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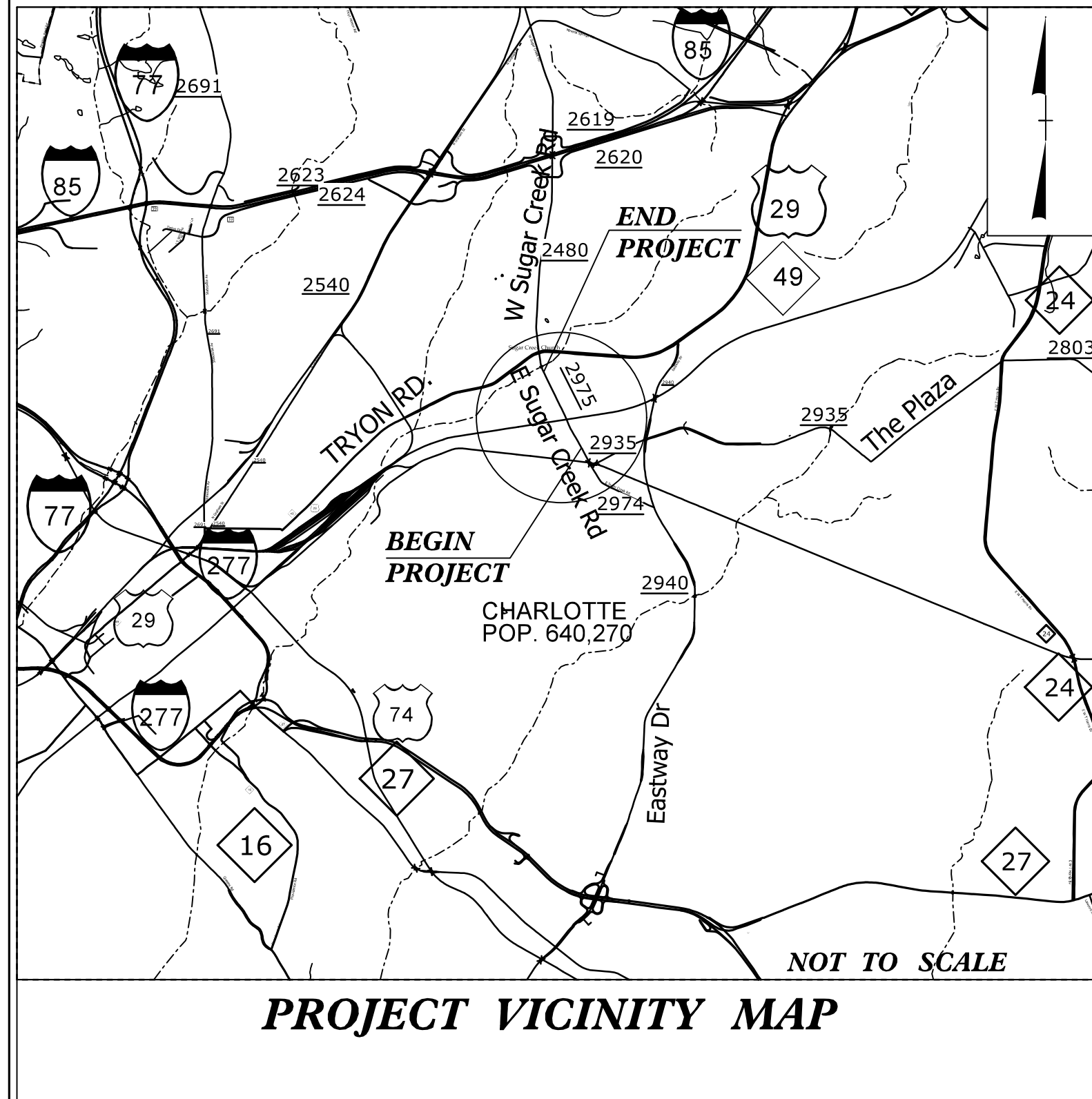
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0400DEL_P30
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TIP PROJECT: U-5008

CONTRACT: C203585



PROJECT VICINITY MAP

STATE OF NORTH CAROLINA
RAIL DIVISION

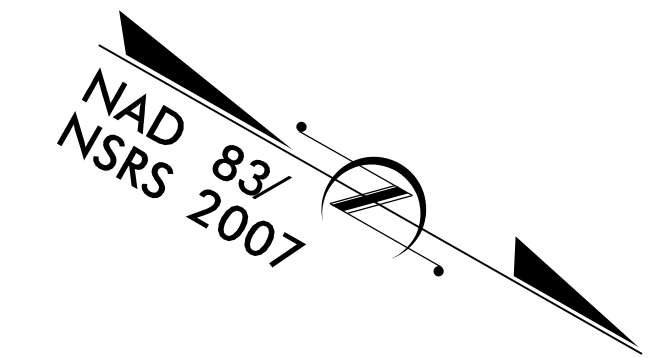
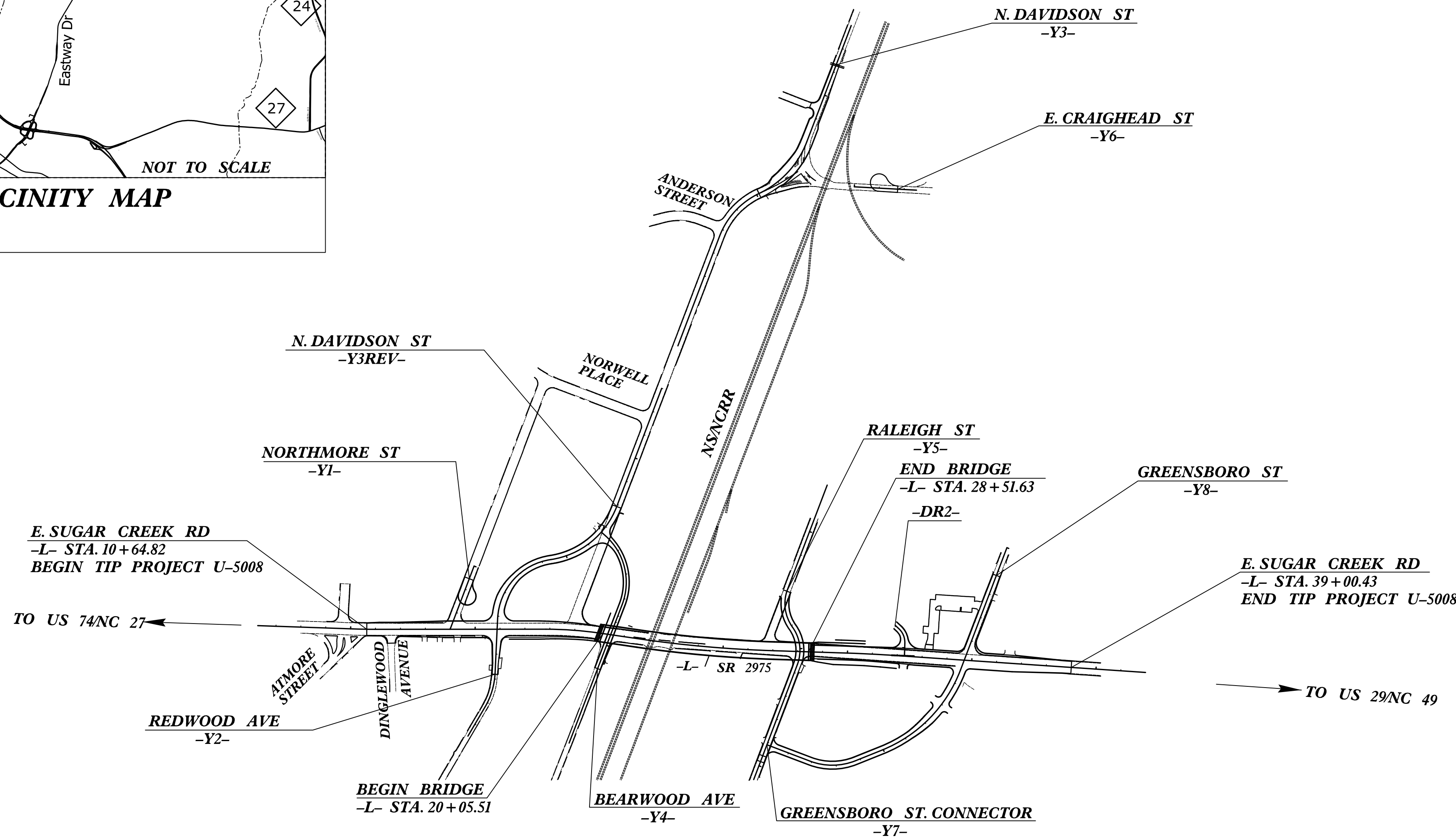
MECKLENBURG COUNTY

LOCATION: SR 2975 (EAST SUGAR CREEK ROAD) OVER NS/NCRR
CROSSING NO. 715 352H-GRADE SEPARATION

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



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5008		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41141.1.1		PE	
57500.2.FRA01		RW, UTIL-PE	
57500.3.FRA01T4A	FR-HSR-0033-11-01-00	CONST.	



STRUCTURES

DESIGN DATA

ADT 2015 =	25,500
ADT 2035 =	30,300
DHV =	8 %
D =	55 %
T =	12 % *
V =	40 MPH
* TTST = 4% DUAL = 8%	
FUNC CLASS =	
URBAN COLLECTOR	
SUBREGIONAL TIER	

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT U-5008 =	0.377 MI
LENGTH OF STRUCTURE TIP PROJECT U-5008 =	0.160 MI
TOTAL LENGTH OF TIP PROJECT U-5008 =	0.537 MI

Prepared In the Office of:

KCI ASSOCIATES OF NC, P.A.
9741 SOUTHERN PINE BLVD
SUITE J
CHARLOTTE, NC 28273
704-499-9452
NC LICENSE No. C-0764

2012 STANDARD SPECIFICATIONS

LETTING DATE:
August 18, 2015

DocuSigned by:
Jared C. Medlin
BAF5EE71A33B4F8...

8/11/2015

NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
ENGINEERING, CONSTRUCTION AND SAFETY
BRANCH
CAPITAL YARD
154 MAIL SERVICE CENTER
RALEIGH, NC 27699-1544

0400DEL_P30

TIP PROJECT: U-5008

CONTRACT: C203158

STATE OF NORTH CAROLINA
RAIL DIVISION

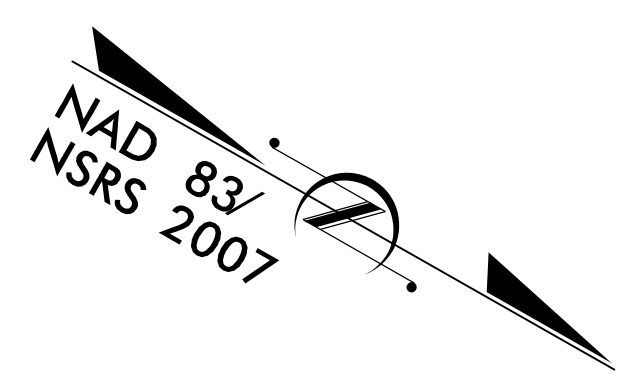
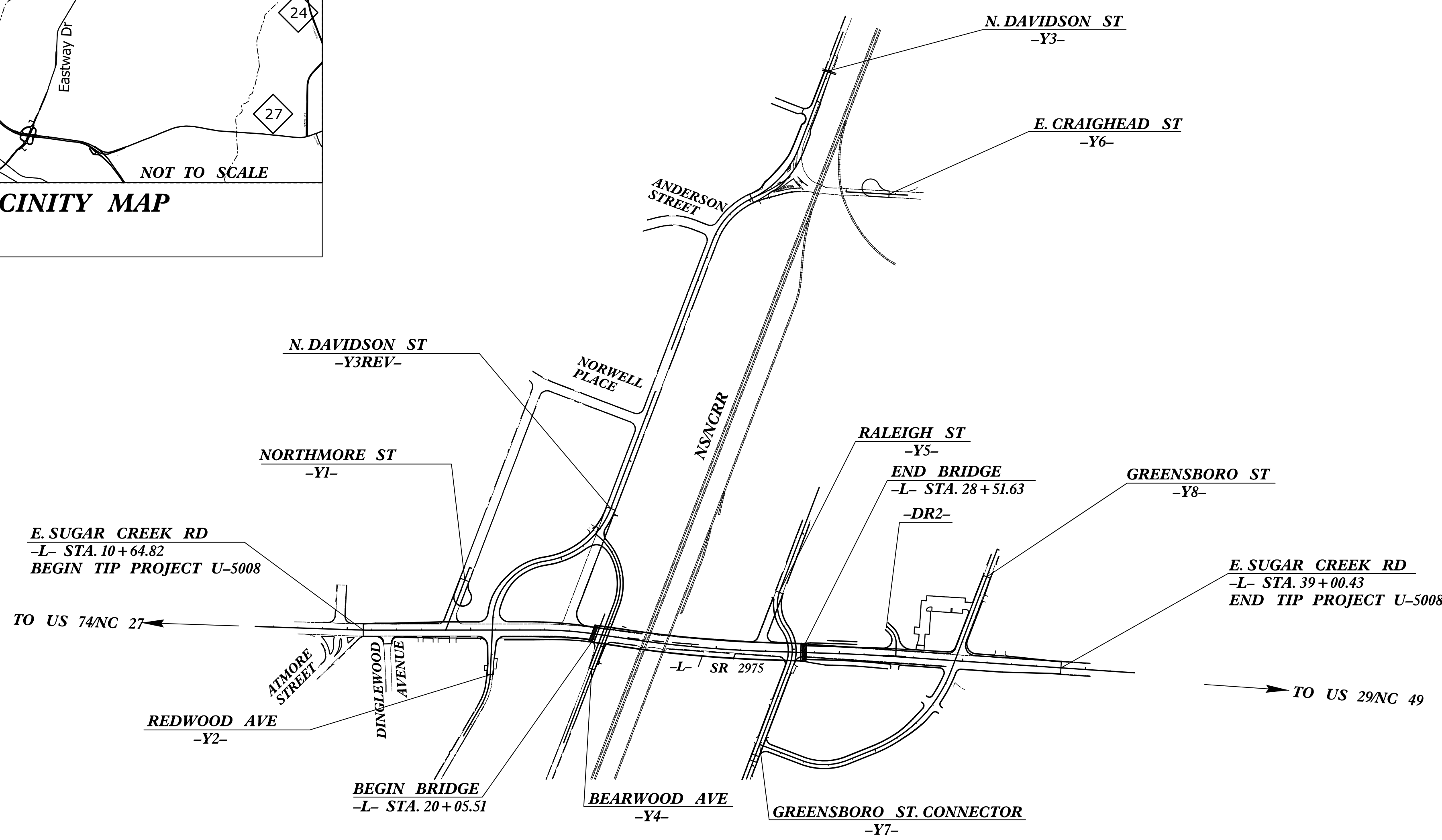
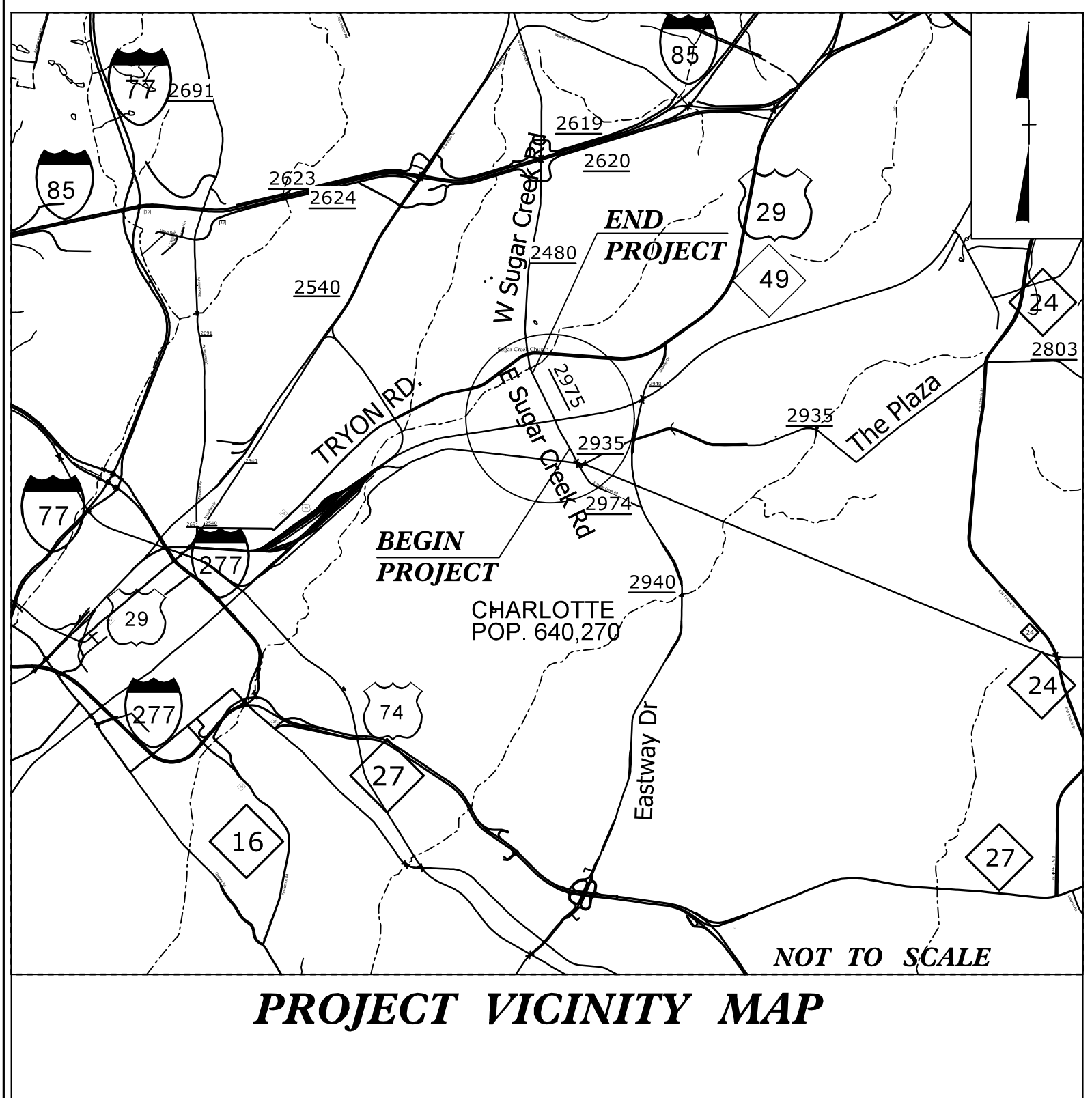
MECKLENBURG COUNTY

LOCATION: SR 2975 (EAST SUGAR CREEK ROAD) OVER NS/NCRR
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T	=	12 % *
V	=	40 MPH

* TTST = 4% DUAL = 8%
FUNC CLASS =
URBAN COLLECTOR
SUBREGIONAL TIER

PROJECT LENGTH

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Prepared In the Office of:

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CHARLOTTE, NC 28273
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2012 STANDARD SPECIFICATIONS

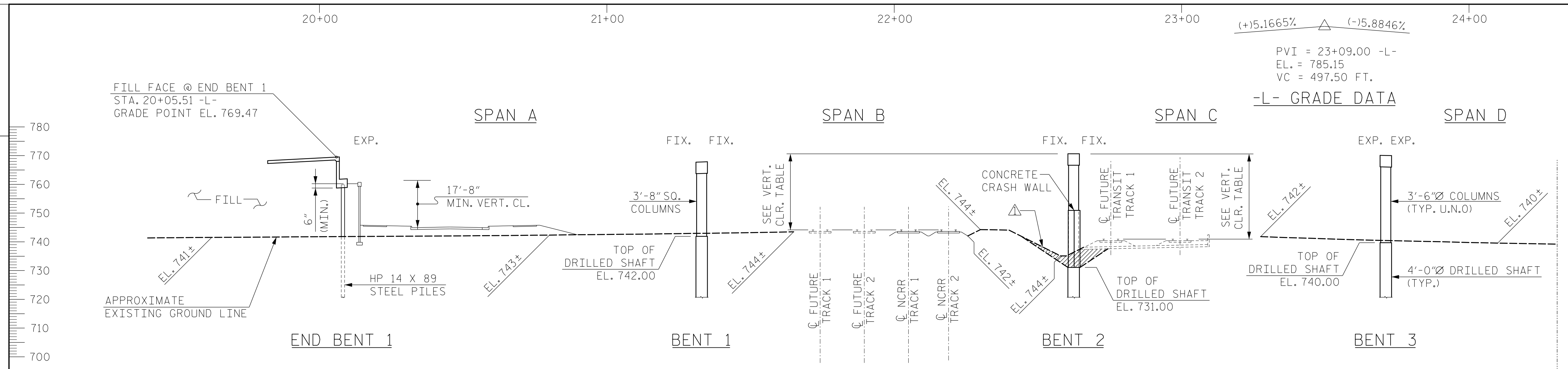
LETTING DATE:
August 18, 2015

DocuSigned by:
Jared C. Medlin
7/6/2015

NC DEPARTMENT OF
TRANSPORTATION
RAIL DIVISION

ENGINEERING, CONSTRUCTION AND SAFETY
BRANCH
CAPITAL YARD
154 MAIL SERVICE CENTER
RALEIGH, NC 27609-1544

0400DEL_P30



(+).1665% (-).8846%

PVI = 23+09.00 -L-
EL. = 785.15
VC = 497.50 FT.

-L- GRADE DATA

- RR TIE-EQUALITIES**
- ** (A) STA. 21+74.09 -L- P.O.C = STA. 16+92.46 -FTRK1- P.O.T.
 - ** (B) STA. 21+89.47 -L- P.O.C = STA. 16+89.06 -FTRK2- P.O.T.
 - (C) STA. 22+04.94 -L- P.O.C = STA. 16+85.61 -TRK1- P.O.T.
 - (D) STA. 22+18.83 -L- P.O.C = STA. 16+88.58 -TRK2- P.O.T.
 - (E) STA. 22+75.42 -L- P.O.C = STA. 1174+05.23 -FTNTRK1- P.O.T.
 - (F) STA. 22+99.37 -L- P.O.C = STA. 1174+10.48 -FTNTRK2- P.O.T.

VERTICAL CLEARANCE

RAIL	MIN. CLR.
-NCRR TRACK 1-	24'-11"
-NCRR TRACK 2-	25'-4"
** -FUTURE TRACK 1-	24'-3"
** -FUTURE TRACK 2-	24'-7"
-F. TRAN. TRK 1-	29'-6"
-F. TRAN. TRK 2-	29'-6"

-L- HORIZONTAL CURVE DATA

PI Sta 18+92.92	PI Sta 24+30.99
$\Delta = 8^\circ 22' 16.2''$ (RT)	$\Delta = 6^\circ 34' 11.2''$ (LT)
D = $3^\circ 52' 16.8''$	D = $1^\circ 11' 55.2''$
L = 216.23'	L = 548.10'
T = 108.31'	T = 274.35'
R = 1,480.00'	R = 4,780.00'

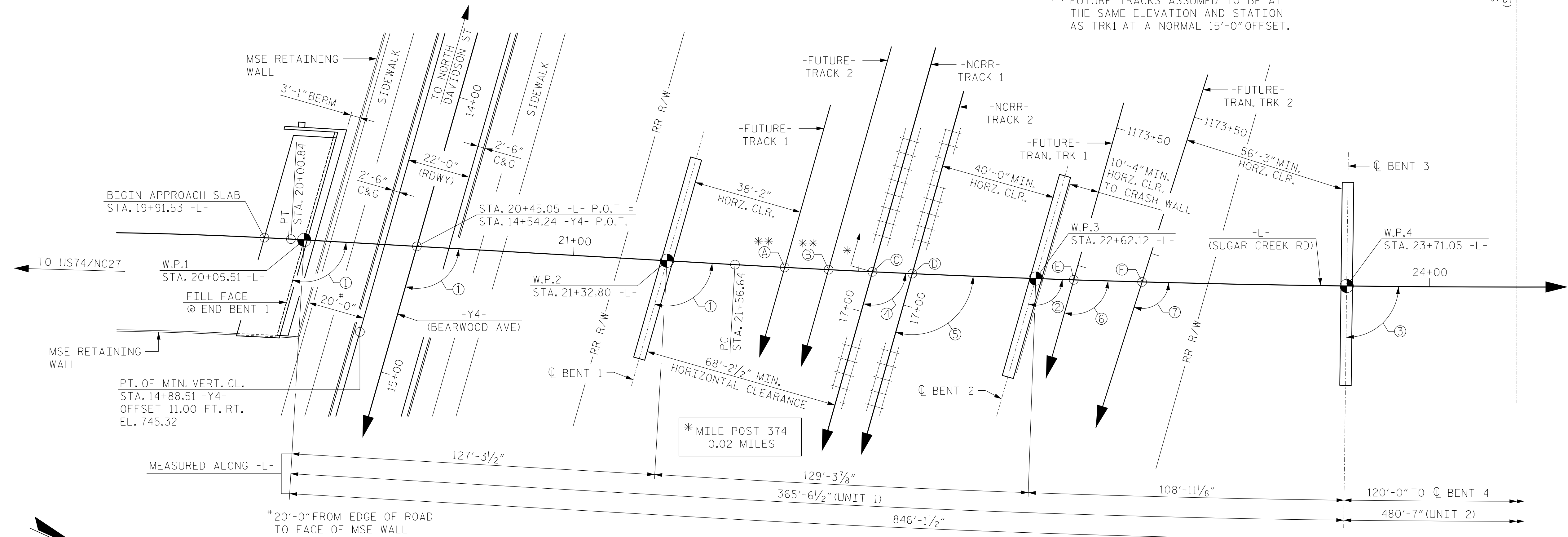
FOUNDATION EXCAVATION LIMITS (1.5:1 SLOPES NORMAL TO BENT)
 FOUNDATION EXCAVATION SHOWN ASSUMES TRACKS NOT IN PLACE AT TIME OF EXCAVATION. IF TRACKS ARE CONSTRUCTED AT THE TIME OF EXCAVATION, TEMPORARY RAILROAD SHORING WILL BE REQUIRED AND WILL BE PAID FOR AS SUPPLEMENTAL WORK.

** FUTURE TRACKS ASSUMED TO BE AT THE SAME ELEVATION AND STATION AS TRK1 AT A NORMAL 15'-0" OFFSET.

MATCH LINE
 STA. 24+30.69 -L-
 (SEE SHEET 2 OF 6)

ANGLES

- ① 102°37'9.4"
- ② 103°53'1" (TAN. TO CURVE)
- ③ 90°0'0" (TAN. TO CURVE)
- ④ 103°3'4.8" (TAN. TO CURVE)
- ⑤ 103°13'7.5" (TAN. TO CURVE)
- ⑥ 103°54'48.1" (TAN. TO CURVE)
- ⑦ 106°1'23.6" (TAN. TO CURVE)



-Y4- HORIZONTAL CURVE DATA

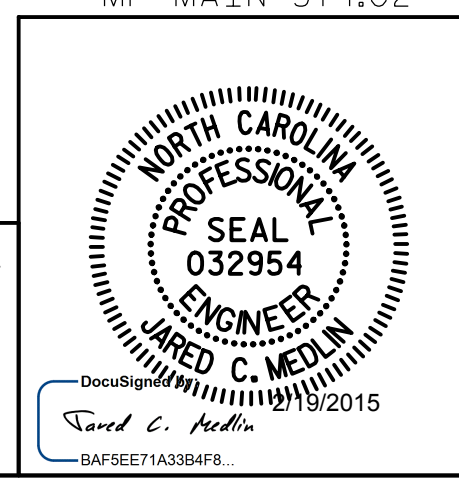
PI Sta 11+94.56
$\Delta = 69^\circ 18' 55.3''$ (RT)
D = $22^\circ 55' 05.9''$
L = 302.45'
T = 172.84'
R = 250.00'

PLAN
 (PILES & DRILLED PIERS NOT SHOWN IN PLAN VIEW)

PROJECT NO. U-5008
 MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.
 SHEET 1 OF 6 BRIDGE NO. 1317

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SUGAR CREEK RD
 OVER BEARWOOD AVE, NCR/NSRR,
 AND RALEIGH ST
 BTW US74/NC27 & US29/NC49

REVISIONS		SHEET NO.	
NO.	BY:	DATE:	NO.
1			S-1
2			SHEETS 78

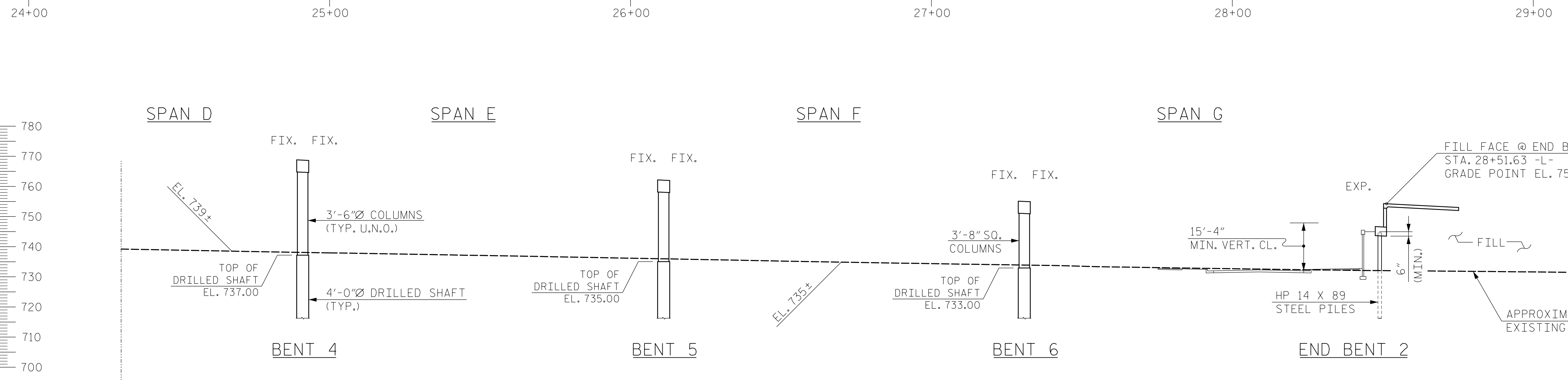


KCI ASSOCIATES OF NC, P.A.
 9741 SOUTHERN PINE BLVD
 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

DRAWN BY: D.L.KEENER DATE: SEP. 2013
 CHECKED BY: J.D.FITZMORRIS DATE: SEP. 2013

2/18/2015 Y:\D:\wings\2011 DWG\Structures\RFCS\SH01-U-5008_SD_PP-1.dgn

0400DEL_P30



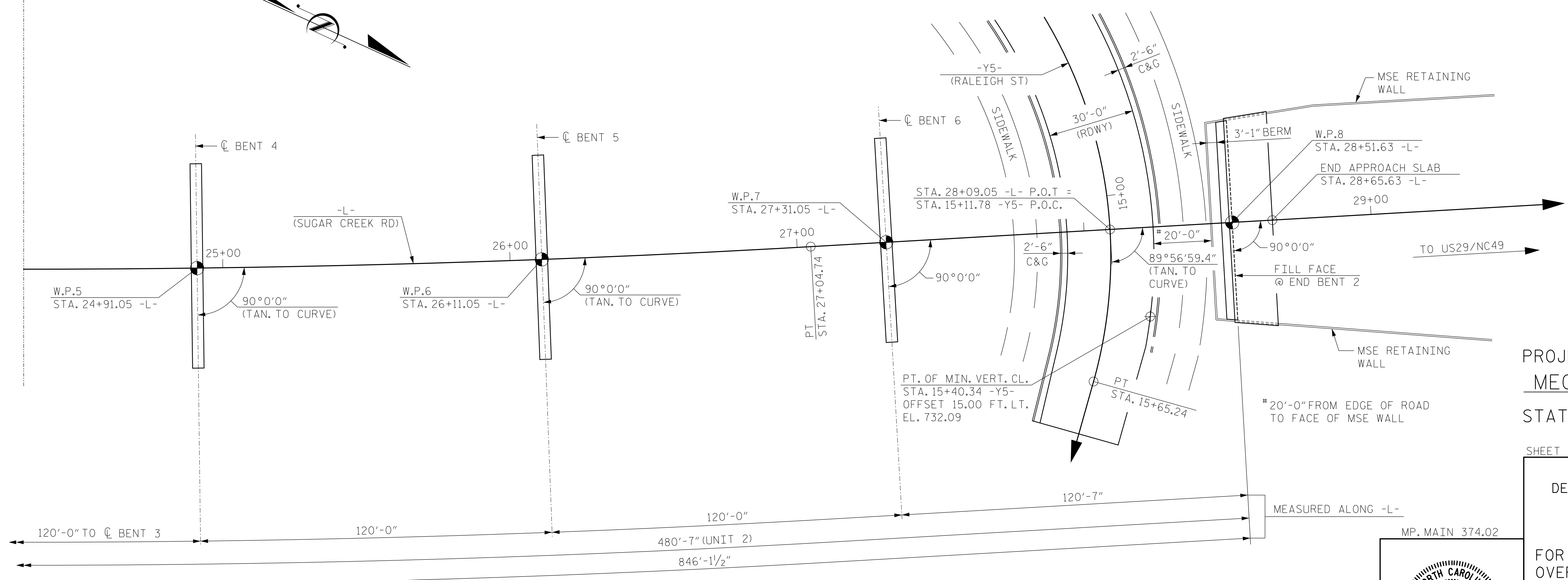
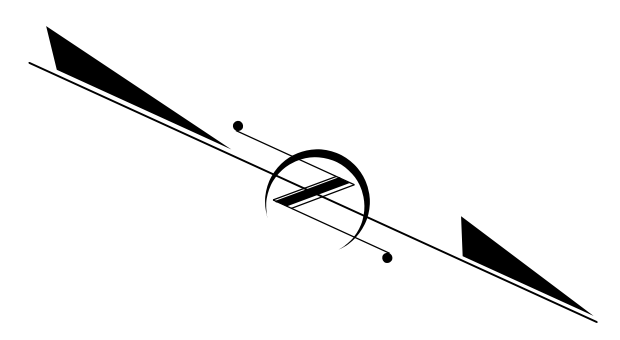
-Y5- HORIZONTAL CURVE DATA

PI Sta 14+93.12
 $\Delta = 56^\circ 25' 09.9''$ (RT)
 D = 35° 36' 48.3"
 L = 158.42'
 T = 86.30'
 R = 160.88'

-L- HORIZONTAL CURVE DATA

PI Sta 24+30.99
 $\Delta = 6^\circ 34' 11.2''$ (LT)
 D = 1° 11' 55.2"
 L = 548.10'
 T = 274.35'
 R = 4,780.00'

MATCH LINE
 STA. 24+30.69 -L-
 (SEE SHEET 1 OF 6)

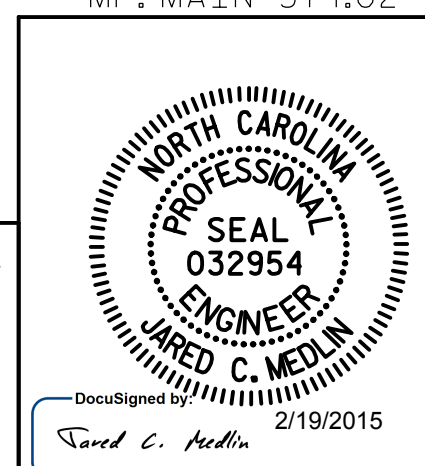


PLAN

(PILES & DRILLED PIERS NOT SHOWN IN PLAN VIEW)

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 2 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SUGAR CREEK RD
 OVER BEARWOOD AVE, NCRR/NSRR,
 AND RALEIGH ST
 BTW US74/NC27 & US29/NC49

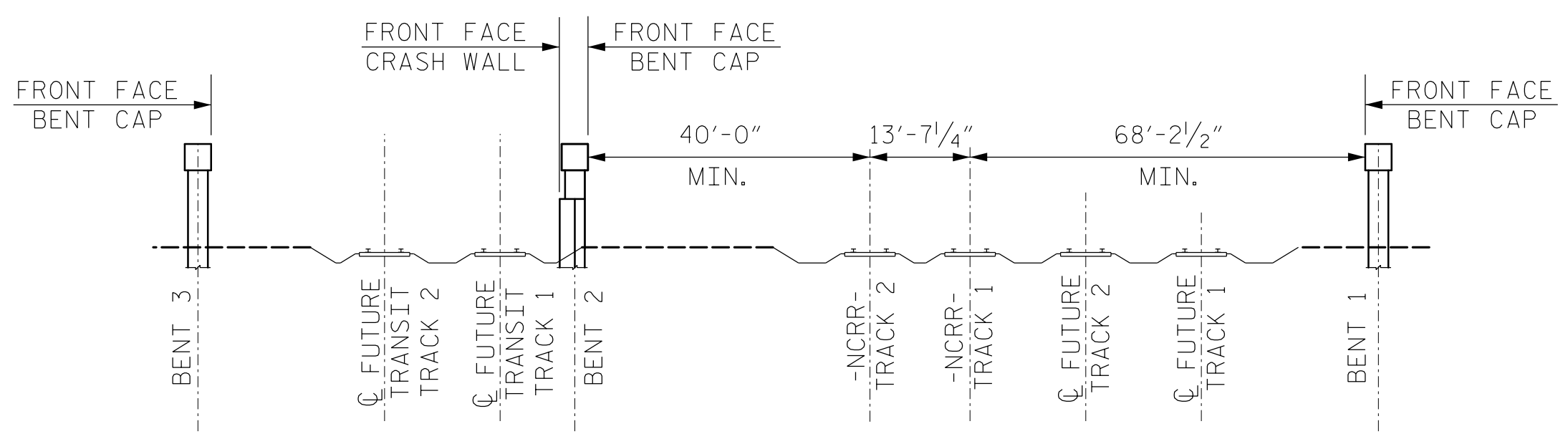


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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			SHEETS
2			4			78

2/18/2015 Y:\D:\Drawings\2011 DWG\Structures\RFC\SH02.U-5008.SD.LP-2.dgn

DRAWN BY: D.L.KEENER DATE: SEP. 2013
 CHECKED BY: J.D.FITZMORRIS DATE: SEP. 2013



MINIMUM HORIZONTAL CLEARANCES TO RAILROAD

SECTION THRU RAILROAD

LOOKING STATION AHEAD ALONG RAILROAD
SPAN LENGTHS BASED ON FUTURE RAILS ON THIS SECTION

STA.	TOP OF RAIL ELEVATIONS NCRRT			
	EL. NCRRT TRACK 1		EL. NCRRT TRACK 2	
	RT	LT	RT	LT
15+00	742.39	742.39	742.49	742.44
15+50	743.29	743.32	743.03	743.08
16+00	743.63	743.66	743.60	743.59
16+50	743.89	743.93	743.83	743.89
17+00	744.20	744.15	744.12	744.10
17+50	744.45	744.51	744.45	744.45
18+00	744.77	744.81	744.74	744.73
18+50	744.32	744.51	744.55	744.47
19+00	744.64	744.82	744.76	744.69
19+50	745.08	745.17	744.97	744.96
20+00	745.45	745.50	745.26	745.27

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.

FUTURE TRACKS ASSUMED TO BE AT THE SAME ELEVATION AND STATION AS TRK1 AT A NORMAL 15'-0" OFFSET.

① STA.	PROPOSED ELEVATIONS FOR TOP OF FUTURE TRANSIT TRACKS	
	EL. FUTURE TRANSIT TRACK 1	EL. FUTURE TRANSIT TRACK 2
1172+00	739.39	739.39
1172+50	739.82	739.82
1173+00	740.25	740.25
1173+50	740.64	740.64
1174+00	740.95	740.95
1174+50	741.19	741.19
1175+00	741.35	741.35
1175+50	741.48	741.48
1176+00	741.60	741.60

ONLY LIMITED PROPOSED INFORMATION FOR LIGHT RAIL ELEVATIONS SHOWN ARE AVAILABLE AT THIS TIME. CORRECTED OR MORE DETAILED DATA WILL BE ADDED OR MODIFIED WHEN UPDATED INFORMATION IS PROVIDED.

① STATION IS FOR FUTURE TRANSIT TRACK 1 (NORTHBOUND)

2/18/2015 1:10:07 PM Y:\D:\ewings\2011\DWG5\NB11-11_Sugar_Creek_Rd - NCDOT\Structures\RFC\SH03_U-5008_SD_PP-3.dgn

DRAWN BY : D.L.KEENER DATE : SEP. 2013
CHECKED BY : J.D.FITZMORRIS DATE : SEP. 2013

PROJECT NO. U-5008
MECKLENBURG COUNTY
STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.

SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SUGAR CREEK RD
OVER BEARWOOD AVE, NCRRT/NSRR,
AND RALEIGH ST
BTW US74/NC27 & US29/NC49

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

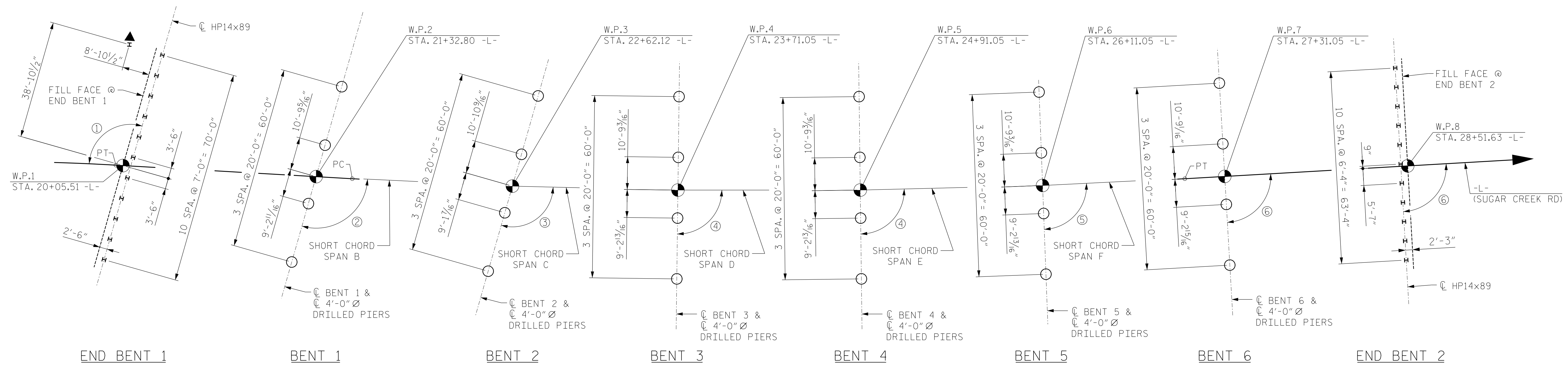
SHEET NO. S-3
SHEETS 78

KCI ASSOCIATES OF NC, P.A.
9741 SOUTHERN PINE BLVD
SUITE J
CHARLOTTE, NC 28273
704-499-9452
NC LICENSE No. C-0764

MP MAIN 374.02

Professional Engineer Seal: JARED C. MEDLIN, No. 032954, State of North Carolina, dated 2/19/2015.

0400DEL_P30



▲ - INDICATES PILE BATTERED 3:12 NORMAL TO WING WALL.

FOUNDATION LAYOUT

DIMENSIONS LOCATING THE PILES & DRILLED PIERS ARE TO THE CENTERLINE OF THE PILES & DRILLED PIERS.

ANGLES

- ① 102°37'9.4"
- ② 103°8'5.6" (TO SHORT CHORD)
- ③ 104°32'11.3" (TO SHORT CHORD)
- ④ 90°43'9.1" (TO SHORT CHORD)
- ⑤ 90°41'4.6" (TO SHORT CHORD)
- ⑥ 90°0'0"

FOUNDATION RECOMMENDATION NOTES

1. FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
2. PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 186 TONS PER PILE.
3. PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 176 TONS PER PILE.
4. DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 290 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAW.
5. DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 235 TONS PER PILE.
6. STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.1 AND END BENT NO.2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
7. IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 40,000 TO 55,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NO.1 AND END BENT NO.2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.
8. TESTING THE FIRST TWO PRODUCTION PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED FOR END BENT NO.1. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
9. TESTING THE FIRST TWO PRODUCTION PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED FOR END BENT NO.2. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
10. OBSERVE A 3 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT, END BENT AND REINFORCED BRIDGE APPROACH FILL, IF APPLICABLE, BEFORE BEGINNING APPROACH SLAB CONSTRUCTION AT END BENT NO.1.
11. OBSERVE A 1 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT, END BENT AND REINFORCED BRIDGE APPROACH FILL, IF APPLICABLE, BEFORE BEGINNING APPROACH SLAB CONSTRUCTION AT END BENT NO.2.
12. FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
13. DRILLED PIERS AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 894 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 30 TSF.

14. DRILLED PIERS AT BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 871 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 40 TSF.
15. DRILLED PIERS AT BENT NO.3 ARE DESIGNED FOR A FACTORED RESISTANCE OF 729 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 15 TSF.
16. DRILLED PIERS AT BENT NO.4 ARE DESIGNED FOR A FACTORED RESISTANCE OF 881 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 35 TSF.
17. DRILLED PIERS AT BENT NO.5 ARE DESIGNED FOR A FACTORED RESISTANCE OF 881 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 30 TSF.
18. DRILLED PIERS AT BENT NO.6 ARE DESIGNED FOR A FACTORED RESISTANCE OF 881 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 30 TSF.
19. INSTALL DRILLED PIERS AT BENT NO.1 TO A TIP ELEVATION NO HIGHER THAN +684 FT AND WITH THE REQUIRED TIP RESISTANCE.
20. INSTALL DRILLED PIERS AT BENT NO.2 TO A TIP ELEVATION NO HIGHER THAN +687 FT AND WITH THE REQUIRED TIP RESISTANCE.
21. INSTALL DRILLED PIERS AT BENT NO.3 TO A TIP ELEVATION NO HIGHER THAN +693 FT AND WITH THE REQUIRED TIP RESISTANCE.
22. INSTALL DRILLED PIERS AT BENT NO.4 TO A TIP ELEVATION NO HIGHER THAN +693 FT AND WITH THE REQUIRED TIP RESISTANCE.
23. INSTALL DRILLED PIERS AT BENT NO.5 TO A TIP ELEVATION NO HIGHER THAN +681 FT AND WITH THE REQUIRED TIP RESISTANCE.
24. INSTALL DRILLED PIERS AT BENT NO.6 TO A TIP ELEVATION NO HIGHER THAN +678 FT AND WITH THE REQUIRED TIP RESISTANCE.
25. PERMANENT STEEL CASINGS ARE REQUIRED FOR DRILLED PIERS AT BENT NO.2. DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION +718 FT WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
26. SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. FOR SID INSPECTIONS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
27. SPT MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SPT. FOR SPT TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

FOUNDATION RECOMMENDATION SPECIAL NOTES

1. INSTALL CROSSHOLE SONIC LOGGING (CSL) TUBES IN ALL DRILLED PIERS. CSL TEST A MINIMUM OF ONE DRILLED PIER PER BENT. IF A CSL TEST IDENTIFIES ANY DEFECT, THE ENGINEER WILL DETERMINE THE NEED FOR ADDITIONAL CSL TESTING. THE ENGINEER WILL DETERMINE WHICH PIERS WILL BE CSL TESTED. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
2. INSPECT DRILLED PIERS USING THE SHAFT INSPECTION DEVICE (SID) FOR ANY POUR USING THE WET METHOD OF CONCRETE PLACEMENT AND FOR ANY DRILLED PIER EXCAVATIONS THAT CANNOT BE VISUALLY INSPECTED OR HAVE REMAINED OPEN LONGER THAN 24 HOURS THAT CANNOT BE DEWATERED DUE TO UNSTABLE SOIL OR ROCK.
3. A RESISTANCE FACTOR OF 0.75 WAS USED TO CALCULATE THE REQUIRED DRIVING RESISTANCE AT END BENT NO.1 AND END BENT NO.2. THE REQUIRED NUMBER OF PDA TESTS SHOWN IN 'FOUNDATION RECOMMENDATION NOTES ON PLANS' NOTES NO.8 AND NO.9 SHALL BE PERFORMED TO USE THIS RESISTANCE FACTOR.
4. DRIVE PILES AT END BENT NO.1 BEFORE CONSTRUCTING MSE WALL NO.3.
5. DRIVE PILES AT END BENT NO.2 BEFORE CONSTRUCTING MSE WALL NO.1.
6. USE OF PILE SLEEVES (YELLOW JACKET OR SIMILAR) OR INSTALLATION OF CORRUGATED METAL CANS AROUND THE PILES FROM THE BOTTOM OF THE PILE CAP TO THE LEVELING PAD ELEVATION IS REQUIRED FOR PILES AT END BENT NO.1 AND END BENT NO.2. THE CANS SHALL BE DESIGNED TO WITHSTAND THE PRESSURES FROM COMPACTION OPERATIONS ON ADJACENT FILL WITHOUT DISTORTION.
7. BACKFILL CORRUGATED METAL CANS WITH LOOSE SAND PRIOR TO CONSTRUCTION OF THE END BENT PILE CAP.
8. THE CONTRACTOR SHOULD EXPECT VARIATION IN DRIVEN PILE LENGTHS OF APPROXIMATELY 25 FT (±) BETWEEN THE LEFT AND RIGHT SIDES OF THE BENT AT END BENT NO.1 DUE TO SLOPING ROCKLINE
9. THE CONTRACTOR SHOULD EXPECT VARIATION IN DRIVEN PILE LENGTHS OF APPROXIMATELY 15 FT (±) BETWEEN THE LEFT AND RIGHT SIDES OF THE BENT AT END BENT NO.2 DUE TO SLOPING ROCKLINE

2/18/2015 1:00:00 PM Y:\00-Drawings\2011\DWG\Structures\RFC\Sugar Creek Rd - NCDOT\Structures\RFC\Sugar Creek Rd - U-5008_SD_FL.dgn

DRAWN BY: D.J.DICK DATE: OCT. 2014
 CHECKED BY: J.C.MEDLIN DATE: OCT. 2014

KCI ASSOCIATES OF NC, P.A.
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 704-499-9452
 NC LICENSE NO. C-0764

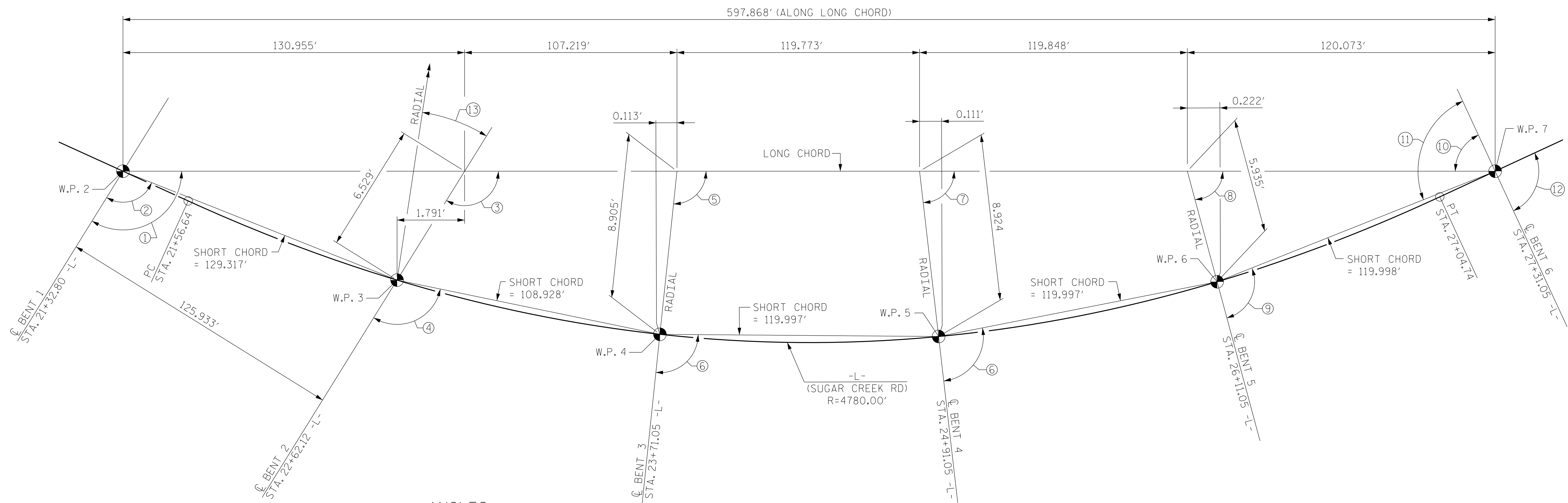
MP MAIN 374.02

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 4 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SUGAR CREEK RD
 OVER BEARWOOD AVE, NCRR/NSRR,
 AND RALEIGH ST
 BTW US74/NC27 & US29/NC49

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			SHEETS
2			4			78

2/18/2015 Y:\D:\ewings\2011\DWG\Structures\RFC\SH05_U-5008_SD.LC.dgn



ANGLES

- ① 105°55'3.9"
- ② 103°8'5.6" (TO SHORT CHORD)
- ③ 105°55'3.9"
- ④ 104°32'11.3"
- ⑤ 90°43'42.4"
- ⑥ 90°43'9.1"
- ⑦ 89°17'24.2"
- ⑧ 87°51'6.0"
- ⑨ 90°41'4.6"
- ⑩ 86°43'43.2"
- ⑪ 89°33'41.8"
- ⑫ 90°0'0"
- ⑬ 13°53'1"

LONG CHORD LAYOUT

END BENT 1, BENT 1 & BENT 2 ARE PARALLEL.
 BENTS 3, 4, & 5 ARE RADIAL.
 BENT 6 & END BENT 2 ARE PARALLEL.

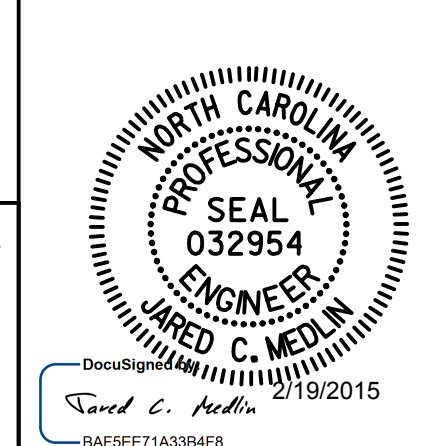
-L- HORIZONTAL CURVE DATA

PI STA. 24+30.99
 $\Delta = 6^\circ 34' 11.2''$ (LT)
 $D = 1^\circ 11' 55.2''$
 $L = 548.10'$
 $T = 274.35'$
 $R = 4,780.00'$

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 5 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SUGAR CREEK RD
 OVER BEARWOOD AVE, NCRR/NSRR,
 AND RALEIGH ST
 BTW US74/NC27 & US29/NC49

MP. MAIN 374.02



KCI ASSOCIATES OF NC, P.A.
 9741 SOUTHERN PINE BLVD
 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			SHEETS
2			4			78

DRAWN BY : D.L.KEENER DATE : SEP. 2013
 CHECKED BY : J.D.FITZMORRIS DATE : SEP. 2013

TOTAL BILL OF MATERIAL

	FOUNDATION EXCAVATION	4'-0" DIA. DRILLED PIERS IN SOIL	4'-0" DIA. DRILLED PIERS NOT IN SOIL	PERM. STEEL CASING FOR 4'-0" Ø DRILLED PIER	PDA TESTING	SID TESTING	SPT TESTING	CSL TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE (BRIDGE)	BRIDGE APPROACH SLABS	REINFORCING STEEL (BRIDGE)	SPIRAL COLUMN REINFORCING STEEL	MODIFIED 72" PRESTRESSED CONC. GIRDERS	HP14x89 STEEL PILES	STEEL PILE POINTS	TWO BAR METAL RAIL	1'-2" x 2'-6" CONCRETE PARAPET	72" CHAIN LINK FENCE	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS	ELECTRICAL CONDUIT SYSTEM FOR SIGNALS	ELECTRICAL CONDUIT SYSTEM	ARCHITECTURAL CONCRETE SURFACE FINISH		
	CU. YDS.	LIN.FT.	LIN.FT.	LIN.FT.	EA.	EA.	EA.	EA.	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN.FT.	NO.	LIN.FT.	EA.	LIN.FT.	LIN.FT.	SO. YDS.	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	
SUPERSTRUCTURE									59,971	44,413		LUMP SUM			56	6,699.7				2,718.3	1,687.2	470.0		LUMP SUM	LUMP SUM	LUMP SUM		
END BENT NO. 1					2						71.3		9,418			12	720	12				40						
BENT NO. 1		158	74								99.8		39,747	8,007														
BENT NO. 2	45	74	102	52							228.2		45,844	8,108														
BENT NO. 3		140	48								90.4		33,708	7,389														
BENT NO. 4		108	68								89.7		32,878	6,992														
BENT NO. 5		168	48								83.2		36,216	7,510														
BENT NO. 6		131	89								84.0		36,428	7,069														
END BENT NO. 2					2						55.5		8,032			11	475	11				25						
TOTAL	45	779	429	52	4	6	6	6	59,971	44,413	802.1	LUMP SUM	242,271	45,075	56	6,699.7	23	1,195	23	2,718.3	1,687.2	470.0	65	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM

GENERAL NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING. FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1. THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS:
 FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS. NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN. PRESTRESSED CONCRETE DECK PANELS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS. REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS. THE RAILROAD TRACK TOP OF RAIL ELEVATIONS 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.

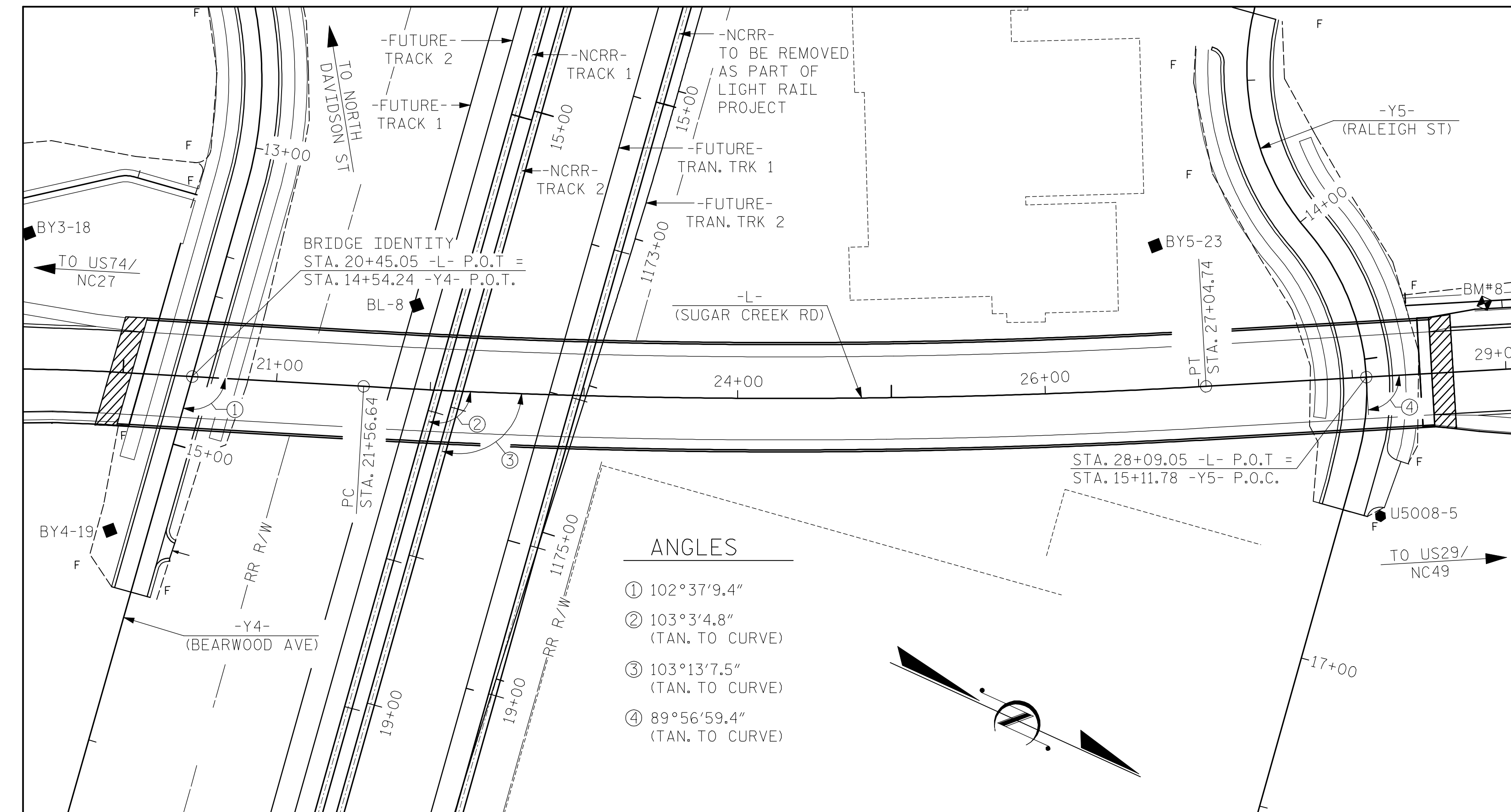
THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.

FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.



CONTROL DATUM

BM#8: N 551856, E 1464969; EL 732.71; L STA 28+89, 44 LT (RR SPIKE IN BASE OF 18" MAPLE)

BL-8: N 551226.4580, E 1465274.9220; EL 743.52; Y4 STA 13+85.60, 126.56 LT

BY3-18: N 550976.0330, E 1465321.2020; EL 742.15; OUTSIDE PROJECT LIMITS

BY4-19: N 551104.4250, E 1465475.0100; EL 746.09; Y4 STA 15+65.03, 24.20 RT

BY5-23: N 551645.7610, E 1465024.1500; EL 733.09; Y5 STA 13+69.86, 87.80 RT

U5008-5: N 551852.0820, E 1465123.3050; EL 732.12; L STA 28+13.07, 90.81 RT

U5008-5: N 551852.0820, E 1465123.3050; EL 732.12; Y5 STA 15+97.33, 24.55 LT

PROJECT NO. U-5008

MECKLENBURG COUNTY

STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.

SHEET 6 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SUGAR CREEK RD
 OVER BEARWOOD AVE, NCRR/NSRR,
 AND RALEIGH ST
 BTW US74/NC27 & US29/NC49

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

S-6
 SHEETS 78

KCI ASSOCIATES OF NC, P.A.
 9741 SOUTHERN PINE BLVD
 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

MP. MAIN 374.02

Professional Engineer Seal: JARED C. MEDLIN, No. 032954, 7/8/2015

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 (FF)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FF)	LIVE-LOAD FACTORS (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (FF)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.14	--	1.75	0.86	1.51	A	EL	49.30	0.89	1.96	A	EL	24.30	0.80	0.86	1.14	A	EL	49.30		
	HL-93 (OPERATING)	N/A		1.95	--	1.35	0.86	1.95	A	EL	49.30	0.93	2.51	A	I	36.80	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.67	60.12	1.75	0.86	2.21	A	EL	49.30	0.93	2.52	A	I	36.80	0.80	0.86	1.67	A	EL	49.30		
	HS-20 (OPERATING)	36.000		2.87	103.32	1.35	0.86	2.87	A	EL	49.30	0.93	3.22	A	I	36.80	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13,500		4.03	54.41	1.40	0.86	6.65	A	EL	49.30	0.93	6.92	A	I	36.80	0.80	0.86	4.03	A	EL	49.30	
		SNGARBS2	20,000		2.88	57.60	1.40	0.86	4.76	A	EL	49.30	0.93	5.05	A	I	36.80	0.80	0.86	2.88	A	EL	49.30	
		SNAGRIS2	22,000		2.68	58.96	1.40	0.86	4.43	A	EL	49.30	0.93	4.72	A	I	36.80	0.80	0.86	2.68	A	EL	49.30	
		SNCOTTS3	27,250		2.01	54.77	1.40	0.86	3.31	A	EL	49.30	0.93	3.66	A	I	36.80	0.80	0.86	2.01	A	EL	49.30	
		SNAGGRS4	34,925		1.63	56.93	1.40	0.86	2.69	A	EL	49.30	0.94	3.05	B	ER	89.20	0.80	0.86	1.63	A	EL	49.30	
		SNS5A	35,550		1.60	56.88	1.40	0.86	2.65	A	EL	49.30	0.94	2.89	B	ER	89.20	0.80	0.86	1.60	A	EL	49.30	
		SNS6A	39,950		1.45	57.93	1.40	0.86	2.39	A	EL	49.30	0.94	2.66	B	ER	89.20	0.80	0.86	1.45	A	EL	49.30	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	SNS7B	42,000		1.39	58.38	1.40	0.86	2.29	A	EL	49.30	0.94	2.62	B	ER	89.20	0.80	0.86	1.39	A	EL	49.30	
		TNAGRIT3	33,000		1.77	58.41	1.40	0.86	2.93	A	EL	49.30	0.93	3.26	A	I	86.81	0.80	0.86	1.77	A	EL	49.30	
		TNT4A	33,075		1.76	58.21	1.40	0.86	2.91	A	EL	49.30	0.93	3.17	A	I	86.81	0.80	0.86	1.76	A	EL	49.30	
		TNT6A	41,600		1.43	59.49	1.40	0.86	2.36	A	EL	49.30	0.93	2.90	A	I	86.81	0.80	0.86	1.43	A	EL	49.30	
		TNT7A	42,000		1.43	60.06	1.40	0.86	2.36	A	EL	49.30	0.94	2.71	B	ER	89.20	0.80	0.86	1.43	A	EL	49.30	
		TNT7B	42,000		1.45	60.90	1.40	0.86	2.39	A	EL	49.30	0.94	2.55	B	ER	89.20	0.80	0.86	1.45	A	EL	49.30	
		TNAGRIT4	43,000		1.40	60.20	1.40	0.86	2.31	A	EL	49.30	0.93	2.60	A	I	86.81	0.80	0.86	1.40	A	EL	49.30	
TNAGT5A	45,000		1.33	59.85	1.40	0.86	2.20	A	EL	49.30	0.93	2.58	A	I	86.81	0.80	0.86	1.33	A	EL	49.30			
TNAGT5B	45,000		③	1.32	59.40	1.40	0.86	2.17	A	EL	49.30	0.93	2.55	A	I	36.80	0.80	0.86	1.32	A	EL	49.30		

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. DISTANCE FROM LEFT END OF SPAN IS GIVEN WITH RESPECT TO CENTERLINE BEARING AND IS MEASURED ALONG CONTROLLING GIRDER.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

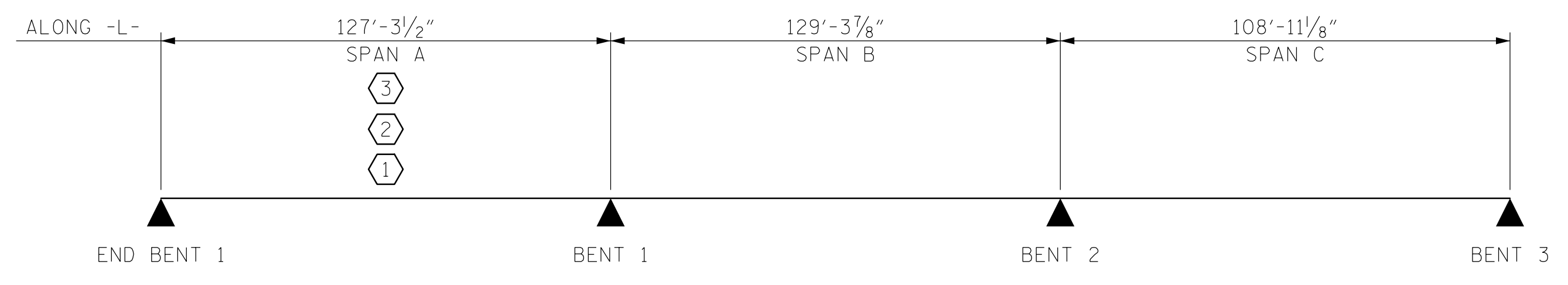
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 UNIT 1
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			SHEETS
2			4			78

KCI
ASSOCIATES OF NC

KCI ASSOCIATES OF NC, P.A.
 9741 SOUTHERN PINE BLVD
 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

NORTH CAROLINA
 PROFESSIONAL
 SEAL
 032954
 JARED C. MEDLIN
 ENGINEER

Jared C. Medlin 2/19/2015

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 (FF)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FF)	LIVE-LOAD FACTORS (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (FF)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.25	--	1.75	0.91	1.58	D	ER	47.28	0.91	2.09	D	ER	71.27	0.80	0.91	1.25	D	ER	47.28		
	HL-93 (OPERATING)	N/A		2.04	--	1.35	0.91	2.04	D	ER	47.28	0.91	2.65	D	ER	71.27	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	2	1.82	65.52	1.75	0.91	2.29	D	ER	47.28	0.91	2.59	D	ER	83.26	0.80	0.91	1.82	D	ER	47.28		
	HS-20 (OPERATING)	36.000		2.97	106.92	1.35	0.91	2.97	D	ER	47.28	0.91	3.29	D	ER	83.26	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13,500		4.34	58.59	1.40	0.91	6.85	D	ER	47.28	0.91	7.47	D	ER	83.26	0.80	0.91	4.34	D	ER	47.28	
		SNGARBS2	20,000		3.12	62.40	1.40	0.91	4.92	D	ER	47.28	0.91	5.49	D	ER	83.26	0.80	0.91	3.12	D	ER	47.28	
		SNAGRIS2	22,000		2.90	63.80	1.40	0.91	4.58	D	ER	47.28	0.91	5.13	D	ER	83.26	0.80	0.91	2.90	D	ER	47.28	
		SNCOTTS3	27,250		2.17	59.13	1.40	0.91	3.42	D	ER	47.28	0.91	3.90	D	ER	83.26	0.80	0.91	2.17	D	ER	47.28	
		SNAGGRS4	34,925		1.77	61.82	1.40	0.91	2.79	D	ER	47.28	0.91	3.10	D	ER	83.26	0.80	0.91	1.77	D	ER	47.28	
		SNS5A	35,550		1.74	61.86	1.40	0.91	2.74	D	ER	47.28	0.91	3.09	D	ER	83.26	0.80	0.91	1.74	D	ER	47.28	
		SNS6A	39,950		1.57	62.72	1.40	0.91	2.48	D	ER	47.28	0.91	2.88	D	ER	83.26	0.80	0.91	1.57	D	ER	47.28	
		SNS7B	42,000		1.50	63.00	1.40	0.91	2.37	D	ER	47.28	0.91	2.83	D	ER	83.26	0.80	0.91	1.50	D	ER	47.28	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33,000		1.92	63.36	1.40	0.91	3.04	D	ER	47.28	0.91	3.32	D	ER	83.26	0.80	0.91	1.92	D	ER	47.28	
		TNT4A	33,075		1.91	63.17	1.40	0.91	3.02	D	ER	47.28	0.91	3.20	D	ER	83.26	0.80	0.91	1.91	D	ER	47.28	
		TNT6A	41,600		1.55	64.48	1.40	0.91	2.45	D	ER	47.28	0.91	2.93	D	ER	83.26	0.80	0.91	1.55	D	ER	47.28	
		TNT7A	42,000		1.55	65.10	1.40	0.91	2.45	D	ER	47.28	0.91	2.84	D	ER	83.26	0.80	0.91	1.55	D	ER	47.28	
		TNT7B	42,000		1.57	65.94	1.40	0.91	2.48	D	ER	47.28	0.91	2.68	D	ER	83.26	0.80	0.91	1.57	D	ER	47.28	
		TNAGRIT4	43,000		1.52	65.36	1.40	0.91	2.40	D	ER	47.28	0.91	2.61	D	ER	83.26	0.80	0.91	1.52	D	ER	47.28	
TNAGT5A	45,000		1.45	65.25	1.40	0.91	2.28	D	ER	47.28	0.91	2.59	D	ER	83.26	0.80	0.91	1.45	D	ER	47.28			
TNAGT5B	45,000		3	1.43	64.35	1.40	0.91	2.26	D	ER	47.28	0.91	2.70	D	ER	83.26	0.80	0.91	1.43	D	ER	47.28		

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:

- DISTANCE FROM LEFT END OF SPAN IS GIVEN WITH RESPECT TO CENTERLINE BEARING AND IS MEASURED ALONG CONTROLLING GIRDER.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

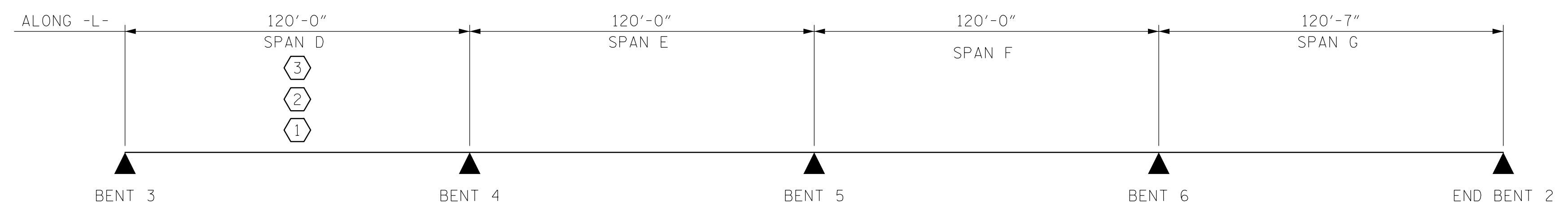
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 2 OF 2

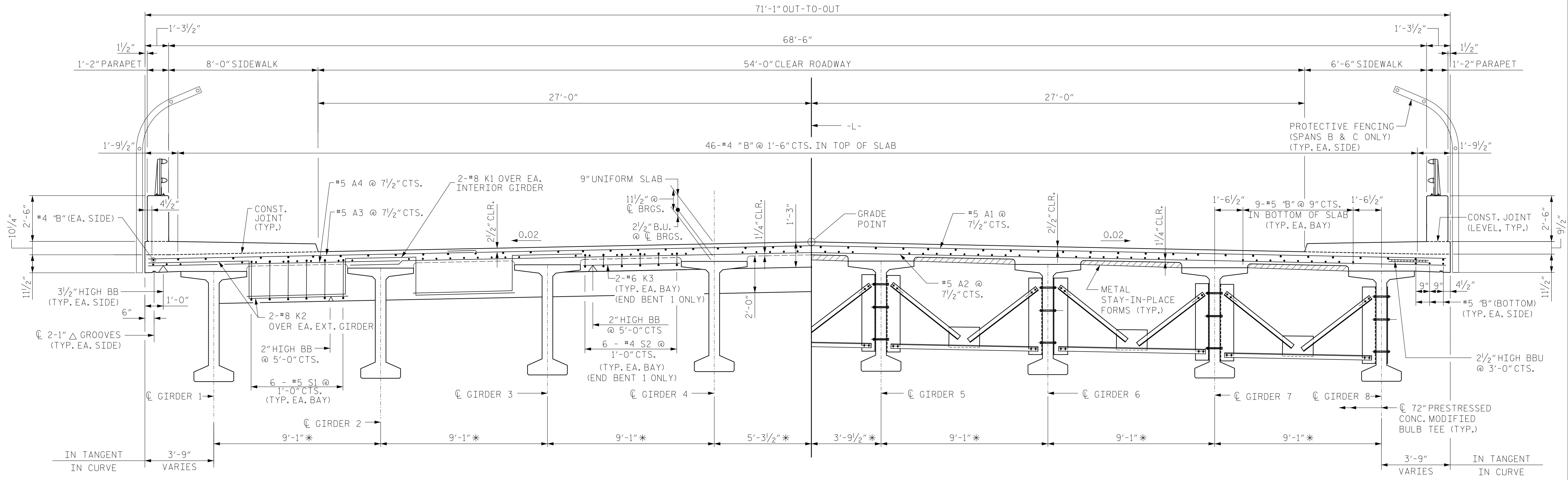
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 UNIT 2
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			SHEETS
2			4			78

KCI ASSOCIATES OF NC, P.A.
 9741 SOUTHERN PINE BLVD
 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

NORTH CAROLINA
 PROFESSIONAL
 SEAL
 032954
 ENGINEER
 JARED C. MEDLIN

Jared C. Medlin 2/19/2015



TYPICAL HALF SECTION AT END DIAPHRAGM

TYPICAL HALF SECTION AT INTERMEDIATE DIAPHRAGM

TYPICAL SECTION

*NORMAL TO SHORT CHORD IN CURVE

NOTES

PROVIDE 1 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

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

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

FOR ADDITIONAL REINFORCING EMBEDDED IN SLAB SEE "CONCRETE PARAPET" SHEETS.

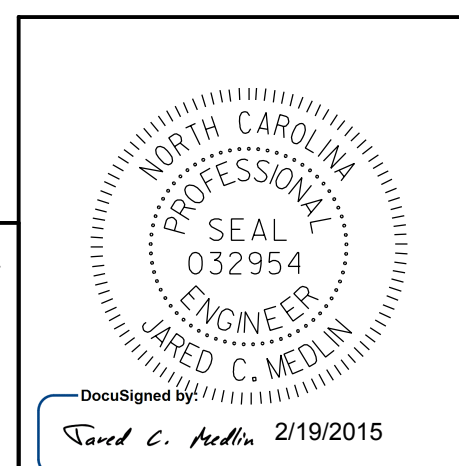
LIGHTING PEDESTALS NOT SHOWN. SEE "LIGHT PEDESTAL DETAILS" FOR SLAB WIDENING AND ADDITIONAL REINFORCING.

FOR SIDEWALK DIMENSIONS AND REINFORCING, SEE "SIDEWALK PLAN AND SECTIONS" SHEET.

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
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 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 TYPICAL SECTION**

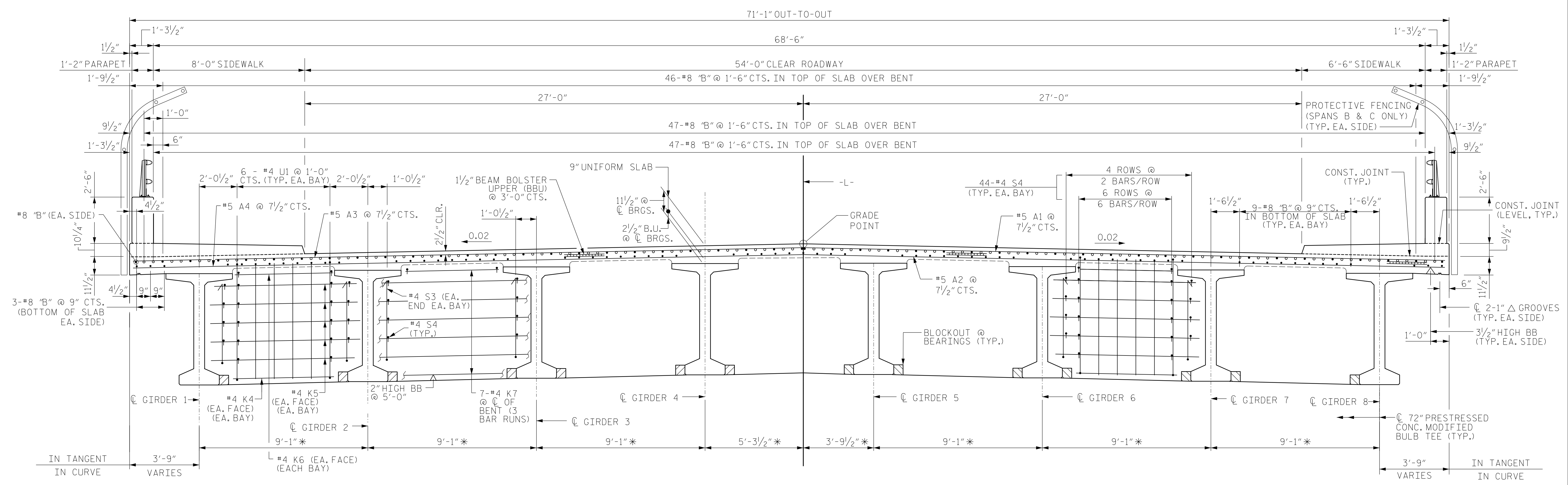


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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9	
1			3			SHEETS 78	
2			4				

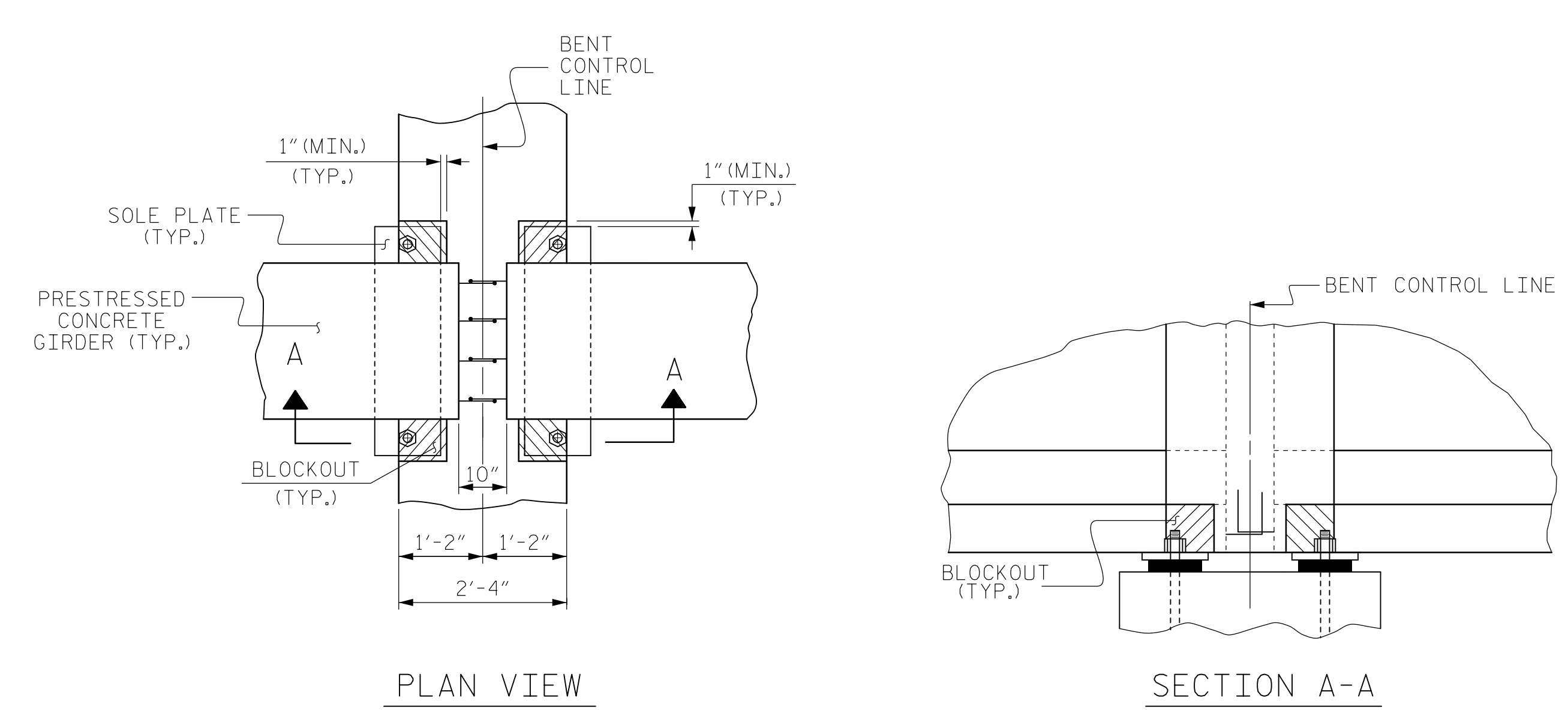
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 CHECKED BY: R. C. LARSON DATE: 8/12/14

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TYPICAL SECTION AT CONTINUOUS BENT DIAPHRAGM

- INDICATES CONTINUOUS REINFORCING
- INDICATES ADDITIONAL REINFORCING AT BENT
- * NORMAL TO SHORT CHORD IN CURVE



BENT DIAPHRAGM BLOCKOUT DETAIL

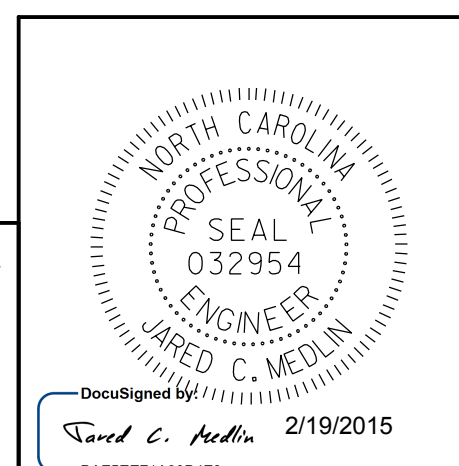
(PRESTRESSED GIRDERS WITH CONTINUOUS DECK SLAB)
(BENT 4, 5 OR 6 SHOWN, BENT 1 & 2 SIMILAR)

PROJECT NO. U-5008
MECKLENBURG COUNTY
STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION

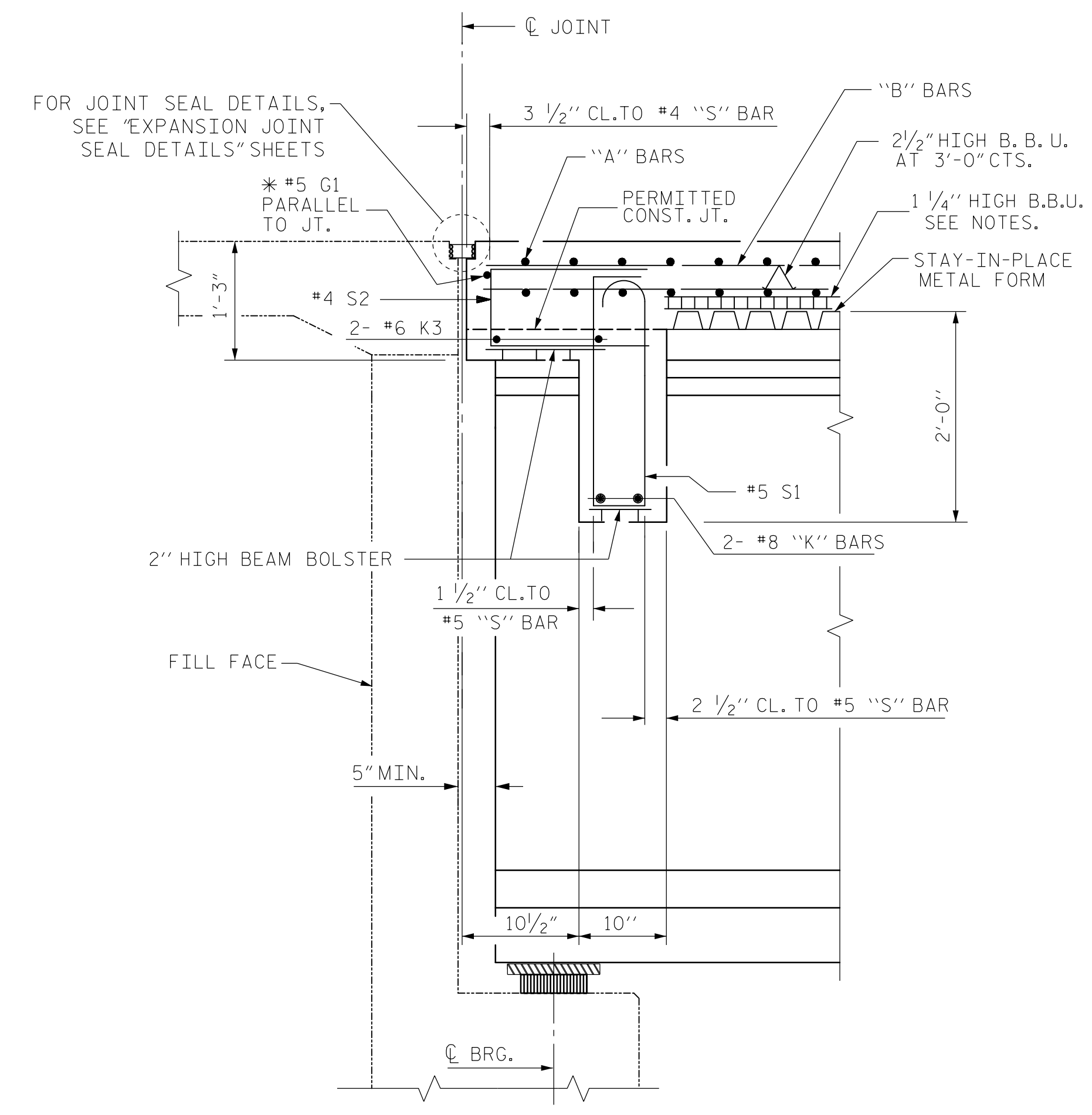
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			SHEETS	
2			4			78	

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704-499-9452
NC LICENSE No. C-0764



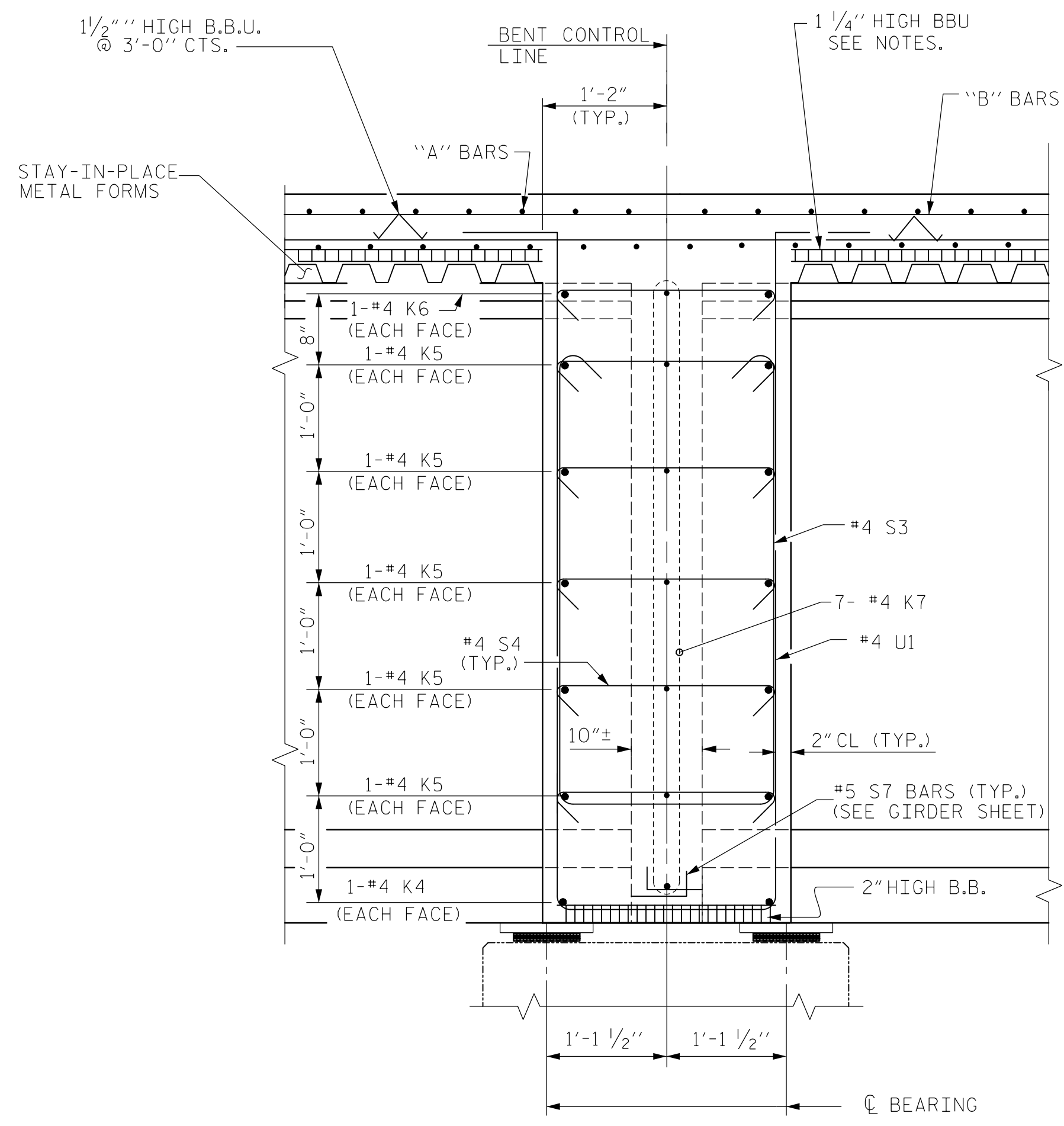
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CHECKED BY: R.C. LARSON DATE: 8/12/14

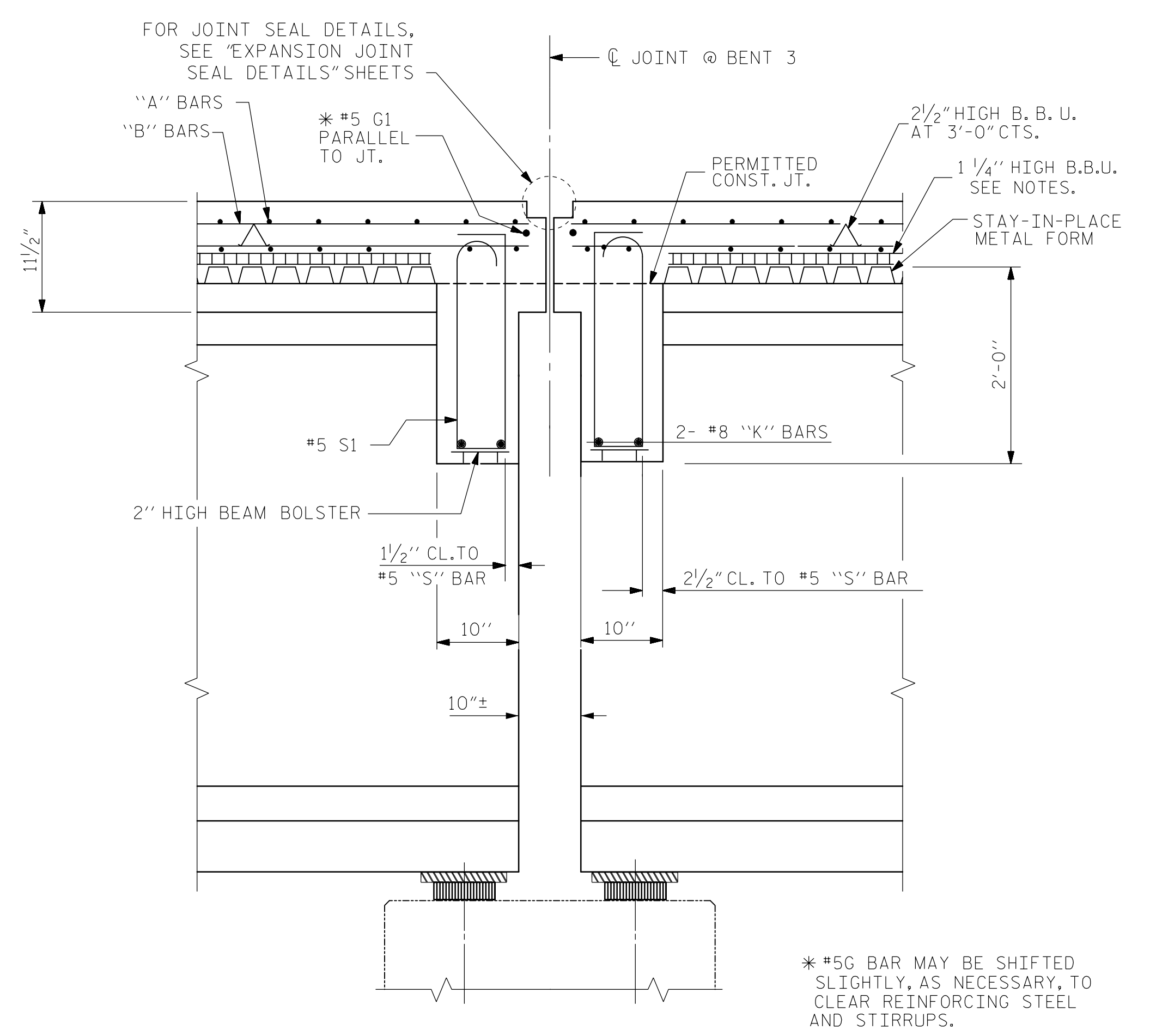


SECTION A-A THRU END BENT 1 DIAPHRAGM

* #5 G1 MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND STIRRUPS

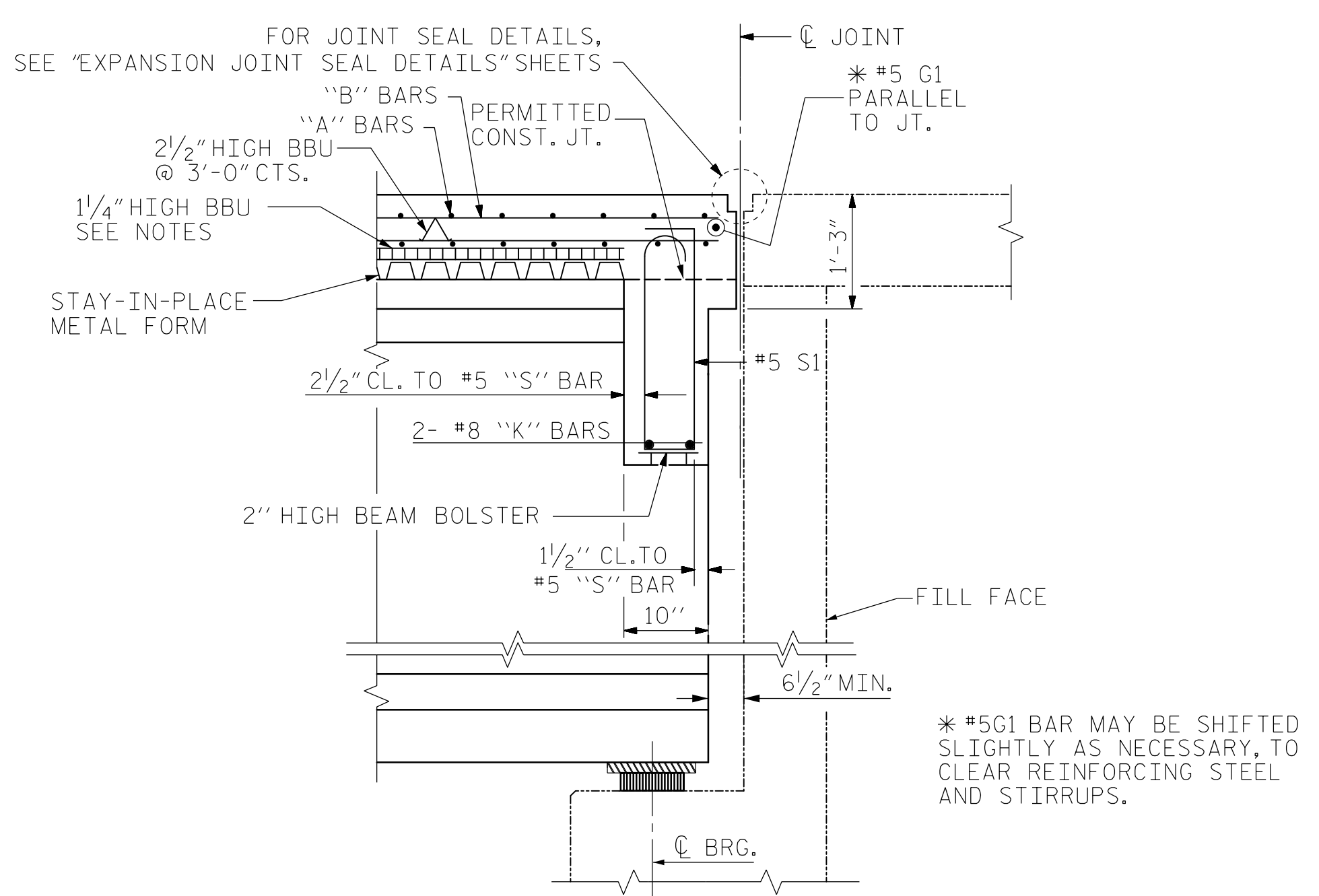


SECTION B-B THRU CONTINUOUS BENT DIAPHRAGM



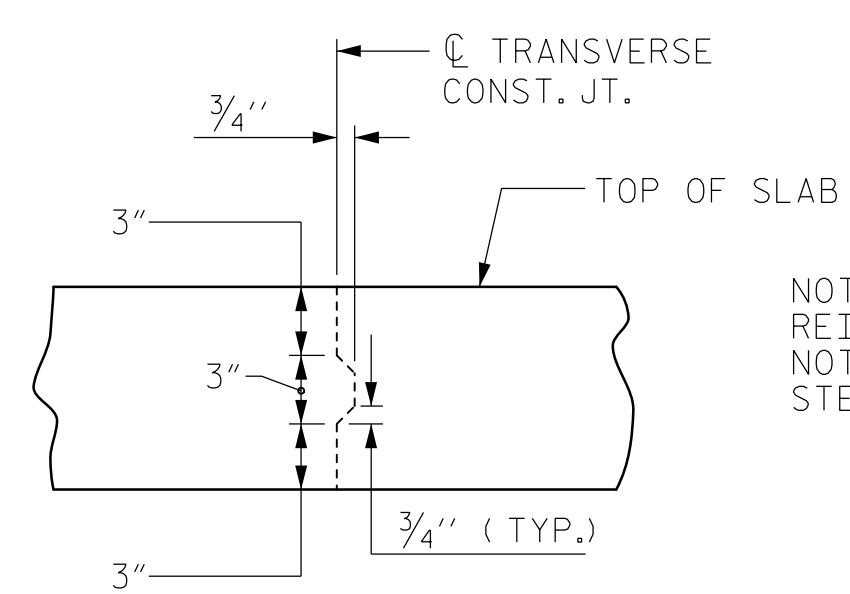
SECTION C-C THRU END DIAPHRAGM (BENT 3)

* #5G BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.



SECTION D-D THRU END BENT 2 DIAPHRAGM

* #5G1 BAR MAY BE SHIFTED SLIGHTLY AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.



TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT

PROJECT NO. U-5008
MECKLENBURG COUNTY
STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION

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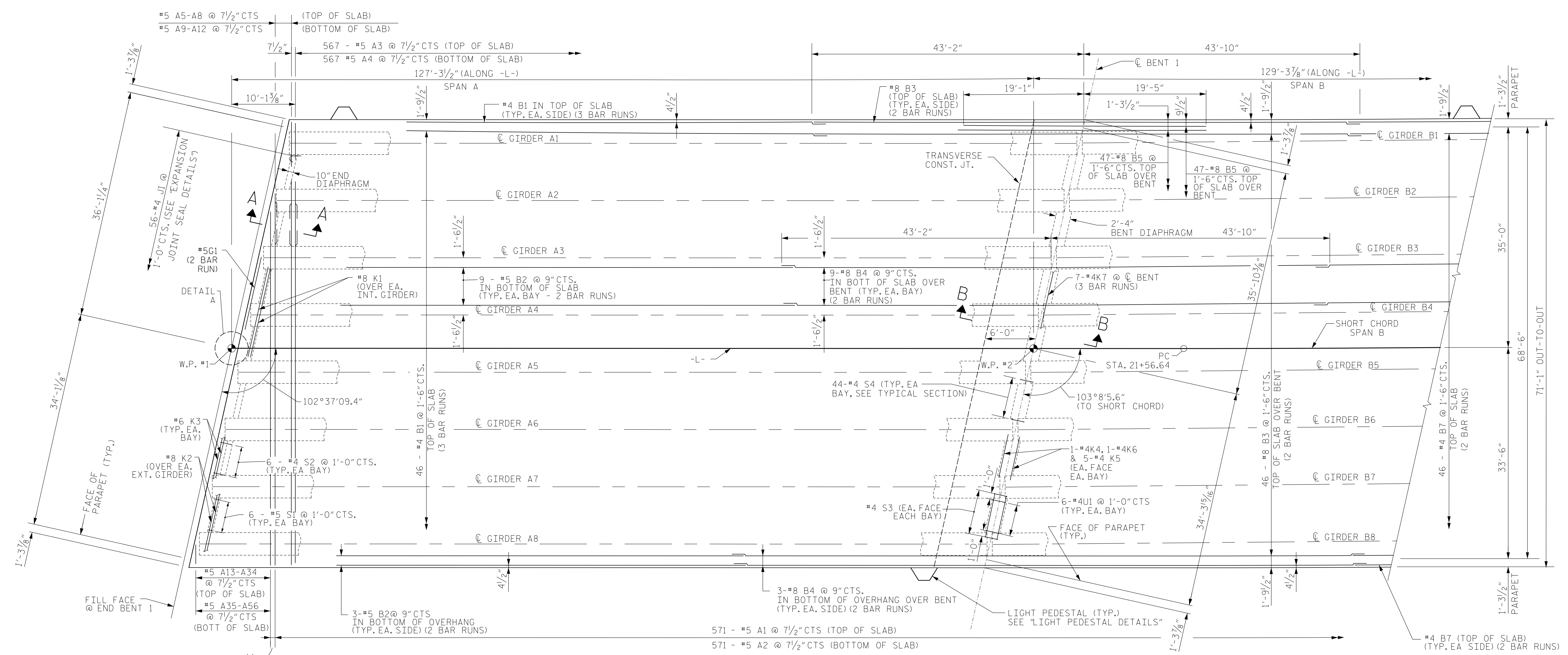
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704-499-9452
NC LICENSE No. C-0764

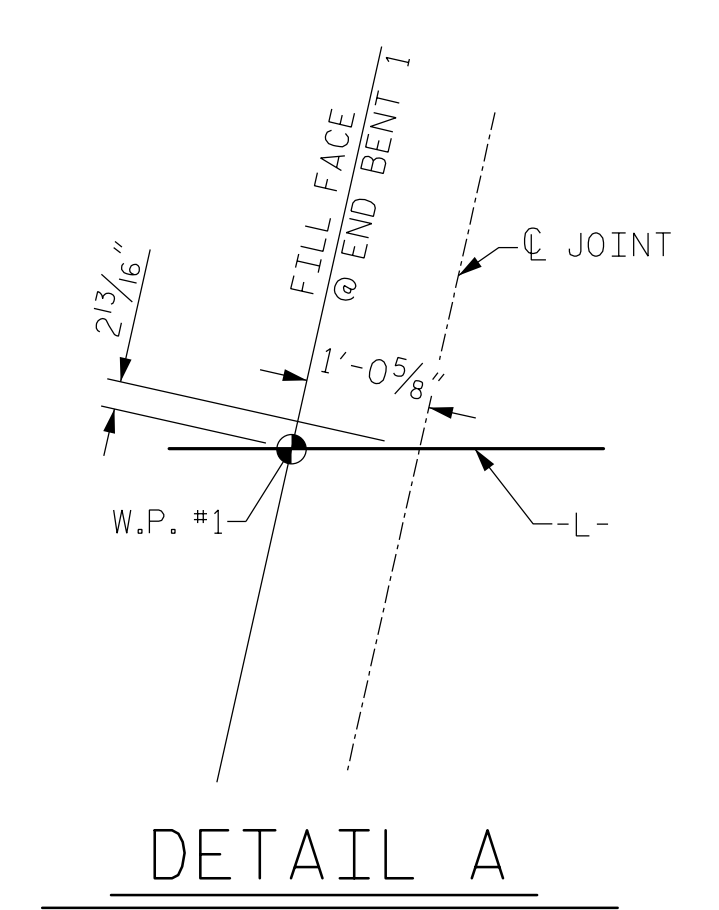
NORTH CAROLINA
PROFESSIONAL
SEAL
032954
ENGINEER
JARED C. MEDLIN
2/19/2015

REVISIONS						SHEET NO.	
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1			3			SHEETS	
2			4			78	

DRAWN BY : R.J. FLORY DATE : 8/11/14
CHECKED BY : R.C. LARSON DATE : 8/12/14



PLAN - SPANS A-B



DETAIL A

NOTES:

- "A" BARS TO BE PLACED PERPENDICULAR TO AND SPACED ALONG CHORD FROM W.P. #1 TO W.P. #4 FOR UNIT 1.
- "A" BARS TO BE PLACED PERPENDICULAR TO AND SPACED ALONG CHORD FROM W.P. #4 TO W.P. #8 FOR UNIT 2.
- SEE SUPERSTRUCTURE BILL OF MATERIAL FOR REINFORCING SPLICE LENGTHS.
- REINFORCING IN SIDEWALK NOT SHOWN. SEE "SIDEWALK PLAN AND SECTIONS" SHEET.
- SEE S-11 FOR ADDITIONAL CONSTRUCTION JOINTS AT BENT 3 CLOSURE POUR.
- FOR ADDITIONAL REINFORCING TO BE EMBEDDED IN SLAB, SEE PARAPET PLANS.
- SEE "SUPERSTRUCTURE BILL OF MATERIAL" FOR POUR SEQUENCE.

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPANS
 A-B**

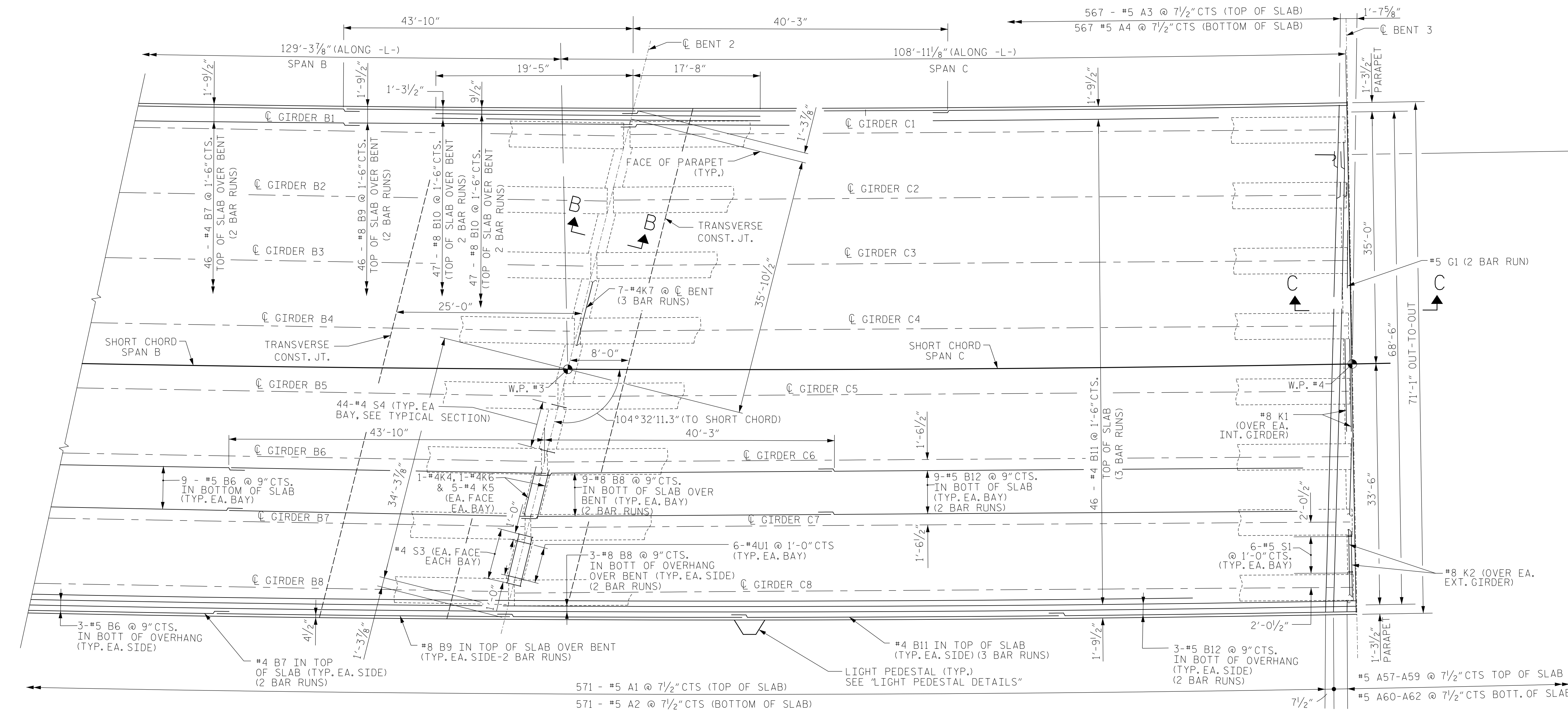
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SHEET NO. S-12
SHEETS 78

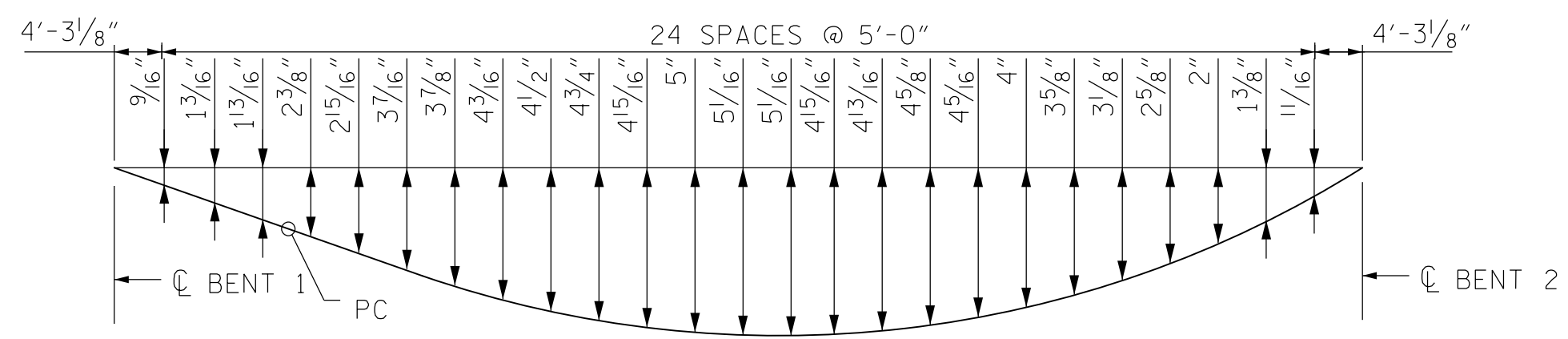
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 NC LICENSE No. C-0764

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 032954
 ENGINEER
 JARED C. MEDLIN
 2/19/2015

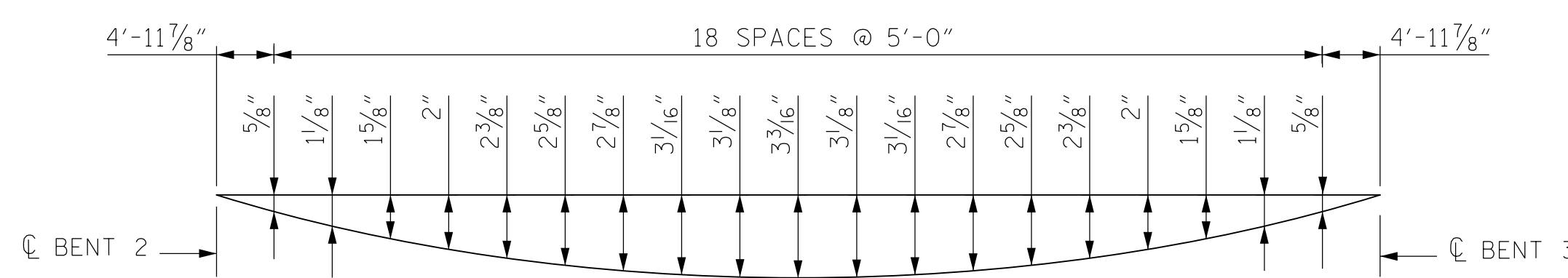
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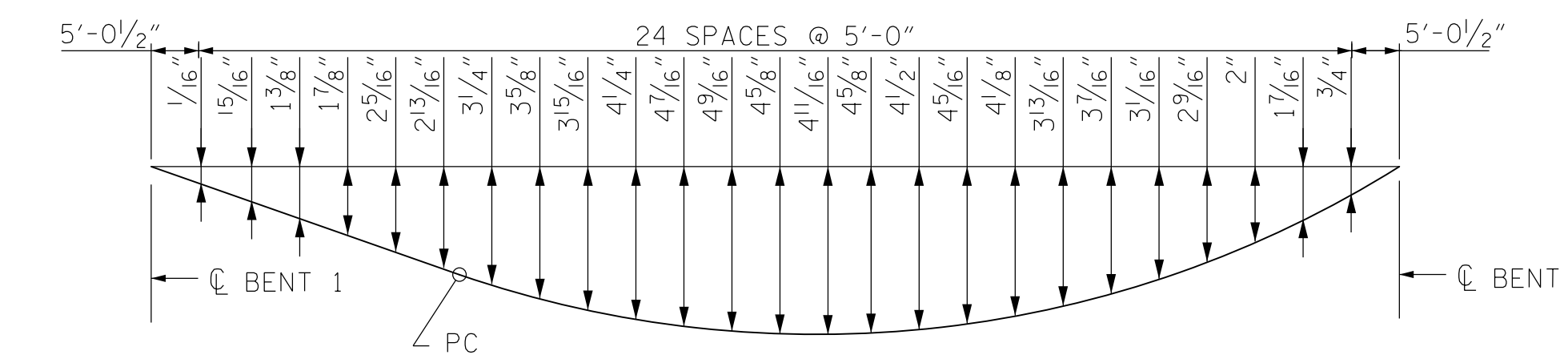
PLAN - SPANS B-C



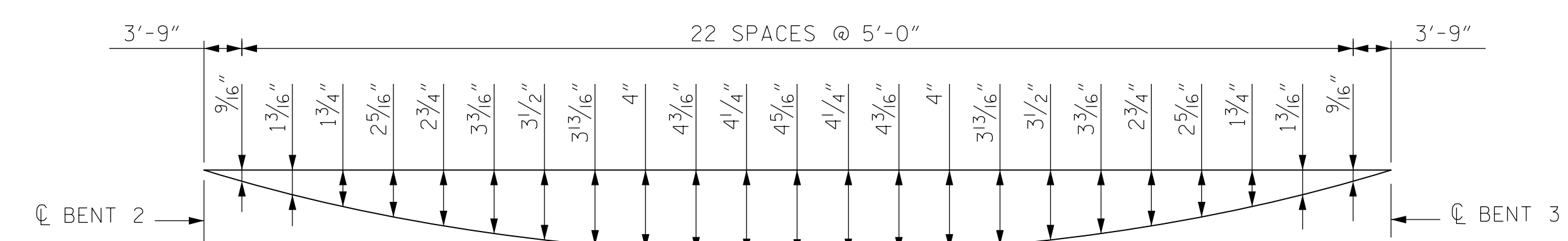
SPAN B LEFT EDGE OFFSETS



SPAN C LEFT EDGE OFFSETS



SPAN B RIGHT EDGE OFFSETS



SPAN C RIGHT EDGE OFFSETS

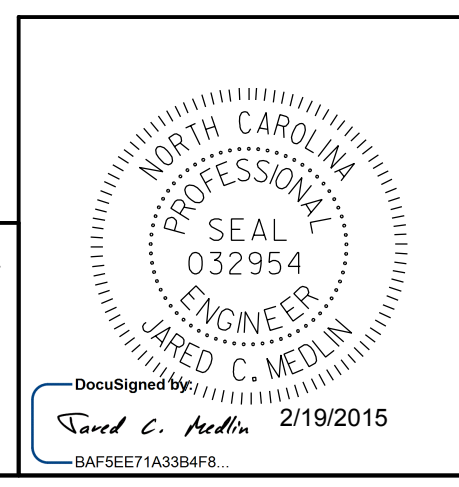
PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPAN
 B-C**

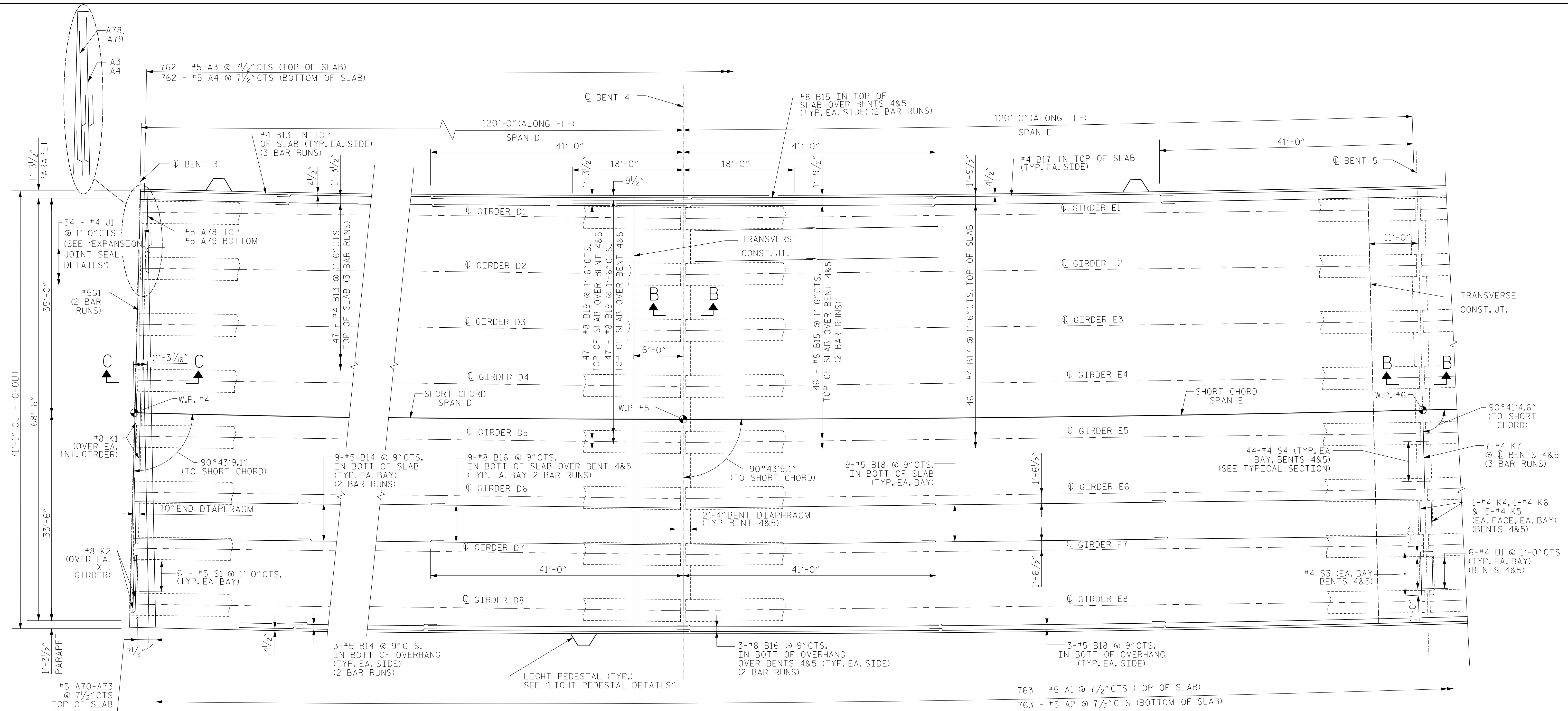
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SHEET NO. S-13
SHEETS 78

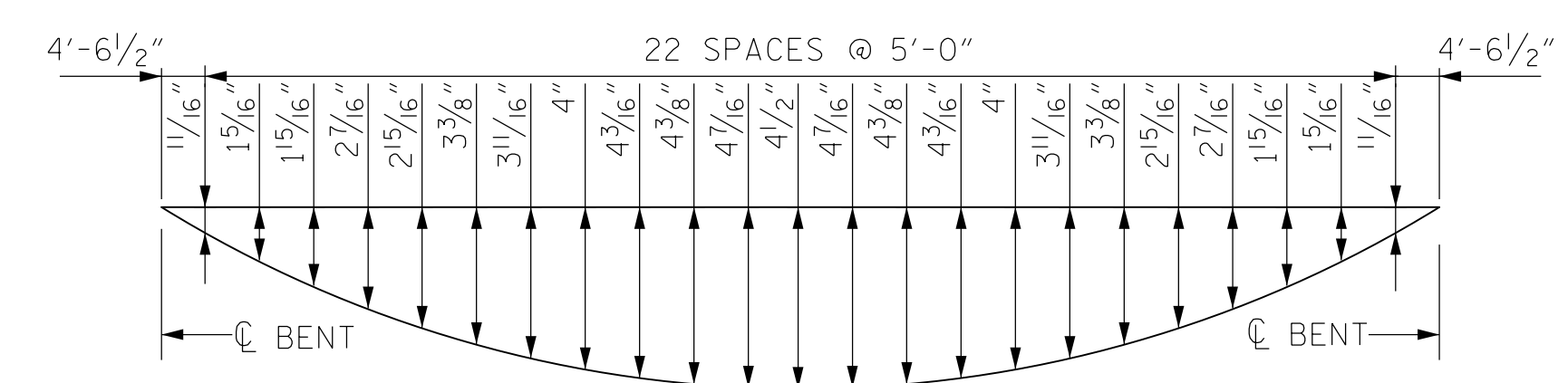


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 SUITE J
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 704-499-9452
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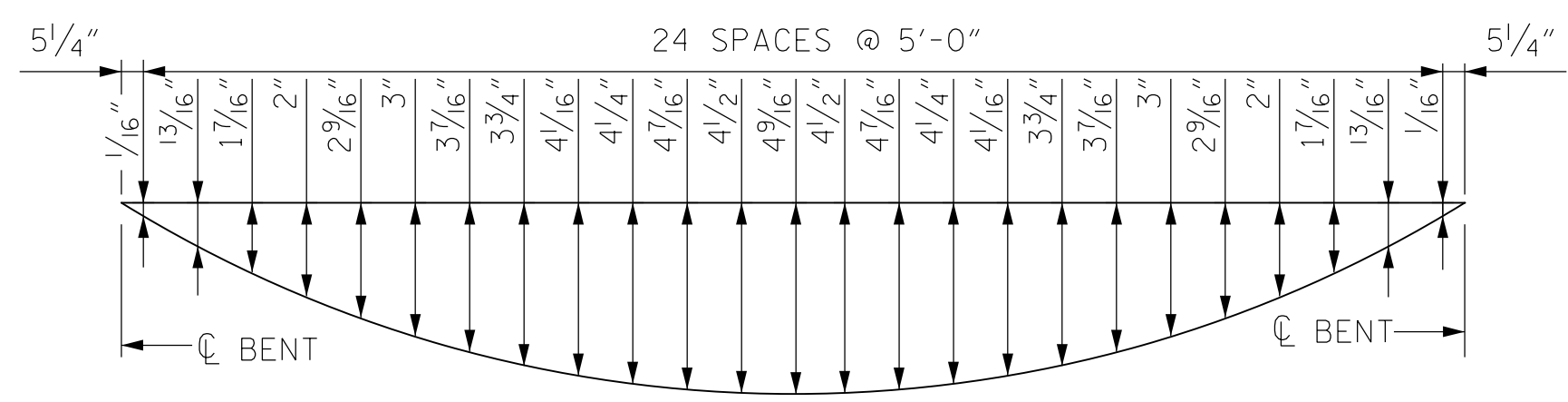
DRAWN BY: R.J. FLORY DATE: 8/11/14
 CHECKED BY: R.C. LARSON DATE: 8/13/14



PLAN - SPANS D-E



SPAN D OR E LEFT EDGE OFFSETS



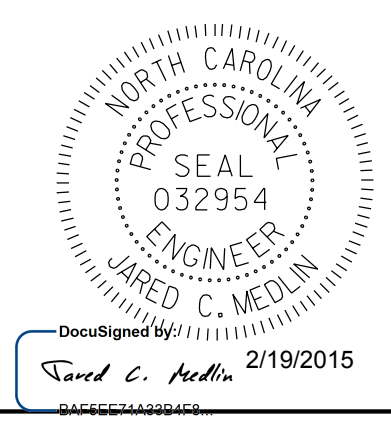
SPAN D OR E RIGHT EDGE OFFSETS

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
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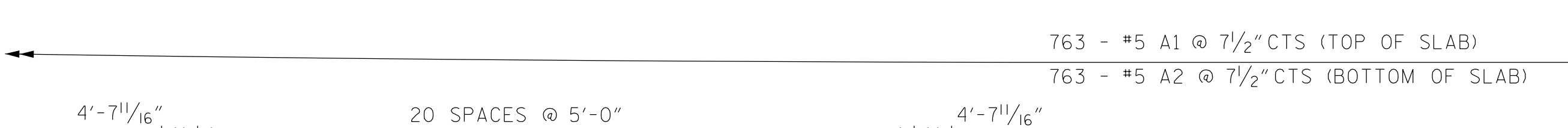
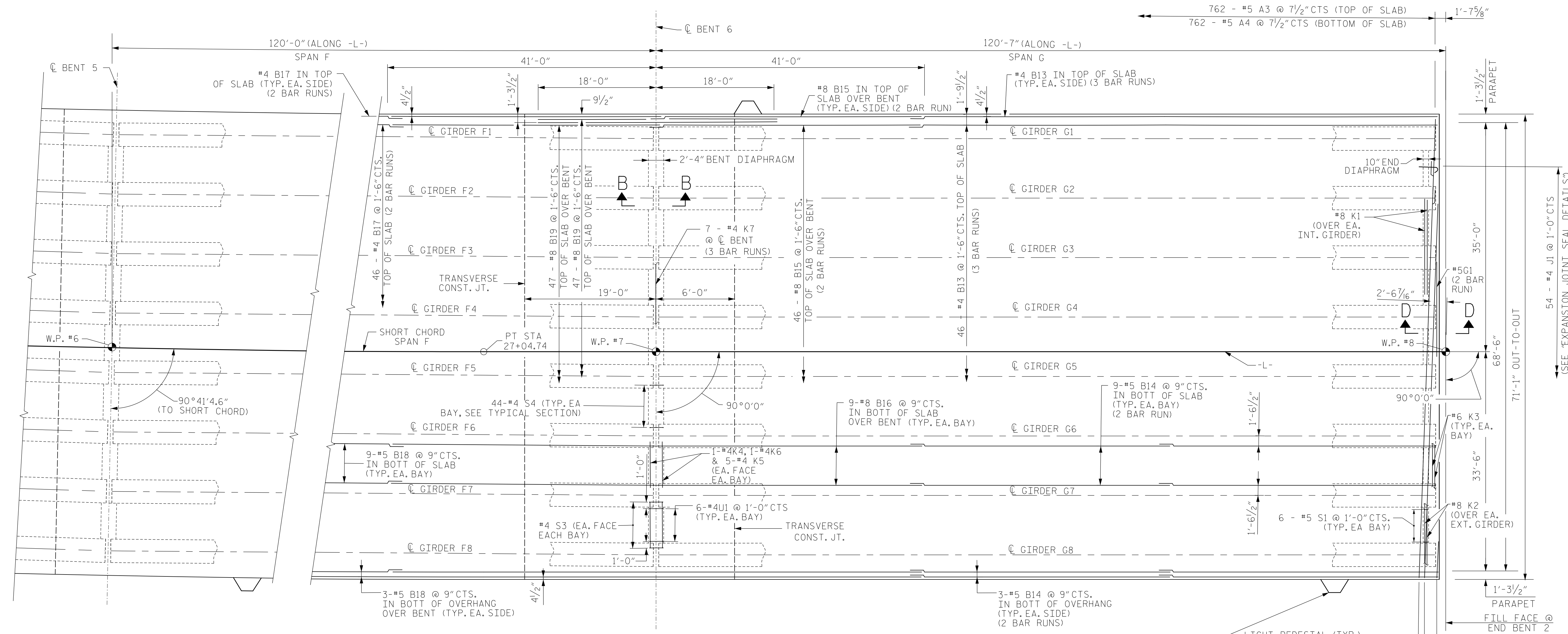
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SUPERSTRUCTURE
 PLAN OF SPAN
 D-E**

DRAWN BY: R.J. FLORY DATE: 8/16/14
 CHECKED BY: R.C. LARSON DATE: 9/10/14

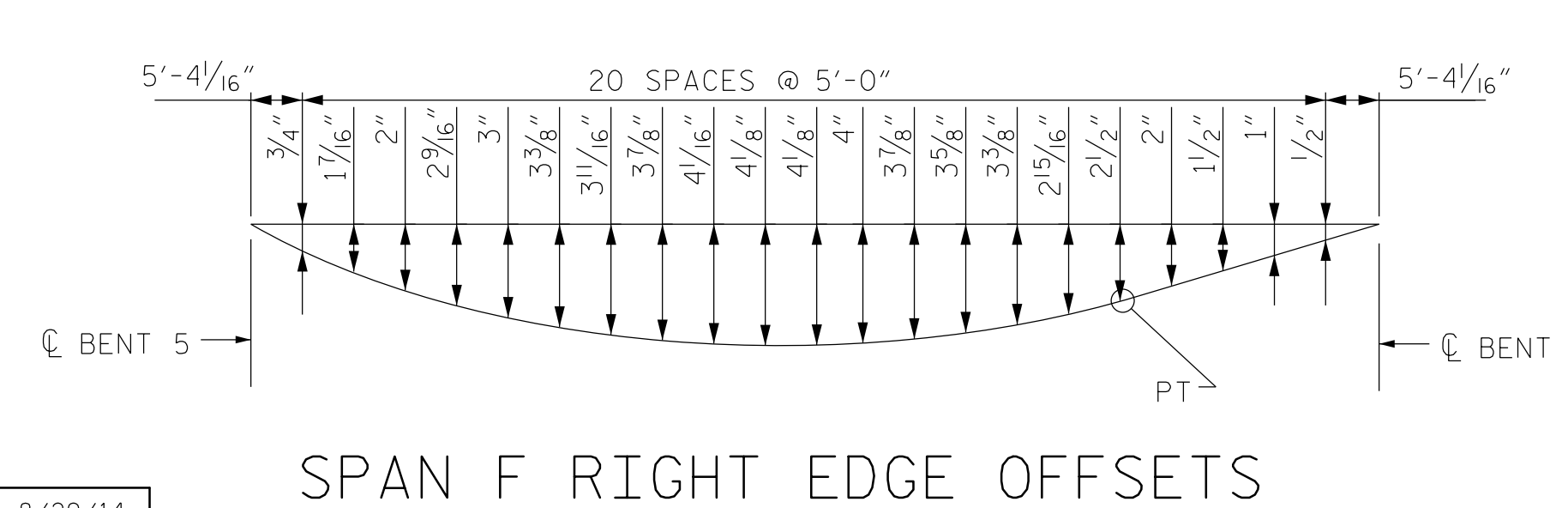
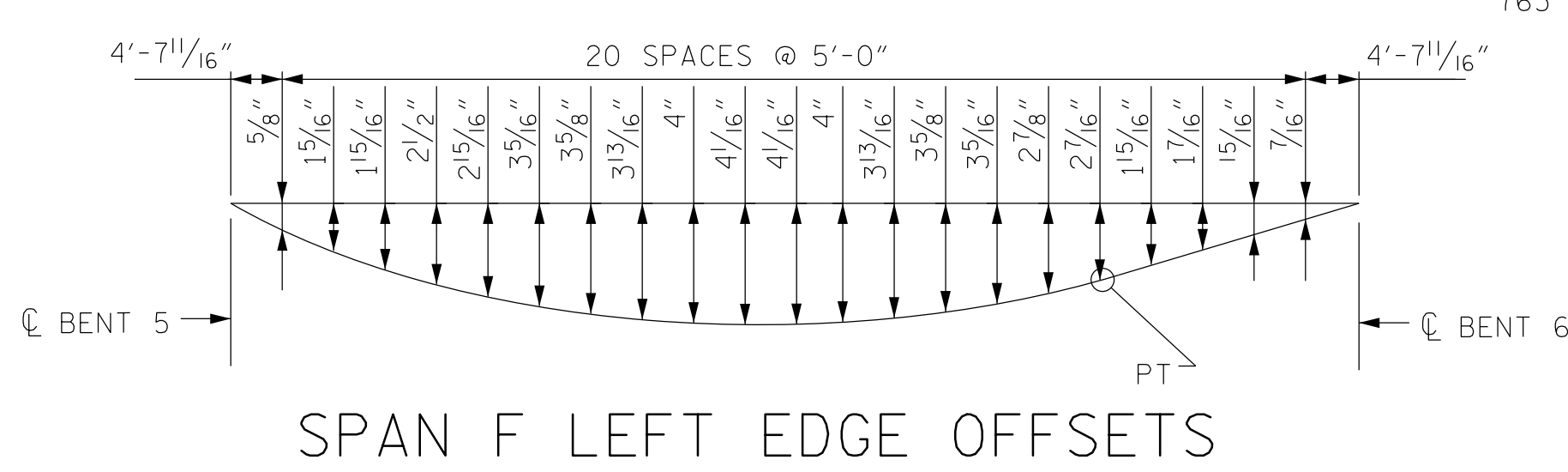
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1			3			SHEETS 78	
2			4				



PLAN - SPANS F-G



PROJECT NO. U-5008
 MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
 14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPAN
 F-G**

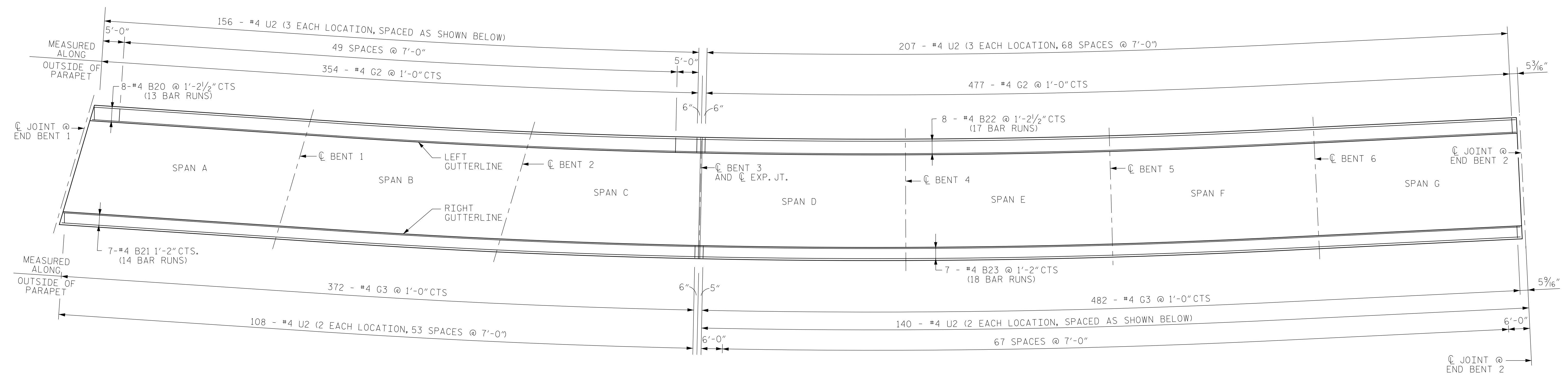
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SHEET NO. S-15
 SHEETS 78

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 9741 SOUTHERN PINE BLVD
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 NC LICENSE No. C-0764

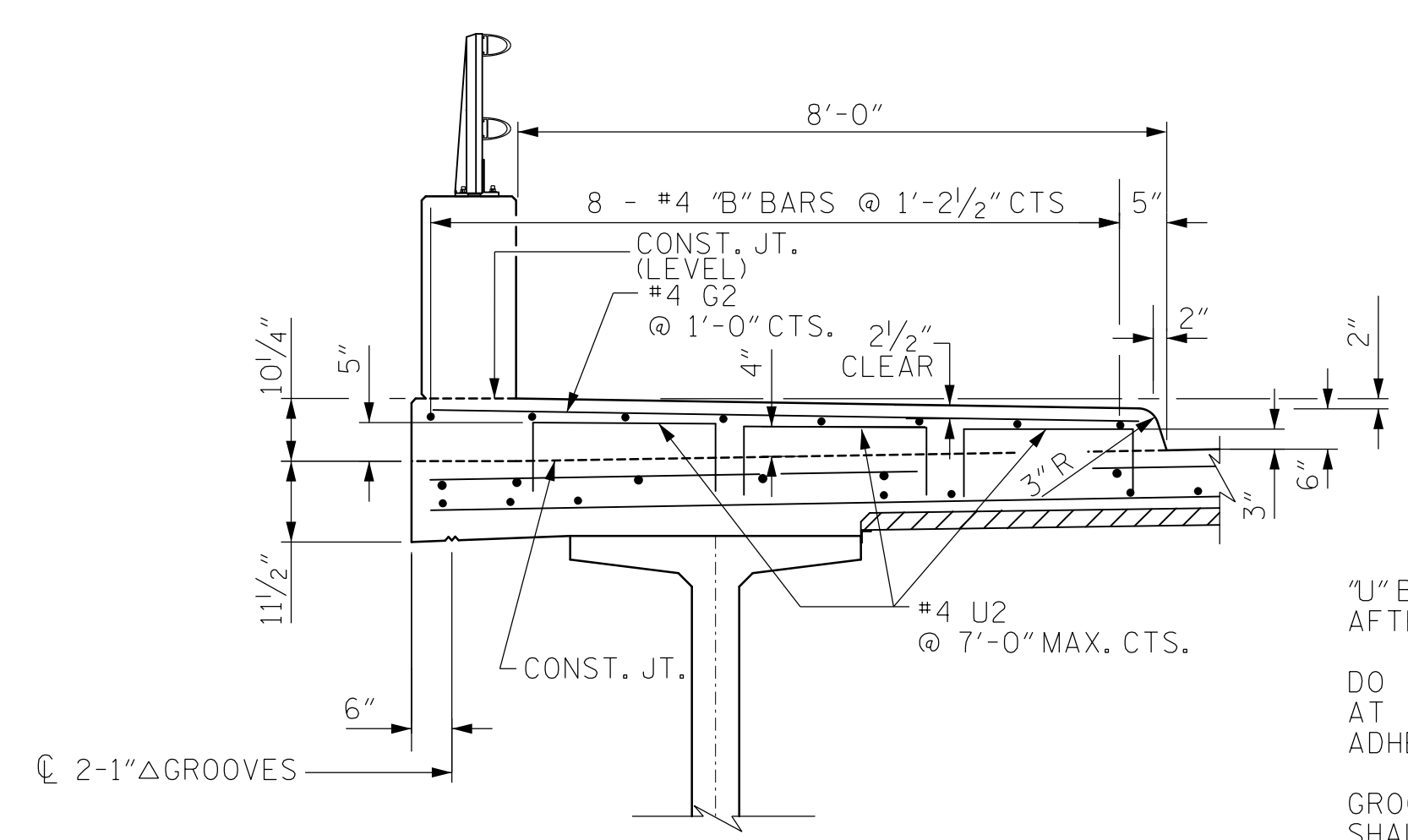
NORTH CAROLINA
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 SEAL
 032954
 ENGINEER
 JARED C. MEDLIN
 2/19/2015

DRAWN BY: R.J. FLORY DATE: 8/29/14
 CHECKED BY: R. C. LARSON DATE: 9/02/14

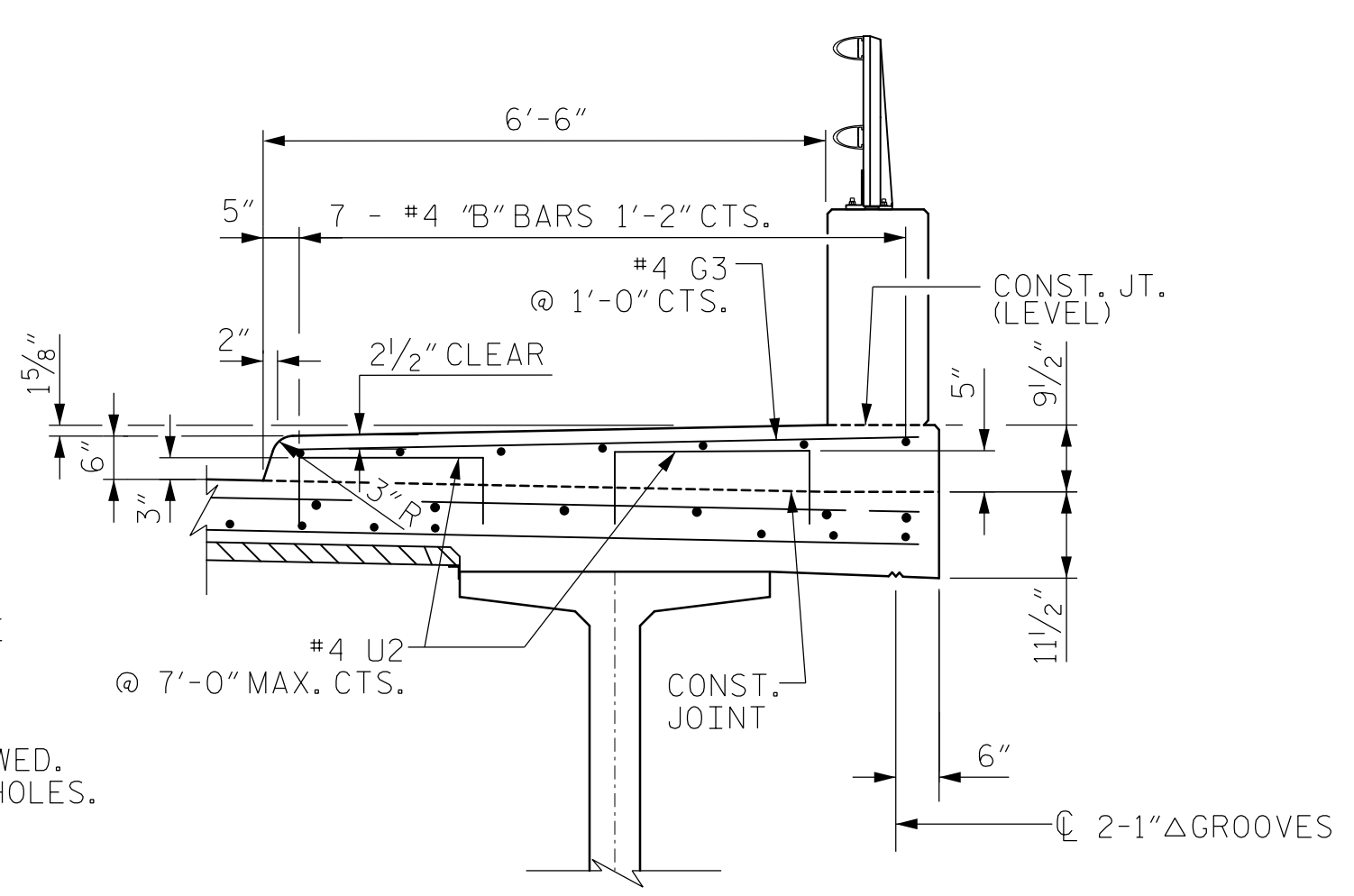


PLAN OF SIDEWALK

CLASS AA CONCRETE IN SIDEWALK	
SPAN A	52.8
SPAN B	54.1
SPAN C	45.0
SPAN D	50.1
SPAN E	50.1
SPAN F	50.1
SPAN G	50.0
TOTAL	352.2 CY



LEFT SIDEWALK



RIGHT SIDEWALK

NOTES

"U" BARS MAY BE PUSHED INTO GREEN CONCRETE AFTER SPAN HAS BEEN SCREEDED OFF.

DO NOT PLACE THE FIRST SET OF #4 "U" BARS AT EACH END BENT UNTIL JOINT HAS BEEN SAWED. ADHESIVELY ANCHOR THESE BARS IN DRILLED HOLES.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE SIDEWALK IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FT. TO 10 FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

ALL REINFORCING STEEL IN SIDEWALK SHALL BE EPOXY COATED.

REINFORCING STEEL FOR SIDEWALK IS INCLUDED ON "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.

SECTION THRU SIDEWALK

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SIDEWALK PLAN AND SECTIONS

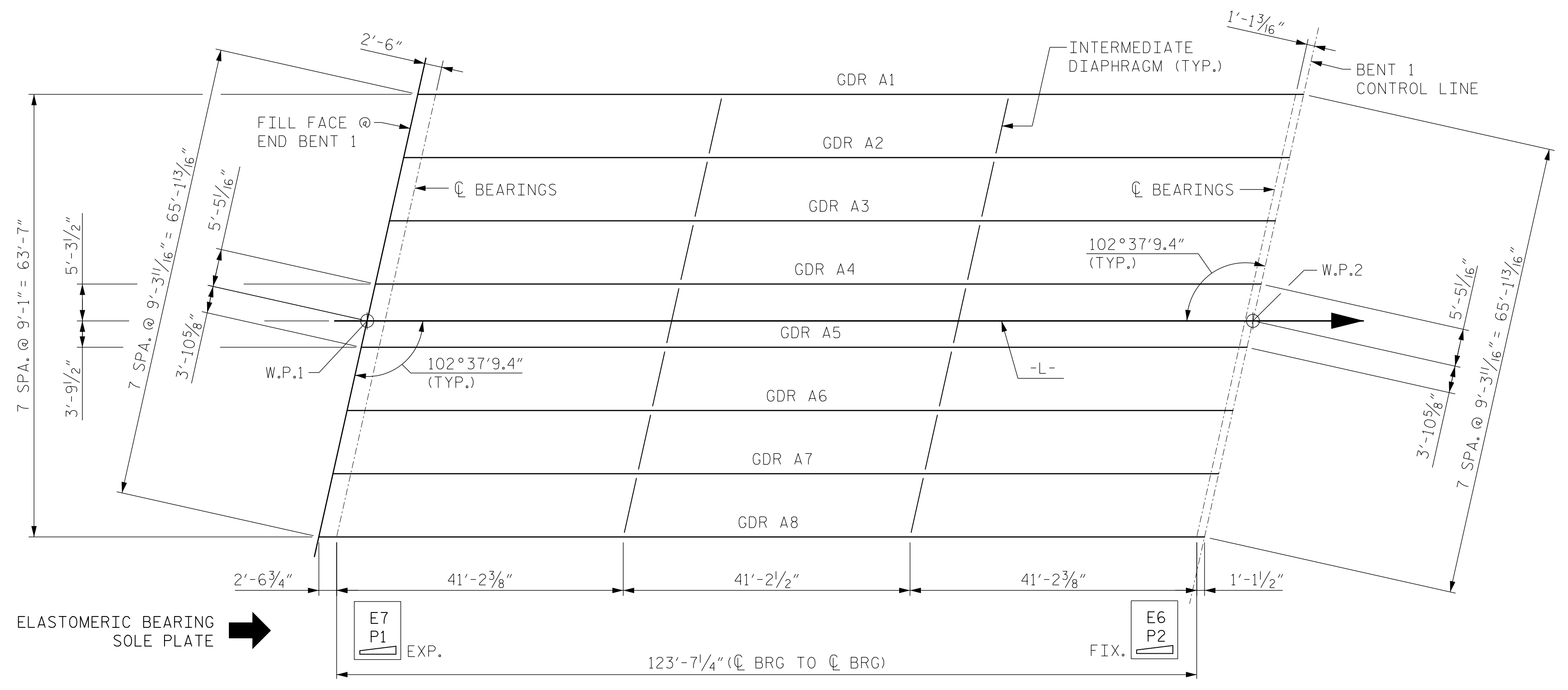
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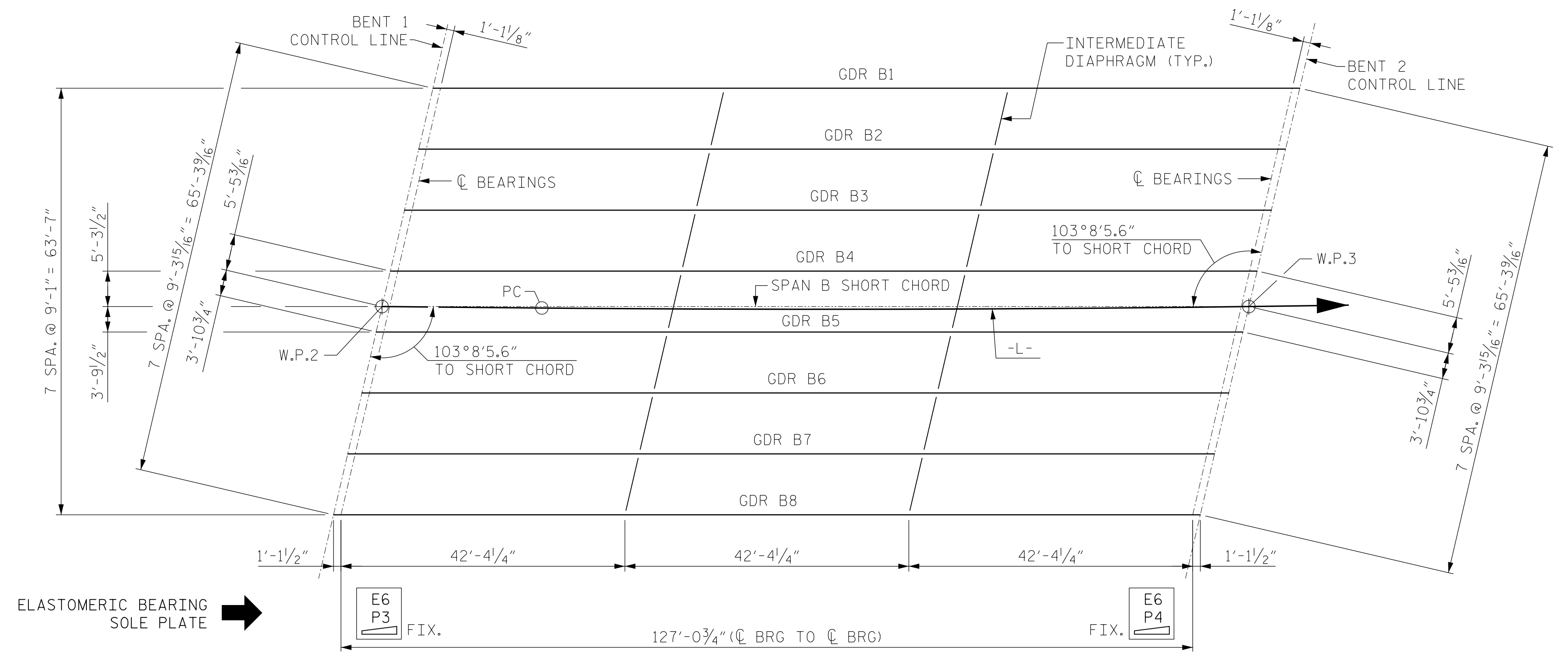
DRAWN BY: R.J. FLORY DATE: 8/12/14
 CHECKED BY: R.C. LARSON DATE: 8/20/14

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 704-499-9452
 NC LICENSE No. C-0764

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032954
 JARED C. MEDIN
 2/19/2015



SPAN A
(GIRDERS PARALLEL TO -L-)



SPAN B
(GIRDERS PARALLEL TO SPAN B SHORT CHORD)

NOTES:
ALL DIMENSION ARE FROM BENT CONTROL LINES AND WORK POINTS.
SEE BEARING DETAILS FOR ELASTOMERIC BEARING AND SOLE PLATE DESIGNATIONS.

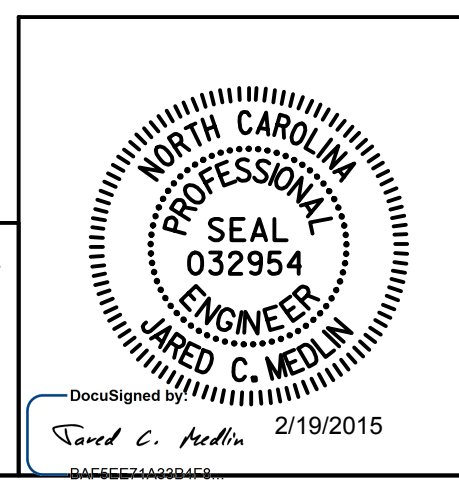
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PROJECT NO. U-5008
MECKLENBURG COUNTY
STATION: 20+45.05 -L- P.O.T. =
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
FRAMING PLAN
UNIT 1
SPANS A & B

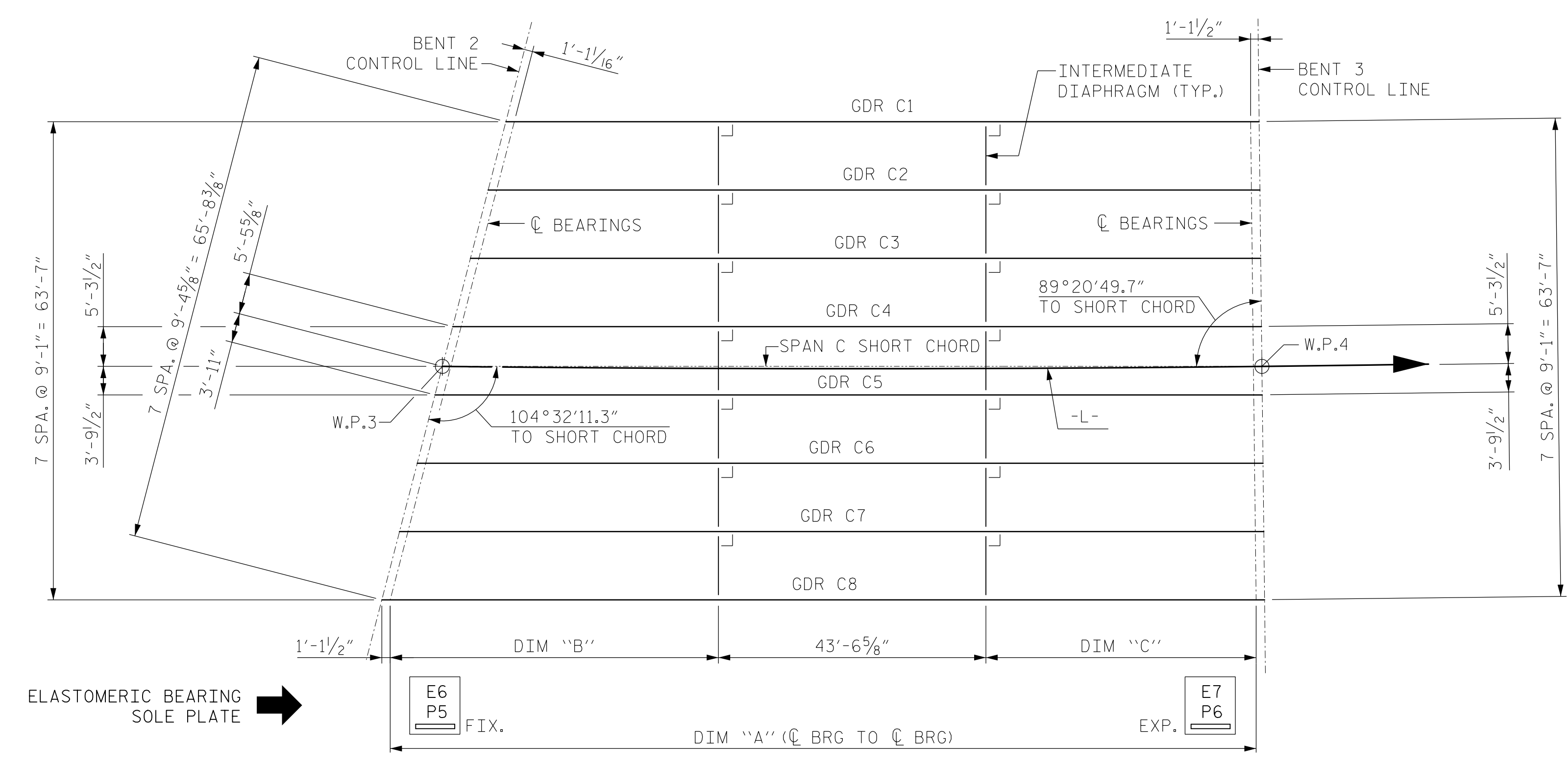
DRAWN BY : D.J.DICK DATE : OCT. 2014
CHECKED BY : J.C.MEDLIN DATE : OCT. 2014

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ASSOCIATES OF NC, P.A.
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SUITE J
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704-499-9452
NC LICENSE No. C-0764



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17	
1			3			SHEETS	
2			4			78	

NOTES:
 ALL DIMENSION ARE FROM BENT CONTROL LINE AND WORK POINTS.
 SEE BEARING DETAILS FOR ELASTOMERIC BEARING AND SOLE PLATE DESIGNATIONS.



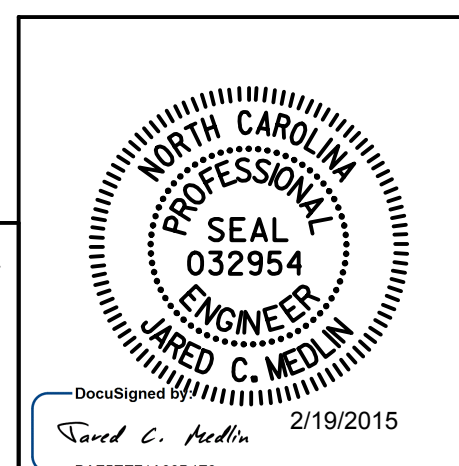
DIMENSIONS			
GIRDER	A	B	C
C1	97'-10 3/8"	22'-1 1/2"	32'-2 1/4"
C2	100'-3 7/8"	24'-5 3/4"	32'-3 1/2"
C3	102'-9 3/8"	26'-10"	32'-4 3/4"
C4	105'-3"	29'-2 5/16"	32'-6 1/16"
C5	107'-8 1/2"	31'-6 3/16"	32'-7 5/16"
C6	110'-2"	33'-10 1/8"	32'-8 1/2"
C7	112'-7 1/2"	36'-3 1/8"	32'-9 3/4"
C8	115'-1"	38'-7 3/8"	32'-11"

SPAN C
 (GIRDERS PARALLEL TO SPAN C SHORT CHORD)

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
FRAMING PLAN
 UNIT 1
 SPAN C

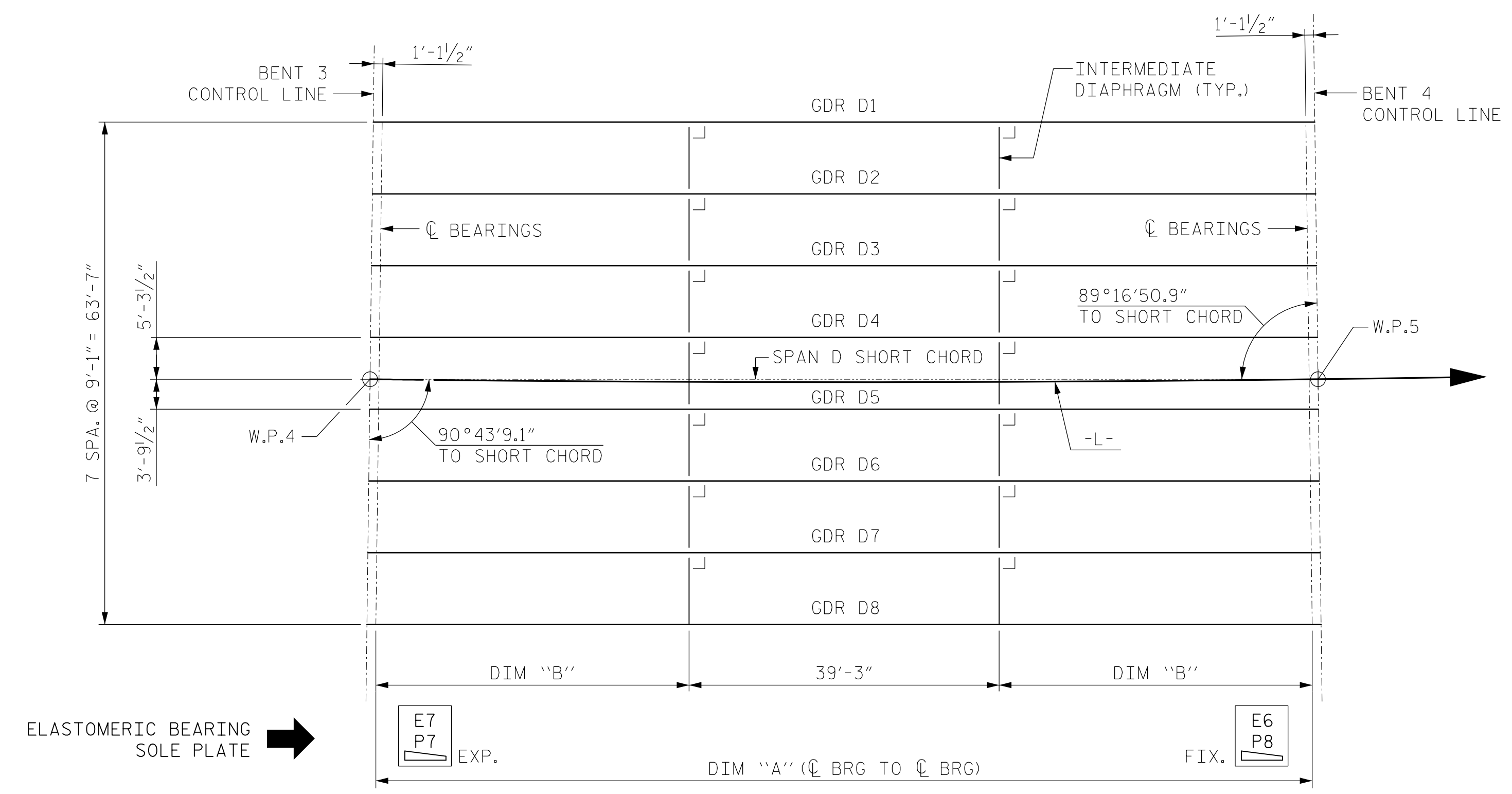
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 ASSOCIATES OF NC, P.A.
 9741 SOUTHERN PINE BLVD
 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			SHEETS
2			4			78

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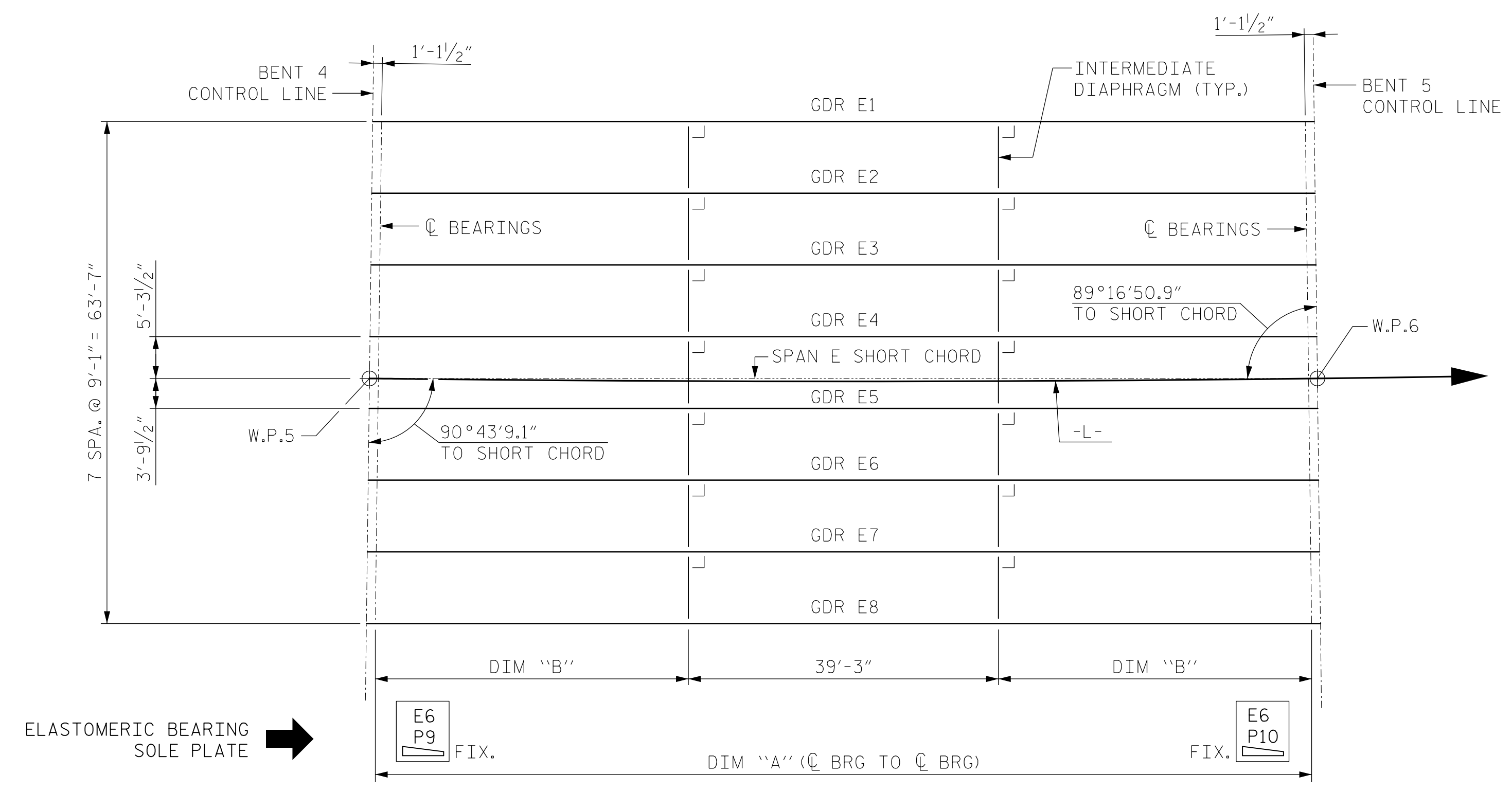
DJD
 DRAWN BY : D.J.DICK DATE : OCT. 2014
 CHECKED BY : J.C.MEDLIN DATE : OCT. 2014



SPAN D
(GIRDERS PARALLEL TO SPAN D SHORT CHORD)

DIMENSIONS		
GIRDER	A	B
D1	116'-11 1/8"	38'-10 1/16"
D2	117'-1 7/8"	38'-11 7/16"
D3	117'-4 5/8"	39'-0 3/16"
D4	117'-7 3/8"	39'-2 3/16"
D5	117'-10 1/8"	39'-3 9/16"
D6	118'-0 7/8"	39'-4 5/16"
D7	118'-3 5/8"	39'-6 5/16"
D8	118'-6 3/8"	39'-7 11/16"

NOTES:
ALL DIMENSION ARE FROM BENT CONTROL LINE AND WORK POINTS.
SEE BEARING DETAILS FOR ELASTOMERIC BEARING AND SOLE PLATE DESIGNATIONS.



SPAN E
(GIRDERS PARALLEL TO SPAN E SHORT CHORD)

DIMENSIONS		
GIRDER	A	B
E1	116'-11 1/8"	38'-10 1/16"
E2	117'-1 7/8"	38'-11 7/16"
E3	117'-4 5/8"	39'-0 3/16"
E4	117'-7 3/8"	39'-2 3/16"
E5	117'-10 1/8"	39'-3 9/16"
E6	118'-0 7/8"	39'-4 5/16"
E7	118'-3 5/8"	39'-6 5/16"
E8	118'-6 3/8"	39'-7 11/16"

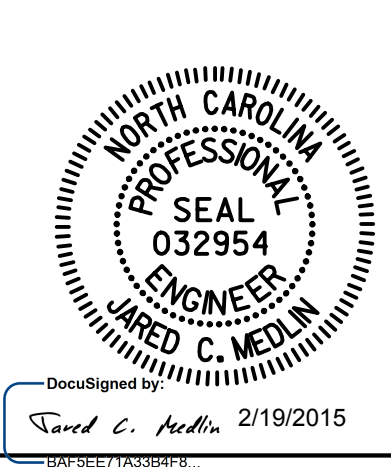
PROJECT NO. U-5008
MECKLENBURG COUNTY
STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
FRAMING PLAN
UNIT 2
SPANS D & E

2/18/2015 Y:\D:\ewings\2011 DWG\NBI1-11 Sugar Creek Rd - NCDOT\Structures\RFC\SH19_U-5008_SD_FF-2A.dgn

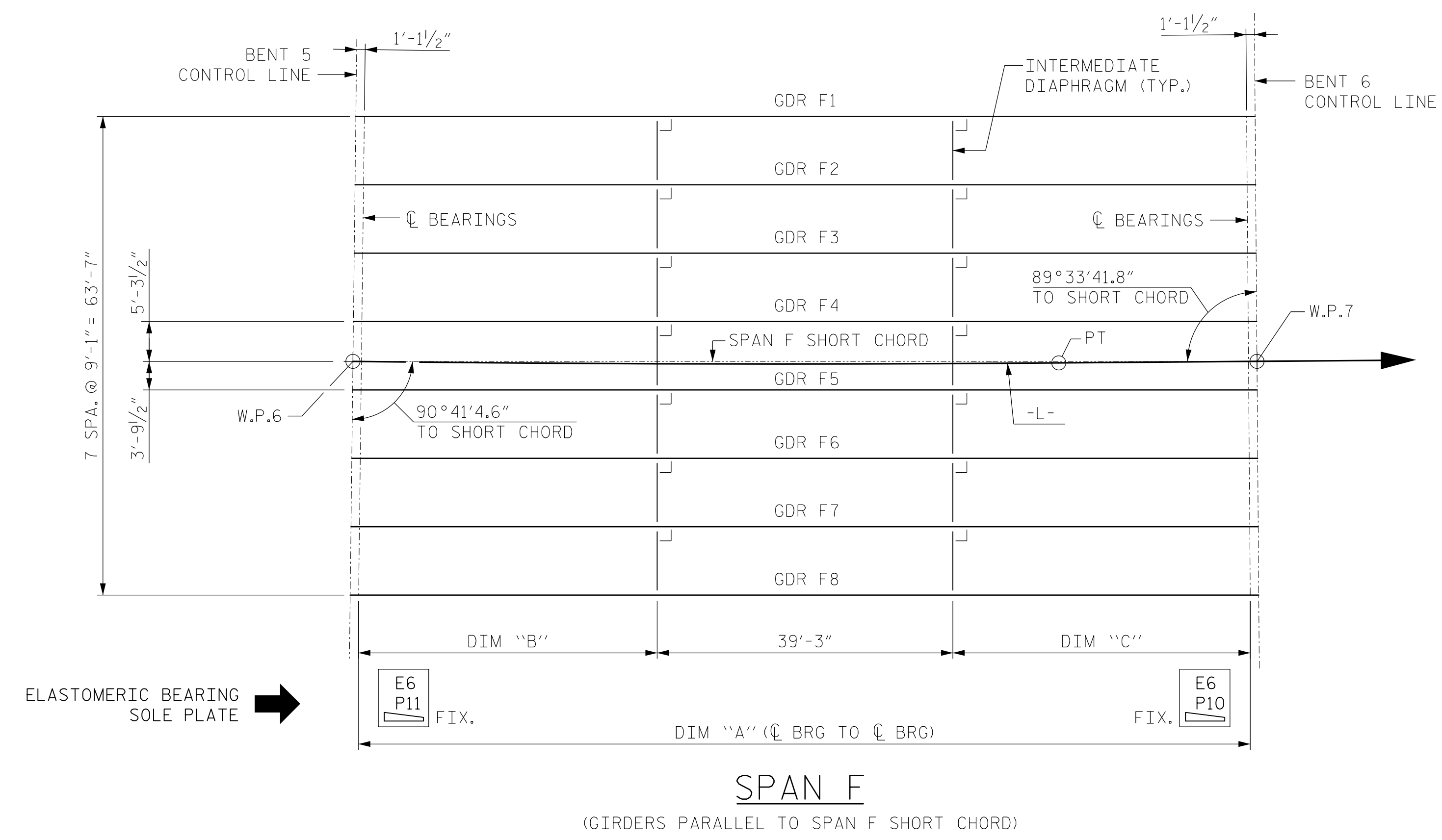
DRAWN BY : D.J.DICK DATE : OCT. 2014
CHECKED BY : J.C.MEDLIN DATE : OCT. 2014

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9741 SOUTHERN PINE BLVD
SUITE J
CHARLOTTE, NC 28273
704-499-9452
NC LICENSE No. C-0764



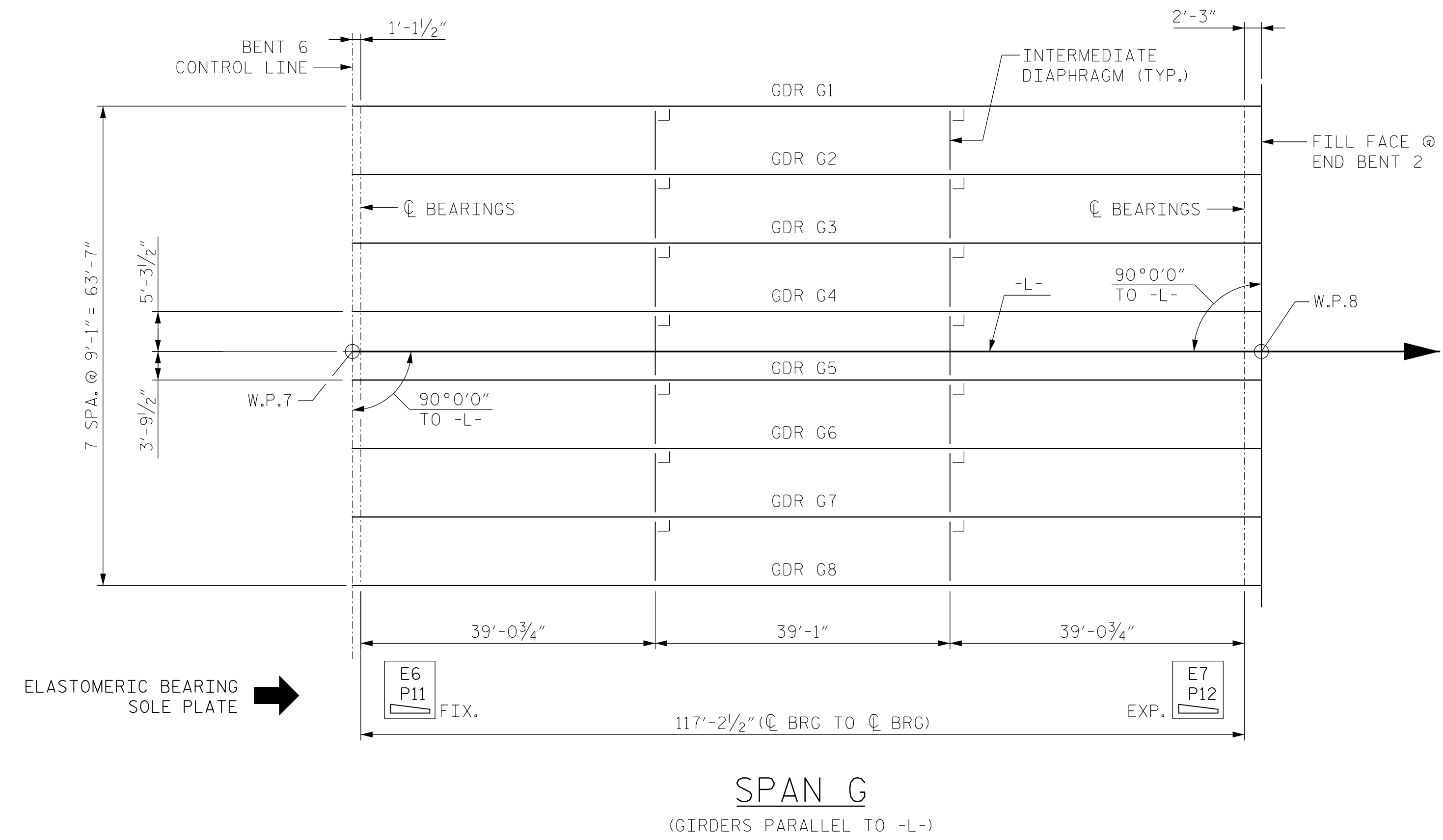
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			SHEETS
2			4			78

0400DEL_P30



DIMENSIONS			
GIRDER	A	B	C
F1	117'-1 ³ / ₈ "	38'-10 ³ / ₈ "	39'-0 "
F2	117'-3 ¹ / ₂ "	38'-11 ⁵ / ₈ "	39'-0 ⁷ / ₈ "
F3	117'-5 ⁵ / ₈ "	39'-0 ¹⁵ / ₁₆ "	39'-1 ¹¹ / ₁₆ "
F4	117'-7 ³ / ₄ "	39'-2 ¹ / ₄ "	39'-2 ¹ / ₂ "
F5	117'-9 ¹ / ₈ "	39'-3 ¹ / ₂ "	39'-3 ³ / ₈ "
F6	118'-0"	39'-4 ¹ / ₈ "	39'-4 ¹ / ₈ "
F7	118'-2 ¹ / ₈ "	39'-6 ¹ / ₈ "	39'-5 "
F8	118'-4 ¹ / ₄ "	39'-7 ³ / ₈ "	39'-5 ⁷ / ₈ "

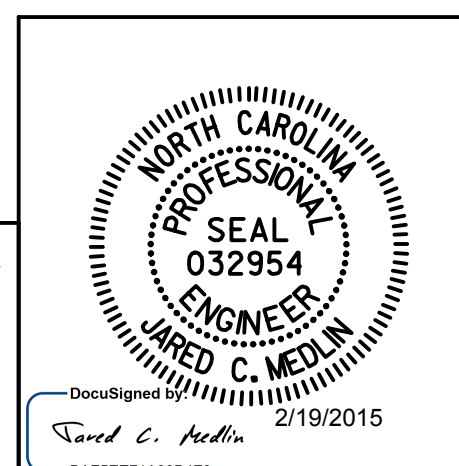
NOTES:
 ALL DIMENSION ARE FROM BENT CONTROL LINE AND WORK POINTS.
 SEE BEARING DETAILS FOR ELASTOMERIC BEARING AND SOLE PLATE DESIGNATIONS.



PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
FRAMING PLAN
 UNIT 2
 SPANS F & G

KCI ASSOCIATES OF NC, P.A.
 9741 SOUTHERN PINE BLVD
 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

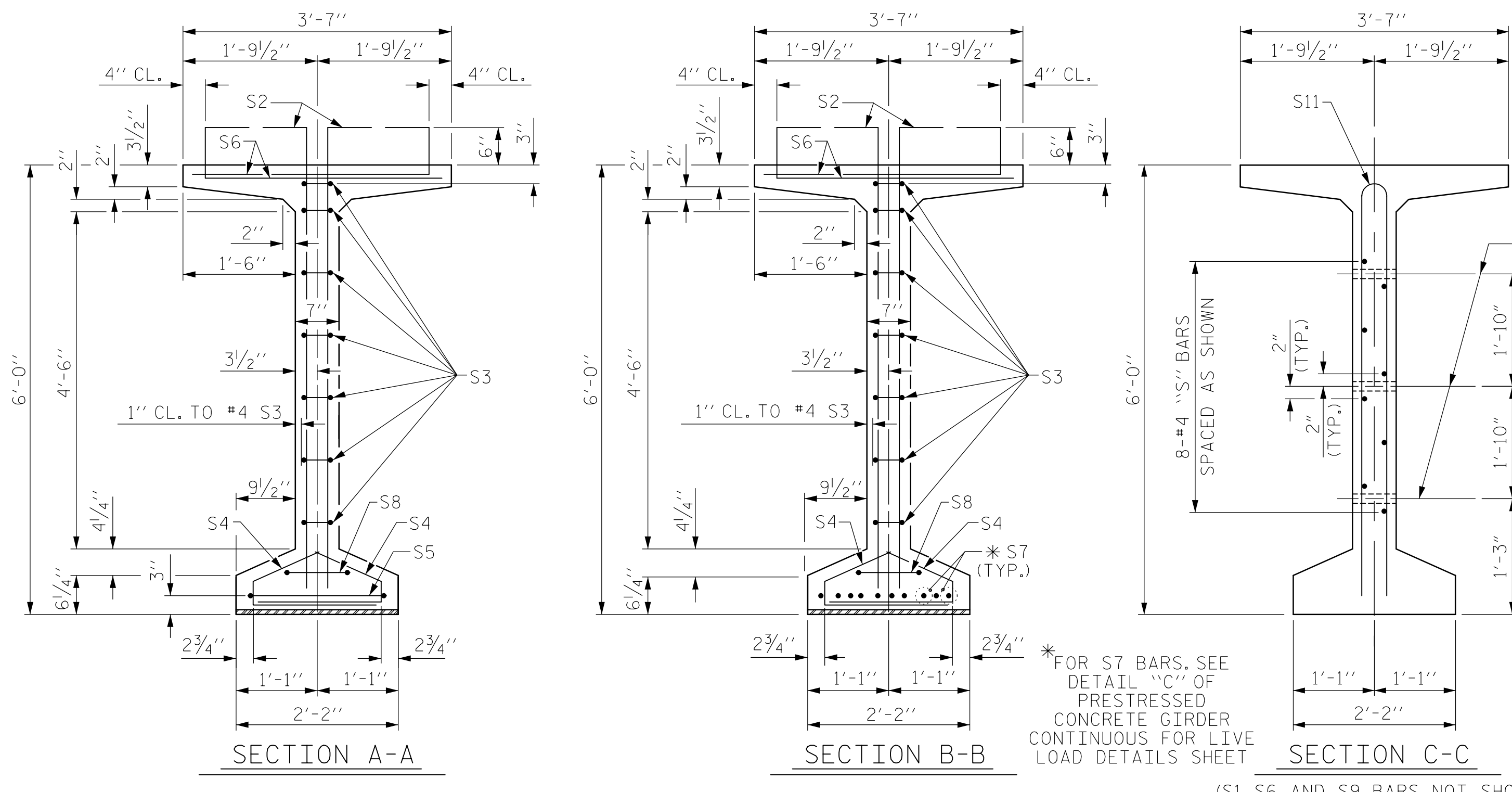


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20	
1			3			SHEETS	
2			4			78	

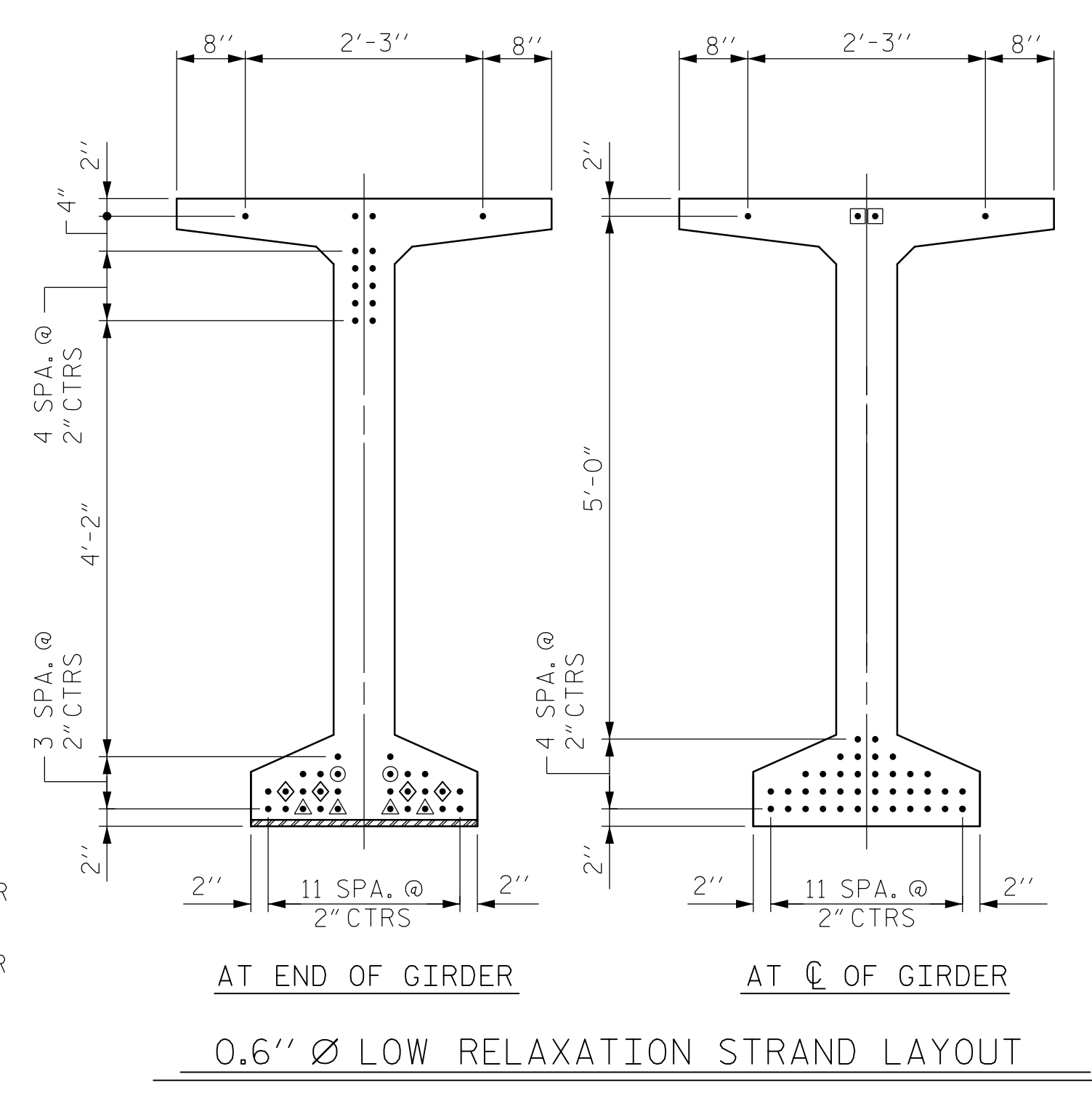
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 DRAWN BY : D.J.DICK DATE : OCT. 2014
 CHECKED BY : J.C.MEDLIN DATE : OCT. 2014

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0400DEL_P30



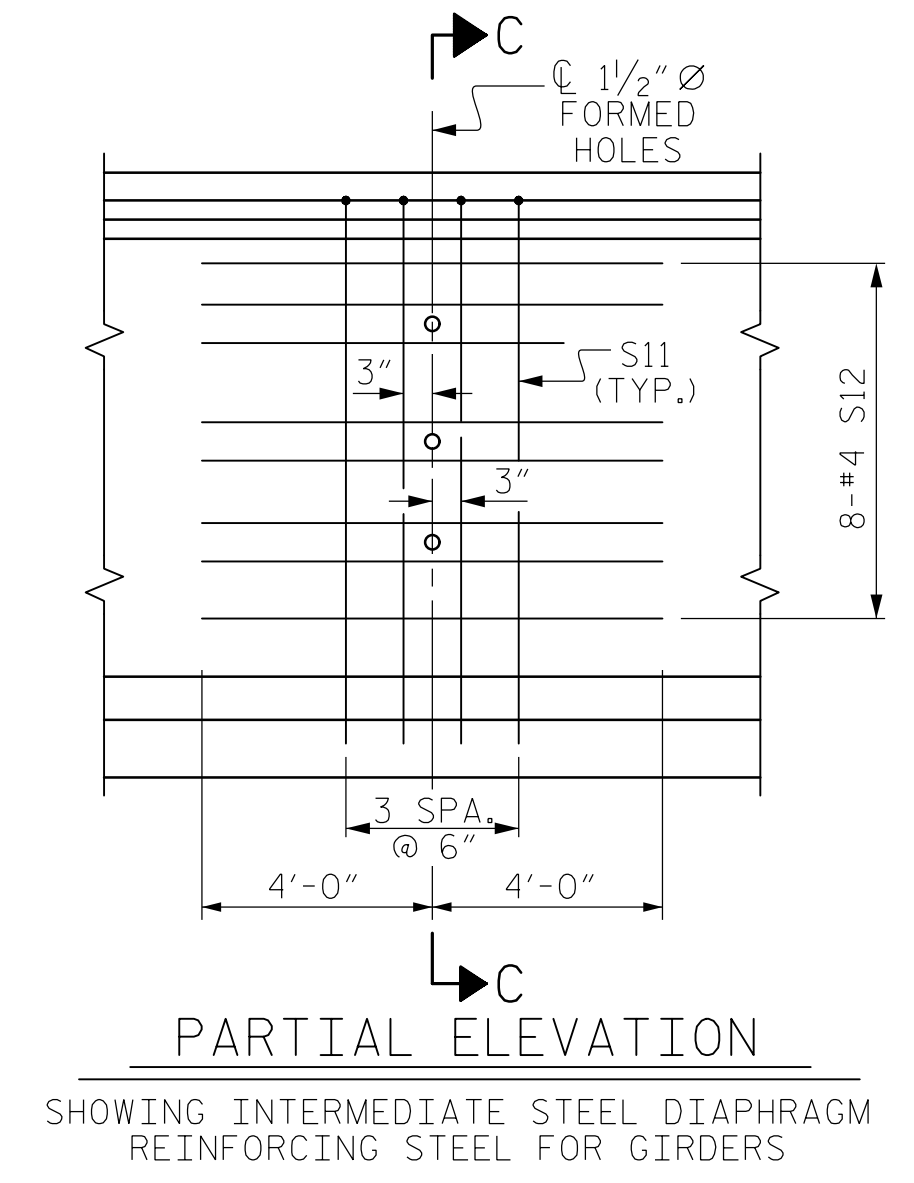
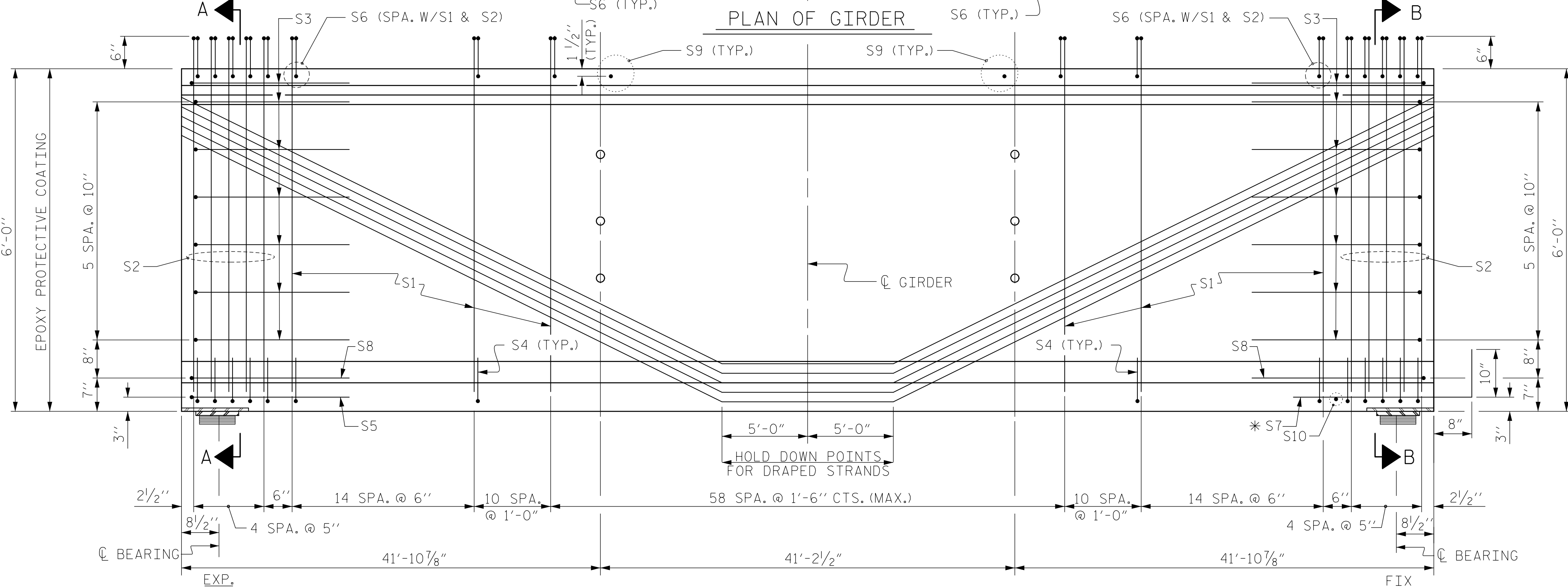
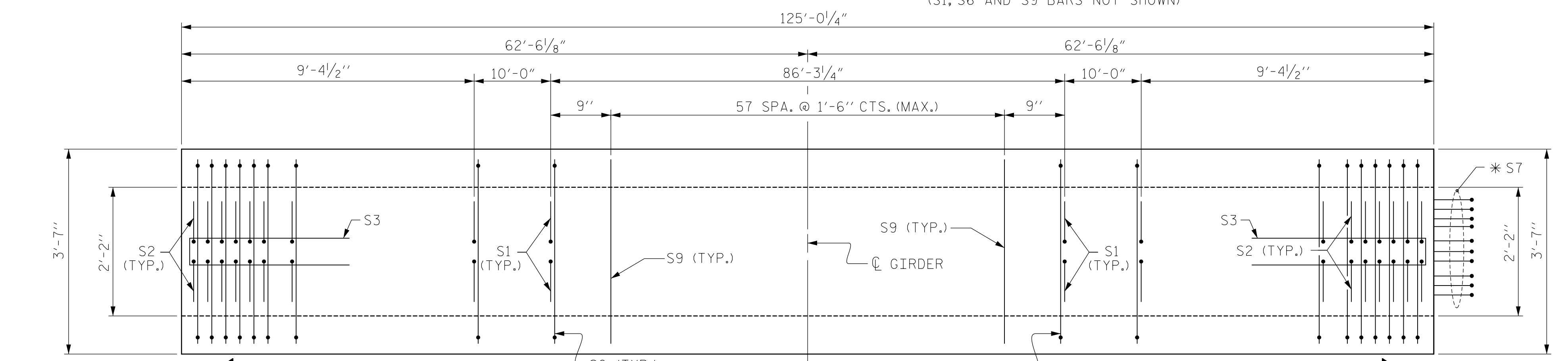
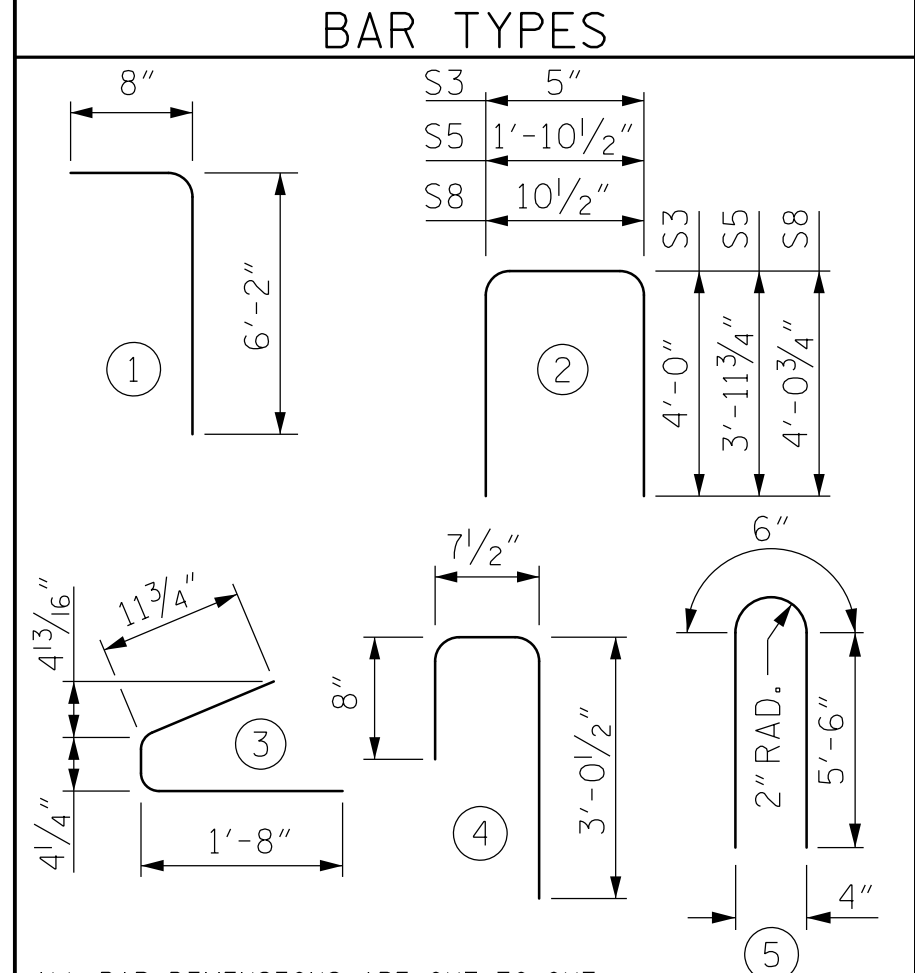
- DEBONDING LEGEND**
- FULLY BONDED STRANDS
 - STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
 - STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
 - STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER
 - STRANDS DEBONDED FOR 40'-0" IN EA. DIRECTION ABOUT C OF GIRDER (80'-0" TOTAL)



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	214	#5	1	6'-10"	1,525
S2	20	#6	1	6'-10"	205
S3	14	#4	2	8'-5"	79
S4	80	#4	3	3'-0"	160
S5	1	#5	2	9'-10"	10
S6	234	#5	4	4'-4"	1,058
*S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	58	#5	STR	3'-3"	197
S10	1	#3	STR	1'-10"	1
S11	8	#5	5	11'-6"	96
S12	16	#4	STR	8'-0"	86

*NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



QUANTITIES FOR ONE GIRDER			
GIRDER	REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
GIRDER	3,474	26.8	42

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
8	125'-0 1/4"	1000'-2"

PROJECT NO. U-5008
 MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

72" PRESTRESSED CONCRETE MODIFIED BULB TEE CONTINUOUS FOR LIVE LOAD SPAN A

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

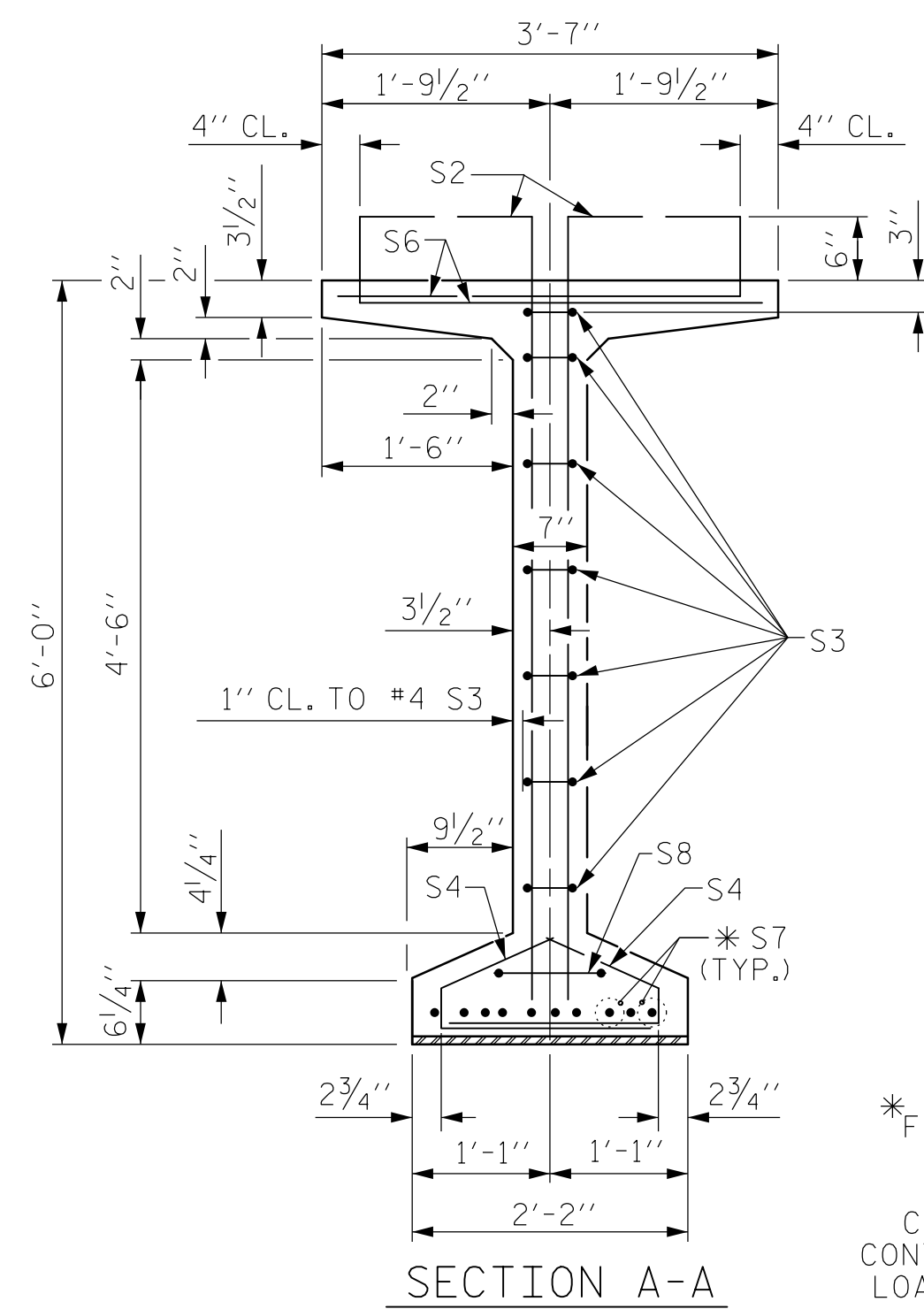
SHEET NO. S-21
 SHEETS 78

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 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

NORTH CAROLINA PROFESSIONAL SEAL 032954
 JARED C. MEDLIN
 2/19/2015

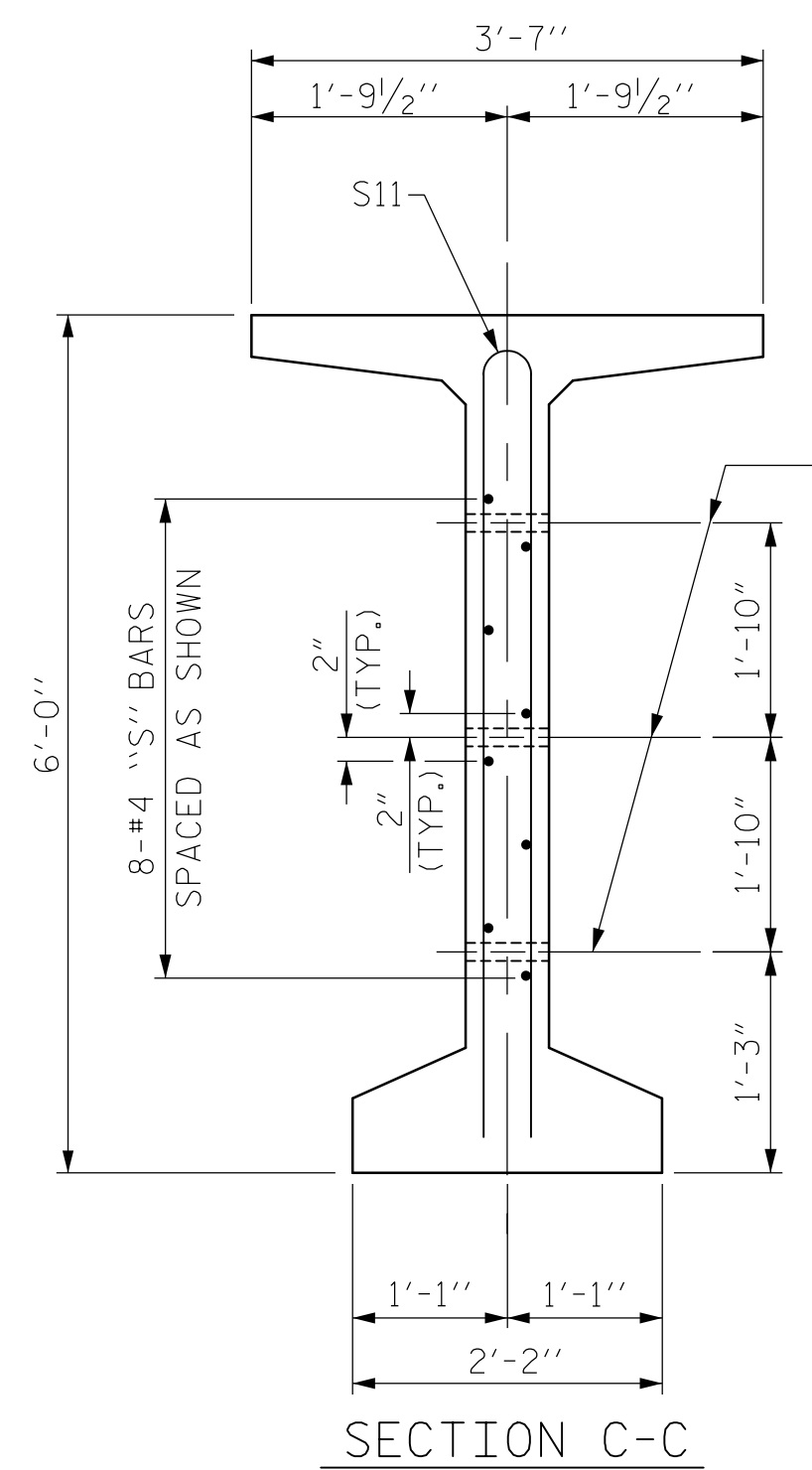
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DRAWN BY: M.S.BURGESS DATE: OCT. 2014
 CHECKED BY: J.C.MEDLIN DATE: OCT. 2014



SECTION A-A

*FOR S7 BARS. SEE
DETAIL "C" OF
PRESTRESSED
CONCRETE GIRDER
CONTINUOUS FOR LIVE
LOAD DETAILS SHEET



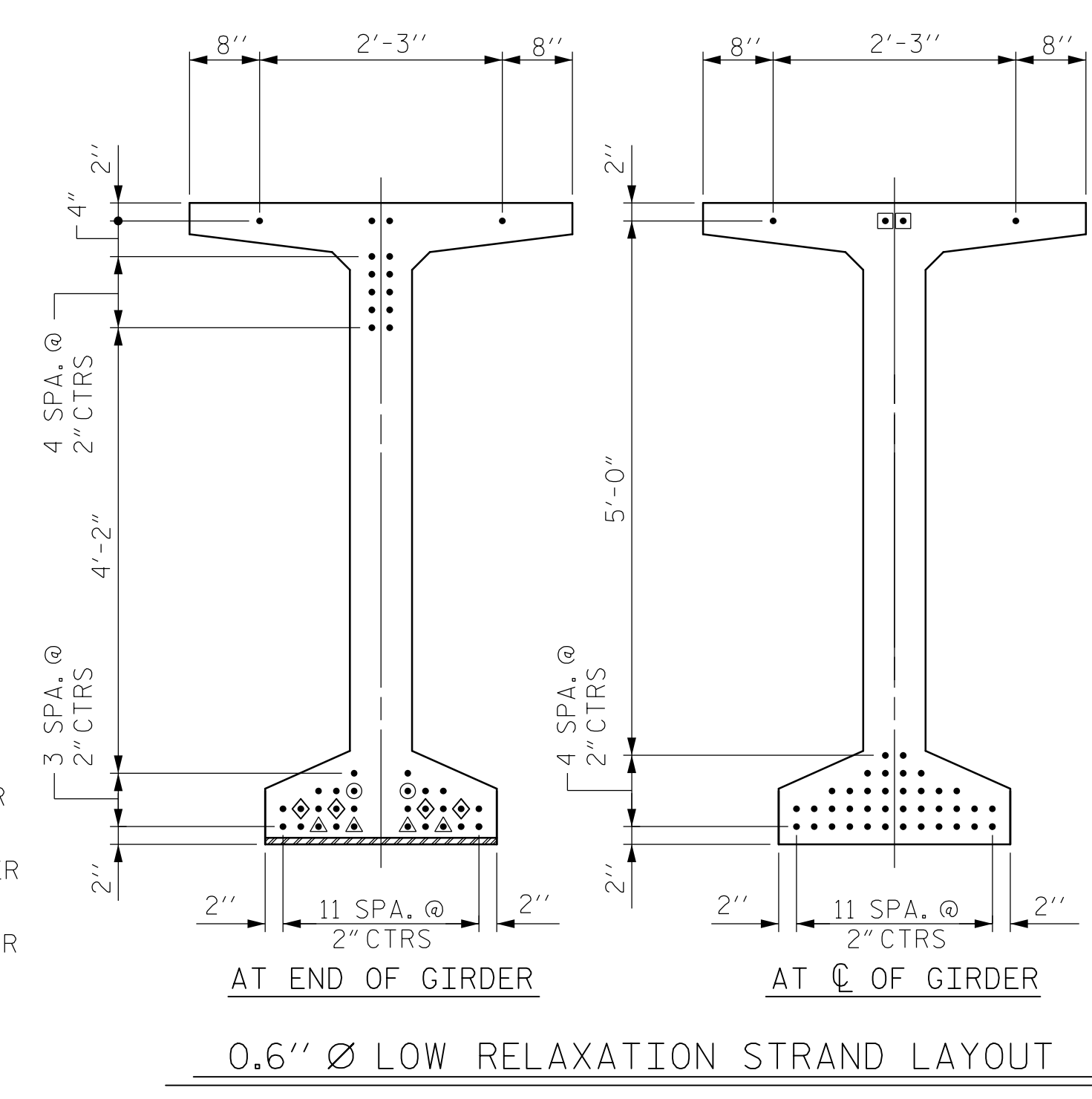
SECTION C-C

(S1, S6 AND S9 BARS NOT SHOWN)

1/2" Ø FORMED
HOLE. SEE ELEVATION
FOR LOCATION.

DEBONDING LEGEND

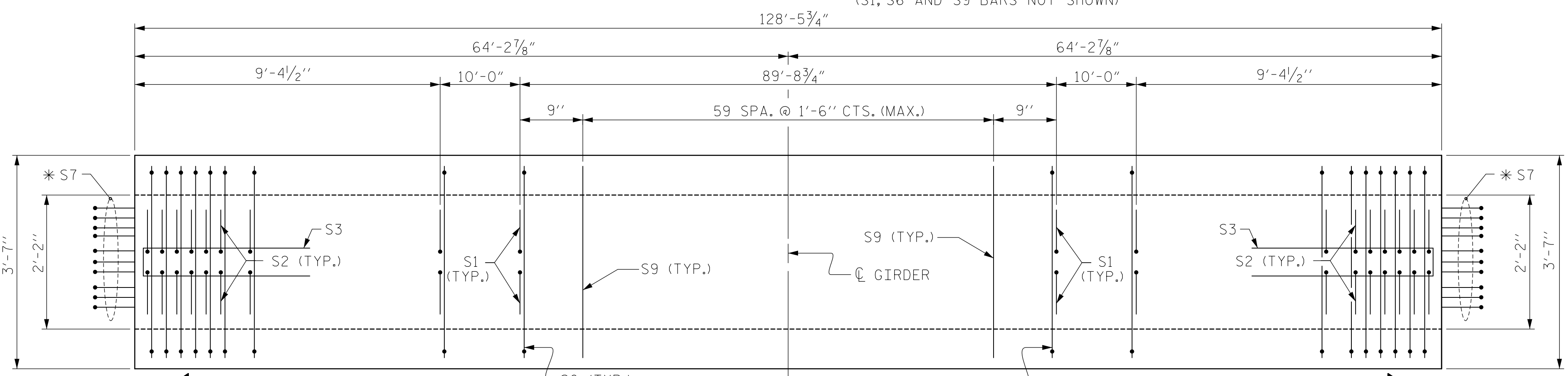
- FULLY BONDED STRANDS
- STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- ◇ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- △ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER
- ◻ STRANDS DEBONDED FOR 40'-0" IN EA. DIRECTION ABOUT C OF GIRDER (80'-0" TOTAL)



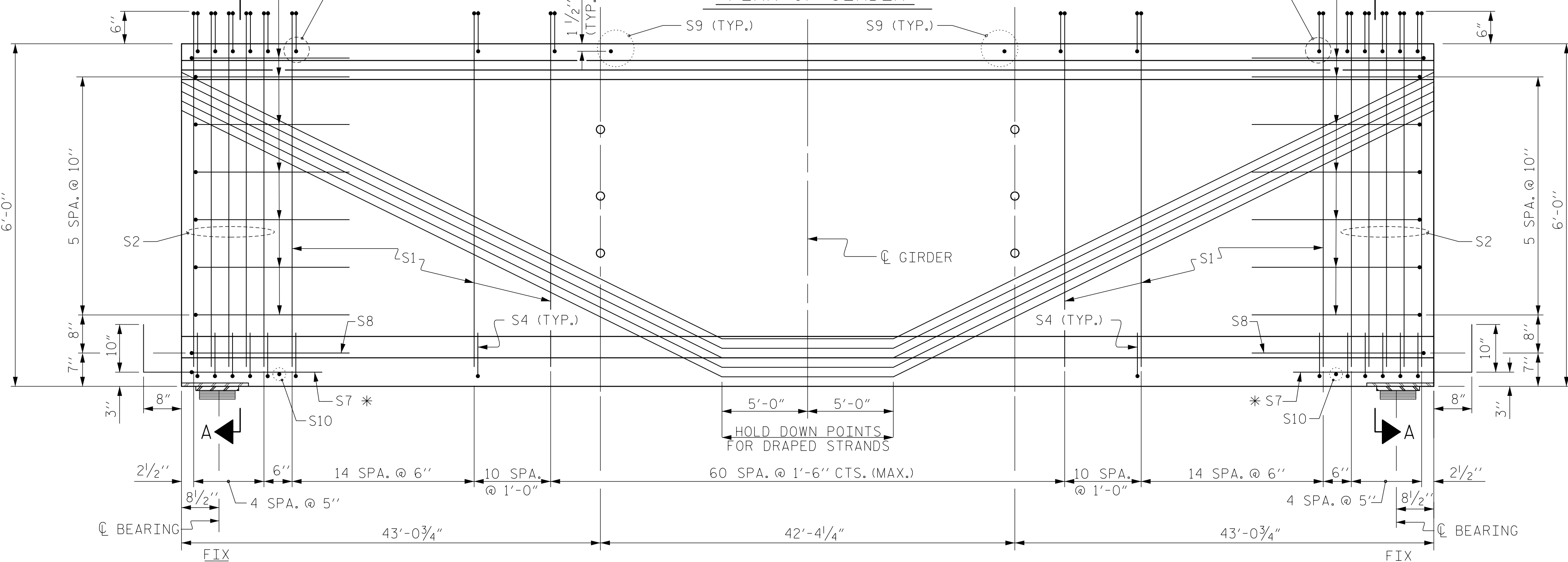
AT END OF GIRDER

AT C OF GIRDER

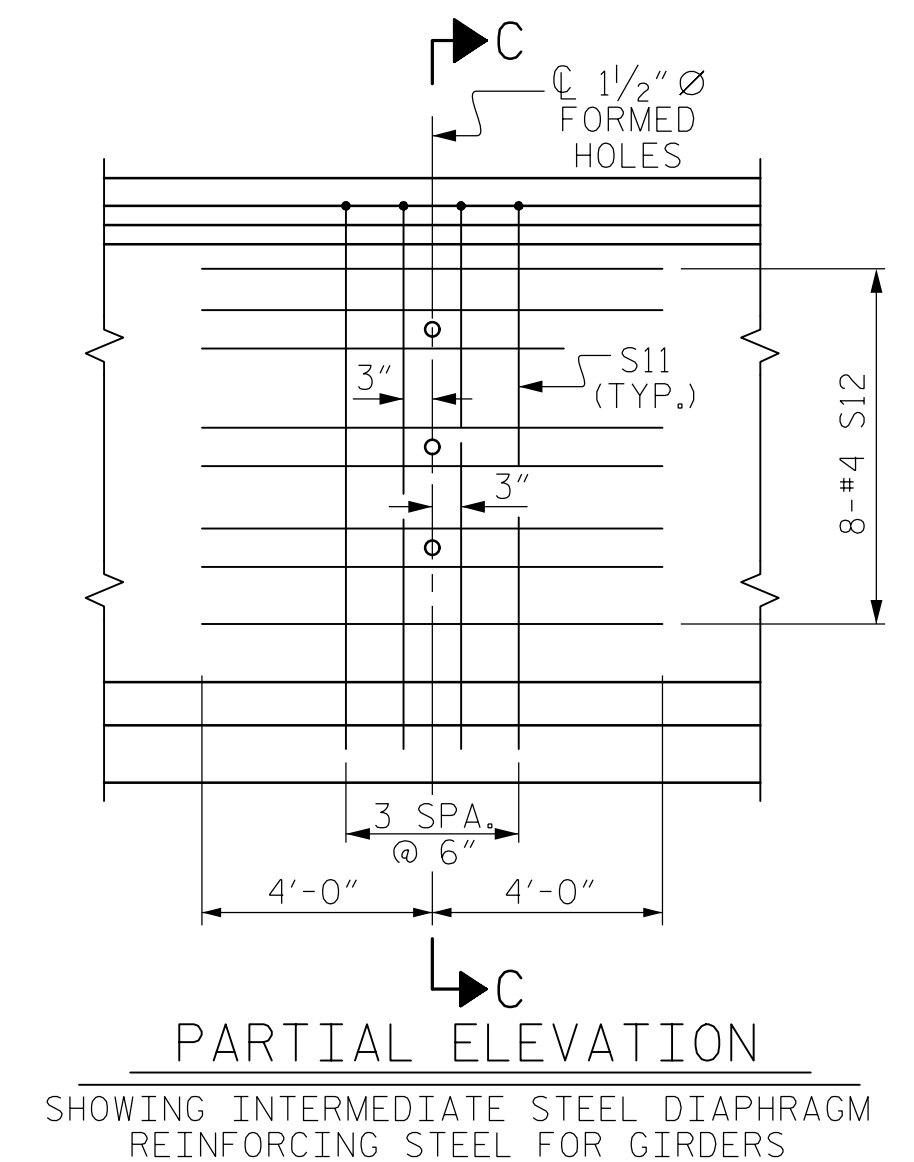
0.6" Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER



ELEVATION OF GIRDER



PARTIAL ELEVATION

SHOWING INTERMEDIATE STEEL DIAPHRAGM
REINFORCING STEEL FOR GIRDERS

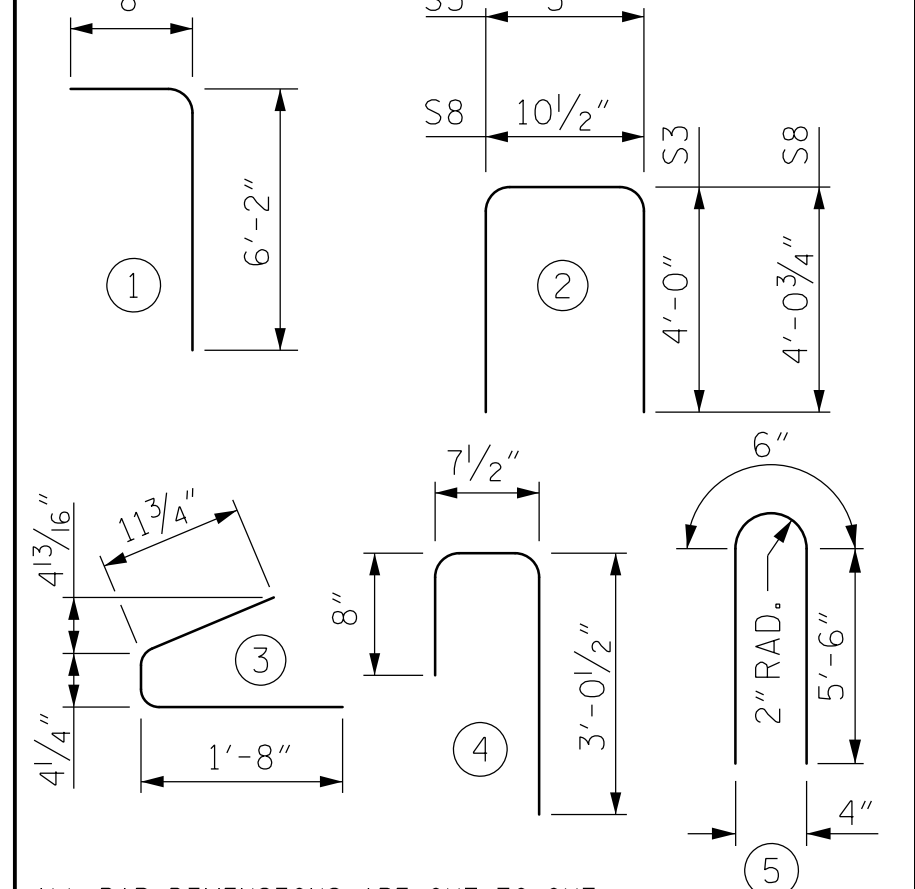
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GDR

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	218	#5	1	6'-10"	1,554
S2	20	#6	1	6'-10"	205
S3	14	#4	2	8'-5"	79
S4	80	#4	3	3'-0"	160
S6	238	#5	4	4'-4"	1,076
*S7	20	#5	STR	3'-8"	76
S8	2	#5	2	9'-0"	19
S9	60	#5	STR	3'-3"	203
S10	2	#3	STR	1'-10"	1
S11	8	#5	5	11'-6"	96
S12	16	#4	STR	8'-0"	86

*NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT-TO-OUT

QUANTITIES FOR ONE GIRDER

GIRDER	REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
GIRDER	3,555	27.5	42

GIRDERS REQUIRED

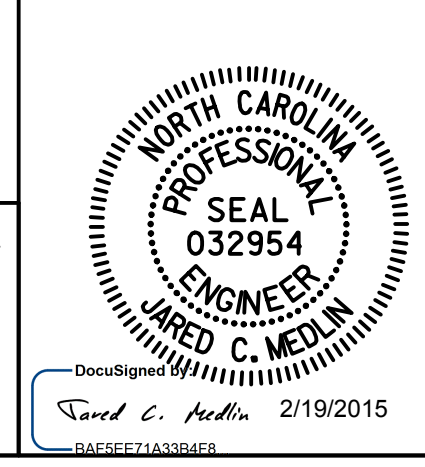
NUMBER	LENGTH	TOTAL LENGTH
8	128'-5 3/4"	1027'-10"

PROJECT NO. U-5008
MECKLENBURG COUNTY
STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.

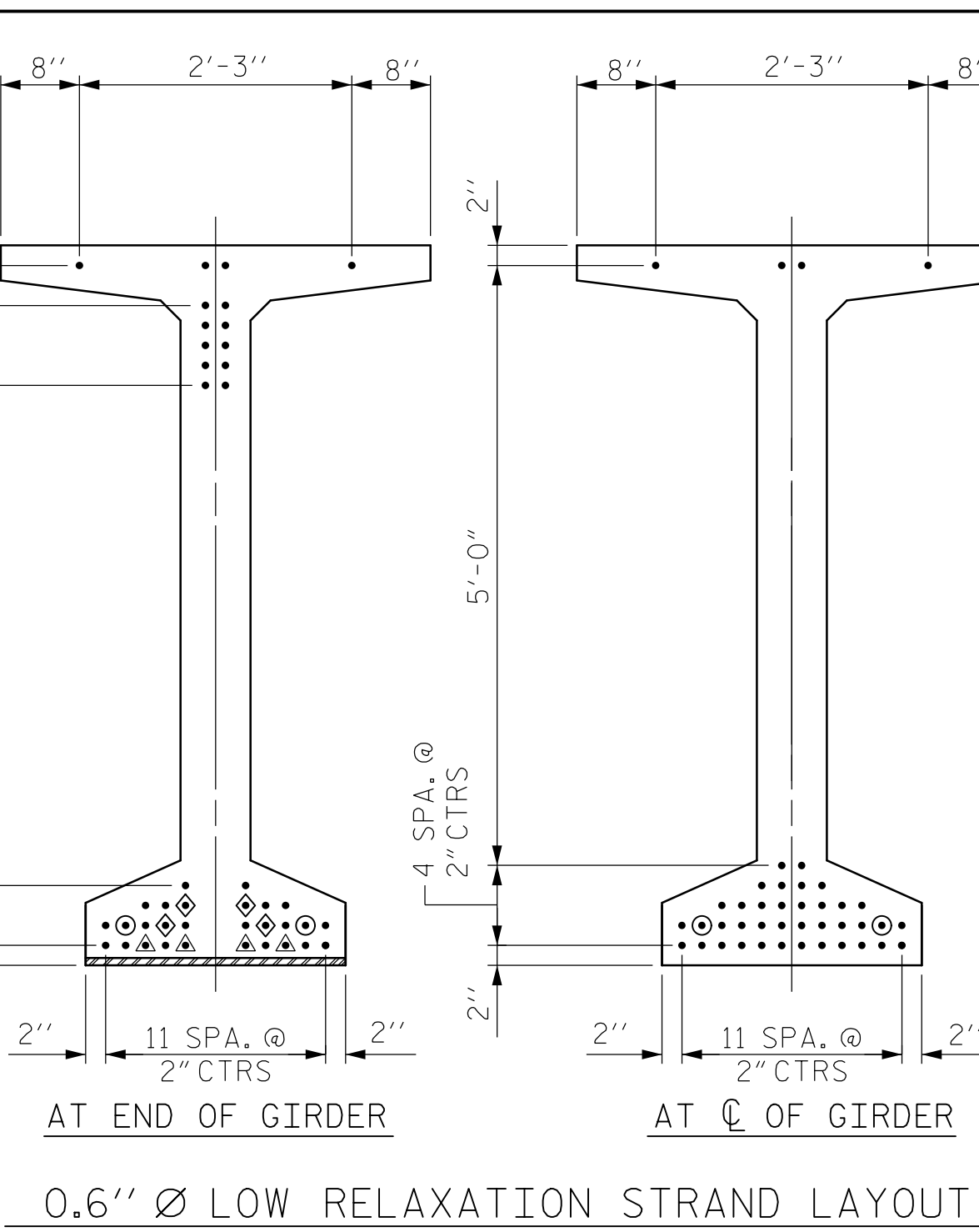
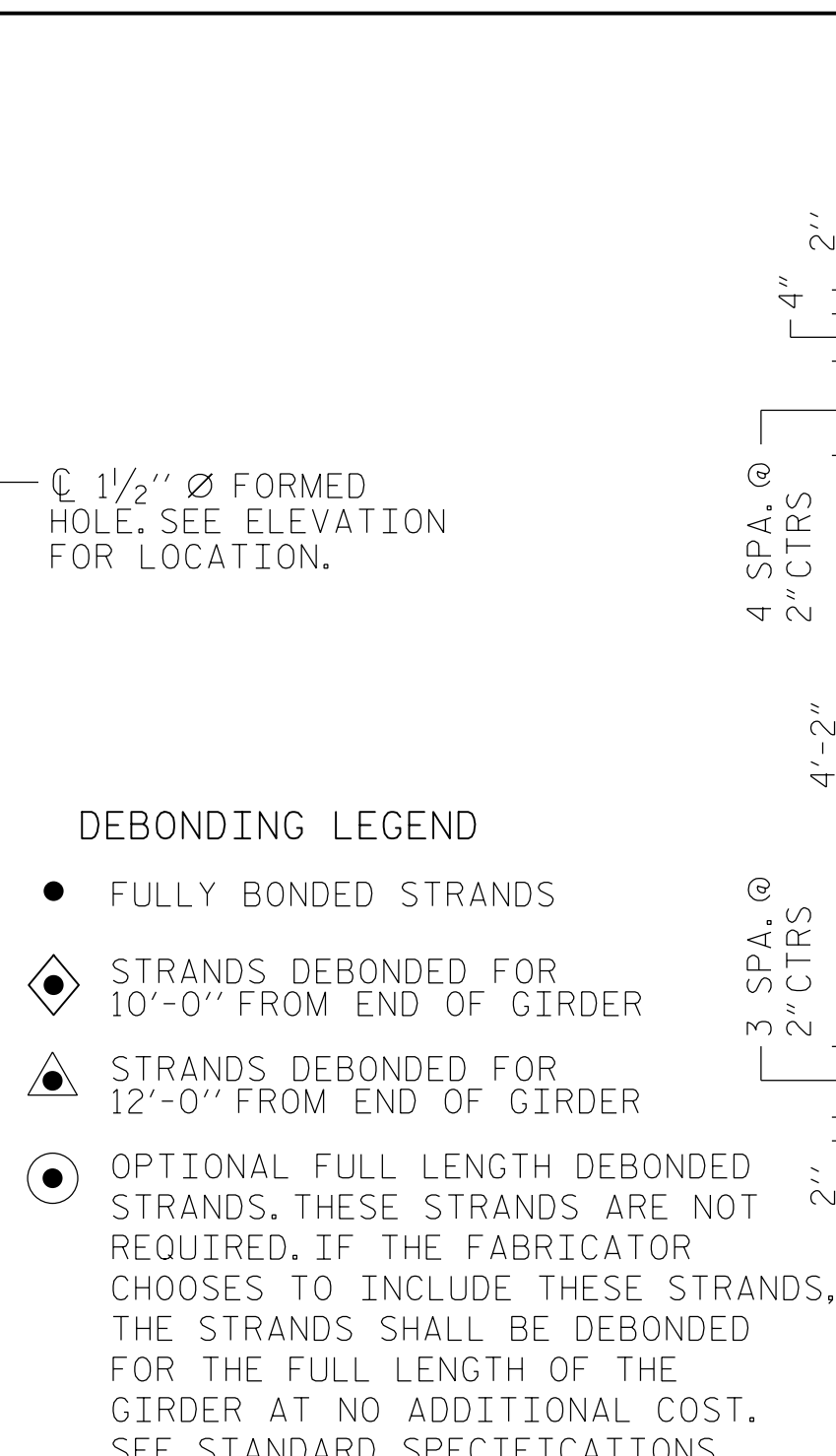
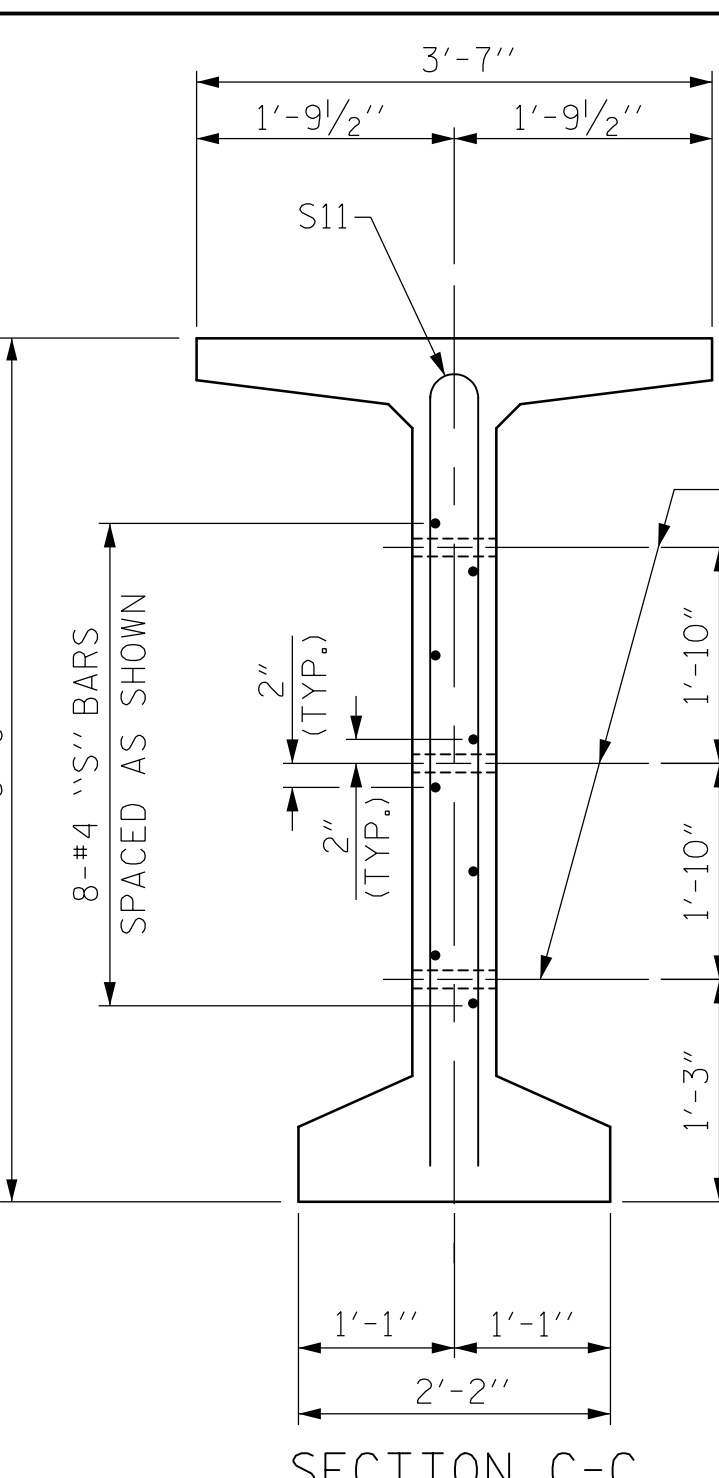
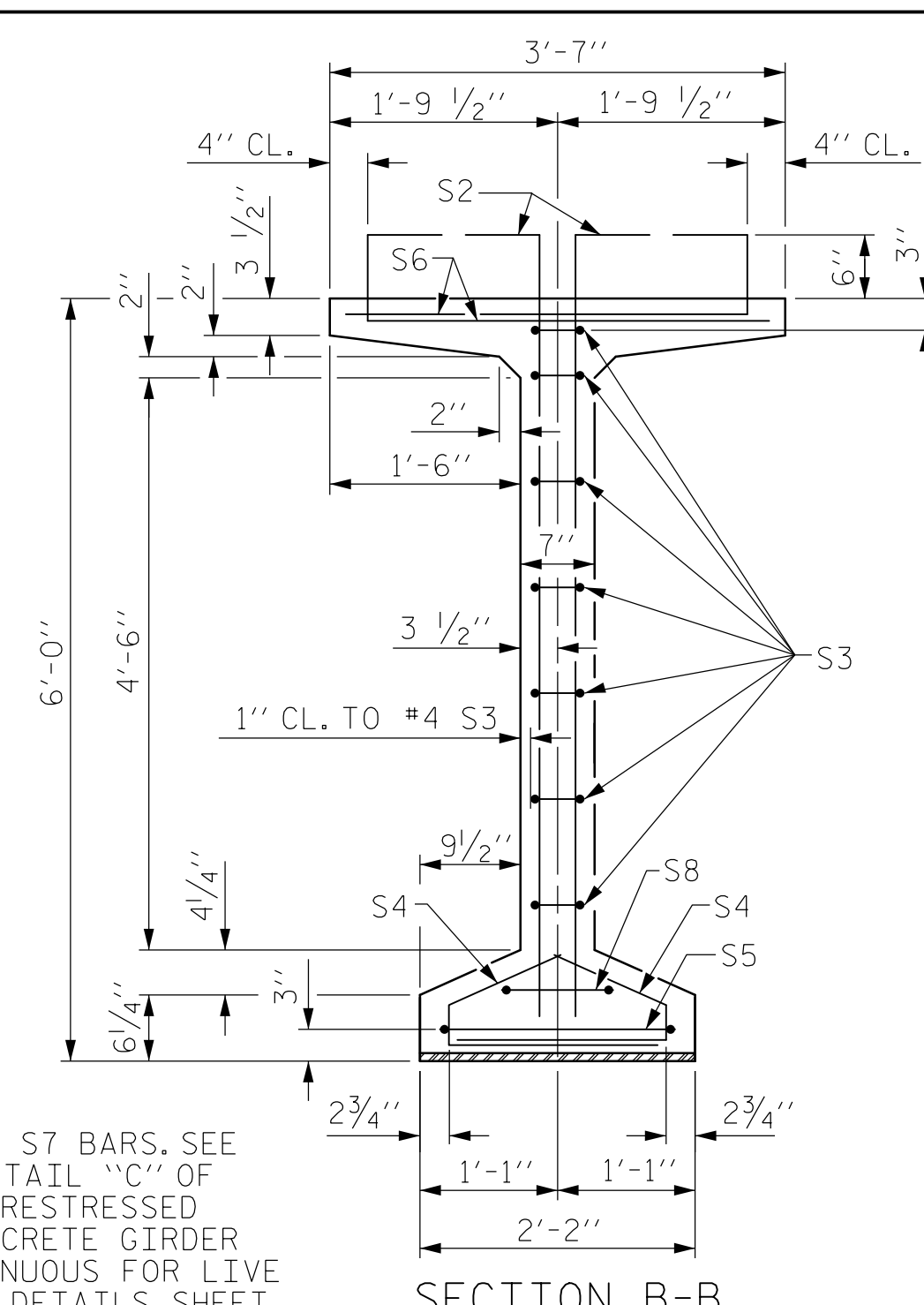
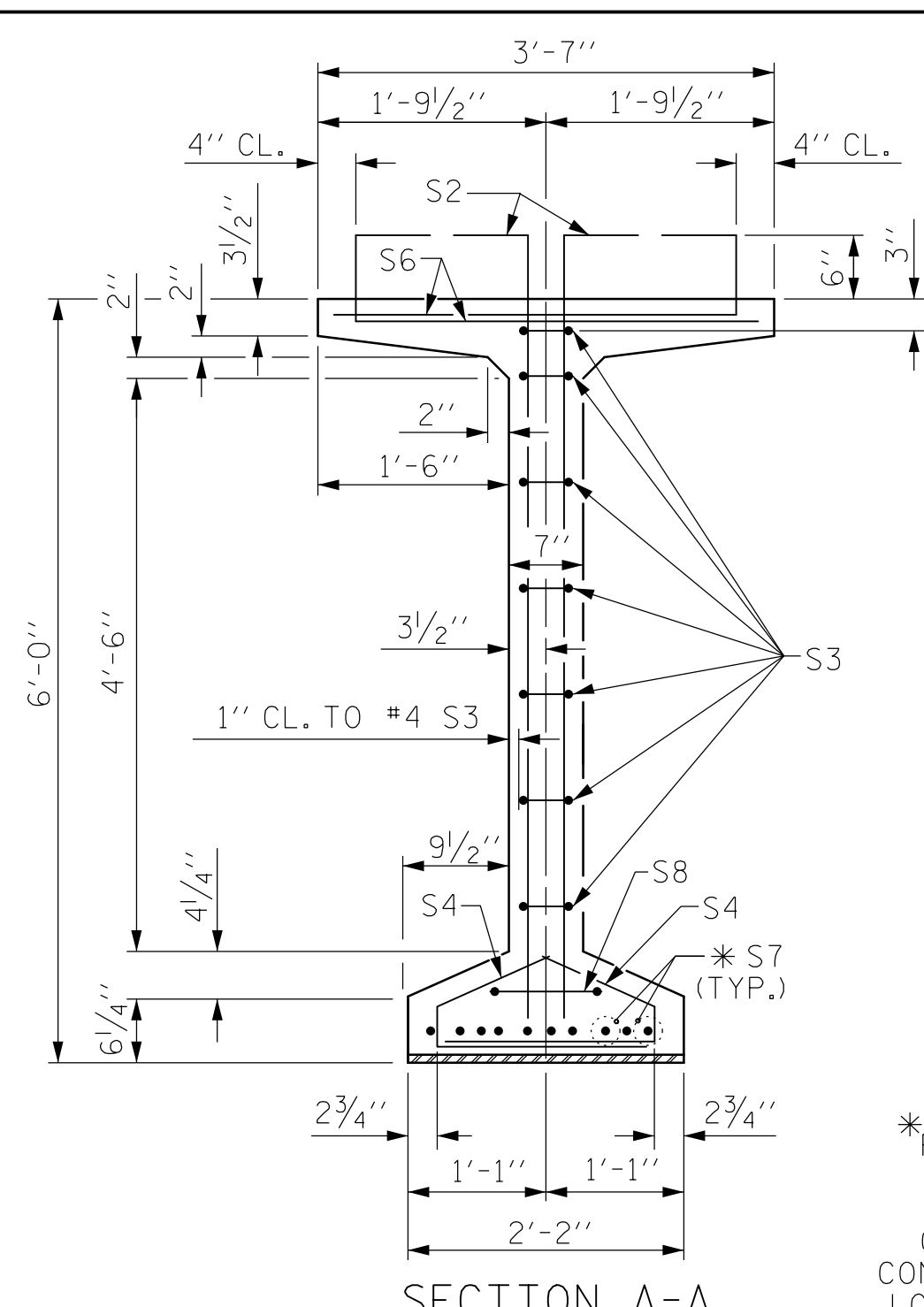
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

72" PRESTRESSED CONCRETE
MODIFIED BULB TEE
CONTINUOUS FOR LIVE LOAD
SPAN B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			SHEETS
2			4			78



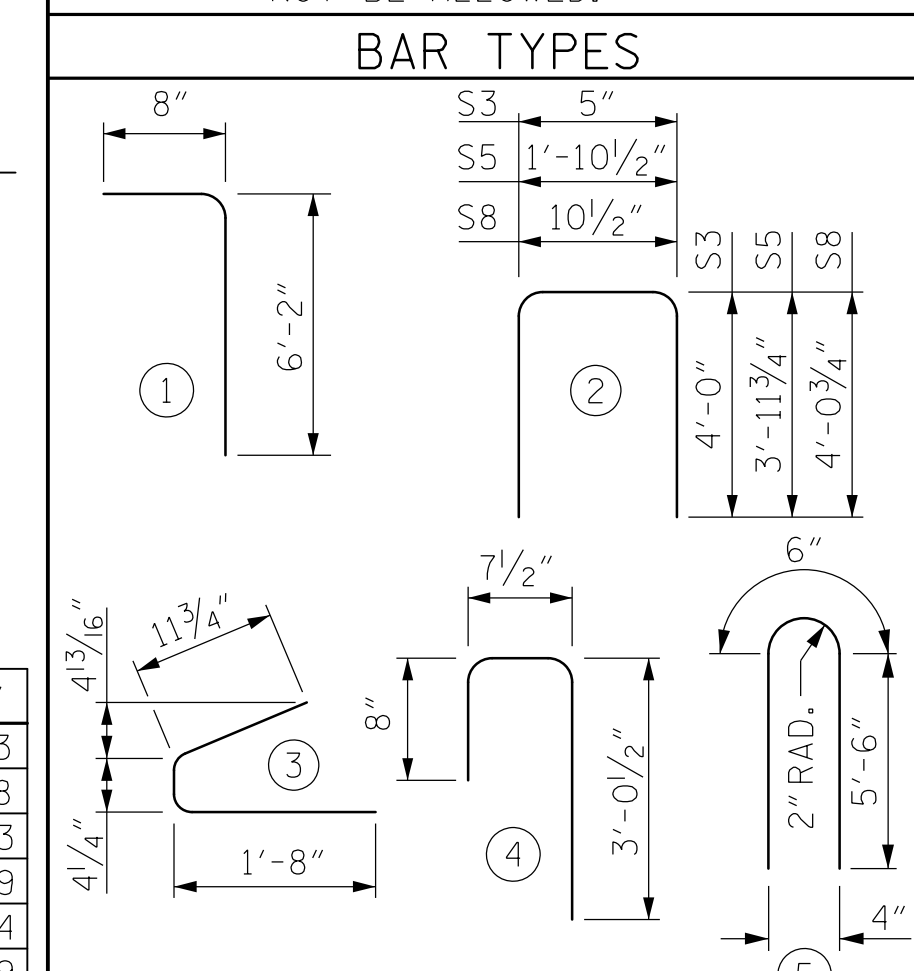
0400DEL_P30



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

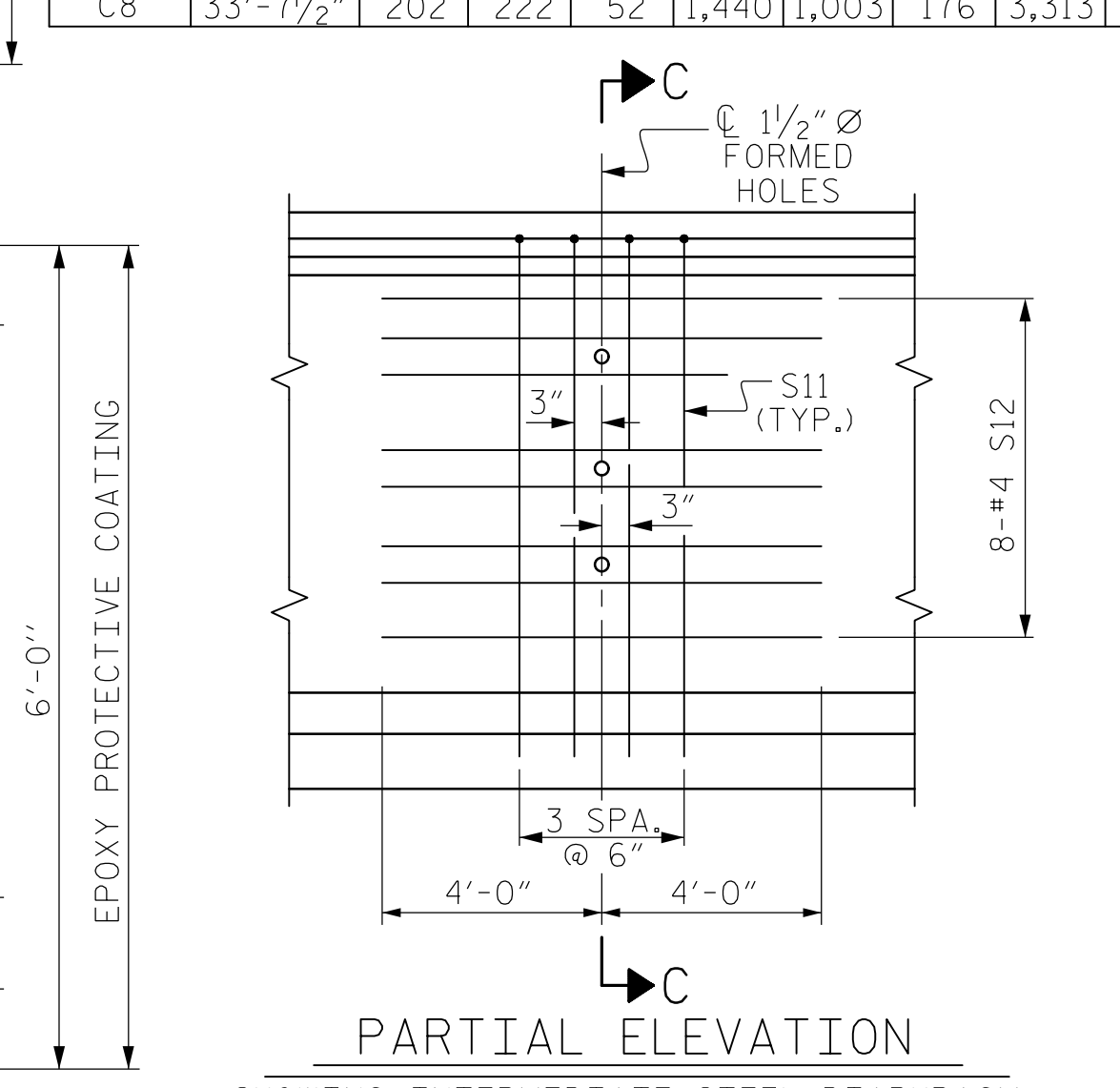
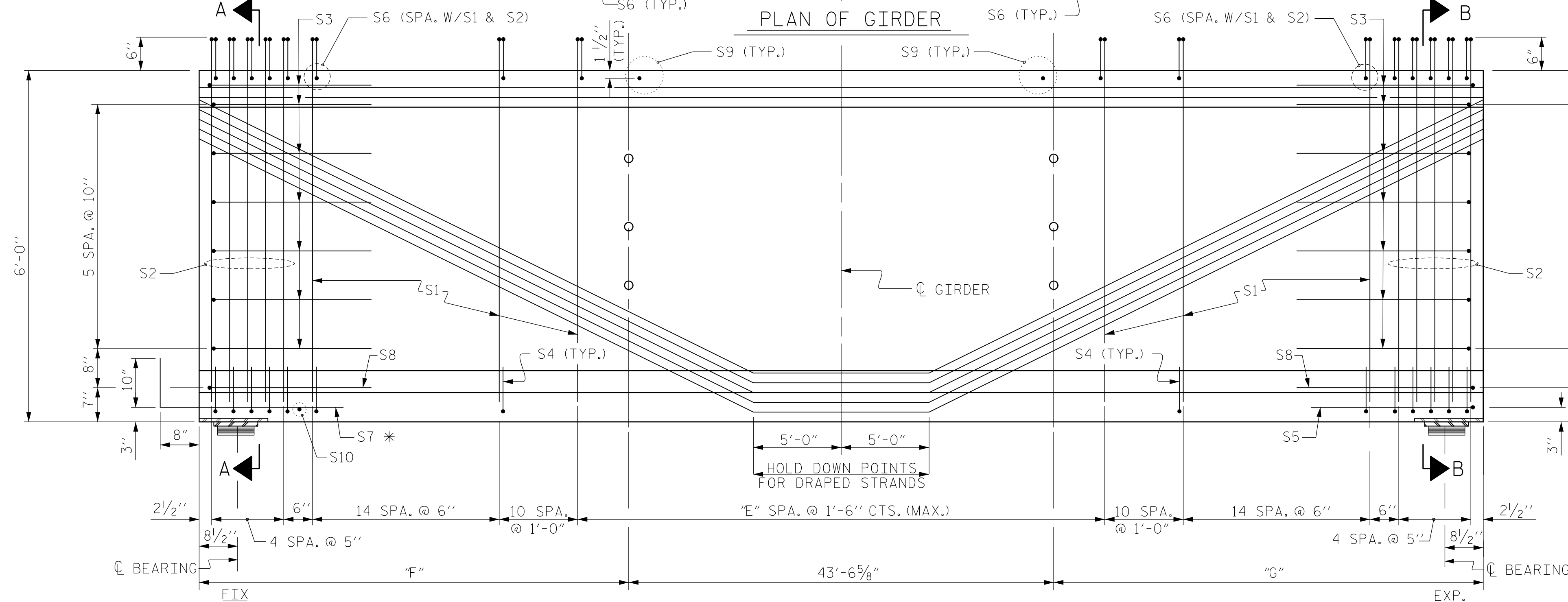
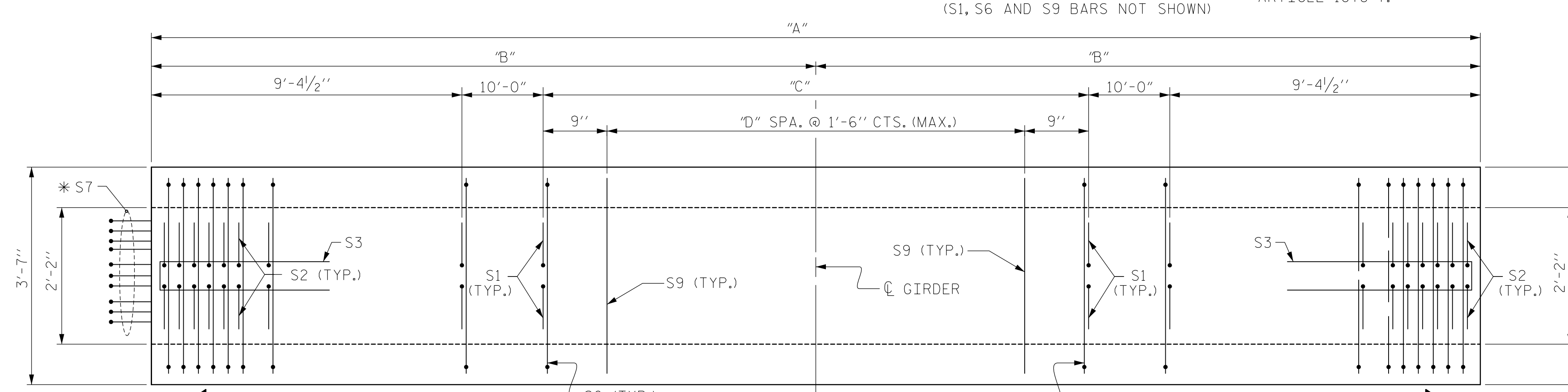
REINFORCING STEEL FOR ONE GDR					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	"H"	#5	1	6'-10"	"L"
S2	20	#6	1	6'-10"	205
S3	14	#4	2	8'-5"	79
S4	80	#4	3	3'-0"	160
S5	1	#5	2	9'-10"	10
S6	"J"	#5	4	4'-4"	"M"
*S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	"K"	#5	STR	3'-3"	"N"
S10	1	#3	STR	1'-10"	1
S11	8	#5	5	11'-6"	96
S12	16	#4	STR	8'-0"	86

* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



GIRDER	"A"	"B"	"C"	"D"	"E"	"F"
C1	99'-3 3/8"	49'-7 1/16"	60'-6 3/8"	40	41	22'-10"
C2	101'-8 1/8"	50'-10 1/16"	62'-11 1/8"	41	42	25'-2 1/4"
C3	104'-2 3/8"	52'-13 1/16"	65'-5 3/8"	43	44	27'-6 1/2"
C4	106'-8"	53'-4"	67'-11"	45	46	29'-10 3/16"
C5	109'-1 1/2"	54'-6 3/4"	70'-4 1/2"	46	47	32'-3 1/16"
C6	111'-7"	55'-9 1/2"	72'-10"	48	49	34'-7 3/8"
C7	114'-0 1/2"	57'-0 1/4"	75'-3 1/2"	50	51	36'-11 5/8"
C8	116'-6"	58'-3"	77'-9"	51	52	39'-3 3/8"

GIRDER	"G"	"H"	"J"	"K"	"L"	"M"	"N"	"P"	"R"
C1	32'-10 3/4"	180	200	41	1,283	904	139	3,020	21.3
C2	33'-0"	182	202	42	1,297	913	142	3,046	21.8
C3	33'-1 1/4"	186	206	44	1,326	931	149	3,100	22.3
C4	33'-2 9/16"	190	210	46	1,354	949	156	3,153	22.9
C5	33'-3 3/16"	192	212	47	1,368	958	159	3,179	23.4
C6	33'-5"	196	216	49	1,397	976	166	3,233	23.9
C7	33'-6 1/4"	200	220	51	1,425	994	173	3,286	24.4
C8	33'-7 1/2"	202	222	52	1,440	1,003	176	3,313	25.0



QUANTITIES FOR ONE GIRDER			
GIRDER	REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
GIRDER	"P"	"R"	40

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
8	"A"	863'-1 5/8"

PROJECT NO. U-5008
 MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 SPAN C

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

SHEET NO. S-23
 SHEETS 78

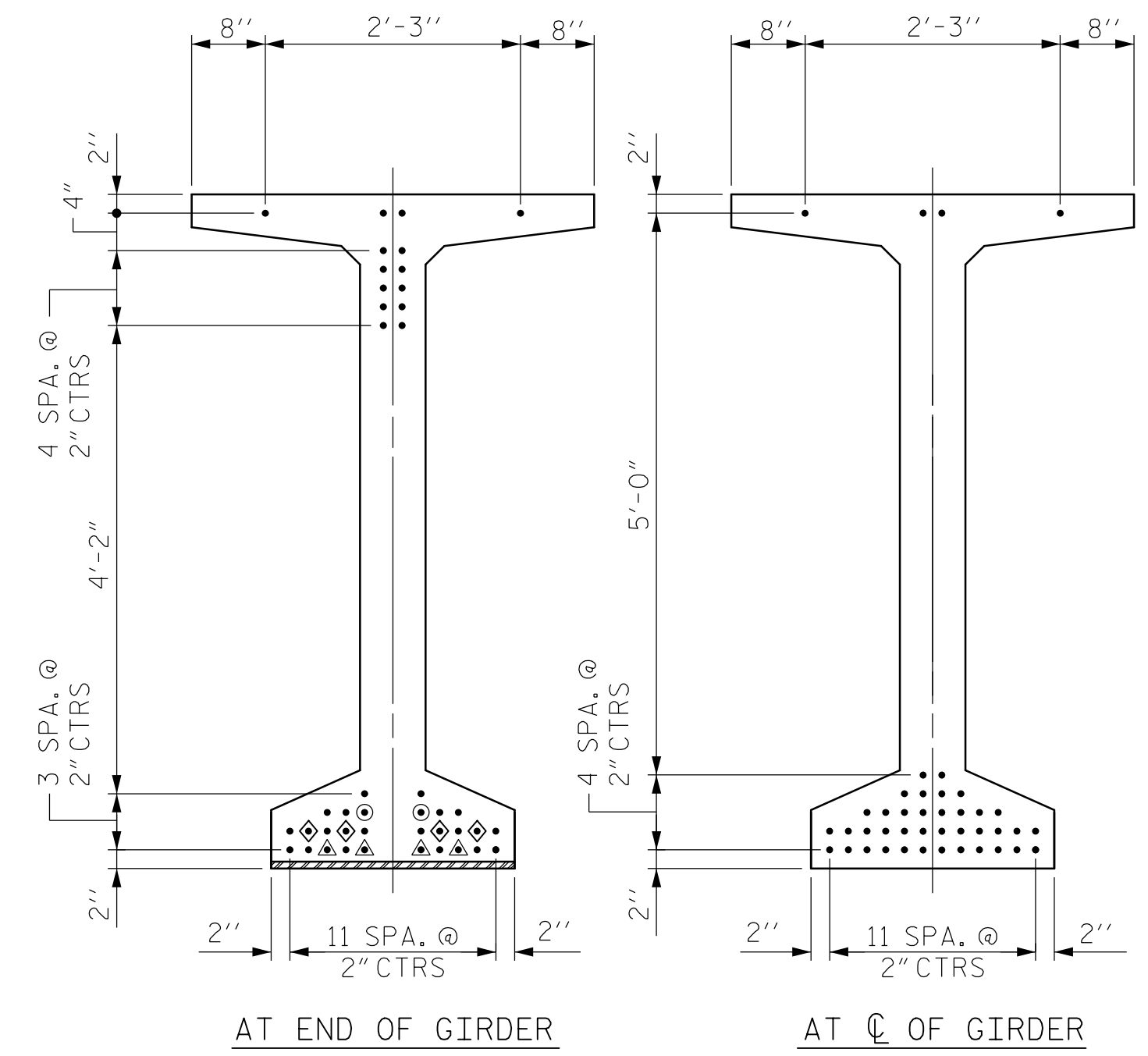
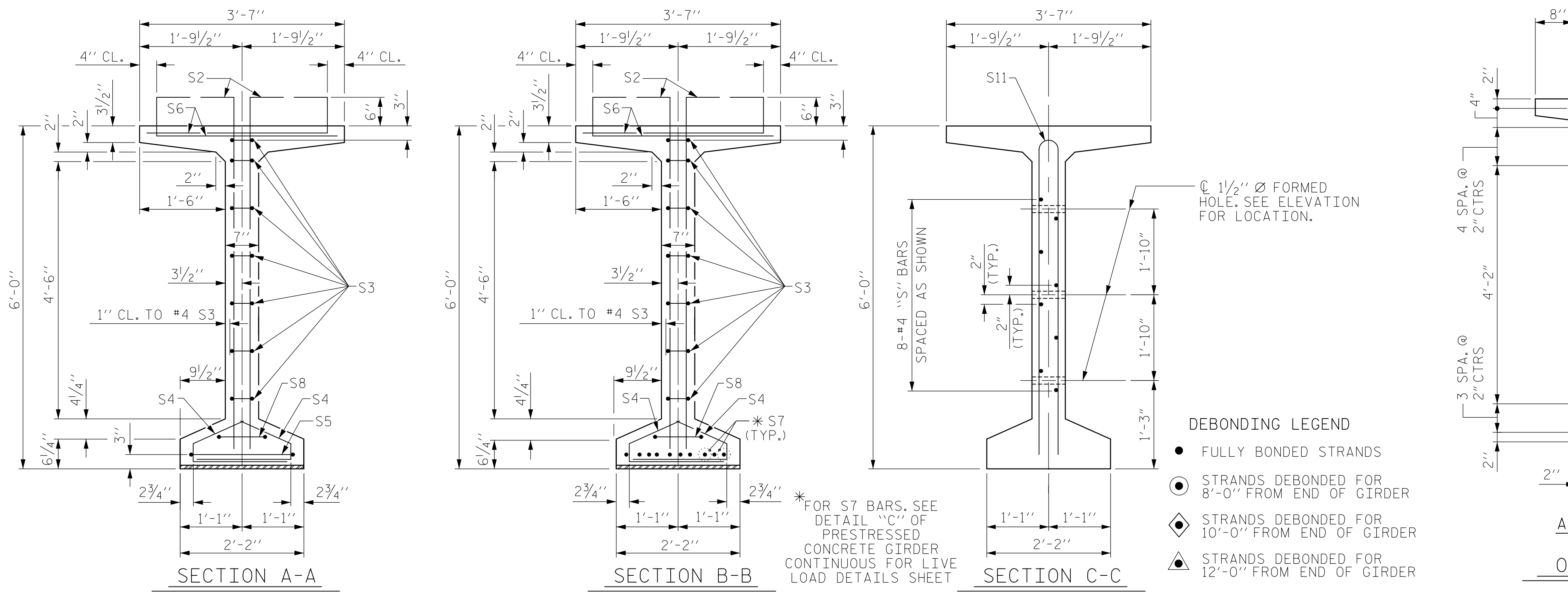
KCI ASSOCIATES OF NC, P.A.
 9741 SOUTHERN PINE BLVD
 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

NORTH CAROLINA
 PROFESSIONAL SEAL
 032954
 ENGINEER
 JARED C. MEDLIN
 JARED C. MEDLIN
 2/19/2015

2/18/2015 Y:\D:\ewings\2011 DWG\NB11-11 Sugar Creek Rd - NCDOT\Structures\RFC\SH23-U-5008_SD_PCC-1_Span C.dgn

DRAWN BY: M.S.BURGESS DATE: OCT. 2014
 CHECKED BY: J.C.MEDLIN DATE: OCT. 2014

0400DEL_P30



0.6" Ø LOW RELAXATION STRAND LAYOUT

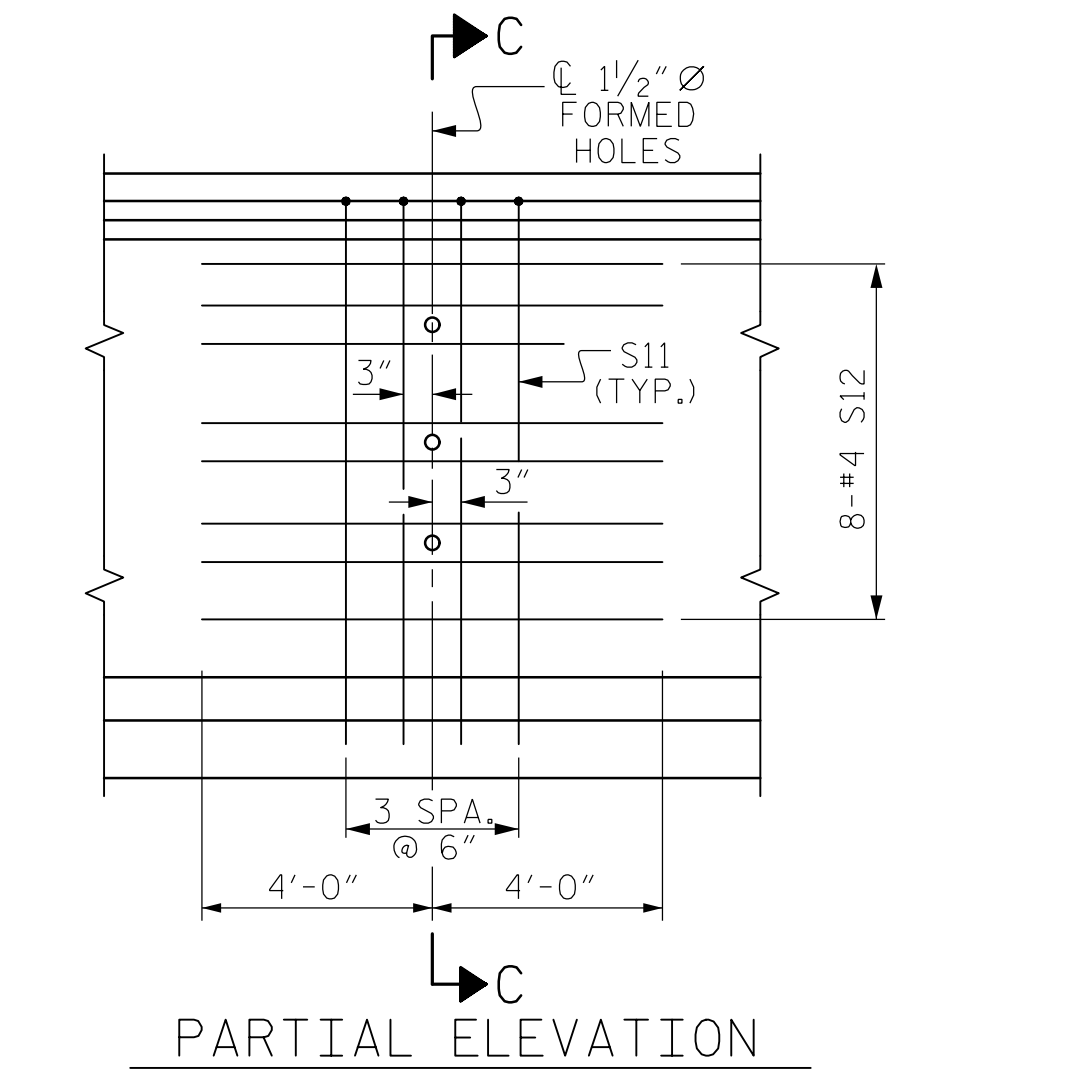
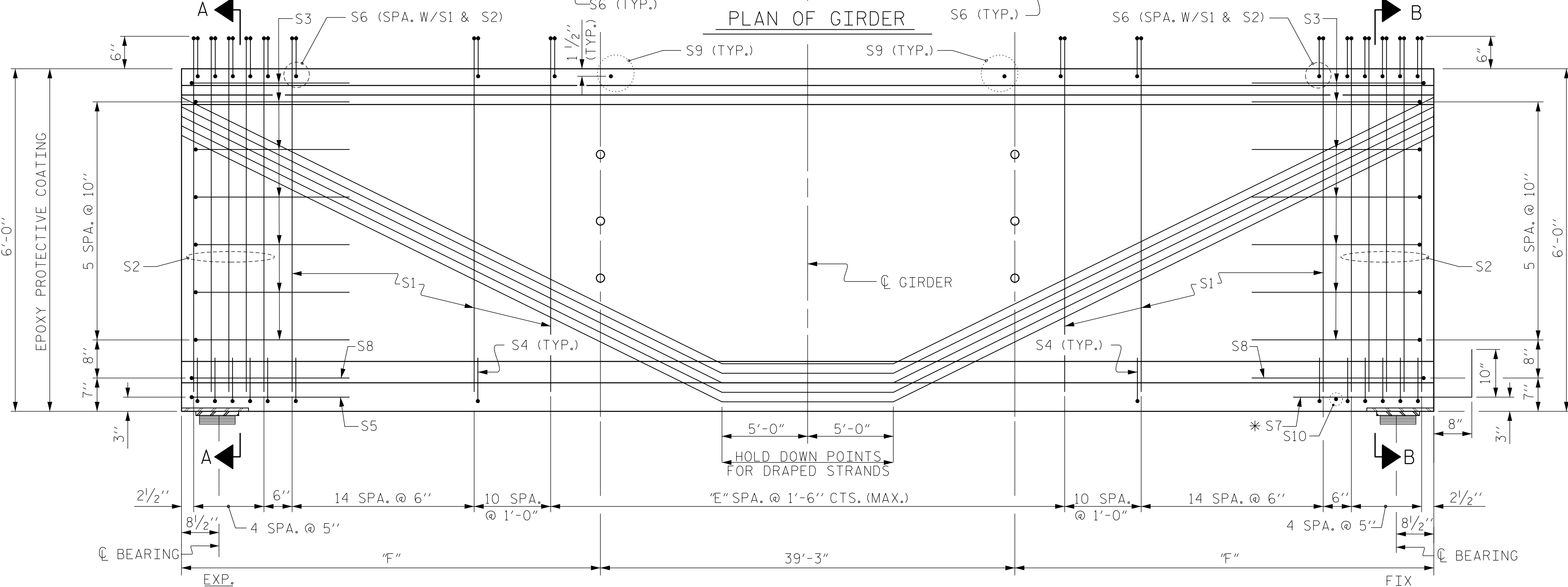
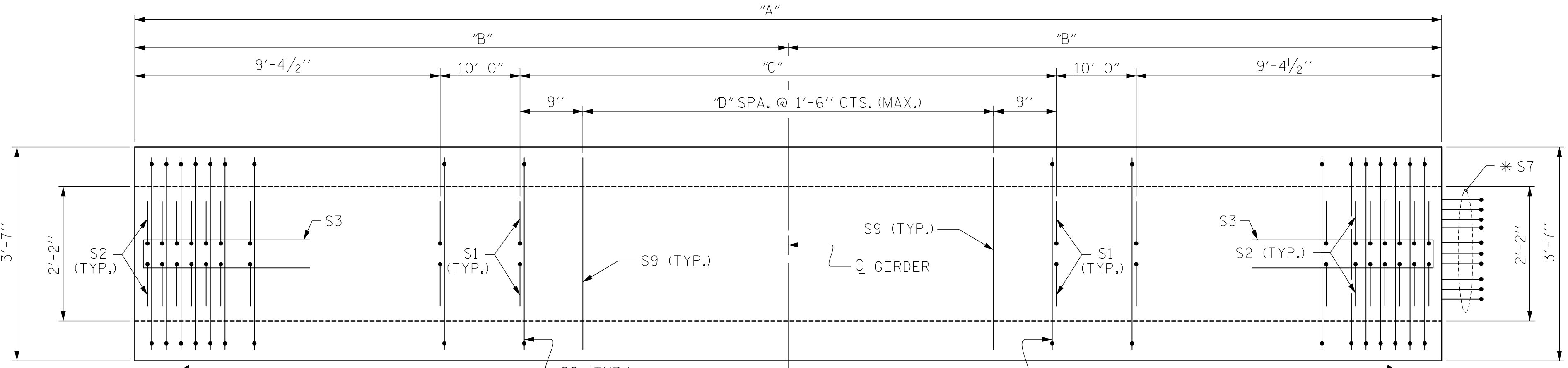
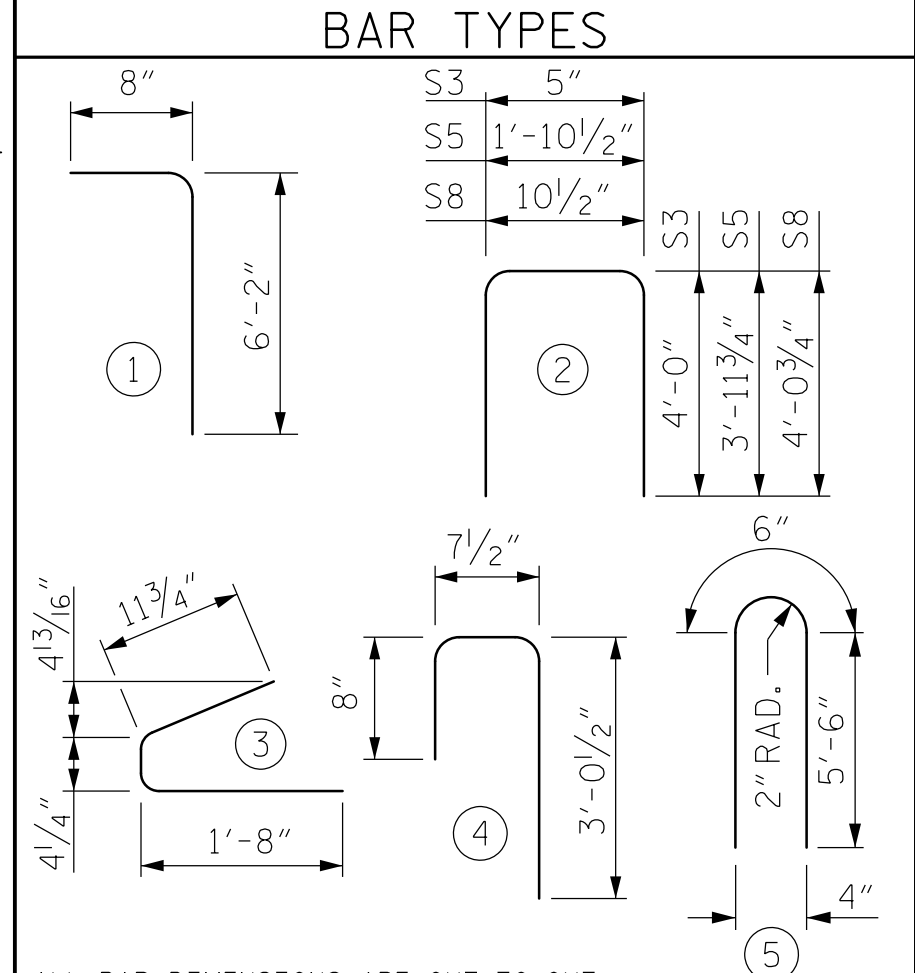
GIRDER	"A"	"B"	"C"	"D"	"E"	"F"
D1	118'-4 1/8"	59'-2 1/16"	79'-7 1/8"	53	54	39'-6 3/16"
D2	118'-6 1/8"	59'-3 1/16"	79'-9 1/8"	53	54	39'-7 15/16"
D3	118'-9 1/8"	59'-4 1/16"	80'-0 1/8"	53	54	39'-9 1/16"
D4	119'-0 3/8"	59'-6 1/16"	80'-3 3/8"	53	54	39'-10 1/16"
D5	119'-3 1/8"	59'-7 3/16"	80'-6 1/8"	53	54	40'-0 1/16"
D6	119'-5 1/8"	59'-8 1/16"	80'-8 1/8"	53	54	40'-1 1/16"
D7	119'-8 1/8"	59'-10 1/16"	80'-11 1/16"	53	54	40'-2 13/16"
D8	119'-11 3/8"	59'-11 1/16"	81'-2 3/8"	54	55	40'-4 1/16"

GIRDER	"H"	"J"	"K"	"L"	"M"	"N"	"P"	"R"
D1	206	226	54	1,468	1,021	183	3,366	25.4
D2	206	226	54	1,468	1,021	183	3,366	25.4
D3	206	226	54	1,468	1,021	183	3,366	25.5
D4	206	226	54	1,468	1,021	183	3,366	25.5
D5	206	226	54	1,468	1,021	183	3,366	25.6
D6	206	226	54	1,468	1,021	183	3,366	25.6
D7	206	226	54	1,468	1,021	183	3,366	25.7
D8	208	228	55	1,482	1,030	186	3,392	25.7

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	"H"	#5	1	6'-10"	"L"
S2	20	#6	1	6'-10"	205
S3	14	#4	2	8'-5"	79
S4	80	#4	3	3'-0"	160
S5	1	#5	2	9'-10"	10
S6	"J"	#5	4	4'-4"	"M"
*S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	"K"	#5	STR	3'-3"	"N"
S10	1	#3	STR	1'-10"	1
S11	8	#5	5	11'-6"	96
S12	16	#4	STR	8'-0"	86

* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



GIRDER	REINFORCING STEEL		8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	"P"	"R"
GIRDER	"P"	"R"		42

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
8	"A"	953'-2"

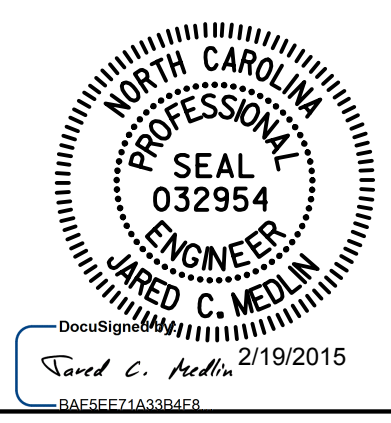
PROJECT NO. U-5008
 MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 SPAN D

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

KCI ASSOCIATES OF NC, P.A.
 9741 SOUTHERN PINE BLVD
 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

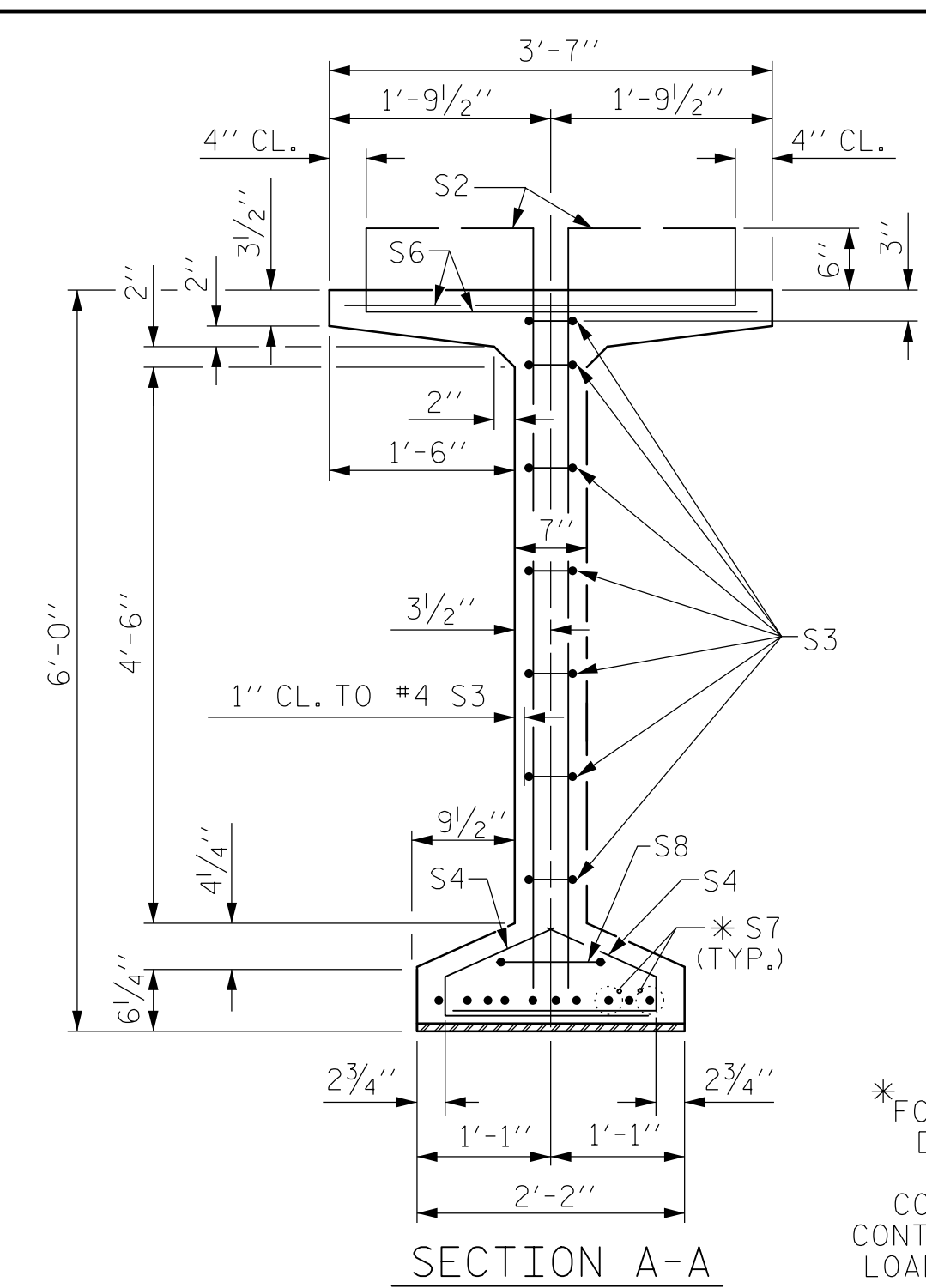


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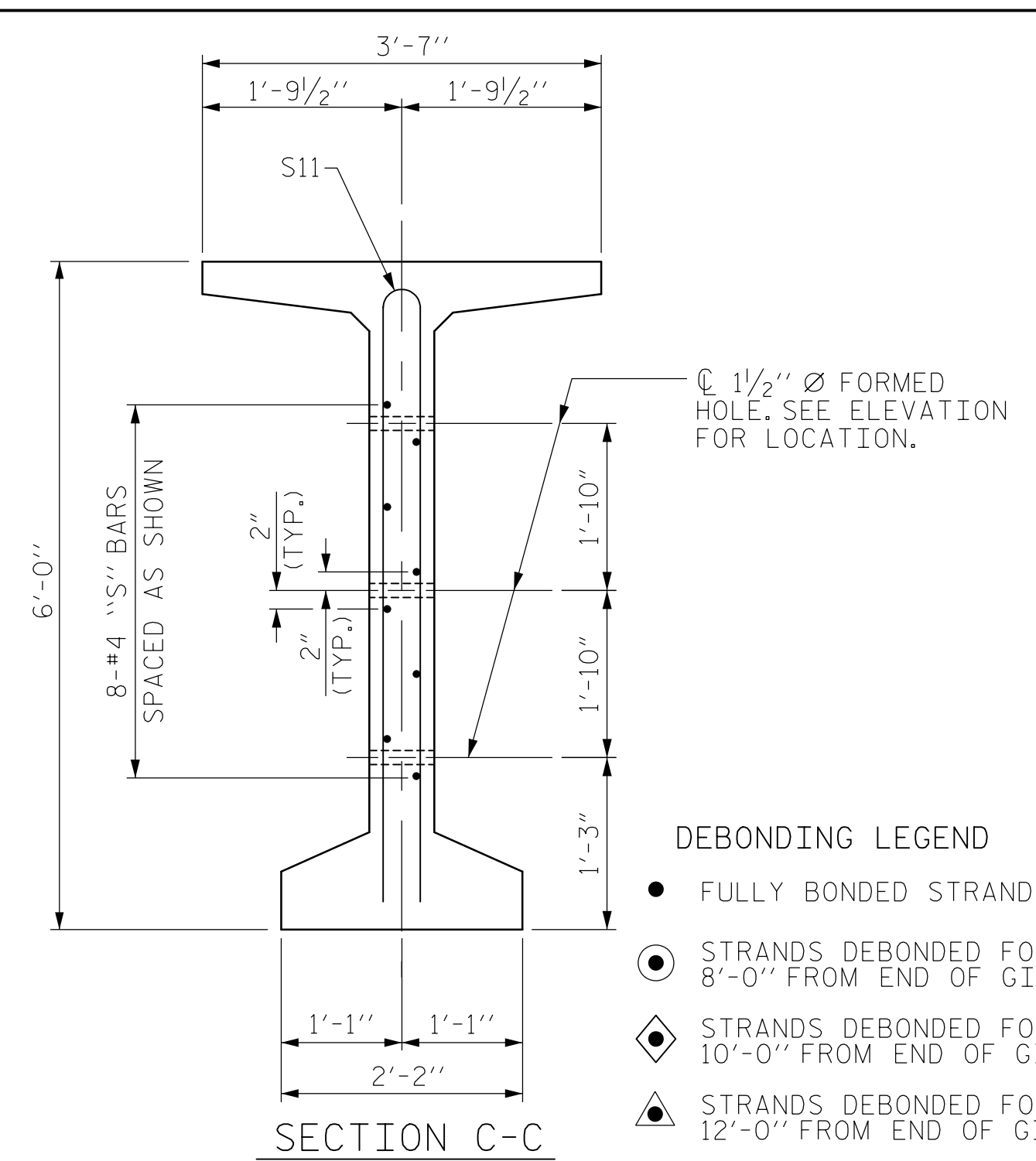
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 CHECKED BY: J.C.MEDLIN DATE: OCT. 2014

SHEET NO. S-24
 SHEETS 78

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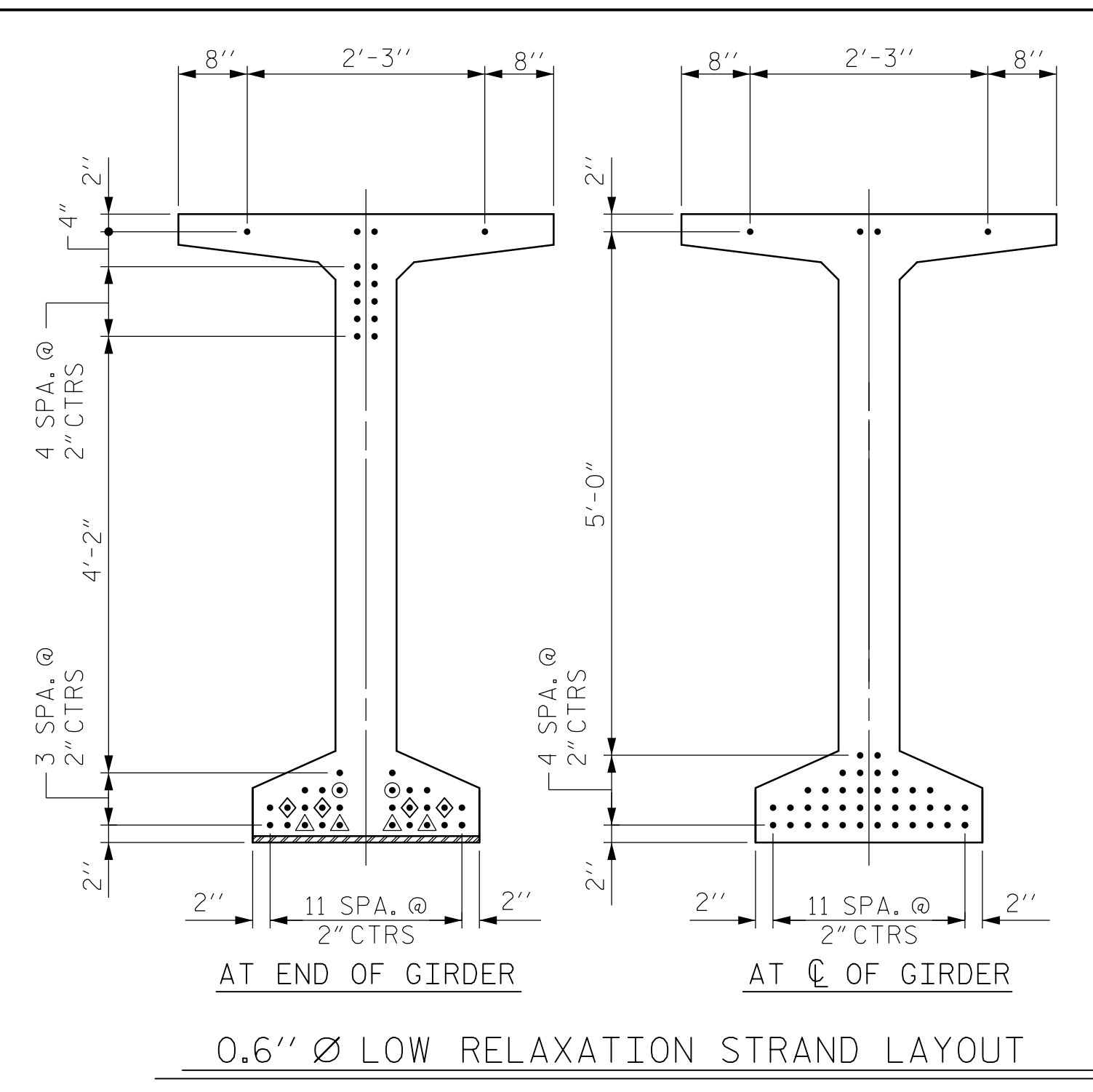


*FOR S7 BARS, SEE DETAIL "C" OF PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS SHEET



DEBONDING LEGEND

- FULLY BONDED STRANDS
- STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER



0.6" Ø LOW RELAXATION STRAND LAYOUT

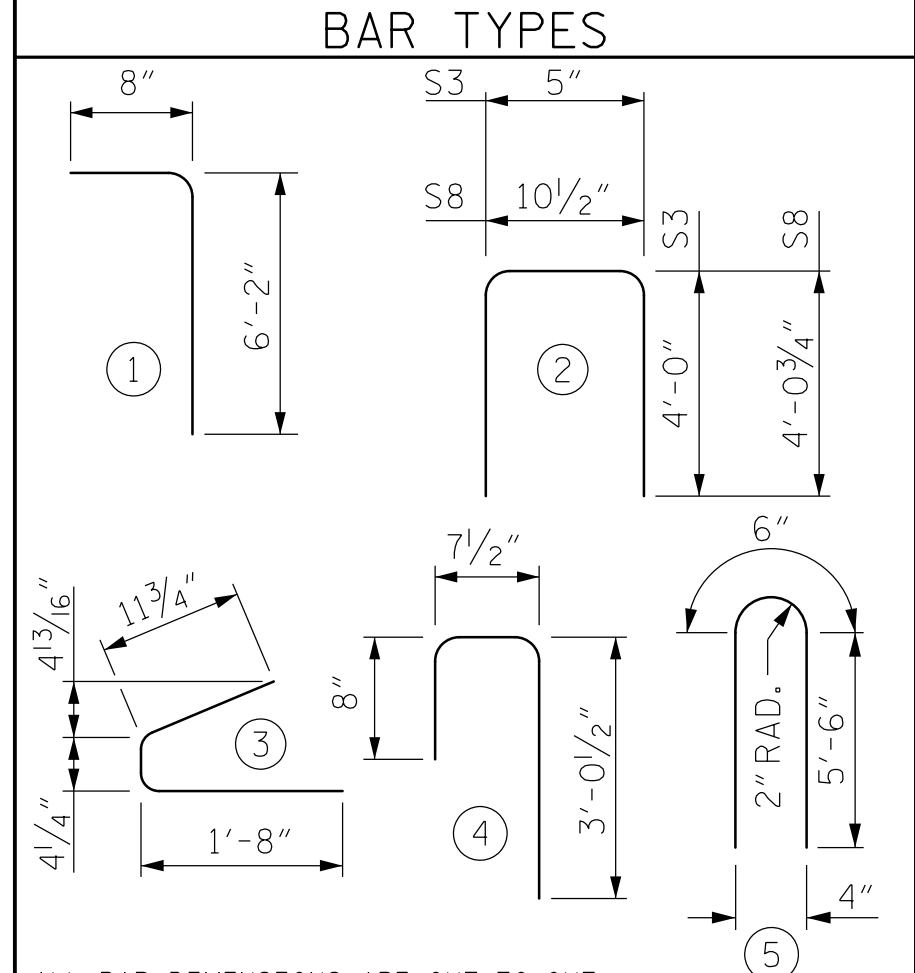
GIRDER	"A"	"B"	"C"	"D"	"E"	"F"
E1	118'-4 1/8"	59'-2 1/16"	79'-7 1/8"	53	54	39'-6 9/16"
E2	118'-6 1/8"	59'-3 1/16"	79'-9 1/8"	53	54	39'-7 1/16"
E3	118'-9 3/8"	59'-4 1/16"	80'-0 9/8"	53	54	39'-9 5/16"
E4	119'-0 3/8"	59'-6 1/16"	80'-3 3/8"	53	54	39'-10 1/16"
E5	119'-3 1/8"	59'-7 3/16"	80'-6 1/8"	53	54	40'-0 1/16"
E6	119'-5 1/8"	59'-8 1/16"	80'-8 1/8"	53	54	40'-1 1/16"
E7	119'-8 3/8"	59'-10 1/16"	80'-11 1/8"	53	54	40'-2 3/16"
E8	119'-11 3/8"	59'-11 1/16"	81'-2 3/8"	54	55	40'-4 3/16"

GIRDER	"H"	"J"	"K"	"L"	"M"	"N"	"P"	"R"
E1	206	226	54	1,468	1,021	183	3,394	25.4
E2	206	226	54	1,468	1,021	183	3,394	25.4
E3	206	226	54	1,468	1,021	183	3,394	25.5
E4	206	226	54	1,468	1,021	183	3,394	25.5
E5	206	226	54	1,468	1,021	183	3,394	25.6
E6	206	226	54	1,468	1,021	183	3,394	25.6
E7	206	226	54	1,468	1,021	183	3,394	25.7
E8	208	228	55	1,482	1,030	186	3,420	25.7

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	"H"	#5	1	6'-10"	"L"
S2	20	#6	1	6'-10"	205
S3	14	#4	2	8'-5"	79
S4	80	#4	3	3'-0"	160
S6	"J"	#5	4	4'-4"	"M"
*S7	20	#5	STR	3'-8"	76
S8	2	#5	2	9'-0"	19
S9	"K"	#5	STR	3'-3"	"N"
S10	2	#3	STR	1'-10"	1
S11	8	#5	5	11'-6"	96
S12	16	#4	STR	8'-0"	86

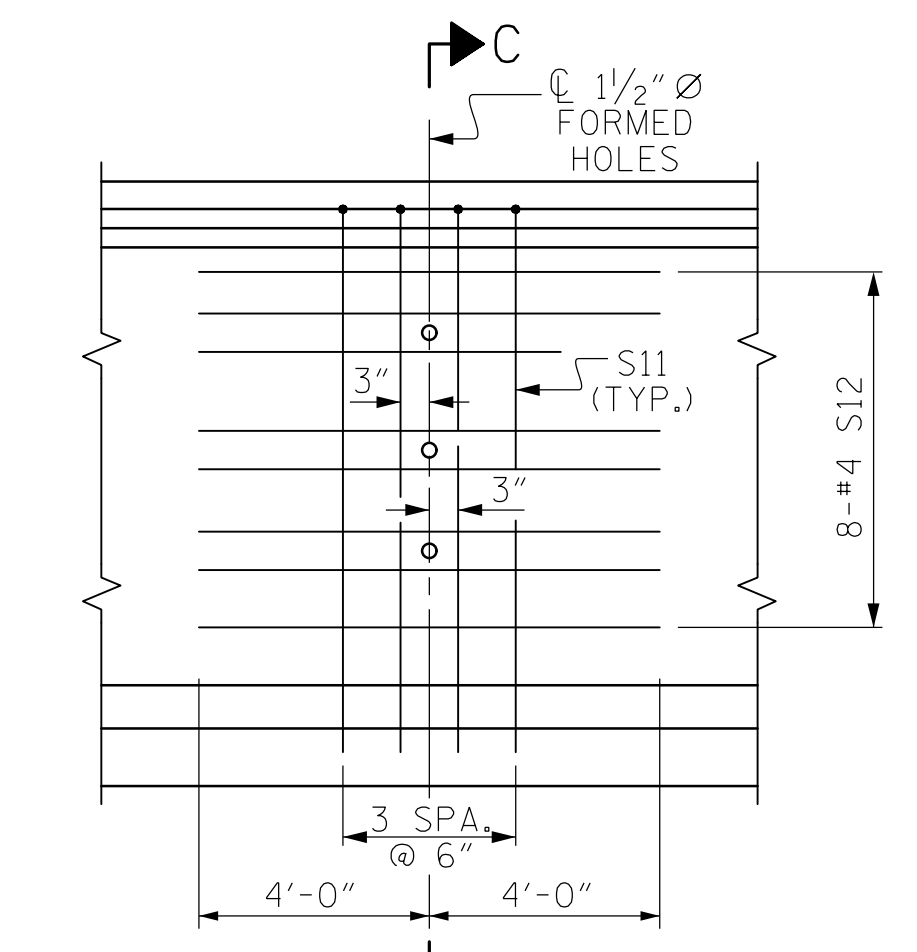
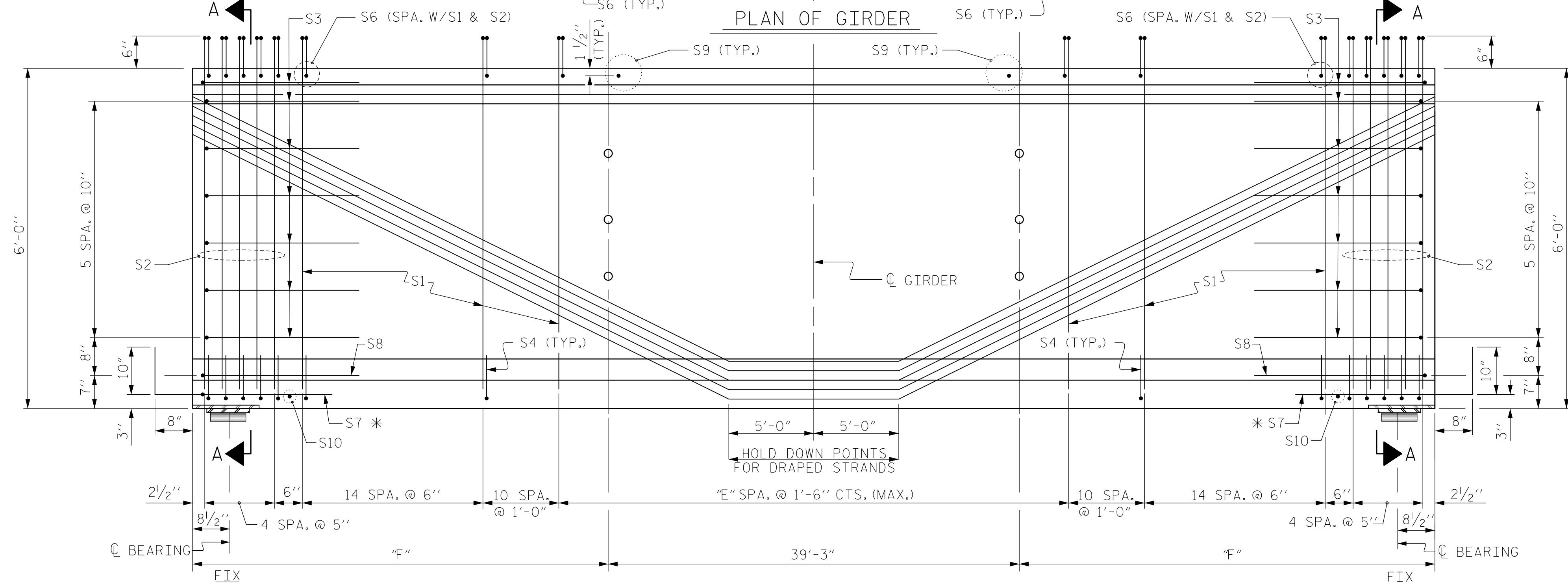
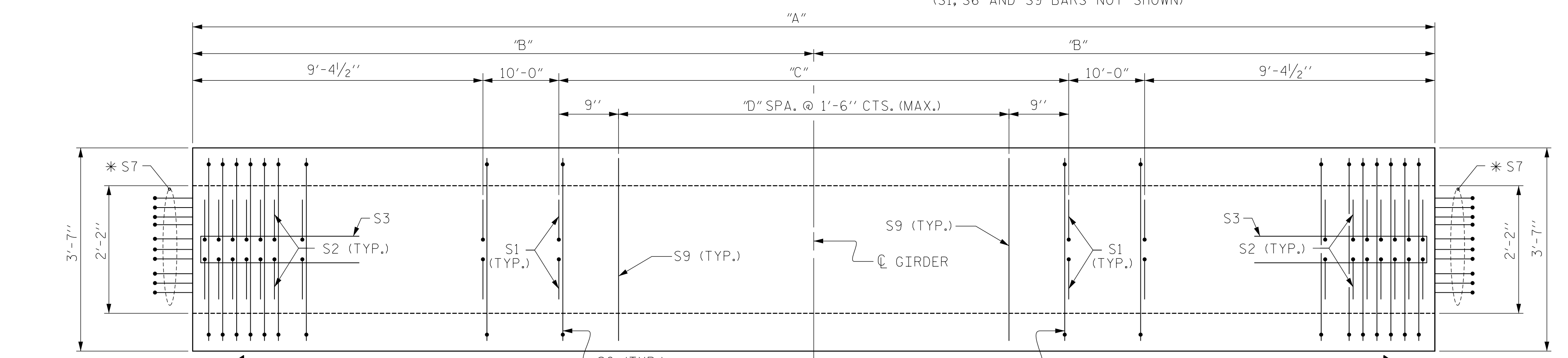
*NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



ALL BAR DIMENSIONS ARE OUT-TO-OUT

QUANTITIES FOR ONE GIRDER			
GIRDER	REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
GIRDER	"P"	"R"	42

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
8	"A"	953'-2"



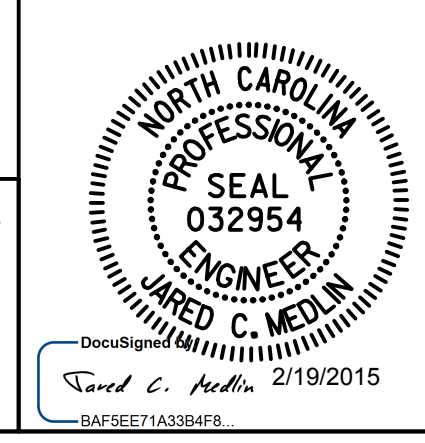
SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDERS

PROJECT NO. U-5008
MECKLENBURG COUNTY
STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

72" PRESTRESSED CONCRETE MODIFIED BULB TEE CONTINUOUS FOR LIVE LOAD SPAN E

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

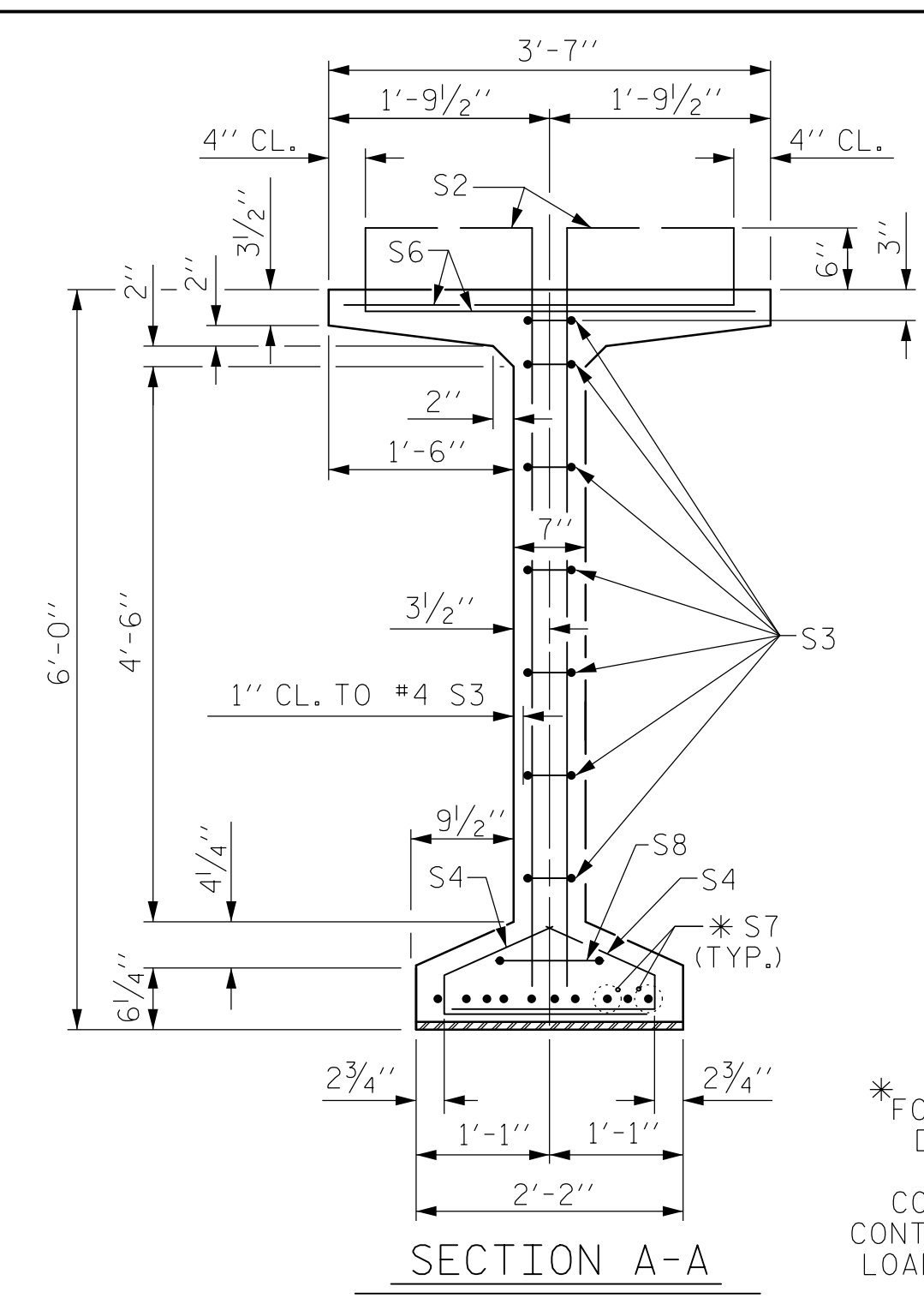


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NC LICENSE No. C-0764

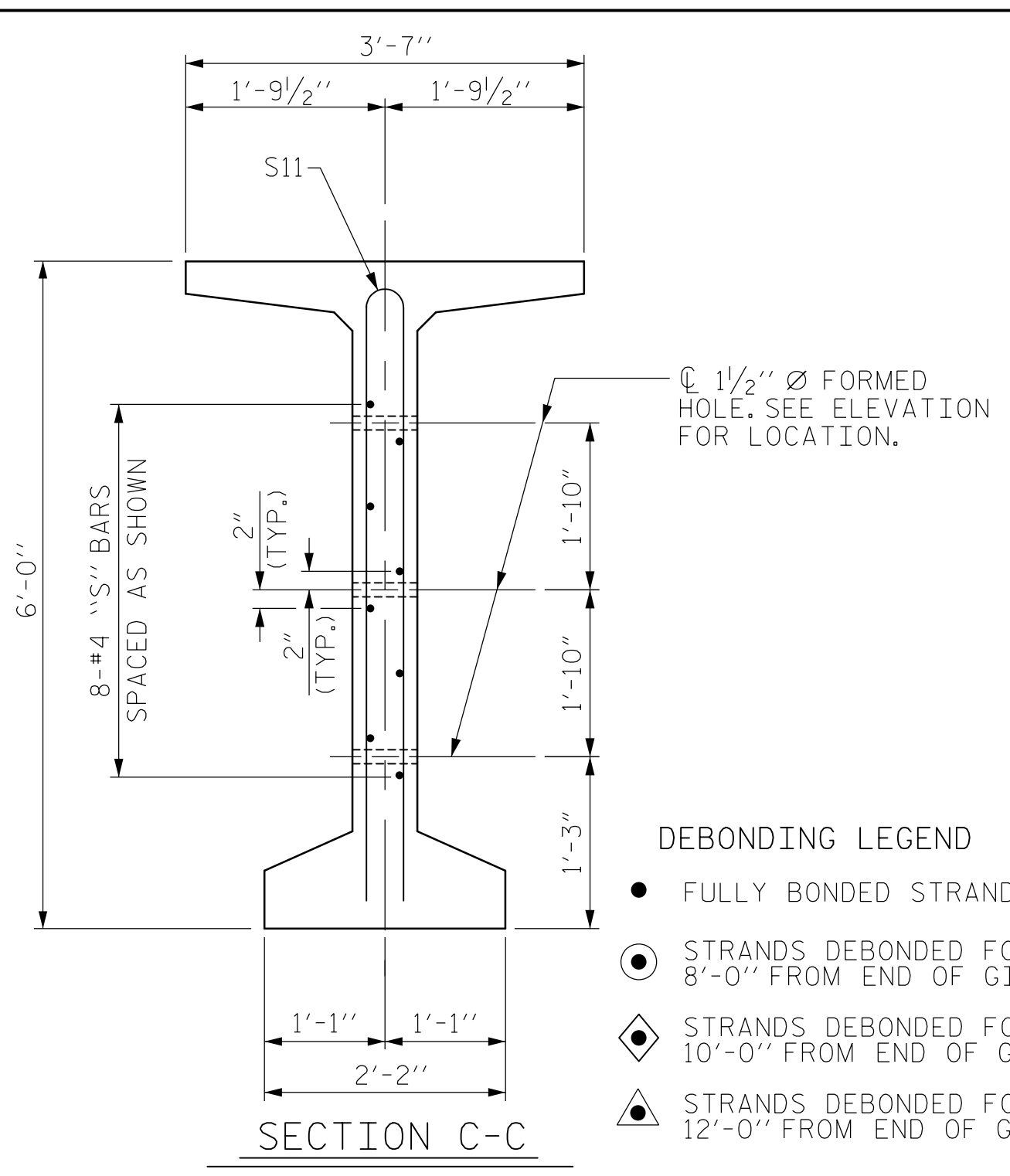
DRAWN BY: M.S.BURGESS DATE: OCT. 2014
CHECKED BY: J.C.MEDLIN DATE: OCT. 2014

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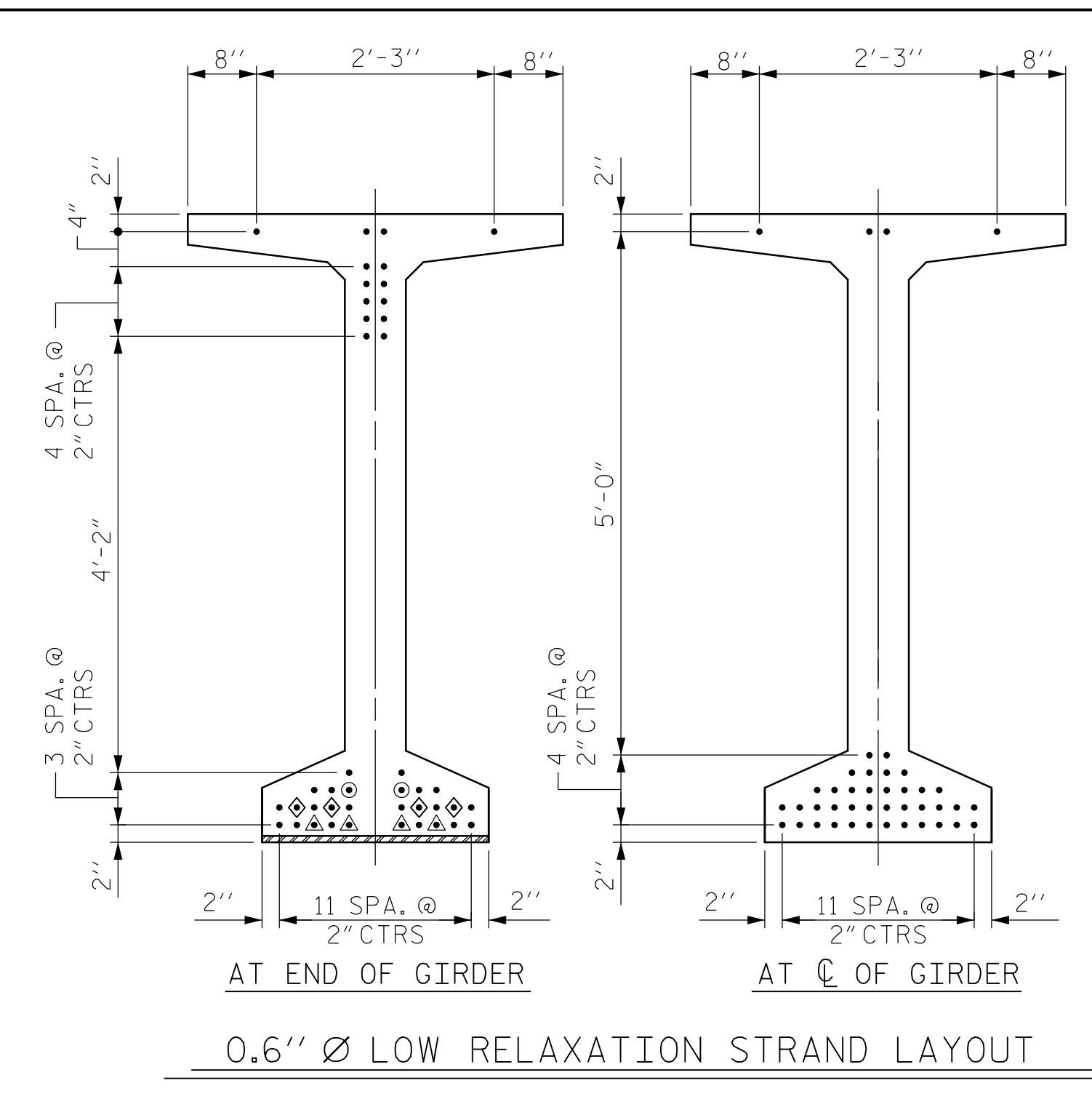
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*FOR S7 BARS, SEE
DETAIL "C" OF
PRESTRESSED
CONCRETE GIRDER
CONTINUOUS FOR LIVE
LOAD DETAILS SHEET



DEBONDING LEGEND
 ● FULLY BONDED STRANDS
 ○ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
 ◇ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
 ▲ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER



0.6" Ø LOW RELAXATION STRAND LAYOUT

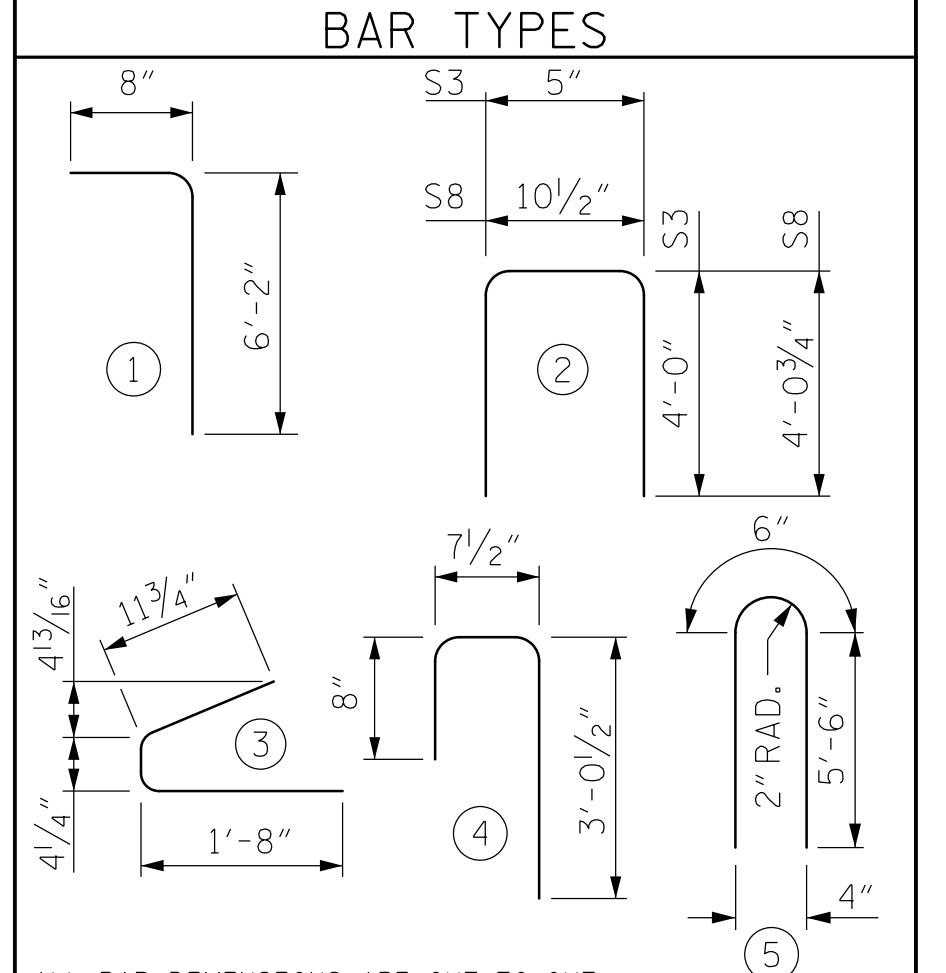
GIRDER	"A"	"B"	"C"	"D"	"E"	"F"
F1	118'-6 3/8"	59'-3 3/16"	79'-9 3/8"	53	54	39'-6 1/8"
F2	118'-8 1/2"	59'-4 1/4"	79'-11 1/2"	53	54	39'-8 1/8"
F3	118'-10 3/8"	59'-5 1/16"	80'-1 1/8"	53	54	39'-9 7/16"
F4	119'-0 3/4"	59'-6 3/8"	80'-3 3/4"	53	54	39'-10 3/4"
F5	119'-2 1/8"	59'-7 1/16"	80'-5 1/8"	53	54	40'-0"
F6	119'-5"	59'-8 1/2"	80'-8"	53	54	40'-1 3/8"
F7	119'-7 1/8"	59'-9 9/16"	80'-10 1/8"	53	54	40'-2 5/8"
F8	119'-9 1/4"	59'-10 3/8"	81'-0 1/4"	54	55	40'-3 1/8"

GIRDER	"G"	"H"	"J"	"K"	"L"	"M"	"N"	"P"	"R"
F1	39'-8 1/2"	206	226	54	1,468	1,021	183	3,394	25.4
F2	39'-9 3/8"	206	226	54	1,468	1,021	183	3,394	25.4
F3	39'-10 3/16"	206	226	54	1,468	1,021	183	3,394	25.5
F4	39'-11"	206	226	54	1,468	1,021	183	3,394	25.5
F5	39'-11 7/8"	206	226	54	1,468	1,021	183	3,394	25.6
F6	40'-0 3/8"	206	226	54	1,468	1,021	183	3,394	25.6
F7	40'-1 1/2"	206	226	54	1,468	1,021	183	3,394	25.7
F8	40'-2 3/8"	208	228	55	1,482	1,030	186	3,420	25.7

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	"H"	#5	1	6'-10"	"L"
S2	20	#6	1	6'-10"	205
S3	14	#4	2	8'-5"	79
S4	80	#4	3	3'-0"	160
S6	"J"	#5	4	4'-4"	"M"
*S7	20	#5	STR	3'-8"	76
S8	2	#5	2	9'-0"	19
S9	"K"	#5	STR	3'-3"	"N"
S10	2	#3	STR	1'-10"	1
S11	8	#5	5	11'-6"	96
S12	16	#4	STR	8'-0"	86

*NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



ALL BAR DIMENSIONS ARE OUT-TO-OUT

QUANTITIES FOR ONE GIRDER			
GIRDER	REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
GIRDER	"P"	"R"	42

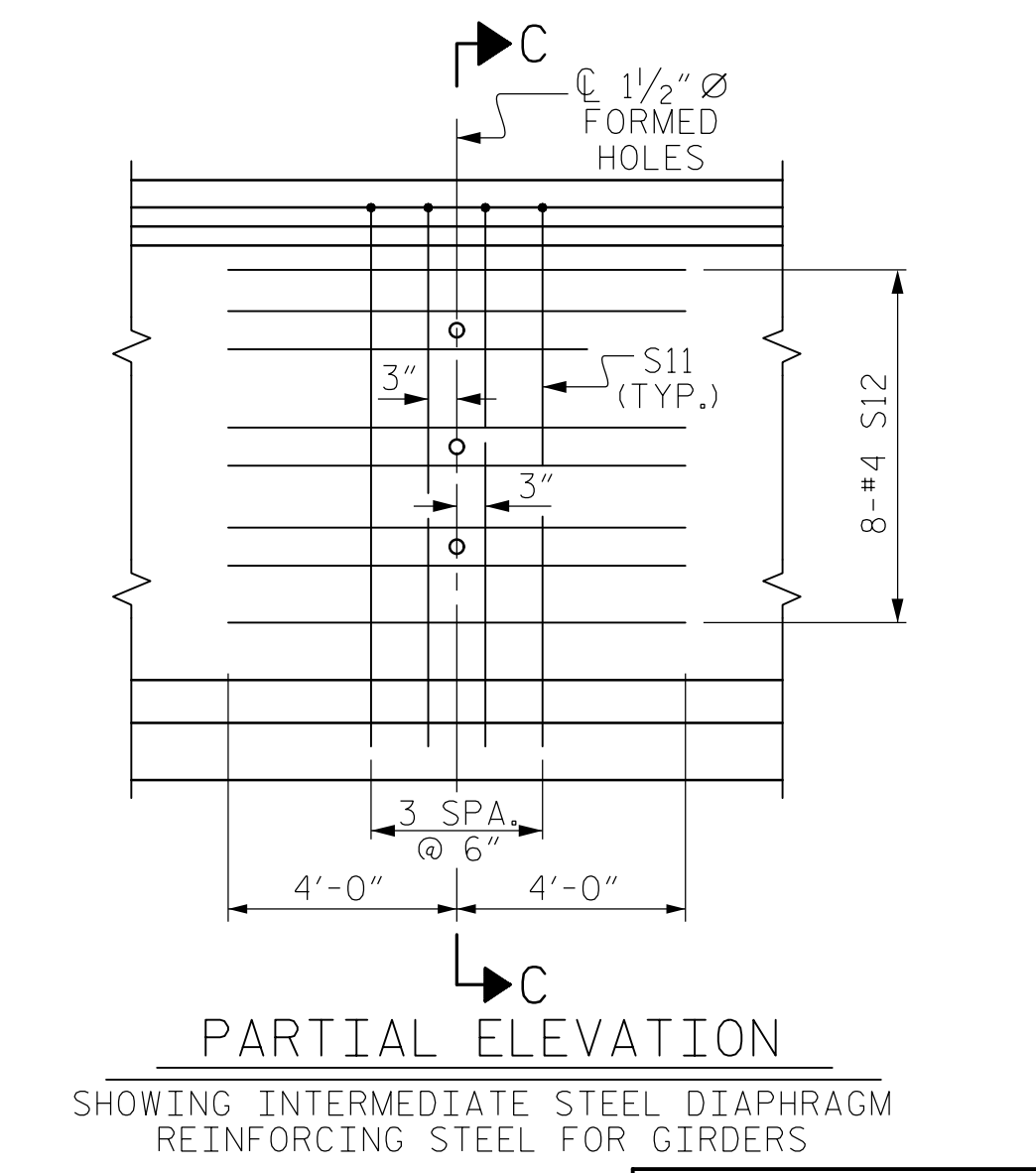
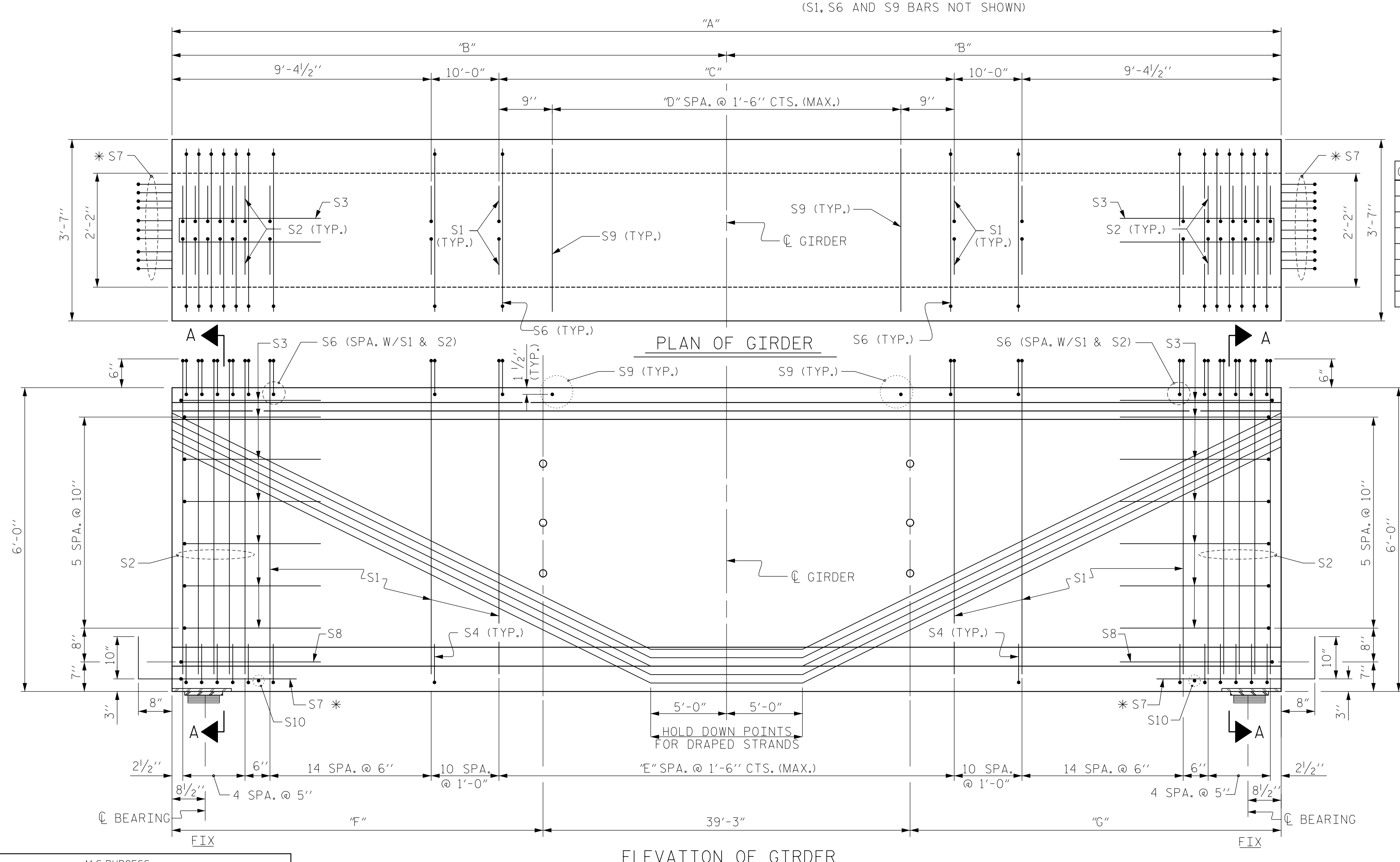
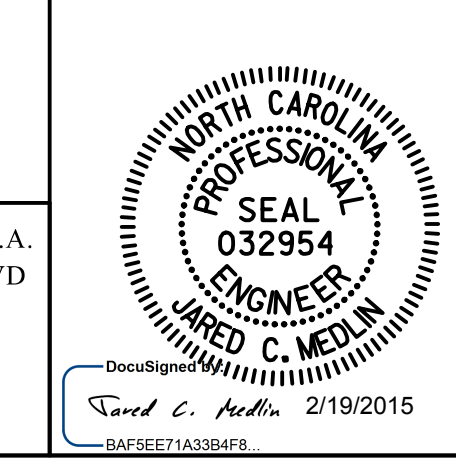
GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
8	"A"	953'-2 1/2"

PROJECT NO. U-5008
 MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 SPAN F

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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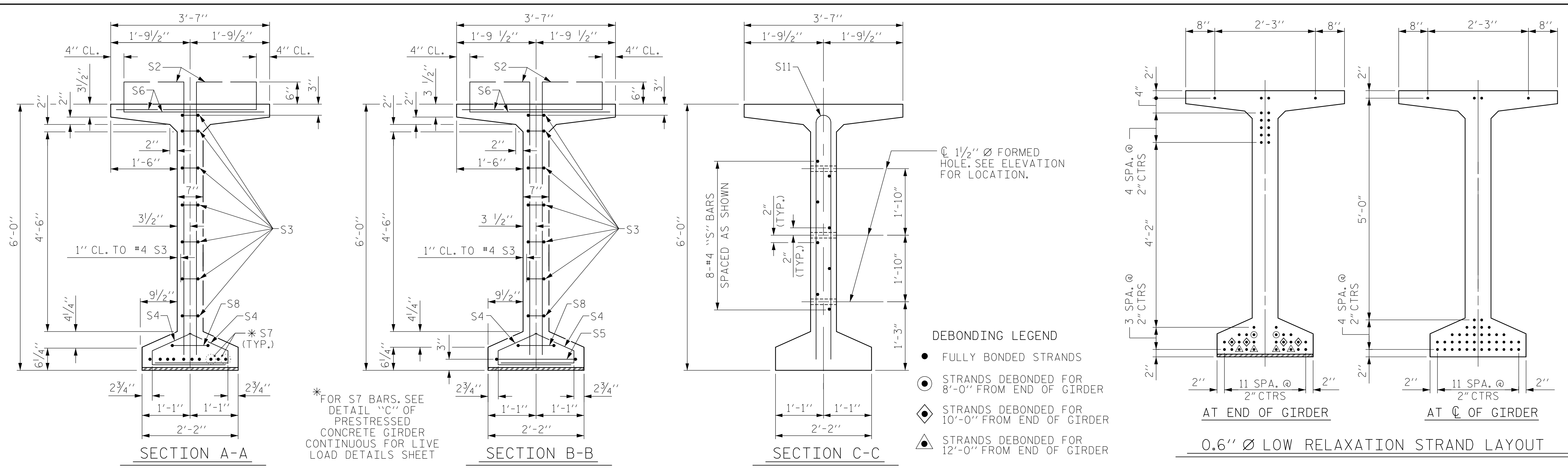
SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDERS

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DRAWN BY: M.S.BURGESS DATE: OCT. 2014
 CHECKED BY: J.C.MEDLIN DATE: OCT. 2014

SHEET NO. S-26
 SHEETS 78

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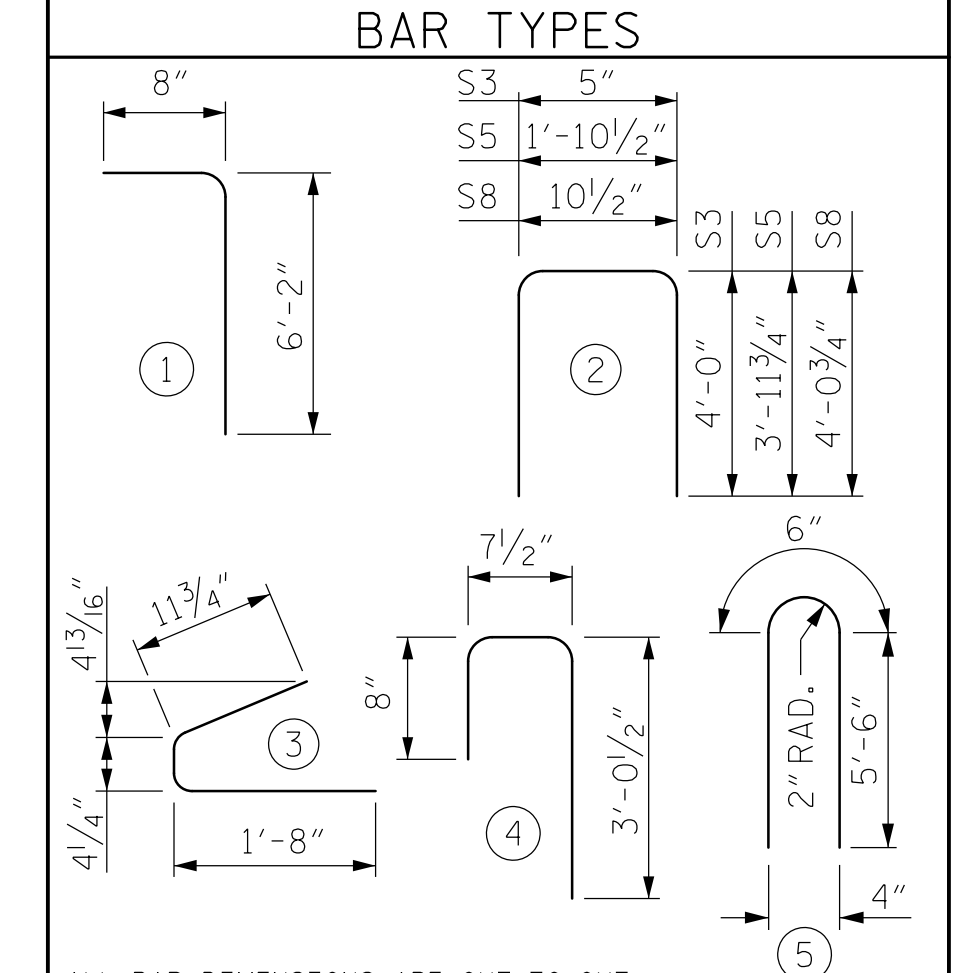
*FOR S7 BARS, SEE DETAIL "C" OF PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS SHEET

- DEBONDING LEGEND**
- FULLY BONDED STRANDS
 - STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
 - STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
 - STRANDS DEBONDED FOR 12'-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

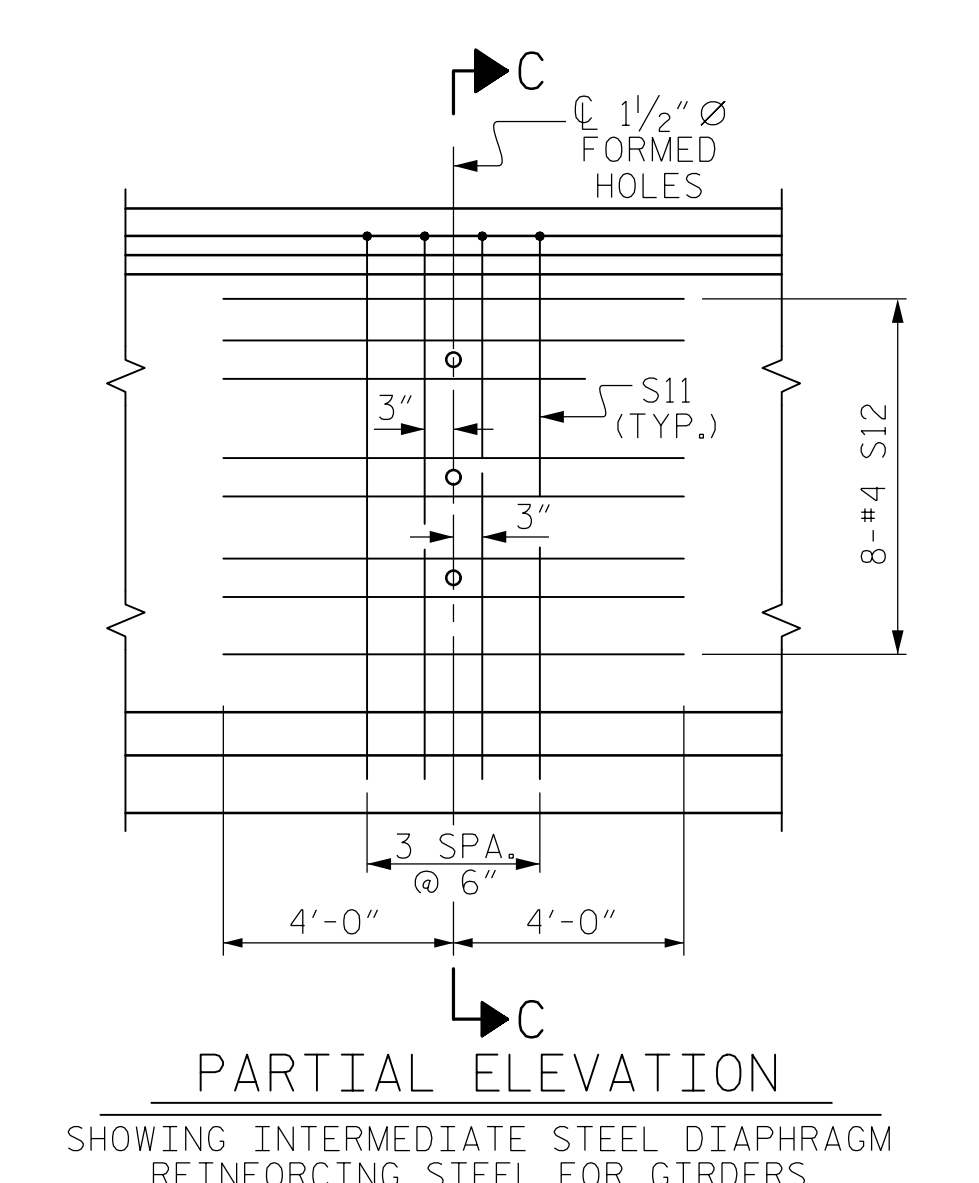
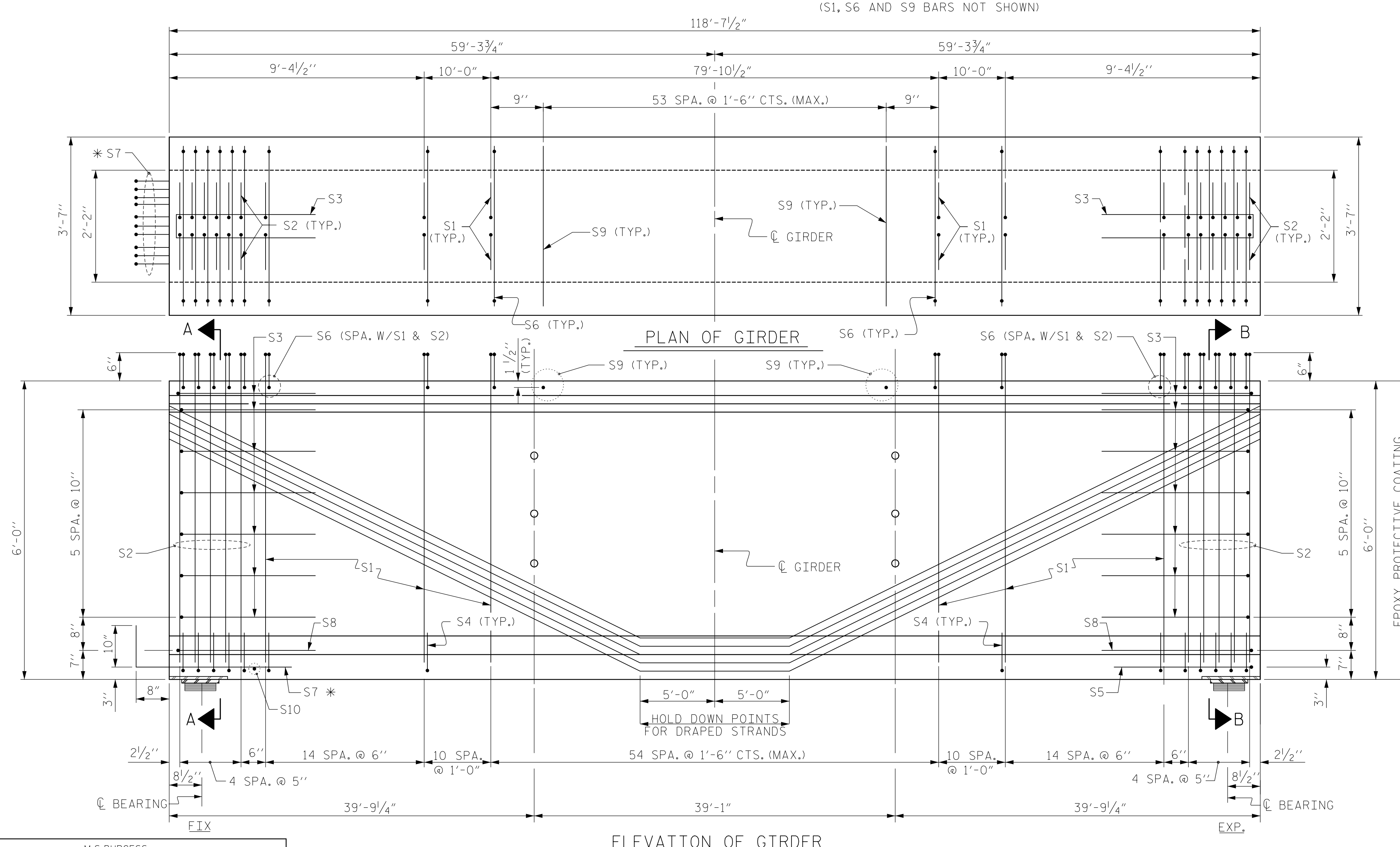
REINFORCING STEEL FOR ONE GDR					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	206	#5	1	6'-10"	1,468
S2	20	#6	1	6'-10"	205
S3	14	#4	2	8'-5"	79
S4	80	#4	3	3'-0"	160
S5	1	#5	2	9'-10"	10
S6	226	#5	4	4'-4"	1,021
*S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	54	#5	STR	3'-3"	183
S10	1	#3	STR	1'-10"	1
S11	8	#5	5	11'-6"	96
S12	16	#4	STR	8'-0"	86

*NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



QUANTITIES FOR ONE GIRDER			
GIRDER	REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
GIRDER	3,366	25.4	42

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
8	118'-7 1/2"	949'-0"

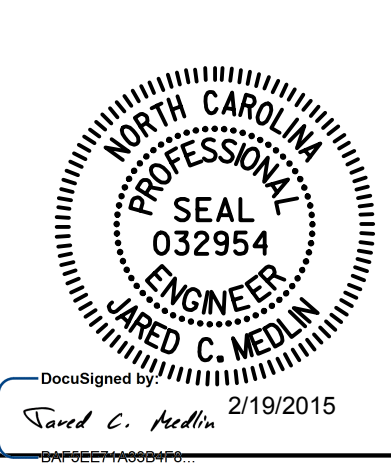


PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

72" PRESTRESSED CONCRETE MODIFIED BULB TEE CONTINUOUS FOR LIVE LOAD SPAN G

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1			3		
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 CHECKED BY: J.C.MEDLIN DATE: OCT. 2014

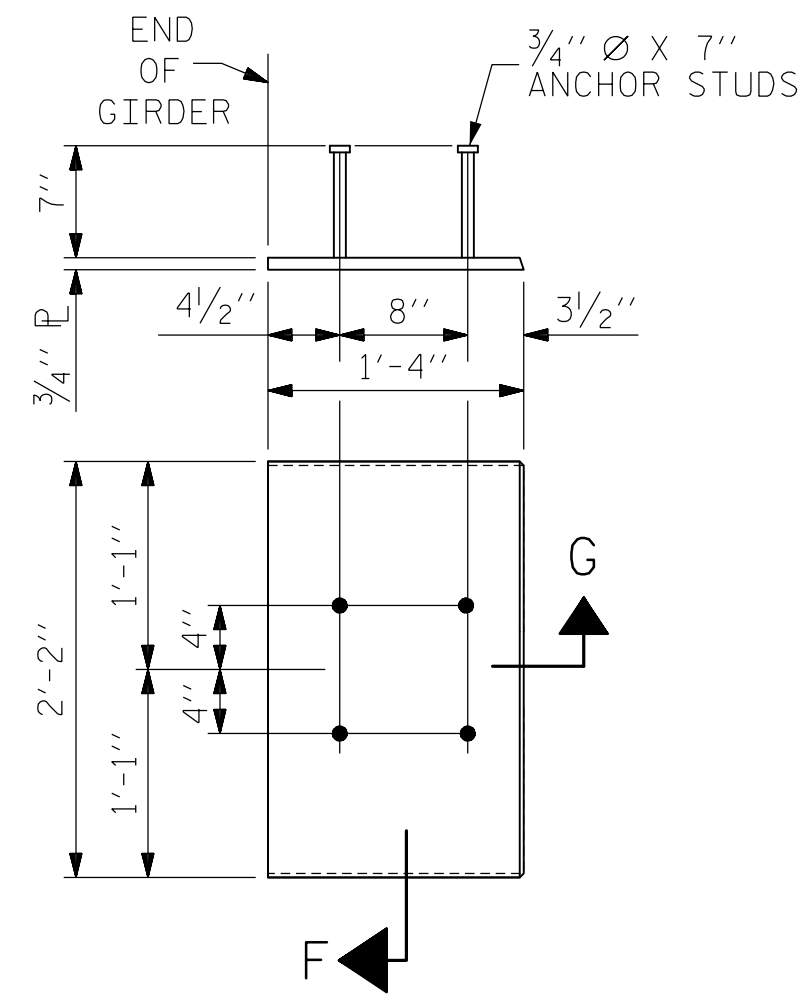
SHEET NO. S-27
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DRAWN BY : M.S.BURGESS DATE : OCT. 2014
 CHECKED BY : J.C.MEDLIN DATE : OCT. 2014

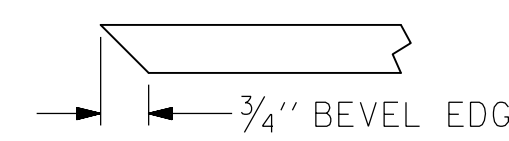


EMBEDDED PLATE "B-1" DETAILS

(2 REQ'D PER GIRDER)

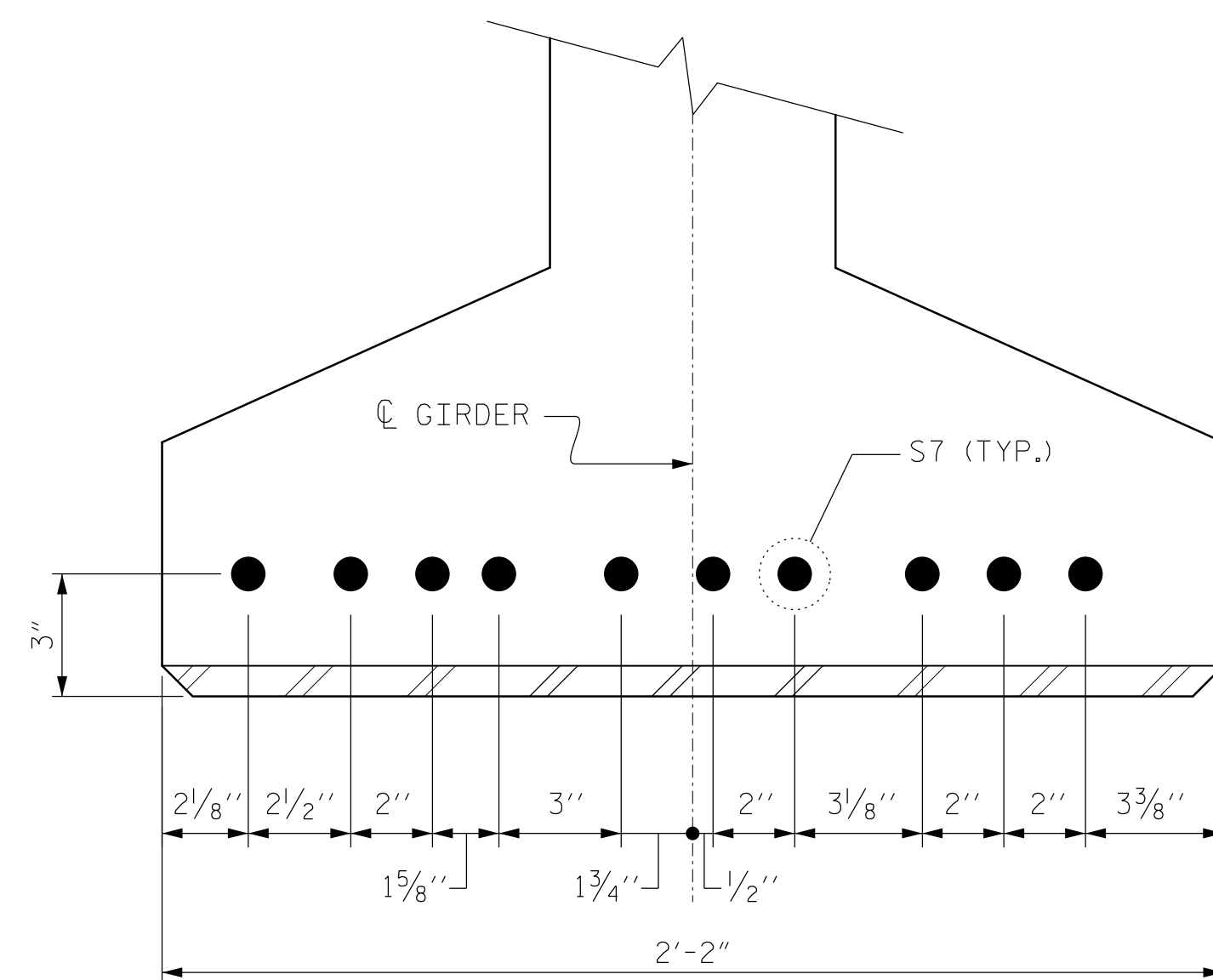


SECTION "G"



SECTION "F"

(SEE NOTES)



DETAIL "C"

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, BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

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.

AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6,500 PSI.

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 OF THE 72" MODIFIED BULB TEES.

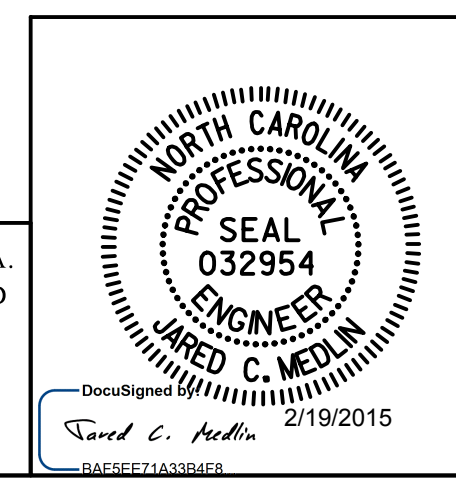
THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.

UPLIFT FORCE DUE TO DRAPED STRANDS IS 36.8 KIPS.

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.

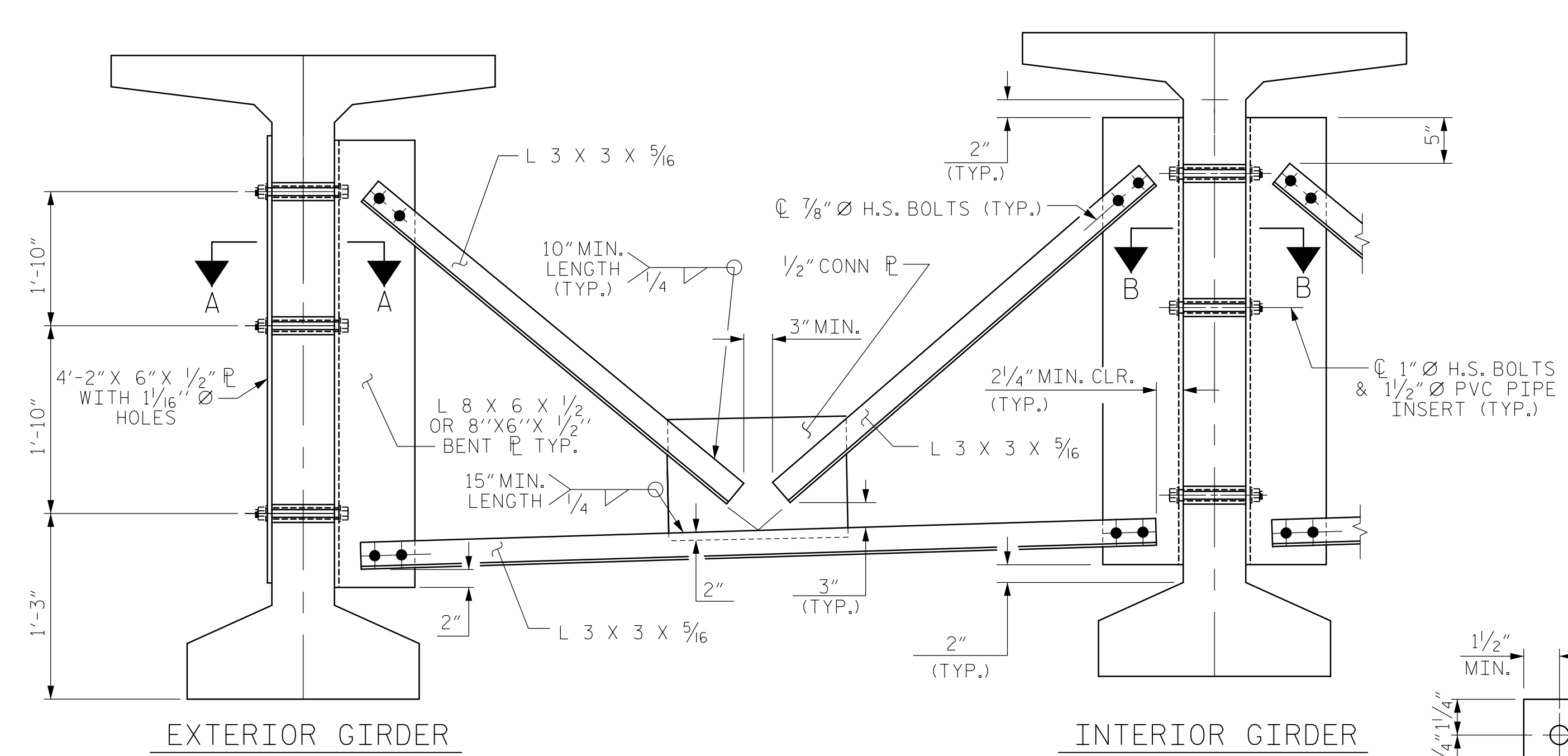
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD
 DETAILS

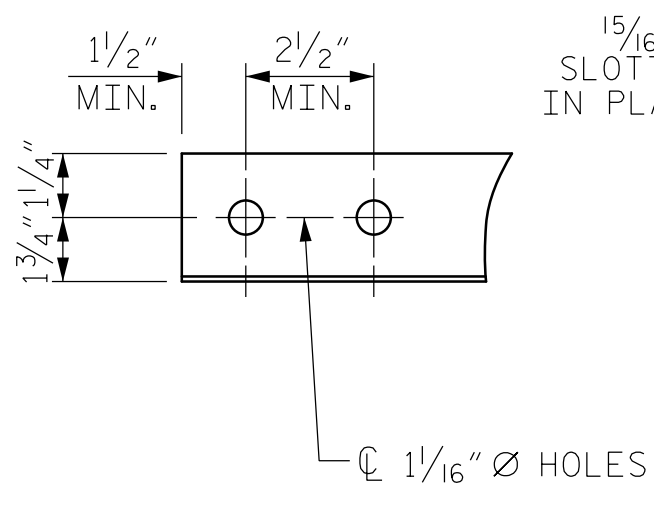


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			SHEETS
2			4			78

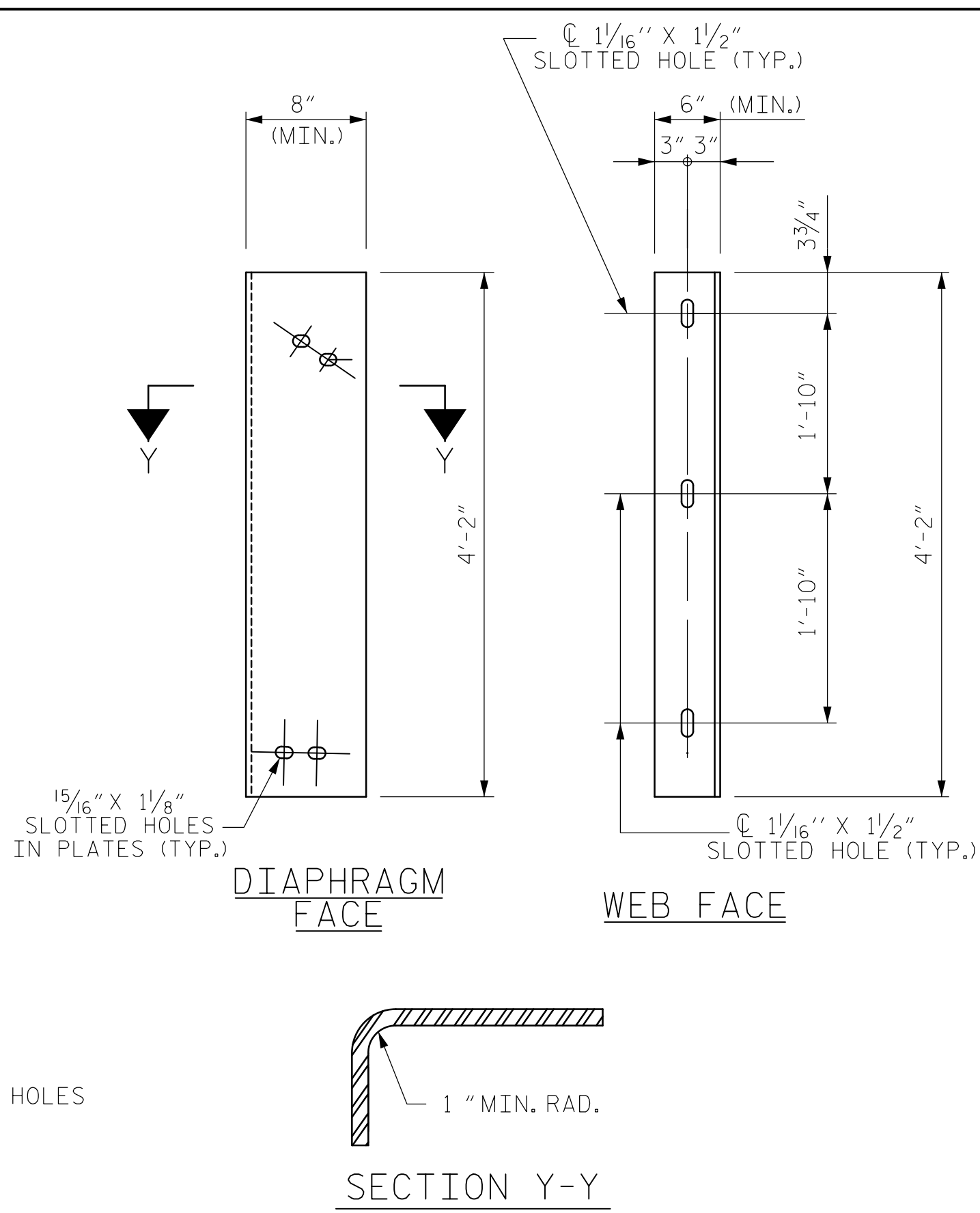
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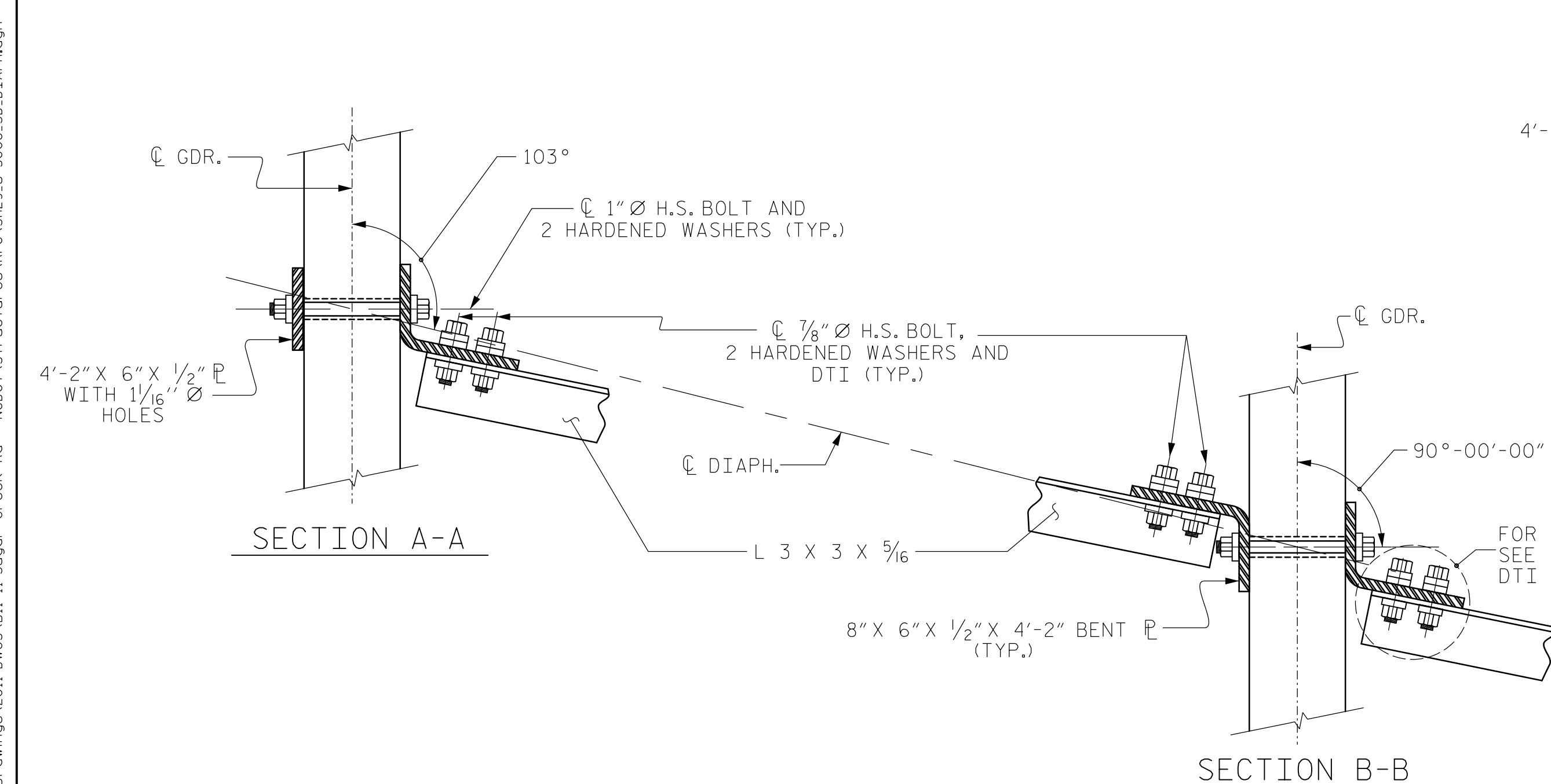
PART SECTION AT INTERMEDIATE DIAPHRAGM



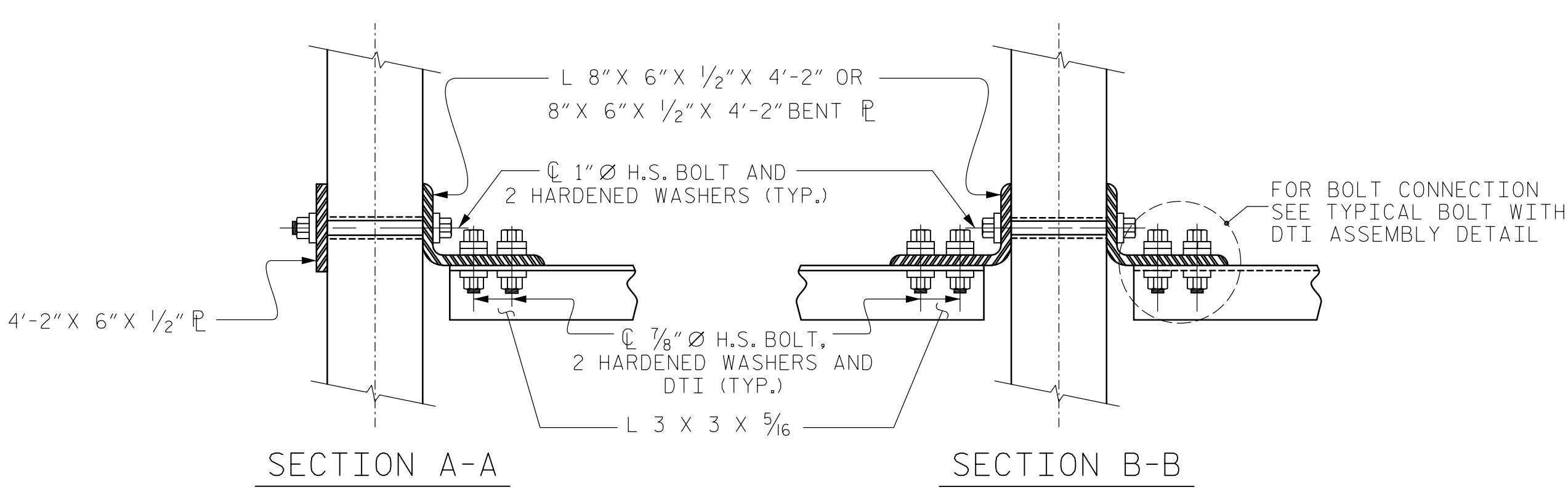
ANGLE END
(L 3 x 3 x 5/16)



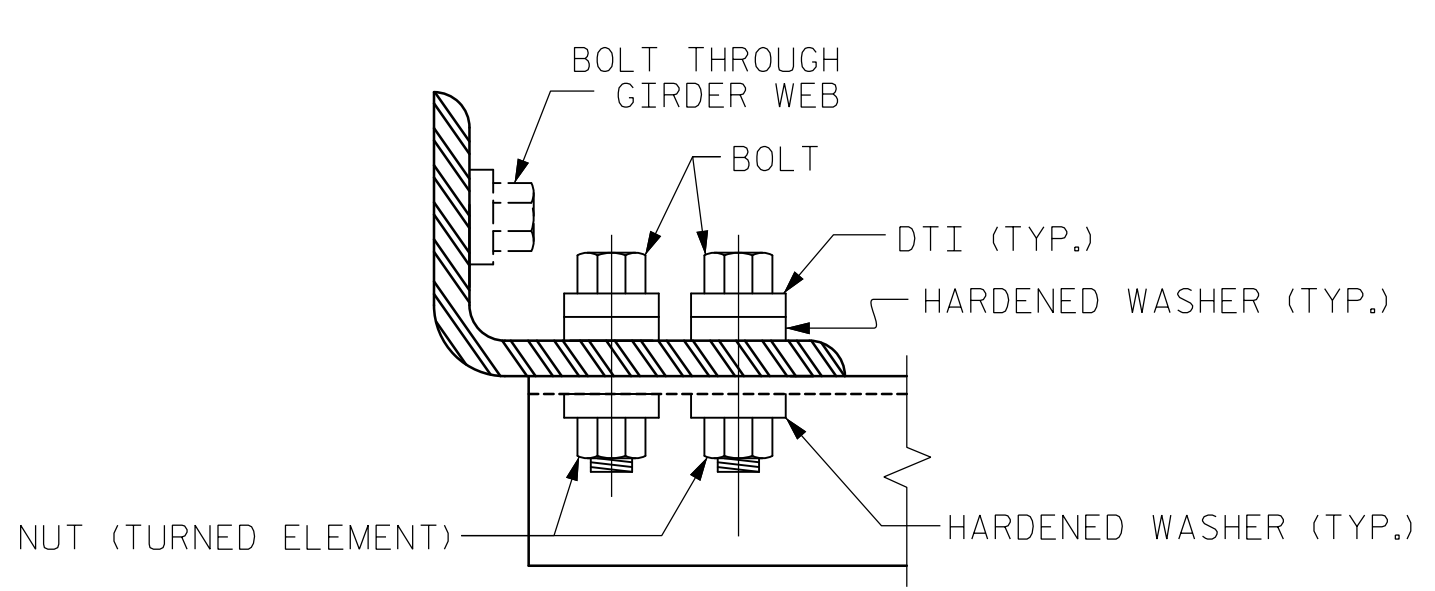
CONNECTOR PLATE DETAIL



CONNECTION DETAILS
(SPANS A & B)



CONNECTION DETAILS
(SPANS C, D, E, F & G)



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 GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY AN 8 MIL THICK 99.99 PERCENT ZINC (W-Zn-1) THERMAL SPRAYED COATING WITH A 0.5 MIL THICK SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE 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.

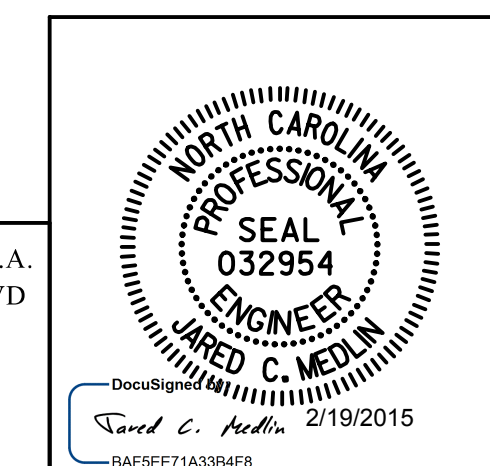
IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

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

PROJECT NO. U-5008
MECKLENBURG COUNTY
STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

INTERMEDIATE
STEEL DIAPHRAGMS
FOR 72"
MODIFIED BULB TEE
PRESTRESSED CONCRETE
GIRDERS

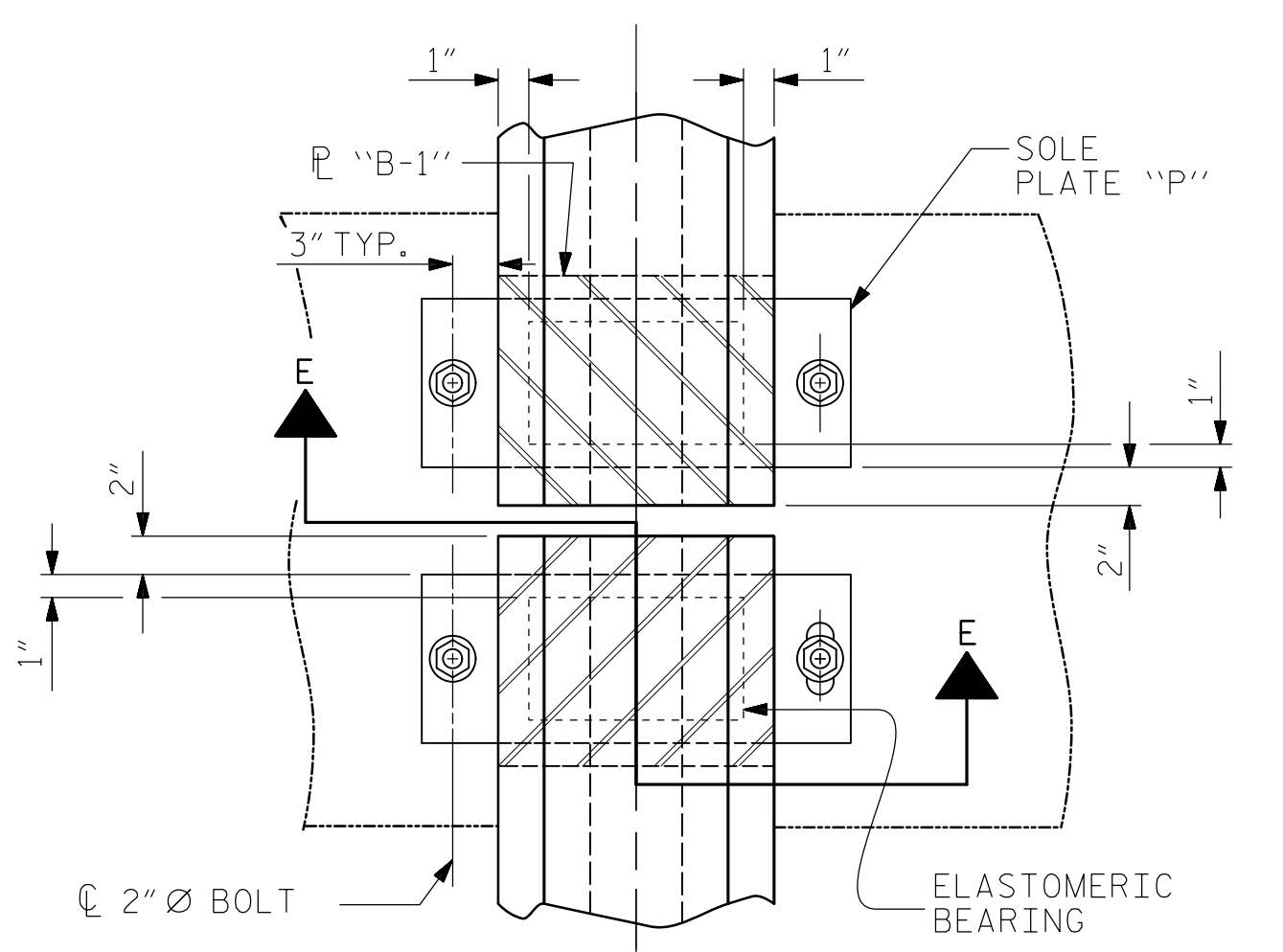


KCI ASSOCIATES OF NC, P.A.
9741 SOUTHERN PINE BLVD
SUITE J
CHARLOTTE, NC 28273
704-499-9452
NC LICENSE No. C-0764

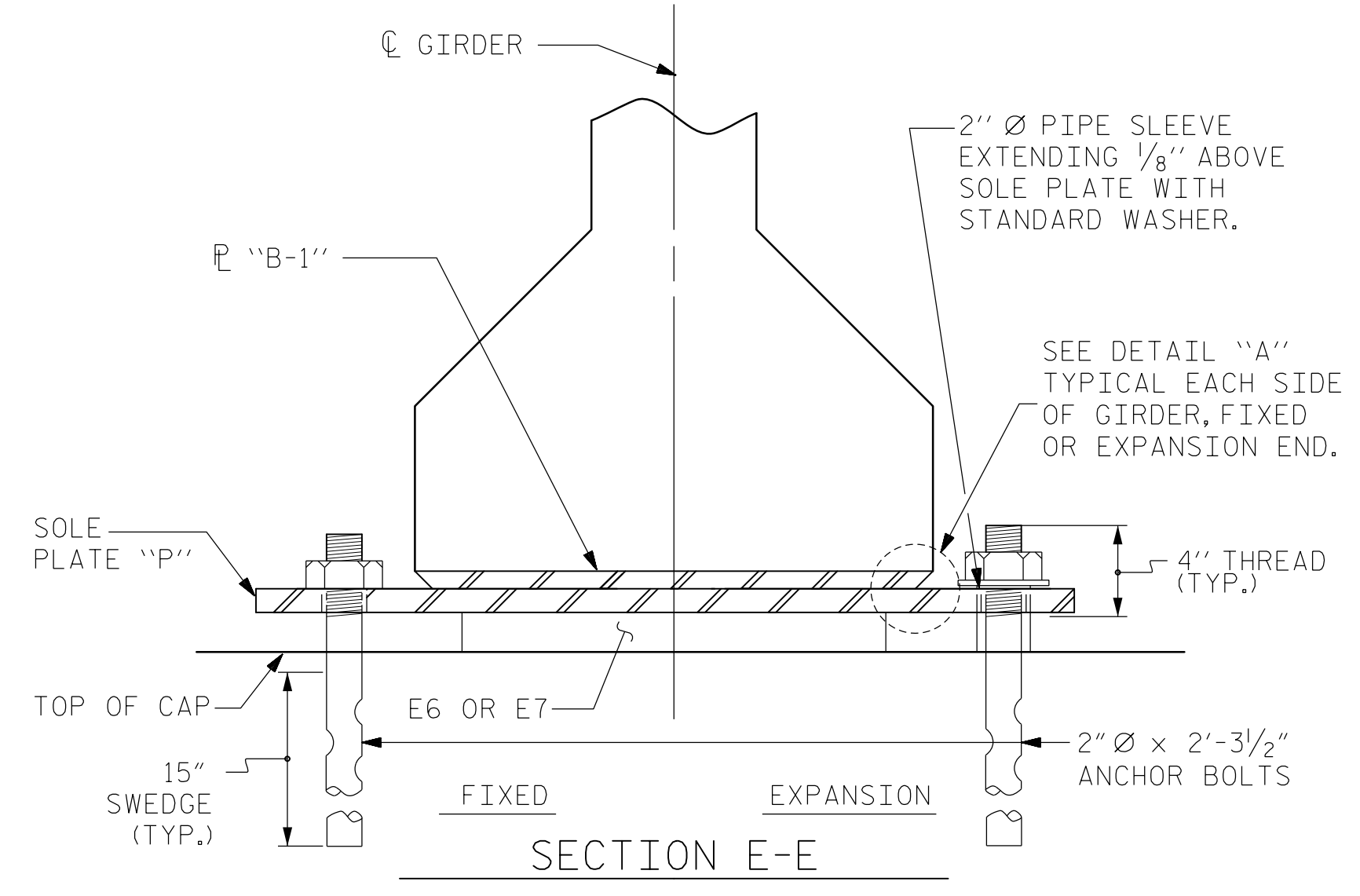
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			SHEETS 78
2			4			

2/18/2015 Y:\Drowings\2011 DWGS\Structures\RFC\SH29_U-5008_SD_DIAPH.dgn

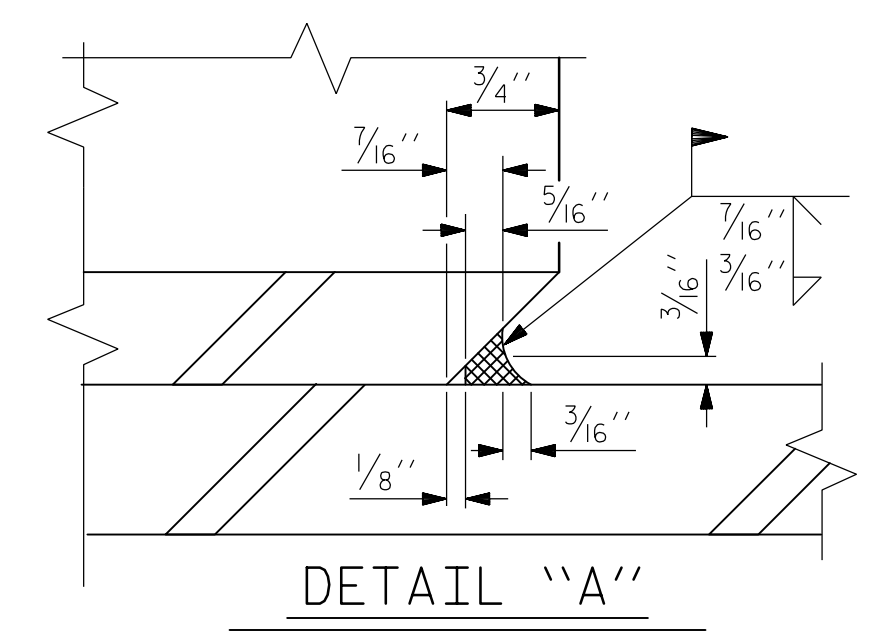
DRAWN BY: M.S.BURGESS DATE: OCT. 2014
CHECKED BY: J.C.MEDLIN DATE: OCT. 2014



TYPICAL HALF-PLAN (SHOWING CONTINUOUS BENT) TYPICAL HALF-PLAN (SHOWING SIMPLE SPAN BENT)



SECTION E-E



DETAIL "A"

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE VII	470 k
MODIFIED TYPE VII	470 k

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 BURR 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.

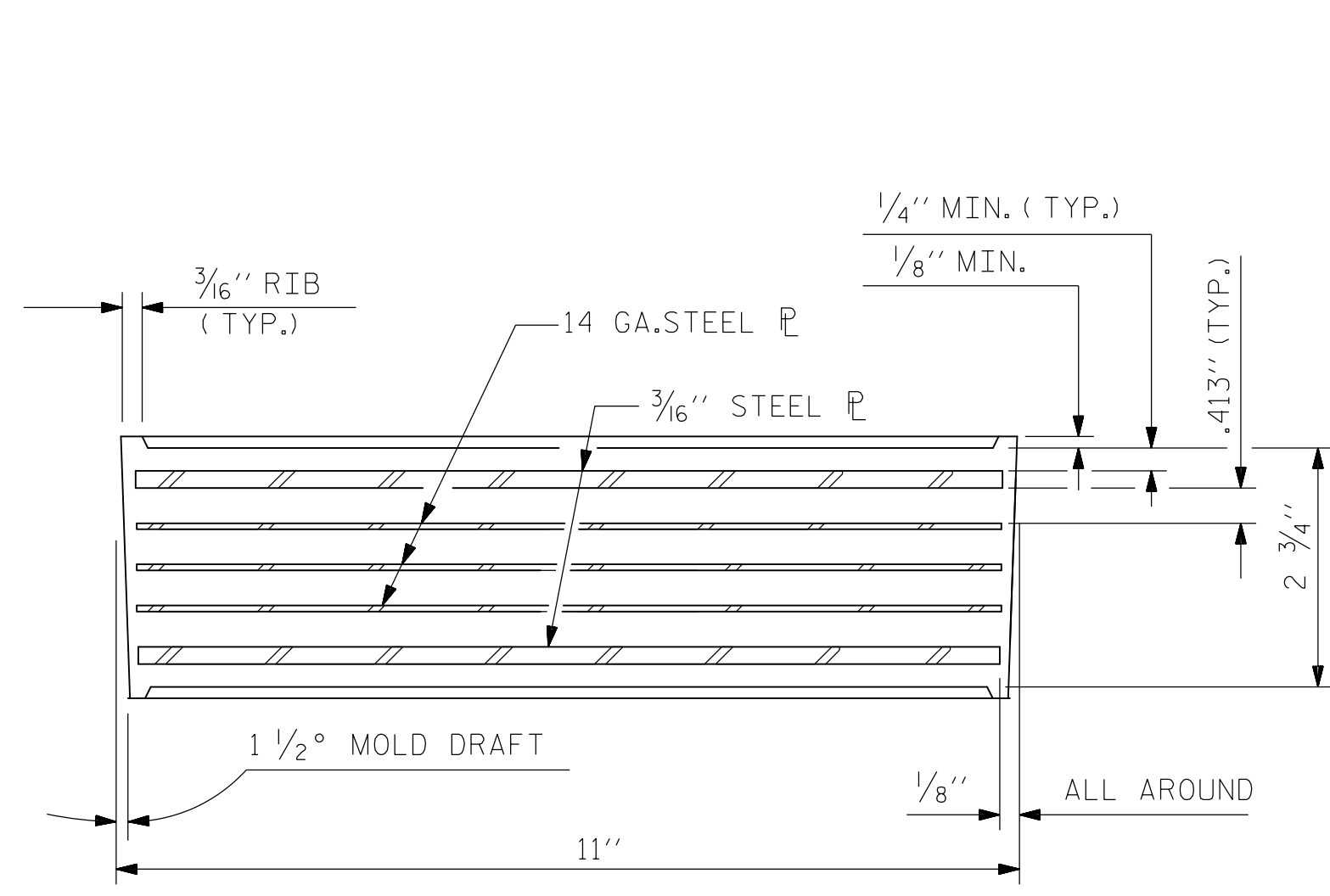
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

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.

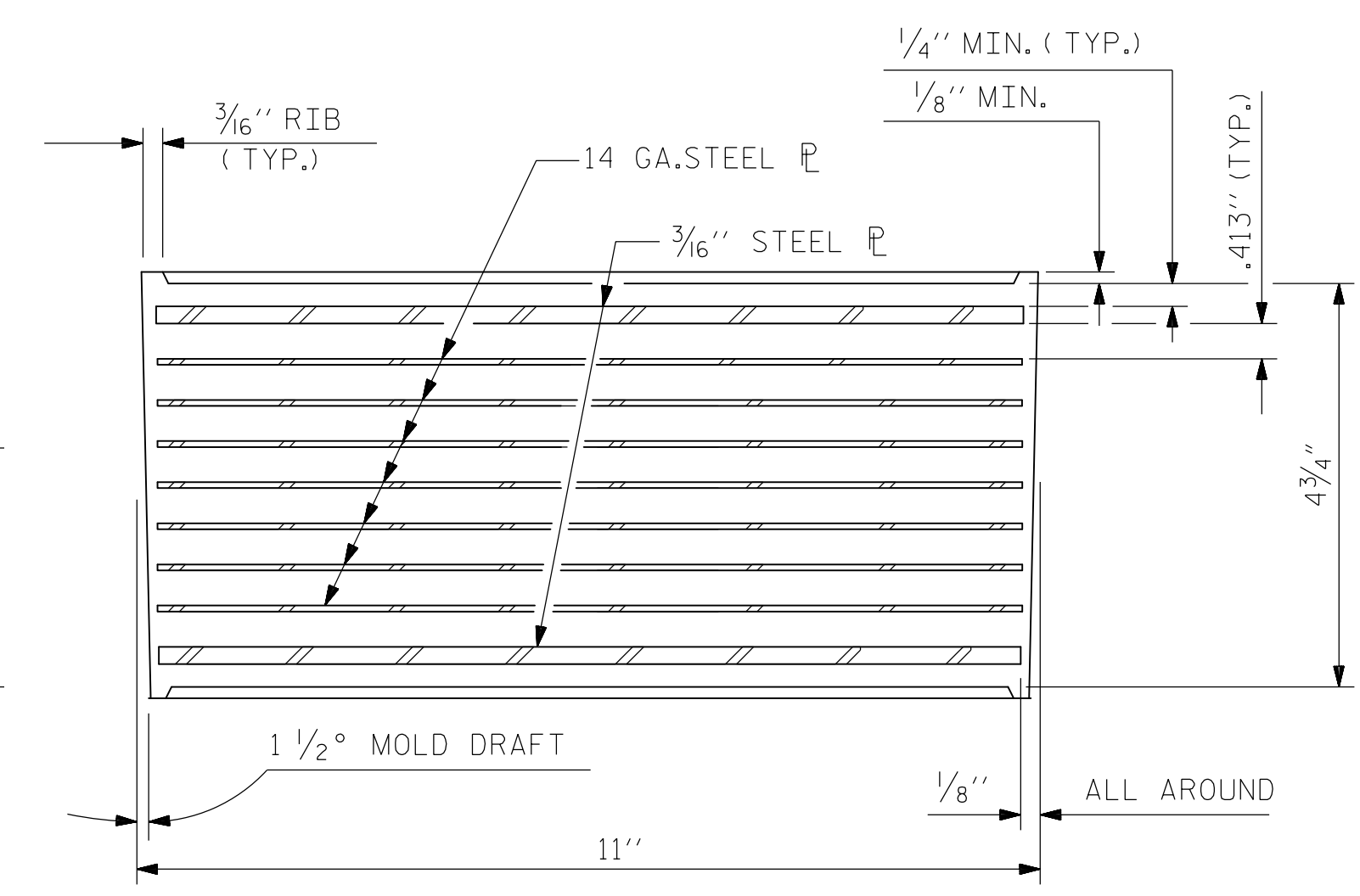
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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

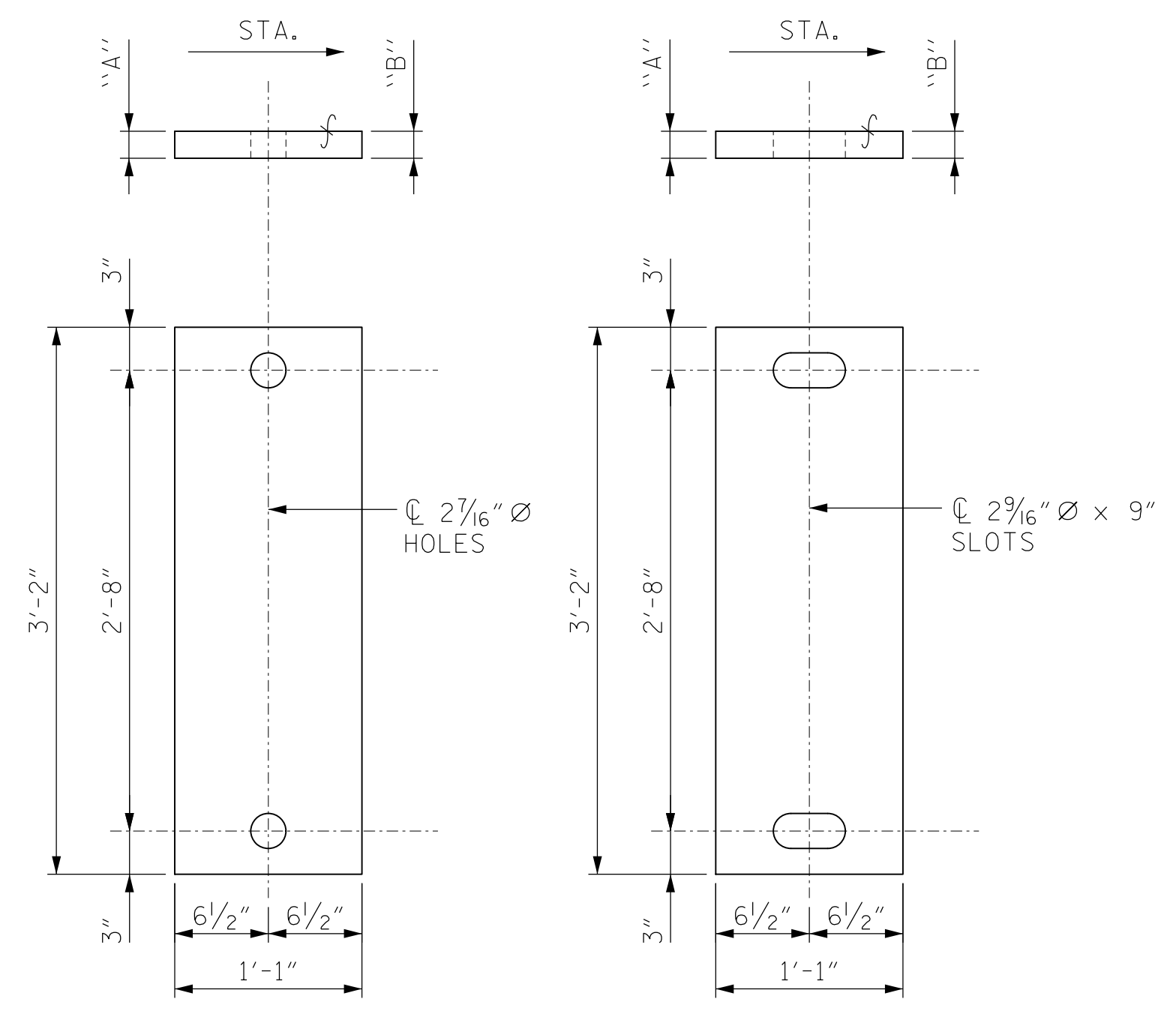
FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.



TYPICAL SECTION OF ELASTOMERIC BEARINGS



TYPICAL SECTION OF ELASTOMERIC BEARINGS



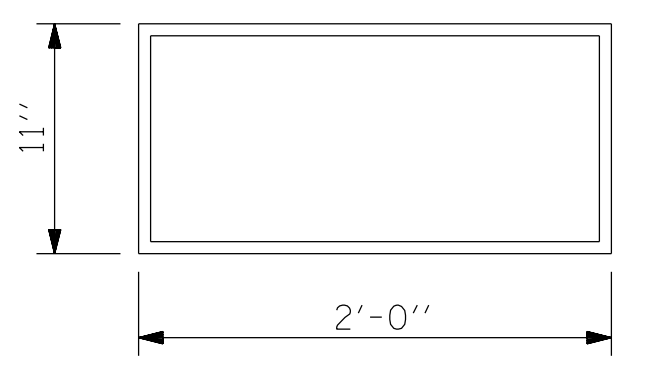
FIXED EXPANSION

SOLE PLATE DETAILS ("P")

SEE FRAMING PLAN (SHEETS 17 THRU 20) FOR LOCATION AND ORIENTATION OF SOUL PLATES

SOLE PLATE CHART				
SOLE P	FIX/EXP	QTY	"A"	"B"
P1	EXP	8	1 1/4"	1 7/8"
P2	FIX	8	1 1/4"	1 7/8"
P3	FIX	8	2 1/4"	2 1/2"
P4	FIX	8	1 1/4"	1 1/2"
P5	FIX	8	1 1/2"	1 1/2"
P6	EXP	8	1 7/8"	1 7/8"
P7	EXP	8	1 5/8"	1 1/4"
P8	FIX	8	3"	2 5/8"
P9	FIX	8	1 7/8"	1 1/4"
P10	FIX	16	3 1/2"	2 3/4"
P11	FIX	16	2"	1 1/4"
P12	EXP	8	2"	1 1/4"

PROJECT NO. U-5008
 MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.

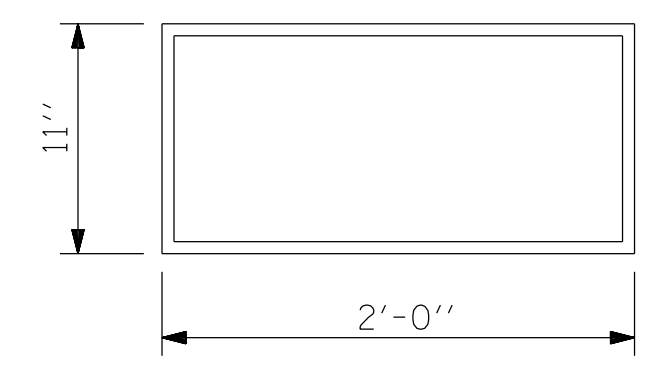


E6 (80 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE VII

SEE FRAMING PLAN (SHEETS 17 THRU 20) FOR LOCATION OF ELASTOMERIC BEARINGS



E7 (32 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

MODIFIED TYPE VII

SEE FRAMING PLAN (SHEETS 17 THRU 20) FOR LOCATION OF ELASTOMERIC BEARINGS

KCI ASSOCIATES OF NC, P.A.
 9741 SOUTHERN PINE BLVD
 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

NORTH CAROLINA
 PROFESSIONAL
 SEAL
 032954
 ENGINEER
 JARED C. MEDLIN

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

ELASTOMERIC BEARING
 DETAILS
 PRESTRESSED CONCRETE GIRDER
 SUPERSTRUCTURE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			SHEETS
2			4			78

2/18/2015 1:00:00 PM Y:\0-rwings\2011 DWG\Structures\RFC\SH30_U-5008_S0_BRG.dgn

DJD DRAWN BY: D.J.DICK DATE: OCT. 2014
 CHECKED BY: J.C.MEDLIN DATE: OCT. 2014

0400DEL_P30

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
0.6" DIA. LOW-RELAXATION		SPAN A																			
		ALL GIRDERS																			
TWENTIETH POINTS	BRG.	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	BRG.
CAMBER (GIRDER ALONE IN PLACE) ↑ (FT)	0.000	0.041	0.078	0.110	0.138	0.162	0.181	0.197	0.207	0.214	0.216	0.214	0.207	0.197	0.181	0.162	0.138	0.110	0.078	0.041	0.000
* DEFLECTION DUE TO SUPERIMPOSED DL ↓ (FT)	0.000	0.036	0.069	0.097	0.122	0.143	0.160	0.174	0.183	0.189	0.191	0.189	0.183	0.174	0.160	0.143	0.122	0.097	0.069	0.036	0.000
** FINAL CAMBER (OR DEFLECTION) ↑ (IN)	0	1/16"	1/8"	1/8"	3/16"	1/4"	1/4"	1/4"	5/16"	5/16"	5/16"	5/16"	5/16"	1/4"	1/4"	1/4"	3/16"	1/8"	1/8"	1/16"	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
0.6" DIA. LOW-RELAXATION		SPAN B																			
		ALL GIRDERS																			
TWENTIETH POINTS	BRG.	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	BRG.
CAMBER (GIRDER ALONE IN PLACE) ↑ (FT)	0.000	0.041	0.078	0.110	0.138	0.162	0.181	0.197	0.207	0.214	0.216	0.214	0.207	0.197	0.181	0.162	0.138	0.110	0.078	0.041	0.000
* DEFLECTION DUE TO SUPERIMPOSED DL ↓ (FT)	0.000	0.037	0.071	0.101	0.126	0.148	0.166	0.180	0.189	0.195	0.197	0.195	0.189	0.180	0.166	0.148	0.126	0.101	0.071	0.037	0.000
** FINAL CAMBER (OR DEFLECTION) ↑ (IN)	0	1/16"	1/16"	1/8"	1/8"	3/16"	3/16"	3/16"	3/16"	1/4"	1/4"	1/4"	3/16"	3/16"	3/16"	3/16"	1/8"	1/8"	1/16"	1/16"	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
0.6" DIA. LOW-RELAXATION		SPAN D																			
		ALL GIRDERS																			
TWENTIETH POINTS	BRG.	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	BRG.
CAMBER (GIRDER ALONE IN PLACE) ↑ (FT)	0.000	0.038	0.072	0.102	0.128	0.150	0.168	0.182	0.192	0.198	0.200	0.198	0.192	0.182	0.168	0.150	0.128	0.102	0.072	0.038	0.000
* DEFLECTION DUE TO SUPERIMPOSED DL ↓ (FT)	0.000	0.030	0.057	0.081	0.101	0.119	0.133	0.144	0.152	0.157	0.158	0.157	0.152	0.144	0.133	0.119	0.101	0.081	0.057	0.030	0.000
** FINAL CAMBER (OR DEFLECTION) ↑ (IN)	0	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	7/16"	1/2"	1/2"	1/2"	1/2"	1/2"	7/16"	7/16"	3/8"	5/16"	1/4"	3/16"	1/8"	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
0.6" DIA. LOW-RELAXATION		SPAN E																			
		ALL GIRDERS																			
TWENTIETH POINTS	BRG.	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	BRG.
CAMBER (GIRDER ALONE IN PLACE) ↑ (FT)	0.000	0.038	0.072	0.102	0.128	0.150	0.168	0.182	0.192	0.198	0.200	0.198	0.192	0.182	0.168	0.150	0.128	0.102	0.072	0.038	0.000
* DEFLECTION DUE TO SUPERIMPOSED DL ↓ (FT)	0.000	0.029	0.055	0.078	0.098	0.114	0.128	0.139	0.146	0.151	0.153	0.151	0.146	0.139	0.128	0.114	0.098	0.078	0.055	0.029	0.000
** FINAL CAMBER (OR DEFLECTION) ↑ (IN)	0	1/8"	3/16"	5/16"	3/8"	7/16"	1/2"	1/2"	9/16"	9/16"	9/16"	9/16"	9/16"	1/2"	1/2"	7/16"	3/8"	5/16"	3/16"	1/8"	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
0.6" DIA. LOW-RELAXATION		SPAN F																			
		ALL GIRDERS																			
TWENTIETH POINTS	BRG.	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	BRG.
CAMBER (GIRDER ALONE IN PLACE) ↑ (FT)	0.000	0.038	0.072	0.102	0.128	0.150	0.168	0.182	0.192	0.198	0.200	0.198	0.192	0.182	0.168	0.150	0.128	0.102	0.072	0.038	0.000
* DEFLECTION DUE TO SUPERIMPOSED DL ↓ (FT)	0.000	0.029	0.054	0.077	0.096	0.113	0.127	0.137	0.145	0.149	0.151	0.149	0.145	0.137	0.127	0.113	0.096	0.077	0.054	0.029	0.000
** FINAL CAMBER (OR DEFLECTION) ↑ (IN)	0	1/8"	3/16"	5/16"	3/8"	7/16"	1/2"	1/2"	9/16"	9/16"	9/16"	9/16"	9/16"	1/2"	1/2"	7/16"	3/8"	5/16"	3/16"	1/8"	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
0.6" DIA. LOW-RELAXATION		SPAN G																			
		ALL GIRDERS																			
TWENTIETH POINTS	BRG.	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	BRG.
CAMBER (GIRDER ALONE IN PLACE) ↑ (FT)	0.000	0.038	0.072	0.102	0.128	0.150	0.168	0.181	0.191	0.197	0.199	0.197	0.191	0.181	0.168	0.150	0.128	0.102	0.072	0.038	0.000
* DEFLECTION DUE TO SUPERIMPOSED DL ↓ (FT)	0.000	0.029	0.055	0.078	0.098	0.115	0.129	0.140	0.148	0.152	0.154	0.152	0.148	0.140	0.129	0.115	0.098	0.078	0.055	0.029	0.000
** FINAL CAMBER (OR DEFLECTION) ↑ (IN)	0	1/8"	3/16"	1/4"	3/8"	7/16"	7/16"	1/2"	1/2"	9/16"	9/16"	9/16"	1/2"	1/2"	7/16"	7/16"	3/8"	1/4"	3/16"	1/8"	0

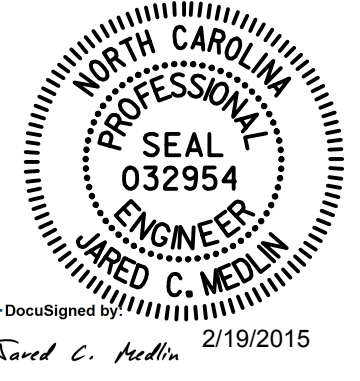
* INCLUDES FUTURE WEARING SURFACE
 ** POSITIVE NUMBER MEANS UPWARD MOVEMENT. NEGATIVE NUMBER MEANS DOWNWARD MOVEMENT.
 ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM)

2/18/2015 1:00 PM Y:\0-cwings\2011 DWGS\B11-11 Sugar Creek Rd - NCDOT\Structures\RFC\SH31.U-5008_SD.DLD-1.dgn

DJD DRAWN BY : D.J.DICK DATE : OCT. 2014
 CHECKED BY : D.L.KEENER DATE : OCT. 2014

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DEAD LOAD DEFLECTION
 TABLES FOR GIRDERS
 SPANS A, B, D, E, F & G



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31	
1			3			SHEETS	
2			4			78	

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

0.6" DIA. LOW-RELAXATION	SPAN C																				
	GIRDER C1																				
TWENTIETH POINTS	BRG.	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	BRG.
CAMBER (GIRDER ALONE IN PLACE) ↑ (FT)	0.000	0.031	0.058	0.082	0.103	0.121	0.136	0.147	0.155	0.160	0.162	0.160	0.155	0.147	0.136	0.121	0.103	0.082	0.058	0.031	0.000
* DEFLECTION DUE TO SUPERIMPOSED DL ↓ (FT)	0.000	0.015	0.029	0.041	0.052	0.061	0.068	0.074	0.078	0.080	0.081	0.080	0.078	0.074	0.068	0.061	0.052	0.041	0.029	0.015	0.000
** FINAL CAMBER (OR DEFLECTION) ↑ (IN)	0	3/16"	3/8"	1/2"	5/8"	3/4"	13/16"	7/8"	15/16"	15/16"	15/16"	15/16"	15/16"	7/8"	13/16"	3/4"	5/8"	1/2"	3/8"	3/16"	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

0.6" DIA. LOW-RELAXATION	SPAN C																				
	GIRDER C2																				
TWENTIETH POINTS	BRG.	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	BRG.
CAMBER (GIRDER ALONE IN PLACE) ↑ (FT)	0.000	0.031	0.060	0.084	0.106	0.124	0.139	0.150	0.159	0.164	0.165	0.164	0.159	0.150	0.139	0.124	0.106	0.084	0.060	0.031	0.000
* DEFLECTION DUE TO SUPERIMPOSED DL ↓ (FT)	0.000	0.018	0.034	0.048	0.060	0.070	0.079	0.085	0.090	0.093	0.094	0.093	0.090	0.085	0.079	0.070	0.060	0.048	0.034	0.018	0.000
** FINAL CAMBER (OR DEFLECTION) ↑ (IN)	0	3/16"	5/16"	7/16"	9/16"	5/8"	3/4"	13/16"	13/16"	7/8"	7/8"	7/8"	13/16"	13/16"	3/4"	5/8"	9/16"	7/16"	5/16"	3/16"	0

0.6" DIA. LOW-RELAXATION	SPAN C																				
	GIRDER C3																				
TWENTIETH POINTS	BRG.	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	BRG.
CAMBER (GIRDER ALONE IN PLACE) ↑ (FT)	0.000	0.032	0.061	0.086	0.108	0.127	0.142	0.153	0.162	0.167	0.169	0.167	0.162	0.153	0.142	0.127	0.108	0.086	0.061	0.032	0.000
* DEFLECTION DUE TO SUPERIMPOSED DL ↓ (FT)	0.000	0.019	0.036	0.051	0.063	0.074	0.083	0.090	0.095	0.098	0.099	0.098	0.095	0.090	0.083	0.074	0.063	0.051	0.036	0.019	0.000
** FINAL CAMBER (OR DEFLECTION) ↑ (IN)	0	3/16"	5/16"	7/16"	9/16"	5/8"	11/16"	3/4"	13/16"	13/16"	13/16"	13/16"	13/16"	3/4"	11/16"	5/8"	9/16"	7/16"	5/16"	3/16"	0

0.6" DIA. LOW-RELAXATION	SPAN C																				
	GIRDER C4																				
TWENTIETH POINTS	BRG.	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	BRG.
CAMBER (GIRDER ALONE IN PLACE) ↑ (FT)	0.000	0.033	0.062	0.088	0.110	0.129	0.144	0.156	0.165	0.170	0.172	0.170	0.165	0.156	0.144	0.129	0.110	0.088	0.062	0.033	0.000
* DEFLECTION DUE TO SUPERIMPOSED DL ↓ (FT)	0.000	0.019	0.036	0.052	0.065	0.076	0.085	0.092	0.097	0.100	0.101	0.100	0.097	0.092	0.085	0.076	0.065	0.052	0.036	0.019	0.000
** FINAL CAMBER (OR DEFLECTION) ↑ (IN)	0	3/16"	5/16"	7/16"	9/16"	5/8"	11/16"	3/4"	13/16"	13/16"	7/8"	13/16"	13/16"	3/4"	11/16"	5/8"	9/16"	7/16"	5/16"	3/16"	0

0.6" DIA. LOW-RELAXATION	SPAN C																				
	GIRDER C5																				
TWENTIETH POINTS	BRG.	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	BRG.
CAMBER (GIRDER ALONE IN PLACE) ↑ (FT)	0.000	0.033	0.063	0.089	0.111	0.131	0.146	0.158	0.167	0.172	0.174	0.172	0.167	0.158	0.146	0.131	0.111	0.089	0.063	0.033	0.000
* DEFLECTION DUE TO SUPERIMPOSED DL ↓ (FT)	0.000	0.021	0.040	0.056	0.071	0.083	0.093	0.101	0.106	0.109	0.111	0.109	0.106	0.101	0.093	0.083	0.071	0.056	0.040	0.021	0.000
** FINAL CAMBER (OR DEFLECTION) ↑ (IN)	0	1/8"	1/4"	3/8"	1/2"	9/16"	5/8"	11/16"	3/4"	3/4"	3/4"	3/4"	3/4"	11/16"	5/8"	9/16"	1/2"	3/8"	1/4"	1/8"	0

0.6" DIA. LOW-RELAXATION	SPAN C																				
	GIRDER C6																				
TWENTIETH POINTS	BRG.	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	BRG.
CAMBER (GIRDER ALONE IN PLACE) ↑ (FT)	0.000	0.033	0.063	0.090	0.113	0.132	0.148	0.160	0.169	0.174	0.176	0.174	0.169	0.160	0.148	0.132	0.113	0.090	0.063	0.033	0.000
* DEFLECTION DUE TO SUPERIMPOSED DL ↓ (FT)	0.000	0.024	0.045	0.064	0.081	0.095	0.106	0.115	0.121	0.125	0.126	0.125	0.121	0.115	0.106	0.095	0.081	0.064	0.045	0.024	0.000
** FINAL CAMBER (OR DEFLECTION) ↑ (IN)	0	1/8"	3/16"	5/16"	3/8"	7/16"	1/2"	9/16"	9/16"	9/16"	5/8"	9/16"	9/16"	9/16"	1/2"	7/16"	3/8"	5/16"	3/16"	1/8"	0

0.6" DIA. LOW-RELAXATION	SPAN C																				
	GIRDER C7																				
TWENTIETH POINTS	BRG.	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	BRG.
CAMBER (GIRDER ALONE IN PLACE) ↑ (FT)	0.000	0.034	0.064	0.091	0.114	0.133	0.149	0.162	0.171	0.176	0.178	0.176	0.171	0.162	0.149	0.133	0.114	0.091	0.064	0.034	0.000
* DEFLECTION DUE TO SUPERIMPOSED DL ↓ (FT)	0.000	0.027	0.050	0.071	0.089	0.105	0.117	0.127	0.134	0.138	0.140	0.138	0.134	0.127	0.117	0.105	0.089	0.071	0.050	0.027	0.000
** FINAL CAMBER (OR DEFLECTION) ↑ (IN)	0	1/16"	3/16"	1/4"	5/16"	5/16"	3/8"	7/16"	7/16"	7/16"	7/16"	7/16"	7/16"	7/16"	3/8"	5/16"	5/16"	1/4"	3/16"	1/16"	0

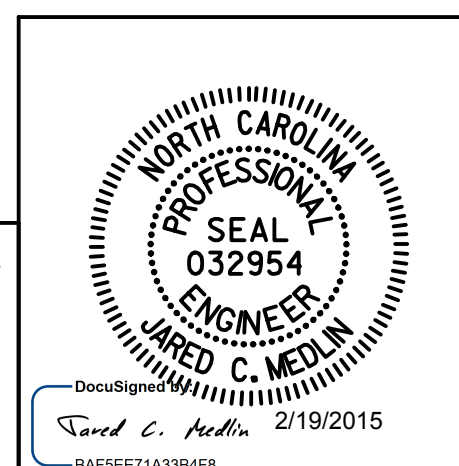
0.6" DIA. LOW-RELAXATION	SPAN C																					
	GIRDER C8																					
TWENTIETH POINTS	BRG.	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	BRG.	
CAMBER (GIRDER ALONE IN PLACE) ↑ (FT)	0.000	0.034	0.064	0.091	0.114	0.134	0.150	0.163	0.172	0.177	0.179	0.177	0.172	0.163	0.150	0.134	0.114	0.091	0.064	0.034	0.000	
* DEFLECTION DUE TO SUPERIMPOSED DL ↓ (FT)	0.000	0.027	0.051	0.073	0.091	0.107	0.120	0.130	0.137	0.141	0.143	0.141	0.137	0.130	0.120	0.107	0.091	0.073	0.051	0.027	0.000	
** FINAL CAMBER (OR DEFLECTION) ↑ (IN)	0	1/16"	1/8"	1/4"	1/4"	5/16"	3/8"	3/8"	7/16"	7/16"	7/16"	7/16"	7/16"	7/16"	3/8"	3/8"	5/16"	1/4"	1/4"	1/8"	1/16"	0

* INCLUDES FUTURE WEARING SURFACE
 ** POSITIVE NUMBER MEANS UPWARD MOVEMENT, NEGATIVE NUMBER MEANS DOWNWARD MOVEMENT.
 * ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM)

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DEAD LOAD DEFLECTION
 TABLES FOR GIRDERS
 SPAN C

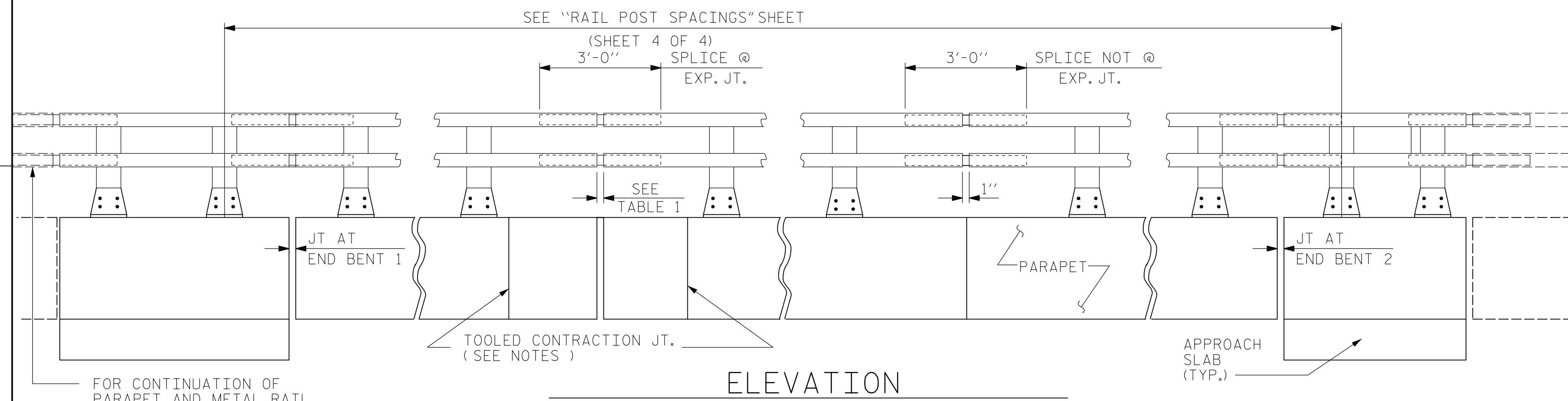
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			SHEETS
2			4			78



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 9741 SOUTHERN PINE BLVD
 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

DRAWN BY : D.J.DICK DATE : OCT. 2014
 CHECKED BY : D.L.KEENER DATE : OCT. 2014

0400DEL_P30



NOTES

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING. THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY. MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

ANODIZING

ALUMINUM FOR POSTS, BASES, RAILS, EXPANSION BARS, CLAMP BARS, RIVETS, CAPS, SHIMS, ATTACHMENT BRACKETS AND HOLD DOWN PLATES SHALL BE ANODIZED BLACK. ANY DAMAGE TO THE ANODIZED SURFACE OF THE RAIL OR COMPONENTS DURING CONSTRUCTION SHALL BE REPAIRED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS AT THE DIRECTION OF THE ENGINEER AND AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR SHALL SUBMIT A SAMPLE OF COMPATIBLE BLACK EXTERIOR ACRYLIC PAINT TO THE ENGINEER. THIS PAINT SHALL MATCH THE ANODIZED RAIL COLOR AS CLOSELY AS POSSIBLE AFTER ERECTION OF THE ANODIZED ALUMINUM RAILING, ALL EXPOSED ANCHOR BOLTS, NUTS, WASHERS, MACHINE SCREWS, CAP SCREWS, BOLTS, ATTACHMENT BRACKETS AND BUILT UP ANGLES SHALL BE COATED WITH TWO COATS OF THIS PAINT.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FULL LENGTH OF BRIDGE AND APPROACH SLABS, EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS. CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL. CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED. METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE. METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

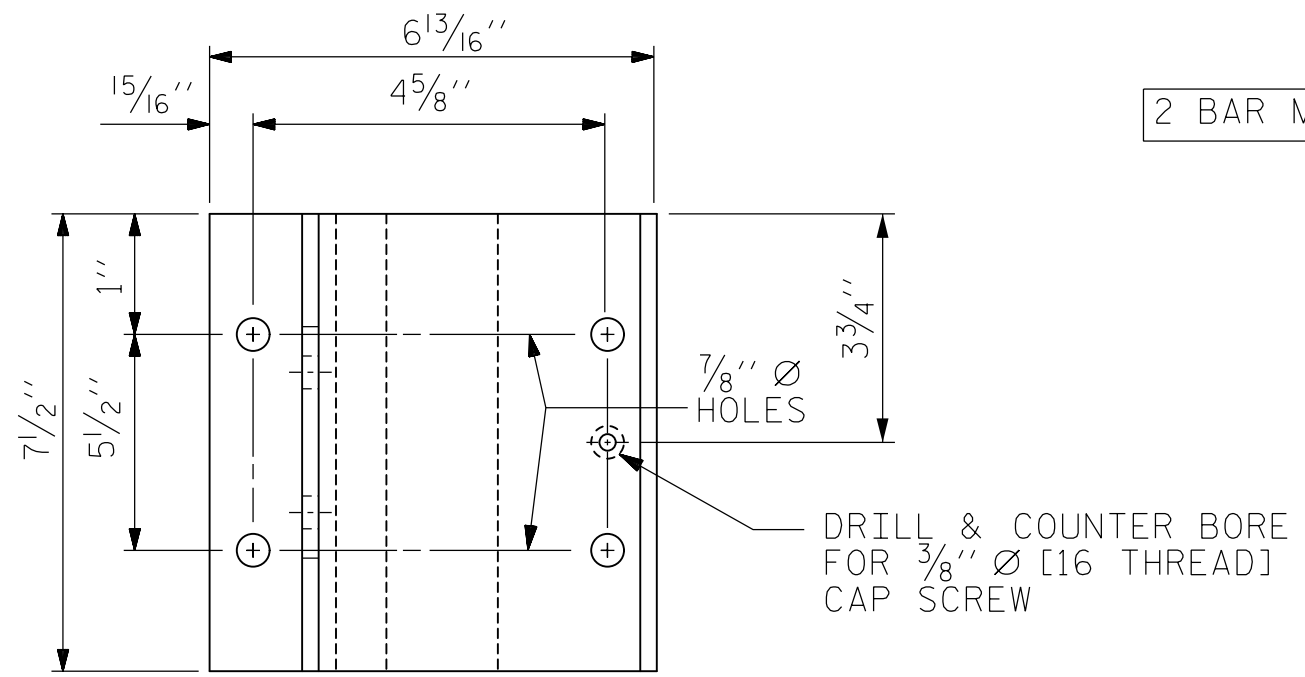
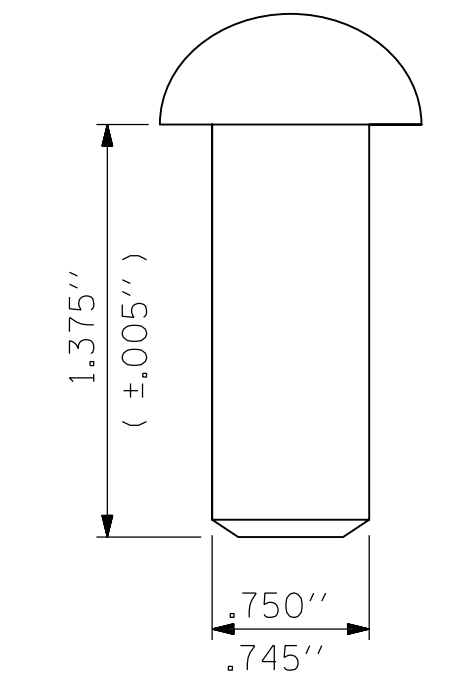
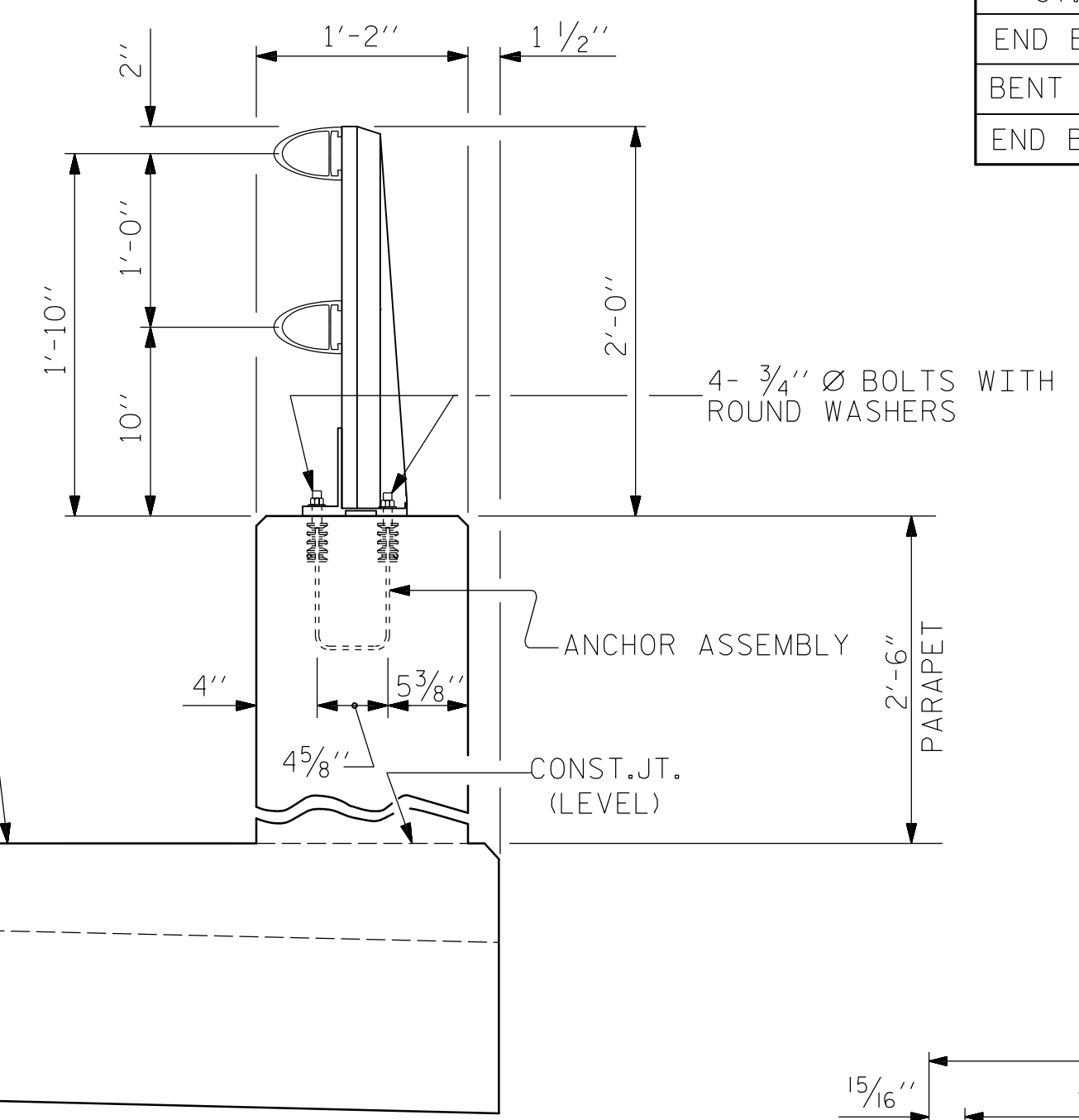
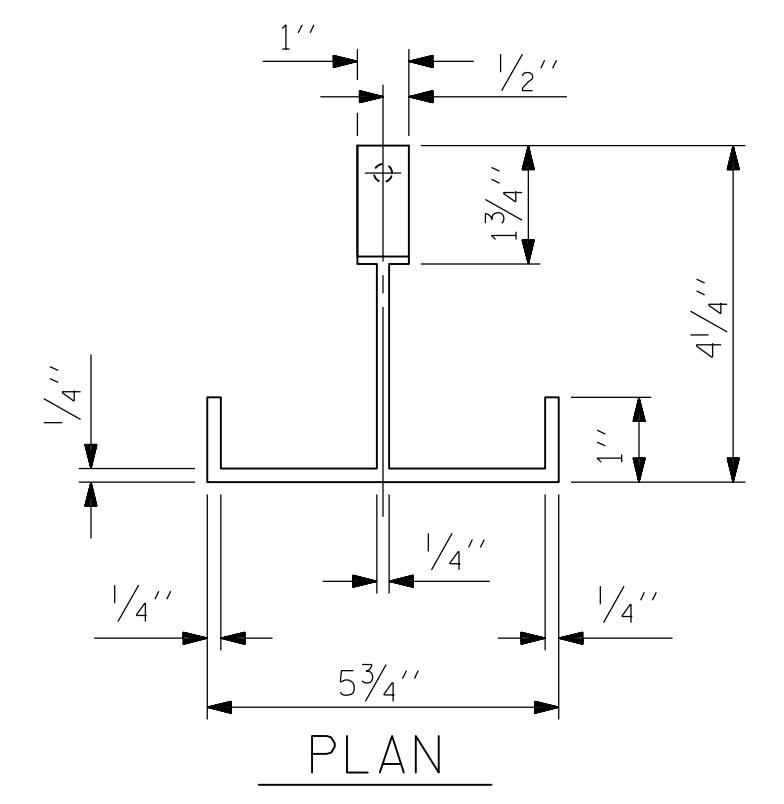
SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

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

EXP. JT. @	RAIL OPENING
END BENT 1	2"
BENT 3	2 1/2"
END BENT 2	2 1/4"



2 BAR METAL RAIL SHALL BE ANODIZED BLACK, SEE NOTES

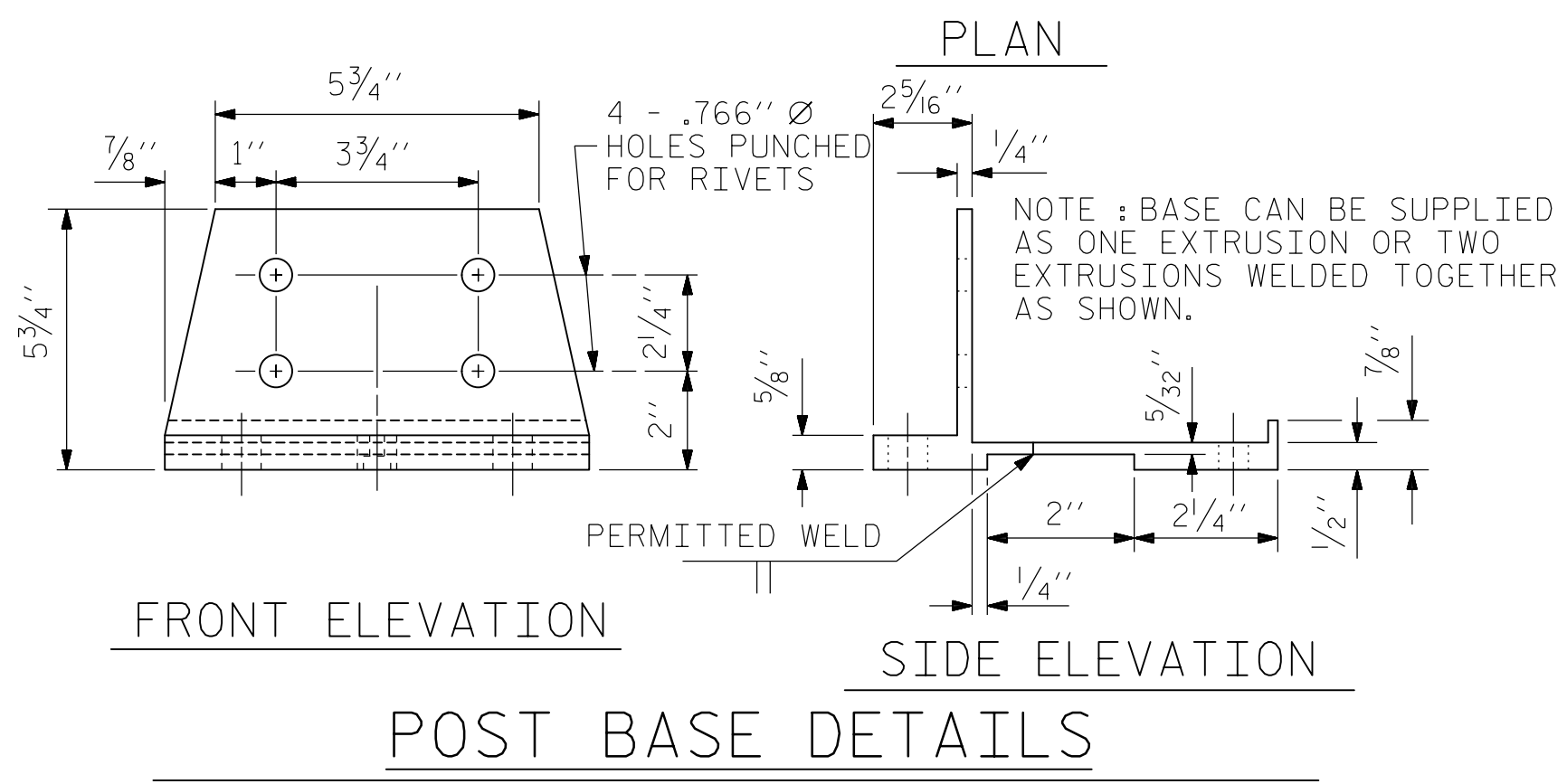
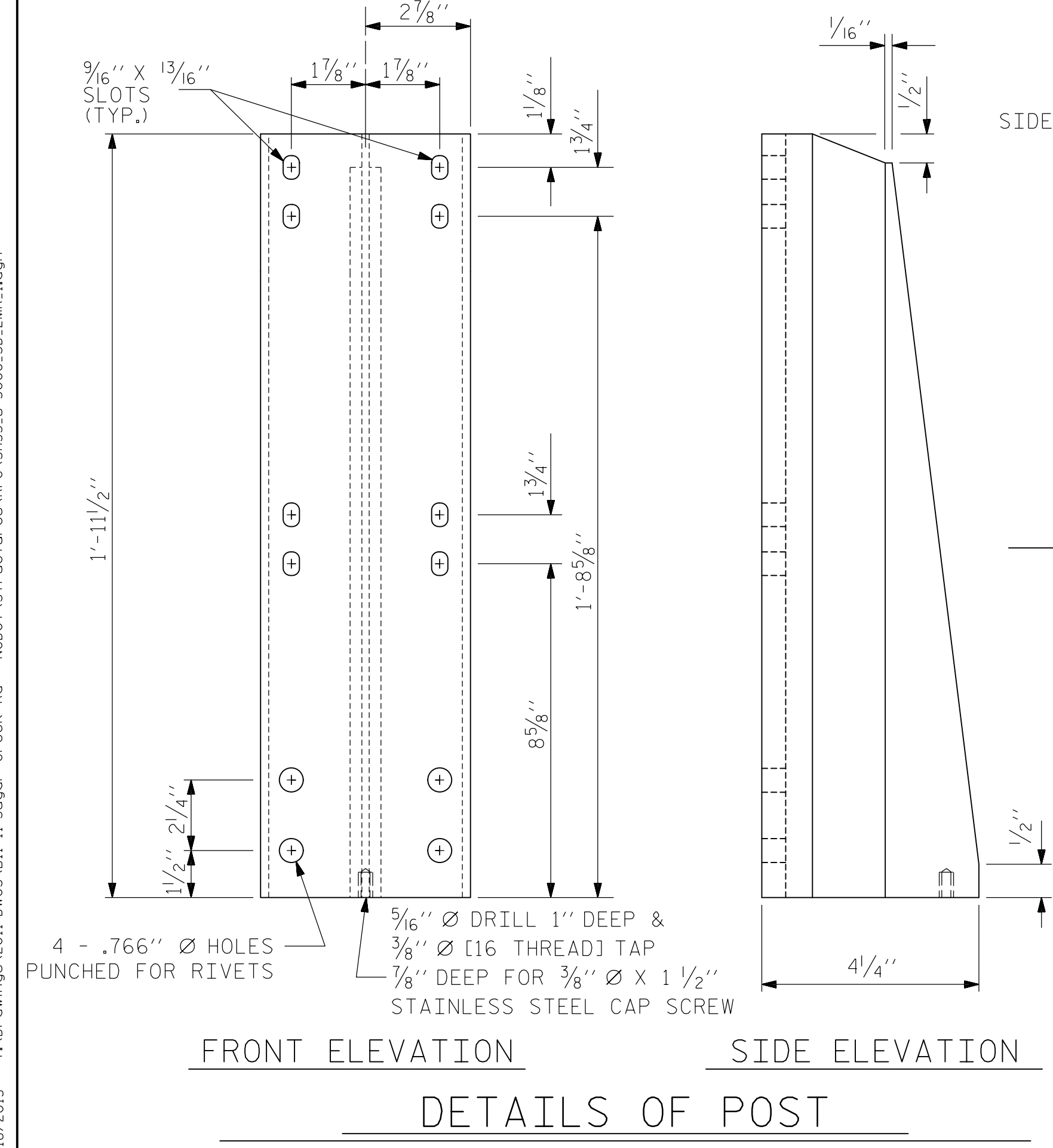
PAY LENGTH
1683.65 LIN. FT. - BRIDGE
45.00 LIN. FT. - APP. SLABS
989.68 LIN. FT. - MOMENT SLABS
2718.33 LIN. FT. - TOTAL

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

2 BAR METAL RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33
1			3			SHEETS 78
2			4			



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 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

NORTH CAROLINA
 PROFESSIONAL SEAL
 032954
 ENGINEER
 JARED C. MEDLIN
 2/19/2015

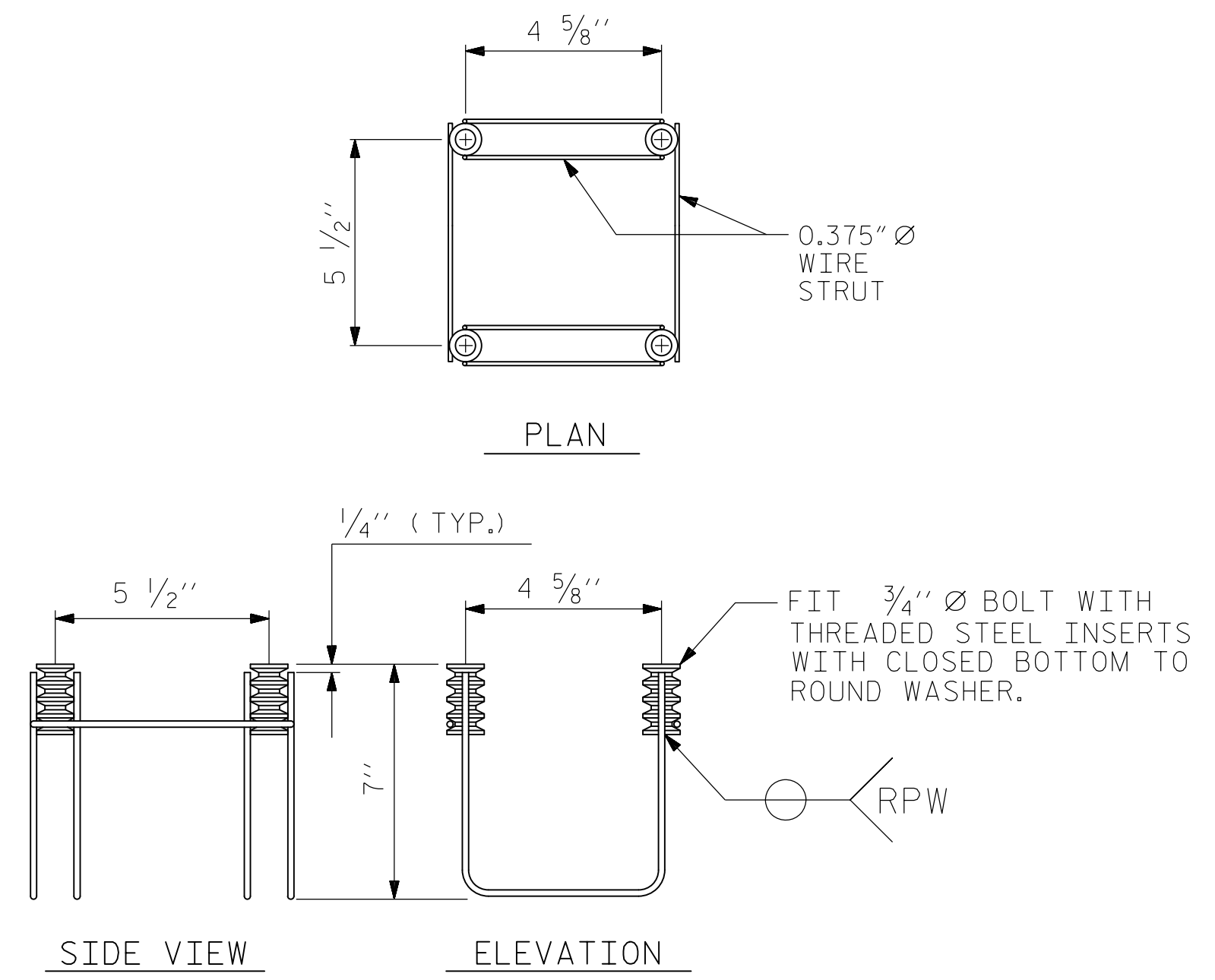
DRAWN BY: R.J. FLORY DATE: 8/8/14
 CHECKED BY: R.C. LARSON DATE: 8/9/14

2/18/2015 Y:\0-rwings\2011 DWGS\NB11-11 Sugar Creek Rd - NCDOT\Structures\RFC\SH33-U-5008-SD-2MR-1.dgn

2/18/2015 1:10:07 PM \\s01\dwg\2011\DWG\NBI1-11\Sugar Creek Rd - NCDOT\Structures\RFC\SH34_U-5008_SD_2MR_2.dgn

4-BOLT METAL RAIL ANCHOR ASSEMBLY

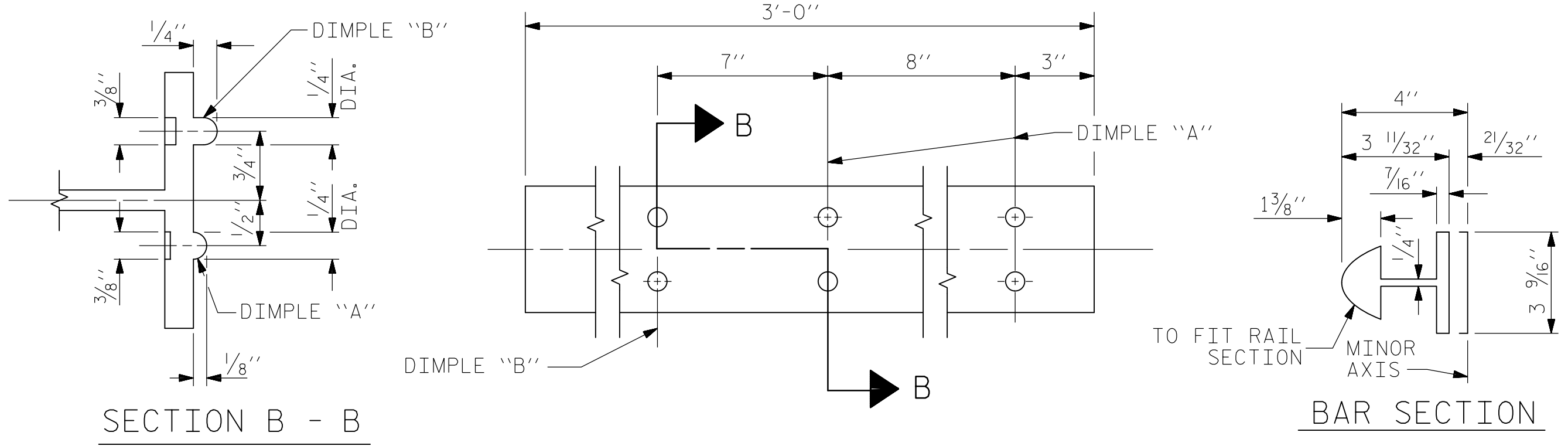
(429 ASSEMBLIES REQUIRED)



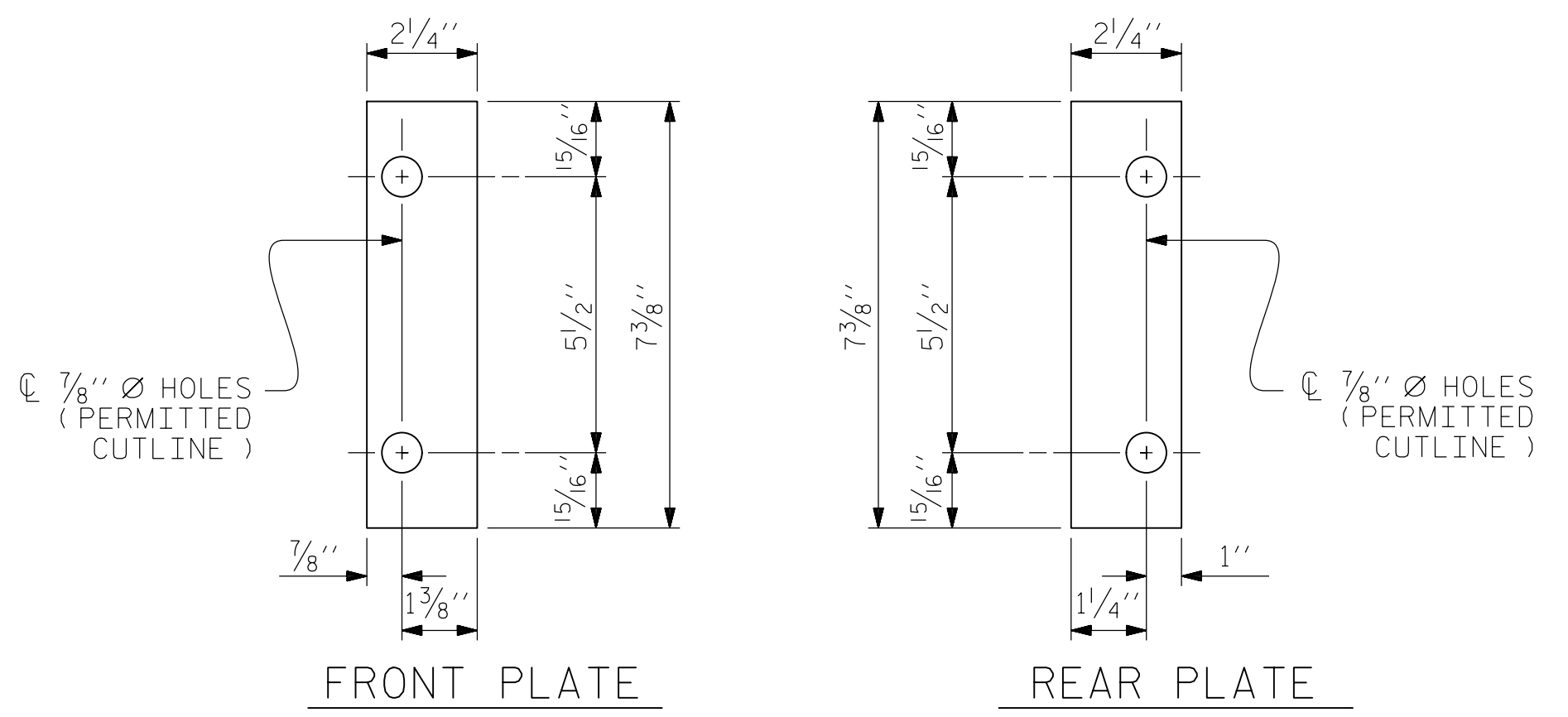
- NOTES**
STRUCTURAL CONCRETE ANCHOR ASSEMBLY
- THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
 - B. 4 - 3/4" x 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" x 2 1/2" GALVANIZED BOLTS 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.
 - C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/16" WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
 - D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
 - E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
 - F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE THE STANDARD SPECIFICATIONS.

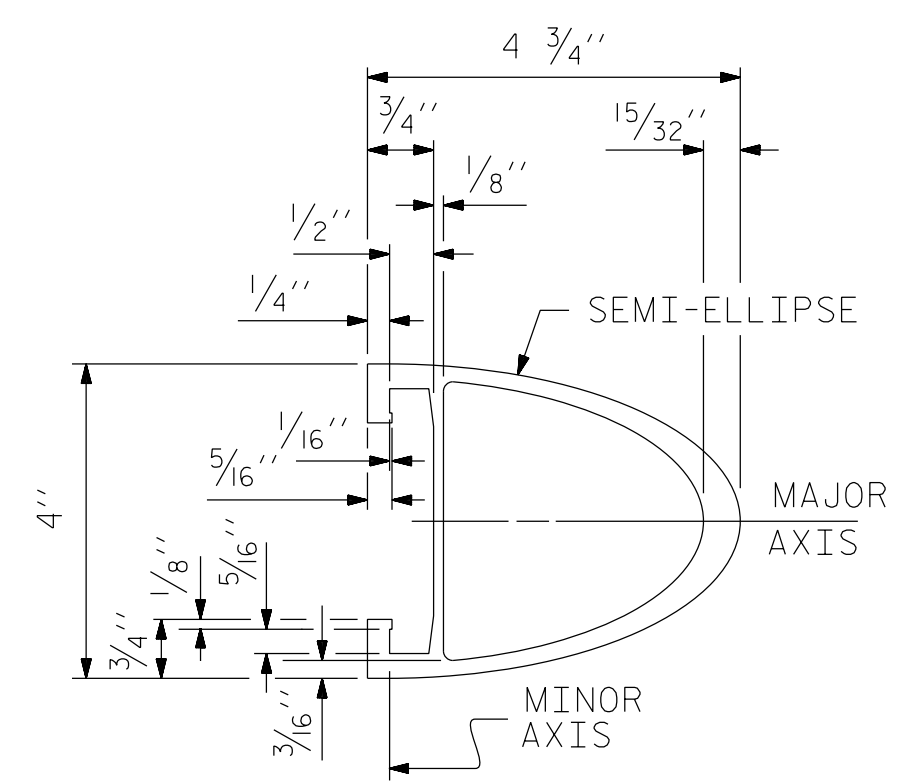
WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



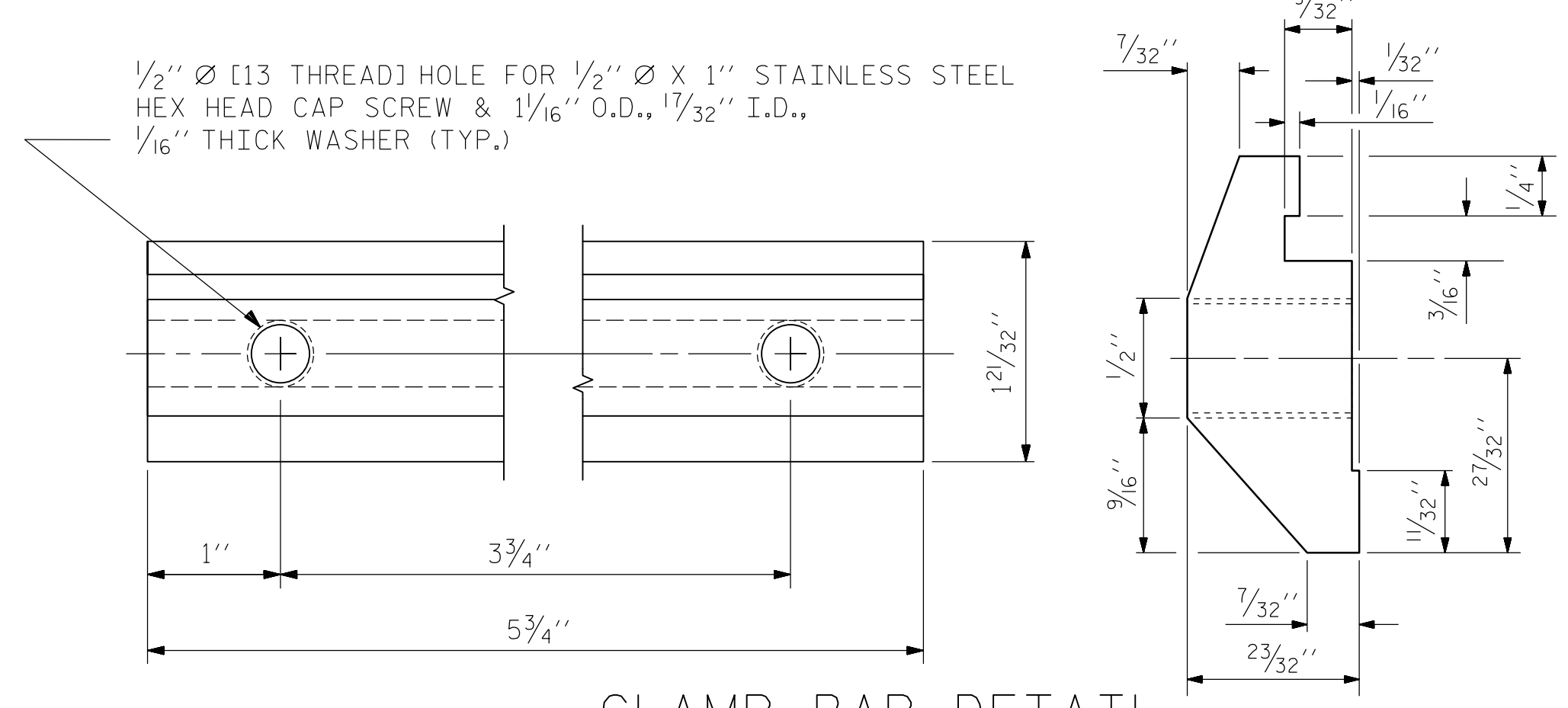
EXPANSION BAR DETAILS



SHIM DETAILS

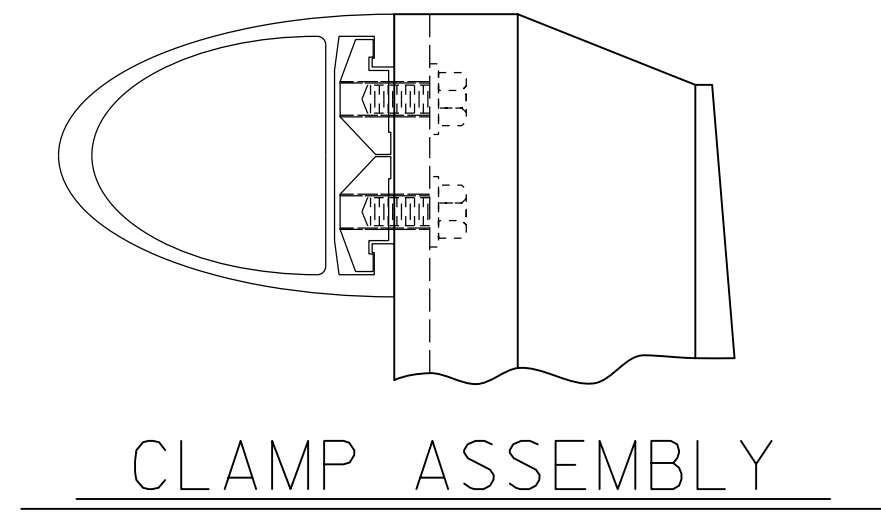


RAIL SECTION

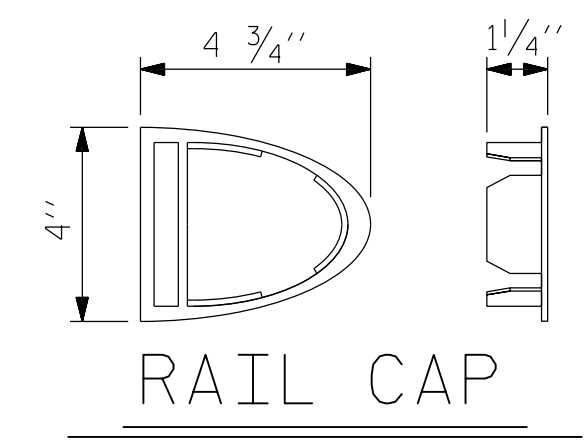


CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY



RAIL CAP

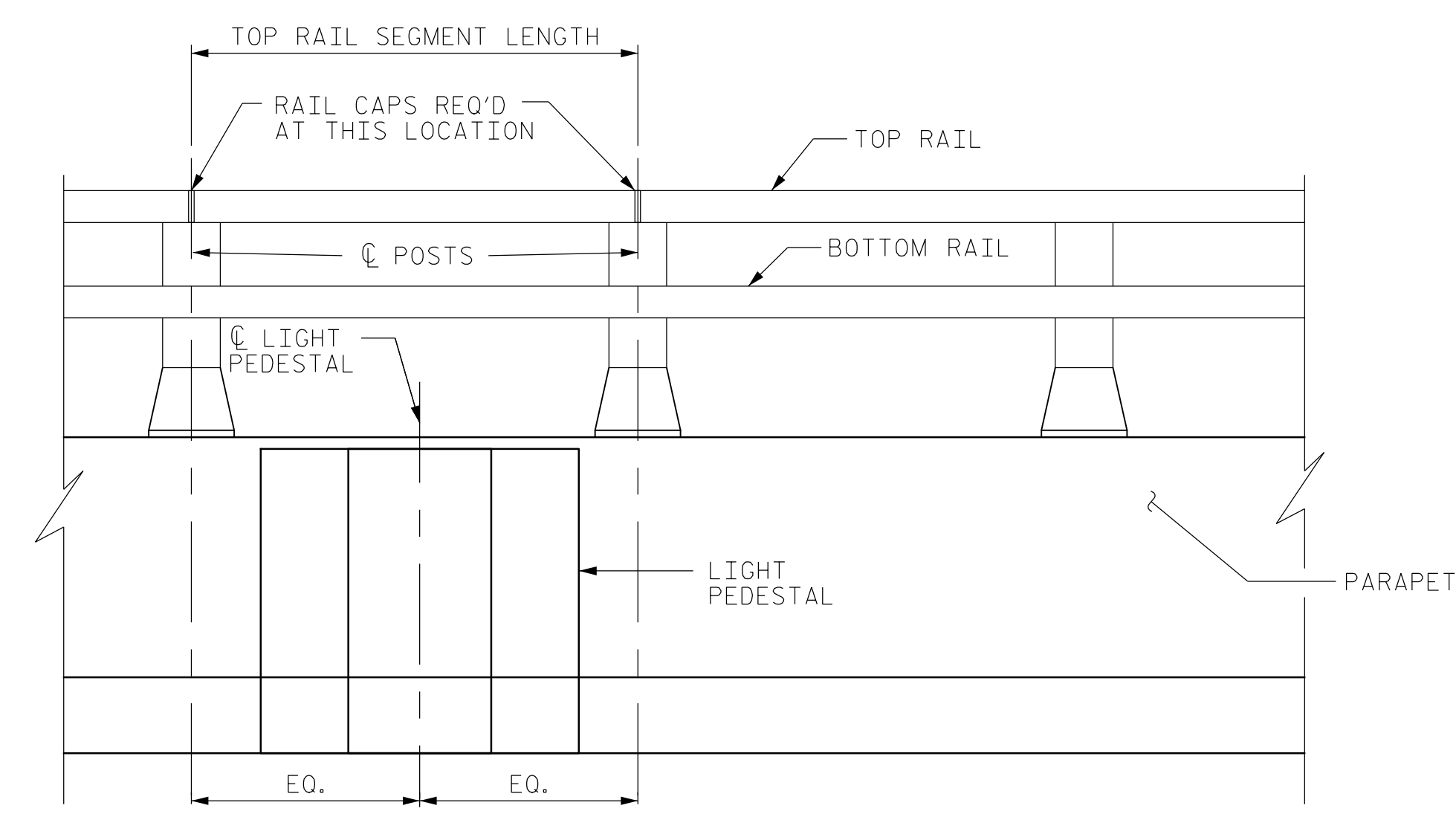
PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 2 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
2 BAR METAL RAIL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-34
					SHEETS 78

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 704-499-9452
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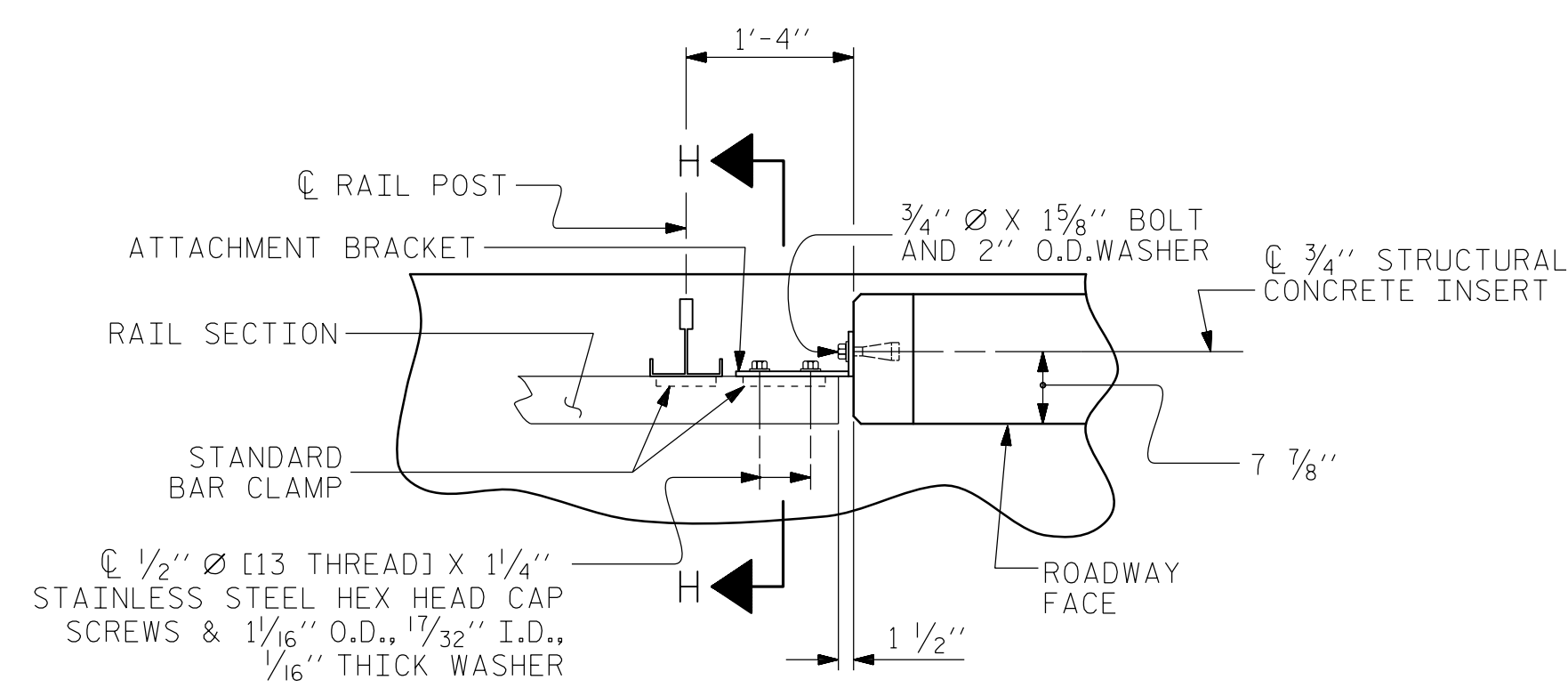
NORTH CAROLINA
 PROFESSIONAL
 SEAL
 032954
 ENGINEER
 JARED C. MEDINA
 2/19/2015

DRAWN BY : R.J. FLORY DATE : 8/8/14
 CHECKED BY : R.C. LARSON DATE : 8/9/14

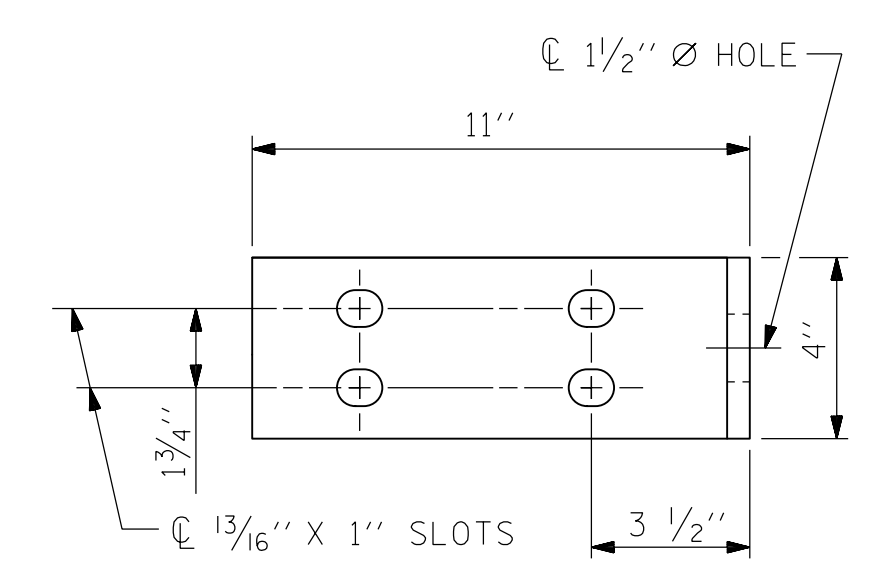


ELEVATION AT LIGHT PEDESTALS

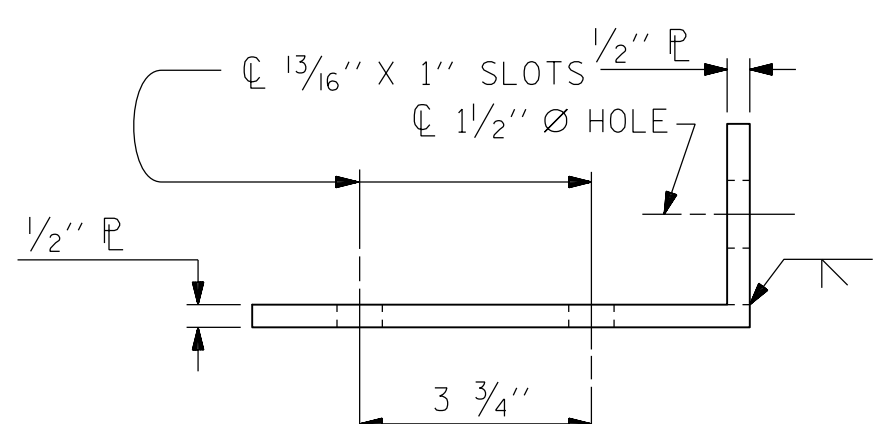
(PROVIDE REMOVABLE TOP RAIL AND CENTER PEDESTAL BETWEEN POSTS)



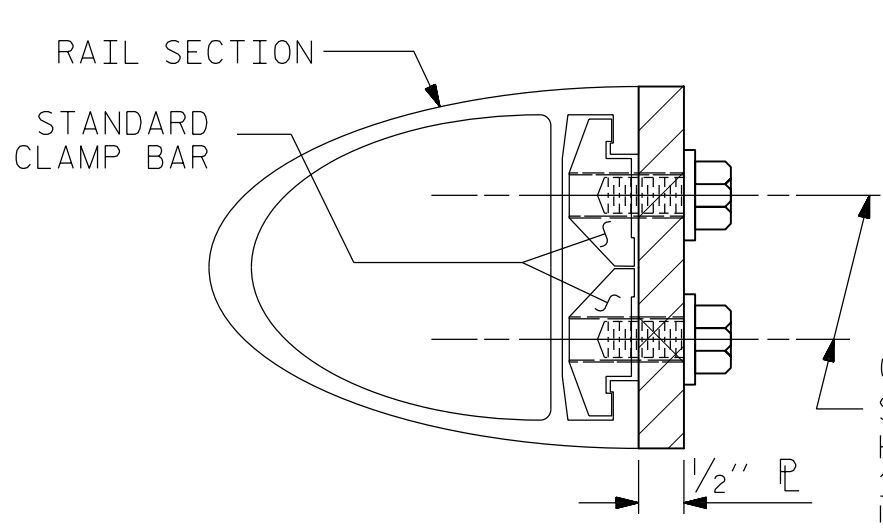
PLAN - RAIL AND END POST



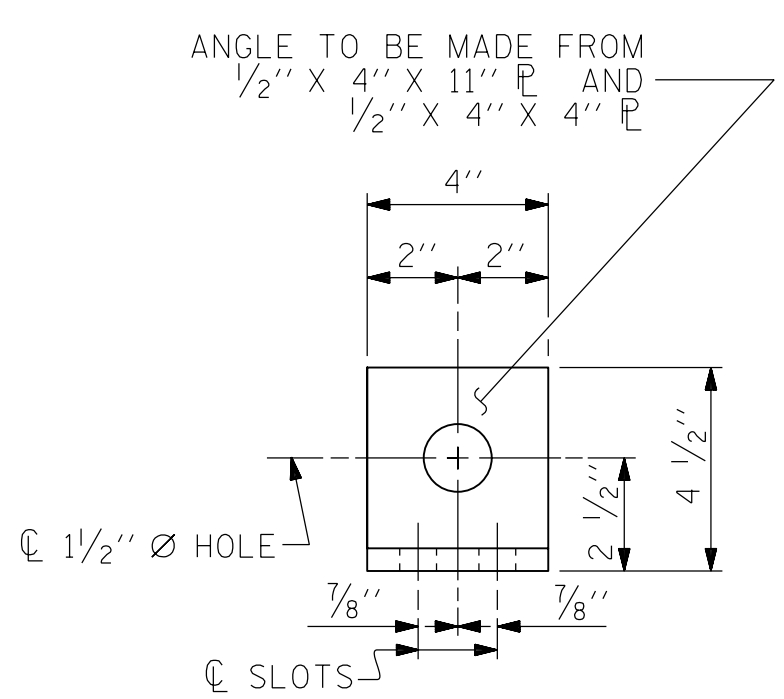
ELEVATION



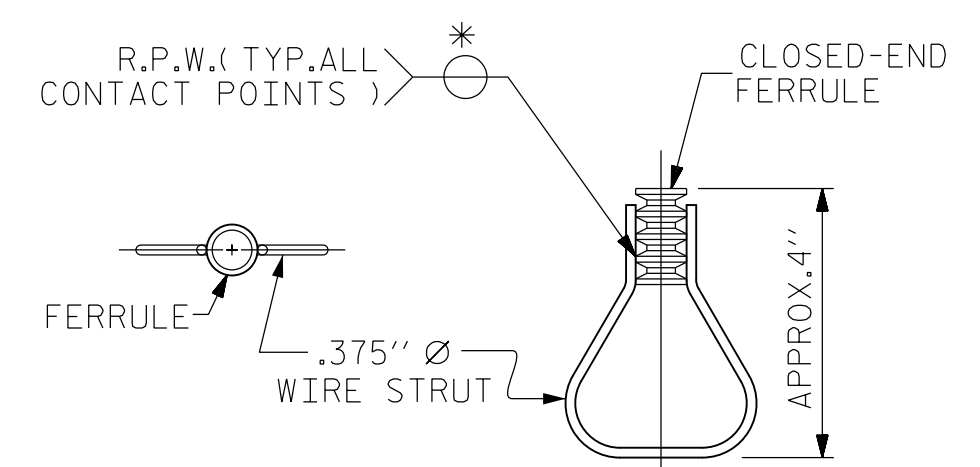
TOP VIEW



SECTION H-H (FIX)



END VIEW (FIX AND EXP.)



PLAN ELEVATION

STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

- NOTES**
STRUCTURAL CONCRETE INSERT
- THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
 - 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
 - WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

- NOTES**
METAL RAIL TO END POST CONNECTION
- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N.C. THREADS.
 - CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°.
 - STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
 - 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

PROJECT NO. U-5008
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 SHEET 3 OF 4

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END OF RAIL DETAILS

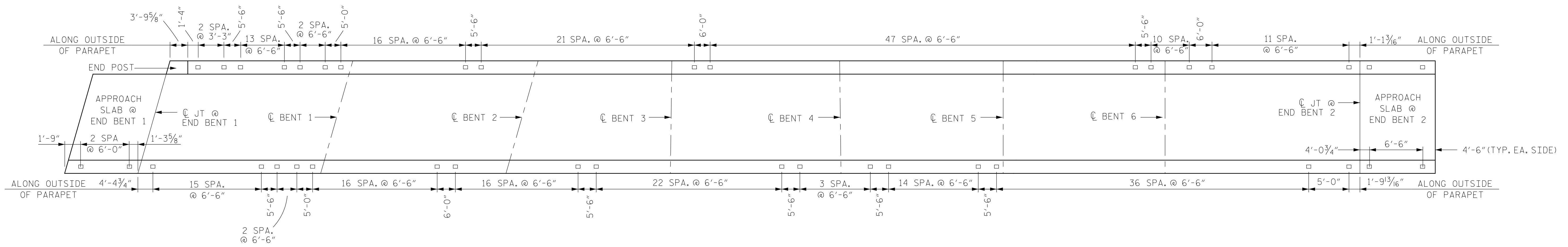
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DRAWN BY : K. SU DATE : 08/08/14
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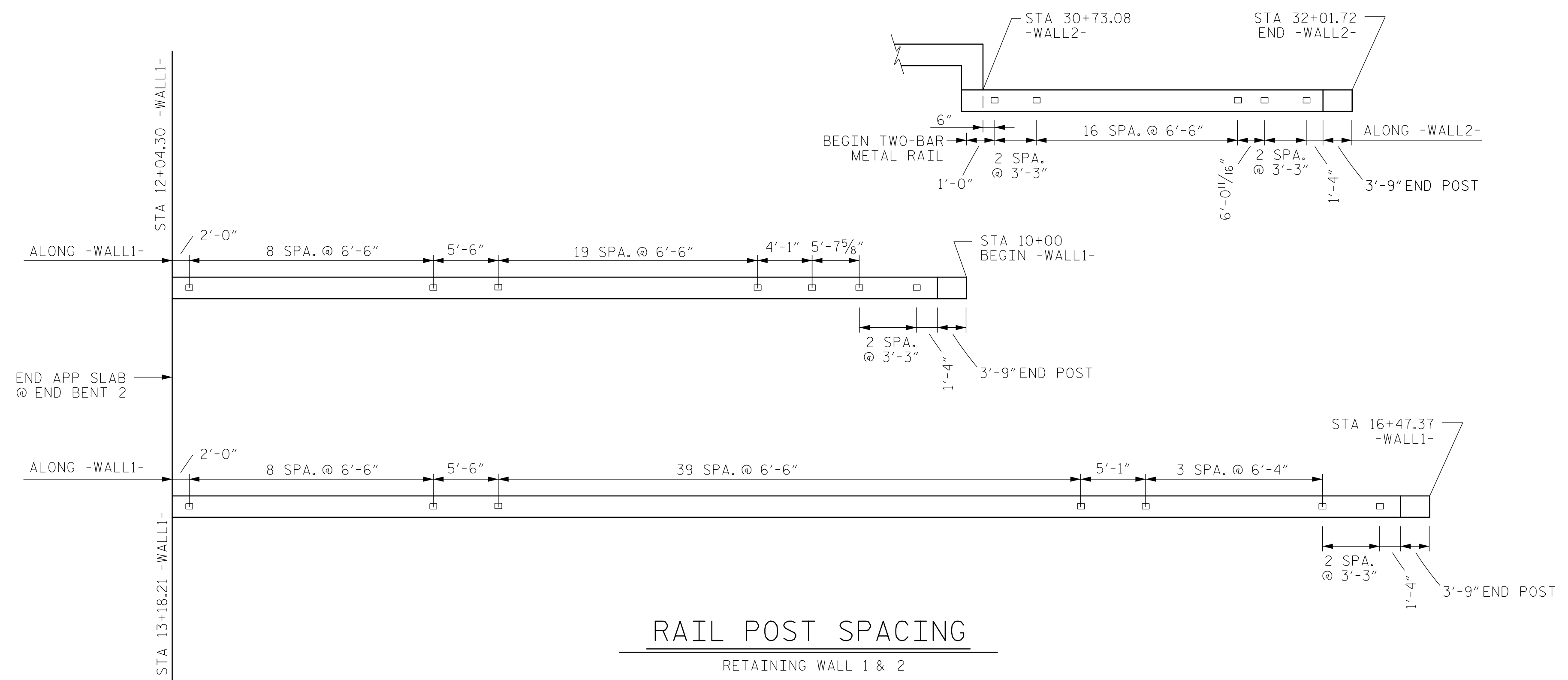
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 PROFESSIONAL
 SEAL
 032954
 ENGINEER
 JARED C. MEDLIN
 2/19/2015

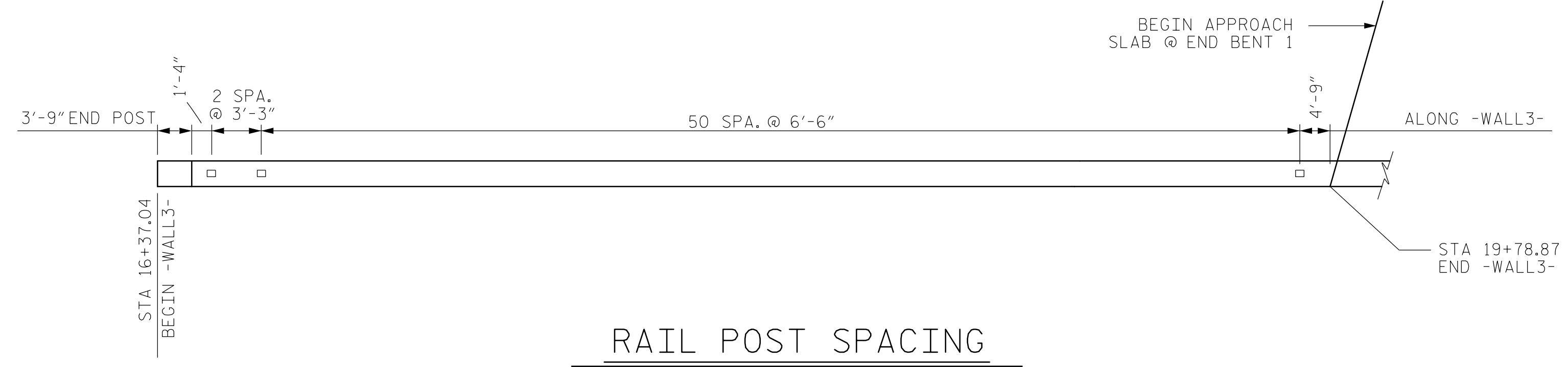
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RAIL POST SPACING
BRIDGE AND APPROACH SLABS



RAIL POST SPACING
RETAINING WALL 1 & 2

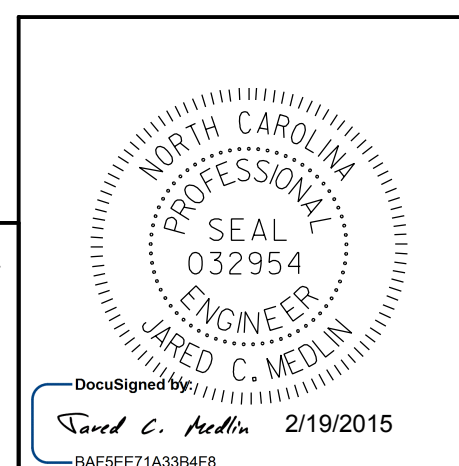


RAIL POST SPACING
RETAINING WALL 3

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 SHEET 4 OF 4

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**TWO-BAR METAL
 RAIL POST SPACINGS**

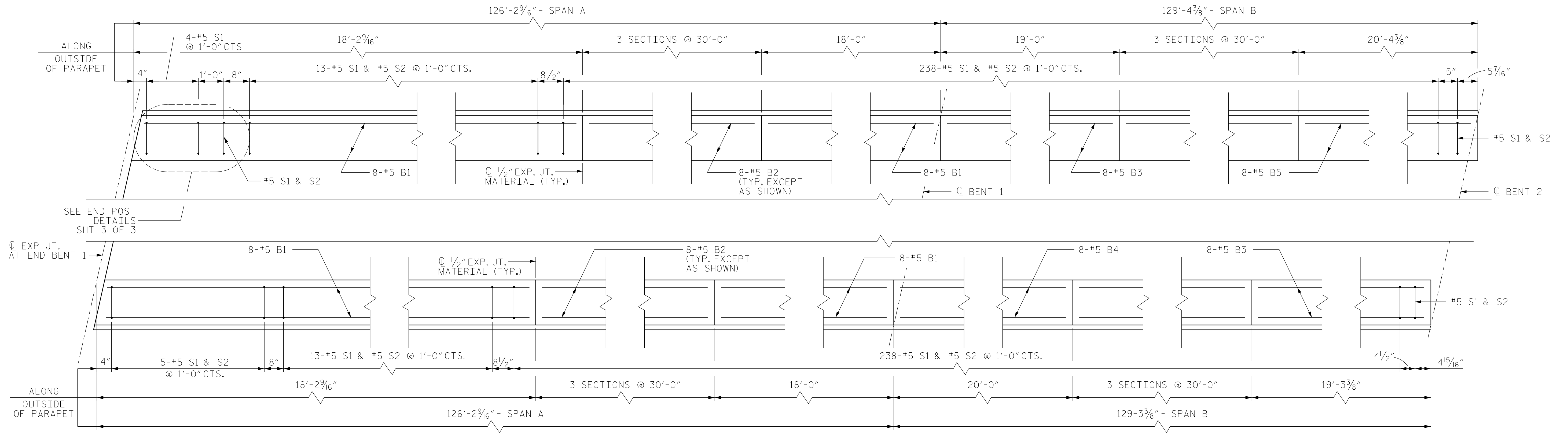


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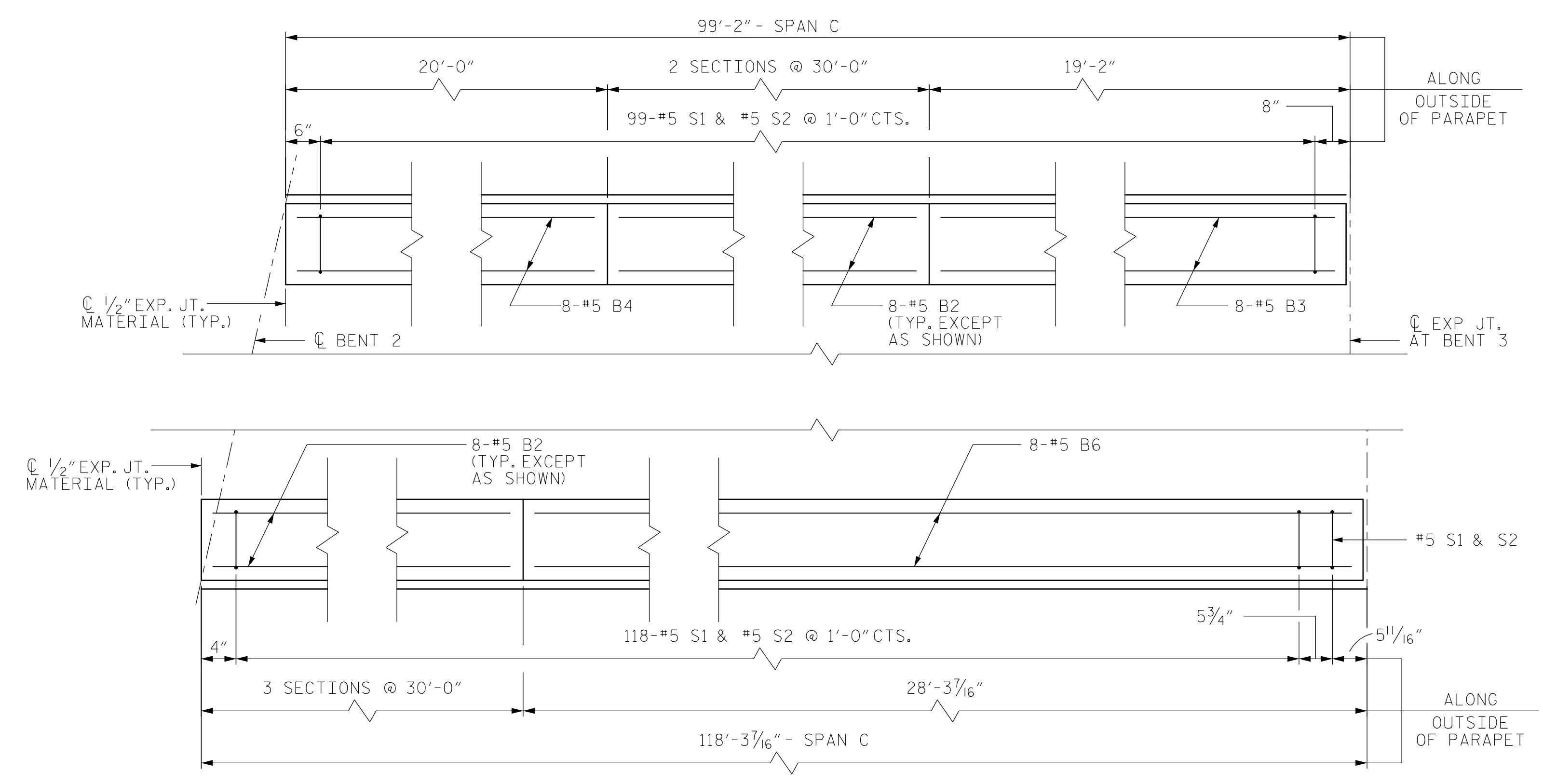
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PLAN - SPANS A AND B



PLAN - SPAN C

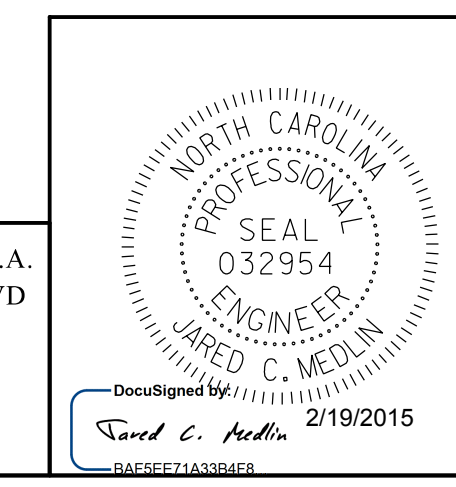
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CONCRETE PARAPET
 SPANS A-C

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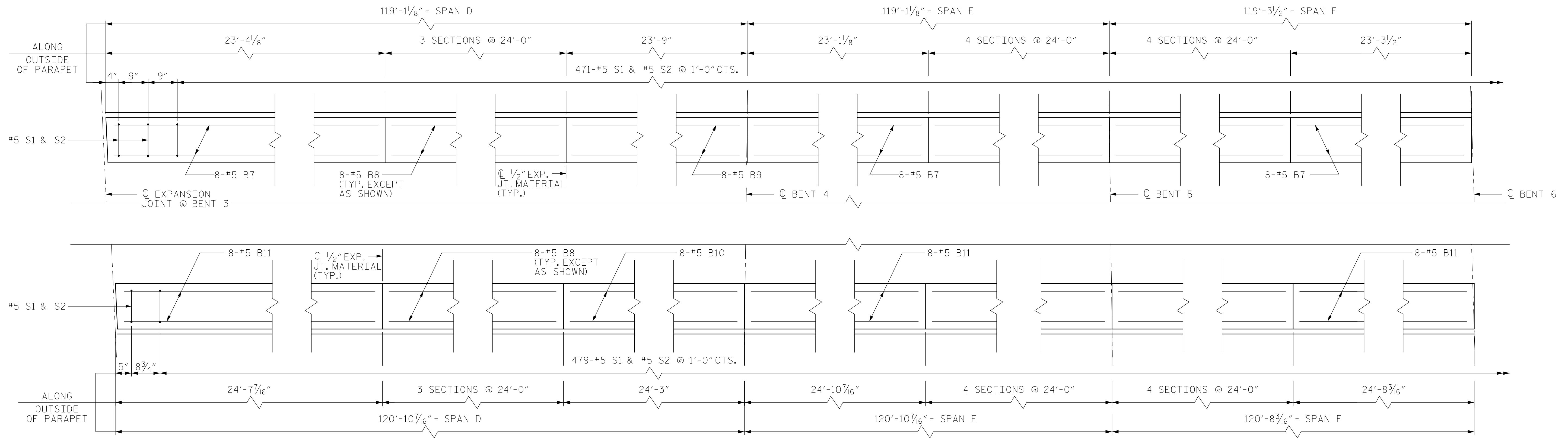
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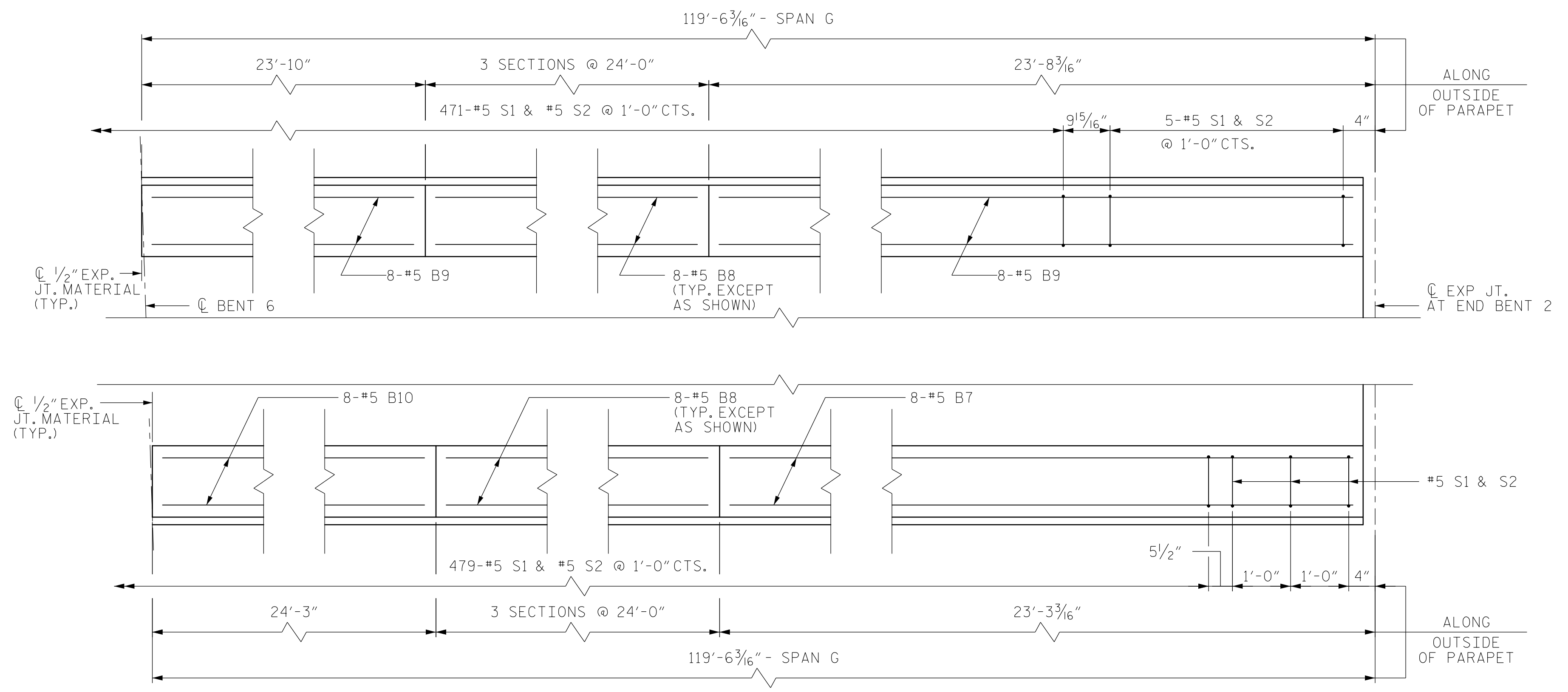
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PLAN - SPANS D TO F



PLAN - SPAN G

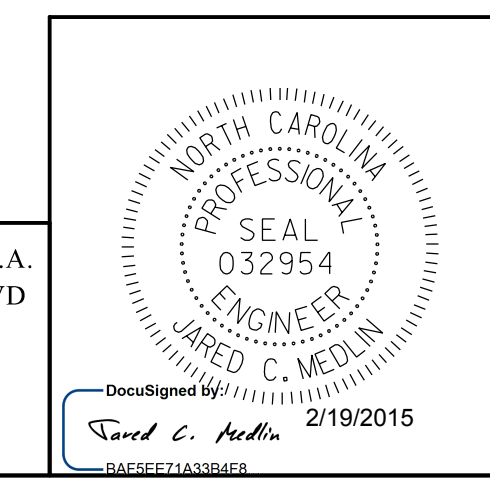
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CONCRETE PARAPET
 SPANS D-G

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NOTES

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

ALL REINFORCING STEEL IN PARAPETS SHALL BE EPOXY COATED.

THE #5 S1 AND #5 S2 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 1/2" EXPANSION JT. MATERIAL IN PARAPET

GROOVED CONTRACTION JOINTS 1/2" IN DEPTH SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 TO 10 FEET BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

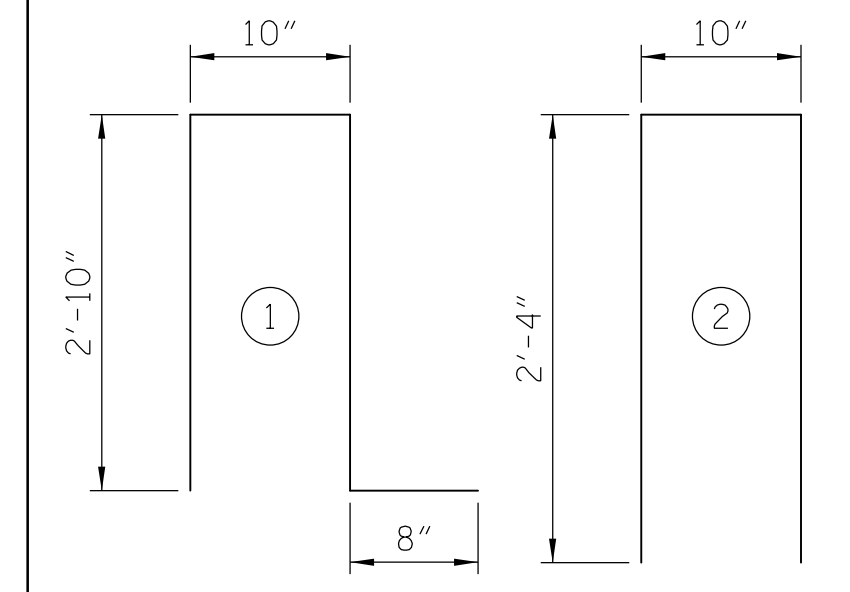
FOR DETAILS OF ELECTRICAL CONDUIT SYSTEM, SEE "CONDUIT & JUNCTION BOX DETAILS" SHEET 2 OF 2.

BILL OF MATERIAL

FOR CONCRETE PARAPET AND ONE END POST					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	32	5	STR.	17'-6"	584
B2	136	5	STR.	29'-8"	4208
B3	24	5	STR.	18'-8"	467
B4	16	5	STR.	19'-8"	328
B5	8	5	STR.	20'-0"	167
B6	8	5	STR.	27'-11"	233
B7	32	5	STR.	22'-9"	759
B8	224	5	STR.	23'-8"	5529
B9	24	5	STR.	23'-3"	582
B10	16	5	STR.	23'-11"	399
B11	24	5	STR.	24'-3"	607
E1	2	7	STR.	2'-6"	10
E2	2	7	STR.	3'-0"	12
E3	2	7	STR.	3'-6"	14
E4	2	7	STR.	4'-0"	16
E5	2	7	STR.	4'-4"	18
F1	2	6	STR.	2'-1"	6
F2	2	6	STR.	3'-4"	10
F3	2	6	STR.	3'-9"	11
S1	1693	5	1	7'-2"	12655
S2	1689	5	2	5'-6"	9689

EPOXY COATED REINFORCING STEEL	36304
CLASS AA CONCRETE	182.2 CU. YDS.
1'-2"x2'-6" CONC. PARAPET	1687.2 LIN FT

BAR TYPES



ALL BAR DIMENSIONS ARE OUT-TO-OUT

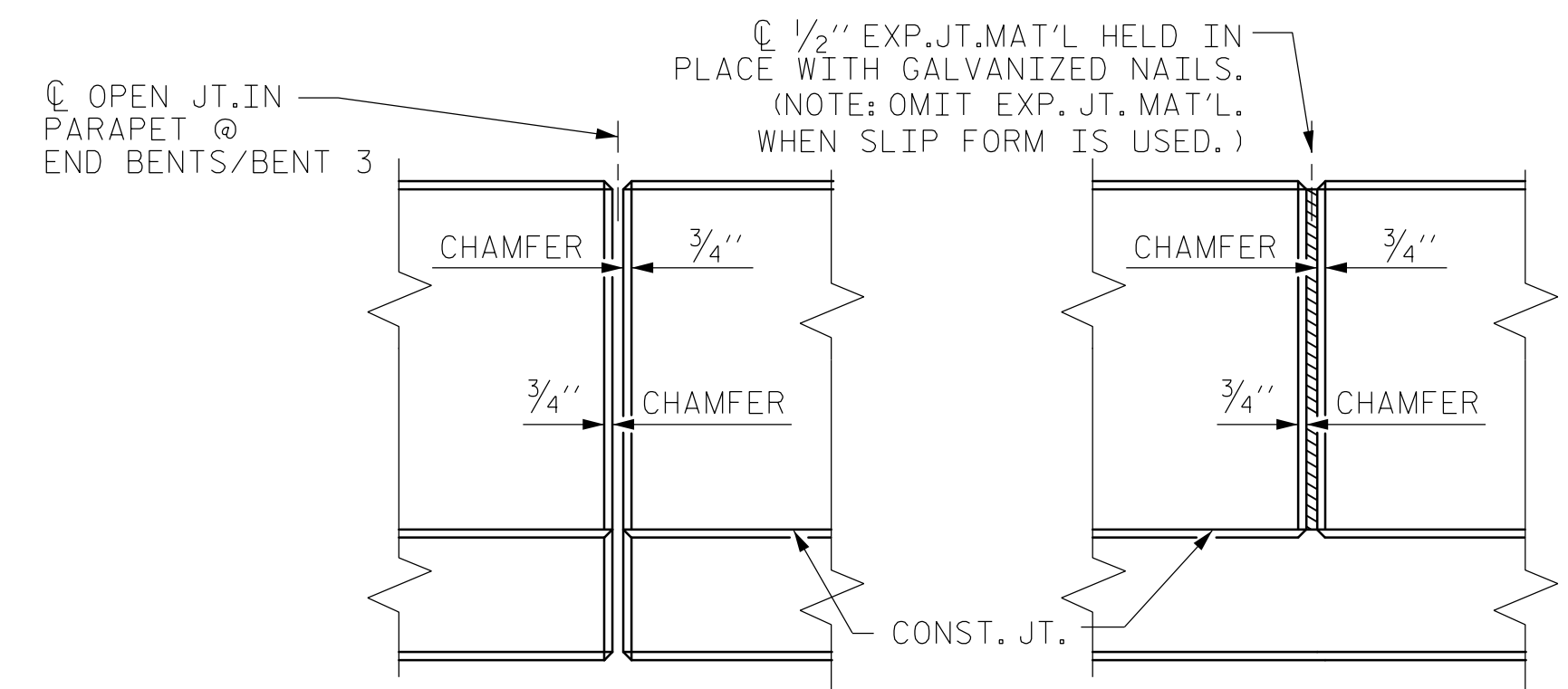
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MECKLENBURG COUNTY
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 SHEET 3 OF 3

STATE OF NORTH CAROLINA
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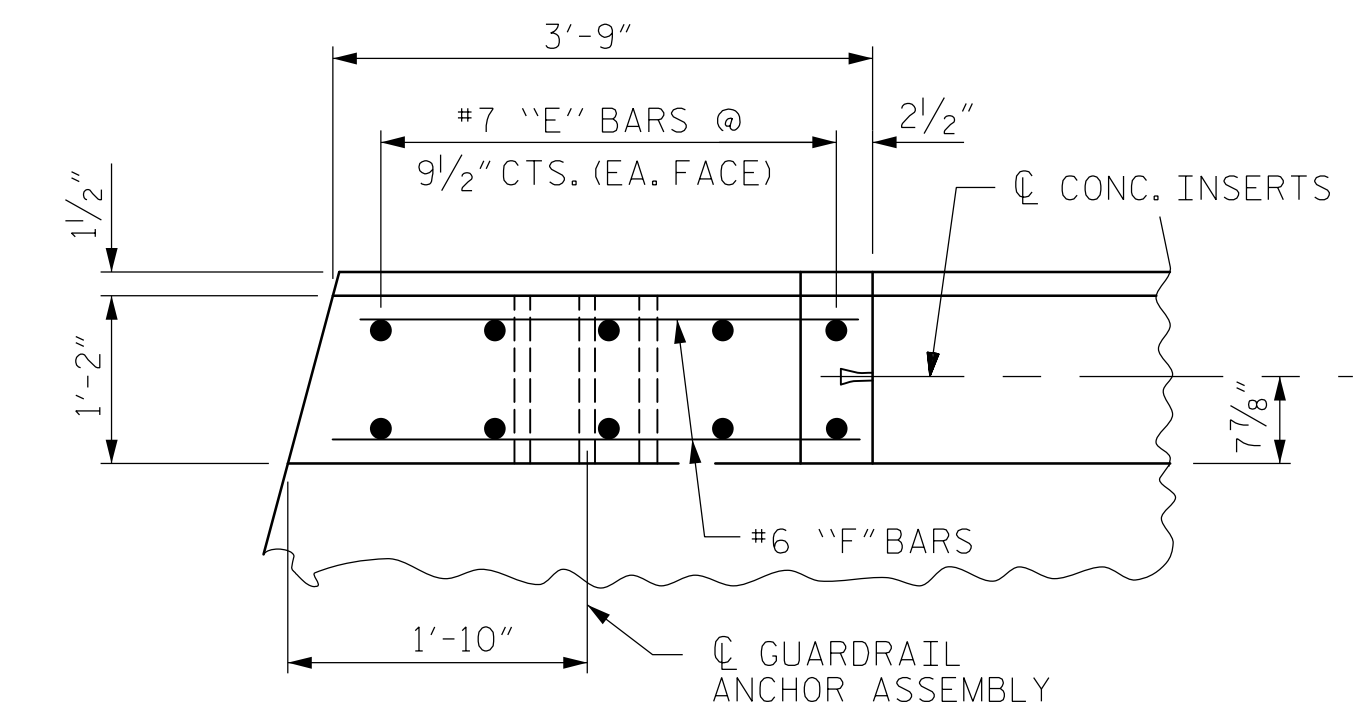
CONCRETE PARAPET DETAILS

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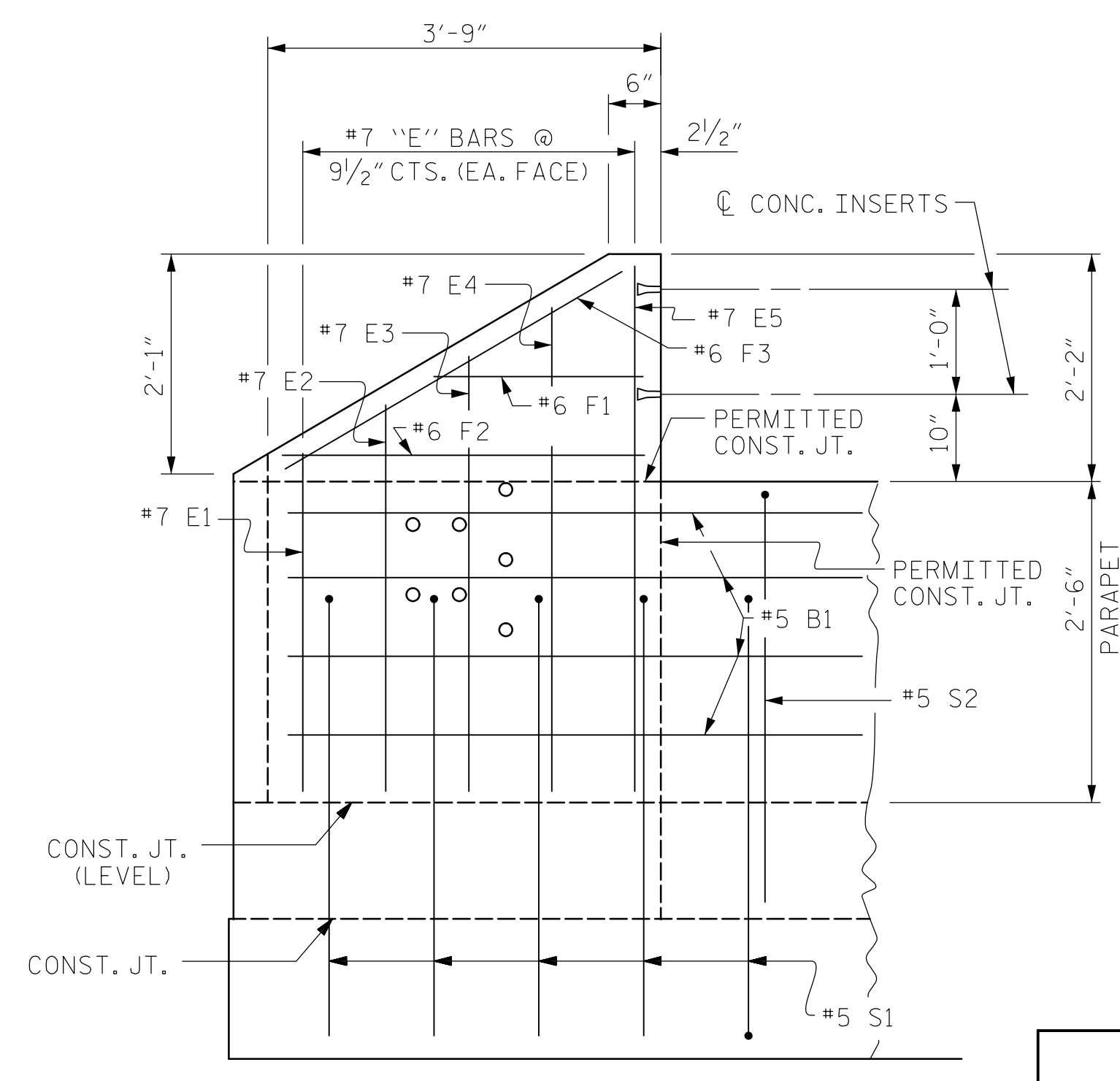
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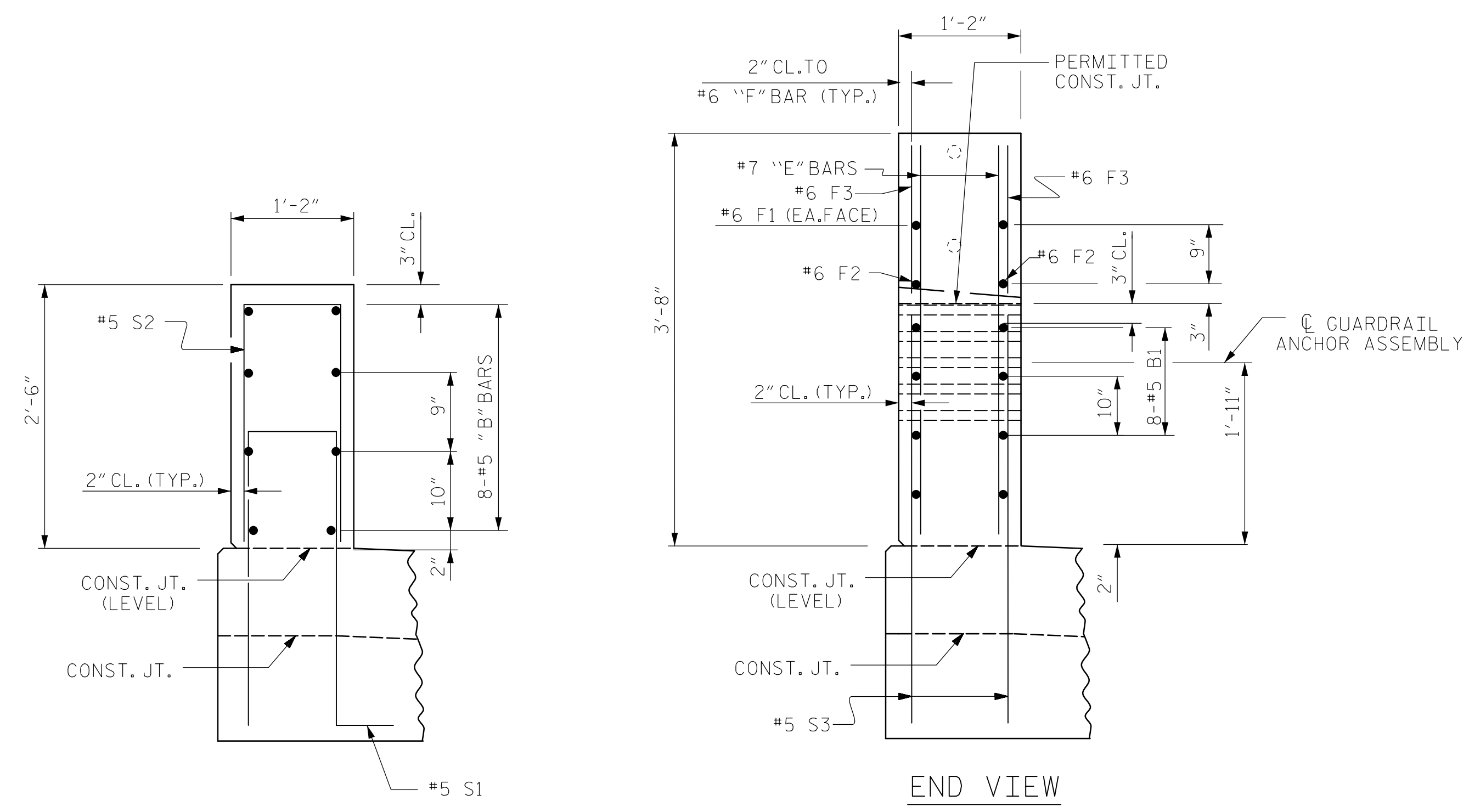
ELEVATION AT EXPANSION JOINTS
DETAILS



PLAN



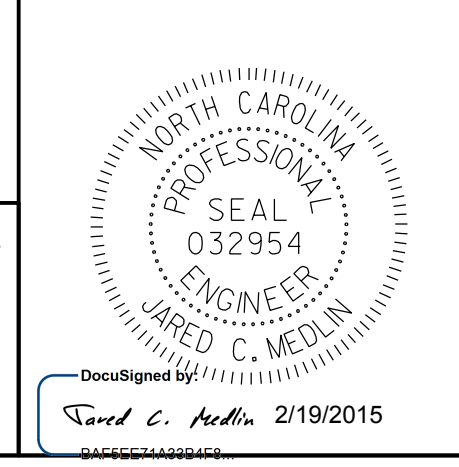
ELEVATION



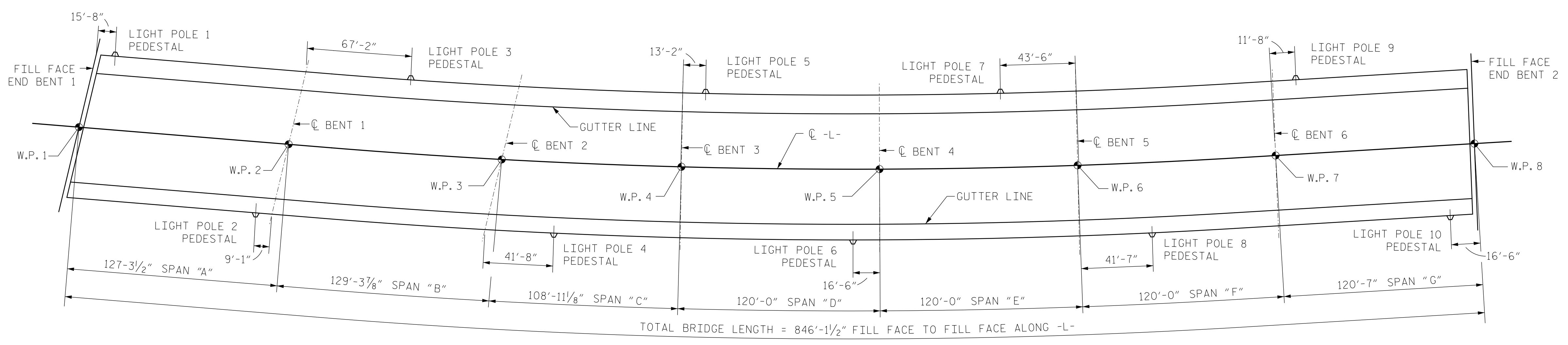
SECTION THRU PARAPET
PARAPET AND END POST FOR TWO BAR RAIL
(ONE REQUIRED AT END BENT 1 LEFT SIDE)

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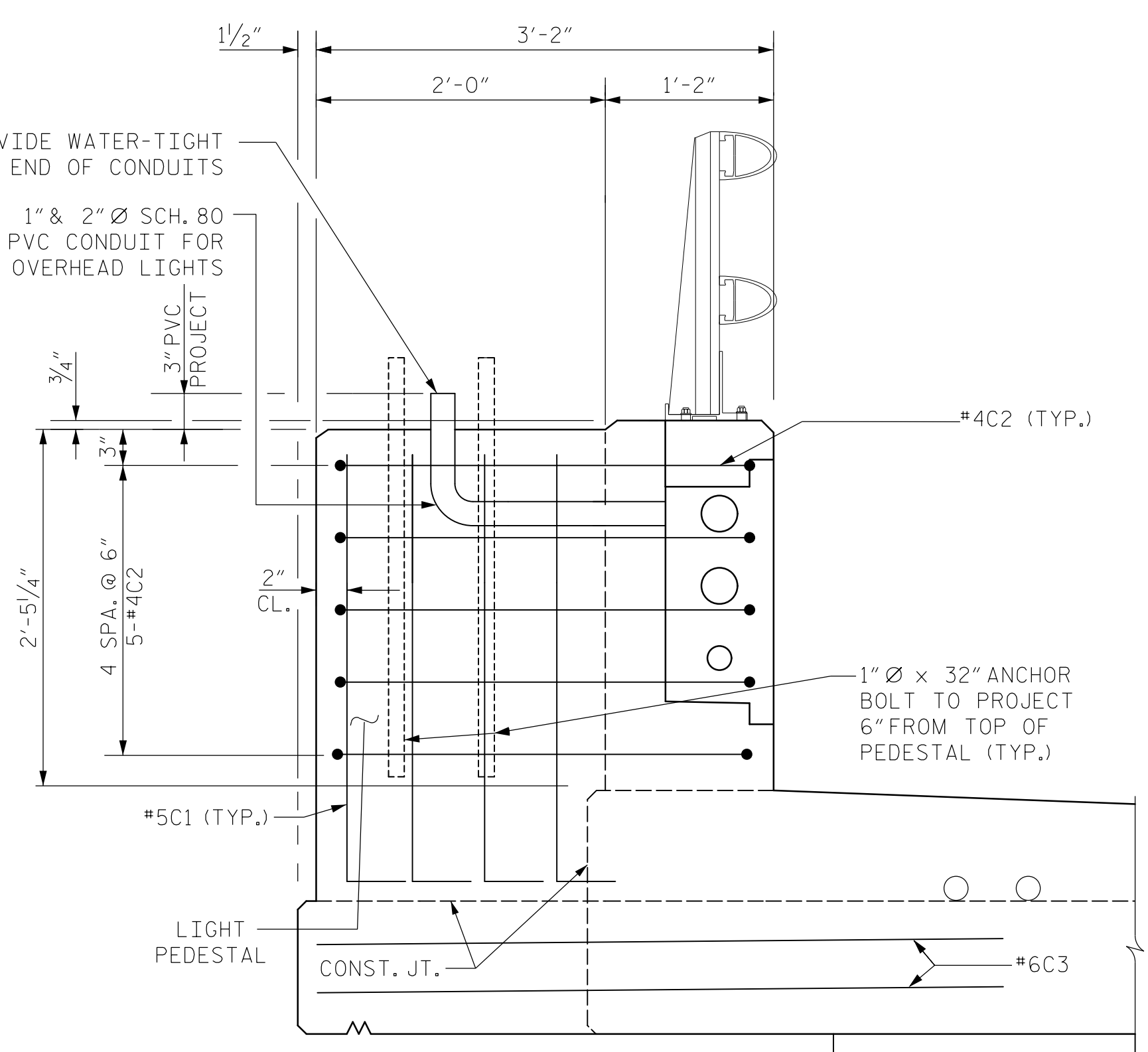
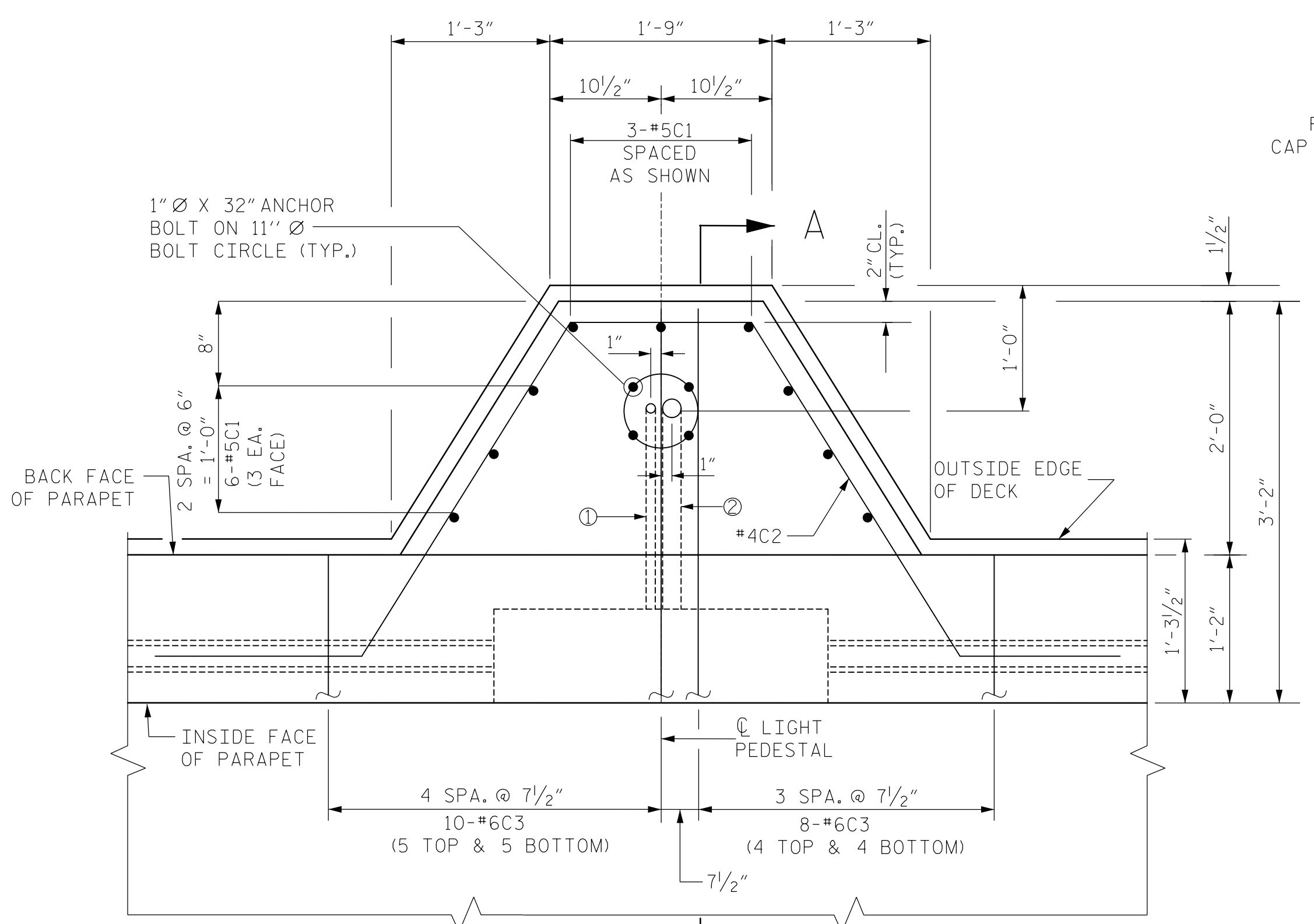
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BILL OF MATERIAL					
ONE LIGHT PEDESTAL (10 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*C1	9	#5	1	3'-11"	37
*C2	5	#4	2	9'-11"	33
*C3	18	#6	STR.	6'-1"	164
EPOXY COATED REINFORCING STEEL					LBS. 234
CLASS AA CONCRETE					C.Y. 0.7
BAR TYPES					
ALL BAR DIMENSIONS ARE OUT TO OUT					

NOTES:

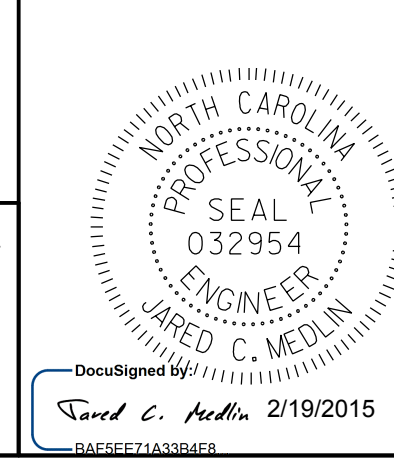
- UTILITIES NOT SHOWN.
- LOCATION OF ANCHOR BOLTS AND PVC CONDUITS FOR LIGHT POLES SHALL BE COORDINATED WITH DUKE ENERGY COMPANY PRIOR TO PLACEMENT OF THE LIGHT PEDESTAL CONCRETE. DUKE ENERGY COMPANY SHALL SUPPLY THE CONTRACTOR WITH ANCHOR BOLTS FOR THE LIGHT POLES. ANCHOR BOLTS SHALL BE CAST IN PLACE.
- DUKE ENERGY COMPANY WILL SUPPLY AND INSTALL THE WIRING, POLES AND LIGHTS.
- THE PVC CONDUIT SHALL BE U.L. APPROVED. LOCATE WATERTIGHT EXPANSION COUPLINGS FOR PVC CONDUIT AT BENT 3 AND EACH END BENT.
- FOR DETAILS ON CONDUIT LOCATION, SEE SHEET TITLED "CONDUIT AND JUNCTION BOX DETAILS."
- CONCRETE FOR THE LIGHT PEDESTAL SHALL BE CLASS AA CONCRETE.
- ALL ITEMS (INCLUDING, BUT NOT LIMITED TO CONCRETE, PVC CONDUIT, AND LABOR) REQUIRED TO CONSTRUCT THE LIGHT PEDESTAL SHALL BE INCLUDED IN THE UNIT BID PRICE FOR "1'-2" x 2'-6" CONCRETE PARAPET."
- LIGHT PEDESTAL IS REQUIRED TO BE BONDED TO THE FENCE. CONTRACTOR SHALL COORDINATE WITH DUKE ENERGY FOR BONDING DETAILS.
- ELECTRICAL DETAILS SHALL BE SUBMITTED TO THE ENGINEER AT LEAST 60 DAYS PRIOR TO POURING THE DECK CONCRETE.
- CONTRACTOR MAY PROVIDE CONSTRUCTION JOINTS IN THE PARAPET AS NECESSARY TO FACILITATE SLIP FORMING.
- CONTRACTOR SHALL INSTALL NON-DETERIORATING "STRINGS" IN ALL CONDUITS PRIOR TO POURING CONCRETE FOR THE PARAPET AND LIGHT PEDESTALS. THESE "STRINGS" WILL FACILITATE THE WIRING INSTALLATION FOR THE OVERHEAD LIGHTS AND FUTURE UTILITES. THE "STRINGS" SHALL BE DIFFERENT COLORS FOR EACH INDIVIDUAL CONDUIT.
- CONTRACTOR MAY SHIFT REINFORCING STEEL SLIGHTLY TO AVOID INTERFERENCE WITH CONDUIT, ANCHOR BOLTS, AND/OR METAL RAIL ANCHORS.
- CONTRACTOR SHALL COORDINATE WITH DUKE ENERGY TO HAVE DUKE ENERGY INSTALL AND WIRE THE LIGHTS PRIOR TO INSTALLING 2-BAR METAL RAIL.



- ① 1" Ø SCH. 80 PVC CONDUIT
- ② 2" Ø SCH. 80 PVC CONDUIT

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LIGHT PEDESTAL DETAILS					
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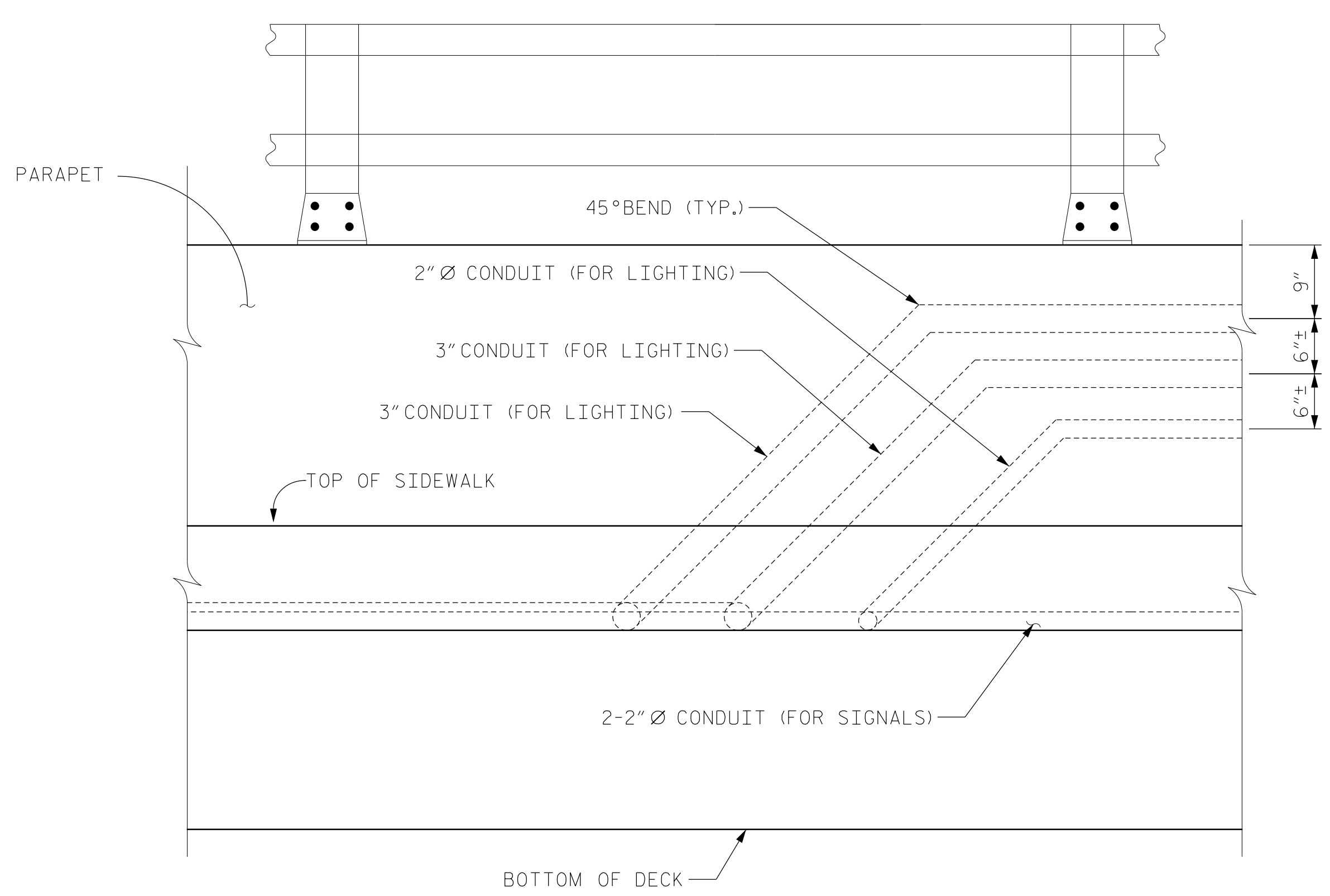
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DRAWN BY: J. LOUIS DATE: 10/15/14
 CHECKED BY: R. C. LARSON DATE: 10/20/14

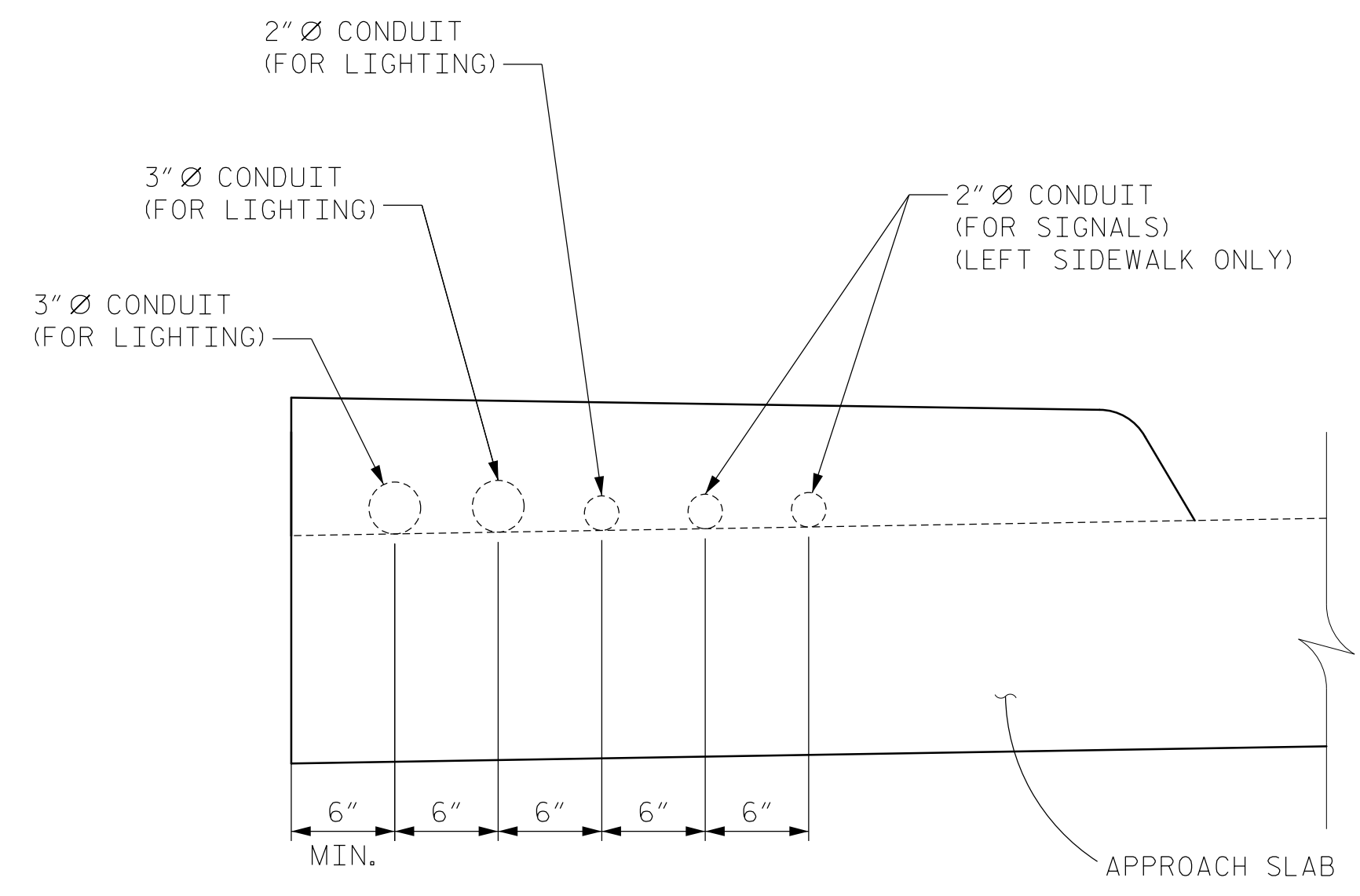
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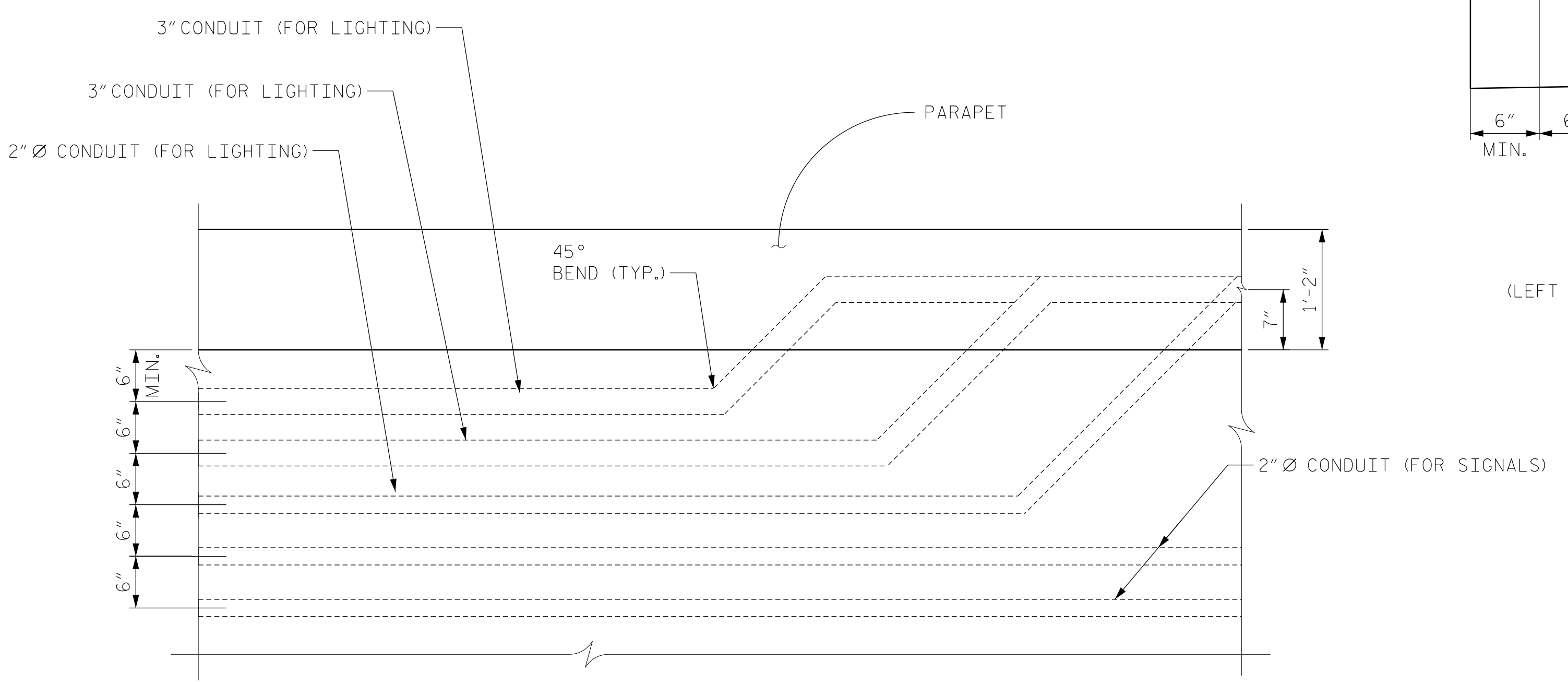
CONDUIT TRANSITION DETAIL (PROFILE)

TRANSITION TO OCCUR AT END OF PARAPET ON BRIDGE OR MOMENT SLABS



AT BEGIN APPROACH SLAB

(LEFT SIDE SHOWN; RIGHT SIDE SIMILAR EXCEPT OMIT 2\"/>



CONDUIT TRANSITION DETAIL (PLAN)

TRANSITION TO OCCUR AT END OF PARAPET ON BRIDGE OR MOMENT SLABS

NOTES:

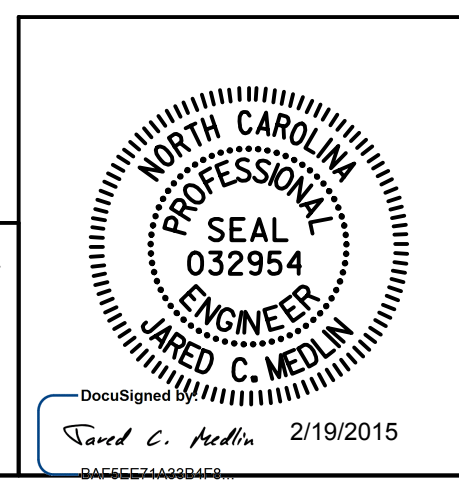
1. CONDUITS IN LEFT RAIL & SIDEWALK SHOWN. CONDUITS IN RIGHT SIDEWALK & RAIL SHALL BE THE 2"Ø & 2-3"Ø CONDUITS FOR LIGHTING. NO 2"Ø CONDUITS FOR SIGNALS SHALL BE IN RIGHT SIDEWALK.
2. JUNCTION BOXES SHALL BE FORMED IN THE CONCRETE BRIDGE PARAPET AT EACH LIGHT POLE LOCATION. THE CENTERLINE OF THE JUNCTION BOX SHALL BE IN LINE WITH THE CENTERLINE OF THE LIGHT POLE.
3. EXTEND CONDUITS 1'-0" BEYOND APPROACH SLABS AT EACH END OF BRIDGE. SEE ROADWAY PLANS FOR CONDUIT OFF OF THE BRIDGE.
4. THE CONTRACTOR SHALL CLEARLY MARK THE CONDUIT FOR OVERHEAD LIGHTS.
5. OUTER COVER PLATE SHALL BE STAINLESS STEEL DIAMOND PATTERN TREADPLATE WITH A NON-MIRRORED FINISH IN ORDER TO REDUCE BRIGHT REFLECTIONS. INNER COVER PLATE SHALL BE PLAIN STAINLESS STEEL. 3/4"Ø PIPES SHALL BE STAINLESS STEEL AND FILLET WELDED TO THE INNER COVER PLATE. WELD SIZE SHALL BE DETERMINED BY FABRICATOR. WELDS SHALL BE GROUND SMOOTH.
6. SHARP EDGES ON THE COVER PLATES SHALL BE SMOOTHED.
7. WATERTIGHT EXPANSION COUPLERS FOR THE CONDUITS SHALL BE PROVIDED AT ALL EXPANSION JOINTS. FOR JOINT MOVEMENTS, SEE SHEET TITLED "EVAZOTE JOINT DETAILS AND APPROACH SLAB DETAILS".
8. 1/4"Ø X 4 1/2" LONG HEX BOLTS AND WASHERS FOR MOUNTING THE COVER PLATE SHALL BE STAINLESS STEEL.
9. 1/4"Ø EYE BOLTS SHALL BE EMBEDDED IN THE CONCRETE A MINIMUM OF 3". EYE BOLT AND NUTS SHALL BE STAINLESS STEEL.
10. LOCKS FOR THE CONDUIT BOX COVER PLATE WILL BE PROVIDED BY DUKE ENERGY.
11. CONTRACTOR SHALL COORDINATE WITH DUKE ENERGY TO GROUND BOTH COVER PLATES. THE GROUND WIRE SHALL BE LONG ENOUGH SO THAT THE COVER PLATES MAY BE LAID ON THE SIDEWALK WHILE PERFORMING MAINTENANCE INSIDE THE BOX. GROUND WIRE SHALL BE #6 COPPER WIRE.
12. ALL COST FOR FURNISHING AND INSTALLING THE CONDUITS, JUNCTION BOXES AND COMPONENTS SHALL BE INCLUDED IN THE UNIT PRICE BID OF "1'-2" X 2'-6" CONCRETE PARAPET".
13. CONTRACTOR SHALL "DRY FIT" THE CONNECTIONS PRIOR TO CASTING TO ENSURE PROPER ALIGNMENT. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR MAINTAINING CORRECT ALIGNMENT DURING CASTING. ALL COSTS ASSOCIATED WITH FIT-UP SHALL BE CONSIDERED INCIDENTAL. SHOULD ALIGNMENT NOT BE SUFFICIENT AFTER THE BARRIER PARAPET CONCRETE HAS CURED, CONTRACTOR SHALL PROPOSE A SOLUTION TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE DEPARTMENT.
14. THE CONTRACTOR SHALL COORDINATE WITH DUKE ENERGY TO PROVIDE CONDUIT TIE-IN FROM BRIDGE LIGHTING CONDUIT TO STREET LIGHTING CONDUIT.

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CONDUIT & JUNCTION BOX DETAILS

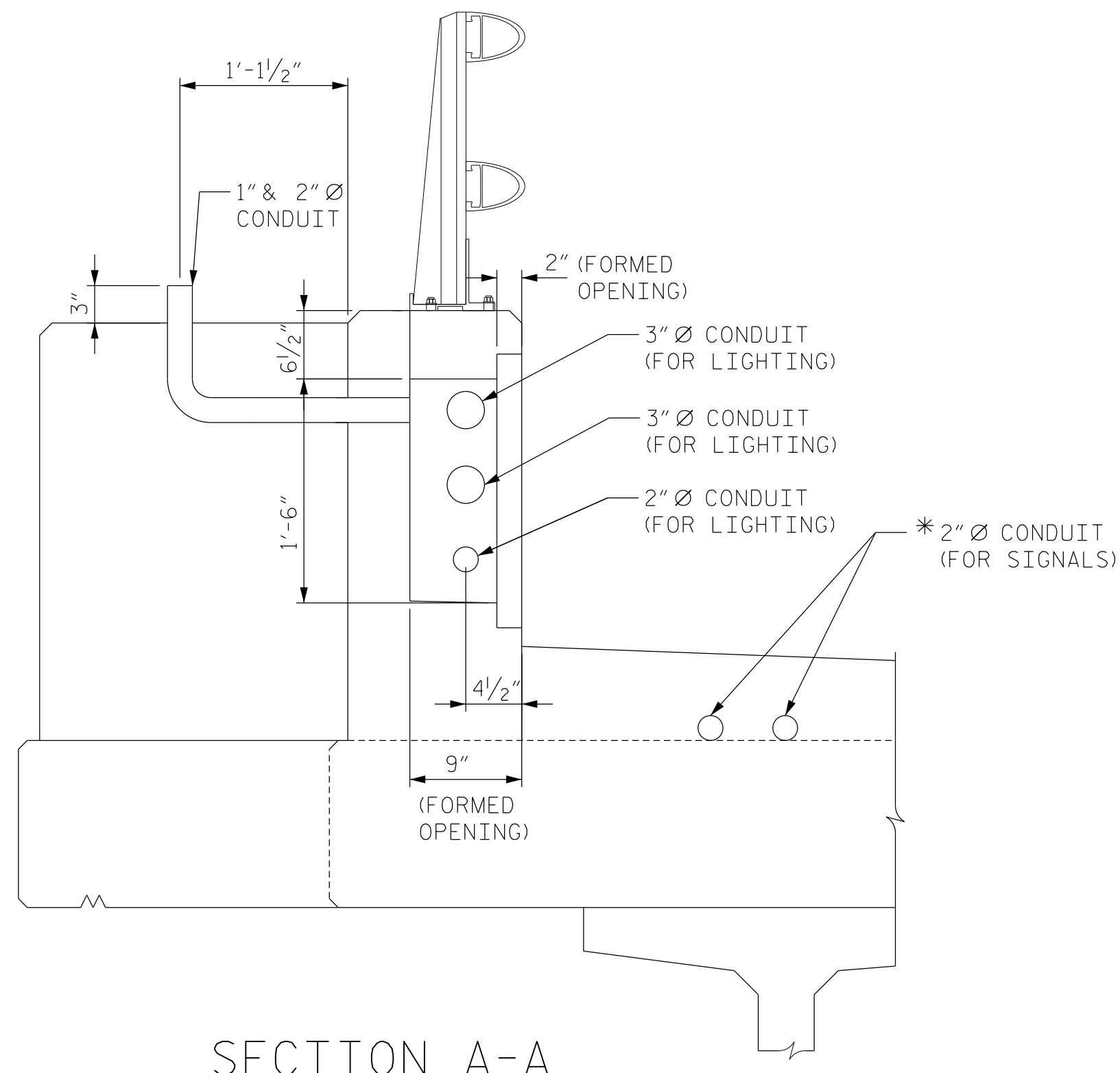
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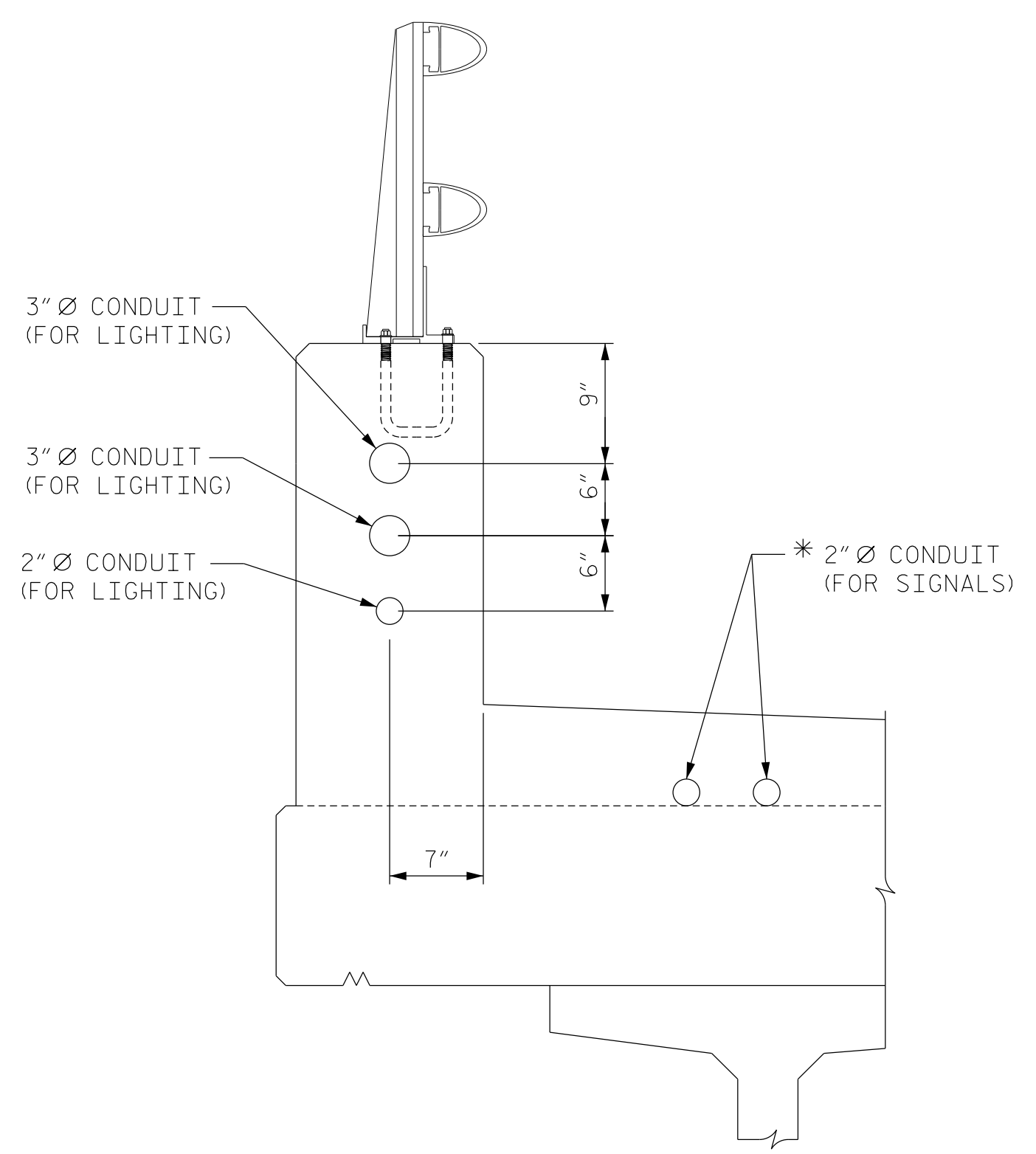
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 DRAWN BY : M.S.WILSON DATE : OCT. 2014
 CHECKED BY : J.C.MEDLIN DATE : OCT. 2014

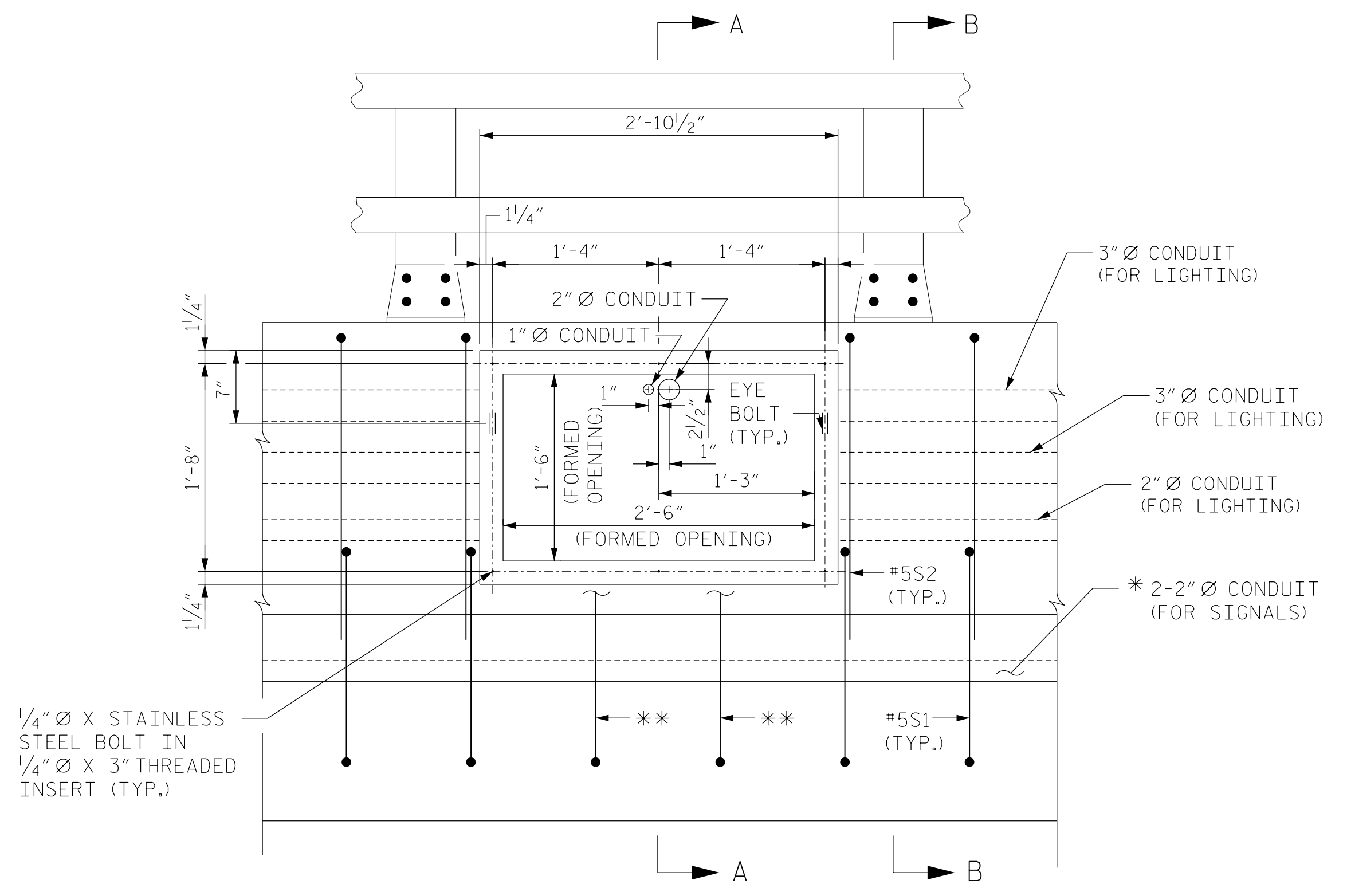


SECTION A-A

(COVER \neq NOT SHOWN FOR CLARITY. SEE DETAIL "A" FOR COVER PLATE MOUNTING DETAILS) (ADJUST LOCATION OF CONDUITS AT JUNCTION BOXES AS NECESSARY.)



SECTION B-B

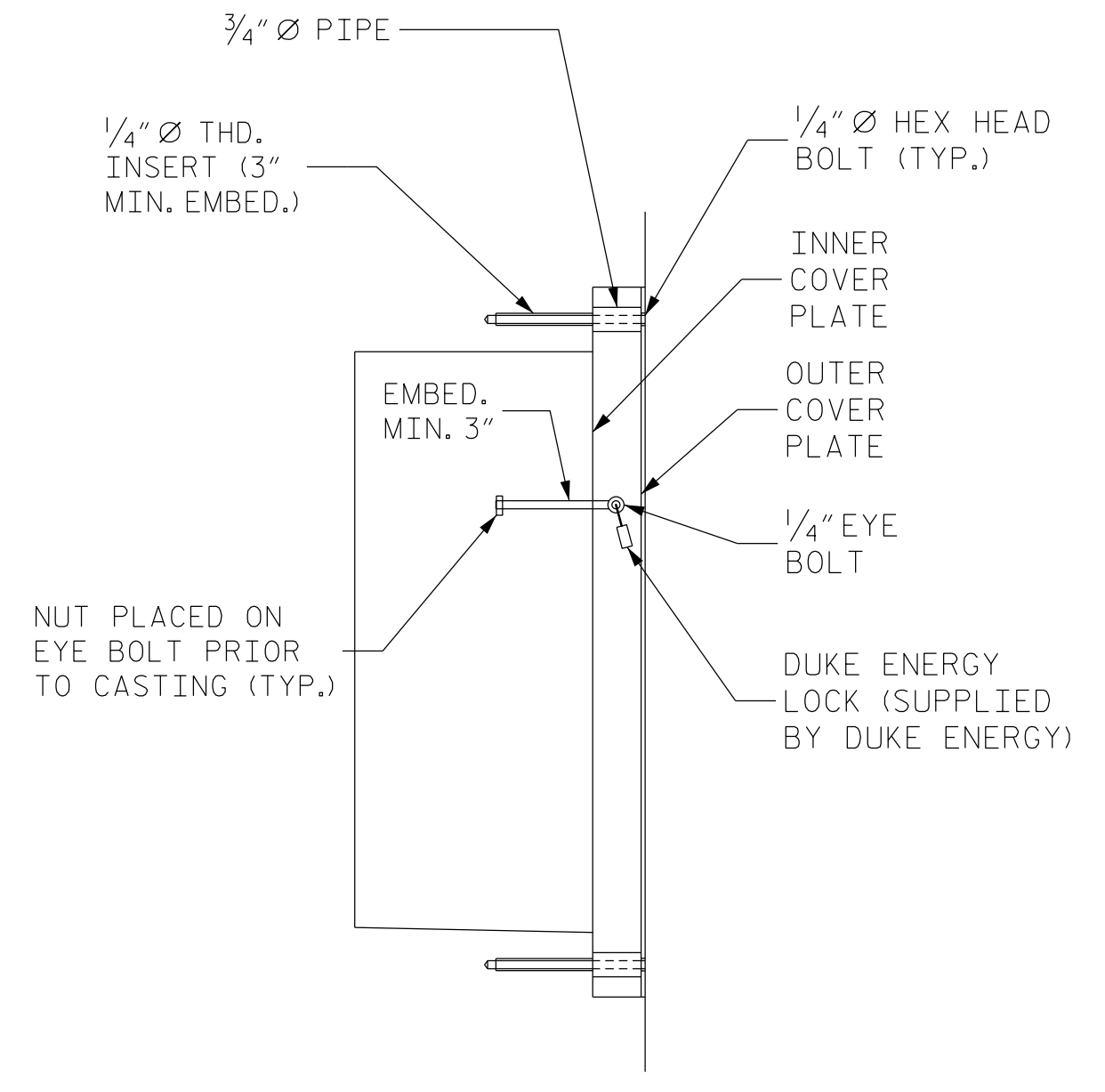


ELEVATION @ CONDUIT BOX

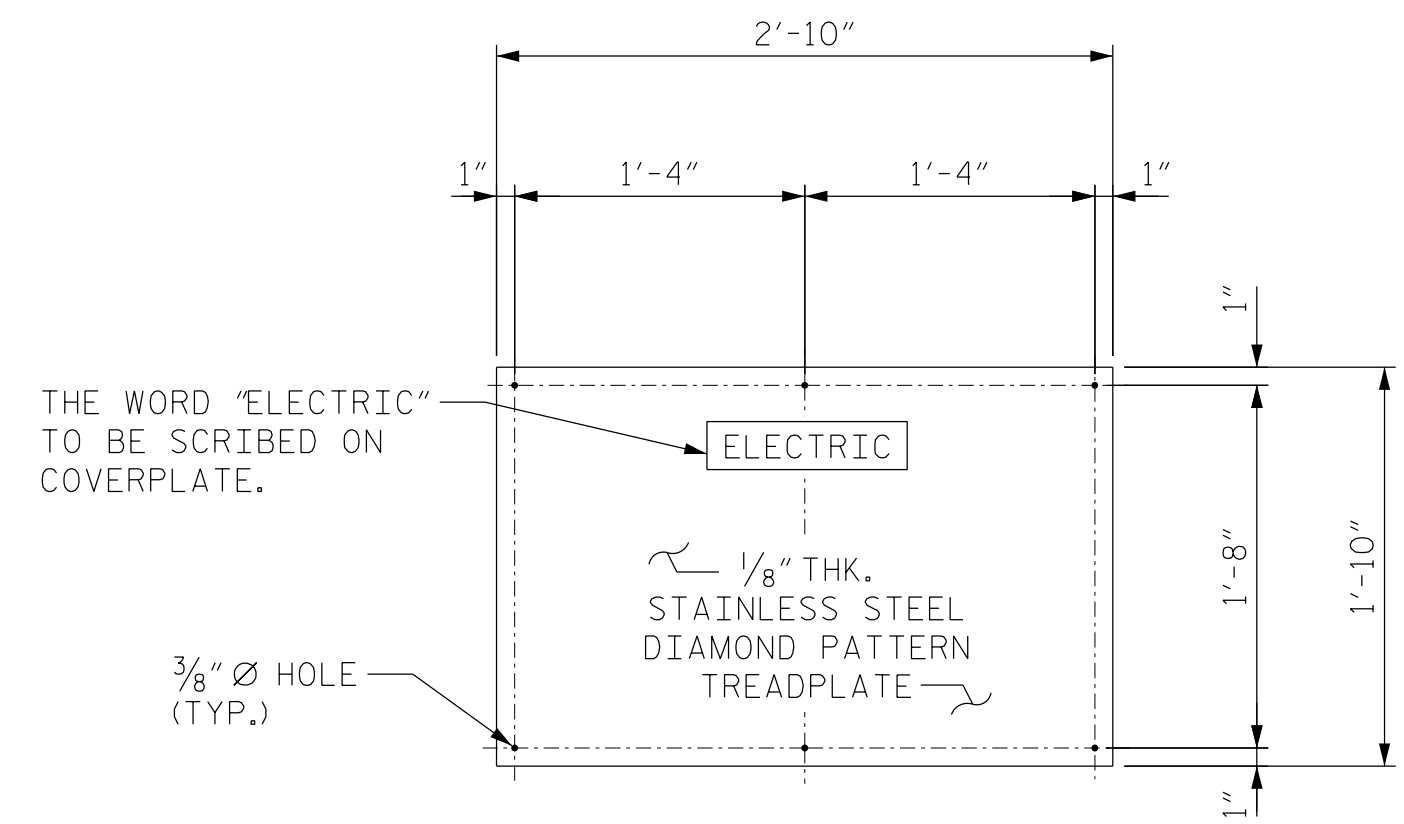
(COVER PLATE NOT SHOWN FOR CLARITY)

* 2" Ø SCH. 80 PVC CONDUIT FOR SIGNAL USE IS USED ON THE LEFT SIDE OF THE BRIDGE (LOOKING UPSTATION) ONLY. THERE ARE NO 2" Ø CONDUIT FOR SIGNAL UTILITY USE ON THE RIGHT SIDE.

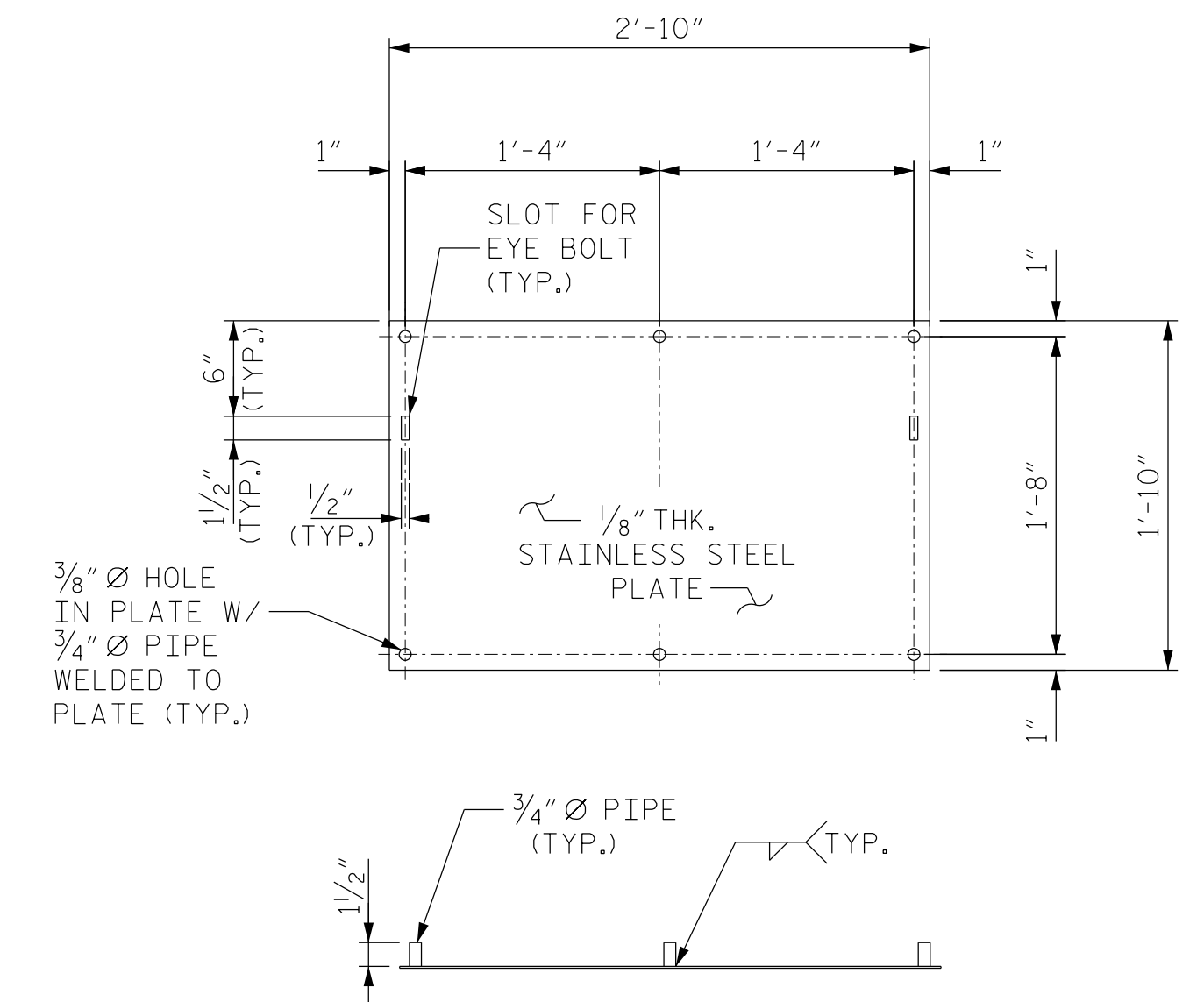
** FIELD CUT #5S1 BARS AS NECESSARY. REPAIR COATING PER SECTION 1070-7 OF THE STANDARD SPECIFICATIONS



DETAIL "A"



OUTER COVER PLATE



INNER COVER PLATE

FOR NOTES, SEE "CONDUIT AND JUNCTION BOX DETAILS, SHEET 1 OF 2".

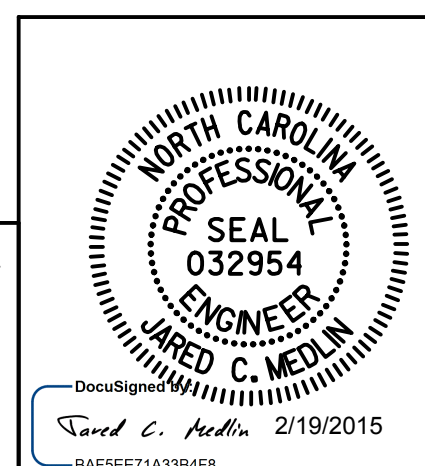
PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 CONDUIT & JUNCTION
 BOX DETAILS

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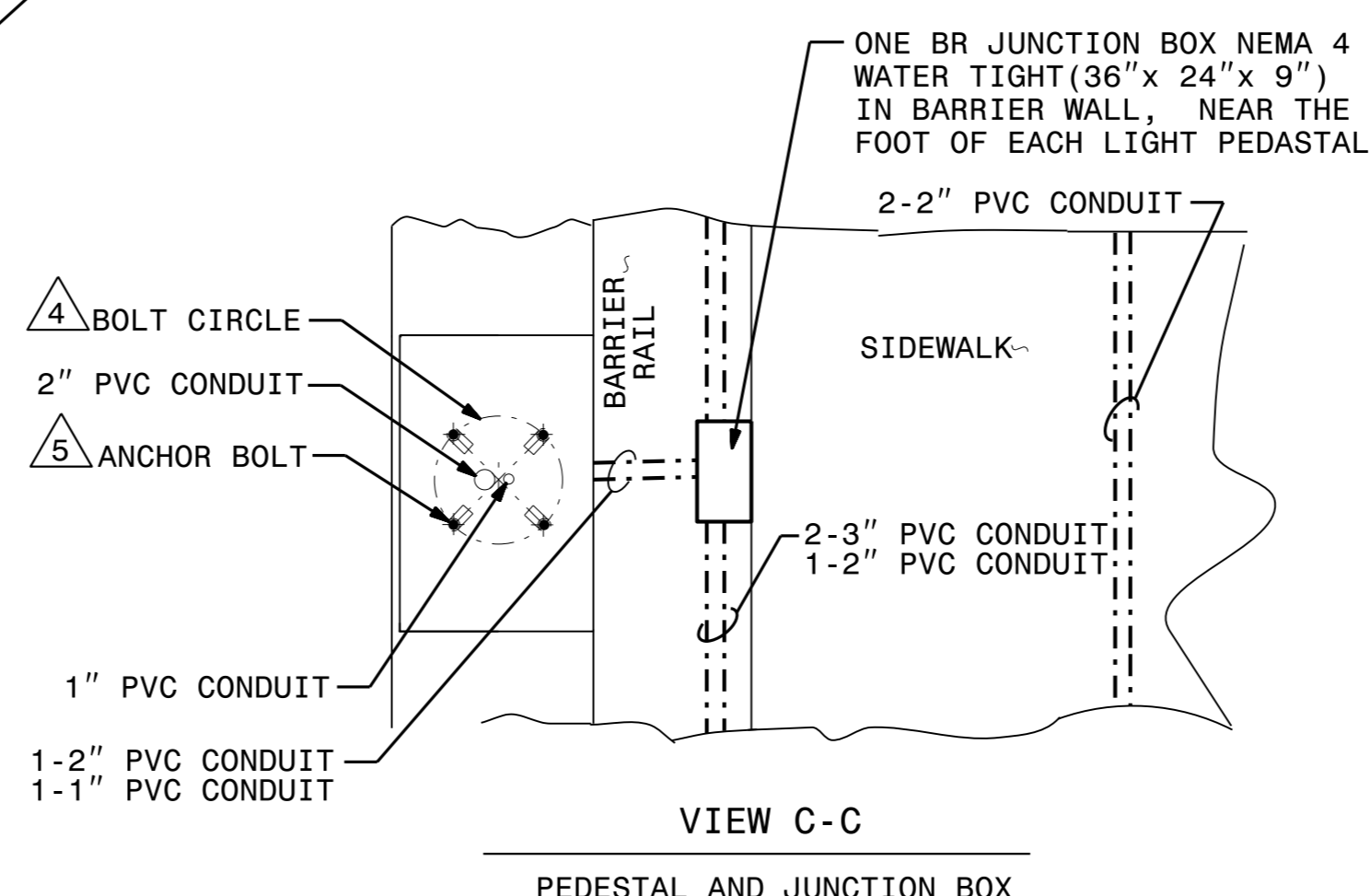
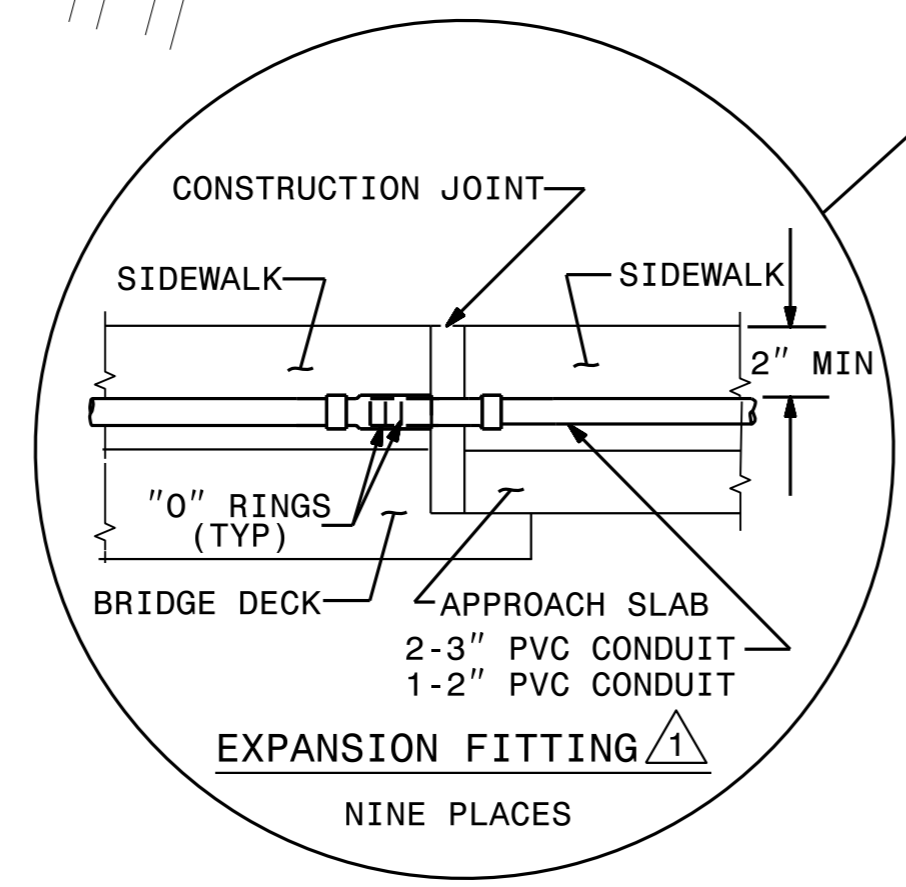
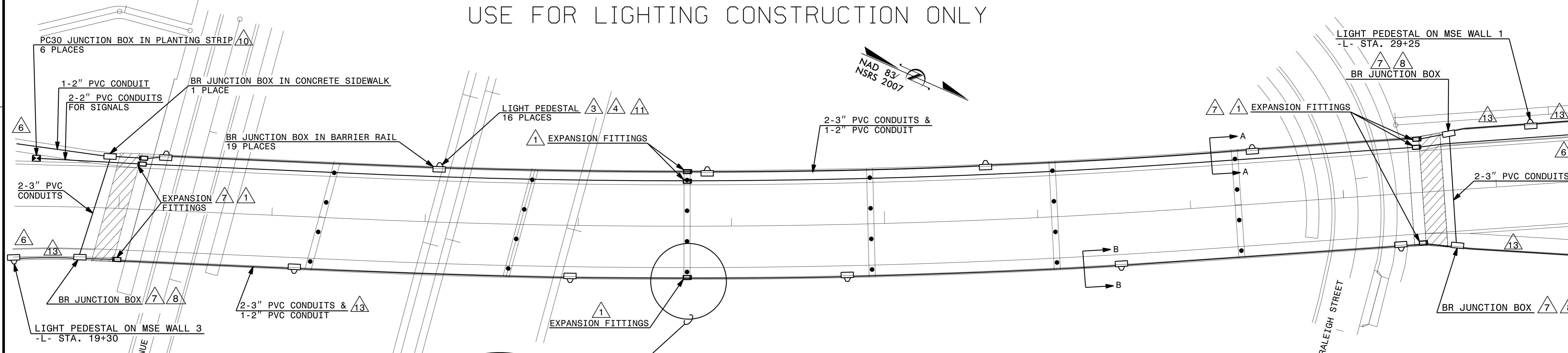
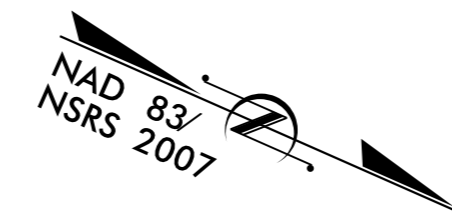


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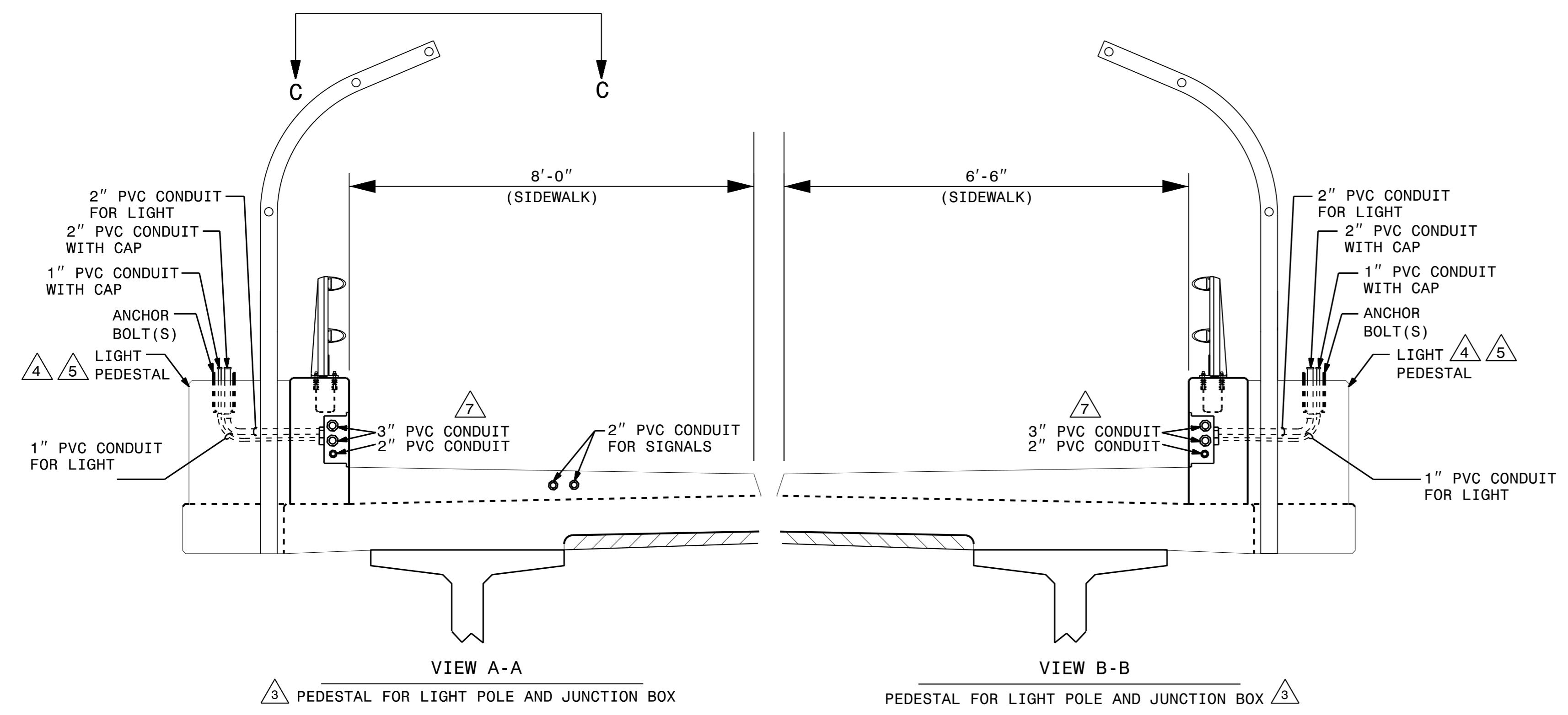
USE FOR LIGHTING CONSTRUCTION ONLY

0400DEL_P30

DCM



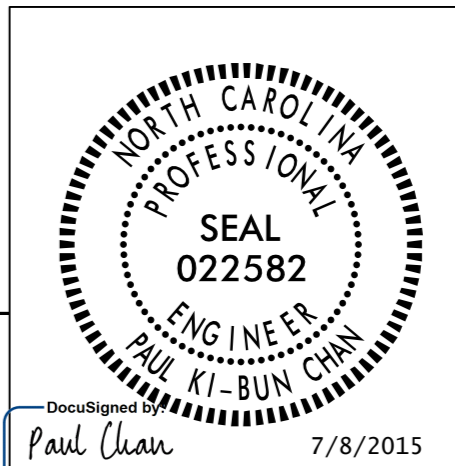
- NOTES**
- 1 PROVIDE EXPANSION FITTING AT ALL EXPANSION JOINTS.
 - 2 COORDINATE ELECTRICAL CONNECTION WORK WITH DUKE ENERGY.
 - 3 SEE STRUCTURE PLANS FOR LOCATION OF LIGHT PEDESTALS. (16 PLACES)
 - 4 INSTALL ANCHOR BOLTS ACCORDING TO BOLT TEMPLATE AS PROVIDED BY DUKE ENERGY.
 - 5 ANCHOR BOLTS SHALL BE SUPPLIED BY DUKE ENERGY.
 - 6 SEE ADDITIONAL INSTALLATION DETAILS ON SHEET 2 OF 3.
 - 7 SEE STRUCTURE PLANS FOR CONDUIT TRANSITION FROM BARRIER RAIL TO SIDEWALK DETAILS.
 - 8 TYPE BR JUNCTION BOXES ARE NEMA 4, WATER TIGHT, SIZED 36"W X 24"H X 9"D.
 - 9 COORDINATE WITH DUKE ENERGY PROGRESS FOR JUNCTION BOX INSTALLATION SPECIFICATIONS.
 - 10 TYPE PC30 JUNCTION BOXES ARE POLYMER CONCRETE, SIZED 30"L X 17"W X 18"H. SEE ARTICLE 1411 OF THE STANDARD SPECIFICATIONS.
 - 11 LIGHT PEDESTAL IS REQUIRED TO BE BONDED TO THE FENCE. COORDINATE WITH DUKE ENERGY PROGRESS FOR BONDING DETAILS. SHOWN FOR INFORMATION ONLY. LIGHT POLE AND FOUNDATION TO BE INSTALLED BY DUKE ENERGY. NOT PART OF THIS CONTRACT.
 - 12 UNLESS OTHERWISE NOTED, CONDUIT FOR LIGHTING CIRCUITRY INSTALLED IN THE BARRIER RAIL SHALL CONSIST OF 2-3" PVC CONDUITS AND 1-2" PVC CONDUIT.



PROJECT NO. U-5008
 MECKLENBURG COUNTY
 STATION: 20+45.05 -L-

SHEET 1 OF 3
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL CONDUIT SYSTEM

BRIDGE ON SUGAR CREEK RD
 OVER BEARWOOD AVE., NCRR/NSRR
 AND RALEIGH ST.
 BTWN US74/NC27 & US29/NC49



SEE PROJECT SPECIAL PROVISIONS TITLED "ELECTRICAL CONDUIT SYSTEM" FOR MATERIALS CONSTRUCTION METHODS AND PAYMENT.

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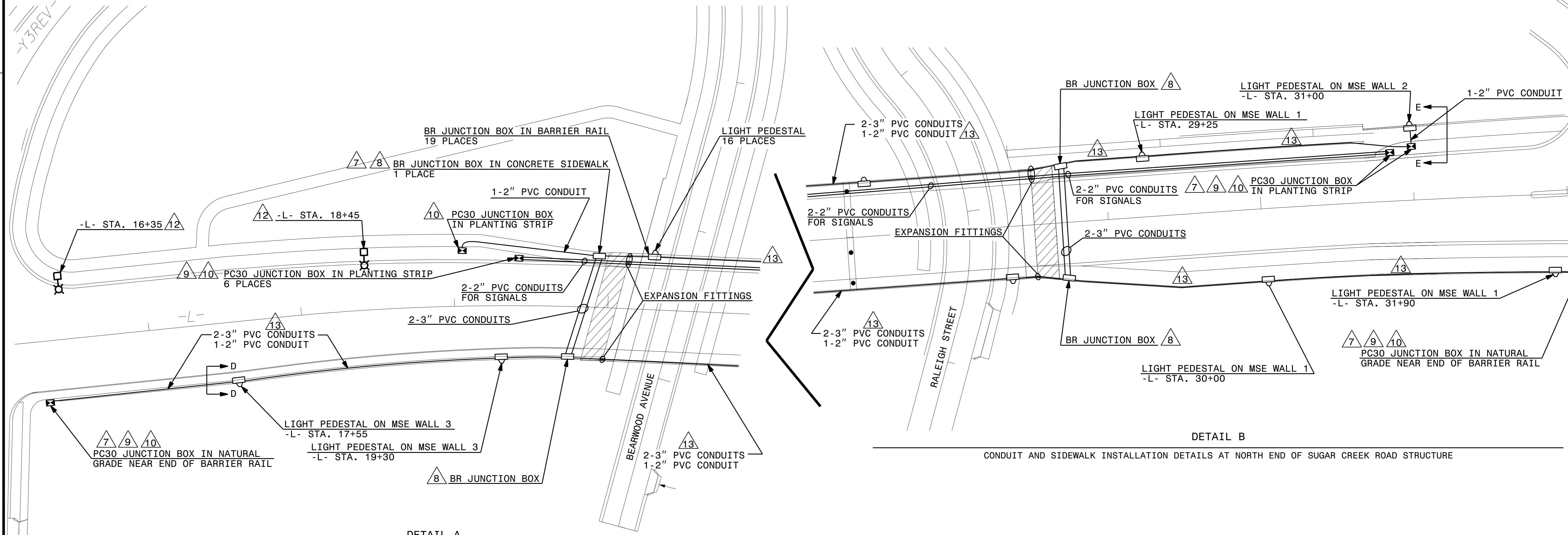
SHEETS 78

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USE FOR LIGHTING CONSTRUCTION ONLY

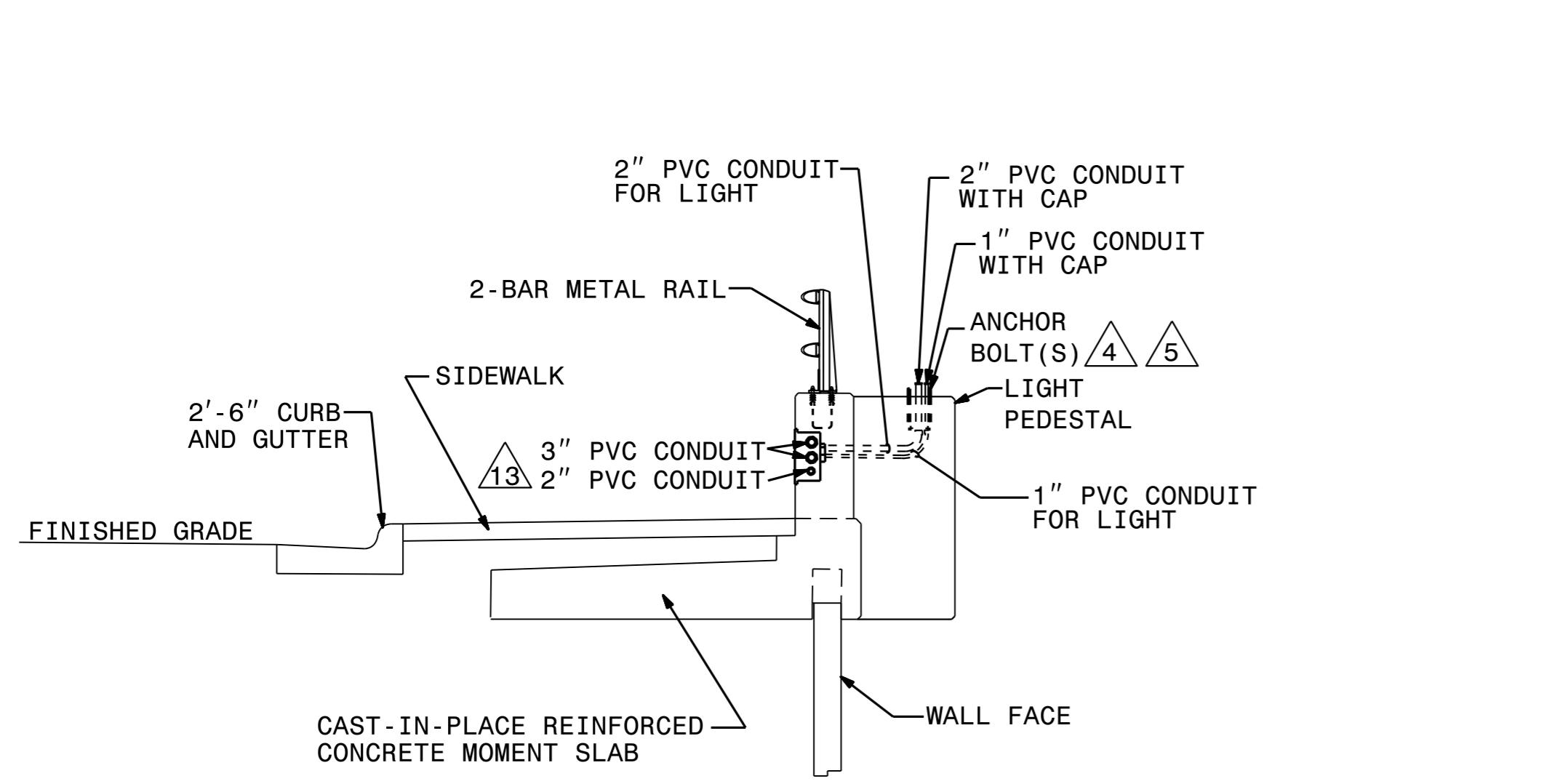
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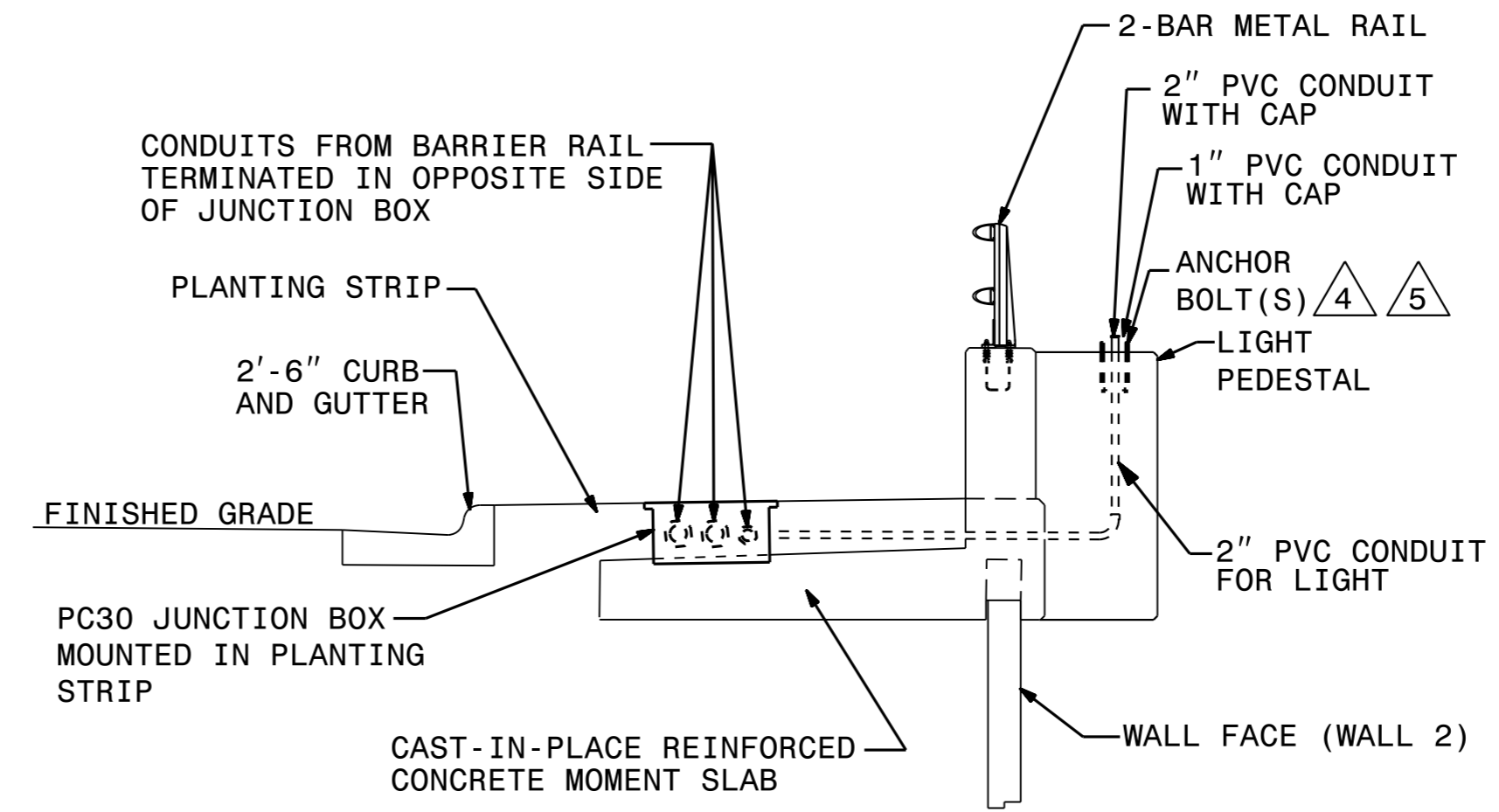


DETAIL A
CONDUIT AND SIDEWALK INSTALLATION DETAILS AT SOUTH END OF SUGAR CREEK ROAD STRUCTURE

DETAIL B
CONDUIT AND SIDEWALK INSTALLATION DETAILS AT NORTH END OF SUGAR CREEK ROAD STRUCTURE



VIEW D-D
LIGHT PEDESTAL INSTALLED IN PARAPET OFF STRUCTURE OVER MSE WALLS 1 & 3



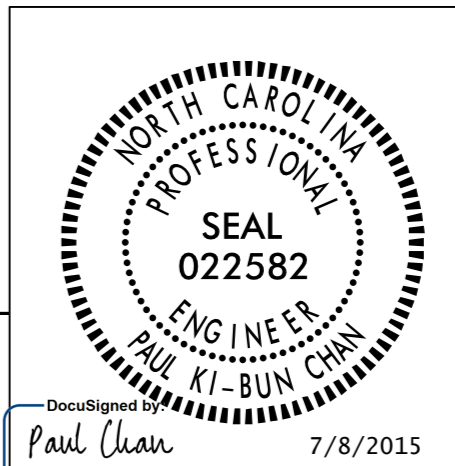
VIEW E-E
LIGHT PEDESTAL INSTALLED IN PARAPET OFF STRUCTURE OVER MSE WALL 2

PROJECT NO. U-5008
MECKLENBURG COUNTY
STATION: 20+45.05 -L-

SHEET 2 OF 3
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL CONDUIT SYSTEM

BRIDGE ON SUGAR CREEK RD
OVER BEARWOOD AVE., NCRR/NSRR
AND RALEIGH ST.
BTWN US74/NC27 & US29/NC49

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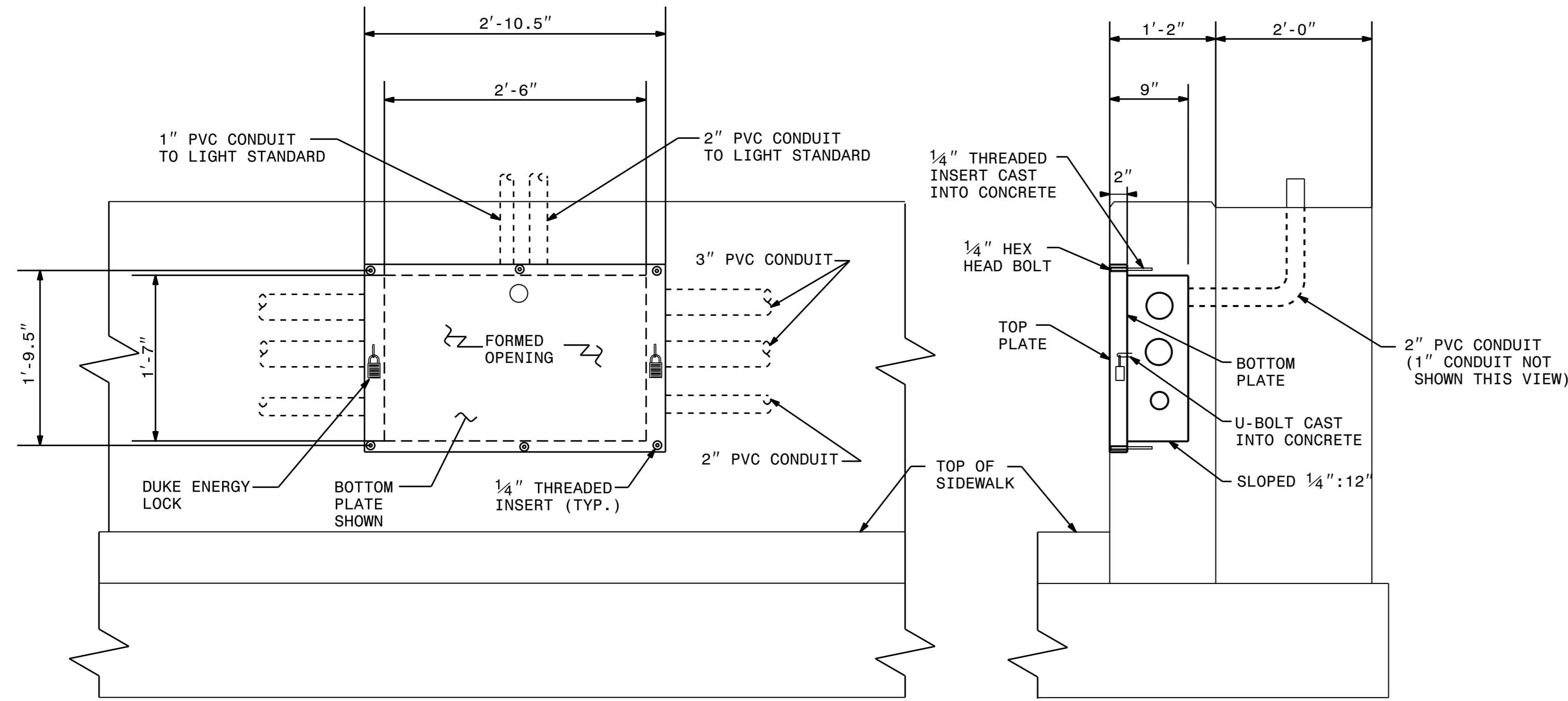


SEE PROJECT SPECIAL PROVISIONS TITLED "ELECTRICAL CONDUIT SYSTEM" FOR MATERIALS CONSTRUCTION METHODS AND PAYMENT.

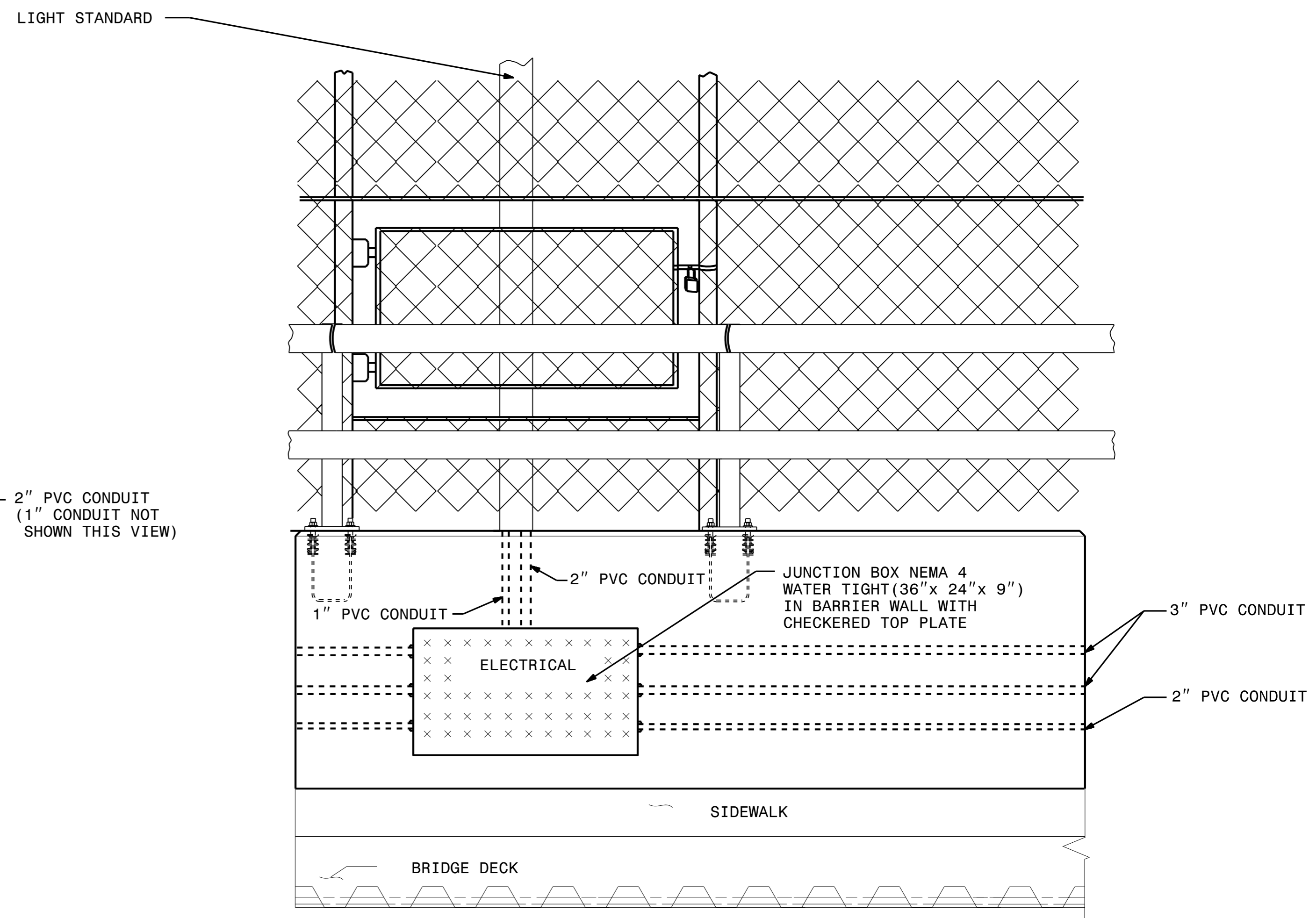
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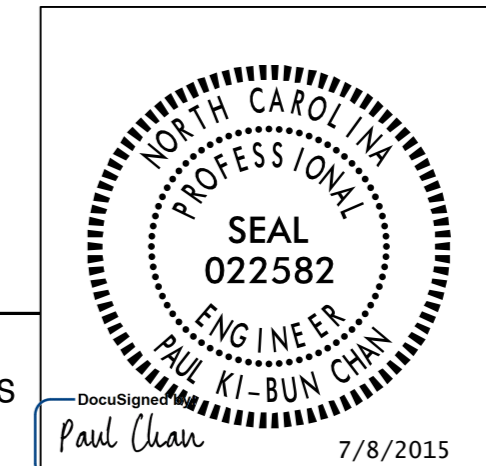
ELECTRICAL JUNCTION BOX INSTALLATION DETAILS



ELECTRICAL JUNCTION BOX INSTALLATION LOCATION
VIEW FROM ROADWAY

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L-

SHEET 3 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL CONDUIT SYSTEM
 BRIDGE ON SUGAR CREEK RD
 OVER BEARWOOD AVE., NCRR/NSRR
 AND RALEIGH ST.
 BTWN US74/NC27 & US29/NC49

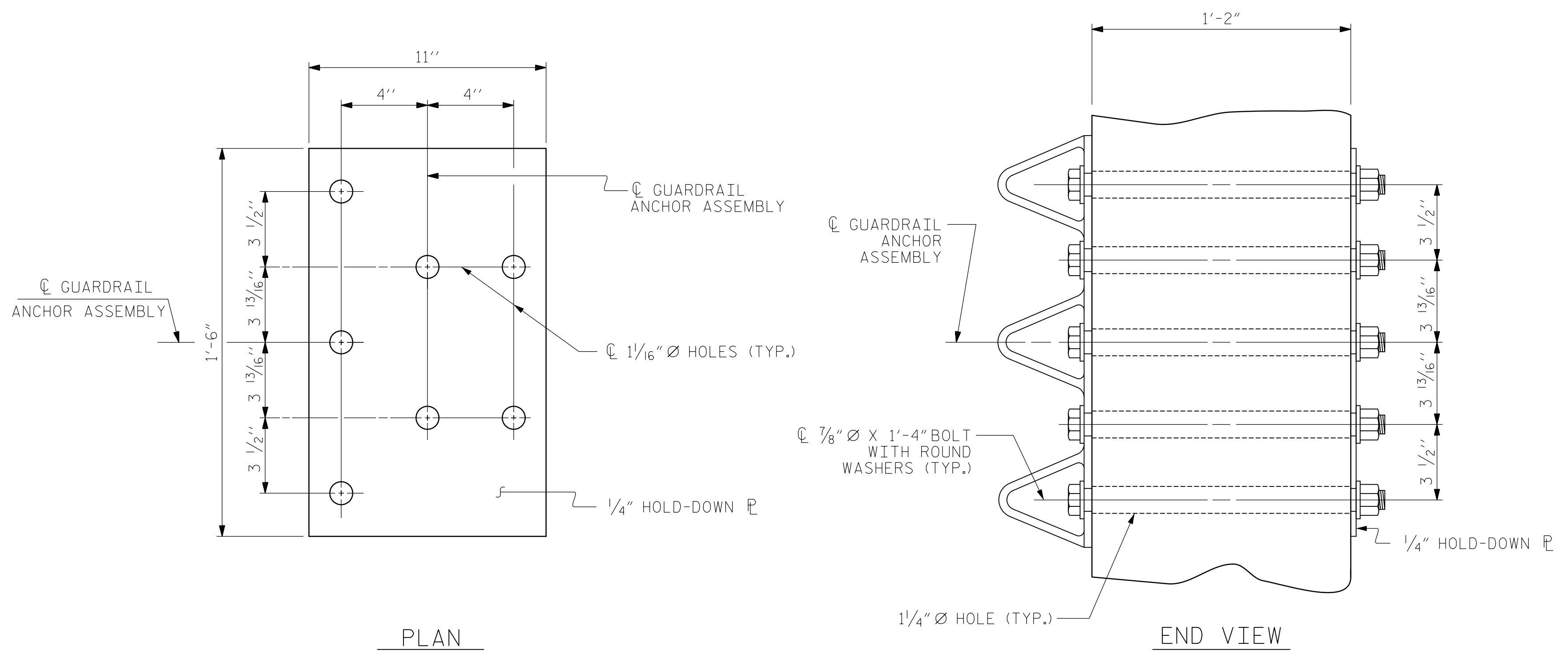


SEE PROJECT SPECIAL PROVISIONS TITLED "ELECTRICAL CONDUIT SYSTEM" FOR MATERIALS CONSTRUCTION METHODS AND PAYMENT.

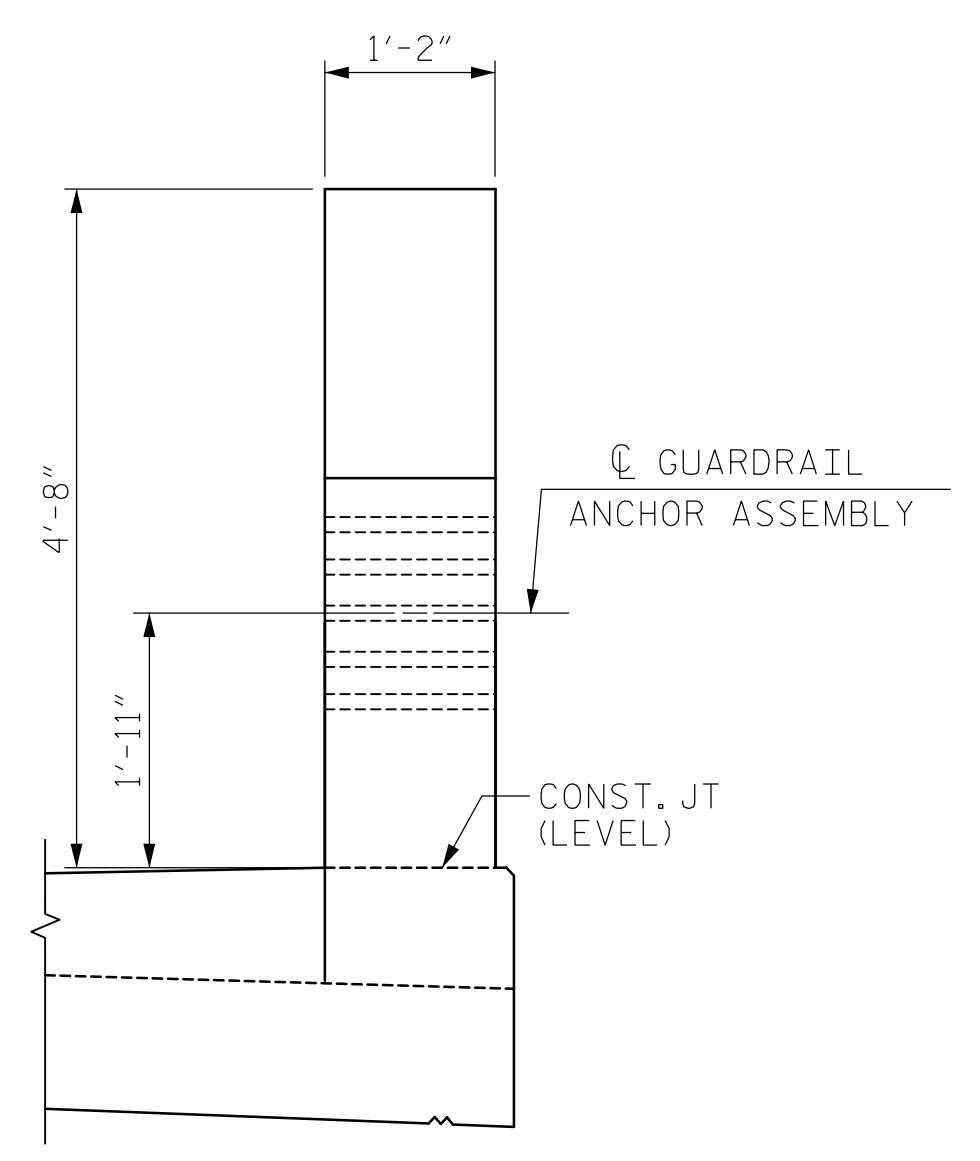
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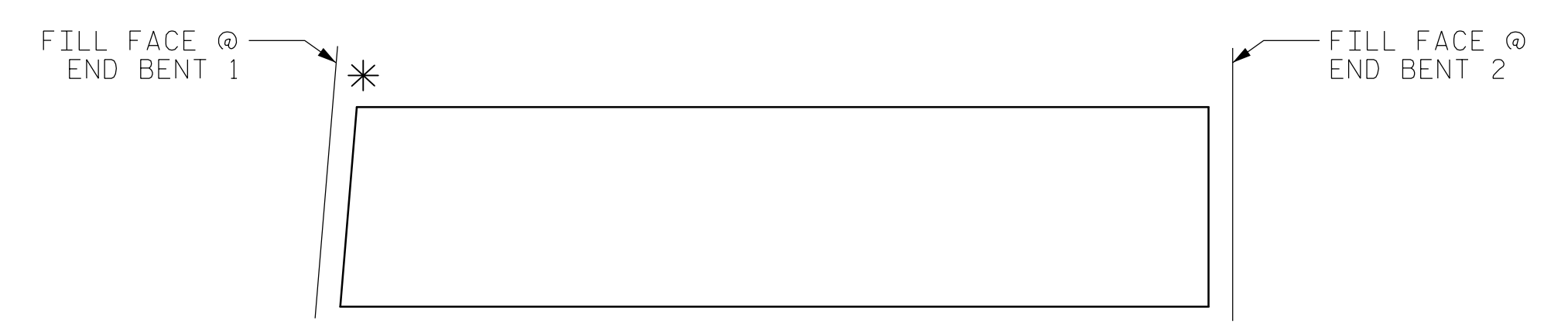


GUARDRAIL ANCHOR ASSEMBLY DETAILS



END VIEW (TWO BAR METAL RAIL)

LOCATION OF GUARDRAIL ANCHOR AT END POST



SKETCH SHOWING POINT OF ATTACHMENT

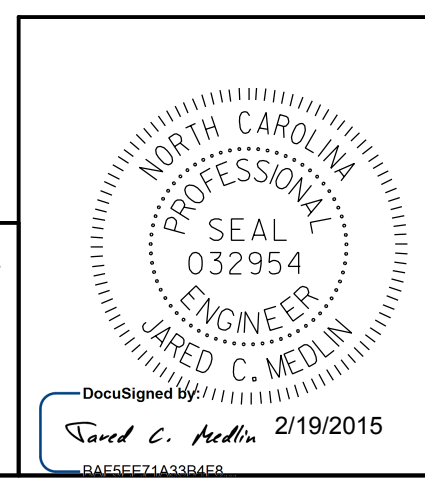
* LOCATION OF GUARDRAIL ATTACHMENT

NOTES (FOR METAL RAILS)

- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.
- THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
- THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.
- AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.
- THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.
- THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.
- THE 1/4" 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.

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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GUARDRAIL ANCHORAGE
 DETAILS FOR METAL
 RAILS & VERTICAL
 CONCRETE BARRIER RAIL



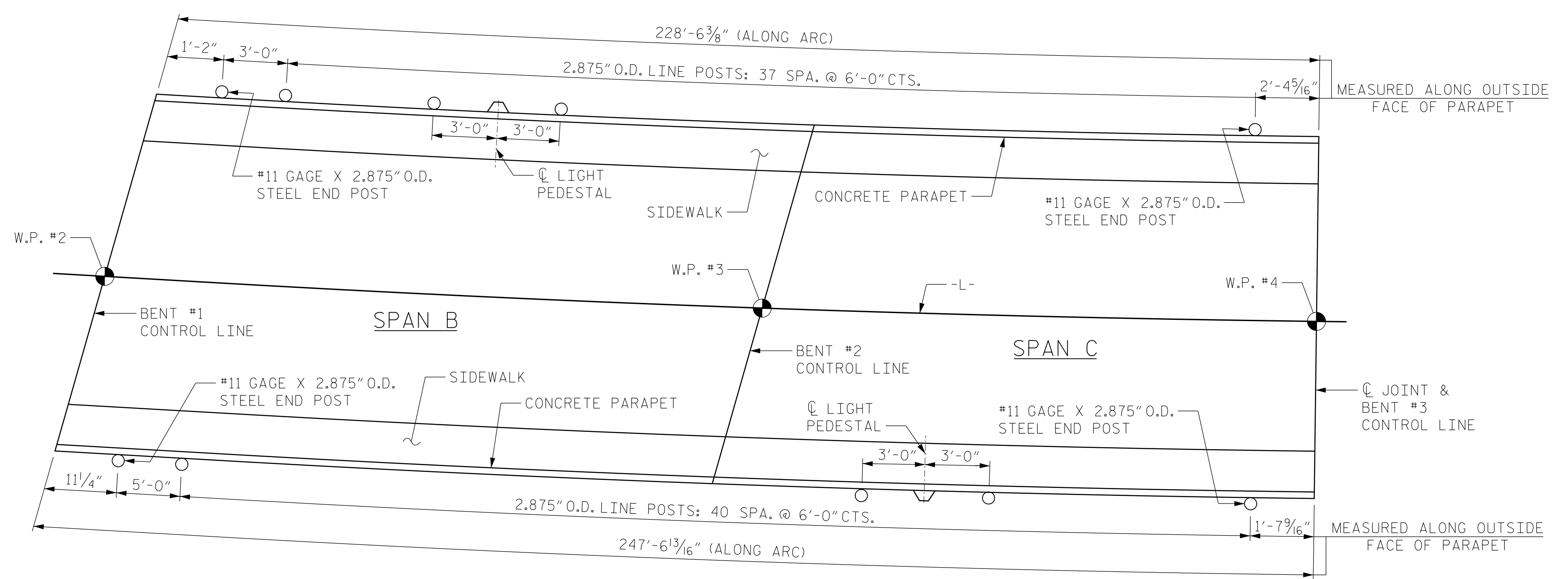
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 DRAWN BY : R. C. LARSON DATE : 10/15/14
 CHECKED BY : K. SU DATE : 10/20/14

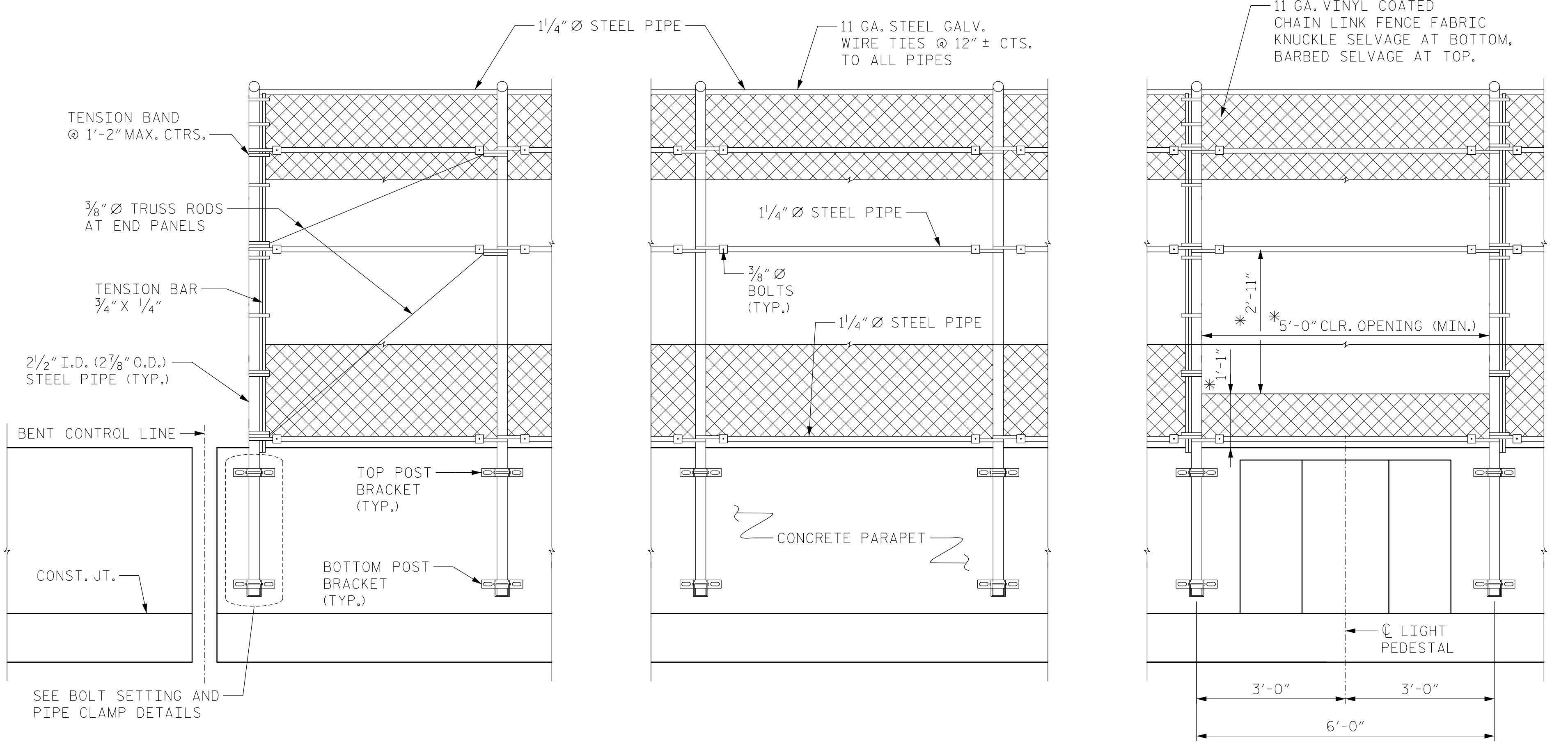
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PLAN OF FENCE POST SPACING

NOTES

- FOR 72" CHAIN LINK FENCE, SEE SPECIAL PROVISIONS.
- MATERIAL FOR ANCHOR BOLTS SHALL BE TYPE 304 STAINLESS STEEL WITH A MINIMUM 9,000 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.
- LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE ANCHOR BOLTS IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.
- ALL FENCE MATERIAL 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 1'-0" MINIMUM DISTANCE FROM ANCHOR BOLT TO JOINTS IN PARAPET.
- WELDING SHALL BE DONE IN ACCORDANCE WITH ARTICLE 1072-20 OF STANDARD SPECIFICATIONS.



END POST ELEVATION
(TYP. AT BENT 1 AND BENT 3)

MIDDLE ELEVATION

ELEVATION AT LIGHT PEDESTAL

PARTIAL ELEVATIONS

* CONTRACTOR SHALL INSTALL A GATE WITH A MINIMUM OPENING OF 5'-0" X 2'-11" AT EACH LIGHT PEDESTAL LOCATION. THE TOP RAIL OF THE 2-BAR METAL RAIL WILL BE REMOVED DURING MAINTENANCE, THEREFORE THE GATE MUST BE INSTALLED IN SUCH A MANNER AS TO BE ABLE TO AVOID INTERFERENCE WITH THE BOTTOM RAIL OF THE 2-BAR METAL RAIL AND THE 2-BAR METAL RAIL POSTS ON EITHER SIDE OF THE LIGHT PEDESTAL. GATE SHALL BE LOCKED WITH A LOCK PROVIDED BY THE AGENCY RESPONSIBLE FOR MAINTAINING THE LIGHT POLES. SEE SHEET TITLED "2-BAR METAL RAIL, SHEET 3 OF 4" FOR RAIL POST SPACING.

72" CHAIN LINK FENCE
TOTAL PAY LENGTH 470.0 LIN. FT.

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SHEET 1 OF 2

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RALEIGH

CHAIN LINK FENCE
DETAILS

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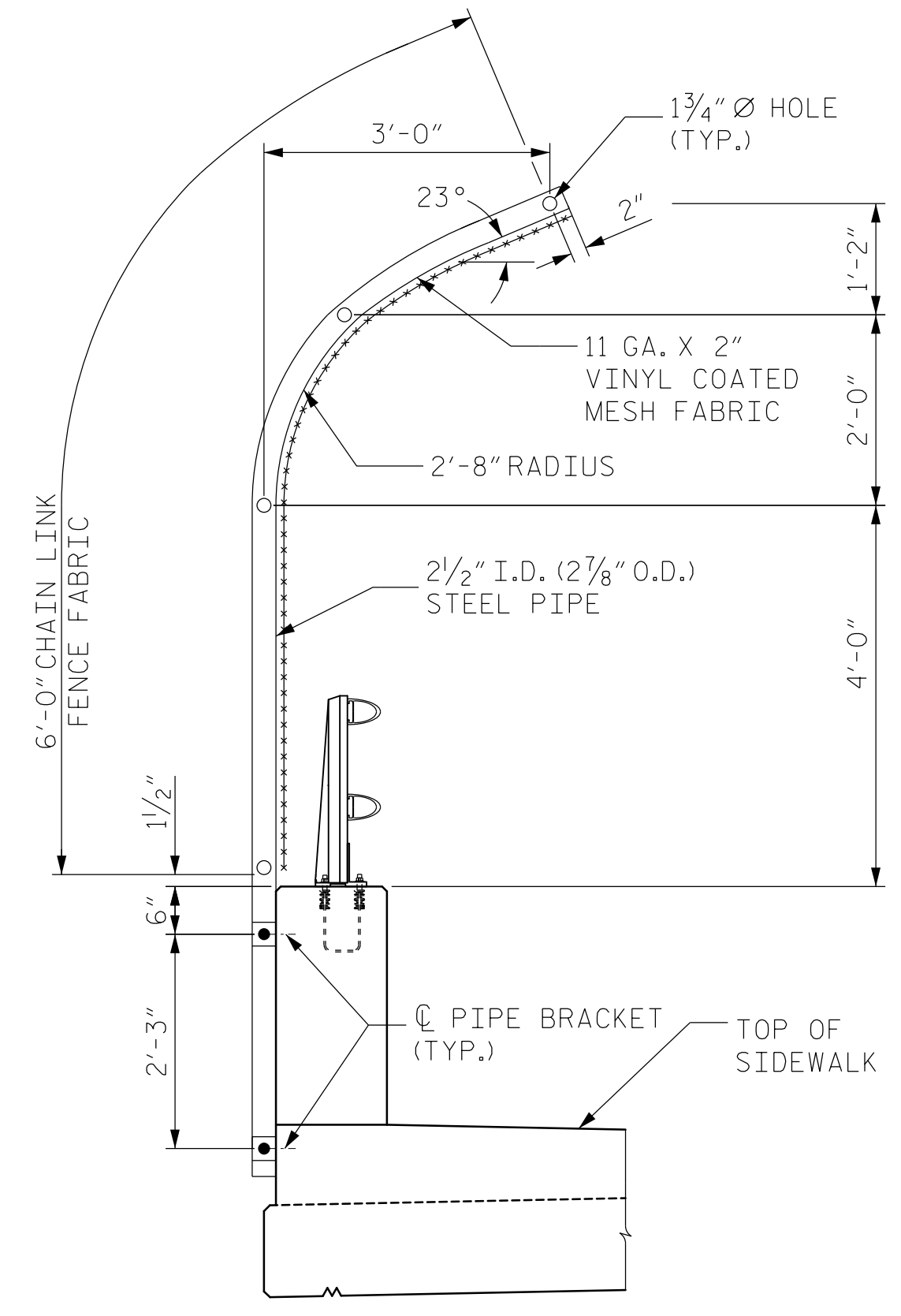
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NORTH CAROLINA
PROFESSIONAL
SEAL
032954
ENGINEER
JARED C. MEDLIN
2/19/2015

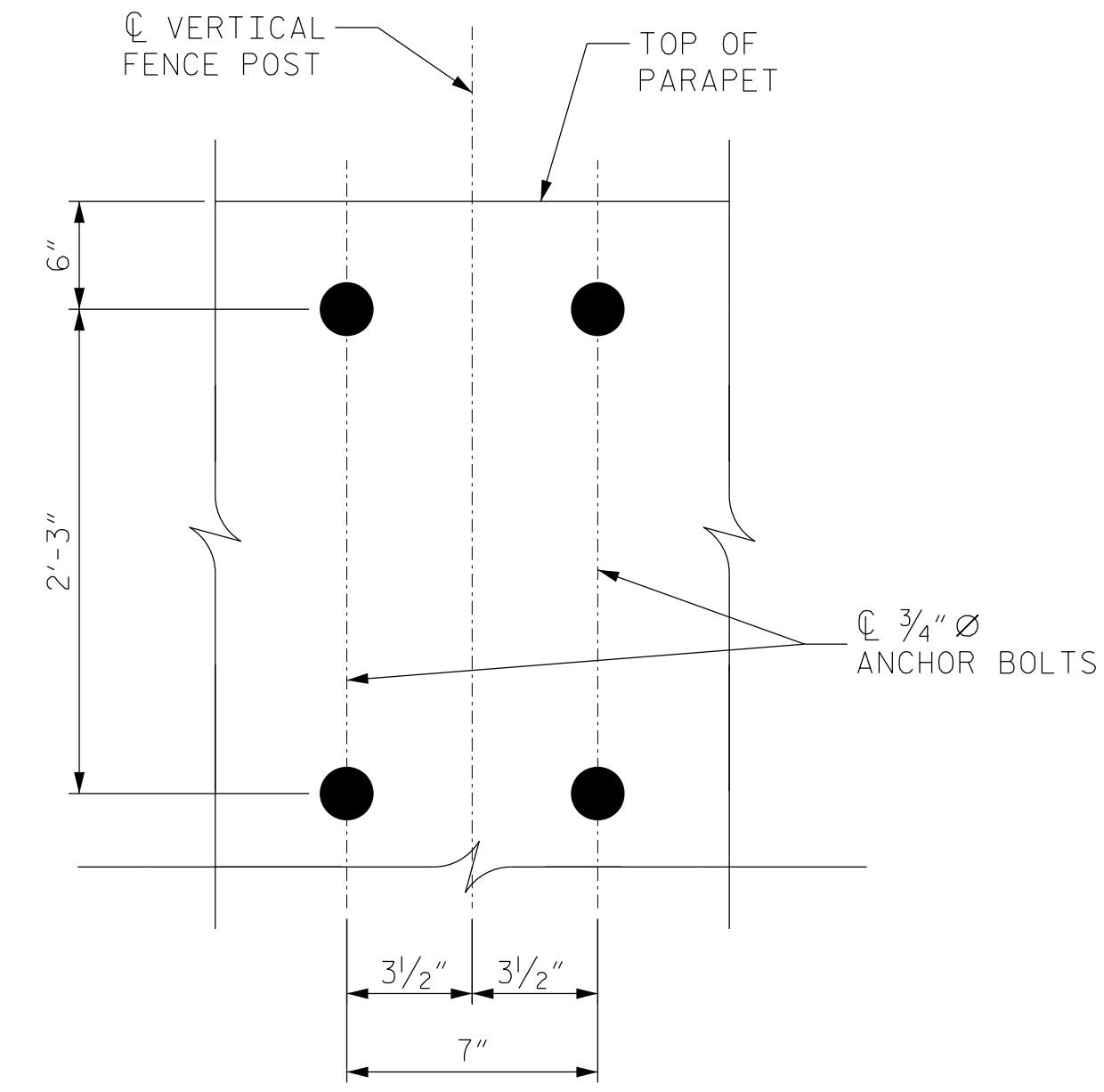
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CHECKED BY: J.C. MEDLIN DATE: OCT. 2014

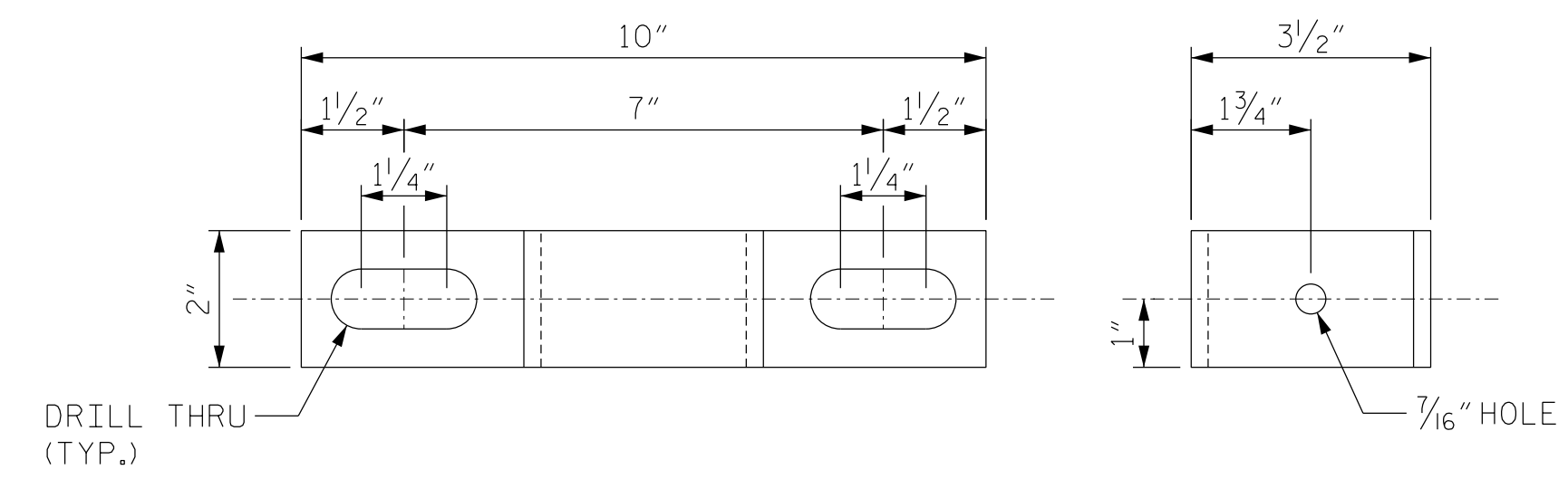


SECTION A-A

(REINFORCEMENT NOT SHOWN FOR CLARITY)

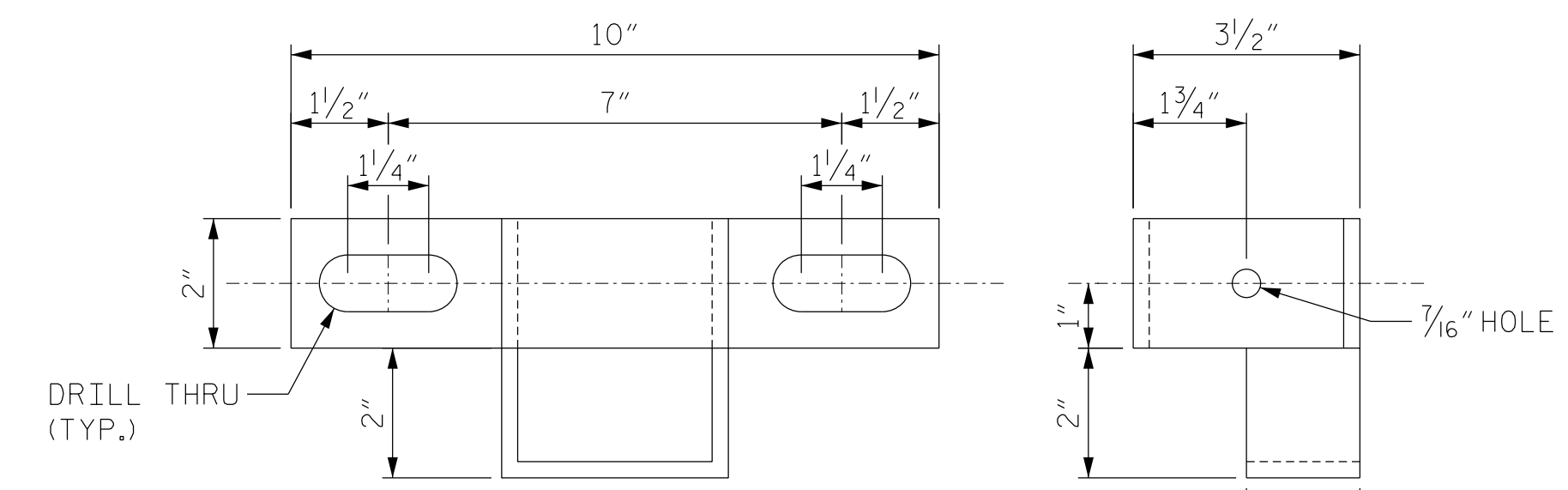


BOLT SETTING DETAIL



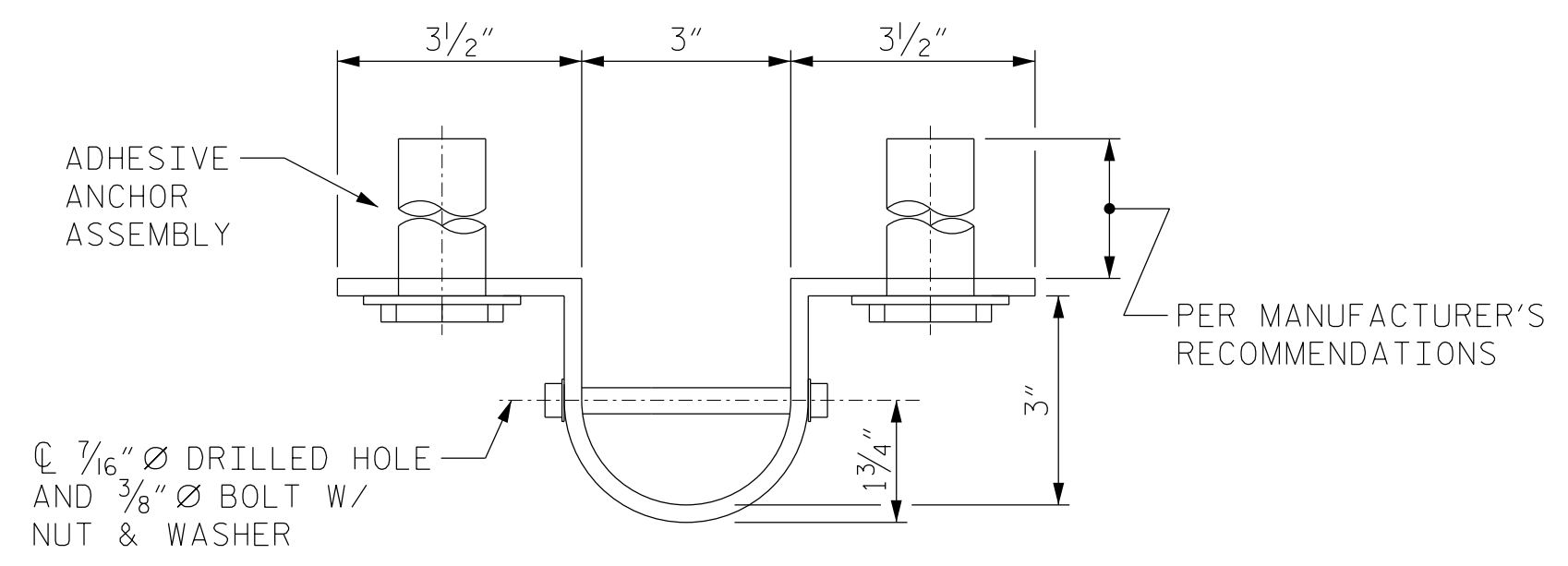
ELEVATION

RIGHT SIDE VIEW



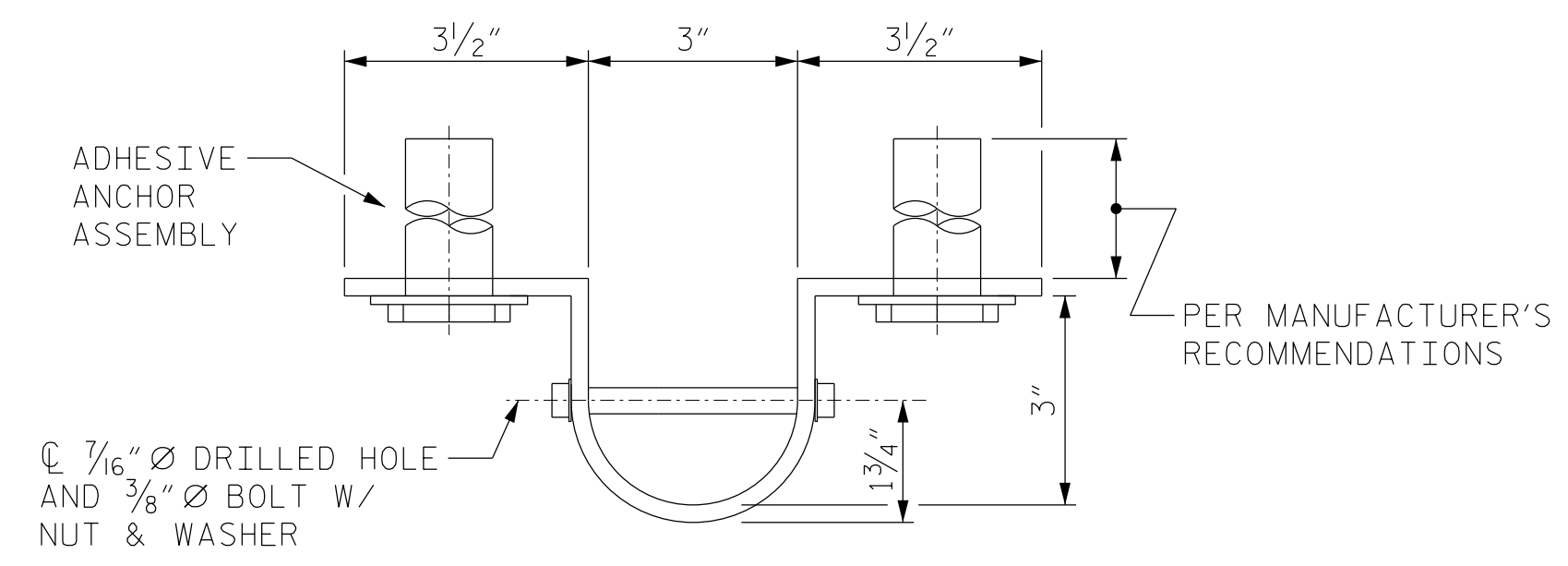
ELEVATION

RIGHT SIDE VIEW



PLAN

TOP POST BRACKET



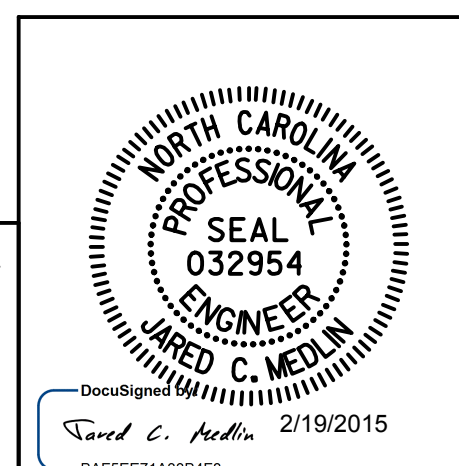
PLAN

BOTTOM POST BRACKET

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 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

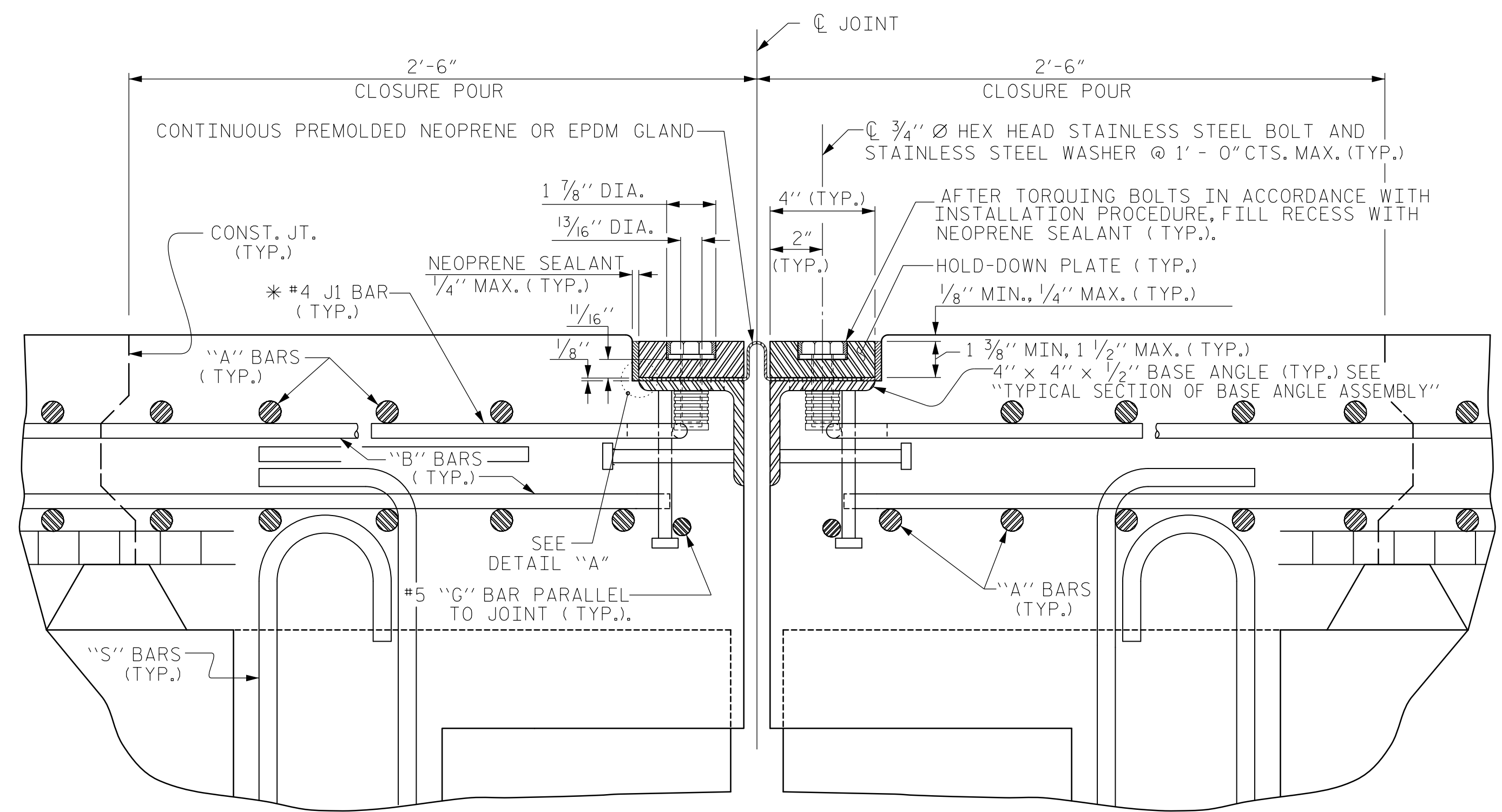
CHAIN LINK FENCE
 DETAILS



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2			4			78

DRAWN BY : C.L.RUDISILL DATE : OCT. 2014
 CHECKED BY : J.C.MEDLIN DATE : OCT. 2014



EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE
(BENT 3 SHOWN, END BENTS SIMILAR)

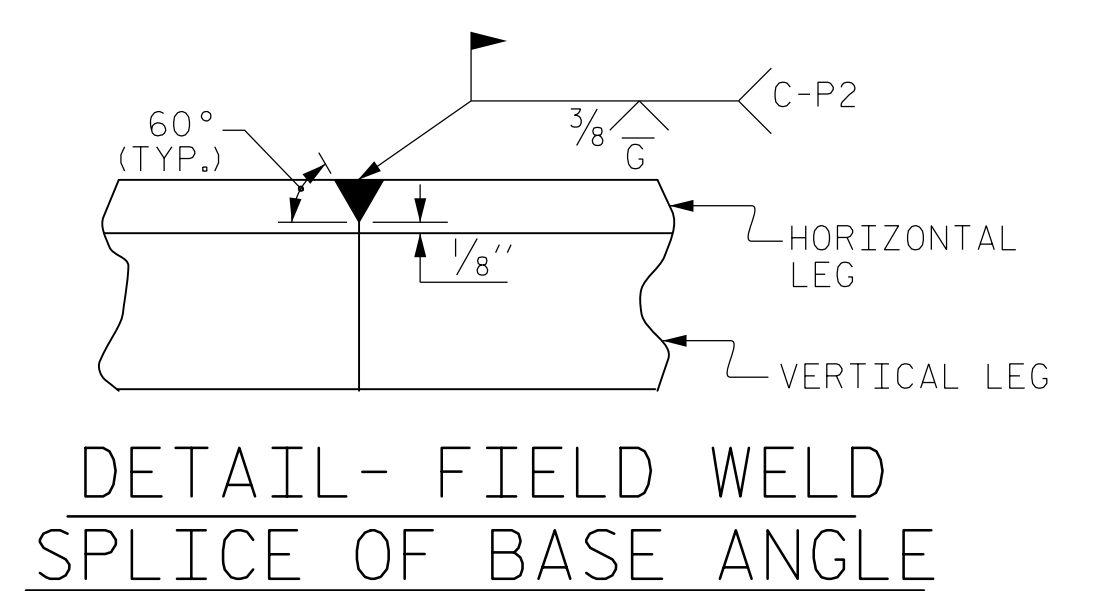
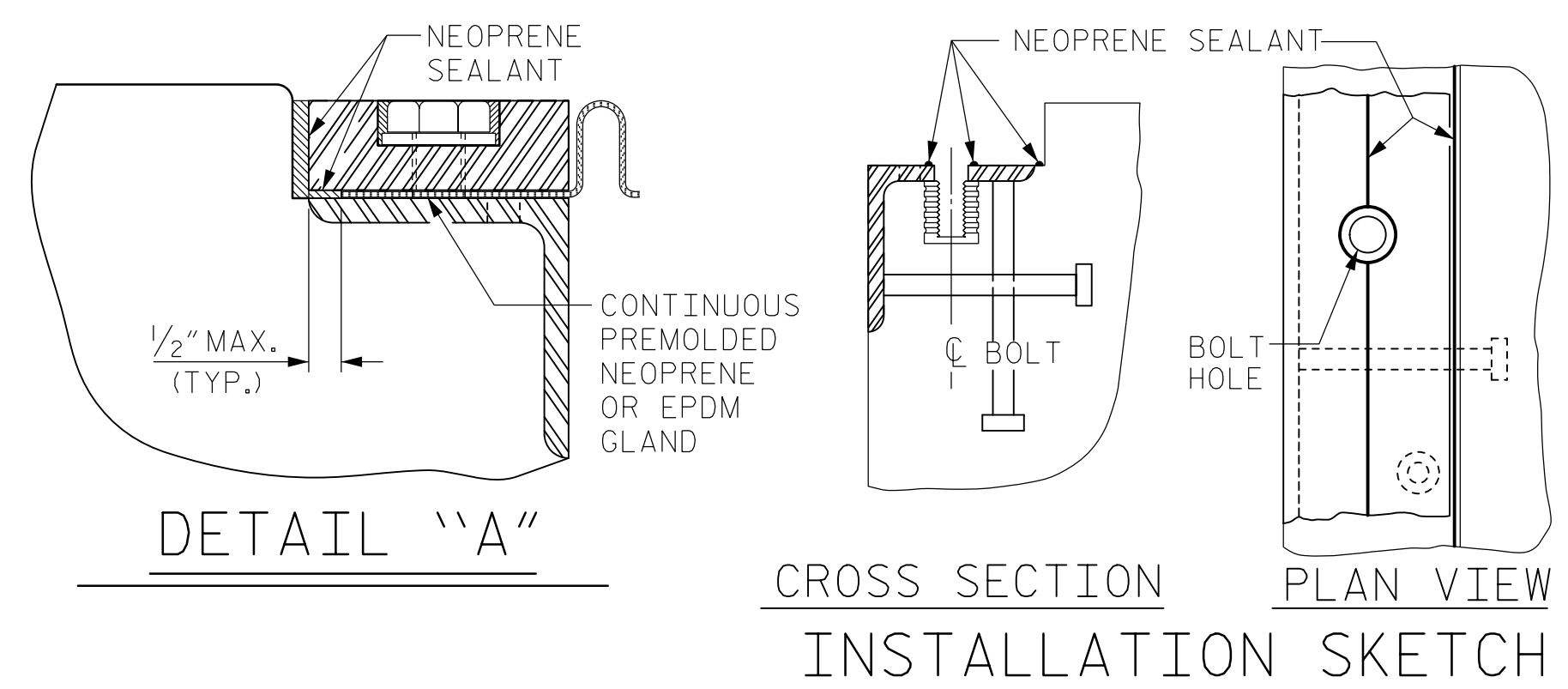
* THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.

INSTALLATION PROCEDURE

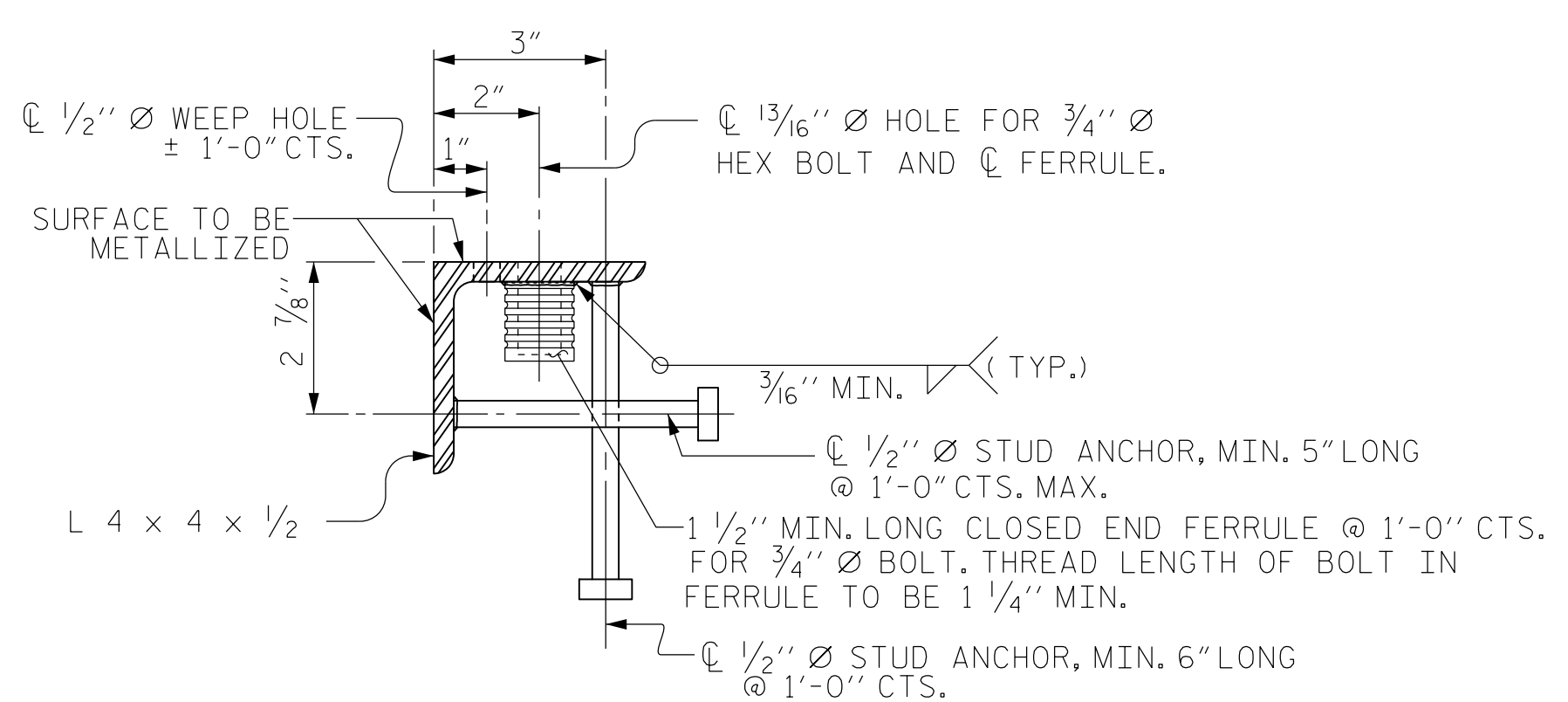
1. A TEMPLATE OR OTHER SUITABLE DEVICE SHALL BE USED TO FORM THE TOP OF THE EXPANSION JOINT SEAL BLOCKOUT TO THE PROPER DEPTH AND WIDTH. THE TEMPLATE SHALL BE 4/8" TO 4/4" WIDE AND OF SUCH THICKNESS AS TO PROVIDE FOR CORRECT FINAL ELEVATION OF TOP OF HOLD-DOWN PLATES. THE TEMPLATE SHALL BE ATTACHED TO 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 COATED WITH A MINIMUM THICKNESS OF 4 DRY MILS OF ZINC-RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
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 AND THE RECESS BETWEEN THE JOINT SEAL DEVICE AND CONCRETE, COMPLETELY FILL THESE RECESSES 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. MIN.
3. A PREMOLDED CORRUGATED OR NON-CORRUGATED GLAND SHALL BE USED FOR JOINTS SKEWED BETWEEN 50° THRU 130°. 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. SEE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
7. BASE ANGLE ASSEMBLY SHALL BE CONTINUOUS FOR THE LENGTH OF THE JOINT. AT CROWN BREAKS, THE ENDS OF THE BASE ANGLE ASSEMBLY SHALL BE CUT PARALLEL TO THE BRIDGE CENTERLINE FOR SKEWS LESS THAN 80° AND GREATER THAN 100°. FINISHED WELD SHALL BE GROUND SMOOTH AND COATED WITH A MINIMUM THICKNESS OF 4 DRY MILS OF ZINC-RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
8. 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.
9. NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.
10. 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.



MOVEMENT AND SETTING AT JOINT					
BENT NUMBER	SKEW ANGLE	TOTAL MOVEMENT (ALONG CL RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
END BENT 1	102°-37'	1 1/16"	1 3/4"	1 9/16"	1 3/16"
BENT 3	90°	2 1/2"	2 13/16"	2 3/8"	1 1/16"
END BENT 2	90°	1 1/2"	2 1/16"	1 3/4"	1 1/4"



TYPICAL SECTION OF BASE ANGLE ASSEMBLY

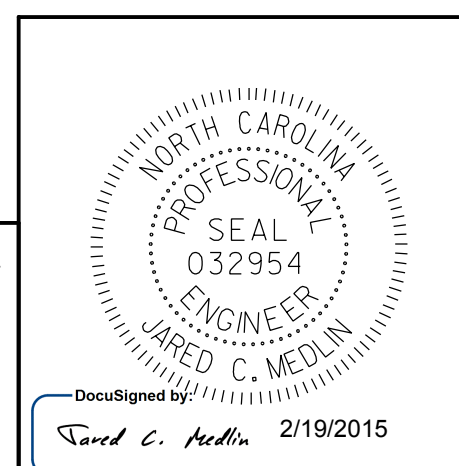
PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

EXPANSION JOINT SEAL DETAILS

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

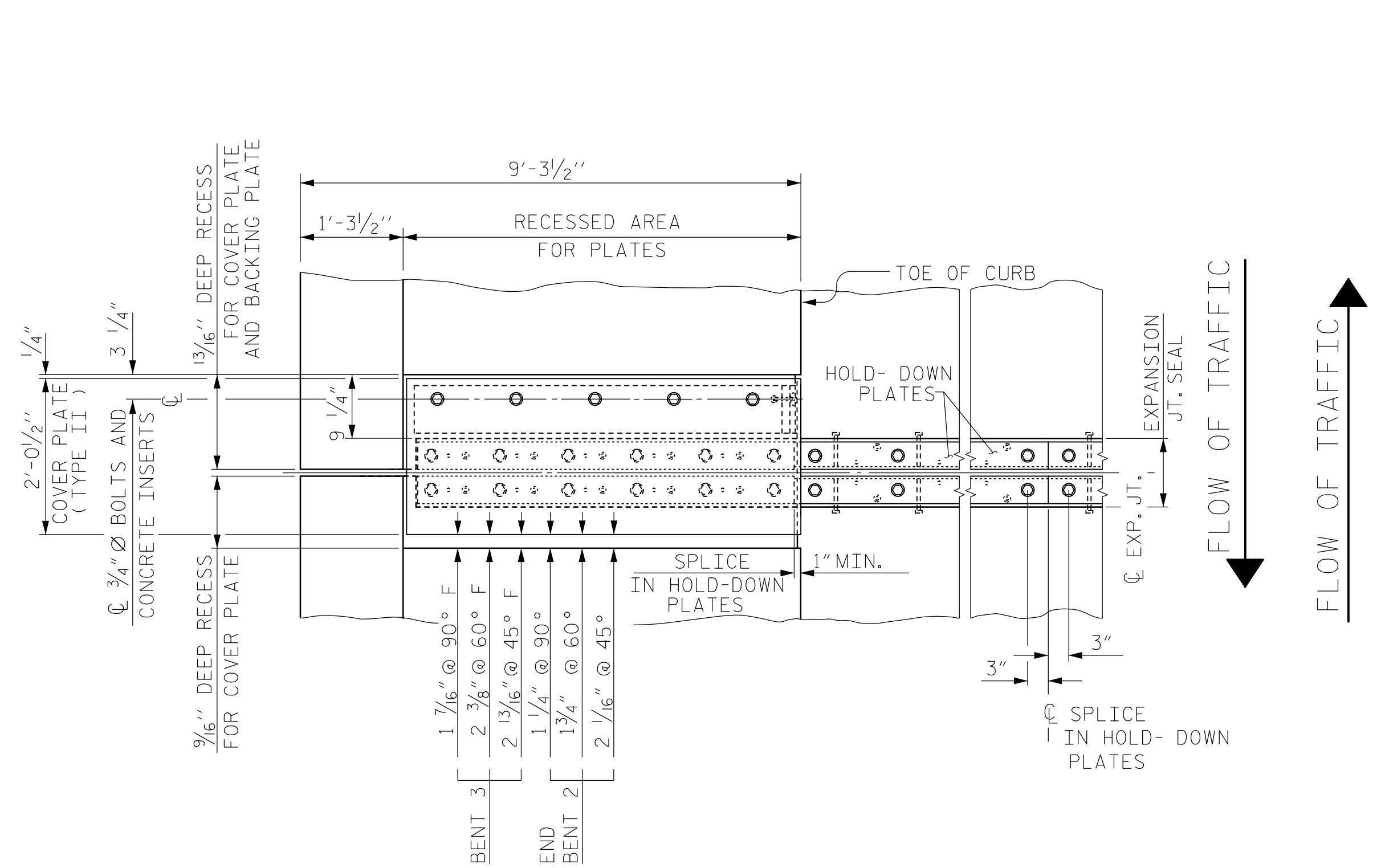
SHEET NO. S-46
SHEETS 78



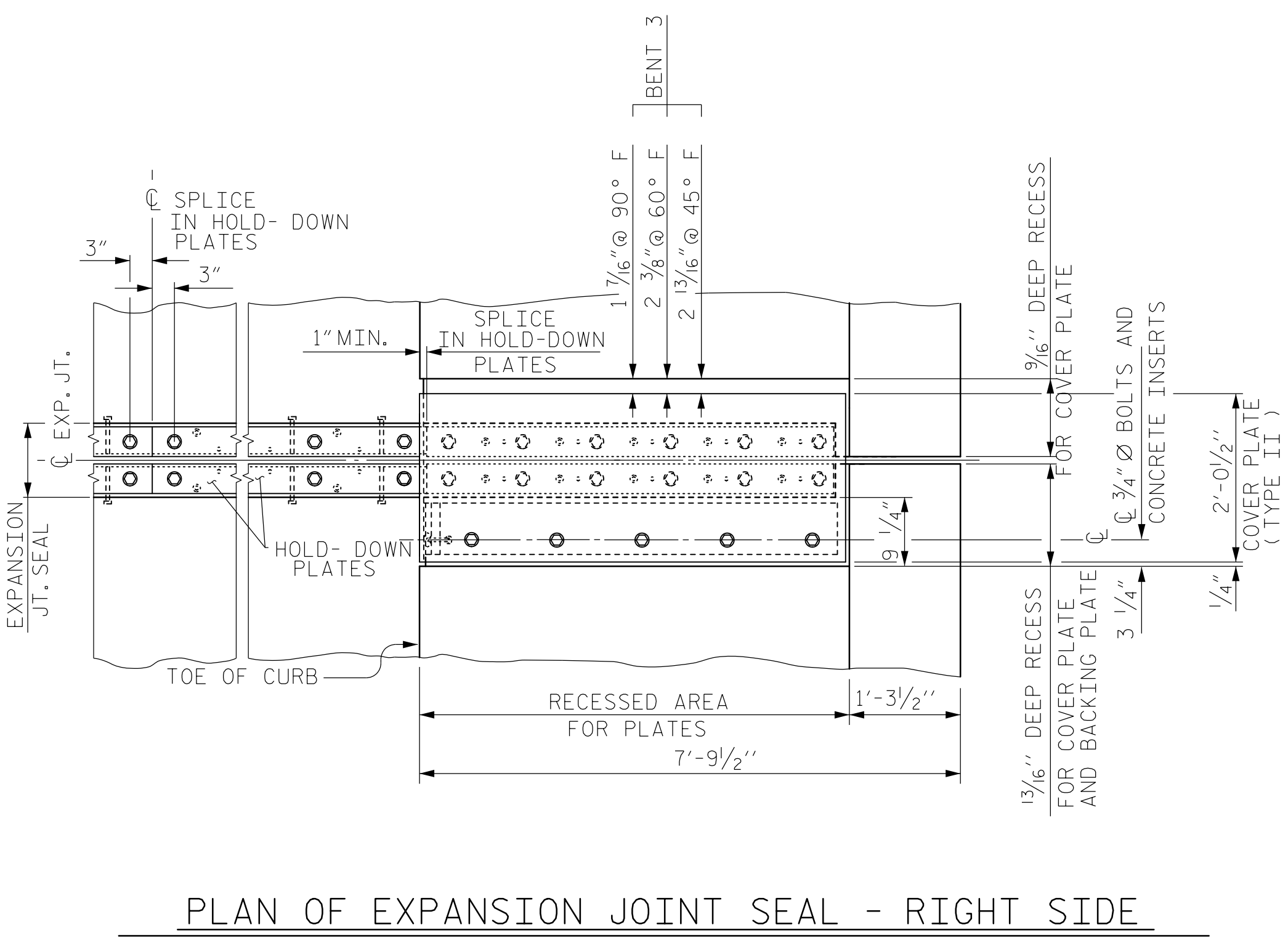
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 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

2/18/2015 1:00:00 PM Y:\0-cwings\2011 DWG\Structures\RFC\SH46_U-5008_SD_EJ.dgn
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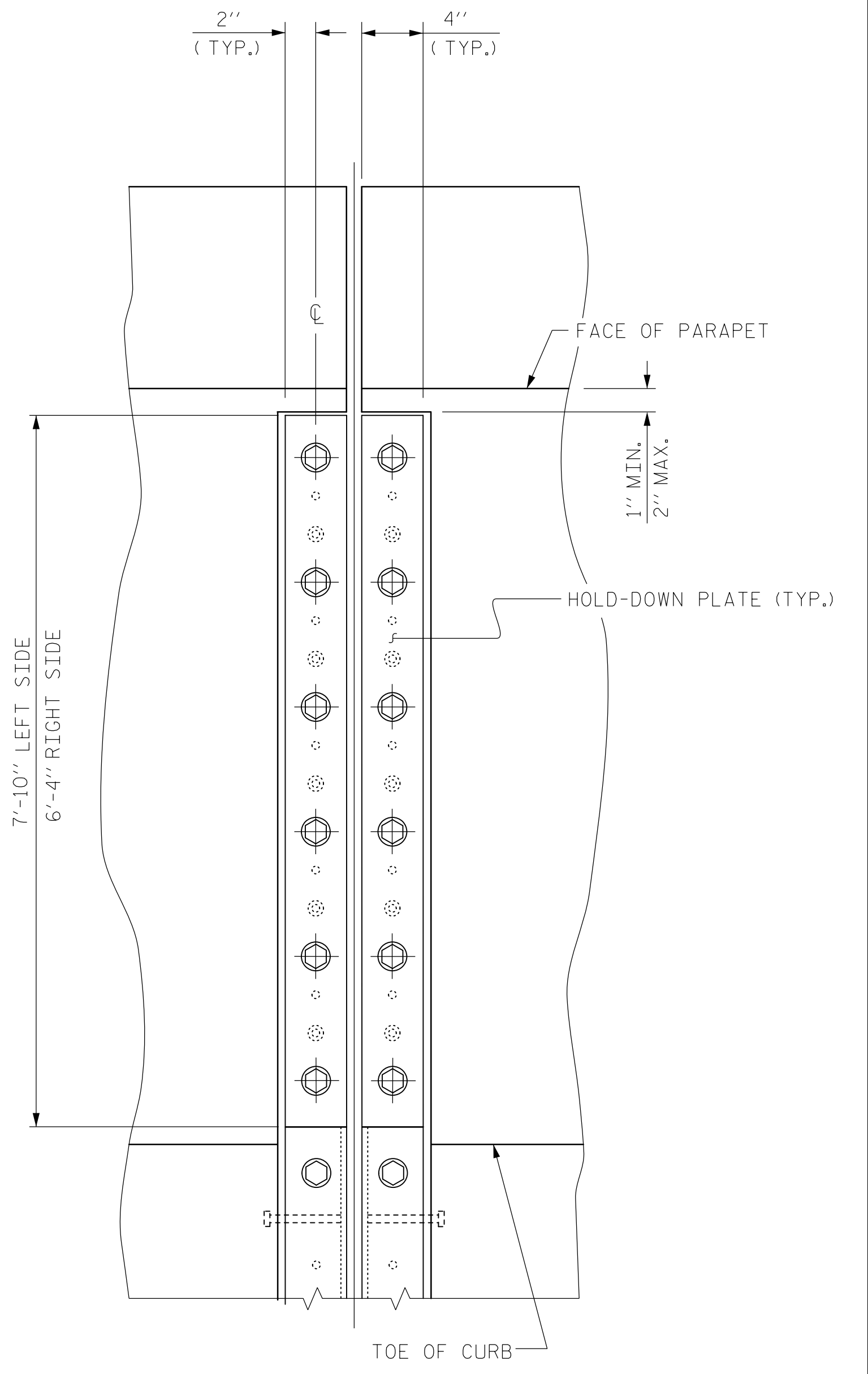
DRAWN BY : R. J. FLORY DATE : 08/04/14
 CHECKED BY : R. C. LARSON DATE : 08/04/14



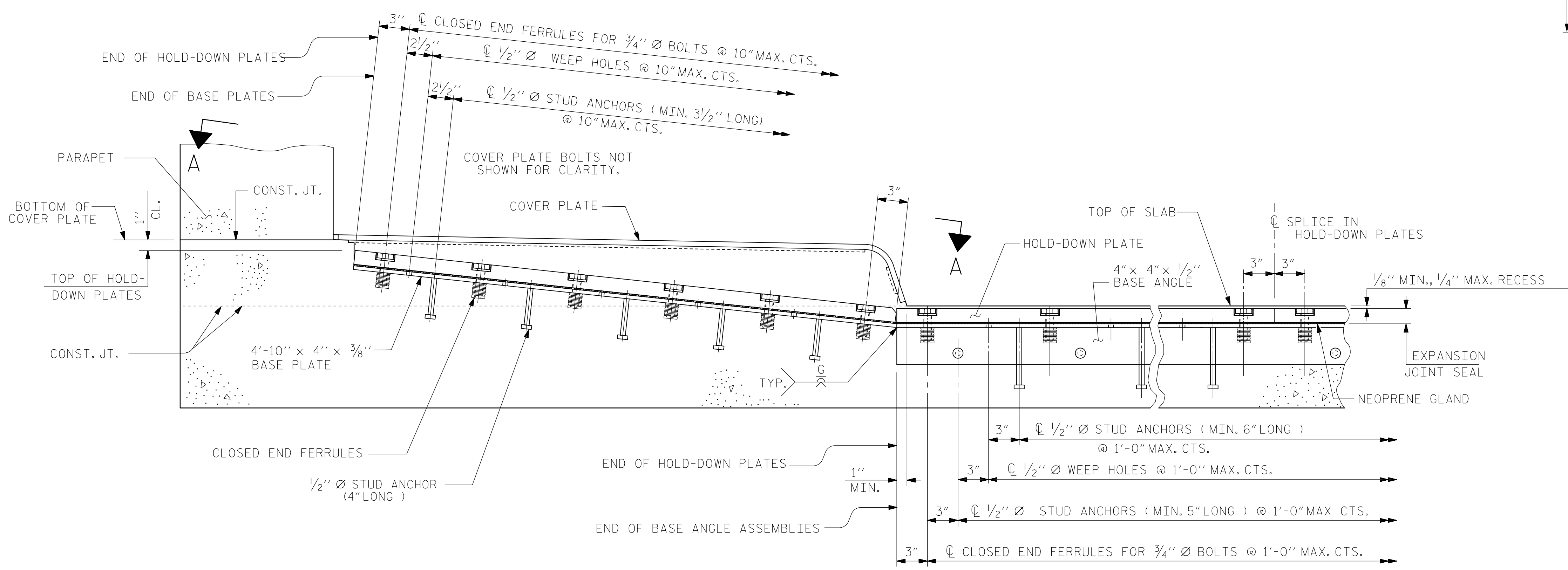
PLAN OF EXPANSION JOINT SEAL - LEFT SIDE
(AT BENT 3, END BENT 2)



PLAN OF EXPANSION JOINT SEAL - RIGHT SIDE
(AT BENT 3, END BENT 2)



SECTION A - A
(AT BENT 3, END BENT 2)



SECTION THRU SIDEWALK NORMAL TO JOINT

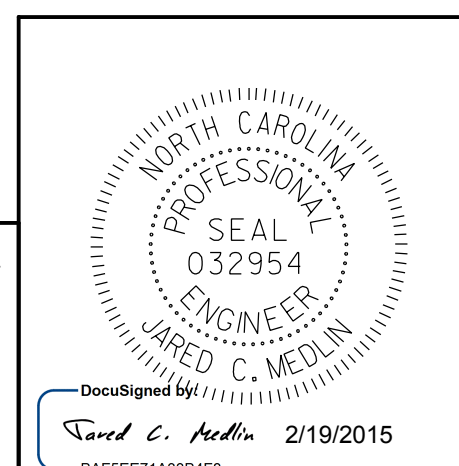
PROJECT NO. U-5008
MECKLENBURG COUNTY
STATION: 20+45.05 -L- P.O.T. =
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SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EXPANSION JOINT SEAL DETAILS FOR SIDEWALK

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

SHEET NO. S-47
SHEETS 78

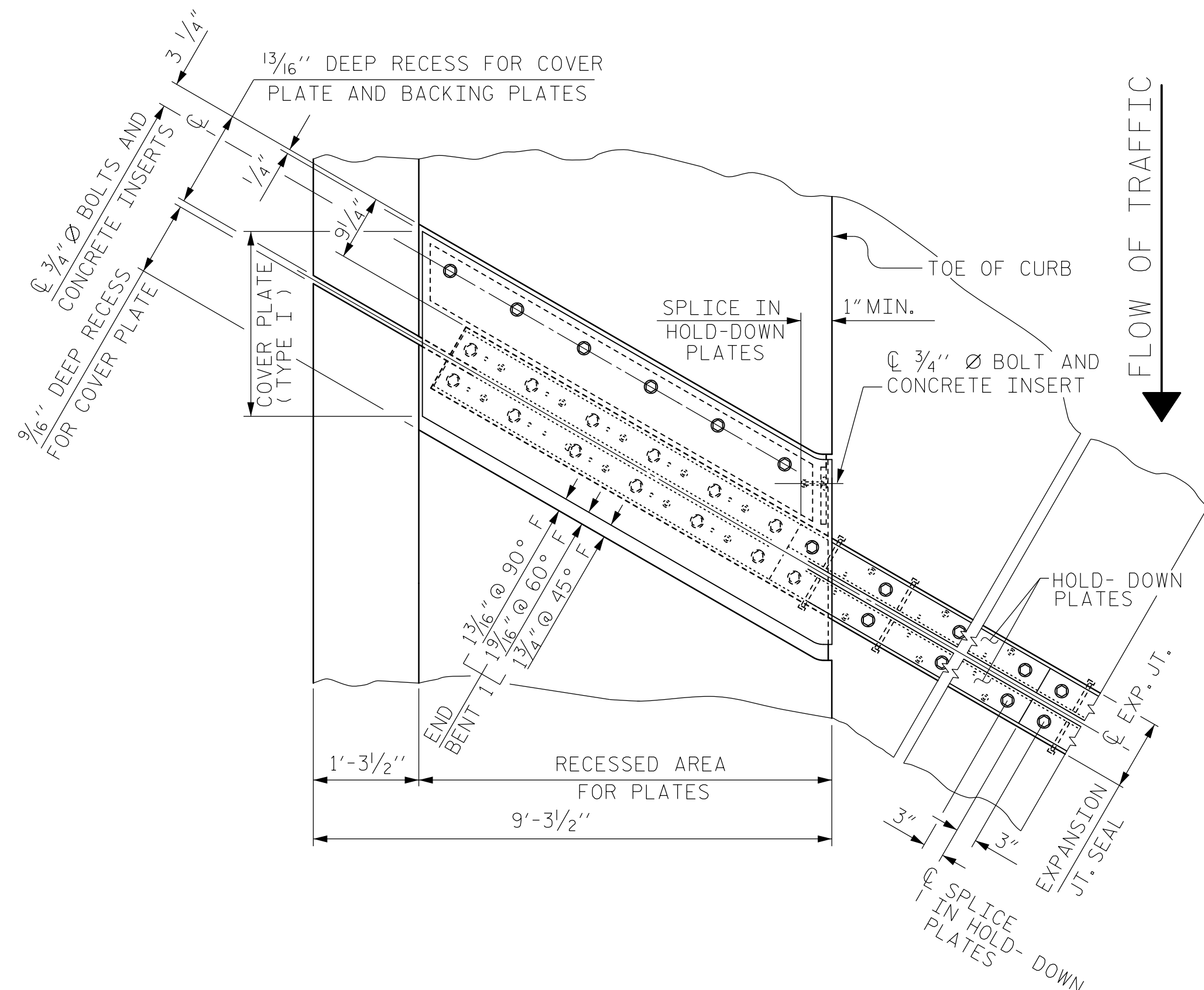


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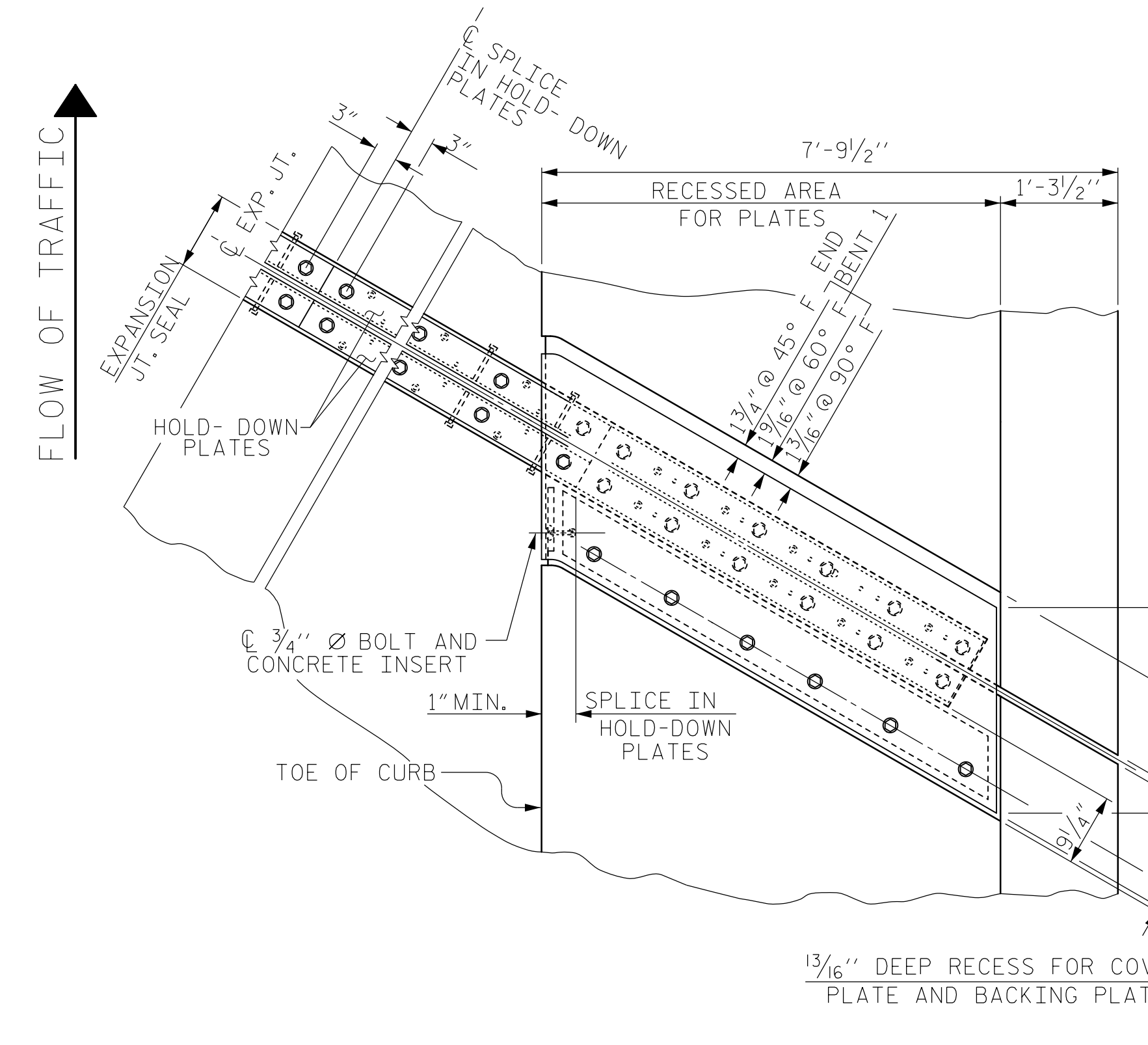
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DRAWN BY: R.C. LARSON DATE: 8/19/14
CHECKED BY: K. SU DATE: 8/29/14

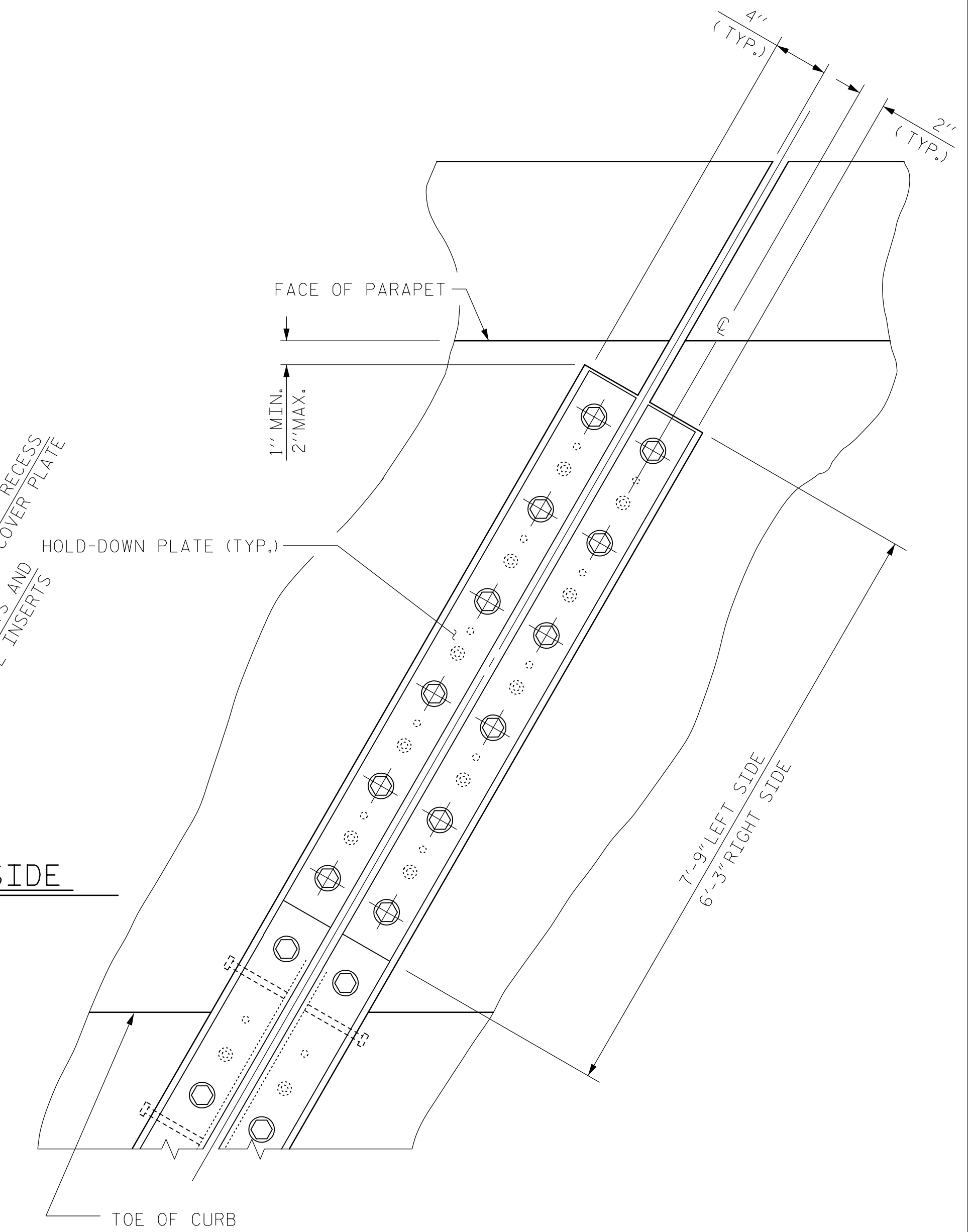
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PLAN OF EXPANSION JOINT SEAL - LEFT SIDE
(AT END BENT 1)



PLAN OF EXPANSION JOINT SEAL - RIGHT SIDE
(AT END BENT 1)



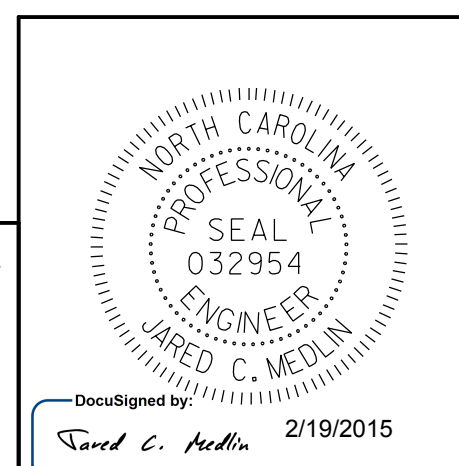
SECTION A - A
(AT END BENT 1)

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
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 SHEET 3 OF 4

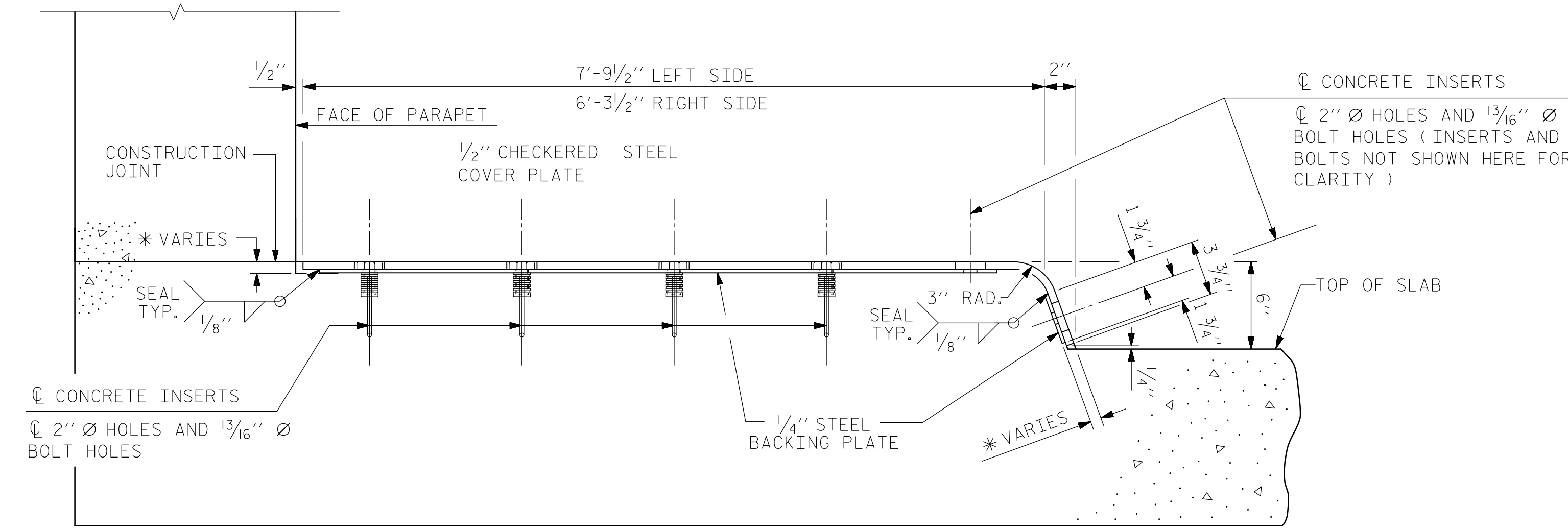
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 EXPANSION JOINT
 SEAL DETAILS
 FOR SIDEWALK

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-47A	
1			3			SHEETS	
2			4			78	

DRAWN BY : R.C. LARSON DATE : 8/19/14
 CHECKED BY : K. SU DATE : 8/29/14

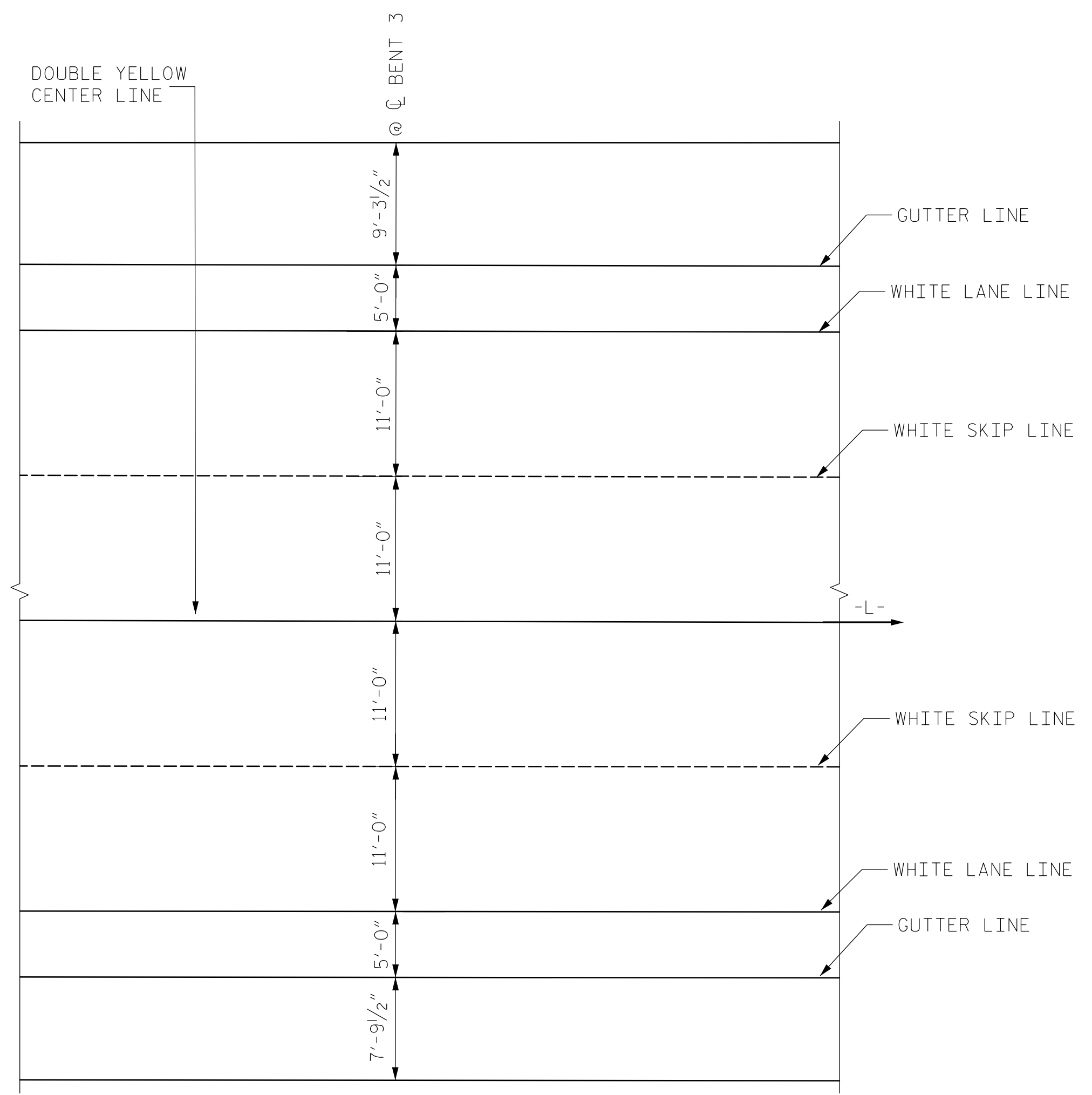


0400DEL_P30

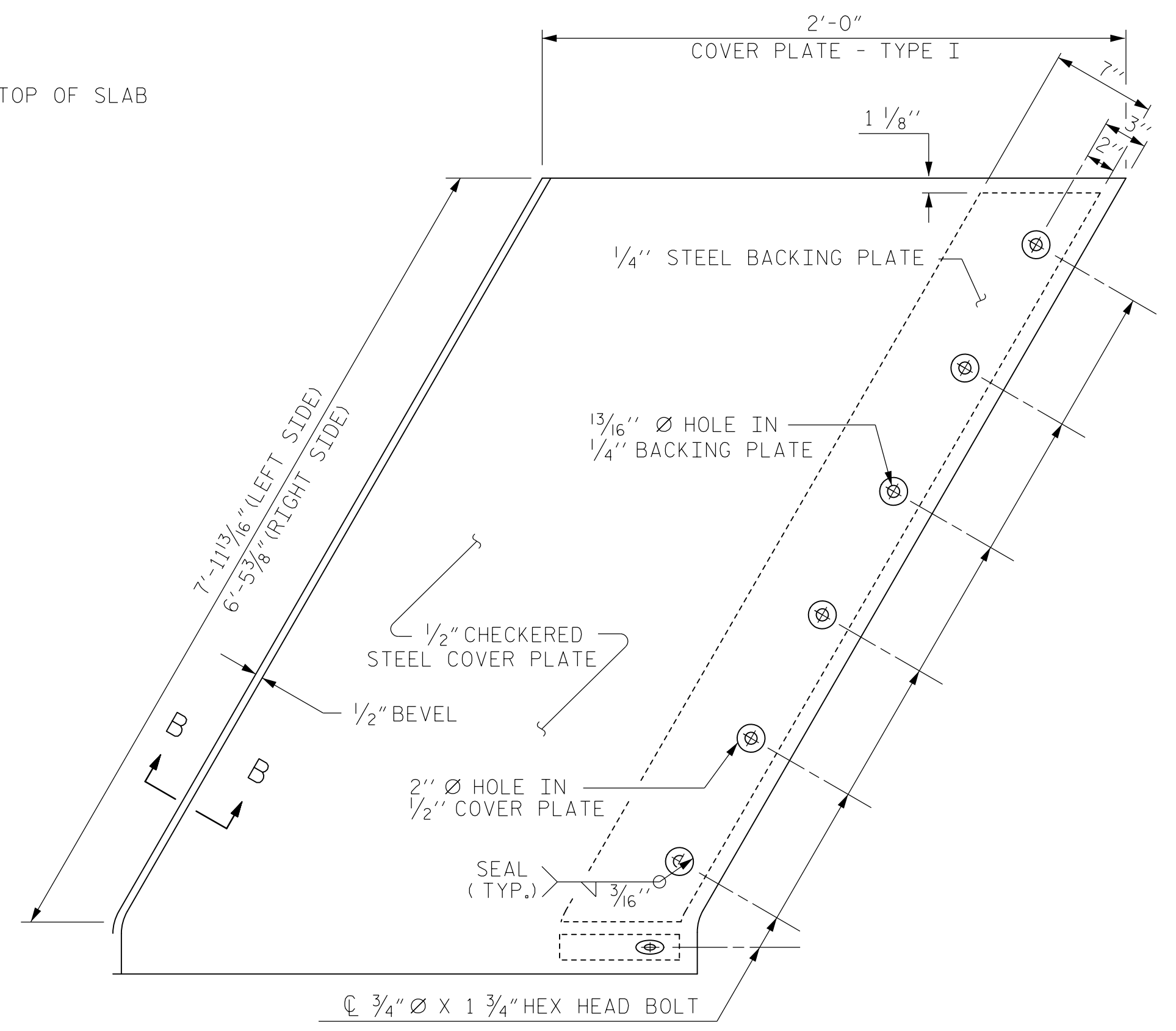


END VIEW
(NORMAL TO SIDEWALK)

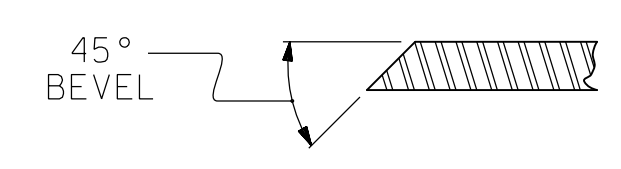
* CONCRETE RECESS DIMENSIONS:
 13/16" FOR THE SIDE OF THE JOINT HAVING THE 1/2" COVER PLATE WITH A 1/4" BACKING PLATE.
 9/16" FOR THE SIDE OF THE JOINT HAVING ONLY THE 1/2" COVER PLATE.



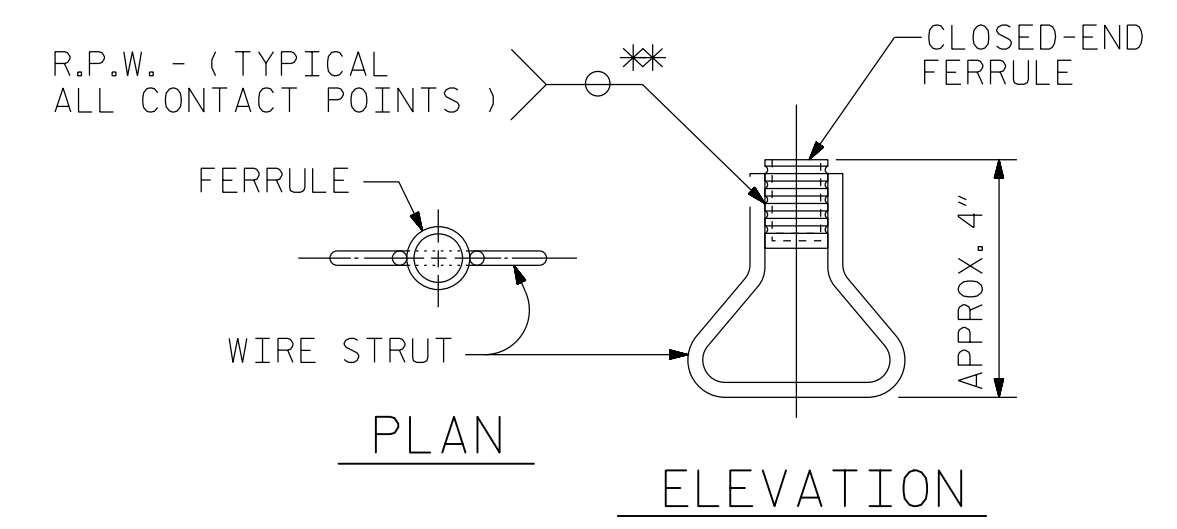
PAVEMENT MARKING ALIGNMENT



TYPE I - PLAN VIEW

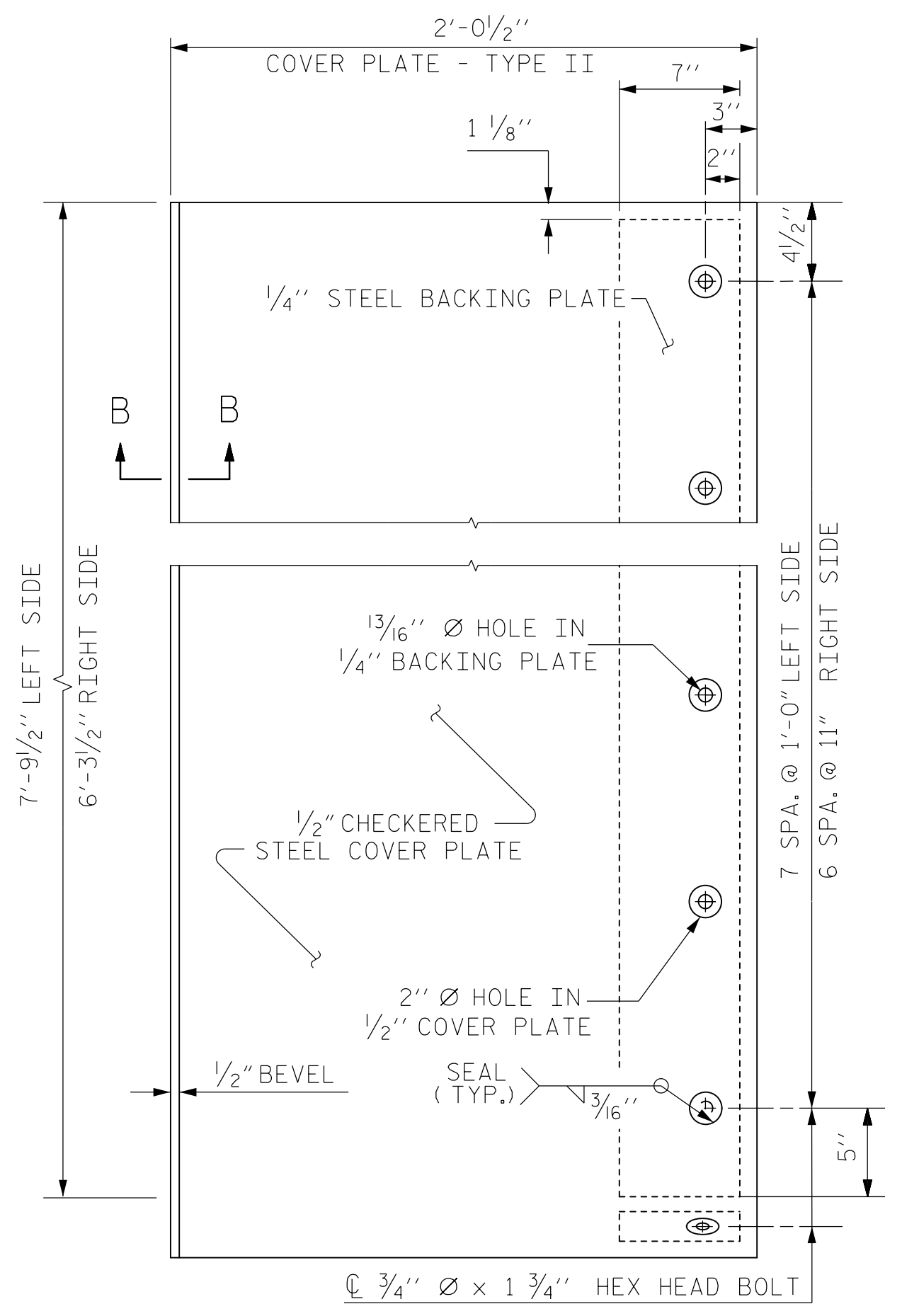


SECTION B - B



CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



TYPE II - PLAN VIEW

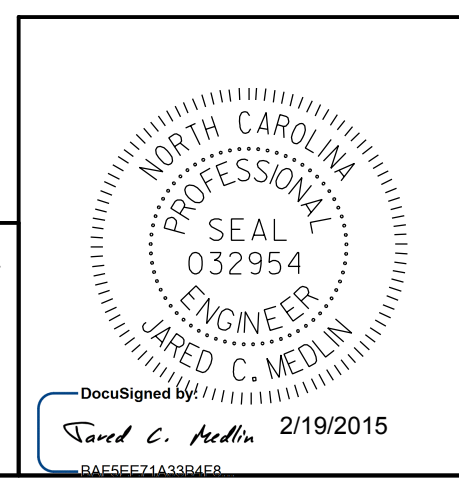
COVER PLATE DETAILS

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
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 SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**EXPANSION JOINT
 SEAL DETAILS
 FOR SIDEWALK**

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-48	
1			3			SHEETS 78	
2			4				



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DJD
 DRAWN BY : R.C. LARSON DATE : 8/19/14
 CHECKED BY : K. SU DATE : 8/29/14

0400DEL_P30

2/18/2015 Y:\0-ewings\2011 DWGS\Structures\RFC\SH49_U-5008_SD_BM_1.dgn

BILL OF MATERIAL

SPANS A,B,C												SPANS D,E,F,G					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT			
* A1	571	5	STR.	54'-9"	32607	A50	1	5	STR.	19'-1"	20	* A1	763	5	STR.	54'-9"	43571
A2	571	5	STR.	59'-2"	35237	A51	1	5	STR.	16'-5"	17	A2	763	5	STR.	59'-2"	47085
* A3	567	5	STR.	18'-6"	10941	A52	1	5	STR.	13'-10"	14	* A3	762	5	STR.	18'-6"	14703
A4	567	5	STR.	13'-9"	8131	A53	1	5	STR.	11'-2"	12	A4	762	5	STR.	13'-9"	10928
* A5	1	5	STR.	16'-9"	17	A54	1	5	STR.	8'-7"	9	* A70	1	5	STR.	51'-7"	54
* A6	1	5	STR.	14'-2"	15	A55	1	5	STR.	5'-11"	6	* A71	1	5	STR.	37'-10"	39
* A7	1	5	STR.	11'-6"	12	A56	1	5	STR.	3'-3"	3	* A72	1	5	STR.	24'-1"	25
* A8	1	5	STR.	8'-11"	9	* A57	1	5	STR.	58'-0"	60	* A73	1	5	STR.	10'-4"	11
A9	1	5	STR.	12'-0"	13	* A58	1	5	STR.	38'-4"	40	A74	1	5	STR.	51'-7"	54
A10	1	5	STR.	9'-5"	10	* A59	1	5	STR.	18'-7"	19	* A75	1	5	STR.	37'-10"	39
A11	1	5	STR.	6'-9"	7	A60	1	5	STR.	58'-0"	60	A76	1	5	STR.	24'-1"	25
A12	1	5	STR.	4'-2"	4	A61	1	5	STR.	38'-4"	40	A77	1	5	STR.	10'-4"	11
* A13	1	5	STR.	58'-6"	61	A62	1	5	STR.	18'-7"	19	* A78	1	5	STR.	13'-0"	14
* A14	1	5	STR.	55'-10"	58						A79	1	5	STR.	8'-1"	8	
* A15	1	5	STR.	53'-3"	56	* B1	144	4	STR.	30'-0"	2886	* A80	1	5	STR.	58'-1"	61
* A16	1	5	STR.	50'-7"	53	B2	138	5	STR.	44'-3"	6369	* A81	1	5	STR.	32'-3"	34
* A17	1	5	STR.	48'-0"	50	* B3	96	8	STR.	46'-11"	12026	* A82	1	5	STR.	6'-5"	7
* A18	1	5	STR.	45'-4"	47	B4	138	8	STR.	45'-10"	16888	A83	1	5	STR.	58'-1"	61
* A19	1	5	STR.	42'-9"	45	* B5	94	8	STR.	38'-6"	9663	A84	1	5	STR.	32'-3"	34
* A20	1	5	STR.	40'-1"	42	B6	69	5	STR.	46'-10"	3370	A85	1	5	STR.	6'-5"	7
* A21	1	5	STR.	37'-6"	39	* B7	96	4	STR.	24'-3"	1555						
* A22	1	5	STR.	34'-10"	36	B8	138	8	STR.	44'-4"	16335	* B13	288	4	STR.	28'-7"	5499
* A23	1	5	STR.	32'-3"	34	* B9	96	8	STR.	45'-6"	11663	B14	276	5	STR.	42'-1"	12114
* A24	1	5	STR.	29'-7"	31	* B10	94	8	STR.	37'-1"	9307	* B15	288	8	STR.	44'-5"	34155
* A25	1	5	STR.	26'-11"	28	* B11	144	4	STR.	28'-1"	2701	B16	414	8	STR.	43'-4"	47900
* A26	1	5	STR.	24'-4"	25	B12	138	5	STR.	41'-3"	5937	* B17	192	4	STR.	22'-0"	2822
* A27	1	5	STR.	21'-8"	23	* B20	104	4	STR.	29'-3"	2032	B18	138	5	STR.	43'-3"	6225
* A28	1	5	STR.	19'-1"	20	* B21	98	4	STR.	28'-7"	1871	* B19	282	8	STR.	36'-0"	27106
* A29	1	5	STR.	16'-5"	17						* B22	136	4	STR.	30'-0"	2725	
* A30	1	5	STR.	13'-10"	14	* G1	4	5	STR.	37'-6"	156	* B23	126	4	STR.	28'-10"	2427
* A31	1	5	STR.	11'-2"	12	* G2	354	4	STR.	8'-9"	2069						
* A32	1	5	STR.	8'-7"	9	* G3	372	4	STR.	7'-3"	1802	* G1	4	5	STR.	37'-6"	156
* A33	1	5	STR.	5'-11"	6						* G2	477	4	STR.	8'-9"	2788	
* A34	1	5	STR.	3'-3"	3	* J1	110	4	7	1'-5"	104	* G3	482	4	STR.	7'-3"	2334
A35	1	5	STR.	58'-6"	61												
A36	1	5	STR.	55'-10"	58	* K1	24	8	2	20'-2"	1292	* K1	24	8	2	20'-2"	1292
A37	1	5	STR.	53'-3"	56	* K2	8	8	1	13'-4"	285	* K2	8	8	1	13'-4"	285
A38	1	5	STR.	50'-7"	53	* K3	14	4	STR.	5'-2"	48						
A39	1	5	STR.	48'-0"	50	K4	28	4	STR.	6'-7"	123	* K1	24	8	2	20'-2"	1292
A40	1	5	STR.	45'-4"	47	K5	140	4	STR.	8'-2"	764	* K2	8	8	1	13'-4"	285
A41	1	5	STR.	42'-9"	45	K6	28	4	STR.	5'-2"	97	K4	42	4	STR.	6'-7"	185
A42	1	5	STR.	40'-1"	42	K7	42	4	STR.	23'-1"	648	K5	210	4	STR.	8'-2"	1146
A43	1	5	STR.	37'-6"	39						K6	42	4	STR.	5'-2"	145	
A44	1	5	STR.	34'-10"	36	* S1	84	5	3	6'-1"	533	K7	63	4	STR.	23'-1"	971
A45	1	5	STR.	32'-3"	34	* S2	42	4	4	3'-1"	87						
A46	1	5	STR.	29'-7"	31	S3	28	4	6	11'-3"	210	* S1	84	5	3	6'-1"	533
A47	1	5	STR.	26'-11"	28	S4	416	4	5	2'-9"	764	S3	42	4	6	11'-3"	316
A48	1	5	STR.	24'-4"	25						S4	924	4	5	2'-9"	1697	
A49	1	5	STR.	21'-8"	23	U1	84	4	2	16'-8"	935						
						* U2	264	4	4	3'-8"	647	U1	126	4	2	16'-8"	1403
											* U2	347	4	4	3'-8"	850	

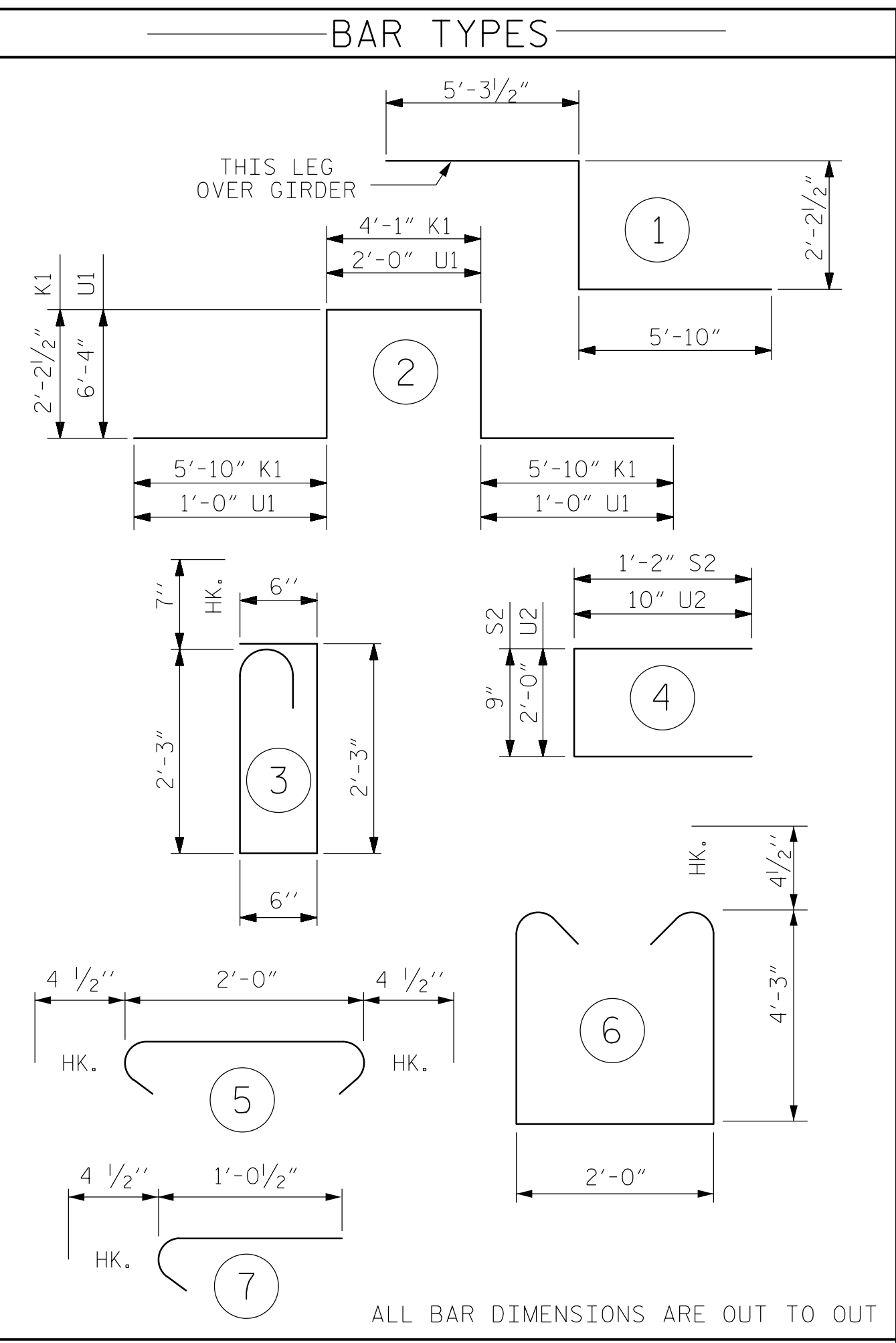
* EPOXY COATED REINFORCING STEEL

SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

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'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			

GROOVING BRIDGE FLOORS

APPROACH SLABS	1,424 SQ.FT.
BRIDGE DECK	42,989 SQ.FT.
TOTAL	44,413 SQ.FT.



PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 BILL OF MATERIAL**

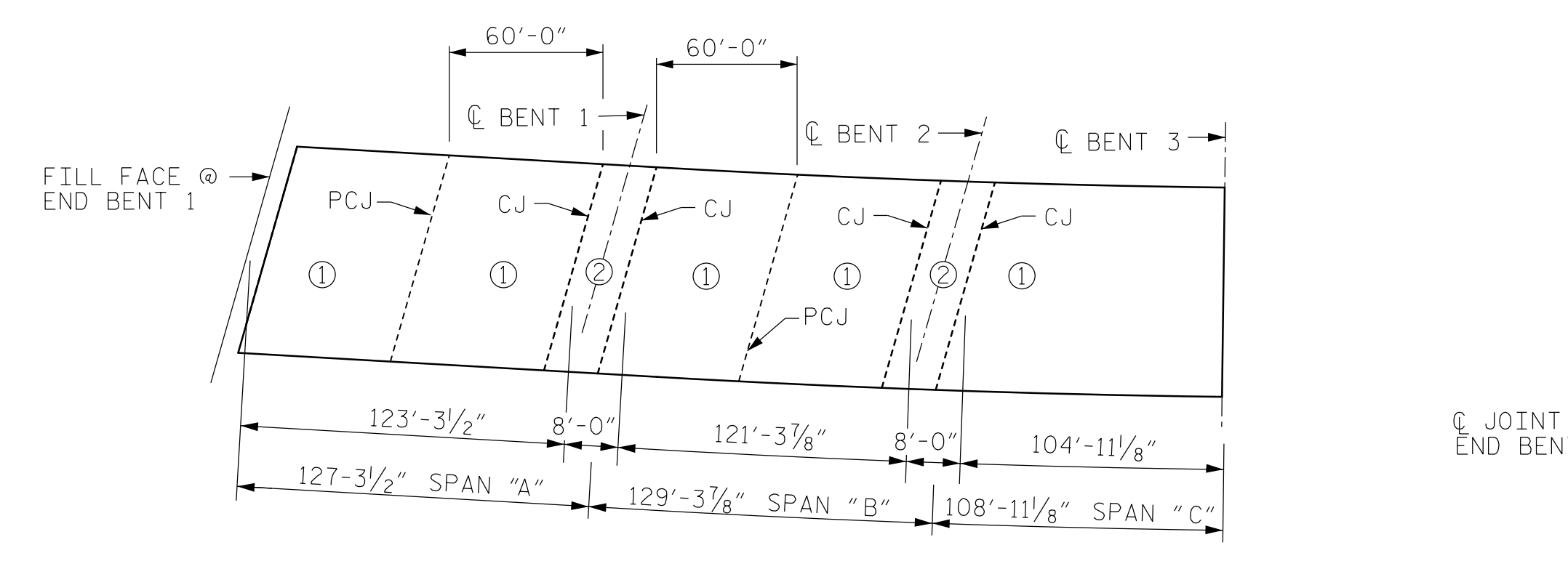
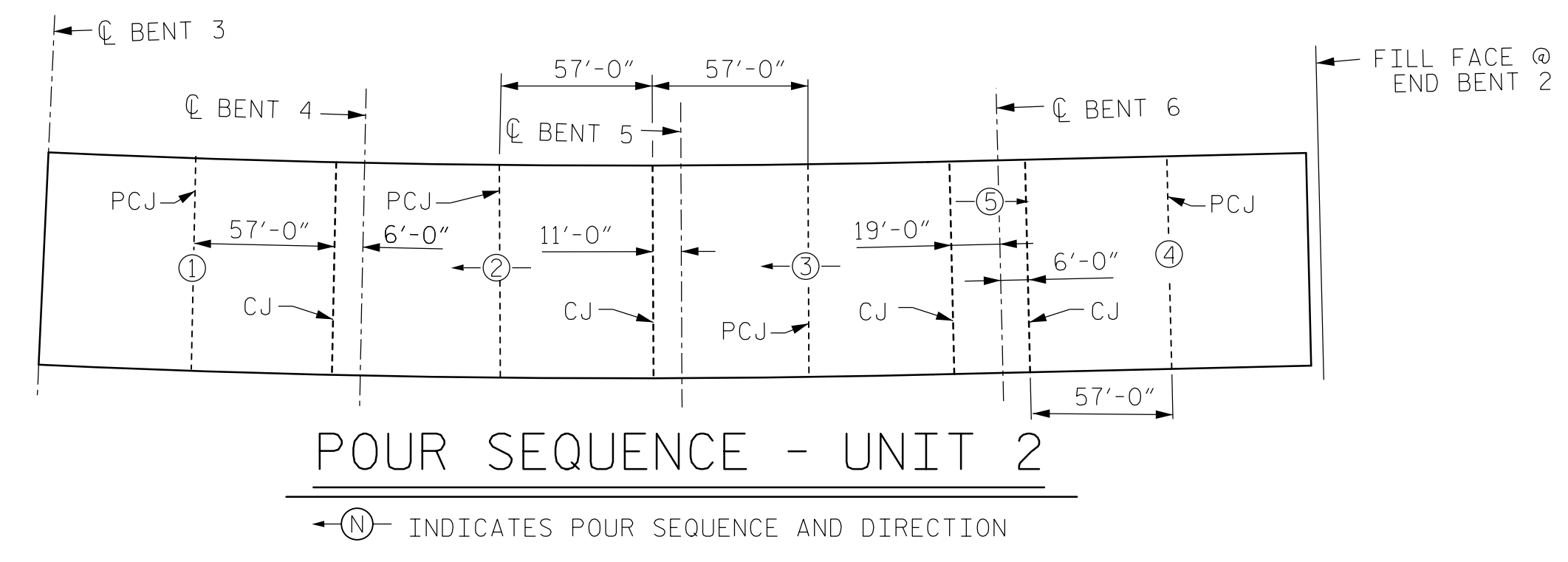
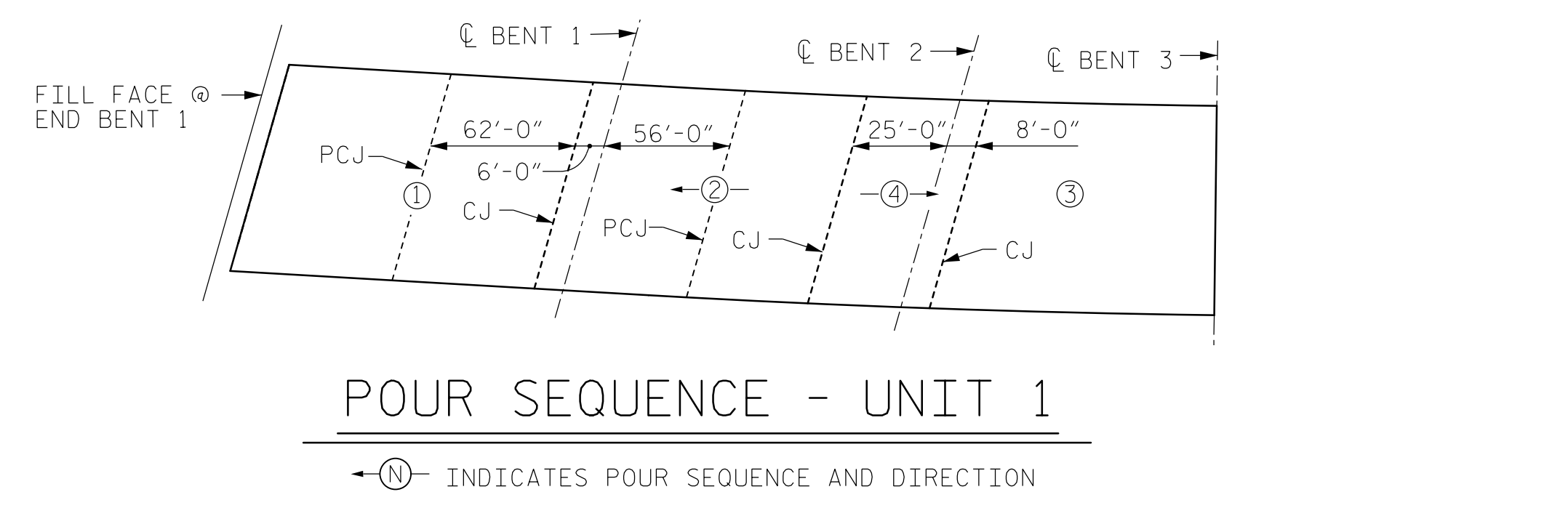
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REVISIONS						SHEET NO. S-49
NO.	BY:	DATE:	NO.	BY:	DATE:	
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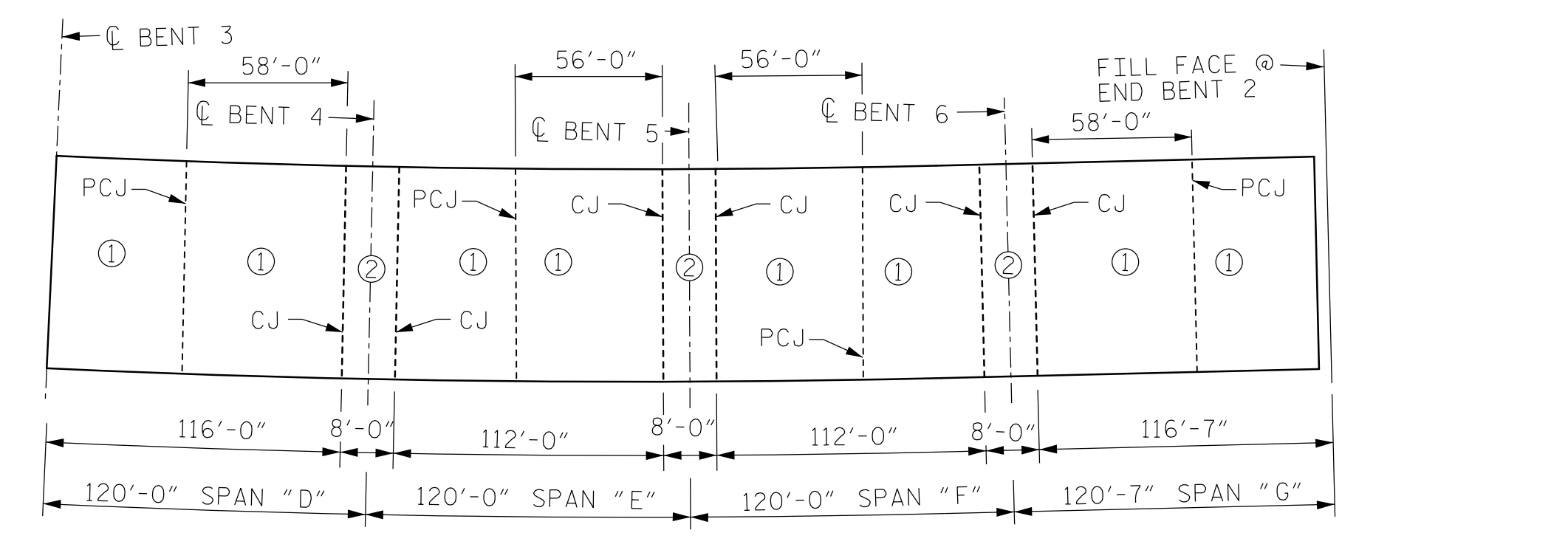
KCI ASSOCIATES OF NC, P.A.
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 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

JARED C. MEDLIN
 2/19/2015

DRAWN BY : R.J. FLORY DATE : 9/8/14
 CHECKED BY : R.C. LARSON DATE : 9/9/14



AT THE CONTRACTOR'S OPTION, THIS SEQUENCE MAY BE USED IN LIEU OF THE SEQUENCE SHOWN ON THE PLAN OF SPANS. DO NOT BEGIN ANY POUR 2 UNTIL ALL POURS 1 IN ADJACENT SPANS HAVE REACHED A STRENGTH OF 3000 PSI.



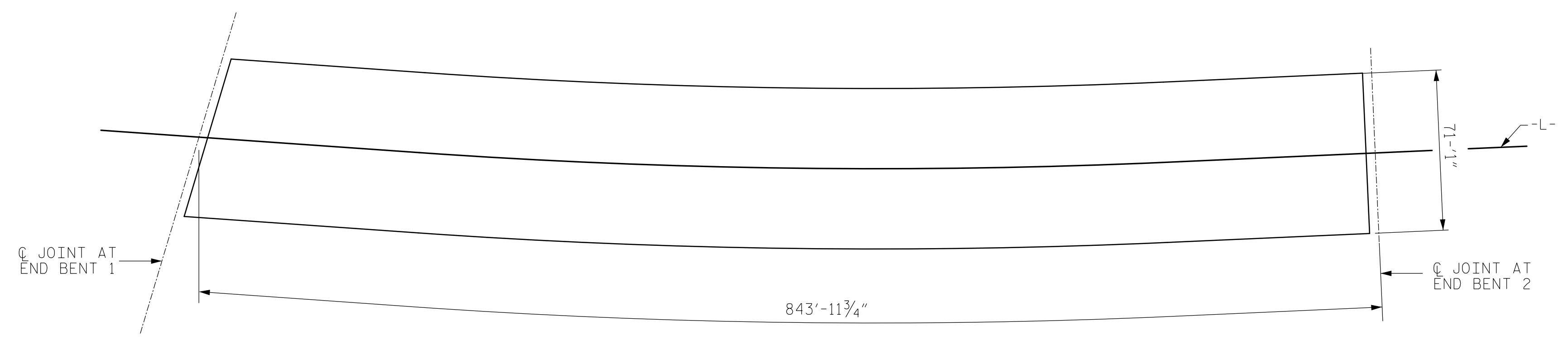
AT THE CONTRACTOR'S OPTION, THIS SEQUENCE MAY BE USED IN LIEU OF THE SEQUENCE SHOWN ON THE PLAN OF SPANS. DO NOT BEGIN ANY POUR 2 UNTIL ALL POURS 1 IN ADJACENT SPANS HAVE REACHED A STRENGTH OF 3000 PSI.

CJ = TRANSVERSE CONSTRUCTION JOINT
PCJ = PERMITTED TRANSVERSE CONSTRUCTION JOINT

—SUPERSTRUCTURE BILL OF MATERIAL—

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
UNIT 1			
POUR 1	283.4 †		
POUR 2	289.5		
POUR 3	237.9 †		
POUR 4	109.2		
TOTAL	920.0	96,670	105,156
UNIT 2			
POUR 1	268.7 †		
POUR 2	299.4		
POUR 3	292.4		
POUR 4	267.8 †		
POUR 5	89.8		
TOTAL	1218.1	130,354	141,593
TOTALS**	2138.1	227,024	246,749

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED
† INCLUDES CLOSURE POUR AT EXPANSION JOINT

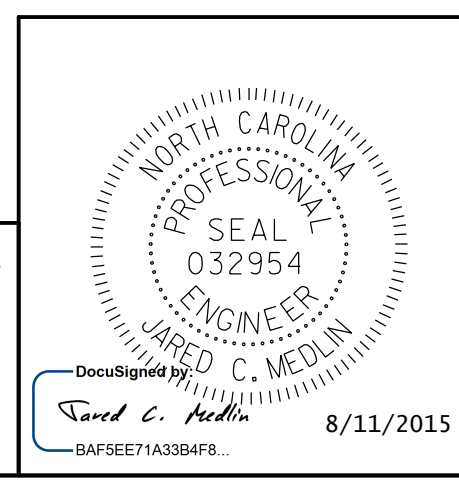


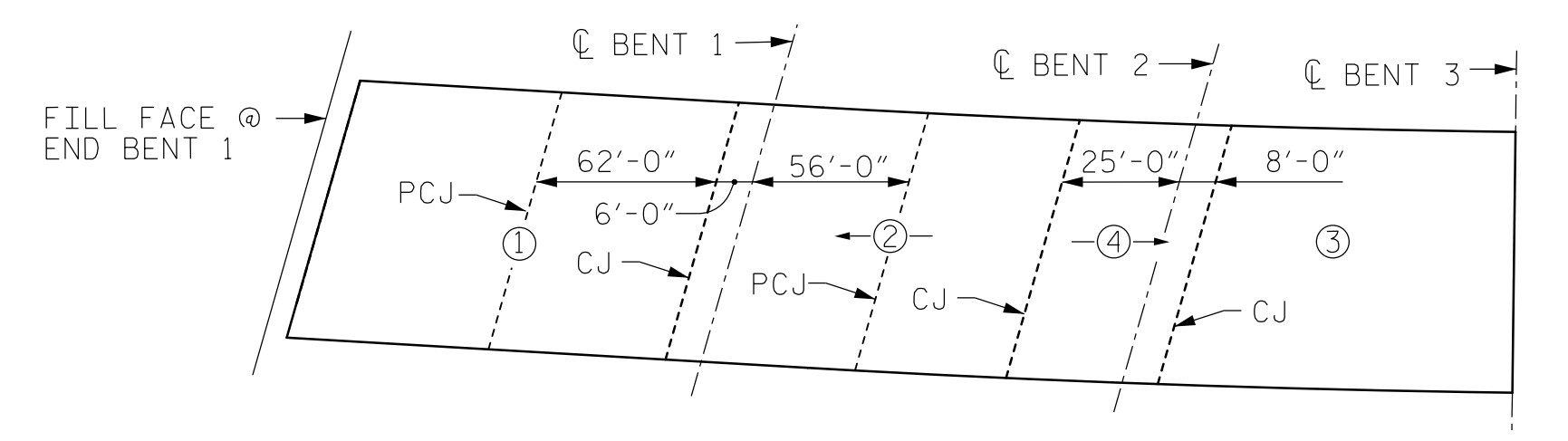
PROJECT NO. U-5008
MECKLENBURG COUNTY
STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-50
1			3			SHEETS 78
2			4			

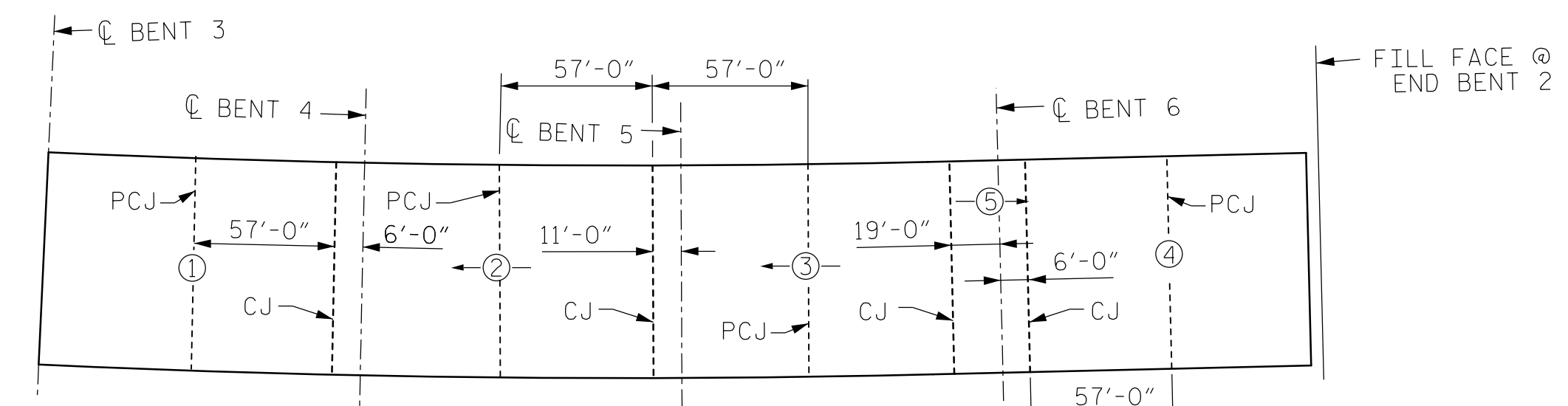
KCI ASSOCIATES OF NC, P.A.
9741 SOUTHERN PINE BLVD
SUITE J
CHARLOTTE, NC 28273
704-499-9452
NC LICENSE No. C-0764





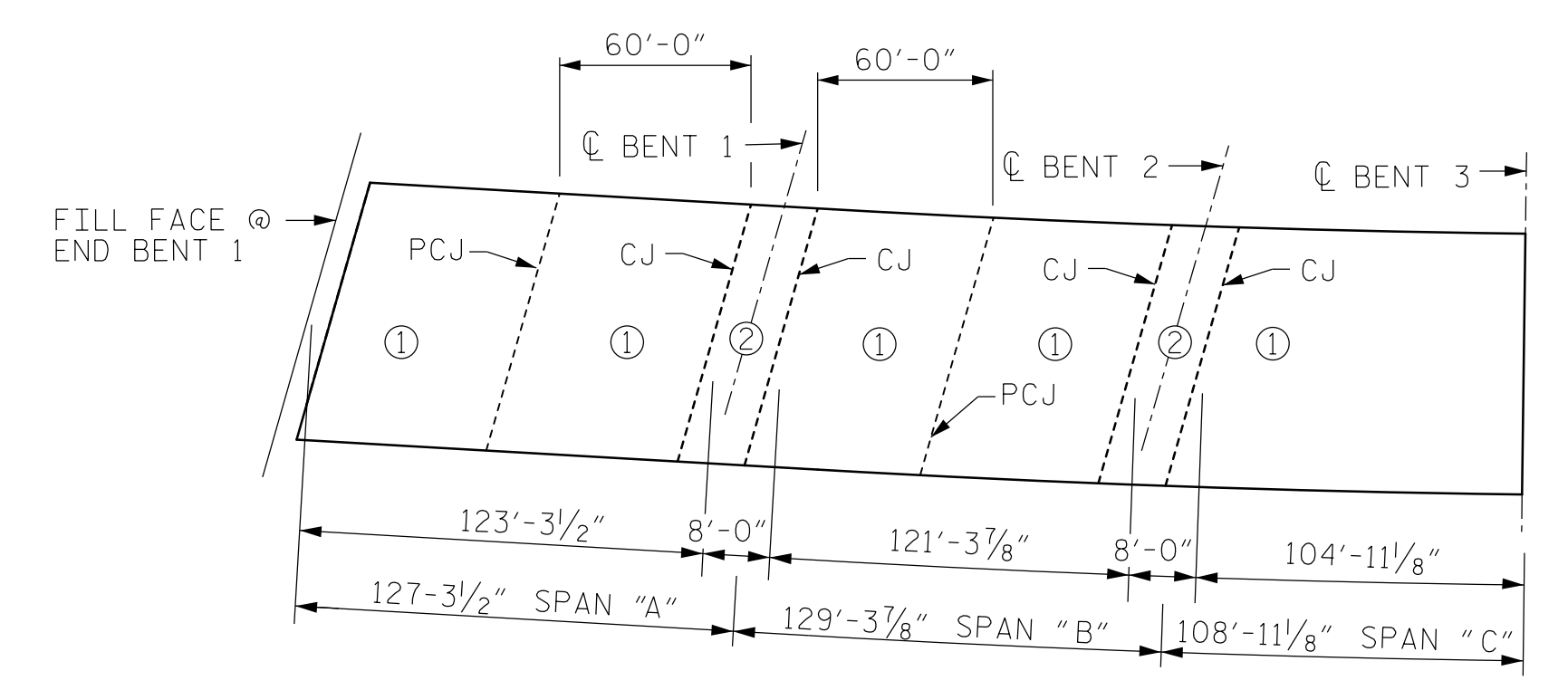
POUR SEQUENCE - UNIT 1

←(N) INDICATES POUR SEQUENCE AND DIRECTION



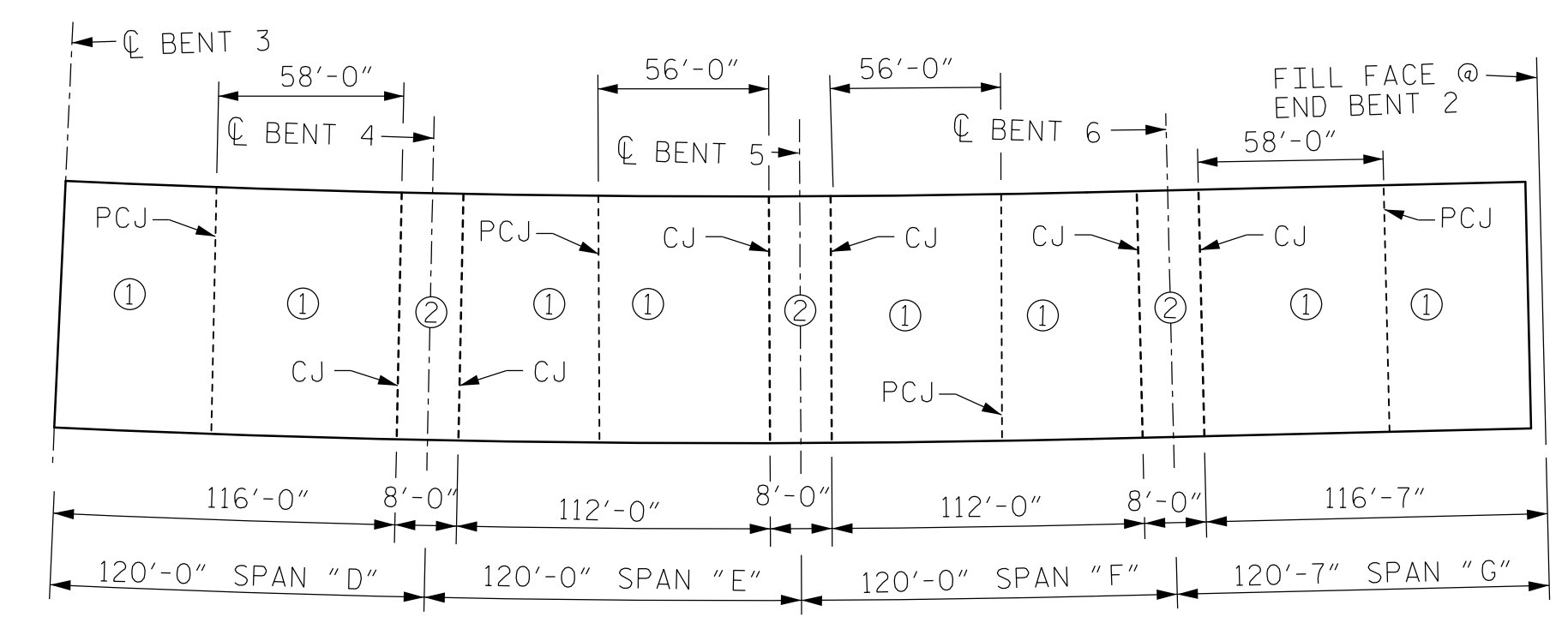
POUR SEQUENCE - UNIT 2

←(N) INDICATES POUR SEQUENCE AND DIRECTION



OPTIONAL POUR SEQUENCE - UNIT 1

AT THE CONTRACTOR'S OPTION, THIS SEQUENCE MAY BE USED IN LIEU OF THE SEQUENCE SHOWN ON THE PLAN OF SPANS. DO NOT BEGIN ANY POUR 2 UNTIL ALL POURS 1 IN ADJACENT SPANS HAVE REACHED A STRENGTH OF 3000 PSI.



OPTIONAL POUR SEQUENCE - UNIT 2

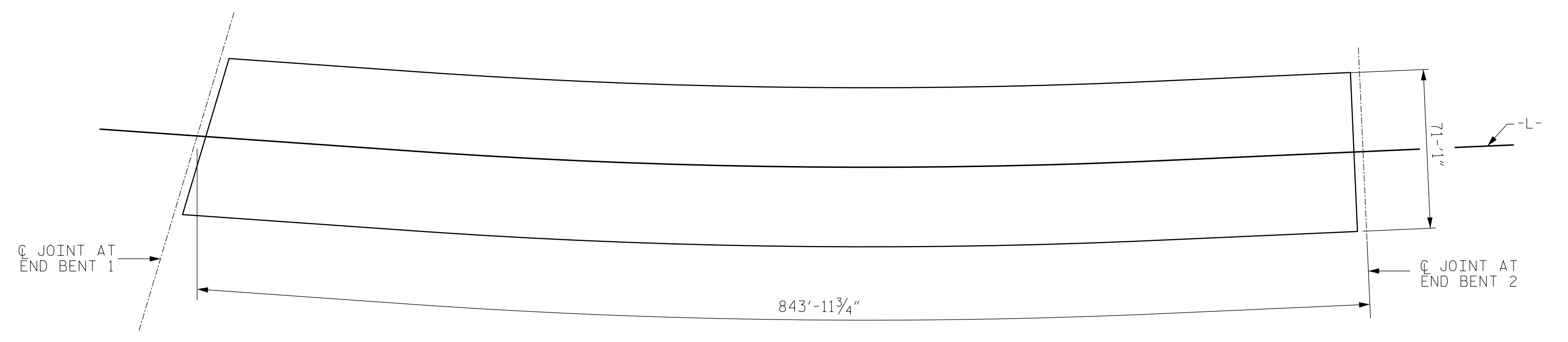
AT THE CONTRACTOR'S OPTION, THIS SEQUENCE MAY BE USED IN LIEU OF THE SEQUENCE SHOWN ON THE PLAN OF SPANS. DO NOT BEGIN ANY POUR 2 UNTIL ALL POURS 1 IN ADJACENT SPANS HAVE REACHED A STRENGTH OF 3000 PSI.

CJ = TRANSVERSE CONSTRUCTION JOINT
PCJ = PERMITTED TRANSVERSE CONSTRUCTION JOINT

—SUPERSTRUCTURE BILL OF MATERIAL—

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
UNIT 1			
POUR 1	283.4 †		
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POUR 3	237.9 †		
POUR 4	109.2		
TOTAL	920.0	96,670	105,156
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POUR 1	268.7 †		
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POUR 3	292.4		
POUR 4	267.8 †		
POUR 5	89.8		
TOTAL	1218.1	130,354	141,593
TOTALS**	2138.1	227,024	246,749

**QUANTITIES FOR BARRIER RAIL AND SIDEWALK ARE NOT INCLUDED
† INCLUDES CLOSURE POUR AT EXPANSION JOINT



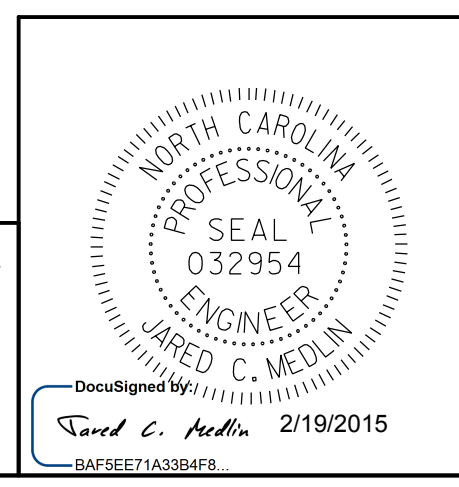
LAYOUT FOR COMPUTING
AREA REINFORCED CONCRETE
DECK SLAB
(SQ. FT. = 59,971)

PROJECT NO. U-5008
MECKLENBURG COUNTY
STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

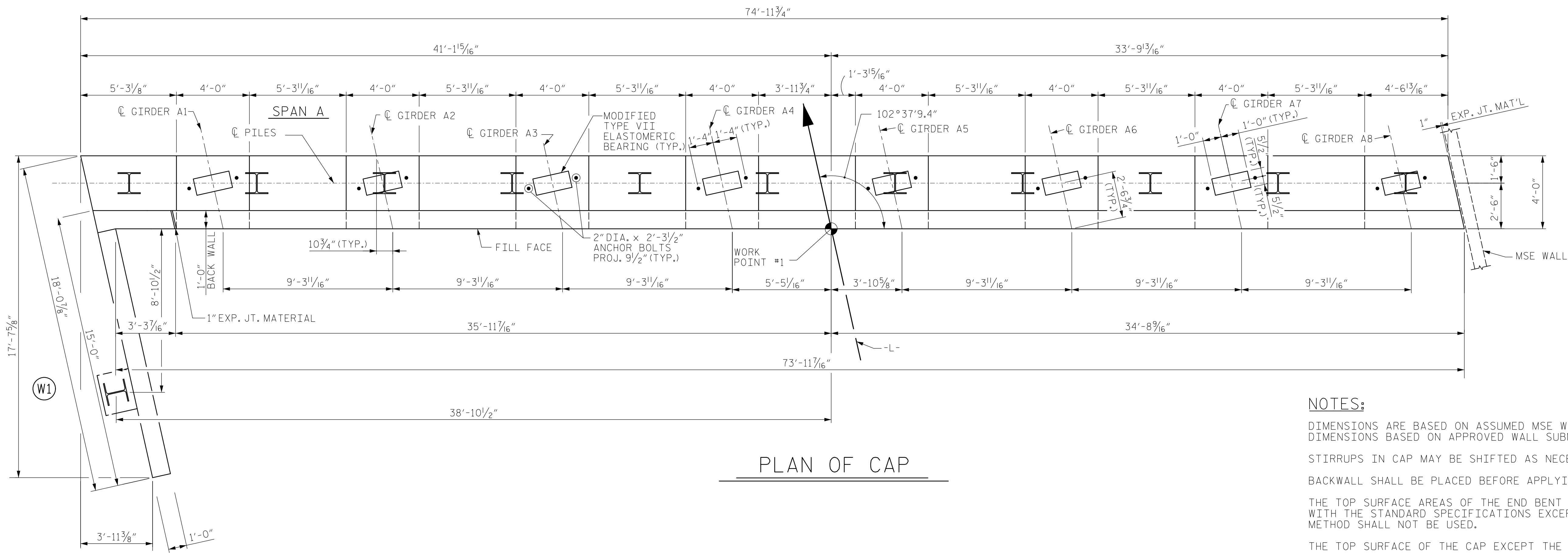
**SUPERSTRUCTURE
BILL OF MATERIAL**



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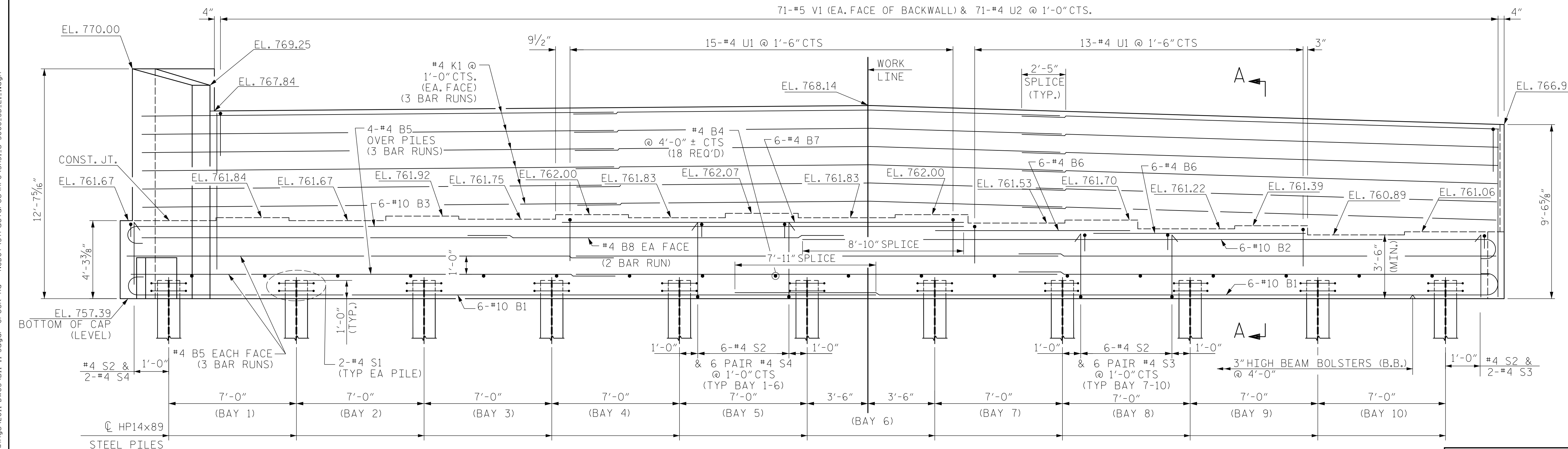
DRAWN BY : R.J. FLORY DATE : 9/8/14
CHECKED BY : R.C. LARSON DATE : 9/9/14



PLAN OF CAP

NOTES:

- DIMENSIONS ARE BASED ON ASSUMED MSE WALL THICKNESS OF 6". ADJUST DIMENSIONS BASED ON APPROVED WALL SUBMITTALS.
- 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 CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

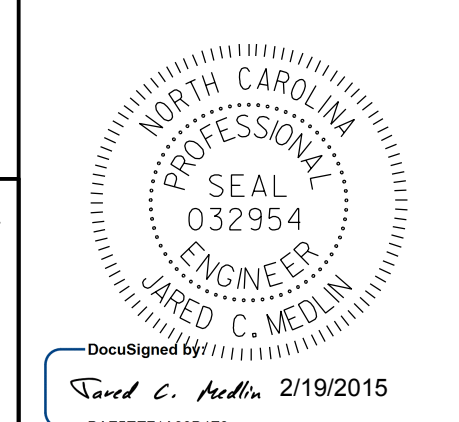


ELEVATION

PROJECT NO. U-5008
 MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
 14+54.24 -Y4- P.O.T.
 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

END BENT 1



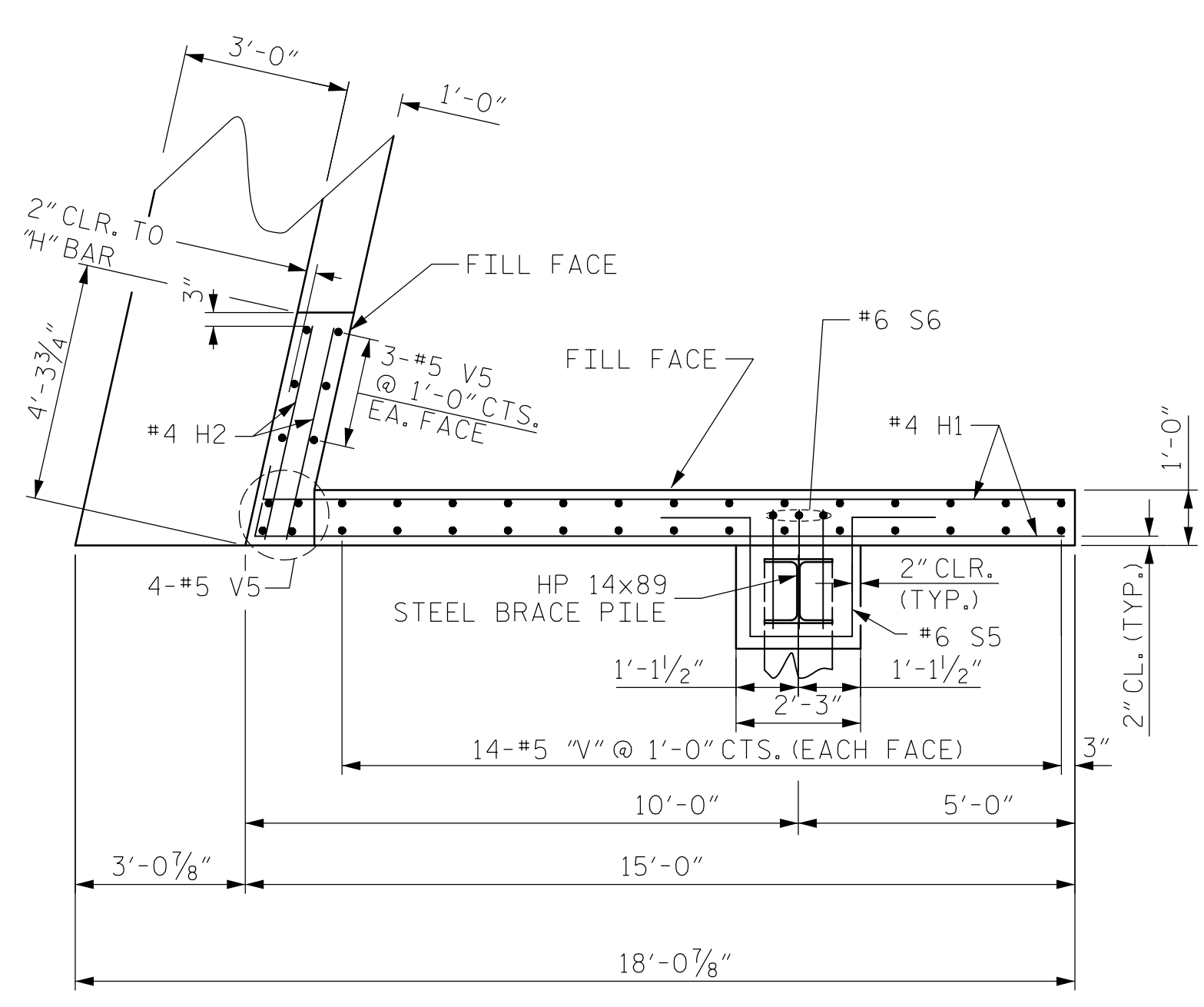
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 704-499-9452
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REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

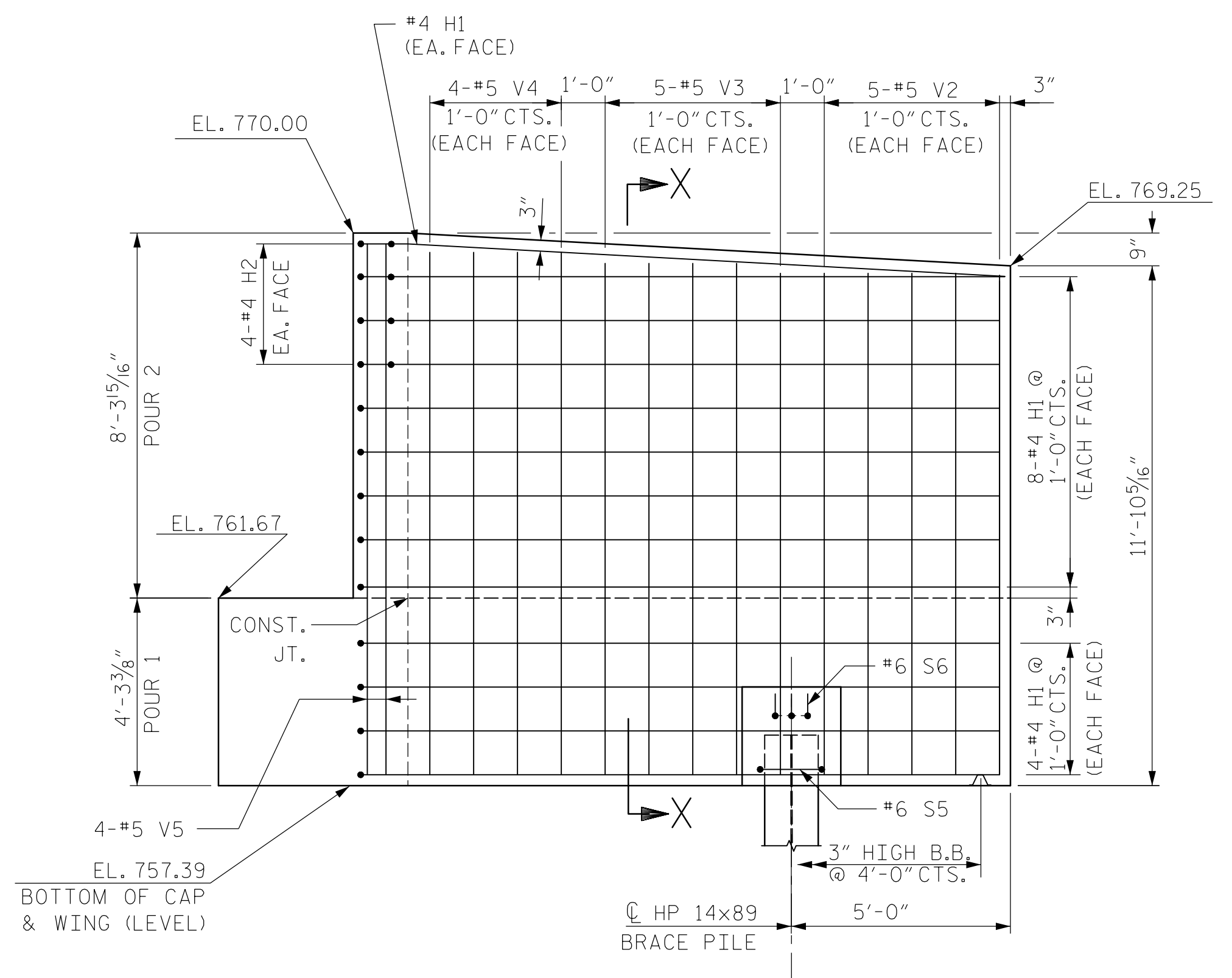
DRAWN BY: R.J. FLORY DATE: 10/03/14
 CHECKED BY: R.C. LARSON DATE: 10/06/14

SHEET NO. S-51
 SHEETS 78

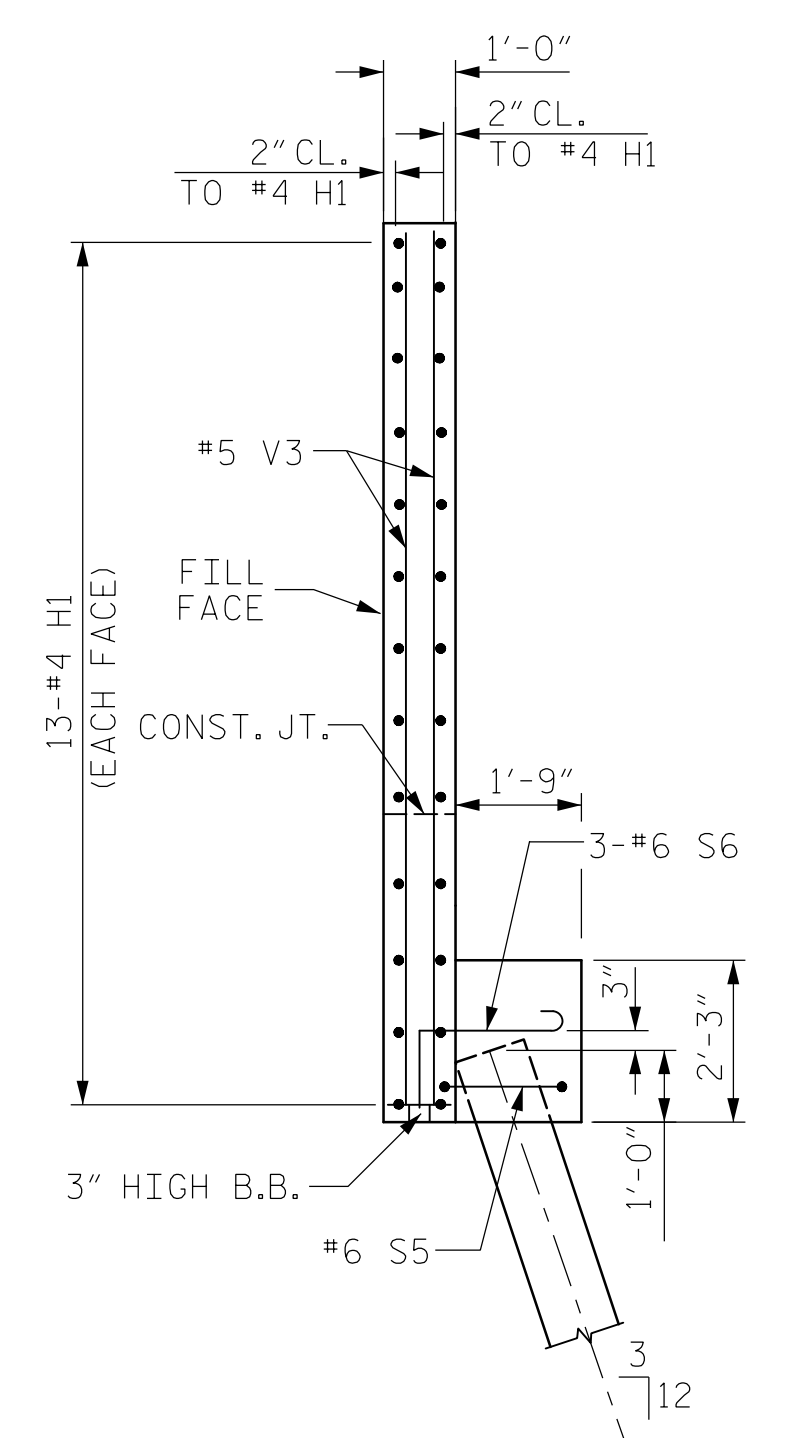
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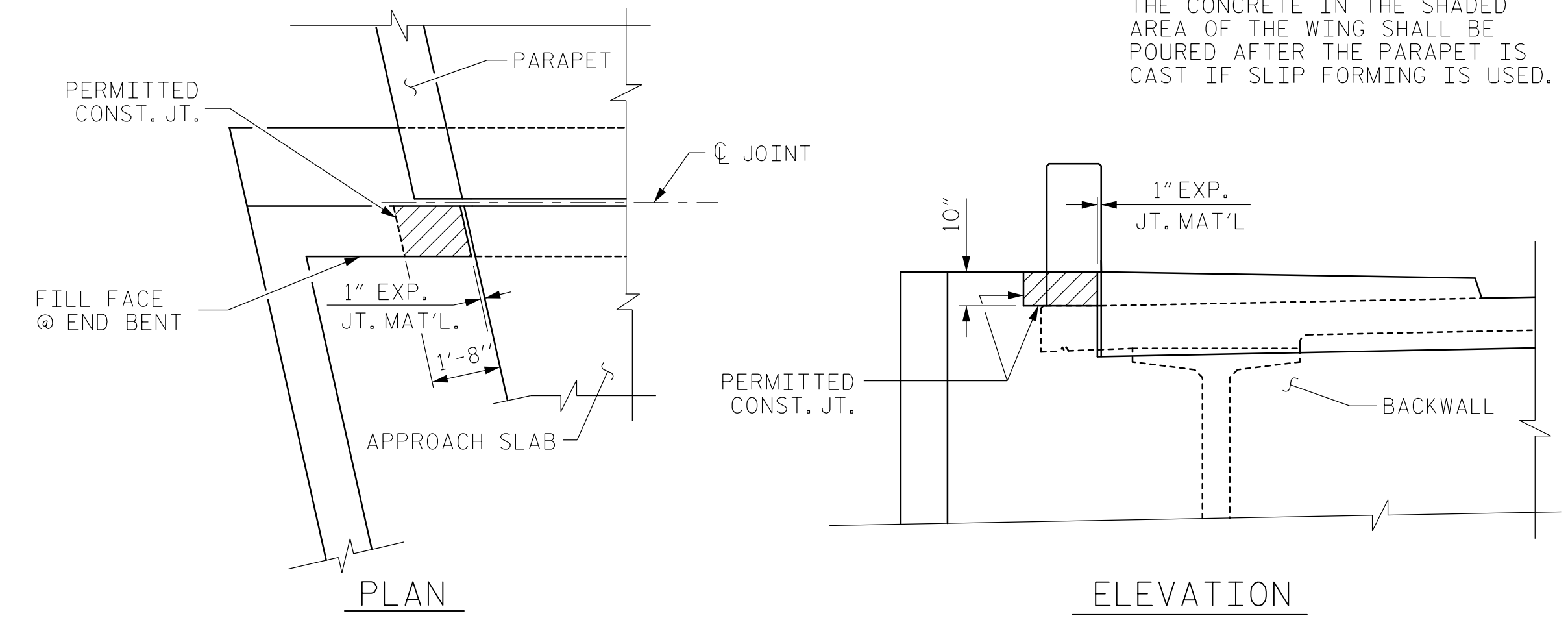
PLAN W1



ELEVATION W1

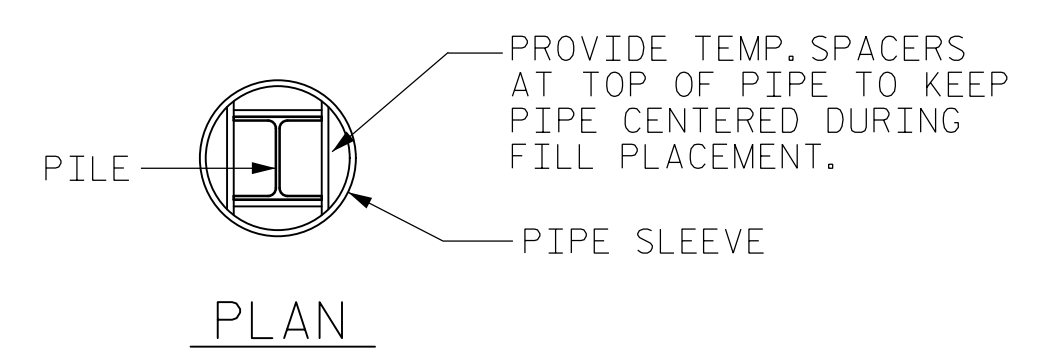


SECTION X-X

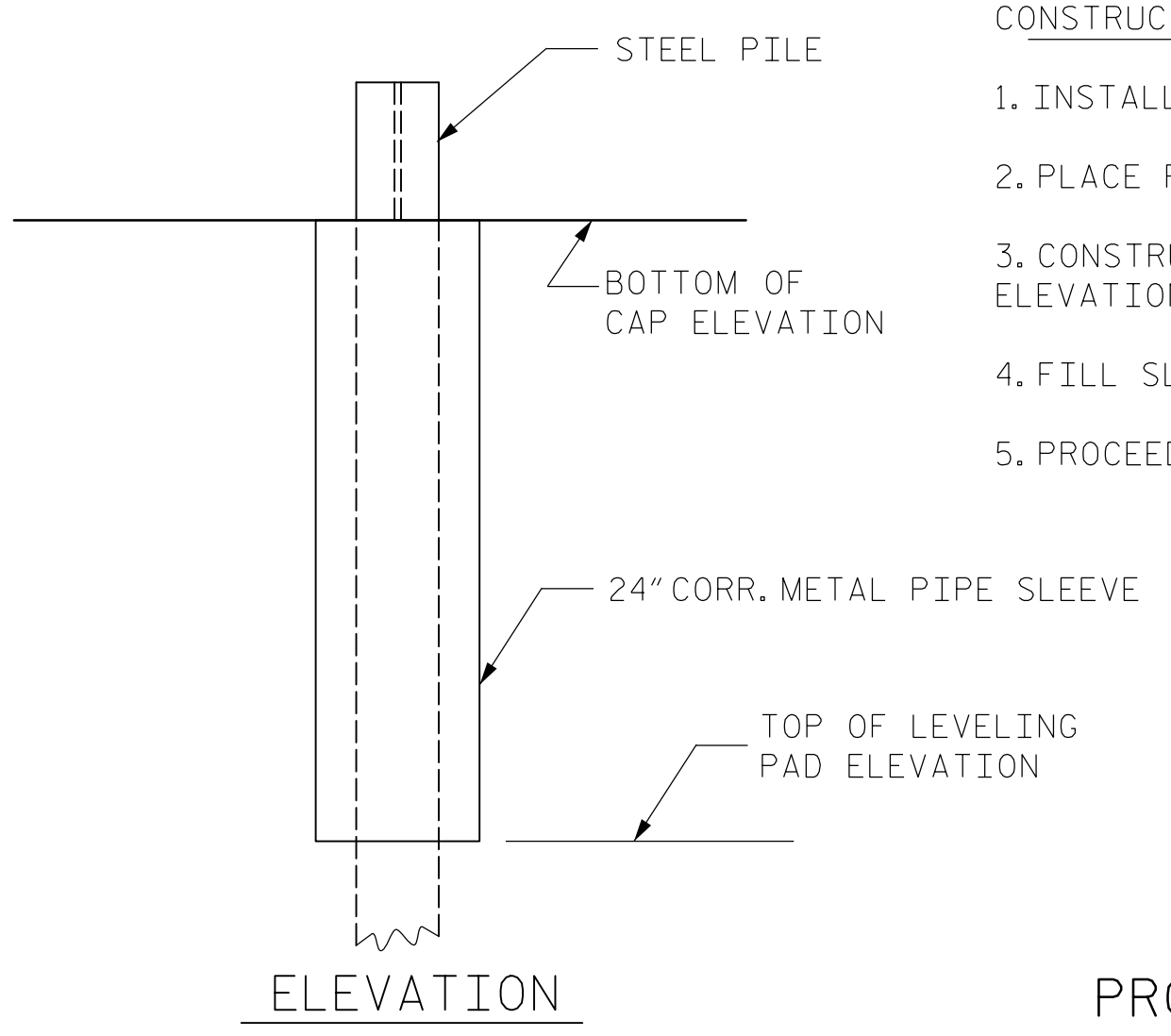


BLOCKOUT IN WING WALL

NOTE
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET IS CAST IF SLIP FORMING IS USED.



PILE PIPE SLEEVE DETAIL



(AT THE CONTRACTORS OPTION USE AN ALTERNATE METHOD TO ISOLATE PILE FROM BACKFILL. SEE MSE RETAINING WALL NOTES FOR ADDITIONAL INFORMATION)

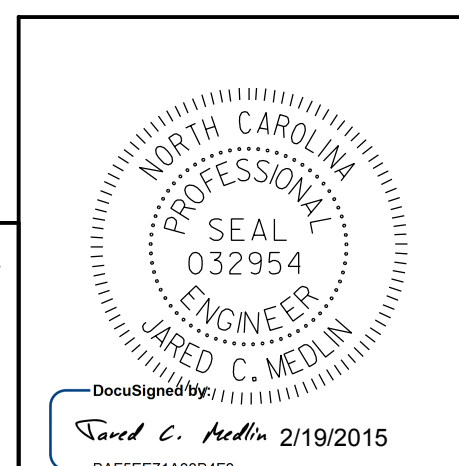
- CONSTRUCTION SEQUENCE:
1. INSTALL PILES TO REQUIRED RESISTANCE.
 2. PLACE PIPE SLEEVES ("CANS") AROUND PILES.
 3. CONSTRUCT MSE WALL AND BACKFILL TO ELEVATION OF BOTTOM OF CAP.
 4. FILL SLEEVES WITH CLEAN SAND.
 5. PROCEED WITH CONSTRUCTION OF END BENT.

PROJECT NO. U-5008
 MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

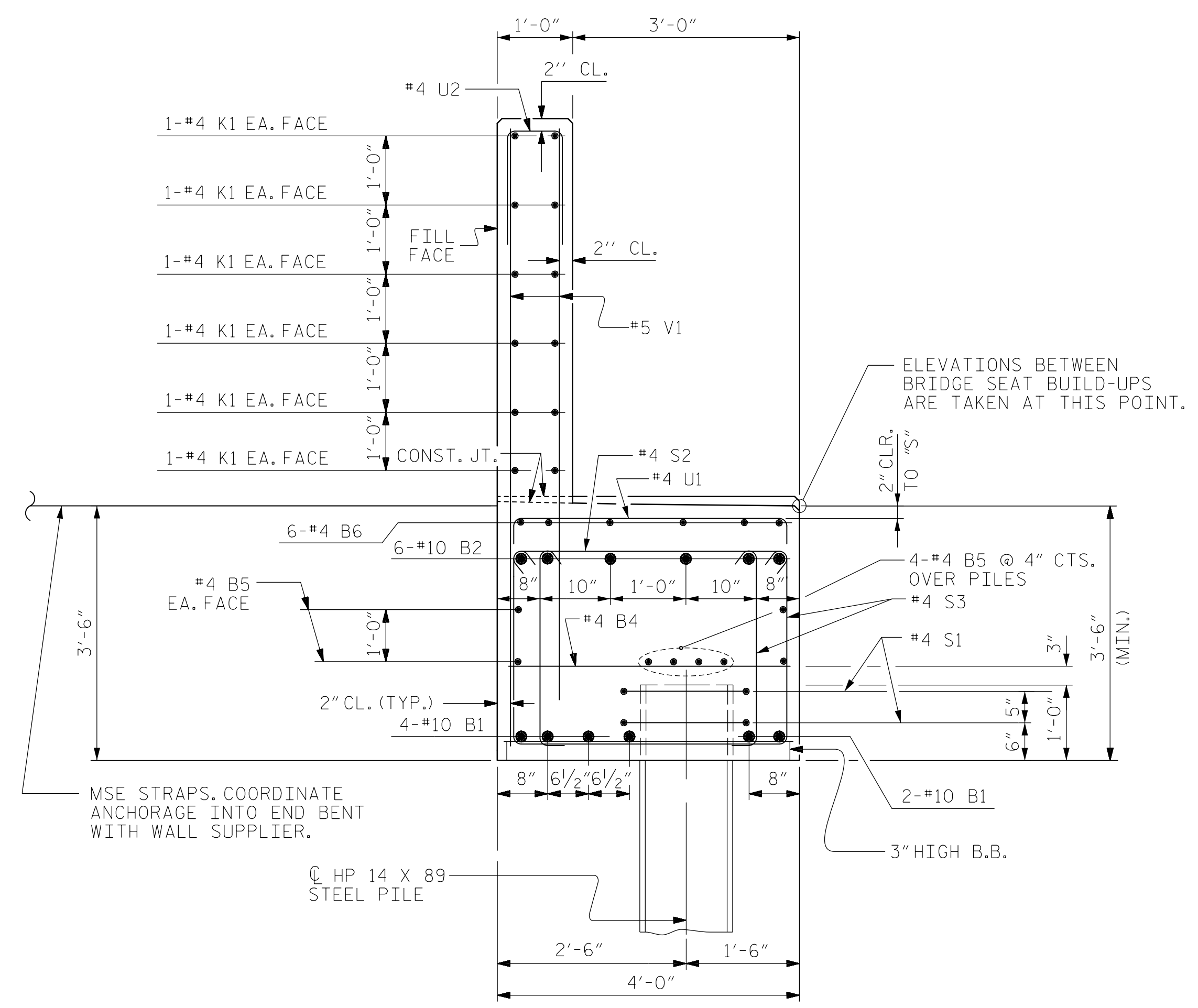
END BENT 1
 DETAILS

DRAWN BY : R.J. FLORY DATE : 10/03/14
 CHECKED BY : R.C. LARSON DATE : 10/06/14

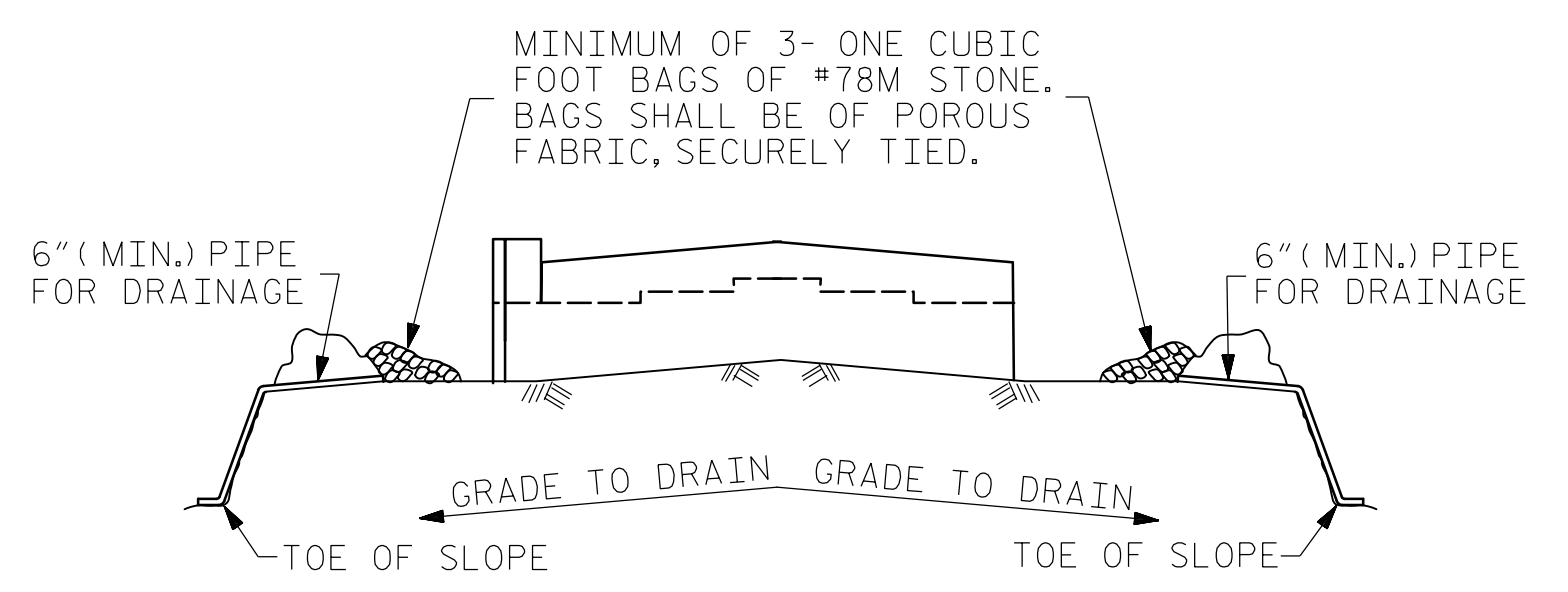


REVISIONS						SHEET NO. S-52
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			SHEETS 78
2			4			

0400DEL_P30



SECTION A-A



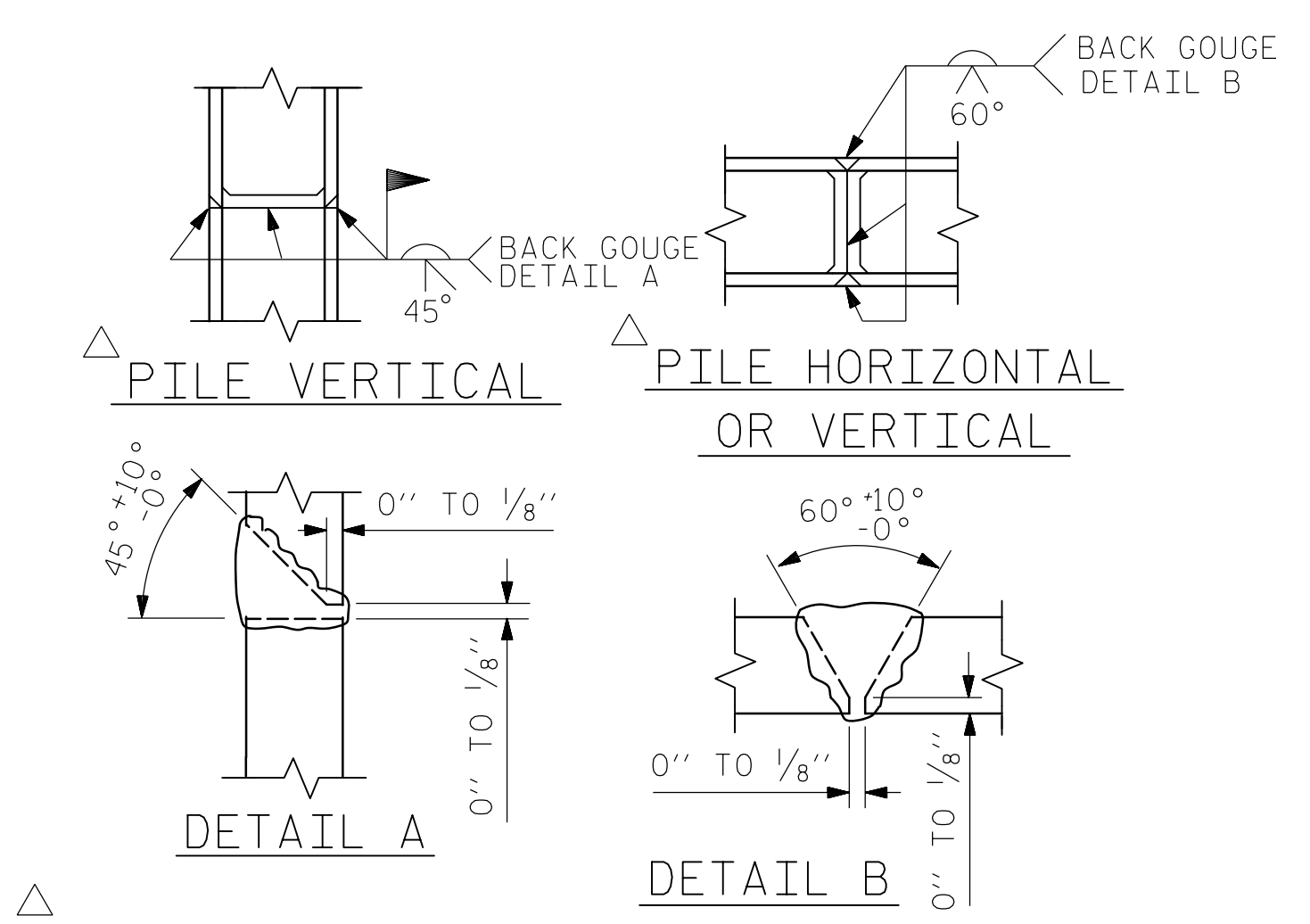
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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

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

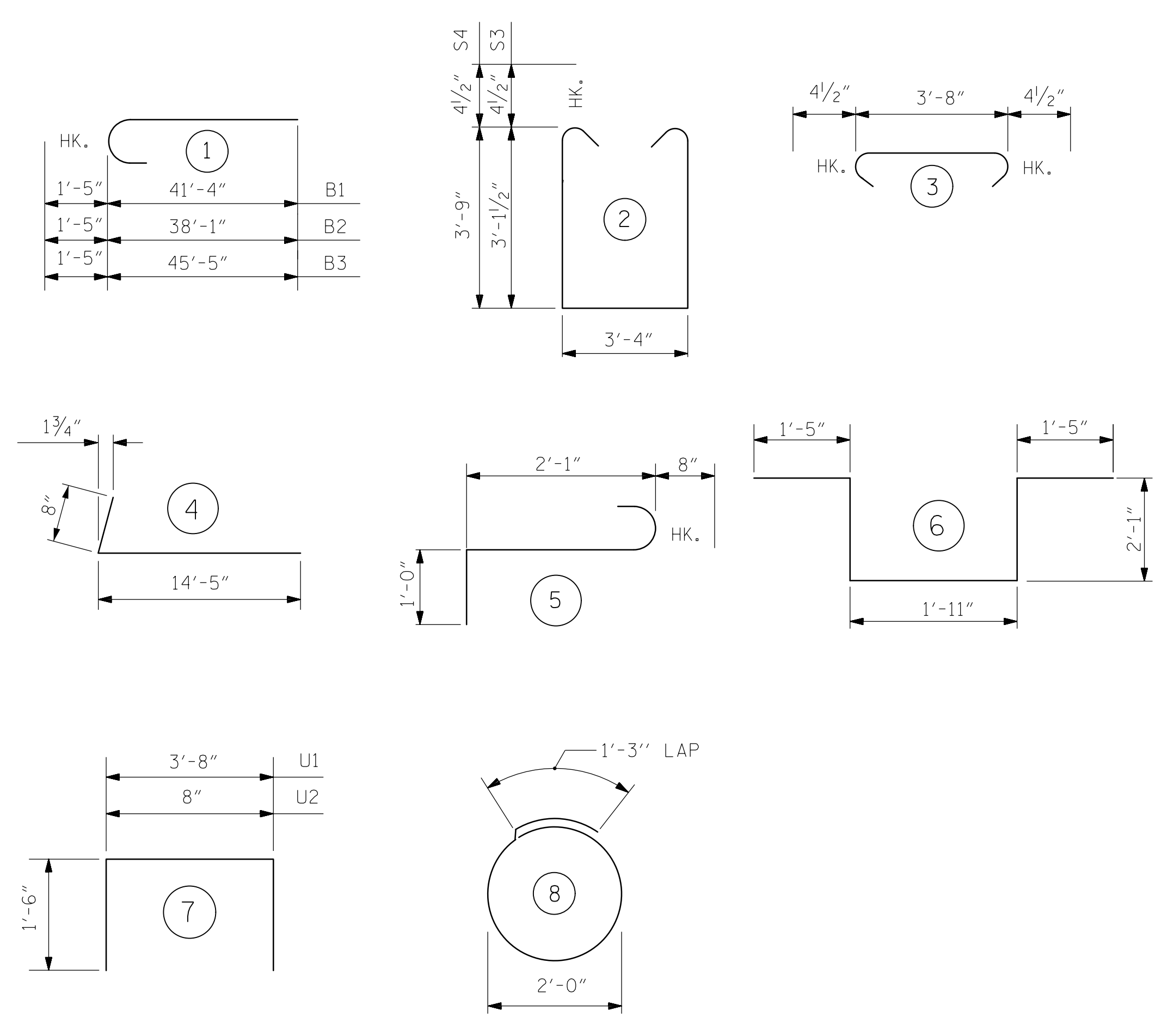
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	10	1	42'-9"	2207
B2	6	10	1	39'-6"	1020
B3	6	10	1	46'-11"	1211
B4	18	4	STR.	3'-8"	44
B5	24	4	STR.	26'-6"	425
B6	12	4	STR.	10'-3"	82
B7	6	4	STR.	22'-3"	89
B8	4	4	STR.	20'-9"	55
H1	26	4	4	15'-1"	262
H2	6	4	STR.	4'-0"	16
K1	36	4	STR.	26'-6"	637
S1	22	4	8	7'-7"	111
S2	62	4	3	4'-5"	183
S3	50	4	2	10'-4"	345
S4	74	4	2	11'-7"	573
S5	1	6	6	8'-11"	13
S6	3	6	5	3'-9"	17
U1	25	4	7	6'-8"	111
U2	71	4	7	3'-8"	174
V1	142	5	STR.	9'-3"	1370
V2	10	5	STR.	11'-7"	121
V3	10	5	STR.	11'-10"	123
V4	8	5	STR.	12'-1"	101
V5	10	5	STR.	12'-3"	128
REINFORCING STEEL, LBS					9418
CLASS A CONCRETE				POUR 1	49.8 CY
				POUR 2	21.5 CY
TOTAL					71.3 CY
HP 14X89 STEEL PILES, NO					12
LIN FT					720
STEEL PILE POINTS, EA.					12

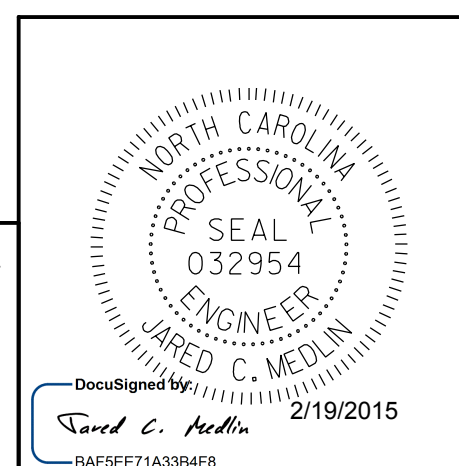
PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
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SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

END BENT 1
 DETAILS

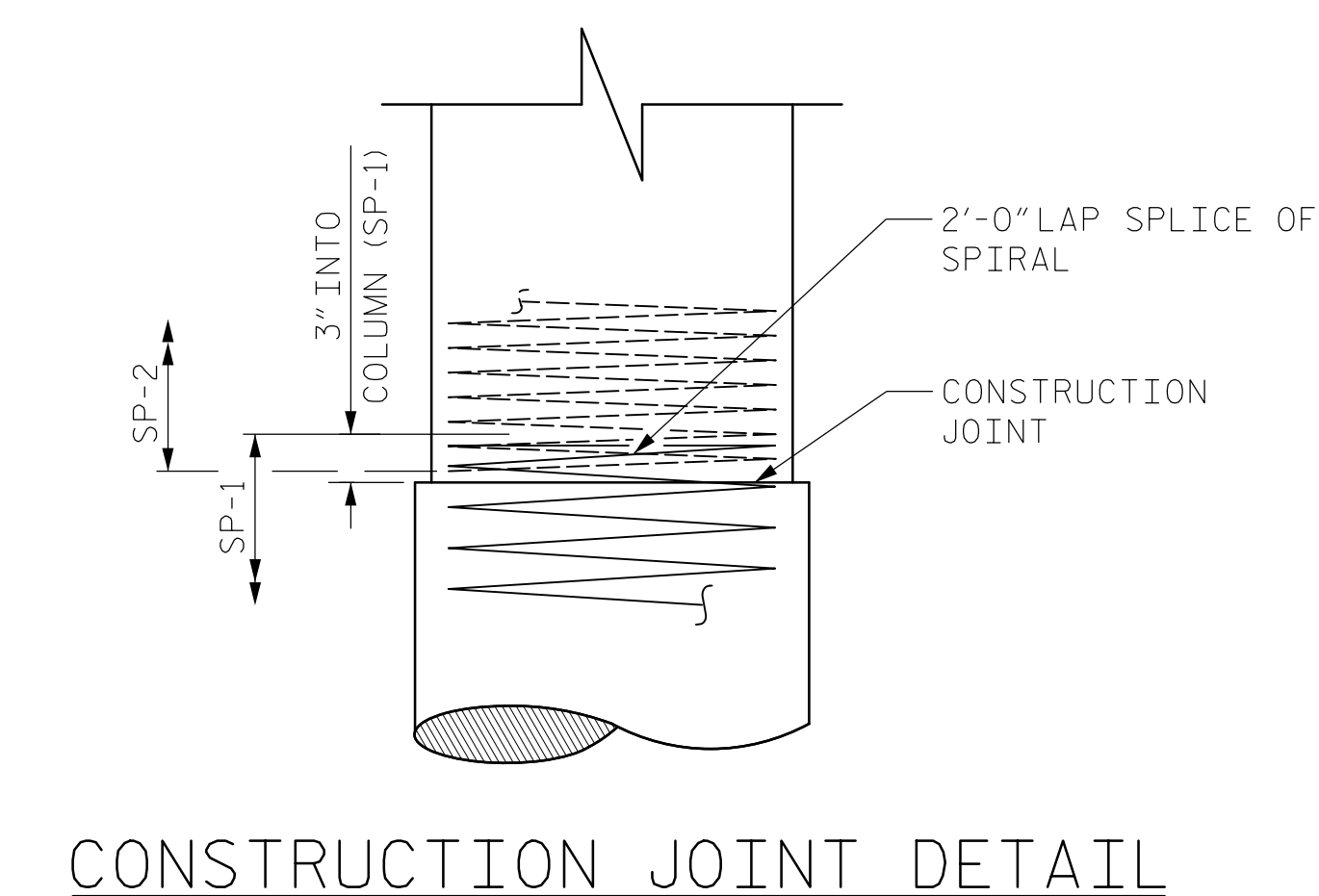
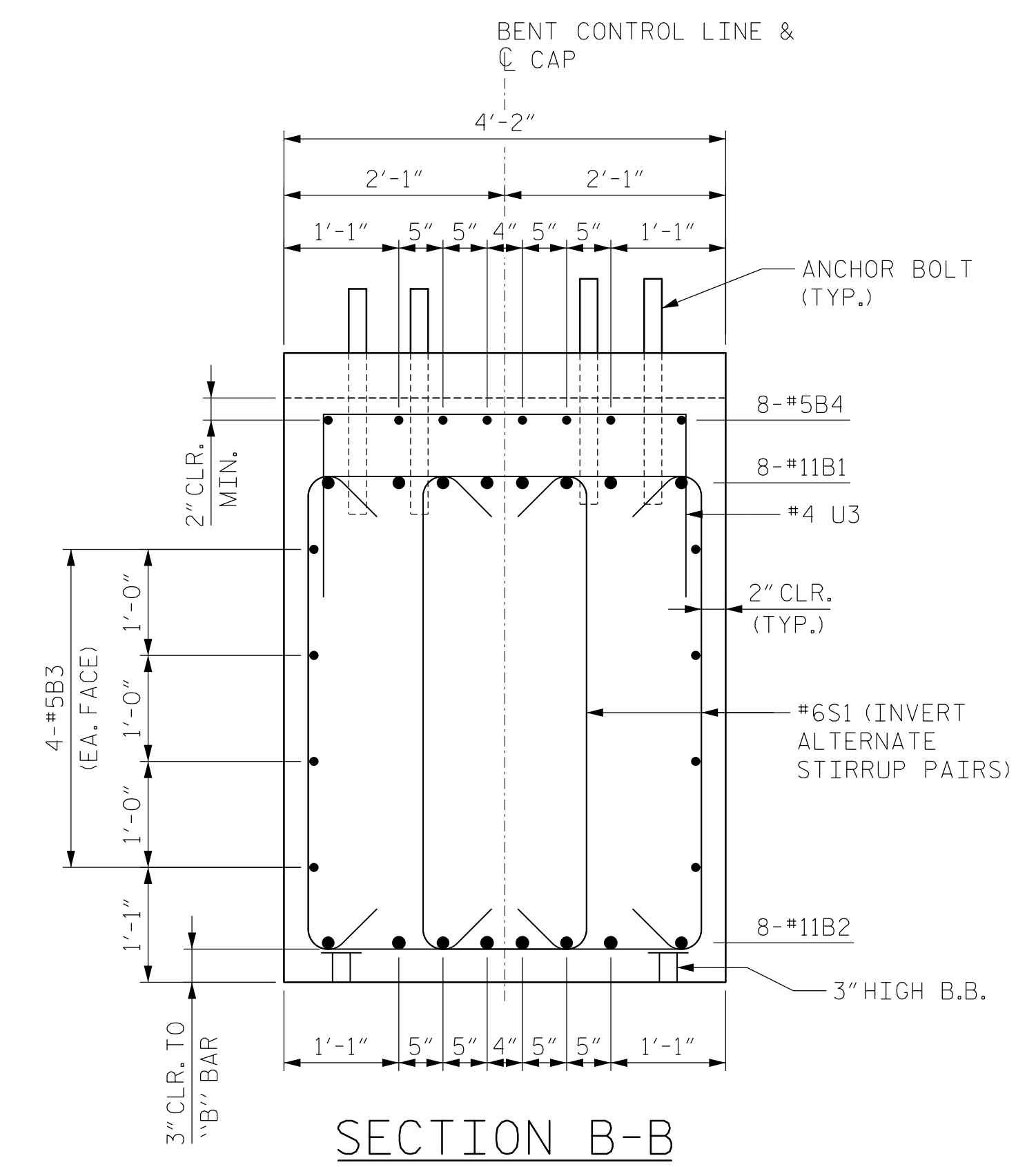
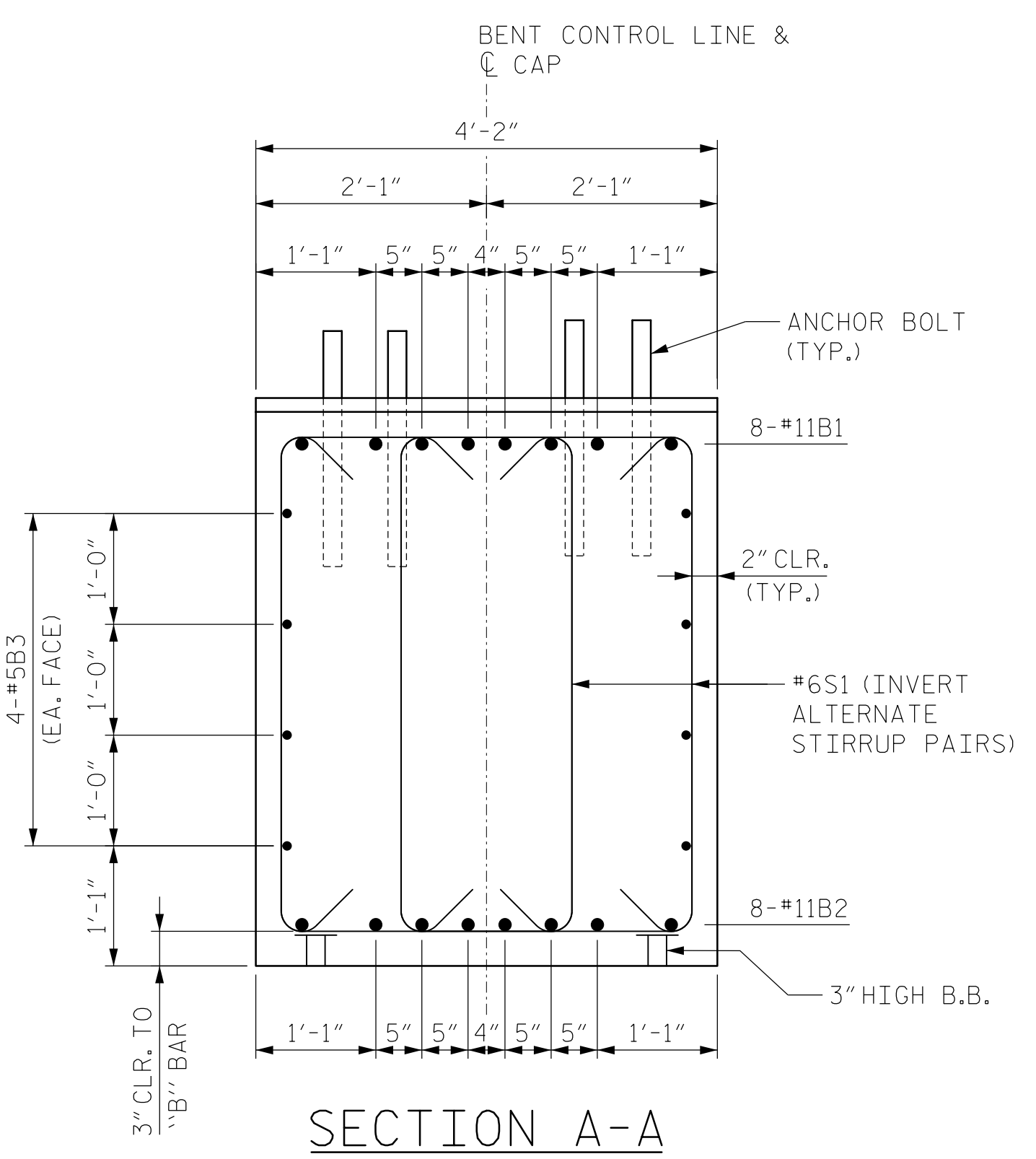
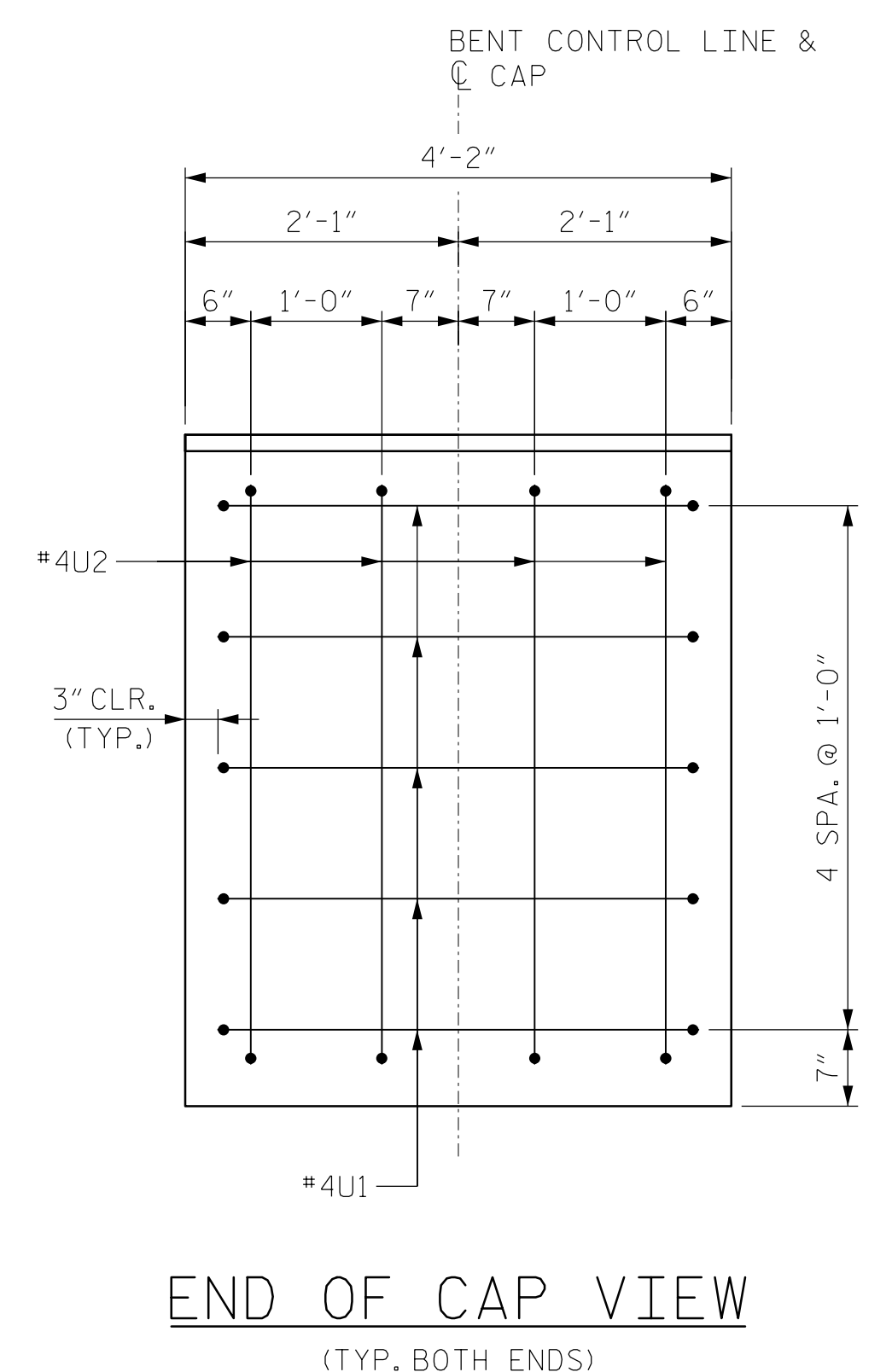
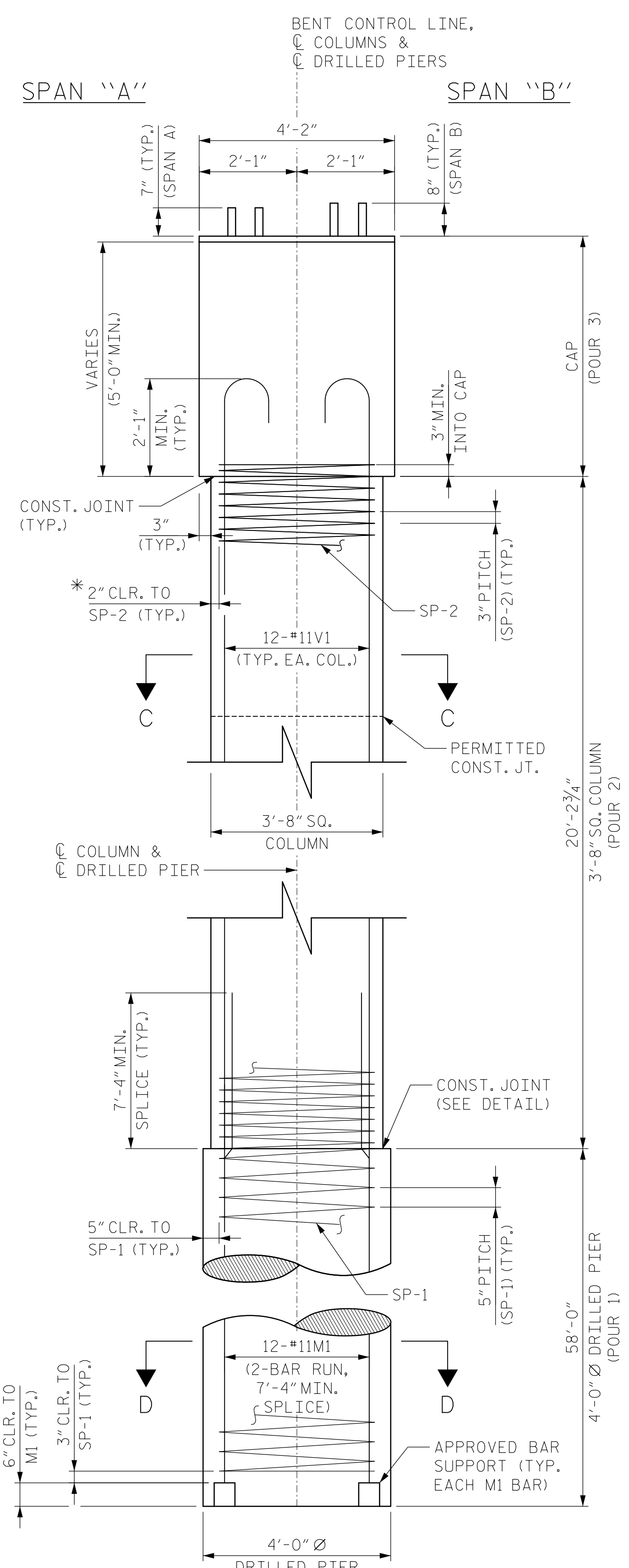
KCI ASSOCIATES OF NC, P.A.
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 SUITE J
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 704-499-9452
 NC LICENSE No. C-0764



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DJD DRAWN BY : R.J. FLORY DATE : 10/03/14
 CHECKED BY : R.C. LARSON DATE : 10/06/14



PROJECT NO. U-5008

MECKLENBURG COUNTY

STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.

SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT 1 DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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					SHEET NO. S-55
					SHEETS 78

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704-499-9452
NC LICENSE No. C-0764

NORTH CAROLINA
PROFESSIONAL
SEAL
032954
ENGINEER
JARED C. MEDLIN

DocuSigned by:
Jared C. Medlin
2/19/2015

2/18/2015 1:10:07 PM C:\Users\jmedlin\Documents\Projects\U-5008\Drawings\0400DEL_P30.dgn

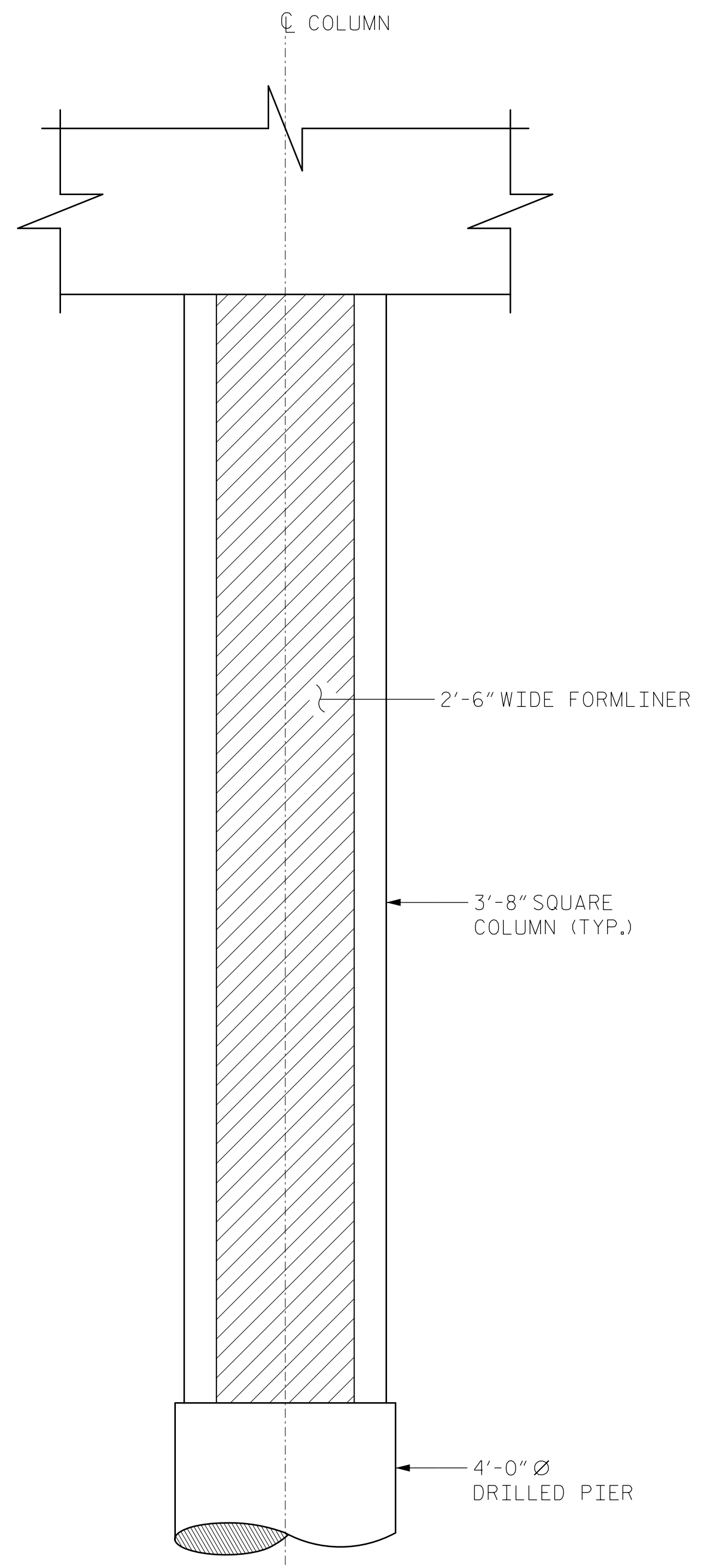
DRAWN BY: D.L.KEENER DATE: OCT. 2014
CHECKED BY: J.C.MEDLIN DATE: OCT. 2014

AESTHETIC DETAILS ON COLUMNS
NOT SHOWN, FOR CLARITY. SEE
SHEET 3 OF 3 FOR AESTHETIC DETAILS

* TO FORMLINER

0400DEL_P30

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ELEVATION

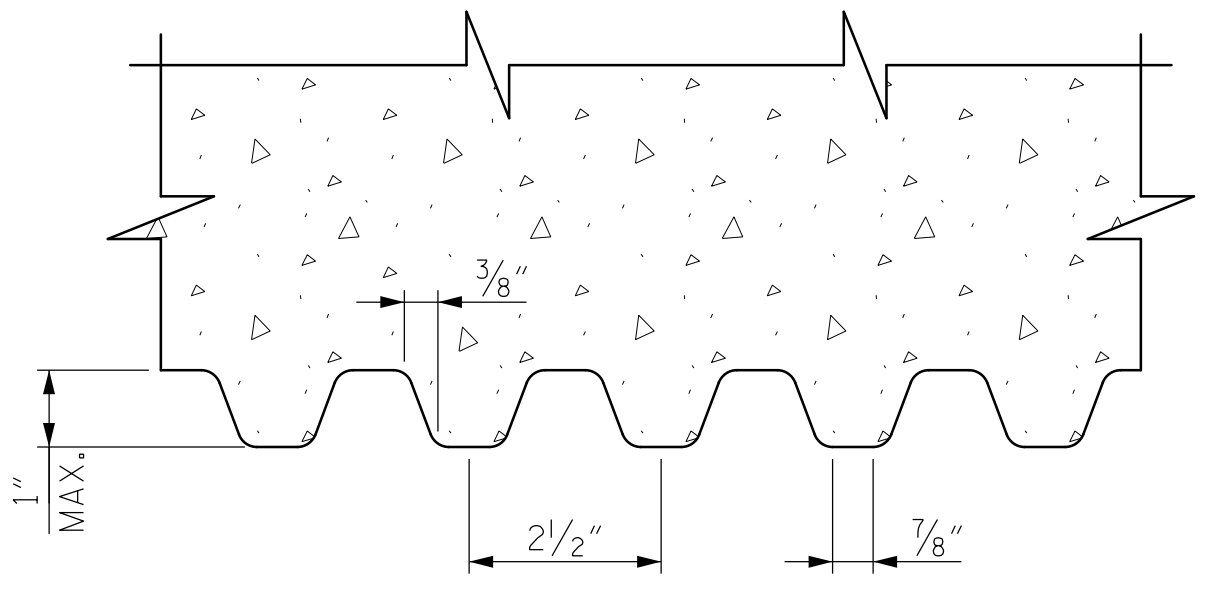
FORMLINER NOTES:

FOR ARCHITECTURAL CONCRETE SURFACE TREATMENT, SEE SPECIAL PROVISIONS.

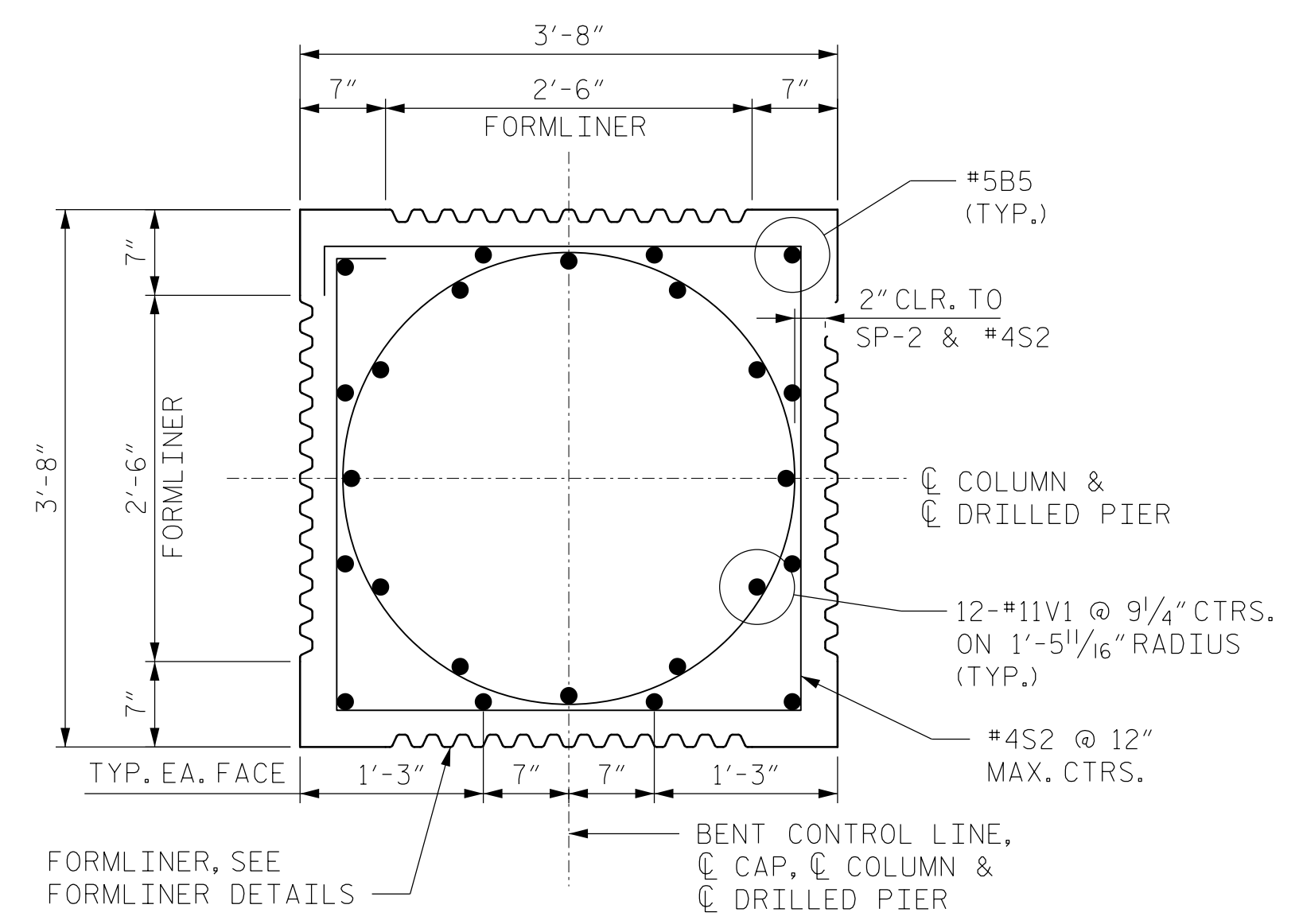
FORMLINER SHALL BE A 1" DEEP FRACTURED FIN CHEVRON PATTERN WITH FINS AT 2 1/2" ON CENTER, 7/8" FINS, 7/8" VALLEY, AND 3/8" DRAFT.

FORMLINER PATTERN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

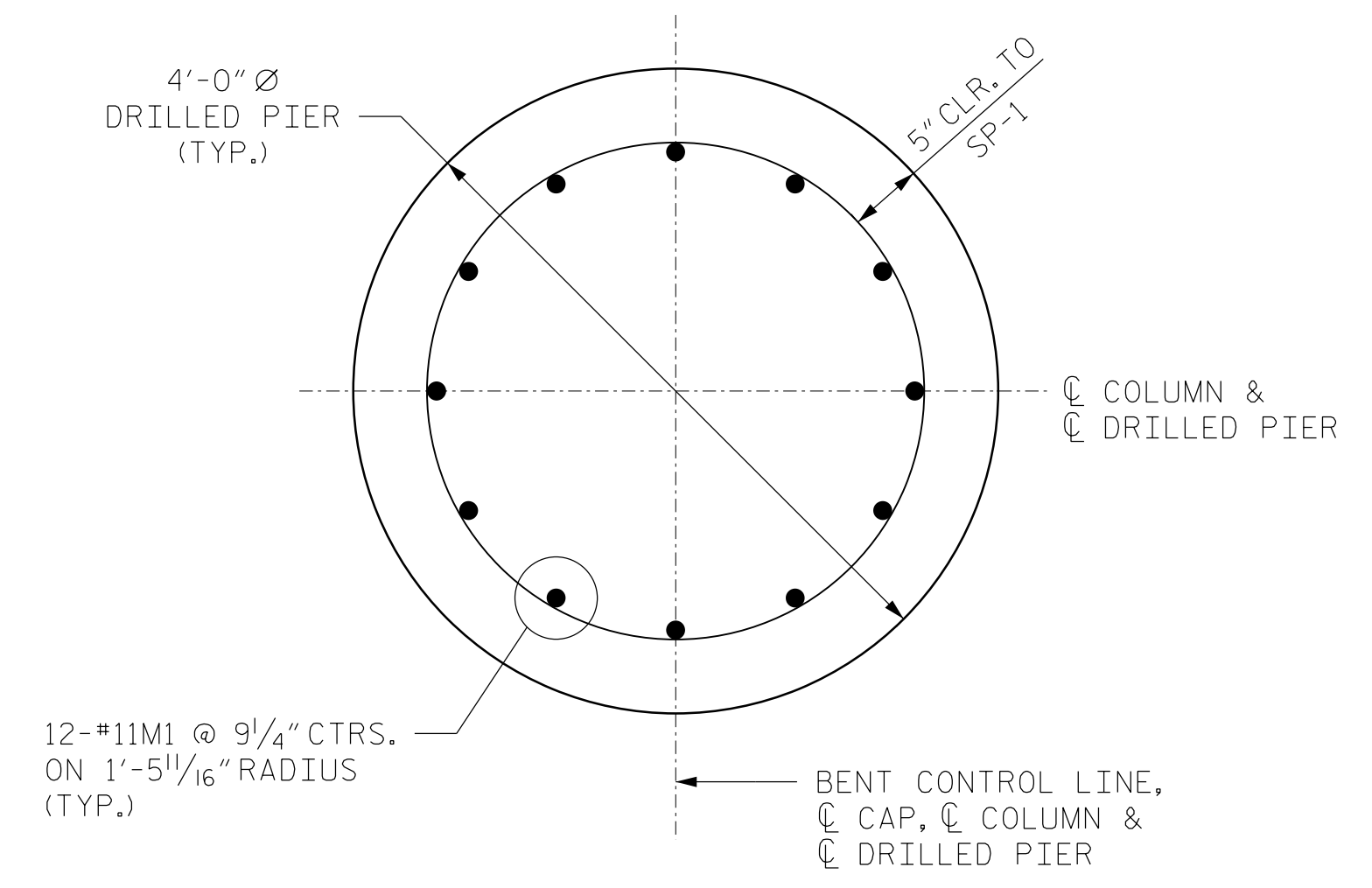
FORMWORK SHALL COMPLY WITH SECTION 420-3 OF THE STANDARD SPECIFICATIONS.



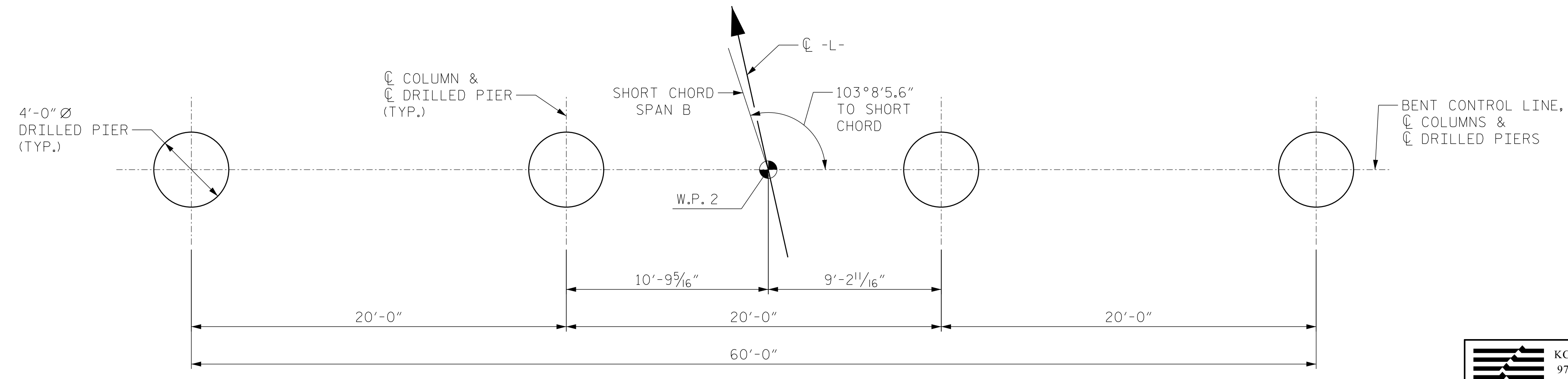
FORMLINER DETAIL



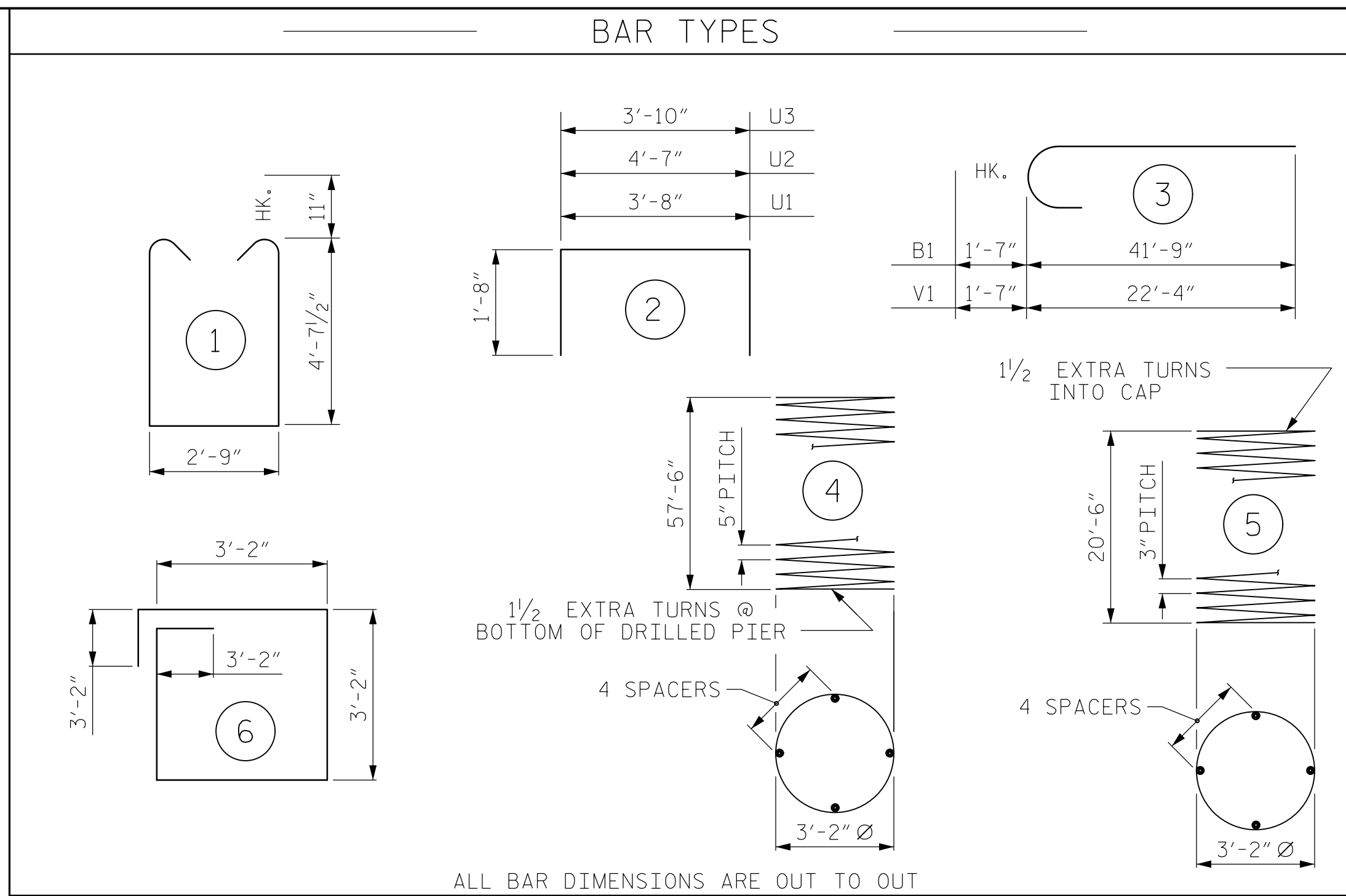
SECTION C-C



SECTION D-D



PLAN OF DRILLED PIERS



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#11	3	43'-4"	3,684
B2	16	#11	STR	39'-10"	3,386
B3	16	#5	STR	36'-6"	609
B4	8	#5	STR	51'-0"	426
B5	48	#5	STR	19'-11"	997
M1	96	#11	STR	38'-0"	19,382
S1	190	#6	1	13'-10"	3,948
S2	84	#4	6	13'-4"	748
U1	10	#4	2	7'-0"	47
U2	8	#4	2	7'-11"	42
U3	79	#4	2	7'-2"	378
V1	48	#11	3	23'-11"	6,099
REINFORCING STEEL (FOR ONE BENT)					39,747 LBS.
SP-1	4	*	4	1,389'-0"	5,795
SP-2	4	**	5	828'-0"	2,212
SPIRAL COLUMN REINFORCING STEEL (FOR ONE BENT)					8,007 LBS.
* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR					
** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR					
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)					
POUR #2 (COLUMNS)					40.3 C.Y.
POUR #3 (CAP)					59.5 C.Y.
TOTAL CLASS A CONCRETE					99.8 C.Y.
DRILLED PIERS: (FOR ONE BENT)					
DRILLED PIER CONCRETE					
POUR #1 (DRILLED PIERS)					108.0 C.Y.
4'-0" Ø DRILLED PIER NOT IN SOIL					74 LIN. FT.
4'-0" Ø DRILLED PIER IN SOIL					158 LIN. FT.
CSL TUBES					952 LIN. FT.

PROJECT NO. U-5008

MECKLENBURG COUNTY

STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1 DETAILS

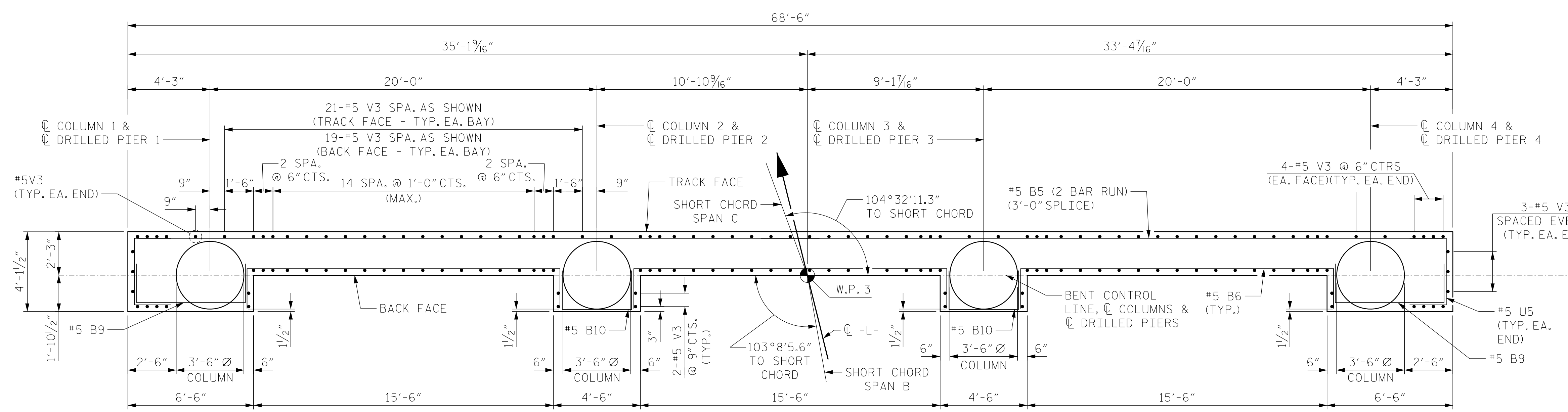
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SHEET NO. S-56
SHEETS 78

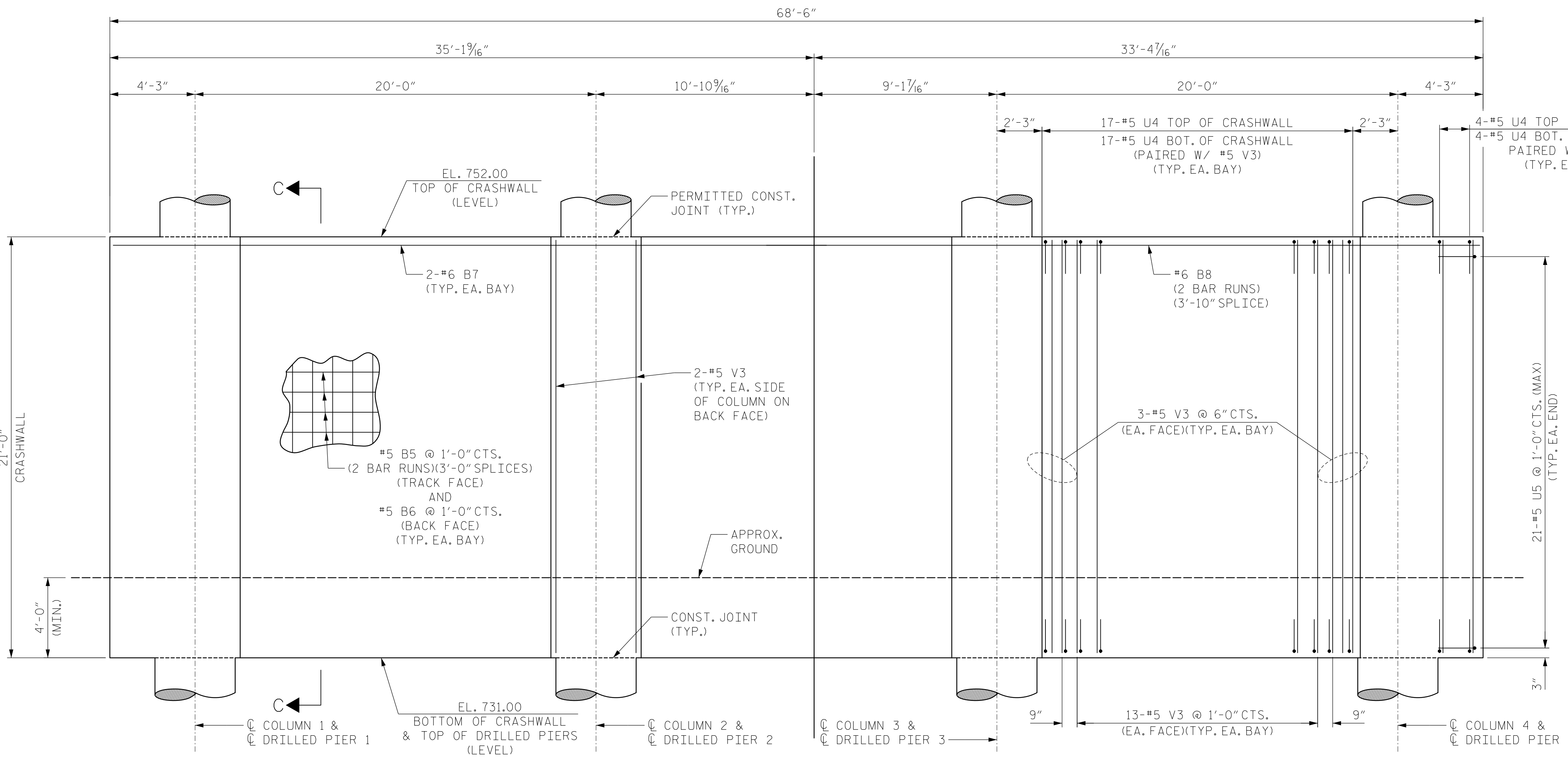
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NC LICENSE No. C-0764

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032954
JARED C. MEDLIN
2/19/2015

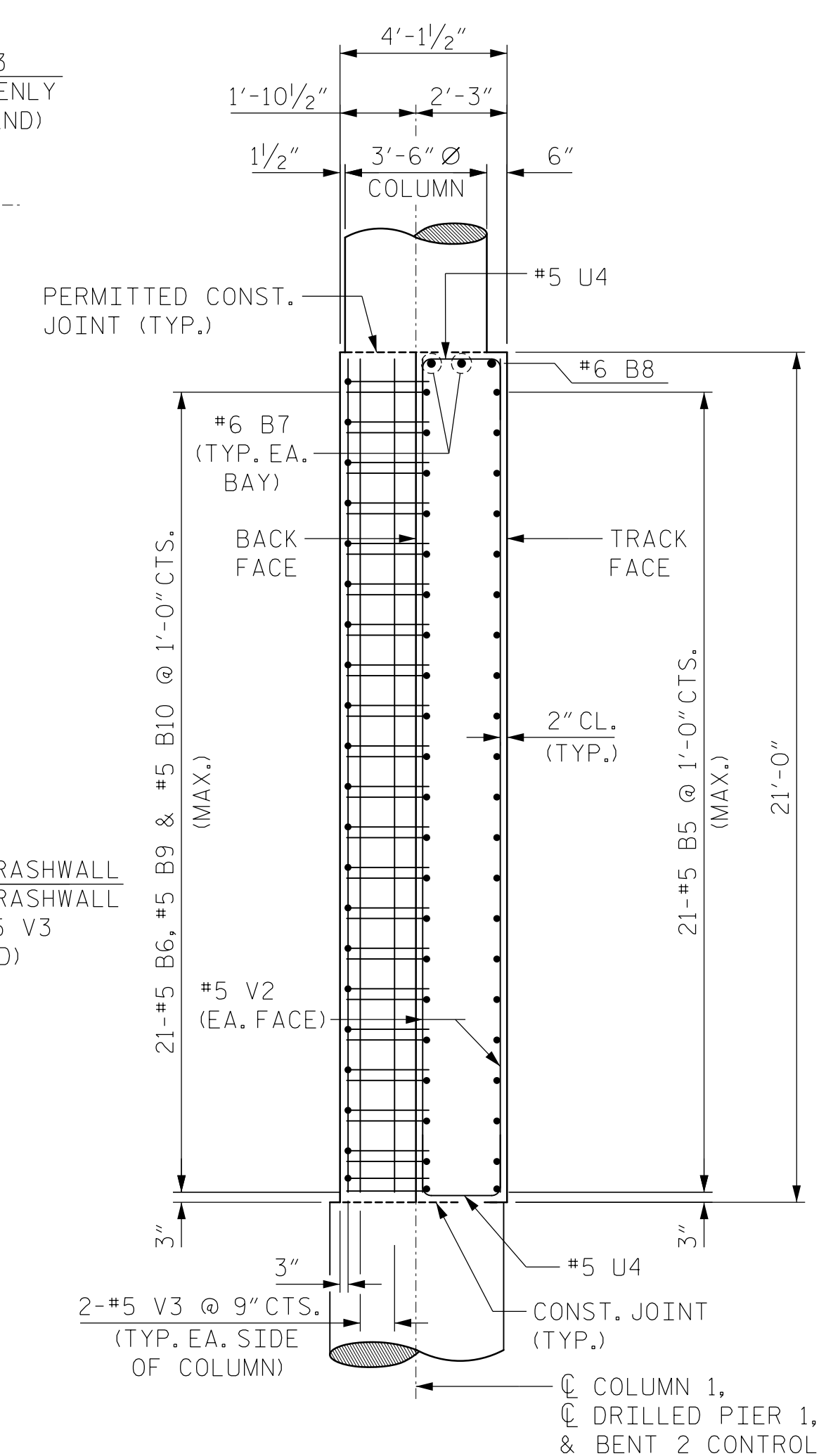
DJD DRAWN BY: D.L.KEENER DATE: OCT. 2014
CHECKED BY: J.C.MEDLIN DATE: OCT. 2014



PLAN OF CRASHWALL
(COLUMN REINFORCING NOT SHOWN FOR CLARITY)



ELEVATION OF CRASHWALL
(COLUMN REINFORCING NOT SHOWN FOR CLARITY)



SECTION C-C
(COLUMN REINFORCING NOT SHOWN FOR CLARITY)

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BENT 2
 DETAILS**

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

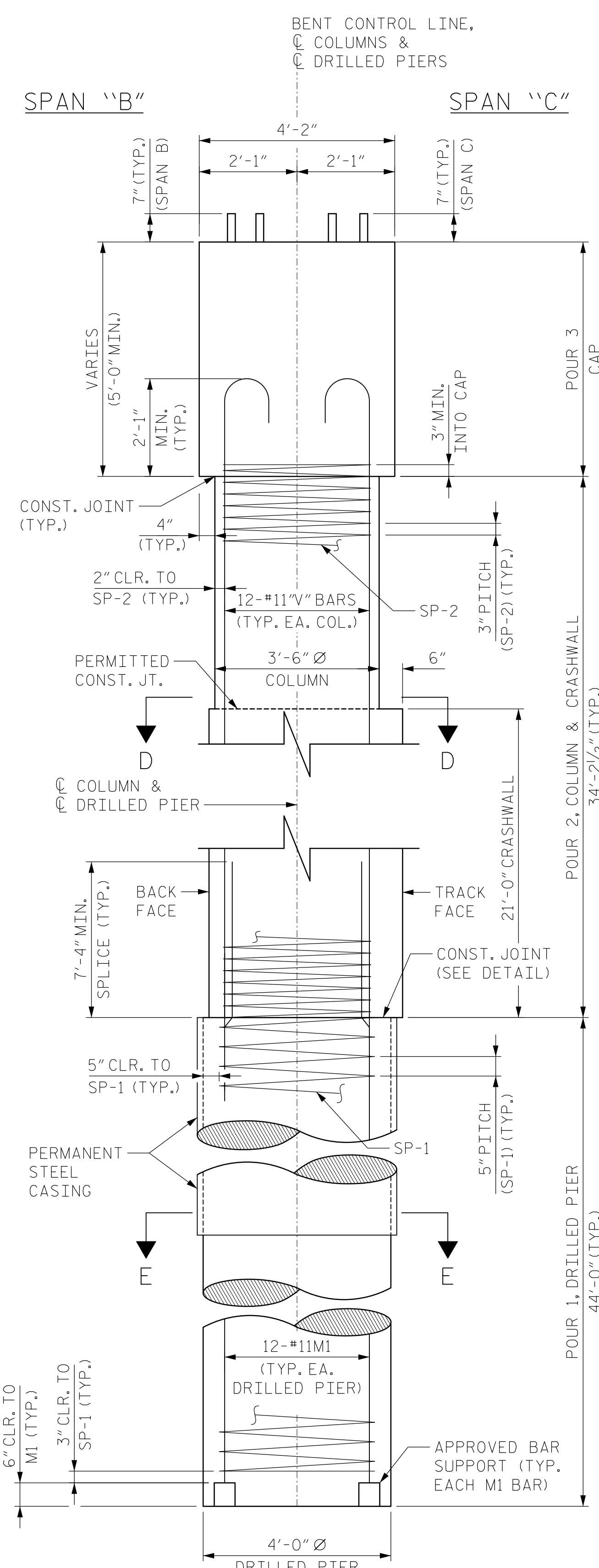
SHEET NO. S-58
SHEETS 78

KCI ASSOCIATES OF NC, P.A.
 9741 SOUTHERN PINE BLVD
 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE NO. C-0764

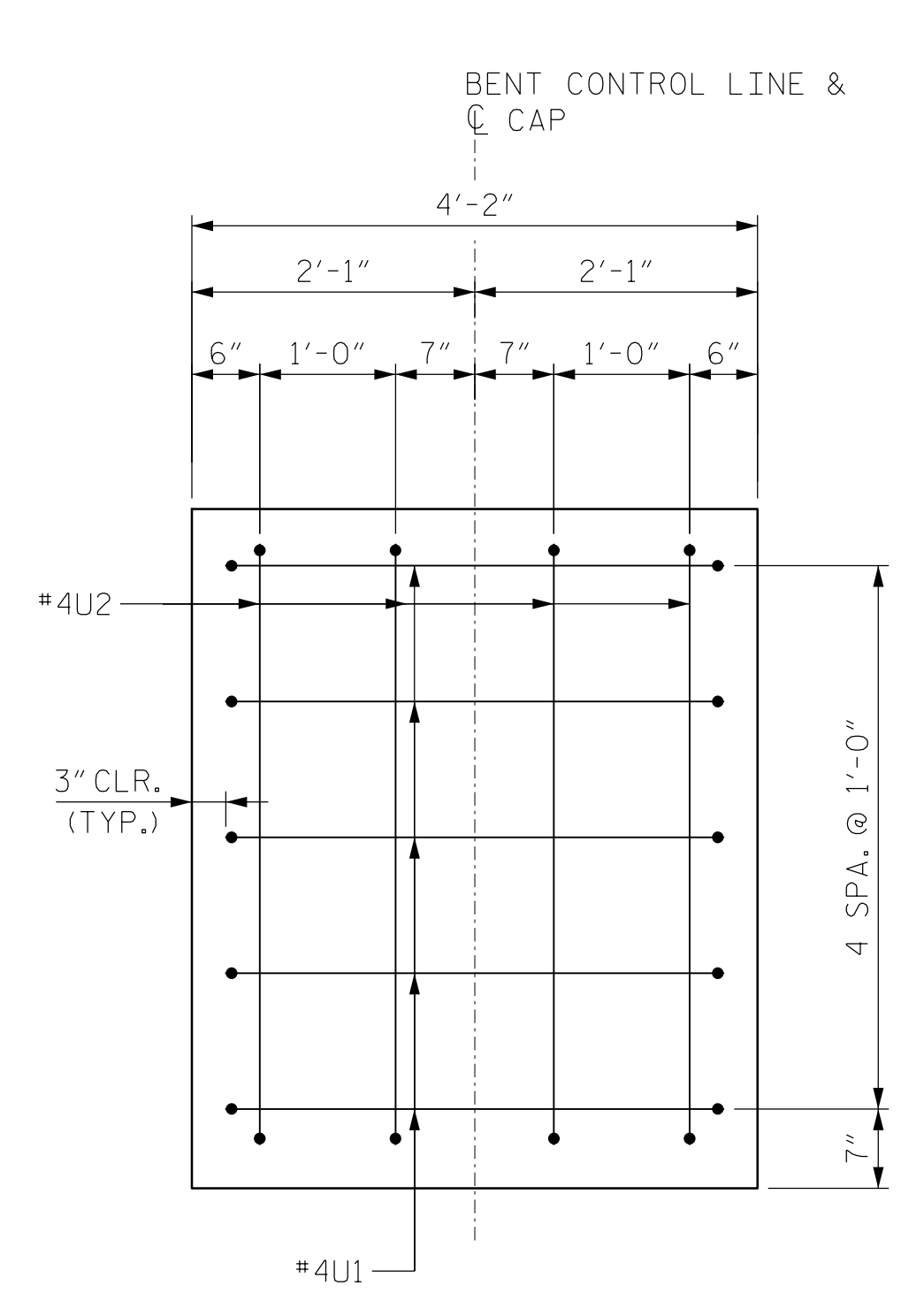
NORTH CAROLINA
 PROFESSIONAL
 SEAL
 032954
 JARED C. MEDLIN
 ENGINEER

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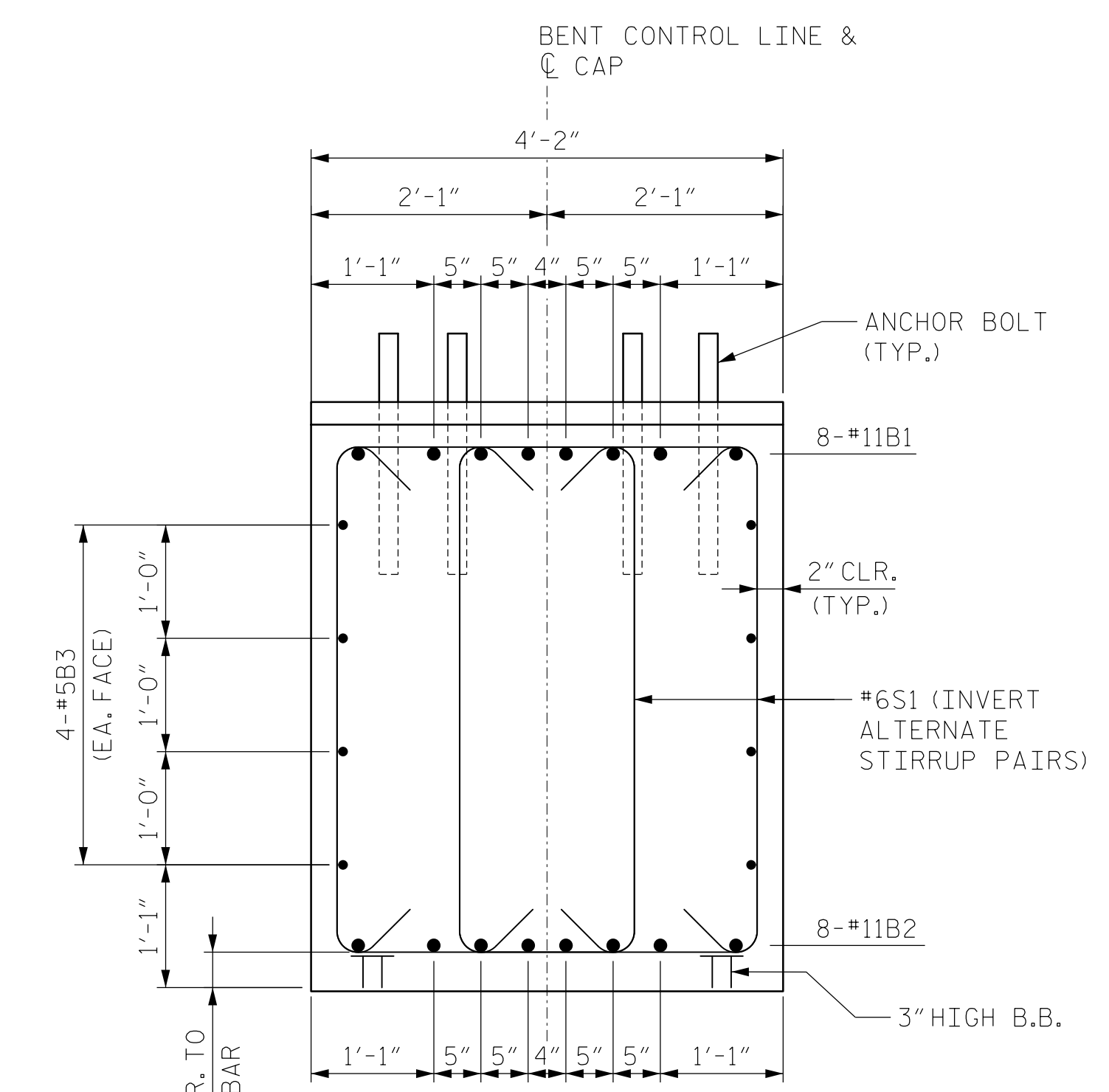
DJD
 DRAWN BY: C.L. RUDISILL DATE: OCT. 2014
 CHECKED BY: J.C. MEDLIN DATE: OCT. 2014



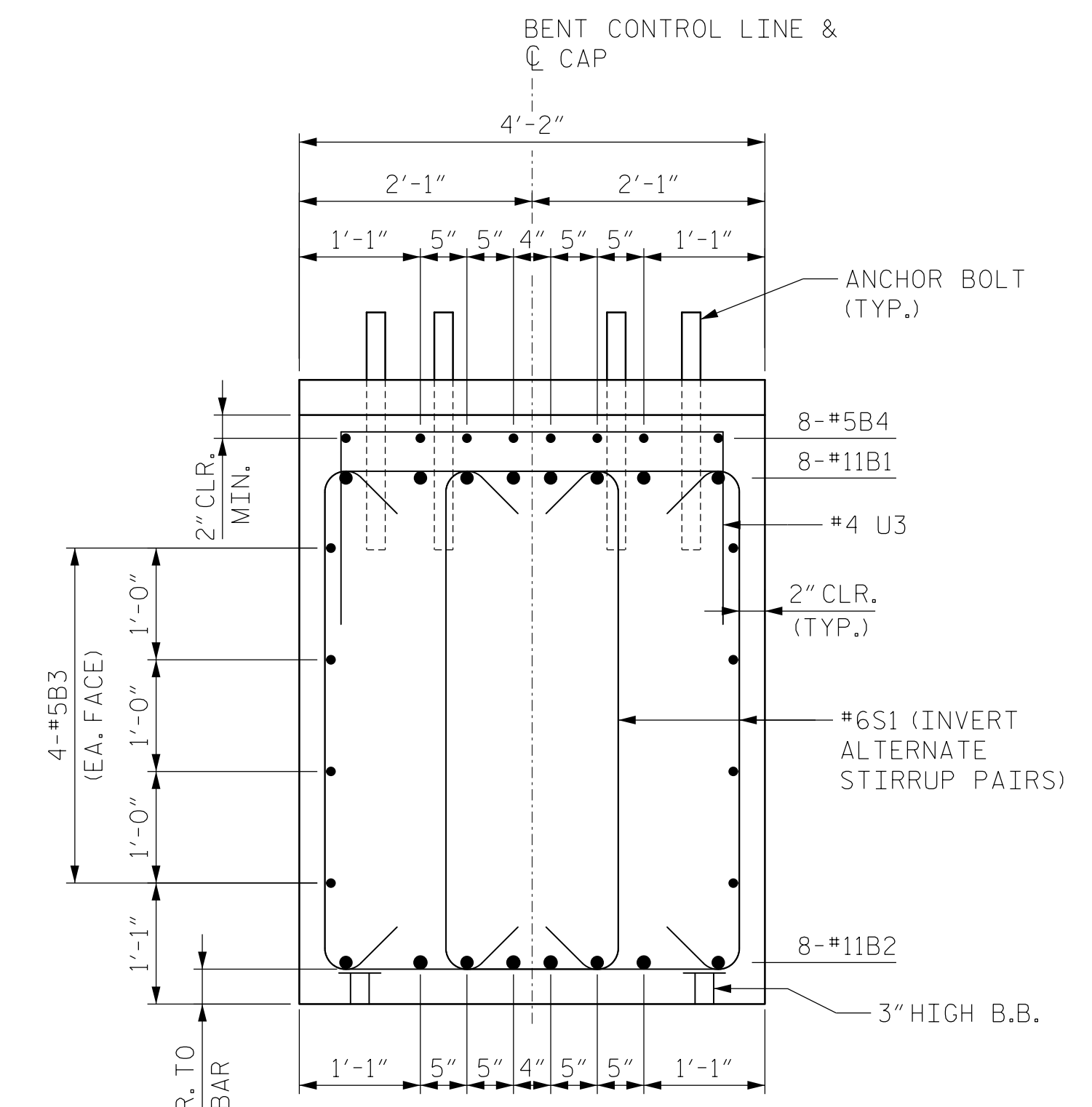
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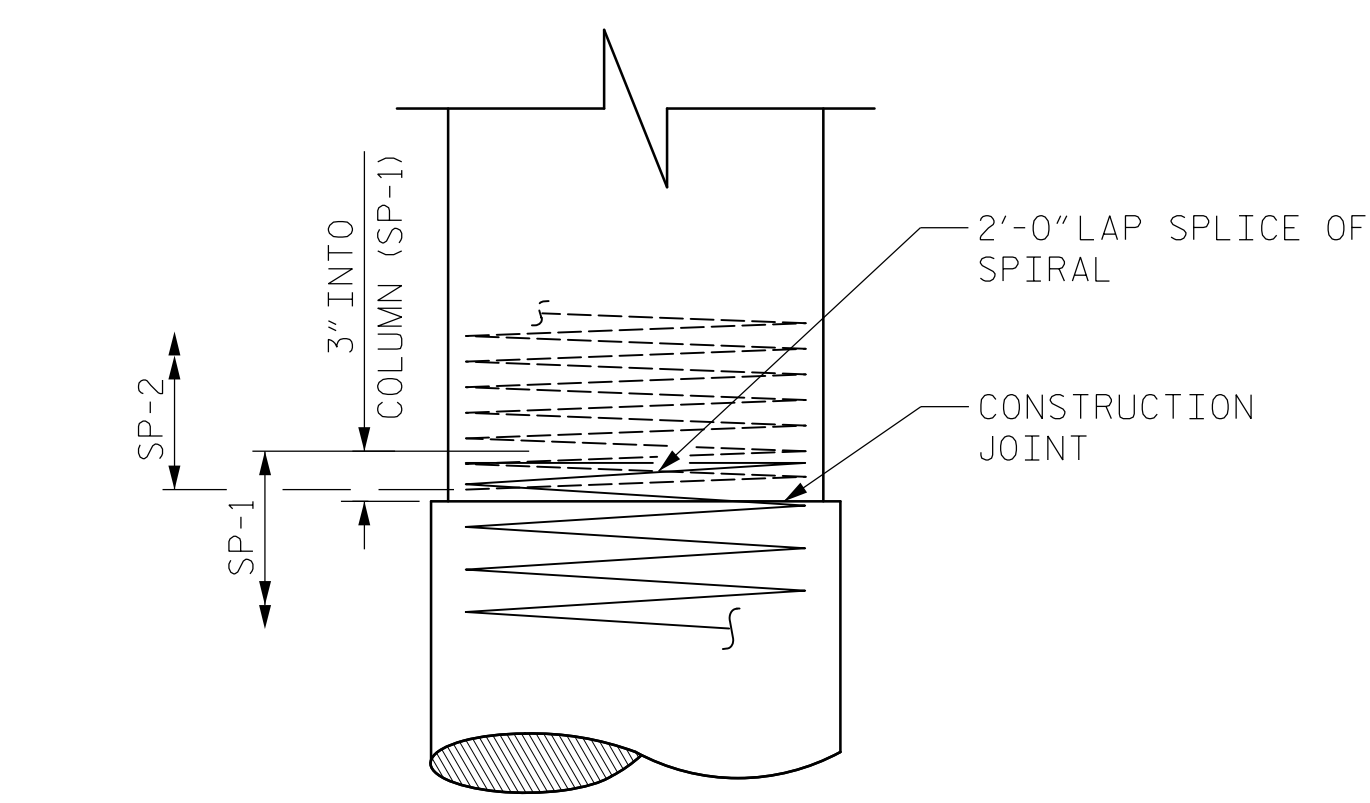
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(TYP. BOTH ENDS)



SECTION A-A



SECTION B-B



CONSTRUCTION JOINT DETAIL

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT 2 DETAILS

REVISIONS					
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SHEET NO.
S-59
SHEETS
78

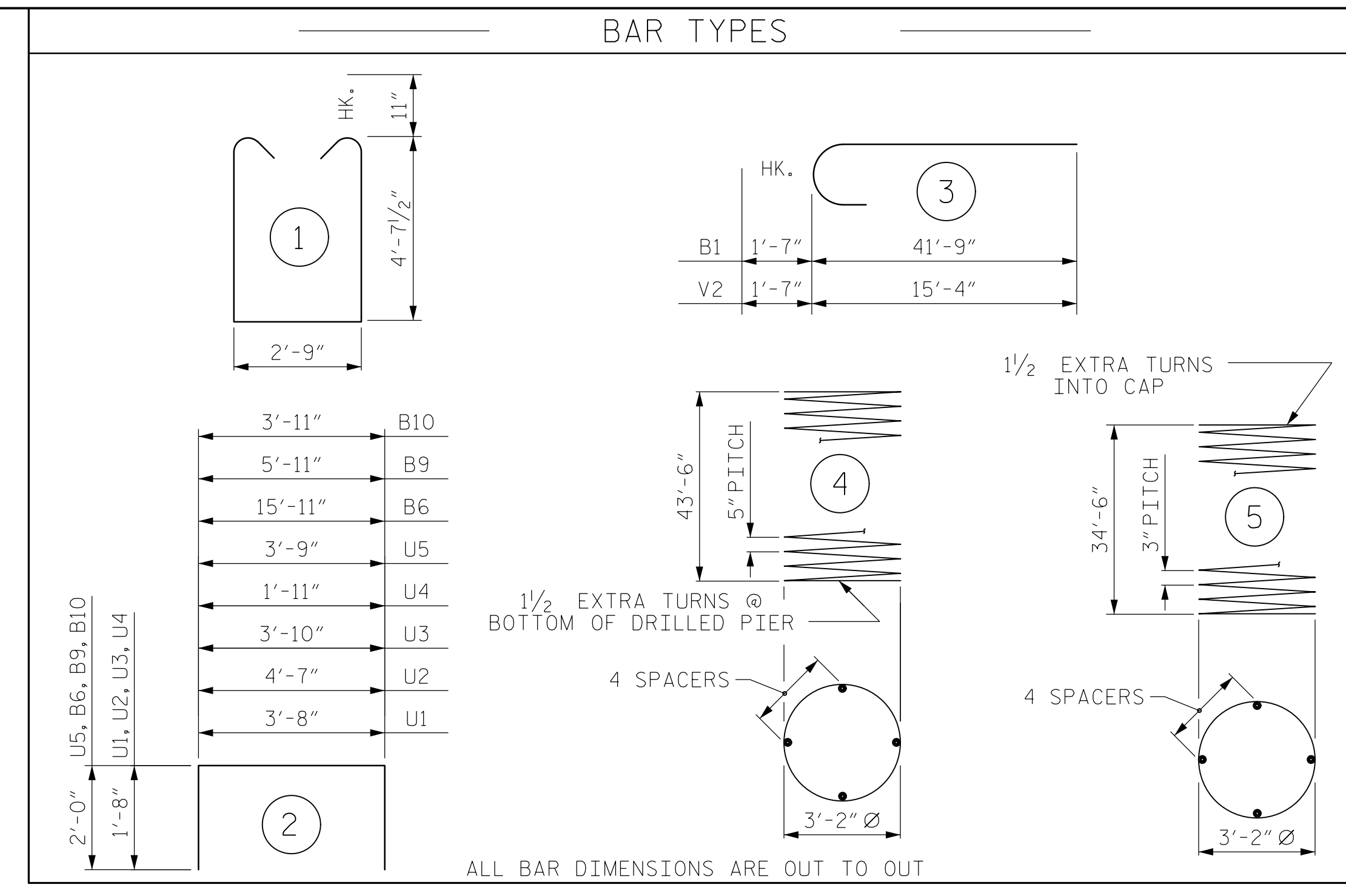
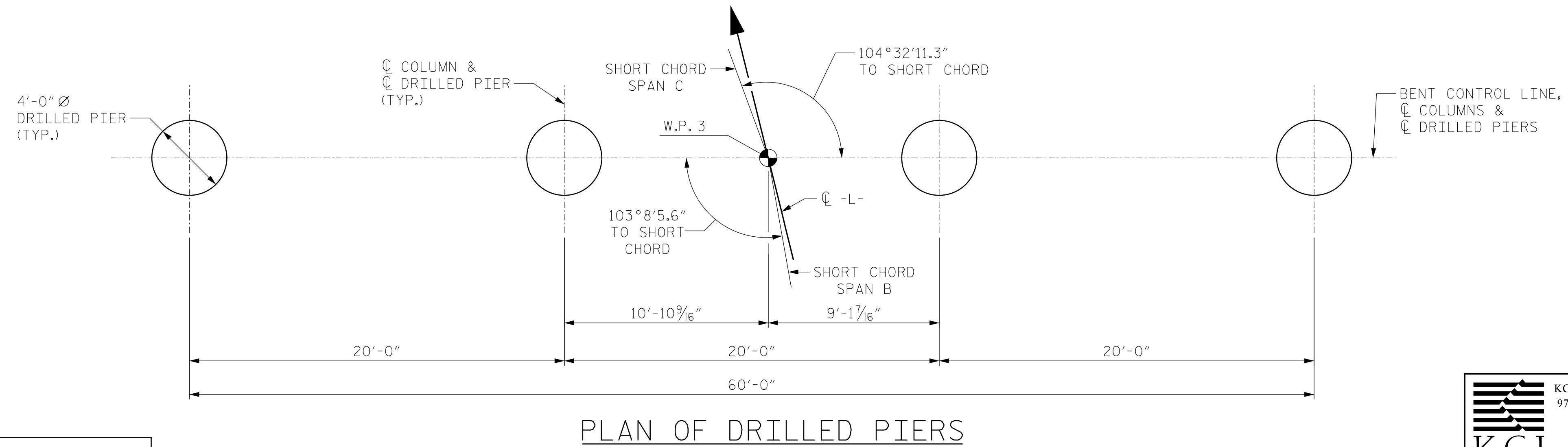
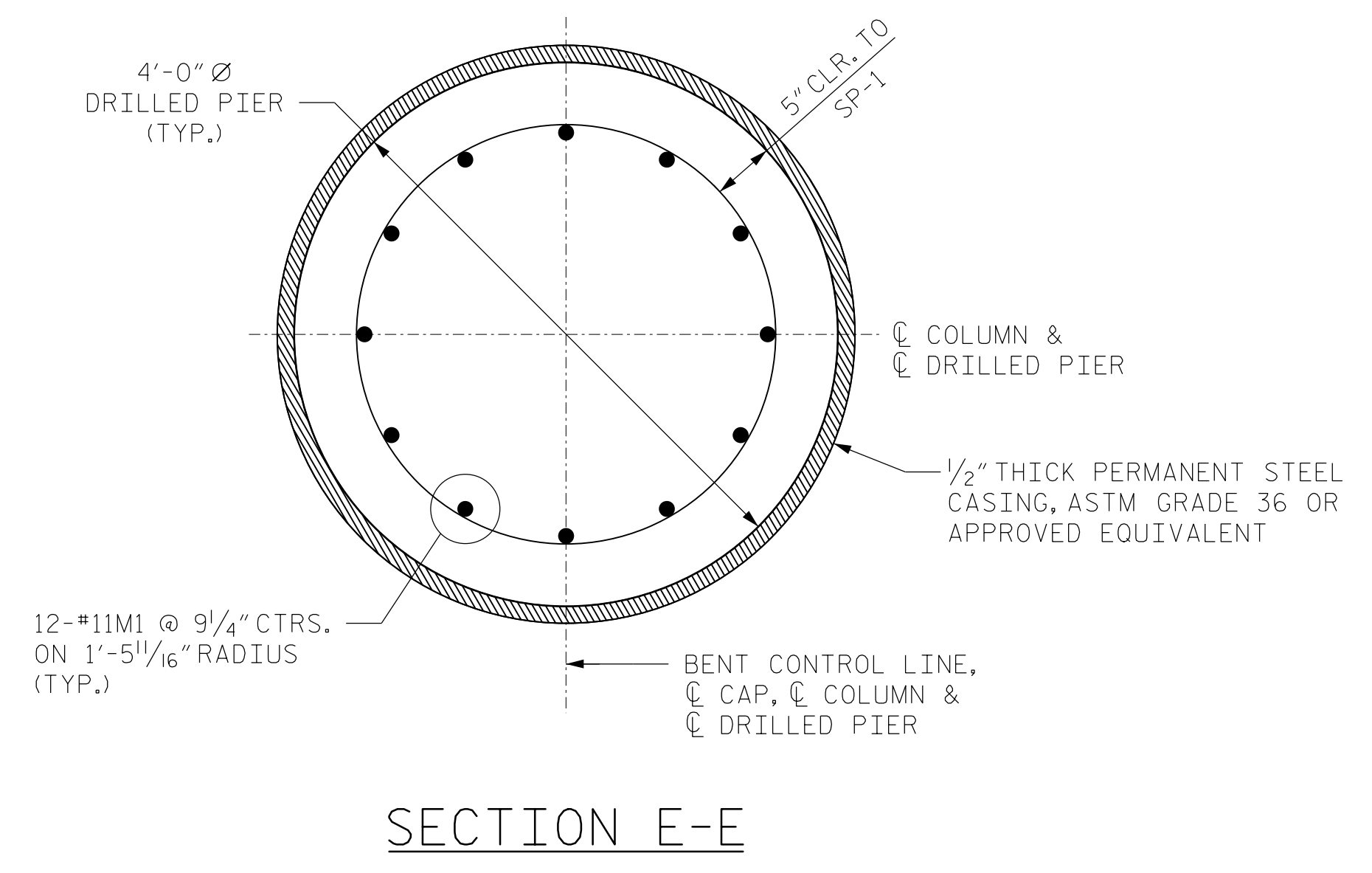
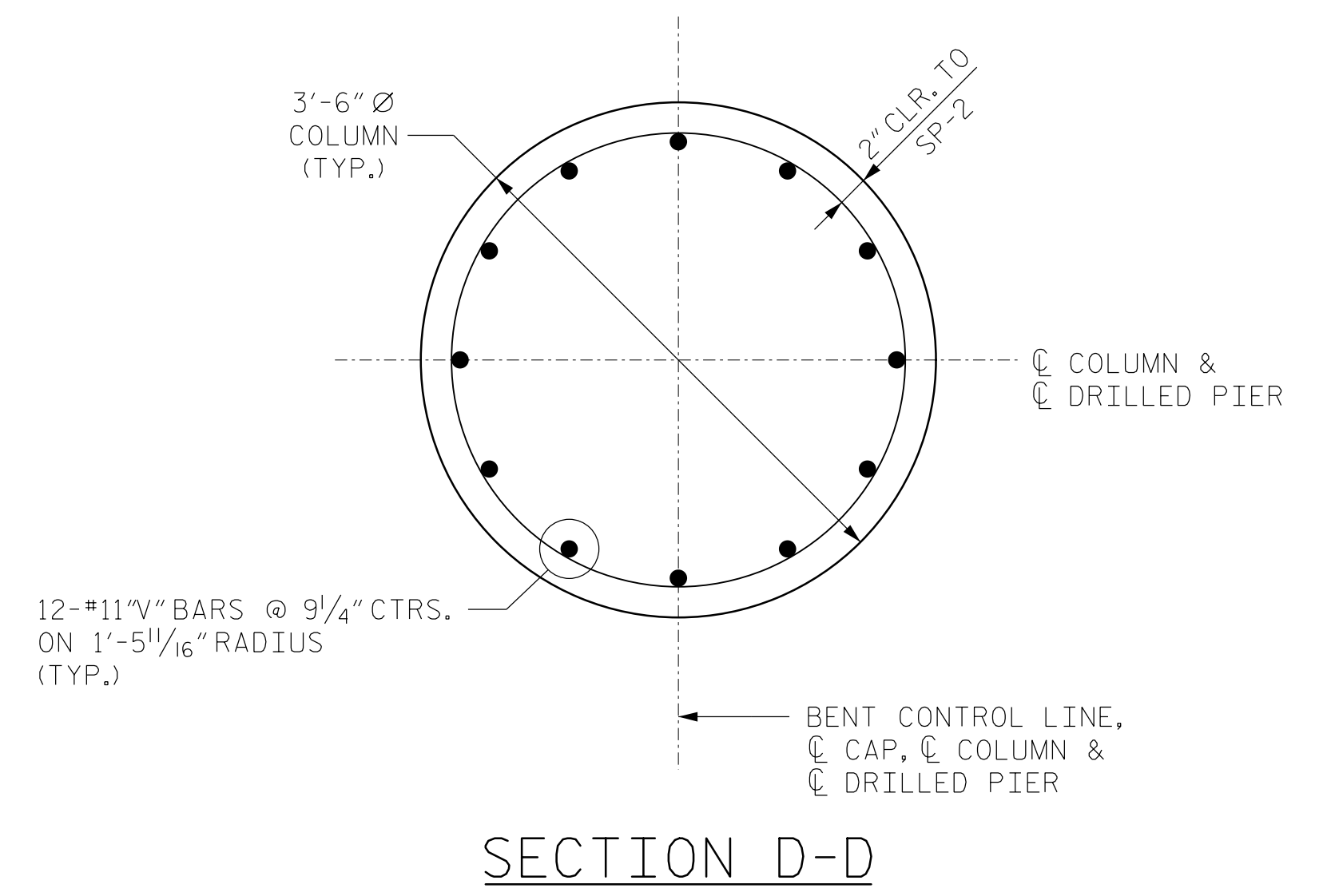
KCI
 ASSOCIATES OF NC, P.A.
 9741 SOUTHERN PINE BLVD
 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

NORTH CAROLINA
 PROFESSIONAL
 SEAL
 032954
 ENGINEER
 JARED C. MEDLIN

DocuSigned by:
Jared C. Medlin
 2/19/2015

DRAWN BY: C.L. RUDISILL DATE: OCT. 2014
 CHECKED BY: J.C. MEDLIN DATE: OCT. 2014

0400DEL_P30



BILL OF MATERIAL FOR ONE BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#11	3	43'-4"	3,684
B2	16	#11	STR	39'-10"	3,386
B3	16	#5	STR	36'-6"	609
B4	8	#5	STR	32'-2"	268
B5	42	#5	STR	35'-7"	1,559
B6	63	#5	2	19'-11"	1,309
B7	6	#6	STR	16'-8"	150
B8	2	#6	STR	36'-0"	108
B9	42	#5	2	9'-11"	435
B10	42	#5	2	7'-11"	347
M1	48	#11	STR	53'-10"	13,729
S1	190	#6	1	13'-10"	3,948
U1	10	#4	2	7'-0"	47
U2	8	#4	2	7'-11"	42
U3	73	#4	2	7'-2"	349
U4	118	#5	2	5'-3"	646
U5	42	#5	2	7'-9"	339
V1	48	#11	STR	28'-4"	7,226
V2	48	#11	3	16'-11"	4,314
V3	156	#5	STR	20'-7"	3,349
REINFORCING STEEL (FOR ONE BENT)					45,844 LBS.
SP-1	4	*	4	1054'-6"	4,399
SP-2	4	**	5	1388'-3"	3,709
SPIRAL COLUMN REINFORCING STEEL (FOR ONE BENT)					8,108 LBS.
* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR					
** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR					
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)					
POUR #2 (COLUMNS & CRASHWALL)					170.8 C.Y.
POUR #3 (CAP)					57.4 C.Y.
TOTAL CLASS A CONCRETE					228.2 C.Y.
DRILLED PIERS: (FOR ONE BENT)					
DRILLED PIER CONCRETE					
POUR #1 (DRILLED PIERS)					81.9 C.Y.
4'-0" Ø DRILLED PIER NOT IN SOIL					102 LIN. FT.
4'-0" Ø DRILLED PIER IN SOIL					74 LIN. FT.
PERMANENT STEEL CASING FOR 4'-0" Ø DRILLED PIER					52 LIN. FT.
CSL TUBES					728 LIN. FT.

PROJECT NO. U-5008

MECKLENBURG COUNTY

STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**BENT 2
DETAILS**

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

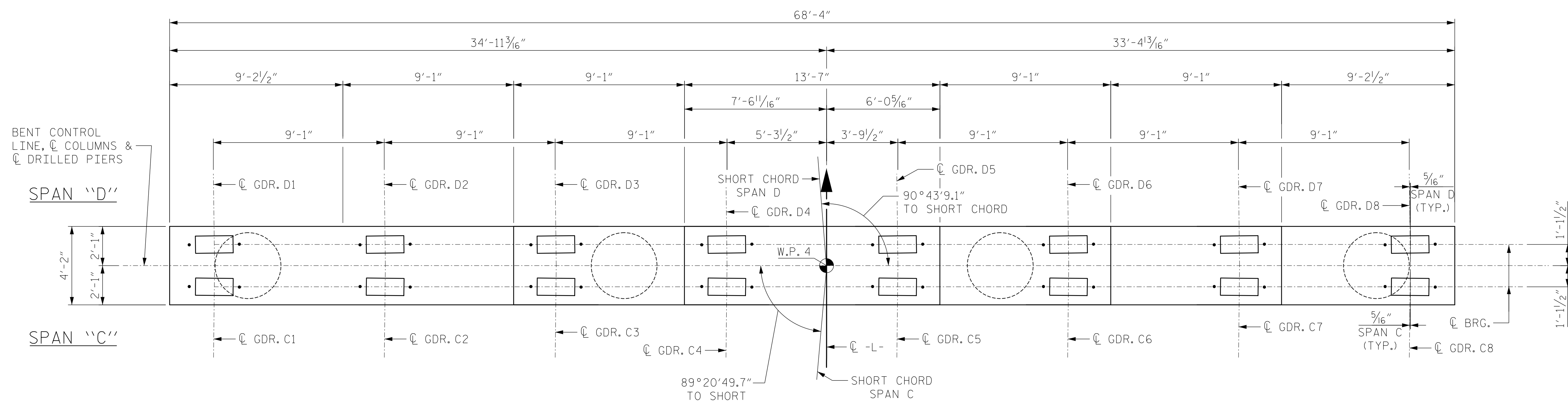
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SHEETS 78

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9741 SOUTHERN PINE BLVD
SUITE J
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704-499-9452
NC LICENSE No. C-0764

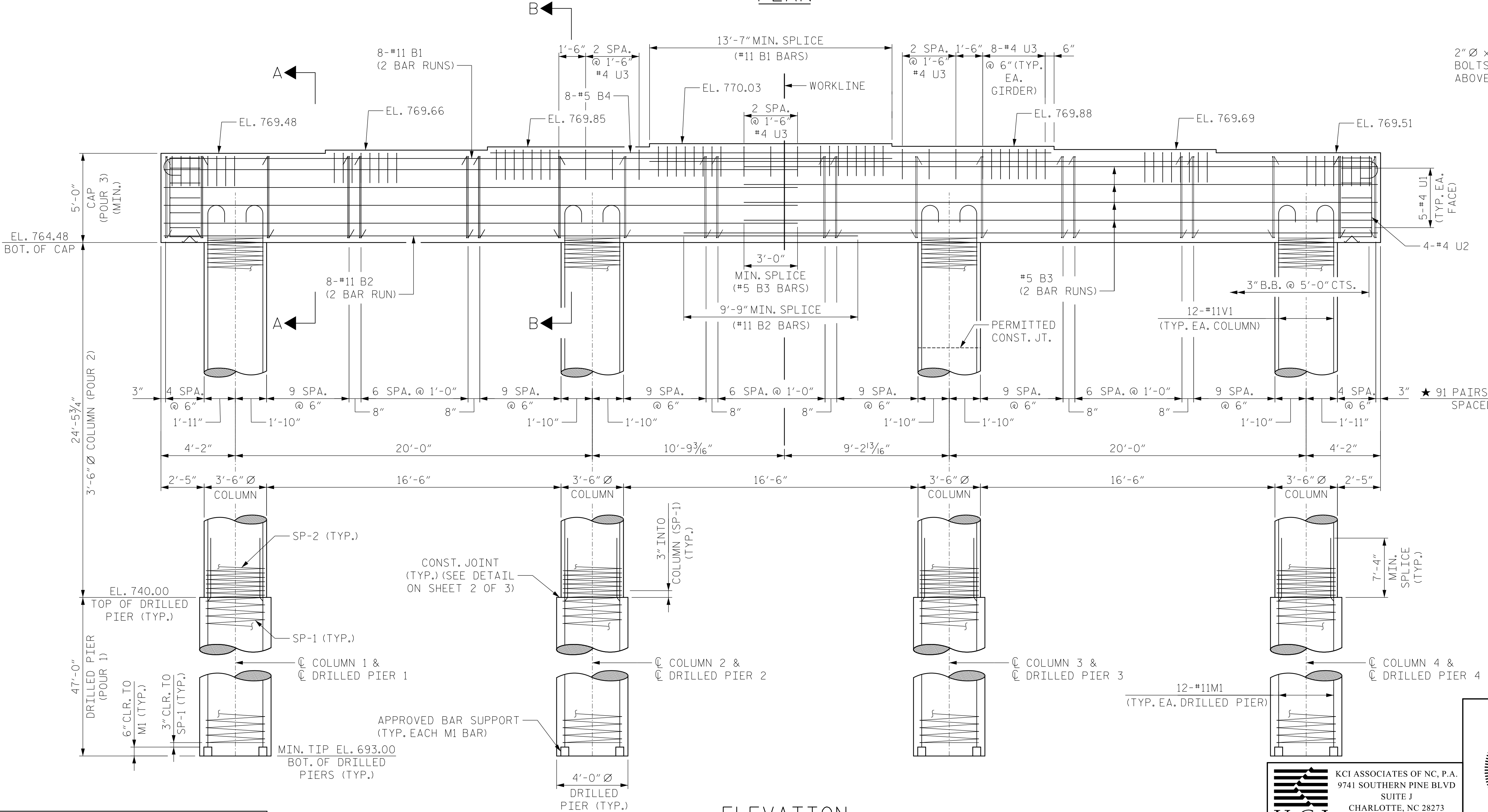
NORTH CAROLINA
PROFESSIONAL
SEAL
032954
ENGINEER
JARED C. MEDLIN
2/19/2015

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DJD
DRAWN BY: C.L.RUDISILL DATE: OCT. 2014
CHECKED BY: J.C.MEDLIN DATE: OCT. 2014



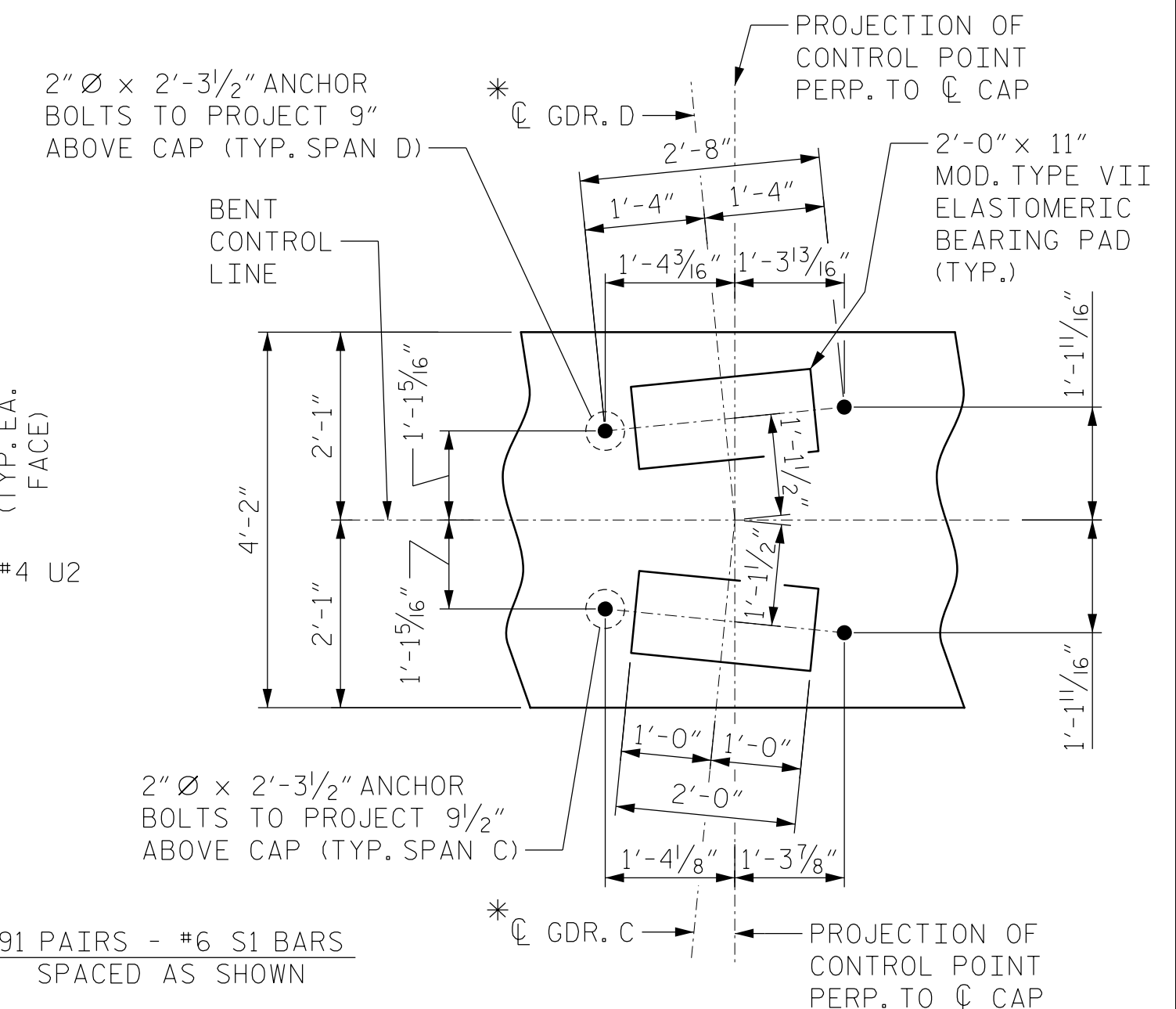
PLAN



ELEVATION

NOTES

- STIRRUPS AND U3 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
- FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."
- ★ INVERT ALTERNATE STIRRUP PAIRS IN BENT CAP.
- THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT ONE FOOT BELOW THE GROUND LINE.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
- THE TOP SURFACE AREA OF THE BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING METHOD SHALL NOT BE USED.



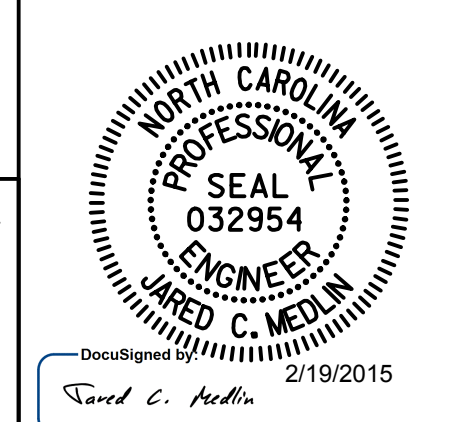
BEARING DETAIL

* ANGLE BETWEEN C GIRDERS AND PROJECTION OF CONTROL POINT EXAGGERATED FOR CLARITY

PROJECT NO. U-5008
 MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.
 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT 3



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 704-499-9452
 NC LICENSE No. C-0764

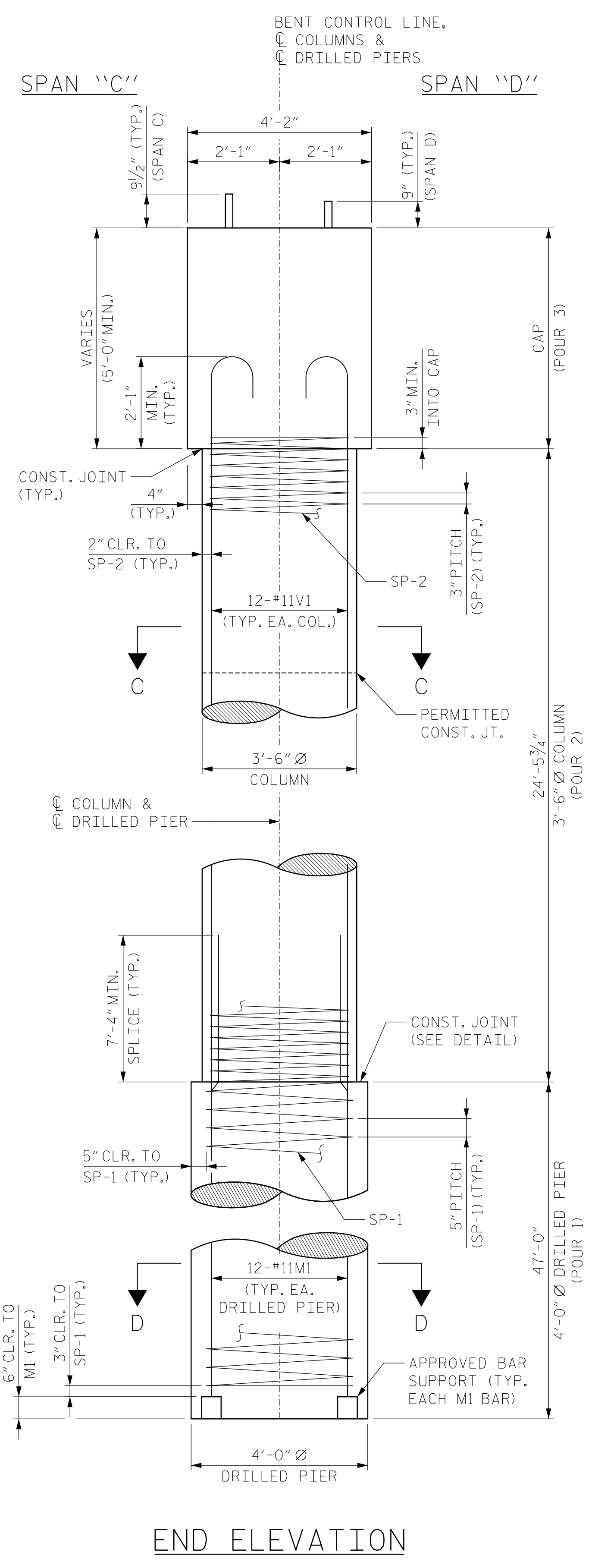
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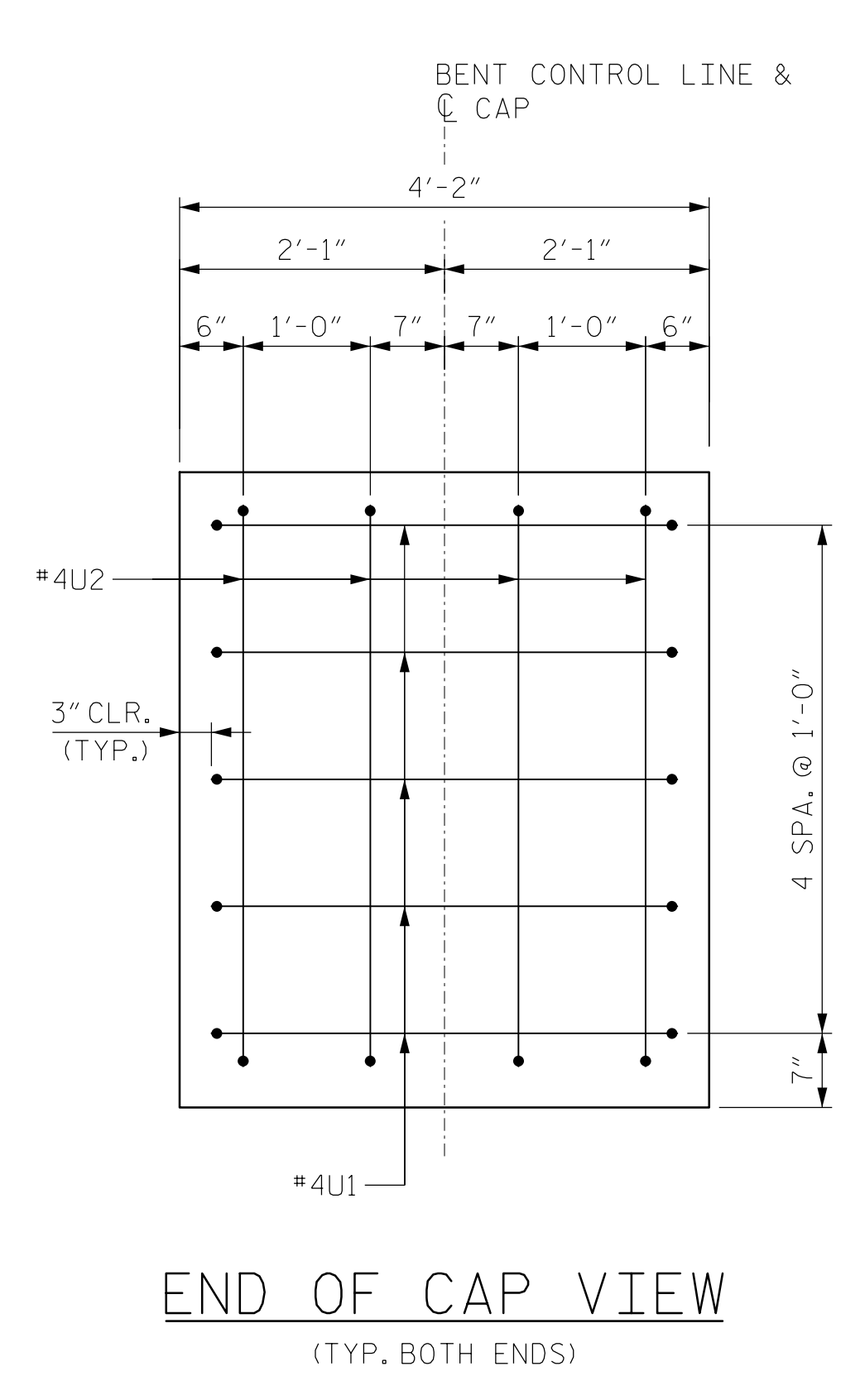
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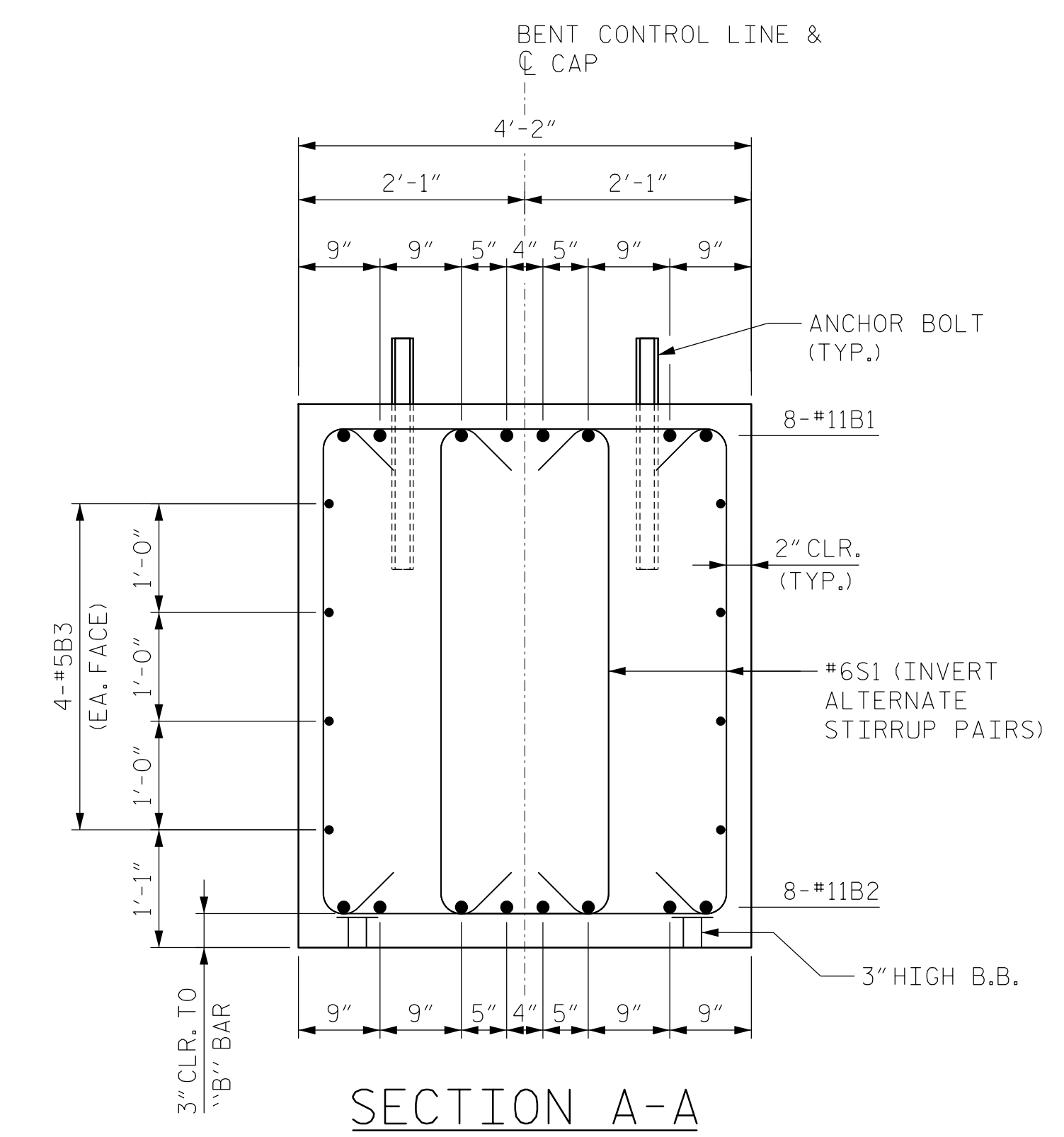
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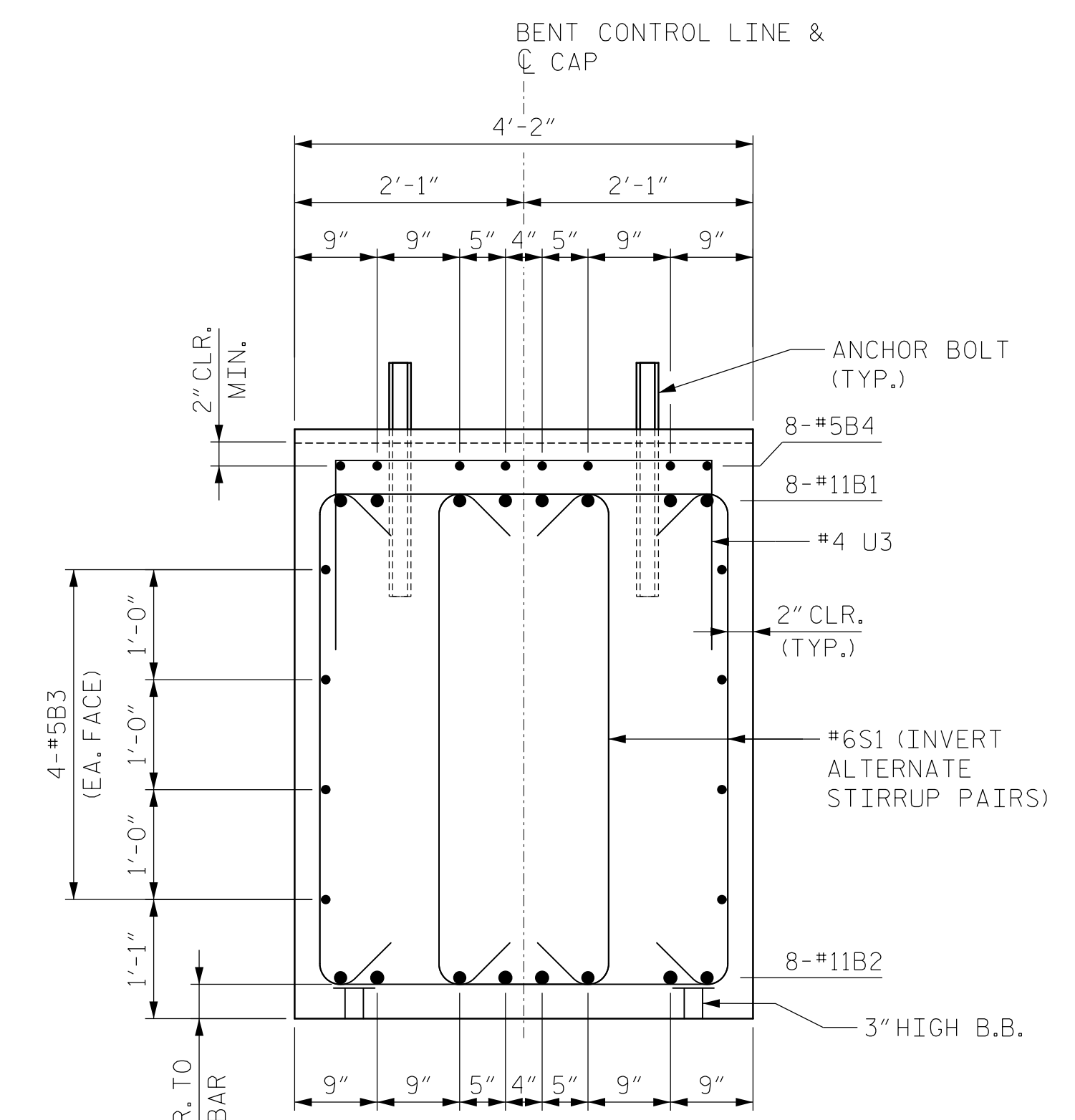
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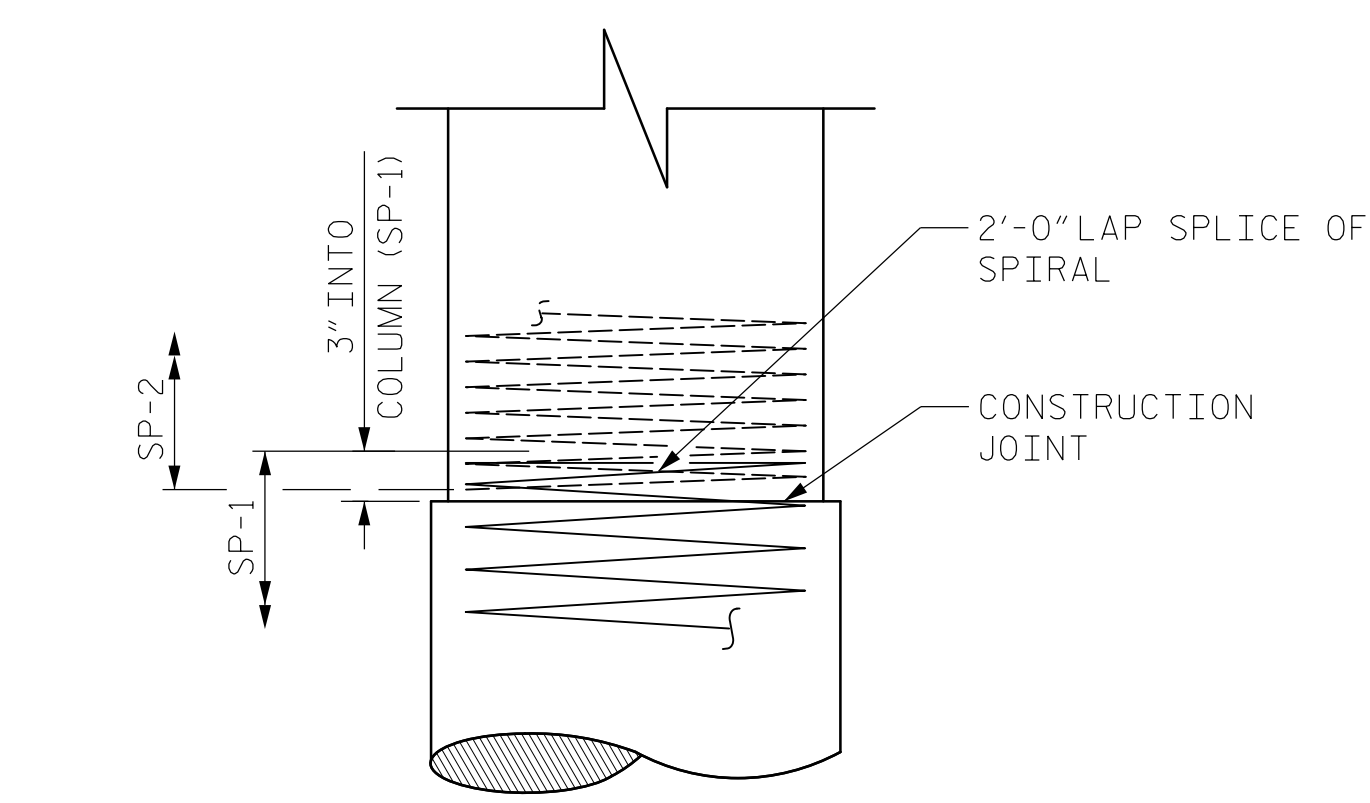
END OF CAP VIEW
(TYP. BOTH ENDS)



SECTION A-A



SECTION B-B



CONSTRUCTION JOINT DETAIL

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT 3 DETAILS

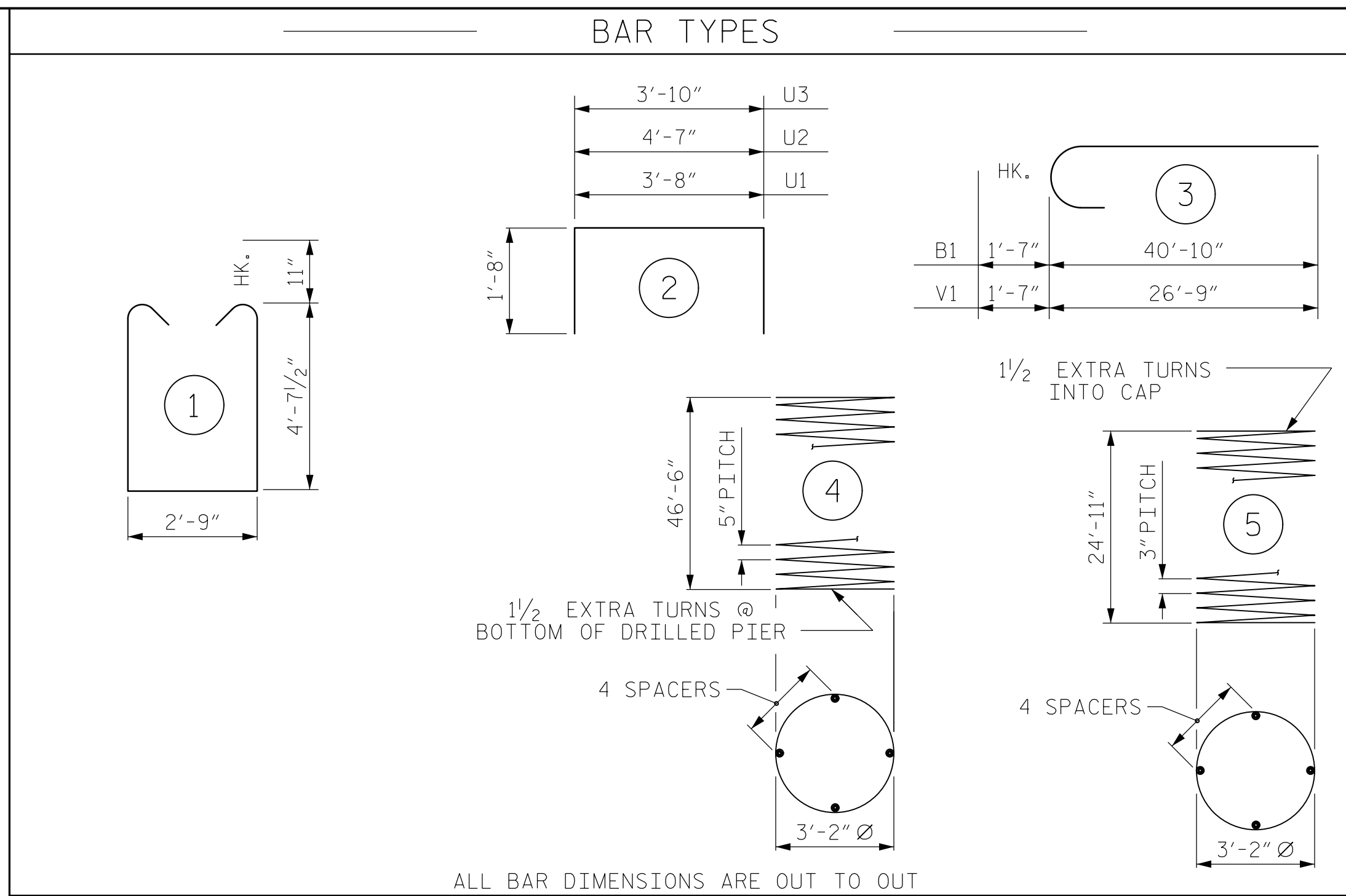
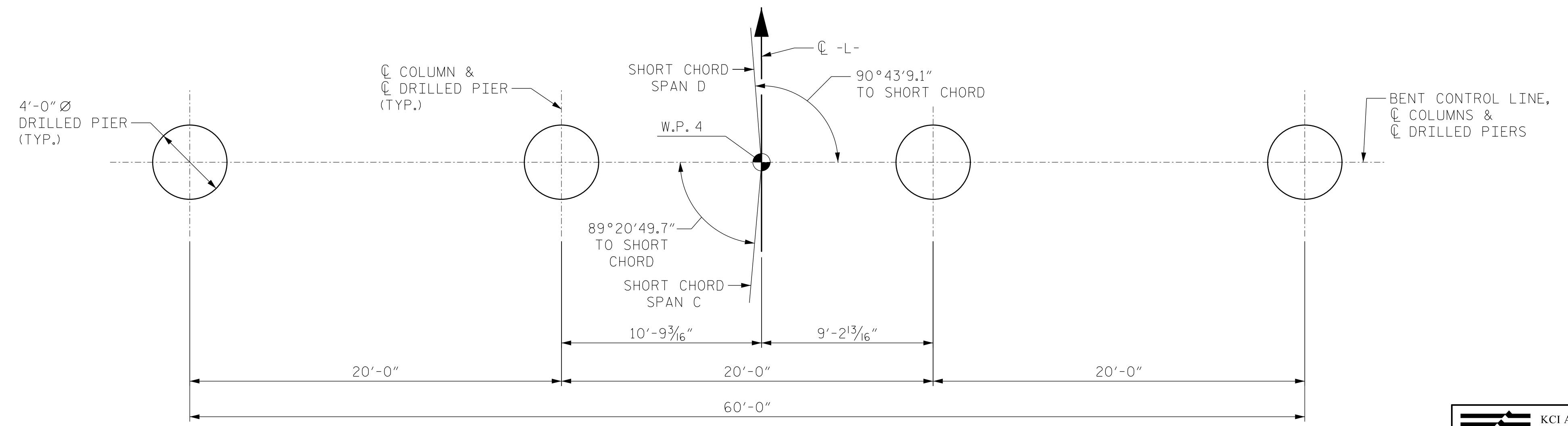
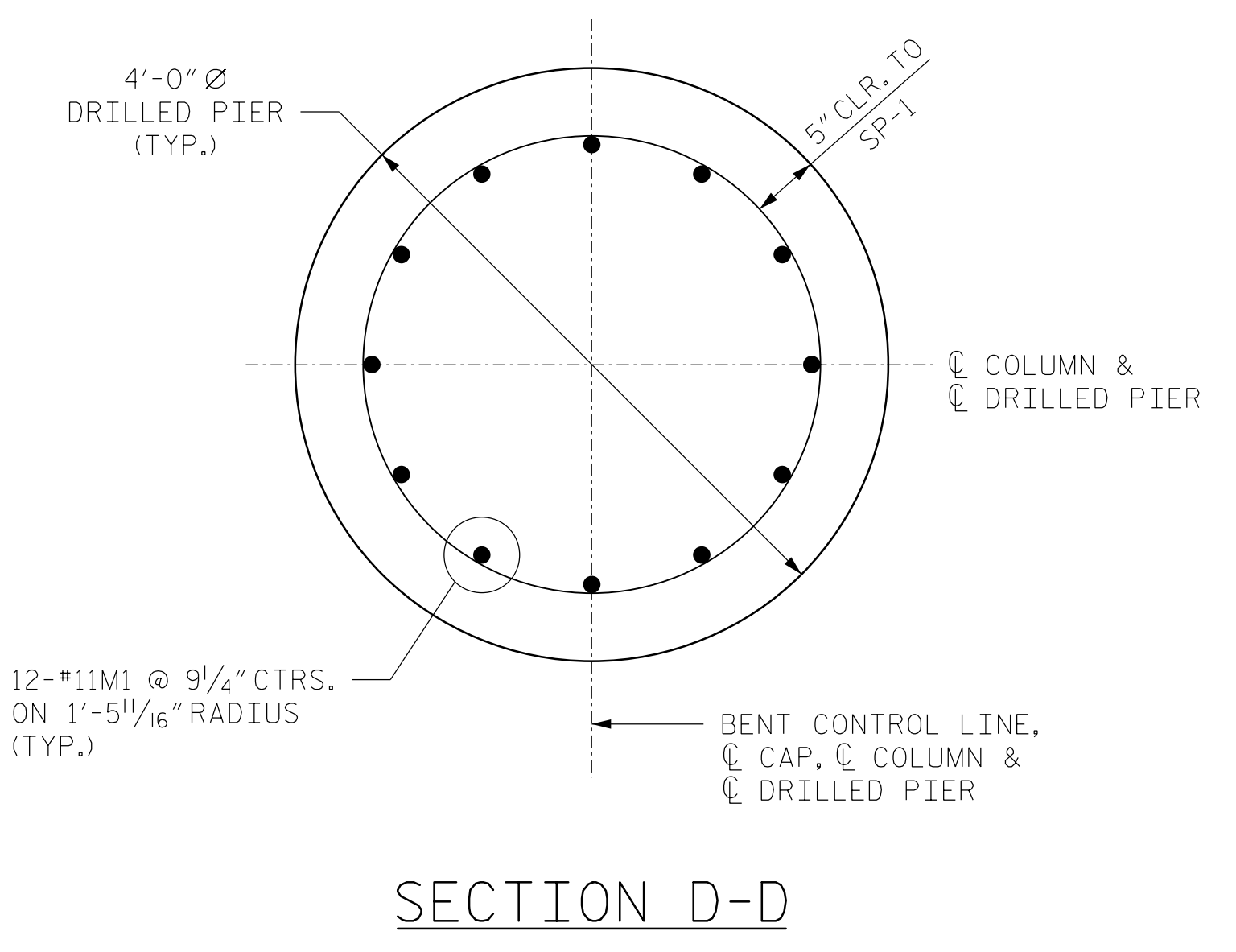
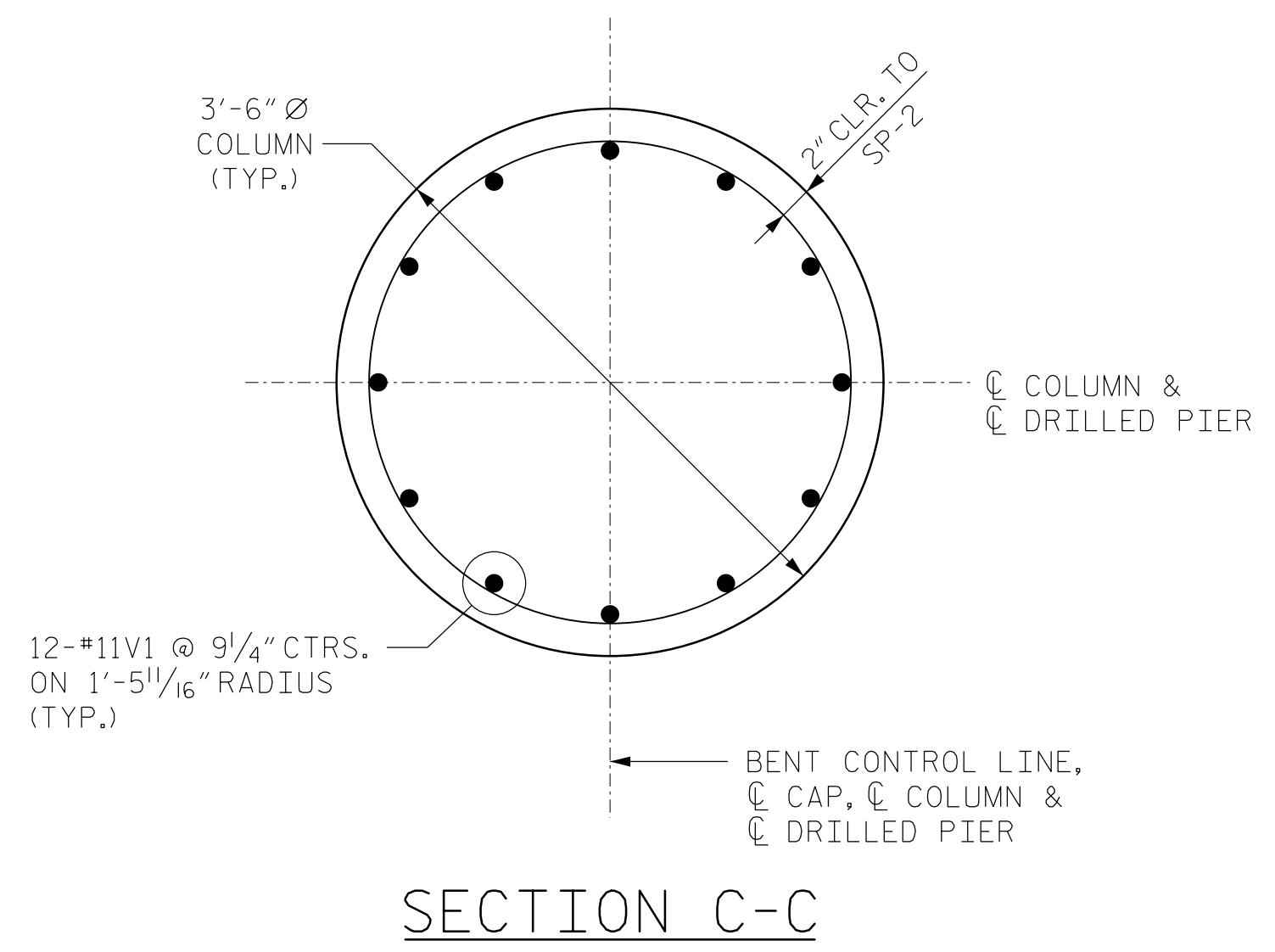
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1			3			SHEETS 78
2			4			

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 NC LICENSE NO. C-0764

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ENGINEER
 JARED C. MEDLIN
 2/19/2015

DRAWN BY: D.L.KEENER DATE: OCT. 2014
 CHECKED BY: J.C.MEDLIN DATE: OCT. 2014

0400DEL_P30



BILL OF MATERIAL FOR ONE BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#11	3	42'-5"	3,606
B2	16	#11	STR	38'-11"	3,308
B3	16	#5	STR	35'-6"	592
B4	8	#5	STR	31'-5"	262
M1	48	#11	STR	56'-10"	14,494
S1	182	#6	1	13'-10"	3,782
U1	10	#4	2	7'-0"	47
U2	8	#4	2	7'-11"	42
U3	73	#4	2	7'-2"	349
V1	48	#11	3	28'-4"	7,226
REINFORCING STEEL (FOR ONE BENT)					33,708 LBS.
SP-1	4	*	4	1126'-2"	4,698
SP-2	4	**	5	1007'-1"	2,691
SPIRAL COLUMN REINFORCING STEEL (FOR ONE BENT)					7,389 LBS.
* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR					
** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR					
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)					
POUR #2 (COLUMNS)					34.9 C.Y.
POUR #3 (CAP)					55.5 C.Y.
TOTAL CLASS A CONCRETE					90.4 C.Y.
DRILLED PIERS: (FOR ONE BENT)					
DRILLED PIER CONCRETE					
POUR #1 (DRILLED PIERS)					87.5 C.Y.
4'-0" Ø DRILLED PIER NOT IN SOIL					48 LIN. FT.
4'-0" Ø DRILLED PIER IN SOIL					140 LIN. FT.
CSL TUBES					776 LIN. FT.

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BENT 3
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REVISIONS					
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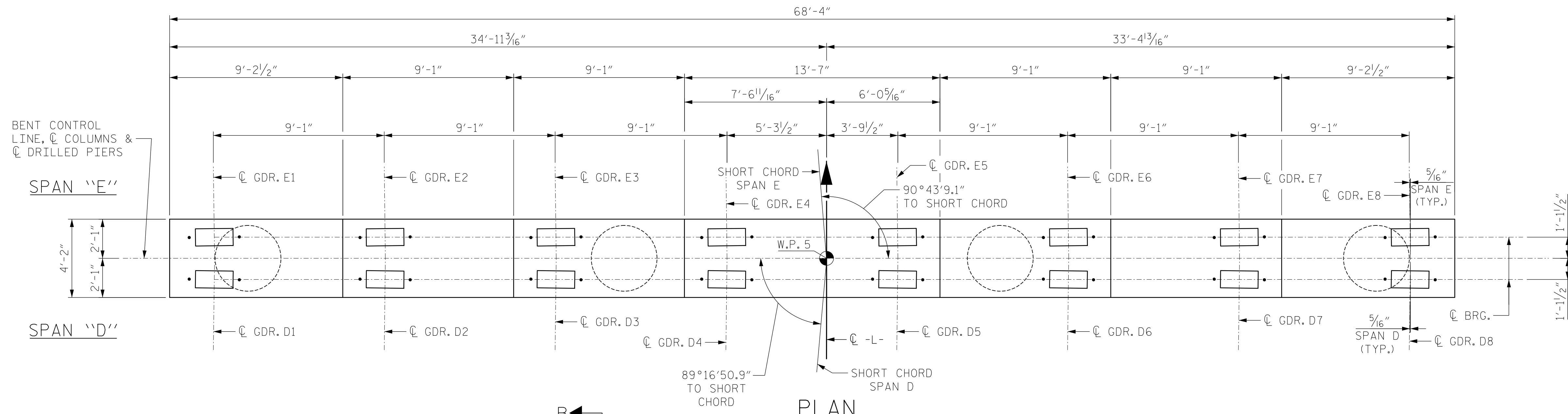
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 SHEETS 78

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 9741 SOUTHERN PINE BLVD
 SUITE J
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 SEAL 032954
 JARED C. MEDLIN
 2/19/2015

DJD
 DRAWN BY: D.L.KEENER DATE: OCT. 2014
 CHECKED BY: J.C.MEDLIN DATE: OCT. 2014

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NOTES

STIRRUPS AND U3 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

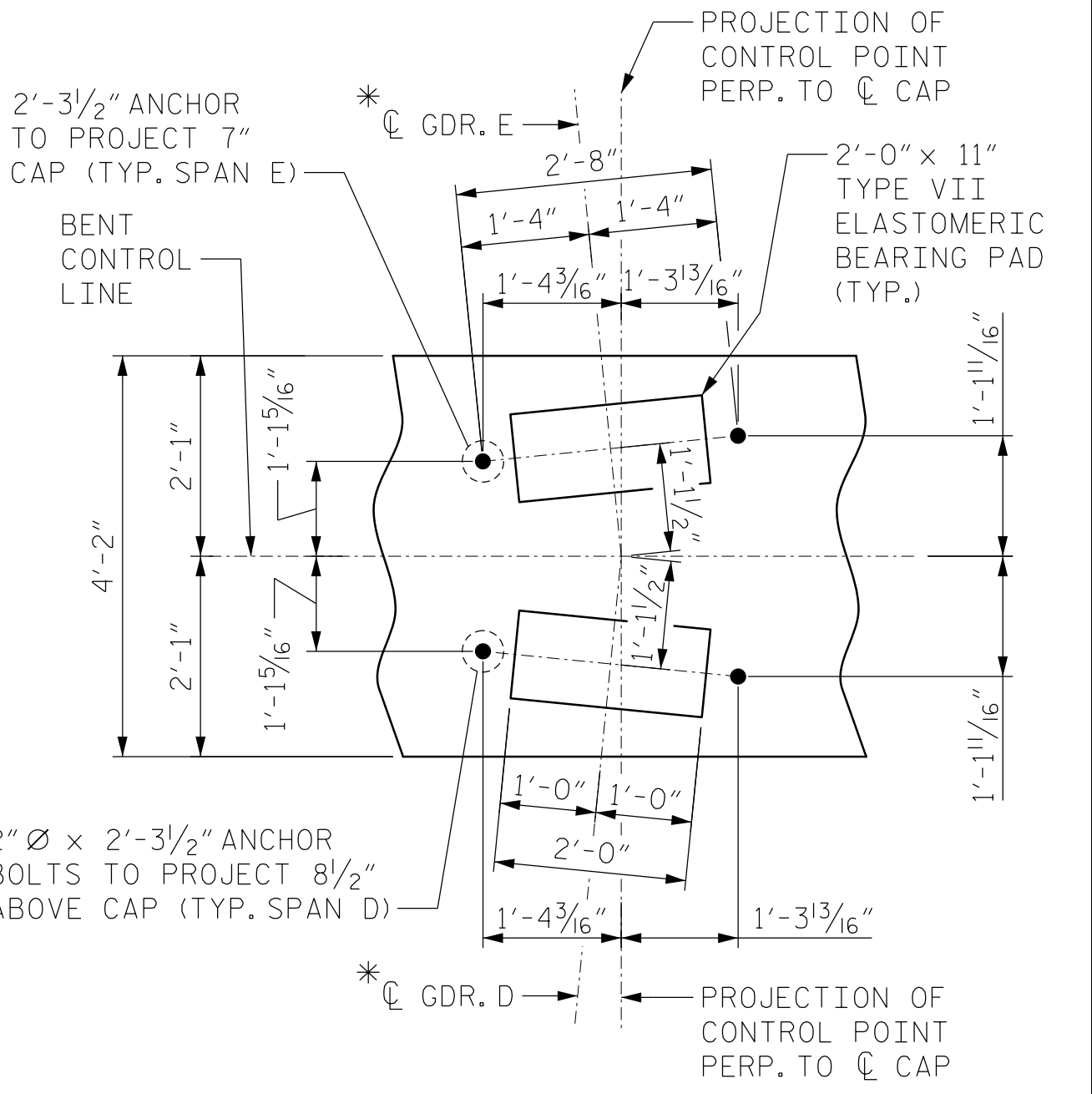
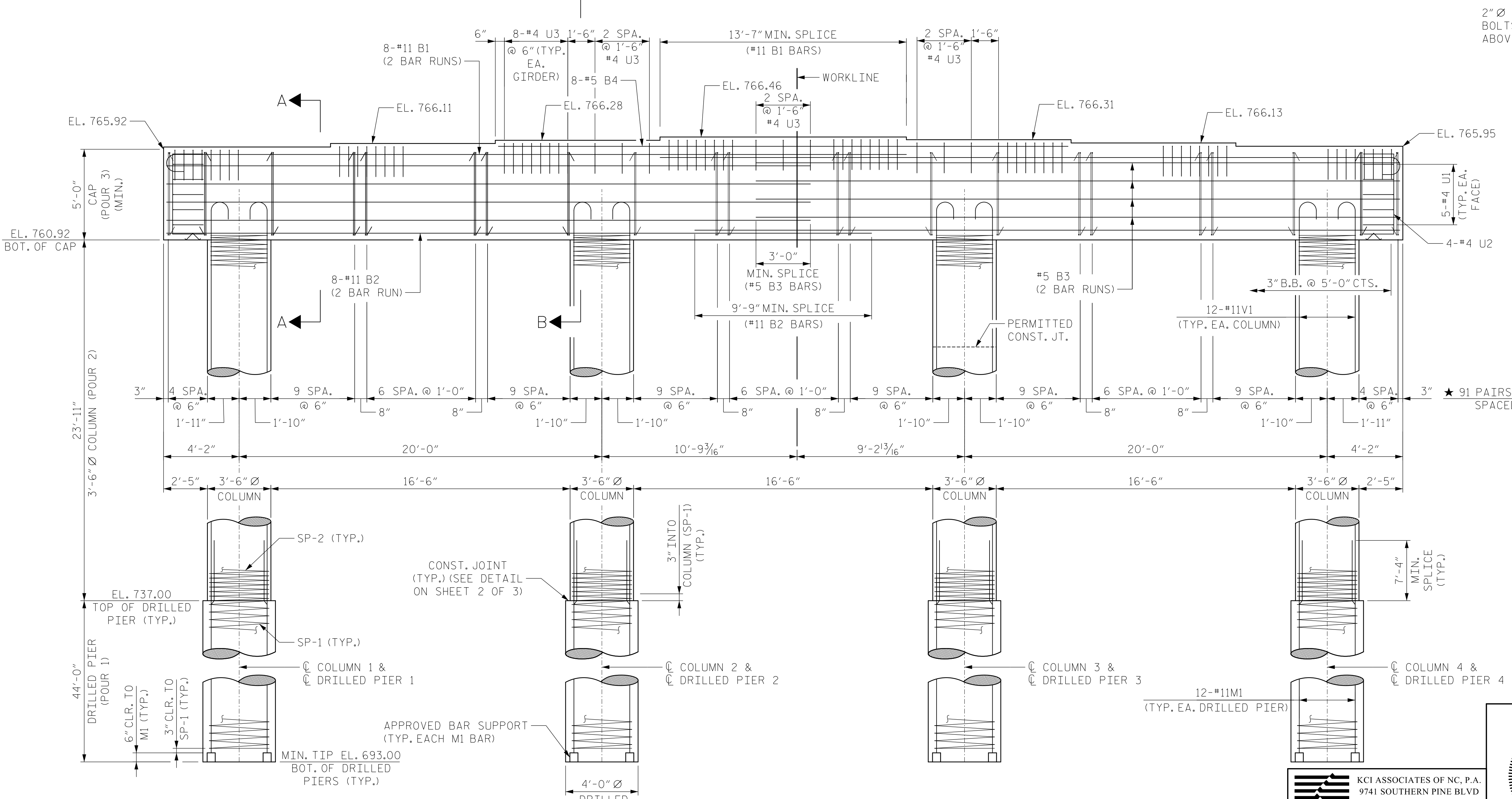
FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."

★ INVERT ALTERNATE STIRRUP PAIRS IN BENT CAP.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT ONE FOOT BELOW THE GROUND LINE.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.



BEARING DETAIL

★ ANGLE BETWEEN C GIRDERS AND PROJECTION OF CONTROL POINT EXAGGERATED FOR CLARITY

PROJECT NO. U-5008
 MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.
 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT 4

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

SHEET NO. S-64
 SHEETS 78

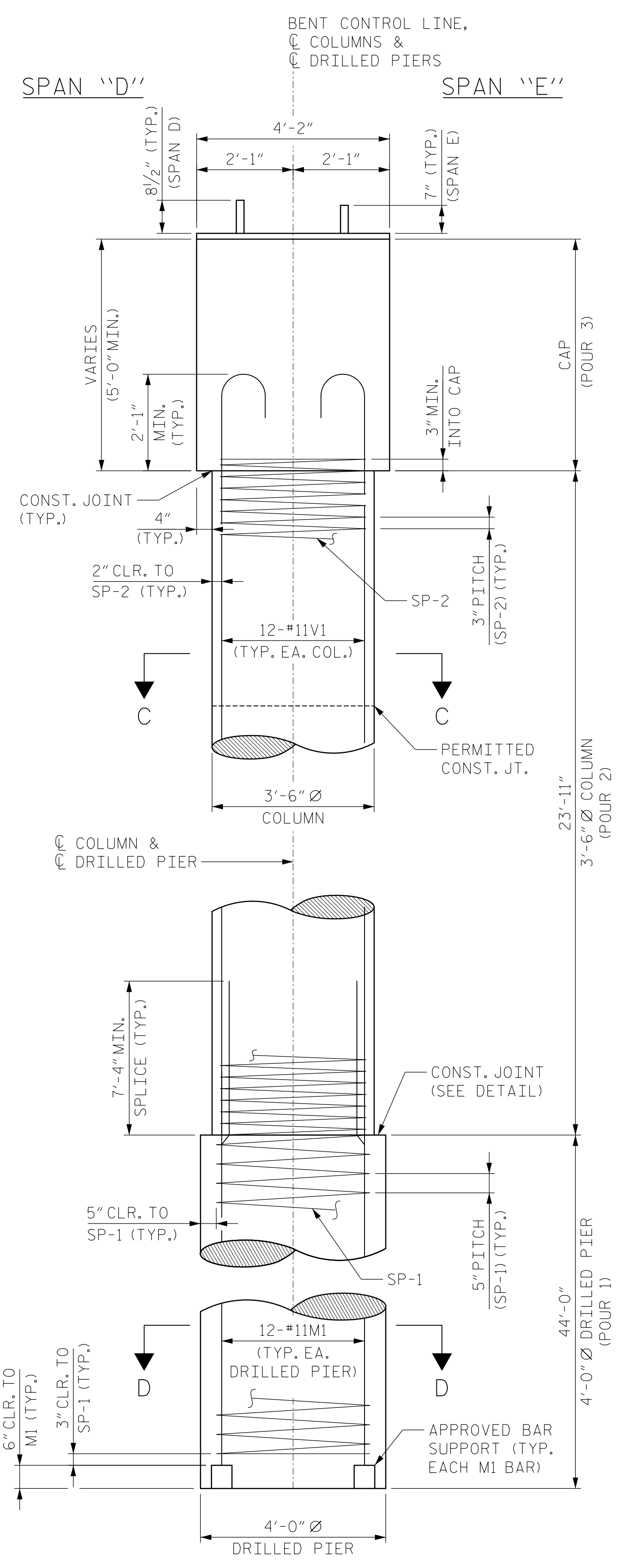
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 CHARLOTTE, NC 28273
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032954
 JARED C. MEDLIN
 2/19/2015

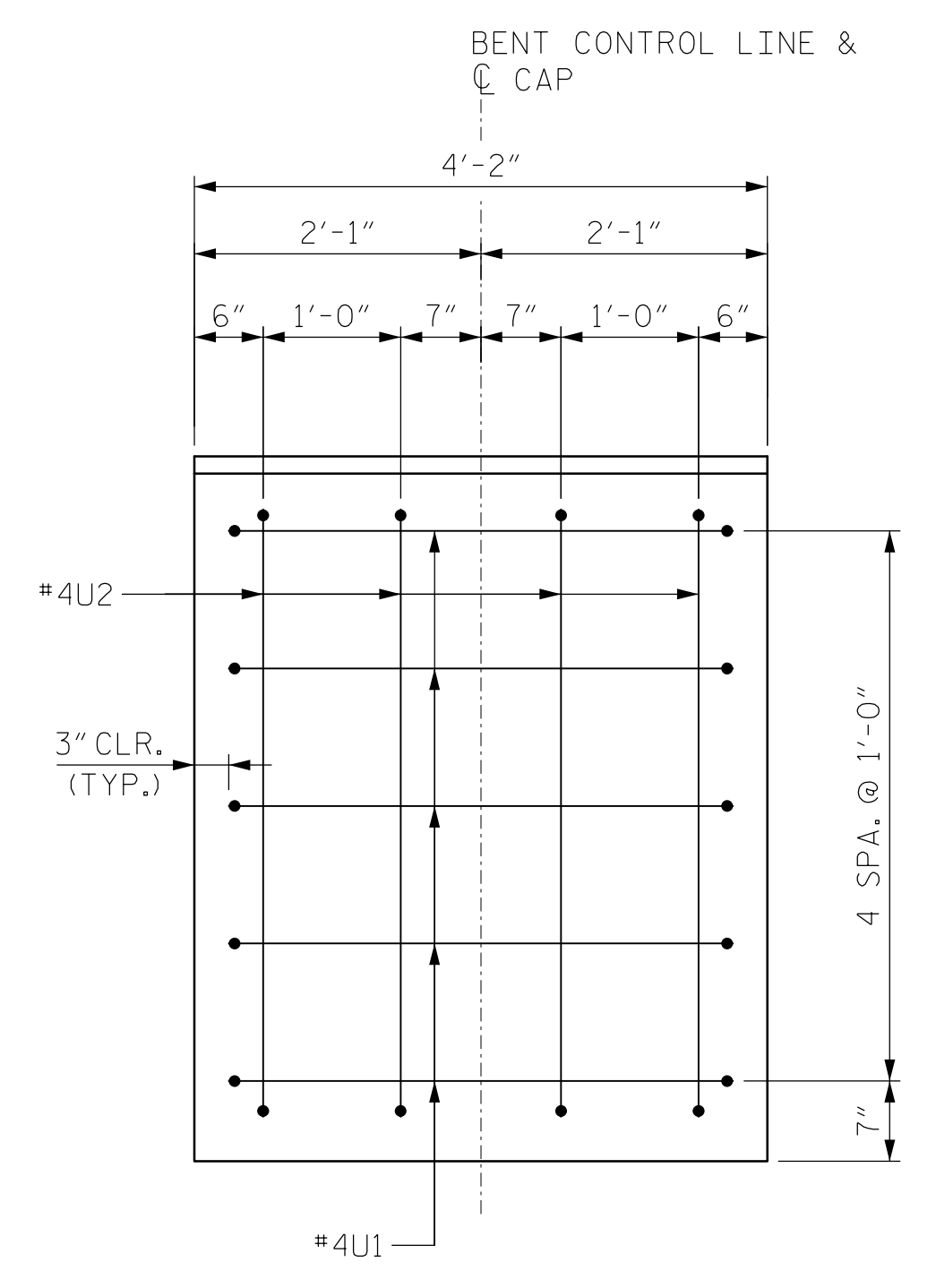
D.J.D. DRAWN BY: D.L.KEENER DATE: OCT. 2014
 CHECKED BY: J.C.MEDLIN DATE: OCT. 2014

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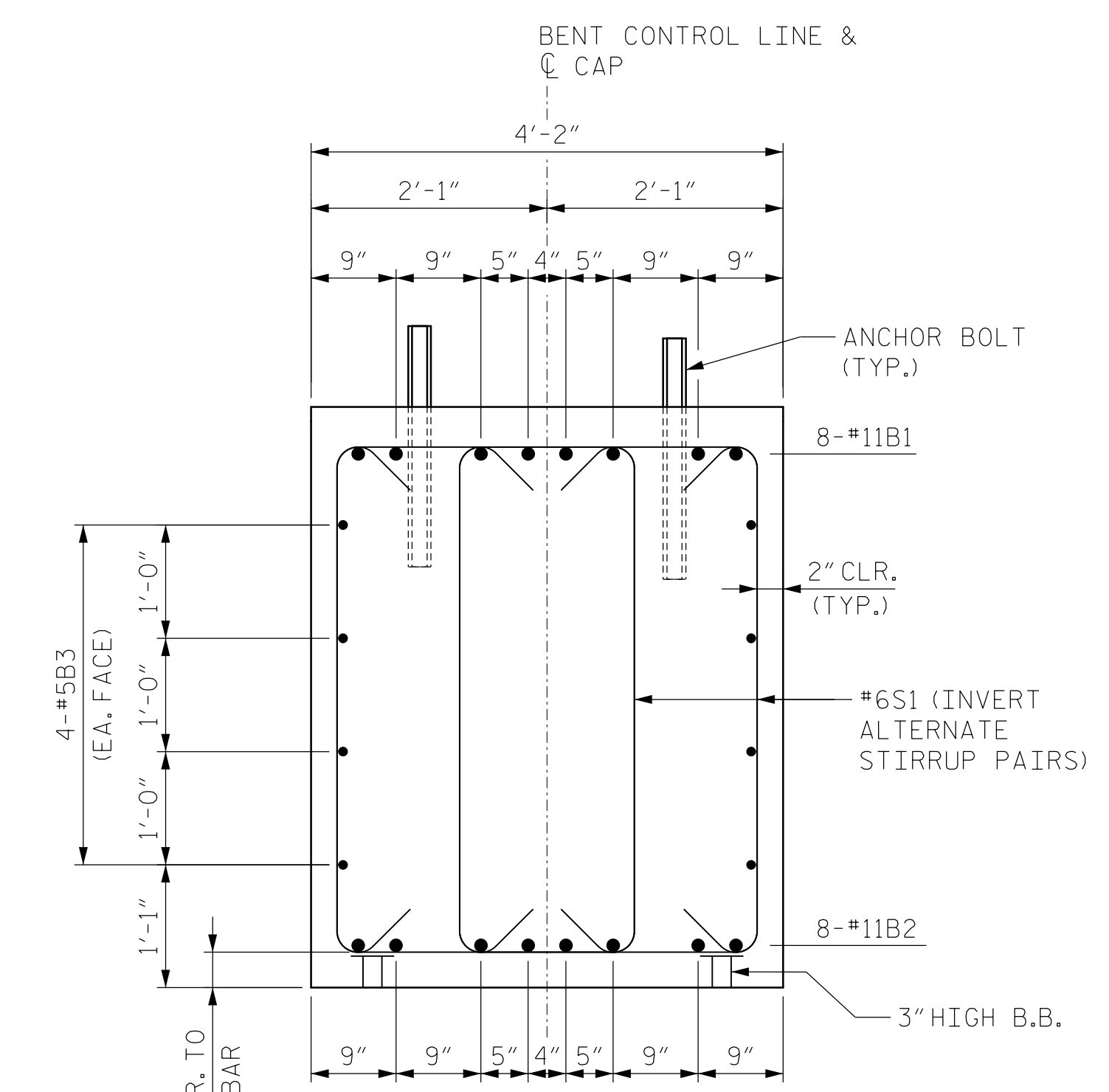
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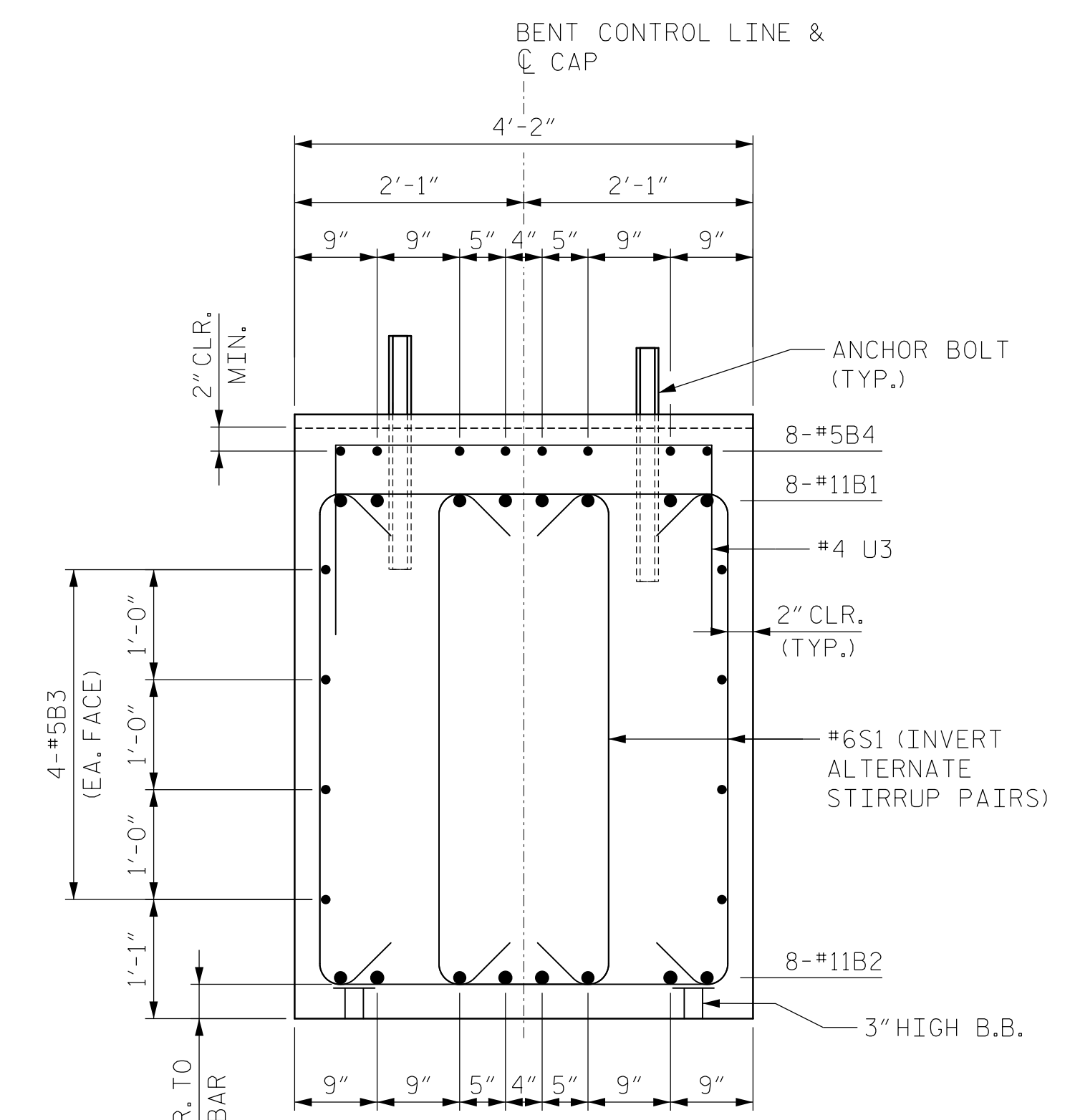
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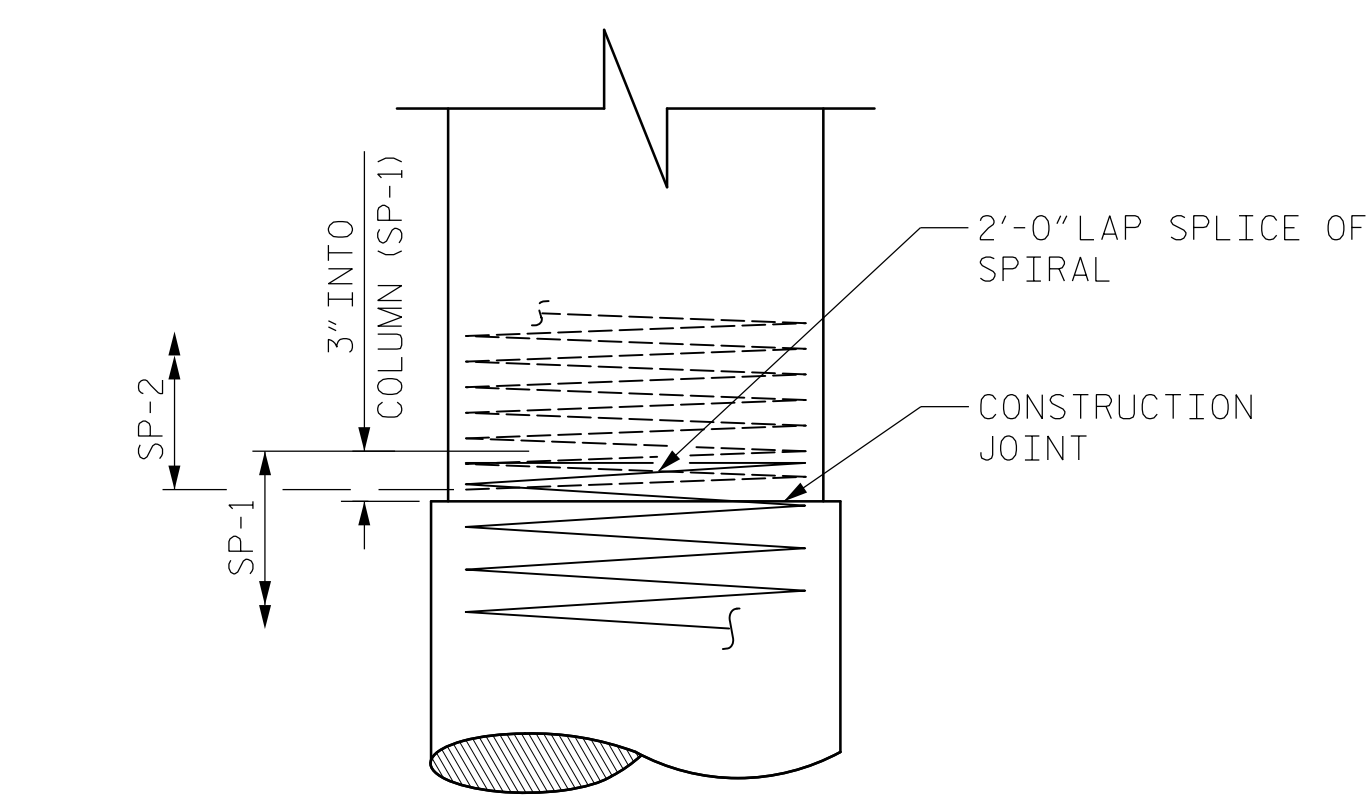
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(TYP. BOTH ENDS)



SECTION A-A



SECTION B-B



CONSTRUCTION JOINT DETAIL

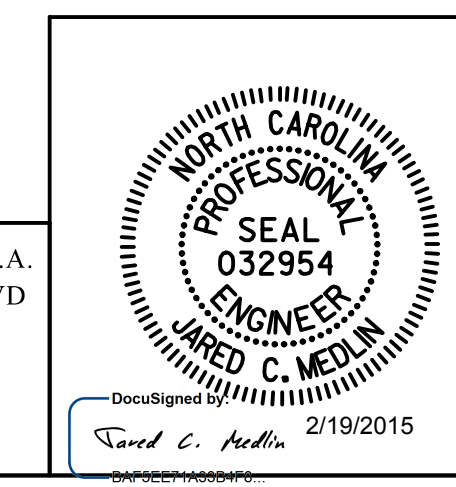
PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BENT 4
 DETAILS**

REVISIONS					
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2			4		

SHEET NO. S-65
 SHEETS 78

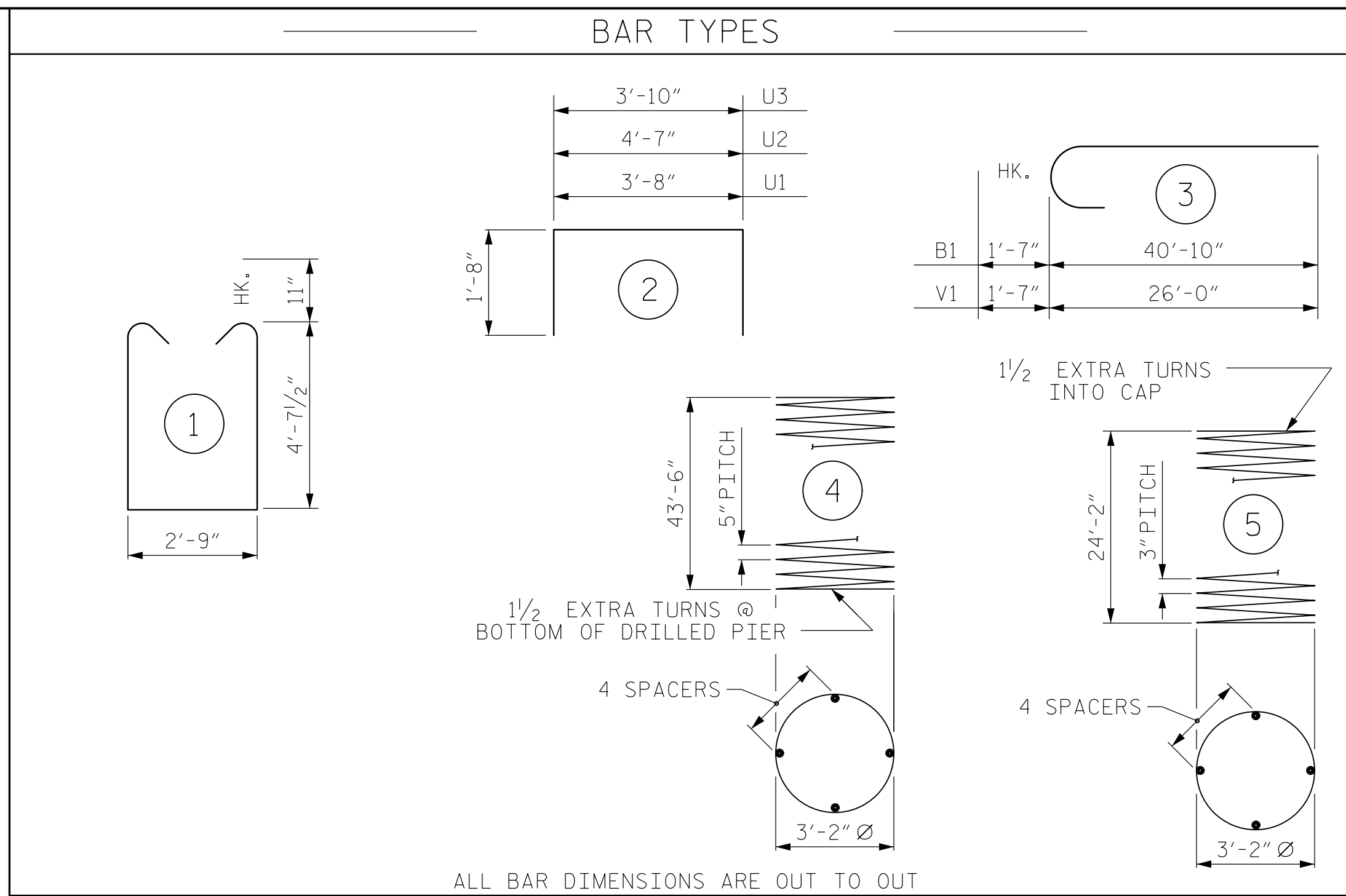
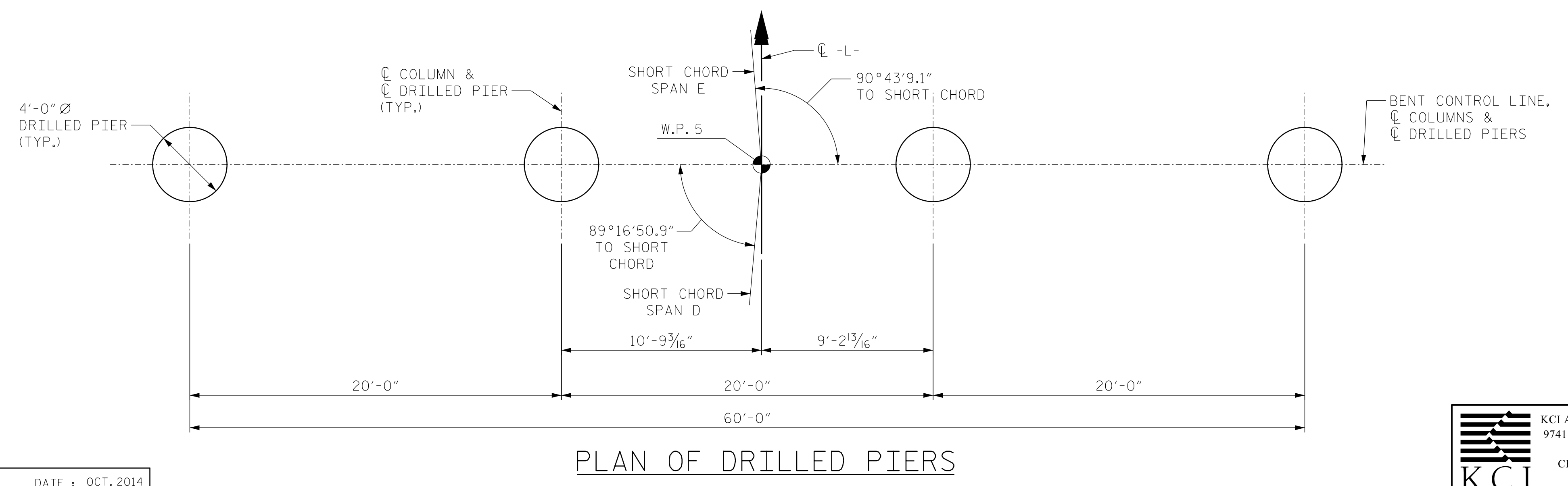
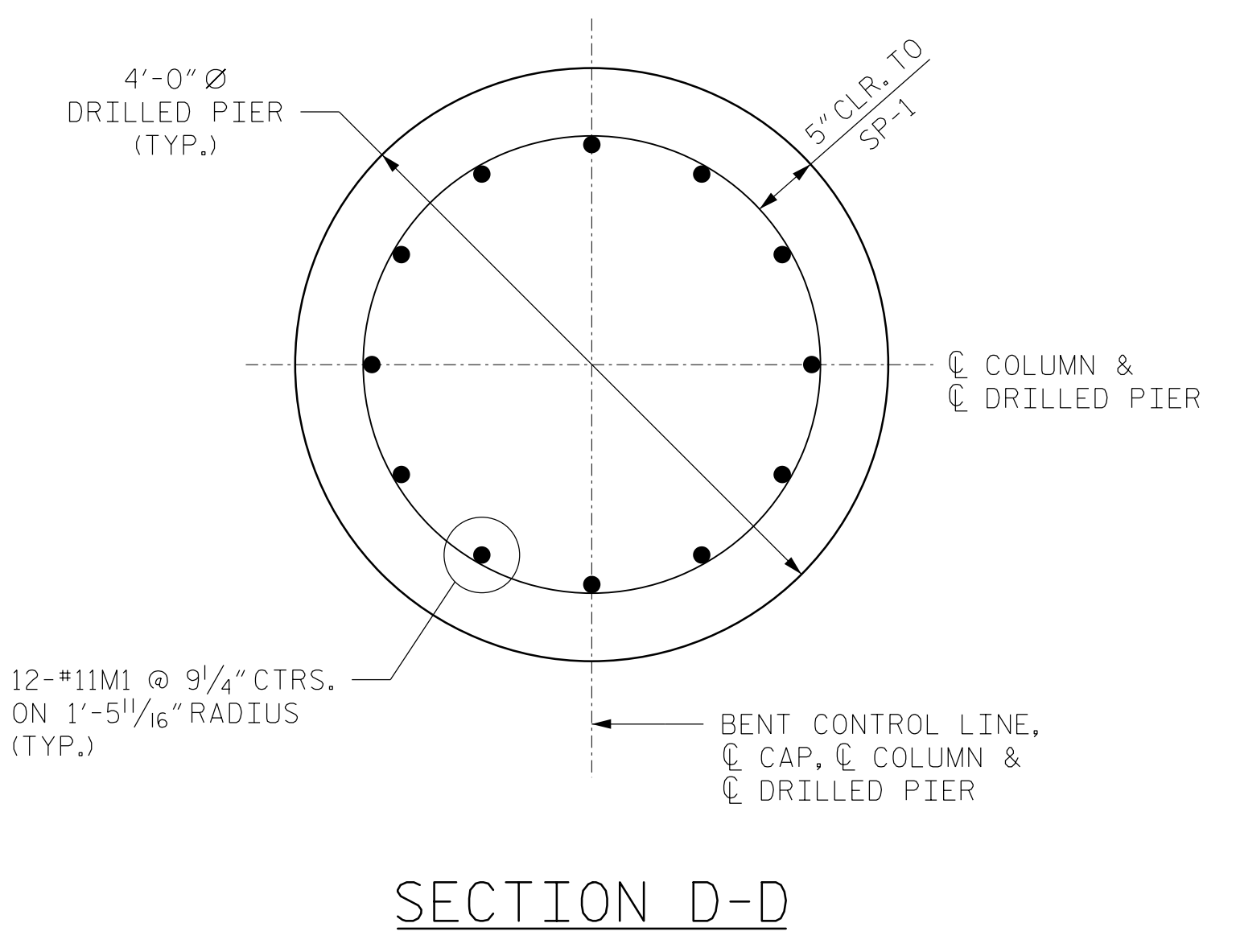
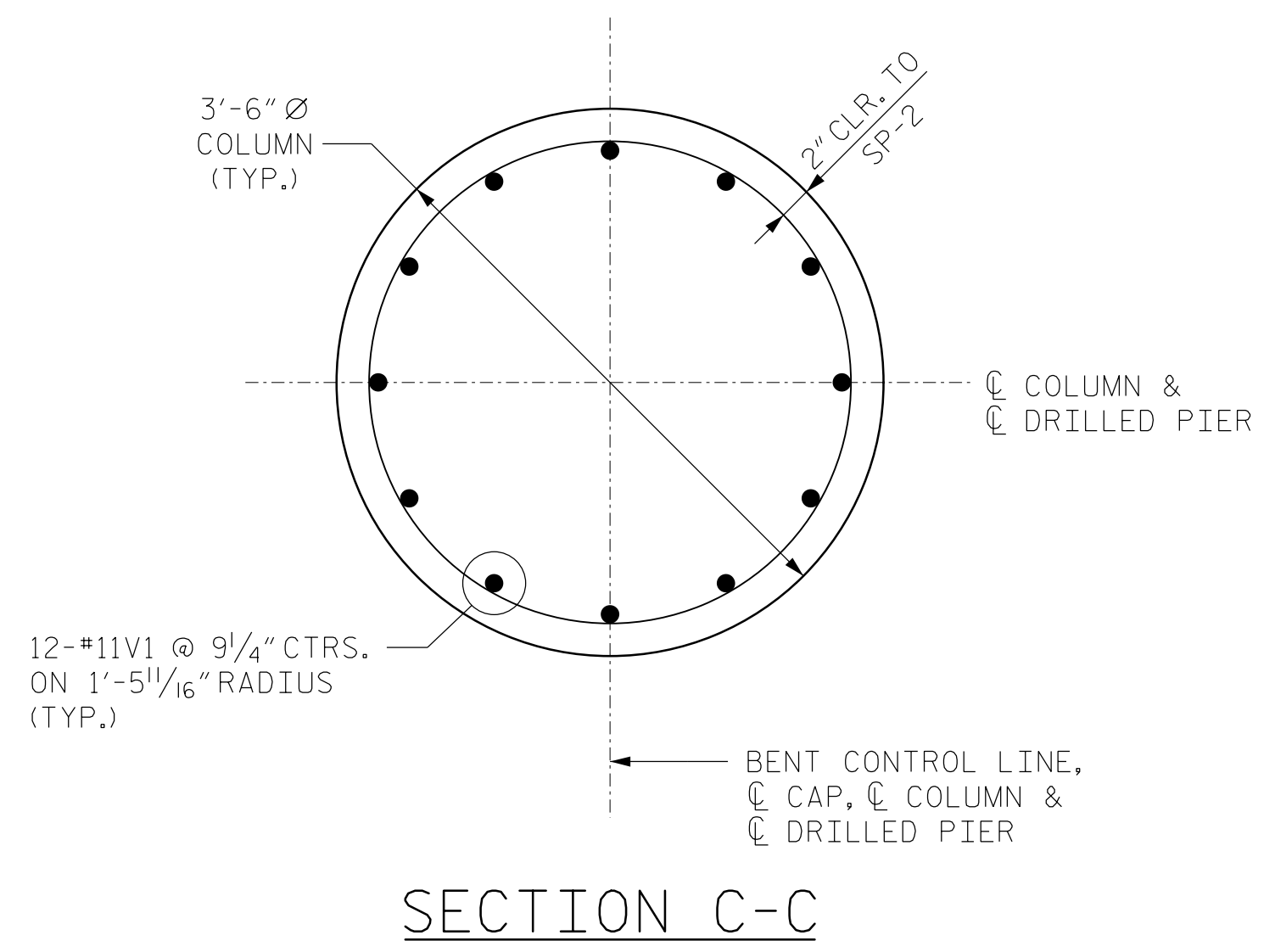


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 SUITE J
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 704-499-9452
 NC LICENSE No. C-0764

DRAWN BY: D.L.KEENER DATE: OCT. 2014
 CHECKED BY: J.C.MEDLIN DATE: OCT. 2014

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BILL OF MATERIAL FOR ONE BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#11	3	42'-5"	3,606
B2	16	#11	STR	38'-11"	3,308
B3	16	#5	STR	35'-6"	592
B4	8	#5	STR	31'-5"	262
M1	48	#11	STR	54'-4"	13,856
S1	182	#6	1	13'-10"	3,782
U1	10	#4	2	7'-0"	47
U2	8	#4	2	7'-11"	42
U3	73	#4	2	7'-2"	349
V1	48	#11	3	27'-7"	7,034
REINFORCING STEEL (FOR ONE BENT)					32,878 LBS.
SP-1	4	*	4	1054'-6"	4,399
SP-2	4	**	5	970'-3"	2,593
SPIRAL COLUMN REINFORCING STEEL (FOR ONE BENT)					6,992 LBS.
* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR					
** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR					
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)					
POUR #2 (COLUMNS)					34.1 C.Y.
POUR #3 (CAP)					55.6 C.Y.
TOTAL CLASS A CONCRETE					89.7 C.Y.
DRILLED PIERS: (FOR ONE BENT)					
DRILLED PIER CONCRETE POUR #1 (DRILLED PIERS)					81.9 C.Y.
4'-0" Ø DRILLED PIER NOT IN SOIL					68 LIN. FT.
4'-0" Ø DRILLED PIER IN SOIL					108 LIN. FT.
CSL TUBES					728 LIN. FT.

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT 4 DETAILS

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

SHEET NO. S-66
SHEETS 78

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NORTH CAROLINA
 PROFESSIONAL
 SEAL
 032954
 JARED C. MEDLIN
 ENGINEER

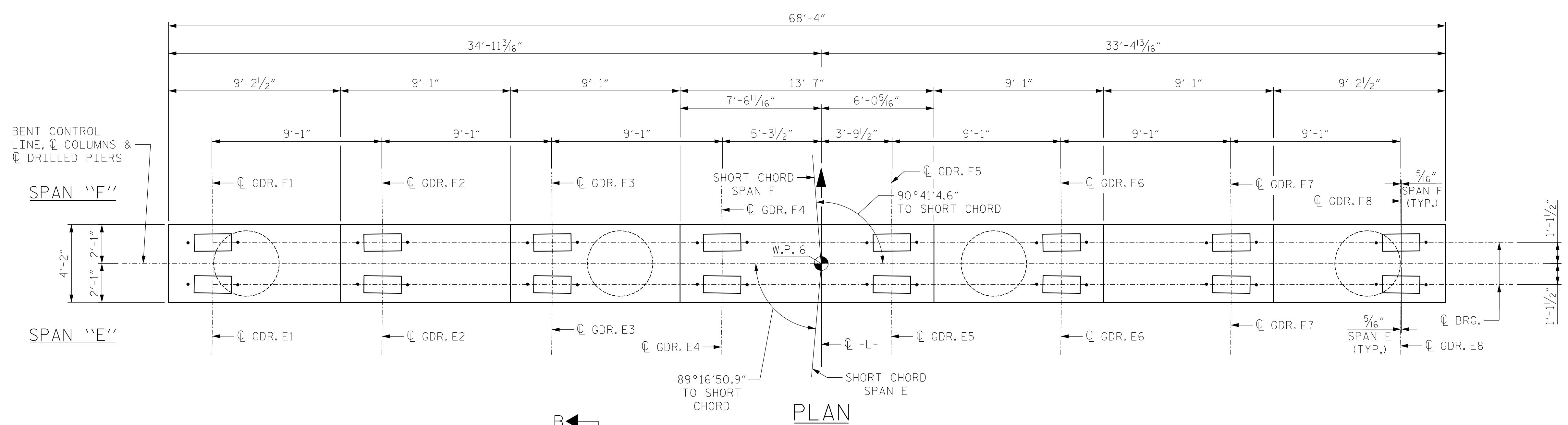
Jared C. Medlin 2/19/2015

2/18/2015 Y:\Drowings\2011 DWGS\B11-11 Sugar Creek Rd - NCDOT\Structures\RFC\SH66.U-5008.SD.B4-03.dgn

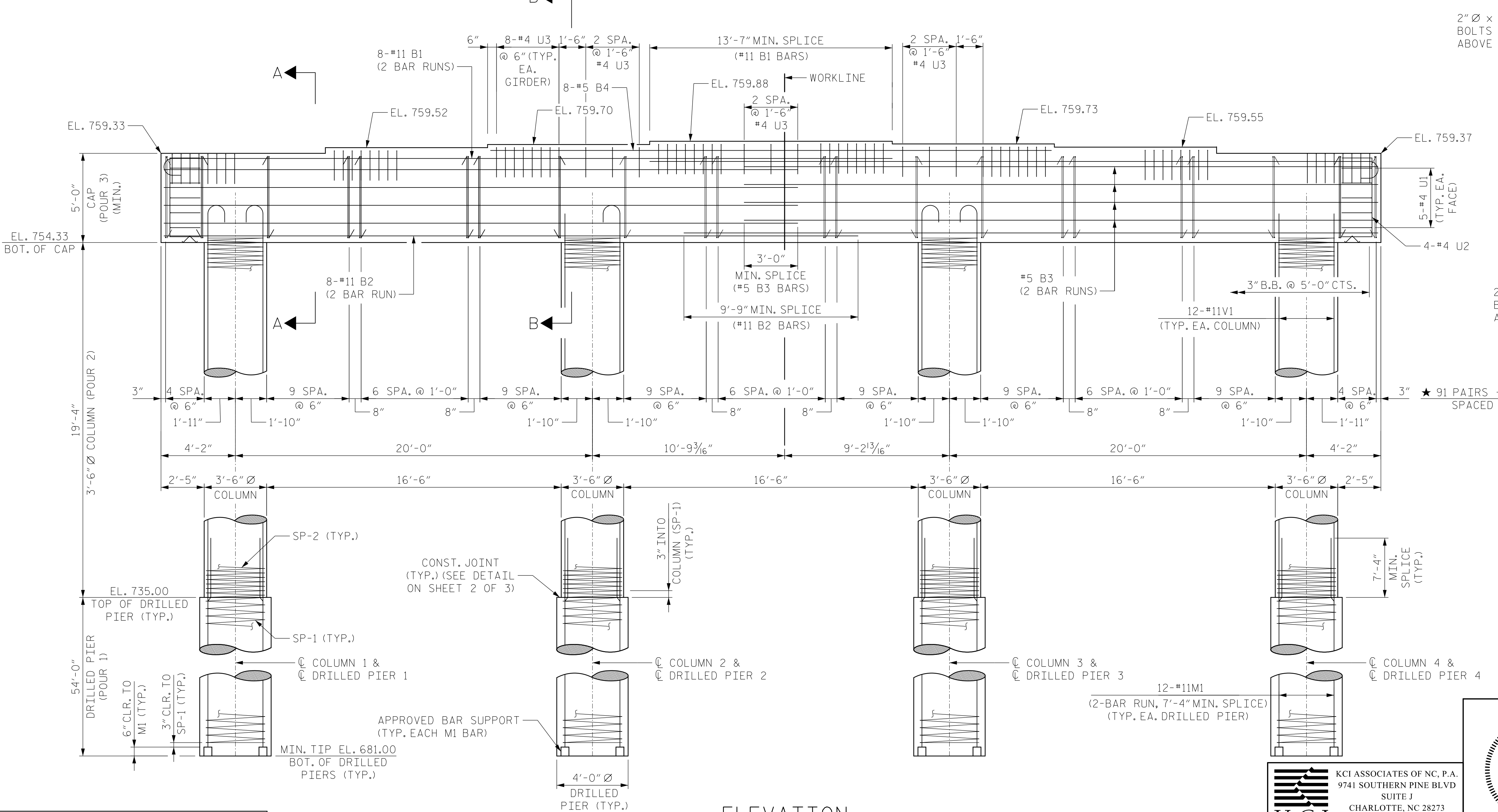
DJD DRAWN BY : D.L.KEENER DATE : OCT. 2014
 CHECKED BY : J.C.MEDLIN DATE : OCT. 2014

NOTES

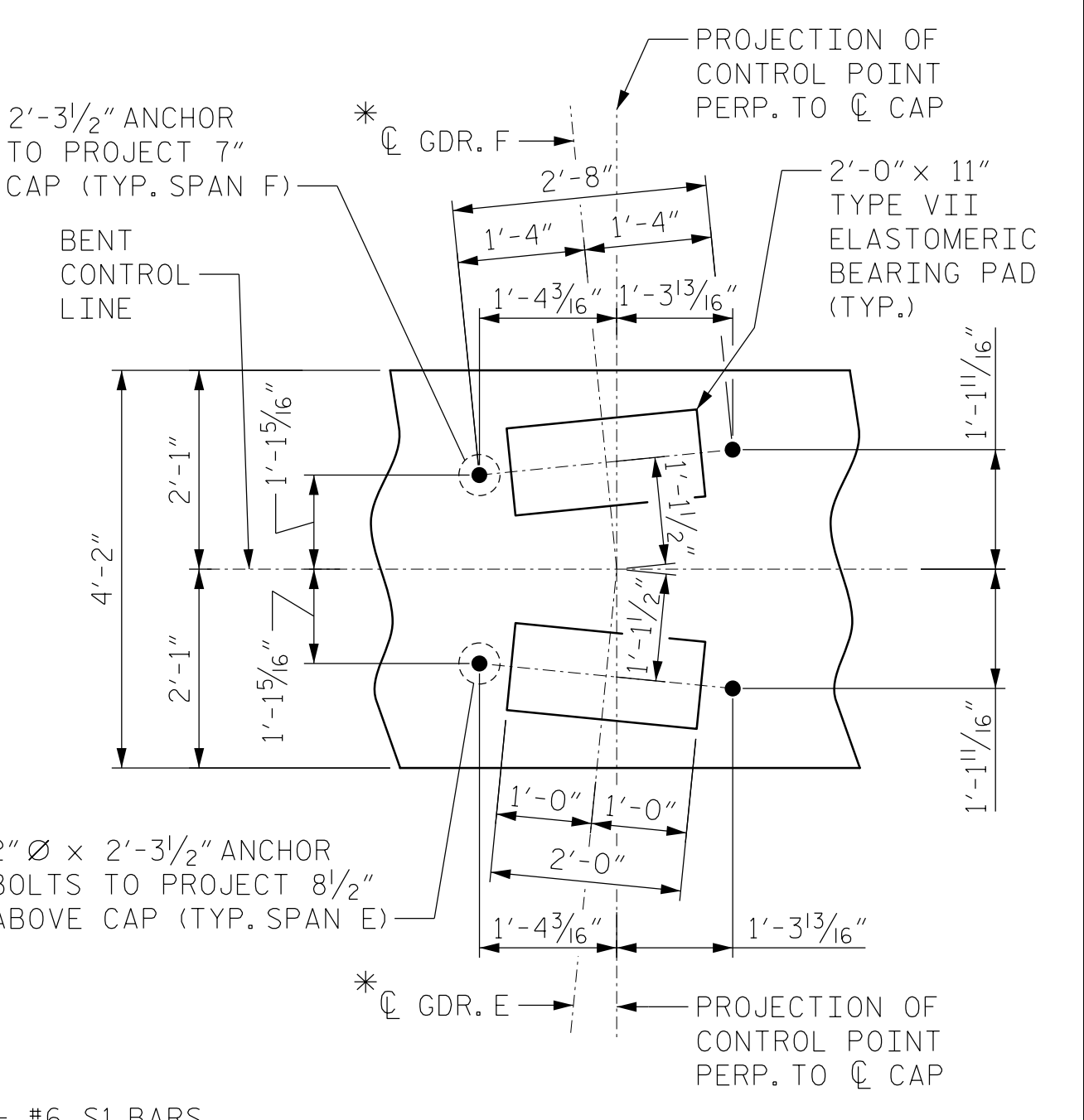
- STIRRUPS AND U3 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
- FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."
- ★ INVERT ALTERNATE STIRRUP PAIRS IN BENT CAP.
- THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT ONE FOOT BELOW THE GROUND LINE.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.



PLAN



ELEVATION



BEARING DETAIL

* ANGLE BETWEEN C GIRDERS AND PROJECTION OF CONTROL POINT EXAGGERATED FOR CLARITY

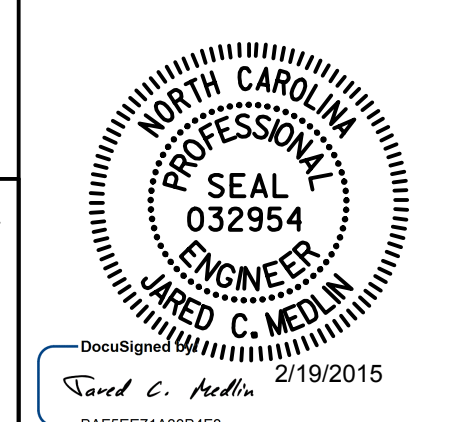
PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
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BENT 5

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

SHEET NO. S-67
SHEETS 78

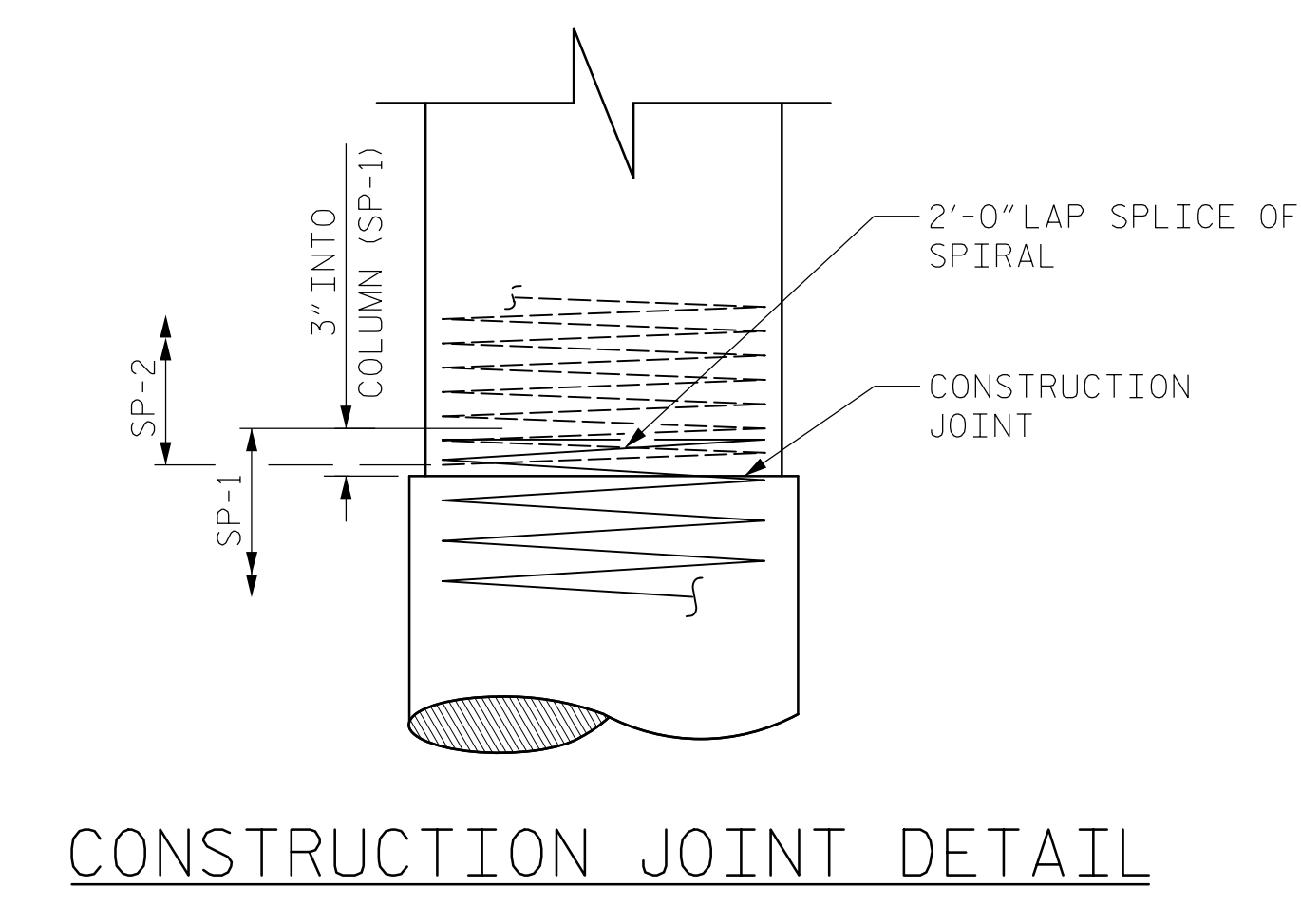
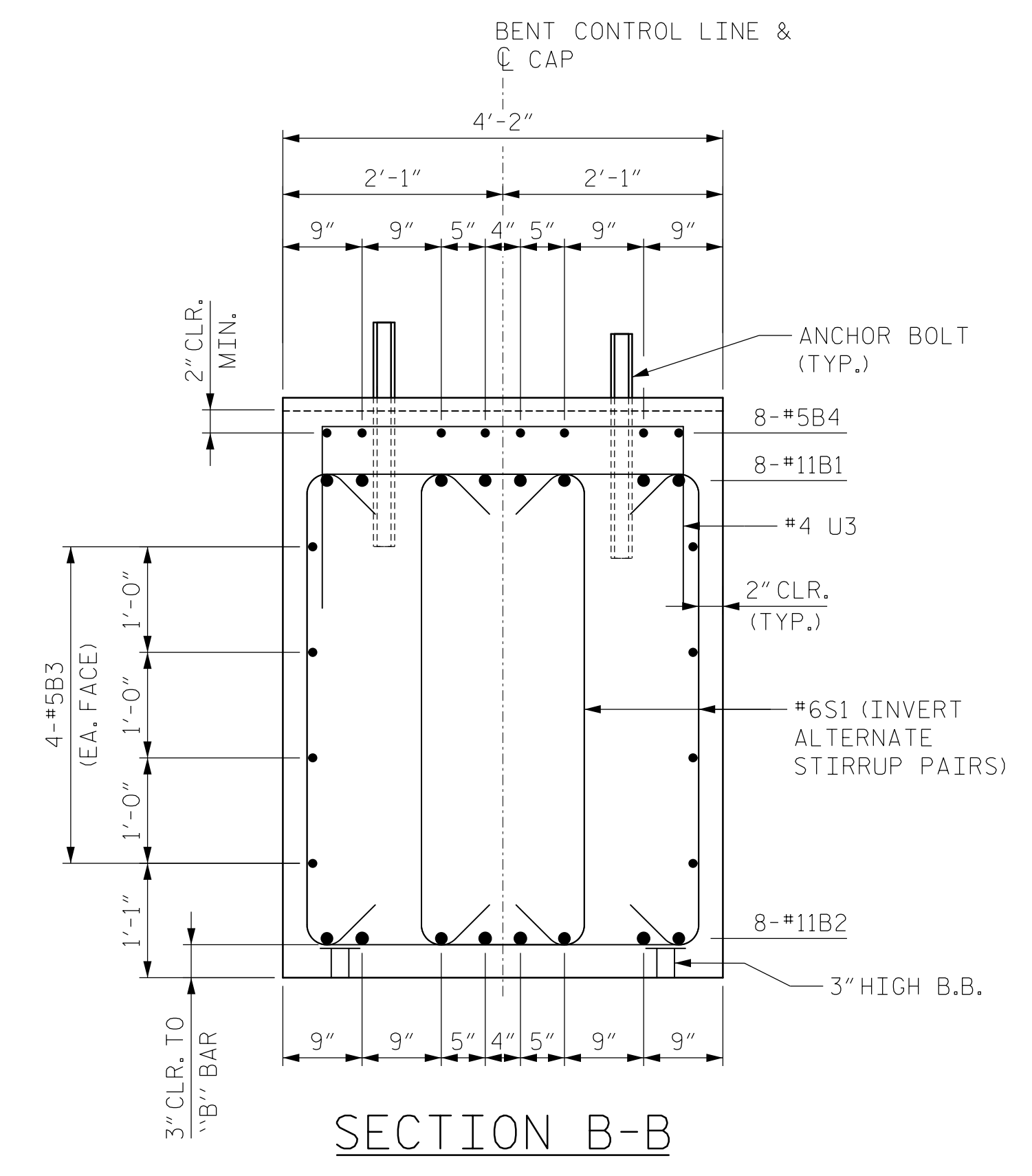
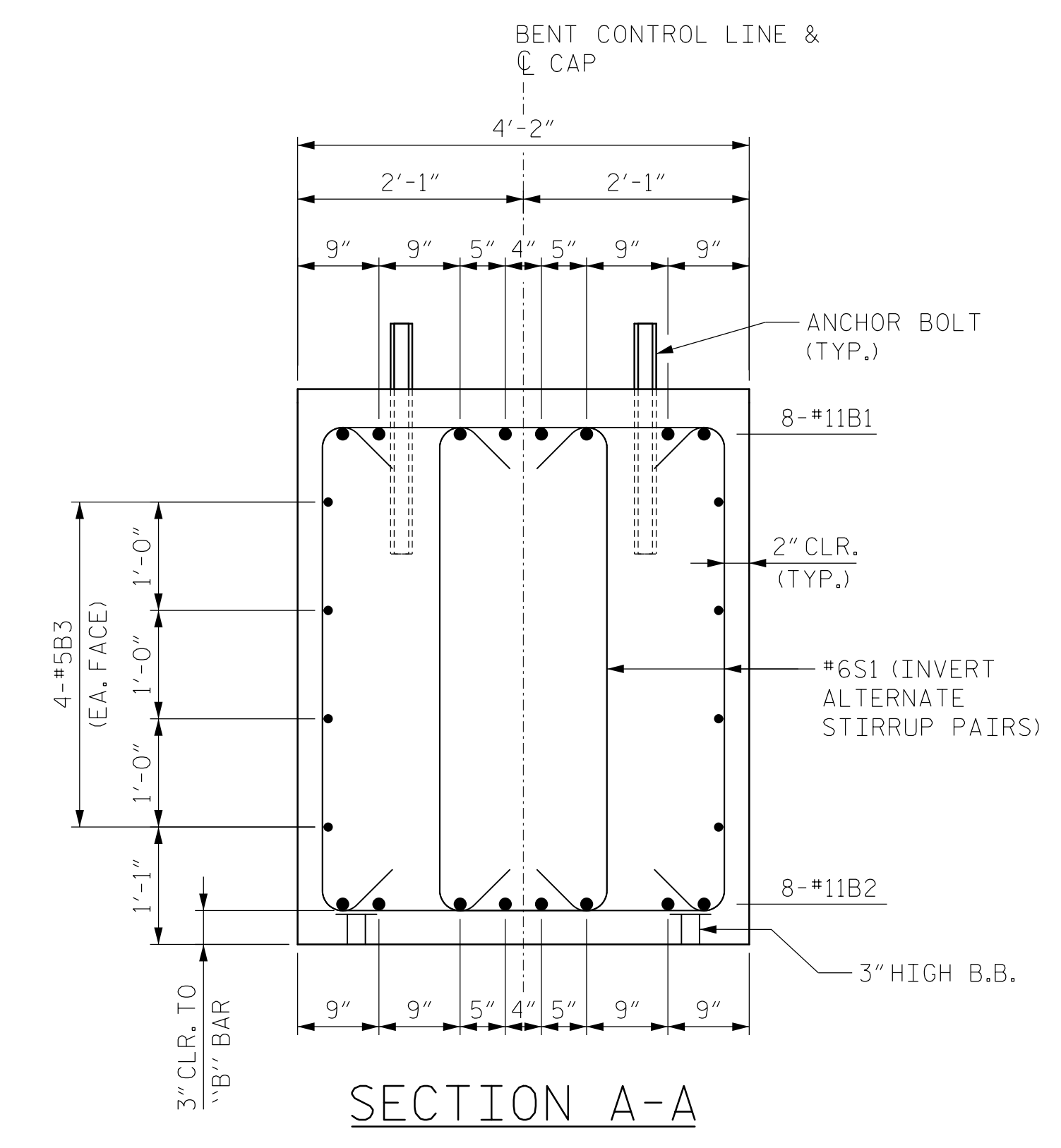
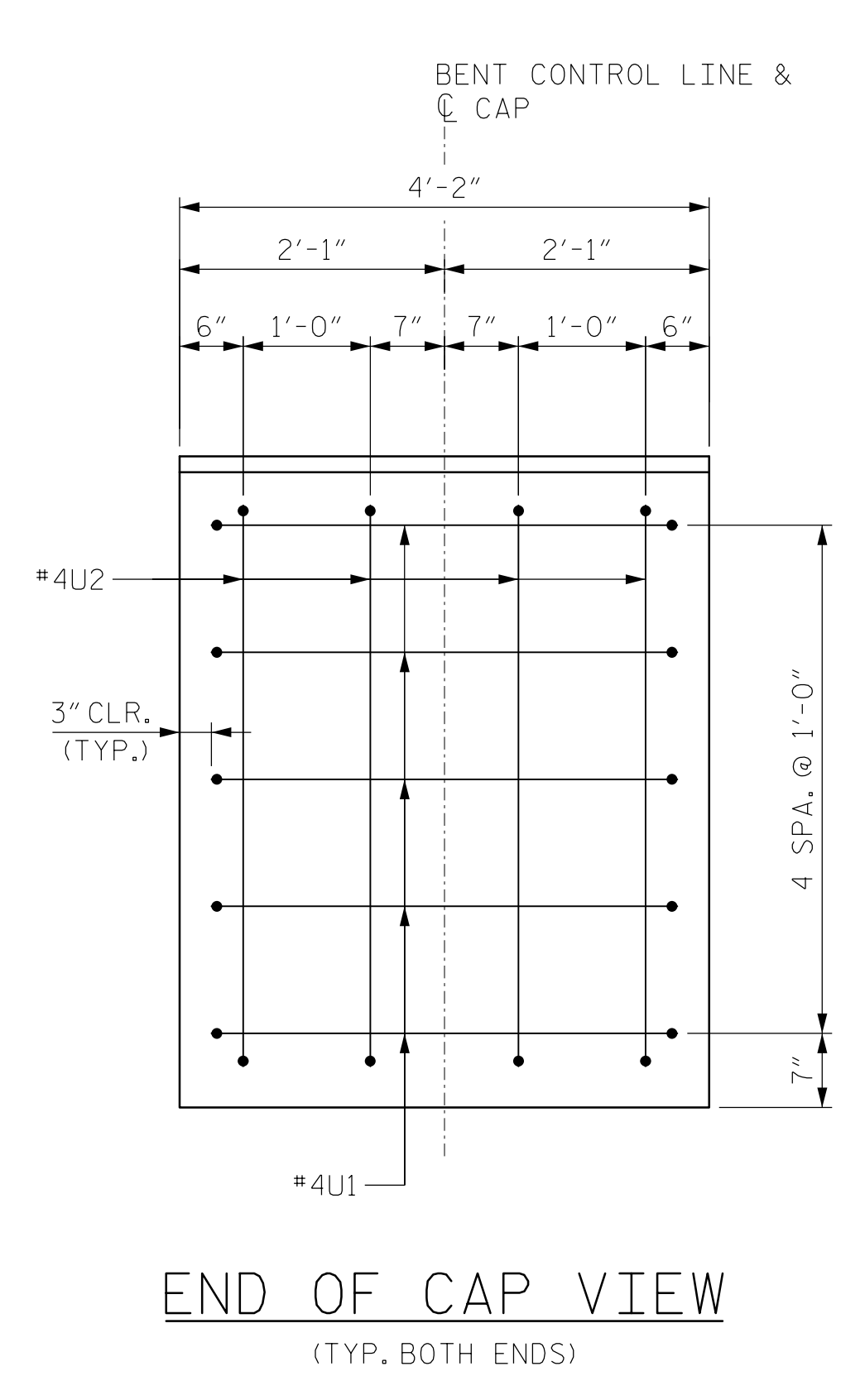
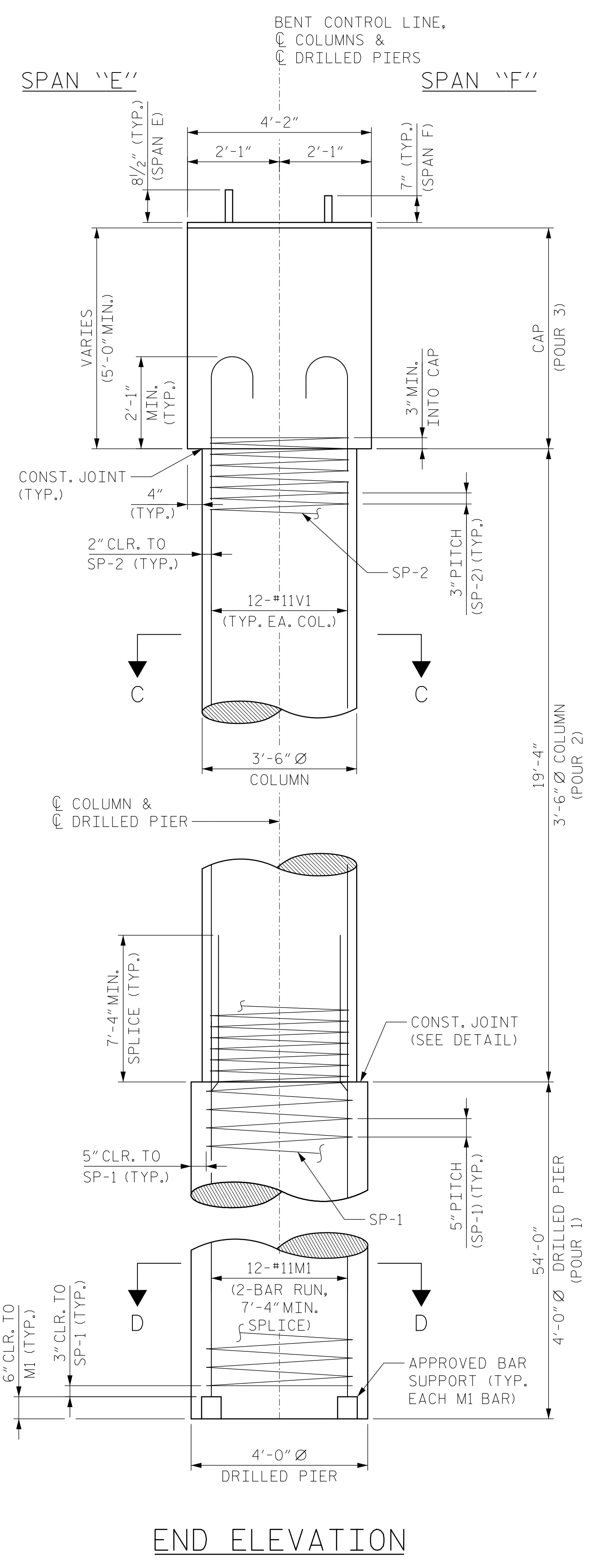


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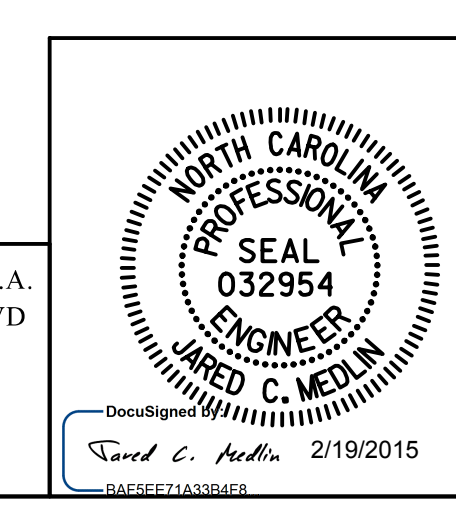
DRAWN BY: D.L.KEENER DATE: OCT. 2014
 CHECKED BY: J.C.MEDLIN DATE: OCT. 2014

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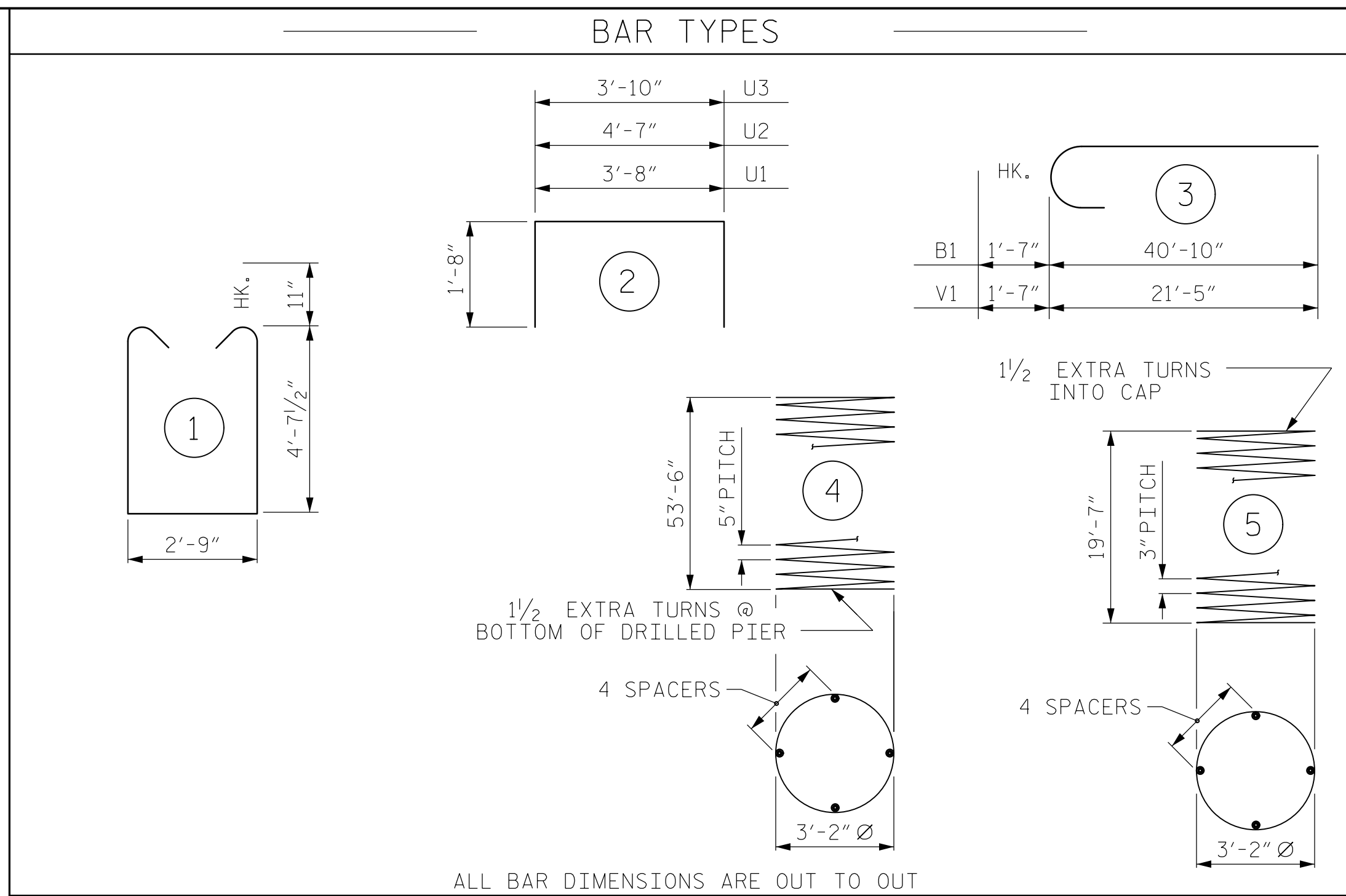
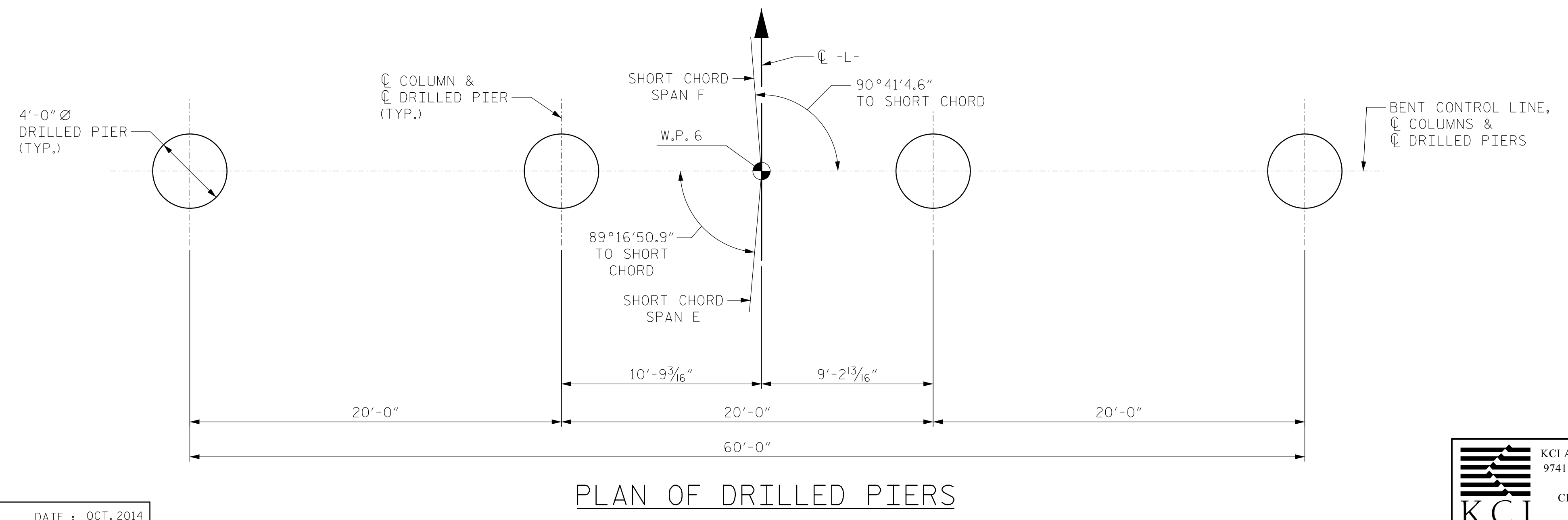
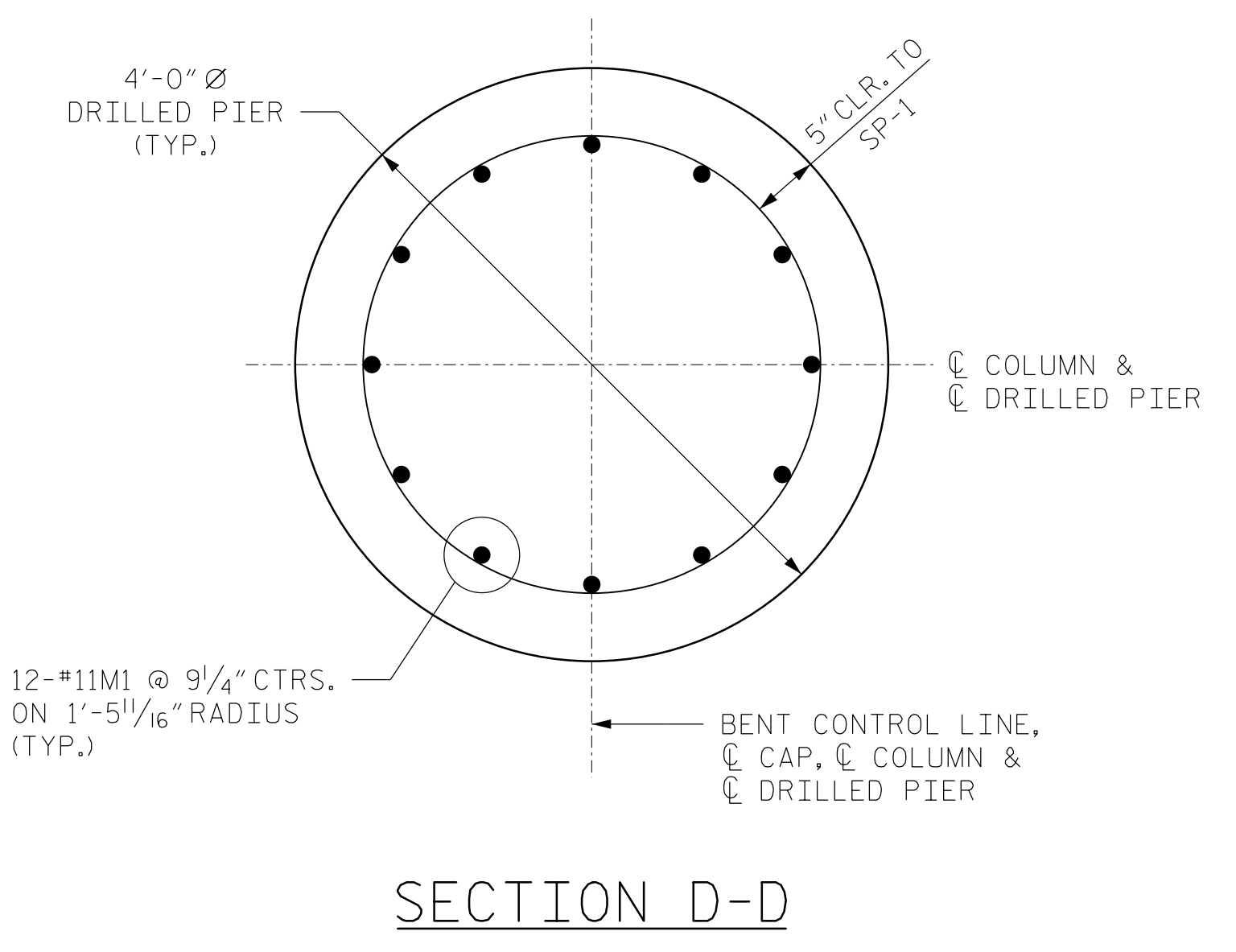
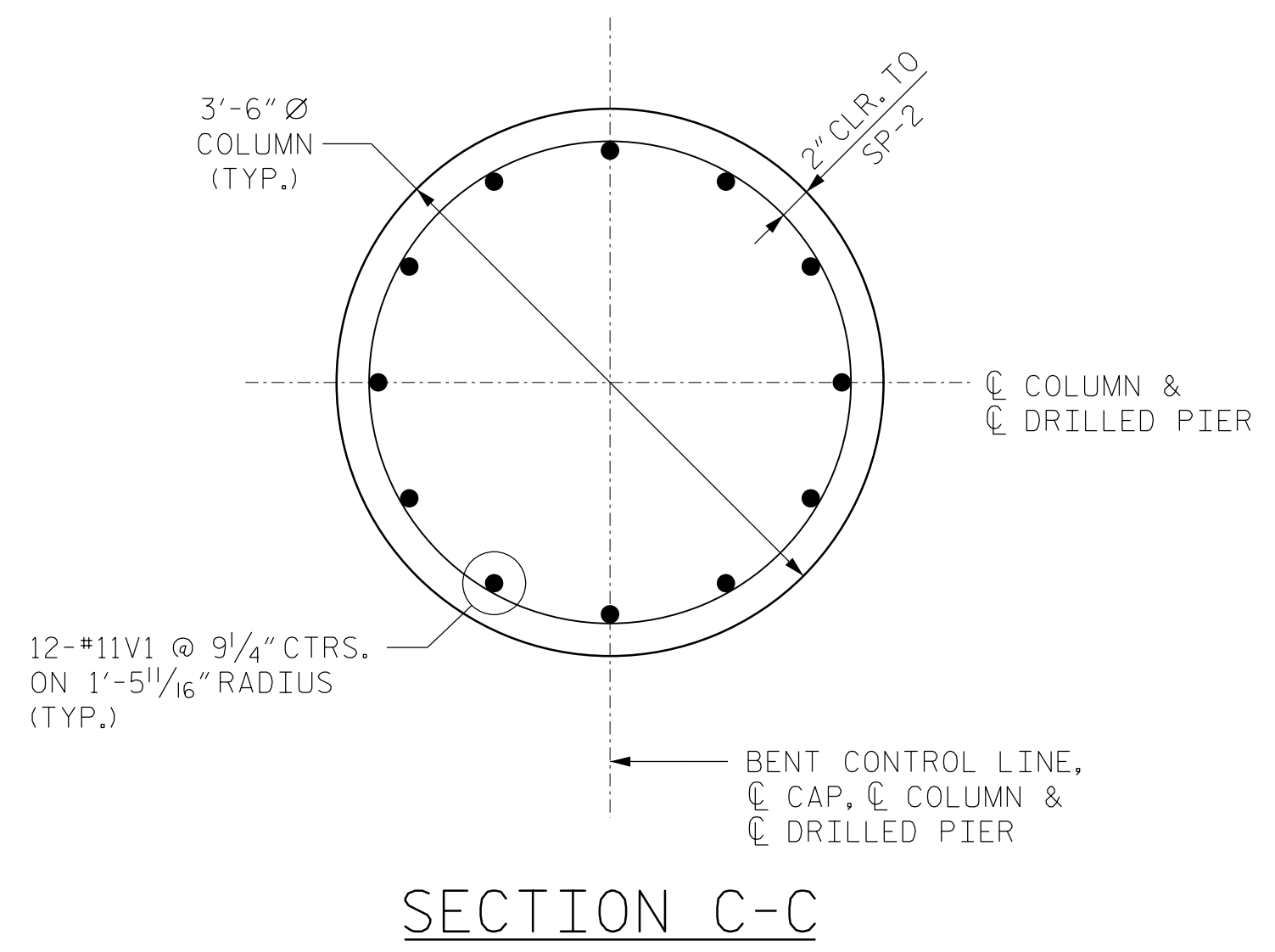
PROJECT NO. U-5008
 MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.
 SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT 5 DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-68					SHEETS 78



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BILL OF MATERIAL FOR ONE BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#11	3	42'-5"	3,606
B2	16	#11	STR	38'-11"	3,308
B3	16	#5	STR	35'-6"	592
B4	8	#5	STR	31'-5"	262
M1	96	#11	STR	36'-0"	18,362
S1	182	#6	1	13'-10"	3,782
U1	10	#4	2	7'-0"	47
U2	8	#4	2	7'-11"	42
U3	73	#4	2	7'-2"	306
V1	48	#11	3	23'-0"	5,866
REINFORCING STEEL (FOR ONE BENT)					36,216 LBS.
SP-1	4	*	4	1293'-5"	5,396
SP-2	4	**	5	791'-2"	2,114
SPIRAL COLUMN REINFORCING STEEL (FOR ONE BENT)					7,510 LBS.
* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR					
** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR					
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)					
POUR #2 (COLUMNS)					27.6 C.Y.
POUR #3 (CAP)					55.6 C.Y.
TOTAL CLASS A CONCRETE					83.2 C.Y.
DRILLED PIERS: (FOR ONE BENT)					
DRILLED PIER CONCRETE					
POUR #1 (DRILLED PIERS)					100.5 C.Y.
4'-0" DRILLED PIER NOT IN SOIL					48 LIN. FT.
4'-0" DRILLED PIER IN SOIL					168 LIN. FT.
CSL TUBES					888 LIN. FT.

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.

SHEET 3 OF 3

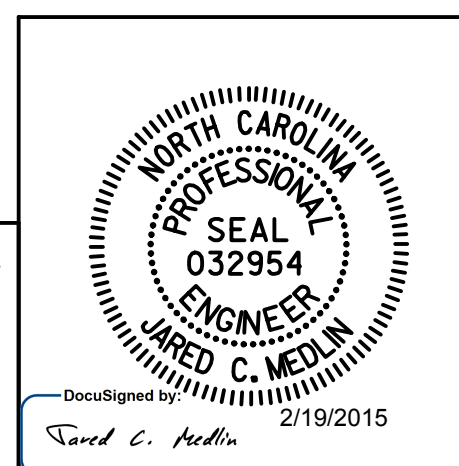
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BENT 5
 DETAILS**

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

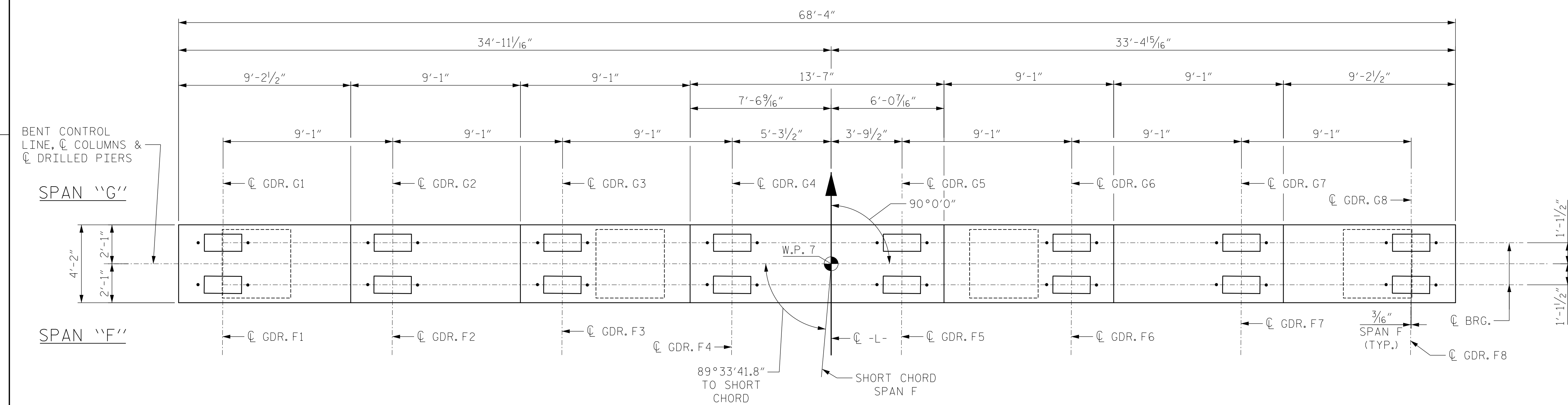
SHEET NO. S-69
 SHEETS 78

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DJD
 DRAWN BY: D.L.KEENER DATE: OCT. 2014
 CHECKED BY: J.C.MEDLIN DATE: OCT. 2014



PLAN

NOTES

STIRRUPS AND U3 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

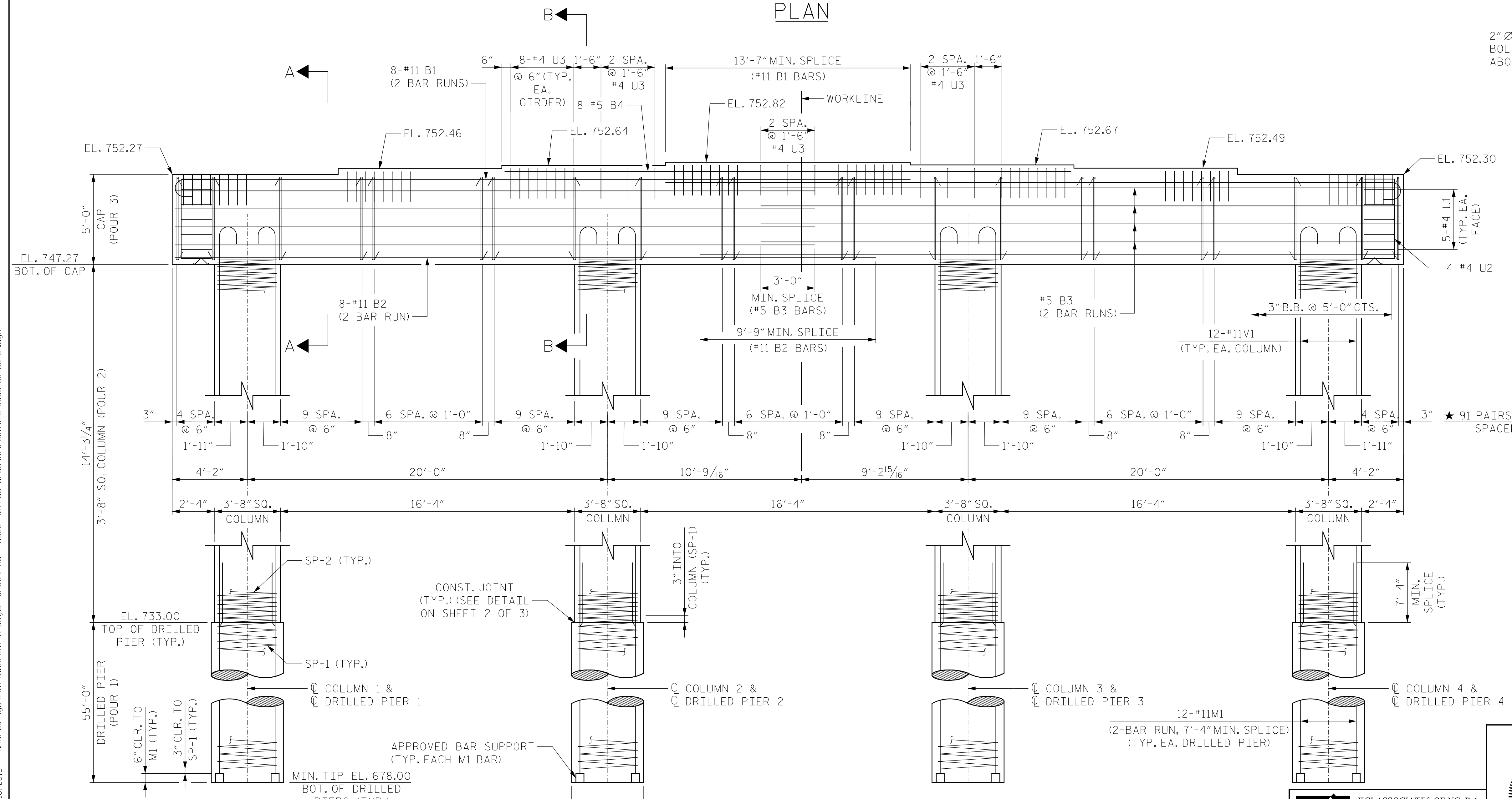
FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."

★ INVERT ALTERNATE STIRRUP PAIRS IN BENT CAP.

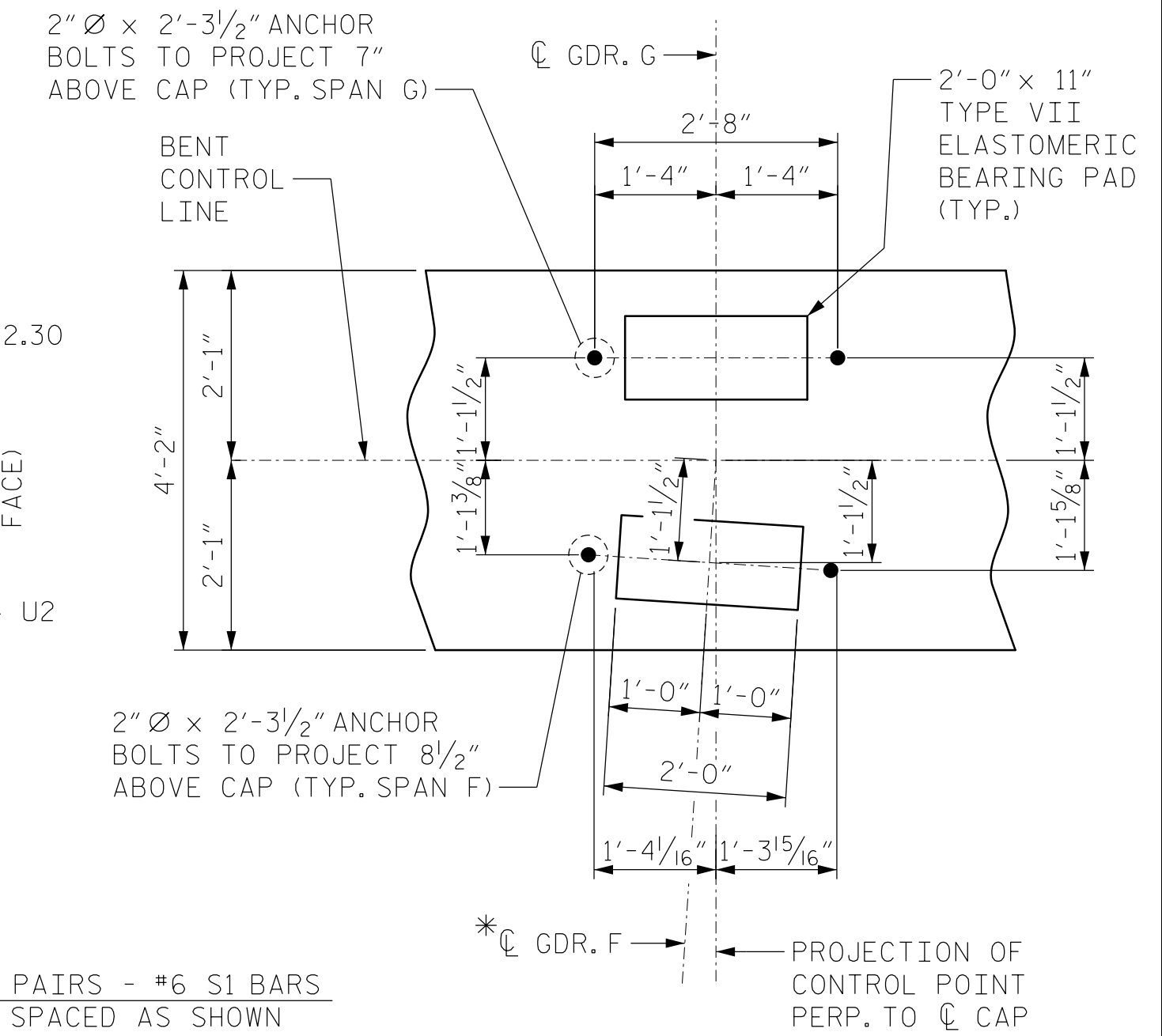
THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT ONE FOOT BELOW THE GROUND LINE.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.



ELEVATION

AESTHETIC DETAILS ON COLUMNS NOT SHOWN, FOR CLARITY.
(SEE SECTION C-C ON SHEET 3 OF 3 FOR DETAILS)

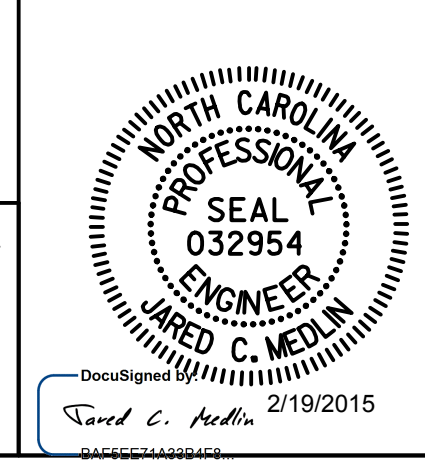


BEARING DETAIL

★ ANGLE BETWEEN C G GIRDER F AND PROJECTION OF CONTROL POINT EXAGGERATED FOR CLARITY

PROJECT NO. U-5008
MECKLENBURG COUNTY
STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.
SHEET 1 OF 3

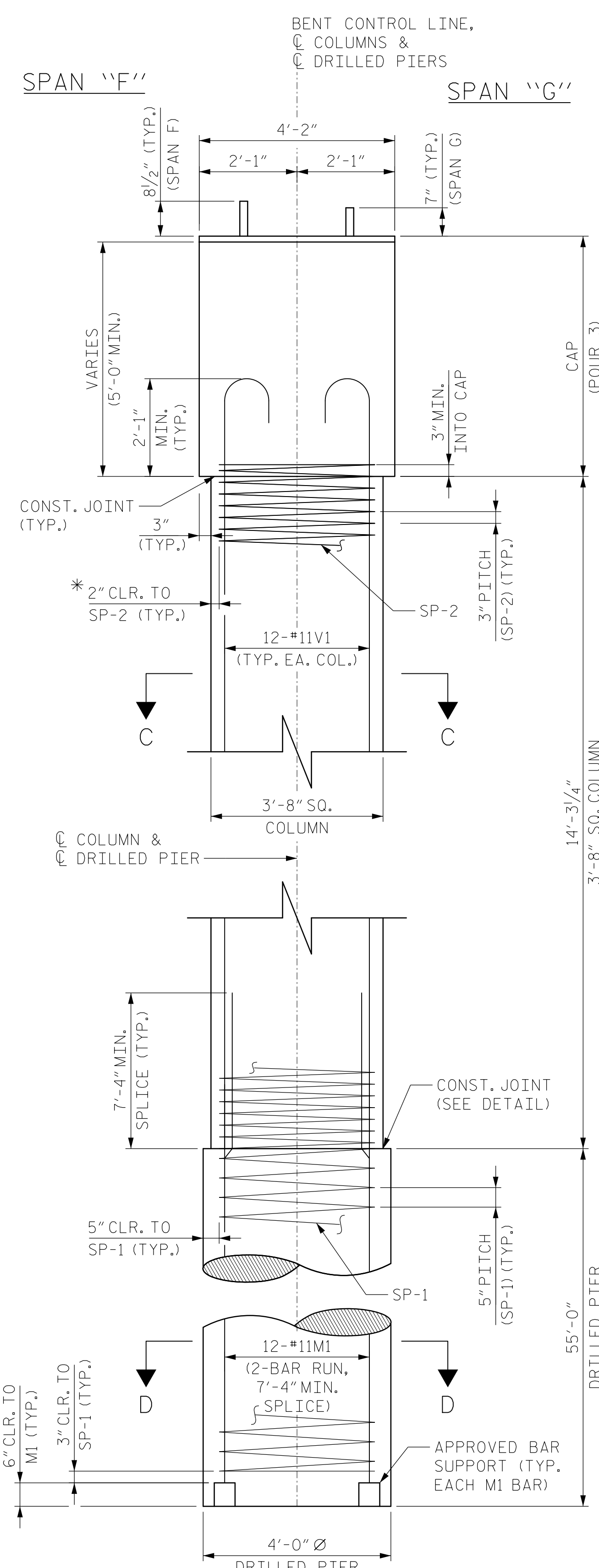
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT 6					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-70					SHEETS 78



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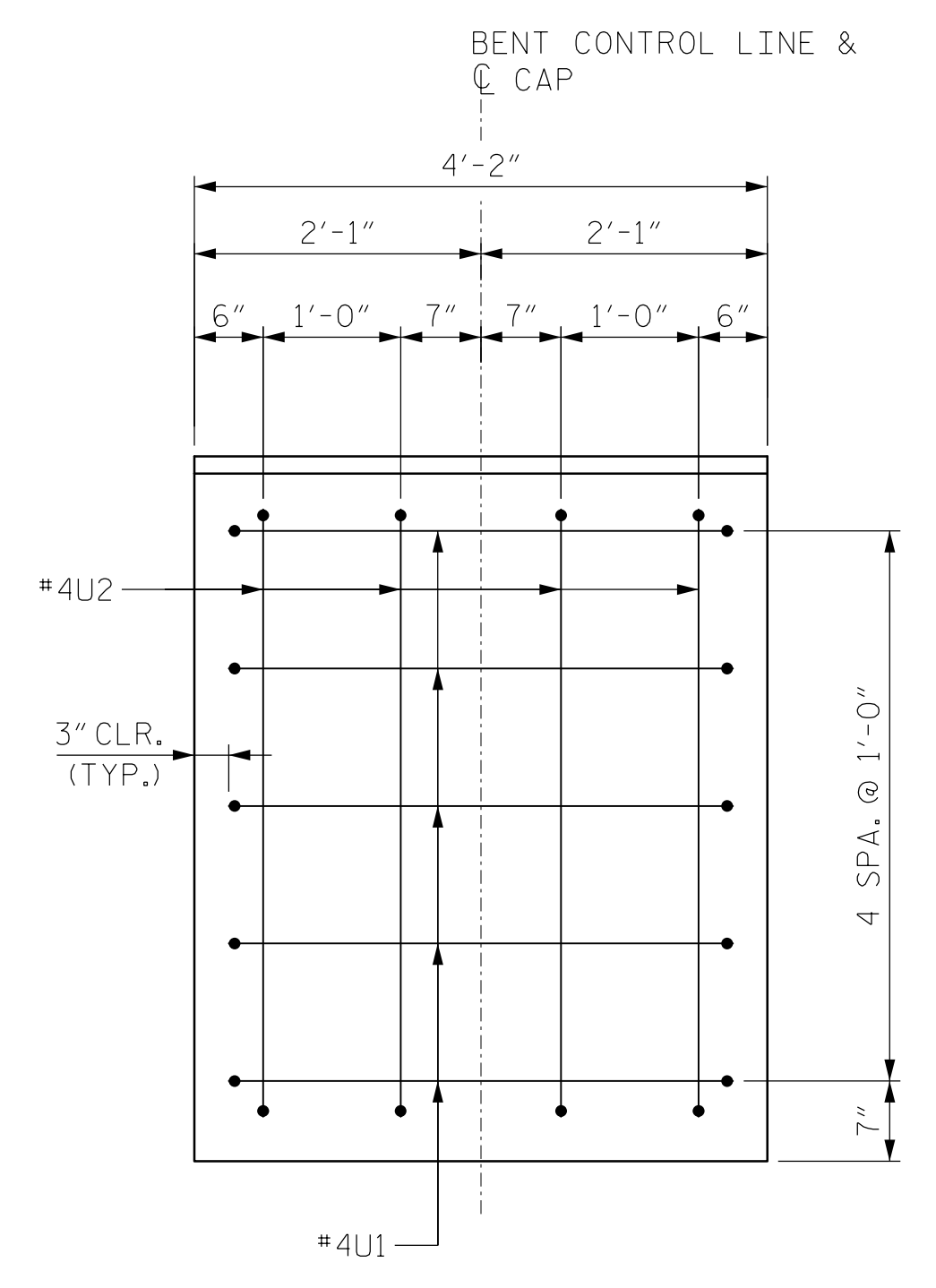
DRAWN BY: D.L.KEENER DATE: OCT. 2014
CHECKED BY: J.C.MEDLIN DATE: OCT. 2014



END ELEVATION

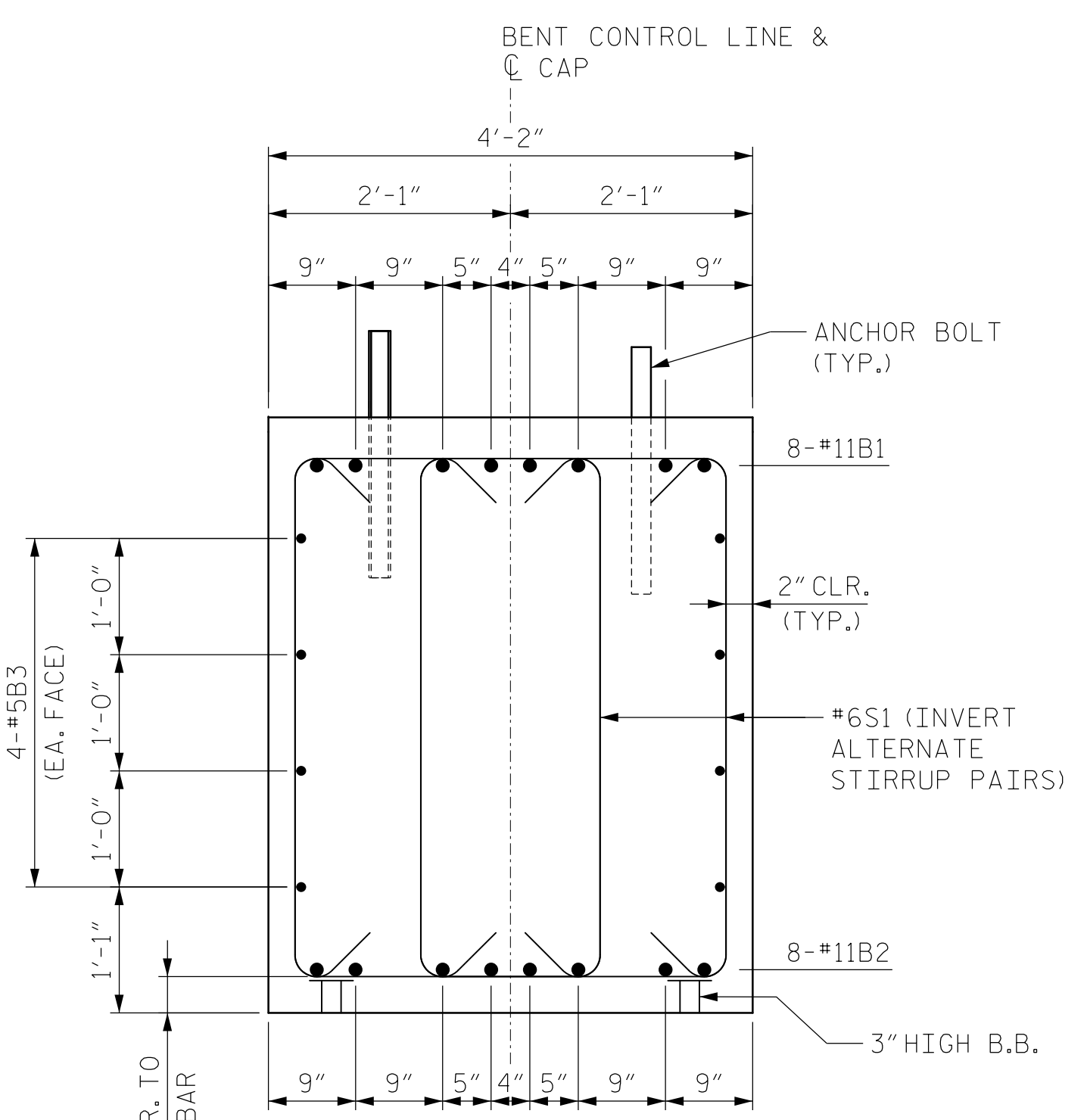
AESTHETIC DETAILS ON COLUMNS NOT SHOWN, FOR CLARITY. SEE SHEET 3 OF 3 FOR AESTHETIC DETAILS

* TO FORMLINER

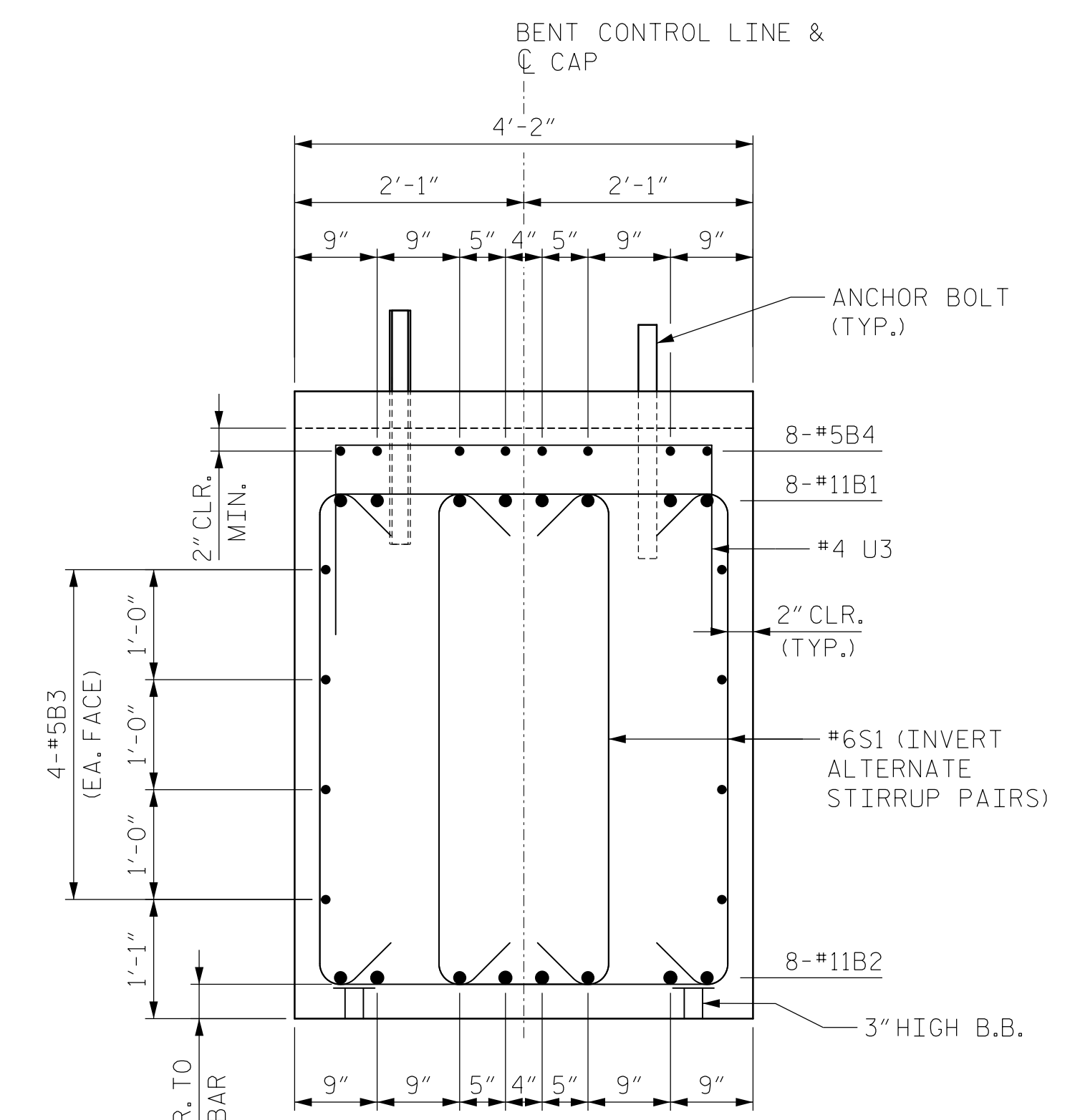


END OF CAP VIEW

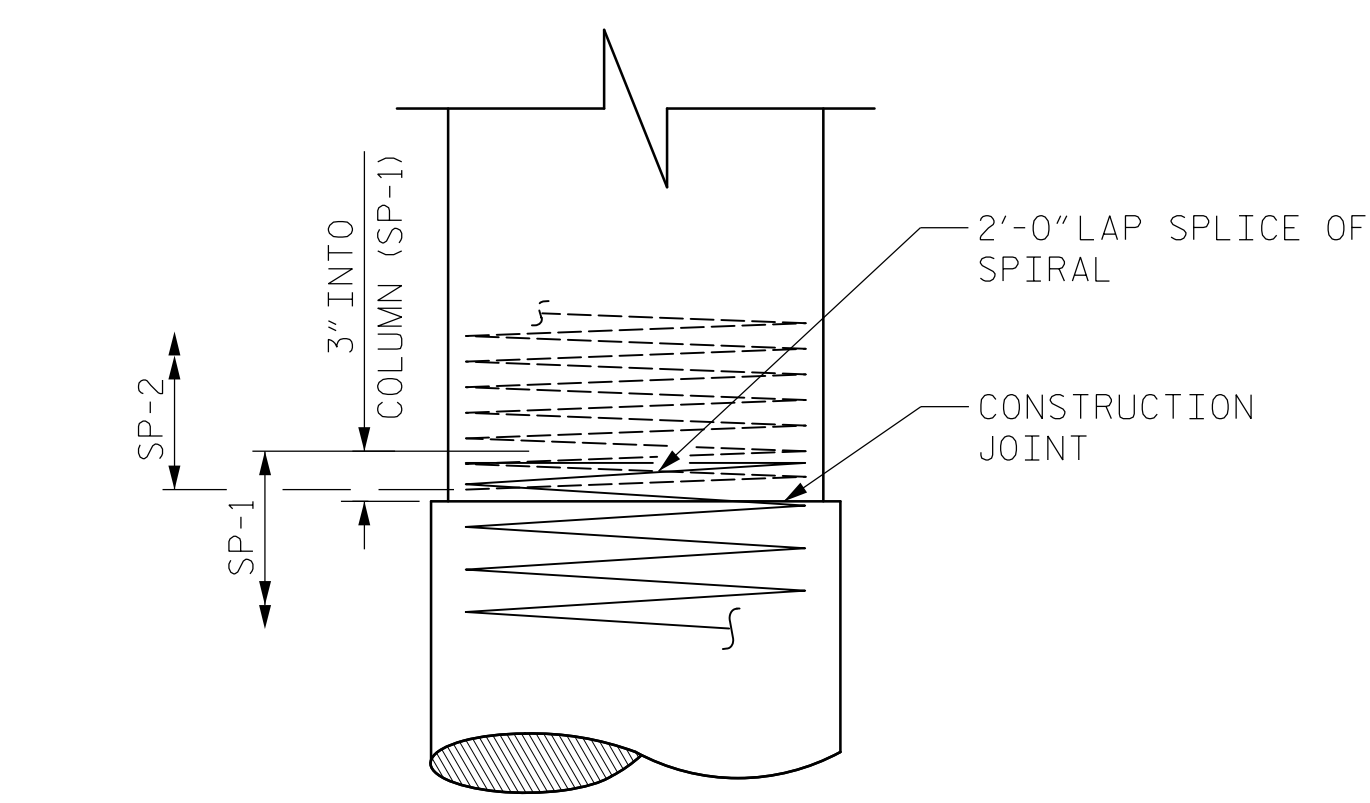
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SECTION A-A



SECTION B-B



CONSTRUCTION JOINT DETAIL

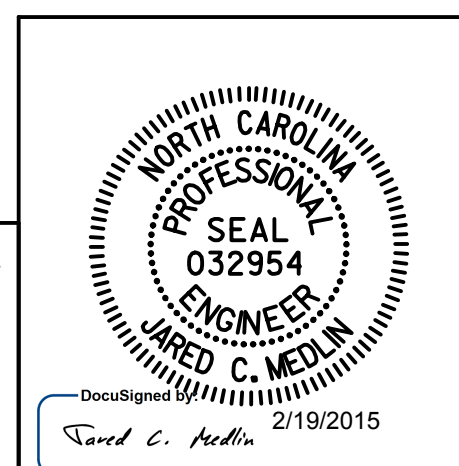
PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BENT 6
 DETAILS**

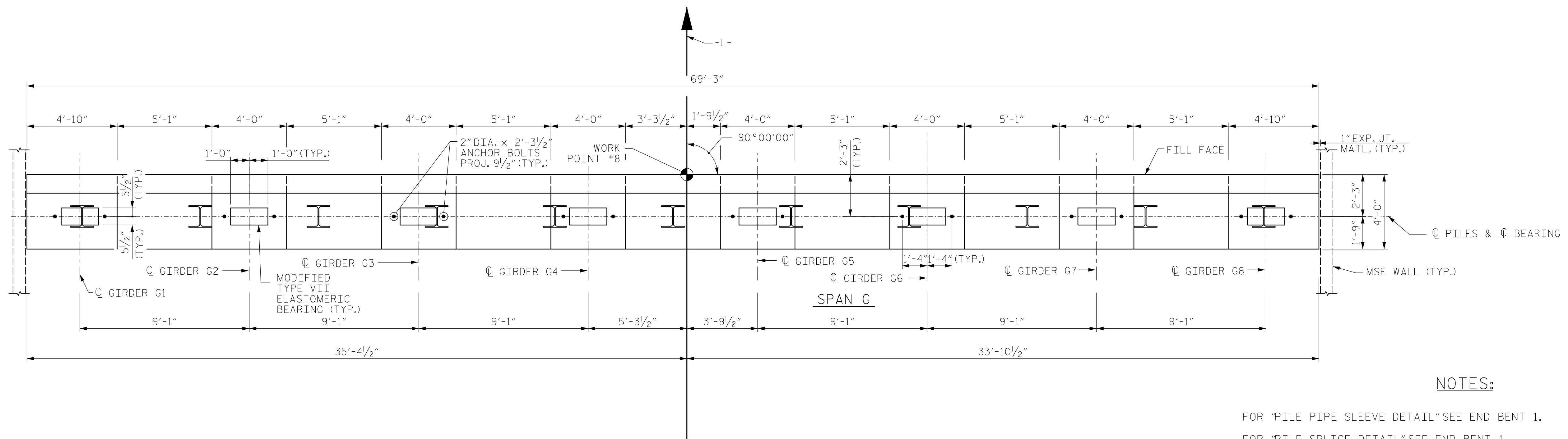
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-71
 SHEETS 78



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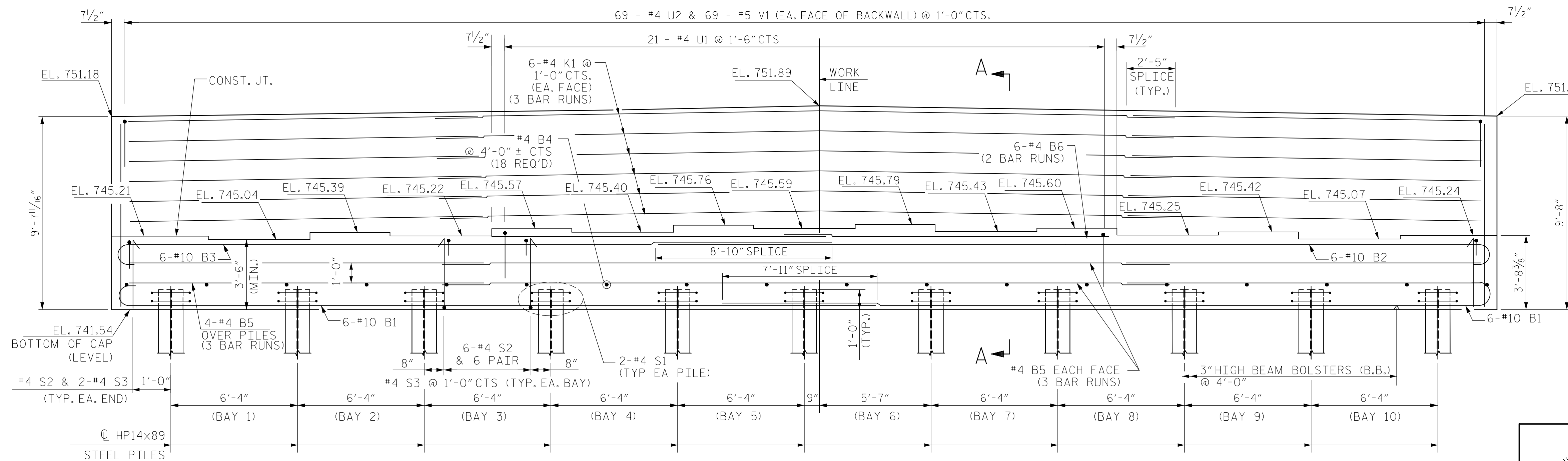
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PLAN OF CAP

NOTES:

- FOR "PILE PIPE SLEEVE DETAIL" SEE END BENT 1.
- FOR "PILE SPLICE DETAIL" SEE END BENT 1.
- FOR "TEMPORARY DRAINAGE AT END BENT" SEE END BENT 1.
- DIMENSIONS ARE BASED ON ASSUMED MSE WALL THICKNESS OF 6". ADJUST DIMENSIONS BASED ON APPROVED WALL SUBMITTALS.
- 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 CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

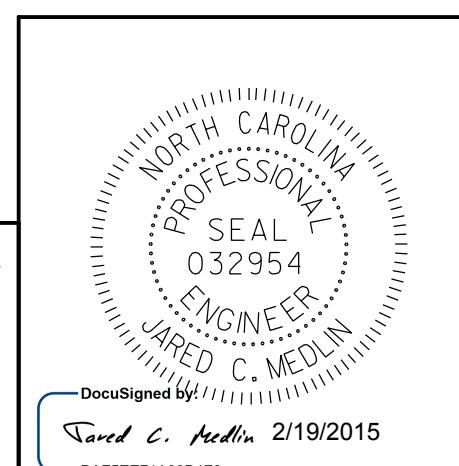


ELEVATION

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2

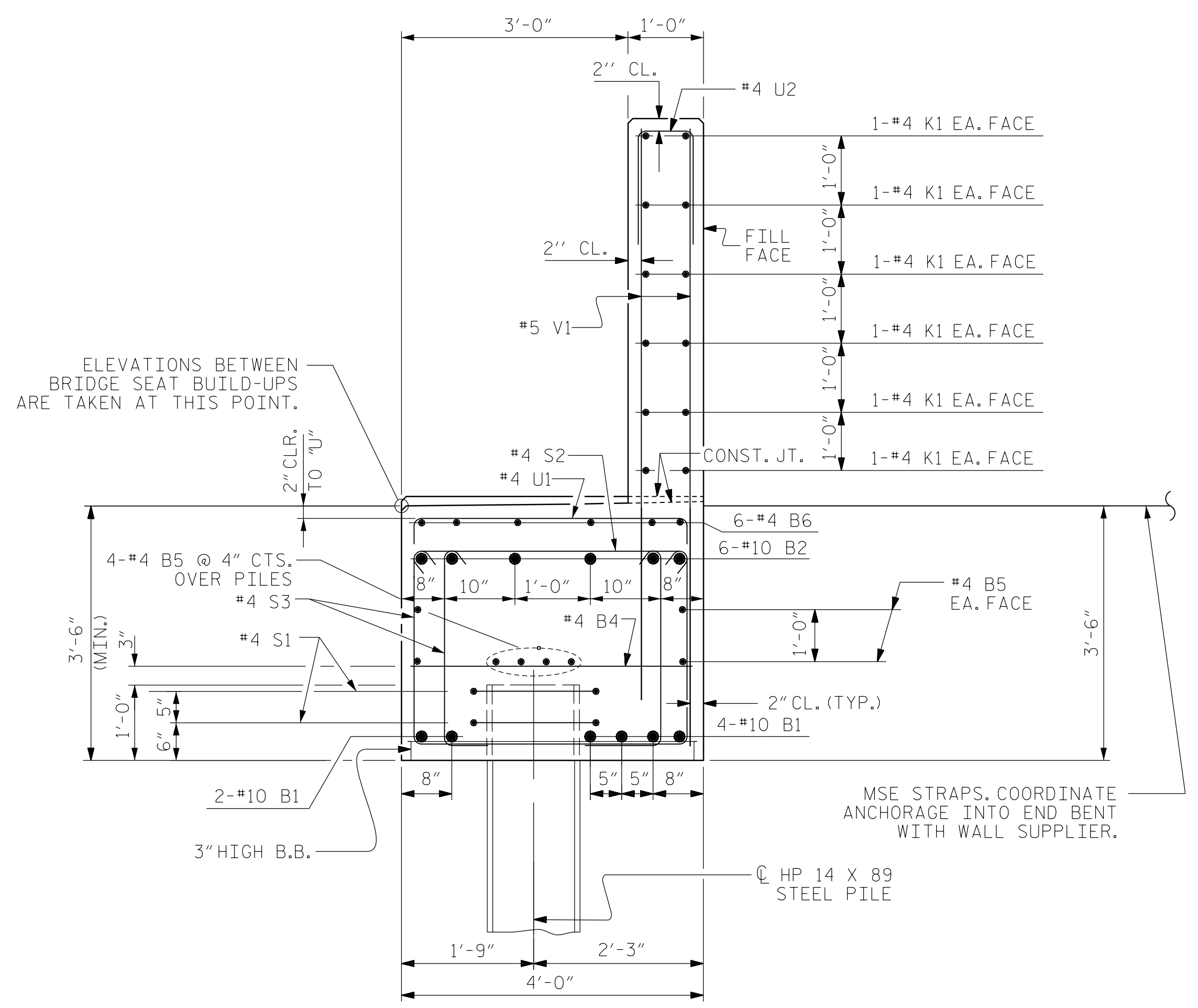


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DRAWN BY: R.J. FLORY DATE: 10/03/14
 CHECKED BY: R.C. LARSON DATE: 10/13/14

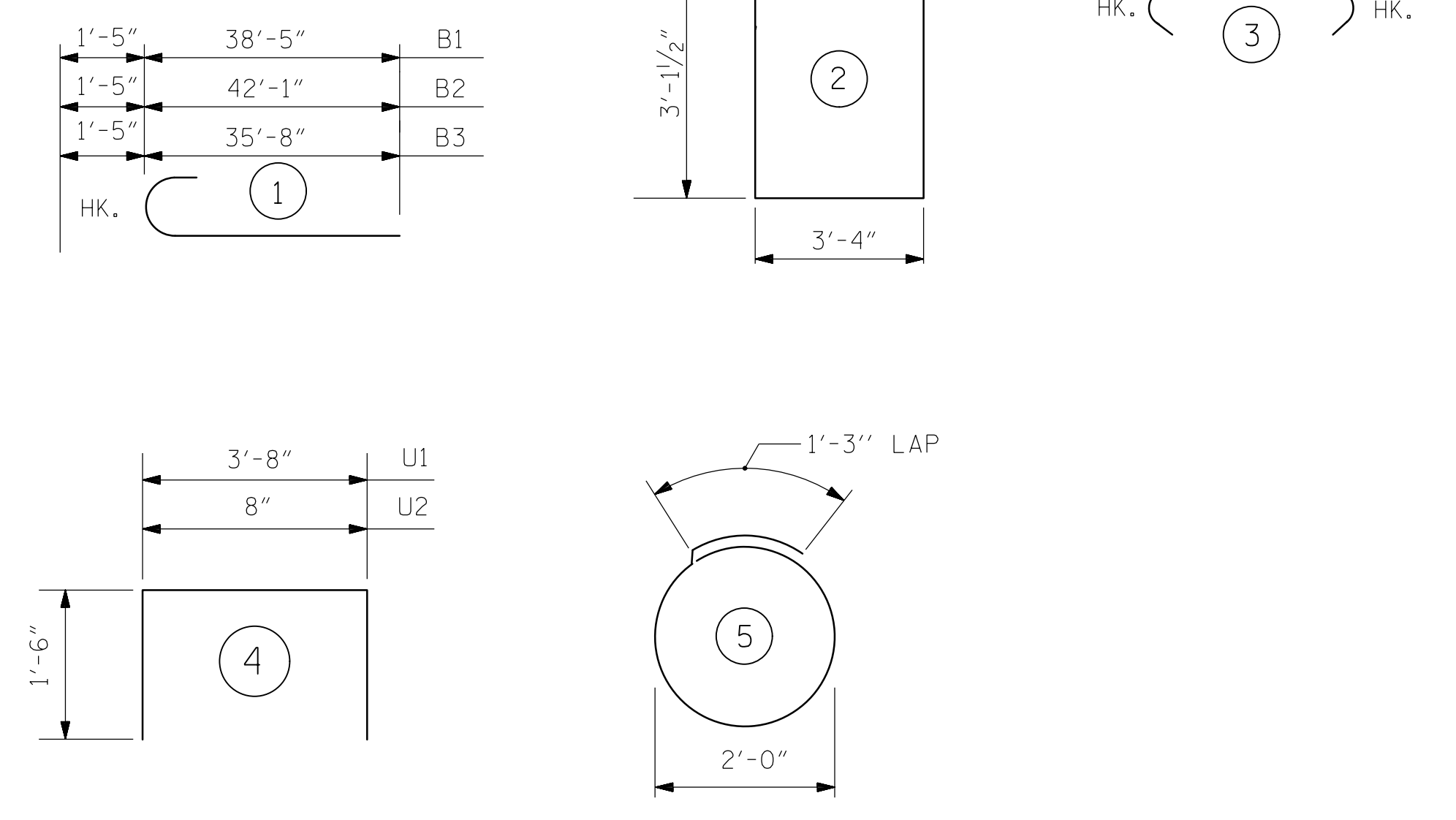
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-73	
1			3			SHEETS	
2			4			78	

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SECTION A-A

BAR TYPES



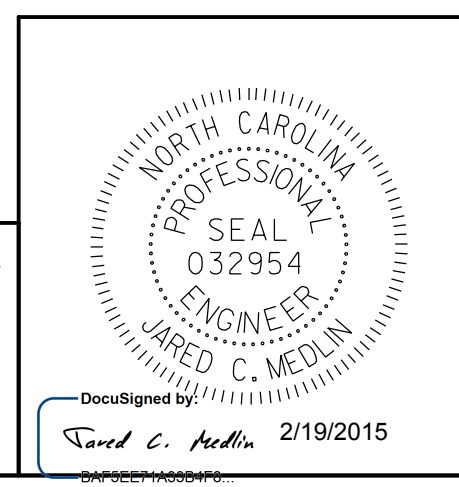
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	10	1	39'-10"	2057
B2	6	10	1	43'-6"	1123
B3	6	10	1	37'-1"	957
B4	18	4	STR.	3'-8"	44
B5	24	4	STR.	24'-7"	394
B6	12	4	STR.	16'-8"	134
K1	36	4	STR.	24'-7"	591
S1	22	4	5	7'-7"	111
S2	62	4	3	4'-5"	183
S3	124	4	2	10'-4"	856
U1	21	4	4	6'-8"	94
U2	69	4	4	3'-8"	169
V1	138	5	STR.	9'-2"	1319
REINFORCING STEEL, LBS					8032
CLASS A CONCRETE				POUR 1	39.7 CY
				POUR 2	15.8 CY
TOTAL					55.5 CY
HP 14X89 STEEL PILES, NO					11
LIN FT					475
STEEL PILE POINTS, EA.					11

2/18/2015 1:10:07 PM Y:\Drawings\2011 DWGS\B11-11 Sugar Creek Rd - NCDOT\Structures\RFC\SH74_U-5008_SD_L22.dgn

DRAWN BY : R.J. FLORY DATE : 10/03/14
 CHECKED BY : R.C. LARSON DATE : 10/06/14

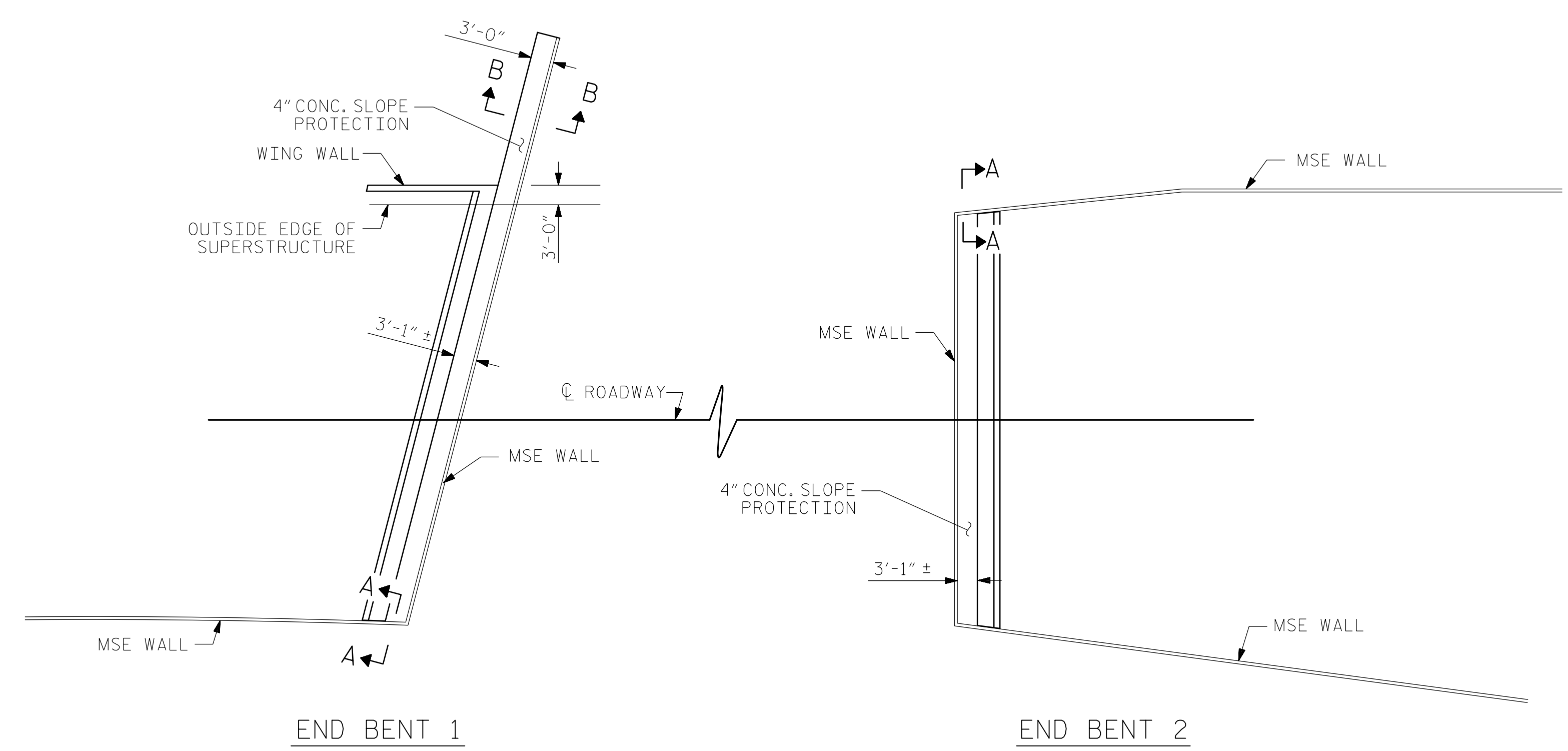


PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**END BENT 2
 DETAILS**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-74
1			3			SHEETS
2			4			78



PLAN

NOTES:

SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION OF THE ENGINEER, VISUAL INSPECTION INDICATES A NEED FOR IT. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS.

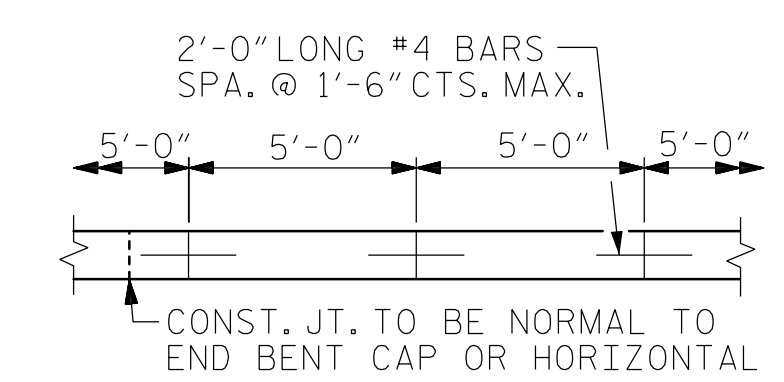
SEE MSE WALL SHEETS FOR DETAILS OF MSE WALL AND COPING.

ALTERNATE "A"

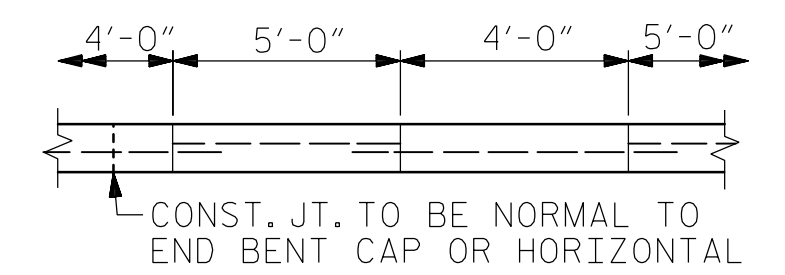
ALTERNATE "A" SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE 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.

BRIDGE @ STA. 20+45.05 -L-	4" INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	40	75
END BENT 2	25	45

* QUANTITY SHOWN IS BASED ON 5' POURS.



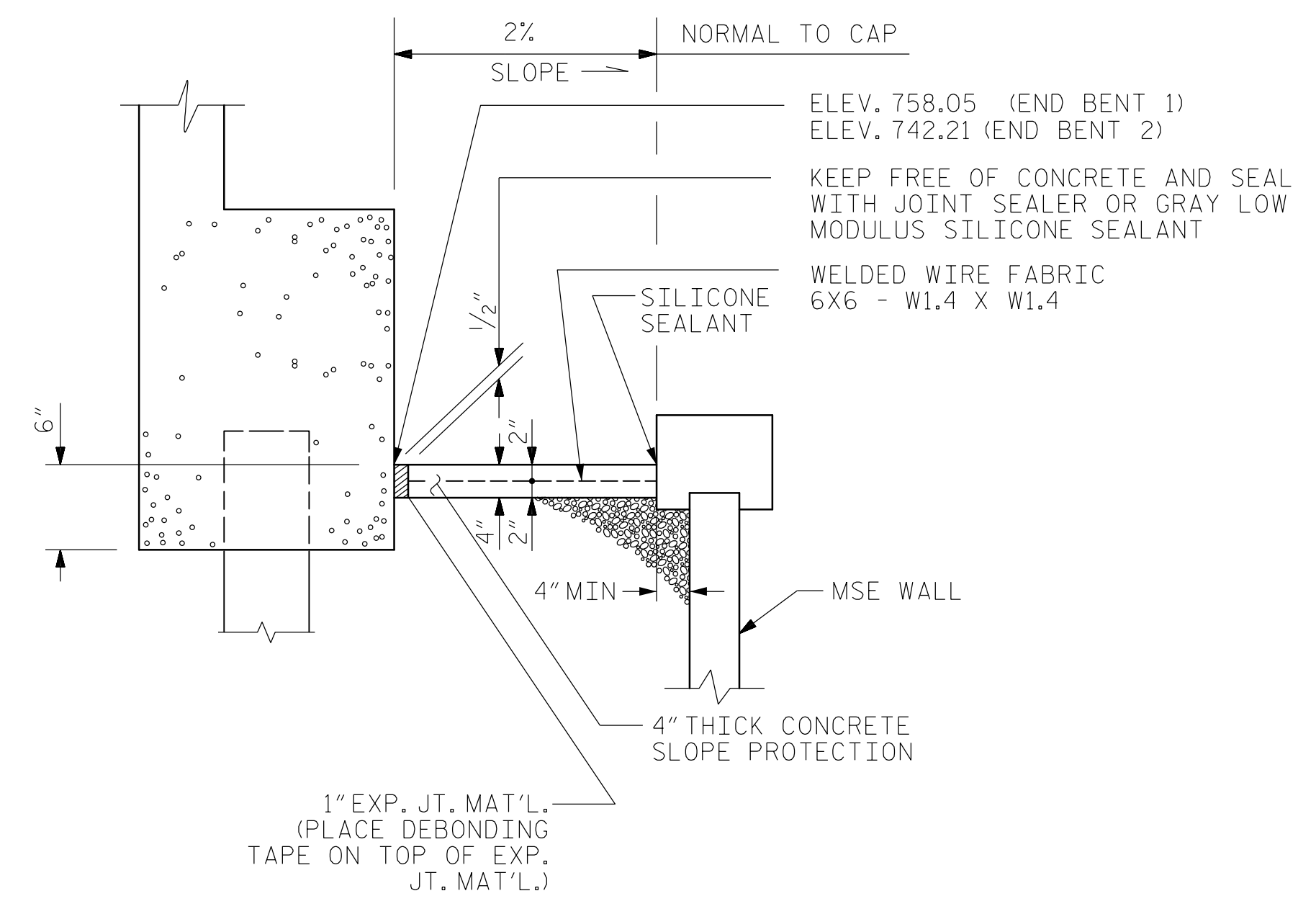
STRIP WIDTHS MAY VARY IN CURVED PORTION.



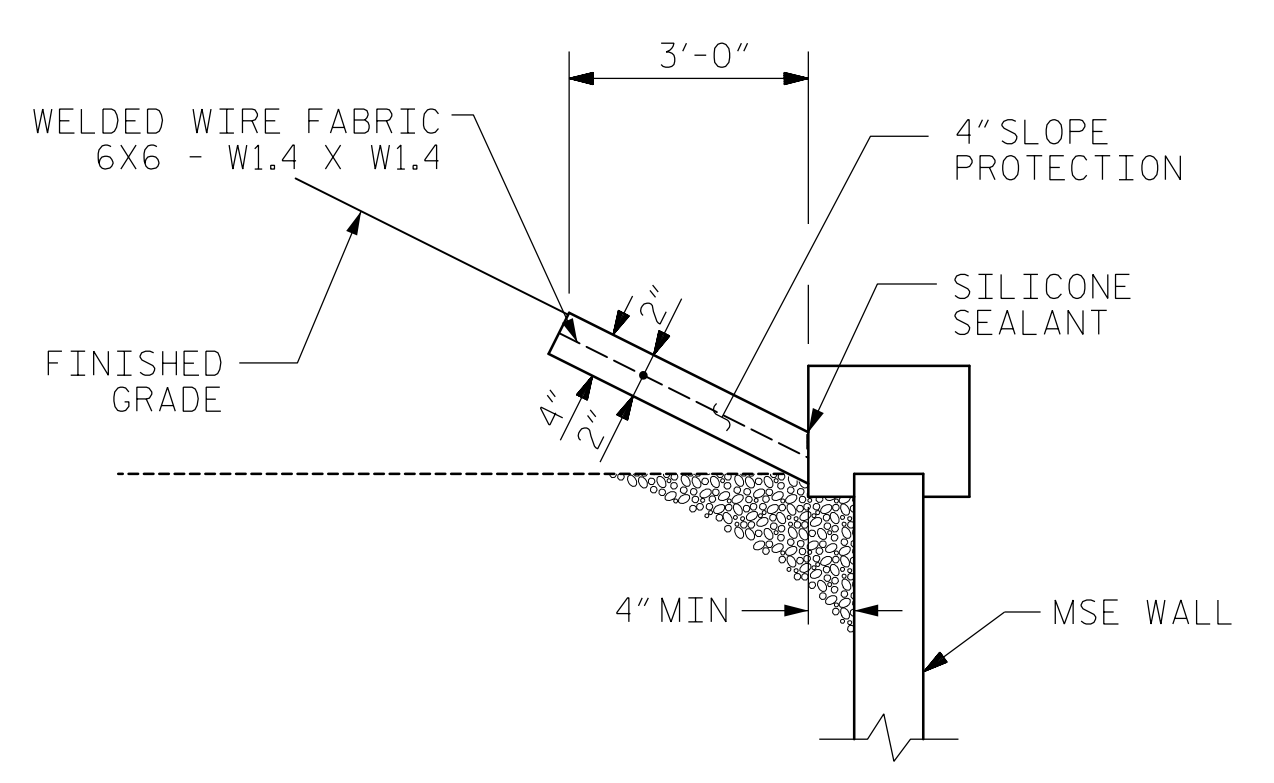
POUR A 4'-0" STRIP FIRST. STRIP WIDTHS MAY VARY IN CURVED PORTION.

POURING DETAIL

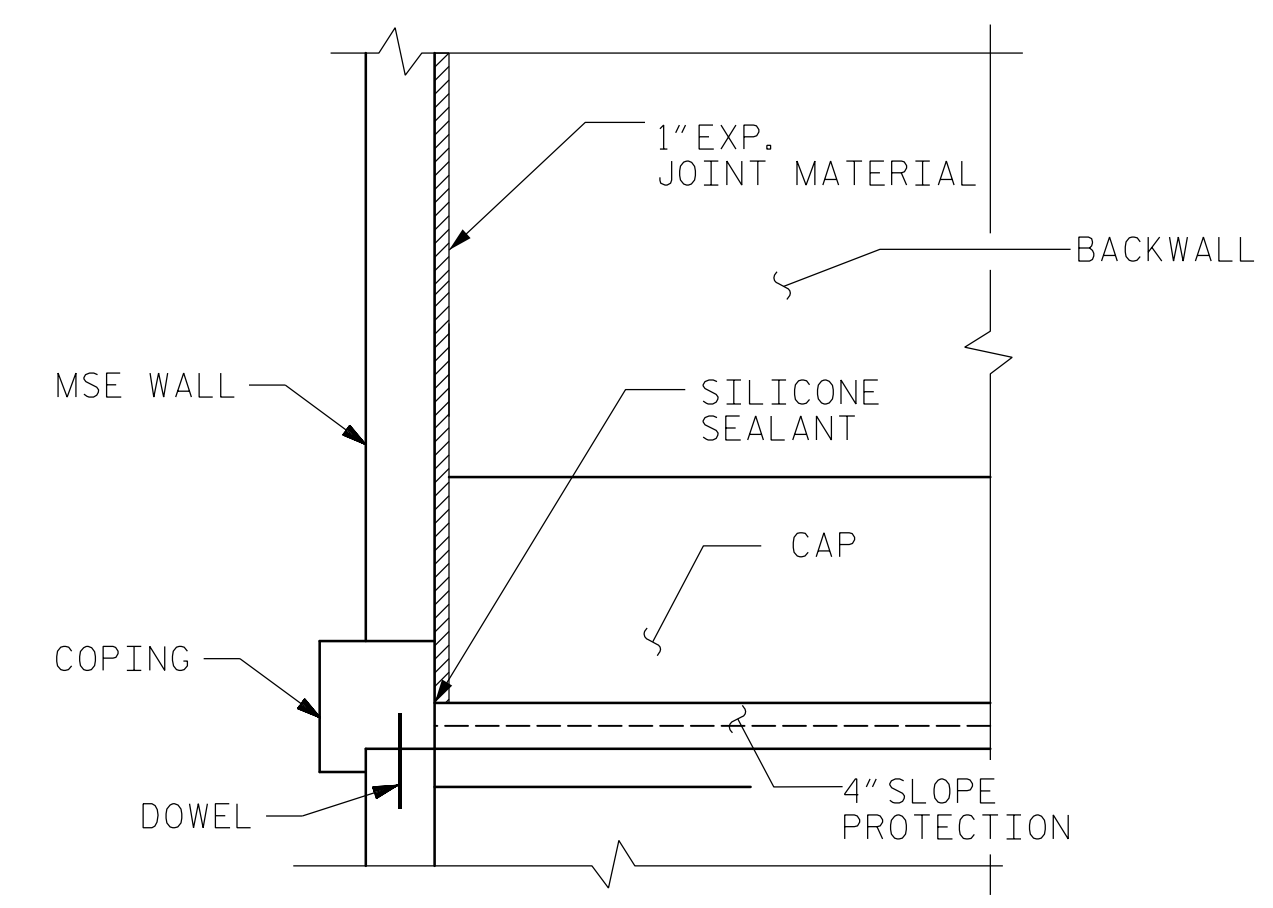
OPTIONAL POURING DETAIL



SECTION ALONG C ROADWAY



SECTION B-B



SECTION A-A

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SLOPE PROTECTION DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-75
1			3			SHEETS 78
2			4			

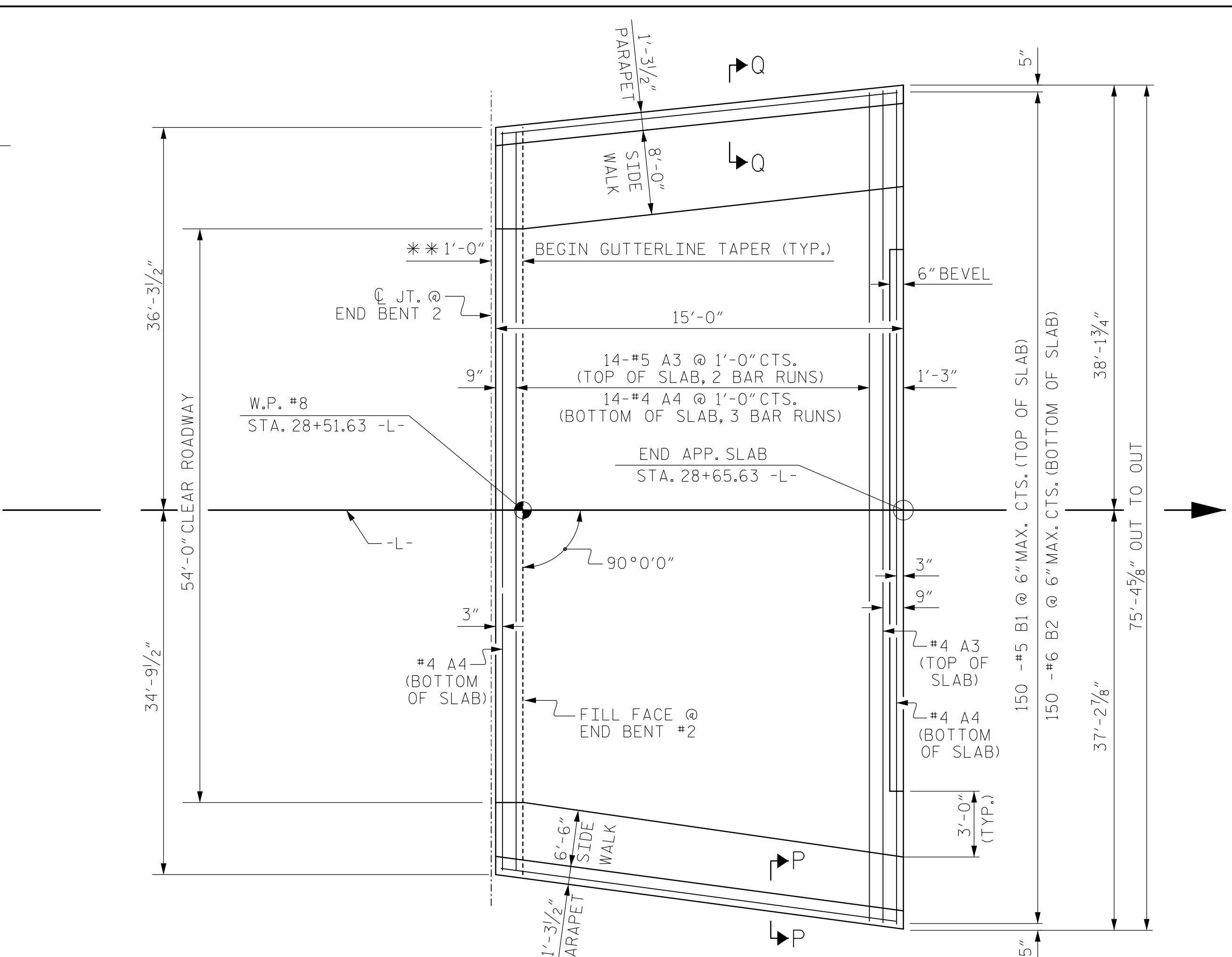
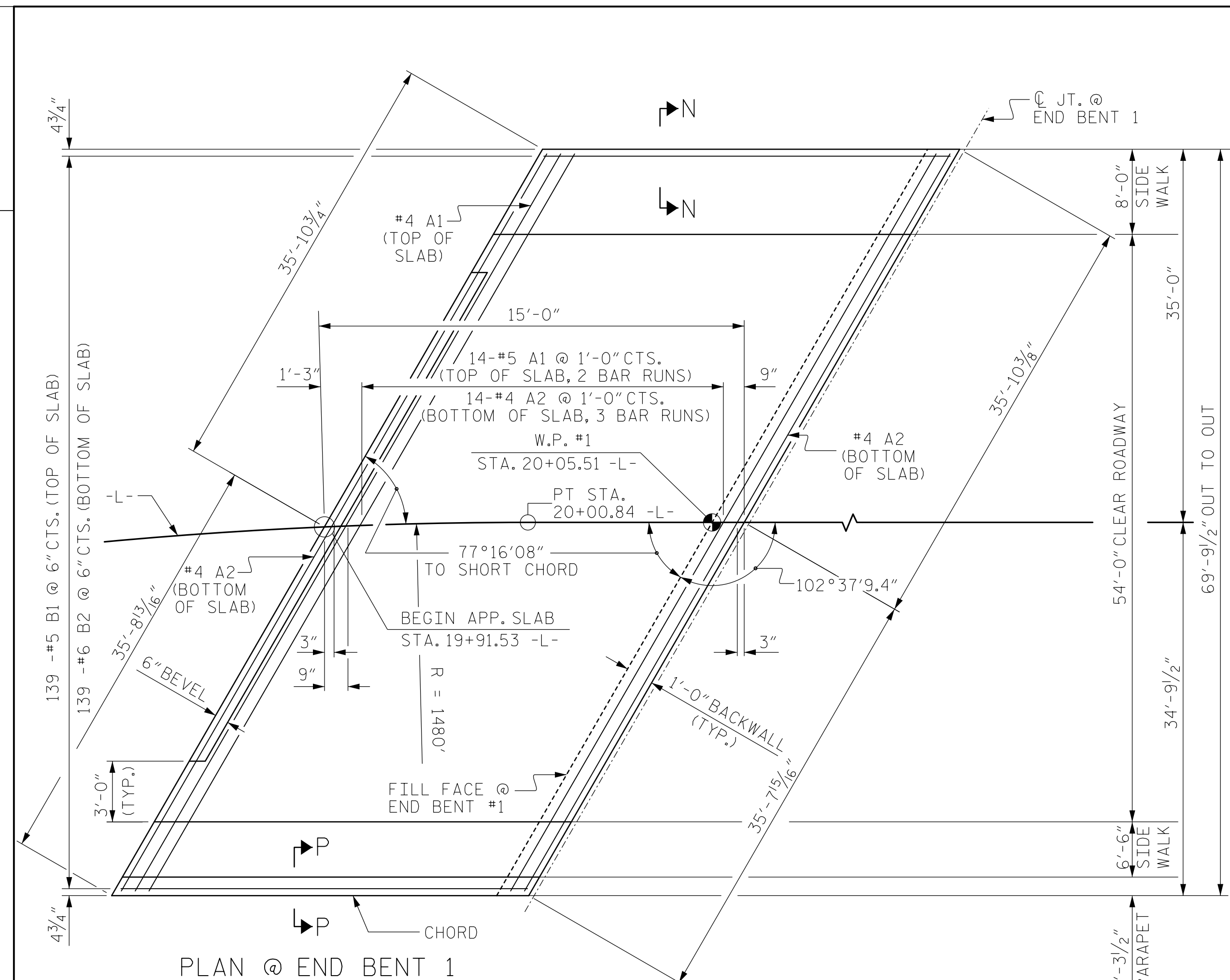
KCI ASSOCIATES OF NC, P.A.
 9741 SOUTHERN PINE BLVD
 SUITE J
 CHARLOTTE, NC 28273
 704-499-9452
 NC LICENSE No. C-0764

NORTH CAROLINA
 PROFESSIONAL
 SEAL
 032954
 ENGINEER
 JARED C. MEDLIN
 2/19/2015

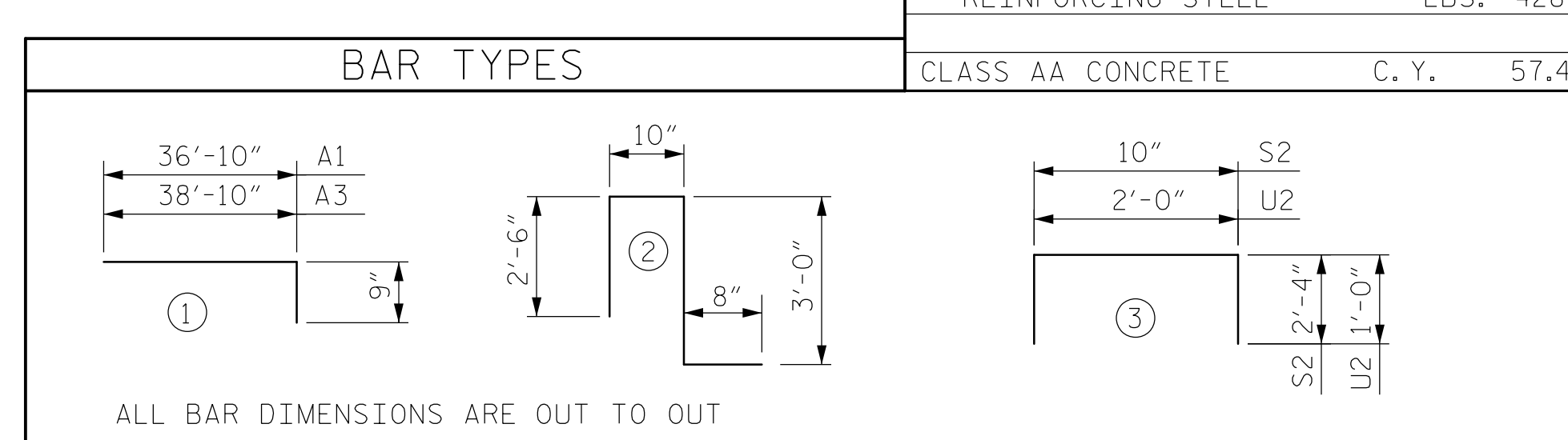
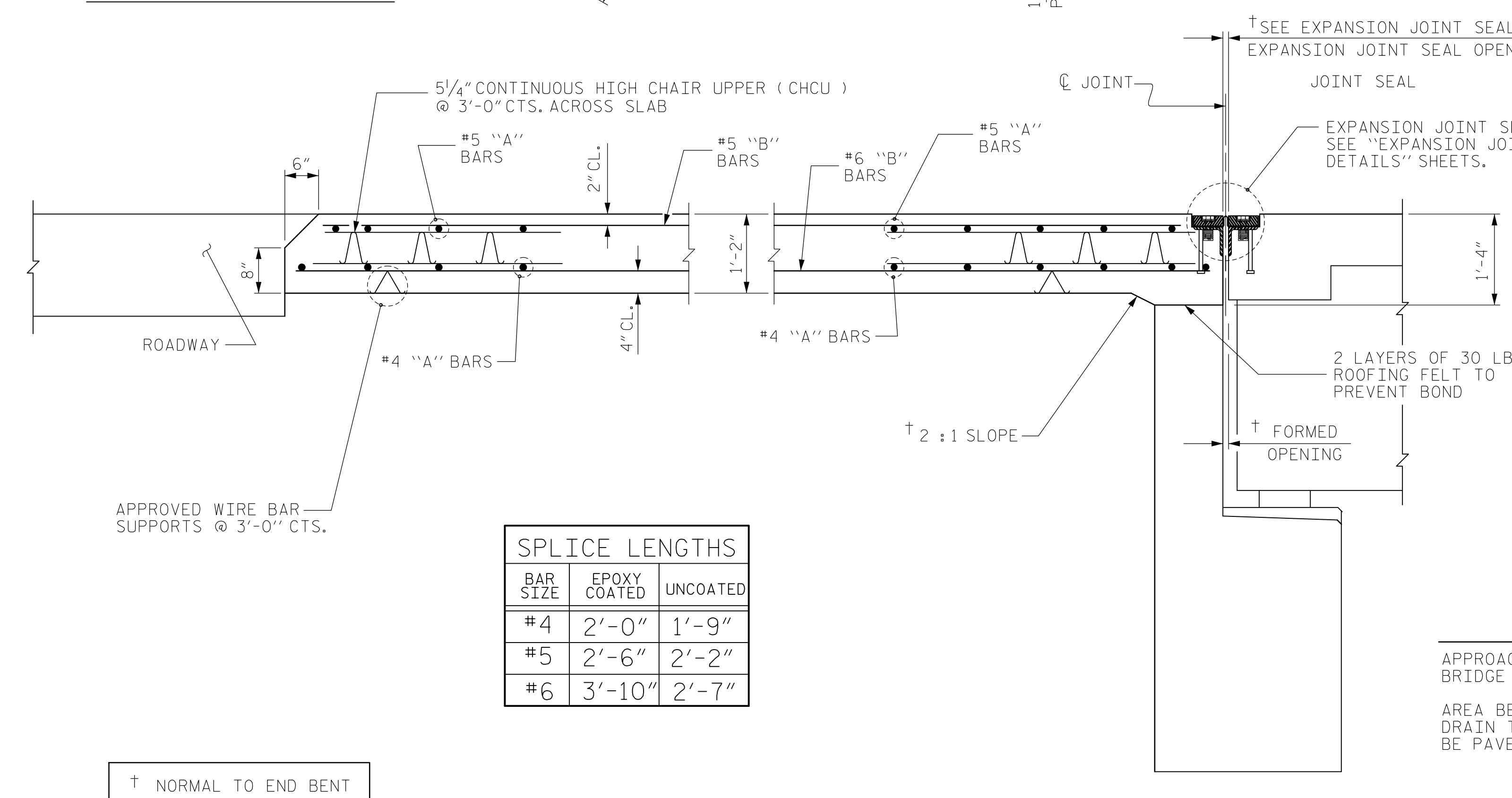
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DJD
 DRAWN BY : R. J. FLORY DATE : 10/14/14
 CHECKED BY : R. C. LARSON DATE : 10/17/14

0400DEL_P30



BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	5	1	37'-7"	1176
A2	48	4	STR.	24'-2"	775
*B1	139	5	STR.	14'-2"	2054
B2	139	6	STR.	14'-8"	3062
*B5	8	5	STR.	14'-8"	122
*B6	14	4	STR.	14'-8"	137
*G1	15	4	STR.	7'-7"	76
*G3	15	4	STR.	7'-3"	73
*S1	15	5	2	7'-0"	110
*S2	15	5	3	5'-6"	86
*U2	15	4	3	4'-0"	40
REINFORCING STEEL					LBS. 3837
*EPOXY COATED					
REINFORCING STEEL					LBS. 3874
CLASS AA CONCRETE					C. Y. 53.0
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A3	30	5	1	39'-7"	1239
A4	48	4	STR.	25'-6"	818
*B1	139	5	STR.	14'-2"	2054
B2	139	6	STR.	14'-8"	3062
*B5	16	5	STR.	14'-8"	245
*B6	16	4	STR.	14'-8"	157
*G2	15	4	STR.	9'-0"	90
*G3	15	4	STR.	7'-3"	73
*S1	30	5	2	7'-0"	219
*S2	30	5	3	5'-6"	172
*U2	15	4	3	4'-0"	40
REINFORCING STEEL					LBS. 3880
*EPOXY COATED					
REINFORCING STEEL					LBS. 4289
CLASS AA CONCRETE					C. Y. 57.4



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

NOTES

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

PROJECT NO. U-5008
 MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. = 14+54.24 -Y4- P.O.T.
 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT

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

SHEET NO. S-76
 SHEETS 78

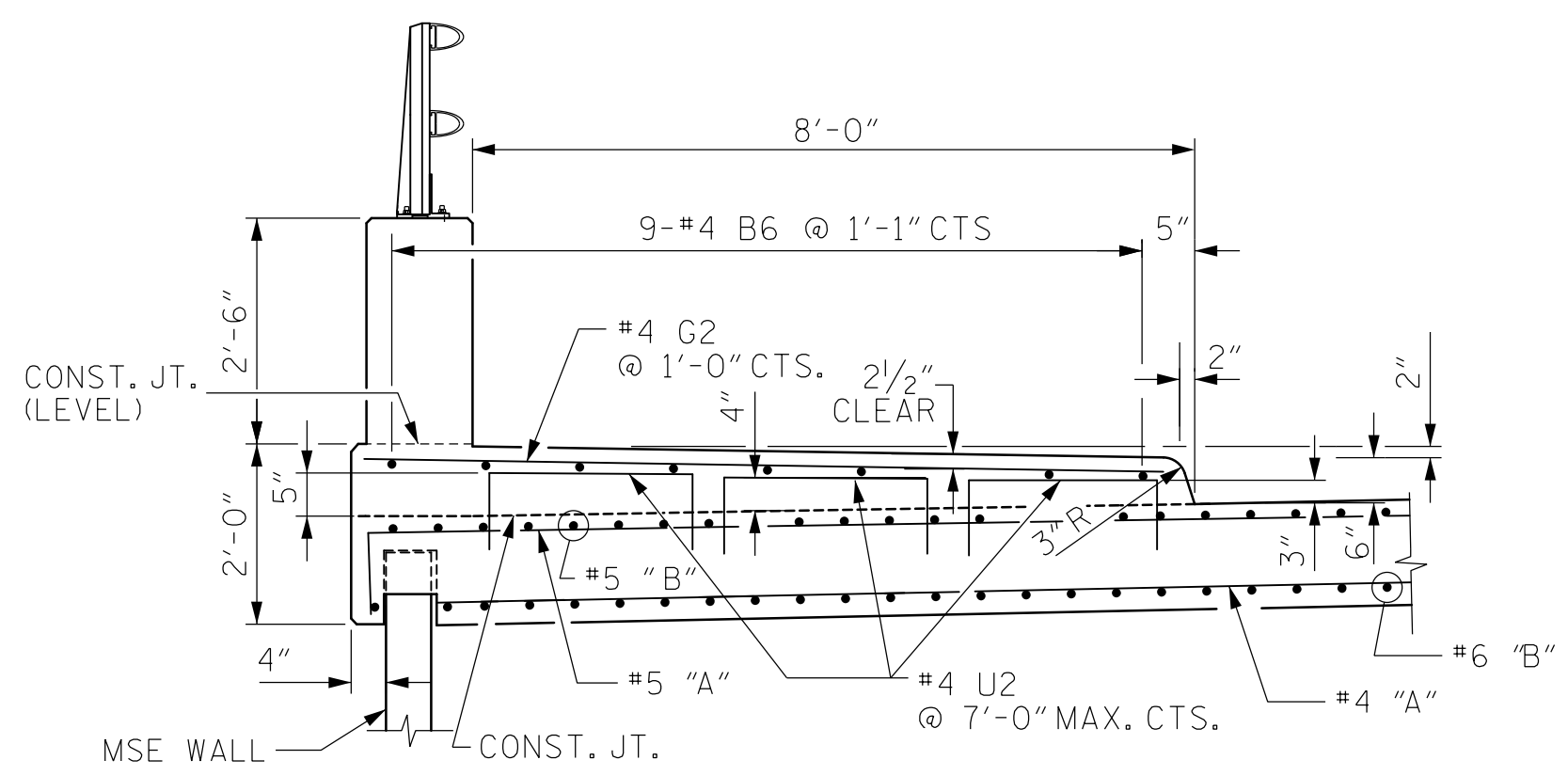
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 2/19/2015

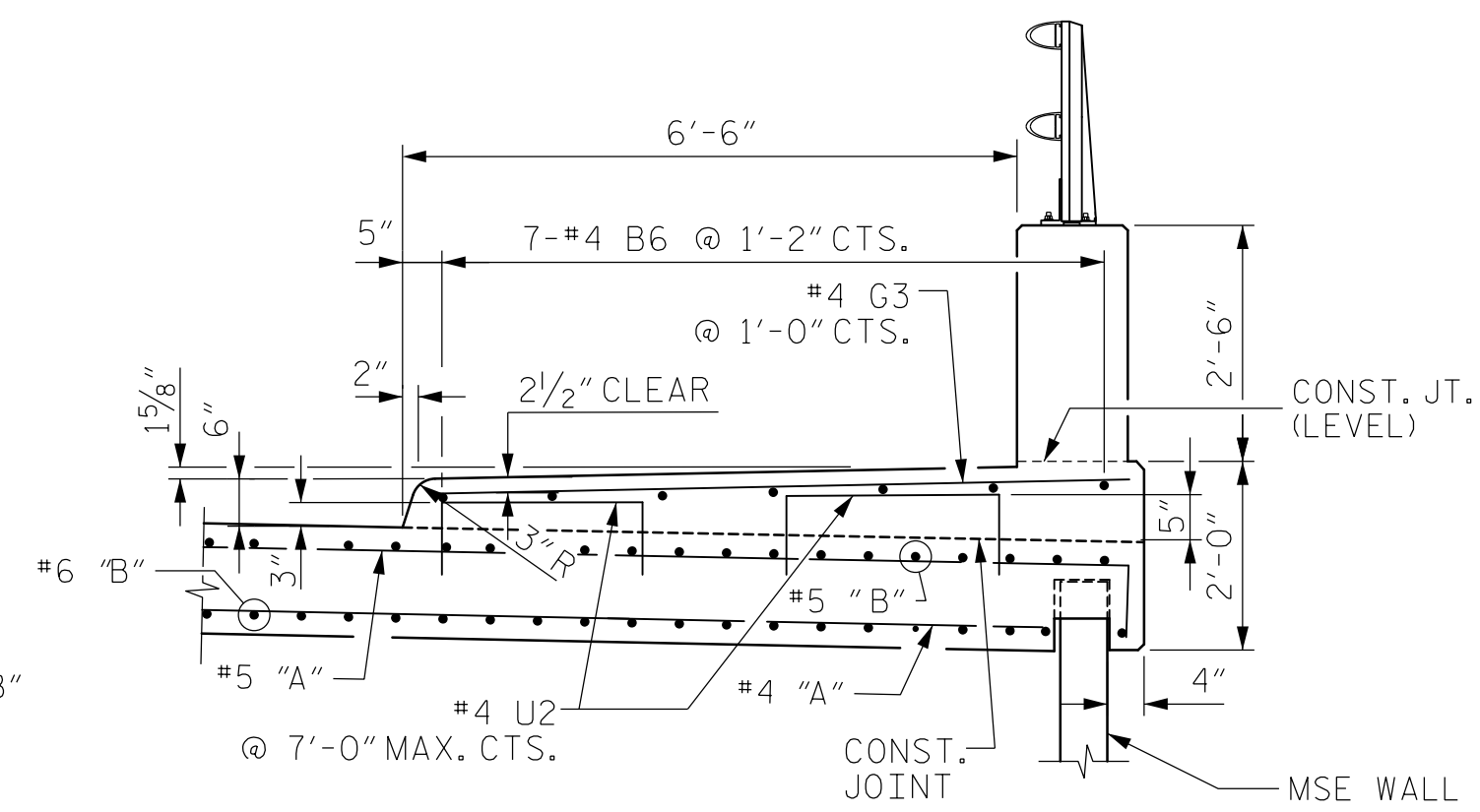
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DRAWN BY: R. C. LARSON DATE: 8/15/14
 CHECKED BY: E.C. DECOLA DATE: 8/20/14

† NORMAL TO END BENT

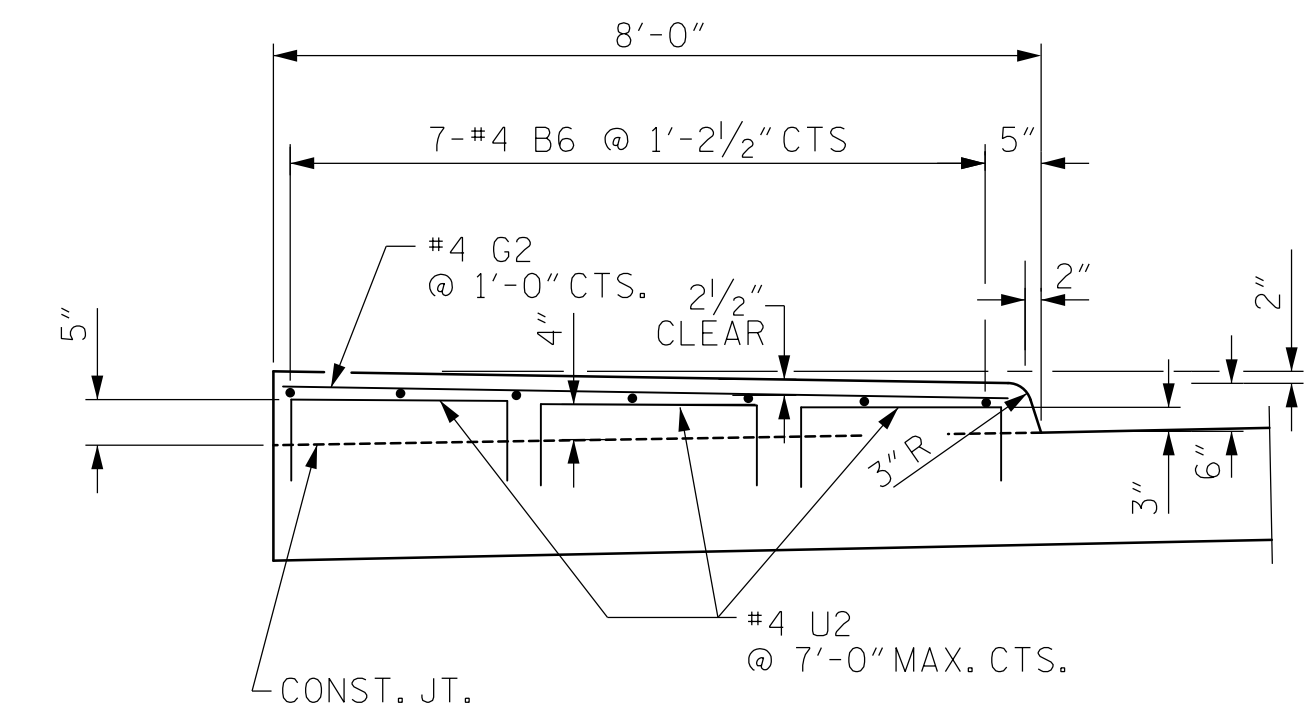


SECTION Q-Q
THRU LEFT SIDEWALK (END BENT 2)

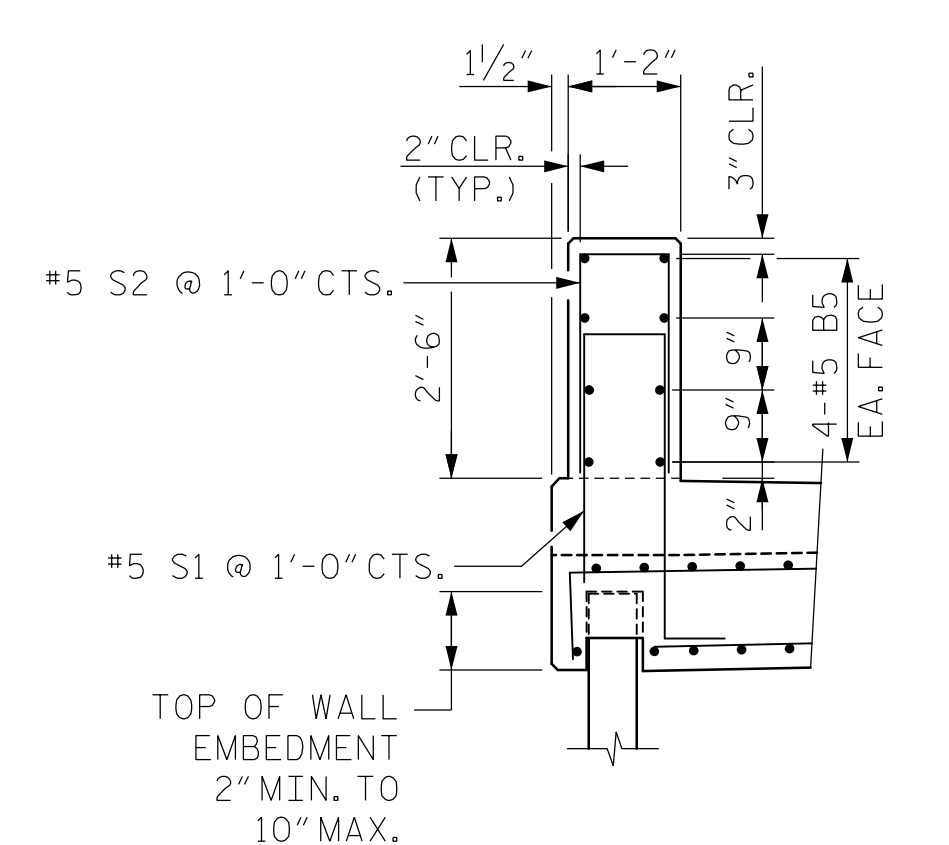


SECTION P-P
THRU RIGHT SIDEWALK

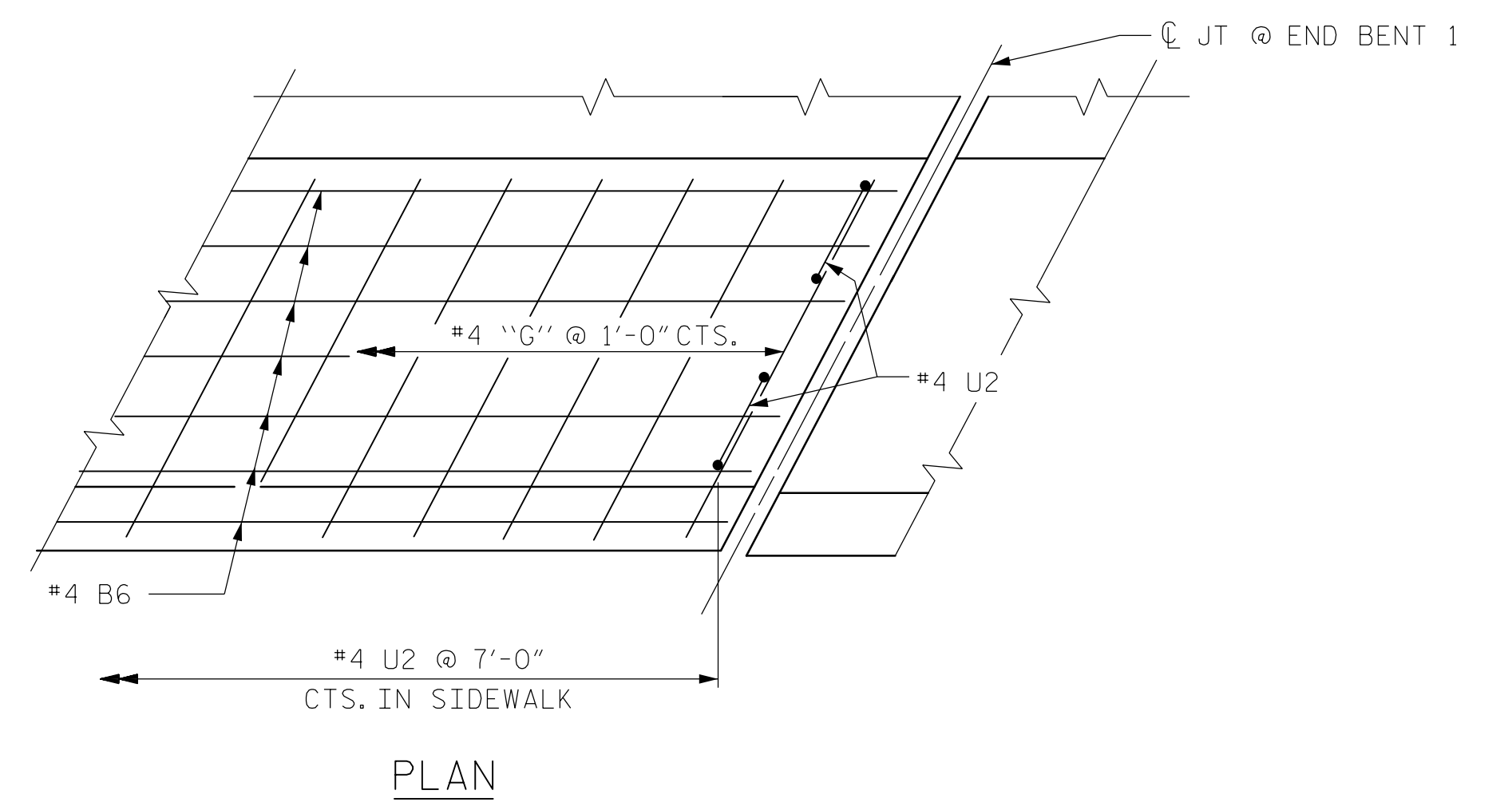
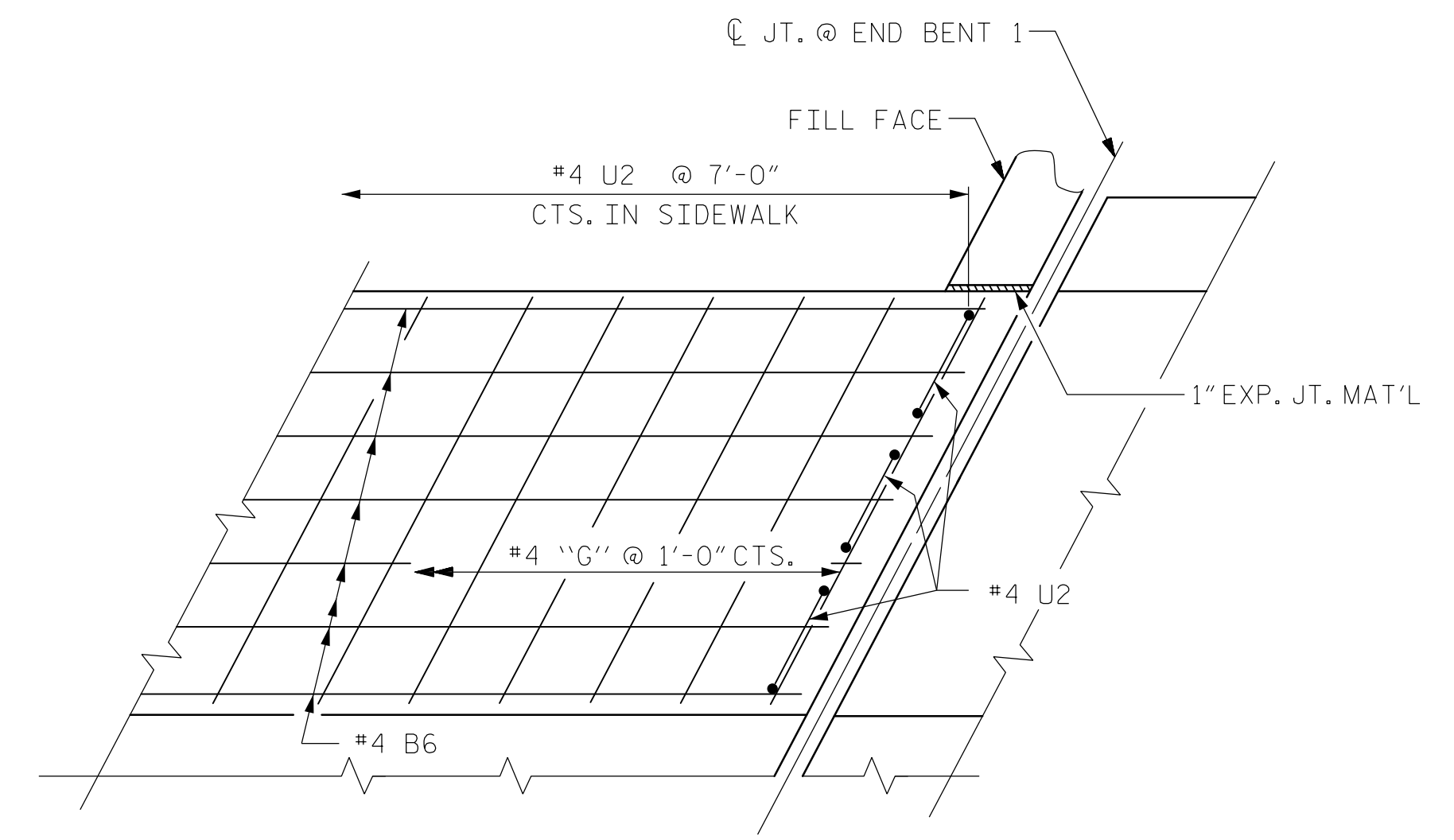
#6 "B" BARS MAY BE SHIFTED TO AVOID MSE WALL



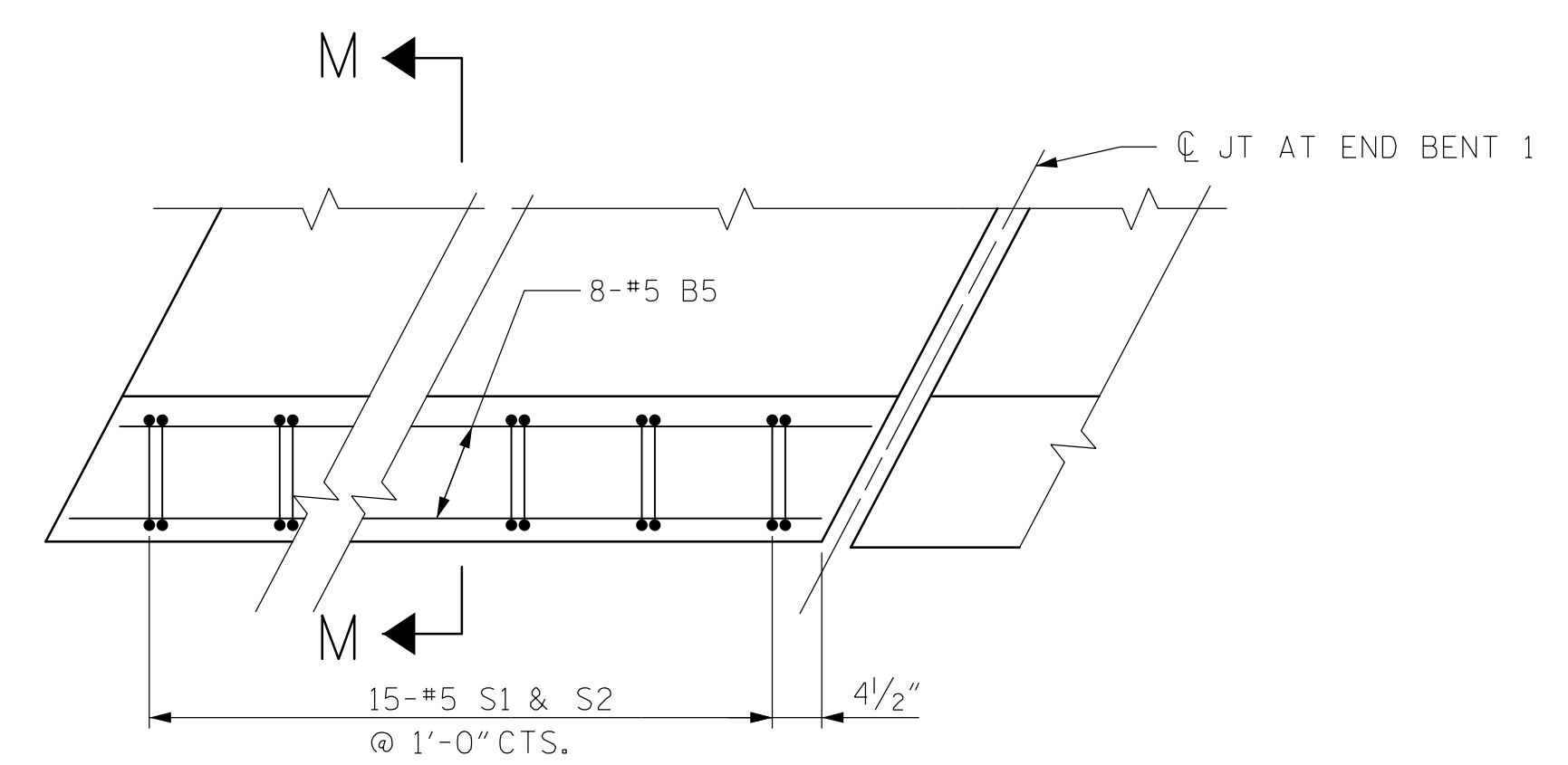
SECTION N-N
THRU LEFT SIDEWALK (END BENT 1)



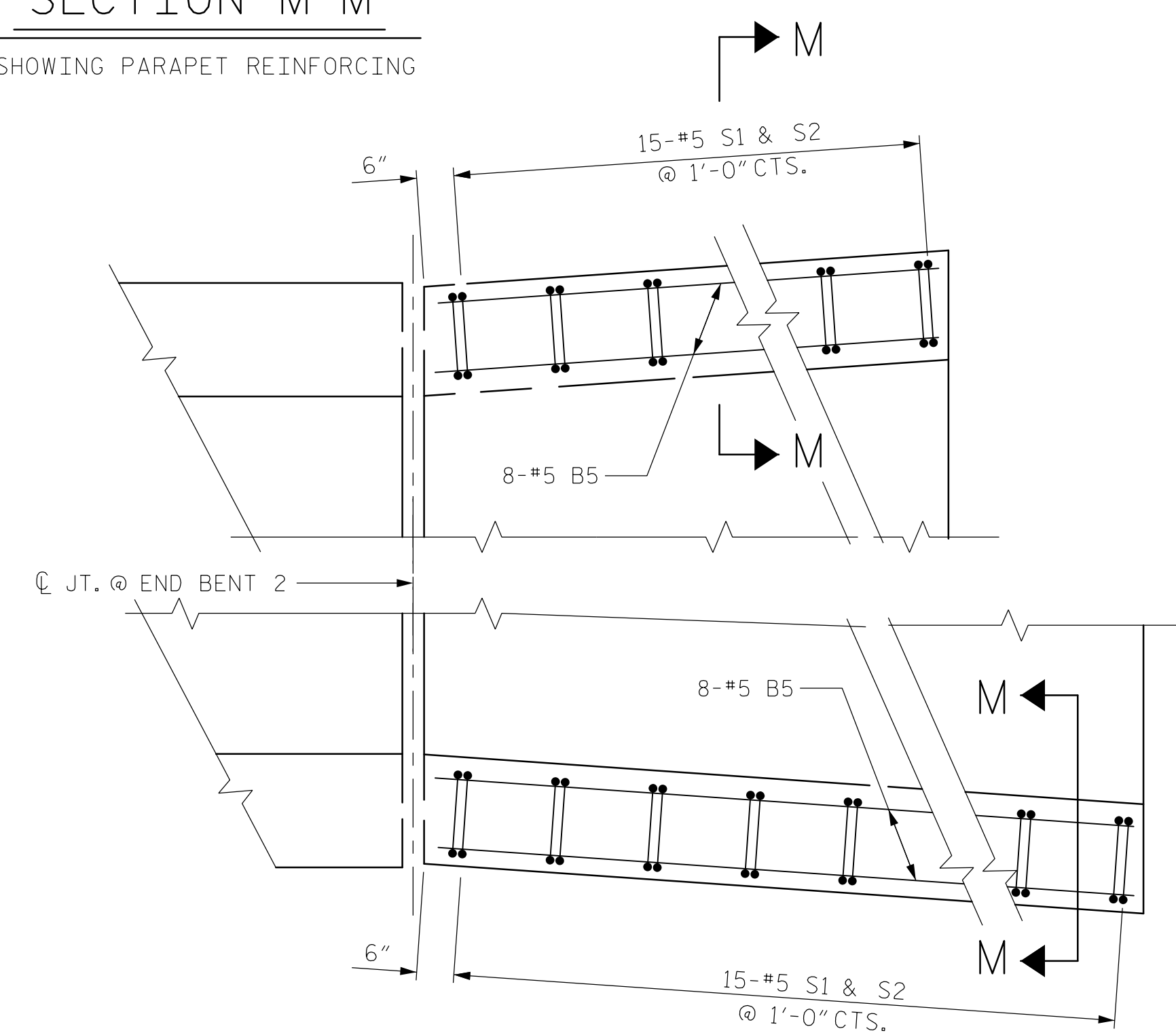
SECTION M-M
SHOWING PARAPET REINFORCING



DETAILS OF SIDEWALK ON APPROACH SLAB



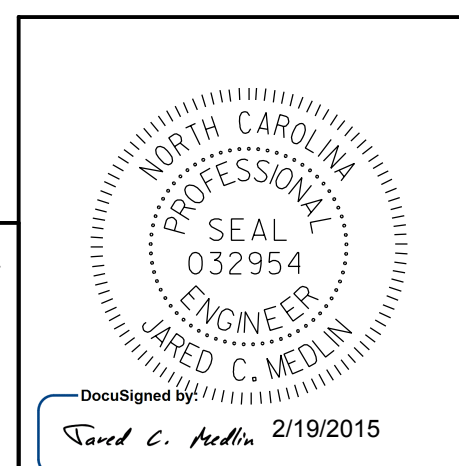
PLAN OF PARAPET AT END BENT 1

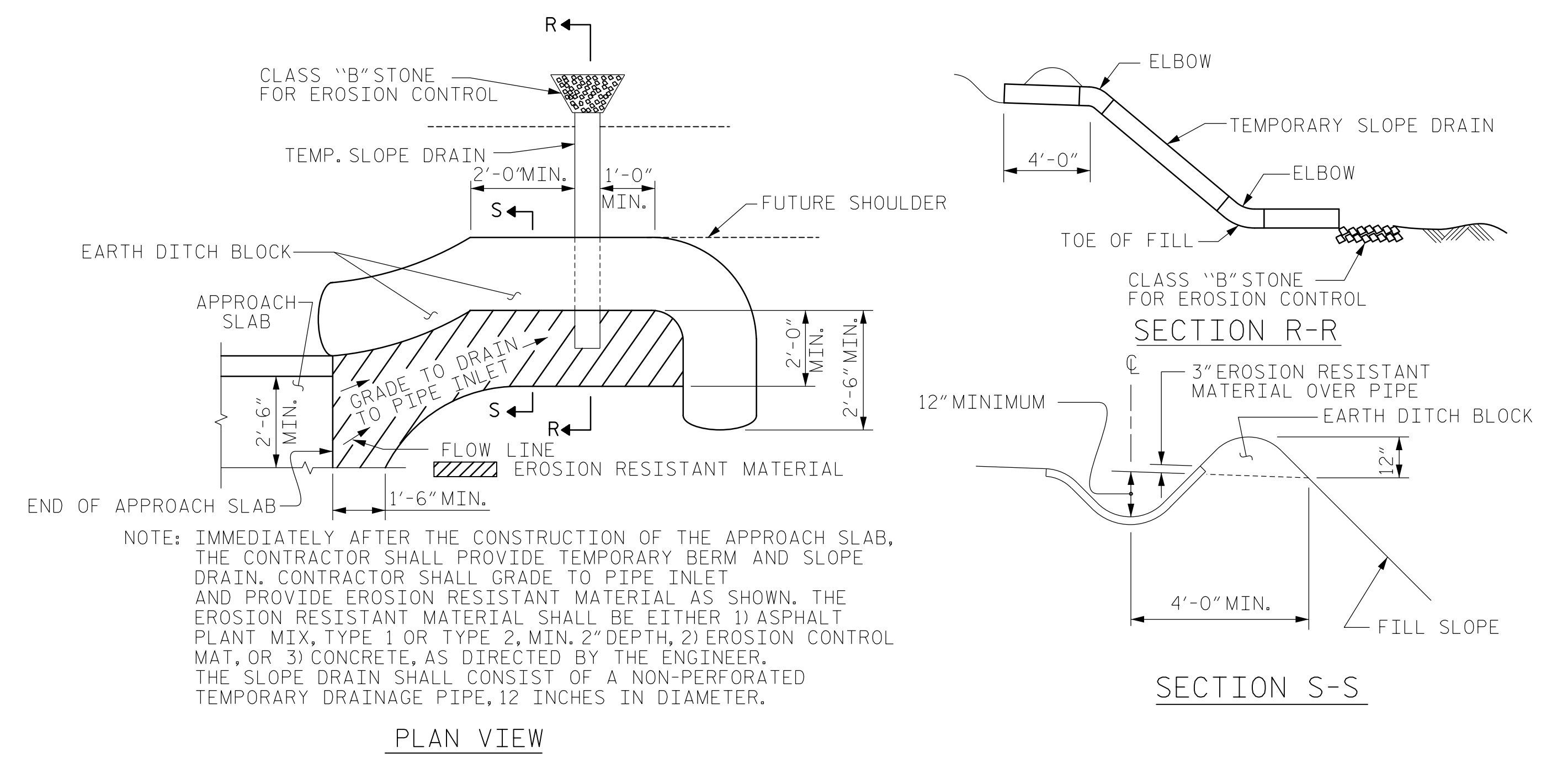


PLAN OF PARAPET AT END BENT 2

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 2 OF 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-77
1			3			SHEETS
2			4			78



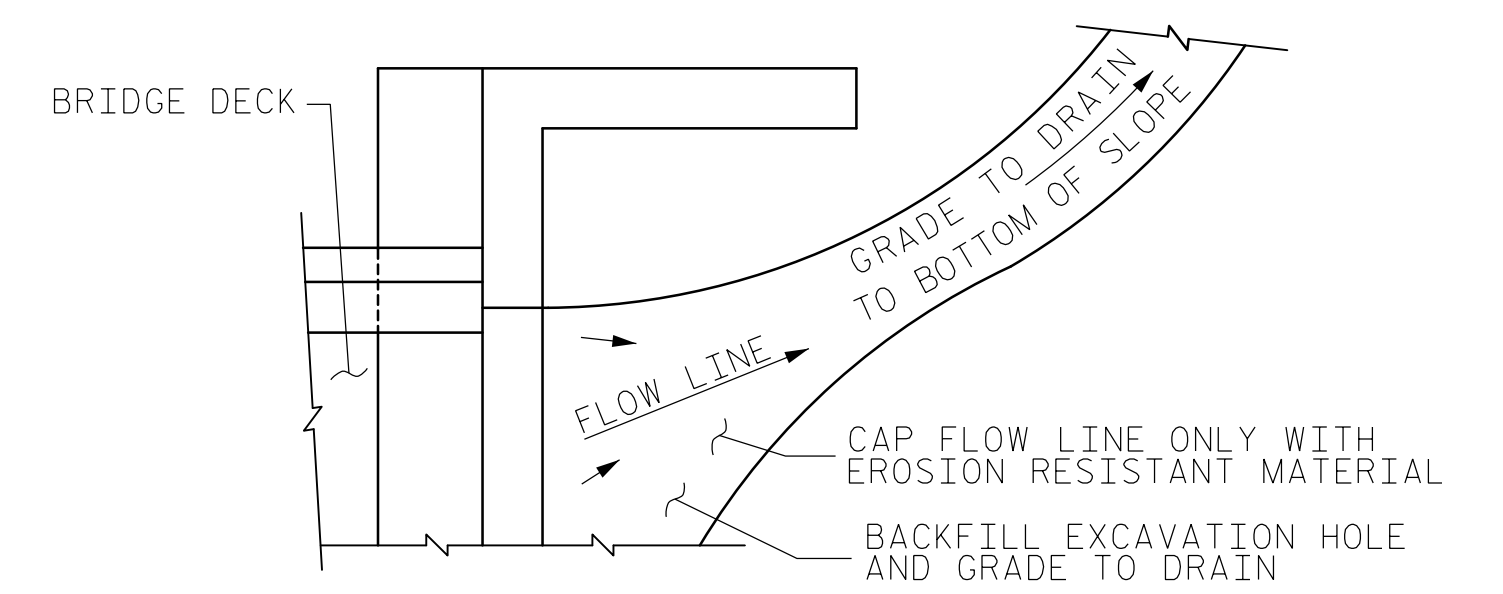


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH
 SLAB DETAILS

STD. NO. BAS4

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-78
1			3			SHEETS 78
2			4			

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NORTH CAROLINA
 PROFESSIONAL
 SEAL
 032954
 ENGINEER
 JARED C. MEDLIN

DocuSigned by:
 Jared C. Medlin 2/19/2015

2/18/2015 Y:\Drawings\2011 DWGS\B11-11 Sugar Creek Rd - NCDOT\Structures\RFC\SH78-U-5008-SD-AS-3.dgn

DJD
 DRAWN BY : R. C. LARSON DATE : 10/15/14
 CHECKED BY : E.C. DECOLA DATE : 10/20/14