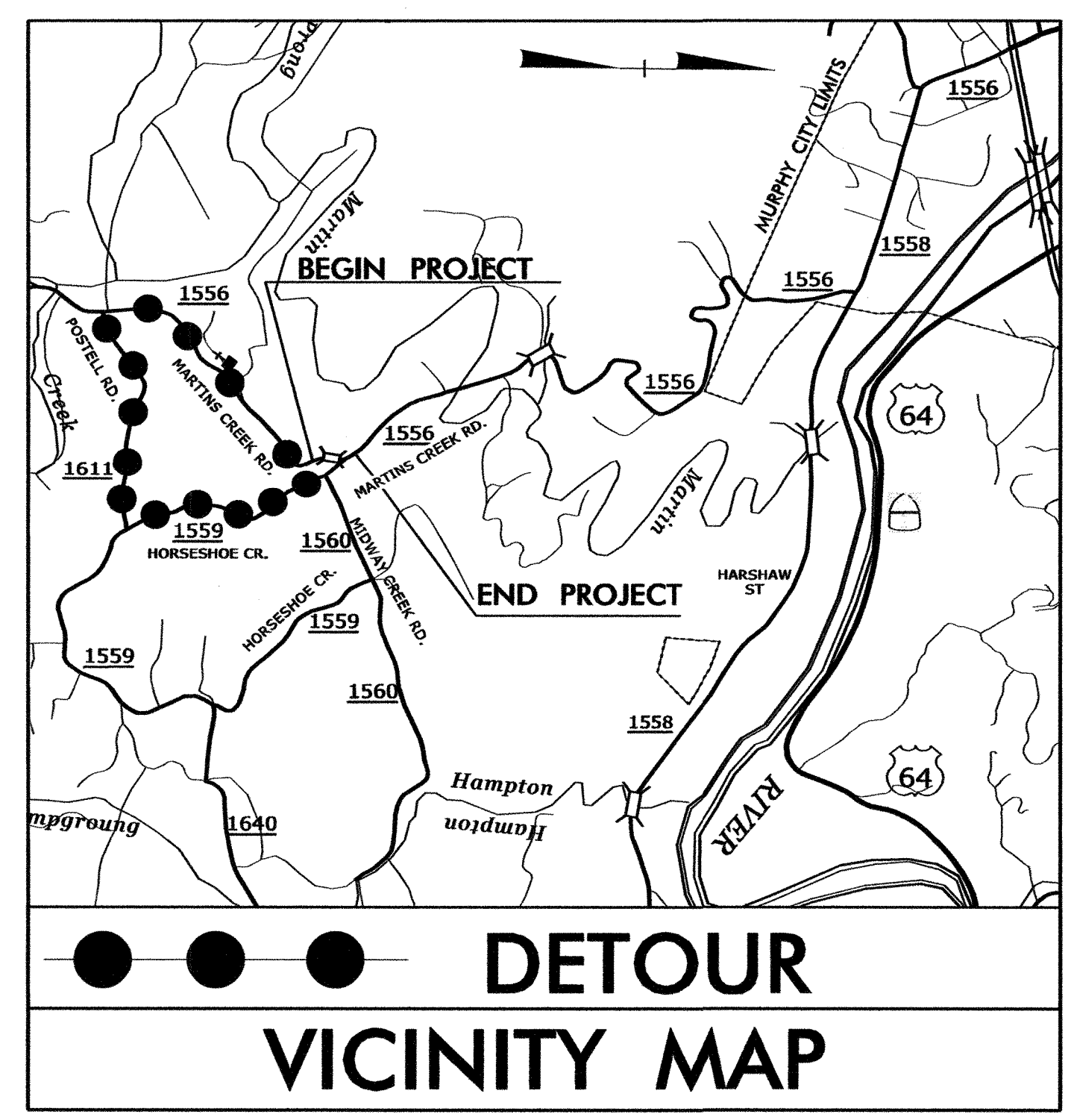


09/28/99

WBS ELEMENT: 17BP.14.R.4

CONTRACT: DN00138

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

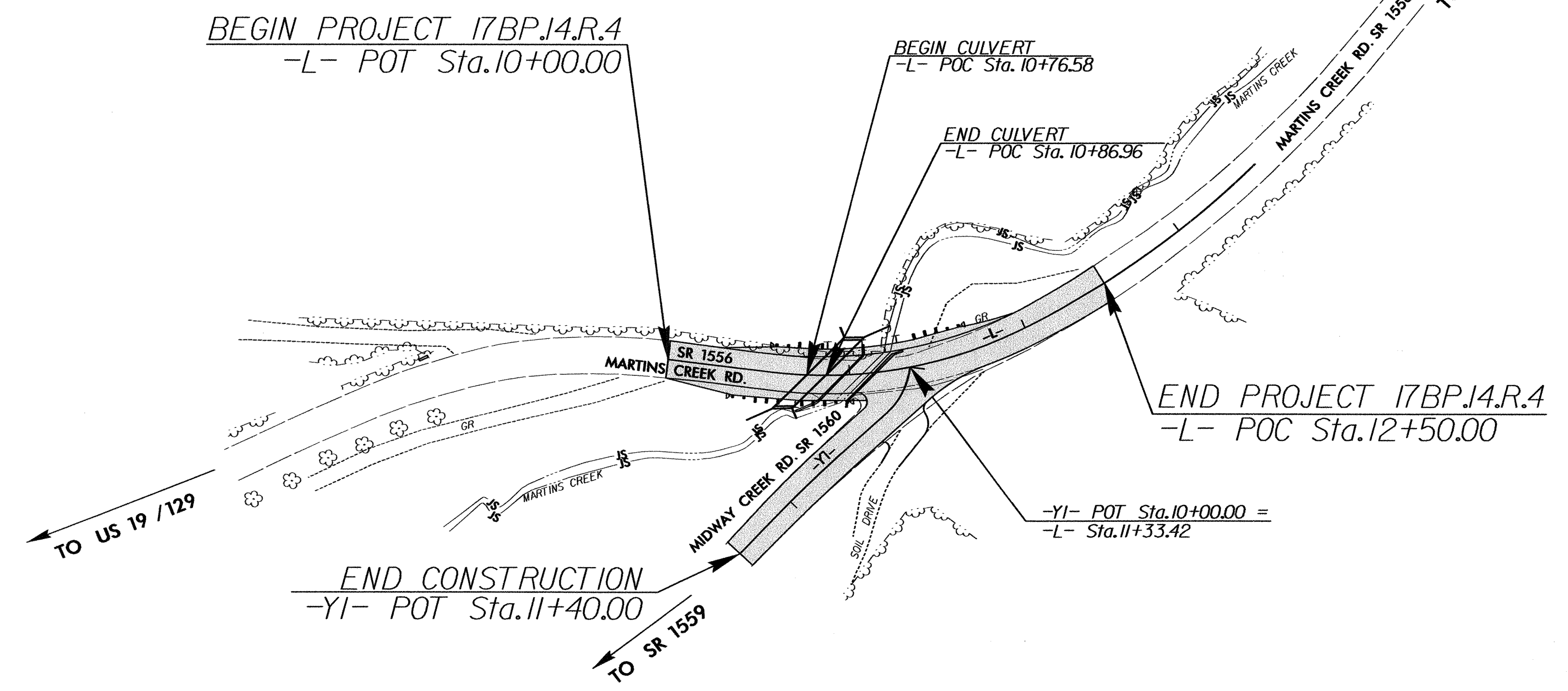
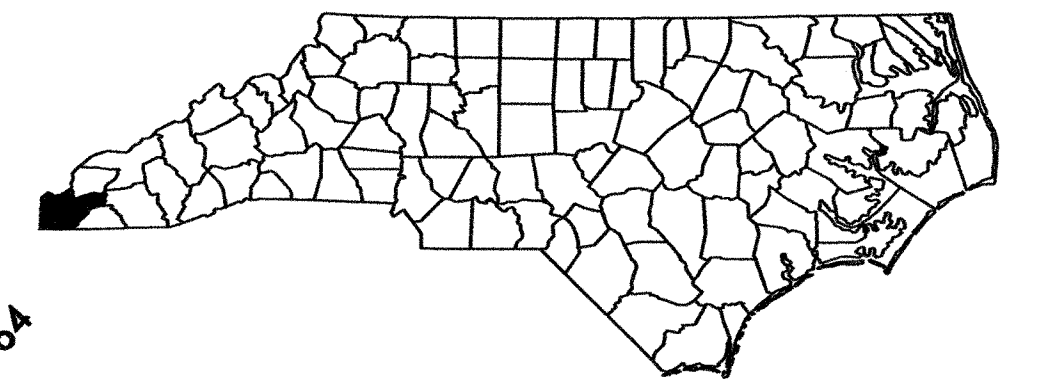
CHEROKEE COUNTY

LOCATION: REPLACE BRIDGE No.195 ON SR 1556 OVER
MARTINS CREEK

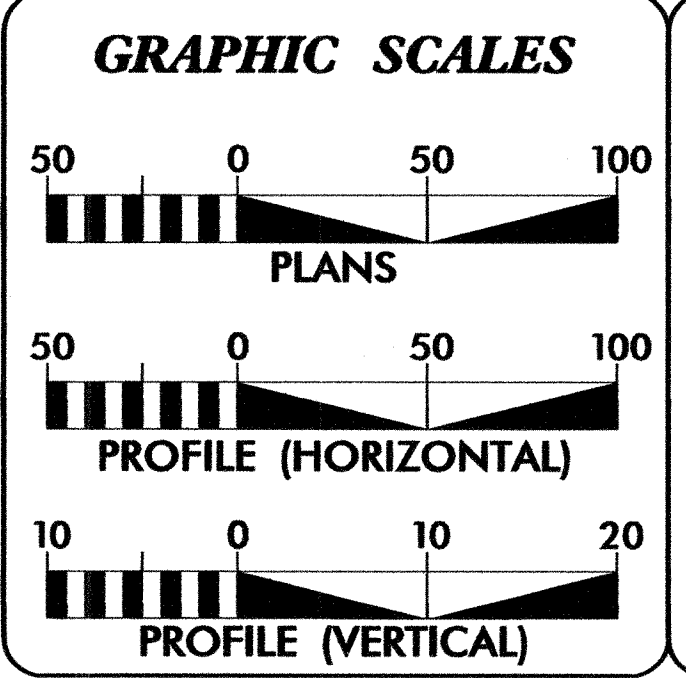
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.4	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.14.R.4	N/A	PE	
17BP.14.R.4	N/A	ROW, UTL	
17BP.14.R.4	N/A	CONST.	

NAD 83/
NSRS 2007



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.



DESIGN DATA

ADT 2013 = 1160
ADT 2035 = 1750

T = 6 %
V = 30 MPH

FUNC CLASS =
RURAL LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT 17BP.14.R.4 = .045 MILES

LENGTH OF STRUCTURE TIP PROJECT 17BP.14.R.4 = 0.002 MILES

TOTAL LENGTH TIP PROJECT 17BP.14.R.4 = .047 MILES

Prepared in the Office of:
RS&H
ARCHITECTS-ENGINEERS-PLANNER, INC.
1520 SOUTH BLVD., SUITE 200
CHARLOTTE, NC 28203

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 1, 2012

LETTING DATE:
APRIL 23, 2013

KENNETH HERRING, PE
PROJECT ENGINEER

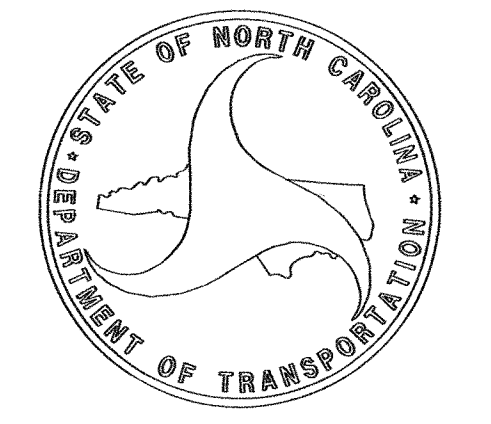
JASON TALLEY, PE
PROJECT DESIGN ENGINEER

HYDRAULICS
ENGINEER

ROADWAY DESIGN
ENGINEER

3-27-2013 P.E.

3-27-2013 P.E.



3/25/2013
X:\NP Bridge 190195\Project Production\Roadway\Proj\B90195-Rdy-tsh.dgn
1:57:51 PM

PROJECT REFERENCE NO.
17BPJ4R.4

SHEET NO.
1-A

ROADWAY DESIGN
ENGINEER

SEAL
029473
JOHN W. TALLENT
3-27-2013

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-6	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UD-1	UTILITIES BY OTHERS
X-0	CROSS-SECTION SUMMARY
X-1 THRU X-6	CROSS-SECTIONS
C-1 THRU C-5	CULVERT PLANS

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 07/30/12

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

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

SUPERELEVATION:
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:
ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

GUARDRAIL:
THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:
NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE
FRONTIER COMMUNICATIONS
MURPHY ELECTRIC POWER BOARD
MURPHY CABLE TV
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.

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.29	Frames and Narrow Slot Flat Grates
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.03	Drainage Ditches with Class 'A' Rip Rap

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	
Property Corner	
Property Monument	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
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	
Well	
Small Mine	
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	
Dam	

HYDROLOGY:

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

RAILROADS:

Standard Gauge	
RR Signal Milepost	
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	
Proposed Right of Way Line with Iron Pin and Cap Marker	
Proposed Right of Way Line with Concrete or Granite RW Marker	
Proposed Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
Proposed Control of Access	
Existing Easement Line	
Proposed Temporary Construction Easement	
Proposed Temporary Drainage Easement	
Proposed Permanent Drainage Easement	
Proposed Permanent Drainage / Utility Easement	
Proposed Permanent Utility Easement	
Proposed Temporary Utility Easement	
Proposed Aerial Utility Easement	

Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	
Single Tree	
Single Shrub	
Hedge	
Woods Line	

VEGETATION:

Orchard	
Vineyard	

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

UTILITIES:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

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SURVEY CONTROL SHEET 17BP.14.R.4
-FINAL-

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.4	1-C
Location and Surveys	

NAD 83/NSRS 2007

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1		BL-1	515337.3796	498737.6773	1611.30	OUTSIDE PROJECT LIMITS	
2		BL-2	515711.3390	498684.9250	1599.04	11+40.16	11.89 LT
3		BL-3	515862.6410	498595.9910	1596.88	13+23.66	14.05 LT

BM1 ELEVATION = 1604.17
N 515553 E 498664
BL STATION 7+24.00 43 LEFT
8" SPIKE SET IN BASE OF 15" PINE TREE

FINAL L			
TYPE	STATION	NORTH	EAST
POT	10+00.00	515574.71	498695.67
PC	10+57.17	515631.57	498701.61
PI	11+33.16	515707.15	498709.51
PT	12+04.71	515774.34	498674.01
PC	12+04.71	515774.34	498674.01
PI	12+80.86	515841.67	498638.44
PT	13+55.84	515895.36	498584.44
POT	13+55.84	515895.36	498584.444

FINAL Y1			
TYPE	STATION	NORTH	EAST
PC	10+00.00	515707.44	498697.94
PI	10+15.20	515705.84	498713.05
PT	10+29.05	515694.60	498723.28
PC	10+64.05	515668.72	498746.85
PI	10+92.37	515647.78	498765.92
PT	11+20.65	515628.73	498786.88
POT	1140.65	515615.28	498801.68

-FINAL- ROW MARKER IRON PIN AND CAP-E				
ALIGN	STATION	OFFSET	NORTH	EAST
-L-	10+00.00	10.00	515573.6738	498705.6108
-L-	10+00.00	20.00	515572.6340	498715.5566
-L-	10+28.00	20.00	515600.4823	498718.4679
-L-	12+04.71	25.00	515786.0174	498696.1185
-L-	12+50.00	25.00	515827.0019	498672.0329
-L-	12+50.00	10.00	515818.8242	498659.4581
-L-	10+00.00	-10.00	515575.7532	498685.7192
-L-	10+00.00	-20.00	515576.7930	498675.7734
-L-	10+50.00	-20.00	515626.5223	498680.9722
-L-	10+50.00	-35.00	515628.0816	498666.0534
-L-	10+57.17	-35.00	515635.2078	498666.7984
-L-	10+90.00	-35.00	515663.4047	498667.8843
-L-	11+50.00	-65.00	515706.4041	498631.3999
-L-	11+50.00	-35.00	515714.3244	498660.3355
-L-	12+04.71	-35.00	515757.9908	498643.0666
-L-	12+50.00	-29.00	515797.5624	498626.7635
-L-	12+50.00	-10.00	515807.9207	498642.6917
-Y1-	11+20.65	45.00	515595.4316	498756.6118
-Y1-	11+20.65	22.50	515612.0812	498771.7459
-Y1-	10+29.05	-35.00	515718.1662	498749.1606
-Y1-	10+64.05	-40.00	515695.6558	498776.4238
-Y1-	11+20.65	-40.00	515658.3301	498813.7851
-Y1-	11+40.00	-40.00	515644.8776	498828.5847
-Y1-	11+40.00	-22.50	515632.3675	498816.3301

-BL-1
N.C.DOT BASELINE STATION
LOCALIZED PROJECT COORDINATES
N=515337.38
E=498737.68
ELEV=1611.30

BM-1
-BL- STA 7+24.11 43.14' LEFT
ELEV. =1604.17'
-L- OUTSIDE PROJECT LIMITS

BEGIN TIP PROJECT 17BP.14.R.4
-L- POT Sta. 10+00.00

-BL-2
N.C.DOT BASELINE STATION
LOCALIZED PROJECT COORDINATES
N=515711.34
E=498684.93
ELEV=1599.04

-BL-3
N.C.DOT BASELINE STATION
LOCALIZED PROJECT COORDINATES
N=515862.64
E=498595.99
ELEV=1596.88

TO US 74 /19 /64

END TIP PROJECT 17BP.14.R.4
-L- POT Sta. 12+50.00

TO SR 1559

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "190195-BL3"
WITH NAD 83/2007 STATE PLANE GRID COORDINATES OF
NORTHING: 515862.641(++) EASTING: 498595.991(++)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999806079
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "190195-BL3" TO -L- STATION 10+00.00 IS
S 19°05'40.93" E 304.692'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS BASED ON NCDOT MONUMENT 190195 -BL3- (ELEV = 1596.88') (NAVD 1988)

GEOIDAL MODEL - G09NC
NOTE: DRAWING NOT TO SCALE

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://CONNECT.NCDOT.GOV/RESOURCES/LOCATION](http://connect.ncdot.gov/resources/location)

THE FILES TO BE FOUND ARE AS FOLLOWS:
19-0195_LS_CONTROL.TXT

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

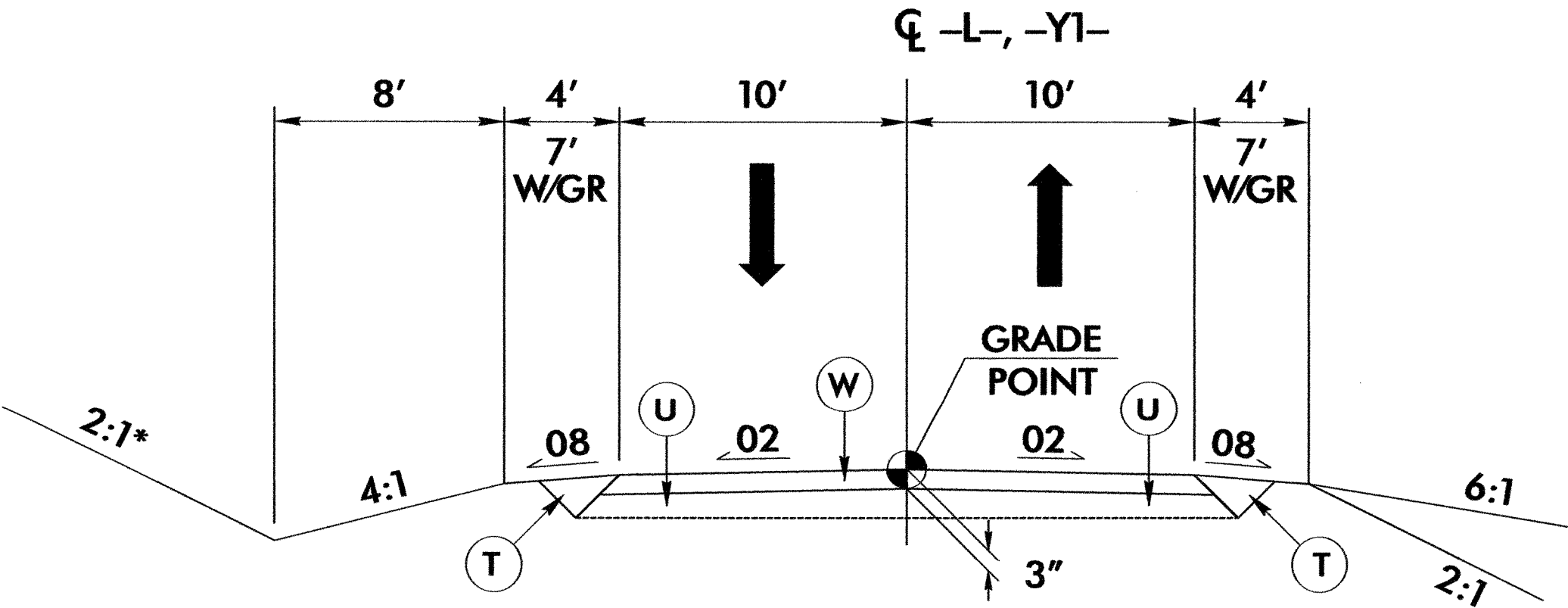
Ⓢ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

6/2/99

PAVEMENT SCHEDULE

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING.

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



TYPICAL SECTION NO. 1

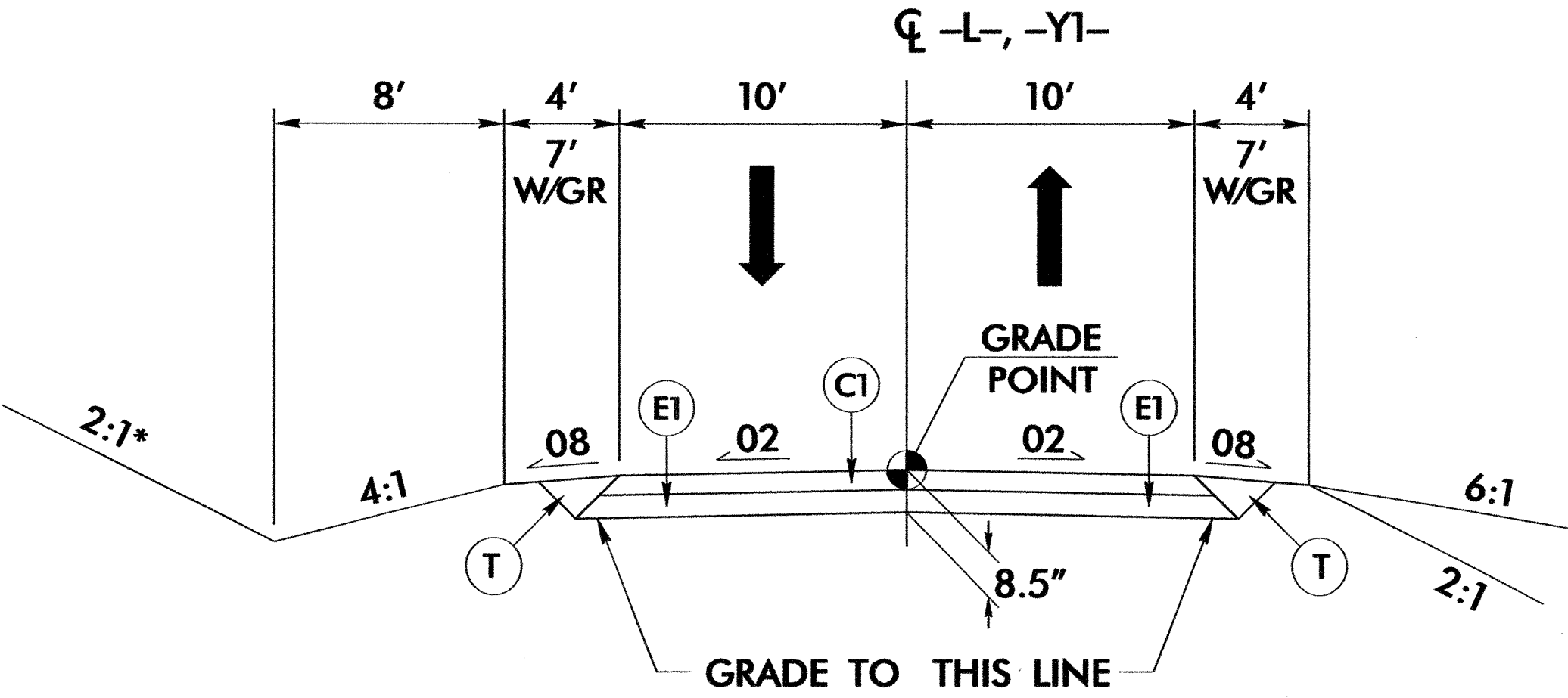
VAR. SLOPE
SEE X-SECTIONS

USE TYPICAL SECTION NO. 1

-L- STA. 10+00.00 TO -L- STA. 10+75.00
-L- STA. 12+00.00 TO -L- STA. 12+50.00
-Y1- STA. 10+60.00 TO -Y1- STA. 11+40.00

NOTE:
OVERLAY EXISTING PAVEMENT FROM
-L- STA. 10+00.00 TO -L- STA. 10+50.00
WITH 2" S9.5B.

* NOTE:
VARIABLE BACK SLOPE OF 2:1 TO 1.5:1 USED ON
-Y1- STA. 10+11.07 TO -Y1- STA. 11+40.00 TO
MINIMIZE EXTENT OF ROCK EXCAVATION.



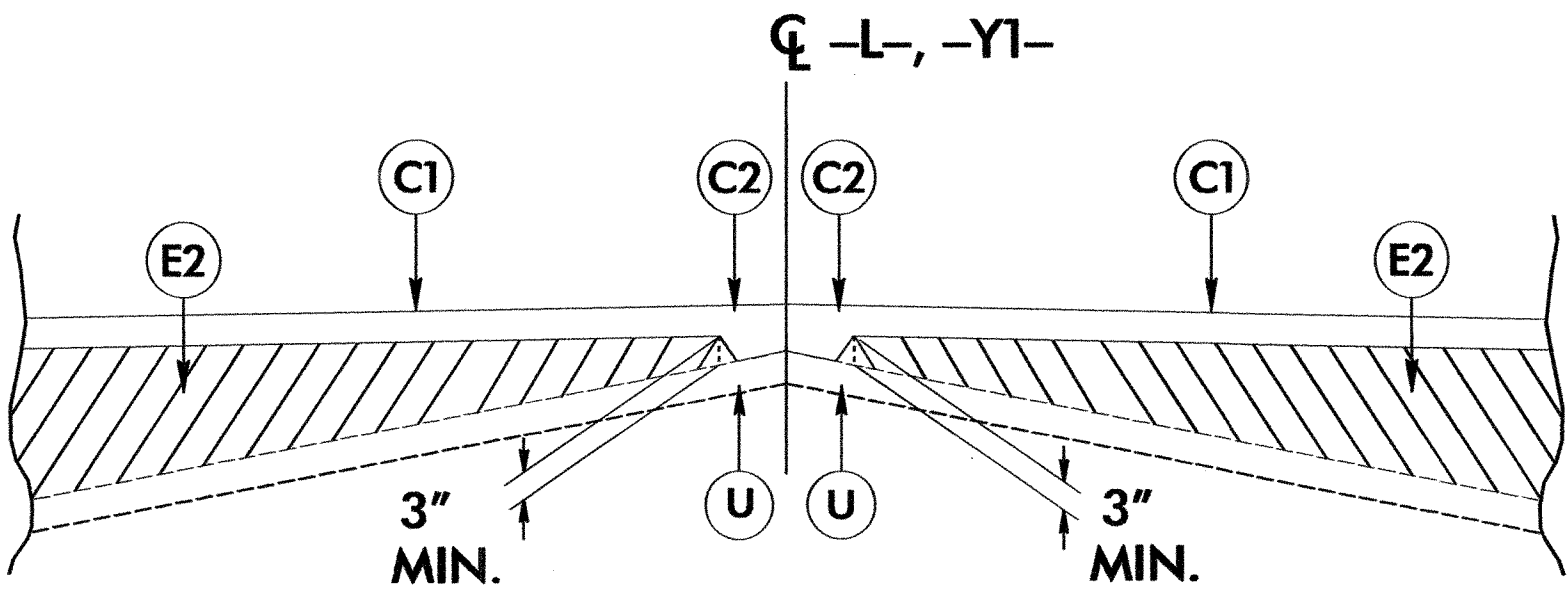
TYPICAL SECTION NO. 2

VAR. SLOPE
SEE X-SECTIONS

USE TYPICAL SECTION NO. 2

-L- STA. 10+75.00 TO -L- STA. 12+00.00
-Y1- STA. 10+11.07 TO -Y1- STA. 10+60.00

* NOTE:
VARIABLE BACK SLOPE OF 2:1 TO 1.5:1 USED ON
-Y1- STA. 10+11.07 TO -Y1- STA. 11+40.00 TO
MINIMIZE EXTENT OF ROCK EXCAVATION.



STANDARD WEDGING DETAIL

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.R.4	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

RS&H
IMPROVING YOUR WORLD
RS&H Architects-Engineers-Planners, Inc.

5/28/99

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS SUMMARY OF QUANTITIES FOR CONTRACT - DN00138									
Item Number	Sec #	Quantity	Unit	Description	Item Number	Sec #	Quantity	Unit	Description
0000100000-N	800	1	LS	MOBILIZATION	6000000000-E	1605	100	LF	TEMPORARY SILT FENCE
0000400000-N	801	1	LS	CONSTRUCTION SURVEYING	6006000000-E	1610	45	TON	EROS CONTRL STONE CL A
0043000000-N	226	1	LS	GRADING	6009000000-E	1610	25	TON	EROS CONTRL STONE CL B
0050000000-E	226	1	ACR	SUPP CLEARING & GRUBBING	6012000000-E	1610	75	TON	SEDIMENT CONTROL STONE
0057000000-E	226	20	CY	UNDERCUT EXCAVATION	6015000000-E	1615	1	ACR	TEMPORARY MULCHING
0195000000-E	265	20	CY	SELECT GRANULAR MATERIAL	6018000000-E	1620	50	LB	SEED FOR TEMP SEEDING
0196000000-E	270	50	SY	GEOTEXTILE SOIL STABILIZATION	6021000000-E	1620	0.25	TON	FERT FOR TEMP SEEDING
0318000000-E	300	15	TON	FND CONDIR MATL MINOR STRS	6024000000-E	1622	200	LF	TEMPORARY SLOPE DRAINS
0320000000-E	300	40	SY	FND CONDIR GEOTEXTILE	6029000000-E	SP	100	LF	SAFETY FENCE
0448300000-E	310	52	LF	18" RCP CULV CLASS IV	6030000000-E	1630	60	CY	SILT EXCAVATION
0448400000-E	310	48	LF	24" RCP CULV CLASS IV	6036000000-E	1631	5000	SY	MATTING FOR EROS CONTROL
0995000000-E	340	94	LF	PIPE REMOVAL	6038000000-E	SP	50	SY	PERM SOIL REINF MAT
1220000000-E	545	50	TON	INCIDENTAL STONE BASE	6042000000-E	1632	25	LF	1/4" HARDWARE CLOTH
1489000000-E	610	170	TON	ASP CONC BASE CRS B25.0B	6070000000-N	1639	2	EA	SPECIAL STILLING BASINS
1519000000-E	610	165	TON	ASP CONC SURF CRS S9.5B	6084000000-E	1660	3	ACR	SEEDING AND MULCHING
1575000000-E	620	20	TON	ASP FOR PLANT MIX	6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
1693000000-E	654	12	TON	ASPH PLT MIX PVMT REPAIR	6093000000-E	1661	0.25	TON	FERT FOR REPAIR SEEDING
2286000000-N	840	1	EA	MASNRY DRAINAGE STRUCT	6096000000-E	1662	50	LB	SEED FOR SUPP SEEDING
3030000000-E	862	87.5	LF	STL BM GUARDRAIL	6108000000-E	1665	0.75	TON	FERTILIZER TOPDRESSING
3150000000-N	862	5	EA	ADDIT GUARDRAIL POSTS	6111000000-E	SP	80	LF	IMPERVIOUS DIKE
3165000000-N	SP	4	EA	GR ANCHOR TYPE TL-2	6117000000-N	1675	25	EA	RESPONSE FOR EROS CONTROL
3628000000-E	876	50	TON	RIP RAP, CLASS I	7980000000-N	SP	1	EA	GENERIC SIGNAL ITEM (EA) (PORTABLE TRAFFIC SIGNAL SYSTEM) (ACTUATED)
3642000000-E	876	17	TON	RIP RAP, CLASS A					
3649000000-E	876	7	TON	RIP RAP, CLASS B	8035000000-N	402	1	LS	REMOV EXIST STR (10+81.71)
3656000000-E	876	255	SY	GEOTEXTILE FOR DRAINAGE	8126000000-N	414	1	LS	CULV EXCAV @ (10+81.71)
4400000000-E	1110	447	SF	WORK ZONE SIGNS (STAT)	8133000000-E	414	29	TON	FND CONDIR MAT, BOX CULV
4405000000-E	1110	82	SF	WORK ZONE SIGNS (PORT)	8196000000-E	420	58	CY	CLASS A CONCRETE (CULV)
4410000000-E	1110	86	SF	WORK ZONE SIGNS (BARR)	8245000000-E	425	6401	LB	REINF STEEL (CULVERT)
4430000000-N	1130	30	EA	DRUMS					
4445000000-E	1145	108	LF	BARRICADES (TYPE III)					
4770000000-E	1205	950	LF	4" COLD APPL PLSTIC LINE TYPE IV					
4795000000-E	1205	30	LF	24' COLD APPL PLSTIC LINE TYPE IV					
4810000000-E	1205	3000	LF	PAINT PVMT MARKINGS 4"					
4835000000-E	1205	30	LF	PAINT PVT MKG LINES 24"					
4850000000-E	1205	368	LF	LINE REMOVAL 4" WIDE					

SUMMARY OF EARTHWORK

STATION	STATION	UNCL EXCAV.	EMBANK. + %	BORROW	WASTE
-L- STA 10 + 50.00	-L- STA 12 + 50.00	122	129	7	
SUBTOTALS:		122	129	7	
-Y1- STA 10 + 11.07	-Y1- STA 11 + 40.00	196	14		182
SUBTOTALS:		196	14		182
SUMMARIES SUBTOTAL		318	143	7	182
PROJECT TOTALS:		318	143	7	182
WASTE IN LIEU OF BORROW				-7	-7
GRAND TOTALS:		318			175
SAY:		325			

EST. DDE = 0 CY
EST UNDERCUT = 20 CY
EST SELECT GRANULAR MATERIAL = 20 CY
EST FABRIC FOR SOIL STABILIZATION = 50 SY

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD'
-L-	10 + 75	12 + 00	CL	264
-YI-	10 + 11	10 + 60	CL	109
TOTAL:				373
SAY:				380

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

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

[illegible]

"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

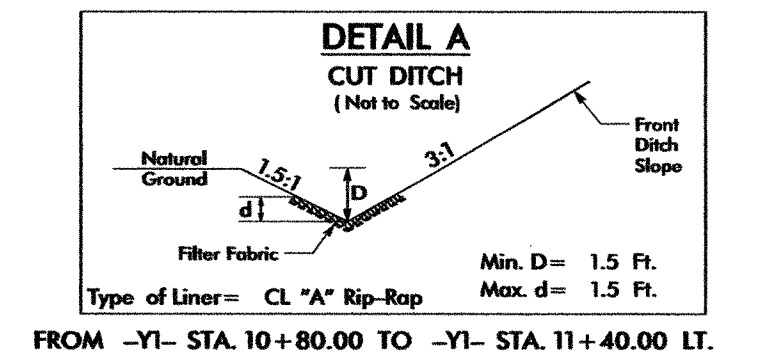
GUARDRAIL SUMMARY

[illegible]

1. ALL GUARDRAIL END UNITS ARE TYPE GRAU 350 TL-2.
2. APPLY 50' TRANSITION LT & RT FROM PROPOSED PAVEMENT WIDTH TO EXISTING PAVEMENT AT ALL TIE IN LOCATIONS.
3. OVERLAY EXISTING ROADWAY FROM -L- STA. 10+00.00 TO -L- STA. 10+50.00.
4. EST 3 TONS CL B RIP RAP AND 10 SY
FILT FAB FOR 18" RCP-IV (0401).
5. EST 3 TONS CL B RIP RAP AND 11 SY
FILT FAB FOR 24" RCP-IV (0402).
6. EST 17 TONS CL A RIP RAP AND 70 SY BEGIN PROJECT
FILT FAB FOR SPECIAL CUT DITCH, DETAIL A -L- PO
7. EST 50 TONS CL I RIP RAP AND 90 SY
FILT FAB FOR CHANNEL STABILIZATION

<i>PI Sta 11+33.16</i>	<i>PI Sta 12+80.86</i>
$\Delta = 33^{\circ} 48' 53.6" (LT)$	$\Delta = 17^{\circ} 19' 07.0" (LT)$
$D = 22^{\circ} 55' 05.9"$	$D = 17^{\circ} 27' 33.0"$
$L = 147.55'$	$L = 151.13'$
$T = 75.99'$	$T = 76.15'$
$R = 250.00'$	$R = 500.00'$
$RO = SEE PLANS$	$RO = SEE PLANS$

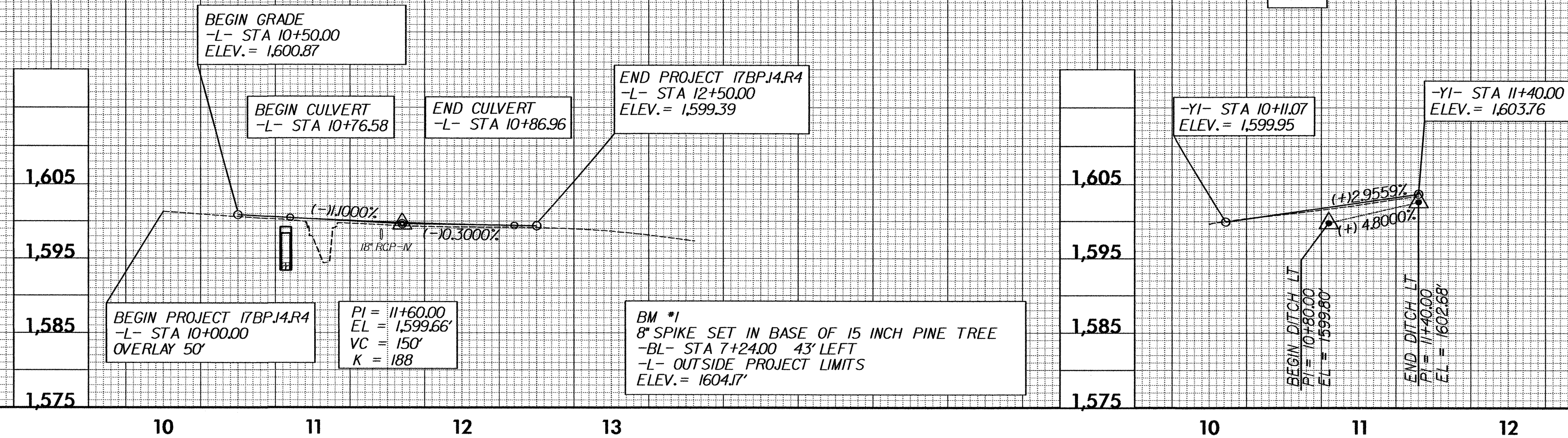
<i>PI Sta 10+15.20</i>	<i>PI Sta 10+92.37</i>
$\Delta = 41^{\circ} 36' 32.9''$ (RT)	$\Delta = 5^{\circ} 24' 19.3''$ (LT)
$D = 143^{\circ} 14' 22.0''$	$D = 9^{\circ} 32' 57.5''$
$L = 29.05'$	$L = 56.60'$
$T = 15.20'$	$T = 28.32'$
$R = 40.00'$	$R = 600.00'$
$R0 = SEE PLANS$	$R0 = SEE PLANS$



CULVERT HYDRAULIC DATA

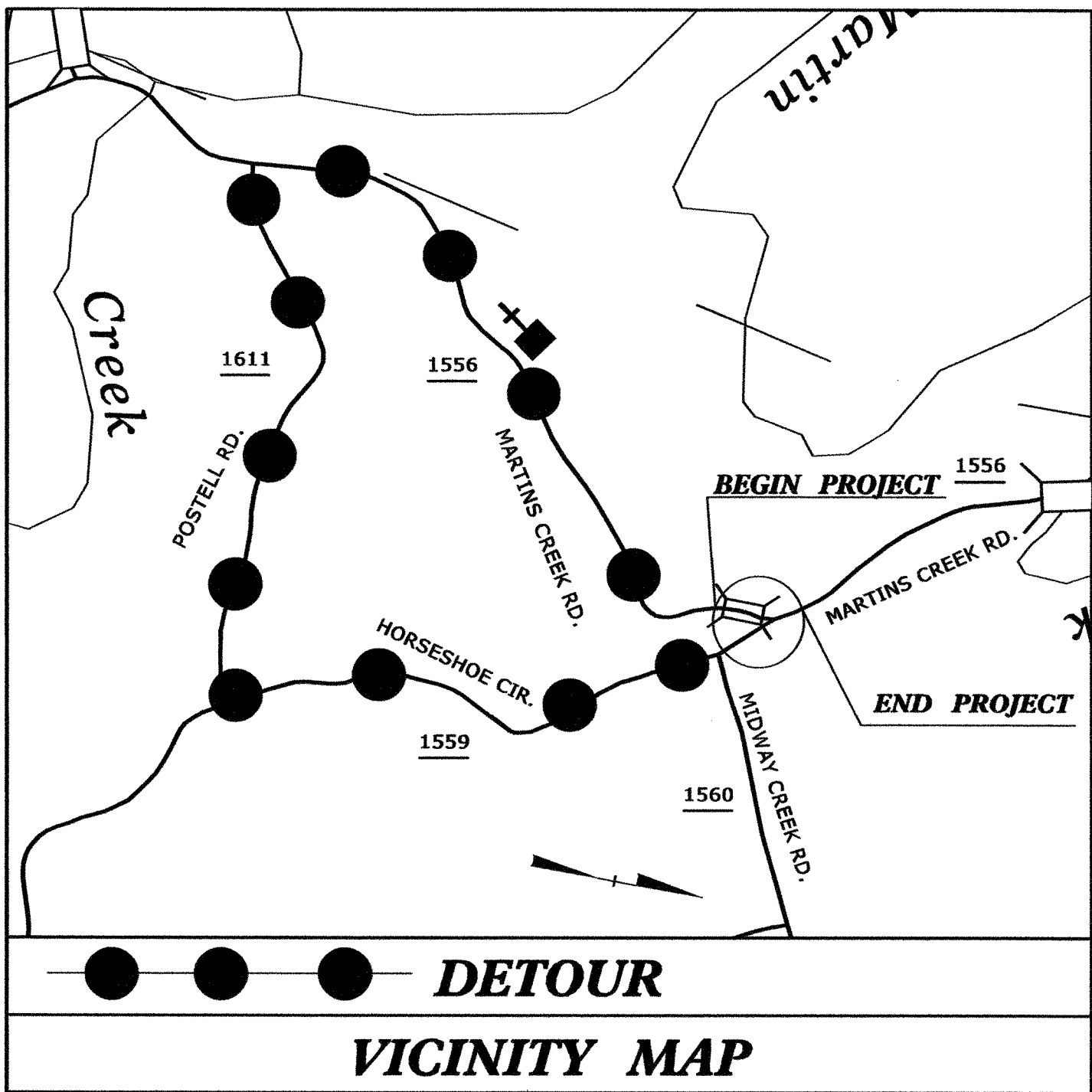
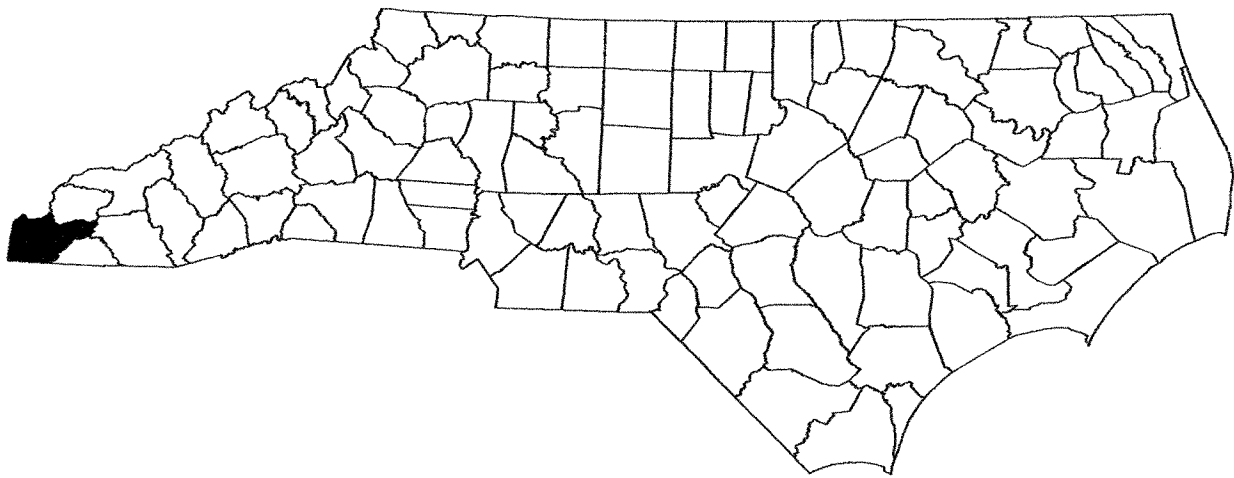
DESIGN DISCHARGE	= 120	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1598.0	FT
BASE DISCHARGE	= 180	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1599.14	FT
OVERTOPPING DISCHARGE	= 340	CFS
OVERTOPPING FREQUENCY	= 500 +	YRS
OVERTOPPING ELEVATION	= 1600.8	FT

DRAINAGE STRUCTURE No.0401 (18" RCP-III)	
DRAINAGE AREA	= 1.8 AC
DESIGN FREQUENCY	= 25 YRS
DESIGN DISCHARGE	= 3.6 CFS
DESIGN HW ELEVATION	= 1598.5 FT
100 YEAR DISCHARGE	= 4.4 CFS
100 YEAR HW ELEVATION	= 1598.6 FT
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING DISCHARGE	= 12.0 CFS
OVERTOPPING ELEVATION	= 1600.0 FT



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN
CHEROKEE COUNTY



LOCATION: BRIDGE NO. 195 ON SR 1556 OVER MARTINS CREEK

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ARCHITECTS-ENGINEERS-PLANNERS, INC.
1520 SOUTH BLVD., SUITE 200
CHARLOTTE, NC 28203

KENNETH HERRING, PE
PROJECT ENGINEER

JASON TALLEY, PE
PROJECT DESIGN ENGINEER

INDEX OF SHEETS	
SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND AND MANAGEMENT STRATEGIES
TMP-1B	GENERAL NOTES
TMP-2	TEMPORARY TRAFFIC CONTROL PHASING
TMP-3	TEMPORARY TRAFFIC CONTROL DETAIL
TMP-4	TEMPORARY TRAFFIC CONTROL PHASE II
TMP-5	TEMPORARY TRAFFIC CONTROL PHASE III
TMP-6	DETAIL FOR WORK ZONE SIGNING

APPROVED:
DATE:

SEAL

3-27-2013

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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 JANAUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.03	PAVEMENT MARKINGS - EXITS AND ENTRANCE RAMPS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.10	PAVEMENT MARKINGS - SCHOOL AREAS
1205.11	PAVEMENT MARKINGS - RAILROAD CROSSINGS
1205.12	PAVEMENT MARKINGS - BRIDGES
1205.13	PAVEMENT MARKINGS - LANE REDUCTIONS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

MANAGEMENT STRATEGIES

CONSTRUCTION

REMOVE AND REPLACE EXISTING STRUCTURE AND APPROACHES ALONG THE EXISTING ROADWAY ALIGNMENT AS SHOWN IN THE CONSTRUCTION PLANS.

TMP DESIGN PARAMETERS

DURING PHASE I CONSTRUCTION TRAFFIC WILL BE DETOURED OFF-SITE DURING THE CONSTRUCTION PERIOD.

THE OFF-SITE DETOUR WILL INCLUDE SR 1556, SR 1611, SR 1559 AND SR 1560. (SEE SHEET TMP 4)

DURING THE REMAINING PHASES OF CONSTRUCTION, SR 1556 AND SR 1560 TRAFFIC WILL BE PLACED IN A ONE-LANE, TWO-WAY PATTERN.

FLAGGERS AT THE BEGINNING AND END OF SR 1556 AND SR 1560 WILL MANAGE TRAFFIC.

THE TIE IN CONSTRUCTION, TRAFFIC SHIFTS, PLACEMENT OF FINAL SURFACE COURSE AND PAVEMENT MARKINGS WILL BE PERFORMED USING FLAGGER OPERATIONS.

LEGEND

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.4	TMP-1A

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.

- PROPOSED CONSTRUCTION
- PAVEMENT REMOVAL
- PAVEMENT MILLING

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW PANEL (TYPE C)
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY PAVEMENT MARKING

NONE

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

SIGNALS

- TEMPORARY PORTABLE TRAFFIC SIGNAL SYSTEM

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

APPROVED: DATE:

SEAL

NORTH CAROLINA
PROFESSIONAL
ENGINEER
JASON M. TALLEY
3-27-2013

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ROADWAY STANDARD
DRAWINGS, LEGEND, AND
MANAGEMENT STRATEGIES

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 ENGINEER.
- 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.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.
- F) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- G) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:
- BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.
- BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.
- BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.
- H) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 200' IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- J) INSTALL ADVANCE 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.
- K) 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.
- L) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.
- COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

- M) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- N) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 100' IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

- O) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- P) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- Q) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES DRUMS PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

TEMPORARY PAVEMENT MARKINGS AND MARKERS

- R) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
-L- (SR 1556, MARTINS CREEK ROAD)	COLD APPLIED PLASTIC (TYPE 4)	N/A
-Y1- (SR 1560, MIDWAY CREEK ROAD)	COLD APPLIED PLASTIC (TYPE 4)	N/A

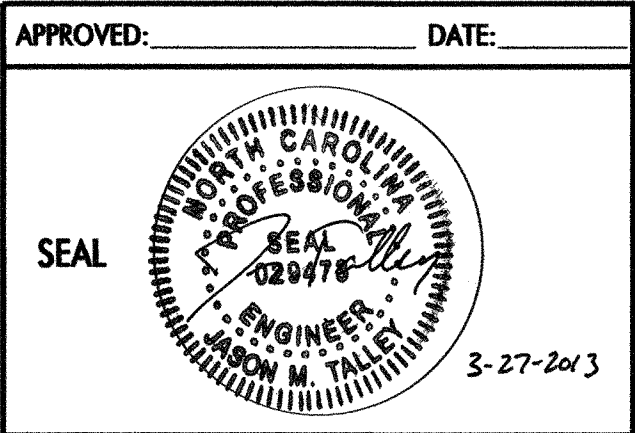
- S) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- T) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- U) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

PAVEMENT MARKINGS AND MARKERS

- V) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS SHOWN IN THE PAVEMENT MARKING PLAN.
- W) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

MISCELLANEOUS

- X) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 200' AND 200' RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.



GENERAL
NOTES

PHASING

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.4	TMP-2

NOTE: MAINTAIN ACCESS TO ALL RESIDENCES WITHIN THE PROJECT LIMITS.

PHASE I

- NOTE: PRIOR TO CONSTRUCTION, INSTALL OFF-SITE DETOUR ROUTE SIGN ASSEMBLIES FOR THE CLOSING OF SR 1556 (MARTINS CREEK RD, -L-) AND SR 1560 (MIDWAY CREEK RD, -Y1-) AS SHOWN ON TMP-8.
- USING ROADWAY STANDARD DRAWING NO . 1101.03, SHEETS 1 OF 9, CLOSE SR 1556 (MARTINS CREEK RD, -L-) AND SR 1560 (MIDWAY CREEK RD, -Y1-) TO THRU TRAFFIC.
- THE CONTRACTOR SHALL WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK IN PHASE I, STEP 1 IN ONE WORK PERIOD.
- STEP 1: USING RSD 1101.02, SHEET 1 OF 15 COMPLETE THE FOLLOWING AS SHOWN ON TMP-3 AND CONSTRUCTION PLANS:
- REMOVE EXISTING BRIDGE.
- NOTE: CONSTRUCT ANY PROPOSED WIDENING IN SUCH A MANNER THAT PONDING OF WATER WILL NOT OCCUR IN THE TRAVEL LANE.
- STEP 2: USING RSD 1101.02, SHEET 1 OF 15, COMPLETE THE FOLLOWING AS SHOWN ON TMP-4 AND CONSTRUCTION PLANS:
- ACTIVATE TEMPORARY PORTABLE TRAFFIC SYSTEM.
 - SHIFT TRAFFIC TO A ONE-LANE, TWO-WAY PATTERN ON EXISTING SR 1556 -L- LT. AND SR 1560 -Y1- LT. FROM 250' PAST -L- 12+75.00 +/- TO 250' PAST -Y1- 11+40.00 +/-.
 - NOTE: THE CONTRACTOR SHALL UTILIZE SIGNALS, AS DIRECTED BY THE ENGINEER, FOR LANE/ROAD CLOSURES. HOWEVER, DRUMS SHALL BE USED TO DELINEATE THE TRAVEL WAY.
- STEP 3:
- RESURFACE EXISTING ROADWAY BED AS SHOWN FROM -L- STA. 10+50 +/- TO -L- STA. 11+28 +/- OR AS DIRECTED BY ENGINEER.
 - CONSTRUCT -L- PROPOSED CULVERT AND ROADWAY APPROACHES UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE FROM -L- STA. 10+50 +/- TO -L- STA. 11+28 +\..
 - INSTALL PERMANENT GUARDRAIL ON THE LEFT AND RIGHT SIDE OF -L-.
 - PLACE TEMPORARY PAVEMENT MARKINGS ON -L- APPROACHES.

PHASE II

- NOTE: REMOVE ALL DETOUR ROUTE SIGNING FROM PROJECT AREA. INSTALL ADVANCE WORK ZONE WARNING SIGNS AS SHOWN ON SHEET TMP-6.
- THE CONTRACTOR SHALL WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK IN PHASE II, STEP 1 IN ONE WORK PERIOD.
- STEP 1: USING RSD 1101.02, SHEET 1 OF 15, SIGNALS, AND DRUMS TO DELINEATE THE TRAVEL WAY AND MAINTAIN ONE-LANE, TWO-WAY PATTERN, COMPLETE THE FOLLOWING AS SHOWN ON TMP-4 AND CONSTRUCTION PLANS:
- INSTALL DRUMS AND TYPE III BARRICADES TO CLOSE EXISTING SR 1556/1560 -L- TO TRAFFIC FROM -L- STA. 11+28 +/- LT. TO -L- 12+50 +/- LT. AND -Y1- STA. 10+11 +/- RT. TO -Y1- 11+40 +/- RT.
- NOTE: CONSTRUCT ANY PROPOSED WIDENING IN SUCH A MANNER THAT PONDING OF WATER WILL NOT OCCUR IN THE TRAVEL LANE.
- STEP 2: USING RSD 1101.02, SHEET 1 OF 15, AND SIGNALS, COMPLETE THE FOLLOWING AS SHOWN ON TMP-5 AND CONSTRUCTION PLANS:
- RESURFACE AND CONSTRUCT EXISTING ROADWAY BED AS SHOWN FROM -L- STA. 11+28 +/- LT. TO -L- STA. 12+50 +/- LT. RESURFACE AND CONSTRUCT EXISTING -Y1- STA. 10+11 +/- RT. TO -Y1- STA 11+40 +/- RT. OR AS DIRECTED BY ENGINEER. USE INCIDENTAL STONE BASE AS DIRECTED BY THE ENGINEER.
 - REMOVE ROAD CLOSED BARRICADE AND ACTIVATE TEMPORARY PORTABLE TRAFFIC SYSTEM.

PHASE III

- NOTE: THE CONTRACTOR SHALL WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK IN PHASE III, STEP 1 IN ONE WORK PERIOD.
- STEP 1: USING RSD 1101.02, SHEET 1 OF 15, SIGNALS, AND DRUMS TO DELINEATE THE TRAVEL WAY AND MAINTAIN ONE-LANE, TWO-WAY PATTERN, COMPLETE THE FOLLOWING AS SHOWN ON TMP-5 AND CONSTRUCTION PLANS:
- INSTALL DRUMS AND TYPE III BARRICADES TO CLOSE EXISTING SR 1556/1560 -L- TO TRAFFIC FROM -L- STA. 11+28 +/- RT. TO -L- 12+50 +/- RT. AND -Y1- 10+11 +/- LT. TO -Y1- 11+40 +/- LT.
- NOTE: CONSTRUCT ANY PROPOSED WIDENING IN SUCH A MANNER THAT PONDING OF WATER WILL NOT OCCUR IN THE TRAVEL LANE.
- STEP 2: USING RSD 1101.02, SHEET 1 OF 15, AND SIGNALS, COMPLETE THE FOLLOWING AS SHOWN ON TMP-5 AND CONSTRUCTION PLANS:
- RESURFACE AND CONSTRUCT EXISTING ROADWAY BED AS SHOWN FROM -L- STA. 11+28 +/- RT. TO -L- STA. 12+50 +/- RT.RESURFACE AND CONSTRUCT EXISTING -Y1- STA. 10+11 +/- LT. TO -Y1- STA 11+40 +/- LT. OR AS DIRECTED BY ENGINEER. USE INCIDENTAL STONE BASE AS DIRECTED BY THE ENGINEER.

PHASE IV

- NOTE: THE CONTRACTOR SHALL WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK IN PHASE III, STEP 1 IN ONE WORK PERIOD.
- STEP 1: USING RSD 1101.02, SHEET 1 OF 15, SIGNALS, AND DRUMS TO DELINEATE THE TRAVEL WAY AND MAINTAIN ONE-LANE, TWO-WAY PATTERN, COMPLETE THE FOLLOWING AS SHOWN ON CONSTRUCTION PLANS:
- PLACE THE FINAL SURFACE LAYER, PAVEMENT MARKINGS AND PAVEMENT MARKERS ON -L- STA 10+50.00 TO -L- STA. 12+50.00 RT. AND -Y- 10+11.07 TO -Y1- 11+40.00 LT. (SEE PMP-2).
 - OPEN TRAFFIC TO FINAL PATTERN.
- STEP 2: USING RSD 1101.02, SHEET 1 OF 15, SIGNALS, AND DRUMS TO DELINEATE THE TRAVEL WAY AND MAINTAIN ONE-LANE, TWO-WAY PATTERN, COMPLETE THE FOLLOWING AS SHOWN ON CONSTRUCTION PLANS:
- PLACE THE FINAL SURFACE LAYER, PAVEMENT MARKINGS AND PAVEMENT MARKERS ON -L- STA 10+50.00 TO -L- STA. 12+50.00 LT. AND -Y- 10+11.07 TO -Y1- 11+40.00 RT. (SEE PMP-2).
- STEP 3:
- DEACTIVATE AND REMOVE TEMPORARY PORTABLE TRAFFIC SIGNAL SYSTEM, REMOVE SIGNING, AND REMOVE TEMPORARY DEVICES ASSOCIATED WITH ONE-LANE, TWO-WAY TRAFFIC PATTERN.
 - OPEN TRAFFIC TO FINAL PATTERN.

APPROVED:DATE:

SEAL

3-27-2013

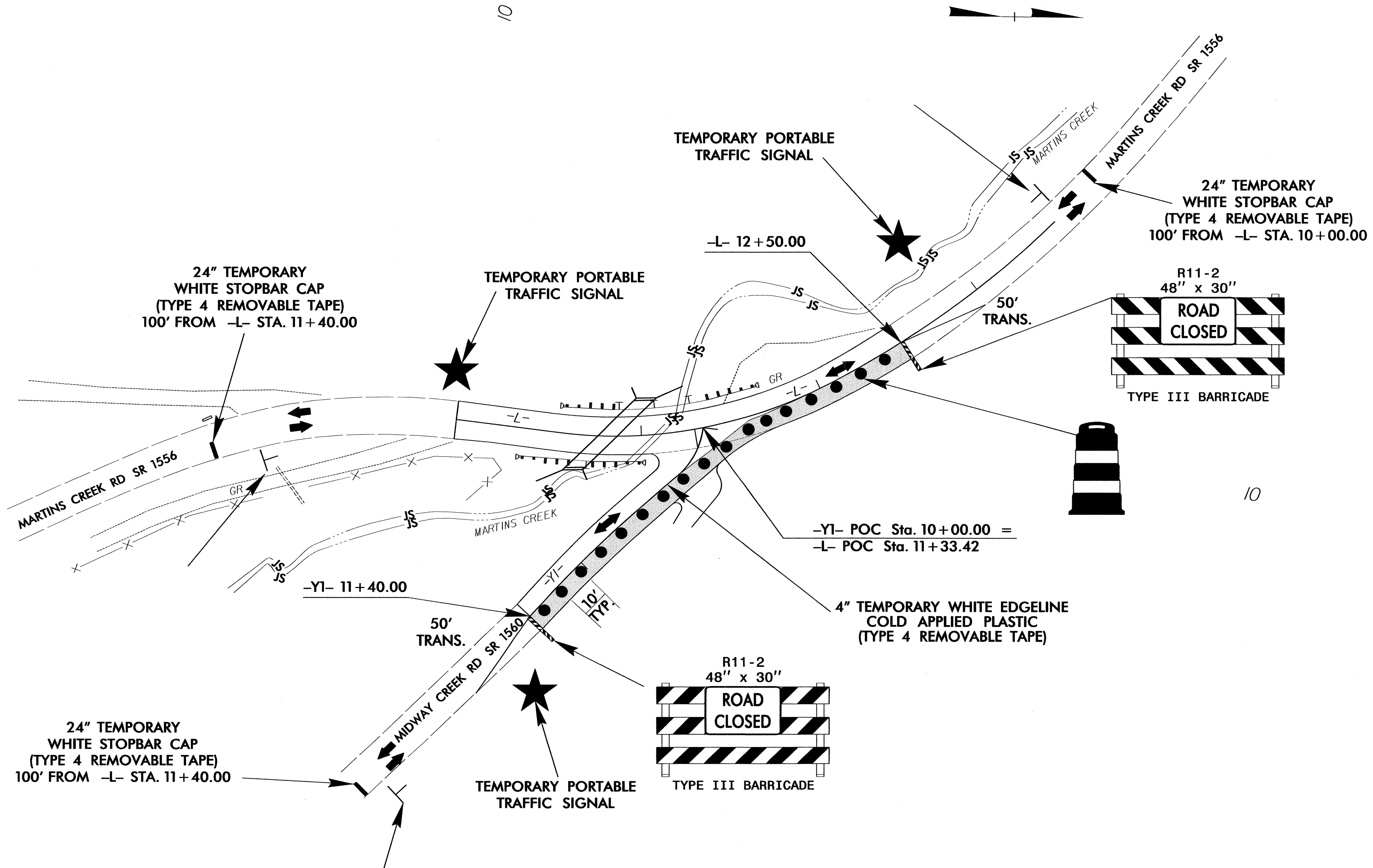
RS&H

IMPROVING YOUR WORLD

RS&H Architects-Engineers-Planners, Inc.

TEMPORARY TRAFFIC CONTROL PHASING

10/8/2012 10:58:59 AM K:\Bids\17BP.14.R.4\17BP.14.R.4-TMP.dgn



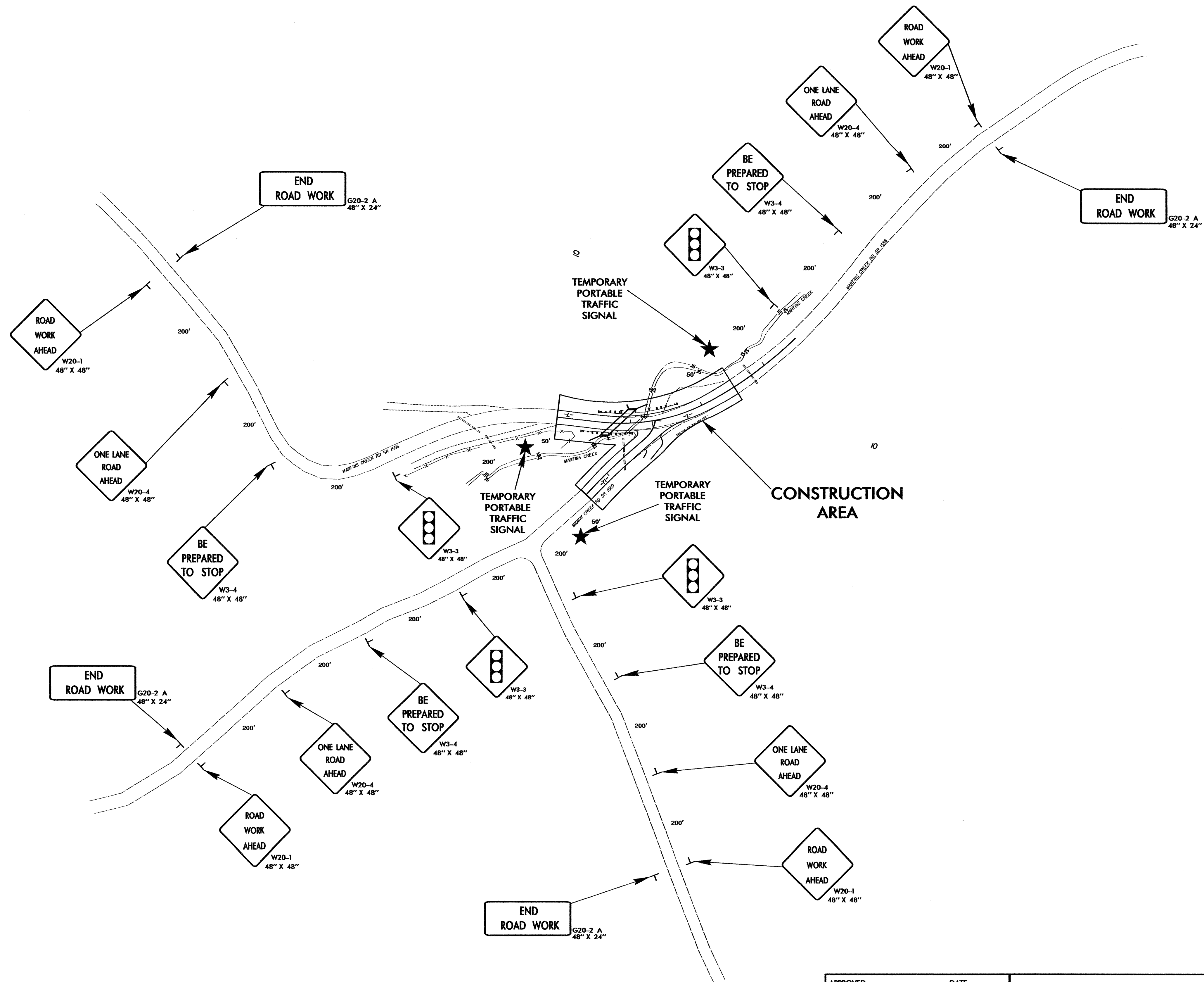
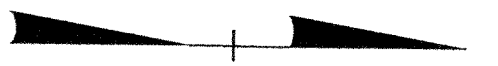
PROPOSED CONSTRUCTION

APPROVED:	DATE:

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TEMPORARY TRAFFIC CONTROL PHASE III

10/10/2012 10:05:15 AM
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 11:23:08 AM



10/10/2012 2:53:23 PM X:\P\5119ge 190195\Project Production\TrafficControl\190195_TC_TMP_6.dgn

APPROVED:	DATE:
	2-27-2013

 RS&H IMPROVING YOUR WORLD RS&H Architects-Engineers-Planners, Inc.	DETAIL FOR WORK ZONE SIGNING
--	---

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

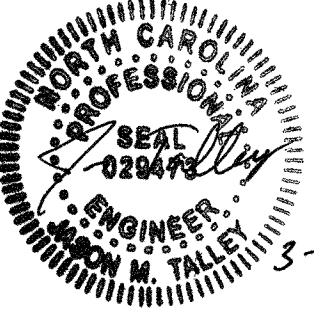
CHEROKEE COUNTY

LOCATION: REPLACE BRIDGE No.195 ON SR 1556 OVER
MARTINS CREEK

PROJ. REFERENCE NO.
17BP.14.R.4

SHEET NO.
PMP-1

APPROVED: _____ DATE: _____




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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 JANAUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS
1261.01	GUARDRAIL AND BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

PAVEMENT MARKING SCHEDULE
TIP PROJECT 17BP.14.R.4

FINAL
PAVEMENT MARKINGS

PA	WHITE EDGELINE	PAINT (4")
PI	YELLOW DOUBLE CENTER	PAINT (4")
STOP BAR		PAINT (24")

PLAN PREPARED BY: RS&H ARCHITECT-ENGINEERS-PLANNERS, INC.

KENNETH HERRING, PE	PROJECT ENGINEER
JASON TALLEY, PE	PROJECT DESIGN ENGINEER

GENERAL NOTES

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

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

ROAD NAME	MARKING	MARKER
SR 1556	PAINT	N/A
SR 1560	PAINT	N/A

PLACE TWO (2) APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF FIRST.

- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES
- C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
- D) PASSING ZONE WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.
- E) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON THE BRIDGE DECK PRIOR TO PLACING PAINT PAVEMENT MARKING.

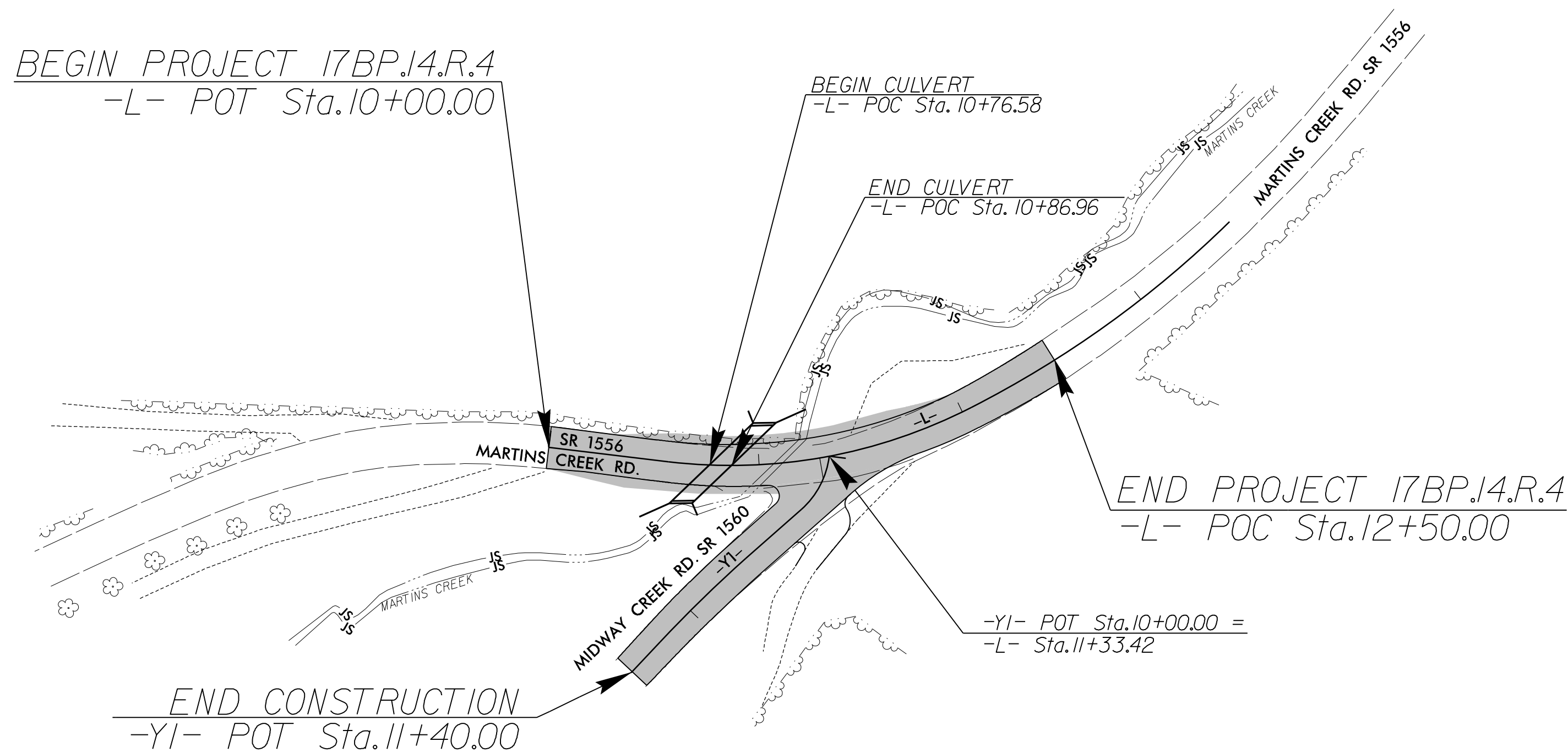
INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING & SIGNING PLAN TITLE SHEET SIGNING & PAVEMENT MARKING SCHEDULE
PMP-2	PAVEMENT MARKING DETAIL

TIP PROJECT: 17BP.14.R.4

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
CHEROKEE COUNTY

LOCATION: REPLACE BRIDGE NO.195 ON SR 1556 OVER MARTINS CREEK
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.4	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.14.R.4	N/A	PE	
17BP.14.R.4	N/A	ROW, UTL	
17BP.14.R.4	N/A	CONST.	

EROSION AND SEDIMENT CONTROL MEASURES

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

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

GRAPHIC SCALE



PLANS

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY
WITH THE REGULATIONS SET FORTH BY THE
NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011
ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND
NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:
RS&H
ARCHITECTS-ENGINEERS-PLANNERS, INC.
1520 SOUTH BLVD., SUITE 200
CHARLOTTE, NC

WILL WEATHERSBEE
LEVEL IIIA NAME
3161
LEVEL IIIA CERTIFICATION NO.

2012 STANDARD SPECIFICATIONS

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 revision 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		

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.R.4	EC-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

[illegible]

PERMANENT SOIL REINFORCEMENT MAT

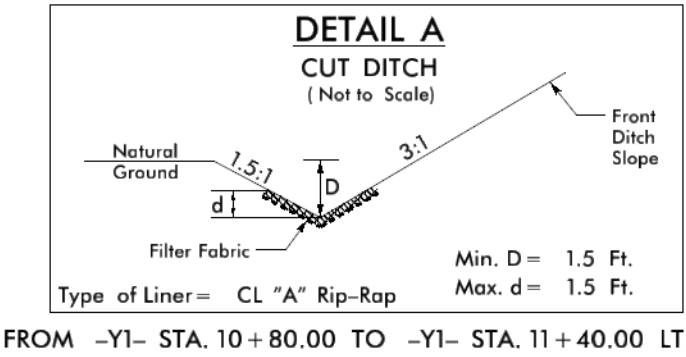
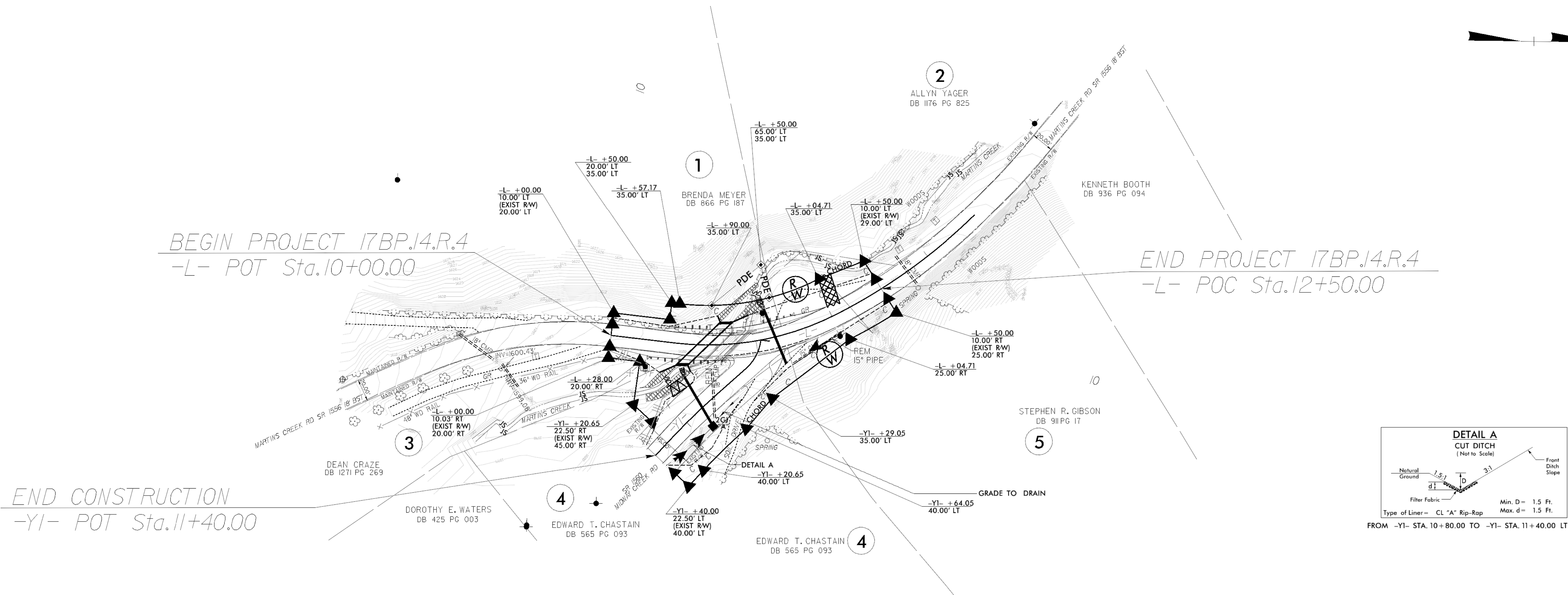
[illegible]

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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.

EROSION CONTROL PLAN



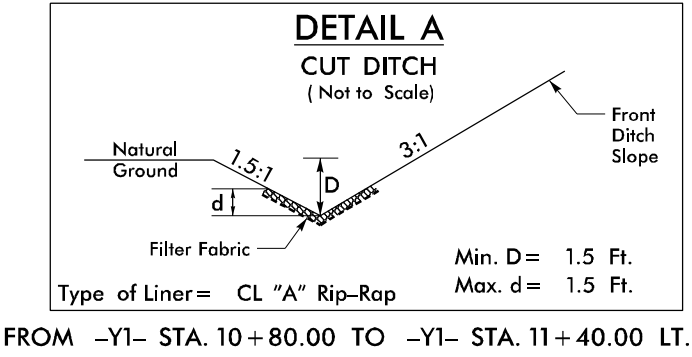
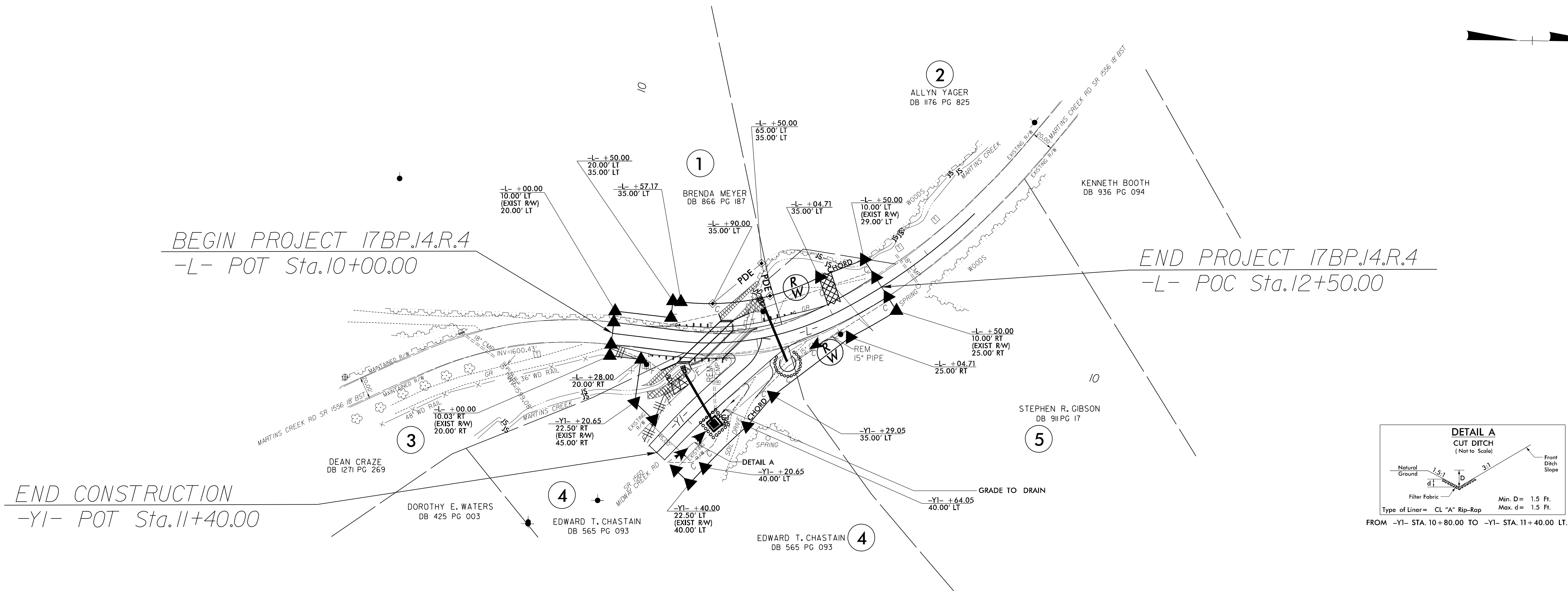
NOTE:
UTILIZE SPECIAL STILLING BASIN
AS STILLING BASIN WHERE APPLICABLE

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 3

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.

EROSION CONTROL PLAN



NOTE:
UTILIZE SPECIAL STILLING BASIN
AS STILLING BASIN WHERE APPLICABLE

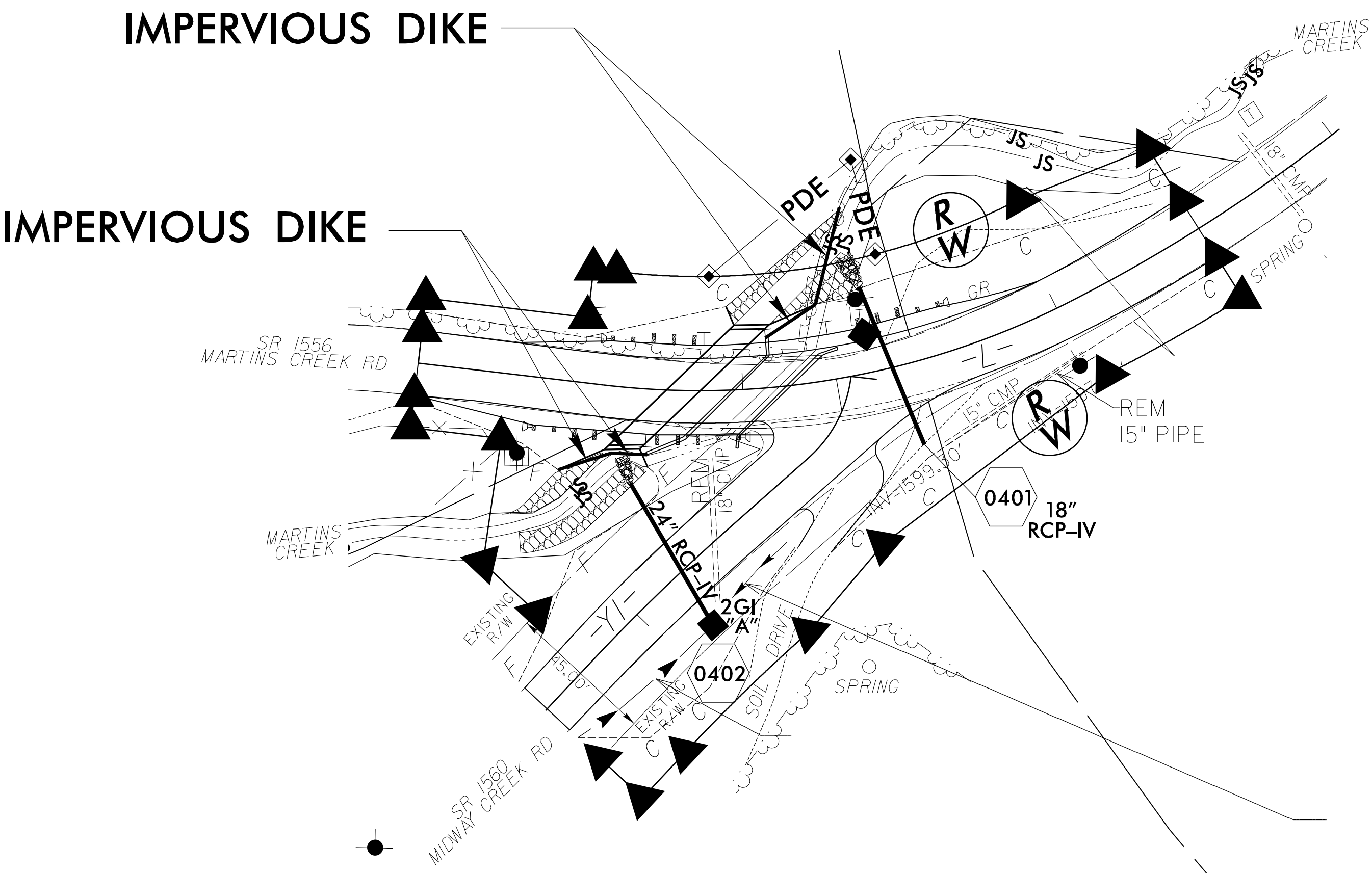
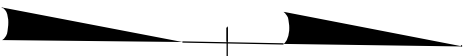
NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL
REQUIRE PRIOR APPROVAL BY ENGINEER.

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

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.R.4	EC-5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE -L- STA. 10+81.71

- 1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED THROUGHOUT CULVERT CONSTRUCTION.
- 2. CONSTRUCT IMPERVIOUS DIKES.
- 3. CONSTRUCT PROPOSED CULVERT AND A PORTION OF INLET/OUTLET CHANNEL IMPROVEMENTS.
- 4. REMOVE IMPERVIOUS DIKES AND DIVERT FLOW THROUGH CULVERT.
- 5. REMOVE EXISTING BRIDGE AND CONSTRUCT REMAINDER OF INLET/OUTLET CHANNEL IMPROVEMENTS.
- 6. COMPLETE ROADWAY.

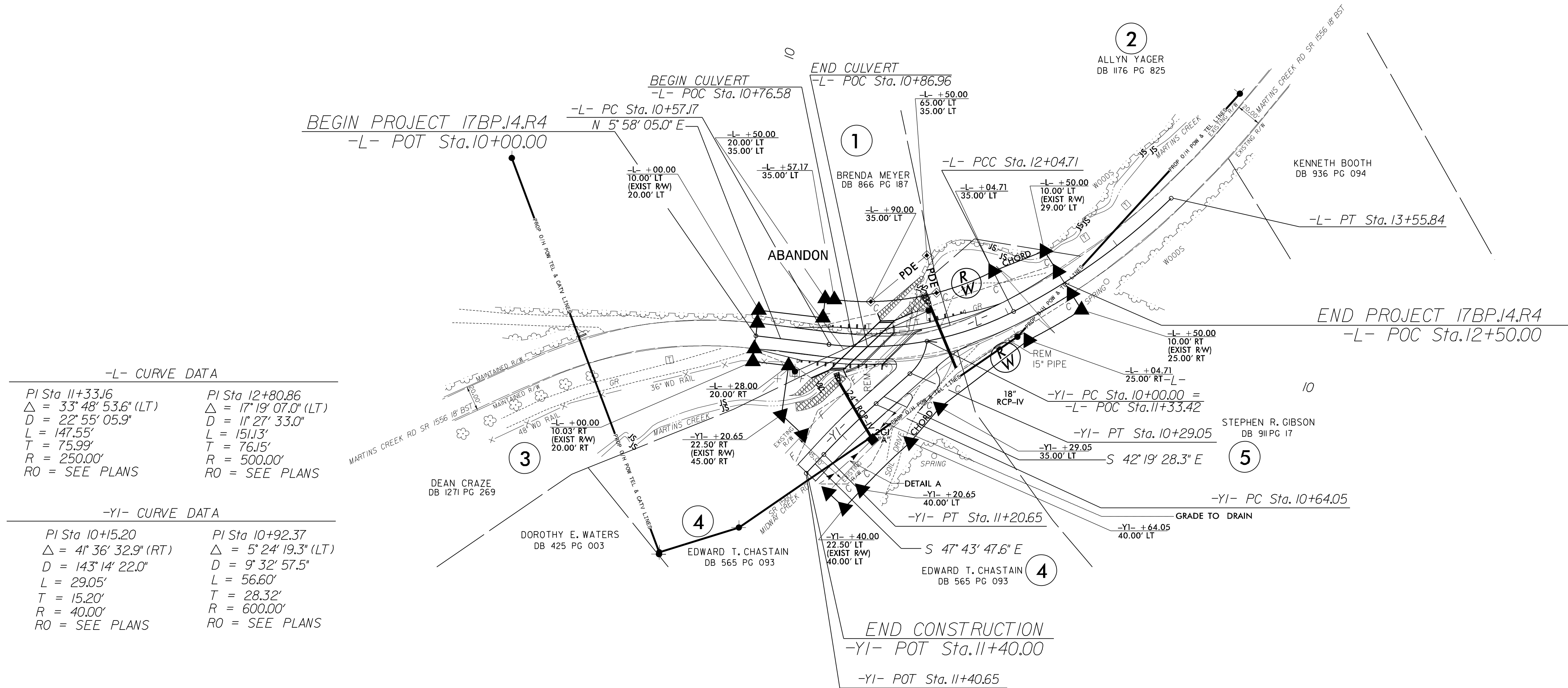
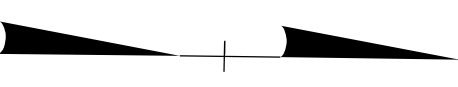


UTILITIES BY OTHERS PLANS

LOCATION: REPLACE BRIDGE No. 195 ON SR 1556 OVER MARTINS CREEK
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

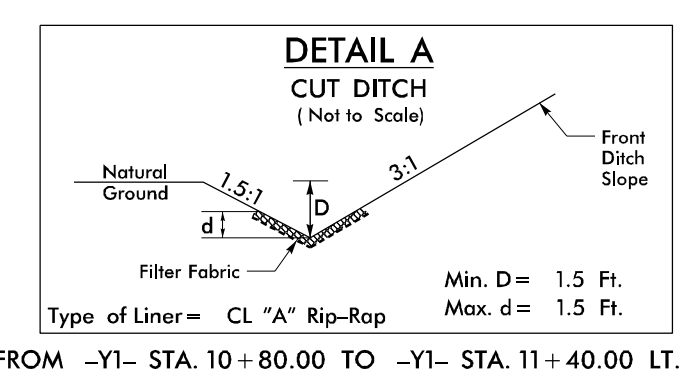
NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

NOTE:
FOR INFORMATION ONLY



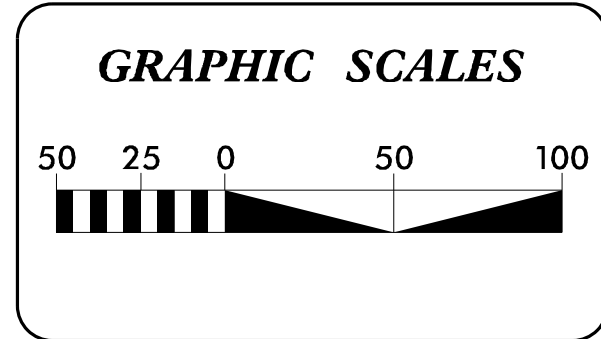
-L- CURVE DATA	
PI Sta 11+33.16 Δ = 33° 48' 53.6" (LT) D = 22° 55' 05.9" L = 147.55' T = 75.99' R = 250.00' RO = SEE PLANS	PI Sta 12+80.86 Δ = 17° 19' 07.0" (LT) D = 11° 27' 33.0" L = 151.13' T = 76.15' R = 500.00' RO = SEE PLANS

-YI- CURVE DATA	
PI Sta 10+15.20 Δ = 41° 36' 32.9" (RT) D = 143° 14' 22.0" L = 29.05' T = 15.20' R = 40.00' RO = SEE PLANS	PI Sta 10+92.37 Δ = 5° 24' 19.3" (LT) D = 9° 32' 57.5" L = 56.60' T = 28.32' R = 600.00' RO = SEE PLANS



NEW AERIAL TELEPHONE CABLE WILL BE PLACED ON EXISTING UTILITY POLES.
THE EXISTING BURIED TELEPHONE CABLE WILL BE ABANDONED IN PLACE.
THE EXISTING TELEPHONE PEDESTALS (2) WILL BE REMOVED.
THE EXISTING AERIAL TELEPHONE CABLE AND POLES ADJACENT TO PROPOSED
STRUCTURE WILL BE REMOVED.

CABLE TV LINES ARE OVERHEAD AND ARE LOCATED ON EXISTING POWER POLES.

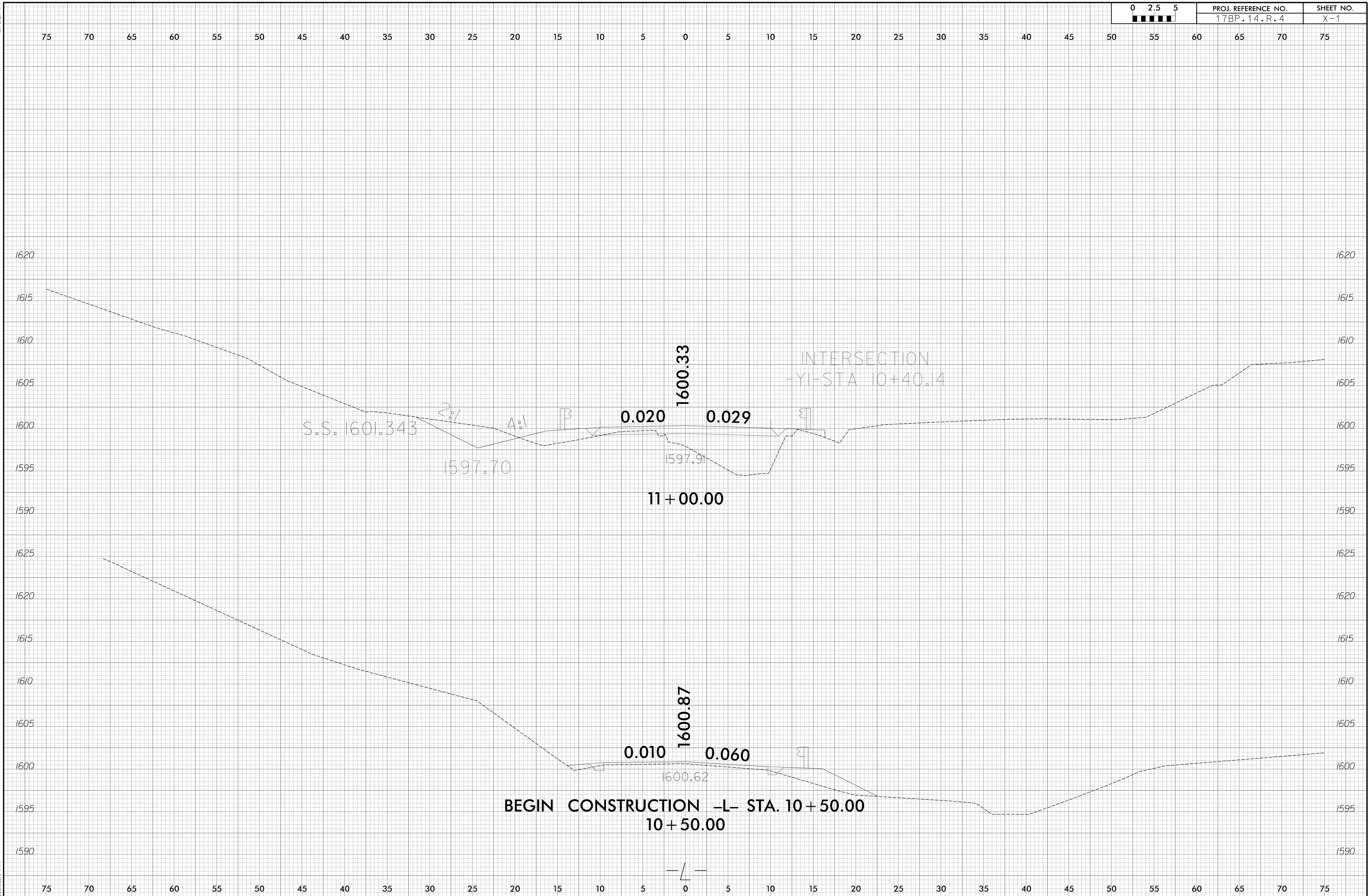


UTILITY OWNERS ON PROJECT
(1) FRONTIER COMMUNICATIONS
(2) MURPHY ELECTRIC POWER BOARD (NO CONFLICT)
(3) MURPHY CABLE TV (NO CONFLICT)

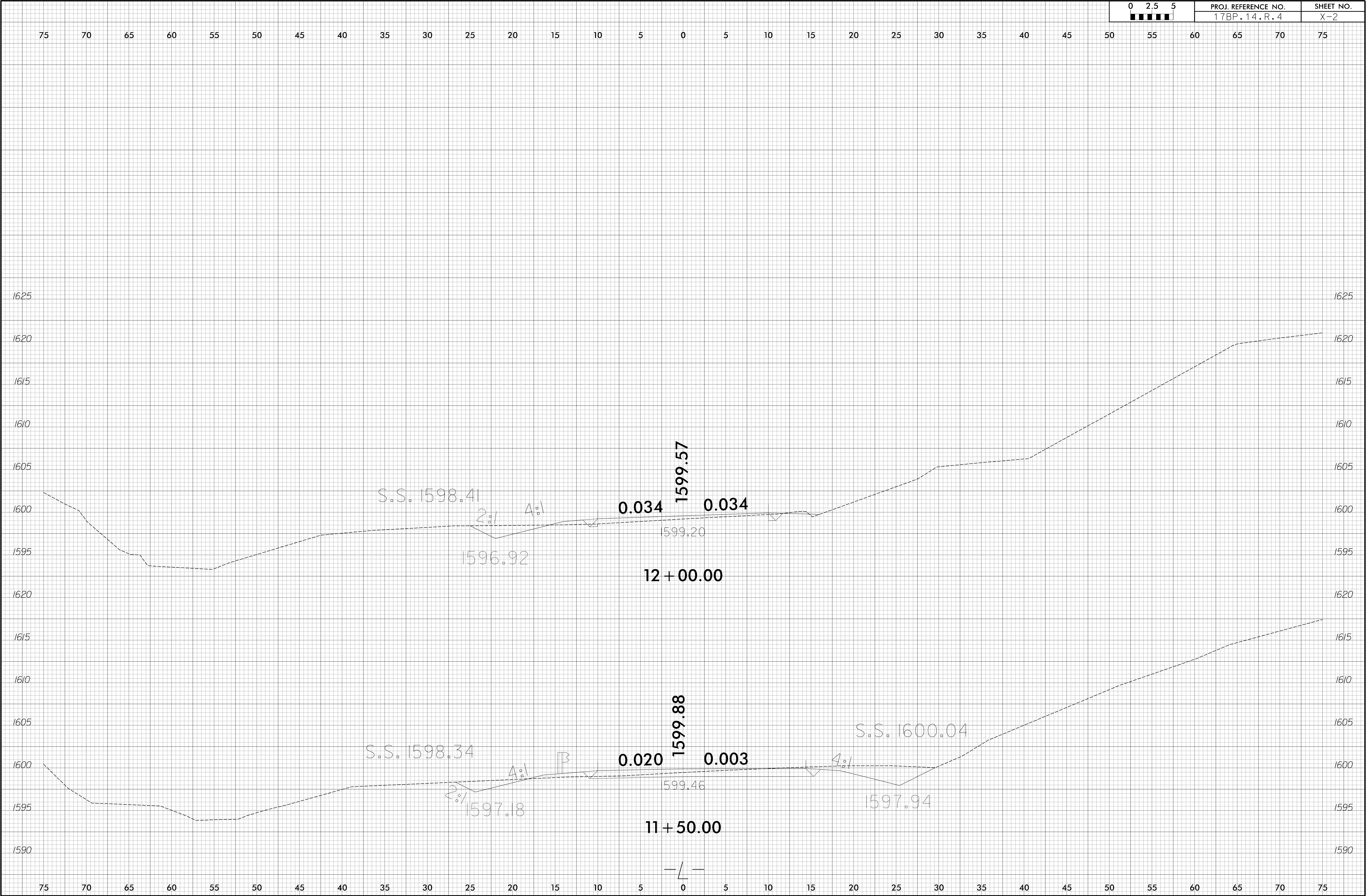
NOTE:
FOR ROADWAY AND DRAINAGE INFORMATION, SEE SHEET 4.
FOR LOCATION AND SURVEY DATA SEE SHEET 1-C.

PREPARED IN THE OFFICE OF:
RS&H
ARCHITECTS-ENGINEERS-PLANNERS, INC.
1520 SOUTH BLVD., SUITE 200
CHARLOTTE, NC 28203
PHONE (704) 940-3681

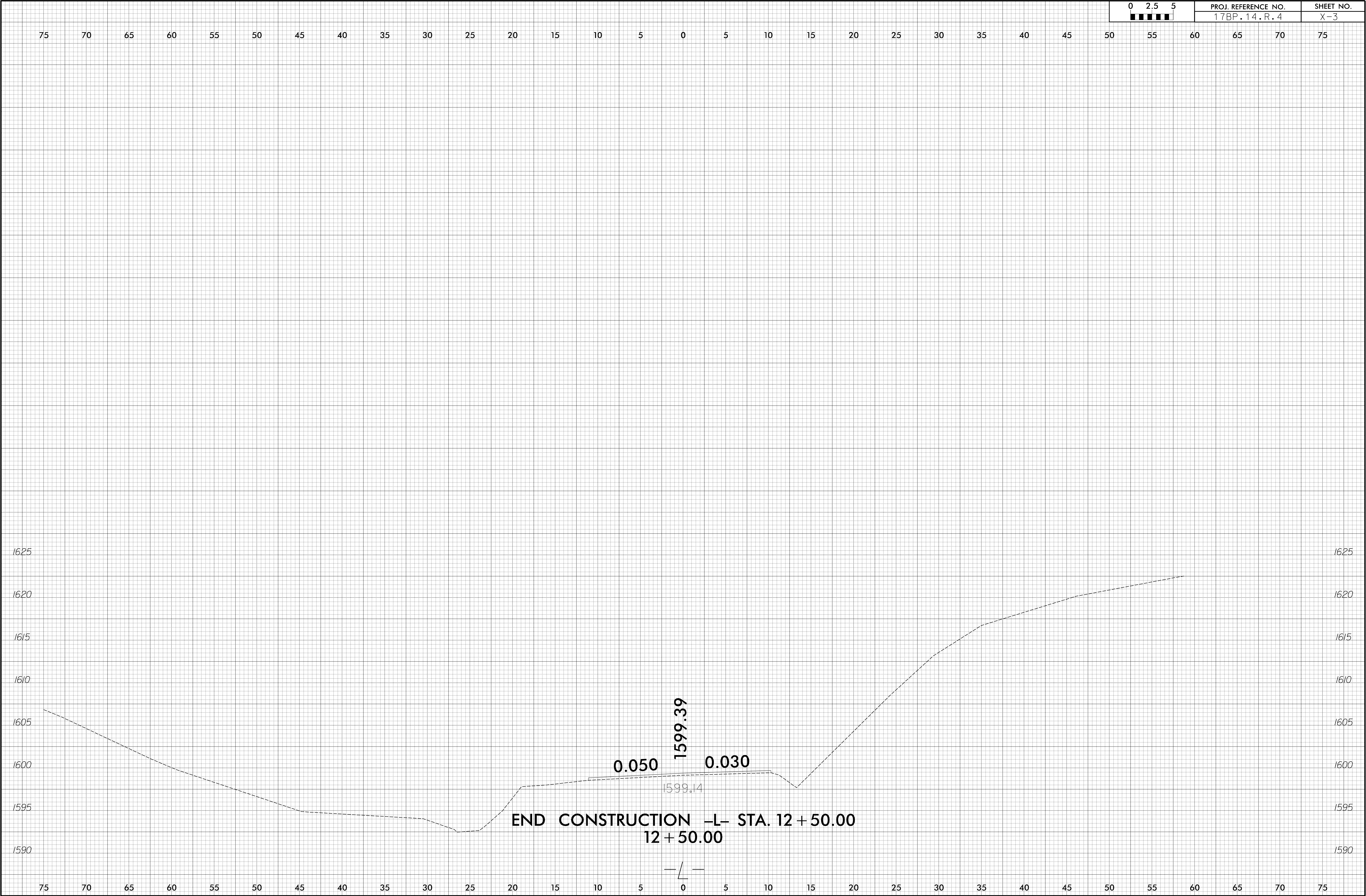
Kenneth Herring, P.E. UTILITIES ENGINEER
Jason Talley, P.E. UTILITIES COORDINATION ENGINEER

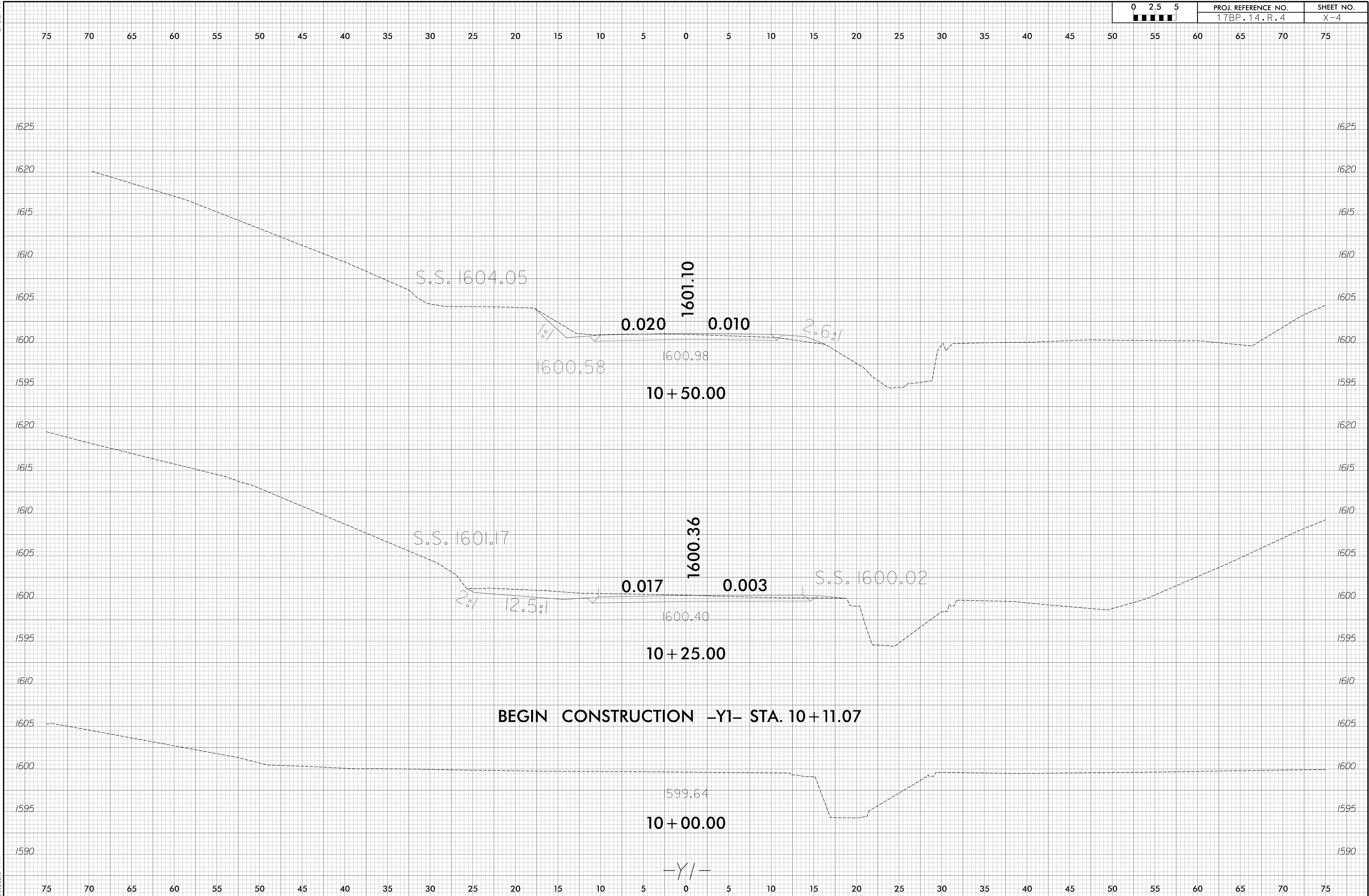


0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.14.R.4	X-2



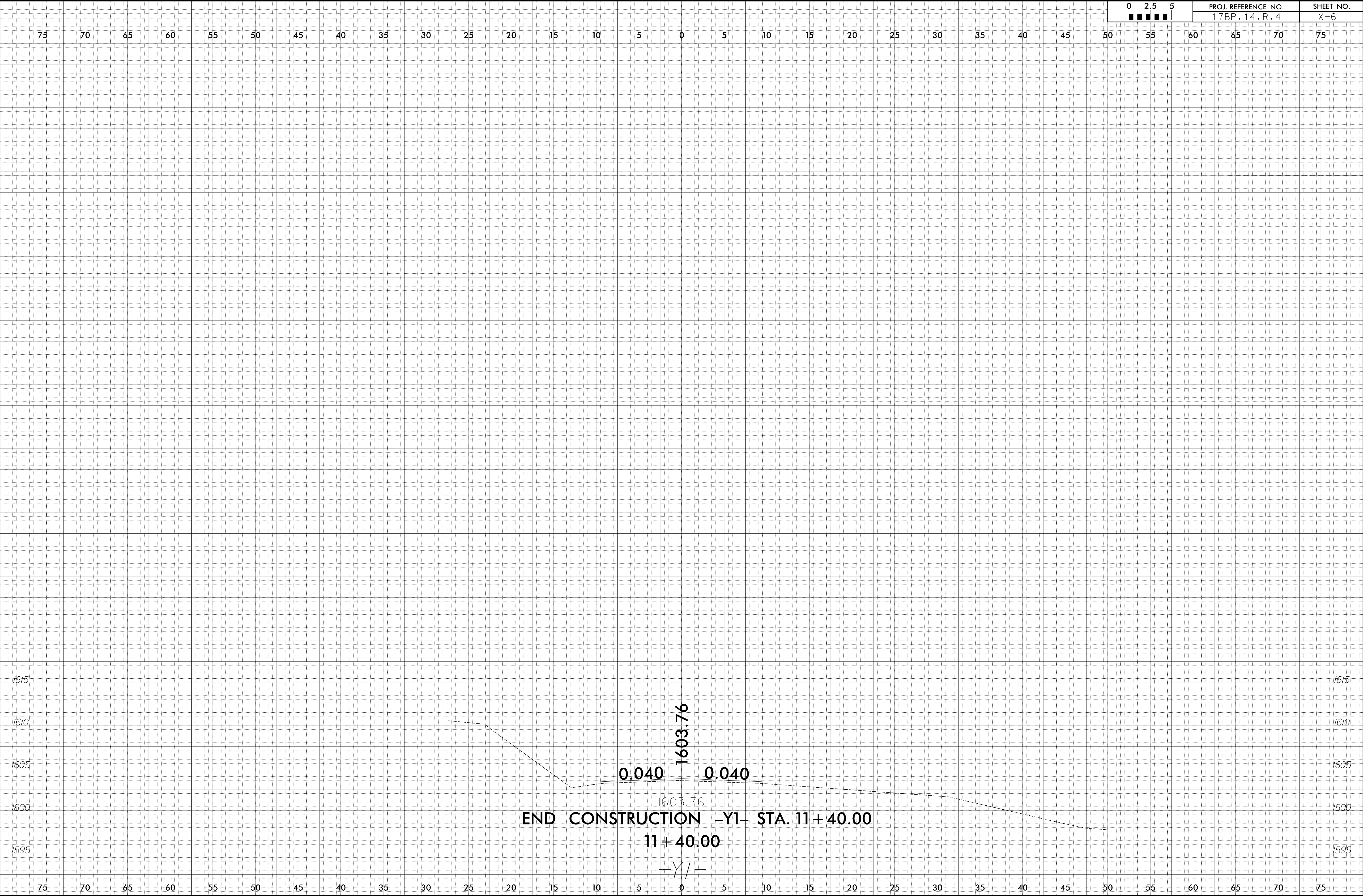
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	17BP.14.R.4	X-3







0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.14.R.4	X-6



BENCH MARK #1 8" SPIKE SET IN BASE OF 15" PINE TREE,
STA 7+24.11 -BL-, 43' LT., EL 1604.17

NOTES:

ASSUMED LIVE LOAD -----HL-93 OR ALTERNATE LOADING.

DESIGN FILL-----2.9 ft

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTES SHEET.

3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

THE EXISTING STRUCTURE CONSISTING OF ONE 18'-0" SPAN, CONSISTING OF AN 11½" REINFORCED CONCRETE DECK SLAB WITH A 10" ASPHALT WEARING SURFACE, AND A SUBSTRUCTURE CONSISTING OF RUBBLE MASONRY ABUTMENTS, AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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 THE ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

EXCAVATE 1 FOOT BELOW CULVERT AND FOOTINGS AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH ARTICLE 414 OF THE STANDARD SPECIFICATIONS.

A THREE FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING, COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED CONCRETE BOX CULVERT IN LIEU OF THE CAST-IN-PLACE CULVERT SHOWN ON THE PLANS. THE DESIGN SHALL PROVIDE THE SAME SIZE AND NUMBER OF BARRELS AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE			
BARREL @	0.749	CY/FT	41.2 C.Y.
WING ETC.	16.8		C.Y.
TOTAL	58.0		C.Y.

REINFORCING STEEL			
BARREL	5479		LBS.
WINGS ETC.	922		LBS.
TOTAL	6401		LBS.

CULVERT EXCAVATION	LUMP SUM
--------------------	----------

FOUNDATION COND. MAT'L.	29 TONS
-------------------------	---------

REMOVAL OF EXISTING STRUCTURE	LUMP SUM
-------------------------------	----------

ROADWAY DATA

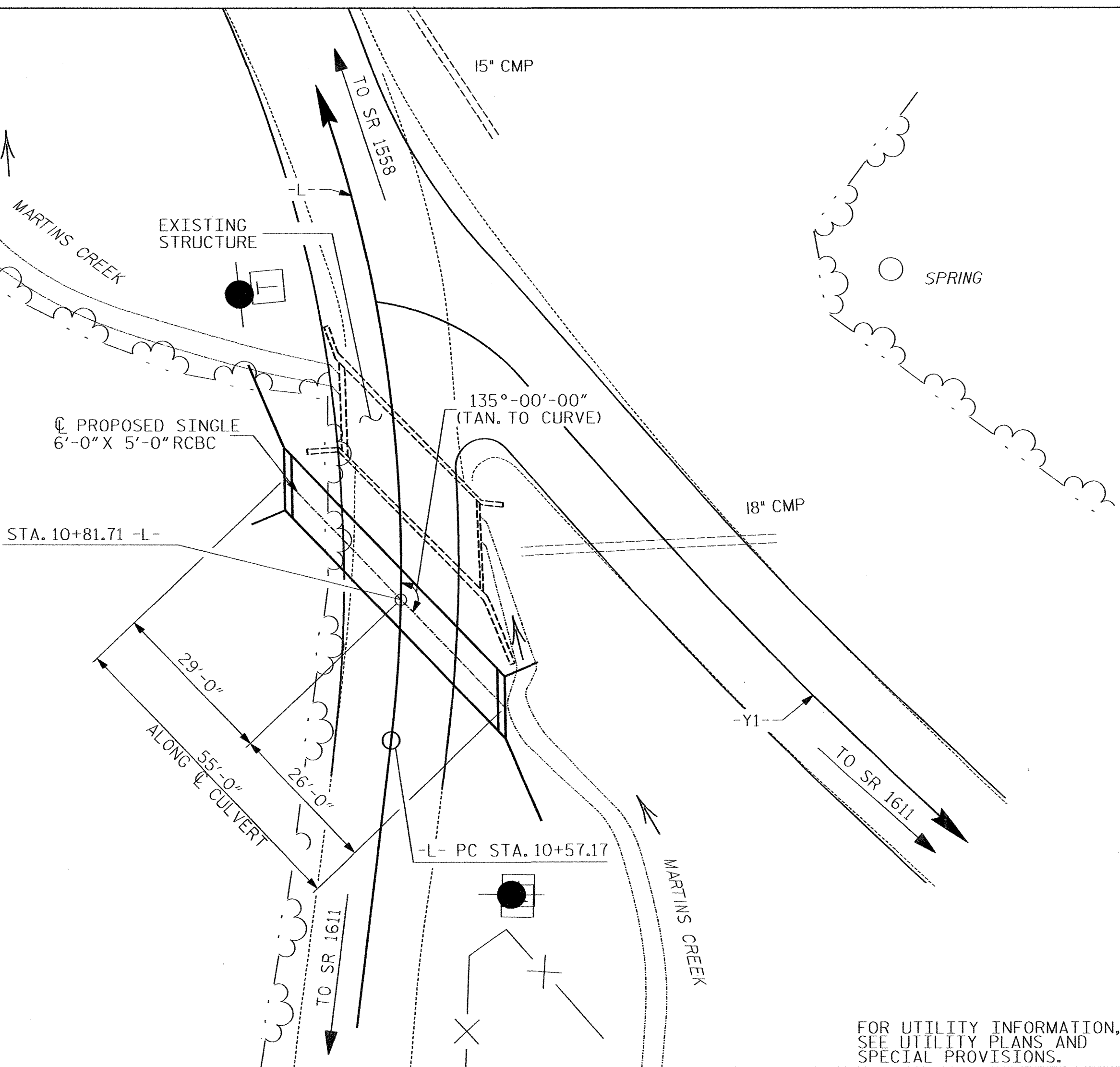
GRADE POINT ELEVATION @ STA. 10+81.71 -L-	1600.52
BED ELEVATION @ STA. 10+81.71 -L-	1592.90
ROADWAY SLOPES	2:1 MAX

HYDRAULIC DATA

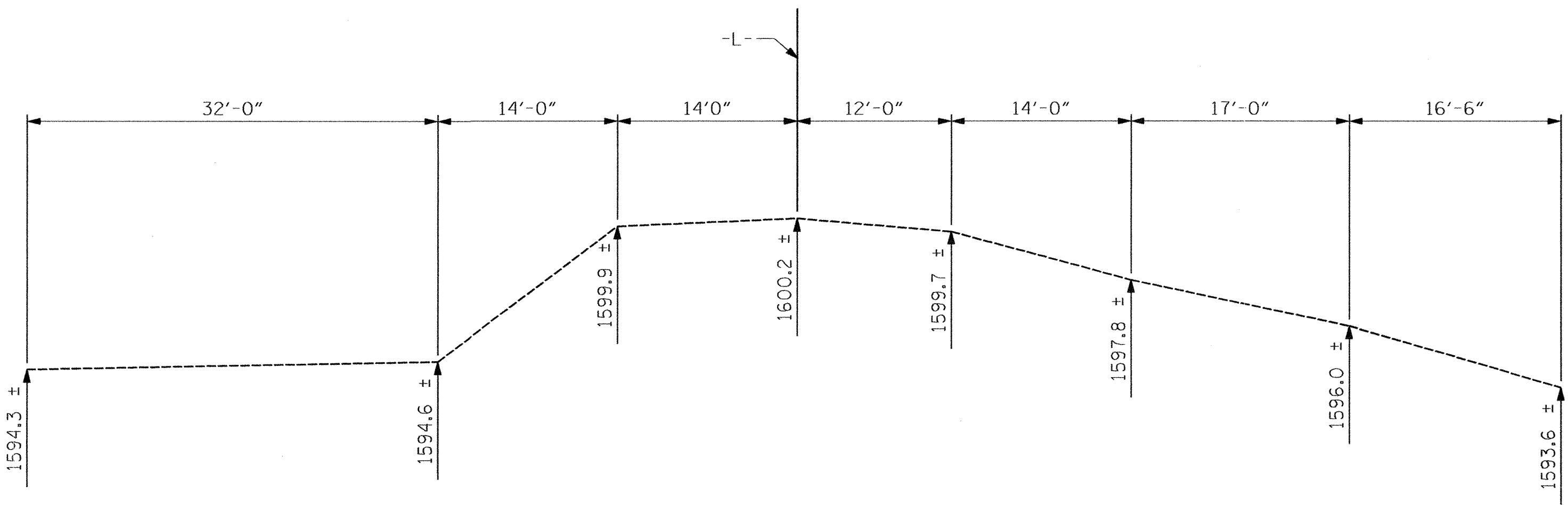
DESIGN DISCHARGE	120 C.F.S.
FREQUENCY OF DESIGN FLOOD	25 YRS
DESIGN HIGH WATER ELEVATION	1598.0
DRAINAGE AREA	0.24 SQ. MI.
BASE DISCHARGE (Q100)	180 C.F.S.
BASE HIGH WATER ELEVATION	1599.14

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	340 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	500+ YRS
OVERTOPPING FLOOD ELEVATION	1600.8



LOCATION SKETCH



PROFILE ALONG CULVERT

PROJECT NO. 17BP.14.R.4

CHEROKEE COUNTY

STATION: 10+81.71 -L-

SHEET 1 OF 5 REPLACES BRIDGE NO. 195

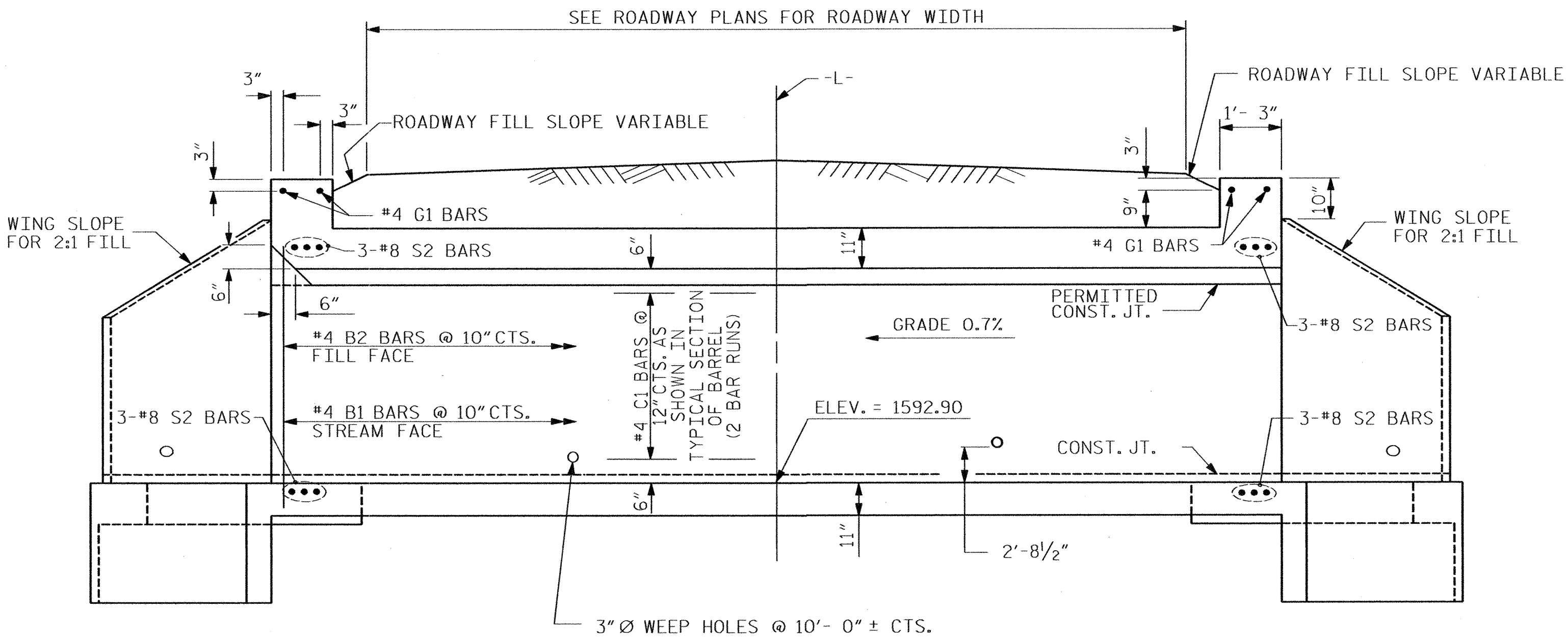


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

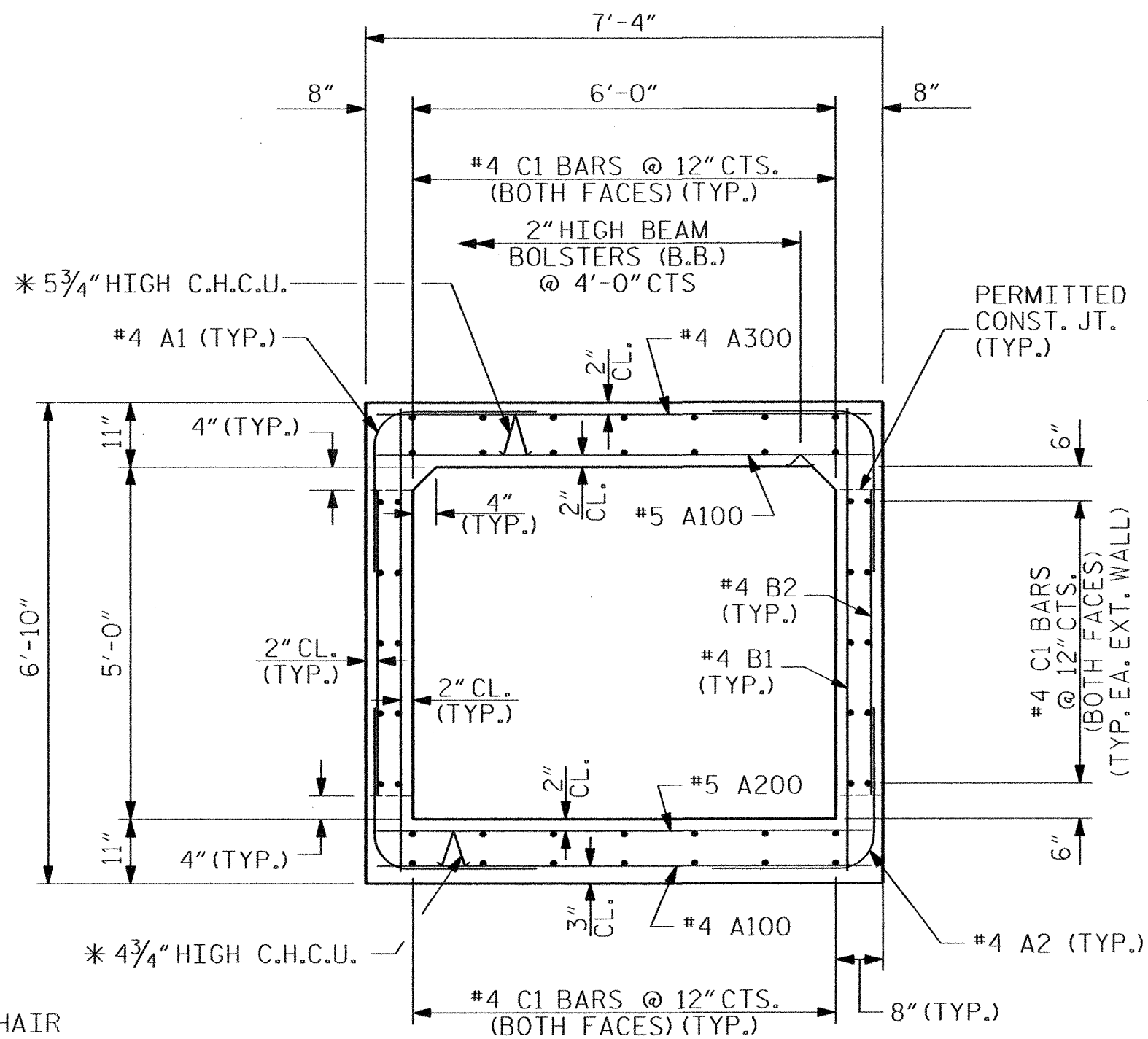
SINGLE 6 FT. X 5 FT.
CONCRETE BOX CULVERT
135° SKEW

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

ASSEMBLED BY : JML	DATE : 8/2012	SPECIAL
CHECKED BY : JMR	DATE : 11/2012	
DRAWN BY : D.P.DONOVAN	DATE : DEC.1989	STANDARD
CHECKED BY : M. A. JONES	DATE : NOV 90	



CULVERT SECTION NORMAL TO ROADWAY



* ALL CONTINUOUS HIGH CHAIR UPPER (C.H.C.U.) @ 3'-0" CTS.

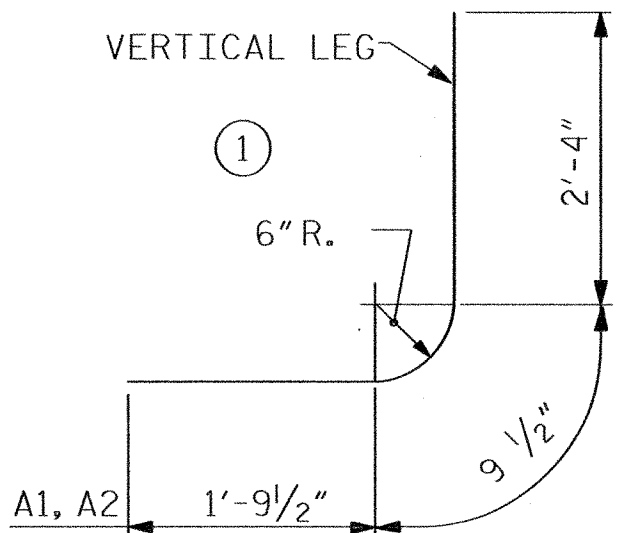
RIGHT ANGLE SECTION OF BARREL

THERE ARE 48 "C" BARS IN SECTION OF BARREL. LOOKING DOWNSTREAM

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	252	#4	1	4'-11"	828	A300	58	#4	STR	7'-0"	271
A100	58	#5	STR	7'-0"	423	A302	2	#4	STR	5'-4"	7
A101	2	#5	STR	6'-2"	13	A303	2	#4	STR	4'-6"	6
A102	2	#5	STR	5'-4"	11	A304	2	#4	STR	3'-8"	5
A103	2	#5	STR	4'-6"	9	A305	2	#4	STR	2'-10"	4
A104	2	#5	STR	3'-8"	8						
A105	2	#5	STR	2'-10"	6	A400	58	#4	STR	7'-0"	271
						A401	2	#4	STR	6'-2"	8
A200	58	#5	STR	7'-0"	423	A402	2	#4	STR	5'-4"	7
A201	2	#5	STR	6'-2"	13	A403	2	#4	STR	4'-6"	6
A202	2	#5	STR	5'-4"	11	A404	2	#4	STR	3'-8"	5
A203	2	#5	STR	4'-6"	9	A405	2	#4	STR	2'-10"	4
A204	2	#5	STR	3'-8"	8						
A205	2	#5	STR	2'-10"	6	B1	132	#4	STR	6'-5"	566
						B2	132	#4	STR	4'-4"	382
						C1	96	#4	STR	28'-4"	1817
						G1	4	#4	STR	9'-11"	26
						S2	12	#8	STR	9'-11"	318

BAR TYPE



BAR TYPE

BAR DIMENSIONS ARE OUT TO OUT

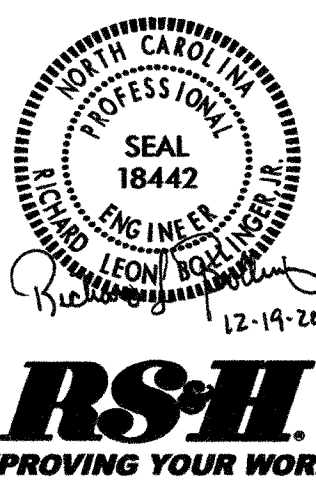
TOTAL REINFORCING STEEL 5479 LBS.

SPLICE LENGTH CHART

BAR	SIZE	SPLICE
C1	4	1'-11"

PROJECT NO. 17BP.14.R.4
CHEROKEE COUNTY
STATION: 10+81.71 -L-

SHEET 2 OF 5



RS&H Architects Engineers Planners, Inc.
8691 Six Forks Road, Suite 200
Raleigh, NC 27615
919-846-6701 FAX 919-846-0880
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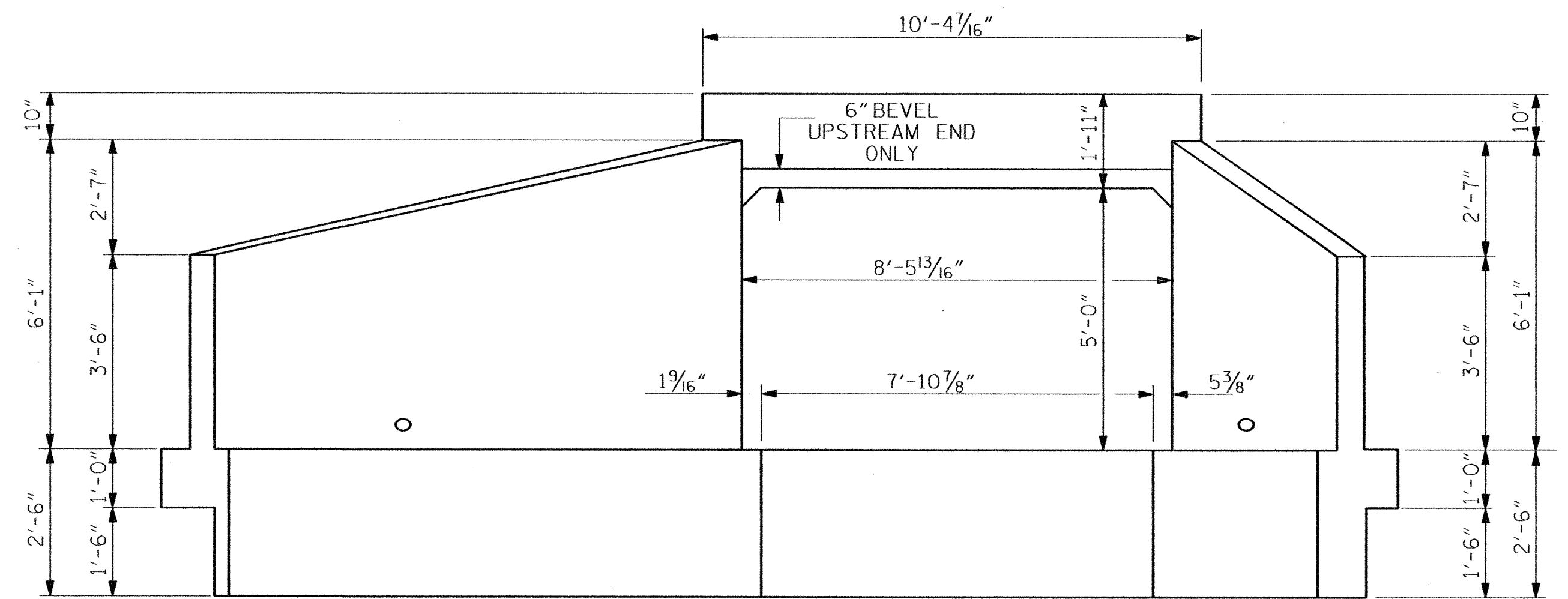
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE 6 FT. X 5 FT.
CONCRETE BOX CULVERT
135° SKEW

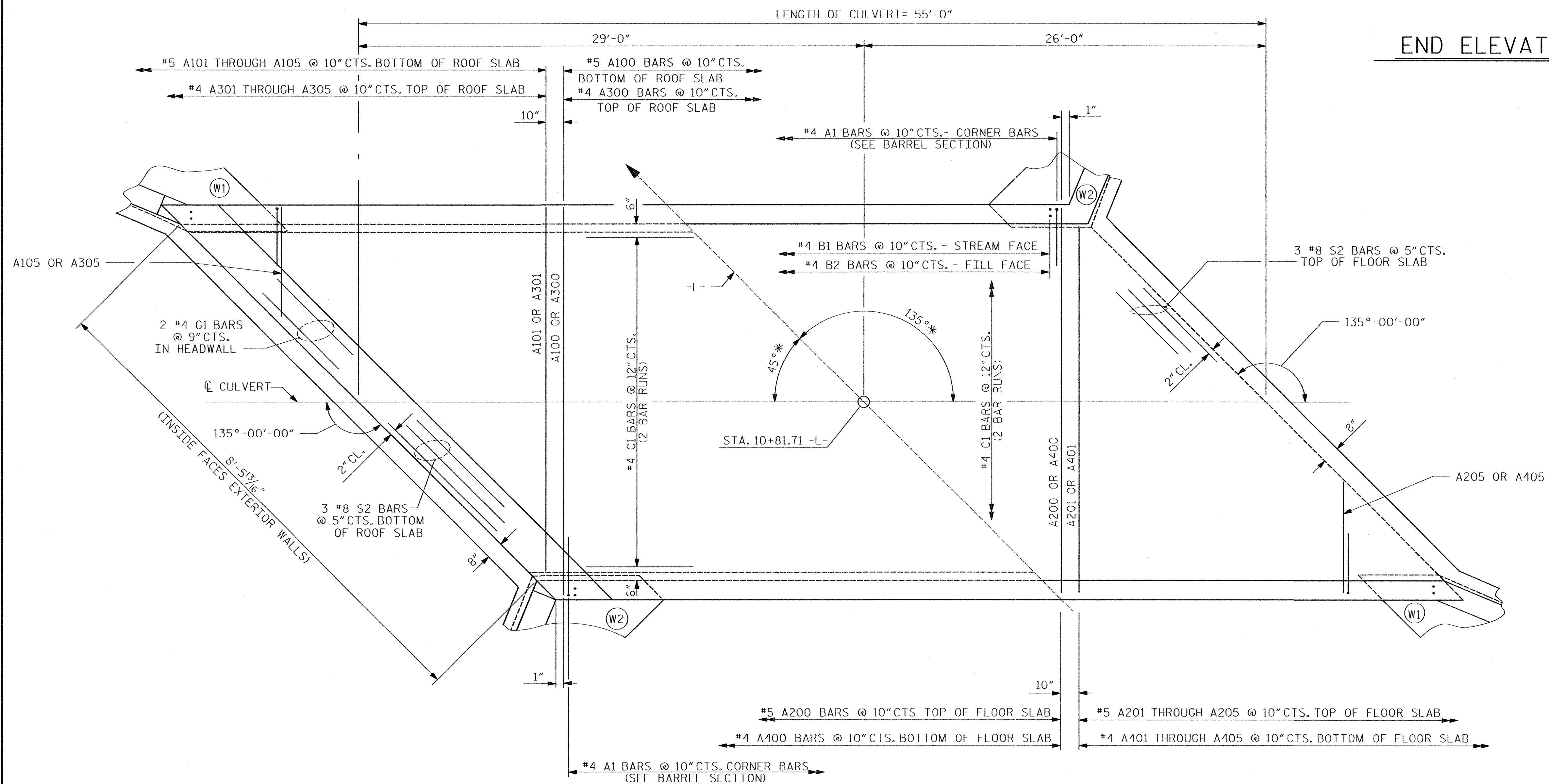
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			C-2
2			4			
TOTAL SHEETS						5

ASSEMBLED BY : JML DATE : 8/2012
CHECKED BY : JMR DATE : 11/2012
DRAWN BY : R. WRIGHT DATE : AUG.1989
CHECKED BY : A. R. BISSETTE DATE : AUG.1989

SPECIAL
STANDARD



END ELEVATION NORMAL TO SKEW



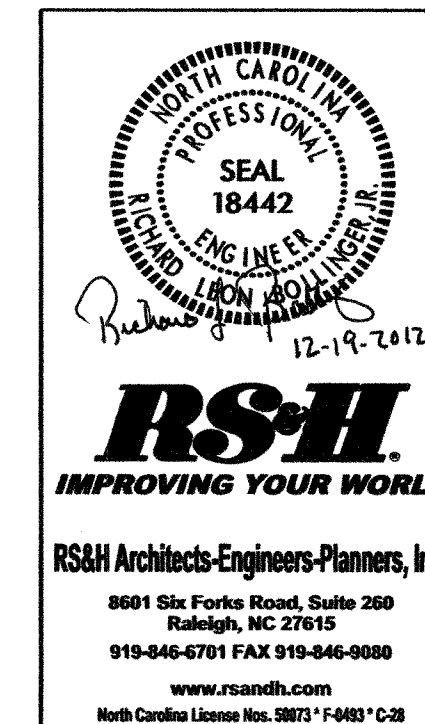
PART PLAN - ROOF SLAB

PART PLAN - FLOOR SLAB

* TANGENT TO CURVE

PROJECT NO. 17BP.14.R.4
CHEROKEE COUNTY
STATION: 10+81.71 -L-

SHEET 3 OF 5

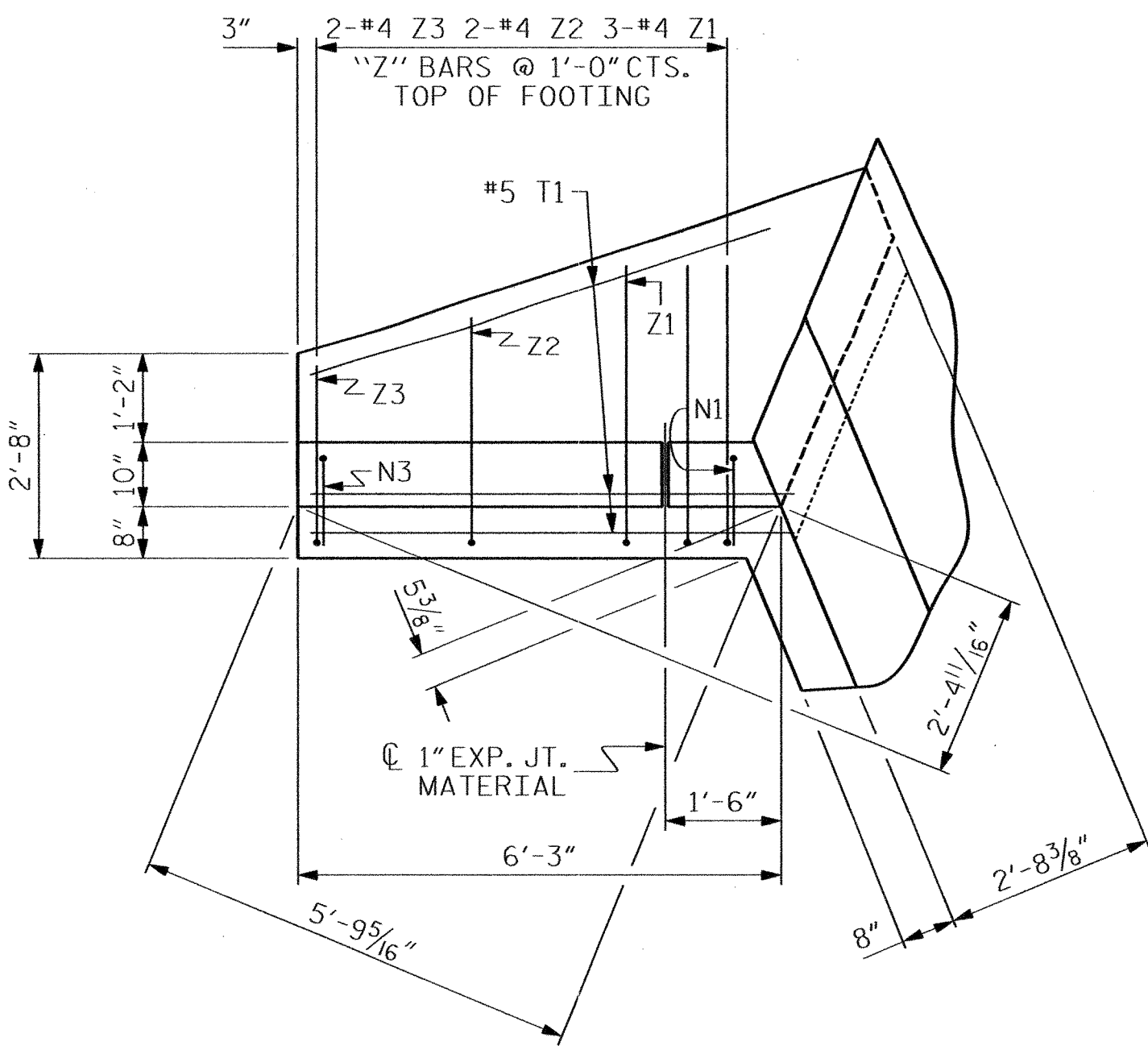


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

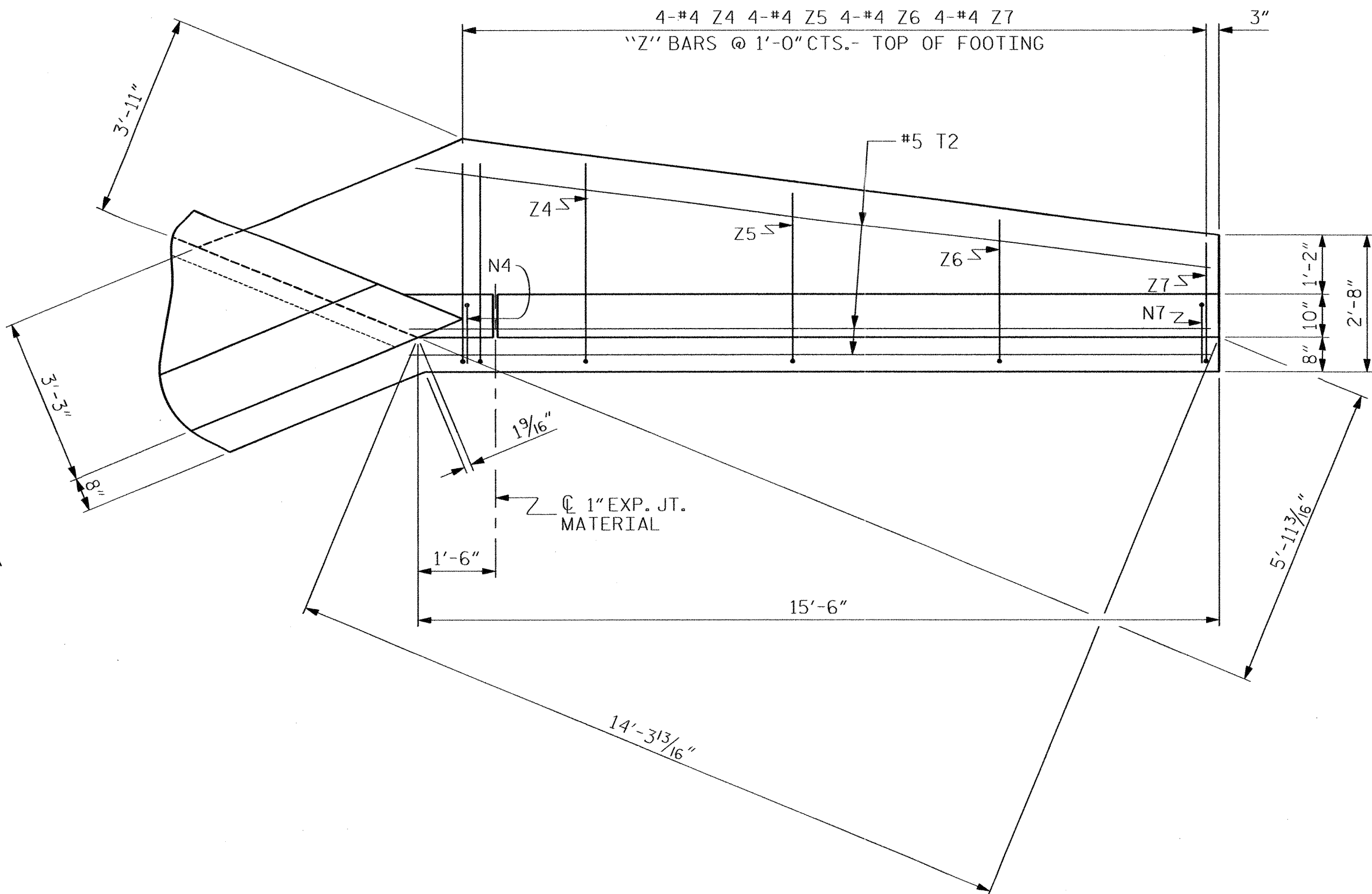
SINGLE 6 FT. X 5 FT.
CONCRETE BOX CULVERT
135° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			C-3
2			4			

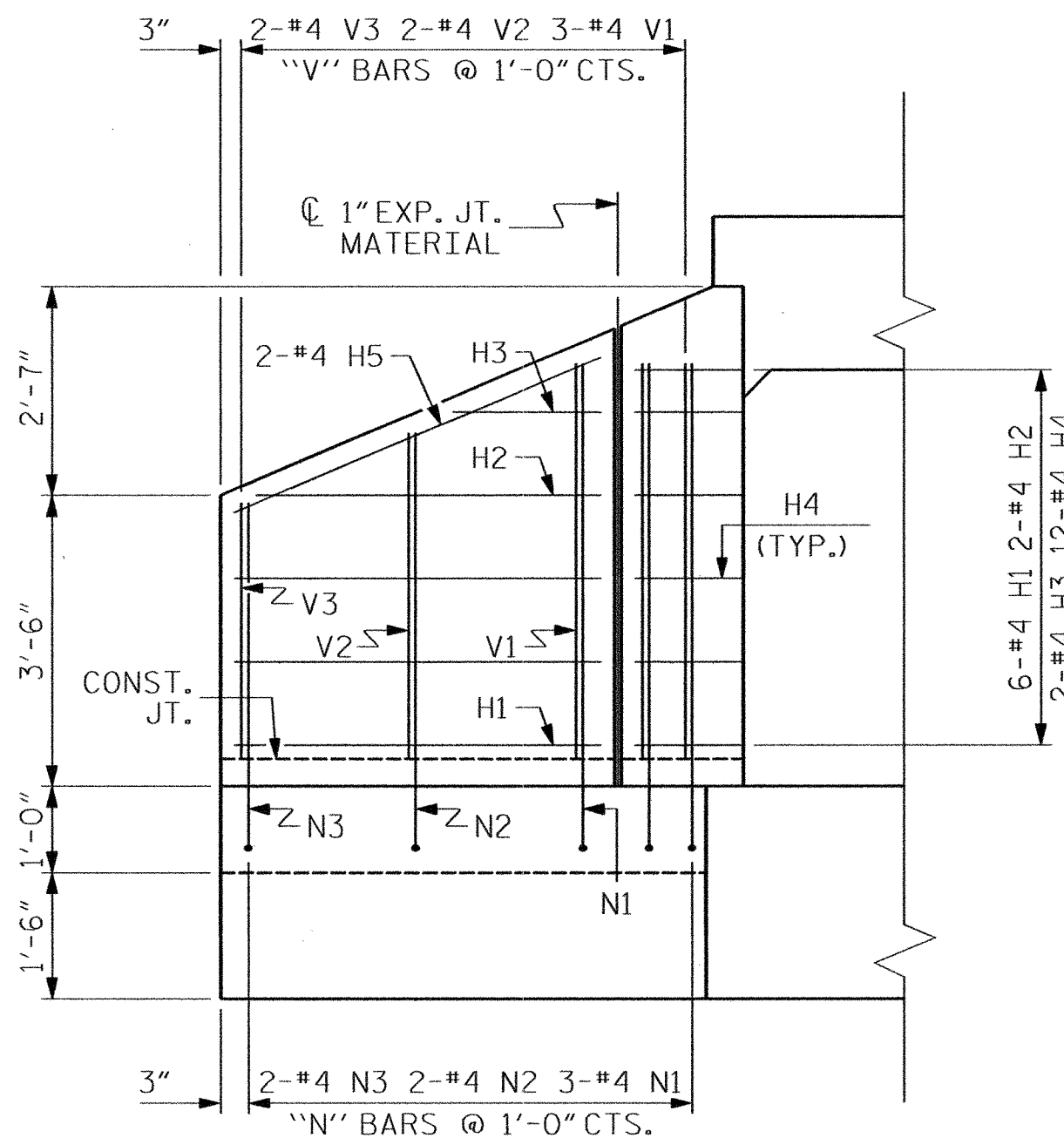
ASSEMBLED BY : JML	DATE : 8/2012	SPECIAL
CHECKED BY : JMR	DATE : 11/2012	
DRAWN BY : R. WRIGHT	DATE : AUG.1989	STANDARD
CHECKED BY : A. R. BISSETTE	DATE : AUG.1989	



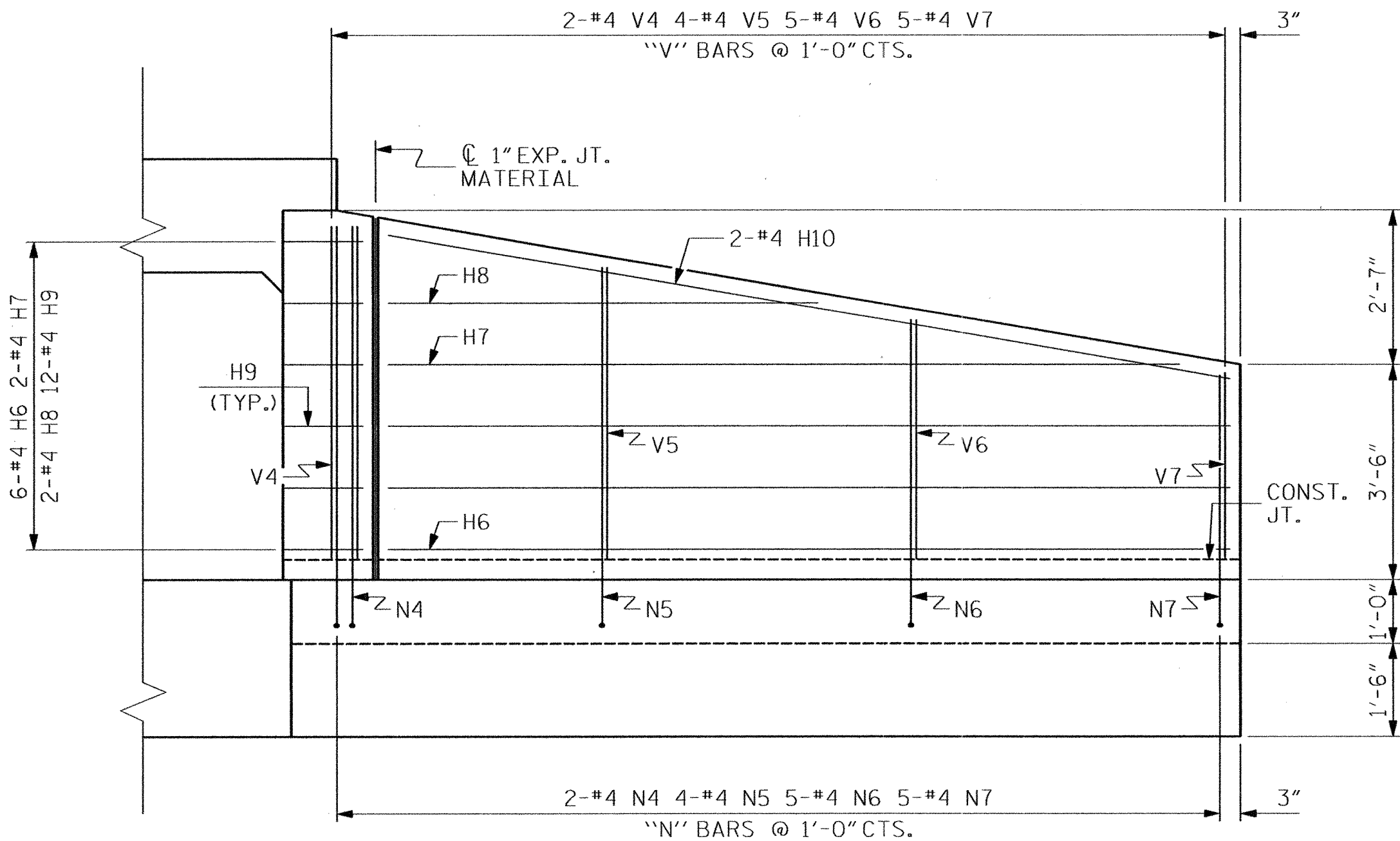
PLAN W2



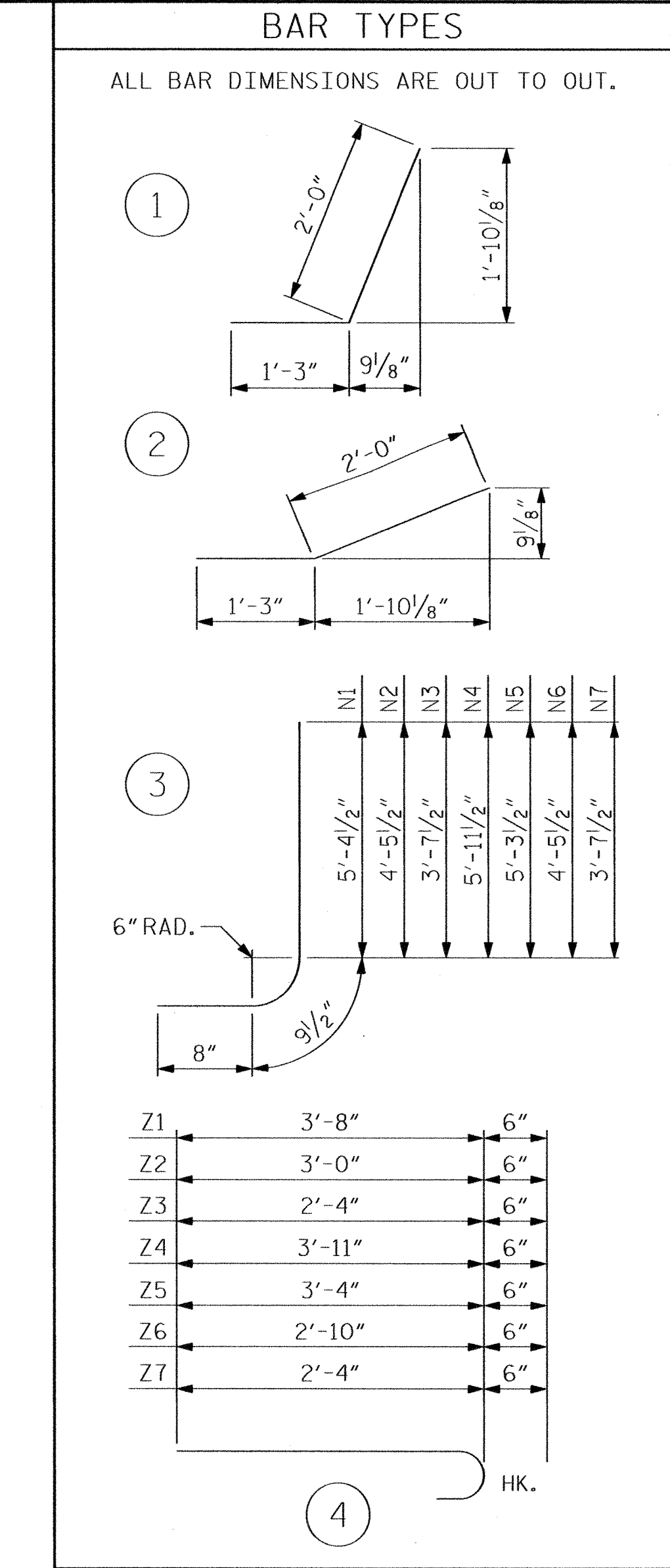
PLAN W1



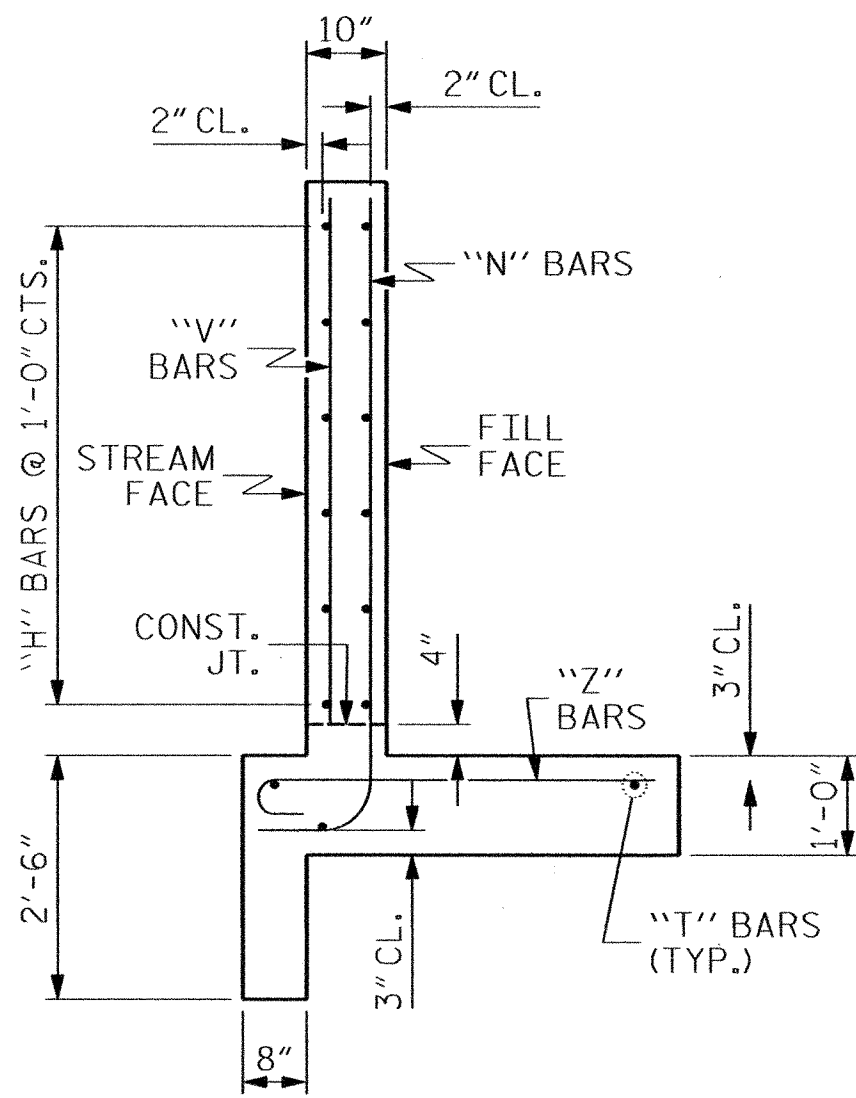
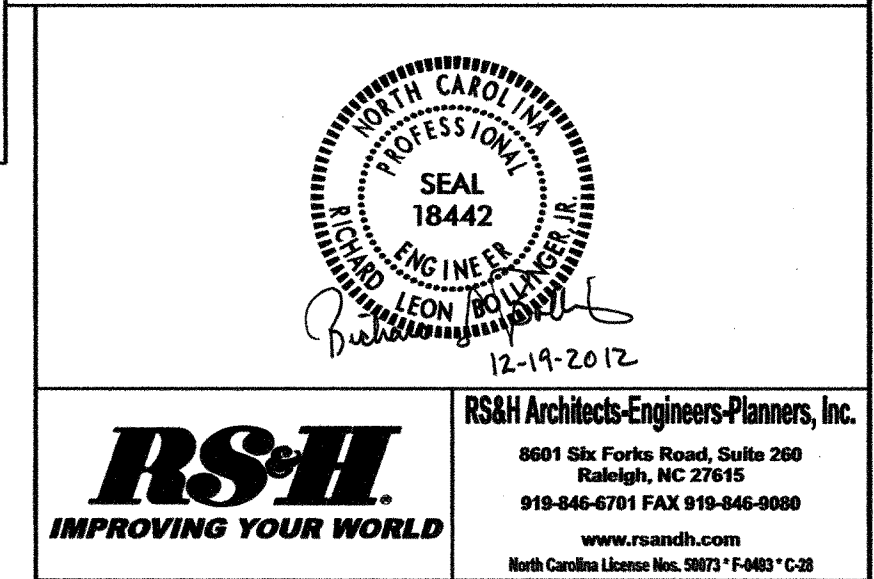
ELEVATION W2



ELEVATION W1



BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	12	#4	STR	4'-4"	35
H2	4	#4	STR	4'-1"	11
H3	4	#4	STR	1'-9"	5
H4	24	#4	1	3'-3"	52
H5	4	#4	STR	4'-9"	13
H6	12	#4	STR	13'-7"	109
H7	4	#4	STR	12'-9"	34
H8	4	#4	STR	6'-11"	18
H9	24	#4	2	3'-3"	52
H10	4	#4	STR	13'-9"	37
N1	6	#4	3	6'-10"	27
N2	4	#4	3	5'-11"	16
N3	4	#4	3	5'-1"	14
N4	4	#4	3	7'-5"	20
N5	8	#4	3	6'-9"	36
N6	10	#4	3	5'-11"	40
N7	10	#4	3	5'-1"	34
T1	6	#5	STR	6'-3"	39
T2	6	#5	STR	15'-6"	97
V1	6	#4	STR	4'-9"	19
V2	4	#4	STR	3'-11"	10
V3	4	#4	STR	3'-1"	8
V4	4	#4	STR	5'-5"	14
V5	8	#4	STR	4'-9"	25
V6	10	#4	STR	3'-10"	26
V7	10	#4	STR	3'-0"	20
Z1	6	#4	4	4'-2"	17
Z2	4	#4	4	3'-6"	9
Z3	4	#4	4	2'-10"	8
Z4	8	#4	4	4'-5"	24
Z5	8	#4	4	3'-10"	20
Z6	8	#4	4	3'-4"	18
Z7	8	#4	4	2'-10"	15
REINFORCING STEEL FOR 4 WINGS					922 LBS
CLASS A CONCRETE					
4 WINGS				14.8	CY
2 HEADWALLS				1.0	CY
2 END CURTAIN WALLS				1.0	CY
TOTAL				16.8	CY



TYPICAL WING SECTION

PROJECT NO. 17BP.14.R.4
 CHEROKEE COUNTY
 STATION: 10+81.71 -L-
 SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

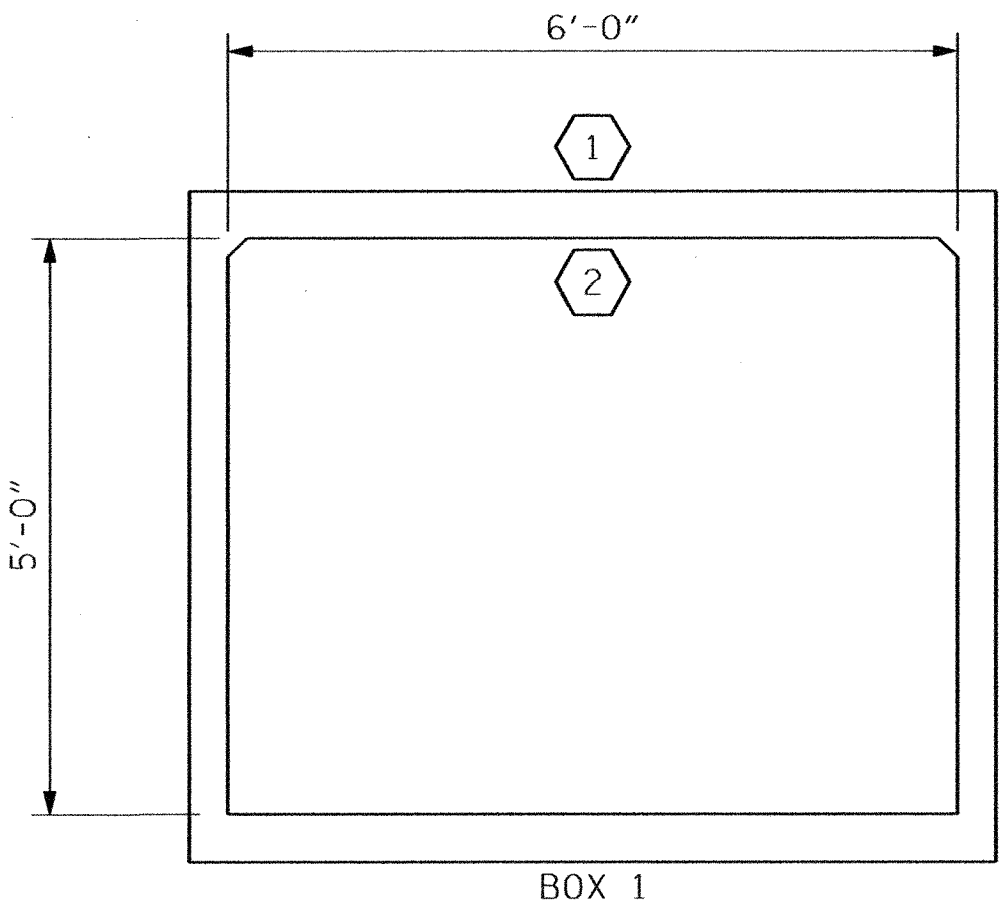
STANDARD WINGS
 FOR
 CONCRETE BOX CULVERT
 H = 5'-0" SLOPE = 2:1
 135° SKEW

ASSEMBLED BY :	JML	DATE :	8/2012
CHECKED BY :	JMR	DATE :	11/2012
DRAWN BY :	CCJ	01/00	
CHECKED BY :	RWW	03/00	

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

LOAD AND RESISTANCE FACTOR RATING (LRFR)
SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING ⬡ #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								COMMENT NUMBER	
							LIVE-LOAD FACTORS (LL)	MOMENT				SHEAR				
								RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	RATING FACTOR	BOX NO.	ELEMENT TYPE		DISTANCE FROM LEFT END OF ELEMENT (ft)
DESIGN LOAD RATING		HL-93 (INVENTORY)	N/A	⬡1	1.06	--	1.75	1.06	1	TOP SLAB	3.67	1.14	1	TOP SLAB	0.83	
		HL-93 (OPERATING)	N/A	--	1.37	--	1.35	1.37	1	TOP SLAB	3.67	1.47	1	TOP SLAB	0.83	
		HS-20 (INVENTORY)	36.000	⬡2	1.06	38	1.75	1.06	1	TOP SLAB	3.67	1.14	1	TOP SLAB	0.83	
		HS-20 (OPERATING)	36.000	--	1.37	49	1.35	1.37	1	TOP SLAB	3.67	1.47	1	TOP SLAB	0.83	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500	--	--	--	1.40	--	--	--	--	--	--	--	--	
		SNGARBS2	20.000	--	--	--	1.40	--	--	--	--	--	--	--	--	
		SNAGRIS2	22.000	--	--	--	1.40	--	--	--	--	--	--	--	--	
		SNCOTTS3	27.250	--	--	--	1.40	--	--	--	--	--	--	--	--	
		SNAGGRS4	34.925	--	--	--	1.40	--	--	--	--	--	--	--	--	
		SNS5A	35.550	--	--	--	1.40	--	--	--	--	--	--	--	--	
		SNS6A	39.950	--	--	--	1.40	--	--	--	--	--	--	--	--	
		SNS7B	42.000	--	--	--	1.40	--	--	--	--	--	--	--	--	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000	--	--	--	1.40	--	--	--	--	--	--	--	--	
		TNT4A	33.075	--	--	--	1.40	--	--	--	--	--	--	--	--	
		TNT6A	41.600	--	--	--	1.40	--	--	--	--	--	--	--	--	
		TNT7A	42.000	--	--	--	1.40	--	--	--	--	--	--	--	--	
		TNT7B	42.000	--	--	--	1.40	--	--	--	--	--	--	--	--	
		TNAGRIT4	43.000	--	--	--	1.40	--	--	--	--	--	--	--	--	
		TNAGT5A	45.000	--	--	--	1.40	--	--	--	--	--	--	--	--	
		TNAGT5B	45.000	--	--	--	1.40	--	--	--	--	--	--	--	--	



LRFR SUMMARY
(LOOKING DOWNSTREAM)

ASSEMBLED BY :	JML	DATE :	8/10/12
CHECKED BY :	JMR	DATE :	11/26/12
DRAWN BY :	WMC	7/11	REV. 10/1/11
CHECKED BY :	GM	7/11	MAA/GM

LOAD FACTORS:

DESIGN LOAD RATING FACTORS

LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

NOTE:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

COMMENTS:

-
-
-
-

Ⓝ	CONTROLLING LOAD RATING
Ⓛ1	DESIGN LOAD RATING (HL-93)
Ⓛ2	DESIGN LOAD RATING (HS-20)

PROJECT NO. 17BP.14.R.4
CHEROKEE COUNTY
STATION: 10+81.71 -L-

SHEET 5 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
REINFORCED CONCRETE
BOX CULVERTS
(NON-INTERSTATE TRAFFIC)

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