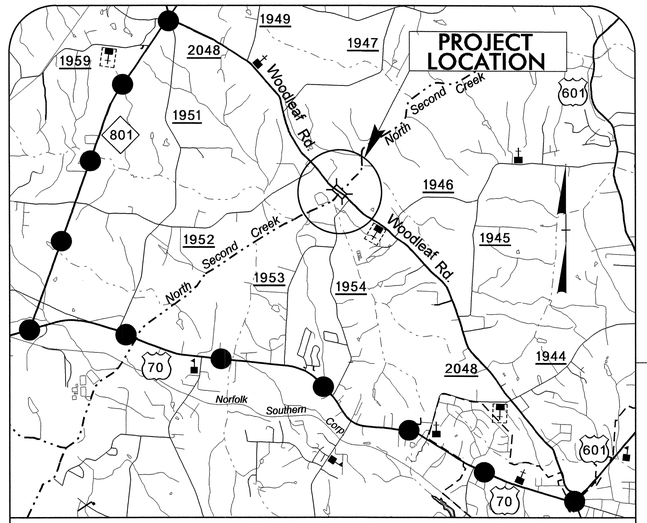
09/08/99

TIP PROJECT: B–4629

CONTRACT: C202818

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



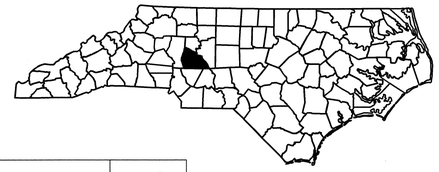
VICINITY MAP — **DETOUR ROUTE**

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROWAN COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–4629	1	

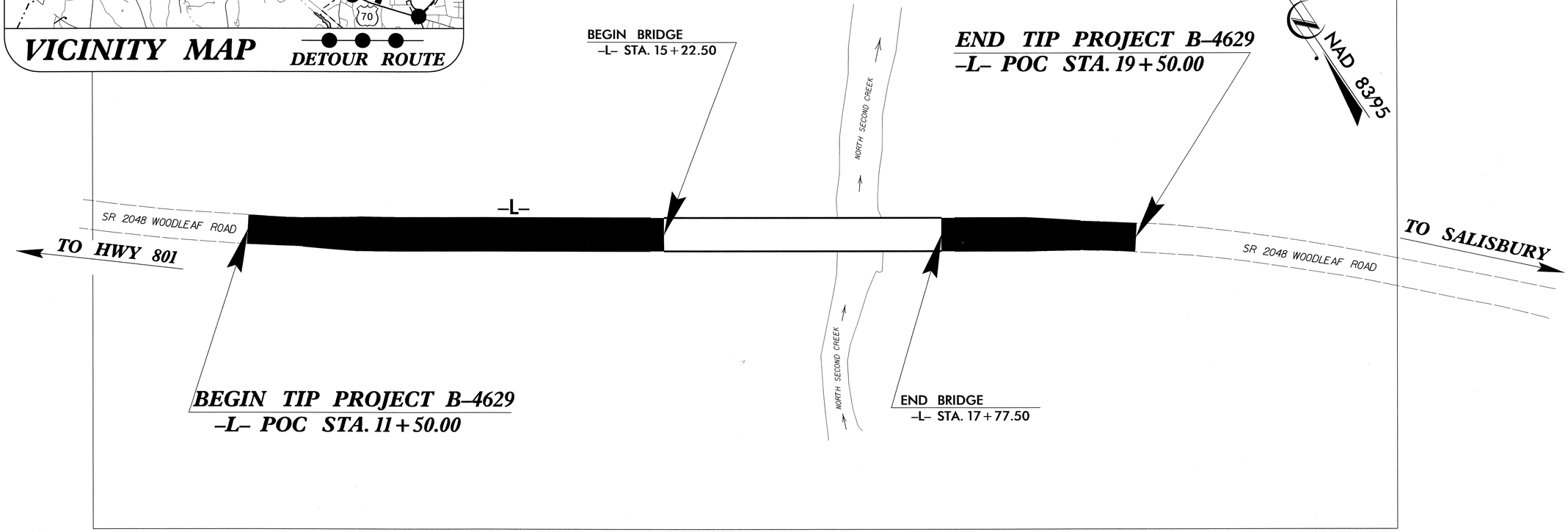
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33804.1.1	BRSTP–2048(2)	P.E.
33804.2.1	BRSTP–2048(2)	ROW & UTIL
33804.3.1	BRSTP–2048(2)	CONST



LOCATION: BRIDGE NO. 25 OVER NORTH SECOND CREEK ON SR 2048 (WOODLEAF ROAD)

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

4



GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA
SUB–REGIONAL TIER

ADT 2012 = 6,800
ADT 2032 = 10,500
DHV = 10 %
D = 60 %
T = 4 % *
V = 55 MPH
* TTST 1% DUAL 3%
FUNC CLASS: COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–4629 = 0.104 MI
LENGTH STRUCTURE TIP PROJECT B–4629 = 0.048 MI
TOTAL LENGTH TIP PROJECT B–4629 = 0.152 MI

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 16, 2011

LETTING DATE: MAY 15, 2012

REKHA PATEL, PE
PROJECT ENGINEER

BRIAN P. ROBINSON
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS, JR.
SIGNATURE: 2/10/12

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 16378 ENGINEER REKHA V. PATEL
2-10-12
P.E.
SIGNATURE:

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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8/17/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4629	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16378 ENGINEER REKHA V. PATIL

Rekha V Patil

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 & 1-D	SURVEY CONTROL SHEETS
2	TYPICAL SECTIONS, PAVEMENT SCHEDULE, AND WEDGING DETAIL
3	SUMMARY OF QUANTITIES
3-A	GUARDRAIL SUMMARY AND SUMMARY OF PIPES 48" AND UNDER
3-B	SUMMARY OF EARTHWORK, SUMMARY OF PAVEMENT REMOVAL, AND SUMMARY OF SHOULDER BERM GUTTER
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-3	TRANSPORTATION MANAGEMENT PLANS
SD-1	SPECIAL SIGN DESIGN
PMP-1	PAVEMENT MARKING PLAN
EC-1 THRU EC-5	EROSION CONTROL PLANS
SIGN-1 & SIGN-2	SIGNING PLANS
UO-1 & UO-2	UTILITIES BY OTHERS PLANS
X-0	CROSS SECTION SUMMARY SHEET
X-1 THRU X-6	CROSS-SECTIONS
S-1 THRU S-26	STRUCTURE PLANS

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 Duke Energy Corporation - Power Transmission,

Duke Energy Corporation - Power Distribution, Frontier Energy, Piedmont Natural Gas,

AT&T TELICS, Time Warner Cable, and Salisbury/Rowan Utilities.

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.

EFF. 01-17-12

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
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 Superelevated Curve - Method 1
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
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
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
866.04	Barbed Wire Fence with Wood Posts (2 - 7 Strands)
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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PROJECT REFERENCE NO.	SHEET NO.
B-4629	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-4629	1-C
Location and Surveys	

SURVEY CONTROL SHEET B-4629

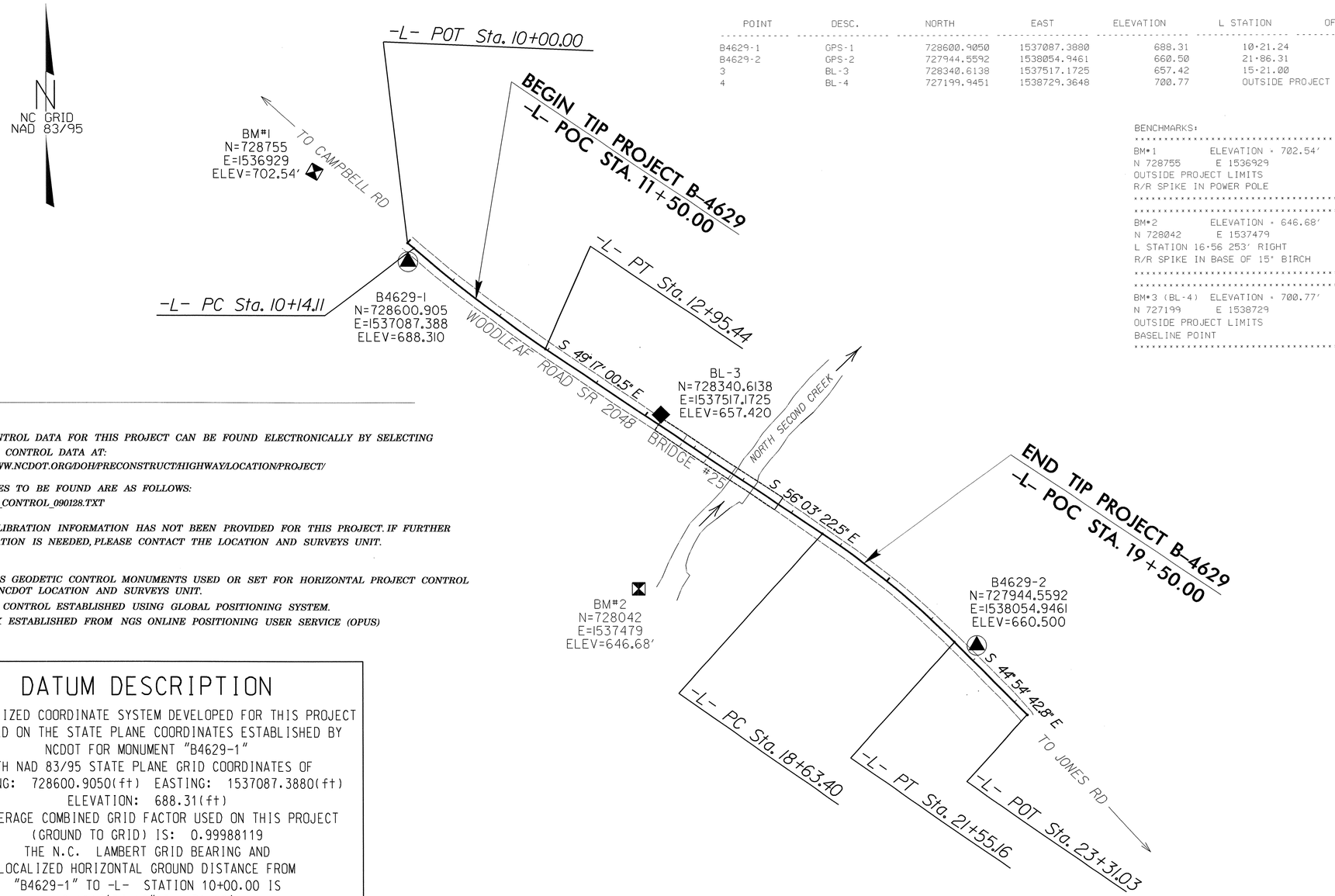
POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
B4629-1	GPS-1	728600.9050	1537087.3880	688.31	10+21.24	23.70 RT
B4629-2	GPS-2	727944.5592	1538054.9461	660.50	21+86.31	22.74 LT
3	BL-3	728340.6138	1537517.1725	657.42	15+21.00	16.28 LT
4	BL-4	727199.9451	1538729.3648	700.77	OUTSIDE PROJECT LIMITS	

BENCHMARKS:

BM#1 ELEVATION = 702.54'
N 728755 E 1536929
OUTSIDE PROJECT LIMITS
R/R SPIKE IN POWER POLE

BM#2 ELEVATION = 646.68'
N 728042 E 1537479
L STATION 16+56 253' RIGHT
R/R SPIKE IN BASE OF 15" BIRCH

BM#3 (BL-4) ELEVATION = 700.77'
N 727199 E 1538729
OUTSIDE PROJECT LIMITS
BASELINE POINT



NOTE: DRAWING NOT TO SCALE

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:
   B4629_LS_CONTROL_090128.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)

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4629-1" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 728600.9050(ft) EASTING: 1537087.3880(ft) ELEVATION: 688.31(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988119
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4629-1" TO -L- STATION 10+00.00 IS S 1°14'54.16" E 31.86'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

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PROJECT REFERENCE NO.	SHEET NO.
B-4629	1D
Location and Surveys	

SURVEY CONTROL SHEET B-4629

DESIGN ALIGNMENT -L-

TYPE	STATION	NORTH	EAST
POT	10+00.00	728632.7611	1537086.6938
PC	10+14.11	728623.5565	1537097.3889
PT	12+95.44	728453.0528	1537320.9629
PC	18+63.40	728135.9194	1537792.1299
PT	21+55.16	727950.5677	1538016.8521
POT	23+31.03	727826.0188	1538141.0185

ROW MARKER CONCRETE OR GRANITE

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+00.00	-30.00	728532.1163	1537260.6085
L	12+00.00	30.00	728483.7244	1537225.1372
L	12+95.44	-65.00	728506.9760	1537357.2575
L	13+15.00	60.00	728392.3585	1537303.6828
L	18+00.00	60.00	728121.5449	1537706.0322
L	19+00.00	30.00	728090.6423	1537804.8876
L	19+00.00	-30.00	728139.5853	1537839.5948
L	18+00.00	-60.00	728221.0952	1537773.0376
L	15+50.00	-60.00	728360.6899	1537565.6411
L	14+50.00	-65.00	728420.6757	1537485.4743

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4629-1" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 728600.9050(ft) EASTING: 1537087.3880(ft) ELEVATION: 688.31(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988119 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4629-1" TO -L- STATION 10+00.00 IS S 1°14'54.16" E 31.86' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

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:
   B4629-L.CSV
   B4629-RW.CSV

   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

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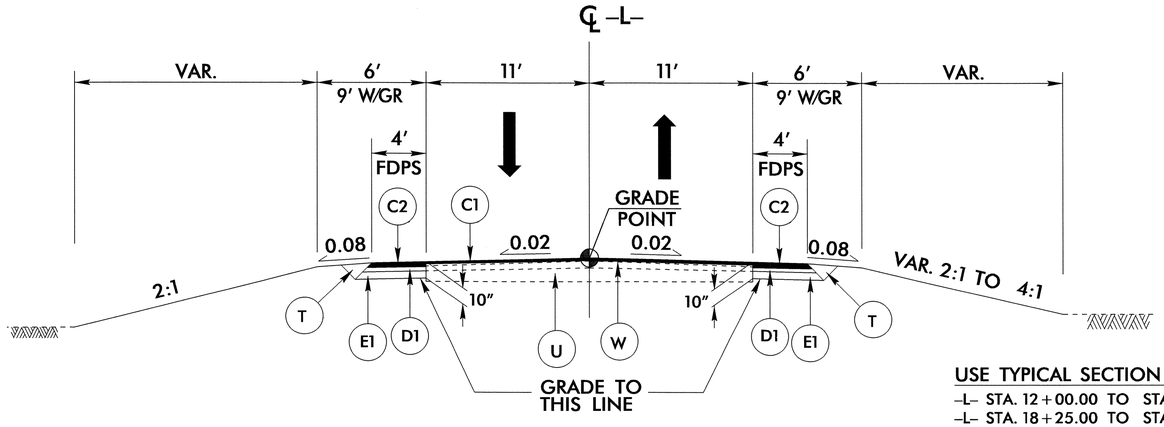
PROJECT REFERENCE NO.	SHEET NO.
B-4629	2

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 16378 ENGINEER RIKHA V. PATEL — 2/9/12

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 22893 ENGINEER CLARK S. MORRISON — 2/9/12

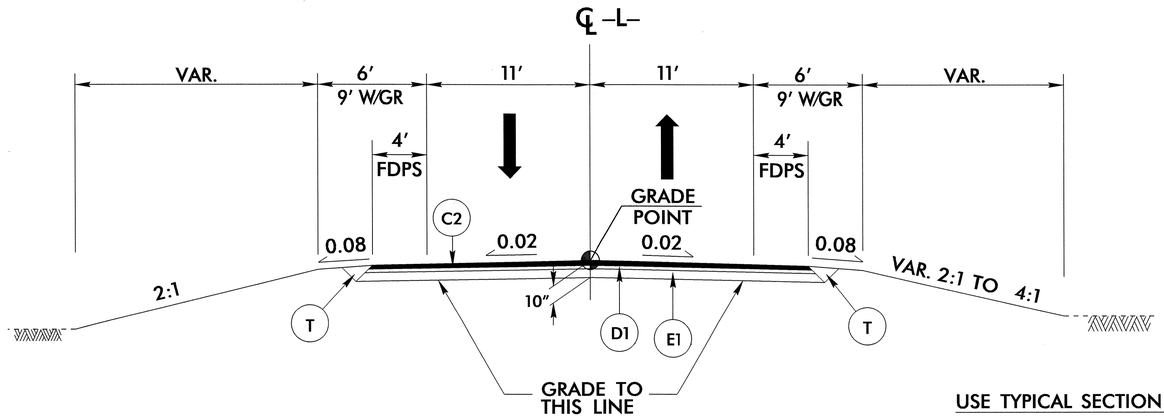


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
–L– STA. 12+00.00 TO STA. 12+50.00
–L– STA. 18+25.00 TO STA. 19+00.00

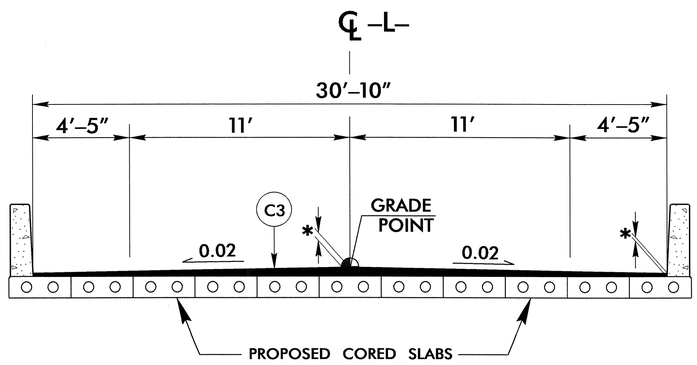
NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
–L– STA. 11+50.00 TO STA. 12+00.00. OVERLAY WITH C1

TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING
–L– STA. 19+00.00 TO STA. 19+50.00. OVERLAY WITH C1



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
–L– STA. 12+50.00 TO STA. 15+22.50 (BEGIN BRIDGE)
–L– STA. 17+77.50 (END BRIDGE) TO STA. 18+25.00



* VARIABLE PAVEMENT DEPTH (SEE STRUCTURE PLANS)

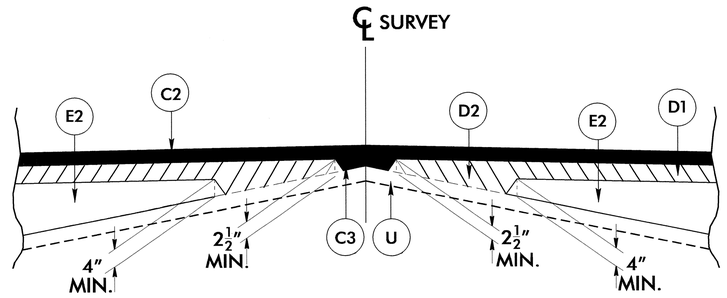
USE TYPICAL ON STRUCTURE
–L– STA. 15+22.50 (BEGIN BRIDGE) TO STA. 17+77.50 (END BRIDGE)

TYPICAL SECTION ON STRUCTURE (SEE STRUCTURE PLANS)

FINAL 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 LESS THAN 1½″ IN DEPTH OR GREATER THAN 2″ 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. 4½″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 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 (SEE WEDGING DETAIL)

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



DETAIL SHOWING METHOD OF WEDGING

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202818

SUMMARY OF QUANTITIES - B-4629

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 ******* (16+50.00-L-)
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	300	CY	UNDERCUT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING
0106000000-E	230	3,100	CY	BORROW EXCAVATION
0134000000-E	240	150	CY	DRAINAGE DITCH EXCAVATION
0196000000-E	270	600	SY	GEOTEXTILE FOR SOIL STABILIZATION
0318000000-E	300	15	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
0320000000-E	300	40	SY	FOUNDATION CONDITIONING GEOTEXTILE
0335200000-E	305	60	LF	15" DRAINAGE PIPE
0335850000-E	305	2	EA	**" DRAINAGE PIPE ELBOWS (15")
0343000000-E	310	48	LF	15" SIDE DRAIN PIPE
0995000000-E	340	23	LF	PIPE REMOVAL
1099500000-E	505	100	CY	SHALLOW UNDERCUT
1099700000-E	505	200	TON	CLASS IV SUBGRADE STABILIZATION
1220000000-E	545	400	TON	INCIDENTAL STONE BASE
1330000000-E	607	150	SY	INCIDENTAL MILLING
1489000000-E	610	375	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	210	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1519000000-E	610	575	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1575000000-E	620	65	TON	ASPHALT BINDER FOR PLANT MIX
1693000000-E	654	10	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2000000000-N	806	10	EA	RIGHT OF WAY MARKERS
2022000000-E	815	45	CY	SUBDRAIN EXCAVATION
2033000000-E	815	35	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	55	LF	SHOULDER BERM GUTTER
3030000000-E	862	425	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
3360000000-E	863	732	LF	REMOVE EXISTING GUARDRAIL
3559000000-E	866	950	LF	** STRAND BARBED WIRE FENCE WITH POSTS (4)
3569000000-E	867	590	LF	BARBED WIRE FENCE RESET
3578000000-N	SP	1	EA	GENERIC FENCING ITEM RESET 20' METAL GATE
3578000000-N	SP	1	EA	GENERIC FENCING ITEM RESET 24' METAL GATE
3635000000-E	876	270	TON	RIP RAP, CLASS II
3649000000-E	876	156	TON	RIP RAP, CLASS B
3656000000-E	876	1,780	SY	GEOTEXTILE FOR DRAINAGE
4072000000-E	903	76	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4096000000-N	904	2	EA	SIGN ERECTION, TYPE D
4155000000-N	907	5	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4400000000-E	1110	485	SF	WORK ZONE SIGNS (STATIONARY)
4410000000-E	1110	248	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4420000000-N	1120	1	EA	PORTABLE CHANGEABLE MESSAGE SIGN
4445000000-E	1145	184	LF	BARRICADES (TYPE III)
4685000000-E	1205	890	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	898	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4770000000-E	1205	1,020	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (II)
4900000000-N	1251	9	EA	PERMANENT RAISED PAVEMENT MARKERS
6000000000-E	1605	975	LF	TEMPORARY SILT FENCE
6006000000-E	1610	225	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	200	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	375	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	1	ACR	TEMPORARY MULCHING
6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	1.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	260	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	100	LF	SAFETY FENCE
6030000000-E	1630	330	CY	SILT EXCAVATION
6036000000-E	1631	2,000	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	10	SY	COIR FIBER MAT
6042000000-E	1632	220	LF	1/4" HARDWARE CLOTH
6070000000-N	1639	12	EA	SPECIAL STILLING BASINS
6071010000-E	SP	110	LF	WATTLE
6071020000-E	SP	60	LB	POLYACRYLAMIDE (PAM)
6071030000-E	1640	70	LF	COIR FIBER BAFFLE
6071050000-E	SP	1	EA	*** SKIMMER (1-1/2")
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	0.75	TON	FERTILIZER TOPDRESSING
6114500000-N	1667	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	18	EA	RESPONSE FOR EROSION CONTROL

6/16/99

COMPUTED BY: SKR	DATE: 1-11-2012
CHECKED BY: JBJ	DATE: 1-19-2012

"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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4629	3-A

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS		IMPACT ATTENUATOR TYPE 350			REMOVE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GRAU 350 TL-3	TYPE III	NO.	PERMITTED G	PERMITTED NG		
-L-	12+47.50	15+22.50	LT	275'				BRIDGE	4.4'	9'		256.25'		2.58'	1	1				276'	
-L-	17+77.50	18+96.25	LT	118.75'			BRIDGE		4.4'	9'	100'		2'		1	1				139'	
-L-	13+47.50	15+22.50	RT	175'			BRIDGE		4.4'	9'	156.25'		2.58'		1	1				177'	
-L-	17+75.00	18+96.25	RT	118.75'				BRIDGE	4.4'	9'		100'		2'	1	1				140'	
SUB-TOTAL				687.50'											4	4				732'	
DEDUCTIONS FOR ANCHORS:																					
4 GRAU 350 @ 50'				-200'																	
4 TYPE III @ 18.75'				-75'																	
TOTAL				412.50'											4	4					
SAY				425'																	
ADDITIONAL GUARDRAIL POSTS = 5 EA																					

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC)											C.S. PIPE					
SIZE								15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	15"	18"	24"	36"	42"	48"
THICKNESS OR GAUGE		FROM	TO																.064	.064	.064	.079	.109	.109
-L- 12+79	RT.	0401																						
-L- 18+00	RT.	0402		658.18	655.29																			
-L- 18+00	RT.	0402	0403	658.18	655.29	644.50		32'							X									
-L- 18+00	LT.	0404		658.18	655.43																			
-L- 18+00	LT.	0404	0402	658.18	655.43	655.29		28'								X	X							
-L- 15+52	RT.	0405																						
PROJECT TOTALS								60'																

STATION	R.C. PIPE (CLASS III)							R.C. PIPE (CLASS IV)							15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS.	
SIZE	15"	18"	24"	30"	36"	42"	48"	15"	18"	24"	30"	36"	42"	48"			R.C.P.	C.S.P.
-L- 12+79															24'			
-L- 18+00																		
-L- 18+00																		
-L- 18+00																		
-L- 18+00																		
-L- 15+52															24'			
PROJECT TOTALS															48'			

STATION	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') 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 CATCH BASIN	DROP INLET	TRAFFIC BEARING D.I. STD. 840.35 OR 840.46	D.I. FRAME AND GRATES 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. (N.S.F.G.) FRAME WITH TWO GRATES STD. 840.29	DRAINAGE PIPE 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
-L- 12+79																			23'	
-L- 18+00	1									1					1					TB2GI
-L- 18+00																2@15"				USE ROD & LUG CONNECTORS W/SLEEVE GASKETS
-L- 18+00	1									1					1					TB2GI
-L- 18+00																				
-L- 15+52																				
PROJECT TOTALS	2									2					2	2@15"			23'	

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

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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.

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
-L-					
12+00.00 to 15+22.50 (BEGIN BRIDGE)	33		2778	2745	
17+77.50 (END BRIDGE) to 19+00.00	22		173	151	
PROJECT TOTAL	55		2951	2896	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				145	
GRAND TOTAL	55			3041	
SAY	100			3100	

EST. DRAINAGE DITCH EXCAVATION = 150 CY
EST. UNDERCUT EXCAVATION = 300 CY
EST. SHALLOW UNDERCUT = 100 CY
EST. CLASS IV SUBGRADE STABILIZATION = 200 TONS

NOTE: Approximate quantities only. Unclassified excavation, fine grading, clearing and grubbing, breaking of existing pavement, and removal of existing pavement will be paid for at the lump sum price for "Grading".

SUMMARY OF PAVEMENT REMOVAL
IN SQUARE YARDS

LINE	BEGIN STATION	END STATION	LOCATION	ASPHALT PAVEMENT REMOVAL	ASPHALT BREAKING
-L-	12+50.00	13+00.00	LT/RT	144.44	
-L-	15+11.50	15+27.00	LT/RT	43.78	
-L-	17+73.00	18+25.00	LT/RT	140.56	
-L-	13+00.00	15+11.50	LT/RT		584.44
			TOTAL	328.78	584.44
			SAY	340	600

SUMMARY OF SHOULDER BERM GUTTER

LINE	LOCATION	BEGIN STATION	END STATION	LENGTH (FEET)
-L-	LT	15+06.50	15+11.50	5
-L-	RT	15+06.50	15+11.50	5
-L-	LT	17+88.50	18+09.00	20.5
-L-	RT	17+88.50	18+09.00	20.5
			TOTAL	51
			SAY	55

PROJECT REFERENCE NO.	SHEET NO.
B-4629	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 16378 ENGINEER REKHA V. PATEL

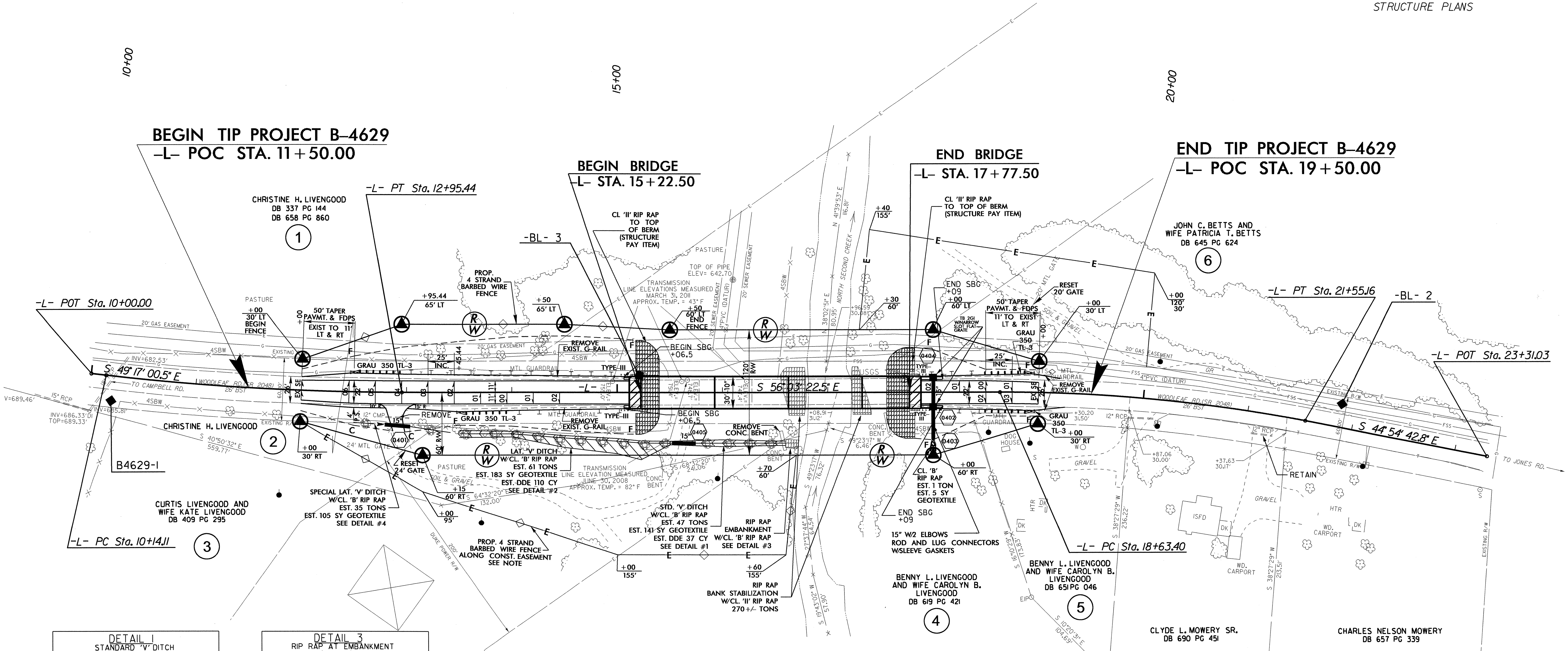
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR. 2/10/12

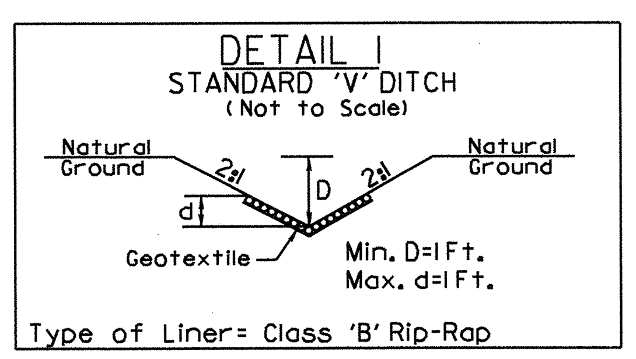
NOTE : SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-26 FOR STRUCTURE PLANS

-L-

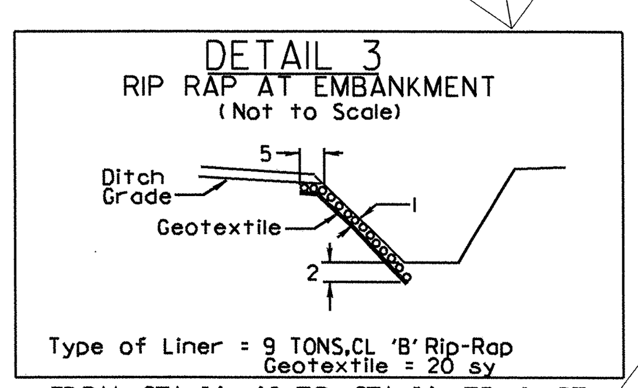
PI Sta 11+54.94	PI Sta 20+09.74
Δ = 6° 46′ 22.1″ (LT)	Δ = 11° 08′ 39.8″ (RT)
D = 2° 24′ 26.6″	D = 3° 49′ 11.0″
L = 281.33′	L = 291.76′
T = 140.83′	T = 146.34′
R = 2,380.00′	R = 1,500.00′
SE = SEE PLAN	SE = SEE PLAN

NAD 83/95

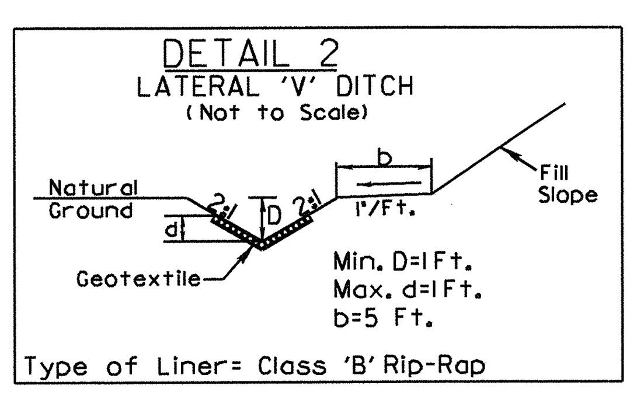




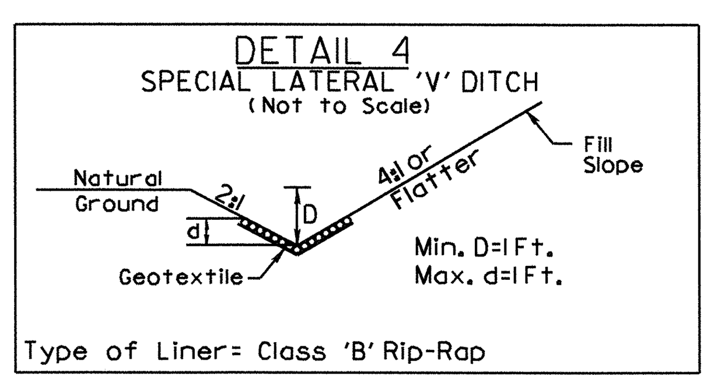
FROM STA. 15+25 TO STA. 16+60 -L- RT



FROM STA. 16+60 TO STA. 16+75 -L- RT

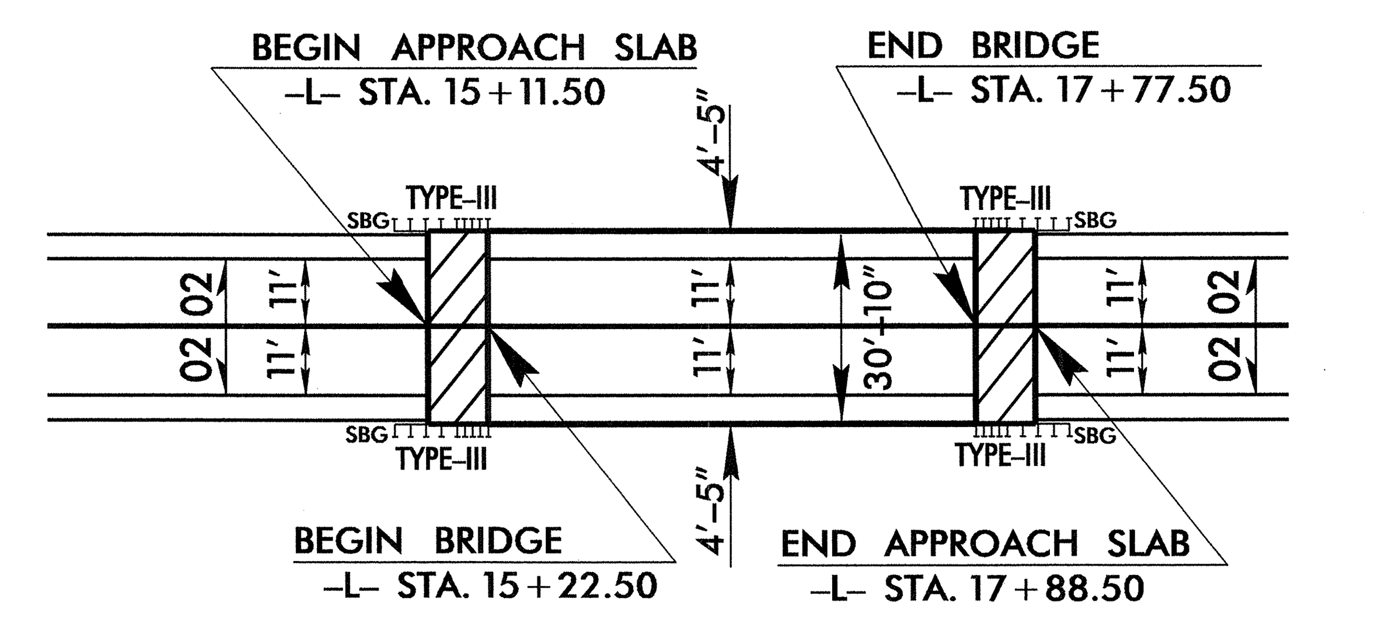


FROM STA. 13+50 TO STA. 15+25 -L- RT



FROM STA. 12+50 TO STA. 13+50 -L- RT

(NOT TO SCALE)



DETAIL SHOWING PAVEMENT AND BRIDGE RELATIONSHIP

NOTE: THE 4 STRAND BARBED WIRE FENCE LOCATED ALONG THE TEMP. CONST. EASEMENT IS TO BE MAINTAINED DURING CONSTRUCTION AND RESET TO THE RIGHT OF WAY LINE UPON COMPLETION OF THE PROJECT.

NOTE: TRANSMISSION LINE ELEVATIONS ARE +/- 0.5′ (at time of location). LINE ELEVATIONS WILL VARY CONSIDERABLY THROUGHOUT THE YEAR DUE TO AIR TEMPERATURE AND CURRENT DEMANDS ON THE LINES

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4629	5

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 16378 ENGINEER REKHA V. PATEL — Rekha V. Patel — 2/15/12

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS

BM # 2
RR SPIKE SET IN BASE OF 15" BIRCH TREE
OFF THE WESTERN EDGE OF SECOND CREEK
ELEV = 646.68'
-BL- STA. 11+48.21 263.00' RT
-L- STA. 16+55.49 252.55' RT

-L-

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 8200	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 650.6	FT
BASE DISCHARGE	= 11500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 652.5	FT
OVERTOPPING DISCHARGE	= >16000	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 658.36	FT

BEGIN RESURFACING -L- STA 11+50.00

BEGIN GRADE -L- STA 12+00.00 EL = 675.36'

PI = 14+25.00
EL = 661.00'
VC = 450'
K = 79
V = 45 mph

BEGIN BRIDGE -L- STA 15+22.50

CL STA 16+50 -L-
3@70', 1@45' CORED SLAB (24") (OAL=255')
SKEW=90°
CL EL=659.51'

END BRIDGE -L- STA 17+77.50

PI = 18+40.00
EL = 658.25'
VC = 100'
K = 100
V = 50 mph

END GRADE -L- STA 19+00.00 EL = 658.46'

END RESURFACING -L- STA 19+50.00

(-)6.3844%
(-)18.5%
(-)18.5%
(-)16.7%
(-)10.5%
(-)0.6623%
(+)0.3416%

BEGIN SPECIAL LAT. 'V' DITCH -L- STA 12+50 RT EL=669.7'

END SPECIAL LAT. 'V' DITCH
BEGIN LAT. 'V' DITCH
-L- STA 13+50 RT
EL=661.2'

-L- STA 14+50 RT EL=652.7'

END LAT. 'V' DITCH
BEGIN 'V' DITCH
-L- STA 15+25 RT
EL=647.7'

-L- STA 15+60 RT EL=644.5'

END 'V' DITCH
-L- STA 16+60 RT
EL=644.0'

CL 'II' RIP RAP (STRUCTURE PAY ITEM)

CL 'II' RIP RAP (STRUCTURE PAY ITEM)

RIP RAP BANK STABILIZATION W/CL 'II' RIP RAP +/-270 TONS

RIGHT DITCH ----------

NOTE: SEE SHEET 4 FOR PLAN VIEW

700 690 680 670 660 650 640 630 620 610 600 590 580 570

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