

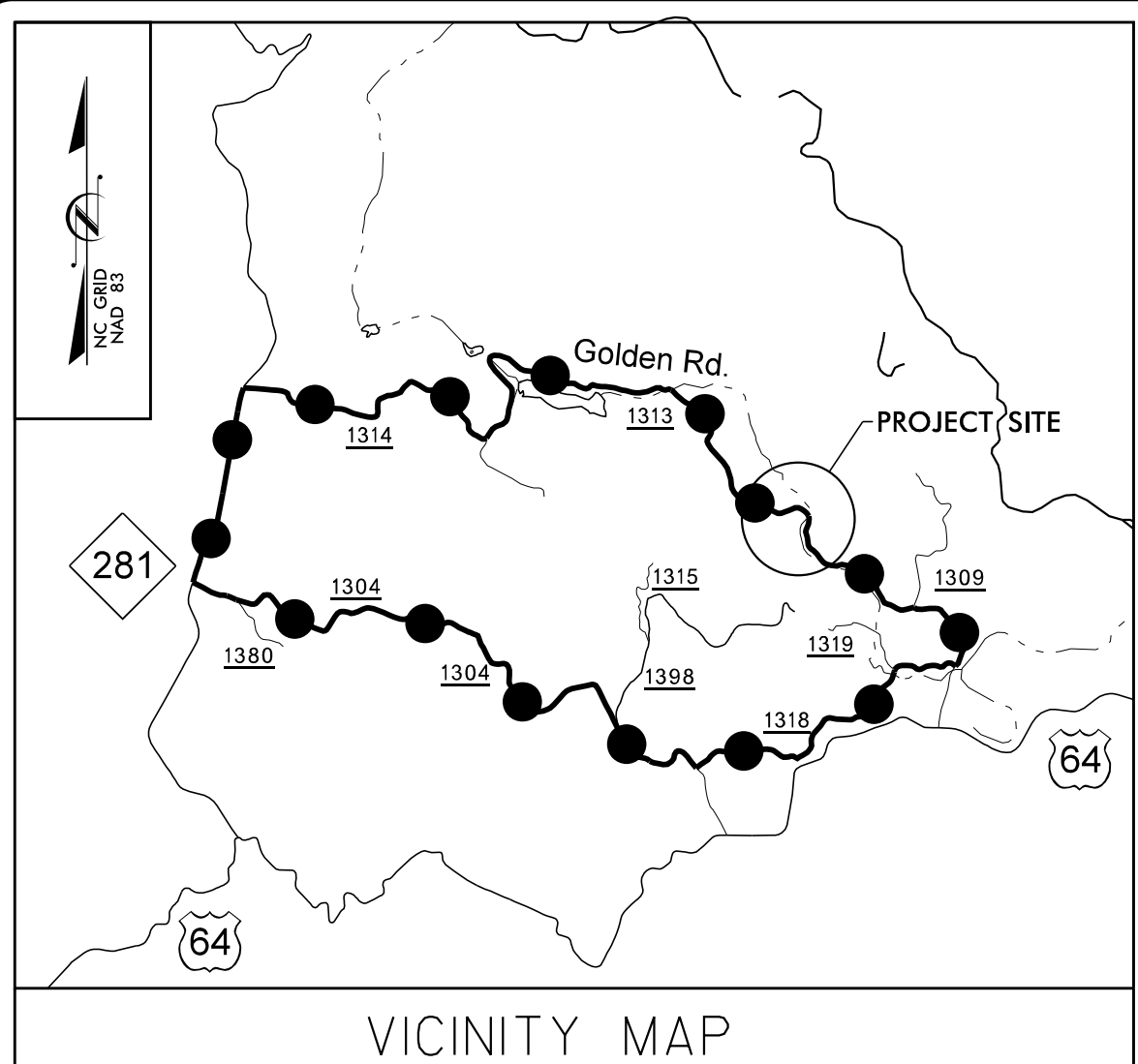
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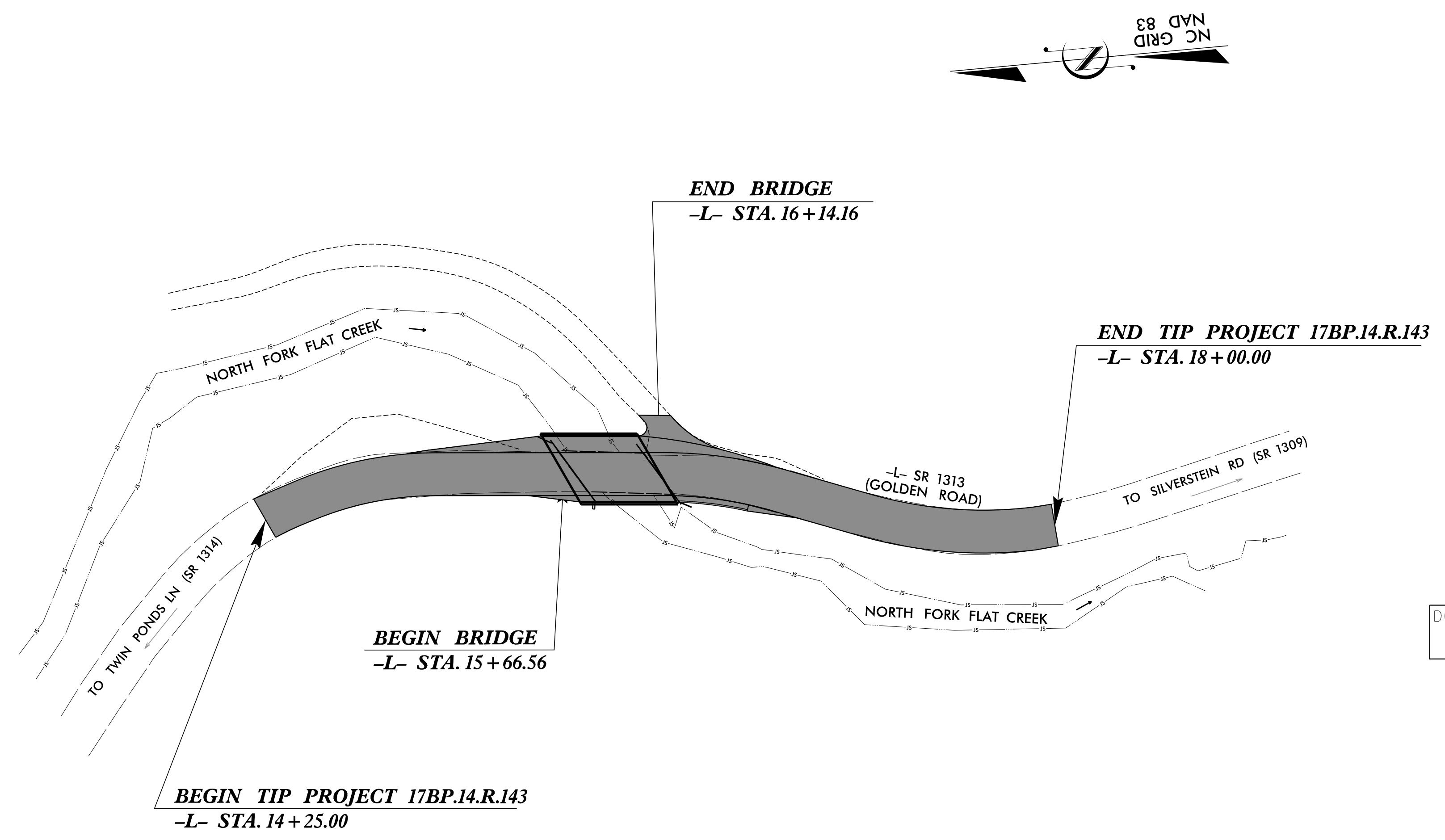
CONTRACT: DN00123 TIP NO: 17BP.14.R.143

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.143	0	17
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45360.1.36	BRZ-1313(5)	P.E.	
45360.1.36	BRZ-1313(5)	RW & UTIL.	
17BP.14.R.143		CONST.	

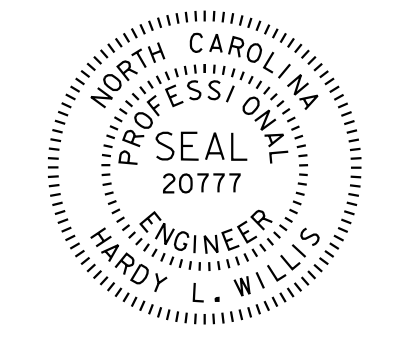


STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
TRANSYLVANIA COUNTY

**LOCATION: BRIDGE NO. 064 OVER NORTH FORK FLAT CREEK
 ON SR 1313 (GOLDEN ROAD)**



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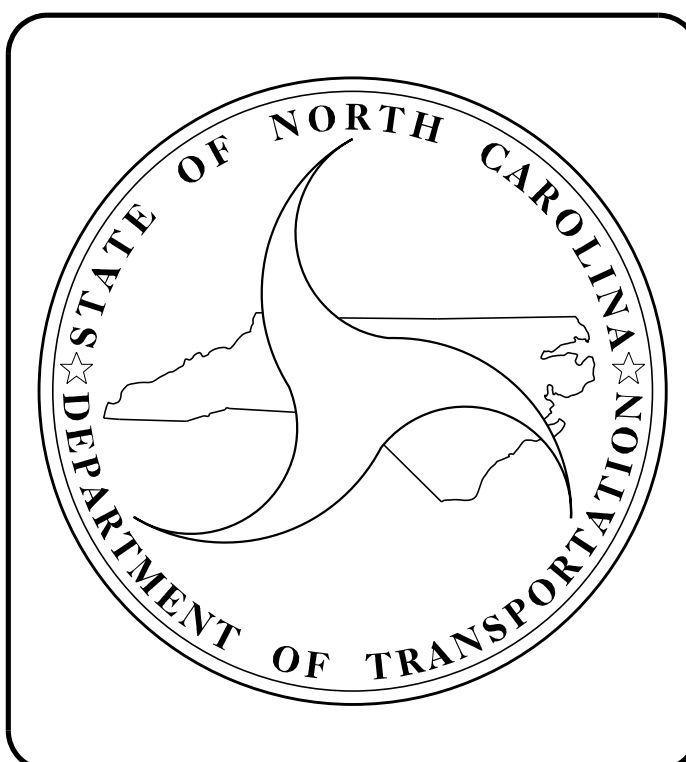
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Raleigh, NC Charlotte, NC
 919-977-9455 704-357-0488

Boone, NC 828-355-9933
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DESIGN DATA

ADT 2010 = 290
 ADT 2025 = 580

T = 6 %
 V = 20 MPH

FUNC CLASS = LOCAL
 SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT 17BP.14.R.143 = 0.062 MI.
 LENGTH STRUCTURE TIP PROJECT 17BP.14.R.143 = 0.009 MI.
 TOTAL LENGTH OF TIP PROJECT 17BP.14.R.143 = 0.071 MI.

Prepared in the Office of:
VAUGHN & MELTON
 1318-F PATTON AVE.
 ASHEVILLE, NC, 28806
 FOR THE NORTH CAROLINA DIVISION OF HIGHWAYS

2012 STANDARD SPECIFICATIONS

LETTING DATE :

HARDY WILLIS, PE
 PROJECT ENGINEER

CHRISTOPHER CORDELL, EI
 PROJECT DESIGN ENGINEER

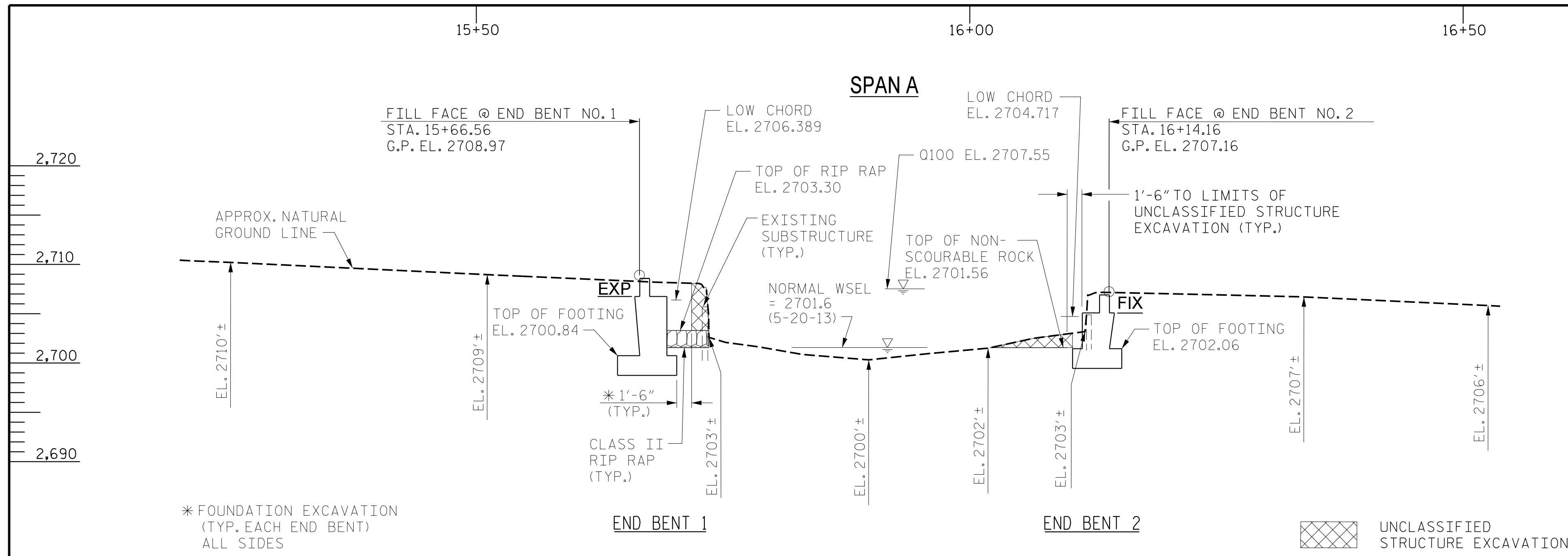
STRUCTURES MANAGEMENT UNIT
 1000 BIRCH RIDGE DR.
 RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

JOSH DEYTON P.E.
 STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED DIVISION ADMINISTRATOR DATE



SECTION ALONG C/L SURVEY -L-
SECTIONS ALONG END BENTS ARE AT RIGHT ANGLES.

VERTICAL GRADE DATA -L-

PI = 14+60.00
EL = 2,713.02'
VC = 60'

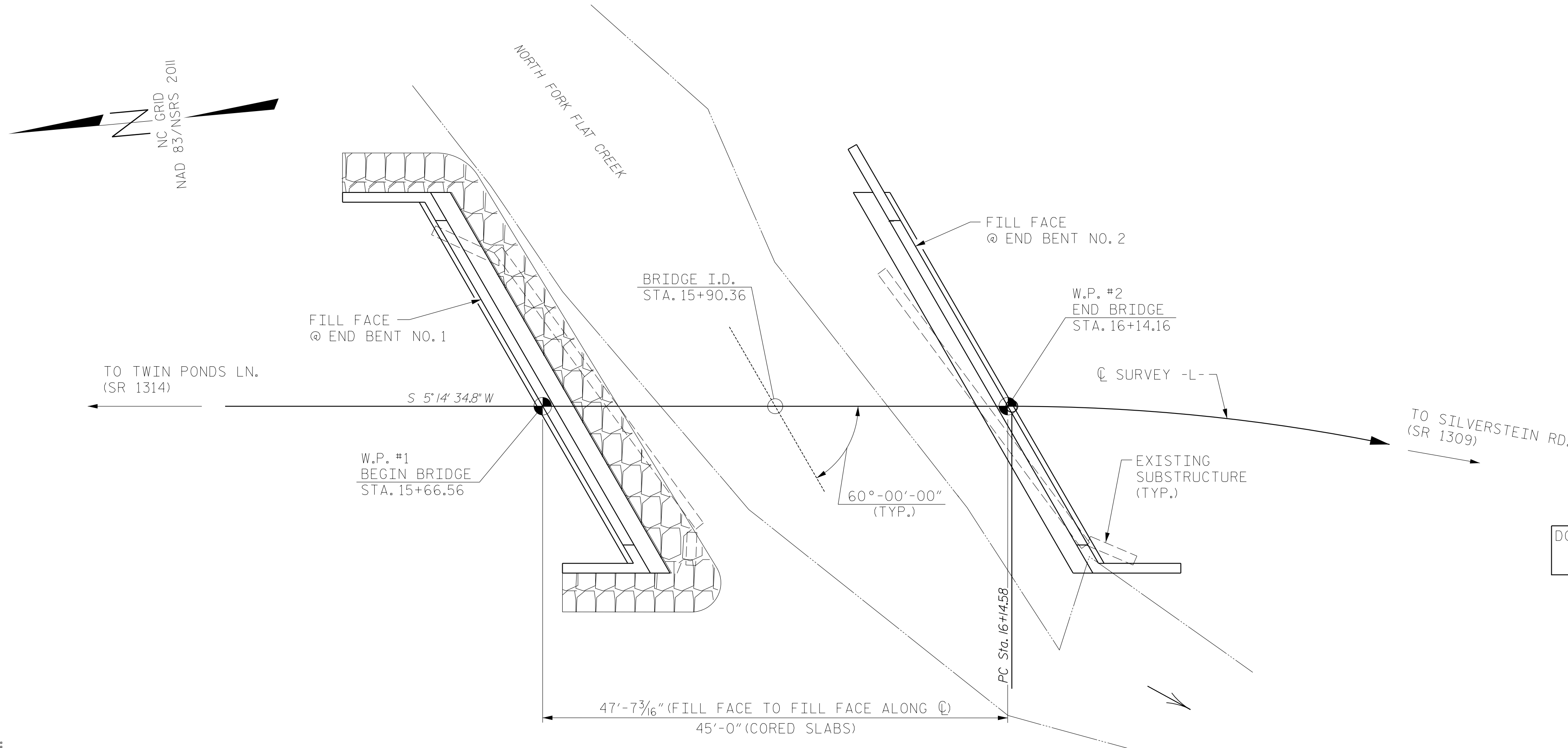
PI = 16+85.00
EL = 2,704.47'
VC = 60'

* FOUNDATION EXCAVATION
(TYP. EACH END BENT)
ALL SIDES

UNCLASSIFIED
STRUCTURE EXCAVATION

PI Sta 16+41.74
Δ = 16° 00' 25.2" (RT)
D = 29° 39' 30.5"
L = 53.97'
T = 27.16'
R = 193.19'

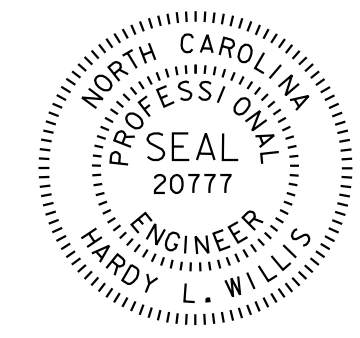
HORIZONTAL CURVE DATA -L-



PLAN ALONG C/L SURVEY -L-

NOTES:
END BENTS ARE PARALLEL.
CORED SLABS PARALLEL TO TANGENT SECTION OF Q SURVEY -L-.
FOOTINGS NOT SHOWN IN PLAN VIEW FOR CLARITY.

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PROJECT NO. 17BP.14.R.143
TRANSYLVANIA COUNTY
STATION: 15+90.36 -L-
SHEET 1 OF 3 REPLACES BRIDGE NO. 64

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BRIDGE on SR 1313 (GOLDEN ROAD)
over NORTH FORK FLAT CREEK
Between SR 1314 and SR 1309

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1		3/2015	3			TOTAL SHEETS
2		3/2015	4			17

DWN. BY: RWW
CHKD. BY: HLW
DES. EGR. OF RECORD: CBC

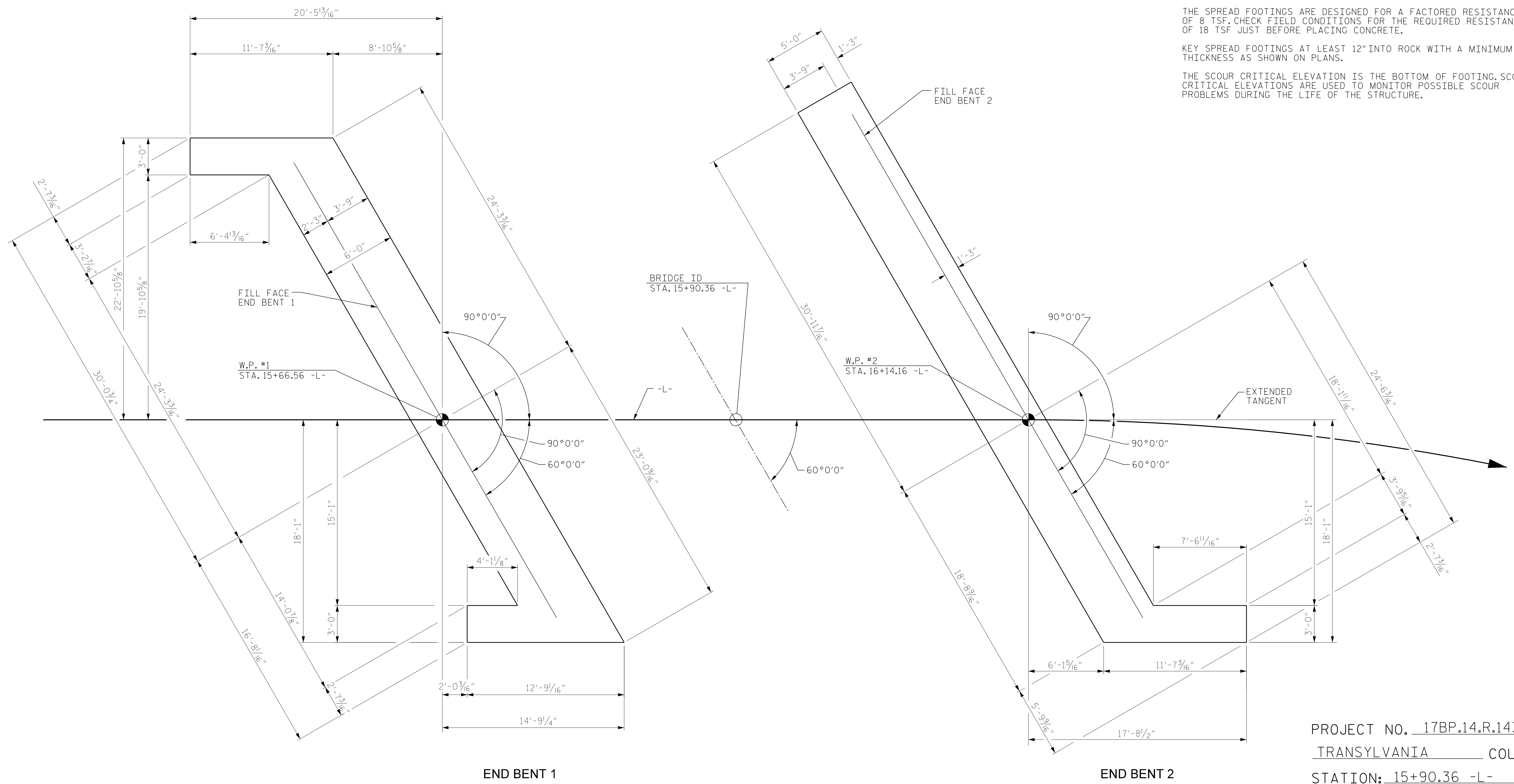
DATE: 3/2015
DATE: 3/2015
DATE: 3/2015

FOUNDATION NOTES:

THE SPREAD FOOTINGS ARE DESIGNED FOR A FACTORED RESISTANCE OF 8 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 18 TSF JUST BEFORE PLACING CONCRETE.

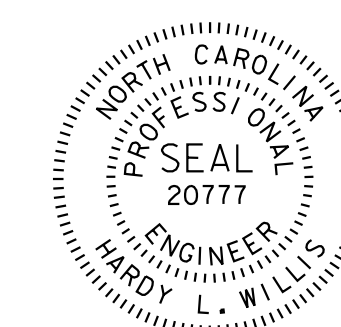
KEY SPREAD FOOTINGS AT LEAST 12" INTO ROCK WITH A MINIMUM THICKNESS AS SHOWN ON PLANS.

THE SCOUR CRITICAL ELEVATION IS THE BOTTOM OF FOOTING. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.



FOUNDATION LAYOUT

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PROJECT NO. 17BP.14.R.143
TRANSYLVANIA COUNTY
STATION: 15+90.36 -L-
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

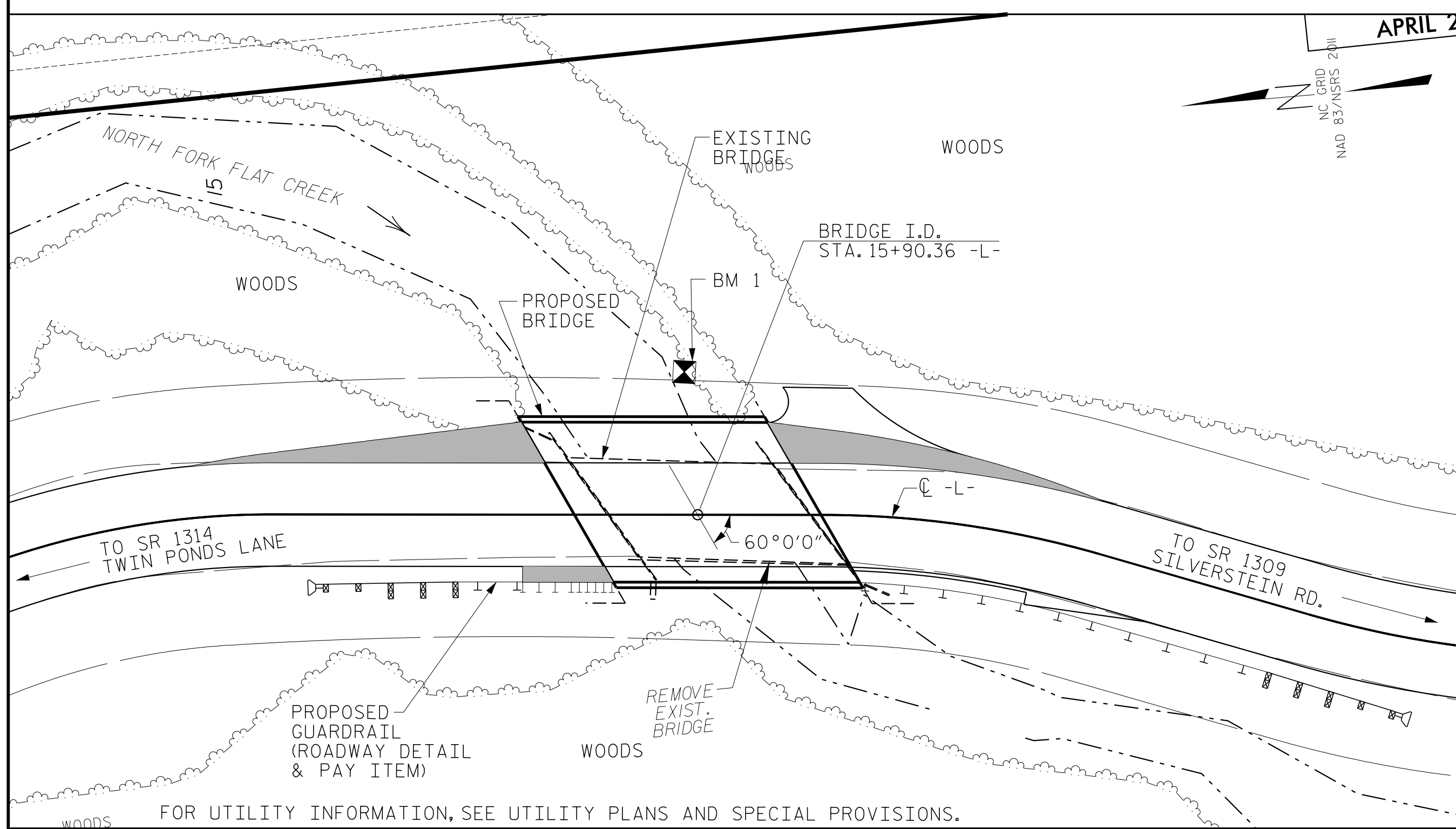
FOUNDATION LAYOUT
BRIDGE on SR 1313 (GOLDEN ROAD)
over NORTH FORK FLAT CREEK
Between SR 1309 (SILVERSTEIN ROAD)
and SR 1314 (OAK GROVE, CH. RD.)

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2	
1		3/2015	3			TOTAL SHEETS	
2		3/2015	4			17	

DWN. BY: RWW
CHKD. BY: HLW
DES. EGR. OF RECORD: CBC

DATE: 3/2015
DATE: 3/2015
DATE: 3/2015

BM #1- N 531340.8, E 838334.9, STA. 15+87.7 -L-, 27.6' LT., ELEV. 2706.62, NAIL IN BASE OF 16" DOUBLE POPLAR



LOCATION SKETCH

GENERAL NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC PERFORMANCE ZONE 1.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THE EXISTING STRUCTURE, CONSISTING OF A SINGLE SPAN, 40.5 FOOT LONG TIMBER DECK ON STEEL I-BEAMS, AND A CLEAR ROADWAY WIDTH OF 19'-1", ON TIMBER CAPS AND PILES, AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED.

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

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

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

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.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 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.

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 15+90.36 -L-."

HYDRAULIC DATA

DESIGN DISCHARGE = 650 CFS
 DESIGN FREQUENCY = 25 YRS
 DESIGN HW ELEVATION = 2706.0 FT
 BASE DISCHARGE = 900 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 2707.55 FT

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 900 CFS
 OVERTOPPING FREQUENCY = 100 (±) YRS
 OVERTOPPING ELEVATION = 2707.6 FT
 DRAINAGE AREA = 1.92 SQ. MI.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	FOUNDATION EXCAVATION FOR END BENT	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	REINFORCING STEEL	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT	ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES	
	LUMP SUM	LUMP SUM	LUMP SUM	CU. YARDS	LBS.	LIN. FT.	TONS	SQ. YARDS	LUMP SUM	NO.	LIN. FT.	LUMP SUM
SUPERSTRUCTURE						90.29			LUMP SUM	11	495	LUMP SUM
END BENT 1		LUMP SUM	LUMP SUM	61.5	3,551		32	36				
END BENT 2		LUMP SUM	LUMP SUM	41.4	2,755							
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	102.9	6,306	90.29	32	36	LUMP SUM	11	495	LUMP SUM

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PROJECT NO. 17BP.14.R.143
 TRANSYLVANIA COUNTY
 STATION: 15+90.36 -L-

SHEET 3 OF 3



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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE on SR 1313
 (GOLDEN ROAD)
 over NORTH FORK FLAT CREEK
 Between SR 1314 and SR 1309

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

DWN. BY: RWV DATE: 3/2015
 CHKD. BY: HLW DATE: 3/2015
 ENG. OF REC.: CBC DATE: 3/2015

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	1.205	--	1.75	0.2263	1.830	45'	EL	21.923	0.6926	1.205	45'	EL	1.6	0.80	0.2263	2.191	45'	EL	21.923		
	HL-93(0pr)	N/A	--	1.562	--	1.35	0.2263	2.372	45'	EL	21.923	0.6926	1.562	45'	EL	1.6	N/A	0.2263	--	--	--	--		
	HS-20(Inv)	36.000	2	1.423	51.222	1.75	0.2263	2.249	45'	EL	21.923	0.6926	1.423	45'	EL	1.6	0.80	0.2263	2.687	45'	EL	21.923		
	HS-20(0pr)	36.000	--	1.844	66.399	1.35	0.2263	2.915	45'	EL	21.923	0.6926	1.844	45'	EL	1.6	N/A	0.2263	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.937	53.143	1.4	0.2263	5.444	45'	EL	21.923	0.6926	3.937	45'	EL	1.6	0.80	0.2263	5.244	45'	EL	21.923	
		SNGARBS2	20.000	--	2.885	57.701	1.4	0.2263	4.434	45'	EL	21.923	0.6926	2.885	45'	EL	1.6	0.80	0.2263	4.236	45'	EL	21.923	
		SNAGRIS2	22.000	--	2.717	59.772	1.4	0.2263	4.344	45'	EL	17.538	0.6926	2.717	45'	EL	1.6	0.80	0.2263	4.173	45'	EL	21.923	
		SNCOTTS3	27.250	--	1.973	53.754	1.4	0.2263	2.739	45'	EL	21.923	0.6926	1.973	45'	EL	1.6	0.80	0.2263	2.618	45'	EL	21.923	
		SNAGGRS4	34.925	--	1.703	59.488	1.4	0.2263	2.416	45'	EL	21.923	0.6926	1.703	45'	EL	1.6	0.80	0.2263	2.313	45'	EL	21.923	
		SNS5A	35.550	--	1.761	62.599	1.4	0.2263	2.350	45'	EL	21.923	0.6926	1.761	45'	EL	1.6	0.80	0.2263	2.252	45'	EL	21.923	
		SNS6A	39.950	--	1.649	65.893	1.4	0.2263	2.228	45'	EL	21.923	0.6926	1.649	45'	EL	1.6	0.80	0.2263	2.136	45'	EL	21.923	
	SNS7B	42.000	--	1.643	69.017	1.4	0.2263	2.108	45'	EL	21.923	0.6926	1.643	45'	EL	1.6	0.80	0.2263	2.024	45'	EL	21.923		
	TTST	TNAGRIT3	33.000	--	1.921	63.403	1.4	0.2263	2.722	45'	EL	21.923	0.6926	1.921	45'	EL	1.6	0.80	0.2263	2.605	45'	EL	21.923	
		TNT4A	33.075	--	1.841	60.904	1.4	0.2263	2.739	45'	EL	21.923	0.6926	1.841	45'	EL	1.6	0.80	0.2263	2.633	45'	EL	21.923	
		TNT6A	41.600	--	1.789	74.436	1.4	0.2263	2.312	45'	EL	21.923	0.6926	1.789	45'	EL	1.6	0.80	0.2263	2.211	45'	EL	21.923	
		TNT7A	42.000	--	1.656	69.533	1.4	0.2263	2.350	45'	EL	21.923	0.6926	1.656	45'	EL	1.6	0.80	0.2263	2.254	45'	EL	21.923	
		TNT7B	42.000	--	1.376	66.192	1.4	0.2263	2.443	45'	EL	21.923	0.6926	1.576	45'	EL	1.6	0.80	0.2263	2.346	45'	EL	21.923	
		TNAGRIT4	43.000	--	1.517	65.215	1.4	0.2263	2.337	45'	EL	21.923	0.6926	1.517	45'	EL	1.6	0.80	0.2263	2.234	45'	EL	21.923	
TNAGT5A		45.000	--	1.551	69.802	1.4	0.2263	2.172	45'	EL	21.923	0.6926	1.551	45'	EL	1.6	0.80	0.2263	2.080	45'	EL	21.923		
TNAGT5B	45.000	3	1.438	64.703	1.4	0.2263	2.118	45'	EL	21.923	0.6926	1.438	45'	EL	1.6	0.80	0.2263	2.030	45'	EL	21.923			

LOAD FACTORS:

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

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY
FOR SPAN A

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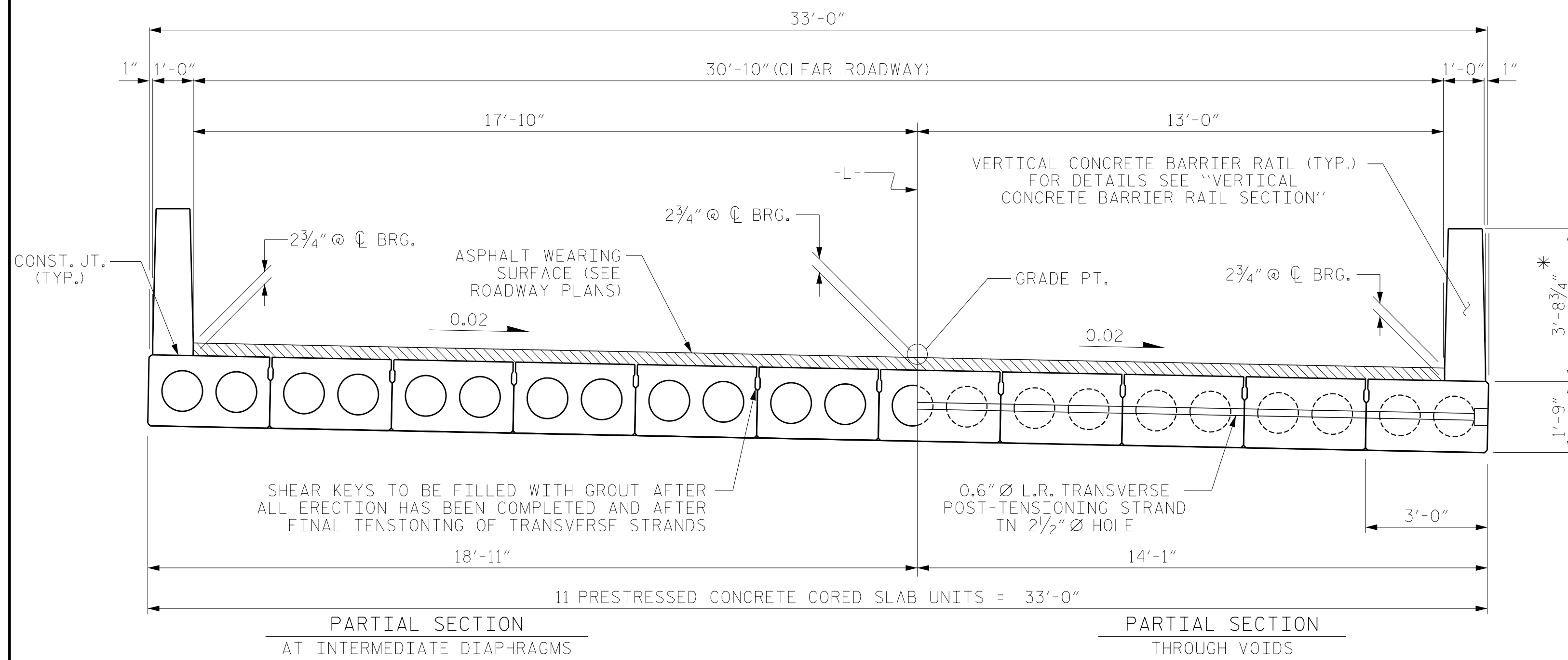
PROJECT NO. 17BP.14.R.143
TRANSYLVANIA COUNTY
STATION: 15+90.36 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LRFR SUMMARY FOR
45' CORED SLAB UNIT
60° SKEW SKEW
(NON-INTERSTATE TRAFFIC)

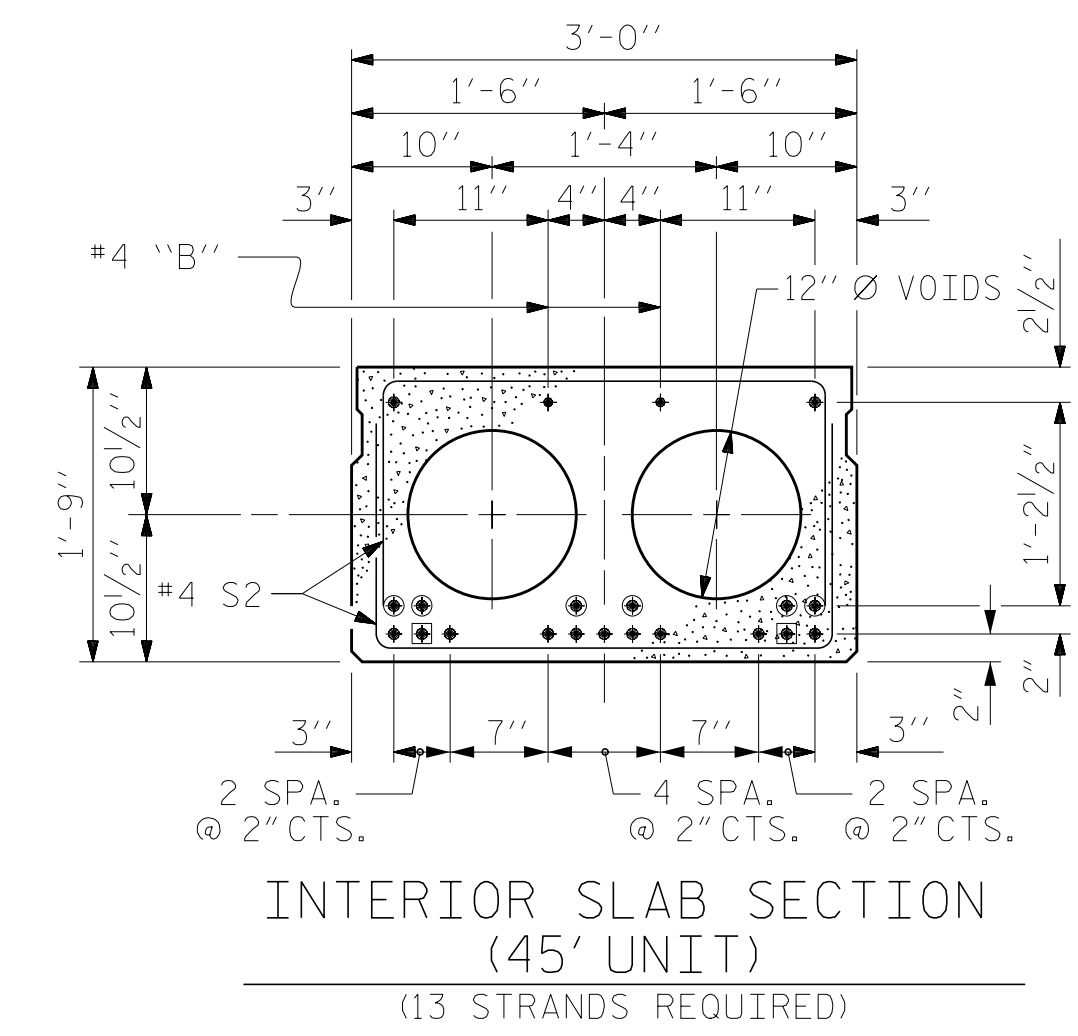
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			17

ASSEMBLED BY : RWW DATE : 3/2015
CHECKED BY : HLW DATE : 3/2015
DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

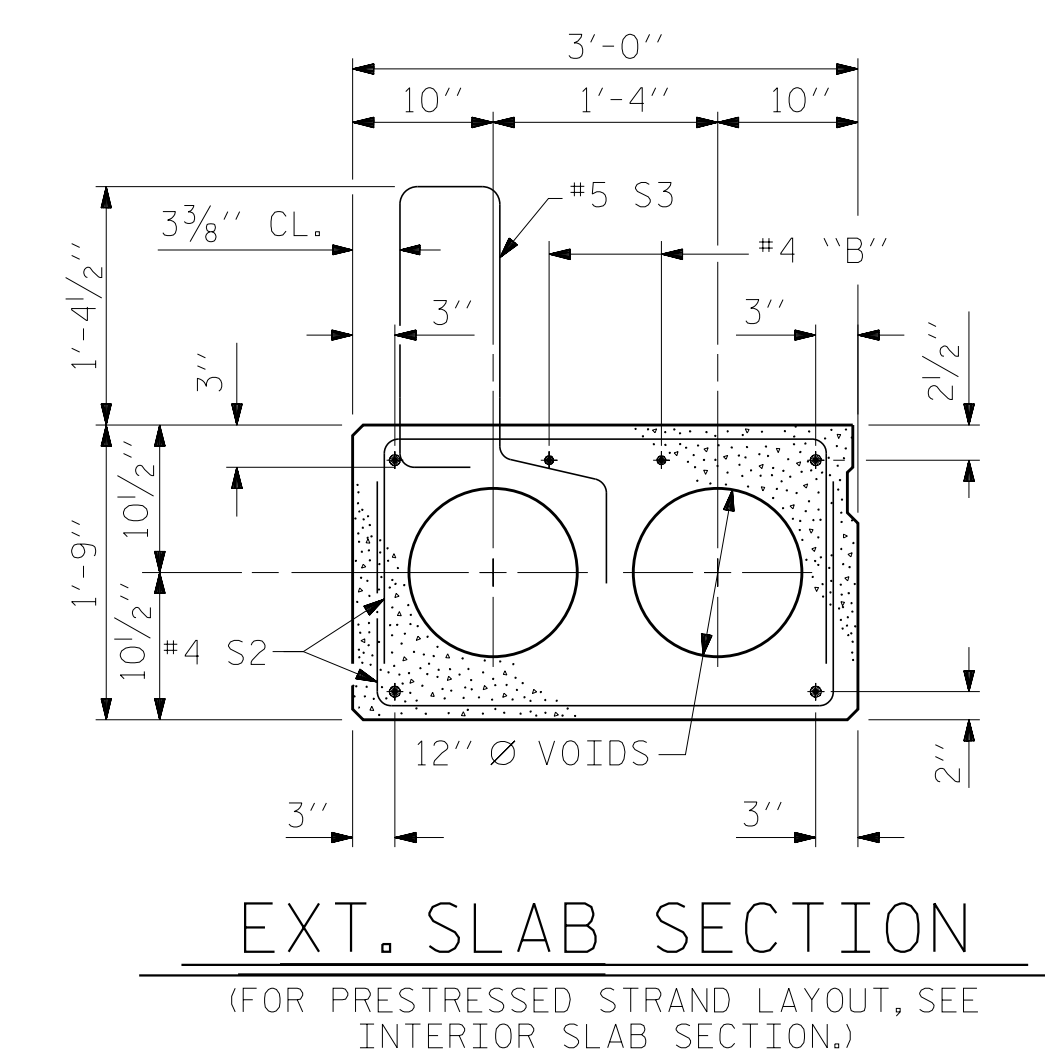


TYPICAL SECTION

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

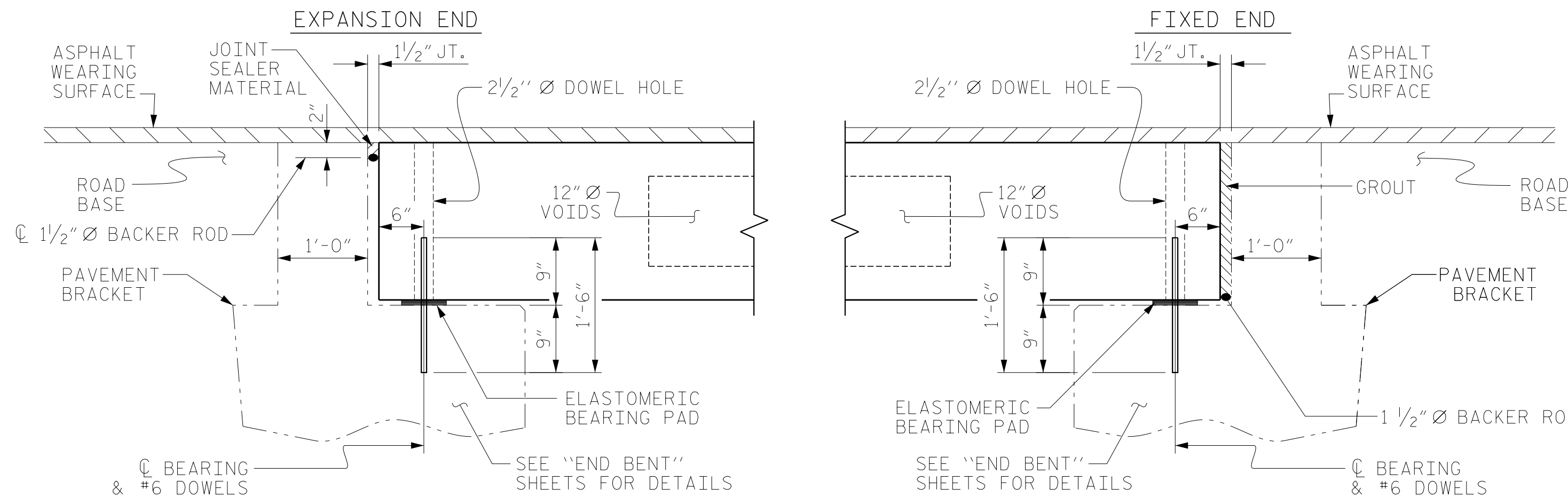


0.6" Ø LOW RELAXATION STRAND LAYOUT

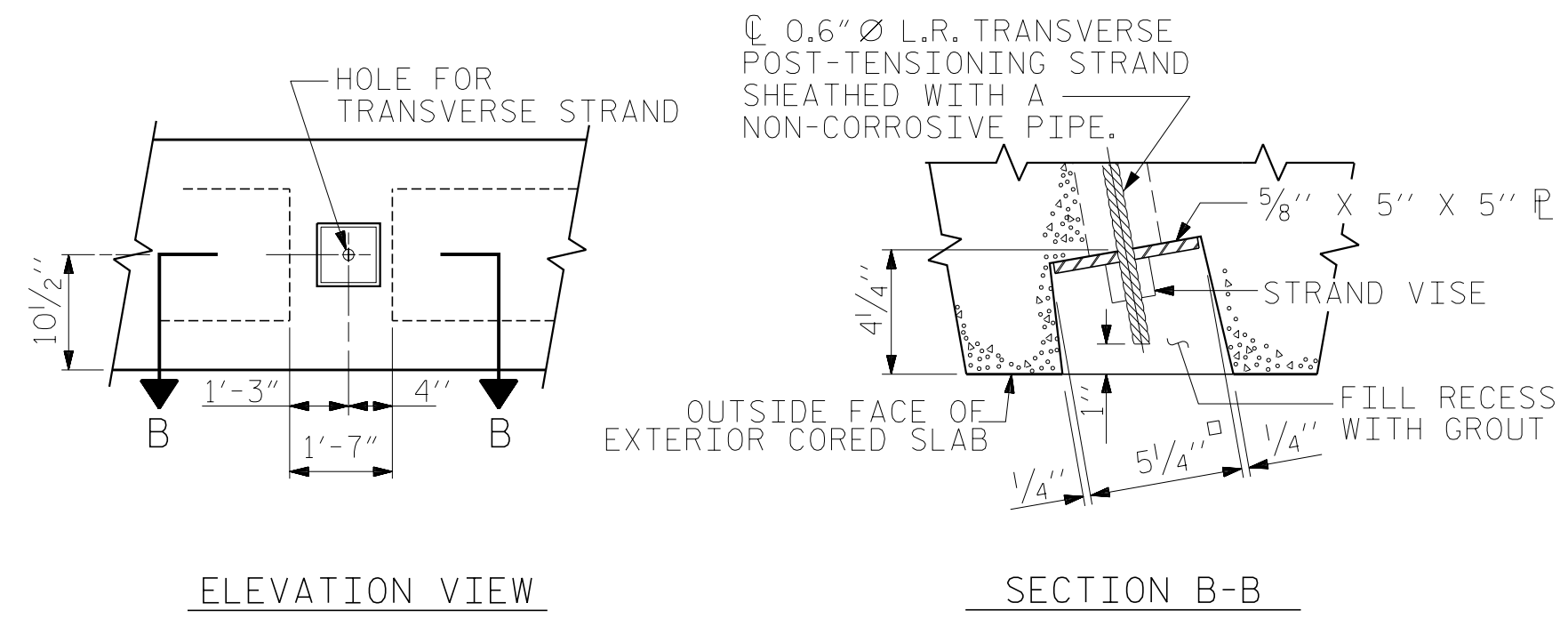
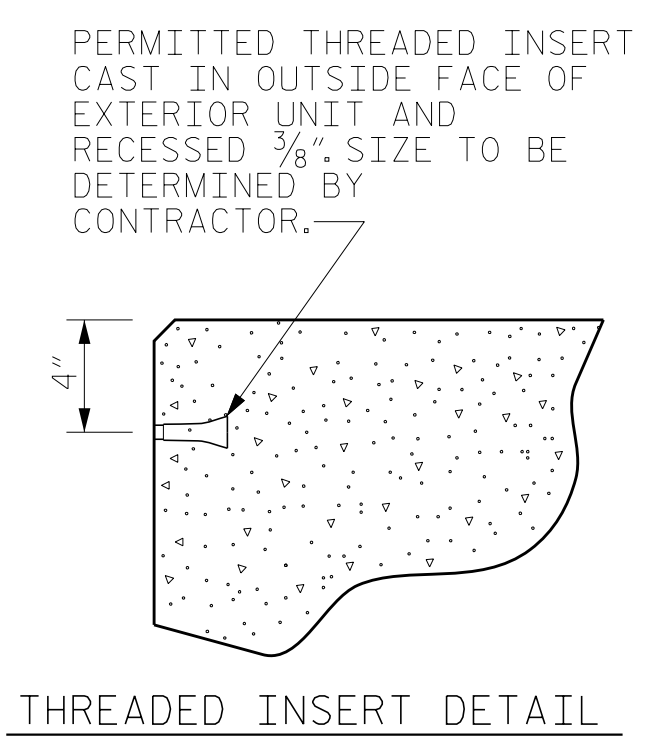


- ▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- ⊙ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

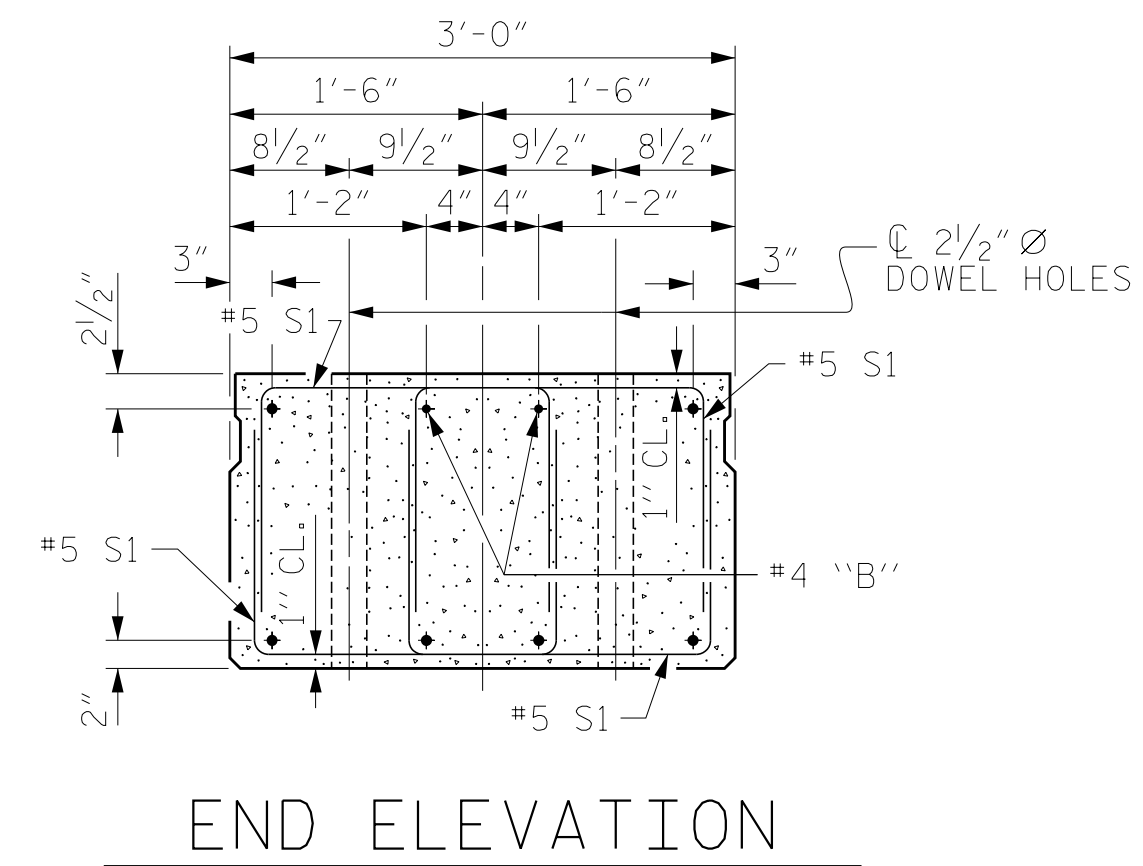
DEBONDING LEGEND



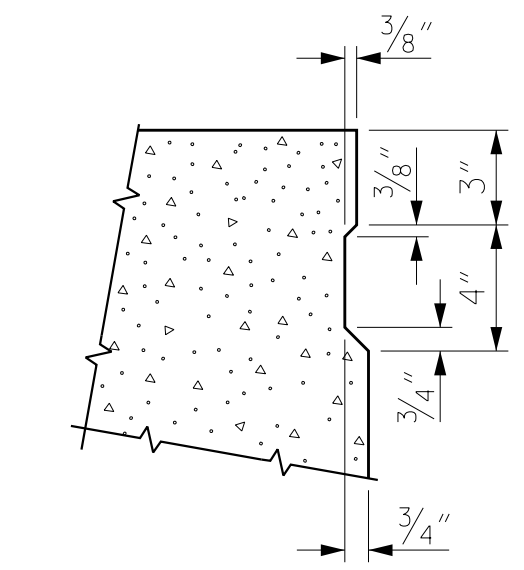
SECTION AT END BENT



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

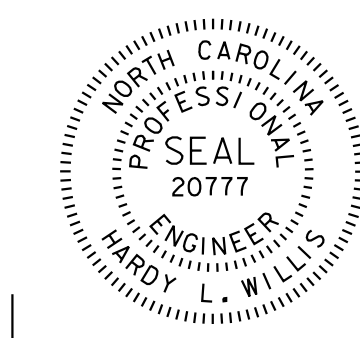


SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN). INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



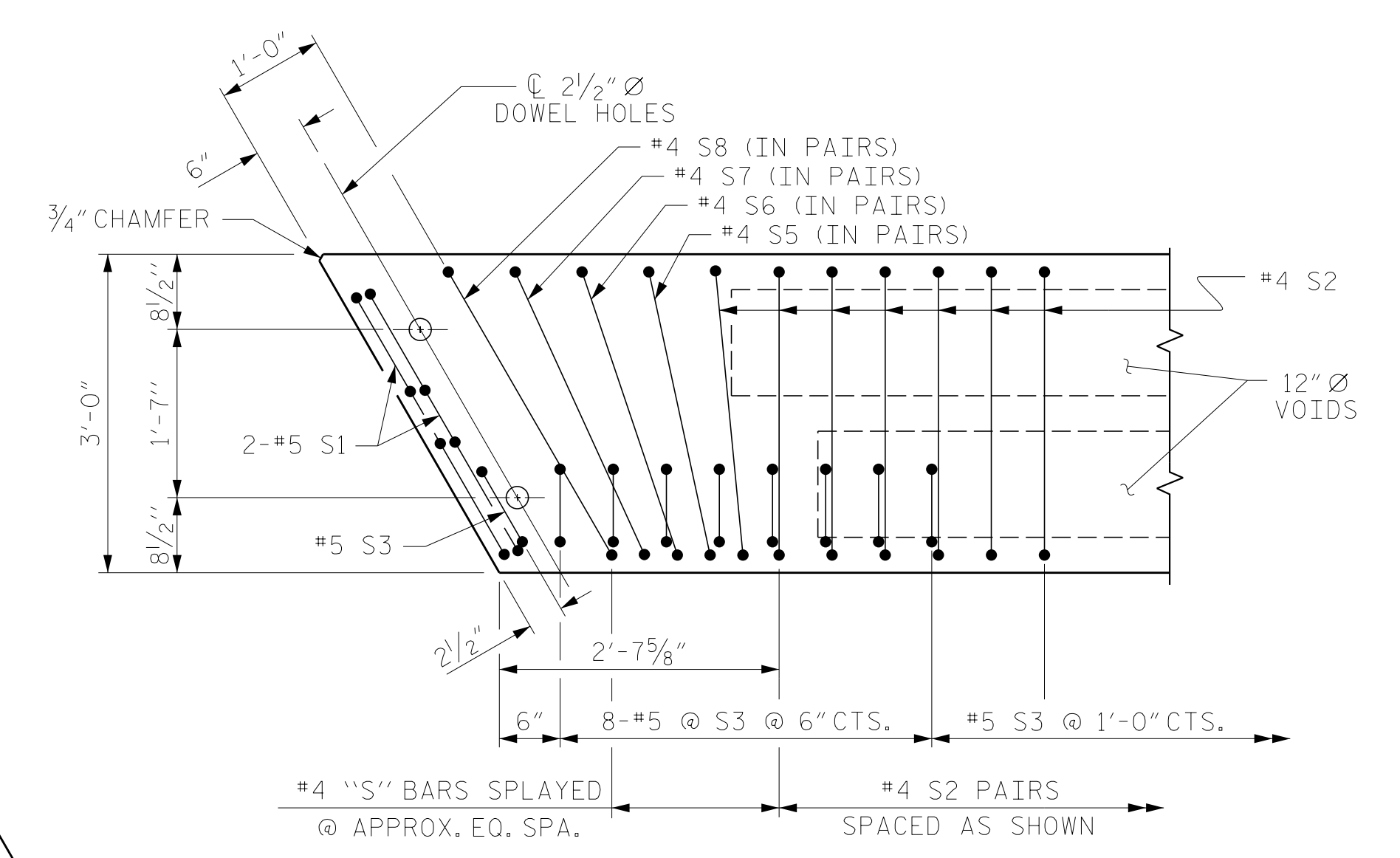
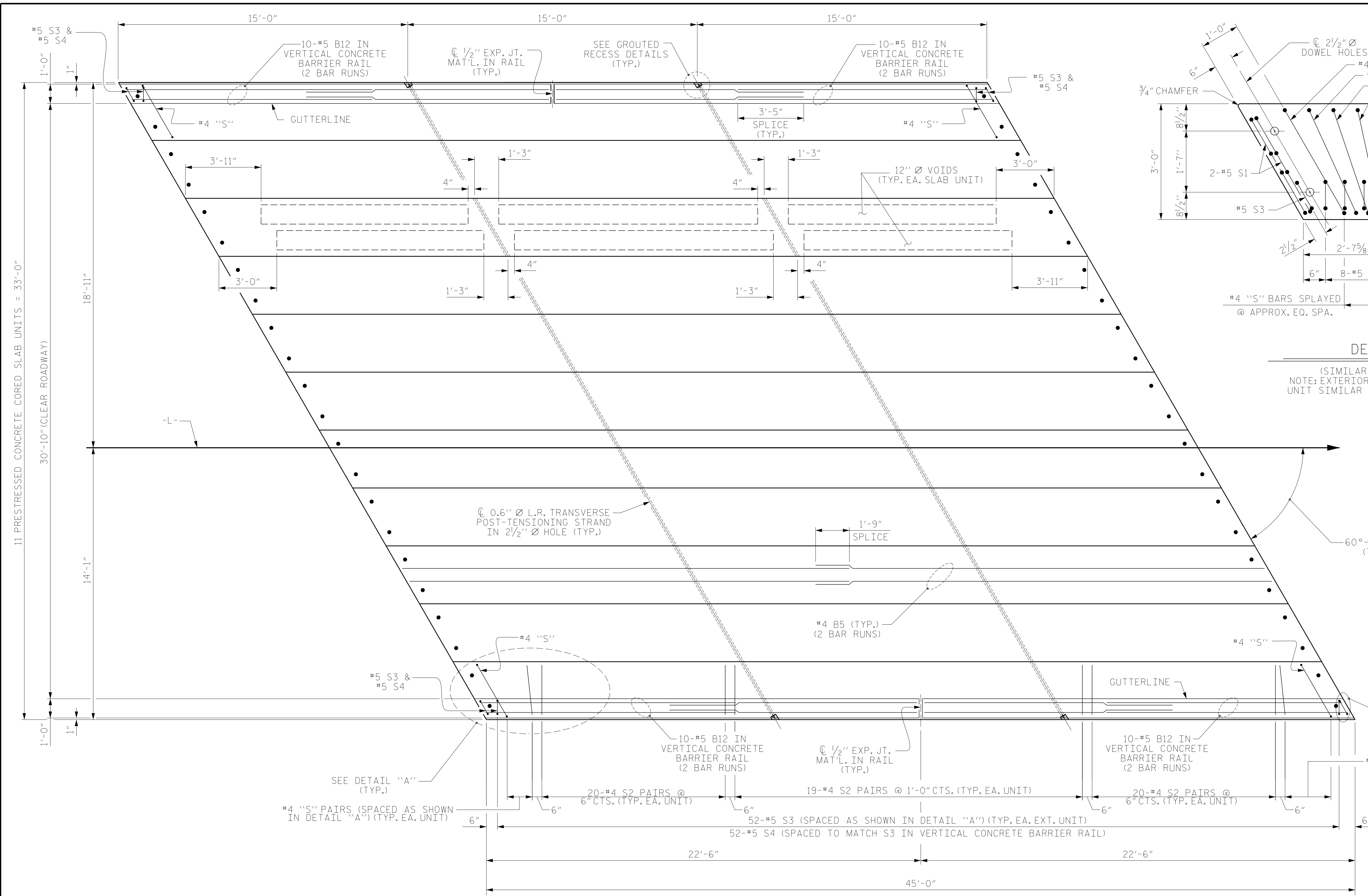
PROJECT NO. 17BP.14.R.143
 TRANSYLVANIA COUNTY
 STATION: 15+90.36 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 60° SKEW

DES. EGR. OF RECORD: CBC
 DRAWN BY: RWW DATE: 3/2015
 CHECKED BY: HLW DATE: 3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			17



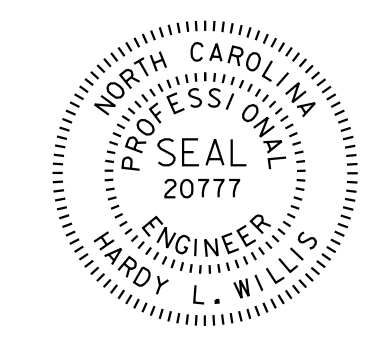
DETAIL "A"
 (SIMILAR EACH END OF UNIT)
 NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF UNIT

PROJECT NO. 17BP.14.R.143
TRANSYLVANIA COUNTY
 STATION: 15+90.36 -L-

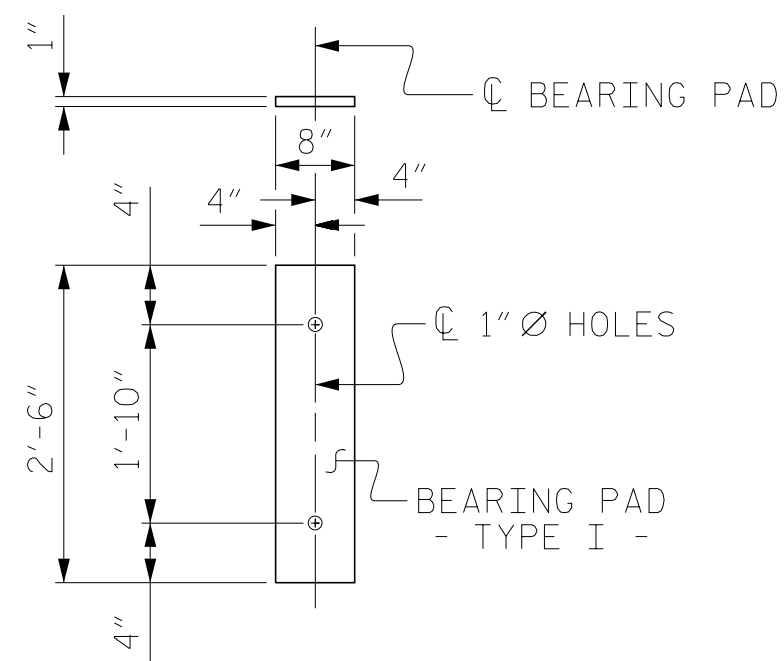
SHEET 2 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN OF 45' UNIT
 30'-10" CLEAR ROADWAY
 60° SKEW

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED



DES. EGR. OF RECORD: CBC
 DRAWN BY : RWW DATE : 3/2015
 CHECKED BY : HLW DATE : 3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			17



FIXED END
(TYPE I - 22 REQ'D)

ELASTOMERIC BEARING DETAILS

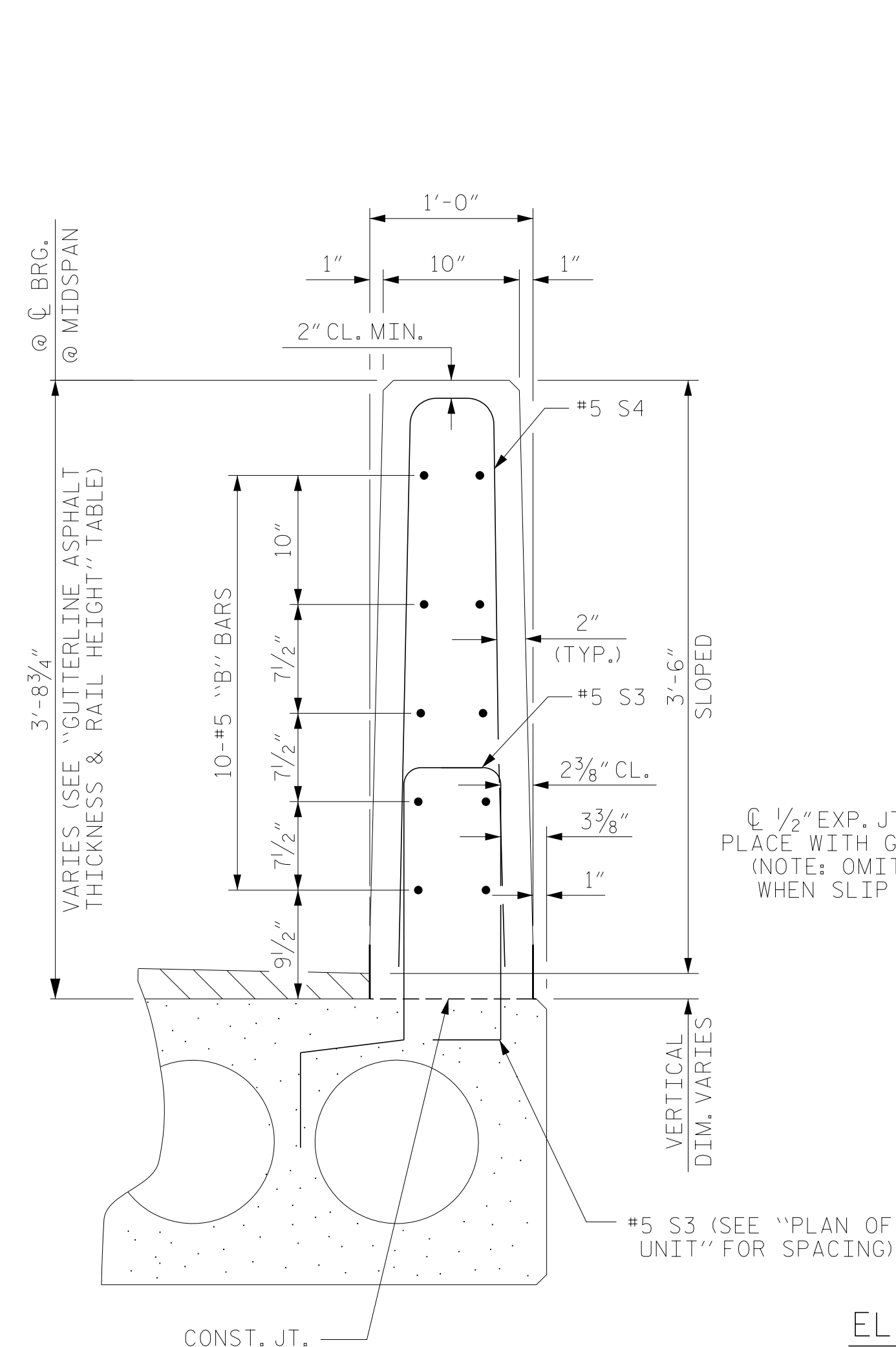
ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	45' UNIT					
*B12	80	80	#5	STR	13'-0"	1085
*S4	108	108	#5	2	7'-2"	807
* EPOXY COATED REINFORCING STEEL			LBS.			1892
CLASS AA CONCRETE			CU.YDS.			11.5
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.			90.29

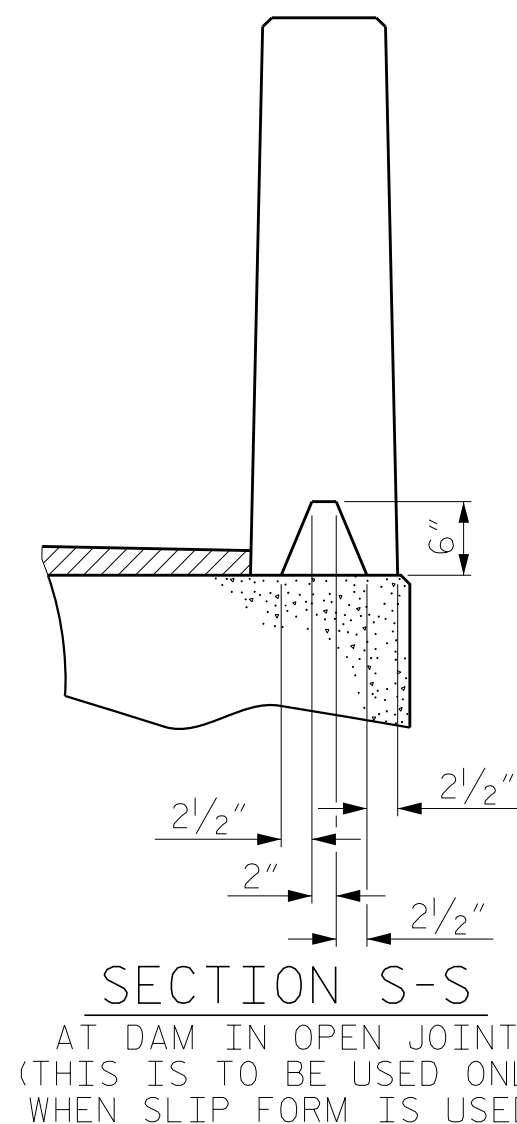
DEAD LOAD DEFLECTION AND CAMBER	
45' CORED SLAB UNIT	3'-0" x 1'-9"
	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	7/8" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/8" ↓
FINAL CAMBER	3/4" ↑

** INCLUDES FUTURE WEARING SURFACE

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
45' UNIT			
EXTERIOR C.S.	2	45'-0"	90'-0"
INTERIOR C.S.	9	45'-0"	405'-0"
TOTAL	11		495'-0"

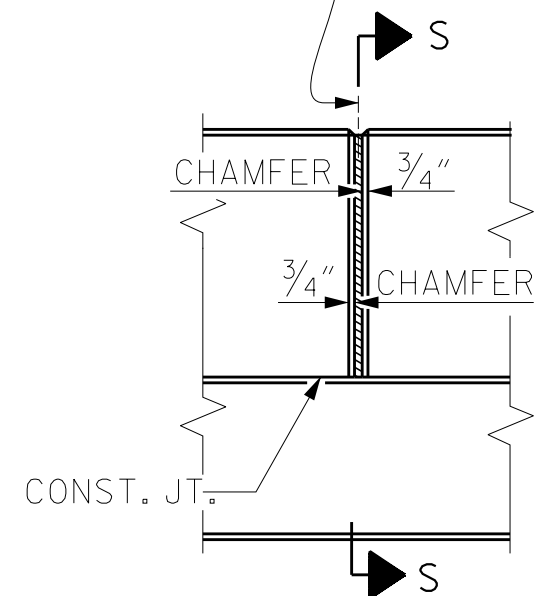


VERTICAL CONCRETE BARRIER RAIL SECTION

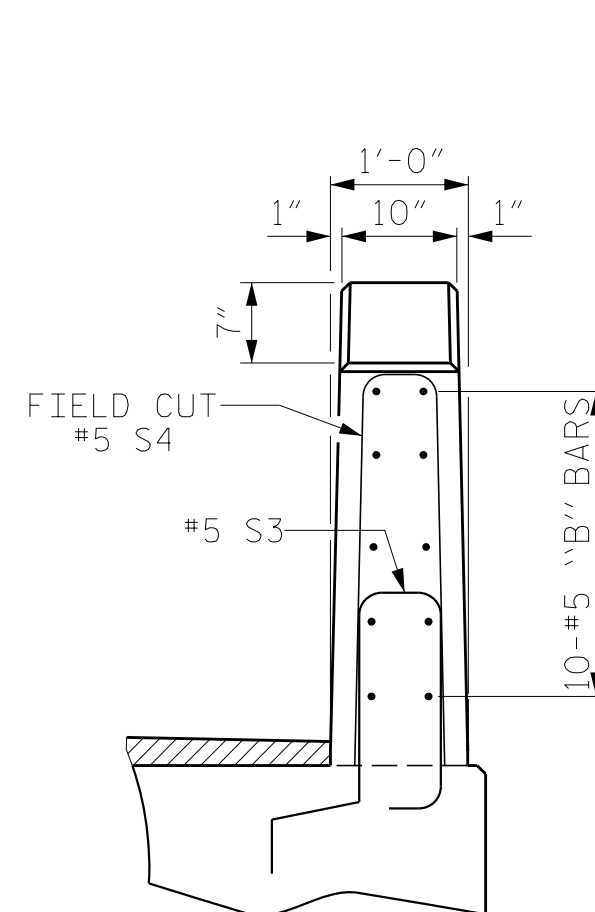


SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

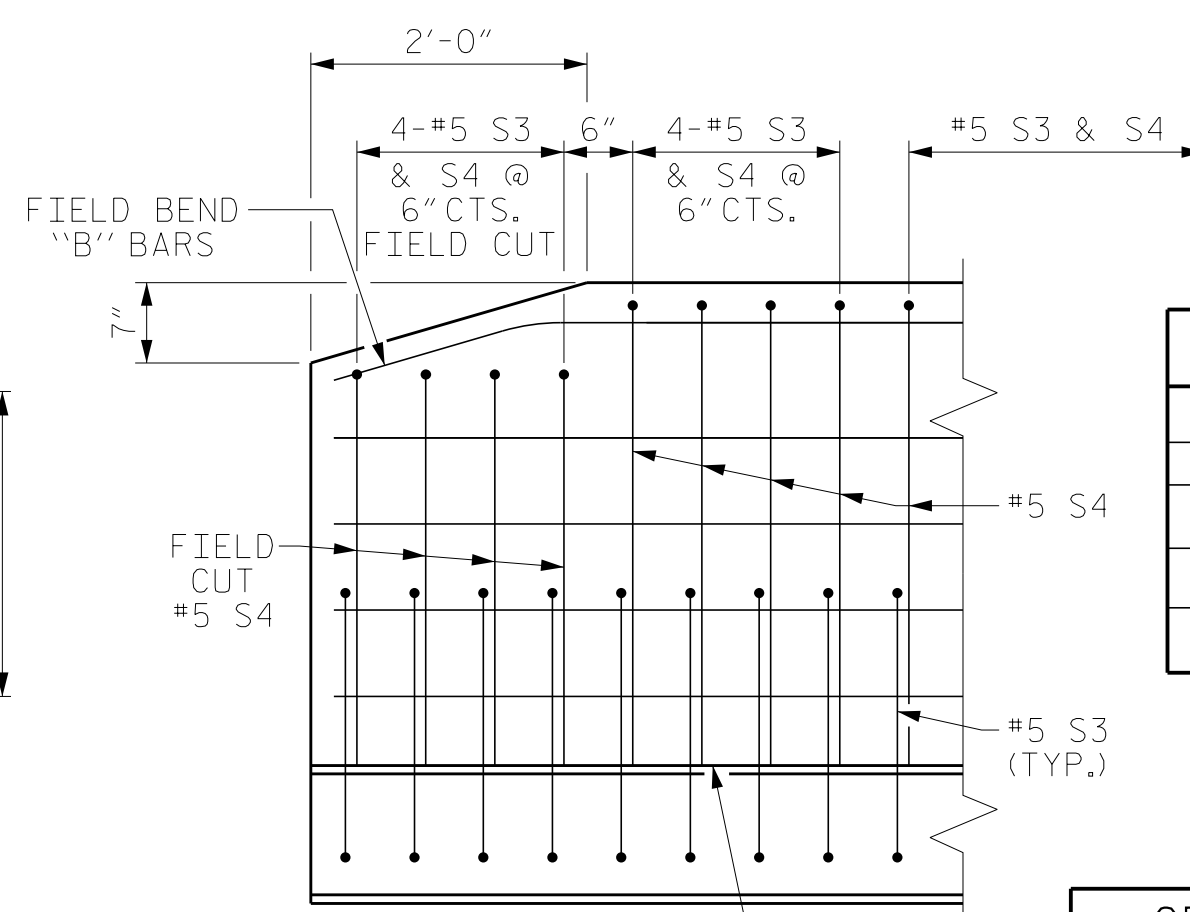
1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.
(NOTE: OMIT EXP. JT. MAT'L WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



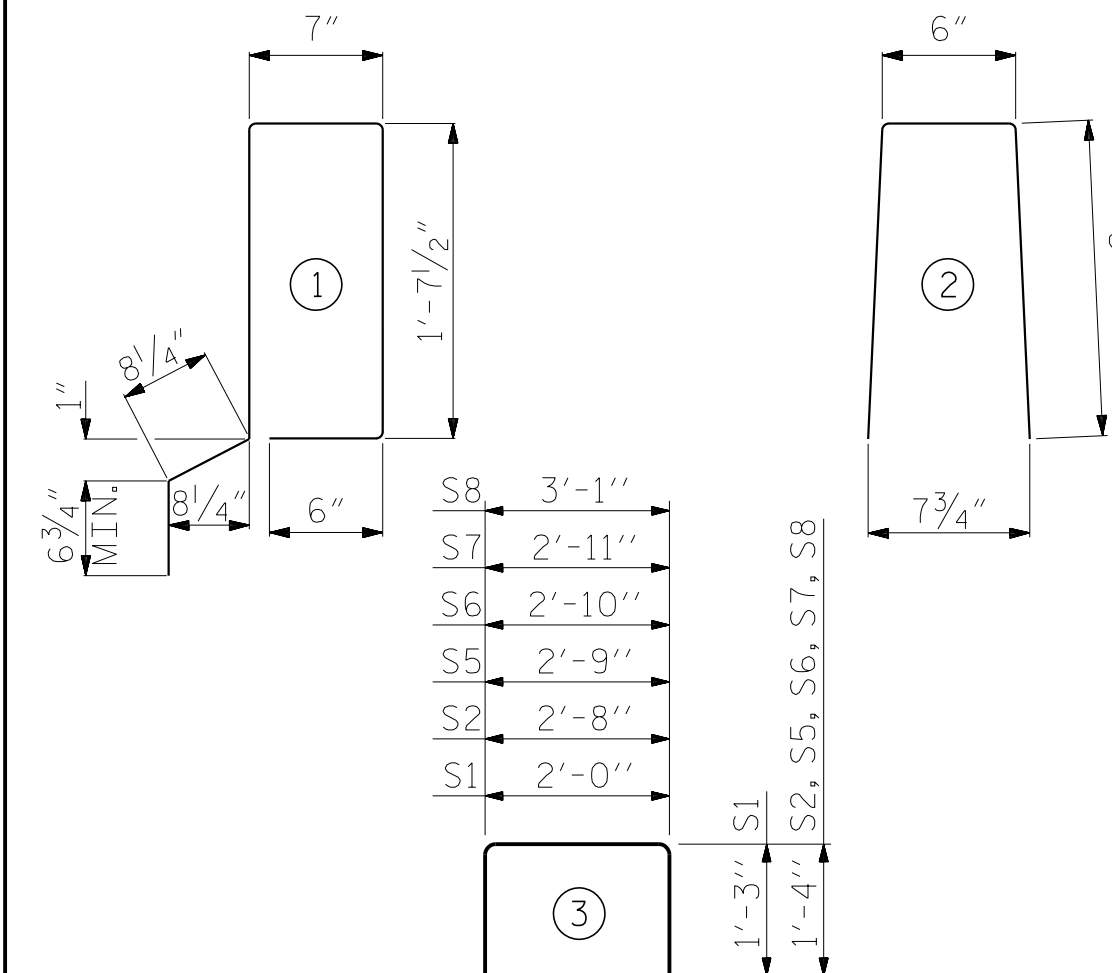
END VIEW



SIDE VIEW

END OF RAIL DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE 45' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B5	4	#4	STR	23'-3"	62	23'-3"	62
S1	8	#5	3	4'-6"	38	4'-6"	38
S2	122	#4	3	5'-4"	435	5'-4"	435
*S3	54	#5	1	5'-7"	314		
S5	4	#4	3	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-6"	15	5'-6"	15
S7	4	#4	3	5'-7"	15	5'-7"	15
S8	4	#4	3	5'-9"	15	5'-9"	15
REINFORCING STEEL				LBS.	594	594	
* EPOXY COATED REINFORCING STEEL				LBS.	314		
6500 P.S.I. CONCRETE				CU. YDS.	6.6	6.6	
0.6" Ø L.R. STRANDS				No.	13	13	

	GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT	
	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
45' UNITS	2"	3'-8"

CONCRETE RELEASE STRENGTH	
UNIT	PSI
45' UNITS	4000

GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

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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 2 1/2" Ø DOWEL HOLES AT EXPANSION ENDS OF SLAB SECTIONS SHALL BE FILLED WITH EXPANSION JOINT MATERIAL.

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 SIDWAYS. 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.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

PROJECT NO. 17BP.14.R.143
TRANSYLVANIA COUNTY

STATION: 15+90.36 -L-

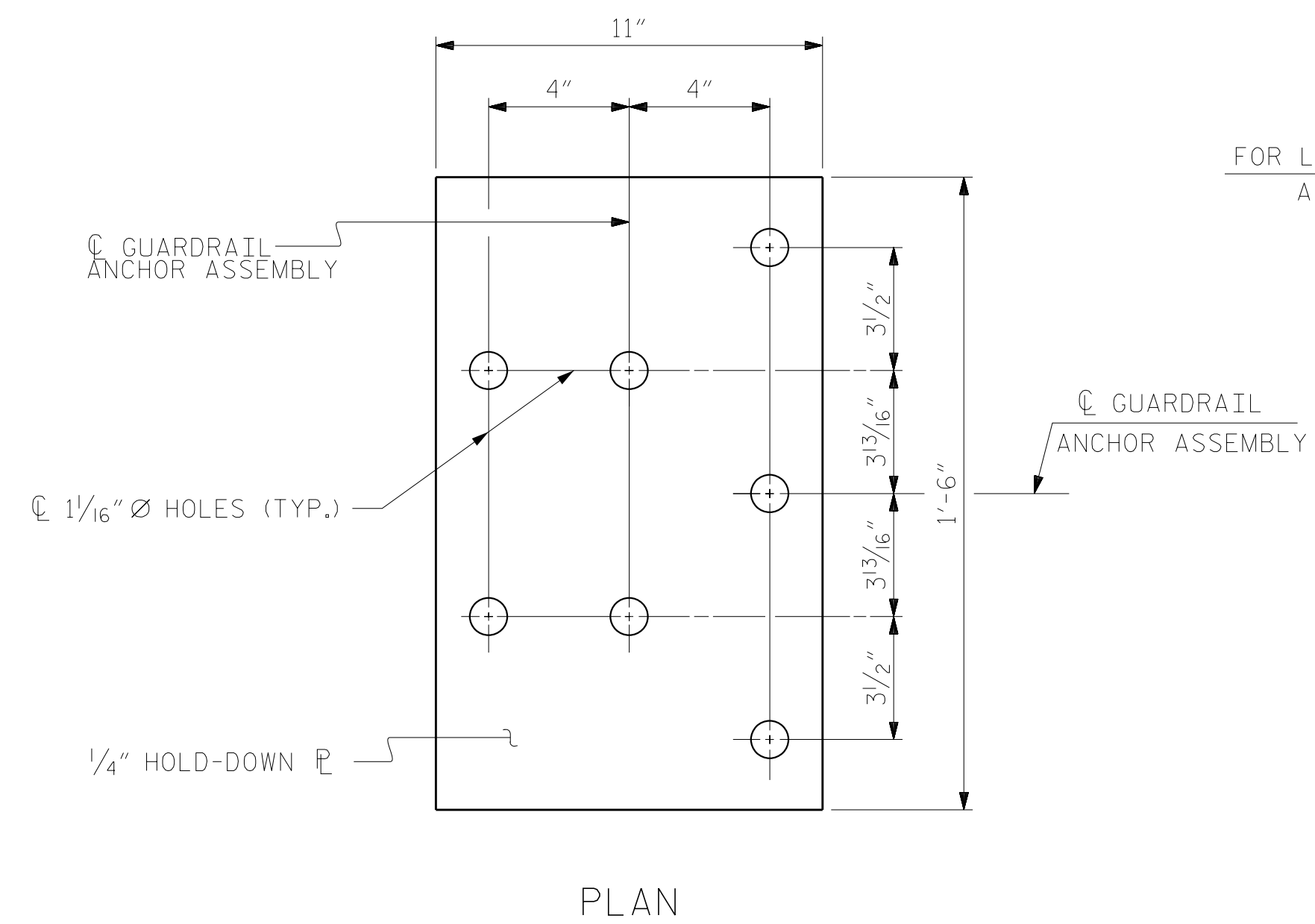
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

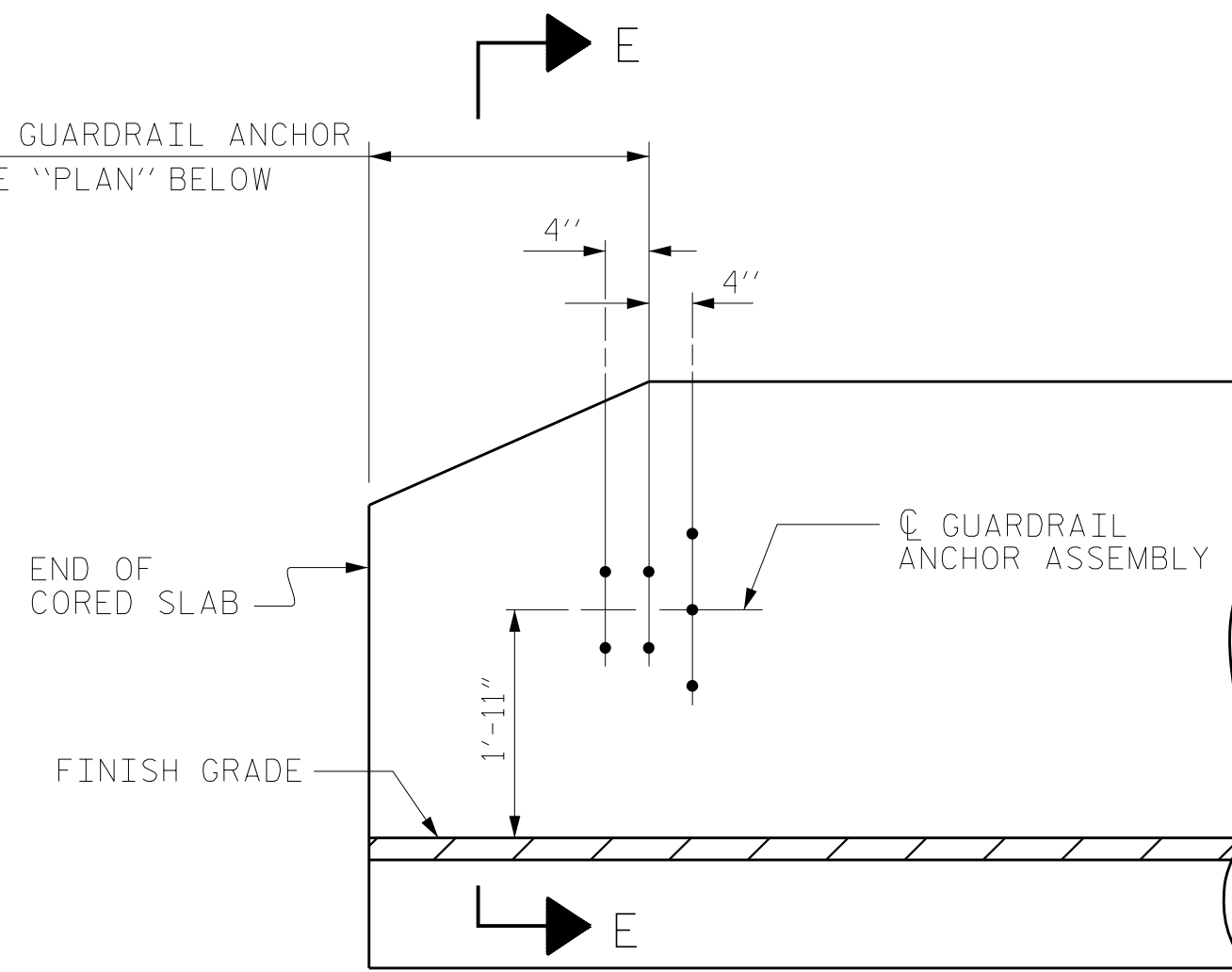
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS 17
2			4			

DES. EGR. OF RECORD: CBC
DRAWN BY: RWW DATE: 3/2015
CHECKED BY: HLW DATE: 3/2015



FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



ELEVATION

NOTES (FOR METAL RAILS)

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

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

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

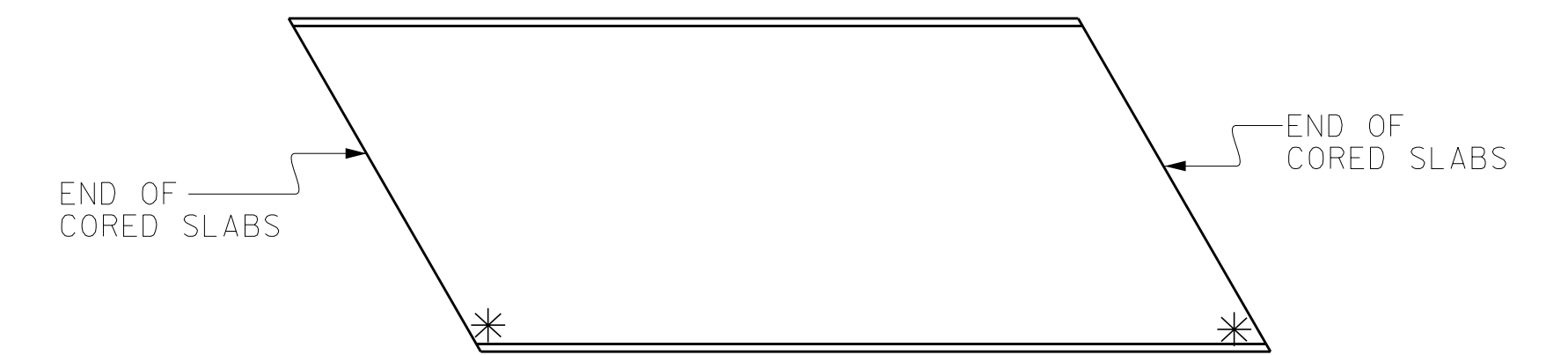
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

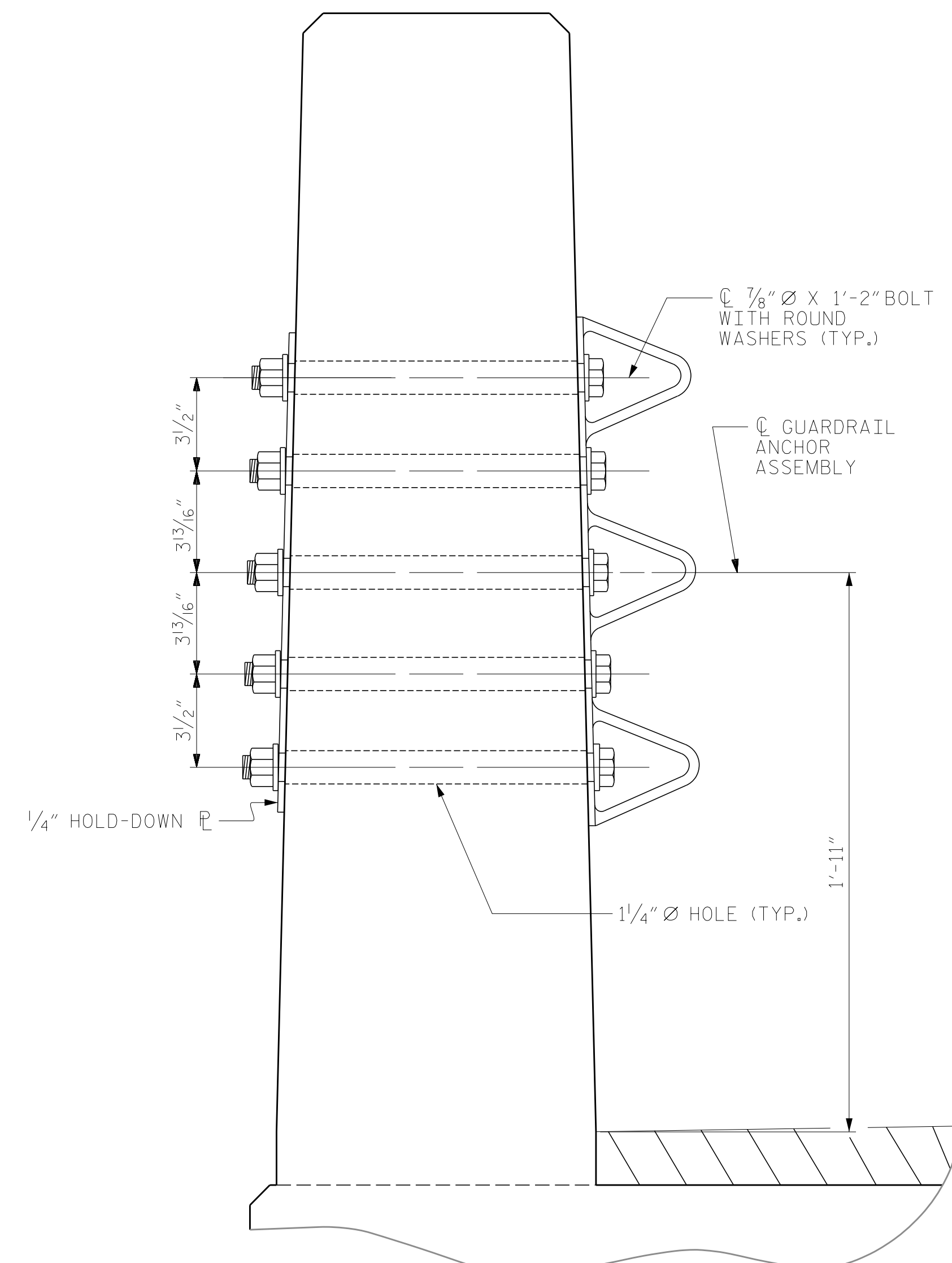
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

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



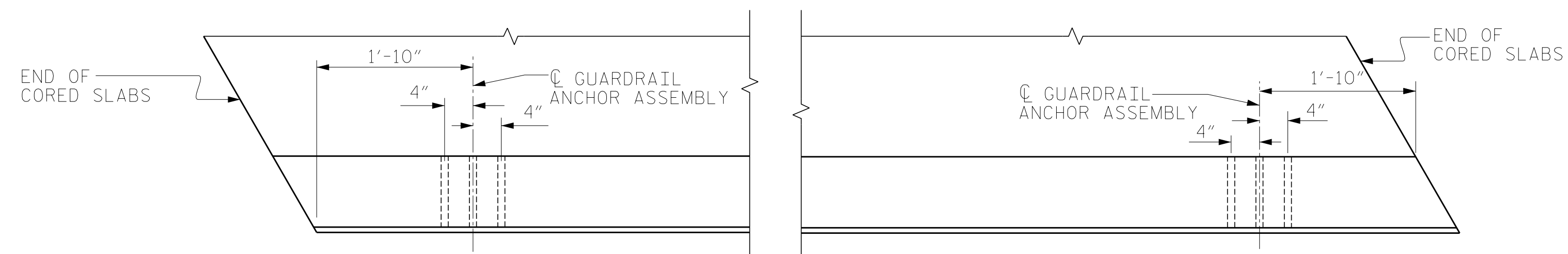
SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



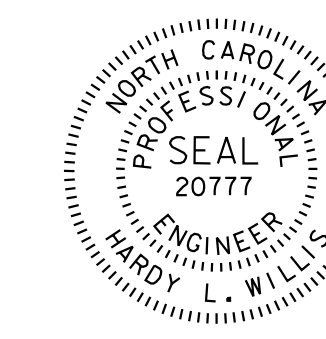
END BENT #1

END BENT #2

PLAN

LOCATION OF GUARDRAIL ANCHOR AT END POST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PROJECT NO. 17BP.14.R.143
 TRANSYLVANIA COUNTY
 STATION: 15+90.36 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GUARDRAIL ANCHORAGE
 VERTICAL CONCRETE
 BARRIER RAIL

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8	
1			3			TOTAL SHEETS	
2			4			17	

DRAWN BY :	RWW	DATE :	3/2015
CHECKED BY :	HLW	DATE :	3/2015
DRAWN BY :	MAA 5/10	REV. 10/1/11	MAA/GM
CHECKED BY :	GM 5/10	REV. 12/5/11	MAA/GM
		REV. 6/13	MAA/GM

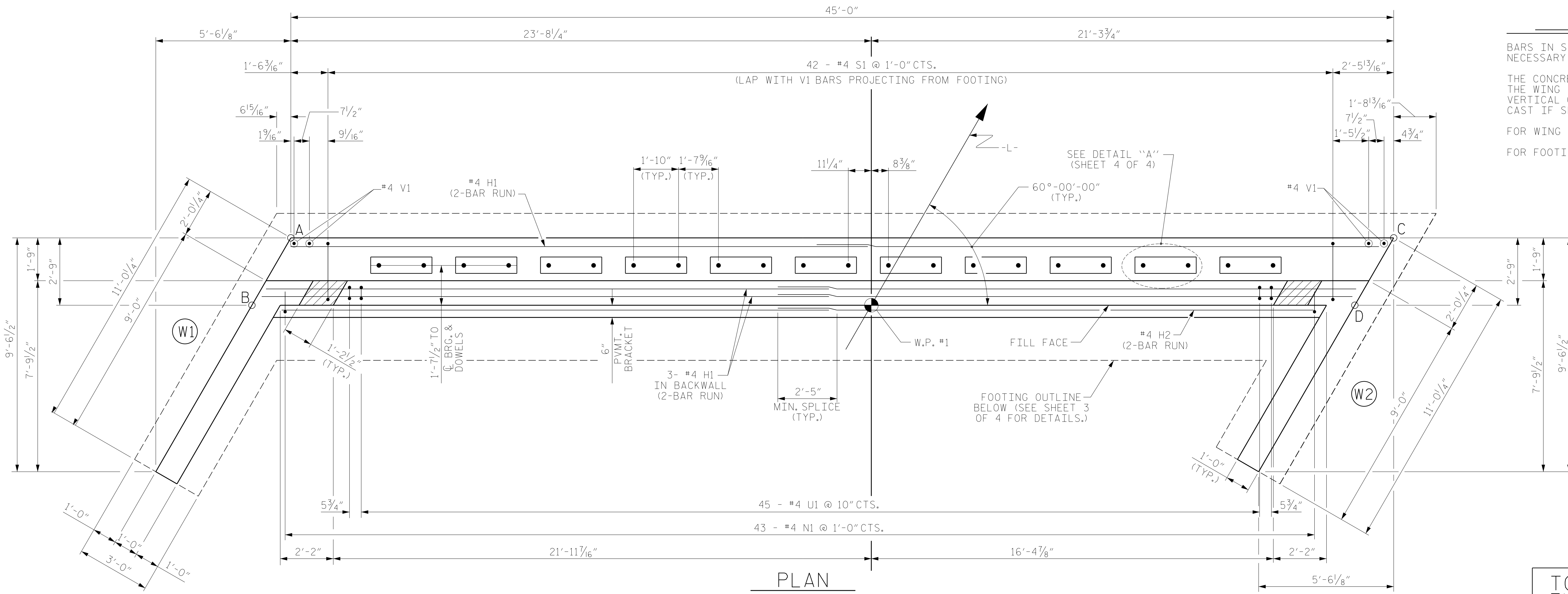
NOTES

BARS IN STEM MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

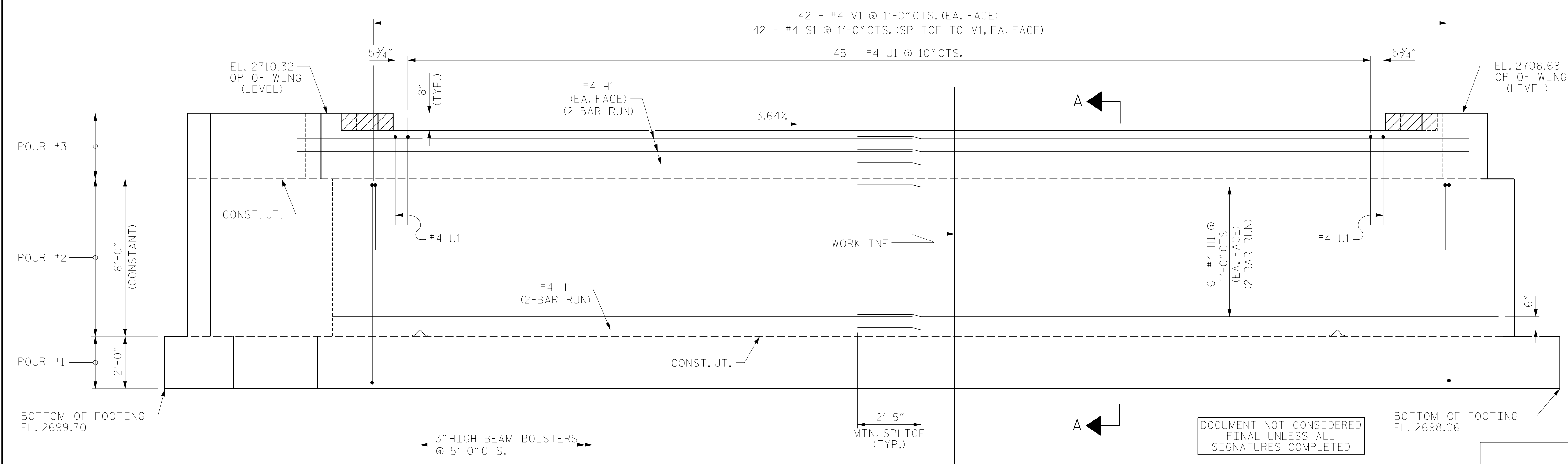
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR WING DETAILS, SEE SHEET 2 OF 4.

FOR FOOTING DETAILS, SEE SHEET 3 OF 4.



TOP OF CAP ELEVATIONS	
A	2707.70
B	2707.82
C	2706.06
D	2706.18



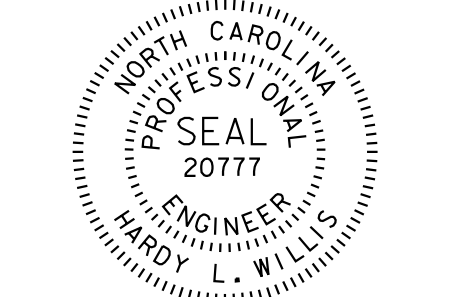
DES. EGR. OF RECORD: CBC

DRAWN BY : RWW DATE : 3/2015

CHECKED BY : HLW DATE : 3/2015

ELEVATION

WINGS NOT SHOWN FOR CLARITY. FOR SECTION A-A, SEE SHEET 4 OF 4.



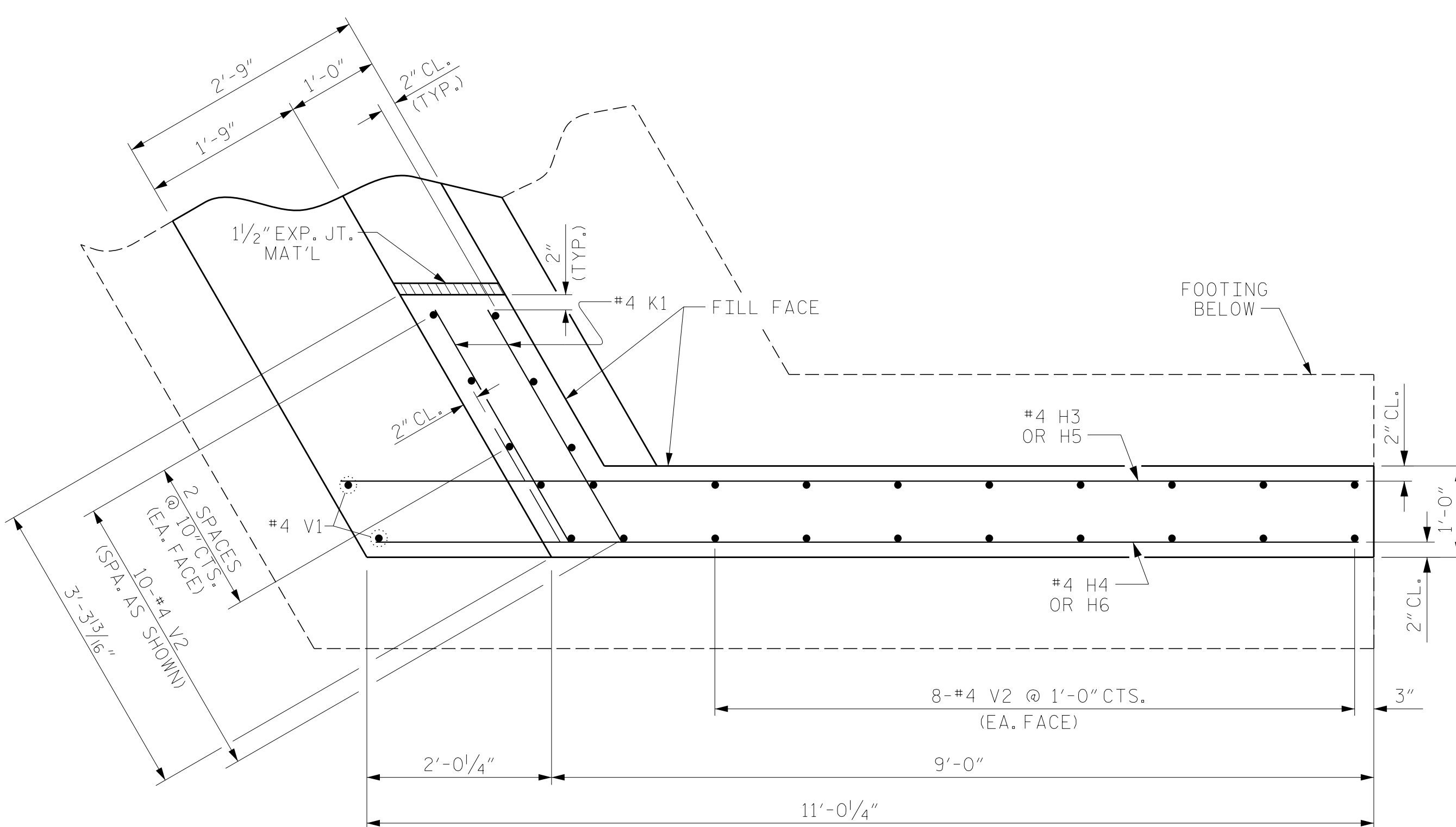
PROJECT NO. 17BP.14.R.143

TRANSYLVANIA COUNTY

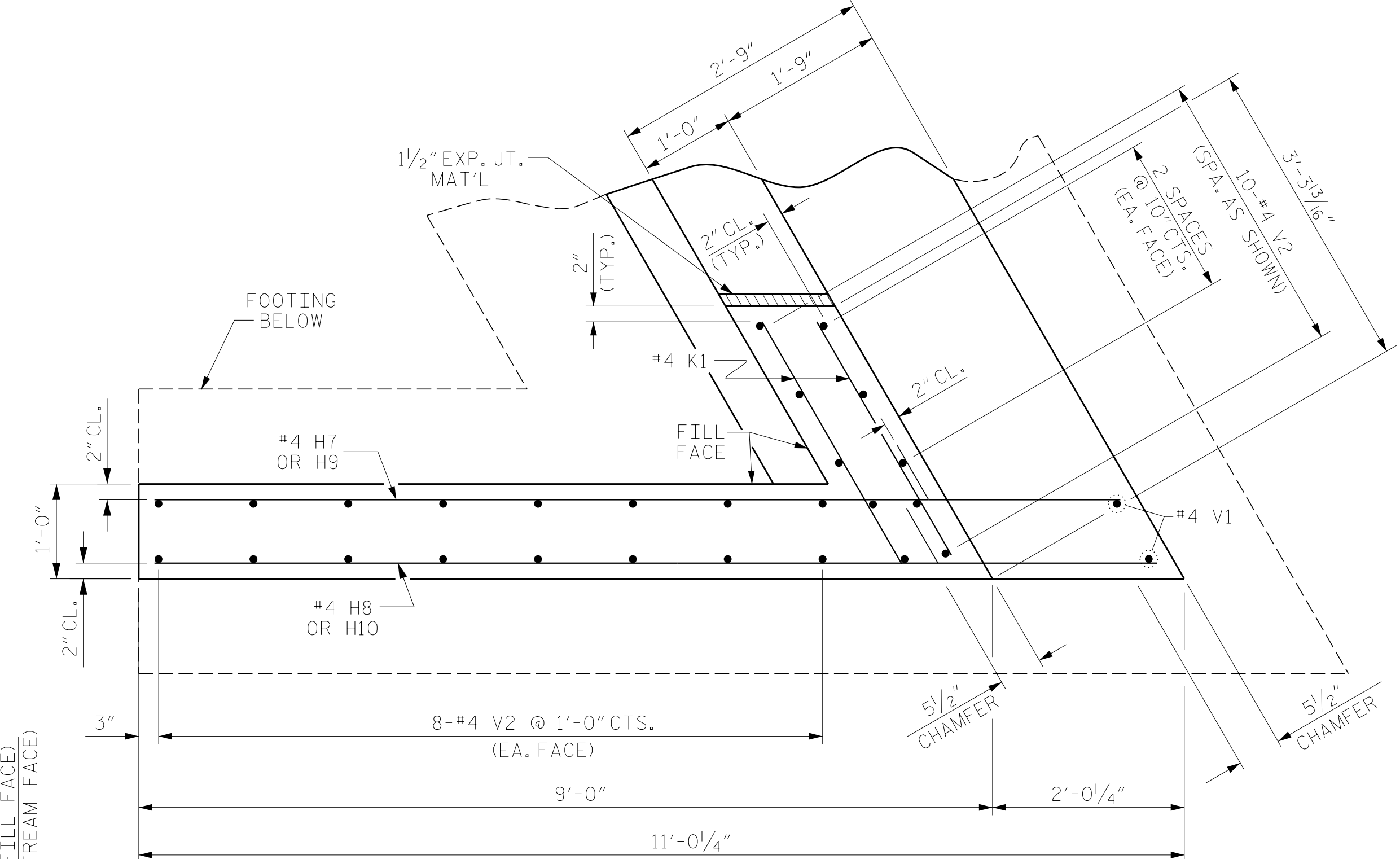
STATION: 15+90.36 -L-

SHEET 1 OF 4

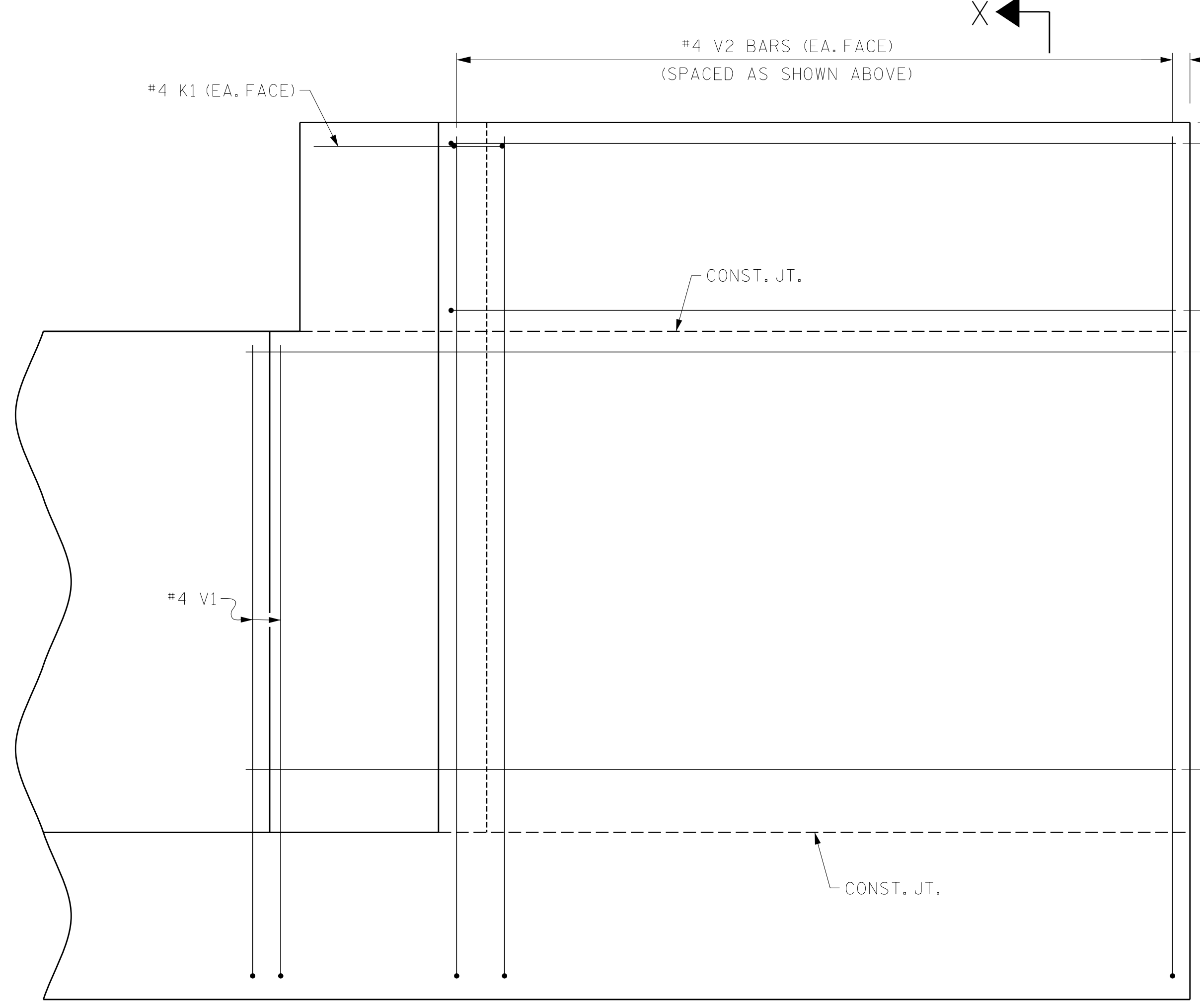
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			17



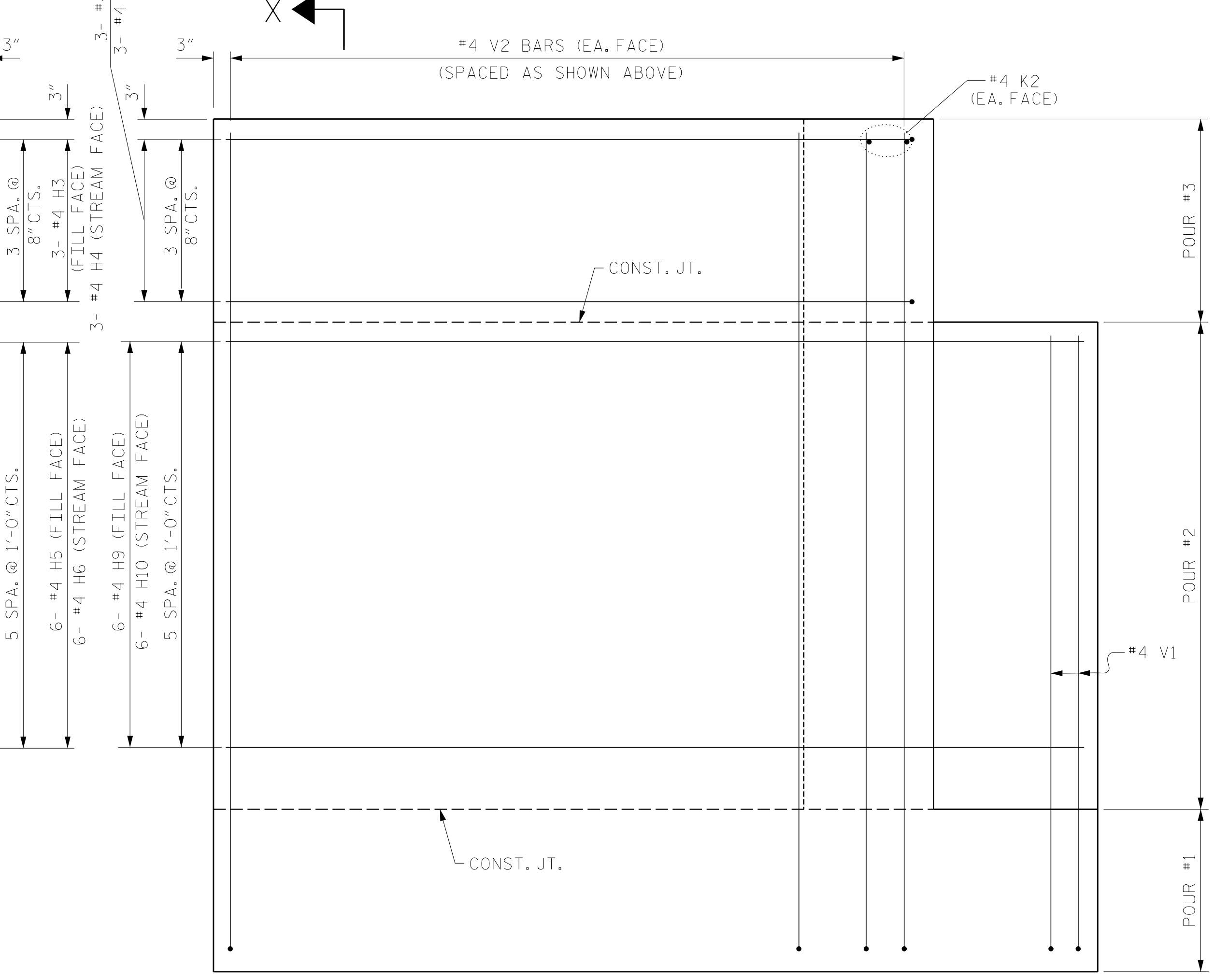
PLAN OF WING (W1)



PLAN OF WING (W2)



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

FOR SECTION X-X, SEE SHEET 4 OF 4.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PROJECT NO. 17BP.14.R.143
 TRANSYLVANIA COUNTY
 STATION: 15+90.36 -L-

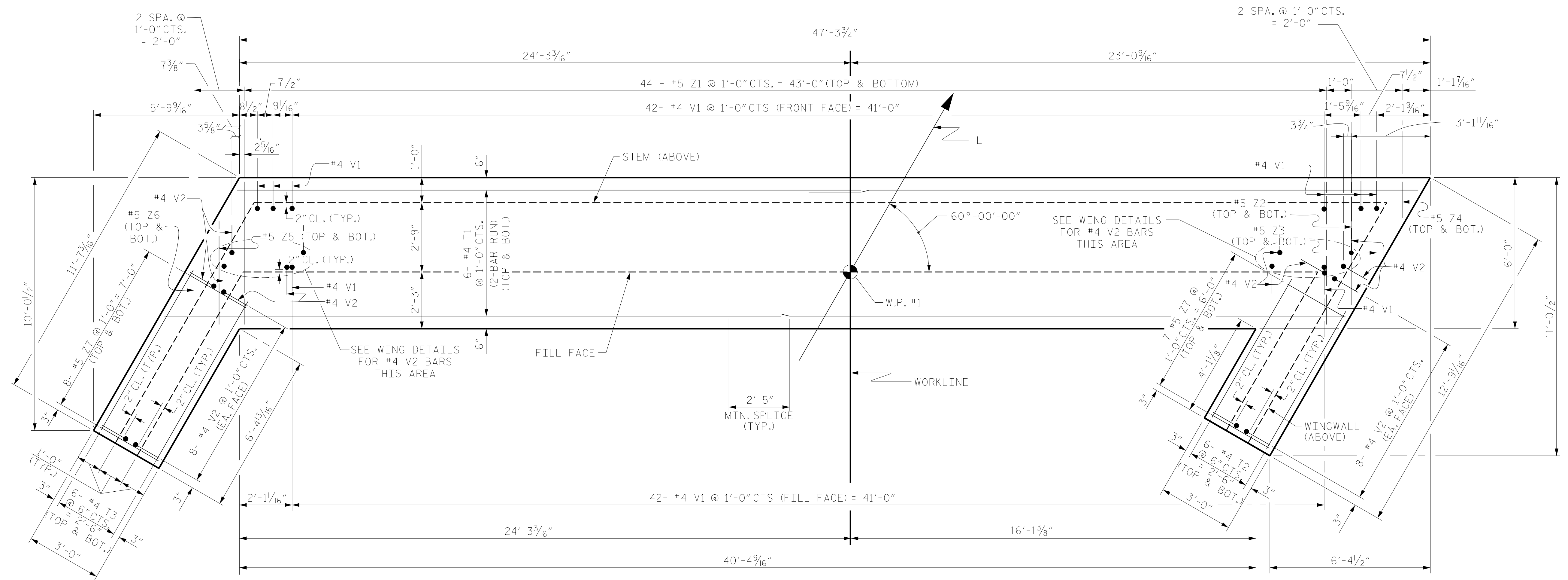
SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 1
 WING DETAILS

DES. EGR. OF RECORD: CBC
 DRAWN BY: RWW DATE: 3/2015
 CHECKED BY: HLW DATE: 3/2015

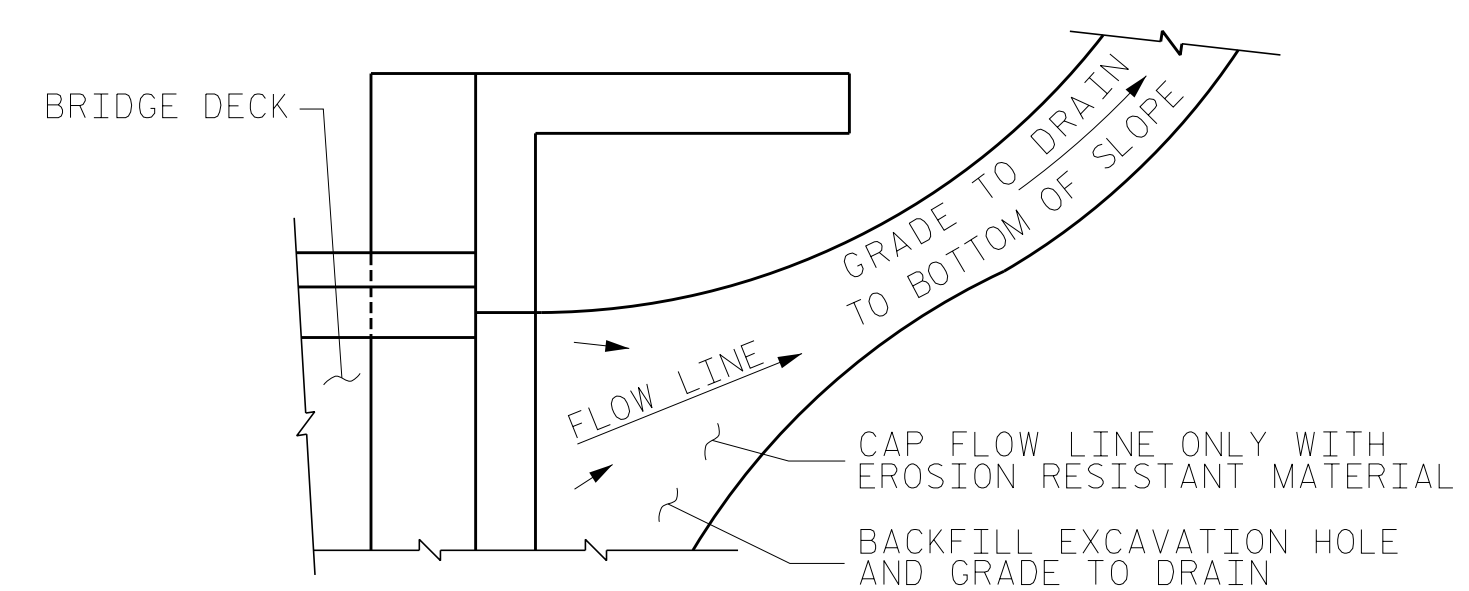
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			17



PLAN OF FOOTING

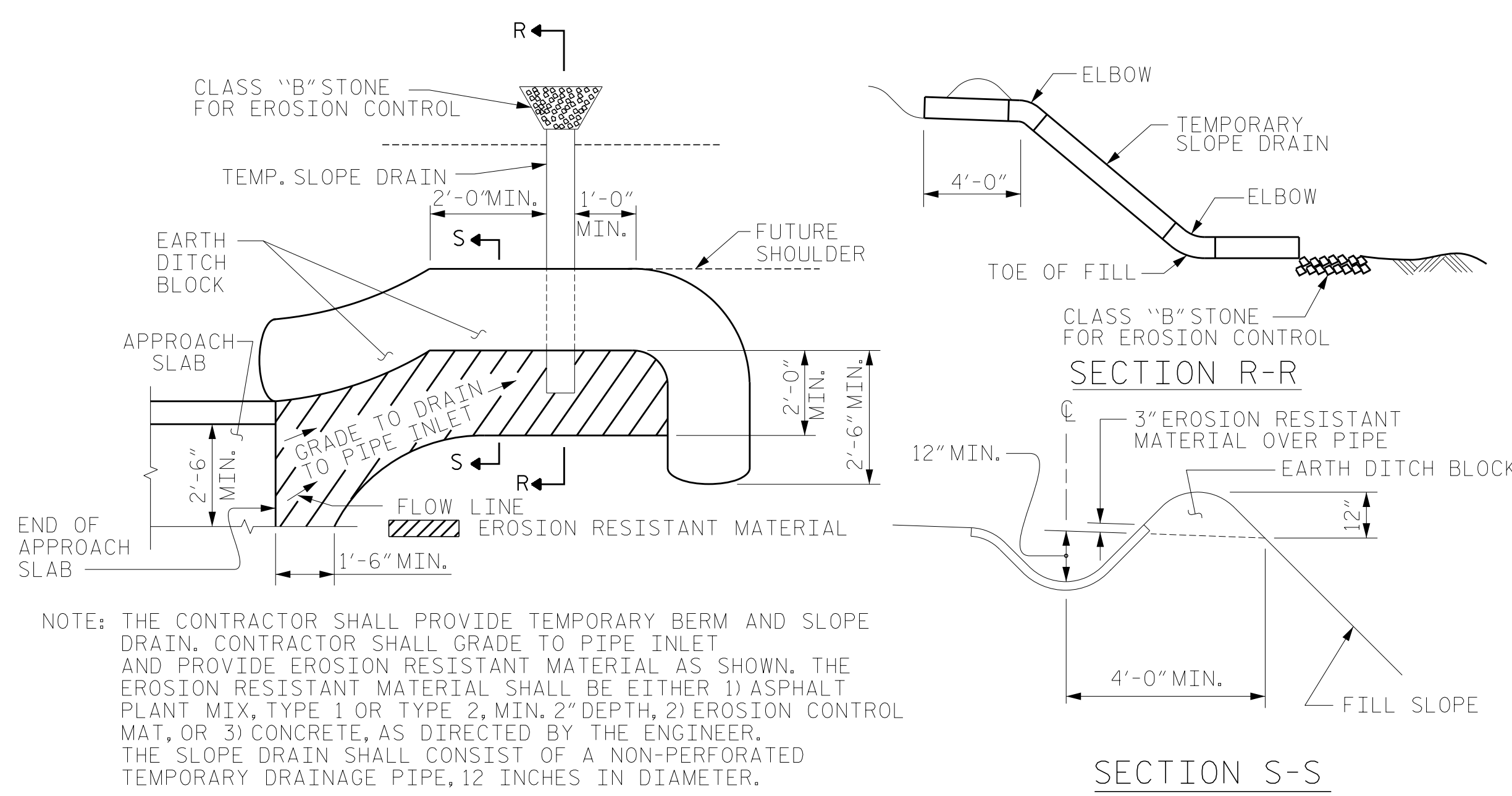
NOTES

- FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.
- GEOTEXTILE SHALL BE TYPE 11N ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.
- #78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.
- #78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL.
- FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS. THE CONTRACTOR SHALL ENSURE THAT DRAIN PIPE OUTFALL IS ABOVE STREAM ELEVATION.
- AREA BETWEEN THE WINGWALL AND EDGE OF PAVEMENT SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.
- FOR DRAINAGE DETAIL BEHIND END BENT, SEE SHEET 4 OF 4.



NOTE: 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.

TEMPORARY DRAINAGE DETAIL



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

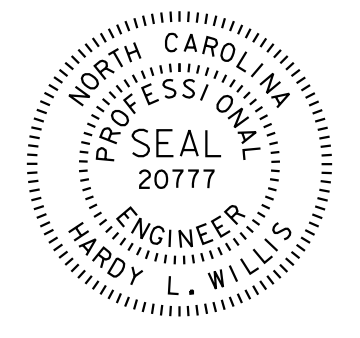
PLAN VIEW

SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

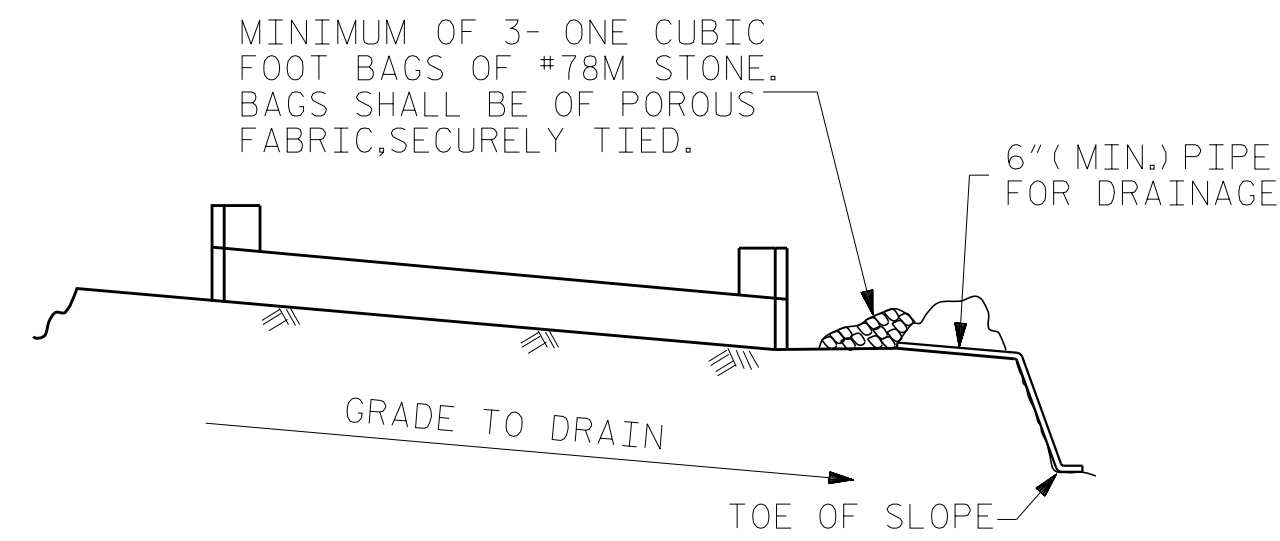


PROJECT NO. 17BP.14.R.143
 TRANSYLVANIA COUNTY
 STATION: 15+90.36 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT No. 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-11					TOTAL SHEETS 17

DES. EGR. OF RECORD: CBC
 DRAWN BY: RWW DATE: 3/2015
 CHECKED BY: HLW DATE: 3/2015

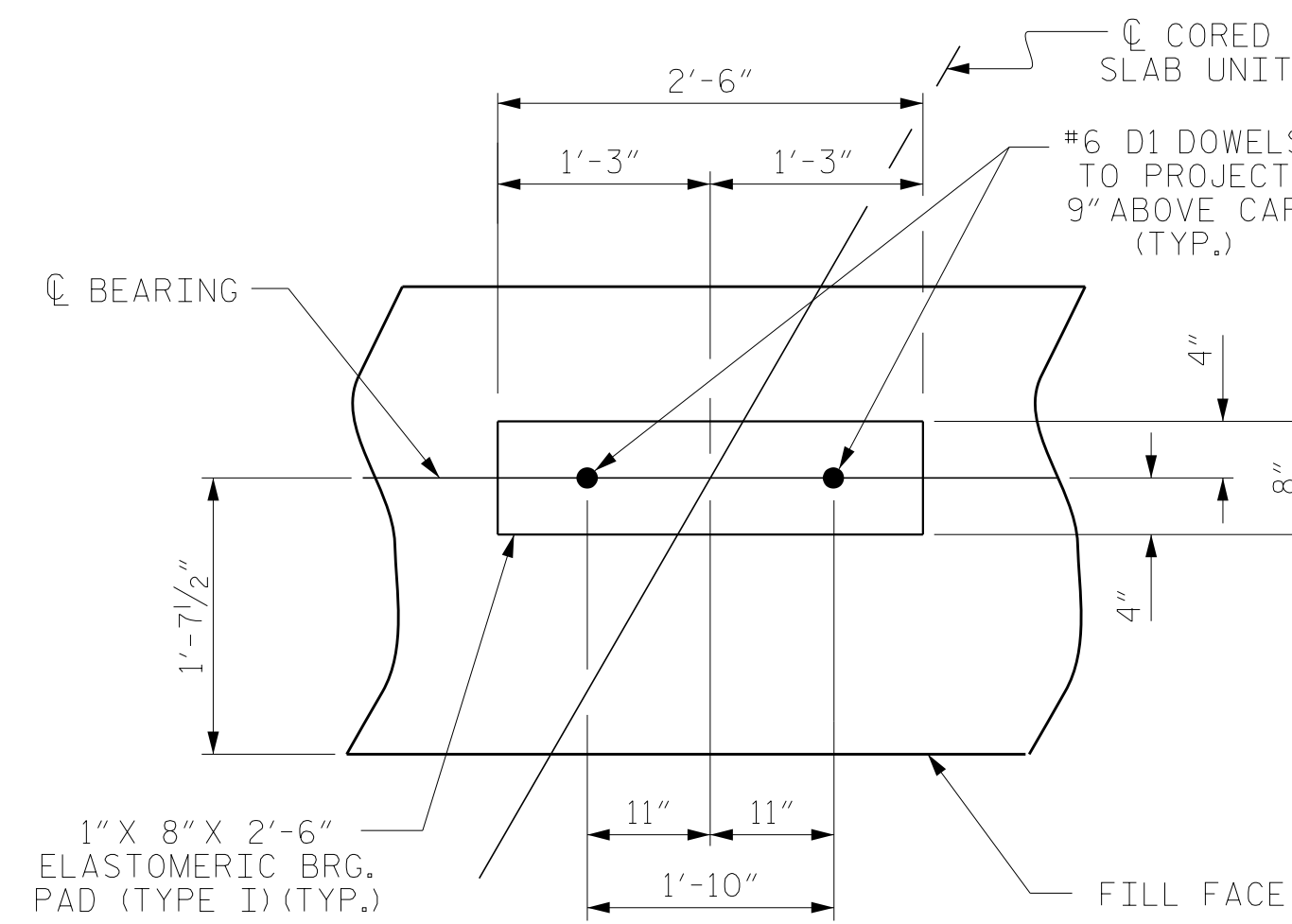


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

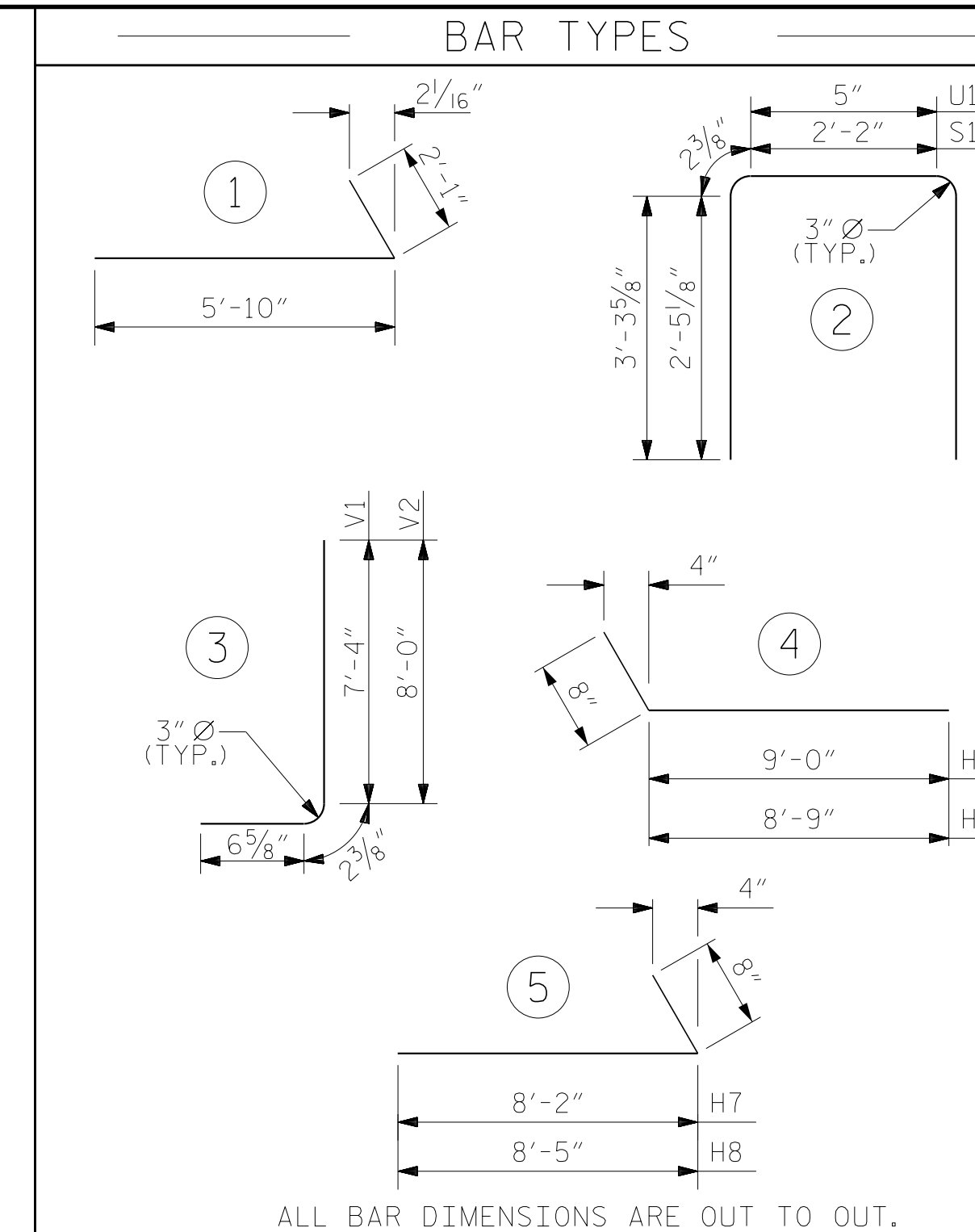
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



DETAIL "A"

(END BENT No. 1 SHOWN)



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

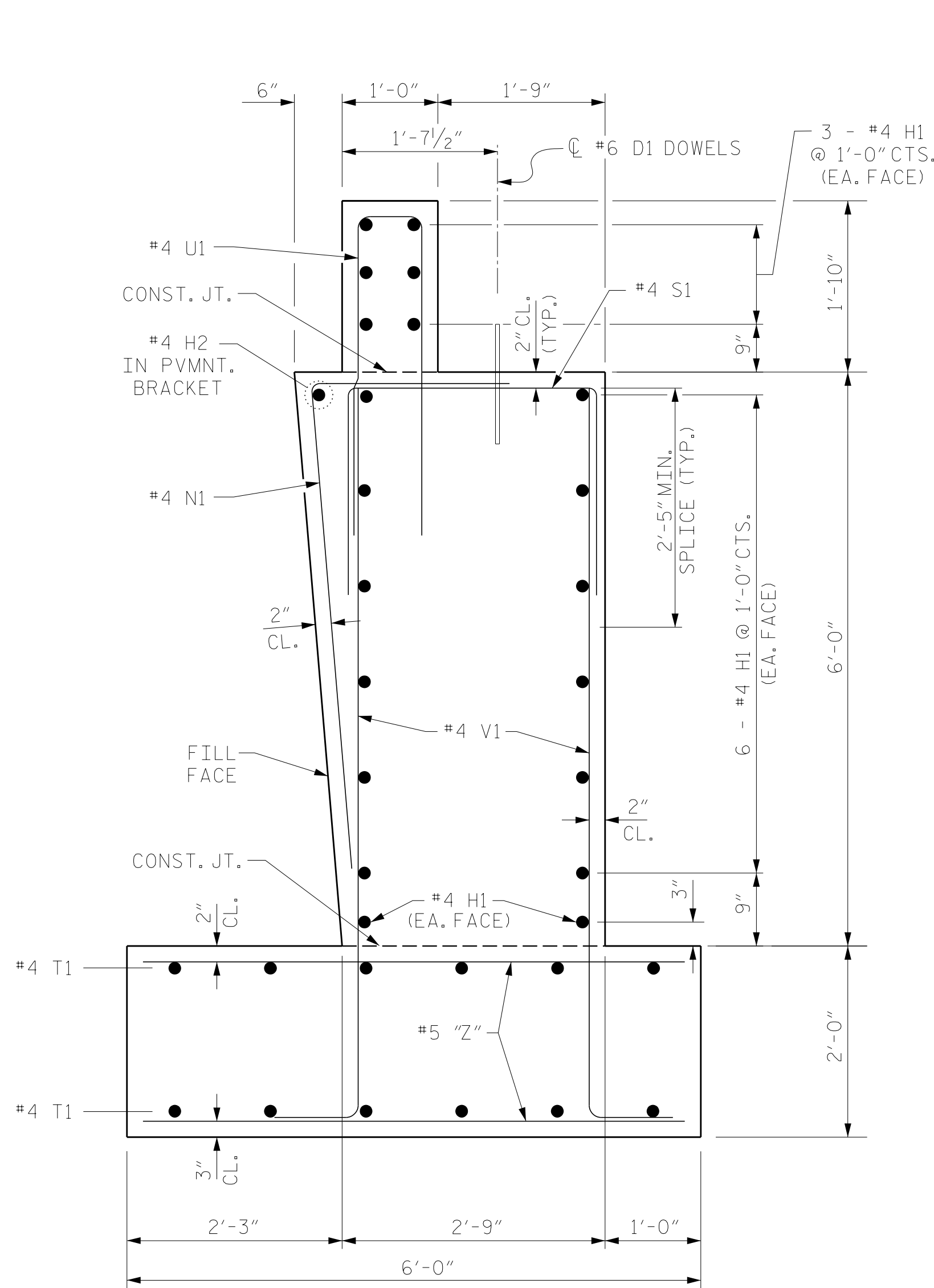
FOR END BENT #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D1	22	#6	STR	1'-6"	50
H1	40	#4	STR	23'-7"	630
H2	2	#4	STR	22'-5"	30
H3	3	#4	4	9'-8"	19
H4	3	#4	4	9'-5"	19
H5	6	#4	STR	11'-1"	44
H6	6	#4	STR	10'-9"	43
H7	3	#4	5	8'-10"	18
H8	3	#4	5	9'-1"	18
H9	6	#4	STR	10'-2"	41
H10	6	#4	STR	10'-6"	42
K1	4	#4	STR	2'-11"	8
N1	43	#4	1	7'-11"	227
S1	42	#4	2	7'-5"	208
T1	24	#4	STR	24'-8"	395
T2	12	#4	STR	6'-4"	51
T3	12	#4	STR	7'-4"	59
U1	47	#4	2	7'-5"	233
V1	88	#4	3	8'-1"	475
V2	52	#4	3	8'-9"	304
Z1	88	#5	STR	5'-8"	520
Z2	2	#5	STR	4'-10"	10
Z3	2	#5	STR	3'-2"	7
Z4	2	#5	STR	1'-5"	3
Z5	2	#5	STR	4'-1"	9
Z6	2	#5	STR	2'-4"	5
Z7	30	#5	STR	2'-8"	83

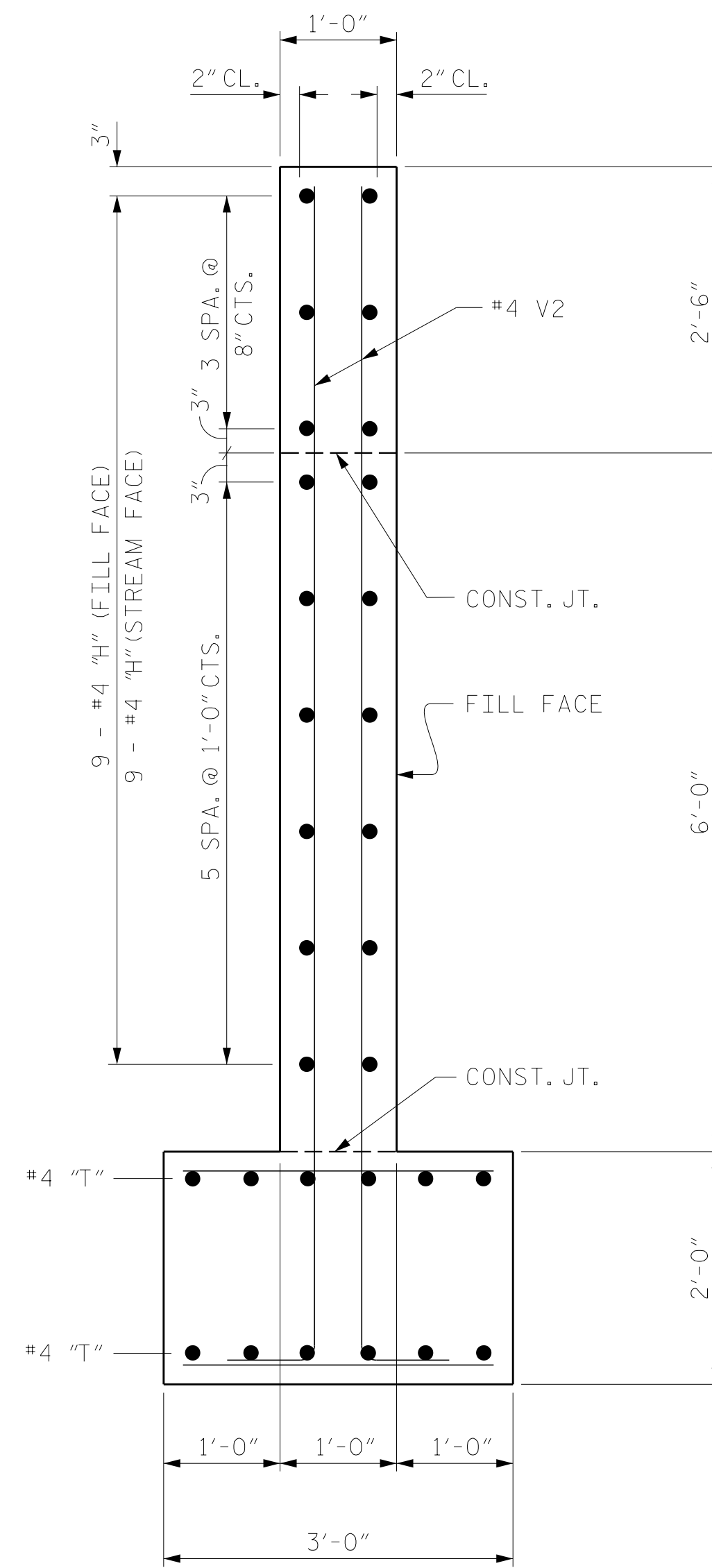
REINFORCING STEEL 3551 LBS.

CLASS A CONCRETE BREAKDOWN

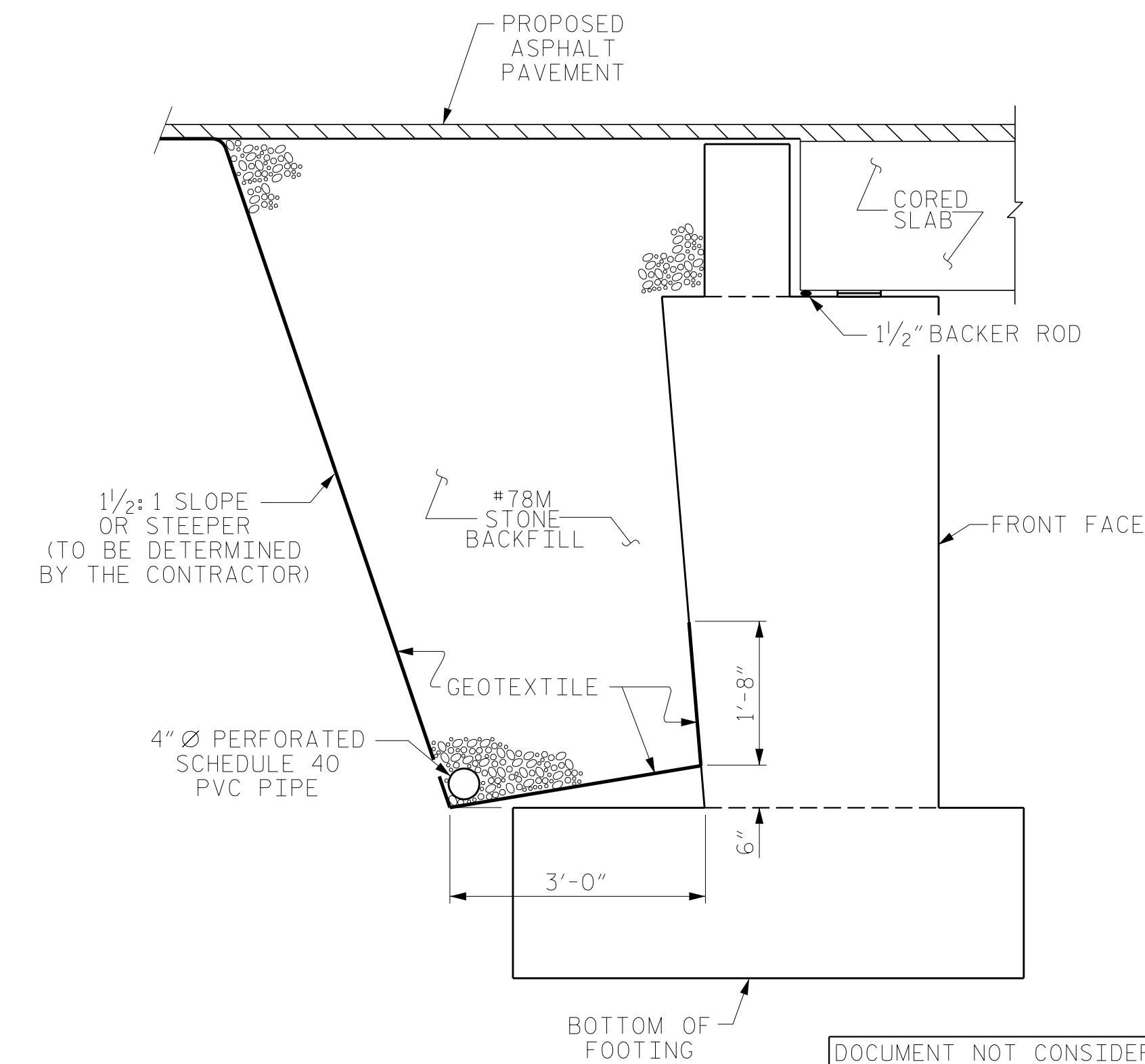
POUR #1	FOOTING	23.4 C.Y.
POUR #2	STEM AND LOWER PART OF WINGS	33.4 C.Y.
POUR #3	BACKWALL AND UPPER PART OF WINGS	4.7 C.Y.
TOTAL CLASS A CONCRETE		61.5 C.Y.



SECTION A-A



SECTION X-X



DRAINAGE DETAIL

END BENT NO. 1 SHOWN, END BENT NO. 2 SIMILAR.

PROJECT NO. 17BP.14.R.143
 TRANSYLVANIA COUNTY
 STATION: 15+90.36 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

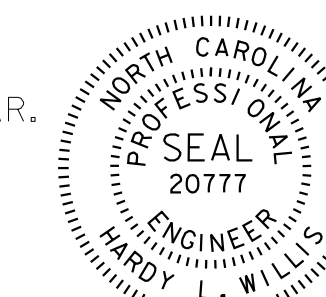
SUBSTRUCTURE

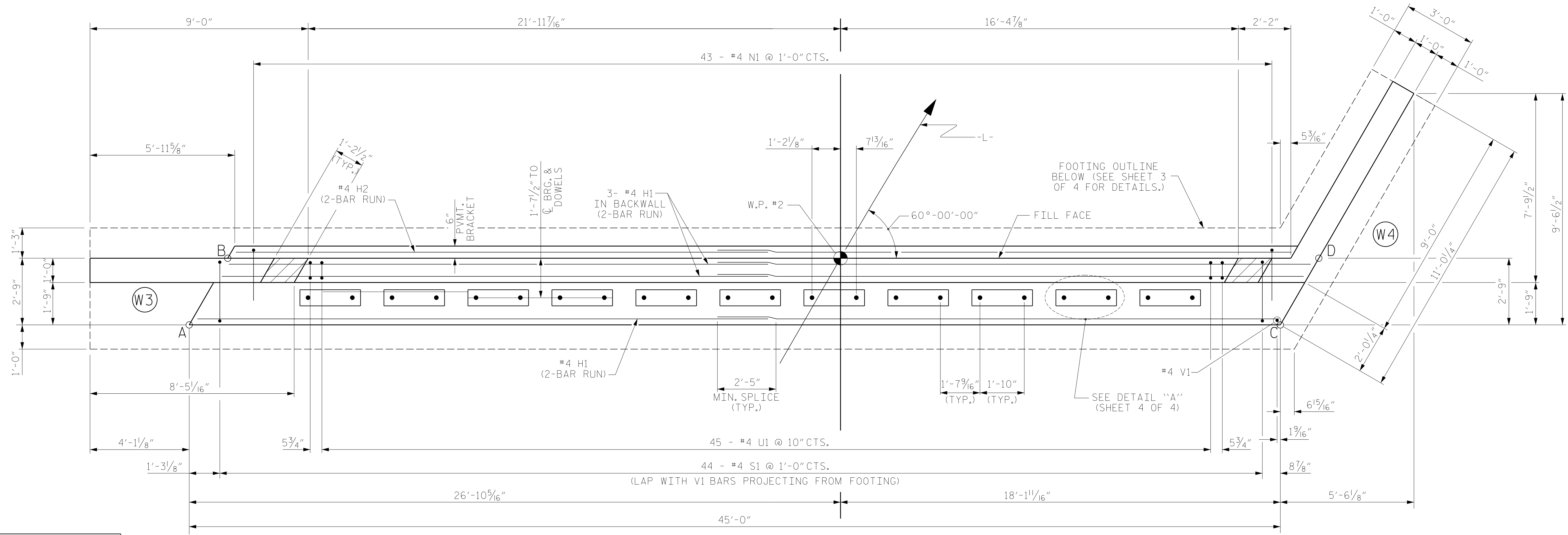
END BENT No. 1
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			17

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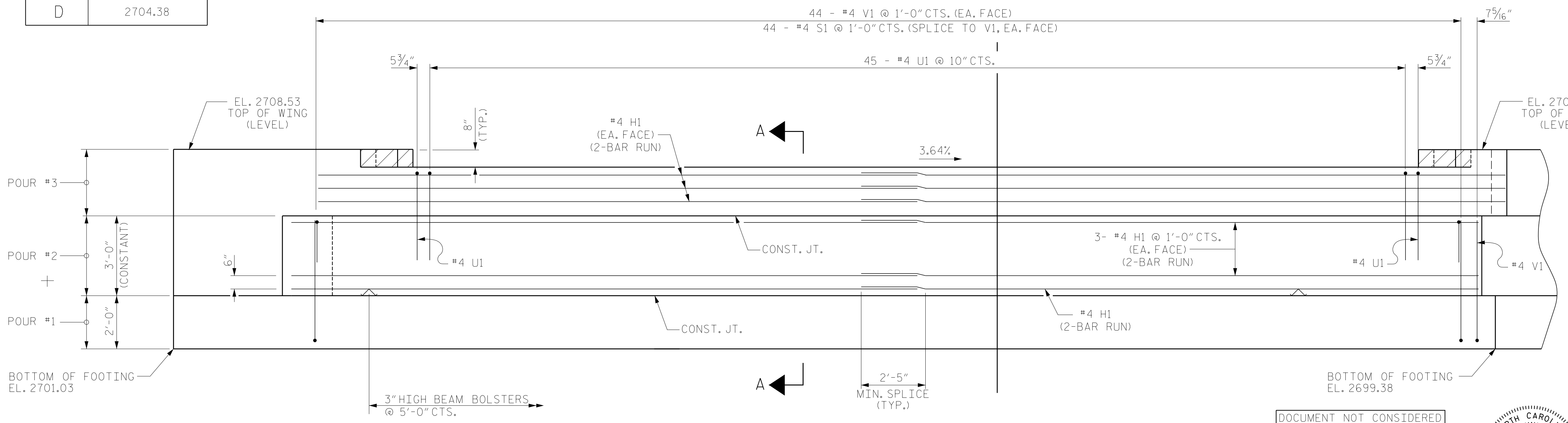
PLAN

WORKLINE

TOP OF CAP ELEVATIONS	
A	2706.15
B	2706.03
C	2704.50
D	2704.38

NOTES

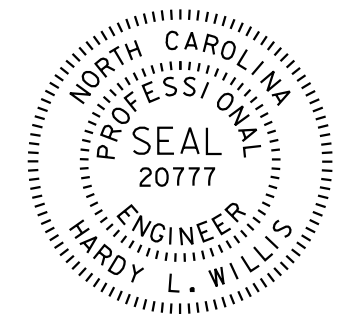
BARS IN STEM MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
 FOR WING DETAILS, SEE SHEET 2 OF 4.
 FOR FOOTING DETAILS, SEE SHEET 3 OF 4.



ELEVATION

WINGS NOT SHOWN FOR CLARITY, FOR SECTION A-A, SEE SHEET 4 OF 4.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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 TRANSYLVANIA COUNTY
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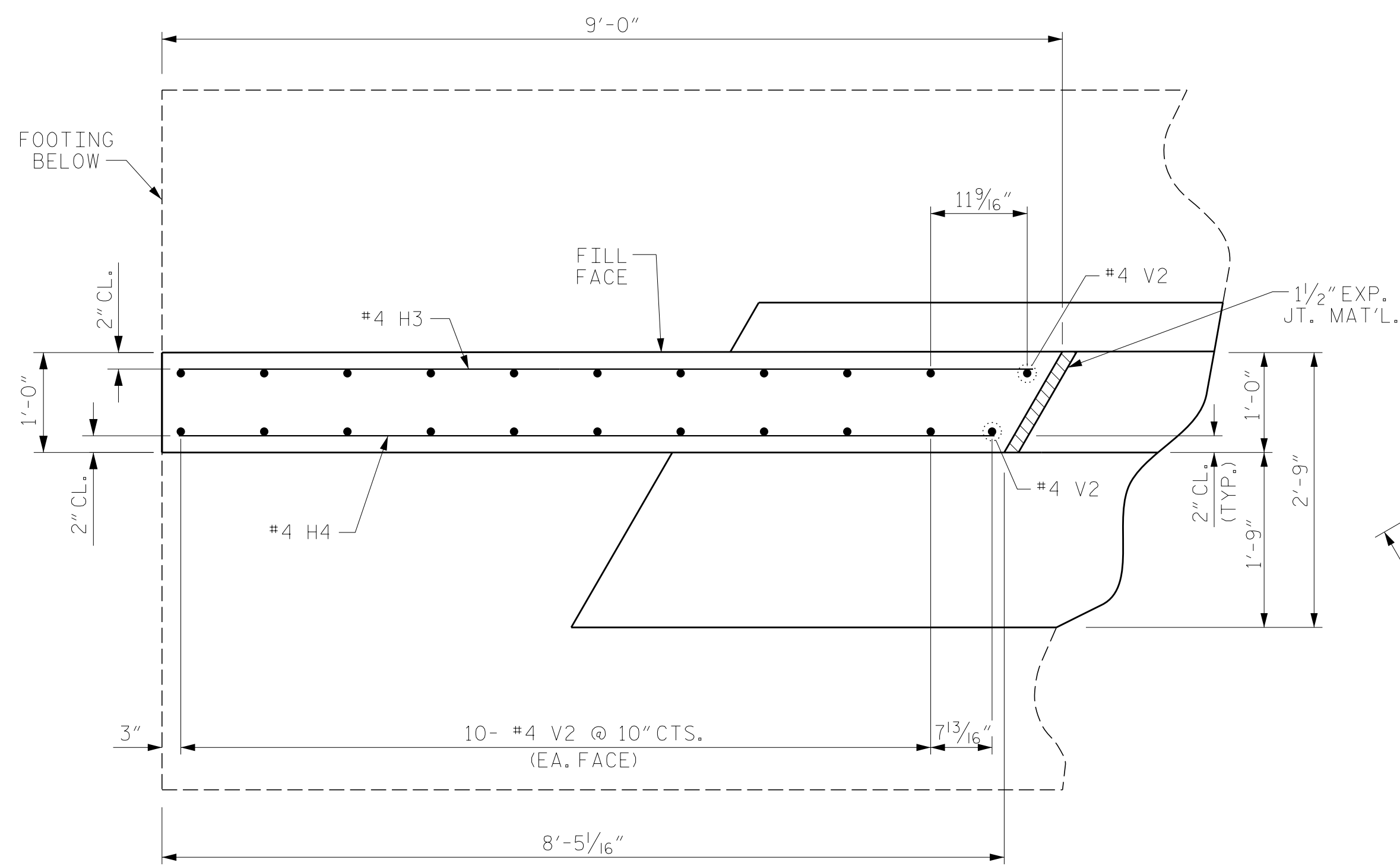
SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

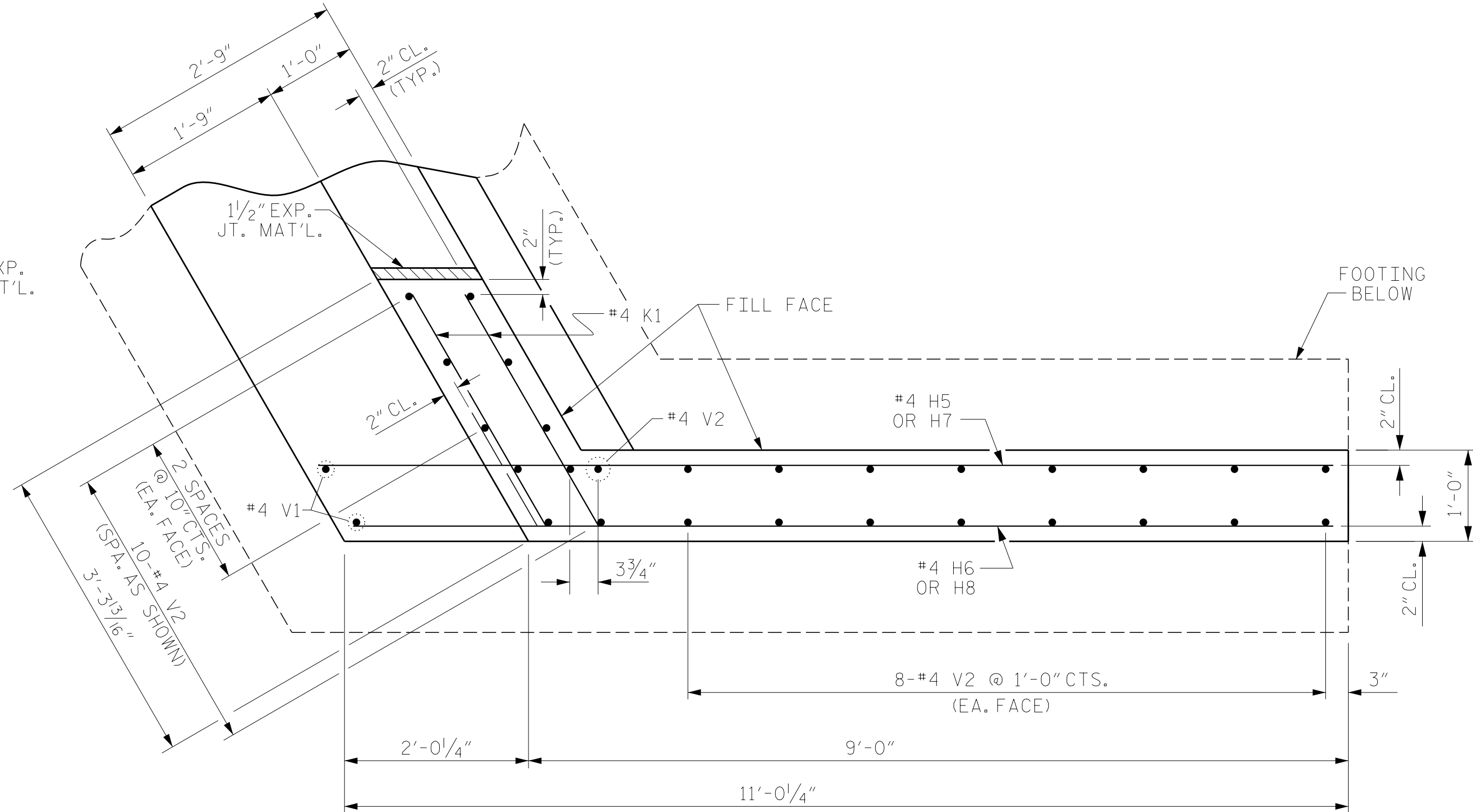
SUBSTRUCTURE
 END BENT No. 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			17

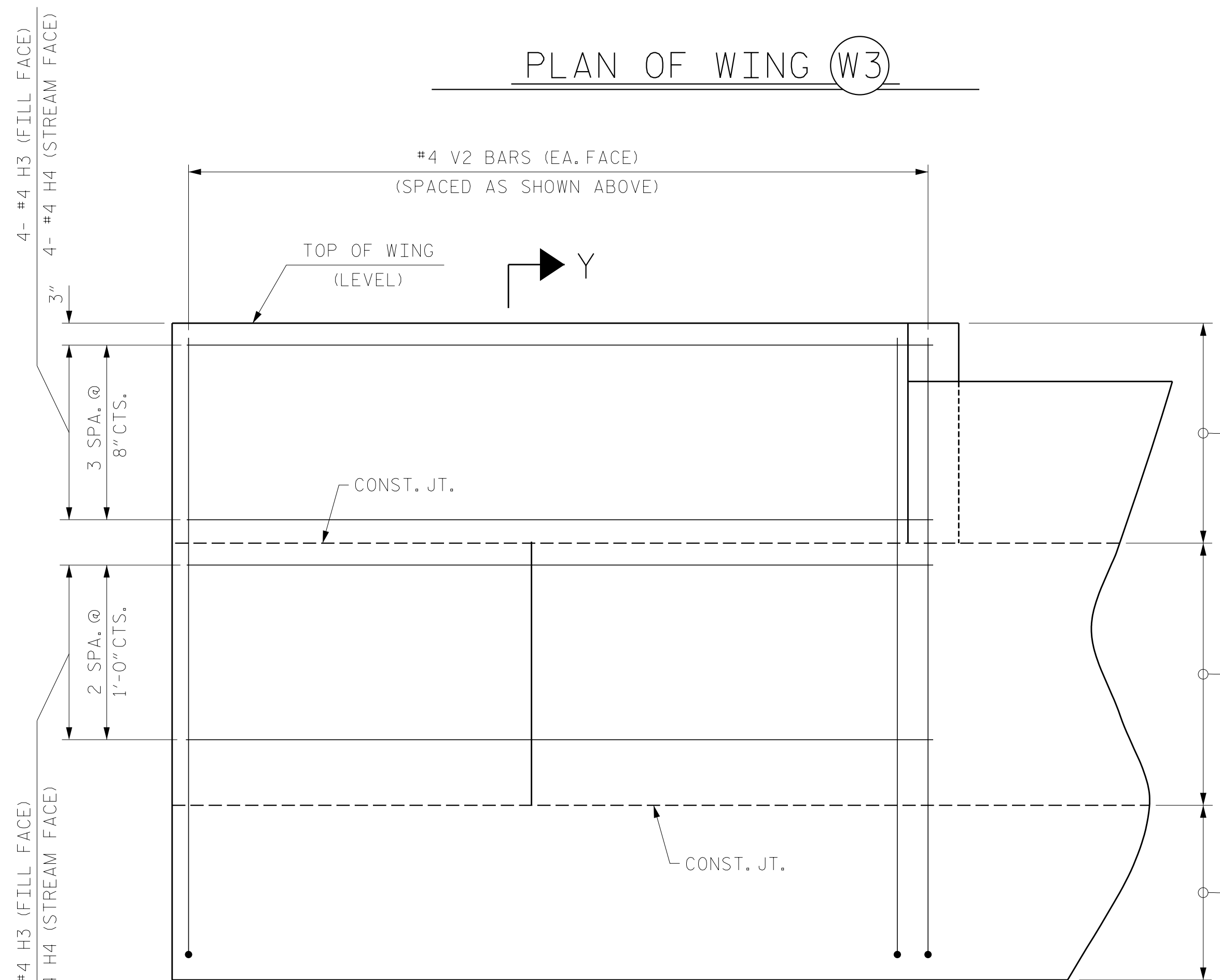
DES. EGR. OF RECORD: CBC
 DRAWN BY: RWW DATE: 3/2015
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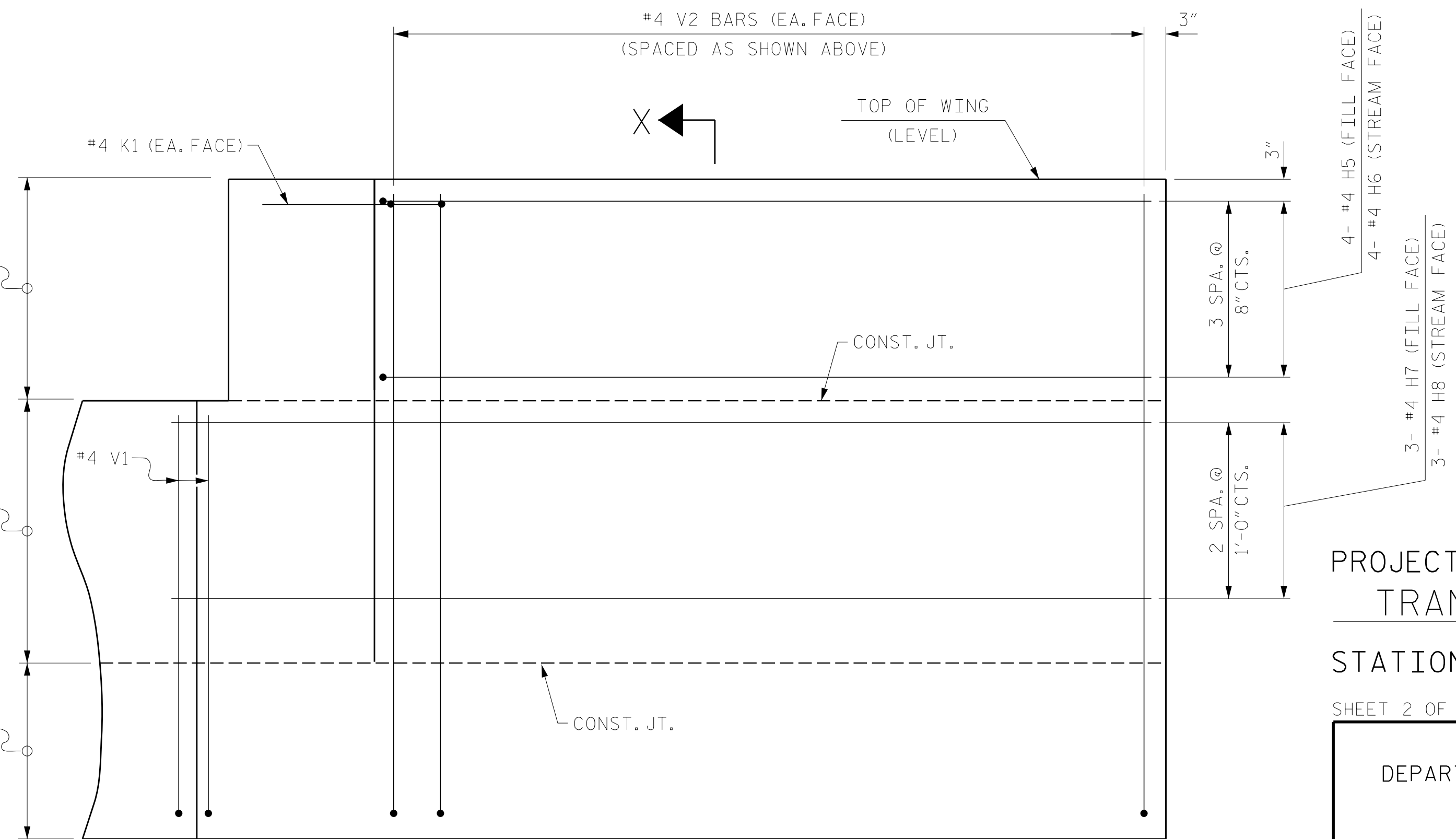
PLAN OF WING (W3)



PLAN OF WING (W4)



ELEVATION OF WING (W3)



ELEVATION OF WING (W4)

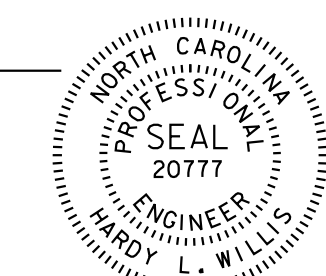
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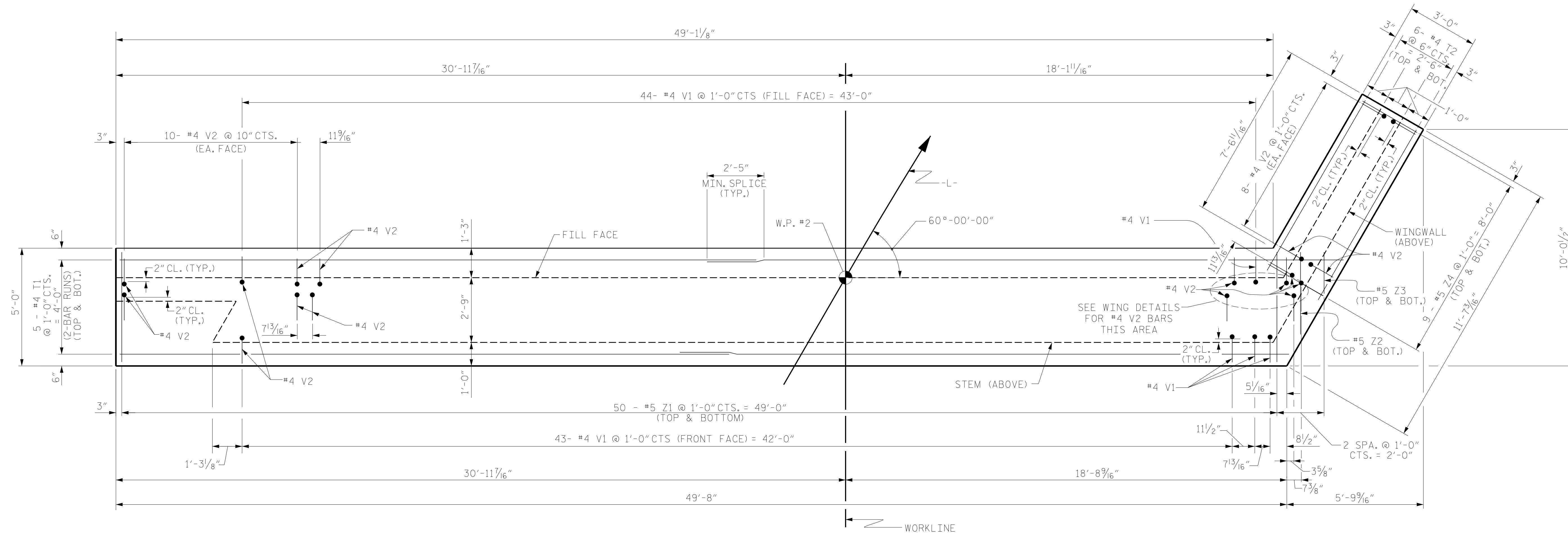
SHEET 2 OF 4
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT No. 2
WING DETAILS

DES. EGR. OF RECORD: CBC
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WING DETAILS
FOR SECTION X-X, SEE SHEET 4 OF 4.



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14	
1			3			TOTAL SHEETS	17
2			4				



PLAN OF FOOTING

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE IIN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

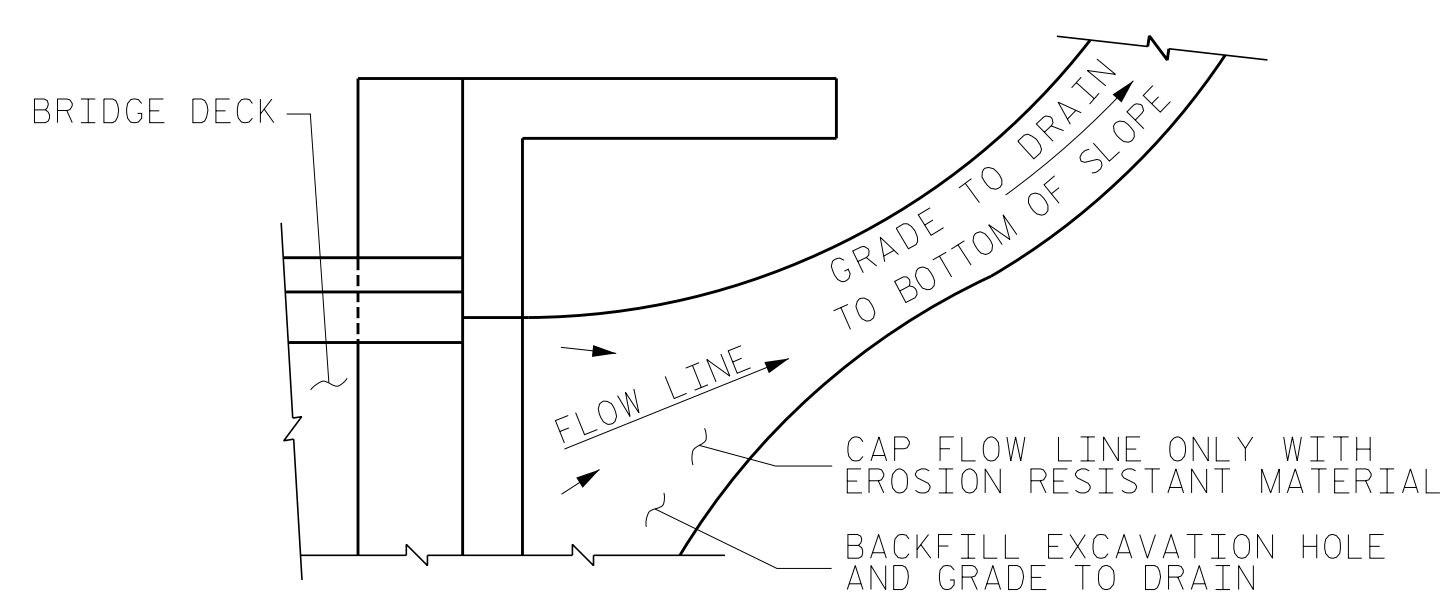
#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS. THE CONTRACTOR SHALL ENSURE THAT DRAIN PIPE OUTFALL IS ABOVE STREAM ELEVATION.

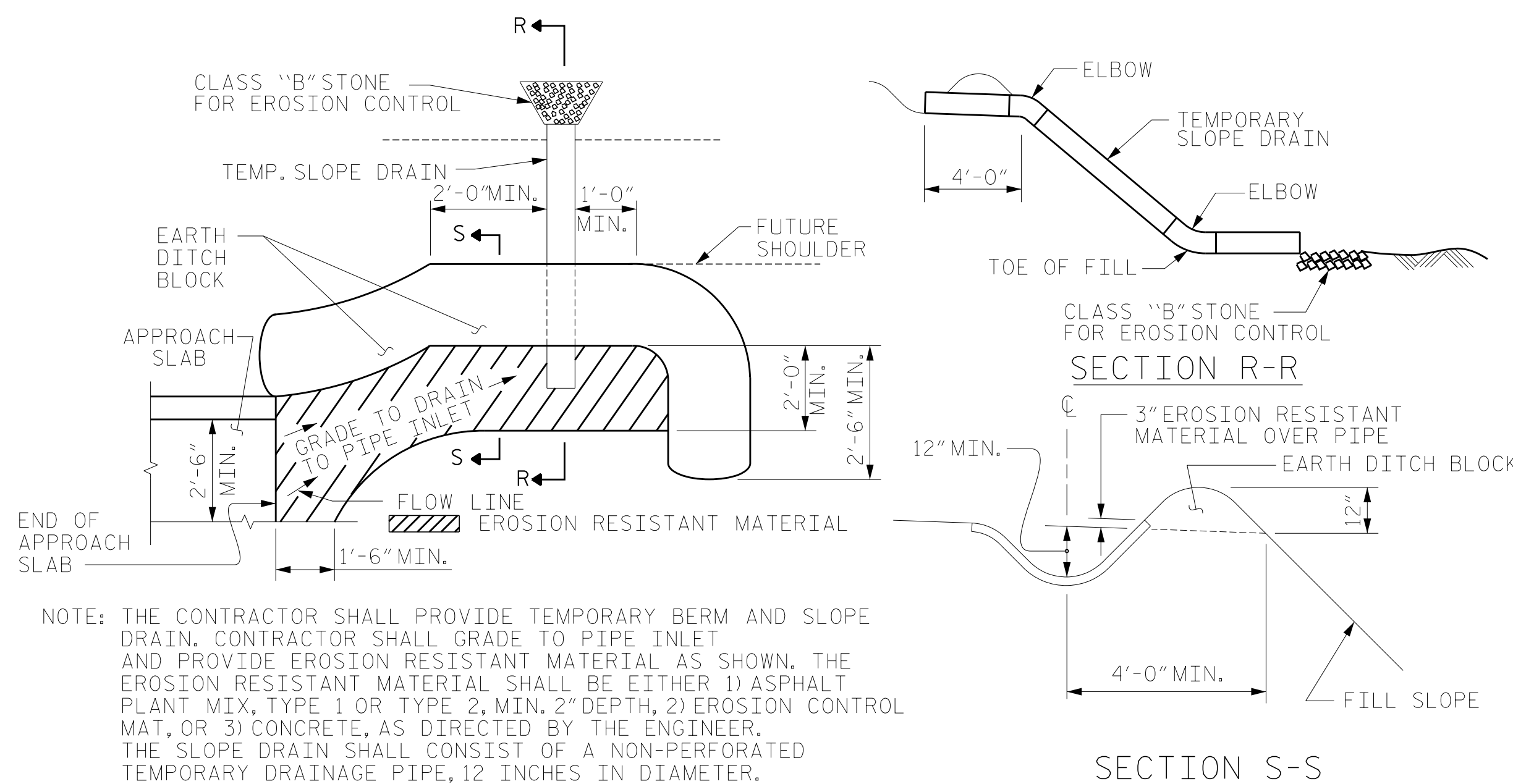
AREA BETWEEN THE WINGWALL AND EDGE OF PAVEMENT SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

FOR DRAINAGE DETAIL BEHIND END BENT, SEE END BENT NO. 1 (SHEET 4 OF 4).



NOTE: 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.

TEMPORARY DRAINAGE DETAIL



NOTE: 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

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PROJECT NO. 17BP.14.R.143
 TRANSYLVANIA COUNTY
 STATION: 15+90.36 -L-

SHEET 3 OF 4

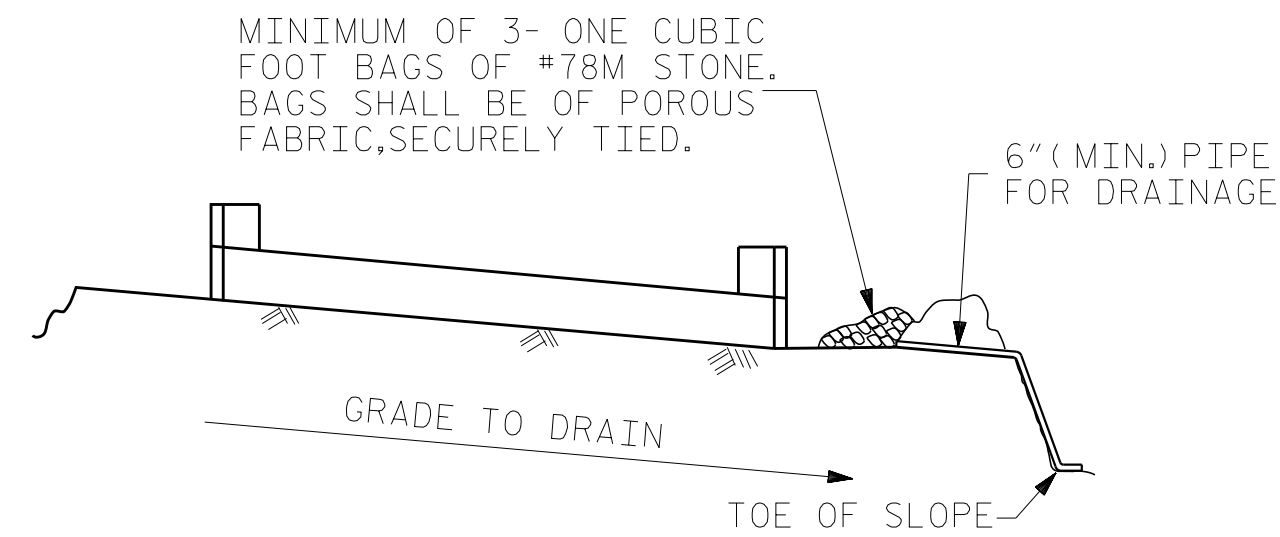
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 2

DES. EGR. OF RECORD: CBC

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			17

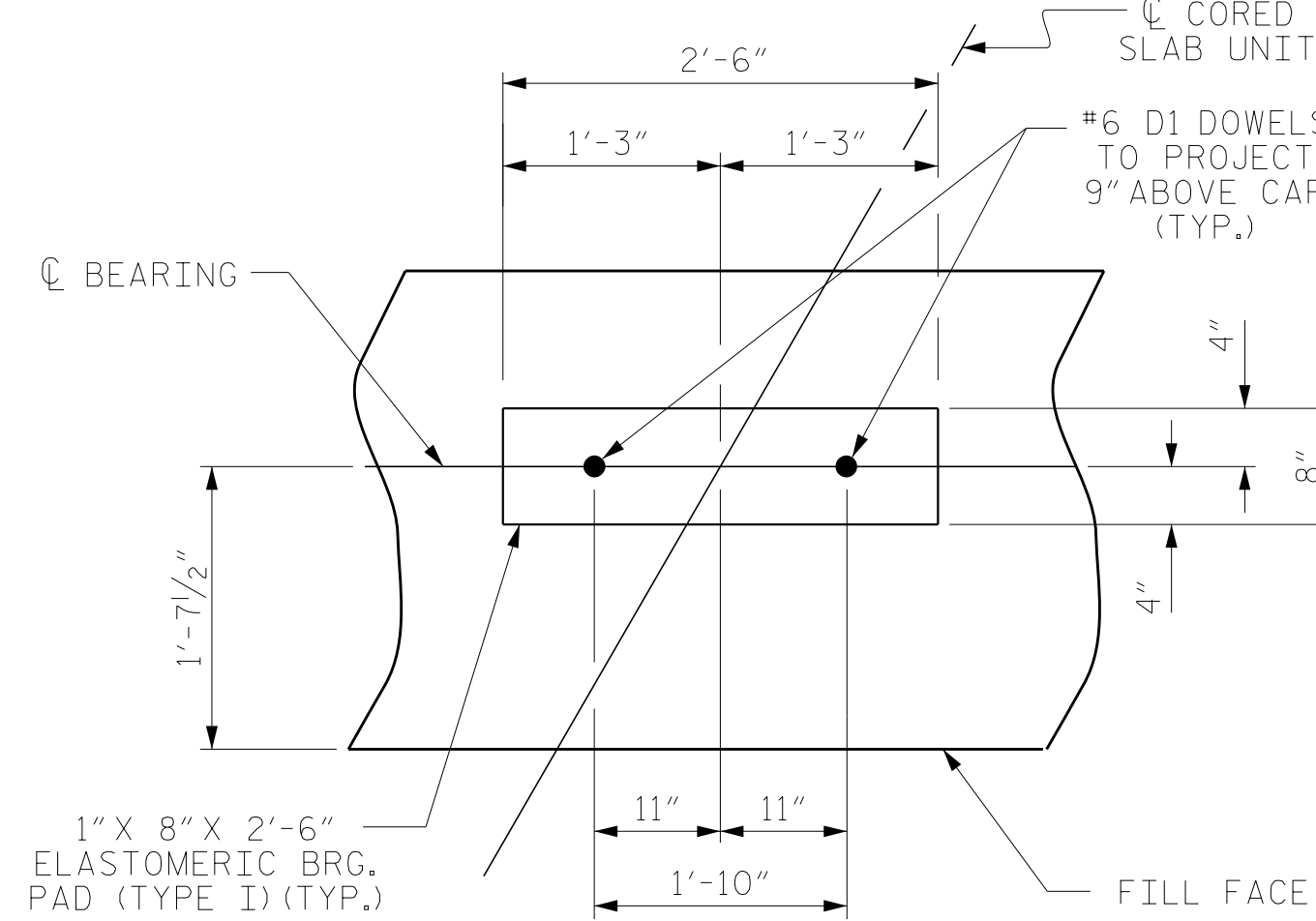


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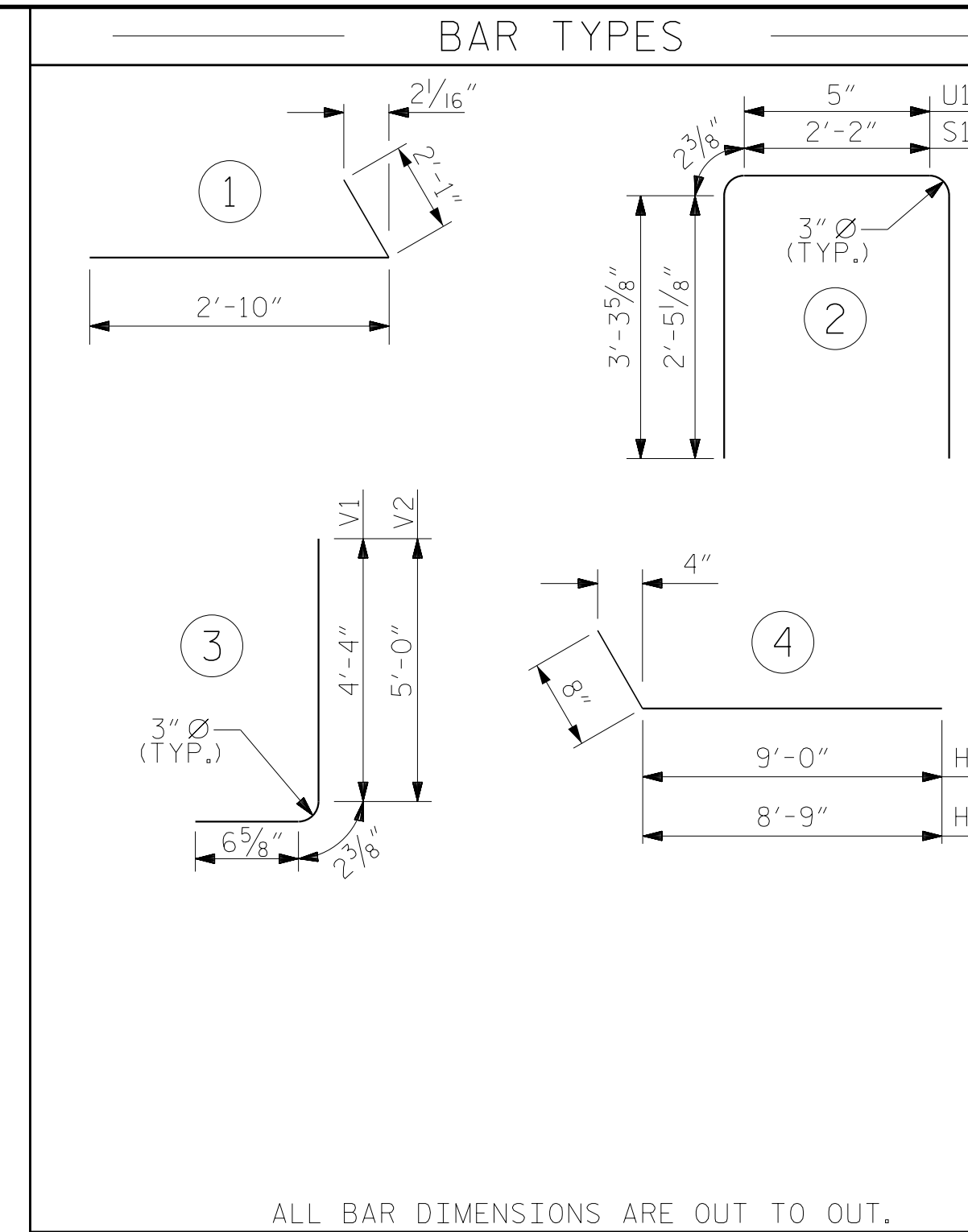
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



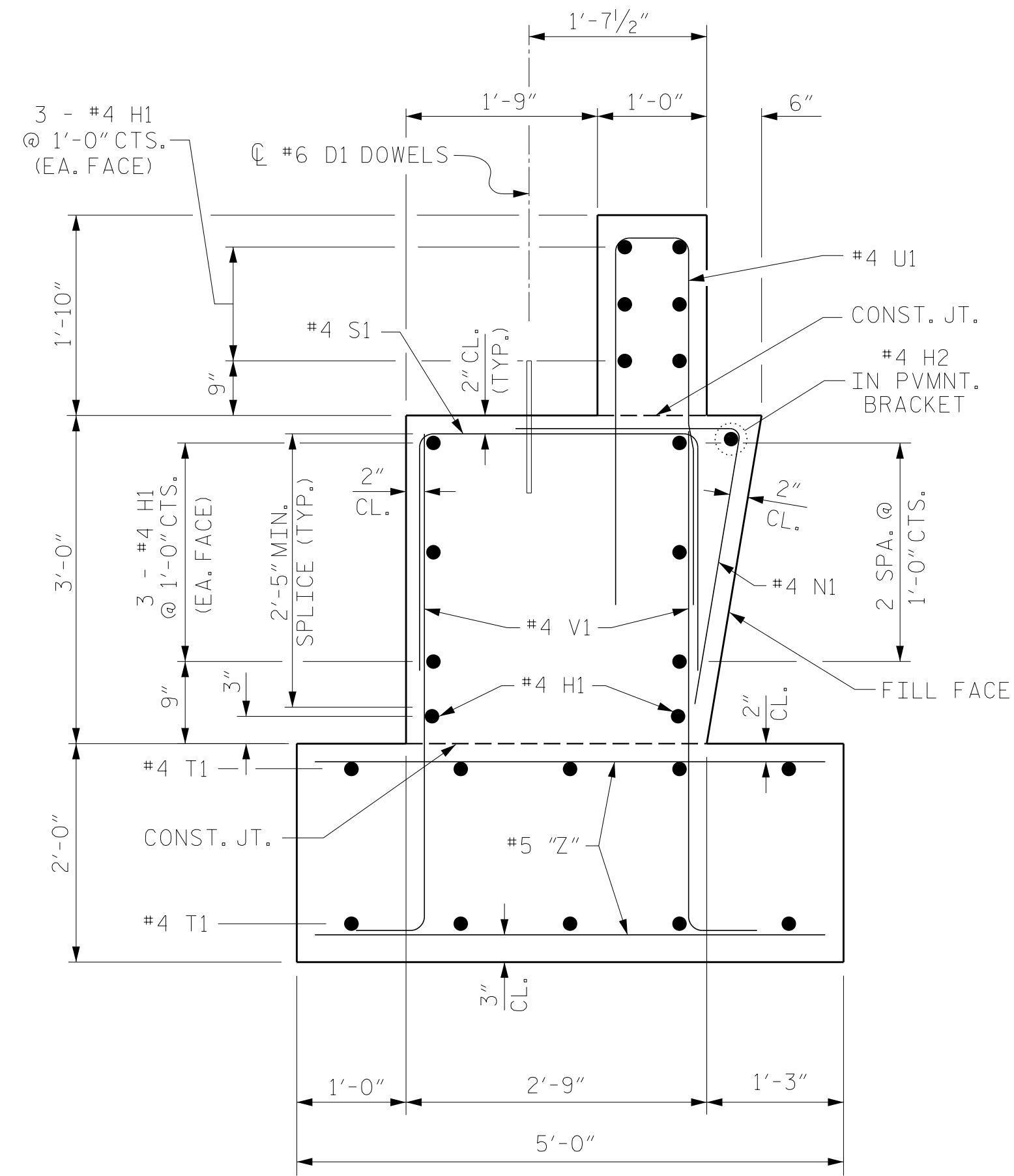
DETAIL "A"

(END BENT No. 2 SHOWN)

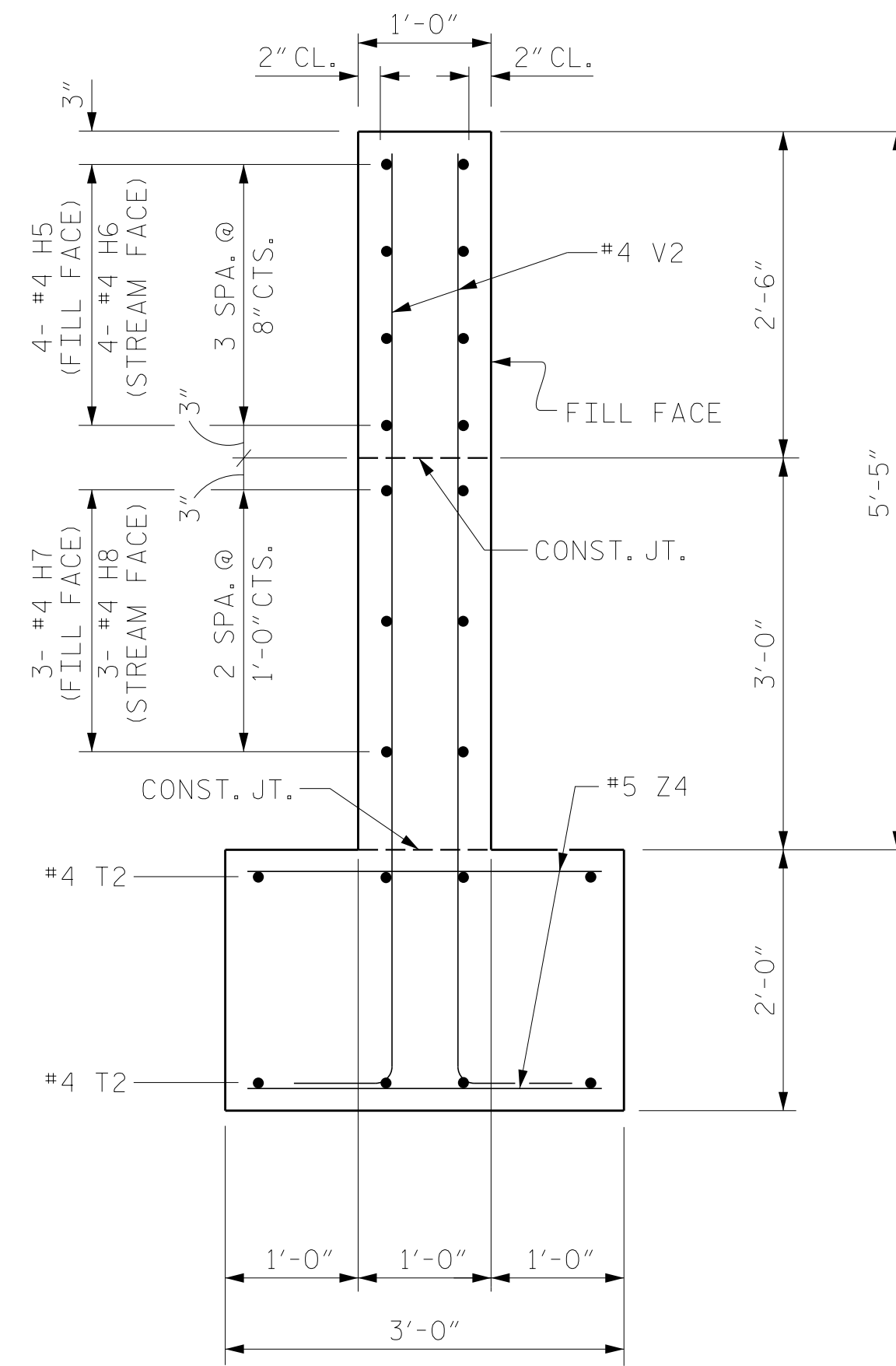


BILL OF MATERIAL FOR END BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D1	22	#6	STR	1'-6"	50
H1	28	#4	STR	23'-6"	439
H2	2	#4	STR	22'-11"	31
H3	7	#4	STR	8'-5"	39
H4	7	#4	STR	8'-2"	38
H5	4	#4	4	9'-8"	26
H6	4	#4	4	9'-5"	25
H7	3	#4	STR	11'-1"	22
H8	3	#4	STR	10'-9"	22
K1	2	#4	STR	2'-11"	4
N1	43	#4	1	4'-11"	141
S1	44	#4	2	7'-5"	218
T1	20	#4	STR	27'-2"	363
T2	12	#4	STR	8'-3"	66
U1	47	#4	2	7'-5"	233
V1	89	#4	3	5'-1"	302
V2	49	#4	3	5'-9"	188
Z1	100	#5	STR	4'-8"	487
Z2	2	#5	STR	3'-5"	7
Z3	2	#5	STR	1'-9"	4
Z4	18	#5	STR	2'-8"	50

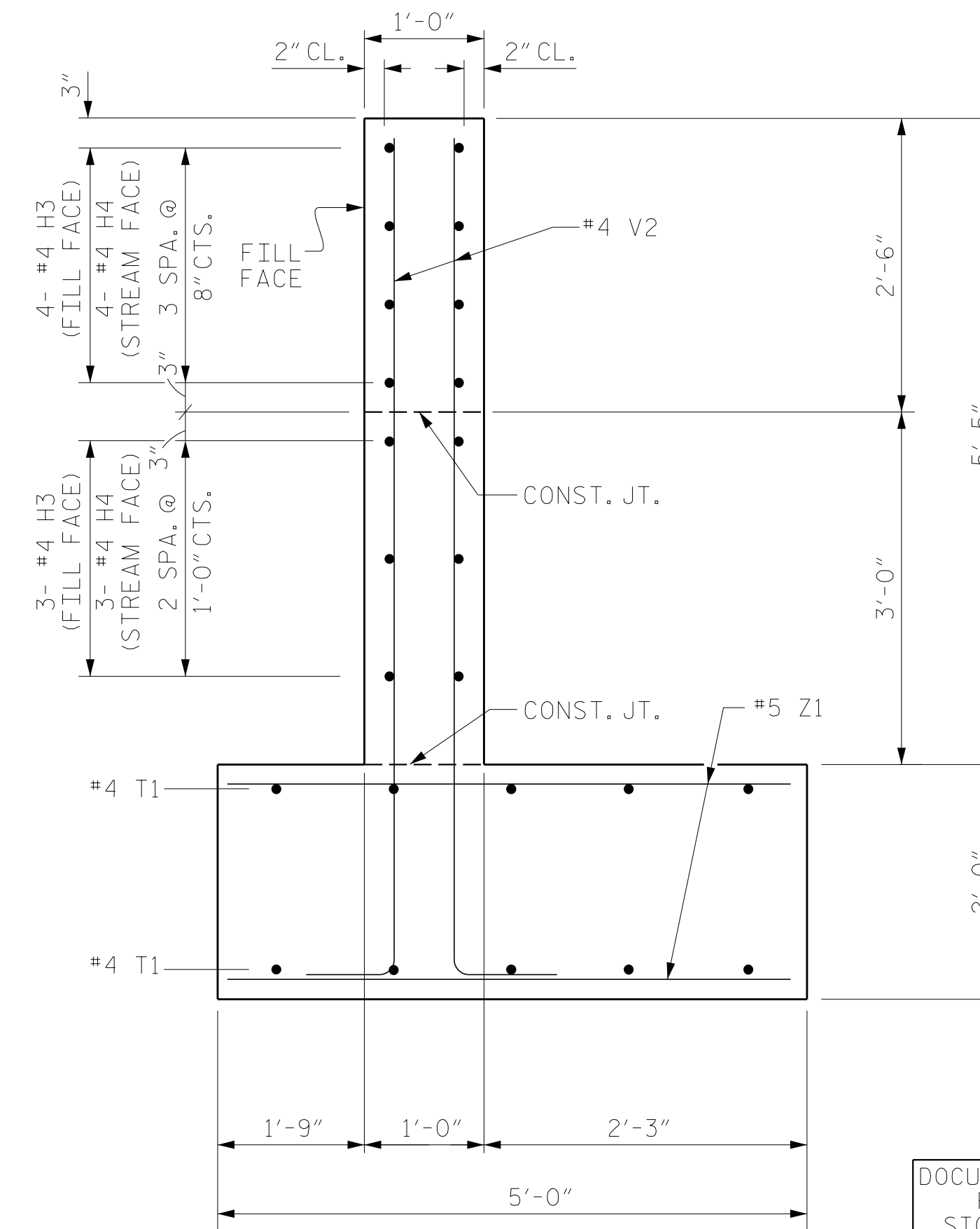
REINFORCING STEEL		2755 LBS.
CLASS A CONCRETE BREAKDOWN		
POUR #1 FOOTING		20.4 C.Y.
POUR #2 STEM AND LOWER PART OF WINGS		16.5 C.Y.
POUR #3 BACKWALL AND UPPER PART OF WINGS		4.5 C.Y.
TOTAL CLASS A CONCRETE		41.4 C.Y.



SECTION A-A



SECTION X-X



SECTION Y-Y

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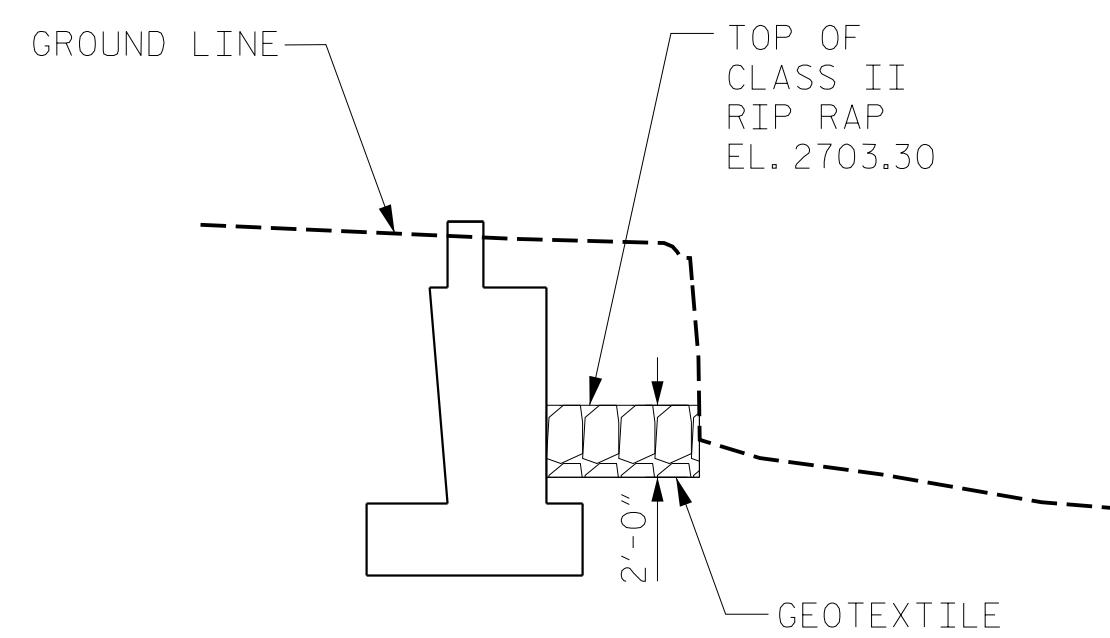
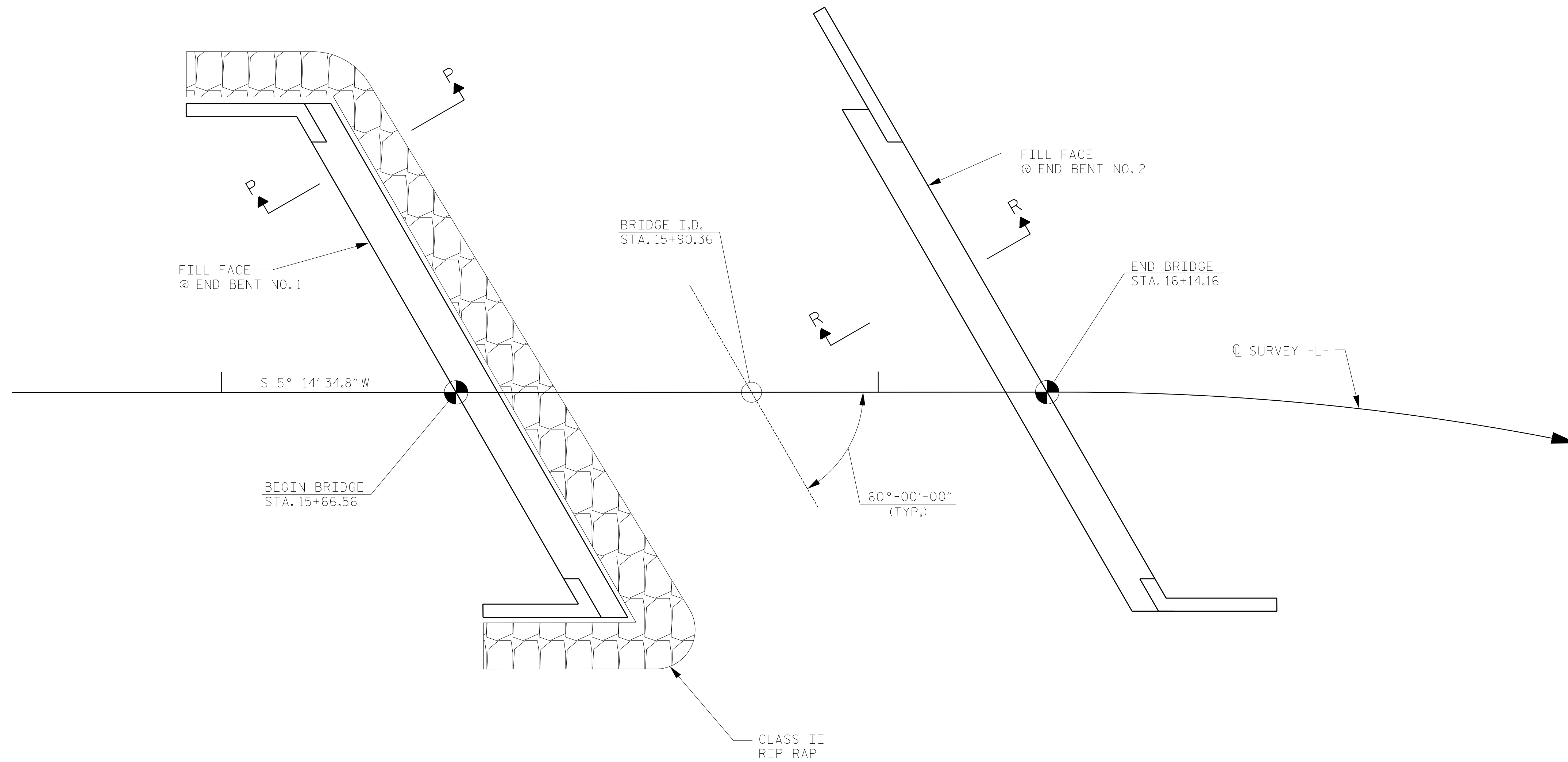
PROJECT NO. 17BP.14.R.143
 TRANSYLVANIA COUNTY
 STATION: 15+90.36 -L-

SHEET 4 OF 4

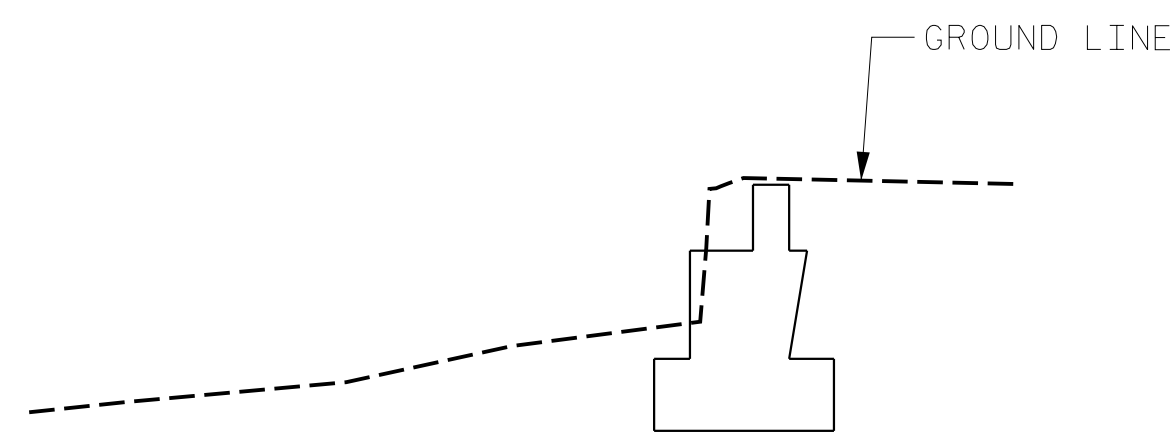
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT No. 2
 DETAILS

DES. EGR. OF RECORD: CBC
 DRAWN BY: RWW DATE: 3/2015
 CHECKED BY: HLW DATE: 3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			17



SECTION P-P



SECTION R-R

ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+90.36	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	32	36
END BENT 2	-	-

PROJECT NO. 17BP.14.R.143
 TRANSYLVANIA COUNTY
 STATION: 15+90.36 -L-

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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 —RIP RAP DETAILS—

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

DES. EGR. OF RECORD: CBC
 DRAWN BY: RWW DATE: 3/2015
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STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

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