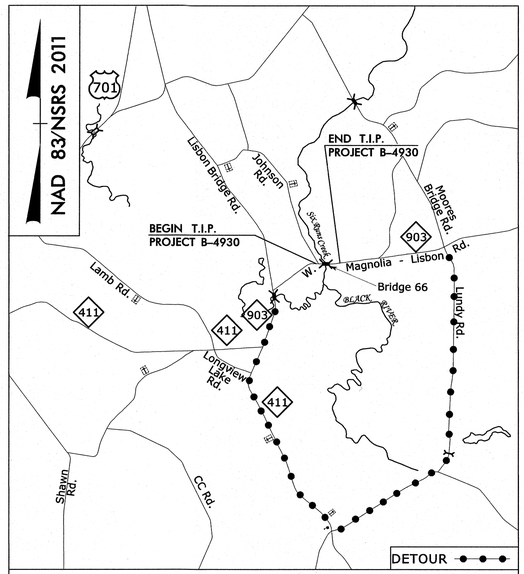
03/21/13

TIP PROJECT: B-4930

CONTRACT: DC00062



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SAMPSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4930	1	

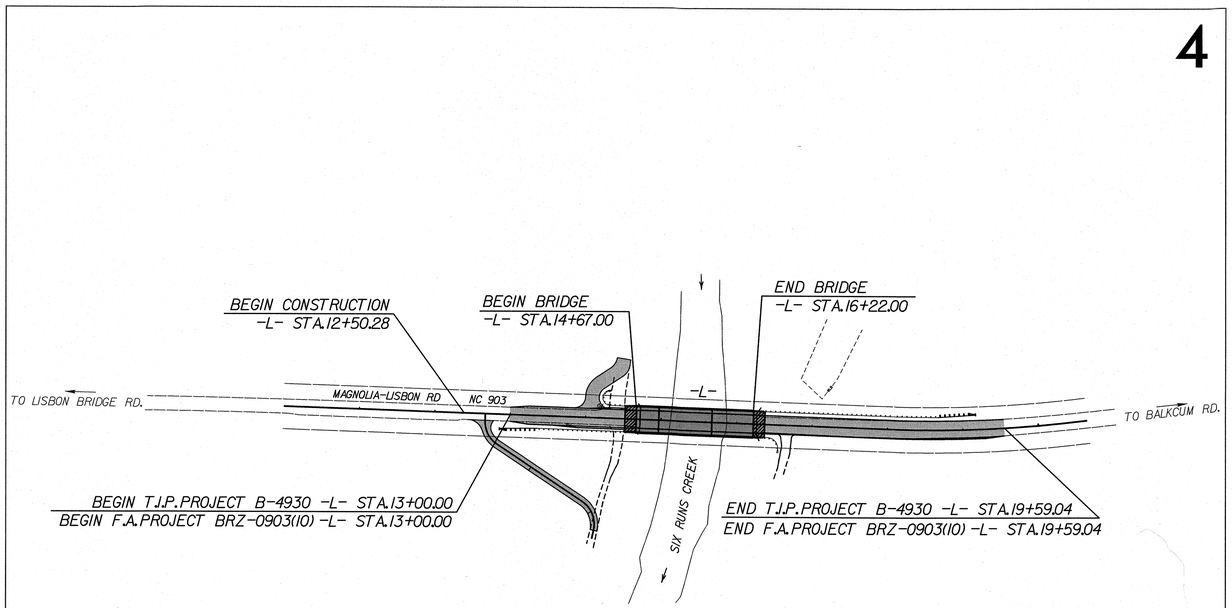
W.B.S. NO.	F. A. PROJ. NO.	DESCRIPTION
40234.1.1	BRZ-0903(10)	PE
40234.2.FR1		R/W & UTL
40234.3.FR1		CONSTR.

LOCATION: *BRIDGE NO. 66 OVER SIX RUNS CREEK ON NC 903 (W. MAGNOLIA-LISBON RD)*

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

NAD 83/NSRS 2011

4



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2012	=	1175
ADT 2035	=	1770
DHV	=	10 %
D	=	50 %
T	=	42 % *
V	=	55 MPH

* TTST 24% DUAL 18%
FUNC CLASS = RURAL COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT B-4930	=	.096 MILES
LENGTH STRUCTURES T.I.P. PROJECT B-4930	=	.029 MILES
TOTAL LENGTH T.I.P. PROJECT B-4930	=	.125 MILES

Prepared In the Office of:

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 2013

LETTING DATE:
APRIL 3, 2014

DAVID BASS, P.E.
PROJECT ENGINEER

MICHAEL BAREFOOT, P.E.
PROJECT DESIGN ENGINEER

AMANDA GLYNN, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032721 ENGINEER JOHN F. OGLESBY

SIGNATURE: 4/1/14

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 20107 ENGINEER DAVID W. BASS

SIGNATURE: 4/1/14

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

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PROJECT REFERENCE NO.	SHEET NO.
B-4930	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030704 ENGINEER DAVID W. BASS 1/28/14

SHEET NUMBER

SHEET NUMBER	
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
1-D	COORDINATE LIST SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
3A	SUMMARY OF DRAINAGE QUANTITIES SUMMARY OF GUARDRAIL, AND EARTHWORK SUMMARY
4	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-2	TRAFFIC CONTROL PLANS
EC-1 THRU EC-3	EROSION CONTROL PLANS
UBO-1 THRU UBO-2	UTILITIES BY OTHERS PLANS
X-0 THRU X-5	CROSS-SECTIONS
S-1 THRU S-24	STRUCTURE PLANS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 07-30-2012

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04
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

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR 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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

ELECTRIC MEMBERSHIP CORPORATION

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

2012 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 11-25-2013
REV.

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.36	Traffic Bearing Grated Drop Inlet - for Steel (840.37) Double Frame and Grates
840.37	Steel Grate and Frame
848.02	Driveway Turnout - Radius Type
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units (Details in Lieu of Standard Drawing as March 2013 Letting)
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

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04/16/11

PROJECT REFERENCE NO.	SHEET NO.
B-4930	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

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

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite 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 Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

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

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

SURVEY CONTROL SHEET B-4930

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B4930 BL-1	380459.8780	2205891.0020	47.55	OUTSIDE PROJECT LIMITS	
2	B4930 BL-2	380406.6970	2206667.2090	44.49	14+74.77	24.04 RT
3	B4930 BL-3	380409.9550	2207206.2940	49.10	20+12.04	15.43 RT

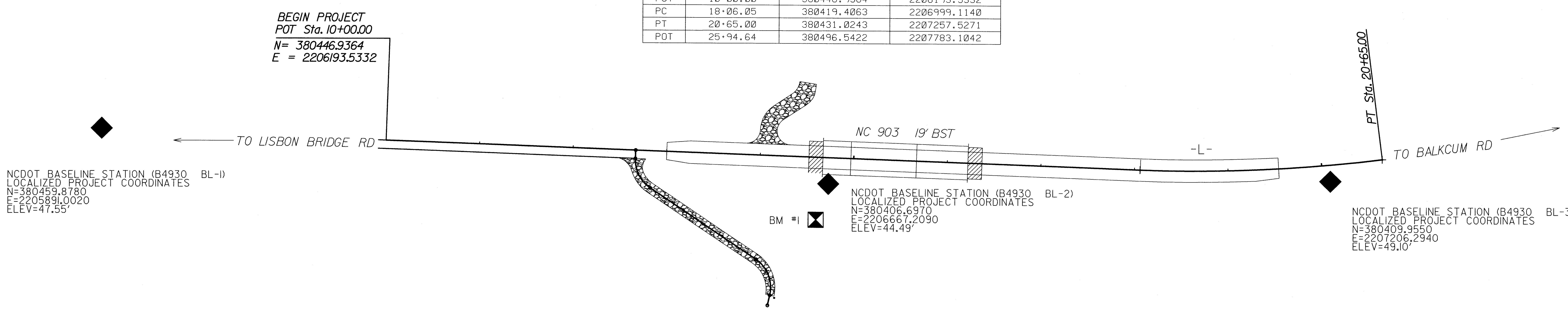
BM1 ELEVATION = 45.50
N 380369 E 2206654
L STATION 14+63.00 62 RIGHT
RR SPIKE IN BASE OF 10" PINE

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+83.00	-49.00	380486.2421	2206478.0416
L	12+83.00	-30.00	380467.2532	2206477.3927
L	13+89.24	-49.00	380482.6134	2206584.2234
L	14+31.00	-91.79	380523.9523	2206627.4167
L	14+74.00	-86.49	380517.1868	2206670.2106
L	14+76.00	-30.00	380460.6614	2206670.2801
L	16+13.00	-30.00	380455.9823	2206807.2002
L	16+43.00	-60.00	380484.9401	2206838.2073
L	18+01.00	-43.00	380462.5537	2206995.5345
L	19+09.00	-42.00	380461.1093	2207100.8392
L	19+09.00	-30.00	380449.1142	2207101.1839
L	19+12.00	47.00	380372.2375	2207106.4803
L	18+01.00	47.00	380372.6062	2206992.4606
L	17+51.00	54.00	380367.3180	2206942.2507
L	16+45.00	51.00	380373.9366	2206836.4150
L	16+13.00	30.00	380396.0173	2206805.1509
L	19+12.00	30.00	380389.2295	2207105.9609
L	14+76.00	30.00	380400.6964	2206668.2308
L	14+76.00	48.00	380382.7069	2206667.6161
L	13+10.00	48.00	380388.3765	2206501.7129
L	12+88.00	30.00	380407.1174	2206480.3405

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	380446.9364	2206193.5332
PC	18+06.05	380419.4063	2206999.1140
PT	20+65.00	380431.0243	2207257.5271
POT	25+94.64	380496.5422	2207783.1042



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "b4930-2"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 379787.853(ft) EASTING: 2204795.757(ft)
ELEVATION: 46.22(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99990804
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "b4930-2" TO -L- STATION 10+00.00 IS
N 85° 08' 39.51" W 475.3819'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   TIP####_LS_CONTROL_DATE.HTML

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

◬ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

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PROJECT REFERENCE NO.	SHEET NO.
B-4930	1-D

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CENTERLINE COORDINATE LIST

POINT #	CHAIN	STATION	NORTHING (Y)	EASTING (X)
1	-L-	10+00.00	380,446.94	2,206,193.53
2	-L-	11+00.00	380,443.52	2,206,293.47
3	-L-	12+00.00	380,440.11	2,206,393.42
4	-L-	13+00.00	380,436.69	2,206,493.36
5	-L-	14+00.00	380,433.27	2,206,593.30
6	-L-	15+00.00	380,429.86	2,206,693.24
7	-L-	16+00.00	380,426.44	2,206,793.18
8	-L-	17+00.00	380,423.03	2,206,893.12
9	-L-	18+00.00	380,419.61	2,206,993.07
10	-L-	19+00.00	380,418.89	2,207,093.05
11	-L-	20+00.00	380,424.27	2,207,192.89
12	-L-	21+00.00	380,435.35	2,207,292.26
13	-L-	22+00.00	380,447.72	2,207,391.50
14	-L-	23+00.00	380,460.09	2,207,490.73
15	-L-	24+00.00	380,472.46	2,207,589.96
16	-L-	25+00.00	380,484.84	2,207,689.19
17	-L-	25+94.64	380,496.54	2,207,783.10
18	-DW-	10+00.00	380,437.82	2,206,460.27
19	-DW-	11+00.00	380,367.19	2,206,520.78
20	-DW-	12+00.00	380,308.26	2,206,600.74
21	-DW-	12+36.73	380,272.52	2,206,601.25

POINT #	CHAIN	STATION	NORTHING (Y)	EASTING (X)

POINT #	CHAIN	STATION	NORTHING (Y)	EASTING (X)

POINT #	CHAIN	STATION	NORTHING (Y)	EASTING (X)

POINT #	CHAIN	STATION	NORTHING (Y)	EASTING (X)

6/2/99

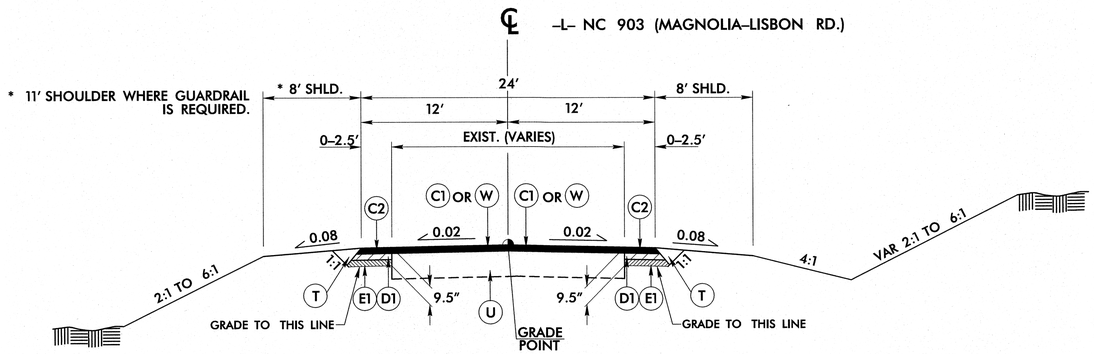
PROJECT REFERENCE NO.	SHEET NO.
B-4930	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030927 ENGINEER DAVID W. BASS
3/10/14

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO 1.5" LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1.5" OR GREATER THAN 2 1/4" IN DEPTH.
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE,TYPE I19.0B AT AN AVERAGE RATE OF 114 LBS. PER SQ.YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" OR GREATER THAN 4" DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J	PROP. 6" AGGREGATE BASE COURSE.
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

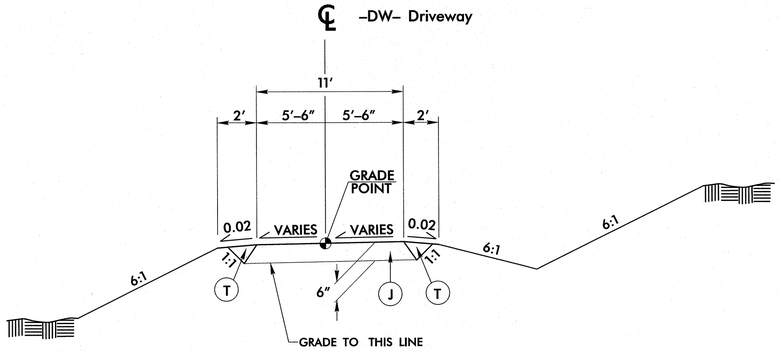
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

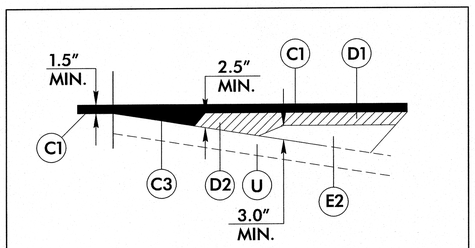
USE TYPICAL SECTION NO. 1 AS FOLLOWS:
–L– STA. 13+25.00 TO STA. 14+67.00 (BEGIN BRIDGE)
–L– STA. 16+22.00 (END BRIDGE) TO STA. 19+34.04

NOTE:
TRANSITION FROM EXIST. TO T.S. NO. 1
–L– STA. 13+00 TO –L– STA. 13+25
–L– STA. 19+34.04 TO –L– STA. 19+59.04

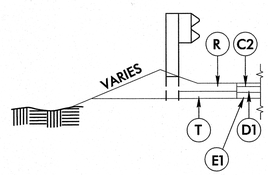


TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:
–DW– STA. 10+08.96 TO STA. 12+25.55

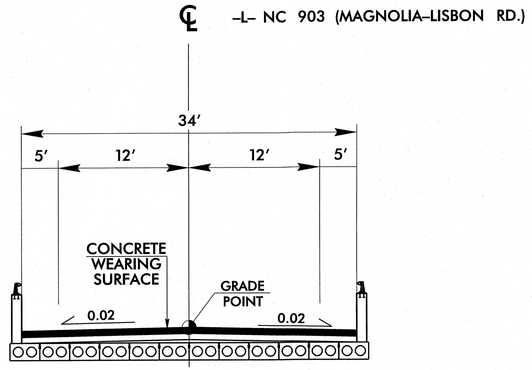


WEDGING DETAIL FOR –L– LINE



SHOULDER BERM GUTTER DETAIL

–L– STA. 14+34.36 LT TO STA. 14+52.00 LT
–L– STA. 13+90.85 RT TO STA. 14+52.00 RT



TYPICAL SECTION ON STRUCTURE

–L– STA. 14+67.00 TO STA. 16+22.00

10-MAR-2014 11:34
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$$$$USERNAME$$$$

12/06/07

COMPUTED BY:	DATE:
CHECKED BY:	DATE:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4930	3A

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L- CL					
13+00.00	14+67.00	76	419	343	0
-DW- CL					
10+08.96	12+25.55	101	153	52	0
SUBTOTAL #1:		177	572	395	0
-L- CL					
16+22.00	19+00.00	5	1087	1082	0
SUBTOTAL #2:		5	1087	1082	0
PROJECT TOTALS:		182	1659	1477	0
LOSS DURE TO C&G (5%)		-9		9	
RELACE TOPSOIL ON BORROW PIT (5%)				74	
GRAND TOTALS:		173	1659	1560	0
SAY:		200	1700	1600	0

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

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L-	14+34	14+55	21'
-L-	13+91	14+55	64'
TOTAL:			85'
SAY:			85'

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

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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
-L- STA 14+00	RT	1		48.65	45.75														
-L- STA 14+00	RT	2	3		45.75	42.35			36										
-L- STA 14+38	LT	4		48.82	45.75														
-L- STA 14+38	LT	5	6		45.75	42.07			51										
TOTAL									87										
SAY									87										

STATION	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	36" .079	42" .109	48" .109	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"
-L- STA 14+00																						
-L- STA 14+00																						
-L- STA 14+38																						
-L- STA 14+38																						
TOTAL																						
SAY																						

STATION	**" 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	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET		G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.29	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	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
-L- STA 14+00								1														1						
-L- STA 14+00																												
-L- STA 14+38								1														1						
-L- STA 14+38																												
TOTAL								2														2						
SAY								2														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

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS XI MOD	B-77	GRAU 350	M-350	TYPE III	CAT-1	VI MOD	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	12+85.75	14+67.00	RT	181.25'			14+67.09		8'	11'	50'		1'				1		1				1							
-L-	14+34.00	14+67.00	LT		46.5'			14+67.09	8'	11'				4'					1											
-L-	16+22.00	19+17.50	LT	293.75'			16+22.00		8'	11'	50'		1'				1		1				1							
-L-	16+22.00	16+66.00	RT		46.5'			16+22.00	8'	11'				4'					1											
			SUBTOTAL	475'	93'																									
		LESS 2 GRAU-350 @ 50' EACH		100'																										
		LESS 2 AT-1 @ 12.5' EACH			25'																									
		LESS 4 TYPE-III @ 12.5' EACH		25'	25'																									
			PROJECT TOTALS	350'	43'												2		4				2							
			SAY	375'	50'												2		4				2							

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PROJECT REFERENCE NO.	SHEET NO.
B-4930	4
R/W SHEET NO.	

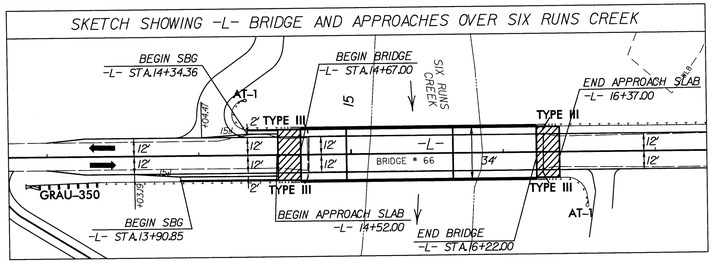
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 20107 ENGINEER DAVID W. BASS — 1/15/14

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 032120 ENGINEER NORTH F. OGLESBY — 1/15/14

NAD 83/NA 2011

8/17/99

SKETCH SHOWING -L- BRIDGE AND APPROACHES OVER SIX RUNS CREEK



-DW-	
PI Sta 10+29.31	PI Sta 12+06.83
Δ = 58° 56' 42.4" (LT)	Δ= 69° 39' 37.6" (RT)
D = 159° 09' 17.8"	D = 159° 09' 17.8"
T = 20.35'	L = 43.17'
L = 37.04'	T = 25.05'
R = 36.00'	R = 36.00'

-L-
PI Sta 19+35.79
Δ = 9° 03' 47.0" (LT)
D = 3° 30' 00.0"
L = 258.94'
T = 129.74'
R = 1637.02'

③ C. Wilson Spenser DB 1355 PG 461

T & W DEVELOPMENT DB 1720 PG 86

WOODS

BL-1

-L- POT Sta. 10+00.00

EXISTING R/W

NC 903 19' BST

S 1° 57' 26.2" W

BEGIN PROJECT B-4930
-L- POT STA.13+00.00

-DW- Sta. 10+00.00 = -L- POT Sta. 12+66.89

① James E David DB 902 PG 72

WOODS

PROP. 18" DRIVE 6" ABC

REINSTALL GATE FROM EXISTING DRIVEWAY

12+83 49.00 LT

12+83 EXIST. R/W

EST 1.5 TON CLASS B RIP RAP EST 6 SY GFD

13+89.24 49.00 LT

14+31 91.79 LT

14+74 86.49 LT

14+76 EXIST. R/W

④

SIX RUNS CREEK

⑤ CONGAREE-CARTON LIMITED PARTNERSHIP DB 1699 PG 570

16+43 60.00 LT

16+13 EXIST. R/W

18+01 43.00 LT

19+09 42.00 LT

19+09 EXIST. R/W

-L- PC Sta. 18+06.05

-L- PT Sta. 20+65.00

END PROJECT B-4930
-L- PT Sta.19+59.04

25' TAPER

AT-1

TYPE III

TB2GI

S 88° 02' 33.8" E

BRIDGE # 66

GRAU-350

MAGNOLIA-LISBON RD. NC 903 19' BST

EXISTING R/W

BL-3 TIE TO -L- STA 20+72.04 OFFSET 15.43' RT

BL-2 TIE TO -L- STA 16+76.77 OFFSET 24.04' RT

-L- 13+10 48.00 RT

14+76 48.00 RT

16+13 EXIST. R/W

16+45 51.00 RT

EXIST. DRIVE

17+51 54.00 RT

18+01 47.00 RT

19+12 47.00 RT

19+12 EXIST. R/W

BEGIN CONSTR. -L- POT Sta. 12+50.28

-DW- PC Sta. 10+08.96

-DW- 10+20.28 EXIST. R/W

-DW- PT Sta. 10+46.00

-L- 12+88 EXIST. R/W

-DW- 10+49 29.87 RT

-DW- 10+86.26 15.62 LT

-DW- 11+49 30.91 LT

-DW- 11+49 20.30 RT

-DW- PC Sta. 11+81.78

-DW- 12+36 8.30 RT

-DW- 12+36 11.54 LT

S 35° 12' 36.3" E

-DW-

② James E David DB 902 PG 72

-DW- 12+01 30.91 RT

END CONSTR. -DW- PT Sta. 12+25.55

S 12° 50' 38.4" W

-DW- POT Sta. 12+36.73

PROPERTY MON

BM #1 BL STA 12+67 39' RIGHT ELEV 45.50'

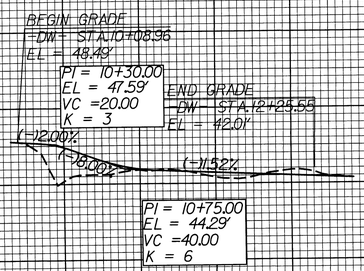
⑥ CONGAREE-CARTON LIMITED PARTNERSHIP DB 1699 PG 570

T & W DEVELOPMENT DB 1720 PG 86

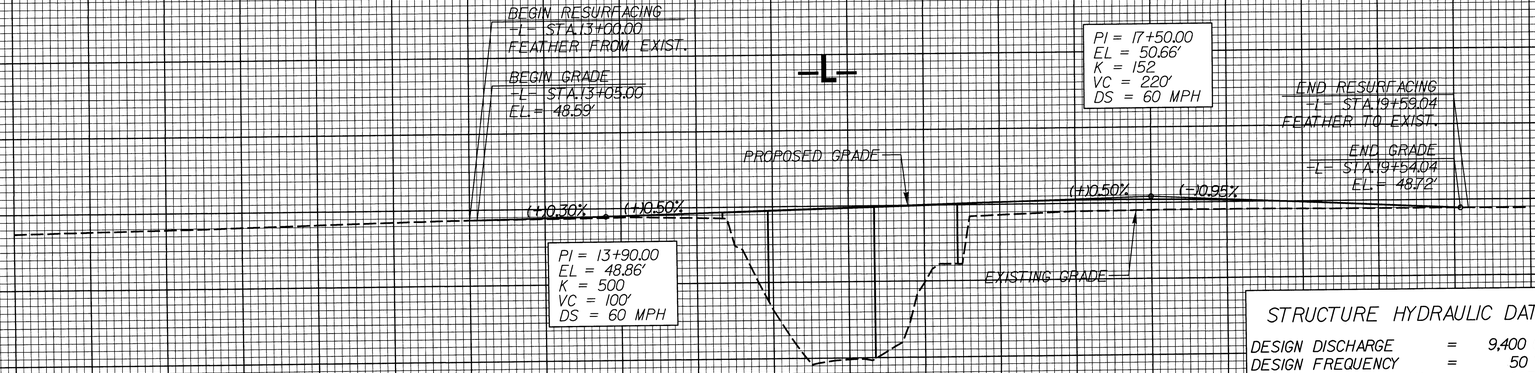
SBG = SHOULDER BERM GUTTER

BM#1 = RAILROAD SPIKE IN BASE OF 10" PINE
BL STA.12+67 39' RT.
N 380369 E 2206654
ELEV.= 45.50'

-DW-



-L-



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	9,400 CFS
DESIGN FREQUENCY	=	50 YRS
DESIGN HW ELEVATION	=	44.5 FT
BASE DISCHARGE	=	11,198 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	45.29 FT
OVERTOPPING DISCHARGE	=	13,800 CFS
OVERTOPPING FREQUENCY	=	200 YRS
OVERTOPPING ELEVATION	=	47.8 FT

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

SAMPSON COUNTY

BRIDGE NO. 66 OVER SIX RUNS CREEK ON NC 903 (W. MAGNOLIA–LIBSON RD.)

TIP PROJECT: B-4930

CONTRACT: DC00062

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

INDEX OF SHEETS

LEGEND

TRAFFIC CONTROL DEVICES

▨ BARRICADE (TYPE III)

TEMPORARY SIGNING

├ STATIONARY SIGN

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENIGNEER.

B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

TRAFFIC PATTERN ALTERATIONS

C) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

D) INSTALL ADVANCED WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

E) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

F) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

G) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

H) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROAD.

PAVEMENT MARKINGS AND MARKERS

I) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKERS
NC 903	THERMOPLASTIC	PERMANENT RAISED

J) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

K) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS.

PHASING

STEP 1: INSTALL ALL DETOUR SIGNING KEEPING SIGNS COVERED (SEE SHEET TMP-2)

STEP 2: USING ROADWAY STANDARD DRAWING 1101.03, SHEET 1 OF 9, CLOSE NC 903 TO TRAFFIC, UNCOVER ALL DETOUR SIGNING AND SHIFT TRAFFIC TO DETOUR (SEE SHEET TMP-2).

STEP 3: DISMANTLE AND REMOVE EXISTING BRIDGE NO. 66.

STEP 4: COMPLETE CONSTRUCTION OF PROPOSED STRUCTURE, APPROACH ROADWAY TIE-INS AND ASSOCIATED ITEMS.

STEP 5: USING ROADWAY STANDARD DRAWINGS, 1205 SERIES, PLACE FINAL PAVEMENT MARKINGS ON NC 903 IN TWO-WAY, TWO-LANE PATTERN WITH DOUBLE YELLOW CENTERLINE. INSTALL DELINEATORS PER ROADWAY STANDARD DRAWINGS 1261 AND 1262.

STEP 6: REMOVE ALL DETOUR SIGNING, ALL TRAFFIC CONTROL DEVICES AND OPEN NC 903 TO TRAFFIC.

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

APPROVED: [illegible] DATE: 3/10/2014

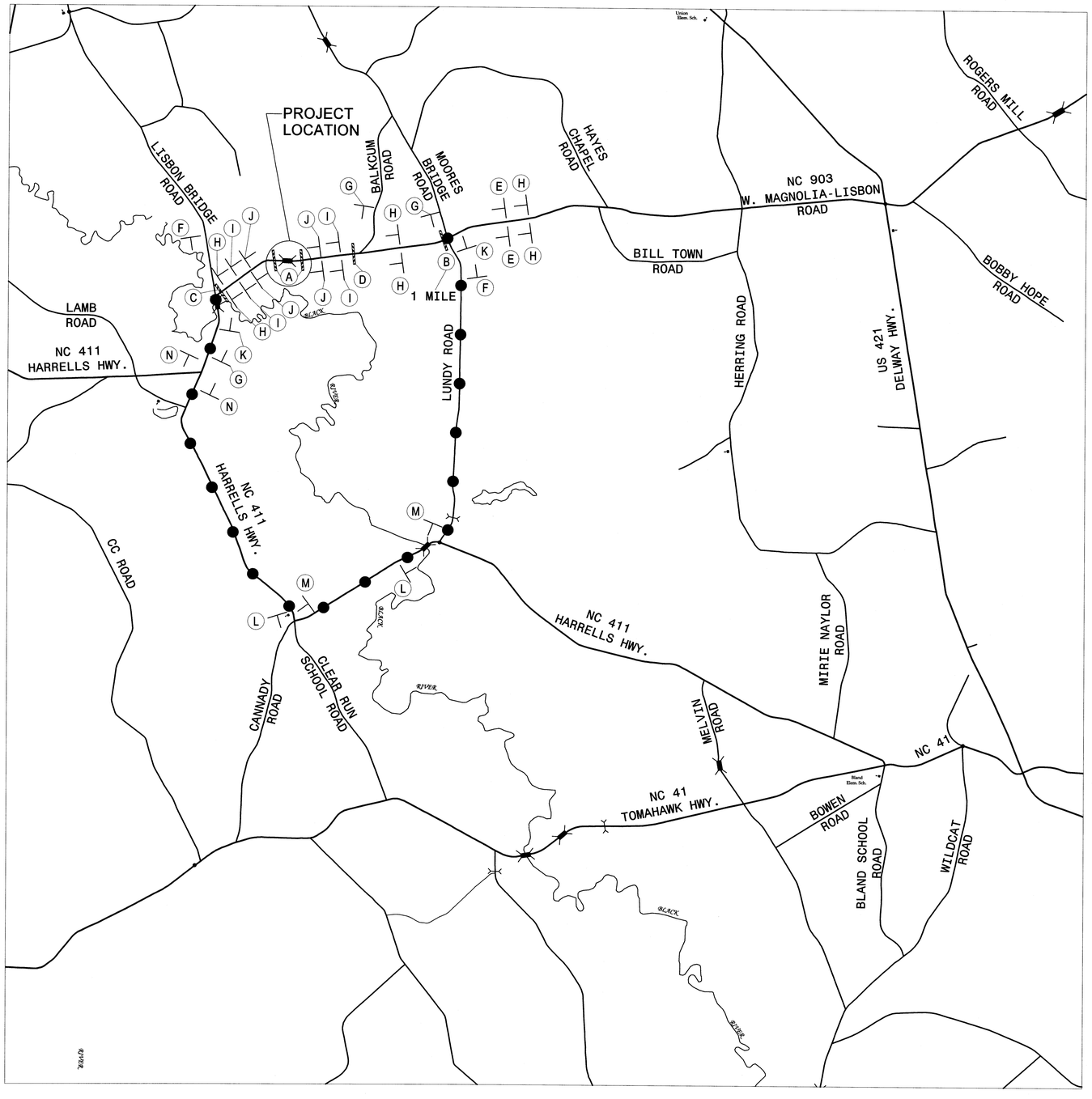
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 034343 ENGINEER A. MATTHEW THIGPEN

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS, INDEX OF SHEETS, LEGEND, GENERAL NOTES AND PHASING

PROJ. REFERENCE NO.	SHEET NO.
B-4930	TMP-2

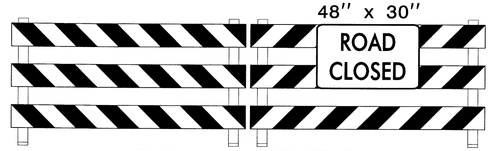


PROPOSED DETOUR

DETOUR ROUTE

DETOUR LENGTH 7.8 MILES

R11-2
48" x 30"



TYPE III BARRICADE(S)

A

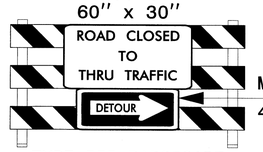
R11-3
60" x 30"

M4-10L
48" x 18"

TYPE III BARRICADE

B

R11-4
60" x 30"



M4-10R
48" x 18"

TYPE III BARRICADE

C

R11-4
60" x 30"

TYPE III BARRICADE

D

W20-2
48" X 48"

E

W20-3
48" X 48"

NEXT LEFT

SP-4L
48" X 12"

F

W20-3
48" X 48"

NEXT RIGHT

SP-4R
48" X 12"

G

W20-3
48" X 48"

H

W20-3
48" X 48"

I

W20-3
48" X 48"

J

END DETOUR

M4-8 A
24" X 18"

K

DETOUR

M4-8
24" X 12"

M6-1 L
21" X 15"

L

DETOUR

M4-8
24" X 12"

M6-1
21" X 15"

M

DETOUR

M4-8
24" X 12"

M6-3
21" X 15"

N

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

APPROVED: _____ DATE: 12/18/2013

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 034343 ENGINEER MATTHEW THIGPEN

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

DETOUR SIGNING

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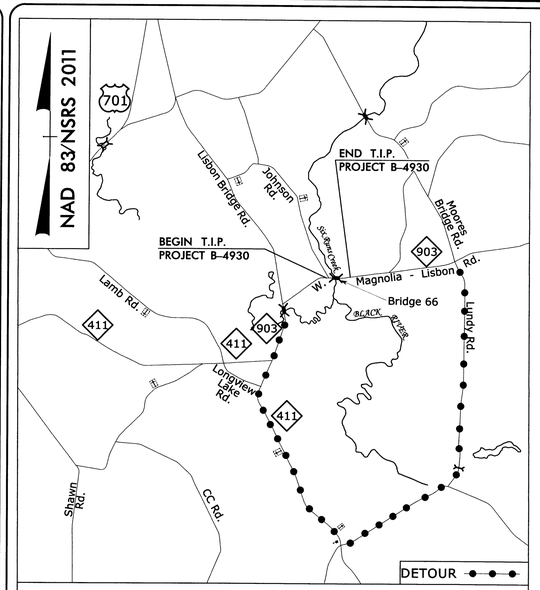
TIP PROJECT: B-4930

CONTRACT: DC00062



VICINITY MAP

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	SK
	Tiered Skimmer Basin	SK
	Infiltration Basin	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

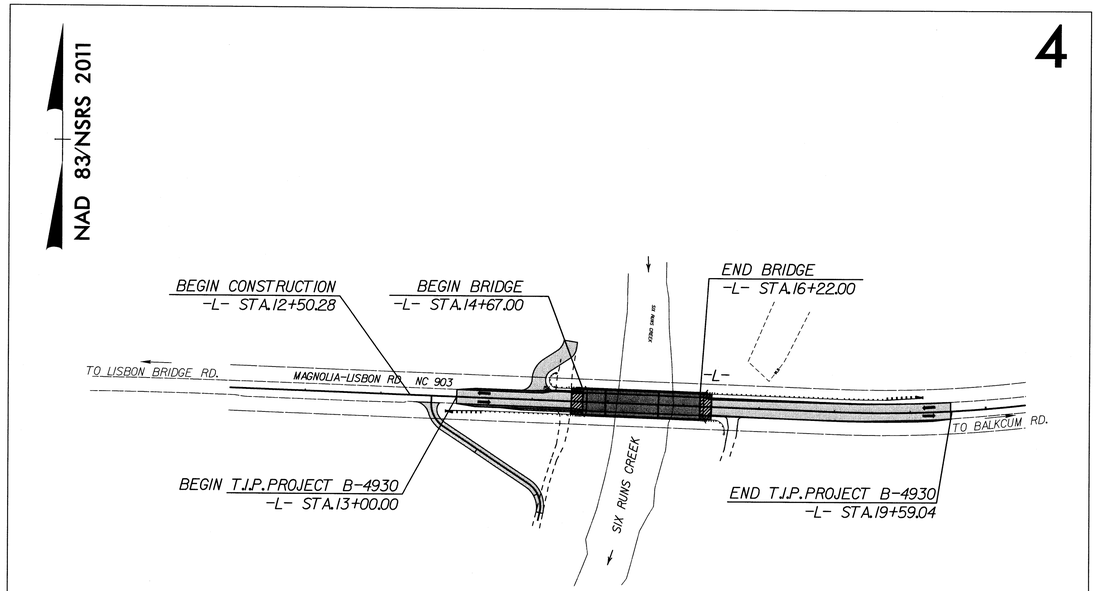
SAMPSON COUNTY

PLAN FOR PROPOSED HIGHWAY EROSION CONTROL

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4930	EC-1	

STATE PROJ.NO.	F. A. PROJ. NO.	DESCRIPTION
40234.1.1	BRZ-0903(10)	PE
40234.2.FR1		R/W & Util
40234.3.FR1		CONST

LOCATION: BRIDGE NO. 66 OVER SIX RUNS CREEK ON NC 903 (W. MAGNOLIA-LISBON RD)
TYPE OF WORK: WIDENING, GRADING, PAVING, DRAINAGE, AND STRUCTURE



NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

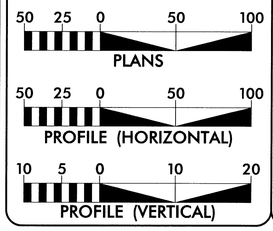
2012 STANDARD SPECIFICATIONS

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

GRAPHIC SCALES



ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
ENGINEER APPROVAL

PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT B-4930	=	.096 MILES
LENGTH STRUCTURES T.I.P. PROJECT B-4930	=	.029 MILES
TOTAL LENGTH T.I.P. PROJECT B-4930	=	.125 MILES

Prepared In the Office of:

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 2013

LETTING DATE:
FEBRUARY 2014

JOHN OGLESBY, P.E.
IIIA CERT. # 3308
PROJECT ENGINEER

MICHAEL BAREFOOT, P.E.
PROJECT DESIGN ENGINEER

AMANDA GLYNN, P.E.
NCDOT CONTACT

Roadway Standard Drawings

The following roadway English standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4930	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES, AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES

PROJECT REFERENCE NO.	SHEET NO.
B-4930	EC-3
R/W SHEET NO.	

HYDRAULICS ENGINEER

C.GLEE 12/20/13

SAMPSON COUNTY BRIDGE # 810066

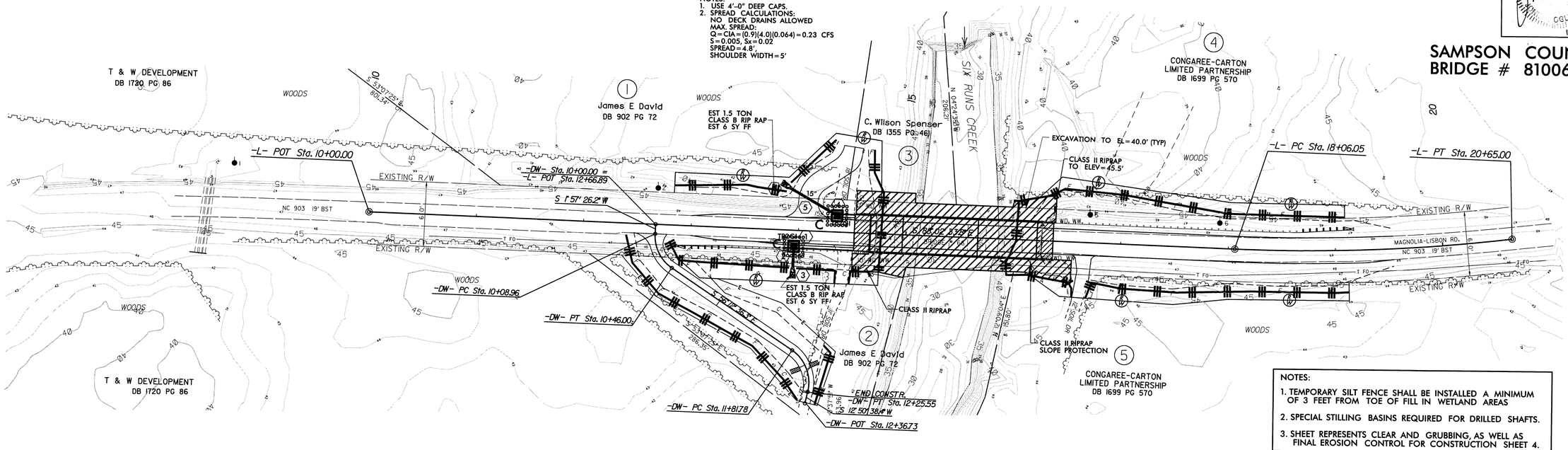
ENVIRONMENTALLY SENSITIVE AREA SEE PROJECT SPECIAL PROVISIONS

AREA TO BE EXCAVATED

-DW-	
PI Sta 10+29.31	PI Sta 12+06.83
Δ = 58° 56' 42.4" (LT)	Δ= 69° 39' 37.6" (RT)
D = 159° 09' 17.8"	D = 159° 09' 17.8"
T = 20.35'	L = 43.77'
L = 37.04'	T = 25.05'
R = 36.00'	R = 36.00'

-L-
PI Sta 19+35.79
Δ= 9° 03' 47.0" (LT)
D = 3° 30' 00.0"
L = 258.94'
T = 129.74'
R = 1,637.02'

NOTES:
1. USE 4'-0" DEEP CAPS.
2. SPREAD CALCULATIONS:
NO DECK DRAINS ALLOWED
MAX. SPREAD:
Q=CIA=(0.9)(4.0)(0.064)=0.23 CFS
S=0.005, Sx=0.02
SPREAD=4.8'
SHOULDER WIDTH=5'



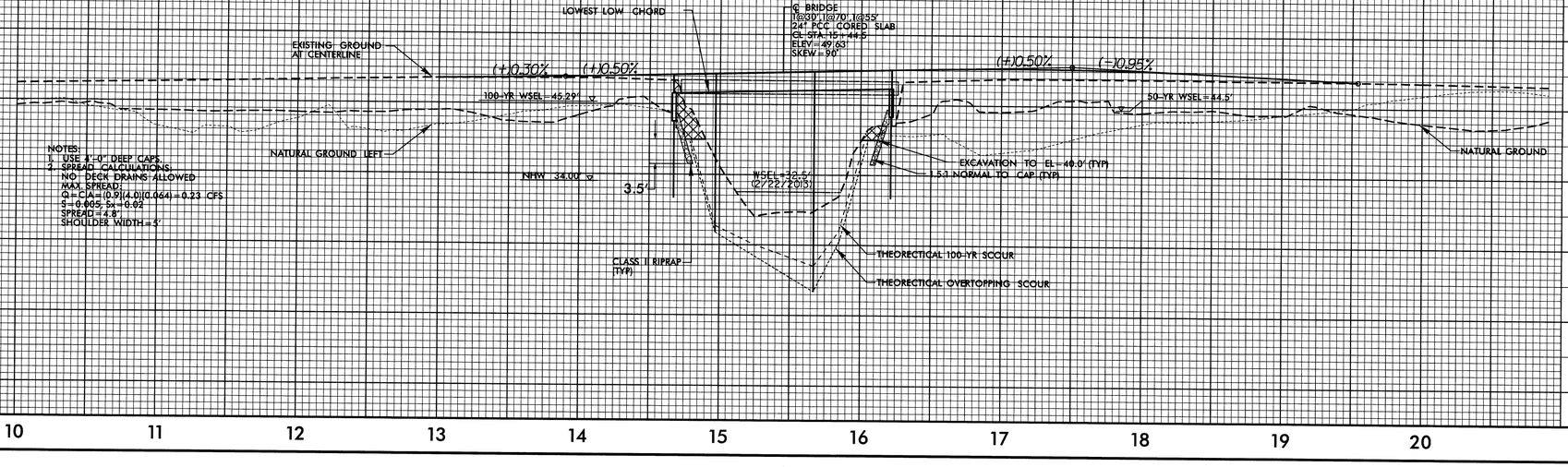
NOTES:
1. TEMPORARY SILT FENCE SHALL BE INSTALLED A MINIMUM OF 3 FEET FROM TOE OF FILL IN WETLAND AREAS
2. SPECIAL STILLING BASINS REQUIRED FOR DRILLED SHAFTS.
3. SHEET REPRESENTS CLEAR AND GRUBBING, AS WELL AS FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 4.

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	9,400 CFS
DESIGN FREQUENCY	=	50 YRS
DESIGN HW ELEVATION	=	44.5 FT
BASE DISCHARGE	=	11,198 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	45.29 FT
OVERTOPPING DISCHARGE	=	13,800 CFS
OVERTOPPING FREQUENCY	=	200 YRS
OVERTOPPING ELEVATION	=	47.8 FT

PI = 13+90.00
EL = 48.86'
K = 500
VC = 100'
DS = 60 MPH

PI = 17+50.00
EL = 50.66'
K = 152
VC = 220'
DS = 60 MPH



REVISIONS

8/17/99

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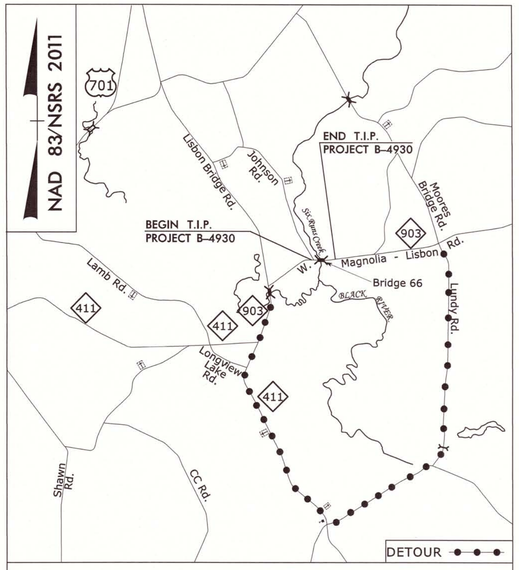
03/21/13

TIP PROJECT: B-4930

CONTRACT: DC00062



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY PLANS

SAMPSON COUNTY

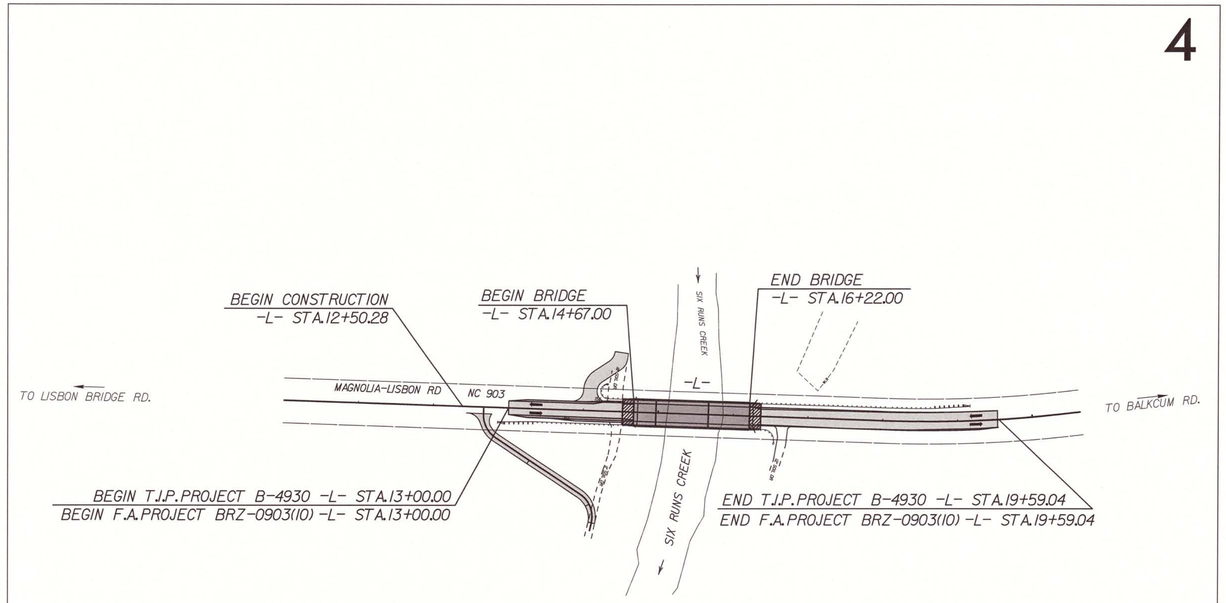
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.
N.C.	B-4930	UBO-1

W.B.S. NO.	F.A. PROJ. NO.	DESCRIPTION

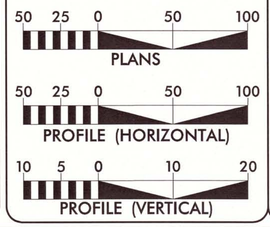
NAD 83/NSRS 2011

LOCATION: BRIDGE NO. 66 OVER SIX RUNS CREEK ON NC 903 (W. MAGNOLIA–LISBON RD)
TYPE OF WORK: WIDENING, GRADING, PAVING, DRAINAGE, AND STRUCTURE

4



GRAPHIC SCALES



DESIGN DATA

ADT 2011 = 1100
ADT 2035 = 1770
DHV = X %
D = X %
T = X % *
V = 55 MPH
* TTST 24% DUAL 18%
FUNC CLASS = RURAL COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT	=	.096 MILES
LENGTH STRUCTURES T.I.P. PROJECT	=	.029 MILES
TOTAL LENGTH T.I.P. PROJECT	=	.125 MILES

Prepared In the Office of:

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1616 EAST MILLBROOK ROAD, SUITE 310
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2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 2013

LETTING DATE:
FEBRUARY 2014

DAVID BASS, P.E.
PROJECT ENGINEER

MICHAEL BAREFOOT, P.E.
PROJECT DESIGN ENGINEER

AMANDA GLYNN, P.E.
NCDOT CONTACT

UTILITY OWNERS

STAR COMMUNICATIONS
KENNITH MELVIN
(910)–385–5296

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

28-JAN-2014 09:22
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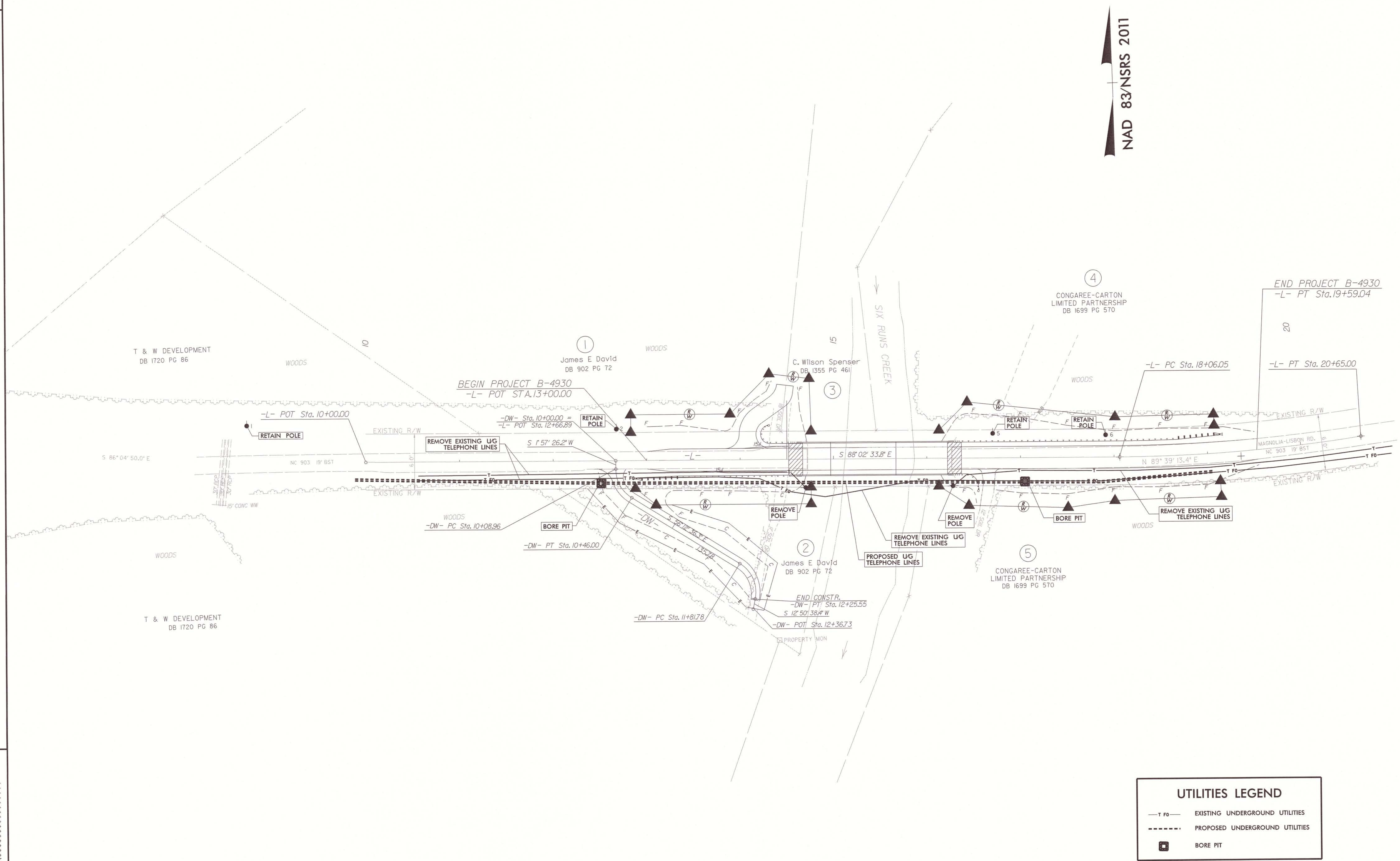
PROJECT REFERENCE NO.	SHEET NO.
B-4930	UBO-2



8/17/99

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$$$$$$DGN$$$$$$

PROJ. REFERENCE NO.	SHEET NO.
B-4930	X-0

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CROSS-SECTION SUMMARY

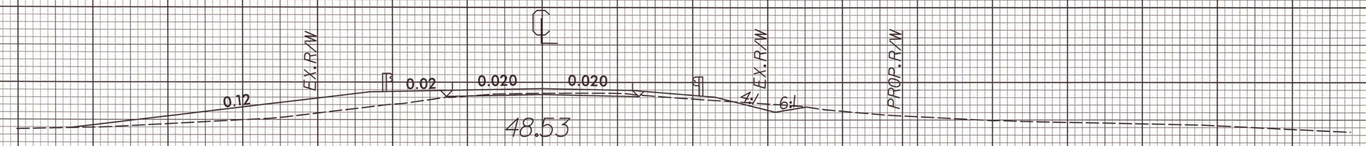
NOTE: EMBANKMENT COLUMN INCLUDES BACKFILL FOR UNDERCUT

Station -L-	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)	DDE (cu. yd.)
13+00.00	0	0	0
13+50.00	16	0	0
14+00.00	30	0	0
14+50.00	23	0	0
16+50.00	0	0	0
17+00.00	0	188	0
17+50.00	0	198	0
18+00.00	0	147	0
18+50.00	0	110	0
19+00.00	5	102	0

Station -DW-	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)	DDE (cu. yd.)
10+00.00	0	0	0
10+50.00	12	51	0
11+00.00	9	62	0
11+50.00	16	3	0
12+00.00	33	3	0

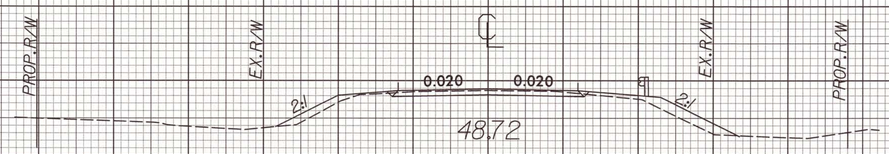
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4930	X-1



48.53

14+50.00



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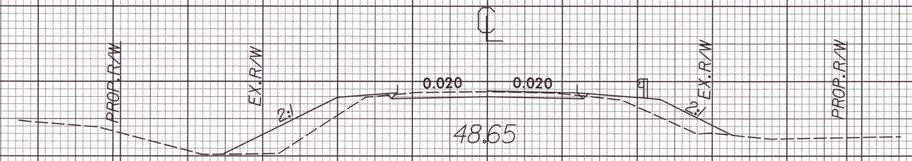
14+00.00



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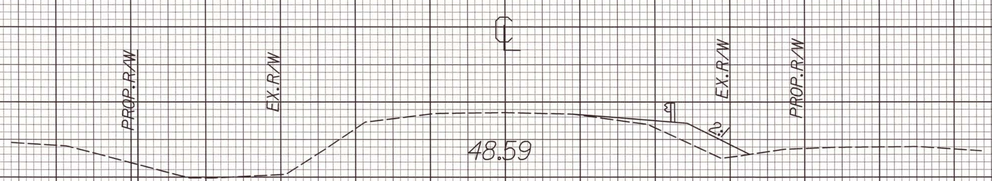
13+50.00



48.59

13+00.00

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

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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4930	X-2

PROP. R/W

EX. R/W

℄

EX. R/W

PROP. R/W

0.020 0.018

3:1

3:1

48.48

16+50.00

0.020 0.020

39.68

16+00.00

0.020 0.020

29.69

15+50.00

0.020 0.020

36.20

15+00.00

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

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8/23/99

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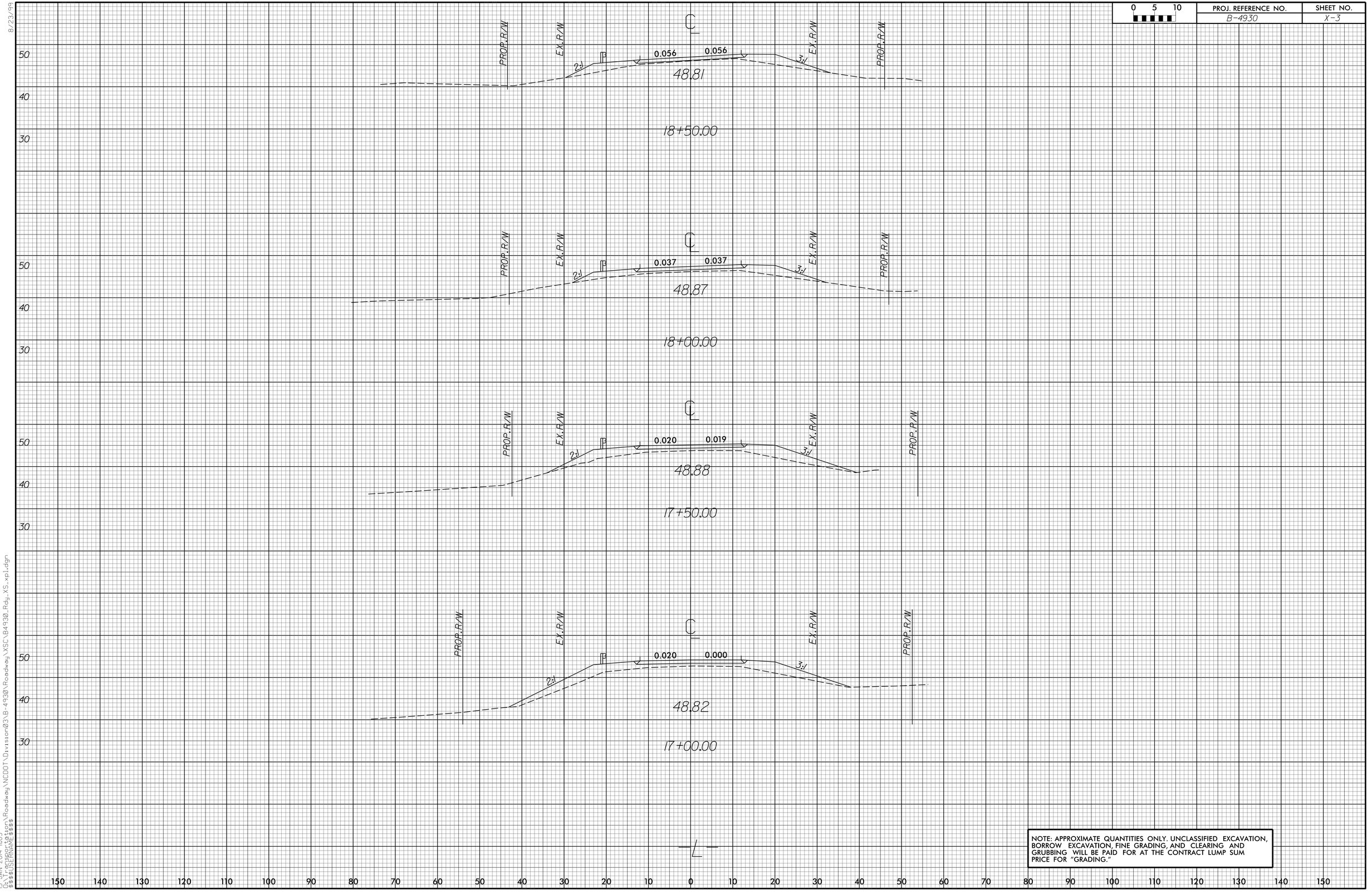
	B-4930	X-3



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

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8/23/99

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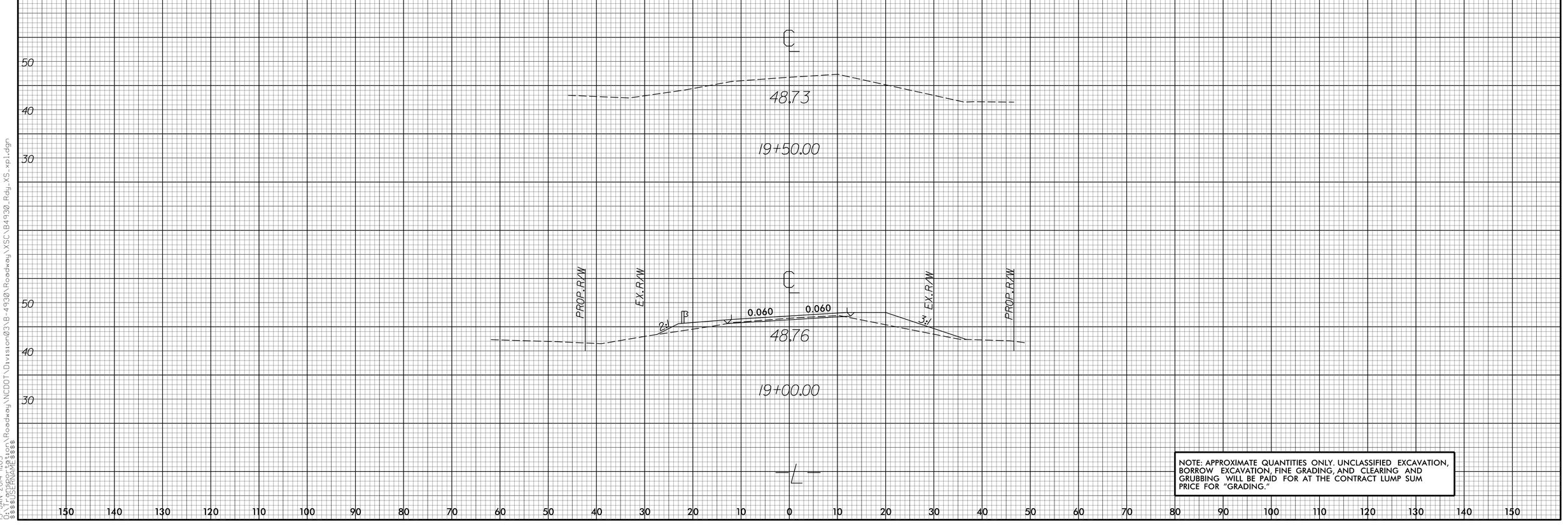

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, AND CLEARING AND GRUBBING WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

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8/23/99

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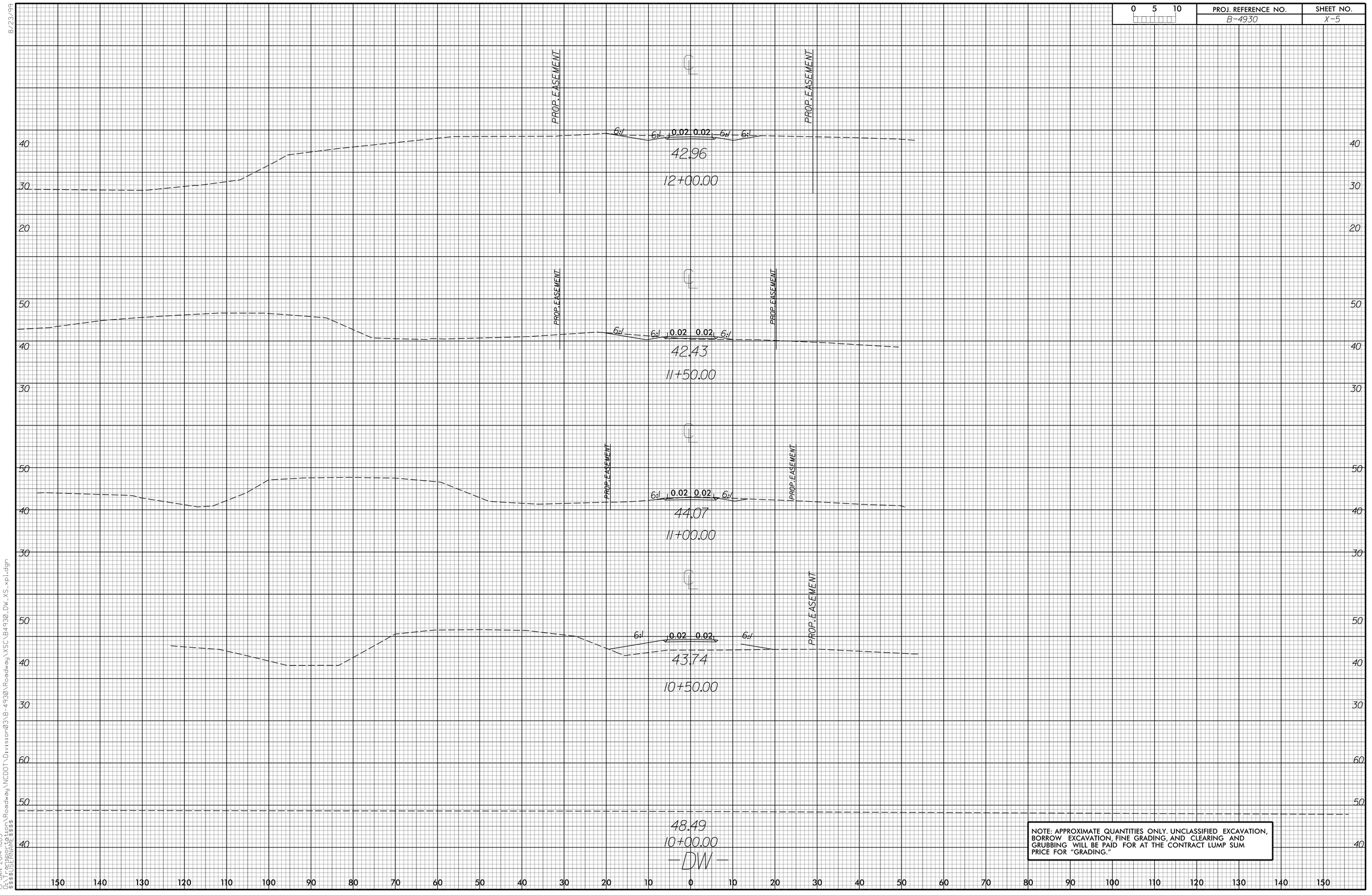

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, AND CLEARING AND GRUBBING WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

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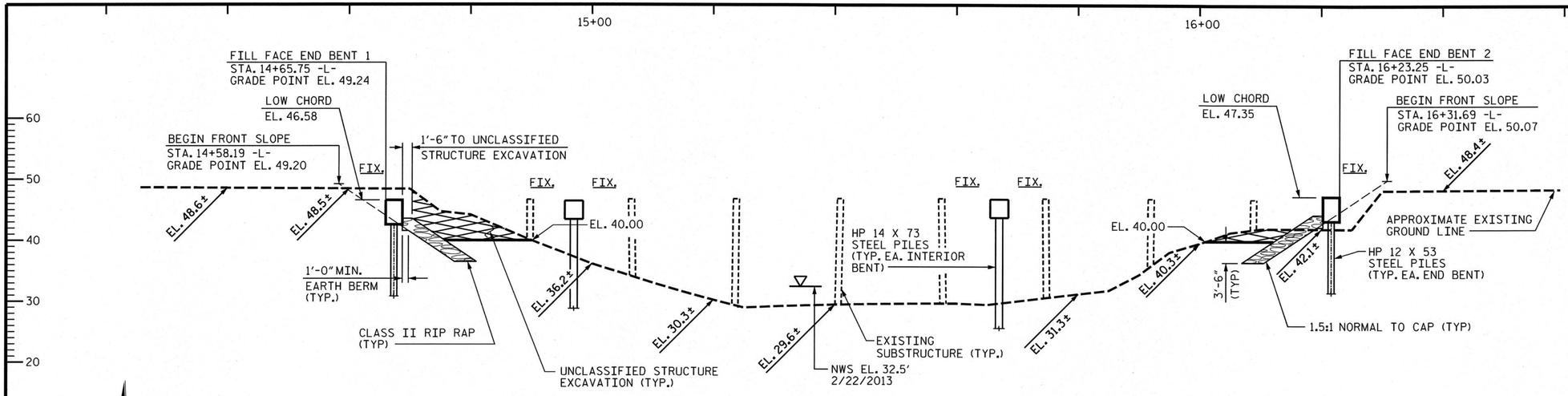
F.A. PROJECT NO.: BZZ-0903(10)



SECTION ALONG ℄ SURVEY -L-

HYDRAULIC DATA

DESIGN DISCHARGE	=	9400 CFS
FREQUENCY OF DESIGN FLOOD	=	50 YR
DESIGN HIGH WATER ELEVATION	=	44.5 FT.
DRAINAGE AREA	=	272.7 SQ. MI.
BASIC DISCHARGE (0100)	=	11198 CFS
BASIC HIGH WATER ELEVATION	=	45.29 FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE		
FREQUENCY OF OVERTOPPING FLOOD	=	200 YR (+)
OVERTOPPING FLOOD ELEVATION	=	47.8 FT.

NOTE: ROADWAY OVERTOPS AT STA. 19+50± -L- PRIOR TO BRIDGE OVERTOPPING.

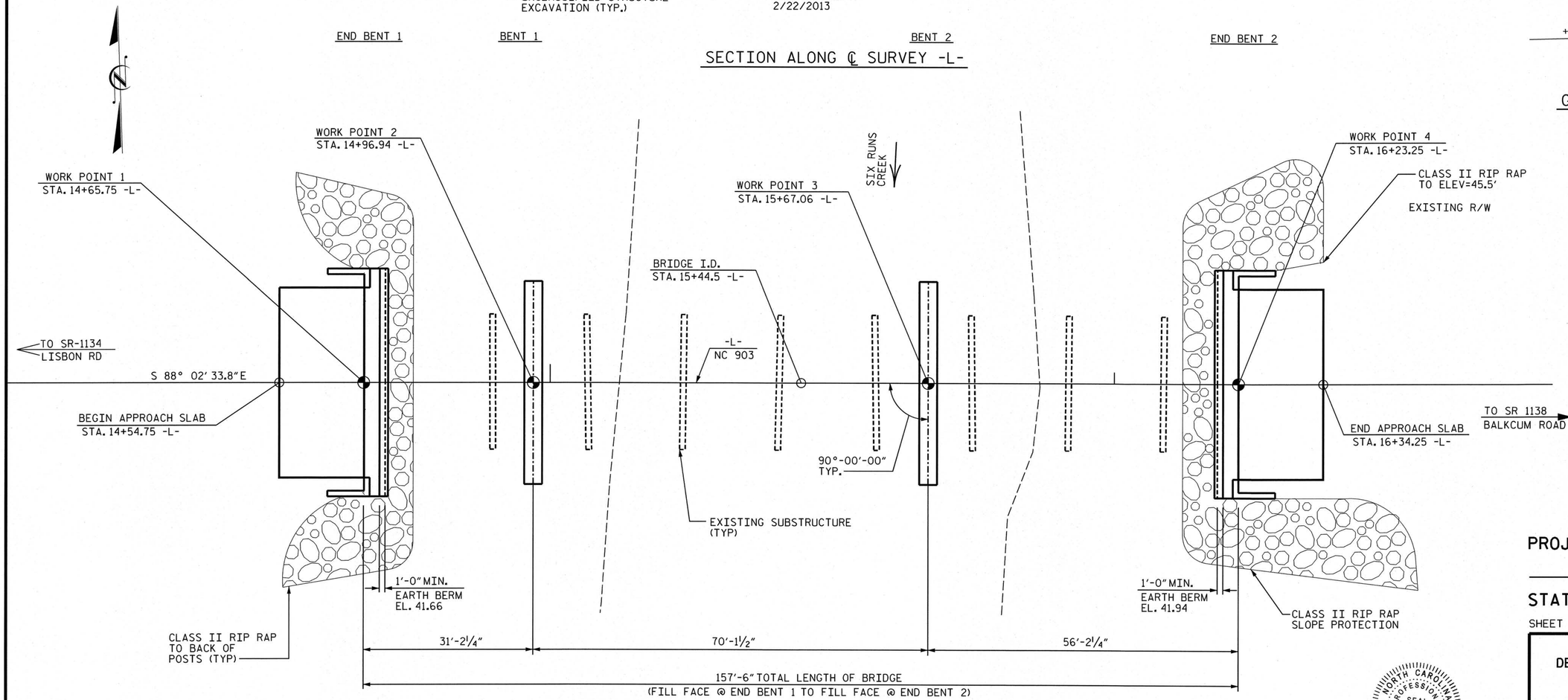
+0.3000% △ +0.5000%

PI = 13+90.00
EL = 48.86'
VC = 100'

+0.5000% △ -0.9499%

PI = 17+50.00
EL = 50.66'
VC = 220'

GRADE DATA -L-



PLAN

NOTE: PILES NOT SHOWN FOR CLARITY.

I HEREBY CERTIFY THESE PLANS ARE AS-BUILT PLANS

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.5 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 66

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

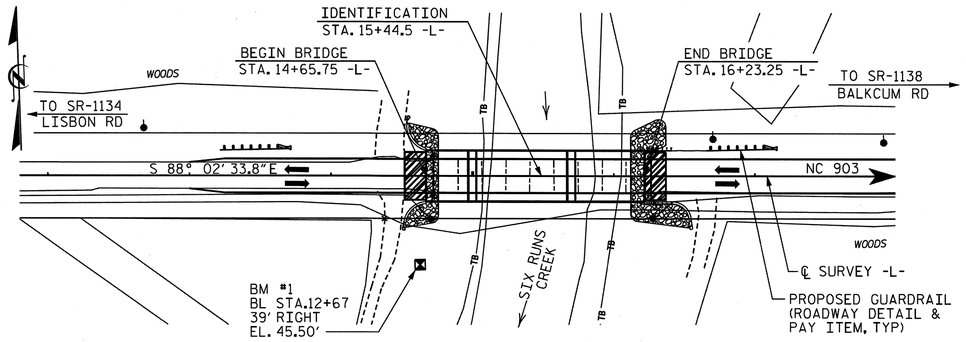
FOR BRIDGE ON NC 903
OVER SIX RUNS CREEK
BETWEEN SR 1134
AND SR 1138

NORTH CAROLINA PROFESSIONAL SEAL 38234 ENGINEER JOHN S. WERES
12/18/2013

ATKINS
1616 E. MILLBROOK ROAD, SUITE #310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DRAWN BY : C. BLAKES DATE : 8/13
CHECKED BY : J. WERES DATE : 8/13
DWG. NO. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			24



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS

FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 54 TONS PER PILE.

DRIVE PILES AT END BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 90 TONS PER PILE.

PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 74 TONS PER PILE.

DRIVE PILES AT END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.

PILES AT BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 120 TONS PER PILE.

DRIVE PILES AT BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 225 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWN DRAG OR SCOUR.

PILES AT BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 140 TONS PER PILE.

DRIVE PILES AT BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 265 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWN DRAG OR SCOUR.

INSTALL PILES AT BENT NO. 1 AND BENT NO. 2 TO A TIP ELEVATION NO HIGHER THAN 9 FT.

THE SCOUR CRITICAL ELEVATIONS AT BENT NO. 1 AND BENT NO. 2 ARE ELEVATION 25.5 FEET AND 23.5 FEET, RESPECTIVELY. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO. 1, BENT NO. 1, BENT NO. 2 AND END BENT NO. 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING PILES WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS AND FOR PILE DRIVING CRITERIA, SEE PILE DRIVING CRITERIA PROVISION.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE @ STA. 15+44.5	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		HP 14 X 73 GALVANIZED STEEL PILES		STEEL PILE POINTS	PILE RE-DRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS		3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	EA.	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	NO.	LIN.FT.	NO.	EA.	LIN.FT.	TONS	SQ.YDS.	LUMP SUM	NO.	LIN.FT.	NO.	LIN.FT.
SUPERSTRUCTURE	LUMP SUM		-	5,253	5,466	-	LUMP SUM	-	-	-	-	-	-	-	310.75	-	-	LUMP SUM	12	360	24	1500
END BENT NO. 1	-		LUMP SUM	-	-	23.7	-	2,902	7	245	-	-	7	4	-	252	280	-	-	-	-	-
BENT NO. 1	-		-	-	-	14.8	-	2,588	-	-	8	480	8	4	-	-	-	-	-	-	-	-
BENT NO. 2	-		-	-	-	12.5	-	2,438	-	-	8	520	8	4	-	-	-	-	-	-	-	-
END BENT NO. 2	-		LUMP SUM	-	-	23.9	-	2,902	7	280	-	-	7	4	-	153	169	-	-	-	-	-
TOTAL	LUMP SUM	1	LUMP SUM	5,253	5,466	74.9	LUMP SUM	10,830	14	525	16	1,000	30	16	310.75	405	449	LUMP SUM	12	360	24	1500

GENERAL NOTES

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 EVALUATING SCOUR AT BRIDGES".

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 35 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR BY THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND ACTUAL CONDITIONS AT THE PROJECT SITE.

GENERAL NOTES (CONT.)

THE QUANTITY OF RIP RAP TO BE PAID FOR WILL BE THE ACTUAL NUMBER OF TONS OF EACH CLASS OF RIP RAP WHICH HAS BEEN INCORPORATED INTO THE COMPLETED AND ACCEPTED WORK. THE RIP RAP WILL BE MEASURED BY BEING WEIGHTED IN TRUCKS ON CERTIFIED PLATFORM SCALES OR OTHER CERTIFIED WEIGHING DEVICES. THE QUANTITY OF RIP RAP WILL BE PAID AT CONTRACT UNIT PRICE PER TON.

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED. CRANES AND DRIVING EQUIPMENT WILL NOT BE PERMITTED ON CORED SLAB UNITS IN SPAN B.

THE EXISTING STRUCTURE CONSISTING OF NINE REINFORCED CONCRETE FLOOR ON TIMBER JOISTS SPANS WITH A TOTAL LENGTH OF 154'-9" AND A CLEAR ROADWAY WIDTH OF 24'-0" AND SUPPORTED BY TIMBER CAP AND PILE END BENTS AND BENTS SHALL BE REMOVED.

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.5 -L-

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 38234 ENGINEER JOHN S. WERES

3/11/14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON NC 903
OVER SIX RUNS CREEK
BETWEEN SR 1134
AND SR 1138

ATKINS
1616 E. MILLBROOK ROAD, SUITE #310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888
NCBEES #F-0326

DRAWN BY : C. BLAKES DATE : 8/13
CHECKED BY : J. WERES DATE : 8/13

DWG. NO. 2

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-2

TOTAL SHEETS 24

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR					MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.04	--	1.75	0.286	1.84	A	EL	14.5	0.578	1.04	A	EL	1.45	0.80	0.286	1.60	A	EL	14.500	
		HL-93(Opr)	N/A	--	1.35	--	1.35	0.286	2.38	A	EL	14.5	0.578	1.35	A	EL	1.45	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.19	42.723	1.75	0.286	2.53	A	EL	11.6	0.578	1.19	A	EL	1.45	0.80	0.286	2.22	A	EL	11.600	
		HS-20(Opr)	36.000	--	1.54	55.381	1.35	0.286	3.28	A	EL	11.6	0.578	1.54	A	EL	1.45	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.9	39.206	1.4	0.286	5.19	A	EL	14.5	0.578	2.9	A	EL	1.45	0.80	0.286	3.61	A	EL	14.500	
		SNGARBS2	20.000	--	2.25	44.936	1.4	0.286	4.53	A	EL	11.6	0.578	2.25	A	EL	1.45	0.80	0.286	3.18	A	EL	11.600	
		SNAGRIS2	22.000	--	2.16	47.614	1.4	0.286	4.6	A	EL	11.6	0.578	2.16	A	EL	1.45	0.80	0.286	3.24	A	EL	11.600	
		SNCOTTS3	27.250	--	1.47	39.976	1.4	0.286	2.6	A	EL	14.5	0.578	1.47	A	EL	1.45	0.80	0.286	1.81	A	EL	14.500	
		SNAGGRS4	34.925	--	1.35	47.149	1.4	0.286	2.51	A	EL	14.5	0.578	1.35	A	EL	1.45	0.80	0.286	1.74	A	EL	14.500	
		SNS5A	35.550	--	1.43	50.895	1.4	0.286	2.42	A	EL	14.5	0.578	1.43	A	EL	1.45	0.80	0.286	1.69	A	EL	14.500	
		SNS6A	39.950	--	1.35	53.761	1.4	0.286	2.29	A	EL	14.5	0.578	1.35	A	EL	1.45	0.80	0.286	1.60	A	EL	14.500	
		SNS7B	42.000	--	1.37	57.689	1.4	0.286	2.23	A	EL	14.5	0.578	1.37	A	EL	1.45	0.80	0.286	1.55	A	EL	14.500	
	TTST	TNAGRIT3	33.000	--	1.6	52.748	1.4	0.286	2.97	A	EL	14.5	0.578	1.6	A	EL	1.45	0.80	0.286	2.07	A	EL	14.500	
		TNT4A	33.075	--	1.49	49.199	1.4	0.286	2.82	A	EL	14.5	0.578	1.49	A	EL	1.45	0.80	0.286	1.96	A	EL	14.500	
		TNT6A	41.600	--	1.44	59.813	1.4	0.286	2.56	A	EL	14.5	0.578	1.44	A	EL	1.45	0.80	0.286	1.78	A	EL	14.500	
		TNT7A	42.000	--	1.37	57.447	1.4	0.286	2.65	A	EL	14.5	0.578	1.37	A	EL	1.45	0.80	0.286	1.84	A	EL	14.500	
		TNT7B	42.000	--	1.34	56.094	1.4	0.286	2.49	A	EL	14.5	0.578	1.34	A	EL	1.45	0.80	0.286	1.74	A	EL	14.500	
		TNAGRIT4	43.000	--	1.29	55.532	1.4	0.286	2.58	A	EL	14.5	0.578	1.29	A	EL	1.45	0.80	0.286	1.80	A	EL	14.500	
		TNAGT5A	45.000	--	1.39	62.349	1.4	0.286	2.51	A	EL	14.5	0.578	1.39	A	EL	1.45	0.80	0.286	1.74	A	EL	14.500	
		TNAGT5B	45.000	3	1.22	54.714	1.4	0.286	2.41	A	EL	17.4	0.578	1.22	A	EL	1.45	0.80	0.286	1.68	A	EL	17.400	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.
2.
3.
4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

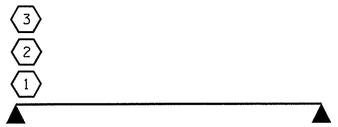
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY
FOR SPAN 'A'

ASSEMBLED BY : M.M. AHMED DATE : 9/18/13
CHECKED BY : M.L. RORIE, P.E. DATE : 10/30/13
DESIGN ENGINEER OF RECORD: M.M. AHMED DATE : 11/1/13

DRAWN BY : MAA 1/08
CHECKED BY : GM/DI 2/08

REV. 11/12/08RR MAA/GM
REV. 10/1/11 MAA/GM

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NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
11/13/13

PROJECT NO. B-4930
SAMPSON COUNTY
STATION: 15+44.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			24

STD. NO. LRFR1

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR					MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	**1.01**	--	1.75	0.272	1.36	B	EL	34.499	0.507	1.46	B	EL	6.9	0.80	0.272	**1.01**	B	EL	**34.499**	
		HL-93(Opr)	N/A	--	1.77	--	1.35	0.272	1.77	B	EL	34.499	0.507	1.89	B	EL	6.9	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	**1.30**	46.977	1.75	0.272	1.77	B	EL	34.499	0.507	1.82	B	EL	6.9	0.80	0.272	**1.30**	B	EL	**34.499**	
		HS-20(Opr)	36.000	--	2.29	82.574	1.35	0.272	2.29	B	EL	34.499	0.507	2.35	B	EL	6.9	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.91	39.343	1.4	0.272	4.94	B	EL	34.499	0.507	5.37	B	EL	6.9	0.80	0.272	2.91	B	EL	34.499	
		SNGARBS2	20.000	--	2.19	43.701	1.4	0.272	3.7	B	EL	34.499	0.507	3.83	B	EL	6.9	0.80	0.272	2.19	B	EL	34.499	
		SNAGRIS2	22.000	--	2.07	45.648	1.4	0.272	3.52	B	EL	34.499	0.507	3.56	B	EL	6.9	0.80	0.272	2.07	B	EL	34.499	
		SNCOTTS3	27.250	--	1.45	39.529	1.4	0.272	2.46	B	EL	34.499	0.507	2.68	B	EL	6.9	0.80	0.272	1.45	B	EL	34.499	
		SNAGGRS4	34.925	--	1.22	42.515	1.4	0.272	2.06	B	EL	34.499	0.507	2.23	B	EL	6.9	0.80	0.272	1.22	B	EL	34.499	
		SNS5A	35.550	--	1.19	42.307	1.4	0.272	2.02	B	EL	34.499	0.507	2.26	B	EL	6.9	0.80	0.272	1.19	B	EL	34.499	
		SNS6A	39.950	--	1.09	43.707	1.4	0.272	1.85	B	EL	34.499	0.507	2.07	B	EL	6.9	0.80	0.272	1.09	B	EL	34.499	
		SNS7B	42.000	--	1.04	43.761	1.4	0.272	1.77	B	EL	34.499	0.507	2.04	B	EL	6.9	0.80	0.272	1.04	B	EL	34.499	
	TTST	TNAGRIT3	33.000	--	1.33	44.047	1.4	0.272	2.26	B	EL	34.499	0.507	2.46	B	EL	6.9	0.80	0.272	1.33	B	EL	34.499	
		TNT4A	33.075	--	1.34	44.361	1.4	0.272	2.27	B	EL	34.499	0.507	2.39	B	EL	6.9	0.80	0.272	1.34	B	EL	34.499	
		TNT6A	41.600	--	1.1	45.704	1.4	0.272	1.86	B	EL	34.499	0.507	2.18	B	EL	6.9	0.80	0.272	1.10	B	EL	34.499	
		TNT7A	42.000	--	1.11	46.420	1.4	0.272	1.87	B	EL	34.499	0.507	2.13	B	EL	6.9	0.80	0.272	1.11	B	EL	34.499	
		TNT7B	42.000	--	1.15	48.136	1.4	0.272	1.94	B	EL	34.499	0.507	1.99	B	EL	6.9	0.80	0.272	1.15	B	EL	34.499	
		TNAGRIT4	43.000	--	1.09	46.796	1.4	0.272	1.84	B	EL	34.499	0.507	1.92	B	EL	6.9	0.80	0.272	1.09	B	EL	34.499	
		TNAGT5A	45.000	--	1.03	46.133	1.4	0.272	1.74	B	EL	34.499	0.507	1.92	B	EL	6.9	0.80	0.272	1.03	B	EL	34.499	
		TNAGT5B	45.000	3	**1.01**	45.538	1.4	0.272	1.72	B	EL	34.499	0.507	1.83	B	EL	6.9	0.80	0.272	**1.01**	B	EL	**34.499**	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.
2.
3.
4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

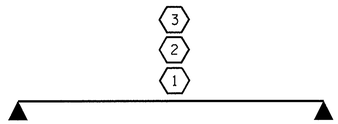
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY
FOR SPAN 'B'

PROJECT NO. B-4930
SAMPSON COUNTY
STATION: 15+44.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS
(NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
11/13/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : M.M. AHMED DATE : 9/18/13
CHECKED BY : M.L. RORIE, P.E. DATE : 10/30/13
DESIGN ENGINEER OF RECORD: M.M. AHMED DATE : 11/1/13

DRAWN BY : MAA 1/08
CHECKED BY : GM/DI 2/08

REV. 11/12/08RR MAA/GM
REV. 10/1/11 MAA/GM

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cbpruett

STD. NO. LRFR1

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	(#) CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR					MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	**1.96**	--	1.75	0.276	2.47	C	EL	27	0.526	**1.96**	C	EL	**5.4**	0.80	0.276	2.23	C	EL	27.000	
		HL-93(Opr)	N/A	--	2.54	--	1.35	0.276	3.21	C	EL	27	0.526	2.54	C	EL	5.4	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	**2.34**	84.126	1.75	0.276	3.1	C	EL	27	0.526	**2.34**	C	EL	**5.4**	0.80	0.276	2.79	C	EL	27.000	
		HS-20(Opr)	36.000	--	3.03	109.052	1.35	0.276	4.02	C	EL	27	0.526	3.03	C	EL	5.4	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	5.87	79.201	1.4	0.276	8.14	C	EL	27	0.526	6.65	C	EL	5.4	0.80	0.276	5.87	C	EL	27.000	
		SNGARBS2	20.000	--	4.55	90.971	1.4	0.276	6.32	C	EL	27	0.526	4.82	C	EL	5.4	0.80	0.276	4.55	C	EL	27.000	
		SNAGRIS2	22.000	--	4.37	96.033	1.4	0.276	6.08	C	EL	32.4	0.526	4.51	C	EL	5.4	0.80	0.276	4.37	C	EL	27.000	
		SNCOTTS3	27.250	--	2.92	79.693	1.4	0.276	4.06	C	EL	27	0.526	3.33	C	EL	5.4	0.80	0.276	2.92	C	EL	27.000	
		SNAGGRS4	34.925	--	2.51	87.762	1.4	0.276	3.49	C	EL	27	0.526	2.83	C	EL	5.4	0.80	0.276	2.51	C	EL	27.000	
		SNS5A	35.550	--	2.45	87.188	1.4	0.276	3.4	C	EL	27	0.526	2.9	C	EL	5.4	0.80	0.276	2.45	C	EL	27.000	
		SNS6A	39.950	--	2.28	91.091	1.4	0.276	3.16	C	EL	27	0.526	2.67	C	EL	5.4	0.80	0.276	2.28	C	EL	27.000	
		SNS7B	42.000	--	2.17	91.245	1.4	0.276	3.01	C	EL	27	0.526	2.67	C	EL	5.4	0.80	0.276	2.17	C	EL	27.000	
	TTST	TNAGRIT3	33.000	--	2.79	92.052	1.4	0.276	3.87	C	EL	27	0.526	3.16	C	EL	5.4	0.80	0.276	2.79	C	EL	27.000	
		TNT4A	33.075	--	2.81	92.945	1.4	0.276	3.9	C	EL	27	0.526	3.05	C	EL	5.4	0.80	0.276	2.81	C	EL	27.000	
		TNT6A	41.600	--	2.33	96.817	1.4	0.276	3.23	C	EL	27	0.526	2.91	C	EL	5.4	0.80	0.276	2.33	C	EL	27.000	
		TNT7A	42.000	--	2.36	98.915	1.4	0.276	3.27	C	EL	27	0.526	2.73	C	EL	5.4	0.80	0.276	2.36	C	EL	27.000	
		TNT7B	42.000	--	2.46	103.235	1.4	0.276	3.41	C	EL	27	0.526	2.58	C	EL	5.4	0.80	0.276	2.46	C	EL	27.000	
		TNAGRIT4	43.000	--	2.33	100.027	1.4	0.276	3.23	C	EL	27	0.526	2.48	C	EL	5.4	0.80	0.276	2.33	C	EL	27.000	
		TNAGT5A	45.000	--	2.18	98.071	1.4	0.276	3.02	C	EL	27	0.526	2.51	C	EL	5.4	0.80	0.276	2.18	C	EL	27.000	
		TNAGT5B	45.000	3	**2.14**	96.333	1.4	0.276	2.97	C	EL	27	0.526	2.36	C	EL	5.4	0.80	0.276	**2.14**	C	EL	**27.000**	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.
2.
3.
4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

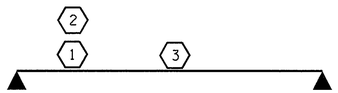
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

FOR SPAN 'C'

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS (NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY

11/13/13

ASSEMBLED BY : M.M. AHMED DATE : 10/25/13
CHECKED BY : M.L. RORIE, P.E. DATE : 10/30/13
DESIGN ENGINEER OF RECORD: M.M. AHMED DATE : 11/1/13

DRAWN BY : MAA 1/08
CHECKED BY : GM/DI 2/08

REV. 11/12/08RR MAA/GM
REV. 10/1/11 MAA/GM

08-NOV-2013 09:11
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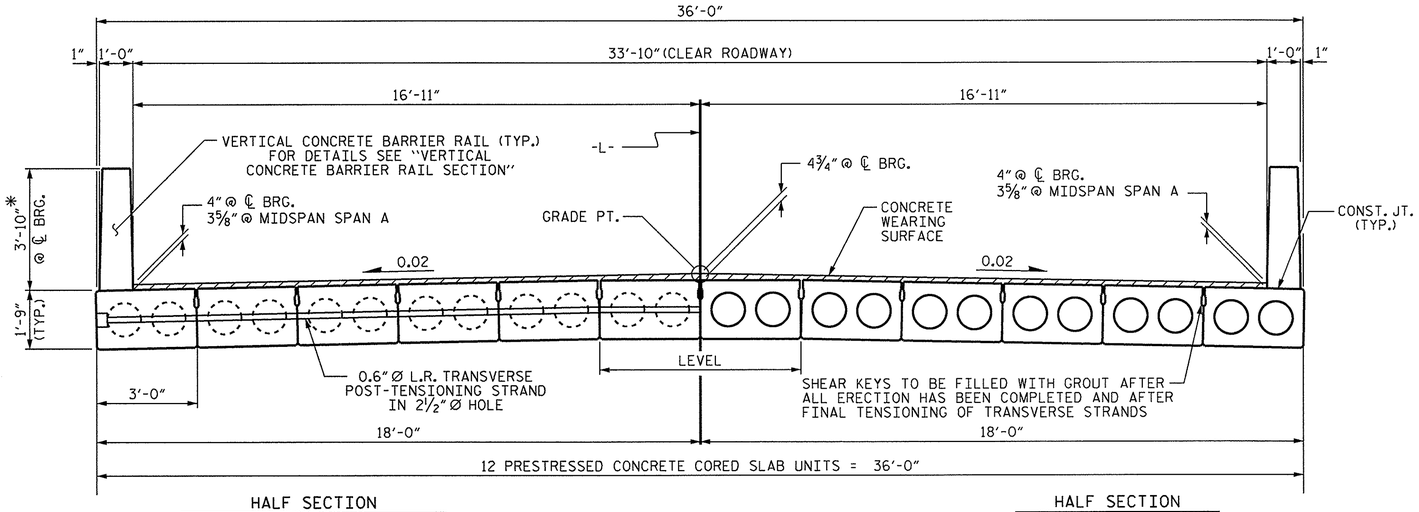
cbpruett

STD. NO. LRFR1

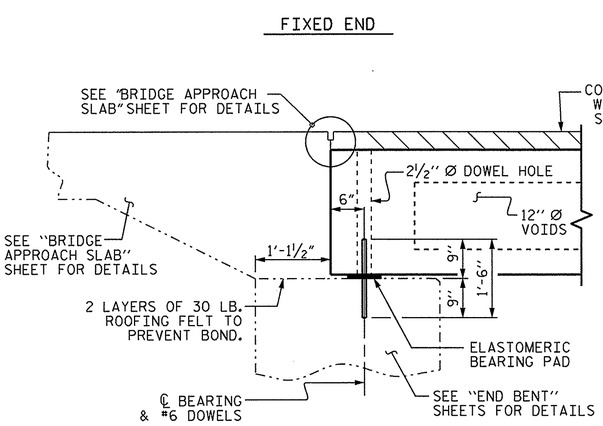


HALF SECTION AT INTERMEDIATE DIAPHRAGMS

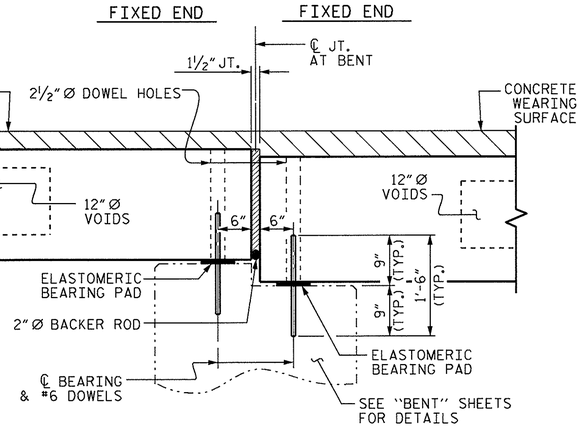
HALF SECTION THROUGH VOIDS

TYPICAL SECTION

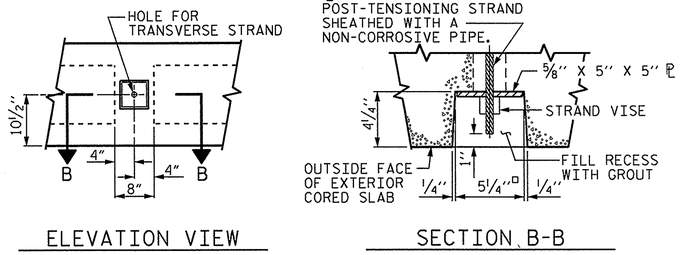
*-THE MAXIMUM BARRIER RAIL HEIGHT AND CONCRETE THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND CONCRETE THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND CONCRETE THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



SECTION AT END BENT No. 1



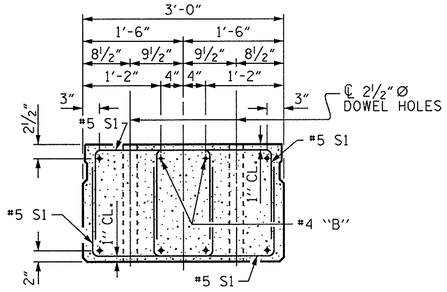
SECTION AT BENT No. 1



ELEVATION VIEW

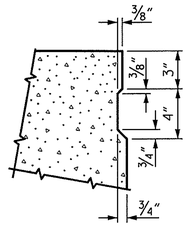
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



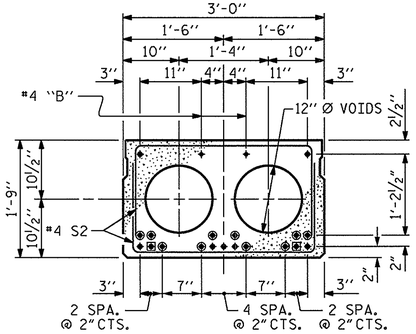
END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



SHEAR KEY DETAIL

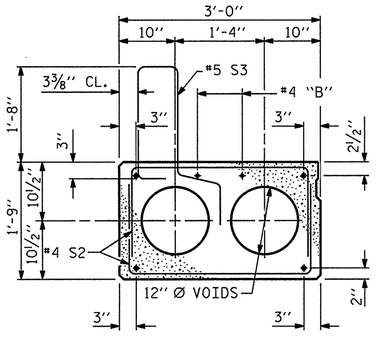
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



INTERIOR SLAB SECTION (30' UNIT)

(9 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT



EXT. SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

◉ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

◉ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.50 -L-

SHEET 1 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT SPAN A

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER ELMA E. McMURRAY
11/13/13

ASSEMBLED BY : M.M. AHMED	DATE : 9/19/13	
CHECKED BY : M.L. RORIE, P.E.	DATE : 10/31/13	
DESIGN ENGINEER OF RECORD: M.M. AHMED	DATE : 11/1/13	
DRAWN BY : DGE 5/09	REV. 12/11 MAA/AAC	
CHECKED BY : BCH 6/09		

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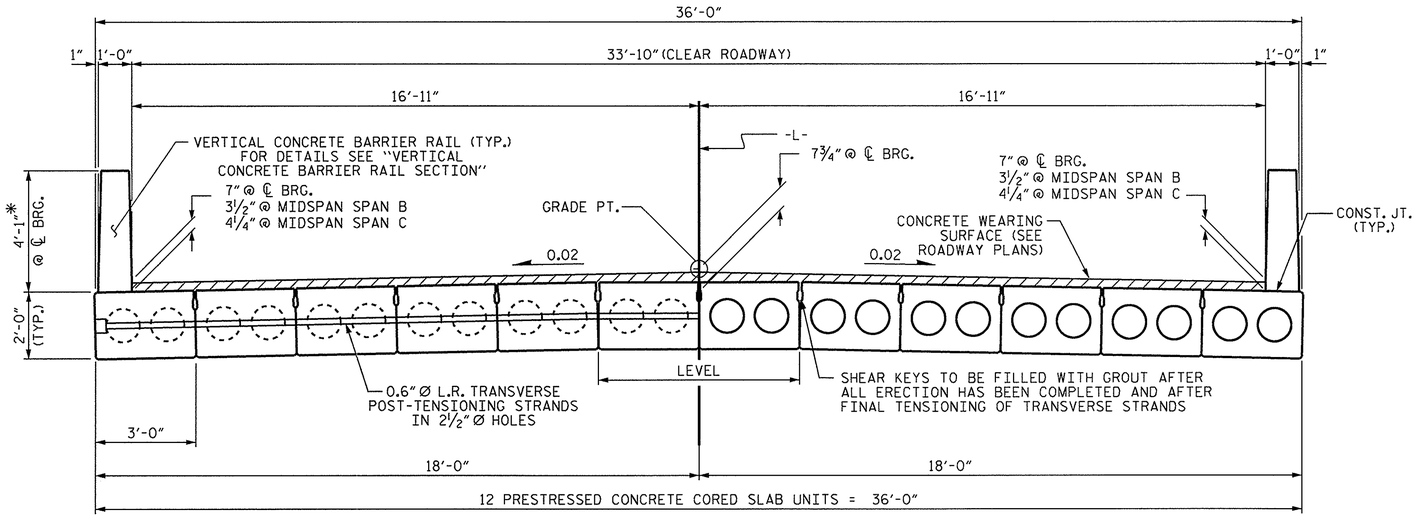
cbpruett

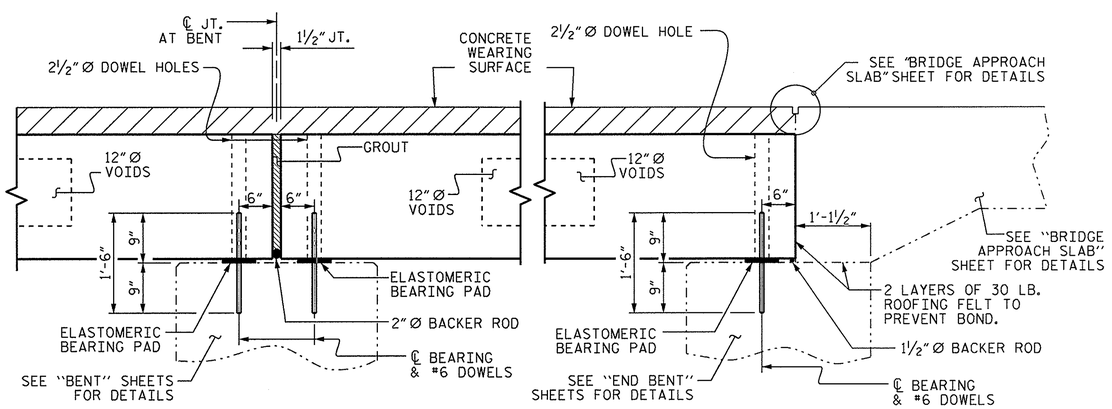


HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

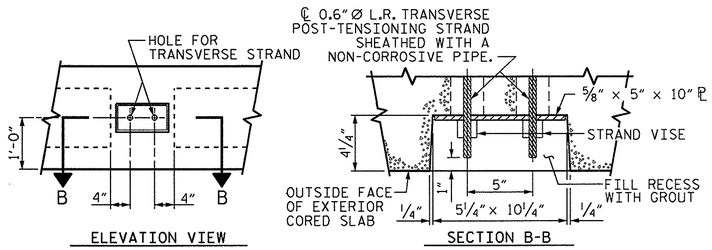
TYPICAL SECTION

* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

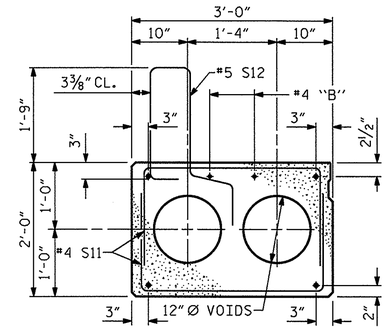


SECTION AT BENT No. 2

SECTION AT END BENT No. 2

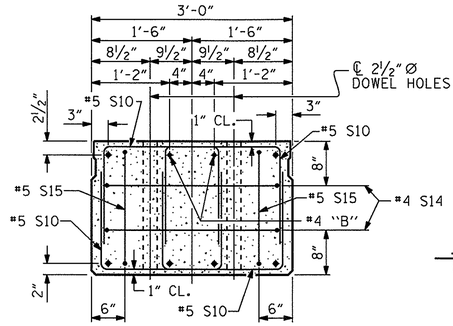


GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



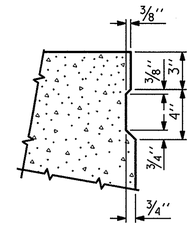
EXTERIOR SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



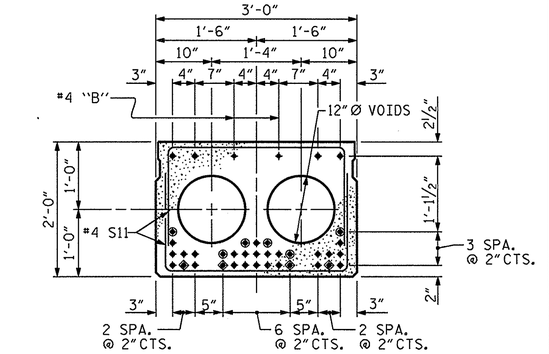
END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



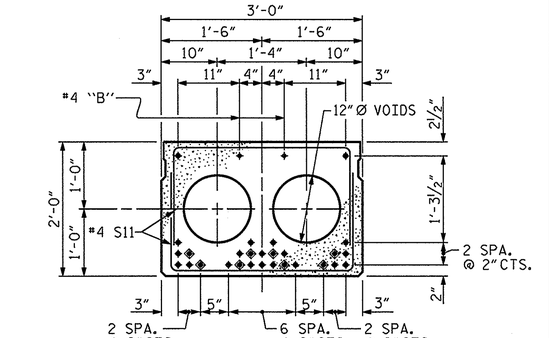
SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



INTERIOR SLAB SECTION (55' UNIT)

(31 STRANDS REQUIRED)



INTERIOR SLAB SECTION (70' UNIT)

(28 STRANDS REQUIRED)

0.6'' Ø LOW RELAXATION STRAND LAYOUT

◈ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

◉ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.50 -L-

SHEET 2 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT SPANS B & C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY :	M.M. AHMED	DATE :	9/19/13
CHECKED BY :	M.L. RORIE, P.E.	DATE :	10/31/13
DESIGN ENGINEER OF RECORD:	M.M. AHMED	DATE :	11/1/13

DRAWN BY :	MAA	6/10	REV. 12/11 MAA/AAC
CHECKED BY :	MKT	7/10	

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER TIMOTHY E. MURRAY
11/13/13

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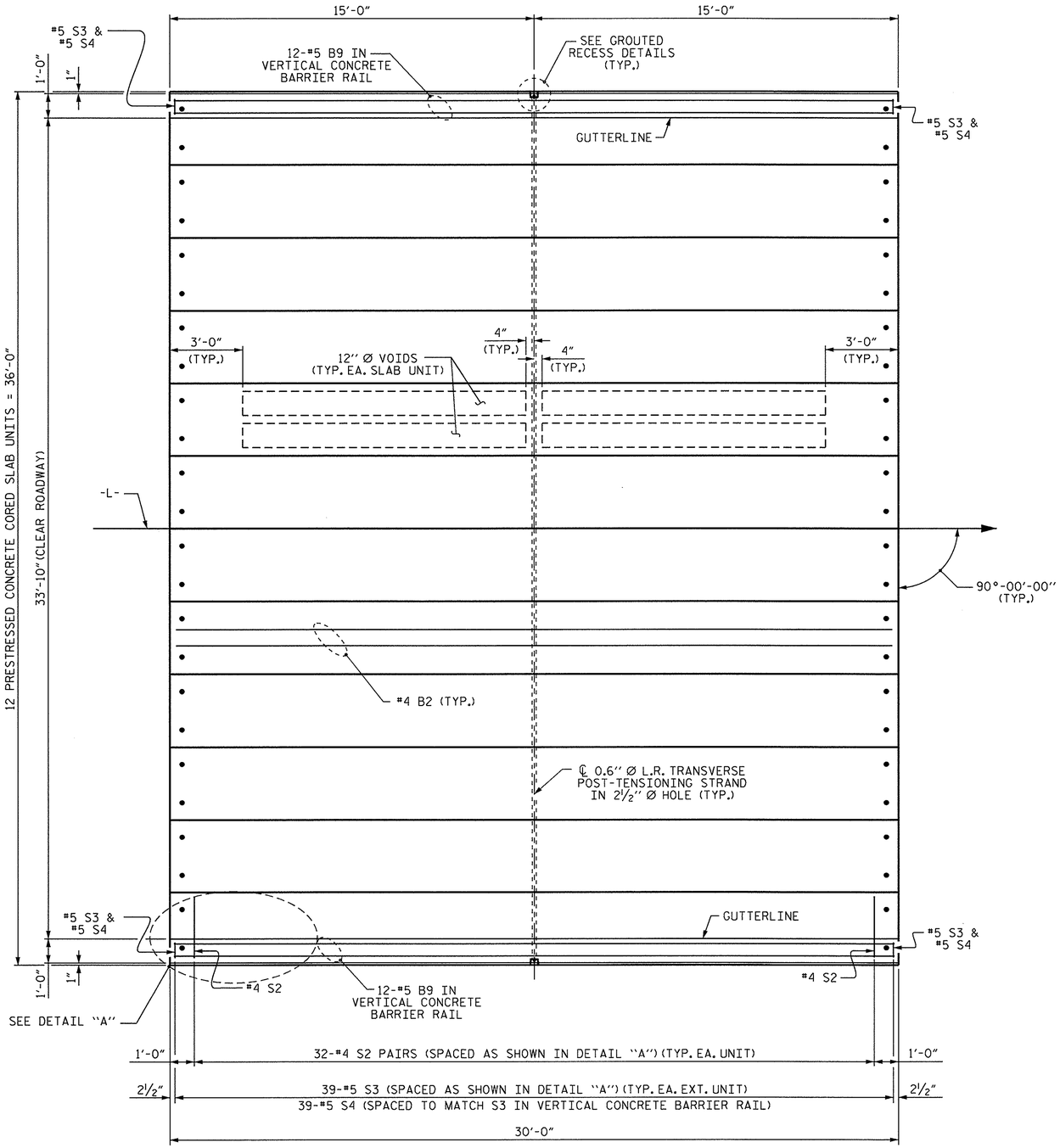
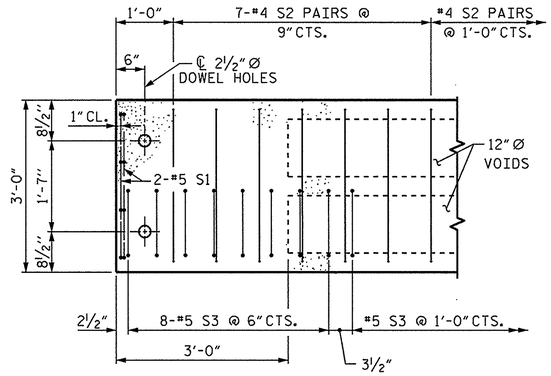
cbpruett



PLAN OF UNIT



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.50 -L-

SHEET 3 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 30' UNIT 33'-10" CLEAR ROADWAY 90° SKEW SPAN A

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EARLY E. MURRAY
11/13/13

ASSEMBLED BY : M.M. AHMED	DATE : 9/19/13	
CHECKED BY : M.L. RORIE, P.E.	DATE : 10/31/13	
DRAWN BY : DGE 5/09	REV. 12/5/11 MAA/AAC	
CHECKED BY: BCH 6/09		

08-NOV-2013 09:12
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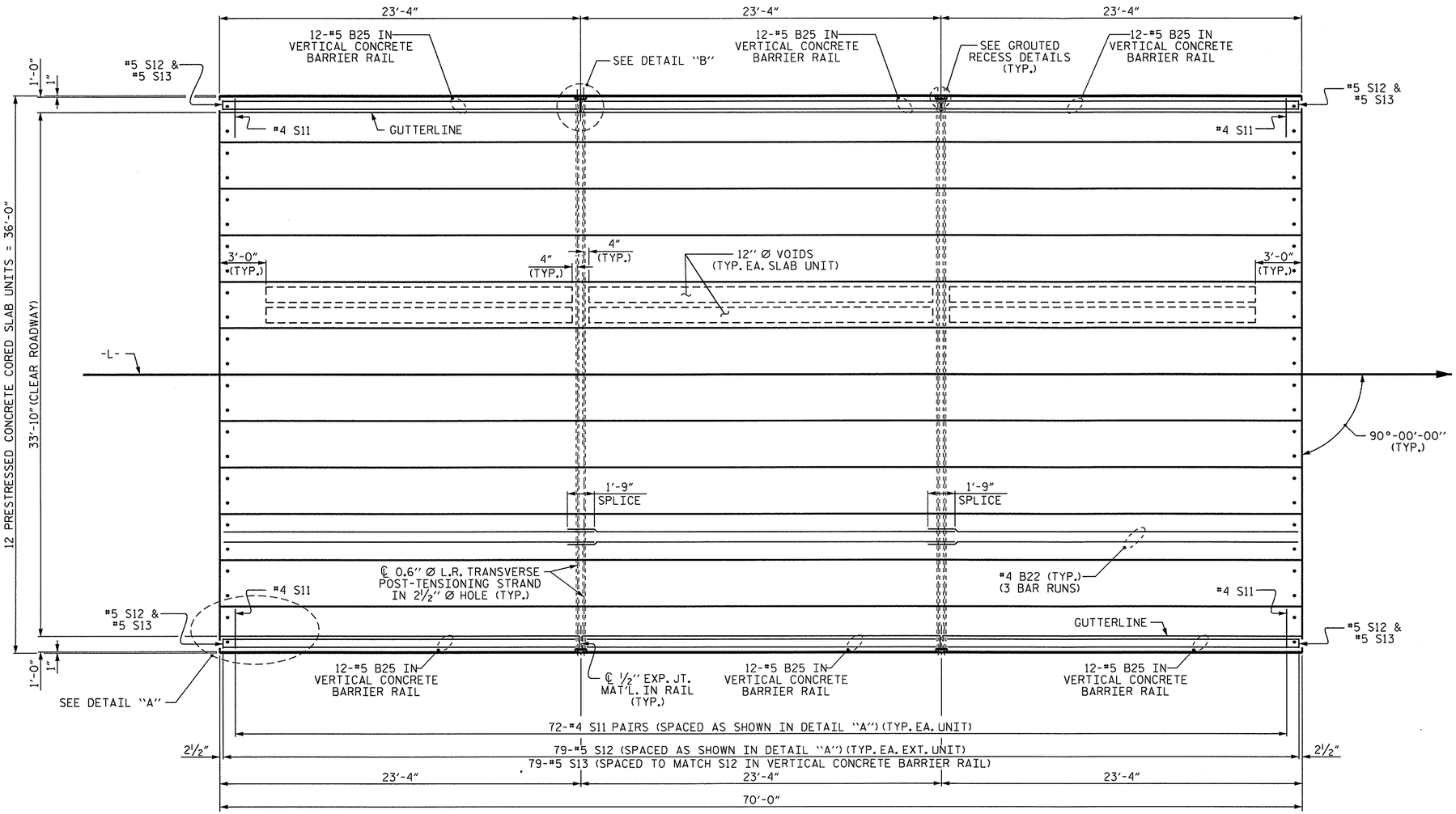
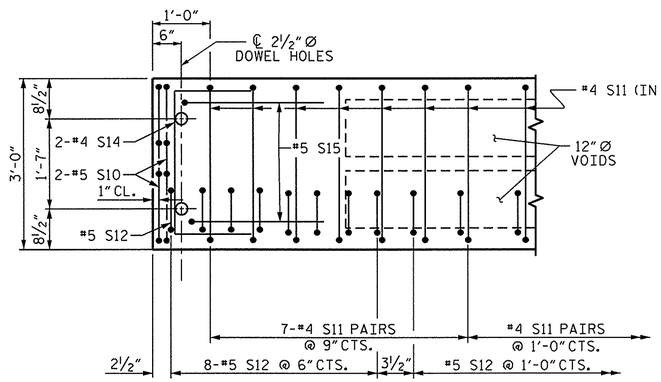
cbpruett

STD. NO. 21"PCS_36_90S_30L

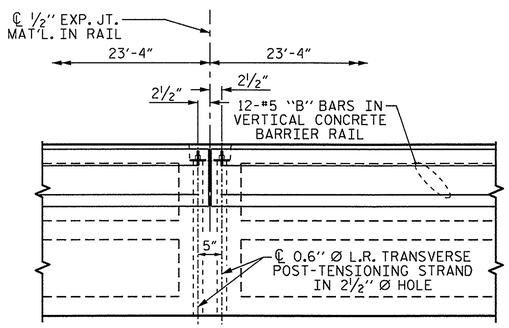


PLAN OF UNIT



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS AND 2½" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

ASSEMBLED BY :	M.M. AHMED	DATE :	9/19/13
CHECKED BY :	M.L. RORIE, P.E.	DATE :	10/31/13
DRAWN BY :	MAA	6/10	
CHECKED BY :	MKT	7/10	
REV. 12/5/11	MAA/AAC		

08-NOV-2013 09:12
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cbpruett

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.50 -L-

SHEET 4 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

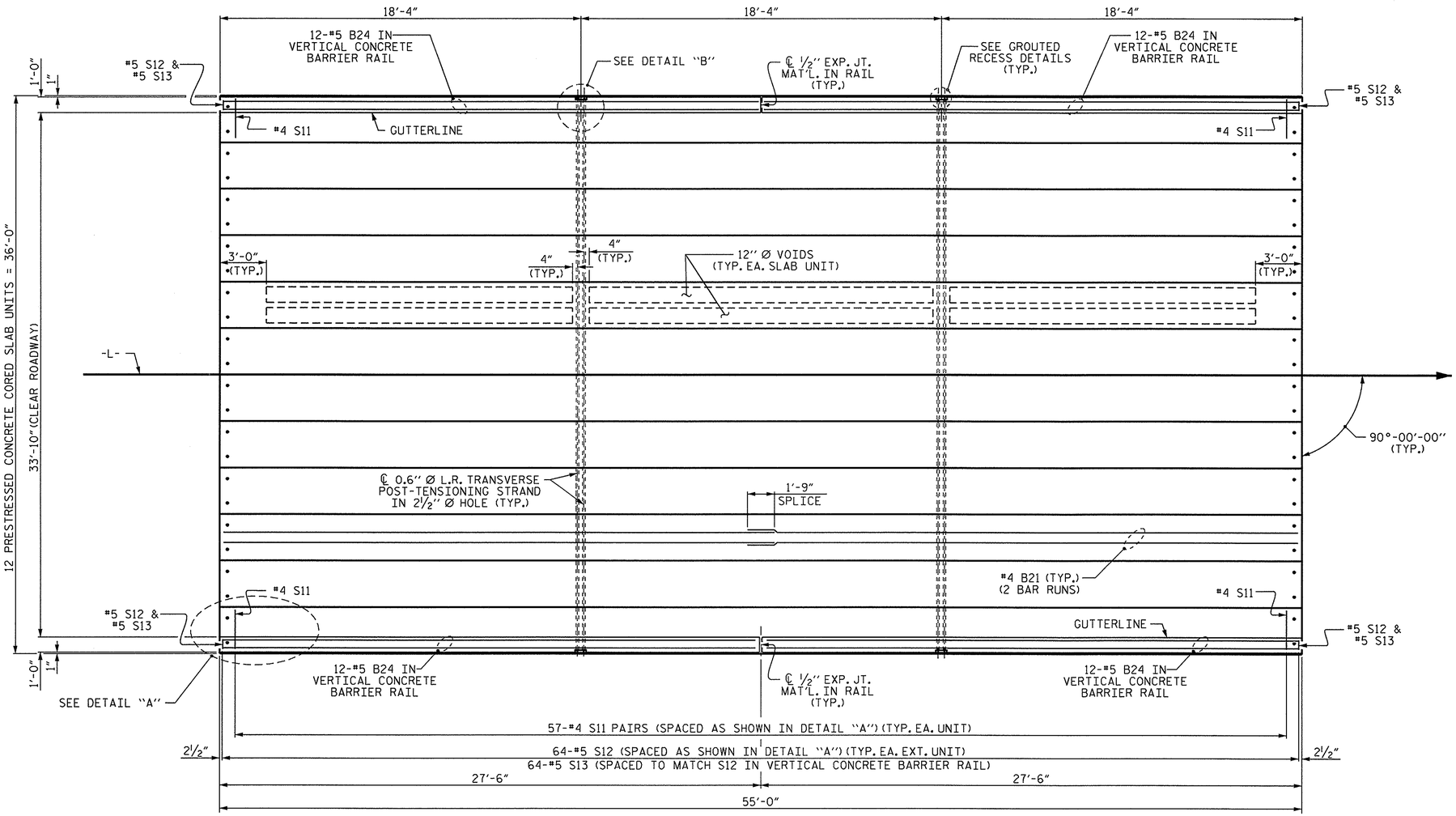
PLAN OF 70' UNIT 33'-10" CLEAR ROADWAY 90° SKEW

SPAN B

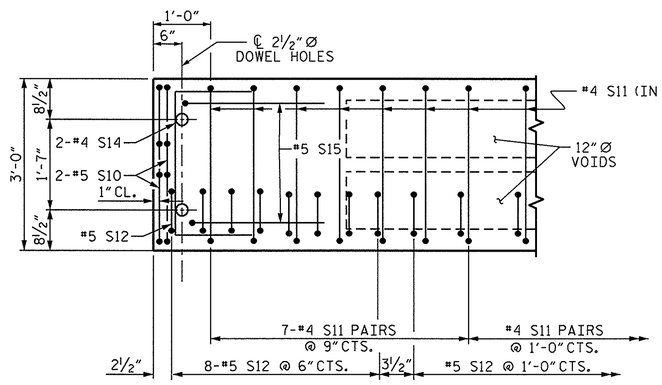
NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
11/13/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			24

STD. NO. 24PCS_36_90S_70L

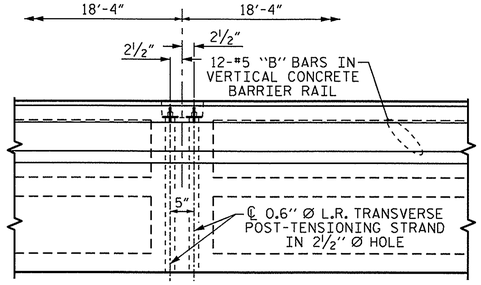


PLAN OF UNIT



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS AND 2½" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MARRIN

11/13/13

DRAWN BY :	M.M. AHMED	DATE :	9/20/13
CHECKED BY :	M.L. RORIE, P.E.	DATE :	10/31/13
DESIGN ENGINEER OF RECORD:	M.M. AHMED	DATE :	11/1/13

08-NOV-2013 09:13
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cbpruett

PROJECT NO. B-4930

SAMPSON COUNTY

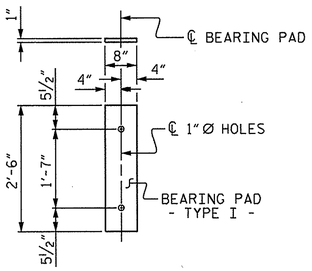
STATION: 15+44.50 -L-

SHEET 5 OF 8

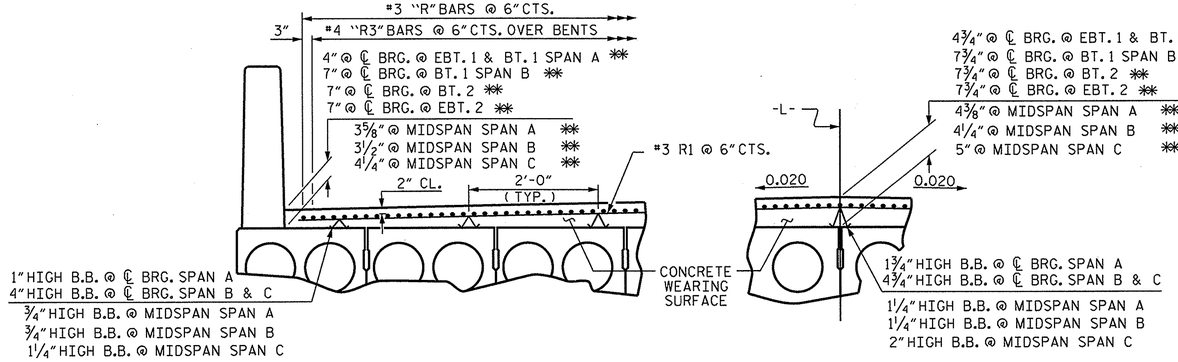
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 55' UNIT 33'-10" CLEAR ROADWAY 90° SKEW SPAN C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			24



FIXED END
(TYPE I - 72 REQ'D)



ELASTOMERIC BEARING DETAILS

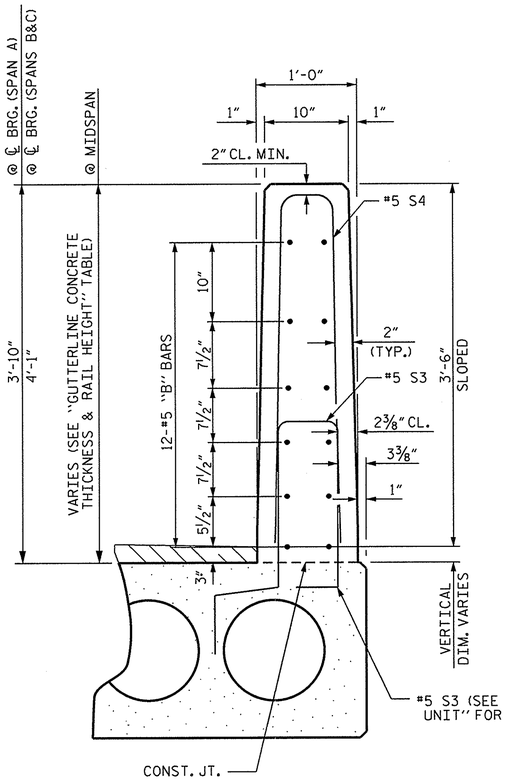
ELASTOMER IN BEARINGS FOR 21"CSU SHALL BE 50 DUROMETER HARDNESS.
ELASTOMER IN BEARINGS FOR 24"CSU SHALL BE 60 DUROMETER HARDNESS.

REINFORCING STEEL FOR CONCRETE WEARING SURFACE

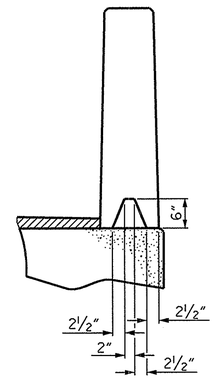
** BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE

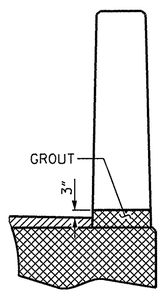
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*R1	620	#3	STR	17'-7"	4099
*R2	408	#3	STR	27'-1"	4155
*R3	134	#4	STR	20'-0"	1790
*EPOXY COATED REINFORCING STEEL				LBS.	10,044
CONCRETE WEARING SURFACE				SQ.FT.	5253



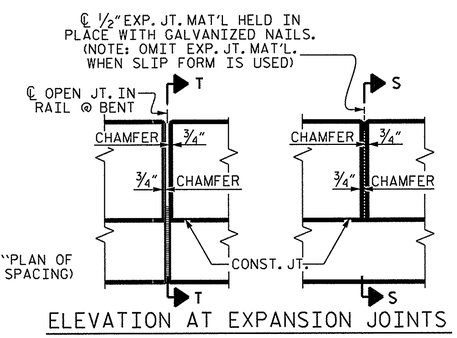
VERTICAL CONCRETE BARRIER RAIL SECTION



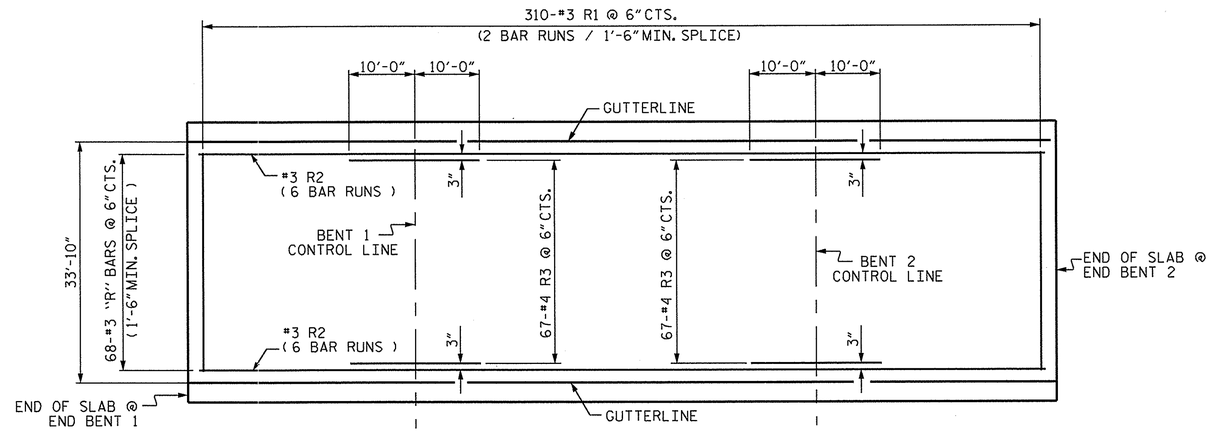
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



SECTION T-T
AT OPEN JOINT AT BENT
(THIS IS TO BE USED WHERE FOAM JOINT IS NOT USED)



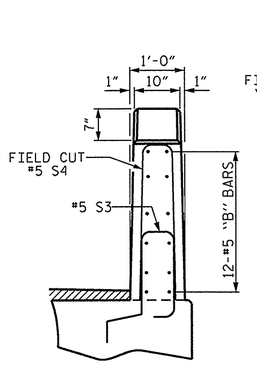
ELEVATION AT EXPANSION JOINTS



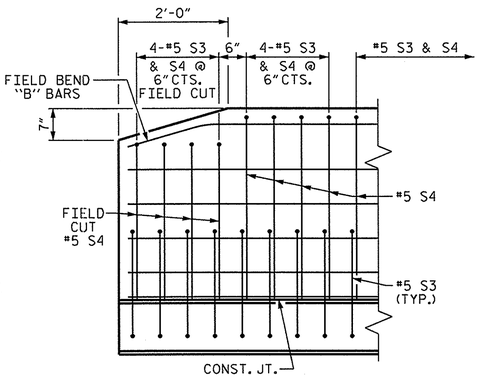
PLAN SHOWING CONCRETE WEARING SURFACE REINFORCING STEEL

GROOVING BRIDGE FLOORS

APPROACH SLABS	694	SQ.FT.
BRIDGE DECK	4772	SQ.FT.
TOTAL	5466	SQ.FT.



END VIEW



SIDE VIEW

END OF RAIL DETAILS

PROJECT NO. B-4930
SAMPSON COUNTY
STATION: 15+44.50 -L-

SHEET 6 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER
12/12/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY :	M.M. AHMED
CHECKED BY :	M.L. RORIE, P.E.
DESIGN ENGINEER OF RECORD:	M.M. AHMED
DATE :	9/20/13
DATE :	10/31/13
DATE :	11/1/13
DRAWN BY :	DGE 5/09
CHECKED BY :	BCH 6/09
REV. 12/11	MAA/AAC

12-DEC-2013 09:54
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emurray

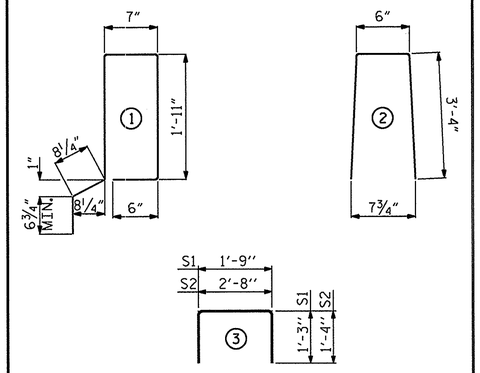
BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	30' UNIT					
* B9	24	24	#5	STR	29'-7"	741
* S4	78	78	#5	2	7'-2"	583
*EPOXY COATED REINFORCING STEEL				LBS.		1324
CLASS AA CONCRETE				CU.YDS.		7.9
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		60.25

BILL OF MATERIAL FOR ONE 30' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B2	2	#4	STR	29'-8"	40	29'-8"	40
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	64	#4	3	5'-4"	228	5'-4"	228
* S3	39	#5	1	6'-2"	251		
REINFORCING STEEL		LBS.			303		303
*EPOXY COATED REINFORCING STEEL		LBS.			251		
5000 P.S.I. CONCRETE		CU. YDS.			4.4		4.4
0.6" Ø L.R. STRANDS		No.			9		9

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

GUTTERLINE CONCRETE THICKNESS & RAIL HEIGHT

33'-10" CLEAR ROADWAY	CONCRETE OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
	NORMAL CROWN SECTION	
30' UNITS	3⅝"	3'-9⅝"

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2½" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE RAIL. THE COST OF THE #3 BARS CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
30' UNIT			
EXTERIOR C.S.	2	30'-0"	60'-0"
INTERIOR C.S.	10	30'-0"	300'-0"
TOTAL	12		360'-0"

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 1'-9"
30' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	⅜" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD	1/16" ↓
FINAL CAMBER	5/16" ↑

CONCRETE RELEASE STRENGTH

UNIT	PSI
30' UNITS	4000

GRADE 270 STRANDS

	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.50 -L-

SHEET 7 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW SPAN A

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MARRA

12/17/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-12
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : M.M. AHMED DATE : 9/18/13
CHECKED BY : M.L. RORIE, P.E. DATE : 10/31/13

DRAWN BY : DGE 5/09
CHECKED BY : BCH 6/09

REV. 12/11 MAA/AAC

17-DEC-2013 11:02
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emurray

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
70' UNIT			
EXTERIOR C.S.	2	70'-0"	140'-0"
INTERIOR C.S.	10	70'-0"	700'-0"
TOTAL	12		840'-0"

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
55' UNIT			
EXTERIOR C.S.	2	55'-0"	110'-0"
INTERIOR C.S.	10	55'-0"	550'-0"
TOTAL	12		660'-0"

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 2'-0"
70' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	4 1/8" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD	1/2" ↓
FINAL CAMBER	3 5/8" ↑

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 1'-9"
55' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD	3/16" ↓
FINAL CAMBER	2 13/16" ↑

CONCRETE RELEASE STRENGTH

UNIT	PSI
55' UNITS	6200
70' UNITS	7100

GRADE 270 STRANDS

	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	70' UNIT					
*B25	72	72	#5	STR	22'-11"	1721
*S13	158	158	#5	2	7'-2"	1181
*EPOXY COATED REINFORCING STEEL				LBS.		2902
CLASS AA CONCRETE				CU.YDS.		19.5
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		140.25

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	55' UNIT					
*B24	48	48	#5	STR	27'-1"	1356
*S13	128	128	#5	2	7'-2"	957
*EPOXY COATED REINFORCING STEEL				LBS.		2313
CLASS AA CONCRETE				CU.YDS.		15.4
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		110.25

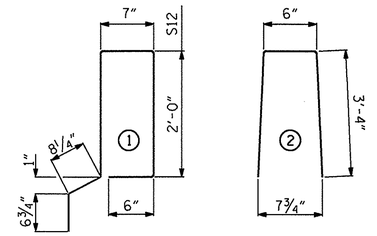
BILL OF MATERIAL FOR ONE 70' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B22	6	#4	STR	24'-6"	98	24'-6"	98
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	144	#4	3	5'-10"	561	5'-10"	561
*S12	79	#5	1	6'-4"	522		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL			LBS.		744		744
*EPOXY COATED REINFORCING STEEL			LBS.		522		
8000 P.S.I. CONCRETE			CU. YDS.		11.8		11.8
0.6" Ø L.R. STRANDS			No.		28		28

BILL OF MATERIAL FOR ONE 55' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B21	4	#4	STR	28'-3"	75	28'-3"	75
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	114	#4	3	5'-10"	444	5'-10"	444
*S12	64	#5	1	6'-4"	423		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL			LBS.		604		604
*EPOXY COATED REINFORCING STEEL			LBS.		423		
8500 P.S.I. CONCRETE			CU. YDS.		9.4		9.4
0.6" Ø L.R. STRANDS			No.		31		31

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

GUTTERLINE CONCRETE THICKNESS & RAIL HEIGHT

33'-10" CLEAR ROADWAY	CONCRETE OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
55' UNITS	4 1/4"	3'-10 1/4"
70' UNITS	3 1/2"	3'-9 1/2"

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE RAIL. THE COST OF THE #3 BARS CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

ASSEMBLED BY : M.M. AHMED DATE : 6/12/13
CHECKED BY : M.L. RORIE, P.E. DATE : 10/31/13
DESIGN ENGINEER OF RECORD: M.M. AHMED DATE : 11/1/13

DRAWN BY : MAA 6/10
CHECKED BY : MKT 7/10
REV. 12/11 MAA/AAC

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PROJECT NO. B-4930
SAMPSON COUNTY
STATION: 15+44.50 -L-

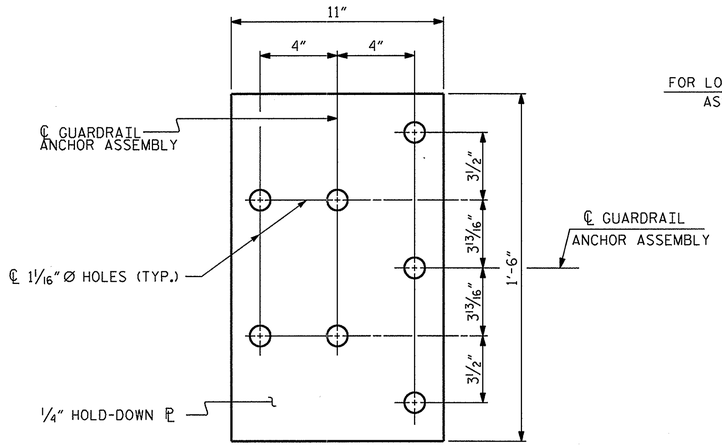
SHEET 8 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

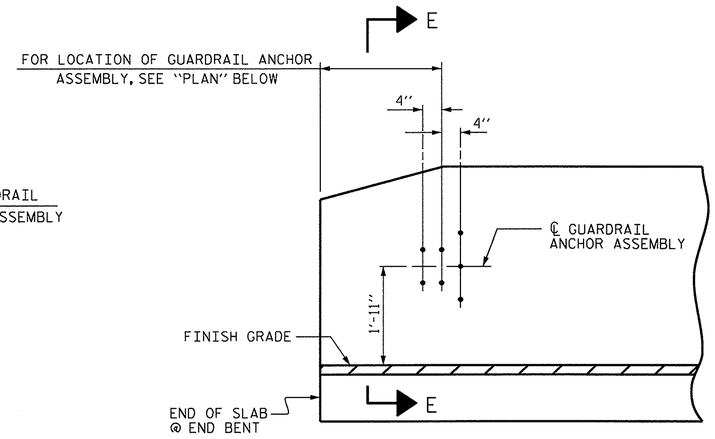
3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW SPAN B & C

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
11/13/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			24



PLAN



ELEVATION

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

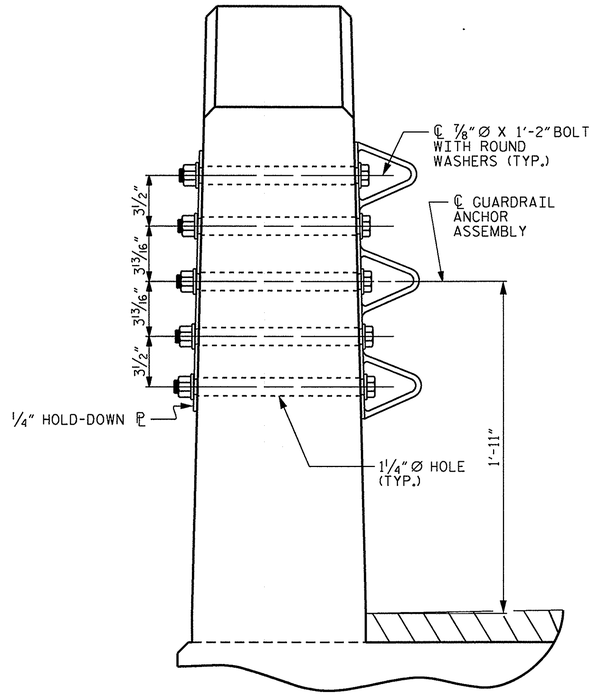
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

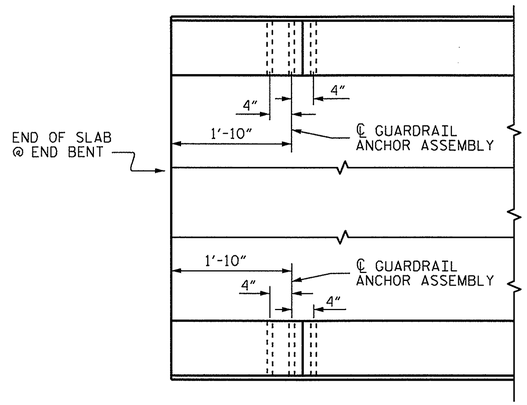
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SECTION E-E

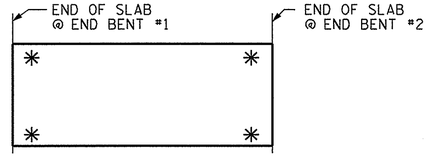
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
11/13/13

ASSEMBLED BY : M.M. AHMED	DATE : 9/23/13
CHECKED BY : M.L. RORIE, P.E.	DATE : 10/29/13
DRAWN BY : MAA 5/10	REV. 10/1/11 MAA/GM
CHECKED BY : GM 5/10	REV. 12/5/11 MAA/GM
	REV. 6/13 MAA/GM

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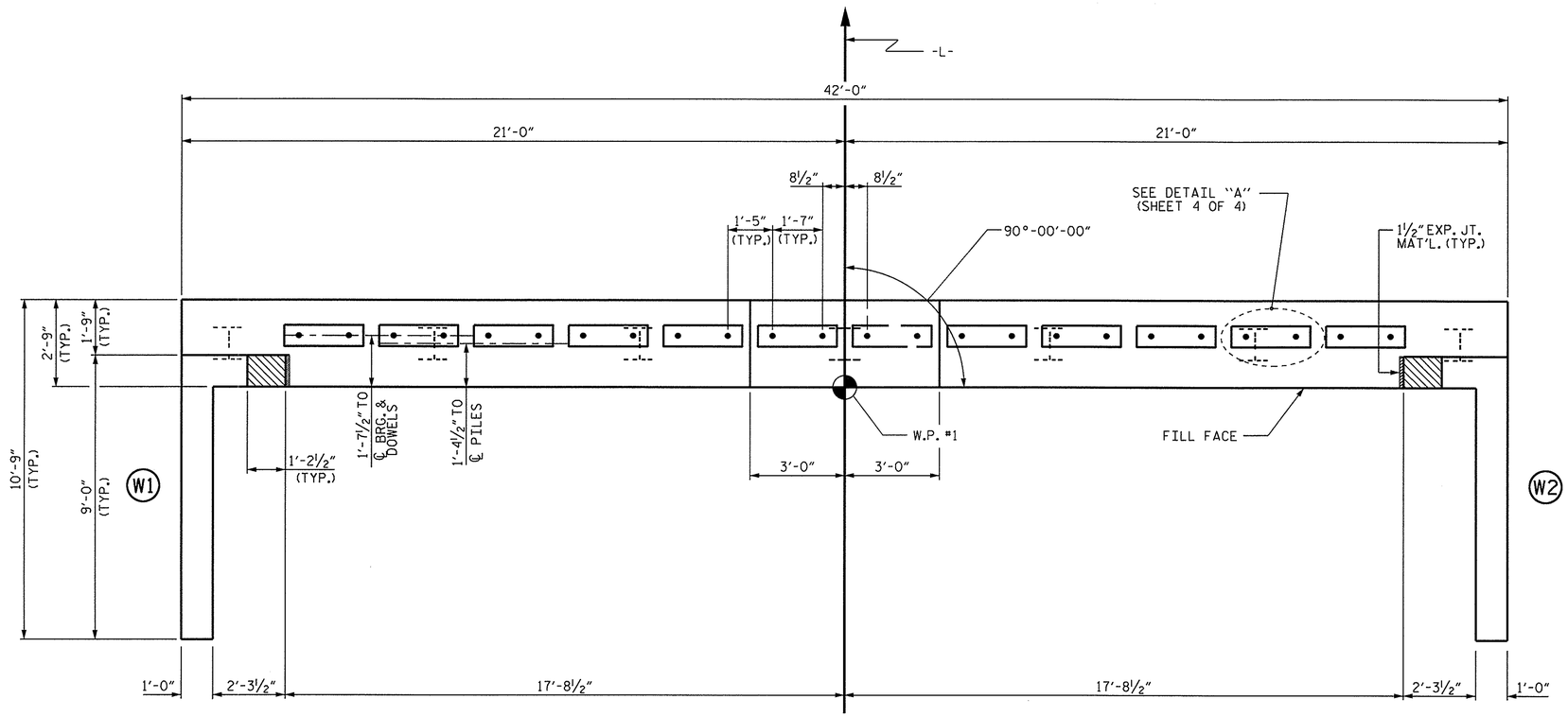
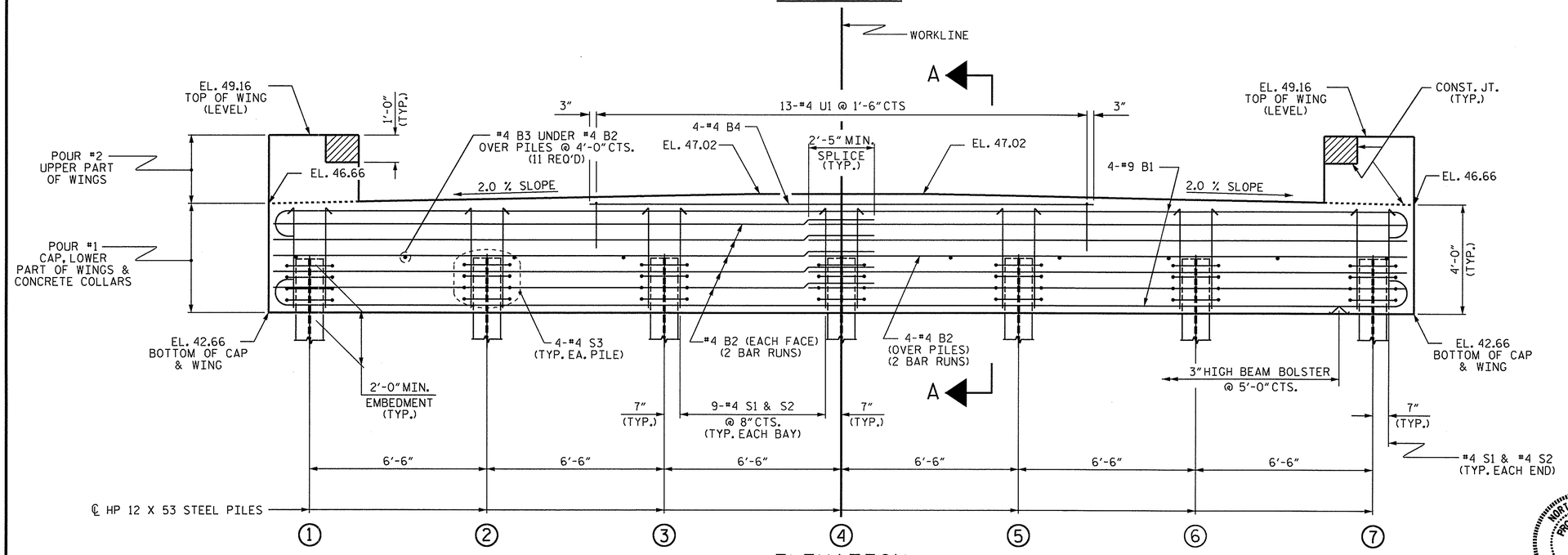
cbpruett

(SHT 1) STD. NO. GRA3



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

INSTALL THE 4" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : M.M. AHMED DATE : 9/24/13
CHECKED BY : M.L. RORIE, P.E. DATE : 10/29/13

DRAWN BY : WJH 12/11
CHECKED BY : AAC 12/11

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
11/13/13

08-NOV-2013 09:17
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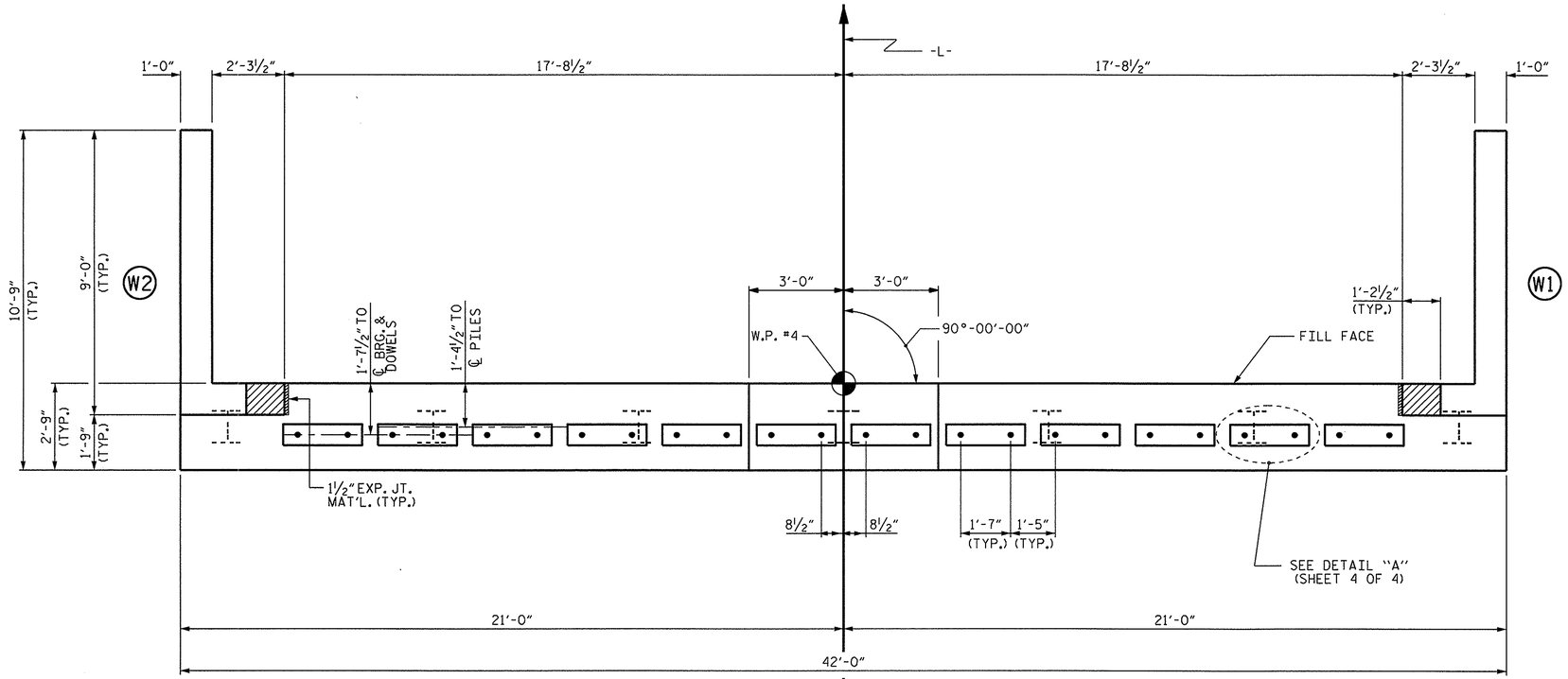
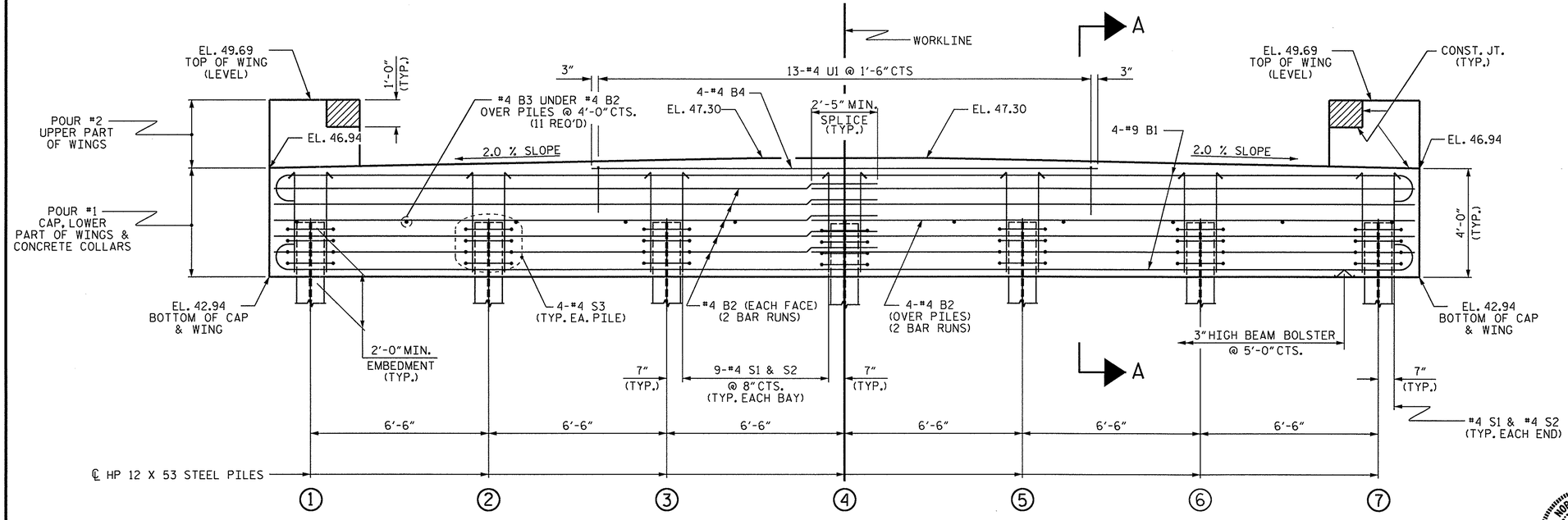
cbpruett

STD. NO. EB_36_90S4



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

INSTALL THE 4" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
11/13/13

PROJECT NO. B-4930
SAMPSON COUNTY
STATION: 15+44.50 -L-
SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : M.M. AHMED	DATE : 9/24/13
CHECKED BY : M.L. RORIE, P.E.	DATE : 10/29/13
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

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cbpruett

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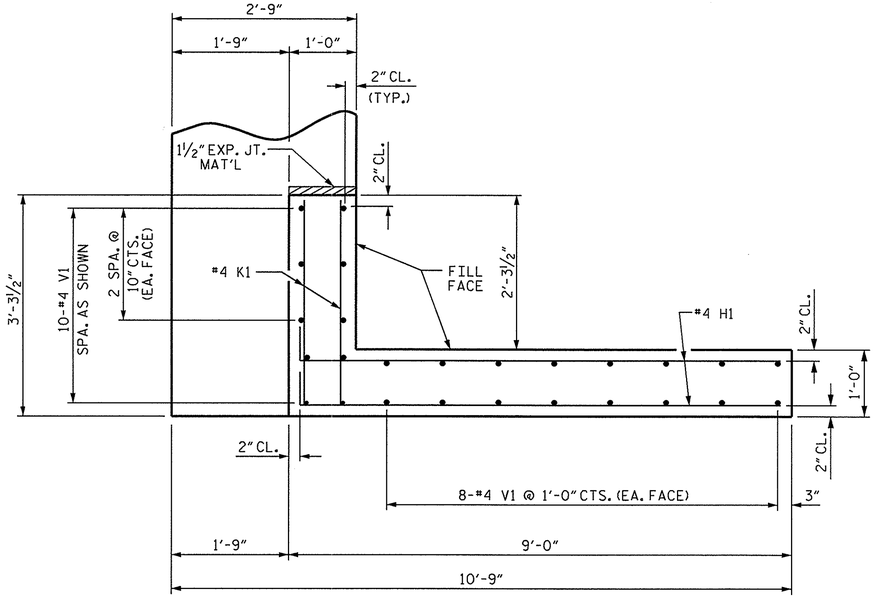
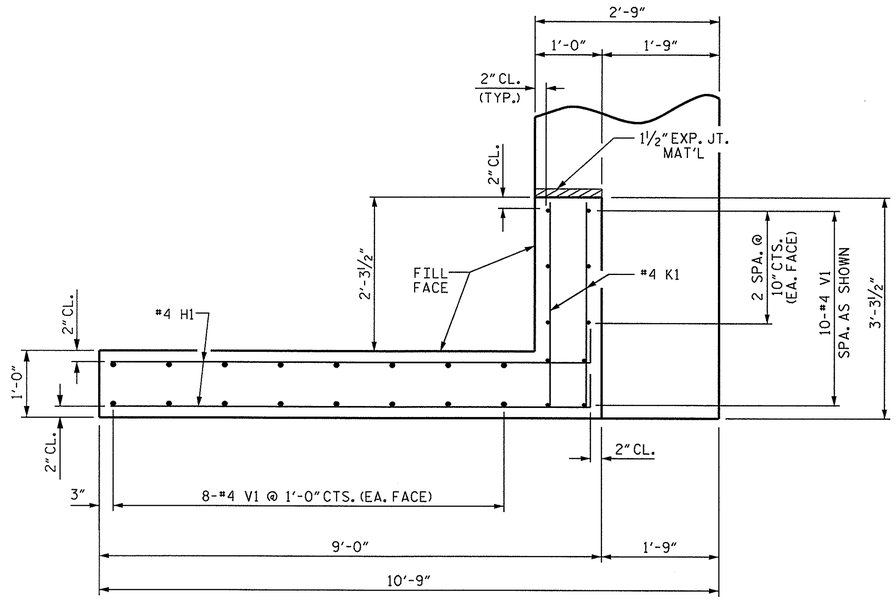
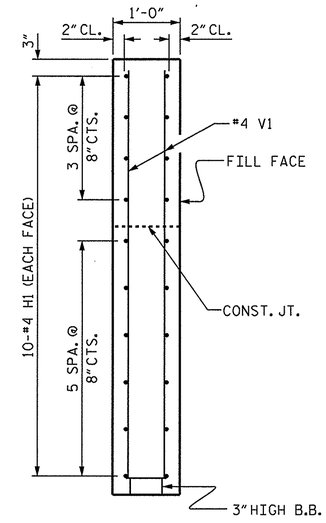


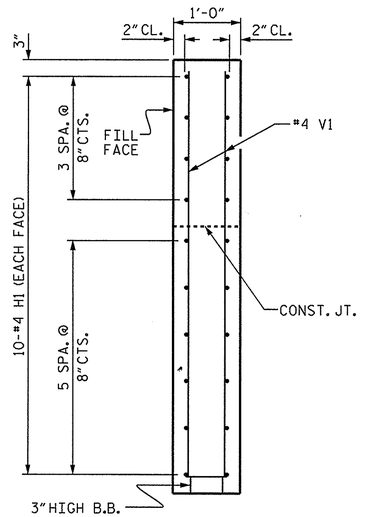
PLAN OF WING (W1)



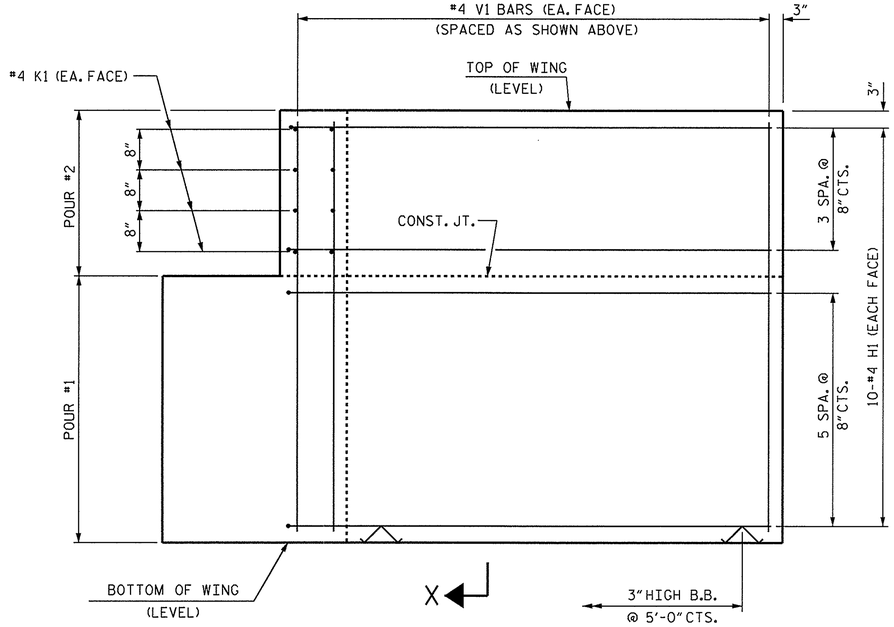
PLAN OF WING (W2)



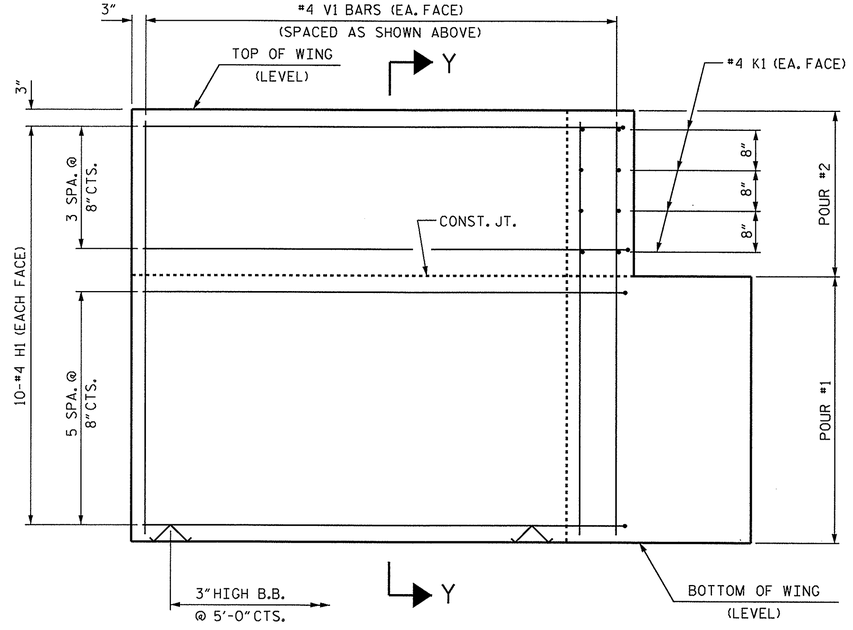
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
11/13/13

ASSEMBLED BY : M.M. AHMED	DATE : 9/25/13		
CHECKED BY : M.L. RORIE, P.E.	DATE :10/29/13		
DRAWN BY : WJH	12/11		
CHECKED BY : AAC	12/11		

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PROJECT NO. B-4930
SAMPSON COUNTY
STATION: 15+44.50 -L-

SHEET 3 OF 4

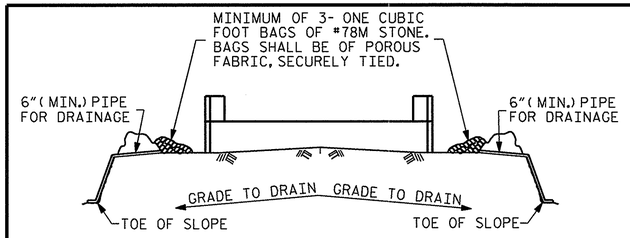
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT
WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			24

STD. NO. EB_36_90S4

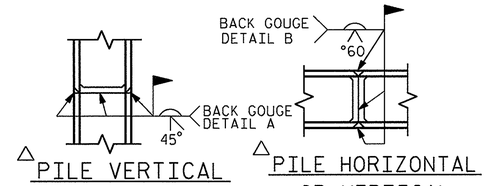


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

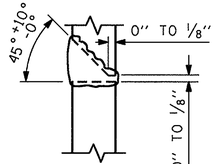
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

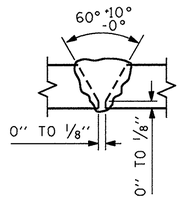


△ PILE VERTICAL

△ PILE HORIZONTAL OR VERTICAL



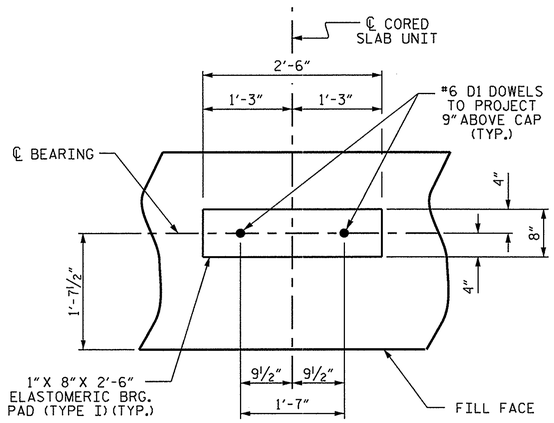
DETAIL C



DETAIL B

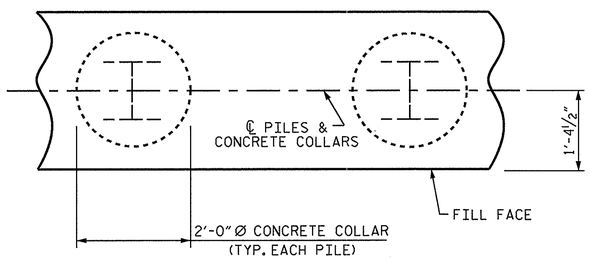
△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

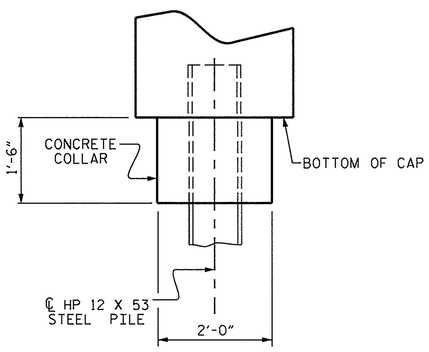


DETAIL "A"

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



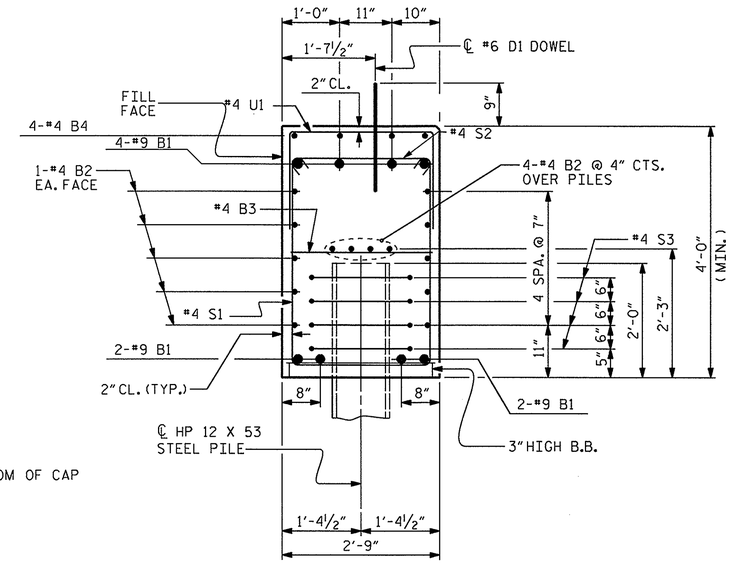
PLAN



ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL

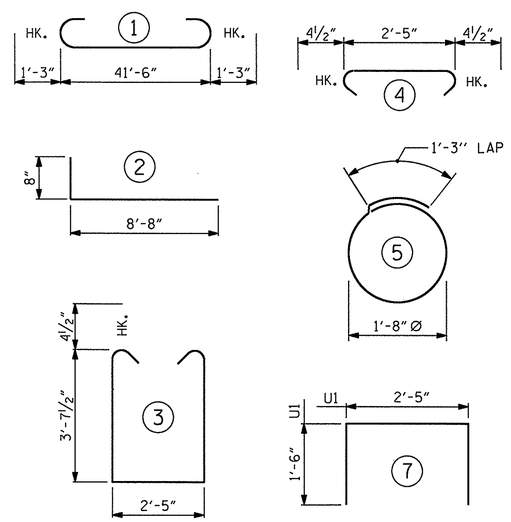
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1		END BENT No. 2	
HP 12 X 53 STEEL PILES		HP 12 X 53 STEEL PILES	
NO: 7	= 245 LIN. FT.	NO: 7	= 280 LIN. FT.
PILE REDRIVES	= 4 EA.	PILE REDRIVES	= 4 EA.
STEEL PILE POINTS	= 7 EA.	STEEL PILE POINTS	= 7 EA.

BILL OF MATERIAL FOR END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	44'-0"	1197
B2	28	#4	STR	22'-1"	413
B3	11	#4	STR	2'-5"	18
B4	4	#4	STR	18'-6"	49
D1	24	#6	STR	1'-6"	54
H1	40	#4	2	9'-4"	249
K1	16	#4	STR	2'-11"	31
S1	56	#4	3	10'-5"	390
S2	56	#4	4	3'-2"	118
S3	28	#4	5	6'-6"	122
U1	13	#4	7	5'-5"	47
V1	52	#4	STR	6'-2"	214

REINFORCING STEEL (FOR END BENT 1) 2902 LBS.

CLASS A CONCRETE BREAKDOWN (FOR END BENT 1)

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	21.6 C.Y.
POUR #2	UPPER PART OF WINGS	2.1 C.Y.
TOTAL CLASS A CONCRETE		23.7 C.Y.

BILL OF MATERIAL FOR END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	44'-0"	1197
B2	28	#4	STR	22'-1"	413
B3	11	#4	STR	2'-5"	18
B4	4	#4	STR	18'-6"	49
D1	24	#6	STR	1'-6"	54
H1	40	#4	2	9'-4"	249
K1	16	#4	STR	2'-11"	31
S1	56	#4	3	10'-5"	390
S2	56	#4	4	3'-2"	118
S3	28	#4	5	6'-6"	122
U1	13	#4	7	5'-5"	47
V1	52	#4	STR	6'-2"	214

REINFORCING STEEL (FOR END BENT 2) 2902 LBS.

CLASS A CONCRETE BREAKDOWN (FOR END BENT 2)

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	21.6 C.Y.
POUR #2	UPPER PART OF WINGS	2.3 C.Y.
TOTAL CLASS A CONCRETE		23.9 C.Y.

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.50 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2 DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY

11/13/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : M.M. AHMED	DATE : 9/25/13
CHECKED BY : M.L. RORIE, P.E.	DATE : 10/24/13
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

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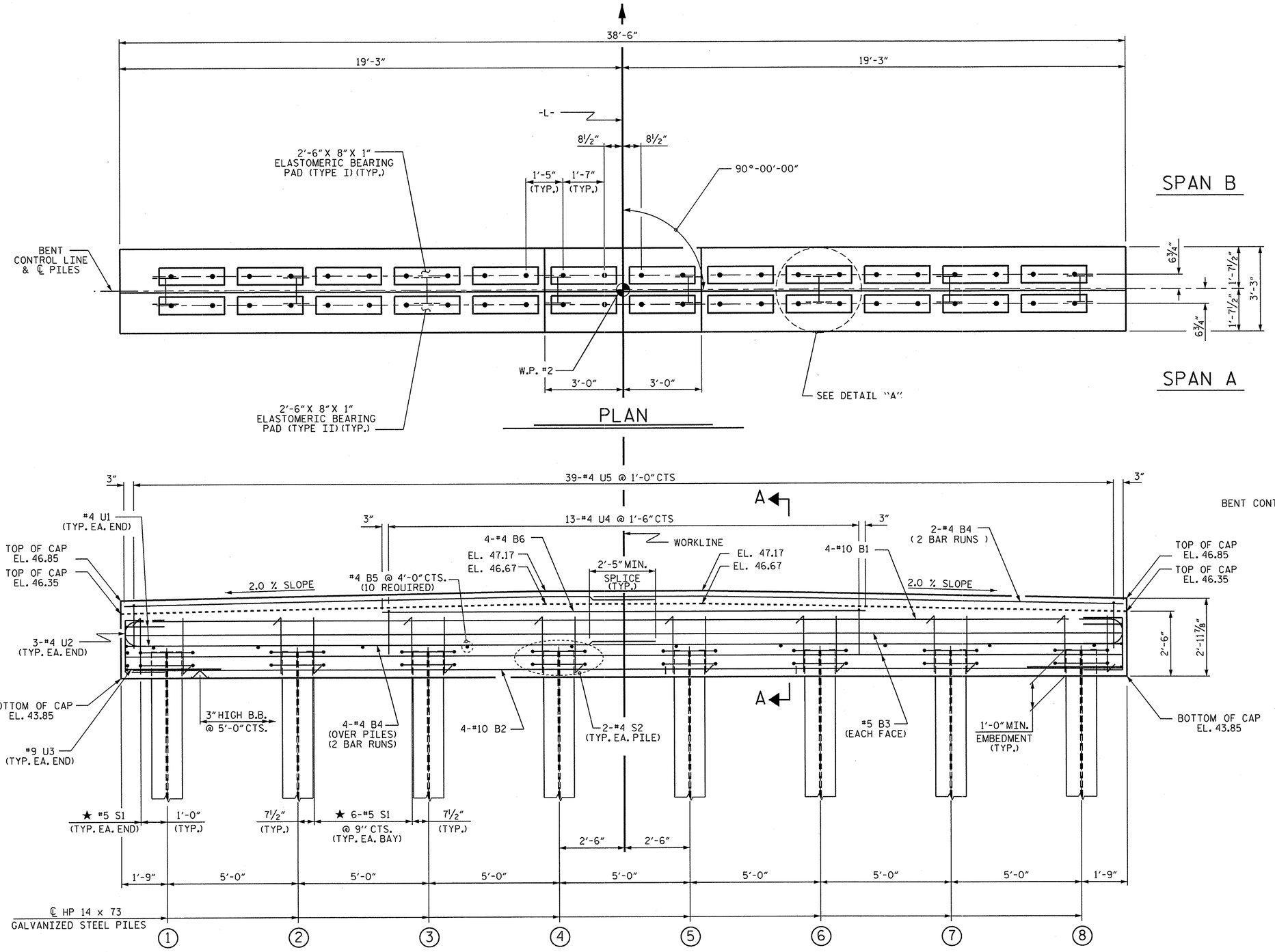
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

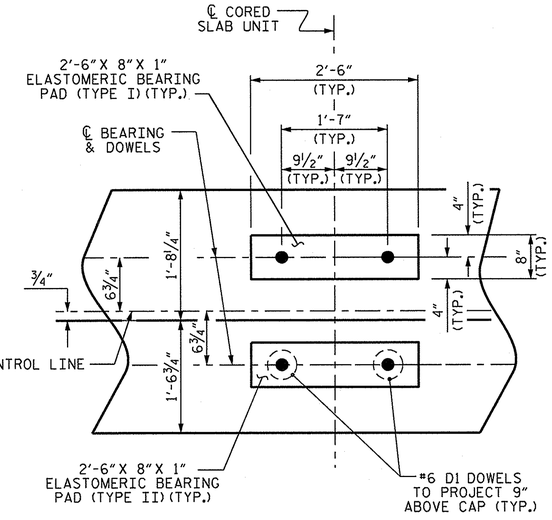
★ INVERT ALTERNATE STIRRUPS.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 28 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



ELEVATION

FOR SECTION A-A, SEE SHEET 2 OF 2



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY

12/17/13

ASSEMBLED BY :	M.M. AHMED	DATE : 9/25/13
CHECKED BY :	M.L. RORIE, P.E.	DATE : 10/31/13
DESIGN ENGINEER OF RECORD:	M.M. AHMED	DATE : -
DRAWN BY :	DGE 05/10	
CHECKED BY :	MKT 05/10	

17-DEC-2013 11:03
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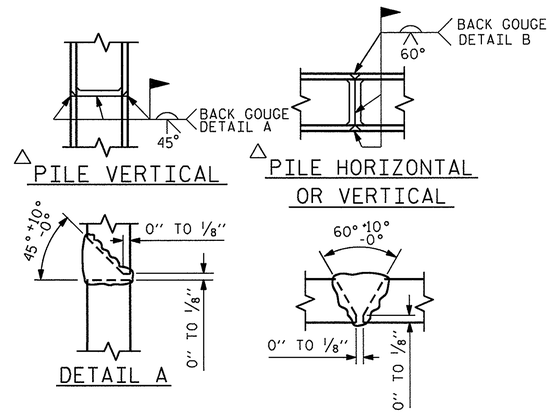
STD. NO. 14"HP_BT_36_90S_<60'

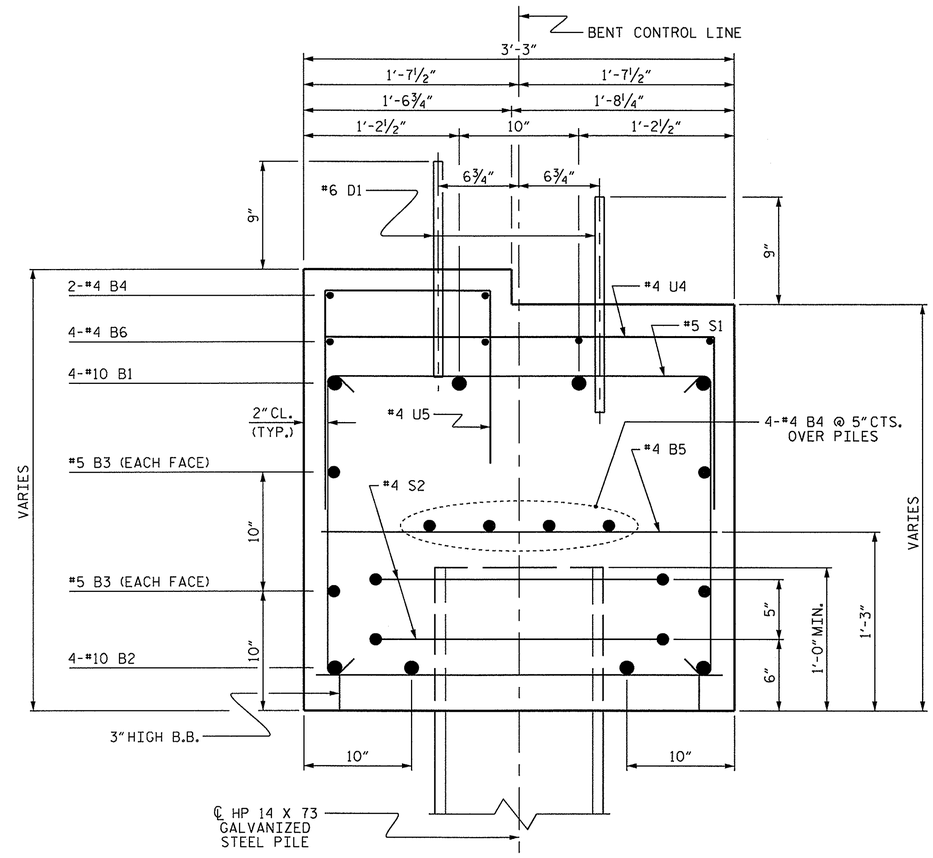


△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

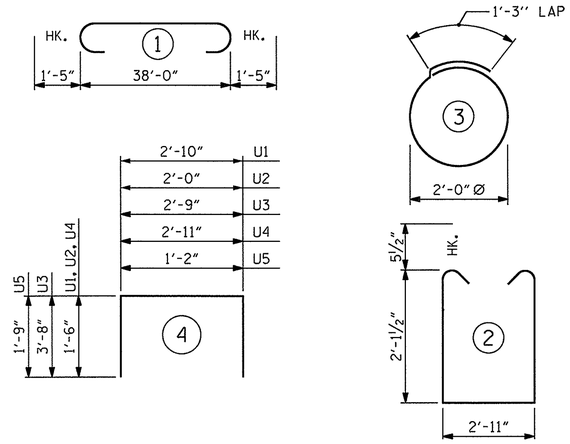
END OF CAP VIEW

(SIMILAR BOTH ENDS)



SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	40'-10"	703
B2	4	#10	STR	38'-2"	657
B3	4	#5	STR	38'-2"	159
B4	12	#4	STR	20'-4"	163
B5	10	#4	STR	2'-11"	19
B6	4	#4	STR	18'-6"	49
D1	48	#6	STR	1'-6"	108
S1	44	#5	2	8'-1"	371
S2	16	#4	3	7'-7"	81
U1	4	#4	4	5'-10"	16
U2	6	#4	4	5'-0"	20
U3	2	#9	4	10'-1"	69
U4	13	#4	4	5'-11"	51
U5	39	#4	4	4'-8"	122

REINFORCING STEEL (FOR BENT 1) 2588 LBS

CLASS A CONCRETE BREAKDOWN (FOR BENT 1)

POUR #1 (CAP) 14.8 C.Y.

TOTAL CLASS A CONCRETE 14.8 C.Y.

HP 14 X 73 GALVANIZED STEEL PILES (FOR BENT 1)

No. 8	480 LIN. FT.
PILE REDRIVES	4 EA.
STEEL PILE POINTS	8 EA.

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 1

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY 11/13/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : M.M. AHMED DATE : 9/25/13
CHECKED BY : M.L. RORIE, P.E. DATE : 10/31/13

DRAWN BY : DGE 05/10
CHECKED BY : MKT 05/10

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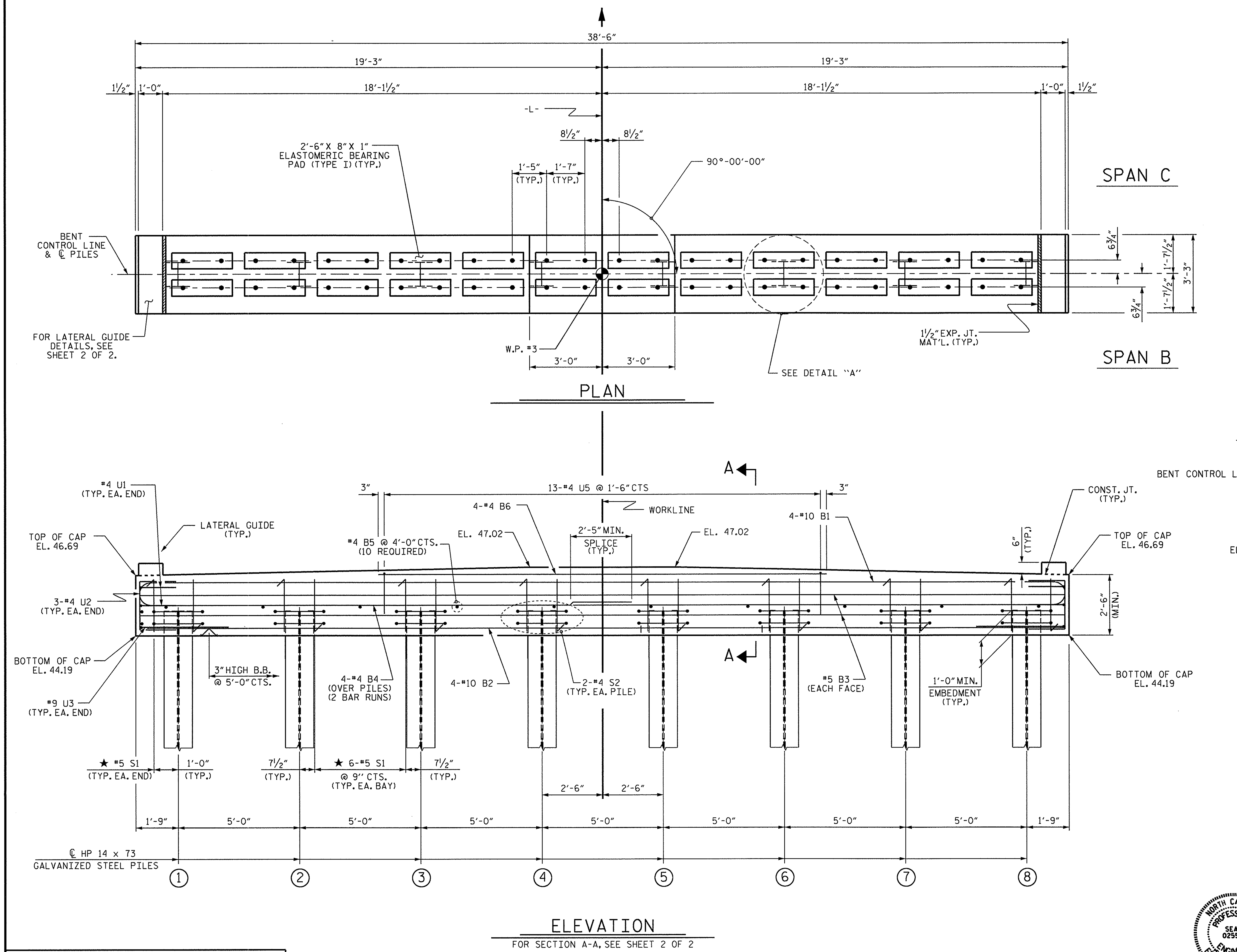
STD. NO. 14" HP_BT_36_90S_<60'



NOTES

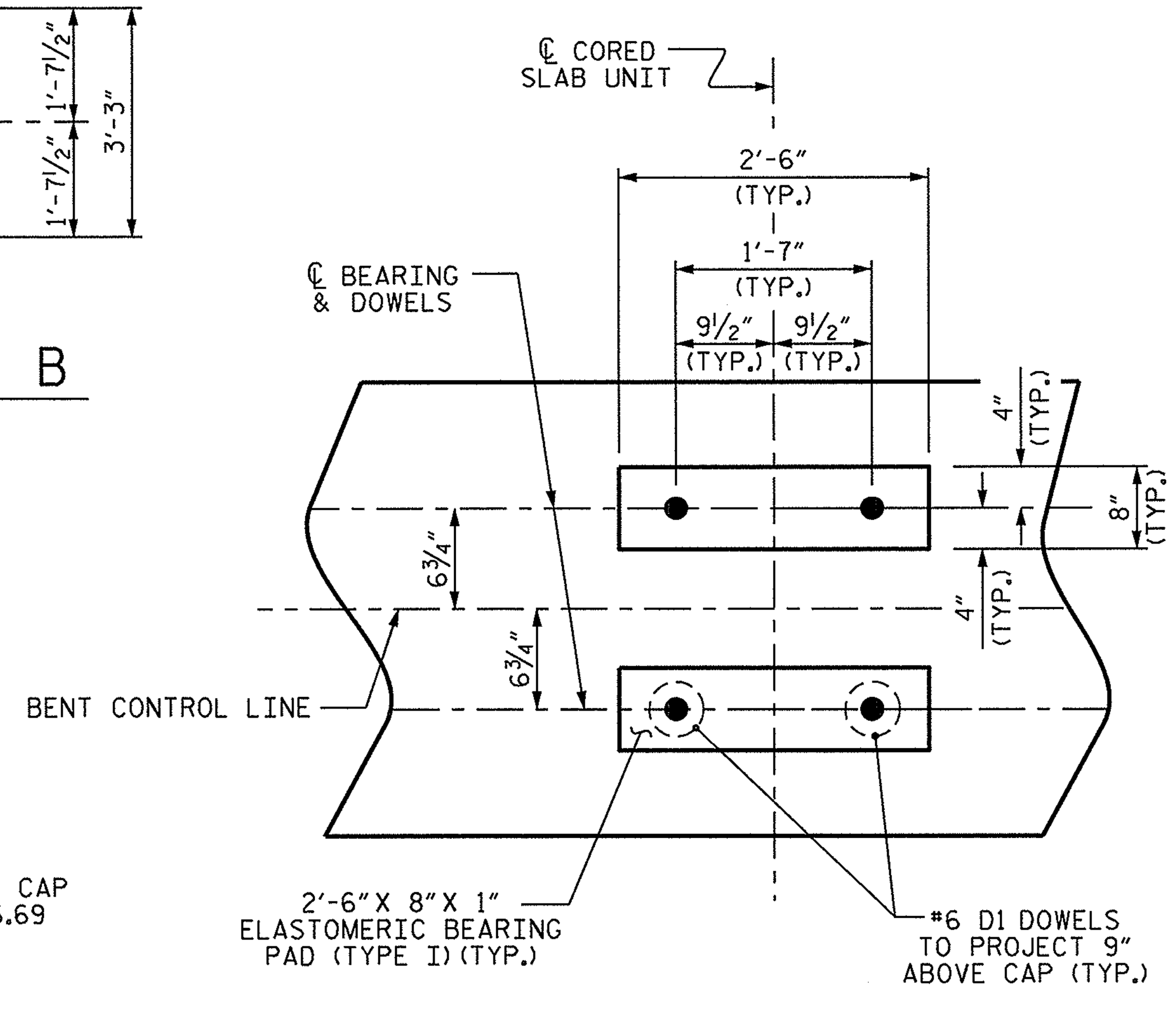
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

★ INVERT ALTERNATE STIRRUPS.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 34 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.



DETAIL "A"
(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. B-4930
SAMPSON COUNTY
STATION: 15+44.50 -L-
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT No. 2

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-21
1			3					TOTAL SHEETS
2			4					24

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY F. MURRAY 11/13/13

ASSEMBLED BY :	M.M. AHMED	DATE :	9/25/13
CHECKED BY :	M.L. RORIE, P.E.	DATE :	10/30/13
DESIGN ENGINEER OF RECORD:	M.M. AHMED	DATE :	-

DRAWN BY : DGE 05/10
CHECKED BY : MKT 05/10

08-NOV-2013 09:19
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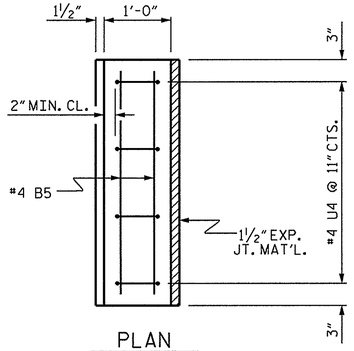
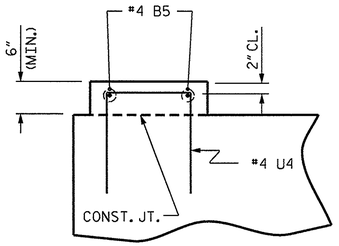
cbpruett

STD. NO. 14" HP_BT_36_90S_<60'



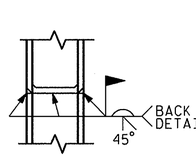
PLAN



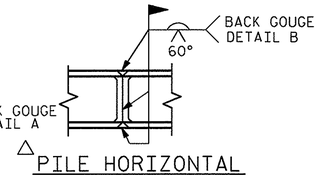
ELEVATION

LATERAL GUIDE DETAILS

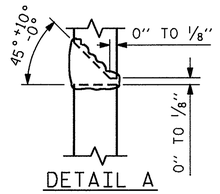
(LEFT LATERAL GUIDE SHOWN, RIGHT SIDE SIMILAR)



△ PILE VERTICAL



△ PILE HORIZONTAL OR VERTICAL



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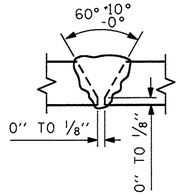
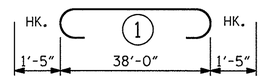


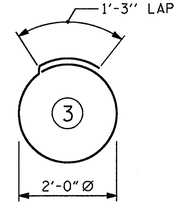
DETAIL B

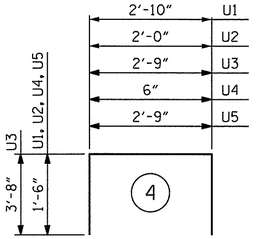
△ POSITION OF PILE DURING WELDING.

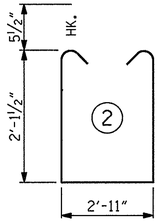
PILE SPLICE DETAILS

BAR TYPES









ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	40'-10"	703
B2	4	#10	STR	38'-2"	657
B3	4	#5	STR	38'-2"	159
B4	8	#4	STR	20'-4"	109
B5	14	#4	STR	2'-11"	27
B6	4	#4	STR	18'-6"	49
D1	48	#6	STR	1'-6"	108
S1	44	#5	2	8'-1"	371
S2	16	#4	3	7'-7"	81
U1	4	#4	4	5'-10"	16
U2	6	#4	4	5'-0"	20
U3	2	#9	4	10'-1"	69
U4	8	#4	4	3'-6"	19
U5	13	#4	4	5'-9"	50

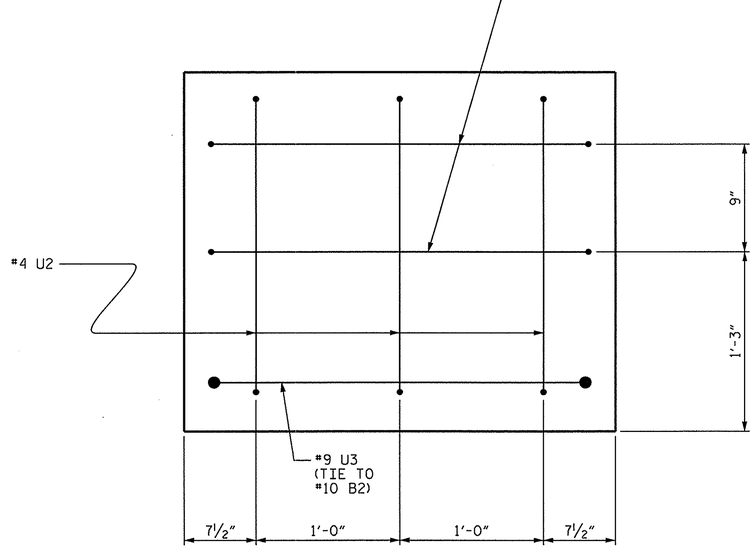
REINFORCING STEEL (FOR BENT 2) 2438 LBS

CLASS A CONCRETE BREAKDOWN (FOR BENT 2)

POUR #1 (CAP)	12.4 C.Y.
POUR #2 (LATERAL GUIDES)	0.1 C.Y.
TOTAL CLASS A CONCRETE	12.5 C.Y.

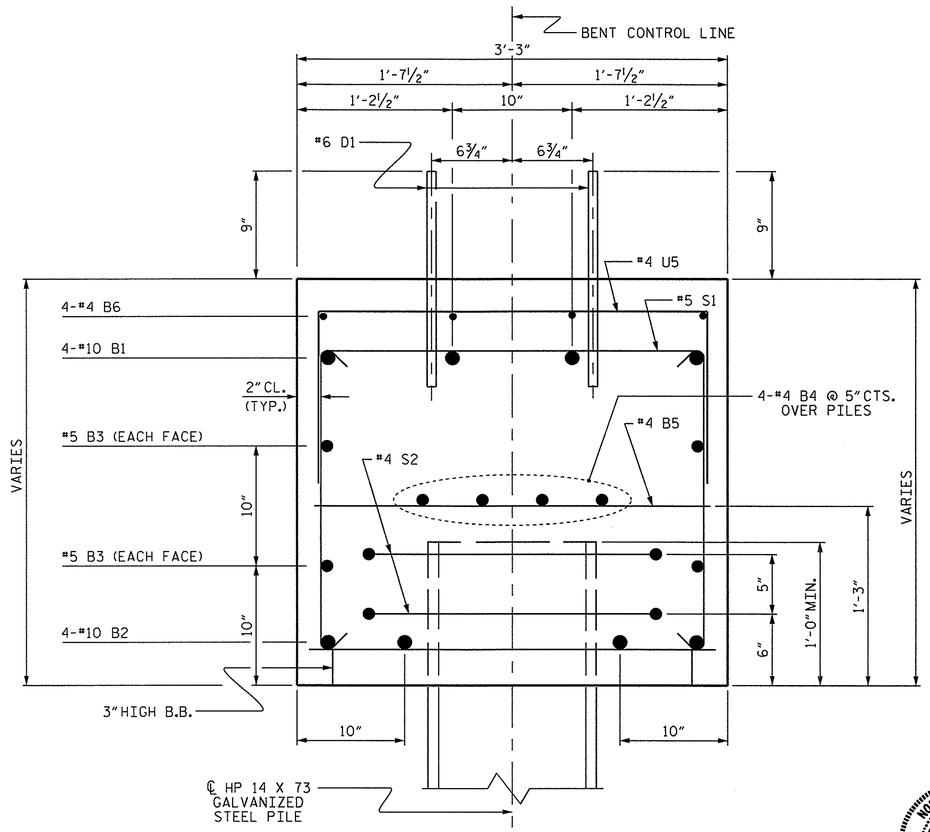
HP 14 X 73 GALVANIZED STEEL PILES (FOR BENT 2)

No. 8	520 LIN. FT.
PILE REDRIVES	4 EA.
STEEL PILE POINTS	8 EA.



END OF CAP VIEW

(TYPICAL BOTH ENDS)



SECTION A-A

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER E. MURRAY 11/13/13

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : M.M. AHMED DATE : 9/25/13
CHECKED BY : M.L. RORIE, P.E. DATE : 10/30/13

DRAWN BY : DGE 05/10
CHECKED BY : MKT 05/10

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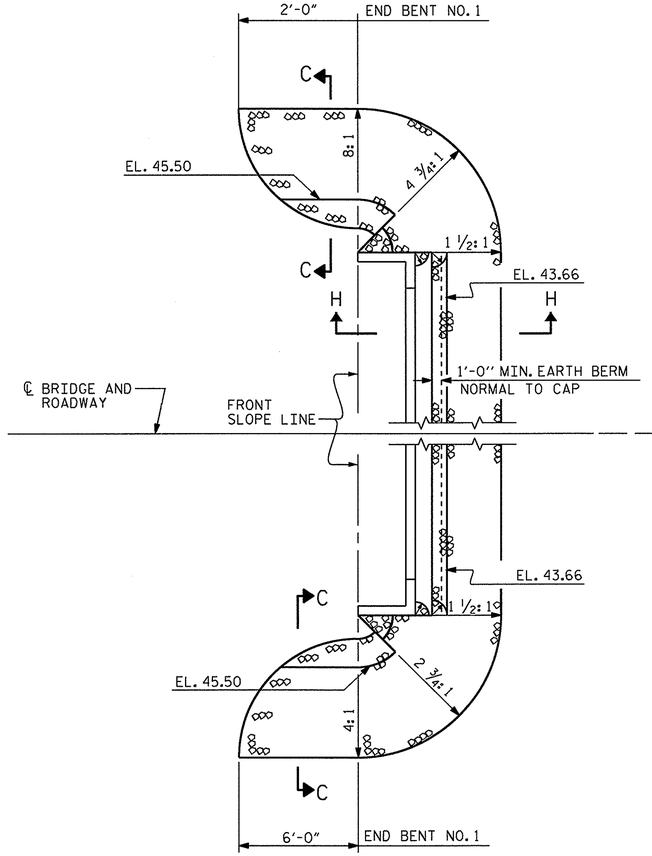
cbpruett

STD. NO. 14"HP_BT_36_90S_<60'



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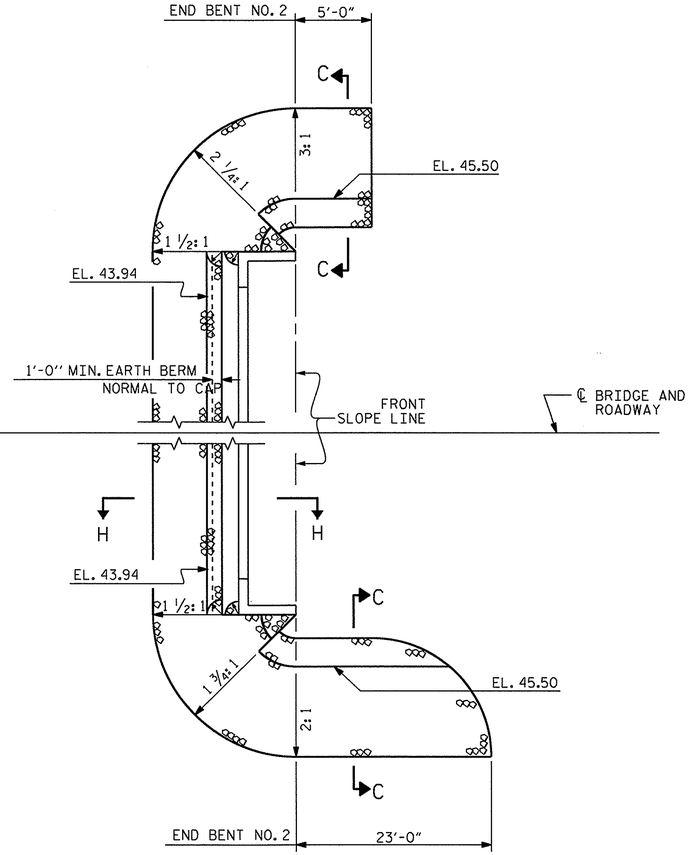
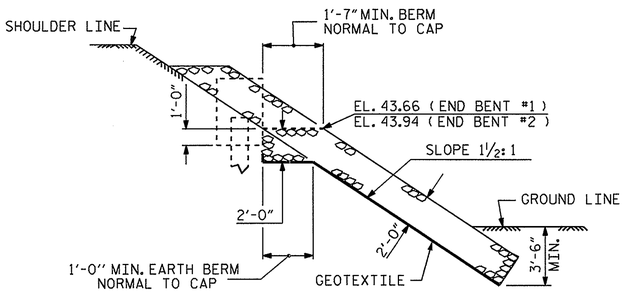


END BENT No: 2

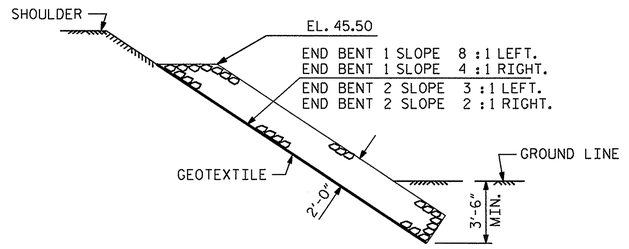
NOTES :

FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+44.50 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	252	280
END BENT 2	153	169



SECTION H-H



SECTION C-C

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY

11/13/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : M.M. AHMED	DATE : 9/26/13		
CHECKED BY : M.L. RORIE, P.E.	DATE : 10/31/13		
DRAWN BY : REK 1/84	REV. 5/1/06R	TLA/GM	
CHECKED BY : RDU 1/84	REV. 10/1/11	MAA/GM	
	REV. 12/21/11	MAA/GM	

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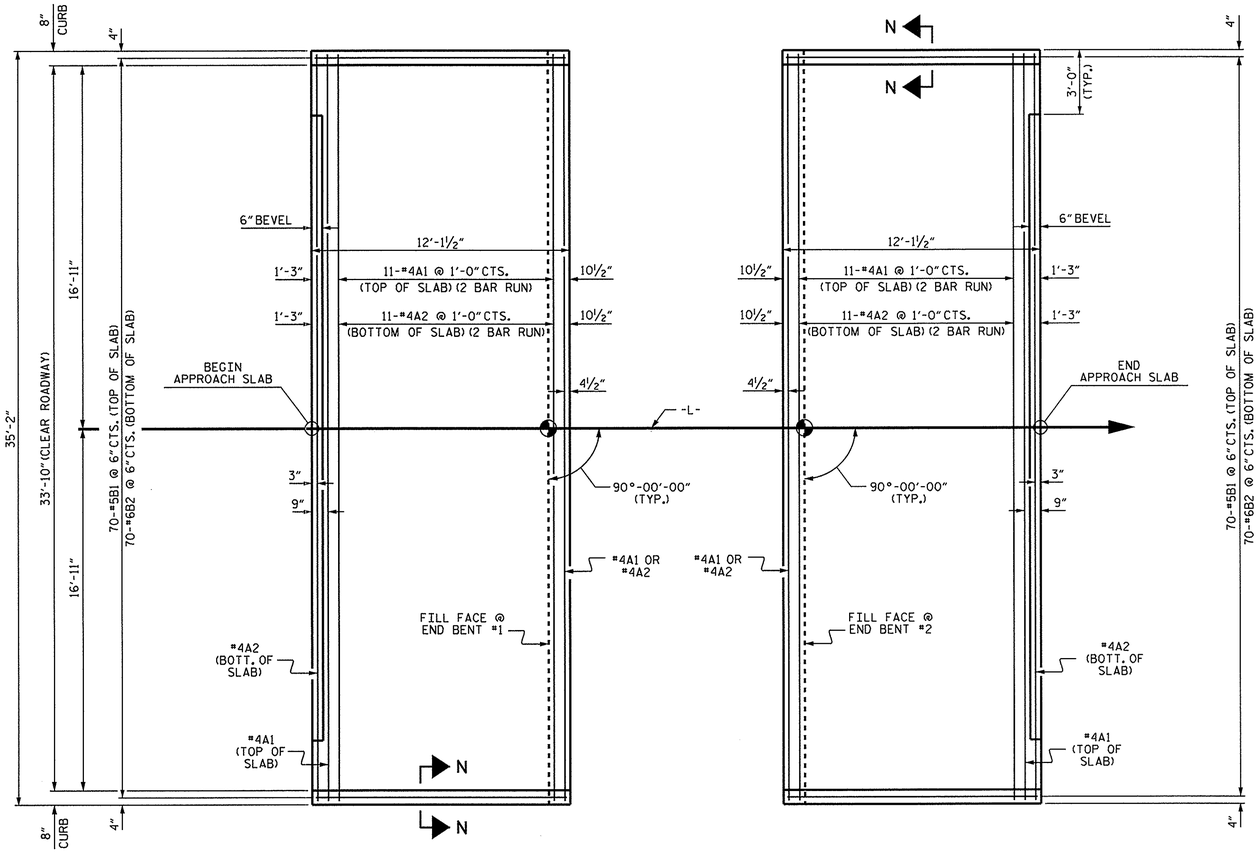
emurray

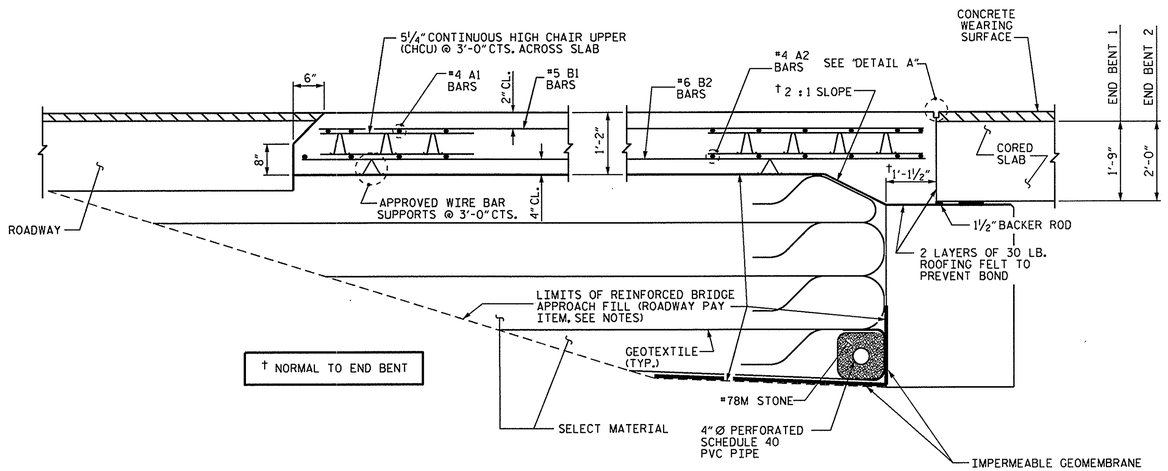
STD. NO. RR1 (Sht 2)



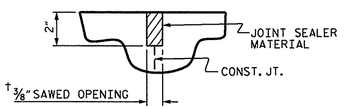
PLAN @ END BENT #1

PLAN @ END BENT #2

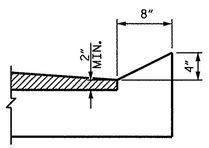
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



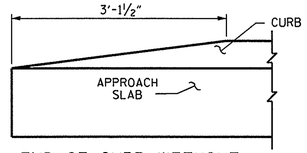
SECTION THRU SLAB



DETAIL A



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

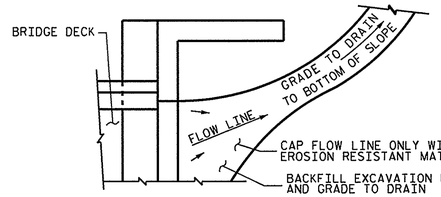
SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

NOTES

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

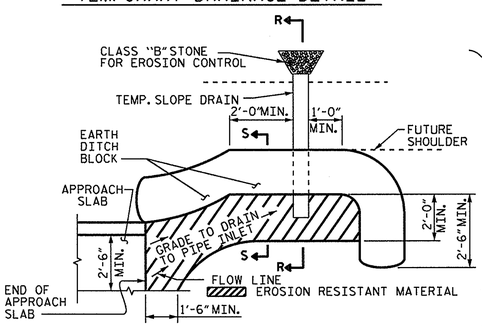
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB SHALL BE POURED AFTER THE CONCRETE OVERLAY IS POURED.

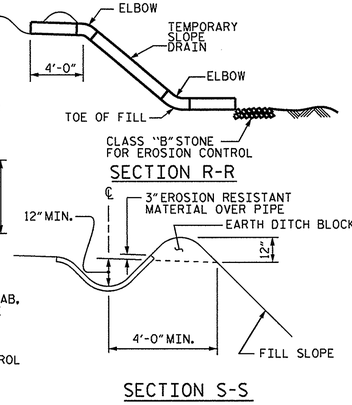


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.



PLAN VIEW

SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	18'-6"	321
A2	26	#4	STR	18'-4"	318
* B1	70	#5	STR	11'-2"	815
B2	70	#6	STR	11'-8"	1227
REINFORCING STEEL				LBS.	1545
* EPOXY COATED REINFORCING STEEL				LBS.	1136
CLASS AA CONCRETE				C.Y.	20.3

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	18'-6"	321
A2	26	#4	STR	18'-4"	318
* B1	70	#5	STR	11'-2"	815
B2	70	#6	STR	11'-8"	1227
REINFORCING STEEL				LBS.	1545
* EPOXY COATED REINFORCING STEEL				LBS.	1136
CLASS AA CONCRETE				C.Y.	21.8

PROJECT NO. B-4930

SAMPSON COUNTY

STATION: 15+44.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB UNIT

90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			29

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
11/13/13

ASSEMBLED BY : M.M. AHMED	DATE : 9/26/13
CHECKED BY : M.L. RORIE, P.E.	DATE : 10/31/13
DRAWN BY : SHS/MAA 5-09	REV. 12-11 MAA/AAC
CHECKED BY : BCH 5-09	

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STD. NO. BAS_36_90S

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF	
STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION	
GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR	
UNTREATED - EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN

REV. 6-16-95 EEM (4) RGW REV. 5-7-03 RWW (7) JTE REV. 10-1-11 MAA (6) GM
REV. 8-16-99 RWW (4) LES REV. 5-1-06 TLA (4) GM
$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4930	1	6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 40234.1.1 (B-4930) F.A. PROJ. BRZ-0903(10)

COUNTY SAMPSON

PROJECT DESCRIPTION BRIDGE NO. 66 ON NC 903 OVER SIX RUNS CREEK AT -L- STA. 15+44.5

ID: B-4930

PROJECT: 40234.1.1

CONTENTS

CAUTION NOTICE

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PERSONNEL

C.M. WRIKE

F&R PERSONNEL

INVESTIGATED BY D.N. ARGENBRIGHT

CHECKED BY D.N. ARGENBRIGHT

SUBMITTED BY D.N. ARGENBRIGHT

DATE AUGUST 2013

NORTH CAROLINA LICENSED SEAL 1050 GEOLOGIST D. N. ARGENBRIGHT

8-26-13

DRAWN BY: C.P. TURNER

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B-4930	2 OF 6

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:

VERY SOFT, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		
GROUP CLASS.	A-1		A-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6			
SYMBOL														
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
LIQUID LIMIT PLASTIC INDEX	6 MX		NP	40 MX 10 MX	41 MN 10 MX	40 MX 10 MX	41 MN 11 MN	40 MX 10 MX	41 MN 10 MX	40 MX 11 MX	41 MN 11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	No MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD					FAIR TO POOR						FAIR TO POOR	POOR	UNSUITABLE

PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT²)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	<4	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	>50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	<2	<0.25
	SOFT	2 TO 4	0.25 TO 0.50
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	>30	>4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE		4	10	40	60	200	270
OPENING (MM)		4.76	2.00	0.42	0.25	0.075	0.053

BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F SD.)	SILT (SL.)	CLAY (CL.)
GRAIN SIZE MM	305	75	2.0	0.25	0.05	0.005
GRAIN SIZE IN.	12	3				

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	26 OR MORE	HIGH

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

GRADATION

WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL	
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	1 - 10%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	10 - 20%
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	20 - 35%
HIGHLY ORGANIC	>10%	>20%	HIGHLY	35% AND ABOVE

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW — PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA
- SPRING OR SEEP

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT REF. OFFSET VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING W/ CORE
- SPT N-VALUE
- REF — SPT REFUSAL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS
S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
AT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-55
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [X] TRICONE 2 ½" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B-____
- [ ] -N-____
- [ ] -H-____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.
ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

WEATHERED ROCK (WR)	NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
CRYSTALLINE ROCK (CR)	FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
NON-CRYSTALLINE ROCK (NCR)	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.
SLIGHT (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES 'CLUNK' SOUND WHEN STRUCK. *IF TESTED, WOULD YIELD SPT REFUSAL*
SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

ROCK HARDNESS

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
MODERATELY HARD	CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.
MEDIUM HARD	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.
VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.

AQUIFER - A WATER BEARING FORMATION OR STRATA.

ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.

ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.

ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.

CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.

COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.

CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.

DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.

DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.

FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.

FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.

FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOCATED FROM PARENT MATERIAL.

FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.

FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.

LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.

LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.

MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.

PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.

RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.

SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.

SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.

STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.

STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: BM-1 AT -L- STA. 14+62.8, 63' RT.

ELEVATION: 45.50 FT.

NOTES:

REVISED 09/23/09

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SITE PLAN

0 50 100
FEET

SKEW = 90°

N

13

15

17

WOODS

WOODS

WOODS

SIX RUNS CREEK

18' SOIL DR

11' SOIL DR

12' SOIL DR

EXISTING BRIDGE NO. 66

B2-A

EB1-B

EB2-B

TO SR-1134

-L-

NC 903 (MAGNOLIA-LISBON RD.)

TO SR-1138

EB1 BENT LINE

B1 BENT LINE

B2 BENT LINE

EB2 BENT LINE

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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROFILE THROUGH BORINGS PROJECTED ALONG -L-

VE = 2.0

EB1-B
14+67
12' RT

B2-A
15+67
9' LT

EB2-B
16+22
8' RT

VERY LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

VERY LOOSE TO MEDIUM STIFF

MEDIUM DENSE

VERY STIFF SOFT GRAY

DENSE TO SAND,

LOOSE TAN SAND,

MOIST TO VERY STIFF GRAY GREEN

TO VERY DENSE GRAY GREEN SATURATED

GRAY GREEN SILTY CLAY, SANDY LIMESTONE

VERY DENSE SATURATED

SOFT GRAY SANDY LIMESTONE

DENSE TO VERY DENSE GRAY GREEN SAND, SATURATED (BLACK CREEK FORMATION)

WATER SURFACE 02/13

SATURATED SANDY CLAY, WET SAND WITH (BLACK CREEK) WET (BLACK CREEK) GRAY (BLACK CREEK)

VERY LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

(ALLUVIAL)

(BLACK CREEK FORMATION)

SHELL FRAGMENTS, FORMATION) CREEK FORMATION) FORMATION) GREEN FORMATION)

08/13

08/13

* ARTESIAN HEAD AT ELEV. 42.6'

NOTE: GROUNDLINE PROFILE ALONG -L- TAKEN FROM BRIDGE SURVEY AND HYDRAULIC DESIGN REPORT DATED 05/30/13.

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 -5 -10 -15 -20 -25 -30

14+00 14+50 15+00 15+50 16+00 16+50

5/14/99

27-AUG-2013 07:51
C:\END\Preconstruction\TIP\B4930_GEO_BRDG_66_SAMPSON\CADD_GEOTECH\Sites\Sub\B4930_GEO_BRDG_66_GTM.dgn

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 40234.1.1	TIP B-4930	COUNTY SAMPSON	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 66 ON -L- (NC 903) OVER SIX RUNS CREEK			GROUND WTR (ft)
BORING NO. EB1-B	STATION 14+67	OFFSET 12 ft RT	ALIGNMENT -L- / 0 HR. N/A
COLLAR ELEV. 48.7 ft	TOTAL DEPTH 59.4 ft	NORTHING 380,419	EASTING 2,206,660 / 24 HR. 6.1 Art.
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
DRILLER Contract Driller	START DATE 08/23/13	COMP. DATE 08/23/13	SURFACE WATER DEPTH N/A

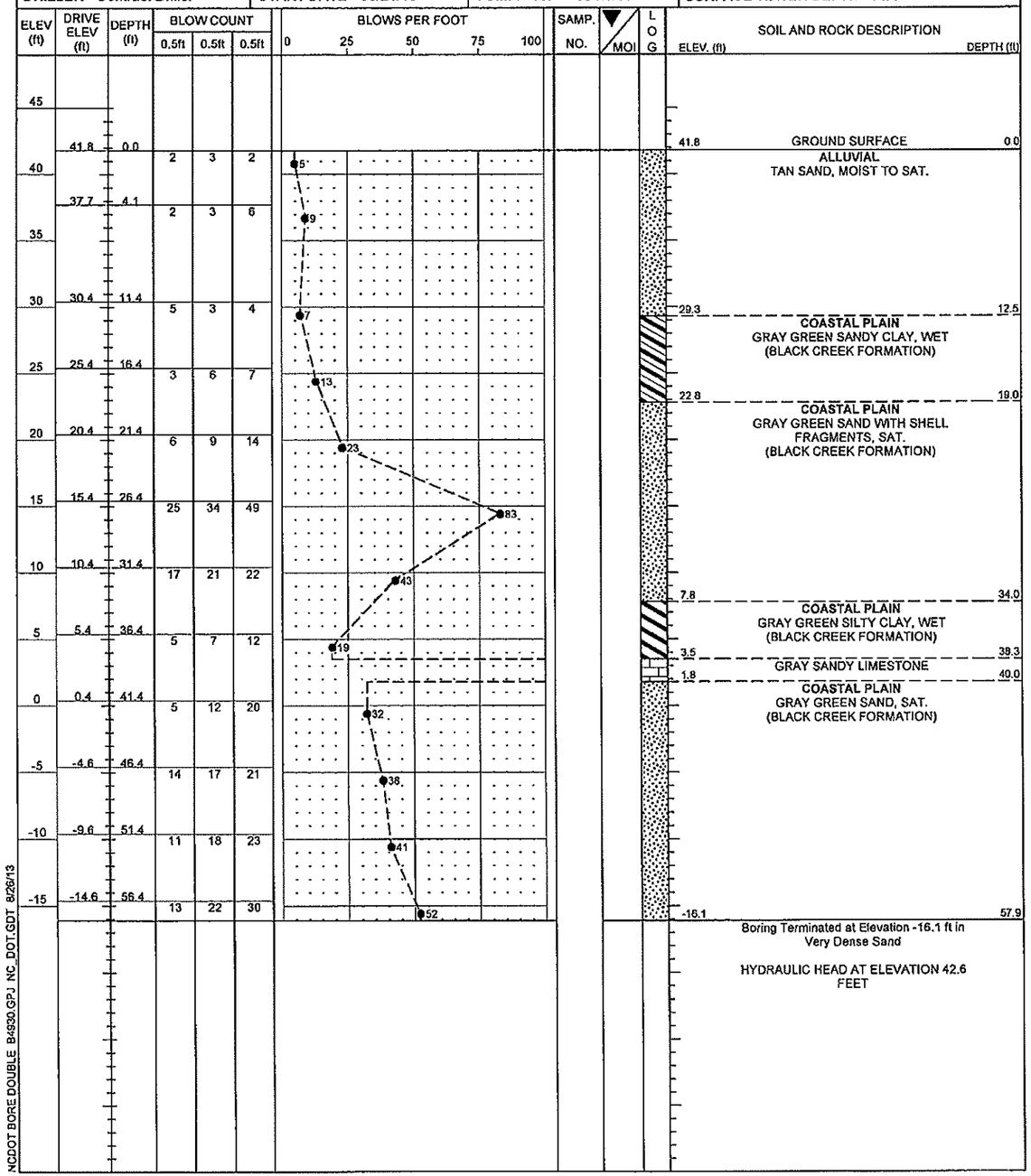
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
	48.7	0.0	1	1	1	2				GROUND SURFACE ROADWAY EMBANKMENT TAN SAND, MOIST	48.7	0.0
	45.2	3.5	1	1	1	2				ALLUVIAL TAN SAND, MOIST TO SAT.	42.7	6.0
	40.4	8.3	2	3	4	7						
	35.4	13.3	3	4	6	10				COASTAL PLAIN GRAY GREEN SANDY CLAY, WET (BLACK CREEK FORMATION)	32.7	16.0
	30.4	18.3	3	5	7	12						
	25.4	23.3	2	2	5	7						
	20.4	28.3	22	45	50	95				COASTAL PLAIN GRAY GREEN SAND WITH SHELL FRAGMENTS, SAT. (BLACK CREEK FORMATION)	22.7	26.0
	15.4	33.3	31	56	44/0.4	100/0.9						
	10.4	38.3	4	10	14	24				COASTAL PLAIN GRAY GREEN SILTY CLAY, WET (BLACK CREEK FORMATION)	12.7	36.0
	5.4	43.3	60/0.1			60/0.1						
	0.8	47.9	6	14	16	30				GRAY SANDY LIMESTONE	6.1	42.6
	-4.2	52.9	10	14	20	34				COASTAL PLAIN GRAY GREEN SAND, SAT.	3.4	45.3
	-9.2	57.9	22	19	18	37				Boring Terminated at Elevation -10.7 ft in Dense Sand HYDRAULIC HEAD AT ELEVATION 42.6 FEET	-10.7	59.4

WBS 40234.1.1	TIP B-4930	COUNTY SAMPSON	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 66 ON -L- (NC 903) OVER SIX RUNS CREEK			GROUND WTR (ft)
BORING NO. B2-A	STATION 15+67	OFFSET 9 ft LT	ALIGNMENT -L- / 0 HR. N/A
COLLAR ELEV. 28.6 ft	TOTAL DEPTH 57.9 ft	NORTHING 380,437	EASTING 2,206,761 / 24 HR. Artesian
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
DRILLER Contract Driller	START DATE 08/22/13	COMP. DATE 08/22/13	SURFACE WATER DEPTH 8.3ft

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
										WATER SURFACE (08/22/13)		
	28.6	0.0	1	1	2	3				GROUND SURFACE ALLUVIAL TAN SAND, SAT.	28.6 25.6	0.0 3.0
	24.6	4.0	7	11	11	22				COASTAL PLAIN GRAY GREEN SANDY CLAY, WET (BLACK CREEK FORMATION)	22.6	6.0
	20.5	8.1	20	29	42	71				COASTAL PLAIN GRAY GREEN SAND, SAT. (BLACK CREEK FORMATION)		
	15.5	13.1	33	58	42/0.4	100/0.9						
	10.5	18.1	17	19	23	42						
	5.9	22.7	5	10	90/0.3	100/0.8						
	0.9	27.7	33	37	23	60						
	-4.1	32.7	15	23	25	48						
	-9.1	37.7	10	19	19	38						
	-13.7	42.3	23	100/0.2		100/0.2						
	-19.1	47.7	13	23	22	45						
	-24.1	52.7	23	61	39/0.1	100/0.6						
	-29.1	57.7	100/0.2			100/0.2						
										COASTAL PLAIN GRAY GREEN SILTY CLAY, WET	7.0 4.9	21.6 23.7
										COASTAL PLAIN GRAY SANDY LIMESTONE	2.5	26.1
										COASTAL PLAIN GRAY GREEN SAND, SAT. (BLACK CREEK FORMATION)	-14.2	42.8
										COASTAL PLAIN GRAY SANDY LIMESTONE	-15.9	44.5
										COASTAL PLAIN GRAY GREEN SAND, SAT.		
										Boring Terminated at Elevation -29.3 ft in Very Dense Sand	-29.3	57.9

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 40234.1.1	TIP B-4930	COUNTY SAMPSON	GEOLOGIST Wrike, C. M.	
SITE DESCRIPTION BRIDGE NO. 66 ON -L- (NC 903) OVER SIX RUNS CREEK				GROUND WTR (ft)
BORING NO. EB2-B	STATION 16+22	OFFSET 8 ft RT	ALIGNMENT -L-	0 HR. N/A
COLLAR ELEV. 41.8 ft	TOTAL DEPTH 57.9 ft	NORTHING 380,418	EASTING 2,206,815	24 HR. Artesian
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 08/21/13	COMP. DATE 08/21/13	SURFACE WATER DEPTH N/A	



03/21/13

TIP PROJECT: B-4930

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4930	1	

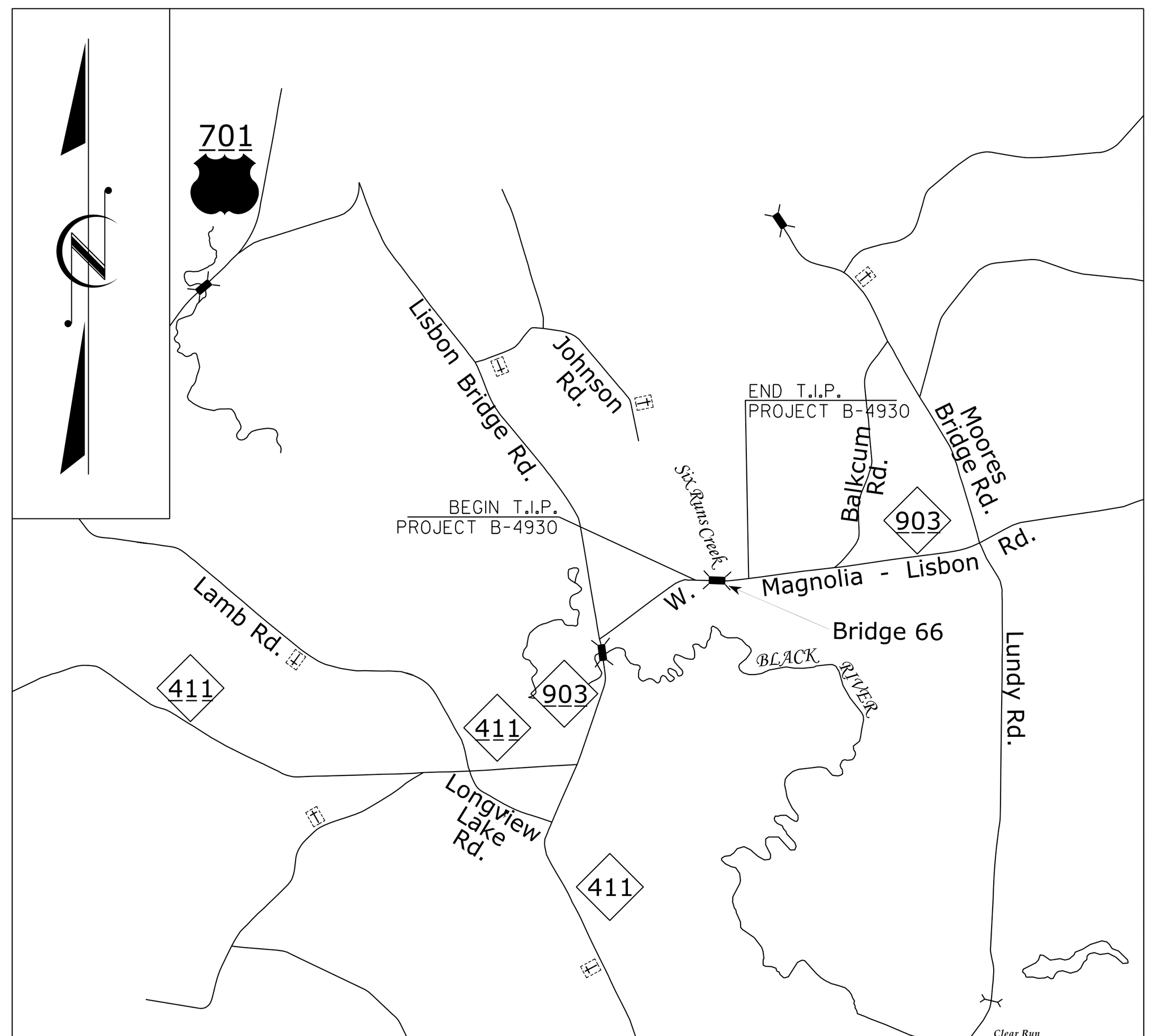
W.B.S. NO.	F. A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

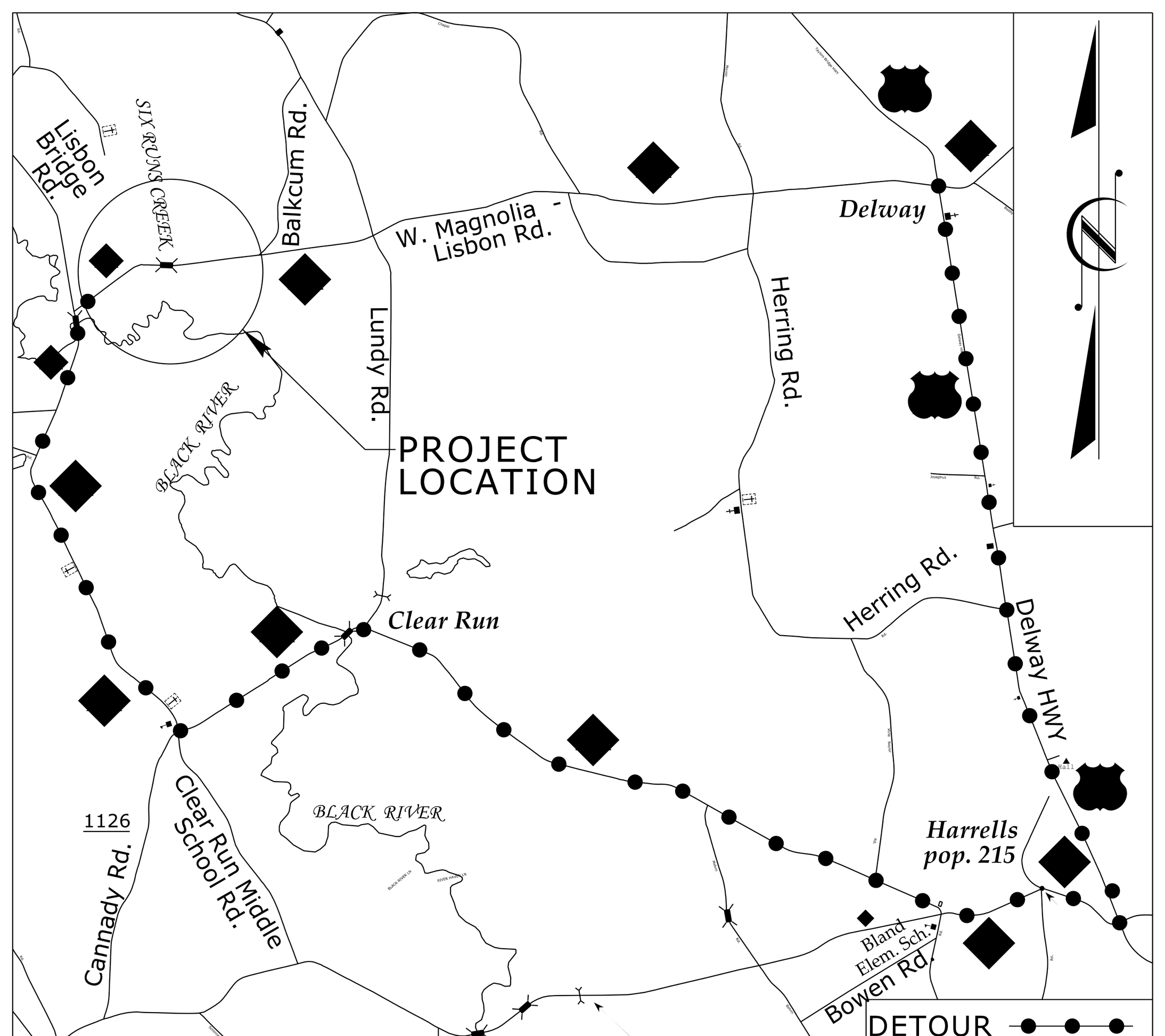
SAMPSON COUNTY

LOCATION: BRIDGE NO. 66 OVER SIX RUNS CREEK ON NC 903 (W. MAGNOLIA-LISBON RD)

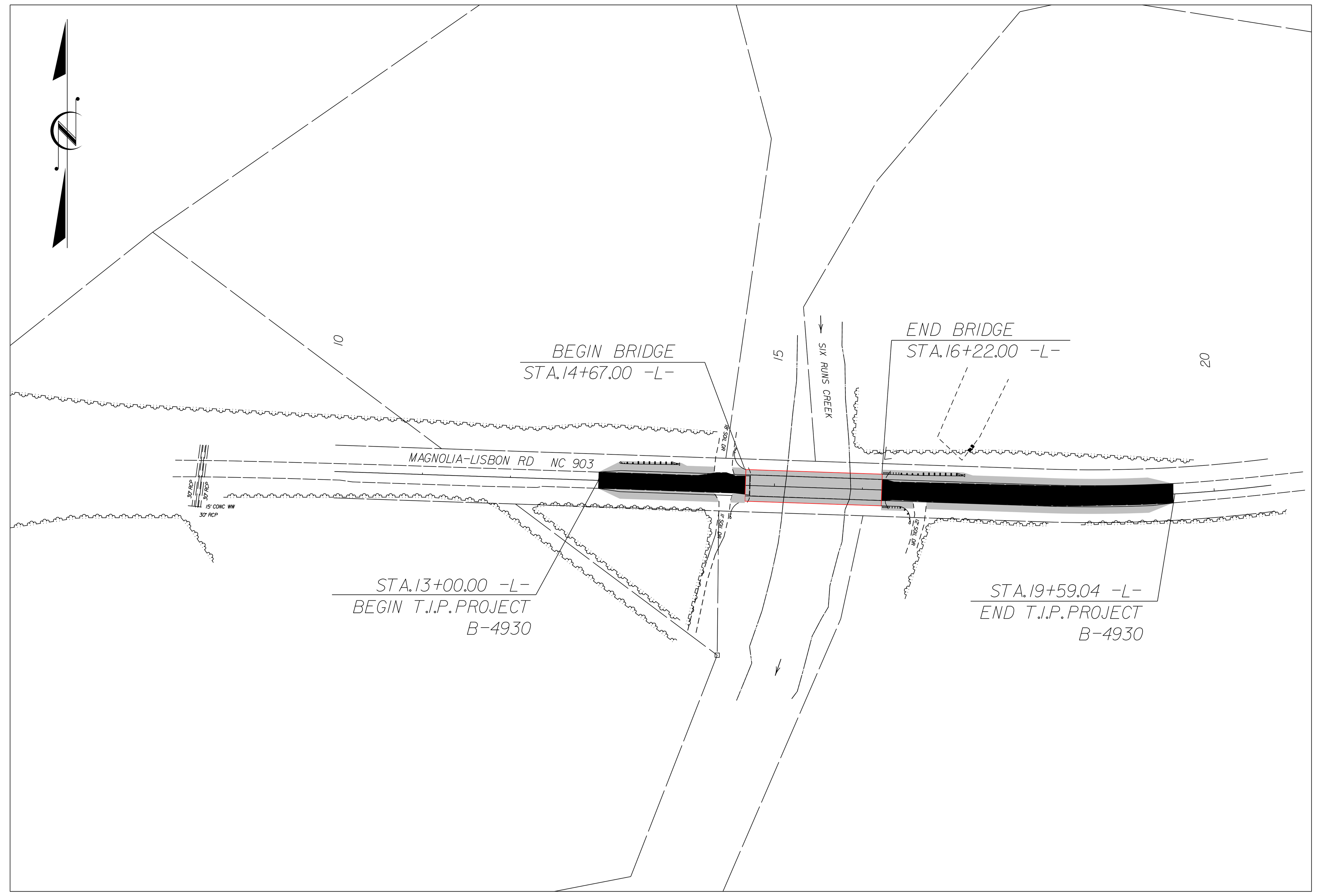
TYPE OF WORK: WIDENING, GRADING, PAVING, DRAINAGE, AND STRUCTURE



VICINITY MAP



DETOUR MAP



WETLAND AND SURFACE WATER IMPACTS PERMIT

PERMIT DRAWING
SHEET 1 OF 7

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2011 = 1100
ADT 2035 = 1770
DHV = X %
D = X %
T = X % *
V = 55 MPH
* TTST 24% DUAL 18%
FUNC CLASS = RURAL COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT	=	.095 MILES
LENGTH STRUCTURES T.I.P. PROJECT	=	.029 MILES
TOTAL LENGTH T.I.P. PROJECT	=	.124 MILES

SCALE = 200

** DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED.

Prepared in the Office of:
ATKINS
5200 77 CENTER DRIVE, SUITE 500
CHARLOTTE, NORTH CAROLINA 28217
(704) 522-7275

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 2013

LETTING DATE:
FEBRUARY 2014

DAVID BASS, P.E.
PROJECT ENGINEER

MICHAEL BAREFOOT, P.E.
PROJECT DESIGN ENGINEER

MATTHEW JONES, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

CONTRACT:

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

13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00

CLASS II RIPRAP SLOPE PROTECTION

SIX RUNS CREEK

EXCAVATION TO EL=40.0' (TYP)

CLASS II RIPRAP TO ELEV=45.5'

WOODS

WOODS

TB

TB

REMOVE

NEW POLE

NEW POLE

REMOVE

EXISTING R/W

MAGNOLIA-LISBON RD.

TO SR-1134 LISBON RD

TO SR-1138 BALKCUM RD

NC 903 19' BST

REMOVE

REMOVE

NEW POLE

NEW POLE

SIX RUNS CREEK

TB

TB

EXISTING R/W

WOODS

CLASS II RIPRAP SLOPE PROTECTION

PLAN VIEW

NOTES:
1. NEW POWER POLES PLACEMENT SHOULD NOT BE CLOSER THAN 20 FEET FROM THE BRIDGE, AND NOT IN WETLANDS.
2. THE HEIGHT OF THE WIRES WILL EXCEED THE HEIGHT OF THE BRIDGE, SO NAVIGATION WILL NOT BE IMPEDED.

F F DENOTES FILL IN WETLAND

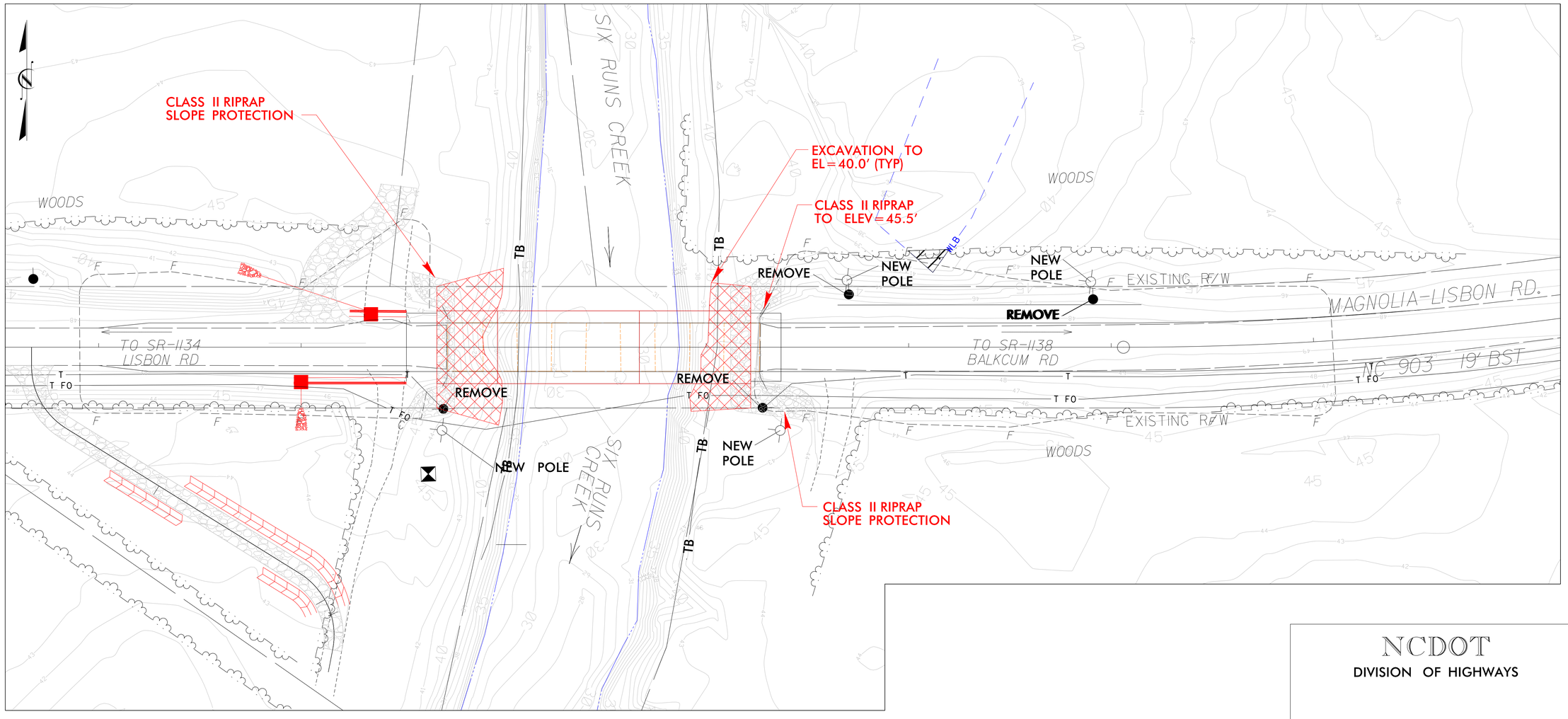
HC HC DENOTES HAND CLEARING

NCDOT
DIVISION OF HIGHWAYS

SAMPSON COUNTY
PROJECT: 40234.1.1 (B-4930)

PERMIT DRAWING
SHEET 2 OF 7

13 + 00 | 14 + 00 | 15 + 00 | 16 + 00 | 17 + 00 | 18 + 00 | 19 + 00 | 20 + 00



PLAN VIEW

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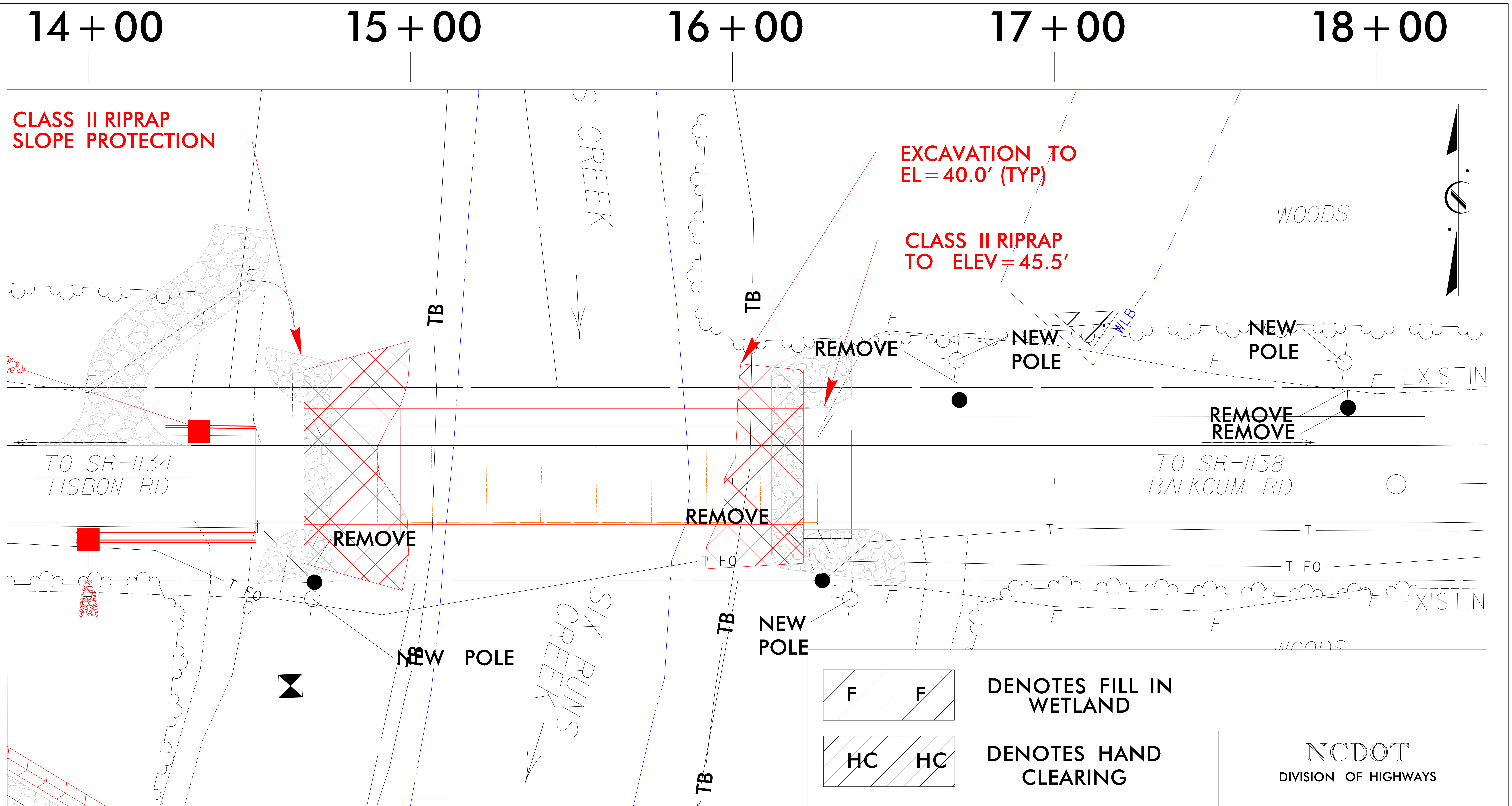
F F — DENOTES FILL IN WETLAND

HC HC — DENOTES HAND CLEARING

NCDOT
DIVISION OF HIGHWAYS

SAMPSON COUNTY
PROJECT: 40234.1.1 (B-4930)

PERMIT DRAWING
SHEET 3 OF 7



F F	DENOTES FILL IN WETLAND
HC HC	DENOTES HAND CLEARING

PLAN VIEW

NOTES:
1. NEW POWER POLES PLACEMENT SHOULD NOT BE CLOSER THAN 20 FEET FROM THE BRIDGE, AND NOT IN WETLANDS.
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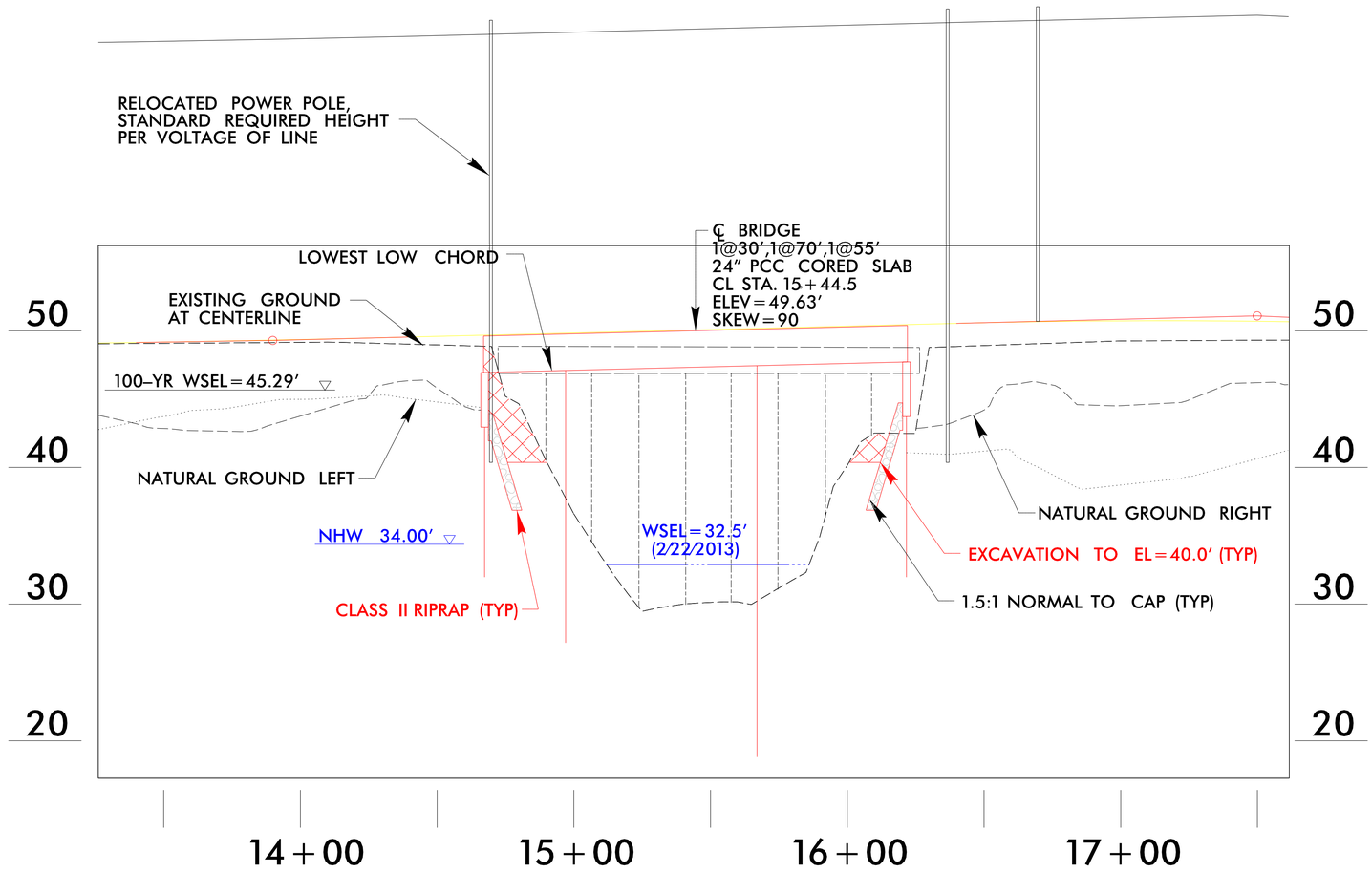
NCDOT
DIVISION OF HIGHWAYS

SAMPSON COUNTY
PROJECT: 40234.1.1 (B-4930)

PERMIT DRAWING
SHEET 4 OF 7



PROFILE

SCALE:
1" = 50' HORIZONTAL
1" = 10' VERTICAL

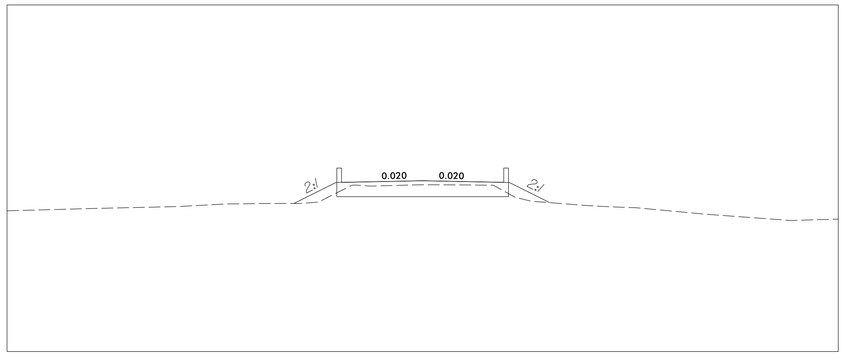
MATERIAL TO BE EXCAVATED=600 CY

NOTE:
1. THE HEIGHT OF THE WIRES WILL EXCEED THE HEIGHT OF THE BRIDGE, SO NAVIGATION WILL NOT BE IMPEDED.

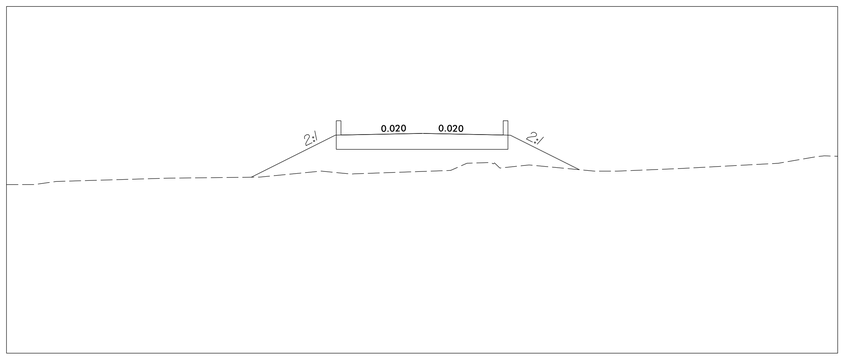
NCDOT
DIVISION OF HIGHWAYS

SAMPSON COUNTY
PROJECT: 40234.1.1 (B-4930)

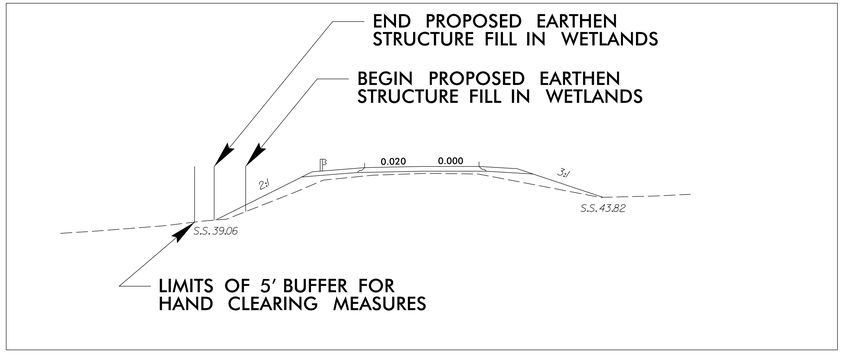
PERMIT DRAWING
SHEET 5 OF 7



SECTION VIEW (BEG BR)
STA 14+69 -L-



SECTION VIEW (END BR)
STA 16+24 -L-



SECTION VIEW
STA 17+00 -L-

NCDOT
DIVISION OF HIGHWAYS

SAMPSON COUNTY
PROJECT: 40234.1.1 (B–4930)

PERMIT DRAWING
SHEET 6 OF 7