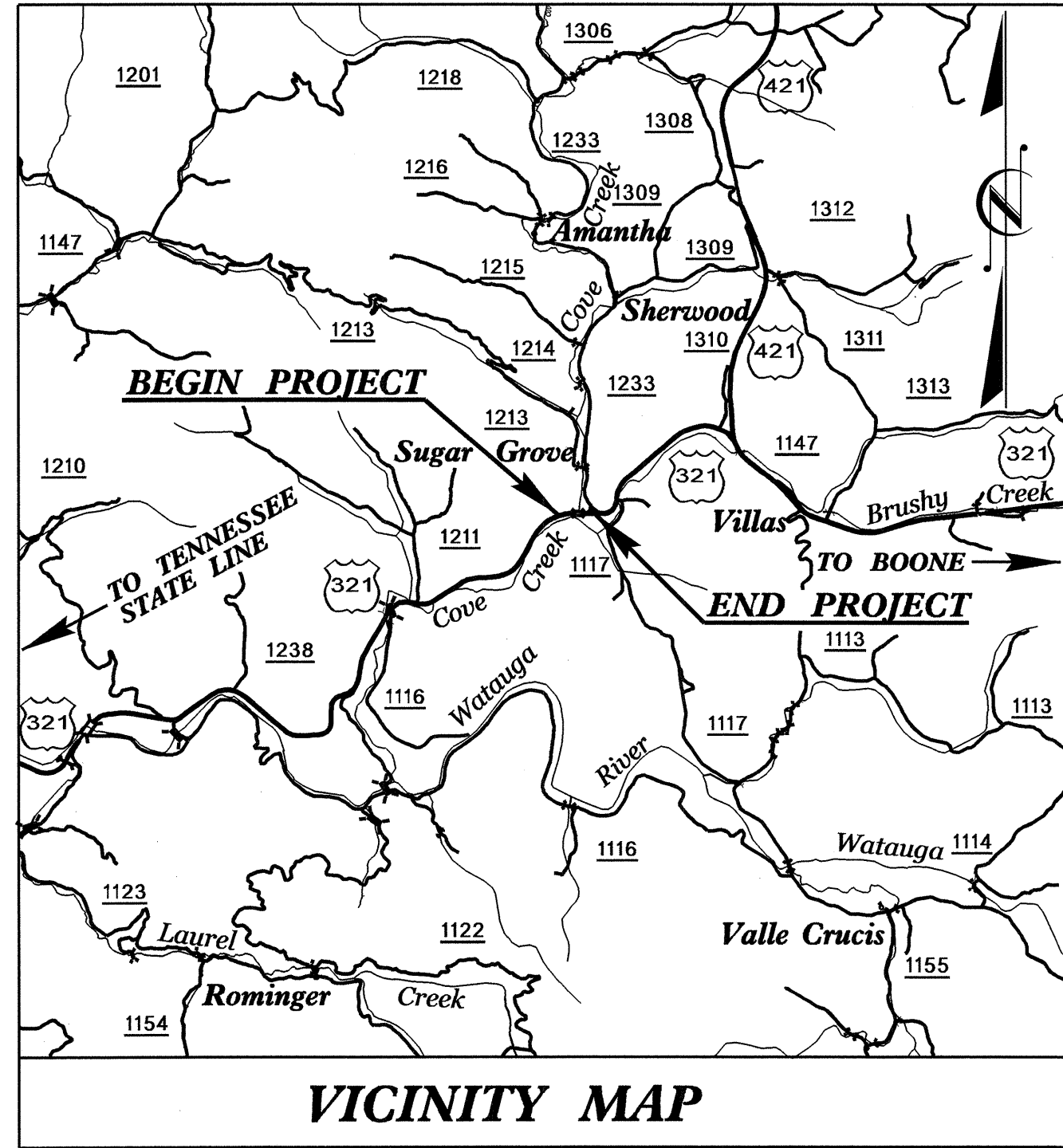


09/08/99

TIP PROJECT: B-4668

CONTRACT: C202819

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



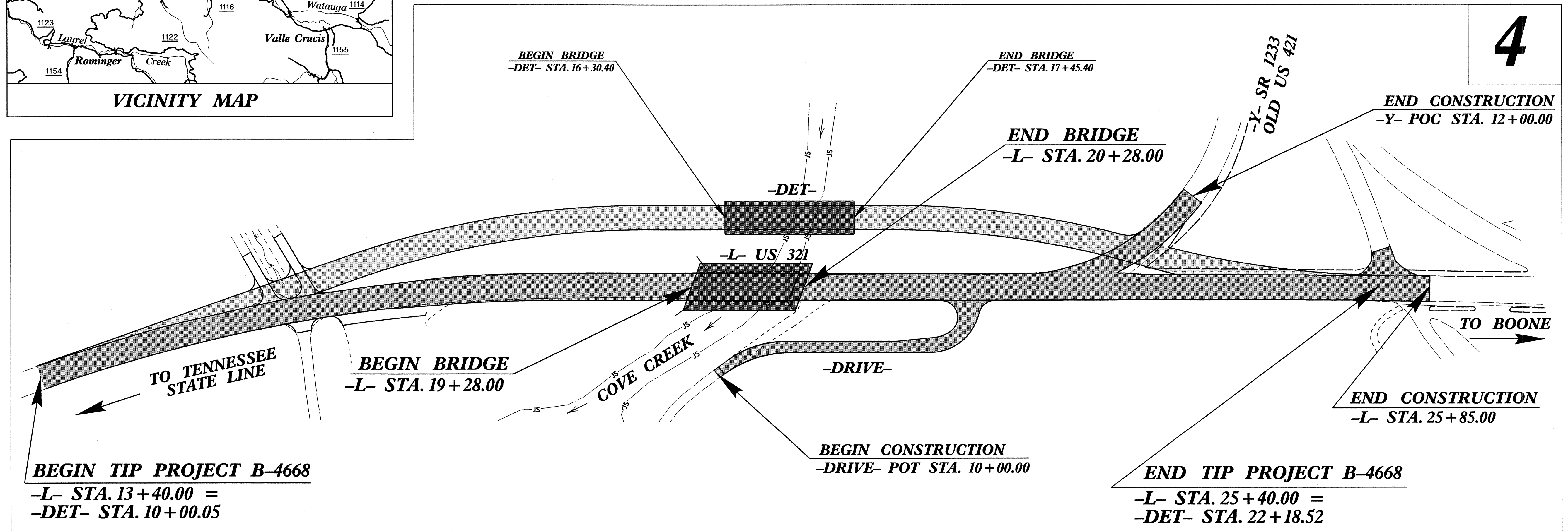
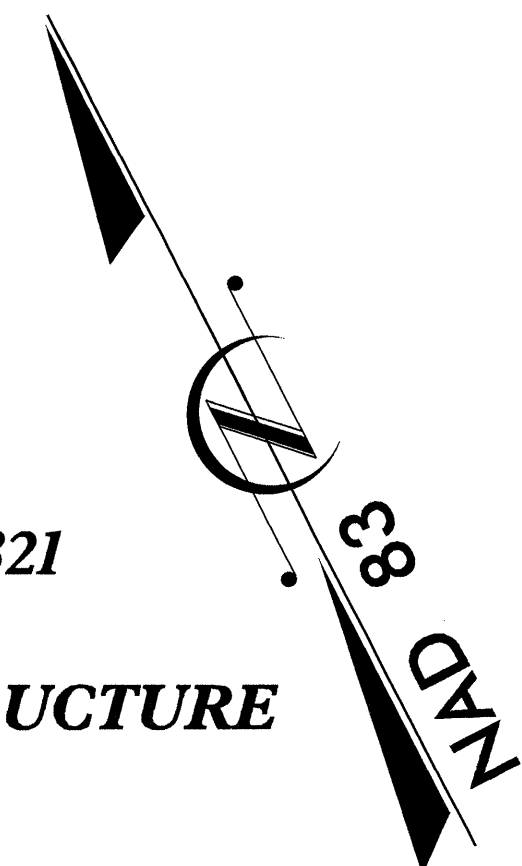
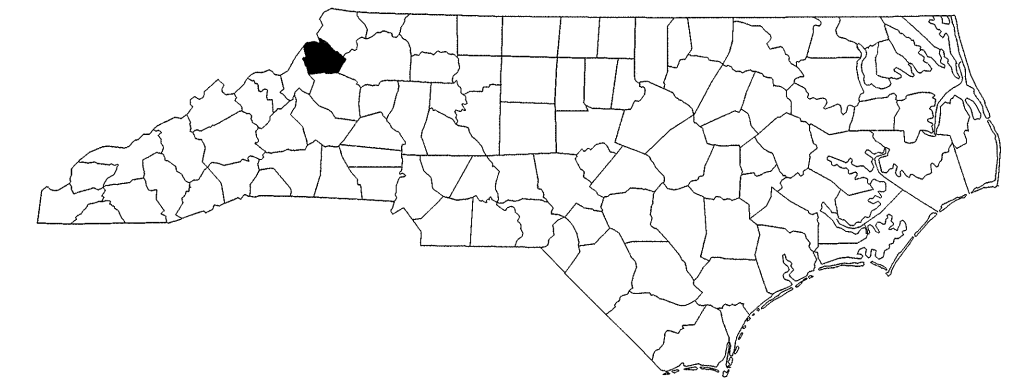
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WATAUGA COUNTY

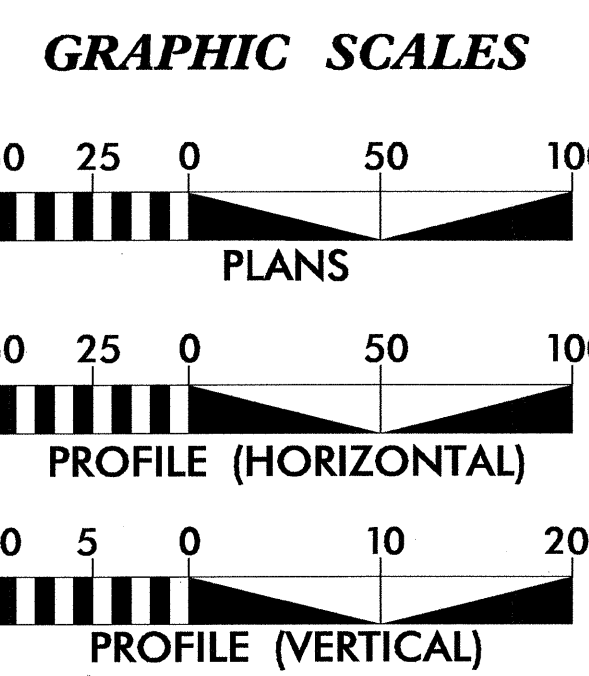
LOCATION: BRIDGE NO. 29 OVER COVE CREEK ON US 321

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4668	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38461.1.1	BRNHS-321(13)	P.E.	
38461.2.1	BRNHS-321(13)	RW & UTIL.	
38461.3.1	BRNHS-321(13)	CONST.	



4



DESIGN DATA

ADT 2012 =	6,600 VPD
ADT 2032 =	10,600 VPD
DHV =	12 %
D =	80 %
* T =	6 %
V =	40 MPH
* (TTST 2% + DUAL 4%)	
FUNC. CLASS. =	RURAL ARTERIAL
STATEWIDE TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4668	=	0.208	MILE
LENGTH STRUCTURE TIP PROJECT B-4668	=	0.019	MILE
TOTAL LENGTH TIP PROJECT B-4668	=	0.227	MILE

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 31, 2011

LETTING DATE: MAY 15, 2012

GARY LOVERING, P.E.
PROJECT ENGINEER

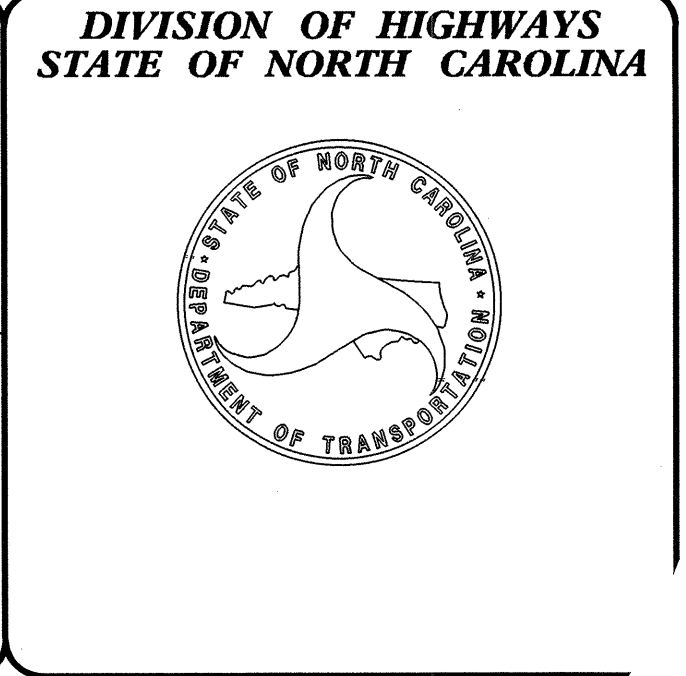
SUSAN C. LANCASTER, P.E.
PROJECT DESIGN ENGINEER

HYDRAULIC ENGINEER

[Signature] 2/17/12 P.E.

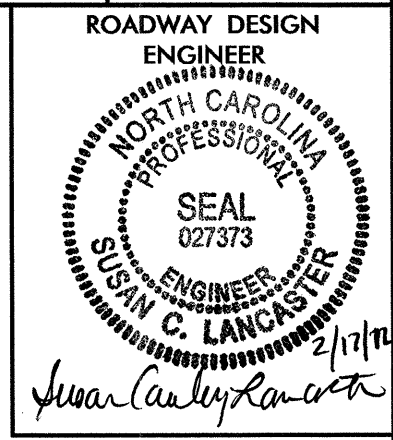
ROADWAY DESIGN ENGINEER

[Signature] 2/17/12 P.E.



08-FEB-2012 15:51
R:\Roadway\Projects\B4668_rdy_tsh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS



INDEX OF SHEETS:

1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARDS
1-B	CONVENTIONAL SYMBOLS
1-C THROUGH 1-E	SURVEY CONTROL SHEETS
2 THROUGH 2-B	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-C	DETOUR
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES
3-B	SUMMARY OF EARTHWORK, SHOULDER BERM, GUTTER, REMOVAL OF EXISTING ASPHALT PAVEMENT, AND GUARDRAIL
4	PLAN SHEET
5 THROUGH 6	PROFILE SHEETS
TMP-1 THROUGH TMP-5	TRAFFIC CONTROL PLANS
PM-1 THROUGH PM-2	PAVEMENT MARKING PLANS
EC-1 THROUGH EC-7	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
UO-1 THROUGH UO-2	UTILITIES BY OTHER PLANS
X-1A	CROSS-SECTION INDEX
X-1B	CROSS-SECTION SUMMARY SHEETS
X-1 THROUGH X-7	CROSS-SECTIONS
S-1 THROUGH S-20	STRUCTURE PLANS

2012 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 January, 2012 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 Super-elevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Super-elevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
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
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
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
840.71	Concrete and Brick Pipe Plug
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
866.04	Barbed Wire Fence with Wood Posts (2 - 7 Strands)
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 11/01/11

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 Blue Ridge Electric Membership Corp., Skyline, and Charter Communications Cable TV. 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 OTHERS.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

Note: Not to Scale

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

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-
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	?? ??

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○ W
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 RW Marker	-----
Proposed Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
Proposed Control of Access	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----
Proposed Permanent Easement with Iron Pin and Cap Marker	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Curb 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	-----

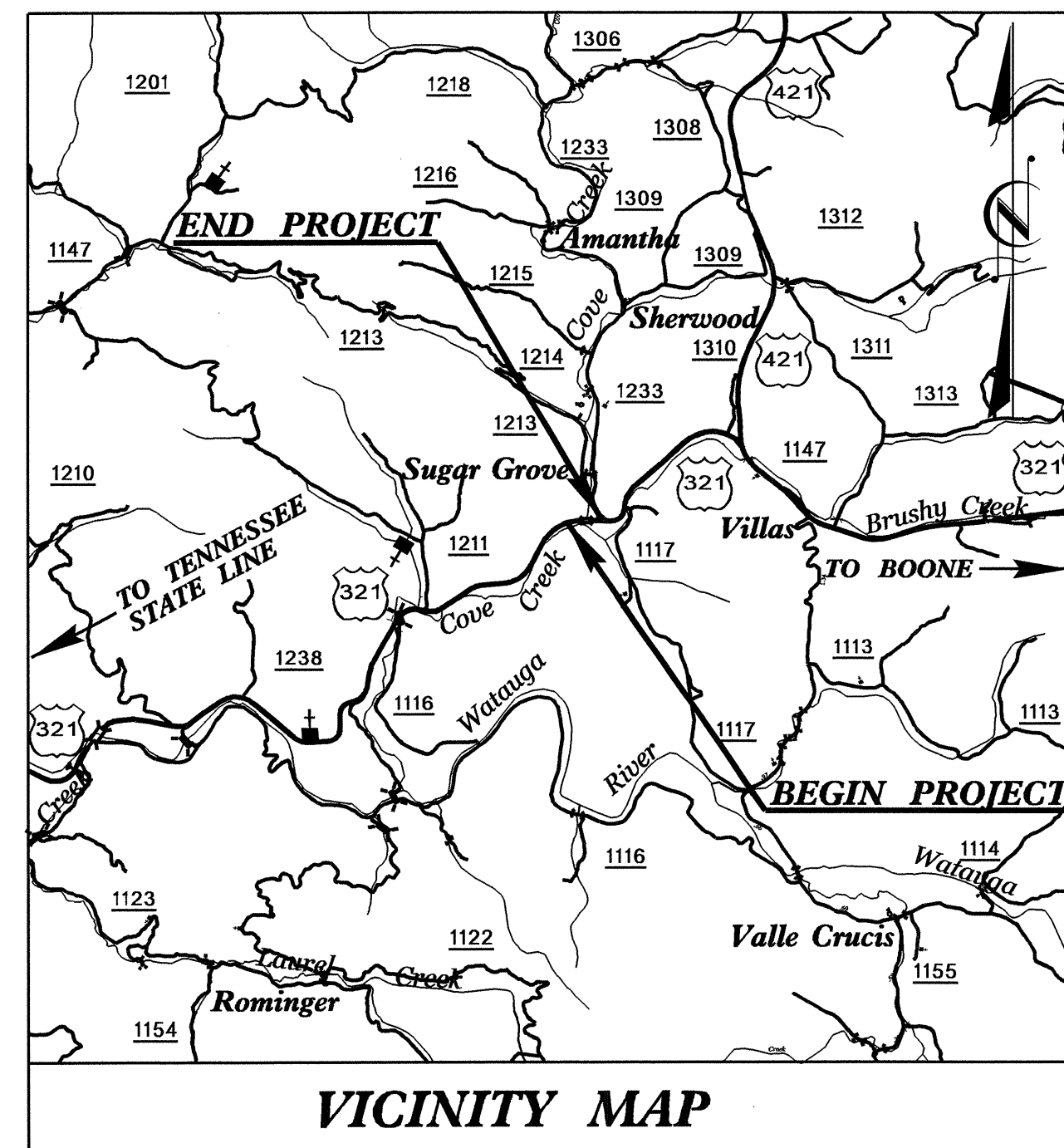
SANITARY SEWER:

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	□
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊗
U/G Test Hole (S.U.E.*)	⊗
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

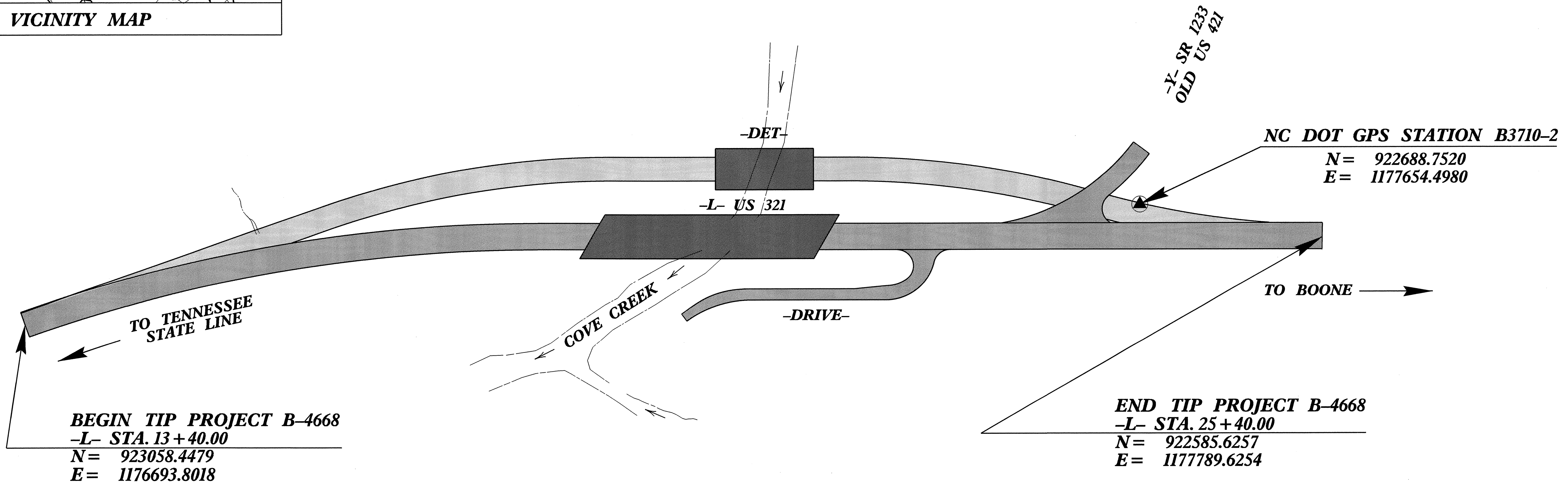
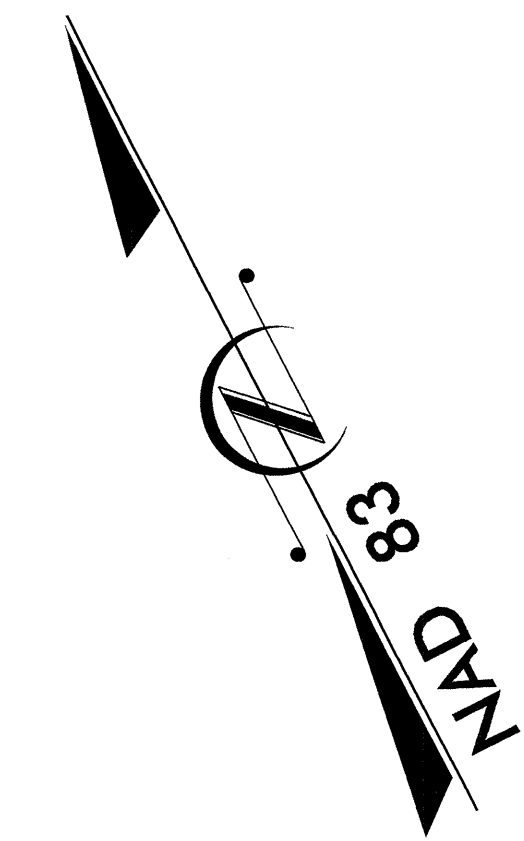
SURVEY CONTROL SHEET B-4668



BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL3	BL-3	923079.7117	1176350.1297	2666.05	OUTSIDE PROJECT LIMITS	
BL4	BL-4	923063.1359	1176767.0434	2667.60	14+11.16	16.30 LT
BL5	BL-5	922900.4877	1177212.8631	2670.90	18+83.11	16.08 LT
B37102	GPS B3710-2	922688.7520	1177654.4980	2672.34	23+72.70	29.18 LT
BY15	BY1-5	922381.4460	1178228.5970	2680.63	OUTSIDE PROJECT LIMITS	

BY POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
BY27	BY2-7	922945.3450	1177772.3460	2672.41	14+58.38	18.89 LT
BY1	GPS B3710-2	922688.7520	1177654.4980	2672.34	11+63.43	33.72 RT

 BM1 ELEVATION - 2666.58
 N 922783 E 1177167
 L STATION 18+96.00 109 RIGHT
 8" SPIKE IN ROOT 14" SWEET GUM



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B3710-2"
 WITH NAD 83 STATE PLANE GRID COORDINATES OF
 NORTHING: 922688.752(ft) EASTING: 1177654.498(ft)
 ELEVATION: 2672.344(ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99990181
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3710-2" TO -L- STATION 13+40.00 IS
 N 68°57'08" W 1029.37'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NGVD 29

NOTES:

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCTHIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/doh/preconstructhighway/location/project/)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 B4668_LS_CONTROL.HTML
 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 EXISTING NCGS MONUMENTATION
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

6/2/99
 PLAN-202 16:0
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 5/13/03 11:46:58.1s-I-C.dgn

6/2/99

SURVEY CONTROL SHEET B-4668

DESIGN ALIGNMENTS

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	923063.8928	1176354.6401
PC	10+17.06	923065.4527	1176371.6259
PCC	16+76.98	922974.2002	1177019.2709
PT	18+07.40	922920.7232	1177138.1651
PC	23+94.45	922652.8584	1177660.5382
PT	25+46.36	922582.6482	1177795.2509
POT	27+95.57	922466.0084	1178015.4745

Y

TYPE	STATION	NORTH	EAST
POT	10+00.00	922741.5855	1177487.5082
PC	10+11.94	922736.1366	1177498.1343
PT	14+57.80	922947.6570	1177791.1042
POT	15+56.83	923045.5245	1177775.9438

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NOTE: DRAWING NOT TO SCALE

31-JAN-2012 16:10
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8:53:16 PM

SURVEY CONTROL SHEET B-4668

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	17+00.00	30.00	922937.8981	1177029.2489
L	17+60.00	50.00	922896.2558	1177074.4455
L	18+07.40	50.00	922876.2317	1177115.3505
L	23+50.00	48.00	922630.4299	1177599.0808
L	23+50.00	20.00	922655.3453	1177611.8570
L	17+00.00	19.98	922947.1690	1177033.0553
L	15+10.00	-20.00	923044.9335	1176865.5232
L	15+10.00	-50.00	923073.9683	1176873.0717
L	18+07.40	-50.00	922965.2148	1177160.9797
L	16+76.98	-50.00	923020.7889	1177037.4230
L	23+19.40	-50.00	922731.5934	1177616.5686

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B3710-2"
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 VERTICAL DATUM USED IS NGVD 29

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/doh/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:
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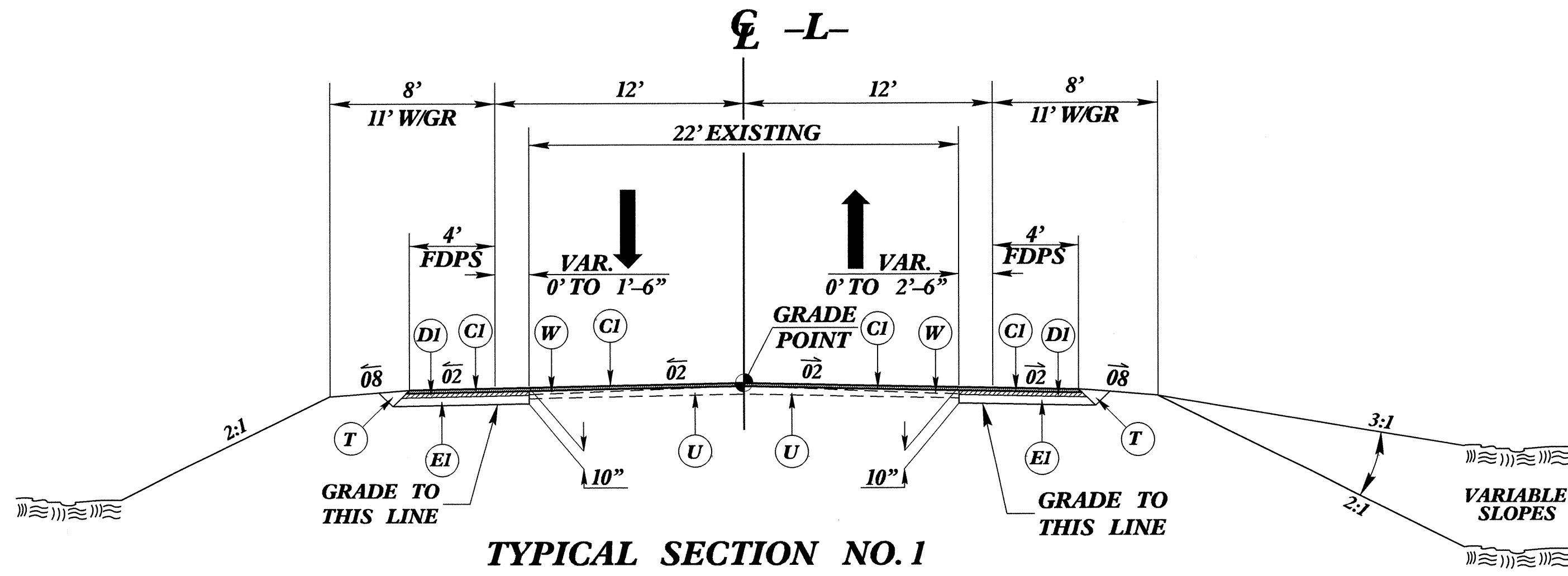
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NOTE: DRAWING NOT TO SCALE

FINAL PAVEMENT SCHEDULE	
C1	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.
C2	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 LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 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.
J1	PROP. 6" AGGREGATE BASE COURSE.
J2	PROP. 8" AGGREGATE BASE COURSE.
P1	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YARD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING).

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



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AT THE FOLLOWING LOCATIONS:

NOTE: OVERLAY EXISTING PAVEMENT WITH 1 1/2" OF S9.5B -L- STA. 13+40.00 TO STA. 16+50.00

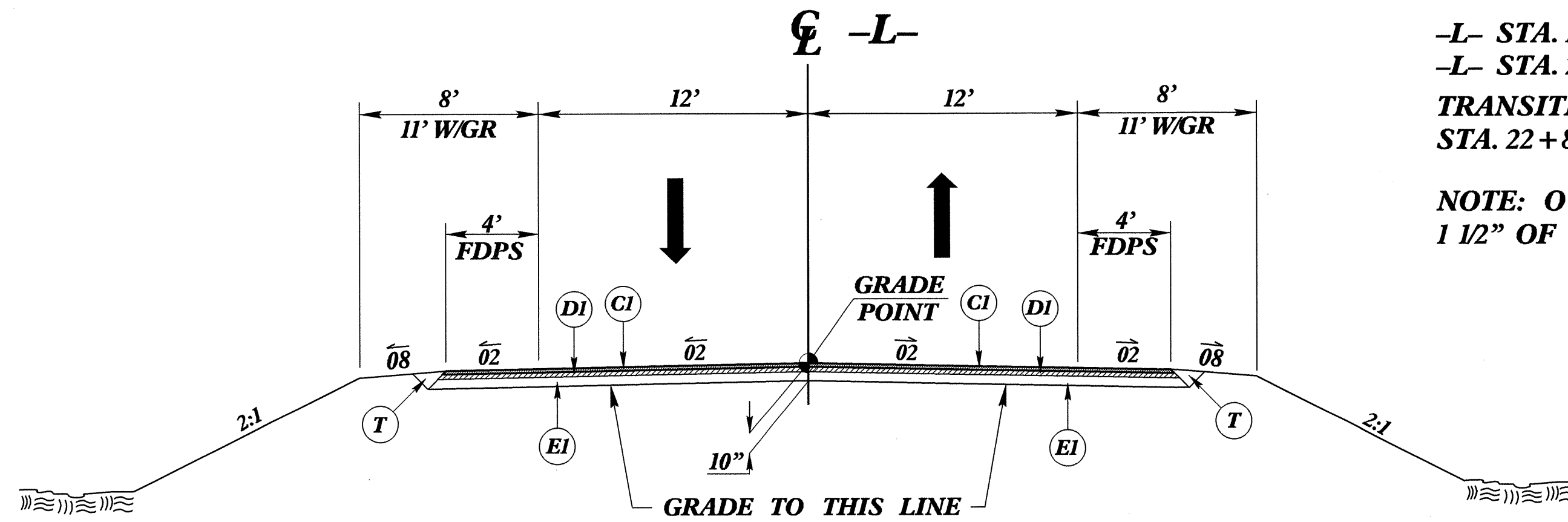
TRANSITION FROM EXISTING @ -L- STA. 16+50.00 TO TYPICAL SECTION NO. 1 @ -L- STA. 17+00.00

-L- STA. 17+00.00 TO STA. 18+50.00

-L- STA. 21+00.00 TO STA. 22+85.00

TRANSITION FROM TYPICAL SECTION NO. 1 @ -L- STA. 22+85.00 TO EXISTING @ -L- STA. 23+35.00

NOTE: OVERLAY EXISTING PAVEMENT WITH 1 1/2" OF S9.5B -L- STA. 23+35.00 TO STA. 25+85.00

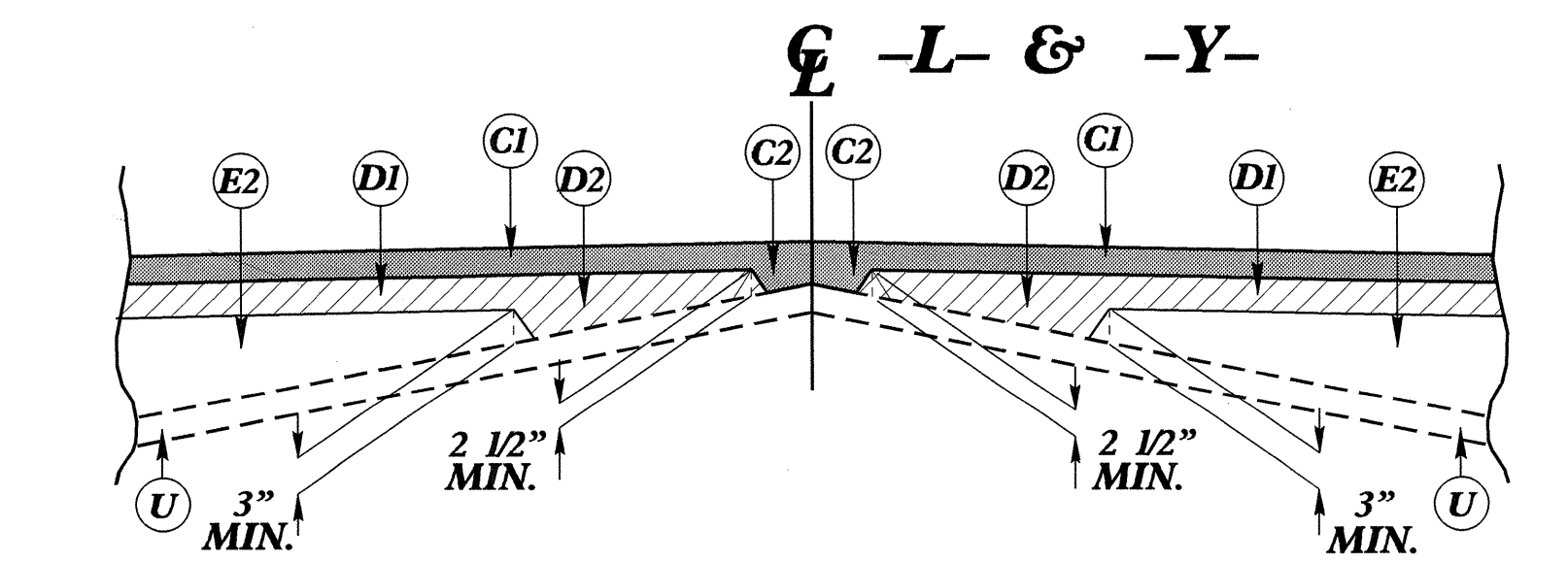


TYPICAL SECTION NO. 2

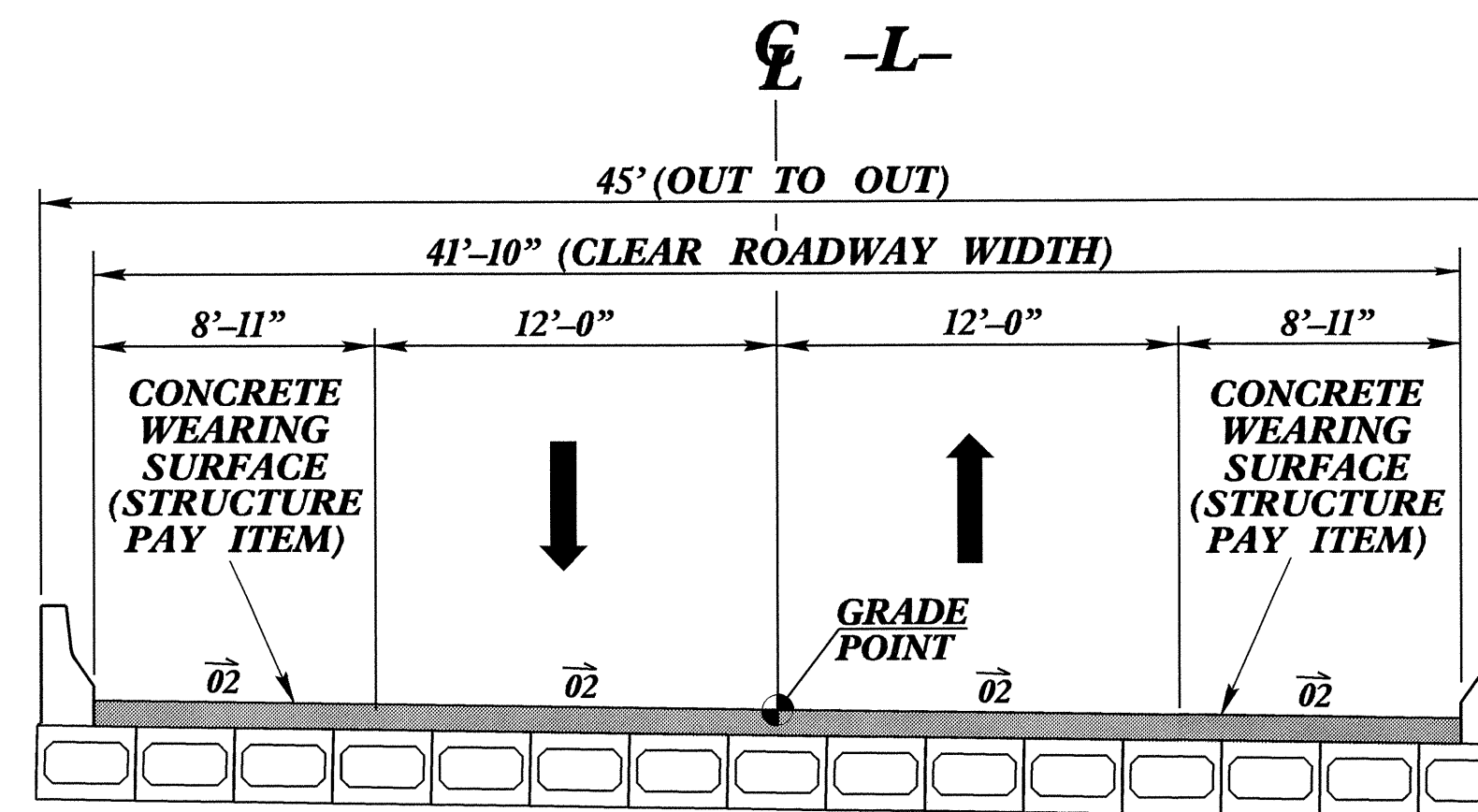
USE TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS:

-L- STA. 18+50.00 TO STA. 19+28.00 (BEGIN BRIDGE)

-L- STA. 20+28.00 (END BRIDGE) TO STA. 21+00.00



DETAIL SHOWING METHOD OF WEDGING
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1 & 5



TYPICAL SECTION NO. 3

BOX BEAM BRIDGE
SEE STRUCTURE PLANS

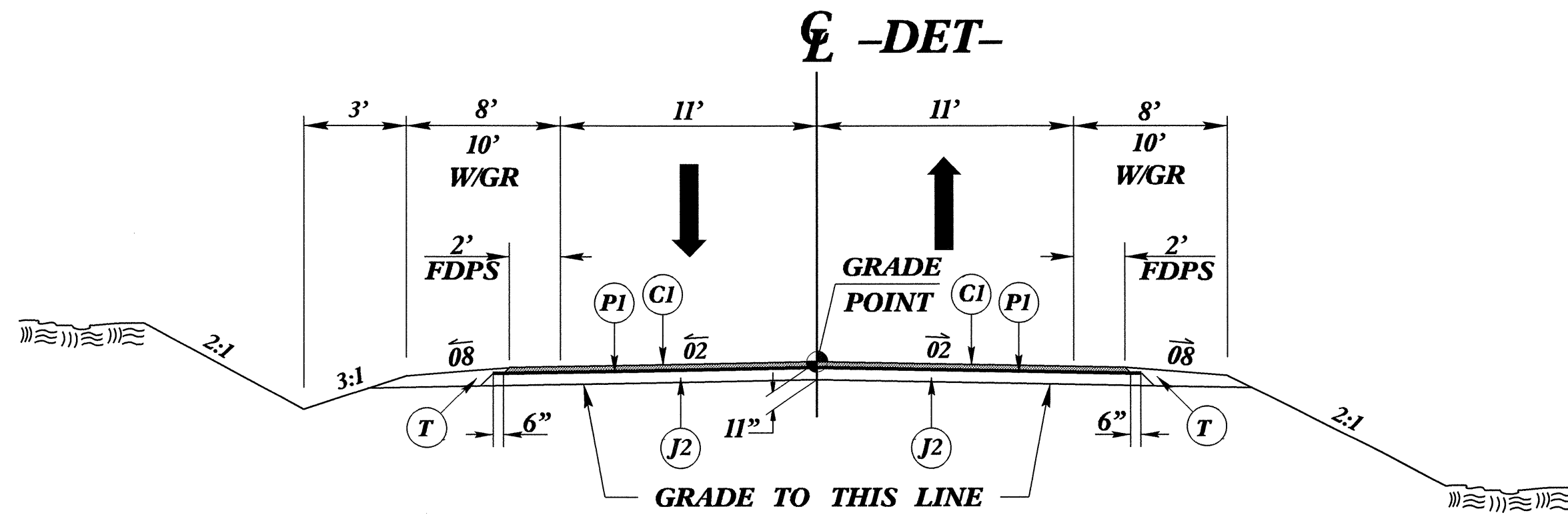
USE TYPICAL SECTION NO. 3 AT THE FOLLOWING LOCATION:

-L- STA. 19+28.00 (BEGIN BRIDGE) TO

-L- STA. 20+28.00 (END BRIDGE)

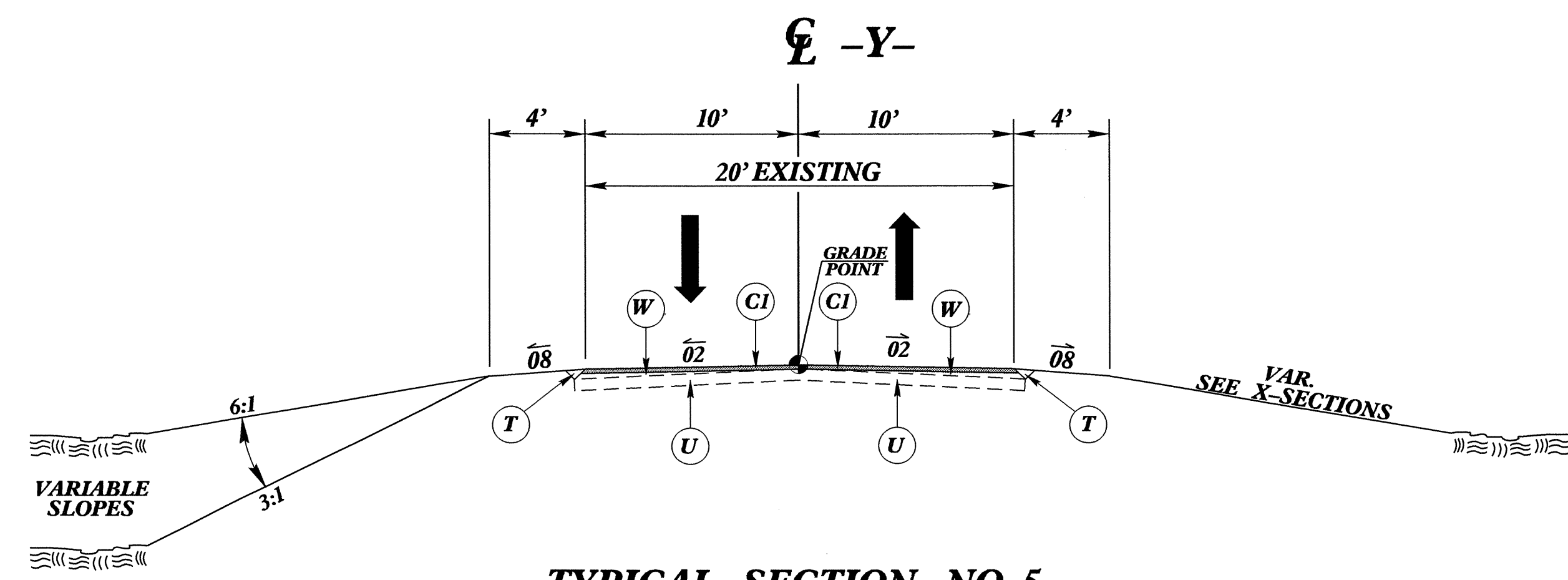
FINAL PAVEMENT SCHEDULE	
C1	3" S9.5B
C2	VAR. DEPTH S9.5B
D1	3" I19.0B
D2	VAR. DEPTH I19.5B
E1	4" B25.0B
E2	VAR. DEPTH B25.0B
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
PI	PRIME COAT
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPHALT PAVEMENT

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



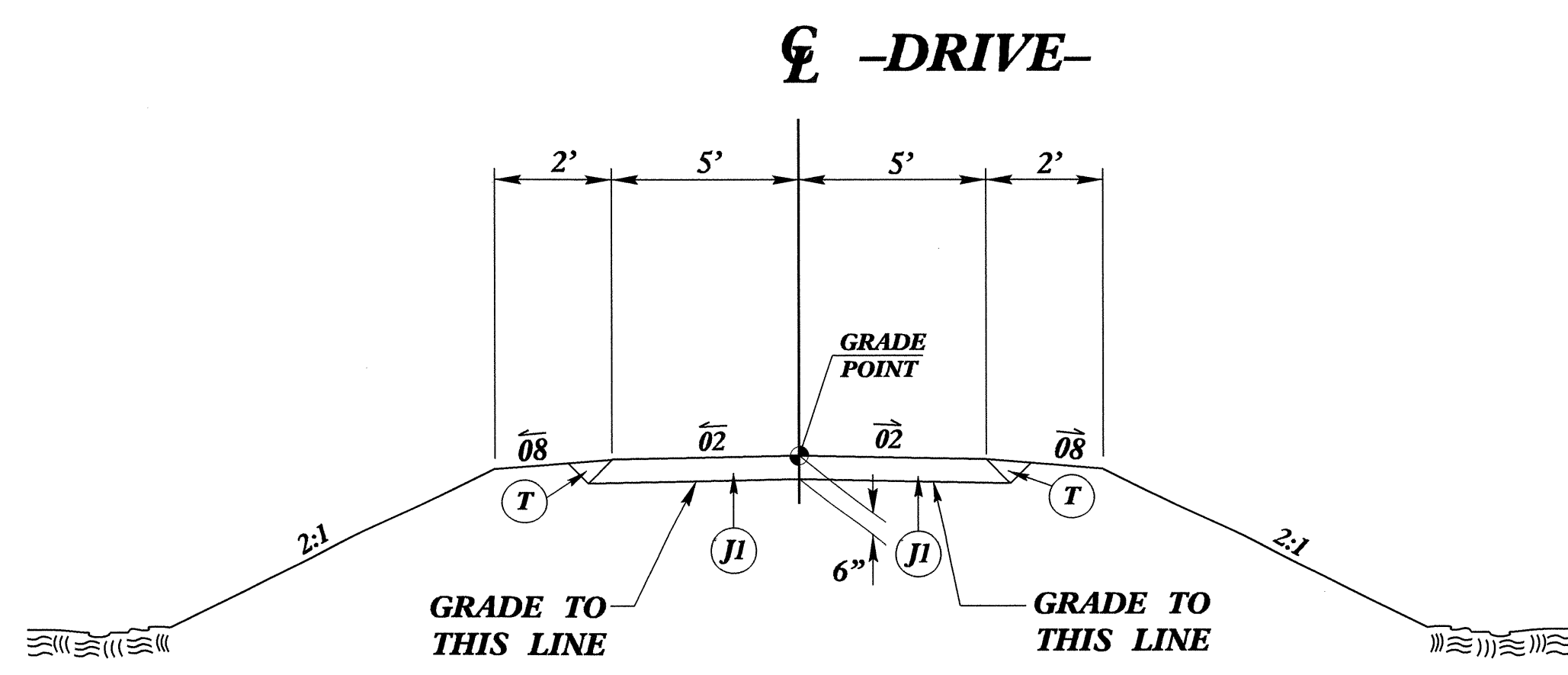
TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AT THE FOLLOWING LOCATIONS:
 -DET- STA. 11+71.90 TO STA. 16+30.40 (BEGIN BRIDGE)
 -DET- STA. 17+45.40 (END BRIDGE) TO STA. 20+93.00
 NOTE: FOR NARROW WIDENING ON THE DETOUR 4" OF B25.0B MAY BE USED IN LIEU OF ABC.



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 AT THE FOLLOWING LOCATION:
 -Y- STA. 10+82.06 TO STA. 12+00.00

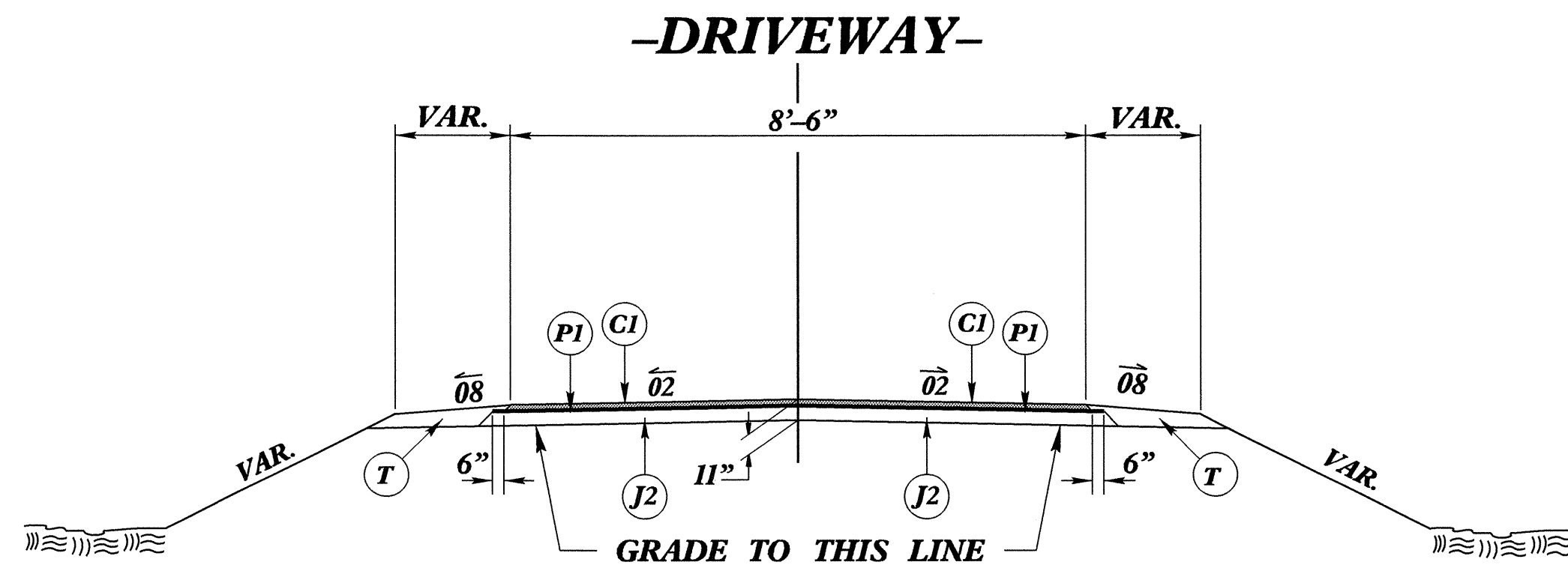


TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AT THE FOLLOWING LOCATION:
 -DRIVE- STA. 10+15.00 TO STA. 12+59.76

FINAL PAVEMENT SCHEDULE	
CI	3" S9.5B
C2	VAR. DEPTH S9.5B
D1	3" I19.0B
D2	VAR. DEPTH I19.5B
E1	4" B25.0B
E2	VAR. DEPTH B25.0B
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
PI	PRIME COAT
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH ASPHALT PAVEMENT

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

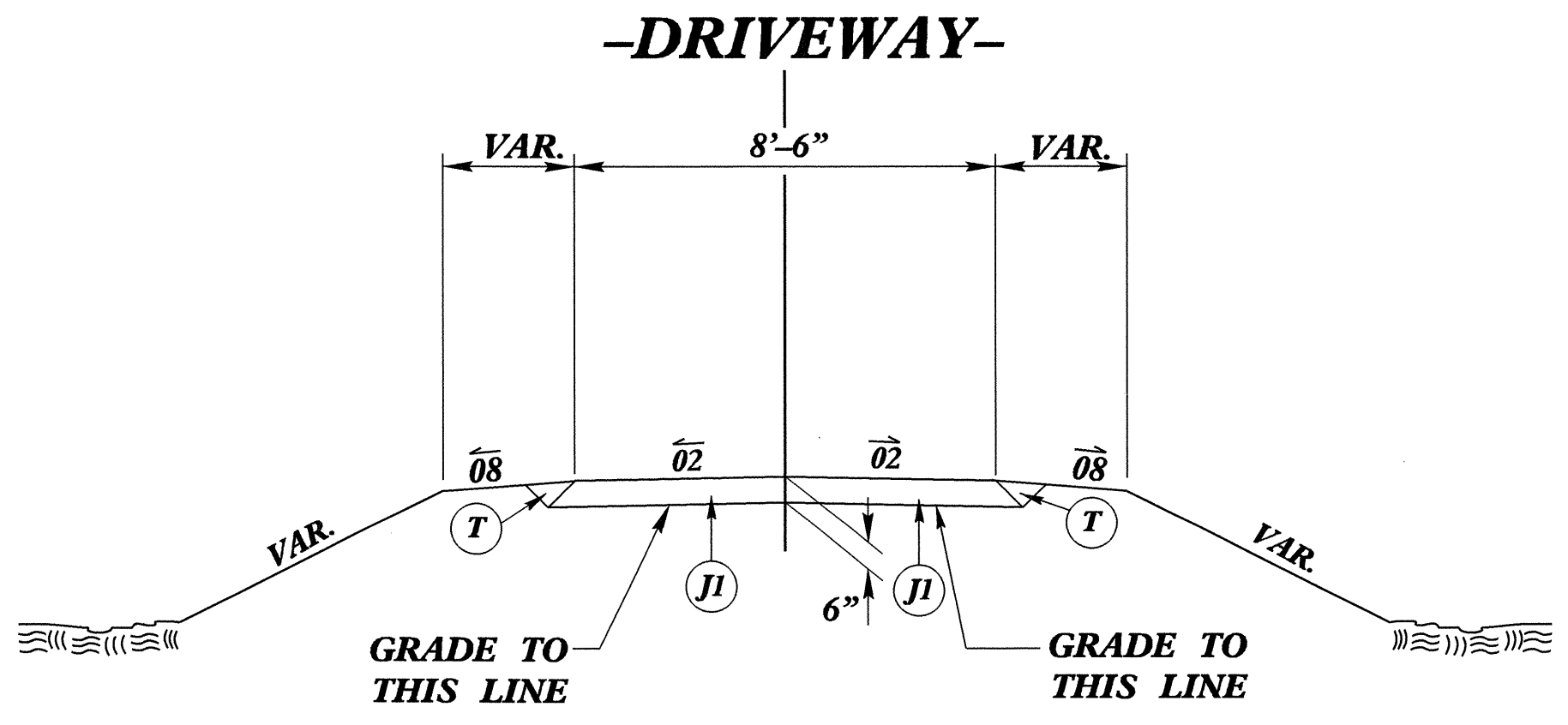


TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
AT THE FOLLOWING LOCATION:
-L- STA. 15+50.00 LT. (DRIVEWAY TO PARCEL NO. 1)

NOTES:
FOR TEMPORARY DRIVEWAY TIE
USE 6" OF ABC.

NO HORIZONTAL OR VERTICAL ALIGNMENT
PROVIDED FOR DRIVEWAY.



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8
AT THE FOLLOWING LOCATION:
-L- STA. 15+90.00 LT. (DRIVEWAY TO PARCEL NO. 5)

NOTES:
FOR TEMPORARY DRIVEWAY TIE
USE 6" OF ABC.

NO HORIZONTAL OR VERTICAL ALIGNMENT
PROVIDED FOR DRIVEWAY.

**STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202819**

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (19+78.00-L-)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	200	CY	UNDERCUT EXCAVATION
0134000000-E	240	16	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	100	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	362	SY	GEOTEXTILE FOR SOIL STABILIZATION
0318000000-E	300	65	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
0320000000-E	300	210	SY	FOUNDATION CONDITIONING GEOTEXTILE
0343000000-E	310	68	LF	15" SIDE DRAIN PIPE
0344000000-E	310	232	LF	18" SIDE DRAIN PIPE
0348000000-E	310	4	EA	*** SIDE DRAIN PIPE ELBOWS (15")
0402000000-E	310	212	LF	48" RC PIPE CULVERTS, CLASS III
0588000000-E	310	92	LF	18" CS PIPE CULVERTS, 0.064" THICK
1099500000-E	505	131	CY	SHALLOW UNDERCUT
1099700000-E	505	250	TON	CLASS IV SUBGRADE STABILIZATION
1121000000-E	520	1,410	TON	AGGREGATE BASE COURSE
1220000000-E	545	100	TON	INCIDENTAL STONE BASE
1275000000-E	600	950	GAL	PRIME COAT
1330000000-E	607	250	SY	INCIDENTAL MILLING
1489000000-E	610	500	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	490	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B

SUMMARY OF QUANTITIES - B-4668

ItemNumber	Sec #	Quantity	Unit	Description
1519000000-E	610	1,020	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1575000000-E	620	107	TON	ASPHALT BINDER FOR PLANT MIX
1693000000-E	654	20	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2022000000-E	815	44.8	CY	SUBDRAIN EXCAVATION
2033000000-E	815	33.6	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	200	LF	6" PERFORATED SUBDRAIN PIPE
2070000000-N	815	1	EA	SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE
2209000000-E	838	6	CY	ENDWALLS
2264000000-E	840	0.454	CY	PIPE PLUGS
2275000000-E	SP	72	CY	FLOWABLE FILL
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	230	LF	SHOULDER BERM GUTTER
3030000000-E	862	587.5	LF	STEEL BM GUARDRAIL
3045000000-E	862	37.5	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3270000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3380000000-E	862	687.5	LF	TEMPORARY STEEL BM GUARDRAIL
3387000000-N	862	4	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (B-77)
3389100000-N	SP	4	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350

ItemNumber	Sec #	Quantity	Unit	Description
3559000000-E	866	160	LF	** STRAND BARBED WIRE FENCE WITH POSTS (4)
3628000000-E	876	17	TON	RIP RAP, CLASS I
3649000000-E	876	6	TON	RIP RAP, CLASS B
3656000000-E	876	512	SY	GEOTEXTILE FOR DRAINAGE
4400000000-E	1110	392	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	160	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	56	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	71	EA	DRUMS
4435000000-N	1135	30	EA	CONES
4445000000-E	1145	64	LF	BARRICADES (TYPE III)
4450000000-N	1150	1,620	HR	FLAGGER
4516000000-N	1180	30	EA	SKINNY DRUM
4650000000-N	1251	78	EA	TEMPORARY RAISED PAVEMENT MARKERS
4770000000-E	1205	380	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)
4810000000-E	1205	20,183	LF	PAINT PAVEMENT MARKING LINES (4")
4835000000-E	1205	124	LF	PAINT PAVEMENT MARKING LINES (24")
4845000000-N	1205	12	EA	PAINT PAVEMENT MARKING SYMBOL
4847000000-E	1205	5,272	LF	POLYUREA PAVEMENT MARKING LINES (4", *****) (STANDARD GLASS BEADS)
4905000000-N	1253	18	EA	SNOWPLOWABLE PAVEMENT MARKERS
6000000000-E	1605	5,535	LF	TEMPORARY SILT FENCE
6006000000-E	1610	315	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	305	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	235	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	4	ACR	TEMPORARY MULCHING

ItemNumber	Sec #	Quantity	Unit	Description
6018000000-E	1620	150	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.5	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	300	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	200	LF	SAFETY FENCE
6030000000-E	1630	460	CY	SILT EXCAVATION
6036000000-E	1631	8,000	SY	MATTING FOR EROSION CONTROL
6038000000-E	SP	230	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	415	LF	1/4" HARDWARE CLOTH
6071010000-E	SP	540	LF	WATTLE
6071020000-E	SP	135	LB	POLYACRYLAMIDE (PAM)
6071030000-E	1640	115	LF	COIR FIBER BAFFLE
6084000000-E	1660	3	ACR	SEEDING & MULCHING
6087000000-E	1660	2	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	125	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	3.5	TON	FERTILIZER TOPDRESSING
6114500000-N	1667	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	18	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.1	ACR	REFORESTATION

6/21/00

COMPUTED BY: FMM DATE: 2/22/02
 CHECKED BY: SAT DATE: 02/02/02

PROJECT REFERENCE NO. B-4668 SHEET NO. 3-B

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

★ SUMMARY OF EARTHWORK IN CUBIC YARDS

STATION	STATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-DETOUR-						
10+00.05	16+30.40	28	0	4,861	4,833	0
17+45.40	22+18.52	215	0	2,599	2,384	0
SUBTOTAL		243	0	7,460	7,217	0
-L-						
16+50.00	19+28.00	2	0	1,213	1,211	0
20+28.00	23+35.00	7	0	1,267	1,260	0
-Y-						
11+00.00	12+00.00	2	0	21	19	0
-DRIVE-						
10+00.00	12+59.76	3	0	765	762	0
SUBTOTAL		14	0	3,266	3,252	0
SHOULDER MATERIAL		0	0	406	406	0
SUBTOTAL		0	0	406	406	0
DETOUR REMOVAL						
10+00.05	16+30.40	4,185	0	32	0	4,153
17+45.40	22+18.52	2,345	0	5	0	2,340
SUBTOTAL		6,530	0	37	0	6,493
PROJECT TOTALS		6,787	0	11,169	10,875	6,493
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT					544	
GRAND TOTALS					11,419	6,493
SAY		7,000			12,000	6,600

ESTIMATED DRAINAGE DITCH EXCAVATION = 16 CY
 ESTIMATED UNDERCUT = 200 CY
 ESTIMATED SHALLOW UNDERCUT = 131 CY

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.

★ ASPHALT PAVEMENT REMOVAL SUMMARY IN SQUARE YARDS

LINE	STATION TO STATION	LOCATION	REMOVAL
-L-	18+50.00 TO 19+35.10	CL	215.25
-L-	20+19.24 TO 21+00.00	CL	200.16
-L-	23+17.80 TO 25+33.22	LT	187.07
-DETOUR-	10+00.05 TO 16+30.40	CL	1,338.55
-DETOUR-	17+45.40 TO 21+97.27	CL	1,067.21
TOTAL			3,008.24
SAY			3,100

★ APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

SUMMARY OF SHOULDER BERM GUTTER

LINE	STATION TO STATION	LOCATION	FT
-L-	17+70.00 TO 18+96.45	RT	126.45
-L-	20+44.33 TO 21+44.00	RT	99.67
TOTAL			226.12
SAY			230

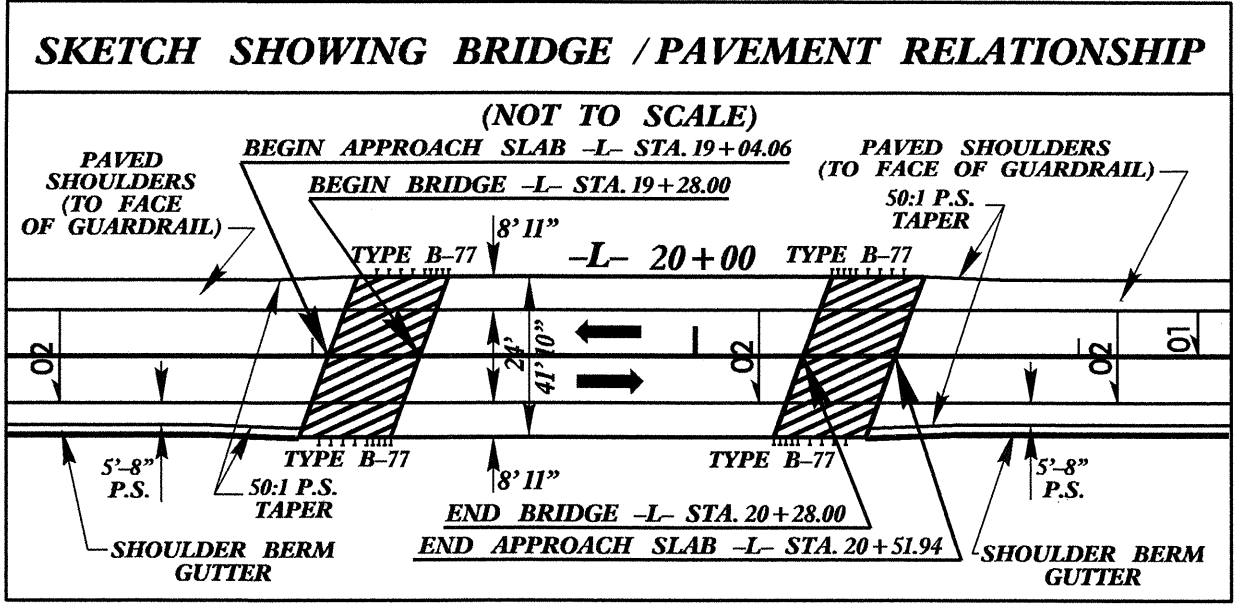
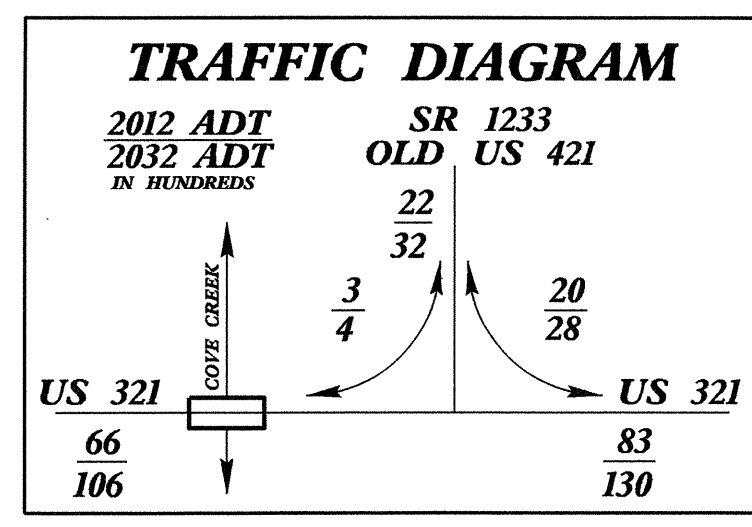
"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.

GUARDRAIL SUMMARY

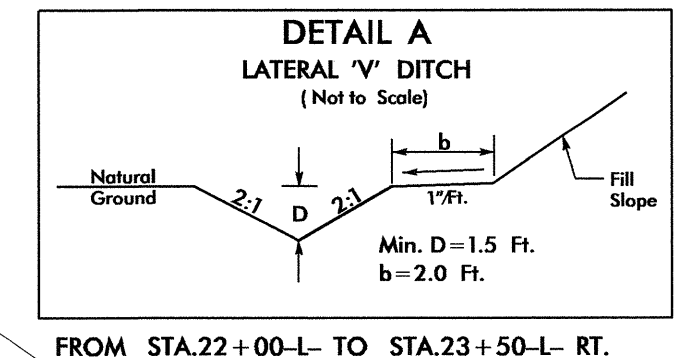
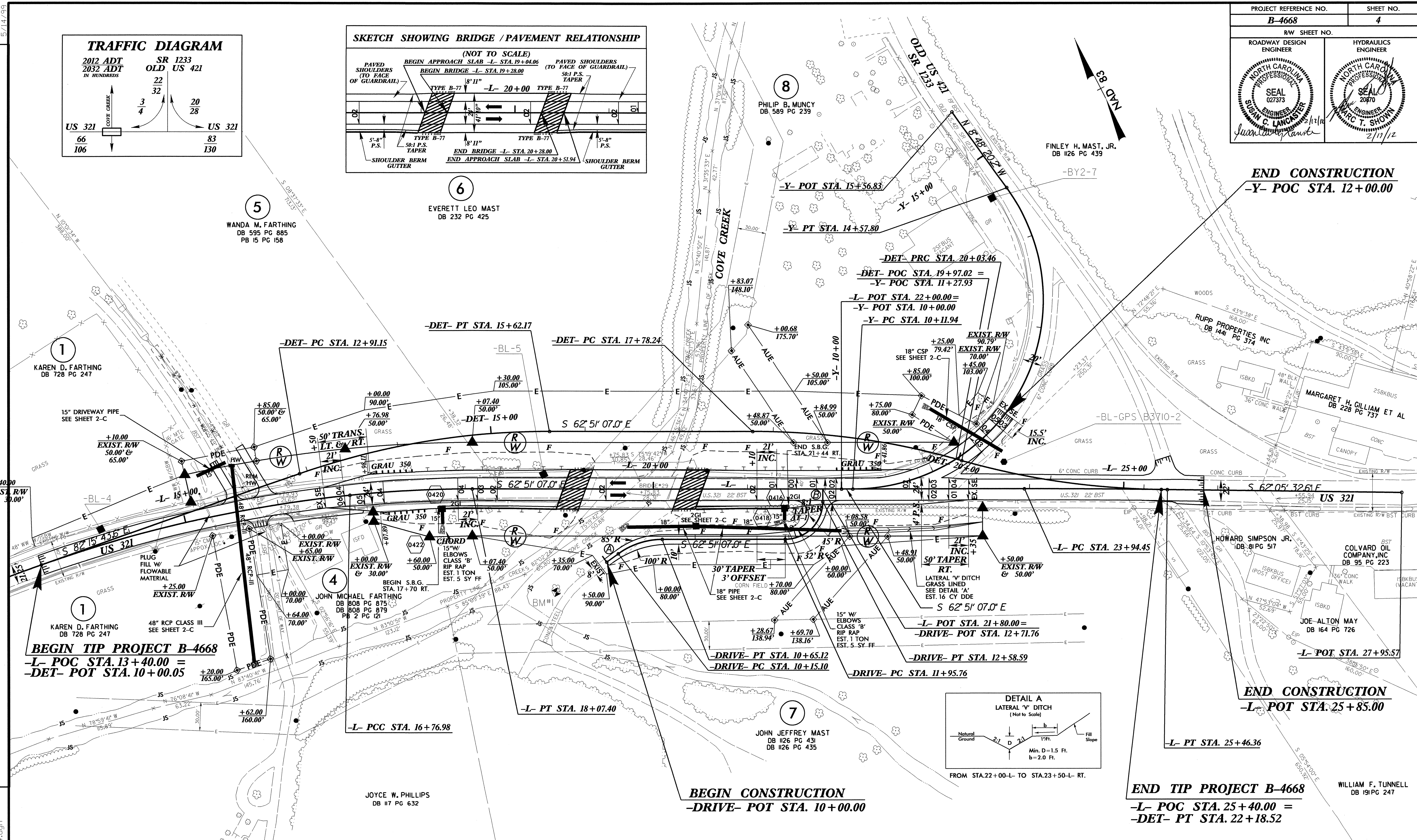
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
 G = GATING IMPACT ATTENUATOR TYPE 350
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS					REMARKS		
				STRAIGHT	TEMPORARY STRAIGHT	SHOP CURVED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	B-77	GRAU 350	AT-1	TEMPORARY B-77	TEMPORARY GRAU 350			
-L-	16+98.11	BRIDGE 19+35.61	LT.	237.50'				19+35.61	8'-11"	11'	45.83'	50'			1	1						
-L-	BRIDGE 20+35.61	22+41.86	LT.	206.25'				20+35.61	8'-11"	11'	50'	45.83'	1'		1	1						
-L-	17+07.89	BRIDGE 19+20.39	RT.	212.50'				19+20.39	8'-11"	11'	50'	46.68'	0'-11"		1	1						
-L/-DRIVE-	-L- BRIDGE 20+20.39	-DRIVE- 12+05.00	RT.	125.00'		31.25'		20+20.39	8'-11"	11'	44.98'	6.25'			1		1					
-DETOUR-	12+74.15	BRIDGE 16+30.40	LT.		356.25'			FILL 12+75.00	4'	10'		337.5'							1	1		
-DETOUR-	BRIDGE 17+45.40	19+64.15	LT.		218.75'			FILL 19+50.00	4'	10'	200'		4'						1	1		
-DETOUR-	14+36.65	BRIDGE 16+30.40	RT.		193.75'			FILL 15+25.00	4'	10'	175'		4'						1	1		
-DETOUR-	BRIDGE 17+45.40	19+14.15	RT.		168.75'			BRIDGE	4'	10'		150'		4'					1	1		
SUBTOTAL				781.25'	937.50'	31.25'	DEDUCTION FOR ANCHOR UNITS :															
LESS ANCHOR UNITS				-225.00	-275.00'	-6.25'	PERMANENT:															
TOTAL				556.25'	662.50'	25.00'	B-77 4 @ 18.75' = 75.00'															
SAY				587.50'	687.50'	37.50'	GRAU-350 3 @ 50.00' = 150.00'															
SAY				587.50'	687.50'	37.50'	TOTAL 225.00'															
SAY				587.50'	687.50'	37.50'	AT-1 1 @ 6.25' = 6.25'															
SAY				587.50'	687.50'	37.50'	TEMPORARY:															
SAY				587.50'	687.50'	37.50'	B-77 4 @ 18.75' = 75.00'															
SAY				587.50'	687.50'	37.50'	GRAU-350 4 @ 50.00' = 200.00'															
SAY				587.50'	687.50'	37.50'	TOTAL 275.00'															
SAY				587.50'	687.50'	37.50'	5 ADDITIONAL GUARDRAIL POSTS															

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REVISIONS
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-L-		-DET-		-Y-		-DRIVE-	
PI Sta 13+53.05	PI Sta 17+42.25	PI Sta 24+70.41	PI Sta 14+27.97	PI Sta 18+91.60	PI Sta 21+11.64	PI Sta 10+40.96	PI Sta 12+35.76
PC Sta 10+17.06	$\Delta = 5^{\circ} 51' 39.5''$ (RT)	$\Delta = 0^{\circ} 45' 34.4''$ (RT)	$\Delta = 19^{\circ} 24' 36.6''$ (RT)	$\Delta = 16^{\circ} 07' 49.4''$ (RT)	S 62° 07' 27.7" E (AHEAD)	$\Delta = 35^{\circ} 49' 34.3''$ (RT)	$\Delta = 90^{\circ} 00' 00.0''$ (LT)
N 84° 45' 11.37" E (BACK)	D = 4' 29' 37.6"	D = 0' 30' 00.0"	D = 7' 09' 43.1"	D = 7' 09' 43.1"	$\Delta = 15^{\circ} 24' 09.5''$ (LT)	D = 7' 37' 11.0"	D = 143' 14' 22.0"
$\Delta = 26^{\circ} 32' 02.1''$ (RT)	L = 130.42'	L = 151.91'	L = 271.02'	L = 225.22'	L = 445.85'	L = 50.02'	L = 62.83'
D = 4' 01' 14.7"	T = 65.27'	T = 75.96'	T = 136.82'	T = 113.36'	T = 397.65'	T = 25.86'	T = 40.00'
L = 659.92'	R = 1,275.00'	R = 11,459.16'	R = 800.00'	R = 800.00'	R = 202.82'	R = 80.00'	R = 40.00'
T = 335.99'	SE = 0.04	SE = NC	SE = 0.04	SE = 0.04	SE = SEE PLANS	SE = NC	SE = NC
R = 1,425.00'	RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS
SE = 0.04						Ⓐ N 81° 19' 18.7" E	Ⓑ N 27° 08' 53.0" E
RO = SEE PLANS							

NOTE: INCIDENTAL MILLING AS DIRECTED BY THE ENGINEER FOR STA. -L- 22+25.00 TO 23+15.00.

NOTES:

- FOR -DET- PLAN VIEW SEE SHEET 2-C.
- FOR -L- AND -DET- PROFILE SEE SHEET 5.
- FOR -Y- AND -DRIVE- PROFILE SEE SHEET 6.
- ALL RIGHT OF WAY AND EASEMENTS ARE REFERENCED FROM -L-.
- ALL DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE ON PLANS.
- FOR STRUCTURE PLANS SEE SHEETS S-1 THROUGH S-20.

WILLIAM F. TUNNELL
DB 191 PG 247

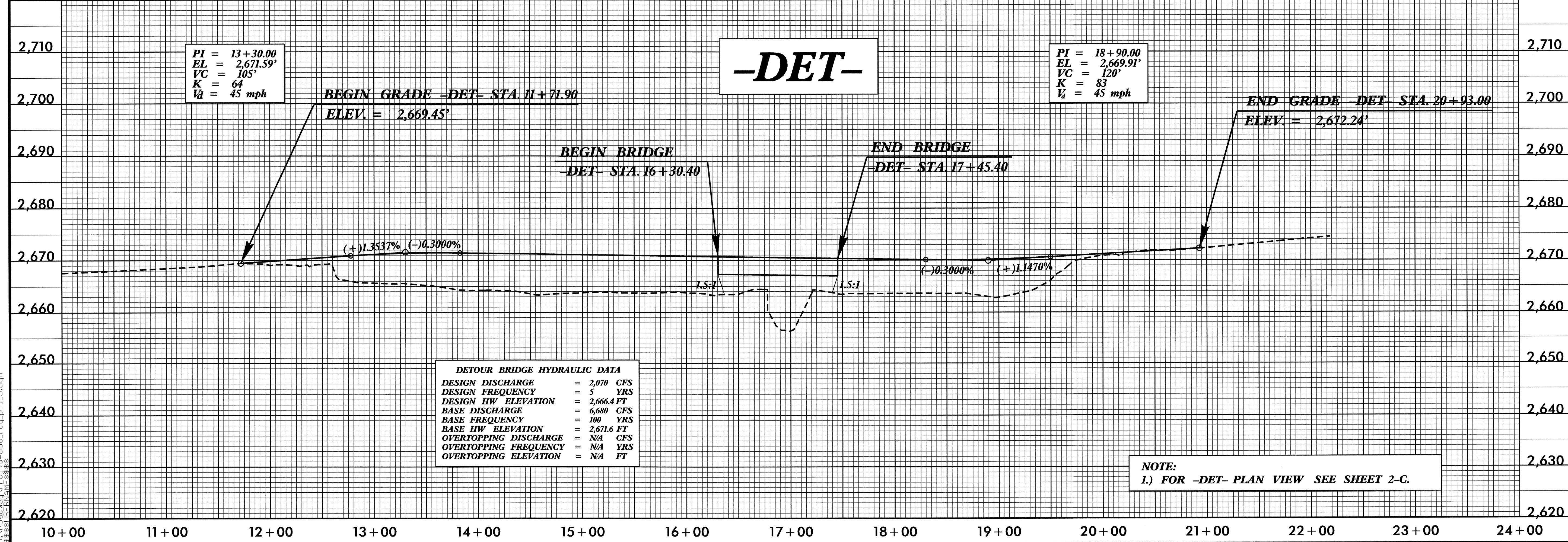
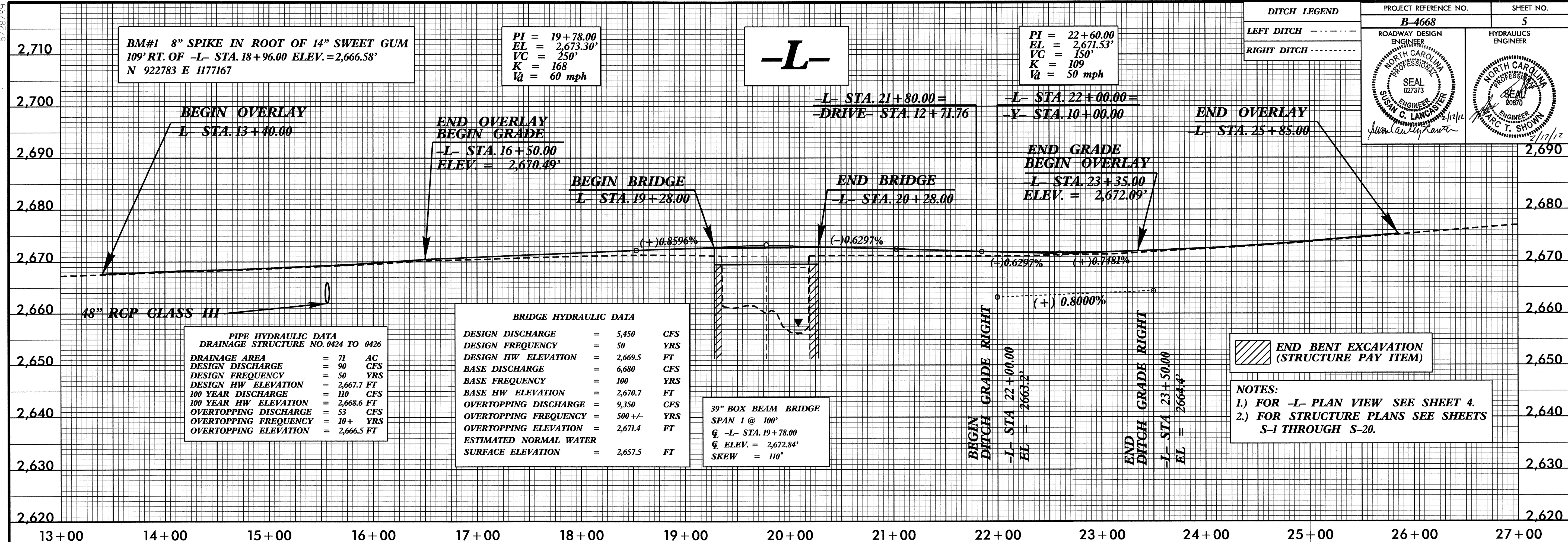
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DITCH LEGEND
 LEFT DITCH - - - - -
 RIGHT DITCH - - - - -

PROJECT REFERENCE NO. **B-4668**
 SHEET NO. **5**

ROADWAY DESIGN ENGINEER
 NORTH CAROLINA PROFESSIONAL SEAL
 SUSAN C. LANCASTER
 ENGINEER
 02/27/3

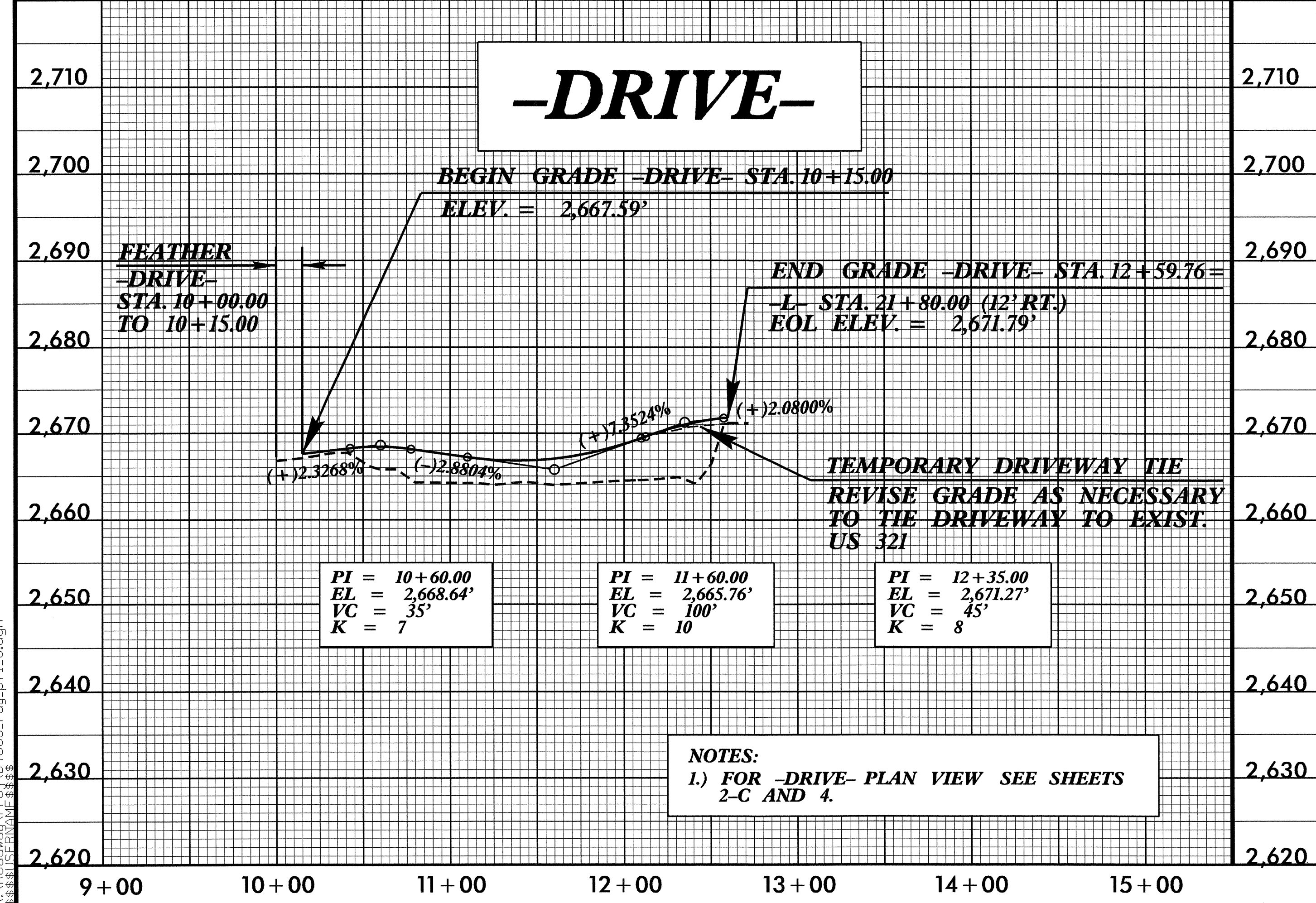
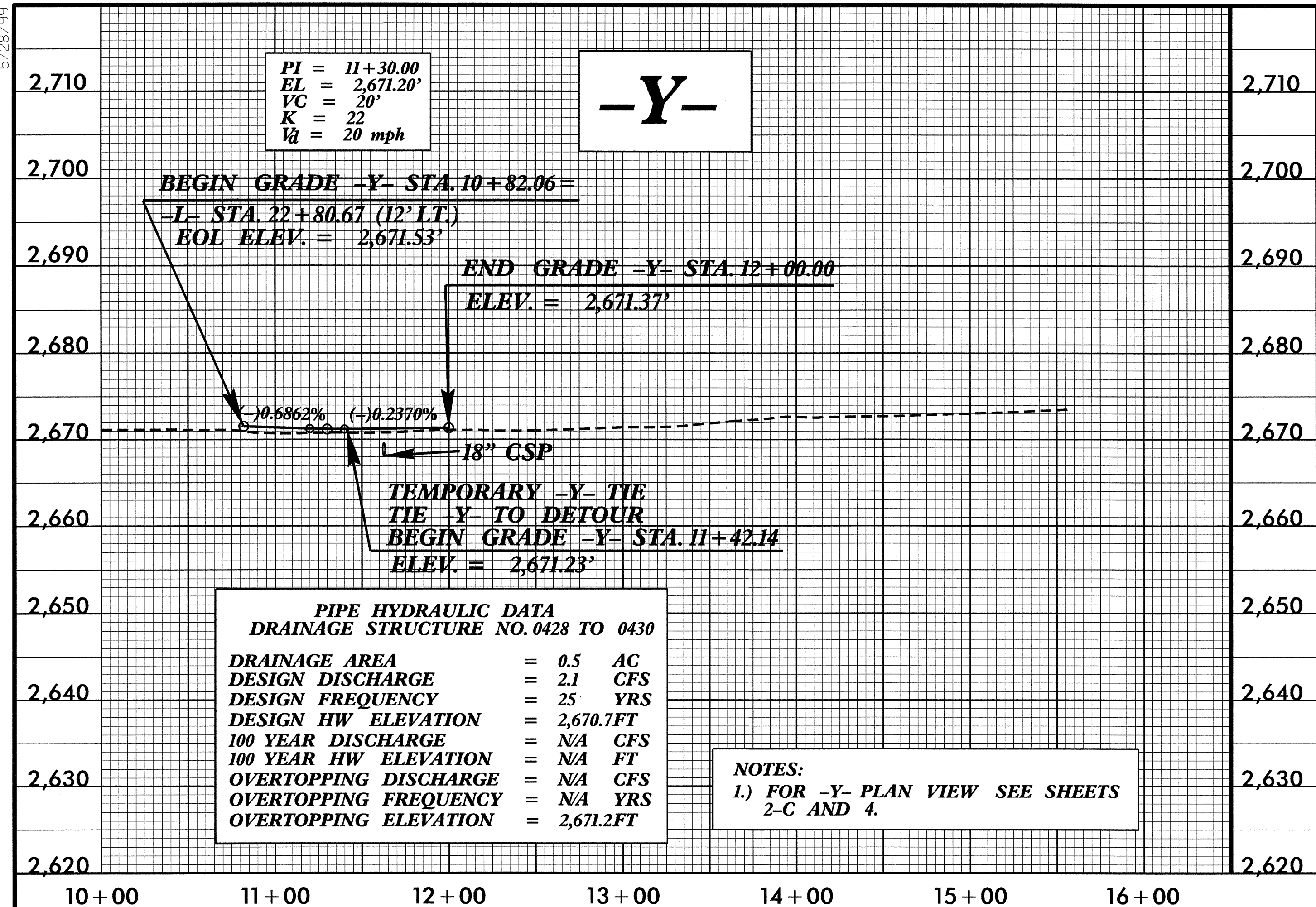
HYDRAULICS ENGINEER
 NORTH CAROLINA PROFESSIONAL SEAL
 MARC T. SHOWN
 ENGINEER
 00870
 2/17/12



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PROJECT REFERENCE NO. B-4668	SHEET NO. 6
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027373 SUN C. LANCASTER 2/17/12	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20870 MARC T. SHOWN 2/17/12



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