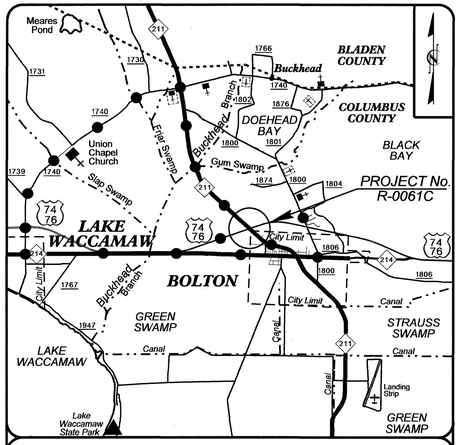
05/08/09

TIP PROJECT: R-0061C

CONTRACT: C202555

See Sheet 1-A For Index of Sheets



OFF SITE DETOUR

SEE SHEET No. TCP-7 FOR DETAILED DETOUR ROUTES.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

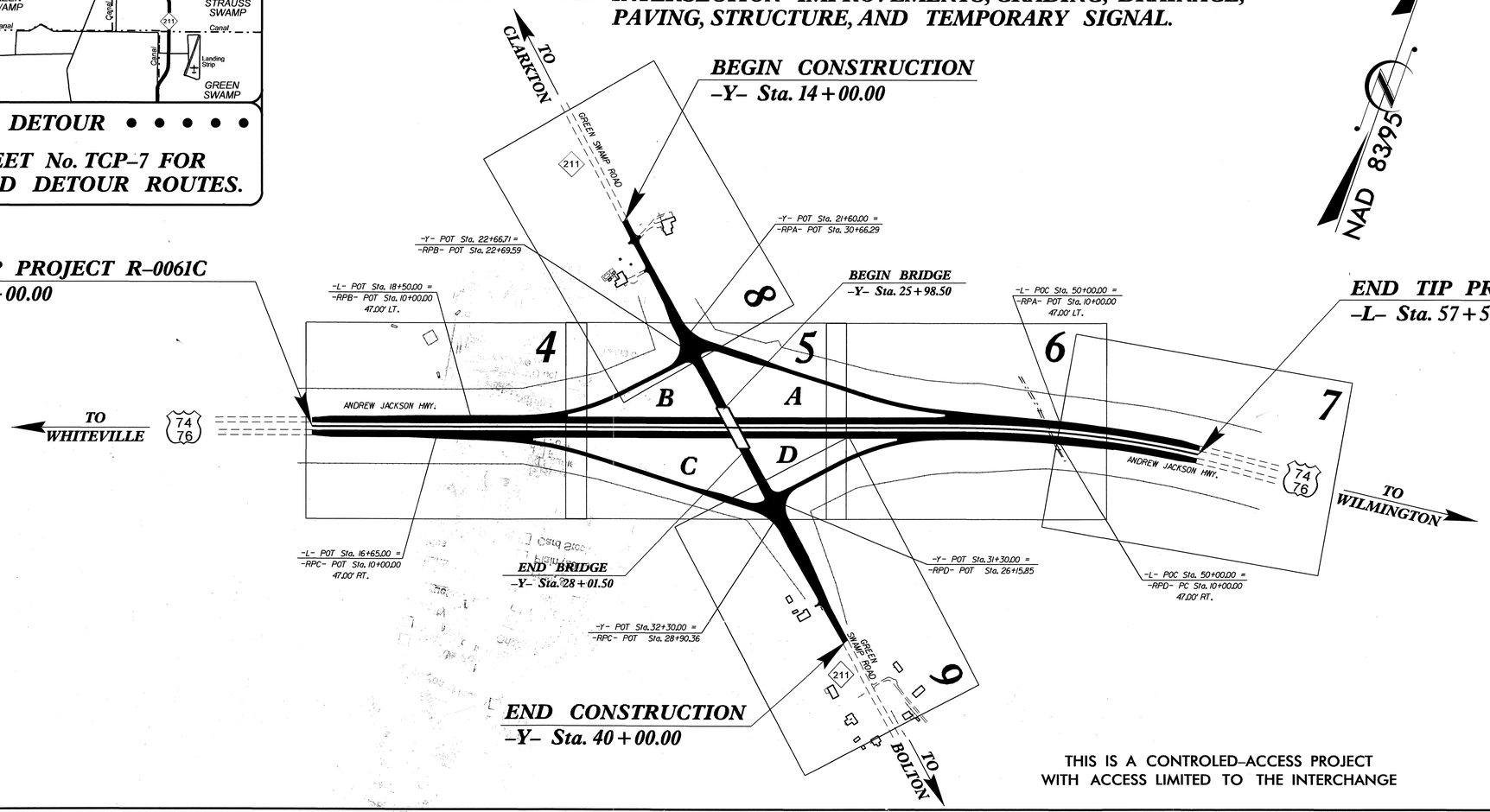
COLUMBUS COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-0061C	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38783.1.1	NHF-74 (80)	P.E.
38783.2.1	HPPNHF-0074(80)	R/W
38783.3.1	HPPNHS-0074(80)	UTILITY, CONST.

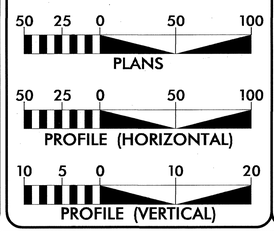
LOCATION: *US 74 AT NC211. PROPOSED INTERCHANGE AT INTERSECTION OF US 74 /76 (ANDREW JACKSON HWY.) AND NC 211 (GREEN SWAMP RD.)*

TYPE OF WORK: *INTERSECTION IMPROVEMENTS, GRADING, DRAINAGE, PAVING, STRUCTURE, AND TEMPORARY SIGNAL.*



THIS IS A CONTROLED-ACCESS PROJECT WITH ACCESS LIMITED TO THE INTERCHANGE

GRAPHIC SCALES



DESIGN DATA

ADT 2005 = 11,000
ADT 2030 = 20,000
DHV = 10 %
D = 60 %
T = 21 % *
V = 60 MPH
* TTST = 17% DUAL = 4%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-0061C = 0.900 Miles
TOTAL LENGTH TIP PROJECT R-0061C = 0.900 Miles

STATEWIDE DESIGN GUIDELINES

FUNC. CLASS FOR PROPOSED -L- = INTERSTATE
PROPOSED -Y- = COLLECTOR

Prepared In the Office of:

DIVISION OF HIGHWAYS

1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 18, 2008

LETTING DATE: AUGUST 17, 2010

JIMMY GOODNIGHT, PE
PROJECT ENGINEER

STEVE KENDALL, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONNOR

SIGNATURE: P.E. 5-21-10

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL

SIGNATURE: P.E. 5-25-10

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

P.E.

STATE HIGHWAY DESIGN ENGINEER

5/28/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	1-A

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL
S. D. Kendall
6-15-10

2006 ROADWAY ENGLISH STANDARD DRAWINGS

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

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

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.02	Method of Clearing – Method III
225.01	Guide for Grading Subgrade – Interstate and Freeway
225.02	Guide for Grading Subgrade – Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation – Two Lane Pavement
225.05	Method of Obtaining Superelevation – Divide Highways
225.09	Guide for Shoulder and Ditch Transition at Grade Separations
DIVISION 3 – PIPE CULVERTS	
310.10	Driveway Pipe Construction
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 6 – SUBGRADE, BASES AND SHOULDERS	
610.03	Guide for Paving Shoulders Under Bridges – Method III
665.01	Milled Rumble Strips – Asphalt Pavement
DIVISION 8 – INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
816.01	Concrete Pads – for Shoulder Drain Installation
816.02	Aggregate Shoulder Drain
816.03	Geocomposite Shoulder Drain
816.04	Marker for Drainage Structure and Concrete Pad (Shoulder Drains)
840.14	Concrete Drop Inlet – 12" thru 30" Pipe
840.15	Brick Drop Inlet – 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates – for use with Std. Dwg. 840.14 and 840.15
840.18	Concrete Grated Drop Inlet Type 'B' – 12" thru 36" Pipe
840.22	Frames and Wide Slot Sag Grates
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
840.72	Pipe Collar
852.01	Concrete Islands
857.01	Precast Reinforced Concrete Barrier – 41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchor End of Guardrail – B-77 and B-83 Anchor Units
862.01	Cable Guiderail
866.02	Woven Wire Fence – with Wood Posts
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES

2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-18-06

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 AND STD. NO. 560.02.

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.

SHOULDER DRAINS:
SHOULDER DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 816.03 AND DETAILS IN PLANS AT LOCATIONS AS 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

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:
A. T.& T. – Lance Lilibertie 910-620-3901
Progress Energy – Warren Chadwick 910-520-9541 (cell)
Mayor, Town of Bolton – Frank A. Wilson 910-520-6191

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

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

INDEX OF SHEETS

14-JUN-2010 15:34
R:\Roadway\Proj\r0061c_rdy_tsh.dgn
$$$$USERNAME$$$$

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	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

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
- Wetlands
- 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
- Proposed Wheel Chair Ramp Curb Cut — WCC
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	1-C
Location and Surveys	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

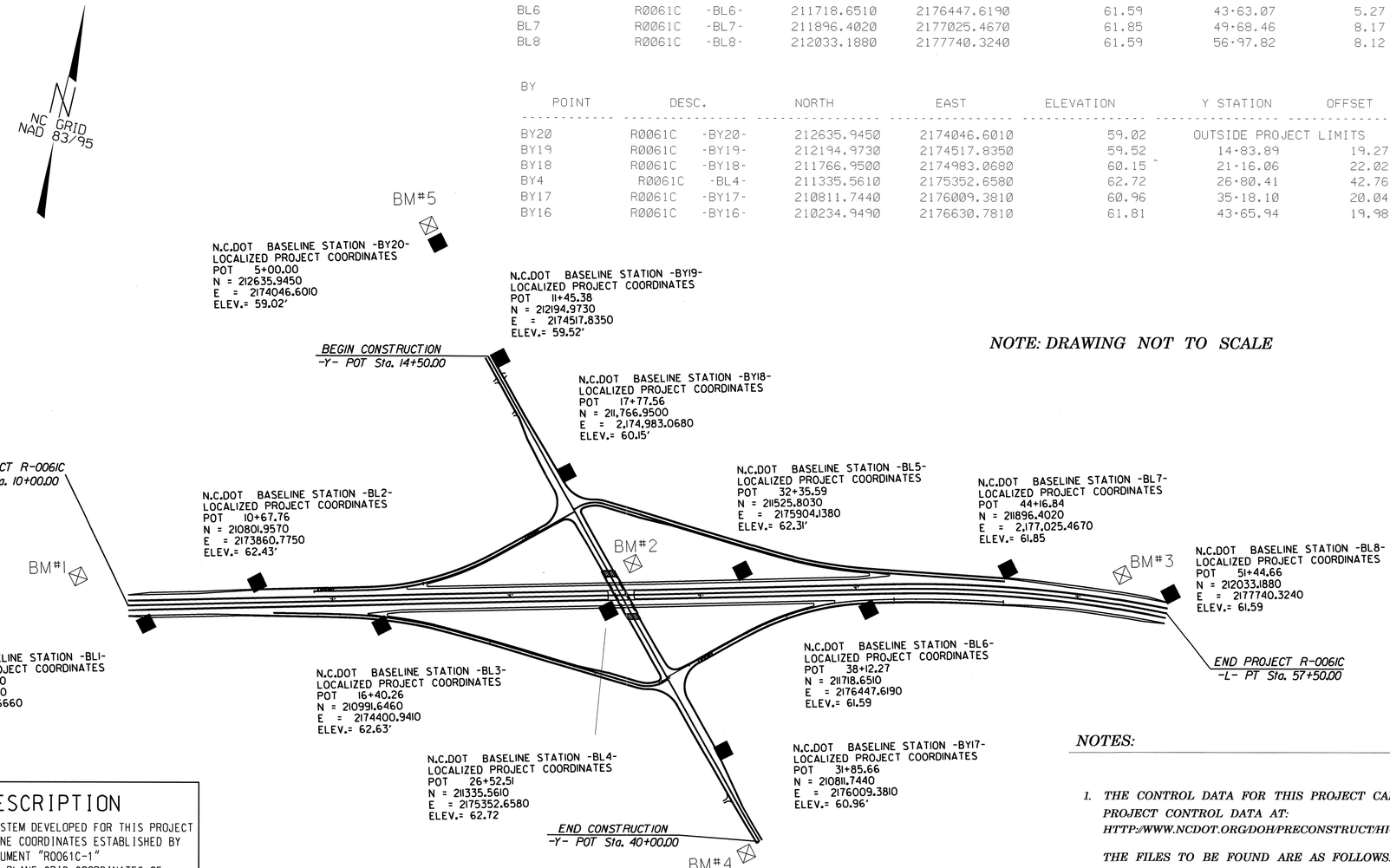
SURVEY CONTROL SHEET R-0061C

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL1	R0061C -BL1-	210615.0390	2173324.6660	61.25	10+50.86	7.88 RT
BL2	R0061C -BL2-	210801.9570	2173860.7750	62.43	16+18.61	9.82 RT
BL3	R0061C -BL3-	210991.6460	2174400.9410	62.63	21+91.12	10.50 RT
BL4	R0061C -BL4-	211335.5610	2175352.6580	62.72	32+03.03	2.55 RT
BL5	R0061C -BL5-	211525.8030	2175904.1380	62.31	37+86.39	6.47 RT
BL6	R0061C -BL6-	211718.6510	2176447.6190	61.59	43+63.07	5.27 RT
BL7	R0061C -BL7-	211896.4020	2177025.4670	61.85	49+68.46	8.17 RT
BL8	R0061C -BL8-	212033.1880	2177740.3240	61.59	56+97.82	8.12 RT

BY

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
BY20	R0061C -BY20-	212635.9450	2174046.6010	59.02	OUTSIDE PROJECT LIMITS	
BY19	R0061C -BY19-	212194.9730	2174517.8350	59.52	14+83.89	19.27 LT
BY18	R0061C -BY18-	211766.9500	2174983.0680	60.15	21+16.06	22.02 LT
BY4	R0061C -BL4-	211335.5610	2175352.6580	62.72	26+80.41	42.76 RT
BY17	R0061C -BY17-	210811.7440	2176009.3810	60.96	35+18.10	20.04 LT
BY16	R0061C -BY16-	210234.9490	2176630.7810	61.81	43+65.94	19.98 LT



NOTE: DRAWING NOT TO SCALE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "R0061C-1"
WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
NORTHING: 210233.196(ft) EASTING: 2172208.258(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00000365
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R0061C-1" TO -L- STATION 10+00 IS
N 70°44'32"E 1129.00FT
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

```
**************************************
BM1      ELEVATION = 58.18
N 210640      E 2173028
L STATION 10+00
N 82° 08' 10.6" W  DIST    248.18
RR SPIKE IN BASE OF 12 INCH PINE
**************************************

**************************************
BM2      ELEVATION = 60.67
N 211491      E 2175432
L STATION 33+30 117 LEFT
RR SPIKE IN BASE OF 15 INCH PINE
**************************************

**************************************
BM3      ELEVATION = 60.12
N 212141      E 2177569
L STATION 55+44 122 LEFT
RR SPIKE IN BASE OF 18 INCH PINE
**************************************

**************************************
BM4      ELEVATION = 62.58
N 210416      E 2176304
Y STATION 40+04 70 RIGHT
RR SPIKE IN BASE OF 10 INCH PINE
**************************************

**************************************
BM5      ELEVATION = 58.87
N 212649      E 2174060
Y STATION 10+00
N 32° 48' 59.9" W  DIST    165.47
RR SPIKE IN BASE OF 12 INCH PINE
**************************************
```

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:
   R0061C_LS_CONTROL_080102.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 EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

01-APR-2010 09:44
R:\Roadway\Proj\r-0061c_ls_lc_080102.dgn
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
R-0061C	1-D

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CENTERLINE COORDINATE LIST

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)
1	L	10+00.00	210605.5628	2173274.0841
2	L	11+00.00	210638.8080	2173368.3961
3	L	12+00.00	210672.0532	2173462.7082
4	L	13+00.00	210705.2983	2173557.0202
5	L	14+00.00	210738.5435	2173651.3322
6	L	15+00.00	210771.7887	2173745.6442
7	L	16+00.00	210805.0339	2173839.9563
8	L	17+00.00	210838.2790	2173934.2683
9	L	18+00.00	210871.5242	2174028.5803
10	L	19+00.00	210904.7694	2174122.8923
11	L	20+00.00	210938.0146	2174217.2044
12	L	21+00.00	210971.2597	2174311.5164
13	L	22+00.00	211004.5049	2174405.8284
14	L	23+00.00	211037.7501	2174500.1404
15	L	24+00.00	211070.9953	2174594.4525
16	L	25+00.00	211104.2404	2174688.7645
17	L	26+00.00	211137.4856	2174783.0765
18	L	27+00.00	211170.7308	2174877.3885
19	L	28+00.00	211203.9760	2174971.7006
20	L	29+00.00	211237.2211	2175066.0126
21	L	30+00.00	211270.4663	2175160.3246
22	L	31+00.00	211303.7115	2175254.6367
23	L	32+00.00	211336.9567	2175348.9487
24	L	33+00.00	211370.2018	2175443.2607
25	L	34+00.00	211403.4470	2175537.5727
26	L	35+00.00	211436.6922	2175631.8848
27	L	36+00.00	211469.9374	2175726.1968
28	L	37+00.00	211503.1825	2175820.5088
29	L	38+00.00	211536.4277	2175914.8208
30	L	39+00.00	211569.6729	2176009.1329
31	L	40+00.00	211602.9181	2176103.4449
32	L	41+00.00	211636.1632	2176197.7569
33	L	42+00.00	211669.4084	2176292.0689
34	L	43+00.00	211702.6536	2176386.3810
35	L	44+00.00	211735.8964	2176480.6938
36	L	45+00.00	211768.8709	2176575.1006
37	L	46+00.00	211800.8093	2176669.8622
38	L	47+00.00	211831.1456	2176765.1483
39	L	48+00.00	211859.8143	2176860.9494
40	L	49+00.00	211886.8068	2176957.2363
41	L	50+00.00	211912.1146	2177053.9795
42	L	51+00.00	211935.7302	2177151.1497
43	L	52+00.00	211957.6464	2177248.7173
44	L	53+00.00	211977.8564	2177346.6525
45	L	54+00.00	211996.3542	2177444.9255
46	L	55+00.00	212013.1340	2177543.5063
47	L	56+00.00	212028.1908	2177642.3650
48	L	57+00.00	212041.5200	2177741.4714
49	L	57+50.00	212047.5357	2177791.1101
50	Y	10+00.00	212510.0204	2174150.0533
51	Y	11+00.00	212441.9945	2174223.3504
52	Y	12+00.00	212373.9685	2174296.6476
53	Y	13+00.00	212305.9426	2174369.9447
54	Y	14+00.00	212237.9166	2174443.2418
55	Y	15+00.00	212169.8907	2174516.5390
56	Y	16+00.00	212101.8647	2174589.8361
57	Y	17+00.00	212033.8388	2174663.1333
58	Y	18+00.00	211965.8128	2174736.4304
59	Y	19+00.00	211897.7869	2174809.7275
60	Y	20+00.00	211829.7609	2174883.0247
61	Y	21+00.00	211761.7350	2174956.3218
62	Y	22+00.00	211693.7090	2175029.6189
63	Y	23+00.00	211625.6831	2175102.9161
64	Y	24+00.00	211557.6571	2175176.2132
65	Y	25+00.00	211489.6312	2175249.5104
66	Y	26+00.00	211421.6052	2175322.8075
67	Y	27+00.00	211353.5793	2175396.1046
68	Y	28+00.00	211285.5533	2175469.4018
69	Y	29+00.00	211217.5274	2175542.6989
70	Y	30+00.00	211149.5014	2175615.9960
71	Y	31+00.00	211081.4755	2175689.2932
72	Y	32+00.00	211013.4495	2175762.5903
73	Y	33+00.00	210945.4236	2175835.8874
74	Y	34+00.00	210877.3976	2175909.1846
75	Y	35+00.00	210809.3717	2175982.4817
76	Y	36+00.00	210741.3457	2176055.7789
77	Y	37+00.00	210673.3198	2176129.0760
78	Y	38+00.00	210605.2938	2176202.3731
79	Y	39+00.00	210537.2679	2176275.6703
80	Y	40+00.00	210469.2419	2176348.9674
81	Y	41+00.00	210401.2160	2176422.2645

Point #	Chain	Station	Northing (Y)	Easting (X)
82	Y	42+00.00	210333.1900	2176495.5617
83	Y	43+00.00	210265.1641	2176568.8588
84	Y	44+00.00	210197.1381	2176642.1560
85	RPA	10+00.00	211957.6866	2177042.4819
86	RPA	11+00.00	211933.2235	2176945.5203
87	RPA	12+00.00	211908.7605	2176848.5586
88	RPA	13+00.00	211884.2974	2176751.5970
89	RPA	14+00.00	211859.8344	2176654.6354
90	RPA	15+00.00	211835.3713	2176557.6737
91	RPA	16+00.00	211811.0820	2176460.6687
92	RPA	17+00.00	211788.6336	2176363.2251
93	RPA	18+00.00	211770.3049	2176264.9296
94	RPA	19+00.00	211756.9057	2176165.8419
95	RPA	20+00.00	211748.4655	2176066.2090
96	RPA	21+00.00	211744.1428	2175966.3063
97	RPA	22+00.00	211741.6055	2175866.3387
98	RPA	23+00.00	211739.2176	2175766.3672
99	RPA	24+00.00	211736.8297	2175666.3957
100	RPA	25+00.00	211734.4418	2175566.4242
101	RPA	26+00.00	211732.0539	2175466.4527
102	RPA	27+00.00	211729.6660	2175366.4812
103	RPA	28+00.00	211727.2781	2175266.5098
104	RPA	29+00.00	211722.0610	2175166.7901
105	RPA	30+00.00	211670.7891	2175082.9872
106	RPA	30+19.50	211656.4928	2175069.7190
107	RPB	10+00.00	210932.4734	2174060.1111
108	RPB	11+00.00	210965.7186	2174154.4231
109	RPB	12+00.00	210998.9931	2174248.7248
110	RPB	13+00.00	211033.8316	2174342.4542
111	RPB	14+00.00	211073.8677	2174434.0637
112	RPB	15+00.00	211121.2238	2174522.1070
113	RPB	16+00.00	211175.7441	2174605.9029
114	RPB	17+00.00	211237.0500	2174684.8699
115	RPB	18+00.00	211304.7162	2174758.4600
116	RPB	19+00.00	211377.4309	2174827.0980
117	RPB	20+00.00	211450.7281	2174895.1239
118	RPB	21+00.00	211524.0253	2174963.1498
119	RPB	22+00.00	211597.3224	2175031.1757
120	RPB	22+69.59	211648.3297	2175078.5147
121	RPC	10+00.00	210782.3166	2173916.8843
122	RPC	11+00.00	210811.6695	2174012.4793
123	RPC	12+00.00	210841.0225	2174108.0743
124	RPC	13+00.00	210870.0688	2174203.7624
125	RPC	14+00.00	210896.9142	2174300.0862
126	RPC	15+00.00	210919.4274	2174397.5083
127	RPC	16+00.00	210937.0435	2174495.9339
128	RPC	17+00.00	210949.7184	2174595.1169
129	RPC	18+00.00	210957.5051	2174694.8042
130	RPC	19+00.00	210961.7990	2174794.7098
131	RPC	20+00.00	210964.9797	2174894.6592
132	RPC	21+00.00	210968.1314	2174994.6095
133	RPC	22+00.00	210971.2831	2175094.5598
134	RPC	23+00.00	210974.4348	2175194.5101
135	RPC	24+00.00	210977.5866	2175294.4605
136	RPC	25+00.00	210980.7383	2175394.4108
137	RPC	26+00.00	210983.8900	2175494.3611
138	RPC	27+00.00	210987.0417	2175594.3114
139	RPC	28+00.00	211019.6718	2175686.9050
140	RPC	28+47.01	211052.9046	2175720.0779
141	RPD	10+00.00	211866.5426	2177065.4771
142	RPD	11+00.00	211841.2277	2176968.7357
143	RPD	12+00.00	211814.2144	2176872.4548
144	RPD	13+00.00	211785.5110	2176776.6641
145	RPD	14+00.00	211755.1265	2176681.3933
146	RPD	15+00.00	211723.0702	2176586.6719
147	RPD	16+00.00	211689.2689	2176492.5599
148	RPD	17+00.00	211652.1035	2176399.7349
149	RPD	18+00.00	211608.7697	2176309.6421
150	RPD	19+00.00	211558.1326	2176223.4441
151	RPD	20+00.00	211500.4963	2176141.7600
152	RPD	21+00.00	211436.2610	2176065.1570
153	RPD	22+00.00	211365.8723	2175994.1665
154	RPD	23+00.00	211292.5751	2175926.1406
155	RPD	24+00.00	211219.2780	2175858.1147
156	RPD	25+00.00	211145.9808	2175790.0888
157	RPD	26+00.00	211072.6836	2175722.0629
158	RPD	26+15.85	211061.0677	2175711.2823

Point #	Chain	Station	Northing (Y)	Easting (X)
159	DET	10+00.00	211965.8128	2174736.4304
160	DET	11+00.00	211890.2347	2174801.5984
161	DET	12+00.00	211803.2074	2174850.7042
162	DET	13+00.00	211714.6162	2174897.0896
163	DET	14+00.00	211626.0250	2174943.4750
164	DET	15+00.00	211537.4339	2174989.8605
165	DET	16+00.00	211450.3466	2175038.9437
166	DET	17+00.00	211368.4701	2175096.2840
167	DET	18+00.00	211292.7270	2175161.5117
168	DET	19+00.00	211223.8743	2175233.9753
169	DET	20+00.00	211162.5999	2175312.9507
170	DET	21+00.00	211109.5159	2175397.6488
171	DET	22+00.00	211065.0772	2175487.1896
172	DET	23+00.00	211024.0530	2175578.3873
173	DET	24+00.00	210983.0288	2175669.5850
174	DET	25+00.00	210942.0047	2175760.7826
175	DET	26+00.00	210900.9414	2175851.9626
176	DET	27+00.00	210848.9814	2175937.1627
177	DET	27+40.22	210822.9768	2175967.8223

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL
S. D. Kendall 6-2-10

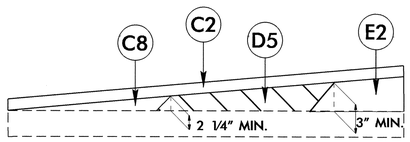
PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV
Vladimir Mitchev 06/23/10

PAVEMENT SCHEDULE

FINAL PAVEMENT DESIGN

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	D2	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	P1	PRIME COAT AT A RATE OF .35 GAL. PER Sq. Yd.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	D3	PROP. APPROX. 3½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB AND GUTTER.
C3	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.	D4	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.	R2	7" MONOLITHIC CONCRETE ISLAND
C4	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.	D5	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, 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.	RS	ASPHALT SHOULDERS MILLED RUMBLE STRIPS, Std. 665.01
C5	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.	E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	T	EARTH MATERIAL.
C6	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 167 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E2	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
C7	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 TO EXCEED 2" IN DEPTH.	E3	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.	W W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)
C8	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, 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.		
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	J1	PROP. 8" AGGREGATE BASE COURSE.		

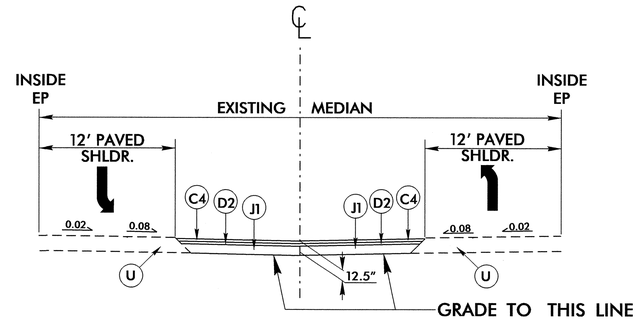
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



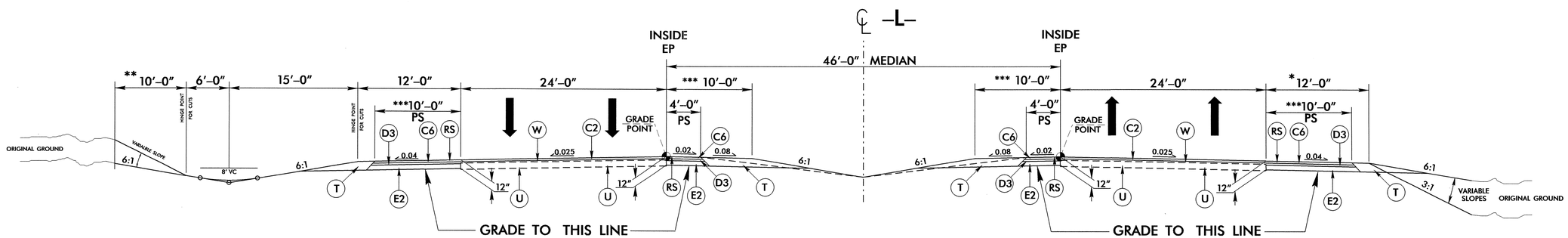
Wedging Detail For –L– Resurfacing (W)

NOTE:
* 15'–0" WITH GUARDRAIL
** WHEN SLOPE–STAKE FALLS OUTSIDE THE HINGE POINT DISTANCE, MAINTAIN APPROPRIATE MAXIMUM OR MINIMUM SLOPE.
*** USE 12' FULL DEPTH PAVED SHOULDER.

TYPICAL SECTION FOR TEMPORARY PAVEMENT ON –L–



USE IN CONJUNCTION WITH TYPICAL SECTION No. 1
–L– Sta. 29+70 to Sta. 30+70



TYPICAL SECTION NO. 1

–L– Sta. 10+00.00 TO Sta. 57+50.00

*** –L– Sta. 25+80.00 TO Sta. 31+55.00
USE 12' FULL DEPTH PAVED SHOULDER.

02-JUN-2010 07:36
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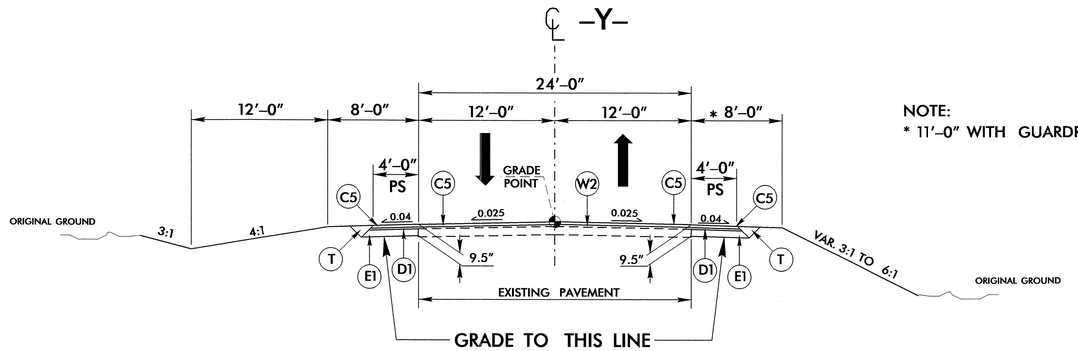
6/2/99

OVERLAY EXISTING WITH 1.5" S9.5B

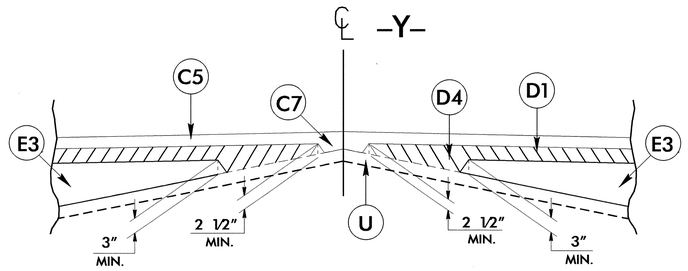
–Y– Sta. 14+00.00 TO Sta. 14+50.00
–Y– Sta. 38+75.00 TO Sta. 40+00.00



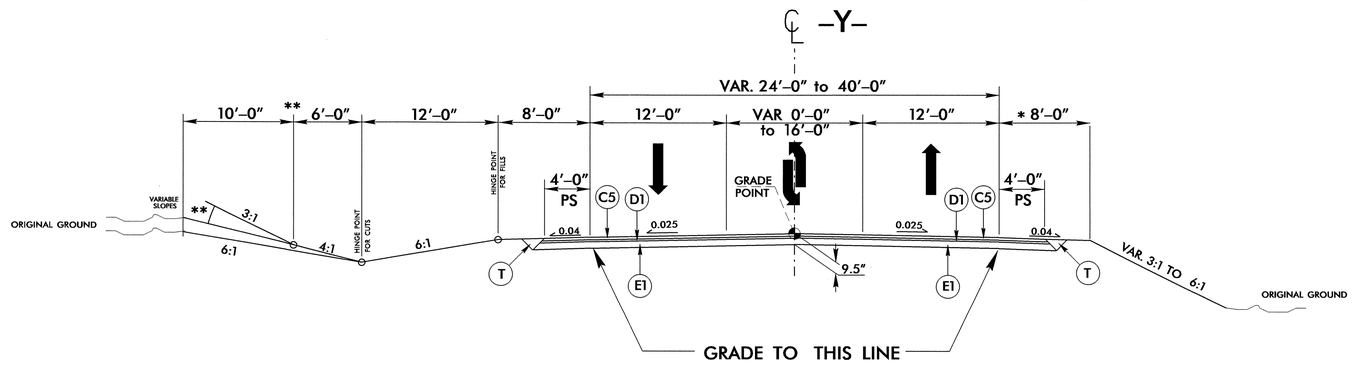
NOTE:
* 11'–0" WITH GUARDRAIL

TYPICAL SECTION NO. 2

–Y– Sta. 14+50.00 TO Sta. 16+25.00
–Y– Sta. 37+00.00 TO Sta. 38+75.00



Wedging Detail For –Y– Resurfacing



TYPICAL SECTION NO. 3

–Y– Sta. 16+25.00 TO 25+98.50 BEGIN BRIDGE
–Y– Sta. 28+01.50 END BRIDGE TO Sta. 37+00.00

NOTE:
* 11'–0" WITH GUARDRAIL
** WHEN SLOPE–STAKE FALLS OUTSIDE THE HINGE POINT DISTANCE, MAINTAIN APPROPRIATE MAXIMUM OR MINIMUM SLOPE.

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	2-A

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL
S.D. Kendall 5-25-10

PAVEMENT DESIGN ENGINEER
SEAL 031484 ENGINEER VLADIMIR G. MITCHELL
05/24/10

PAVEMENT SCHEDULE

SEE TYPICAL SHEET No. 2 FOR COMPLETE PAVEMENT SCHEDULE

C5	3" S9.5B
C7	VAR. S9.5B
D1	2½" I19.0B
D4	VAR. I19.0B
E1	4" B25.0B
E3	VAR. B25.0B
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W2	WEDGING (-Y-)

21-MAY-2010 10:42
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PROJECT REFERENCE NO.	SHEET NO.
R-0061C	2-B

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL

S. D. Kendall 5-25-10

PAVEMENT DESIGN ENGINEER

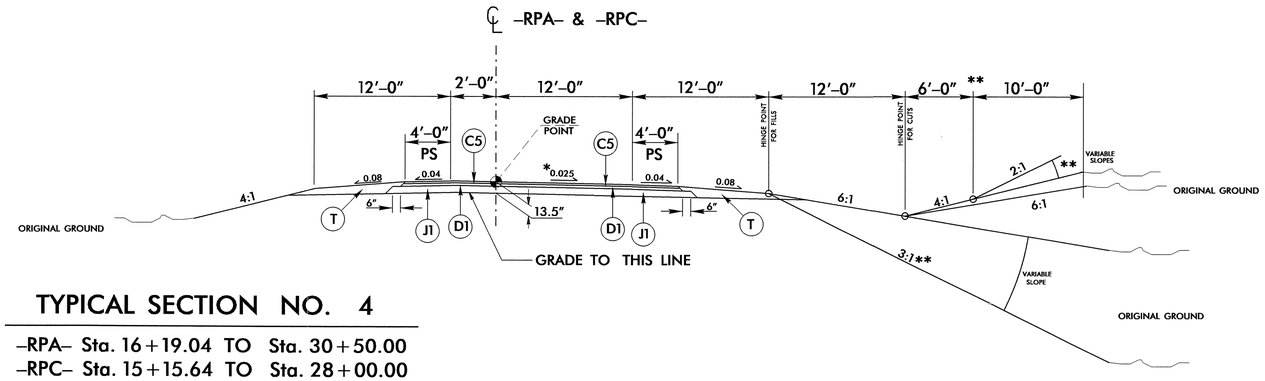
NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER OMAR G. MITCHEY

Omar Mitchey 5/24/10

PAVEMENT SCHEDULE

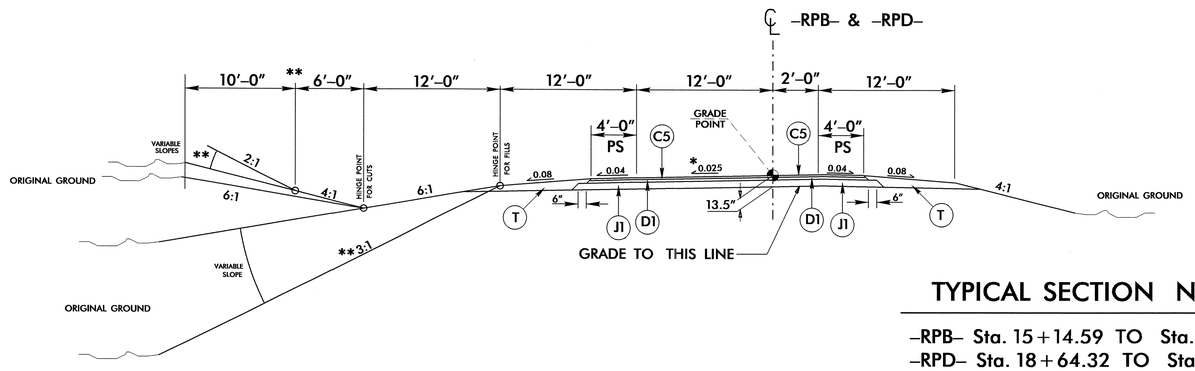
SEE TYPICAL SHEET No. 2 FOR COMPLETE PAVEMENT SCHEDULE

C3	2" S9.5B
C5	3" S9.5C
D1	2.5" I19.0B
J1	8" ABC
P1	PRIME COAT
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING (SEE DETAIL SHT. 2)



TYPICAL SECTION NO. 4

–RPA– Sta. 16+19.04 TO Sta. 30+50.00
–RPC– Sta. 15+15.64 TO Sta. 28+00.00

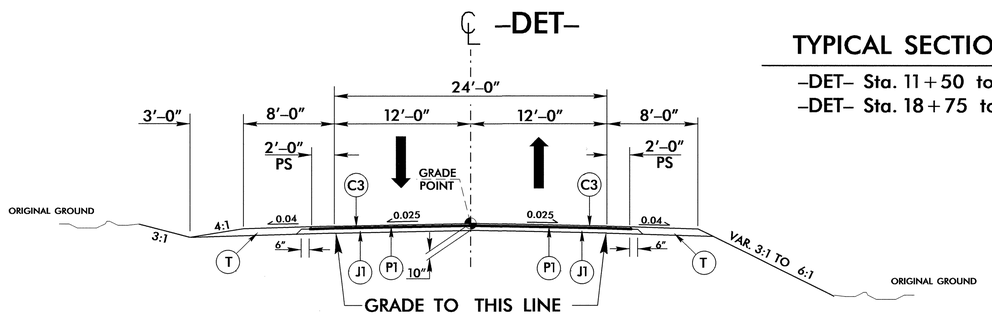


NOTE: FOR TYPICAL SECTIONS No. 4 AND 5
* SEE PLANS FOR SUPER RATE
** WHEN SLOPE-STAKE FALLS OUTSIDE THE HINGE POINT DISTANCE, MAINTAIN APPROPRIATE MAXIMUM OR MINIMUM SLOPE.

TYPICAL SECTION NO. 5

–RPB– Sta. 15+14.59 TO Sta. 22+50.00
–RPD– Sta. 18+64.32 TO Sta. 25+50.00

DETOUR TYPICAL SECTIONS



TYPICAL SECTION NO. 6

–DET– Sta. 11+50 to Sta. 17+70.21
–DET– Sta. 18+75 to Sta. 25+94

5/28/99

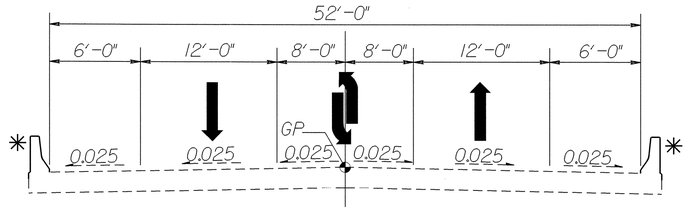
PROJECT REFERENCE NO.	SHEET NO.
R-0061C	2-C

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL
S. D. Kendall 5-25-10

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

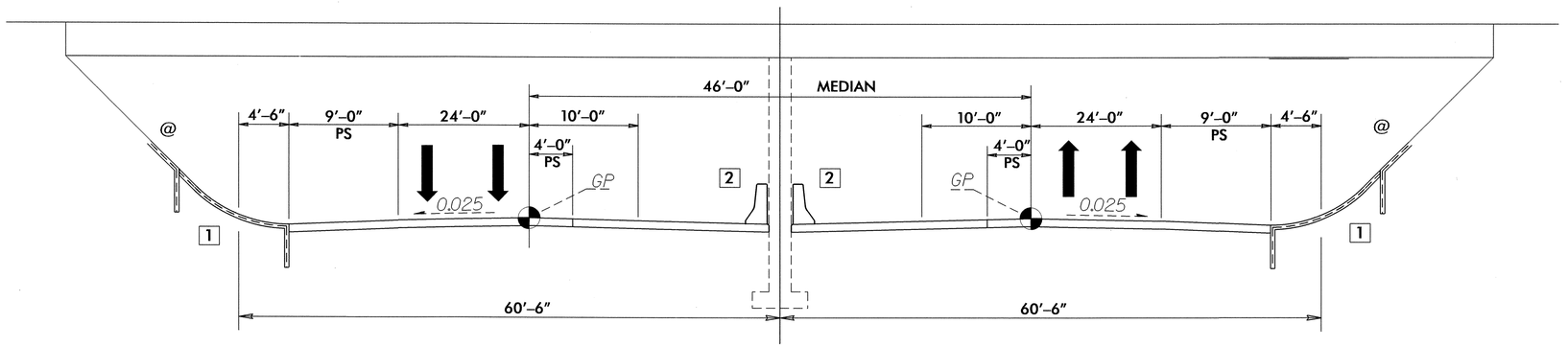
STRUCTURE TYPICAL SECTION

–Y– (NC 211)

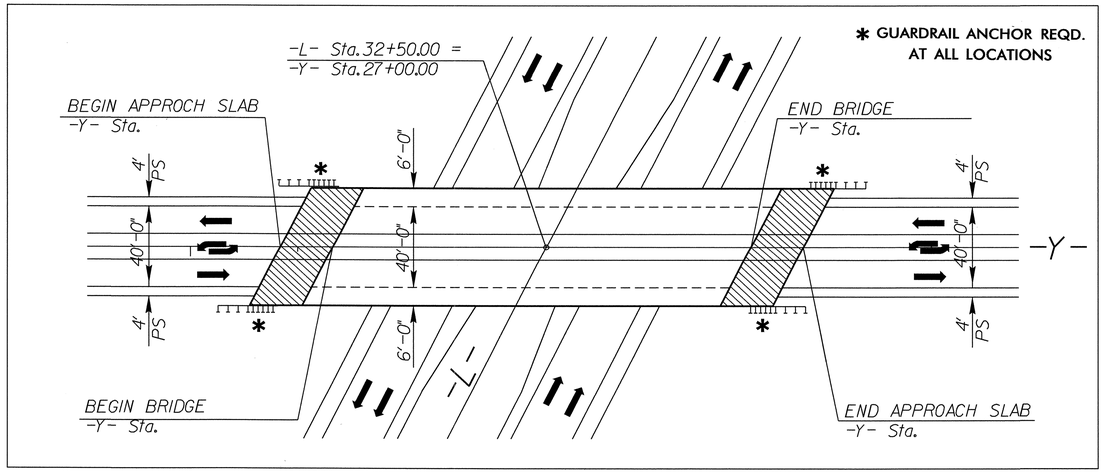


TYPICAL SECTION ON STRUCTURE

–L– (US 74/76)



TYPICAL SECTION OF ROADWAY UNDER STRUCTURE



DETAIL SHOWING PAVEMENT /BRIDGE RELATIONSHIP FOR –Y– OVER –L–

DESIGN DATA –Y–

ADT 2005	=	2,900
ADT 2030	=	5,200
DHV	=	10%
D	=	60%
TTST	=	2%
DUAL	=	3%
V	=	50 mph

FUNC CLASS – COLLECTOR

MINIMUM VERTICAL CLEARANCE = 16.5'

* BRIDGE RAIL TO BE DETERMINED BY STRUCTURE DESIGN UNIT

@ SLOPES DETERMINED BY GEOTECHNICAL ENGINEERING UNIT

1 SEE STD. 610.03

2 PROPOSED PRECAST REINFORCED CONCRETE BARRIERS, SINGLE FACED

10-MAY-2010 11:01
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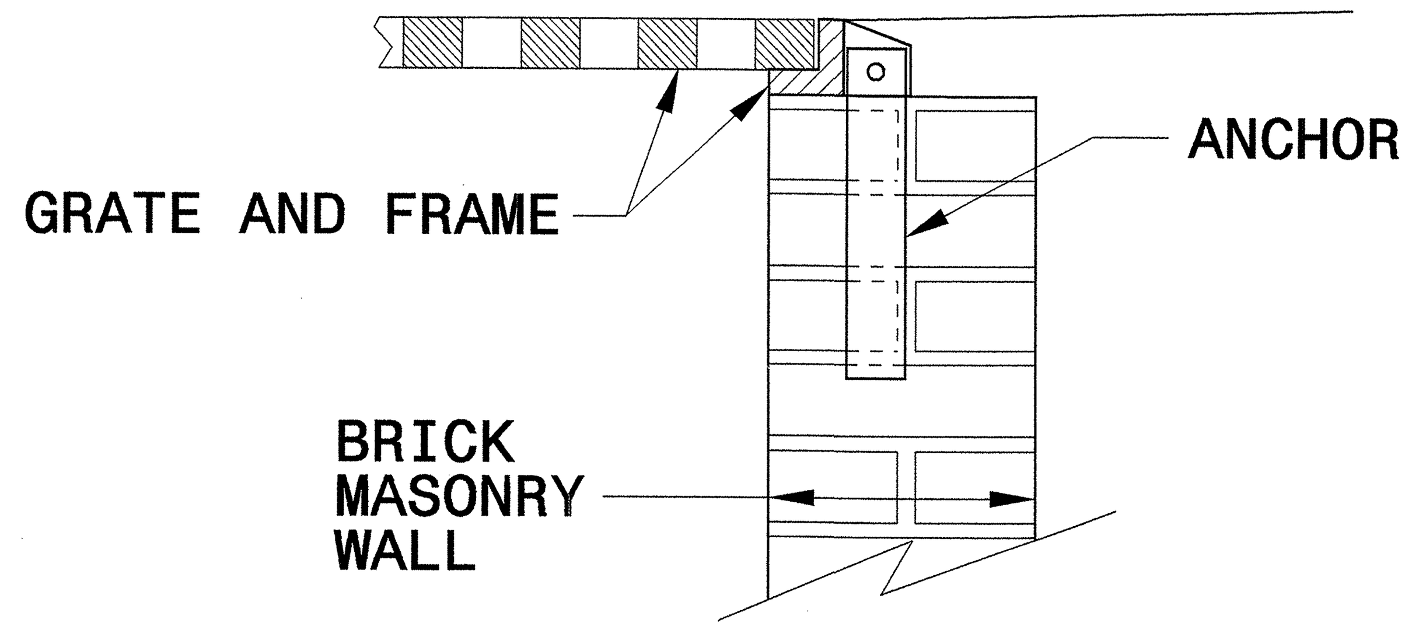
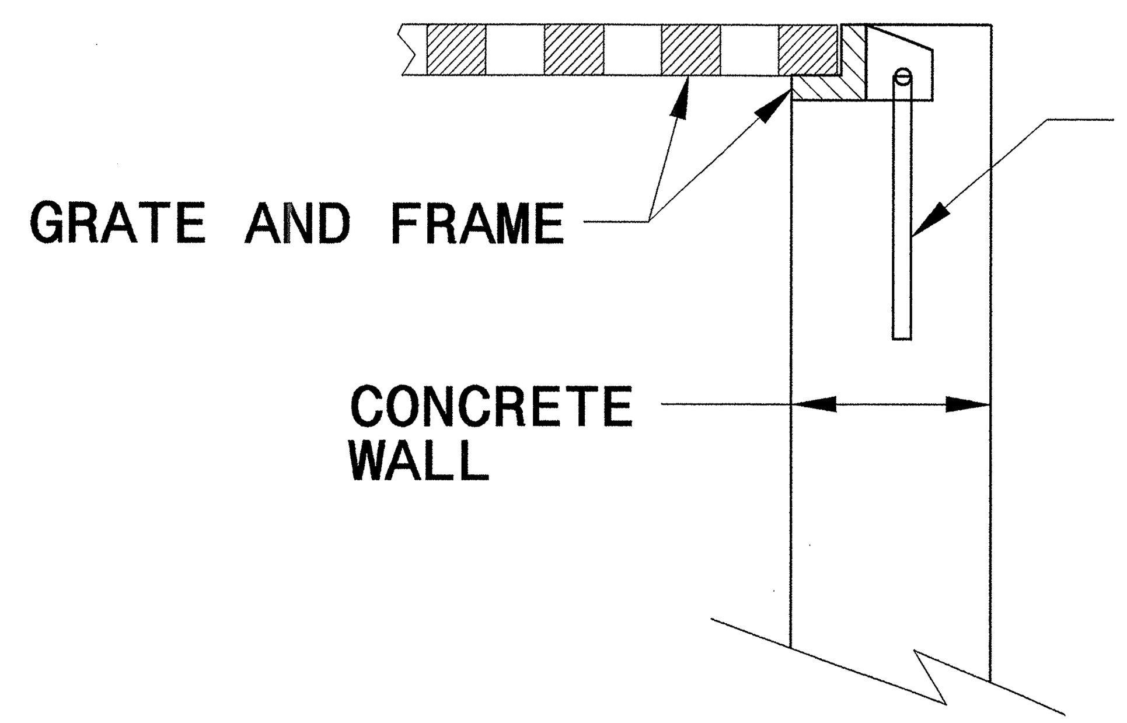
PROJECT REFERENCE NO.	SHEET NO.
R-0061C	2-D

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

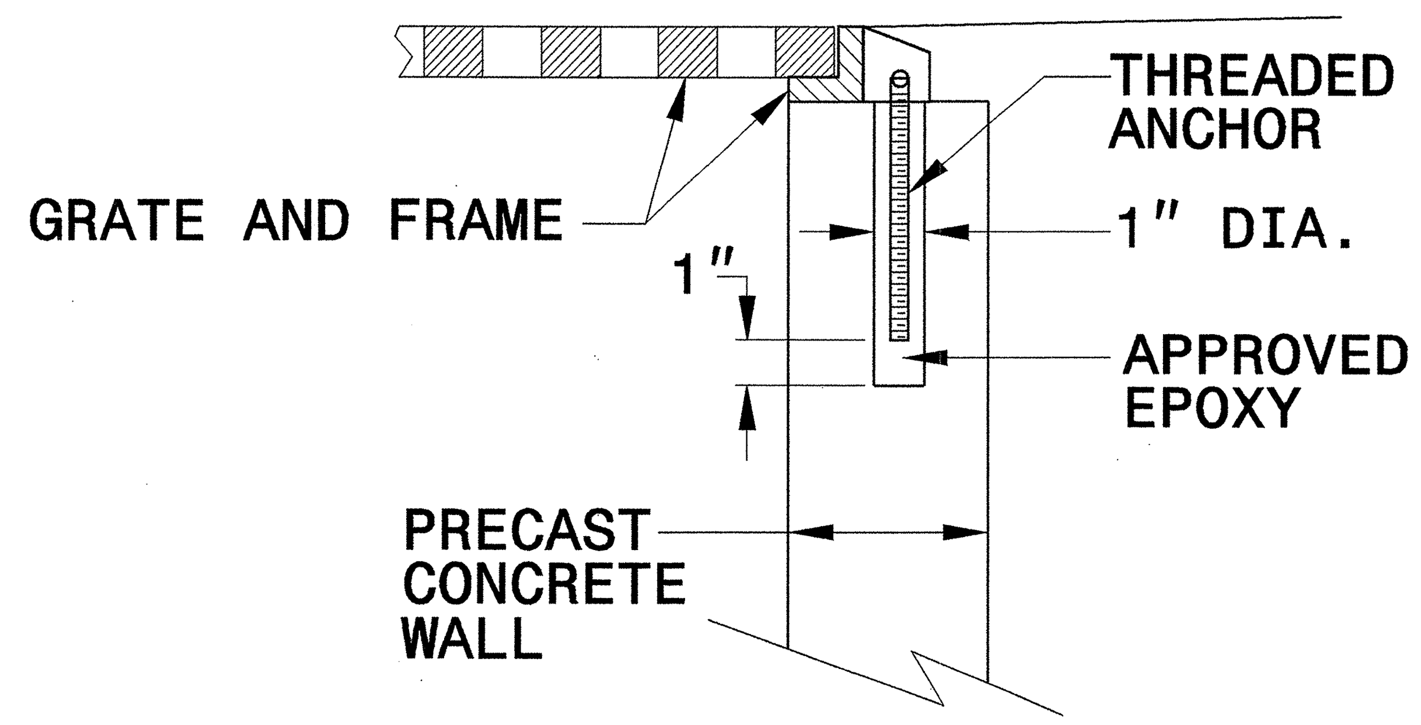
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE



BRICK MASONRY CONSTRUCTION



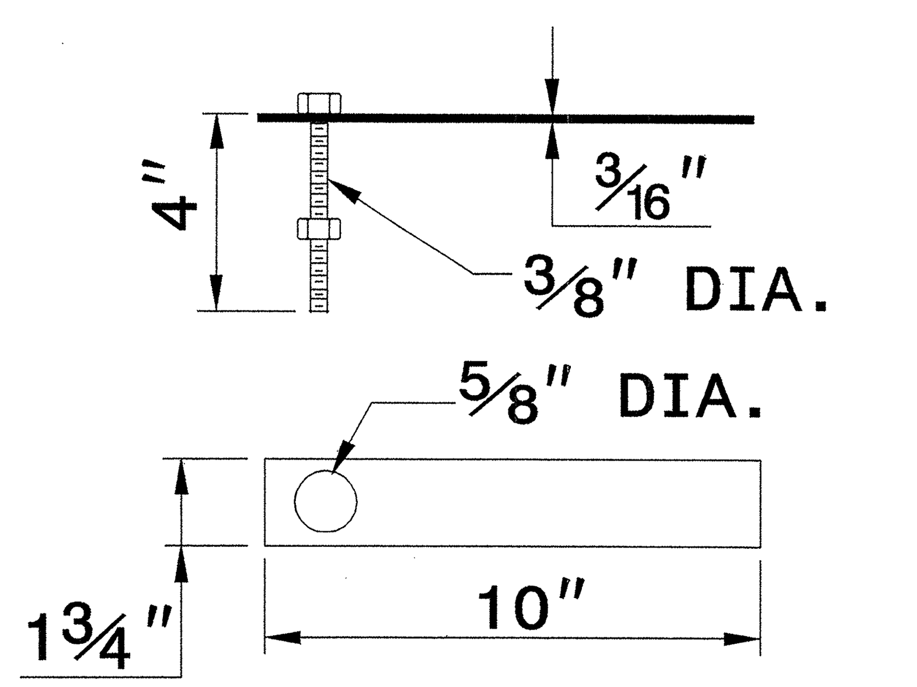
CONCRETE CONSTRUCTION



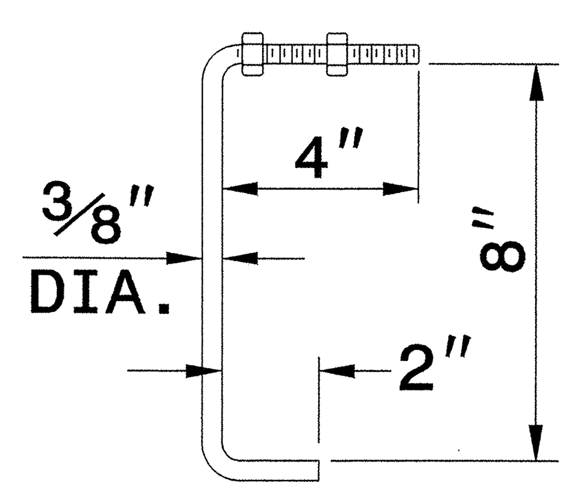
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

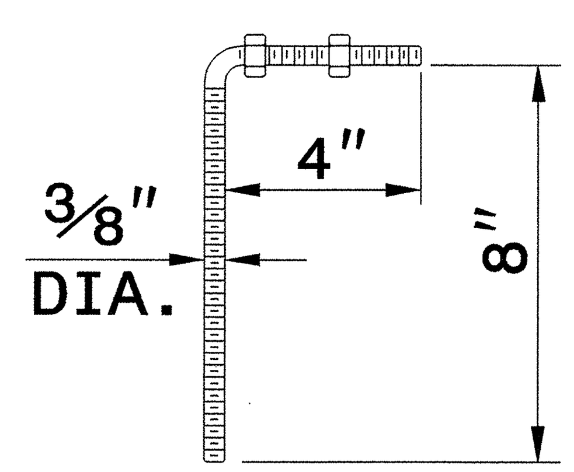
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



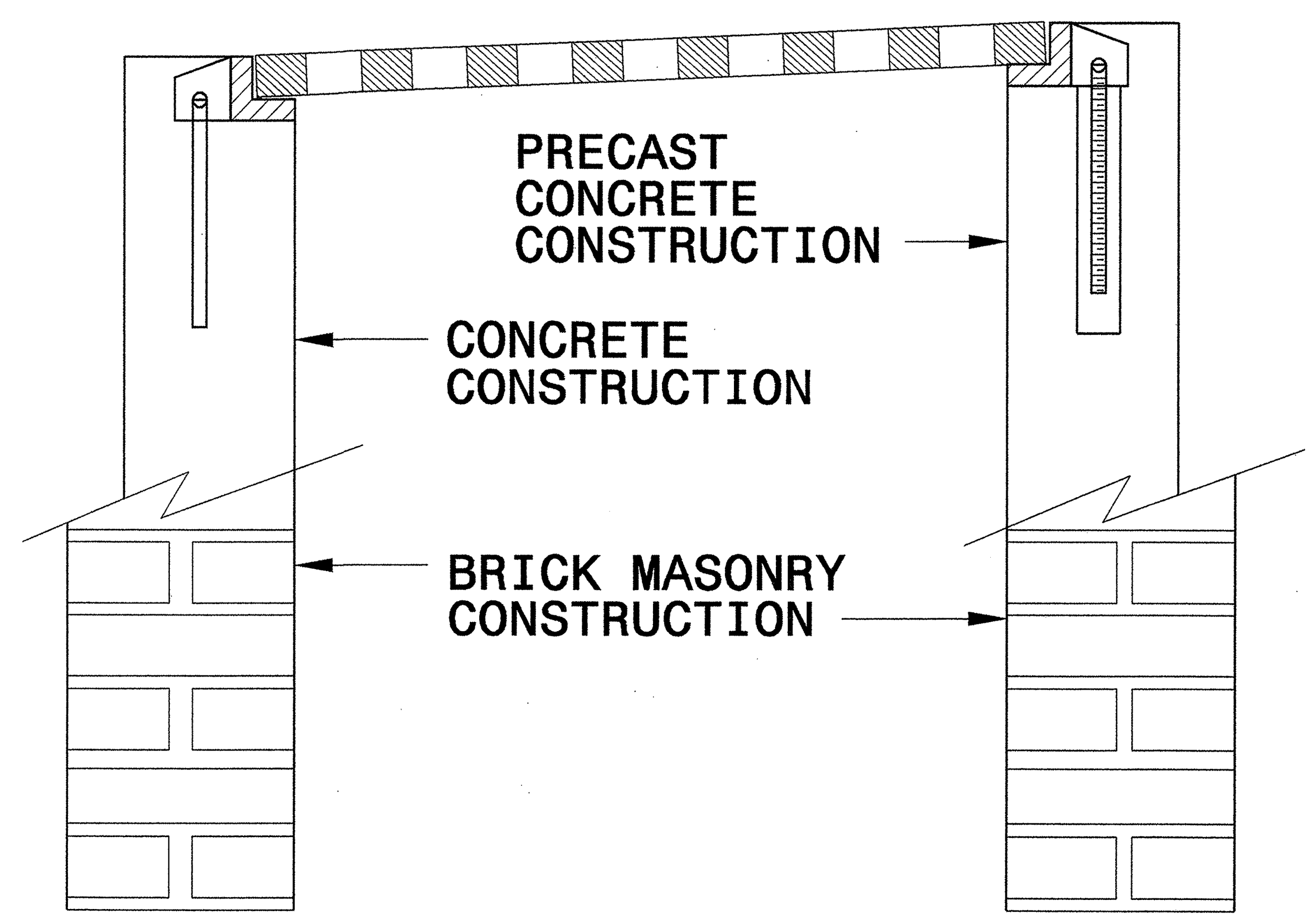
MASONRY ANCHOR
3⁄8″ DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3⁄8″ DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3⁄8″ DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

SHEET 1 OF 1
840D25

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

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON 5/26/10

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

SEE PLATE FOR TITLE

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
MODIFIED BY: E.E. WARD DATE: 9/25/06
CHECKED BY: [signature] DATE: 11/13/08
FILE SPEC.:

$$$$$$SYSTIME$$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

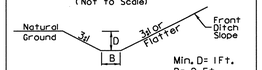
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	2-E
R/W SHEET NO.	

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BOWDOIN
5-21-10

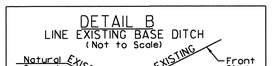
DITCH DETAILS

DETAIL A
SPECIAL CUT BASE DITCH
(Not to Scale)



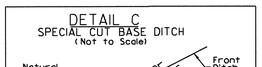
-L- Sta. 22+00 to Sta. 24+58.97 LT.
-Y- Sta. 16+50 to Sta. 17+50.00 LT.

DETAIL B
LINE EXISTING BASE DITCH
(Not to Scale)



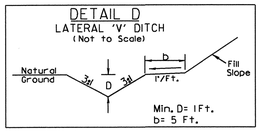
-L- Sta. 15+50 to Sta. 21+00 LT.

DETAIL C
SPECIAL CUT BASE DITCH
(Not to Scale)



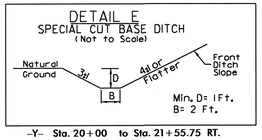
-Y- Sta. 16+00 to Sta. 17+25 RT.
-RPC- Sta. 11+35 to Sta. 14+35 RT.

DETAIL D
LATERAL 'V' DITCH
(Not to Scale)



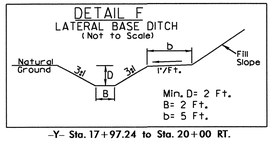
-Y- Sta. 32+59.71 to Sta. 36+50.00 RT.
-RPA- Sta. 25+00.00 to Sta. 28+50.00 RT.
-RPB- Sta. 19+50.59 to Sta. 21+51.33 LT.

DETAIL E
SPECIAL CUT BASE DITCH
(Not to Scale)



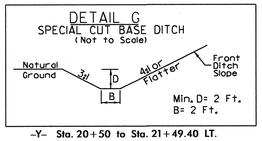
-Y- Sta. 20+00 to Sta. 21+55.75 RT.
-RPC- Sta. 14+35 to Sta. 17+41.00 RT.

DETAIL F
LATERAL BASE DITCH
(Not to Scale)



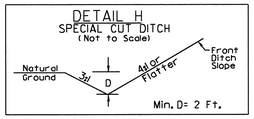
-Y- Sta. 17+97.24 to Sta. 20+00 RT.
-Y- Sta. 17+50.00 to Sta. 20+50 LT.
-Y- Sta. 33+50.00 to Sta. 38+00 LT.

DETAIL G
SPECIAL CUT BASE DITCH
(Not to Scale)



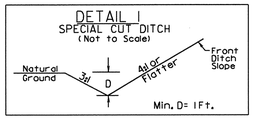
-Y- Sta. 20+50 to Sta. 21+49.40 LT.
-RPA- Sta. 29+54 to Sta. 30+00.00 RT.

DETAIL H
SPECIAL CUT DITCH
(Not to Scale)



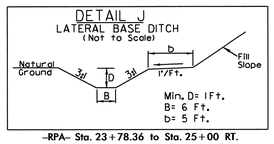
-Y- Sta. 36+50 to Sta. 40+00 RT.

DETAIL I
SPECIAL CUT DITCH
(Not to Scale)



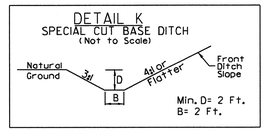
-RPA- Sta. 28+50 to Sta. 29+54 RT.

DETAIL J
LATERAL BASE DITCH
(Not to Scale)



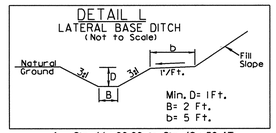
-RPA- Sta. 23+78.36 to Sta. 25+00 RT.

DETAIL K
SPECIAL CUT BASE DITCH
(Not to Scale)



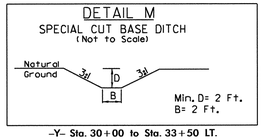
-Y- Sta. 29+98 to Sta. 30+50 LT.
-Y- Sta. 32+00 to Sta. 33+50 LT.

DETAIL L
LATERAL BASE DITCH
(Not to Scale)



-L- Sta. 44+00.00 to Sta. 48+50 LT.
-RPA- Sta. 16+13.38 to Sta. 19+57 RT.

DETAIL M
SPECIAL CUT BASE DITCH
(Not to Scale)



-Y- Sta. 30+00 to Sta. 33+50 LT.

30-MAR-2010 08:26
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$$$$USERNAME$$$$

30-JUL-2009 08:48
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jhowerton AT PS23750I

5/14/99

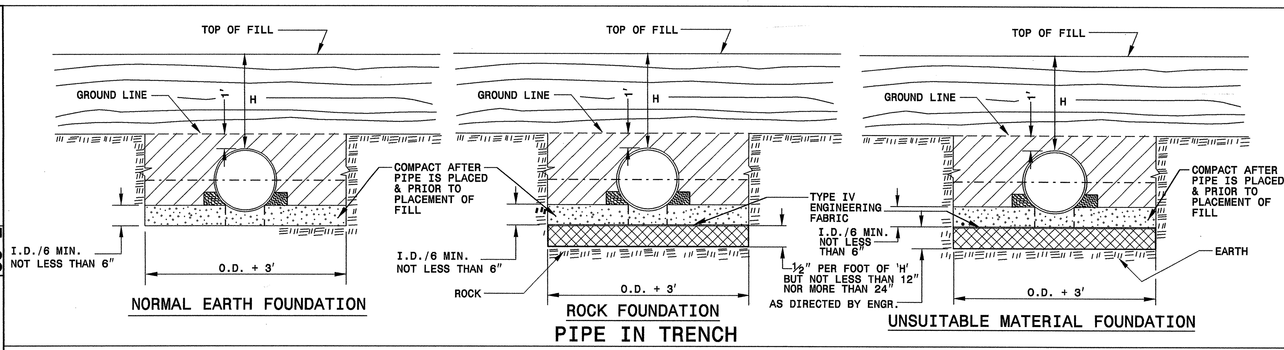
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06

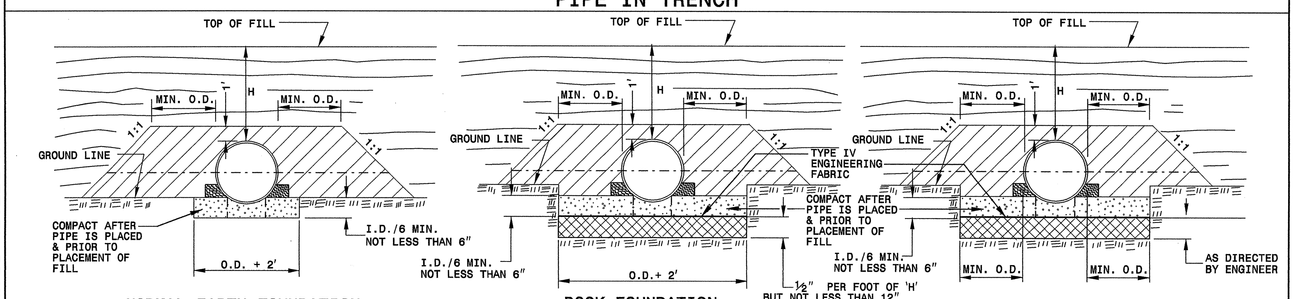
ENGLISH DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE



PIPE IN TRENCH



PIPE ABOVE GROUND

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

SHEET 1 OF 3

300D01

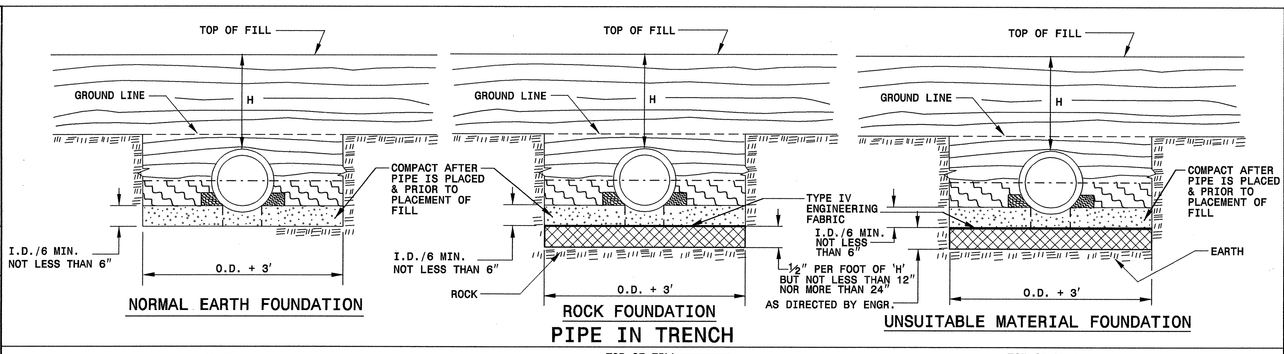
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06

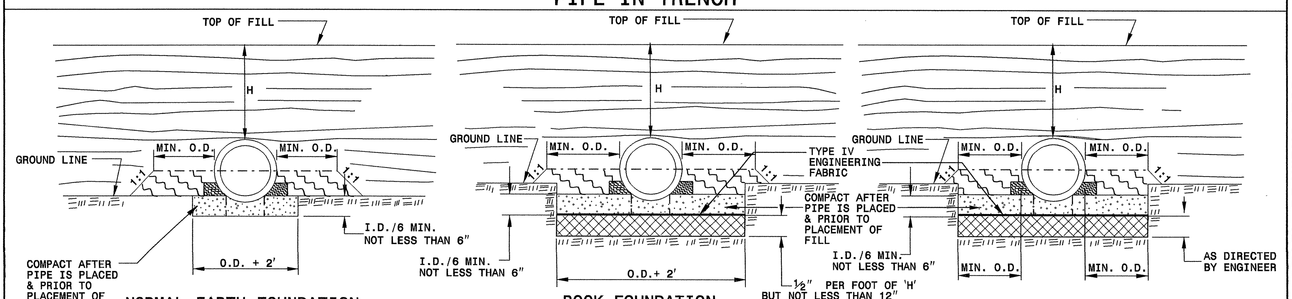
ENGLISH DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

RIGID PIPE



PIPE IN TRENCH



PIPE ABOVE GROUND

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

SHEET 2 OF 3

300D01

SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC: s:\contracts\contracts\special details\ericward\stds\06' stds to special details\30001\0300d01.dgn

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022566 JOSEPH EDWARD HAUSWIRTH 5/24/10

PROJECT REFERENCE NO. R-0061C

SHEET NO. 2-F

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jhowerton AT PS237501

5/14/99

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

7-06

ENGLISH DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FILL HEIGHT TABLES

SHEET 3 OF 3

300D01

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	135	169	239		
21	12	115	145	204		
24	12	100	126	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12		54	77	100	123
60	12			69	90	111
66	12				81	100
72	12				74	91
78	12					81
84	12					69

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	123	155	218	281	344
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12		67	95	123	151
30	12		60	85	111	136
36	12		50	71	92	113
42	12			60	78	96
48	12			52	68	84
54	12			46	50	74
60	12				50	62
66	12					51
72	12					41

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

HDPE - * (Minimum fill) 2′ for pipe diameters ≥ 12″ and ≤ 60″
* (Maximum fill) 20′ for pipe diameters ≤ 24″
17′ for pipe diameters ≥ 30″ and ≤ 60″

PVC - * (Minimum fill) 2′ for pipe diameters ≥ 12″ and ≤ 36″
* (Maximum fill) 30′ for pipe diameters ≥ 12″ and ≤ 36″

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1′ MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

RIGID PIPE

RCP - * (Minimum fill) 1′ for Class IV & CLASS V
2′ for Class III & Class II

* (Maximum fill) 10′ - Class II pipe
20′ - Class III pipe
30′ - Class IV pipe
40′ - Class V pipe

(For fills > 40′ & < 80′ use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1′ MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

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

7-06

ENGLISH DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FILL HEIGHT TABLES

SHEET 3 OF 3

300D01

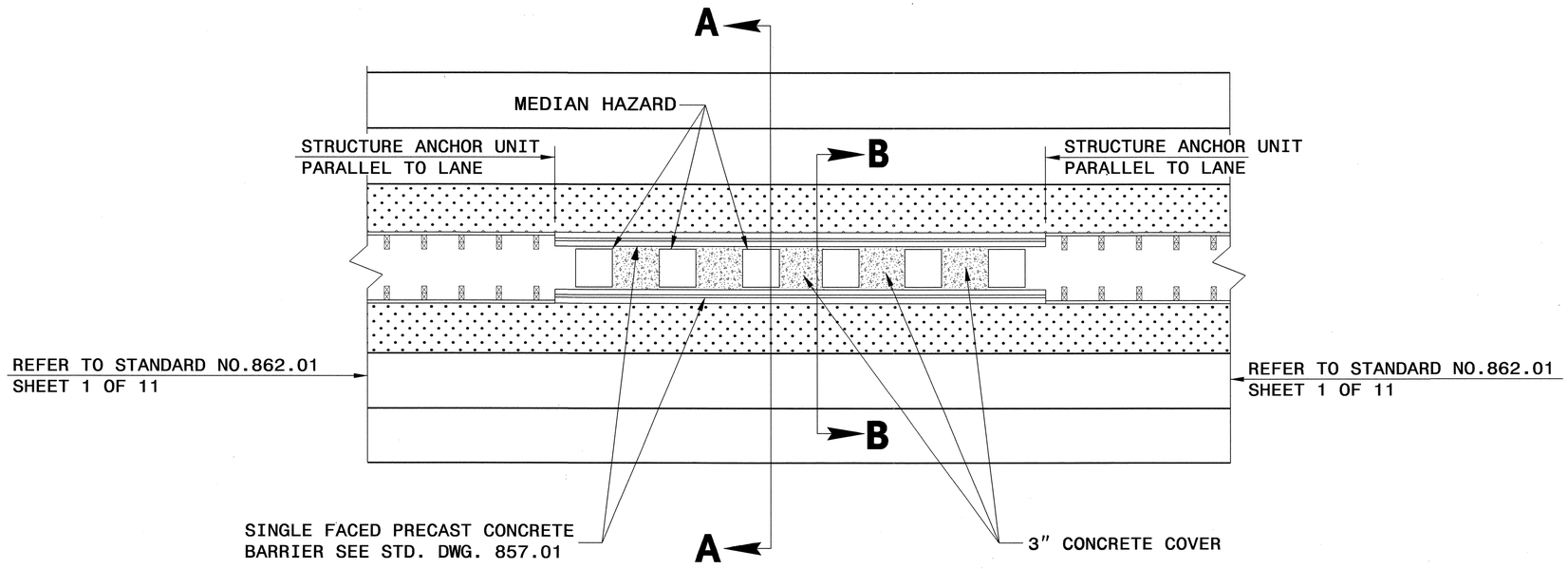
PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128
FAX 919-250-4119

SEE PLATE FOR TITLE

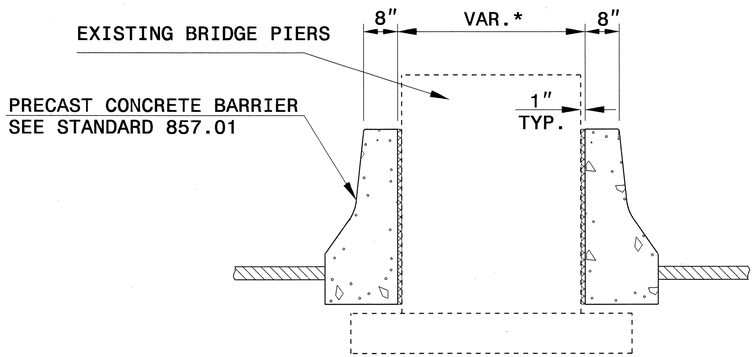
ORIGINAL BY: Kkoepf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE: 7/29/09
FILE SPEC: s:\contracts\contracts\special details\ericward\stds\06' stds to special details\30001\0300d01.dgn

PROJECT REFERENCE NO. R-0061C
SHEET NO. 2-G

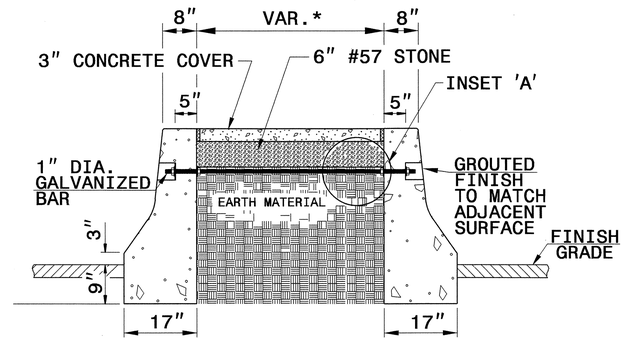
PROJECT REFERENCE NO.	SHEET NO.
R-0061C	2-H



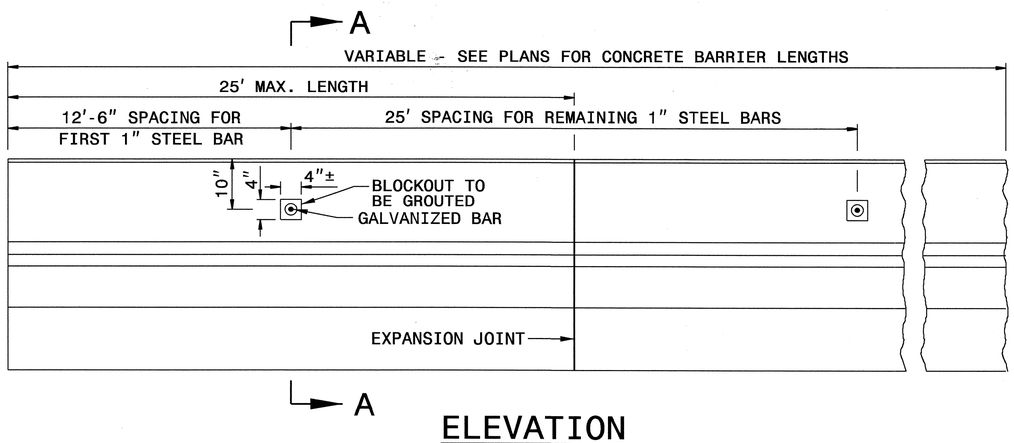
INSET 'A'



SECTION A-A



SECTION B-B



ELEVATION

GENERAL NOTES:

*THIS DIMENSION MAY VARY DEPENDING ON THE EXISTING PIER WIDTH.

INSET FIRST 1" DIA. GALVANIZED BAR 12'-6" AND SPACE THE REMAINING 1' BARS AT 25'-0".

USE AN APPROVED BONDING SYSTEM IN ACCORDANCE WITH SECTION 1081-1, TYPE 3A OF THE STANDARD SPECIFICATIONS.

SEAL ALL EXPANSION JOINTS WITH JOINT FILLER (SEE SECTION 1028 OF THE SPECIFICATIONS).

THE #57 STONE, 1" GALV. BAR AND EARTH MATERIAL WILL BE INCIDENTAL TO THE 3" CONCRETE COVER.

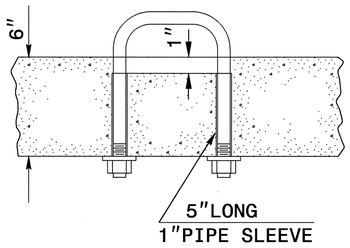
NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL T. SHOWALTER 6/14/10

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

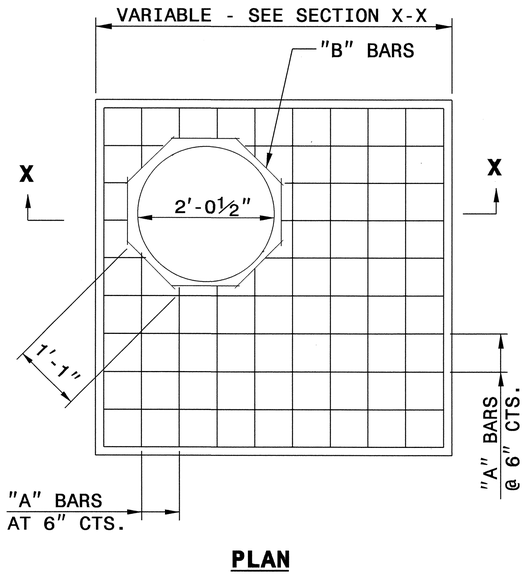
DETAIL OF MEDIAN HAZARD PROTECTION

ORIGINAL BY:	T.S.Spell	DATE:	2-4-10
MODIFIED BY:		DATE:	
CHECKED BY:		DATE:	6/14/10
FILE SPEC.:	pwrd:details/stand/transition barrier_862d01.dgn		

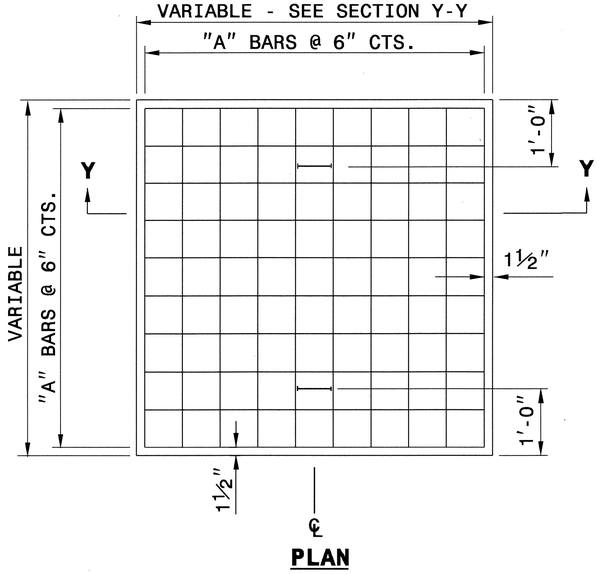
PROJECT REFERENCE NO.	SHEET NO.
R-0061C	2-I



PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

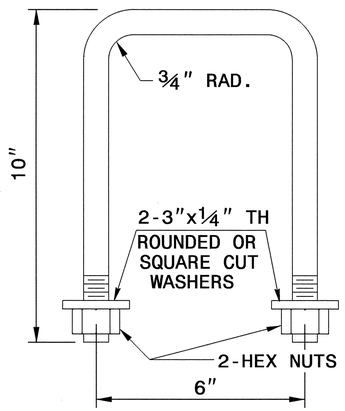
BILL OF MATERIALS

REINFORCING STEEL

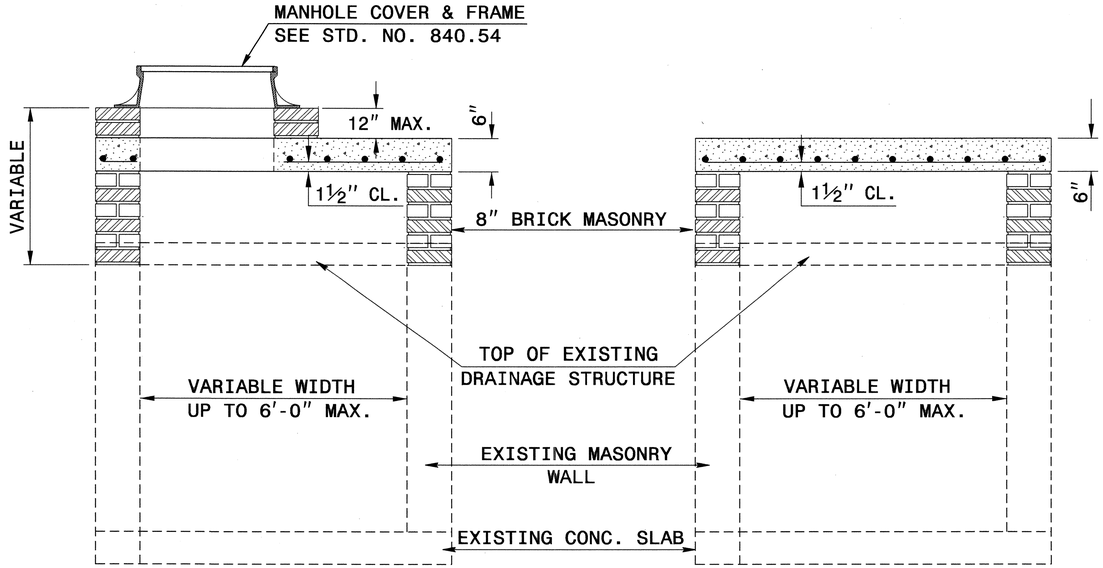
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *

MASONRY	CU YDS
TOP SLAB CONCRETE CLASS "B"	.4326 *
BRICK MASONRY PER FT HT (MIN)	.4111

★ NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.



DETAIL OF HANDLE



SECTION X-X

SECTION Y-Y

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

DETAIL TO CONVERT EXISTING DROP INLET OR CATCH BASIN TO JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY: T.S.S. DATE: NOV.1997
MODIFIED BY: T.S.S. DATE: FEB.2000
CHECKED BY: DATE: 5/17/10
FILE SPEC.: ds174:/usr/details/stand/boxtojbe.dgn

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202555

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0001000000-E	200	Lump Sum		CLEARING & GRUBBING .. ACRE(S)
0008000000-E	200	2	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0022000000-E	225	13,800	CY	UNCLASSIFIED EXCAVATION
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (32+50 -L-)
0036000000-E	225	700	CY	UNDERCUT EXCAVATION
0038000000-E	SP	100	CY	SHALLOW UNDERCUT
0080000000-E	SP	200	TON	CLASS IV SUBGRADE STABILIZATION
0106000000-E	230	283,000	CY	BORROW EXCAVATION
0134000000-E	240	2,880	CY	DRAINAGE DITCH EXCAVATION
0156000000-E	250	7,700	SY	REMOVAL OF EXISTING ASPHALT PAVEMENT
0177000000-E	250	10,500	SY	BREAKING OF EXISTING ASPHALT PAVEMENT
0195000000-E	SP	500	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	500	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	SP	314	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0320000000-E	SP	990	SY	FOUNDATION CONDITIONING FABRIC
0343000000-E	SP	80	LF	15" SIDE DRAIN PIPE
0344000000-E	SP	104	LF	18" SIDE DRAIN PIPE
0366000000-E	SP	212	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E	SP	260	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E	SP	260	LF	24" RC PIPE CULVERTS, CLASS III
0384000000-E	SP	108	LF	30" RC PIPE CULVERTS, CLASS III
0448400000-E	SP	1,168	LF	24" RC PIPE CULVERTS, CLASS IV
0546000000-E	SP	204	LF	** CAA PIPE CULVERTS, ***** THICK (15", 0.060")
0564000000-E	SP	4	EA	** CAA PIPE ELBOWS, ***** THICK (15", 0.060")
0588000000-E	SP	220	LF	18" CS PIPE CULVERTS, 0.064" THICK
0594000000-E	SP	208	LF	24" CS PIPE CULVERTS, 0.064" THICK
0995000000-E	340	480	LF	PIPE REMOVAL
0996000000-N	350	1	EA	PIPE CLEAN-OUT
1000000000-E	462	220	SY	6" SLOPE PROTECTION
1011000000-N	500	Lump Sum		FINE GRADING
1110000000-E	510	4,000	TON	STABILIZER AGGREGATE
1121000000-E	520	9,550	TON	AGGREGATE BASE COURSE
1220000000-E	545	300	TON	INCIDENTAL STONE BASE
1275000000-E	600	2,075	GAL	PRIME COAT
1489000000-E	610	2,750	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1491000000-E	610	6,750	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C
1498000000-E	610	3,600	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1503000000-E	610	7,250	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C
1519000000-E	610	4,750	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1523000000-E	610	6,400	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C
1560000000-E	620	1,205	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1565000000-E	620	385	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 70-22
1693000000-E	654	200	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
1840000000-E	665	18,200	LF	MILLED RUMBLE STRIPS (ASPHALT CEMENT CONCRETE)
2022000000-E	SP	84	CY	SUBDRAIN EXCAVATION
2033000000-E	SP	84	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	SP	500	LF	6" PERFORATED SUBDRAIN PIPE
2070000000-N	SP	1	EA	SUBDRAIN PIPE OUTLETS
2077000000-E	SP	6	LF	6" OUTLET PIPE (SUBDRAINS)
2253000000-E	840	2	CY	PIPE COLLARS
2286000000-N	840	7	EA	MASONRY DRAINAGE STRUCTURES
2365000000-N	840	3	EA	FRAME WITH TWO GRATES, STD 840.22
2367000000-N	840	4	EA	FRAME WITH TWO GRATES, STD 840.29
2577000000-E	846	180	LF	CONCRETE EXPRESSWAY GUTTER
2647000000-E	852	1,390	SY	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)
2724000000-E	857	140	LF	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED
2739000000-E	852	25	SY	GENERIC PAVING ITEM 3" CONCRETE ISLAND COVER
2815000000-N	858	1	EA	ADJUSTMENT OF DROP INLETS
2905000000-N	859	1	EA	CONVERT EXISTING DROP INLET TO JUNCTION BOX
3000000000-N	SP	2	EA	IMPACT ATTENUATOR UNIT, TYPE 350
3030000000-E	862	975	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3270000000-N	SP	5	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	8	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3389200000-E	865	4,450	LF	CABLE GUIDERAIL
3389500000-N	SP	5	EA	ADDITIONAL GUIDERAIL POSTS
3389600000-N	865	6	EA	CABLE GUIDERAIL ANCHOR UNITS
3503000000-E	866	770	LF	WOVEN WIRE FENCE, 47" FABRIC
3509000000-E	866	44	EA	4" TIMBER FENCE POSTS, 7'-6" LONG
3515000000-E	866	30	EA	5" TIMBER FENCE POSTS, 8'-0" LONG
3628000000-E	876	250	TON	RIP RAP, CLASS I
3649000000-E	876	25	TON	RIP RAP, CLASS B
3656000000-E	876	1,590	SY	FILTER FABRIC FOR DRAINAGE
4048000000-E	902	10	CY	REINFORCED CONCRETE SIGN FOUNDATIONS
4054000000-E	902	1	CY	PLAIN CONCRETE SIGN FOUNDATIONS
4060000000-E	903	8,208	LB	SUPPORTS, BREAKAWAY STEEL BEAM
4072000000-E	903	1,170	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4078000000-E	903	2	EA	SUPPORTS, 2-LB STEEL U-CHANNEL
4096000000-N	904	8	EA	SIGN ERECTION, TYPE D
4102000000-N	904	34	EA	SIGN ERECTION, TYPE E
4108000000-N	904	12	EA	SIGN ERECTION, TYPE F
4110000000-N	904	6	EA	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A)
4110000000-N	904	2	EA	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (B)
4114000000-N	904	2	EA	SIGN ERECTION, MILEMARKERS
4155000000-N	907	41	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4360000000-N	SP	4	EA	GENERIC SIGNING ITEM DISPOSAL OF FLASHER SYSTEM
4400000000-E	1110	1,247	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	531	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	284	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4415000000-N	1115	4	EA	FLASHING ARROW PANELS, TYPE C
4420000000-N	1120	5	EA	CHANGEABLE MESSAGE SIGN
4422000000-N	1120	10	DAY	CHANGEABLE MESSAGE SIGN (SHORT TERM)
4430000000-N	1130	225	EA	DRUMS
4435000000-N	1135	42	EA	CONES
4445000000-E	1145	288	LF	BARRICADES (TYPE III)
4450000000-N	1150	2,000	HR	FLAGGER
4465000000-N	1160	4	EA	TEMPORARY CRASH CUSHIONS
4480000000-N	1165	2	EA	TMIA
4485000000-E	1170	730	LF	PORTABLE CONCRETE BARRIER
4495000000-E	1170	240	LF	PORTABLE CONCRETE BARRIER (DRAINAGE)
4510000000-N	SP	240	HR	LAW ENFORCEMENT
4516000000-N	1180	68	EA	SKINNY DRUM
4650000000-N	1251	612	EA	TEMPORARY RAISED PAVEMENT MARKERS
4685000000-E	1205	28,127	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	7,551	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4695000000-E	1205	4,461	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4710000000-E	1205	55	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4725000000-E	1205	46	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4770000000-E	1205	1,232	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (III)
4770000000-E	1205	832	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)
4780000000-E	1205	54	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (8") (III)
4810000000-E	1205	81,639	LF	PAINT PAVEMENT MARKING LINES (4")
4820000000-E	1205	8,754	LF	PAINT PAVEMENT MARKING LINES (8")
4835000000-E	1205	470	LF	PAINT PAVEMENT MARKING LINES (24")
4845000000-N	1205	132	EA	PAINT PAVEMENT MARKING SYMBOL
4850000000-E	1205	6,577	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4870000000-E	1205	262	LF	REMOVAL OF PAVEMENT MARKING LINES (24")
4875000000-N	1205	19	EA	REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS
4900000000-N	1251	655	EA	PERMANENT RAISED PAVEMENT MARKERS
4935000000-N	1267	30	EA	FLEXIBLE DELINEATORS (CRYSTAL)
4940000000-N	1267	30	EA	FLEXIBLE DELINEATORS (YELLOW)
4945000000-N	1267	10	EA	FLEXIBLE DELINEATORS (CRYSTAL & RED)
4950000000-N	1267	10	EA	FLEXIBLE DELINEATORS (YELLOW & RED)
5648000000-N	1515	1	EA	RELOCATE WATER METER
5672000000-N	1515	1	EA	RELOCATE FIRE HYDRANT
5709100000-E	1520	70	LF	2" FORCE MAIN SEWER
6000000000-E	1605	32,750	LF	TEMPORARY SILT FENCE
6006000000-E	1610	1,040	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	4,930	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	2,825	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	52.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	950	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	4.75	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	10,000	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	150	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	7,200	LF	SAFETY FENCE
6030000000-E	1630	3,730	CY	SILT EXCAVATION
6036000000-E	1631	16,600	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	120	SY	COIR FIBER MAT
6038000000-E	SP	820	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	1,400	LF	1/4" HARDWARE CLOTH
6070000000-N	SP	2	EA	SPECIAL STILLING BASINS
6071010000-E	SP	2,330	LF	WATTLE
6071020000-E	SP	1,165	LB	POLYACRYLAMIDE (PAM)
6071030000-E	SP	2,500	LF	COIR FIBER BAFFLES
6071050000-E	SP	4	EA	** SKIMMER (1-1/2")
6071050000-E	SP	1	EA	** SKIMMER (2")
6084000000-E	1660	48	ACR	SEEDING & MULCHING
6087000000-E	1660	40	ACR	MOWING
6090000000-E	1661	400	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	2	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	1,125	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	33.25	TON	FERTILIZER TOPDRESSING
6114500000-N	SP	50	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	36	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	1.5	ACR	REFORESTATION
6138000000-E	SP	58,200	CY	GENERIC EROSION CONTROL ITEM BORROW PIT DEWATERING BASIN
7060000000-E	1705	840	LF	SIGNAL CABLE
7120000000-E	1705	10	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
7264000000-E	1710	620	LF	MESSENGER CABLE (3/8")
7300000000-E	1715	510	LF	UNPAVED TRENCHING (**********) (NO CONDUIT)
7360000000-N	1720	4	EA	WOOD POLE
7372000000-N	1721	8	EA	GUY ASSEMBLY
7408000000-E	1722	1	EA	1" RISER WITH WEATHERHEAD
7420000000-E	1722	4	EA	2" RISER WITH WEATHERHEAD
7444000000-E	1725	1,420	LF	INDUCTIVE LOOP SAWCUT
7456000000-E	1726	2,290	LF	LEAD-IN CABLE (**********) (14-2)
7768000000-N	1751	1	EA	CONTROLLER WITH CABINET (TYPE 2070L, POLE MOUNTED)
7780000000-N	1751	4	EA	DETECTOR CARD (TYPE 2070L)
7948000000-N	SP	1	EA	TRAFFIC SIGNAL REMOVAL

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COMPUTED BY: T. BURNS DATE: APRIL 2010
CHECKED BY: S. KENDALL DATE: MAY, 2010

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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."

STATEWIDE

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 15" * 0.06" THICK	SIDE DRAIN PIPE 18"	SIDE DRAIN PIPE 24"	SIDE DRAIN PIPE 30"	SIDE DRAIN PIPE 36"	SIDE DRAIN PIPE 42"	SIDE DRAIN PIPE 48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
SIZE																		
THICKNESS OR GAUGE																		
DETOUR																		
12+81	CL.	T1			57.3	57.2												
17+24	CL.	T2			57.2	56.6												
18+24	CL.	T3			61.1	61.0												
19+27	CL.	T4			57.5	57.1												
-L-																		
28+26	CL.	1		61.0														
32+00	LT.	2			56.5	55.7												
33+00	RT.	3			57.0	56.7												
35+06	CL.	4		60.9	EX	EX												
35+06	LT.	5		60.1	EX	EX												
42+26	CL.	6		60.8	EX	EX												
42+26	LT.	7			EX	56.6												
-RPA-																		
19+16	CL.	8			57.0	56.8												
23+43	CL.	9			55.1	54.5												
-RPC-																		
15+63	CL.	10			57.4	57.0												
17+41	CL.	11			57.5	57.3												
-RPD-																		
24+80	CL.	12			56.7	56.6												
21+77	CL.	13			56.3	55.7												
-Y-																		
17+73	RT.	14		61.4														
17+30	RT.	14	15		56.7	56.9												
17+90	RT.	14	16		56.7	56.5			40									
25+41	RT.	17		85.0														
25+64	LT.	18		85.2														
25+64	CL.	17	18		82.2	82.1												
25+64	LT.	18	19		82.1	60.1		*100							X	X		X
-Y-																		
28+91	RT.	20		84.5														
28+91	LT.	21		84.5														
28+91	CL.	20	21		81.7	81.2												
28+91	LT.	21	22		81.0	59.4		*104							X	X		X
-Y-																		
34+88	RT.	23			57.9	EX		32										
34+88	LT.	24			EX	57.2		48										
37+56	RT.	25			58.3	58.2												
37+65	LT.	26			57.6	57.5												
GRAND TOTAL								80 *204 CAAP ONLY	40									

STATION	C.S. PIPE 12" .064	C.S. PIPE 15" .064	C.S. PIPE 18" .064	C.S. PIPE 24" .064	C.S. PIPE 36" .079	C.S. PIPE 42" .109	C.S. PIPE 48" .109	R.C. PIPE (CLASS III) 15"	R.C. PIPE (CLASS III) 18"	R.C. PIPE (CLASS III) 24"	R.C. PIPE (CLASS III) 30"	R.C. PIPE (CLASS IV) 12"	R.C. PIPE (CLASS IV) 15"	R.C. PIPE (CLASS IV) 18"	R.C. PIPE (CLASS IV) 24"	R.C. PIPE (CLASS IV) 30"	R.C. PIPE (CLASS IV) 36"	R.C. PIPE (CLASS IV) 42"	R.C. PIPE (CLASS IV) 48"
DETOUR																			
12+81			72																
17+24				108															
18+24			148																
19+27				100															
-L-																			
28+26																			
32+00														584					
33+00														584					
35+06																			
35+06																			
42+26																			
42+26								68											
-RPA-																			
19+16									88										
23+43											108								
-RPC-																			
15+63								48											
17+41									72										
-RPD-																			
24+80										156									
21+77										104									
-Y-																			
17+73																			
17+30									100										
17+90																			
25+41																			
25+64																			
25+64								48											
25+64																			
-Y-																			
28+91																			
28+91																			
28+91								48											
28+91																			
-Y-																			
34+88																			
34+88																			
37+56																			
37+65																			
GRAND TOTAL		220			208			212		260	108		1,168						

STATION	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	ENDWALLS CU. YDS. C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') LIN. *FT. PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	LIN. *FT. 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	TYPE OF GRATE F	TYPE OF GRATE G	CONCRETE TRANSITIONAL SECTION CATCH BASIN	CONCRETE TRANSITIONAL SECTION DROP INLET	D.I. STD. 840.14 OR STD. 840.15	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	LOWER TOP TO ELEV. 61.00'	CONV. EXIST. D.I. TO J.B.	ALUMINIZED 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
DETOUR																							
12+81																						72'	TEMPORARY DRAINAGE
17+24																						108'	TEMPORARY DRAINAGE
18+24																						148'	TEMPORARY DRAINAGE
19+27																						100'	TEMPORARY DRAINAGE
-L-																							
28+26															1								LOWER TOP ELEV.
32+00																							
33+00																							
35+06																	1						
35+06													1		1	1							
42+26													1		1	1							REMOVE DI
42+26																				.3990			
-RPA-																							
19+16																							
23+43																							
-RPC-																							
15+63																				.3990			
17+41																							
-RPD-																							
24+80																							
21+77																							
-Y-																							
17+73															1								
17+30																							
17+90																							
25+41															1								
25+64															1								
25+64																							ROD & LUG W/ SLEEVE GASKET CONNECTORS FOR ALUMNIZED PIPE
25+64																					2@15"		
-Y-																							
28+91															1								
28+91															1								
28+91																							
28+91																					2@15"		ROD & LUG W/ SLEEVE GASKET CONNECTORS FOR ALUMNIZED PIPE
-Y-																							
34+88																				.4465			
34+88																				.4465			
37+56																						24'	
37+65																						28'	
GRAND TOTAL													64		7					1.69		480'	GRAND TOTAL

1	6		4	1
	3		1	

1 4@15" SAY 2

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

** R.C. PIPE (CLASS V)
** R.C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE
** R.C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE
15" SIDE DRAIN PIPE
18" SIDE DRAIN PIPE

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COMPUTED BY: T. BURNS DATE: JANUARY 2010
CHECKED BY: S. KENDALL DATE: FEBRUARY, 2010

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	3-B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
SUMMARY No. 1					
–L– LT Sta. 10+00 to Sta. 28+50	695		1,591	896	0
–L– MD Sta. 10+00 to Sta. 28+50	2,155		10	0	2,145
–L– RT Sta. 10+00 to Sta. 28+50	901		1,796	895	0
–RPB– Sta. 15+25 to Sta. 22+00	0		26,211	26,211	0
–RPC– Sta. 15+40 to Sta. 28+00	0		44,831	44,831	0
SUMMARY No. 1 TOTAL	3,751		74,439	72,833	2,145
SUMMARY No. 2					
–L– LT Sta. 28+50 to Sta. 57+50	1,417		2,910	1,493	0
–L– MD Sta. 28+50 to Sta. 57+50	4,120		3	0	4,118
–L– RT Sta. 28+50 to Sta. 57+50	1,199		783	0	417
–RPA– Sta. 16+25 to Sta. 30+00	0		29,526	29,526	0
–RPD– Sta. 18+75 to Sta. 25+50	0		19,611	19,611	0
SUMMARY No. 2 TOTAL	6,736		52,833	50,630	4,535
SUMMARY No. 3					
–Y– Sta. 14+00 to Sta. 26+03	619		69,396	68,777	0
–Y– Sta. 27+97 to Sta. 40+00	913		68,589	67,676	0
SUMMARY No. 3 TOTAL	1,483		137,985	136,453	0

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
SUMMARY No. 4					
–DET– Sta. 10+50 to Sta. 17+70.21	160		1,915	1,755	0
–DET– Sta. 18+75 to Sta. 27+00	133		2,172	2,039	0
DETOUR REMOVAL					
–DET– Sta. 15+50 to Sta. 17+00	795		0	0	795
–DET– Sta. 19+50 to Sta. 21+50	610		0	0	610
SUMMARY No. 4 TOTAL	1,698		4,087	3,794	1,405
SUMMARIES TOTAL	13,717		269,345	263,712	8,085
MATERIAL FOR SHOULDER			12,121	12,121	
CONSTRUCTION					
ADDITIONAL UNDERCUT		700	875	875	700
WASTE IN LIEU OF BORROW				–8,085	–8,085
PROJECT TOTAL	13,717		282,341	268,623	700
EST. 5% TO REPLACE TOP			0	13,431	0
SOIL ON BORROW PIT.					
GRAND TOTAL	13,717		282,937	282,054	700
SAY	13,800	700		283,000	
DRAINAGE DITCH EXCAV.	2,880				

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.

NOTE: Quantities are approximate only. The Resident Engineer will re-cross-section the work accurately when the Project is staked out. These cross-section notes will be used in computing the Final Quantities for which the Contractor will be paid.

GUARDRAIL & GUIDERAIL SUMMARY

"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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH CABLE GUARDRAIL	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS GRAU 350	ANCHORS TYPE B–77	ANCHORS AT–1	IMPACT ATTENUATOR TYPE 350 NO.	IMPACT ATTENUATOR TYPE 350 PERMITTED G	IMPACT ATTENUATOR TYPE 350 PERMITTED NG	CABLE GUILERAIL ANCHOR	REMARKS
–L–	30+94.31	32+15.31	MEDIAN RT.	75.0′			32+15.31		10	18						1		1	X	X		ATTACHED TO PRECAST CONC. BARRIER (SINGLE FACED)
–L–	32+84.69	34+05.69	MEDIAN RT.	75.0′				32+84.69	10	18						1						ATTACHED TO PRECAST CONC. BARRIER (SINGLE FACED)
–L–	30+94.31	32+15.31	MEDIAN LT.	75.0′				32+15.31	10	18						1		1	X	X		ATTACHED TO PRECAST CONC. BARRIER (SINGLE FACED)
–L–	32+84.69	34+05.69	MEDIAN LT.	75.0′			32+84.69		10	18						1						ATTACHED TO PRECAST CONC. BARRIER (SINGLE FACED)
–L–	46+27.5	50+15.00	RT.	387.5′				50+15.00	12	15					1		1					
–Y–	23+60.33	25+72.83	RT.	212.5			25+72.83		8	11					1	1						
–Y–	27+98.72	28+86.22	RT.	87.5				27+98.72	8	11					1	1						
–Y–	25+12.65	26+00.15	LT.	87.5				26+00.15	8	11					1	1						
–Y–	28+26.04	30+38.54	LT.	212.5			28+26.04		8	11					1	1						
			SUBTOTAL	1,287.5											5	8	1	2				
		MINUS ANCHOR DEDUCTIONS		–331.25′																		
			TOTAL	956.25′																		
			SAY	975′																		ADD 5 EXTRA POSTS FOR GUARDRAIL
	CABLE GUIDERAIL																					
–L–	10+00.00	30+74.37	MEDIAN RT.			2,074.37′			10												2	
–L–	34+25.69	48+41.50	MEDIAN LT.			1,415.81′			10												2	
–L–	48+41.50	57+50.00	MEDIAN LT.			908.50′			10												2	
			TOTAL			4,398.68′																
			SAY			4,450′															6	ADD 5 EXTRA POSTS FOR GUIDERAIL

MINUS ANCHORS
TYPE GRAU–350 5@ 50′ = 250′
TYPE B–77 4@ 18.75′ = 75′
TYPE AT–1 1@ 6.25′ = 6.25′
TOTAL 331.25′

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rdy_sum.dgn

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ASPHALT PAVEMENT REMOVAL

LOCATION	SIDE	Sq. Yds.
–DET– Sta. 13+35.73 to Sta. 13+97.00	CL.	47.78
–DET– Sta. 15+65.31 to Sta. 17+44.00	CL.	901.32
–DET– Sta. 18+01.75 to Sta. 18+22.10	CL.	493.26
–DET– Sta. 18+67.00 to Sta. 22+33.00	CL.	571.93
–Y– Sta. 26+09.67 to Sta. 26+35.61	CL.	950.97
–Y– Sta. 27+63.85 to Sta. 28+07.15	CL.	560.44
–L– Sta. 10+00.00 to Sta. 57+50.00	RT./LT.	3,588.89
–L– Sta. 33+90.74 to Sta. 38+03.75	CL.	473.46
REMOVAL TOTAL		7,588.05
SAY		7,700

PARCEL INDEX

PROPERTY OWNER NAME	PARCEL No.	SHEET No.
NORWOOD G. LONG DB. 391 PG. 716–717	1	4, 5, 5A, 9
MARVIN FELTON BOWEN DB. 350 PG. 100–101	2	5, 5A, 8
NORMAN & LILIAN WEBB DB. 262 PG. 319	NO CLAIM	8
W. L. SPANN (HEIRS) DB. 239 PG. 345	4	4, 5, 5A, 8

ASPHALT PAVEMENT BREAKING

LOCATION	Sq. Yds.
–DET– Sta. 10+30.00 to Sta. 15+64.00	1,391.11
–DET– Sta. 21+87.00 to Sta. 26+95.00	1,325.78
–Y– Sta. 16+25.00 to Sta. 25+76.00	3,910.11
–Y– Sta. 28+01.00 to Sta. 37+00.00	3,674.44
BREAKING TOTAL	10,301.44
SAY	10,500

PROJECT REFERENCE NO. R-006IC
SHEET NO. 4
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL
NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDOR
5-21-10
SEE SHEET No. 10 FOR -L- PROFILE
SEE SHEET No. 14 FOR -RPB- PROFILE
SEE SHEET No. 14 &15 FOR -RPC- PROFILE
NAD 83/95
-RPB-
PIs Sta 12+97.88
Θs = 4° 46' 28.7"
Ls = 200.00'
LT = 133.38'
ST = 66.71'
PI Sta 16+08.03
Δ = 22° 56' 37.7" (LT)
D = 4° 46' 28.7"
L = 480.53'
T = 243.53'
R = 1,200.00'
-RPC-
PIs Sta 13+41.73
Θs = 2° 51' 53.2"
Ls = 200.00'
LT = 133.35'
ST = 66.68'
PI Sta 15+75.15
Δ = 9° 32' 01.4" (RT)
D = 2° 51' 53.2"
L = 332.79'
T = 166.78'
R = 2,000.00'
PIs Sta 18+07.85
Θs = 2° 51' 53.2"
Ls = 200.00'
LT = 133.35'
ST = 66.68'
CELL PHONE TOWER
NORWOOD G. LONG DB 418 PG 385-387
W. L. SPANN (HEIRS) DB 239 PG 345
BEGIN PROJECT R-006IC
-L- POT Sta. 10+00.00
-RPB- TS Sta. 11+64.50
-RPB- SC Sta. 13+64.50
-L- POT Sta. 18+50.00 =
-RPB- POT Sta. 10+00.00
47.00' LT.
LINE EXIST. BASE DITCH W/ 370 Sq. Yds. PSRM LINER SEE DETAIL 'B'
300' TAPER
600' ACCELERATION LANE
2' SPECIAL CUT BASE DITCH SEE DETAIL 'A'
B
N 70° 34' 56.4" E
TO WHITEVILLE
US 74-76 ANDREW JACKSON HWY 22' BST WBL
-L-
CABLE GUIDERAIL ANCHOR UNIT
CABLE GUIDERAIL
US 74-76 ANDREW JACKSON HWY 27' BST EBL
RETAIN
N 72° 55' 50.2" E
RETAIN & CLEAN 0.5 Cu. Yds. SEDIMENT FROM PIPE OUTLET
500' UNIFORM TAPER
COLLAR
2 Tons Class 'B' RIP-RAP w/ 7 Cu. Yds. FILTER FABRIC
3 Tons Class 'B' RIP-RAP w/ 10 Cu. Yds. FILTER FABRIC
C
MATCH LINE SHEET No. 5 Sta. 24+00
-BL- 1 POT Sta. 5+00.00 =
-L- POT Sta. 10+50.88
(7.879' LT.)
-BL- 2 PINC Sta. 10+67.76 =
-L- POT Sta. 16+18.65
(9.823' LT.)
-L- POT Sta. 16+65.00 =
-RPC- POT Sta. 10+00.00
47.00' RT.
-RPC- TS Sta. 12+08.37
-RPC- SC Sta. 14+08.37
5' SPECIAL CUT BASE DITCH SEE DETAIL 'C'
-BL- 3 PINC Sta. 16+40.26 =
-L- POT Sta. 21+91.12
(10.503' LT.)
2' SPECIAL CUT SEE DETAIL 'E'
-RPC- CS Sta. 17+41.16
SYBILL WEHRHAHN DB 608 PG 474-475 PB 66 PG 94
FREDDIE R. BOWEN (HEIRS) DB 189 PG 350
NORWOOD G. LONG DB 391 PG 716-717
WOODS
DETAIL A SPECIAL CUT BASE DITCH (Not to Scale)
Min. D= 1Ft. B= 2 Ft.
-L- Sta. 22+00 to Sta. 24+58.97 LT.
DETAIL B LINE EXISTING BASE DITCH (Not to Scale)
Min. D= EXISTING Min. d= 2 Ft. B= EXISTING
Type of Liner= PSRM
-L- Sta. 15+50 to Sta. 21+00 LT.
DETAIL C SPECIAL CUT BASE DITCH (Not to Scale)
Min. D= 2 Ft. B= 5 Ft.
-L- Sta. 18+00 to Sta. 21+00 RT.
DETAIL E SPECIAL CUT BASE DITCH (Not to Scale)
Min. D= 1Ft. B= 2 Ft.
-RPC- Sta. 14+35 to Sta. 17+41 RT.
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–RPB–

PI Sta 16+08.03
△ = 22° 56' 37.7" (LT)
D = 4° 46' 28.7"
L = 480.53'
T = 243.53'
R = 1,200.00'

–RPC–

PIs Sta 18+07.85
Θs = 2° 51' 53.2"
Ls = 200.00'
LT = 133.35'
ST = 66.68'

PI Sta 27+66.62
△ = 45° 19' 48.1" (LT)
D = 38° 11' 49.9"
L = 118.67'
T = 62.64'
R = 150.00'

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL — 5-25-10

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDUR — 5-21-10

DETOUR PAVEMENT REMOVAL

EXIST. DITCH TO BE FILLED

MATCH LINE SHEET No. 8 Sta. 21+75

MATCH LINE SHEET No. 4 Sta. 24+00

MATCH LINE SHEET No. 6 Sta. 38+00

MATCH LINE SHEET No. 9 Sta. 32+25

-Y- POT Sta. 22+54.71 = -RPA- POT Sta. 30+19.50

-Y- POT Sta. 22+66.71 = -RPB- POT Sta. 22+69.59

-RPA- PC Sta. 28+70.79

-RPA- PT Sta. 29+90.61

-RPB- PT Sta. 18+45.03

-RPC- ST Sta. 19+41.16

-RPC- PC Sta. 27+03.98

-RPC- PT Sta. 28+22.66

-BL- 4 PINC Sta. 26+52.21 =
-L- POT Sta. 32+03.01 (2,500' LT.) =
-BY- 4 PINC Sta. 23+45.62

-L- POT Sta. 32+50.00 =
-Y- POT Sta. 27+00.00
△ = 117° 43' 06.3"

-Y- POT Sta. 31+42.00 =
-RPC- POT Sta. 28+47.01

-BL- 5 PINC Sta. 32+35.59 =
-L- POT Sta. 37+86.44
(6.469' LT.)

-Y- POT Sta. 31+30.00 =
-RPD- POT Sta. 26+15.85

BEGIN APPROACH SLAB
-Y- POT Sta. 25+74.63

END APPROACH SLAB
-Y- POT Sta. 28+25.37

BEGIN BRIDGE
-Y- POT Sta. 25+98.50

END BRIDGE
-Y- POT Sta. 28+01.50

PROP. C/A
-RPA- +48
110'

-RPA- +05
EXIST. R/W

BEGIN PROP. WW FENCE TIE TO EXIST.

PROP. C/A
-RPC- +26
EXIST. R/W

BEGIN PROP. WW FENCE TIE TO EXIST.

MARVIN FELTON BOWEN
DB 350 PG 100-101
(2)

BRUNSWICK TIMBER LLC
DB 715 PG 797

W. L. SPANN (HEIRS)
DB 239 PG 345
(4)

NORWOOD G. LONG
DB 391 PG 716-717
(1)

A

B

C

D

NAD 83/95

WOODS

SPECIAL CUT DITCH SEE DETAIL 'I' SHT. 2-E

LAT. 'V' DITCH DDE = 104 Cu. Yds. SEE DETAIL 'D' SHT. 2-E

LAT. 'V' DITCH DDE = 589 Cu. Yds. SEE DETAIL 'D' SHT. 2-E

6' LAT. BASE DITCH DDE = 330 Cu. Yds. SEE DETAIL 'J' SHT. 2-E

2' SPECIAL CUT BASE DITCH SEE DETAIL 'A'

2' SPECIAL CUT BASE DITCH SEE DETAIL 'M' SHT. 2-E

2' SPECIAL CUT BASE DITCH SEE DETAIL 'K' SHT. 2-E

EXPRESSWAY GUTTER -Y- Sta. 25+65 to Sta. 25+89 LT.

EXPRESSWAY GUTTER -Y- Sta. 25+40 to Sta. 25+61 RT.

EXPRESSWAY GUTTER -Y- Sta. 28+38 to Sta. 28+90 LT.

EXPRESSWAY GUTTER -Y- Sta. 28+11 to Sta. 28+90 RT.

1 Ton Class 'B' RIP-RAP w/ 5 Sq. Yds. FILTER FABRIC

3 Tons Class 'B' RIP-RAP w/ 10 Sq. Yds. FILTER FABRIC

5 Tons Class 'B' RIP-RAP w/ 14 Sq. Yds. FILTER FABRIC

FILL IN EXIST. DITCH

GRADE TO DRAIN

SEE NOTE 15" ALUM. PIPE W/ 2 ELBOWS

*SEE NOTE 15" ALUM. PIPE W/ 2 ELBOWS

REMOVE

RETAIN 15" RCP

RETAIN DI AND ADJUST GRATE TO EL. 61.00'

RETAIN

CONVERT TO JB

GRADE TO DRAIN

PRECAST REIN. CONC. BARRIER, SINGLE FACED

CABLE GUIDERAIL

CABLE GUIDERAIL ANCHOR UNIT

PROP. GUARDRAIL

REACT-350

TYPE B-77

NC 211 (GREEN SWAMP RD) 45' BST

US 74-76 ANDREW JACKSON HWY 27' BST WBL

US 74-76 ANDREW JACKSON HWY 27' BST EBL

N 70° 34' 56.4" E

S 88° 37' 54.1" W

N 42° 51' 50.0" E

S 42° 51' 50.0" W

N 88° 11' 38.1" E

S 47° 08' 09.9" E

R 125'

R 150'

R 20'

R 50'

50' TAPER

100' TAPER

150' TAPER

TRAFFIC DIAGRAM
2005 ADT
2030 ADT

2,900 / 5,200 — (211)
74 & 76
800 / 1,400 — 800 / 1,400 — 9,900 / 18,000
11,000 / 20,000
1,300 / 2,300 — 200 / 300
2,800 / 5,000 — (211)

* NOTE: ROD AND LUG WITH SLEEVE GASKET CONNECTORS TO BE USED WITH 15" ALUM. PIPE

APPROACH SLAB — MONOLITHIC ISLAND

SEE SHT. No. 10 & 11 FOR –L– PROFILE
SEE SHT. No. 12 FOR –Y– PROFILE
SEE SHT. No. 13 FOR –RPA– PROFILE
SEE SHT. No. 14 FOR –RPB– PROFILE
SEE SHT. No. 14 & 15 FOR –RPC– PRO.
SEE SHT. No. 15 FOR –RPD– PROFILE

SEE SHEET No. S-1 THRU S-28 FOR STRUCTURE PLANS

SEE SHT. 2-C FOR SKETCH SHOWING PAVEMENT /BRIDGE RELATIONSHIP

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TEMPORARY SIGNAL

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	5-A
RW SHEET NO.	

SEE SHT. No. 16 FOR –DET– PROFILE

THIS SHEET TO BE USED FOR TEMPORARY DETOUR CONSTRUCTION ONLY

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL
5-25-10

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDOR
5-21-10

BEGIN CONST.
–Y– Sta.18+00 =
–DET– PC Sta. 10+00

–DET– PT Sta. 11+53.15

MARVIN FELTON BOWEN
DB 350 PG 100-101

BRUNSWICK TIMBER LLC
DB 715 PG 797

DETAIL C
SPECIAL CUT BASE DITCH
(Not to Scale)
Natural Ground, 3:1, D, B, 3:1 or Flatter, Front Ditch Slope
Min. D= 2 Ft.
B= 5 Ft.
–Y– Sta. 16+00 to Sta. 17+25 RT.
SEE SHEET No. 8

DETAIL F
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 3:1, D, B, 3:1, b, 1'/Ft., Fill Slope
Min. D= 2 Ft.
B= 2 Ft.
b= 5 Ft.
–Y– Sta. 17+97.24 to Sta. 20+00 RT.

NAD 83/95

2' LAT. BASE DITCH
DDE = 432 Cu. Yds.
SEE DETAIL 'F'
NOTE: CONSTRUCT W/ DETOUR

W. L. SPANN (HEIRS)
DB 239 PG 345

–DET– PC Sta. 15+21.40

NC 211 GREEN SWAMP RD. 43' BST

S 47° 08' 09.9" E

N 70° 34' 56.4" E

S 65° 46' 47.9" E

US 74-76 ANDREW JACKSON HWY 27' BST WBL

US 74-76 ANDREW JACKSON HWY 27' BST EBL

–L– POT Sta. 30+18.05 =
–DET– POC Sta. 18+22.70

–DET– PT Sta. 21+87.13

–DET– PC Sta. 25+93.79

END CONST.
–Y– POT Sta.34+80 =
–DET– PT Sta. 27+40.22

NORWOOD G. LONG
DB 391 PG 535-536

NORWOOD G. LONG
DB 391 PG 716-717

WOODS

EXISTING R/W

48" WW

R/W MON

24" RCP

18" CSP

TEMPORARY

GRADE TO DRAIN

RETAIN

LOWER TOP TO EL. 61.00

–DET–

PI Sta 10+77.32	PI Sta 18+67.13	PI Sta 26+67.65
Δ = 19° 30' 00.0" (RT)	Δ = 38° 08' 38.0" (LT)	Δ = 18° 38' 38.0" (RT)
D = 12° 43' 56.6"	D = 5° 43' 46.5"	D = 12° 43' 56.6"
L = 153.15'	L = 665.74'	L = 146.43'
T = 77.32'	T = 345.73'	T = 73.87'
R = 450.00'	R = 1,000.00'	R = 450.00'

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–L–

PIs Sta 45+07.57	PI Sta 51+64.19
Θs = 1° 00' 00.0"	D = 1° 00' 00.0"
Ls = 200.00'	L = 1,175.77'
LT = 133.34'	T = 589.96'
ST = 66.67'	R = 5,729.58'

–RPA–

PIs Sta 16+57.89	PI Sta 18+47.96	PIs Sta 20+37.74	PI Sta 29+34.11
Θs = 2° 51' 53.2"	Δ = 7° 03' 43.7" (RT)	Θs = 2° 51' 53.2"	Δ = 45° 46' 04.1" (LT)
Ls = 200.00'	D = 2° 51' 53.2"	Ls = 200.00'	D = 38° 11' 49.9"
LT = 133.35'	L = 246.51'	LT = 133.35'	L = 119.82'
ST = 66.68'	T = 123.41'	ST = 66.68'	T = 63.31'
	R = 2,000.00'		R = 150.00'

–RPD–

PI Sta 12+72.96	PIs Sta 16+67.30	PI Sta 19+75.43
Δ = 5° 30' 00.8" (LT)	Θs = 1° 00' 28.4"	Δ = 21° 41' 34.7" (LT)
D = 1° 00' 29.8"	Θs = 4° 46' 30.1"	D = 4° 46' 28.7"
L = 545.51'	Ls = 200.00'	L = 454.34'
T = 272.96'	LT = 121.79'	T = 229.92'
R = 5,682.58'	ST = 78.36'	R = 1,200.00'

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL

S. D. Kendall 5-25-10

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDOR

S. M. Bondor 5-21-10

SEE SHEET No. 11 FOR –L– PROFILE
SEE SHEET No. 13 FOR –RPA– PROFILE
SEE SHEET No. 15 FOR –RPD– PROFILE

NAD 83/95

MATCH LINE SHEET No. 5 Sta. 38+00

MATCH LINE SHEET No. 7 Sta. 51+50

–RPA– ST Sta. 21+71.06

–RPA– CS Sta. 19+71.06

–RPA– SC Sta. 17+24.54

–RPA– TS Sta. 15+24.54

–L– TS Sta. 43+74.23

–L– POC Sta. 50+00.00 = –RPA– POT Sta. 10+00.00 47.00' LT.

BRUNSWICK TIMBER LLC DB 715 PG 797

20+00

40+00

45+00

15+00

50+00

A

D

3 Tons Class 'B' RIP-RAP w/ 10 Sq. Yds. FILTER FABRIC

2 Tons Class 'B' RIP-RAP w/ 7 Sq. Yds. FILTER FABRIC

2' LAT. BASE DITCH DDE = 353 Cu. Yds. SEE DETAIL 'L'

2' LAT. BASE DITCH DDE = 290 Cu. Yds. SEE DETAIL 'L'

COLLAR

REMOVE DI

CABLE GUIDERAIL N 70° 34' 56.4" E

US 74-76 ANDREW JACKSON HWY 27' BST WBL

US 74-76 ANDREW JACKSON HWY 27' BST EBL

RETAIN

CABLE GUIDERAIL ANCHOR UNITS

CABLE GUIDERAIL

PROP. GUARDRAIL

GRAU-350

300' TAPER

S 75° 50' 24.0" W

WOODS

–RPD– CS Sta. 15+45.51

–RPD– SC Sta. 17+45.51

–RPD– PT Sta. 21+99.85

–L– SC Sta. 45+74.23

–BL– 6 PINC Sta. 38+12.27 = –L– POT Sta. 43+63.06 (5.27' LT.)

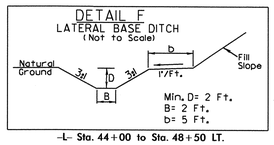
–BL– 7 PINC Sta. 44+16.84 = –L– POC Sta. 49+68.09 (8.182' LT.)

–L– POC Sta. 50+00.00 = –RPD– PC Sta. 10+00.00 47.00' RT.

BRUNSWICK TIMBER LLC DB 715 PG 797

NORWOOD G. LONG DB 391 PG 535-536

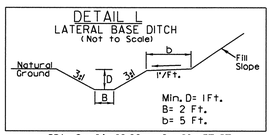
DETAIL F
LATERAL BASE DITCH
(Not to Scale)



Min. D= 2 Ft.
B= 2 Ft.
b= 5 Ft.

–L– Sta. 44+00 to Sta. 48+50 LT.

DETAIL L
LATERAL BASE DITCH
(Not to Scale)



Min. D= 1 Ft.
B= 2 Ft.
b= 5 Ft.

–RPA– Sta. 16+13.38 to Sta. 19+57 RT.

19-MAY-2010 08:40
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$$$$USERNAME$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KEMPAL

S. D. Kempal 5-25-10

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BOWDEN

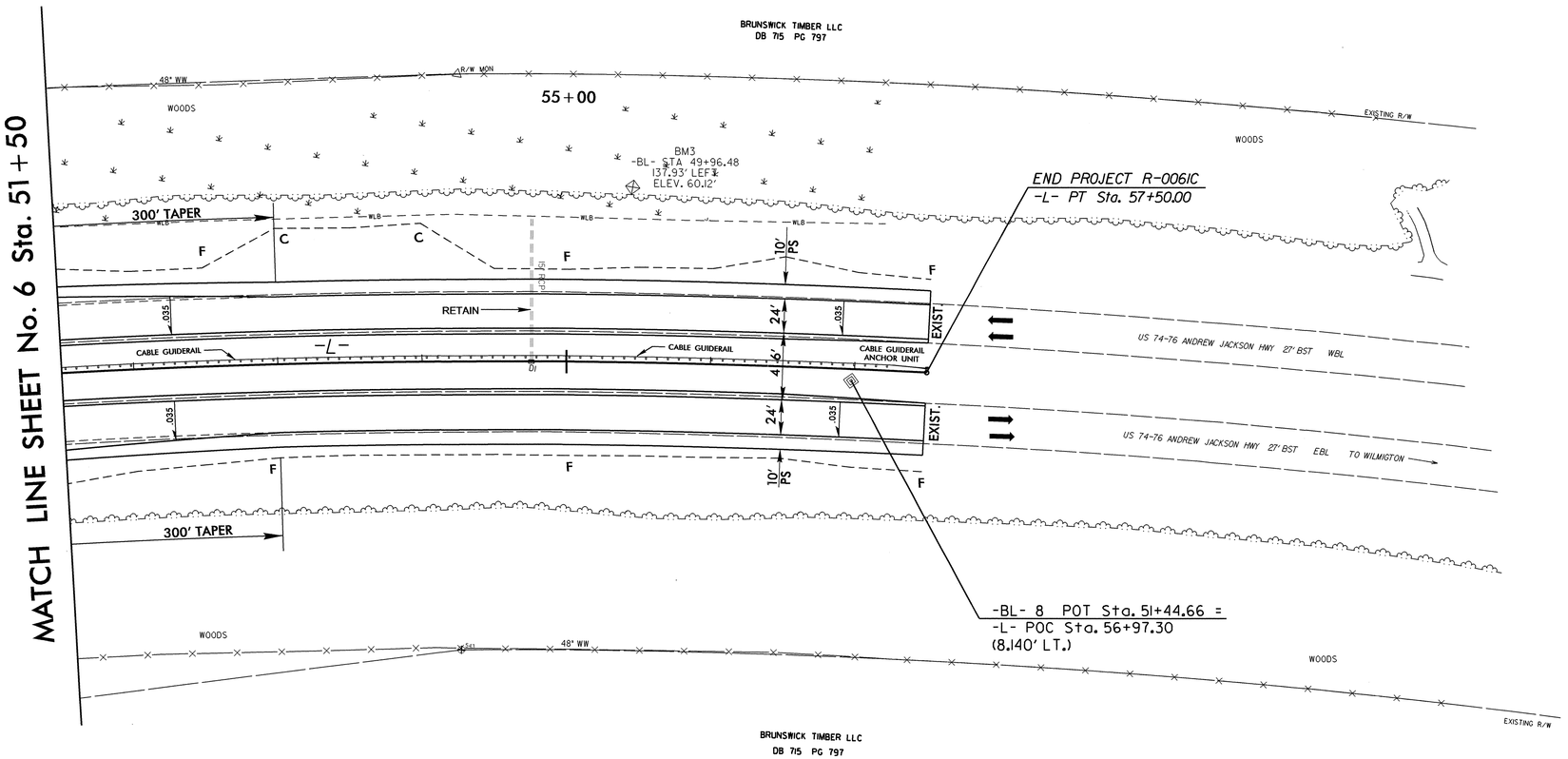
5-21-10

SEE SHEET No. 11 FOR -L- PROFILE
SEE SHEET No. 13 FOR -RPA- PROFILE
SEE SHEET No. 15 FOR -RPD- PROFILE

-L-

PI Sta 51+64.19
△ = 11° 45' 27.8" (RT)
D = 1° 00' 00.0"
L = 1,175.77'
T = 589.96'
R = 5,729.58'

NAD 83/95



19-MAY-2010 09:05
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$$$$USERNAME$$$$

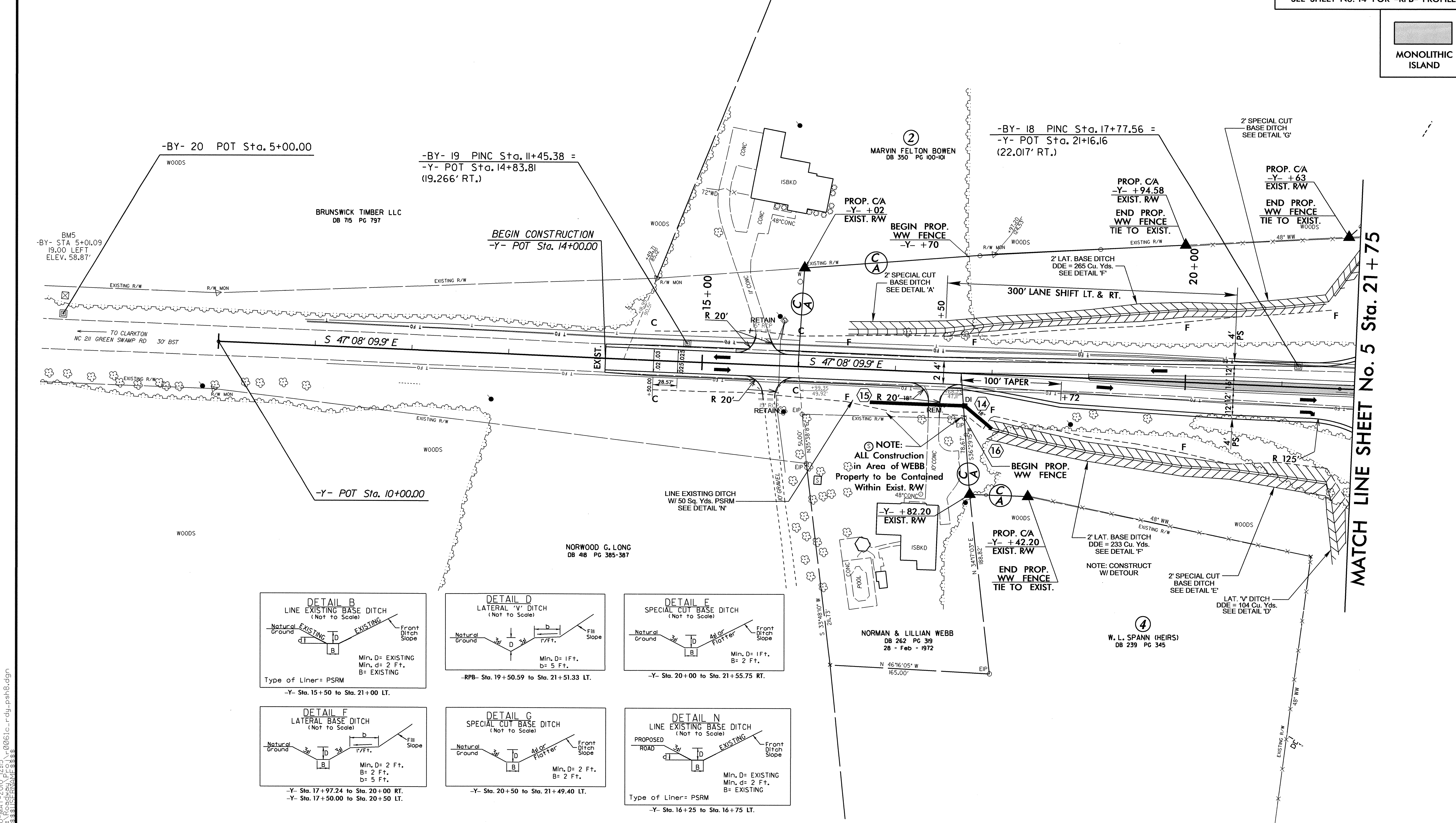
PROJECT REFERENCE NO.	SHEET NO.
R-0061C	8
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33296 STEVEN D. KENDALL — S.D. Kendall 5-25-10

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12786 STEVEN M. BONDOR — 5-21-10

SEE SHEET No. 12 FOR -Y- PROFILE
SEE SHEET No. 13 FOR -RPA- PROFILE
SEE SHEET No. 14 FOR -RPB- PROFILE

MONOLITHIC ISLAND



8/17/99
20-MAY-2010 12:15

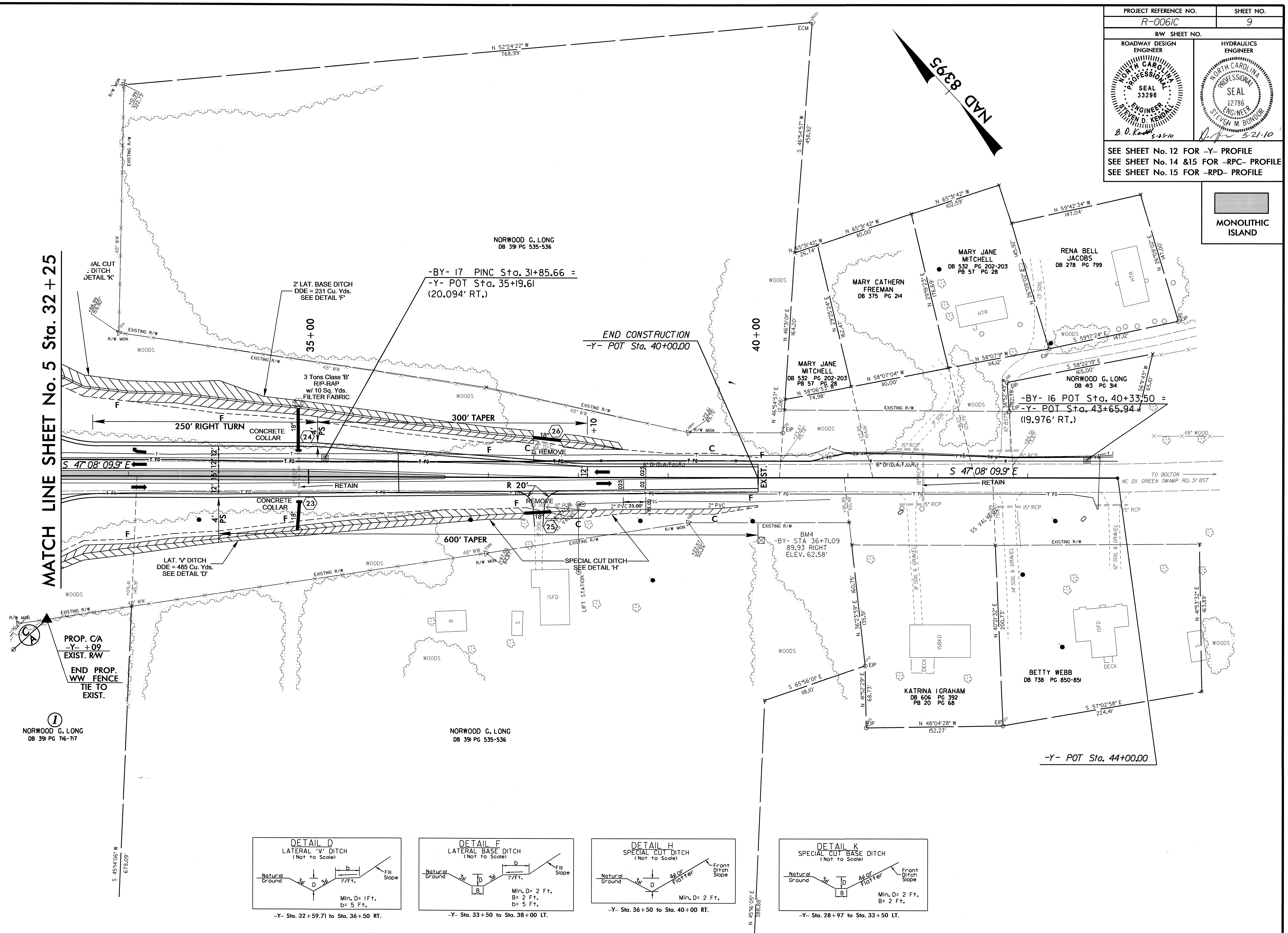
PROJECT REFERENCE NO.	SHEET NO.
R-006IC	9
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33296 STEVEN D. KENDALL — S. D. Kendall 5-25-10

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12786 STEVEN M. BONDOR — 5-21-10

SEE SHEET No. 12 FOR -Y- PROFILE
SEE SHEET No. 14 &15 FOR -RPC- PROFILE
SEE SHEET No. 15 FOR -RPD- PROFILE

MONOLITHIC ISLAND



8/17/99

18-MAY-2010 17:43
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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	10

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL
5-25-10

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONTOR
5-21-10

-L-

BEGIN GRADE
Sta.10+50.00
ELEV. = 63.01'

PI = 13+50.00
EL = 63.53'
VC = 300'
K = 3412

PI = 17+50.00
EL = 63.86'
VC = 450'
K = 4516

RESURFACING

(+)0.1717%

(+)0.0837%

(−)0.0159%

63.79

(+) 0.1778%

5' SPECIAL CUT
BASE DITCH RT.

BEGIN GRADE
PI = 18+00 RT.
EL = 56.26'

70
60
50

10 11 12 13 14 15 16 17 18 19 20 21 22

SEE SHEETS No's. 4 & 5 FOR -L- DESIGN

-L-

PI = 26+50.00
EL = 63.72'
VC = 300'
K = 13832

PI = 31+50.00
EL = 63.75'
VC = 350'
K = 13926

63.79

(−)0.0159%

5' SPECIAL CUT
BASE DITCH RT.

(+) 0.0400%

(+) 0.1778%

2' SPECIAL CUT
DITCH LT.

(+)0.0058%

(−)0.0193%

63.79

BEGIN GRADE
PI = 22+00 LT.
EL = 56.90'

END GRADE
PI = 22+50 RT.
EL = 57.00'

END GRADE
PI = 24+50 LT.
EL = 57.00'

70
60
50

22 23 24 25 26 27 28 29 30 31 32 33 34

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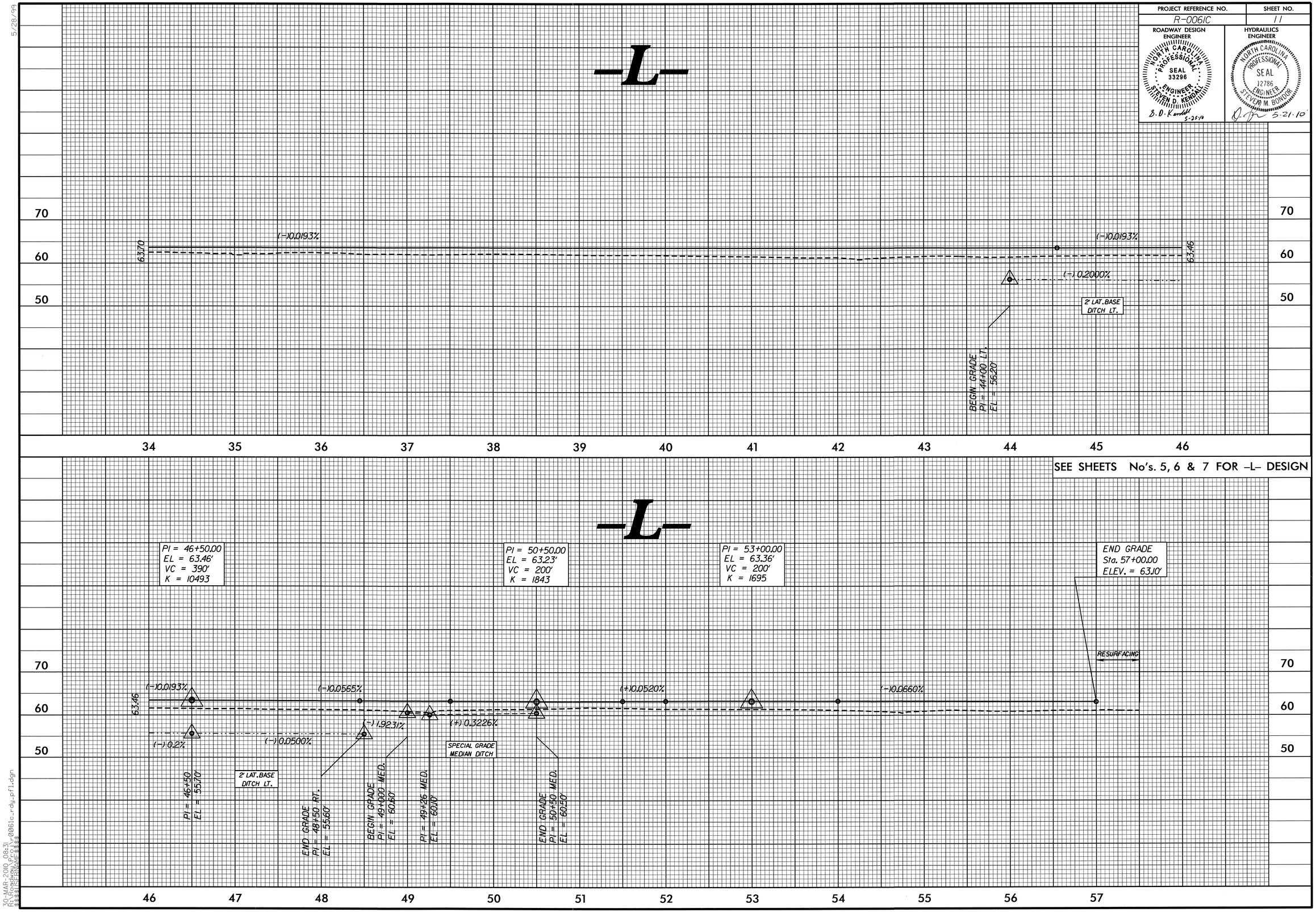
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	11

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL
S. D. Kendall 5-25-10

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDOR
5-21-10



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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	12

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL

B. D. Kendall 5-25-10

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M BUNDOR

5-21-10

-Y-

BEGIN GRADE
Sta. 14+50.00
ELEV.= 60.81'

PI = 16+50.00
EL = 61.15'
VC = 336'
K = 110

BEGIN GRADE
PI = 16+50 LT.
EL = 56.40'

END GRADE
PI = 17+50 LT.
EL = 56.80'

BEGIN GRADE
PI = 17+50 LT.
EL = 56.80'

END GRADE
PI = 20+50 LT.
EL = 57.20'

BEGIN GRADE
PI = 20+50 LT.
EL = 57.20'

END GRADE
PI = 22+00 LT.
EL = 57.50'

BEGIN BRIDGE
Sta. 25+98.50

(+)3.2220%

(+)0.1727%

2' SPECIAL CUT BASE DITCH LT.

2' LAT. BASE DITCH LT.

2' SPECIAL CUT BASE DITCH LT.

(+) 0.4%

(+) 0.08%

(+) 0.1333%

(+) 0.2%

(+) 0.1714%

2' SPECIAL CUT BASE DITCH RT.

2' LATERAL BASE DITCH RT.

2' SPECIAL CUT BASE DITCH RT.

TRANSITION 1.5" S9.5B OVERLAY
Sta. 14+00 TO BEGIN GRADE
Sta. 14+25

BEGIN GRADE
PI = 16+00 RT.
EL = 56.20'

END GRADE
PI = 17+25 RT.
EL = 56.30'

BEGIN GRADE
PI = 17+60 RT.
EL = 56.40'

END GRADE
PI = 20+00 RT.
EL = 56.90'

BEGIN GRADE
PI = 20+00 RT.
EL = 56.90'

END GRADE
PI = 21+75 RT.
EL = 57.20'

86.72

FOR ROADWAY VERTICAL ALIGNMENT ONLY.
SEE STRUCTURE PLANS FOR BRIDGE DESIGN

SEE SHEETS No's. 5, 8 & 9 FOR -Y- DESIGN

-Y-

PI = 27+30.00
EL = 95.95'
VC = 1,068'
K = 155

(+)3.2220%

(-)3.6753%

86.72

END BRIDGE
Sta. 28+01.50

BEGIN GRADE
PI = 28+97 LT.
EL = 56.40'

(+) 0.0662%

2' LATERAL BASE DITCH LT.

END GRADE
PI = 33+50 RT.
EL = 58.10'

BEGIN GRADE
PI = 33+50 RT.
EL = 58.10'

PI = 35+00 RT.
EL = 57.90'

LAT. 'V' DITCH RT.

(-)3.6753%

(-) 0.1333%

END GRADE
PI = 33+50 LT.
EL = 56.70'

BEGIN GRADE
PI = 33+50 LT.
EL = 56.70'

PI = 36+50.00
EL = 62.14'
VC = 432'
K = 111

END GRADE
PI = 36+50 RT.
EL = 58.10'

BEGIN GRADE
PI = 36+50 RT.
EL = 58.10'

SPECIAL CUT DITCH RT.

(+)0.2118%

(+) 0.1333%

(+) 0.1333%

(+) 0.2000%

2' LATERAL BASE DITCH LT.

END GRADE
PI = 38+50 LT.
EL = 56.70'

END GRADE
Sta. 38+75.00
ELEV.= 62.61'

END GRADE
PI = 39+50 RT.
EL = 58.50'

TRANSITION END GRADE
Sta. 38+75 TO 1.5" S9.5B
OVERLAY Sta. 40+00

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	13

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL
S.D.K. 5-25-10

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDOR
5-21-10

–RPA–

BEGIN GRADE
Sta. 10+00.00
ELEV. = 64.11'

(+)0.0972%

65.28

(+) 0.1935%

2' LATERAL BASE DITCH RT.

BEGIN GRADE
PI = 16+00 RT.
EL = 56.20'

END GRADE
PI = 19+10 RT.
EL = 56.80'

70 60 50

10 11 12 13 14 15 16 17 18 19 20 21 22

SEE SHEETS No's. 5 & 6 FOR –RPA– DESIGN

–RPA–

END GRADE
Sta. 29+99.50
ELEV.= 80.03'

PI = 25+00.00
EL = 65.57'
VC = 400'
K = 143

65.28

(+)0.0972%

(+)2.8955%

(–) 0.2174%

(+) 0.0833%

(+) 0.1429%

(+) 0.0962%

6' LAT. BASE DITCH RT.

LAT. 'V' DITCH RT.

SPECIAL CUT DITCH RT.

2' SPECIAL CUT BASE DITCH RT.

BEGIN GRADE
PI = 23+80 RT.
EL = 56.80'

END GRADE
PI = 25+00 RT.
EL = 56.90'

BEGIN GRADE
PI = 25+00 RT.
EL = 56.90'

END GRADE
PI = 28+50 RT.
EL = 57.40'

BEGIN GRADE
PI = 28+50 RT.
EL = 57.40'

END GRADE
PI = 29+64 RT.
EL = 57.50'

BEGIN GRADE
PI = 29+64 RT.
EL = 57.50'

END GRADE
PI = 30+00 RT.
EL = 57.40'

70 60 50

22 23 24 25 26 27 28 29 30

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	14

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL
S.D. Kendall 5-25-10

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDOR
S.M. Bondor 5-21-10

–RPB–

BEGIN GRADE
Sta. 12+00.00
ELEV. = 63.21'

PI = 16+50.00
EL = 63.05'
VC = 516'
K = 160

PI = 20+93.00
EL = 77.14'
VC = 200'
K = 177

END GRADE
Sta. 22+49.59
ELEV. = 80.36'

(–)10.0360%

(+)3.1810%

(+)12.0531%

(–)0.3000%

LAT. 'V' DITCH LT.

BEGIN GRADE
PI = 19+50 LT.
EL = 57.80'

END GRADE
PI = 21+50 LT.
EL = 57.20'

70 60 50 40

11 12 13 14 15 16 17 18 19 20 21 22

SEE SHEETS No's. 4 & 5 FOR –RPB– DESIGN

SEE SHEETS No's. 4 & 5 FOR –RPC– DESIGN

–RPC–

BEGIN GRADE
Sta. 10+35.00
ELEV. = 63.22'

PI = 13+85.45
EL = 62.85'
VC = 80'
K = 242

PI = 16+75.00
EL = 63.50'
VC = 180'
K = 167

(–)10.1067%

(+)0.2245%

(+)1.3019%

70.33

(+) 0.4706%

5' SPECIAL CUT BASE DITCH LT.

BEGIN GRADE
PI = 16+56 LT.
EL = 57.00'

END GRADE
PI = 17+41 LT.
EL = 57.40'

70 60 50 40

10 11 12 13 14 15 16 17 18 19 20 21 22

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	15

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL

S. D. Kendall 5-25-10

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDOR

5-21-10

–RPC–

PI = 27+00.00
EL = 76.84'
VC = 100'
K = 95

END GRADE
Sta. 28+27.01
ELEV. = 79.83'

(+)1.3019%

(+)2.3506%

70.33

70
60
50

22 23 24 25 26 27 28

SEE SHEETS No's. 4 & 5 FOR –RPC– DESIGN

SEE SHEETS No's. 5 & 6 FOR –RPD– DESIGN

–RPD–

BEGIN GRADE
Sta. 15+45.51
ELEV. = 62.89'

PI = 20+00.00
EL = 62.60'
VC = 450'
K = 149

END GRADE
Sta. 26+15.85
ELEV. = 80.17'

(–)0.0642%

(+)2.9487%

70
60
50
40

15 16 17 18 19 20 21 22 23 24 25 26

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5/26/99

PROJECT REFERENCE NO.	SHEET NO.
R-0061C	16

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL
S.D. Kendall 5-25-10

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDOR
5-21-10

-DET-

BEGIN GRADE
Sta. 11+14.41
ELEV. = 60.715'

PI = 11+80.00
EL = 60.39'
VC = 100'
K = 57

PI = 13+80.00
EL = 62.89'
VC = 100'
K = 133

PI = 16+00.00
EL = 63.99'
VC = 100'
K = 57

END GRADE
PI = 17+70.21
EL = 62.84'

PI = 17+20.00
EL = 62.46'
VC = 100'
K = 50

BEGIN GRADE
PI = 18+75.60
ELEV.= 62.88'

PI = 19+70.00
EL = 62.17'
VC = 100'
K = 92

62.93

(−)0.5000%
(+)1.2500%
(+)0.5000%
(−)1.2684%
(+)0.7500%
(−)0.7500%
(+)0.3318%

70
60
50

12 13 14 15 16 17 18 19 20 21 22

SEE SHEETS No's. 5A –DET– DESIGN

-DET-

PI = 24+15.00
EL = 63.64'
VC = 100'
K = 64

PI = 25+60.00
EL = 61.87'
VC = 100'
K = 51

END GRADE
Sta. 26+18.82
ELEV.= 62.31'

62.93

(+)0.3318%
(−)1.2257%
(+)0.75%

70
60
50

22 23 24 25 26 27

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