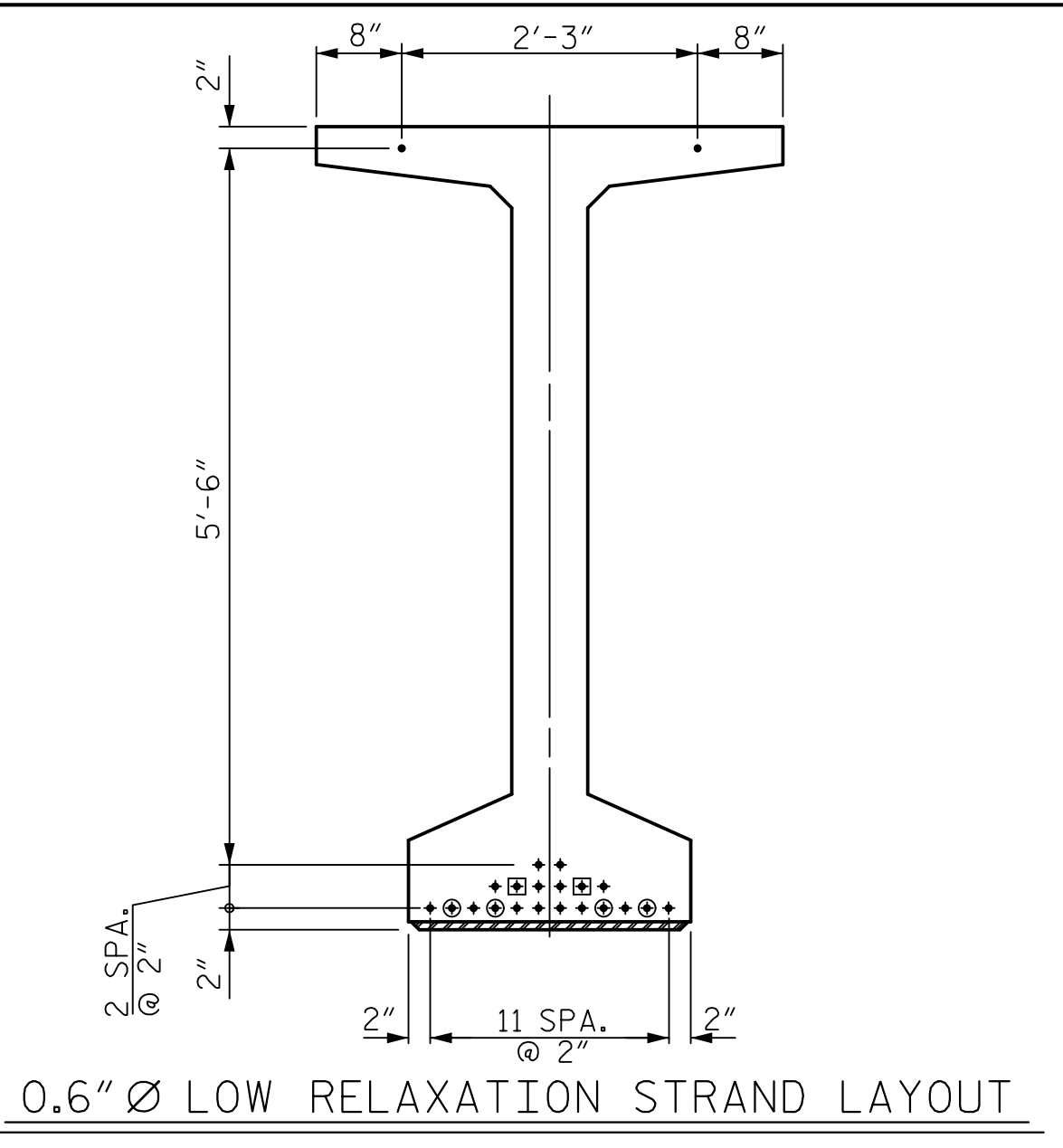
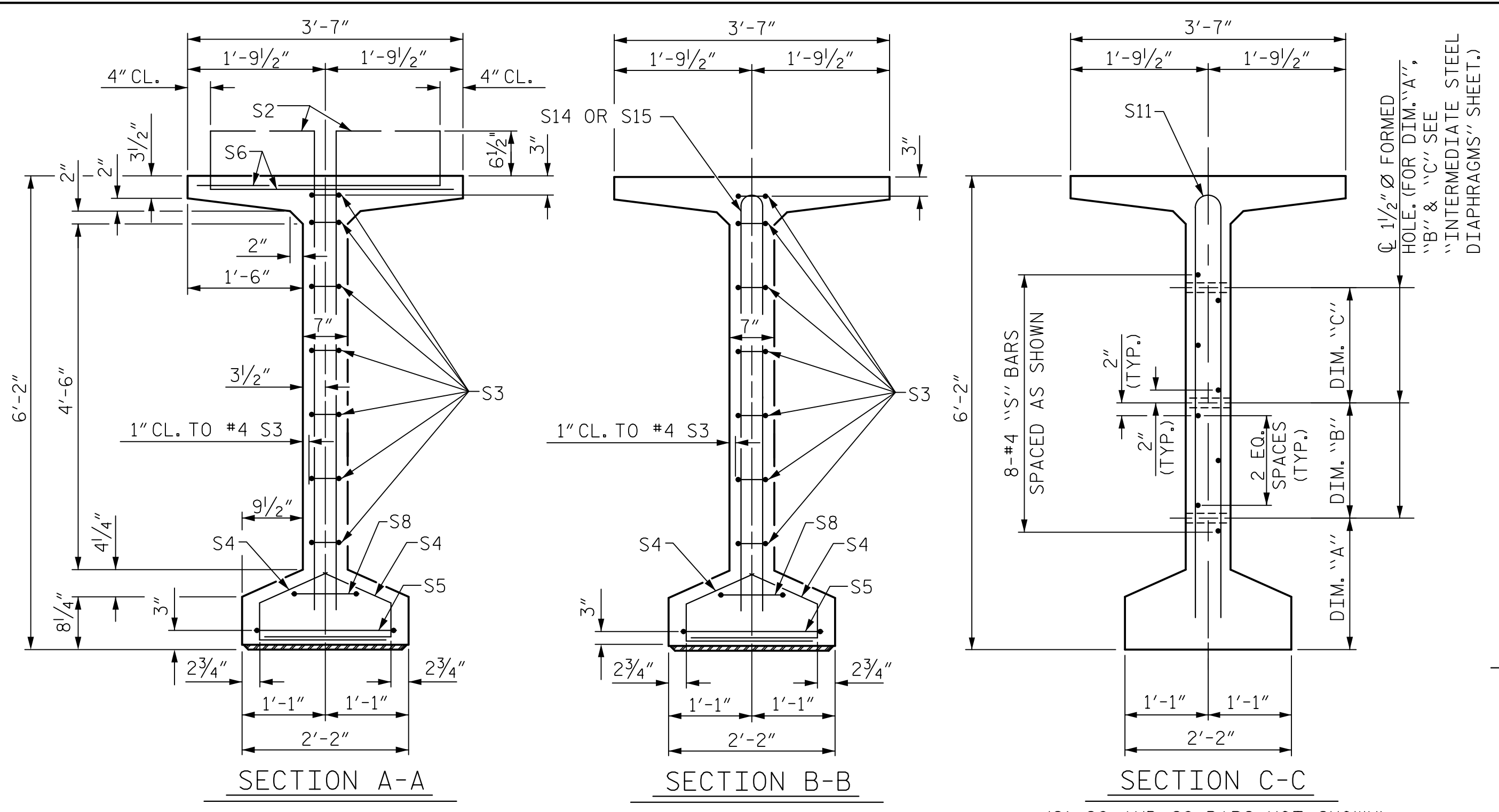


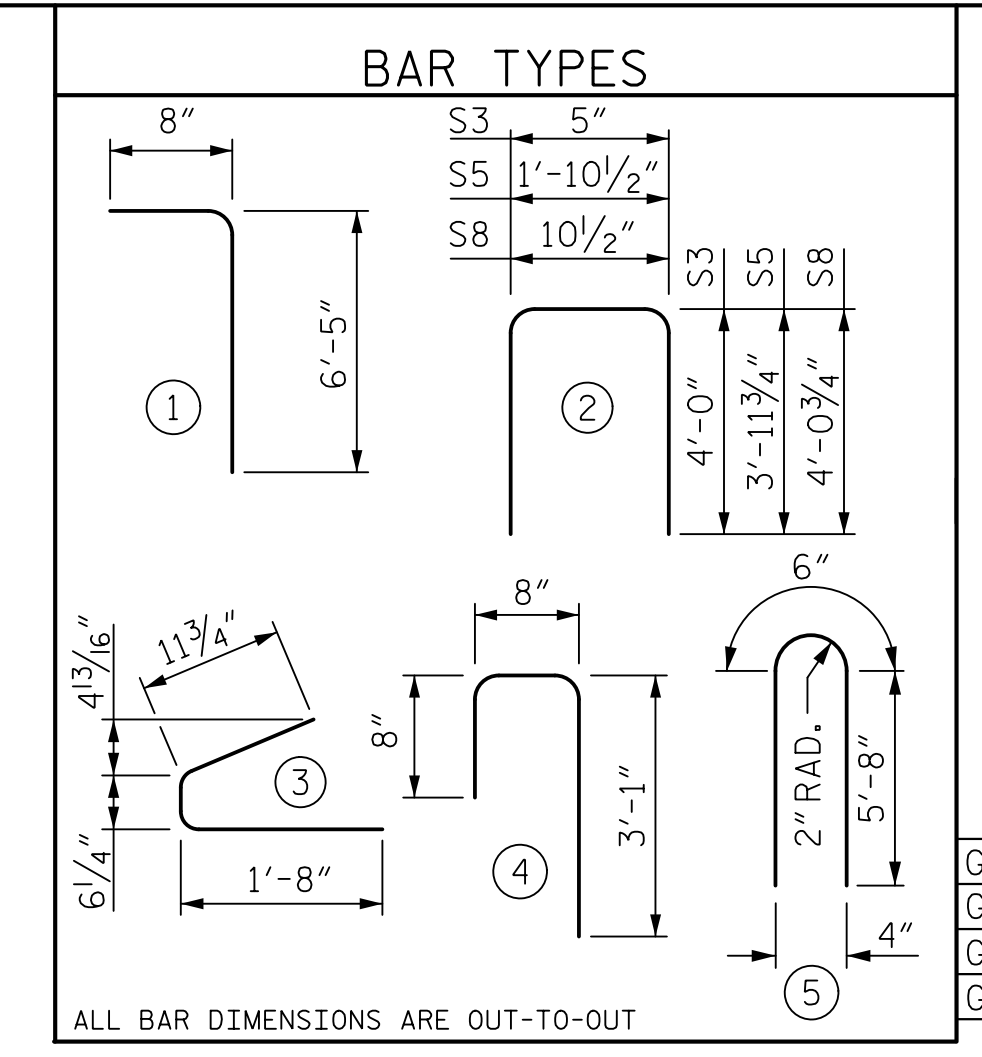
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**This file or an individual page
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- DEBONDING LEGEND**
- FULLY BONDED STRANDS
 - ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
 - ⊙ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER

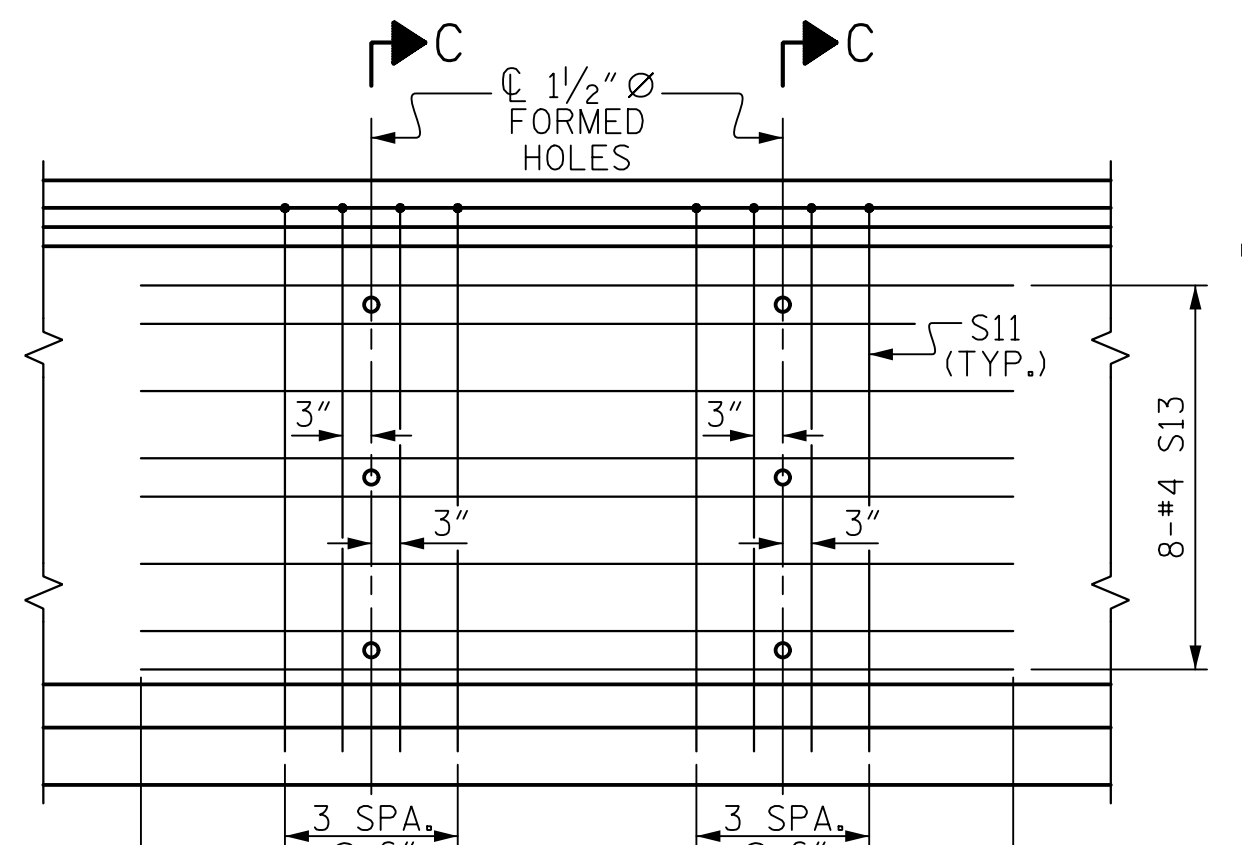


0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
S1	124	#4	1	7'-1"	587	
S2	12	#5	1	7'-1"	89	
S3	14	#4	2	8'-5"	79	
S4	84	#4	3	3'-2"	178	
S5	2	#5	2	9'-10"	21	
S6	136	#5	4	4'-5"	626	
S8	2	#5	2	9'-0"	19	
S9	26	#5	STR	3'-3"	88	
GA1, GA4	S11	4	#5	5	11'-10"	49
GA2, GA3	S11	8	#5	5	11'-10"	99
GA1, GA4	S12	8	#4	STR	8'-0"	43
GA2, GA3	S13	8	#4	STR	21'-7"	115
S14	6	#5	5	11'-10"	74	
S15	3	#4	5	11'-10"	24	

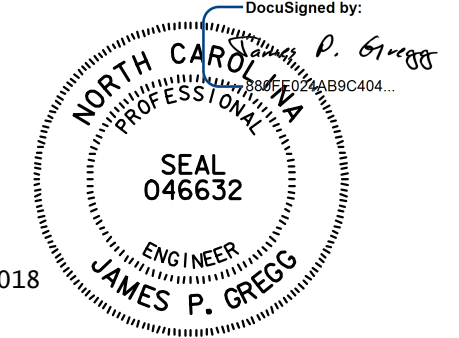
QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	5,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
GA1	1,877	16.6	22
GA2	1,999	16.6	22
GA3	1,999	16.6	22
GA4	1,877	16.6	22

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	72'-8 1/2"	290.83'



PARTIAL ELEVATION
SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. GA2 & GA3

NOTES:
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI FOR SPAN A GIRDERS.
GIRDER CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AT THE AGE OF 28 DAYS.



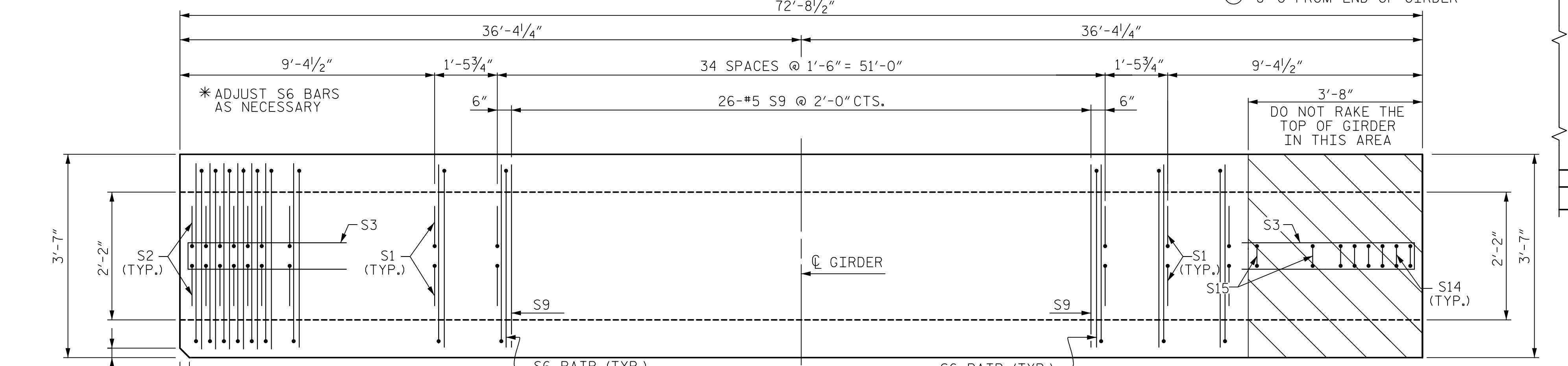
PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 1 OF 6

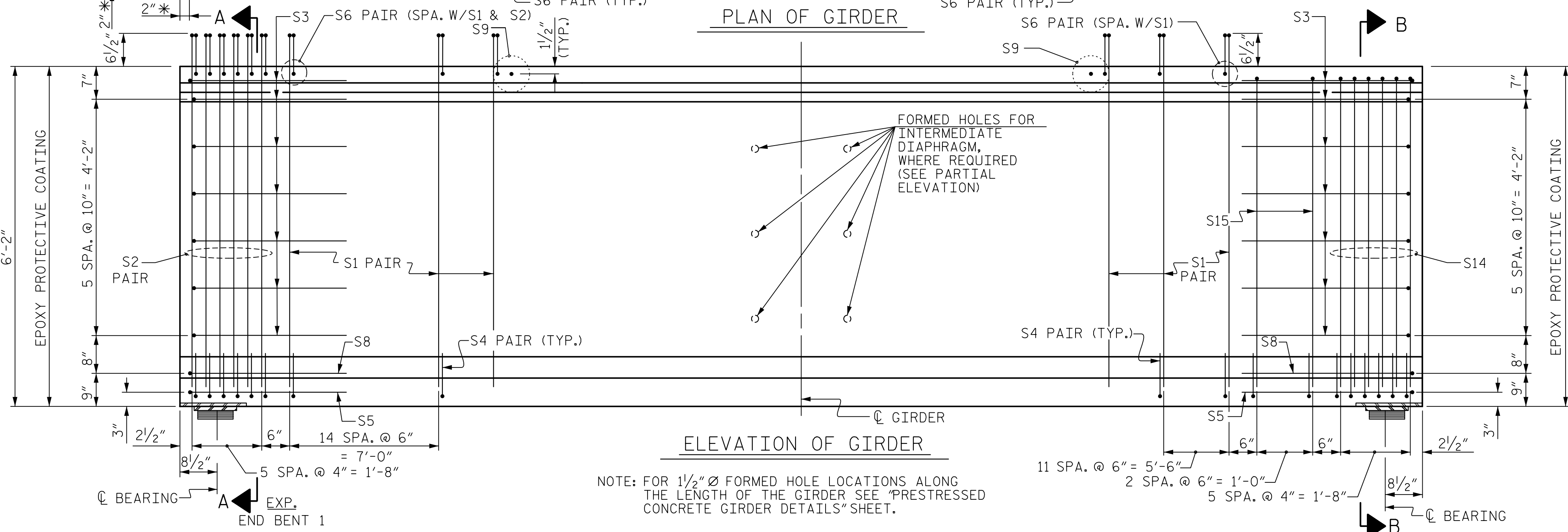
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 74" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 SPAN A

LEFT LANE

REVISIONS					SHEET NO. S03-13
NO.	BY	DATE	NO.	DATE	
1			3		TOTAL SHEETS 46
2			4		

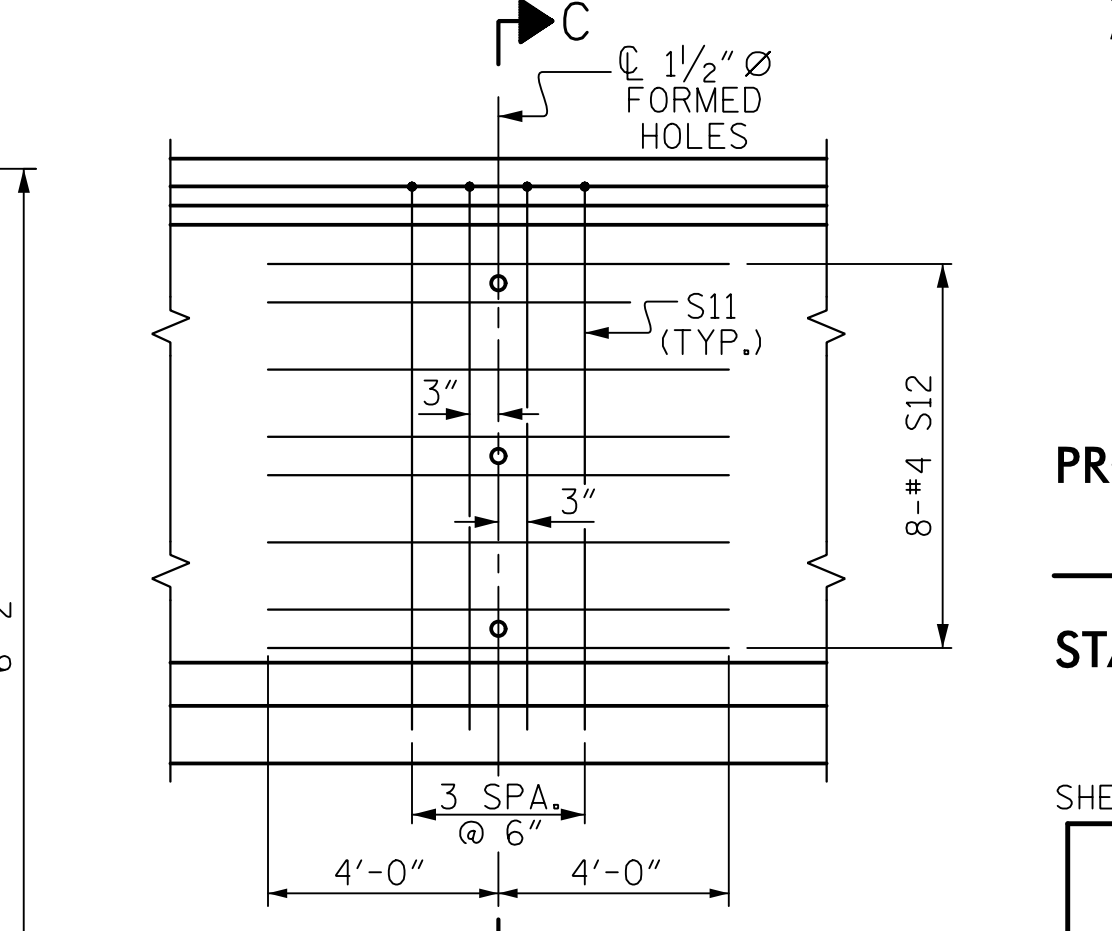


PLAN OF GIRDER



ELEVATION OF GIRDER

NOTE: FOR 1/2" Ø FORMED HOLE LOCATIONS ALONG THE LENGTH OF THE GIRDER SEE "PRESTRESSED CONCRETE GIRDER DETAILS" SHEET.



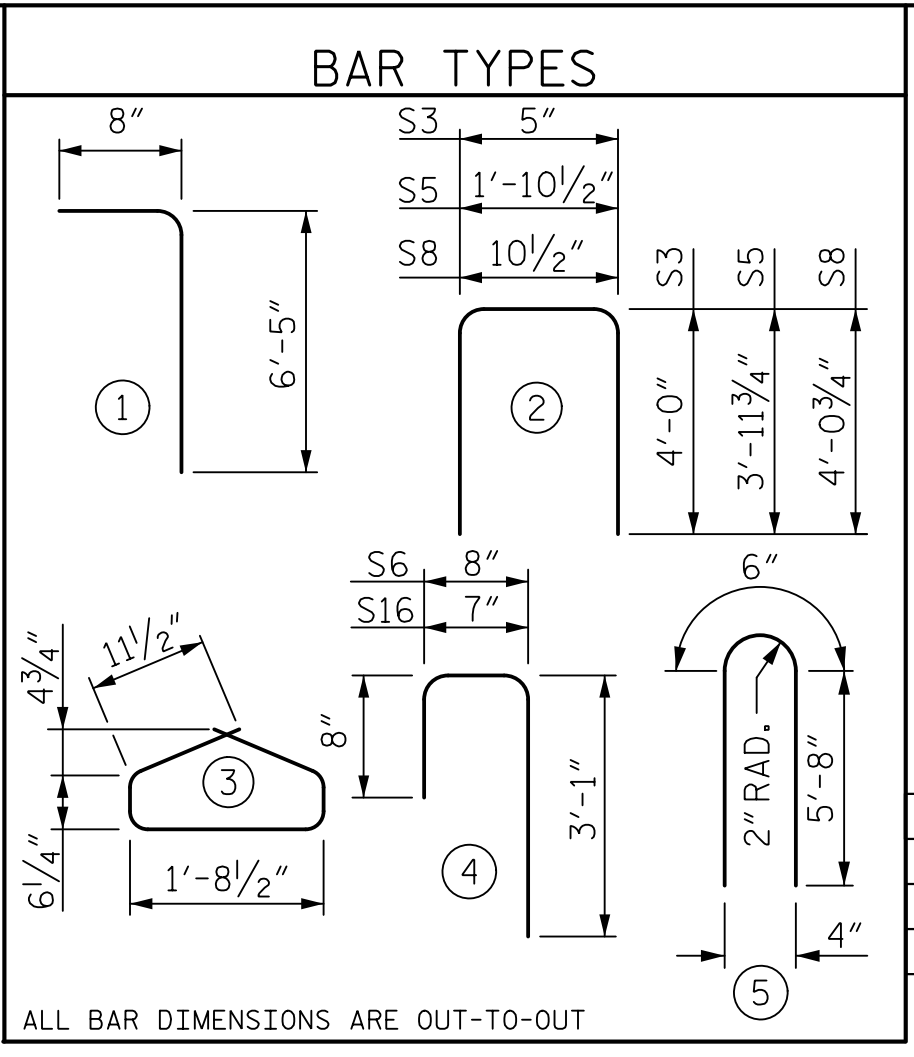
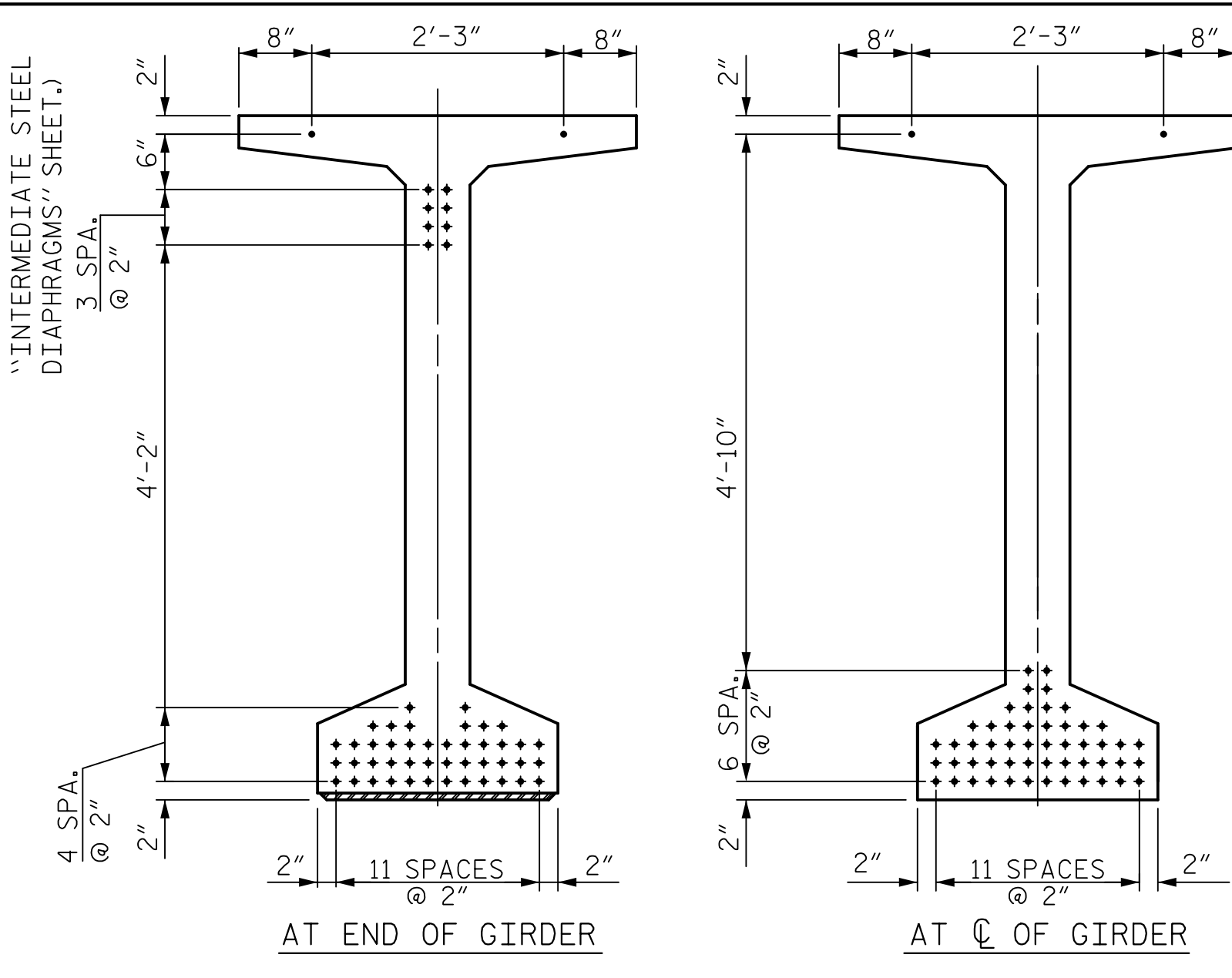
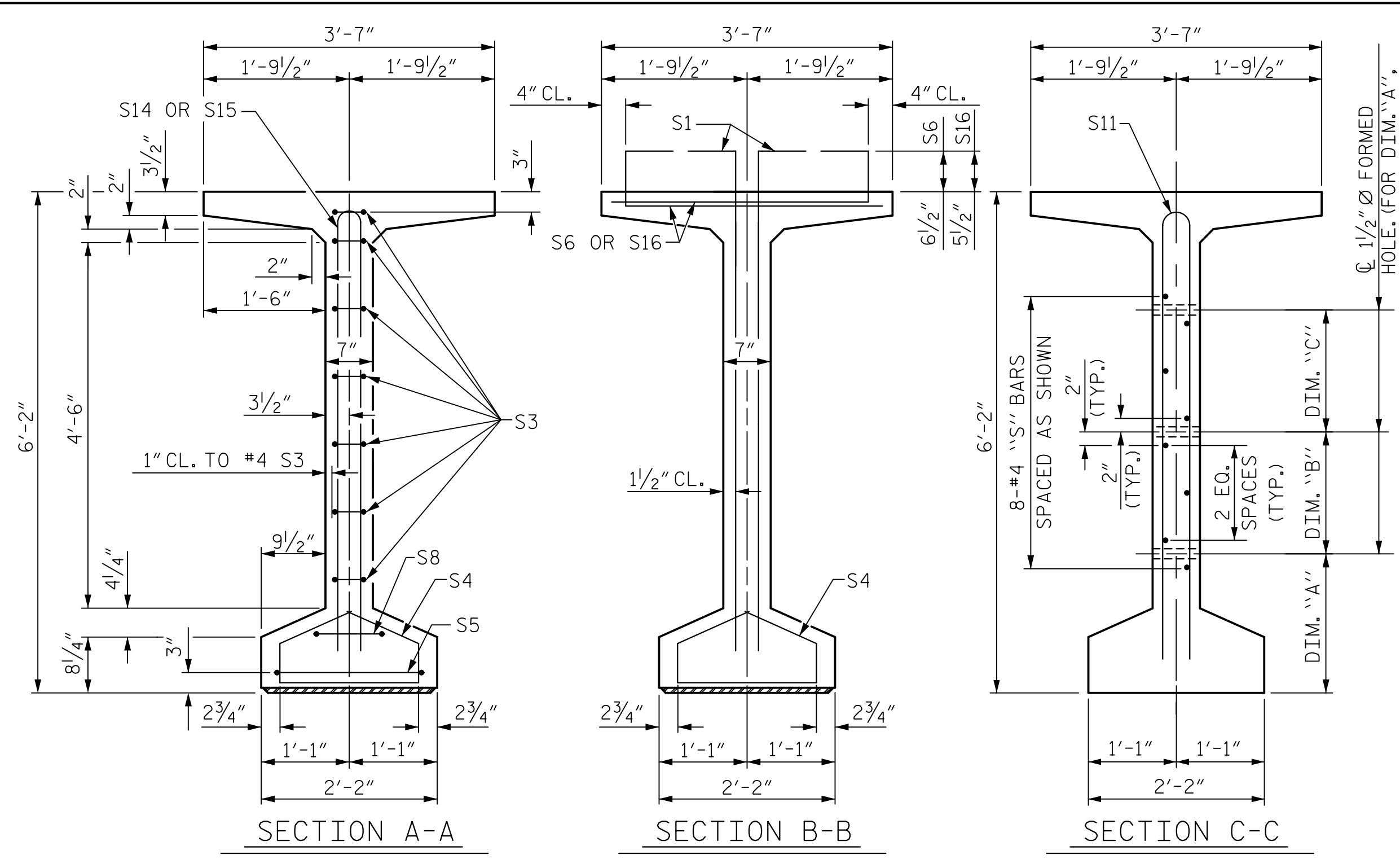
PARTIAL ELEVATION
SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. GA1 & GA4

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 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: A. SMITH DATE: 7/18
 CHECKED BY: E. JOWZA DATE: 9/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 13

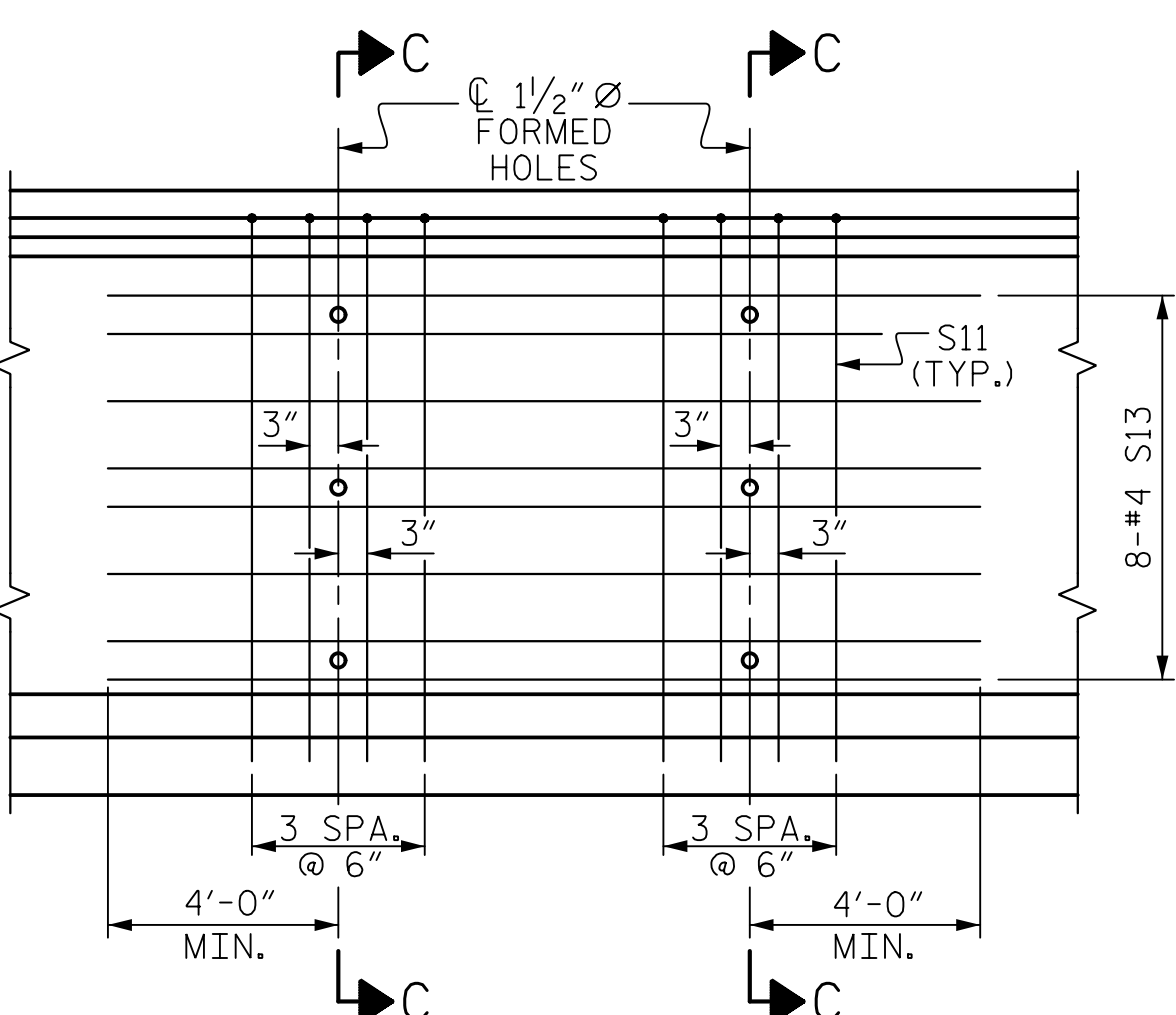
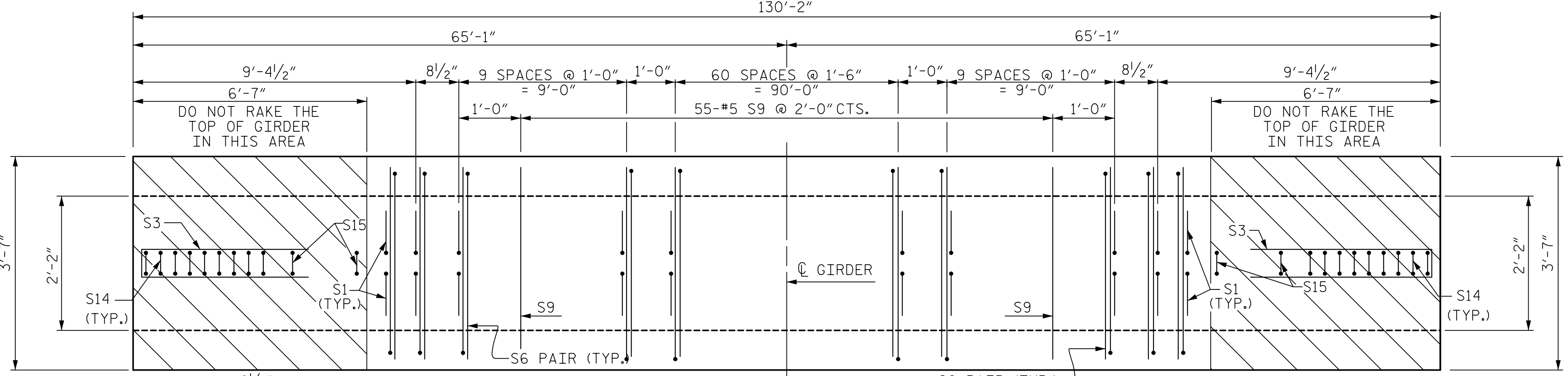
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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

REINFORCING STEEL FOR ONE GDR						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
S1	186	#4	1	7'-1"	880	
S3	14	#4	2	8'-5"	79	
S4	48	#4	3	4'-8"	150	
S5	2	#5	2	9'-10"	21	
S6	80	#5	4	4'-5"	369	
S8	2	#5	2	9'-0"	19	
S9	55	#5	STR	3'-3"	186	
GB1, GB4	S11	8	#5	5	11'-10"	99
GB2, GB3	S11	16	#5	5	11'-10"	197
GB1, GB4	S12	16	#4	STR	8'-0"	86
S13	16	#4	STR	21'-11"	234	
S14	18	#6	5	11'-10"	320	
S15	18	#4	5	11'-10"	142	
S16	106	#5	4	4'-4"	479	

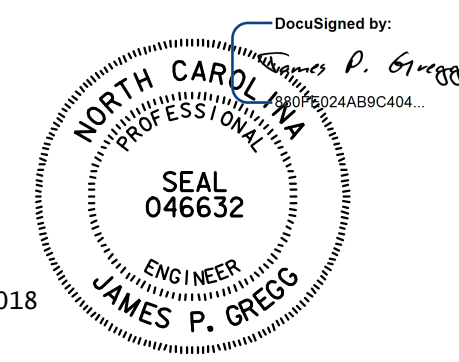
0.6" Ø LOW RELAXATION STRAND LAYOUT
NOTE: ALL STRANDS ARE BONDED FULL LENGTH.



QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	10,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
GB1	2,830	29.6	54
GB2	3,076	29.6	54
GB3	3,076	29.6	54
GB4	2,830	29.6	54

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	130'-2"	520.67'

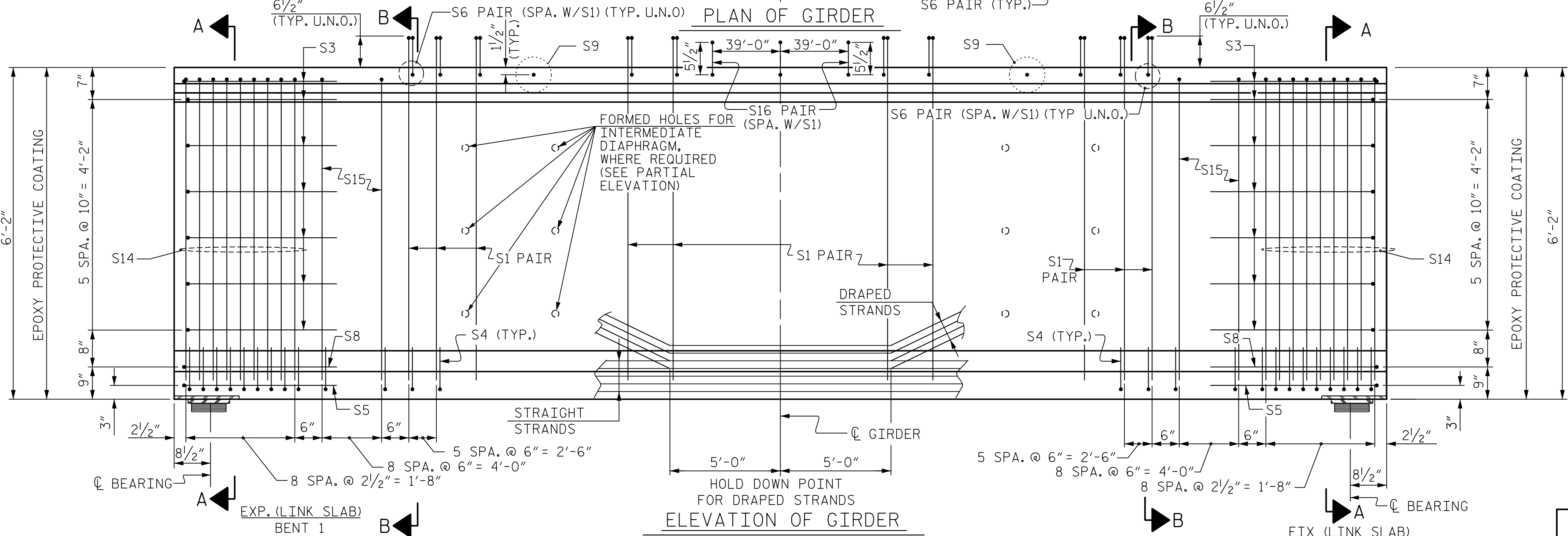
NOTES:
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 8,100 PSI FOR SPAN B GIRDERS.
GIRDER CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 10,000 PSI AT THE AGE OF 28 DAYS.
THE UPLIFT FORCE DUE TO DRAPED STRANDS IS 25 KIPS.



PROJECT NO. R-1015
CRAVEN COUNTY
STATION: POC STA. 138+31.09 -L-

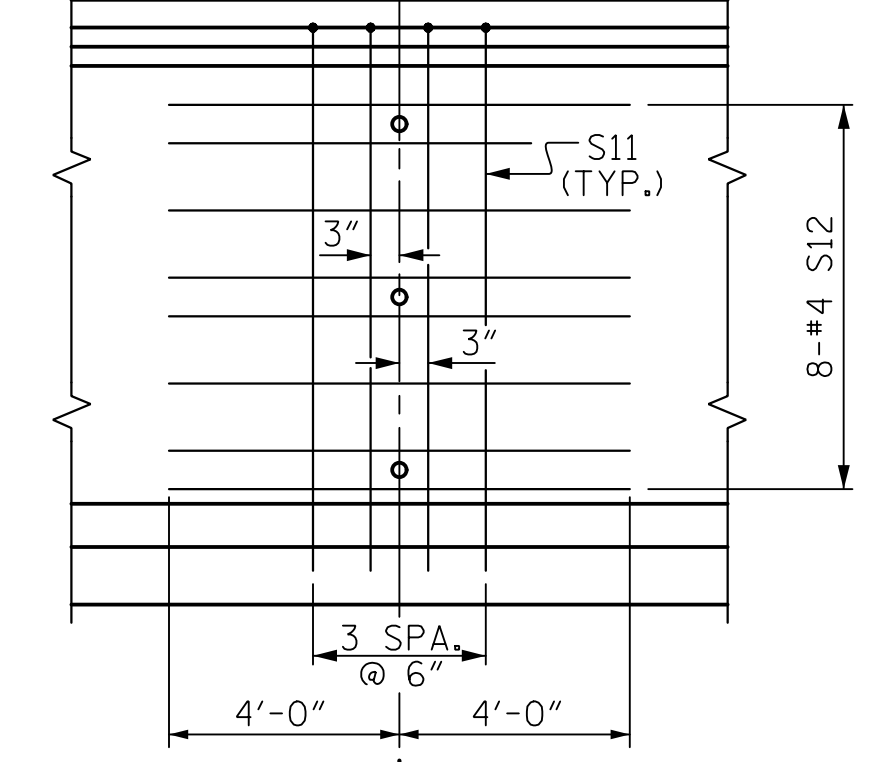
SHEET 2 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
74" PRESTRESSED CONCRETE MODIFIED BULB TEE SPAN B					
LEFT LANE					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		



SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. GB2 & GB3

SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. GB1 & GB4



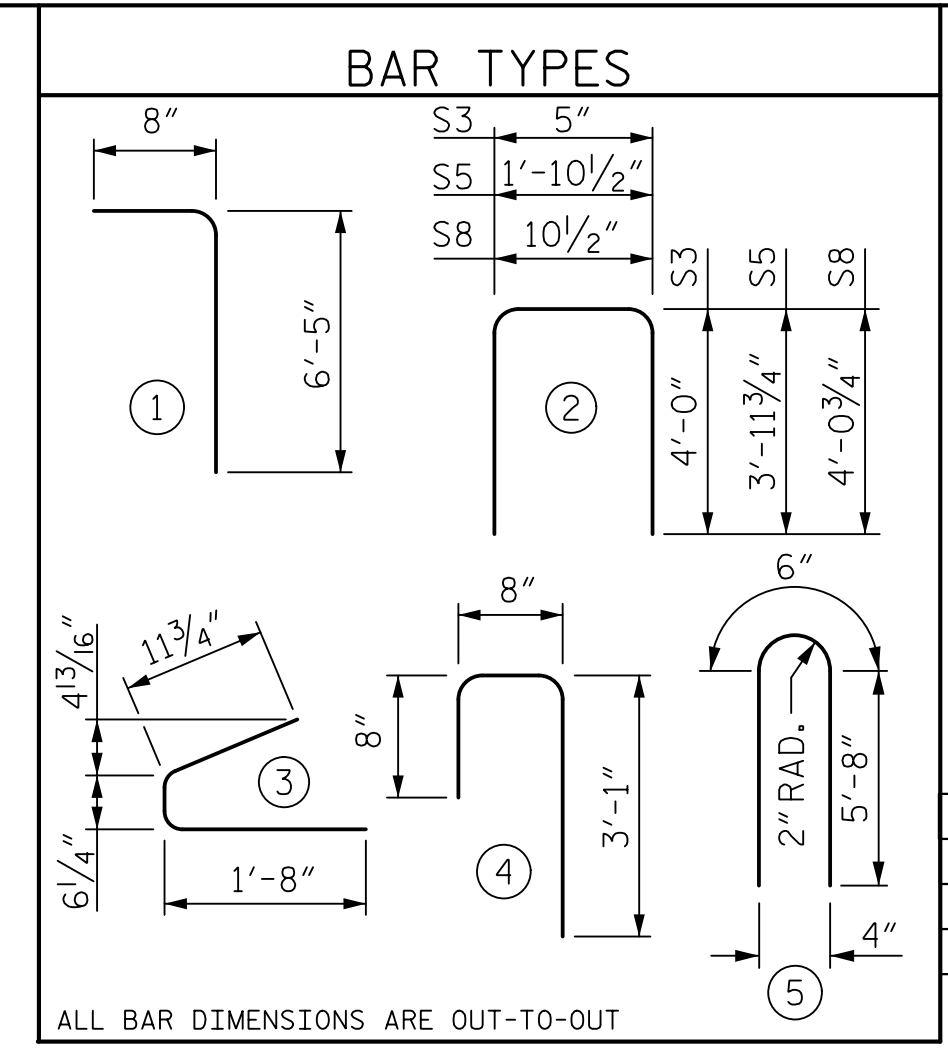
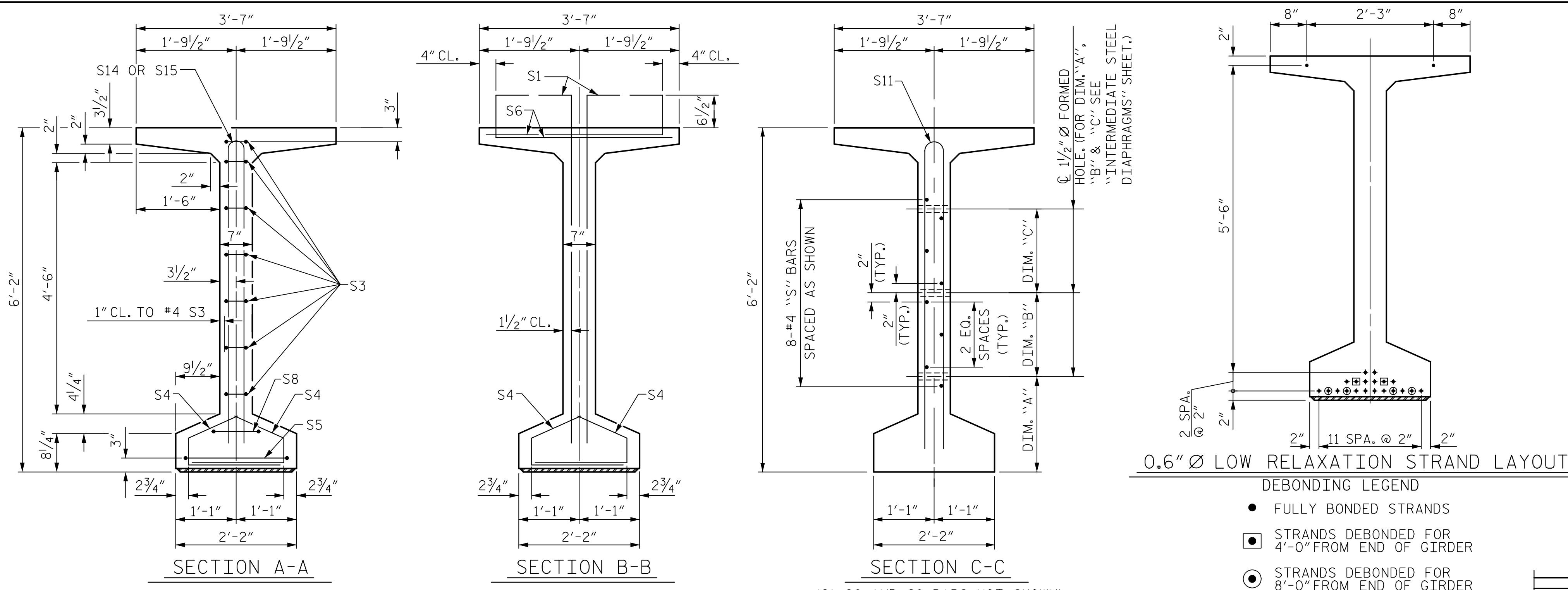
NOTE: FOR 1/2" Ø FORMED HOLE LOCATIONS ALONG THE LENGTH OF THE GIRDER SEE "PRESTRESSED CONCRETE GIRDER DETAILS" SHEET.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: A. SMITH DATE: 7/18
CHECKED BY: E. JONZA DATE: 9/18
DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 14



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

REINFORCING STEEL FOR ONE GDR						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
S1	150	#4	1	7'-1"	710	
S3	14	#4	2	8'-5"	79	
S4	84	#4	3	3'-2"	178	
S5	2	#5	2	9'-10"	21	
S6	150	#5	4	4'-5"	691	
S8	2	#5	2	9'-0"	19	
S9	31	#5	STR	3'-3"	105	
GC1, GC4	S11	4	#5	5	11'-10"	49
GC2, GC3	S11	8	#5	5	11'-10"	99
GC1, GC4	S12	8	#4	STR	8'-0"	43
GC2, GC3	S13	8	#4	STR	22'-3"	119
	S14	12	#5	5	11'-10"	148
	S15	8	#4	5	11'-10"	63

0.6" Ø LOW RELAXATION STRAND LAYOUT

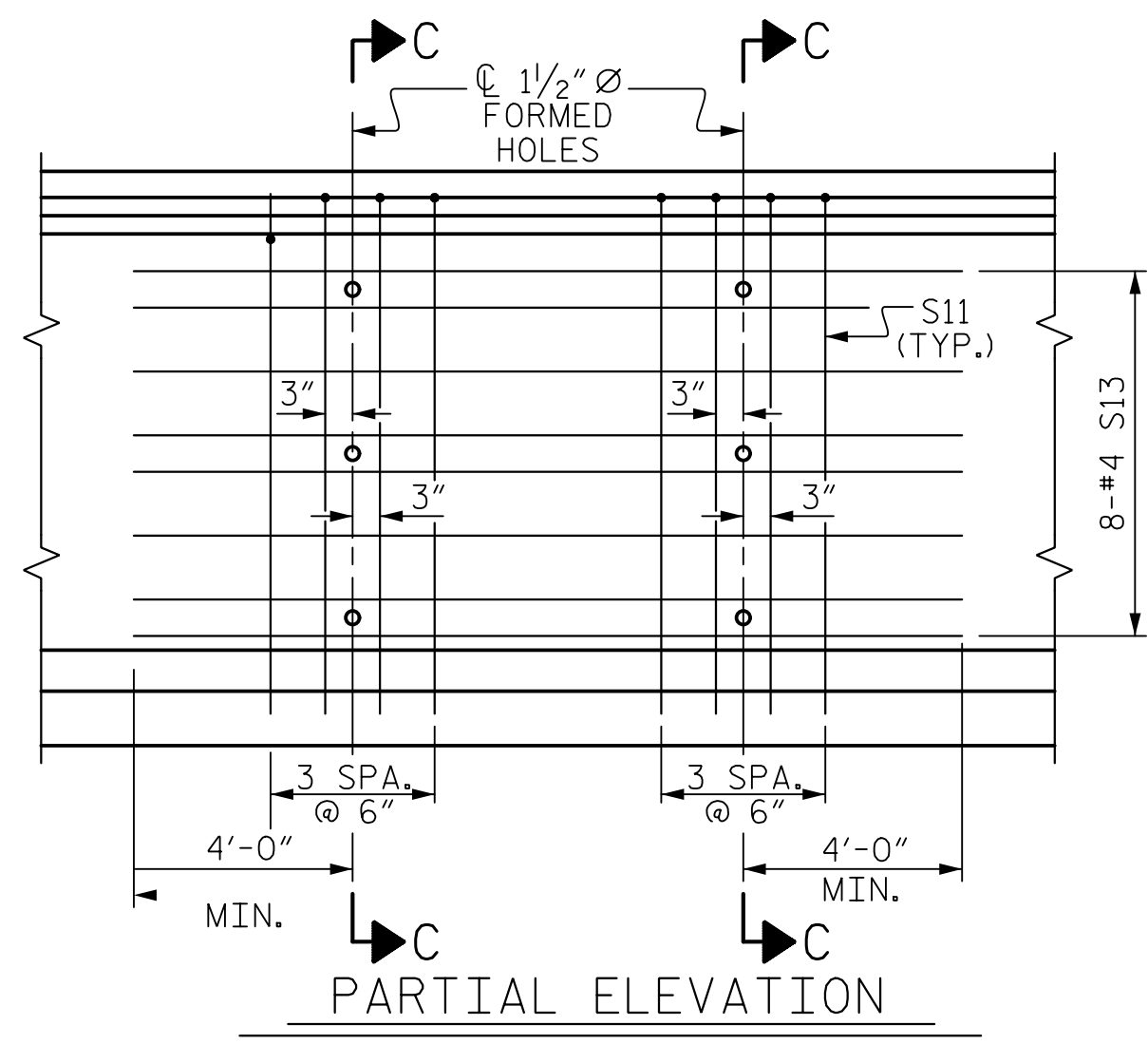
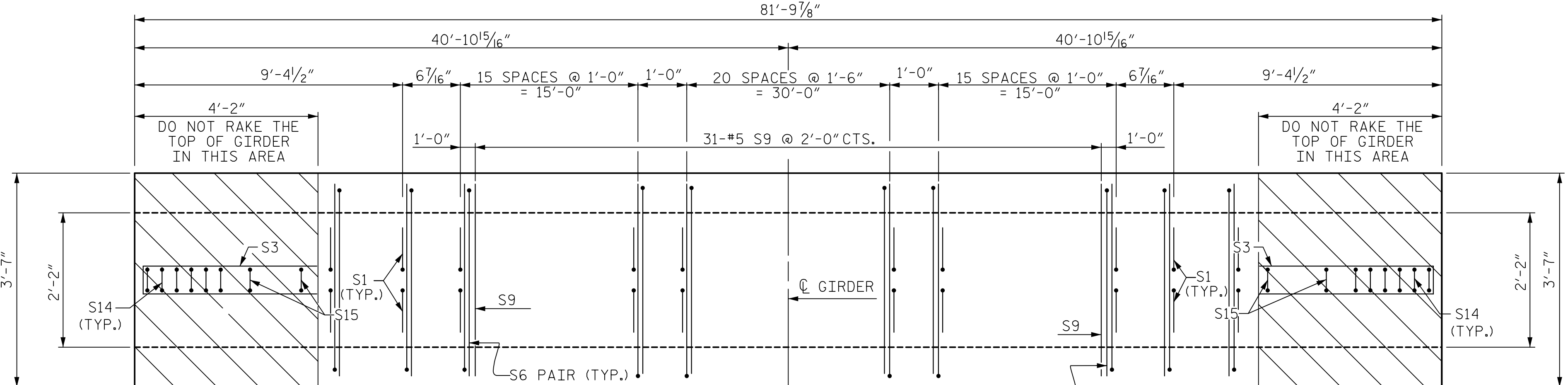
- DEBONDING LEGEND
- FULLY BONDED STRANDS
 - ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
 - STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER

QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL		5,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.		No.
GC1	2,106	18.6		22
GC2	2,232	18.6		22
GC3	2,232	18.6		22
GC4	2,106	18.6		22

GIRDERS REQUIRED

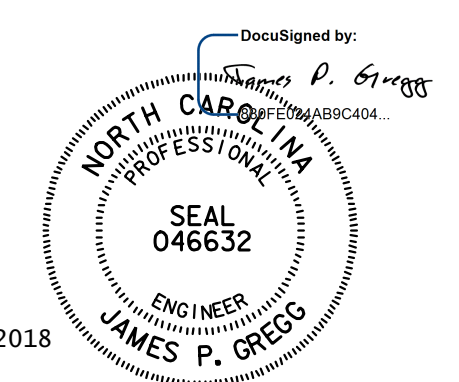
NUMBER	LENGTH	TOTAL LENGTH
4	81'-9 7/8"	327.29'



SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. GC2 & GC3

NOTES:
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI FOR SPAN C GIRDERS.

GIRDER CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AT THE AGE OF 28 DAYS.

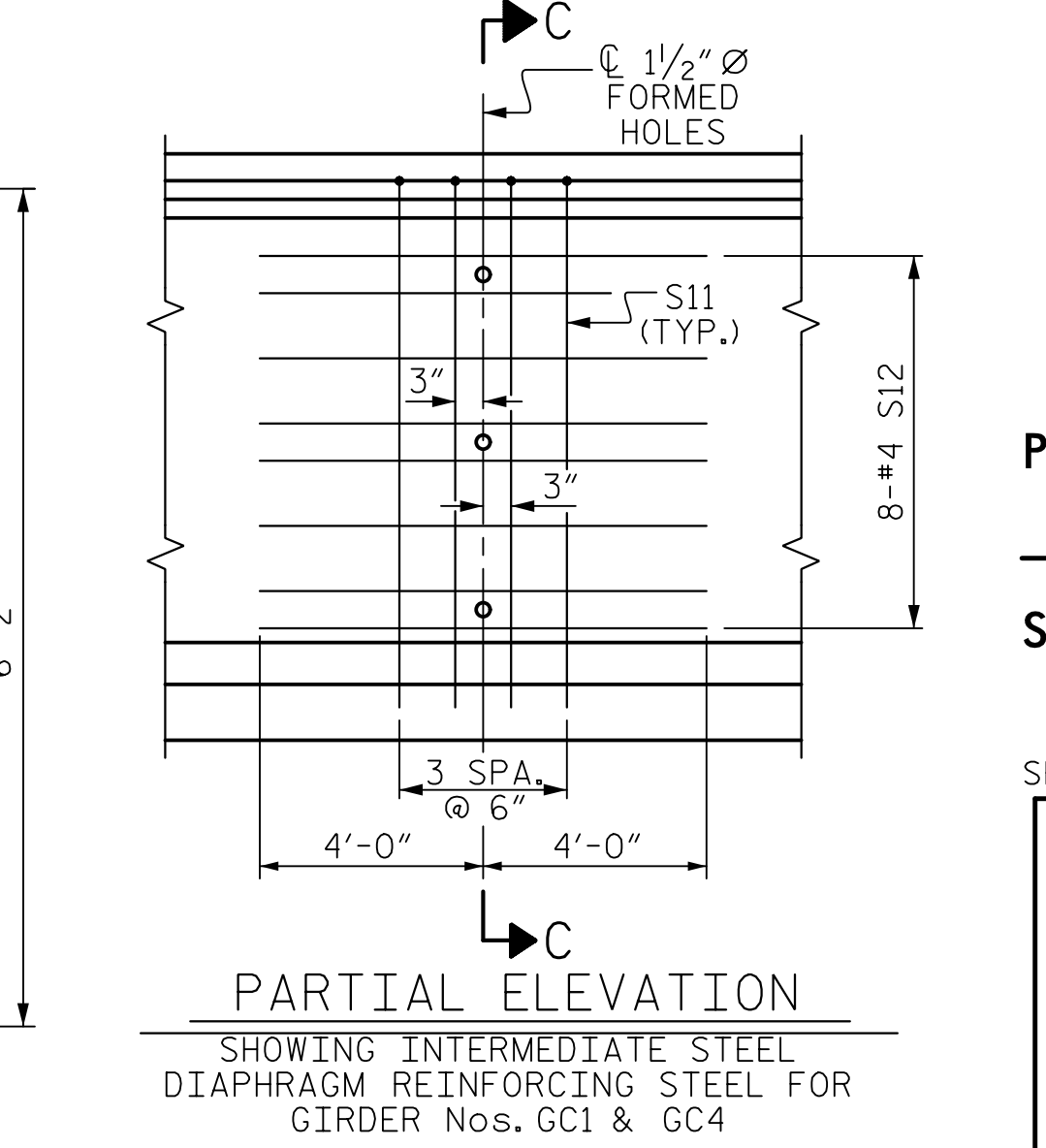
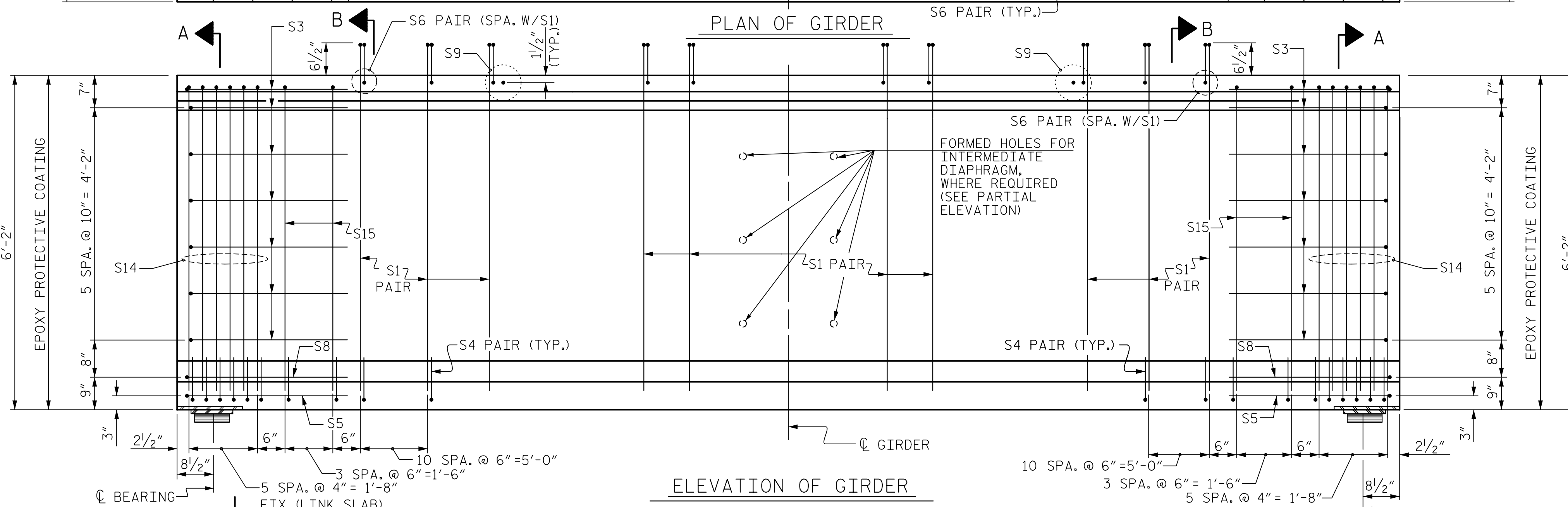


PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 3 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 74" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 SPAN C

REVISIONS					SHEET NO. S03-15
NO.	BY	DATE	NO.	DATE	
1			3		TOTAL SHEETS
2			4		46



SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. GC1 & GC4

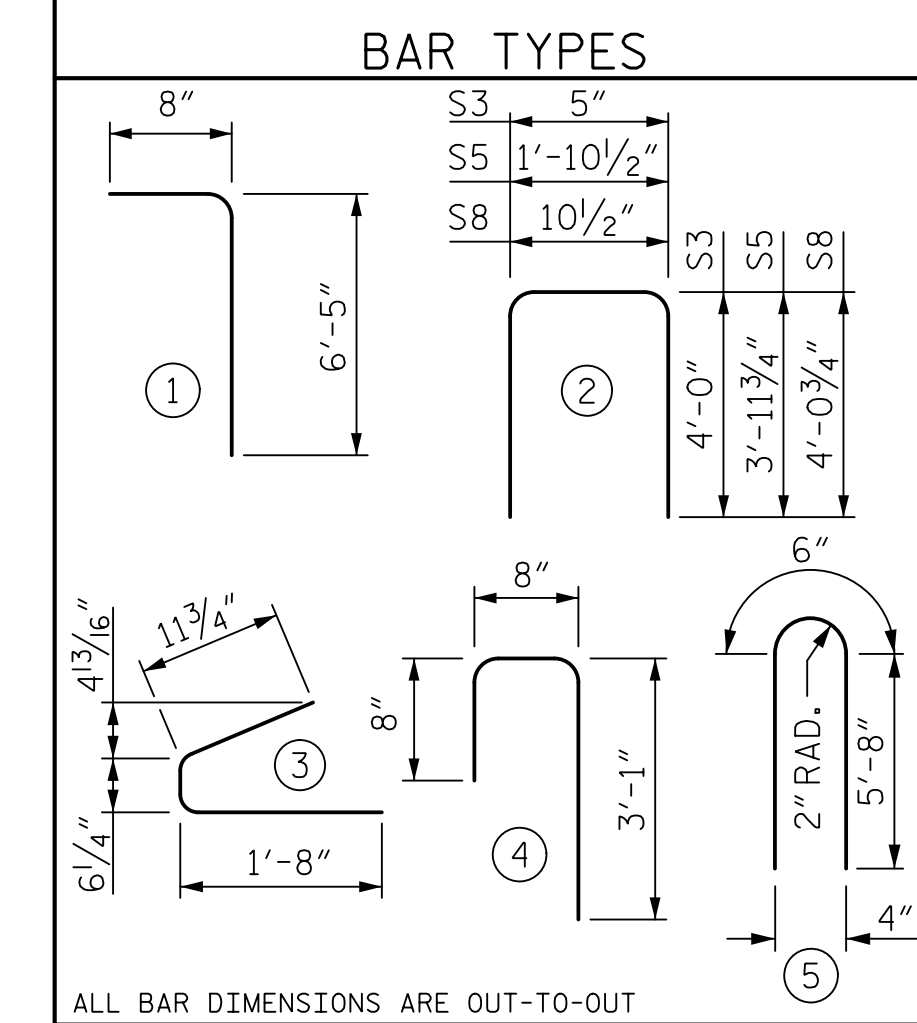
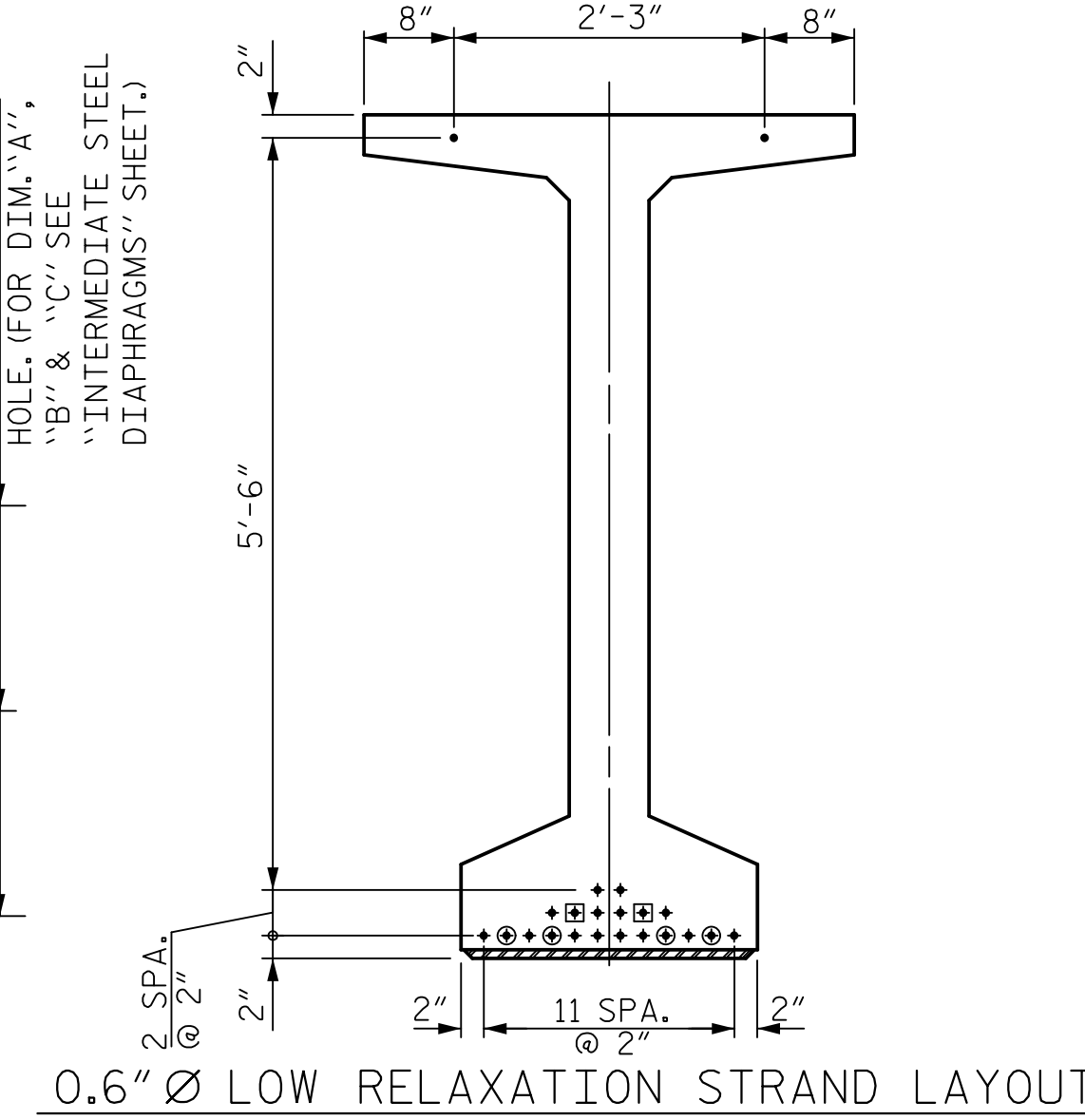
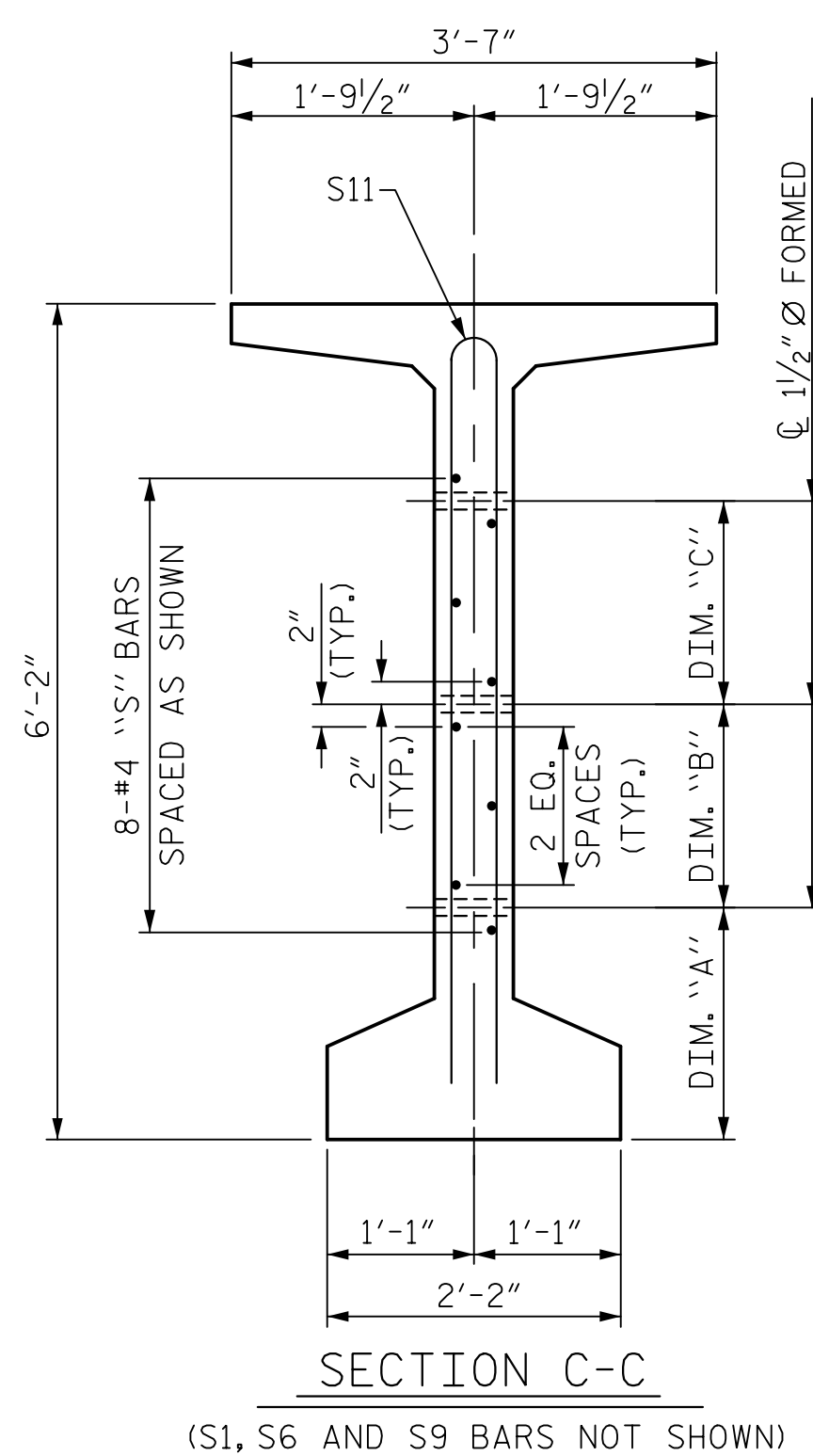
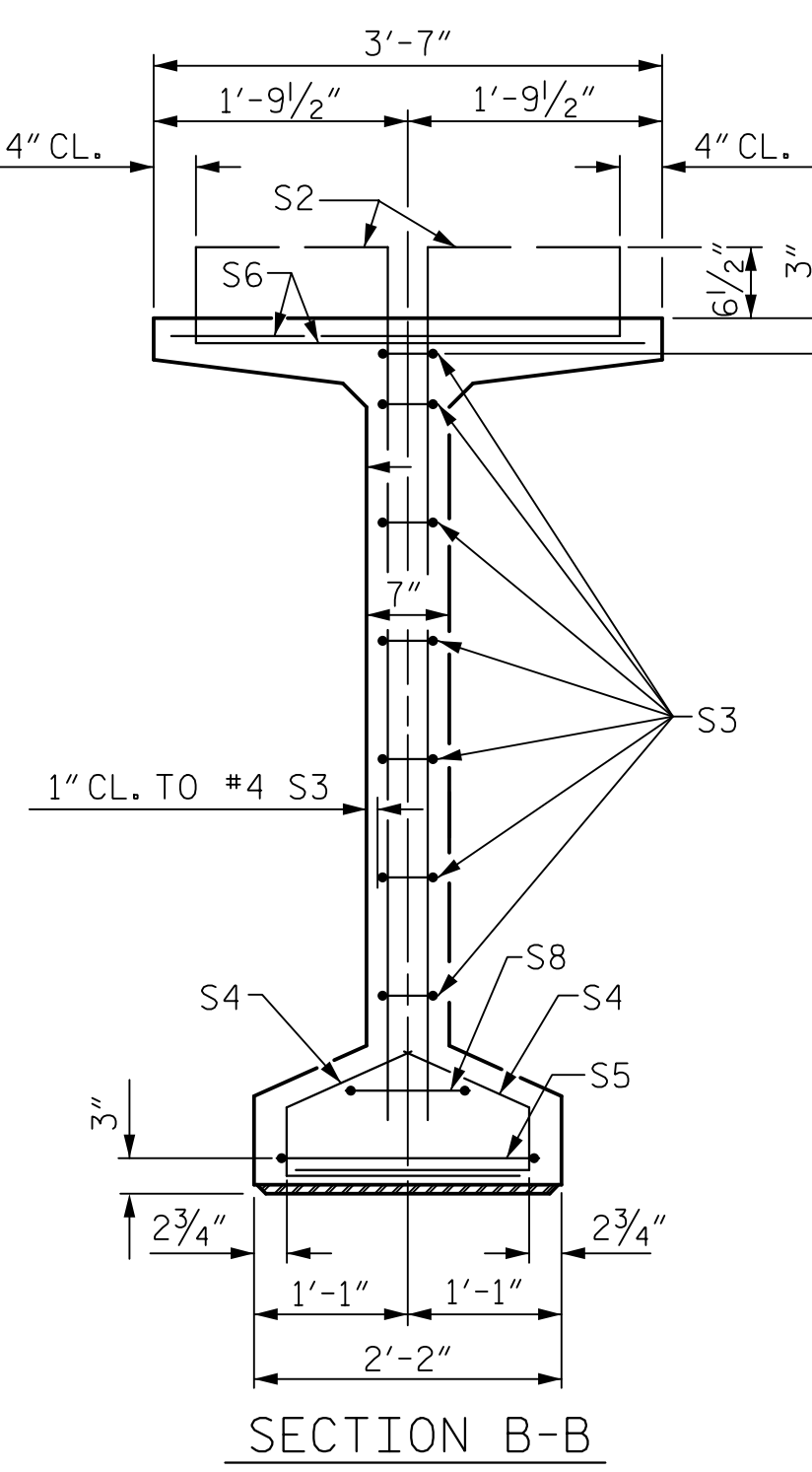
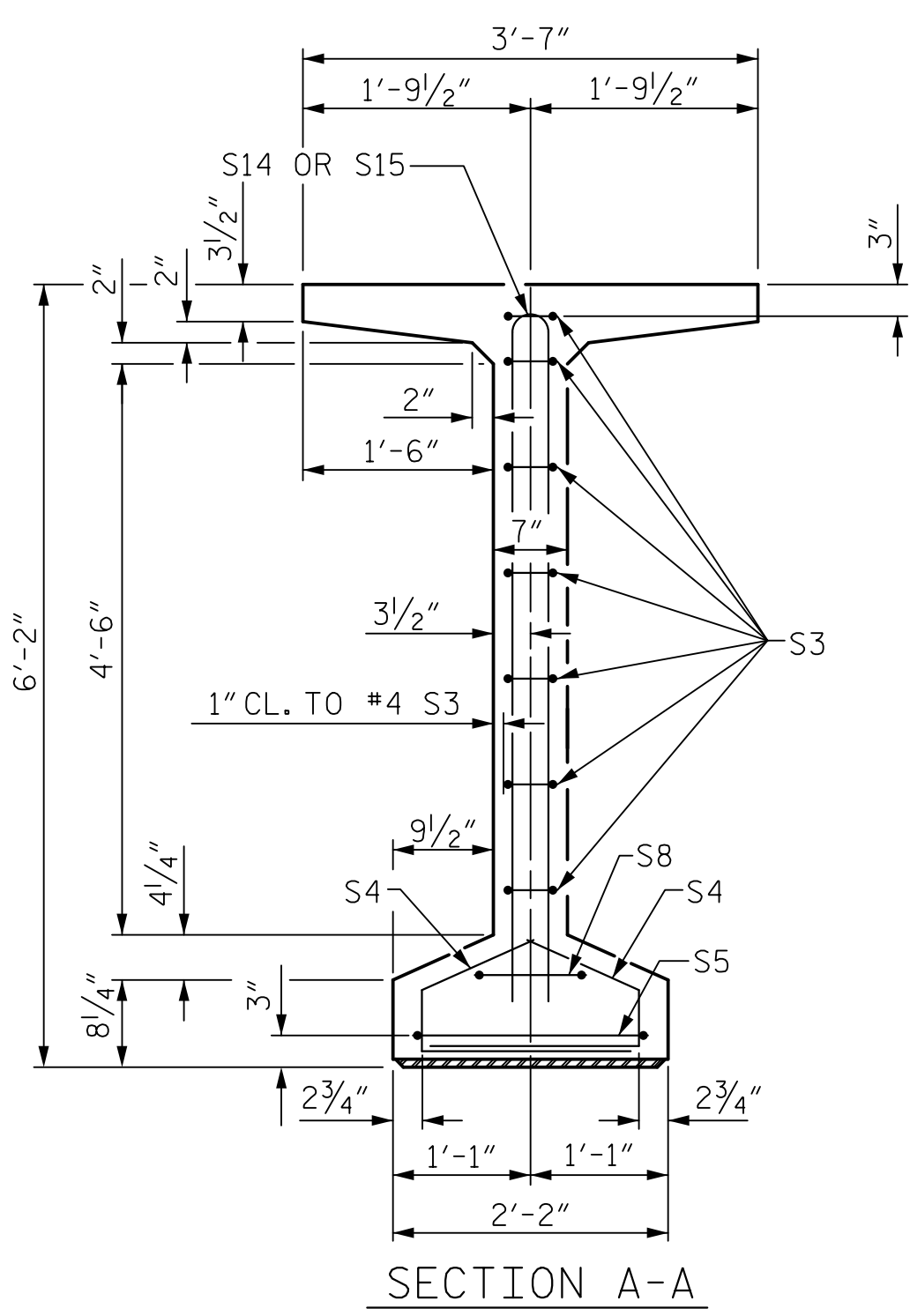
NOTE: FOR 1 1/2" Ø FORMED HOLE LOCATIONS ALONG THE LENGTH OF THE GIRDER SEE "PRESTRESSED CONCRETE GIRDER DETAILS" SHEET.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: A. SMITH DATE: 7/18
 CHECKED BY: E. JONZA DATE: 9/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 15



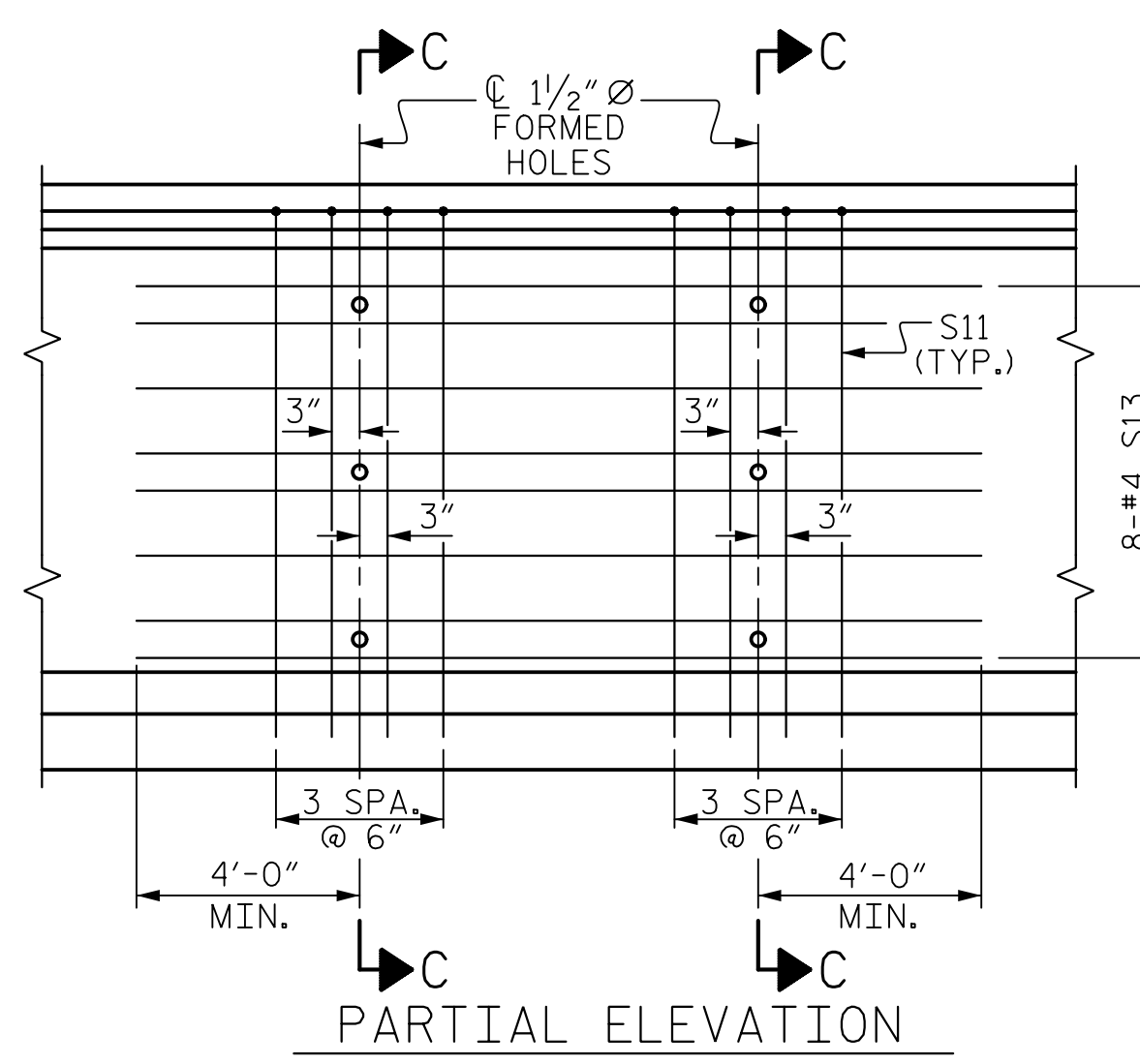
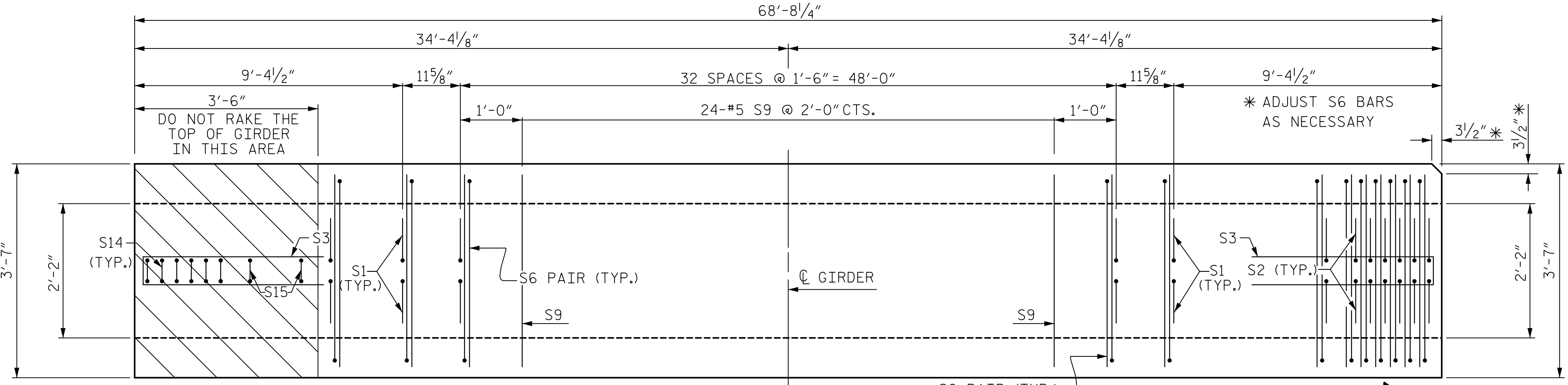
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
S1	120	#4	1	7'-1"	568	
S2	12	#5	1	7'-1"	89	
S3	14	#4	2	8'-5"	79	
S4	84	#4	3	3'-2"	178	
S5	2	#5	2	9'-10"	21	
S6	132	#5	4	4'-5"	608	
S8	2	#5	2	9'-0"	19	
S9	24	#5	STR	3'-3"	81	
GD1, GD4	S11	4	#5	5	11'-10"	49
GD2, GD3	S11	8	#5	5	11'-10"	99
GD1, GD4	S12	8	#4	STR	8'-0"	43
GD2, GD3	S13	8	#4	STR	22'-7"	121
	S14	6	#5	5	11'-10"	74
	S15	3	#4	5	11'-10"	24

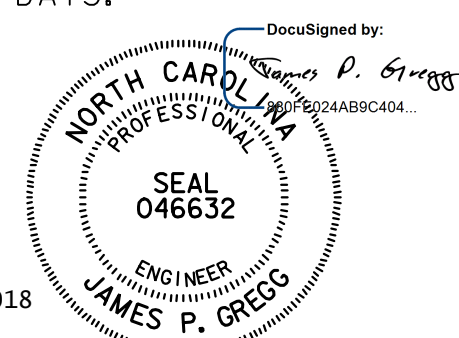
- DEBONDING LEGEND**
- FULLY BONDED STRANDS
 - STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
 - STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER

QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	5,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
GD1	1,833	15.6	22
GD2	1,961	15.6	22
GD3	1,961	15.6	22
GD4	1,833	15.6	22

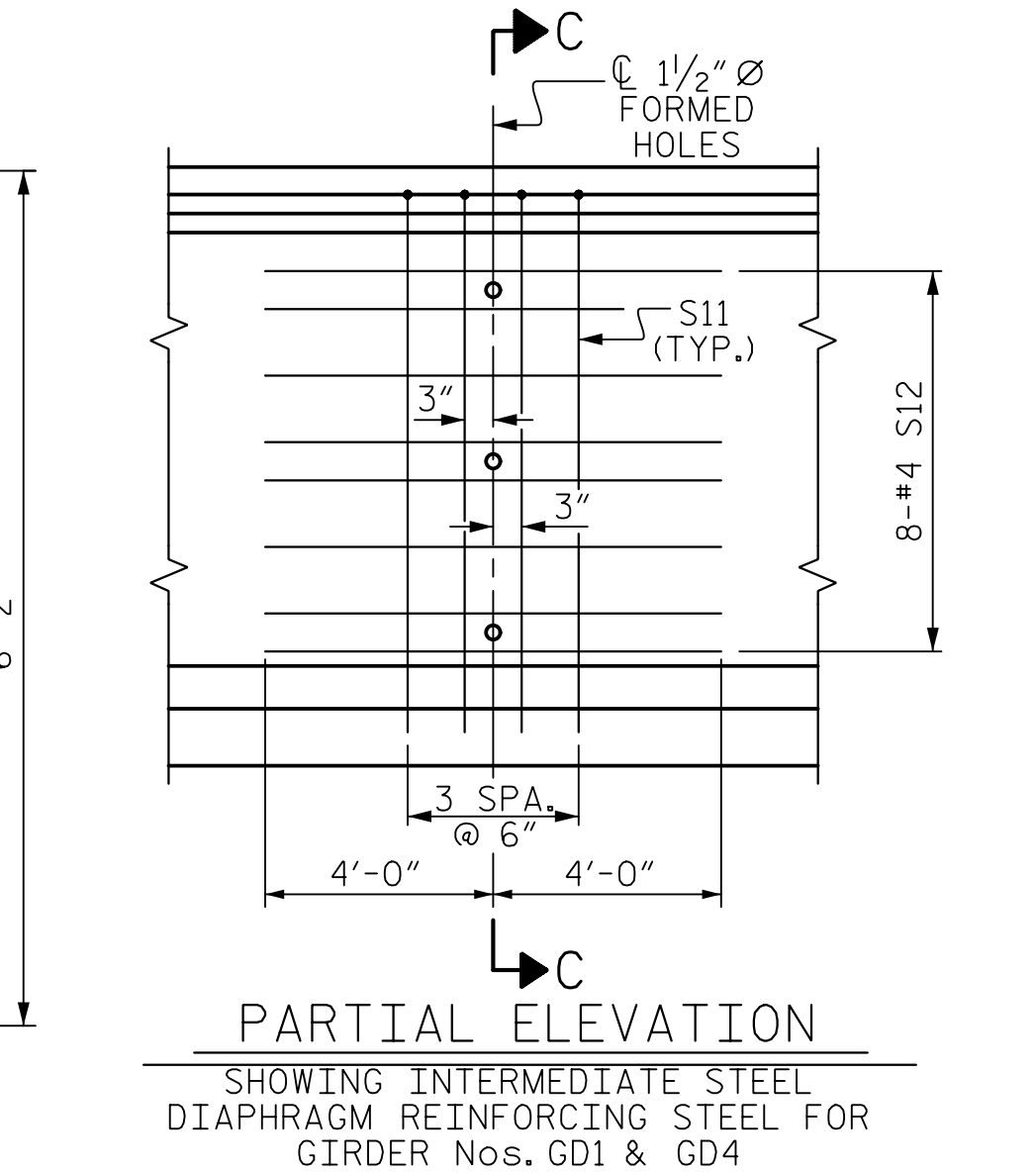
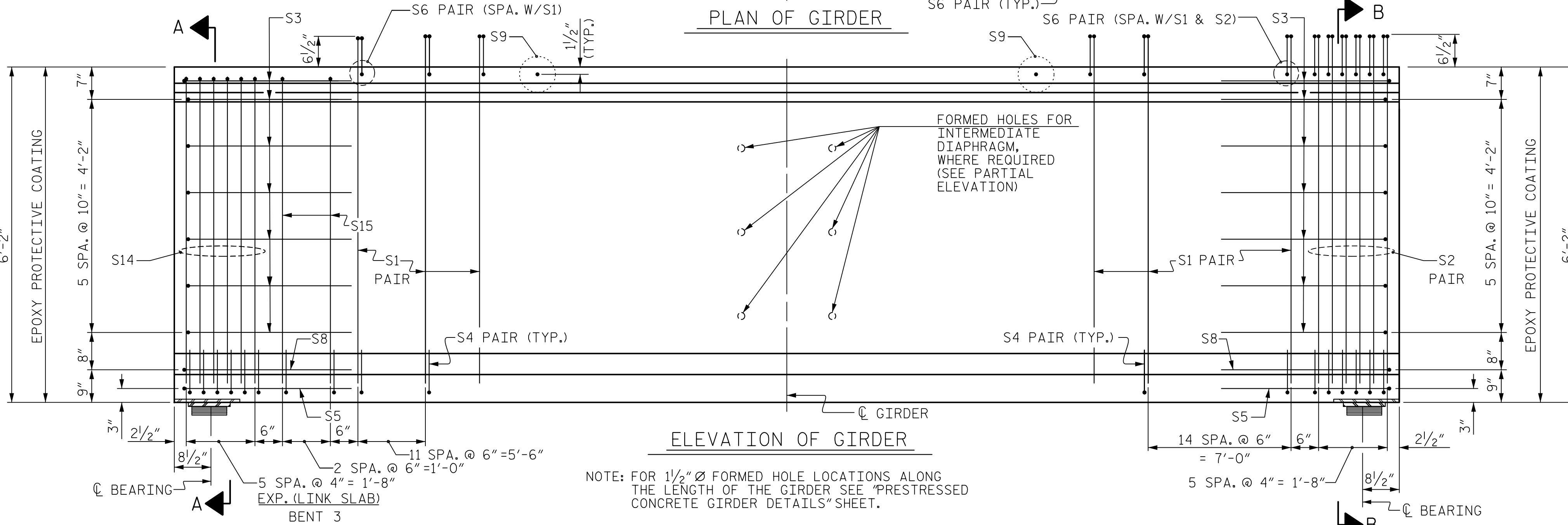
GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	68'-8 1/4"	274.75'



NOTES:
 THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI FOR SPAN D GIRDERS.
 GIRDER CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AT THE AGE OF 28 DAYS.



PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-



NOTE: FOR 1/2" Ø FORMED HOLE LOCATIONS ALONG THE LENGTH OF THE GIRDER SEE "PRESTRESSED CONCRETE GIRDER DETAILS" SHEET.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: A. SMITH DATE: 7/18
 CHECKED BY: E. JOWZA DATE: 9/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 16

SHEET 4 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

74" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 SPAN D

LEFT LANE

REVISIONS					SHEET NO. S03-16
NO.	BY	DATE	NO.	DATE	
1			3		TOTAL SHEETS 46
2			4		

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 SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

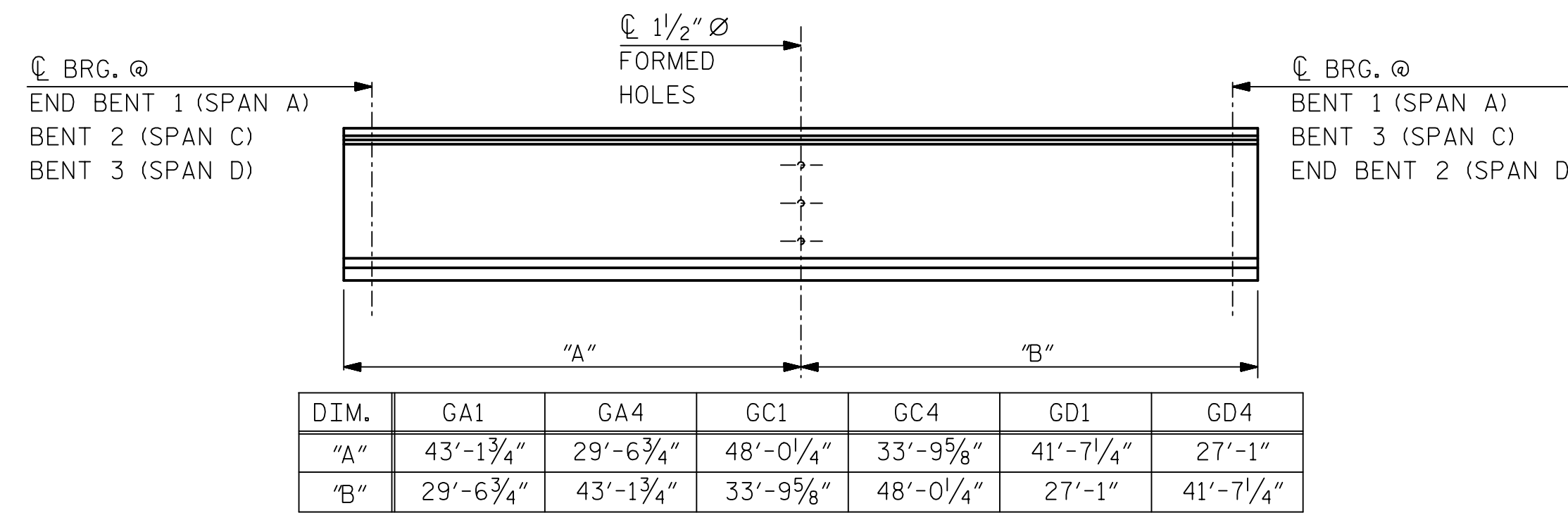
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".

WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 6" OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 1/2" OF THE THEORETICAL LOCATION SHOWN.

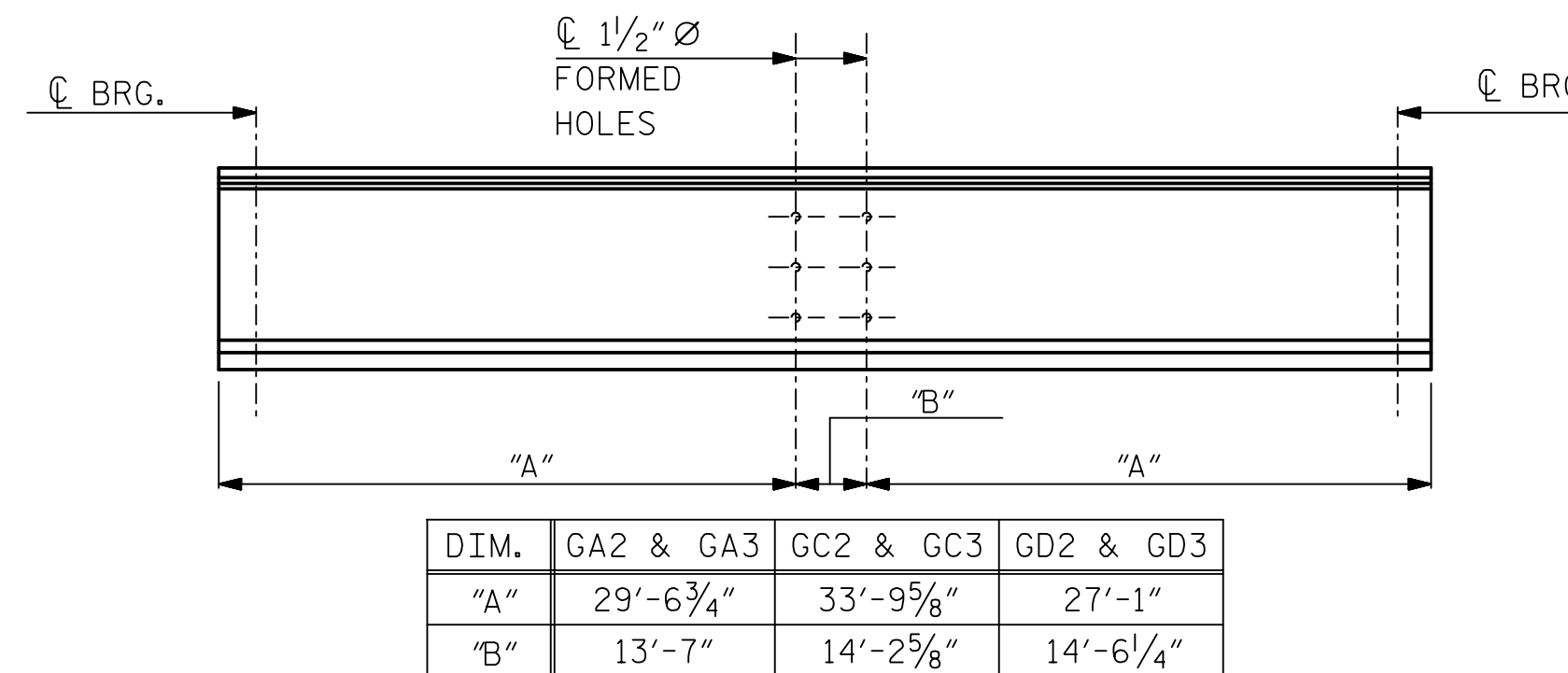
A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE.

THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.



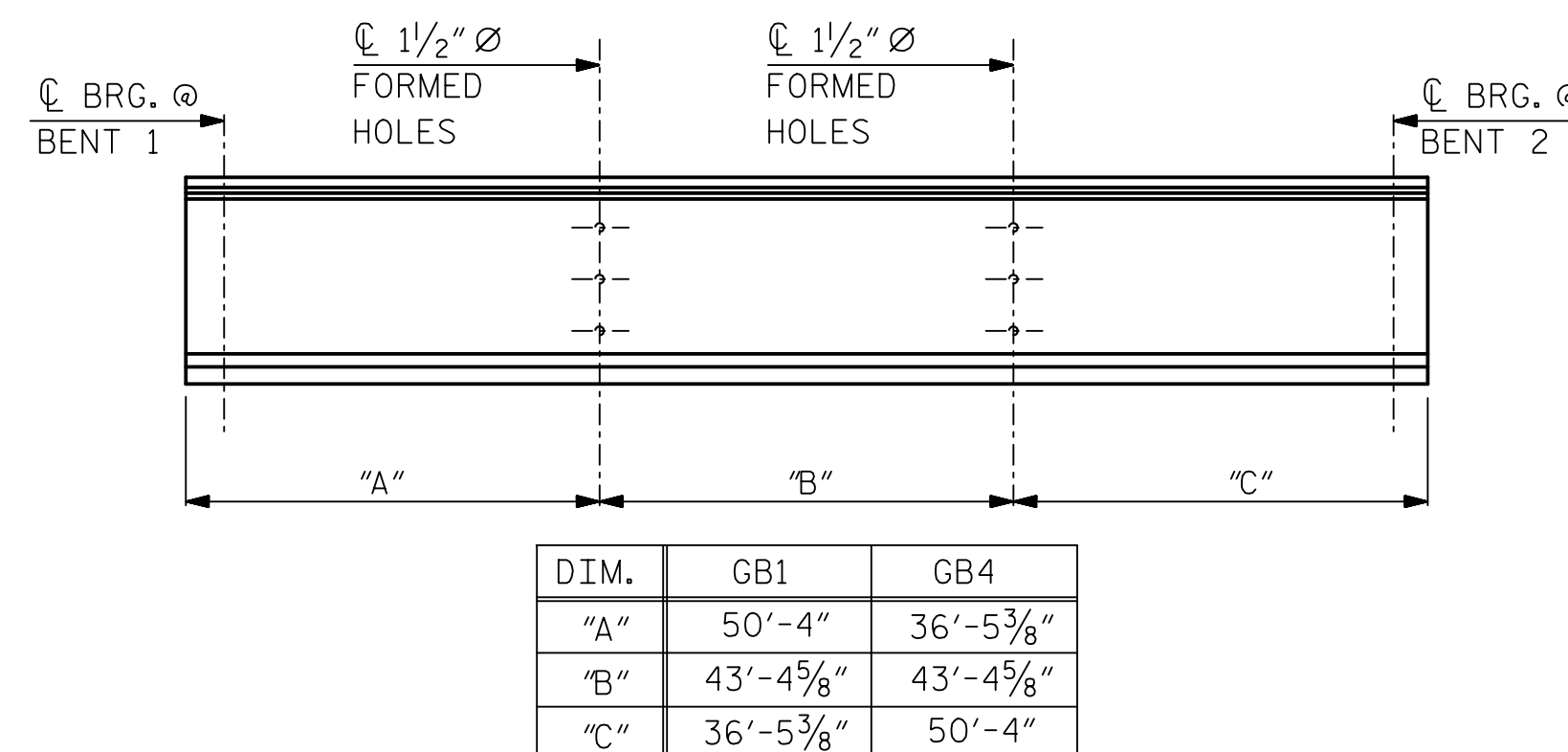
GIRDER ELEVATION

GA1 & GA4
GC1 & GC4
GD1 & GD4



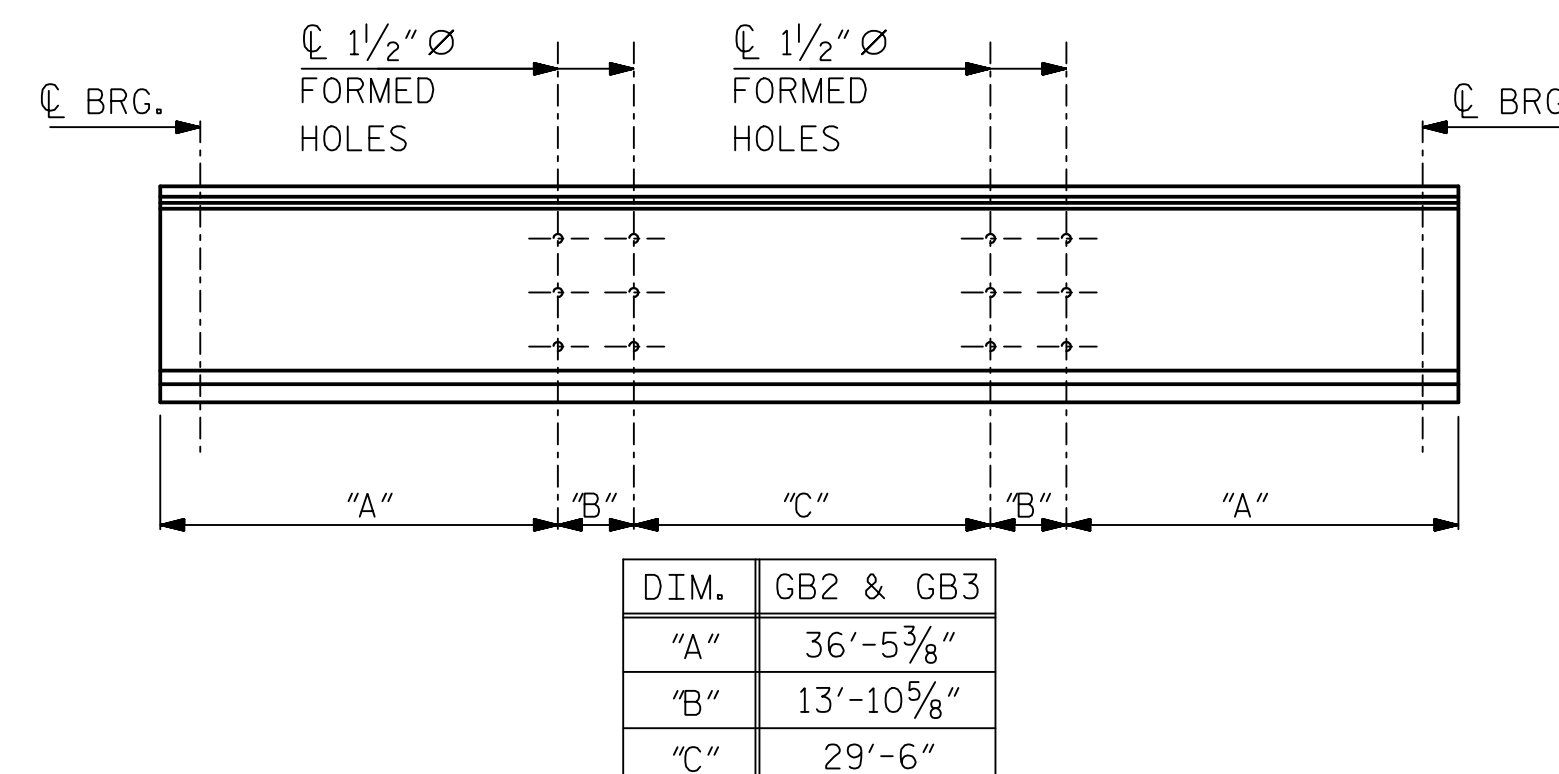
GIRDER ELEVATION

GA2 & GA3
GC2 & GC3
GD2 & GD3



GIRDER ELEVATION

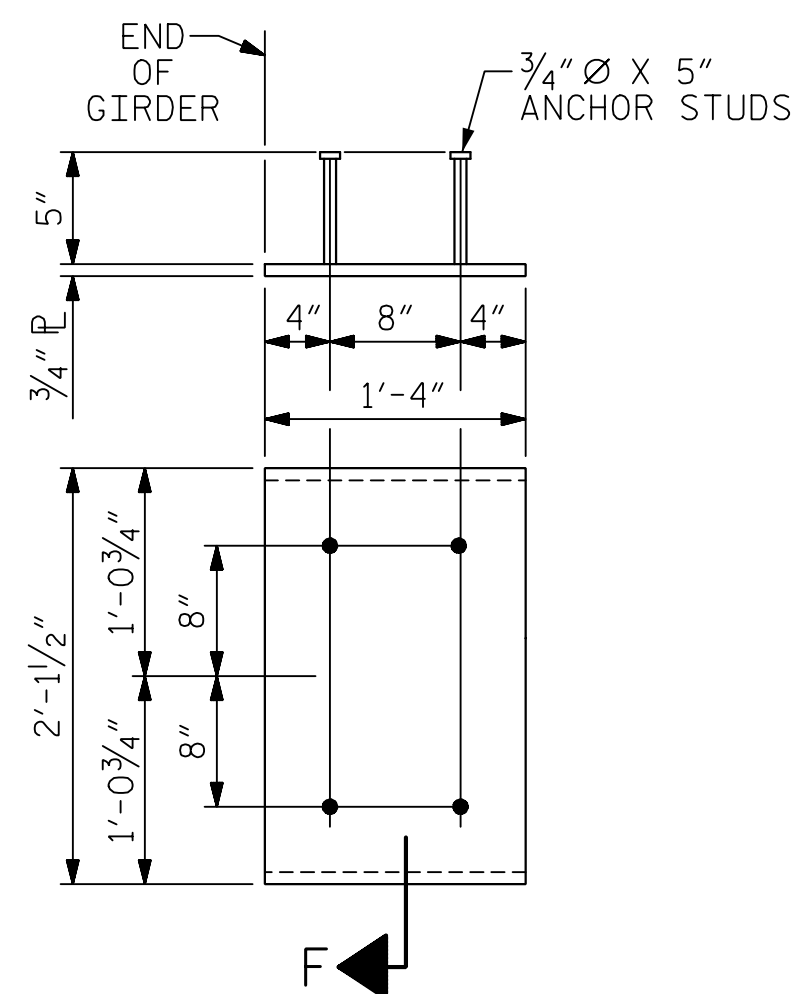
GB1 & GB4



GIRDER ELEVATION

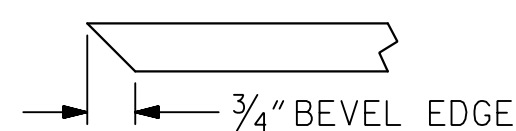
GB2 & GB3

1/2" Ø FORMED HOLE LOCATIONS



EMBEDDED PLATE "B-1" DETAILS FOR 74" MODIFIED BULB TEES

(2 REQ'D PER GIRDER)



SECTION "F"

(SEE NOTES)

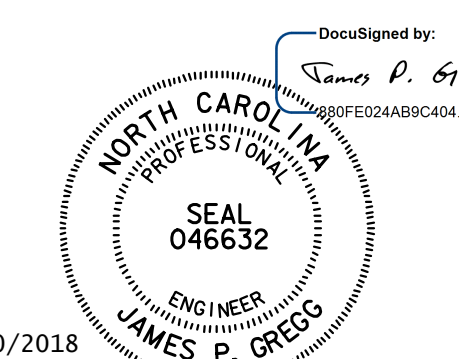
PROJECT NO. R-1015
CRAVEN COUNTY
STATION: POC STA. 138+31.09 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRESTRESSED CONCRETE
GIRDER DETAILS

LEFT LANE



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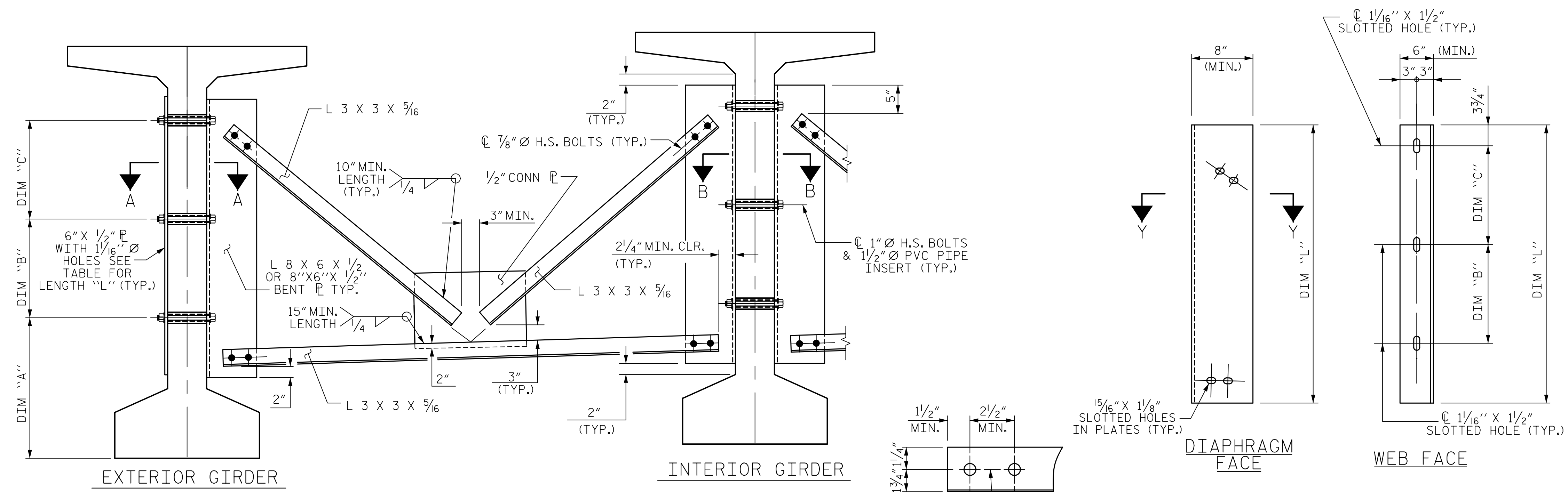
DRAWN BY: A. SMITH DATE: 7/18
CHECKED BY: E. JOWZA DATE: 9/18
DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S3-17
1			3			TOTAL SHEETS
2			4			46

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

11/20/2018

DWG. NO. 17



STRUCTURAL STEEL NOTES

ALL INTERMEDIATE DIAPHRAGM STEEL AND CONNECTOR PLATES SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL.

TENSION ON THE ASTM A325 BOLTS THROUGH THE ANGLE MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE PLATES, BENT PLATES, AND ANGLES SHALL BE METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY A THERMAL SPRAYED COATING WITH A SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE DEPARTMENT'S THERMAL SPRAYED COATINGS (METALLIZATION) PROGRAM, THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATORS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

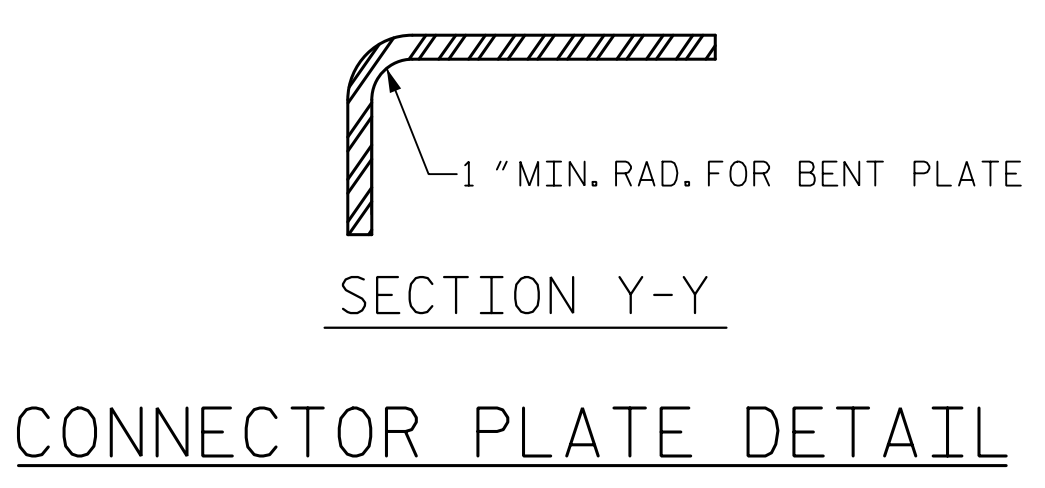
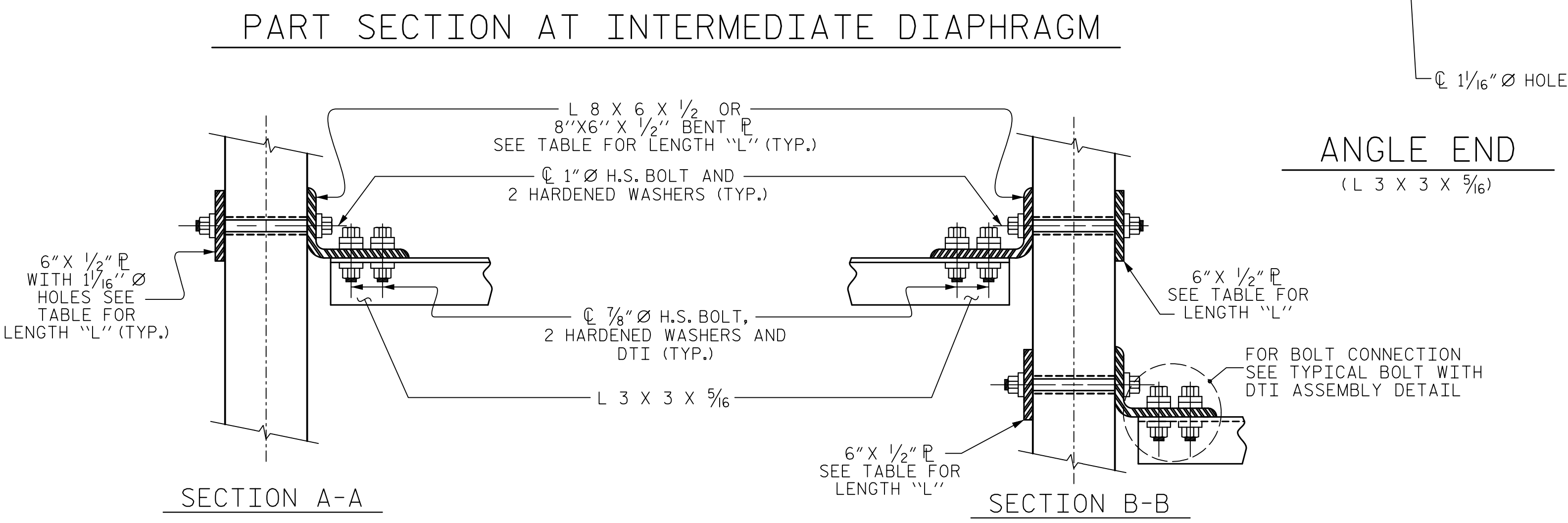
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

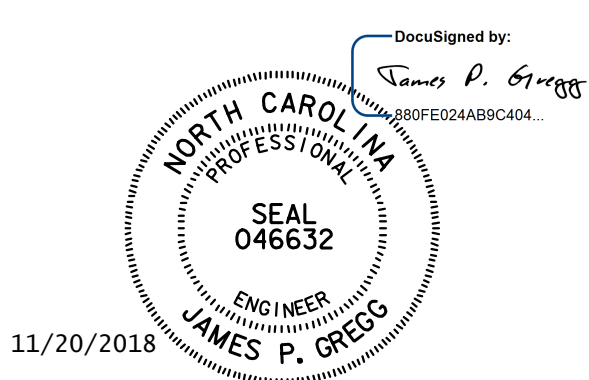
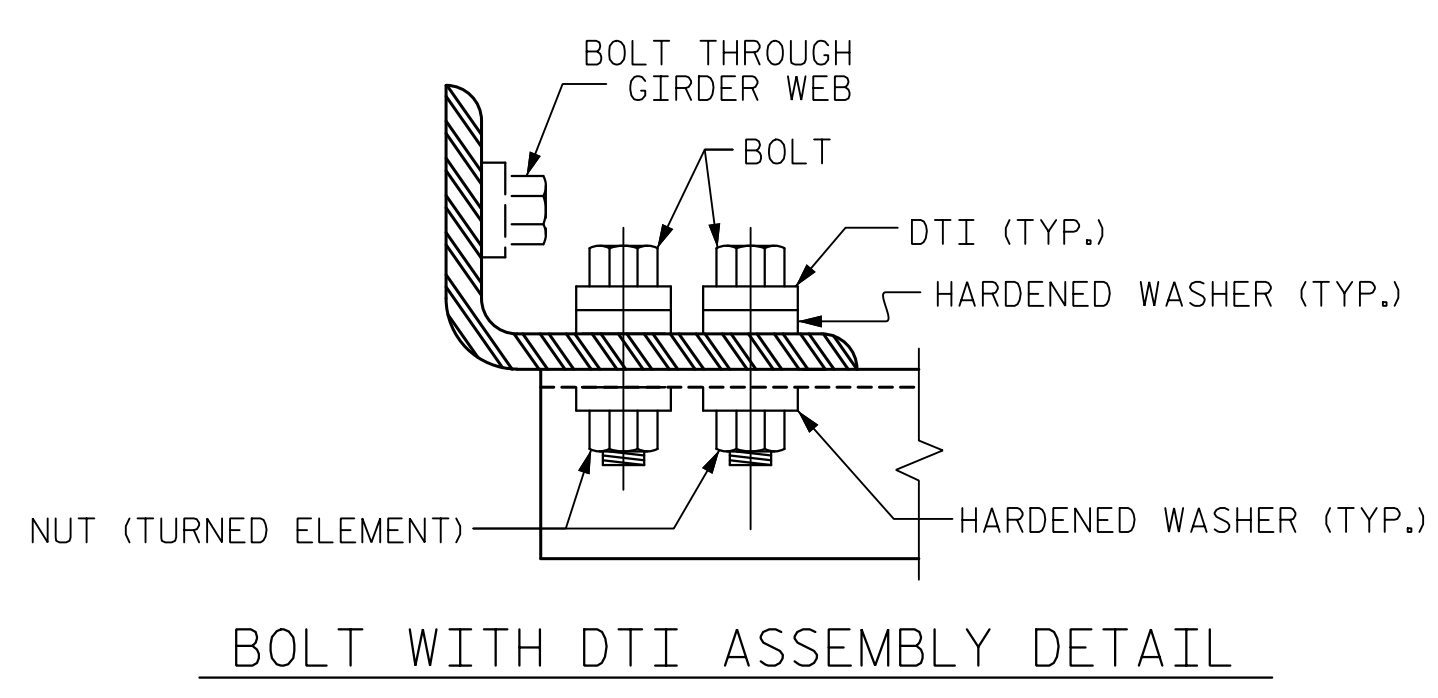
IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.



TABLE

GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
74" BULB TEE	2'-0 3/4"	1'-6"	1'-6"	4'-2"



PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 INTERMEDIATE
 STEEL DIAPHRAGMS
 FOR 74" MODIFIED BULB TEE
 PRESTRESSED CONCRETE
 GIRDERS
 LEFT LANE

ASSEMBLED BY : A. SMITH DATE : 7/18
 CHECKED BY : E. JOWZA DATE : 9/18

DRAWN BY : RWW 11/09 REV. 10/11 MAA/GM
 CHECKED BY : GM 11/09 REV. 12/17 MAA/THC

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DRAWN BY : A. SMITH DATE : 7/18
 CHECKED BY : E. JOWZA DATE : 9/18
 DESIGN ENGINEER OF RECORD : J. GREGG DATE : 10/18

DWG. NO. 18

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

TOTAL SHEETS: 46

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

STEEL SOLE PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

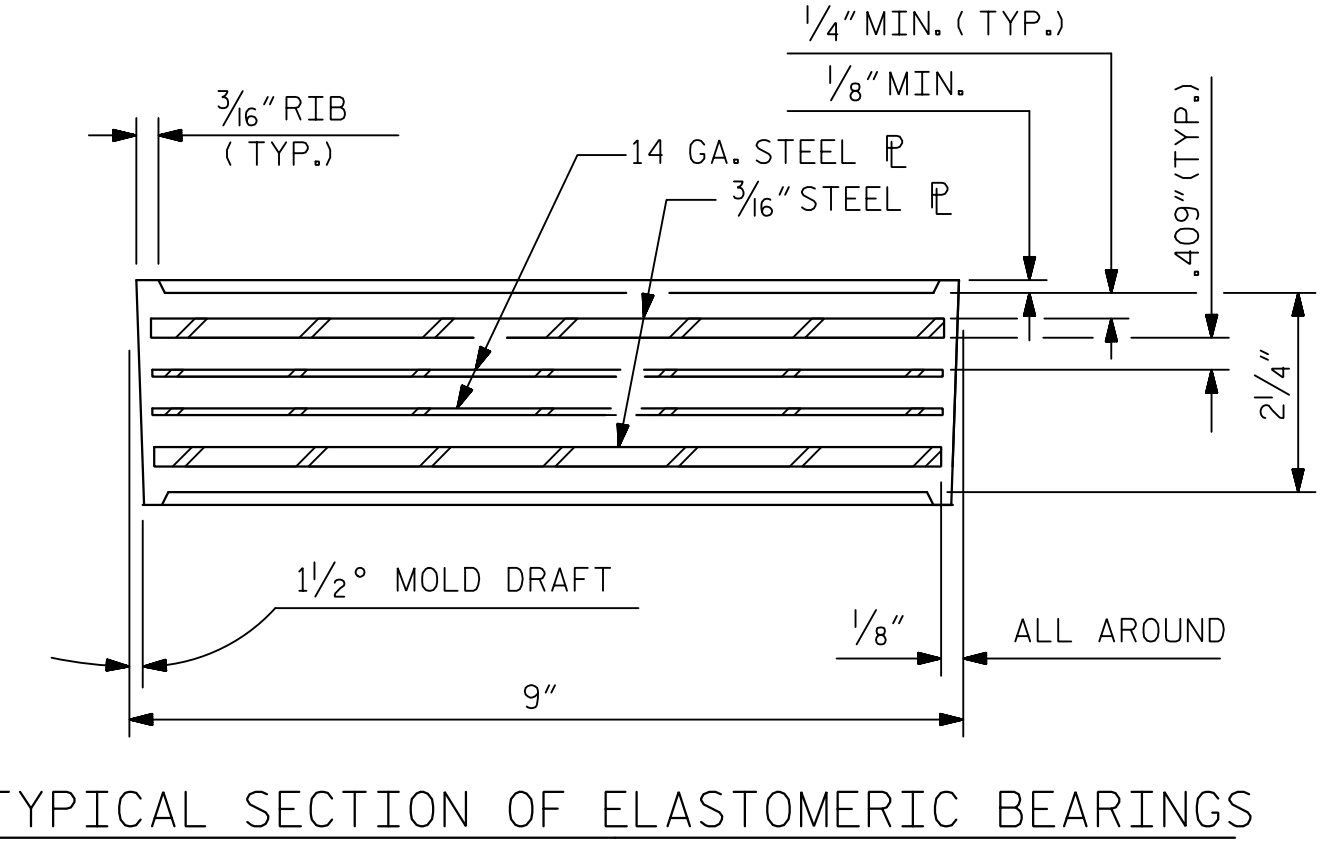
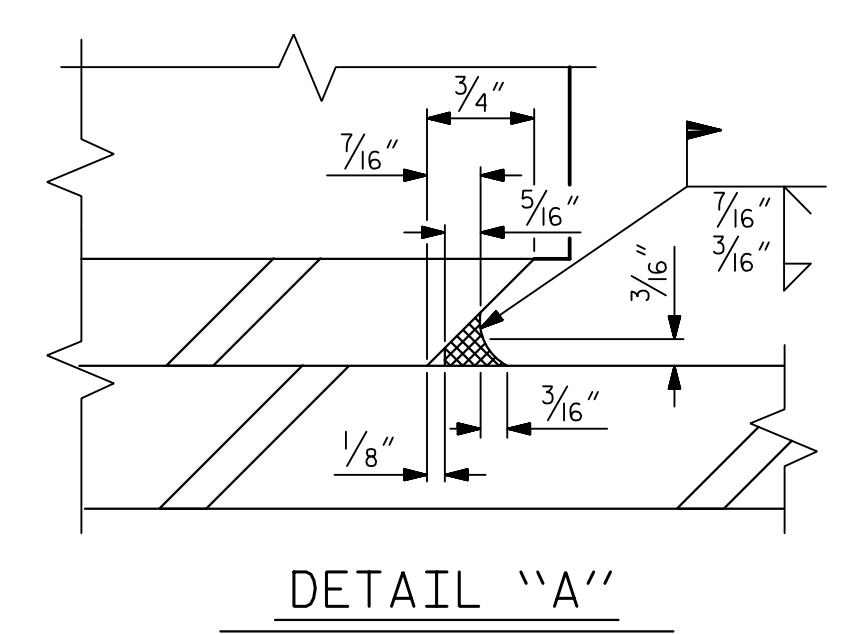
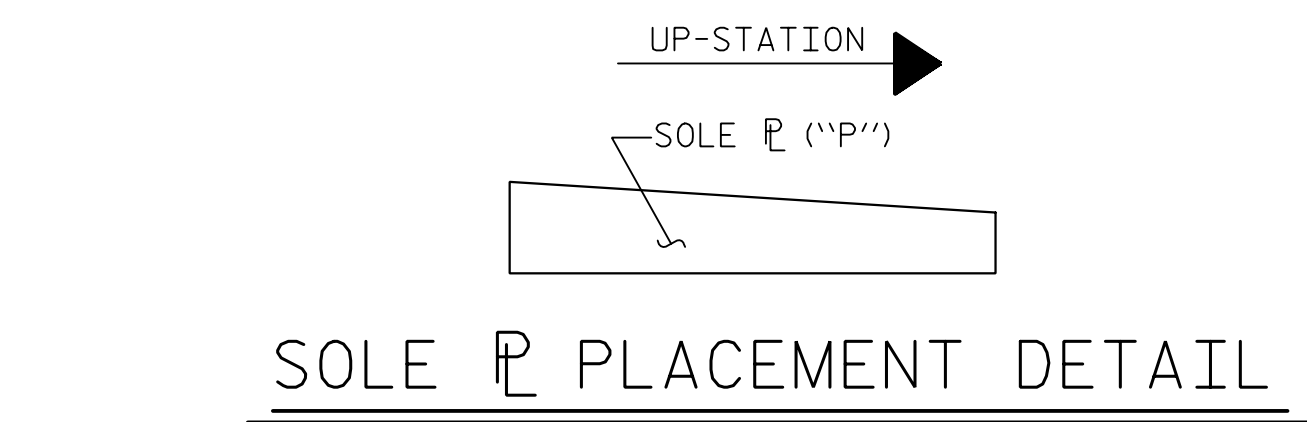
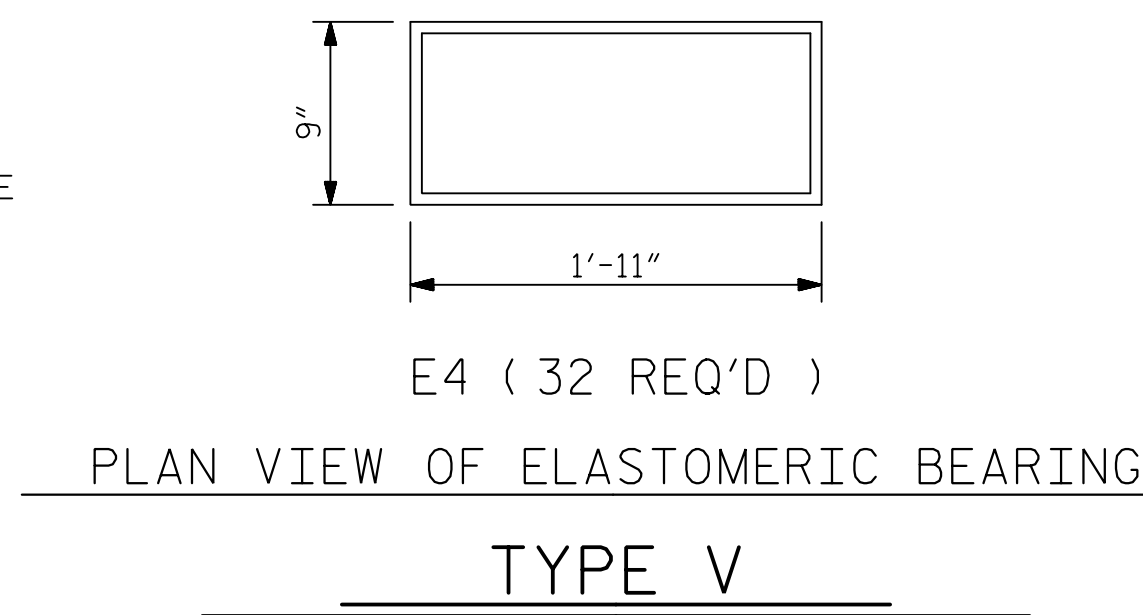
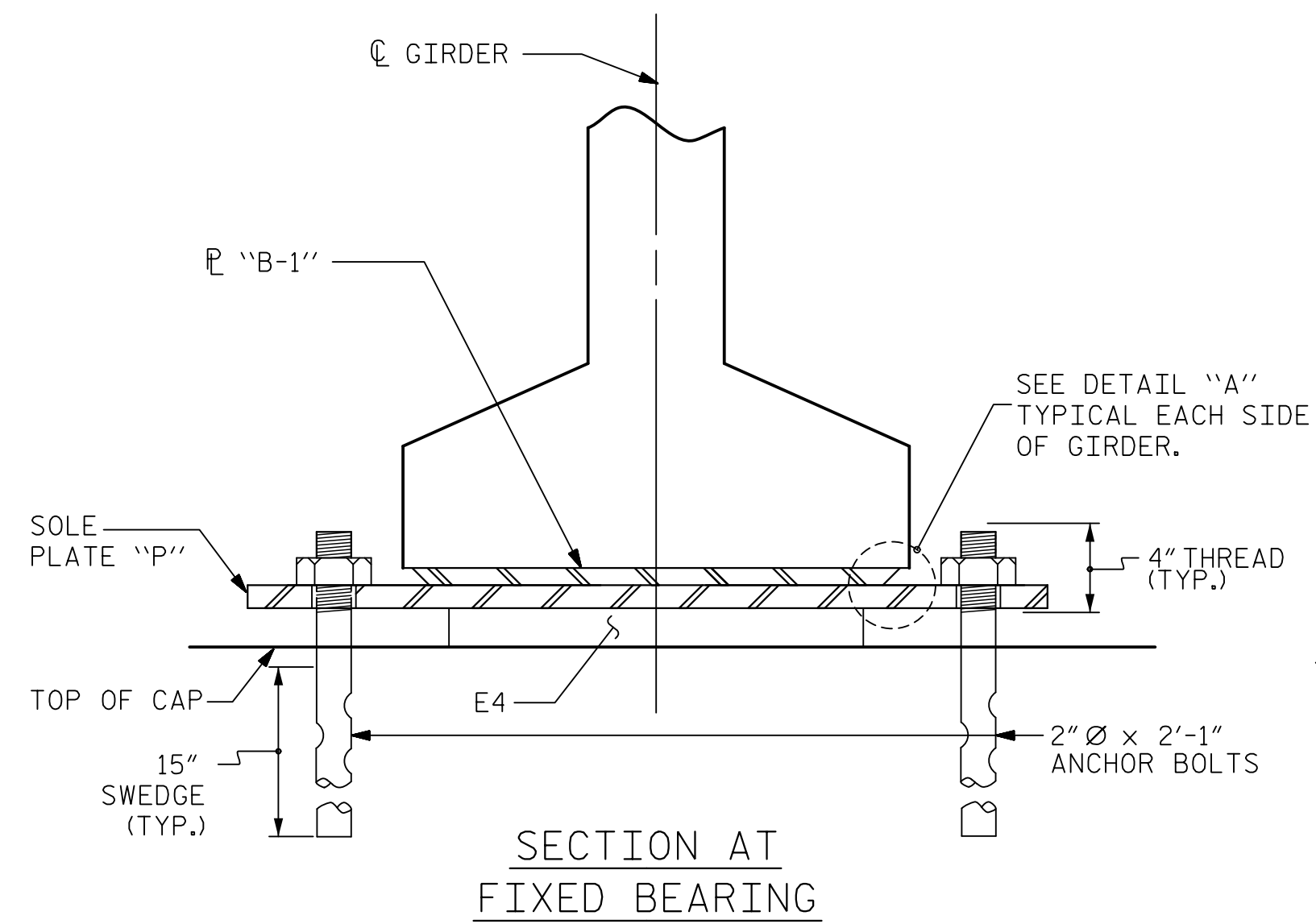
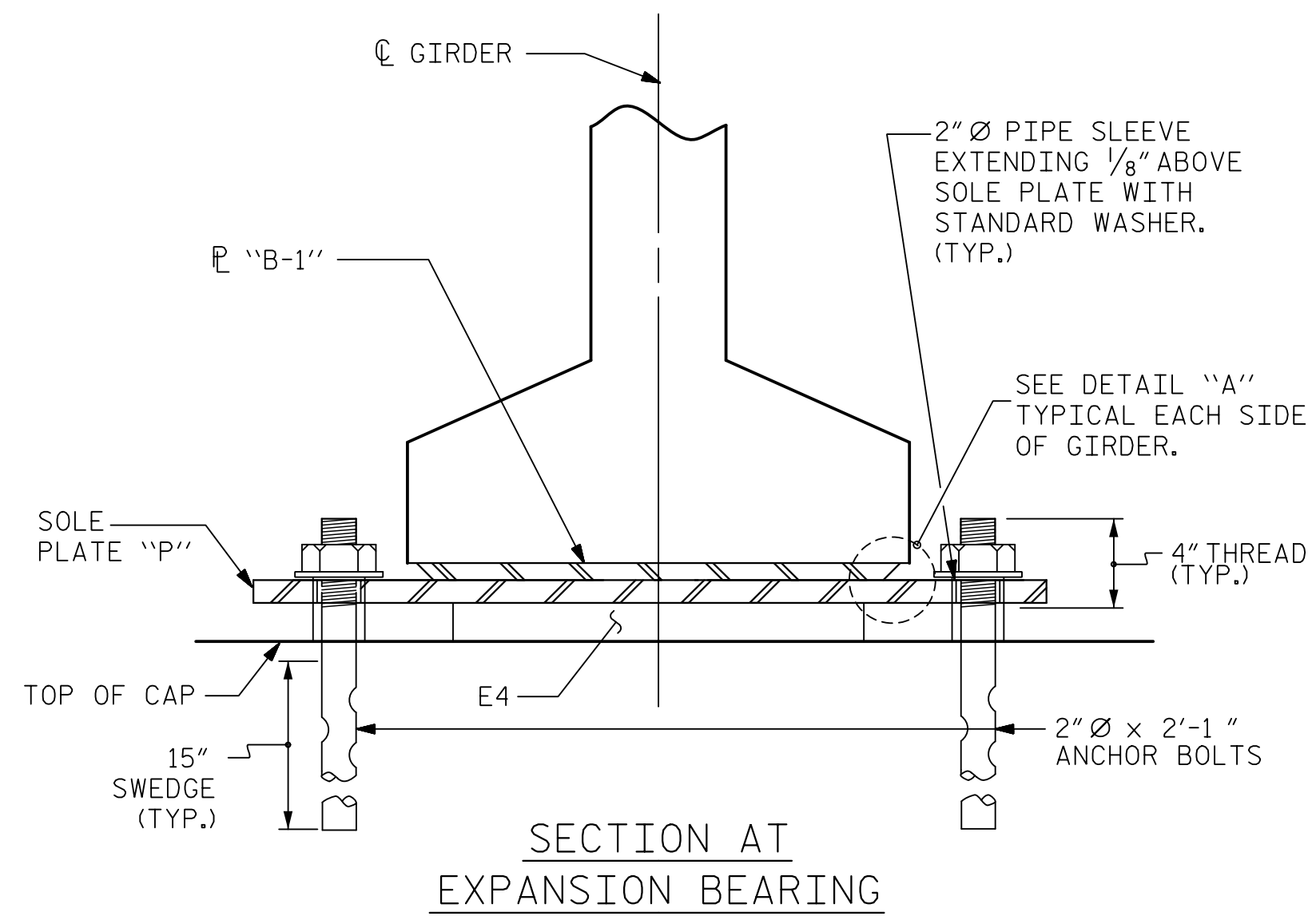
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

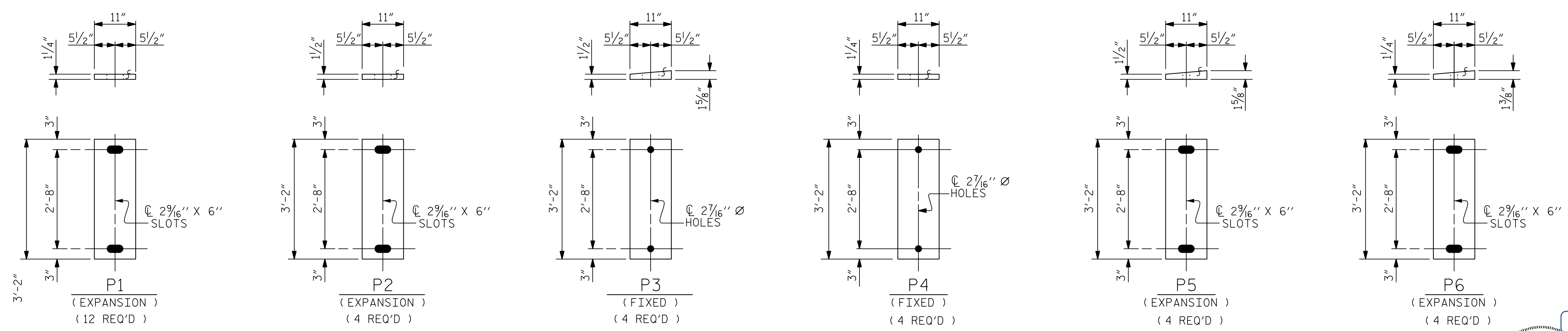
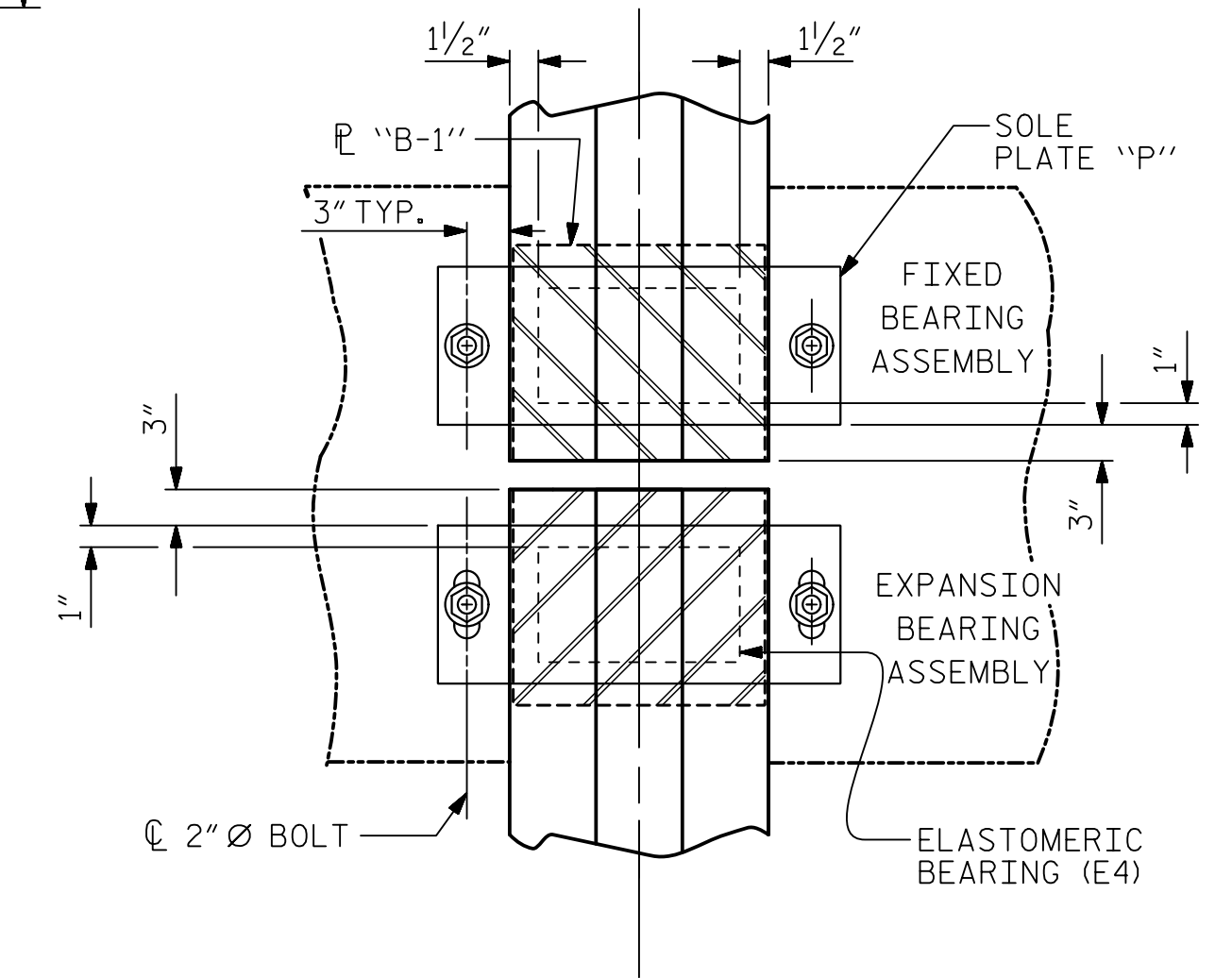
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.



MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE V	365 k



TYPICAL PLAN
 PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

DocuSigned by:
 James P. Gregg
 NORTH CAROLINA PROFESSIONAL SEAL
 046632
 ENGINEER
 JAMES P. GREGG
 11/20/2018

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 ELASTOMERIC BEARING
 DETAILS
 PRESTRESSED CONCRETE GIRDER
 SUPERSTRUCTURE
 LEFT LANE

ASSEMBLED BY : A. SMITH DATE : 7/18
 CHECKED BY : E. JOWZA DATE : 10/18
 DRAWN BY : EEM 2/97 REV. 10/11 MAA/GM
 CHECKED BY : VAP 2/97 REV. 6/13 AAC/MAA
 REV. 12/17 MAA/THC

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
 DRAWN BY : A. SMITH DATE : 7/18
 CHECKED BY : E. JOWZA DATE : 10/18
 DESIGN ENGINEER OF RECORD : J. GREGG DATE : 10/18
 DWG. NO. 19

REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					TOTAL SHEETS
					46

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 UNLESS ALL SIGNATURES COMPLETED**

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 1										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.028	0.052	0.071	0.083	0.088	0.083	0.071	0.052	0.028	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.009	0.017	0.024	0.028	0.030	0.028	0.024	0.017	0.009	0.000
FINAL CAMBER	↑ 0	1/4	7/16	9/16	11/16	11/16	11/16	9/16	7/16	1/4	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 4										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.028	0.052	0.071	0.083	0.088	0.083	0.071	0.052	0.028	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.010	0.019	0.026	0.031	0.033	0.031	0.026	0.019	0.010	0.000
FINAL CAMBER	↑ 0	3/16	3/8	9/16	5/8	11/16	5/8	9/16	3/8	3/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN C											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 1										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.032	0.060	0.082	0.096	0.101	0.096	0.082	0.060	0.032	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.015	0.030	0.042	0.049	0.052	0.049	0.042	0.030	0.015	0.000
FINAL CAMBER	↑ 0	3/16	3/8	1/2	9/16	9/16	9/16	1/2	3/8	3/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN C											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 4										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.032	0.060	0.082	0.096	0.101	0.096	0.082	0.060	0.032	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.016	0.031	0.042	0.050	0.052	0.050	0.042	0.031	0.016	0.000
FINAL CAMBER	↑ 0	3/16	3/8	1/2	9/16	9/16	9/16	1/2	3/8	3/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN D											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 1										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.025	0.048	0.066	0.077	0.081	0.077	0.066	0.048	0.025	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.008	0.015	0.021	0.025	0.026	0.025	0.021	0.015	0.008	0.000
FINAL CAMBER	↑ 0	3/16	3/8	9/16	5/8	11/16	5/8	9/16	3/8	3/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN D											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 4										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.025	0.048	0.066	0.077	0.081	0.077	0.066	0.048	0.025	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.008	0.015	0.021	0.025	0.026	0.024	0.021	0.015	0.008	0.000
FINAL CAMBER	↑ 0	3/16	3/8	9/16	5/8	11/16	5/8	9/16	3/8	3/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B																					
0.6" Ø LOW RELAXATION STRANDS	GIRDER 1																				
TWENTIETH POINTS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.059	0.116	0.170	0.220	0.264	0.301	0.330	0.352	0.365	0.370	0.365	0.352	0.330	0.301	0.264	0.220	0.170	0.116	0.059	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.035	0.069	0.102	0.133	0.160	0.183	0.202	0.215	0.224	0.226	0.224	0.216	0.202	0.184	0.160	0.133	0.103	0.069	0.035	0.000
FINAL CAMBER	↑ 0	5/16	9/16	13/16	11/16	11/4	17/16	19/16	15/8	11/16	13/4	11/16	15/8	19/16	13/8	11/4	11/16	13/16	9/16	5/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B																					
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 2 & 3																				
TWENTIETH POINTS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.059	0.116	0.170	0.220	0.264	0.301	0.330	0.352	0.365	0.370	0.365	0.352	0.330	0.301	0.264	0.220	0.170	0.116	0.059	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.039	0.078	0.115	0.150	0.181	0.207	0.228	0.243	0.253	0.256	0.253	0.243	0.228	0.207	0.181	0.150	0.115	0.078	0.039	0.000
FINAL CAMBER	↑ 0	1/4	7/16	11/16	13/16	1	11/8	11/4	15/16	13/8	13/8	13/8	15/16	11/4	11/8	1	13/16	11/16	7/16	1/4	0

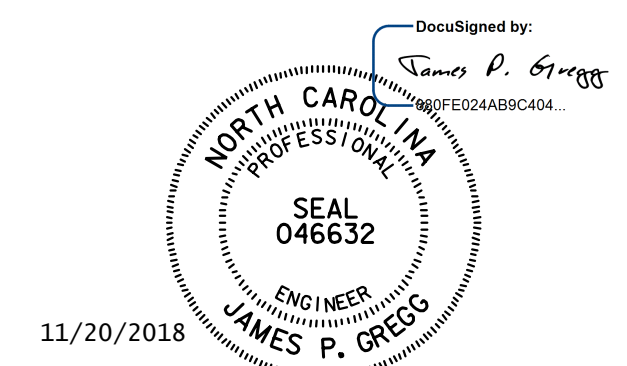
DEAD LOAD DEFLECTION TABLE FOR SPAN B																					
0.6" Ø LOW RELAXATION STRANDS	GIRDER 4																				
TWENTIETH POINTS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.059	0.116	0.170	0.220	0.264	0.301	0.330	0.352	0.365	0.370	0.365	0.352	0.330	0.301	0.264	0.220	0.170	0.116	0.059	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.036	0.071	0.105	0.136	0.164	0.188	0.207	0.221	0.229	0.232	0.229	0.221	0.207	0.188	0.164	0.136	0.105	0.071	0.036	0.000
FINAL CAMBER	↑ 0	1/4	9/16	3/4	1	13/16	13/8	11/2	19/16	15/8	15/8	15/8	19/16	11/2	13/8	13/16	1	3/4	9/16	1/4	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 2 & 3										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.028	0.052	0.071	0.083	0.088	0.083	0.071	0.052	0.028	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.011	0.021	0.029	0.034	0.036	0.034	0.029	0.021	0.011	0.000
FINAL CAMBER	↑ 0	3/16	3/8	1/2	9/16	9/16	9/16	1/2	3/8	3/16	0

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT 'FINAL CAMBER', WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR SPAN C											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 2 & 3										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.032	0.060	0.082	0.096	0.101	0.096	0.082	0.060	0.032	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.017	0.033	0.046	0.054	0.057	0.054	0.046	0.033	0.017	0.000
FINAL CAMBER	↑ 0	3/16	5/16	7/16	1/2	1/2	1/2	7/16	5/16	3/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN D											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 2 & 3										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.025	0.048	0.066	0.077	0.081	0.077	0.066	0.048	0.025	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.008	0.016	0.022	0.027	0.028	0.027	0.022	0.016	0.008	0.000
FINAL CAMBER	↑ 0	3/16	3/8	1/2	5/8	5/8	5/8	1/2	3/8	3/16	0



PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 DEAD LOAD DEFLECTIONS
 LEFT LANE

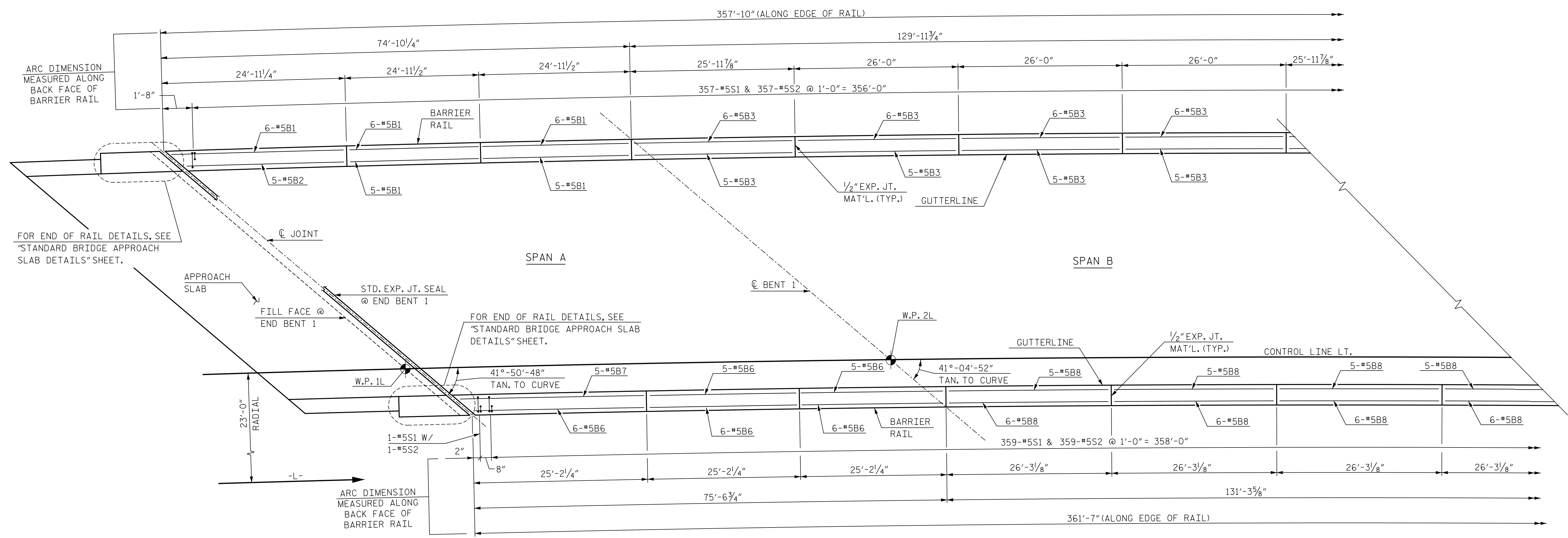
**DOCUMENT NOT CONSIDERED FINAL
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HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: A. SMITH DATE: 7/18
 CHECKED BY: E. JOWZA DATE: 10/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 20

REVISIONS						SHEET NO. S03-20	TOTAL SHEETS 46
NO.	BY	DATE	NO.	BY	DATE		
1			3				
2			4				

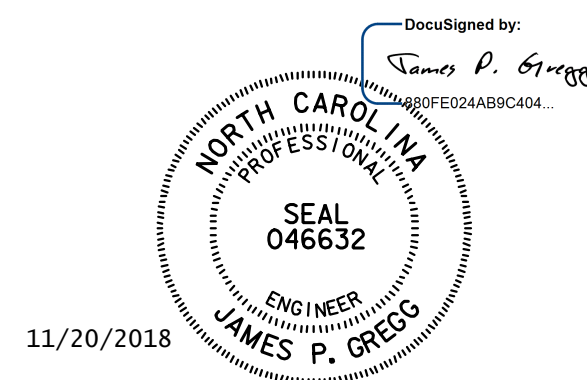


PLAN OF BARRIER RAIL

NOTE: EDGE OF SLAB NOT SHOWN FOR CLARITY.

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 1 OF 3

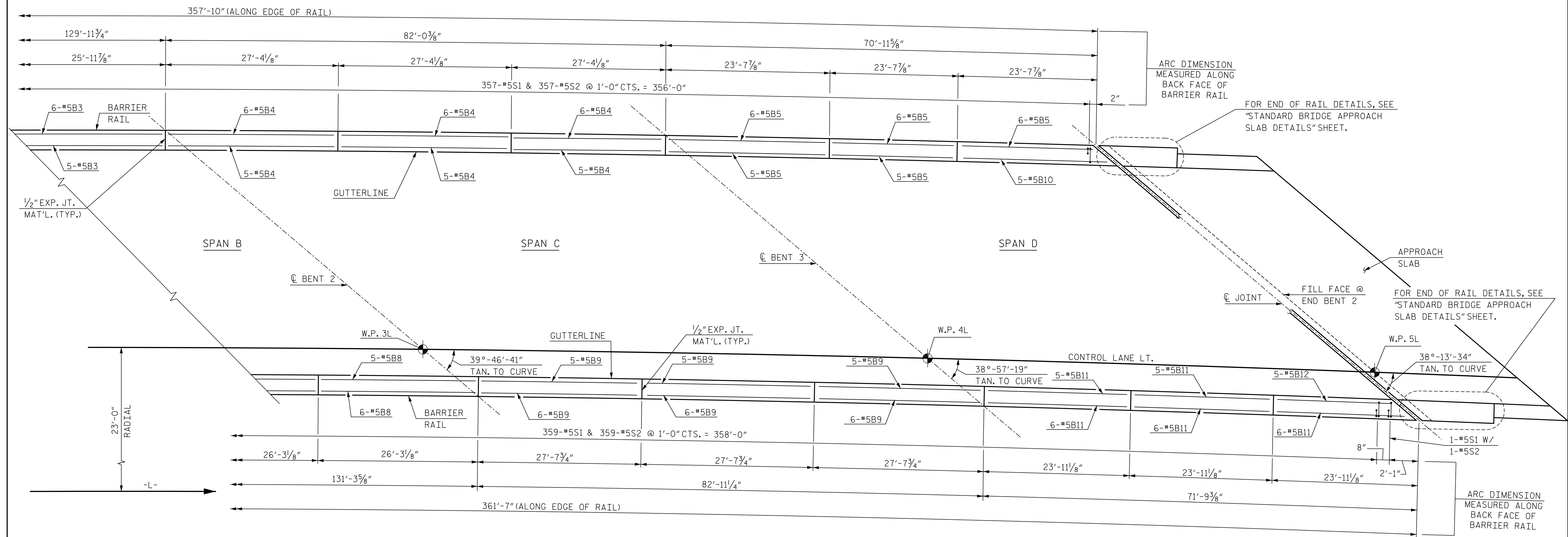


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**CONCRETE
 BARRIER RAIL**
 LEFT LANE

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
 DRAWN BY: A. SMITH DATE: 7/18
 CHECKED BY: E. JOWZA DATE: 10/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18
 DWG. NO. 21

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			46
2			4			

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 UNLESS ALL SIGNATURES COMPLETED**



PLAN OF BARRIER RAIL

NOTE: EDGE OF SLAB NOT SHOWN FOR CLARITY.

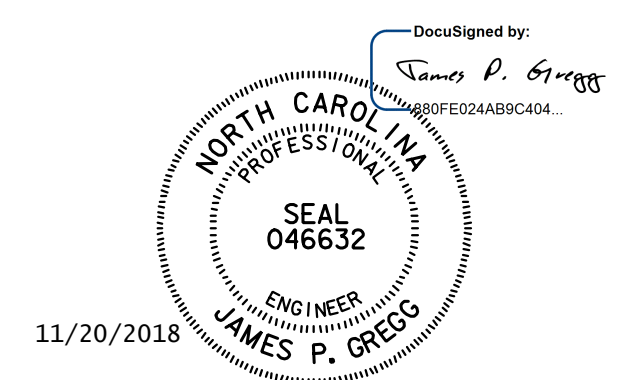
PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

CONCRETE BARRIER RAIL

LEFT LANE



HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: A. SMITH DATE: 7/18
 CHECKED BY: E. JOWZA DATE: 10/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 22

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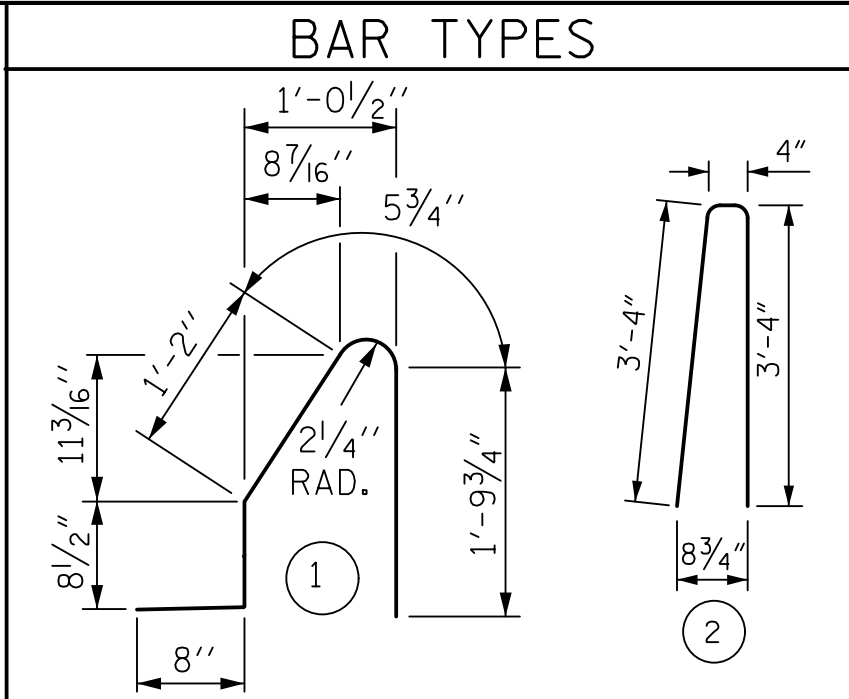
REVISIONS						SHEET NO. S03-22
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 46
2			4			

NOTES

THE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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. THE 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.



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

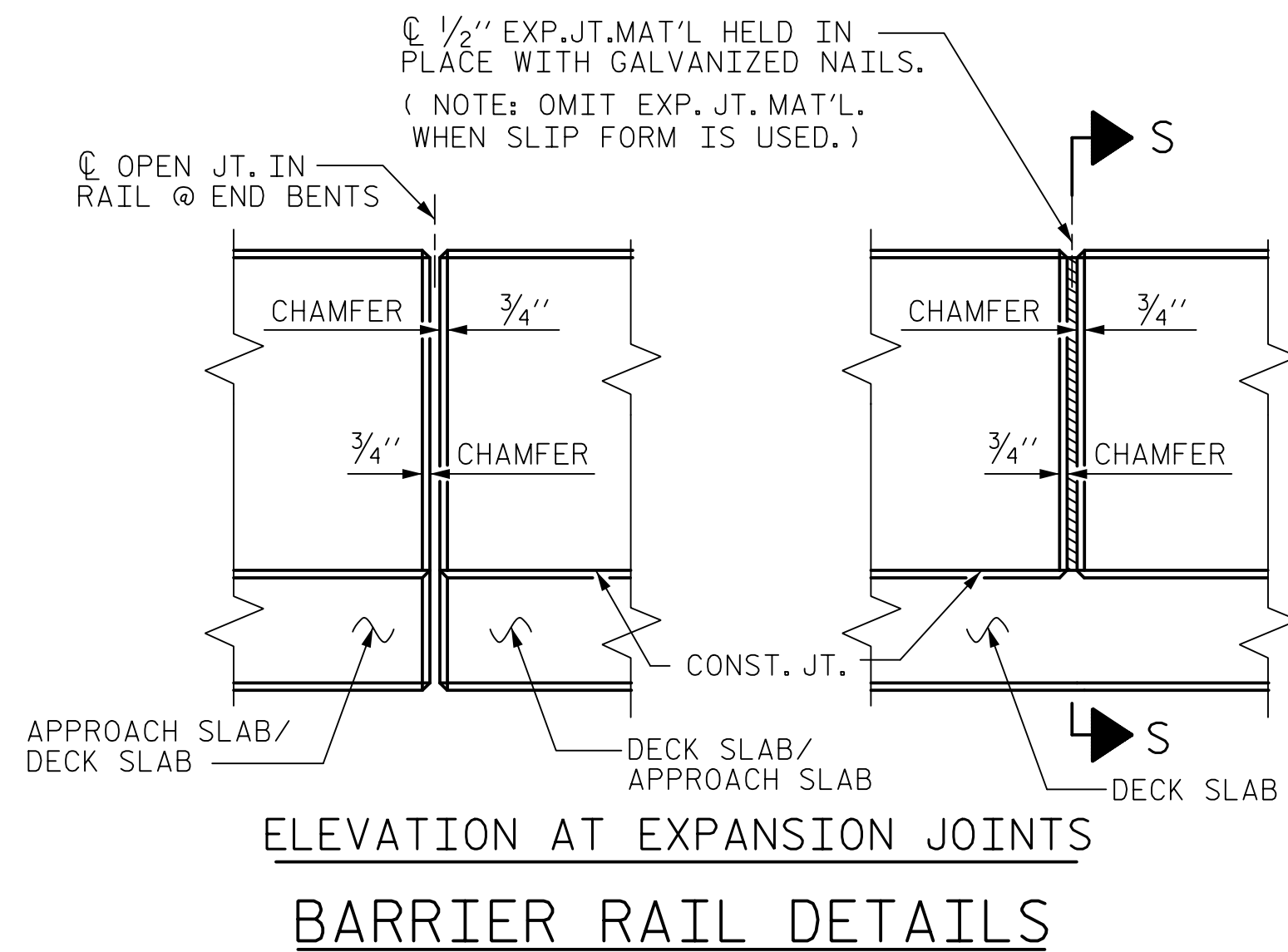
FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	28	#5	STR.	24'-7"	718
* B2	5	#5	STR.	23'-2"	121
* B3	55	#5	STR.	25'-7"	1,468
* B4	33	#5	STR.	27'-0"	929
* B5	28	#5	STR.	23'-3"	679
* B6	28	#5	STR.	24'-10"	725
* B7	5	#5	STR.	26'-1"	136
* B8	55	#5	STR.	25'-11"	1,487
* B9	33	#5	STR.	27'-3"	938
* B10	5	#5	STR.	24'-8"	129
* B11	28	#5	STR.	23'-7"	689
* B12	5	#5	STR.	21'-11"	114

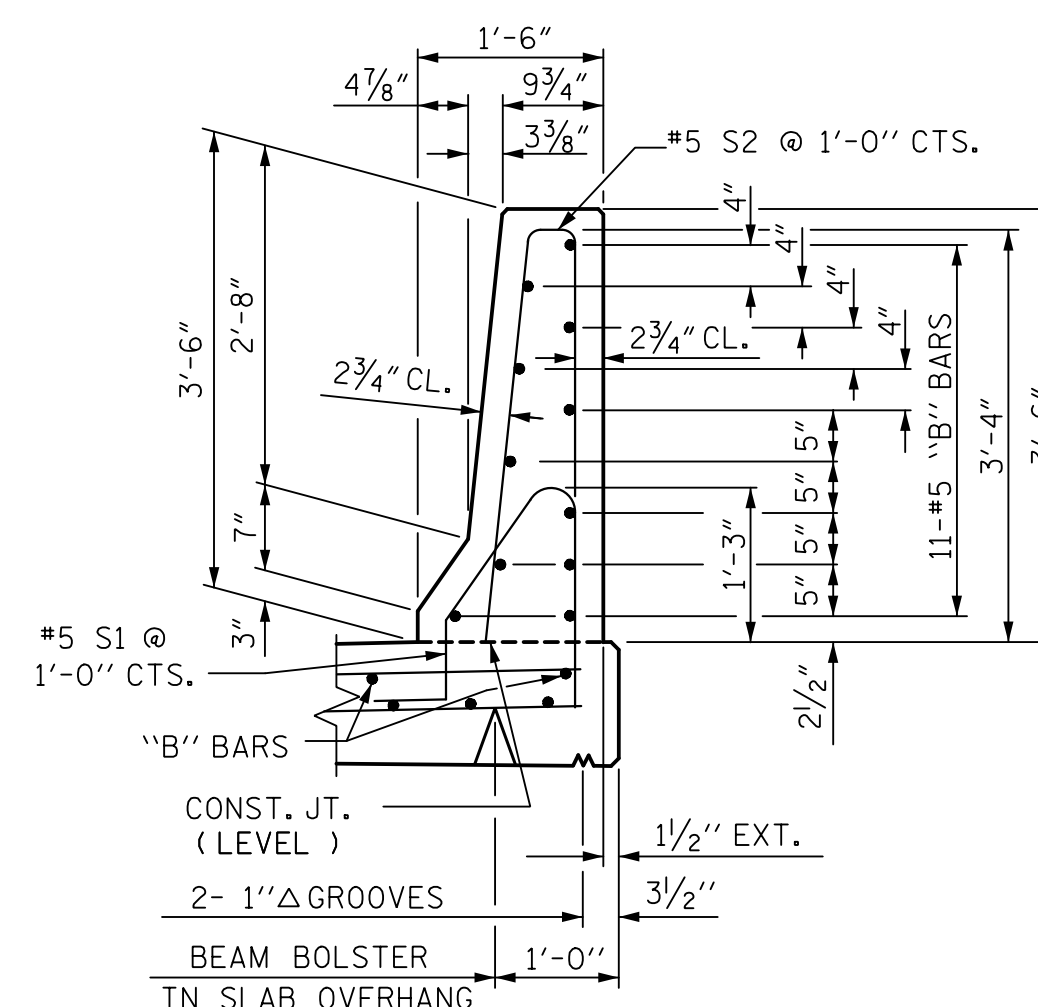
* S1	718	#5	1	4'-10"	3,620
* S2	718	#5	2	7'-0"	5,242

* EPOXY COATED REINFORCING STEEL	16,995	LBS.
CLASS AA CONCRETE	97.8	CU. YDS.
CONCRETE BARRIER RAIL	719.4	LIN. FT.

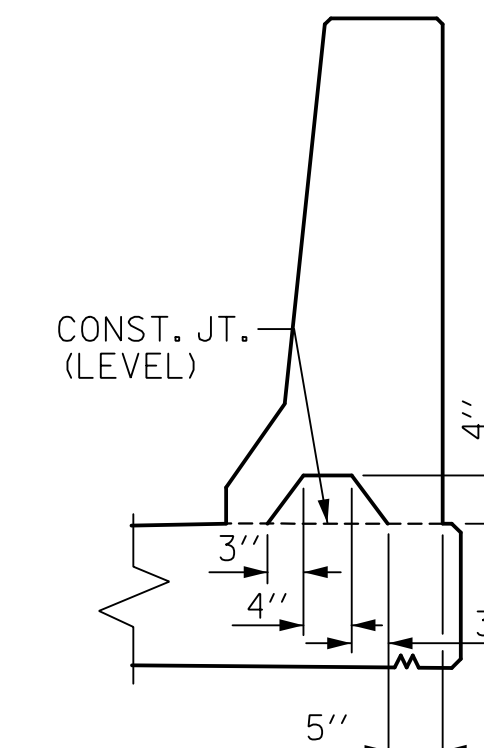
NOTE: FOR BARRIER RAIL EXTENSIONS ON APPROACH SLABS, SEE "STANDARD BRIDGE APPROACH SLAB DETAILS" SHEET.



ELEVATION AT EXPANSION JOINTS
BARRIER RAIL DETAILS



SECTION THRU RAIL



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

ASSEMBLED BY : A. SMITH	DATE : 7/18
CHECKED BY : E. JOWZA	DATE : 9/18
DRAWN BY : ARB 5/87	REV. 7/12 MAA/GM
CHECKED BY : SJD 9/87	REV. 6/13 MAA/GM
	REV. 12/11 MAA/THC

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UNLESS ALL SIGNATURES COMPLETED

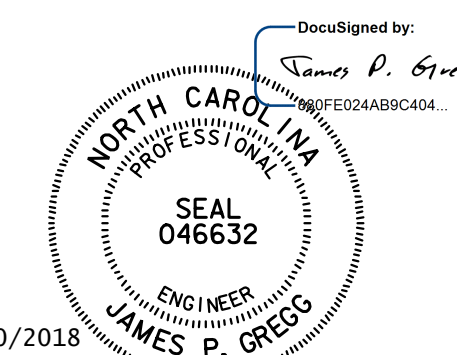
HNTB	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY : A. SMITH	DATE : 7/18
CHECKED BY : E. JOWZA	DATE : 10/18
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 10/18

STD. NO. CBR1

PROJECT NO. R-1015
CRAVEN COUNTY
STATION: POC STA. 138+31.09 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD CONCRETE BARRIER RAIL					
LEFT LANE					
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					TOTAL SHEETS
					46



NOTES

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

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

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

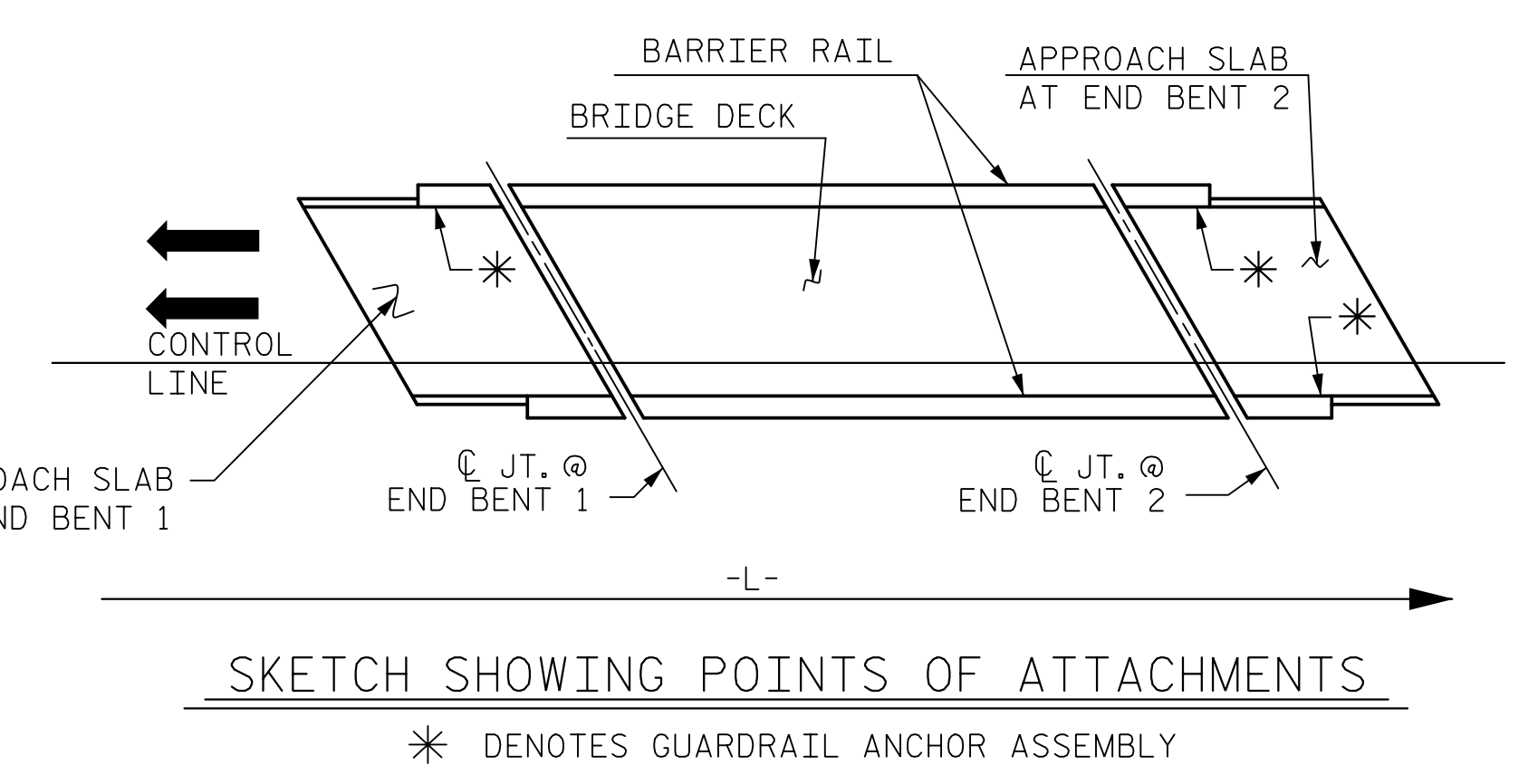
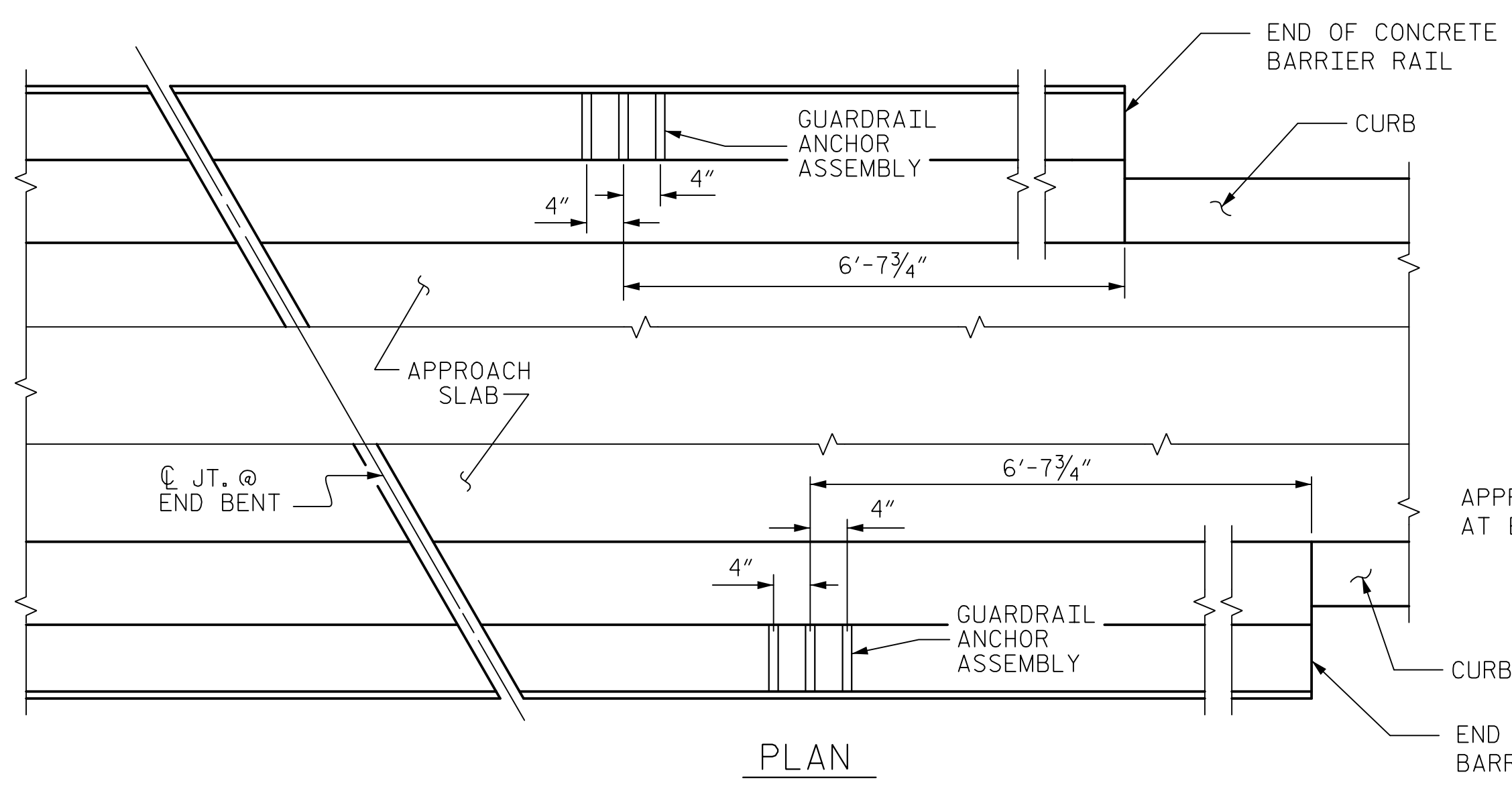
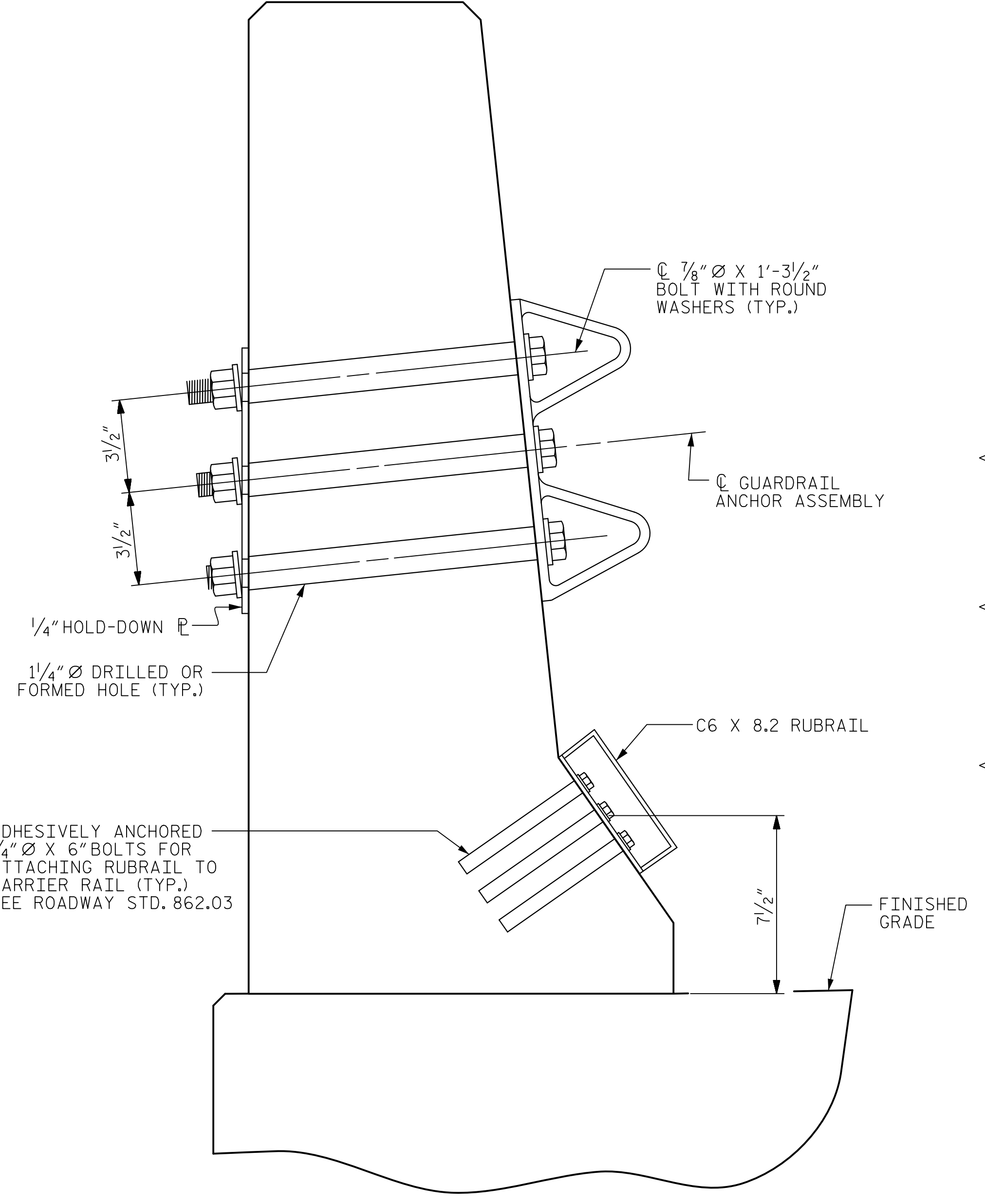
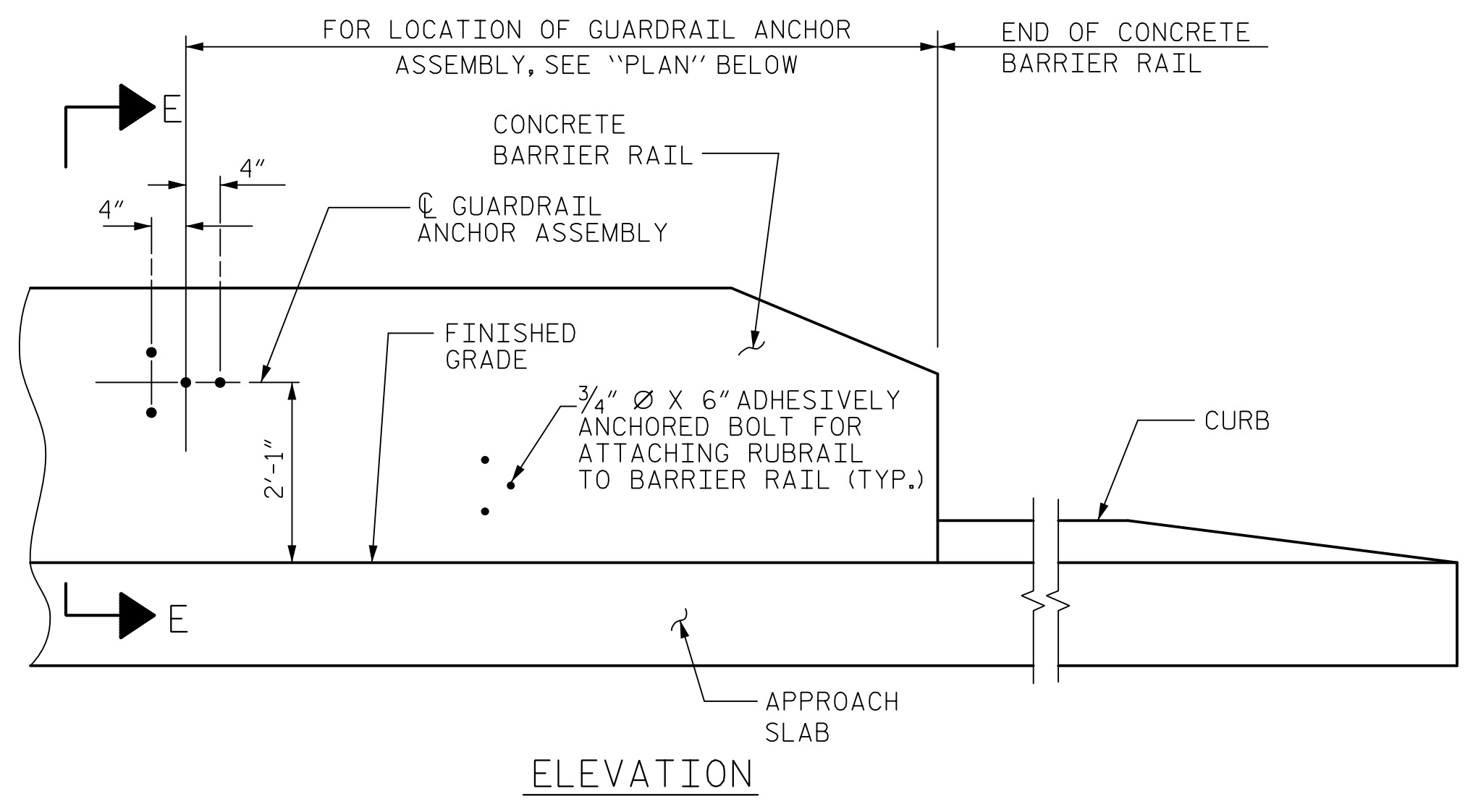
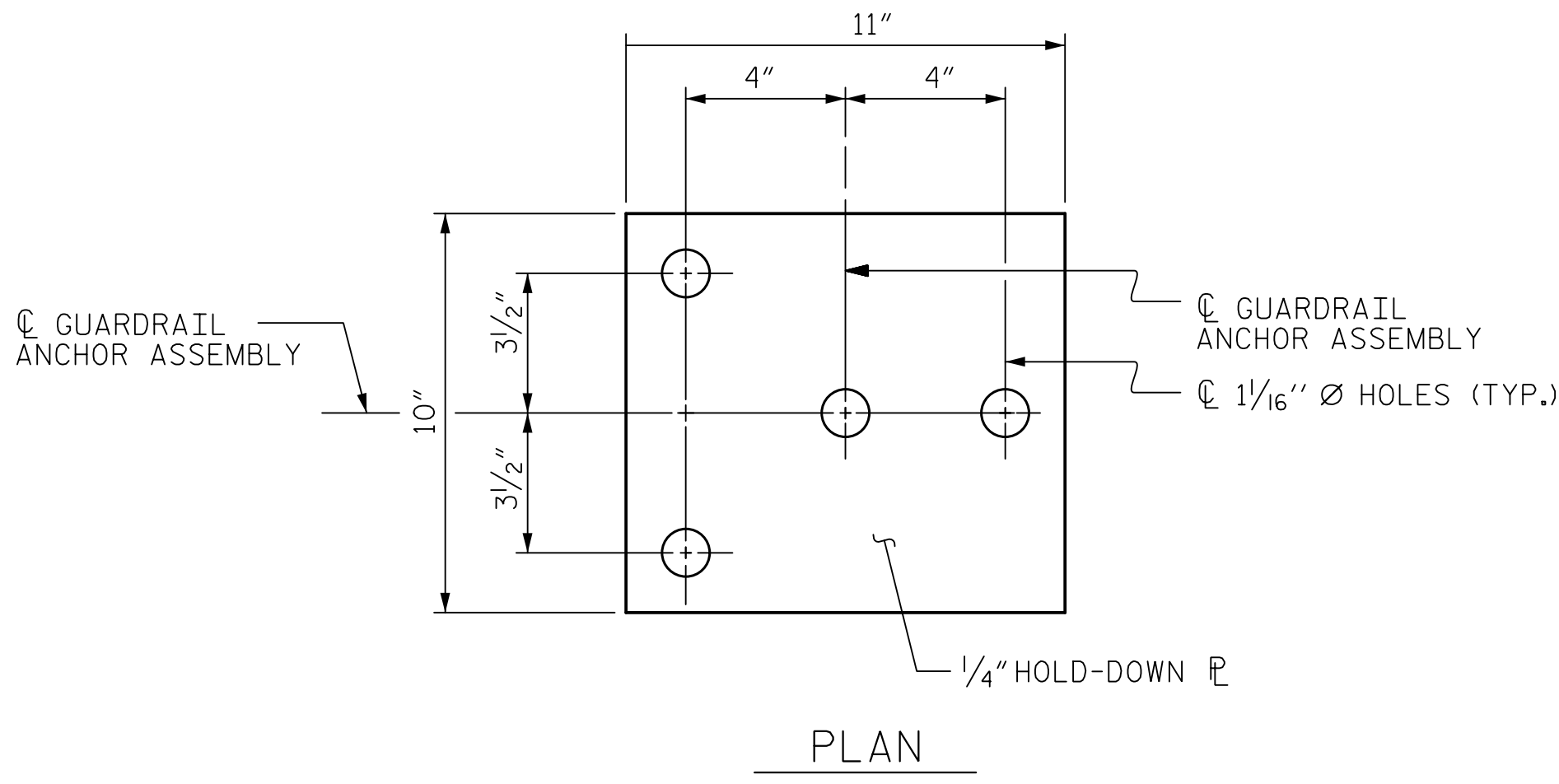
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

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.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

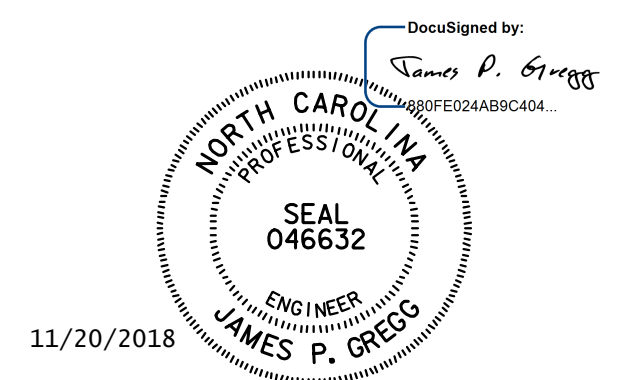


LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 2 SHOWN, END BENT 1 SIMILAR.

SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR BARRIER RAIL

LEFT LANE

ASSEMBLED BY : A. Smith	DATE : 7/18
CHECKED BY : E. Jowza	DATE : 10/18
DRAWN BY : TLA 5/06	REV. 7/12 MAA/GM
CHECKED BY : GM 5/06	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

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DRAWN BY : A. SMITH	DATE : 7/18	DWG. NO. 24	
CHECKED BY : E. JOWZA	DATE : 10/18		
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 10/18		

REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					TOTAL SHEETS 46

NOTES

MATERIAL FOR ANCHOR BOLTS SHALL BE TYPE 304 STAINLESS STEEL WITH A MINIMUM 9000 PSI ULTIMATE STRENGTH. NUTS AND WASHERS SHALL BE TYPE 304 STAINLESS STEEL. ANCHOR BOLTS SHALL BE EMBEDDED AS PER ADHESIVE BONDING SYSTEM MANUFACTURER SPECIFICATIONS. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK NUTS, CLASS 2B THREADS.

FOR SETTING ANCHOR BOLTS, THE CONTRACTOR SHALL USE AN ADHESIVE BONDING SYSTEM. SEE THE REQUIREMENTS OF SECTION 420-13 OF THE STANDARD SPECIFICATIONS FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS. LEVEL ONE FIELD TESTING OF BONDING SYSTEM IS REQUIRED AND THE YIELD LOAD OF THE 3/4" Ø BOLTS IS 12.0 KIPS.

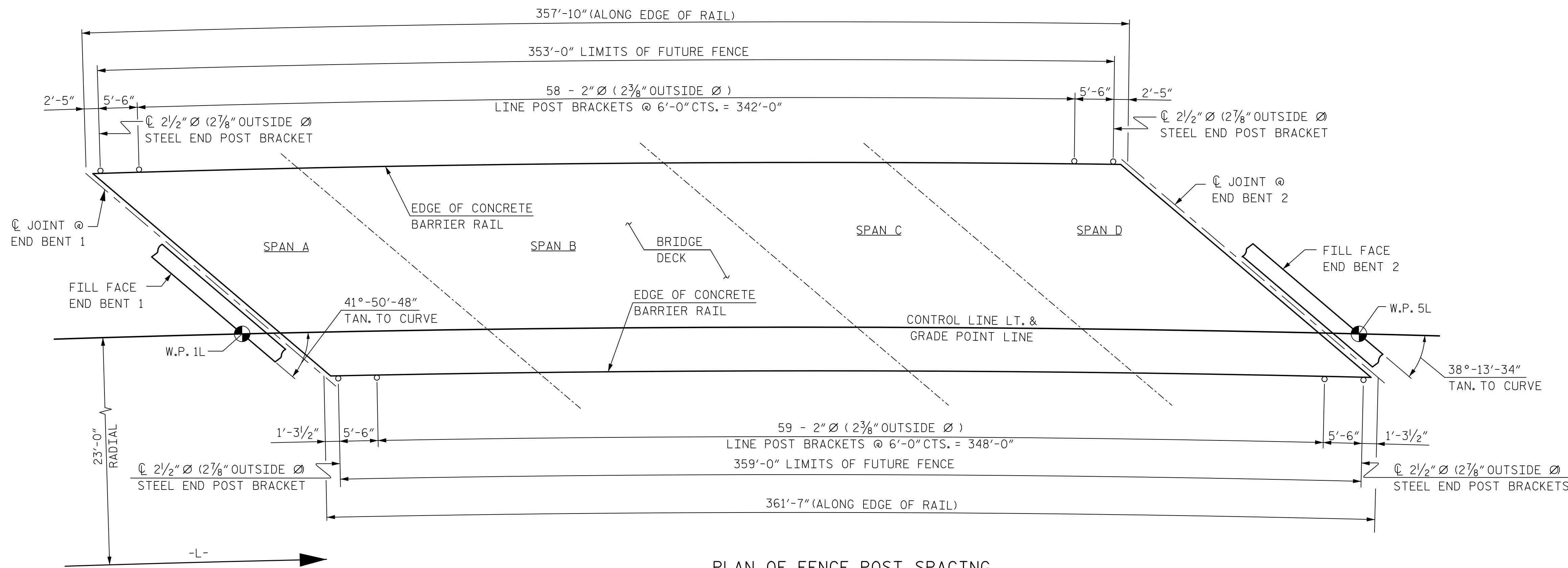
ALL BRACKETS SHALL MEET THE REQUIREMENTS OF SECTION 1050 OF THE STANDARD SPECIFICATIONS, GALVANIZE ALL STEEL PARTS AND HARDWARE IN ACCORDANCE WITH ARTICLE 1076 OF THE STANDARD SPECIFICATIONS.

FENCE POST LOCATIONS SHALL BE SHIFTED, AS NECESSARY, TO MAINTAIN 12" MINIMUM DISTANCE FROM ANCHOR BOLT TO JOINTS IN BARRIER RAIL.

DIMENSIONS ARE SHOWN ALONG OUTSIDE FACE OF BARRIER RAIL.

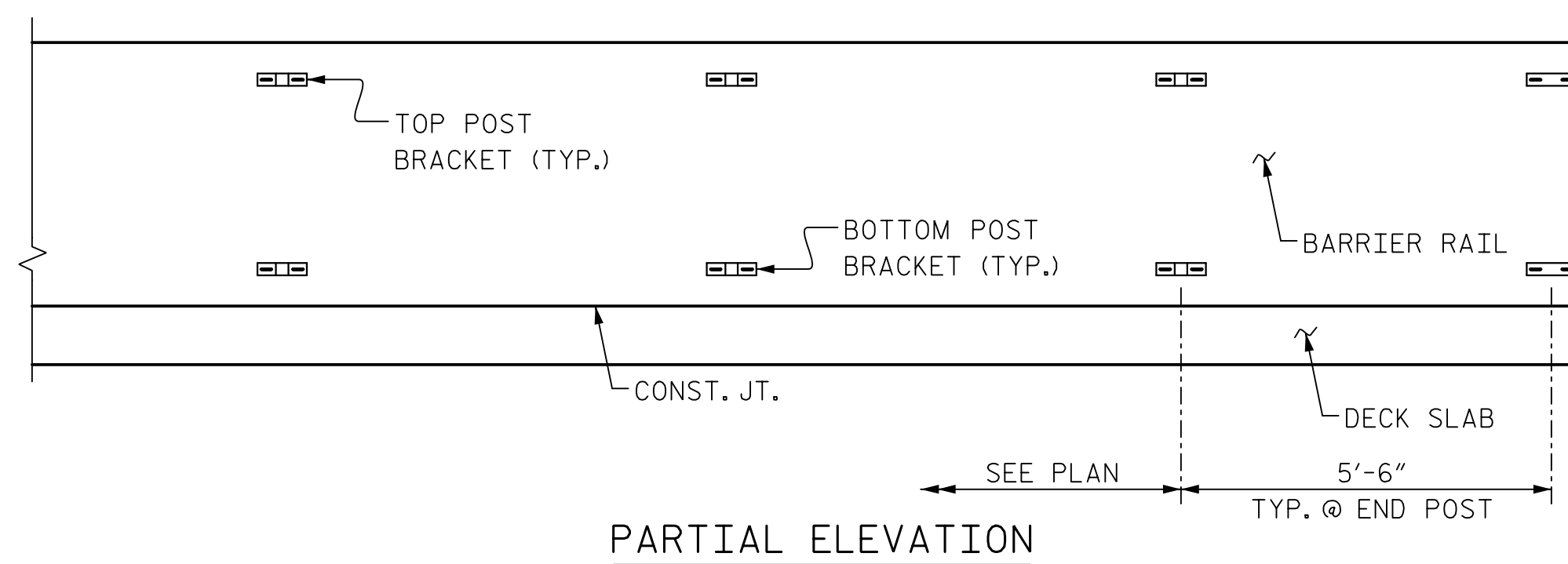
BRACKETS SHALL BE INSTALLED TO PERMIT STANDARD CHAIN LINK FENCE DETAILS TO BE UTILIZED IN THE FUTURE.

ALL THE COSTS ASSOCIATED WITH THE MATERIALS AND INSTALLATION OF THE POST BRACKETS SHALL BE INCLUDED IN THE "CONCRETE BARRIER RAIL" PAY ITEM.

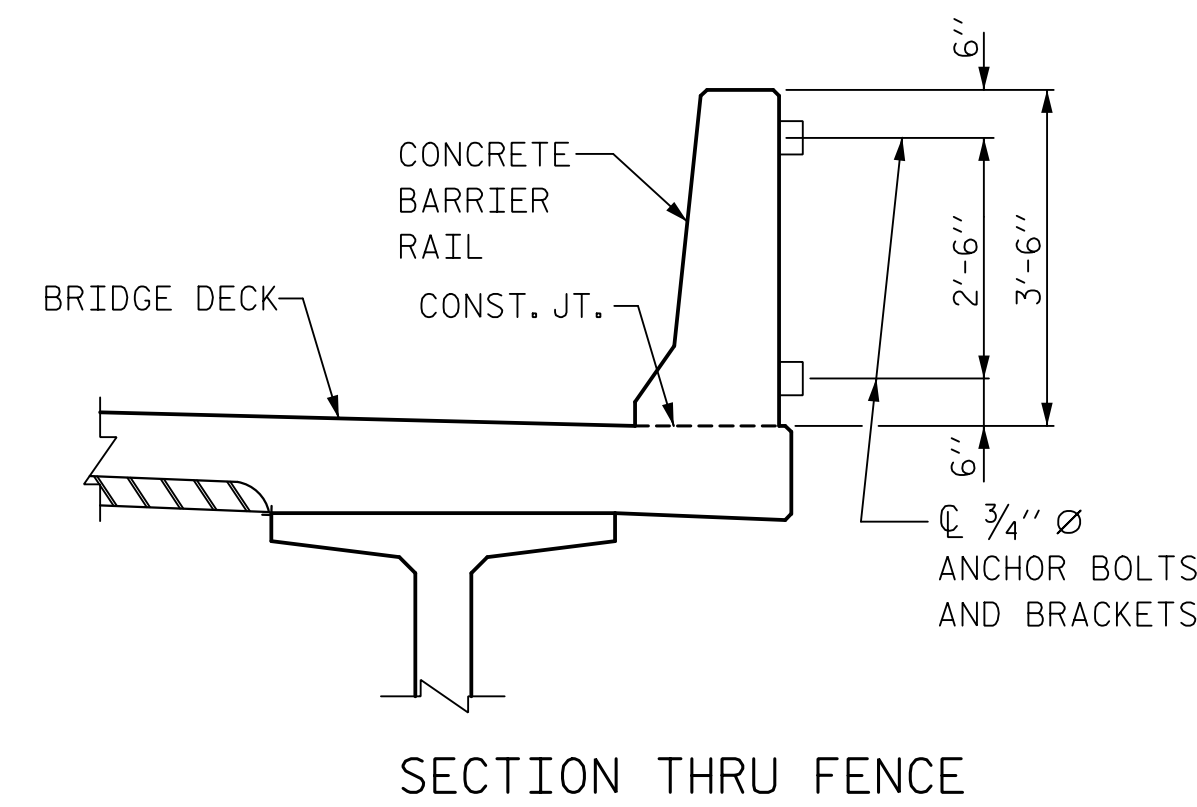


PLAN OF FENCE POST SPACING
(PAY LENGTH 712.00 FEET)

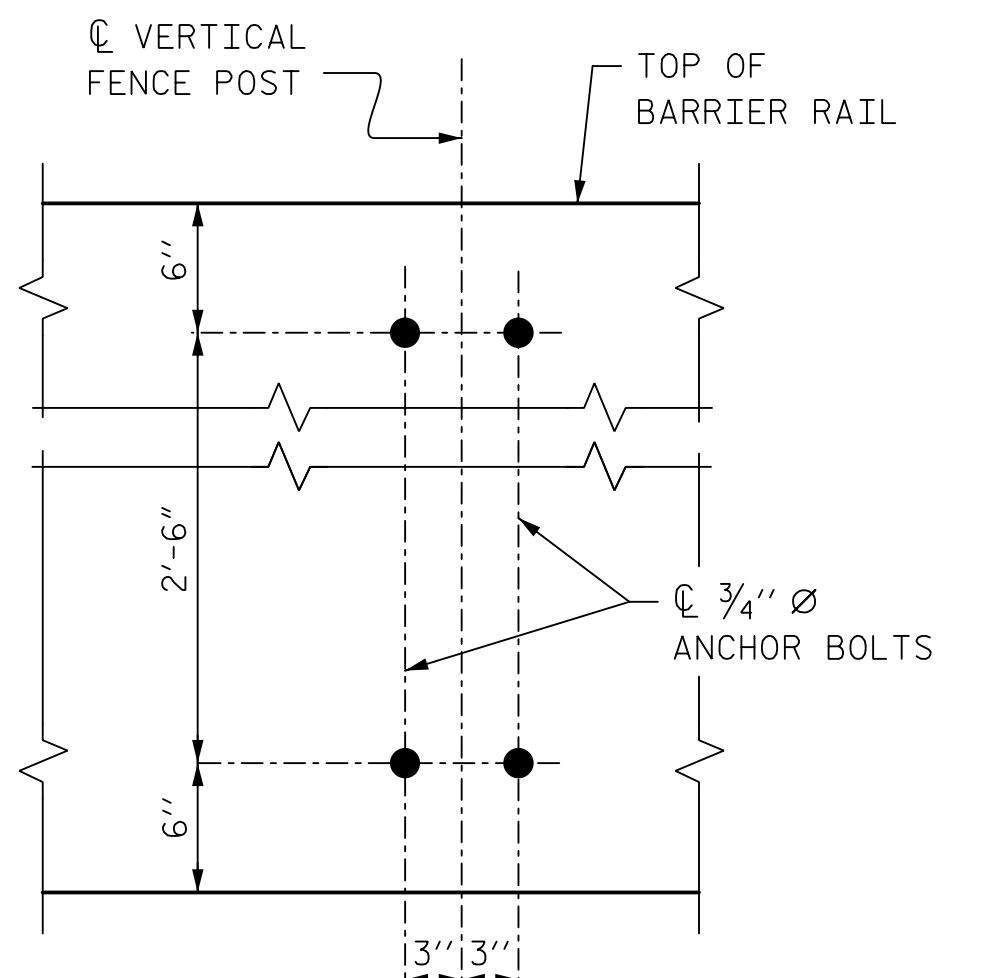
NOTE: EDGE OF SLAB NOT SHOWN FOR CLARITY.



PARTIAL ELEVATION

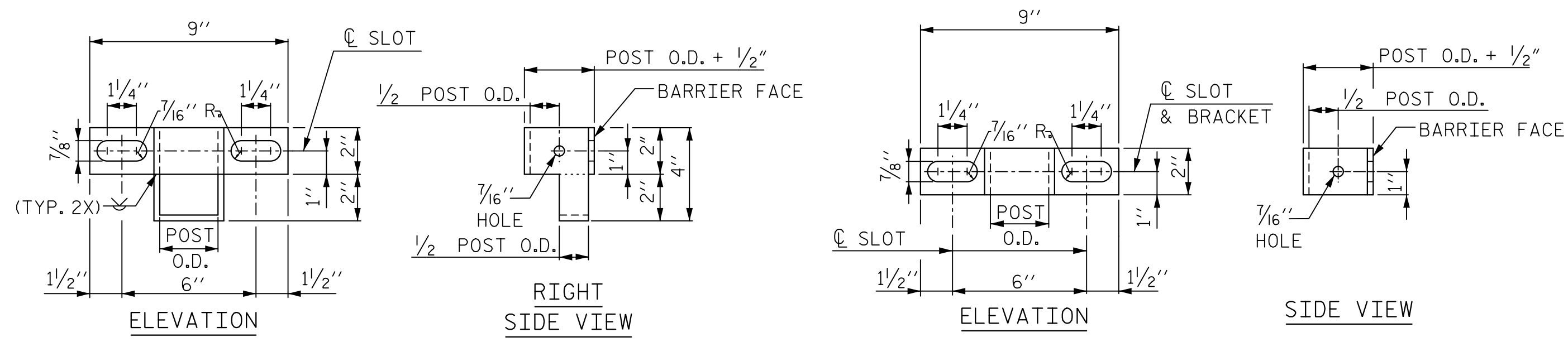


SECTION THRU FENCE



BOLT SETTING DETAIL

PROJECT NO. R-1015
CRAVEN COUNTY
STATION: POC STA. 138+31.09 -L-

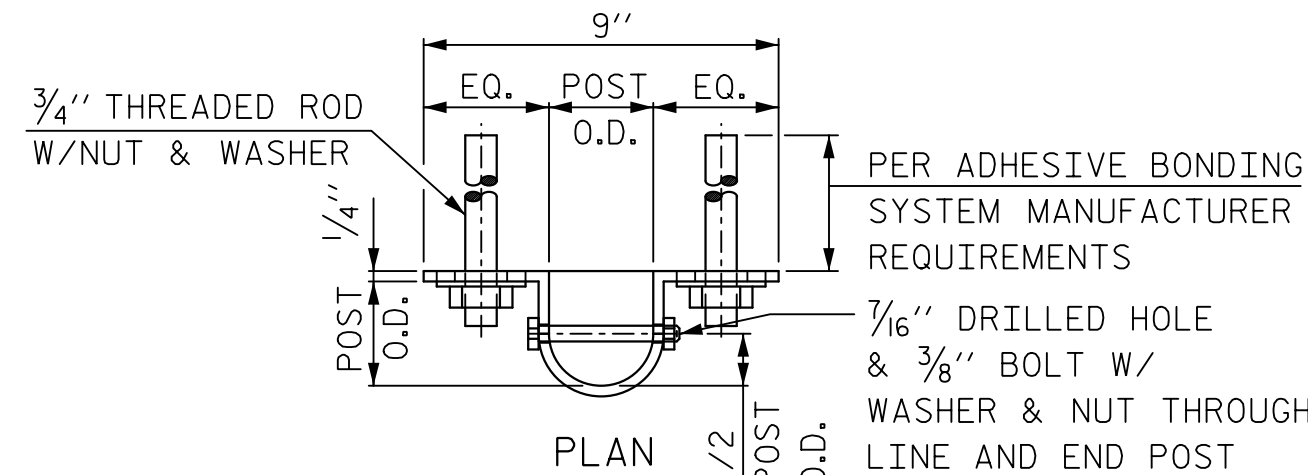


ELEVATION

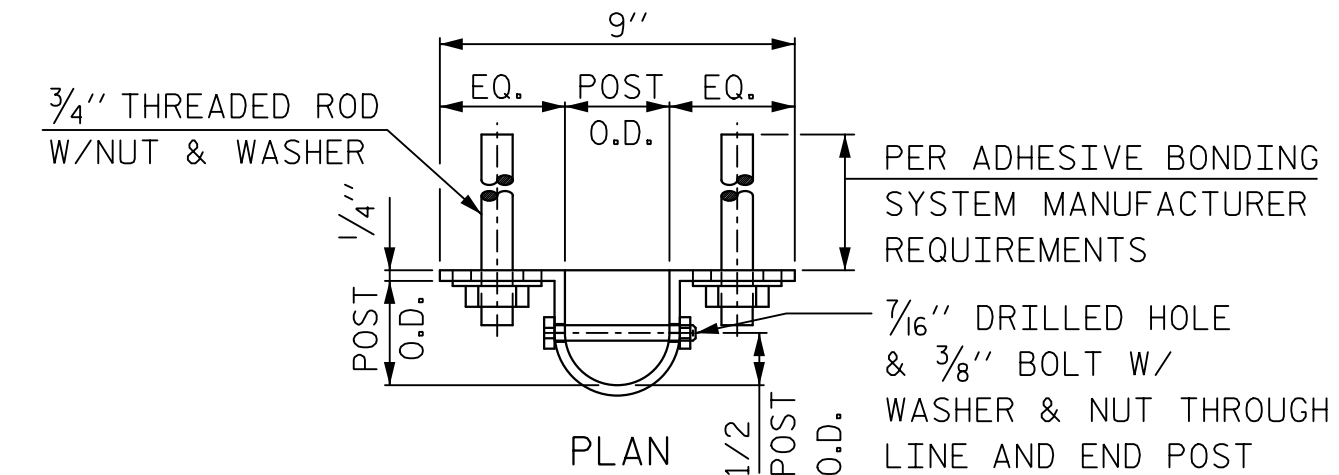
RIGHT SIDE VIEW

ELEVATION

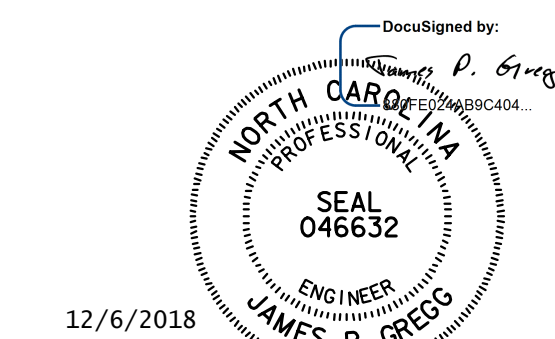
SIDE VIEW



BOTTOM POST BRACKET



TOP POST BRACKET



12/6/2018

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NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: A. SMITH DATE: 7/18
CHECKED BY: E. JONZA DATE: 10/18
DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

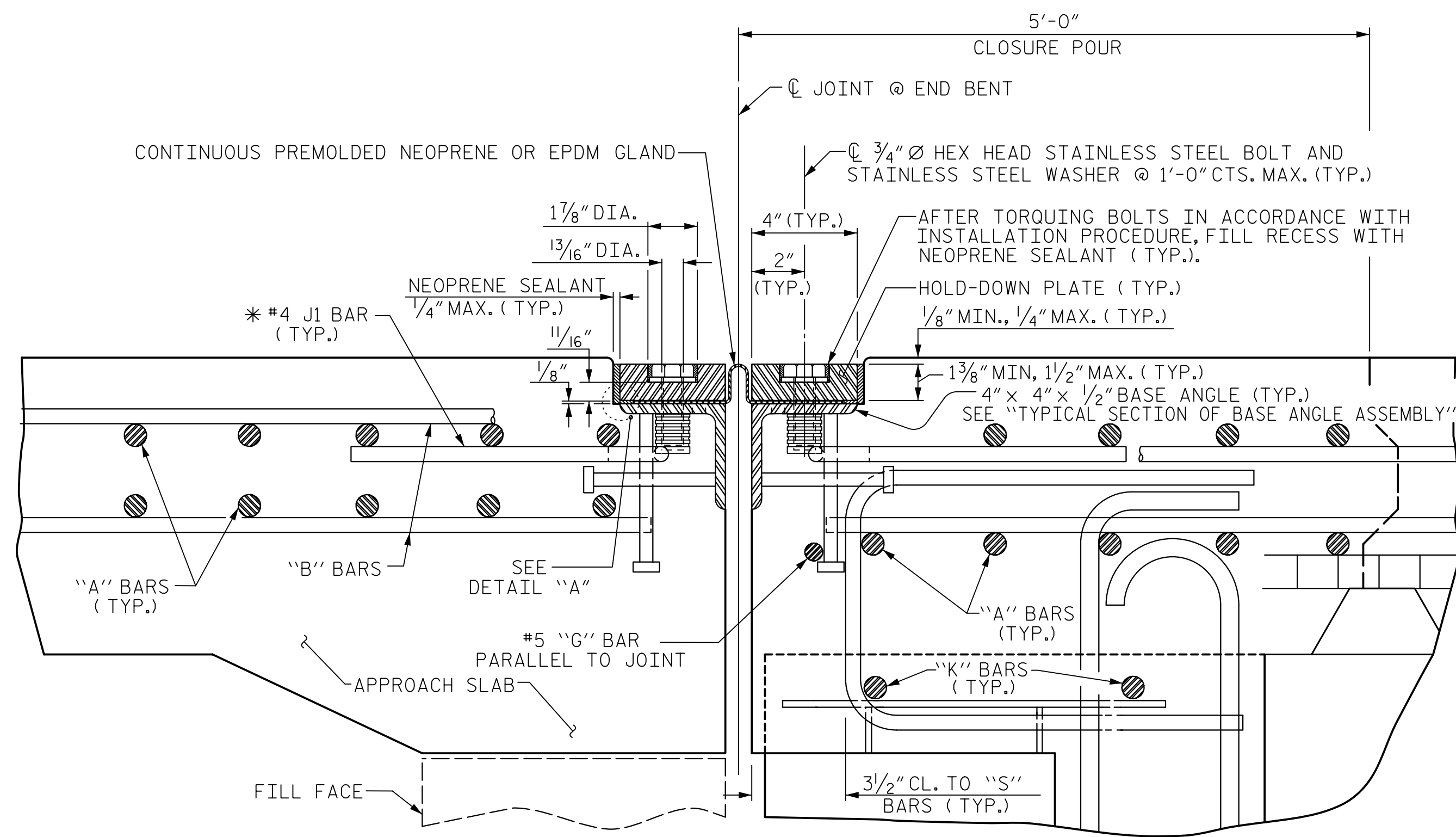
DWG. NO. 25

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
BRIDGE MOUNTED
CHAIN LINK FENCE
DETAILS
LEFT LANE

REVISIONS					SHEET NO. S03-25
NO.	BY	DATE	NO.	DATE	
1			3		TOTAL SHEETS 46
2			4		

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EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE

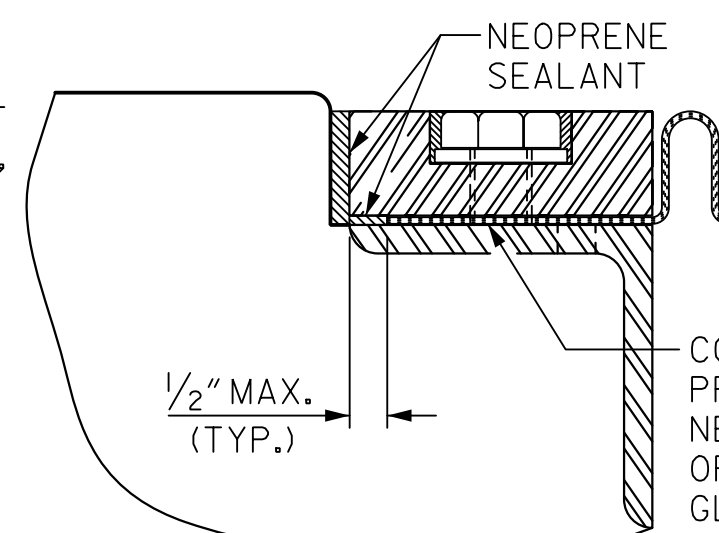
* THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.

INSTALLATION PROCEDURE

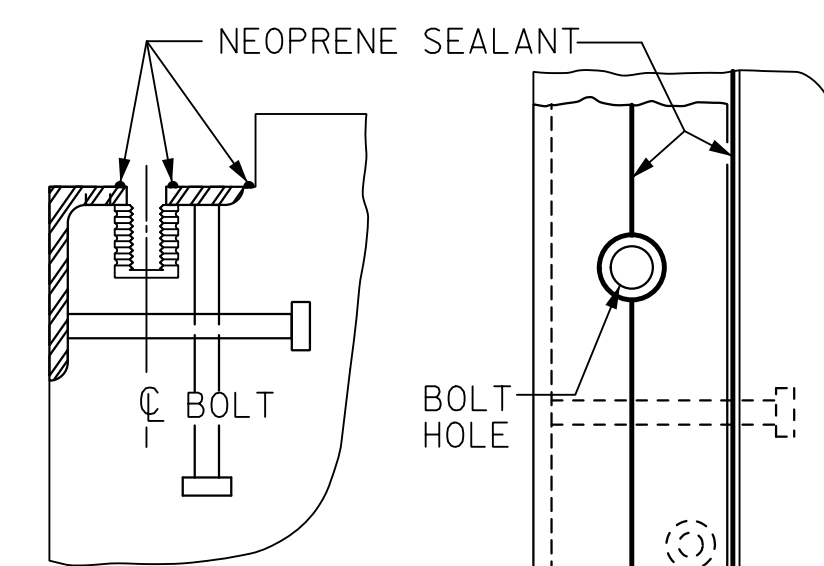
1. A TEMPLATE OR OTHER SUITABLE DEVICE SHALL BE USED TO FORM THE TOP OF THE EXPANSION JOINT SEAL BLOCKOUT TO THE PROPER DEPTH AND WIDTH. THE TEMPLATE SHALL BE 4/8" TO 4 1/4" WIDE AND OF SUCH THICKNESS AS TO PROVIDE FOR CORRECT FINAL ELEVATION OF TOP OF HOLD-DOWN PLATES. THE TEMPLATE SHALL BE ATTACHED TO THE BASE ANGLE ASSEMBLY WITH THE 3/4" Ø HEX HEAD BOLTS PROVIDED FOR THE HOLD-DOWN PLATES. A 1" Ø HOLE SHALL BE PROVIDED IN THE TEMPLATE CENTERED OVER EACH WEEP HOLE IN THE 4" X 4" X 1/2" BASE ANGLE. OTHER METHODS OF INSURING DRAINAGE THROUGH WEEP HOLES MAY BE EMPLOYED SUBJECT TO ENGINEER'S APPROVAL.
2. AFTER THE CONCRETE HAS BEEN CAST ON BOTH SIDES OF THE JOINT, REMOVE THE TEMPLATE. THOROUGHLY CLEAN THE BOLT HOLES AND THE ANGLE PLATE. REMOVE ANY EXCESS CONCRETE THAT COMES OUT OF THE WEEP HOLES. ANY DAMAGED STEEL SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
3. LAY THE GLAND ON THE BASE ANGLE AND FIELD MARK THE GLAND FOR THE BOLT HOLES. HOLES IN THE GLAND SHALL BE PUNCHED 7/8" IN DIAMETER WITH A HAND PUNCH.
4. IN ORDER TO CHECK FOR PROPER ALIGNMENT, PLACE THE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. DO NOT APPLY NEOPRENE SEALANT. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE BUT DO NOT TIGHTEN. THE ENGINEER SHALL INSPECT THE JOINT SEAL DEVICE FOR PROPER ALIGNMENT.
5. AFTER INSPECTION, REMOVE THE HOLD-DOWN PLATES AND GLAND. APPLY NEOPRENE SEALANT TO THE BASE ANGLE IN ACCORDANCE WITH THE "INSTALLATION SKETCH". PLACE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE ASSEMBLY AND TORQUE THE BOLTS TO 88 FT-LBS WITH A TORQUE WRENCH. CHECK THE TORQUE AFTER THREE (3) HOURS AND, IF NECESSARY, RETIGHTEN TO 88 FT-LBS. A FINAL CHECK SHALL BE MADE AT SEVEN (7) DAYS. TORQUE SHALL NOT BE LESS THAN 80 FT-LBS AFTER SEVEN (7) DAYS.
6. AFTER PROPER TORQUING, CLEAN THE BOLT HOLE RECESSES, THE RECESS BETWEEN THE JOINT SEAL DEVICE AND CONCRETE, AND THE LIFTING HOLES IN THE HOLD-DOWN PLATE, AND COMPLETELY FILL THESE RECESSES AND LIFTING HOLES WITH NEOPRENE SEALANT.

GENERAL NOTES

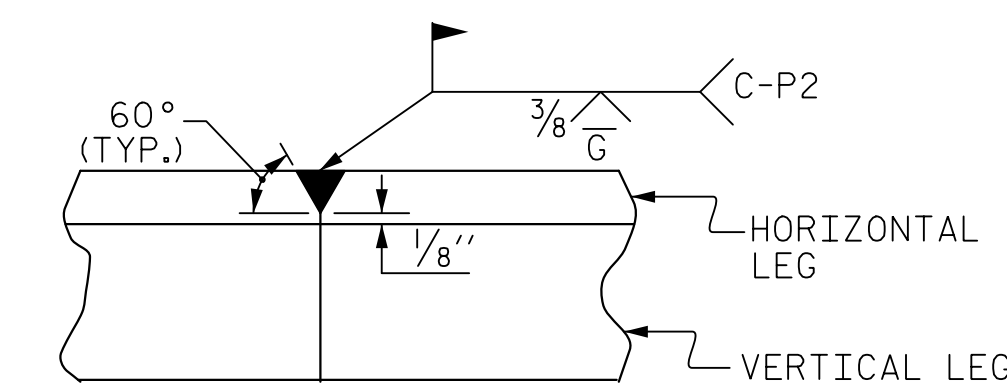
1. FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.
2. ALL PLATES AND ANGLES SHALL CONFORM TO AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL. ALL HOLD-DOWN BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL CONFORM TO ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169, GRADES 1010 THRU 1020 OR APPROVED EQUAL. ALL CONCRETE INSERTS SHALL BE CLOSED END AND SHALL CONFORM TO AASHTO M169, GRADE 12L14. TENSILE CAPACITY SHALL BE 3000 LBS. MINIMUM.
3. FOR JOINTS SKEWED LESS THAN 50° OR MORE THAN 130°, ONLY A CORRUGATED GLAND SHALL BE USED.
4. CLOSED END FERRULES AND STUD ANCHORS SHALL BE SHOP WELDED AND ALL HOLES SHALL BE SHOP DRILLED AS SHOWN ON PLANS. STUD ANCHORS SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.
5. SURFACES COMING IN CONTACT WITH NEOPRENE SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.
6. UPON COMPLETION OF SHOP FABRICATION, THE HOLD-DOWN PLATE AND BASE ANGLE ASSEMBLY, AS SHOWN IN THE "TYPICAL SECTION OF BASE ANGLE ASSEMBLY", SHALL BE METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
7. THE COVER PLATES SHALL BE METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
8. BASE ANGLE ASSEMBLY SHALL BE CONTINUOUS FOR THE LENGTH OF THE JOINT. FINISHED WELD SHALL BE GROUND SMOOTH AND REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
9. FIELD SPLICES OF HOLD-DOWN PLATES SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPlice LOCATIONS FOR APPROVAL. HOLD-DOWN PLATES SHALL NOT EXCEED 20' LENGTHS UNLESS APPROVED BY THE ENGINEER.
10. NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.
11. THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.
12. THE FABRICATOR SHALL PROVIDE 1/2" Ø THREADED HOLES IN THE HOLD-DOWN PLATES TO ASSIST IN LIFTING AND PLACING. THE HOLES SHALL BE 3/4" DEEP AT 6'-0" MAXIMUM SPACING AND A MINIMUM OF TWO HOLES PER PLATE.



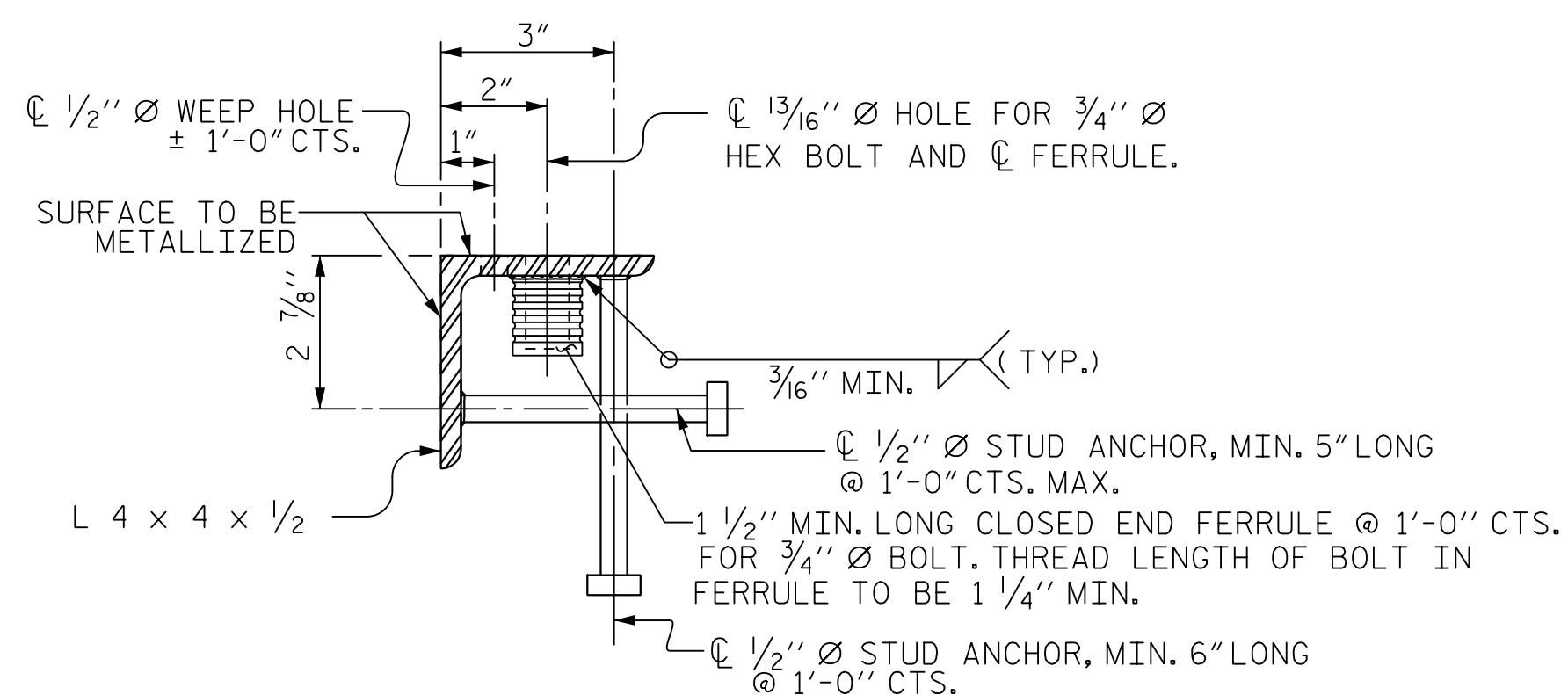
DETAIL "A"



**CROSS SECTION
PLAN VIEW
INSTALLATION SKETCH**



**DETAIL - FIELD WELD
SPLICE OF BASE ANGLE**



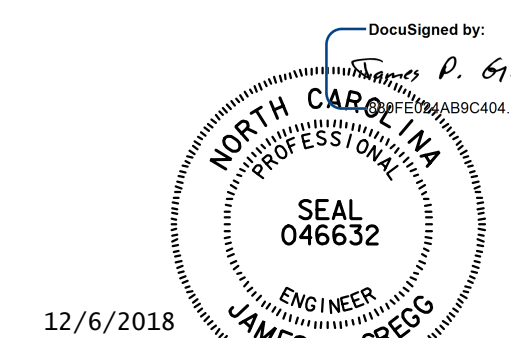
TYPICAL SECTION OF BASE ANGLE ASSEMBLY

MOVEMENT AND SETTING AT JOINT					
END BENT NO.	SKIEW ANGLE	TOTAL MOVEMENT (ALONG C. RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
1	41°-50°-48" TAN. TO CURVE	1 1/8"	1 1/2"	1 3/8"	1 1/8"
2	38°-13°-34" TAN. TO CURVE	1 1/16"	1 1/16"	1 5/16"	1 1/8"

ASSEMBLED BY : A. SMITH	DATE : 7/18
CHECKED BY : E. JOWZA	DATE : 10/18
DRAWN BY : REK 9/87	REV. 10/1/11 MAA/GM
CHECKED BY : CRK 10/87	REV. 10/17 MAA/THC
	REV. 6/18 MAA/THC

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HNTB	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY : A. SMITH	DATE : 7/18
CHECKED BY : E. JOWZA	DATE : 10/18
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 10/18
DWG. NO. 26	



PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 1 OF 2

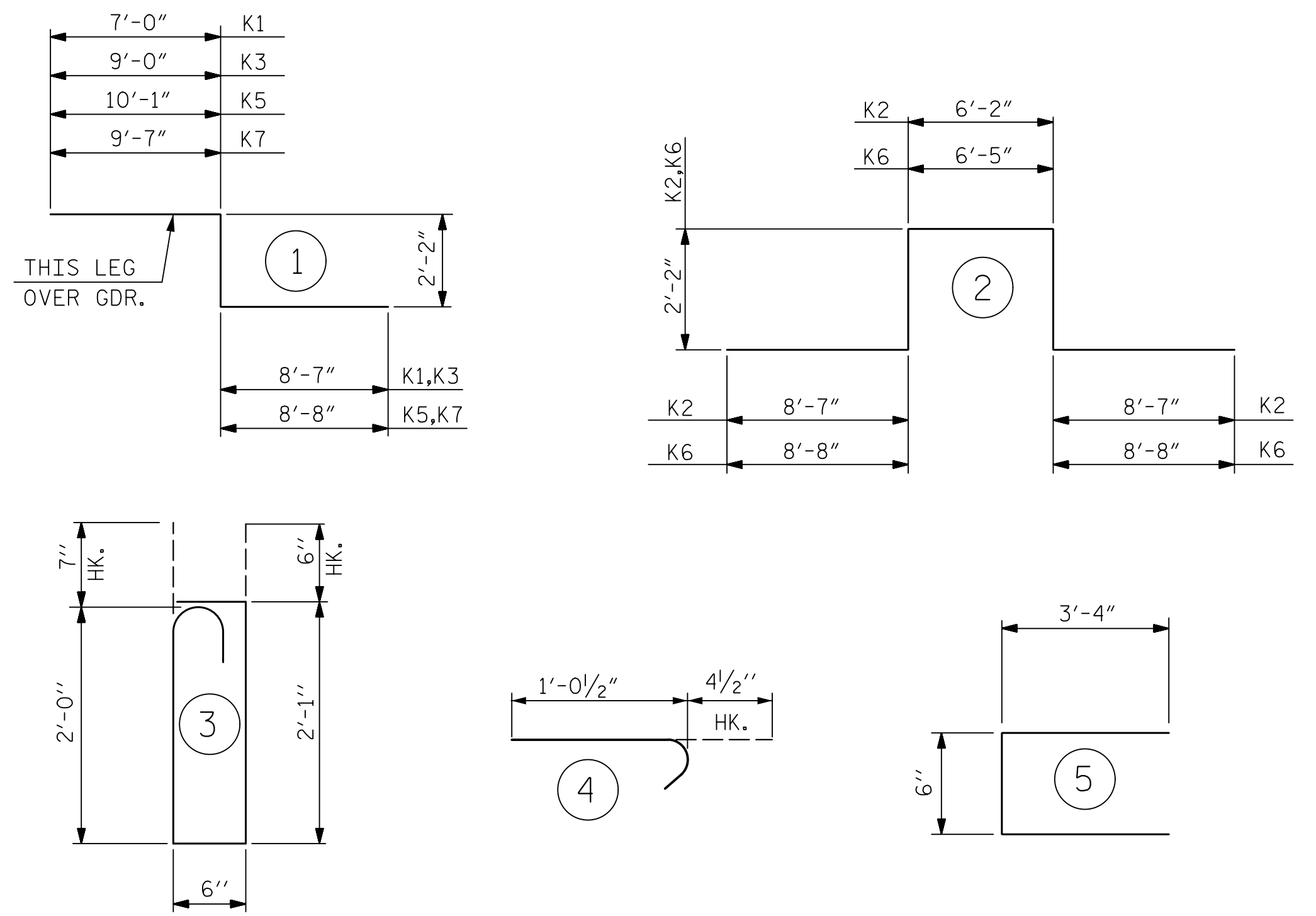
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD EXPANSION JOINT SEAL DETAILS					
LEFT LANE					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					SHEET NO. S03-26
					TOTAL SHEETS 46

BILL OF MATERIAL					
EPOXY COATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
* A1	616	6	STR	42'-11"	39,708
* A2	1	6	STR	42'-8"	64
* A3	1	6	STR	42'-2"	63
* A4	1	6	STR	41'-9"	63
* A5	1	6	STR	41'-4"	62
* A6	1	6	STR	40'-11"	61
* A7	1	6	STR	40'-5"	61
* A8	1	6	STR	40'-0"	60
* A9	1	6	STR	39'-7"	59
* A10	1	6	STR	39'-2"	59
* A11	1	6	STR	38'-8"	58
* A12	1	6	STR	38'-3"	57
* A13	1	6	STR	37'-10"	57
* A14	1	6	STR	37'-5"	56
* A15	1	6	STR	36'-11"	55
* A16	1	6	STR	36'-6"	55
* A17	1	6	STR	36'-1"	54
* A18	1	6	STR	35'-8"	54
* A19	1	6	STR	35'-2"	53
* A20	1	6	STR	34'-9"	52
* A21	1	6	STR	34'-4"	52
* A22	1	6	STR	33'-11"	51
* A23	1	6	STR	33'-5"	50
* A24	1	6	STR	33'-0"	50
* A25	1	6	STR	32'-7"	49
* A26	1	6	STR	32'-2"	48
* A27	1	6	STR	31'-9"	48
* A28	1	6	STR	31'-3"	47
* A29	1	6	STR	30'-10"	46
* A30	1	6	STR	30'-5"	46
* A31	1	6	STR	30'-0"	45
* A32	1	6	STR	29'-6"	44
* A33	1	6	STR	29'-1"	44
* A34	1	6	STR	28'-8"	43
* A35	1	6	STR	28'-3"	42
* A36	1	6	STR	27'-9"	42
* A37	1	6	STR	27'-4"	41
* A38	1	6	STR	26'-11"	40
* A39	1	6	STR	26'-6"	40
* A40	1	6	STR	26'-0"	39
* A41	1	6	STR	25'-7"	38
* A42	1	6	STR	25'-2"	38
* A43	1	6	STR	24'-9"	37
* A44	1	6	STR	24'-3"	36
* A45	1	6	STR	23'-10"	36
* A46	1	6	STR	23'-5"	35
* A47	1	6	STR	23'-0"	35
* A48	1	6	STR	22'-6"	34
* A49	1	6	STR	22'-1"	33
* A50	1	6	STR	21'-8"	33
* A51	1	6	STR	21'-3"	32
* A52	1	6	STR	20'-10"	31
* A53	1	6	STR	20'-4"	31
* A54	1	6	STR	19'-11"	30
* A55	1	6	STR	19'-6"	29
* A56	1	6	STR	19'-1"	29
* A57	1	6	STR	18'-7"	28
* A58	1	6	STR	18'-2"	27
* A59	1	6	STR	17'-9"	27
* A60	1	6	STR	17'-4"	26
* A61	1	6	STR	16'-10"	25
* A62	1	6	STR	16'-5"	25
* A63	1	6	STR	16'-0"	24
* A64	1	6	STR	15'-7"	23
* A65	1	6	STR	15'-1"	23
* A66	1	6	STR	14'-8"	22
* A67	1	6	STR	14'-3"	21
* A68	1	6	STR	13'-10"	21
* A69	1	6	STR	13'-4"	20
* A70	1	6	STR	12'-11"	19
* A71	1	6	STR	12'-6"	19
* A72	1	6	STR	12'-1"	18
* A73	1	6	STR	11'-8"	18

BILL OF MATERIAL					
EPOXY COATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
* A74	1	6	STR	11'-2"	17
* A75	1	6	STR	10'-9"	16
* A76	1	6	STR	10'-4"	16
* A77	1	6	STR	9'-11"	15
* A78	1	6	STR	9'-5"	14
* A79	1	6	STR	9'-0"	14
* A80	1	6	STR	8'-7"	13
* A81	1	6	STR	8'-2"	12
* A82	1	6	STR	7'-8"	12
* A83	1	6	STR	7'-3"	11
* A84	1	6	STR	6'-10"	10
* A85	1	6	STR	6'-5"	10
* A86	1	6	STR	5'-11"	9
* A87	1	6	STR	5'-6"	8
* A88	1	6	STR	5'-1"	8
* A89	1	6	STR	4'-8"	7
* A90	1	6	STR	4'-2"	6
* A91	1	6	STR	3'-9"	6
* A92	1	6	STR	3'-4"	5
* A93	1	6	STR	2'-11"	4
* A94	1	6	STR	2'-6"	4
* A95	1	6	STR	42'-8"	64
* A96	1	6	STR	42'-3"	63
* A97	1	6	STR	41'-10"	63
* A98	1	6	STR	41'-5"	62
* A99	1	6	STR	41'-0"	62
* A100	1	6	STR	40'-7"	61
* A101	1	6	STR	40'-2"	60
* A102	1	6	STR	39'-9"	60
* A103	1	6	STR	39'-5"	59
* A104	1	6	STR	39'-0"	59
* A105	1	6	STR	38'-7"	58
* A106	1	6	STR	38'-2"	57
* A107	1	6	STR	37'-9"	57
* A108	1	6	STR	37'-4"	56
* A109	1	6	STR	36'-11"	55
* A110	1	6	STR	36'-6"	55
* A111	1	6	STR	36'-2"	54
* A112	1	6	STR	35'-9"	54
* A113	1	6	STR	35'-4"	53
* A114	1	6	STR	34'-11"	52
* A115	1	6	STR	34'-6"	52
* A116	1	6	STR	34'-1"	51
* A117	1	6	STR	33'-8"	51
* A118	1	6	STR	33'-4"	50
* A119	1	6	STR	32'-11"	49
* A120	1	6	STR	32'-6"	49
* A121	1	6	STR	32'-1"	48
* A122	1	6	STR	31'-8"	48
* A123	1	6	STR	31'-3"	47
* A124	1	6	STR	30'-10"	46
* A125	1	6	STR	30'-5"	46
* A126	1	6	STR	30'-1"	45
* A127	1	6	STR	29'-8"	45
* A128	1	6	STR	29'-3"	44
* A129	1	6	STR	28'-10"	43
* A130	1	6	STR	28'-5"	43
* A131	1	6	STR	28'-0"	42
* A132	1	6	STR	27'-7"	41
* A133	1	6	STR	27'-2"	41
* A134	1	6	STR	26'-10"	40
* A135	1	6	STR	26'-5"	40
* A136	1	6	STR	26'-0"	39
* A137	1	6	STR	25'-7"	38
* A138	1	6	STR	25'-2"	38
* A139	1	6	STR	24'-9"	37
* A140	1	6	STR	24'-4"	37
* A141	1	6	STR	24'-0"	36
* A142	1	6	STR	23'-7"	35
* A143	1	6	STR	23'-2"	35
* A144	1	6	STR	22'-9"	34
* A145	1	6	STR	22'-4"	34
* A146	1	6	STR	21'-11"	33

BILL OF MATERIAL					
EPOXY COATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
* A147	1	6	STR	21'-6"	32
* A148	1	6	STR	21'-1"	32
* A149	1	6	STR	20'-9"	31
* A150	1	6	STR	20'-4"	31
* A151	1	6	STR	19'-11"	30
* A152	1	6	STR	19'-6"	29
* A153	1	6	STR	19'-1"	29
* A154	1	6	STR	18'-8"	28
* A155	1	6	STR	18'-3"	27
* A156	1	6	STR	17'-11"	27
* A157	1	6	STR	17'-6"	26
* A158	1	6	STR	17'-1"	26
* A159	1	6	STR	16'-8"	25
* A160	1	6	STR	16'-3"	24
* A161	1	6	STR	15'-10"	24
* A162	1	6	STR	15'-5"	23
* A163	1	6	STR	15'-0"	23
* A164	1	6	STR	14'-8"	22
* A165	1	6	STR	14'-3"	21
* A166	1	6	STR	13'-10"	21
* A167	1	6	STR	13'-5"	20
* A168	1	6	STR	13'-0"	20
* A169	1	6	STR	12'-7"	19
* A170	1	6	STR	12'-2"	18
* A171	1	6	STR	11'-9"	18
* A172	1	6	STR	11'-5"	17
* A173	1	6	STR	11'-0"	17
* A174	1	6	STR	10'-7"	16
* A175	1	6	STR	10'-2"	15
* A176	1	6	STR	9'-9"	15
* A177	1	6	STR	9'-4"	14
* A178	1	6	STR	8'-11"	13
* A179	1	6	STR	8'-7"	13
* A180	1	6	STR	8'-2"	12
* A181	1	6	STR	7'-9"	12
* A182	1	6	STR	7'-4"	11
* A183	1	6	STR	6'-11"	10
* A184	1	6	STR	6'-6"	10
* A185	1	6	STR	6'-1"	9
* A186	1	6	STR	5'-8"	9
* A187	1	6	STR	5'-4"	8
* A188	1	6	STR	4'-11"	7
* A189	1	6	STR	4'-6"	7
* A190	1	6	STR	4'-1"	6
* A191	1	6	STR	3'-8"	6
* A192	1	6	STR	3'-3"	5
* A193	1	6	STR	2'-10"	4
* A194	1	6	STR	2'-6"	4
* A195	6	6	STR	27'-6"	248
* B1	93	4	STR	25'-0"	1,553
* B2	155	4	STR	24'-6"	2,537
* B3	93	4	STR	25'-11"	1,610
* B4	93	4	STR	23'-8"	1,470
* B5	87	6	STR	17'-8"	2,309
* B6	87	6	STR	17'-8"	2,309
* B7	87	6	STR	13'-8"	1,786
* G1	2	5	STR	33'-6"	70
* G2	2	5	STR	36'-0"	75
* J1	124	4	4	1'-5"	117
* K1	2	8	1	17'-9"	95
* K2	4	8	2	27'-8"	295
* K3	2	8	1	19'-9"	105
* K5	2	8	1	20'-11"	112
* K6	4	8	2	28'-1"	300
* K7	2	8	1	20'-5"	109
* S1	72	5	3	5'-8"	426
* S2	72	4	5	7'-2"	345
EPOXY COATED REINFORCING STEEL TOTAL:					62,116

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

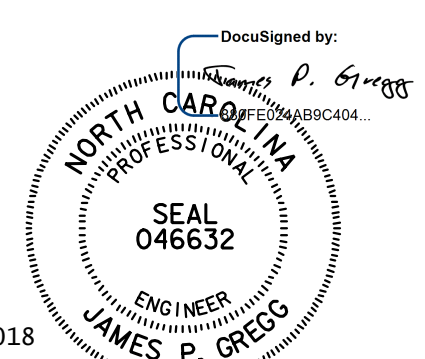
SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR 1	97.7	56,673	62,116
POUR 2	122.2		
POUR 3	188.4		
POUR 4	129.9		
TOTALS**	538.2	56,673	62,116

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED. CONCRETE IN CLOSURE POUR AT SLAB EXPANSION JOINTS IS INCLUDED IN THE ADJACENT POUR QUANTITY.

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-5"	2'-0"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-5"	3'-10"	2'-7"	4'-4"

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 SUPERSTRUCTURE
 BILL OF MATERIAL
 LEFT LANE

ASSEMBLED BY : A. SMITH	DATE : 7/18
CHECKED BY : D. LAWRENCE	DATE : 10/18
DRAWN BY : JMB 5/87	REV. 8/16/99 RWW/LES
CHECKED BY : SJD 9/87	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM

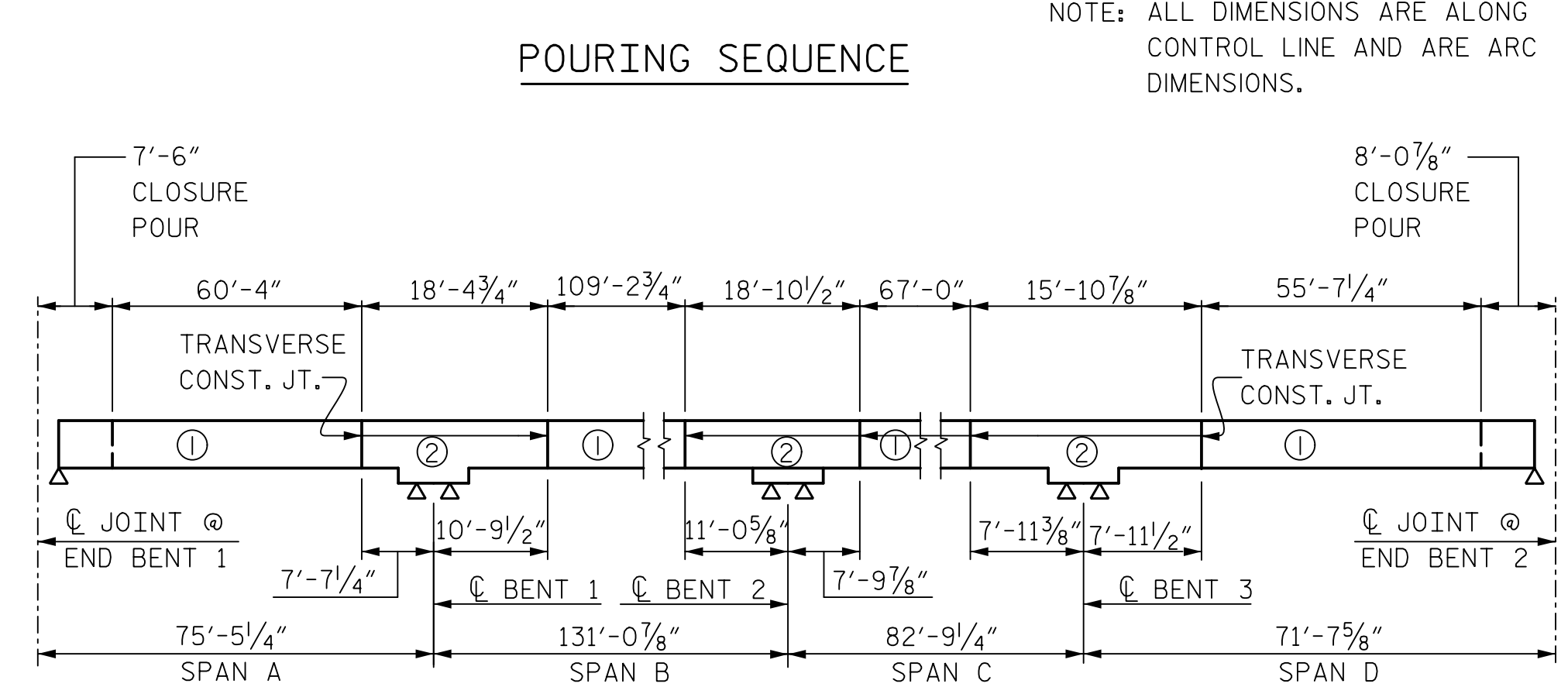
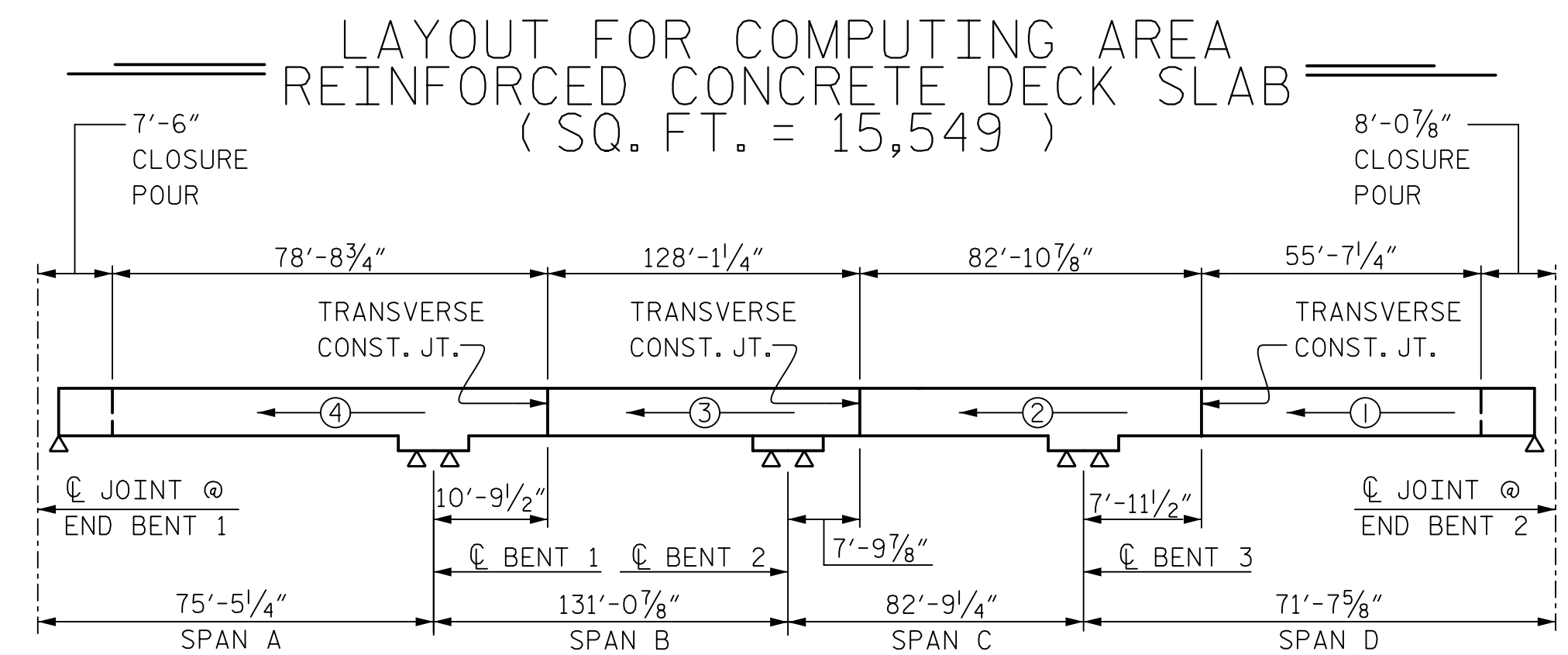
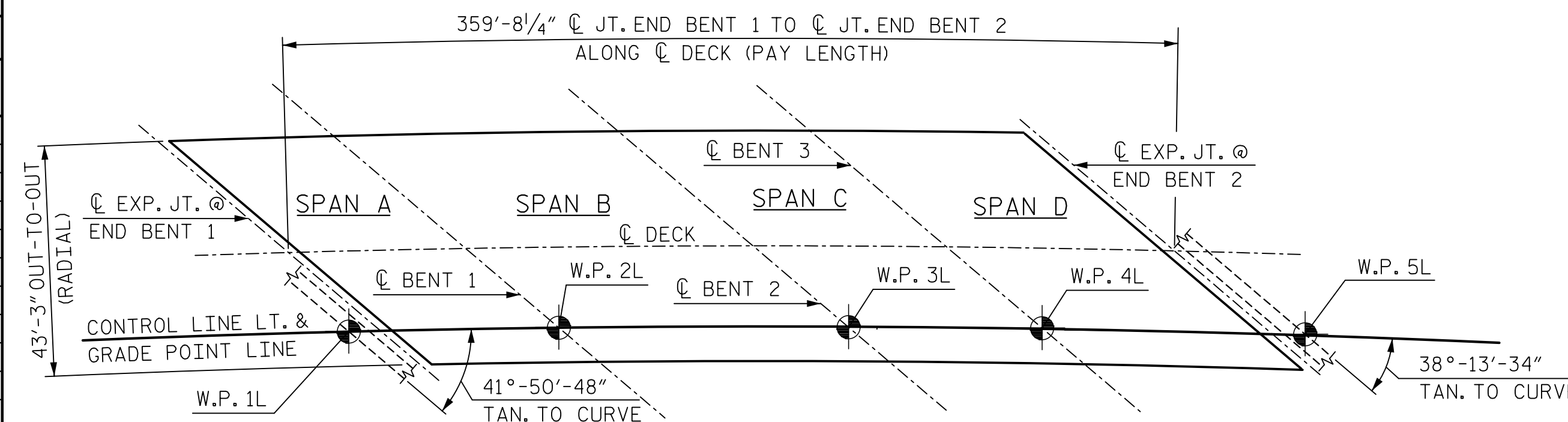
DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

HNTB	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY : A. SMITH	DATE : 7/18
CHECKED BY : D. LAWRENCE	DATE : 10/18
DESIGN ENGINEER	

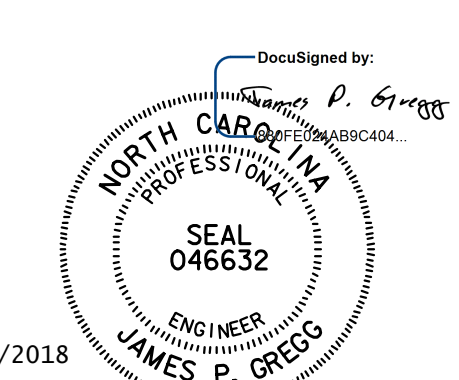
BILL OF MATERIAL						
UNCOATED REINFORCING STEEL						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)	
A201	616	5	STR	42'-11"	27,573	
A202	1	5	STR	42'-8"	45	
A203	1	5	STR	42'-2"	44	
A204	1	5	STR	41'-9"	44	
A205	1	5	STR	41'-4"	43	
A206	1	5	STR	40'-11"	43	
A207	1	5	STR	40'-5"	42	
A208	1	5	STR	40'-0"	42	
A209	1	5	STR	39'-7"	41	
A210	1	5	STR	39'-2"	41	
A211	1	5	STR	38'-8"	40	
A212	1	5	STR	38'-3"	40	
A213	1	5	STR	37'-10"	39	
A214	1	5	STR	37'-5"	39	
A215	1	5	STR	36'-11"	39	
A216	1	5	STR	36'-6"	38	
A217	1	5	STR	36'-1"	38	
A218	1	5	STR	35'-8"	37	
A219	1	5	STR	35'-2"	37	
A220	1	5	STR	34'-9"	36	
A221	1	5	STR	34'-4"	36	
A222	1	5	STR	33'-11"	35	
A223	1	5	STR	33'-5"	35	
A224	1	5	STR	33'-0"	34	
A225	1	5	STR	32'-7"	34	
A226	1	5	STR	32'-2"	34	
A227	1	5	STR	31'-9"	33	
A228	1	5	STR	31'-3"	33	
A229	1	5	STR	30'-10"	32	
A230	1	5	STR	30'-5"	32	
A231	1	5	STR	30'-0"	31	
A232	1	5	STR	29'-6"	31	
A233	1	5	STR	29'-1"	30	
A234	1	5	STR	28'-8"	30	
A235	1	5	STR	28'-3"	29	
A236	1	5	STR	27'-9"	29	
A237	1	5	STR	27'-4"	29	
A238	1	5	STR	26'-11"	28	
A239	1	5	STR	26'-6"	28	
A240	1	5	STR	26'-0"	27	
A241	1	5	STR	25'-7"	27	
A242	1	5	STR	25'-2"	26	
A243	1	5	STR	24'-9"	26	
A244	1	5	STR	24'-3"	25	
A245	1	5	STR	23'-10"	25	
A246	1	5	STR	23'-5"	24	
A247	1	5	STR	23'-0"	24	
A248	1	5	STR	22'-6"	23	
A249	1	5	STR	22'-1"	23	
A250	1	5	STR	21'-8"	23	
A251	1	5	STR	21'-3"	22	
A252	1	5	STR	20'-10"	22	
A253	1	5	STR	20'-4"	21	
A254	1	5	STR	19'-11"	21	
A255	1	5	STR	19'-6"	20	
A256	1	5	STR	19'-1"	20	
A257	1	5	STR	18'-7"	19	
A258	1	5	STR	18'-2"	19	
A259	1	5	STR	17'-9"	19	
A260	1	5	STR	17'-4"	18	
A261	1	5	STR	16'-10"	18	
A262	1	5	STR	16'-5"	17	
A263	1	5	STR	16'-0"	17	
A264	1	5	STR	15'-7"	16	
A265	1	5	STR	15'-1"	16	
A266	1	5	STR	14'-8"	15	
A267	1	5	STR	14'-3"	15	
A268	1	5	STR	13'-10"	14	
A269	1	5	STR	13'-4"	14	
A270	1	5	STR	12'-11"	13	
A271	1	5	STR	12'-6"	13	
A272	1	5	STR	12'-1"	13	
A273	1	5	STR	11'-8"	12	

BILL OF MATERIAL						
UNCOATED REINFORCING STEEL						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)	
A274	1	5	STR	11'-2"	12	
A275	1	5	STR	10'-9"	11	
A276	1	5	STR	10'-4"	11	
A277	1	5	STR	9'-11"	10	
A278	1	5	STR	9'-5"	10	
A279	1	5	STR	9'-0"	9	
A280	1	5	STR	8'-7"	9	
A281	1	5	STR	8'-2"	9	
A282	1	5	STR	7'-8"	8	
A283	1	5	STR	7'-3"	8	
A284	1	5	STR	6'-10"	7	
A285	1	5	STR	6'-5"	7	
A286	1	5	STR	5'-11"	6	
A287	1	5	STR	5'-6"	6	
A288	1	5	STR	5'-1"	5	
A289	1	5	STR	4'-8"	5	
A290	1	5	STR	4'-2"	4	
A291	1	5	STR	3'-9"	4	
A292	1	5	STR	3'-4"	3	
A293	1	5	STR	2'-11"	3	
A294	1	5	STR	2'-6"	3	
A295	1	5	STR	42'-8"	45	
A296	1	5	STR	42'-3"	44	
A297	1	5	STR	41'-10"	44	
A298	1	5	STR	41'-5"	43	
A299	1	5	STR	41'-0"	43	
A300	1	5	STR	40'-7"	42	
A301	1	5	STR	40'-2"	42	
A302	1	5	STR	39'-9"	41	
A303	1	5	STR	39'-5"	41	
A304	1	5	STR	39'-0"	41	
A305	1	5	STR	38'-7"	40	
A306	1	5	STR	38'-2"	40	
A307	1	5	STR	37'-9"	39	
A308	1	5	STR	37'-4"	39	
A309	1	5	STR	36'-11"	39	
A310	1	5	STR	36'-6"	38	
A311	1	5	STR	36'-2"	38	
A312	1	5	STR	35'-9"	37	
A313	1	5	STR	35'-4"	37	
A314	1	5	STR	34'-11"	36	
A315	1	5	STR	34'-6"	36	
A316	1	5	STR	34'-1"	36	
A317	1	5	STR	33'-8"	35	
A318	1	5	STR	33'-4"	35	
A319	1	5	STR	32'-11"	34	
A320	1	5	STR	32'-6"	34	
A321	1	5	STR	32'-1"	33	
A322	1	5	STR	31'-8"	33	
A323	1	5	STR	31'-3"	33	
A324	1	5	STR	30'-10"	32	
A325	1	5	STR	30'-5"	32	
A326	1	5	STR	30'-1"	31	
A327	1	5	STR	29'-8"	31	
A328	1	5	STR	29'-3"	31	
A329	1	5	STR	28'-10"	30	
A330	1	5	STR	28'-5"	30	
A331	1	5	STR	28'-0"	29	
A332	1	5	STR	27'-7"	29	
A333	1	5	STR	27'-2"	28	
A334	1	5	STR	26'-10"	28	
A335	1	5	STR	26'-5"	28	
A336	1	5	STR	26'-0"	27	
A337	1	5	STR	25'-7"	27	
A338	1	5	STR	25'-2"	26	
A339	1	5	STR	24'-9"	26	
A340	1	5	STR	24'-4"	25	
A341	1	5	STR	24'-0"	25	
A342	1	5	STR	23'-7"	25	
A343	1	5	STR	23'-2"	24	
A344	1	5	STR	22'-9"	24	
A345	1	5	STR	22'-4"	23	
A346	1	5	STR	21'-11"	23	

BILL OF MATERIAL						
UNCOATED REINFORCING STEEL						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)	
A347	1	5	STR	21'-6"	22	
A348	1	5	STR	21'-1"	22	
A349	1	5	STR	20'-9"	22	
A350	1	5	STR	20'-4"	21	
A351	1	5	STR	19'-11"	21	
A352	1	5	STR	19'-6"	20	
A353	1	5	STR	19'-1"	20	
A354	1	5	STR	18'-8"	19	
A355	1	5	STR	18'-3"	19	
A356	1	5	STR	17'-11"	19	
A357	1	5	STR	17'-6"	18	
A358	1	5	STR	17'-1"	18	
A359	1	5	STR	16'-8"	17	
A360	1	5	STR	16'-3"	17	
A361	1	5	STR	15'-10"	17	
A362	1	5	STR	15'-5"	16	
A363	1	5	STR	15'-0"	16	
A364	1	5	STR	14'-8"	15	
A365	1	5	STR	14'-3"	15	
A366	1	5	STR	13'-10"	14	
A367	1	5	STR	13'-5"	14	
A368	1	5	STR	13'-0"	14	
A369	1	5	STR	12'-7"	13	
A370	1	5	STR	12'-2"	13	
A371	1	5	STR	11'-9"	12	
A372	1	5	STR	11'-5"	12	
A373	1	5	STR	11'-0"	11	
A374	1	5	STR	10'-7"	11	
A375	1	5	STR	10'-2"	11	
A376	1	5	STR	9'-9"	10	
A377	1	5	STR	9'-4"	10	
A378	1	5	STR	8'-11"	9	
A379	1	5	STR	8'-7"	9	
A380	1	5	STR	8'-2"	9	
A381	1	5	STR	7'-9"	8	
A382	1	5	STR	7'-4"	8	
A383	1	5	STR	6'-11"	7	
A384	1	5	STR	6'-6"	7	
A385	1	5	STR	6'-1"	6	
A386	1	5	STR	5'-8"	6	
A387	1	5	STR	5'-4"	6	
A388	1	5	STR	4'-11"	5	
A389	1	5	STR	4'-6"	5	
A390	1	5	STR	4'-1"	4	
A391	1	5	STR	3'-8"	4	
A392	1	5	STR	3'-3"	3	
A393	1	5	STR	2'-10"	3	
A394	1	5	STR	2'-6"	3	
B101	98	5	STR	36'-4"	3,714	
B102	98	5	STR	58'-0"	5,928	
B103	98	5	STR	37'-9"	3,859	
B104	98	5	STR	34'-5"	3,518	
B105	87	6	STR	17'-8"	2,309	
B106	87	6	STR	17'-8"	2,309	
B107	87	6	STR	13'-8"	1,786	
K4	8	6	STR	33'-6"	403	
K8	8	6	STR	36'-0"	433	
K9	12	6	STR	16'-8"	300	
REINFORCING STEEL TOTAL:					56,673	



GROOVING BRIDGE FLOORS		
APPROACH SLABS	1,786	SQ.FT.
BRIDGE DECK	13,245	SQ.FT.
TOTAL	15,031	SQ.FT.



PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

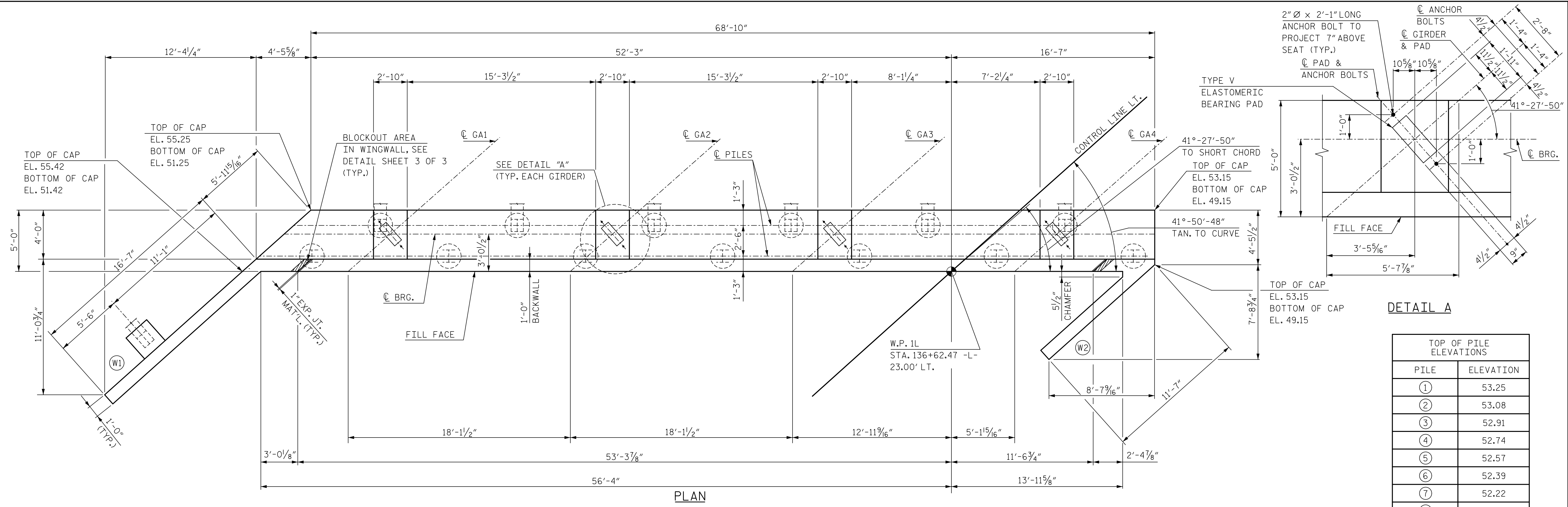
SHEET 2 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 SUPERSTRUCTURE
 BILL OF MATERIAL
 LEFT LANE

ASSEMBLED BY : A. SMITH	DATE : 7/18
CHECKED BY : D. LAWRENCE	DATE : 10/18
DRAWN BY : JMB 5/87	REV. 8/16/99 RWW/LES
CHECKED BY : SJD 9/87	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM

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DRAWN BY : A. SMITH	DATE : 7/18
CHECKED BY : D. LAWRENCE	DATE : 10/18
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 10/18
DWG. NO. 29	

REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE



TOP OF PILE ELEVATIONS	
PILE	ELEVATION
1	53.25
2	53.08
3	52.91
4	52.74
5	52.57
6	52.39
7	52.22
8	52.05
9	51.88
10	51.71
11	51.54
12	51.37
13	51.20

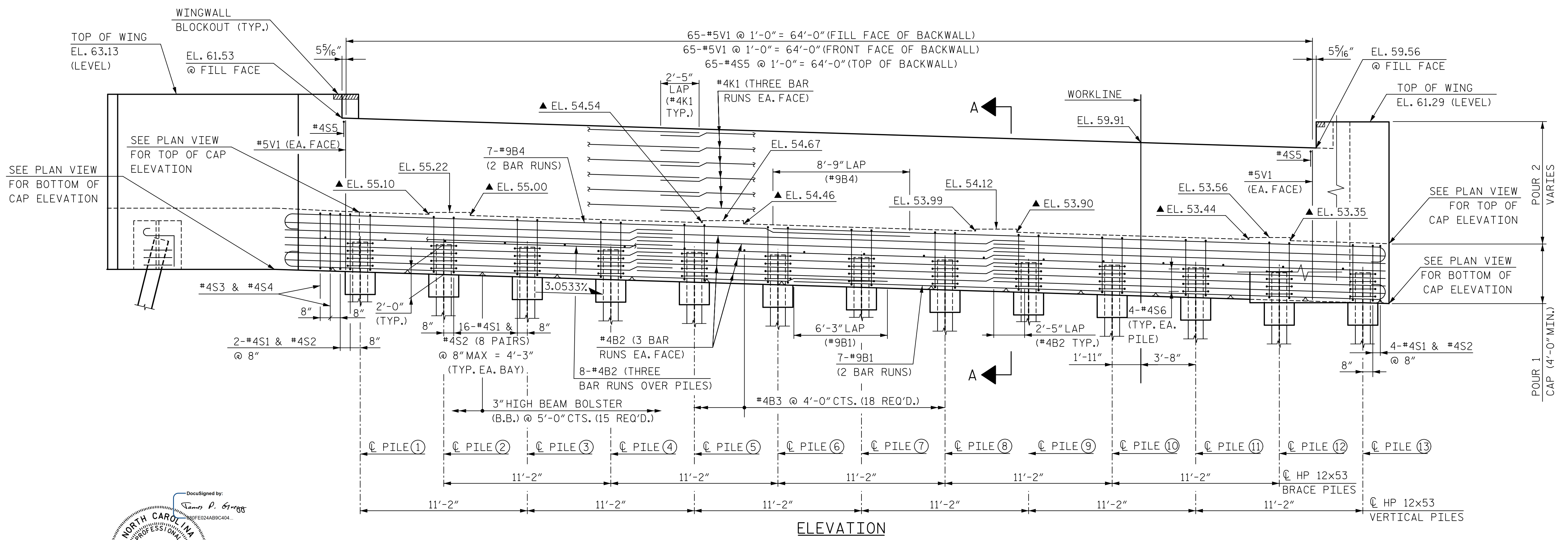
NOTES:

FOR NOTES AND PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

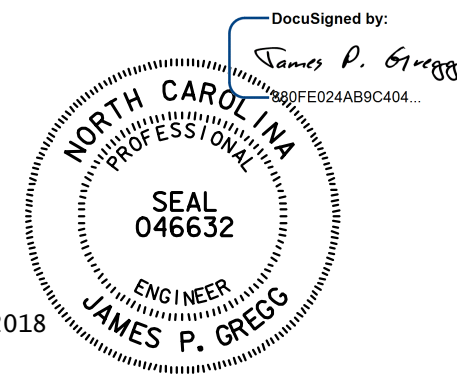
FOR WINGWALL DETAILS AND SECTION A-A, SEE SHEET 2 OF 3.

INDICATES 3:12 PILE BATTER IN DIRECTION SHOWN.

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-



▲ FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEATS, SEE SECTION A-A, SHEET 2 OF 3.



11/20/2018

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DRAWN BY: B. NEUPANE DATE: 9/18
 CHECKED BY: E. JOWZA DATE: 10/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 30

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

END BENT 1

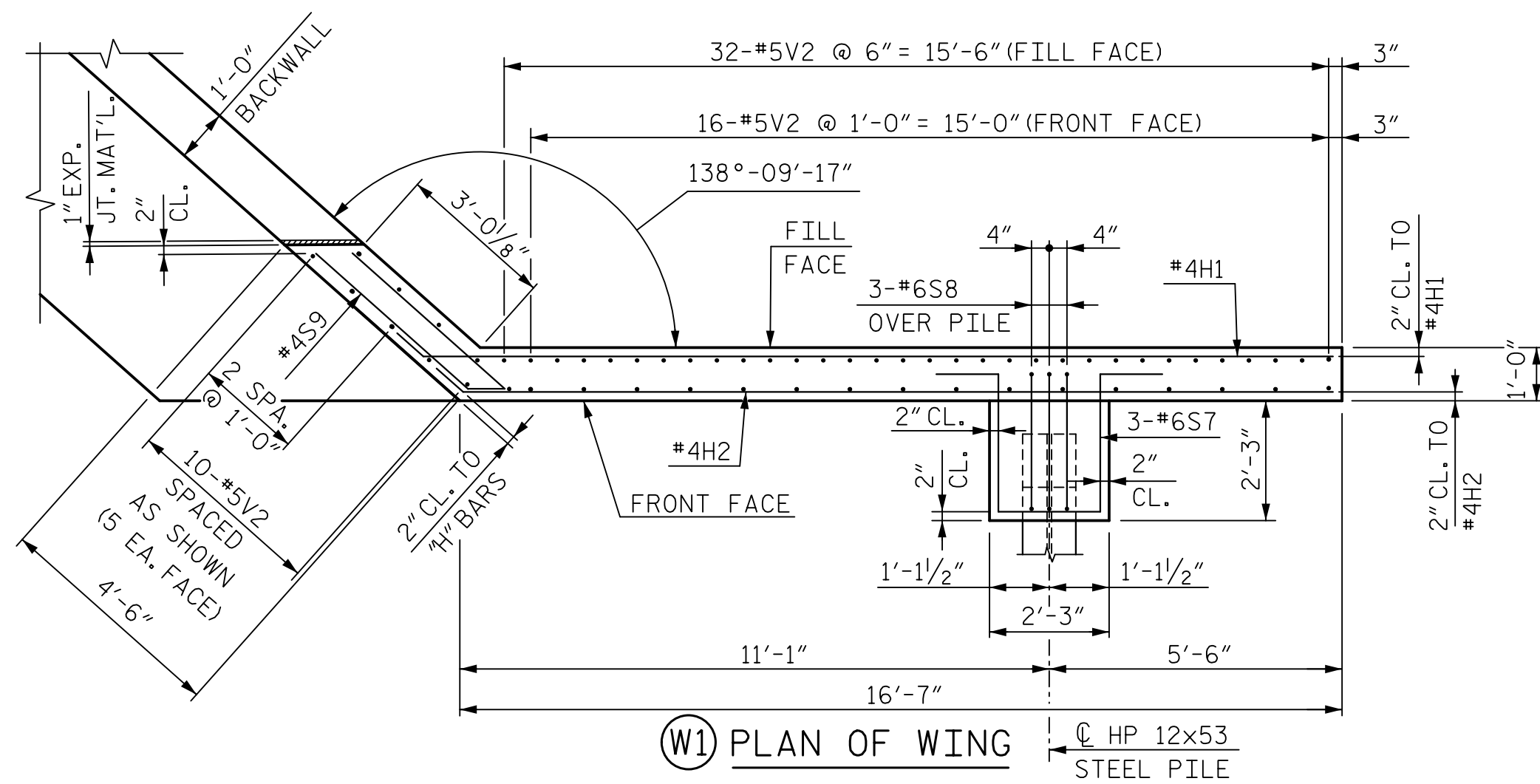
LEFT LANE

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

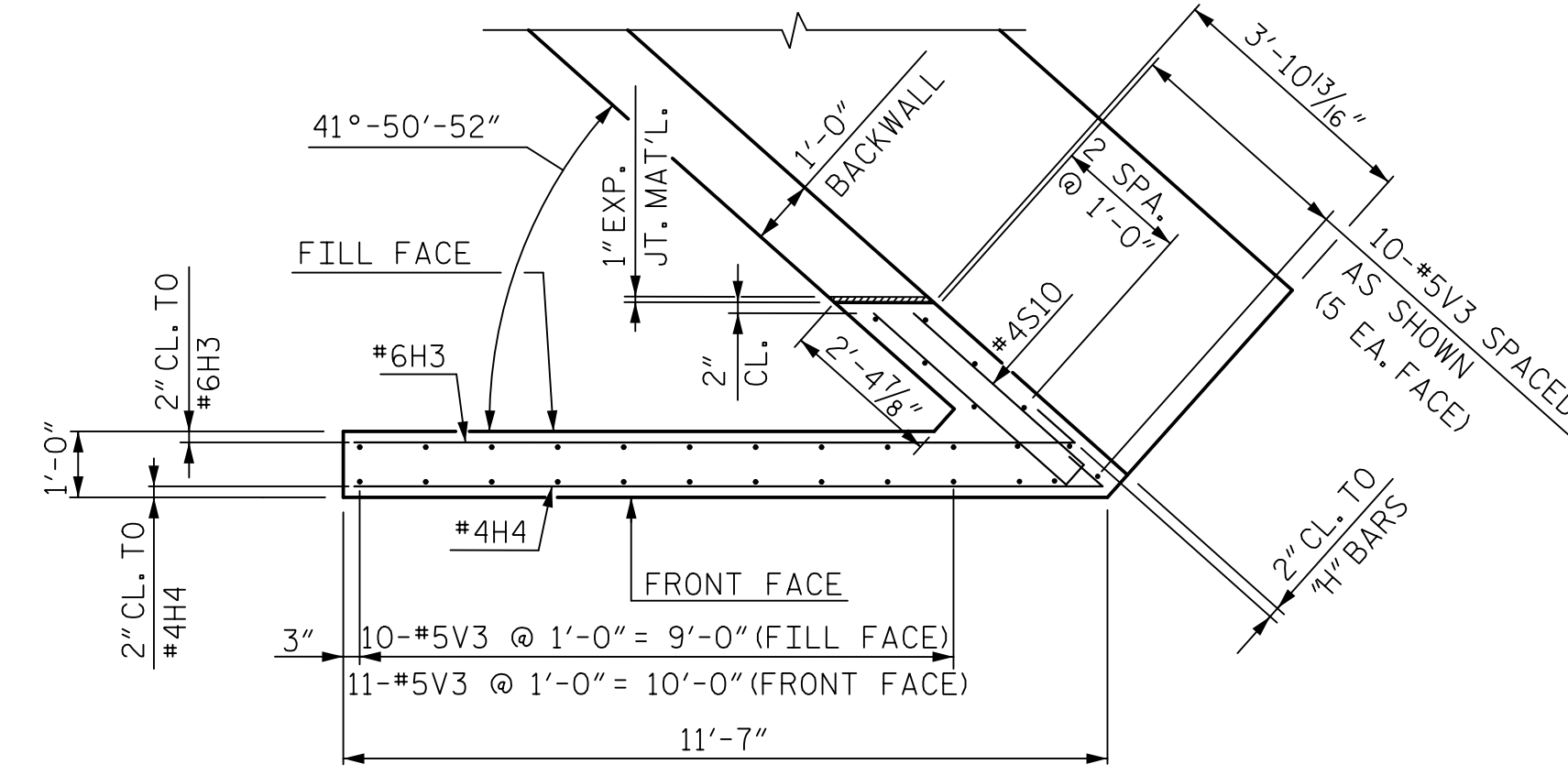
SHEET NO. S03-30
 TOTAL SHEETS 46

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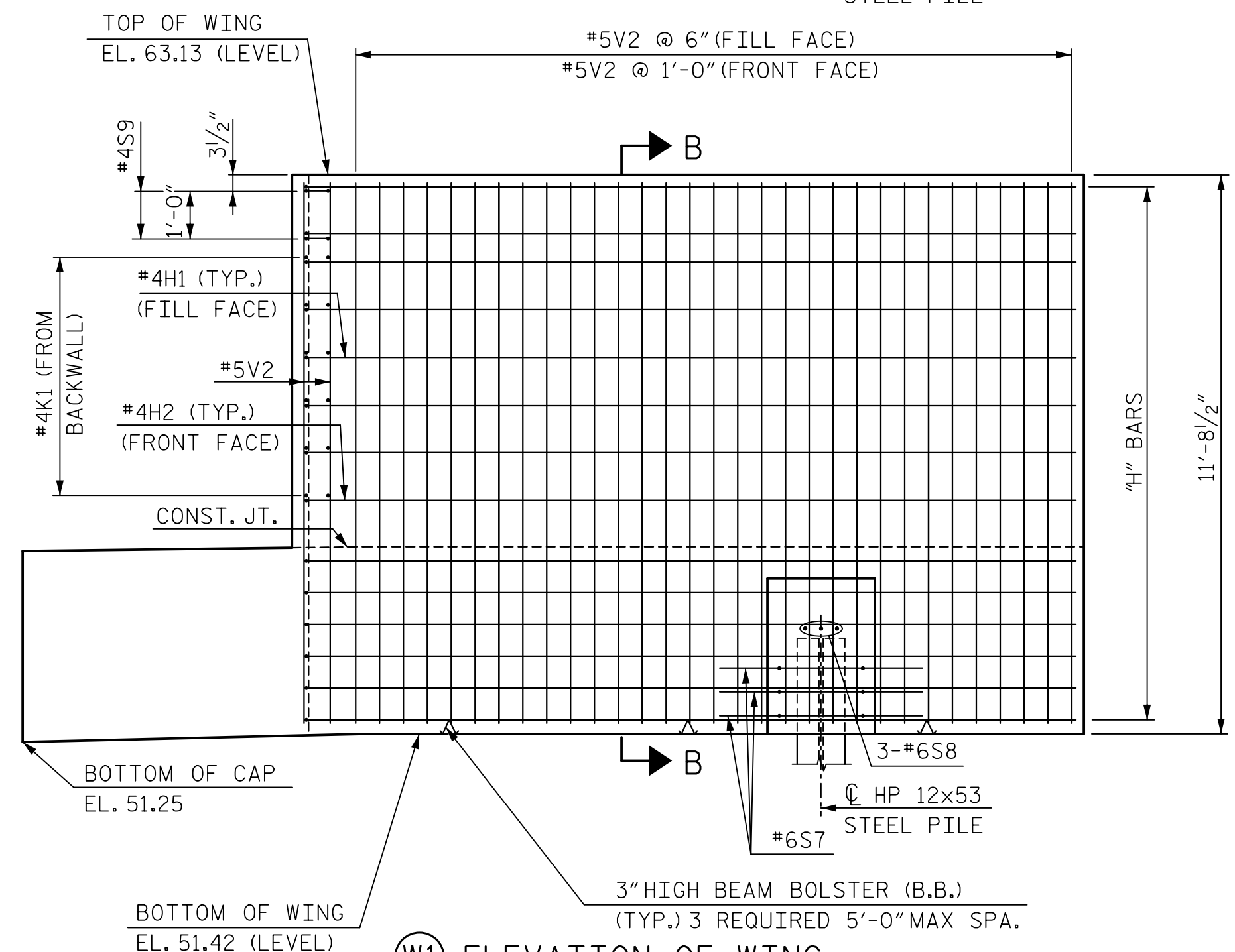
NOTES:
 FOR NOTES, SEE SHEET 3 OF 3.
 FOR BLOCKOUT IN WINGWALL, SEE SHEET 3 OF 3.



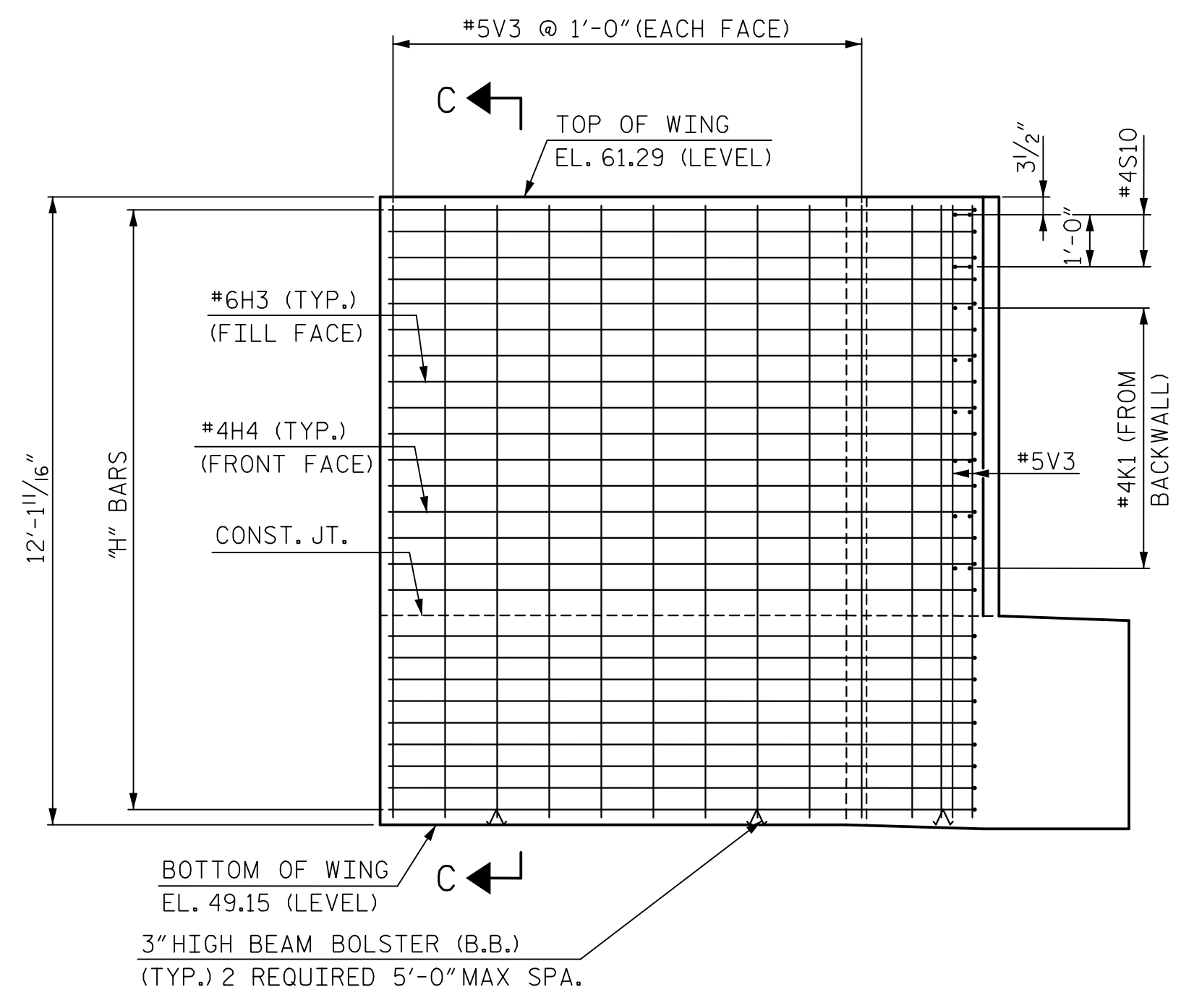
W1 PLAN OF WING



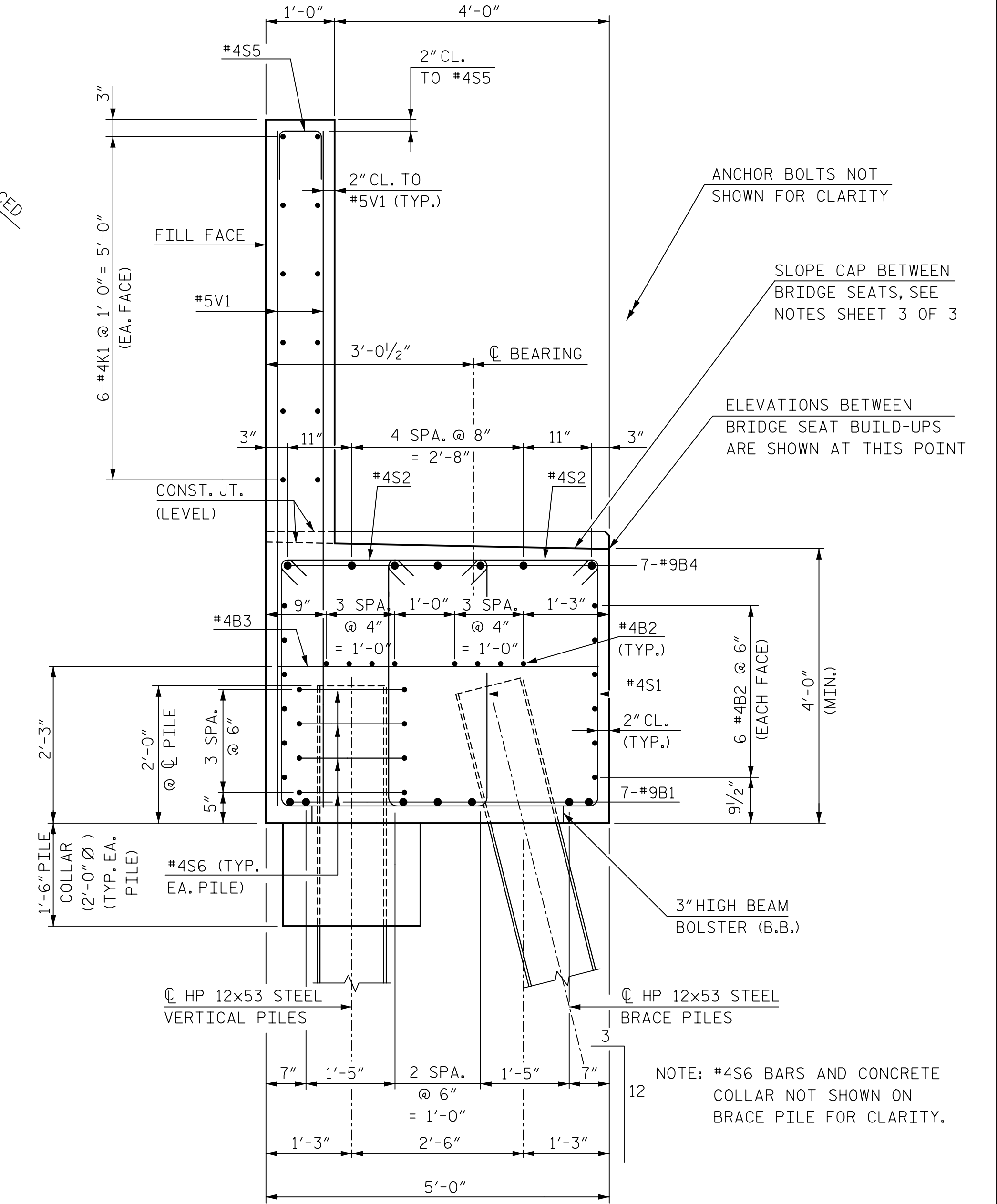
W2 PLAN OF WING



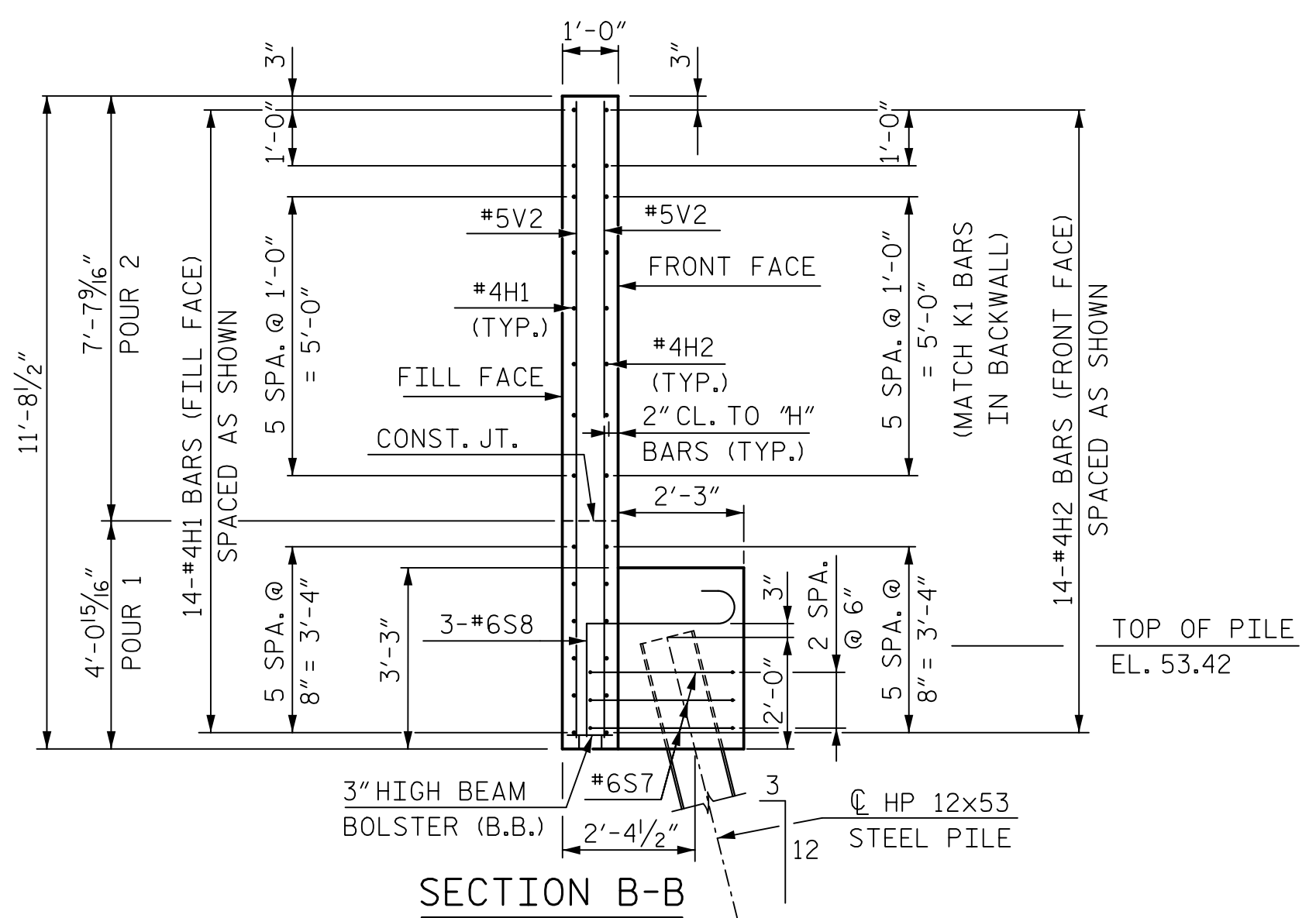
W1 ELEVATION OF WING



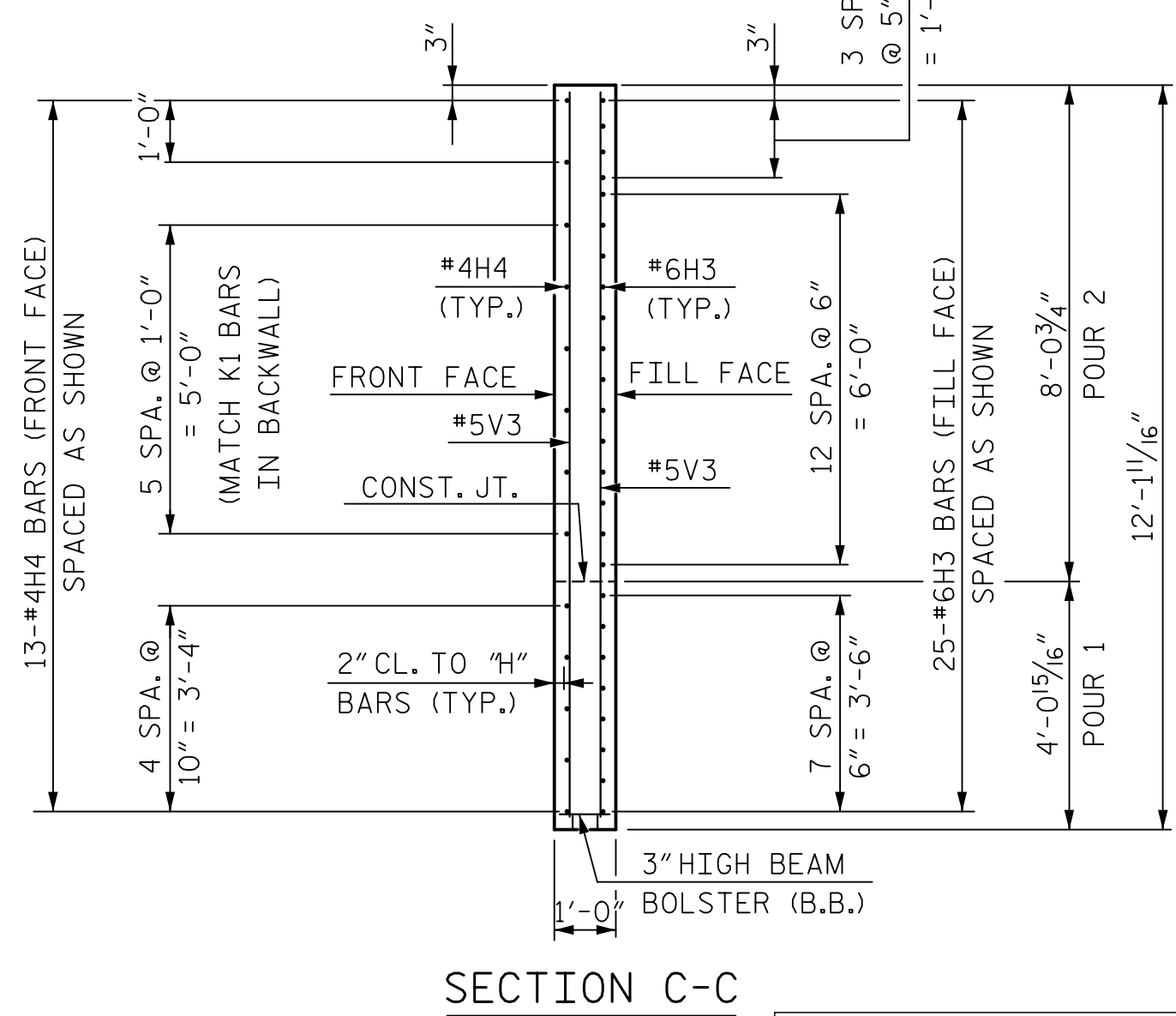
W2 ELEVATION OF WING



SECTION A-A



SECTION B-B

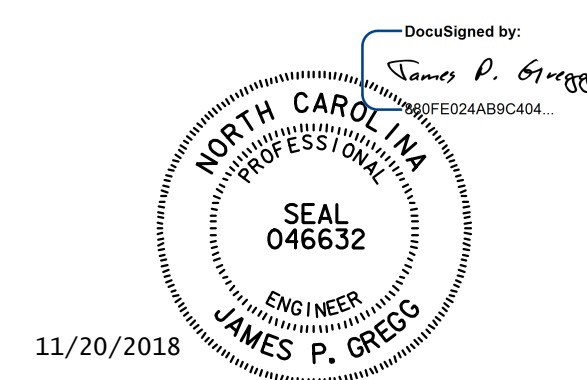


SECTION C-C

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

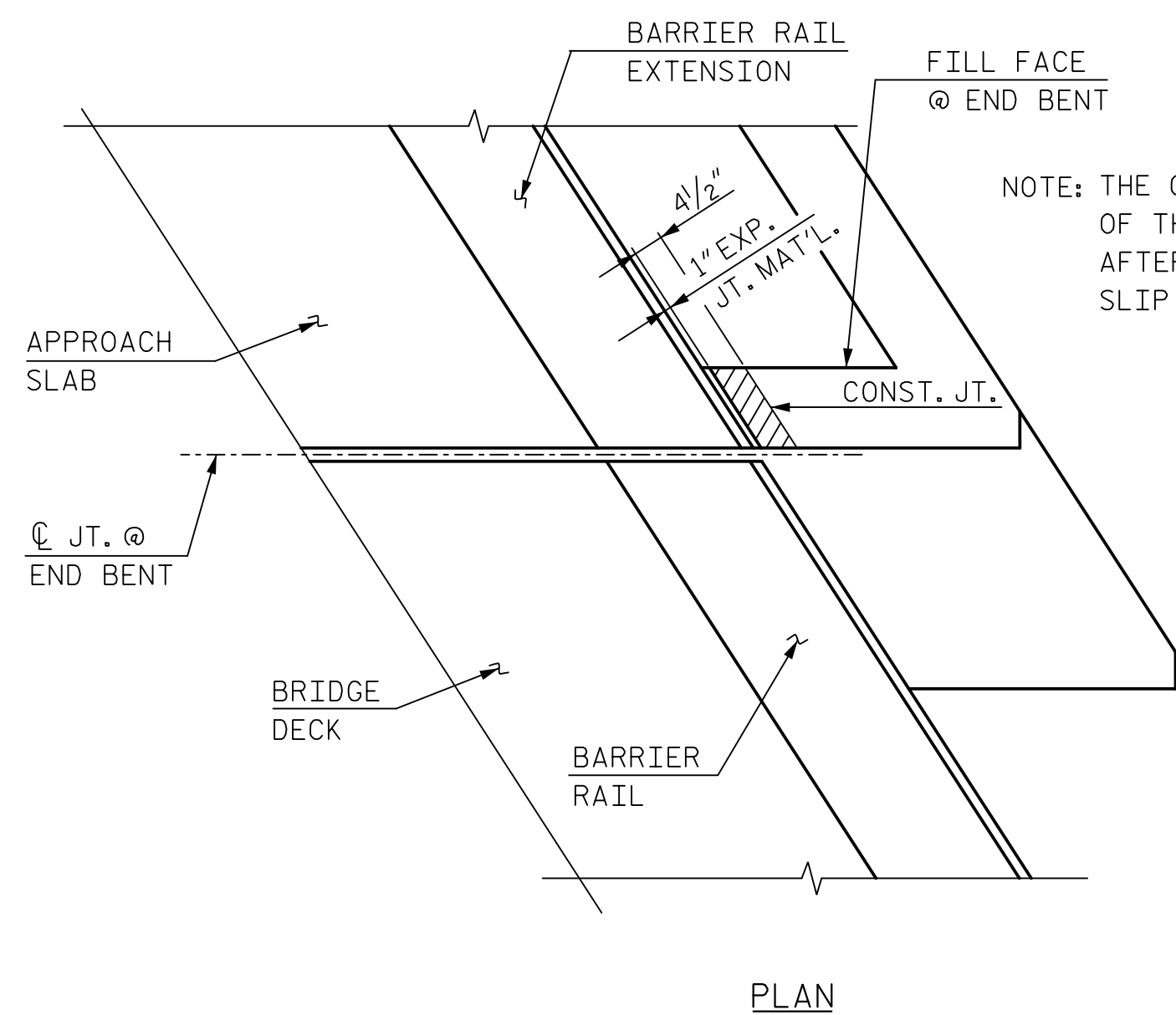
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1
 LEFT LANE



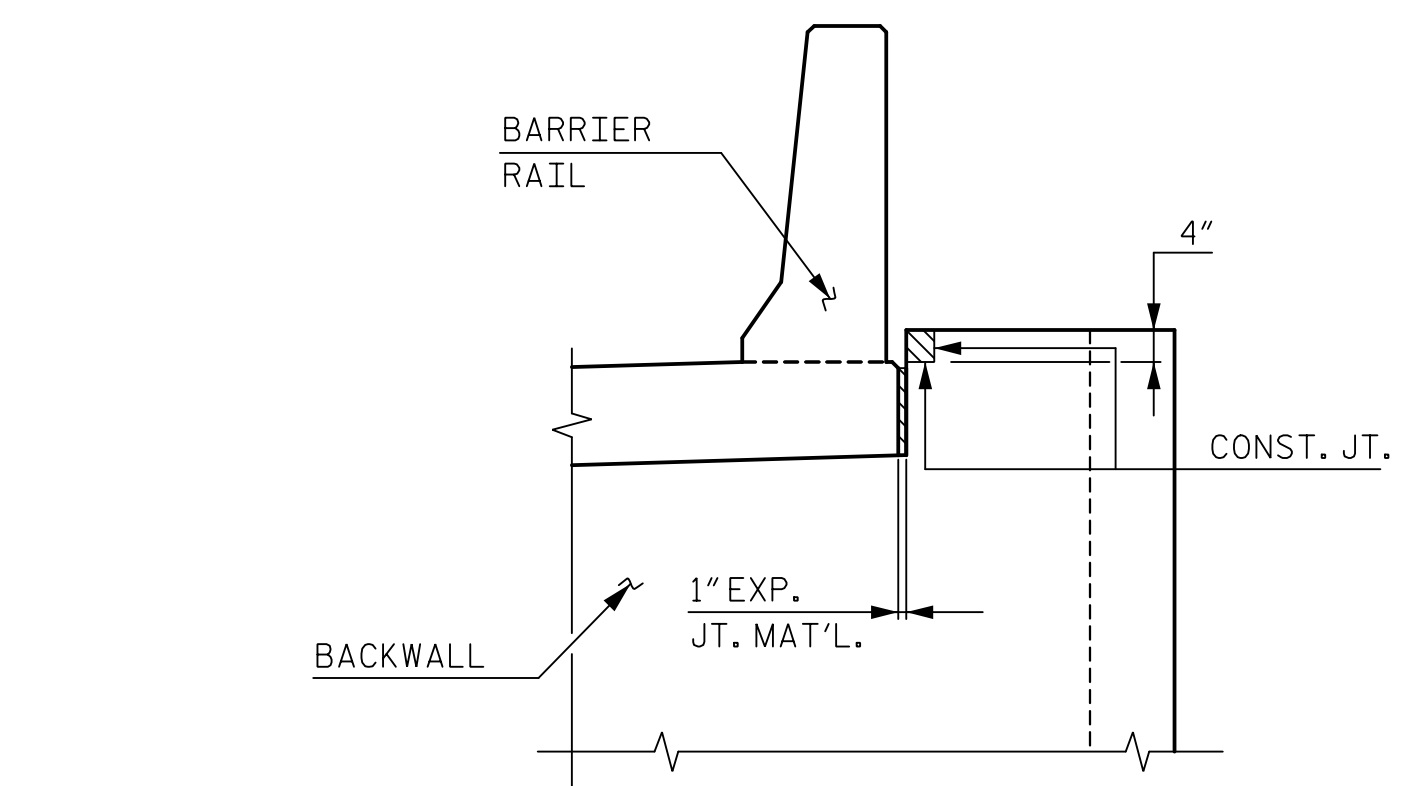
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DRAWN BY: B. NEUPANE	DATE: 9/18	CHECKED BY: E. JOWZA	DATE: 10/18
DESIGN ENGINEER OF RECORD: J. GREGG	DATE: 10/18	DWG. NO. 31	
REVISIONS		SHEET NO. S03-31	
NO.	BY	DATE	TOTAL SHEETS
1		3	46
2		4	

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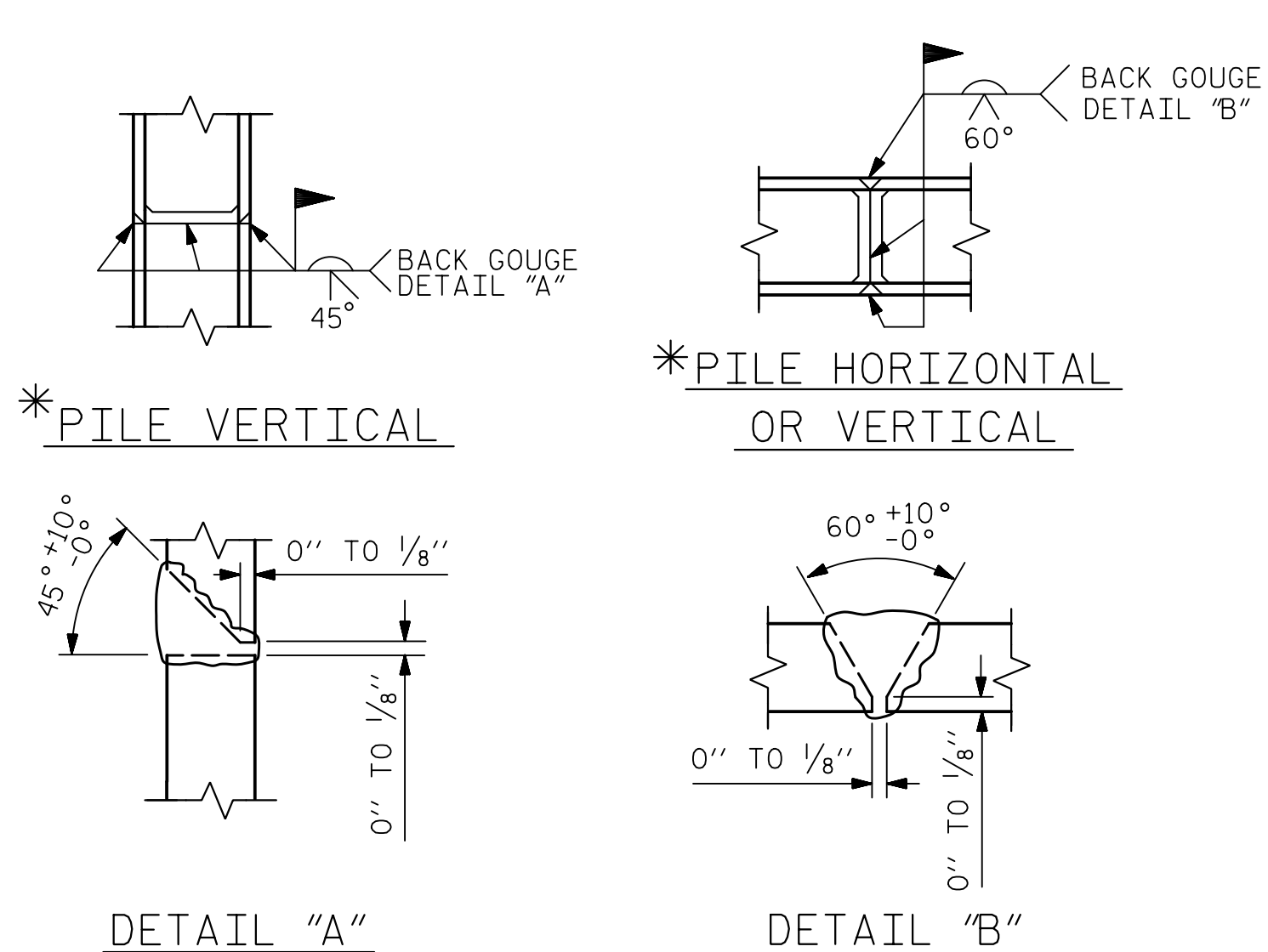


NOTE: THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER BARRIER RAILS ARE CAST IF SLIP FORMING IS USED.

PLAN



ELEVATION
BLOCKOUT IN WINGWALL

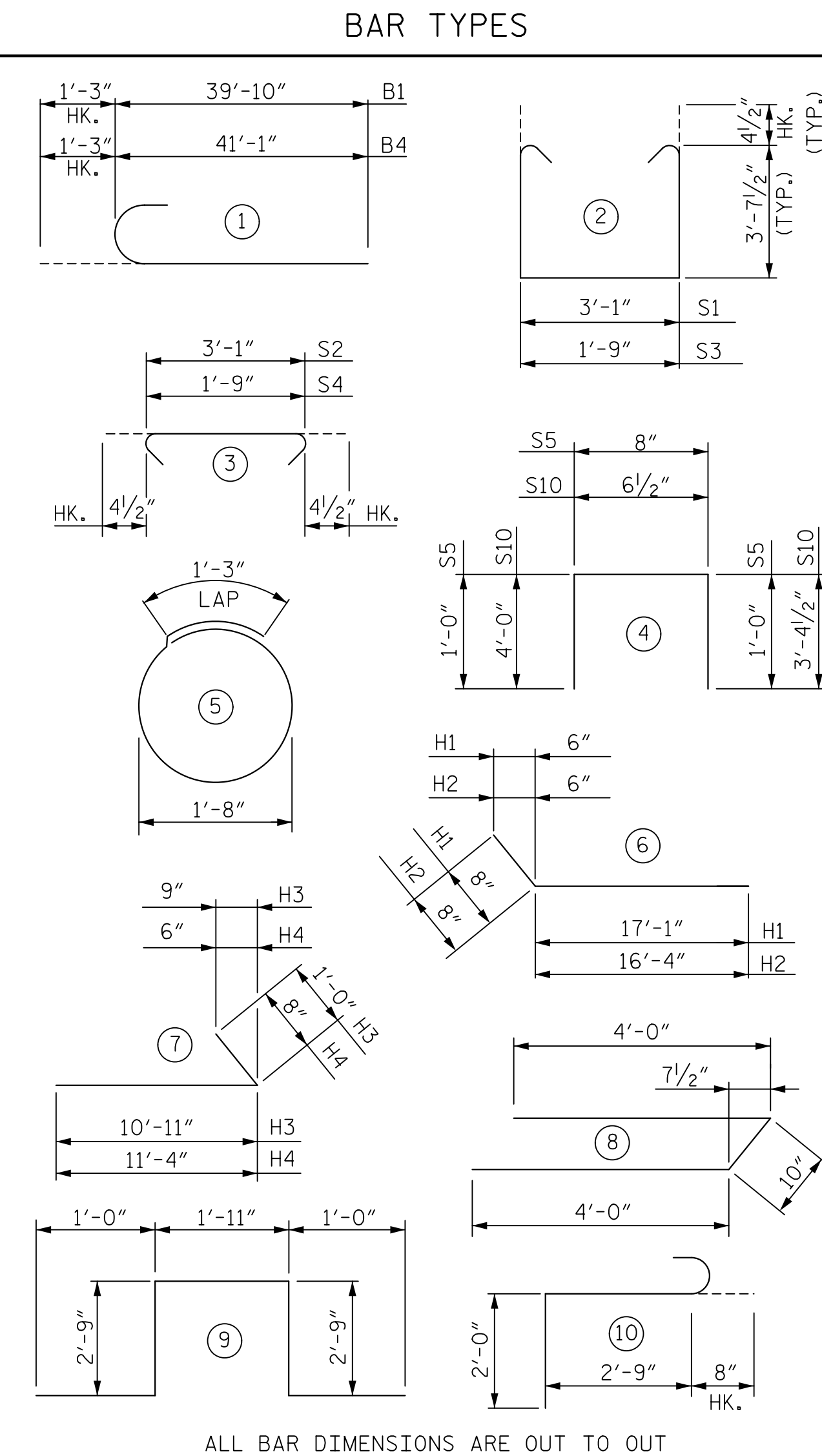


* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

NOTES:

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.



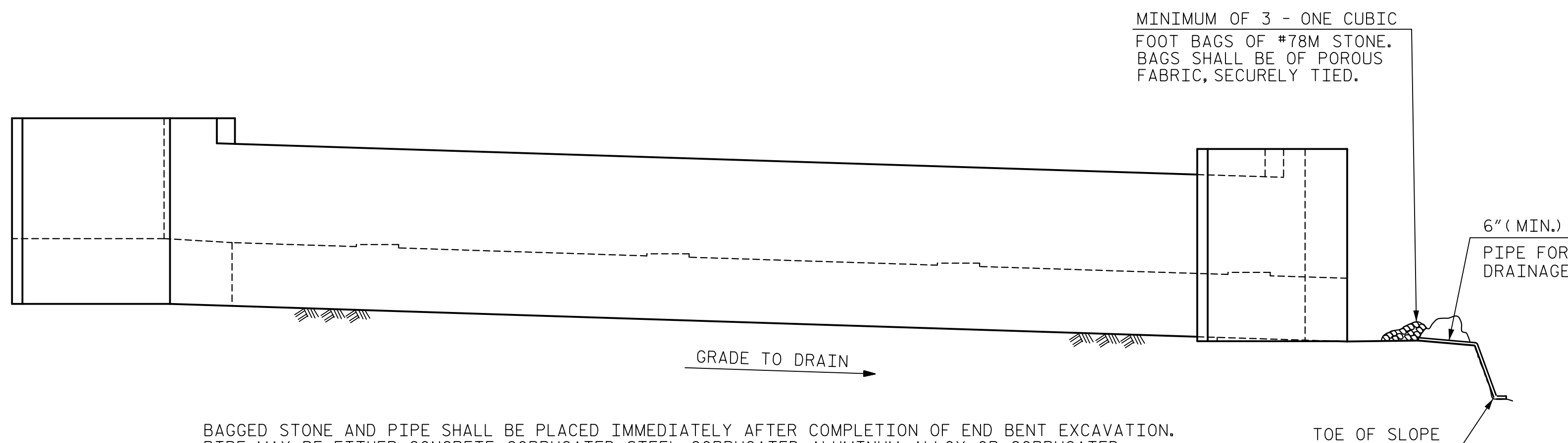
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF REINFORCING

END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	14	9	1	41'-1"	1,956
B2	60	4	STR	26'-2"	1,049
B3	18	4	STR	4'-8"	56
B4	14	9	1	42'-4"	2,015
H1	14	4	6	17'-9"	166
H2	14	4	6	17'-0"	159
H3	25	6	7	11'-11"	447
H4	13	4	7	12'-0"	104
K1	36	4	STR	26'-2"	629
S1	198	4	2	11'-1"	1,466
S2	198	4	3	3'-10"	507
S3	2	4	2	9'-9"	13
S4	2	4	3	2'-6"	3
S5	65	4	4	2'-8"	116
S6	52	4	5	6'-6"	226
S7	3	6	9	9'-5"	42
S8	3	6	10	5'-5"	24
S9	2	4	8	8'-10"	12
S10	2	4	4	7'-11"	11
V1	130	5	STR	9'-10"	1,333
V2	58	5	STR	11'-3"	681
V3	31	5	STR	11'-8"	377

QUANTITIES

REINFORCING STEEL	LBS.	11,392
CLASS "A" CONCRETE BREAKDOWN		
POUR 1 - CAP, COLLARS & BOT. OF WINGS	CU. YDS.	61.0
POUR 2 - TOP OF WINGS & BACKWALL	CU. YDS.	25.3
TOTAL	CU. YDS.	86.3
HP 12x53 STEEL PILES	NO.	14
	LIN. FT.	1,470
PILE REDRIVES	EA.	6
PILE DRIVING EQUIPMENT SETUP	EA.	14



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 FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT 1

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

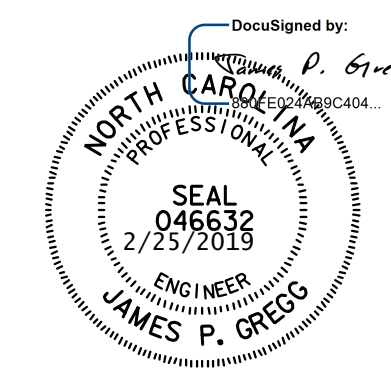
END BENT 1

LEFT LANE

HNTB HNTB NORTH CAROLINA, P.C.
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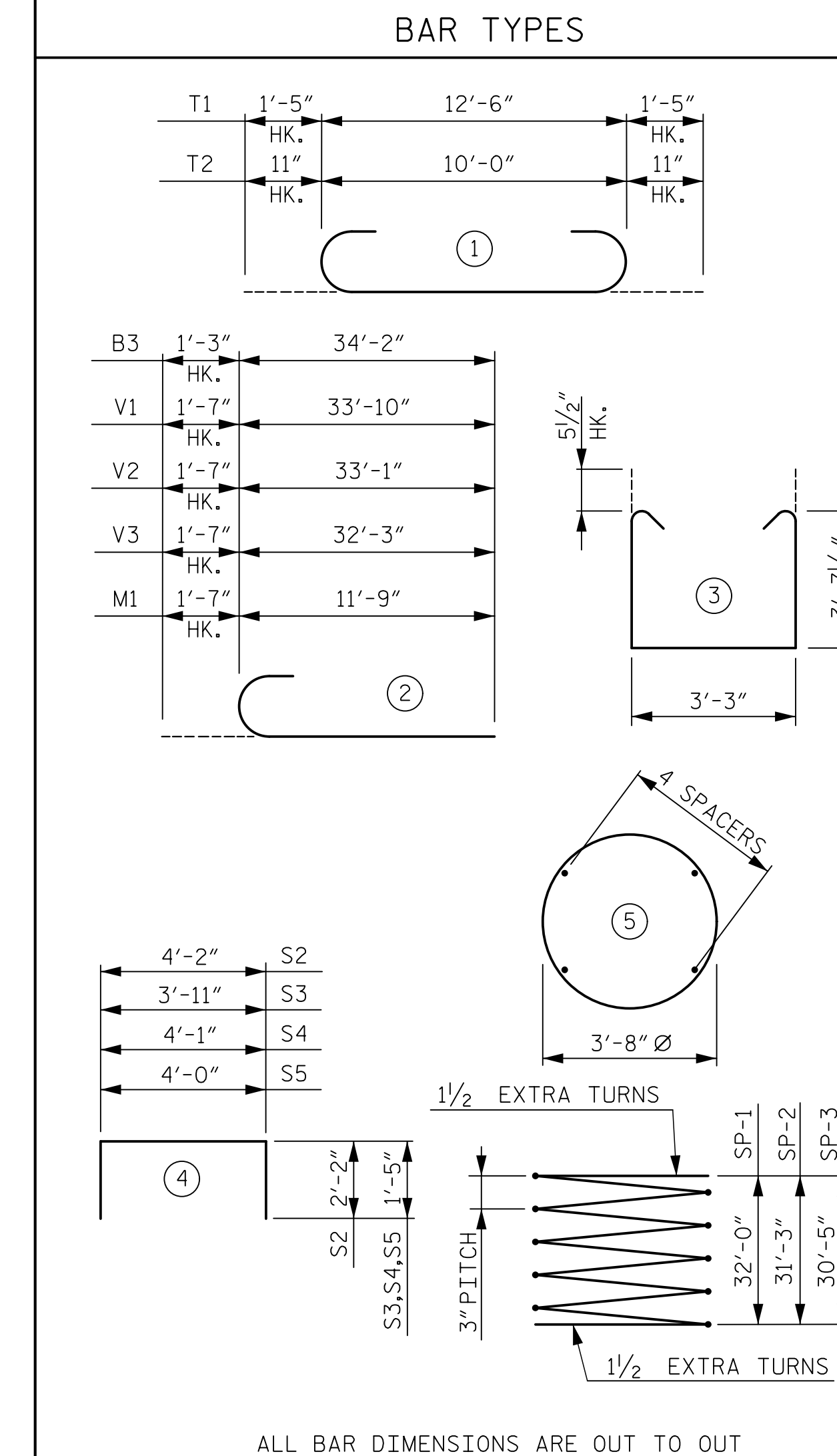
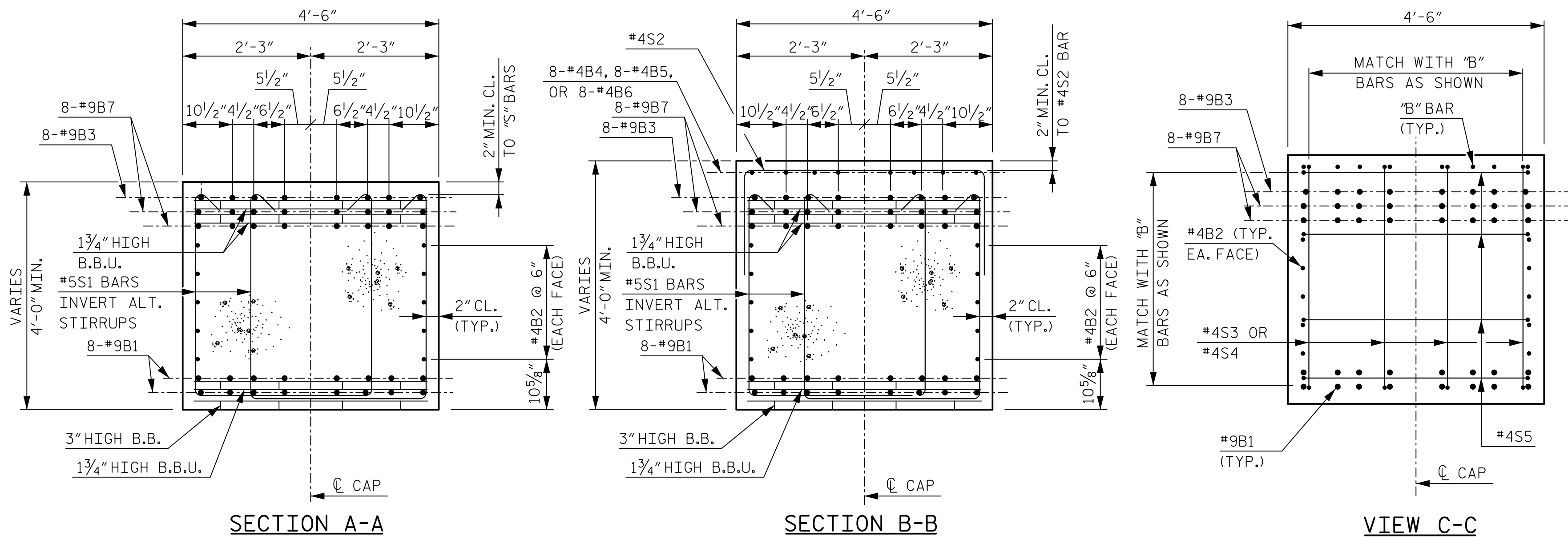
DRAWN BY: B. NEUPANE DATE: 10/18
 CHECKED BY: E. JOWZA DATE: 10/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 32

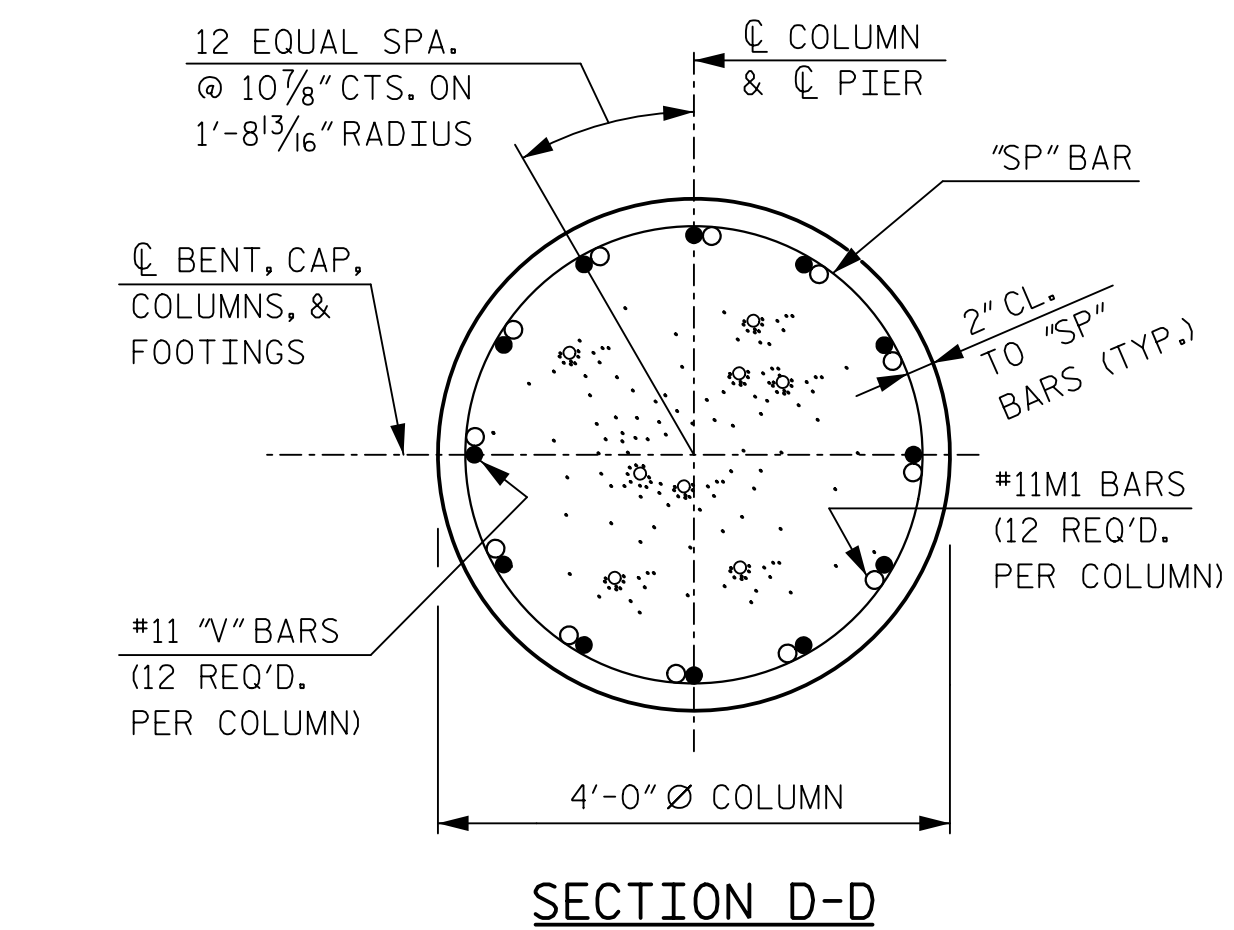


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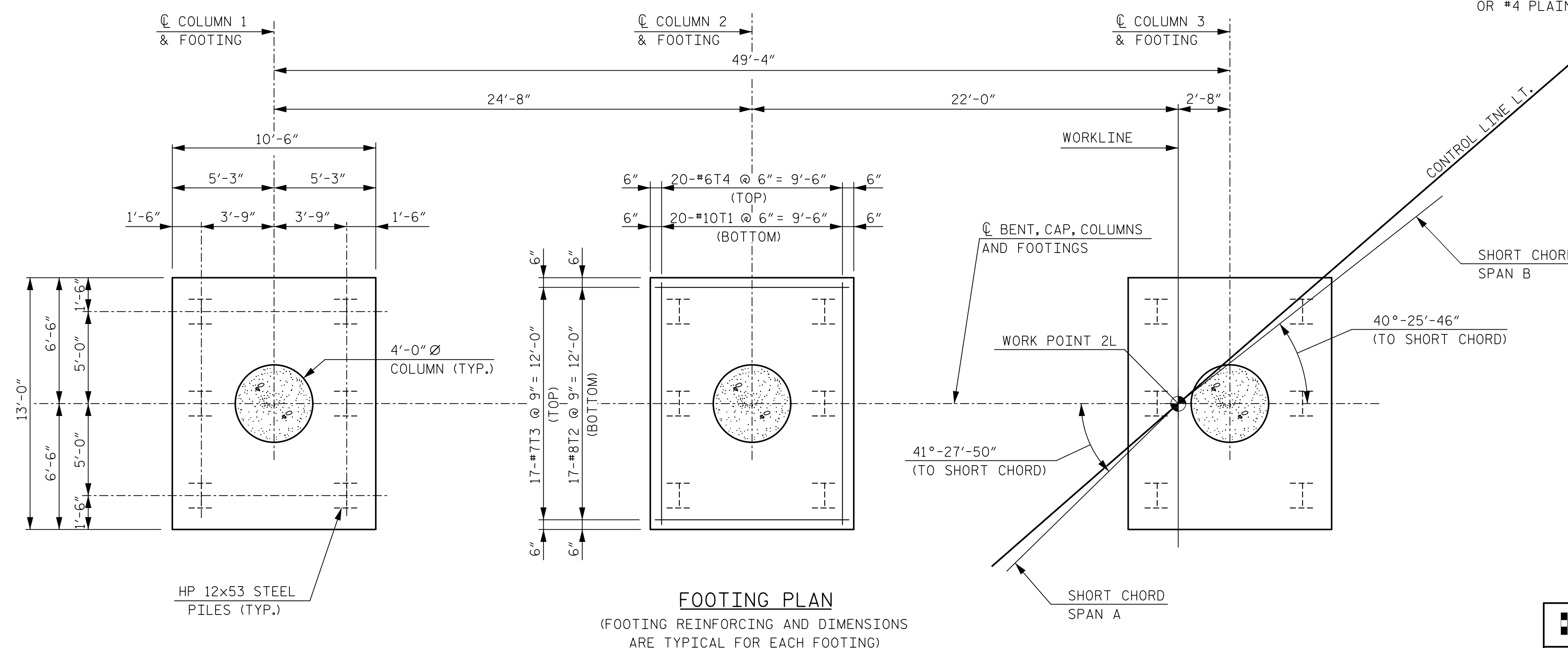
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			46
2			4			



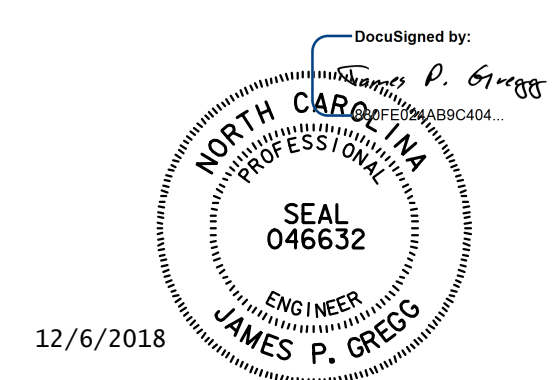
BILL OF REINFORCING					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	32	9	STR	32'-11"	3,581
B2	30	4	STR	21'-8"	434
B3	16	9	2	35'-5"	1,927
B4	8	4	STR	5'-2"	28
B5	16	4	STR	13'-4"	143
B6	8	4	STR	11'-5"	61
B7	32	9	STR	34'-2"	3,717
M1	36	11	2	13'-4"	2,550
S1	214	5	3	11'-5"	2,548
S2	56	4	4	8'-6"	318
S3	4	4	4	6'-9"	18
S4	4	4	4	6'-11"	18
S5	8	4	4	6'-10"	37
T1	60	10	1	15'-6"	4,002
T2	51	8	1	11'-10"	1,611
T3	51	7	STR	10'-0"	1,042
T4	60	6	STR	12'-6"	1,127
V1	12	11	2	35'-5"	2,258
V2	12	11	2	34'-8"	2,210
V3	12	11	2	33'-10"	2,157
SP-1	1	*	5	1509'-6"	1,008
SP-2	1	*	5	1474'-11"	985
SP-3	1	*	5	1436'-6"	960



QUANTITIES		
REINFORCING STEEL	LBS.	29,787
SPIRAL COLUMN REINFORCING STEEL	LBS.	2,953
CLASS A CONCRETE		
FOOTING POUR 1	CU. YDS.	64.5
COLUMN POUR 2	CU. YDS.	43.3
CAP POUR 3	CU. YDS.	42.9
TOTAL	CU. YDS.	150.7
HP 12X53 STEEL PILES	NO.	18
	LIN FT.	1,350
PILE REDRIVES	EA.	9
PILE DRIVING EQUIPMENT SETUP	EA.	18



* THE SP-1, SP-2, AND SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.



PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

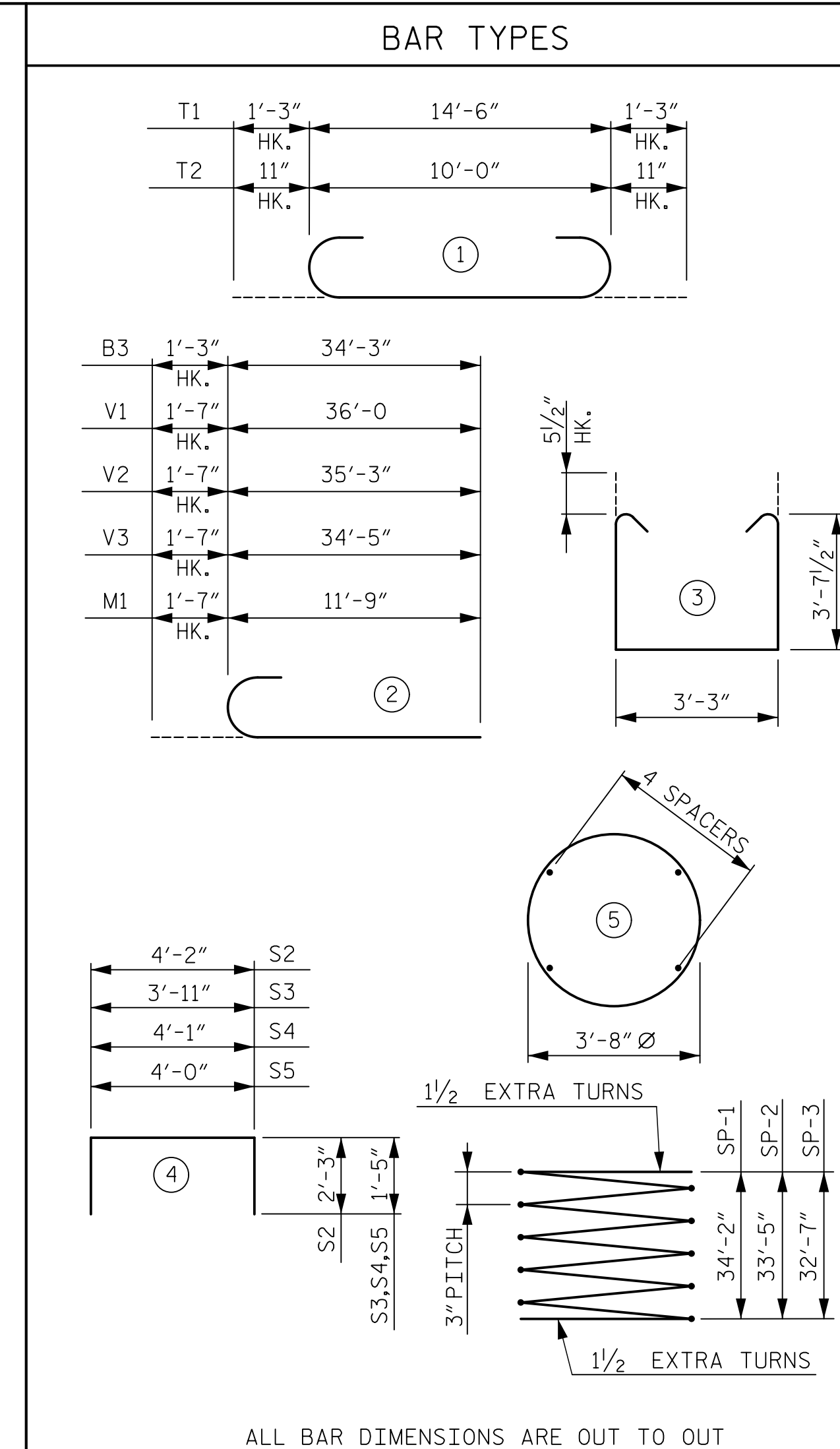
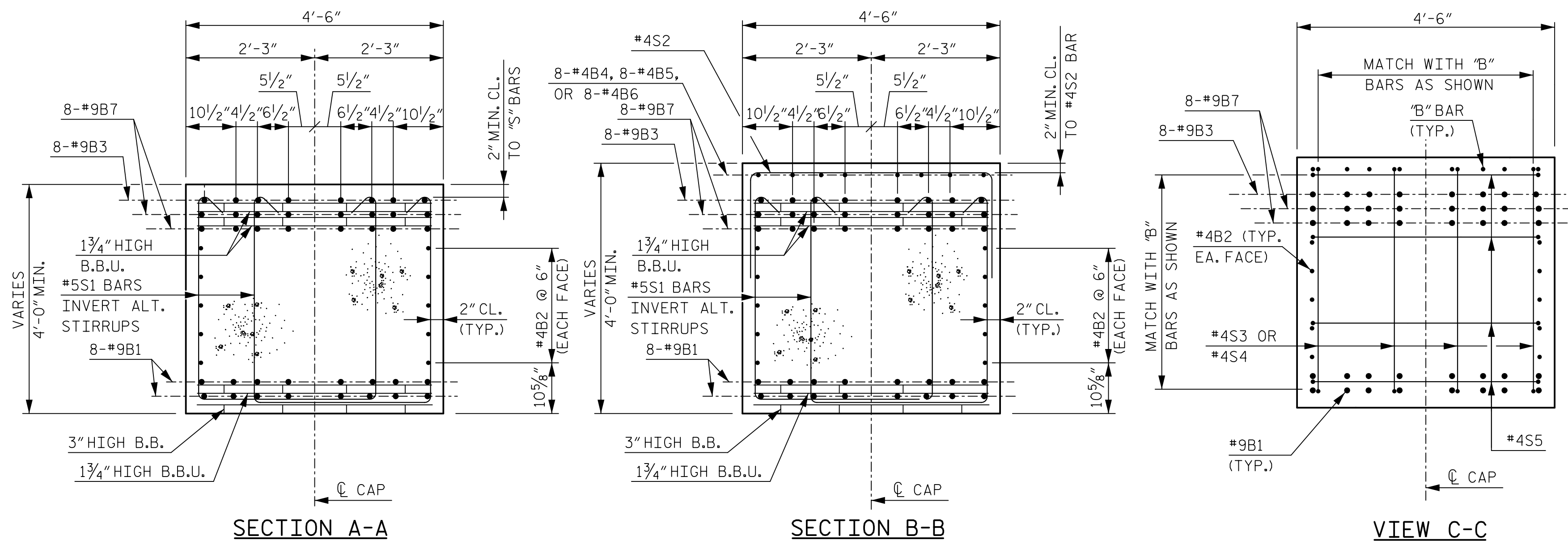
SHEET 2 OF 2
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 1
 LEFT LANE

HNTB	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: A. SMITH	DATE: 7/18
CHECKED BY: B. NEUPANE	DATE: 9/18
DESIGN ENGINEER OF RECORD: J. GREGG	DATE: 10/18
DWG. NO. 34	

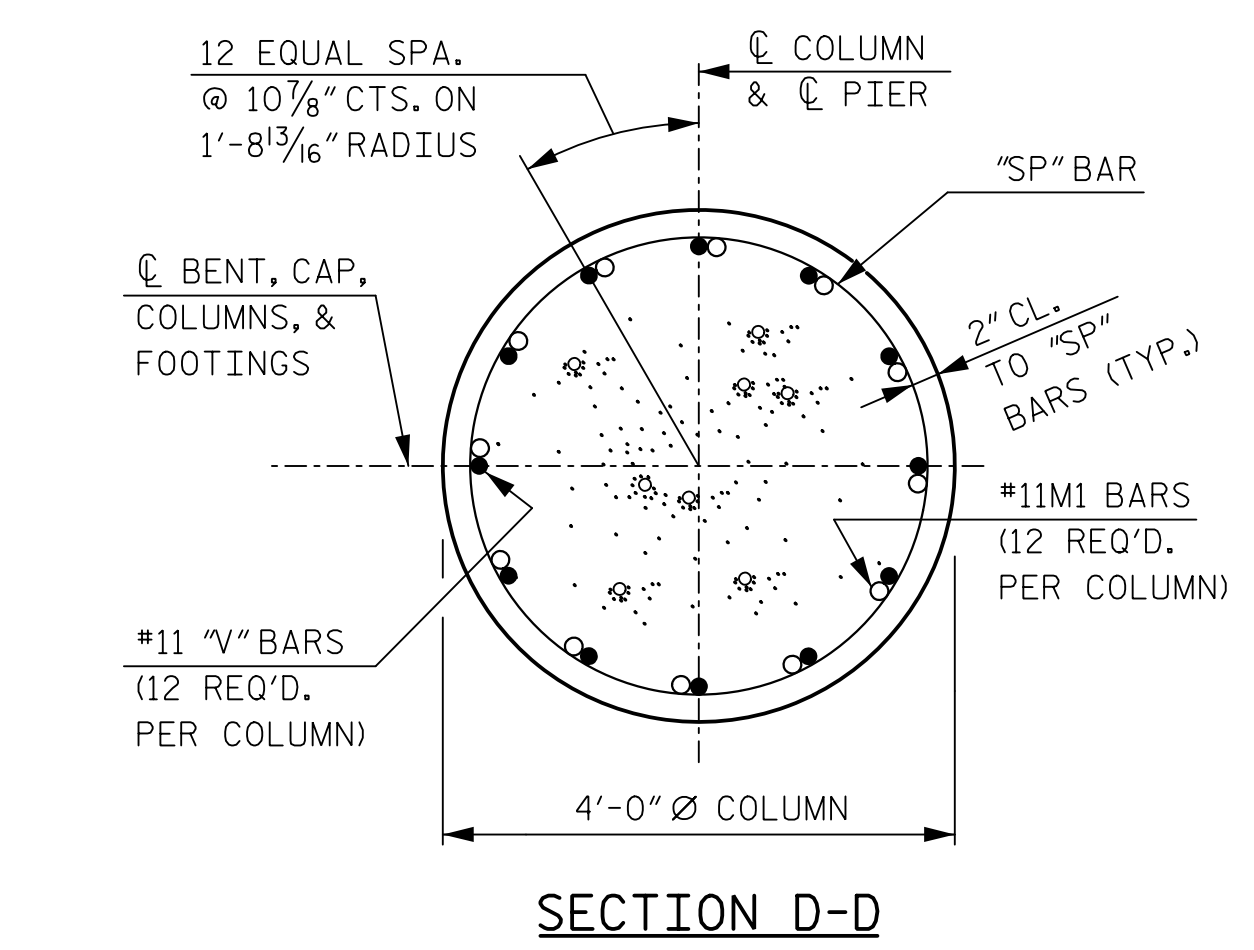
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
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2			4		

TOTAL SHEETS: 46

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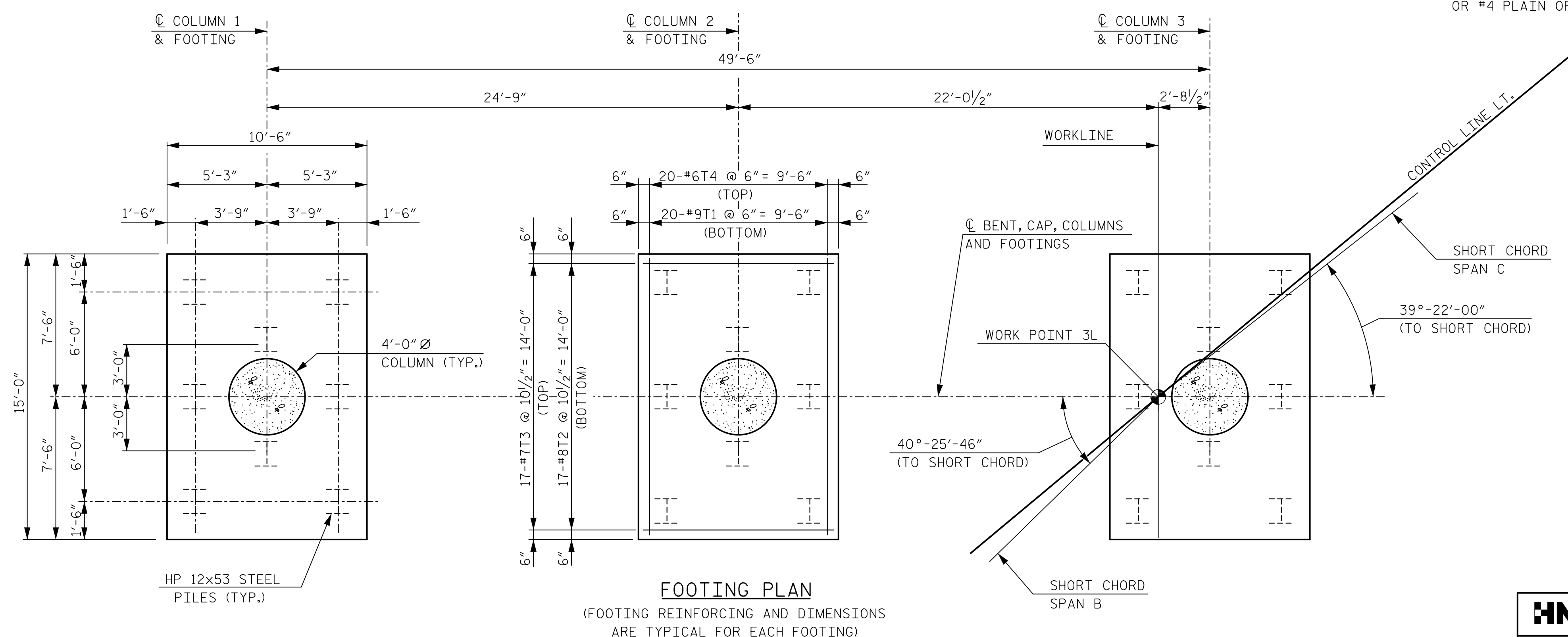


BILL OF REINFORCING					
BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	32	9	STR	33'-0"	3,590
B2	30	4	STR	21'-8"	434
B3	16	9	2	35'-6"	1,931
B4	8	4	STR	5'-6"	29
B5	16	4	STR	13'-0"	139
B6	8	4	STR	12'-0"	64
B7	32	9	STR	34'-3"	3,726
M1	36	11	2	13'-4"	2,550
S1	218	5	3	11'-5"	2,596
S2	57	4	4	8'-8"	330
S3	4	4	4	6'-9"	18
S4	4	4	4	6'-11"	18
S5	8	4	4	6'-10"	37
T1	60	9	1	17'-0"	3,468
T2	51	8	1	11'-10"	1,611
T3	51	7	STR	10'-0"	1,042
T4	60	6	STR	12'-6"	1,127
V1	12	11	2	37'-7"	2,396
V2	12	11	2	36'-10"	2,348
V3	12	11	2	36'-0"	2,295
SP-1	1	*	5	1609'-4"	1,075
SP-2	1	*	5	1574'-10"	1,052
SP-3	1	*	5	1536'-5"	1,026



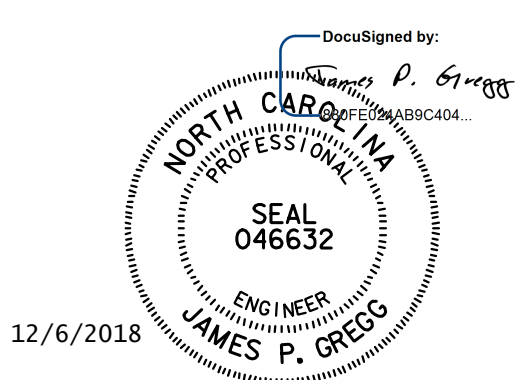
QUANTITIES			
REINFORCING STEEL	LBS.	29,749	
SPIRAL COLUMN REINFORCING STEEL	LBS.	3,153	
CLASS A CONCRETE			
FOOTING POUR 1	CU. YDS.	74.4	
COLUMN POUR 2	CU. YDS.	46.2	
CAP POUR 3	CU. YDS.	43.4	
TOTAL	CU. YDS.	164.0	
HP 12x53 STEEL PILES	NO.	24	
	LIN FT.	1,680	
PILE REDRIVES	EA.	12	
PILE DRIVING EQUIPMENT SETUP	EA.	24	

* THE SP-1, SP-2, AND SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.



PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 2
 LEFT LANE



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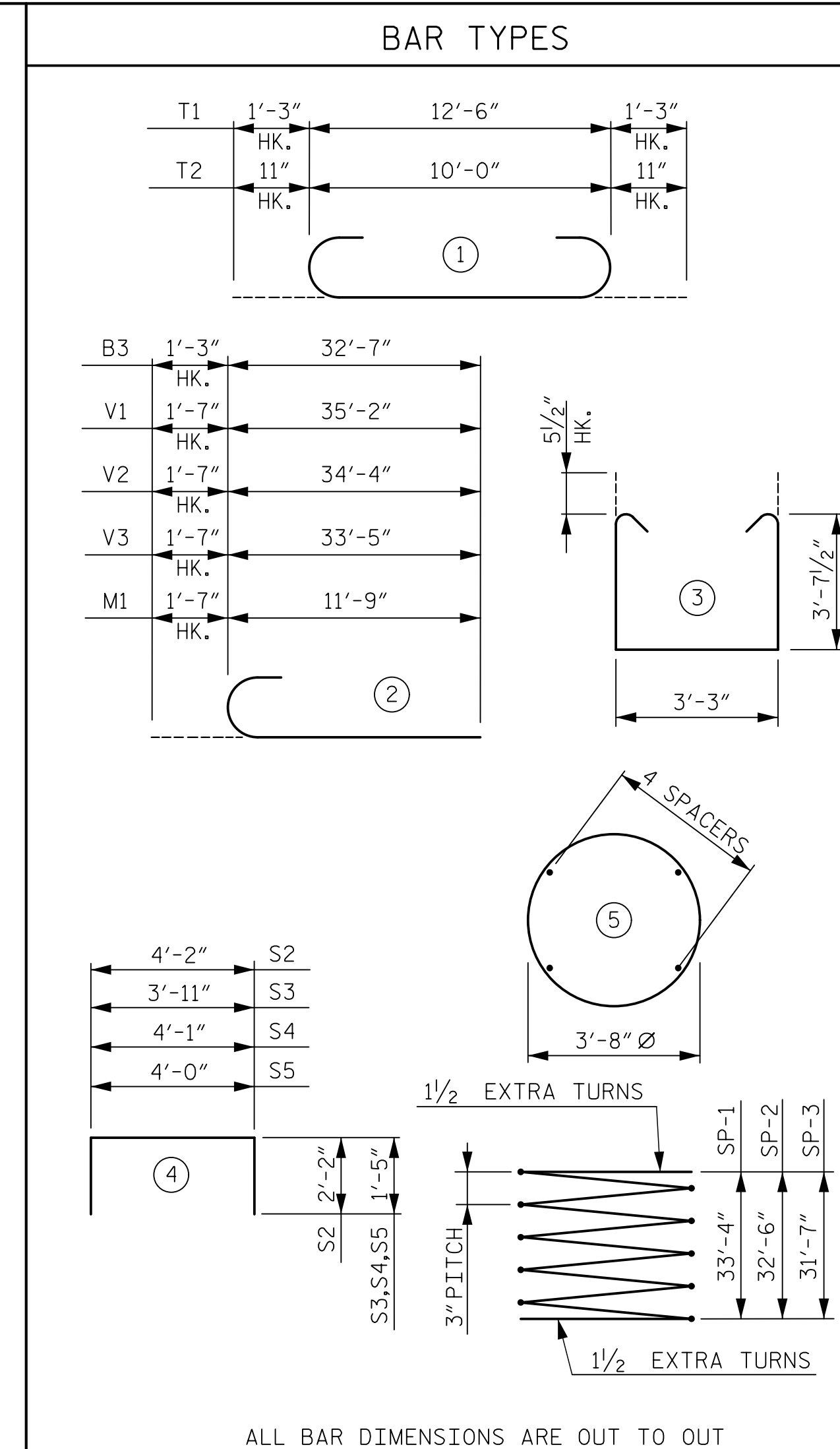
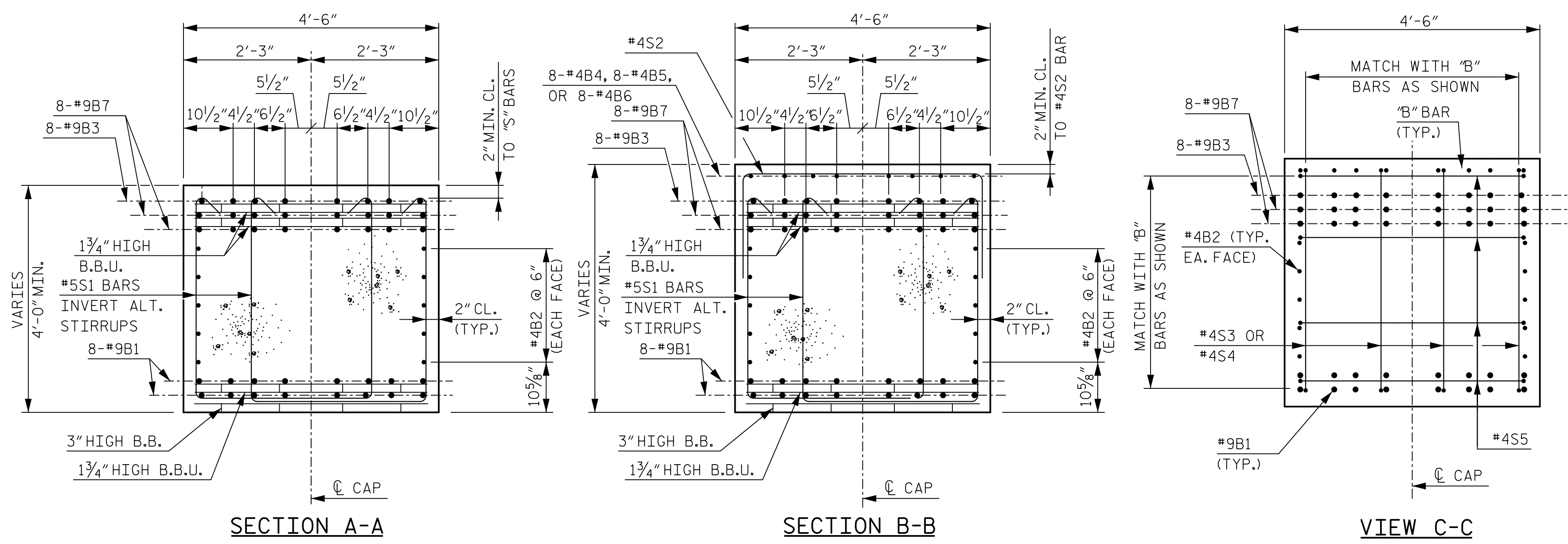
DESIGNED BY: A. SMITH DATE: 7/18
 CHECKED BY: B. NEUPANE DATE: 9/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 36

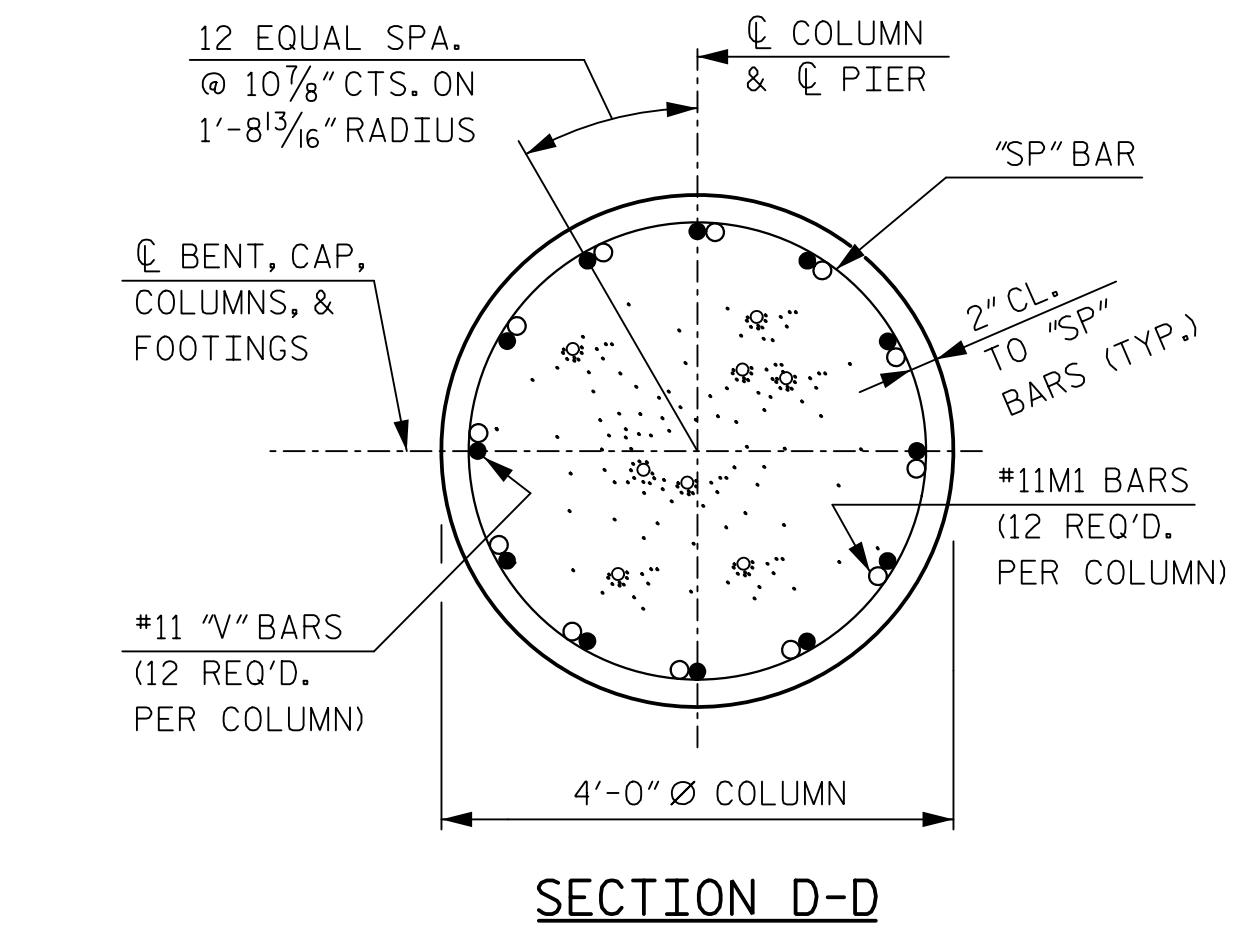
DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

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

SHEET NO. S03-36
 TOTAL SHEETS 46

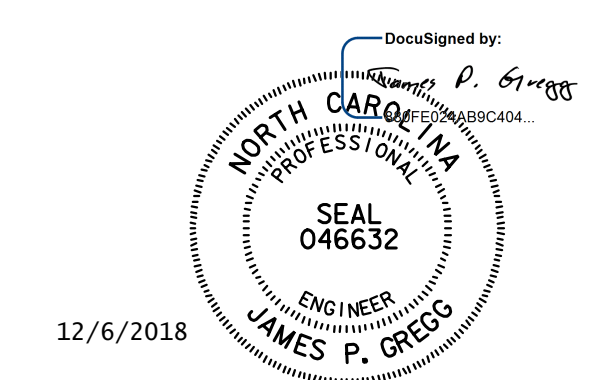
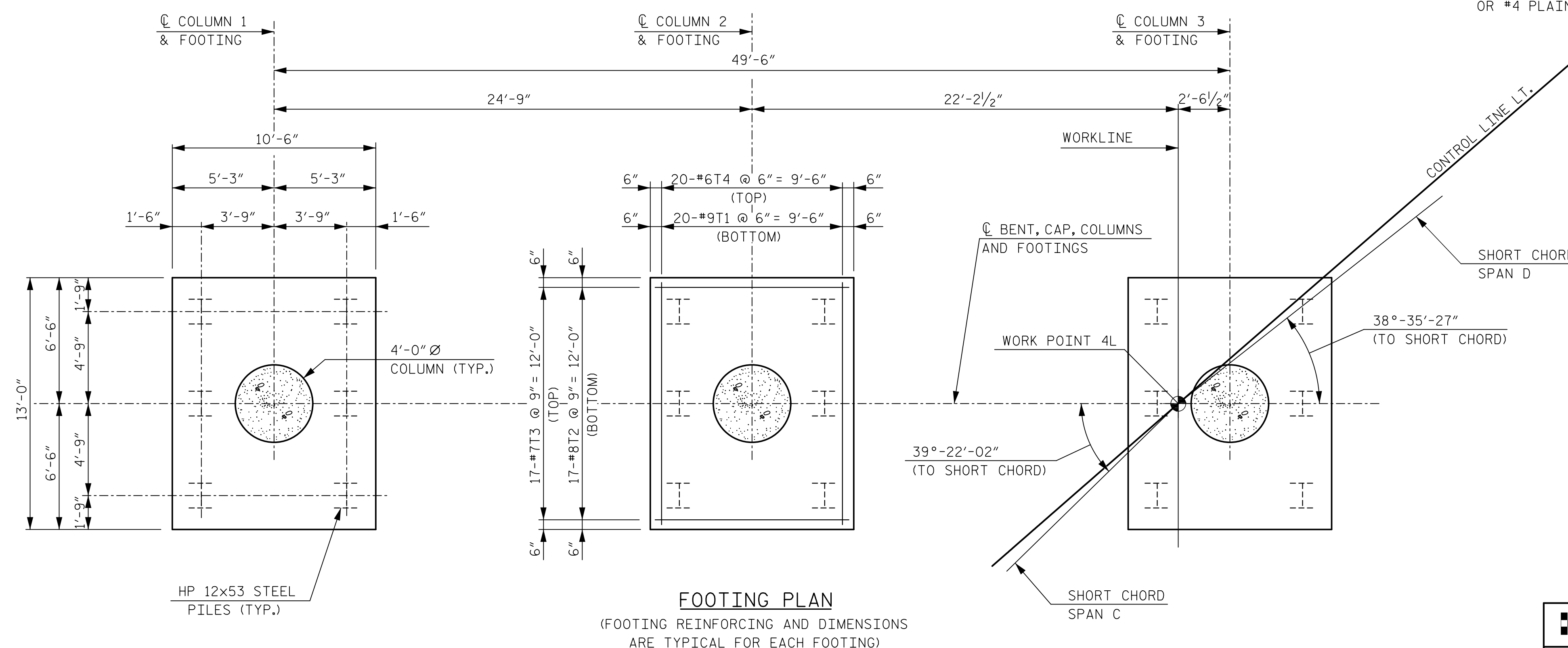


BILL OF REINFORCING					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	32	9	STR	33'-4"	3,627
B2	30	4	STR	21'-10"	438
B3	16	9	2	35'-10"	1,949
B4	8	4	STR	5'-6"	29
B5	16	4	STR	13'-0"	139
B6	8	4	STR	12'-6"	67
B7	32	9	STR	32'-7"	3,545
M1	36	11	2	13'-4"	2,550
S1	222	5	3	11'-5"	2,643
S2	57	4	4	8'-6"	324
S3	4	4	4	6'-9"	18
S4	4	4	4	6'-11"	18
S5	8	4	4	6'-10"	37
T1	60	9	1	15'-0"	3,060
T2	51	8	1	11'-10"	1,611
T3	51	7	STR	10'-0"	1,042
T4	60	6	STR	12'-6"	1,127
V1	12	11	2	36'-9"	2,343
V2	12	11	2	35'-11"	2,290
V3	12	11	2	35'-0"	2,231
SP-1	1	*	5	1571'-0"	1,049
SP-2	1	*	5	1532'-7"	1,024
SP-3	1	*	5	1490'-4"	996



QUANTITIES			
REINFORCING STEEL	LBS.	29,088	
SPIRAL COLUMN REINFORCING STEEL	LBS.	3,069	
CLASS A CONCRETE			
FOOTING POUR 1	CU. YDS.	64.5	
COLUMN POUR 2	CU. YDS.	45.0	
CAP POUR 3	CU. YDS.	43.9	
TOTAL	CU. YDS.	153.4	
HP12x53 STEEL PILES	NO.	18	
	LIN FT.	1,170	
PILE REDRIVES	EA.	9	
PILE DRIVING EQUIPMENT SETUP	EA.	18	

ALL BAR DIMENSIONS ARE OUT TO OUT
 * THE SP-1, SP-2, AND SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.



PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 2
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 3
 LEFT LANE

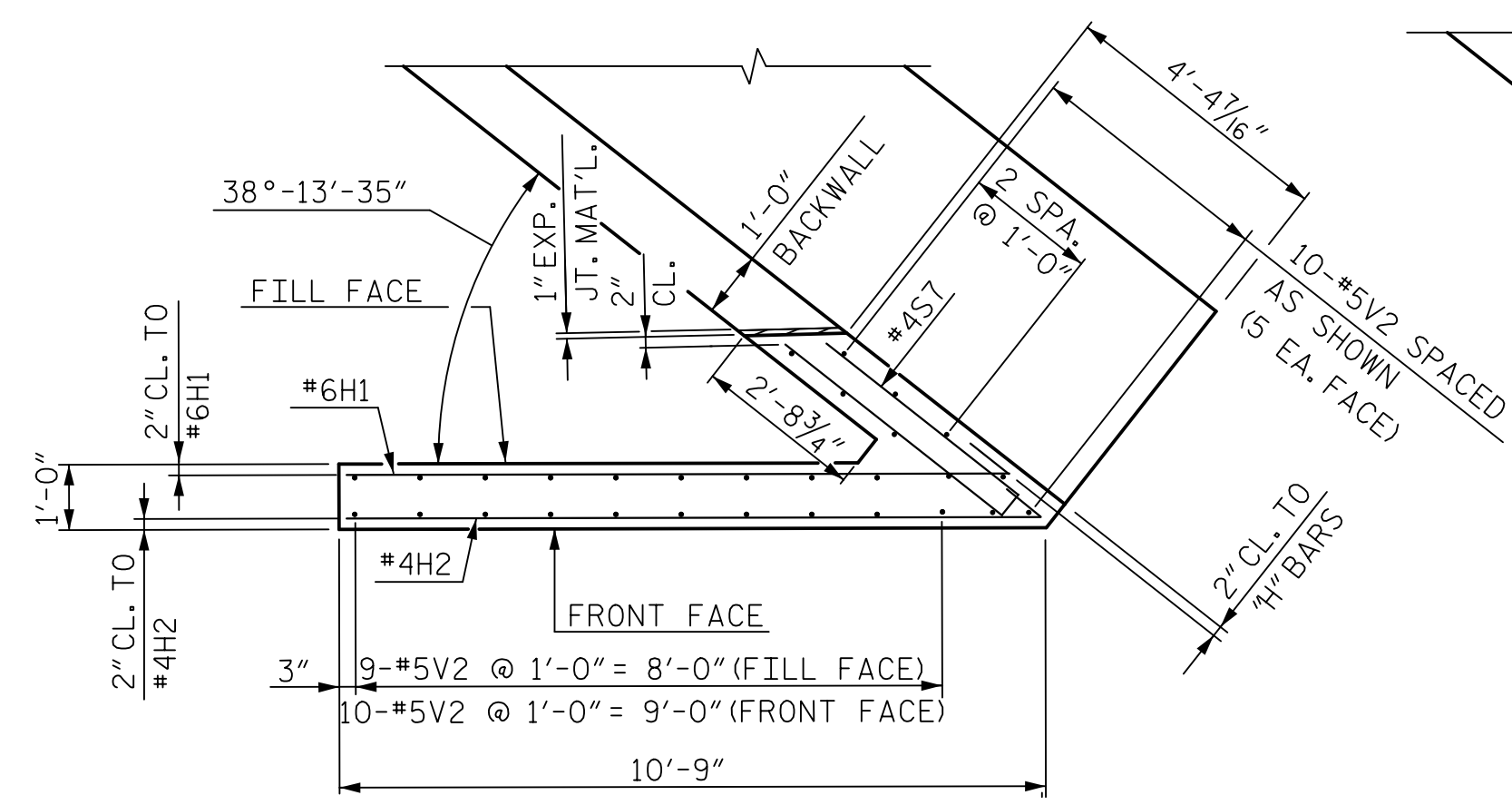
HNTB	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: A. SMITH	DATE: 7/18
CHECKED BY: B. NEUPANE	DATE: 9/18
DESIGN ENGINEER OF RECORD: J. GREGG	DATE: 10/18

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

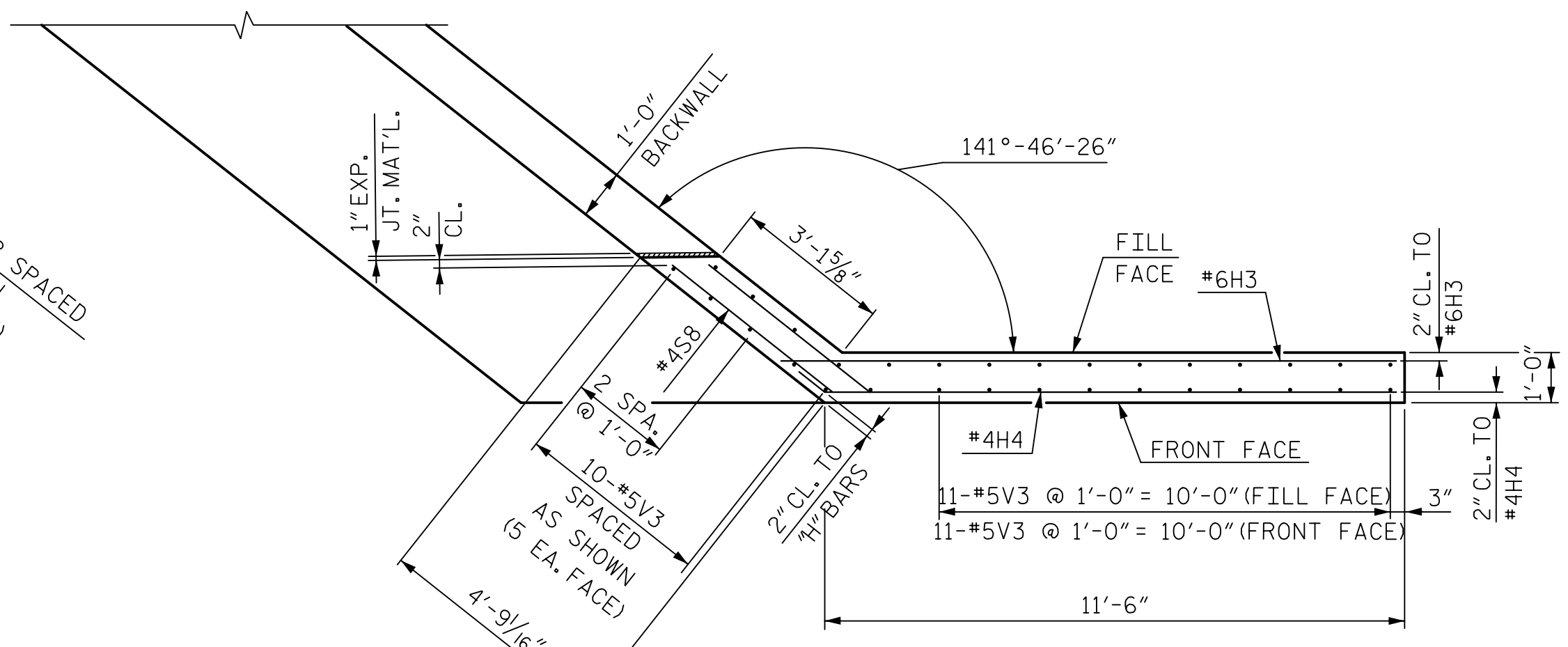
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SHEET NO.
 S03-38
 TOTAL SHEETS
 46

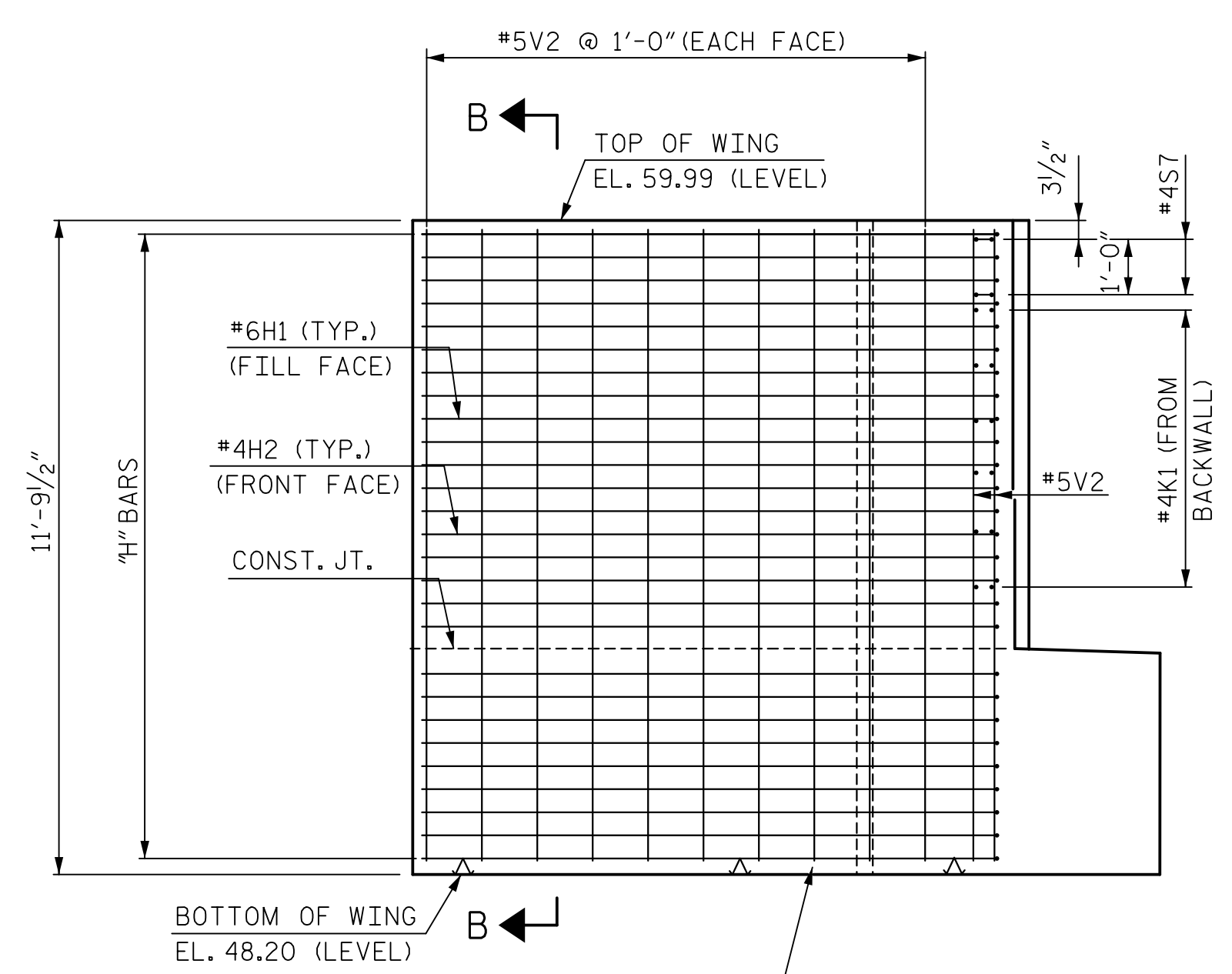
NOTES:
 FOR NOTES, SEE SHEET 3 OF 3.
 FOR BLOCKOUT IN WINGWALL, SEE SHEET 3 OF 3.



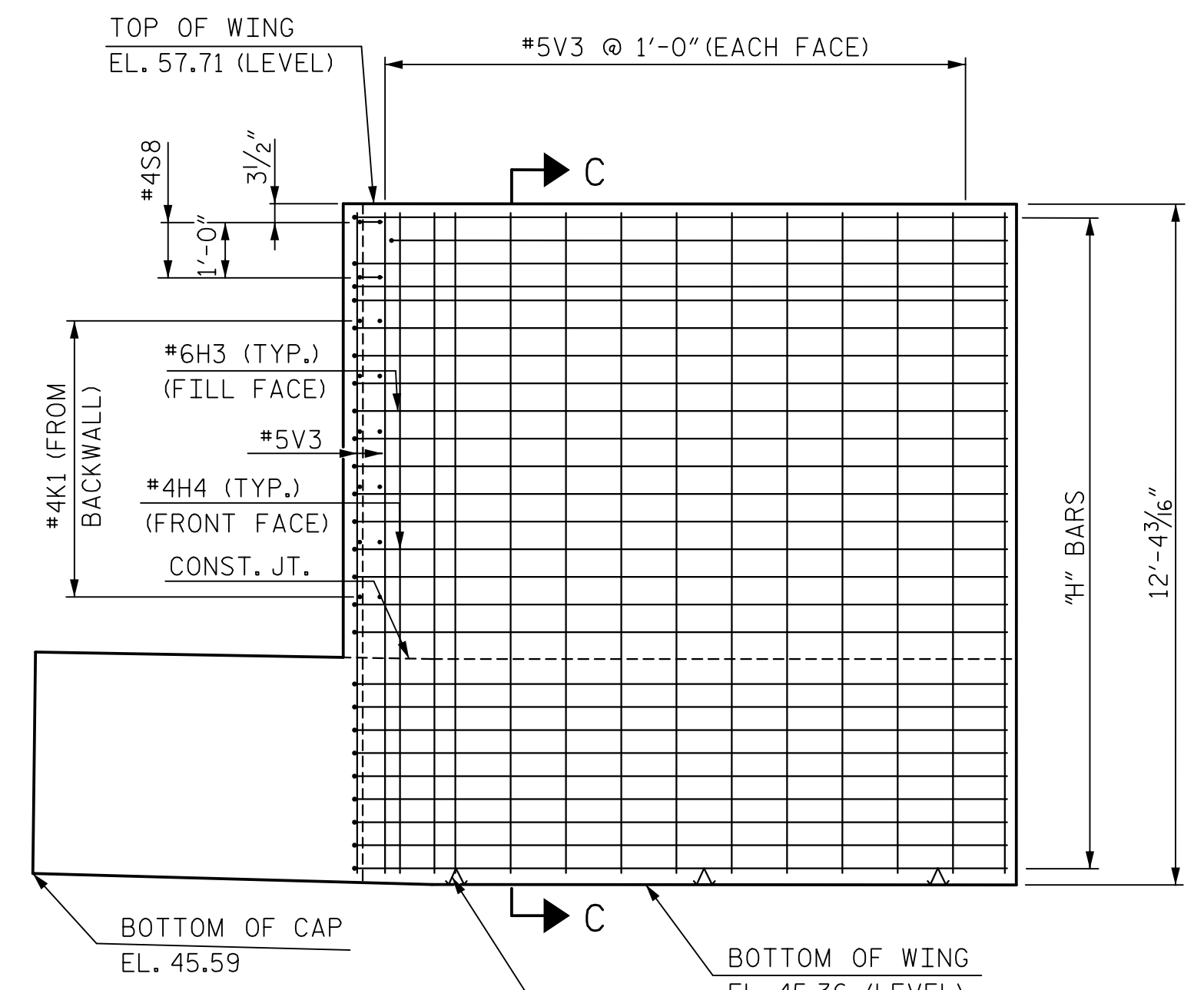
W1 PLAN OF WING



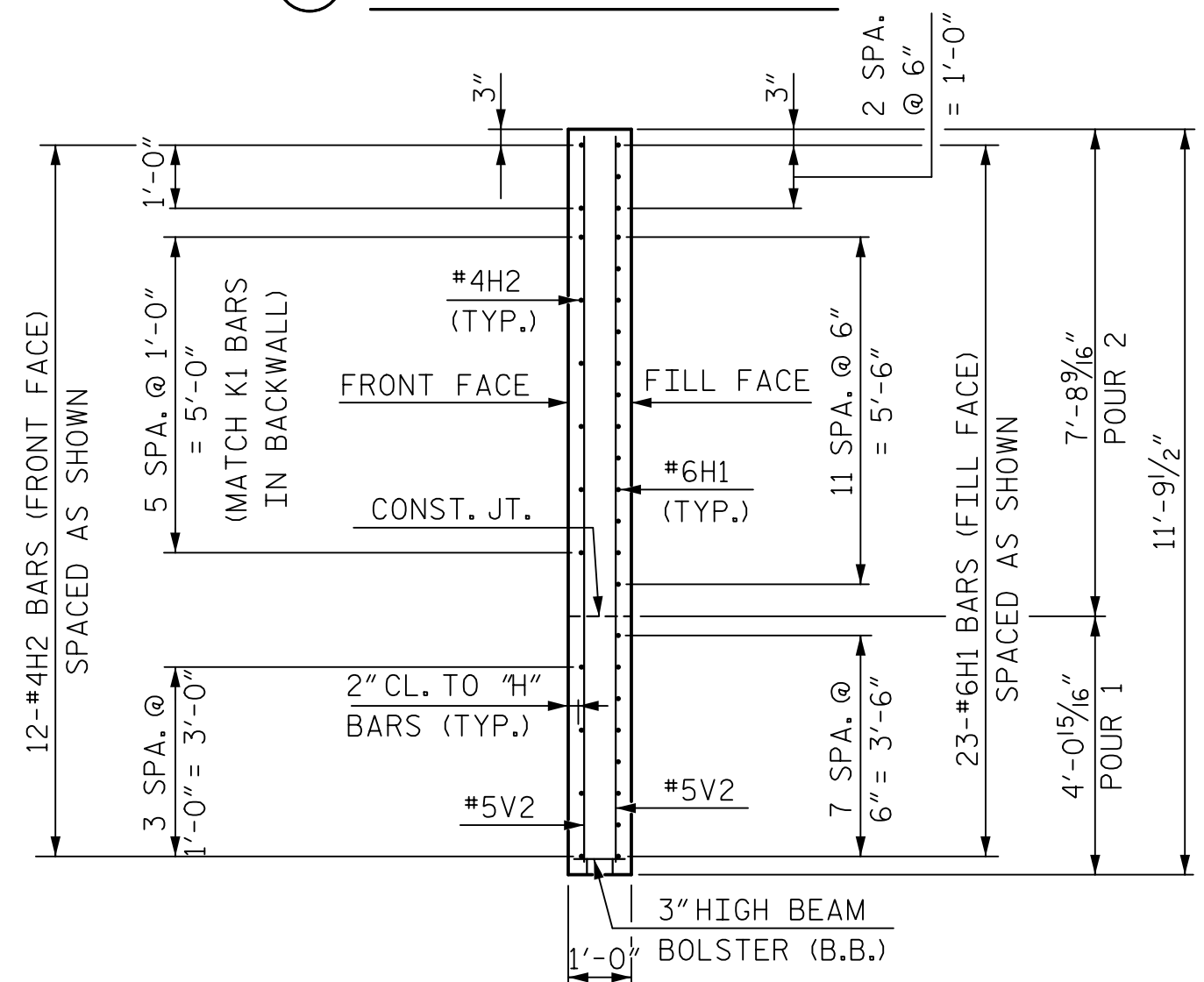
W2 PLAN OF WING



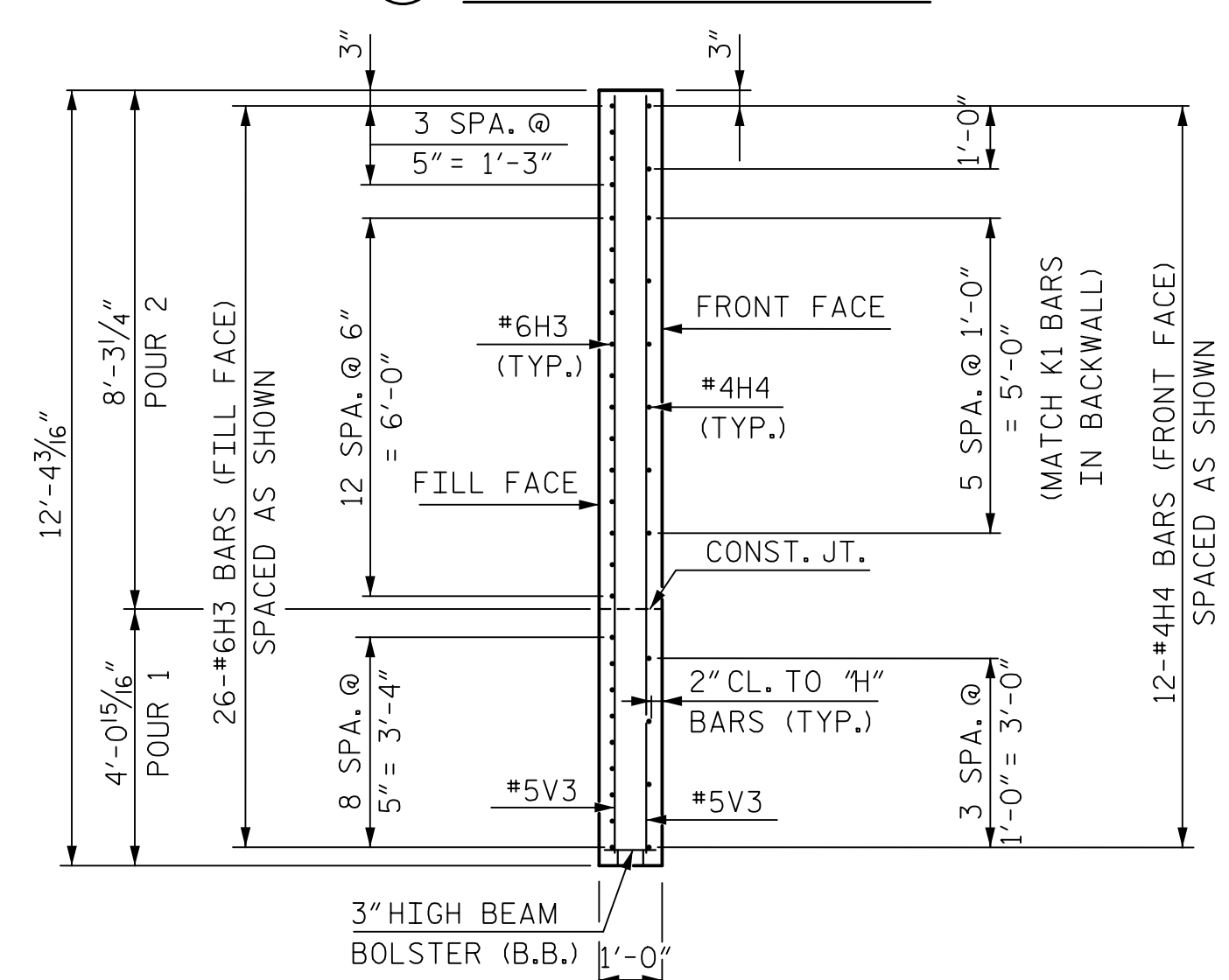
W1 ELEVATION OF WING



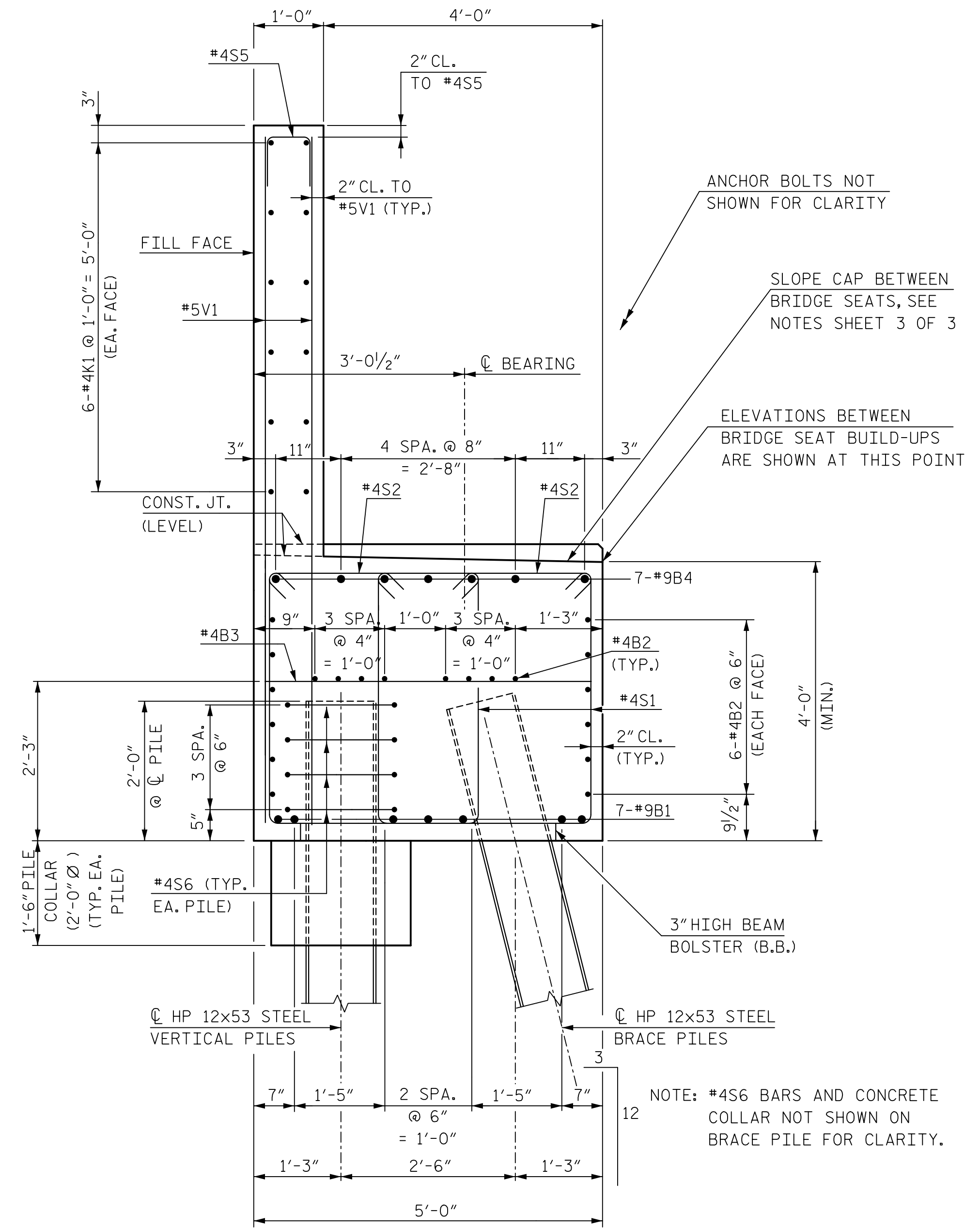
W2 ELEVATION OF WING



SECTION B-B



SECTION C-C

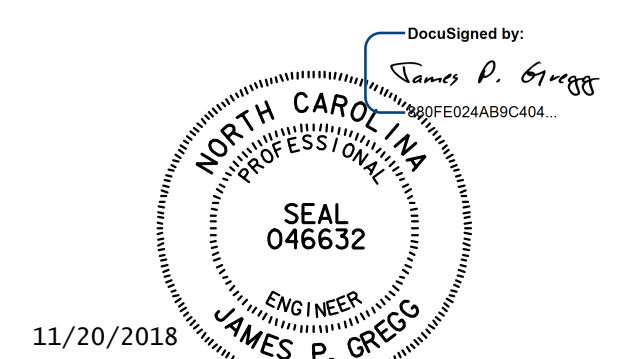


SECTION A-A

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 3

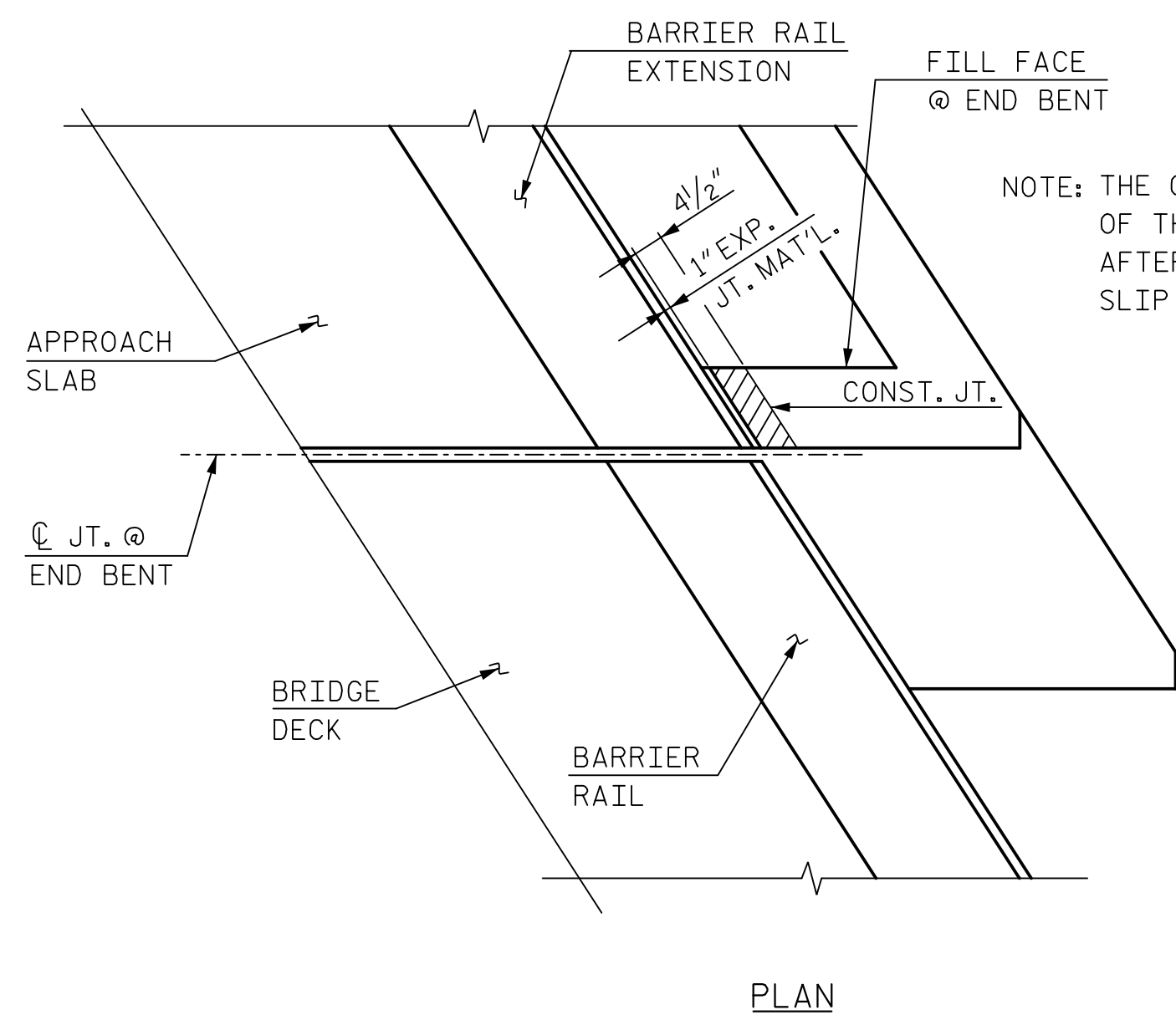
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2
 LEFT LANE



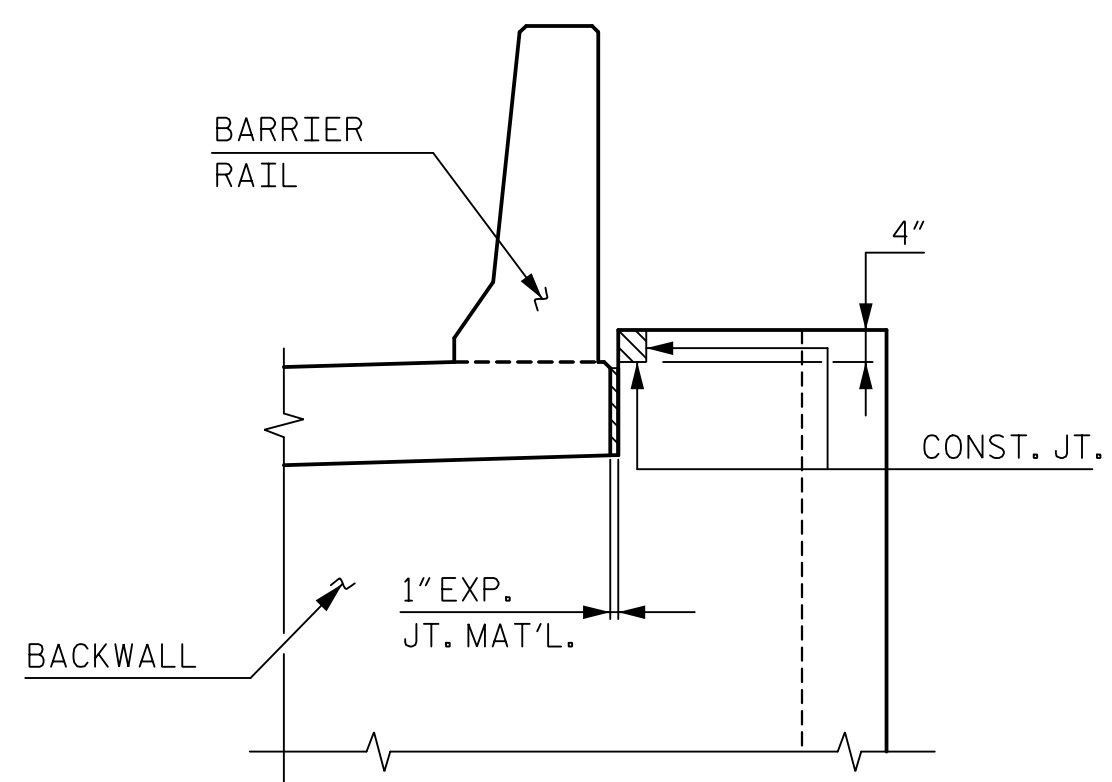
HNTB		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609																	
DRAWN BY: B. NEUPANE	DATE: 9/18	DWG. NO. 40	<table border="1"> <tr> <th colspan="4">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>BY</th> <th>DATE</th> <th>NO.</th> </tr> <tr> <td>1</td> <td>E. JOWZA</td> <td>10/18</td> <td>3</td> </tr> <tr> <td>2</td> <td>J. GREGG</td> <td>10/18</td> <td>4</td> </tr> </table>	REVISIONS				NO.	BY	DATE	NO.	1	E. JOWZA	10/18	3	2	J. GREGG	10/18	4
REVISIONS																			
NO.	BY			DATE	NO.														
1	E. JOWZA	10/18	3																
2	J. GREGG	10/18	4																
CHECKED BY: E. JOWZA	DATE: 10/18																		
DESIGN ENGINEER OF RECORD: J. GREGG	DATE: 10/18																		

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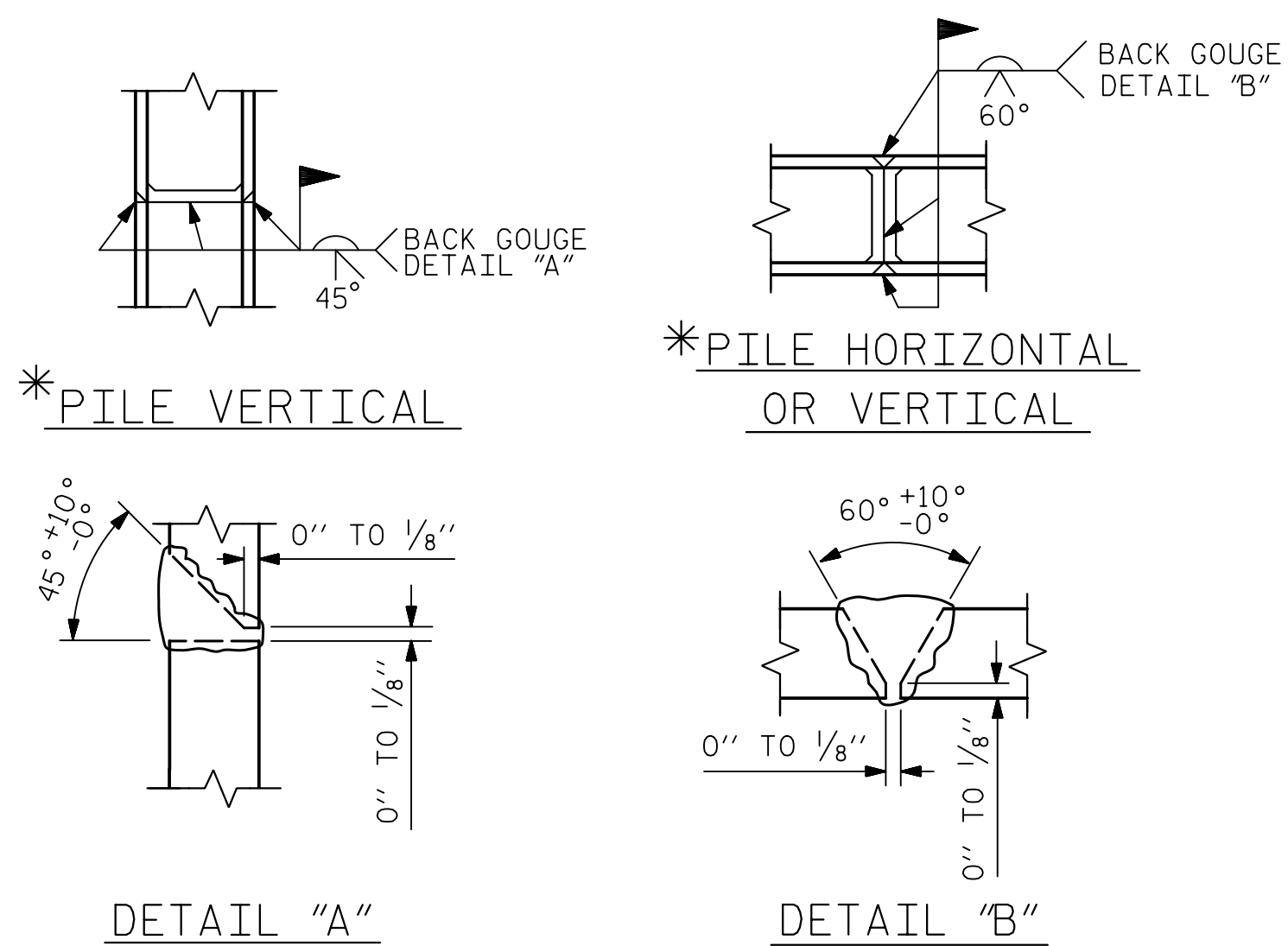
SHEET NO. S03-40	
TOTAL SHEETS 46	



PLAN



ELEVATION
BLOCKOUT IN WINGWALL



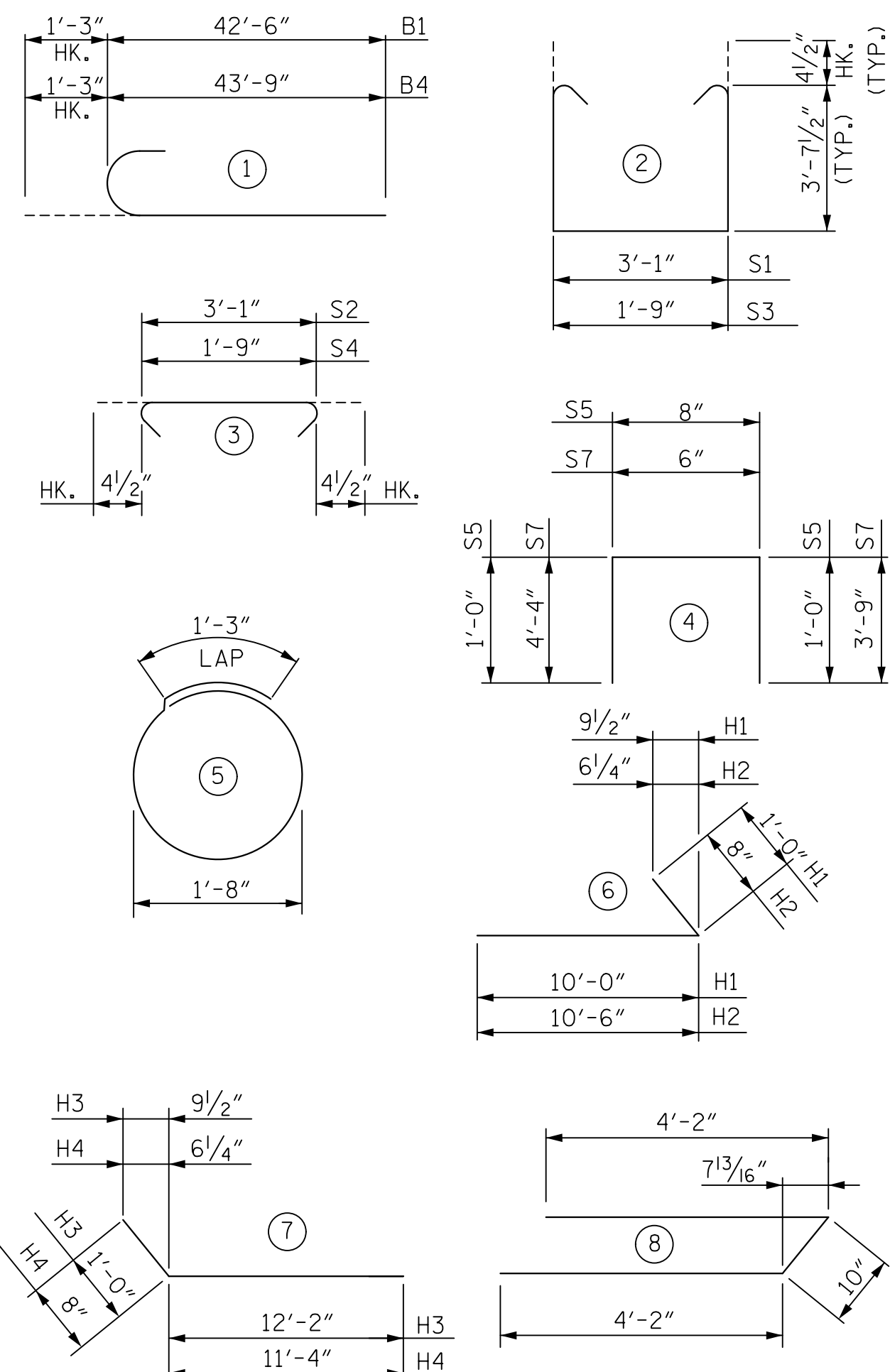
* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

NOTES:

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

BAR TYPES



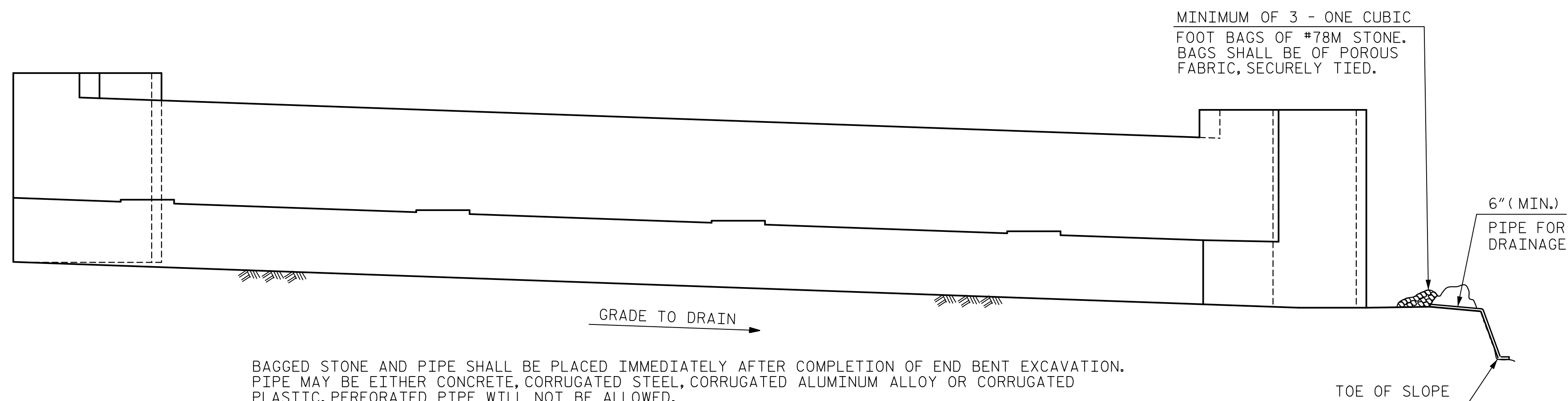
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF REINFORCING

END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	14	9	1	43'-11"	2,090
B2	60	4	STR	28'-0"	1,122
B3	20	4	STR	4'-8"	62
B4	14	9	1	45'-2"	2,150
H1	23	6	6	11'-0"	380
H2	12	4	6	11'-2"	90
H3	26	6	7	13'-2"	514
H4	12	4	7	12'-0"	96
K1	36	4	STR	28'-0"	673
S1	222	4	2	11'-1"	1,644
S2	222	4	3	3'-10"	568
S3	2	4	2	9'-9"	13
S4	2	4	3	2'-6"	3
S5	70	4	4	2'-8"	125
S6	52	4	5	6'-6"	226
S7	2	4	4	8'-7"	11
S8	2	4	8	9'-2"	12
V1	140	5	STR	9'-11"	1,448
V2	29	5	STR	11'-4"	343
V3	32	5	STR	11'-11"	398

QUANTITIES

REINFORCING STEEL	LBS.	11,968
CLASS "A" CONCRETE BREAKDOWN		
POUR 1 - CAP, COLLARS & BOT. OF WINGS	CU. YDS.	63.6
POUR 2 - TOP OF WINGS & BACKWALL	CU. YDS.	25.3
TOTAL	CU. YDS.	88.9
HP 12x53 STEEL PILES	NO.	13
	LN. FT.	1300
PILE REDRIVES	EA.	6
PILE DRIVING EQUIPMENT SETUP	EA.	13



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 FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT 2

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

END BENT 2

LEFT LANE

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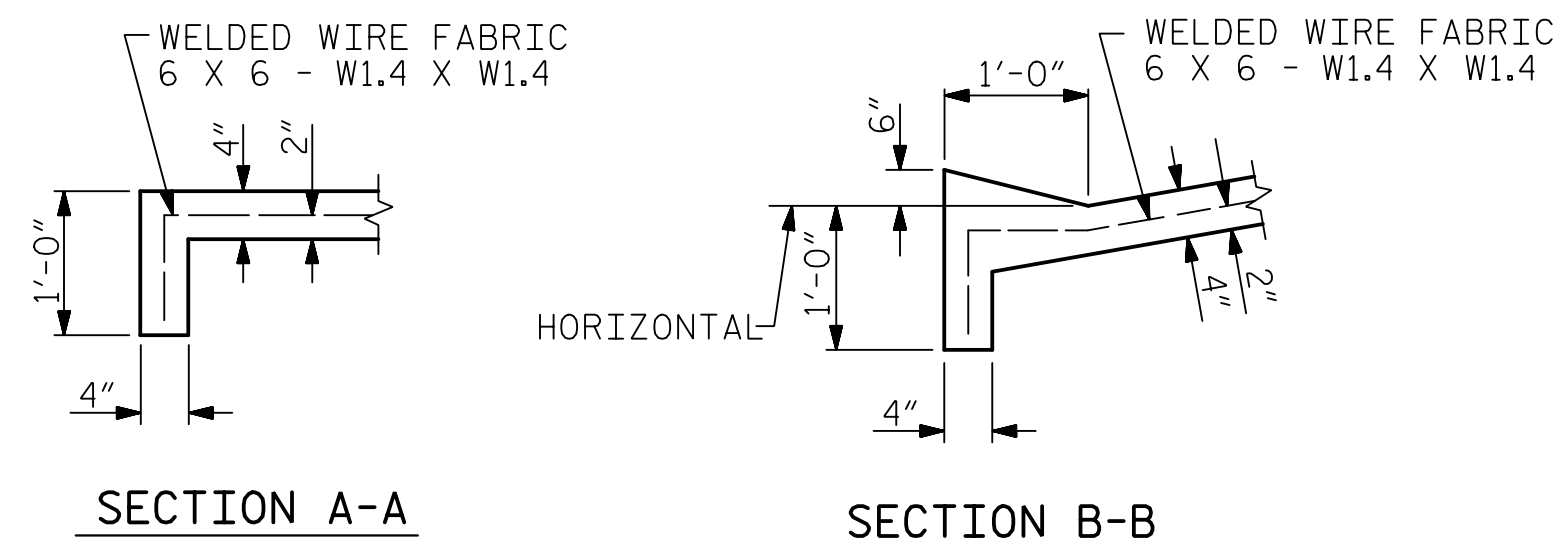
DocuSigned by:
 James P. Gregg, P. 61-188
 SEAL 046632
 ENGINEER
 JAMES P. GREGG
 12/6/2018

DRAWN BY: B. NEUPANE DATE: 9/18
 CHECKED BY: E. JOWZA DATE: 10/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

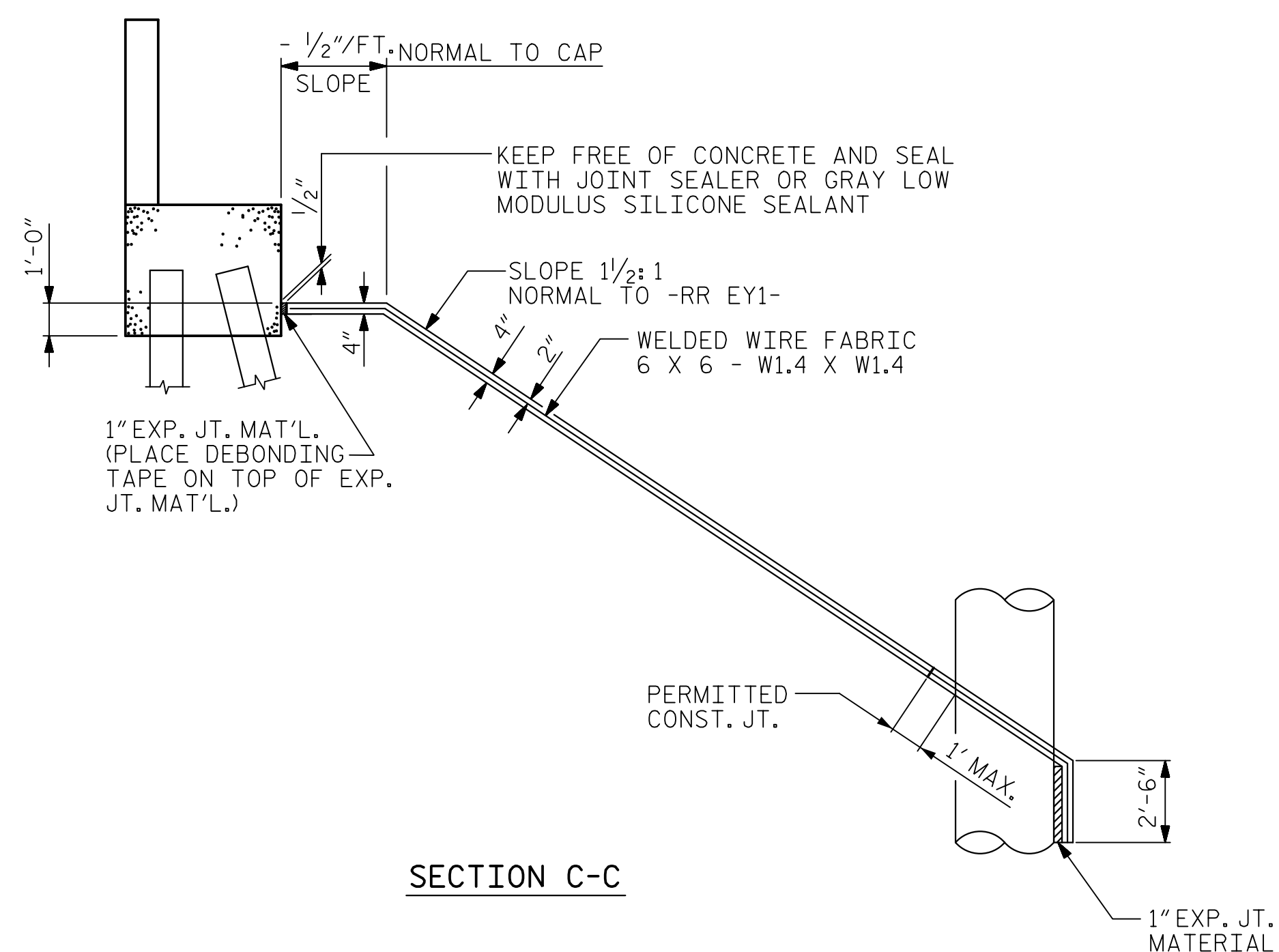
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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S03-41
1			3			TOTAL SHEETS
2			4			46

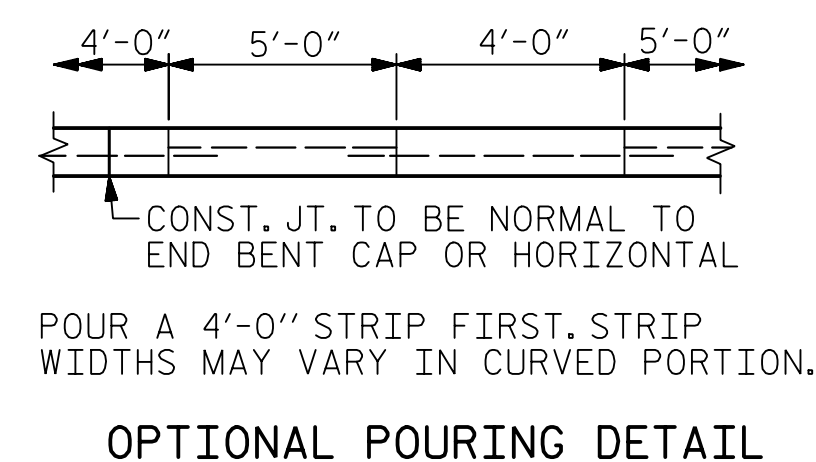
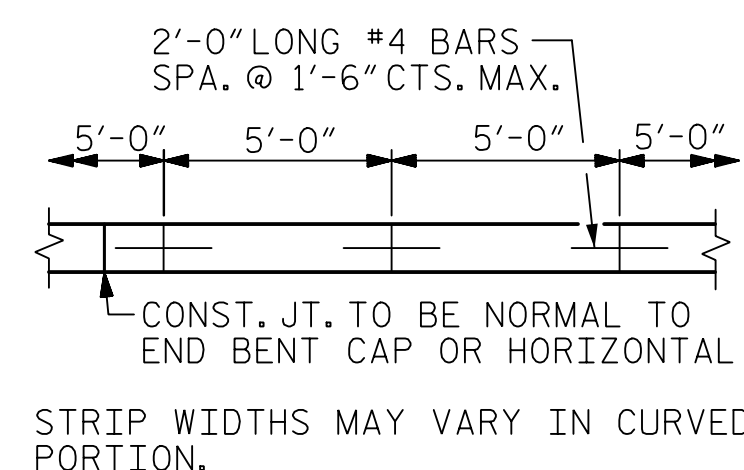
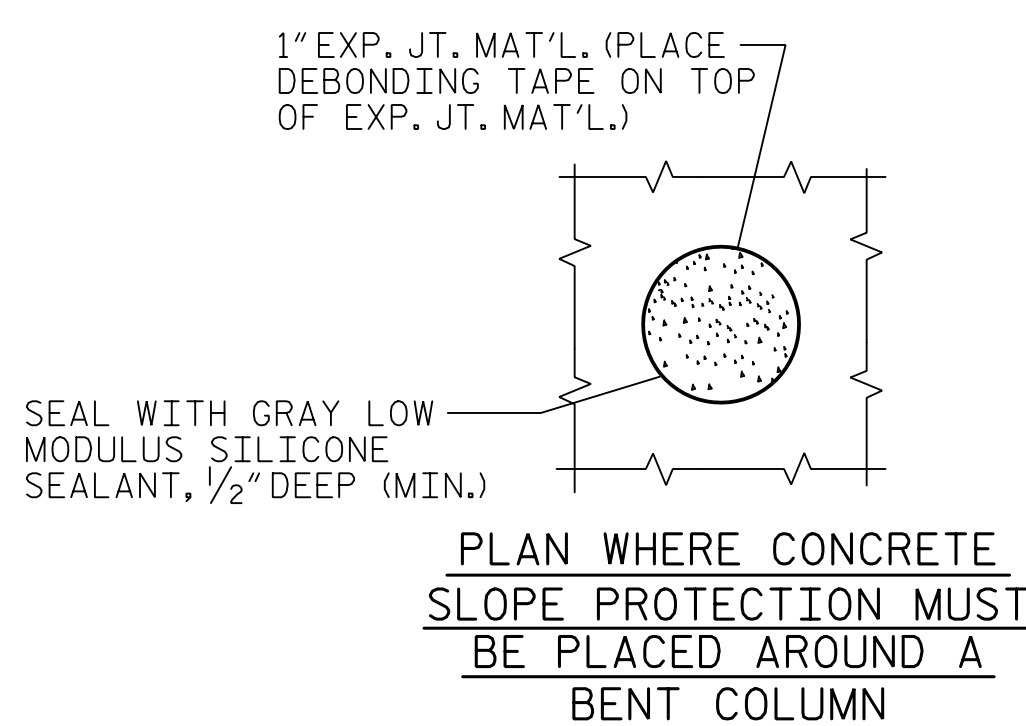


SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6". THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.



LT BRIDGE @ POC STA 138+31.09 -L-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	1616.3	2909
END BENT 2	1196.1	2153

* QUANTITY SHOWN IS BASED ON 5' POURS.



PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD

SLOPE PROTECTION
 DETAILS

LEFT LANE

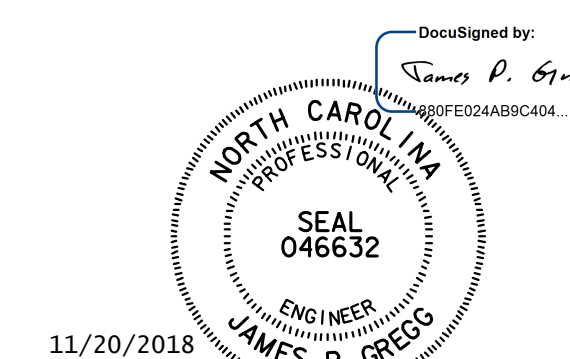
ASSEMBLED BY : A. SMITH	DATE : 7/18
CHECKED BY : B. NEUPANE	DATE : 10/18
DRAWN BY : ELR 5/92	REV. 12/21/11 MAA/GM
CHECKED BY : GRP 6/92	REV. 1/16 MAA/TMG
	REV. 12/17 MAA/THC

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CHECKED BY : B. NEUPANE	DATE : 10/18
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 10/18

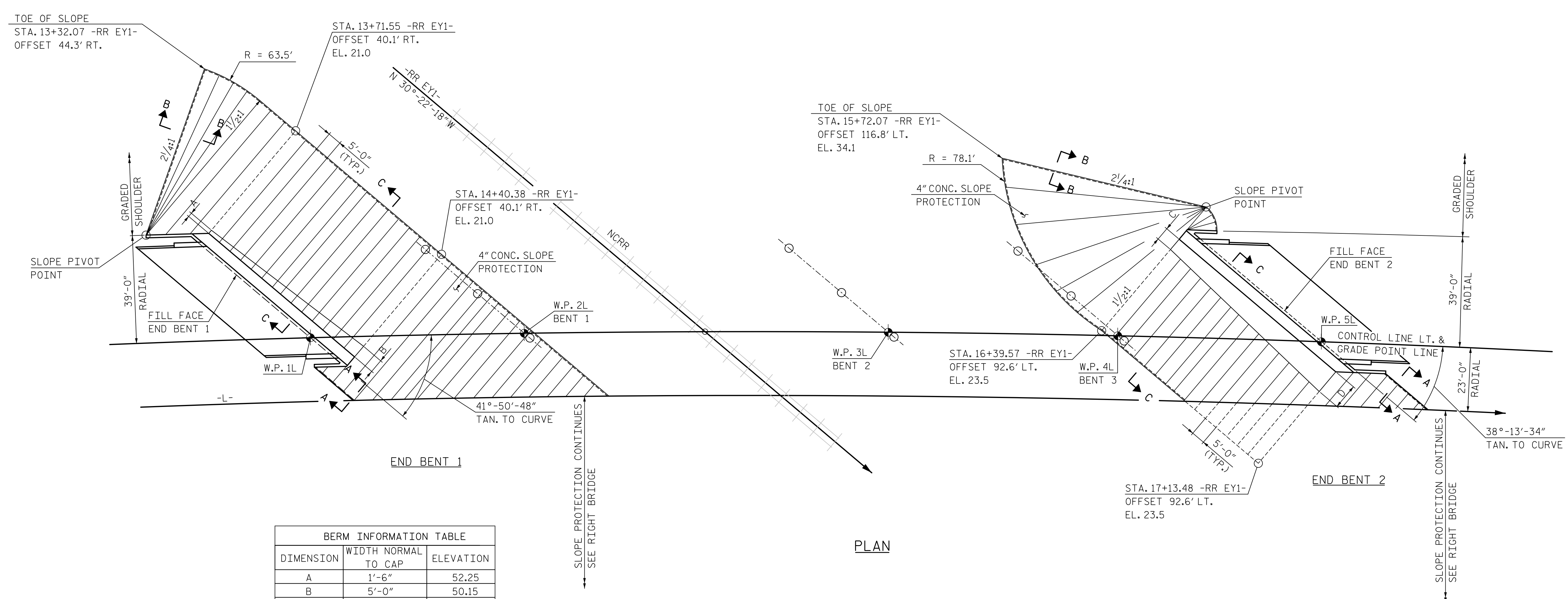
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

TOTAL SHEETS: 46



STR. #3

STD. NO. SP1

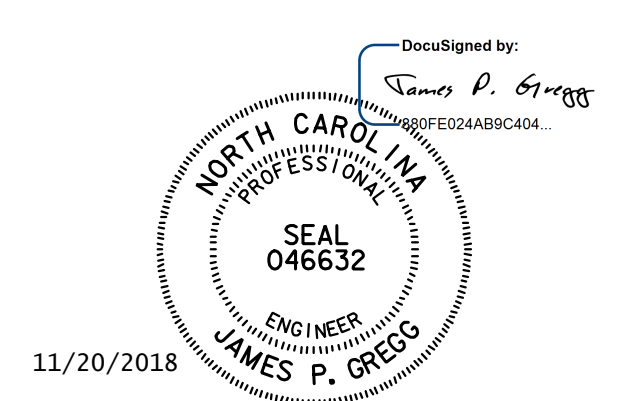


BERM INFORMATION TABLE		
DIMENSION	WIDTH NORMAL TO CAP	ELEVATION
A	1'-6"	52.25
B	5'-0"	50.15
C	4'-10"	49.20
D	9'-3"	46.59

PLAN

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SLOPE PROTECTION
 DETAILS**

LEFT LANE

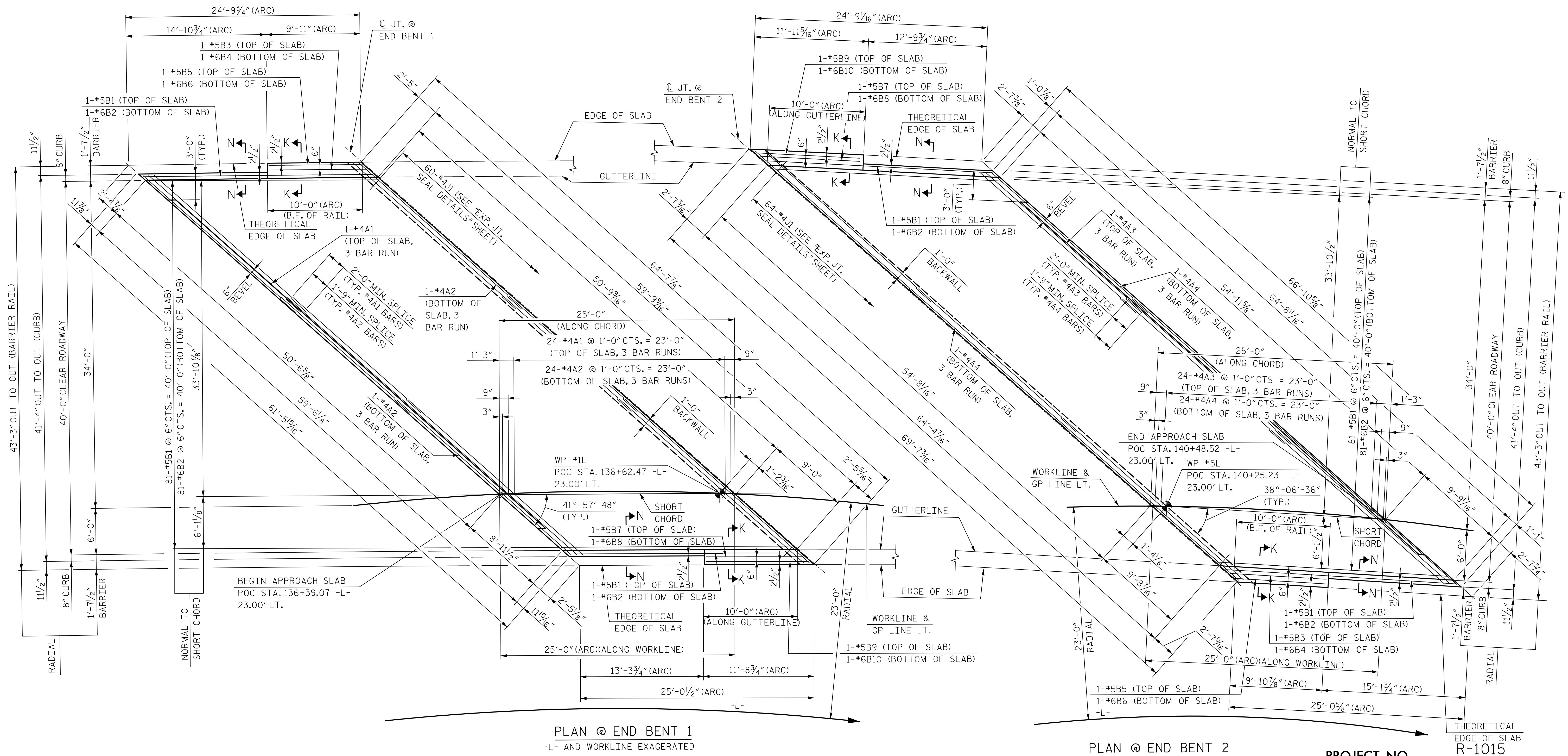
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 CHECKED BY: B. NEUPANE DATE: 10/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 43

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS	
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2			4				

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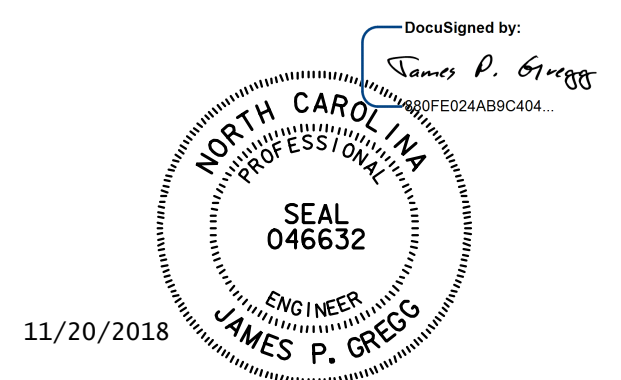
PLAN @ END BENT 1
-L- AND WORKLINE EXAGGERATED

PLAN @ END BENT 2
-L- AND WORKLINE EXAGGERATED

PROJECT NO. _____
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

B.F. - DENOTES BACK FACE

- NOTES:**
- FOR SECTION N-N AND K-K, SEE "BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT" SHEET 2 OF 3.
 - FOR APPROACH SLAB BILL OF MATERIAL, SEE "BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT" SHEET 2 OF 3.
 - FOR BARRIER RAIL REINFORCING STEEL PLACEMENT AND BILL OF MATERIAL, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET 3 OF 3.
 - FOR STANDARD EXPANSION JOINT SEAL DETAILS, SEE "EXPANSION JOINT SEAL DETAILS" SHEET.



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 CHECKED BY: Z. GUO DATE: 10/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 44

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT**

LEFT LANE

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			46
2			4			

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NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 6" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL OR PARAPET AND END POST.

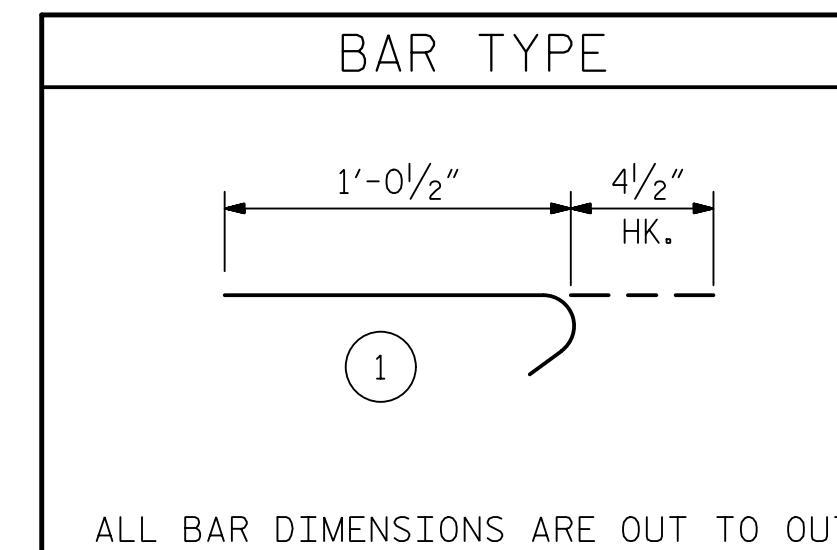
FOR THE 6" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	75	#4	STR	23'-4"	1,169
A2	78	#4	STR	23'-1"	1,203
*B1	83	#5	STR	24'-0"	2,078
B2	83	#6	STR	24'-6"	3,054
*B3	1	#5	STR	10'-1"	11
B4	1	#6	STR	10'-1"	15
*B5	1	#5	STR	9'-6"	10
B6	1	#6	STR	9'-6"	14
*B7	1	#5	STR	10'-5"	11
B8	1	#6	STR	10'-5"	16
*B9	1	#5	STR	11'-0"	11
B10	1	#6	STR	11'-0"	17
*J1	60	#4	1	1'-5"	57
REINFORCING STEEL				** LBS.	4,319
*EPOXY COATED REINFORCING STEEL				** LBS.	3,347
CLASS AA CONCRETE				C. Y.	45.9

APPROACH SLAB AT EB #2					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A3	75	#4	STR	25'-0"	1,253
A4	78	#4	STR	24'-9"	1,290
*B1	83	#5	STR	24'-0"	2,078
B2	83	#6	STR	24'-6"	3,054
*B3	1	#5	STR	10'-1"	11
B4	1	#6	STR	10'-1"	15
*B5	1	#5	STR	9'-6"	10
B6	1	#6	STR	9'-6"	14
*B7	1	#5	STR	10'-5"	11
B8	1	#6	STR	10'-5"	16
*B9	1	#5	STR	11'-0"	11
B10	1	#6	STR	11'-0"	17
*J1	64	#4	1	1'-5"	61
REINFORCING STEEL				** LBS.	4,406
*EPOXY COATED REINFORCING STEEL				** LBS.	3,435
CLASS AA CONCRETE				C. Y.	45.9

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



ALL BAR DIMENSIONS ARE OUT TO OUT

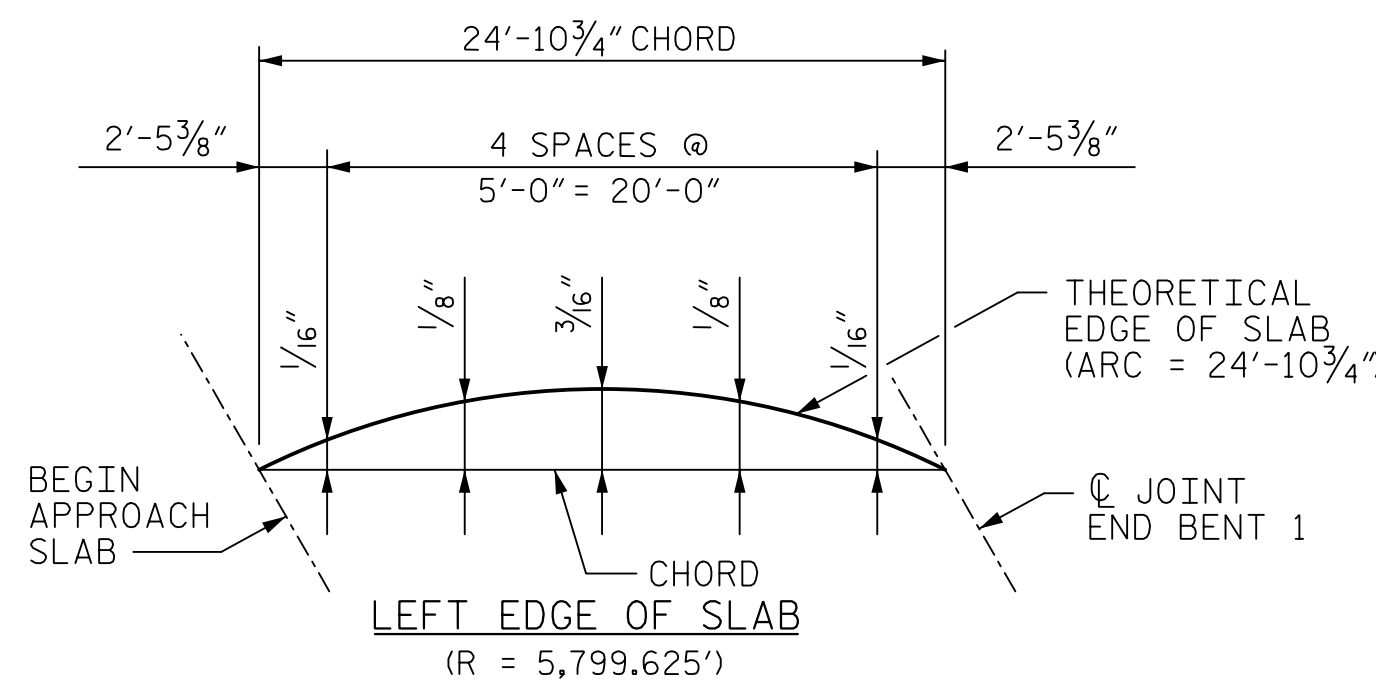
THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED. SEE SHEET 3 OF 3.

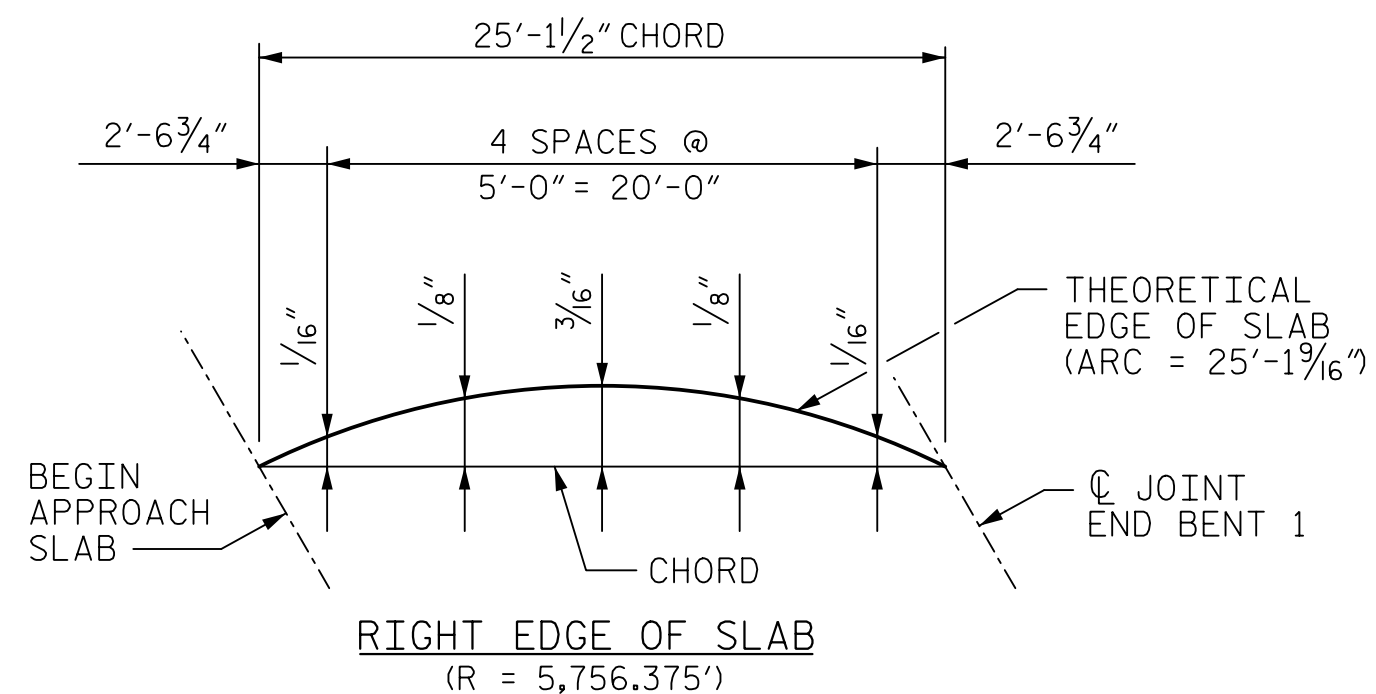
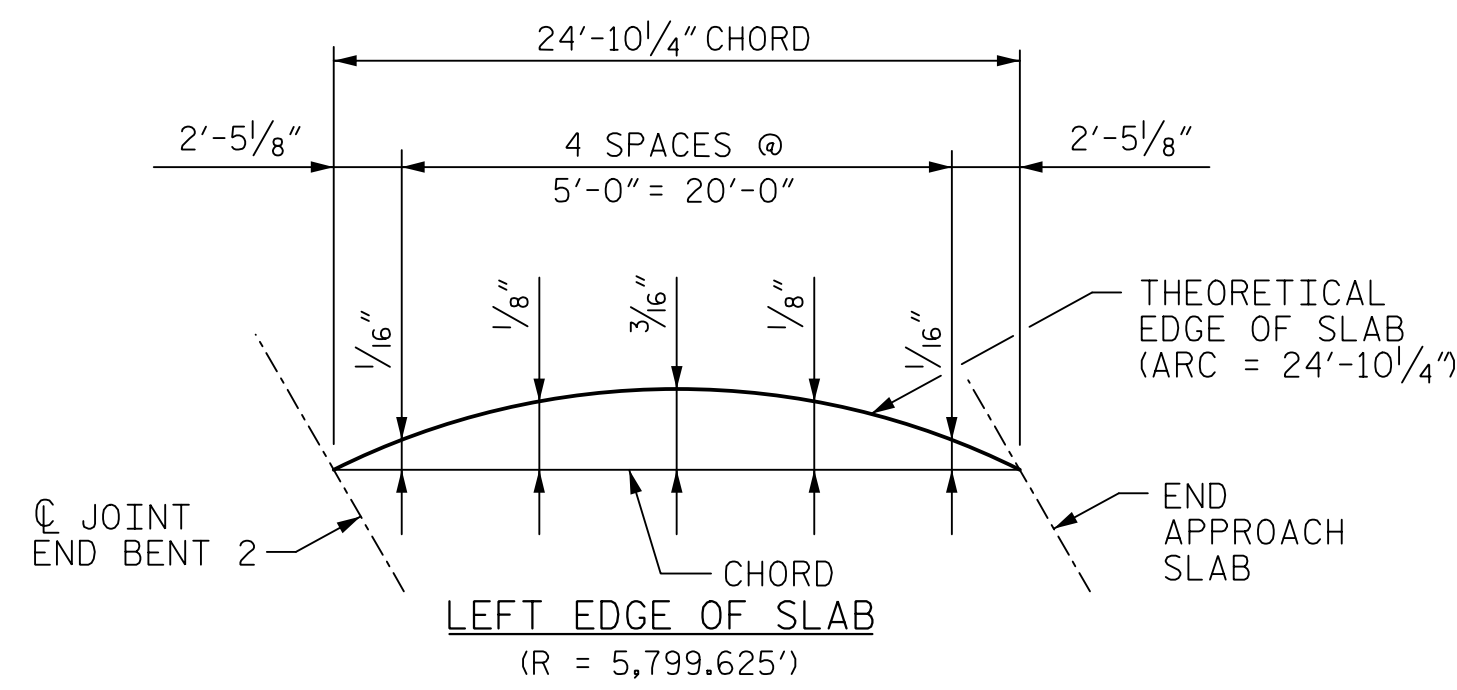
PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT
 LEFT LANE

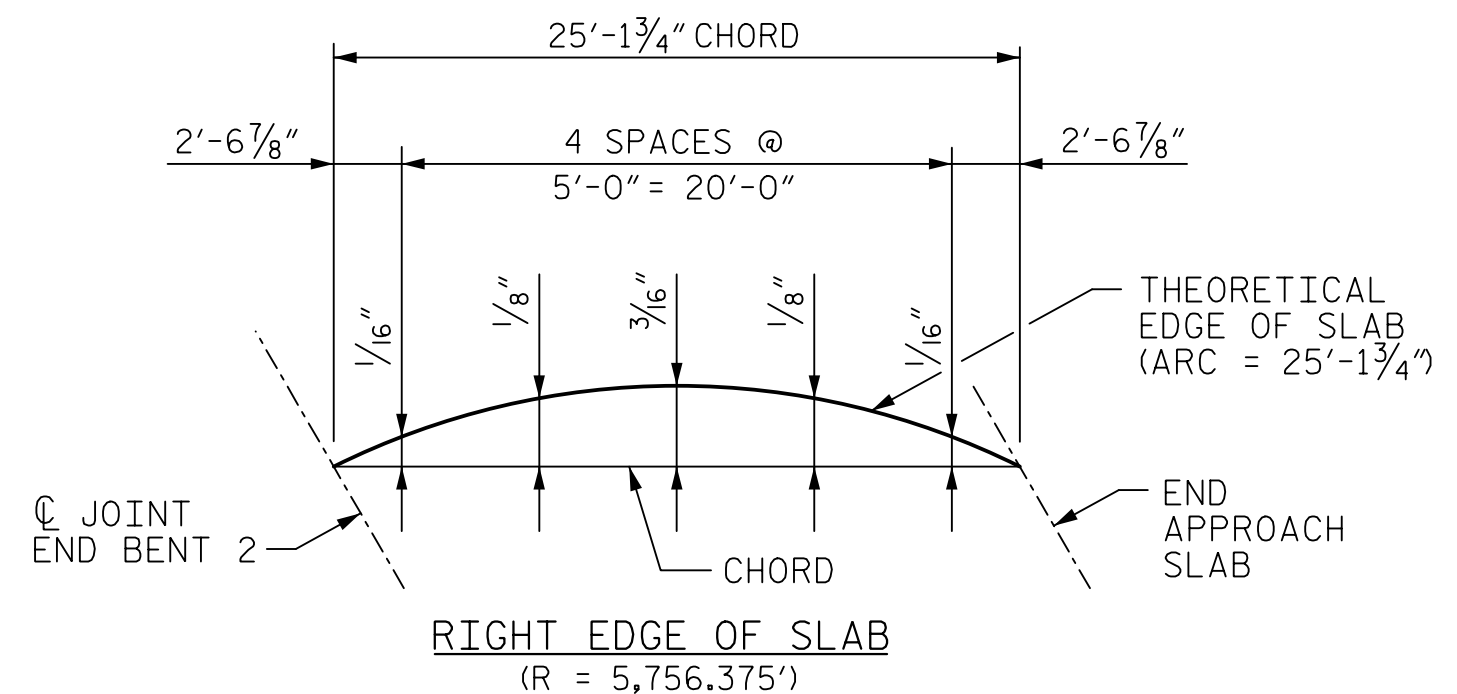
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	DATE	S03-45
1			3		TOTAL SHEETS
2			4		46



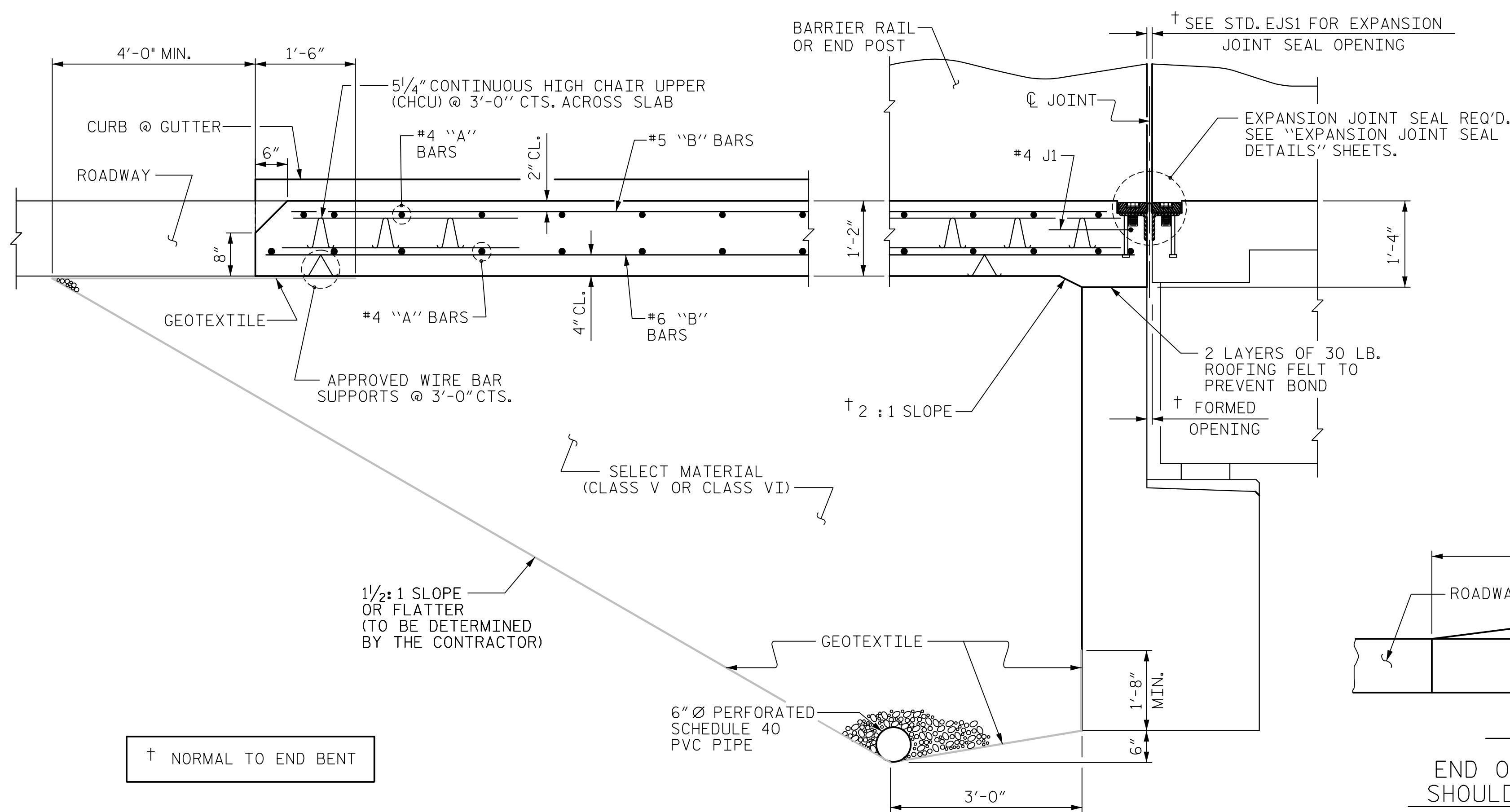
FOR PLAN VIEW OF APPROACH SLABS AT END BENT 1 AND END BENT 2, SEE SHEET 1 OF 3.



CURVE OFFSETS - APPROACH SLAB AT END BENT 1

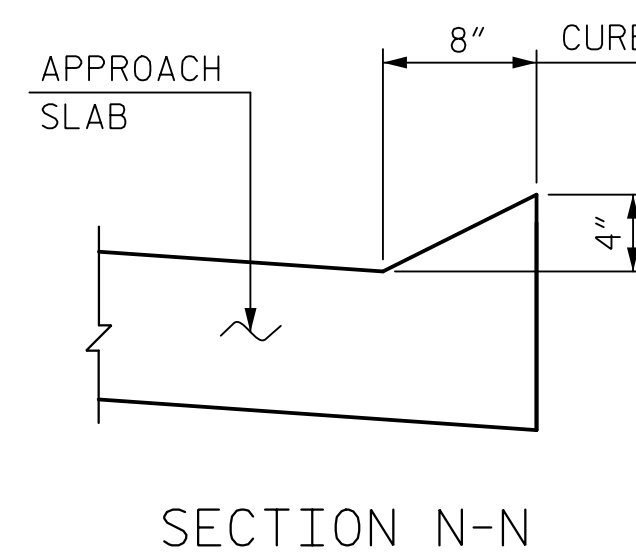


CURVE OFFSETS - APPROACH SLAB AT END BENT 2

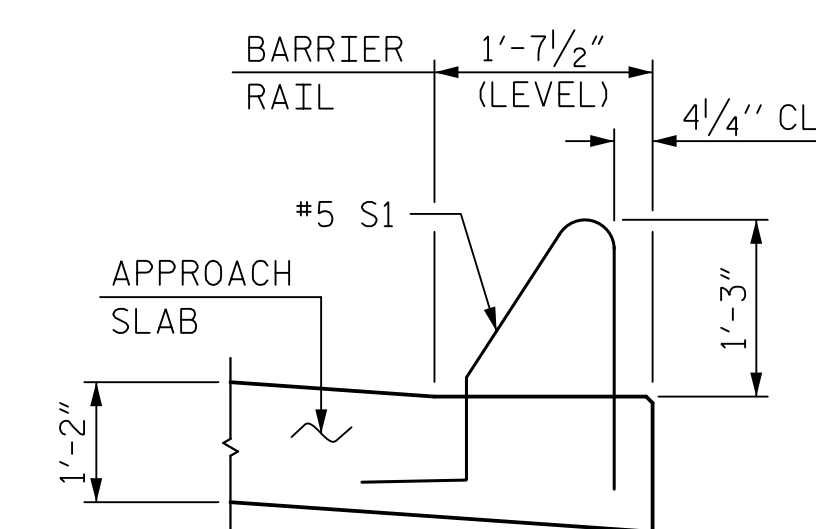


SECTION THRU SLAB

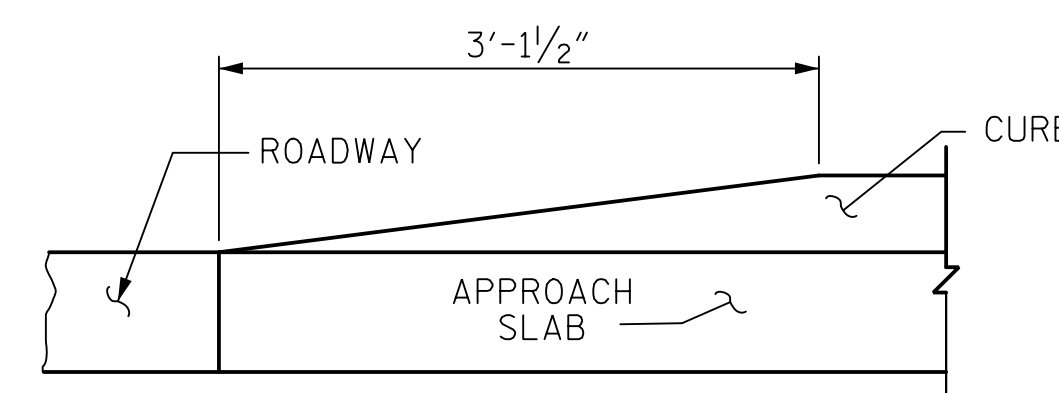
(TYPE I - STANDARD APPROACH FILL)



SECTION N-N



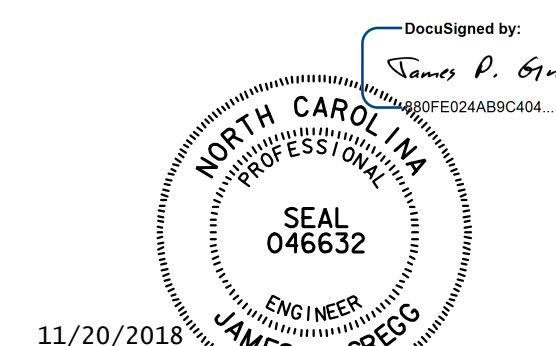
SECTION K-K



ELEVATION

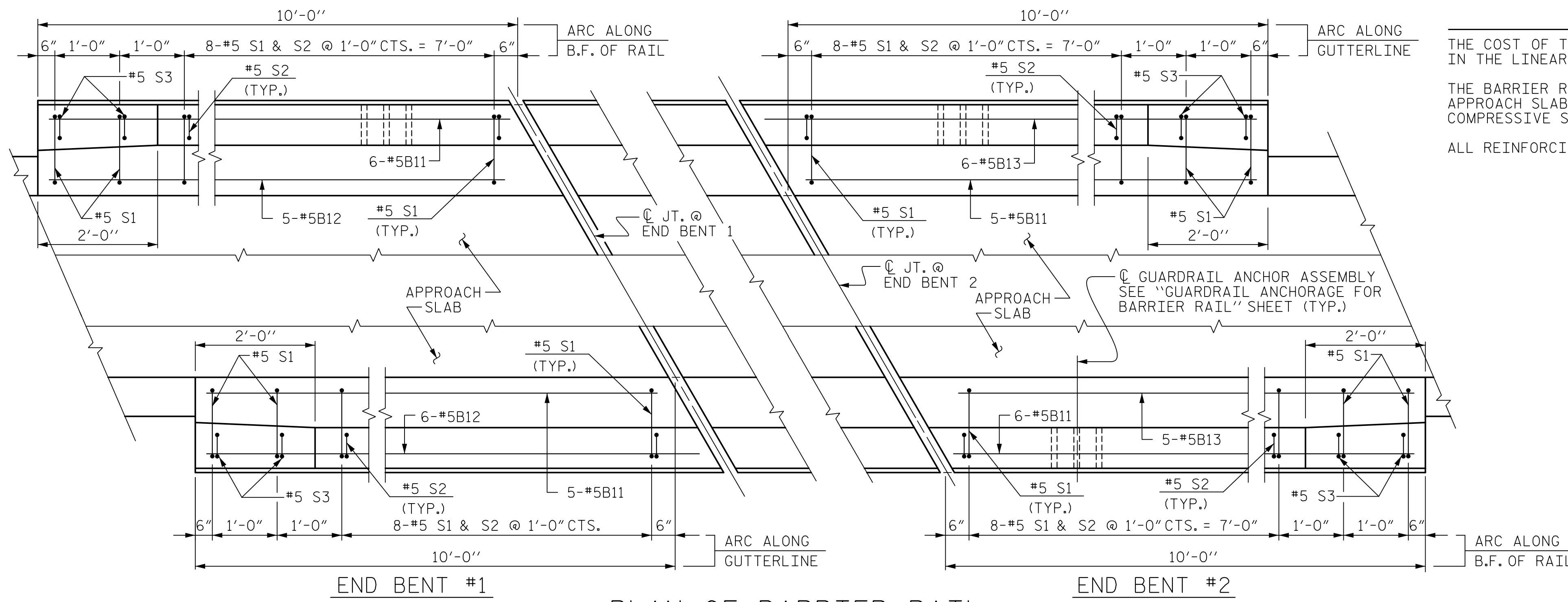
END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS



ASSEMBLED BY : A. SMITH	DATE : 7/18
CHECKED BY : Z. GUO	DATE : 10/18
DRAWN BY : EEM 3/95	REV. 12/21/11 MAA/GM
CHECKED BY : VAP 3/95	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

HNTB HNTB NORTH CAROLINA, P.C.			
NC License No. C-1554			
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609			
DRAWN BY : A. SMITH	DATE : 7/18	DWG. NO. 45	
CHECKED BY : Z. GUO	DATE : 10/18		
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 10/18		



PLAN OF BARRIER RAIL

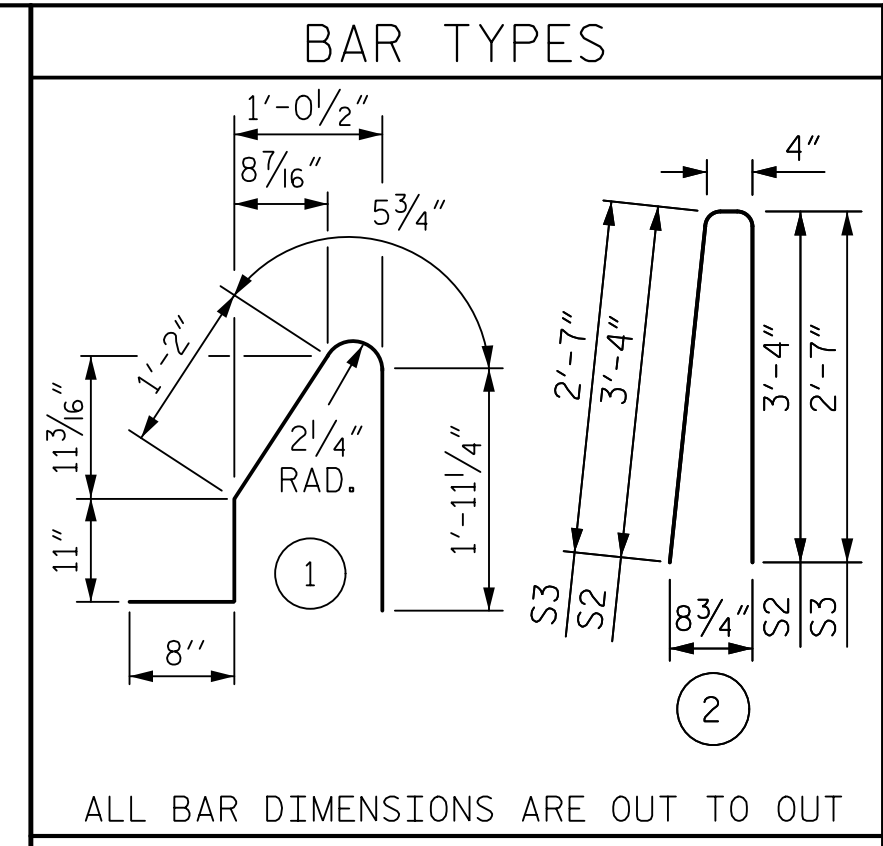
B.F. - DENOTES BACK FACE

NOTES

THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "CONCRETE BARRIER RAIL".

THE BARRIER RAIL ON EACH APPROACH SLAB SHALL NOT BE CAST UNTIL ALL APPROACH SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

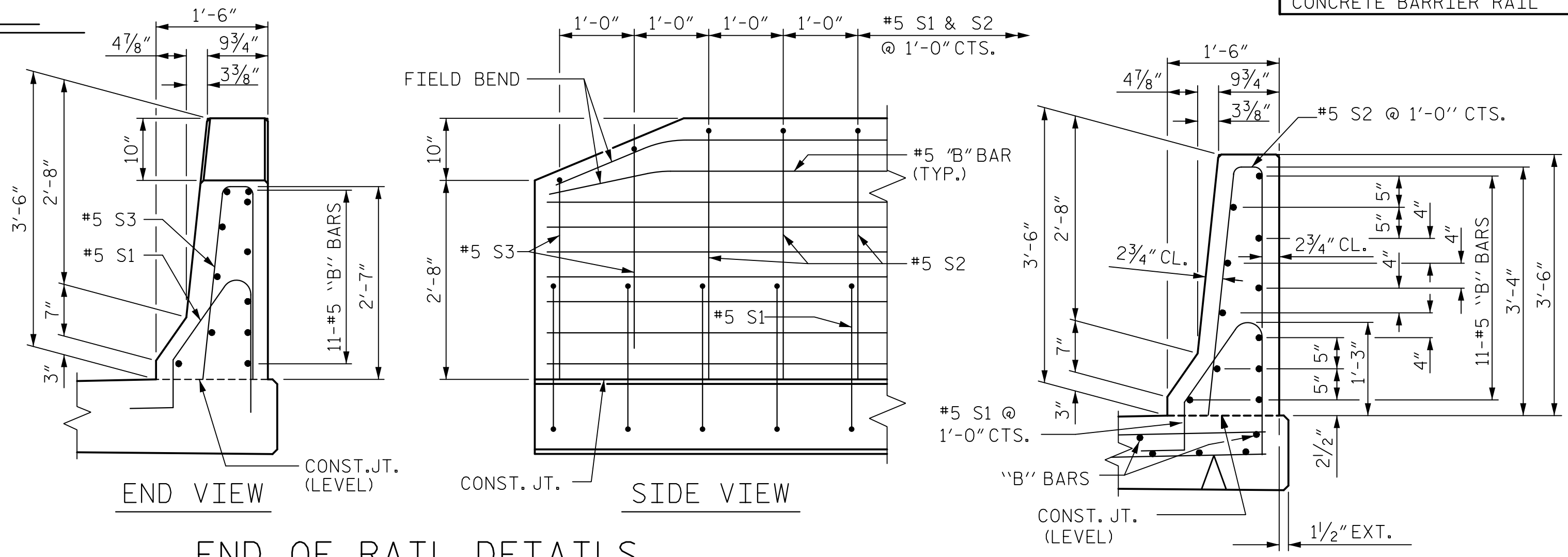
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.



BILL OF MATERIAL

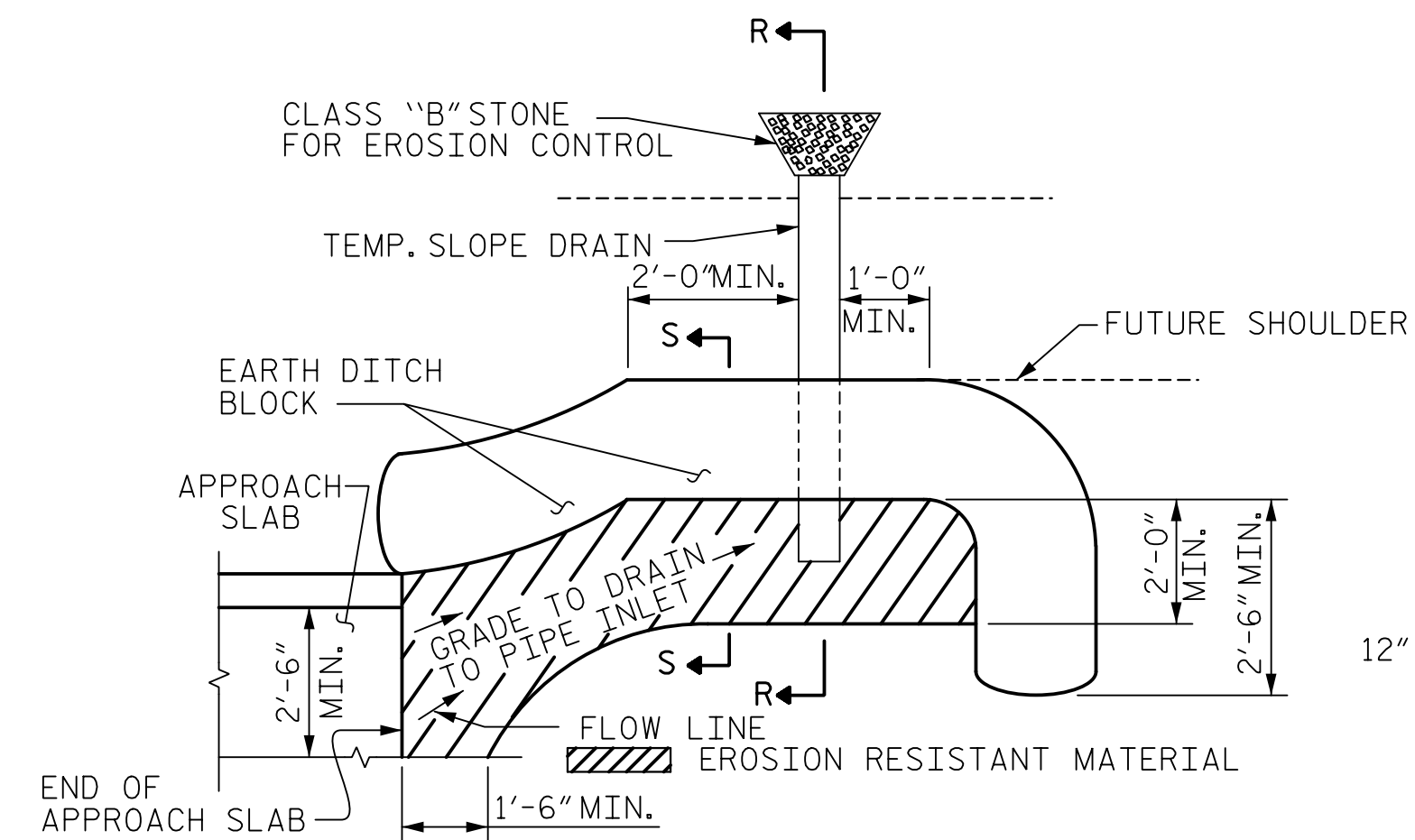
BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B11	22	#5	STR	9'-8"	222
* B12	11	#5	STR	11'-1"	127
* B13	11	#5	STR	11'-3"	129
* S1	40	#5	1	5'-2"	216
* S2	32	#5	2	7'-0"	234
* S3	8	#5	2	5'-6"	46

* EPOXY COATED REINFORCING STEEL	LBS.	974
CLASS AA CONCRETE	C. Y.	5.7
CONCRETE BARRIER RAIL	43.9 LIN. FT.	

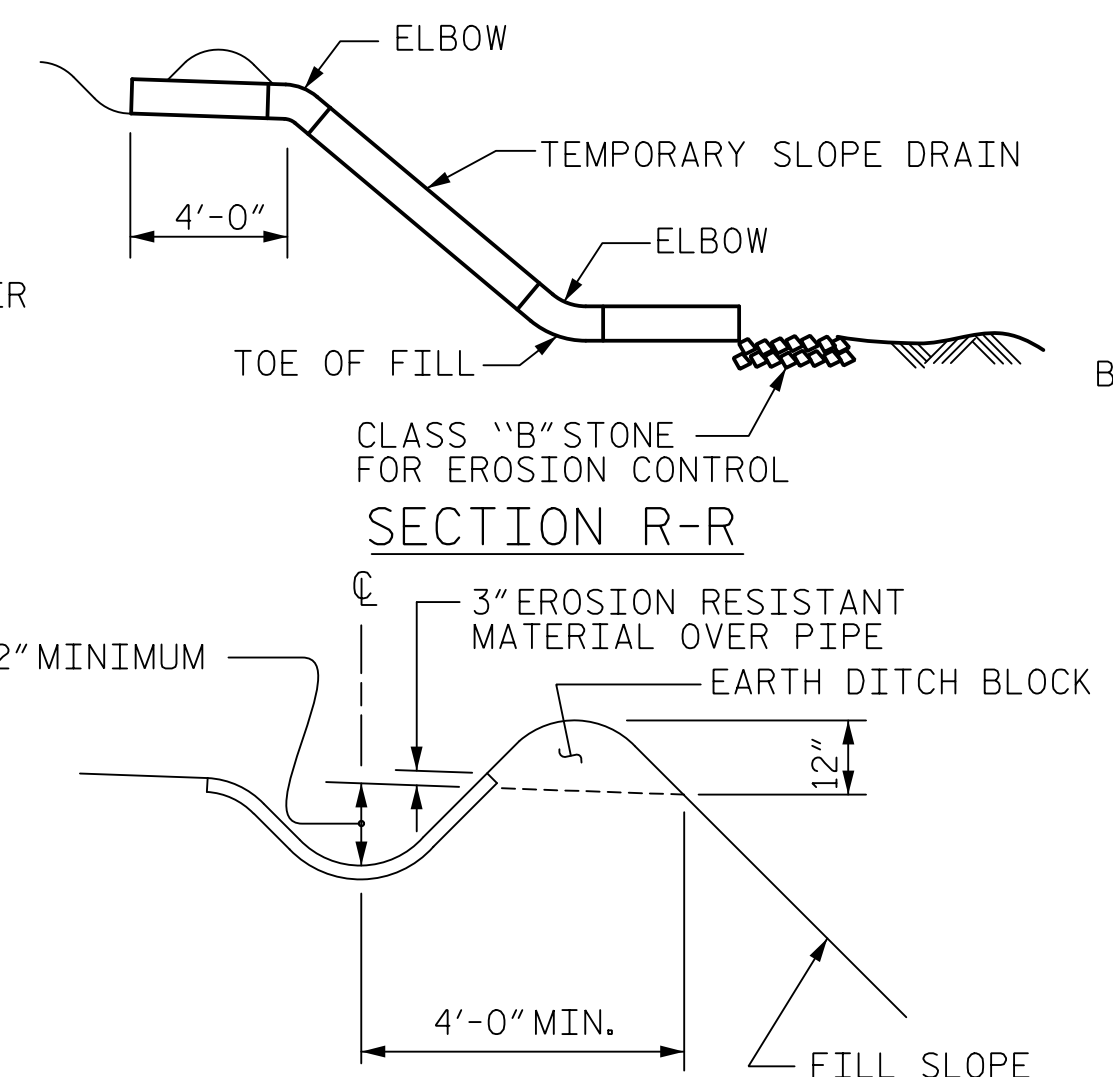


END OF RAIL DETAILS

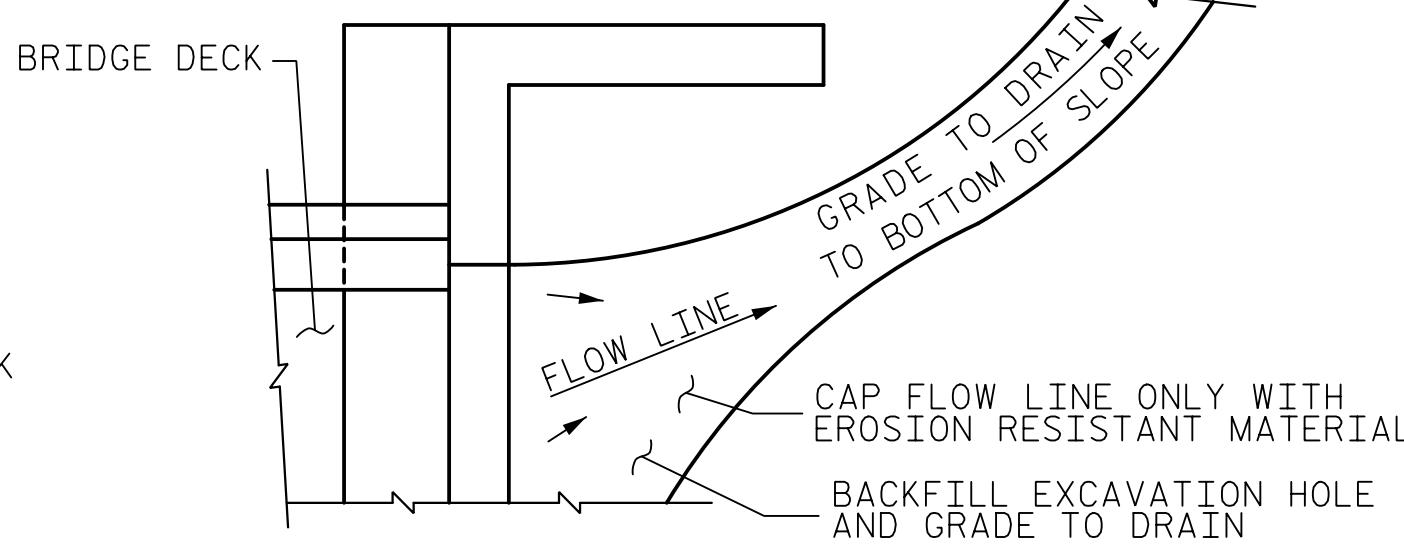
SECTION THRU RAIL



PLAN VIEW



SECTION S-S



TEMPORARY DRAINAGE DETAIL

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 BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 BRIDGE APPROACH
 SLAB DETAILS

LEFT LANE

ASSEMBLED BY : A. SMITH	DATE : 7/18
CHECKED BY : Z. GUO	DATE : 10/18
DRAWN BY : FCJ 11/88	REV. 10/11/11 MAA/GM
CHECKED BY : ARB 11/88	REV. 7/12 MAA/GM
	REV. 6/13 MAA/GM

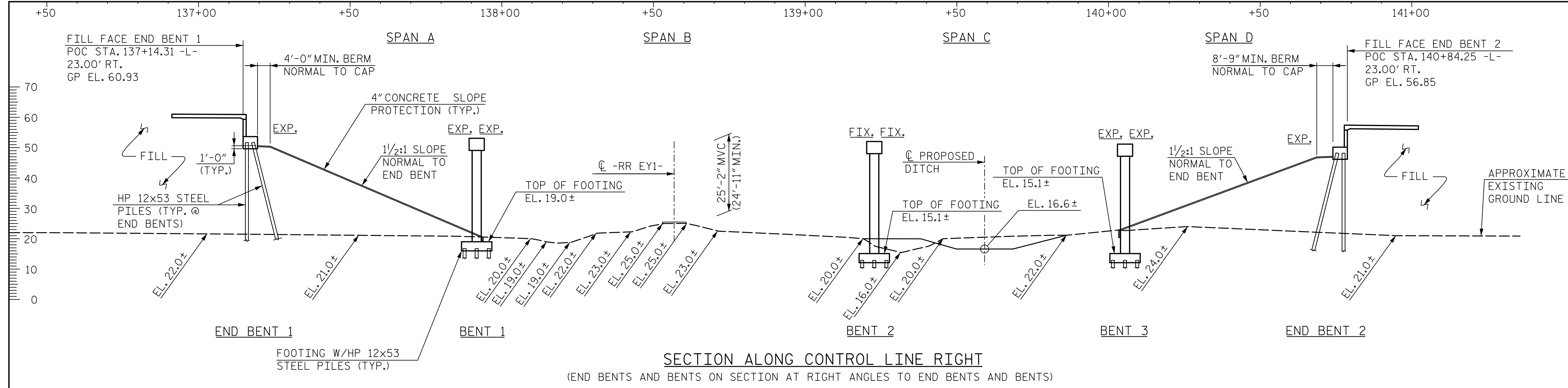
HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DocuSigned by:
 James P. Gregg
 046632
 ENGINEER
 JAMES P. GREGG
 11/20/2018

DRAWN BY : A. SMITH DATE : 7/18
 CHECKED BY : Z. GUO DATE : 10/18
 DESIGN ENGINEER OF RECORD : J. GREGG DATE : 10/18

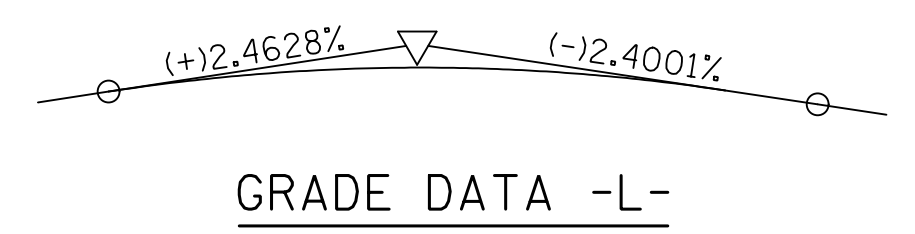
DWG. NO. 46

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S03-46
1			3			TOTAL SHEETS
2			4			46



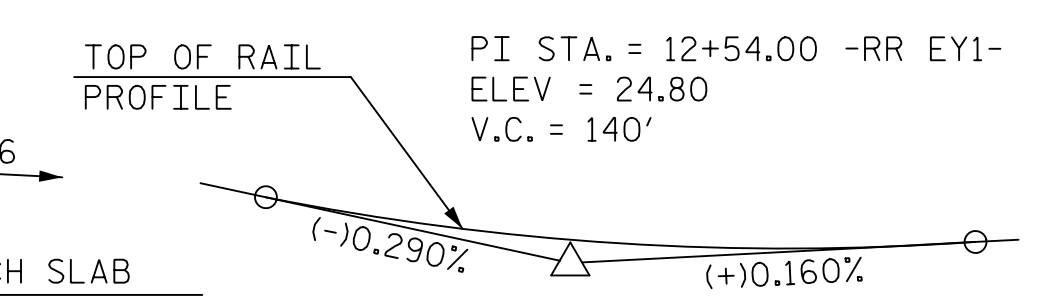
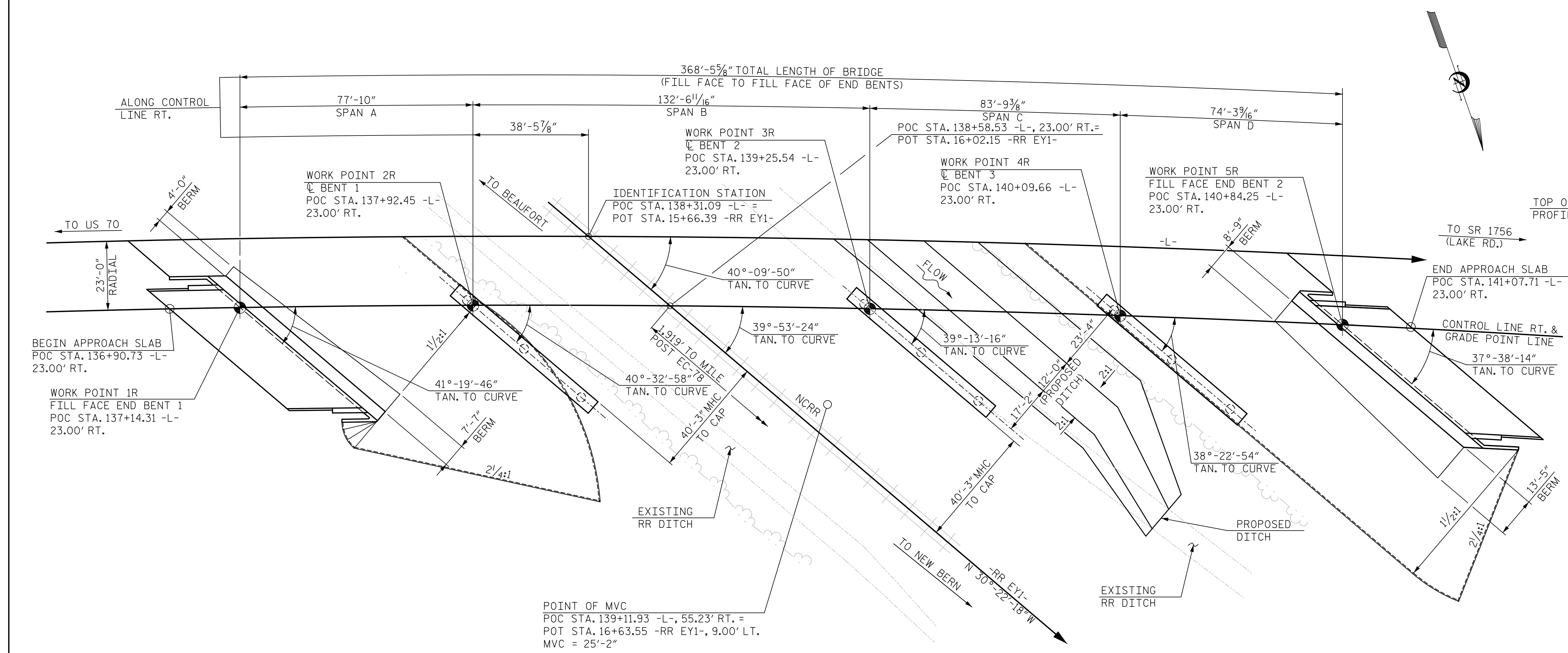
NOTES:
 FOR GENERAL NOTES, SEE SHEET 4 OF 4.
 MVC = MIN. VERTICAL CLEARANCE
 MHC = MIN. HORIZONTAL CLEARANCE

PI STA. = 134+19.00 -L-
 ELEV = 74.39
 V.C. = 2,060'



CURVE DATA -L-

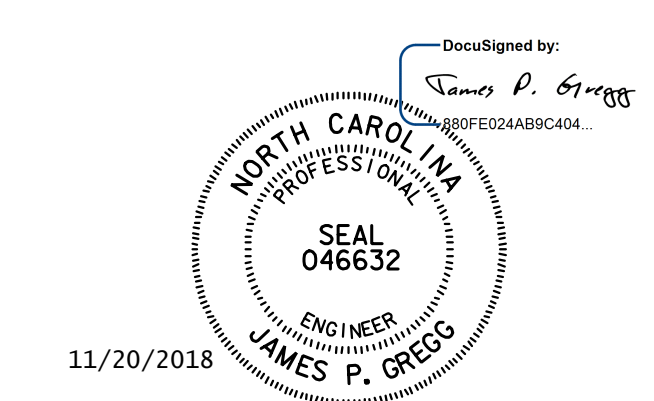
PI STA. = 137+14.92
$\Delta = 13^\circ 30' 48''$ (RT)
D = 0°59'53"
L = 1,354.03'
T = 680.17'
R = 5,741.00'
SE = 0.04



NOTE: TOP OF RAIL PROFILE WAS APPROXIMATED FROM AVAILABLE SURVEY INFORMATION

PLAN
 NOTES: PILES NOT SHOWN FOR CLARITY.
 ALL END BENTS AND BENTS ARE PARALLEL.

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-
= POT STA 15+66.39 -RR EY1-
 BRIDGE NO. 275
 SHEET 1 OF 4 NCRR MILE POST EC-78.36



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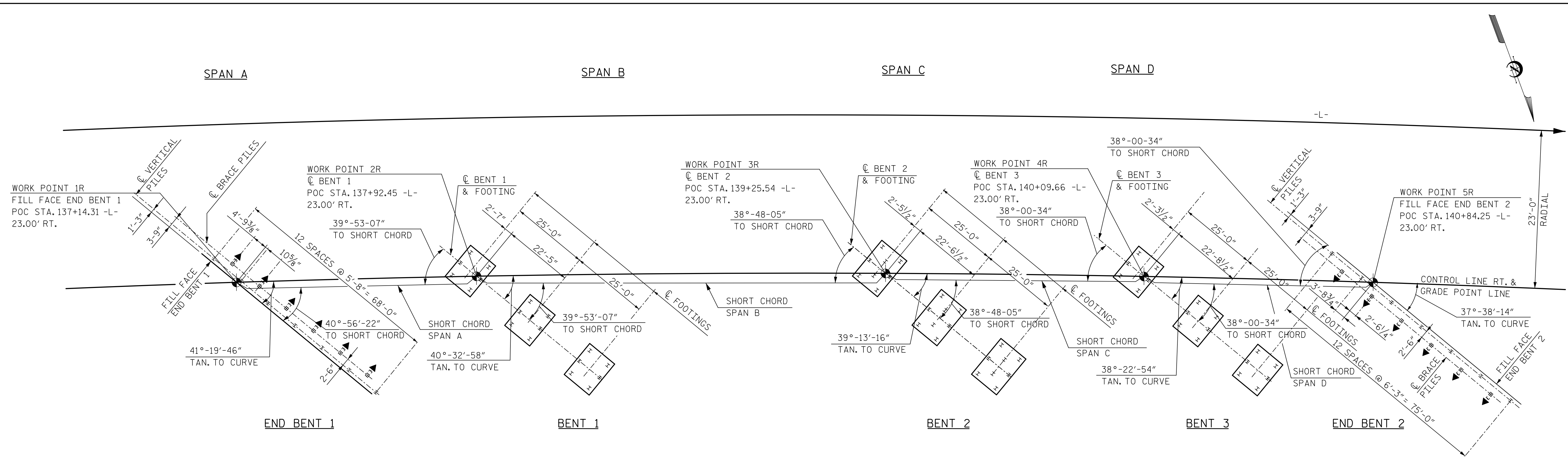
DRAWN BY	M. WRIGHT	DATE	3/18
CHECKED BY	B. NEUPANE	DATE	9/18
DESIGN ENGINEER OF RECORD	J. GREGG	DATE	10/18

DWG. NO. 1

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

SHEET NO. S04-1
 TOTAL SHEETS 46

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 110 TONS PER PILE. DRIVE PILES AT END BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.

PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 105 TONS PER PILE. DRIVE PILES AT END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 140 TONS PER PILE.

PILES AT BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 125 TONS PER PILE. DRIVE PILES AT BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 170 TONS PER PILE.

PILES AT BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 115 TONS PER PILE. DRIVE PILES AT BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 155 TONS PER PILE.

PILES AT BENT NO. 3 ARE DESIGNED FOR A FACTORED RESISTANCE OF 105 TONS PER PILE. DRIVE PILES AT BENT NO. 3 TO A REQUIRED DRIVING RESISTANCE OF 140 TONS PER PILE.

TESTING THE FIRST PRODUCTION PILE PER STRUCTURE WITH THE PDA DURING DRIVING, RESTRIKING, OR REDRIVING IS REQUIRED AT THE FIRST END BENT AND THE FIRST INTERIOR BENT LOCATIONS. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

NOTE THAT AT BENTS 1 - 3 THE BOTTOM OF FOOTINGS ARE BELOW THE GROUNDWATER TABLE AND DEWATERING IS ANTICIPATED.

NOTES:

ALL DIMENSIONS ARE PARALLEL OR NORMAL TO BENT CONTROL LINES AND FILL FACES.

◀◀ INDICATES PILE BATTER IN DIRECTION SHOWN.

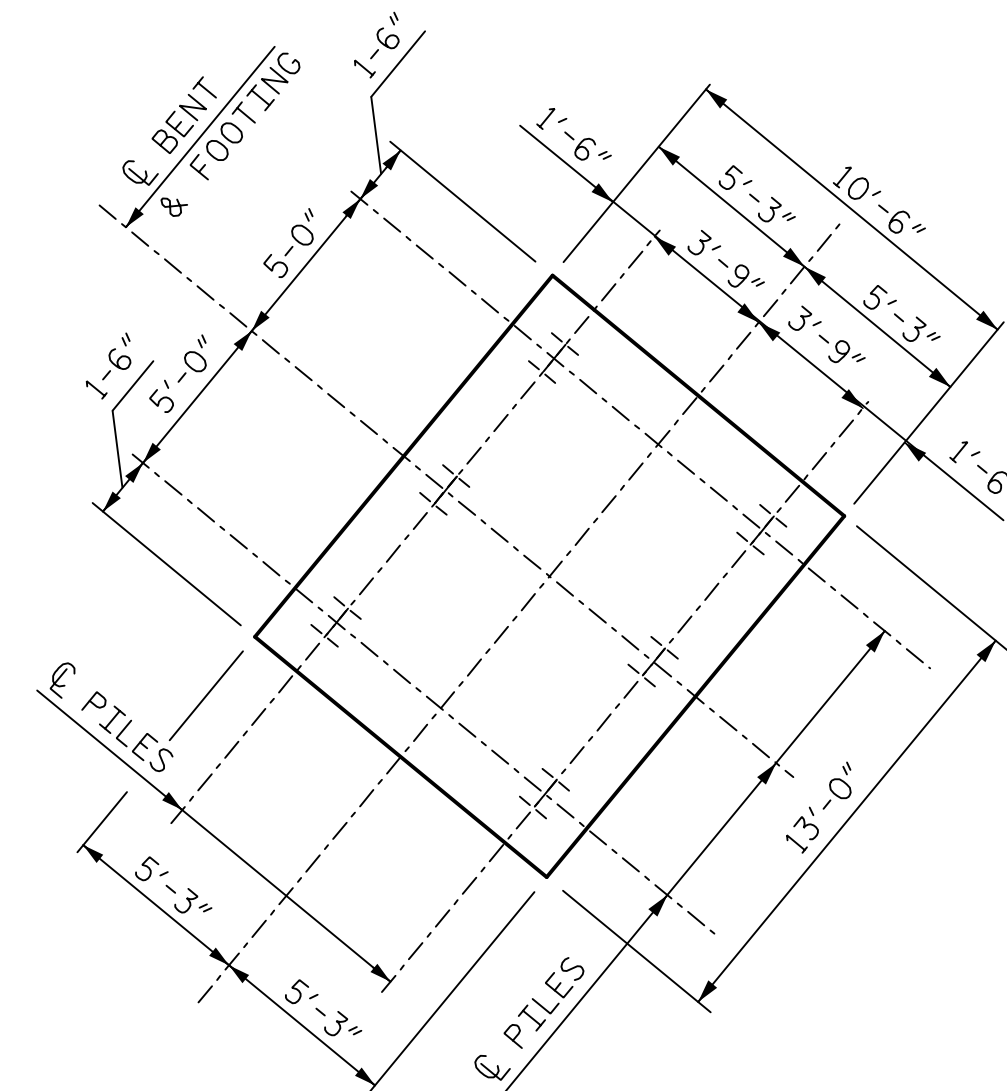
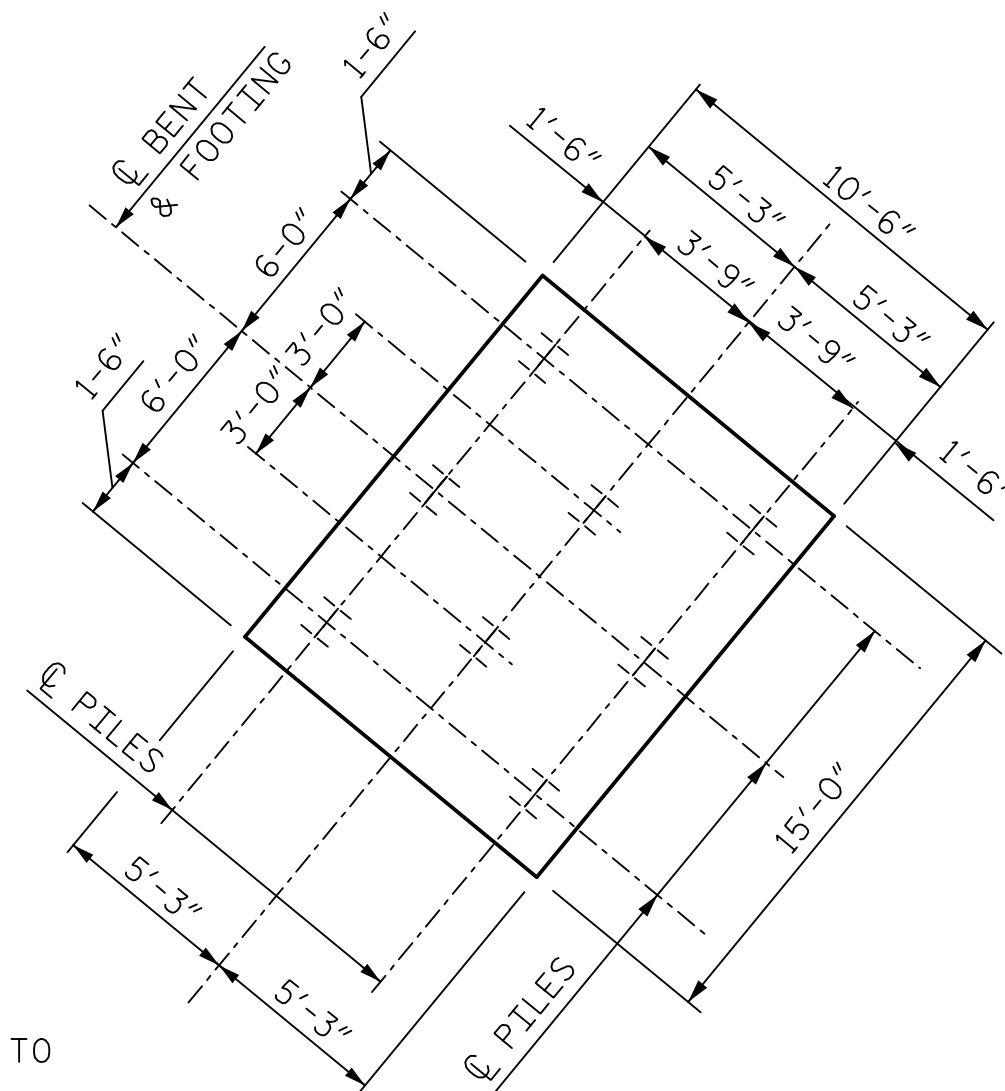
BRACE PILES AT END BENTS ARE TO BE BATTERED AT 3:12.

ALL PILES AT END BENT 1 AND END BENT 2 ARE HP 12x53 STEEL PILES.

ALL PILES AT BENT 1, 2, AND 3 ARE HP 12x53 STEEL PILES.

FOR FOUNDATION ELEVATIONS AND DETAILS, SEE BENT AND END BENT SHEETS.

ALL PILE DIMENSIONS ARE TO CENTERS OF PILES AT BOTTOM OF END BENTS.



PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 4

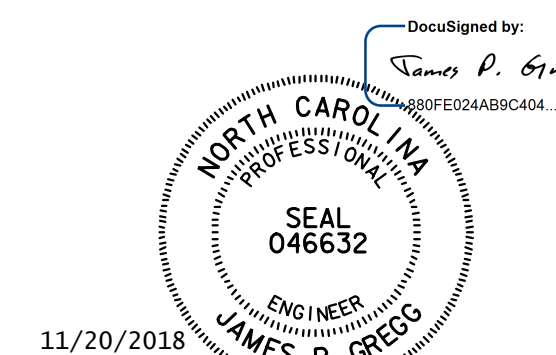
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWINGS

FOUNDATION LAYOUT

RIGHT LANE

REVISIONS						SHEET NO. S04-2
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 46
2			4			

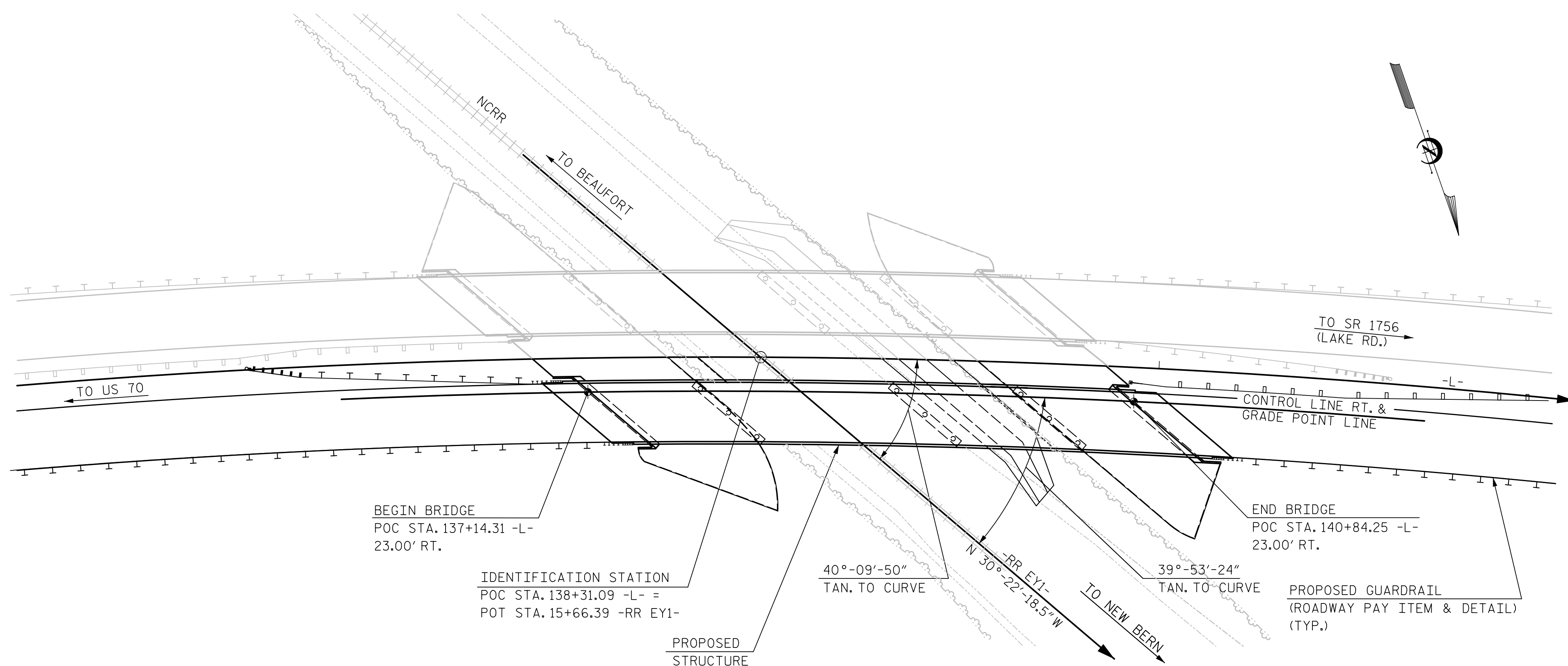


HNTB	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: A. SMITH	DATE: 7/18
CHECKED BY: B. NEUPANE	DATE: 9/18
DESIGN ENGINEER OF RECORD: J. GREGG	DATE: 10/18

DWG. NO. 2

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

BM - 'BM7"-L- STA 140+63.43, 191.75' LT., RR SPIKE IN TREE, EL 22.75



LOCATION SKETCH

NOTE: FOR UTILITY INFORMATION, SEE UTILITY PLAN AND SPECIAL PROVISIONS.

GENERAL NOTES

- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- 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 MODIFIED 74" PRESTRESSED CONCRETE GIRDERS, SEE SPECIAL PROVISIONS.
- NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
- THE RAILROAD TRACK TOP OF RAIL ELEVATIONS SHOWN ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE TOP OF RAIL ELEVATIONS AND REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

TOTAL BILL OF MATERIAL

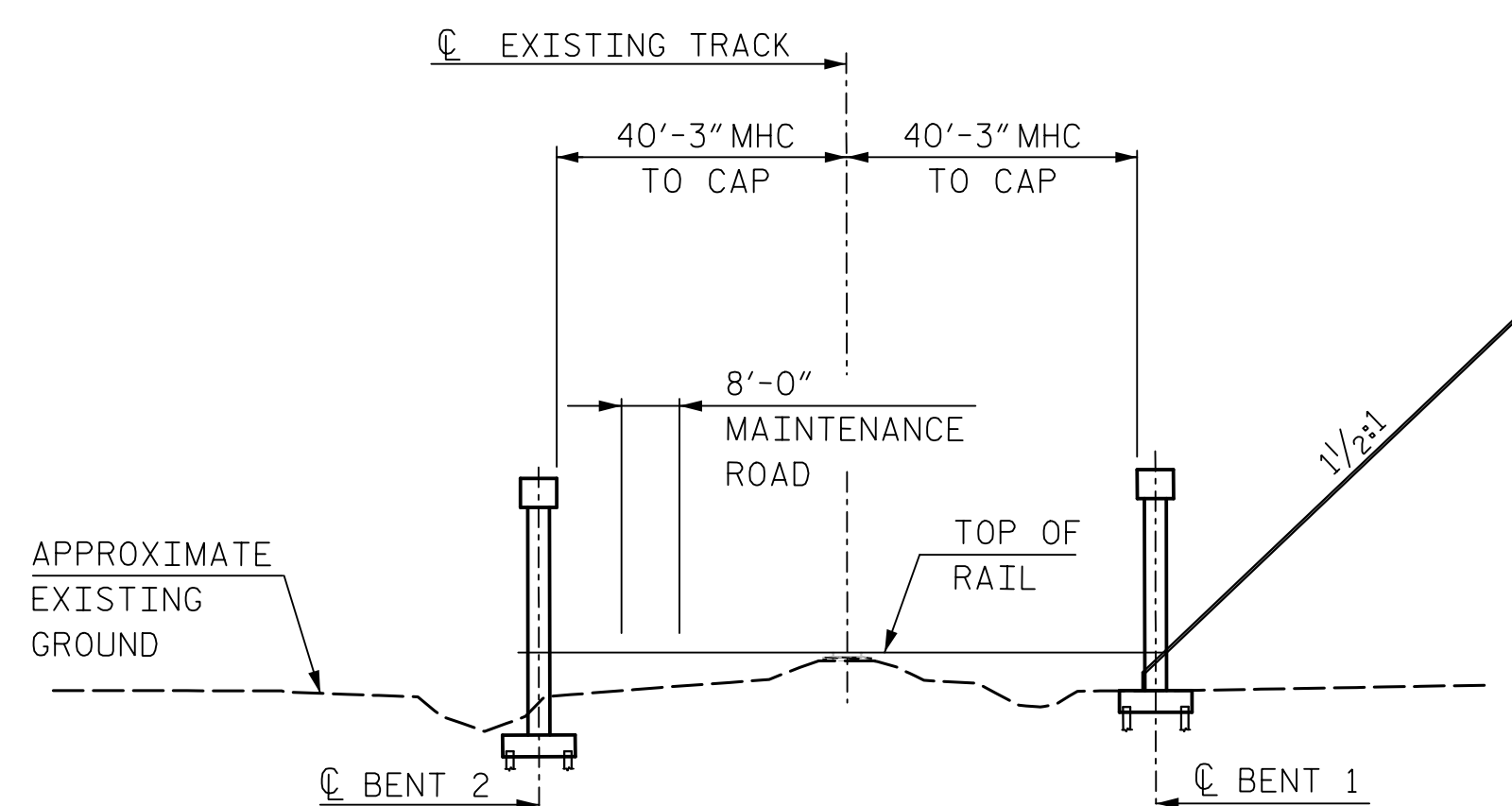
	FOUNDATION EXCAVATION FOR BENT AT STATION 138+31.09 -L- (RIGHT LANE)	PDA TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLAB AT STATION 138+31.09 -L- (RIGHT LANE)	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL
	LUMP SUM	EA.	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.
SUPERSTRUCTURE	---	---	15,842	15,292	---	LUMP SUM	---	---
END BENT 1	---	---	---	---	84.7	---	11,596	---
BENT 1	LUMP SUM	---	---	---	148.2	---	29,463	2,736
BENT 2	LUMP SUM	---	---	---	162.0	---	29,723	2,962
BENT 3	LUMP SUM	---	---	---	150.9	---	28,994	2,860
END BENT 2	---	---	---	---	90.7	---	12,131	---
TOTAL	LUMP SUM	2	15,842	15,292	636.5	LUMP SUM	111,907	8,558

TOTAL BILL OF MATERIAL

	MODIFIED 74" PRESTRESSED CONCRETE GIRDERS	PILE DRIVING EQUIPMENT SETUP FOR HP 12X53 STEEL PILES	HP 12X53 STEEL PILES	PILE REDRIVES	CONCRETE BARRIER RAIL	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS		
	NO.	L.F.	EA.	NO.	L.F.	EA.	L.F.	SQ. YD.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	16	1429.79	---	---	---	---	---	777.0	LUMP SUM	LUMP SUM
END BENT 1	---	---	13	13	1,365	6	---	1,342.4	---	---
BENT 1	---	---	18	18	1,350	9	---	---	---	---
BENT 2	---	---	24	24	1,680	12	---	---	---	---
BENT 3	---	---	18	18	1,170	9	---	---	---	---
END BENT 2	---	---	13	13	1,300	6	---	1,402.5	---	---
TOTAL	16	1429.79	86	86	6,865	42	---	2,744.9	LUMP SUM	LUMP SUM

SAMPLE BAR REPLACEMENT	
SIZE	LENGTH
#3	6'-2"
#4	7'-4"
#5	8'-6"
#6	9'-8"
#7	10'-10"
#8	12'-0"
#9	13'-2"
#10	14'-6"
#11	15'-10"

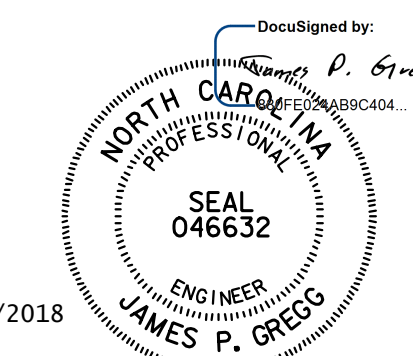
NOTE: SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND F_y = 60KSI.



SECTION THRU RAILROAD

(LOOKING IN DIRECTION OF INCREASING STATIONS ON RAILROAD) (SPAN LENGTHS BASED ON THIS SECTION)

MHC = MINIMUM HORIZONTAL CLEARANCE



PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 LOCATION SKETCH, GENERAL
 NOTES, AND TOTAL BILL OF
 MATERIALS
 RIGHT LANE

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: A. SMITH DATE: 7/18
 CHECKED BY: B. NEUPANE DATE: 9/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

REVISIONS						TOTAL SHEETS
NO.	BY	DATE	NO.	BY	DATE	46
1			3			
2			4			

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

DWG. NO. 4

LOAD FACTORS:

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

LOAD AND RESISTANCE FACTOR RATING (LRFR) 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								
						LIVE-LOAD FACTORS (γ_{LL})	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)	LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.11	--	1.75	0.84	1.41	C	EL	40.7	1.27	1.18	B	I	25.6	0.80	0.84	1.11	B	EL	65.1	1	
	HL-93 (OPERATING)	N/A		1.57	--	1.35	0.84	1.82	C	EL	40.7	1.27	1.57	B	I	25.6	N/A	--	--	--	--	--	1	
	HS-20 (INVENTORY)	36.000	②	1.56	56.2	1.75	0.84	1.89	C	EL	40.7	1.27	1.72	B	I	25.6	0.80	0.79	1.56	C	I	40.7	1	
	HS-20 (OPERATING)	36.000		2.28	82.1	1.35	0.84	2.45	C	EL	40.7	1.27	2.28	B	I	25.6	N/A	--	--	--	--	--	1	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.61	48.7	1.40	0.84	5.47	C	EL	40.7	1.27	5.45	A	I	14.0	0.80	0.79	3.61	C	I	40.7	1
		SNGARBS2	20.000		2.65	53.0	1.40	0.84	4.02	C	EL	40.7	1.27	3.87	A	I	14.0	0.80	0.79	2.65	C	I	40.7	1
		SNAGRIS2	22.000		2.49	54.8	1.40	0.84	3.78	C	EL	40.7	1.27	3.59	A	I	14.0	0.80	0.79	2.49	C	I	40.7	1
		SNCOTTS3	27.250		1.79	48.8	1.40	0.84	2.72	C	EL	40.7	1.27	2.81	A,B	I	VARIES	0.80	0.79	1.79	C	I	40.7	1,2
		SNAGGRS4	34.925		1.48	51.7	1.40	0.84	2.25	C	EL	40.7	1.27	2.15	B	I	25.6	0.80	0.79	1.48	C	I	40.7	1
		SNS5A	35.550		1.45	51.5	1.40	0.84	2.20	C	EL	40.7	1.27	2.06	B	I	25.6	0.80	0.79	1.45	C	I	40.7	1
		SNS6A	39.950		1.33	53.1	1.40	0.84	2.01	C	EL	40.7	1.27	1.84	B	I	25.6	0.80	0.79	1.33	C	I	40.7	1
		SNS7B	42.000		1.26	52.9	1.40	0.84	1.91	C	EL	40.7	1.27	1.78	B	I	25.6	0.80	0.79	1.26	C	I	40.7	1
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.62	53.5	1.40	0.84	2.45	C	EL	40.7	1.27	2.32	B	I	25.6	0.80	0.79	1.62	C	I	40.7	1
		TNT4A	33.075		1.62	53.6	1.40	0.84	2.46	C	EL	40.7	1.27	2.28	B	I	25.6	0.80	0.79	1.62	C	I	40.7	1
		TNT6A	41.600		1.32	54.9	1.40	0.84	2.00	C	EL	40.7	1.27	1.87	B	I	25.6	0.80	0.79	1.32	C	I	40.7	1
		TNT7A	42.000		1.32	55.4	1.40	0.84	2.01	C	EL	40.7	1.27	1.84	B	I	25.6	0.80	0.79	1.32	C	I	40.7	1
		TNT7B	42.000		1.36	57.1	1.40	0.84	2.06	C	EL	40.7	1.27	1.76	B	I	25.6	0.80	0.79	1.36	C	I	40.7	1
		TNAGRIT4	43.000		1.30	55.9	1.40	0.84	1.97	C	EL	40.7	1.27	1.77	B	I	25.6	0.80	0.79	1.30	C	I	40.7	1
		TNAGT5A	45.000		1.23	55.4	1.40	0.84	1.86	C	EL	40.7	1.27	1.65	B	I	25.6	0.80	0.79	1.23	C	I	40.7	1
TNAGT5B	45.000	③	1.22	54.9	1.40	0.84	1.84	C	EL	40.7	1.27	1.60	B	I	25.6	0.80	0.79	1.22	C	I	40.7	1		

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. CONTROLLING SHEAR OCCURS AT PROVIDED DISTANCE FROM EITHER END.
2. SPAN A L=14.0, SPAN B L=25.6
- 3.
- 4.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

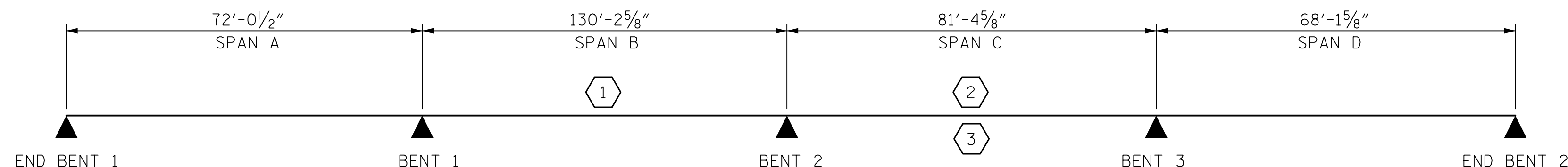
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

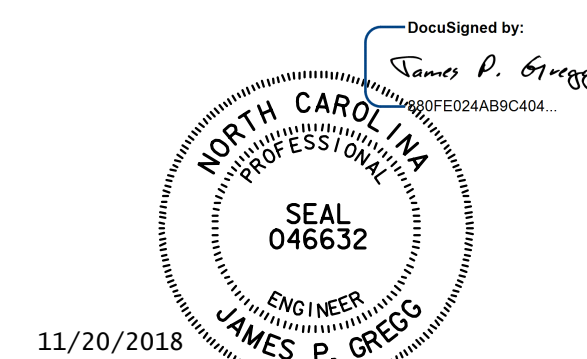
I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

NOTE: SPAN LENGTHS SHOWN ARE BEARING TO BEARING LENGTHS.

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

ASSEMBLED BY : A. SMITH	DATE : 7/18
CHECKED BY : E. JOWZA	DATE : 9/18
DRAWN BY : MAA	REV. 11/12/08RR
CHECKED BY : GM/DI	REV. 10/1/11
	REV. 12/17

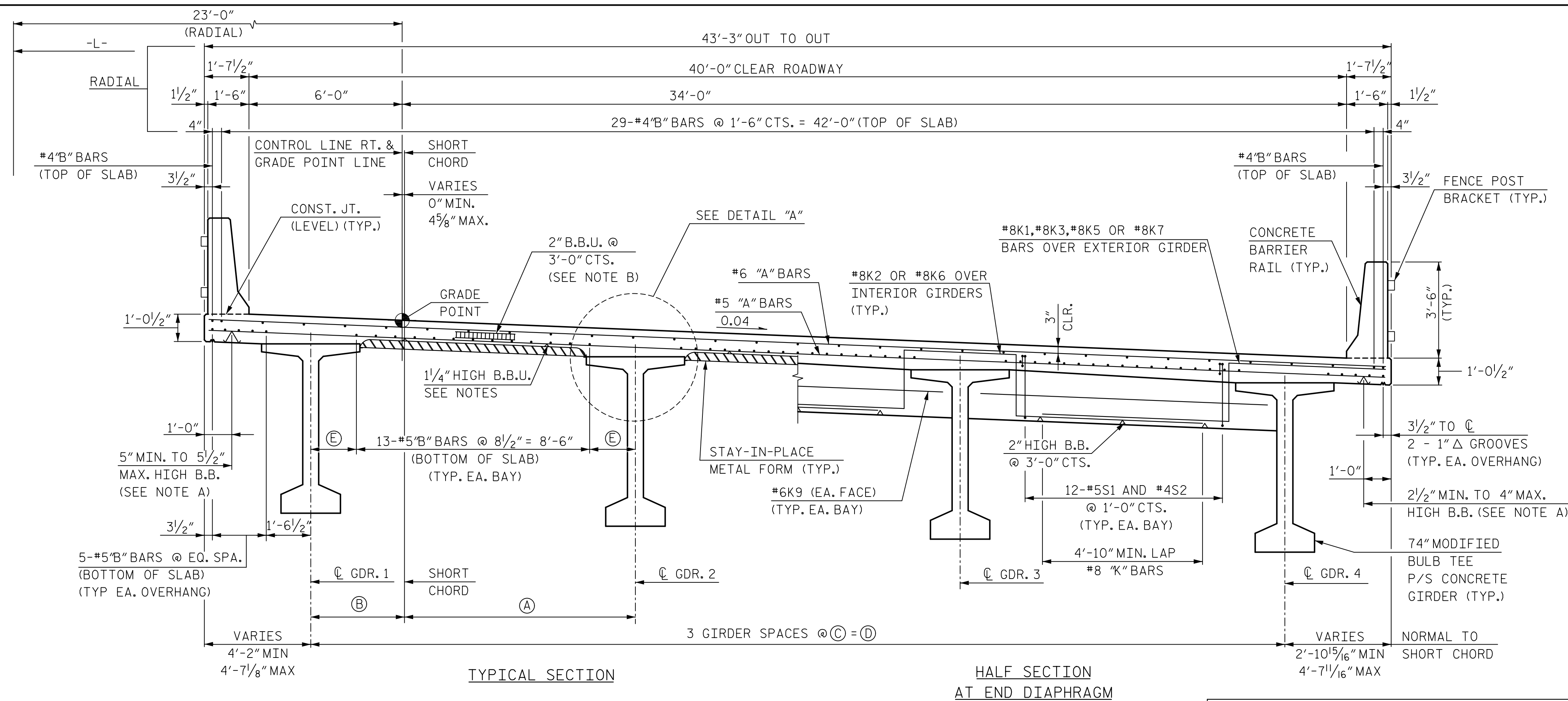
HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY : A. SMITH DATE : 7/18
 CHECKED BY : E. JOWZA DATE : 9/18
 DESIGN ENGINEER OF RECORD : J. GREGG DATE : 10/18

DWG. NO. 5

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S04-5
1			3			TOTAL SHEETS
2			4			46

**DOCUMENT NOT CONSIDERED FINAL
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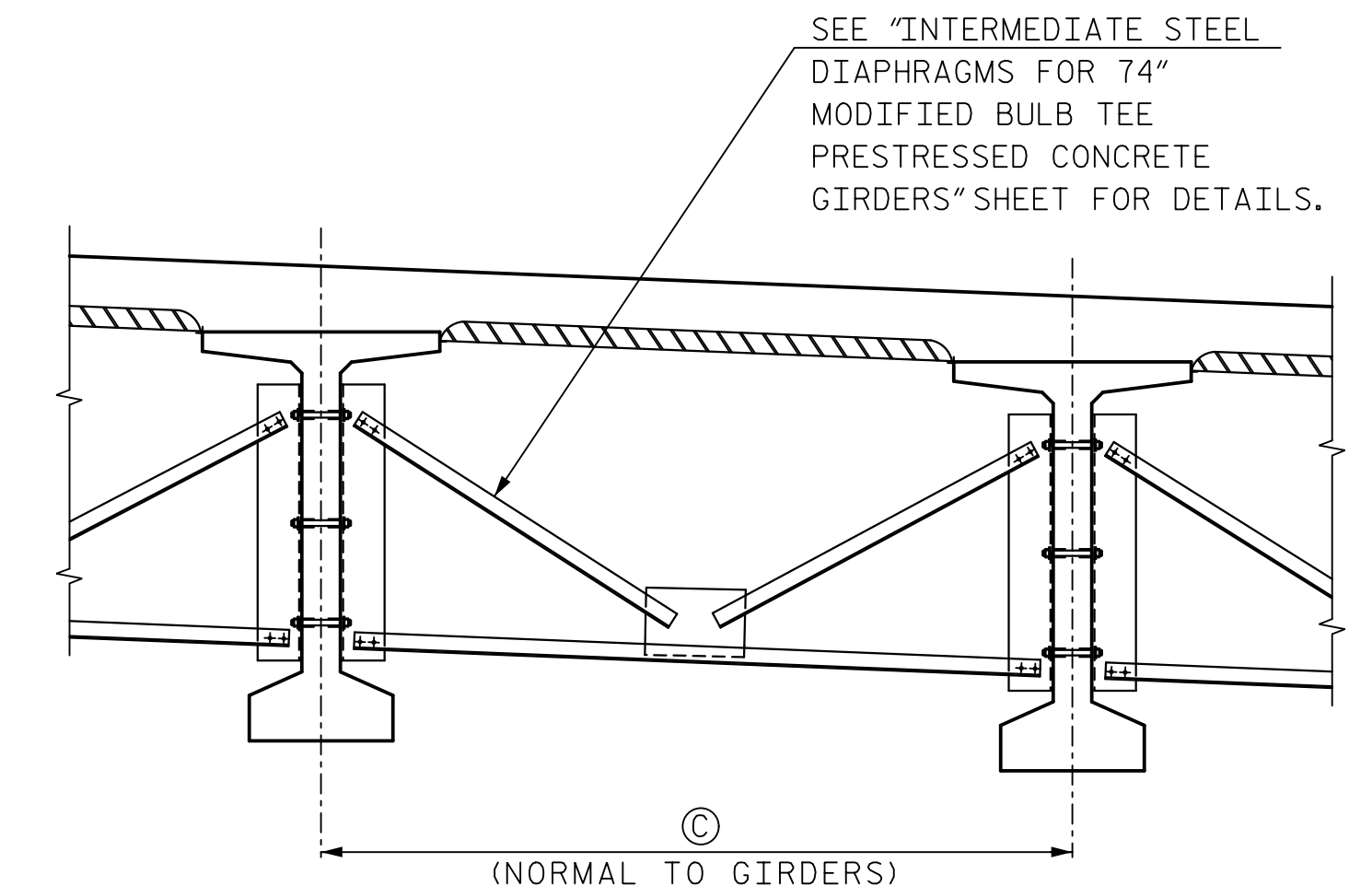


TYPICAL SECTION

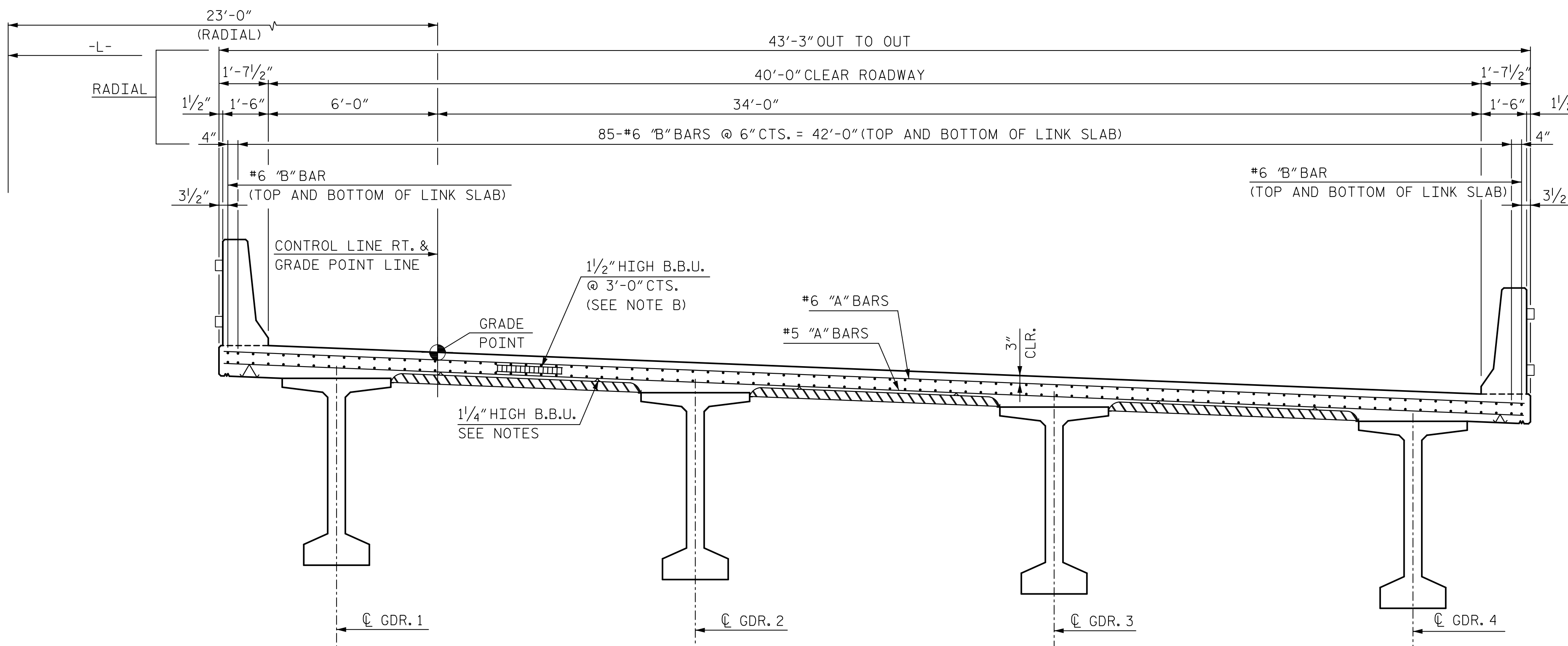
HALF SECTION AT END DIAPHRAGM

TYPICAL SECTION RIGHT LANE BRIDGE
FOR SECTION THRU END BENT DIAPHRAGM, SEE SECTION A-A, SHEET 2 OF 2.

DIMENSION TABLE					
	(A)	(B)	(C)	(D)	(E)
SPAN A	8'-7"	3'-5"	12'-0"	36'-0"	1'-9"
SPAN B	8'-5"	3'-5"	11'-10"	35'-6"	1'-8"
SPAN C	8'-3"	3'-5"	11'-8"	35'-0"	1'-7"
SPAN D	8'-2"	3'-5"	11'-7"	34'-9"	1'-6 1/2"



PARTIAL TYPICAL SECTION
(SHOWING INTERMEDIATE DIAPHRAGMS)

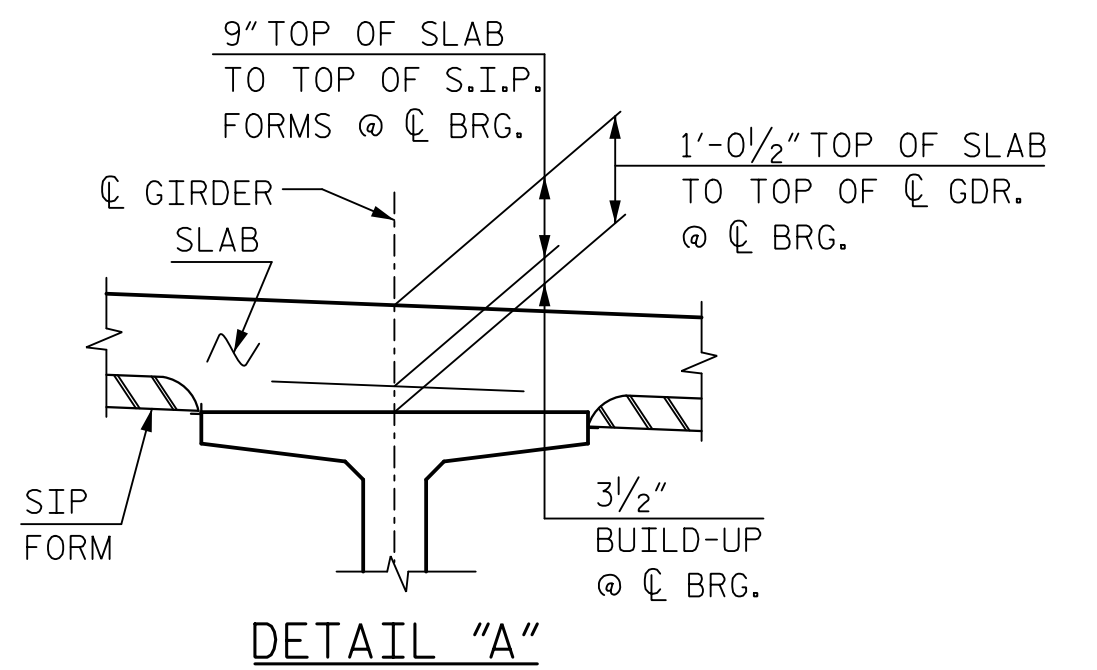


TYPICAL SECTION THROUGH LINK SLAB

FOR DETAILS NOT SHOWN, SEE "TYPICAL SECTION RIGHT LANE BRIDGE"

NOTE A: THE HEIGHT OF THE BEAM BOLSTER VARIES ALONG THE LENGTH OF THE SPAN DUE TO CAMBER AND THE VARYING HEIGHT REQUIRED FOR THE BUILDUP. THE CONTRACTOR SHALL HAVE SUFFICIENT SIZES TO PROPERLY SUPPORT THE REINFORCING STEEL.

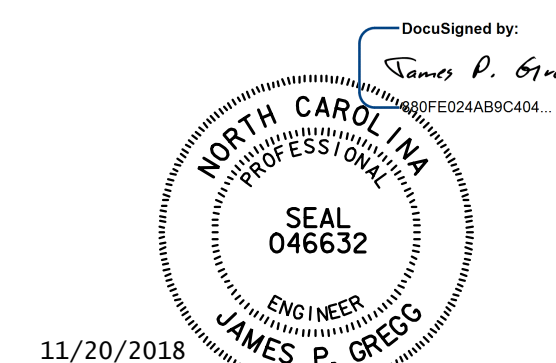
NOTE B: TO MAINTAIN PROPER LOCATION OF "A" BARS IN TOP OF SLAB, BBU DEPTH MUST VARY IN UNIT AS THE MAXIMUM SIZE OF THE "B" BARS IN THE TOP OF SLAB VARIES. A 2" BBU SHALL BE USED WHERE ONLY #4 "B" BARS ARE PRESENT. WHERE #6 "B" BARS ARE PRESENT, A 1 1/2" BBU SHALL BE USED.



DETAIL "A"

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 1 OF 2



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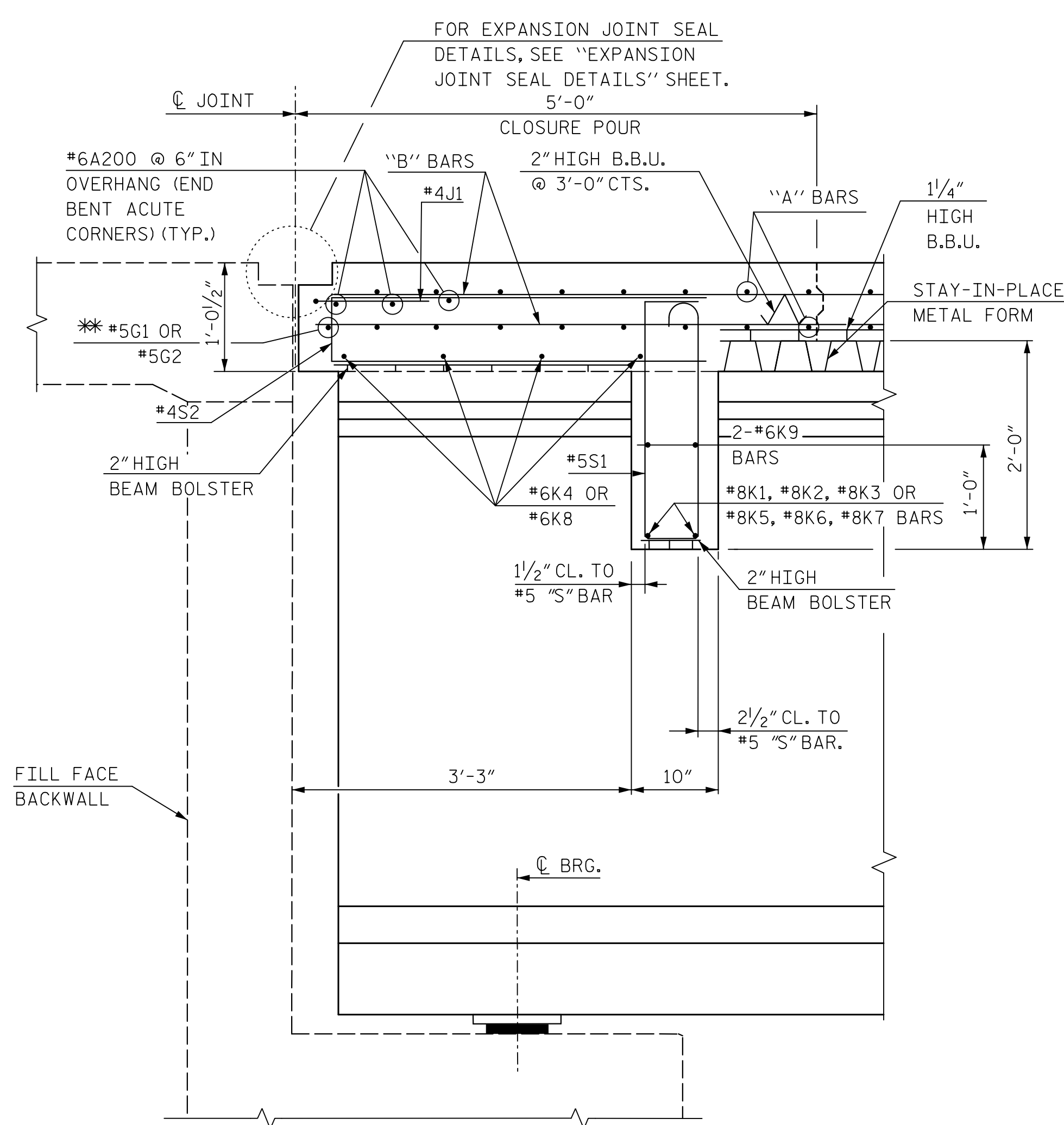
DRAWN BY: J. PHILLIPS DATE: 9/18
 CHECKED BY: D. LAWRENCE DATE: 10/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 6

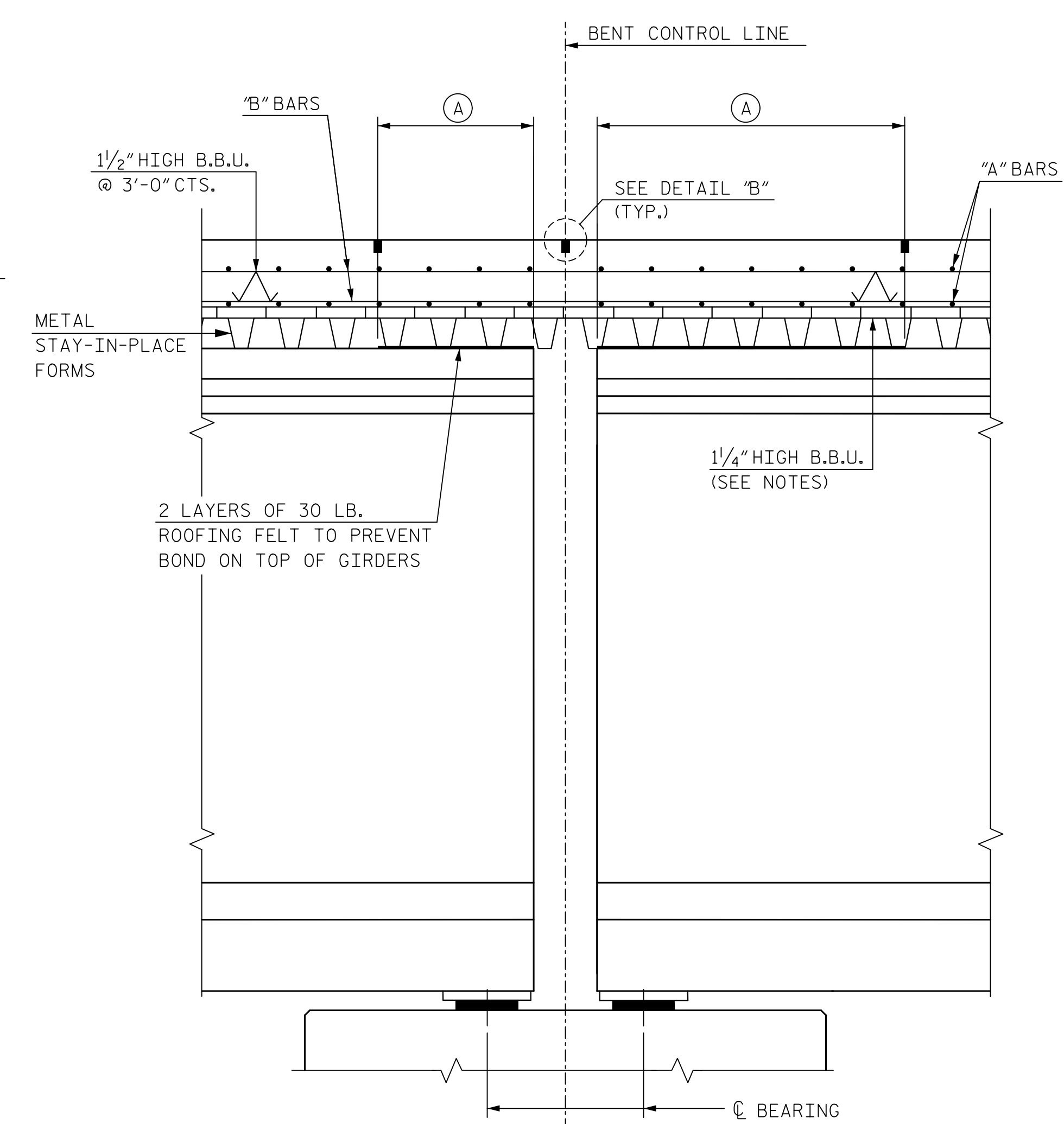
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
TYPICAL SECTIONS					
RIGHT LANE					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S04-6
 TOTAL SHEETS 46

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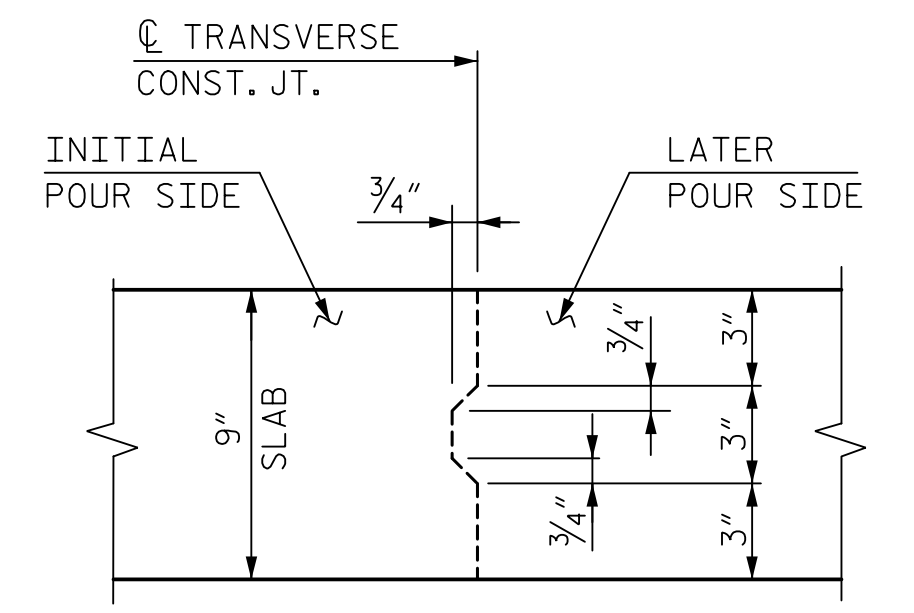


SECTION A-A
SECTION NORMAL THRU END BENT 1
& END BENT 2 DIAPHRAGM
** #5 "G" BAR MAY BE SHIFTED SLIGHTLY
AS NECESSARY TO CLEAR REINFORCING
STEEL AND STIRRUPS.

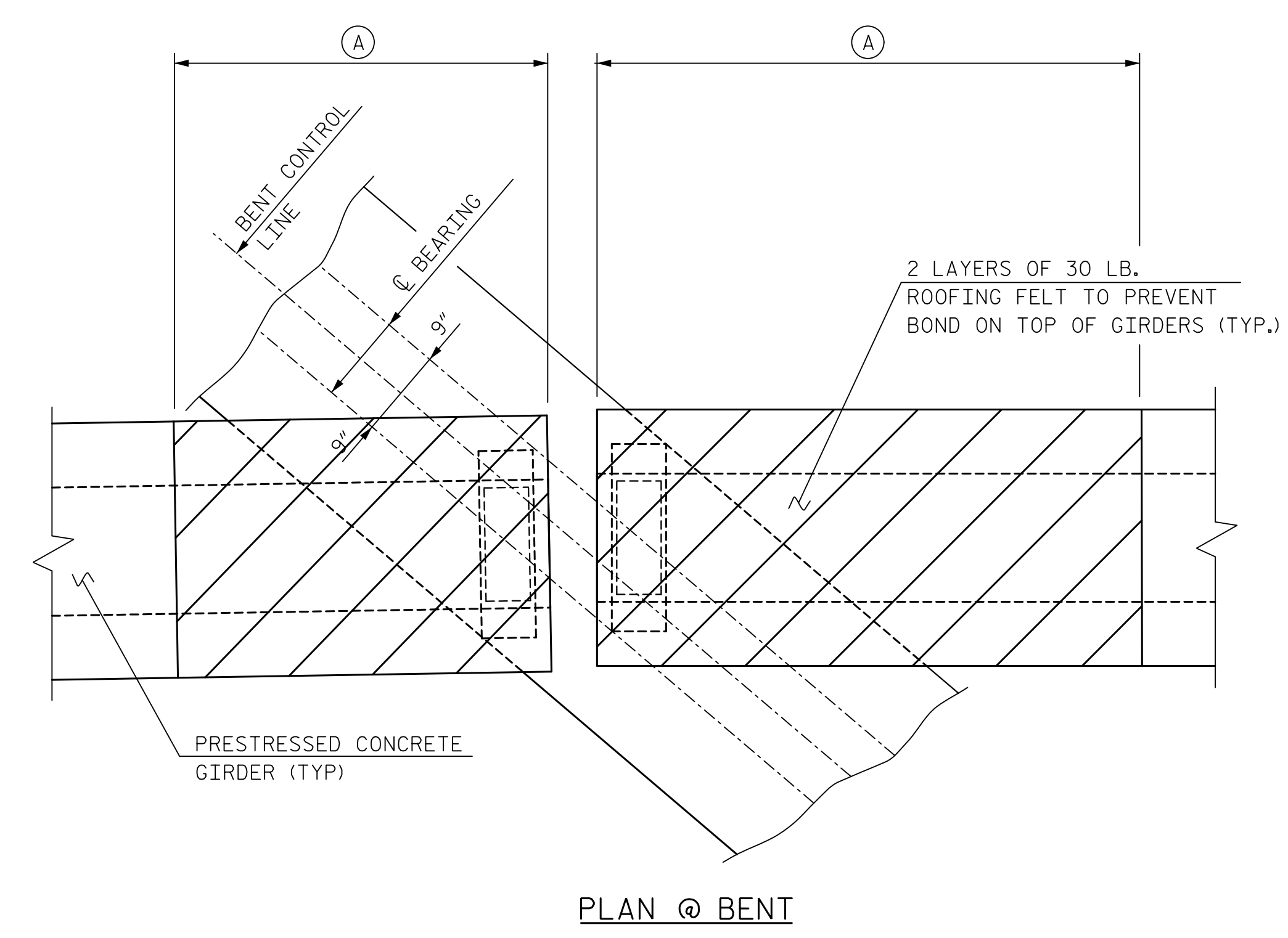


SECTION THROUGH BENT
SECTION PARALLEL TO BEAM AT BENT 1 SHOWN, BENT 2 AND 3 SIMILAR

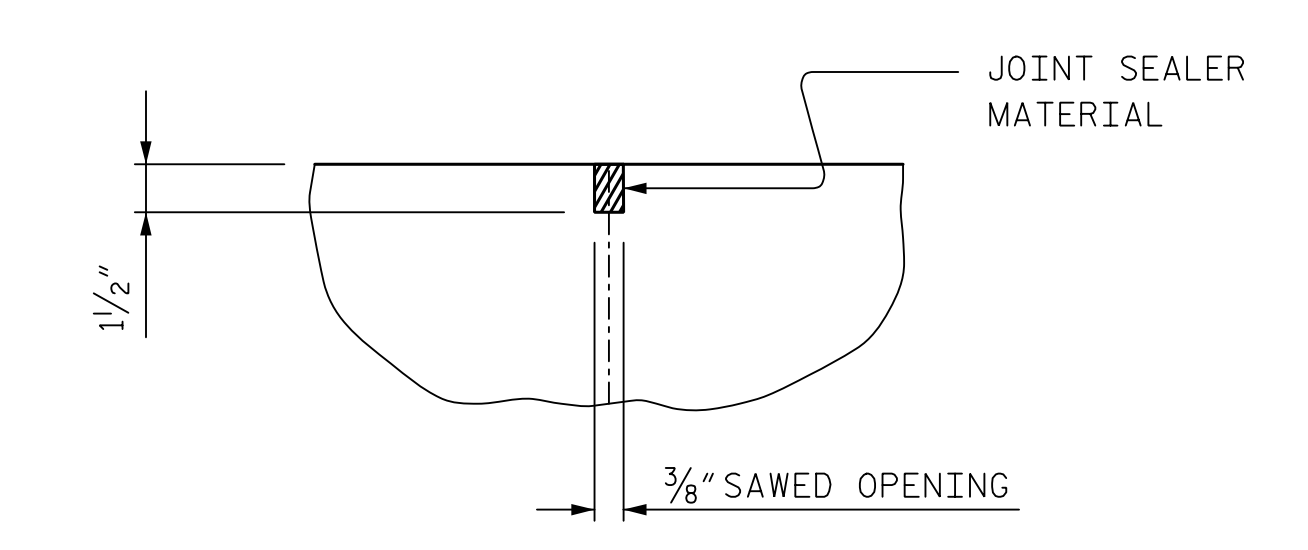
	(A)
SPAN A	3'-8"
SPAN B	6'-7"
SPAN C	4'-2"
SPAN D	3'-6"



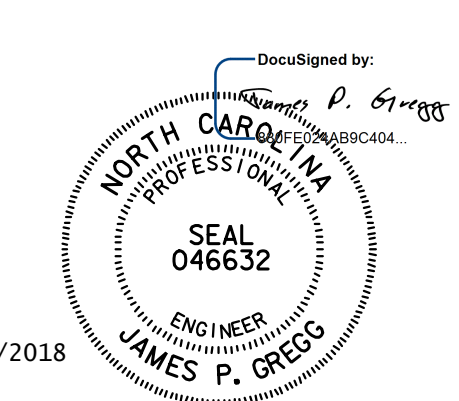
**DECK SLAB TRANSVERSE
CONSTRUCTION JOINT DETAIL**
REINFORCING STEEL IN SLAB NOT SHOWN.
LONGITUDINAL REINFORCING STEEL
SHALL BE CONTINUOUS THROUGH JOINT.



PLAN @ BENT



DETAIL "B"



PROJECT NO. R-1015
CRAVEN COUNTY
STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 2
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION DETAILS
RIGHT LANE

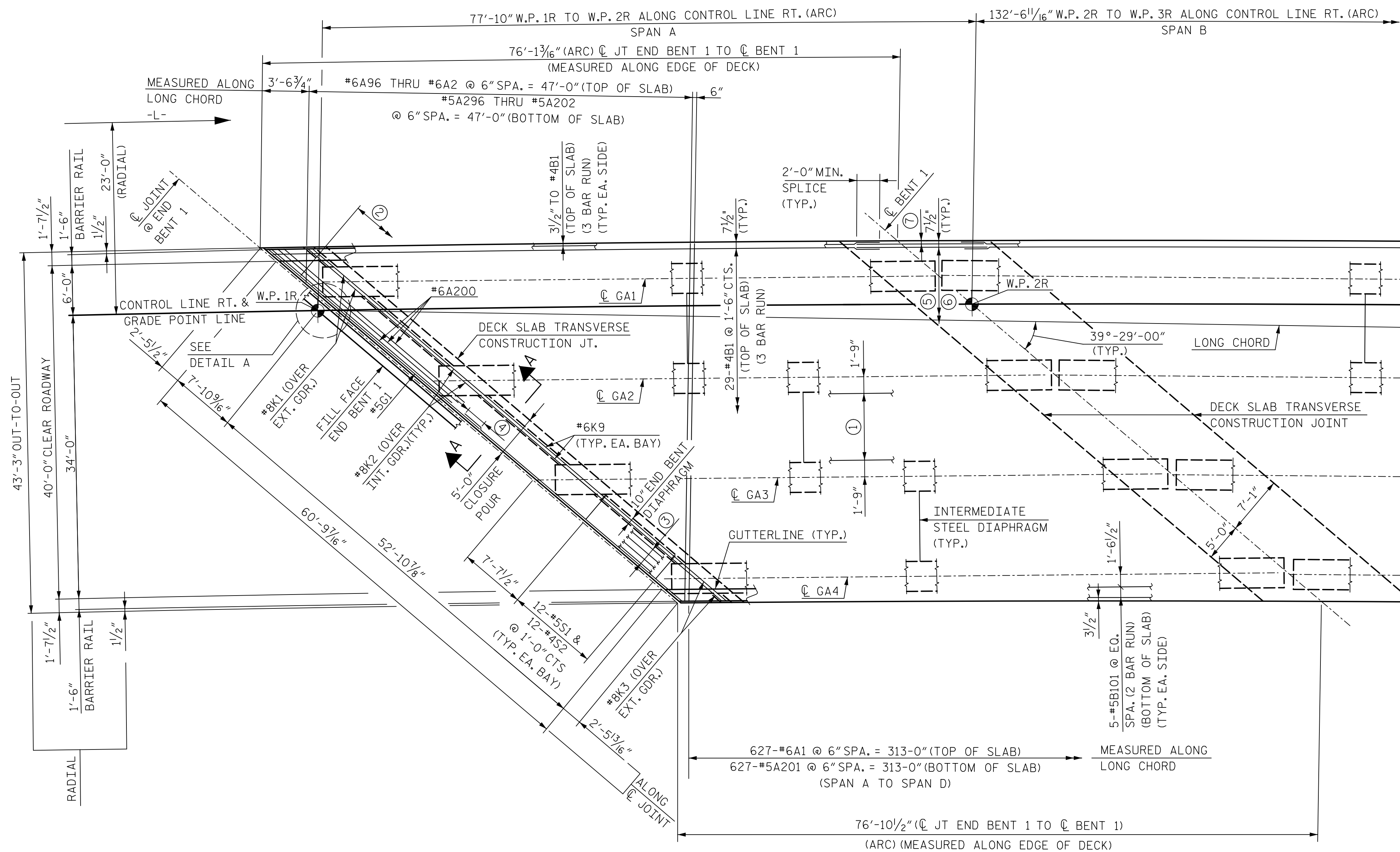
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343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: J. PHILLIPS DATE: 9/18
CHECKED BY: D. LAWRENCE DATE: 10/18
DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

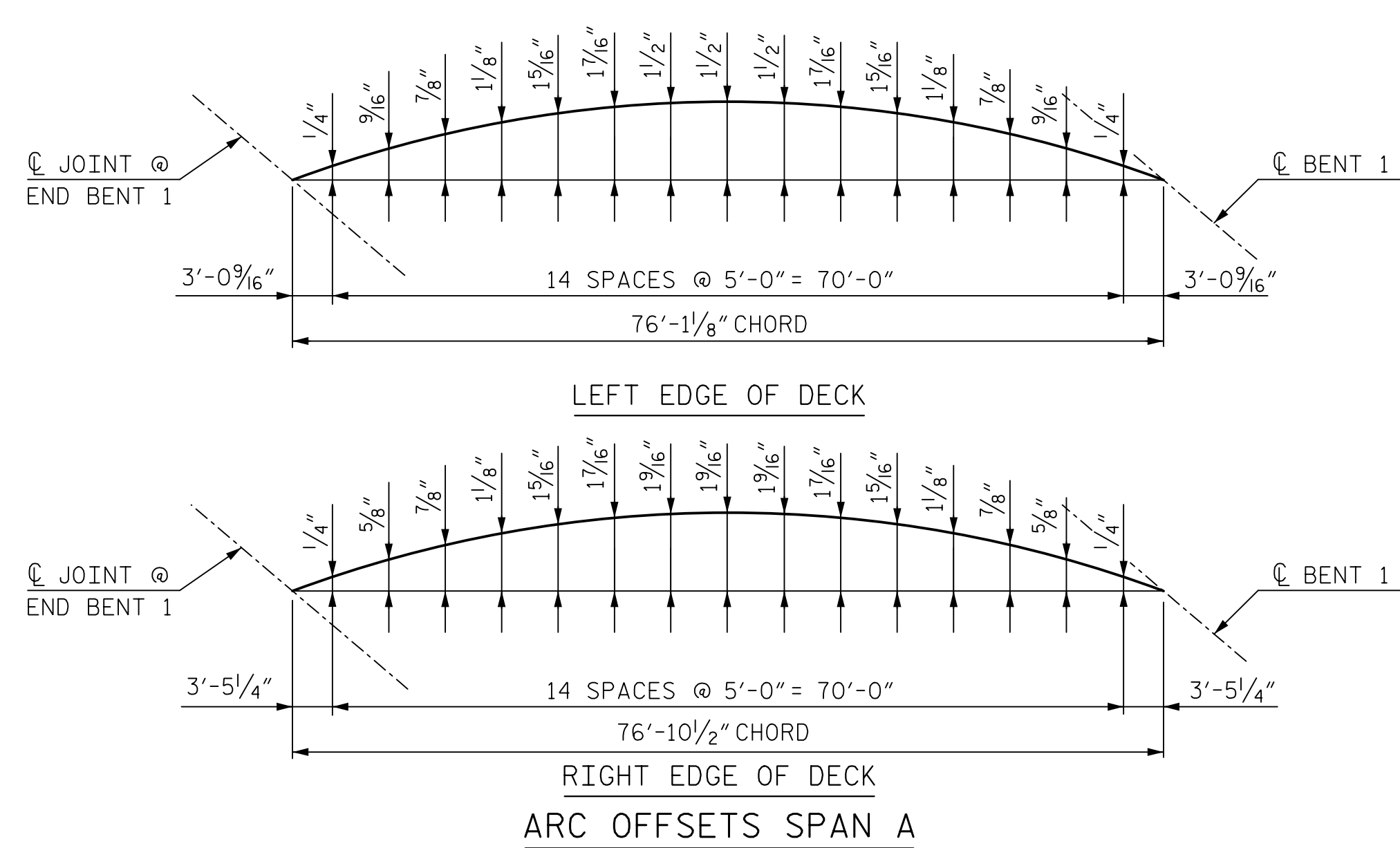
DWG. NO. 7

REVISIONS						SHEET NO. S04-7
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 46
2			4			

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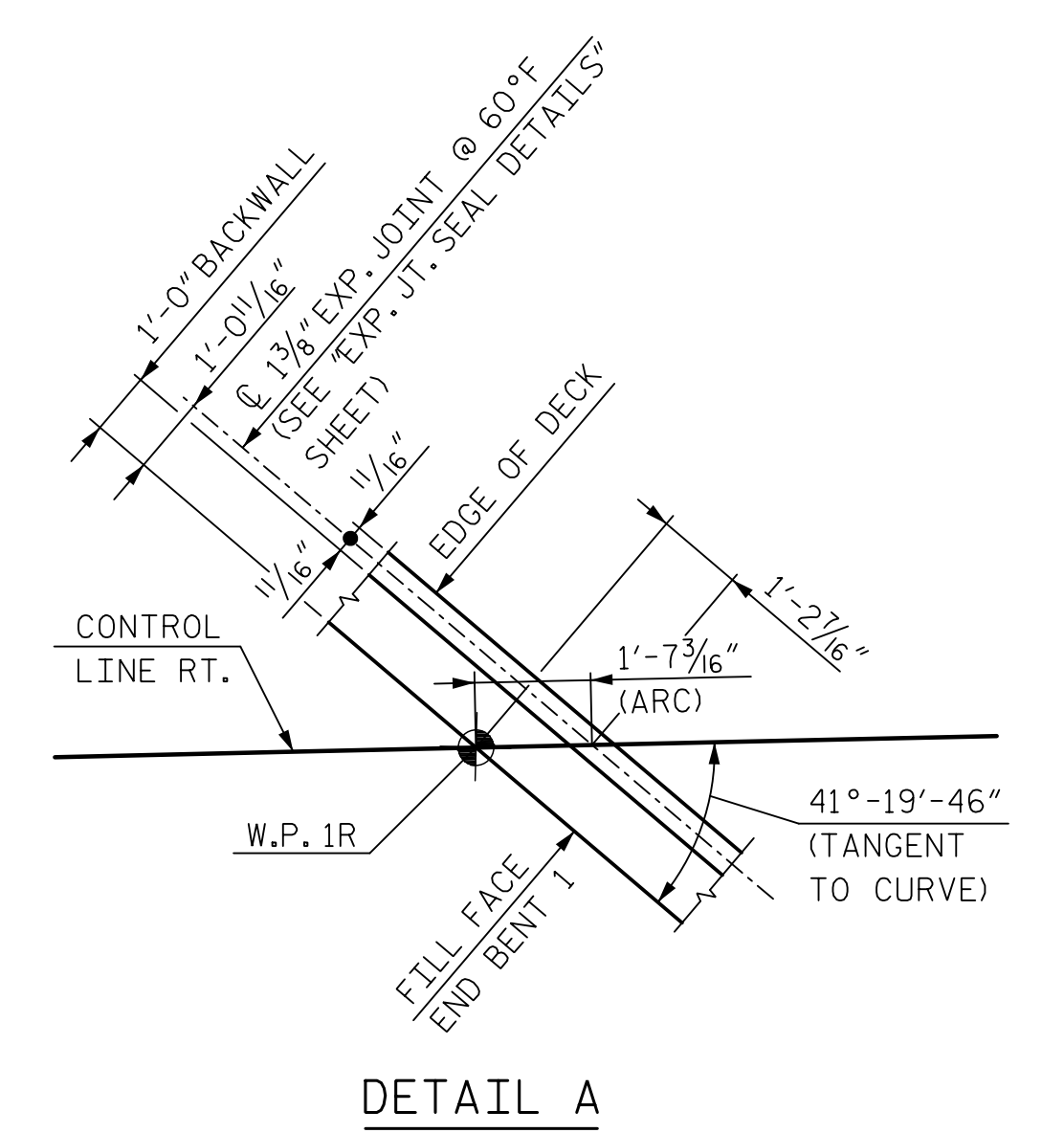


PLAN OF SPAN A



ARC OFFSETS SPAN A

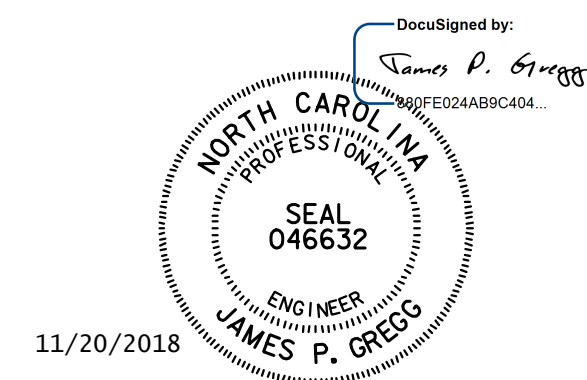
- ① 13-#5B101 @ 8 1/2" CTS. = 8'-6" (2 BAR RUN WITH 2'-0" MIN. SPLICE) (BOTTOM OF SLAB) (TYP. EA. BAY)
- ② 60-4J1 BARS (SEE "EXP. JT. DETAILS SHEET")
- ③ 4-#6K4 (BOTTOM OF SLAB) (2 BAR RUN WITH 2'-5" MIN. SPLICE)
- ④ 2'-5" MIN. SPLICE
- ⑤ 85-#6B5 @ 6" CTS. = 42'-0" (TOP OF SLAB IN LINK SLAB AREA)
- ⑥ 85-#6B105 @ 6" = 42'-0" (BOTTOM OF SLAB IN LINK SLAB AREA)
- ⑦ 3/2" TO #6B5 (TOP OF SLAB) AND #6B105 (BOTTOM OF SLAB) (TYP. EA. SIDE) (IN LINK SLAB AREA)



DETAIL A

NOTES:
 FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCING STEEL, AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEET.
 FOR SECTION VIEWS, SEE "SUPERSTRUCTURE TYPICAL SECTION DETAILS" SHEET 2 OF 2.
 FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 74" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS" SHEET FOR DETAILS. FOR LOCATION, SEE "SUPERSTRUCTURE FRAMING PLANS" SHEET.

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-



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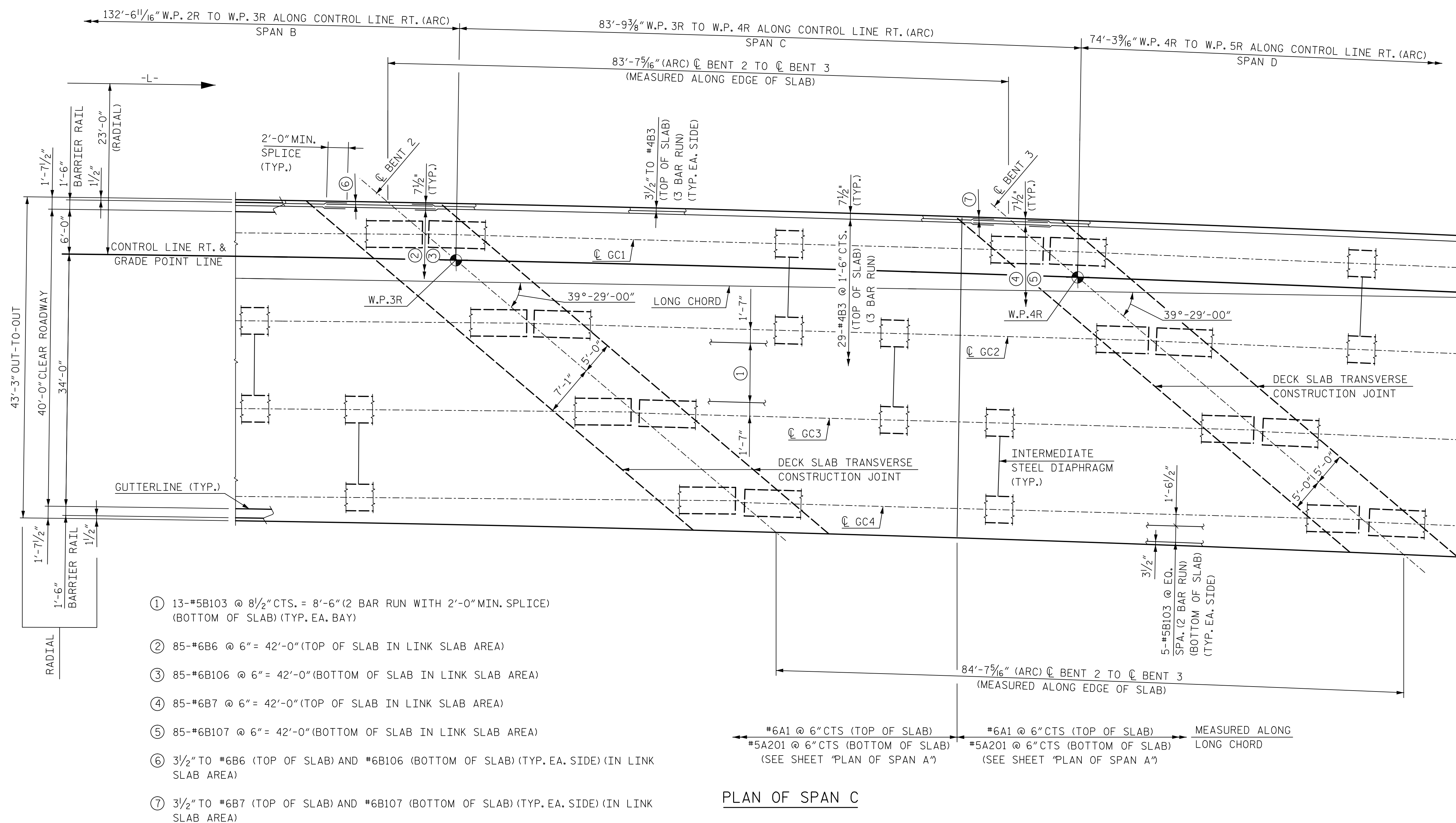
DRAWN BY: J. PHILLIPS DATE: 9/18
 CHECKED BY: D. LAWRENCE DATE: 10/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 8

REVISIONS						SHEET NO. S04-8
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 46
2			4			

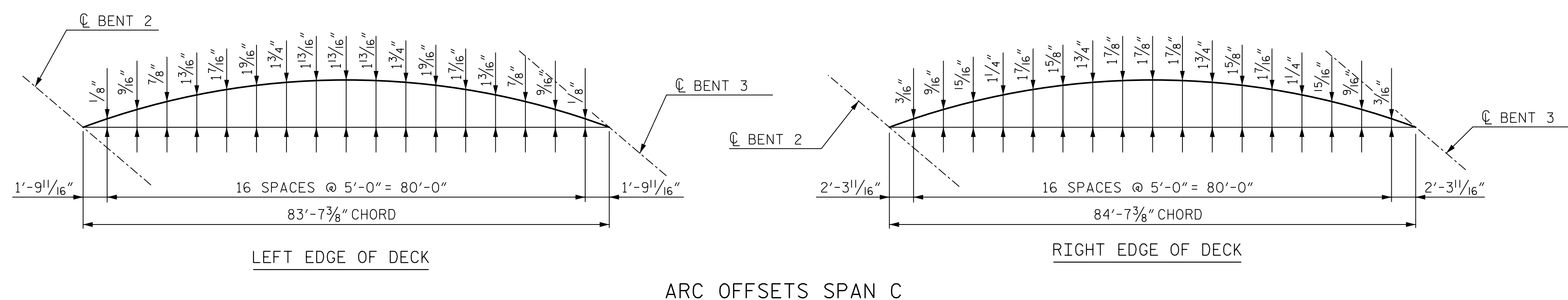
**DOCUMENT NOT CONSIDERED FINAL
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NOTES:
FOR NOTES, SEE "SUPERSTRUCTURE PLAN OF SPAN A" SHEET.



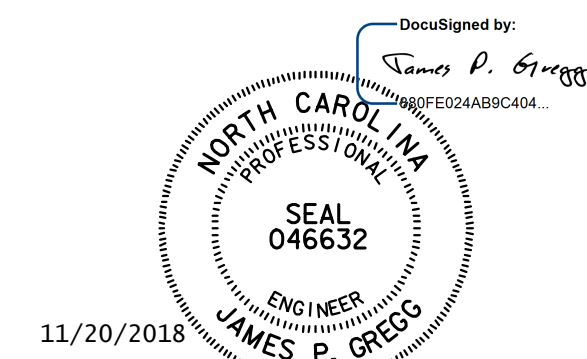
- ① 13-#5B103 @ 8 1/2" CTS. = 8'-6" (2 BAR RUN WITH 2'-0" MIN. SPLICE) (BOTTOM OF SLAB) (TYP. EA. BAY)
- ② 85-#6B6 @ 6" = 42'-0" (TOP OF SLAB IN LINK SLAB AREA)
- ③ 85-#6B106 @ 6" = 42'-0" (BOTTOM OF SLAB IN LINK SLAB AREA)
- ④ 85-#6B7 @ 6" = 42'-0" (TOP OF SLAB IN LINK SLAB AREA)
- ⑤ 85-#6B107 @ 6" = 42'-0" (BOTTOM OF SLAB IN LINK SLAB AREA)
- ⑥ 3/2" TO #6B6 (TOP OF SLAB) AND #6B106 (BOTTOM OF SLAB) (TYP. EA. SIDE) (IN LINK SLAB AREA)
- ⑦ 3/2" TO #6B7 (TOP OF SLAB) AND #6B107 (BOTTOM OF SLAB) (TYP. EA. SIDE) (IN LINK SLAB AREA)

PLAN OF SPAN C



ARC OFFSETS SPAN C

PROJECT NO. R-1015
CRAVEN COUNTY
STATION: POC STA. 138+31.09 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN C
RIGHT LANE

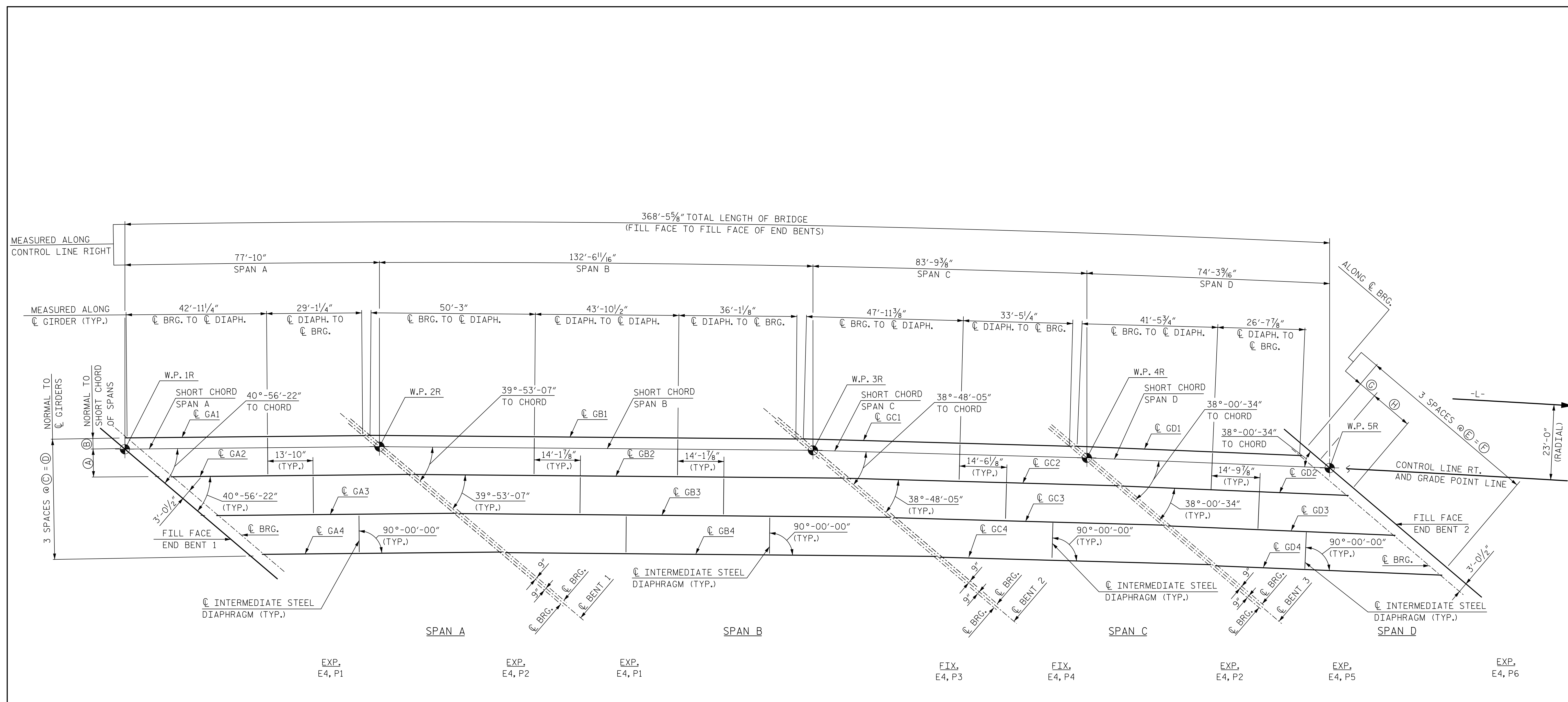
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NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: J. PHILLIPS DATE: 9/18
CHECKED BY: D. LAWRENCE DATE: 10/18
DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 10

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	S04-10	
1			3			TOTAL SHEETS	
2			4			46	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



LOCATION	DIM.	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
SPAN A		8'-7"	3'-5"	12'-0"	36'-0"	18'-3 3/4"	54'-11 1/4"	5'-2 9/16"	13'-1 3/16"
SPAN B		8'-5"	3'-5"	11'-10"	35'-6"	18'-5 7/16"	55'-4 9/16"	5'-3 15/16"	13'-1 1/2"
SPAN C		8'-3"	3'-5"	11'-8"	35'-0"	18'-7 1/16"	55'-10 9/16"	5'-5 1/16"	13'-2"
SPAN D		8'-2"	3'-5"	11'-7"	34'-9"	18'-9 3/4"	56'-5 1/4"	5'-6 9/16"	13'-3 3/16"

NOTES:

ALL DIMENSIONS MEASURED ALONG GIRDERS UNLESS NOTED OTHERWISE.

FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 74" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS" SHEET.

FOR GIRDER ELEVATIONS AND DETAILS, SEE "74" PRESTRESSED CONCRETE MODIFIED BULB TEE GIRDER" SHEETS.

NOTES:

"EXP." DENOTES EXPANSION BEARING ASSEMBLY.

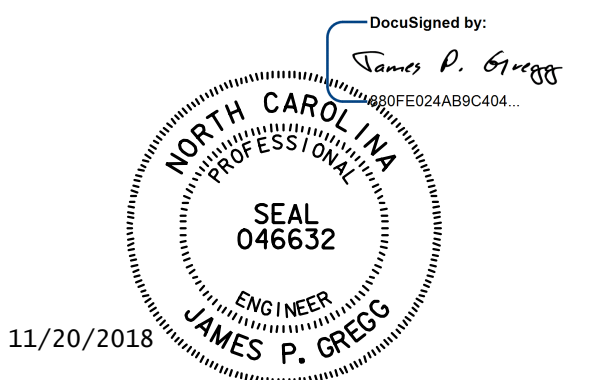
"FIX." DENOTES FIXED BEARING ASSEMBLY.

"E" DENOTES ELASTOMERIC BEARING PAD MARK.

"P" DENOTES STEEL SOLE PLATE MARK.

GIRDERS IN EACH SPAN ARE SET PARALLEL TO SHORT CHORD.

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

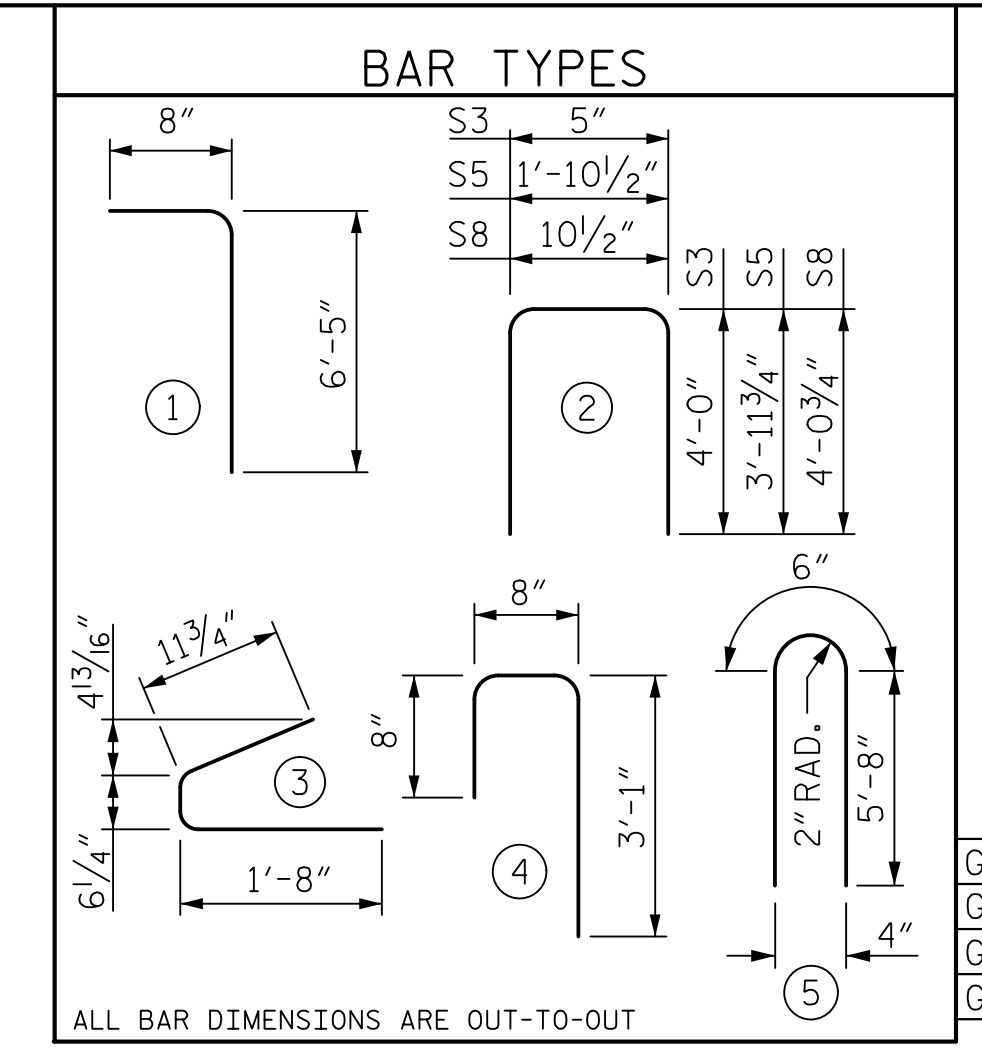
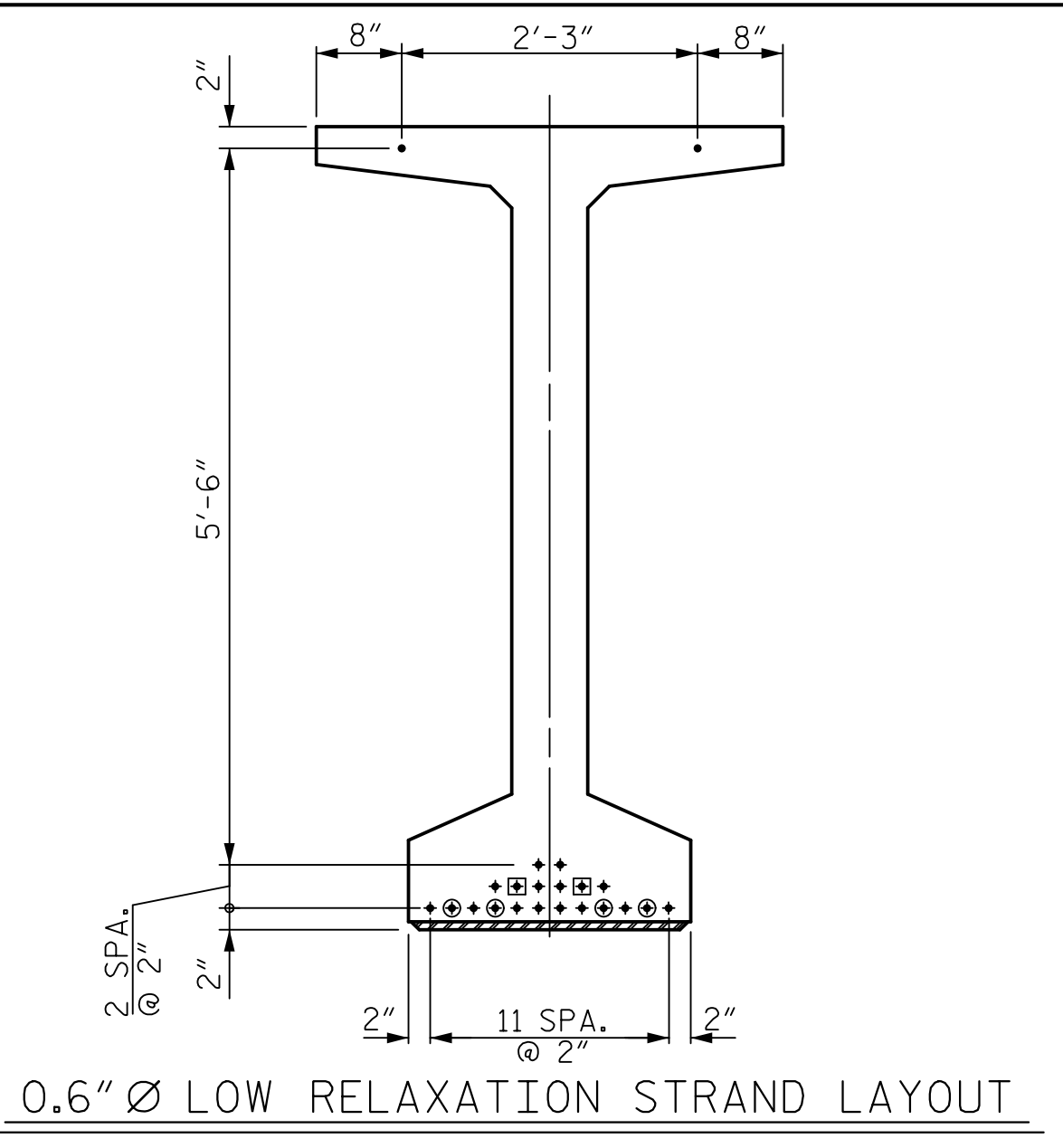
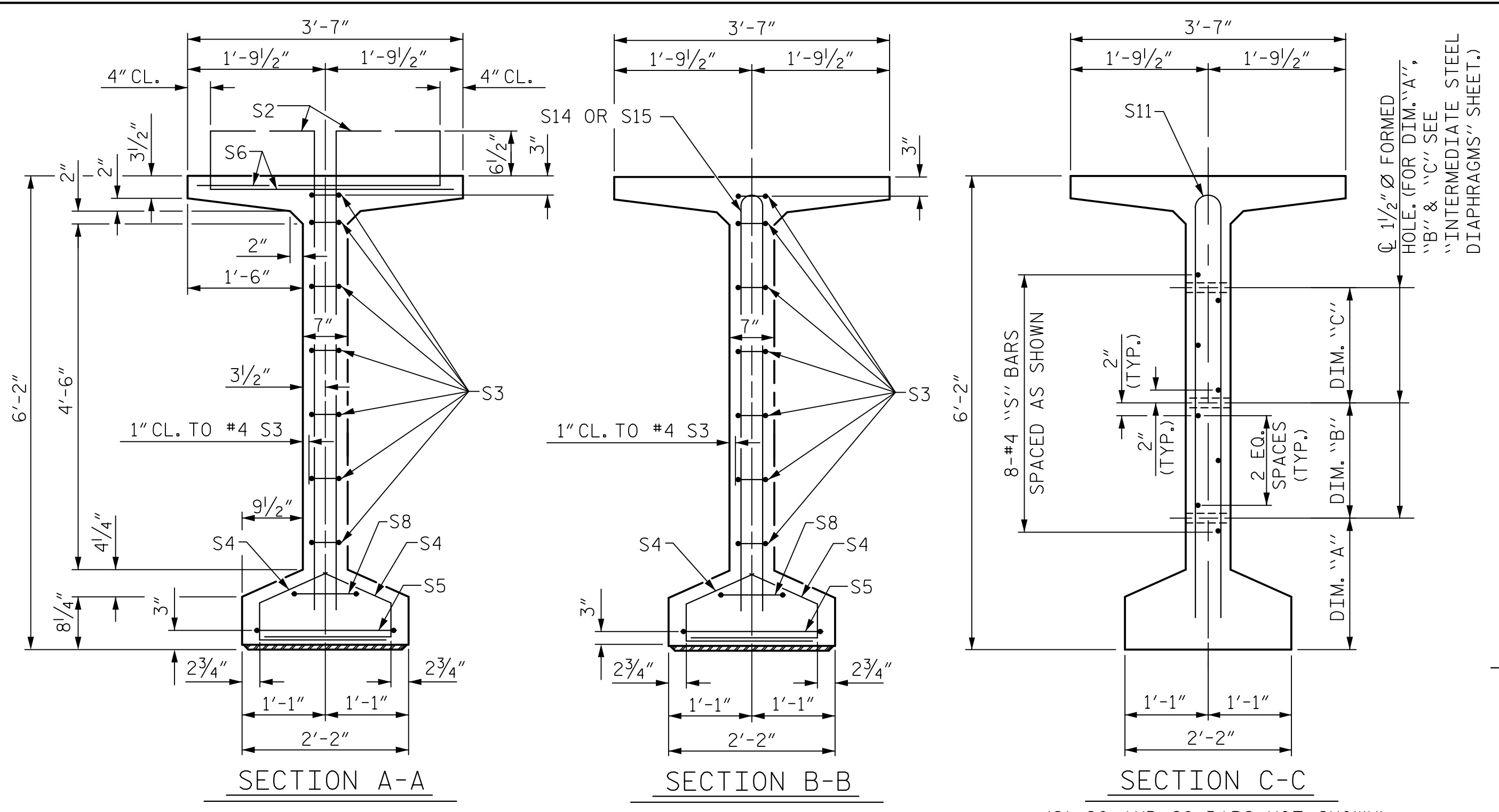


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN
 RIGHT LANE

HNTB		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: A. SMTH	DATE: 7/18	DWG. NO. 12	
CHECKED BY: E. JOWZA	DATE: 9/18		
DESIGNED BY: J. GREGG	DATE: 10/18		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			46
2			4			

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

REINFORCING STEEL FOR ONE GIRDER						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
S1	126	#4	1	7'-1"	596	
S2	12	#5	1	7'-1"	89	
S3	14	#4	2	8'-5"	79	
S4	84	#4	3	3'-2"	178	
S5	2	#5	2	9'-10"	21	
S6	138	#5	4	4'-5"	636	
S8	2	#5	2	9'-0"	19	
S9	27	#5	STR	3'-3"	92	
GA1, GA4	S11	4	#5	5	11'-10"	49
GA2, GA3	S11	8	#5	5	11'-10"	99
GA1, GA4	S12	8	#4	STR	8'-0"	43
GA2, GA3	S13	8	#4	STR	21'-10"	117
S14	6	#5	5	11'-10"	74	
S15	3	#4	5	11'-10"	24	

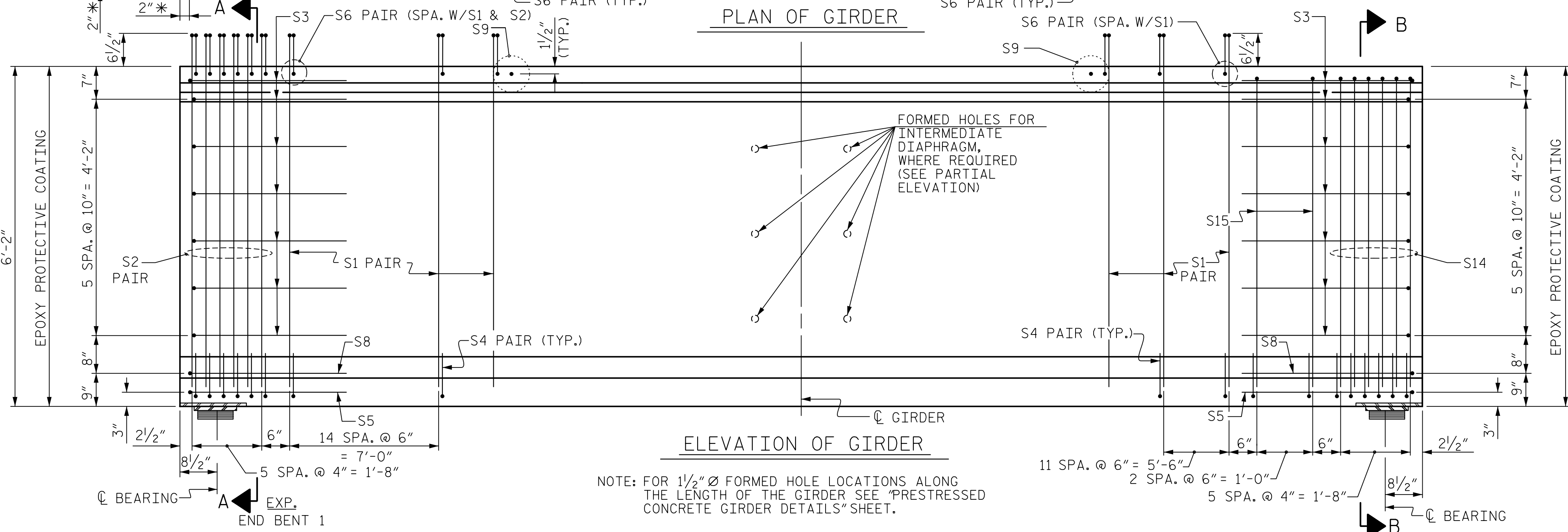
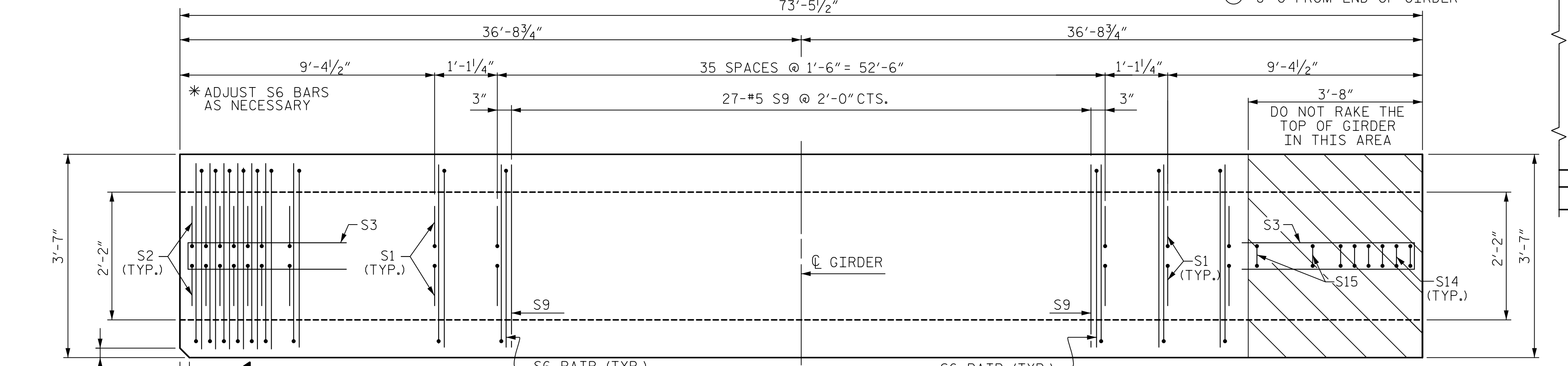
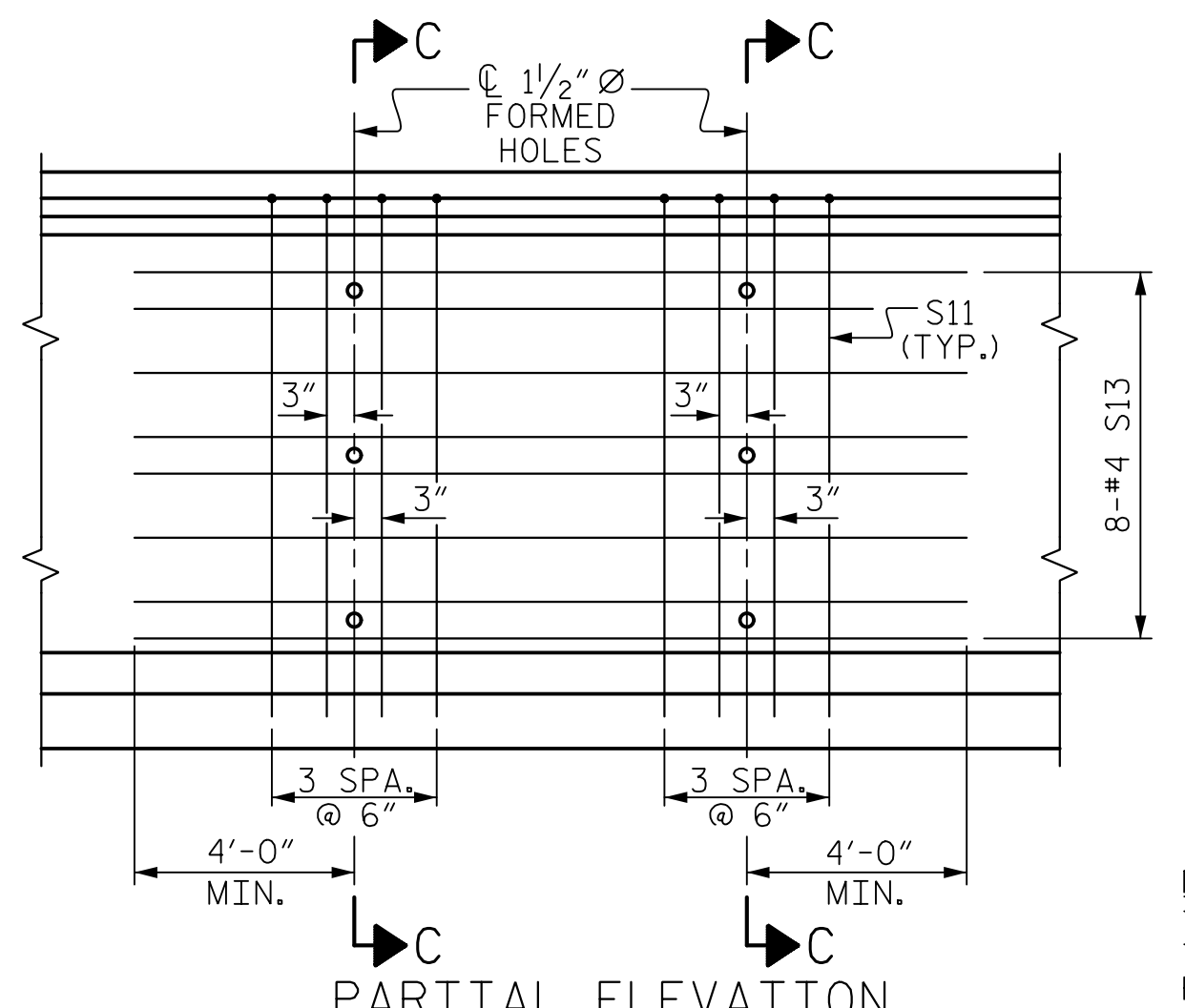
- DEBONDING LEGEND**
- FULLY BONDED STRANDS
 - ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
 - ⊙ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER

QUANTITIES FOR ONE GIRDER

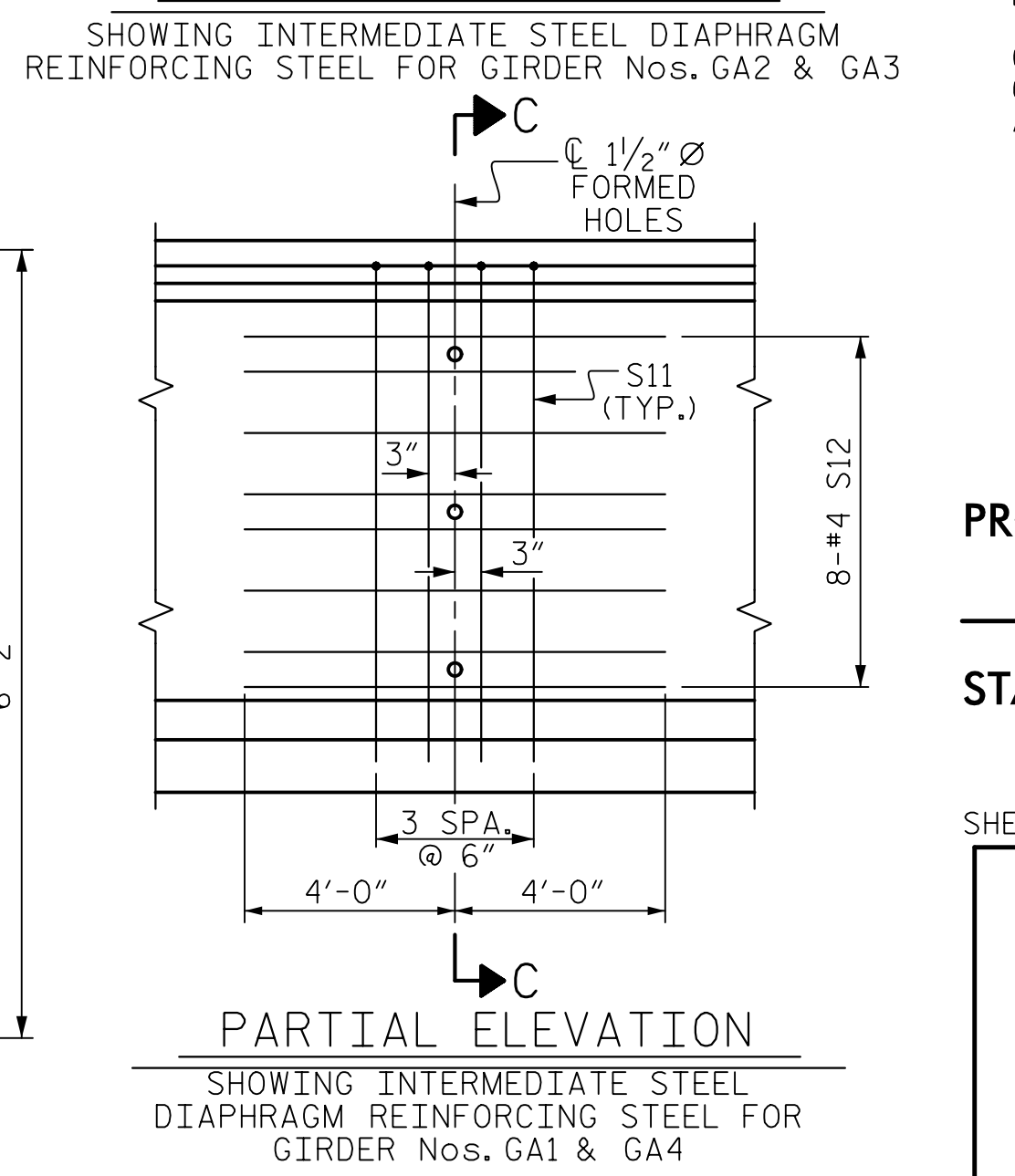
	REINFORCING STEEL		5,000 PSI CONCRETE		0.6" Ø L.R. STRANDS	
	LB.	C.Y.			No.	
GA1	1,900	16.7			22	
GA2	2,024	16.7			22	
GA3	2,024	16.7			22	
GA4	1,900	16.7			22	

GIRDERS REQUIRED

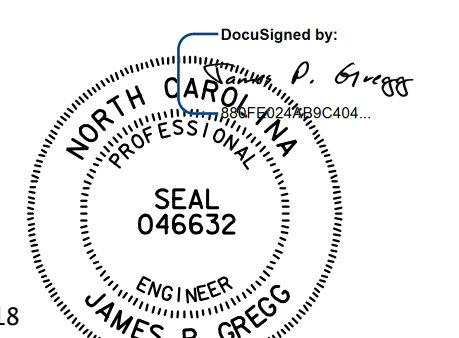
NUMBER	LENGTH	TOTAL LENGTH
4	73'-5 1/2"	293.83'



NOTE: FOR 1 1/2" Ø FORMED HOLE LOCATIONS ALONG THE LENGTH OF THE GIRDER SEE "PRESTRESSED CONCRETE GIRDER DETAILS" SHEET.



NOTES:
 THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI FOR SPAN A GIRDERS.
 GIRDER CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AT THE AGE OF 28 DAYS.



PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 1 OF 6
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 74" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 SPAN A
 RIGHT LANE

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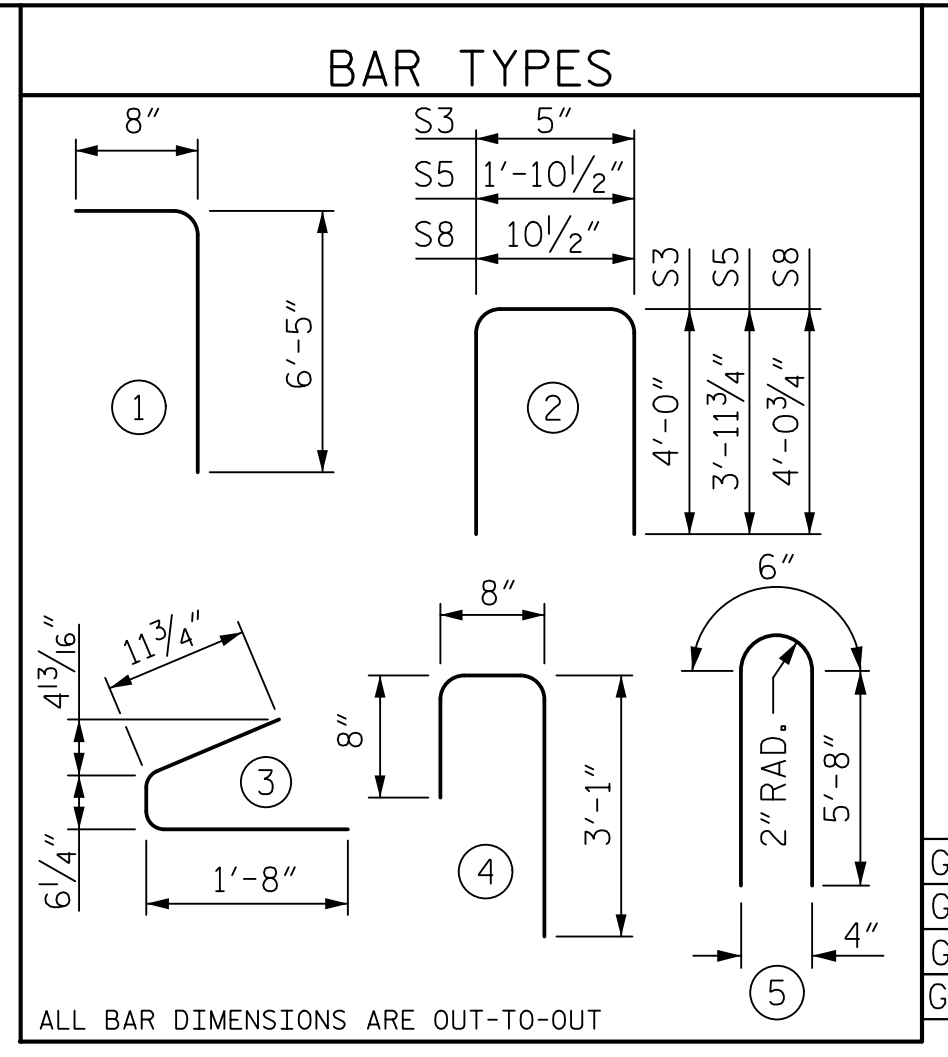
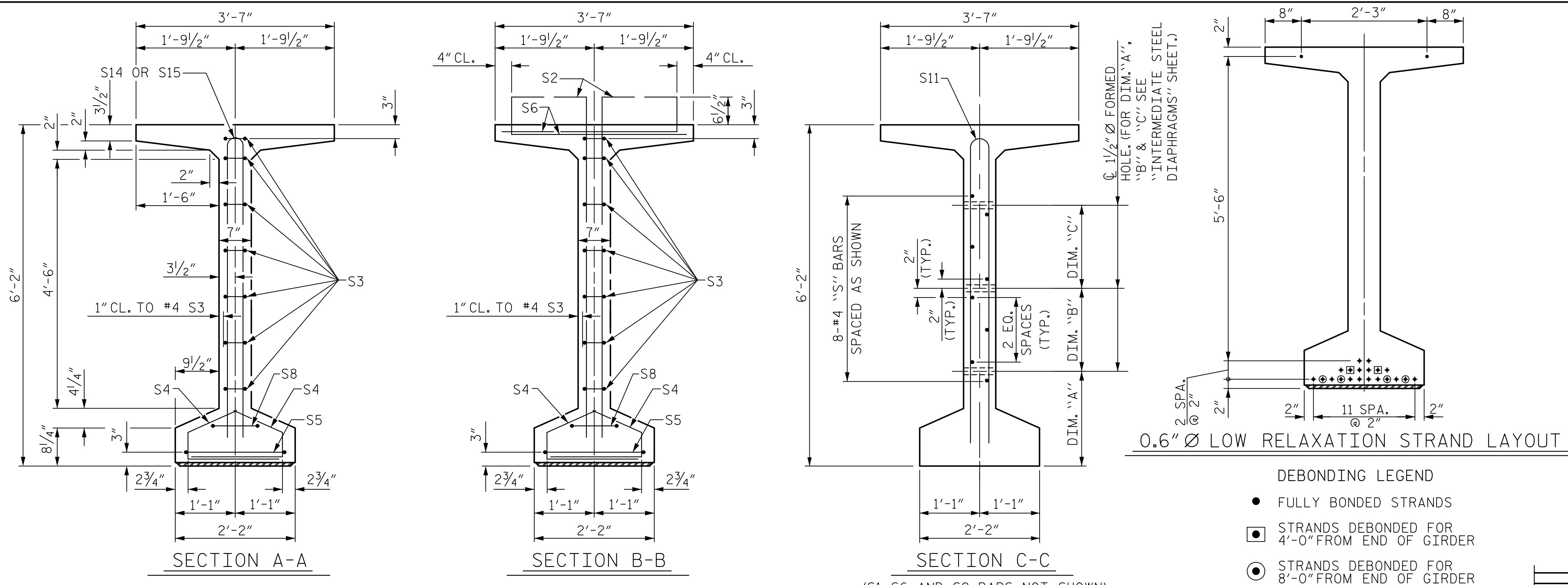
DRAWN BY: A. SMITH	DATE: 7/18
CHECKED BY: E. JOWZA	DATE: 9/18
DESIGN ENGINEER OF RECORD: J. GREGG	DATE: 10/18

DWG. NO. 13

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

TOTAL SHEETS: 46



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

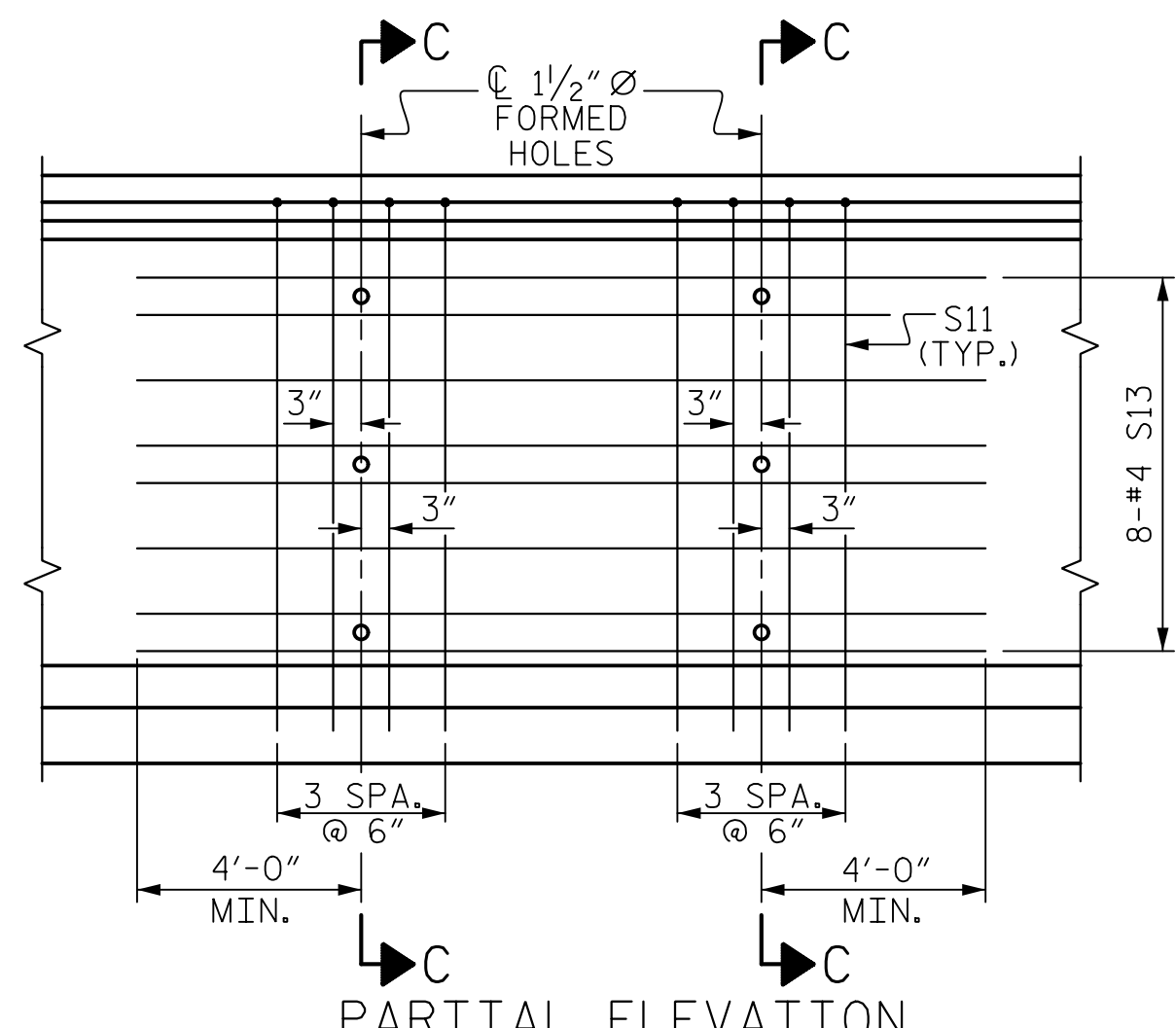
REINFORCING STEEL FOR ONE GDR						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
S1	120	#4	1	7'-1"	568	
S2	12	#5	1	7'-1"	89	
S3	14	#4	2	8'-5"	79	
S4	84	#4	3	3'-2"	178	
S5	2	#5	2	9'-10"	21	
S6	132	#5	4	4'-5"	608	
S8	2	#5	2	9'-0"	19	
S9	24	#5	STR	3'-3"	81	
GD1, GD4	S11	4	#5	5	11'-10"	49
GD2, GD3	S11	8	#5	5	11'-10"	99
GD1, GD4	S12	8	#4	STR	8'-0"	43
GD2, GD3	S13	8	#4	STR	22'-10"	122
S14	6	#5	5	11'-10"	74	
S15	3	#4	5	11'-10"	24	

0.6" Ø LOW RELAXATION STRAND LAYOUT

- DEBONDING LEGEND
- FULLY BONDED STRANDS
 - ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
 - STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER

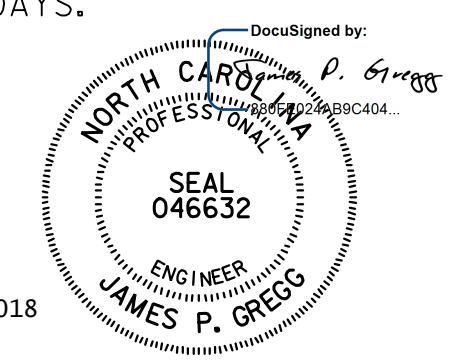
QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	5,000 PSI CONCRETE	
		L.B.	C.Y.
GD1	1,833	15.8	22
GD2	1,962	15.8	22
GD3	1,962	15.8	22
GD4	1,833	15.8	22

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	69'-6 5/8"	278.21'



SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. GD2 & GD3

NOTES:
 THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI FOR SPAN 4 GIRDERS.
 GIRDER CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AT THE AGE OF 28 DAYS.



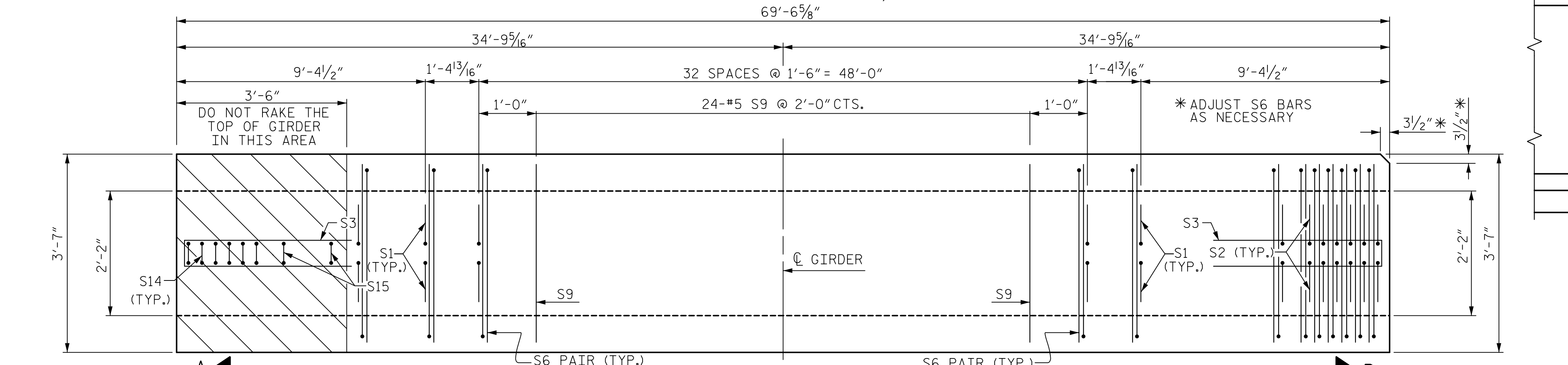
PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 4 OF 6

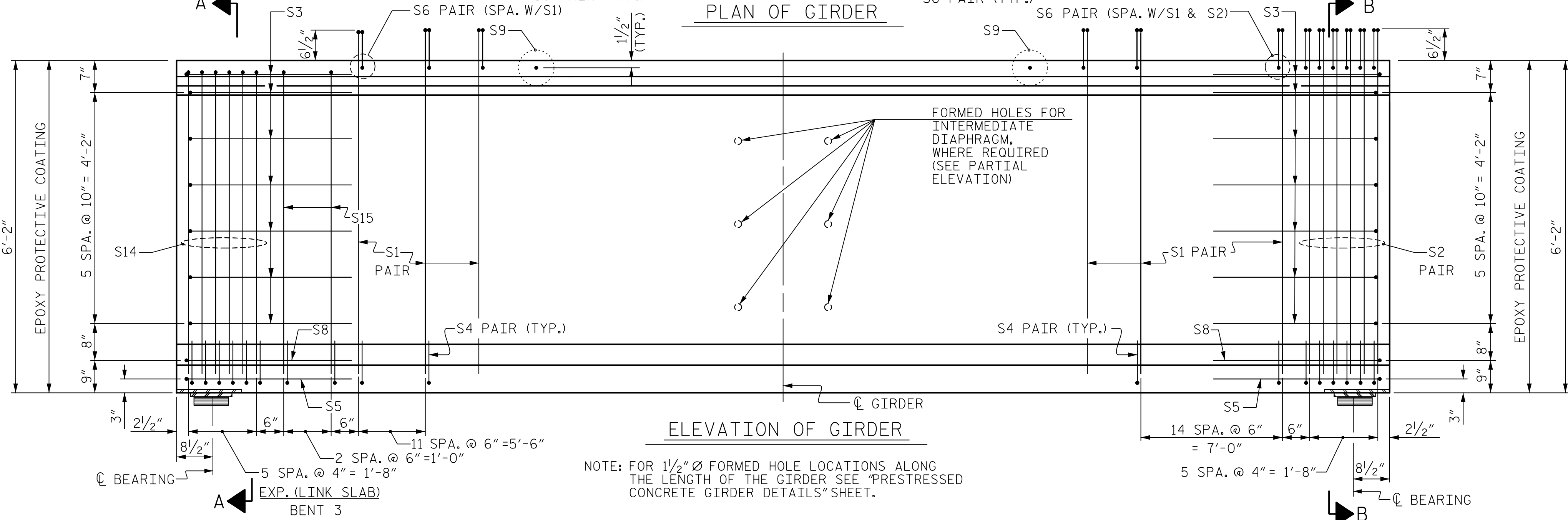
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 74" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 SPAN D

RIGHT LANE

REVISIONS					SHEET NO. S04-16
NO.	BY	DATE	NO.	DATE	
1			3		TOTAL SHEETS
2			4		46

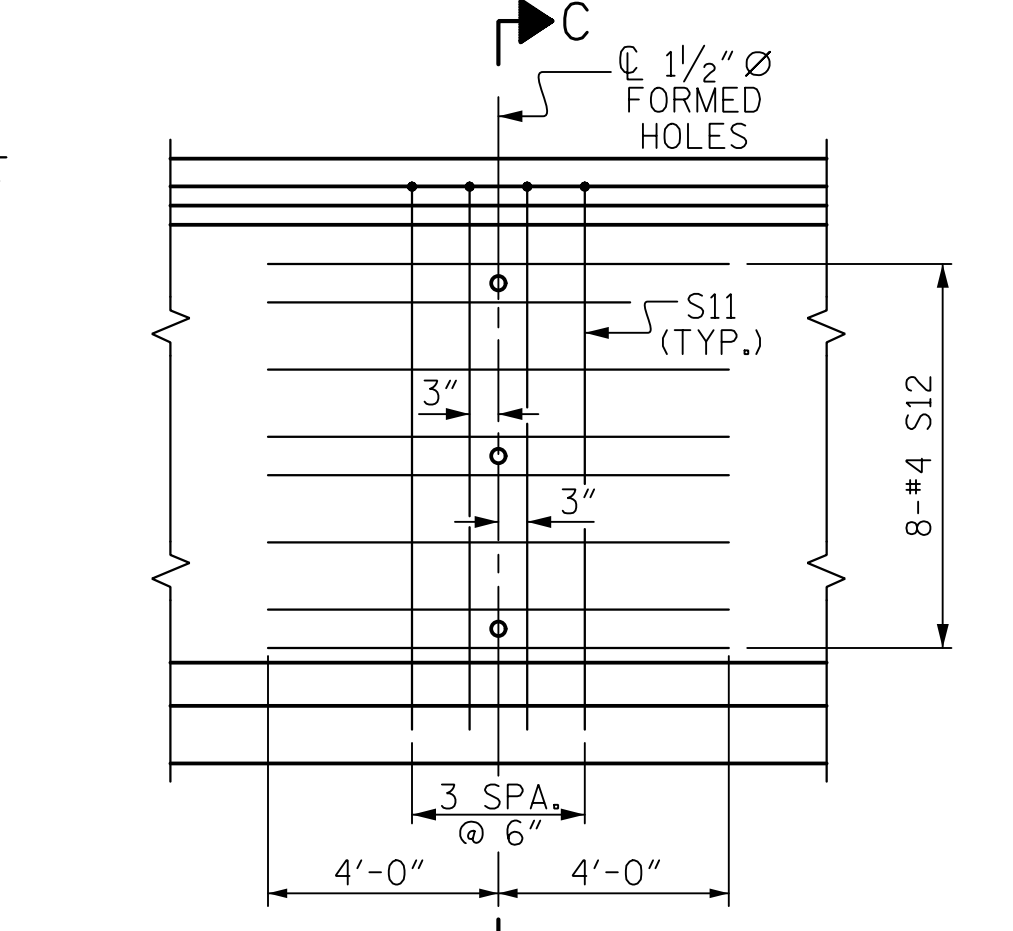


PLAN OF GIRDER



ELEVATION OF GIRDER

NOTE: FOR 1/2" Ø FORMED HOLE LOCATIONS ALONG THE LENGTH OF THE GIRDER SEE "PRESTRESSED CONCRETE GIRDER DETAILS" SHEET.



SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. GD1 & GD4

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: A. SMITH DATE: 7/18
 CHECKED BY: E. JONZA DATE: 9/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 16

EXP. END BENT 2
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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 SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

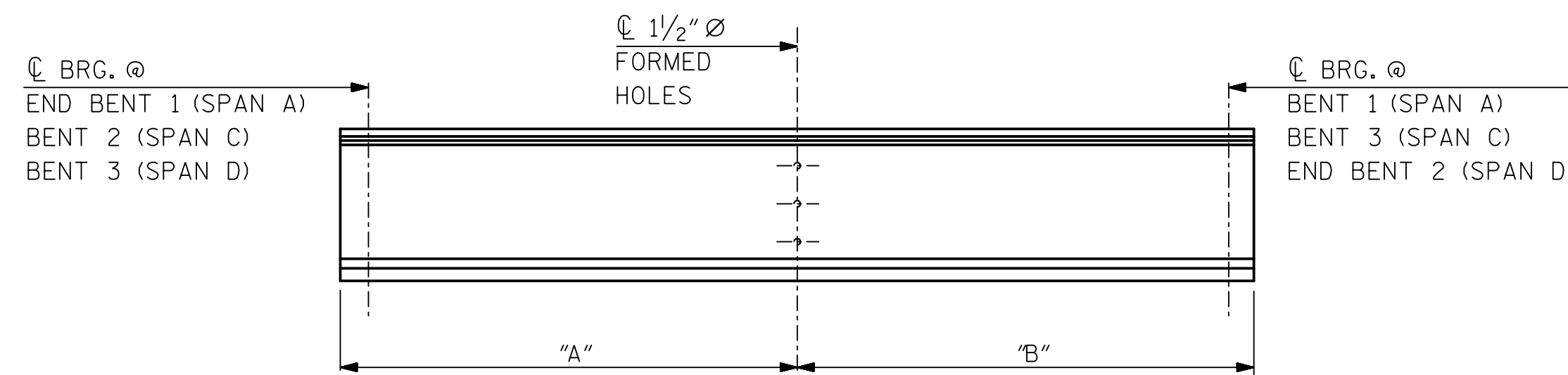
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".

WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 6" OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 1/2" OF THE THEORETICAL LOCATION SHOWN.

A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE.

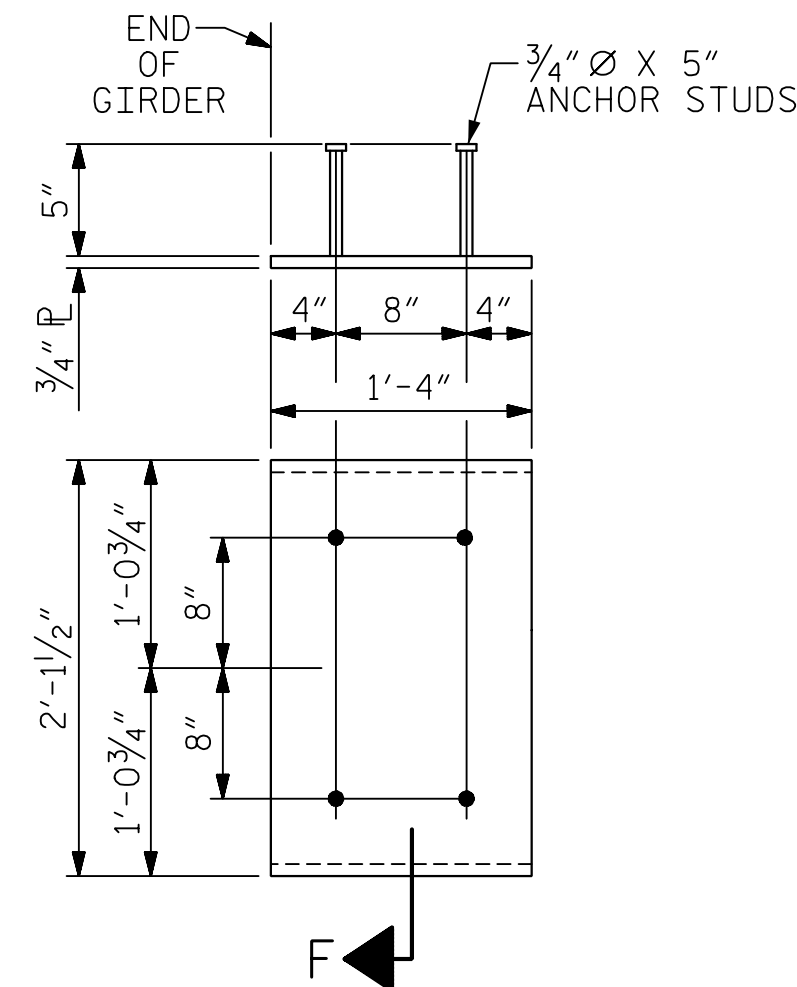
THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.



DIM.	GA1	GA4	GC1	GC4	GD1	GD4
"A"	43'-7 3/4"	29'-9 3/4"	48'-7 7/8"	34'-1 3/4"	42'-2 1/4"	27'-4 3/8"
"B"	29'-9 3/4"	43'-7 3/4"	34'-1 3/4"	48'-7 7/8"	27'-4 3/8"	42'-2 1/4"

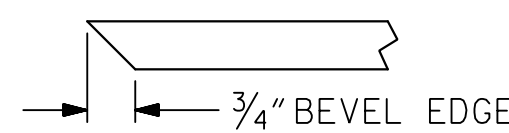
GIRDER ELEVATION

GA1 & GA4
GC1 & GC4
GD1 & GD4



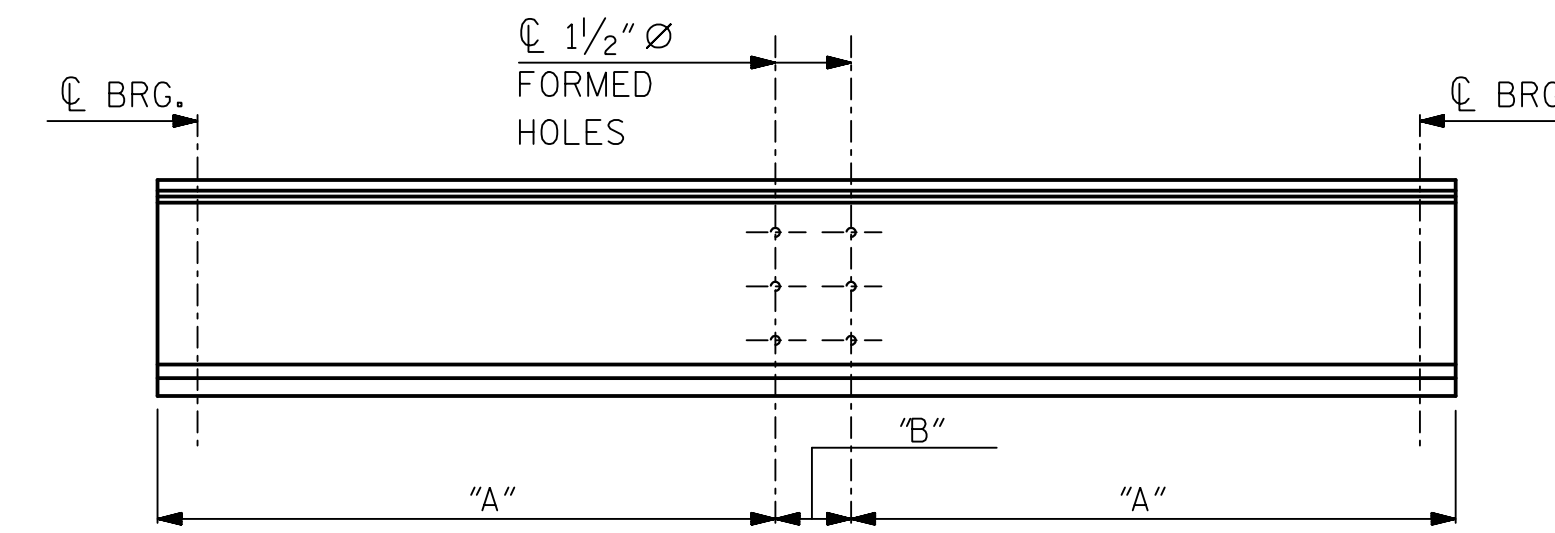
EMBEDDED PLATE "B-1" DETAILS FOR 74" MODIFIED BULB TEES

(2 REQ'D PER GIRDER)



SECTION "F"

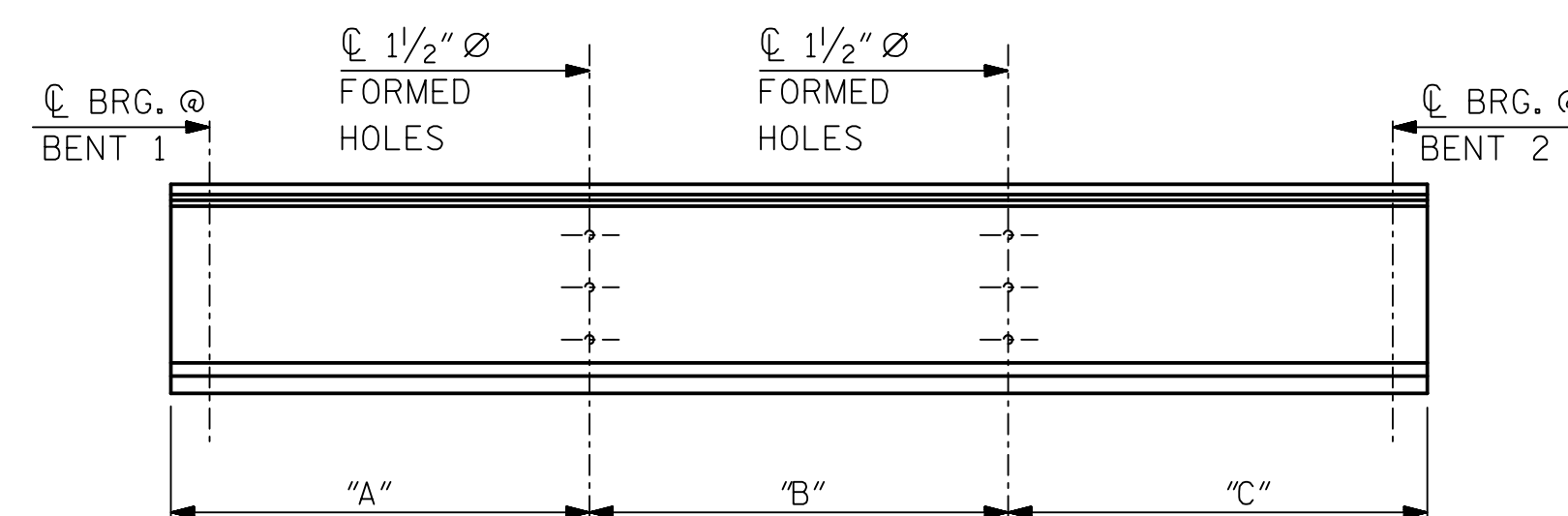
(SEE NOTES)



DIM.	GA2 & GA3	GC2 & GC3	GD2 & GD3
"A"	29'-9 3/4"	34'-1 3/4"	27'-4 3/8"
"B"	13'-10"	14'-6 1/8"	14'-9 7/8"

GIRDER ELEVATION

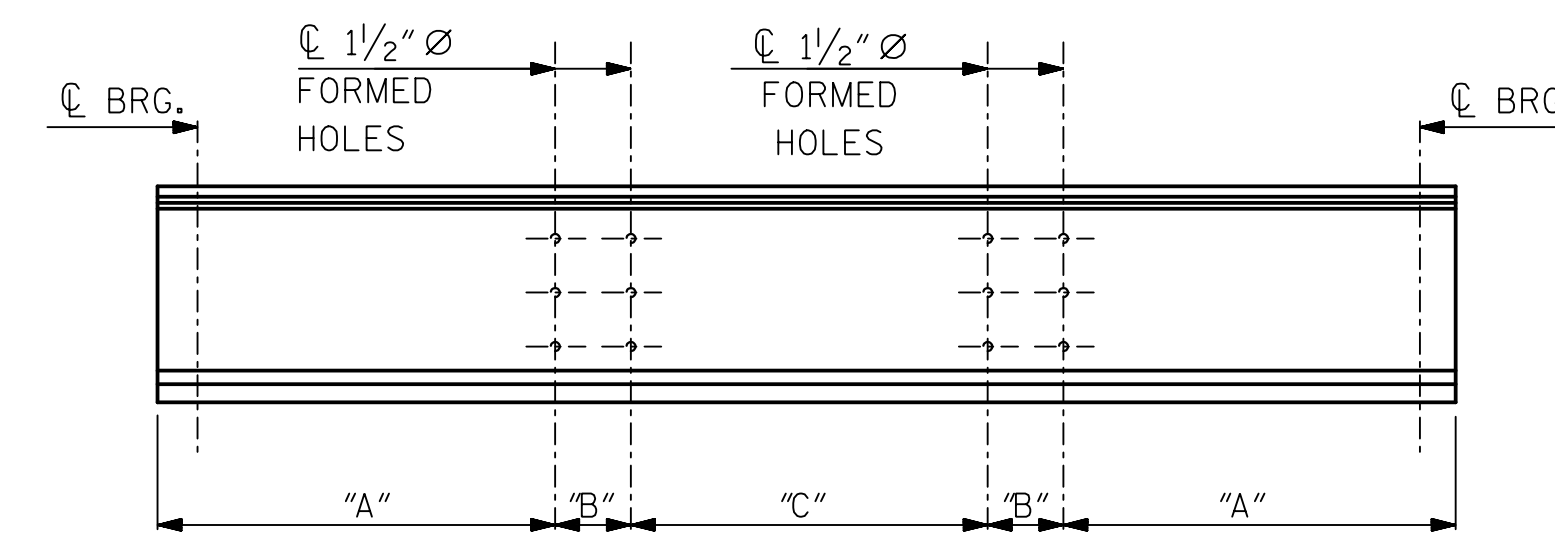
GA2 & GA3
GC2 & GC3
GD2 & GD3



DIM.	GB1	GB4
"A"	50'-11 1/2"	36'-9 5/8"
"B"	43'-10 1/2"	43'-10 1/2"
"C"	36'-9 5/8"	50'-11 1/2"

GIRDER ELEVATION

GB1 & GB4



DIM.	GB2 & GB3
"A"	36'-9 5/8"
"B"	14'-1 7/8"
"C"	29'-8 5/8"

GIRDER ELEVATION

GB2 & GB3

1 1/2" Ø FORMED HOLE LOCATIONS

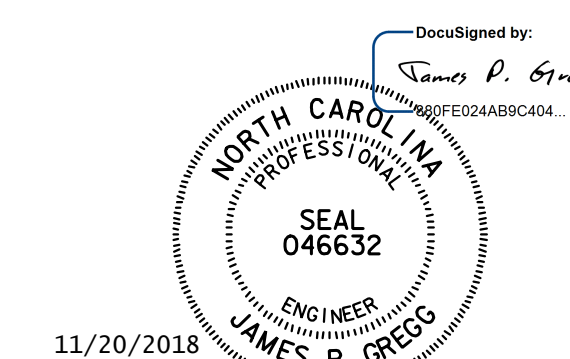
PROJECT NO. R-1015
CRAVEN COUNTY
STATION: POC STA. 138+31.09 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRESTRESSED CONCRETE
GIRDER DETAILS

RIGHT LANE



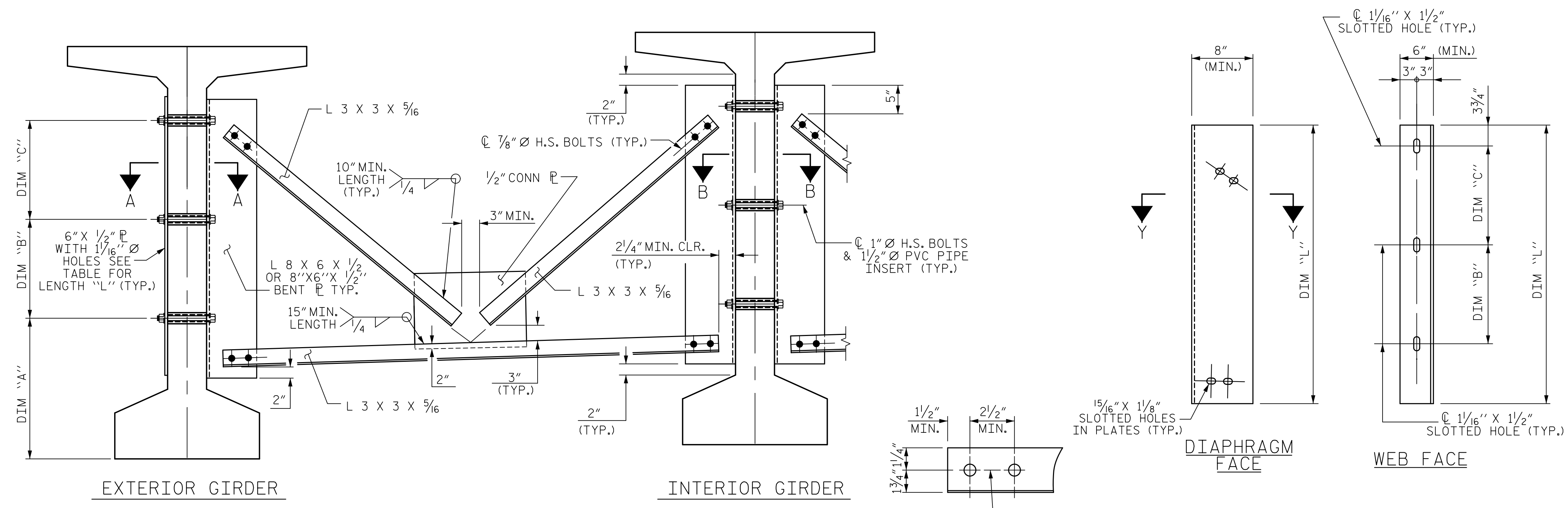
HNTB HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: A. SMITH DATE: 7/18
CHECKED BY: E. JOWZA DATE: 9/18
DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

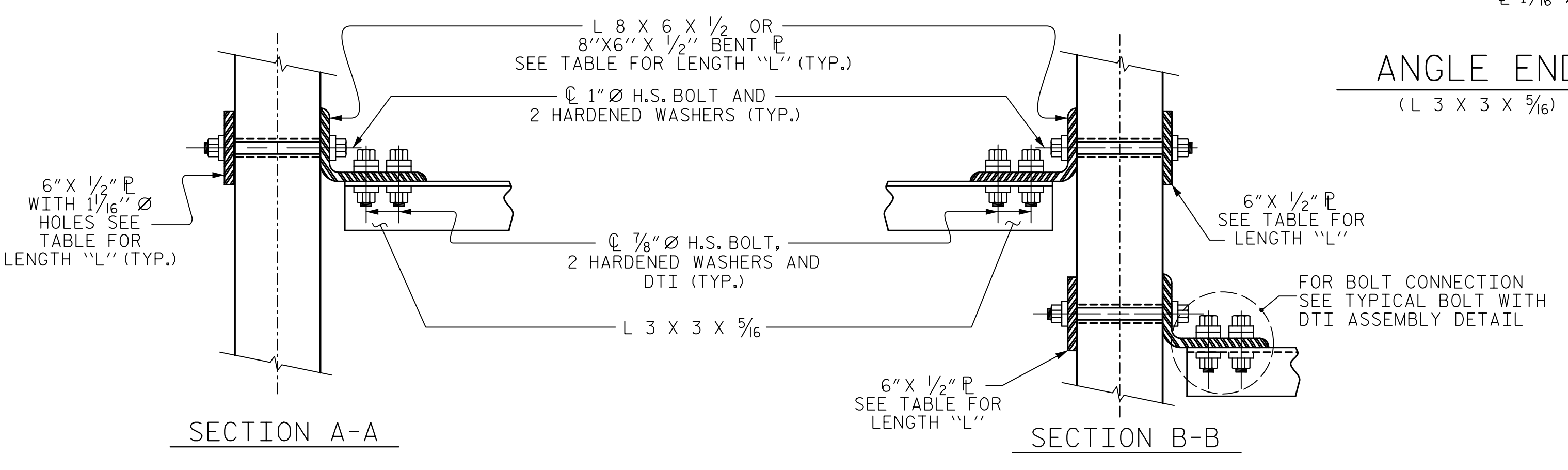
DWG. NO. 17

REVISIONS						SHEET NO. S04-17
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 46
2			4			

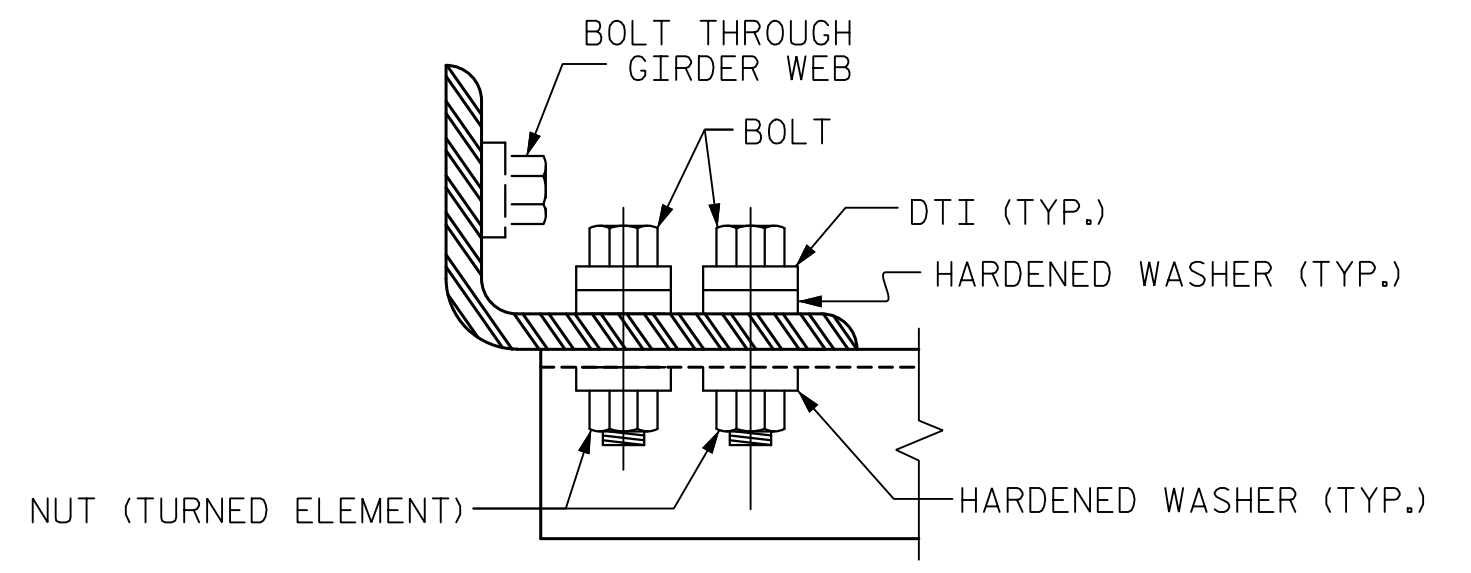
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UNLESS ALL SIGNATURES COMPLETED



PART SECTION AT INTERMEDIATE DIAPHRAGM



CONNECTION DETAILS



BOLT WITH DTI ASSEMBLY DETAIL

STRUCTURAL STEEL NOTES

ALL INTERMEDIATE DIAPHRAGM STEEL AND CONNECTOR PLATES SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL.

TENSION ON THE ASTM A325 BOLTS THROUGH THE ANGLE MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE PLATES, BENT PLATES, AND ANGLES SHALL BE METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY A THERMAL SPRAYED COATING WITH A SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE DEPARTMENT'S THERMAL SPRAYED COATINGS (METALLIZATION) PROGRAM, THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATORS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.

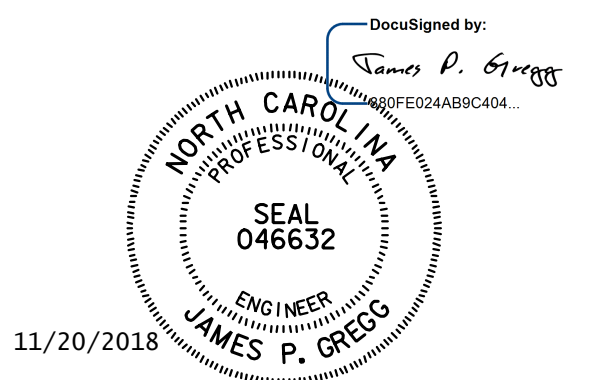
TABLE

GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
74" BULB TEE	2'-0 3/4"	1'-6"	1'-6"	4'-2"

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 INTERMEDIATE
 STEEL DIAPHRAGMS
 FOR 74" MODIFIED BULB TEE
 PRESTRESSED CONCRETE
 GIRDERS
 RIGHT LANE



ASSEMBLED BY : A. SMITH DATE : 7/18
 CHECKED BY : E. JOWZA DATE : 9/18
 DRAWN BY : RWW 11/09 REV. 10/11 MAA/GM
 CHECKED BY : GM 11/09 REV. 12/17 MAA/THC

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
 DRAWN BY : A. SMITH DATE : 7/18
 CHECKED BY : E. JOWZA DATE : 9/18
 DESIGN ENGINEER OF RECORD : J. GREGG DATE : 10/18
 DWG. NO. 18

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

TOTAL SHEETS: 46

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

STEEL SOLE PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

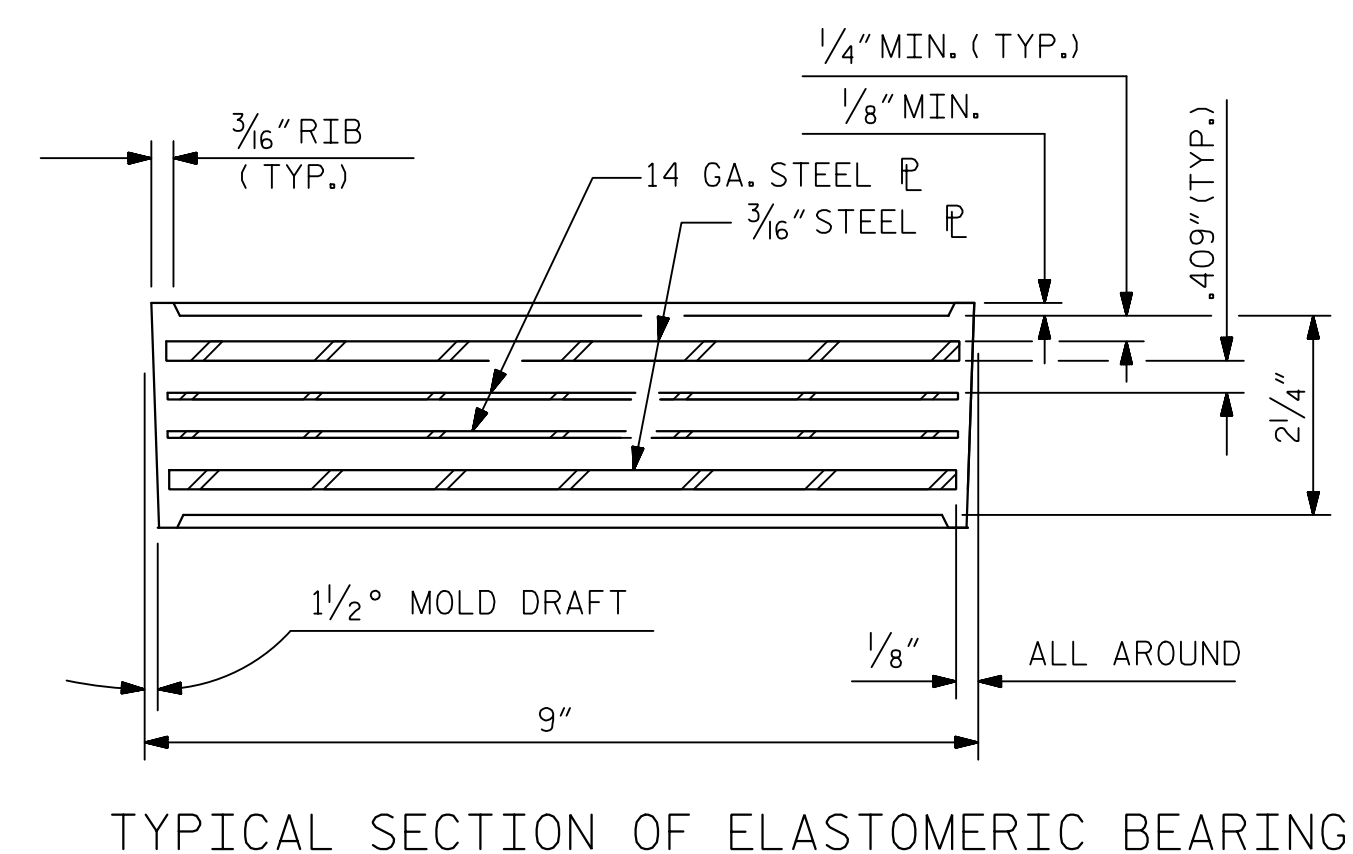
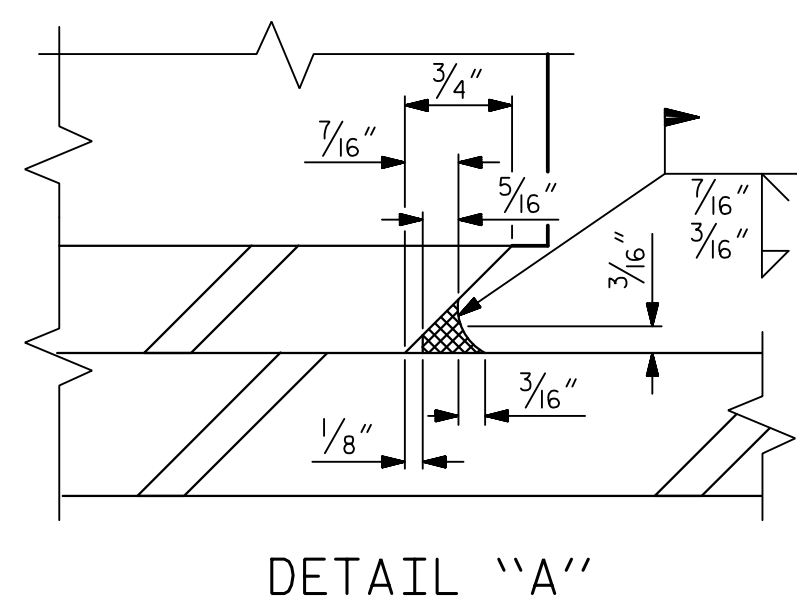
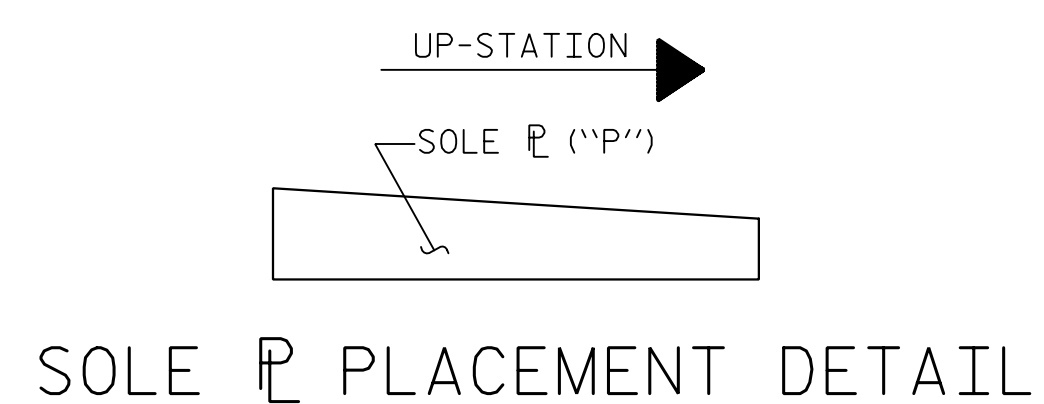
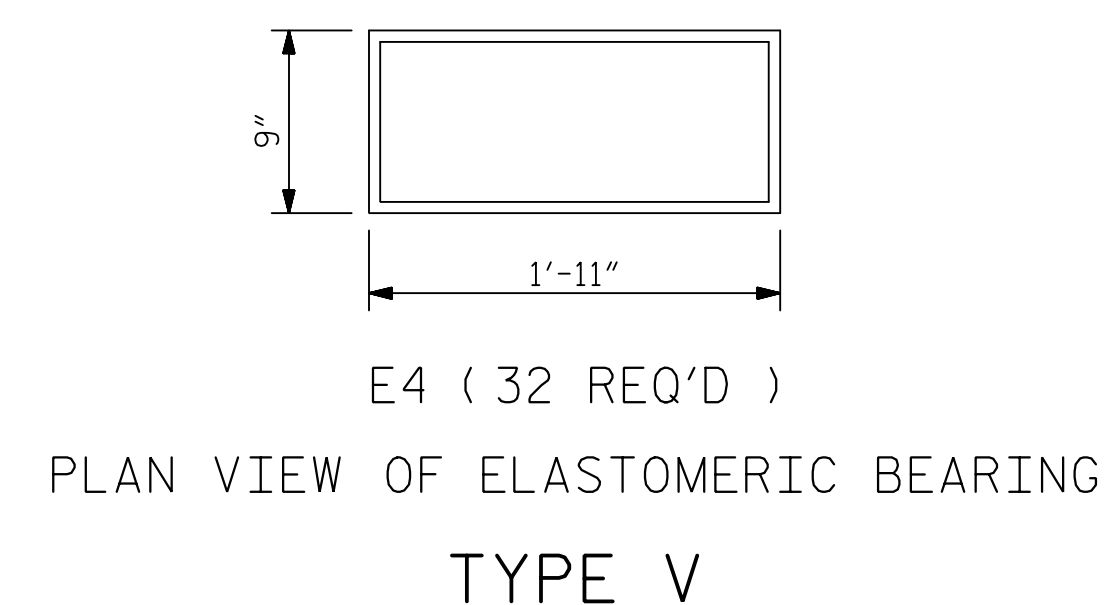
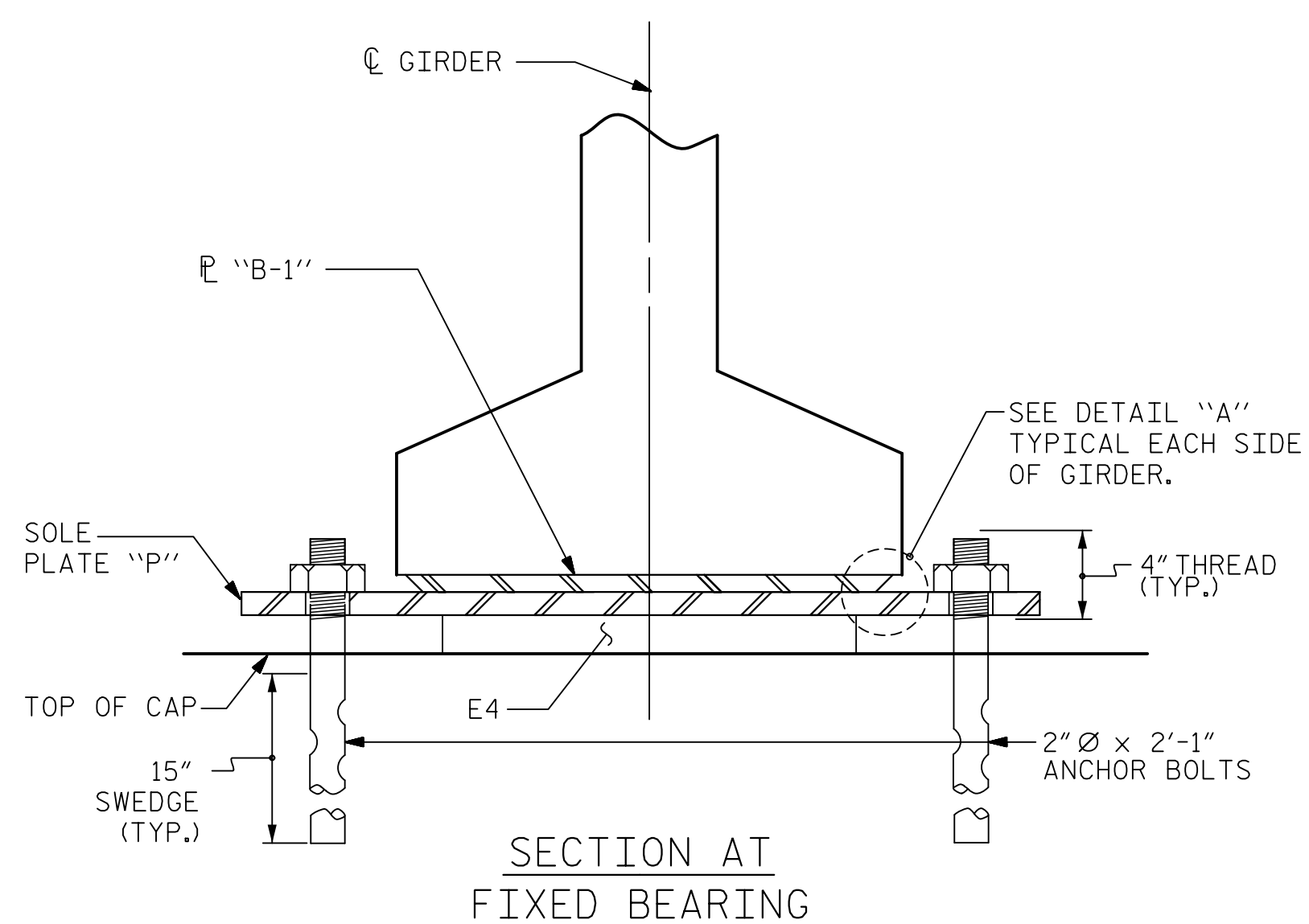
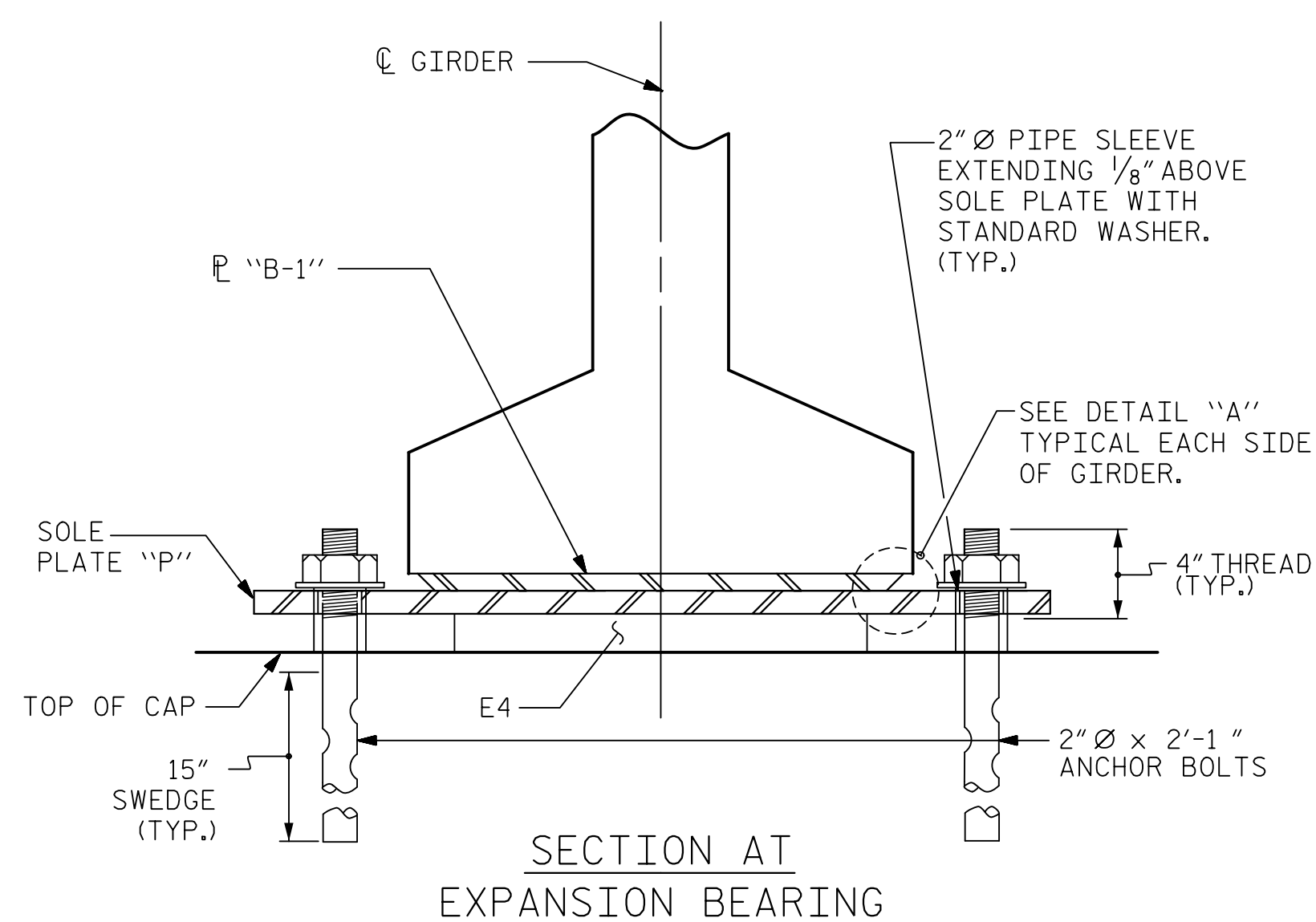
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

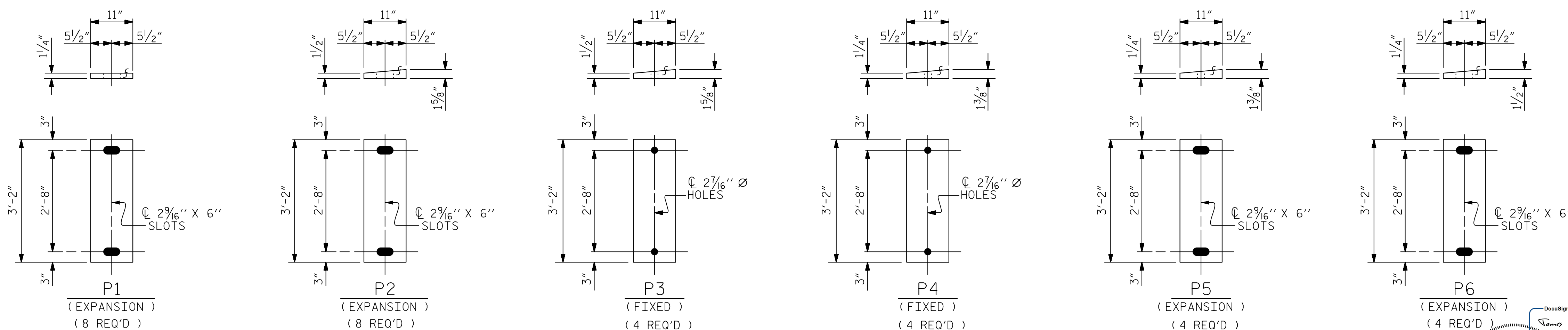
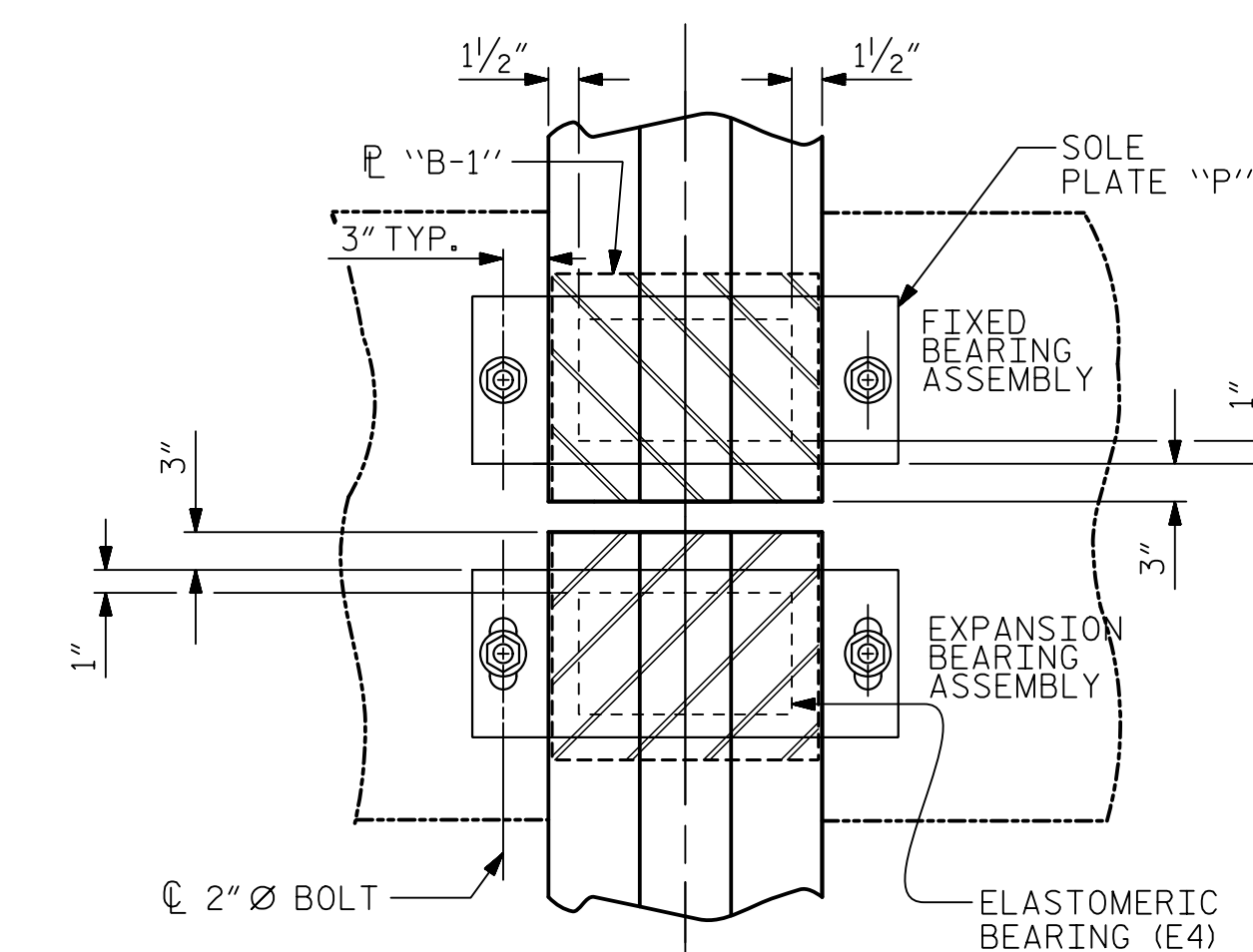
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.



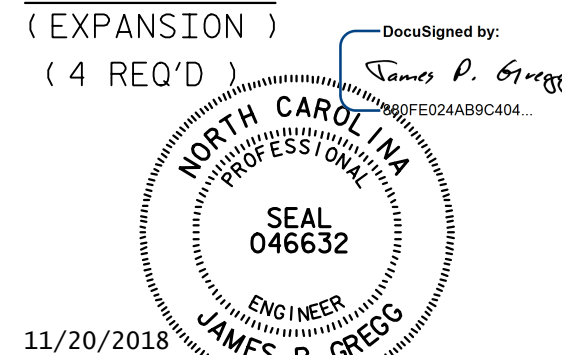
MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE V	365 k



SOLE PLATE DETAILS ("P")

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 ELASTOMERIC BEARING
 DETAILS
 PRESTRESSED CONCRETE GIRDER
 SUPERSTRUCTURE
 RIGHT LANE



ASSEMBLED BY : A. SMITH	DATE : 7/18
CHECKED BY : E. JOWZA	DATE : 9/18
DRAWN BY : EEM	REV. 6/13 AAC/MAA
CHECKED BY : VAP	REV. 1/15 MAA/GM
	REV. 12/17 MAA/THC

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HNTB	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY : A. SMITH	DATE : 7/18
CHECKED BY : E. JOWZA	DATE : 9/18
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 10/18

REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
				TOTAL SHEETS	
				46	

DEAD LOAD DEFLECTION TABLE FOR SPAN A												
0.6" Ø LOW RELAXATION STRANDS		GIRDER 1										
TENTH POINTS		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.028	0.053	0.072	0.085	0.089	0.085	0.072	0.053	0.028	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.010	0.020	0.028	0.033	0.035	0.033	0.028	0.020	0.010	0.000
FINAL CAMBER	↑	0	3/16	3/8	1/2	5/8	5/8	5/8	1/2	3/8	3/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A												
0.6" Ø LOW RELAXATION STRANDS		GIRDER 4										
TENTH POINTS		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.028	0.053	0.072	0.085	0.089	0.085	0.072	0.053	0.028	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.009	0.018	0.025	0.030	0.031	0.030	0.025	0.018	0.009	0.000
FINAL CAMBER	↑	0	1/4	7/16	9/16	11/16	11/16	11/16	9/16	7/16	1/4	0

DEAD LOAD DEFLECTION TABLE FOR SPAN C												
0.6" Ø LOW RELAXATION STRANDS		GIRDER 1										
TENTH POINTS		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.032	0.061	0.083	0.098	0.103	0.098	0.083	0.061	0.032	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.017	0.033	0.045	0.053	0.056	0.053	0.045	0.033	0.017	0.000
FINAL CAMBER	↑	0	3/16	5/16	7/16	9/16	9/16	9/16	7/16	5/16	3/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN C												
0.6" Ø LOW RELAXATION STRANDS		GIRDER 4										
TENTH POINTS		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.032	0.061	0.083	0.098	0.103	0.098	0.083	0.061	0.032	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.016	0.032	0.044	0.052	0.055	0.052	0.044	0.032	0.016	0.000
FINAL CAMBER	↑	0	3/16	3/8	7/16	9/16	9/16	9/16	7/16	3/8	3/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN D												
0.6" Ø LOW RELAXATION STRANDS		GIRDER 1										
TENTH POINTS		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.026	0.049	0.067	0.078	0.082	0.078	0.067	0.049	0.026	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.008	0.016	0.022	0.026	0.027	0.026	0.022	0.016	0.008	0.000
FINAL CAMBER	↑	0	3/16	3/8	9/16	5/8	11/16	5/8	9/16	3/8	3/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN D												
0.6" Ø LOW RELAXATION STRANDS		GIRDER 4										
TENTH POINTS		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.026	0.049	0.067	0.078	0.082	0.078	0.067	0.049	0.026	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.008	0.016	0.022	0.026	0.028	0.026	0.022	0.016	0.008	0.000
FINAL CAMBER	↑	0	3/16	3/8	9/16	5/8	5/8	5/8	9/16	3/8	3/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B																						
0.6" Ø LOW RELAXATION STRANDS		GIRDER 1																				
TWENTIETH POINTS		0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.059	0.117	0.172	0.222	0.266	0.303	0.334	0.355	0.369	0.373	0.369	0.355	0.334	0.303	0.266	0.222	0.172	0.117	0.059	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.039	0.077	0.114	0.149	0.179	0.205	0.226	0.241	0.250	0.253	0.250	0.241	0.226	0.205	0.179	0.149	0.114	0.077	0.039	0.000
FINAL CAMBER	↑	0	1/4	1/2	11/16	7/8	11/16	13/16	15/16	13/8	17/16	17/16	17/16	13/8	15/16	13/16	11/16	7/8	11/16	1/2	1/4	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B																						
0.6" Ø LOW RELAXATION STRANDS		GIRDERS 2 & 3																				
TWENTIETH POINTS		0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.059	0.117	0.172	0.222	0.266	0.303	0.334	0.355	0.369	0.373	0.369	0.355	0.334	0.303	0.266	0.222	0.172	0.117	0.059	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.041	0.081	0.121	0.157	0.189	0.217	0.238	0.254	0.264	0.267	0.264	0.254	0.238	0.217	0.189	0.157	0.121	0.081	0.041	0.000
FINAL CAMBER	↑	0	3/16	7/16	5/8	3/4	15/16	11/16	11/8	13/16	11/4	11/4	11/4	13/16	11/8	11/16	15/16	3/4	5/8	7/16	3/16	0

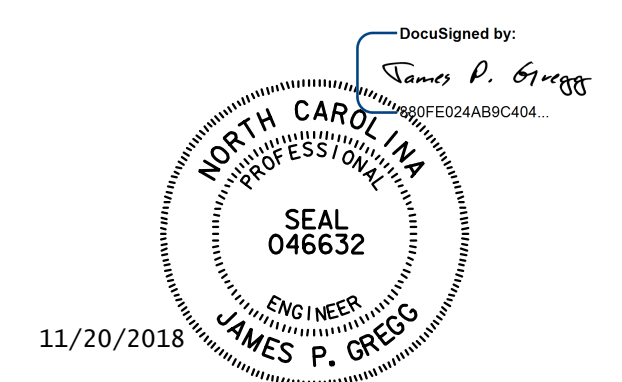
DEAD LOAD DEFLECTION TABLE FOR SPAN B																						
0.6" Ø LOW RELAXATION STRANDS		GIRDER 4																				
TWENTIETH POINTS		0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.059	0.117	0.172	0.222	0.266	0.303	0.334	0.355	0.369	0.373	0.369	0.355	0.334	0.303	0.266	0.222	0.172	0.117	0.059	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.036	0.070	0.104	0.136	0.163	0.187	0.206	0.220	0.229	0.231	0.229	0.220	0.207	0.188	0.164	0.136	0.105	0.071	0.036	0.000
FINAL CAMBER	↑	0	1/4	9/16	13/16	11/16	11/4	13/8	19/16	15/8	111/16	111/16	111/16	15/8	11/2	13/8	11/4	11/16	13/16	9/16	1/4	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A													
0.6" Ø LOW RELAXATION STRANDS		GIRDERS 2 & 3											
TENTH POINTS		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.028	0.053	0.072	0.085	0.089	0.085	0.072	0.053	0.028	0.000	
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.011	0.022	0.030	0.036	0.037	0.036	0.030	0.022	0.011	0.000	
FINAL CAMBER	↑	0	3/16	3/8	1/2	9/16	5/8	9/16	1/2	3/8	3/16	0	

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR SPAN C													
0.6" Ø LOW RELAXATION STRANDS		GIRDERS 2 & 3											
TENTH POINTS		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.032	0.061	0.083	0.098	0.103	0.098	0.083	0.061	0.032	0.000	
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.018	0.035	0.048	0.057	0.059	0.057	0.048	0.035	0.018	0.000	
FINAL CAMBER	↑	0	3/16	5/16	7/16	1/2	1/2	1/2	7/16	5/16	3/16	0	

DEAD LOAD DEFLECTION TABLE FOR SPAN D													
0.6" Ø LOW RELAXATION STRANDS		GIRDERS 2 & 3											
TENTH POINTS		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.026	0.049	0.067	0.078	0.082	0.078	0.067	0.049	0.026	0.000	
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.009	0.017	0.024	0.028	0.029	0.028	0.024	0.017	0.009	0.000	
FINAL CAMBER	↑	0	3/16	3/8	1/2	5/8	5/8	5/8	1/2	3/8	3/16	0	



PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 DEAD LOAD DEFLECTIONS
 RIGHT LANE

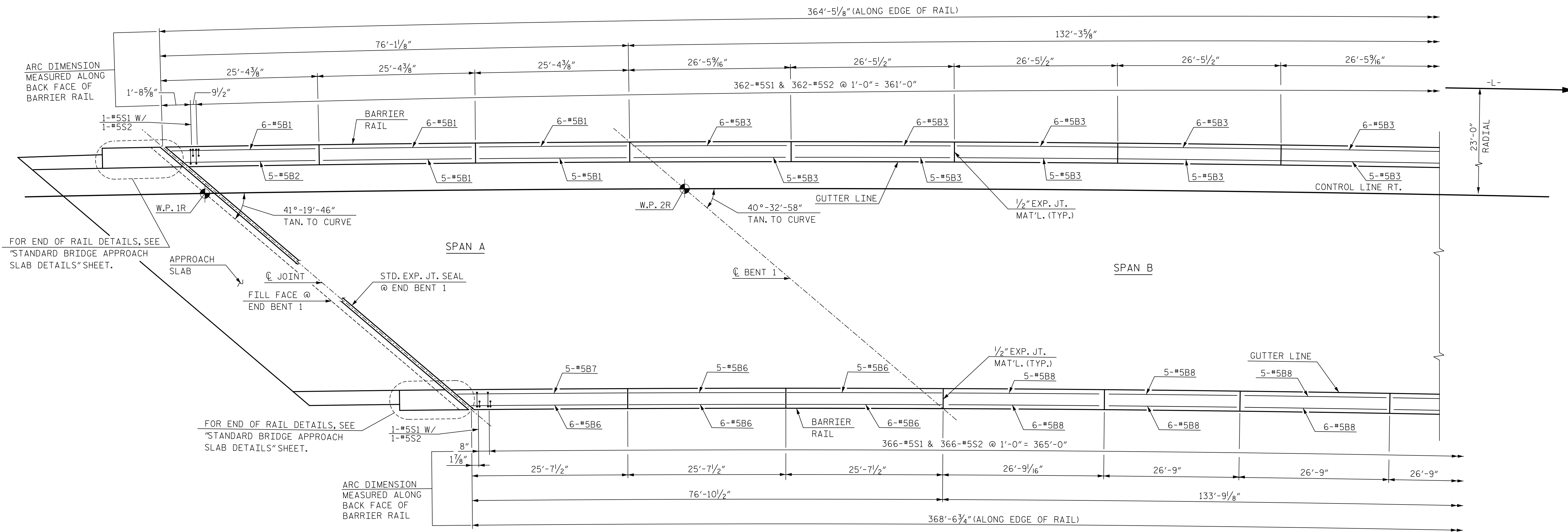
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 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: A. SMITH DATE: 7/18
 CHECKED BY: E. JOWZA DATE: 9/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 20

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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			46
2			4			



PLAN OF BARRIER RAIL

NOTE: EDGE OF SLAB NOT SHOWN FOR CLARITY.

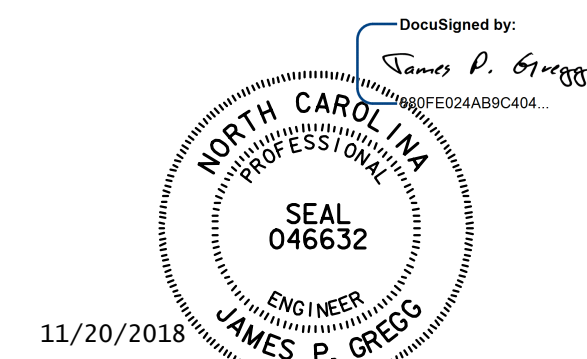
PROJECT NO. R-1015
Craven COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

CONCRETE
 BARRIER RAIL

RIGHT LANE

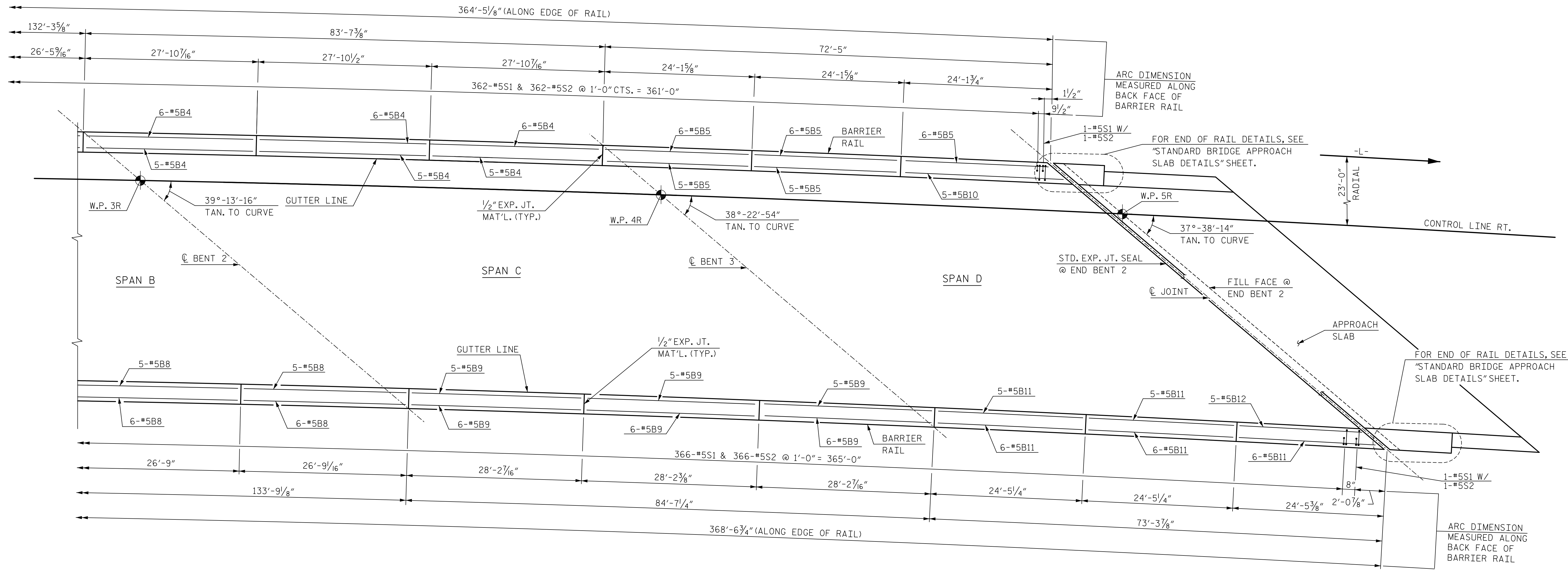


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DRAWN BY: A. Smith DATE: 7/18
 CHECKED BY: F. Jowza DATE: 10/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18
 DWG. NO. 21

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	S04-21	
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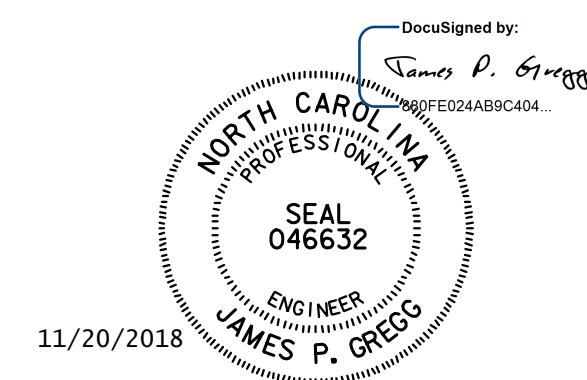


PLAN OF BARRIER RAIL

NOTE: EDGE OF SLAB NOT SHOWN FOR CLARITY.

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**CONCRETE
 BARRIER RAIL**
 RIGHT LANE

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 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
 DRAWN BY: A. Smith DATE: 7/18
 CHECKED BY: E. Jowza DATE: 10/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18
 DWG. NO. 22

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REVISIONS						SHEET NO. S04-22
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 46
2			4			

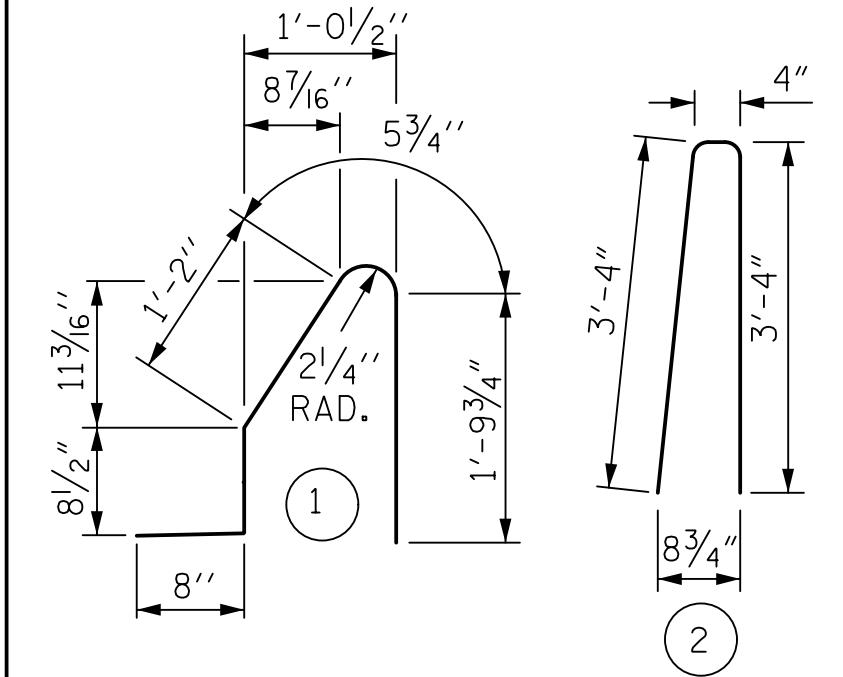
NOTES

THE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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. THE 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.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

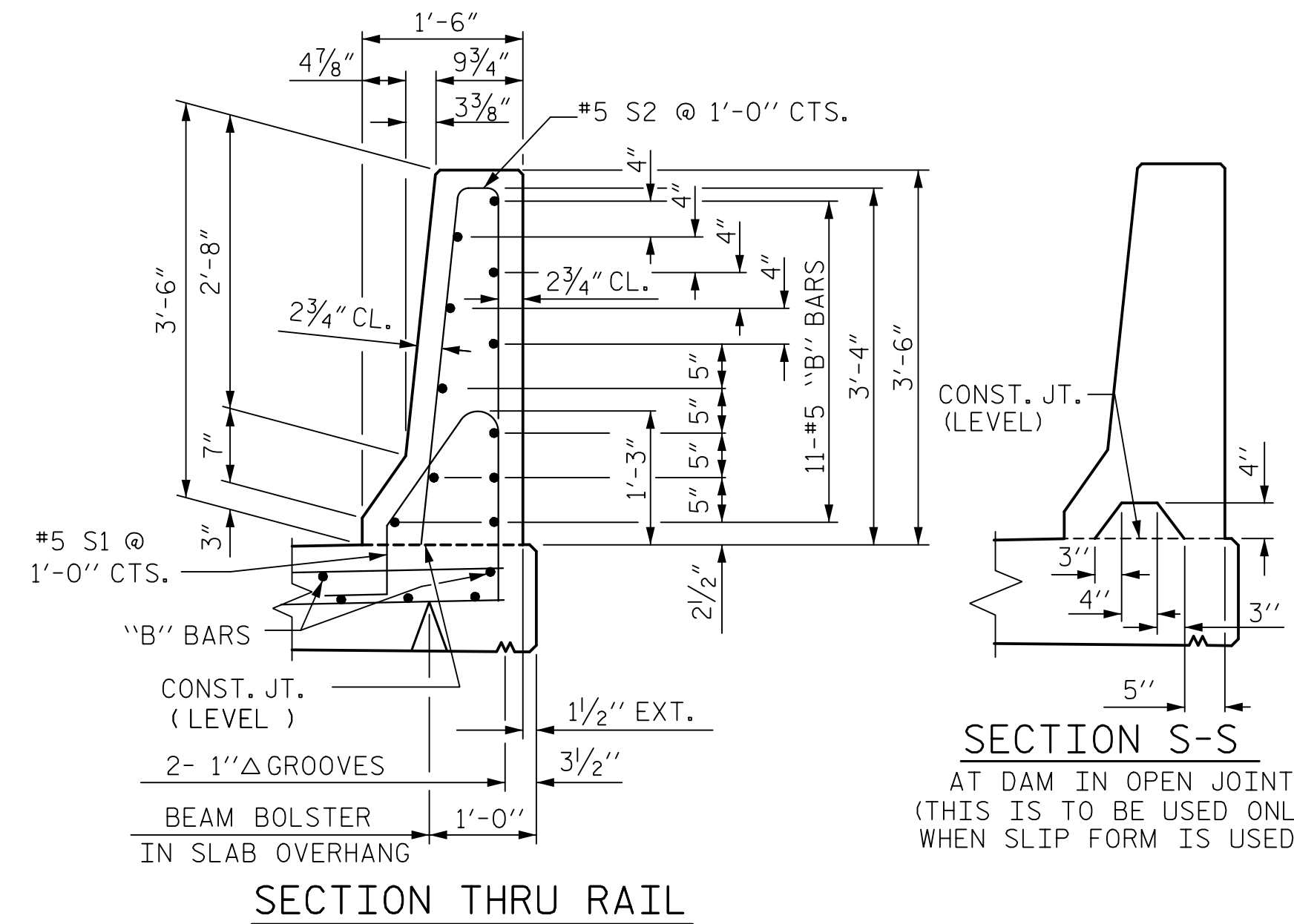
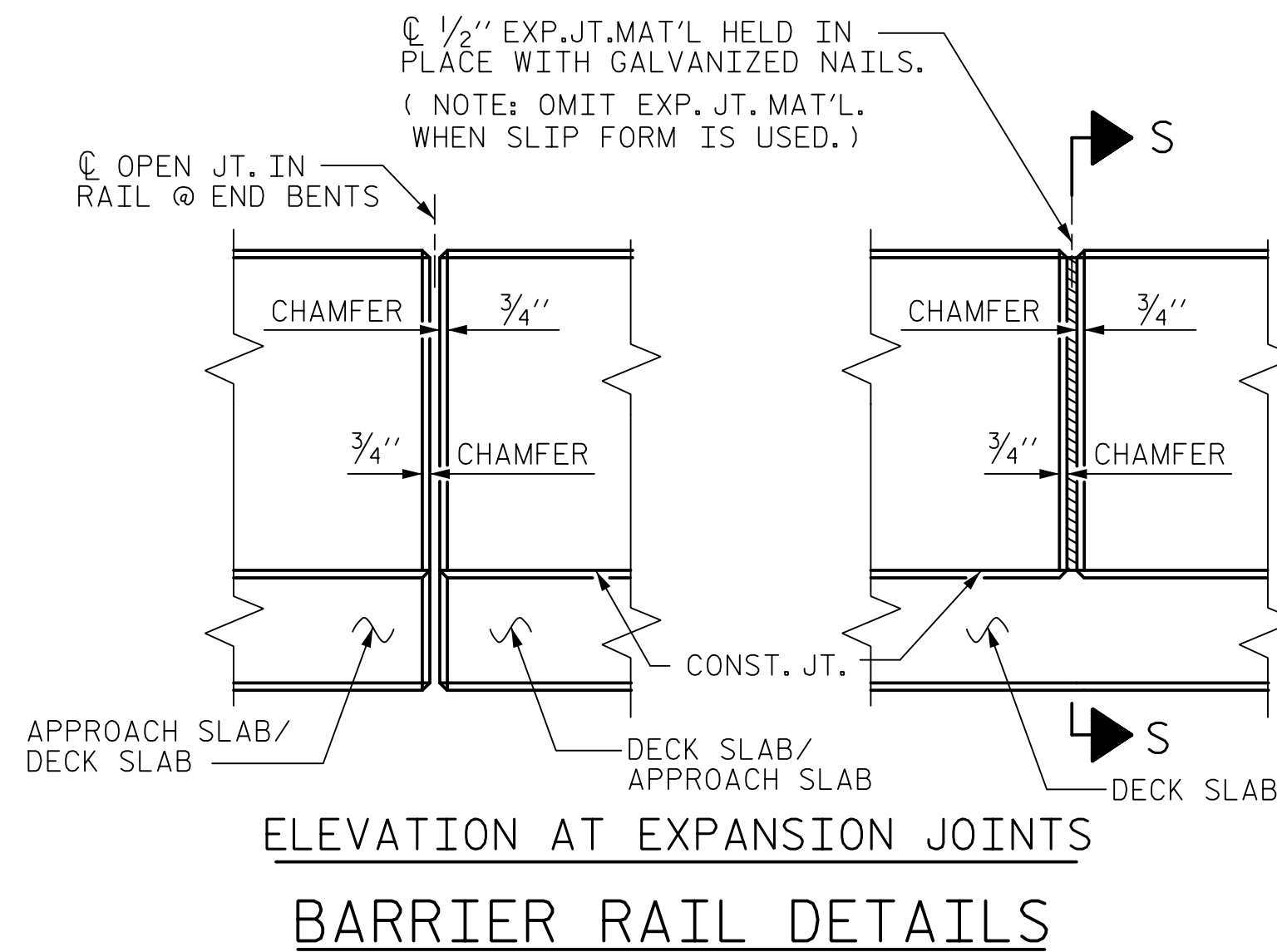
BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	28	#5	STR.	25'-0"	730
* B2	5	#5	STR.	23'-6"	123
* B3	55	#5	STR.	26'-1"	1,496
* B4	33	#5	STR.	27'-6"	947
* B5	28	#5	STR.	23'-9"	694
* B6	28	#5	STR.	25'-3"	737
* B7	5	#5	STR.	26'-8"	139
* B8	55	#5	STR.	26'-5"	1,515
* B9	33	#5	STR.	27'-10"	958
* B10	5	#5	STR.	25'-4"	132
* B11	28	#5	STR.	24'-1"	703
* B12	5	#5	STR.	22'-3"	116

* S1	732	#5	1	4'-10"	3,690
* S2	732	#5	2	7'-0"	5,344
* EPOXY COATED REINFORCING STEEL				17,324	LBS.
CLASS AA CONCRETE				99.6	CU. YDS.
CONCRETE BARRIER RAIL				733.0	LIN. FT.

NOTE: FOR BARRIER RAIL EXTENSIONS ON APPROACH SLABS, SEE "STANDARD BRIDGE APPROACH SLAB DETAILS" SHEET.

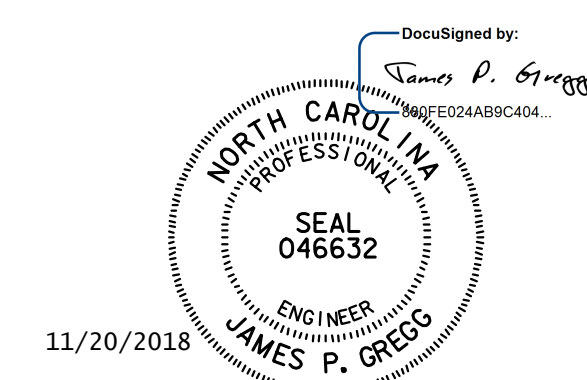


PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 CONCRETE
 BARRIER RAIL
 RIGHT LANE

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S04-23
1			3			TOTAL SHEETS
2			4			46



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DRAWN BY: A. SMITH DATE: 7/18
 CHECKED BY: E. JOWZA DATE: 9/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

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ASSEMBLED BY : A. SMITH	DATE : 7/18
CHECKED BY : E. JOWZA	DATE : 9/18
DRAWN BY : ARB 5/87	REV. 7/12 MAA/GM
CHECKED BY : SJD 9/87	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

NOTES

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

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 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

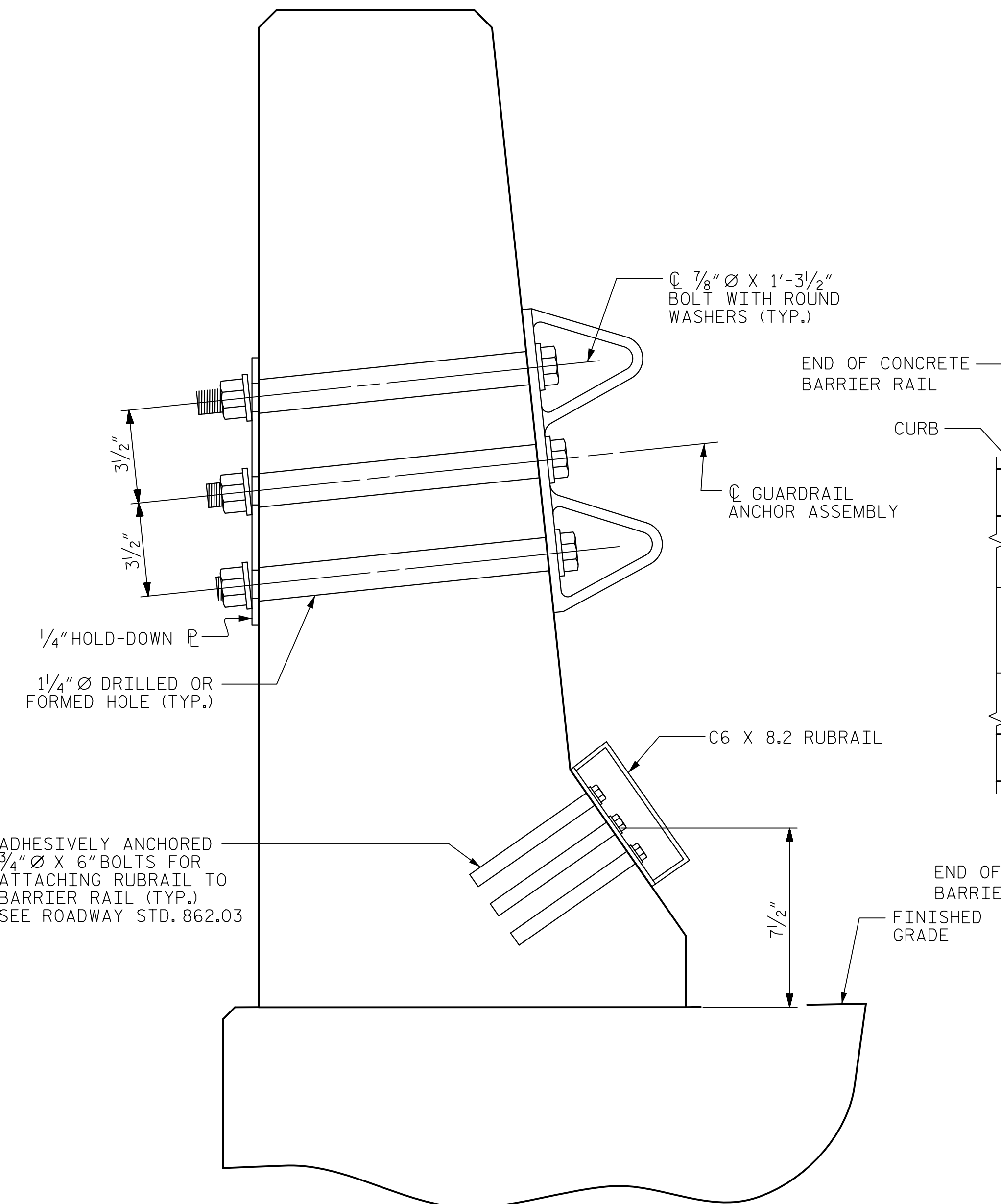
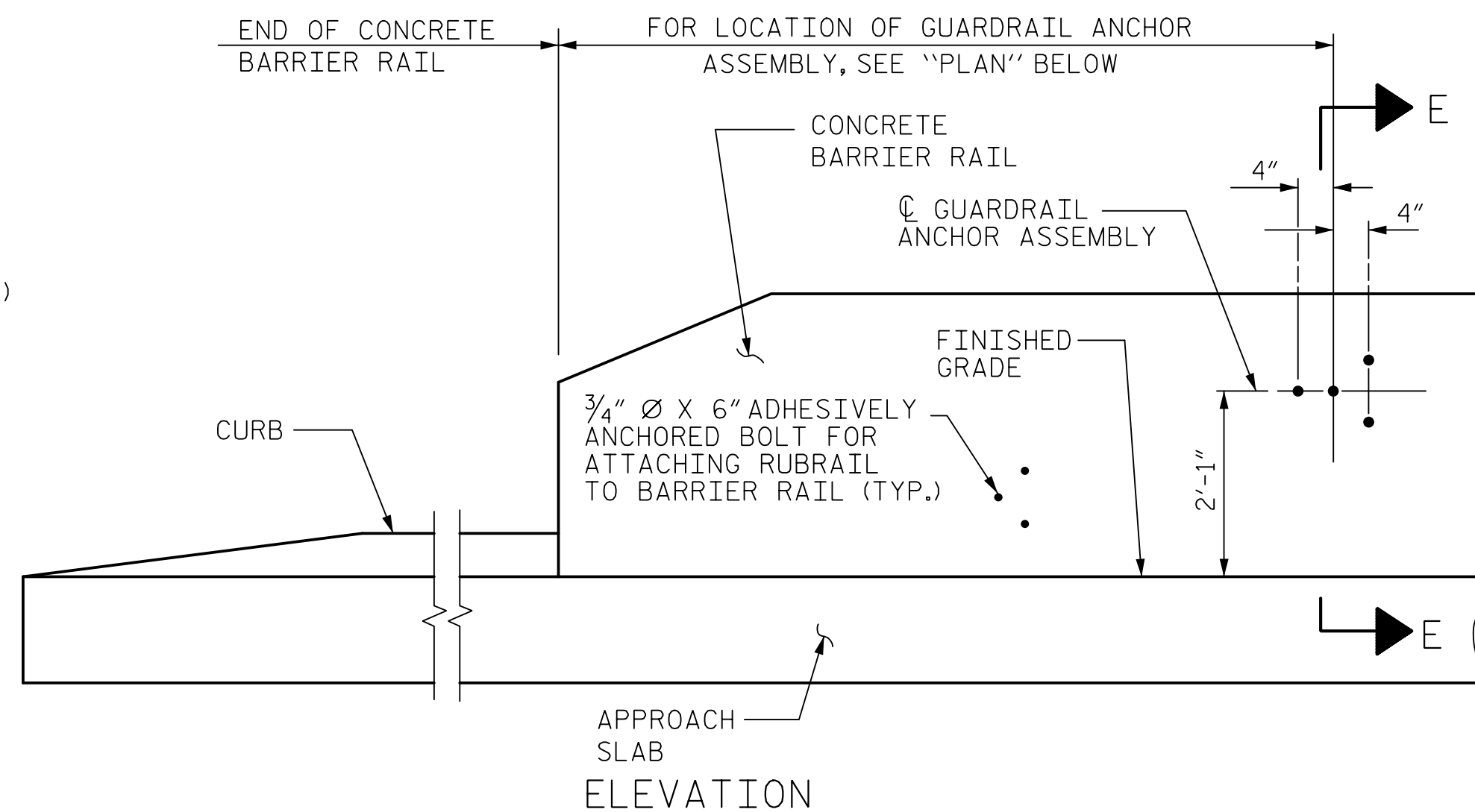
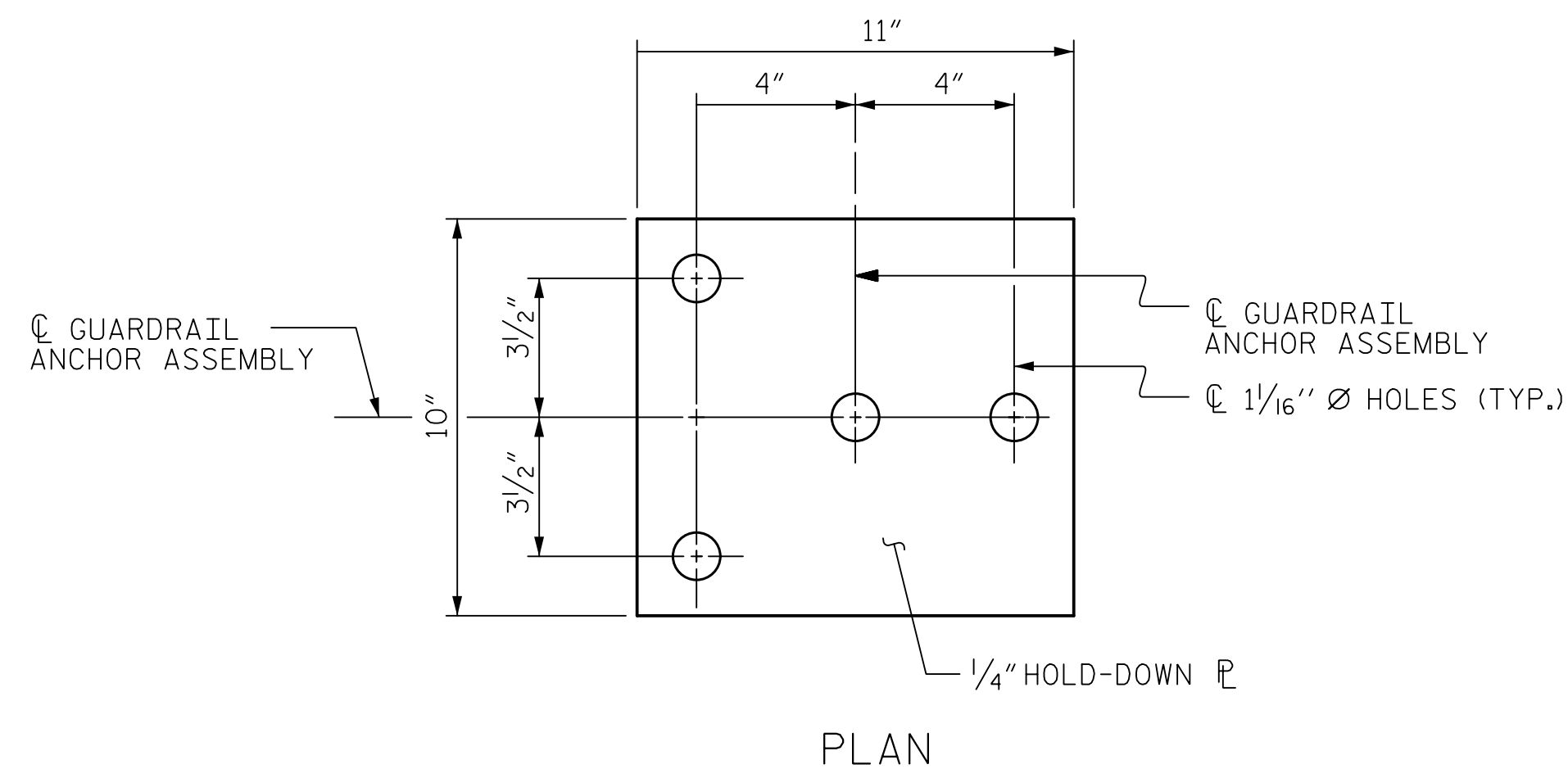
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

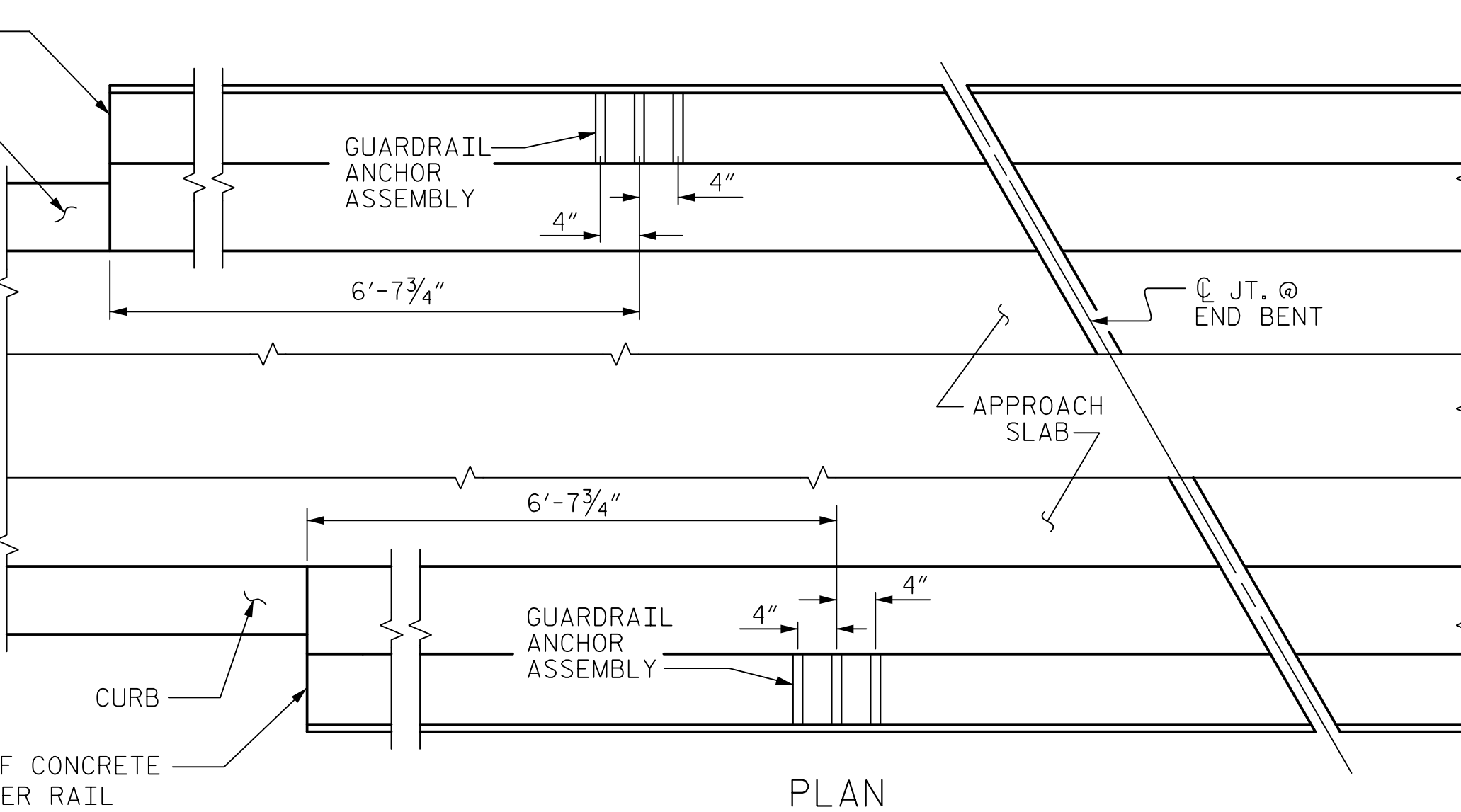
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

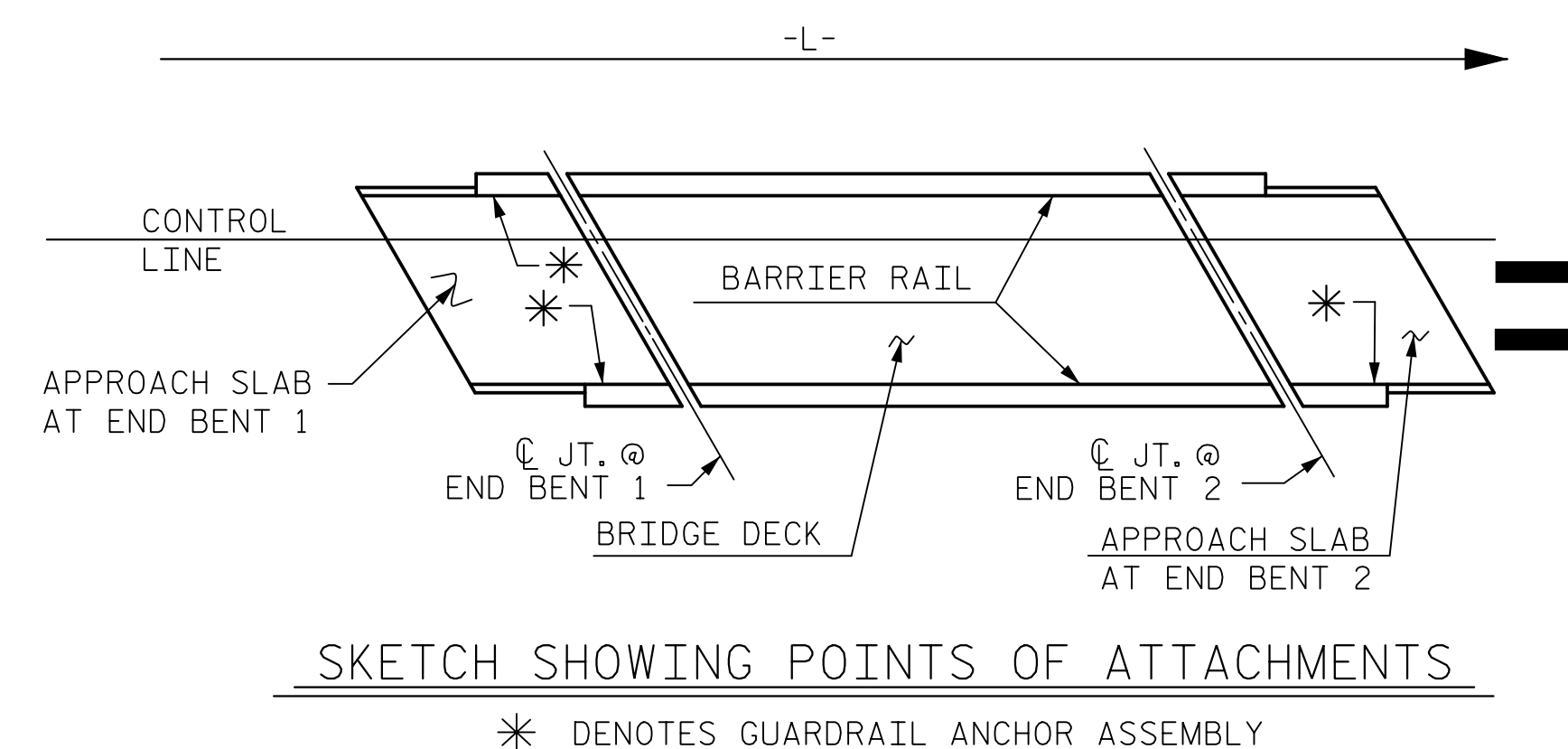


SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

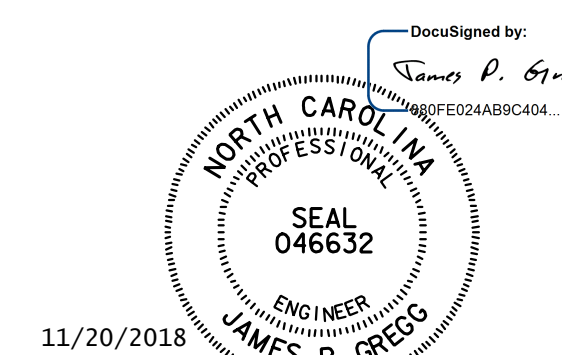
END BENT 1 SHOWN, END BENT 2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR BARRIER RAIL

RIGHT LANE

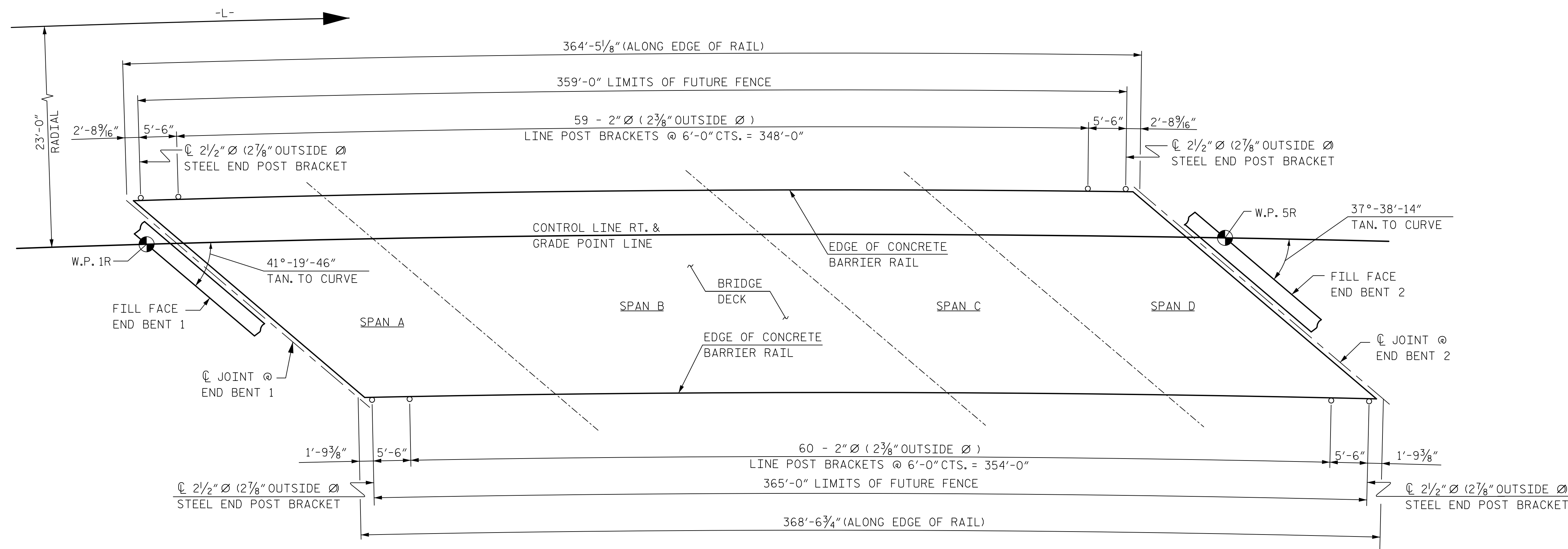
ASSEMBLED BY : A. SMITH	DATE : 7/18
CHECKED BY : E. JOWZA	DATE : 9/18
DRAWN BY : TLA 5/06	REV. 7/12 MAA/GM
CHECKED BY : GM 5/06	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

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DRAWN BY : A. SMITH	DATE : 7/18	DWG. NO. 24	
CHECKED BY : E. JOWZA	DATE : 9/18		
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 10/18		

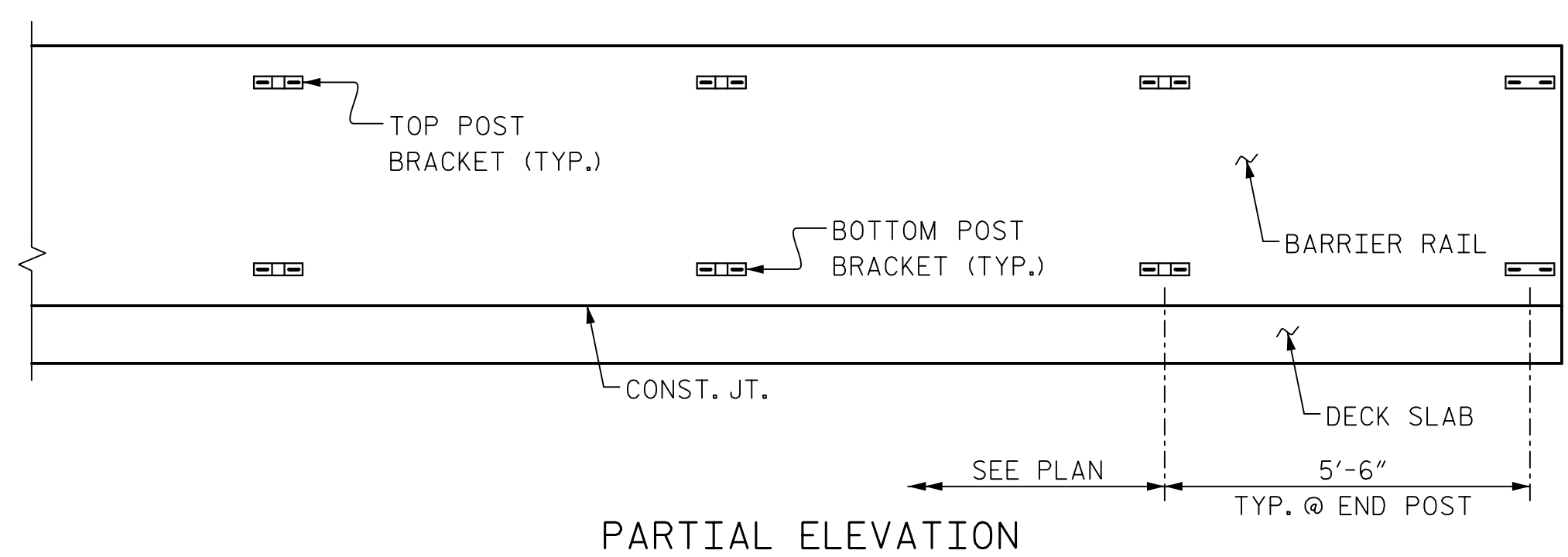
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	DATE	TOTAL SHEETS
1			3		46
2			4		

STD. NO. GRA2

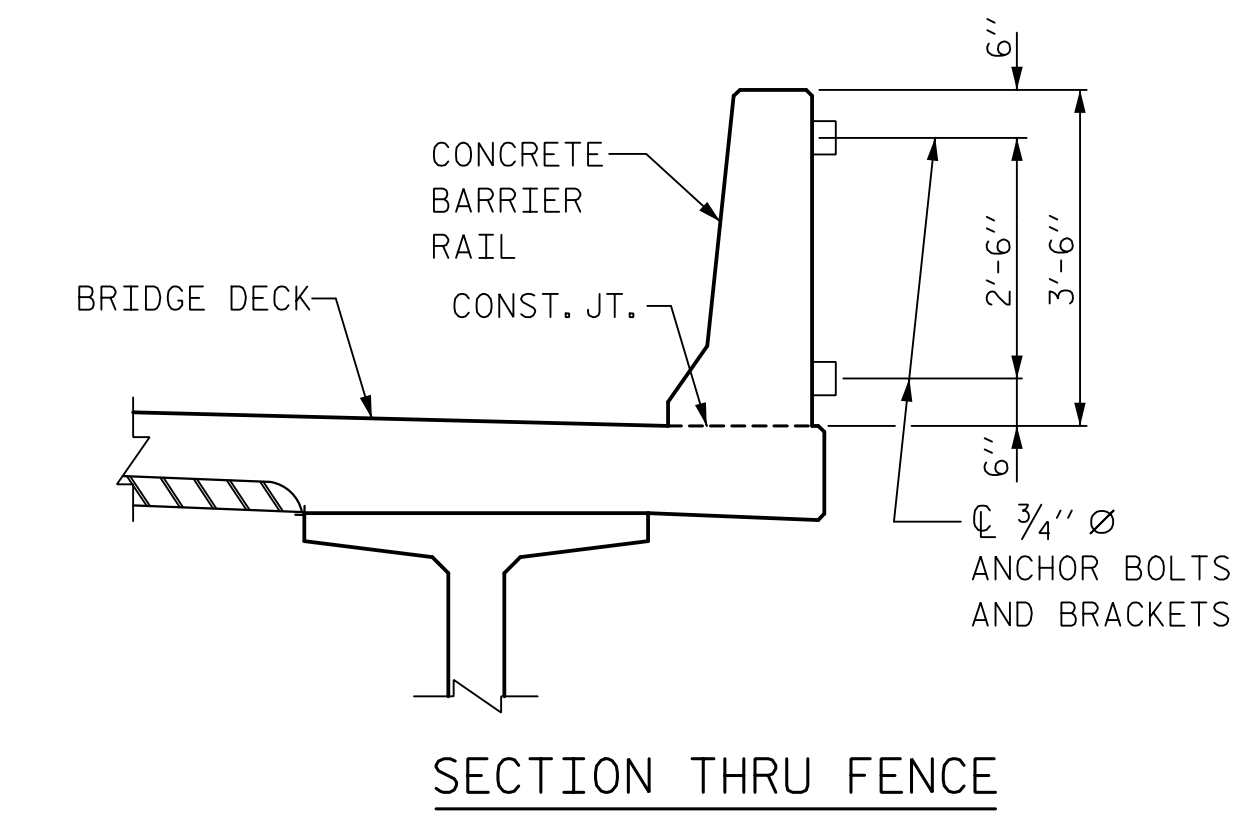


PLAN OF FENCE POST SPACING
(PAY LENGTH 724.00 FEET)

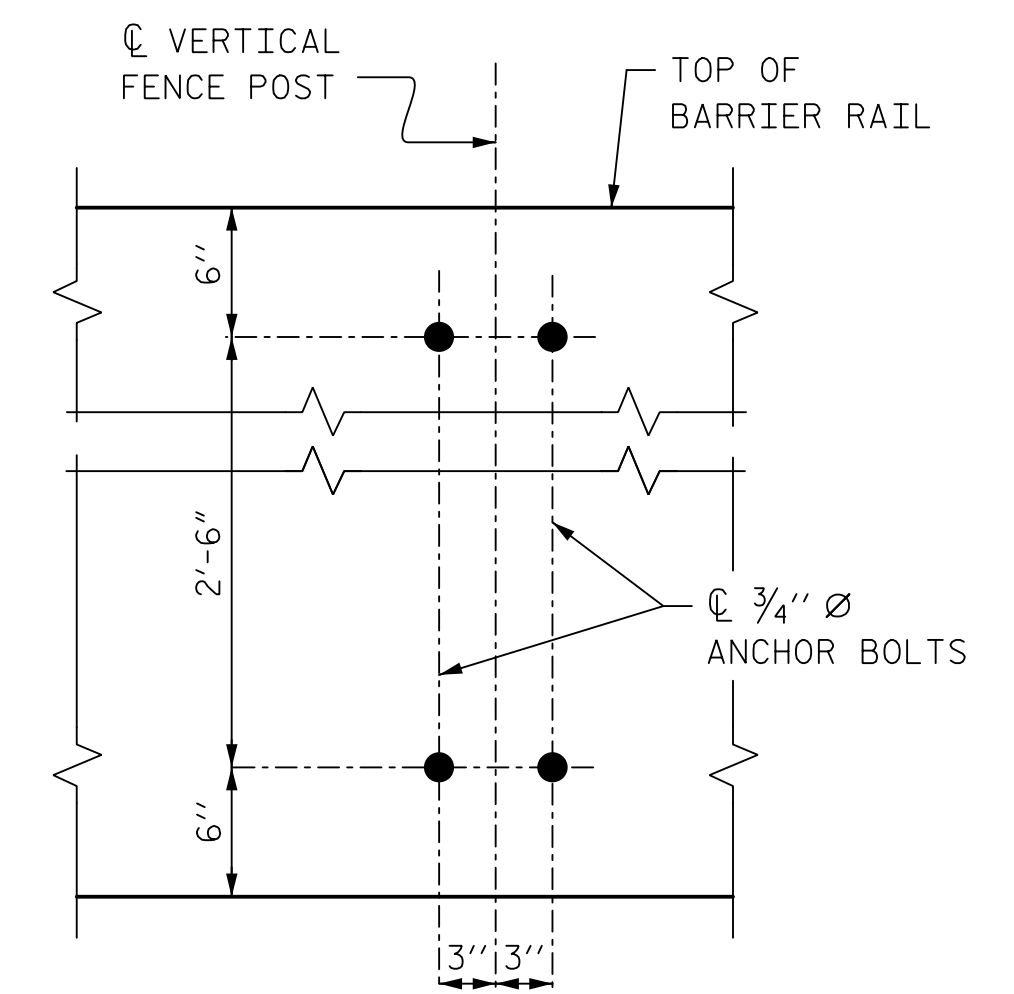
NOTE: EDGE OF SLAB NOT SHOWN FOR CLARITY.



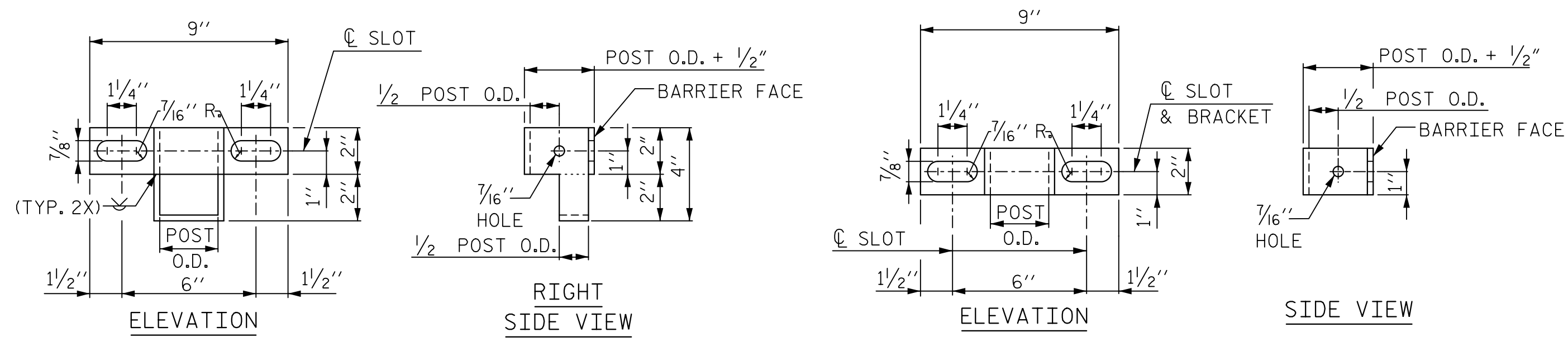
PARTIAL ELEVATION



SECTION THRU FENCE



BOLT SETTING DETAIL

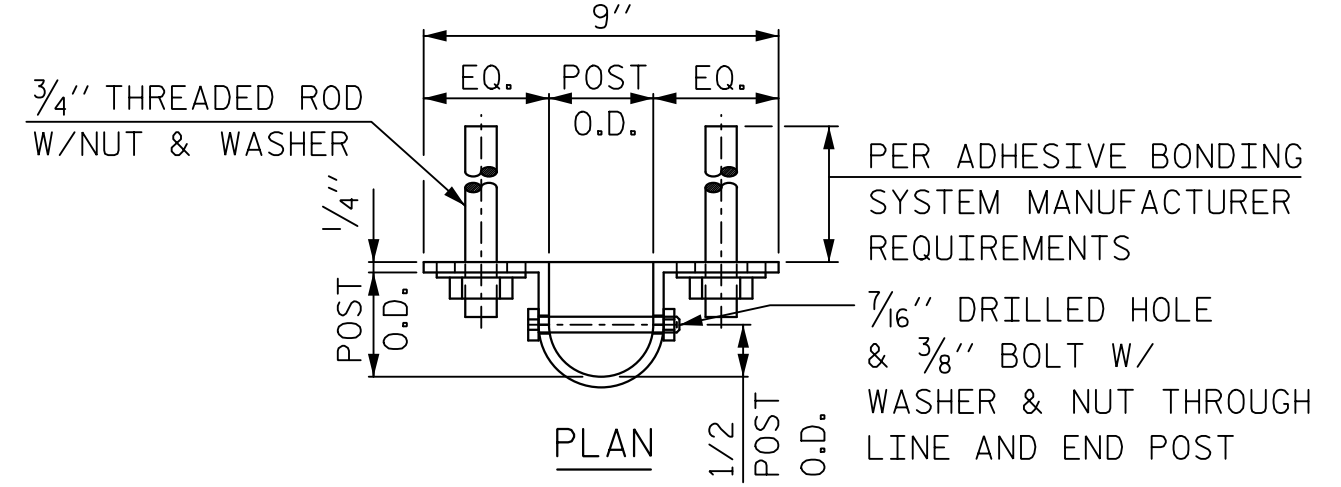


ELEVATION

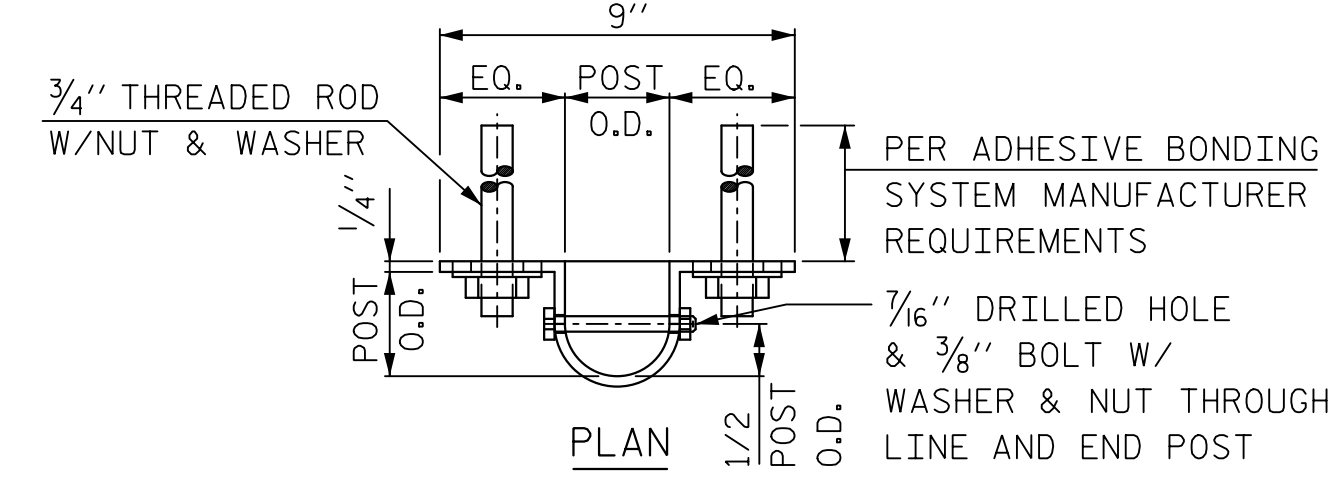
RIGHT SIDE VIEW

ELEVATION

SIDE VIEW



BOTTOM POST BRACKET



TOP POST BRACKET

NOTES:

MATERIAL FOR ANCHOR BOLTS SHALL BE TYPE 304 STAINLESS STEEL WITH A MINIMUM 9000 PSI ULTIMATE STRENGTH. NUTS AND WASHERS SHALL BE TYPE 304 STAINLESS STEEL. ANCHOR BOLTS SHALL BE EMBEDDED AS PER ADHESIVE BONDING SYSTEM MANUFACTURER SPECIFICATIONS. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK NUTS, CLASS 2B THREADS.

FOR SETTING ANCHOR BOLTS, THE CONTRACTOR SHALL USE AN ADHESIVE BONDING SYSTEM. SEE THE REQUIREMENTS OF SECTION 420-13 OF THE STANDARD SPECIFICATIONS FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS. LEVEL ONE FIELD TESTING OF BONDING SYSTEM IS REQUIRED AND THE YIELD LOAD OF THE 3/4\"/>

ALL BRACKETS SHALL MEET THE REQUIREMENTS OF SECTION 1050 OF THE STANDARD SPECIFICATIONS, GALVANIZE ALL STEEL PARTS AND HARDWARE IN ACCORDANCE WITH ARTICLE 1076 OF THE STANDARD SPECIFICATIONS.

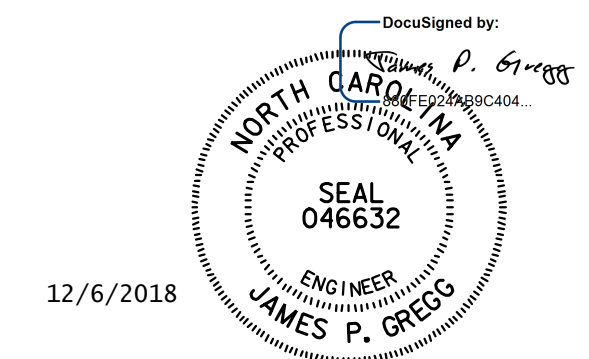
FENCE POST LOCATIONS SHALL BE SHIFTED, AS NECESSARY, TO MAINTAIN 12\"/>

DIMENSIONS ARE SHOWN ALONG OUTSIDE FACE OF BARRIER RAIL.

BRACKETS SHALL BE INSTALLED TO PERMIT STANDARD CHAIN LINK FENCE DETAILS TO BE UTILIZED IN THE FUTURE.

ALL THE COSTS ASSOCIATED WITH THE MATERIALS AND INSTALLATION OF THE POST BRACKETS SHALL BE INCLUDED IN THE "CONCRETE BARRIER RAIL" PAY ITEM.

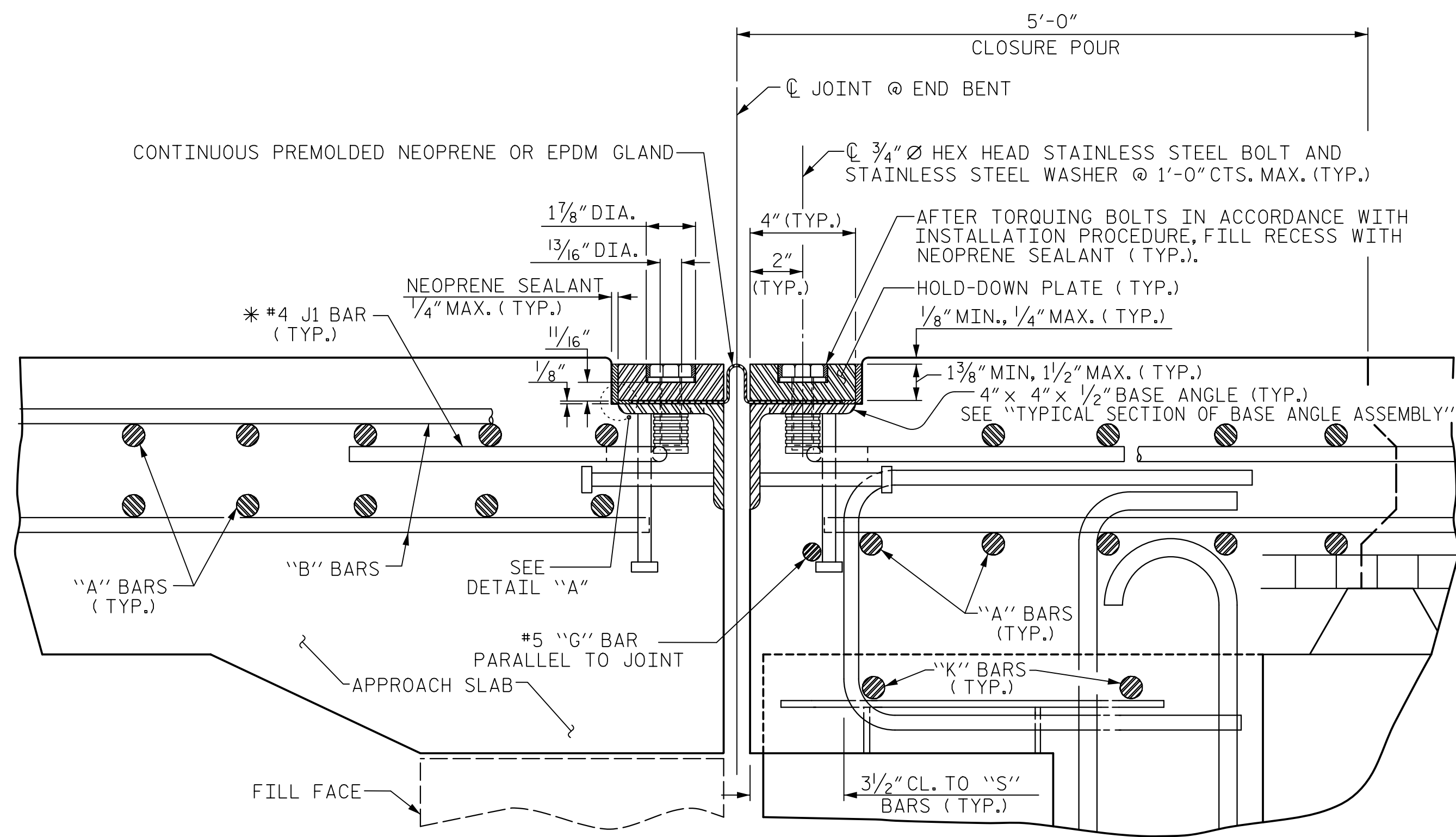
PROJECT NO. R-1015
CRAVEN COUNTY
STATION: POC STA. 138+31.09 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
BRIDGE MOUNTED
CHAIN LINK FENCE
DETAILS
RIGHT LANE

HNTB		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: A. SMITH	DATE: 7/18	DWG. NO. 25	TOTAL SHEETS: 46
CHECKED BY: E. JOWZA	DATE: 9/18		
DESIGN ENGINEER OF RECORD: J. GREGG	DATE: 10/18		

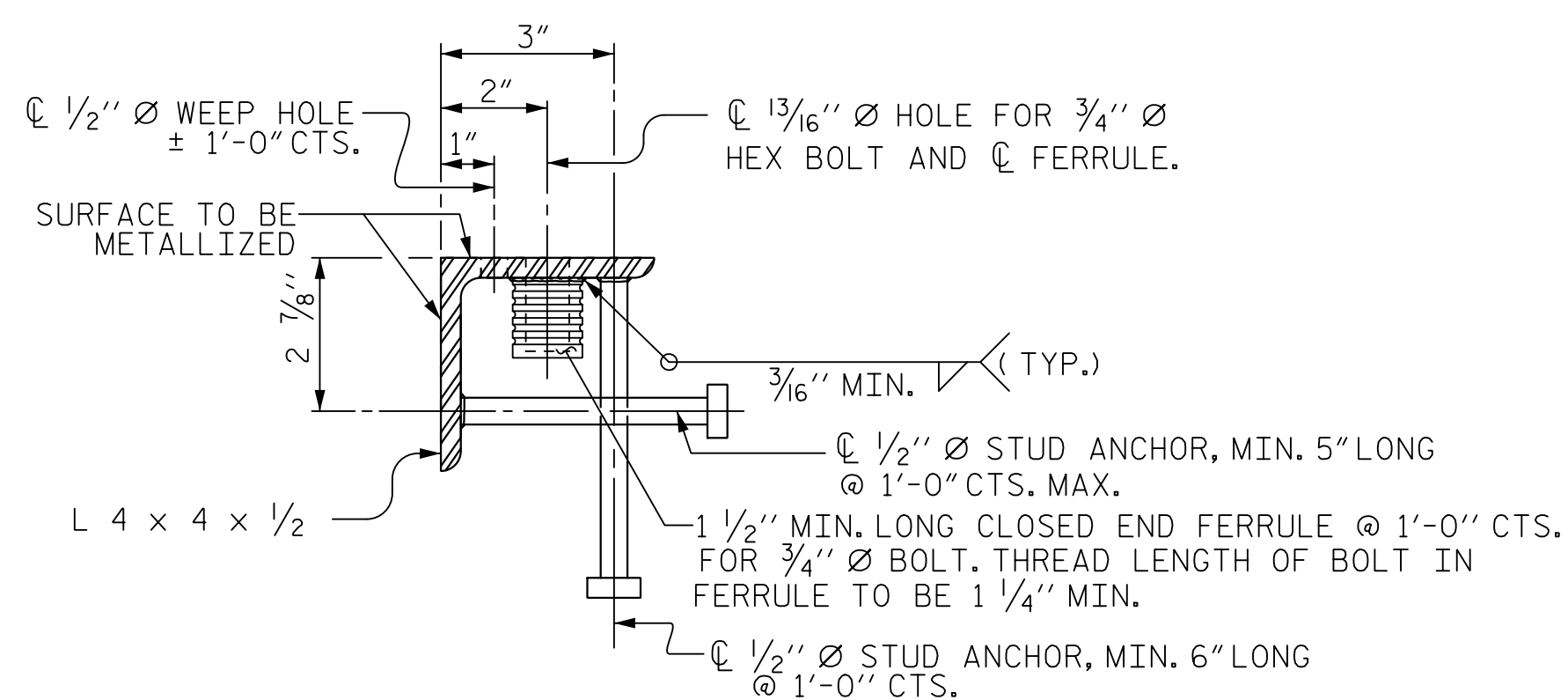
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE

* THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.



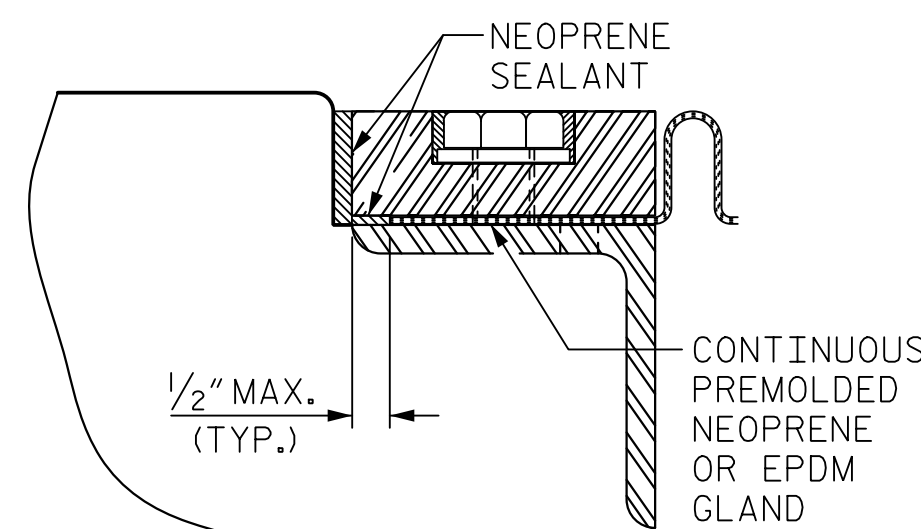
TYPICAL SECTION OF BASE ANGLE ASSEMBLY

INSTALLATION PROCEDURE

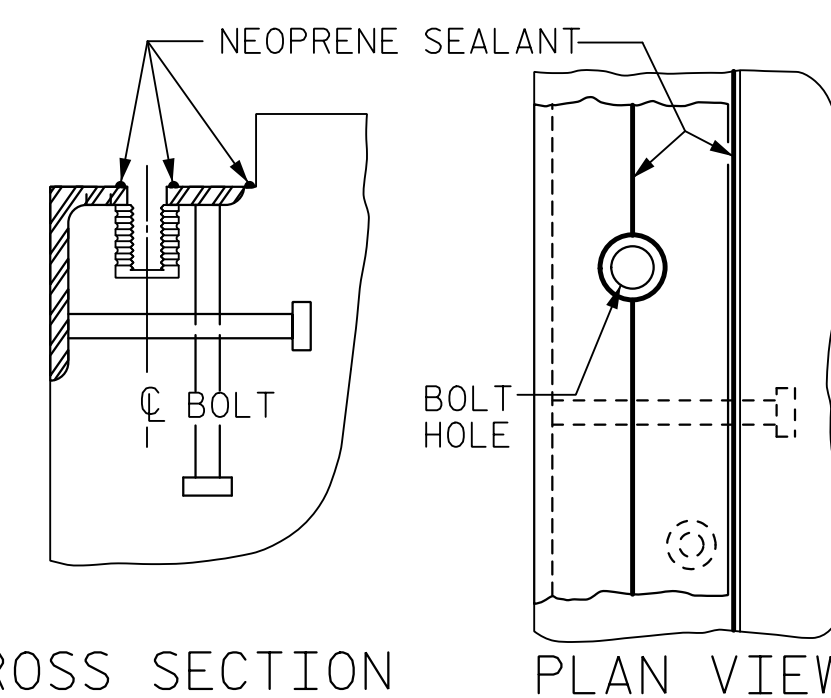
1. A TEMPLATE OR OTHER SUITABLE DEVICE SHALL BE USED TO FORM THE TOP OF THE EXPANSION JOINT SEAL BLOCKOUT TO THE PROPER DEPTH AND WIDTH. THE TEMPLATE SHALL BE 4/8" TO 4/4" WIDE AND OF SUCH THICKNESS AS TO PROVIDE FOR CORRECT FINAL ELEVATION OF TOP OF HOLD-DOWN PLATES. THE TEMPLATE SHALL BE ATTACHED TO THE BASE ANGLE ASSEMBLY WITH THE 3/4" Ø HEX HEAD BOLTS PROVIDED FOR THE HOLD-DOWN PLATES. A 1" Ø HOLE SHALL BE PROVIDED IN THE TEMPLATE CENTERED OVER EACH WEEP HOLE IN THE 4" X 4" X 1/2" BASE ANGLE. OTHER METHODS OF INSURING DRAINAGE THROUGH WEEP HOLES MAY BE EMPLOYED SUBJECT TO ENGINEER'S APPROVAL.
2. AFTER THE CONCRETE HAS BEEN CAST ON BOTH SIDES OF THE JOINT, REMOVE THE TEMPLATE. THOROUGHLY CLEAN THE BOLT HOLES AND THE ANGLE PLATE. REMOVE ANY EXCESS CONCRETE THAT COMES OUT OF THE WEEP HOLES. ANY DAMAGED STEEL SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
3. LAY THE GLAND ON THE BASE ANGLE AND FIELD MARK THE GLAND FOR THE BOLT HOLES. HOLES IN THE GLAND SHALL BE PUNCHED 7/8" IN DIAMETER WITH A HAND PUNCH.
4. IN ORDER TO CHECK FOR PROPER ALIGNMENT, PLACE THE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. DO NOT APPLY NEOPRENE SEALANT. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE BUT DO NOT TIGHTEN. THE ENGINEER SHALL INSPECT THE JOINT SEAL DEVICE FOR PROPER ALIGNMENT.
5. AFTER INSPECTION, REMOVE THE HOLD-DOWN PLATES AND GLAND. APPLY NEOPRENE SEALANT TO THE BASE ANGLE IN ACCORDANCE WITH THE "INSTALLATION SKETCH". PLACE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE ASSEMBLY AND TORQUE THE BOLTS TO 88 FT-LBS WITH A TORQUE WRENCH. CHECK THE TORQUE AFTER THREE (3) HOURS AND, IF NECESSARY, RETIGHTEN TO 88 FT-LBS. A FINAL CHECK SHALL BE MADE AT SEVEN (7) DAYS. TORQUE SHALL NOT BE LESS THAN 80 FT-LBS AFTER SEVEN (7) DAYS.
6. AFTER PROPER TORQUING, CLEAN THE BOLT HOLE RECESSES, THE RECESS BETWEEN THE JOINT SEAL DEVICE AND CONCRETE, AND THE LIFTING HOLES IN THE HOLD-DOWN PLATE, AND COMPLETELY FILL THESE RECESSES AND LIFTING HOLES WITH NEOPRENE SEALANT.

GENERAL NOTES

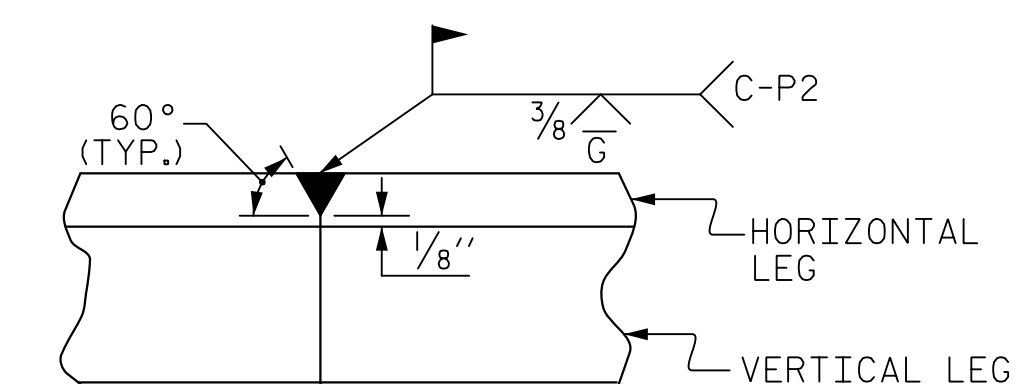
1. FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.
2. ALL PLATES AND ANGLES SHALL CONFORM TO AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL. ALL HOLD-DOWN BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL CONFORM TO ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169, GRADES 1010 THRU 1020 OR APPROVED EQUAL. ALL CONCRETE INSERTS SHALL BE CLOSED END AND SHALL CONFORM TO AASHTO M169, GRADE 12L14. TENSILE CAPACITY SHALL BE 3000 LBS. MINIMUM.
3. FOR JOINTS SKEWED LESS THAN 50° OR MORE THAN 130°, ONLY A CORRUGATED GLAND SHALL BE USED.
4. CLOSED END FERRULES AND STUD ANCHORS SHALL BE SHOP WELDED AND ALL HOLES SHALL BE SHOP DRILLED AS SHOWN ON PLANS. STUD ANCHORS SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.
5. SURFACES COMING IN CONTACT WITH NEOPRENE SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.
6. UPON COMPLETION OF SHOP FABRICATION, THE HOLD-DOWN PLATE AND BASE ANGLE ASSEMBLY, AS SHOWN IN THE "TYPICAL SECTION OF BASE ANGLE ASSEMBLY", SHALL BE METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
7. THE COVER PLATES SHALL BE METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
8. BASE ANGLE ASSEMBLY SHALL BE CONTINUOUS FOR THE LENGTH OF THE JOINT. FINISHED WELD SHALL BE GROUND SMOOTH AND REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
9. FIELD SPLICES OF HOLD-DOWN PLATES SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL. HOLD-DOWN PLATES SHALL NOT EXCEED 20' LENGTHS UNLESS APPROVED BY THE ENGINEER.
10. NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.
11. THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.
12. THE FABRICATOR SHALL PROVIDE 1/2" Ø THREADED HOLES IN THE HOLD-DOWN PLATES TO ASSIST IN LIFTING AND PLACING. THE HOLES SHALL BE 3/4" DEEP AT 6'-0" MAXIMUM SPACING AND A MINIMUM OF TWO HOLES PER PLATE.



DETAIL "A"



CROSS SECTION PLAN VIEW INSTALLATION SKETCH



DETAIL - FIELD WELD SPLICE OF BASE ANGLE

MOVEMENT AND SETTING AT JOINT					
END BENT NO.	SKEW ANGLE	TOTAL MOVEMENT (ALONG C. RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
1	41°-19'-46" TAN. TO CURVE	1/8"	1/2"	1/8"	1/8"
2	37°-38'-14" TAN. TO CURVE	1/16"	1/16"	1/16"	1/8"

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

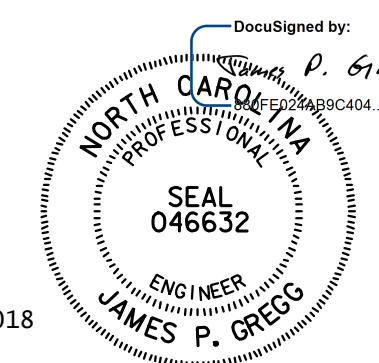
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 EXPANSION JOINT
 SEAL DETAILS

RIGHT LANE

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			46
2			4			



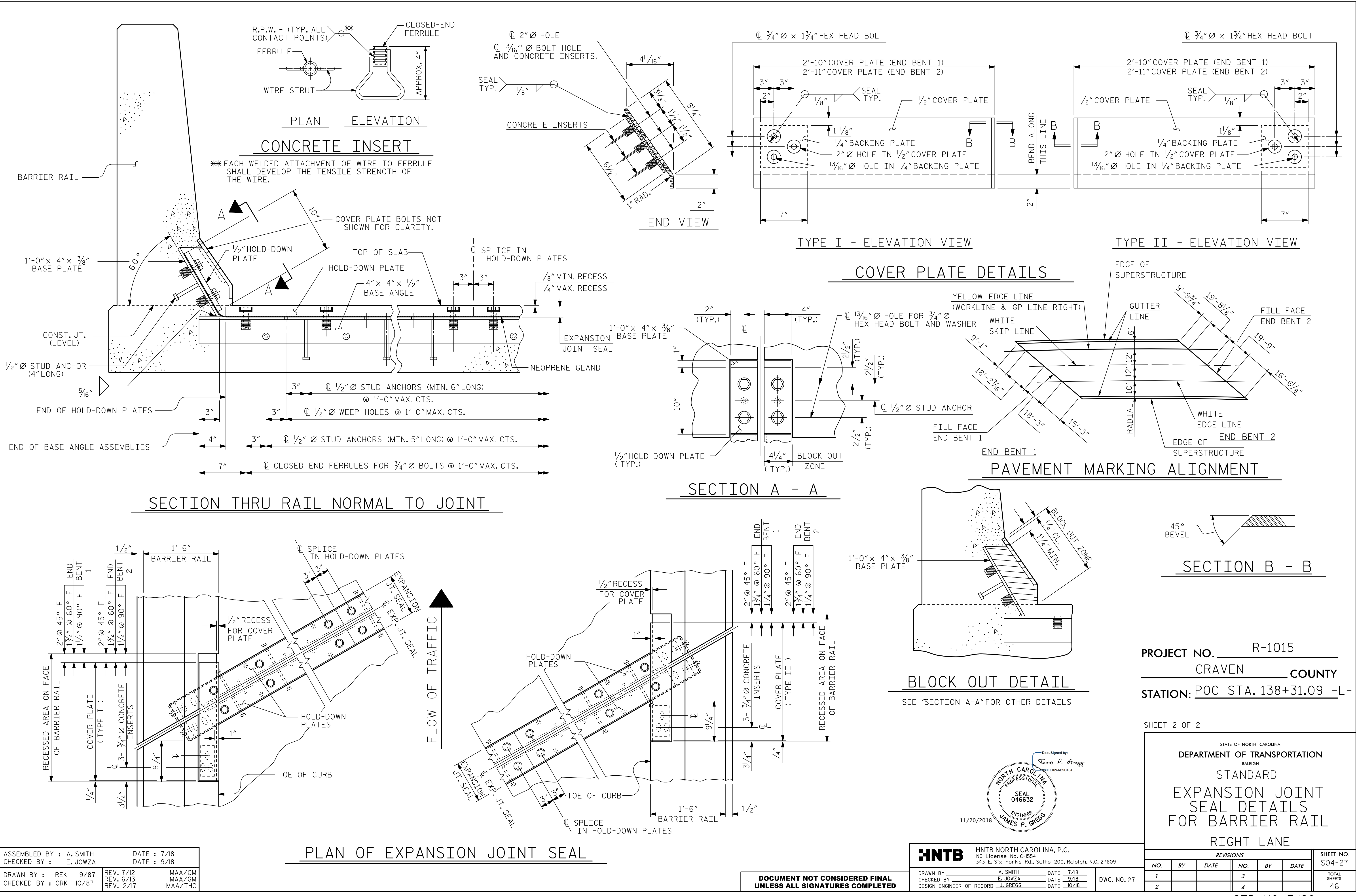
12/6/2018

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: A. SMITH DATE: 7/18
 CHECKED BY: E. JOWZA DATE: 9/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18
 DWG. NO. 26

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

ASSEMBLED BY: A. SMITH DATE: 7/18
 CHECKED BY: E. JOWZA DATE: 9/18
 DRAWN BY: REK 9/87 MAA/GM
 CHECKED BY: CRK 10/87 REV. 10/17 MAA/THC
 REV. 6/18 MAA/THC

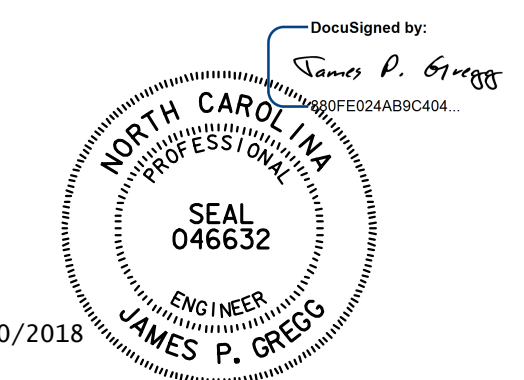


ASSEMBLED BY : A. SMITH DATE : 7/18
 CHECKED BY : E. JOWZA DATE : 9/18
 DRAWN BY : REK 9/87 REV. 7/12 MAA/GM
 CHECKED BY : CRK 10/87 REV. 6/13 MAA/GM
 REV. 12/17 MAA/THC

PLAN OF EXPANSION JOINT SEAL

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
 DRAWN BY : A. SMITH DATE : 7/18
 CHECKED BY : E. JOWZA DATE : 9/18
 DESIGN ENGINEER OF RECORD : J. GREGG DATE : 10/18
 DWG. NO. 27



PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 2

REVISIONS						SHEET NO. S04-27
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 46
2			4			

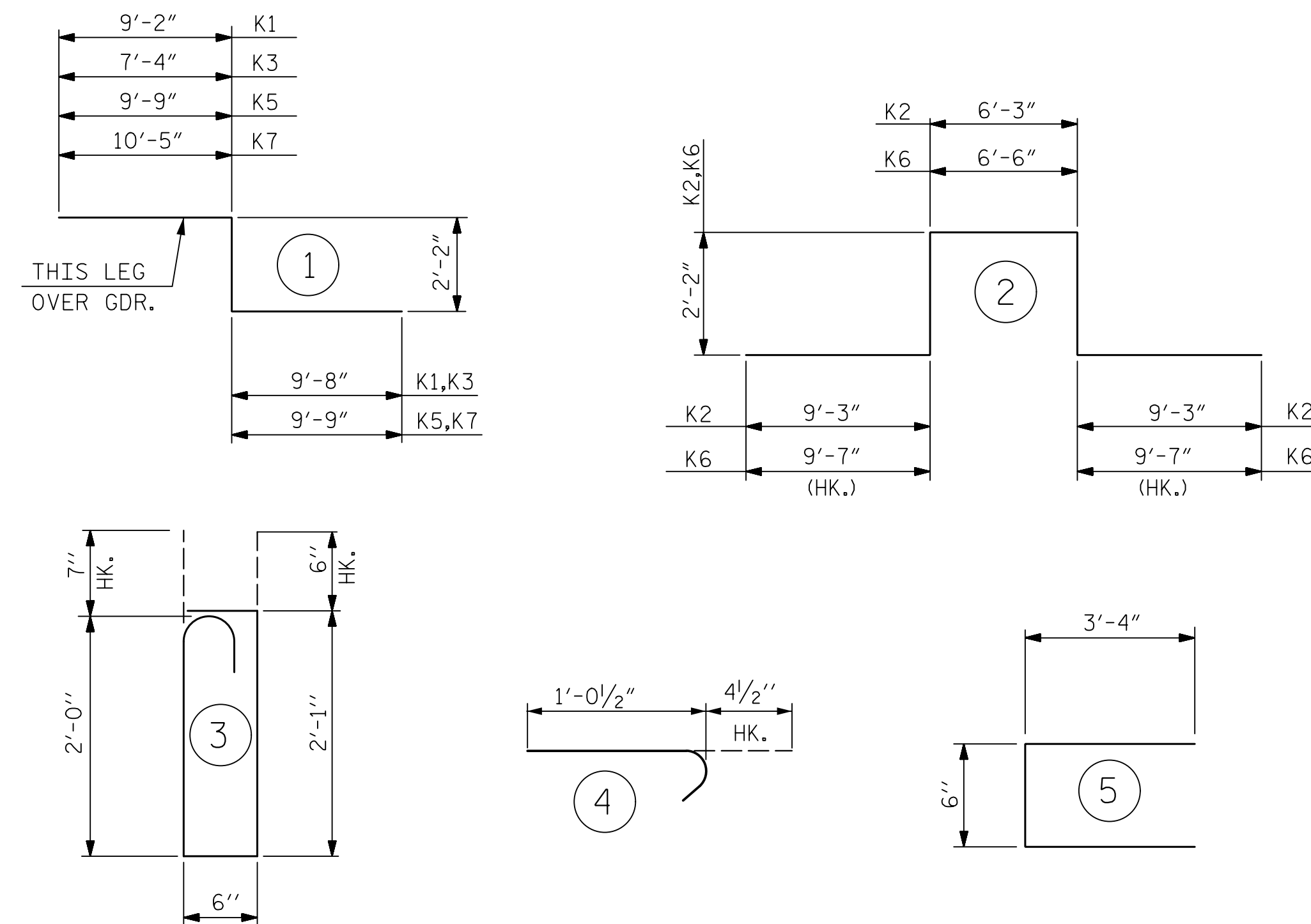
BILL OF MATERIAL					
EPOXY COATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
* A1	627	6	STR	42'-11"	40,417
* A2	1	6	STR	42'-8"	64
* A3	1	6	STR	42'-2"	63
* A4	1	6	STR	41'-9"	63
* A5	1	6	STR	41'-4"	62
* A6	1	6	STR	40'-11"	61
* A7	1	6	STR	40'-6"	61
* A8	1	6	STR	40'-1"	60
* A9	1	6	STR	39'-8"	60
* A10	1	6	STR	39'-3"	59
* A11	1	6	STR	38'-9"	58
* A12	1	6	STR	38'-4"	58
* A13	1	6	STR	37'-11"	57
* A14	1	6	STR	37'-6"	56
* A15	1	6	STR	37'-1"	56
* A16	1	6	STR	36'-8"	55
* A17	1	6	STR	36'-3"	54
* A18	1	6	STR	35'-10"	54
* A19	1	6	STR	35'-5"	53
* A20	1	6	STR	34'-11"	52
* A21	1	6	STR	34'-6"	52
* A22	1	6	STR	34'-1"	51
* A23	1	6	STR	33'-8"	51
* A24	1	6	STR	33'-3"	50
* A25	1	6	STR	32'-10"	49
* A26	1	6	STR	32'-5"	49
* A27	1	6	STR	32'-0"	48
* A28	1	6	STR	31'-6"	47
* A29	1	6	STR	31'-1"	47
* A30	1	6	STR	30'-8"	46
* A31	1	6	STR	30'-3"	45
* A32	1	6	STR	29'-10"	45
* A33	1	6	STR	29'-5"	44
* A34	1	6	STR	29'-0"	44
* A35	1	6	STR	28'-7"	43
* A36	1	6	STR	28'-2"	42
* A37	1	6	STR	27'-8"	42
* A38	1	6	STR	27'-3"	41
* A39	1	6	STR	26'-10"	40
* A40	1	6	STR	26'-5"	40
* A41	1	6	STR	26'-0"	39
* A42	1	6	STR	25'-7"	38
* A43	1	6	STR	25'-2"	38
* A44	1	6	STR	24'-9"	37
* A45	1	6	STR	24'-3"	36
* A46	1	6	STR	23'-10"	36
* A47	1	6	STR	23'-5"	35
* A48	1	6	STR	23'-0"	35
* A49	1	6	STR	22'-7"	34
* A50	1	6	STR	22'-2"	33
* A51	1	6	STR	21'-9"	33
* A52	1	6	STR	21'-4"	32
* A53	1	6	STR	20'-11"	31
* A54	1	6	STR	20'-5"	31
* A55	1	6	STR	20'-0"	30
* A56	1	6	STR	19'-7"	29
* A57	1	6	STR	19'-2"	29
* A58	1	6	STR	18'-9"	28
* A59	1	6	STR	18'-4"	28
* A60	1	6	STR	17'-11"	27
* A61	1	6	STR	17'-6"	26
* A62	1	6	STR	17'-0"	26
* A63	1	6	STR	16'-7"	25
* A64	1	6	STR	16'-2"	24
* A65	1	6	STR	15'-9"	24
* A66	1	6	STR	15'-4"	23
* A67	1	6	STR	14'-11"	22
* A68	1	6	STR	14'-6"	22
* A69	1	6	STR	14'-1"	21
* A70	1	6	STR	13'-8"	21
* A71	1	6	STR	13'-2"	20
* A72	1	6	STR	12'-9"	19
* A73	1	6	STR	12'-4"	19

BILL OF MATERIAL					
EPOXY COATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
* A74	1	6	STR	11'-11"	18
* A75	1	6	STR	11'-6"	17
* A76	1	6	STR	11'-1"	17
* A77	1	6	STR	10'-8"	16
* A78	1	6	STR	10'-3"	15
* A79	1	6	STR	9'-10"	15
* A80	1	6	STR	9'-4"	14
* A81	1	6	STR	8'-11"	13
* A82	1	6	STR	8'-6"	13
* A83	1	6	STR	8'-1"	12
* A84	1	6	STR	7'-8"	12
* A85	1	6	STR	7'-3"	11
* A86	1	6	STR	6'-10"	10
* A87	1	6	STR	6'-5"	10
* A88	1	6	STR	5'-11"	9
* A89	1	6	STR	5'-6"	8
* A90	1	6	STR	5'-1"	8
* A91	1	6	STR	4'-8"	7
* A92	1	6	STR	4'-3"	6
* A93	1	6	STR	3'-10"	6
* A94	1	6	STR	3'-5"	5
* A95	1	6	STR	3'-0"	5
* A96	1	6	STR	2'-7"	4
* A97	1	6	STR	42'-7"	64
* A98	1	6	STR	42'-2"	63
* A99	1	6	STR	41'-9"	63
* A100	1	6	STR	41'-4"	62
* A101	1	6	STR	41'-0"	62
* A102	1	6	STR	40'-7"	61
* A103	1	6	STR	40'-2"	60
* A104	1	6	STR	39'-9"	60
* A105	1	6	STR	39'-5"	59
* A106	1	6	STR	39'-0"	59
* A107	1	6	STR	38'-7"	58
* A108	1	6	STR	38'-3"	57
* A109	1	6	STR	37'-10"	57
* A110	1	6	STR	37'-5"	56
* A111	1	6	STR	37'-0"	56
* A112	1	6	STR	36'-8"	55
* A113	1	6	STR	36'-3"	54
* A114	1	6	STR	35'-10"	54
* A115	1	6	STR	35'-5"	53
* A116	1	6	STR	35'-1"	53
* A117	1	6	STR	34'-8"	52
* A118	1	6	STR	34'-3"	51
* A119	1	6	STR	33'-11"	51
* A120	1	6	STR	33'-6"	50
* A121	1	6	STR	33'-1"	50
* A122	1	6	STR	32'-8"	49
* A123	1	6	STR	32'-4"	49
* A124	1	6	STR	31'-11"	48
* A125	1	6	STR	31'-6"	47
* A126	1	6	STR	31'-1"	47
* A127	1	6	STR	30'-9"	46
* A128	1	6	STR	30'-4"	46
* A129	1	6	STR	29'-11"	45
* A130	1	6	STR	29'-7"	44
* A131	1	6	STR	29'-2"	44
* A132	1	6	STR	28'-9"	43
* A133	1	6	STR	28'-4"	43
* A134	1	6	STR	28'-0"	42
* A135	1	6	STR	27'-7"	41
* A136	1	6	STR	27'-2"	41
* A137	1	6	STR	26'-9"	40
* A138	1	6	STR	26'-5"	40
* A139	1	6	STR	26'-0"	39
* A140	1	6	STR	25'-7"	38
* A141	1	6	STR	25'-3"	38
* A142	1	6	STR	24'-10"	37
* A143	1	6	STR	24'-5"	37
* A144	1	6	STR	24'-0"	36
* A145	1	6	STR	23'-8"	36
* A146	1	6	STR	23'-3"	35
* A147	1	6	STR	22'-10"	34
* A148	1	6	STR	22'-6"	34
* A149	1	6	STR	22'-1"	33

BILL OF MATERIAL					
EPOXY COATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
* A150	1	6	STR	21'-8"	33
* A151	1	6	STR	21'-3"	32
* A152	1	6	STR	20'-11"	31
* A153	1	6	STR	20'-6"	31
* A154	1	6	STR	20'-1"	30
* A155	1	6	STR	19'-8"	30
* A156	1	6	STR	19'-4"	29
* A157	1	6	STR	18'-11"	28
* A158	1	6	STR	18'-6"	28
* A159	1	6	STR	18'-2"	27
* A160	1	6	STR	17'-9"	27
* A161	1	6	STR	17'-4"	26
* A162	1	6	STR	16'-11"	25
* A163	1	6	STR	16'-7"	25
* A164	1	6	STR	16'-2"	24
* A165	1	6	STR	15'-9"	24
* A166	1	6	STR	15'-4"	23
* A167	1	6	STR	15'-0"	23
* A168	1	6	STR	14'-7"	22
* A169	1	6	STR	14'-2"	21
* A170	1	6	STR	13'-10"	21
* A171	1	6	STR	13'-5"	20
* A172	1	6	STR	13'-0"	20
* A173	1	6	STR	12'-7"	19
* A174	1	6	STR	12'-3"	18
* A175	1	6	STR	11'-10"	18
* A176	1	6	STR	11'-5"	17
* A177	1	6	STR	11'-0"	17
* A178	1	6	STR	10'-8"	16
* A179	1	6	STR	10'-3"	15
* A180	1	6	STR	9'-10"	15
* A181	1	6	STR	9'-6"	14
* A182	1	6	STR	9'-1"	14
* A183	1	6	STR	8'-8"	13
* A184	1	6	STR	8'-3"	12
* A185	1	6	STR	7'-11"	12
* A186	1	6	STR	7'-6"	11
* A187	1	6	STR	7'-1"	11
* A188	1	6	STR	6'-8"	10
* A189	1	6	STR	6'-4"	10
* A190	1	6	STR	5'-11"	9
* A191	1	6	STR	5'-6"	8
* A192	1	6	STR	5'-2"	8
* A193	1	6	STR	4'-9"	7
* A194	1	6	STR	4'-4"	7
* A195	1	6	STR	3'-11"	6
* A196	1	6	STR	3'-7"	5
* A197	1	6	STR	3'-2"	5
* A198	1	6	STR	2'-9"	4
* A199	1	6	STR	2'-5"	4
* A200	6	6	STR	28'-5"	256
* B1	93	4	STR	25'-2"	1,563
* B2	155	4	STR	25'-0"	2,589
* B3	93	4	STR	25'-10"	1,605
* B4	93	4	STR	23'-10"	1,481
* B5	87	6	STR	18'-4"	2,396
* B6	87	6	STR	18'-10"	2,461
* B7	87	6	STR	15'-10"	2,069
* G1	2	5	STR	33'-11"	71
* G2	2	5	STR	36'-7"	76
* J1	125	4	4	1'-5"	118
* K1	2	8	1	21'-0"	112
* K2	4	8	2	29'-1"	311
* K3	2	8	1	19'-2"	102
* K5	2	8	1	21'-8"	116
* K6	4	8	2	30'-0"	320
* K7	2	8	1	22'-4"	119
* S1	72	5	3	5'-8"	426
* S2	72	4	5	7'-2"	345

EPOXY COATED REINFORCING STEEL TOTAL: 63,654

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

—SUPERSTRUCTURE BILL OF MATERIAL—			
	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR 1	100.0		
POUR 2	124.8	57,955	63,654
POUR 3	192.3		
POUR 4	132.6		
TOTALS**	549.7	57,955	63,654

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED. CONCRETE IN CLOSURE POUR AT SLAB EXPANSION JOINTS IS INCLUDED IN THE ADJACENT POUR QUANTITY.

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-5"	2'-0"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-5"	3'-10"	2'-7"	4'-4"

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

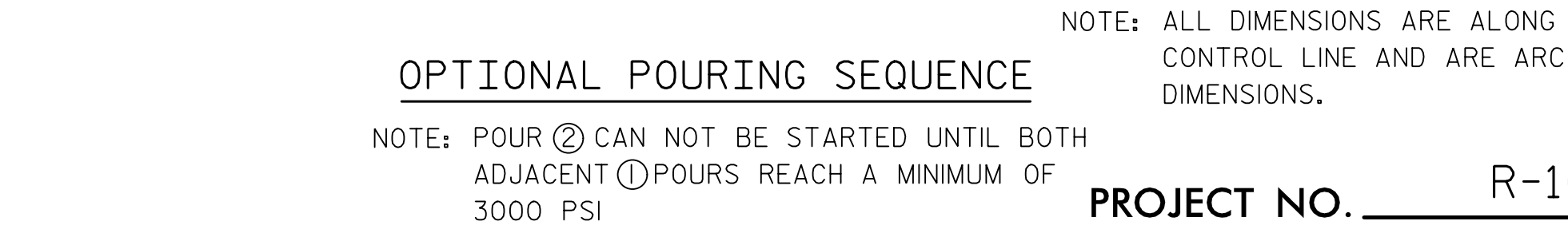
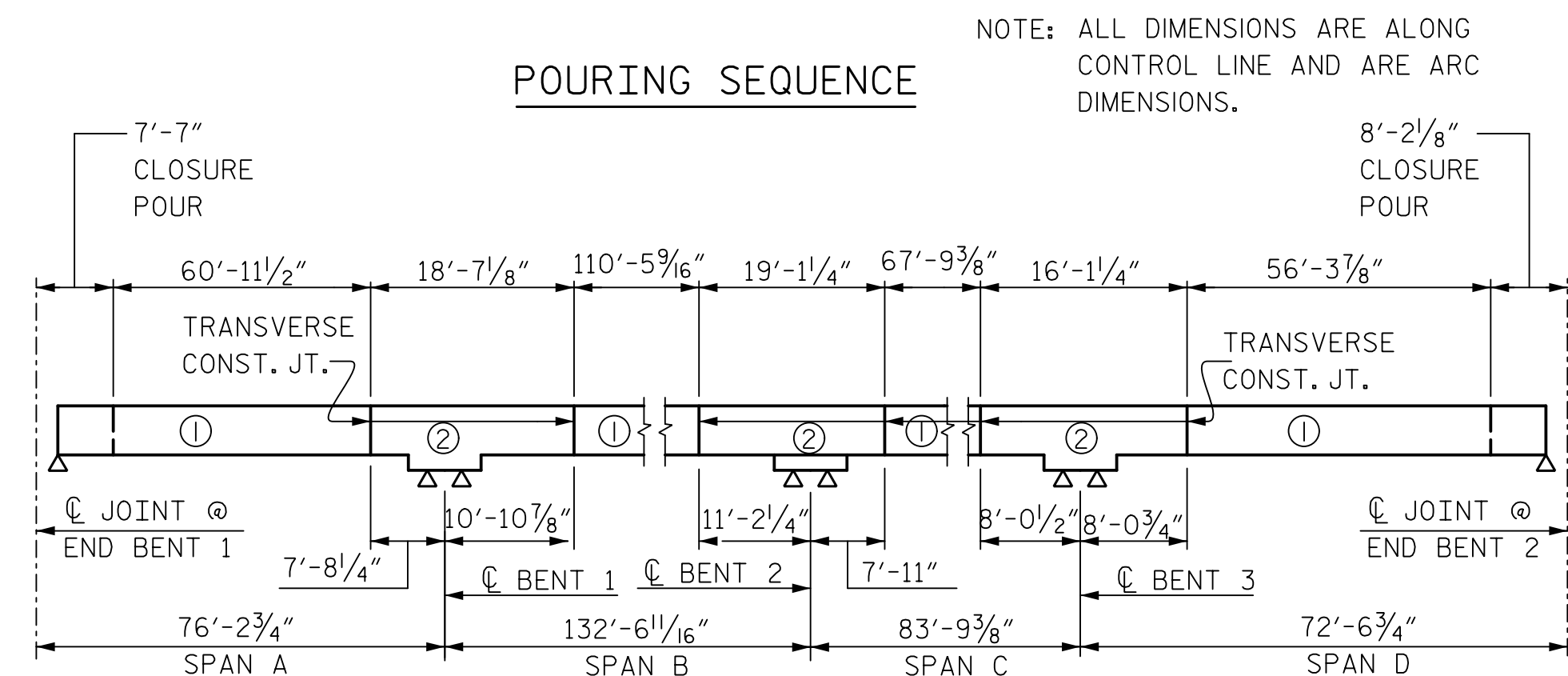
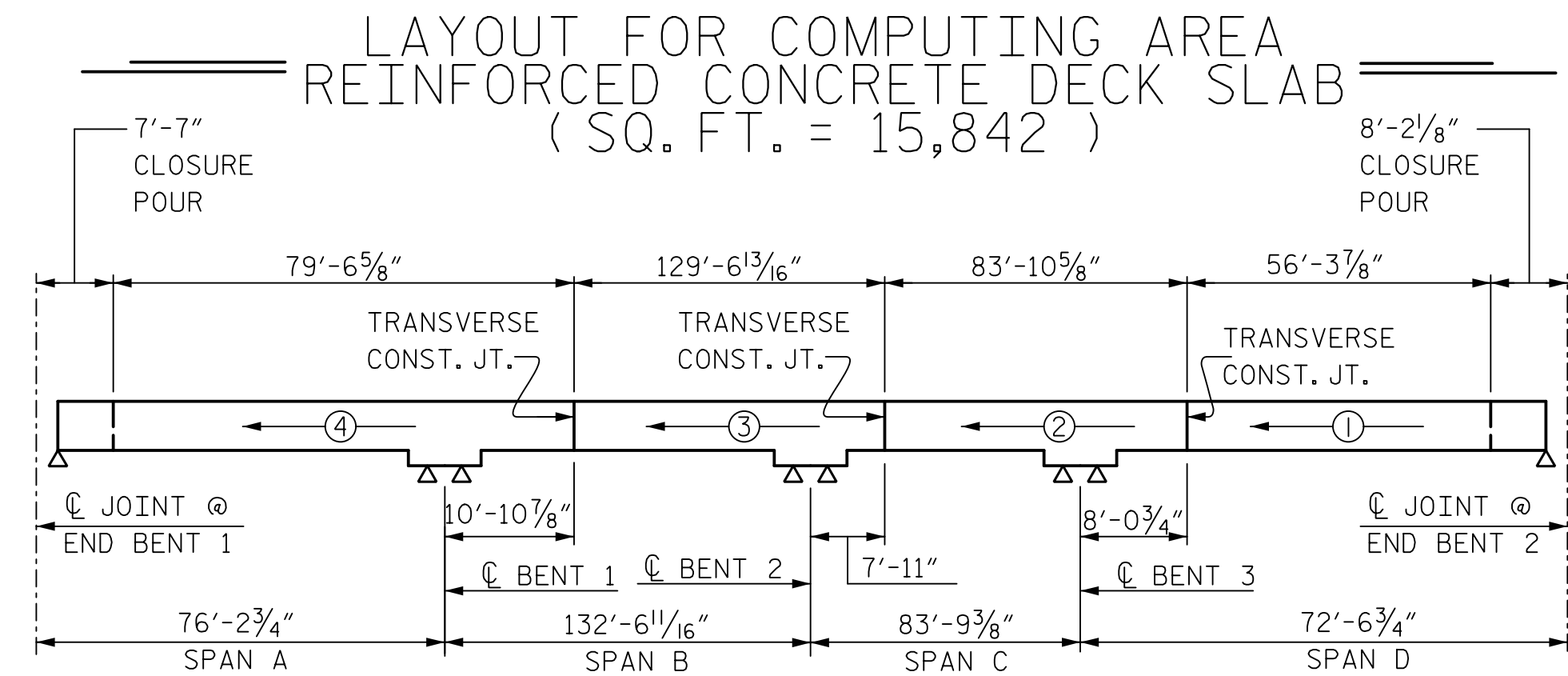
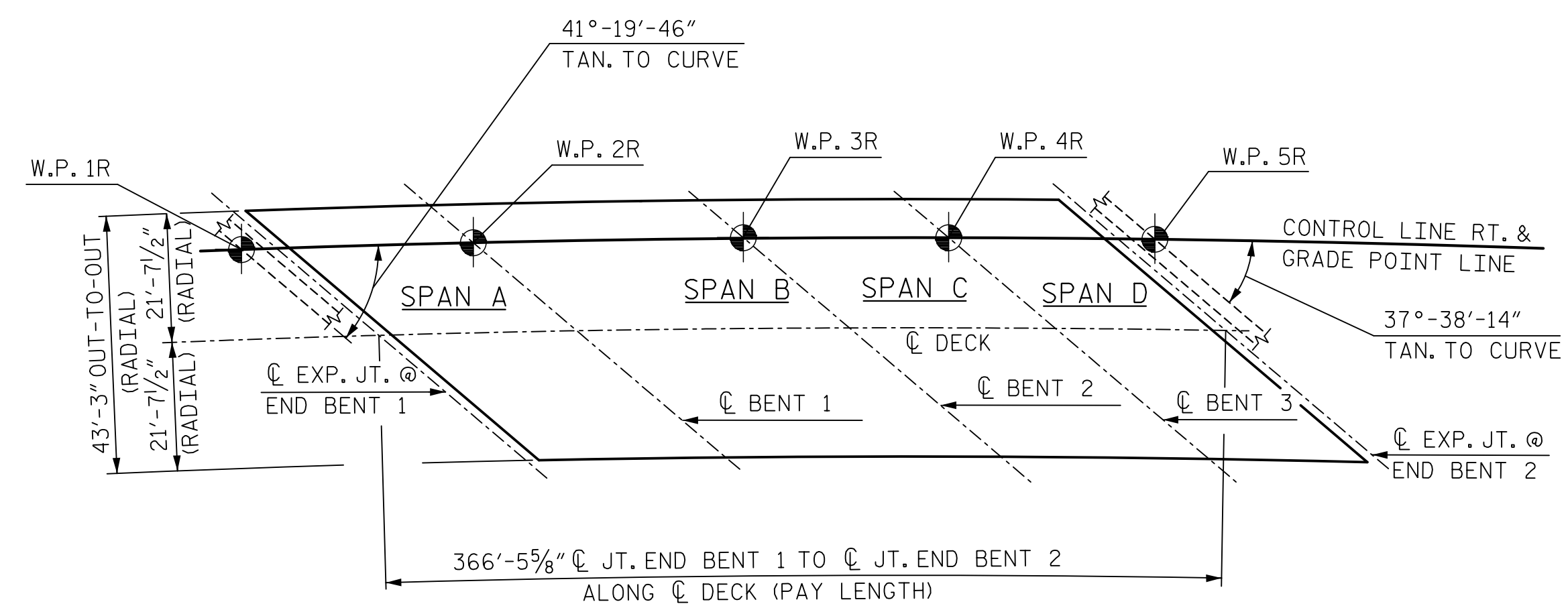
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

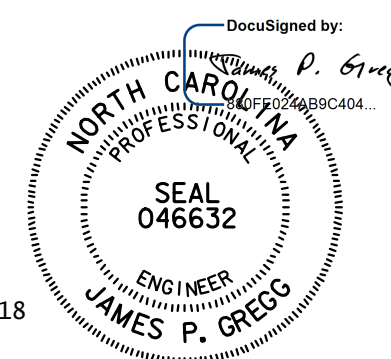
BILL OF MATERIAL					
UNCOATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
A201	627	5	STR	42'-11"	28,066
A202	1	5	STR	42'-8"	45
A203	1	5	STR	42'-2"	44
A204	1	5	STR	41'-9"	44
A205	1	5	STR	41'-4"	43
A206	1	5	STR	40'-11"	43
A207	1	5	STR	40'-6"	42
A208	1	5	STR	40'-1"	42
A209	1	5	STR	39'-8"	41
A210	1	5	STR	39'-3"	41
A211	1	5	STR	38'-9"	40
A212	1	5	STR	38'-4"	40
A213	1	5	STR	37'-11"	40
A214	1	5	STR	37'-6"	39
A215	1	5	STR	37'-1"	39
A216	1	5	STR	36'-8"	38
A217	1	5	STR	36'-3"	38
A218	1	5	STR	35'-10"	37
A219	1	5	STR	35'-5"	37
A220	1	5	STR	34'-11"	36
A221	1	5	STR	34'-6"	36
A222	1	5	STR	34'-1"	36
A223	1	5	STR	33'-8"	35
A224	1	5	STR	33'-3"	35
A225	1	5	STR	32'-10"	34
A226	1	5	STR	32'-5"	34
A227	1	5	STR	32'-0"	33
A228	1	5	STR	31'-6"	33
A229	1	5	STR	31'-1"	32
A230	1	5	STR	30'-8"	32
A231	1	5	STR	30'-3"	32
A232	1	5	STR	29'-10"	31
A233	1	5	STR	29'-5"	31
A234	1	5	STR	29'-0"	30
A235	1	5	STR	28'-7"	30
A236	1	5	STR	28'-2"	29
A237	1	5	STR	27'-8"	29
A238	1	5	STR	27'-3"	28
A239	1	5	STR	26'-10"	28
A240	1	5	STR	26'-5"	28
A241	1	5	STR	26'-0"	27
A242	1	5	STR	25'-7"	27
A243	1	5	STR	25'-2"	26
A244	1	5	STR	24'-9"	26
A245	1	5	STR	24'-3"	25
A246	1	5	STR	23'-10"	25
A247	1	5	STR	23'-5"	24
A248	1	5	STR	23'-0"	24
A249	1	5	STR	22'-7"	24
A250	1	5	STR	22'-2"	23
A251	1	5	STR	21'-9"	23
A252	1	5	STR	21'-4"	22
A253	1	5	STR	20'-11"	22
A254	1	5	STR	20'-5"	21
A255	1	5	STR	20'-0"	21
A256	1	5	STR	19'-7"	20
A257	1	5	STR	19'-2"	20
A258	1	5	STR	18'-9"	20
A259	1	5	STR	18'-4"	19
A260	1	5	STR	17'-11"	19
A261	1	5	STR	17'-6"	18
A262	1	5	STR	17'-0"	18
A263	1	5	STR	16'-7"	17
A264	1	5	STR	16'-2"	17
A265	1	5	STR	15'-9"	16
A266	1	5	STR	15'-4"	16
A267	1	5	STR	14'-11"	16
A268	1	5	STR	14'-6"	15
A269	1	5	STR	14'-1"	15
A270	1	5	STR	13'-8"	14
A271	1	5	STR	13'-2"	14
A272	1	5	STR	12'-9"	13
A273	1	5	STR	12'-4"	13

BILL OF MATERIAL					
UNCOATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
A274	1	5	STR	11'-11"	12
A275	1	5	STR	11'-6"	12
A276	1	5	STR	11'-1"	12
A277	1	5	STR	10'-8"	11
A278	1	5	STR	10'-3"	11
A279	1	5	STR	9'-10"	10
A280	1	5	STR	9'-4"	10
A281	1	5	STR	8'-11"	9
A282	1	5	STR	8'-6"	9
A283	1	5	STR	8'-1"	8
A284	1	5	STR	7'-8"	8
A285	1	5	STR	7'-3"	8
A286	1	5	STR	6'-10"	7
A287	1	5	STR	6'-5"	7
A288	1	5	STR	5'-11"	6
A289	1	5	STR	5'-6"	6
A290	1	5	STR	5'-1"	5
A291	1	5	STR	4'-8"	5
A292	1	5	STR	4'-3"	4
A293	1	5	STR	3'-10"	4
A294	1	5	STR	3'-5"	4
A295	1	5	STR	3'-0"	3
A296	1	5	STR	2'-7"	3
A297	1	5	STR	42'-7"	44
A298	1	5	STR	42'-2"	44
A299	1	5	STR	41'-9"	44
A300	1	5	STR	41'-4"	43
A301	1	5	STR	41'-0"	43
A302	1	5	STR	40'-7"	42
A303	1	5	STR	40'-2"	42
A304	1	5	STR	39'-9"	41
A305	1	5	STR	39'-5"	41
A306	1	5	STR	39'-0"	41
A307	1	5	STR	38'-7"	40
A308	1	5	STR	38'-3"	40
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A310	1	5	STR	37'-5"	39
A311	1	5	STR	37'-0"	39
A312	1	5	STR	36'-8"	38
A313	1	5	STR	36'-3"	38
A314	1	5	STR	35'-10"	37
A315	1	5	STR	35'-5"	37
A316	1	5	STR	35'-1"	37
A317	1	5	STR	34'-8"	36
A318	1	5	STR	34'-3"	36
A319	1	5	STR	33'-11"	35
A320	1	5	STR	33'-6"	35
A321	1	5	STR	33'-1"	35
A322	1	5	STR	32'-8"	34
A323	1	5	STR	32'-4"	34
A324	1	5	STR	31'-11"	33
A325	1	5	STR	31'-6"	33
A326	1	5	STR	31'-1"	32
A327	1	5	STR	30'-9"	32
A328	1	5	STR	30'-4"	32
A329	1	5	STR	29'-11"	31
A330	1	5	STR	29'-7"	31
A331	1	5	STR	29'-2"	30
A332	1	5	STR	28'-9"	30
A333	1	5	STR	28'-4"	30
A334	1	5	STR	28'-0"	29
A335	1	5	STR	27'-7"	29
A336	1	5	STR	27'-2"	28
A337	1	5	STR	26'-9"	28
A338	1	5	STR	26'-5"	28
A339	1	5	STR	26'-0"	27
A340	1	5	STR	25'-7"	27
A341	1	5	STR	25'-3"	26
A342	1	5	STR	24'-10"	26
A343	1	5	STR	24'-5"	25
A344	1	5	STR	24'-0"	25
A345	1	5	STR	23'-8"	25
A346	1	5	STR	23'-3"	24
A347	1	5	STR	22'-10"	24
A348	1	5	STR	22'-6"	23

BILL OF MATERIAL					
UNCOATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
A349	1	5	STR	22'-1"	23
A350	1	5	STR	21'-8"	23
A351	1	5	STR	21'-3"	22
A352	1	5	STR	20'-11"	22
A353	1	5	STR	20'-6"	21
A354	1	5	STR	20'-1"	21
A355	1	5	STR	19'-8"	21
A356	1	5	STR	19'-4"	20
A357	1	5	STR	18'-11"	20
A358	1	5	STR	18'-6"	19
A359	1	5	STR	18'-2"	19
A360	1	5	STR	17'-9"	19
A361	1	5	STR	17'-4"	18
A362	1	5	STR	16'-11"	18
A363	1	5	STR	16'-7"	17
A364	1	5	STR	16'-2"	17
A365	1	5	STR	15'-9"	16
A366	1	5	STR	15'-4"	16
A367	1	5	STR	15'-0"	16
A368	1	5	STR	14'-7"	15
A369	1	5	STR	14'-2"	15
A370	1	5	STR	13'-10"	14
A371	1	5	STR	13'-5"	14
A372	1	5	STR	13'-0"	14
A373	1	5	STR	12'-7"	13
A374	1	5	STR	12'-3"	13
A375	1	5	STR	11'-10"	12
A376	1	5	STR	11'-5"	12
A377	1	5	STR	11'-0"	11
A378	1	5	STR	10'-8"	11
A379	1	5	STR	10'-3"	11
A380	1	5	STR	9'-10"	10
A381	1	5	STR	9'-6"	10
A382	1	5	STR	9'-1"	9
A383	1	5	STR	8'-8"	9
A384	1	5	STR	8'-3"	9
A385	1	5	STR	7'-11"	8
A386	1	5	STR	7'-6"	8
A387	1	5	STR	7'-1"	7
A388	1	5	STR	6'-8"	7
A389	1	5	STR	6'-4"	7
A390	1	5	STR	5'-11"	6
A391	1	5	STR	5'-6"	6
A392	1	5	STR	5'-2"	5
A393	1	5	STR	4'-9"	5
A394	1	5	STR	4'-4"	5
A395	1	5	STR	3'-11"	4
A396	1	5	STR	3'-7"	4
A397	1	5	STR	3'-2"	3
A398	1	5	STR	2'-9"	3
A399	1	5	STR	2'-5"	3
B101	98	5	STR	36'-7"	3,739
B102	98	5	STR	59'-1"	6,039
B103	98	5	STR	37'-7"	3,842
B104	98	5	STR	34'-8"	3,543
B105	87	6	STR	18'-4"	2,396
B106	87	6	STR	18'-10"	2,461
B107	87	6	STR	15'-10"	2,069
K4	8	6	STR	33'-11"	408
K8	8	6	STR	36'-7"	440
K9	12	6	STR	16'-8"	300
REINFORCING STEEL TOTAL:					57,955



GROOVING BRIDGE FLOORS	
APPROACH SLABS	1,798 SQ.FT.
BRIDGE DECK	13,494 SQ.FT.
TOTAL	15,292 SQ.FT.



PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 SUPERSTRUCTURE
 BILL OF MATERIAL
 RIGHT LANE

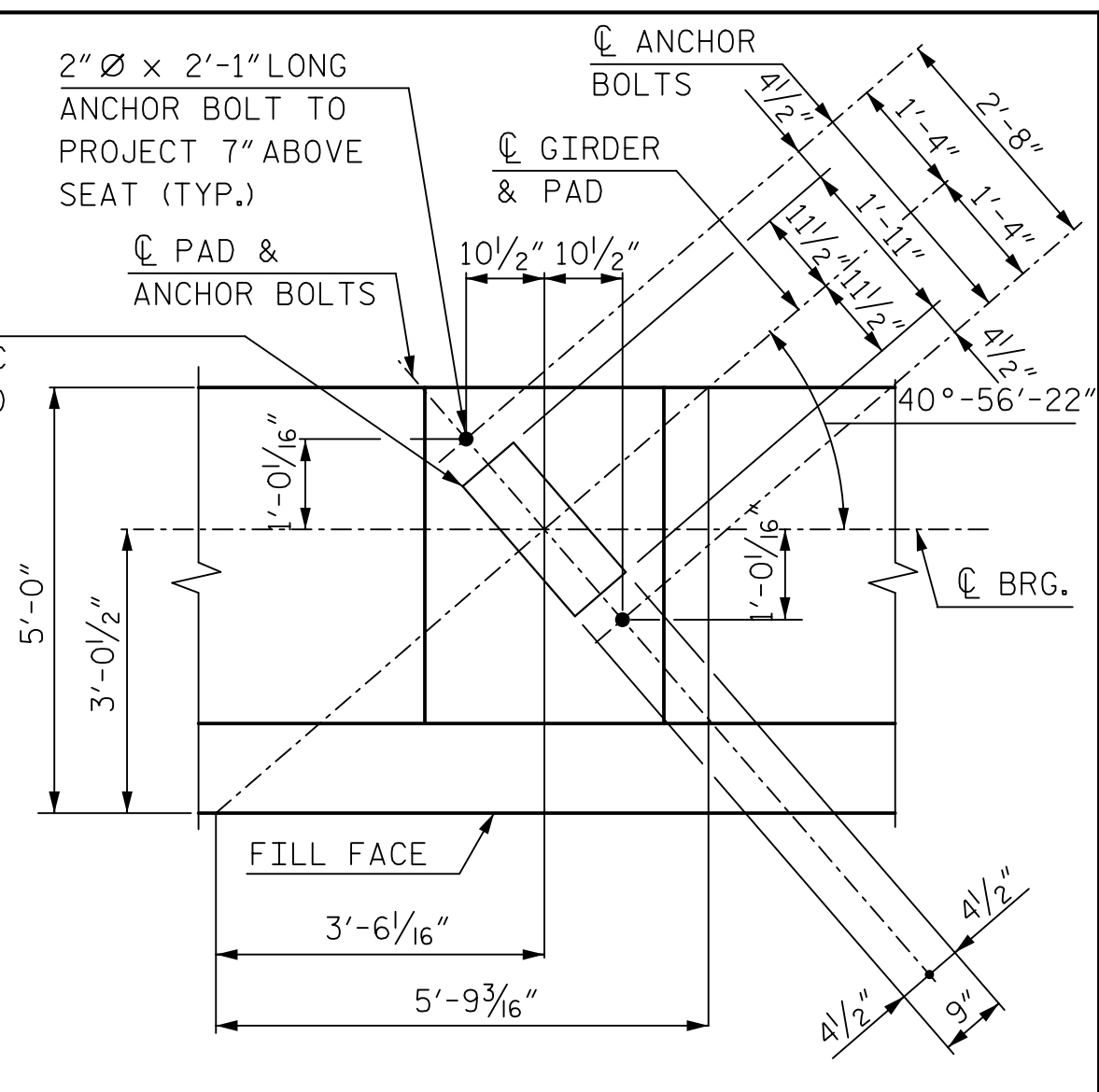
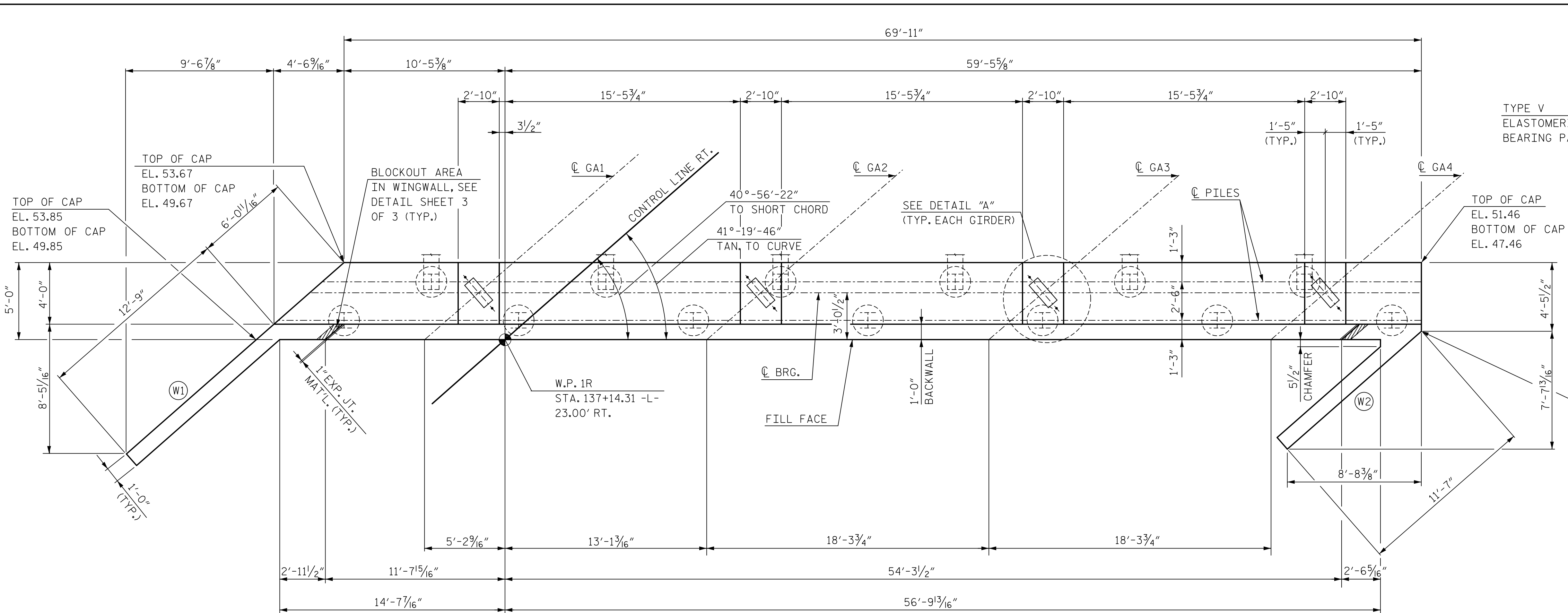
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 CHECKED BY : D. LAWRENCE DATE : 10/18
 DRAWN BY : JMB 5/87 REV. 8/16/99 RWW/LES
 CHECKED BY : SJD 9/87 REV. 5/1/06 TLA/GM
 REV. 10/1/11 MAA/GM

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

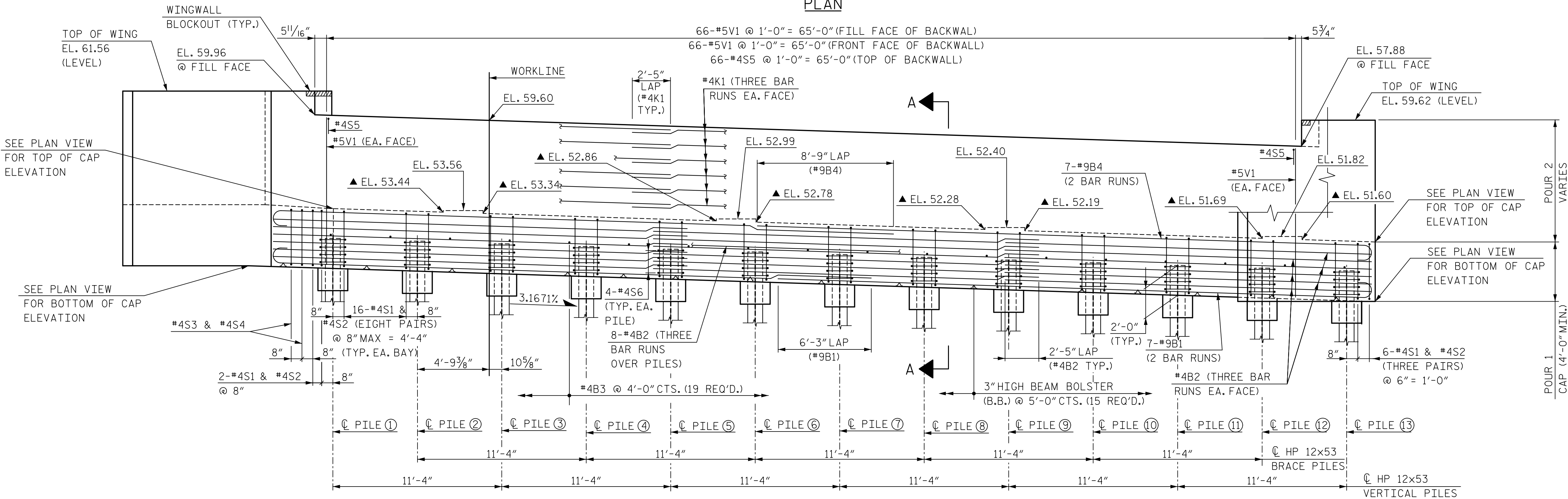
HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
 DRAWN BY: A. SMITH DATE: 7/18
 CHECKED BY: D. LAWRENCE DATE: 10/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18
 DWG. NO. 29

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

TOTAL SHEETS: 46



TOP OF PILE ELEVATIONS	
PILE	ELEVATION
①	51.67
②	51.49
③	51.31
④	51.13
⑤	50.95
⑥	50.77
⑦	50.59
⑧	50.42
⑨	50.24
⑩	50.06
⑪	49.88
⑫	49.70
⑬	49.52



NOTES:

FOR NOTES AND PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

FOR WINGWALL DETAILS AND SECTION A-A, SEE SHEET 2 OF 3.

INDICATES 3:12 PILE BATTER IN DIRECTION SHOWN.

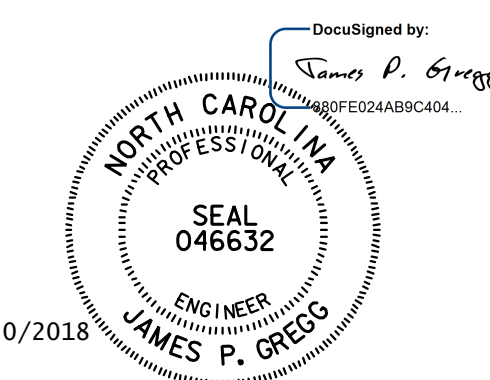
PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
END BENT 1
RIGHT LANE

REVISIONS						SHEET NO. S04-30
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 46
2			4			



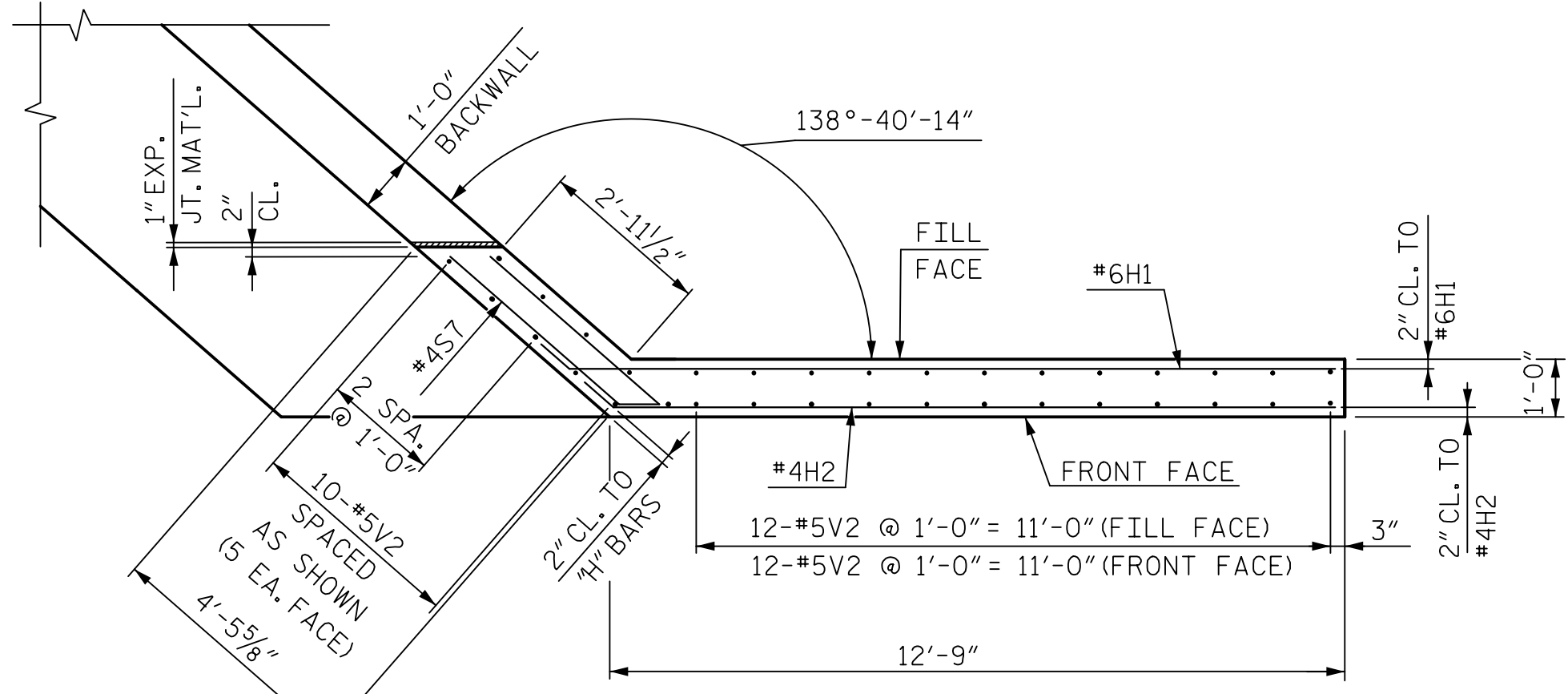
HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: B. NEUPANE DATE: 9/18
 CHECKED BY: E. JOWZA DATE: 10/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

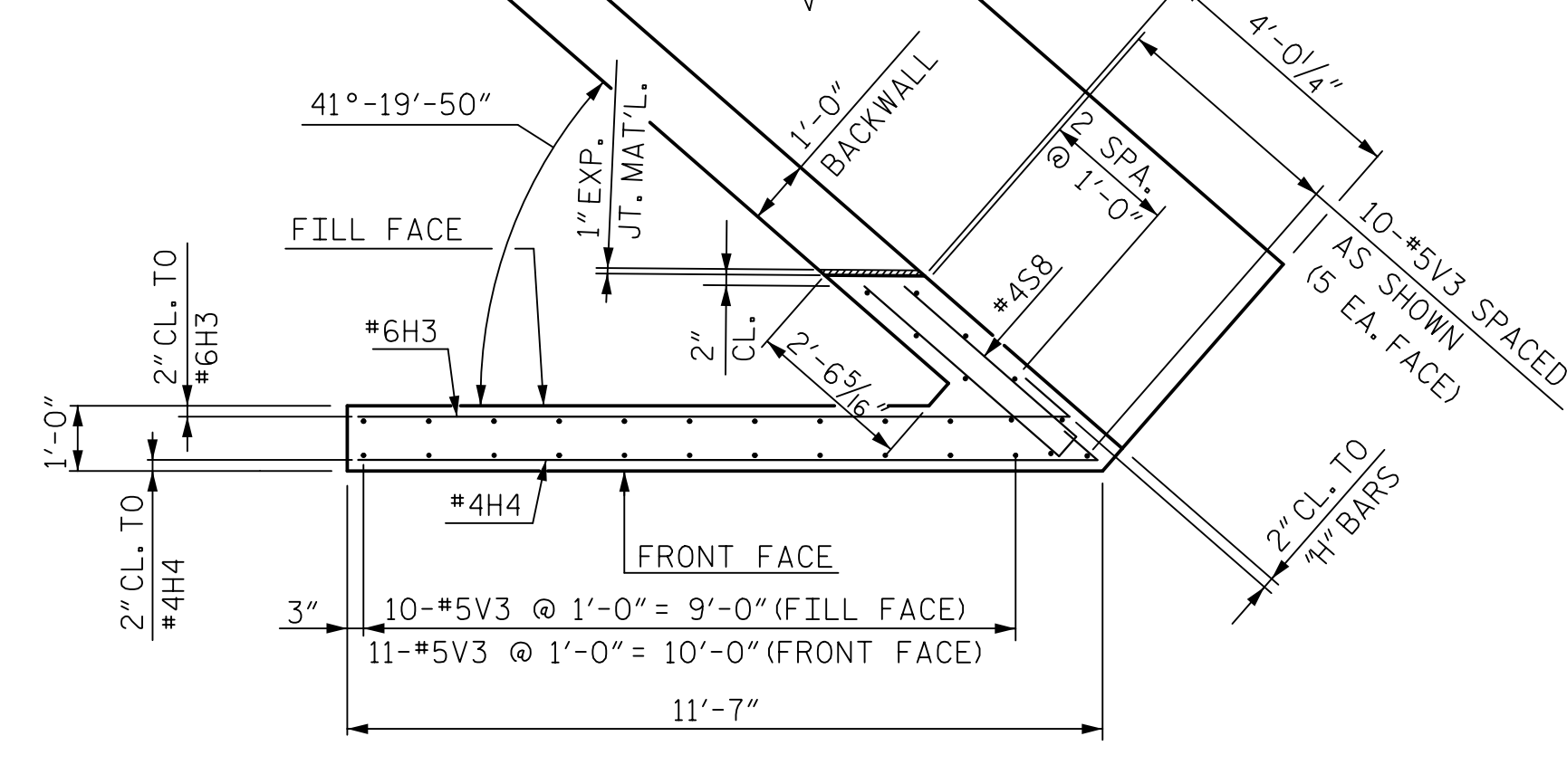
DWG. NO. 30

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

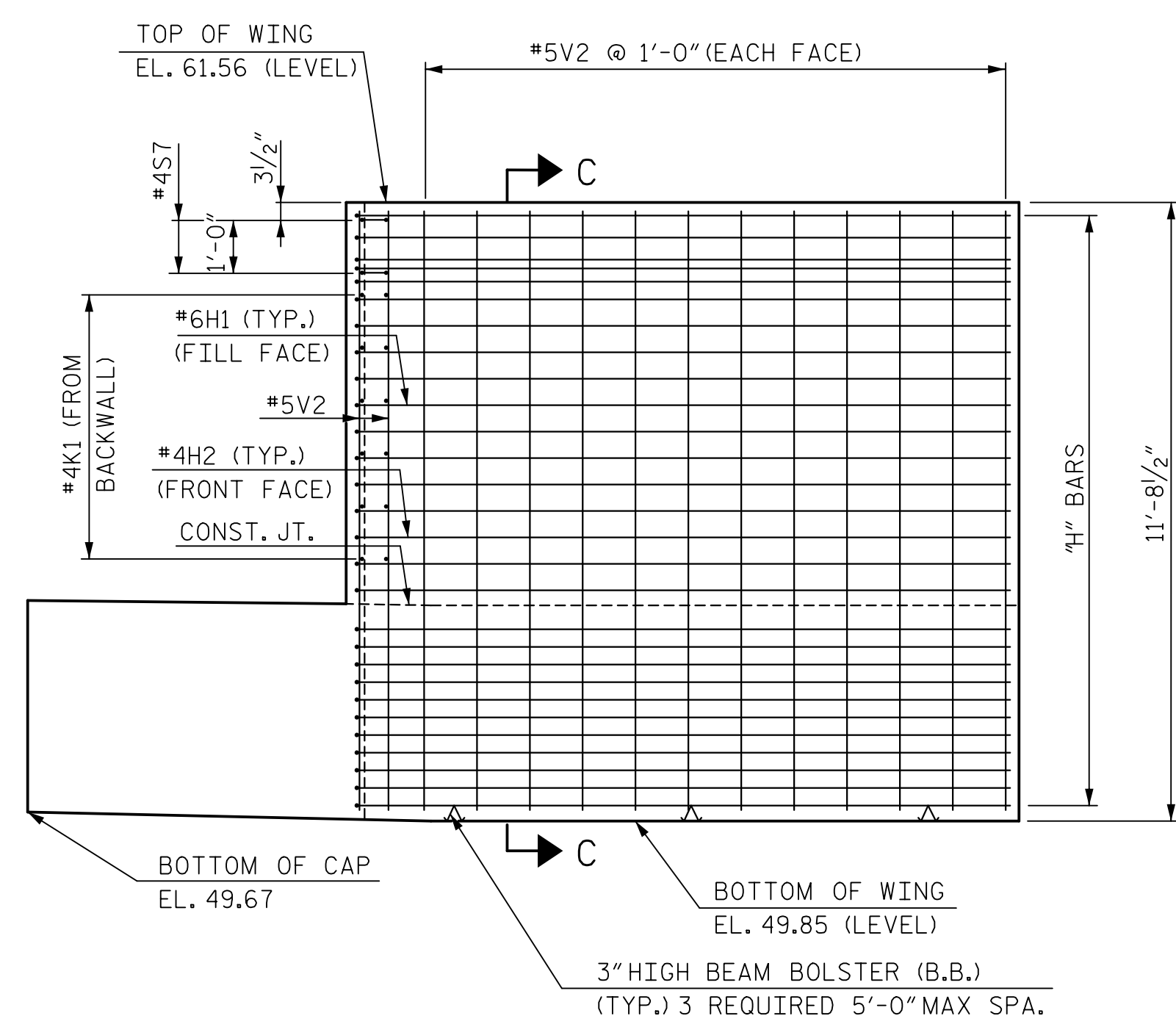
▲ FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEATS, SEE SECTION A-A, SHEET 2 OF 3.



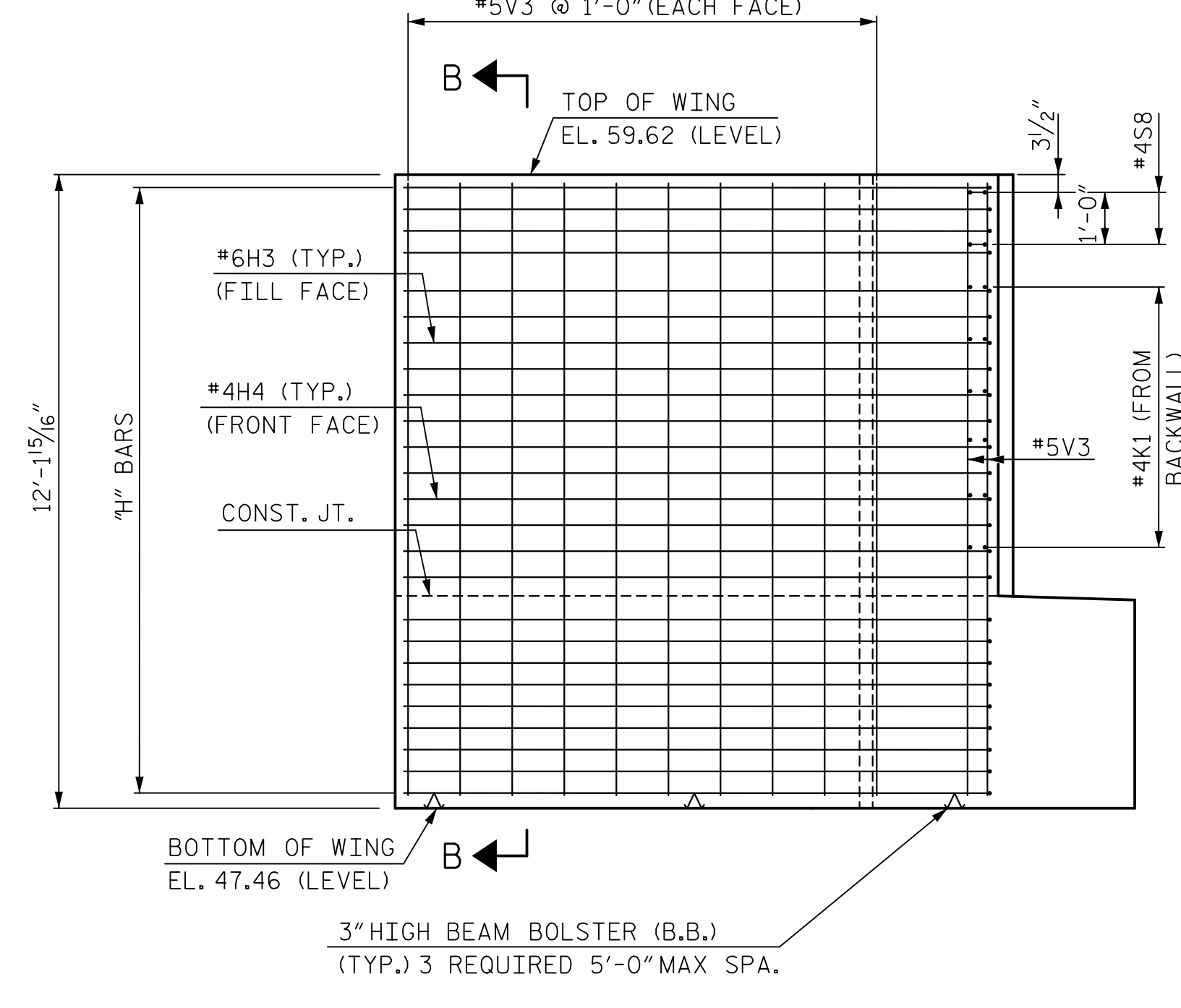
W1 PLAN OF WING



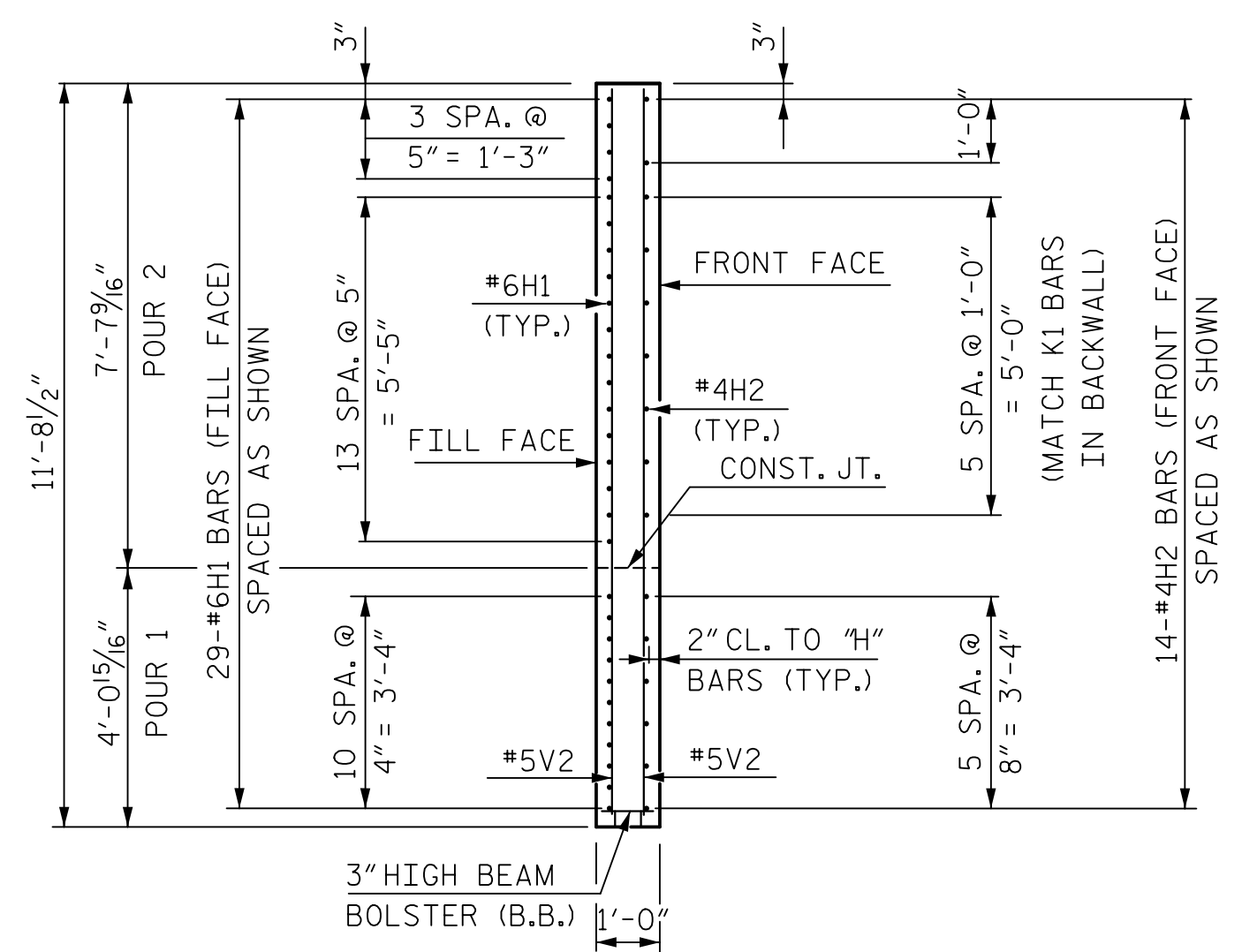
W2 PLAN OF WING



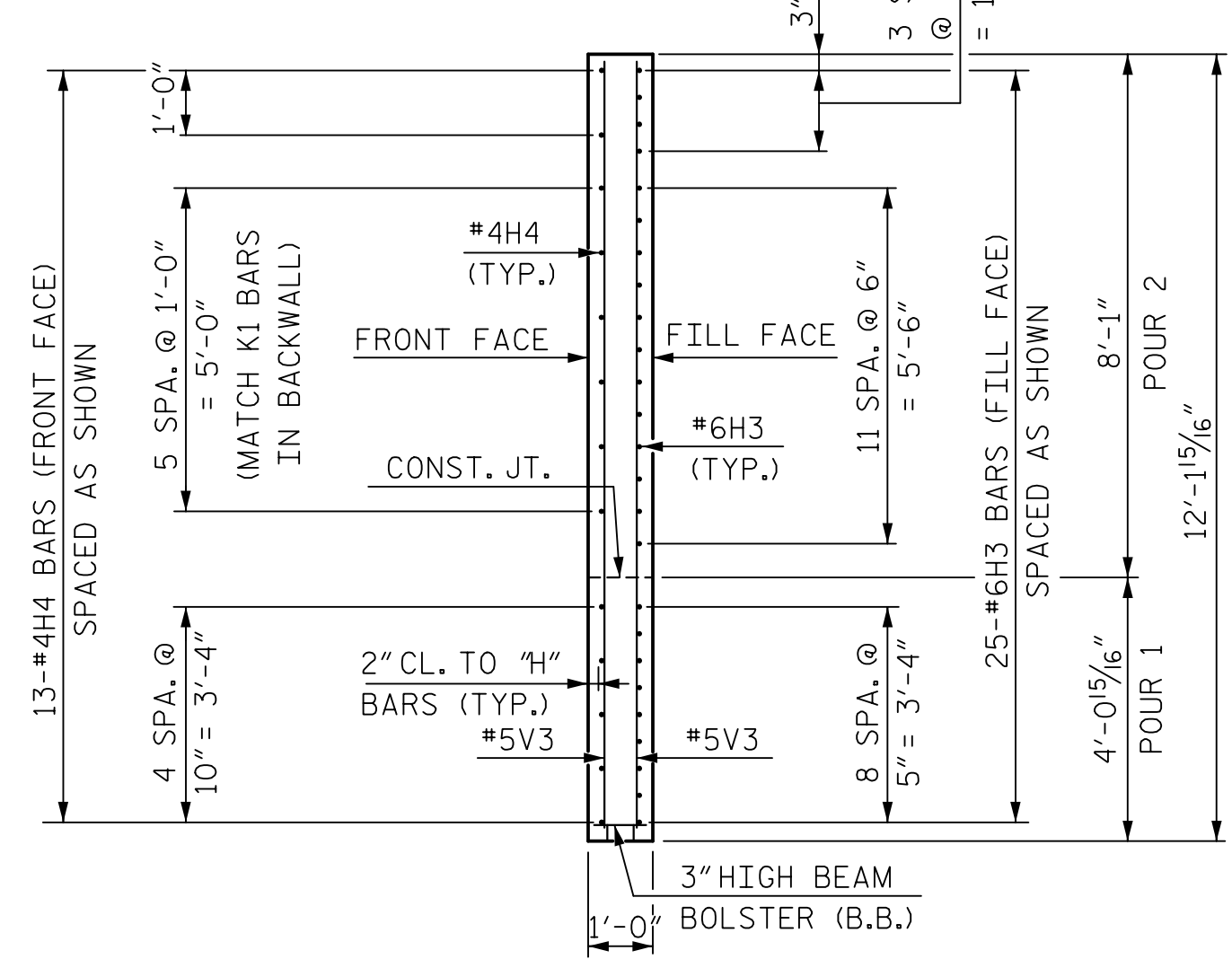
W1 ELEVATION OF WING



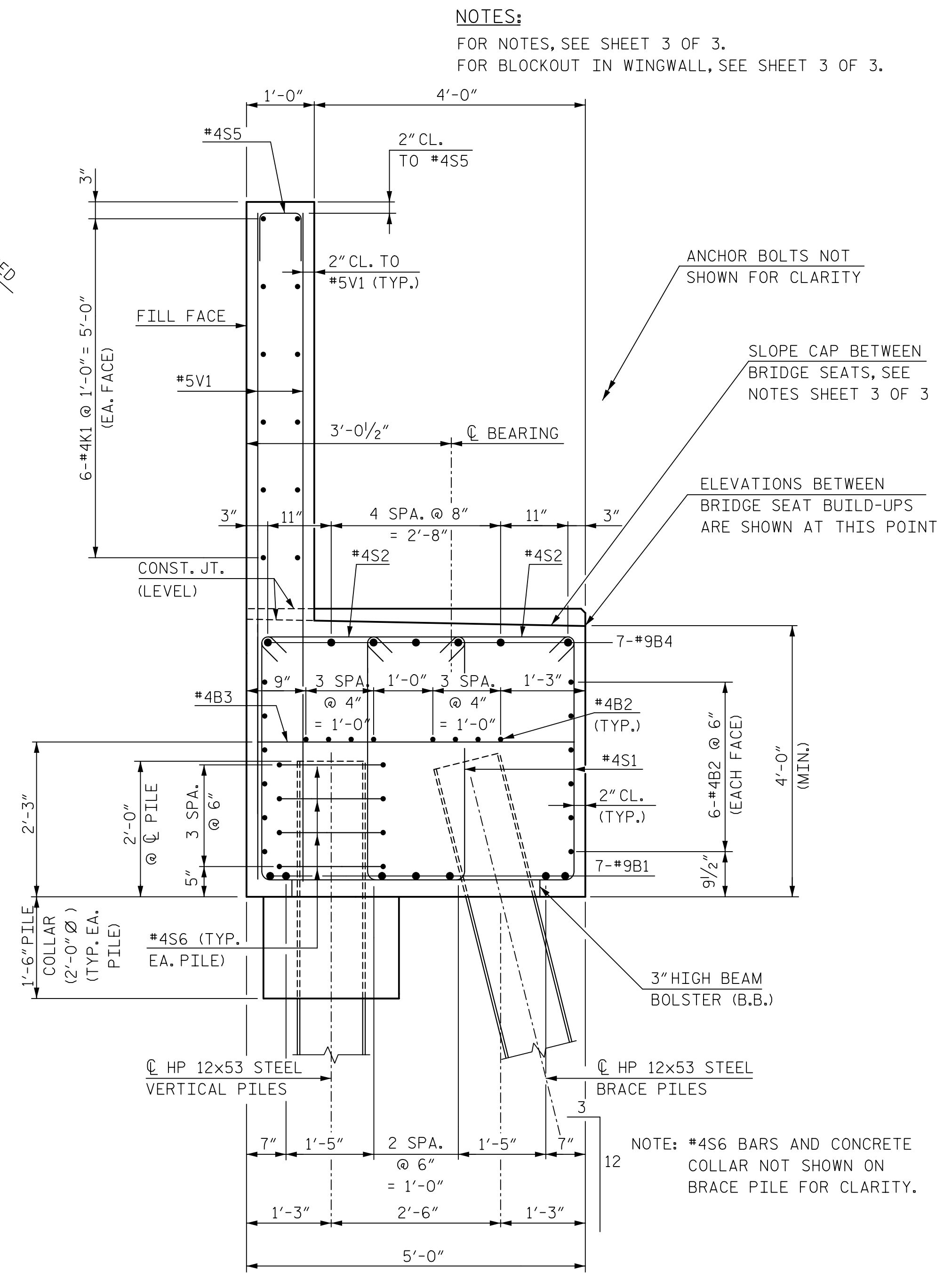
W2 ELEVATION OF WING



SECTION C-C



SECTION B-B

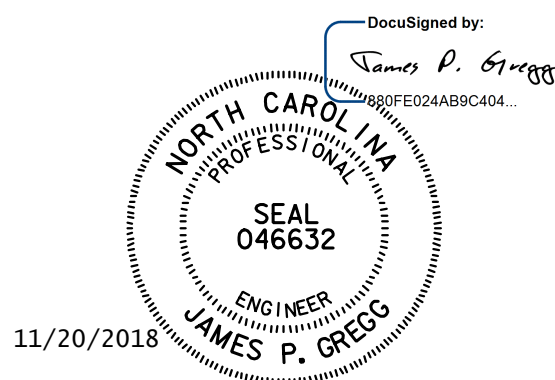


SECTION A-A

NOTES:
FOR NOTES, SEE SHEET 3 OF 3.
FOR BLOCKOUT IN WINGWALL, SEE SHEET 3 OF 3.

PROJECT NO. R-1015
CRAVEN COUNTY
STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 3
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT 1
RIGHT LANE

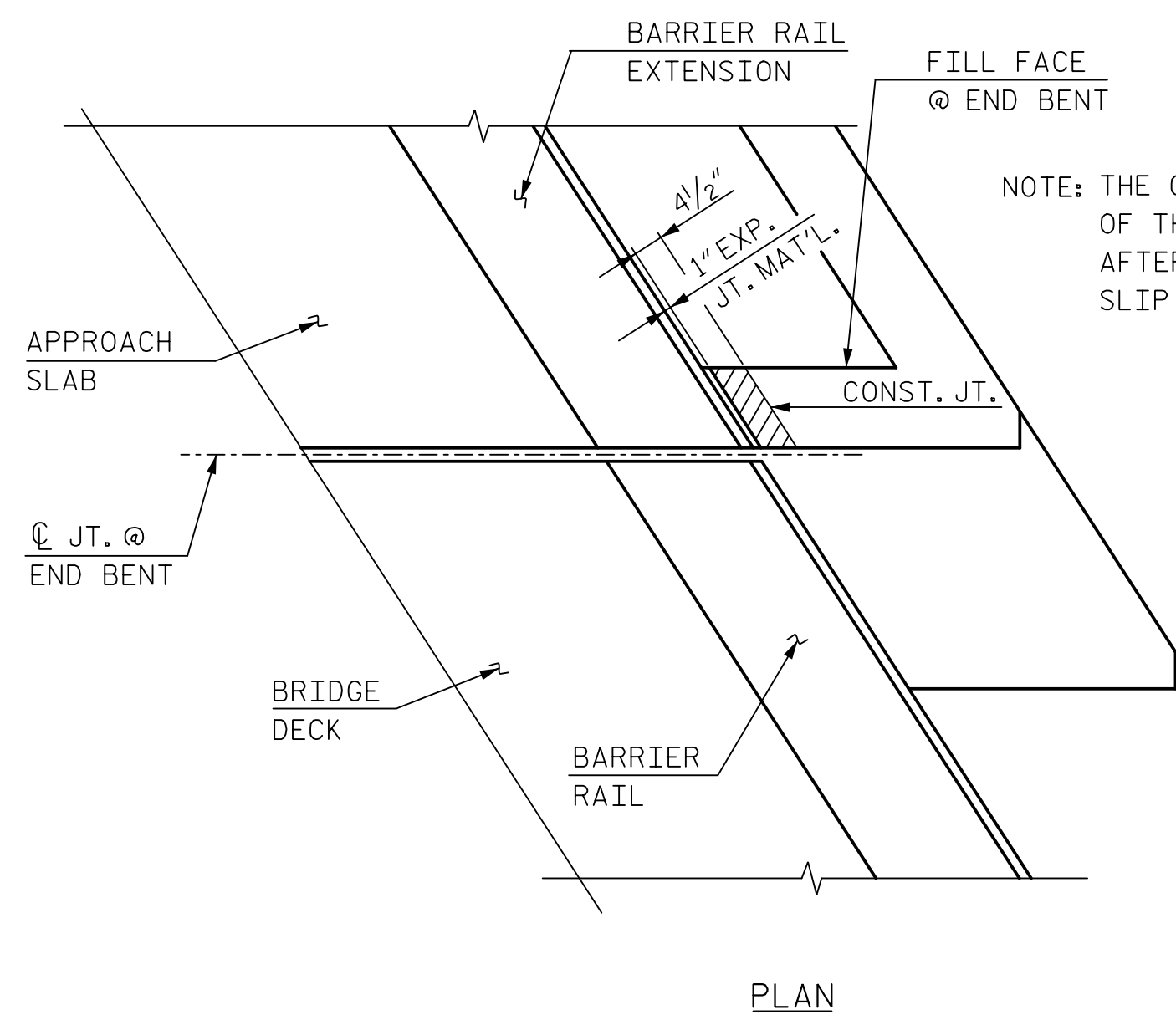


HNTB		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY	B. NEUPANE	DATE	9/18
CHECKED BY	E. JOWZA	DATE	10/18
DESIGN ENGINEER OF RECORD	J. GREGG	DATE	10/18
DWG. NO. 31			

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

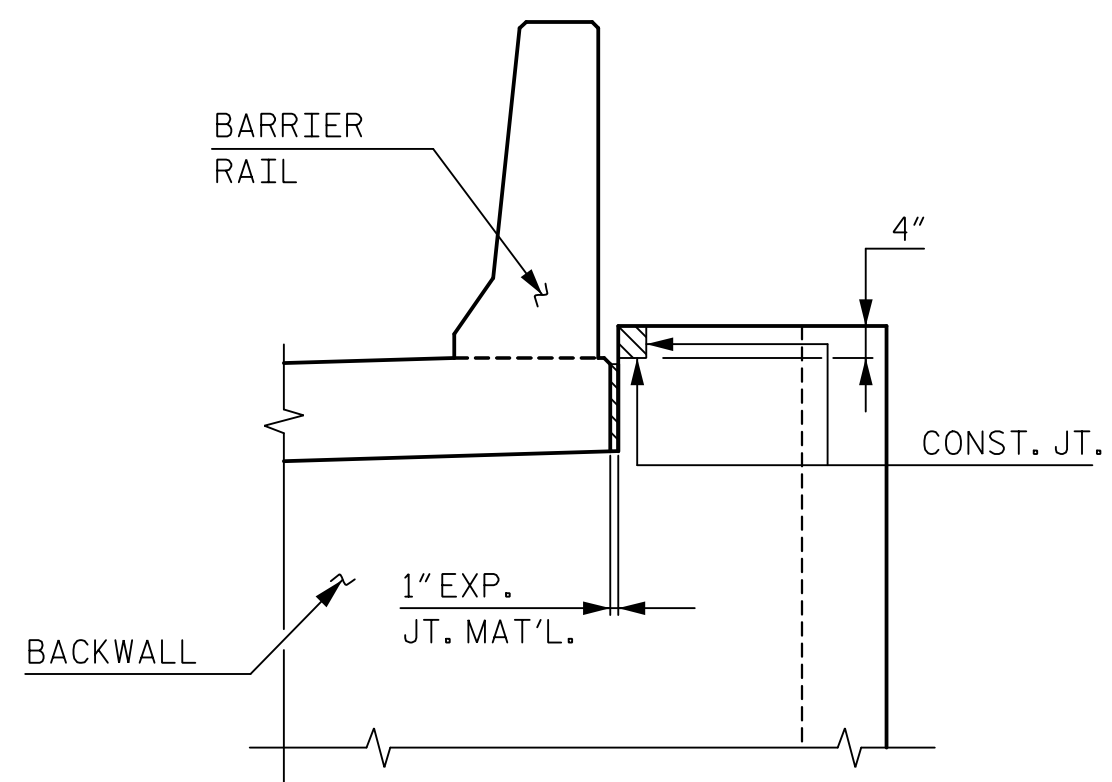
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UNLESS ALL SIGNATURES COMPLETED

TOTAL SHEETS
46

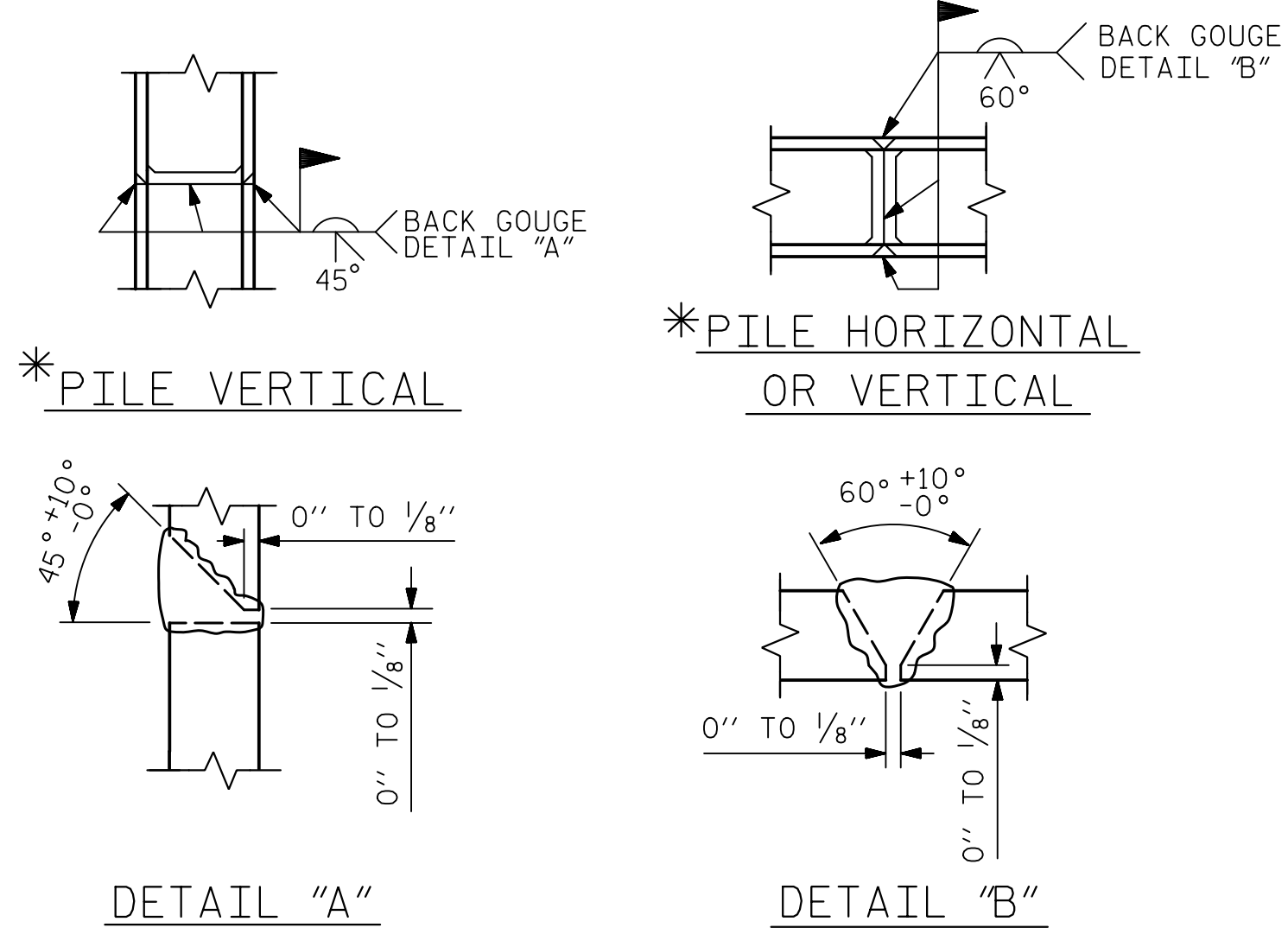


NOTE: THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER BARRIER RAILS ARE CAST IF SLIP FORMING IS USED.

PLAN



ELEVATION
BLOCKOUT IN WINGWALL



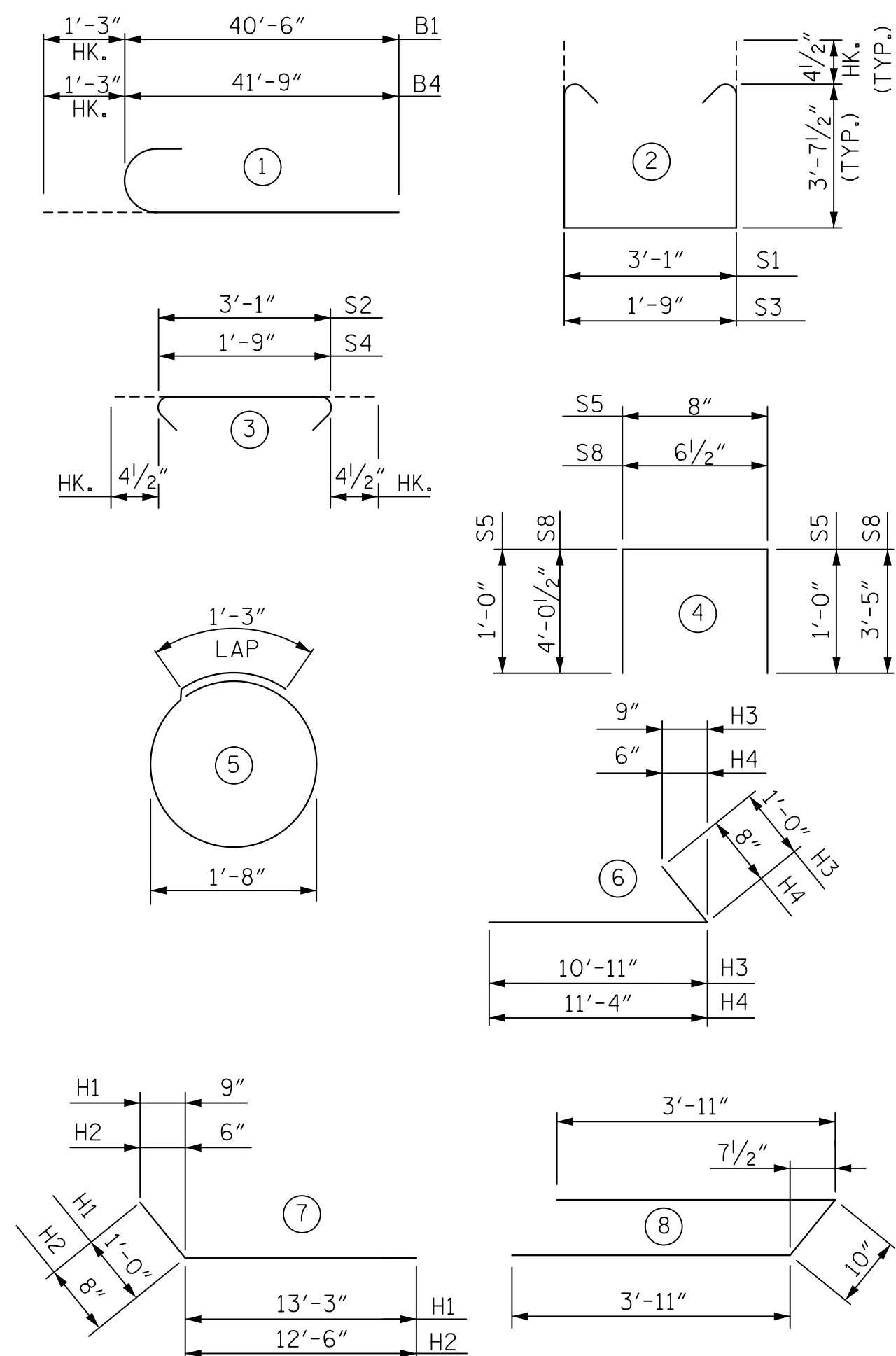
* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

NOTES:

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

BAR TYPES



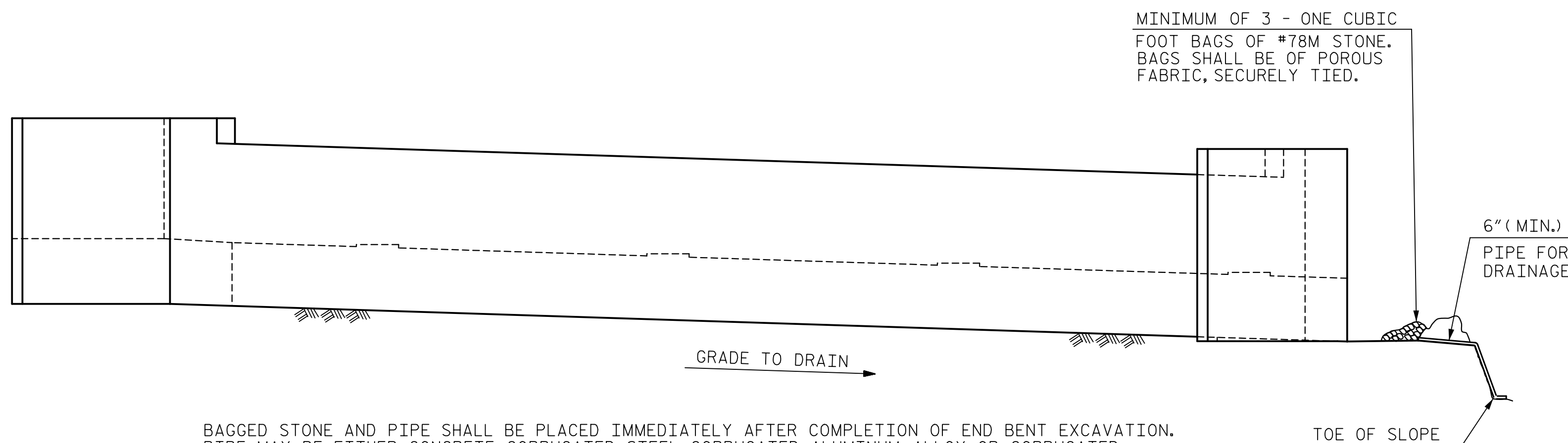
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF REINFORCING

END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	14	9	1	41'-9"	1,987
B2	60	4	STR	26'-6"	1,062
B3	19	4	STR	4'-8"	59
B4	14	9	1	43'-0"	2,047
H1	29	6	7	14'-3"	621
H2	14	4	7	13'-2"	123
H3	25	6	6	11'-11"	447
H4	13	4	6	12'-0"	104
S1	200	4	2	11'-1"	1,481
S2	200	4	3	3'-10"	512
S3	2	4	2	9'-9"	13
S4	2	4	3	2'-6"	3
S5	66	4	4	2'-8"	118
S6	52	4	5	6'-6"	226
S7	2	4	8	8'-8"	12
S8	2	4	4	8'-0"	11
V1	132	5	STR	9'-10"	1,354
V2	34	5	STR	11'-3"	399
V3	31	5	STR	11'-9"	380

QUANTITIES

REINFORCING STEEL	LBS.	11,596
CLASS "A" CONCRETE BREAKDOWN		
POUR 1 - CAP, COLLARS & BOT. OF WINGS	CU. YDS.	60.6
POUR 2 - TOP OF WINGS & BACKWALL	CU. YDS.	24.1
TOTAL	CU. YDS.	84.7
HP 12x53 STEEL PILES	NO.	13
	LN. FT.	1365
PILE REDRIVES	EA.	6
PILE DRIVING EQUIPMENT SETUP	EA.	13



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 FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT 1

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

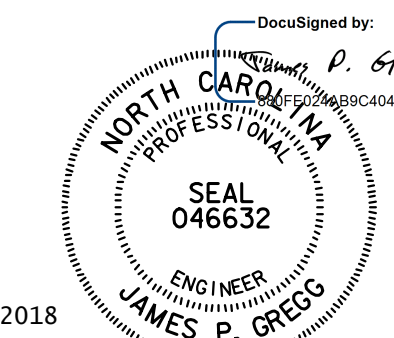
SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

END BENT 1

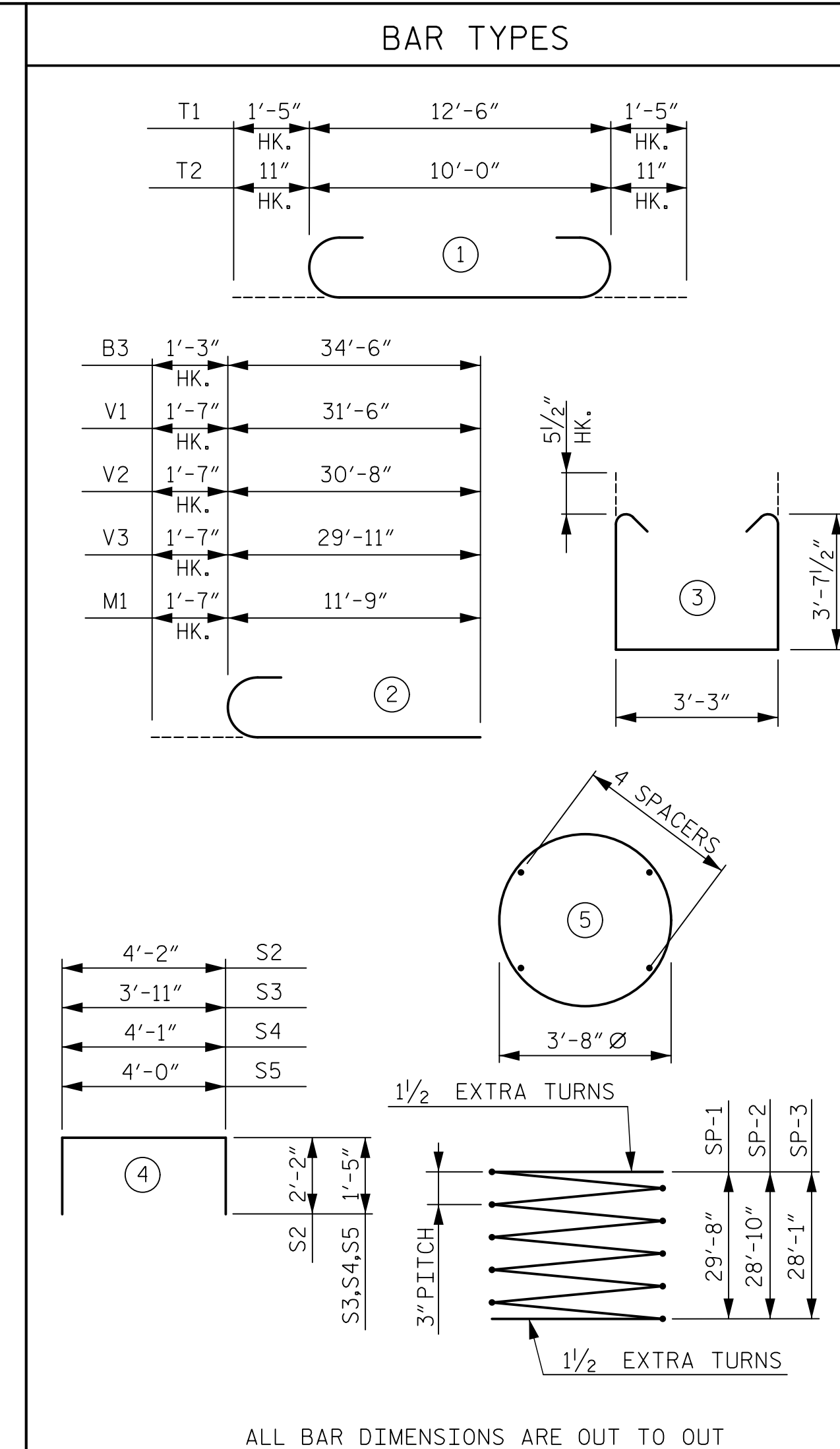
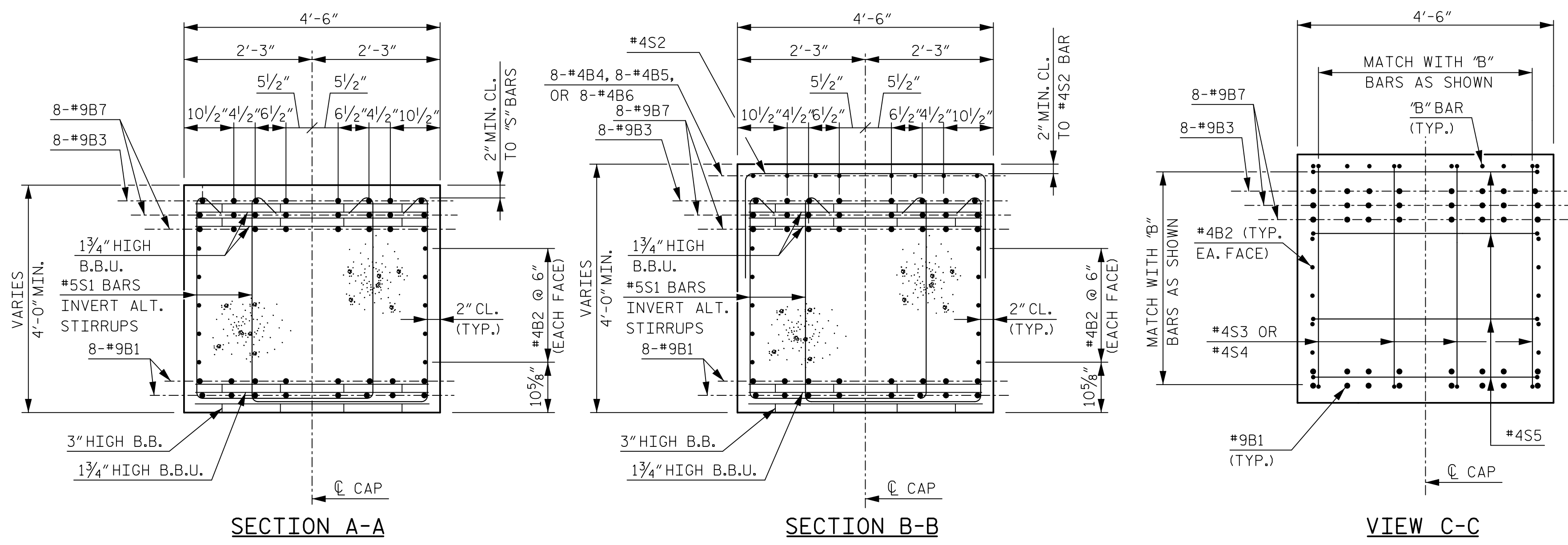
RIGHT LANE



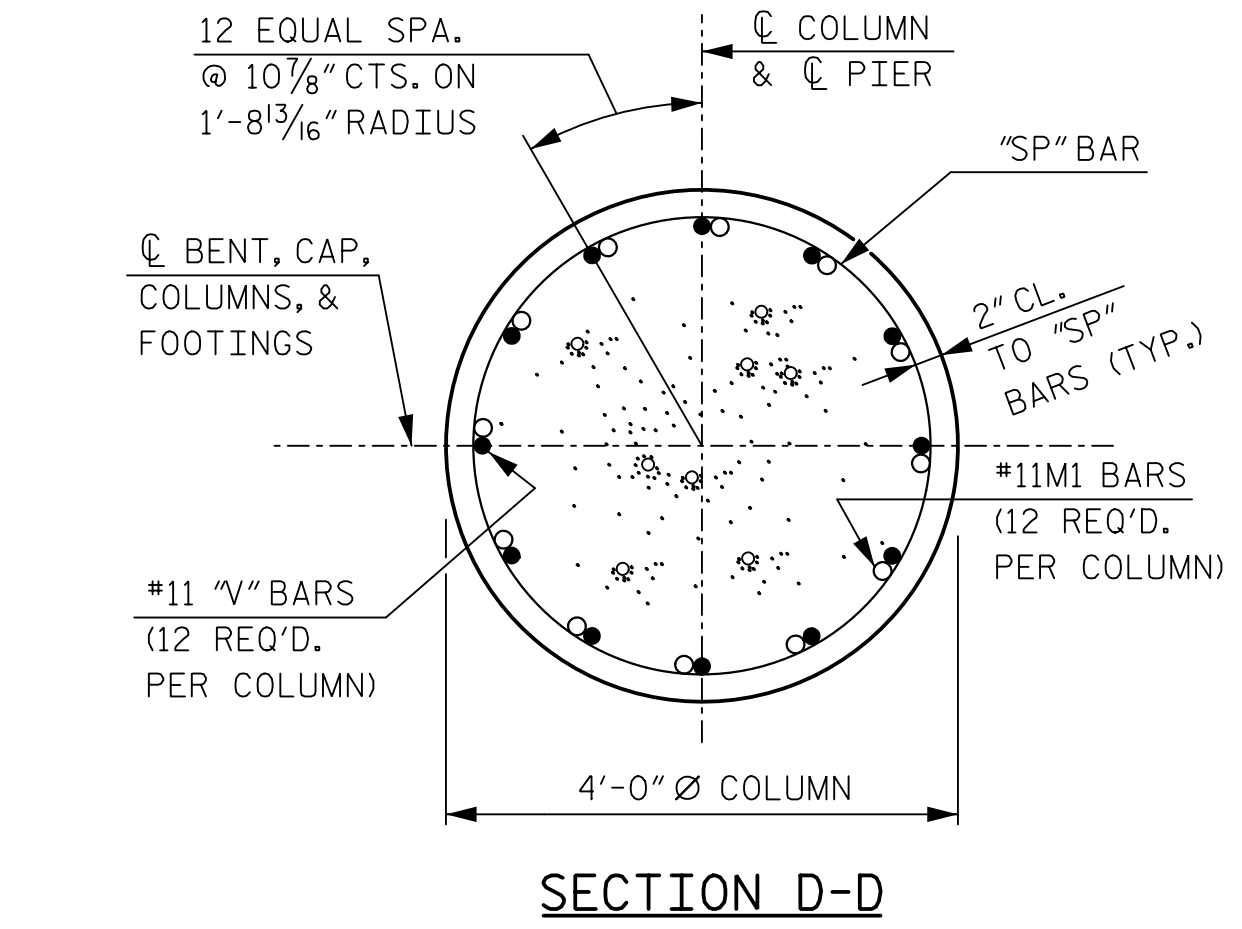
HNTB	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: B. NEUPANE	DATE: 9/18
CHECKED BY: E. JOWZA	DATE: 10/18
DESIGN ENGINEER OF RECORD: J. GREGG	DATE: 10/18

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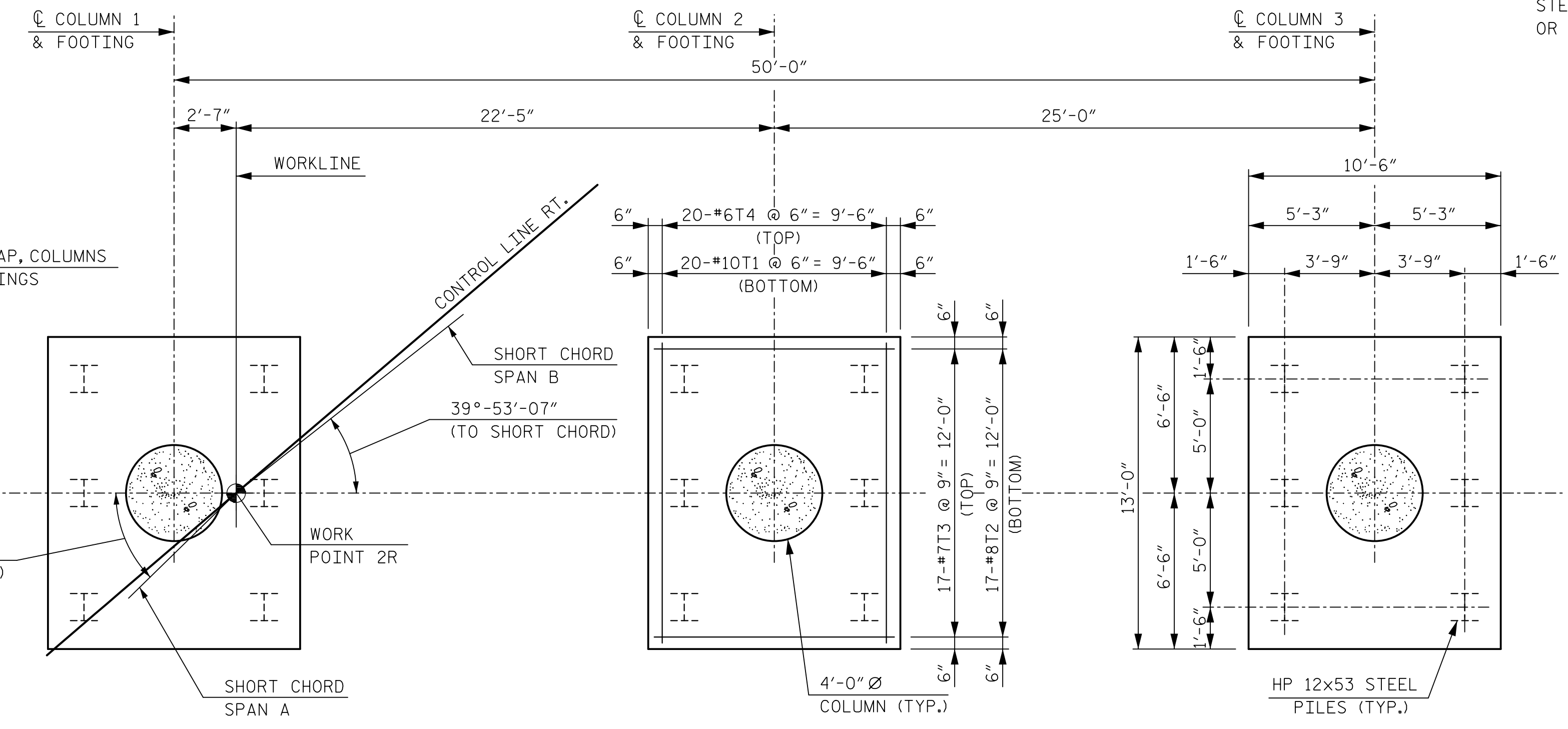
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			46
2			4			



BILL OF REINFORCING					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	32	9	STR	33'-3"	3,618
B2	30	4	STR	21'-9"	436
B3	16	9	2	35'-9"	1,945
B4	8	4	STR	5'-3"	28
B5	16	4	STR	13'-2"	141
B6	8	4	STR	13'-0"	69
B7	32	9	STR	34'-6"	3,754
M1	36	11	2	13'-4"	2,550
S1	218	5	3	11'-5"	2,596
S2	60	4	4	8'-6"	341
S3	4	4	4	6'-9"	18
S4	4	4	4	6'-11"	18
S5	8	4	4	6'-10"	37
T1	60	10	1	15'-4"	3,959
T2	51	8	1	11'-10"	1,611
T3	51	7	STR	10'-0"	1,042
T4	60	6	STR	12'-6"	1,127
V1	12	11	2	33'-1"	2,109
V2	12	11	2	32'-3"	2,056
V3	12	11	2	31'-6"	2,008
SP-1	1	*	5	1402'-0"	937
SP-2	1	*	5	1363'-7"	911
SP-3	1	*	5	1329'-0"	888

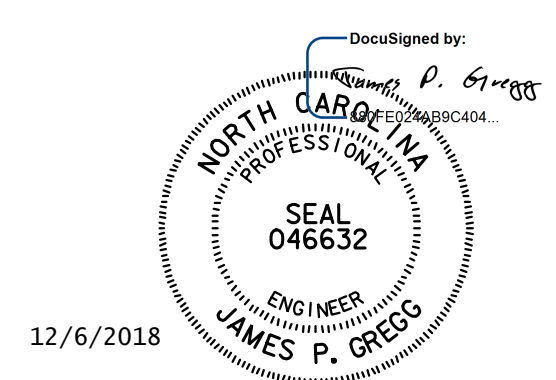


QUANTITIES			
REINFORCING STEEL	LBS.		29,463
SPIRAL COLUMN REINFORCING STEEL	LBS.		2,736
CLASS A CONCRETE			
FOOTING POUR 1	CU. YDS.		64.5
COLUMN POUR 2	CU. YDS.		40.0
CAP POUR 3	CU. YDS.		43.7
TOTAL	CU. YDS.		148.2
HP 12X53 STEEL PILES	NO.		18
	LIN FT.		1,350
PILE REDRIVES	EA.		9
PILE DRIVING EQUIPMENT SETUP	EA.		18



FOOTING PLAN
(FOOTING REINFORCING AND DIMENSIONS ARE TYPICAL FOR EACH FOOTING)

* THE SP-1, SP-2, AND SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.



PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

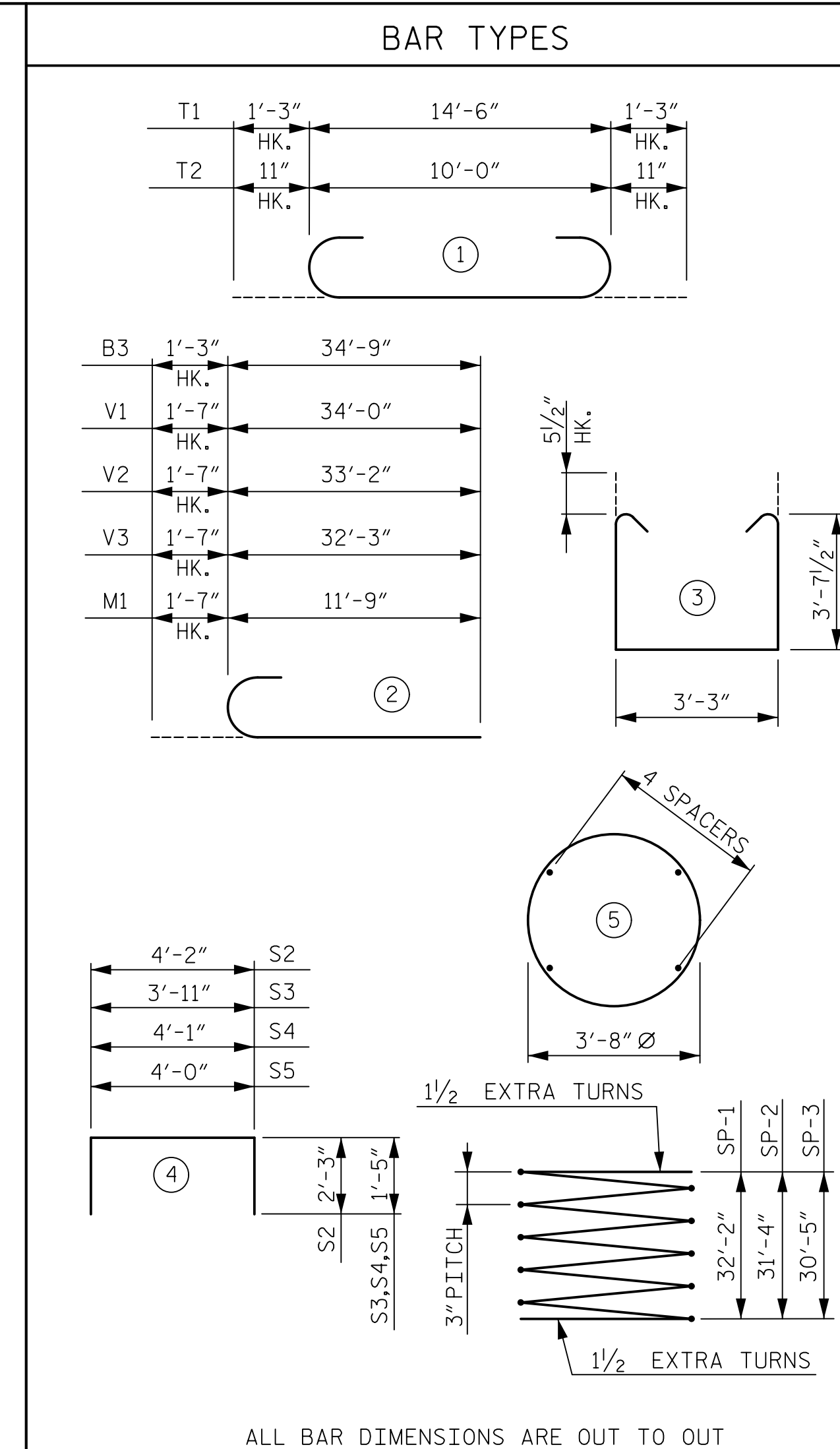
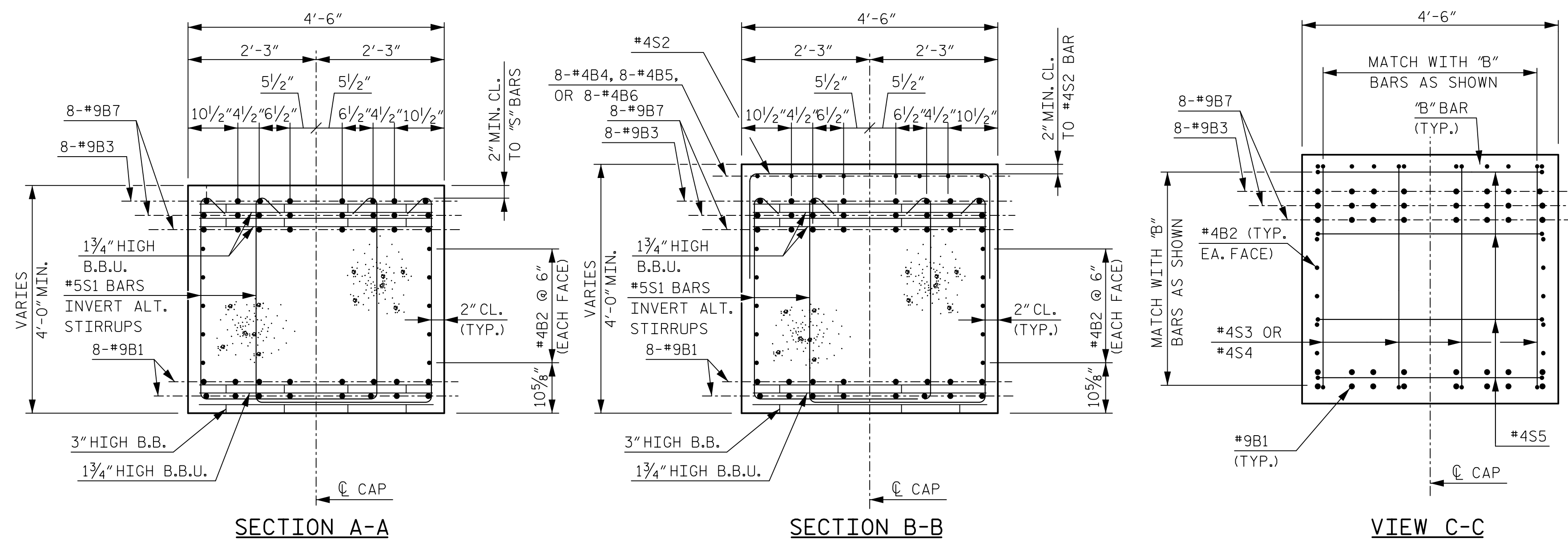
SHEET 2 OF 2
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 1
 RIGHT LANE

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CHECKED BY: B. NEUPANE	DATE: 9/18
DESIGN ENGINEER OF RECORD: J. GREGG	DATE: 10/18

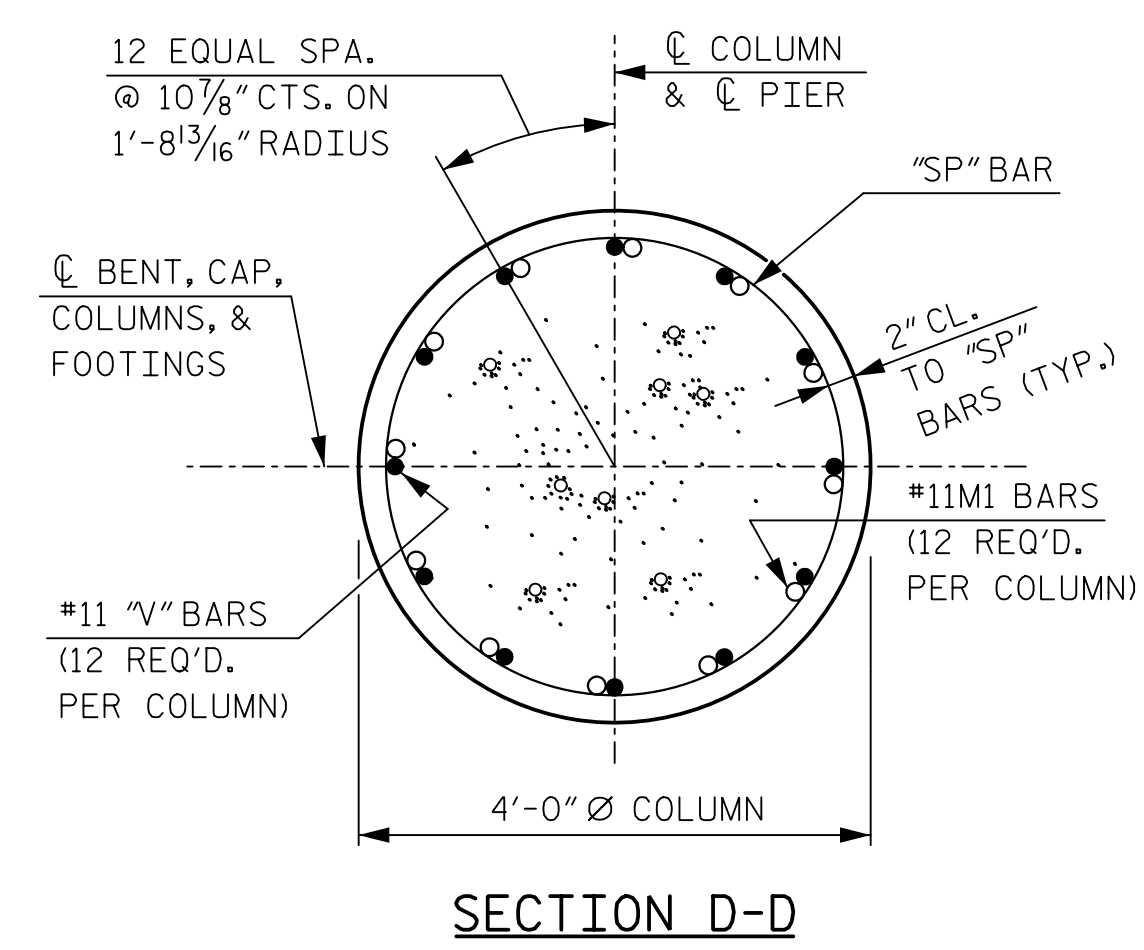
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
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TOTAL SHEETS 46

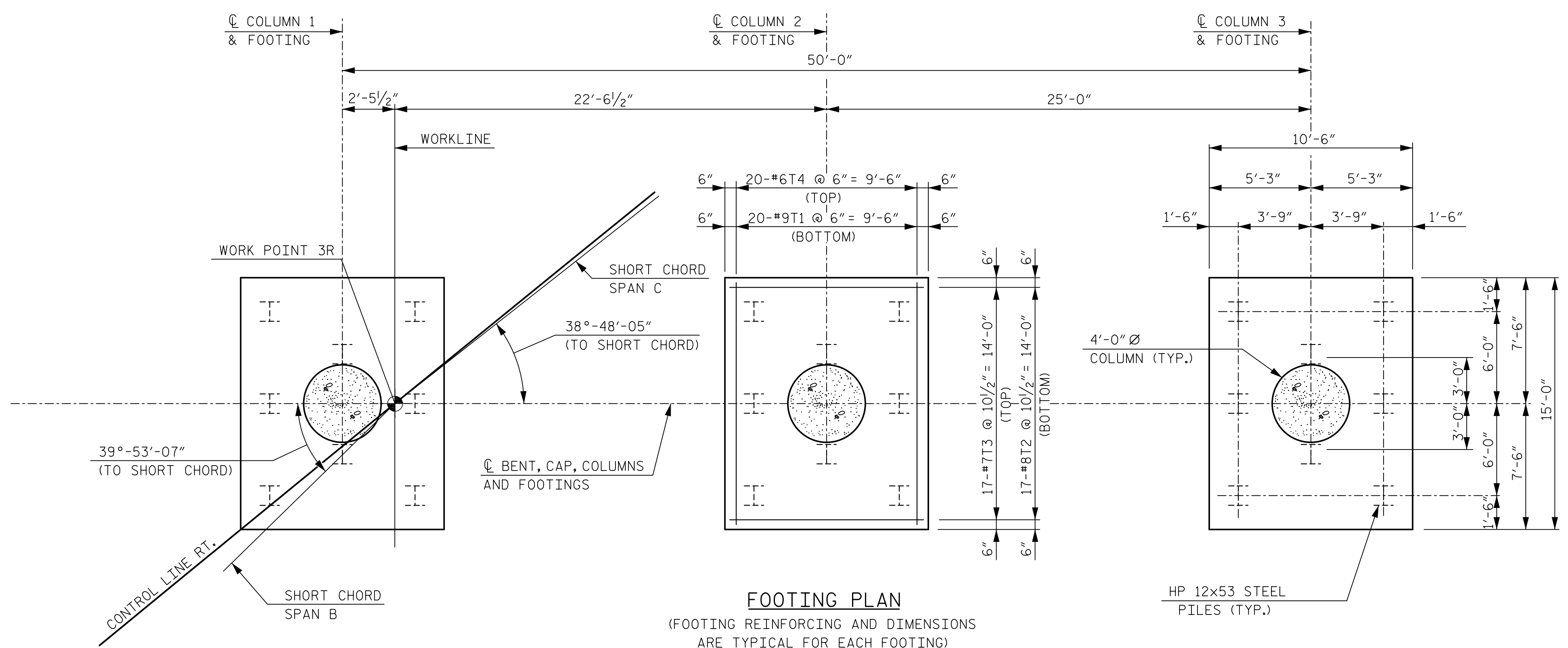


BILL OF REINFORCING					
BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	32	9	STR	33'-6"	3,645
B2	30	4	STR	22'-0"	441
B3	16	9	2	36'-0"	1,958
B4	8	4	STR	5'-4"	29
B5	16	4	STR	13'-0"	139
B6	8	4	STR	12'-0"	64
B7	32	9	STR	34'-9"	3,781
M1	36	11	2	13'-4"	2,550
S1	222	5	3	11'-5"	2,643
S2	57	4	4	8'-8"	330
S3	4	4	4	6'-9"	18
S4	4	4	4	6'-11"	18
S5	8	4	4	6'-10"	37
T1	60	9	1	17'-0"	3,468
T2	51	8	1	11'-10"	1,611
T3	51	7	STR	10'-0"	1,042
T4	60	6	STR	14'-6"	1,307
V1	12	11	2	35'-7"	2,269
V2	12	11	2	34'-9"	2,216
V3	12	11	2	33'-10"	2,157
SP-1	1	*	5	1517'-3"	1,014
SP-2	1	*	5	1478'-10"	988
SP-3	1	*	5	1436'-7"	960



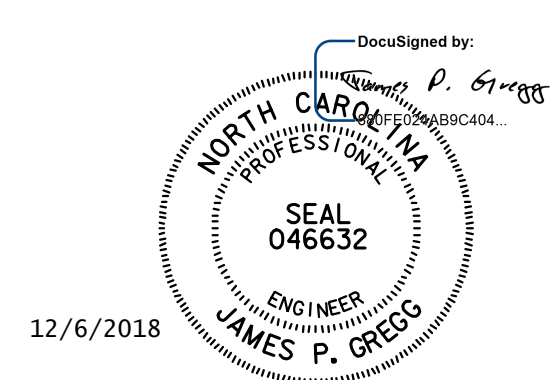
QUANTITIES			
REINFORCING STEEL	LBS.	29,723	
SPIRAL COLUMN REINFORCING STEEL	LBS.	2,962	
CLASS A CONCRETE			
FOOTING POUR 1	CU. YDS.	74.4	
COLUMN POUR 2	CU. YDS.	43.4	
CAP POUR 3	CU. YDS.	44.2	
TOTAL	CU. YDS.	162.0	
HP 12X53 STEEL PILES	NO.	24	
	LIN FT.	1,680	
PILE REDRIVES	EA.	12	
PILE DRIVING EQUIPMENT SETUP	EA.	24	

ALL BAR DIMENSIONS ARE OUT TO OUT
 * THE SP-1, SP-2, AND SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.



PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 2
 RIGHT LANE



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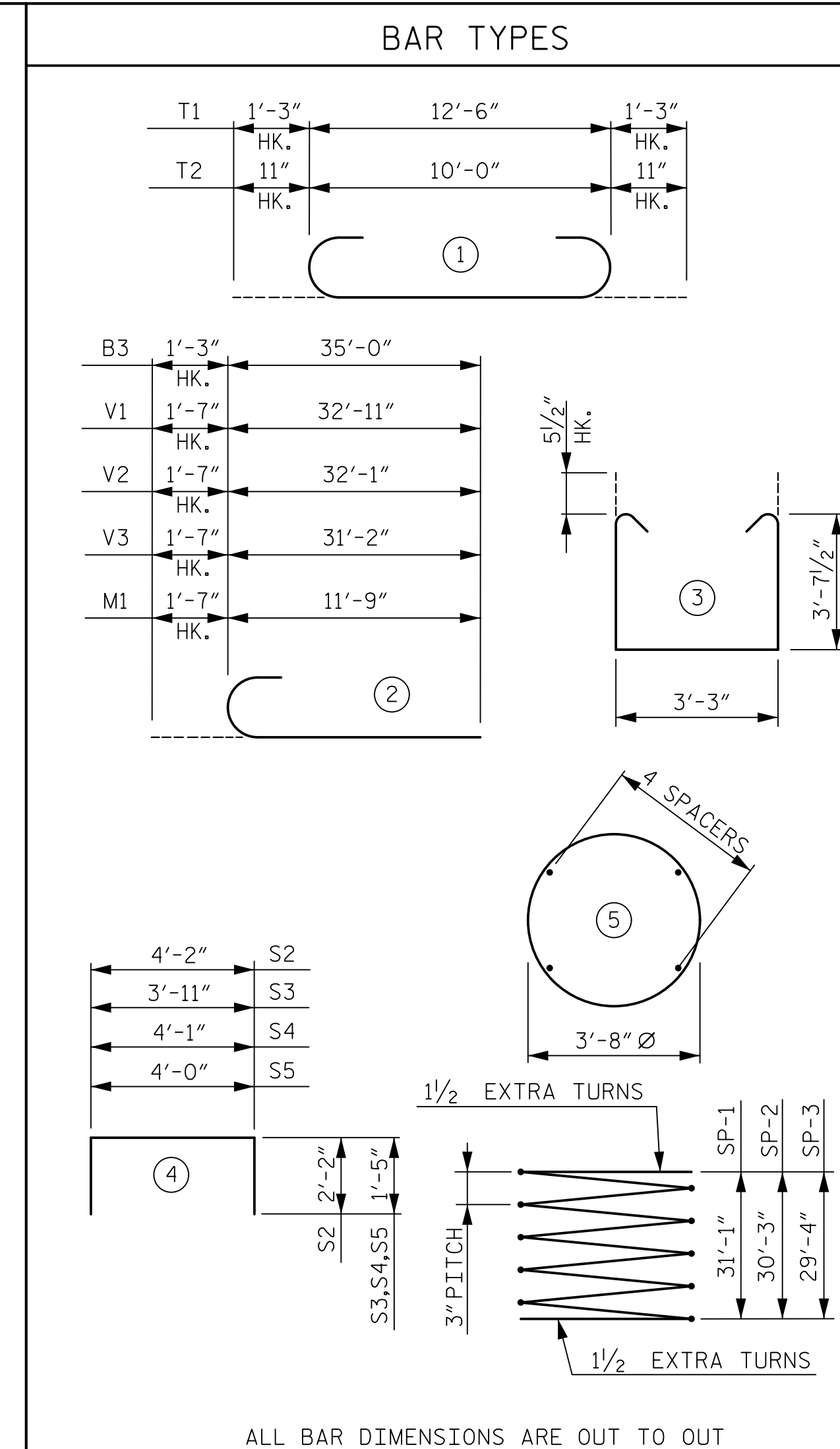
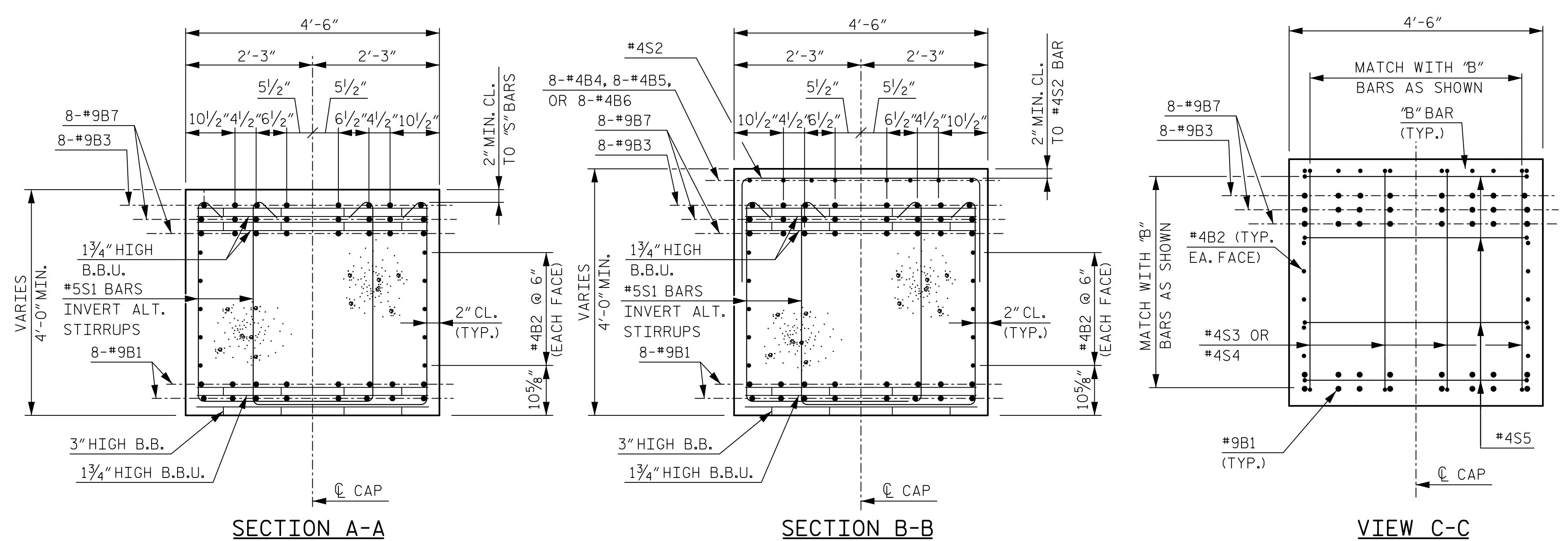
DRAWN BY: A. SMITH DATE: 7/18
 CHECKED BY: B. NEUPANE DATE: 9/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

DWG. NO. 36

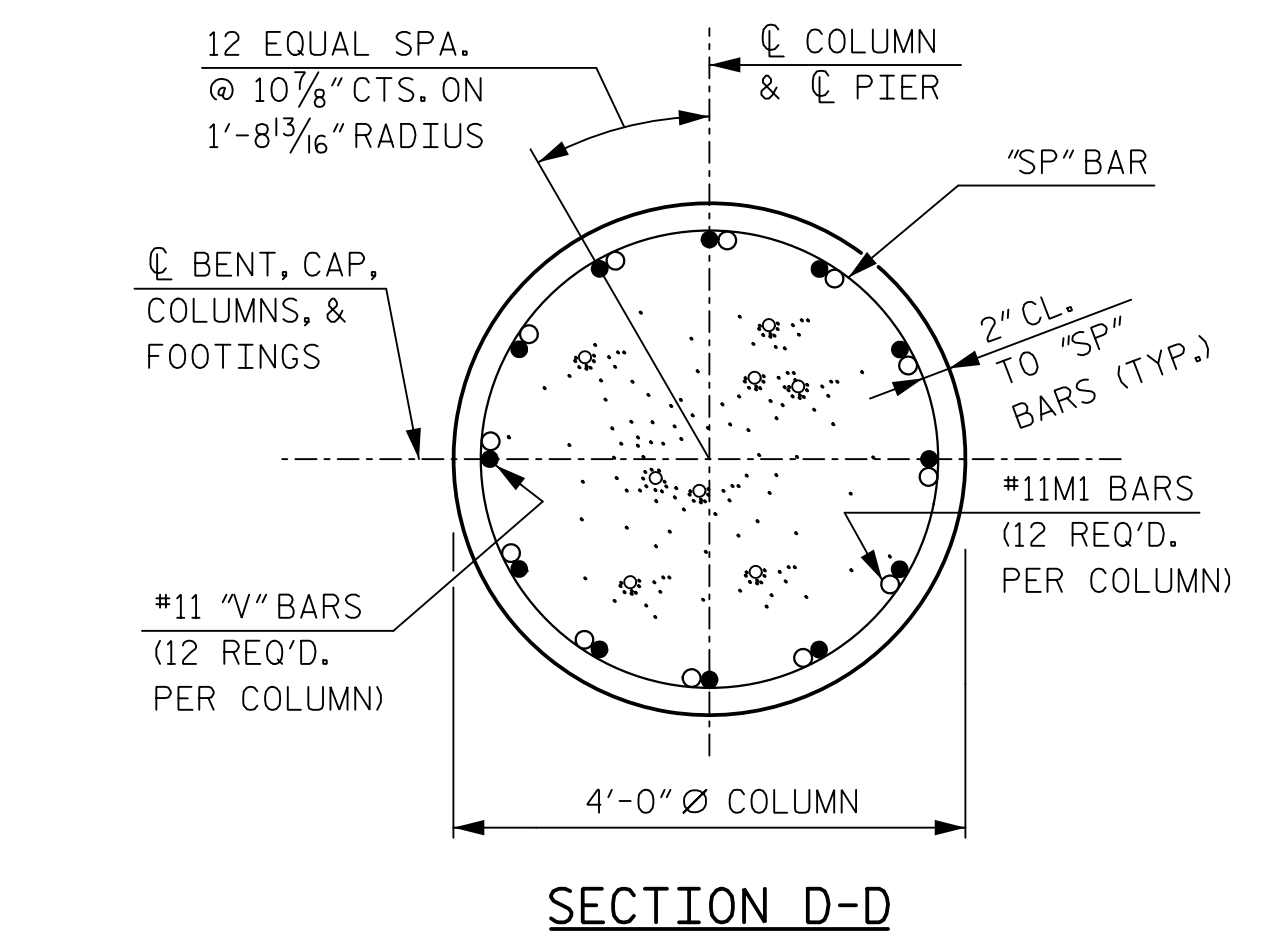
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1			3		
2			4		

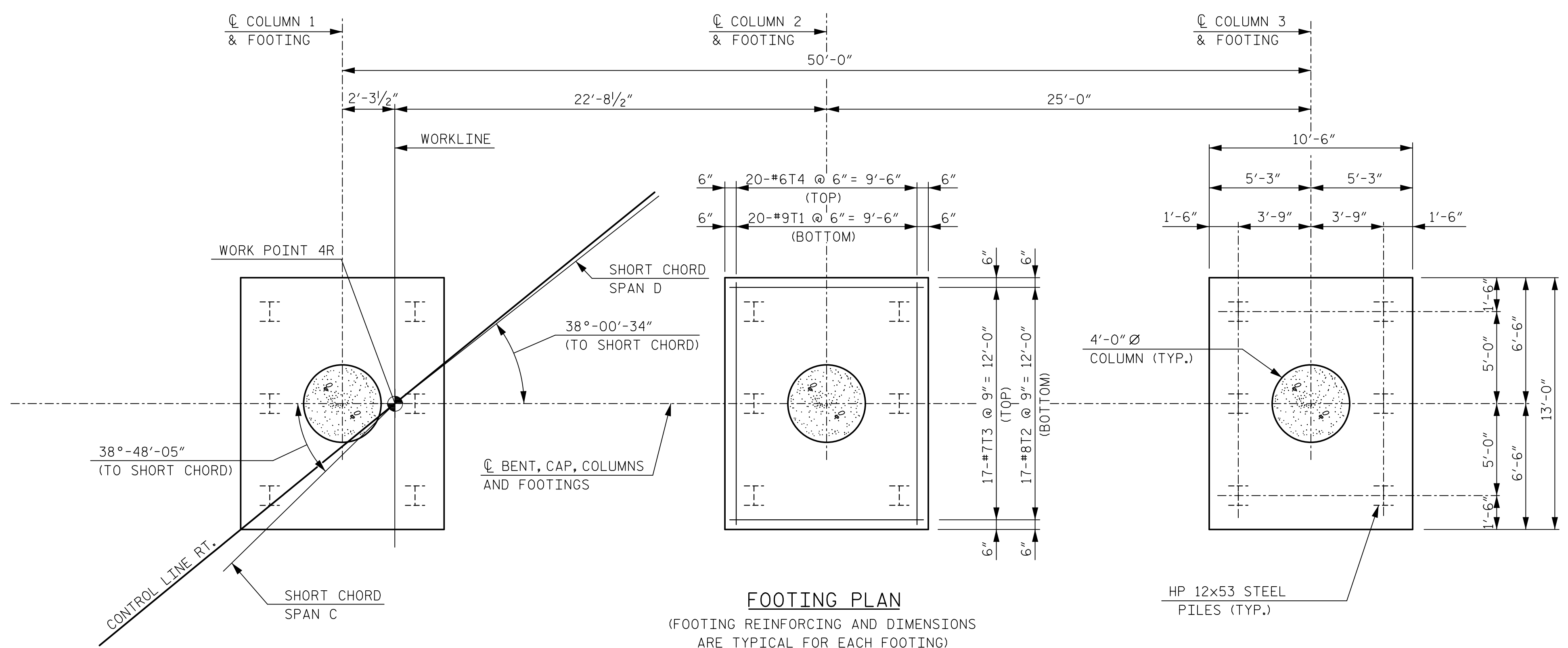
SHEET NO.	S04-36
TOTAL SHEETS	46



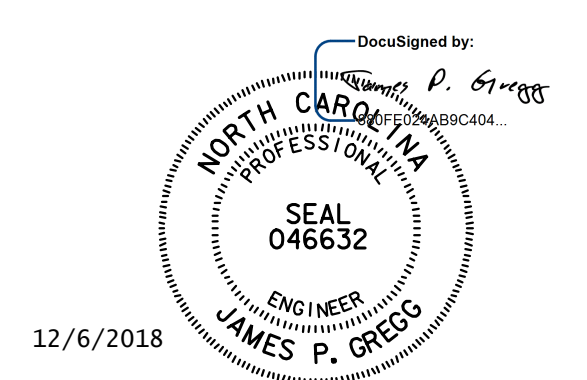
BILL OF REINFORCING					
BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	32	9	STR	33'-9"	3,672
B2	30	4	STR	22'-2"	444
B3	16	9	2	36'-3"	1,972
B4	8	4	STR	5'-1"	27
B5	16	4	STR	13'-6"	144
B6	8	4	STR	13'-0"	69
B7	32	9	STR	35'-0"	3,808
M1	36	11	2	13'-4"	2,550
S1	222	5	3	11'-5"	2,643
S2	56	4	4	8'-6"	318
S3	4	4	4	6'-9"	18
S4	4	4	4	6'-11"	18
S5	8	4	4	6'-10"	37
T1	60	9	1	15'-0"	3,060
T2	51	8	1	11'-10"	1,611
T3	54	7	STR	10'-0"	1,042
T4	60	6	STR	12'-6"	1,127
V1	12	11	2	34'-6"	2,200
V2	12	11	2	33'-8"	2,146
V3	12	11	2	32'-9"	2,088
SP-1	1	*	5	1467'-3"	980
SP-2	1	*	5	1428'-10"	954
SP-3	1	*	5	1386'-7"	926



QUANTITIES		
REINFORCING STEEL	LBS.	28,994
SPIRAL COLUMN REINFORCING STEEL	LBS.	2,860
CLASS A CONCRETE		
FOOTING POUR 1	CU. YDS.	64.5
COLUMN POUR 2	CU. YDS.	41.8
CAP POUR 3	CU. YDS.	44.6
TOTAL	CU. YDS.	150.9
HP 12X53 STEEL PILES	NO.	18
	LIN FT.	1,170
PILE REDRIVES	EA.	9
PILE DRIVING EQUIPMENT SETUP	EA.	18



ALL BAR DIMENSIONS ARE OUT TO OUT
 * THE SP-1, SP-2, AND SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

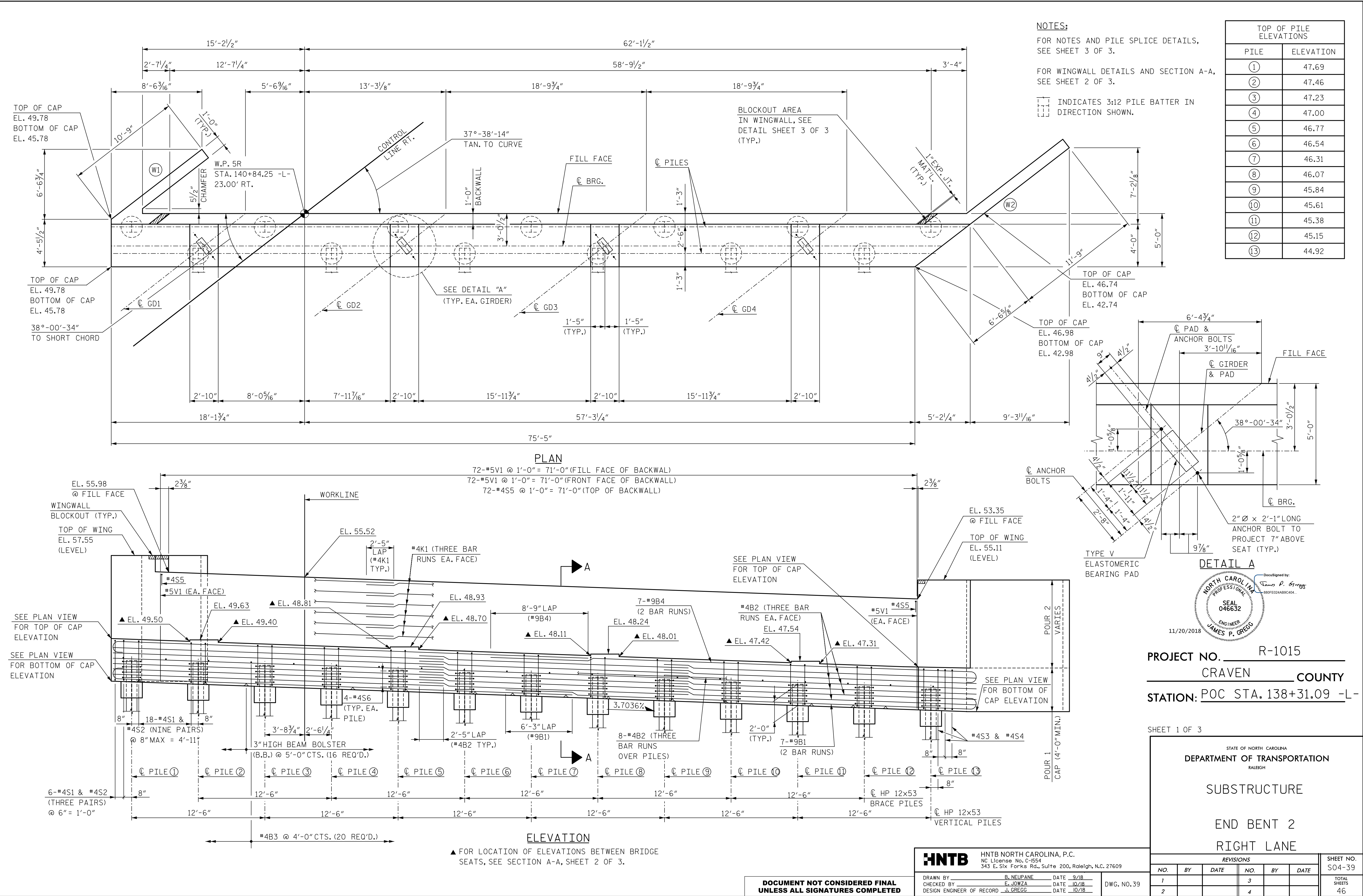


PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 2
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 3
 RIGHT LANE

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DRAWN BY: A. SMITH	DATE: 7/18	DWG. NO. 38	TOTAL SHEETS: 46
CHECKED BY: B. NEUPANE	DATE: 9/18		
DESIGN ENGINEER OF RECORD: J. GREGG	DATE: 10/18		

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NOTES:
 FOR NOTES AND PILE SPLICE DETAILS, SEE SHEET 3 OF 3.
 FOR WINGWALL DETAILS AND SECTION A-A, SEE SHEET 2 OF 3.
 [Symbol] INDICATES 3x12 PILE BATTER IN DIRECTION SHOWN.

TOP OF PILE ELEVATIONS	
PILE	ELEVATION
①	47.69
②	47.46
③	47.23
④	47.00
⑤	46.77
⑥	46.54
⑦	46.31
⑧	46.07
⑨	45.84
⑩	45.61
⑪	45.38
⑫	45.15
⑬	44.92

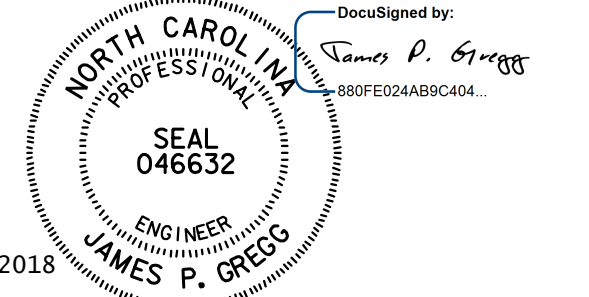
PLAN

72-#5V1 @ 1'-0" = 71'-0" (FILL FACE OF BACKWALL)
 72-#5V1 @ 1'-0" = 71'-0" (FRONT FACE OF BACKWALL)
 72-#4S5 @ 1'-0" = 71'-0" (TOP OF BACKWALL)

ELEVATION

▲ FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEATS, SEE SECTION A-A, SHEET 2 OF 3.

DETAIL A



PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 1 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2
 RIGHT LANE

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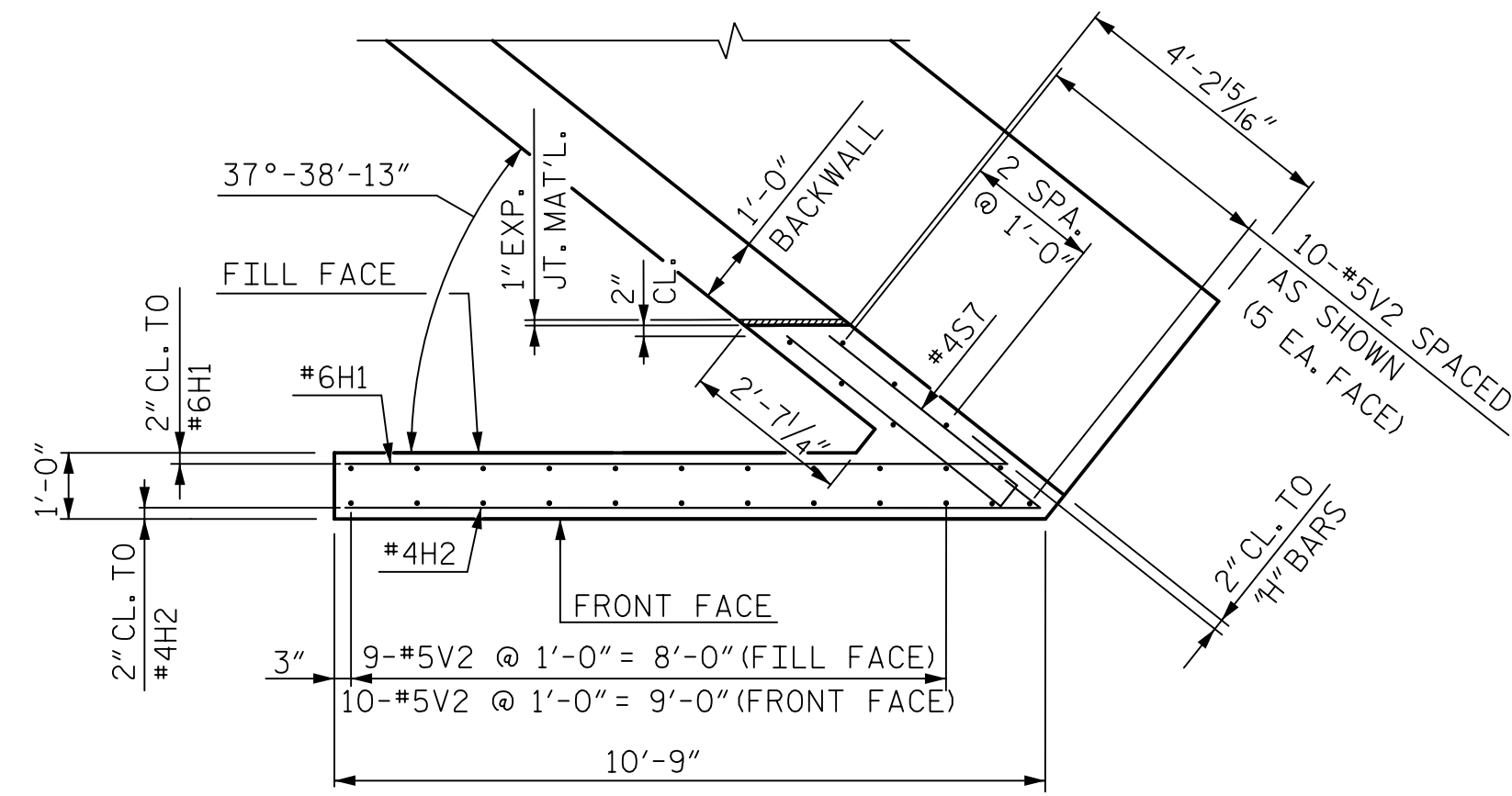
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CHECKED BY: E. JOWZA	DATE: 10/18
DESIGN ENGINEER OF RECORD: J. GREGG	DATE: 10/18

DWG. NO. 39

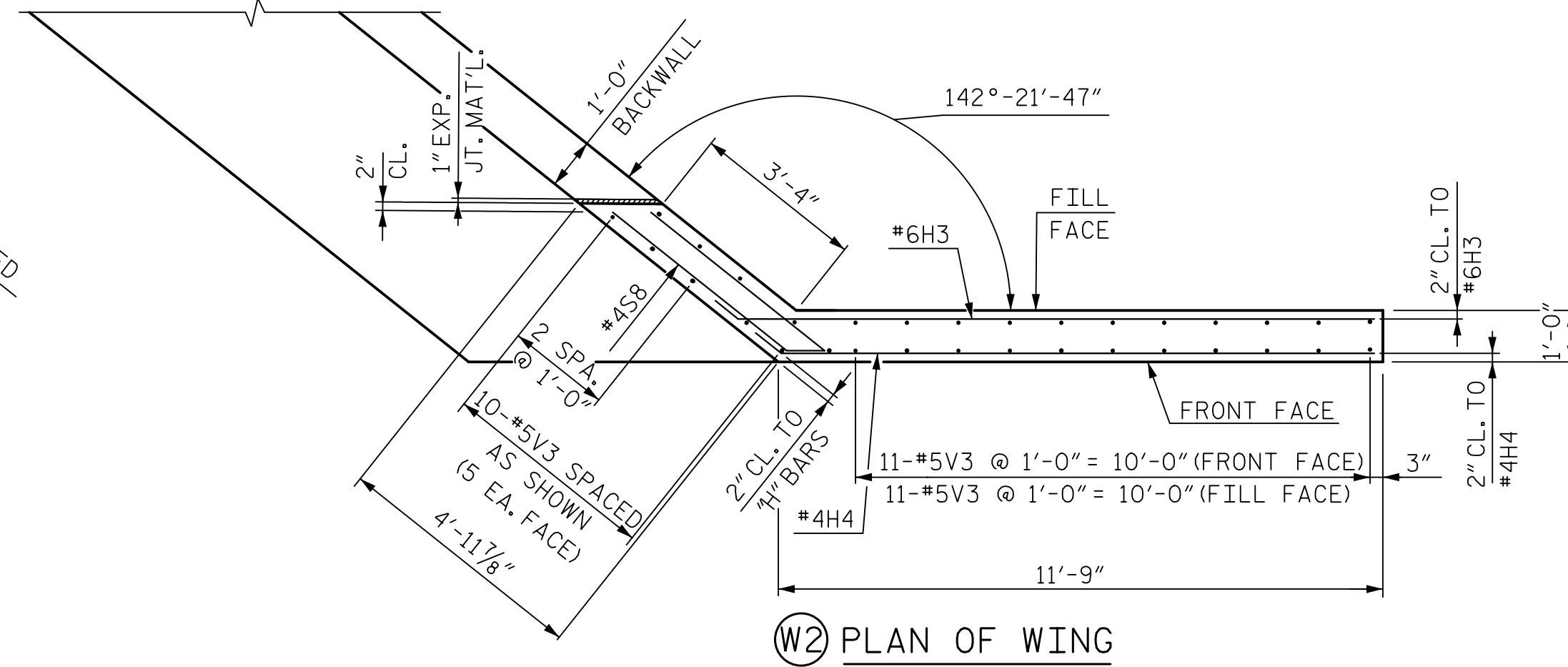
REVISIONS						SHEET NO. S04-39
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 46
2			4			

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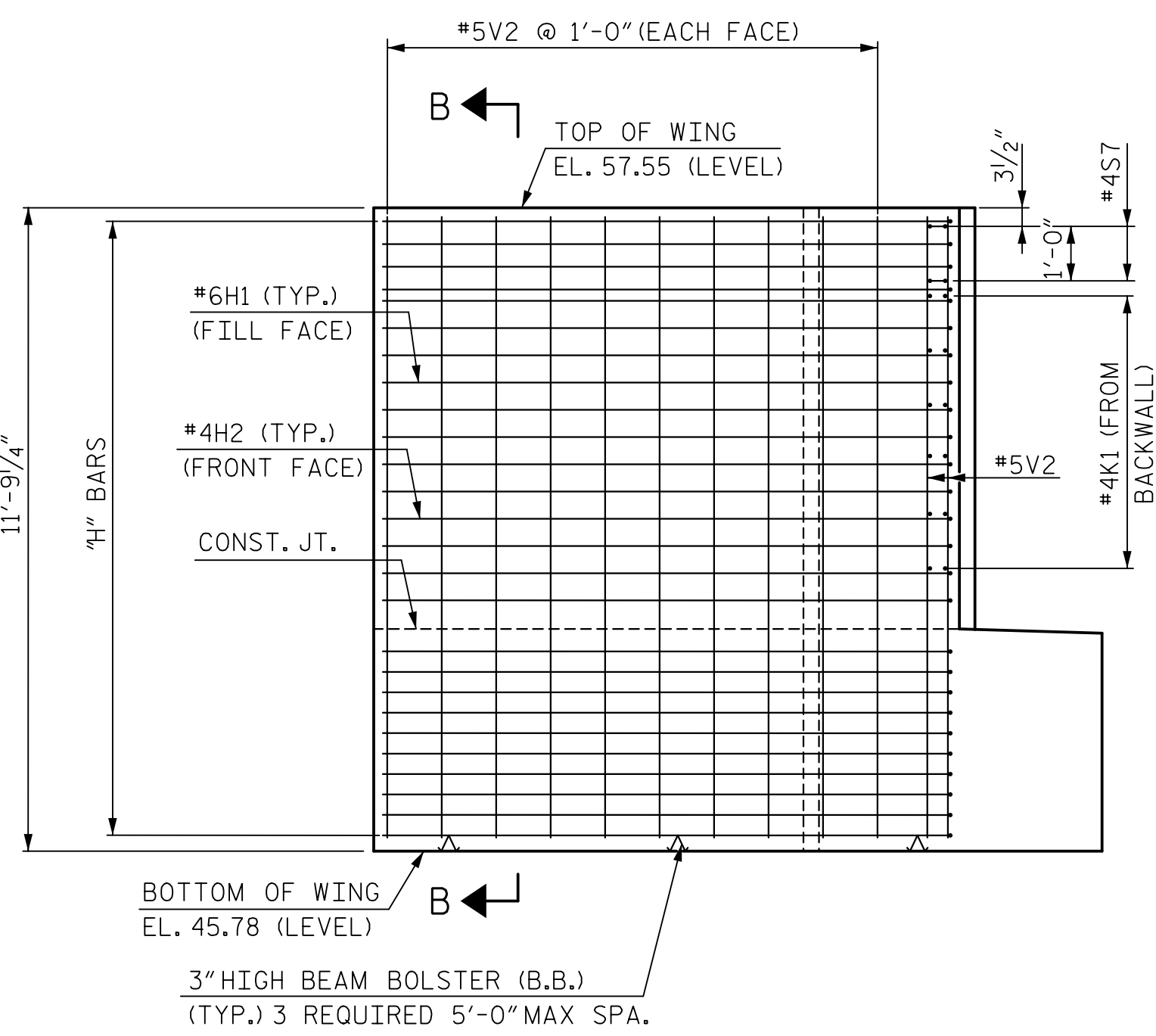
NOTES:
 FOR NOTES, SEE SHEET 3 OF 3.
 FOR BLOCKOUT IN WINGWALL, SEE SHEET 3 OF 3.



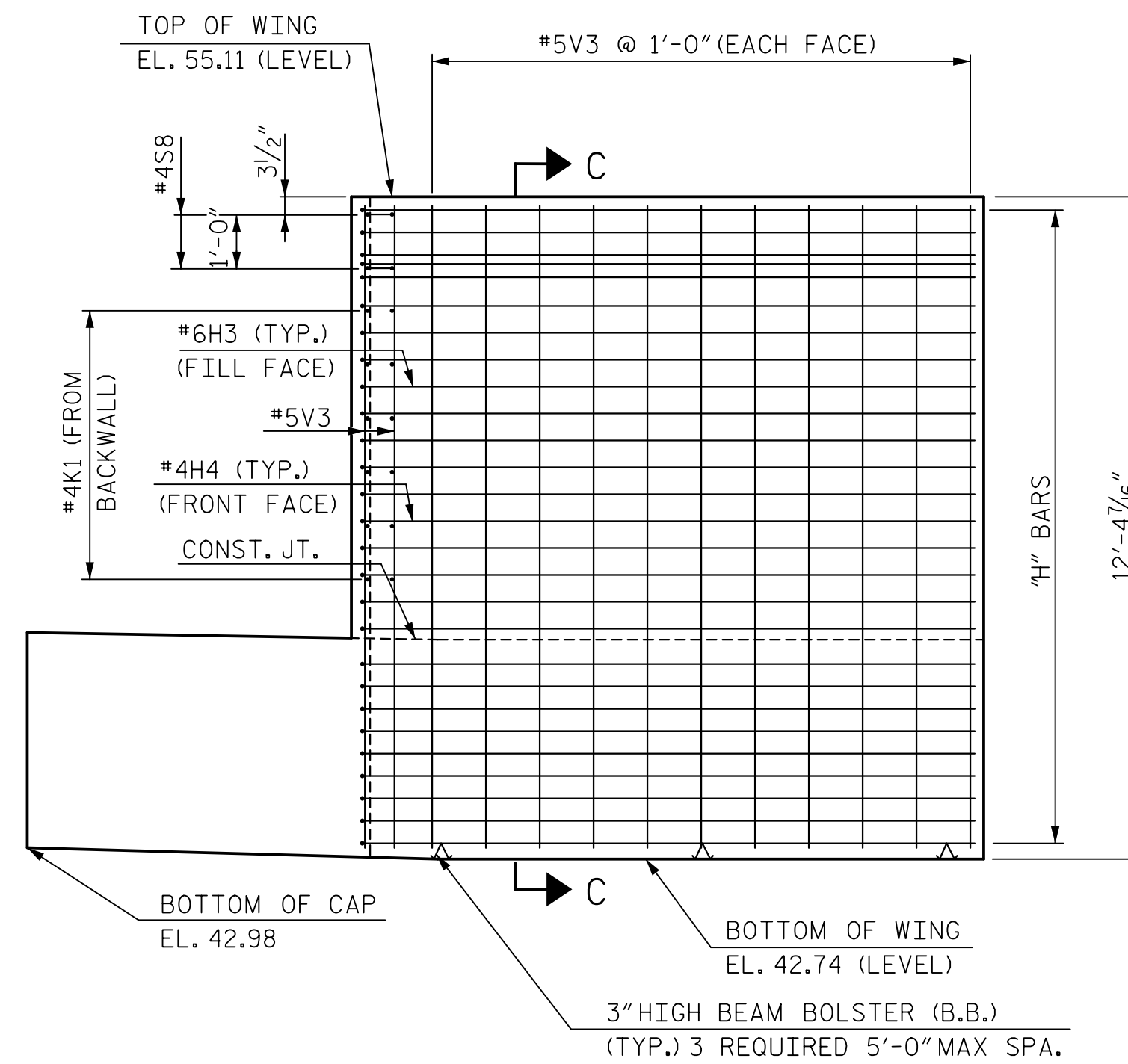
W1 PLAN OF WING



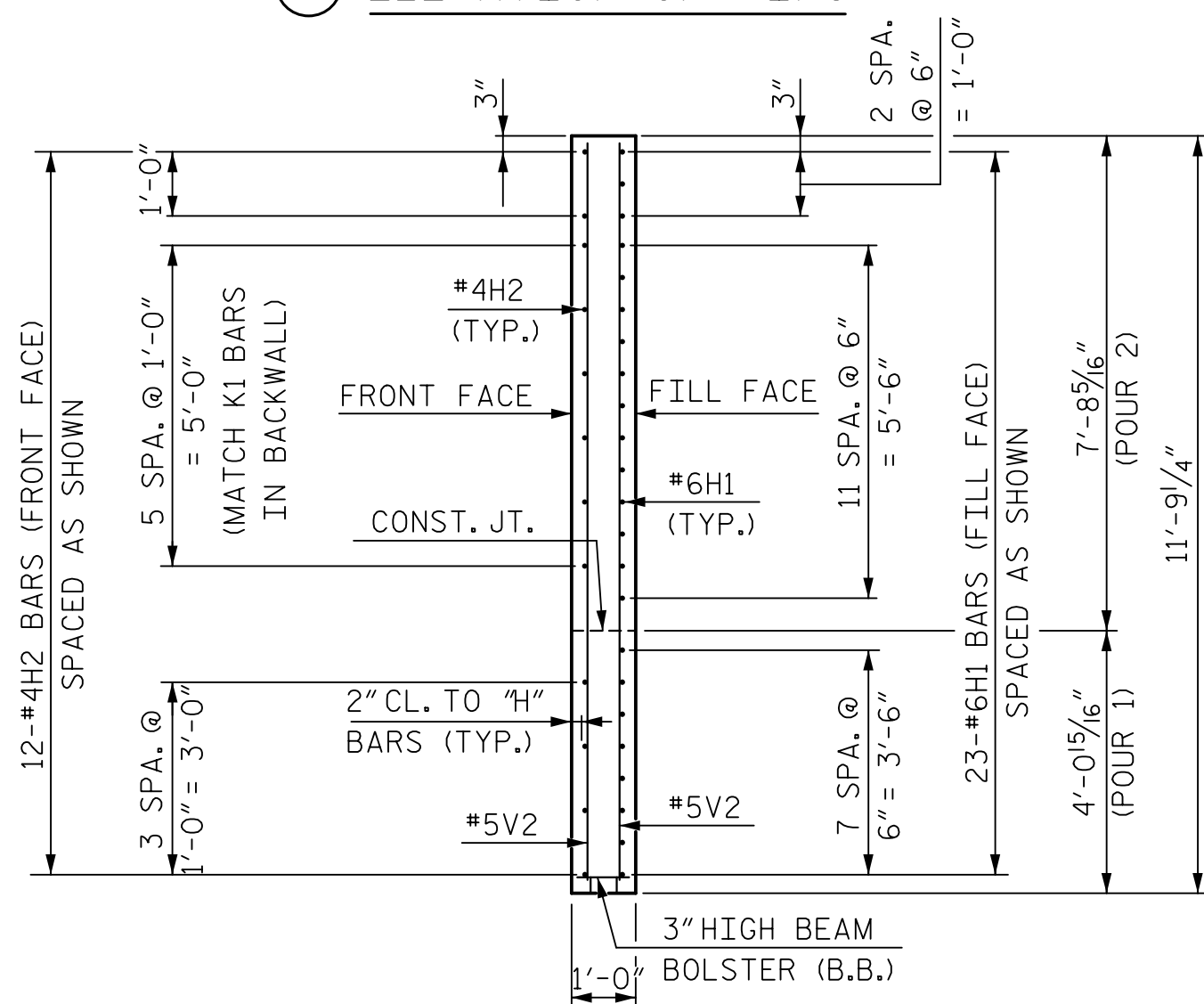
W2 PLAN OF WING



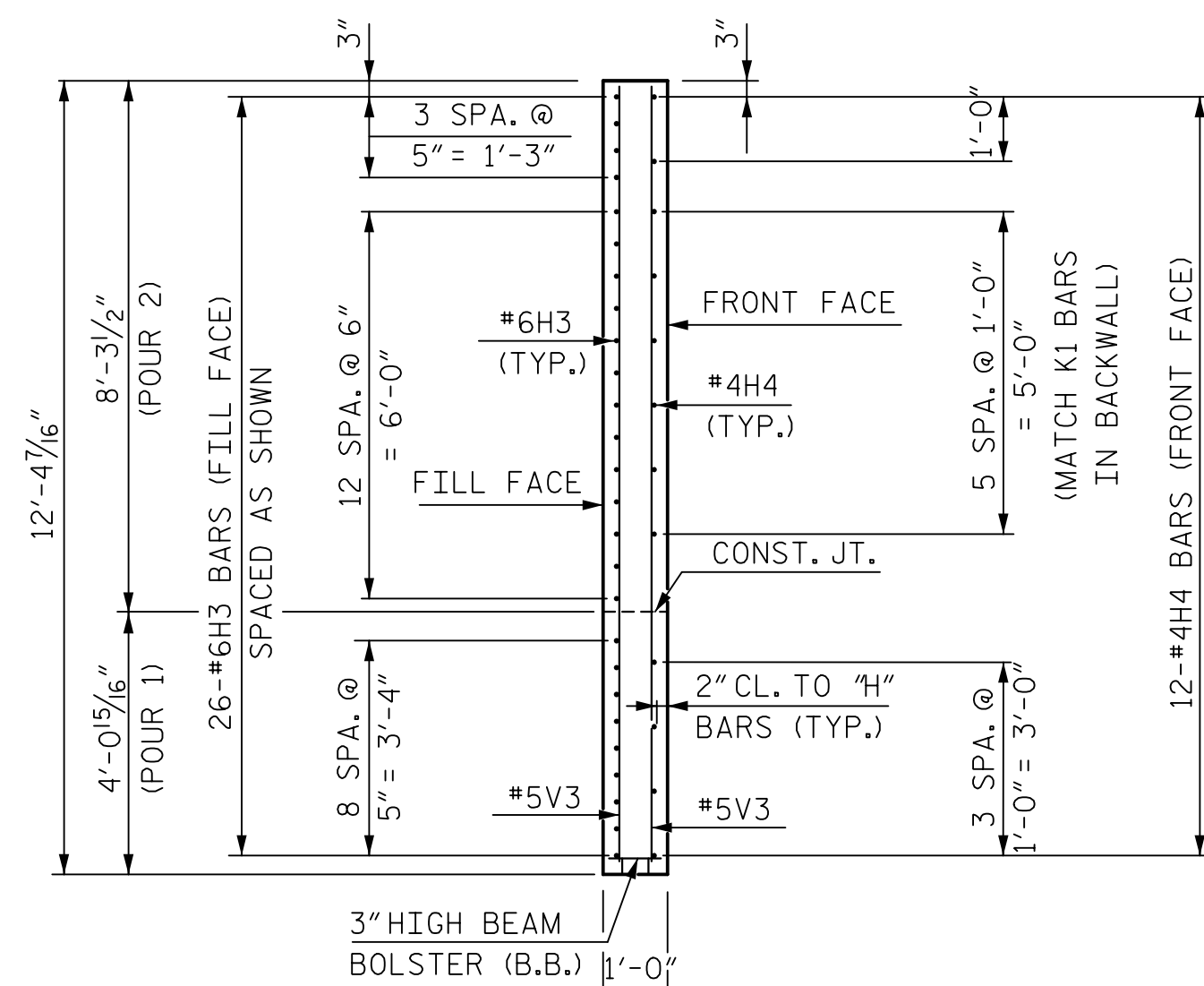
W1 ELEVATION OF WING



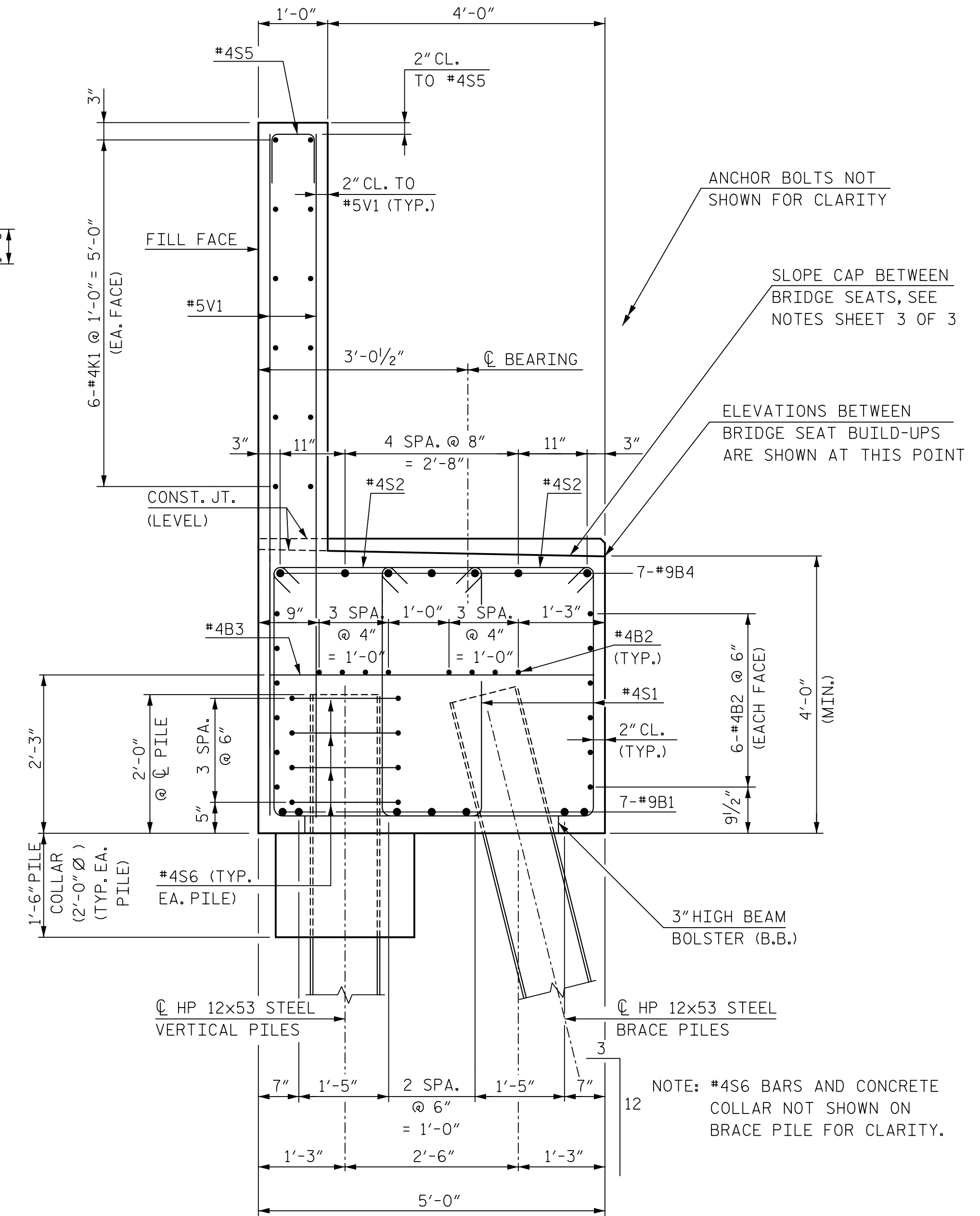
W2 ELEVATION OF WING



SECTION B-B



SECTION C-C



SECTION A-A

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

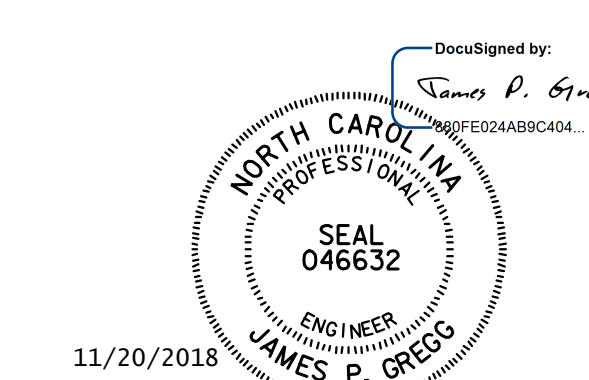
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2

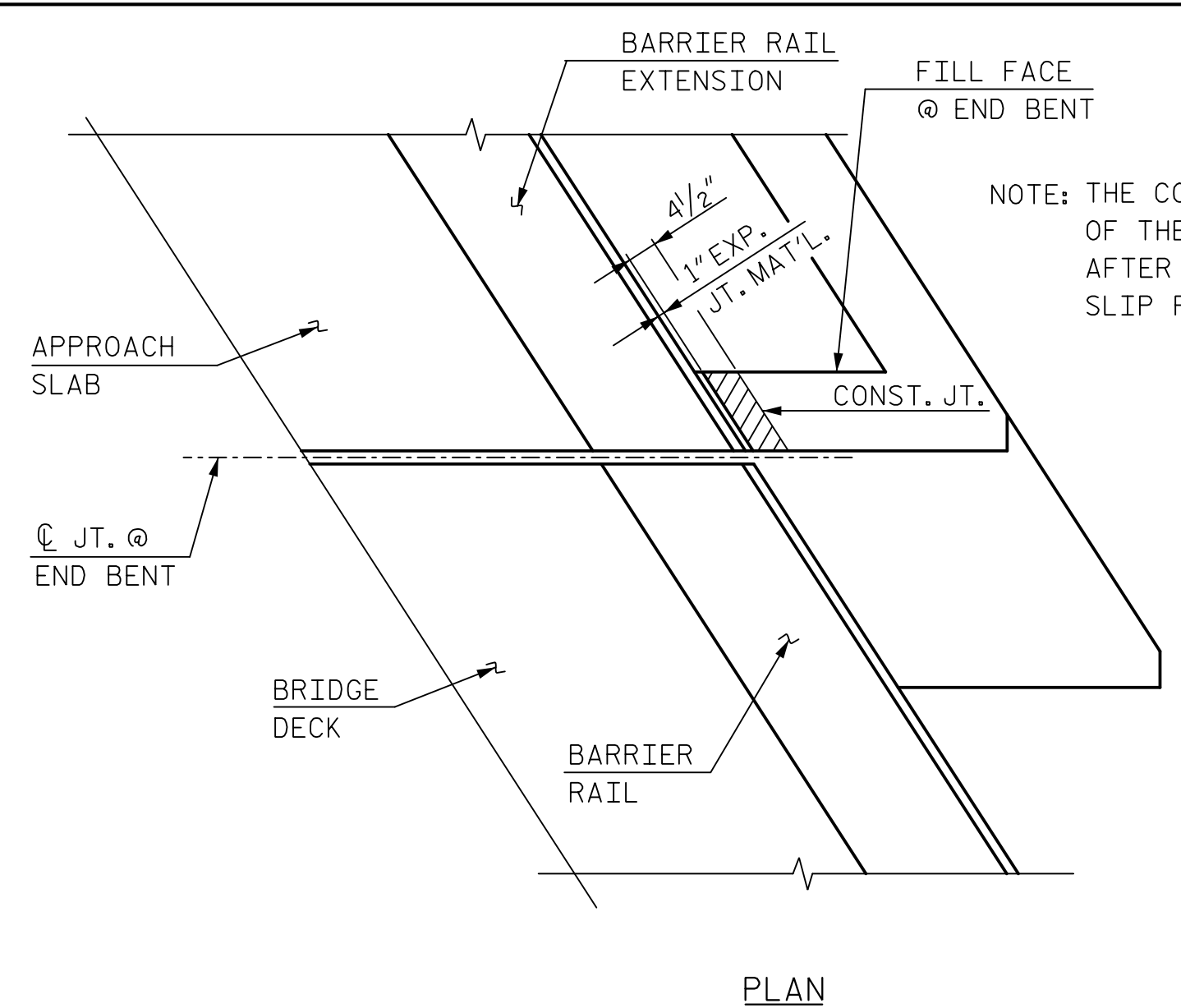
RIGHT LANE

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CHECKED BY: E. JOWZA	DATE: 10/18		
DESIGN ENGINEER OF RECORD: J. GREGG	DATE: 10/18		

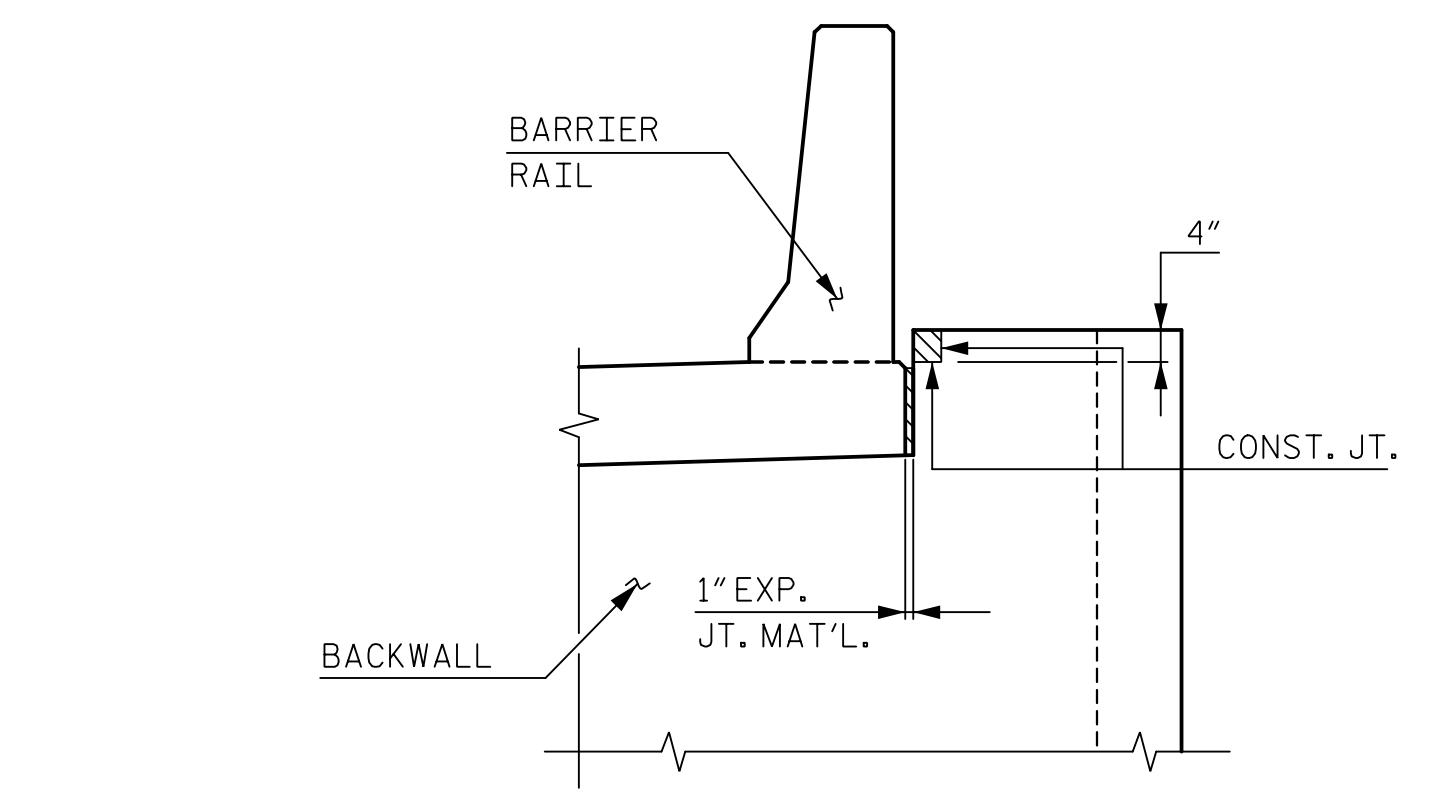
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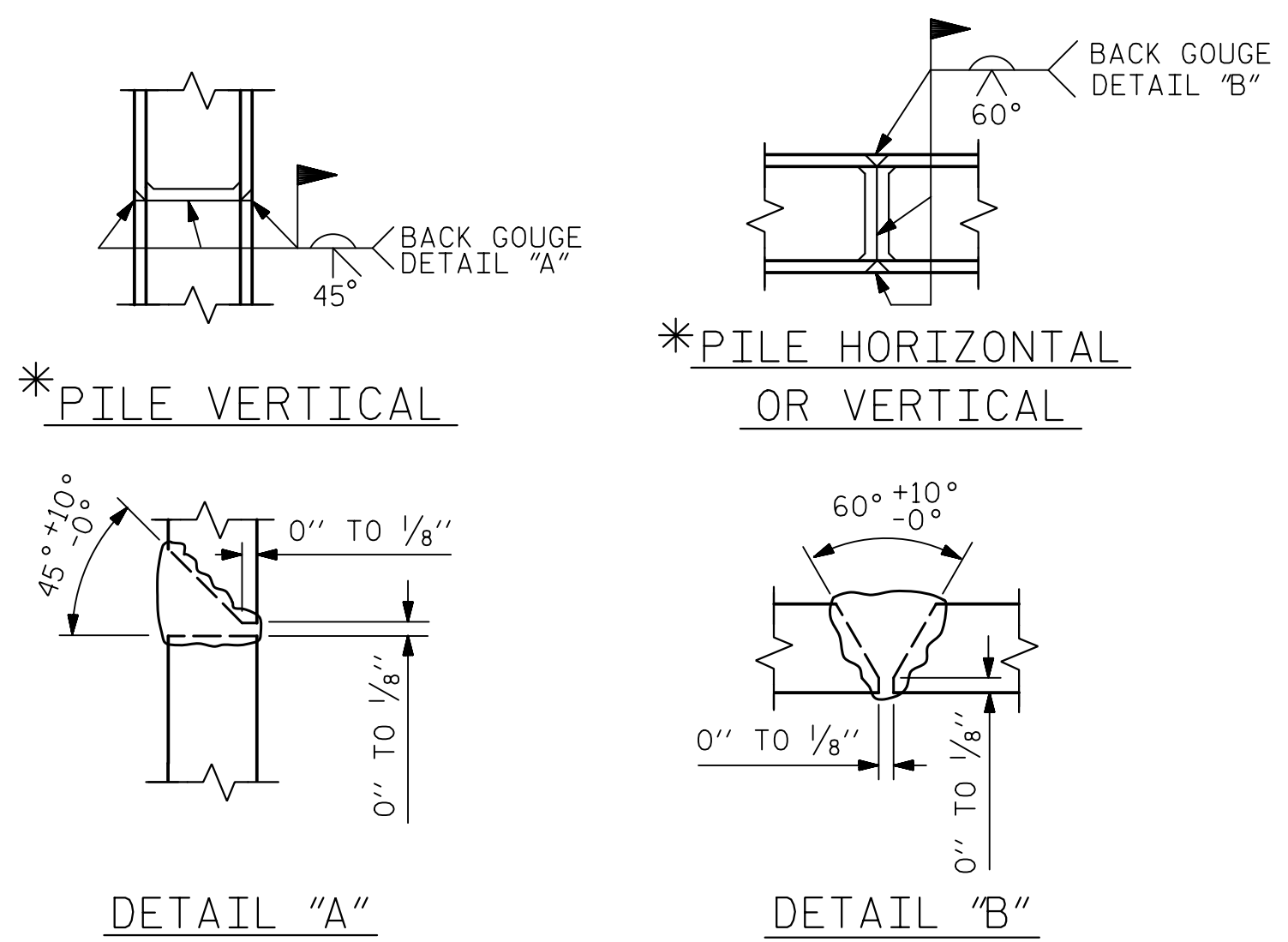
REVISIONS				SHEET NO. S04-40	
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		



PLAN



ELEVATION
BLOCKOUT IN WINGWALL



* POSITION OF PILE DURING WELDING.
PILE SPLICE DETAILS

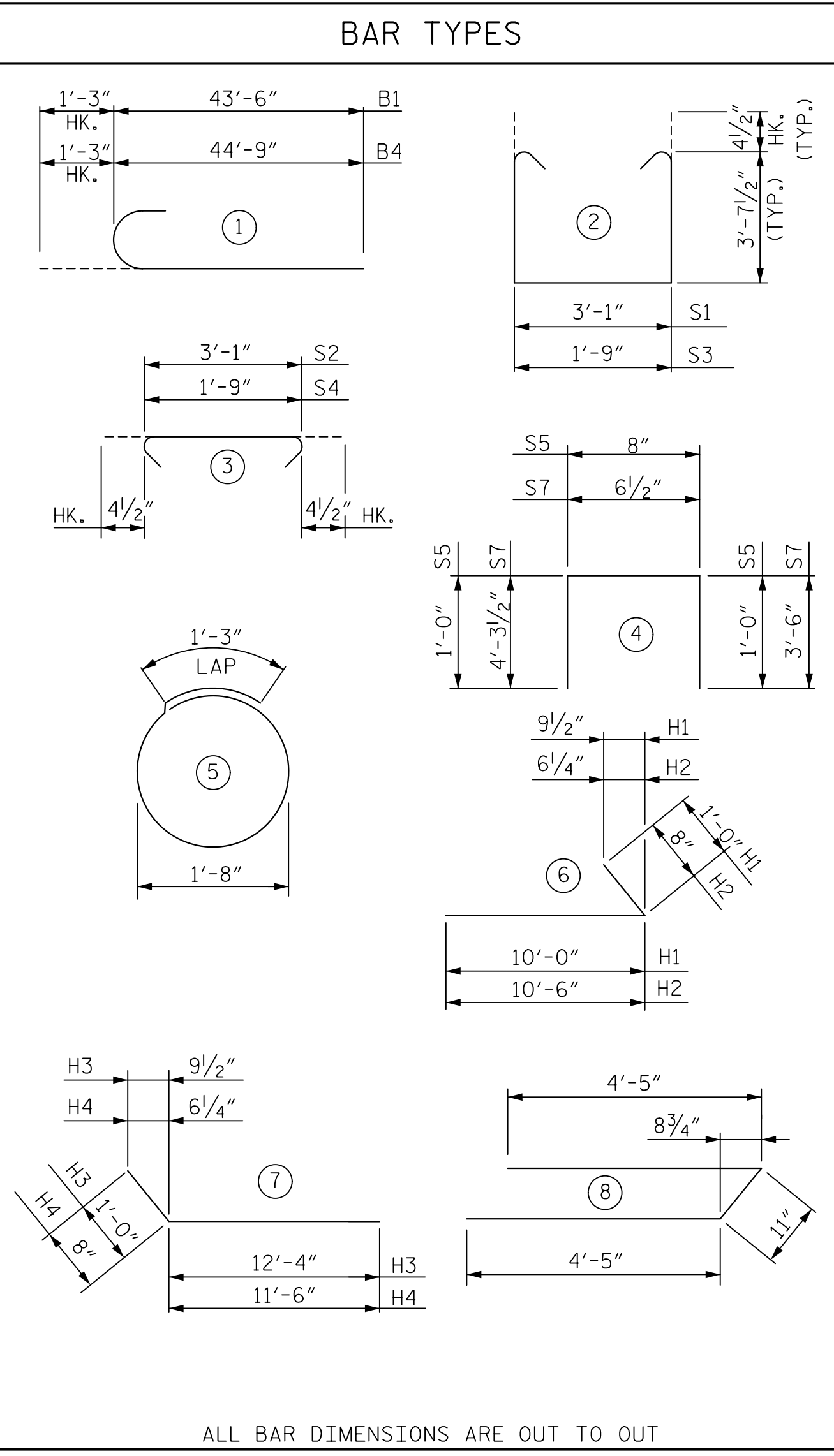
NOTES:

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

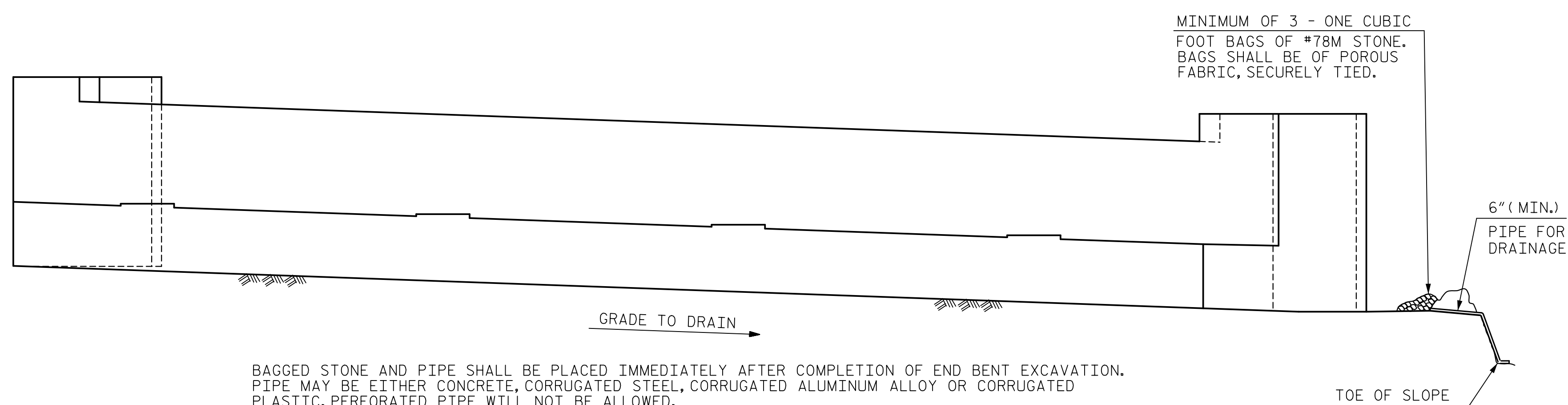
THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.



BILL OF REINFORCING					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	14	9	1	44'-9"	2,130
B2	60	4	STR	28'-6"	1,142
B3	20	4	STR	4'-8"	62
B4	14	9	1	46'-0"	2,190
H1	23	6	6	11'-0"	380
H2	12	4	6	11'-2"	90
H3	26	6	7	13'-4"	521
H4	12	4	7	12'-2"	98
K1	36	4	STR	28'-6"	685
S1	222	4	2	11'-1"	1,644
S2	222	4	3	3'-10"	568
S3	3	4	2	9'-9"	20
S4	3	4	3	2'-6"	5
S5	72	4	4	2'-8"	128
S6	52	4	5	6'-6"	226
S7	2	4	8	8'-4"	11
S8	2	4	4	9'-6"	13
V1	144	5	STR	9'-10"	1,477
V2	29	5	STR	11'-4"	343
V3	32	5	STR	11'-11"	398

QUANTITIES		
REINFORCING STEEL	LBS.	12,131
CLASS "A" CONCRETE BREAKDOWN		
POUR 1 - CAP, COLLARS & BOT. OF WINGS	CU. YDS.	64.9
POUR 2 - TOP OF WINGS & BACKWALL	CU. YDS.	25.8
TOTAL	CU. YDS.	90.7
HP 12x53 STEEL PILES	NO.	13
	LN. FT.	1300
PILE REDRIVES	EA.	6
PILE DRIVING EQUIPMENT SETUP	EA.	13



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.

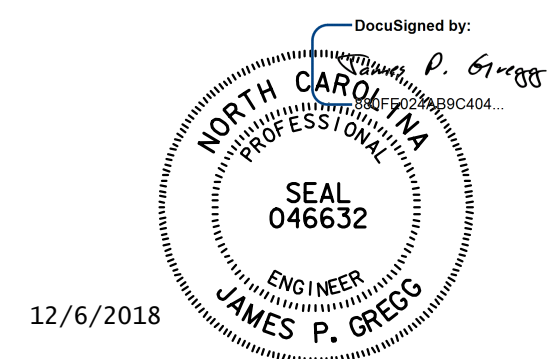
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT 2

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2
 RIGHT LANE



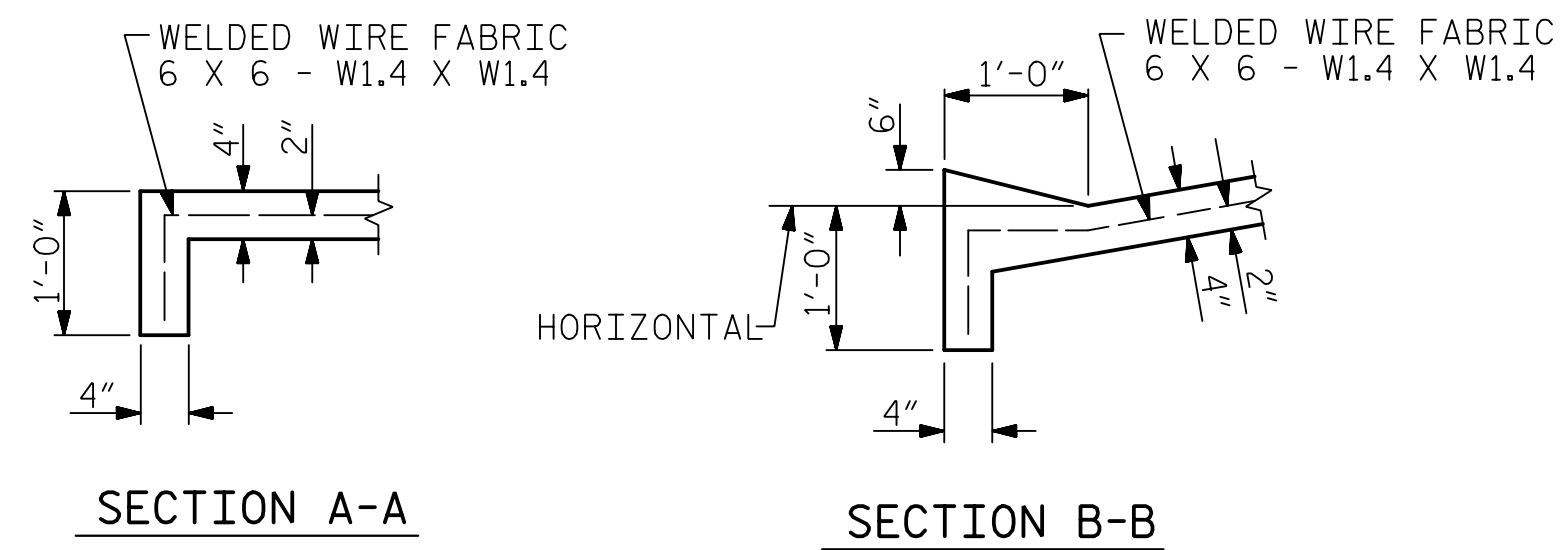
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DRAWN BY: B. NEUPANE DATE: 9/18
 CHECKED BY: E. JOWZA DATE: 10/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18

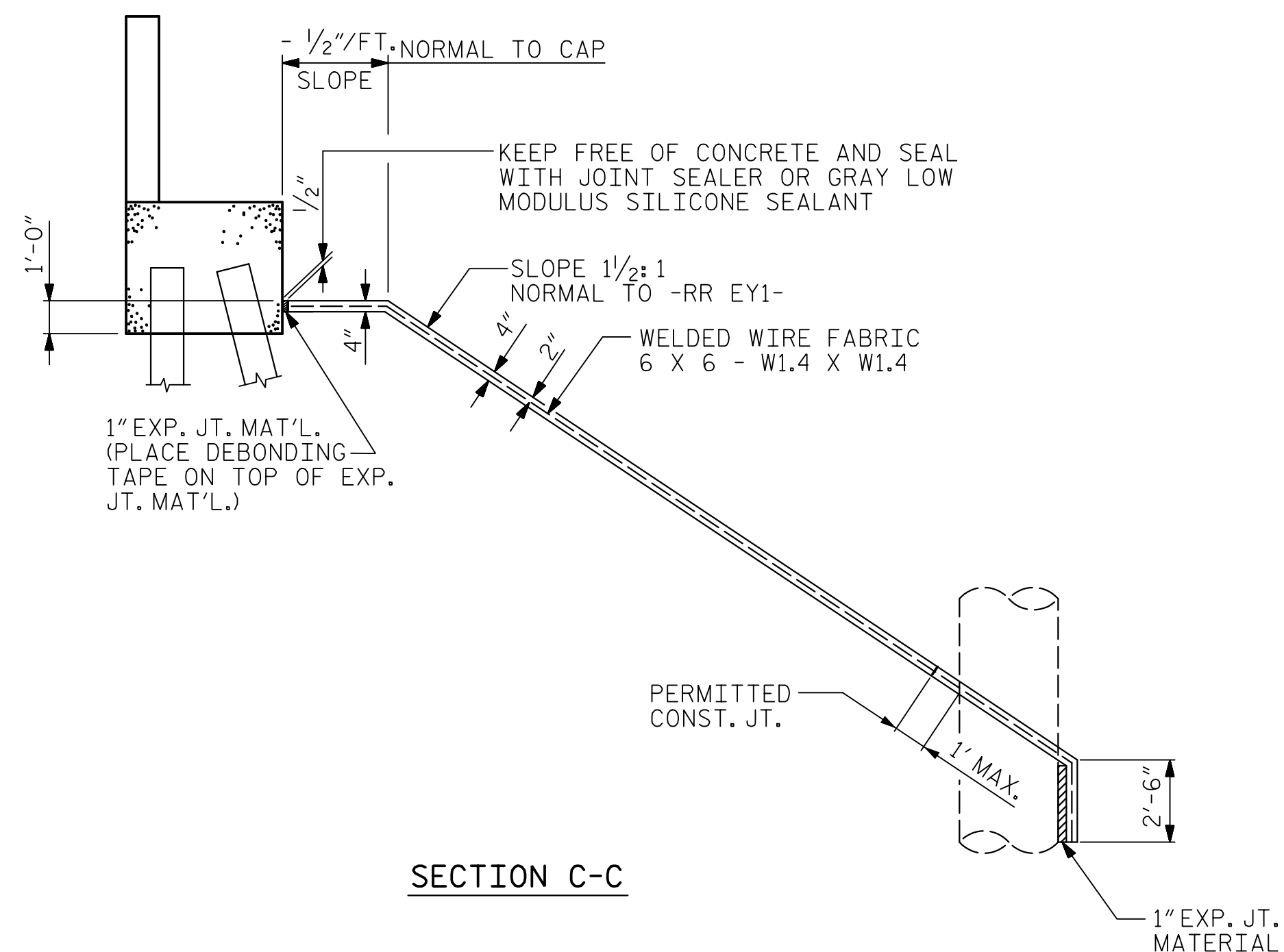
DWG. NO. 41

REVISIONS						TOTAL SHEETS
NO.	BY	DATE	NO.	BY	DATE	46
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2			4			

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 UNLESS ALL SIGNATURES COMPLETED**

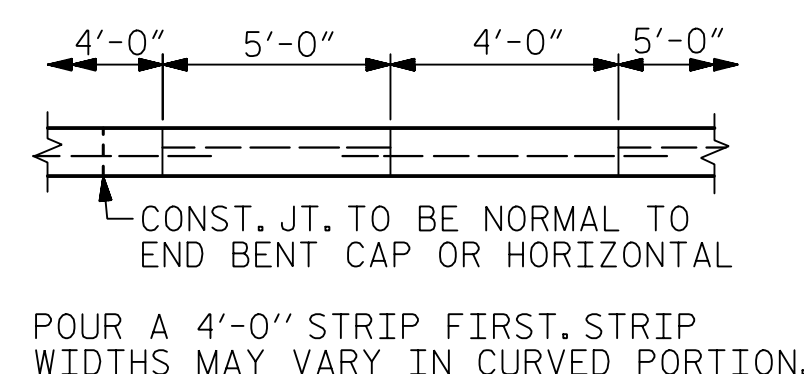
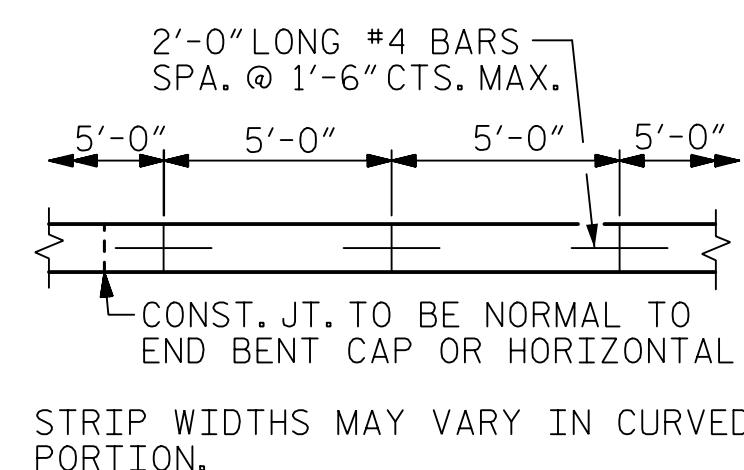
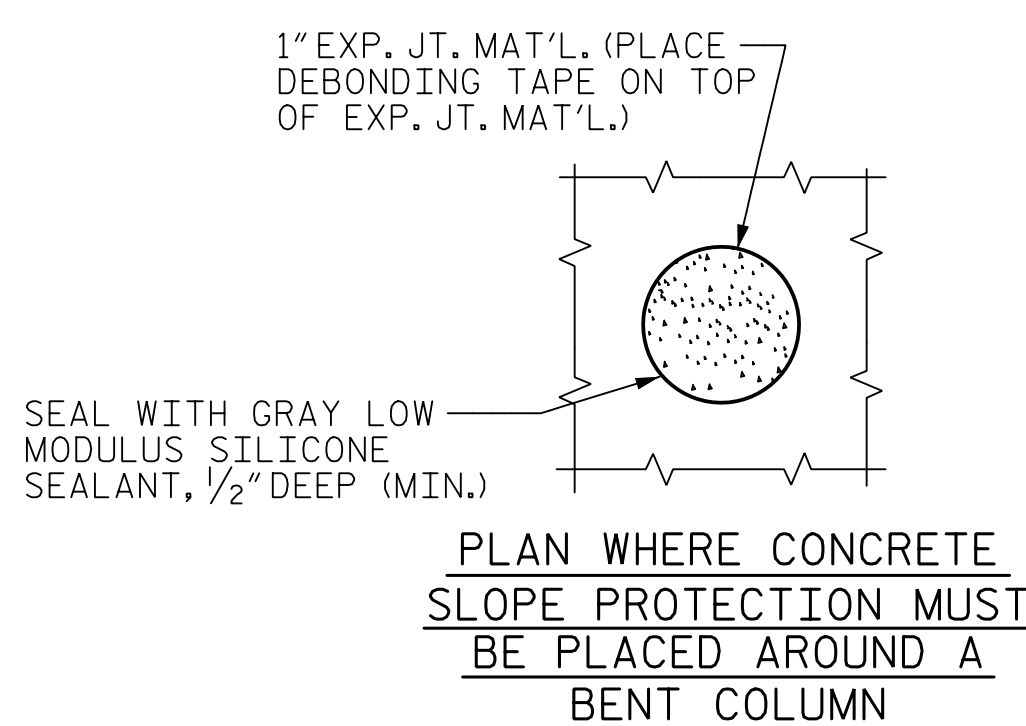


SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6", THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.



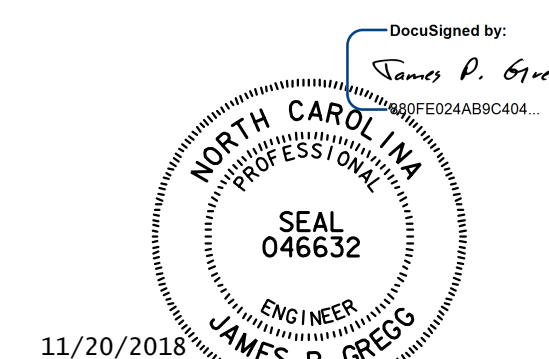
RT BRIDGE @ POC STA 138+31.09 -L-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	1342.4	2416
END BENT 2	1402.5	2524

* QUANTITY SHOWN IS BASED ON 5' POURS.



PROJECT NO. R-1015
CRAVEN COUNTY
STATION: POC STA. 138+31.09 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
SLOPE PROTECTION
DETAILS
RIGHT LANE

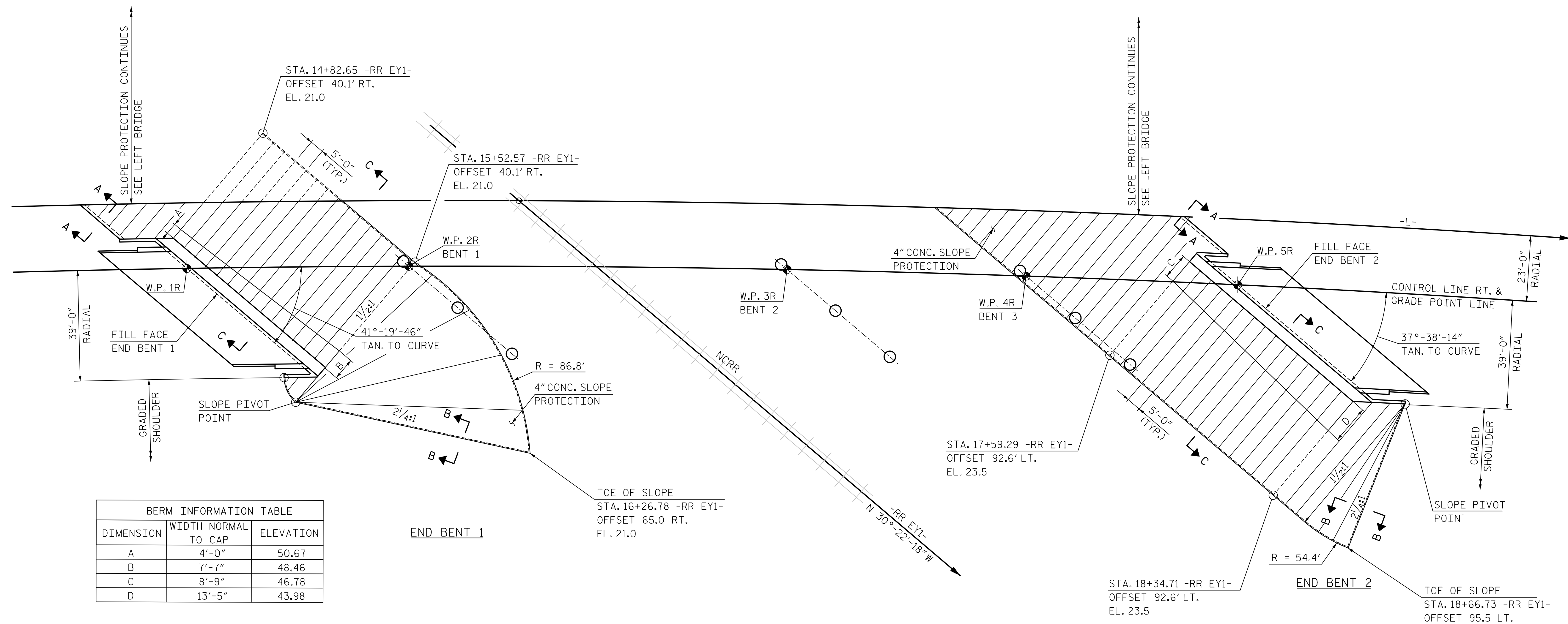
ASSEMBLED BY : A. SMITH	DATE : 7/18
CHECKED BY : B. NEUPANE	DATE : 10/18
DRAWN BY : ELR 5/92	REV. 12/21/11 MAA/GM
CHECKED BY : GRP 6/92	REV. 1/16 MAA/TMG
	REV. 12/17 MAA/THC

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DRAWN BY : A. SMITH	DATE : 7/18
CHECKED BY : B. NEUPANE	DATE : 10/18
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 10/18

DWG. NO. 42

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			46
2			4			

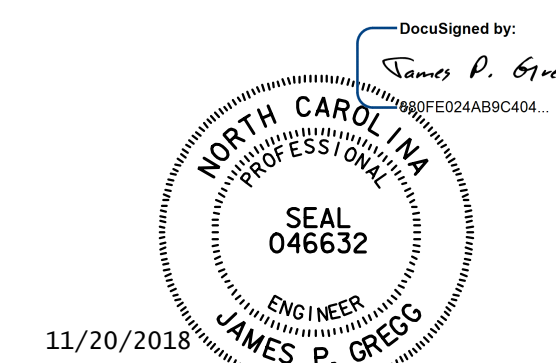


BERM INFORMATION TABLE		
DIMENSION	WIDTH NORMAL TO CAP	ELEVATION
A	4'-0"	50.67
B	7'-7"	48.46
C	8'-9"	46.78
D	13'-5"	43.98

PLAN

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 2

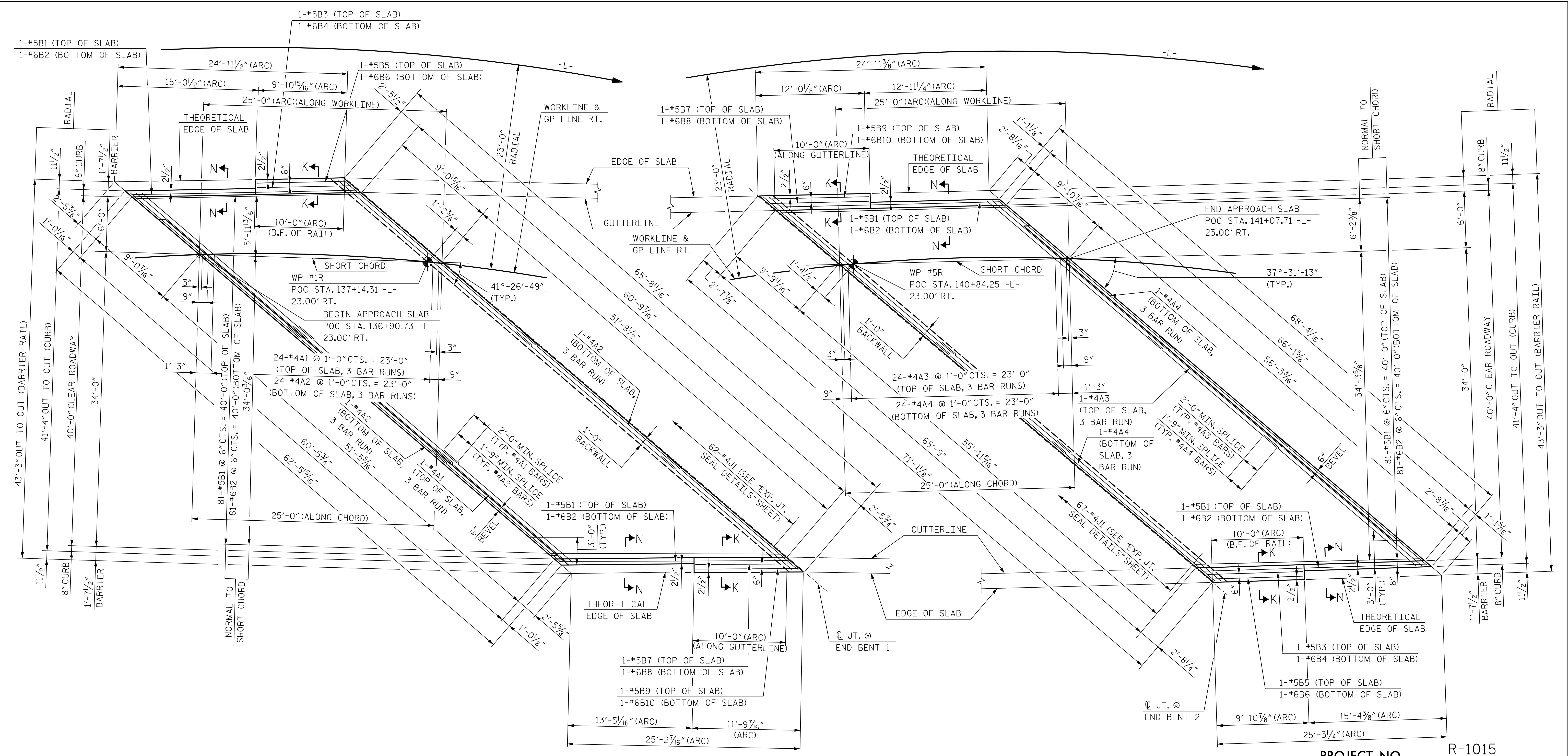


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SLOPE PROTECTION
 DETAILS
 RIGHT LANE

HNTB HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	DRAWN BY: A. SMITH DATE: 7/18	DWG. NO. 43
	CHECKED BY: B. NEUPANE DATE: 10/18	
	DESIGN ENGINEER OF RECORD: J. GREGG DATE: 10/18	

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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
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2			4			



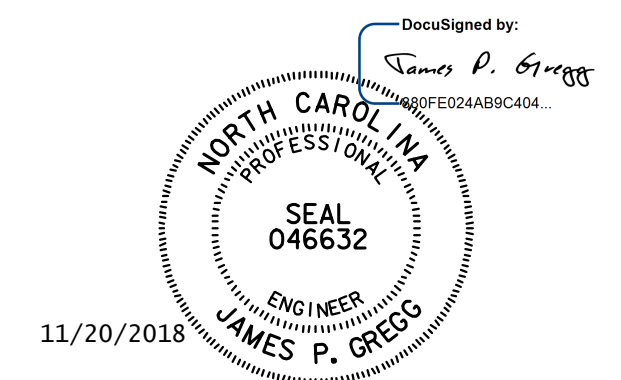
PLAN @ END BENT 1
-L- AND WORKLINE EXAGGERATED

PLAN @ END BENT 2
-L- AND WORKLINE EXAGGERATED

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

B.F. - DENOTES BACK FACE

- NOTES:
- FOR SECTION N-N AND K-K, SEE "BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT" SHEET 2 OF 3.
 - FOR APPROACH SLAB BILL OF MATERIAL, SEE "BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT" SHEET 2 OF 3.
 - FOR BARRIER RAIL REINFORCING STEEL PLACEMENT AND BILL OF MATERIAL, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET 3 OF 3.
 - FOR STANDARD EXPANSION JOINT SEAL DETAILS, SEE "EXPANSION JOINT SEAL DETAILS" SHEET.



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DRAWN BY	A. SMITH	DATE	7/18
CHECKED BY	Z. GUO	DATE	10/18
DESIGN ENGINEER OF RECORD	J. GREGG	DATE	10/18

DWG. NO. 44

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT

RIGHT LANE

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			46
2			4			

SHEET NO. S04-44

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NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 6" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

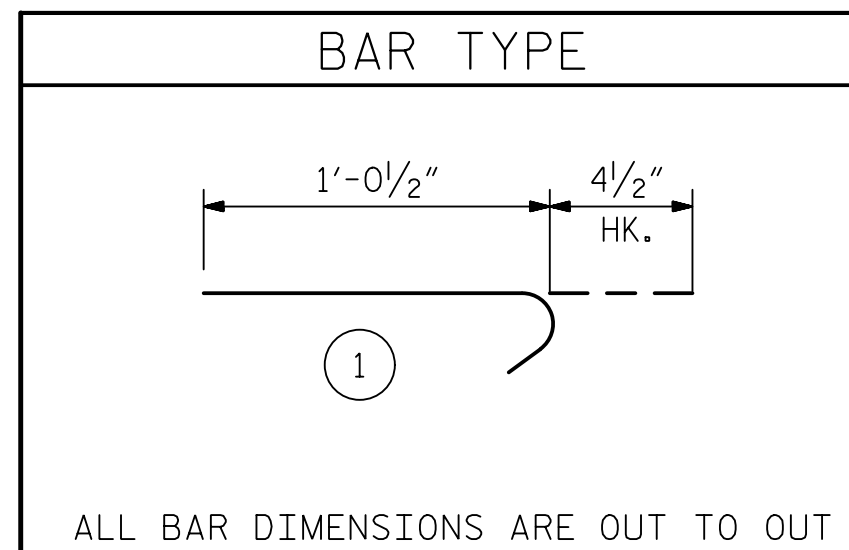
APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL OR PARAPET AND END POST.

FOR THE 6" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS. AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	75	#4	STR	23'-8"	1,186
A2	78	#4	STR	23'-5"	1,220
*B1	83	#5	STR	23'-9"	2,056
B2	83	#6	STR	24'-5"	3,044
*B3	1	#5	STR	10'-1"	11
B4	1	#6	STR	10'-1"	15
*B5	1	#5	STR	9'-6"	10
B6	1	#6	STR	9'-6"	14
*B7	1	#5	STR	10'-6"	11
B8	1	#6	STR	10'-6"	16
*B9	1	#5	STR	11'-1"	12
B10	1	#6	STR	11'-1"	17
*J1	62	#4	1	1'-5"	59
REINFORCING STEEL				** LBS.	4,326
* EPOXY COATED REINFORCING STEEL				** LBS.	3,345
CLASS AA CONCRETE				** C. Y.	46.2
APPROACH SLAB AT EB #2					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A3	75	#4	STR	25'-2"	1,261
A4	78	#4	STR	25'-0"	1,303
*B1	83	#5	STR	24'-2"	2,092
B2	83	#6	STR	24'-8"	3,075
*B3	1	#5	STR	10'-1"	11
B4	1	#6	STR	10'-1"	15
*B5	1	#5	STR	9'-6"	10
B6	1	#6	STR	9'-6"	14
*B7	1	#5	STR	10'-6"	11
B8	1	#6	STR	10'-6"	16
*B9	1	#5	STR	11'-1"	12
B10	1	#6	STR	11'-1"	17
*J1	67	#4	1	1'-5"	63
REINFORCING STEEL				** LBS.	4,440
* EPOXY COATED REINFORCING STEEL				** LBS.	3,460
CLASS AA CONCRETE				** C. Y.	46.3

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



THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED. SEE SHEET 3 OF 3.

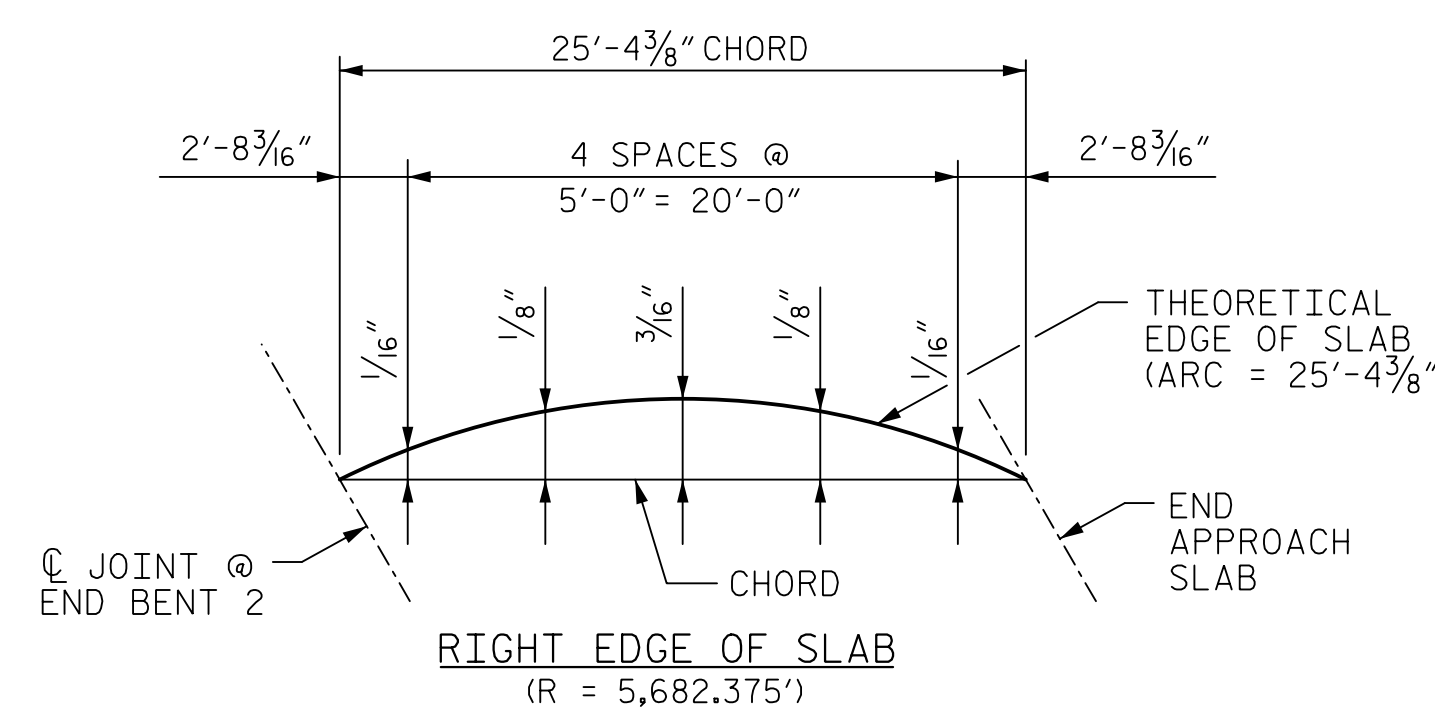
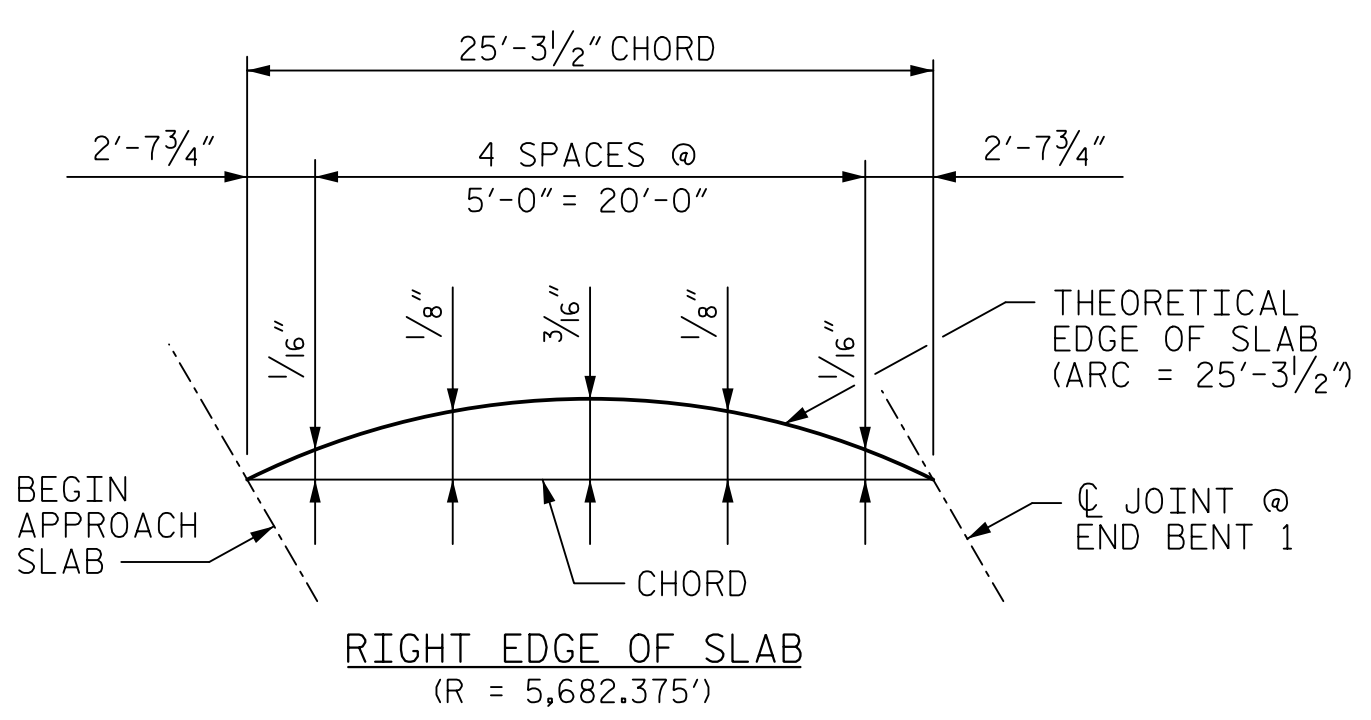
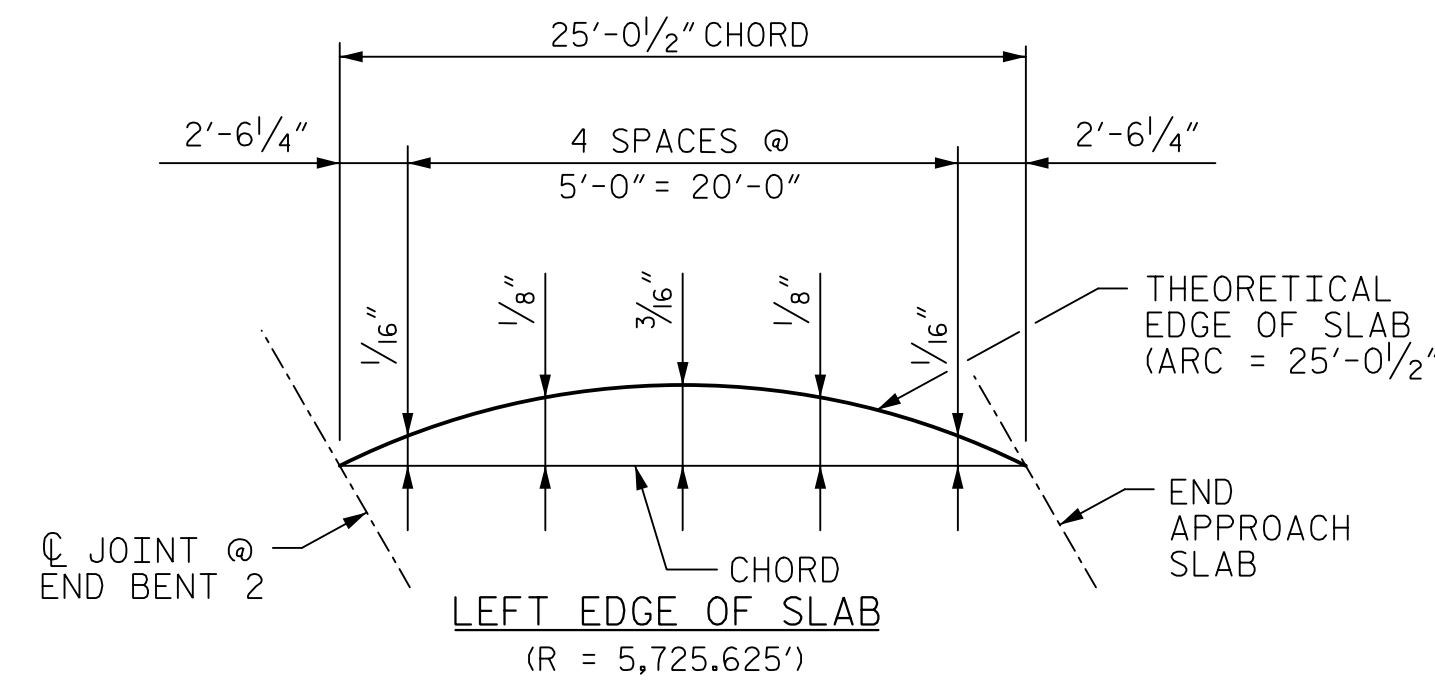
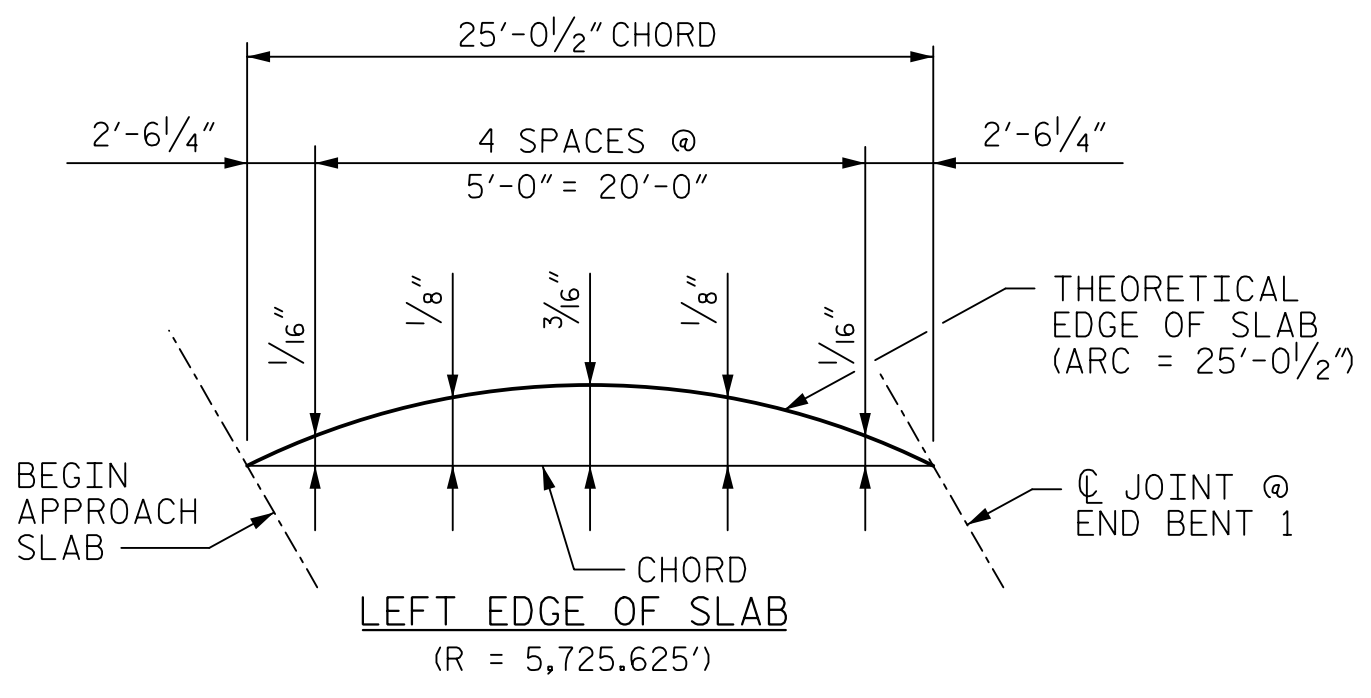
PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

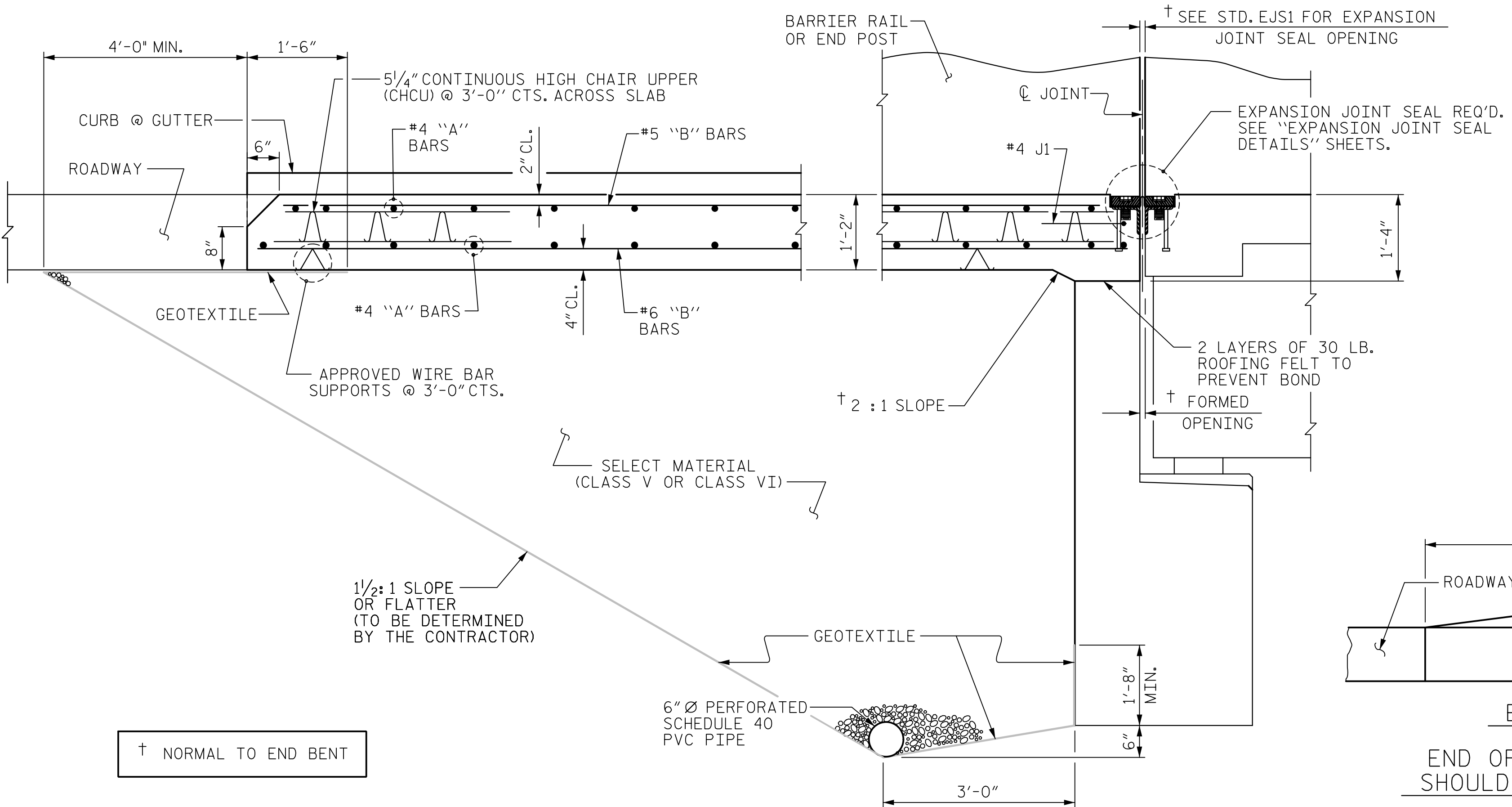
STANDARD
 BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT
 RIGHT LANE

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			46
2			4			

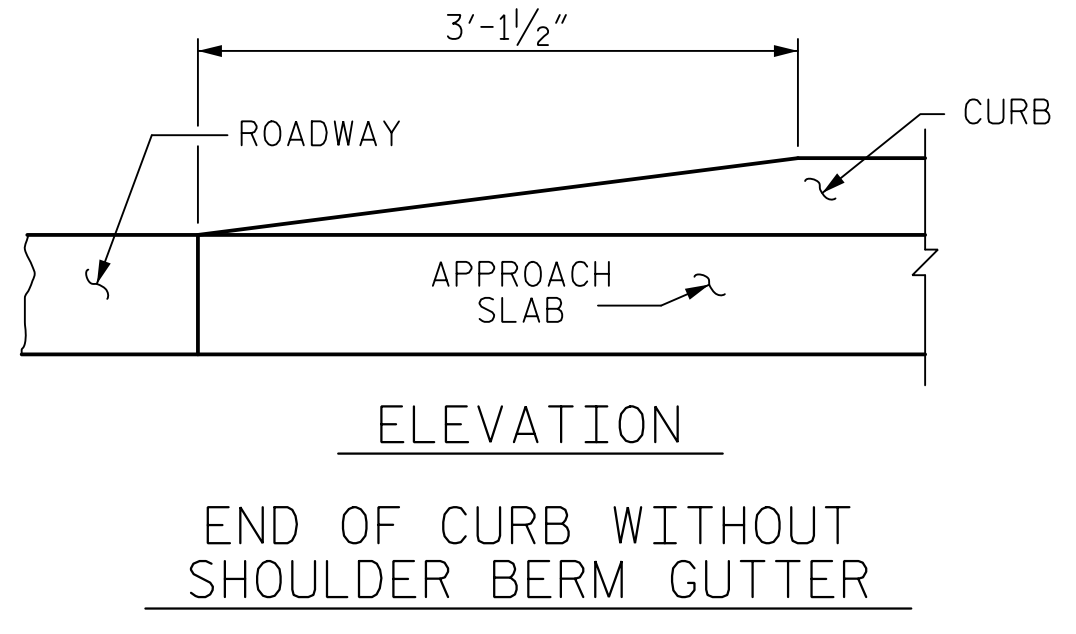
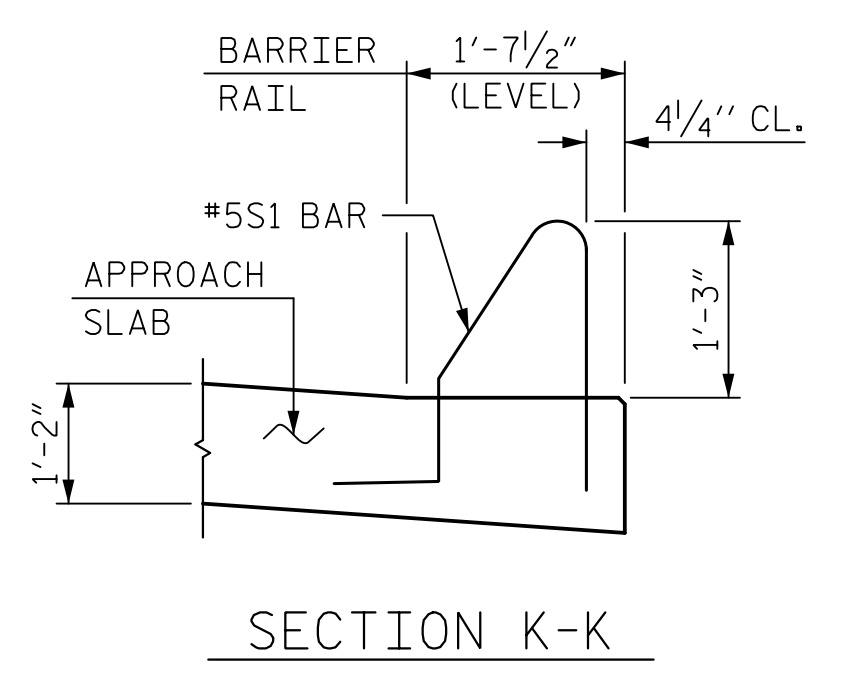
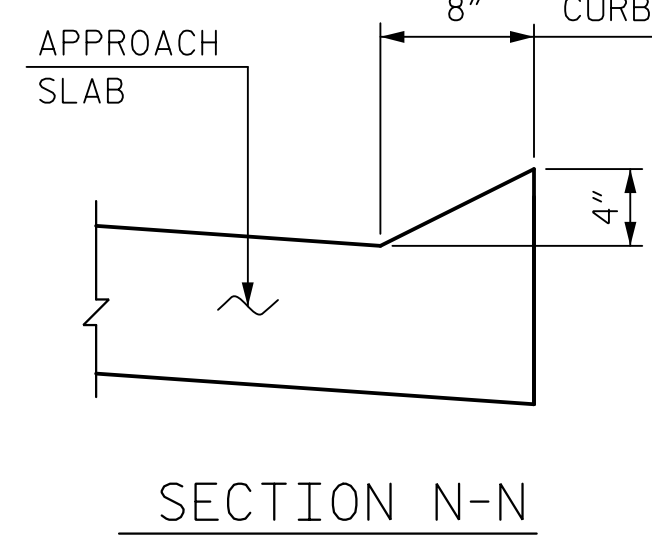


CURVE OFFSETS - APPROACH SLAB AT END BENT 1

CURVE OFFSETS - APPROACH SLAB AT END BENT 2



SECTION THRU SLAB
 (TYPE I - STANDARD APPROACH FILL)



CURB DETAILS

ASSEMBLED BY : A. SMITH	DATE : 7/18
CHECKED BY : Z. GUO	DATE : 10/18
DRAWN BY : EEM	REV. 12/21/11
CHECKED BY : VAP	REV. 6/13
	REV. 12/17
	MAA/GM
	MAA/GM
	MAA/THC

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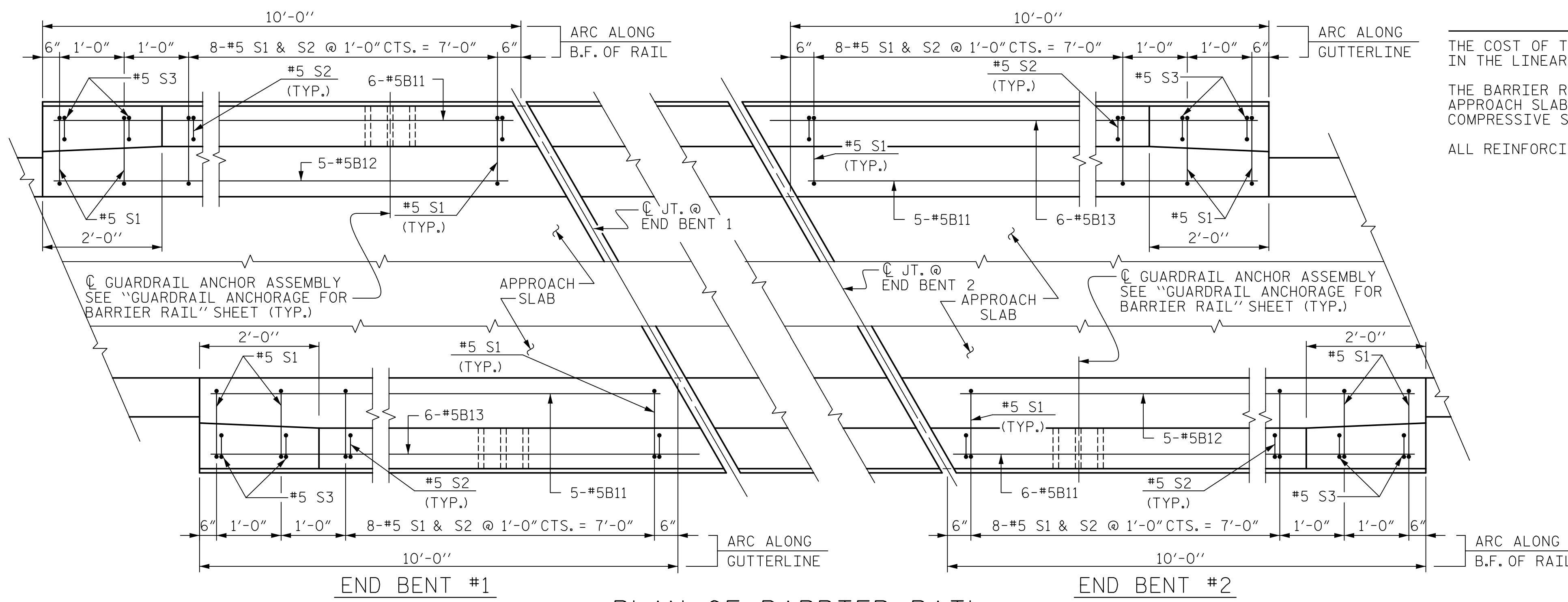
11/20/2018

DocuSigned by:
 James P. Gregg
 ENGINEER
 JAMES P. GREGG
 SEAL 046632

DRAWN BY : A. SMITH DATE : 7/18
 CHECKED BY : Z. GUO DATE : 10/18
 DESIGN ENGINEER OF RECORD : J. GREGG DATE : 10/18

DWG. NO. 45

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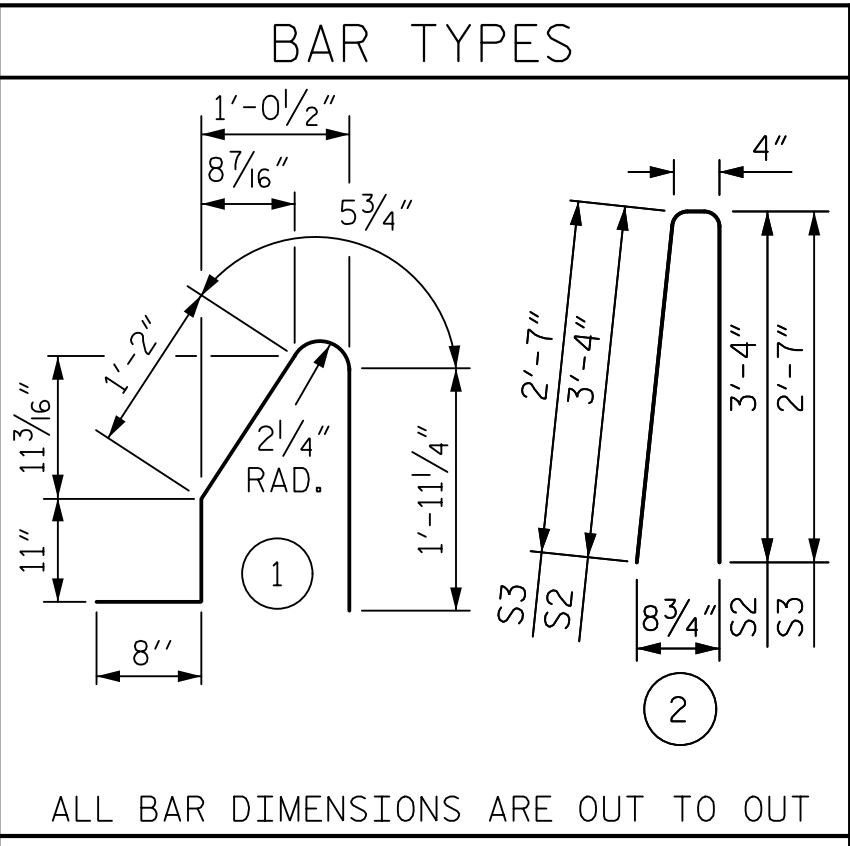


PLAN OF BARRIER RAIL

B.F. - DENOTES BACK FACE

NOTES

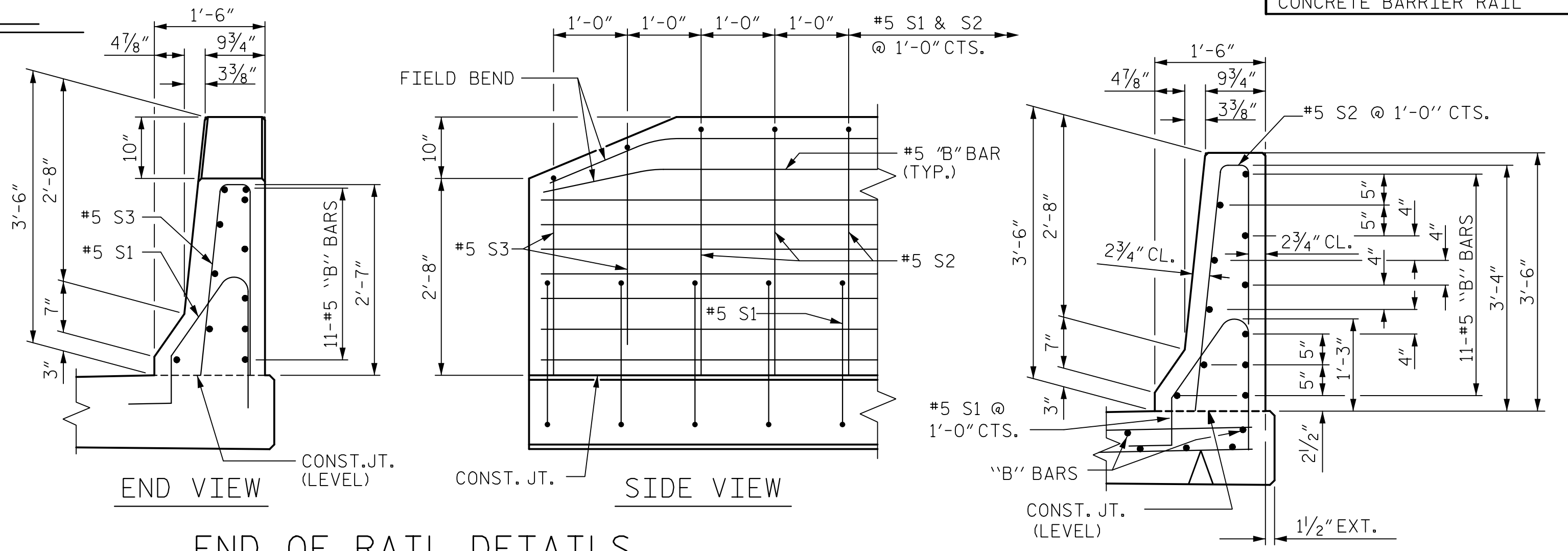
THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "CONCRETE BARRIER RAIL".
 THE BARRIER RAIL ON EACH APPROACH SLAB SHALL NOT BE CAST UNTIL ALL APPROACH SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
 ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.



BILL OF MATERIAL

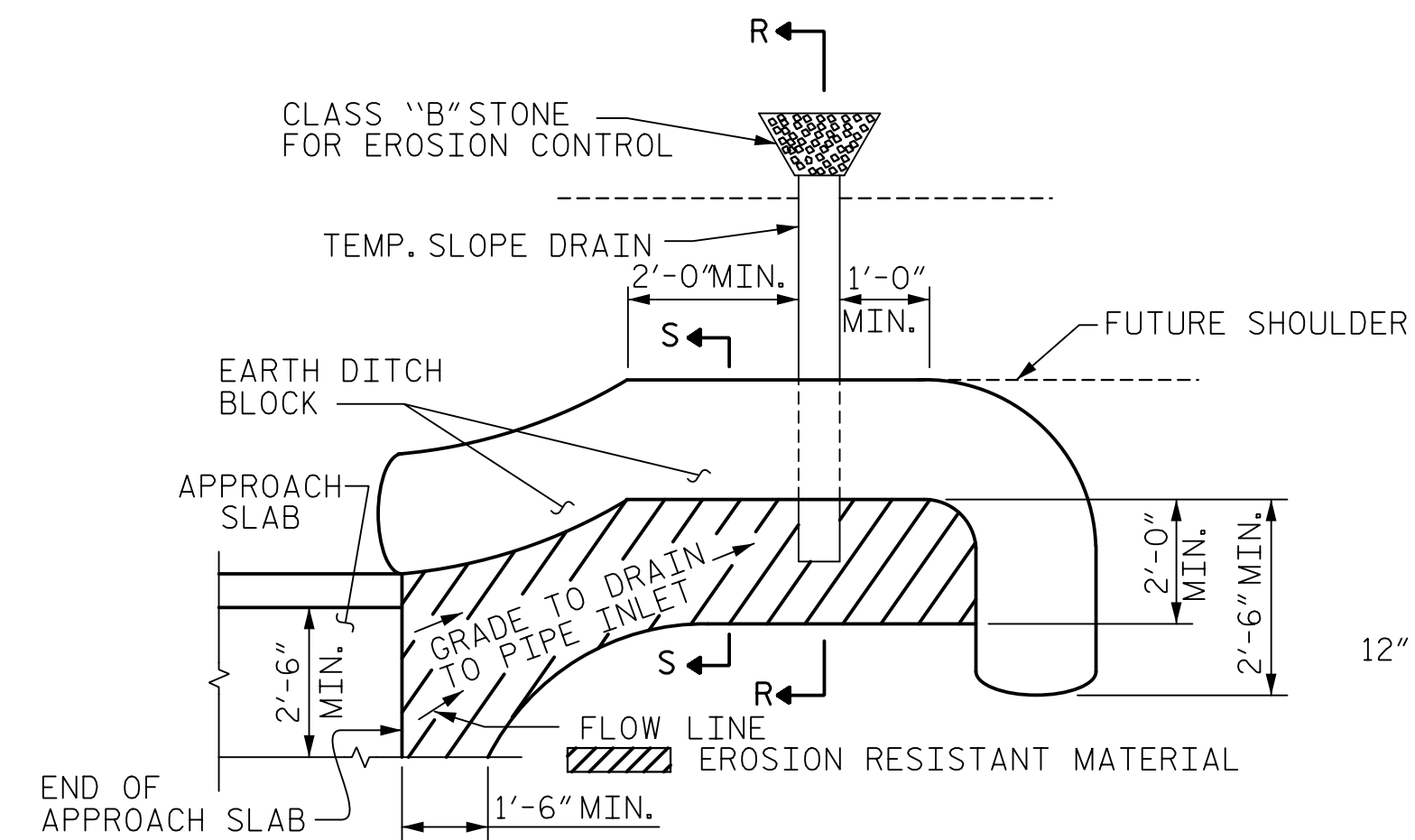
BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B11	22	#5	STR	9'-9"	224
* B12	11	#5	STR	11'-0"	126
* B13	11	#5	STR	11'-3"	129
* S1	40	#5	1	5'-2"	216
* S2	32	#5	2	7'-0"	234
* S3	8	#5	2	5'-6"	46

* EPOXY COATED REINFORCING STEEL	LBS.	975
CLASS AA CONCRETE	C. Y.	5.7
CONCRETE BARRIER RAIL	44.0 LIN. FT.	

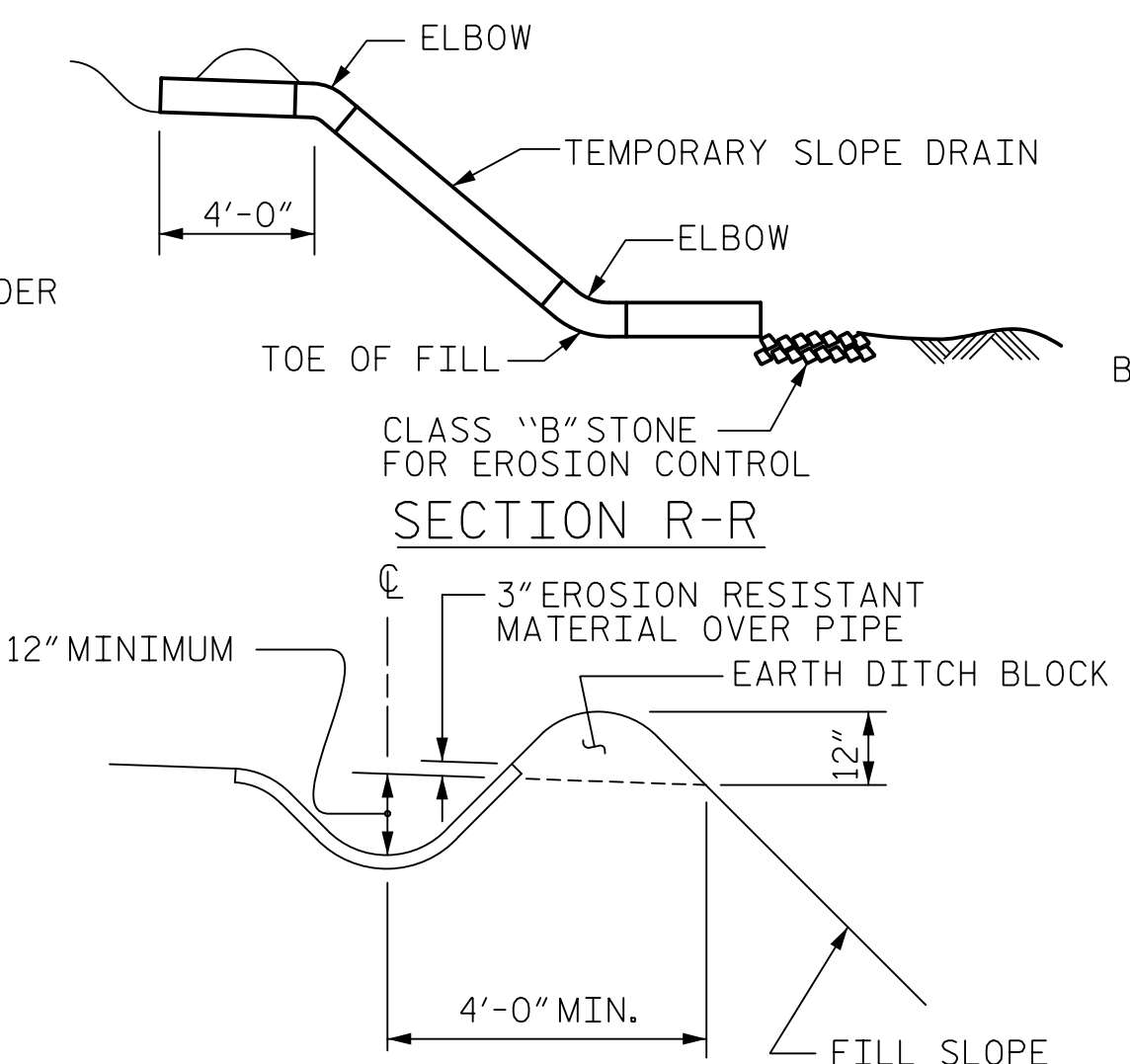


END OF RAIL DETAILS

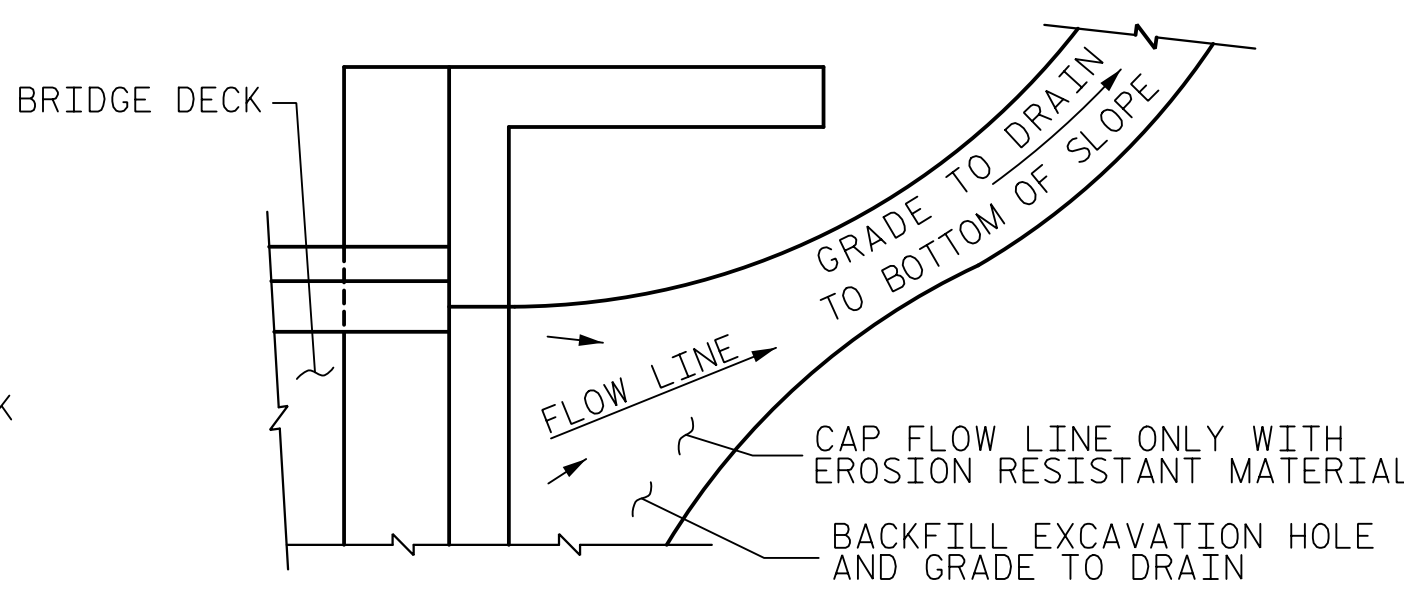
SECTION THRU RAIL



PLAN VIEW



SECTION S-S



TEMPORARY DRAINAGE DETAIL

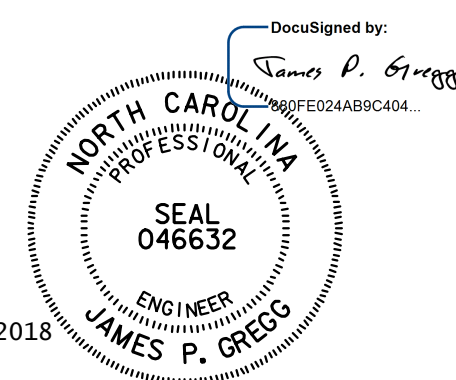
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

ASSEMBLED BY : A. Smith	DATE : 7/18
CHECKED BY : Z. GUO	DATE : 10/18
DRAWN BY : FCJ 11/88	REV. 10/11/11 MAA/GM
CHECKED BY : ARB 11/88	REV. 7/12 MAA/GM
	REV. 6/13 MAA/GM

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DRAWN BY : A. SMITH	DATE : 7/18	DWG. NO. 46	
CHECKED BY : Z. GUO	DATE : 10/18		
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 10/18		



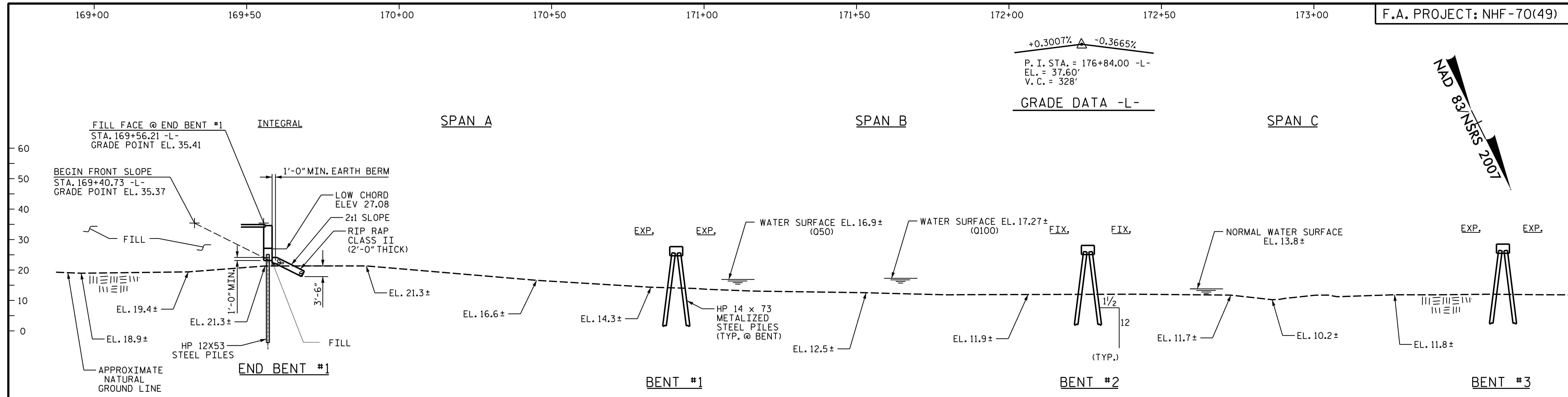
PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: POC STA. 138+31.09 -L-

SHEET 3 OF 3

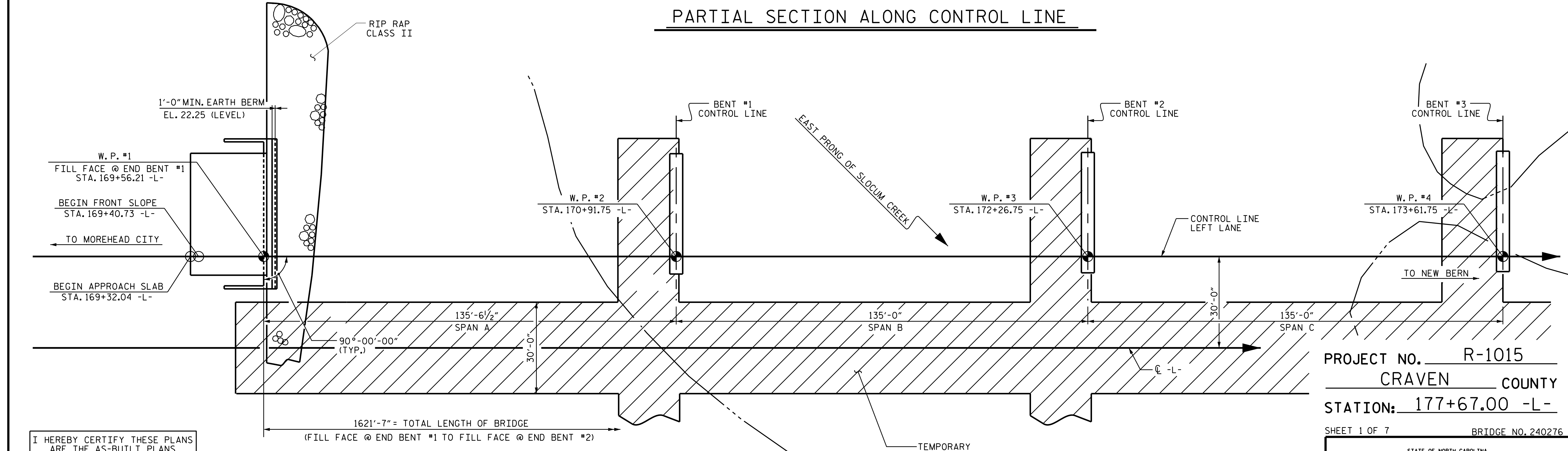
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH
 SLAB DETAILS
 RIGHT LANE

REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	DATE	S04-46
1			3		TOTAL SHEETS 46
2			4		

STD. NO. BAS4



PARTIAL SECTION ALONG CONTROL LINE



I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

DRAWN BY : J. B. W. DATE : 7/12/2018
 CHECKED BY : S. K. C. DATE : 7/13/2018
 DESIGN ENGINEER OF RECORD: T.L.B. DATE : 8/31/2018

*****SYSTEM*****
 *****DCN*****
 *****USER*****

1998 2018
ALPHA & OMEGA GROUP
 CIVIL | STRUCTURAL | WATER RESOURCES

DocuSigned by:

 D794597C456A4F7
 12/7/2018

4601 Lake Boone Trail Suite 3C Raleigh, NC 27607
 Phone 919 981 0310 Fax 919 981 0451
 www.aogroup.com Firm License No. C-1684
 A&O PROJECT NO. 2015.042

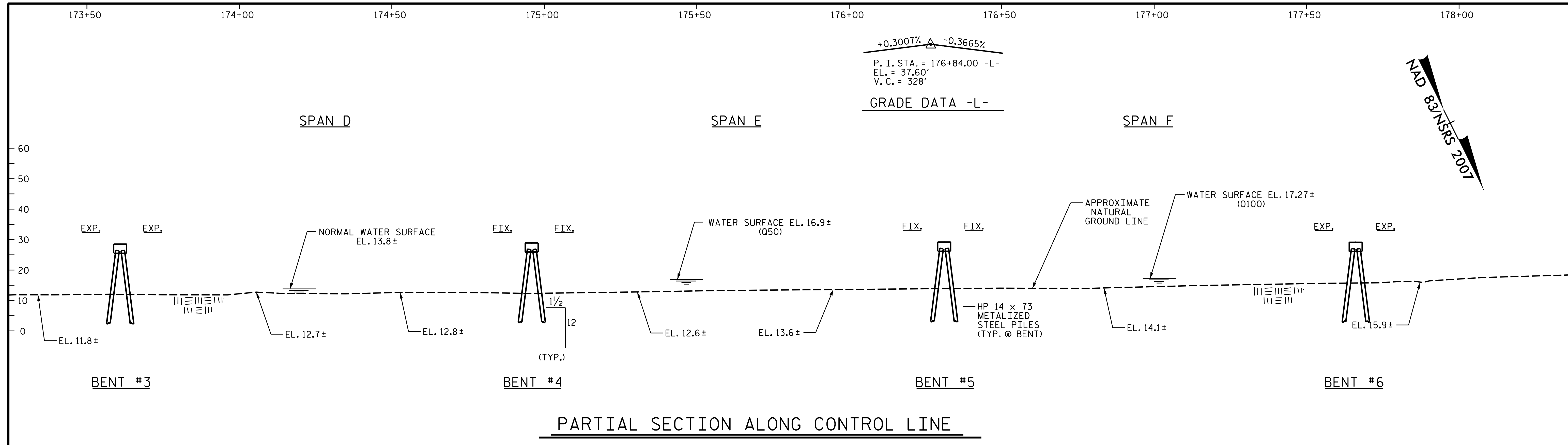
REFERENCE No. 5-1
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PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: 177+67.00 -L-
 SHEET 1 OF 7 BRIDGE NO. 240276

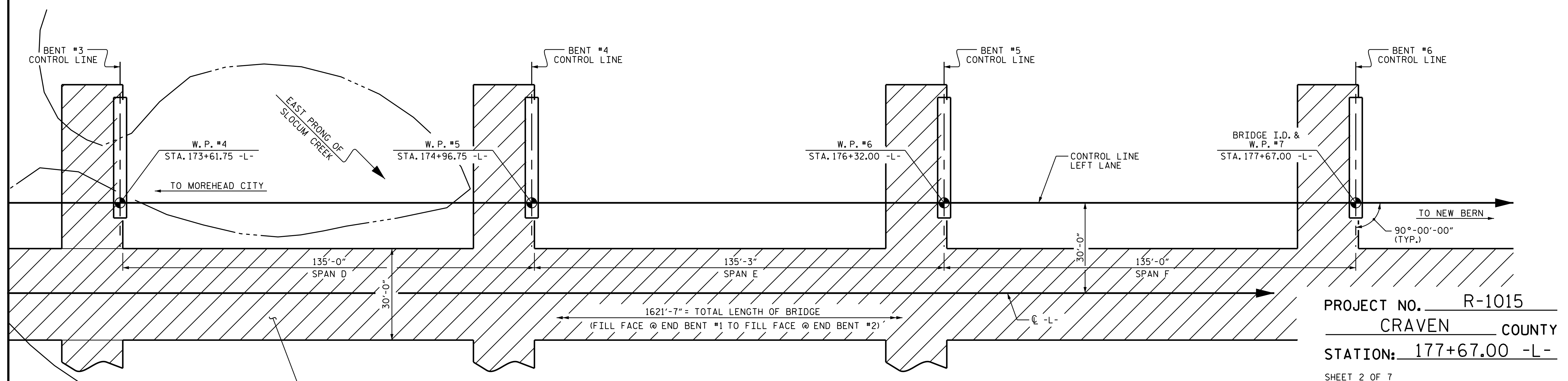
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE OVER EAST
 PRONG OF SLOCUM CREEK
 ON US 70 BYPASS BETWEEN
 US 70 AND SR 1756
 (LEFT LANE)

REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	46
1			3			46
2			4			

STRUCTURE No. 5



PARTIAL SECTION ALONG CONTROL LINE



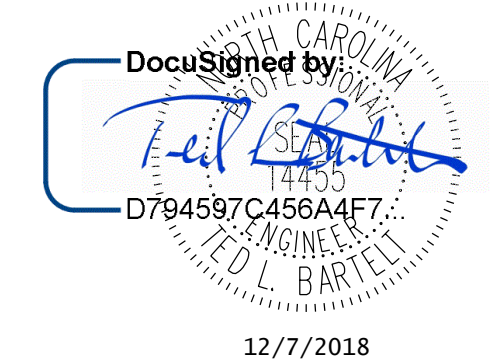
PARTIAL PLAN
PILES NOT SHOWN FOR CLARITY

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: 177+67.00 -L-

SHEET 2 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER EAST
 PRONG OF SLOCUM CREEK
 ON US 70 BYPASS BETWEEN
 US 70 AND SR 1756
 (LEFT LANE)



DRAWN BY: J. B. W. DATE: 7/12/2018
 CHECKED BY: S. K. C. DATE: 7/13/2018
 DESIGN ENGINEER OF RECORD: T.L.B. DATE: 8/31/2018

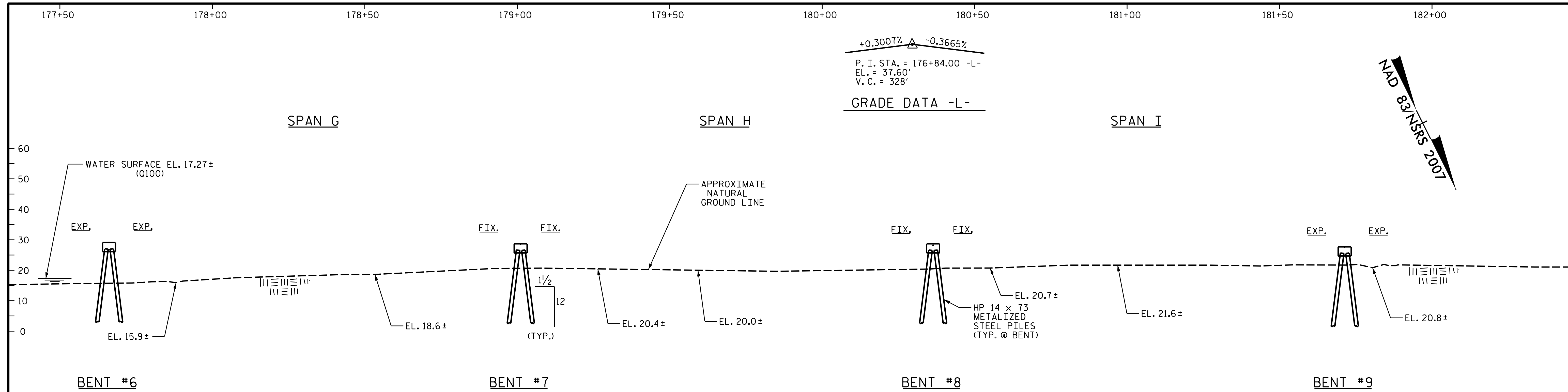
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 A&O PROJECT NO. 2015.042

REFERENCE No. 5-2
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 SIGNATURES COMPLETED

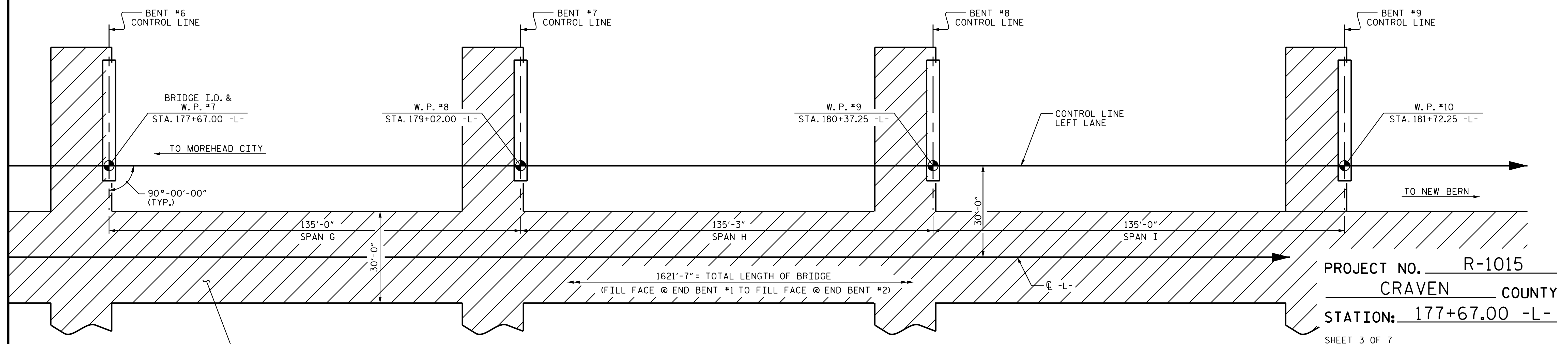
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S5-2
1			3			TOTAL SHEETS
2			4			46

STRUCTURE No. 5

*****SYSTEM*****
 *****DCN*****
 *****USERNAME*****



PARTIAL SECTION ALONG CONTROL LINE

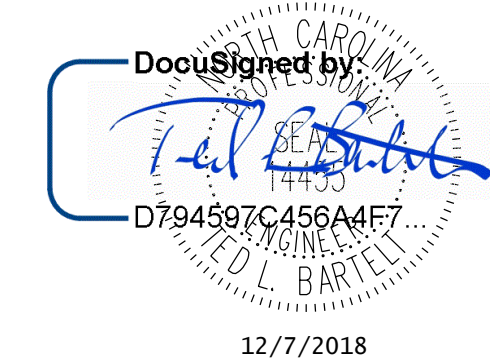


PARTIAL PLAN
 PILES NOT SHOWN FOR CLARITY

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: 177+67.00 -L-
 SHEET 3 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER EAST PRONG OF SLOCUM CREEK
 ON US 70 BYPASS BETWEEN US 70 AND SR 1756 (LEFT LANE)



DRAWN BY : J. B. W. DATE : 7/12/2018
 CHECKED BY : S. K. C. DATE : 7/13/2018
 DESIGN ENGINEER OF RECORD: T. L. B. DATE : 8/31/2018

4601 Lake Boone Trail Suite 3C Raleigh, NC 27607
 Phone 919 981 0310 Fax 919 981 0451
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 A&O PROJECT NO. 2015.042

REFERENCE No. 5-3
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S5-3
1			3			TOTAL SHEETS
2			4			46

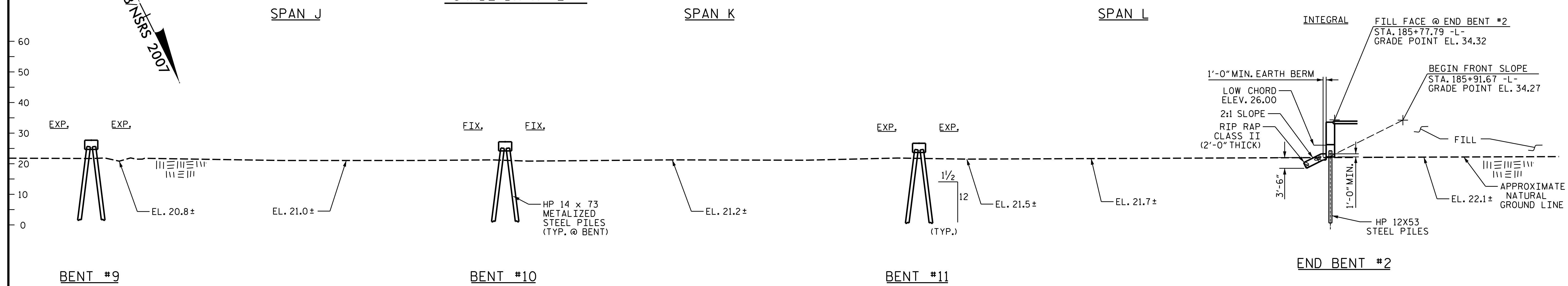
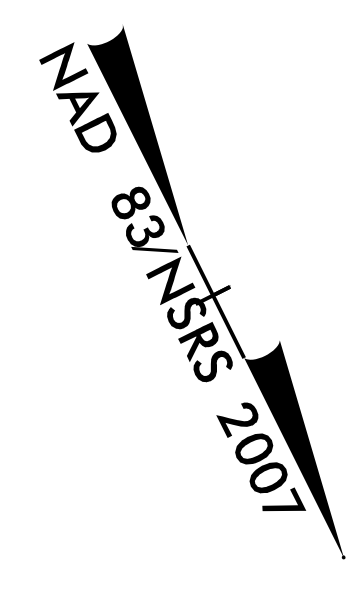
STRUCTURE No. 5

*****SYSTEM*****
 *****DCN*****
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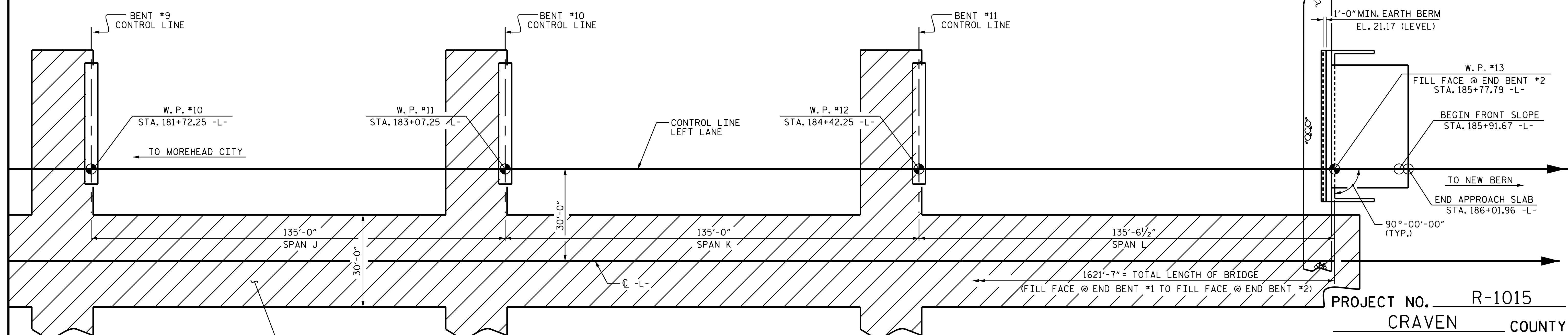
182+00 182+50 183+00 183+50 184+00 184+50 185+00 185+50 186+00

+0.3007% -0.3665%
P. I. STA. = 176+84.00 -L-
EL. = 37.60'
V. C. = 328'

GRADE DATA -L-



PARTIAL SECTION ALONG CONTROL LINE

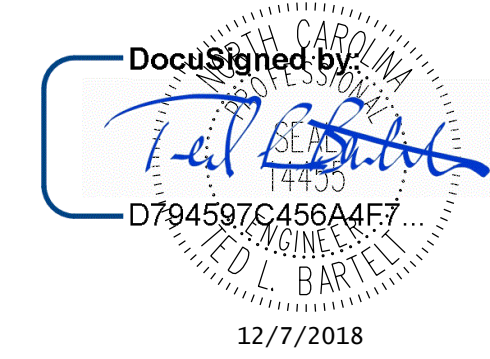


PARTIAL PLAN
PILES NOT SHOWN FOR CLARITY

PROJECT NO. R-1015
CRAVEN COUNTY
STATION: 177+67.00 -L-
SHEET 4 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER EAST
PRONG OF SLOCUM CREEK
ON US 70 BYPASS BETWEEN
US 70 AND SR 1756
(LEFT LANE)

DRAWN BY: J. B. W. DATE: 7/12/2018
CHECKED BY: S. K. C. DATE: 7/13/2018
DESIGN ENGINEER OF RECORD: T. L. B. DATE: 8/23/2018



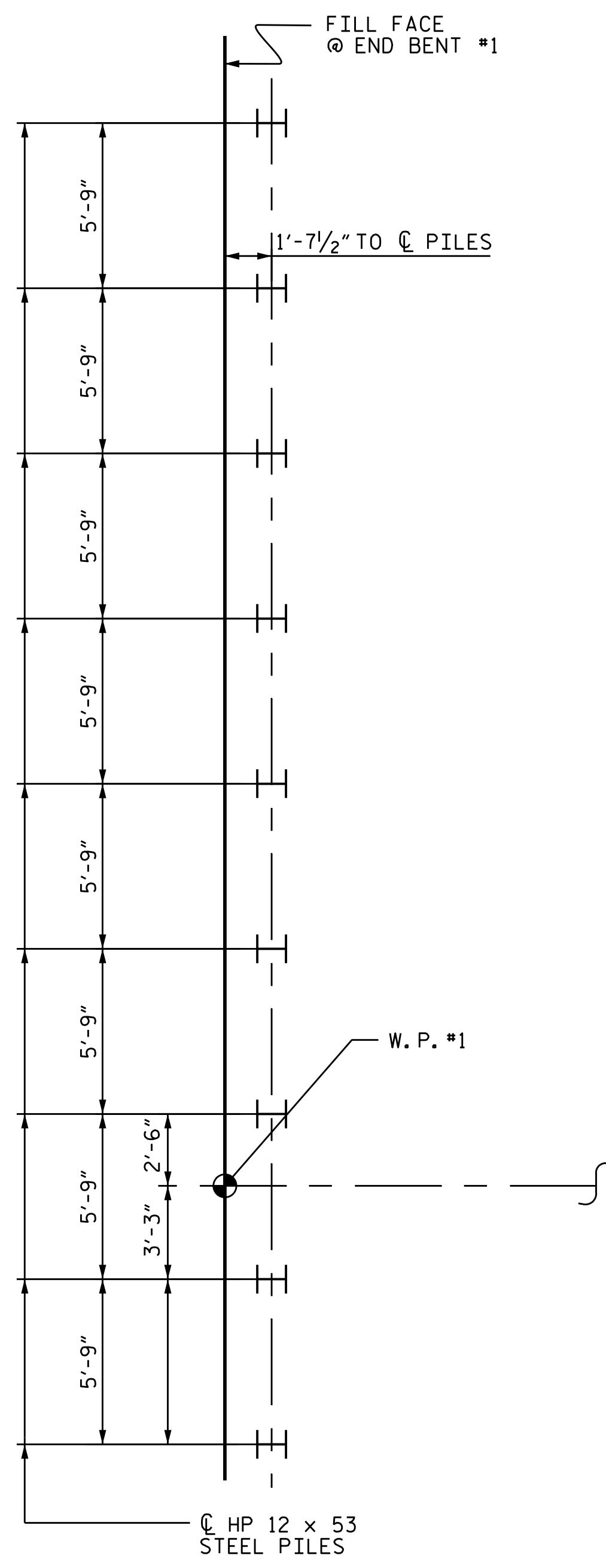
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Phone 919 981 0310 Fax 919 981 0451
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REFERENCE No. 5-4
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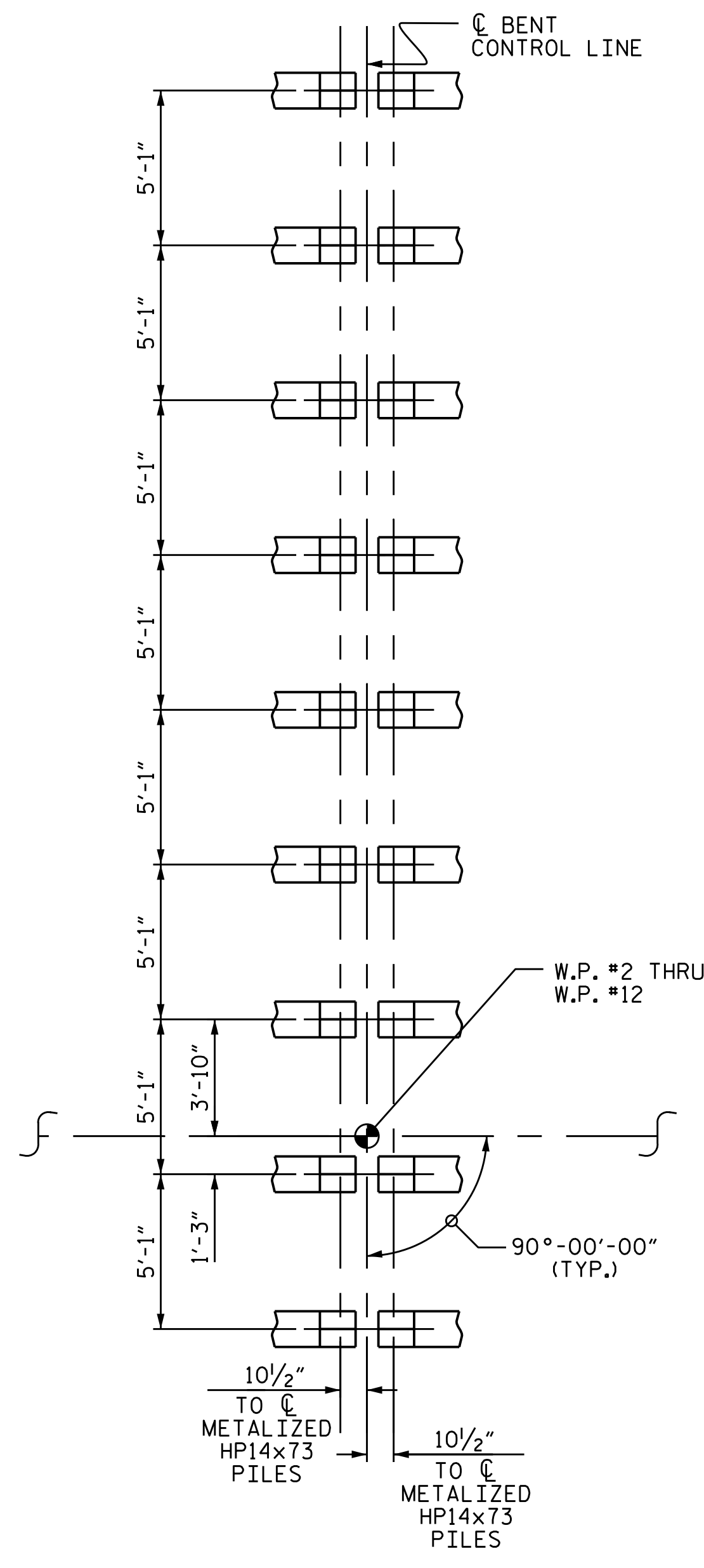
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S5-4
1			3			TOTAL SHEETS
2			4			46

STRUCTURE No. 5

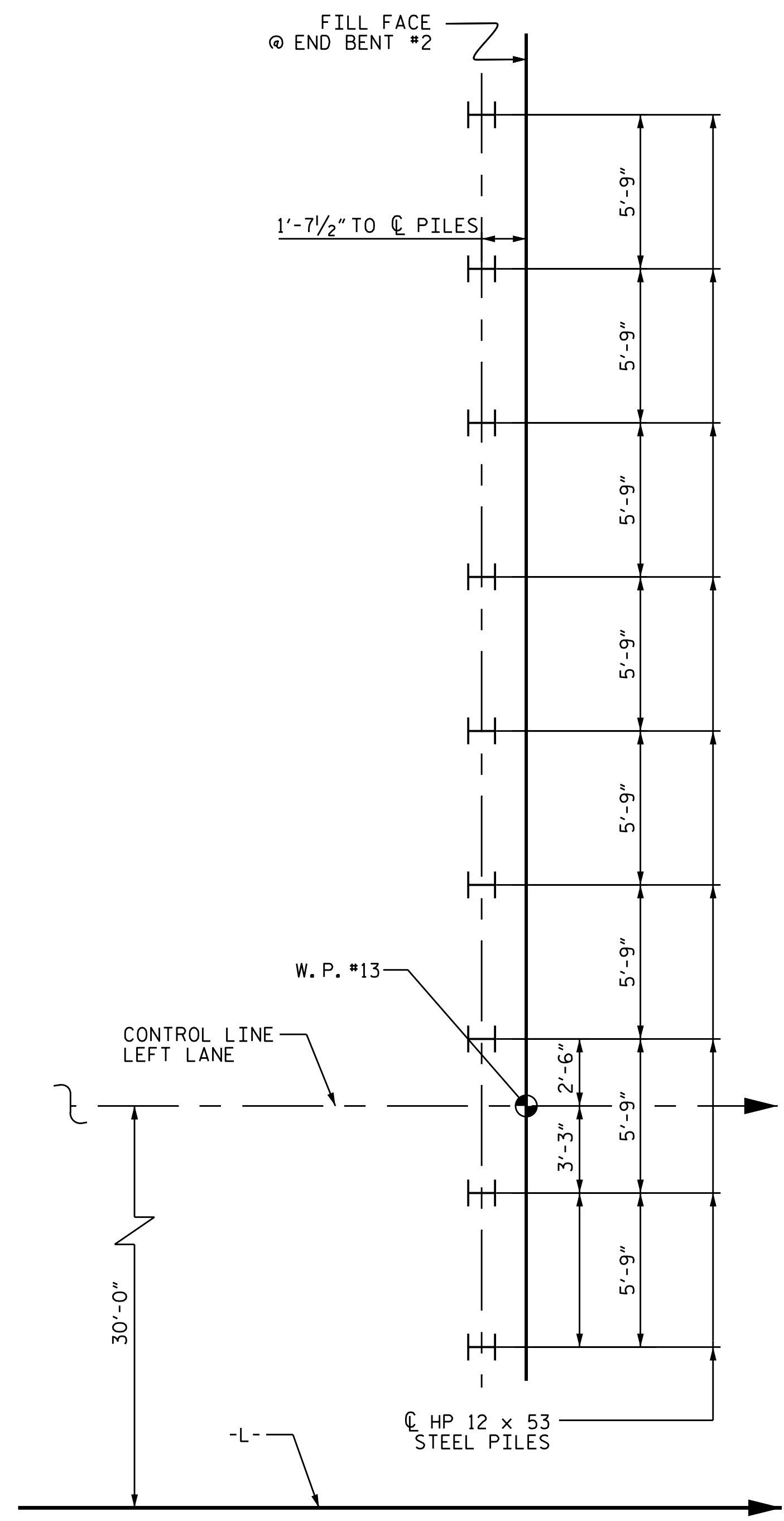
*****SYSTEM*****
*****SDGN*****
*****USERNAME*****



END BENT #1



BENT #1 THRU BENT #11
PILES BATTERED AT 1/2":12"



END BENT #2

FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE AT BOTTOM OF CAP

W.P. NO.	STATION NO.	W.P. NO.	STATION NO.
1	169+56.21 -L-	7	177+67.00 -L-
2	170+91.75 -L-	8	179.02.00 -L-
3	172+26.75 -L-	9	180+37.25 -L-
4	173+61.75 -L-	10	181+72.25 -L-
5	174+96.75 -L-	11	183+07.25 -L-
6	176+32.00 -L-	12	184+42.25 -L-
		13	185+77.79 -L-

NOTES

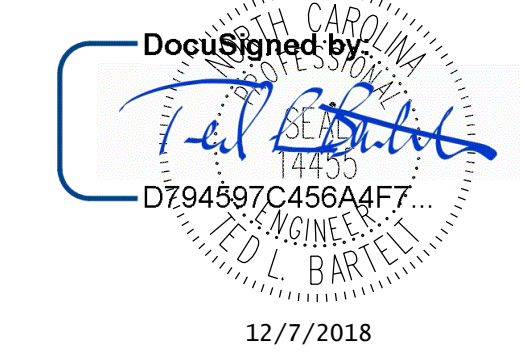
- FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- PILES AT INTEGRAL END BENT 1 AND INTEGRAL END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 125 TONS PER PILE.
- DRIVE PILES AT INTEGRAL END BENT NO.1 AND INTEGRAL END BENT NO.2 TO A REQUIRED BEARING CAPACITY OF 170 TONS PER PILE.
- PILES AT BENT 1 THROUGH BENT 11 ARE DESIGNED FOR A FACTORED RESISTANCE OF 140 TONS PER PILE.
- DRIVE PILES AT BENT 1 THROUGH BENT 11 TO A REQUIRED BEARING CAPACITY OF 190 TONS PER PILE.
- THE SCOUR CRITICAL ELEVATION FOR BENT 1 THROUGH BENT 6 IS ELEVATION 7 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
- SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS FOR THE SETTLEMENT GAUGES REQUIRED AT END BENT NO. 2.
- TESTING ONE PRODUCTION PILE WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT THE END BENT LOCATIONS. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- TESTING TWO PRODUCTION PILE WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT THE INTERIOR BENT LOCATIONS. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- TO FACILITATE CONSOLIDATION OF UNDERLYING CLAY SOILS, PLACE AND COMPACT EMBANKMENT TO SUBGRADE (SOME WILL BE TEMPORARY FILL) FOR A DISTANCE OF 100 FEET BEHIND THE END BENT 2 AND OBSERVE A 3 MONTH WAITING PERIOD BEFORE BEGINNING END BENT CONSTRUCTION AT END BENT NO.2. CONSTRUCT TEMPORARY FILL WITH A 1.5:1 SLOPE IN FRONT OF THE THE LOCATION OF THE PROPOSED END BENT CAP AND DIG OUT AS NECESSARY AFTER THE WAITING PERIOD TO CONSTRUCT THE END BENT AND TYPE 1 APPROACH FILLS.

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: 177+67.00 -L-

SHEET 5 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 (LEFT LANE)



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 A&O PROJECT NO. 2015.042

REFERENCE NO. 5-5
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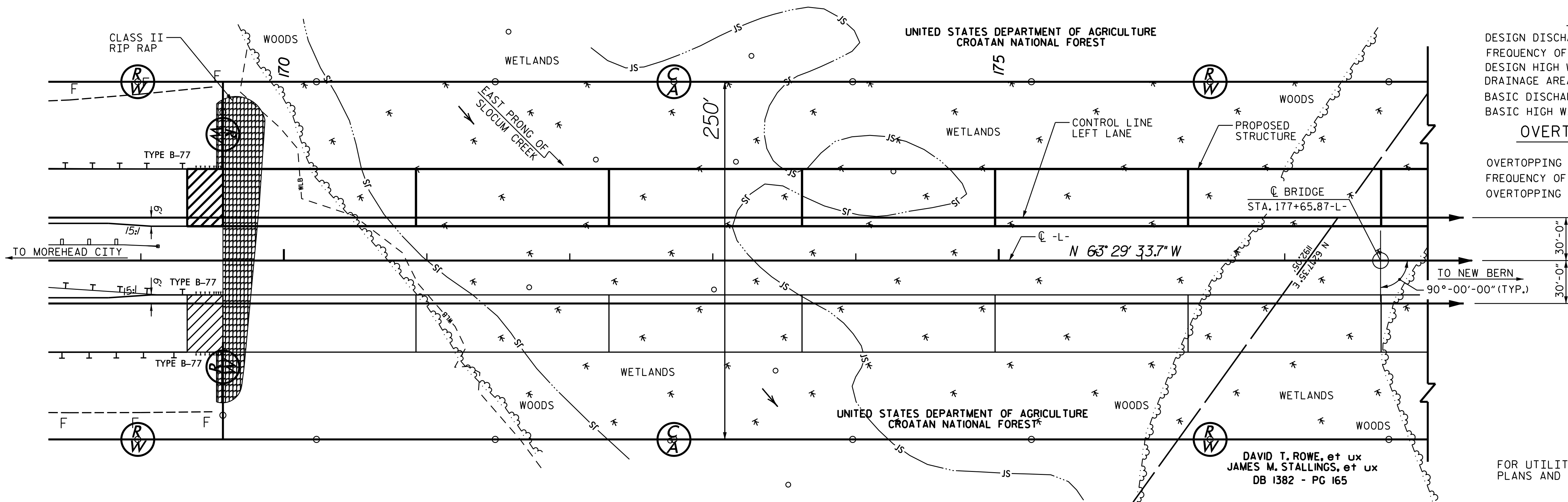
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S5-5
1			3			TOTAL SHEETS
2			4			46

DRAWN BY : J. B. W. DATE : 7/12/2018
 CHECKED BY : S. K. C. DATE : 7/13/2018
 DESIGN ENGINEER OF RECORD: T.L.B. DATE : 8/23/2018

*****SYSTEM*****
 *****DCN*****
 *****USERNAME*****

STRUCTURE NO. 5

BM #9 RR SPIKE IN TREE AT STATION 171+55.00 -L- ; 138' RT., ELEVATION =22.04 NGVD 29



HYDRAULIC DATA

DESIGN DISCHARGE _____ 890 C.F.S.
 FREQUENCY OF DESIGN FLOOD _____ 50 YRS.
 DESIGN HIGH WATER ELEVATION _____ 16.9 FT.
 DRAINAGE AREA _____ 5.8 SQ.MI.
 BASIC DISCHARGE (0100) _____ 1080 C.F.S.
 BASIC HIGH WATER ELEVATION _____ 17.27 FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE _____ N/A C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD _____ 500+ YRS.
 OVERTOPPING FLOOD ELEVATION _____ N/A FT.

LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THIS STRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR A CORROSIVE SITE.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 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 74" MODIFIED PRESTRESSED CONCRETE GIRDERS, SEE SPECIAL PROVISIONS.
 FOR BRIDGE DECK RIDEABILITY AND GROOVING, SEE SPECIAL PROVISIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1026-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

CLASS AA CONCRETE SHALL BE USED IN CAST-IN-PLACE BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.

ALL BAR SUPPORTS USED IN THE (BARRIER RAIL, DECK, BENT CAPS) AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS, SEE SPECIAL PROVISIONS.

FOR PILE DRIVING EQUIPMENT SETUP FOR HP 14X73 METALIZED STEEL PILES, SEE SPECIAL PROVISIONS.

FOR HP 14X73 METALIZED STEEL PILES, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

SAMPLE BAR REPLACEMENT	
SIZE	LENGTH
3	6'-2"
4	7'-4"
5	8'-6"
6	9'-8"
7	10'-10"
8	12'-0"
9	13'-2"
10	14'-6"
11	15'-10"

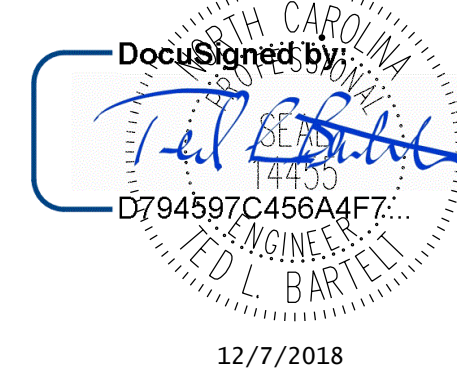
NOTE: SAMPLE BAR REPLACEMENT LENGTH BASED ON 30' SAMPLE LENGTH PLUS TWO SPLICE LENGTHS AND FY = 60ksi.

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: 177+67.00 -L-

SHEET 6 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER EAST
 PRONG OF SLOCUM CREEK
 ON US 70 BYPASS BETWEEN
 US 70 AND SR 1756
 (LEFT LANE)



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A&O PROJECT NO. 2015.042

REFERENCE NO. 5-6

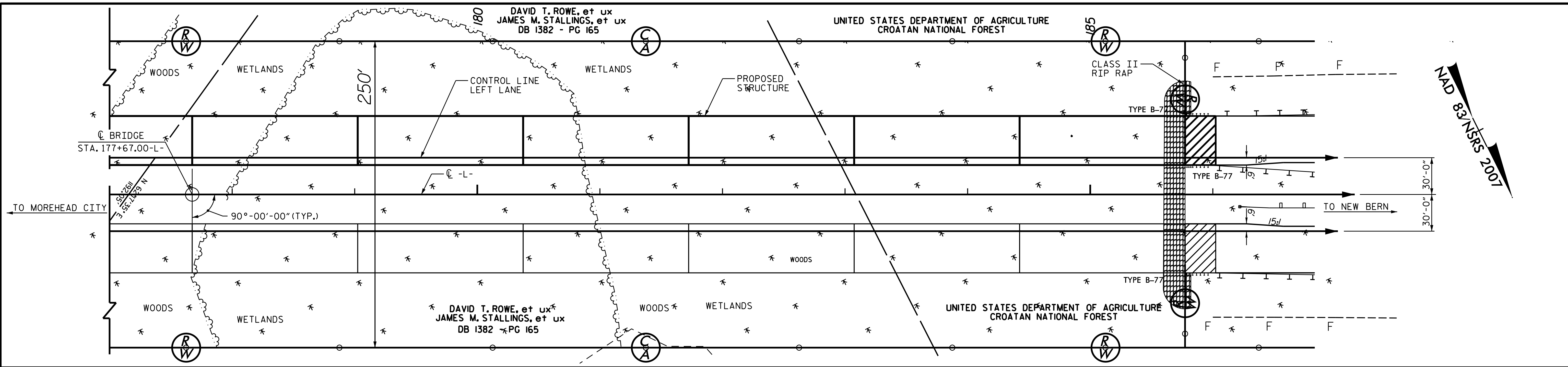
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S5-6
1			3			TOTAL SHEETS
2			4			46

STRUCTURE NO. 5

DRAWN BY: J. B. W. DATE: 05/01/2018
 CHECKED BY: S. K. C. DATE: 06/22/2018
 DESIGN ENGINEER OF RECORD: T. L. B. DATE: 08/23/2018

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 *****DCN*****
 *****USER*****



LOCATION SKETCH

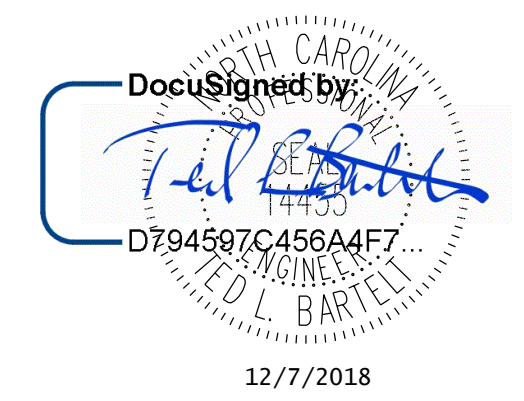
TOTAL BILL OF MATERIAL

	CONSTRUCTION MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STA. 117+67.00 -L-	PDA TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS AA CONCRETE	BRIDGE APPROACH SLABS	EPOXY COATED REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	HP 12 x 53 STEEL PILES	PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEO-TEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS	MODIFIED 74" PRESTRESSED CONCRETE GIRDERS	PILE DRIVING EQUIPMENT SETUP FOR HP 14x73 METALIZED STEEL PILES	HP 14 x 73 METALIZED STEEL PILES				
	LUMP SUM	EACH	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	EA.	NO.	LIN. FT.	EACH	LIN. FT.	TONS	SY	LUMP SUM	LUMP SUM	NO.	LIN. FT.	EA.	NO.	LIN. FT.	
SUPERSTRUCTURE			70133	60362		LUMP SUM					3240						60	8065				
END BENT 1					41.2		6647	9	9	720	9		219	244								
BENT 1					23.3		4048				18						18	18	1530			
BENT 2					23.3		4048				18						18	18	1620			
BENT 3					23.3		4048				18						18	18	1710			
BENT 4					23.3		4048				18						18	18	1710			
BENT 5					23.3		4048				18						18	18	1710			
BENT 6					23.3		4048				18						18	18	1440			
BENT 7					23.3		4048				18						18	18	1350			
BENT 8					23.3		4048				18						18	18	1440			
BENT 9					23.3		4048				18						18	18	1530			
BENT 10					23.3		4048				18						18	18	1620			
BENT 11					23.3		4048				18						18	18	1710			
END BENT 2					41.2		6647	9	9	855	9		51	94								
TOTAL	LUMP SUM	6	70133	60362	338.7	LUMP SUM	57822	18	18	1575	214	3240	270	338	LUMP SUM	LUMP SUM	60	8065	198	198	17370	

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: 177+67.00 -L-

SHEET 7 OF 7

DRAWN BY : J. B. W. DATE : 05/01/2018
 CHECKED BY : S. K. C. DATE : 06/22/2018
 DESIGN ENGINEER OF RECORD: T. L. B. DATE : 08/23/2018



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REFERENCE NO. 5-7

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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE OVER EAST
 PRONG OF SLOCUM CREEK
 ON US 70 BYPASS BETWEEN
 US 70 AND SR 1756
 (LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S5-7
1			3			TOTAL SHEETS
2			4			46

STRUCTURE NO. 5

*****SYSTEM*****
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LOAD AND RESISTANCE FACTOR RATING (LRFR) 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										
						LIVE-LOAD FACTORS (γ _{LL})	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)	LIVE-LOAD FACTORS (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.42	--	1.75	0.820	1.61	A	E	0.5L	0.720	2.37	A	I	0.3L	0.80	0.820	1.42	A	E	0.5L	1	
	HL-93 (OPERATING)	N/A		2.08	--	1.35	0.820	2.08	A	E	0.5L	0.720	3.15	A	I	0.3L	N/A	--	--	--	--	--	1	
	HS-20 (INVENTORY)	36.000	②	2.13	76.680	1.75	0.820	2.41	A	E	0.5L	0.720	3.28	A	I	0.3L	0.80	0.820	2.13	A	E	0.5L	1	
	HS-20 (OPERATING)	36.000		3.13	112.680	1.35	0.820	3.13	A	E	0.5L	0.720	4.34	A	I	0.3L	N/A	--	--	--	--	--	1	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SN5H	13.500		5.23	70.605	1.40	0.820	7.97	A	E	0.5L	0.720	11.60	A	I	0.3L	0.80	0.820	5.23	A	E	0.5L	1
		SNGARBS2	20.000		3.71	74.200	1.40	0.820	5.66	A	E	0.5L	0.720	8.02	A	I	0.3L	0.80	0.820	3.71	A	E	0.5L	1
		SNAGRIS2	22.000		3.44	75.680	1.40	0.820	5.25	A	E	0.5L	0.720	7.37	A	I	0.3L	0.80	0.820	3.44	A	E	0.5L	1
		SNCOTTS3	27.250		2.60	70.850	1.40	0.820	3.96	A	E	0.5L	0.720	5.62	A	I	0.3L	0.80	0.820	2.60	A	E	0.5L	1
		SNAGGRS4	34.925		2.10	73.343	1.40	0.820	3.20	A	E	0.5L	0.720	4.52	A	I	0.3L	0.80	0.820	2.10	A	E	0.5L	1
		SNS5A	35.550		2.06	73.233	1.40	0.820	3.13	A	E	0.5L	0.720	4.54	A	I	0.3L	0.80	0.820	2.06	A	E	0.5L	1
		SNS6A	39.950		1.86	74.307	1.40	0.820	2.93	A	E	0.5L	0.720	4.08	A	I	0.3L	0.80	0.820	1.86	A	E	0.5L	1
	SNS7B	42.000		1.93	81.060	1.40	0.820	2.70	A	E	0.5L	0.720	3.95	A	I	0.3L	0.80	0.820	1.93	A	E	0.5L	1	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.26	74.580	1.40	0.820	3.44	A	E	0.5L	0.720	4.94	A	I	0.3L	0.80	0.820	2.26	A	E	0.5L	1
		TNT4A	33.075		2.26	74.750	1.40	0.820	3.45	A	E	0.5L	0.720	4.84	A	I	0.3L	0.80	0.820	2.26	A	E	0.5L	1
		TNT6A	41.600		1.82	75.712	1.40	0.820	2.78	A	E	0.5L	0.720	4.15	A	I	0.3L	0.80	0.820	1.82	A	E	0.5L	1
		TNT7A	42.000		1.82	76.440	1.40	0.820	2.77	A	E	0.5L	0.720	4.07	A	I	0.3L	0.80	0.820	1.82	A	E	0.5L	1
		TNT7B	42.000		1.85	77.700	1.40	0.820	2.82	A	E	0.5L	0.720	3.89	A	I	0.3L	0.80	0.820	1.85	A	E	0.5L	1
		TNAGRIT4	43.000		1.78	76.540	1.40	0.820	2.72	A	E	0.5L	0.720	3.77	A	I	0.3L	0.80	0.820	1.78	A	E	0.5L	1
TNAGT5A		45.000		1.69	76.050	1.40	0.820	2.58	A	E	0.5L	0.720	3.69	A	I	0.3L	0.80	0.820	1.69	A	E	0.5L	1	
TNAGT5B	45.000	③	1.68	76.600	1.40	0.820	2.56	A	E	0.5L	0.720	3.57	A	I	0.3L	0.80	0.820	1.68	A	E	0.5L	1		

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. ALL SPANS ARE ANALYTICALLY IDENTICAL.

74" MBT SECTION PROPERTIES

Ag = 881.6 in²
I_g = 636755 in⁴
Yc = 36.447 in
W_g = 918.3 LB./FT.
v_s = 3.401 in

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

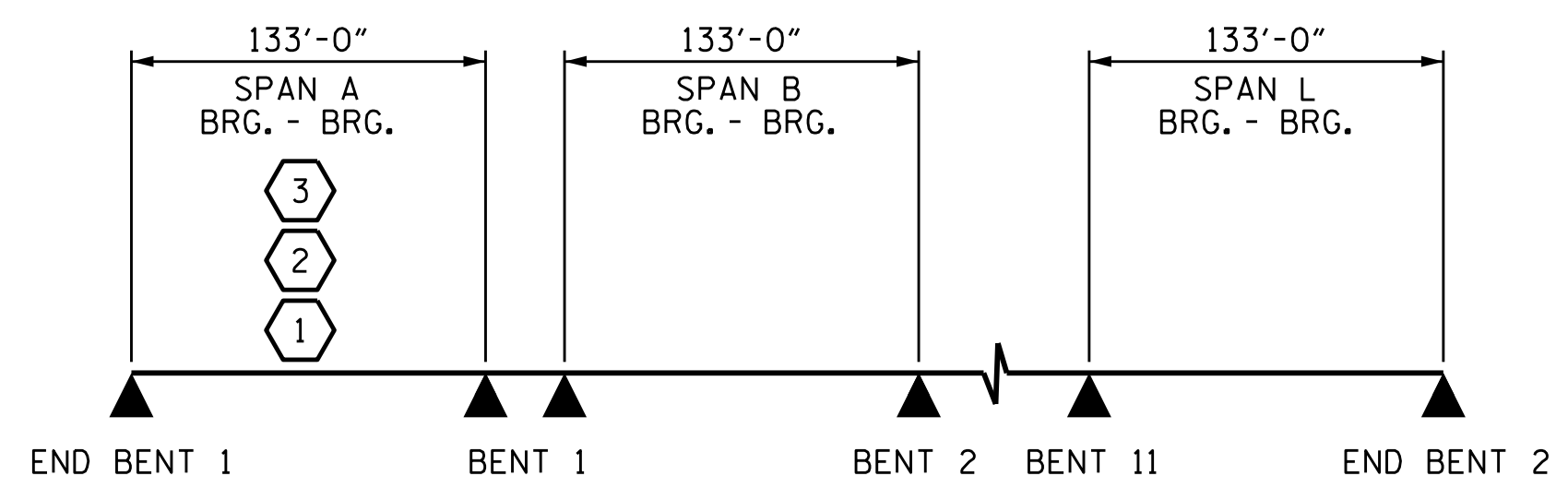
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
E - EXTERIOR GIRDER

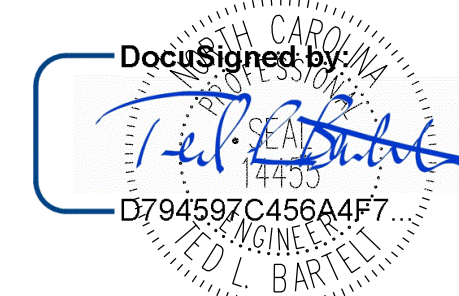


LRFR SUMMARY

PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: 177+67.00 -L-



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 Phone 919 981 0310 Fax 919 981 0451
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 A&O PROJECT NO. 2015.042



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S5-8
1			3			TOTAL SHEETS
2			4			46

DRAWN BY: J. B. W. DATE: 07/01/2018
 CHECKED BY: S. K. C. DATE: 7/05/2018
 DESIGN ENGINEER OF RECORD: T. L. B., PE DATE: 8/29/2018

*****SYSTEM*****
 *****DCN*****
 *****USERNAME*****

NOTES

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

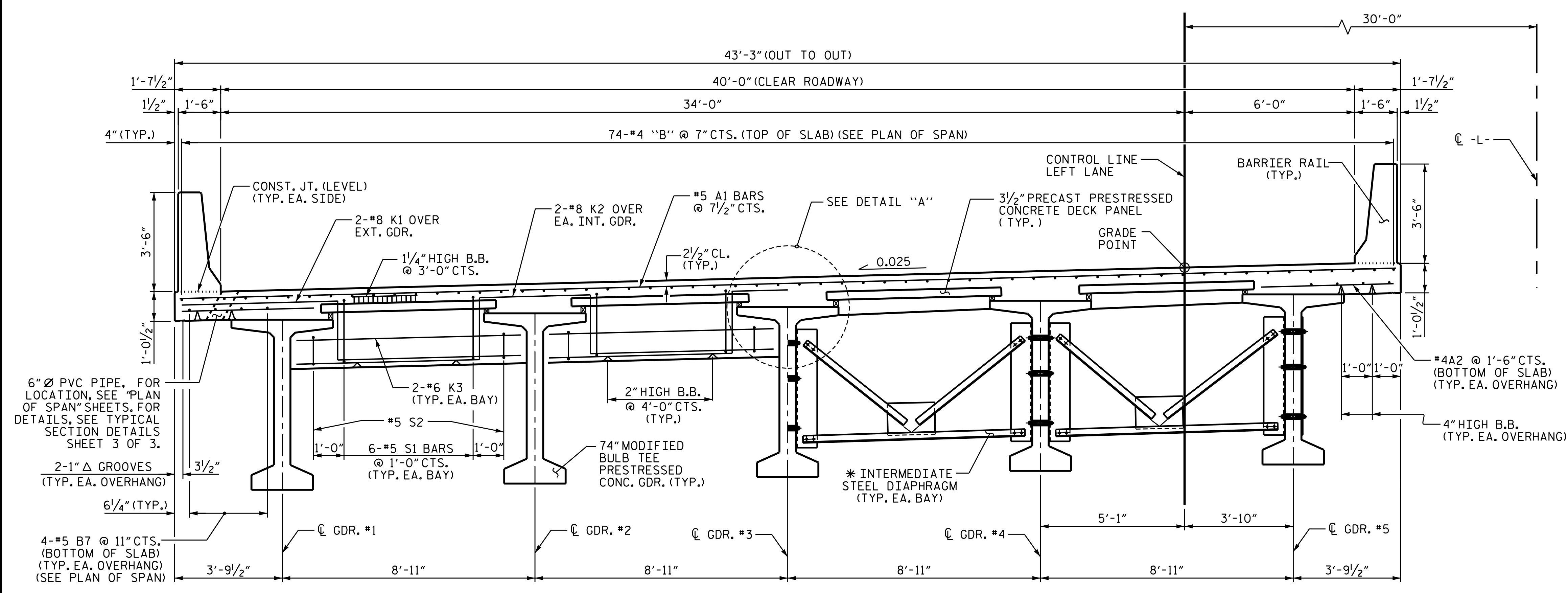
PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

PRECAST PANELS SHALL BE DESIGNED FOR AN ALLOWABLE TENSILE STRESS OF 0 PSI IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

ALL BAR SUPPORTS USED IN THE BARRIER RAIL, DECK, AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

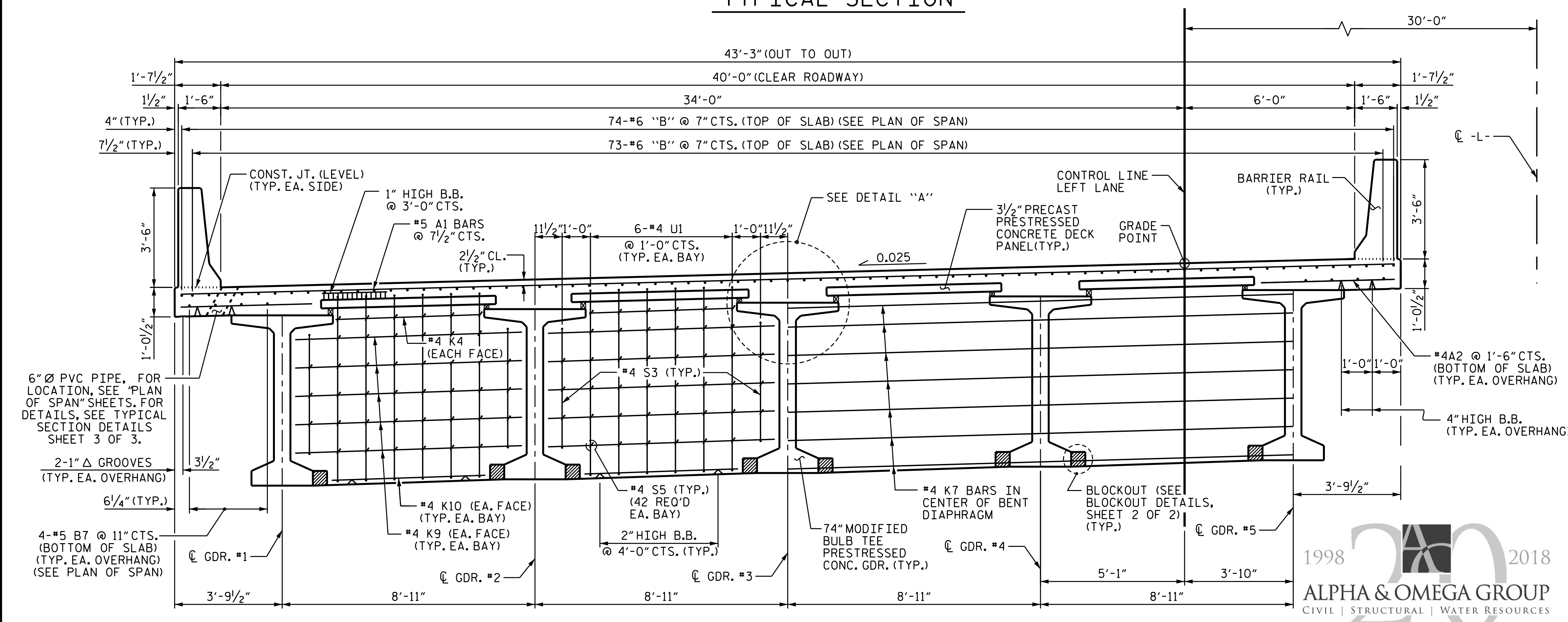
* FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 74" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS" SHEET.



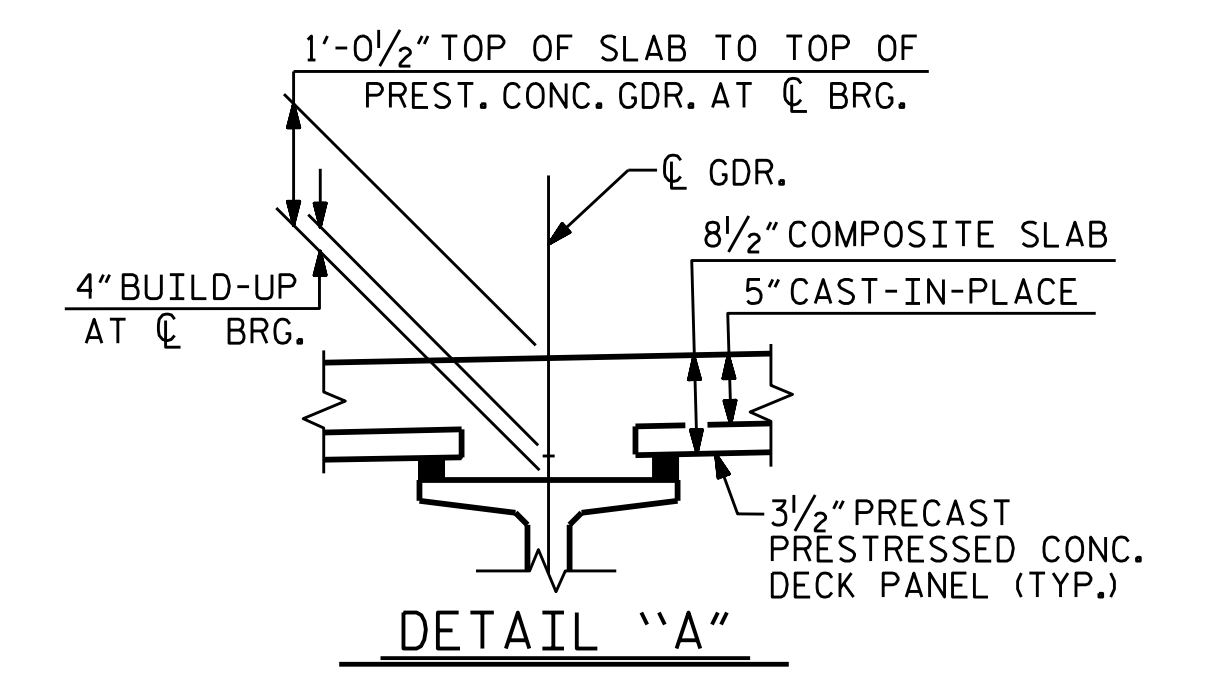
PARTIAL TYPICAL SECTION - BENT DIAPHRAGM
(BENTS 1, 3, 6, 9 AND 11)

PARTIAL TYPICAL SECTION AT INTERMEDIATE DIAPHRAGM

TYPICAL SECTION



TYPICAL SECTION-CONTINUOUS BENT DIAPHRAGM
(AT BENTS 2, 4, 5, 7, 8, & 10)



PROJECT NO. R-1015
CRAVEN COUNTY
 STATION: 177+67.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 TYPICAL SECTION
 (LEFT LANE)**

1998 **20** 2018
ALPHA & OMEGA GROUP
 CIVIL | STRUCTURAL | WATER RESOURCES

DocuSigned by:
 T. L. Bartel
 0794597C450A4F7
 12/7/2018

DRAWN BY : J. B. W. DATE : 6/20/2018
 CHECKED BY : S. K. C. DATE : 6/22/2018
 DESIGN ENGINEER OF RECORD: T.L.B., PE DATE : 8/29/2018

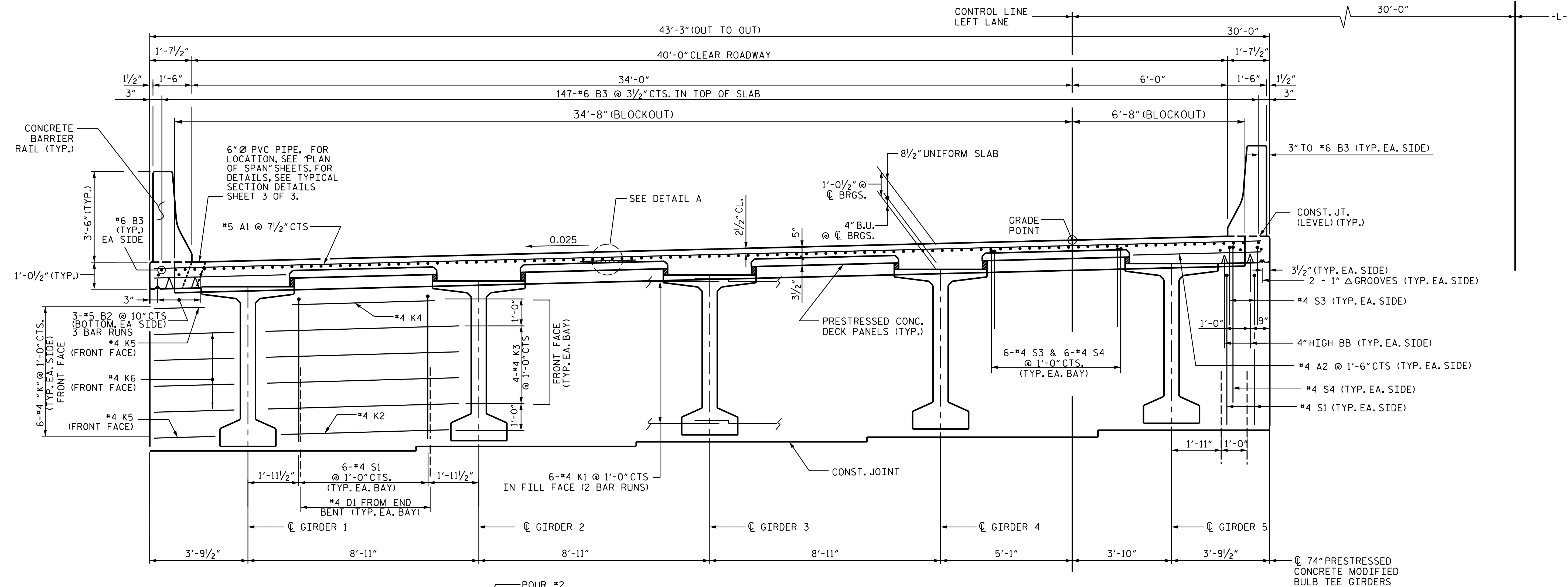
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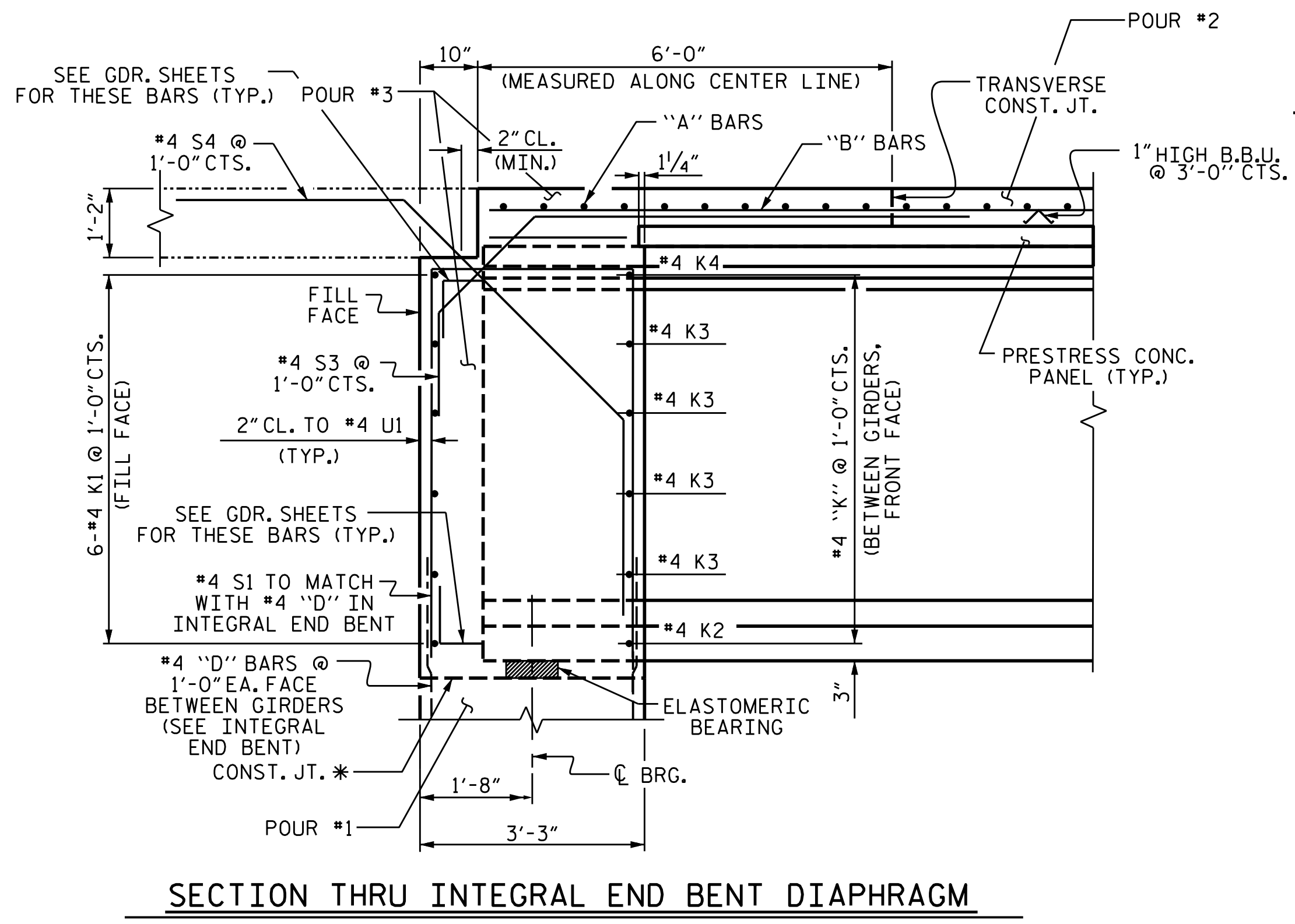
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1			3			TOTAL SHEETS
2			4			46

STRUCTURE NO. 5

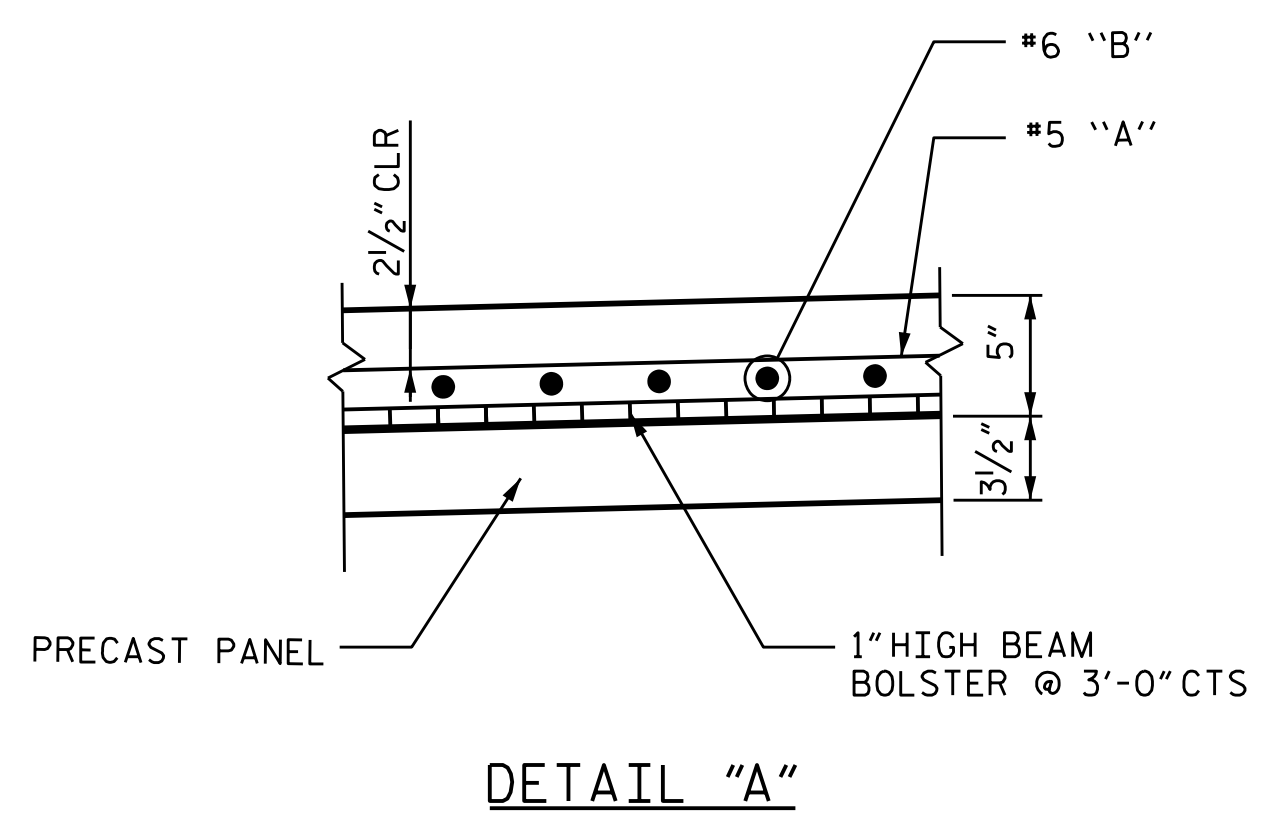


TYPICAL SECTION AT INTEGRAL END BENT



SECTION THRU INTEGRAL END BENT DIAPHRAGM

THE TOP SURFACE OF THE END BENT CAP AND WINGS EXCLUDING THE BEARING AREA SHALL BE RAKED TO A DEPTH OF 1/4"



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SHEET 2 OF 3

STATE OF NORTH CAROLINA
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 SUPERSTRUCTURE
 TYPICAL SECTION AT INTEGRAL END BENT
 (LEFT LANE)

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 [Signature]
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 COL. BARTELT

DRAWN BY: J. B. W. DATE: 7/13/2018
 CHECKED BY: S. K. C. DATE: 7/16/2018
 DESIGN ENGINEER OF RECORD: T. L. B. DATE: 8/29/2018

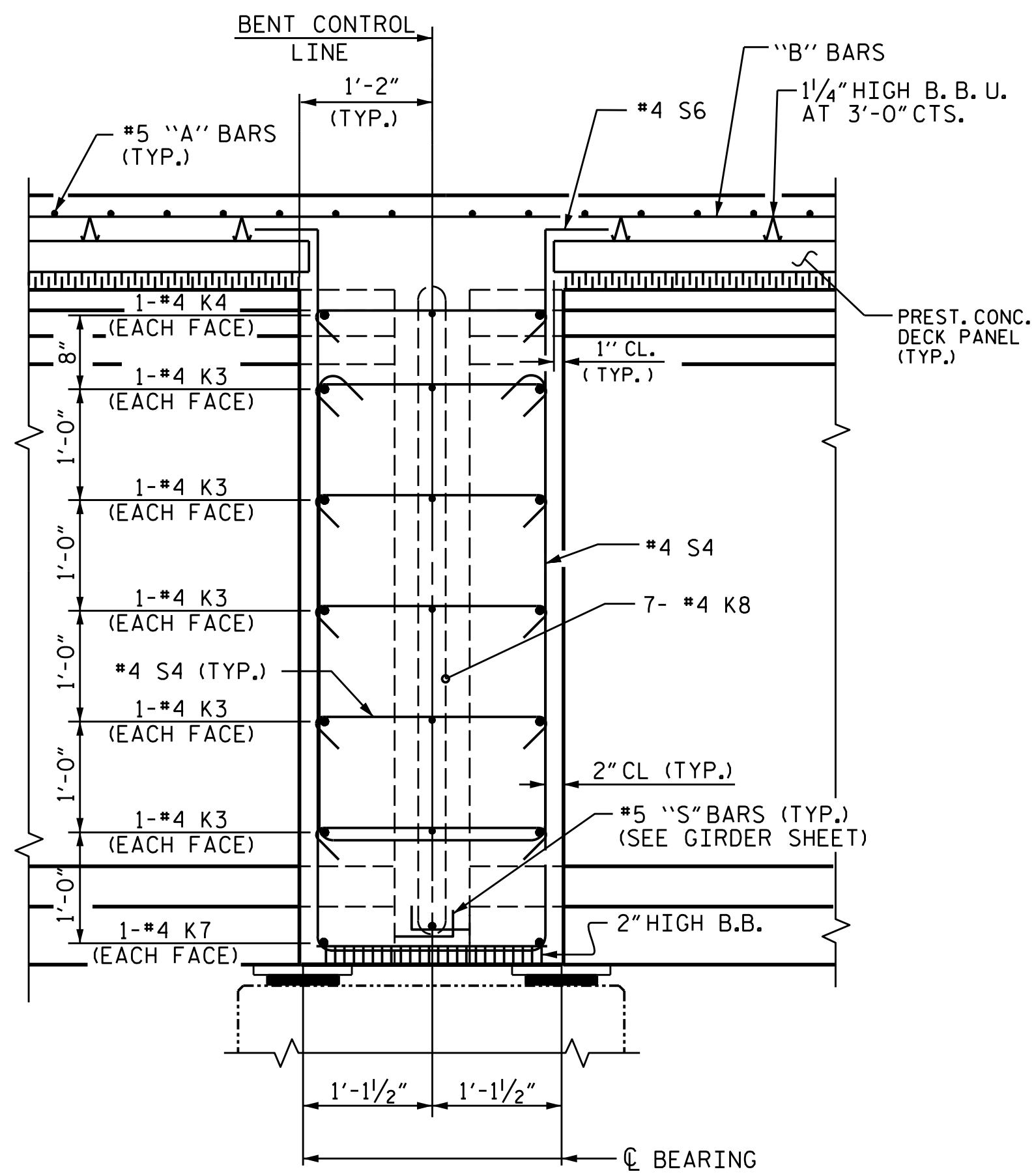
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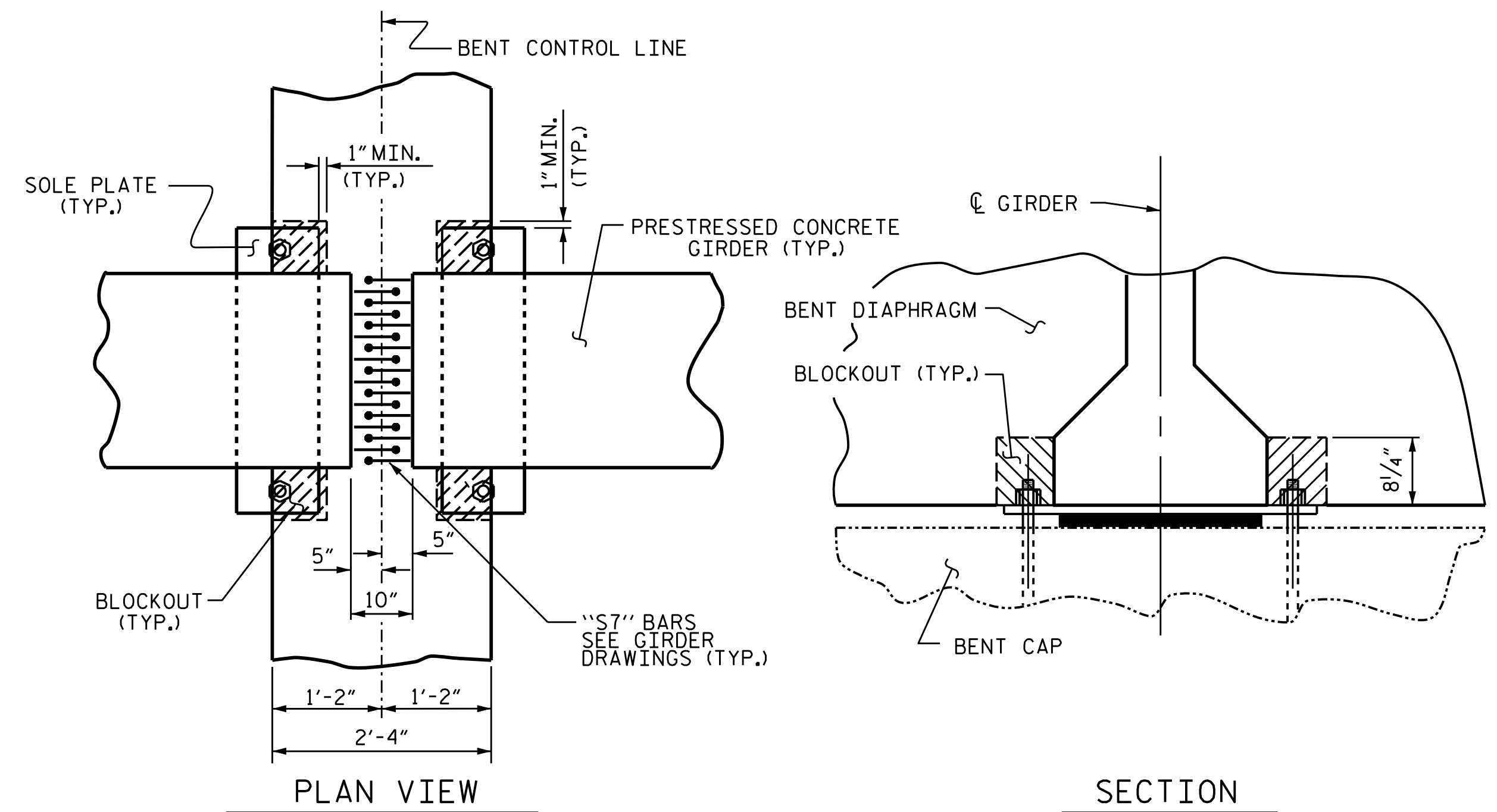
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2			4			46

STRUCTURE No. 5

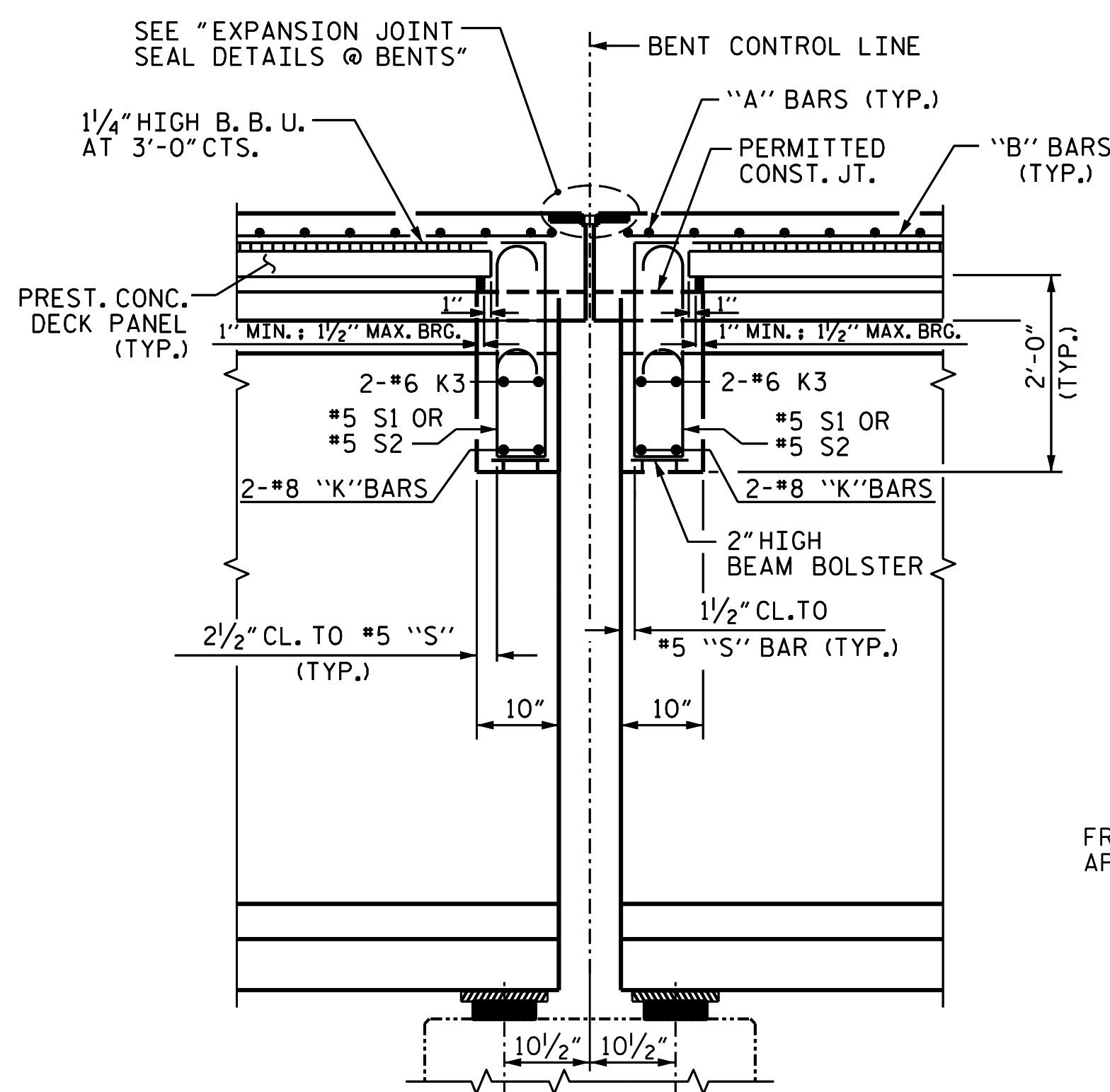
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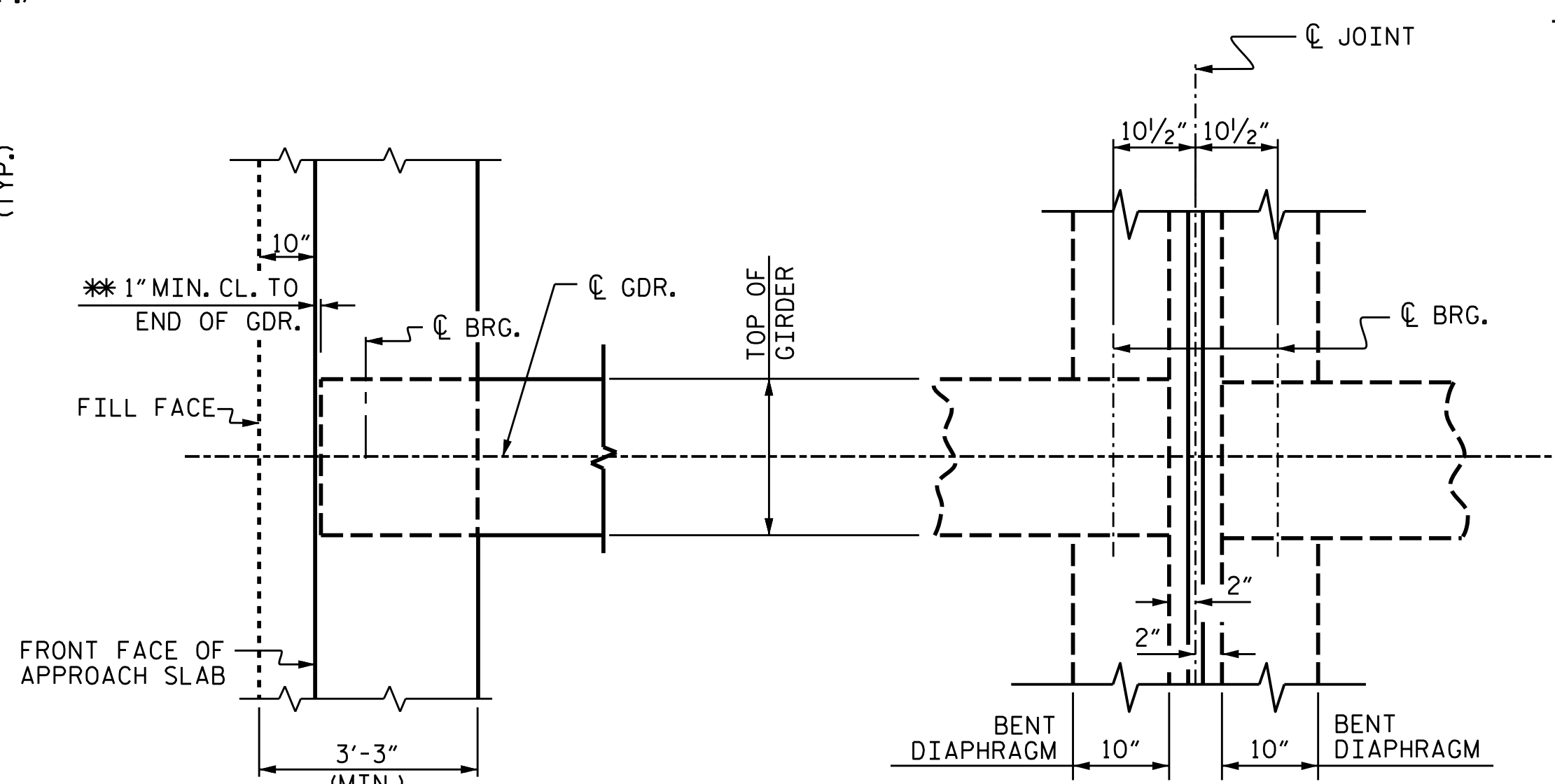
SECTION AT CONTINUOUS BENT DIAPHRAGM
(AT BENTS 2, 4, 5, 7, 8 AND 10)



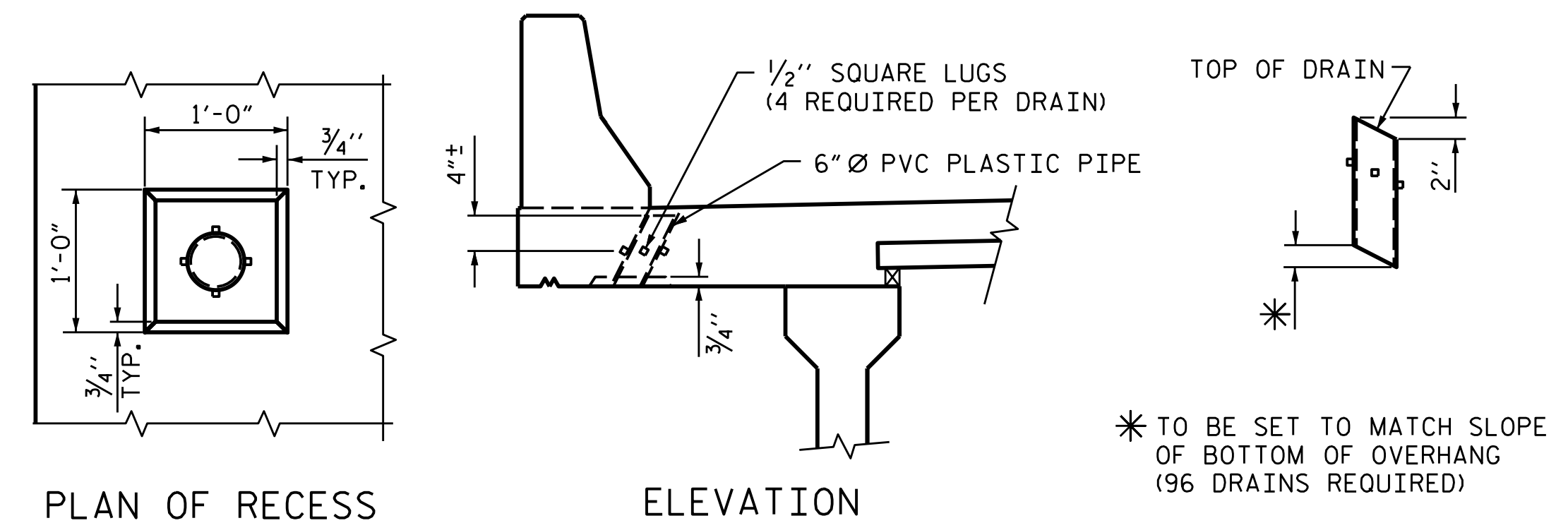
CONTINUOUS BENT DIAPHRAGM BLOCK-OUT DETAIL



SECTION AT BENT DIAPHRAGM
(AT BENTS 1, 3, 6, 9, & 11)



INTEGRAL END BENT DIAPHRAGM **BENT DIAPHRAGM**
PLAN



DRAIN DETAILS
TOP OF FLOOR DRAINS TO BE SET 3/8" BELOW SURFACE OF SLAB.
4 - 1/2" SQUARE LUGS TO BE GLUED TO THE P.V.C. PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF THE PIPE.
THE 6" Ø PVC PLASTIC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.

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11/9/2018 7:44:29 AM EST
REFERENCE NO. S5-11

PROJECT NO. R-1015
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STATION: 177+67.00 -L-

SHEET 3 OF 3

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1			3			TOTAL SHEETS 46
2			4			STRUCTURE NO. 5

DECK PANEL SUPPORTS

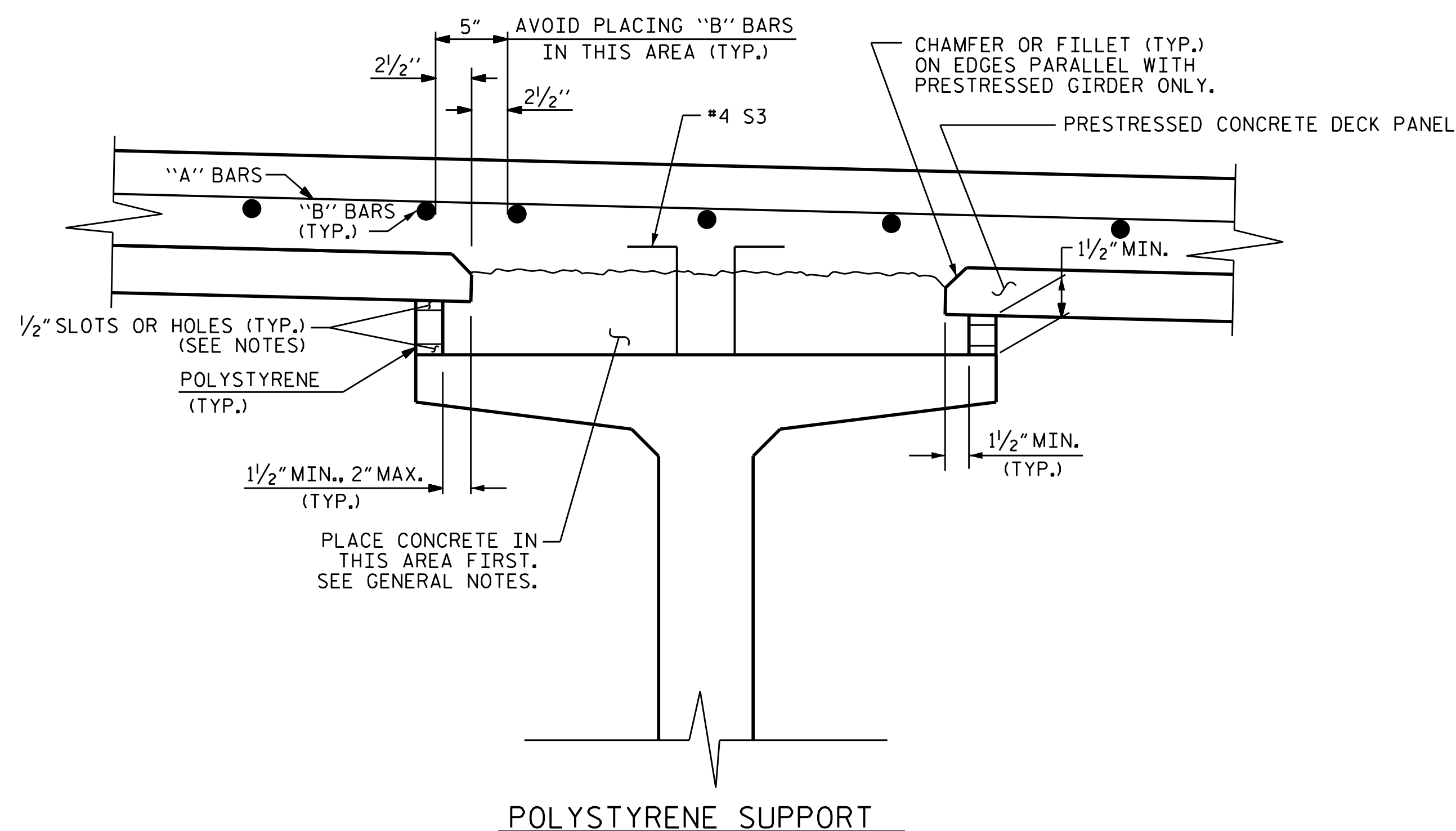
THE CONTRACTOR SHALL PROVIDE THE DECK PANEL SUPPORT SYSTEM SHOWN OR HE MAY SUBMIT A DECK PANEL SUPPORT SYSTEM OF HIS OWN DESIGN TO THE ENGINEER FOR APPROVAL.

POLYSTYRENE SUPPORT SYSTEM

1. ALL POLYSTYRENE SHALL BE DOW STYROFOAM 60 HIGH-LOAD, UC INDUSTRIES FOAMULAR 600 OR APPROVED EQUAL.
2. THE POLYSTYRENE SUPPORT SYSTEM SHALL CONSIST OF ONE LAYER WITH A MINIMUM WIDTH OF 1/2" AND A MAXIMUM WIDTH OF 2". THE POLYSTYRENE SHALL HAVE 1/2" X 1/2" WIDE SLOTS OR 1/2" DIAMETER HOLES AT 4'-0" CENTERS STAGGERED ALONG THE TOP AND BOTTOM.
3. THE POLYSTYRENE MAY BE CUT AND PLACED ON EDGE AS NECESSARY TO MATCH THE REQUIRED BUILDUP PROFILE ALONG THE GIRDER.
4. ADHESIVE, AS APPROVED BY THE ENGINEER, SHALL BE APPLIED TO THE TOP OF THE GIRDER IN A CONTINUOUS BEAD AND IN SUFFICIENT AMOUNT TO PREVENT THE POLYSTYRENE FROM BLOWING OUT AND TO PREVENT GAPS FROM FORMING BETWEEN THE POLYSTYRENE AND THE GIRDER. PRIOR TO PLACEMENT OF THE DECK PANELS, THE ADHESIVE SHALL ALSO BE APPLIED TO THE TOP OF THE POLYSTYRENE.
5. CONCRETE-FILLED BUCKETS, STACKS OF DECK PANELS, BUNDLED REINFORCING BARS OR OTHER HEAVY CONCENTRATED LOADS WILL NOT BE PERMITTED ON THE DECK PANEL ONCE THE PANEL HAS BEEN PLACED ON THE POLYSTYRENE SUPPORT SYSTEM.

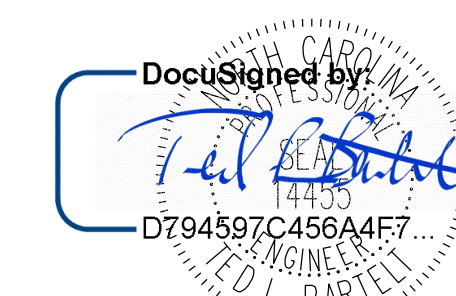
GENERAL NOTES

1. THE DESIGN COMPRESSIVE STRENGTH (f'c) FOR THE CONCRETE IN PRESTRESSED PANELS SHALL BE 5000 PSI MINIMUM AT 28 DAYS. COMPRESSIVE STRENGTH OF CONCRETE AT TIME OF RELEASE OF STRANDS SHALL BE 4000 PSI MINIMUM.
2. THE PRECAST PRESTRESSED PANEL SHALL HAVE A THICKNESS OF 3 1/2" WITH THE PRESTRESSED STRANDS LOCATED AT HALF THE DEPTH OF THE PANEL.
3. FOR SKEWED SPANS, TRAPEZOIDAL CLOSURE PANELS SHALL HAVE A MINIMUM WIDTH OF 2 FEET ON THE SHORT SIDE.
4. ALL PRESTRESSING STRANDS SHALL EXTEND 2" BEYOND THE PANEL EDGES.
5. SHEAR REINFORCING OF 0.60 SQ. INCHES OF REINFORCING STEEL PER 10 SQ. FEET OF PANEL SURFACE SHALL BE PROVIDED IN THE PANEL TO ENSURE COMPOSITE ACTION BETWEEN PANEL AND THE CAST-IN-PLACE CONCRETE. SHEAR REINFORCEMENT SHALL BE MADE OF WELDED WIRE HAVING A MINIMUM YIELD STRENGTH OF 60 KSI.
6. SHEAR REINFORCEMENT AND LIFTING DEVICES SHALL BE CONSTRUCTED AND PLACED SO AS TO AVOID ANY INTERFERENCE WITH REINFORCING STEEL IN THE CAST-IN-PLACE DECK SLAB AND TO ALLOW FOR PROPER CONCRETE CONSOLIDATION IN THE DECK PANEL.
7. SHIFT LONGITUDINAL "B" BARS AS NECESSARY TO OBTAIN A MINIMUM CLEAR DISTANCE OF 2 1/2" TO THE RIGHT OR LEFT OF THE EDGE OF THE DECK PANEL. IF, IN SHIFTING TO OBTAIN THIS CLEARANCE, THE "B" BAR INTERFERES WITH THE STIRRUP IN THE TOP OF THE GIRDER THE "B" BAR MAY BE ELIMINATED.
8. WHEN CASTING THE DECK, PLACE CONCRETE FIRST OVER THE GIRDERS IN CONTINUOUS STRIPS A MINIMUM OF THREE PANEL LENGTHS AHEAD OF THE REST OF THE CONCRETE. CAREFULLY VIBRATE THE CONCRETE OVER THE GIRDERS SO THAT CONCRETE COMPLETELY FILLS THE AREA UNDER THE DECK PANEL OVERHANGS. THEN PLACE AND VIBRATE THE REMAINING DECK CONCRETE.



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 STATION: 177+67.00 -L-

STATE OF NORTH CAROLINA
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 STANDARD
**PRECAST PRESTRESSED
 CONCRETE DECK PANELS**
 (LEFT LANE)



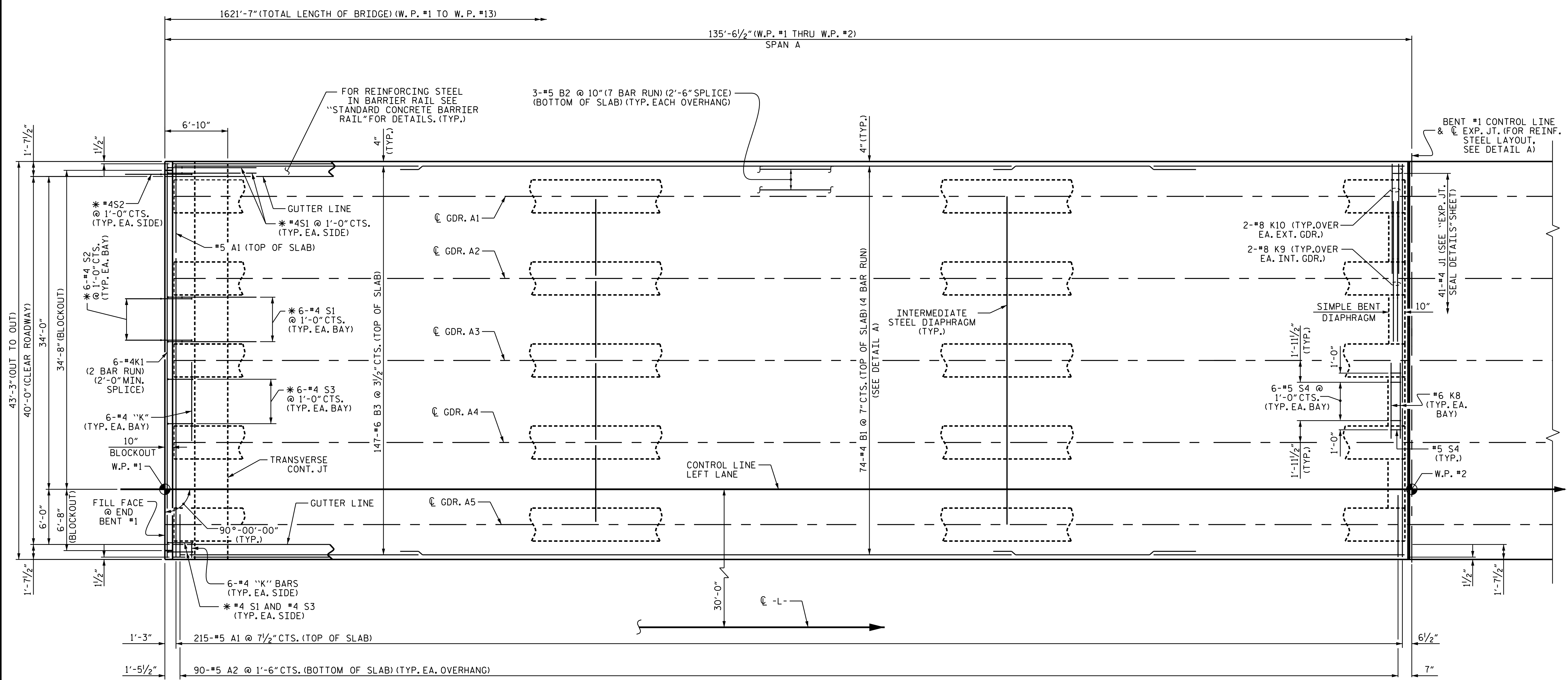
DRAWN BY : J. B. W. DATE : 7/9/2018
 CHECKED BY : S. K. C. DATE : 7/9/2018
 DESIGN ENGINEER OF RECORD: T. L. B., PE DATE : 08/29/18

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1			3			TOTAL SHEETS
2			4			46

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PLAN OF SPAN A

NOTES

FOR PLACEMENT OF #4 J1 BAR, SEE "EXPANSION JOINT SEAL DETAILS" SHEETS.

* #4 S1, #4 S2, & #4 S3 TO MATCH WITH #4 "K" BARS IN INTEGRAL END BENT CAP. FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "GIRDER LAYOUT"

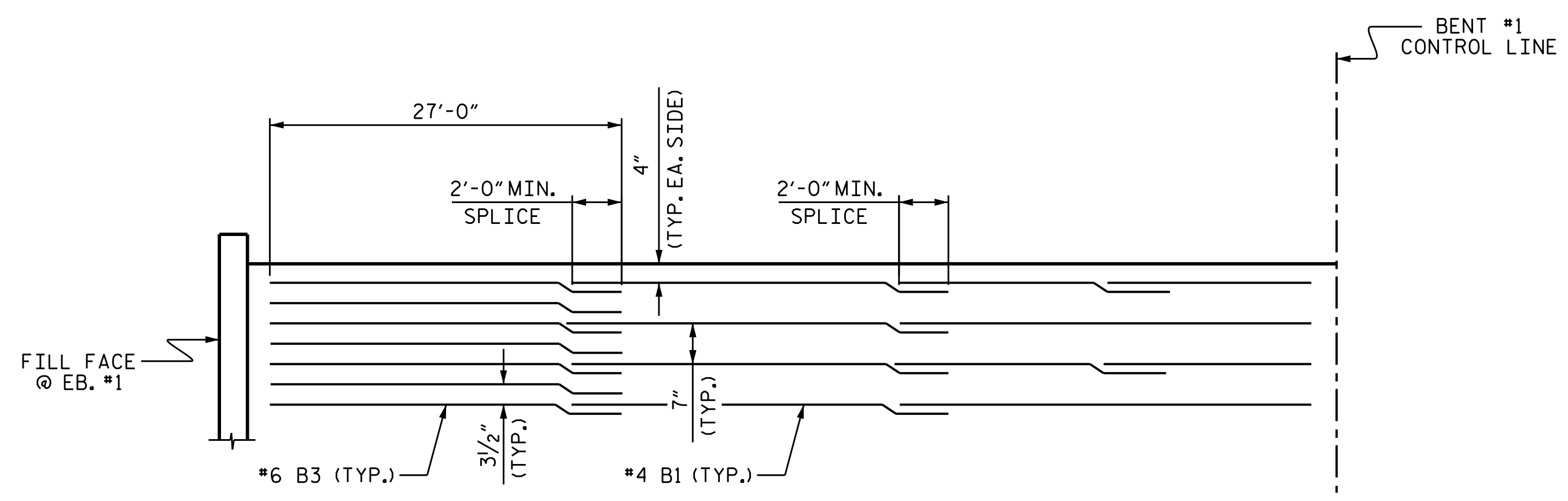
SEE SHEET S5-31 FOR TRANSVERSE CONSTRUCTION JT. DETAIL

PROJECT NO. R-1015
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SHEET 1 OF 6

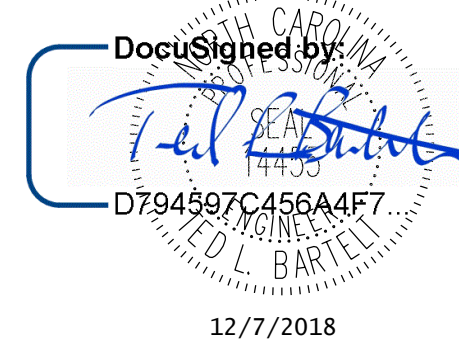
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 DEPARTMENT OF TRANSPORTATION
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SUPERSTRUCTURE
 PLAN OF SPAN A
 (LEFT LANE)



DETAIL "A"
 "B" BARS DETAILS

DRAWN BY : J. B. W. DATE : 6/21/2018
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 DESIGN ENGINEER OF RECORD: T.L.B., PE DATE : 8/28/18



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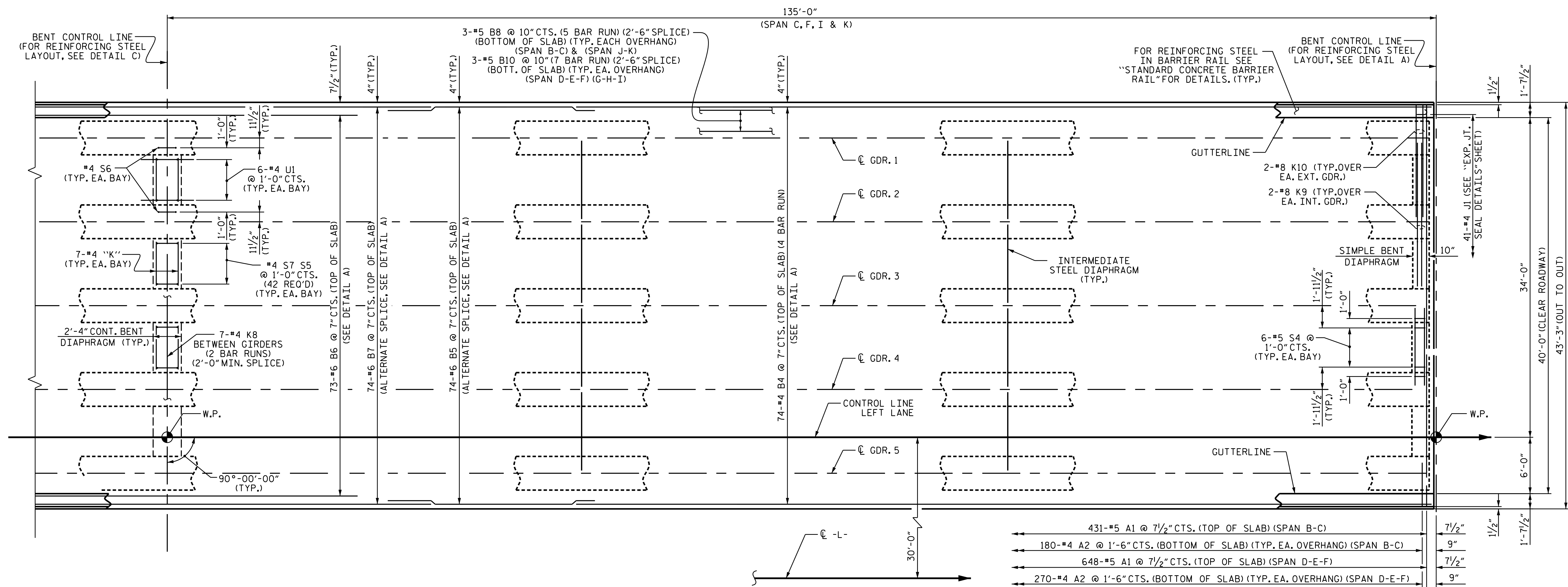
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2			4			46

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STRUCTURE NO. 5

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1621'-7" (TOTAL LENGTH OF BRIDGE) (W. P. #1 TO W. P. #13)



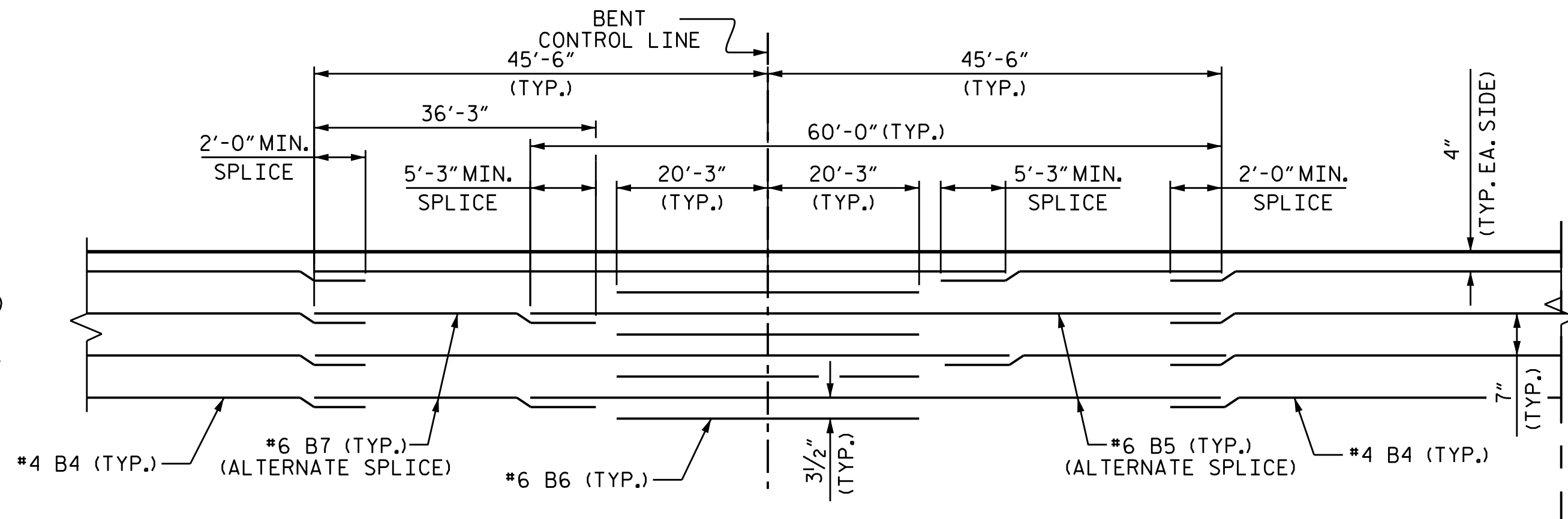
PLAN OF SPAN C, F, I, & K

431-#5 A1 @ 7/2" CTS. (TOP OF SLAB) (SPAN B-C)	7 1/2"
180-#4 A2 @ 1'-6" CTS. (BOTTOM OF SLAB) (TYP. EA. OVERHANG) (SPAN B-C)	9"
648-#5 A1 @ 7/2" CTS. (TOP OF SLAB) (SPAN D-E-F)	7 1/2"
270-#4 A2 @ 1'-6" CTS. (BOTTOM OF SLAB) (TYP. EA. OVERHANG) (SPAN D-E-F)	9"
431-#5 A1 @ 7/2" CTS. (TOP OF SLAB) (SPAN J-K)	7 1/2"
180-#5 A2 @ 1'-6" CTS. (BOTTOM OF SLAB) (TYP. EA. OVERHANG) (SPAN J-K)	9"
648-#5 A1 @ 7/2" CTS. (TOP OF SLAB) (SPAN G-H-I)	7 1/2"
270-#5 A2 @ 1'-6" CTS. (BOTTOM OF SLAB) (TYP. EA. OVERHANG) (SPAN G-H-I)	9"

NOTES

FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "GIRDER LAYOUT" SHEETS. FOR DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 74" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS" SHEET.

FOR PLACEMENT OF #4 J1 BAR, SEE "EXPANSION JOINT SEAL DETAILS" SHEETS.



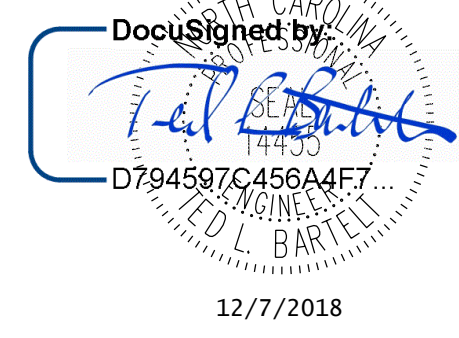
DETAIL C AT BENT 2, 5, 8, & 10

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: 177+67.00 -L-

SHEET 3 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPANS
 C, F, I, AND K
 (LEFT LANE)



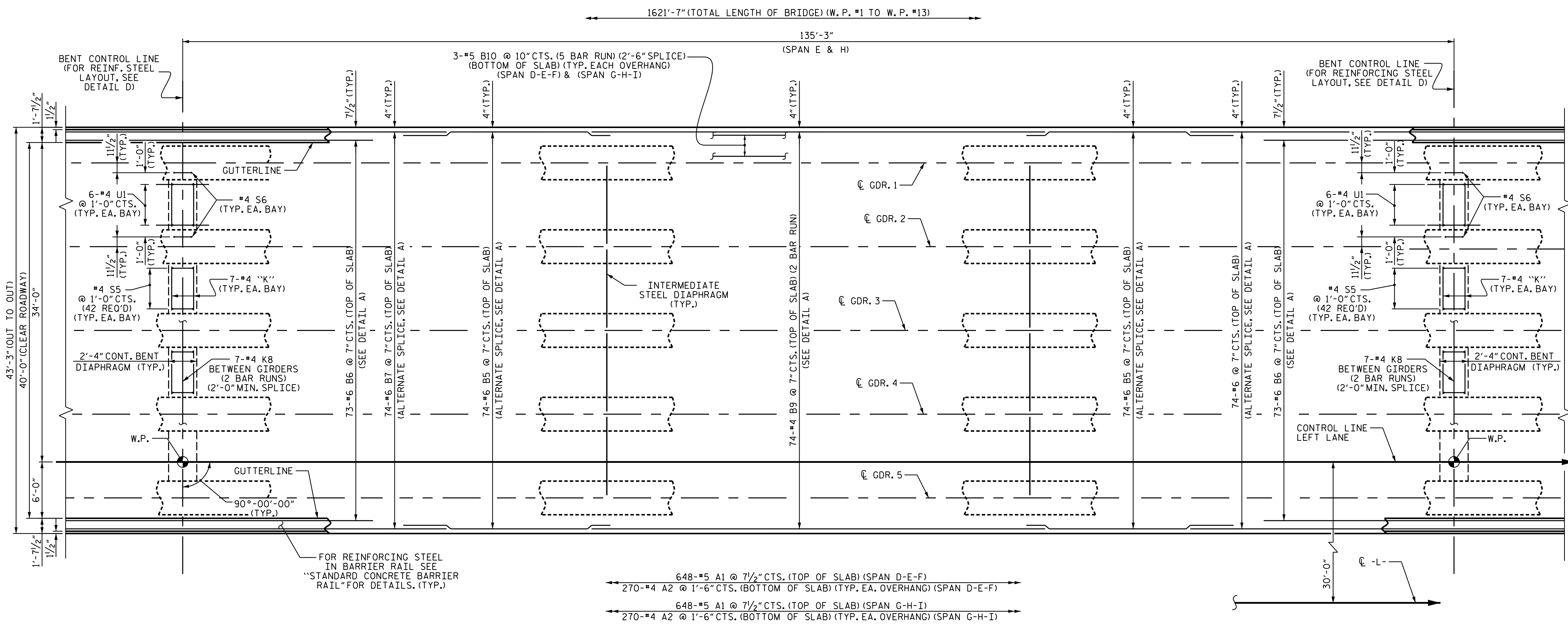
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2			4			STRUCTURE NO. 5

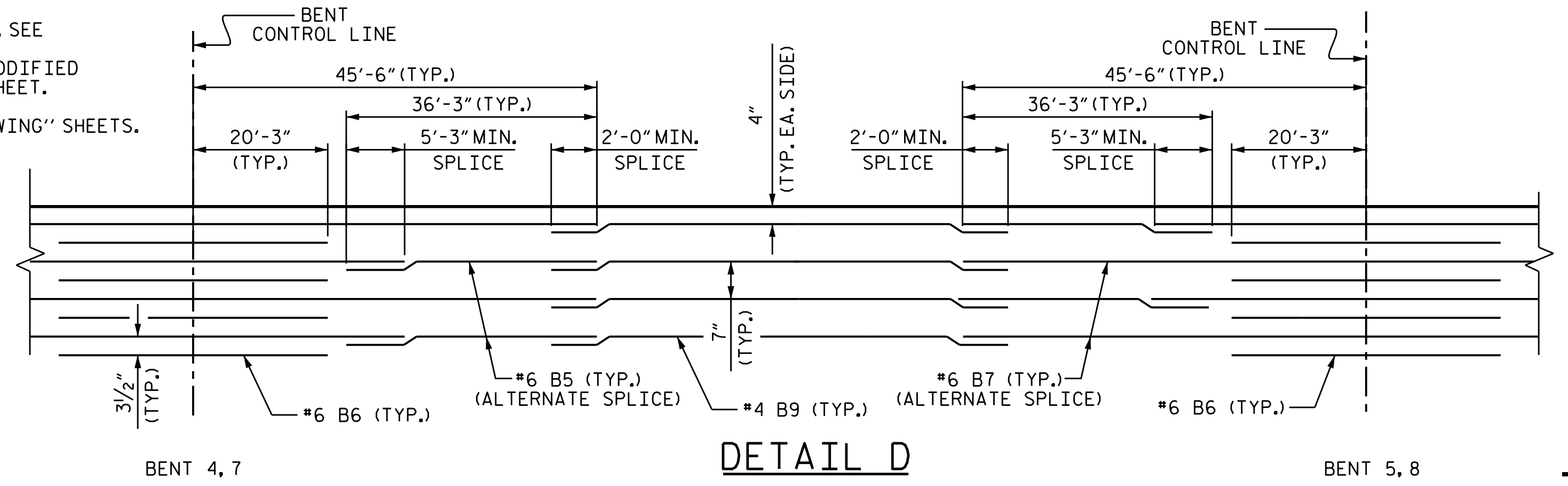


PLAN OF SPAN E AND H

NOTES

FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "GIRDER LAYOUT" SHEETS. FOR DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 74" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS" SHEET.

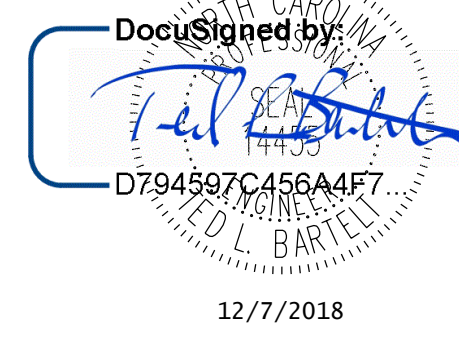
FOR WORK POINT NUMBERS, SEE "GENERAL DRAWING" SHEETS.



PROJECT NO. R-1015
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 STATION: 177+67.00 -L-

SHEET OF 4 OF 6

STATE OF NORTH CAROLINA
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 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPANS
 E & H
 (LEFT LANE)



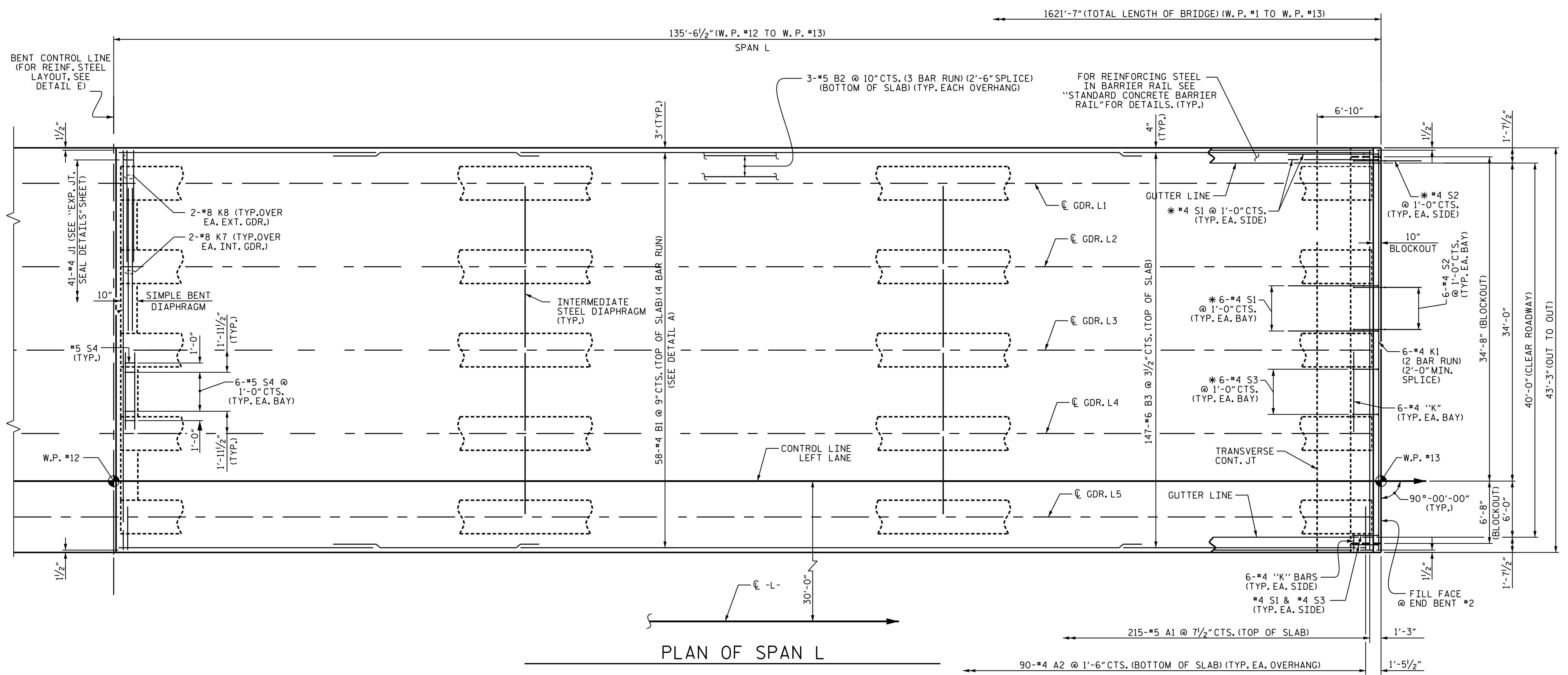
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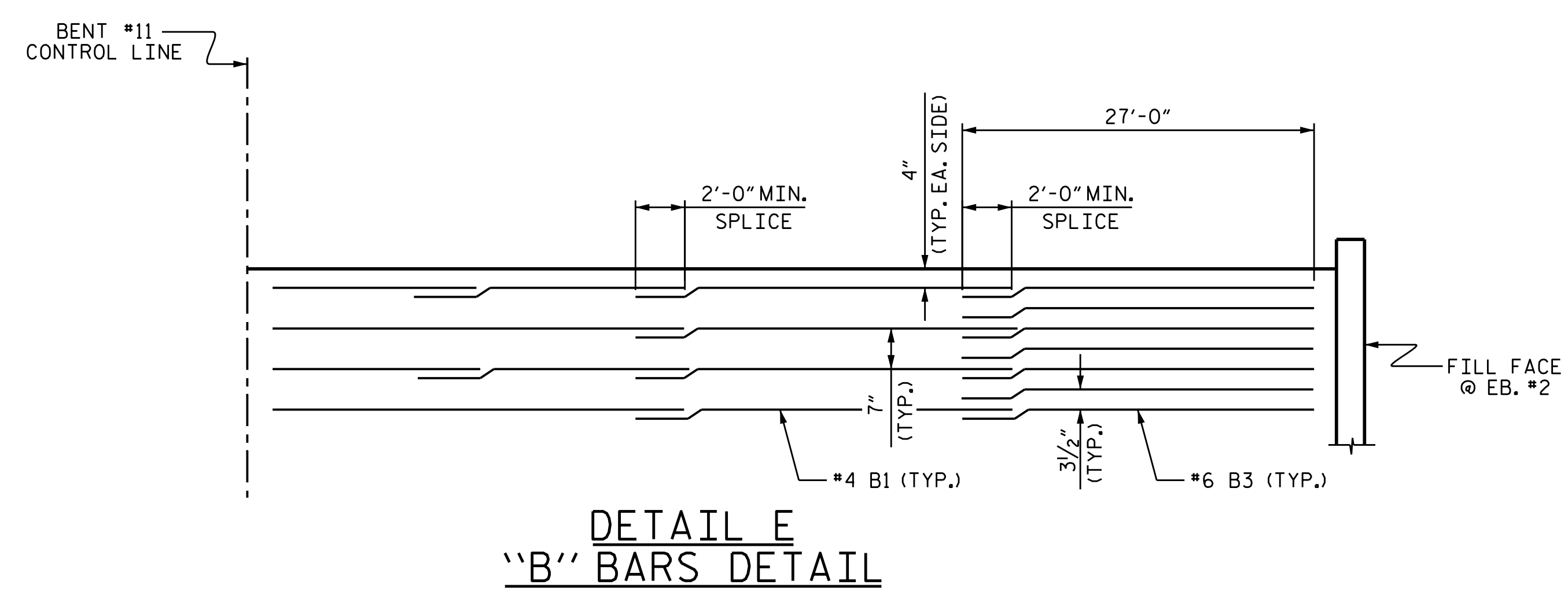
STRUCTURE NO. 5



PLAN OF SPAN L

NOTES

FOR PLACEMENT OF #4 J1 BAR, SEE "EXPANSION JOINT SEAL DETAILS" SHEETS.
 * #4 S1, #4 S2, & #4 S3 TO MATCH WITH #4 "D" BARS IN INTEGRAL END BENT CAP. FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "GIRDER LAYOUT"
 SEE SHEET S5-31 FOR TRANSVERSE CONSTRUCTION JT. DETAIL



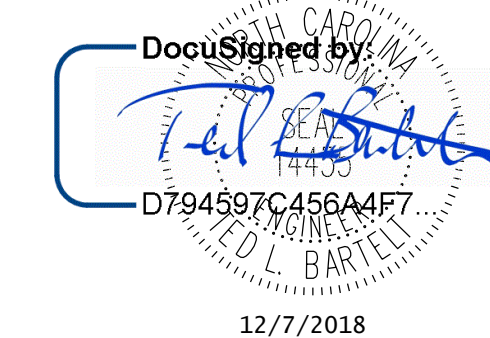
DETAIL E "B" BARS DETAIL

PROJECT NO. R-1015
 CRAVEN COUNTY
 STATION: 177+67.00 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE
 PLAN OF SPAN L
 (LEFT LANE)



DRAWN BY: S.G.S. DATE: 6/18/18
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1			3			TOTAL SHEETS
2			4			46