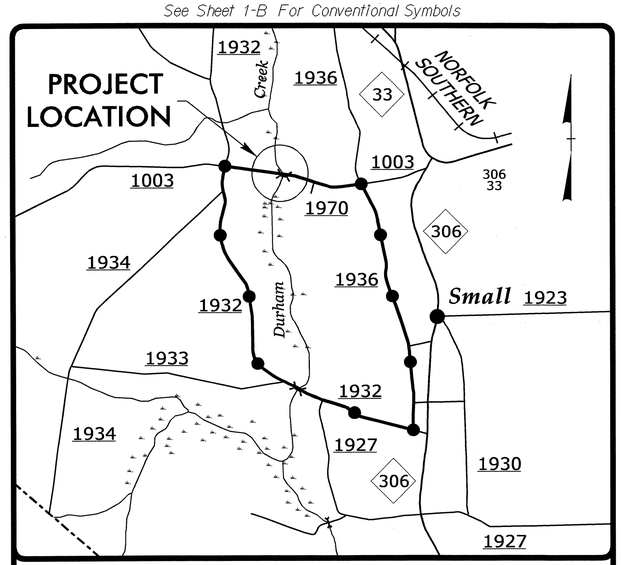
09/08/99

TIP PROJECT: B-4421

CONTRACT: C202883

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



VICINITY MAP
DETOUR ROUTE
NOT TO SCALE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BEAUFORT COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4421	1	

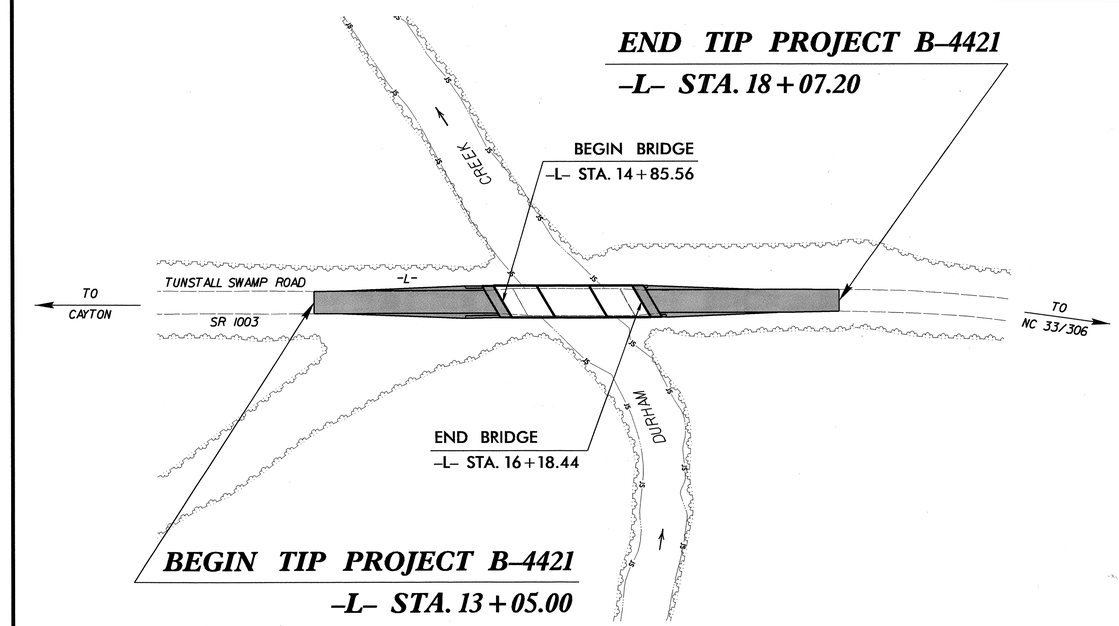
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33694.1.1	BRSTP-1003(31)	PE
33694.2.1	BRSTP-1003(31)	R/W & UTILITY
33694.3.1	BRSTP-1003(31)	CONST.

LOCATION: BRIDGE NO. 42 OVER DURHAM CREEK ON SR 1003

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

NAD 83/95

4



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2012 = 1,050
ADT 2032 = 1,530
DHV = 12%
D = 80%
T = 13%*
V = 60 MPH
*(TTST 7% + DUALS 6%)
FUNC CLASS =
RURAL MAJOR COLLECTOR
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4421	=	0.070 MILES
LENGTH STRUCTURE TIP PROJECT B-4421	=	0.025 MILES
TOTAL LENGTH TIP PROJECT B-4421	=	0.095 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 9, 2011

LETTING DATE: AUGUST 21, 2012

GARY LOVERING, PE
PROJECT ENGINEER

SUSAN C. LANCASTER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022000 ENGINEER W. GALEN CAIL
W. Galen Cail 6/15/12 P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027373 ENGINEER SUSAN C. LANCASTER
Susan Cauley Lancaster 6/15/12 P.E.
SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4421	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 027373 ENGINEER SUSAN C. LANCASTER

6/15/12

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS:

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 Superelevation – Two Lane Pavement
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation
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	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames – Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet – for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units

GENERAL NOTES: 2012 SPECIFICATIONS

EFFECTIVE: 01-17-12

REVISED: 11/01/11

GRADE LINE:

GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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.

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

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 BEAUFORT COUNTY (WATER),

CENTURYLINK (TELEPHONE), AND TIDELAND EMC (POWER)

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

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04/16/11

PROJECT REFERENCE NO.	SHEET NO.
B-4421	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- 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 — S
- 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 — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- 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:

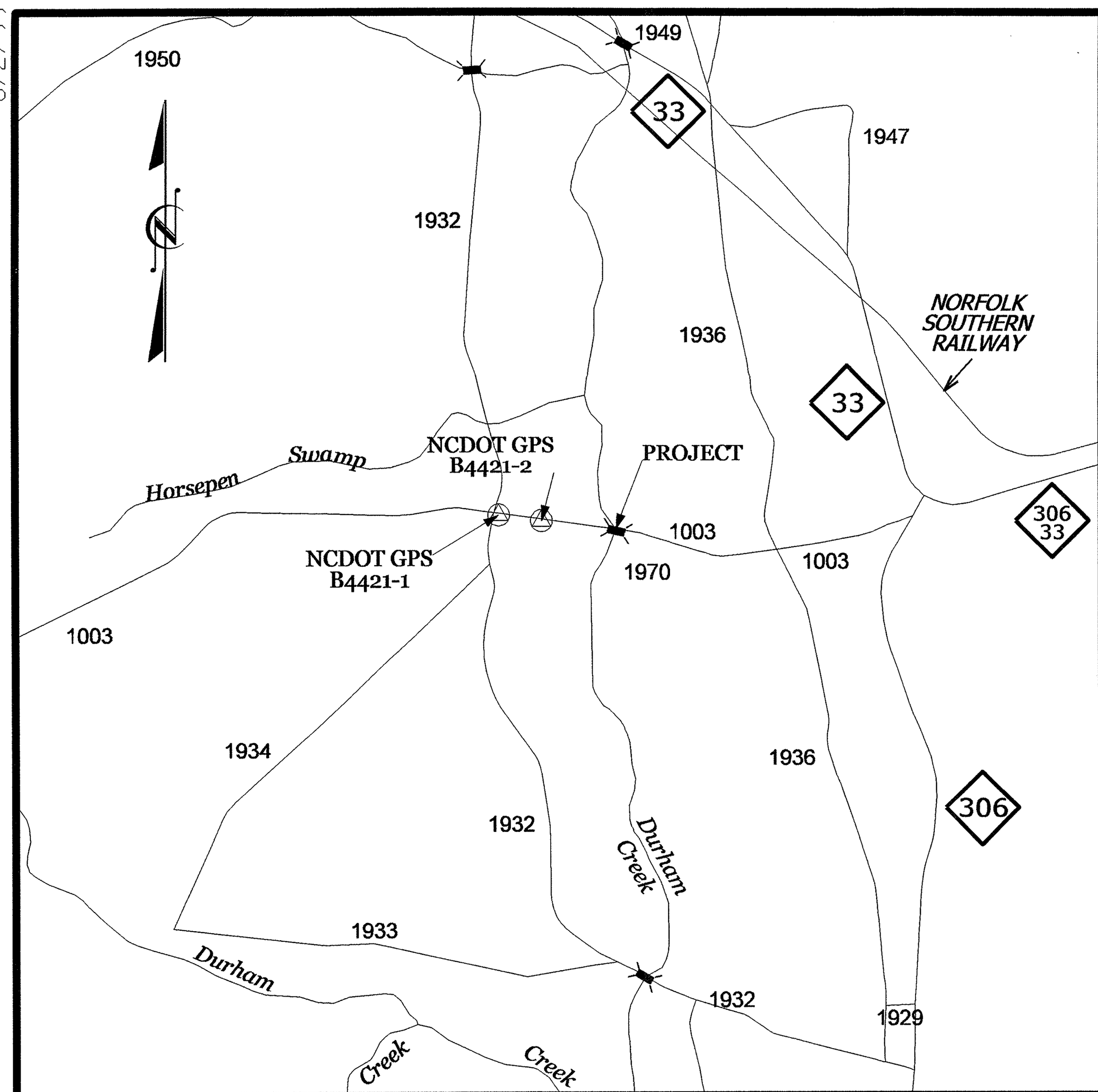
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- 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.

PROJECT REFERENCE NO.	SHEET NO.
B-4421	1-C
Location and Surveys	

SURVEY CONTROL SHEET B-4421

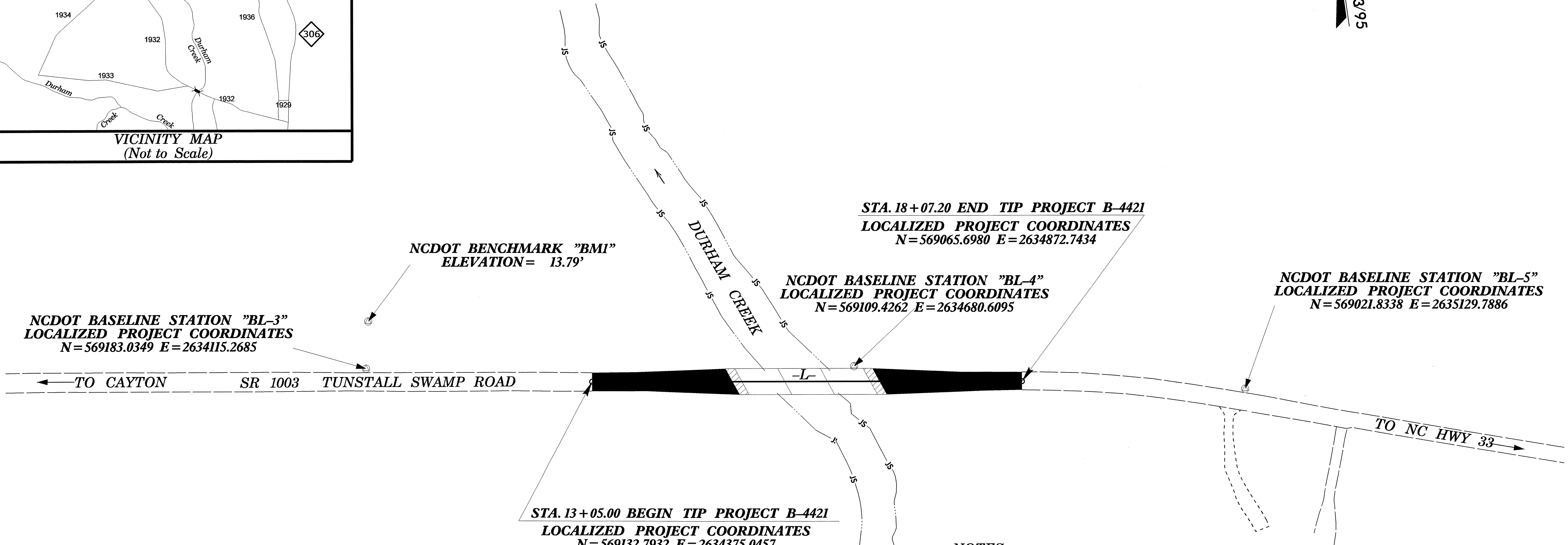


VICINITY MAP
(Not to Scale)

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	BL-3	569183.0349	2634115.2685	18.63	10+40.84	15.08 LT
4	BL-4	569109.4262	2634680.6095	17.68	16+10.95	17.67 LT
5	BL-5	569021.8338	2635129.7886	25.89	20+66.78	15.44 LT

BM1 ELEVATION = 13.79
N 569237 E 2634125
L STATION 10+43.00 70 LEFT
RR SPIKE IN 15" HARDWOOD



NAD 83/95

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/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B4421_LS_CONTROL.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 "OLD GPS B4421-1" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 569277.874(ft) EASTING: 2633179.517(ft) ELEVATION: 30.495(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987724
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "OLD GPS B4421-1" TO -L- STATION 13+05.00 IS S 83°04'51.0" E 1204.300 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	569173.5420	2634072.7800
PC	18+07.20	569065.6979	2634872.7447
PT	20+28.93	569018.2033	2635089.0687
POT	23+45.60	568925.1500	2635391.7660

NOTE: DRAWING NOT TO SCALE

6/2/99

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PROJECT REFERENCE NO.	SHEET NO.
B-4421	2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 027373 ENGINEER SUSAN C. LANCASTER 6/15/12

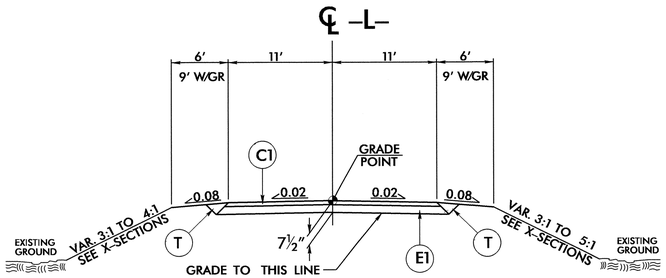
PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON 6/15/12

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.50 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
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 1½" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570.00 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.
R1	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).

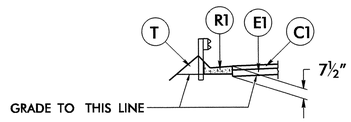
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

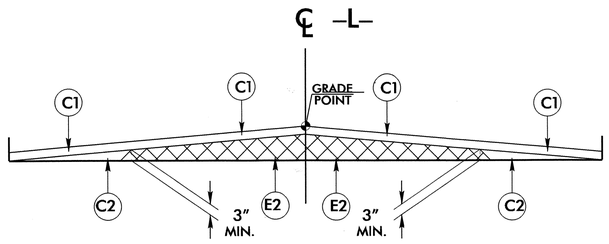
USE TYPICAL SECTION NO. 1

–L– STA. 13+05.00 TO –L– STA. 14+85.56 (BEG. BRIDGE)
–L– STA. 16+18.44 (END BRIDGE) TO –L– STA. 18+07.20

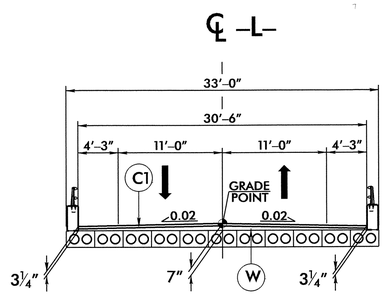


DETAIL SHOWING SHOULDER BERM GUTTER ON TOP OF SUBGRADE

–L– STA. 14+50.00 TO –L– STA. 14+65.91 (LT)
–L– STA. 14+50.00 TO –L– STA. 14+83.51 (RT)
–L– STA. 16+20.49 TO –L– STA. 16+24.49 (LT)
–L– STA. 16+38.09 TO –L– STA. 16+42.09 (RT)



DETAIL SHOWING METHOD OF WEDGING ON STRUCTURE



TYPICAL SECTION ON STRUCTURE

USE TYPICAL SECTION ON STRUCTURE

–L– STA. 14+85.56 TO –L– STA. 16+18.44

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PROJECT REFERENCE NO.	SHEET NO.
B-4421	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202883

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (15+52.00)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	700	CY	UNDERCUT EXCAVATION
0194000000-E	SP	700	CY	SELECT GRANULAR MATERIAL, CLASS III
0196000000-E	270	700	SY	GEOTEXTILE FOR SOIL STABILIZATION
0318000000-E	300	41	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
0320000000-E	300	223	SY	FOUNDATION CONDITIONING GEOTEXTILE
0335200000-E	305	16	LF	15" DRAINAGE PIPE
0448200000-E	310	28	LF	15" RC PIPE CULVERTS, CLASS IV
1220000000-E	545	100	TON	INCIDENTAL STONE BASE
1489000000-E	610	290	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	300	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1575000000-E	620	35	TON	ASPHALT BINDER FOR PLANT MIX
2022000000-E	815	44.8	CY	SUBDRAIN EXCAVATION
2033000000-E	815	34	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
2286000000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES
2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	60	LF	SHOULDER BERM GUTTER
3030000000-E	862	125	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3656000000-E	876	450	SY	GEOTEXTILE FOR DRAINAGE
3659000000-N	SP	1	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
4158000000-N	907	6	EA	DISPOSAL OF SIGN SYSTEM, WOOD
4400000000-E	1110	336	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	114	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4435000000-N	1135	20	EA	CONES
4445000000-E	1145	64	LF	BARRICADES (TYPE III)
4455000000-N	1150	10	DAY	FLAGGER
4810000000-E	1205	4,016	LF	PAINT PAVEMENT MARKING LINES (4")
5326200000-E	1510	614	LF	12" WATER LINE
5558000000-E	1515	2	EA	12" VALVE
5804000000-E	1530	592	LF	ABANDON 12" UTILITY PIPE
5871700000-E	1550	513	LF	TRENCHLESS INSTALLATION OF 12" IN SOIL
5871710000-E	1550	57	LF	TRENCHLESS INSTALLATION OF 12" NOT IN SOIL
6000000000-E	1605	1,335	LF	TEMPORARY SILT FENCE
6006000000-E	1610	225	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	5	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	50	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	1	ACR	TEMPORARY MULCHING
6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	200	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	800	LF	SAFETY FENCE
6030000000-E	1630	100	CY	SILT EXCAVATION
6036000000-E	1631	1,525	SY	MATTING FOR EROSION CONTROL
6042000000-E	1632	240	LF	1/4" HARDWARE CLOTH
6048000000-E	SP	150	SY	FLOATING TURBIDITY CURTAIN
6084000000-E	1660	1	ACR	SEEDING & MULCHING
6087000000-E	1660	0.5	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	0.5	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

COMPUTED BY: SAT DATE: 05/04/2012
CHECKED BY: SCL DATE: 05/17/2012

PROJECT REFERENCE NO.	SHEET NO.
B-4421	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
14+54.00	LT	0401		18.90	16.15														
14+54.00	CL	0401	0402		16.15	16.06													
14+54.00	RT	0402		18.90	16.06														
14+54.00	RT	0402	0403		16.06	14.90			16										
14+54.00	RT	0403																	
TOTAL									16										

STATION	C.S. PIPE 12" (.064)	15" (.064)	18" (.064)	24" (.064)	30" (.079)	36" (.079)	42" (.109)	48" (.109)	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
14+54.00																
14+54.00										28						
14+54.00																
14+54.00																
14+54.00																
TOTAL										28						

STATION	** " R.C. PIPE (CLASS V)	*** " R.C. PIPE CULVERTS, CONTRACTOR DESIGN	*** " R.C. PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	T.B.D.I. STD. 840.35	J.B. STD. 840.31 OR 840.32	PREFORMED SCOUR HOLE (SEE DETAIL ON SHT. 4)	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
14+54.00								1																		1	1							
14+54.00																																		
14+54.00								1																		1	1							
14+54.00																																		
14+54.00																													1					
TOTAL								2																		2	2		1					

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

"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.
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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	SHOP CURVED	DOUBLE FACED	WARRANT POINT APPROACH END	TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	TRAILING END	W APPROACH END	TRAILING END	ANCHORS TYPE III	GRAU 350						IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	13+95.51	14+76.76	LT	81.25'			14+76.76		4.25'	3.25'		62.50'		1.30'	1	1												
-L-	13+88.11	14+94.36	RT	106.25'				14+94.36	4.25'	3.25'	87.50'		1.70'		1	1												
-L-	16+09.64	17+15.89	LT	106.25'				16+09.64	4.25'	3.25'	87.50'		1.70'		1	1												
-L-	16+27.24	17+08.49	RT	81.25'			16+27.24		4.25'	3.25'		62.50'		1.30'	1	1												
		SUBTOTAL		375.00'																								
		GUARDRAIL DEDUCTIONS													4	4												
		TYPE III (4 @ 18.75')		-75.00'																								
		GRAU 350 (4 @ 50.00')		-200.00'																								
		TOTAL		100.00'																								
		SAY		125.00'			ADDITIONAL GUARDRAIL POSTS = 5																					

SUMMARY OF EARTHWORK IN CUBIC YARDS

LOCATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L- 13+05.00 TO 14+85.56 (BEG. BRIDGE)	29	247	218	
SUBTOTAL	29	247	218	
-L- 16+18.44 (END BRIDGE) TO 18+07.20	26	168	142	
SUBTOTAL	26	168	142	
PROJECT TOTAL	55	415	360	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT			18	
GRAND TOTAL	55	415	378	
SAY	60		415	

UNDERCUT (PER GEOTECH RECS.) = 700 CY

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.

SUMMARY OF SHOULDER BERM GUTTER

SURVEY LINE	STATION	STATION	LENGTH
-L- (LT)	14+50.00	14+65.91	15.91'
-L- (RT)	14+50.00	14+83.51	33.51'
-L- (LT)	16+20.49	16+24.49	4.00'
-L- (RT)	16+38.09	16+42.09	4.00'
		TOTAL:	57.42'
		SAY:	60'

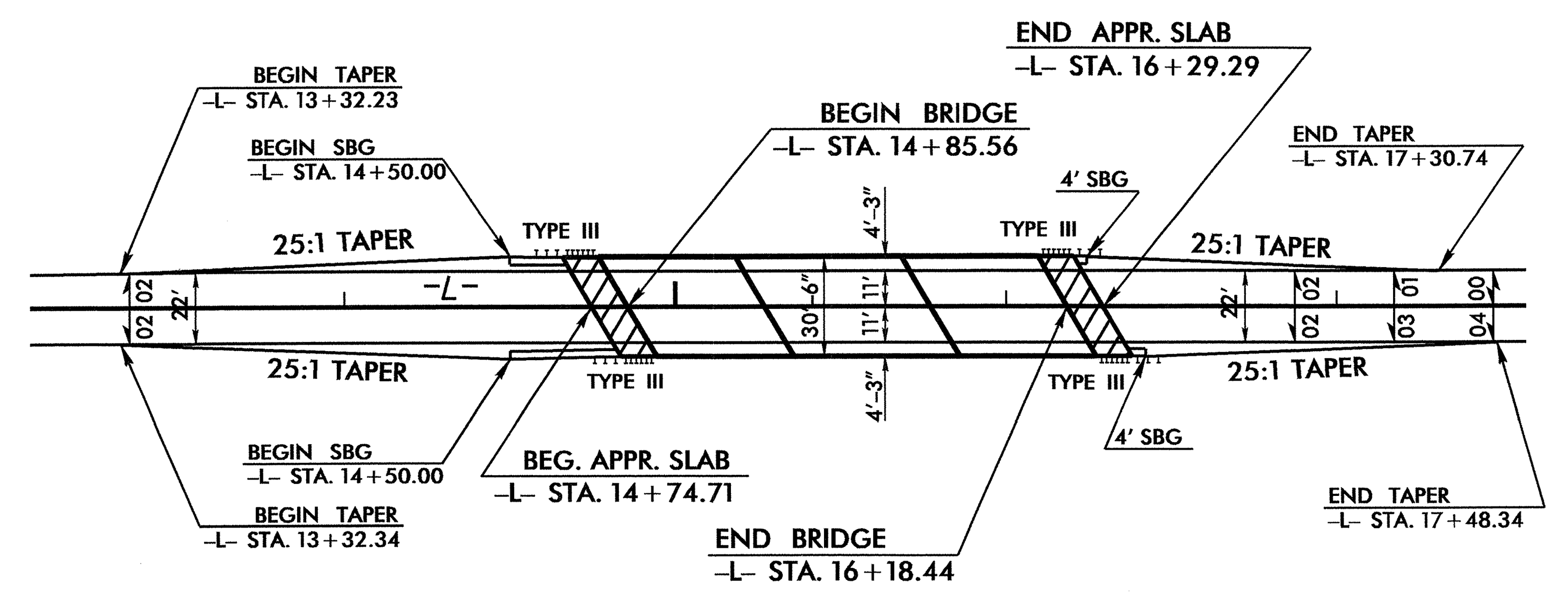
Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

SURVEY LINE	STATION	STATION	SY
-L-	13+05.00	14+60.56	370.06
-L-	14+60.56	14+95.13	88.81
-L-	14+95.13	15+02.12	19.38
-L-	16+04.96	16+12.47	21.39
-L-	16+12.47	16+39.70	70.65
-L-	16+39.70	18+07.20	395.67
		TOTAL:	965.95
		SAY:	970

PROJECT REFERENCE NO.	SHEET NO.
B-4421	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027373 ENGINEER SUSAN C. LANCASTER 6/13/12	NORTH CAROLINA PROFESSIONAL SEAL 022000 ENGINEER W. GALEN CAIL 6/13/12

RELATIONSHIP OF BRIDGE TO PROPOSED PAVEMENT

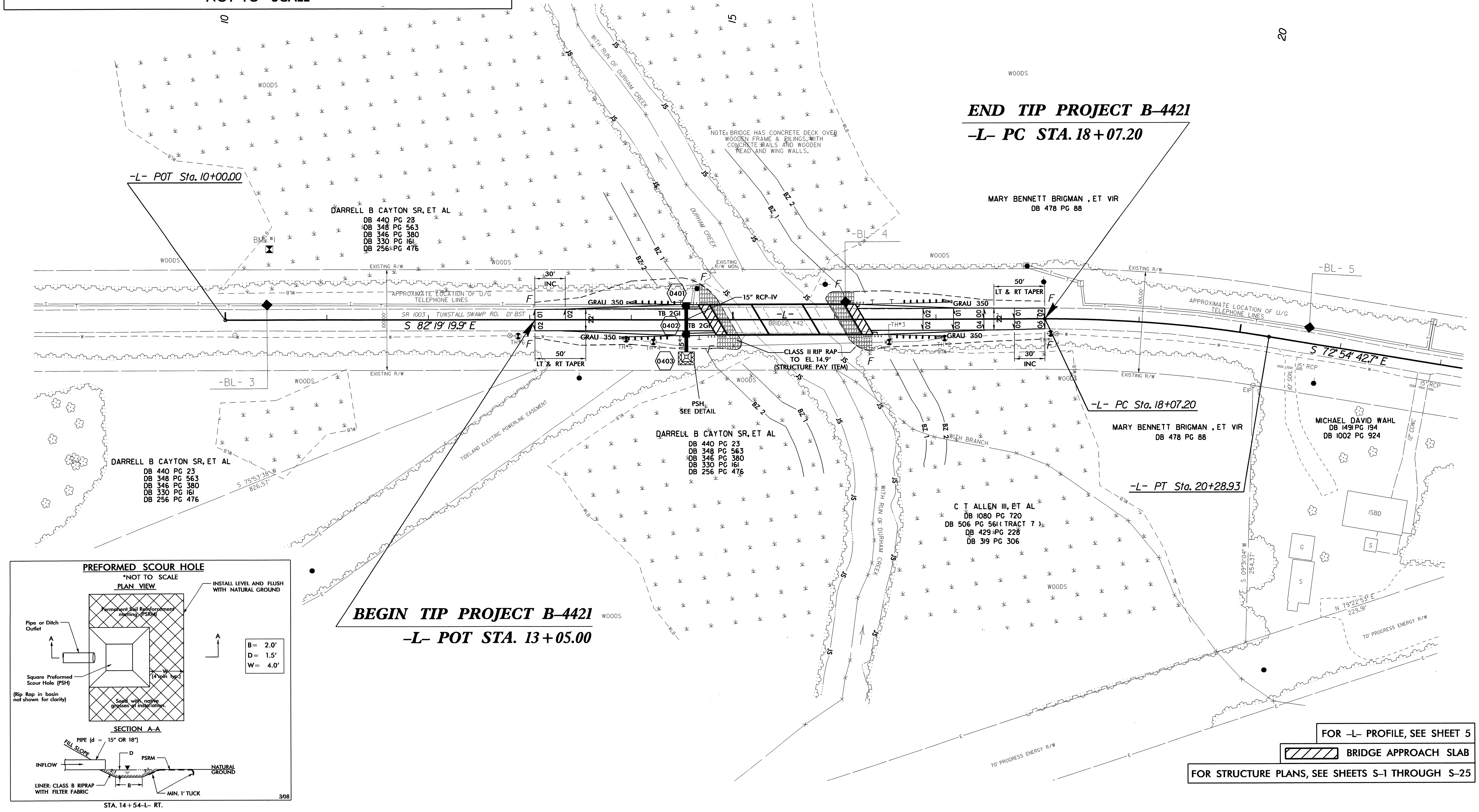


NOT TO SCALE

-L- CURVE DATA

PI Sta 19+18.31
Δ = 9° 24' 37.2" (RT)
D = 4° 14' 38.9"
L = 221.73'
T = 111.11'
R = 1,350.00'

NAD 83/95



FOR -L- PROFILE, SEE SHEET 5

BRIDGE APPROACH SLAB

FOR STRUCTURE PLANS, SEE SHEETS S-1 THROUGH S-25

REVISIONS

8/17/99

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ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 027373 ENGINEER SUSAN C. LANCASTER 6/13/12

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 022000 ENGINEER W. GALLENTINE 6/13/12

5/14/99

–L–

21" CORED SLAB
3 SPANS = 1 @ 41– 4 7/16", 1 @ 50'– 1 3/4", 1 @ 41– 4 7/16"
CL –L– STA 15+52.00
CL ELEV = 19.72'
SKEW = 60°

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	1400	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	13.9	FT
BASE DISCHARGE	=	2100	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	15.0	FT
OVERTOPPING DISCHARGE	=	5200	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	16.3	FT

DATE OF SURVEY 10/09/2008

W.S. ELEVATION AT DATE OF SURVEY = +/– 9.0 FT

BEGIN GRADE
–L– STA. 13+05.00
EL.=18.71'

BEGIN BRIDGE
–L– STA. 14+85.56

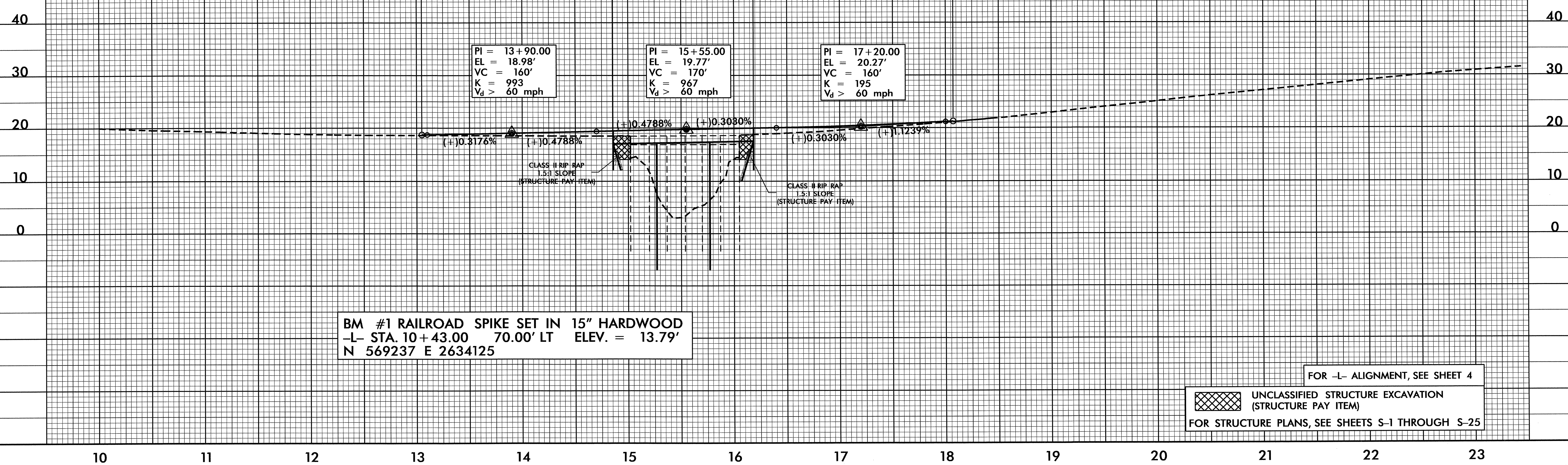
END BRIDGE
–L– STA. 16+18.44

END GRADE
–L– STA. 18+07.20
EL.=21.25'

PI = 13+90.00
EL = 18.98'
VC = 160'
K = 993
V_d > 60 mph

PI = 15+55.00
EL = 19.77'
VC = 170'
K = 967
V_d > 60 mph

PI = 17+20.00
EL = 20.27'
VC = 160'
K = 195
V_d > 60 mph



BM #1 RAILROAD SPIKE SET IN 15" HARDWOOD
–L– STA. 10+43.00 70.00' LT ELEV. = 13.79'
N 569237 E 2634125

FOR –L– ALIGNMENT, SEE SHEET 4

UNCLASSIFIED STRUCTURE EXCAVATION
(STRUCTURE PAY ITEM)

FOR STRUCTURE PLANS, SEE SHEETS S-1 THROUGH S-25