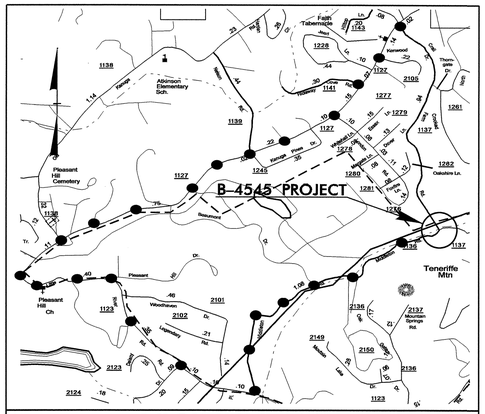
09/08/99

TIP PROJECT: B-4545

CONTRACT: C202170

See Sheet 1-A For Index of Sheets



VICINITY MAP
OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HENDERSON COUNTY

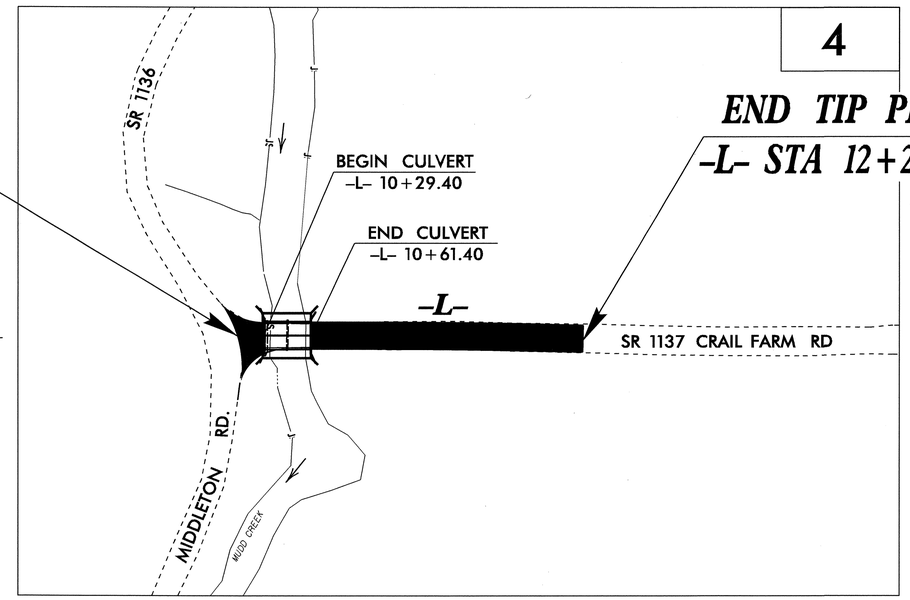
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4545	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33759.1.1	BRZ-1137(3)	PE
33759.2.1	BRZ-1137(3)	RW/UTL
33759.3.1	BRZ-1137(3)	CONSTR

LOCATION: BRIDGE 72 OVER MUD CREEK ON SR 1137 (CRAIL FARM RD /MIDDLETON RD)

TYPE OF WORK: GRADING, DRAINAGE, CULVERT

BEGIN TIP PROJECT B-4545
-L- STA 10+11.00



END TIP PROJECT B-4545
-L- STA 12+20.00

GRAPHIC SCALES

PLANS 50 25 0 50 100

PROFILE (HORIZONTAL) 50 25 0 50 100

PROFILE (VERTICAL) 10 5 0 10 20

DESIGN DATA

ADT 2009 = 220
ADT 2030 = 300
DHV = 10 %
D = 60 %
T = 4 % *
V = 35 MPH

* TTST 1 DUAL 3

PROJECT LENGTH

LENGTH OF ROADWAY TIP B-4545 = 0.040 MI
TOTAL LENGTH OF TIP B-4545 = 0.040 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 15, 2008

LETTING DATE: SEPTEMBER 15, 2009

TED S. WALLS
PROJECT ENGINEER

ALLISON K. WHITE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18462 ENGINEER JAMES C. DAVIS
SIGNATURE: James C Davis 7/31/09 P.E.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15892 ENGINEER DEWAYNE L. SYKES
SIGNATURE: Dewayne L. Sykes 8/4/09 P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
P.E.
STATE HIGHWAY DESIGN ENGINEER

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RD225157 7/30/2009 b-4545_rdy_tsh akwhite RD-Oce860-34

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
B-4545	1B

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

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 Marker — RW
- 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 Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- 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 — 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 — HH
- 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

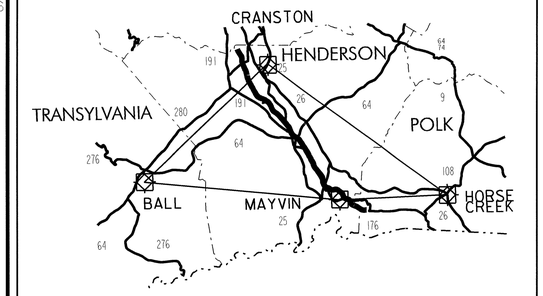
MISCELLANEOUS:

- 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
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
33759.1.1	1C
Location and Surveys	

SURVEY CONTROL SHEET B-4545



GPS CONTROL NETWORK
Not To Scale

NCDOT MONUMENT (B4545 GPS-102A)
LOCALIZED PROJECT COORDINATES
N = 573,247.0480
E = 962,309.2490
ELEV.= 2104.99'

NAD 83/95 NC GRID

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	573148.9200	962804.2670	2111.05	10+19.00	19.41 RT
2	BL-2	573510.2580	962585.7700	2106.20	14+40.60	9.41 LT
3	BL-3	573812.1890	962427.8160	2109.99	17+81.34	6.43 LT

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
4	BY1-4	572995.9080	962490.4160	2111.19	OUTSIDE PROJECT LIMITS	
5	BY1-5	573008.8070	962733.9810	2113.27	11+59.83	16.88 RT
11	BL-1	573148.9200	962804.2670	2111.05	13+05.92	14.02 LT
6	BY1-6	573176.2330	963088.6070	2112.68	OUTSIDE PROJECT LIMITS	

BM3
ELEV.=2110.85

NCDOT BASELINE STATION B4545 BY1-4
LOCALIZED PROJECT COORDINATES
N = 572995.9080
E = 962490.4160
ELEV.= 2111.19

MUDD CREEK

BEGIN TIP PROJECT B-4545
-L- STA 10+11.00

END TIP PROJECT B-4545
-L- STA 12+20.00

NCDOT BASELINE STATION B4545 BY1-5
LOCALIZED PROJECT COORDINATES
N = 573008.8070
E = 962733.9810
ELEV.= 2113.27

-Y-

NCDOT BASELINE STATION B4545 BL-2
LOCALIZED PROJECT COORDINATES
N = 573510.2580
E = 962585.7700
ELEV.= 2106.20

PC Sta. 12+74.47
PT Sta. 14+15.37
POT Sta. 18+37.81
BM2
ELEV.=2113.28
POT Sta. 10+00.00
N 27° 42' 40.4" W
S 29°10'40" E
309.49'
N 26° 30' 09.6" W
-L-
N 28° 07' 02.4" W

NCDOT BASELINE STATION B4545 BL-1
LOCALIZED PROJECT COORDINATES
N = 573148.9200
E = 962804.2670
ELEV.= 2111.05

BM1
ELEV.=2111.94

PC Sta. 10+98.00
PT Sta. 12+03.47

NCDOT MONUMENT (B4545 GPS-101A)
LOCALIZED PROJECT COORDINATES
N = 573403.0240
E = 962639.9220
ELEV.= 2105.98

NCDOT BASELINE STATION B4545 BL-3
LOCALIZED PROJECT COORDINATES
N = 573812.1890
E = 962427.8160
ELEV.= 2109.99

NCDOT BASELINE STATION B4545 BY1-6
LOCALIZED PROJECT COORDINATES
N = 573176.2330
E = 963088.6070
ELEV.= 2112.68

MUDD CREEK

BM4
ELEV.=2111.23

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4545 GPS 101A" WITH HARN-NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 573403.0240(ft) EASTING: 962639.9220(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 99977698 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS 101A" TO -L- STATION 10+11.00 IS S 29°10'40"E 309.49 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

BM1 ELEVATION = 2111.94
N 573162 E 962817
L STATION 10+25 37 RIGHT
8 INCH SPIKE SET IN BASE OF 22 INCH POPLAR TREE

BM3 ELEVATION = 2110.85
N 573016 E 962524
Y STATION 10+00
N 70° 58' 00.1" W DIST 47.71
8 INCH SPIKE SET IN 16 INCH POPLAR TREE

BM2 ELEVATION = 2113.28
N 573910 E 962369
L STATION 18+38
N 39° 43' 56.7" W DIST 58.95
8 INCH SPIKE SET IN BASE OF 15 INCH POPLAR TREE

BM4 ELEVATION = 2111.23
N 573190 E 963106
Y STATION 15+16
N 79° 23' 25.3" E DIST 90.76
8 INCH SPIKE SET IN BASE OF 36 INCH DOUBLE POPLAR TREE

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:
B4545_LS_CONTROL_071023.TXT
B4545_LS_1C_071023.DGN
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 HARN MONUMENTATION

NOTE: DRAWING NOT TO SCALE

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4545	2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15882 ENGINEER DEWAYNE L SYKES

Dewayne L. Sykes, 6/24/09

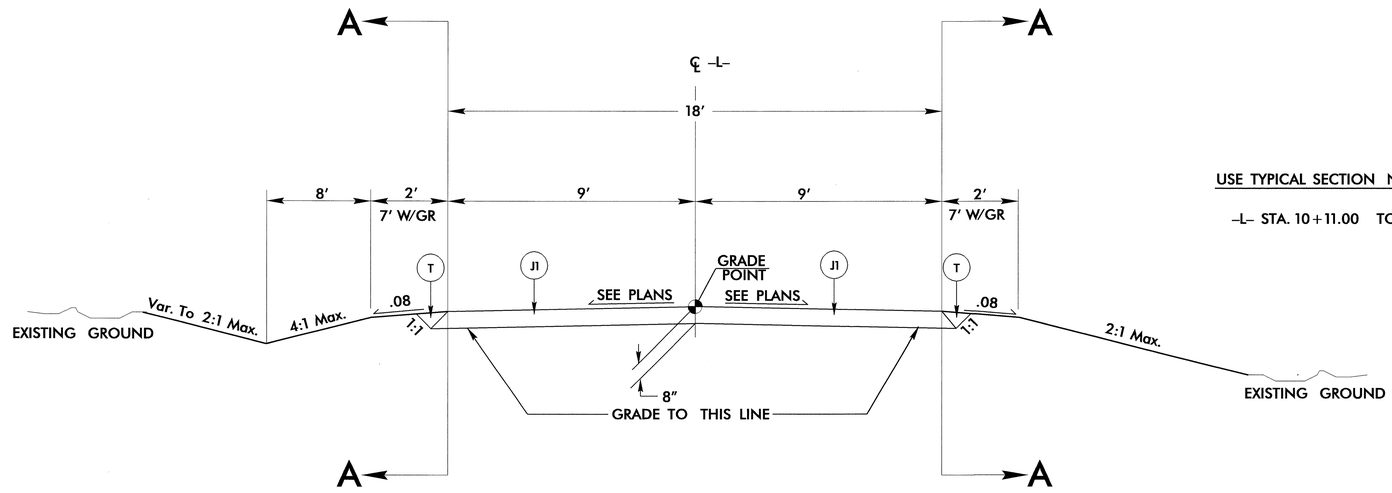
PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON

6/24/09

PAVEMENT SCHEDULE	
J1	PROP. 8" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.

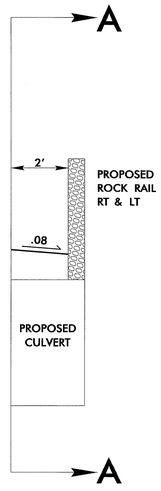
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



USE TYPICAL SECTION NO. 1 AS FOLLOWS

–L– STA. 10+11.00 TO STA. 12+20.00

TYPICAL SECTION NO. 1



–L– STA. 10+29.40 TO STA. 10+61.40 LT & RT

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4545	2-A

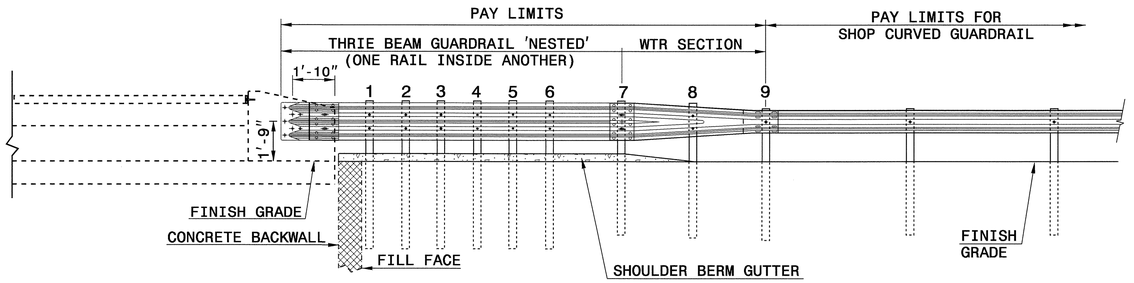
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT

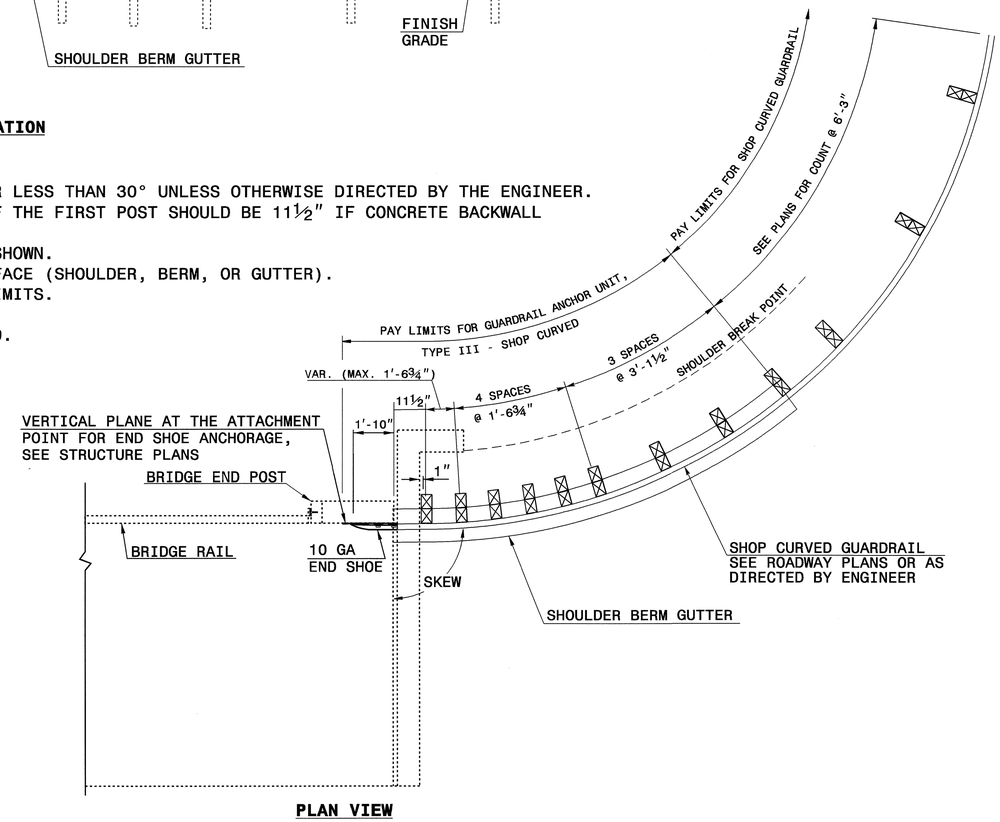
SHEET 1 OF 1

TYPE III SC



ELEVATION

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS SHOWN.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-USE NO STEEL POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE STANDARD 862.03 SHEET 4 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III - SHOP CURVED FOR ATTACHMENT TO RAIL ON BRIDGE

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT

SHEET 1 OF 1

TYPE III SC

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. WARD DATE: 8-27-02
MODIFIED BY: DATE:
CHECKED BY: DATE: 5/21/09
FILE SPEC.: ward:\usr\details\stand\862stds\typeiiisc.dgn

NORTH CAROLINA PROFESSIONAL SEAL 19761 ENGINEER CYNTHIA B. PERRY 6/23/05

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jhowerton AT PS237501

PS237501 5/21/2009 type_iii_sc jhowerton PS-Oce860-34dtbond

PROJECT REFERENCE NO.	SHEET NO.
B-4545	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202170

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	200	CY	UNDERCUT EXCAVATION
0080000000-E	SP	100	TON	CLASS IV SUBGRADE STABILIZA-TION
0195000000-E	265	100	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	100	SY	FABRIC FOR SOIL STABILIZATION
1121000000-E	520	216	TON	AGGREGATE BASE COURSE
1220000000-E	545	100	TON	INCIDENTAL STONE BASE
2022000000-E	815	22.4	CY	SUBDRAIN EXCAVATION
2033000000-E	815	16.8	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	100	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	3	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
3435000000-N	SP	5	EA	GENERIC GUARDRAIL ITEM PAINTED ADDITIONAL GUARDRAIL POSTS
3435000000-N	SP	1	EA	GENERIC GUARDRAIL ITEM PAINTED GR ANCHOR UNIT, TYPE III SHOP CURVE
3435000000-N	SP	2	EA	GENERIC GUARDRAIL ITEM PAINTED GR ANCHOR UNIT, TYPE 350
3435000000-N	SP	2	EA	GENERIC GUARDRAIL ITEM PAINTED GR ANCHOR UNIT, TYPE III
3435000000-N	SP	1	EA	GENERIC GUARDRAIL ITEM PAINTED GR ANCHOR UNIT,TYPE AT-1
3656000000-E	876	600	SY	FILTER FABRIC FOR DRAINAGE
4400000000-E	1110	98	SF	WORK ZONE SIGNS (STATIONARY)
4410000000-E	1110	89	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4445000000-E	1145	64	LF	BARRICADES (TYPE III)
6000000000-E	1605	400	LF	TEMPORARY SILT FENCE
6006000000-E	1610	250	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	50	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	100	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	0.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEED-ING
6029000000-E	SP	325	LF	SAFETY FENCE
6030000000-E	1630	70	CY	SILT EXCAVATION
6036000000-E	1631	500	SY	MATTING FOR EROSION CONTROL
6042000000-E	1632	115	LF	1/4" HARDWARE CLOTH
6070000000-N	SP	2	EA	SPECIAL STILLING BASINS
6071010000-E	SP	15	LF	WATTLE
6071020000-E	SP	5	LB	POLYACRYLAMIDE (PAM)
6084000000-E	1660	0.5	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	0.25	TON	FERTILIZER TOPDRESSING
6111000000-E	SP	125	LF	IMPERVIOUS DIKE
6114000000-N	SP	5	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL

5/28/99

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PROJECT REFERENCE NO.	SHEET NO.
B-4545	3A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
-L- 10+11.00 TO 10+29.40	5		6	1	
-L- 10+61.40 TO 12+20.00	31		18		13
PROJECT SUBTOTAL	36		24	1	13
WASTE IN LIEU OF BORROW				-1	-1
LOSS DUE TO C&G	-6				-6
PROJECT TOTAL	30				6
GRAND TOTAL	30				6
SAY	35				10

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.

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING."

"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

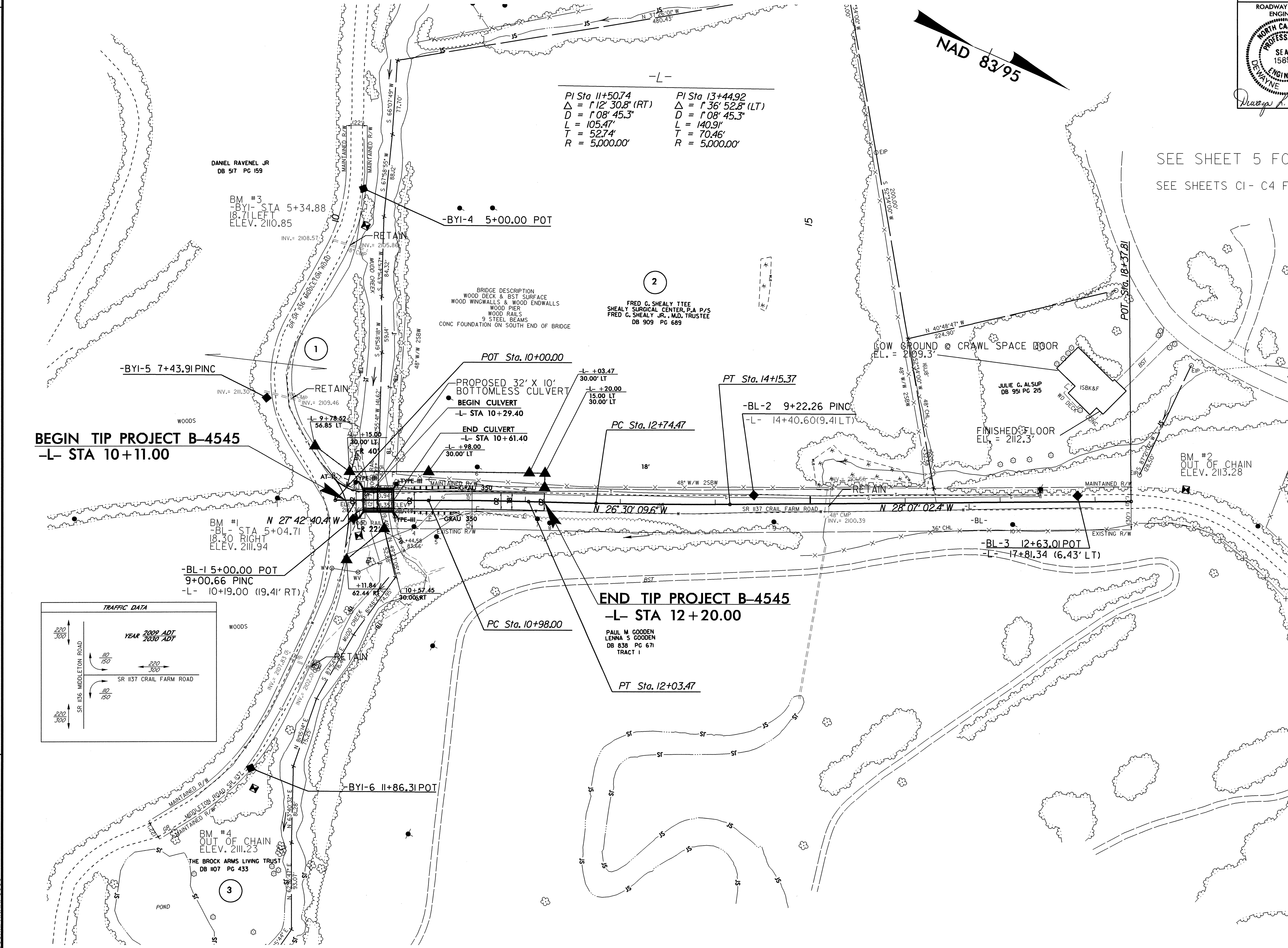
GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS			IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	AT-1	TYPE III	GRAU 350	EA	G	NG				
-L-	10+61.40	11+30.15	RT	68.75				10+61	2	7		50		1		1	1							
-L-	10+00.00	10+29.40	LT		25			10+29	2	7			1		1	1								SHOP CURVED ANCHOR UNIT (SEE DETAIL SHEET 2A)
-L-	10+61.40	11+30.15	LT	68.75			10+61		2	7	50					1	1							
		PROJECT TOTAL		137.5	25										1	3	2							
		LESS DEDUCTION	FOR ANCHOR UNITS																					
		TYPE III	3 @ 18.75 FT	-37.5	-18.75																			
		TYPE GRAU 350	2 @ 50 FT	-100																				
		TYPE AT-1	1 @ 6.25 FT		-6.25																			
		GRAND TOTAL		0	0																			
		SAY		0	0																			
		ADDITIONAL GUARDRAIL POST = 5																						

PROJECT REFERENCE NO.	SHEET NO.
B-4545	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15892 ENGINEER DEWAYNE L. SYKES	NORTH CAROLINA PROFESSIONAL SEAL 18462 ENGINEER JAMES C. DAVIS
	6/24/09

SEE SHEET 5 FOR -L- PROFILE

SEE SHEETS C1- C4 FOR CULVERT PLANS



NAD 83/95
-L-
PI Sta 11+50.74
Δ = 1° 12' 30.8" (RT)
D = 1° 08' 45.3"
L = 105.47'
T = 52.74'
R = 5,000.00'
PI Sta 13+44.92
Δ = 1° 36' 52.8" (LT)
D = 1° 08' 45.3"
L = 140.91'
T = 70.46'
R = 5,000.00'
DANIEL RAVENEL JR
DB 517 PG 159
BM #3
-BYI- STA 5+34.88
18.71 LEFT
ELEV. 2110.85
-BYI-4 5+00.00 POT
RETAIN
BRIDGE DESCRIPTION
WOOD DECK & BST SURFACE
WOOD WINGWALLS & WOOD ENDWALLS
WOOD PIER
WOOD RAILS
9 STEEL BEAMS
CONC FOUNDATION ON SOUTH END OF BRIDGE
FRED G. SHEALY TTEE
SHEALY SURGICAL CENTER, P.A P/S
FRED G. SHEALY JR., M.D. TRUSTEE
DB 909 PG 689
-BYI-5 7+43.91 PINC
POT Sta. 10+00.00
PROPOSED 32' X 10' BOTTOMLESS CULVERT
BEGIN CULVERT
-L- STA 10+29.40
END CULVERT
-L- STA 10+61.40
PT Sta. 14+15.37
-BL-2 9+22.26 PINC
-L- 14+40.60 (9.41 LT)
PC Sta. 12+74.47
LOW GROUND @ CRAWL SPACE DOOR
EL. = 2109.3'
JULIE C. ALSUP
DB 951 PG 215
FINISHED FLOOR
EL. = 2112.3'
POT Sta. 18+37.81
BM #2
OUT OF CHAIN
ELEV. 2113.28
BEGIN TIP PROJECT B-4545
-L- STA 10+11.00
N 26° 30' 09.6" W
N 28° 07' 02.4" W
SR 1137 CRAIL FARM ROAD
BM #1
-BL- STA 5+04.71
18.30 RIGHT
ELEV. 2111.94
N 27° 42' 40.4" W
-BL-1 5+00.00 POT
9+00.66 PINC
-L- 10+19.00 (19.41' RT)
-BL-3 12+63.01 POT
-L- 17+81.34 (6.43' LT)
END TIP PROJECT B-4545
-L- STA 12+20.00
PC Sta. 10+98.00
PAUL M GOODEN
LENNA S GOODEN
DB 838 PG 671
TRACT 1
PT Sta. 12+03.47
TRAFFIC DATA
YEAR 2009 ADT / 2030 ADT
220/300
110/150
SR 1136 MIDDLETON ROAD
SR 1137 CRAIL FARM ROAD
-BYI-6 11+86.31 POT
BM #4
OUT OF CHAIN
ELEV. 2111.23
THE BROCK ARMS LIVING TRUST
DB 1107 PG 433
POND
WOODS

REVISIONS

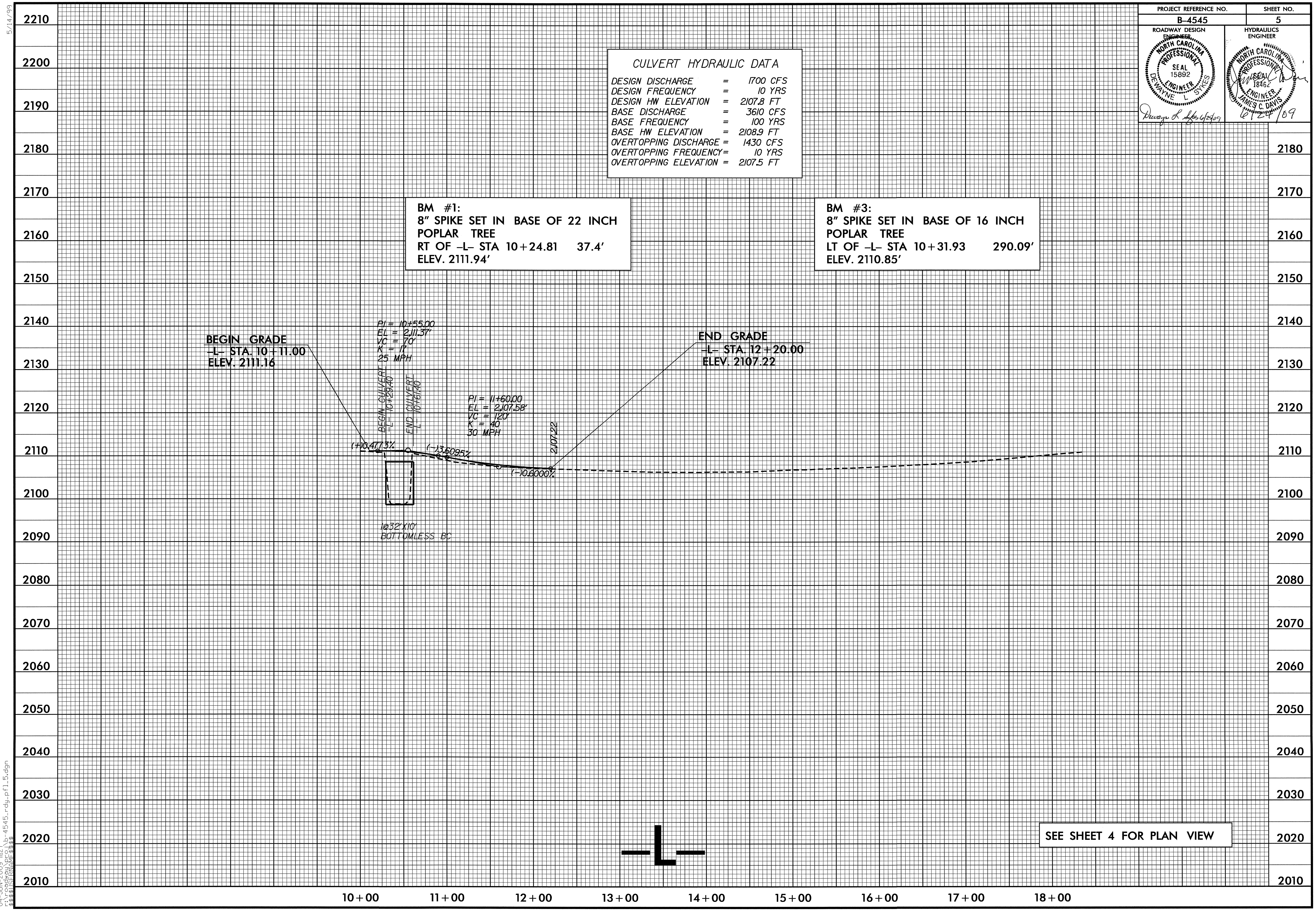
8/17/99

22-JUN-2009 07:46

PROJECT REFERENCE NO. B-4545 | SHEET NO. 5

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15892 ENGINEER DEWAYNE L. SYKES

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 18462 ENGINEER JAMES C. DAVIS



CULVERT HYDRAULIC DATA
DESIGN DISCHARGE = 1700 CFS
DESIGN FREQUENCY = 10 YRS
DESIGN HW ELEVATION = 2107.8 FT
BASE DISCHARGE = 3610 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 2108.9 FT
OVERTOPPING DISCHARGE = 1430 CFS
OVERTOPPING FREQUENCY = 10 YRS
OVERTOPPING ELEVATION = 2107.5 FT
BM #1:
8" SPIKE SET IN BASE OF 22 INCH POPLAR TREE
RT OF -L- STA 10+24.81 37.4'
ELEV. 2111.94'
BM #3:
8" SPIKE SET IN BASE OF 16 INCH POPLAR TREE
LT OF -L- STA 10+31.93 290.09'
ELEV. 2110.85'
BEGIN GRADE
-L- STA. 10+11.00
ELEV. 2111.16
PI = 10+55.00
EL = 2,111.37'
VC = 70'
K = 17
25 MPH
BEGIN CULVERT -L- 10+29.40
END CULVERT -L- 10+61.40
PI = 11+60.00
EL = 2,107.58'
VC = 120'
K = 40
30 MPH
2,107.22
END GRADE
-L- STA. 12+20.00
ELEV. 2107.22
(+)0.4773%
(-)3.6095%
(-)0.6000%
1@32'X10'
BOTTOMLESS BC
SEE SHEET 4 FOR PLAN VIEW
-L-
2210
2200
2190
2180
2170
2160
2150
2140
2130
2120
2110
2100
2090
2080
2070
2060
2050
2040
2030
2020
2010
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00

5/14/99

04-JUN-2009 11:27
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$$$$USERNAME$$$$