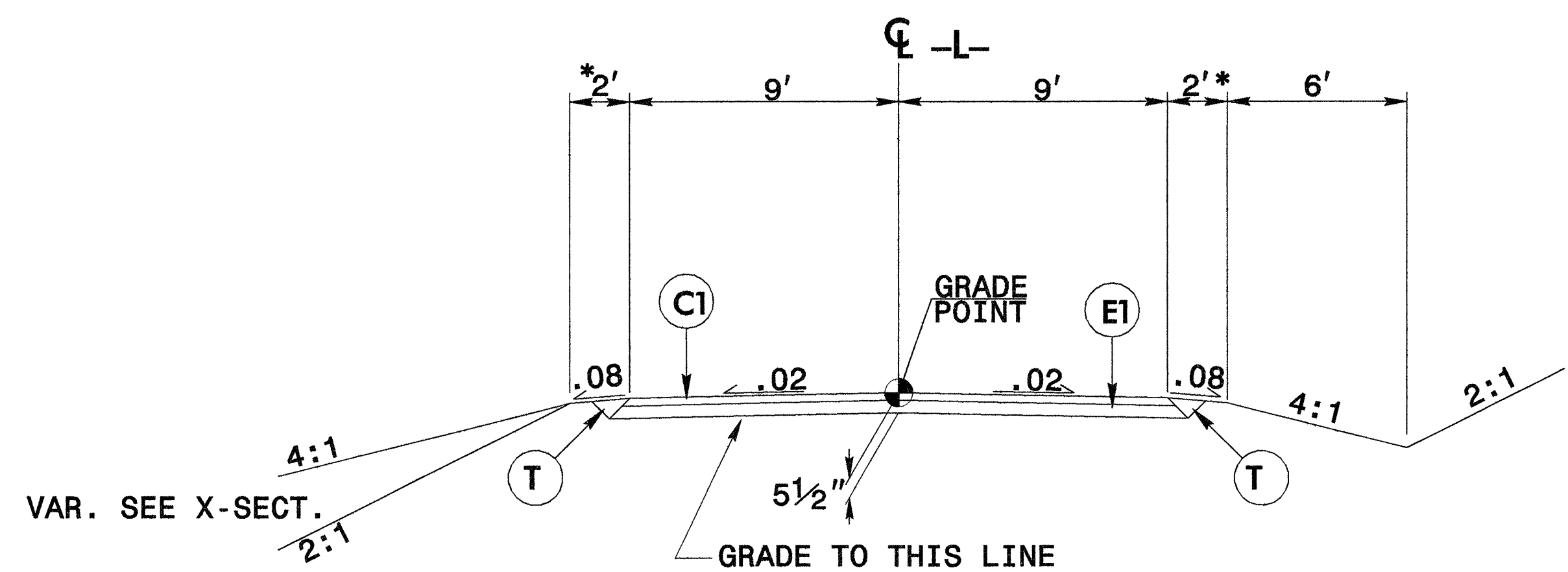
TYPICAL SECTION NO. 1

*NOTE: SHOULDER WIDTH IS 7' IN GUARDRAIL LOCATIONS

USE TYPICAL SECTION NO. 1 AS FOLLOWS:
 -L- STA. 13+83.68 TO -L- STA. 14+10.26
 -L- STA. 17+70.17 TO -L- STA. 18+60.52

TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
 -L- STA. 13+58.68 TO -L- STA. 13+83.68

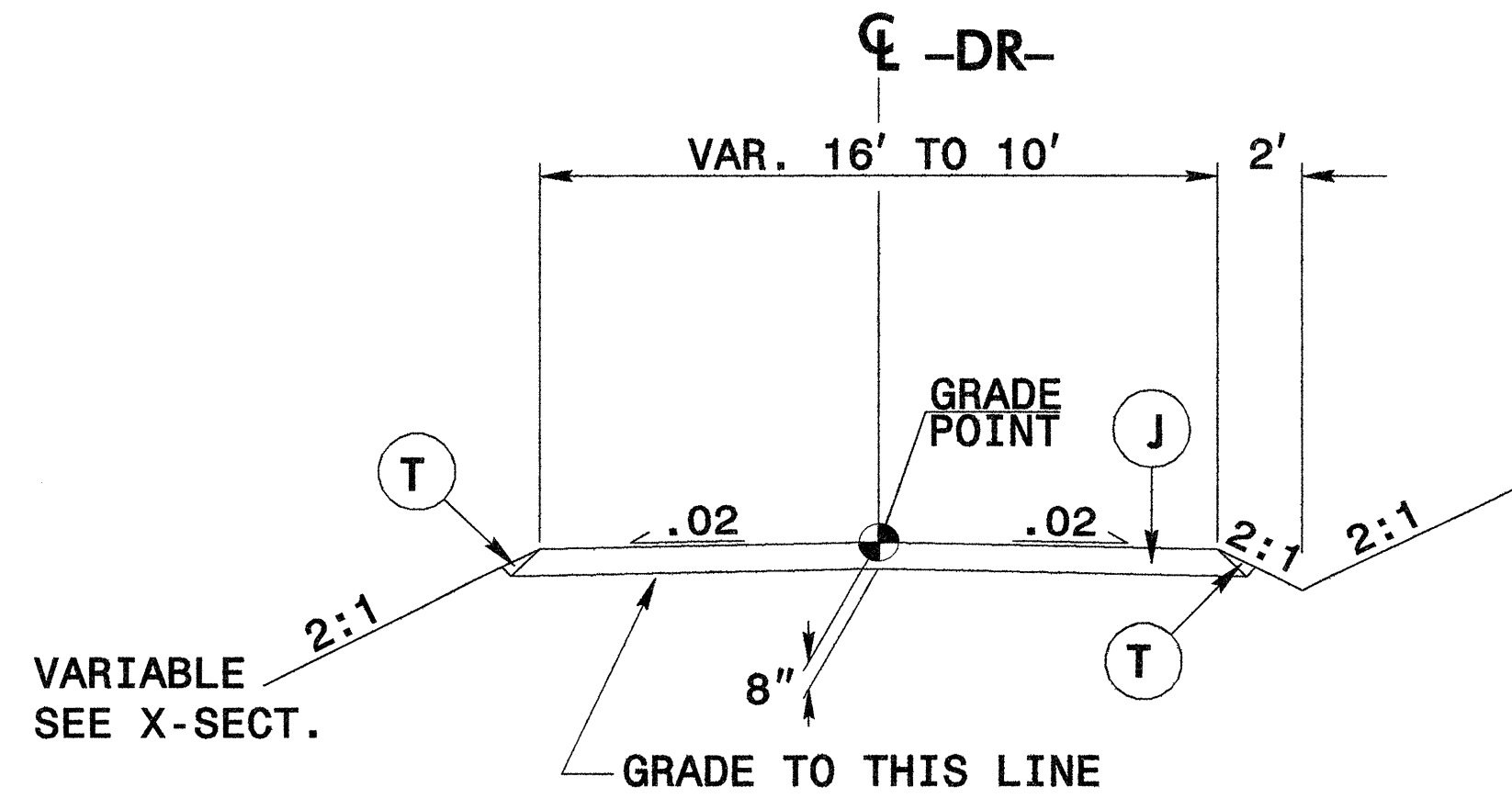
TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING
 -L- STA. 18+60.52 TO -L- STA. 18+85.52



TYPICAL SECTION NO. 2

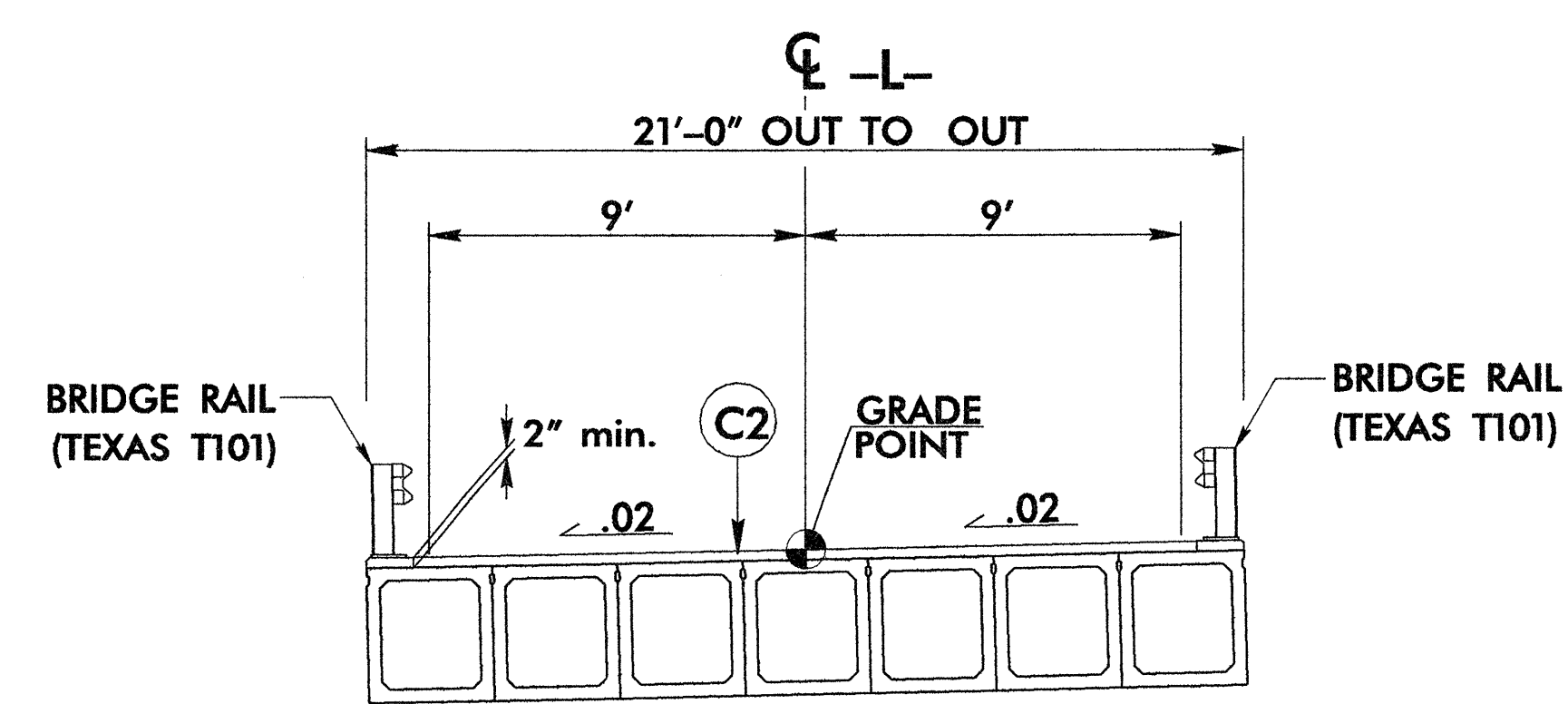
*NOTE: SHOULDER WIDTH IS 7' IN GUARDRAIL LOCATIONS

USE TYPICAL SECTION NO. 2 AS FOLLOWS:
 -L- STA. 14+10.26 TO -L- STA. 15+98.00 (BEGIN BRIDGE)
 -L- STA. 16+98.00 (END BRIDGE) TO -L- STA. 17+70.17



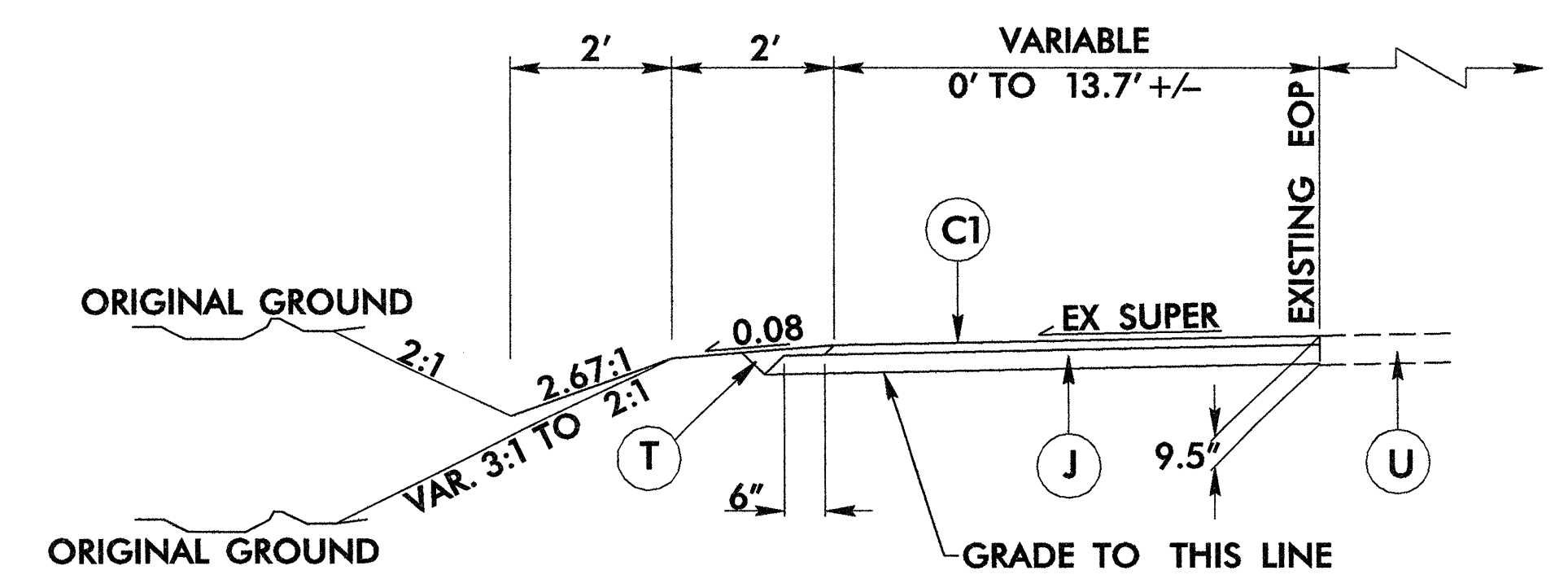
TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AS FOLLOWS:
 -DR- STA. 10+09.00 TO -DR- STA. 11+00.00



TYPICAL SECTION NO. 3

-L- STA. 15+98.00 TO -L- STA. 16+98.00



TYPICAL SECTION 4

NOTE: USE TYPICAL SECTION 4 FOR TEMPORARY PAVEMENT LOCATIONS

-L- STA. 13+00+/- TO -L- STA. 15+50+/- LEFT

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 8/25/2008

8/17/99

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

559 Jones Franklin Rd. Suite 164
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107

PROJECT REFERENCE NO. B-4318	SHEET NO. 2-A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

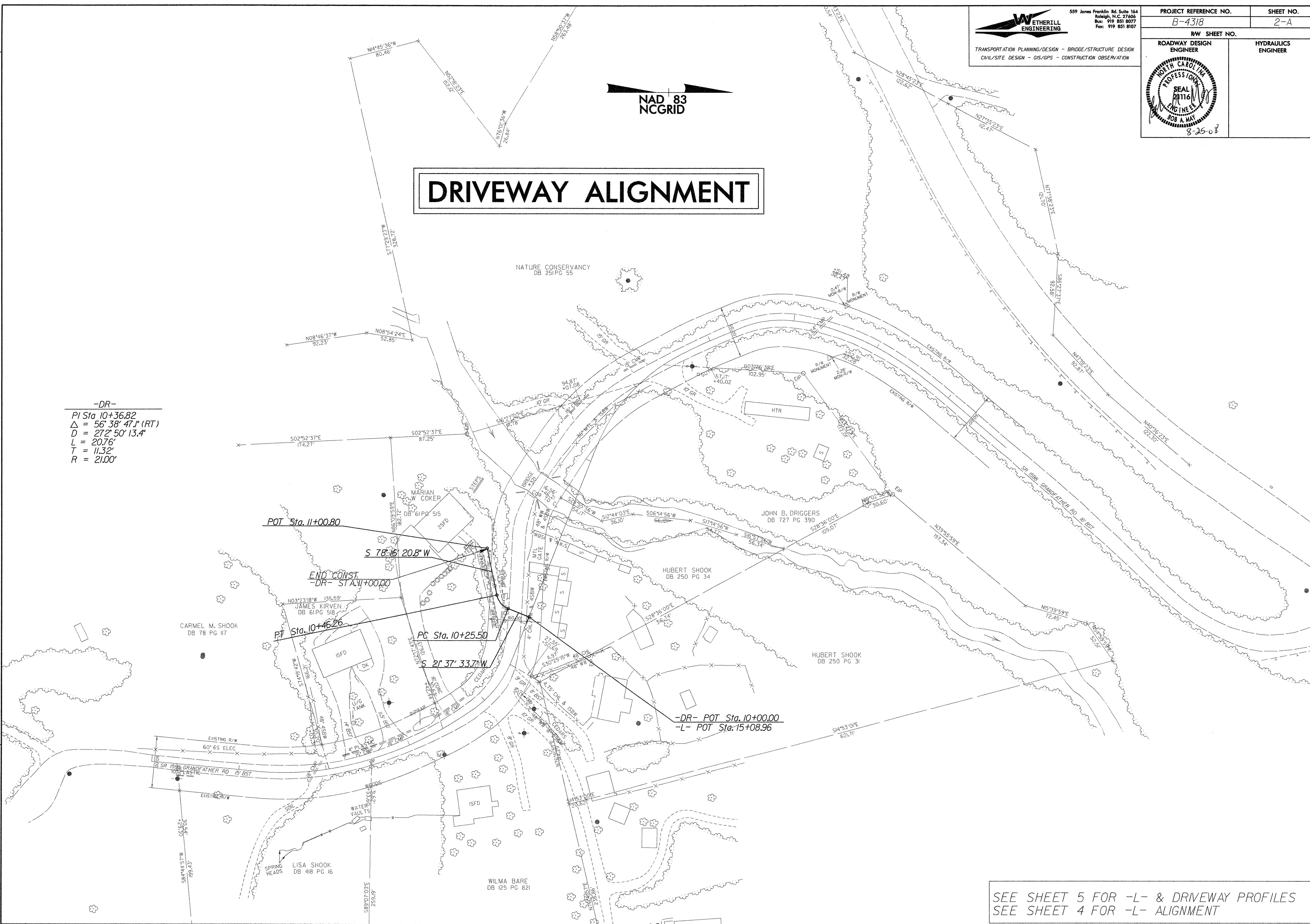


DRIVEWAY ALIGNMENT

-DR-
 PI Sta. 10+36.82
 $\Delta = 56^{\circ} 38' 47.1''$ (RT)
 D = 272' 50" 13.4"
 L = 20.76'
 T = 11.32'
 R = 21.00'

REVISIONS

3:24:33 PM
 8/26/08
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SEE SHEET 5 FOR -L- & DRIVEWAY PROFILES
 SEE SHEET 4 FOR -L- ALIGNMENT

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 CHECKED BY: _____ DATE: _____

PROJECT REFERENCE NO. SHEET NO.
 B-4318 3

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201972

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
0080000000-E	SP	600	TON	CLASS IV SUBGRADE STABILIZATION
0134000000-E	240	55	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	500	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	500	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	8	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0344000000-E	310	72	LF	18" SIDE DRAIN PIPE
0995000000-E	340	80	LF	PIPE REMOVAL
1121000000-E	520	170	TON	AGGREGATE BASE COURSE
1220000000-E	545	50	TON	INCIDENTAL STONE BASE
1489000000-E	610	150	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	115	TON	ASPHALT CONC SURFACE COURSE, TYPE SP9.5A
1560000000-E	620	14	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
2000000000-N	806	15	EA	RIGHT OF WAY MARKERS
2022000000-E	815	67.2	CY	SUBDRAIN EXCAVATION
2033000000-E	815	50.4	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	300	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	9	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)
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS

ItemNumber	Sec #	Quantity	Unit	Description
3165000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** (350, TL-2)
3180000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** GRAU, W-BEAM BRIDGE RAIL TRANSITION
3420000000-E	SP	200	LF	GENERIC GUARDRAIL ITEM W-BEAM BRIDGE RAIL
3628000000-E	876	40	TON	RIP RAP, CLASS I
3656000000-E	876	300	SY	FILTER FABRIC FOR DRAINAGE
4400000000-E	1110	186	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	128	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	36	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4435000000-N	1135	30	EA	CONES
4445000000-E	1145	30	LF	BARRICADES (TYPE III)
4450000000-N	1150	640	HR	FLAGGER
4465000000-N	1160	1	EA	TEMPORARY CRASH CUSHIONS
4480000000-N	1165	1	EA	TMIA
4490000000-E	1170	225	LF	PORTABLE CONCRETE BARRIER (ANCHORED)
4770000000-E	1205	570	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (4, REMOVABLE TAPE)
4770000000-E	1205	1,908	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (III)
4810000000-E	1205	2,930	LF	PAINT PAVEMENT MARKING LINES (4")
4850000000-E	1205	240	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
6000000000-E	1605	1,000	LF	TEMPORARY SILT FENCE
6006000000-E	1610	115	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	120	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	30	TON	SEDIMENT CONTROL STONE

ItemNumber	Sec #	Quantity	Unit	Description
6015000000-E	1615	2	ACR	TEMPORARY MULCHING
6018000000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	1.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6029000000-E	SP	470	LF	SAFETY FENCE
6030000000-E	1630	380	CY	SILT EXCAVATION
6036000000-E	1631	1,200	SY	MATting FOR EROSION CONTROL
6037000000-E	SP	30	SY	COIR FIBER MAT
6038000000-E	SP	190	SY	PERMANENT SOIL REINFORCEMENT MAT
6071030000-E	SP	200	LF	COIR FIBER BAFFLES
6071050000-E	SP	5	EA	*** SKIMMER (1-1/2")
6084000000-E	1660	2.5	ACR	SEEDING & MULCHING
6087000000-E	1660	1	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	TON	FERTILIZER TOPDRESSING
6114000000-N	SP	5	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.25	ACR	REFORESTATION

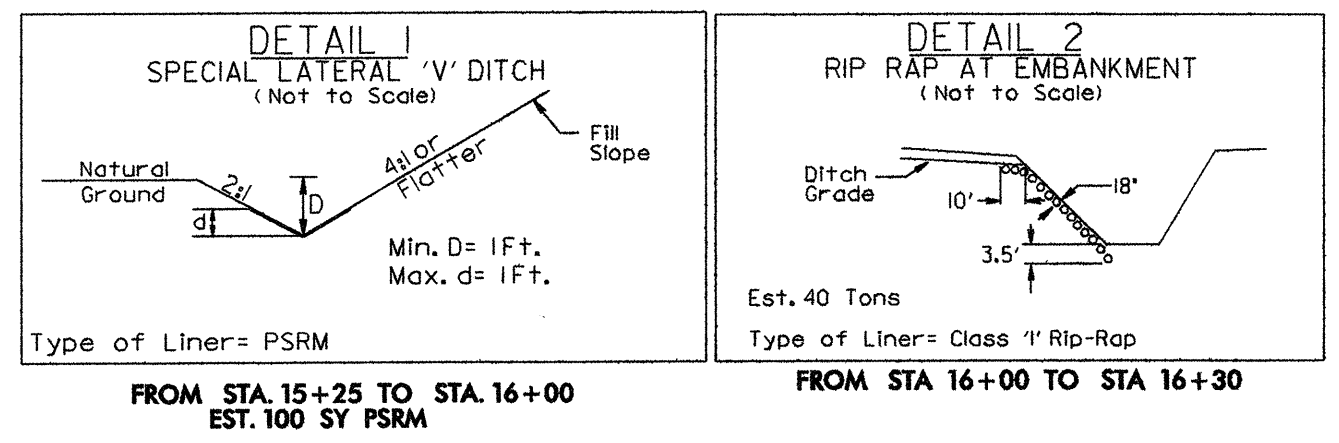
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ETHERILL ENGINEERING
 TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

SUNGATE DESIGN GROUP, P.A.
 915 JONES FRANKLIN ROAD
 RALEIGH, NORTH CAROLINA 27606
 TEL: (919) 859-2243 FAX: (919) 859-6258

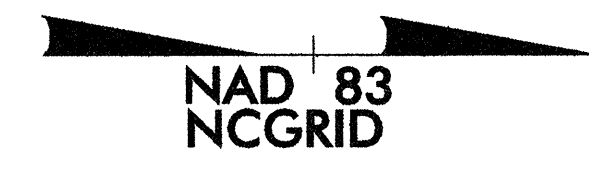
PROJECT REFERENCE NO. B-4318	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



-L-

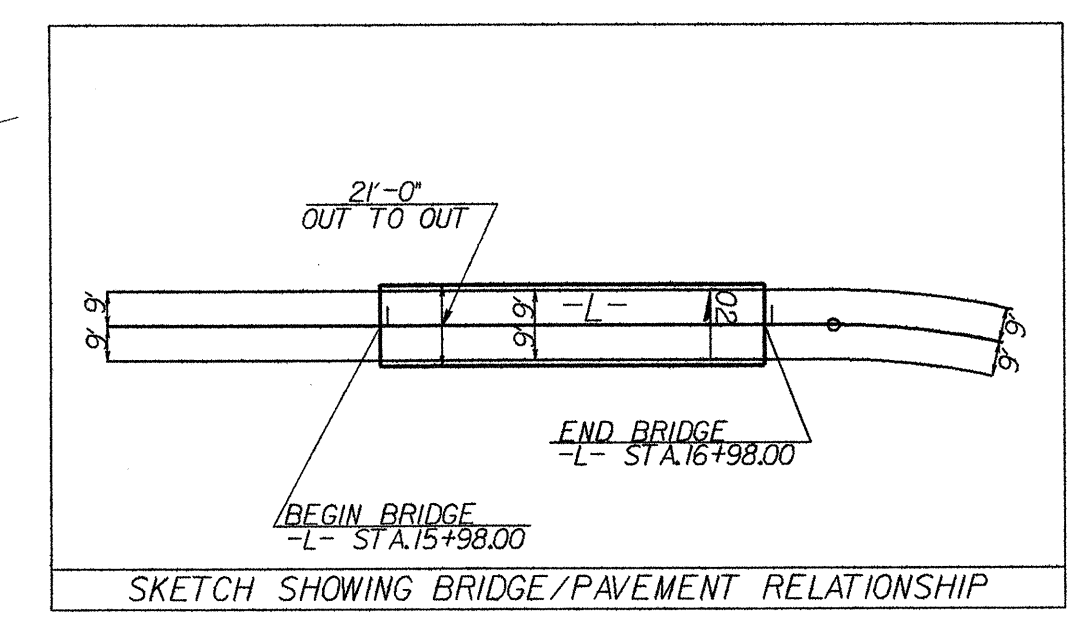
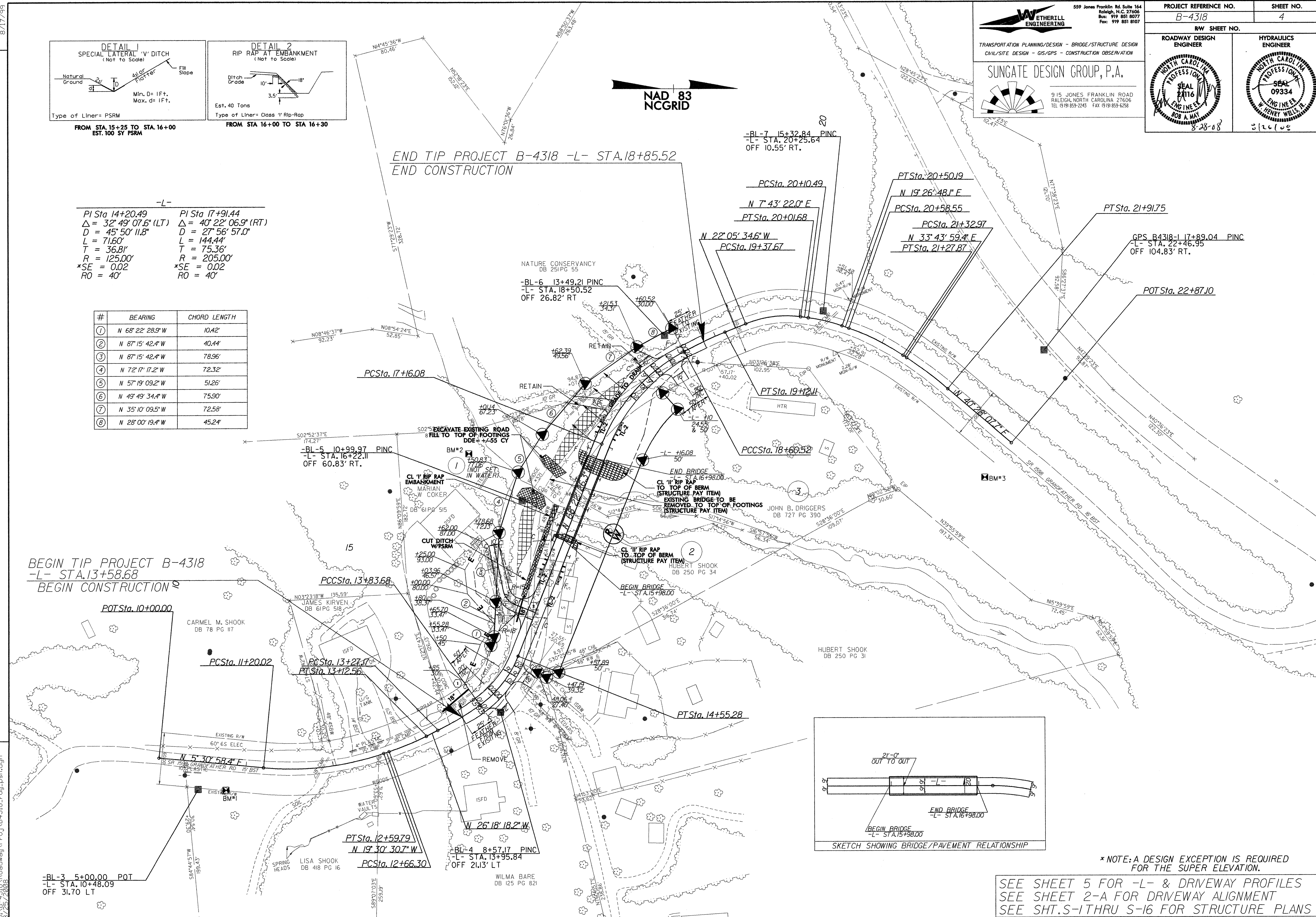
PI Sta 14+20.49 Δ = 32° 49' 07.6" (LT) D = 45° 50' 11.8" L = 71.60' T = 36.81' R = 125.00' *SE = 0.02 RO = 40'	PI Sta 17+91.44 Δ = 40° 22' 06.9" (RT) D = 27° 56' 57.0" L = 144.44' T = 75.36' R = 205.00' *SE = 0.02 RO = 40'
---	--

#	BEARING	CHORD LENGTH
1	N 68° 22' 28.9" W	10.42'
2	N 87° 15' 42.4" W	40.44'
3	N 87° 15' 42.4" W	78.96'
4	N 72° 17' 17.2" W	72.32'
5	N 57° 19' 09.2" W	51.26'
6	N 49° 49' 34.4" W	75.90'
7	N 35° 10' 09.5" W	72.58'
8	N 28° 00' 19.4" W	45.24'



END TIP PROJECT B-4318 -L- STA.18+85.52
 END CONSTRUCTION

BEGIN TIP PROJECT B-4318
 -L- STA.13+58.68
 BEGIN CONSTRUCTION



* NOTE: A DESIGN EXCEPTION IS REQUIRED FOR THE SUPER ELEVATION.

SEE SHEET 5 FOR -L- & DRIVEWAY PROFILES
 SEE SHEET 2-A FOR DRIVEWAY ALIGNMENT
 SEE SHT. S-1 THRU S-16 FOR STRUCTURE PLANS

REVISIONS

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 8/25/2008

5/14/99

BM #1
R/R SPIKE SET IN 16" MAPLE
-BL- STA. 5+31.9' RT. ELEV. 3587.40'
N 878591 E 1169080
-L- STA. 10+79.43 29.32' RT

BM #2
R/R SPIKE SET IN 15" BLACK GUM
-BL- STA. 11+01.81' LT. ELEV. 3528.97'
N 878860 E 1168695
-L- STA. 16+50.03 137.03' LT

PROJECT REFERENCE NO. B-4318	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

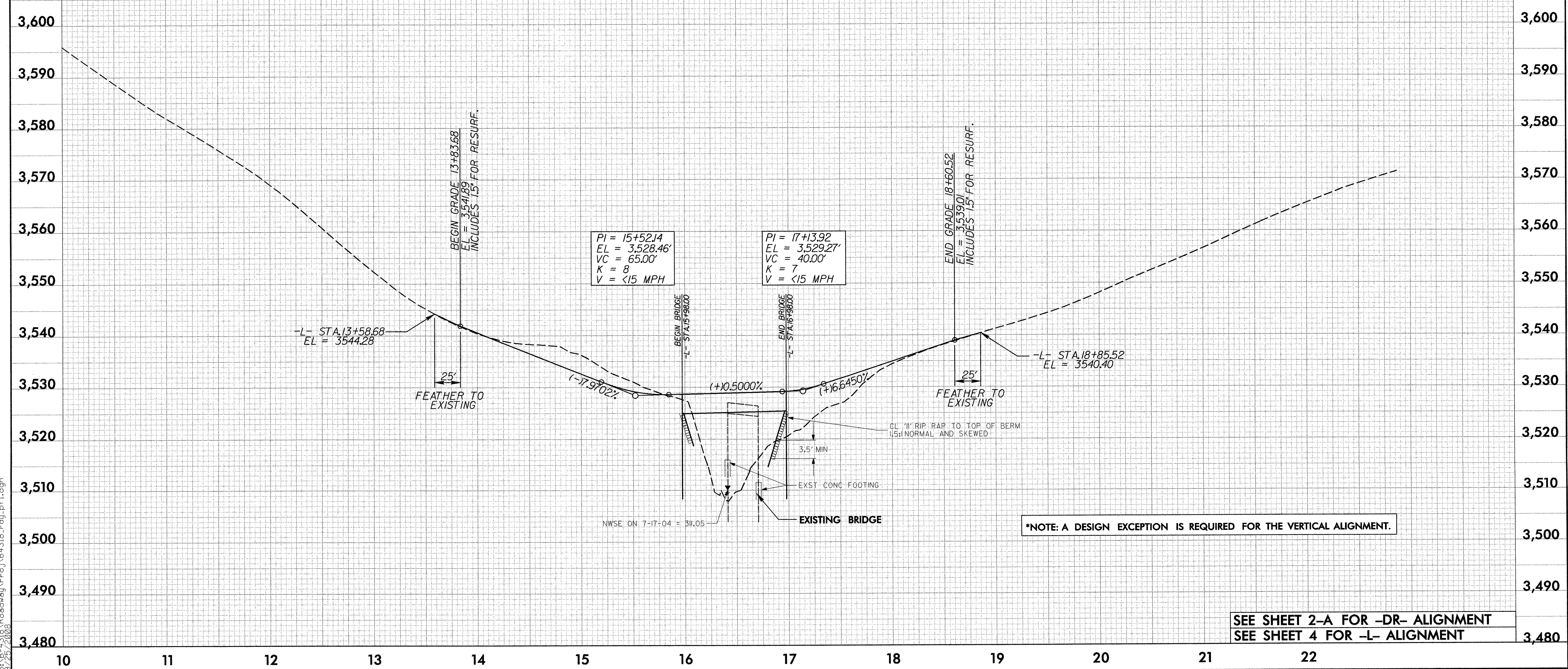
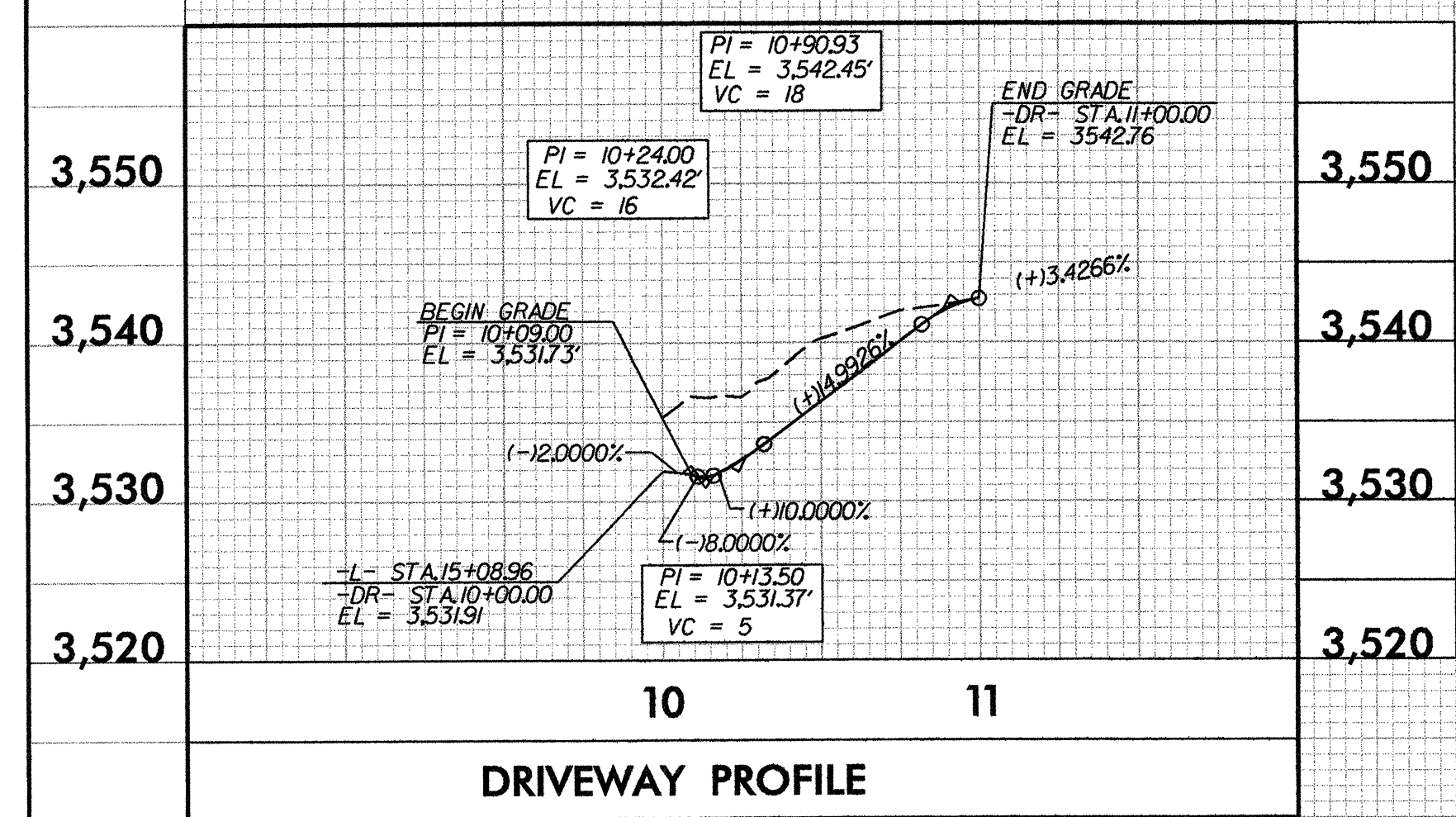
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
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915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL 919 859-2243 FAX 919 859-6258

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE = 1930 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 3517.2 FT
BASE DISCHARGE = 3351 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 3519.3 FT
OVERTOPPING DISCHARGE = >5791 CFS
OVERTOPPING FREQUENCY = >500 YRS
OVERTOPPING ELEVATION = 3528.61 FT



*NOTE: A DESIGN EXCEPTION IS REQUIRED FOR THE VERTICAL ALIGNMENT.

SEE SHEET 2-A FOR -DR- ALIGNMENT
SEE SHEET 4 FOR -L- ALIGNMENT

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