09/08/99

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

STATE PROJECT: 17BP.13.R.19

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.13.R.19	1	

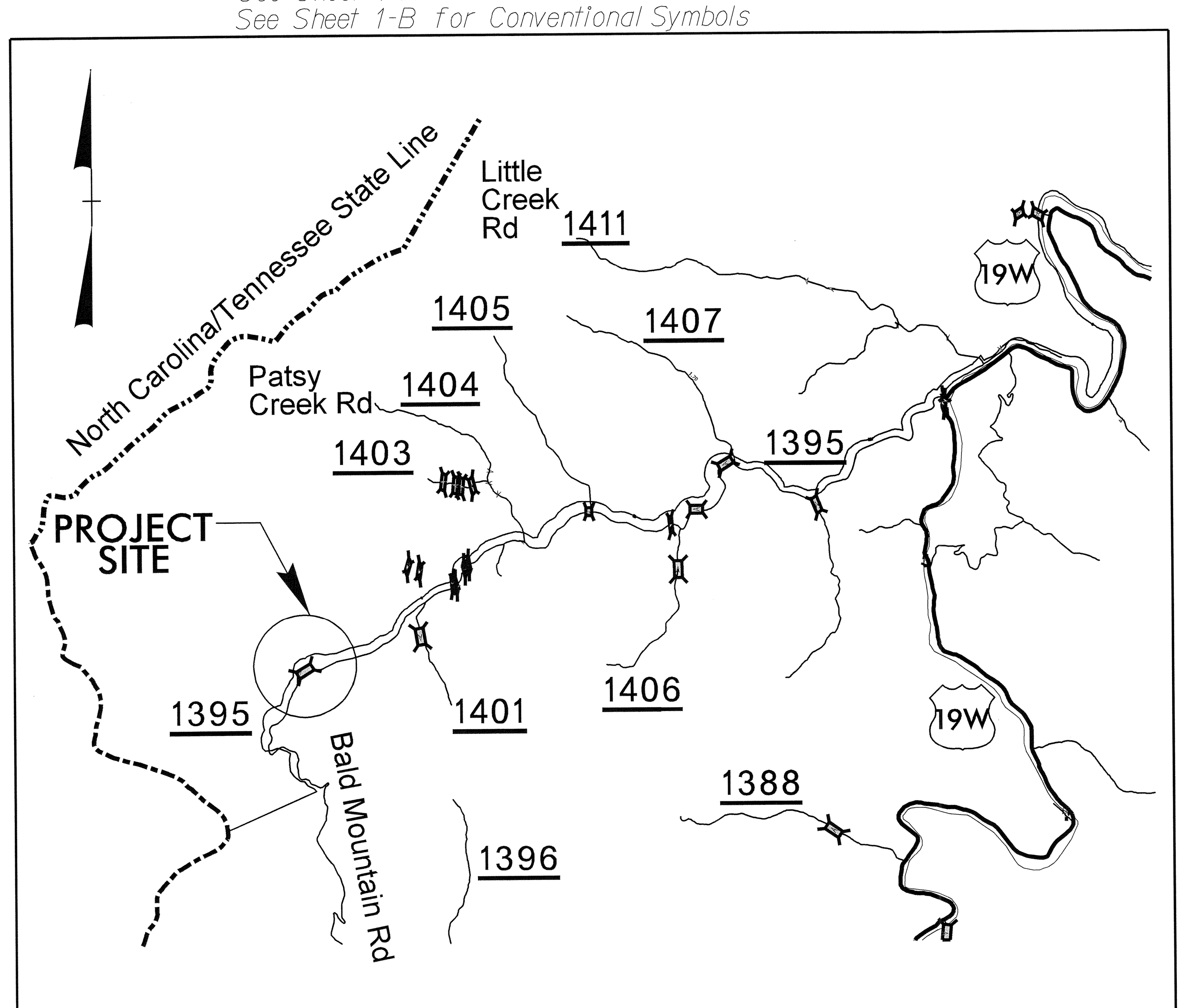
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.13.R.19		PE
17BP.13.R.19		R/W & UTIL.
17BP.13.R.19		CONST.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

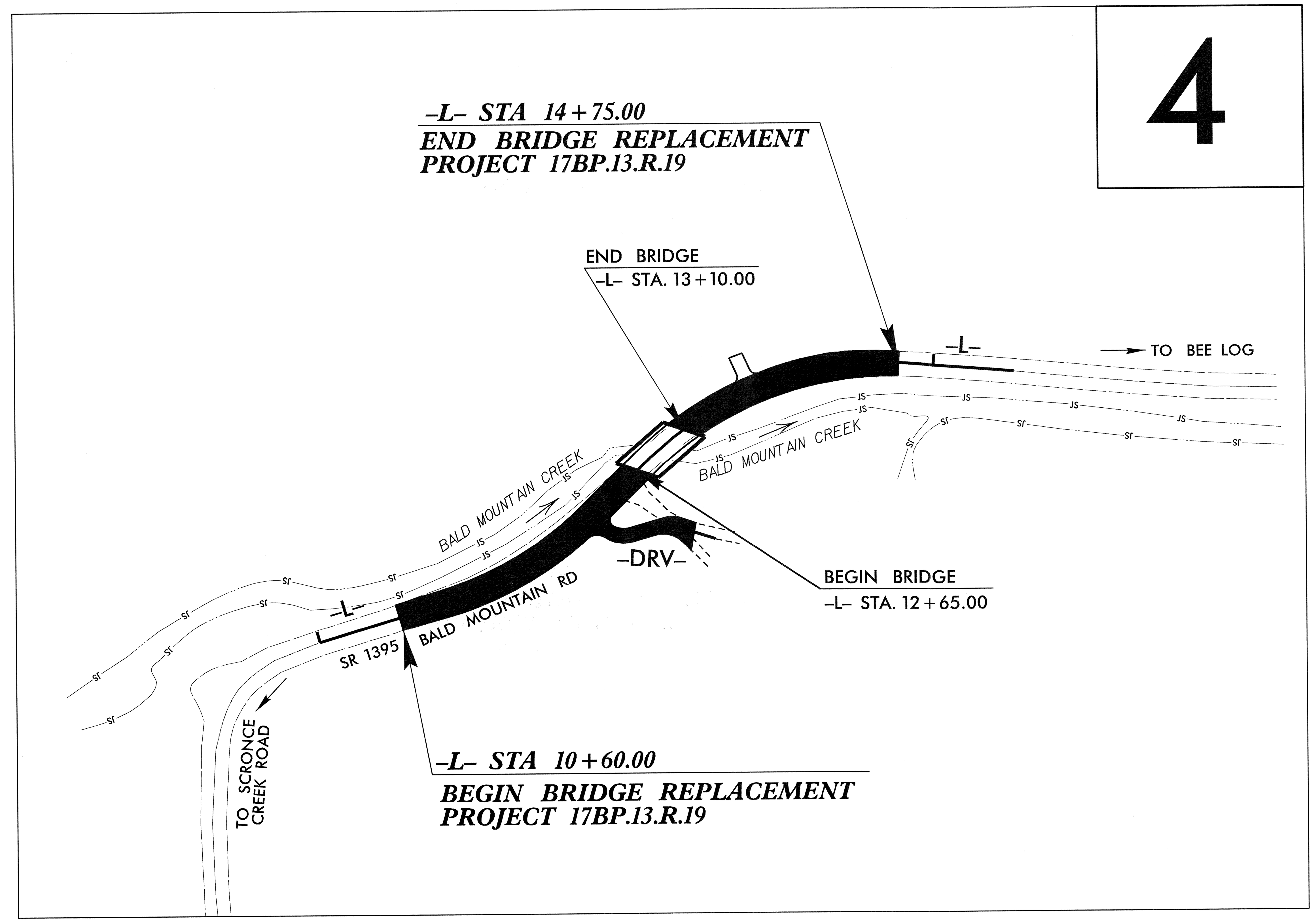
YANCEY COUNTY

LOCATION: BRIDGE NO. 121 OVER BALD MOUNTAIN CREEK ON SR 1395 (BALD MOUNTAIN RD)

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



VICINITY MAP



NAD 83/ NSRS 2007

moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

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 2010 = 600
V = 35 MPH
FUNC. CLASS = RURAL LOCAL

SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.13.R.19	=	0.070 MILES
LENGTH OF STRUCTURE PROJECT 17BP.13.R.19	=	0.009 MILES
TOTAL LENGTH OF PROJECT 17BP.13.R.19	=	0.079 MILES

Prepared In the Office of:
KCI ASSOCIATES OF NC
4601 Six Forks Rd., Suite 220, Raleigh NC, 27609

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 29, 2014

LETTING DATE:

BARRY C. SMITH, PE
PROJECT ENGINEER

BRYAN E. HOUGH, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: TROY S. WILSON, PLS

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033860 ENGINEER LEAH M. YOUNG
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH
SIGNATURE: Barry C. Smith P.E.
5/15/15

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

CONTRACT:

9:11:34 AM
121_rdy_tsh_sl.dgn
Division:

PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.19	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH

Barry C. Smith 5/15/15

INDEX OF SHEETS

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 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

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 NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE VERIZON.

RIGHT-OF-WAY MARKERS:

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

EFF. 01-17-2012
REV. 10-30-2012

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	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
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
846.01	Concrete Curb, Gutter and Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units (Details in Lieu of Standard Drawing as March 2013 Letting)
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.19	1-B

04/16/11

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	R/W
Proposed Right of Way Line with Iron Pin and Cap Marker	R/W
Proposed Right of Way Line with Concrete or Granite Marker	R/W
Existing Control of Access	C/A
Proposed Control of Access	C/A
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
Curb Cut Future Ramp	CCFR
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

VEGETATION:

Single Tree	
Single Shrub	
Hedge	
Woods Line	
Orchard	
Vineyard	Vineyard

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	P
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
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	H
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	
TV Tower	
U/G TV Cable Hand Hole	H
Recorded U/G TV Cable	TV
Designated U/G TV Cable (S.U.E.*)	TV
Recorded U/G Fiber Optic Cable	TV FO
Designated U/G Fiber Optic Cable (S.U.E.*)	TV FO

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.RJ9	2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034375 BARRY C. SMITH

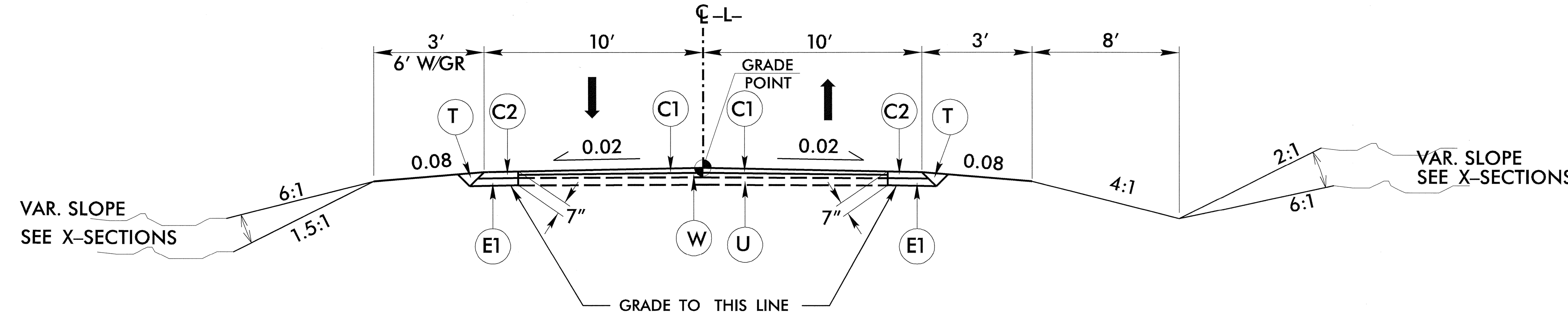
5/18/15

KCI Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
http://www.kci.com Phone (919) 783-9214 • Fax (919) 783-9266

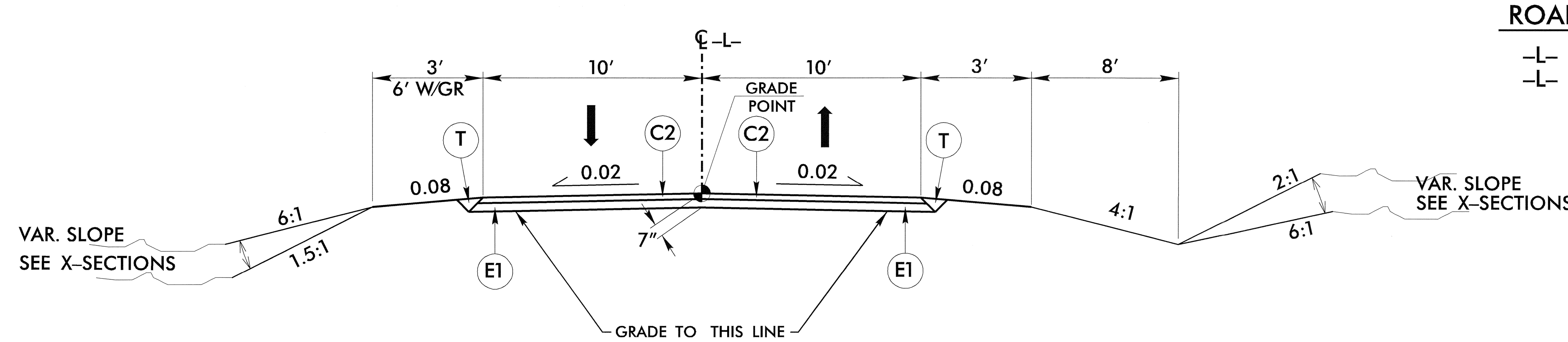
PAVEMENT SCHEDULE
FINAL DESIGN

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. APPROX. 3½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 196 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C4	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. 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 4" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
R1	2' TEMPORARY PORTABLE CONCRETE BARRIER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET).

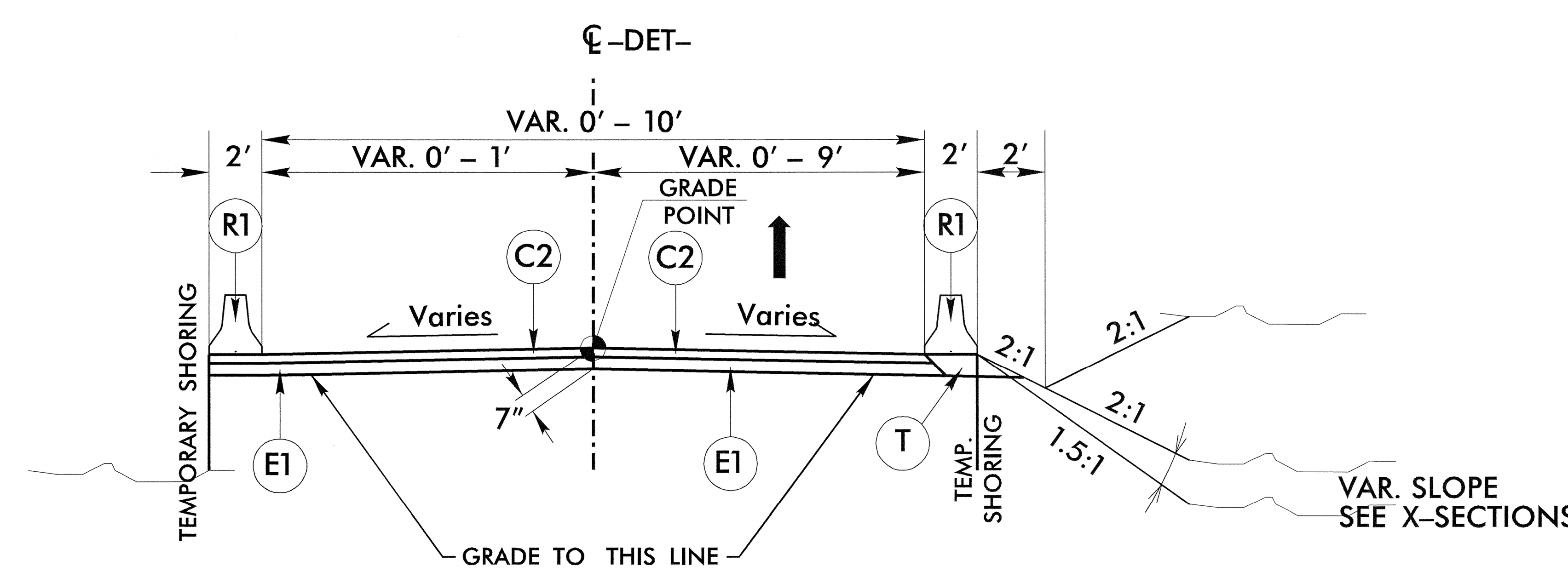
ALL PAVEMENT EDGE SLOPES ARE 1:1



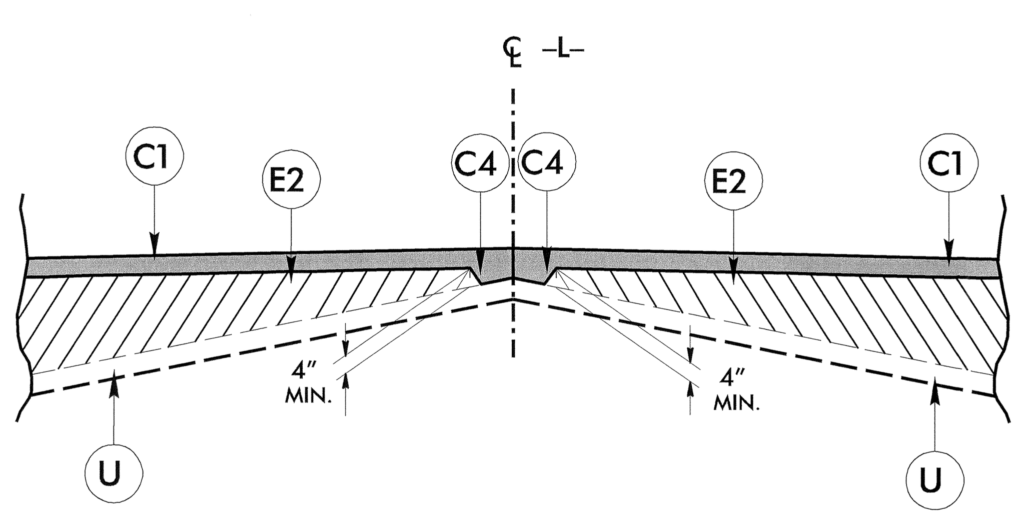
ROADWAY TYPICAL SECTION NO. 1



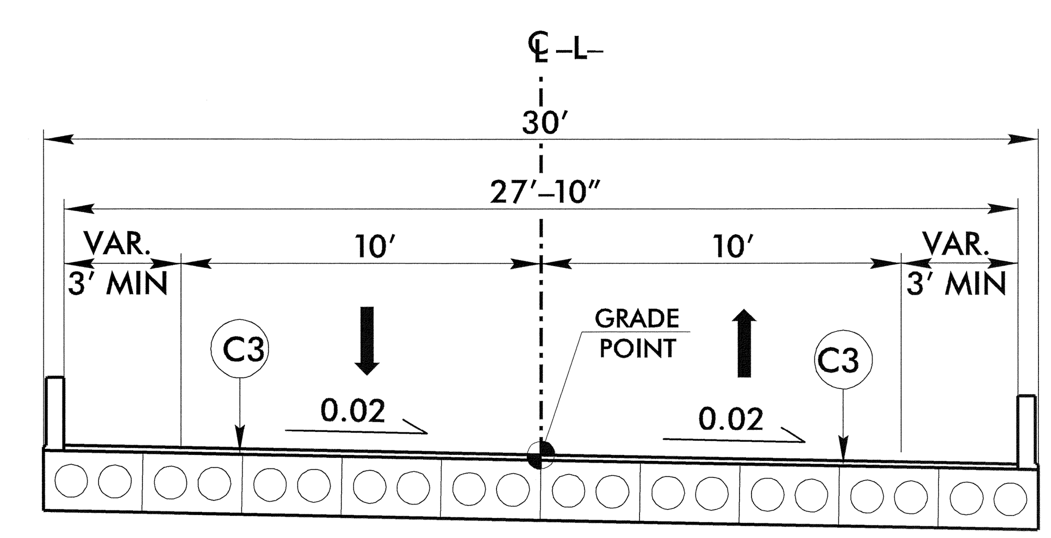
ROADWAY TYPICAL SECTION NO. 2



ROADWAY TYPICAL SECTION NO. 3



Detail Showing Method of Wedging



TYPICAL SECTION ON STRUCTURE

ROADWAY TYPICAL SECTION NO. 1

-L- STA. 10 + 60.00 TO STA. 12 + 20.00
-L- STA. 13 + 50.00 TO STA. 14 + 75.00

ROADWAY TYPICAL SECTION NO. 2

-L- STA. 12 + 20.00 TO STA. 12 + 65.00
-L- STA. 13 + 10.00 TO STA. 13 + 50.00

ROADWAY TYPICAL SECTION NO. 3

-DET- STA. 10 + 60.00 TO STA. 14 + 54.73

STRUCTURE TYPICAL SECTION

-L- STA. 12 + 65.00 TO STA. 13 + 10.00

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.R19	2-A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH 5/15/15	NORTH CAROLINA PROFESSIONAL SEAL 033800 ENGINEER LEAH M. YOUNG 5/15/15

KCI Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
http://www.kci.com
Phone (919) 783-9214 • Fax (919) 783-9266

moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

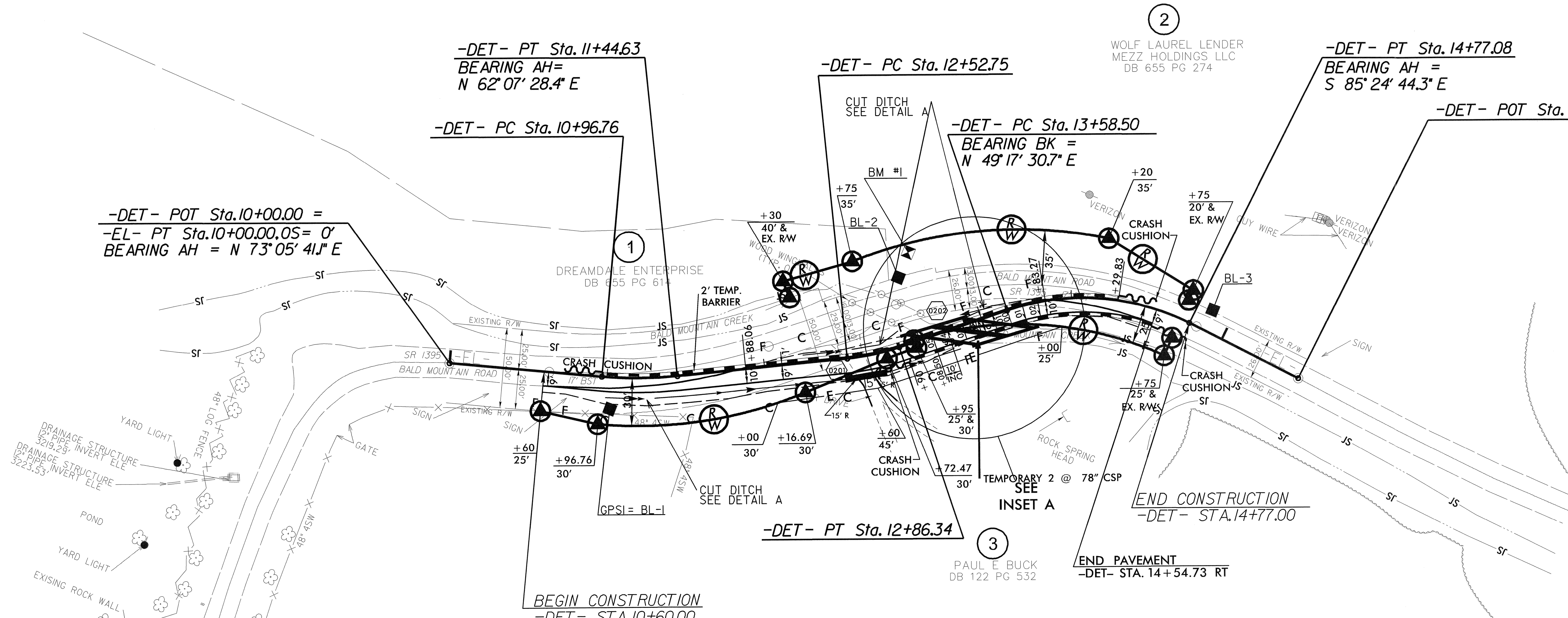
FOR -DET- PROFILE, SEE SHEET 5

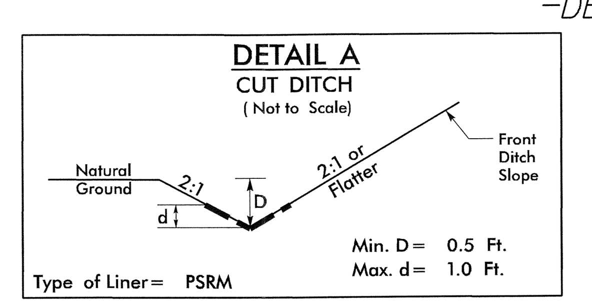
TEMPORARY DETOUR

NAD 83/NSRS 2007

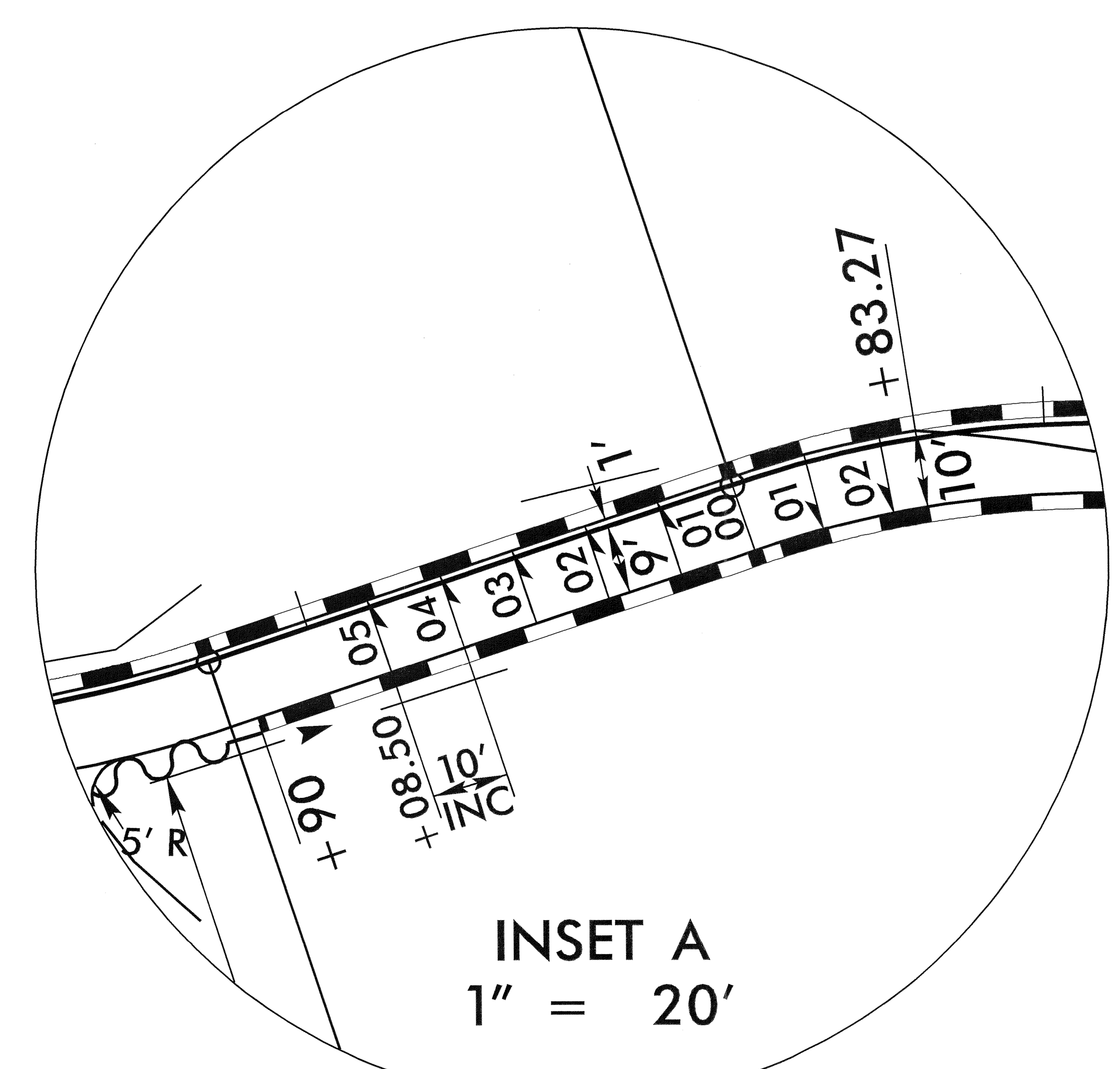
-DET-

PI Sta 11+20.77	PI Sta 12+69.62	PI Sta 14+21.08
Δ = 10° 58' 12.7" (LT)	Δ = 12° 49' 57.7" (LT)	Δ = 45° 17' 45.1" (RT)
D = 22° 55' 05.9"	D = 38° 11' 49.9"	D = 38° 11' 49.9"
L = 47.87'	L = 33.60'	L = 118.58'
T = 24.01'	T = 16.87'	T = 62.59'
R = 250.00'	R = 150.00'	R = 150.00'





FROM STA. 11+00 TO STA. 13+22.9 RT -DET-
FROM STA. 12+25 TO STA. 12+88.6 LT -DET-
FROM STA. 13+27.8 TO STA. 13+50 LT -DET-



INSET A
1" = 20'

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "990121 GPS1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 824074.6420(ft) EASTING: 972893.5400(ft)
ELEVATION: 3204.76(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99980173
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "990121 GPS1" TO -L- STATION 10+60.00 IS N 82° 31' 34.1" W 47.79 ft
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

5/14/99

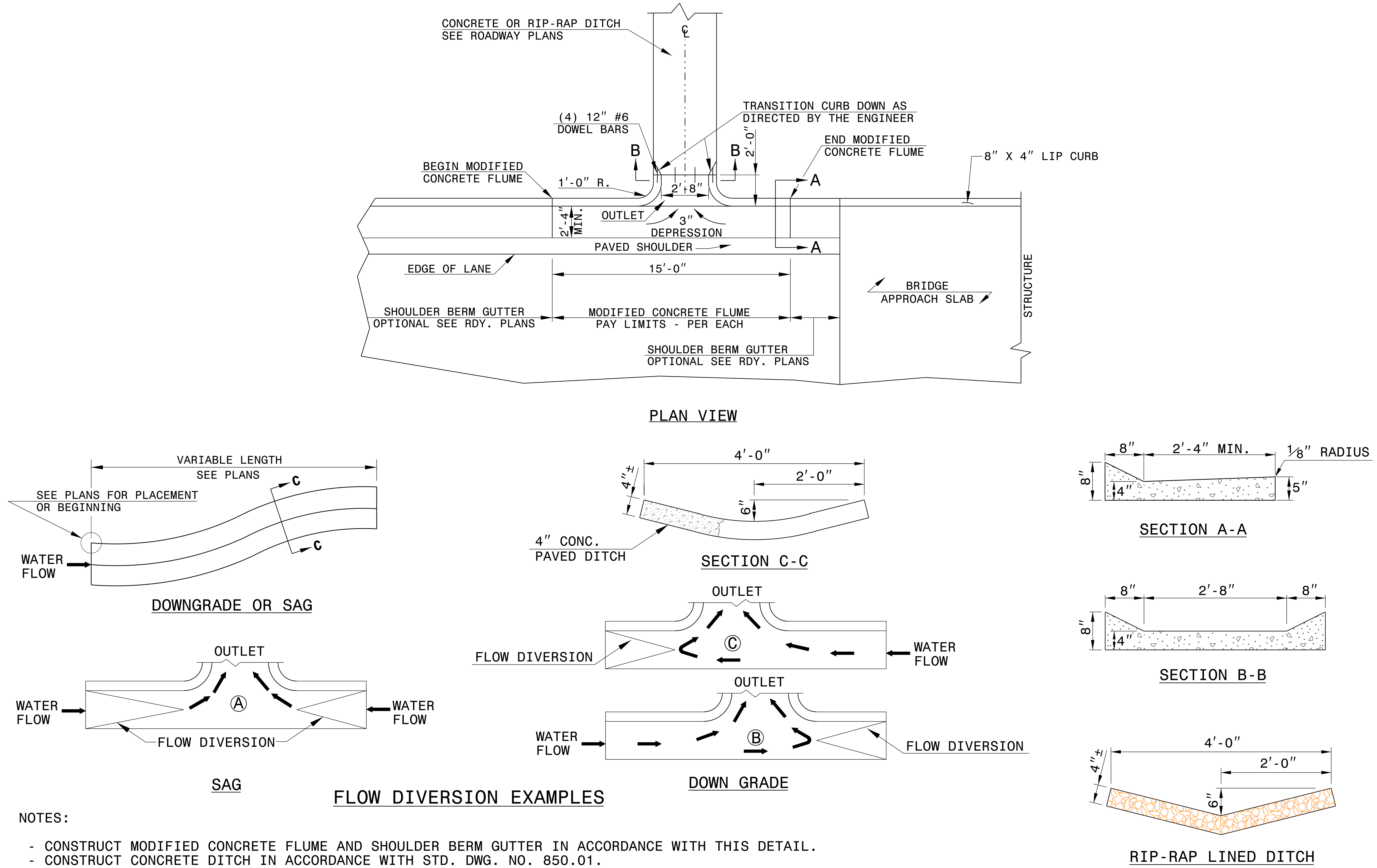
11:32:07 AM
121_Rdy_psh_s2a.dgn

PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.19	2-B

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

ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1
MODFLMDTCH



NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18″ PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

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

ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1
MODFLMDTCH

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: Apr. 2002
MODIFIED BY: E.E. Ward DATE: July 2004
CHECKED BY: DATE:
FILE SPEC.: w:details\stand\modifiedflume.dgn

COMPUTED BY:	T. CAREY	DATE:	01/08/13
CHECKED BY:	B. SMITH	DATE:	01/09/13

4/04/06

PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.19	3-A

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

SUMMARY OF EARTHWORK IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L- 10+60.00	12+75.00	106	38		68
-L- 13+00.00	14+75.00	110	44		66
SUBTOTAL:		216	82		134
-DET- 10+60.00	14+54.73	48	269	221	
SUBTOTAL:		48	269	221	
DETOUR REMOVAL:					
-L- 12+25.00	14+50.00	294			294
SUBTOTAL:		294			294
PROJECT TOTAL:		558	351	221	428
EST 5% TO REPLACE TOP SOIL ON BORROW PIT			18	11	
GRAND TOTAL:		558	368	232	428
SAY:		560		240	430

EXISTING PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	10+60.00	12+20.00	LT	47
-L-	12+20.00	12+74.82	CL	102
-L-	12+93.14	13+50.00	CL	109
-DET-	11+67.41	12+19.46	CL	34
-DET-	12+19.46	13+83.27	CL	203
-DET-	13+83.27	14+54.73	CL	47
			TOTAL:	542
			SAY:	545

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L-	13+17.50	13+42.00	24.5
		TOTAL:	24.5
		SAY:	25

SUMMARY OF RIP RAP

LINE	STATION	STATION	LOC	RIP RAP CLASS I	II	A	B	RR (TON)	FF (SY)	PSRM (SY)	DDE (CY)	DETAIL	COMMENTS
-L-	10+60.00	12+00.00	RT	X				70	99			A	
-L-	12+40.00	12+90.00	RT	X				18	25			C	
-L-	12+40.00	12+90.00	LT		X			30			30		
-L-	13+00.00	14+75.00	LT				X	28	62			B	
-L-	13+30.00	13+40.00	RT		X			10	20			E	
-DET-	11+00.00	13+22.90	RT							111		DET-A	
-DET-	12+25.00	12+88.60	LT							32		DET-A	
-DET-	13+27.80	13+50.00	LT							11		DET-A	

	TOTAL (TON)	SAY
CLASS I	88	90
CLASS II	40	40
CLASS A		
CLASS B	28	30
DDE	30	30
	TOTAL (SQ. YD)	SAY
GEOTEXTILE	206	210
PSRM	154	155

ABBREVIATIONS	
CY	CUBIC YARD
DDE	DRAINAGE DITCH EXCAVATION
PSRM	PERMANENT SOIL REINFORCEMENT MATTING
LOC	LOCATION
RR	RIP RAP
SY	SQUARE YARD

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.

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	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	36" .079	42" .109	78" .168
-L- 12+07.55	RT	0401			3195.1	3193.3			36'																	
-L- 13+37.98	RT	0402																								
-L- 13+58.50	LT	0403			3189.0	3188.3			16'																	
-DET- 12+50.00	RT	0201			3193.4	3192.3			28'																	
-DET- 13+30.00	CL	0202			3183.1	3180.7																				100'
SHEET TOTALS									80'																	100'

STATION	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"	**" 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 * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	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. 840.24	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	MODIFIED CONCRETE FLUME (SEE SHEET 2-B)	PIPE REMOVAL LIN.FT.	REMARKS
-L- 12+07.55																																										
-L- 13+37.98																																								1		
-L- 13+58.50																																										
-DET- 12+50.00																																									28	
-DET- 13+30.00																																									100	2 TEMPORARY PIPES
SHEET TOTALS																																								1	128	

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	TYPE III	GRAU 350	M-350	XIII	CAT-1	VI MOD	GRAU 350 TL-2	AT-1	TEMP. CRASH CUSHIONS EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	11+97.00	12+57.85	LEFT	59.75'				12+57.85 (Br.)	4.00'	7.00'						1						1								
-L-	13+01.29	13+57.85	LEFT	59.75'			13+01.29 (Br.)		3.00'	6.00'						1						1								
-L-	12+36.90	12+72.07	RIGHT	25.00'	12.50'		12+72.07 (Br.)		4.00'	7.00'						1							1							
-L-	13+19.70	13+82.75	RIGHT	59.75'				13+19.70 (Br.)	3.00'	6.00'						1						1								
			SUBTOTAL	204.25'	12.50'																									
		LESS ANCHOR DEDUCTIONS:																												
		GRAU 350 TL-2	3 @ 28.50' =	-85.50'																										
		AT-1	1 @ 6.25' =	-6.25'																										
		TYPE III	4 @ 18.75' =	-75.00'																										
		ANCHOR DEDUCTION TOTAL:		-166.75'																										
			PROJECT TOTAL	37.50'	12.50'											4						3	1							
			SAY	37.50'	12.50'																									
		ADDITIONAL GUARDRAIL POST =		5																										
		EXTRA LENGTH POST =		5																										

9:11:38 AM
121_Rdy_sum.dgn
Division:

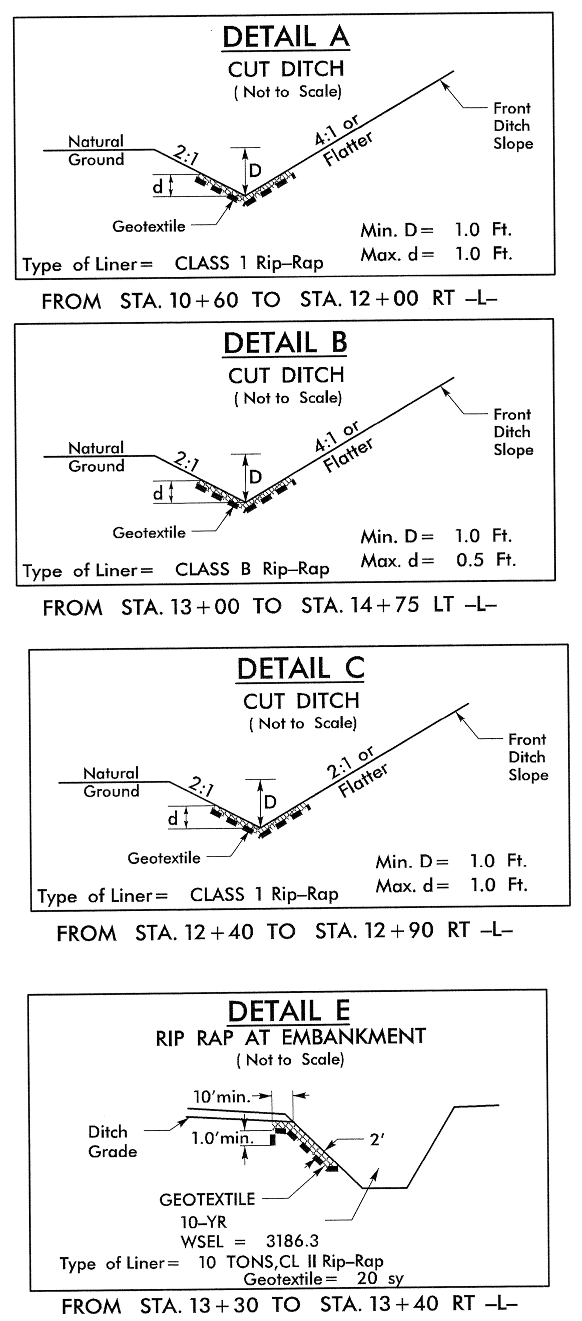
PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.19	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH 5/15/15

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 033660 ENGINEER LEAH M. YOUNG 5/19/15

KCI http://www.kci.com
Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
Phone (919) 783-9214 • Fax (919) 783-9266

moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX



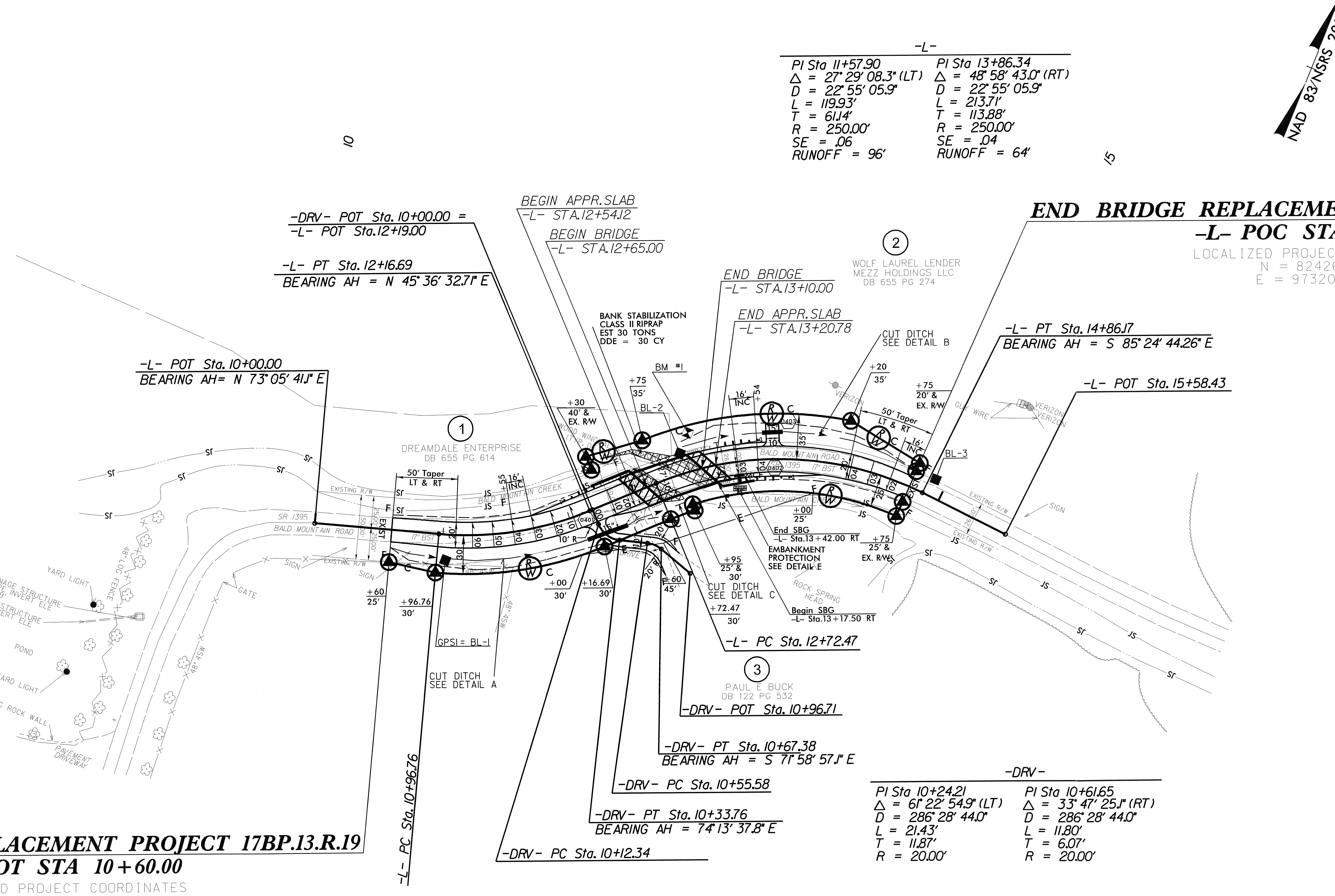
-L-

PI Sta 11+57.90	PI Sta 13+86.34
Δ = 27° 29' 08.3" (LT)	Δ = 48° 58' 43.0" (RT)
D = 22° 55' 05.9"	D = 22° 55' 05.9"
L = 119.93'	L = 213.71'
T = 61.14'	T = 113.88'
R = 250.00'	R = 250.00'
SE = .06	SE = .04
RUNOFF = 96'	RUNOFF = 64'

END BRIDGE REPLACEMENT PROJECT 17BP.13.R.19
-L- POC STA 14+75.00

LOCALIZED PROJECT COORDINATES
N = 824262.3137
E = 973207.1016

FOR -L- PROFILE, SEE SHEET 5

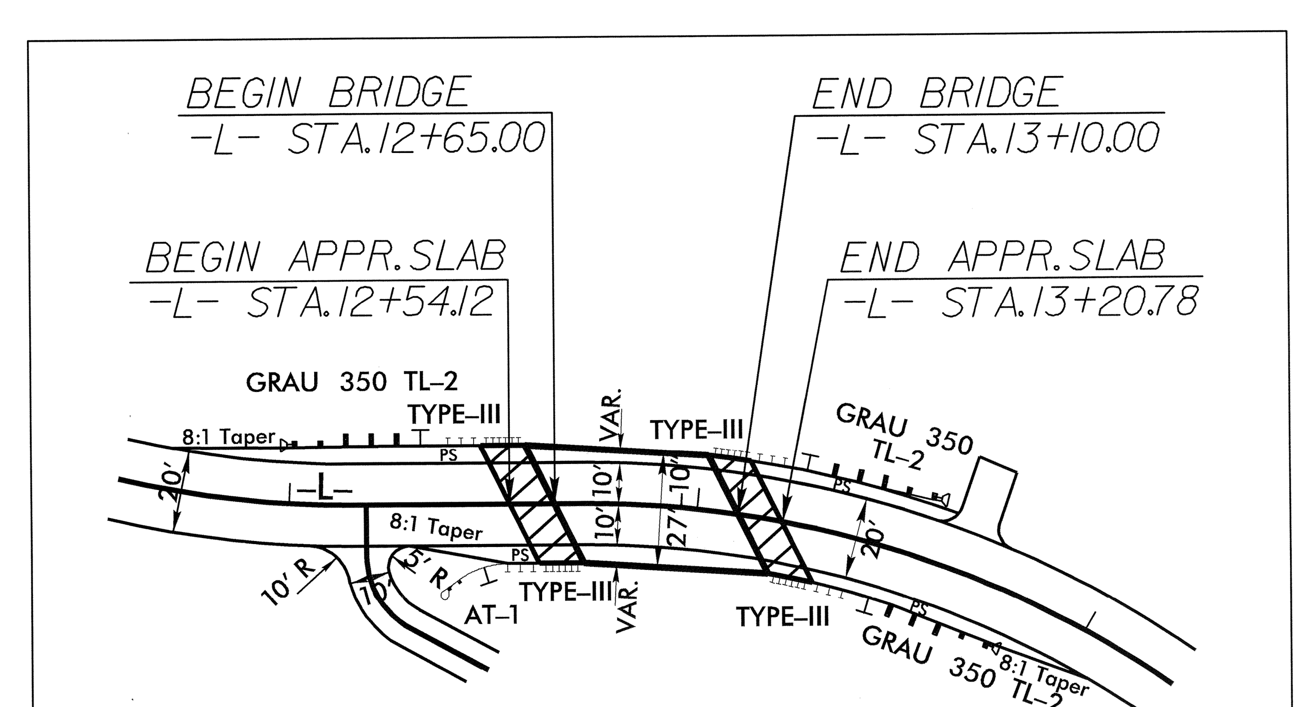


-DRV-

PI Sta 10+24.21	PI Sta 10+61.65
Δ = 61° 22' 54.9" (LT)	Δ = 33° 47' 25.1" (RT)
D = 286° 28' 44.0"	D = 286° 28' 44.0"
L = 21.43'	L = 11.80'
T = 11.87'	T = 6.07'
R = 20.00'	R = 20.00'

BEGIN BRIDGE REPLACEMENT PROJECT 17BP.13.R.19
-L- POT STA 10+60.00

LOCALIZED PROJECT COORDINATES
N = 824080.8585
E = 972846.1539



RELATIONSHIP OF BRIDGE TO PROPOSED PAVEMENT (1" = 40')

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "990121 GPS1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 824074.6420(ft) EASTING: 972893.5400(ft) ELEVATION: 3204.76(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99980173
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "990121 GPS1" TO -L- STATION 10+60.00 IS N 82° 31' 34.1" W 47.79 ft
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
GPS1=BL1	GPS1	824074.6420	972893.5400	3204.76	11+03.03	19.81 RT
GPS2	GPS2	823566.3760	972679.2270	3256.60	OUTSIDE PROJECT LIMITS	
2	BL-2	824219.7620	973031.7730	3192.66	12+96.99	15.87 LT
3	BL-3	824275.2130	973223.9740	3183.27	14+90.79	13.96 LT

BM1 ELEVATION =3195.58'
N 824236 E 973031
L STATION 13+06.41 29.38 LEFT
8" SPIKE IN BASE OF 12" MAPLE

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.R19	5

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH 5/15/15

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033880 ENGINEER LEAH M. YOUNG 5/15/15

KCI Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
http://www.kci.com Phone (919) 783-9214 • Fax (919) 783-9266

moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

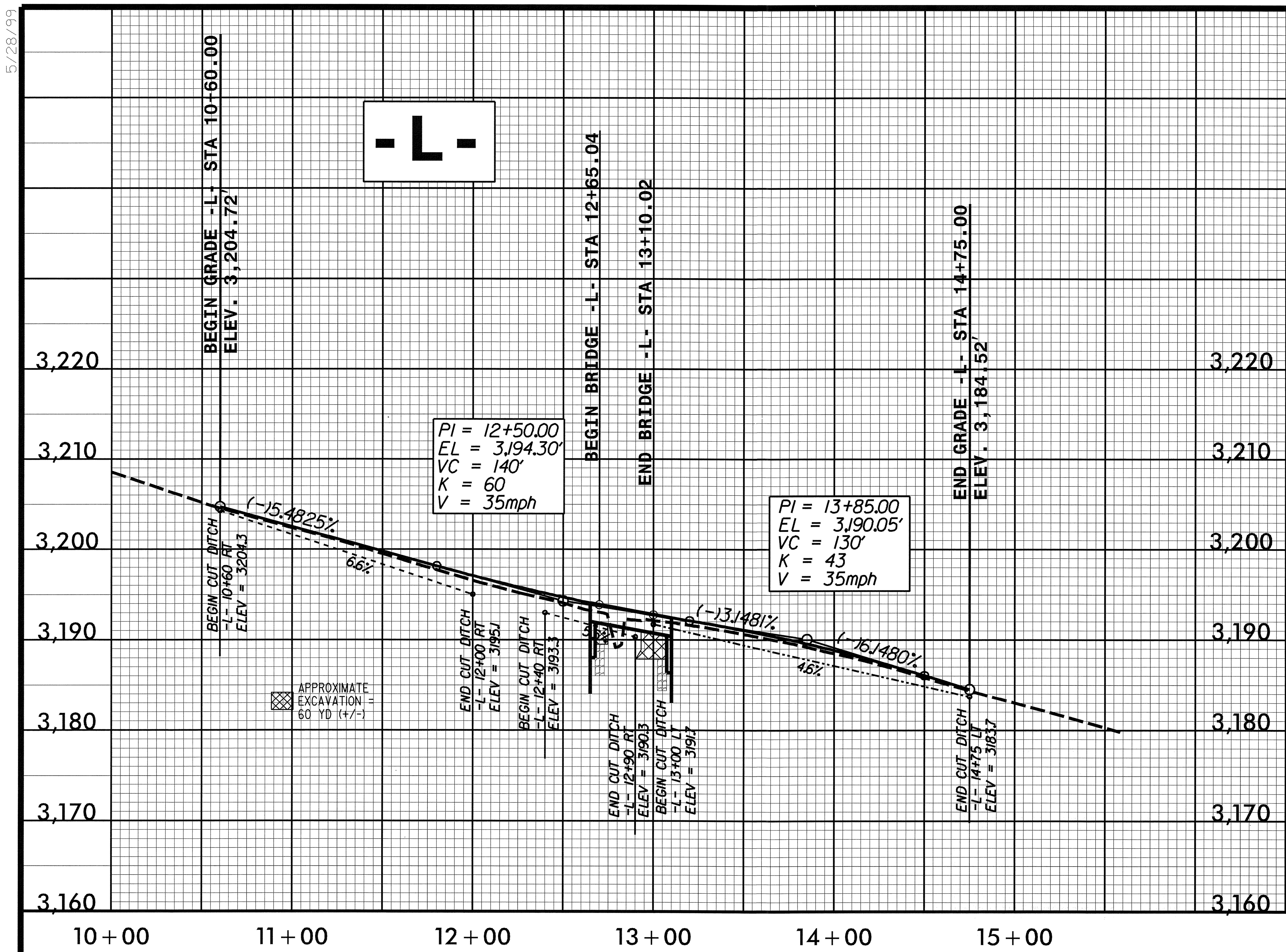
BM #1 - 8" SPIKE IN BASE OF 12" MAPLE
-L- STA. 13+06.41, 29.38' LT
EL = 3195.58'

BRIDGE HYDRAULIC DATA

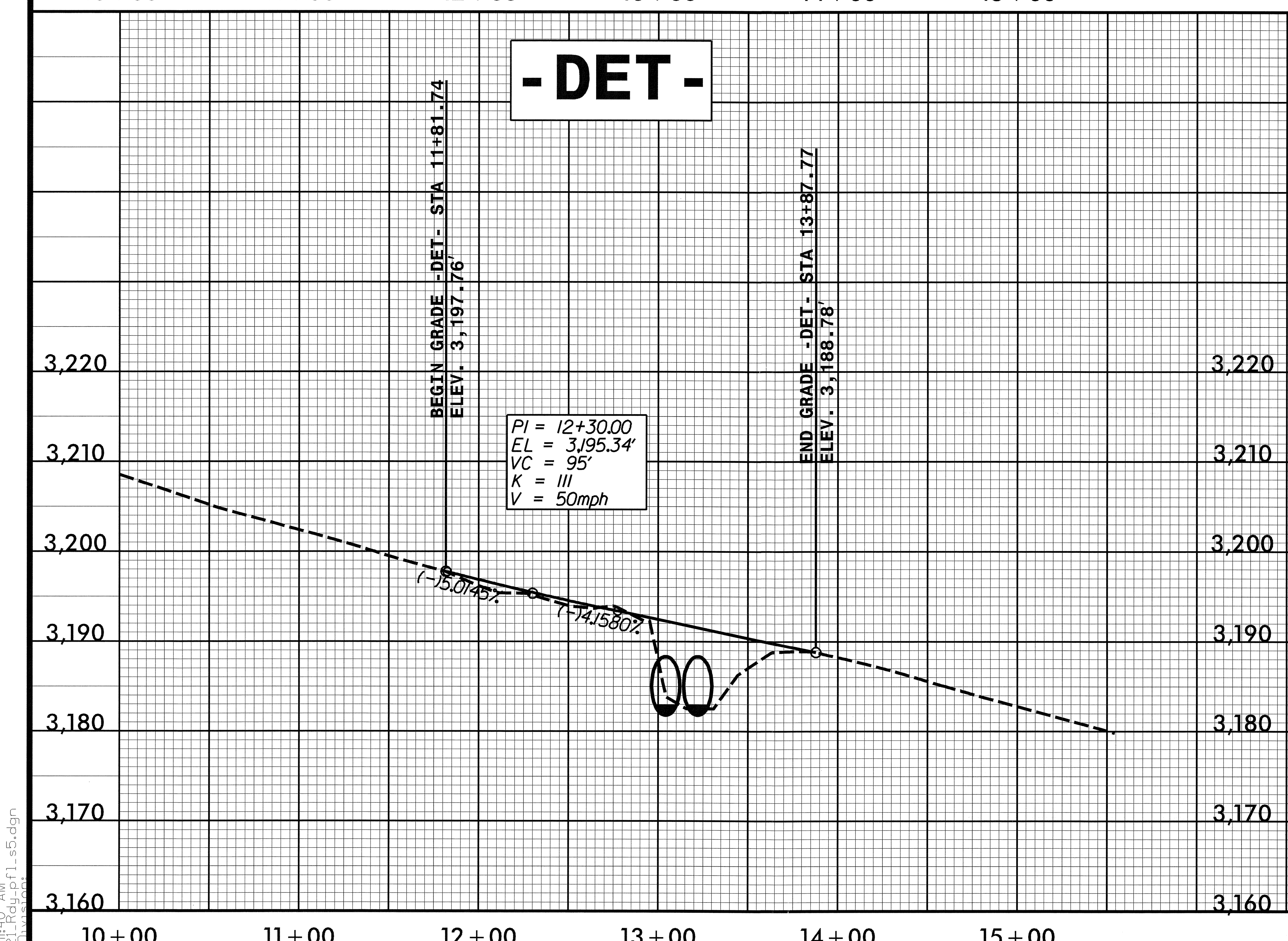
DESIGN DISCHARGE	=	850	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	3192.5	FT
BASE DISCHARGE	=	1200	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	3193.32	FT
OVERTOPPING DISCHARGE	=	1800	CFS
OVERTOPPING FREQUENCY	=	+/- 500	YRS
OVERTOPPING ELEVATION	=	3194.3	FT
DATE OF SURVEY	=	05/17/2012	
W.S.ELEVATION AT DATE OF SURVEY	=	3186.6	FT

RIGHT DITCH ---------

LEFT DITCH -·-·-·-·-



FOR -L- ALIGNMENT,SEE SHEET 4



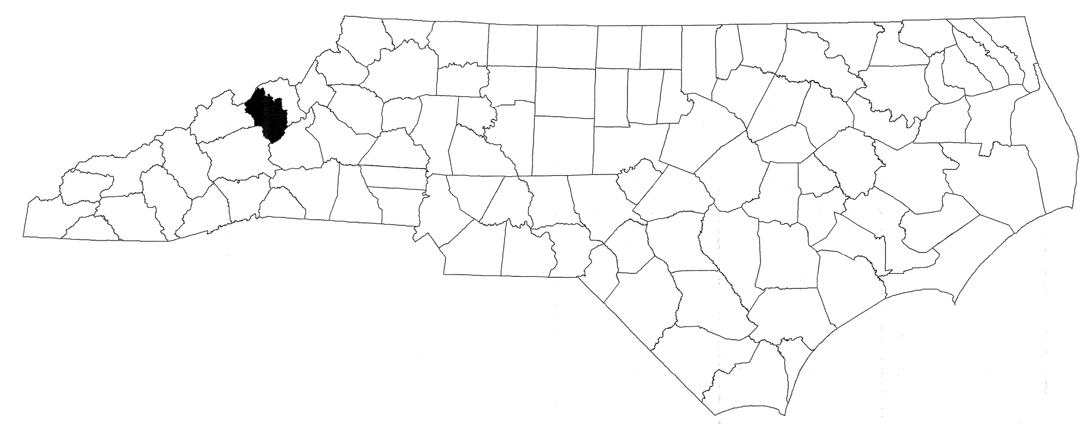
FOR -DET- ALIGNMENT,SEE SHEET 2-A

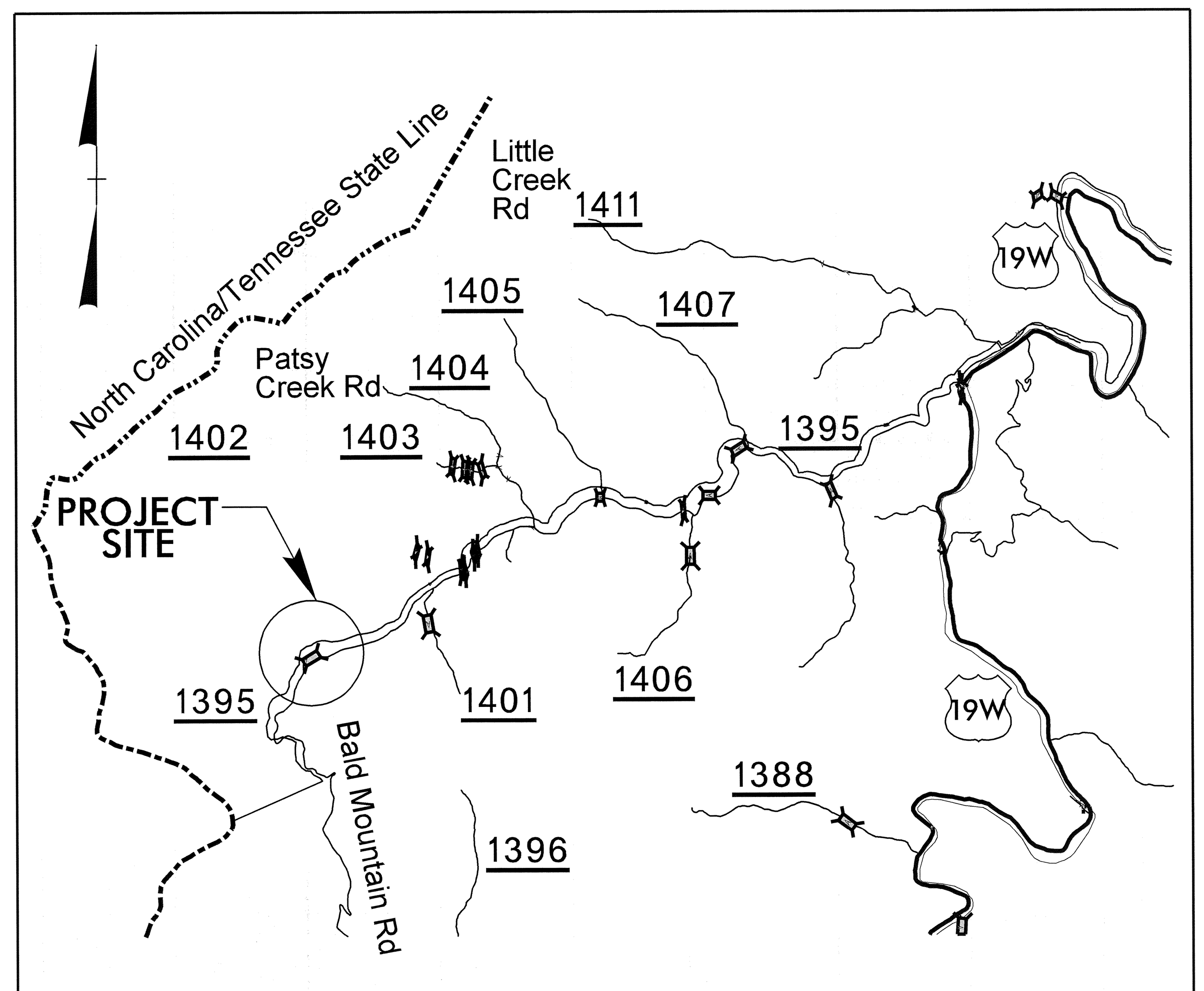
5/28/99
9:11:40 AM
r21_Rdy_pfl_s5.dgn

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

YANCEY COUNTY





VICINITY MAP

LOCATION: ***BRIDGE NO.121 OVER BALD MOUNTAIN CREEK ON SR 1355 (BALD MOUNTAIN RD)***

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

INDEX OF SHEETS

KCI ASSOCIATES OF N.C.
CIVIL ENGINEERS
ENVIRONMENTAL - CEI
LAND SURVEYING
SUBSURFACE UTILITY ENGINEERING
SUITE 220, LANDMARK CENTER II,
4601 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27609
(919) 783-9214
WWW.KCI.COM

APPROVED: Barry C. Smith
DATE: 5/15/15

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034375 BARRY C. SMITH

SHEET NO. TMP-1

STATE PROJECT: 17BP.13.R.19

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.19	TMP-1A

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
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
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
1205.12	PAVEMENT MARKINGS - BRIDGES
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

LEGEND

GENERAL

DIRECTION OF TRAFFIC FLOW
DIRECTION OF PEDESTRIAN TRAFFIC FLOW
EXIST. PVMT.
NORTH ARROW
PROPOSED PVMT.
WORK AREA
REMOVAL

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)
CONE
DRUM SKINNY DRUM TUBULAR MARKER
TEMPORARY CRASH CUSHION
FLASHING ARROW BOARD
FLAGGER
LAW ENFORCEMENT
TRUCK MOUNTED ATTENUATOR (TMA)
CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

PORTABLE SIGN
STATIONARY SIGN
STATIONARY OR PORTABLE SIGN

SIGNALS

EXISTING PROPOSED TEMP TEMPORARY

PAVEMENT MARKINGS

EXISTING LINES
TEMPORARY LINES

PAVEMENT MARKERS

CRYSTAL/CRYSTAL
CRYSTAL/RED
YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

DESCRIPTION	PAY ITEM
WHITE EDGELINE 2X	PAINT (4")
YELLOW DOUBLE CENTER LINE 2X	PAINT (4")
WHITE STOP BAR 2X	PAINT (24")

KCI
http://www.kci.com
Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
Phone (919) 783-9214 • Fax (919) 783-9266

APPROVED: Barry C. Smith DATE: 5/15/15

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH

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

ROADWAY STANDARD DRAWINGS & LEGEND

9:19:33 AM
121_TC_TCP_01A.dgn
Division:

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.19	TMP-1B

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 5FT 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.

PAVEMENT EDGE DROP OFF REQUIREMENTS

E) 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.

F) 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) 100 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

H) 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.

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

J) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 100 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC BARRIER

K) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (25 MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

L) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

TRAFFIC CONTROL DEVICES

M) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (25 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.

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

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
BALD MOUNTAIN ROAD (DETOUR)	WHITE EDGELINES	
BALD MOUNTAIN ROAD (-L-)	YELLOW DOUBLE CENTERLINE	

P) PLACE TWO APPLICATIONS OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A THIRD APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

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

R) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

S) 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) 100 FT AND 200 FT RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

T) FOR TEMPORARY SHORING LOCATIONS SEE SPECIAL PROVISIONS.

LOCAL NOTES

1. NOTIFY YANCEY COUNTY EMERGENCY SERVICES AND PUBLIC SCHOOLS AT LEAST ONE MONTH PRIOR TO ROAD CONSTRUCTION.
2. ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER
3. MAINTAIN ACCESS TO EXISTING DRIVEWAYS AT ALL TIMES.
4. INSTALLATION AND MAINTENANCE OF THE TEMPORARY TRAFFIC SIGNAL IS THE RESPONSIBILITY OF THE CONTRACTOR. SUBJECT TO APPROVAL OF THE DIVISION ENGINEER.

MANAGEMENT STRATEGIES

1. MAINTAIN LOCAL TRAFFIC USING ONSITE DETOUR.
2. UTILIZE SINGLE LANE, MINIMUM 10 FT, WITH TWO-WAY TRAFFIC CONTROL WITH TEMPORARY SIGNALS.
3. CONSTRUCT PROPOSED BRIDGE.

KCI
http://www.kci.com
Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
Phone (919) 783-9214 • Fax (919) 783-9266

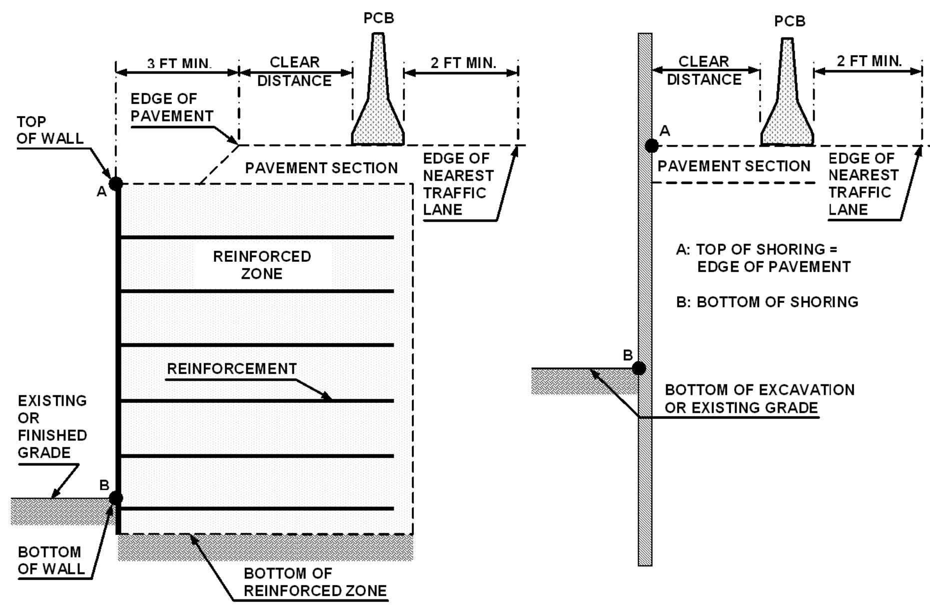
APPROVED: Barry C. Smith DATE: 5/15/15

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH

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

TRANSPORTATION OPERATIONS PLAN



NOTE: WALL OR SHORING HEIGHT = A - B

FIGURE A

NOTES

1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.

2- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).

3- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).

4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.

5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.

6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.

7- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.

8- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS AND OR AS APPROVED BY THE ENGINEER.

9- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.

10- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200 FT IN LENGTH AND WET OR DRY PAVEMENT.

MINIMUM REQUIRED CLEAR DISTANCE, inches

Barrier Type	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
		>56	32	36	42	45	47	51
	Concrete	<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
		26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
		50-56	26	26	28	32	35	38
		>56	26	27	29	32	36	38
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

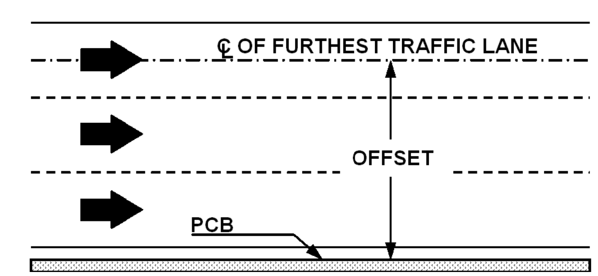


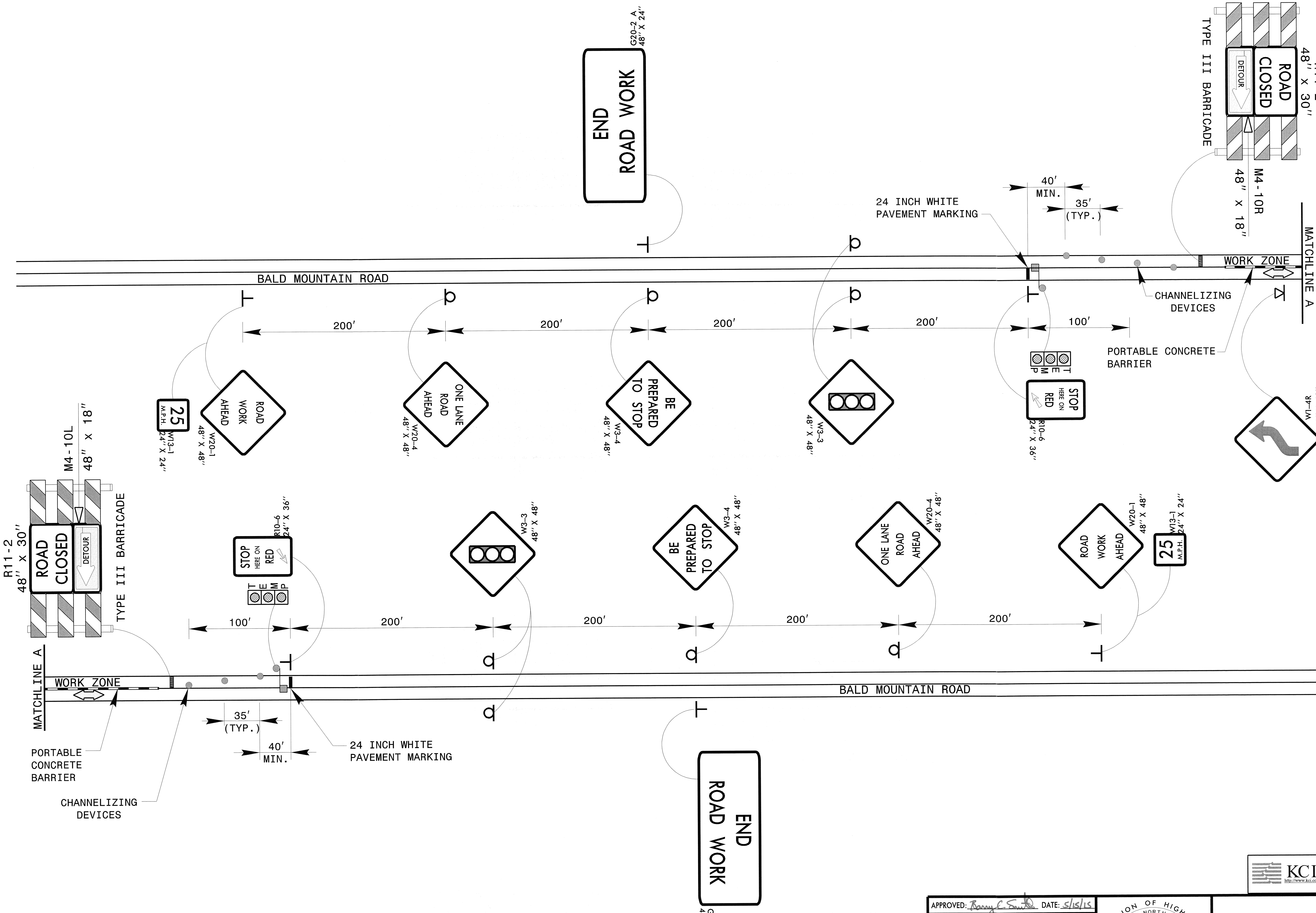
FIGURE B

APPROVED:	DATE:
SEAL	

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

PORTABLE CONCRETE BARRIER
AT
TEMPORARY SHORING LOCATIONS

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.19	TMP-2B



TYPICAL ADVANCE WARNING SIGN DETAIL SOUTHBOUND SHIFT

NOT TO SCALE

KCI
Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
Phone (919) 783-9214 • Fax (919) 783-9266
http://www.kci.com

APPROVED: Barry C. Smith DATE: 5/15/15

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034375 BARRY C. SMITH

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

ADVANCE SIGNING DETAIL FOR TEMPORARY SIGNAL

9:19:34 AM
I2L_TC_TCP_02C.dgn
Division:

PHASE 1

STEP 1: USING ROADWAY STANDARD DRAWING NO. 1101.04 SHEET 1 OF 1

INSTALL ADVANCE WARNING WORK ZONE SIGNS (SEE ROADWAY STANDARD DRAWING 1101.01, SHEET 3 OF 3).

STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 15 AND FLAGGERS

CONSTRUCT TWO FOOT WIDE SHOULDER WIDENING AND PLACE CHANNELIZING DEVICES (DRUMS) PER PHASE 1 DETAIL TO CLOSE SHOULDER ALONG -L- FROM -L- STA. 10+60 TO -L-STA.14+80 +/- RT.

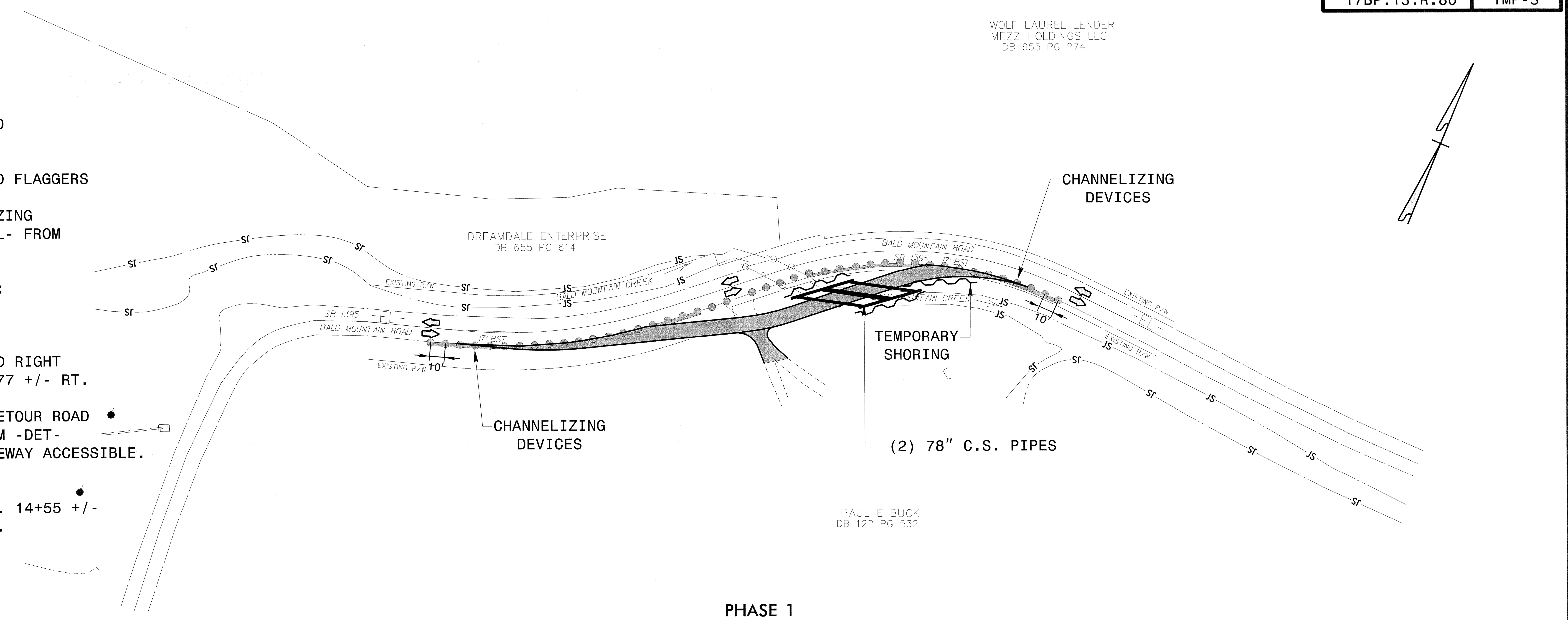
STEP 3: BEHIND THE TEMPORARY SHOULDER CLOSURE COMPLETE THE FOLLOWING:

INSTALL TEMPORARY CULVERT (2 - 78" C.S. PIPES)

INSTALL TEMPORARY SHORING AND CONSTRUCT TEMPORARY DETOUR ROAD RIGHT OF EXISTING PAVEMENT FROM -L- STA. 10+74 +/- TO -L- STA. 14+77 +/- RT.

INSTALL PORTABLE CONCRETE BARRIER (P.C.B.) ALONG TEMPORARY DETOUR ROAD FROM -DET- STA. 12+25 +/- TO -DET- STA. 13+50 +/- LT AND FROM -DET- STA. 12+90 +/- TO -DET- STA. 14+25 +/- RT WHILE KEEPING DRIVEWAY ACCESSIBLE.

PLACE TEMPORARY MARKINGS FROM -DET- STA. 10+89 +/- TO -DET- STA. 14+40 +/- LT AND FROM -DET- STA. 10+60 +/- TO -DET- STA. 14+55 +/- RT ON TEMPORARY DETOUR ROAD AS SHOWN ON PHASE 2 DETAIL BELOW.



PHASE 1
(TEMPORARY CULVERT CONSTRUCTION)

NOTES:
1 - MAINTAIN DRIVEWAY ACCESS AT ALL TIMES.
2 - SEE SPECIAL PROVISIONS FOR TEMPORARY SHORING INFORMATION.

PHASE 2

WORKING IN A CONTINUOUS MANNER, COMPLETE THE FOLLOWING WORK IN PHASE 2 STEPS 1,2, & 3.

STEP 1: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 15 AND FLAGGERS

INSTALL TEMPORARY SIGNALS AND TEMPORARY 24" STOP BARS, KEEPING SIGNAL HEADS COVERED (SEE DETAIL TMP-2B).

STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.04, SHEET 1 OF 1

INSTALL "ONE LANE ROAD AHEAD", "BE PREPARED TO STOP", SIGNAL AHEAD, AND "STOP HERE ON RED" SIGNS PER DETAIL TMP-2B, KEEPING SIGNS COVERED.

STEP 3: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 15 AND FLAGGERS COMPLETE THE FOLLOWING:

PAVE/WEDGE AS NECESSARY TO SMOOTHLY TIE PROPOSED DETOUR ROAD WITH EXISTING BALD MOUNTAIN ROAD FROM -L- STA.10+60 +/- TO -L- STA.14+80 +/-. REMOVE EXISTING PAVEMENT MARKINGS AS NECESSARY AND PLACE TEMPORARY PAVEMENT MARKINGS (PAINT) FROM -L-STA.10+60 +/- TO -L-STA.14+80 +/- TO TIE TO PROPOSED DETOUR ROAD MARKINGS.

INSTALL REMAINING SECTIONS OF P.C.B FROM -DET- STA. 10+75 TO -DET- STA. 12+25 +/- LT, -DET- STA. 13+50 +/- TO -DET- STA. 14+30 +/- LT, AND -DET- STA. 14+25 +/- TO -DET- STA. 14+55 +/- RT KEEPING ALL BARRIER ENDS PROTECTED BY TEMPORARY CRASH CUSHIONS.

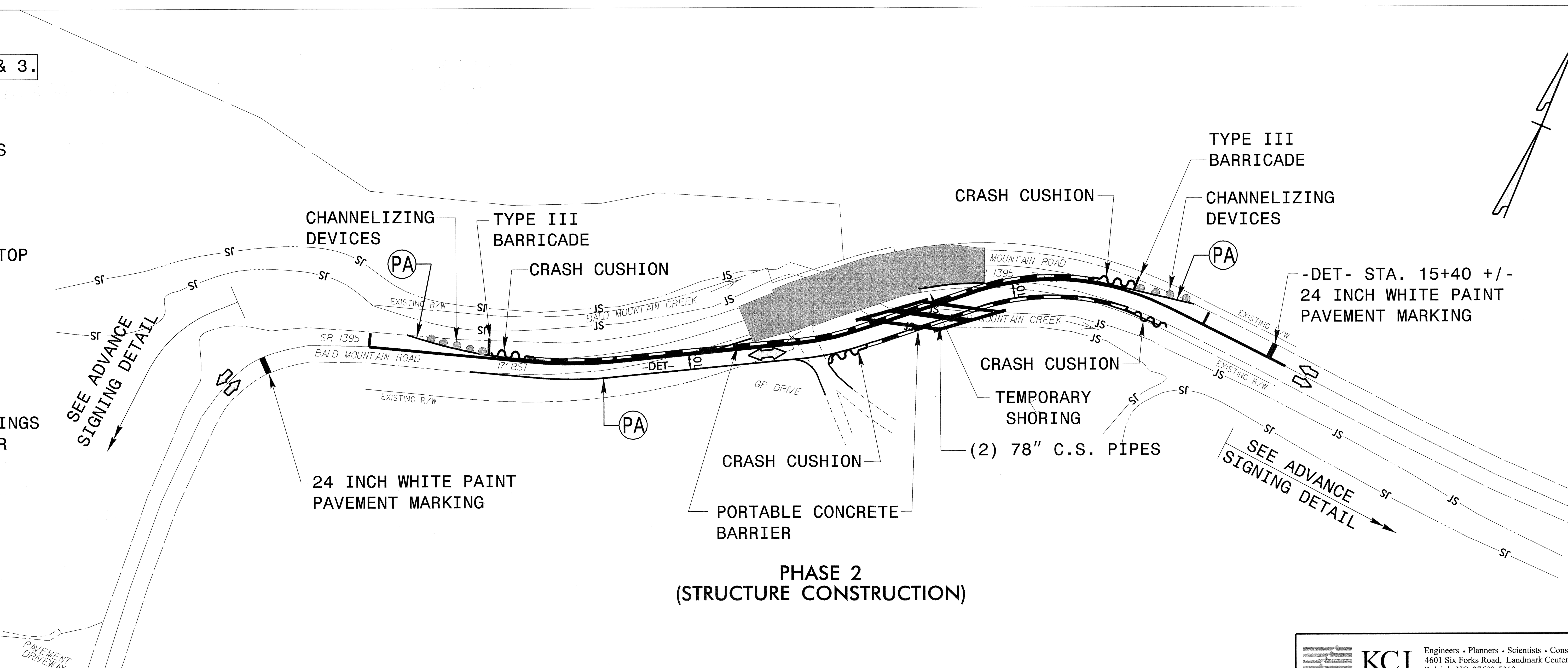
STEP 4: UNCOVER "ONE LANE ROAD AHEAD", "BE PREPARED TO STOP", SIGNAL AHEAD, AND "STOP HERE ON RED" SIGNS. INSTALL TYPE III BARRICADES AND CHANNELIZING DEVICES PER DETAIL TMP-2B.

ACTIVATE TEMPORARY SIGNALS AND PLACE SR 1395 TRAFFIC IN A ONE LANE, TWO-WAY PATTERN FROM -L-STA.10+00 TO -L-STA.15+40 +/- USING NEWLY CONSTRUCTED DETOUR ROAD.

STEP 5: BEHIND THE TEMPORARY TRAFFIC BARRIER COMPLETE THE FOLLOWING:

REMOVE EXISTING STRUCTURE.

BEGIN CONSTRUCTION OF PROPOSED -L- UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM -L- STA.12+25 TO -L- STA.13+70 AND CONSTRUCT STRUCTURE, AS SHOWN IN THE ROADWAY PLANS.



PHASE 2
(STRUCTURE CONSTRUCTION)

NOTES:
1 - MAINTAIN DRIVEWAY ACCESS AT ALL TIMES.
2 - SEE SPECIAL PROVISIONS FOR TEMPORARY SHORING INFORMATION.
3 - REFER TO SHEET TMP-2B FOR ADVANCE SIGNING DETAIL.

KCI
Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
Phone (919) 783-9214 • Fax (919) 783-9266
http://www.kci.com

APPROVED: Barry C. Smith DATE: 5/15/15

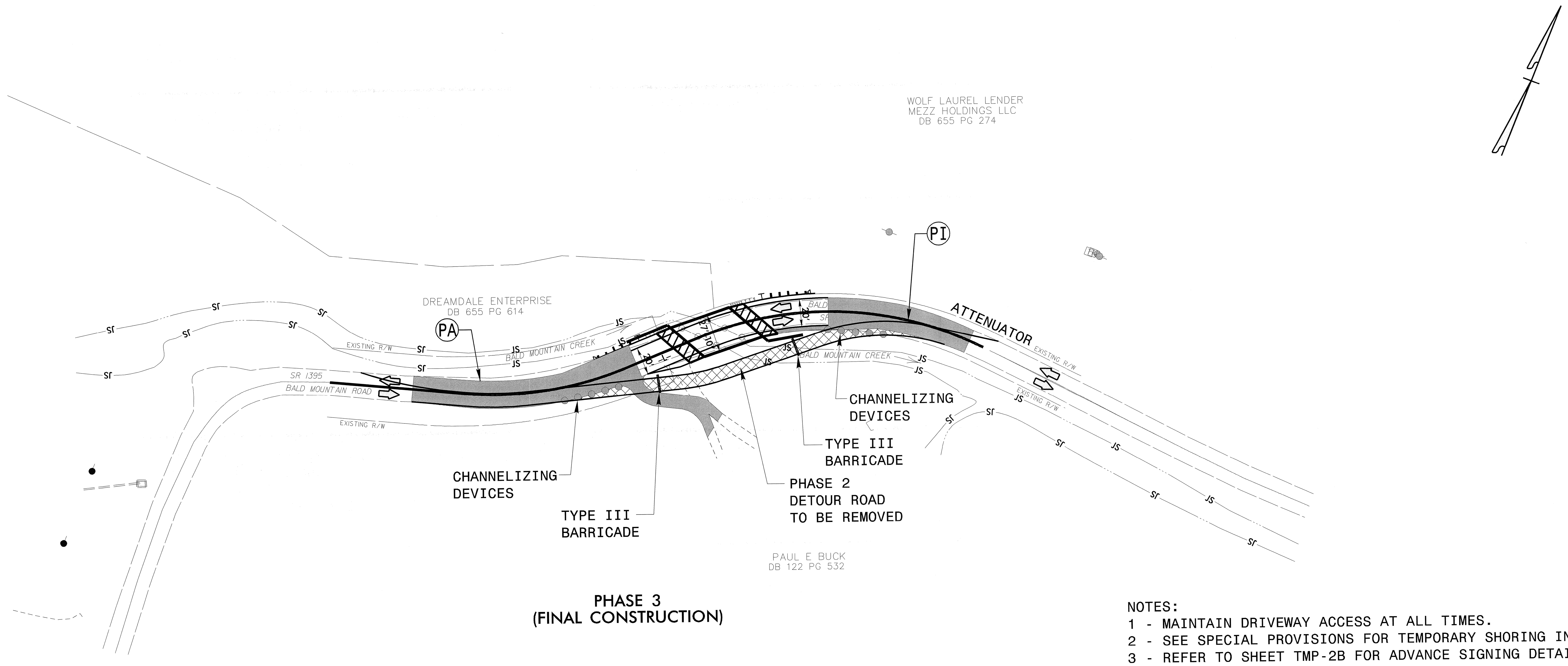
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH

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

TEMPORARY TRAFFIC CONTROL PHASE 1 & 2 DETAIL

9:19:36 AM
121_TC_TCP_03.dgn
Division:

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.19	TMP-4



PHASE 3
(FINAL CONSTRUCTION)

NOTES:
1 - MAINTAIN DRIVEWAY ACCESS AT ALL TIMES.
2 - SEE SPECIAL PROVISIONS FOR TEMPORARY SHORING INFORMATION.
3 - REFER TO SHEET TMP-2B FOR ADVANCE SIGNING DETAIL.

PHASE 3

WORKING IN A CONTINUOUS MANNER, COMPLETE THE FOLLOWING WORK IN PHASE 3 STEPS 1,2,3, & 4.

STEP 1: USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEET 1 OF 15 AND FLAGGERS COMPLETE THE FOLLOWING:

REMOVE CONFLICTING TEMPORARY P.C.B. FROM LEFT SIDE OF DETOUR KEEPING REMAINING ENDS PROTECTED BY TEMPORARY CRASH CUSHIONS.

PAVE/WEDGE AS NECESSARY TO SMOOTHLY TIE REMAINING SECTIONS OF PROPOSED -L- FROM -L- STA. 10+60 TO -L-STA.14+75 UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE.

PLACE PAVEMENT MARKINGS (PAINT) IN THE FINAL PATTERN FROM -L- STA. 10+60 TO -L- STA. 14+75

COVER TEMPORARY SIGNALS. REMOVE "STOP HERE ON RED", "ONE LANE ROAD AHEAD", AND "BE PREPARED TO STOP" SIGNS.

RESET TYPE III BARRICADES AND CHANNELIZING DEVICES TO BLOCK OFF TEMPORARY DETOUR ROAD AS SHOWN IN PHASE 3 DETAIL ABOVE.

PLACE SR 1395 (BALD MOUNTAIN RD) TRAFFIC IN FINAL TWO-LANE, TWO-WAY PATTERN.

TIE DRIVEWAY (-DRV-) TO NEW ROADWAY.

STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.04 SHEET 1 OF 1 COMPLETE THE FOLLOWING:

REMOVE TEMPORARY DETOUR ROAD, TEMPORARY SHORING, TEMPORARY C.S. PIPES, AND TEMPORARY P.C.B.

FINISH SHOULDER GRADING AND CONSTRUCTION OF THE RIGHT SIDE OF PROPOSED -L-, INCLUDING GUARDRAIL AND WING WALLS.

STEP 3: USING FLAGGERS, FLAGGER AHEAD SIGNS, AND DRUMS COMPLETE THE FOLLOWING:

REMOVE ALL EXISTING AND TEMPORARY PAVEMENT MARKINGS FROM -L-STA.10+00 TO -L-STA.15+40.

PLACE THE FINAL LAYER OF SURFACE COURSE AND FINAL MARKINGS (PAINT) IN THE FINAL PATTERN. OPEN SR 1395 (BALD MOUNTAIN ROAD) TO THE FINAL TWO-LANE, TWO-WAY PATTERN (SEE ROADWAY PLANS).

STEP 4: REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

KCI http://www.kci.com
Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
Phone (919) 783-9214 • Fax (919) 783-9266

APPROVED: Barry C. Smith DATE: 5/15/15

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH

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

TEMPORARY TRAFFIC CONTROL PHASE 3 DETAIL

9:19:36 AM
r2_TC_TCP_04.dgn
DIVISION

TIP NO.	SHEET NO.
17BP.13.R.19	PMP-1

APPROVED: Barry C. Smith

DATE: 5/15/15

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH

KCI
http://www.kci.com
Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
Phone (919) 783-9214 • Fax (919) 783-9266

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PAVEMENT MARKING PLAN

YANCEY COUNTY

LOCATION: BRIDGE NO. 121 OVER BALD MOUNTAIN CREEK ON SR 1395 (BALD MOUNTAIN RD)

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	FINAL PAVEMENT MARKINGS
PA	WHITE EDGELINE	PAINT (4")
PI	YELLOW DOUBLE CENTER	PAINT (4")

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR 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
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 AND DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

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 DIRECTED BY THE ENGINEER.

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

	ROAD NAME	MARKING	MARKER
-L-	SR 1395 (BALD MOUNTAIN RD)	PAINT	NONE

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

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

D) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

E) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

F) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON THE BRIDGE DECK(s) PRIOR TO PLACING PAINT PAVEMENT MARKINGS.

INDEX

9:19:37 AM
121_Sgn_BPMP_PMP-1.dgn
Division:

TIP NO.	SHEET NO.
17BP.13.R.19	PMP-2

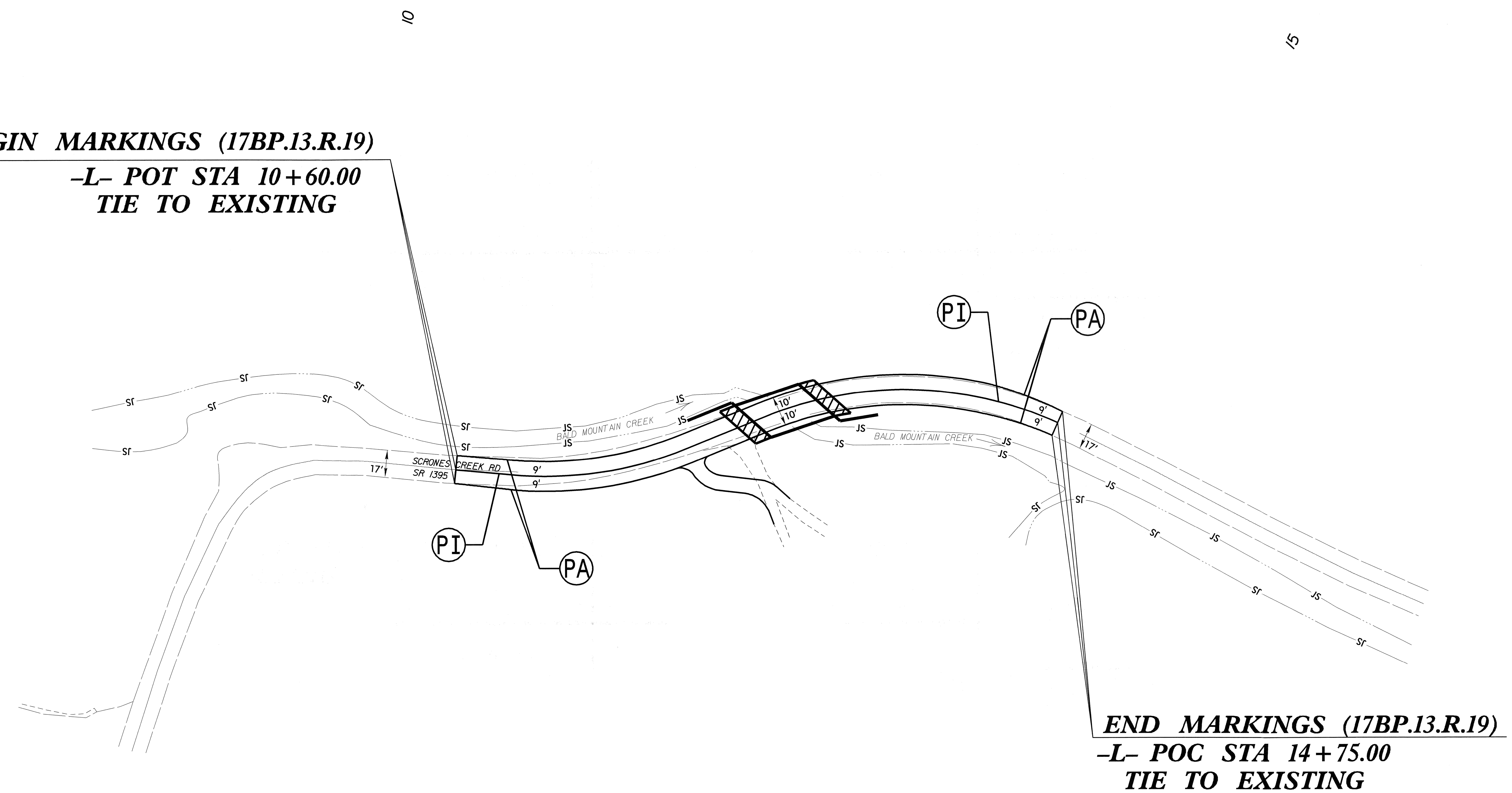
APPROVED: Barry C. Smith

DATE: 5/15/15

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034375 BARRY C. SMITH

KCI
http://www.kci.com
Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
Phone (919) 783-9214 • Fax (919) 783-9266



PAVEMENT MARKING LEGEND

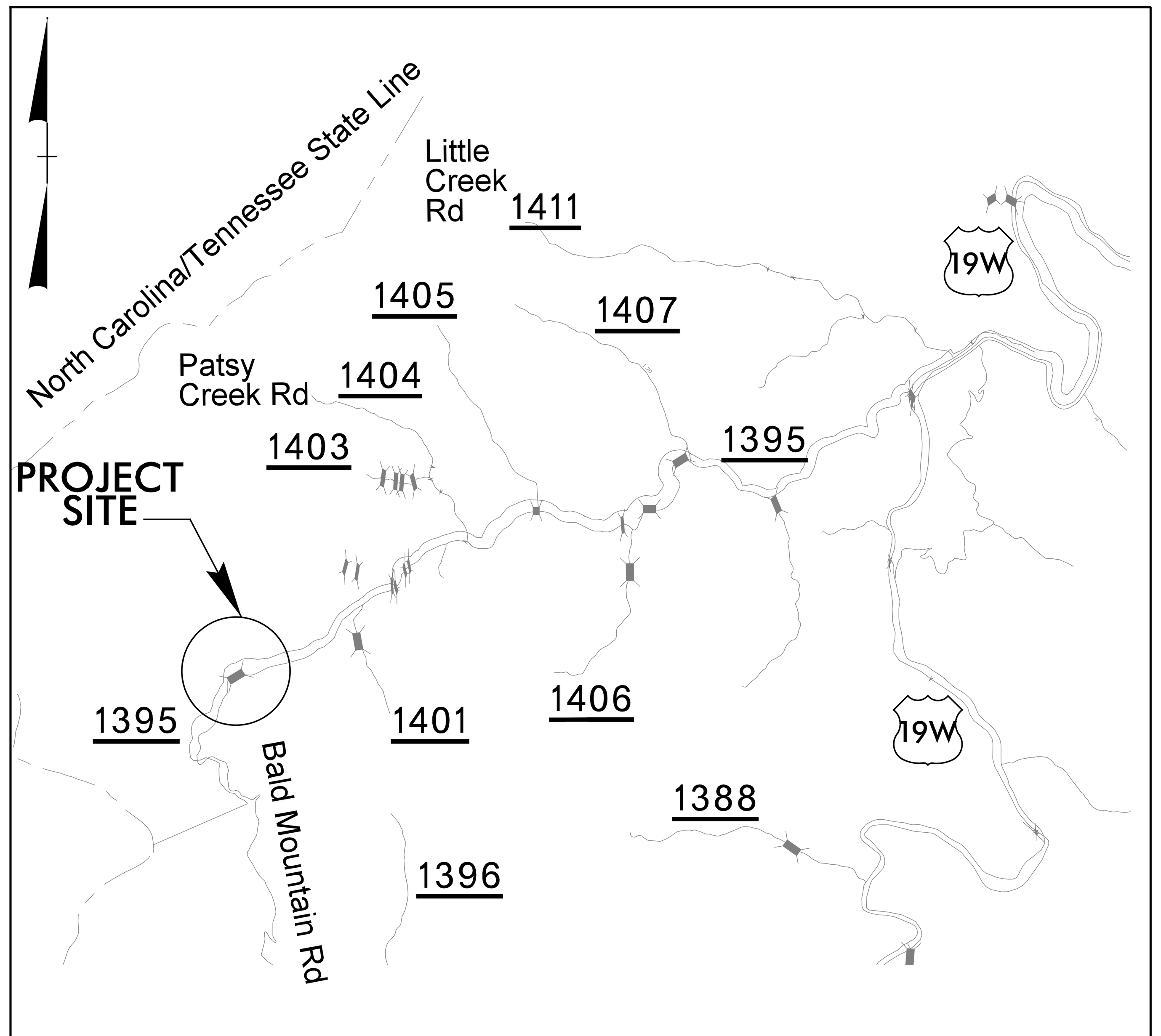
PA WHITE EDGELINE (4")

PI YELLOW DOUBLE CENTER (4")

9:19:38 AM
121_Sgn_BPMP_PMP-2.dgn
Division:

PAVEMENT MARKING DETAIL

STATE PROJECT: 17BP.13.R.19



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

YANCEY COUNTY

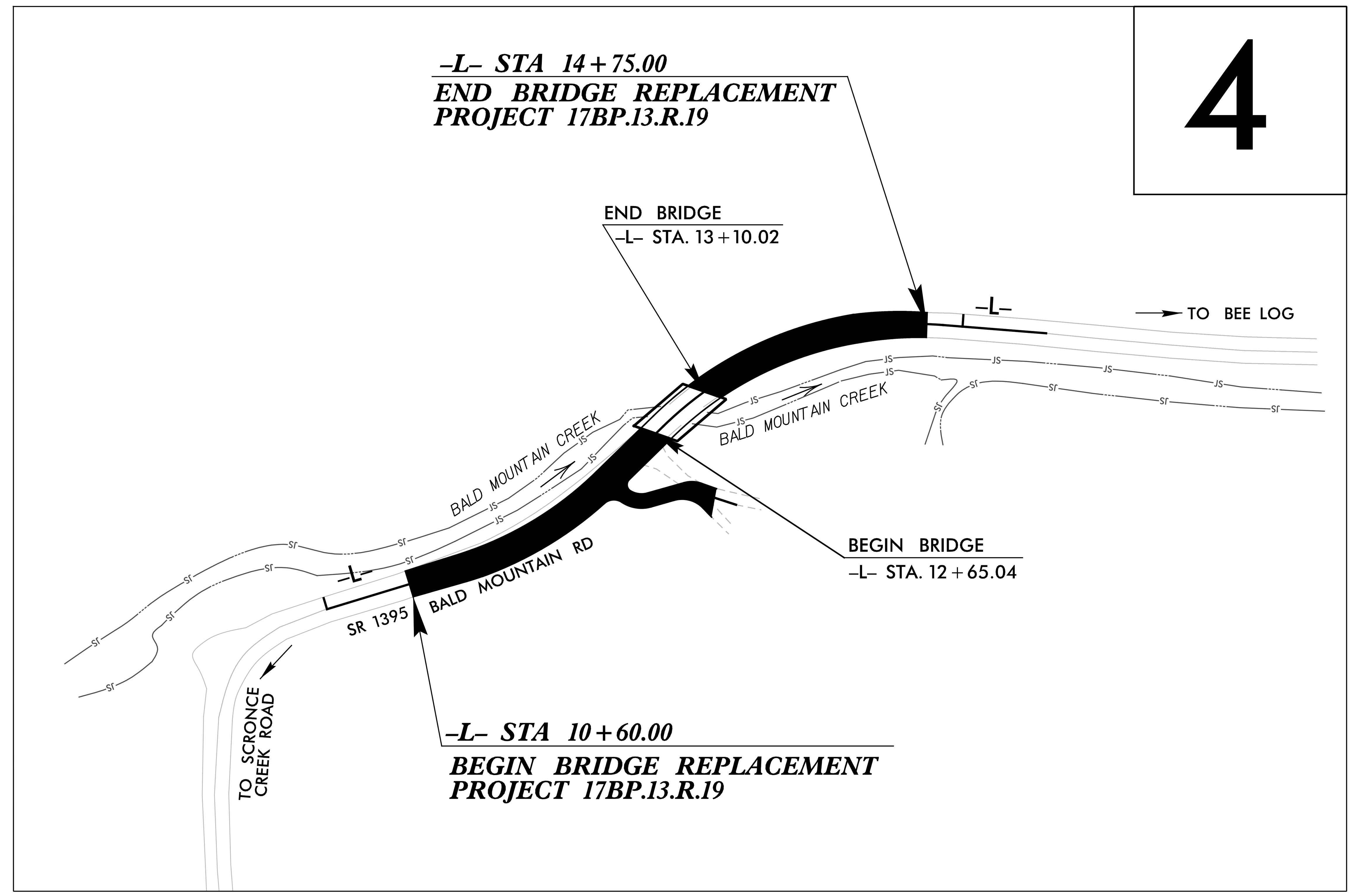
LOCATION: BRIDGE NO. 121 OVER BALD MOUNTAIN CREEK ON SR 1395 (BALD MOUNTAIN RD)
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.13.R.19	EC-1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION

4

NAD 83/ NSRS 2007



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	
	Tiered Skimmer Basin	
	Infiltration Basin	

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

GRAPHIC SCALE

25 0 50
PLANS

25 0 50
PROFILE (HORIZONTAL)

5 0 10
PROFILE (VERTICAL)

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 BY: moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

DESIGN BY: *LEAH M. YOUNG, PE*
NCDOT LEVEL III: DESIGNER OF EROSION AND SEDIMENT CONTROL PLANS CERT #3157

REVIEWED BY: *JEFFREY L. RECK, PE*
NCDOT LEVEL III-A: DESIGNER OF EROSION AND SEDIMENT CONTROL PLANS CERT #132

Prepared In the Office of:

ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

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 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		

12/4/2013
R:\Roadside\121_reu_tsh_sl.dgn
Moffatt_Nichol

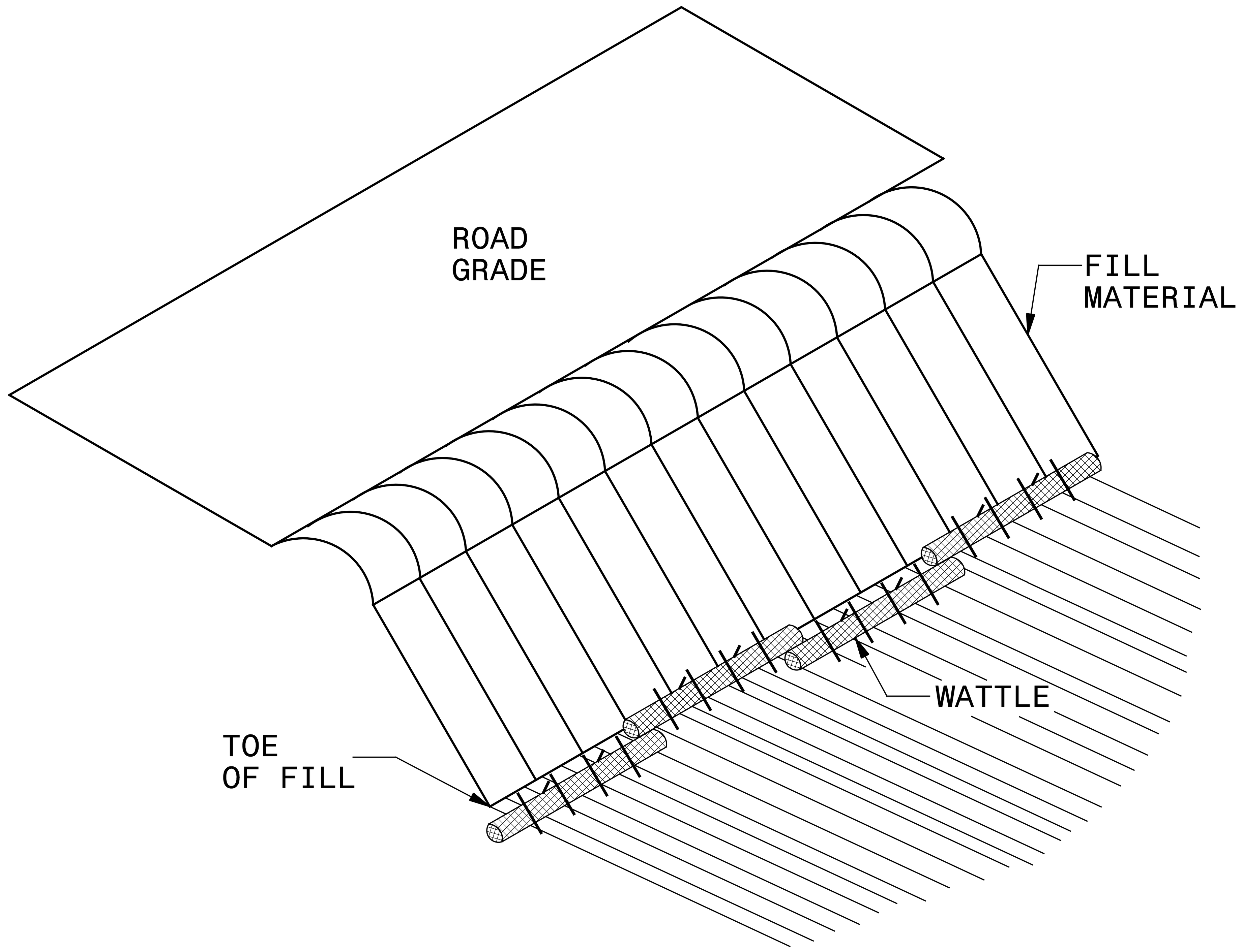
BRIDGE 990121

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.R19	EC-2

KCI
http://www.kci.com
Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
Phone (919) 783-9214 • Fax (919) 783-9266

moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

COIR FIBER WATTLE BARRIER DETAIL



ISOMETRIC VIEW

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLES ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

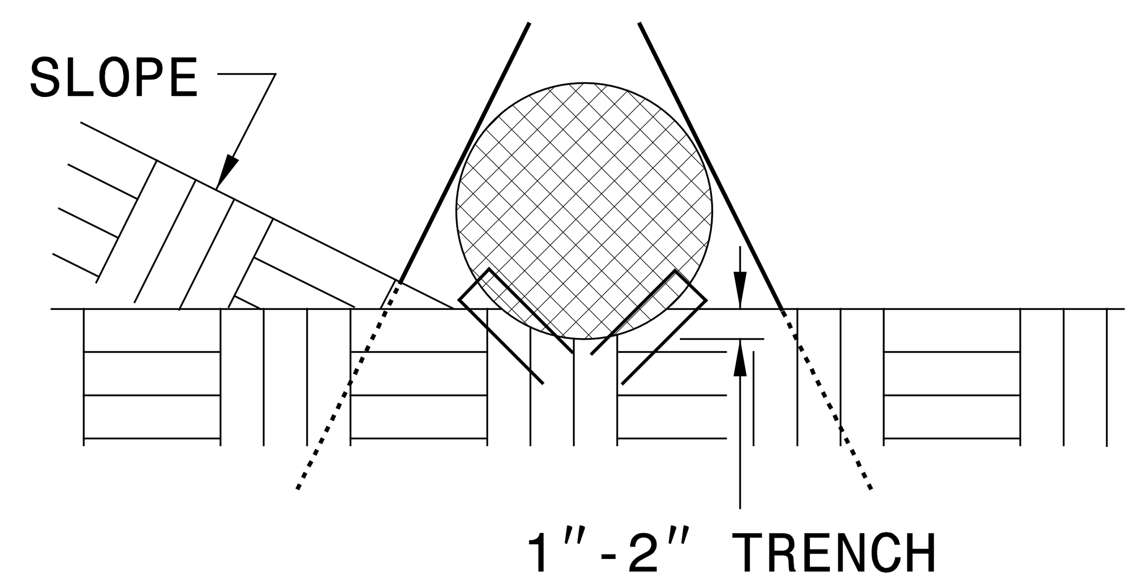
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

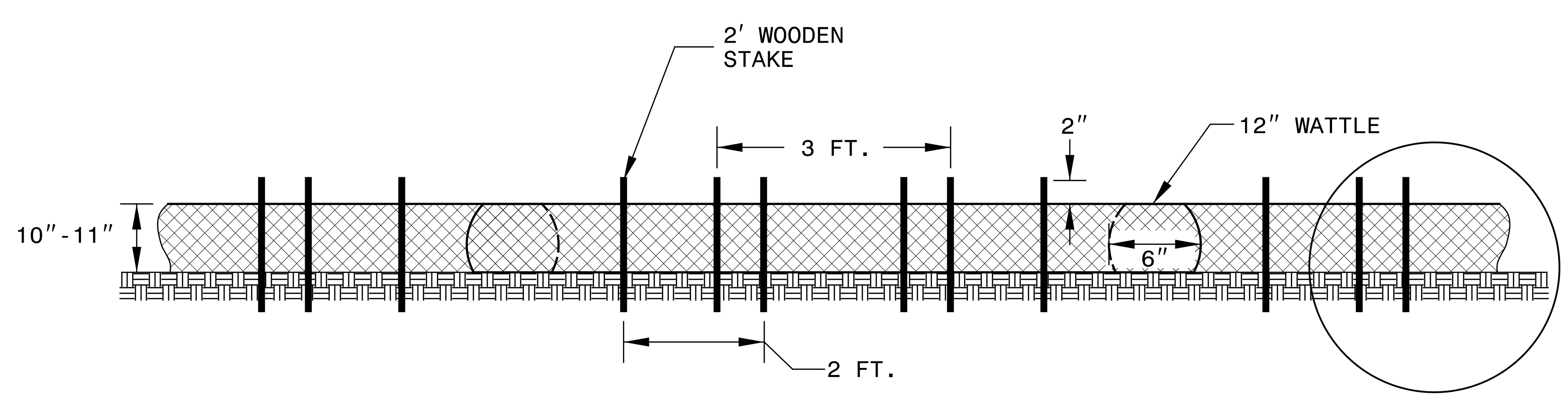
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

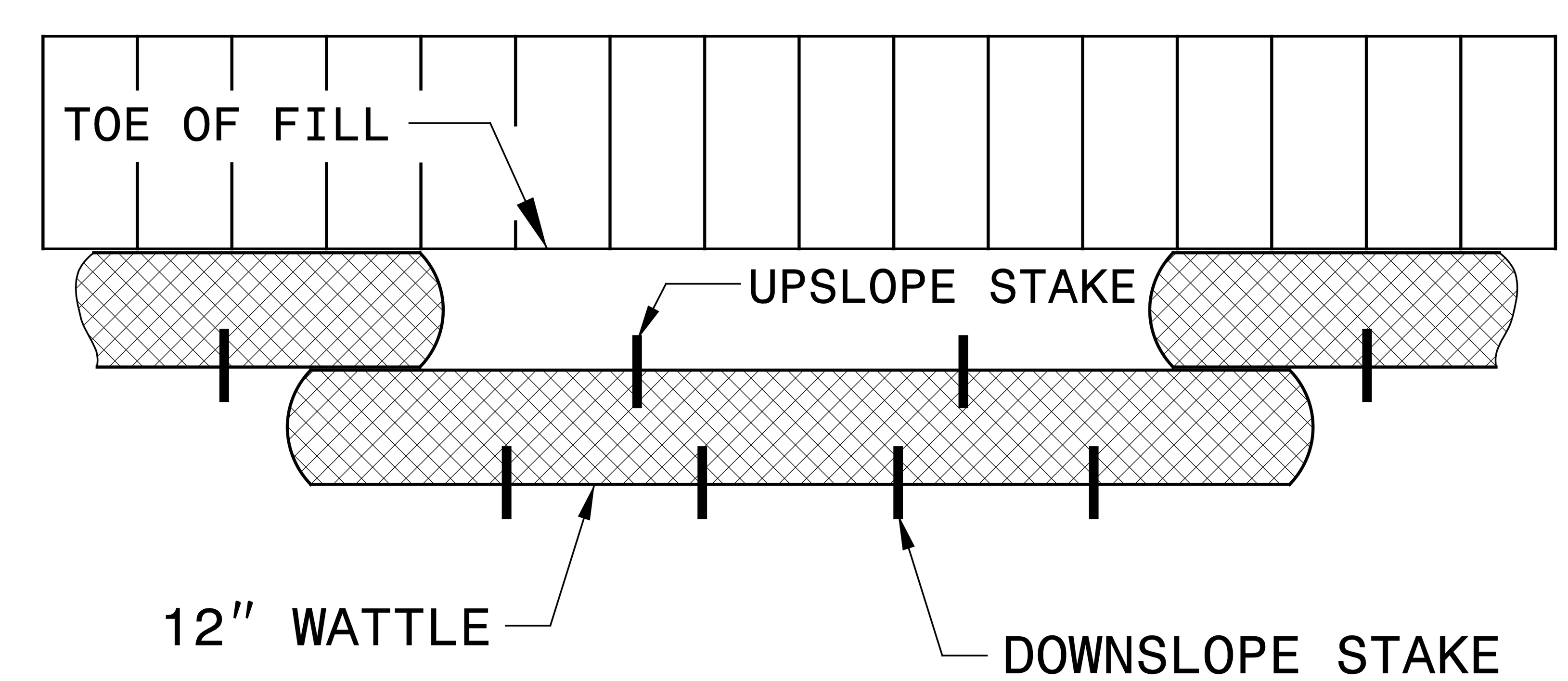
FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 20 FT.

INSET A





FRONT VIEW



TOP VIEW

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABLIZATION 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 W/ SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES

KCI http://www.kci.com Engineers • Planners • Scientists • Construction Managers 4601 Six Forks Road, Landmark Center II, Suite 220 Raleigh, NC 27609-5210 Phone (919) 783-9214 • Fax (919) 783-9266

moffatt & nichol 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 781-4626 VOICE (919) 781-4869 FAX

BRIDGE 990121

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.R19	EC-3A

KCI
http://www.kci.com
Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
Phone (919) 783-9214 • Fax (919) 783-9266

moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-DET-	11+00	13+23	RT	50
4	-DET-	12+25	12+89	LT	14
4	-DET-	13+28	13+50	LT	5
				SUBTOTAL	69
	ADDITIONAL PSRM TO BE INSTALLED				--
				TOTAL	69
				SAY	70

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.R19	EC-4\CONST-4
R/W SHEET NO.	

Engineers • Planners • Scientists • Construction Managers
KCI
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
Phone (919) 783-9214 • Fax (919) 783-9266
http://www.kci.com

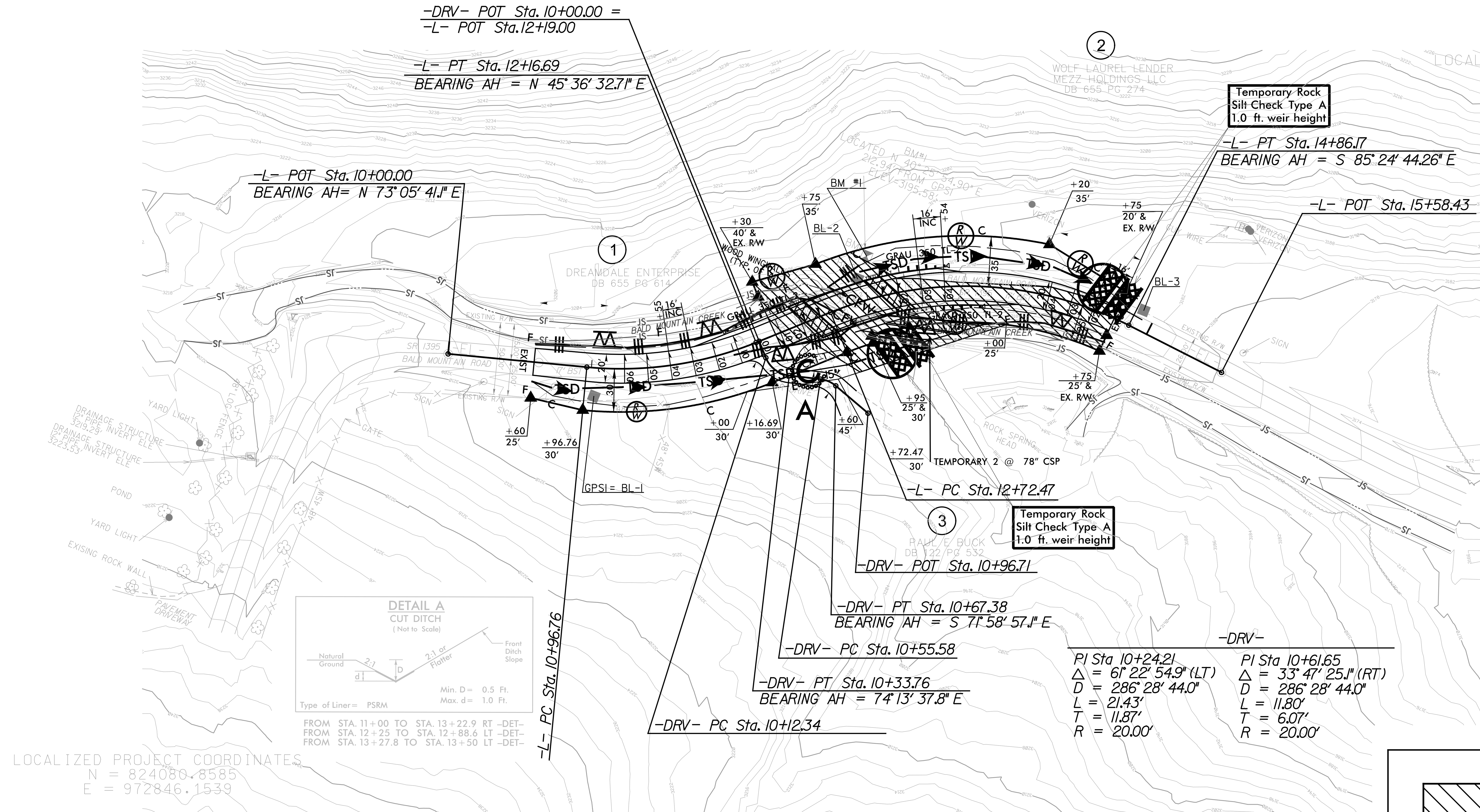
moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

FOR -L- PROFILE, SEE SHEET 5

NAD 83/NSRS 2007

-L-

PI Sta 11+57.90	PI Sta 13+86.34
Δ = 27° 29' 08.3" (LT)	Δ = 48° 58' 43.0" (RT)
D = 22° 55' 05.9"	D = 22° 55' 05.9"
L = 119.93'	L = 213.71'
T = 61.14'	T = 113.88'
R = 250.00'	R = 250.00'
SE = .06	SE = .04



NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

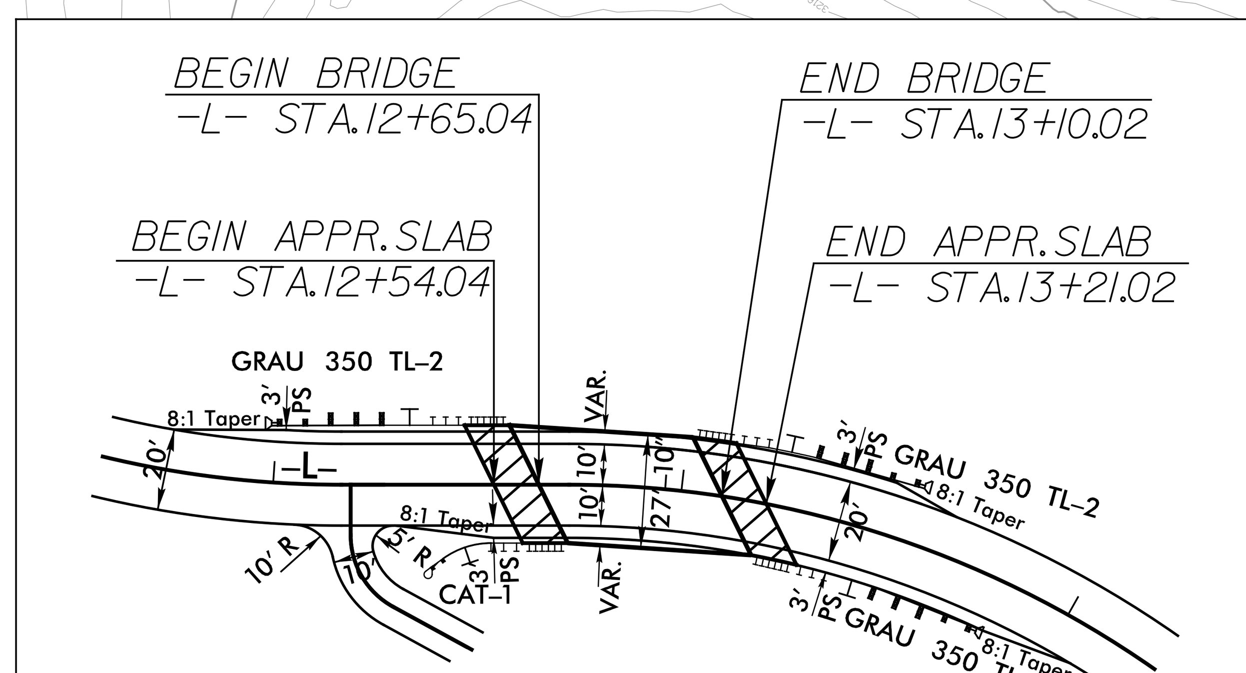
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

INSTALL DRIVEWAY PIPE DURING CLEARING & GRUBBING PHASE

TROUT STREAM BUFFER ZONE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "990121 GPS1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 824074.6420(ft) EASTING: 972893.5400(ft) ELEVATION: 3204.76(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99980173
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "990121 GPS1" TO -L- STATION 10+60.00 IS N 82° 31' 34.1" W 47.79 ft
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



RELATIONSHIP OF BRIDGE TO PROPOSED PAVEMENT (1" = 40')

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
GPS1=BL1	GPS1	824074.6420	972893.5400	3204.76	11+03.03	19.81 RT
GPS2	GPS2	823566.3760	972679.2270	3256.60	OUTSIDE PROJECT LIMITS	
2	BL-2	824219.7620	973031.7730	3192.66	12+96.99	15.87 LT
3	BL-3	824275.2130	973223.9740	3183.27	14+90.79	13.96 LT

BM1 ELEVATION =3195.58'
N 824236 E 973031
L STATION 13+06.41 29.38 LEFT
8" SPIKE IN BASE OF 12" MAPLE

REVISIONS

8/17/99

12/4/2013
R:\Roadside\121_rev_psh_s4.dgn
Moffatt_Nichol

PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.19	EC-5\CONST-4
R/W SHEET NO.	

KCI
http://www.kci.com
Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
Phone (919) 783-9214 • Fax (919) 783-9266

moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

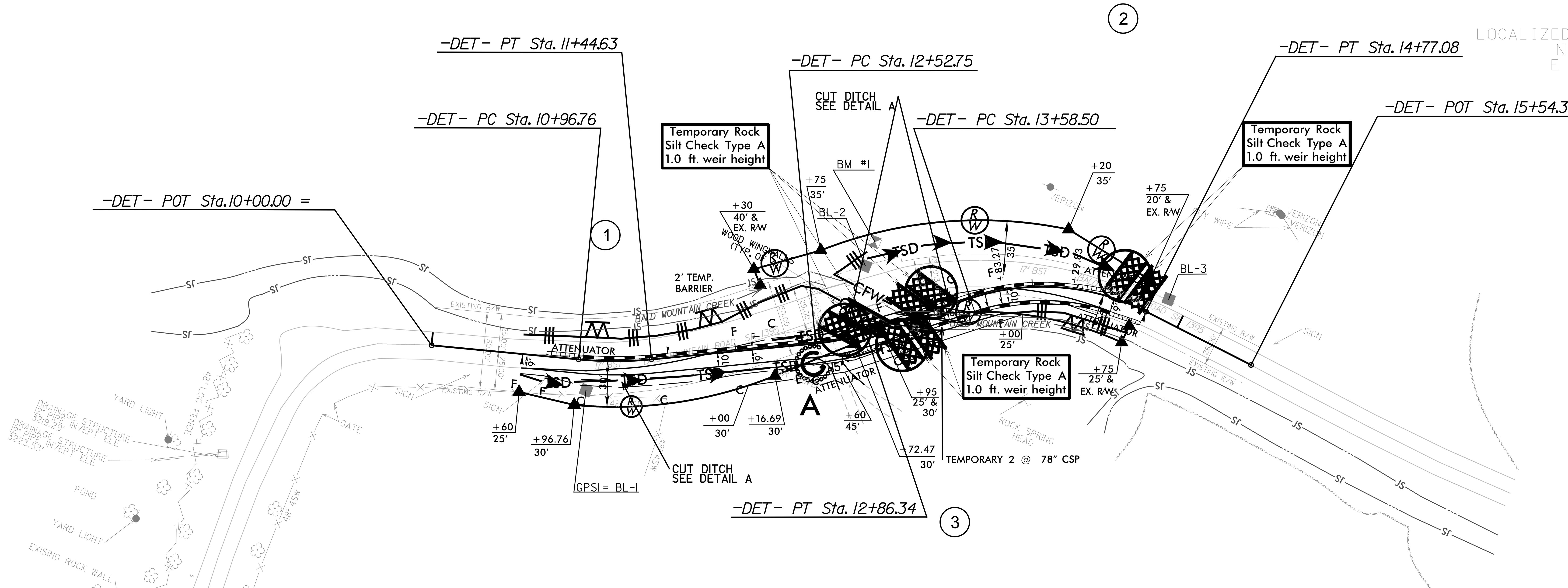
REVISIONS

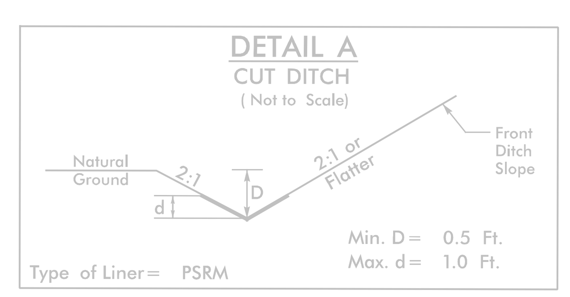
8/17/99

-DET-

PI Sta 11+20.77	PI Sta 12+69.62	PI Sta 14+21.08
Δ = 10° 58' 12.7" (LT)	Δ = 12° 49' 57.7" (LT)	Δ = 45° 17' 45.1" (RT)
D = 22° 55' 05.9"	D = 38° 11' 49.9"	D = 38° 11' 49.9"
L = 47.87'	L = 33.60'	L = 118.58'
T = 24.01'	T = 16.87'	T = 62.59'
R = 250.00'	R = 150.00'	R = 150.00'

NAD 83/NSRS 2007





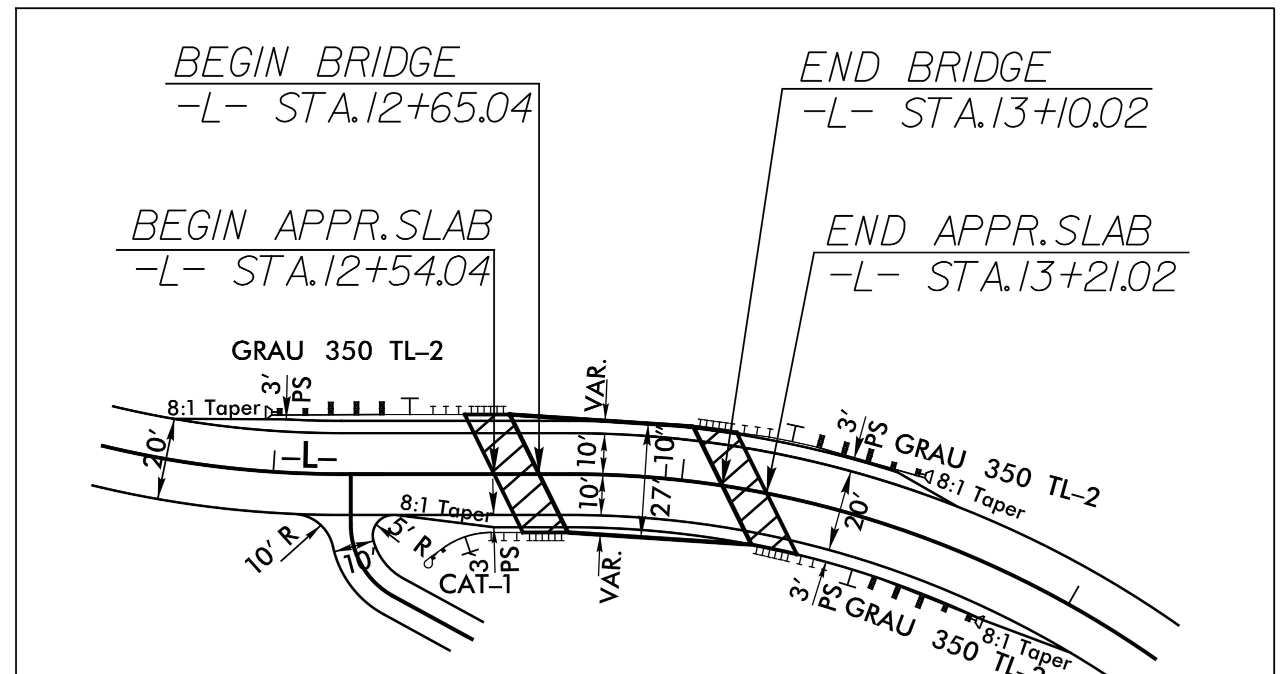
FROM STA. 11+00 TO STA. 13+22.9 RT -DET-
FROM STA. 12+25 TO STA. 12+88.6 LT -DET-
FROM STA. 13+27.8 TO STA. 13+50 LT -DET-

LOCALIZED PROJECT COORDINATES
N = 824080.8585
E = 972846.1539

Scale 1" = 50'
50' 0 50' 100'

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "990121 GPS1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 824074.6420(ft) EASTING: 972893.5400(ft)
ELEVATION: 3204.76(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99980173
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "990121 GPS1" TO -L- STATION 10+60.00 IS N 82° 31' 34.1" W 47.79 ft
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



RELATIONSHIP OF BRIDGE TO PROPOSED PAVEMENT (1" = 40')

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
GPS1=BL1	GPS1	824074.6420	972893.5400	3204.76	11+03.03	19.81 RT
GPS2	GPS2	823566.3760	972679.2270	3256.60	OUTSIDE PROJECT LIMITS	
2	BL-2	824219.7620	973031.7730	3192.66	12+96.99	15.87 LT
3	BL-3	824275.2130	973223.9740	3183.27	14+90.79	13.96 LT

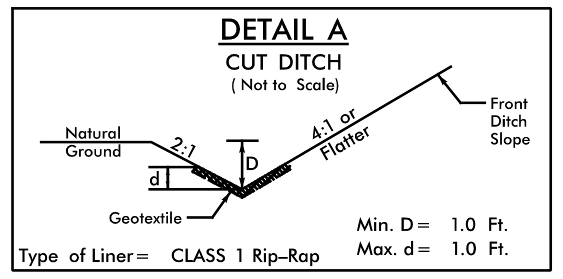
BM1 ELEVATION =3195.58'
N 824236 E 973031
L STATION 13+06.41 29.38 LEFT
8" SPIKE IN BASE OF 12" MAPLE

12/4/2013
R:\Roadside\121_rev_psh_s5.dgn
Moffatt_Nichol

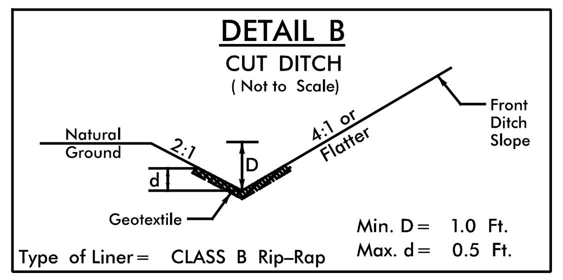
PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.19	EC-6\CONST-4
R/W SHEET NO.	

KCI
http://www.kci.com
Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
Phone (919) 783-9214 • Fax (919) 783-9266

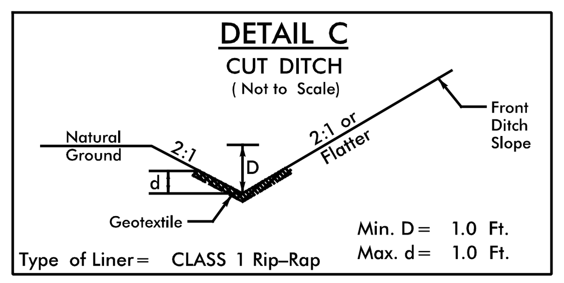
moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX



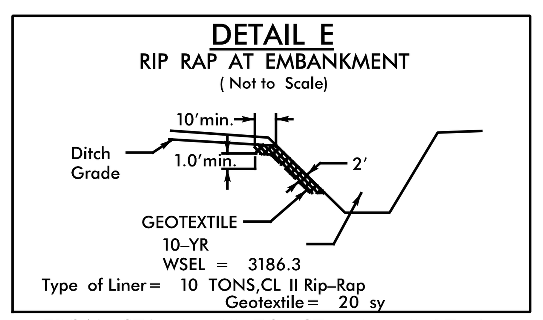
FROM STA. 10+60 TO STA. 12+00 RT -L-



FROM STA. 13+00 TO STA. 14+75 LT -L-



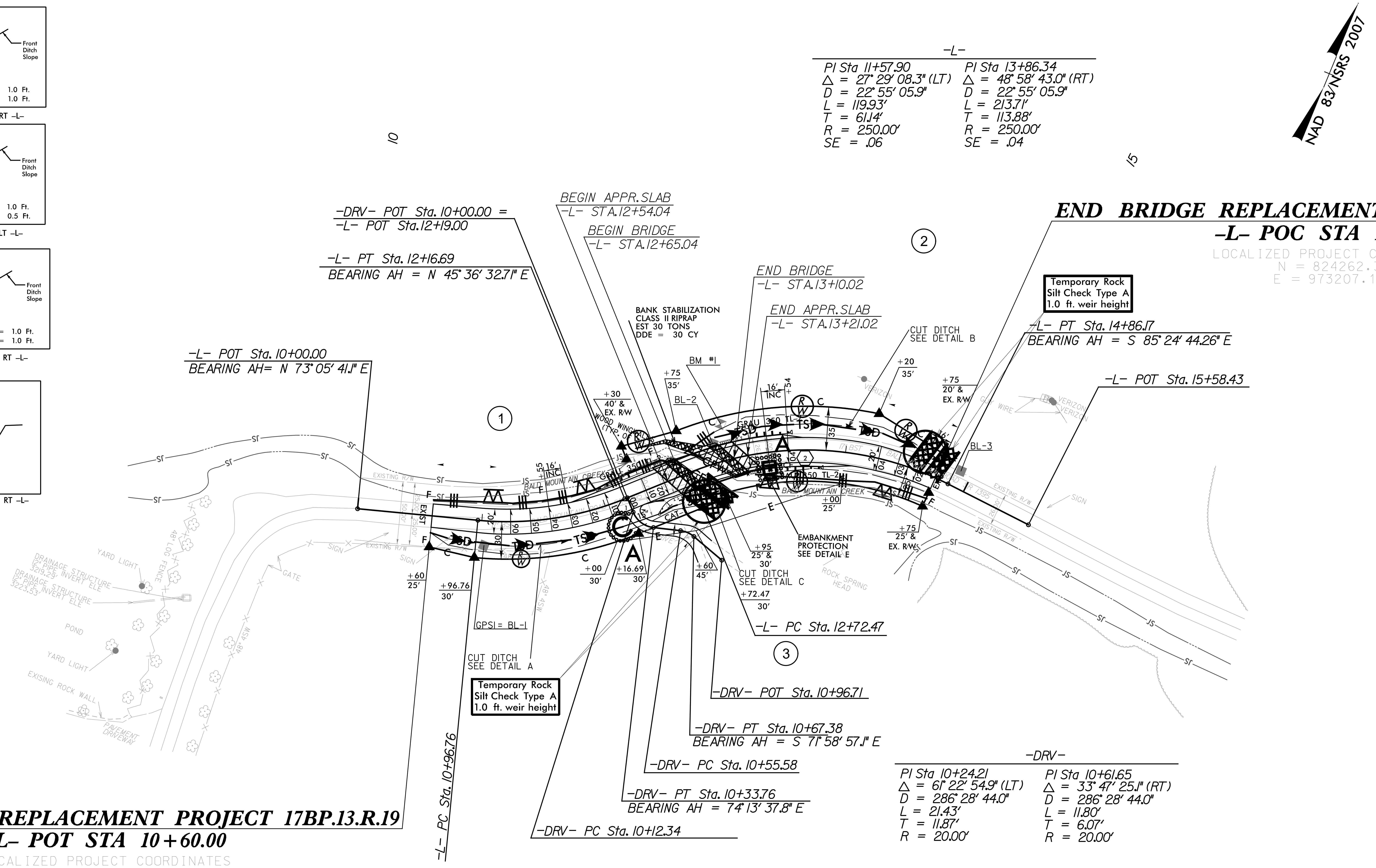
FROM STA. 12+40 TO STA. 12+90 RT -L-



FROM STA. 13+30 TO STA. 13+40 RT -L-

-L-

PI Sta 11+57.90	PI Sta 13+86.34
Δ = 27° 29' 08.3" (LT)	Δ = 48° 58' 43.0" (RT)
D = 22° 55' 05.9"	D = 22° 55' 05.9"
L = 119.93'	L = 213.71'
T = 61.14'	T = 113.88'
R = 250.00'	R = 250.00'
SE = .06	SE = .04



END BRIDGE REPLACEMENT PROJECT 17BP.13.R.19
-L- POC STA 14+75.00

LOCALIZED PROJECT COORDINATES
N = 824262.3137
E = 973207.1016

-DRV-

PI Sta 10+24.21	PI Sta 10+61.65
Δ = 61° 22' 54.9" (LT)	Δ = 33° 47' 25.1" (RT)
D = 286° 28' 44.0"	D = 286° 28' 44.0"
L = 21.43'	L = 11.80'
T = 11.87'	T = 6.07'
R = 20.00'	R = 20.00'

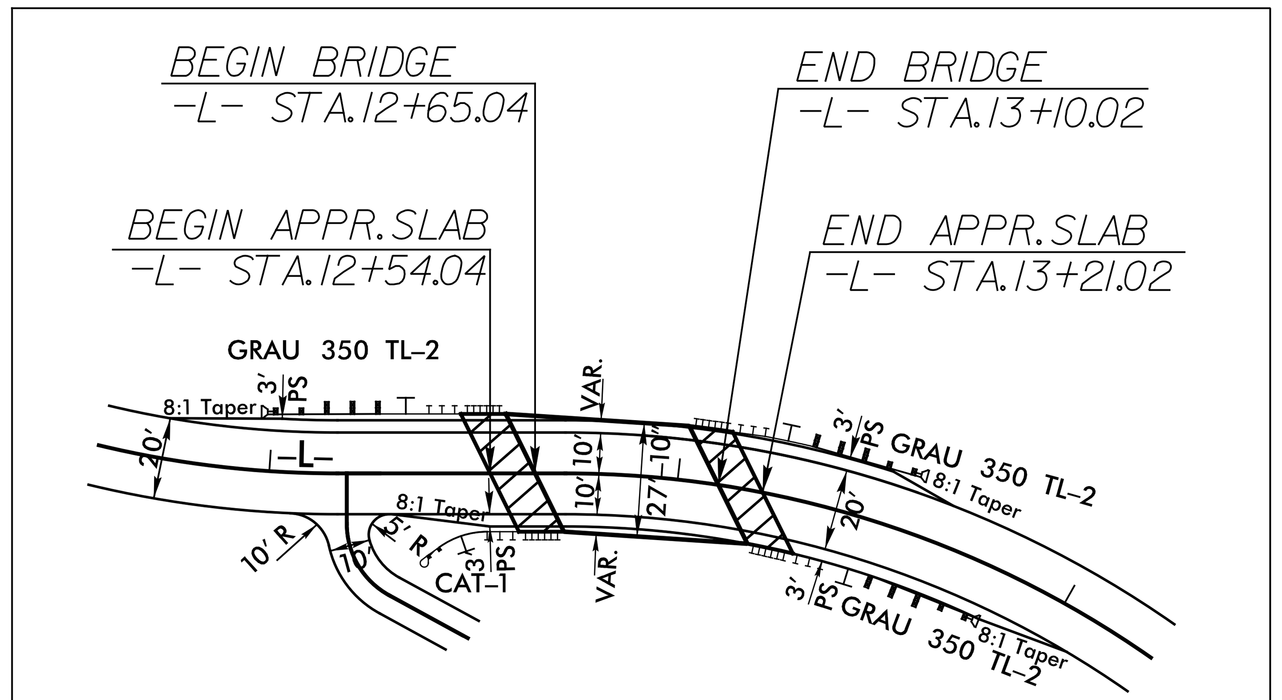
BEGIN BRIDGE REPLACEMENT PROJECT 17BP.13.R.19
-L- POT STA 10+60.00

LOCALIZED PROJECT COORDINATES
N = 824080.8585
E = 972846.1539

Scale 1" = 50'
50' 0 50' 100'

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "990121 GPS1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 824074.6420(ft) EASTING: 972893.5400(ft) ELEVATION: 3204.76(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99980173
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "990121 GPS1" TO -L- STATION 10+60.00 IS N 82° 31' 34.1" W 47.79 ft
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



RELATIONSHIP OF BRIDGE TO PROPOSED PAVEMENT (1" = 40')

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
GPS1=BL1	GPS1	824074.6420	972893.5400	3204.76	11+03.03	19.81 RT
GPS2	GPS2	823566.3760	972679.2270	3256.60	OUTSIDE PROJECT LIMITS	
2	BL-2	824219.7620	973031.7730	3192.66	12+96.99	15.87 LT
3	BL-3	824275.2130	973223.9740	3183.27	14+90.79	13.96 LT

BM1 ELEVATION =3195.58'
N 824236 E 973031
L STATION 13+06.41 29.38 LEFT
8" SPIKE IN BASE OF 12" MAPLE

REVISIONS

8/17/99

12/4/2013
R:\Roadside\121_rev_psh_s6.dgn
Moffatt_Nichol

BRIDGE 990121

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.R.19	RF-1

KCI
http://www.kci.com
Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
Phone (919) 783-9214 • Fax (919) 783-9266

moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

6/2/99

REFORESTATION DETAIL SHEET

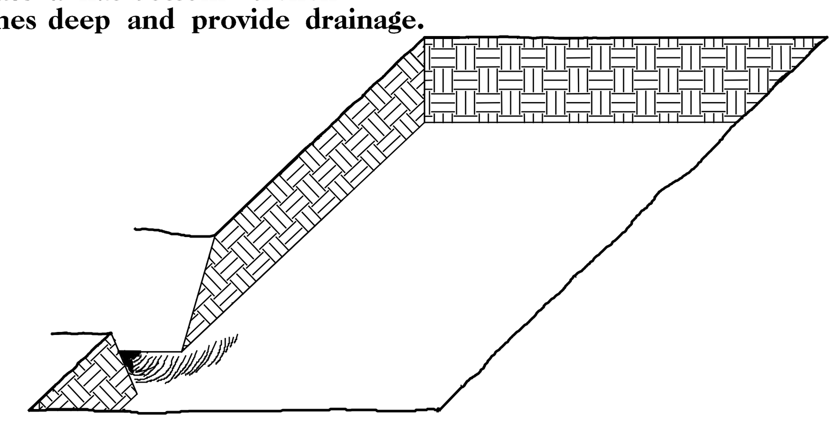
N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

PLANTING DETAILS

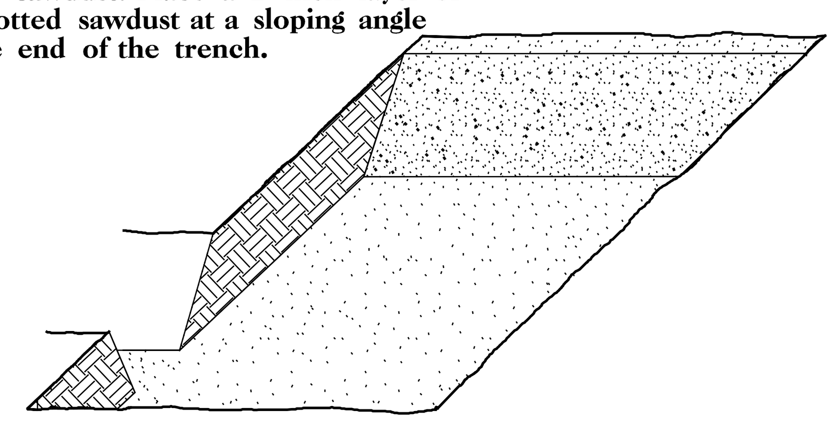
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

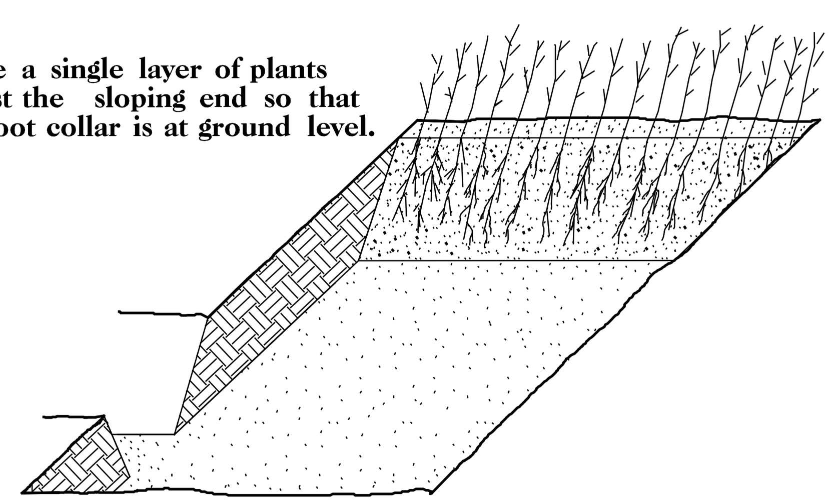
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



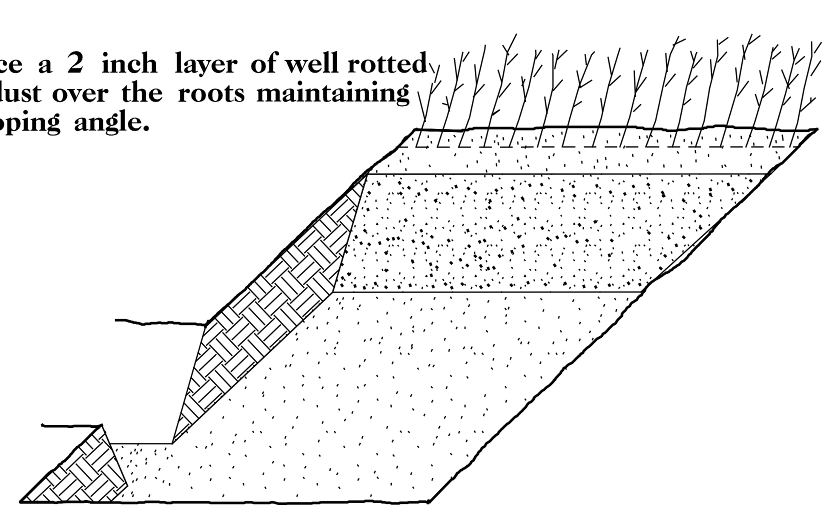
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

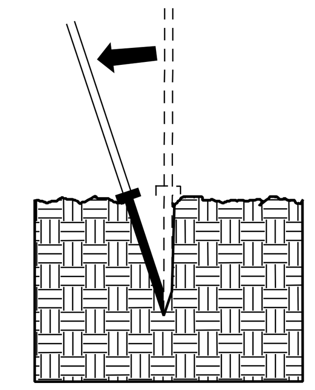


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

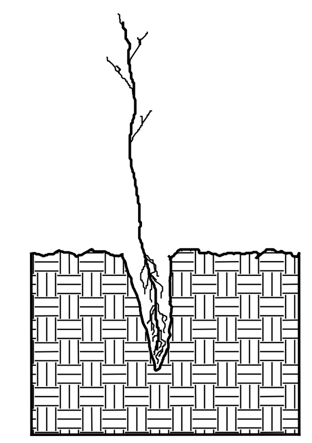


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

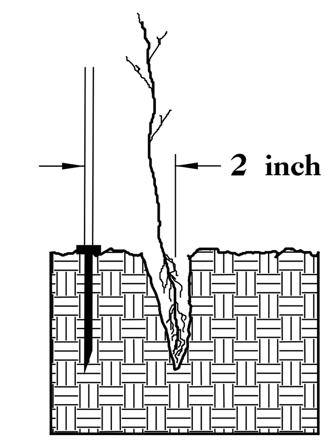
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



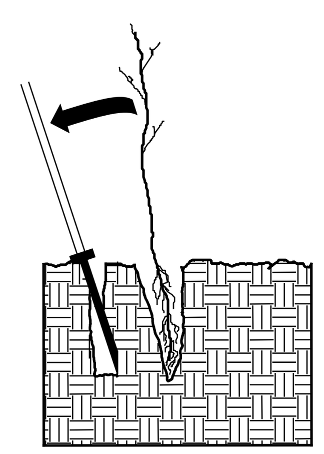
1. Insert planting bar as shown and pull handle toward planter.



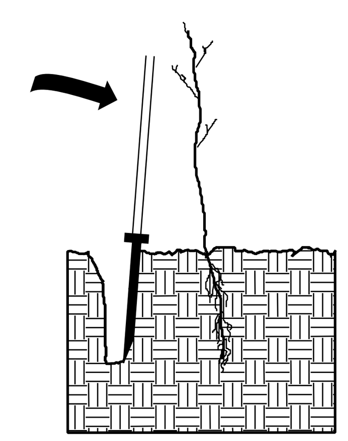
2. Remove planting bar and place seedling at correct depth.



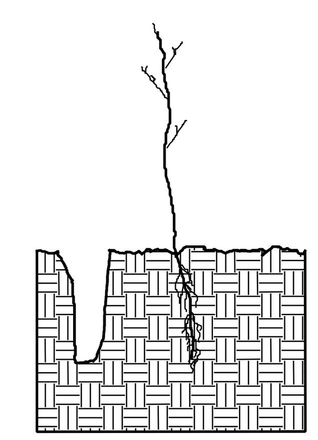
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.

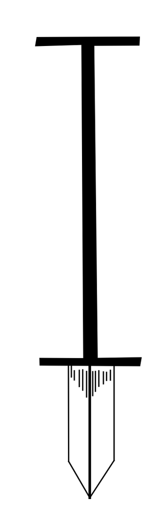


6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25%	PLATANUS OCCIDENTALIS	SYCAMORE	12 in – 18 in BR
25%	FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in BR
25%	BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

12/4/2013
R:\Roadside\121_reu_det_rf1.dgn
Moffatt Nichol

COMPUTED BY: T. CAREY DATE: 01/08/13
CHECKED BY: B. SMITH DATE: 1/17/13

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.19	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

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

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+60.00	0	0
10+75.00	3	1
11+00.00	12	2
11+25.00	19	2
11+50.00	23	2
11+75.00	19	2
12+00.00	13	2
12+25.00	7	4
12+50.00	3	10
12+75.00	6	8

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+00.00	0	0
13+25.00	12	8
13+50.00	25	10
13+75.00	26	5
14+00.00	22	4
14+25.00	17	4
14+50.00	7	4
14+75.00	1	3

DETOUR REMOVAL

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
12+25.00	0	0
12+50.00	5	0
12+75.00	3	0
13+00.00	17	0
13+25.00	75	0
13+50.00	101	0
13+75.00	62	0
14+00.00	24	0
14+25.00	6	0
14+50.00	1	0

Station Det	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+60.00	0	0
10+75.00	1	0
11+00.00	1	1
11+25.00	2	1
11+50.00	3	1
11+75.00	5	2
11+81.74	2	0
12+00.00	4	1
12+25.00	5	1
12+50.00	3	0
12+75.00	9	0
13+00.00	10	11
13+25.00	1	67
13+50.00	0	90
13+75.00	0	46
13+87.77	0	8
14+00.00	0	3
14+25.00	1	2
14+50.00	1	0
14+54.73	0	0

PROJ. REFERENCE NO. 17BP.13.R.19
SHEET NO. X-1
0 5 10
11+50.00
ORIGINAL GROUND
DETOUR
3199.52
3198.46
0.043 0.043
2:1 4:1 2:1
11+25.00
3201.03
3200.07
0.059 0.059
11+00.00
3202.41
3201.68
0.060 0.060
1.6:1
10+75.00
3203.77
3203.30
1.5:1
10+60.00
3204.59
BEGIN BRIDGE REPLACEMENT
PROJECT 17BP.13.R.19
-L- STA. 10+60.00
10+50.00
3205.19
Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."
-4-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	17BP.13.R.19	X-2

8/23/99

2:24:24 PM
121_Rdy_xpl_L.dgn
Division7

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.19	X-3

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.19	X-4

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.19	X-5

2:24:26 PM
121_Rdy_xpl_Det.dgn
Division

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.19	X-6

8/23/99
2:24:27 PM
121_Rdy_xpl_Det.dgn
Division:

8/23/99
2:24:27 PM

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	17BP.13.R.19	X-8

8/23/99
2:24:28 PM
121_Rdy_xpl_Det.dgn
Division:

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.19	X-9

2:24:29 PM
l21Rdy_xpl_Det.dgn
Division

12+00 +50 13+00 +50

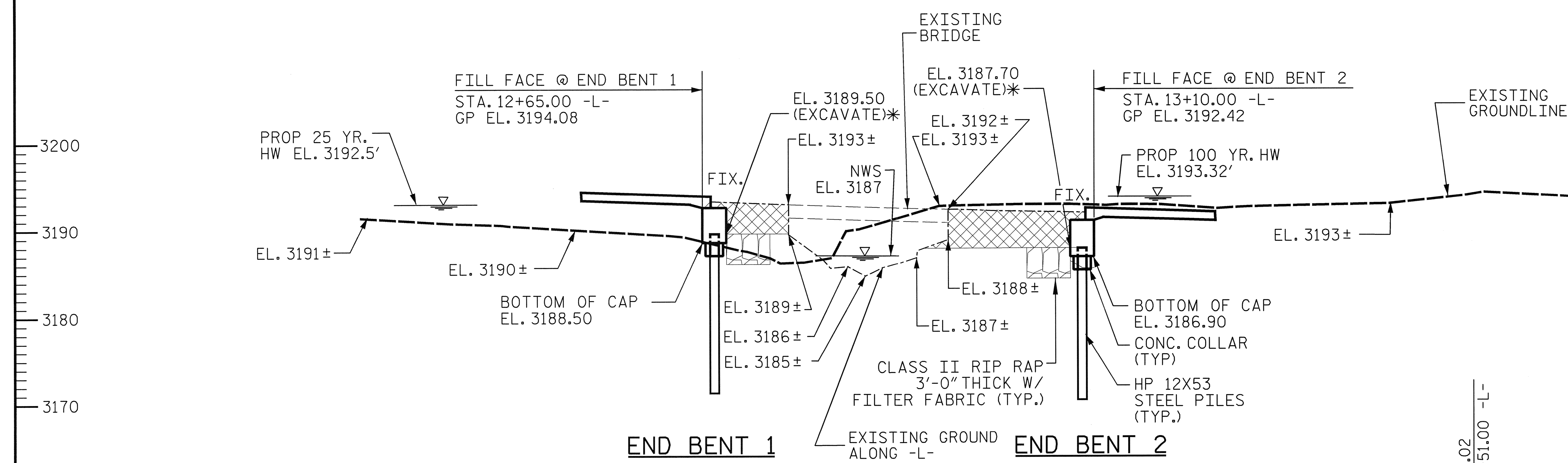
(-)5.4825% (-)3.1481%
PI = 12+50.00
EL = 3194.30
VC = 140'

VERTICAL CURVE DATA -L-

(-)3.1481% (-)6.1480%
PI = 13+85.00
EL = 3190.05
VC = 130'

VERTICAL CURVE DATA -L-

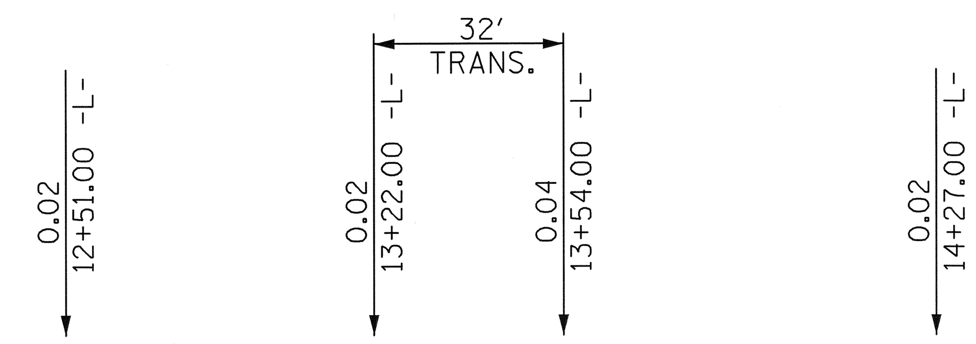
SPAN A



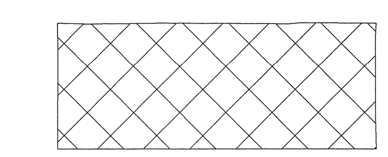
SECTION ALONG -L-

NOTE: THE APPROXIMATE NATURAL GROUND ELEVATIONS ARE ALONG THE EDGE OF THE BRIDGE ON THE UPSTREAM SIDE.

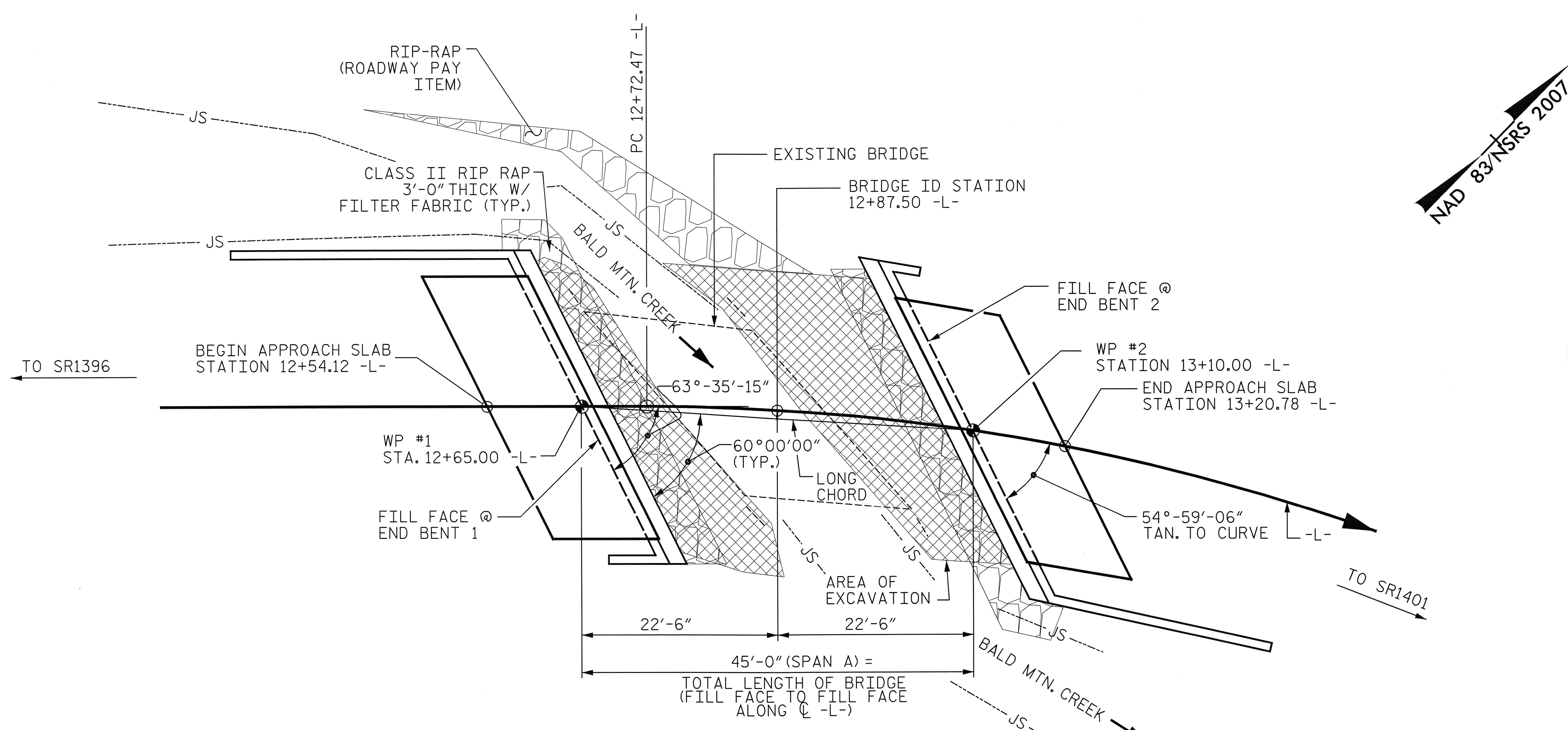
* ELEVATION SHOWN AT ℄ VARIES ALONG END BENT. FINAL GRADE TO BE ± 3' BELOW TOP OF CAP BUT NO LOWER THAN 1'-0" ABOVE STREAM BED AT ANY POINT ALONG END BENT.



SUPERELEVATION DATA -L-



BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 850	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 3192.5	FT
DRAINAGE AREA	= 2.9	SQ.MI.
BASE DISCHARGE	= 1200	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 3193.32	FT
OVERTOPPING DISCHARGE	= 1800	CFS
OVERTOPPING FREQUENCY	= 500+/-	YRS
OVERTOPPING ELEVATION	= 3194.3	FT



PLAN

(PILES NOT SHOWN IN PLAN VIEW)

HORIZONTAL CURVE DATA -L-

PI = 13+86.34
Δ = 48°58'43.0"RT
D = 22°55'05.9"
L = 213.71'
T = 113.88'
R = 250.00'
SE = 0.04

PROJECT NO. 17BP.13.R.19
YANCEY COUNTY
STATION: 12+87.50 -L-

SHEET 1 OF 5 REPLACES BRIDGE NO. 121

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE ON SR 1395 OVER BALD MTN. CREEK BETWEEN SR 1396 AND SR 1401

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 14114 ROBERT C. LARSON 5/18/15

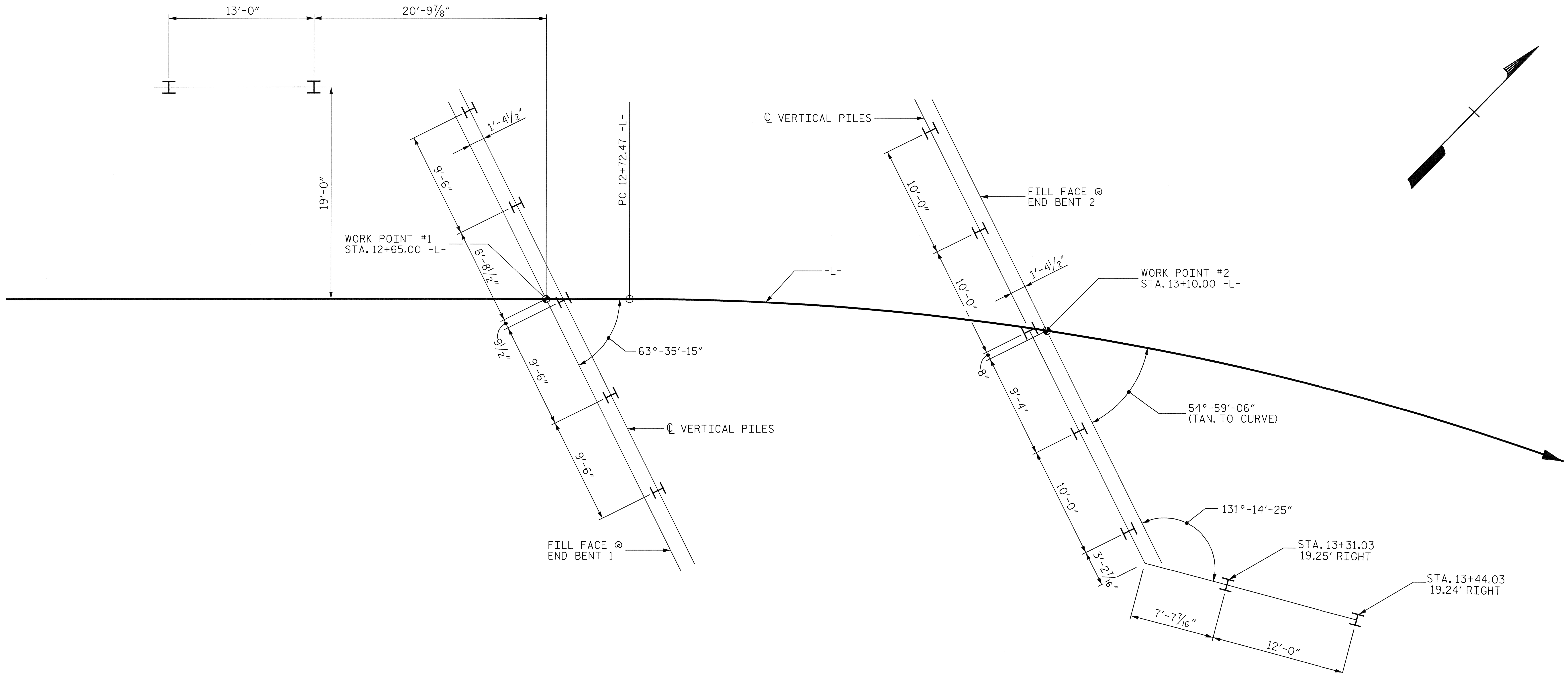
ENGINEERS • PLANNERS • ECOLOGISTS LICENSE NUMBER: C-0764
KCI Associates of North Carolina, P.A.
SUITE 220, LANDMARK CENTER II 4601 SIX FORKS RD. RALEIGH, N.C. 27609-5210

DWG. REF. NO. 1 OF 16

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

DESIGN ENGINEER OF RECORD: DATE :

DRAWN BY : R. C. LARSON DATE : 12/06/13
CHECKED BY : E. R. PHIPPS DATE : 01/09/14



FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 75 TONS PER PILE.

DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING, OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINED THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS. FOR PILE DRIVING CRITERIA, SEE SPECIAL PROVISIONS.

PILE EXCAVATION IS REQUIRED TO INSTALL PILES AT END BENT 1. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 3173 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILE EXCAVATION IS REQUIRED TO INSTALL PILES AT END BENT 2. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 3170 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

THE SCOUR CRITICAL ELEVATION FOR END BENT 1 AND END BENT 2 IS 3183.0 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOUNDATION LAYOUT

(ALL PILES ARE VERTICAL HP 12X53)

PROJECT NO. 17BP.13.R.19
YANCEY COUNTY
STATION: 12+87.50 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

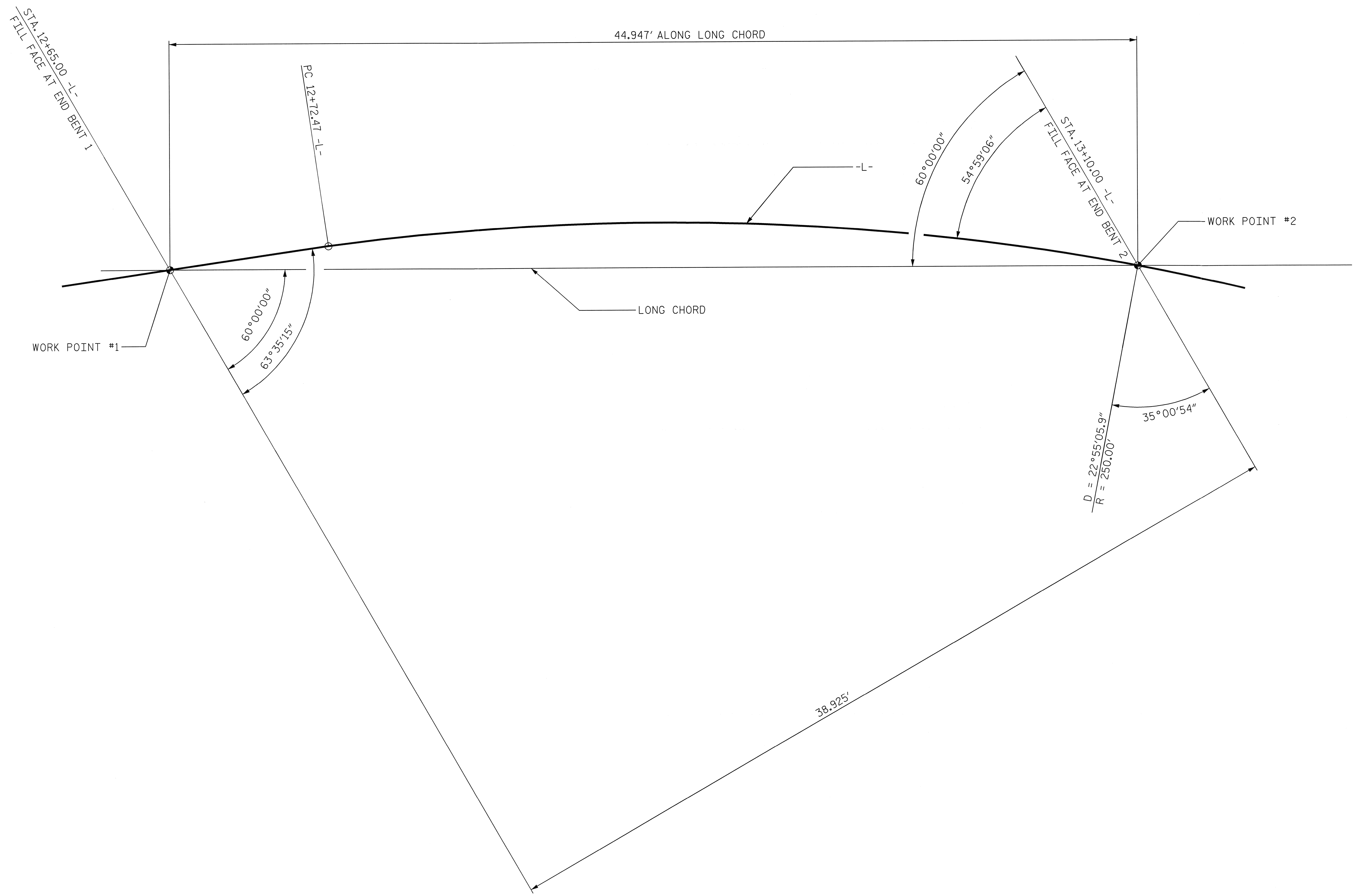
GENERAL DRAWING FOR BRIDGE ON SR 1395 OVER BALD MTN. CREEK BETWEEN SR 1396 AND SR 1401

NORTH CAROLINA PROFESSIONAL SEAL 14114 ENGINEER ROBERT C. LARSON
5/18/15

DESIGN ENGINEER OF RECORD: DATE :
DRAWN BY : R. C. LARSON DATE : 12/03/13
CHECKED BY : E. C. DECOLA DATE : 12/06/13

ENGINEERS • PLANNERS • ECOLOGISTS LICENSE NUMBER: C-0764
KCI Associates of North Carolina, P.A.
SUITE 220, LANDMARK CENTER II 4601 SIX FORKS RD. RALEIGH, N.C. 27609-5210 (919) 783-9214
DWG. REF. NO. 2 OF 16

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



LONG CHORD LAYOUT

NOTE: END BENTS ARE PARALLEL

PROJECT NO. 17BP.13.R.19

YANCEY COUNTY

STATION: 12+87.50 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR
BRIDGE ON SR 1395 OVER
BALD MTN. CREEK BETWEEN
SR 1396 AND SR 1401

NORTH CAROLINA PROFESSIONAL SEAL 14114 ENGINEER ROBERT C. LARSON

5/18/15

ENGINEERS ● PLANNERS ● ECOLOGISTS LICENSE NUMBER: C-0764
KCI Associates of North Carolina, P.A.
SUITE 220, LANDMARK CENTER II 4601 SIX FORKS RD. RALEIGH, N.C. 27609-5210 (919) 783-9214

DWG. REF. NO. 3 OF 16

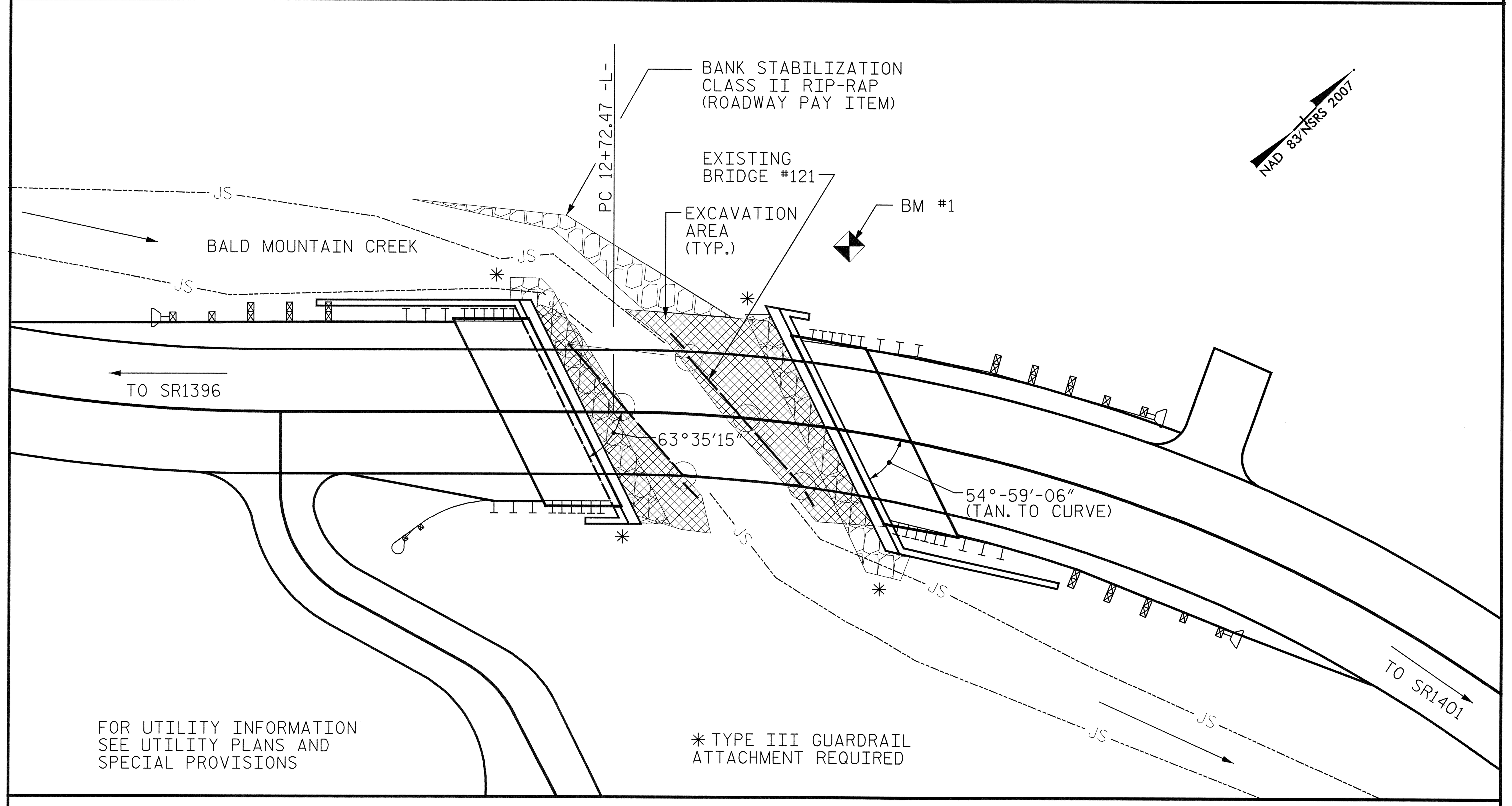
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			

DESIGN ENGINEER OF RECORD: ______ DATE : ______

DRAWN BY : R. C. LARSON DATE : 11/04/13

CHECKED BY : E. C. DECOLA DATE : 11/06/13

BENCH MARK: BM1 8" SPIKE AT BASE OF 12" MAPLE, 29.81' LEFT OF STA. 13+11.81 -L-, ELEV. 3195.58' (NAVD88)



LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

THE EXISTING STRUCTURE CONSISTING OF 1 @ 20' SPAN TIMBER FLOOR ON TIMBER JOISTS ON TIMBER ABUTMENTS, WITH 19.17' CLEAR ROADWAY WIDTH AND LOCATED AT 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 ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

END BENT 2 SHALL BE CONSTRUCTED IN STAGES WITH A PORTION OF WING W2 CONSTRUCTED AFTER REMOVAL OF DETOUR. SEE END BENT 2 FOR STAGING.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 18 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

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 THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

SEE SUPERELEVATION DATA, SHEET 1 OF 5 FOR TRANSITION ON APPROACH SLAB AT END BENT 2.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REIN-FORCING STEEL	HP 12 X 53 STEEL PILES		VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (3'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-6" PRESTRESSED CONCRETE CORED SLABS
	LUMP SUM	LIN. FT.	LIN. FT.	LUMP SUM	CU.YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	LIN.FT.	TON	SQ. YD.	LUMP SUM	LIN.FT.
SUPERSTRUCTURE						LUMP SUM				84.70			LUMP SUM	423.54
END BENT 1		42	77		28.4		3,137	7	245		33	41		
END BENT 2		42	84		27.9		3,535	7	280		35	44		
TOTAL	LUMP SUM	84	161	LUMP SUM	56.3	LUMP SUM	6,672	14	525	84.70	68	85	LUMP SUM	423.54

PROJECT NO. 17BP.13.R.19

YANCEY COUNTY

STATION: 12+87.50 -L-

SHEET 4 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 14114 ENGINEER ROBERT C. LARSON

5/18/15

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON SR 1395
OVER BALD MOUNTAIN CREEK
BETWEEN SR 1396 AND SR 1401

DESIGN ENGINEER OF RECORD: DATE :

DRAWN BY : R.A. PRUETT DATE : 2/24/13
CHECKED BY : R.C. LARSON DATE : 2/26/13

ENGINEERS • PLANNERS • ECOLOGISTS LICENSE NUMBER: C-0764
KCI Associates of North Carolina, P.A.
SUITE 220, LANDMARK CENTER II 4601 SIX FORKS RD. RALEIGH, N.C. 27609-5210 (919) 783-9214

DWG. REF. NO. 4 OF 16

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

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	1.47	--	1.75	0.283	1.47	42.35′	E	20.60	0.546	1.76	42.35′	E	40.0	0.80	0.283	1.59	42.35′	E	20.60	
		HL-93(Opr)	N/A	--	1.91	--	1.35	0.283	1.91	42.35′	E	20.60	0.546	2.32	42.35′	E	40.0	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.81	65.16	1.75	0.283	1.81	42.35′	E	20.60	0.546	2.09	42.35′	E	40.0	0.80	0.283	1.96	42.35′	E	20.60	
		HS-20(Opr)	36.000	--	2.35	84.60	1.35	0.283	2.35	42.35′	E	20.60	0.546	2.76	42.35′	E	40.0	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.71	50.08	1.40	0.283	4.30	42.35′	E	20.60	0.546	5.99	42.35′	E	38.8	0.80	0.283	3.71	42.35′	E	20.60	
		SNGARBS2	20.000	--	3.05	61.00	1.40	0.283	3.52	42.35′	E	20.60	0.546	4.38	42.35′	E	40.0	0.80	0.283	3.05	42.35′	E	20.60	
		SNAGRIS2	22.000	--	2.99	65.78	1.40	0.283	3.43	42.35′	E	16.40	0.546	4.12	42.35′	E	40.0	0.80	0.283	2.99	42.35′	E	16.40	
		SNCOTTS3	27.250	--	1.86	50.68	1.40	0.283	2.15	42.35′	E	20.60	0.546	2.92	42.35′	E	40.0	0.80	0.283	1.86	42.35′	E	20.60	
		SNAGGRS4	34.925	--	1.65	57.62	1.40	0.283	1.91	42.35′	E	20.60	0.546	2.52	42.35′	E	40.0	0.80	0.283	1.65	42.35′	E	20.60	
		SNS5A	35.550	--	1.61	57.23	1.40	0.283	1.86	42.35′	E	20.60	0.546	2.61	42.35′	E	40.0	0.80	0.283	1.61	42.35′	E	20.60	
		SNS6A	39.950	--	1.53	61.12	1.40	0.283	1.76	42.35′	E	20.60	0.546	2.42	42.35′	E	40.0	0.80	0.283	1.53	42.35′	E	20.60	
		SNS7B	42.000	3	1.45	60.90	1.40	0.283	1.68	42.35′	E	20.60	0.546	2.45	42.35′	E	40.0	0.80	0.283	1.45	42.35′	E	20.60	
	TTST	TNAGRIT3	33.000	--	1.87	61.71	1.40	0.283	2.17	42.35′	E	20.60	0.546	2.88	42.35′	E	40.0	0.80	0.283	1.87	42.35′	E	20.60	
		TNT4A	33.075	--	1.90	62.84	1.40	0.283	2.19	42.35′	E	20.60	0.546	2.74	42.35′	E	40.0	0.80	0.283	1.90	42.35′	E	20.60	
		TNT6A	41.600	--	1.60	66.56	1.40	0.283	1.85	42.35′	E	20.60	0.546	2.66	42.35′	E	40.0	0.80	0.283	1.60	42.35′	E	20.60	
		TNT7A	42.000	--	1.64	68.88	1.40	0.283	1.89	42.35′	E	20.60	0.546	2.44	42.35′	E	40.0	0.80	0.283	1.64	42.35′	E	20.60	
		TNT7B	42.000	--	1.69	70.98	1.40	0.283	1.96	42.35′	E	20.60	0.546	2.33	42.35′	E	40.0	0.80	0.283	1.69	42.35′	E	20.60	
		TNAGRIT4	43.000	--	1.62	69.66	1.40	0.283	1.88	42.35′	E	20.60	0.546	2.24	42.35′	E	40.0	0.80	0.283	1.62	42.35′	E	20.60	
		TNAGT5A	45.000	--	1.51	67.95	1.40	0.283	1.74	42.35′	E	20.60	0.546	2.31	42.35′	E	40.0	0.80	0.283	1.51	42.35′	E	20.60	
		TNAGT5B	45.000	--	1.47	66.15	1.40	0.283	1.70	42.35′	E	20.60	0.546	2.12	42.35′	E	40.0	0.80	0.283	1.47	42.35′	E	20.60	

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.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

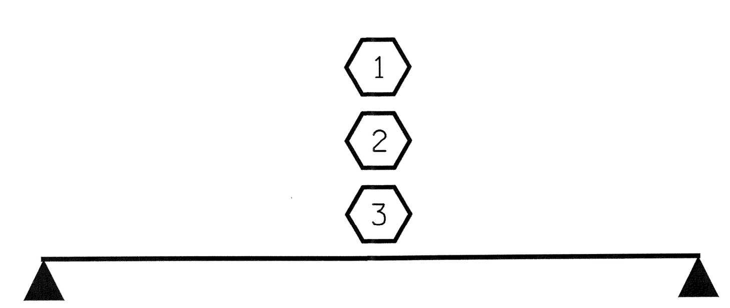
2 DESIGN LOAD RATING (HS-20)

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'

PROJECT NO. 17BP.13.R.19
YANCEY COUNTY
STATION: 12+87.50 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LRFR SUMMARY FOR 42.4′ CORED SLAB UNIT 60° SKEW (NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER ROBERT C. LARSON
5/18/15

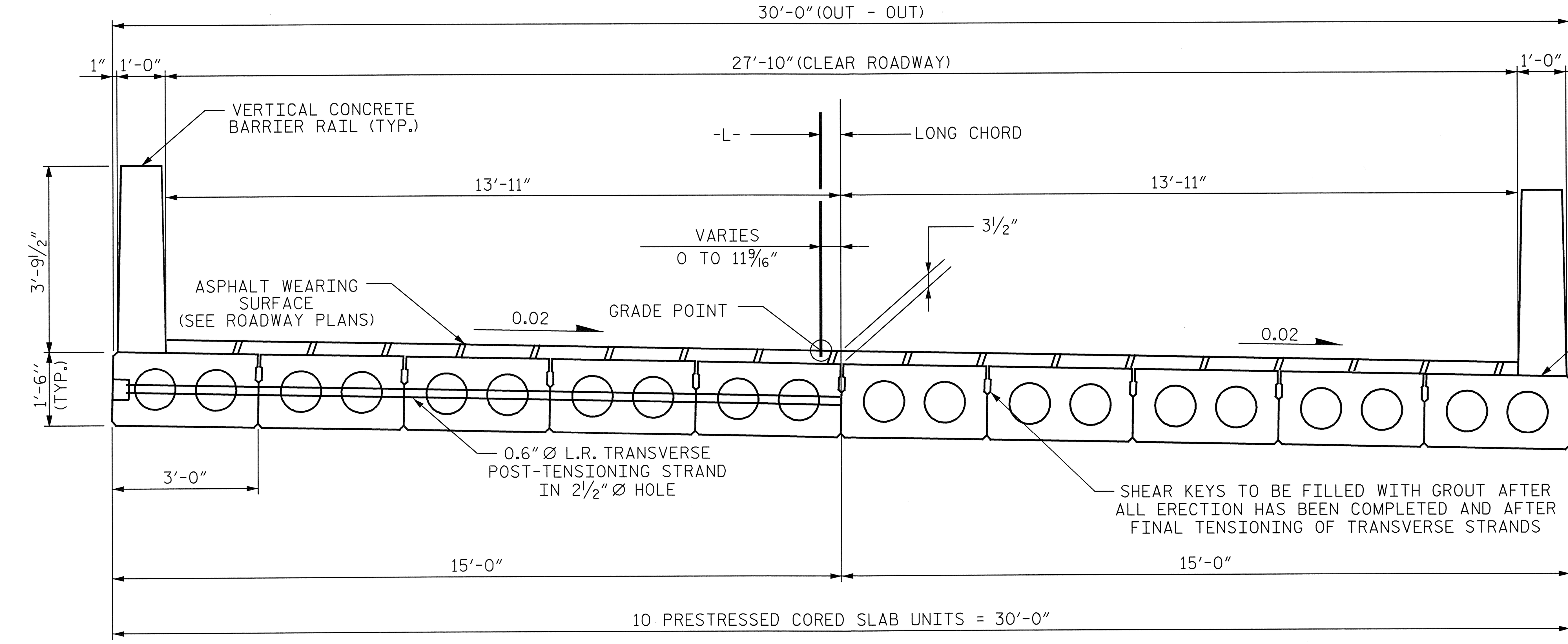
ENGINEERS ♦ PLANNERS ♦ ECOLOGISTS LICENSE NUMBER: C-0764
KCI Associates of North Carolina, P.A.

DWG. REF. NO. 5 OF 16

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

DESIGN ENGINEER OF RECORD: DATE :

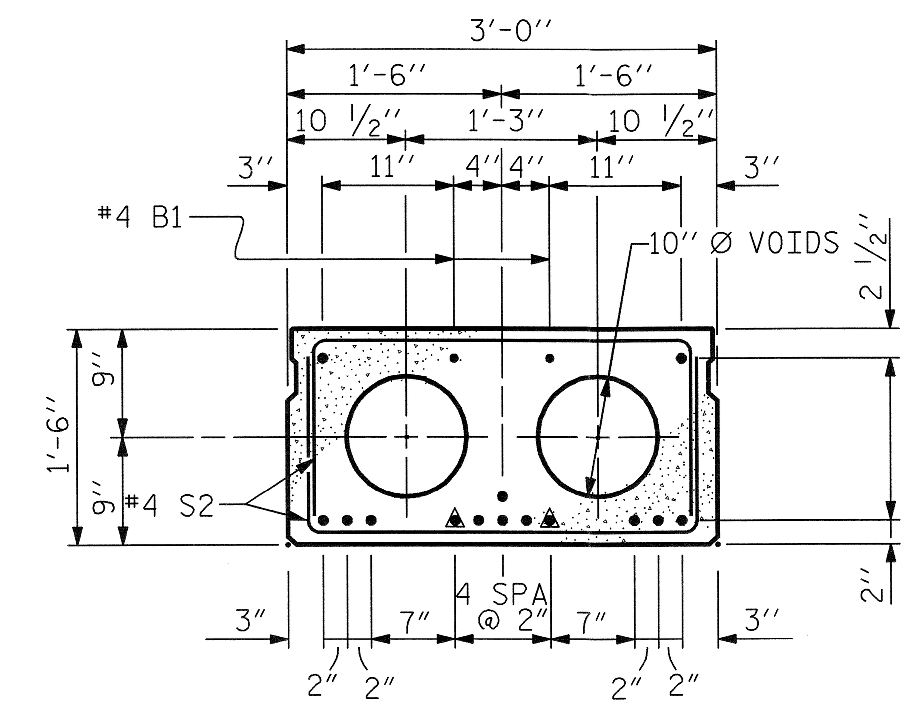
DRAWN BY : K. SU DATE : 12/06/13
CHECKED BY : R. C. LARSON DATE : 12/10/13



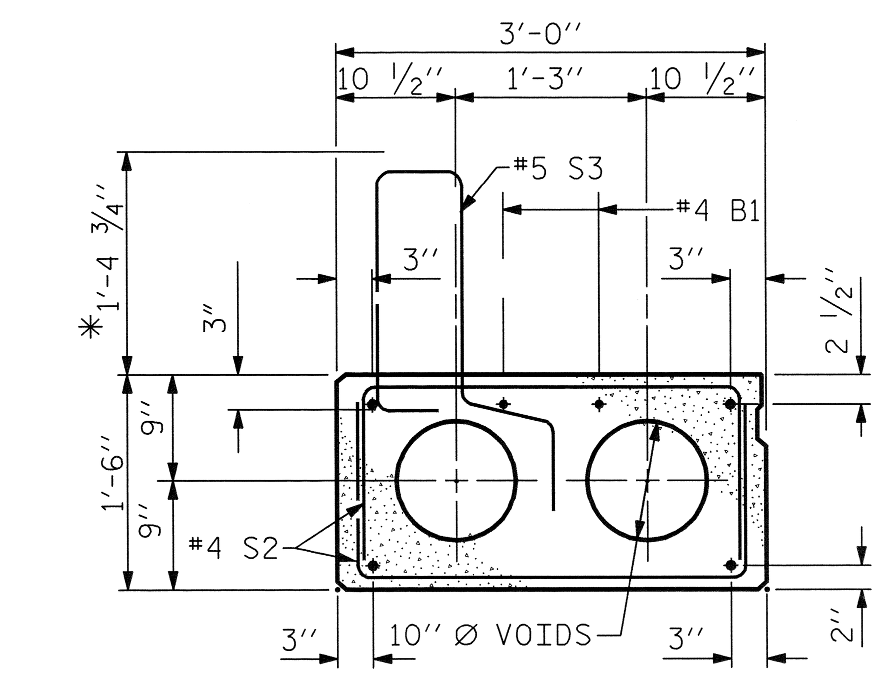
TYPICAL SECTION

BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



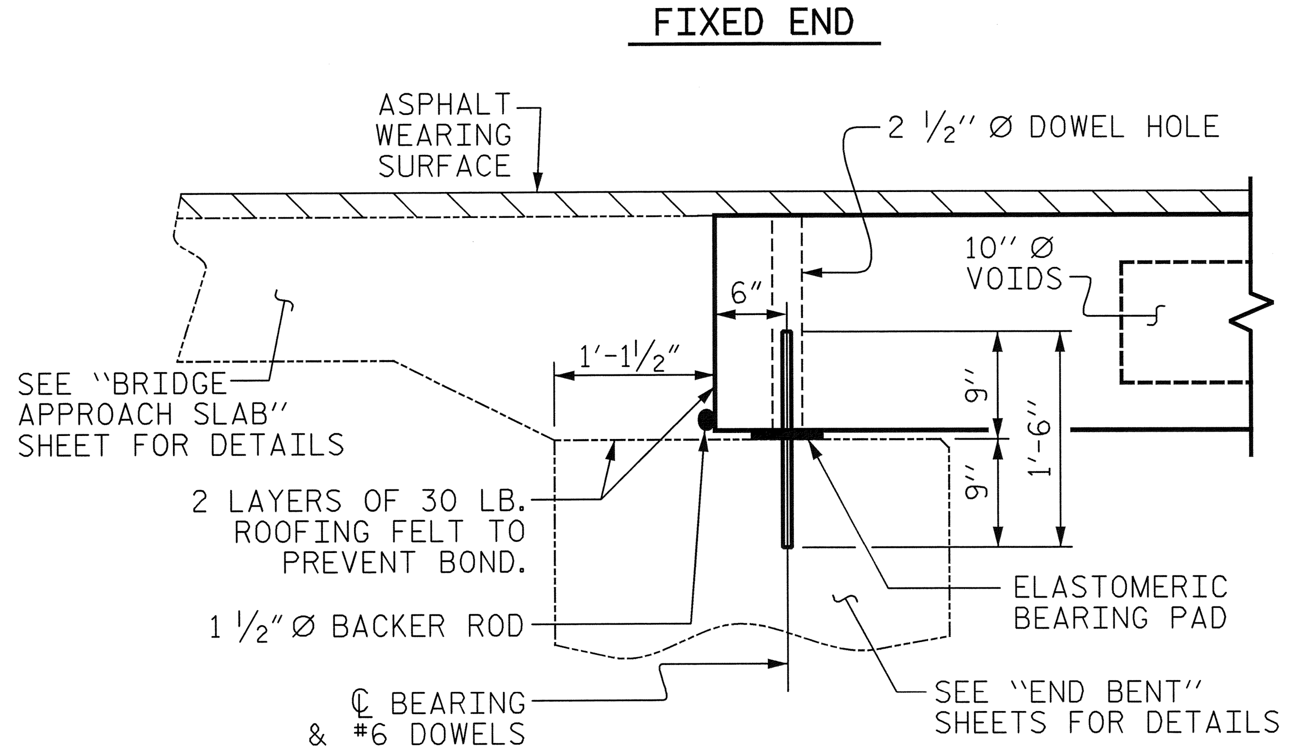
INTERIOR SLAB SECTION
(14 STRANDS REQUIRED)



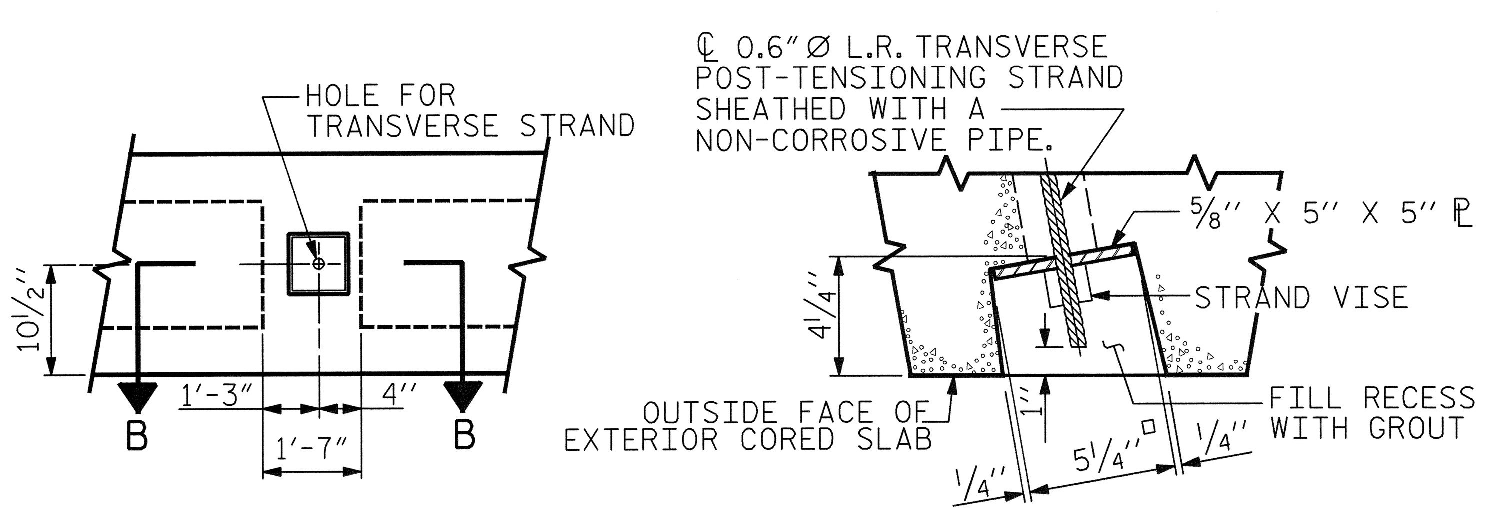
EXT. SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

0.6" Ø LOW RELAXATION STRAND LAYOUT

FIXED END



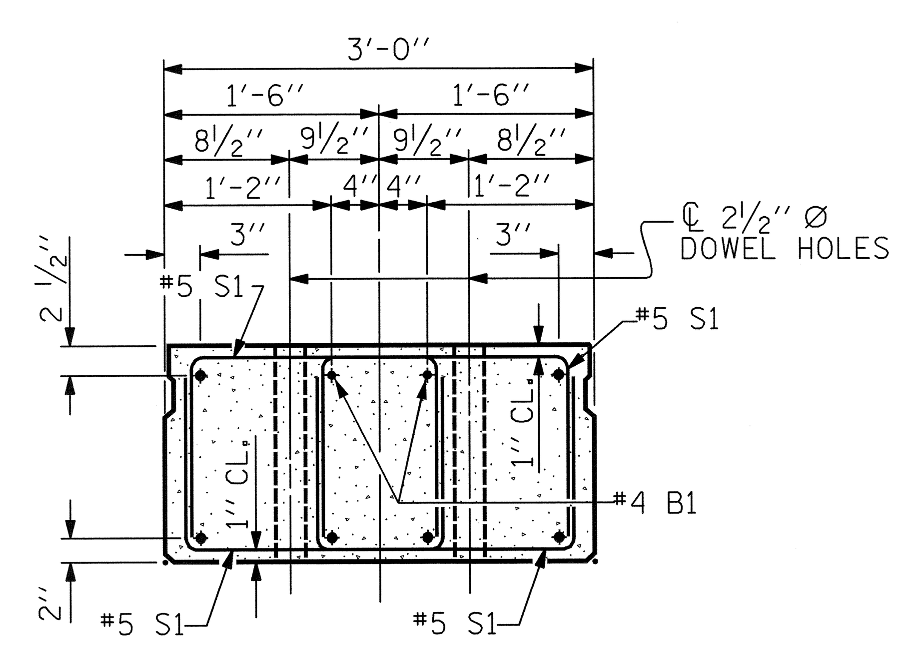
SECTION AT END BENT



ELEVATION VIEW

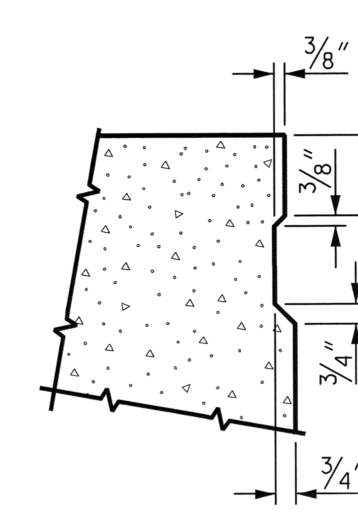
SECTION B-B

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.

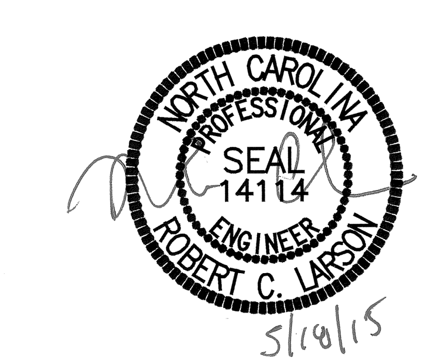


SHEAR KEY DETAIL

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

PROJECT NO. 17BP.13.R.19
YANCEY COUNTY
STATION: 12+87.50 -L-

SHEET 1 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

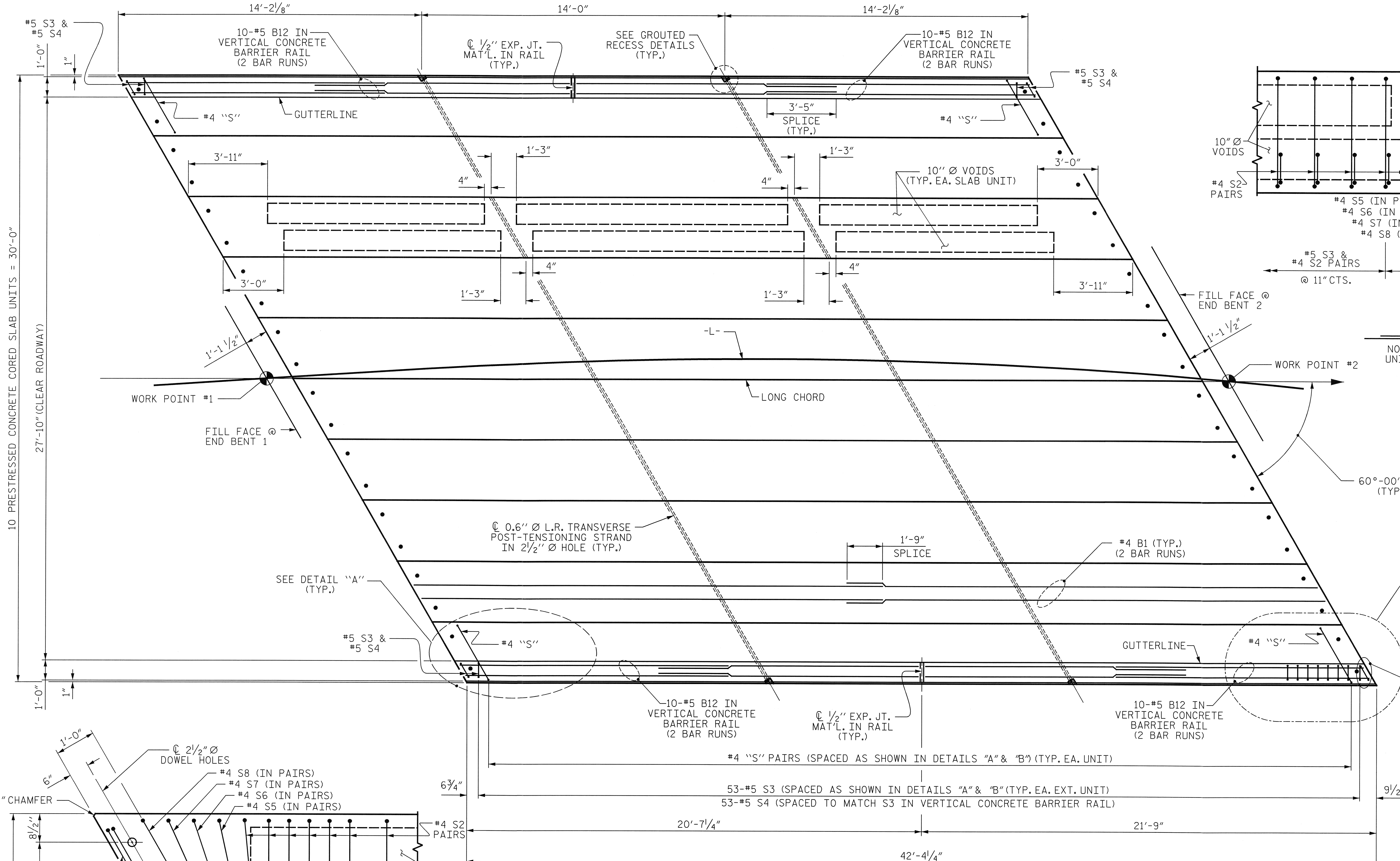
3'-0" X 1'-6"
PRESTRESSED CONCRETE
CORED SLAB UNIT
60° SKEW

DESIGN ENGINEER OF RECORD:	DATE :
DRAWN BY : R.J. FLORY	DATE : 11/4/13
CHECKED BY : R.L. LARSON	DATE : 11/7/13

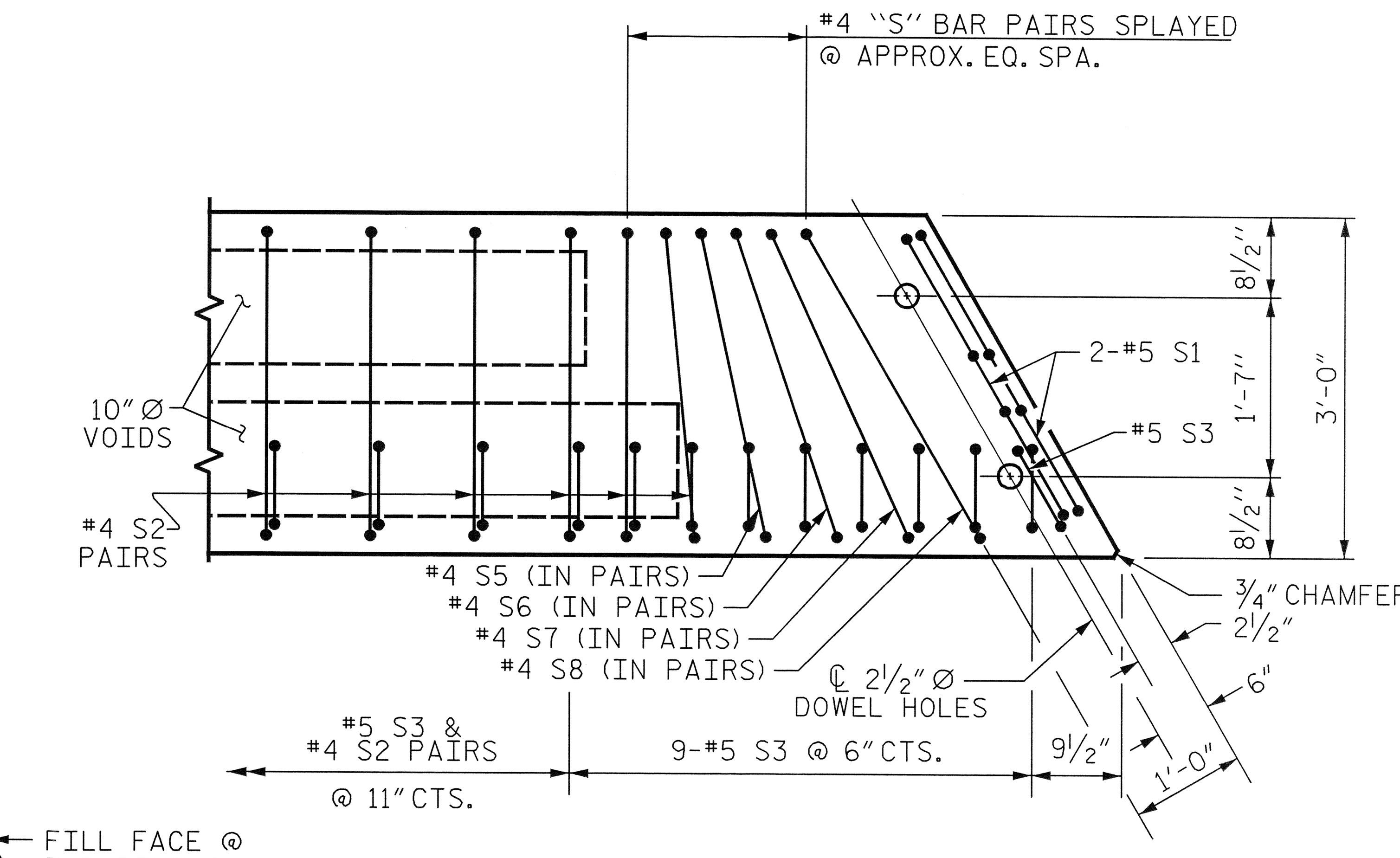
ENGINEERS ● PLANNERS ● ECOLOGISTS LICENSE NUMBER: C-0764
KCI Associates of North Carolina, P.A.
SUITE 220, LANDMARK CENTER II 4601 SIX FORKS RD. RALEIGH, N.C. 27609-5210 (919) 783-9214

DWG. REF. NO. 6 OF 16

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

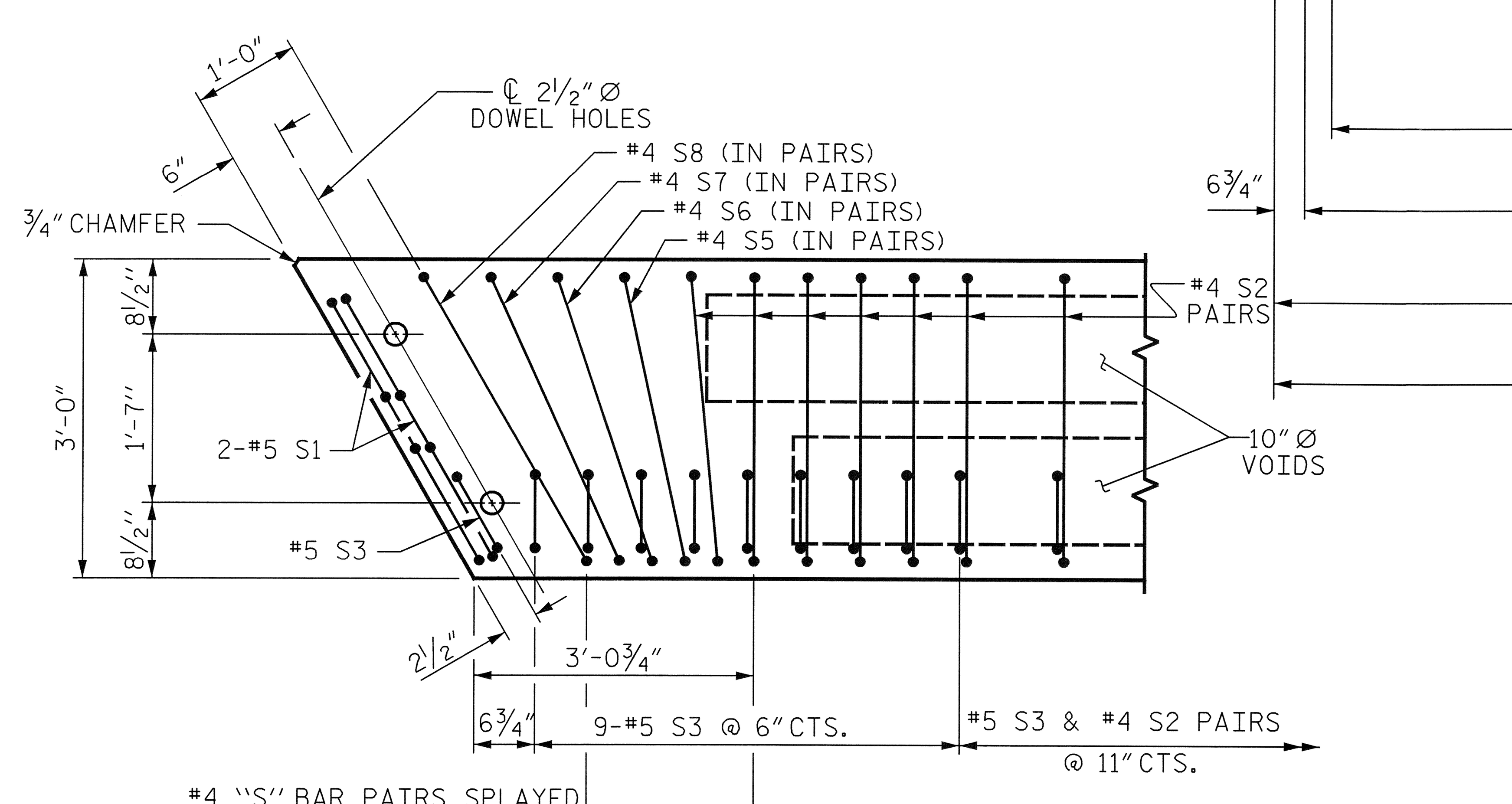


PLAN OF SPAN



DETAIL "B"

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



DETAIL "A"

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

PROJECT NO. 17BP.13.R.19

YANCEY COUNTY

STATION: 12+87.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN
27'-10" CLEAR ROADWAY
60° SKEW

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER ROBERT C. LARSON

5/10/14

ENGINEERS • PLANNERS • ECOLOGISTS LICENSE NUMBER: C-0764
KCI Associates of North Carolina, P.A.
SUITE 220, LANDMARK CENTER II 4601 SIX FORKS RD. RALEIGH, N.C. 27609-5210 (919) 783-9214

DWG. REF. NO. 7 OF 16

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

DESIGN ENGINEER OF RECORD: DATE :

DRAWN BY : R.J. FLORY DATE : 11/4/13

CHECKED BY : R. C. LARSON DATE : 11/7/13

DEAD LOAD DEFLECTION AND CAMBER

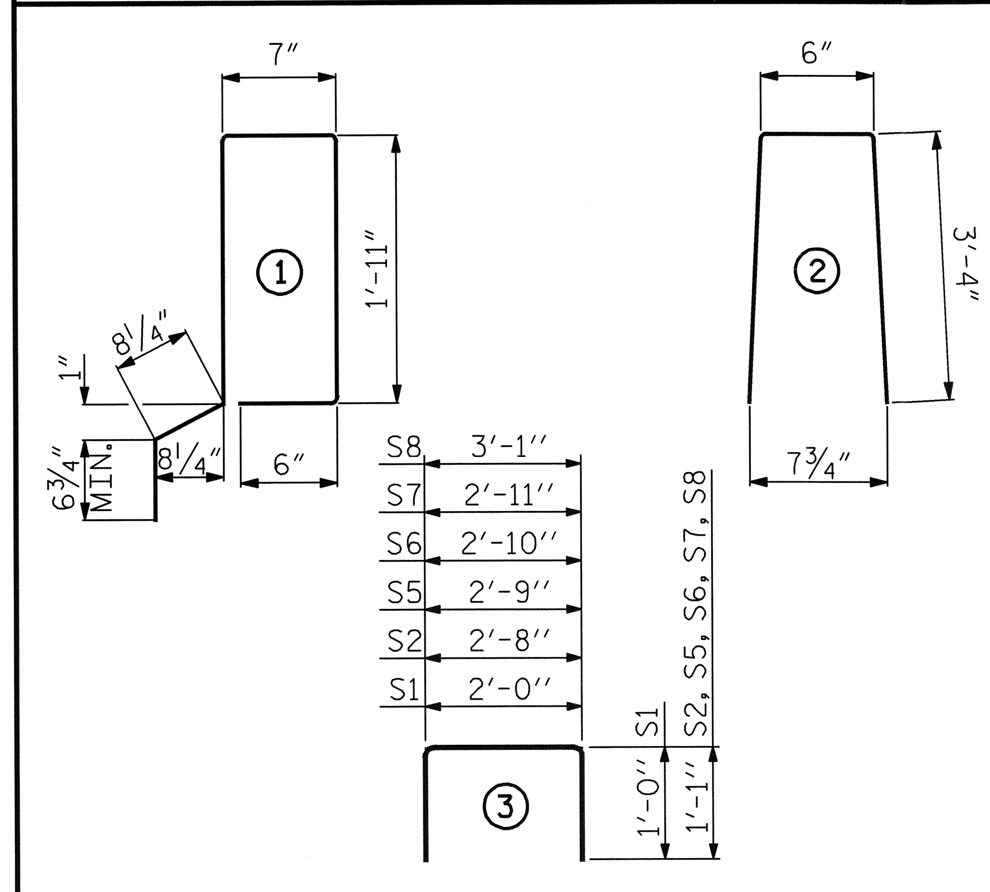
	3'-0" x 1'-6"
42'-4 1/4" CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 1/2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	1/4" ↓
FINAL CAMBER	1 1/4" ↑

** INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR ONE 42'-4 1/4" CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	22'-0"	59	22'-0"	59
S1	8	#5	3	4'-0"	33	4'-0"	33
S2	88	#4	3	4'-10"	284	4'-10"	284
* S3	55	#5	1	6'-2"	353		
S5	4	#4	3	4'-11"	13	4'-11"	13
S6	4	#4	3	5'-0"	13	5'-0"	13
S7	4	#4	3	5'-1"	14	5'-1"	14
S8	4	#4	3	5'-3"	14	5'-3"	14
REINFORCING STEEL			LBS.		430		430
* EPOXY COATED REINFORCING STEEL			LBS.		353		
5000 P.S.I. CONCRETE			CU. YDS.		4.0		4.0
0.6" Ø L.R. STRANDS			NO.		14		14

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

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.

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.

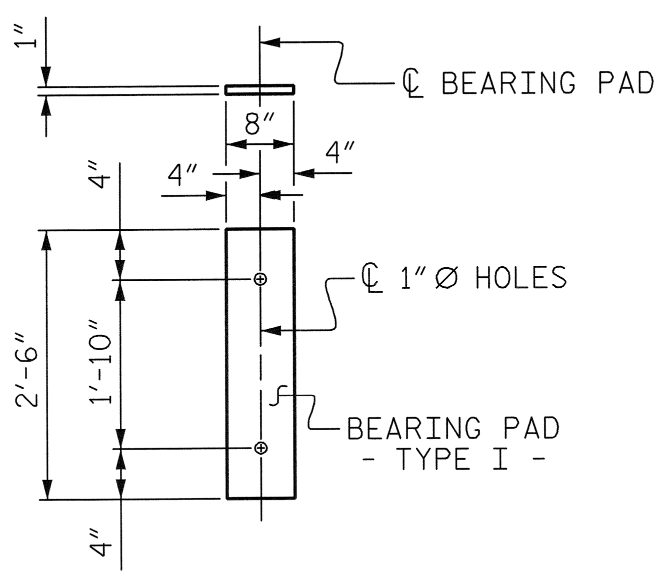
APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 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.

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 4500 PSI.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.



FIXED END
(TYPE I - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

CORED SLABS REQUIRED

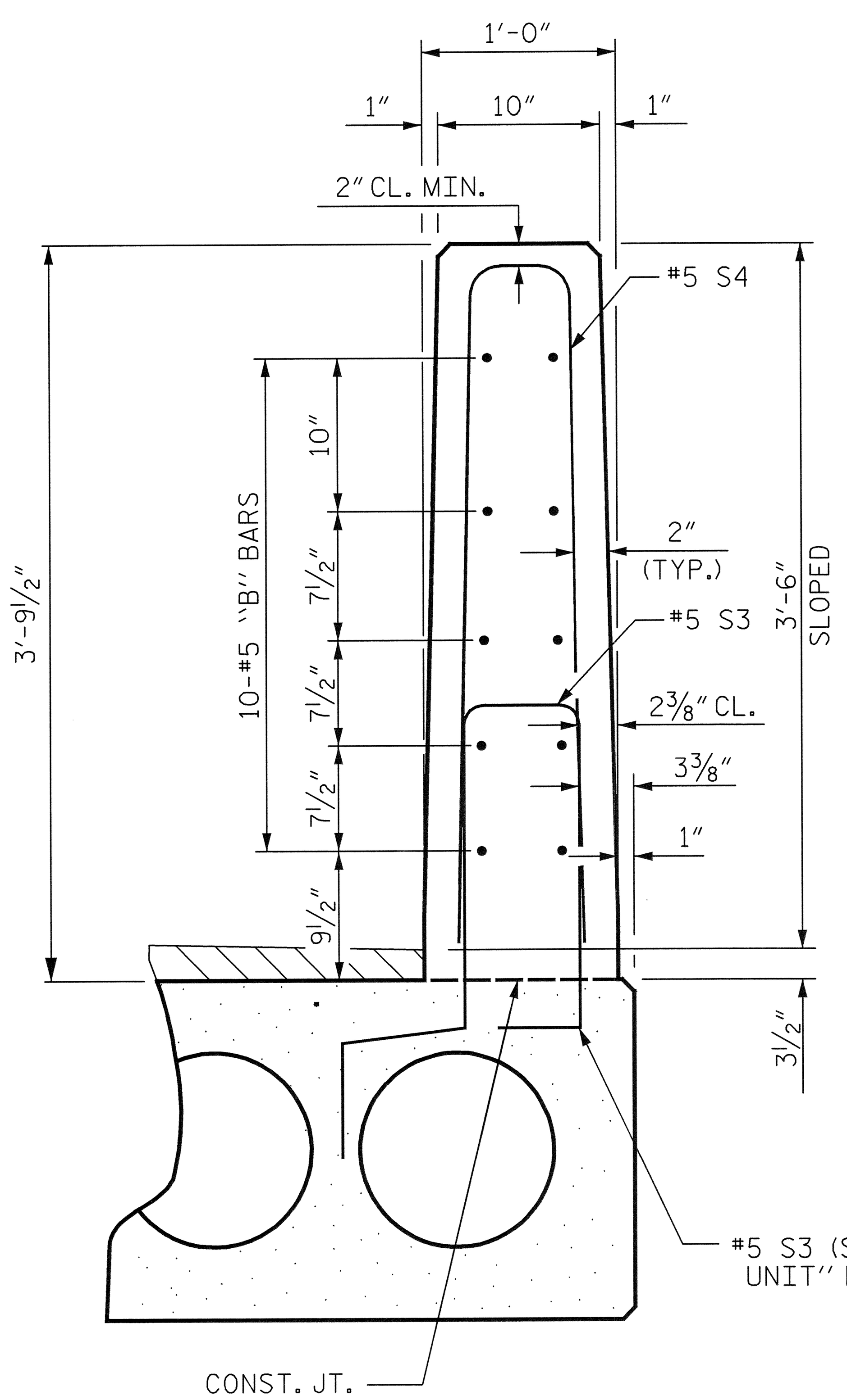
	NUMBER	LENGTH	TOTAL LENGTH
42'-4 1/4" UNIT			
EXTERIOR C.S.	2	42'-4 1/4"	84'-8 1/2"
INTERIOR C.S.	8	42'-4 1/4"	338'-10"
TOTAL	10	42'-4 1/4"	423-6 1/2"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

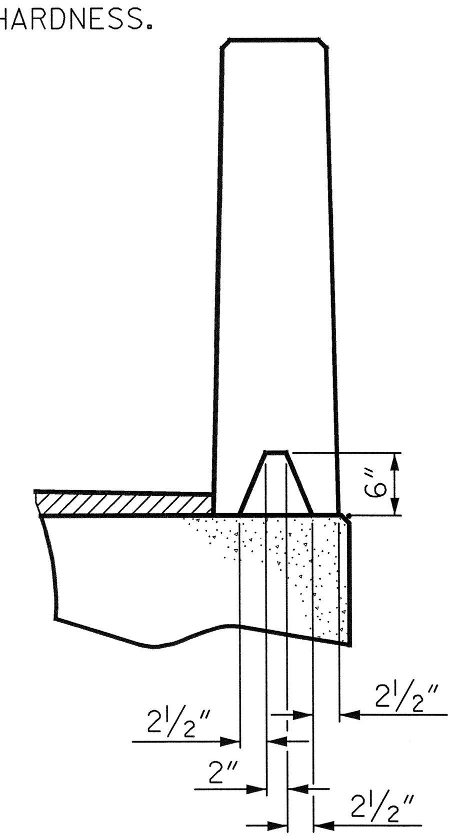
BAR	NO.	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
* B12	80		#5	STR	12'-5"	1036
* S4	110		#5	2	7'-2"	822
* EPOXY COATED REINFORCING STEEL			LBS.			1858
CLASS AA CONCRETE			CU.YDS.			10.9
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN.FT.			84.70

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

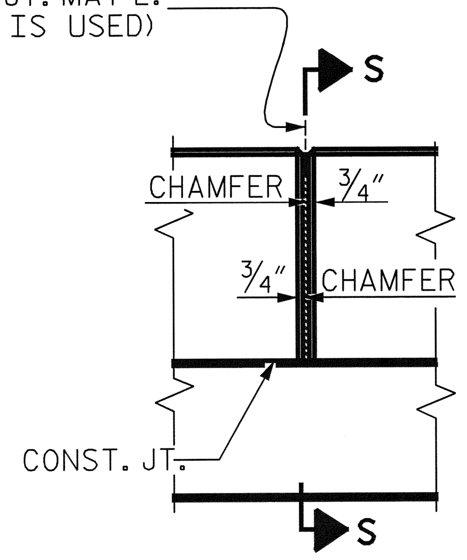


VERTICAL CONCRETE BARRIER RAIL SECTION

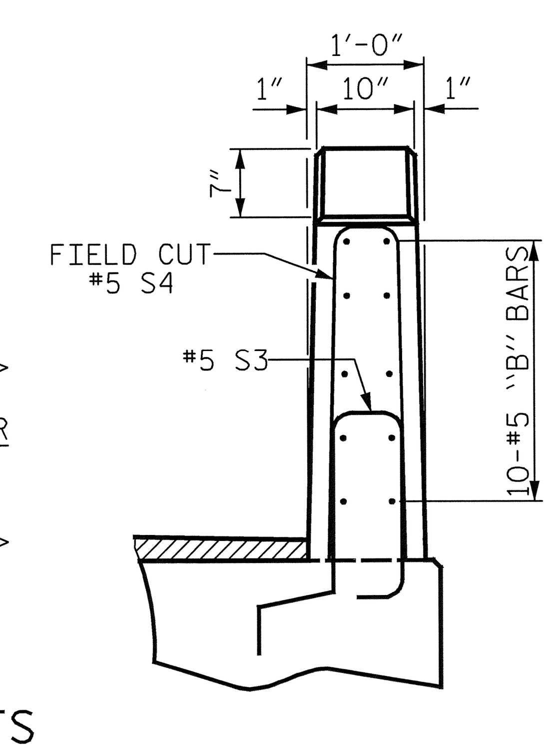


SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

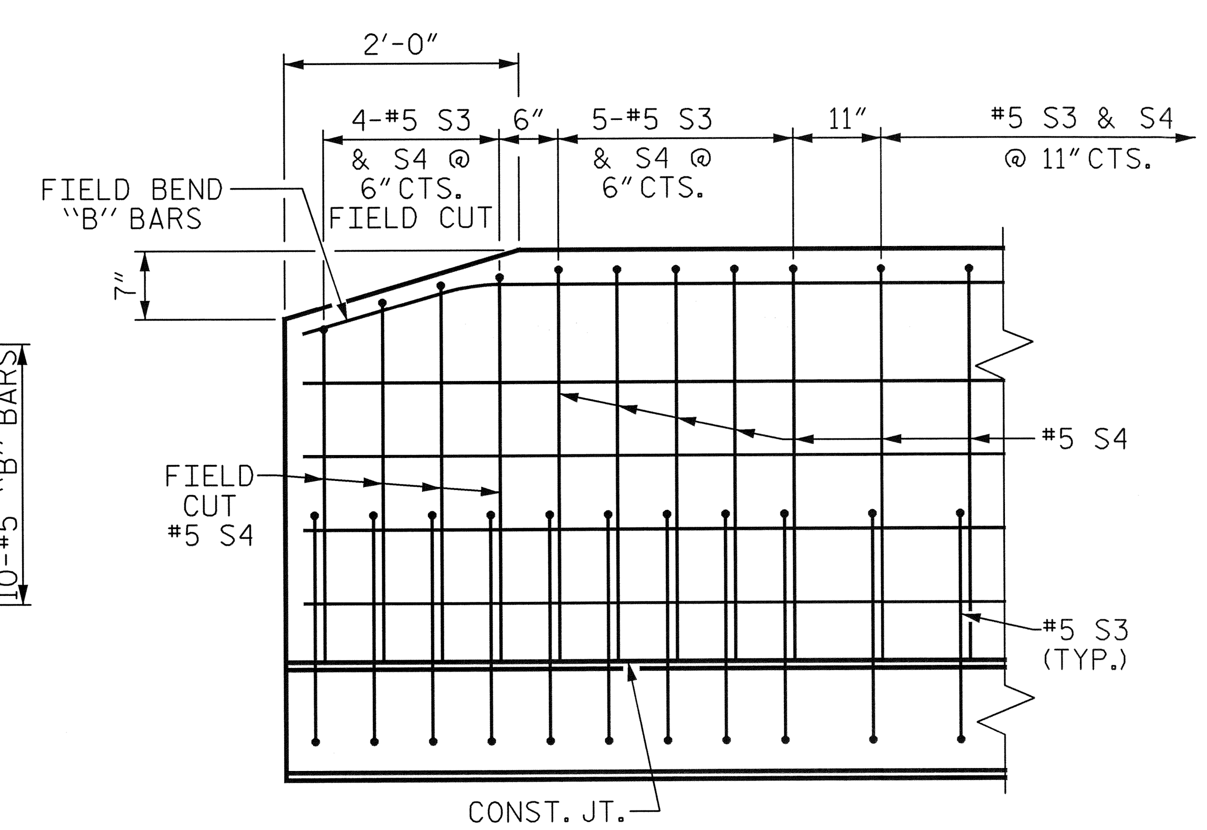
℄ 1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



END VIEW



SIDE VIEW

END OF RAIL DETAILS

PROJECT NO. 17BP.13.R.19
YANCEY COUNTY
STATION: 12+87.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 1'-6" PRESTRESSED CONCRETE CORED SLAB UNIT 60° SKEW

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

KCI Associates of North Carolina, P.A.
ENGINEERS • PLANNERS • ECOLOGISTS LICENSE NUMBER: C-0764
SUITE 220, LANDMARK CENTER II 4601 SIX FORKS RD. RALEIGH, N.C. 27609-5210 (919) 783-9214

DWG. REF. NO. 8 OF 16

DESIGN ENGINEER OF RECORD: DATE :

DRAWN BY : R. J. FLORY DATE : 11/1/13
CHECKED BY : R. C. LARSON DATE : 11/7/13

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

REV. 12/11 MAA/AAC

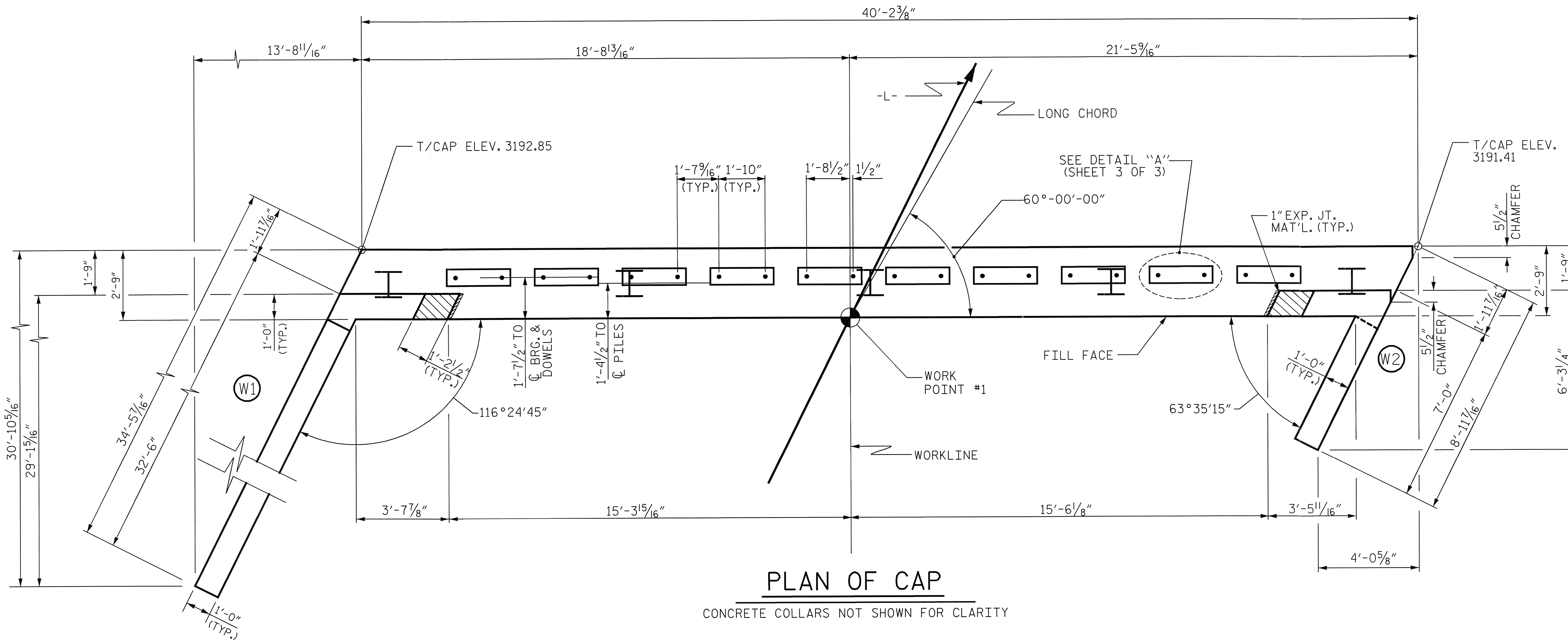
NOTES

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 WING DETAILS SEE SHEET 2 OF 3.

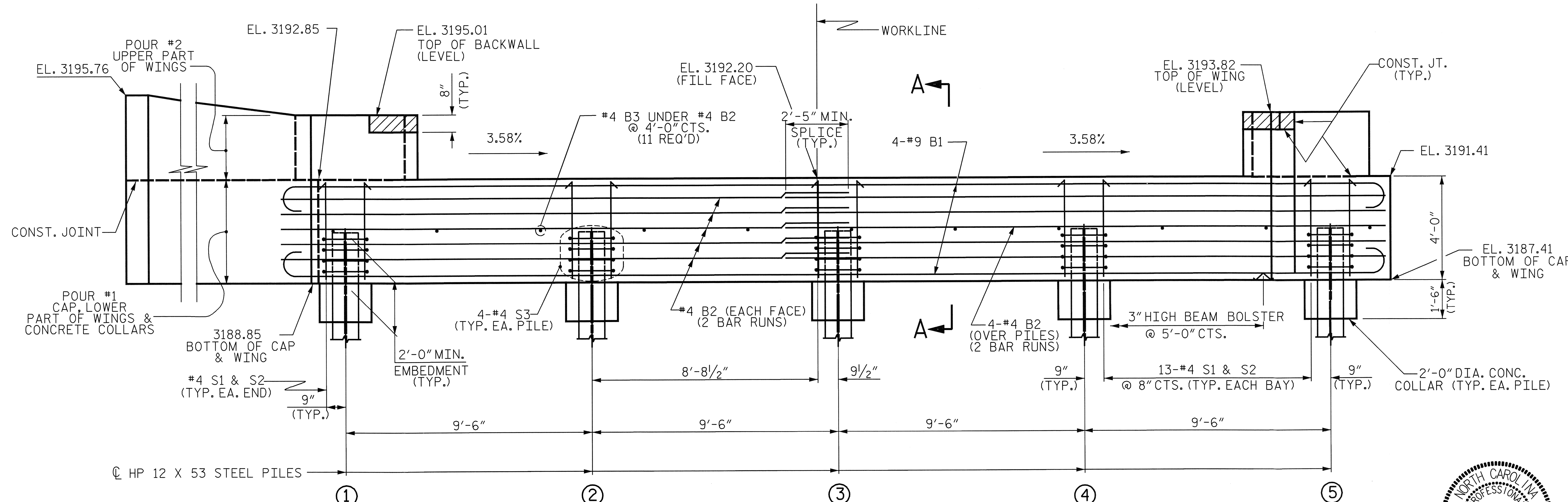
FOR TEMPORARY DRAINAGE AT END BENT, SEE END BENT 2.



PLAN OF CAP

CONCRETE COLLARS NOT SHOWN FOR CLARITY

TOP OF PILE ELEVATIONS	
PILE	ELEV.
1	3190.82
2	3190.48
3	3190.14
4	3189.80
5	3189.46



ELEVATION

FOR SECTION A-A, SEE SHEET 3 OF 3.

PROJECT NO. 17BP.13.R.19

YANCEY COUNTY

STATION: 12+87.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 1

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12114 ROBERT C. LARSON

5/18/15

DESIGN ENGINEER OF RECORD: DATE :

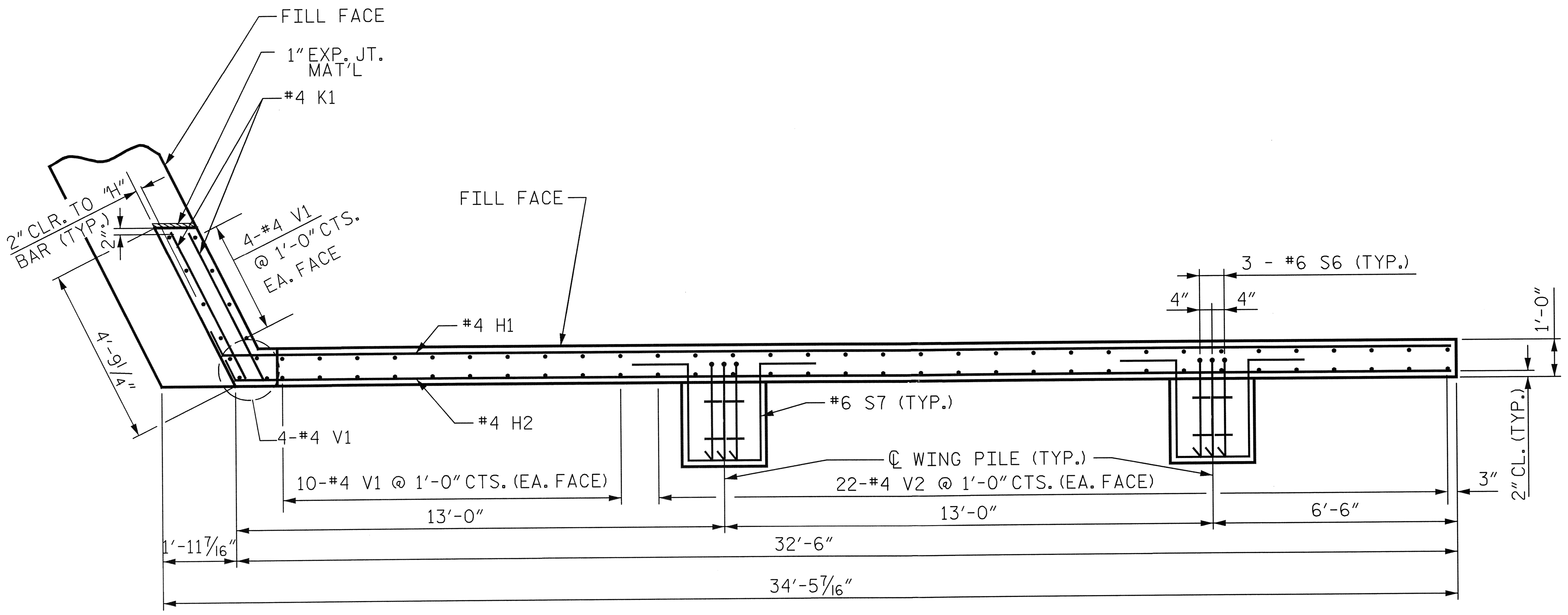
DRAWN BY : R. J. FLORY DATE : 11/1/13

CHECKED BY : R. C. LARSON DATE : 11/15/13

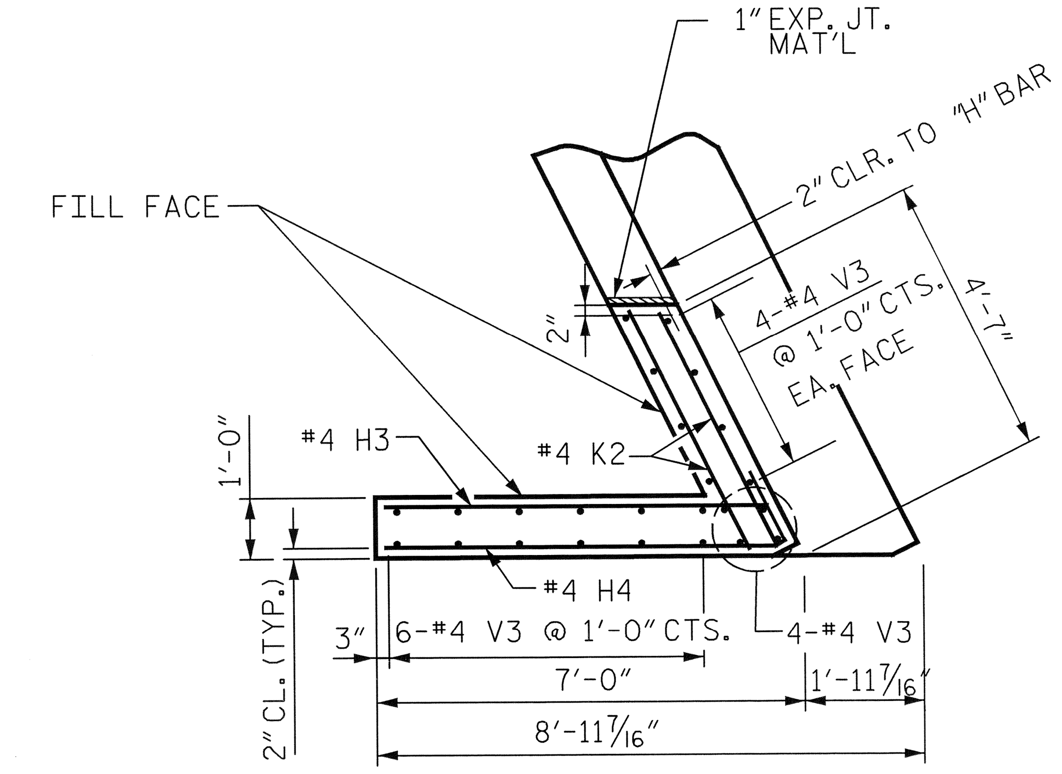
KCI Associates of North Carolina, P.A.

DWG. REF. NO. 9 OF 16

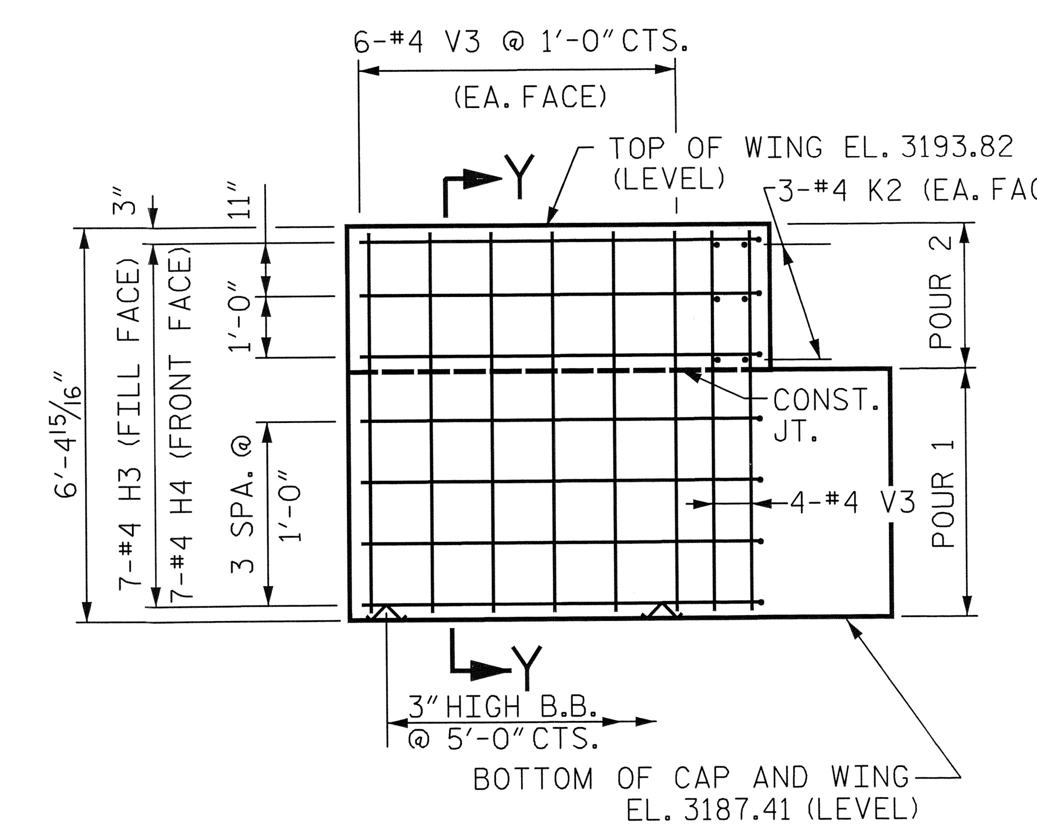
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			TOTAL SHEETS
2			4			



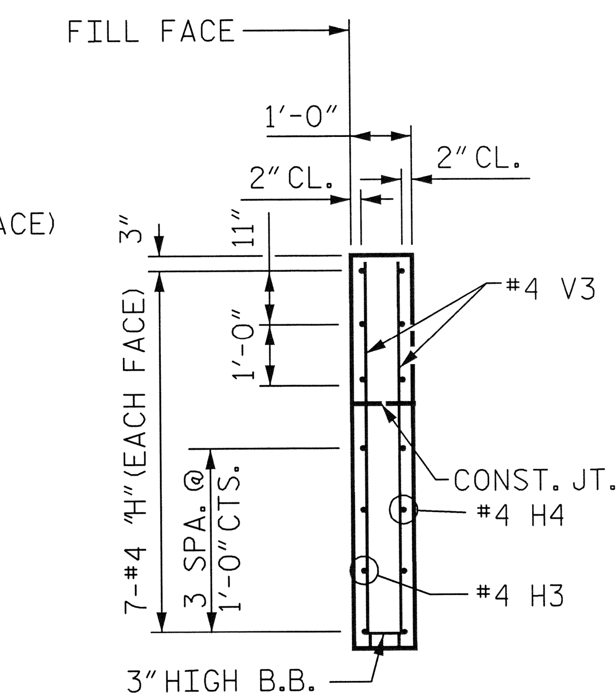
PLAN W1



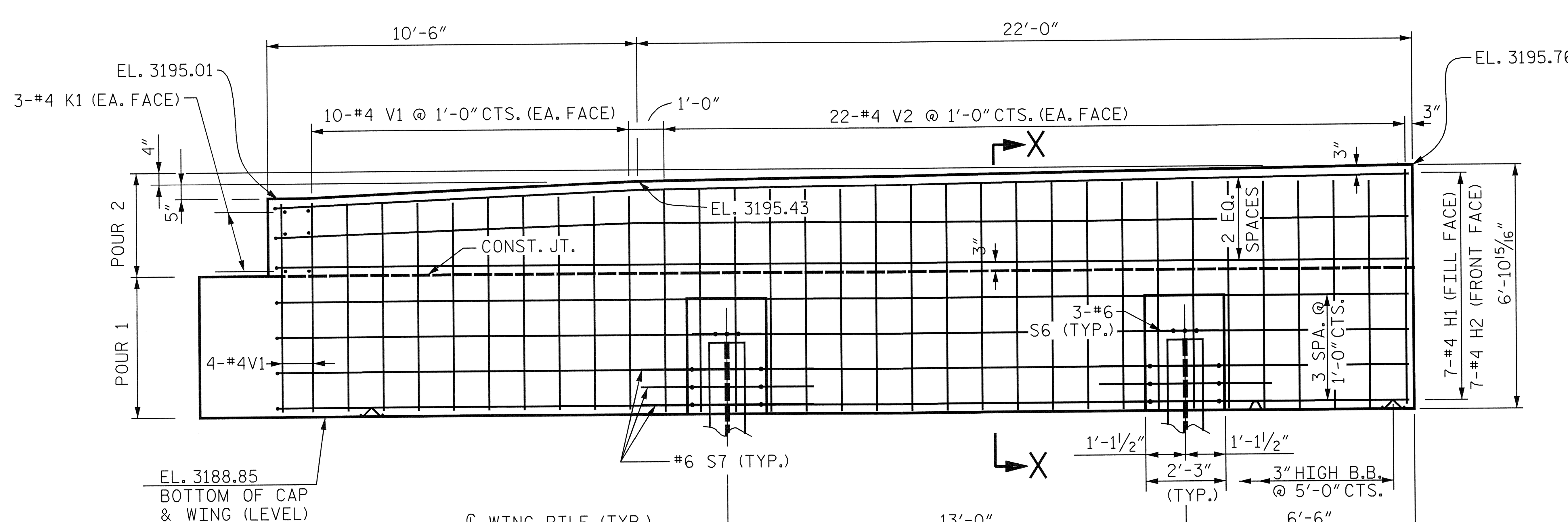
PLAN W2



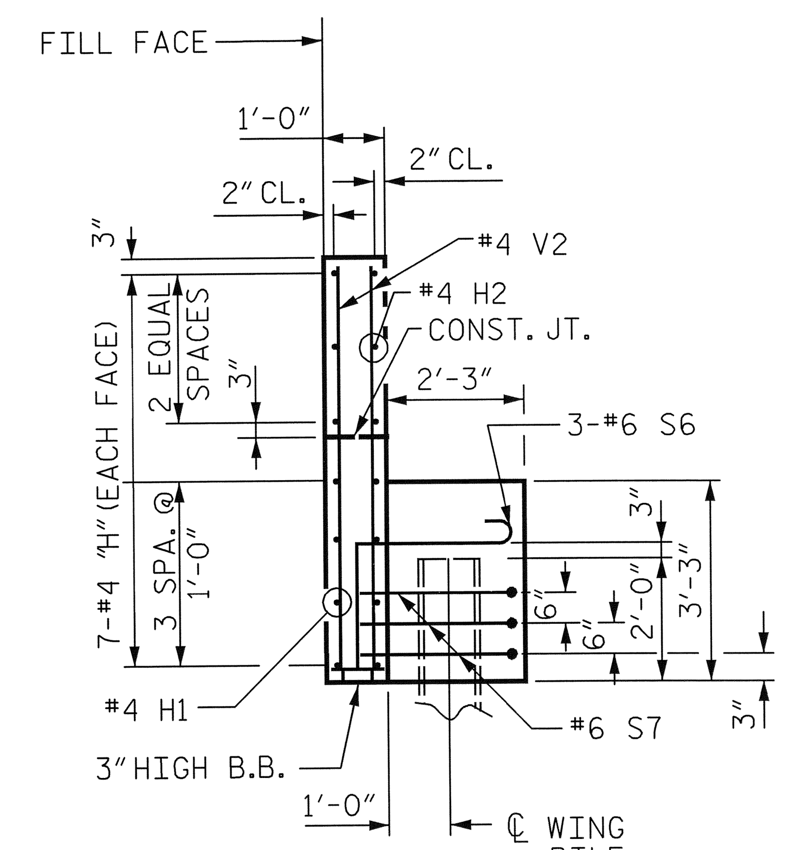
ELEVATION W2



SECTION Y-Y



ELEVATION W1



SECTION X-X

PROJECT NO. 17BP.13.R.19
YANCEY COUNTY
STATION: 12+87.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

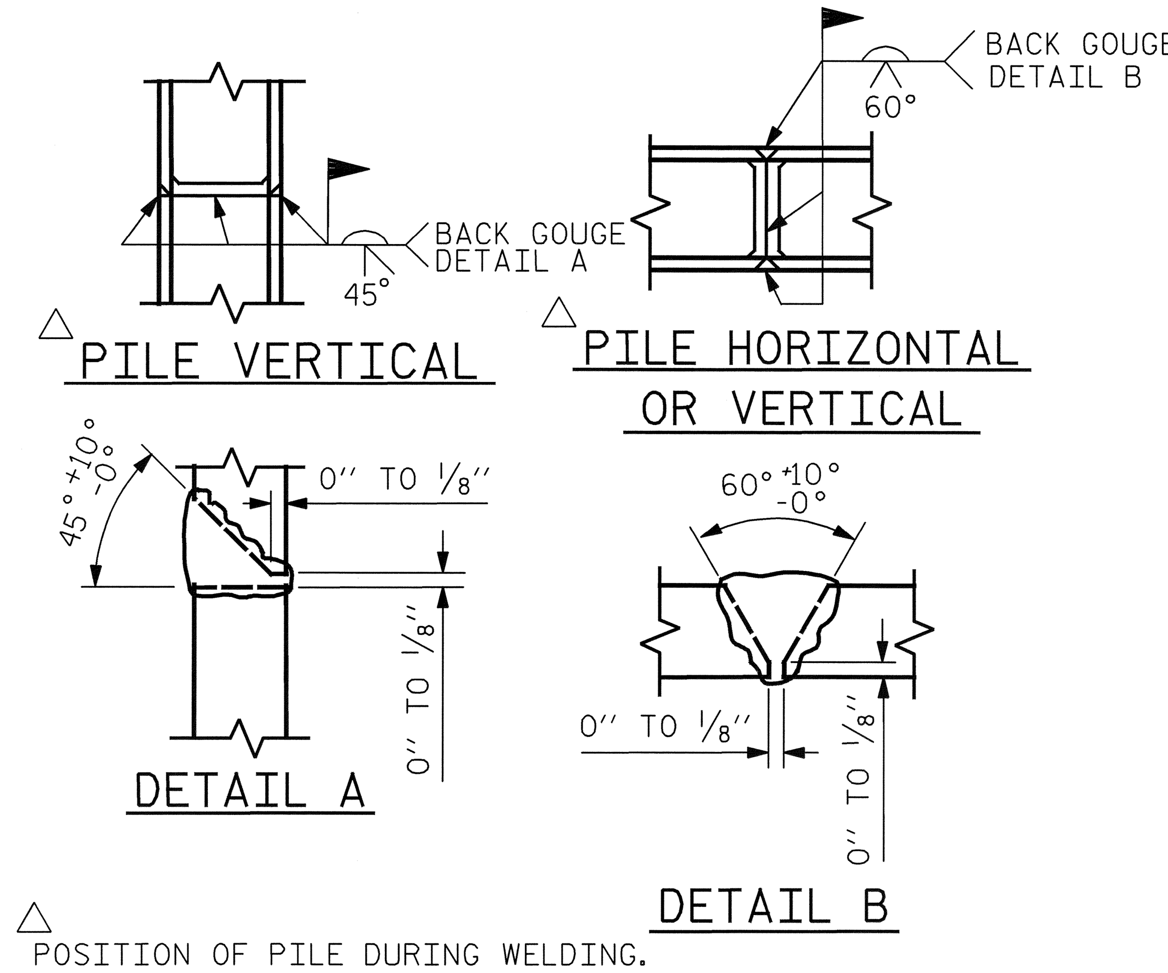
END BENT 1

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER ROBERT C. LARSON
5/18/15

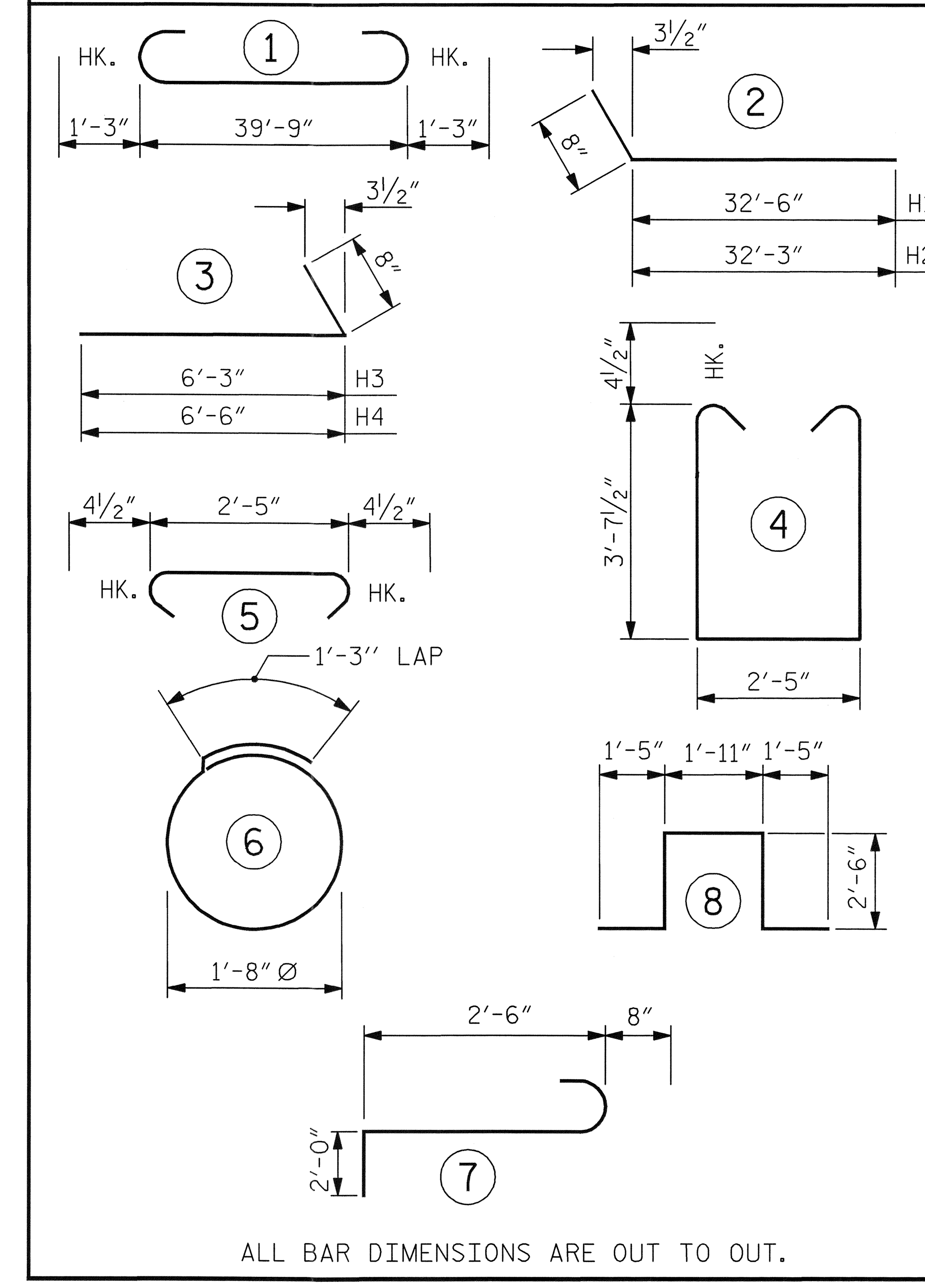
DESIGN ENGINEER OF RECORD:	DATE :
DRAWN BY : R. J. FLORY	DATE : 11/15/13
CHECKED BY : R. C. LARSON	DATE : 11/21/13

ENGINEERS • PLANNERS • ECOLOGISTS LICENSE NUMBER: C-0764
KCI Associates of North Carolina, P.A.
SUITE 220, LANDMARK CENTER II 4601 SIX FORKS RD. RALEIGH, N.C. 27609-5210 (919) 783-9214
DWG. REF. NO. 10 OF 16

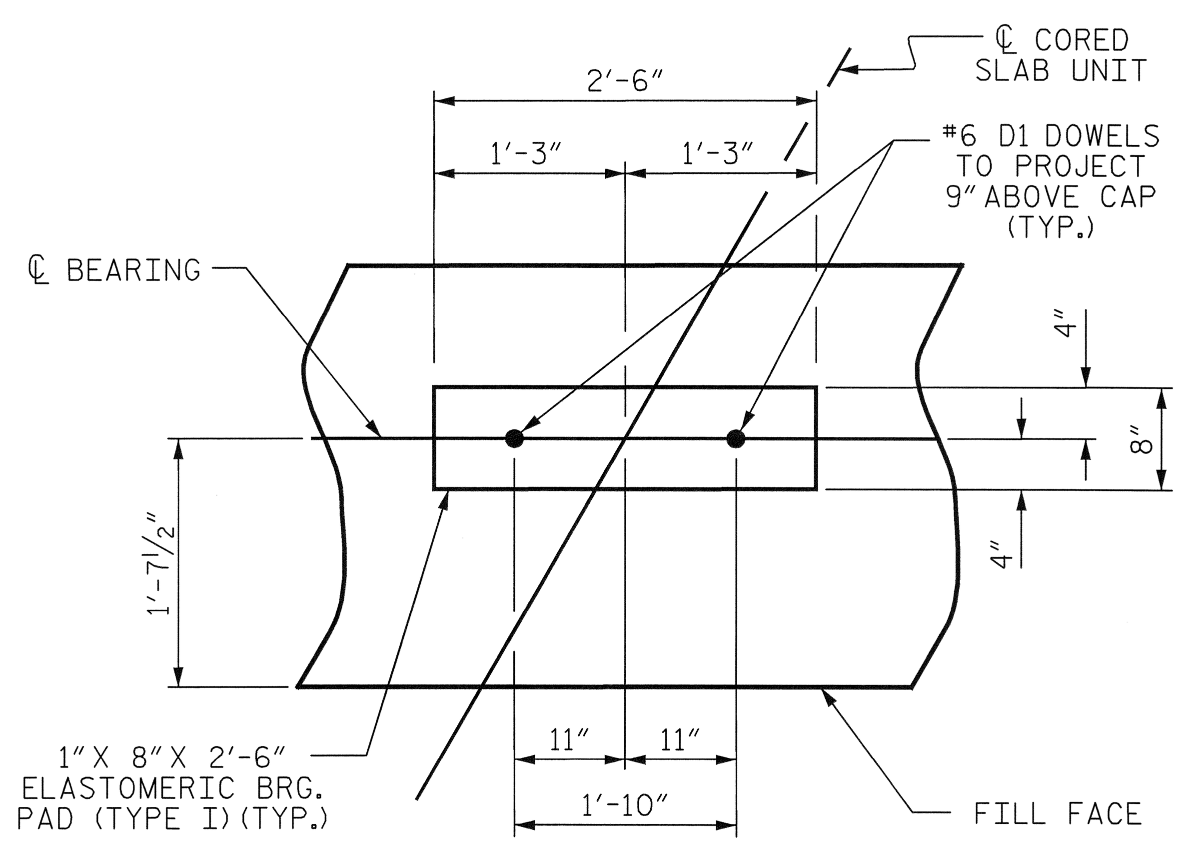
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			



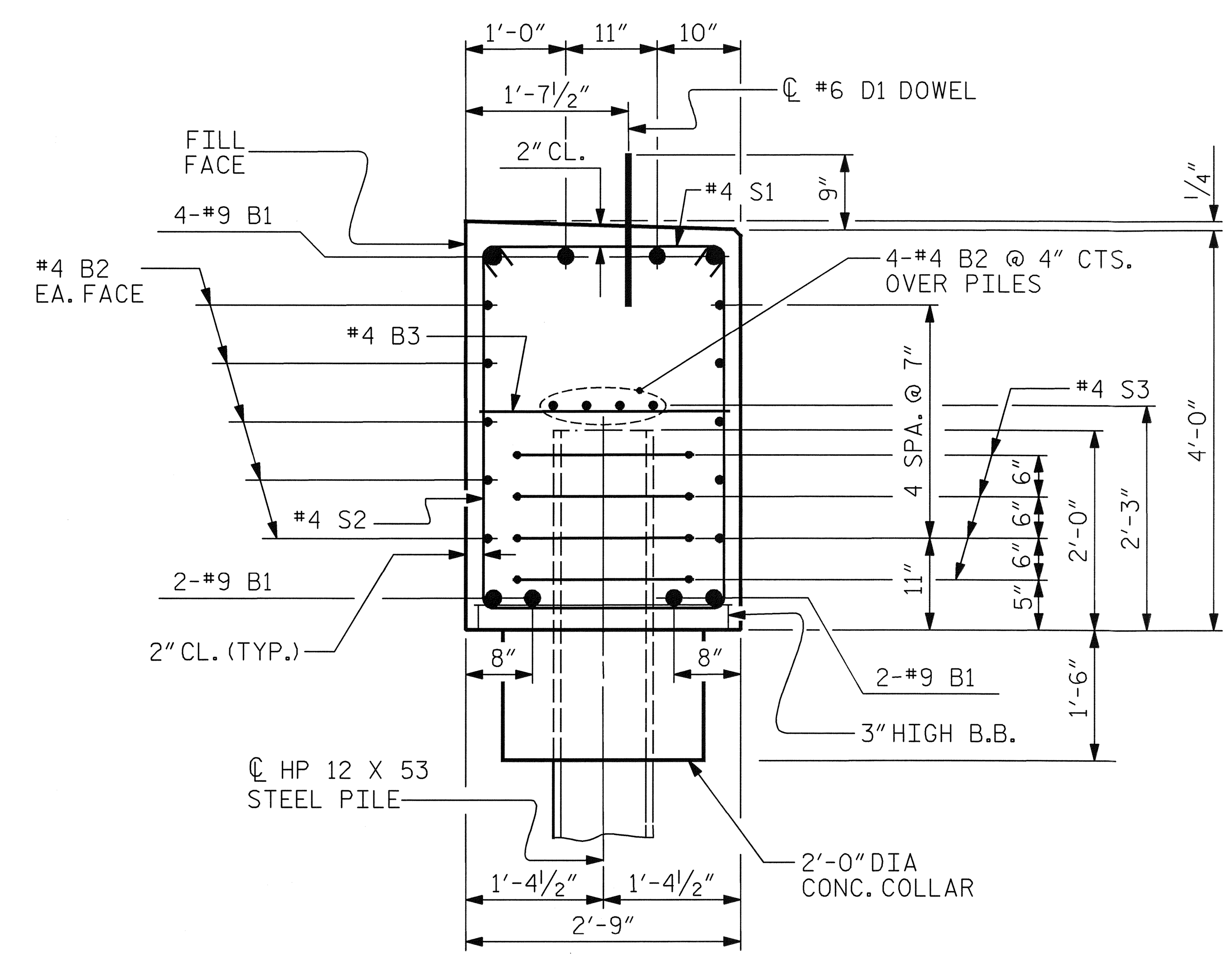
PILE SPLICE DETAILS



BILL OF MATERIAL					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	9	1	42'-3"	1149
B2	28	4	STR.	21'-2"	396
B3	11	4	STR.	2'-5"	18
D1	20	6	STR.	1'-6"	45
H1	7	4	2	33'-2"	155
H2	7	4	2	32'-11"	154
H3	7	4	3	6'-11"	32
H4	7	4	3	7'-2"	34
K1	6	4	STR.	4'-5"	18
K2	6	4	STR.	4'-3"	17
S1	54	4	5	3'-2"	114
S2	54	4	4	10'-5"	376
S3	20	4	6	6'-6"	87
S6	6	6	7	5'-2"	47
S7	6	6	8	9'-9"	88
V1	32	4	STR.	5'-10"	125
V2	44	4	STR.	6'-3"	184
V3	24	4	STR.	6'-1"	98
REINFORCING STEEL					3137 LBS.
CLASS A CONCRETE					
POUR 1					24.0 C.Y.
POUR 2					4.4 C.Y.
TOTAL CLASS A CONCRETE					28.4 C.Y.
HP 12X53 STEEL PILES				NO.	7
				LF	245
PILE EXCAVATION IN SOIL,				LF	42
PILE EXCAVATION NOT IN SOIL				LF	77



DETAIL "A"



SECTION A-A

PROJECT NO. 17BP.13.R.19

YANCEY COUNTY

STATION: 12+87.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 1

NORTH CAROLINA PROFESSIONAL SEAL 14114 ENGINEER ROBERT C. LARSON

5/10/15

DESIGN ENGINEER OF RECORD:	DATE :
DRAWN BY : R. J. FLORY	DATE : 11/20/13
CHECKED BY : R. C. LARSON	DATE : 11/21/13

ENGINEERS • PLANNERS • ECOLOGISTS LICENSE NUMBER: C-0764
KCI Associates of North Carolina, P.A.
SUITE 220, LANDMARK CENTER II 4601 SIX FORKS RD. RALEIGH, N.C. 27609-5210 (919) 783-9214

DWG. REF. NO. 11 OF 16

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

NOTES

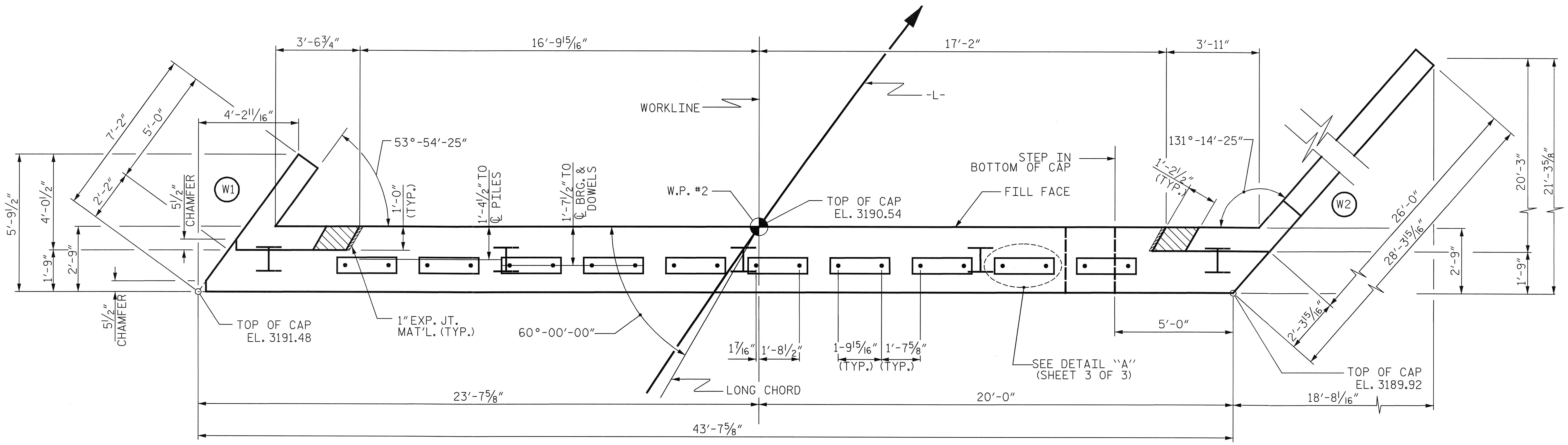
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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 END BENT 1.

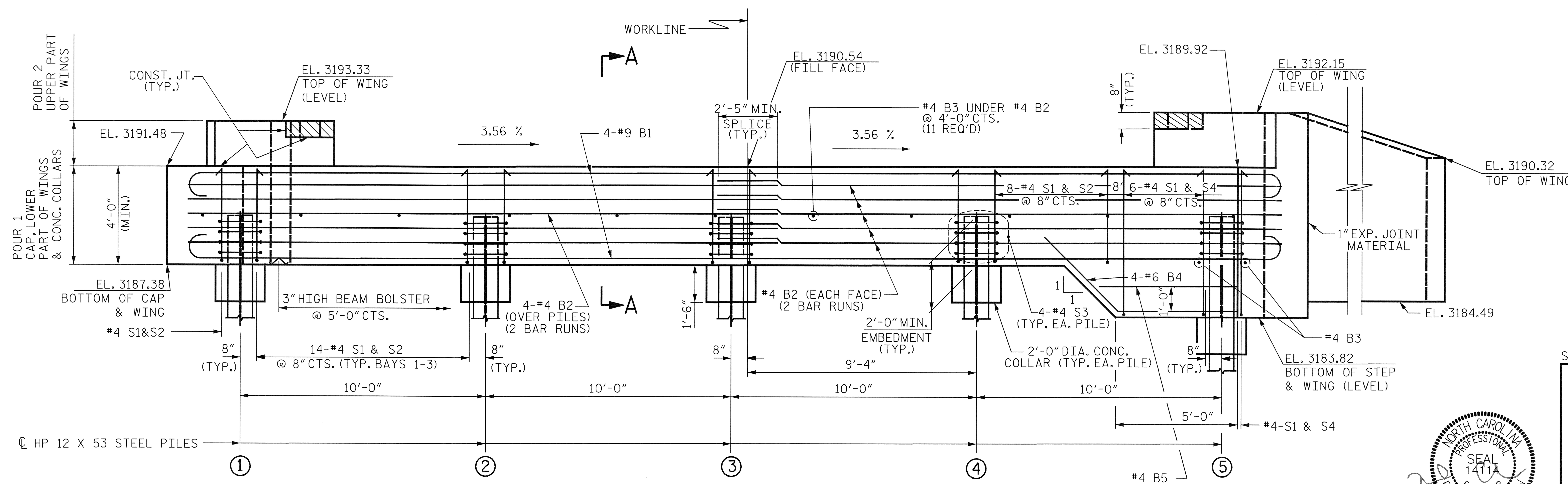
FOR WING DETAILS, SEE SHEET 2 OF 3.

FOR WING PILES, SEE SHEET 2 OF 3.



PLAN OF CAP

CONCRETE COLLARS NOT SHOWN FOR CLARITY



ELEVATION

FOR SECTION A-A, SEE SHEET 3 OF 3.

TOP OF PILE ELEVATIONS	
PILE	ELEV.
1	3189.32
2	3188.96
3	3188.60
4	3188.24
5	3187.88

PROJECT NO. 17BP.13.R.19

YANCEY COUNTY

STATION: 12+87.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 2

NORTH CAROLINA PROFESSIONAL SEAL 14114 ENGINEER ROBERT C. LARSON 5/18/15

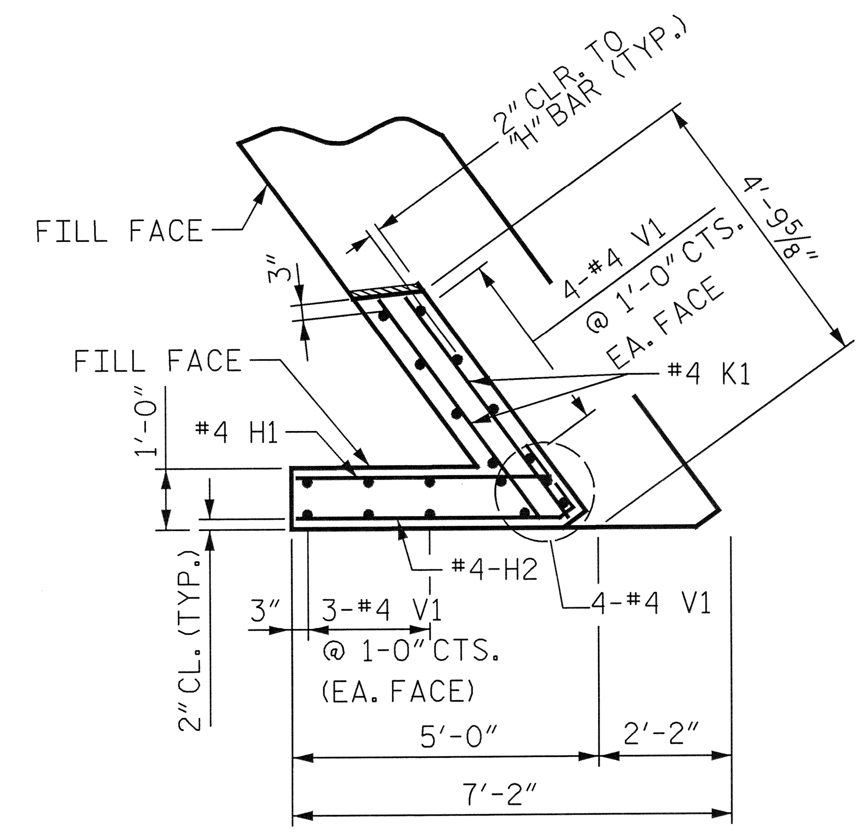
DESIGN ENGINEER OF RECORD: DATE :

DRAWN BY : R. J. FLORY DATE : 11/1/13
CHECKED BY : R. C. LARSON DATE : 11/20/13

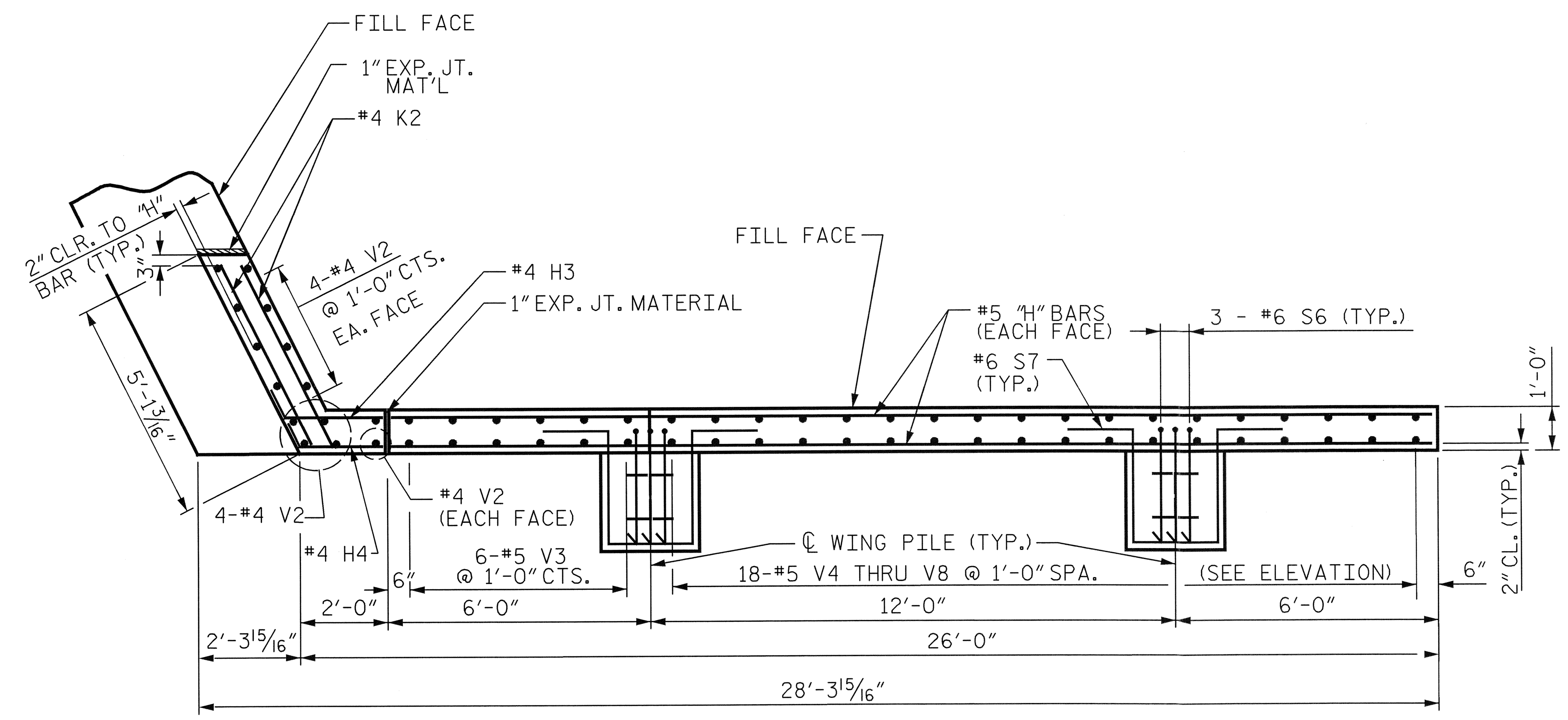
ENGINEERS • PLANNERS • ECOLOGISTS LICENSE NUMBER: C-0764
KCI Associates of North Carolina, P.A.

DWG. REF. NO. 12 OF 16

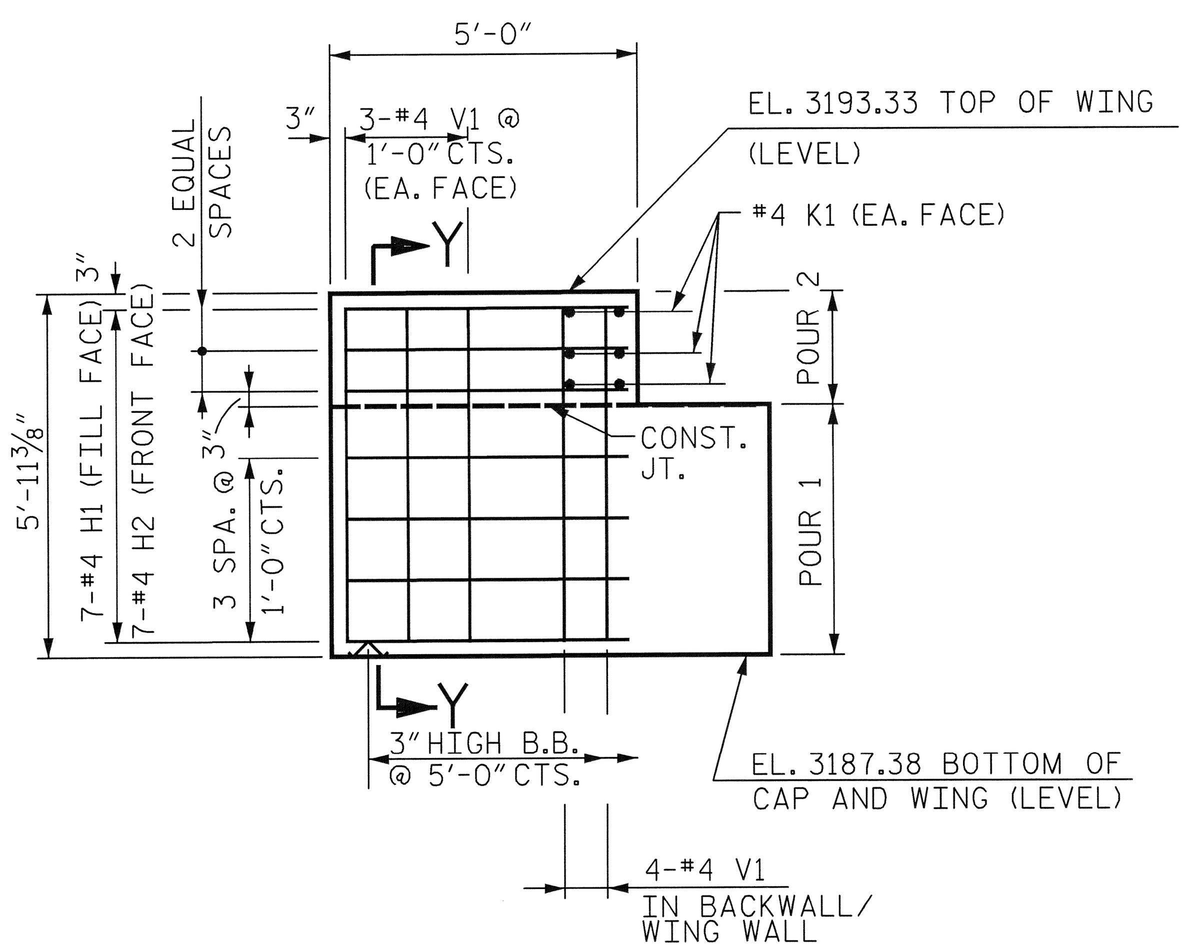
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.	
1			3				
2			4			TOTAL SHEETS	



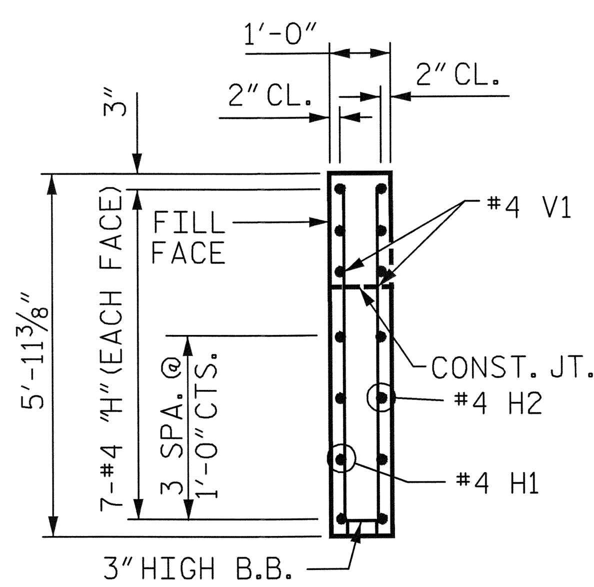
PLAN W1



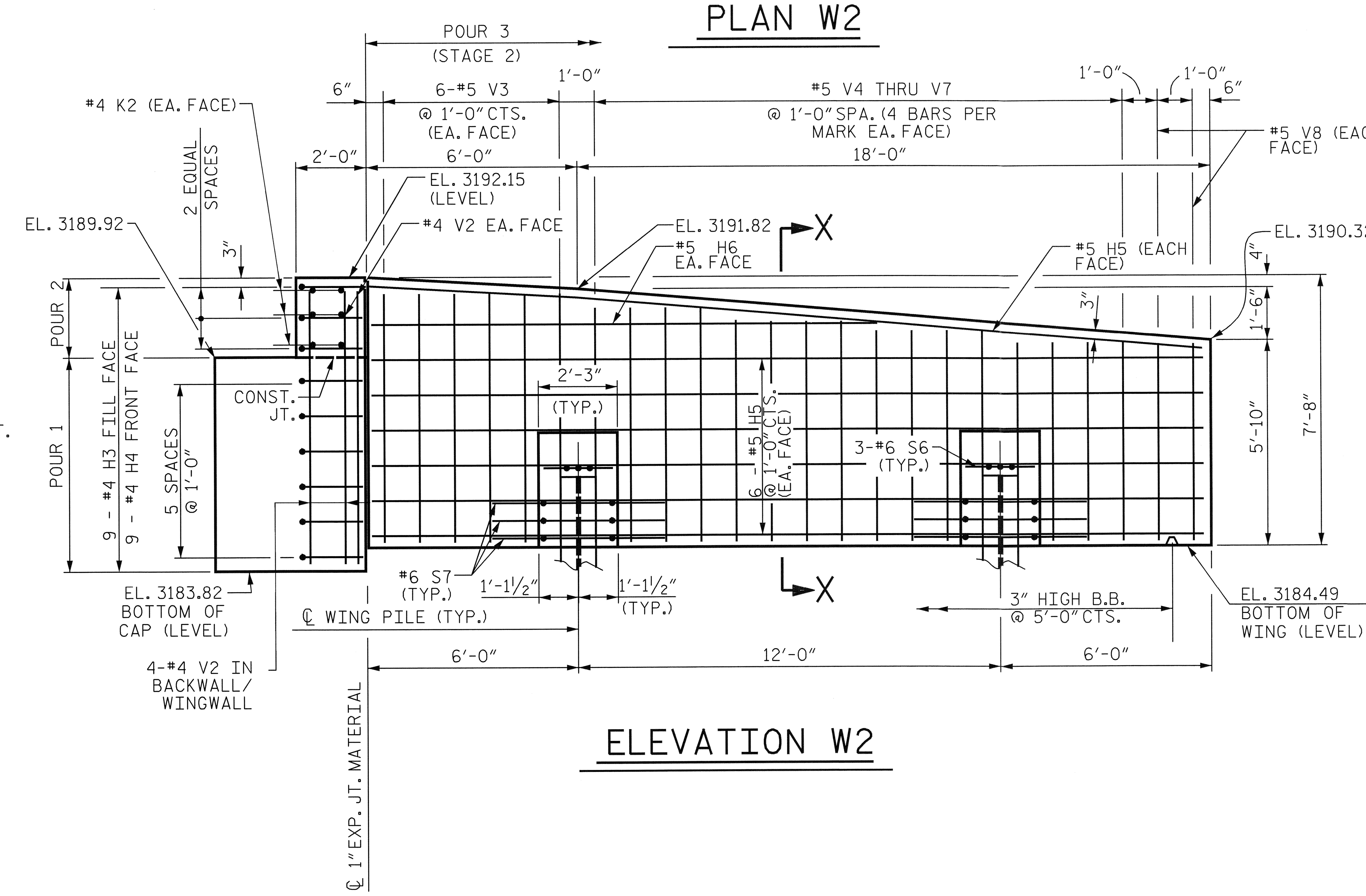
PLAN W2



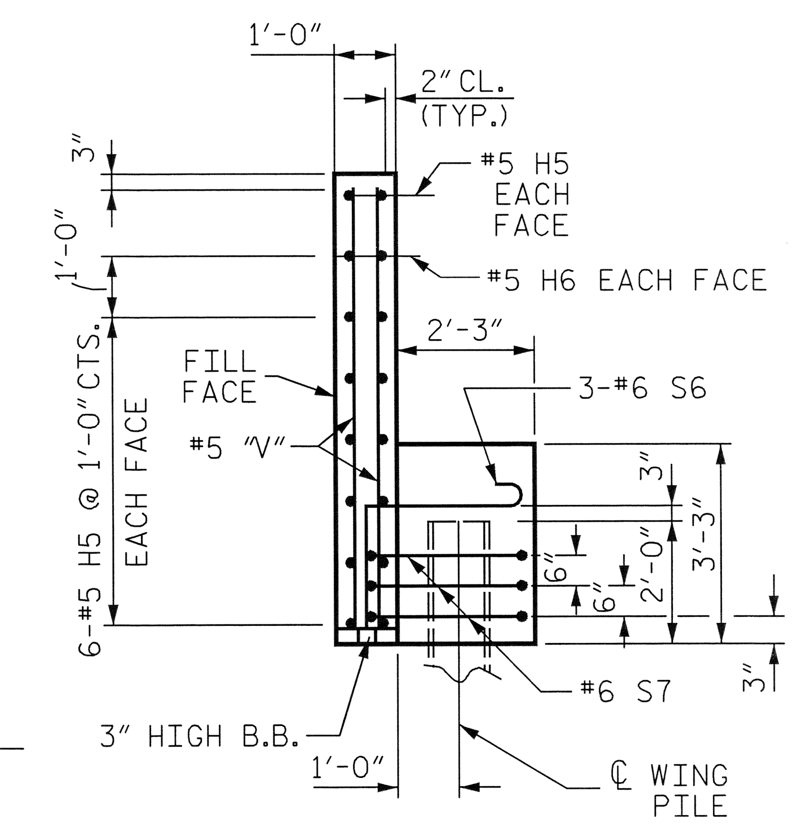
ELEVATION W1



SECTION Y-Y



ELEVATION W2



SECTION X-X

PROJECT NO. 17BP.13.R.19

YANCEY COUNTY

STATION: 12+87.50 -L-

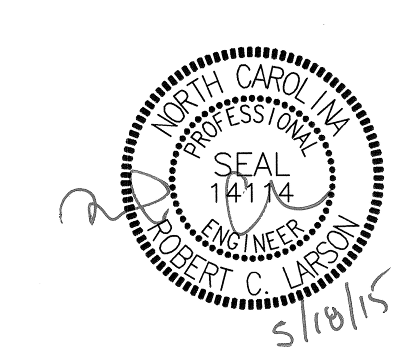
SHEET 2 OF 3

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

END BENT 2



DESIGN ENGINEER OF RECORD: DATE :

DRAWN BY : R. J. FLORY DATE : 12/17/13

CHECKED BY : R. C. LARSON DATE : 12/19/13

ENGINEERS • PLANNERS • ECOLOGISTS LICENSE NUMBER: C-0764

KCI Associates of North Carolina, P.A.

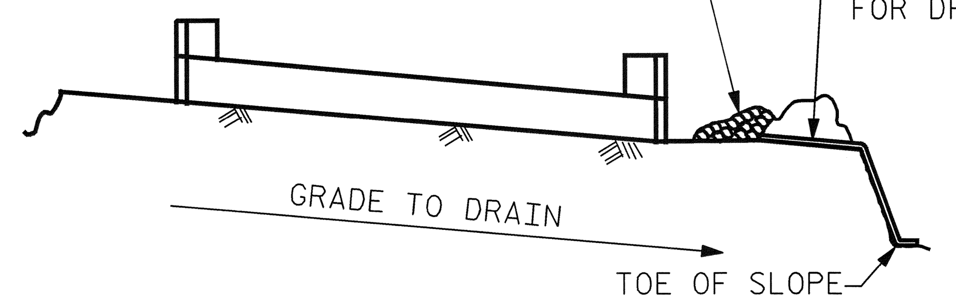
SUITE 220, LANDMARK CENTER II 4601 SIX FORKS RD. RALEIGH, N.C. 27609-5210 (919) 783-9214

DWG. REF. NO. 13 OF 16

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

SHEET NO.

TOTAL SHEETS

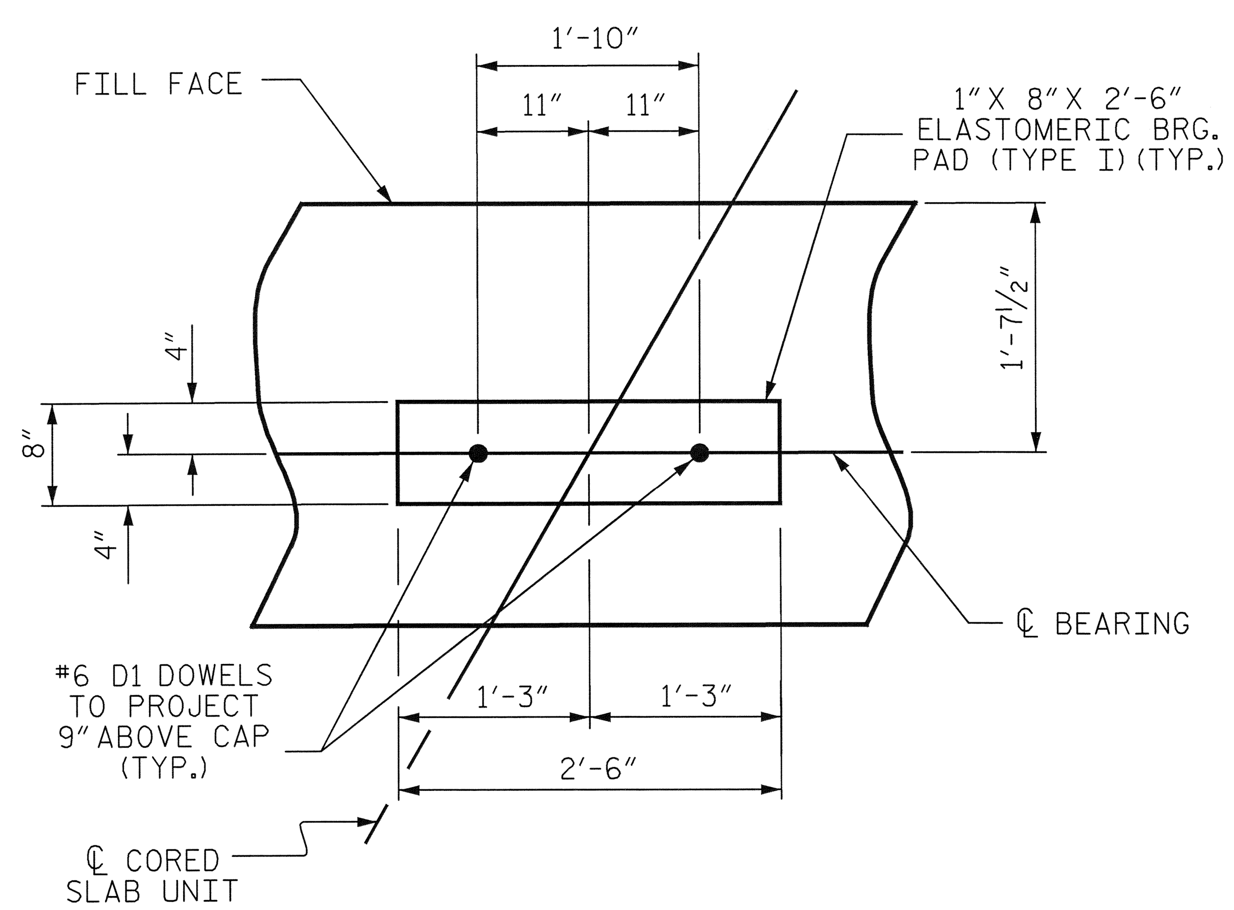


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

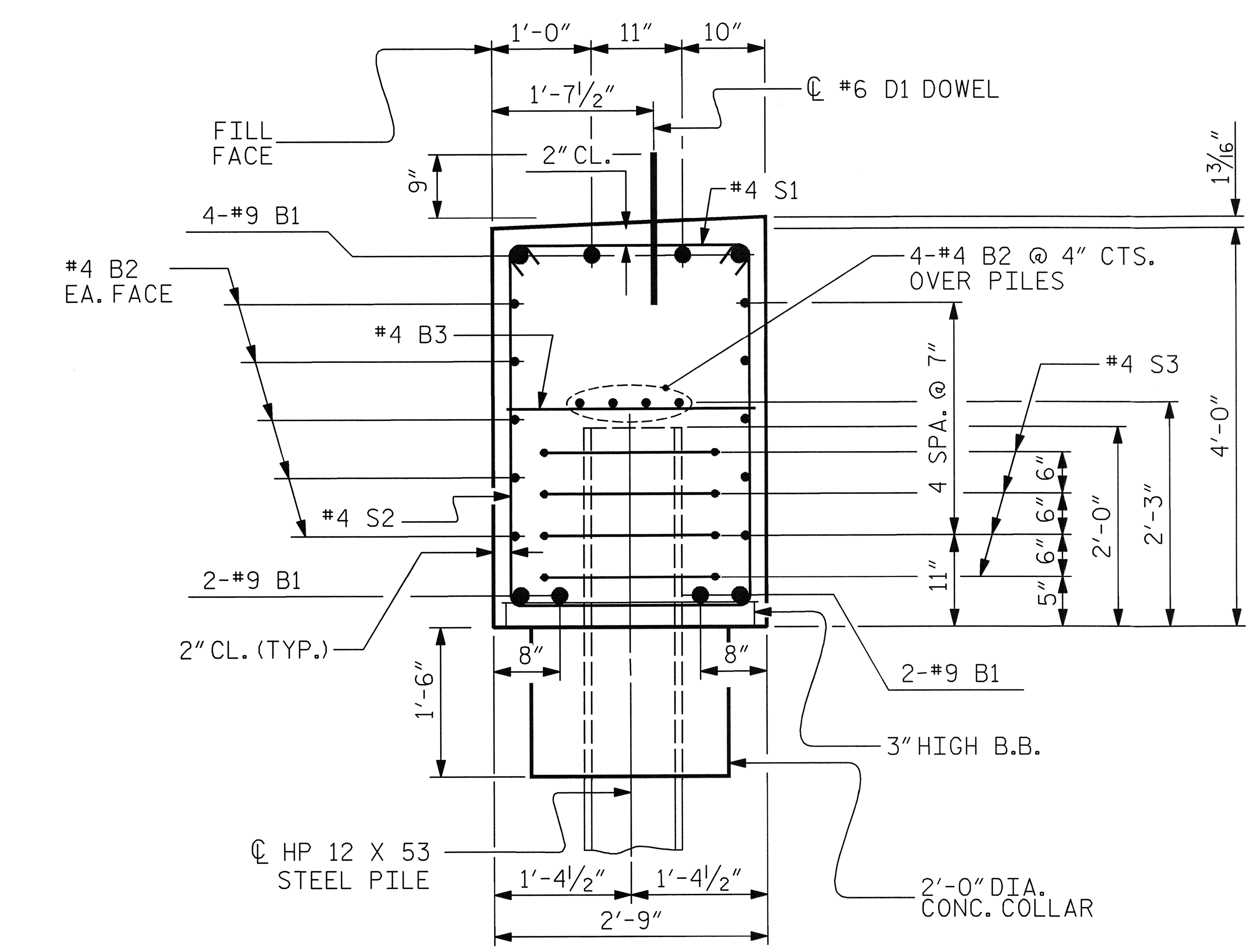
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

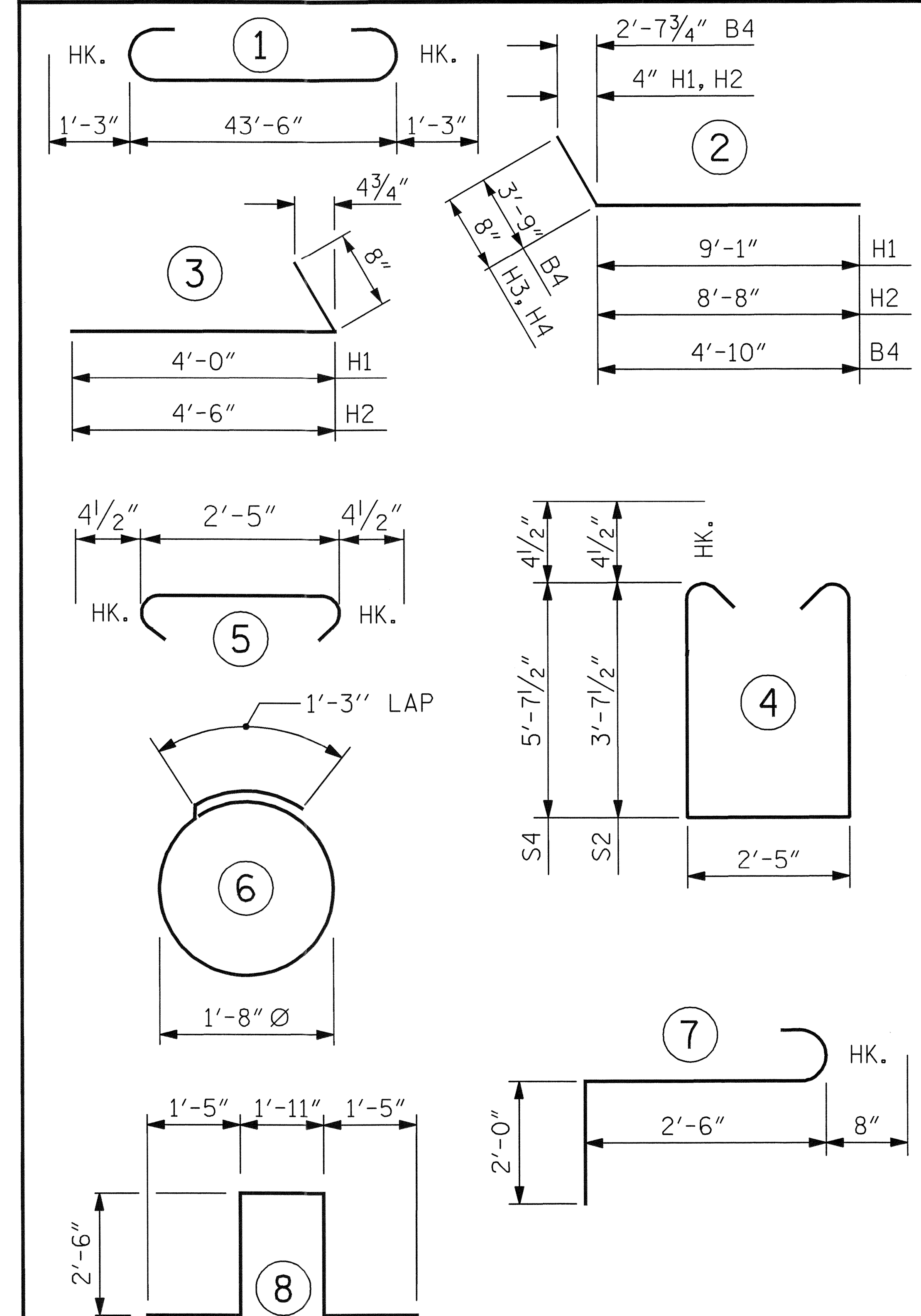


DETAIL "A"



SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	9	1	46'-0"	1251
B2	28	4	STR.	23'-1"	432
B3	13	4	STR.	2'-5"	21
B4	4	6	2	8'-7"	52
B5	2	4	STR.	6'-0"	8
D1	20	6	STR.	1'-6"	45
H1	7	4	2	4'-8"	22
H2	7	4	2	5'-2"	24
H3	9	4	3	2'-11"	18
H4	9	4	3	2'-5"	15
H5	14	5	STR.	23'-8"	346
H6	2	5	STR.	16'-10"	35
K1	6	4	STR.	4'-5"	18
K2	6	4	STR.	4'-9"	19
S1	58	4	5	3'-2"	123
S2	51	4	4	10'-5"	355
S3	20	4	6	6'-6"	87
S4	7	4	4	14'-5"	67
S6	6	6	7	5'-2"	47
S7	6	6	8	9'-9"	88
V1	18	4	STR.	5'-7"	67
V2	14	4	STR.	8'-0"	75
V3	12	5	STR.	7'-0"	88
V4	8	5	STR.	6'-9"	56
V5	8	5	STR.	6'-5"	54
V6	8	5	STR.	6'-1"	51
V7	8	5	STR.	5'-9"	48
V8	4	5	STR.	5'-6"	23

REINFORCING STEEL, LB		3535
CLASS A CONCRETE, CY	POUR 1	20.8
	POUR 2	1.1
	POUR 3	6.0
	TOTAL	27.9
HP 12X53 STEEL PILES	NO.	7
	LF	280
PILE EXCAVATION IN SOIL,	LF	42
PILE EXCAVATION NOT IN SOIL,	LF	84

PROJECT NO. 17BP.13.R.19

YANCEY COUNTY

STATION: 12+87.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 2

NORTH CAROLINA PROFESSIONAL SEAL 14114 ENGINEER ROBERT C. LARSON
5/18/15

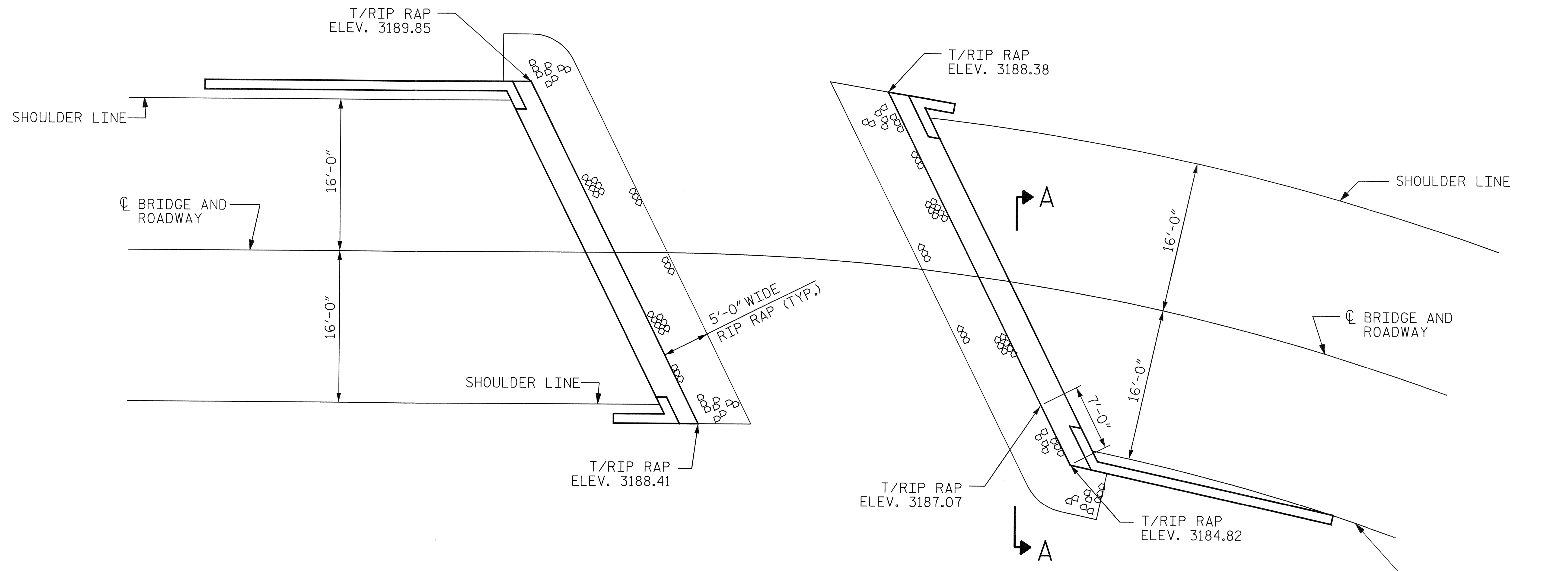
ENGINEERS ● PLANNERS ● ECOLOGISTS LICENSE NUMBER: C-0764
KCI Associates of North Carolina, P.A.
SUITE 220, LANDMARK CENTER II 4601 SIX FORKS RD. RALEIGH, N.C. 27609-5210 (919) 783-9214

DWG. REF. NO. 14 OF 16

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

DESIGN ENGINEER OF RECORD: DATE :

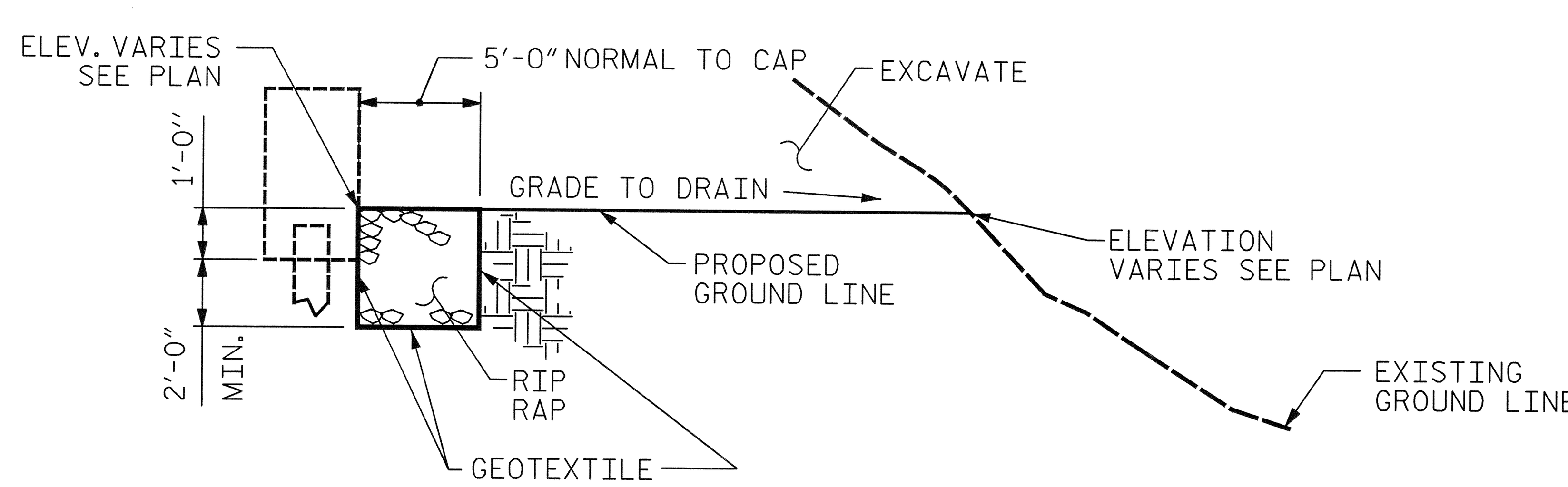
DRAWN BY : R. J. FLORY DATE : 11/20/13
CHECKED BY : R.C. LARSON DATE : 11/21/13



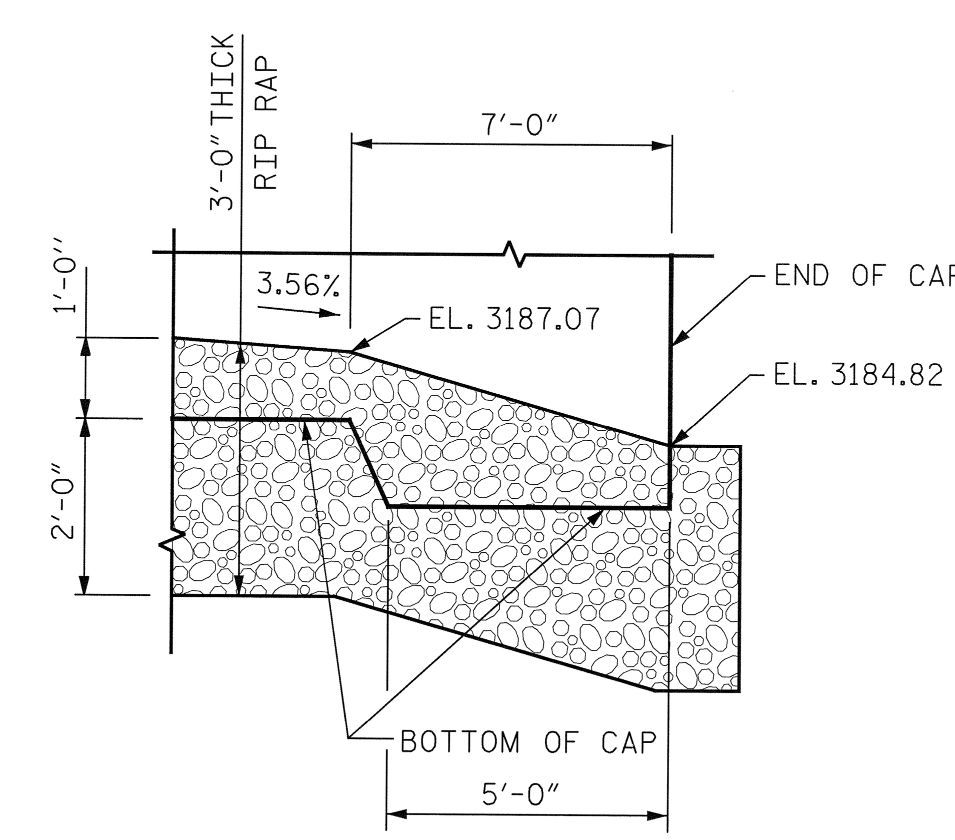
END BENT 1

END BENT 2

PLAN



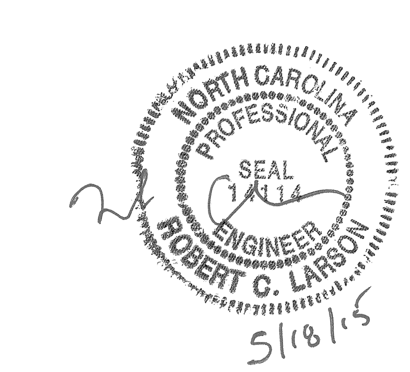
℄ SECTION



PART SECTION A-A

ESTIMATED QUANTITIES		
BRIDGE @ STA.12+87.50 -L-	RIP RAP CLASS II (3'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	33	41
END BENT 2	35	44

PROJECT NO. 17BP.13.R.19
YANCEY COUNTY
STATION: 12+87.50 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RIP RAP
DETAILS

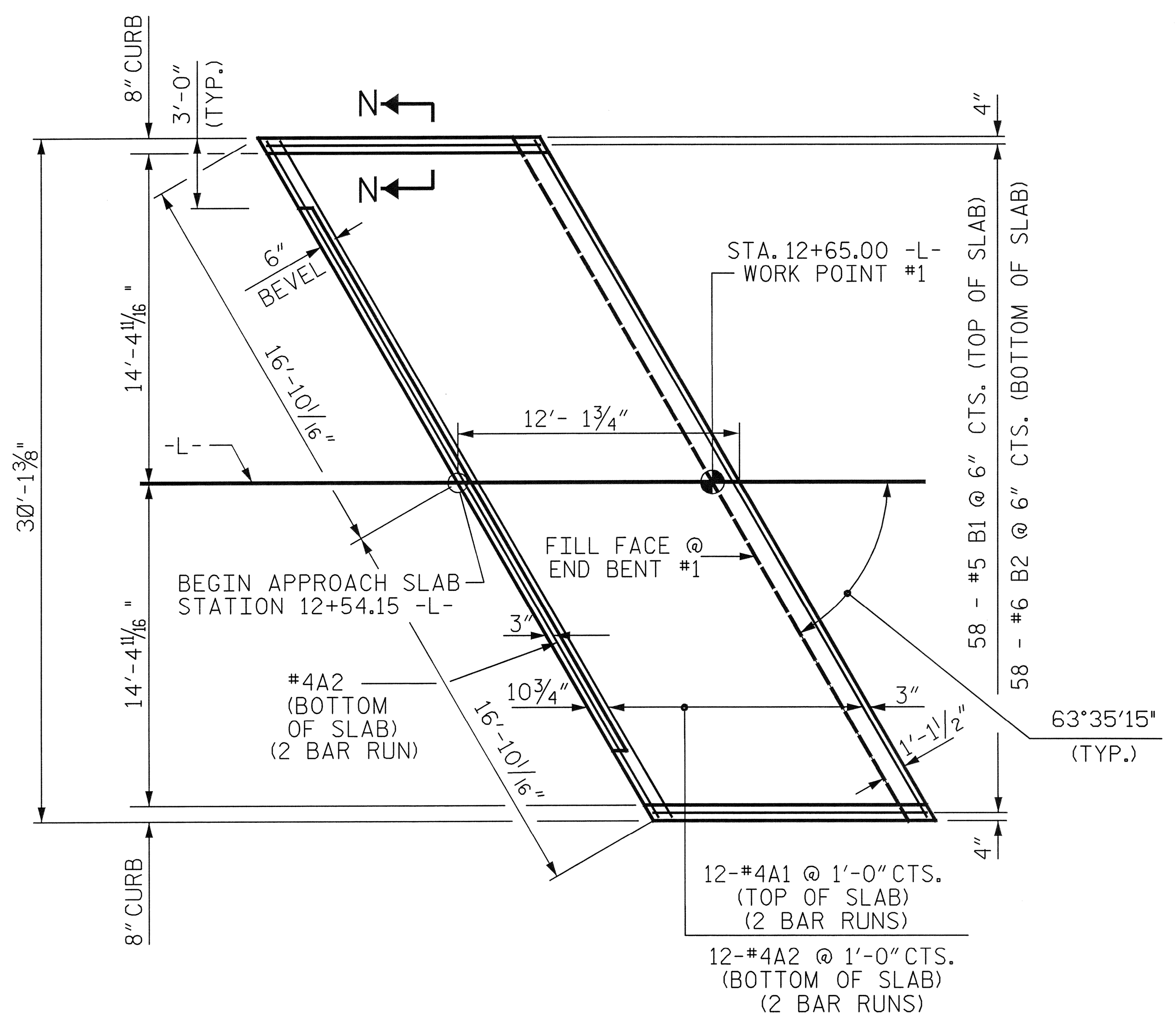
DESIGN ENGINEER OF RECORD: DATE :

DRAWN BY : R.J. FLORY DATE : 11/1/13
CHECKED BY : R.C. LARSON DATE : 11/26/13

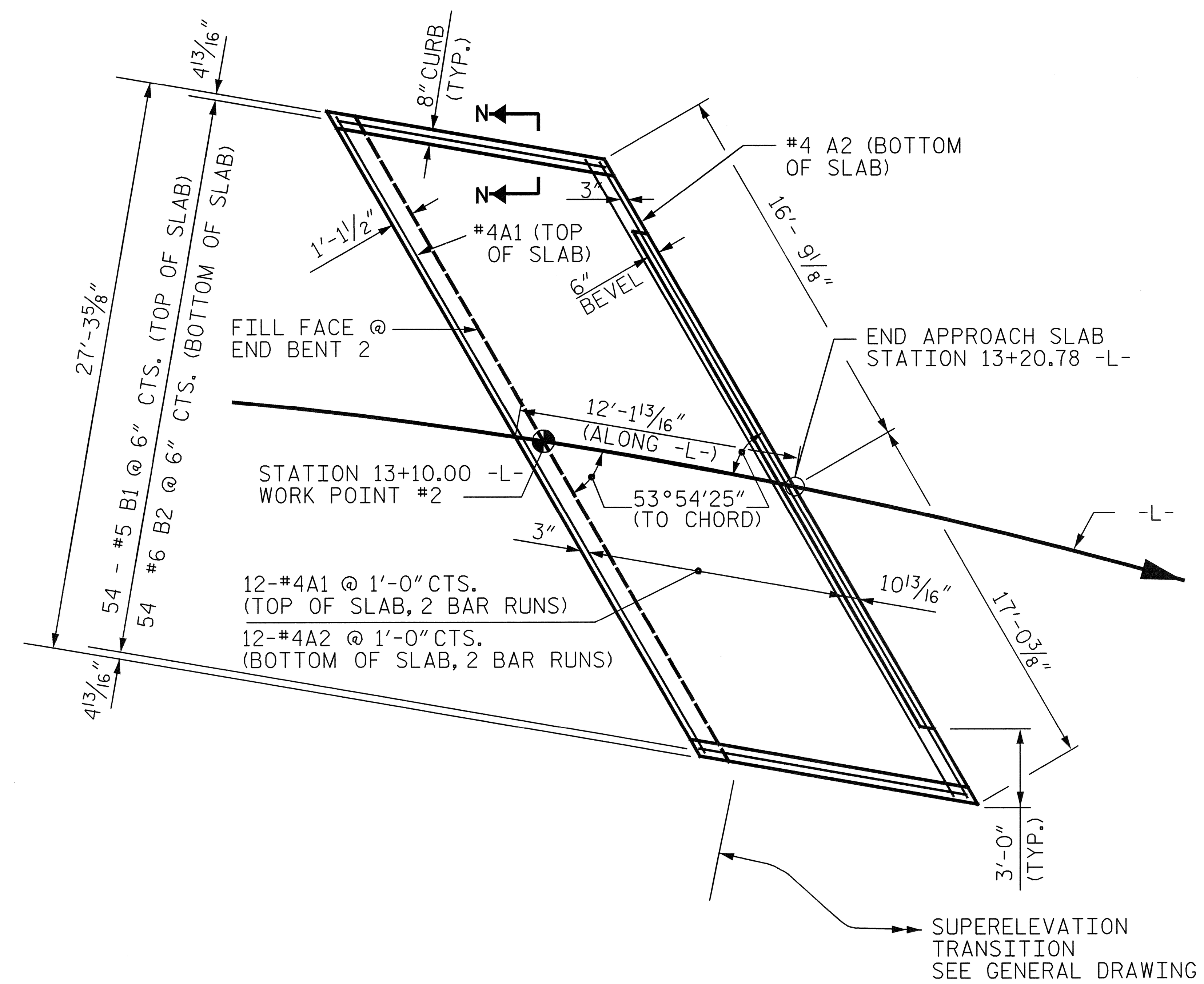
ENGINEERS • PLANNERS • ECOLOGISTS LICENSE NUMBER: C-0764
KCI Associates of North Carolina, P.A.
SUITE 220, LANDMARK CENTER II 4601 SIX FORKS RD. RALEIGH, N.C. 27609-5210 (919) 783-9214
DWG. REF. NO. 15 OF 16

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

SHEET NO.
TOTAL SHEETS



PLAN @ END BENT 1



PLAN @ END BENT 2

NOTE: EDGES OF APPROACH SLAB 2 ARE PARALLEL TO CHORD AT CENTERLINE.

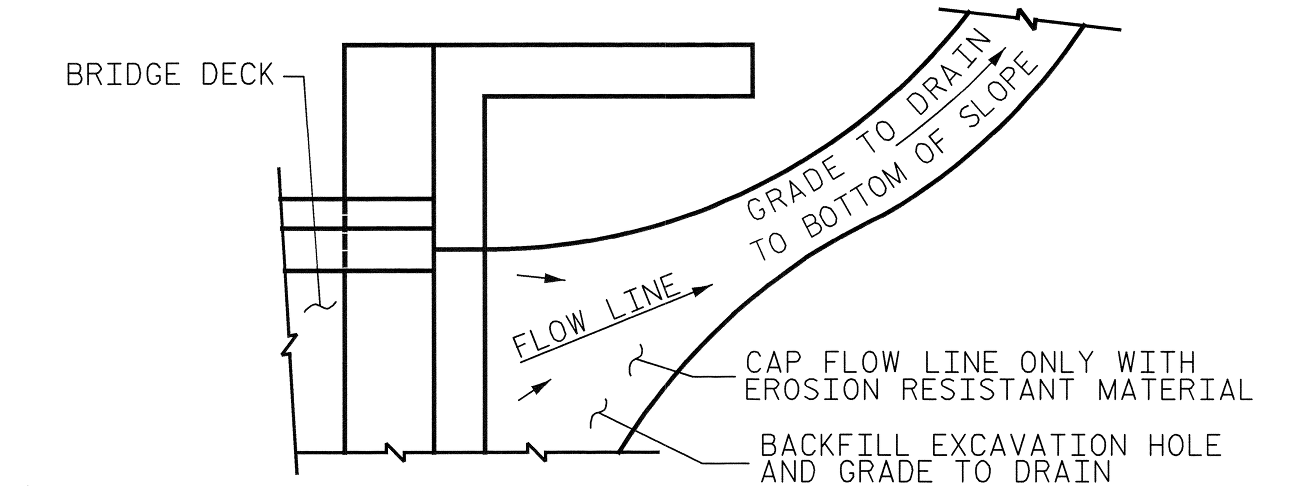
BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	24	#4	STR	17'-8"	283
A2	26	#4	STR	17'-7"	305
* B1	58	#5	STR	11'-4"	686
B2	58	#6	STR	11'-9"	1024
REINFORCING STEEL				LBS.	1329
* EPOXY COATED REINFORCING STEEL				LBS.	969
CLASS AA CONCRETE				C. Y.	16.2

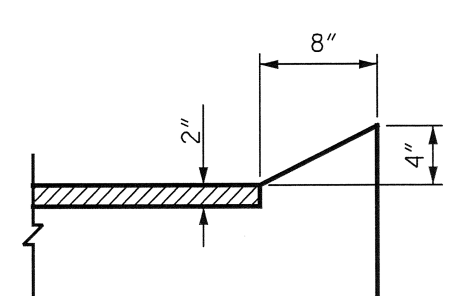
APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	24	#4	STR	17'-8"	283
A2	26	#4	STR	17'-7"	305
* B1	54	#5	STR	11'-4"	638
B2	54	#6	STR	11'-9"	953
REINFORCING STEEL				LBS.	1258
* EPOXY COATED REINFORCING STEEL				LBS.	921
CLASS AA CONCRETE				C. Y.	15.3

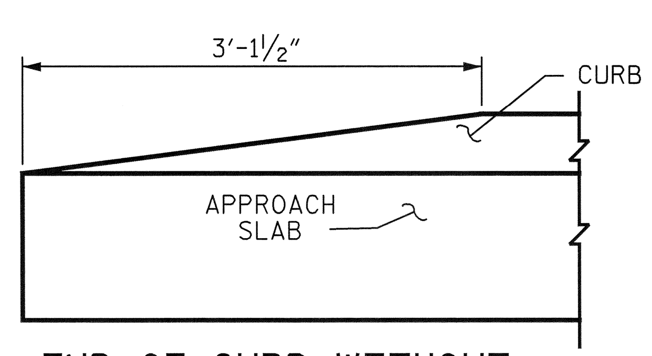


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



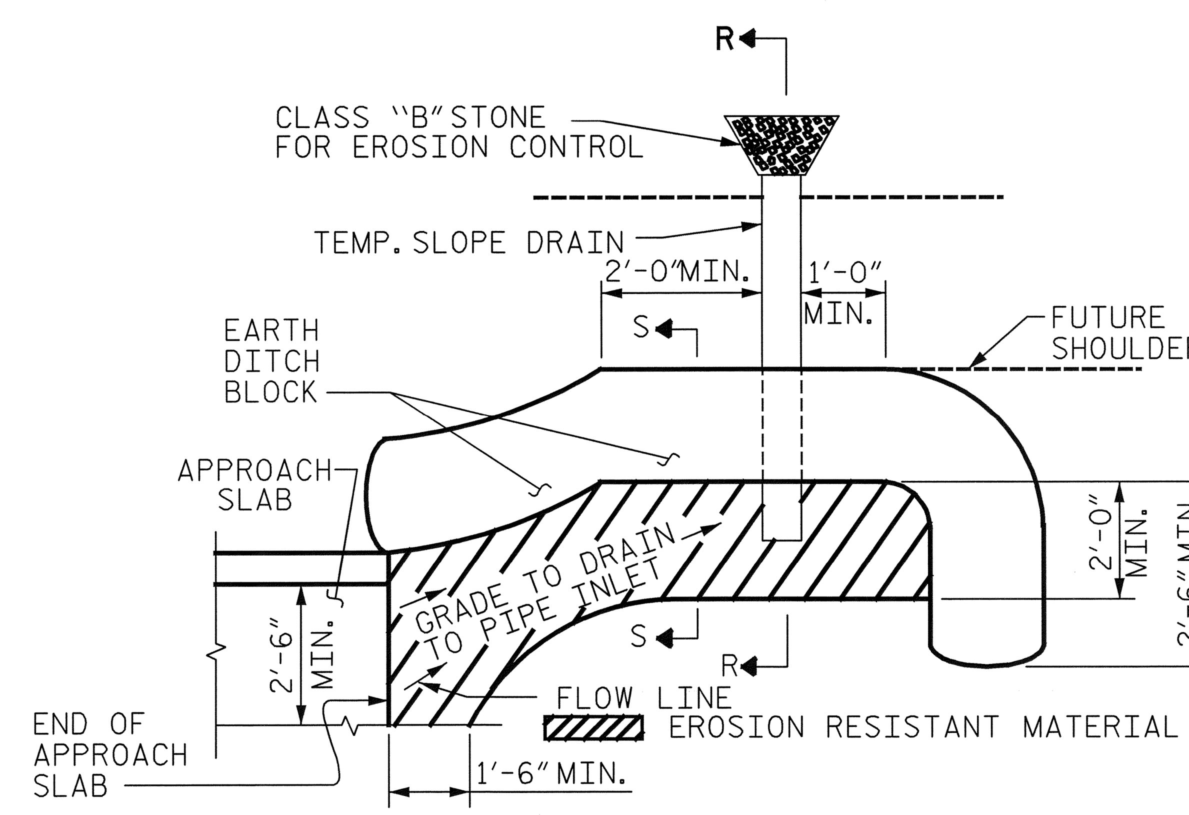
SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

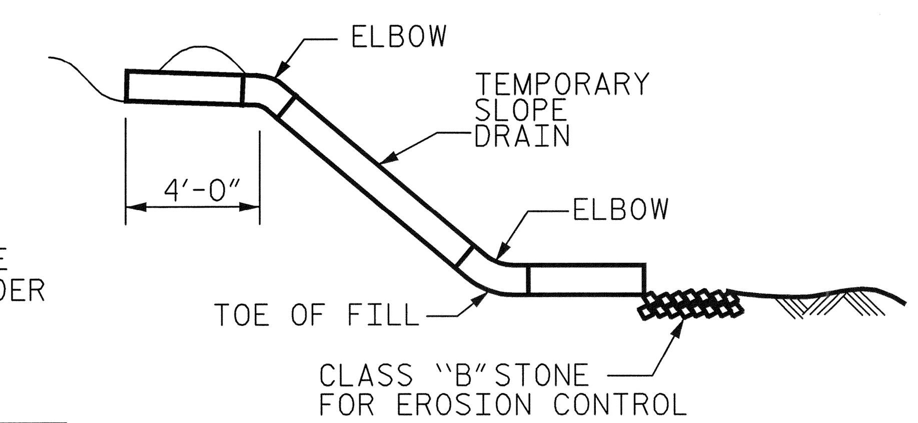
CURB DETAILS

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

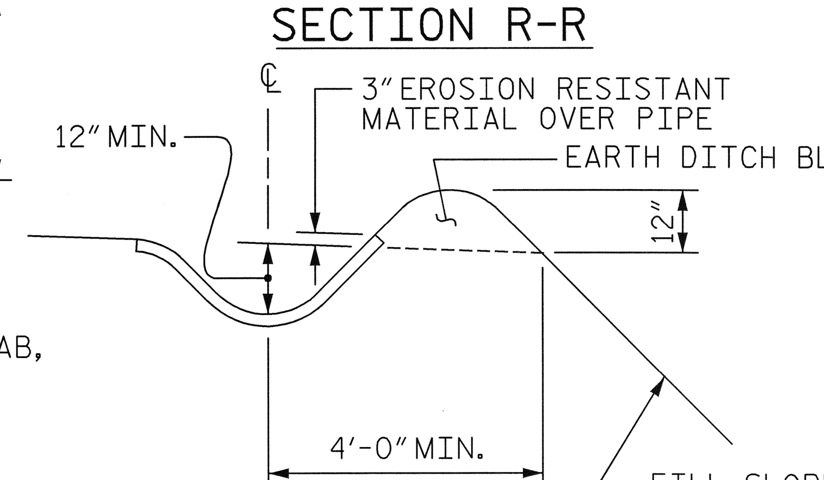


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 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 R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

PROJECT NO. 17BP.13.R.19

YANCEY COUNTY

STATION: 12+87.50 -L-

NORTH CAROLINA PROFESSIONAL SEAL 21114 ENGINEER ROBERT C. LARSON 5/18/15

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB

DESIGN ENGINEER OF RECORD:	DATE :
DRAWN BY : E. C. DECOLA	DATE : 11/12/13
CHECKED BY : R. C. LARSON	DATE : 12/2/13

ENGINEERS ● PLANNERS ● ECOLOGISTS LICENSE NUMBER: C-0764
KCI Associates of North Carolina, P.A.
SUITE 220, LANDMARK CENTER II 4601 SIX FORKS RD. RALEIGH, N.C. 27609-5210 (919) 783-9214

DWG. REF. NO. 16 OF 16

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