

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. 17BP.11.R.131
ASHE COUNTY
STATION: 11+66.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 040122

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER N. FORK NEW RIVER ON SR 1549 (GARVEY BRIDGE RD.) BTWN. SR 1550 (E. WEAVERS FORD RD.) AND SR 1559 (LUCY BELL RD.)

RK&K
P: (919) 878-9560
8601 Six Forks Road, Forum 1 Suite 700
Raleigh, North Carolina 27615 | NC License No. F-0112
Engineers | Construction Managers | Planners | Scientists
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BRIDGE NO. 040122

11/30/2023

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

TOTAL SHEETS: 24

11/30/2023 R:\Structures\Drawings\17BP.11.R.131_SMU_G01_040122.dgn

DRAWN BY : B. H. GONFA DATE : APR 2021
CHECKED BY : O. J. PAITEL DATE : APR 2021
DESIGN ENGINEER OF RECORD : R. V. KEITH DATE : APR 2021

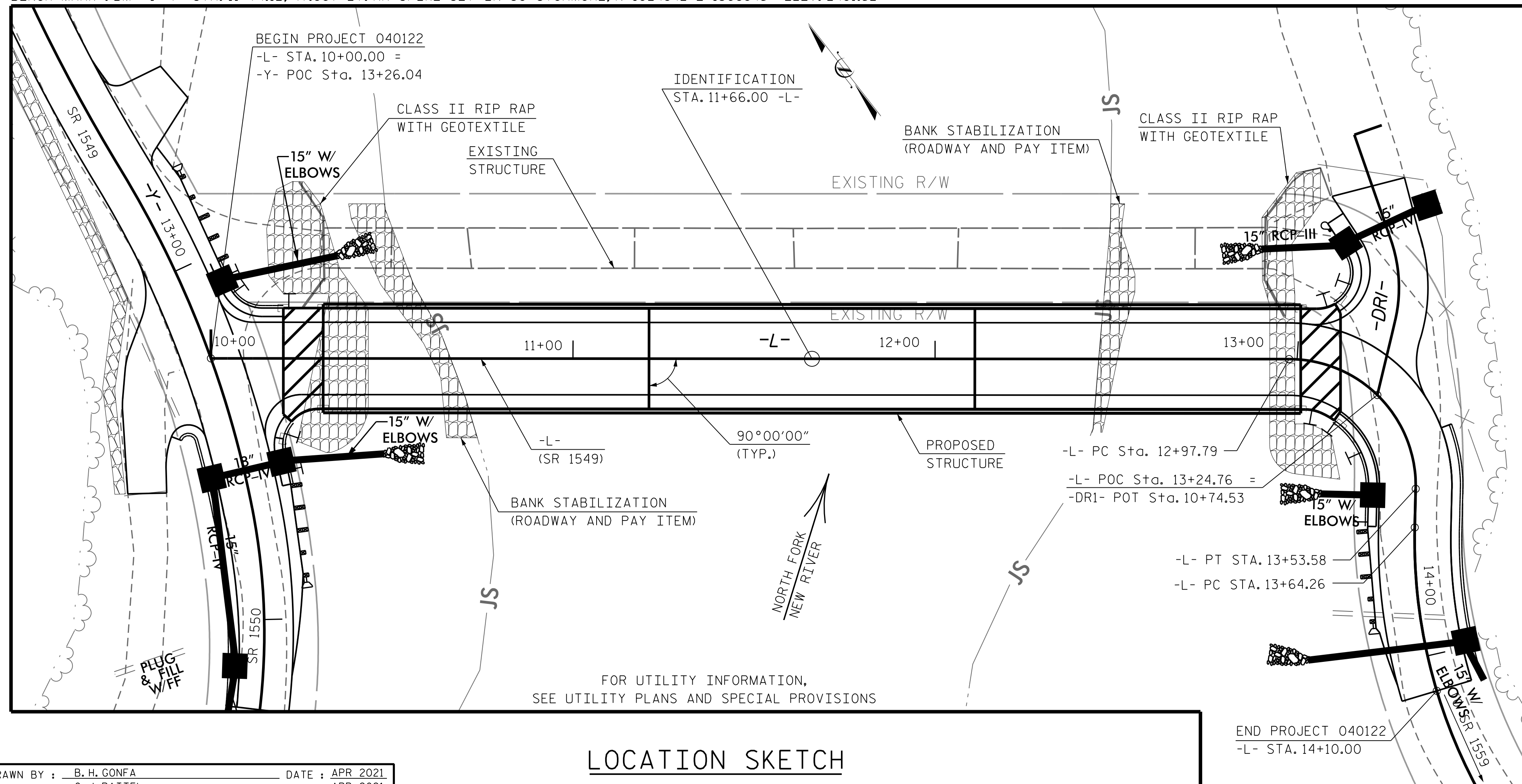
bgonfa

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	3'-6"Ø DRILLED PIERS IN SOIL	3'-6"Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-6"Ø DRILLED PIER	PDA TESTING	SID INSPECTIONS	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	PILE DRIVING EQUIPMENT SET UP FOR HP 14 X 73 STEEL PILES	HP 14 X 73 STEEL PILES	
	LUMP SUM	LUMP SUM	LUMP SUM	LIN.FT.	LIN.FT.	LIN.FT.	EACH	EACH	EACH	LUMP SUM	CU.YDS.	LUMP SUM	LBS.	LBS.	EACH	NO.	LIN.FT.
SUPERSTRUCTURE												LUMP SUM					
END BENT NO.1											25.5		3,407		5	5	100
BENT NO.1				14.25	23.00	16.2		1	1		26.6		9,005	1,561			
BENT NO.2				13.25	24.00	16.2		1	1		27.1		9,111	1,605			
END BENT NO.2											25.8		3,486		5	5	75
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	27.50	47.00	32.4	1	2	2	LUMP SUM	105.0	LUMP SUM	25,009	3,166	10	10	175

	STEEL PILE POINTS	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0") THICK	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAMS	
	EACH	LIN.FT.	TONS	SQ.YDS.	LUMP SUM	NO.	LIN.FT.
SUPERSTRUCTURE		540.5				30	2,700
END BENT NO.1	5		190	212			
BENT NO.1							
BENT NO.2							
END BENT NO.2	5		175	195			
TOTAL	10	540.5	365	407	LUMP SUM	30	2,700

BENCH MARK : BM #1 -Y- STA. 11+74.12, 47.097' LT. RR SPIKE SET IN 30" SYCAMORE, N 1024842 E 1308945 ELEV. 2481.52

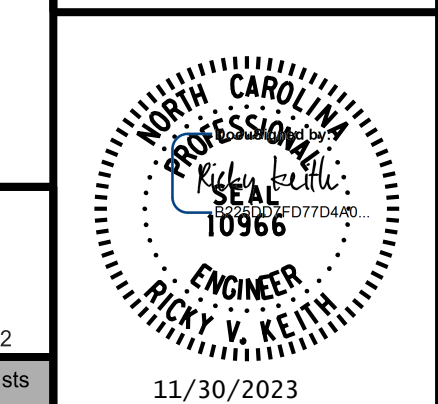


LOCATION SKETCH

PROJECT NO. 17BP.11.R.131
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SHEET 2 OF 3

BRIDGE NO. 040122



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER N. FORK NEW RIVER ON SR 1549 (GARVEY BRIDGE RD.) BTWN. SR 1550 (E. WEAVERS FORD RD.) AND SR 1559 (LUCY BELL RD.)



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S-2
TOTAL SHEETS 24

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NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET S-24.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

THE EXISTING STRUCTURE CONSISTING OF 8 SPANS
 1 @ 19'-7", 1 @ 20'-9" CONT., 4 @ 45'-0", 1 @ 21'-10", 1 @ 18'-6" CONT.
 WITH TIMBER FLOOR ON STEEL GIRDER FLOOR BEAM SYSTEM
 AND A CLEAR ROADWAY WIDTH OF 11.67' ON A SUBSTRUCTURE CONSISTING
 OF END BENTS AND INTERIOR CRUTCH BENTS 1 & 7 ON TIMBER AND INTERIOR
 BENTS 2 THRU 6 ON REINFORCED CONCRETE AND LOCATED AT THE
 PROPOSED STRUCTURE LOCATION SHALL BE REMOVED
 AT STATION.11+66.00

THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT,
 SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE
 DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD
 LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND
 NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL
 PROVISIONS FOR REMOVAL OF EXISTING STRUCTURE AT
 STATION 11+66.00 -L-.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN
 A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE
 WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS
 FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH
 ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL
 OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE
 CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION.
 SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE
 AND REMOVAL OF TEMPORARY ACCESS AT STATION 11+66.00 -L-.

THE MATERIAL SHOWN IN THE HATCHED AREA ON SHEET S-1
 SHALL BE EXCAVATED FOR A DISTANCE OF 25 FEET EACH SIDE
 OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER.
 THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM
 PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.
 SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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

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

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

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL
 PROVISIONS.

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING
 STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S
 ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD
 SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE
 WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING
 TO HANDLING OF MATERIALS CONTAINING LEAD BASED
 PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL
 OF EXISTING STRUCTURE AT STATION 11+66.00 -L-".

FOUNDATION NOTES:

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

DRILLED PIERS AT BENT NO.1 AND NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 500 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 80 TSF.

PERMANENT STEEL CASINGS ARE REQUIRED FOR DRILLED PIERS AT BENT NO.1 AND NO.2. DO NOT EXTEND PERMANENT STEEL CASINGS BELOW ELEVATION 2469 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

INSTALL DRILLED PIERS AT BENTS NO.1 AND NO.2 TO A TIP ELEVATION NO HIGHER THAN 2462 FT AND WITH THE REQUIRED TIP RESISTANCE.

THE SCOUR CRITICAL ELEVATION FOR BENTS NO.1 AND NO.2 IS ELEVATION 2466 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

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.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS

PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 130 TONS PER PILE.

DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE.

PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 130 TONS PER PILE.

DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE.

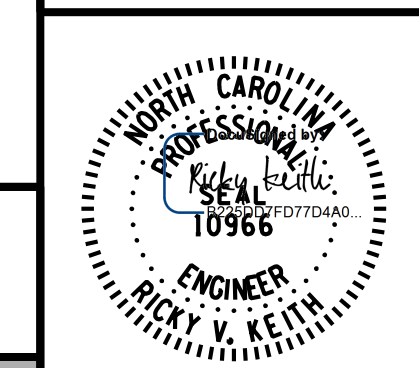
STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.1 AND NO.2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING PILES WITH THE PDA DURING DRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

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SHEET 3 OF 3

BRIDGE NO. 040122



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING AND FOUNDATION NOTES					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
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					TOTAL SHEETS
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					S-3

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LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LOAD TYPE	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD	HL-93 (INVENTORY)	N/A	①	1.109	--	1.75	0.272	1.47	90'	EL	44.250	0.493	1.26	90'	EL	4.425	0.80	0.272	1.11	90'	EL	44.250		
	HL-93 (OPERATING)	N/A		1.633	--	1.35	0.272	1.90	90'	EL	44.250	0.493	1.63	90'	EL	4.425	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.507	54.255	1.75	0.272	1.99	90'	EL	44.250	0.493	1.65	90'	EL	4.425	0.80	0.272	1.51	90'	EL	44.250		
	HS-20 (OPERATING)	36.000		2.140	77.039	1.35	0.272	2.59	90'	EL	44.250	0.493	2.14	90'	EL	4.425	N/A	--	--	--	--	--		
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		3.519	47.501	1.4	0.272	5.82	90'	EL	44.250	0.493	5.05	90'	EL	4.425	0.80	0.272	3.52	90'	EL	44.250	
		SNGARBS2	20.000		2.572	51.43	1.4	0.272	4.25	90'	EL	44.250	0.493	3.55	90'	EL	4.425	0.80	0.272	2.57	90'	EL	44.250	
		SNAGRIS2	22.000		2.415	53.122	1.4	0.272	4.00	90'	EL	44.250	0.493	3.27	90'	EL	4.425	0.80	0.272	2.41	90'	EL	44.250	
		SNCOTTS3	27.250		1.749	47.674	1.4	0.272	2.89	90'	EL	44.250	0.493	2.52	90'	EL	4.425	0.80	0.272	1.75	90'	EL	44.250	
		SNAGGRS4	34.925		1.443	50.381	1.4	0.272	2.39	90'	EL	44.250	0.493	2.06	90'	EL	4.425	0.80	0.272	1.44	90'	EL	44.250	
		SNS5A	35.550		1.412	50.195	1.4	0.272	2.34	90'	EL	44.250	0.493	2.07	90'	EL	4.425	0.80	0.272	1.41	90'	EL	44.250	
		SNS6A	39.950		1.287	51.435	1.4	0.272	2.13	90'	EL	44.250	0.493	1.88	90'	EL	4.425	0.80	0.272	1.29	90'	EL	44.250	
		SNS7B	42.000		1.226	51.483	1.4	0.272	2.03	90'	EL	44.250	0.493	1.83	90'	EL	4.425	0.80	0.272	1.23	90'	EL	44.250	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.568	51.733	1.4	0.272	2.59	90'	EL	44.250	0.493	2.24	90'	EL	4.425	0.80	0.272	1.57	90'	EL	44.250	
		TNT4A	33.075		1.572	52.007	1.4	0.272	2.60	90'	EL	44.250	0.493	2.20	90'	EL	4.425	0.80	0.272	1.57	90'	EL	44.250	
		TNT6A	41.600		1.278	53.170	1.4	0.272	2.11	90'	EL	44.250	0.493	1.92	90'	EL	4.425	0.80	0.272	1.28	90'	EL	44.250	
		TNT7A	42.000		1.281	53.782	1.4	0.272	2.12	90'	EL	44.250	0.493	1.89	90'	EL	4.425	0.80	0.272	1.28	90'	EL	44.250	
		TNT7B	42.000		1.315	55.229	1.4	0.272	2.18	90'	EL	44.250	0.493	1.79	90'	EL	4.425	0.80	0.272	1.31	90'	EL	44.250	
		TNAGRIT4	43.000		1.258	54.101	1.4	0.272	2.08	90'	EL	44.250	0.493	1.74	90'	EL	4.425	0.80	0.272	1.26	90'	EL	44.250	
		TNAGT5A	45.000		1.190	53.537	1.4	0.272	1.97	90'	EL	44.250	0.493	1.71	90'	EL	4.425	0.80	0.272	1.19	90'	EL	44.250	
		TNAGT5B	45.000	③	1.178	53.027	1.4	0.272	1.95	90'	EL	44.250	0.493	1.66	90'	EL	4.425	0.80	0.272	1.18	90'	EL	44.250	
EMERGENCY VEHICLE (EV)	EV2	28.750		2.296	66.005	1.3	0.272	3.25	90'	EL	44.250	0.493	2.49	90'	EL	4.425	0.80	0.272	2.30	90'	EL	44.250		
	EV3	43.000	④	1.510	64.924	1.3	0.272	2.14	90'	EL	44.250	0.493	1.67	90'	EL	4.425	0.80	0.272	1.51	90'	EL	44.250		

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:

-
-
-
-

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

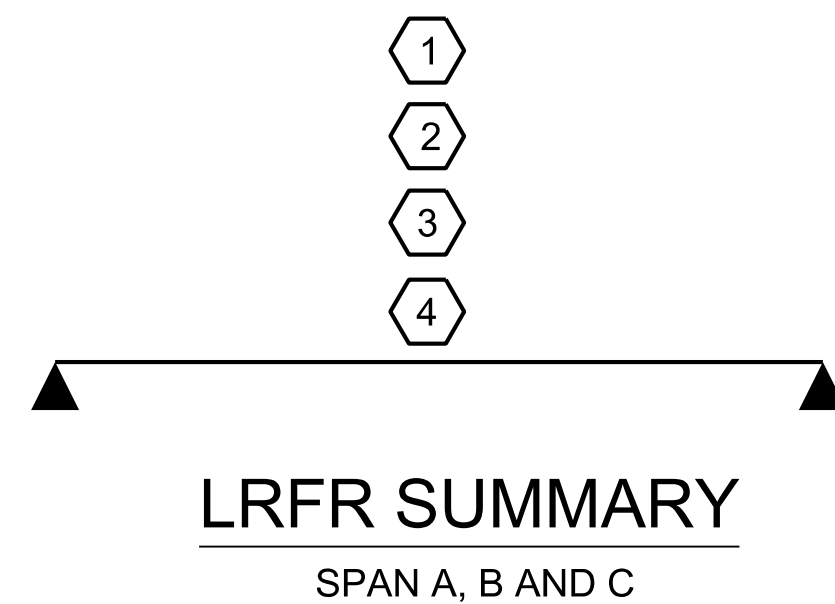
③ LEGAL LOAD RATING **

④ EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
90' BOX BEAM UNIT
90° SKEW
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			24

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

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

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6000 PSI.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

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

THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

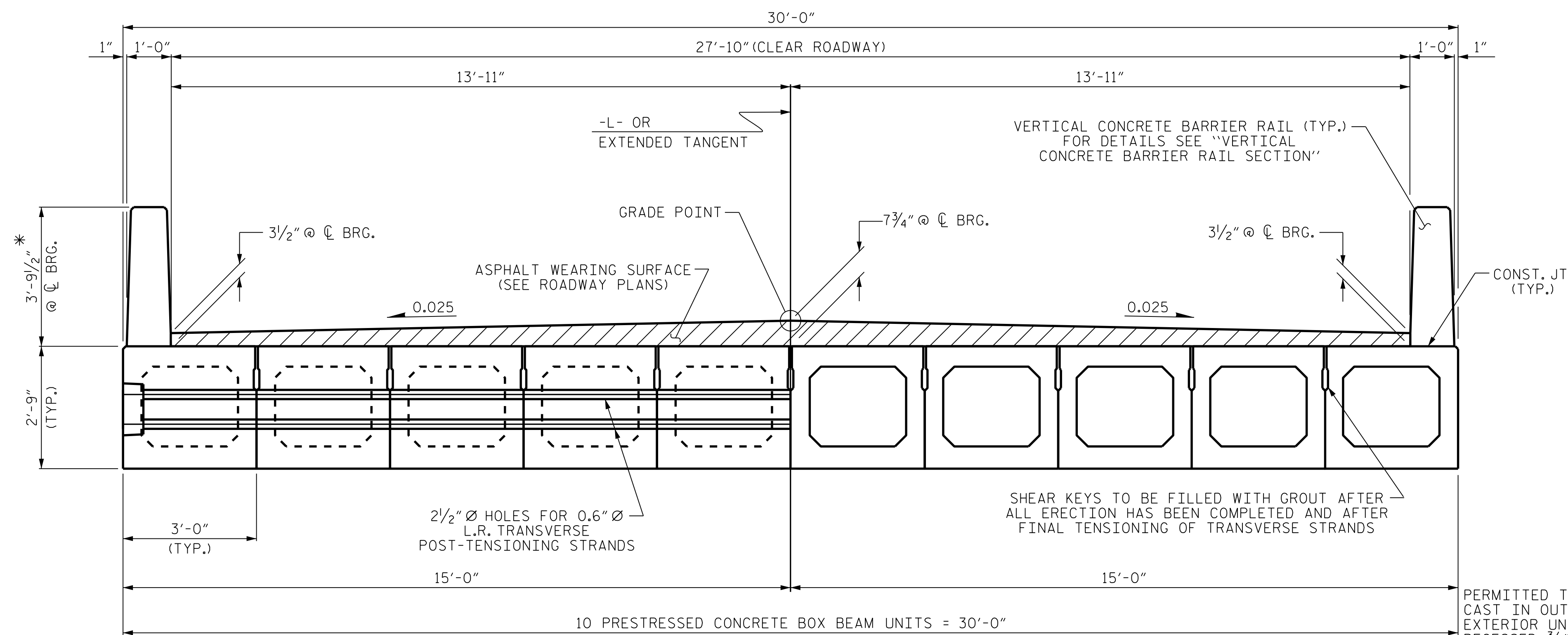
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

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

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



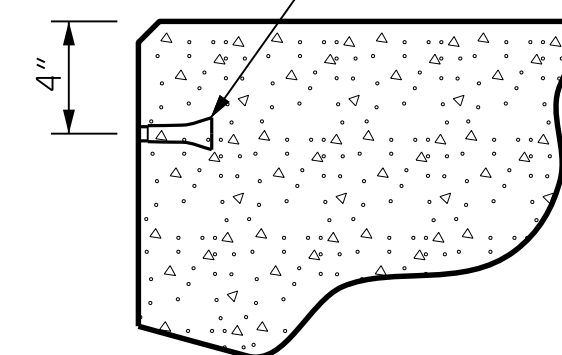
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

TYPICAL SECTION

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

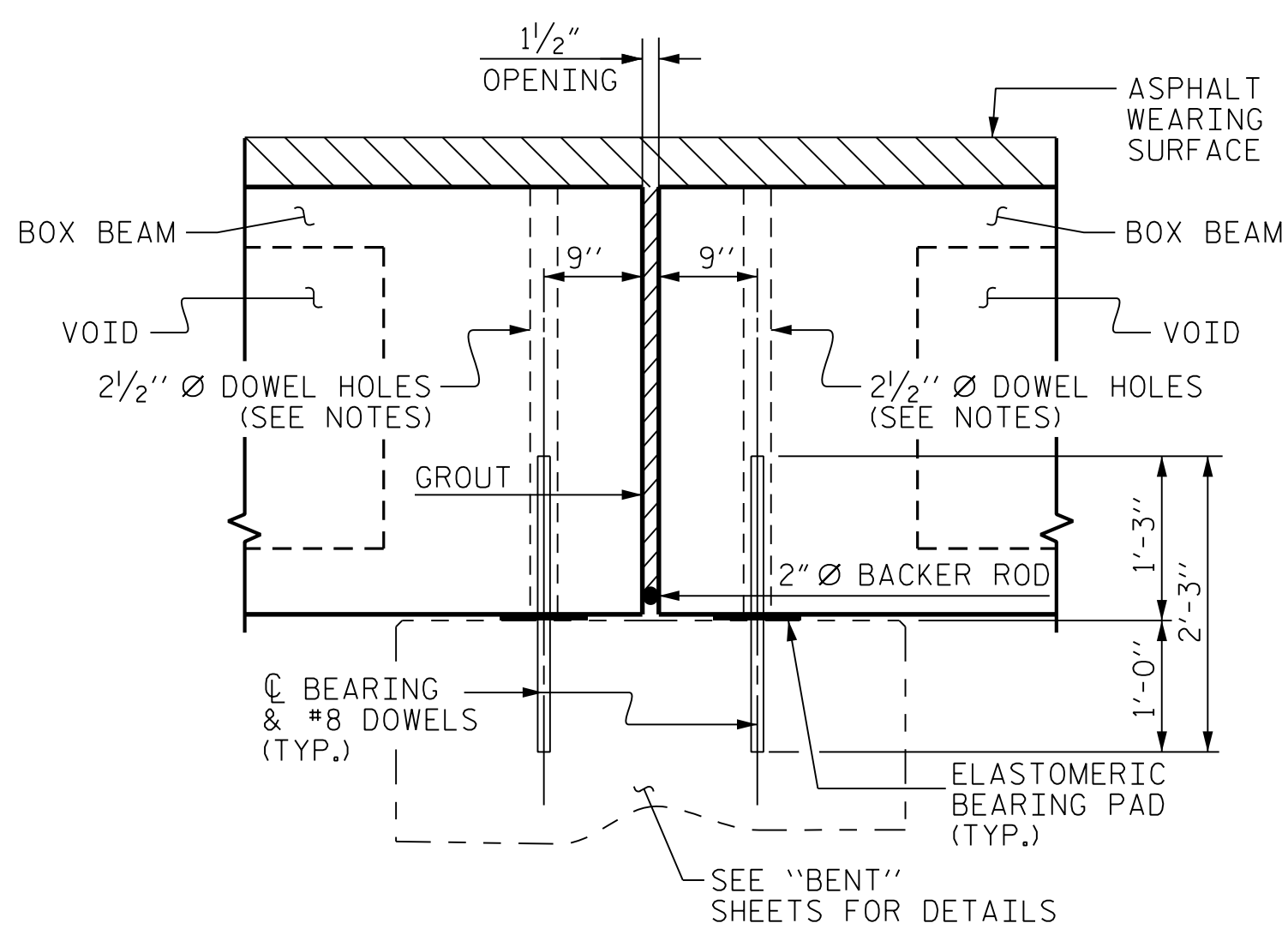
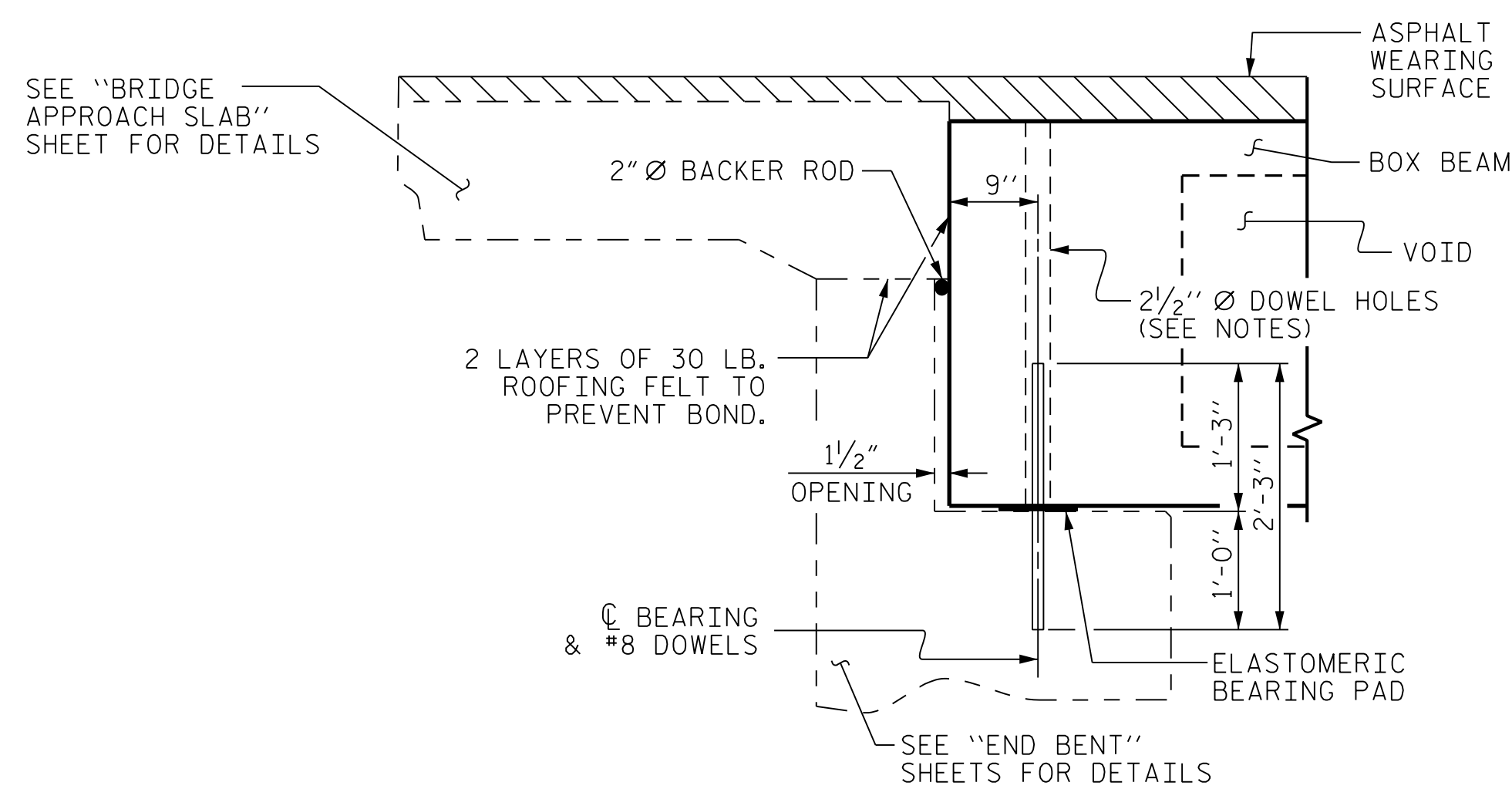
PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.



THREADED INSERT DETAIL

FIXED END

FIXED END

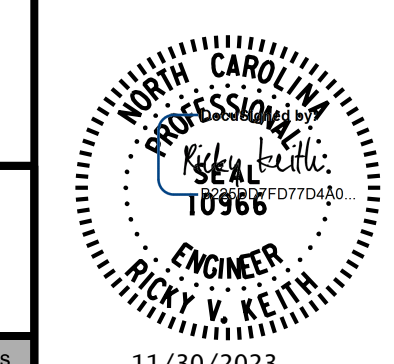


SECTION AT END BENT

SECTION AT BENT

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RALEIGH
STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

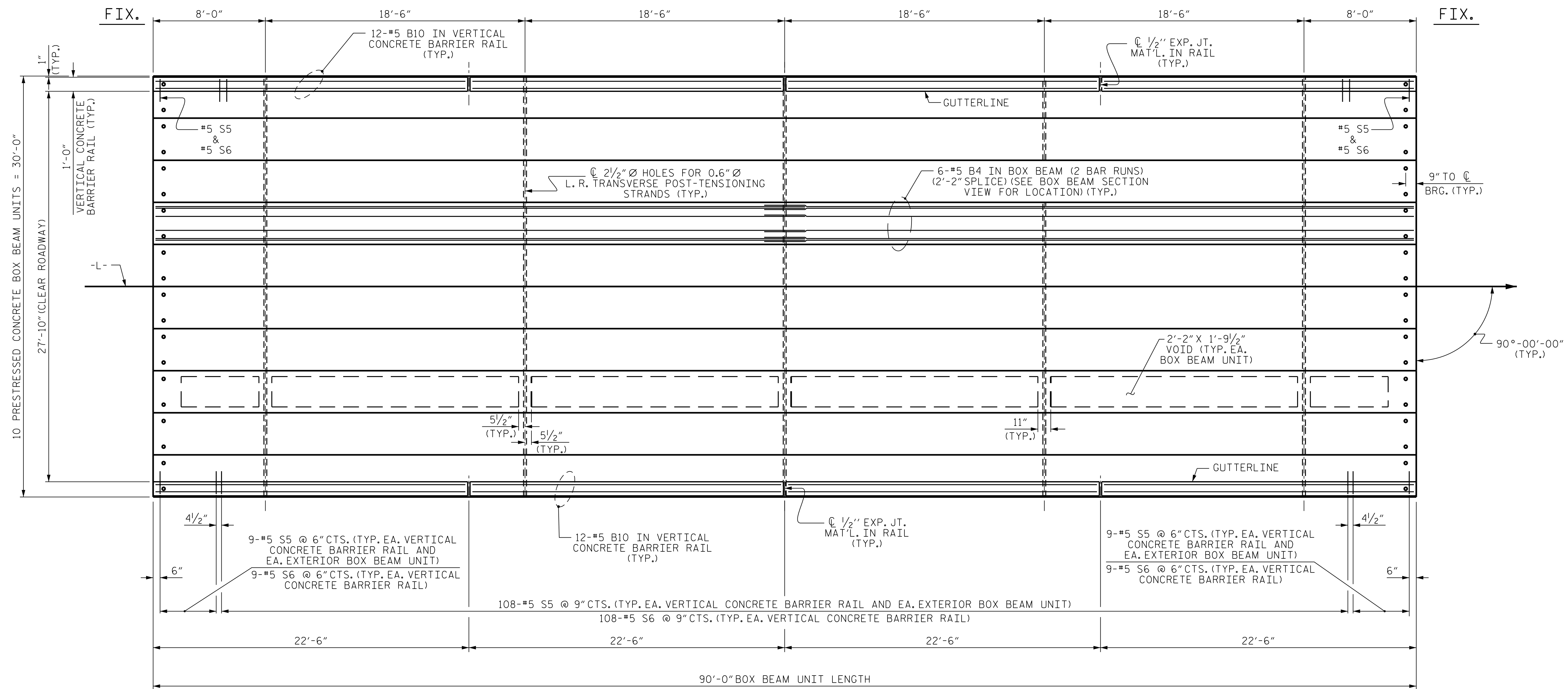


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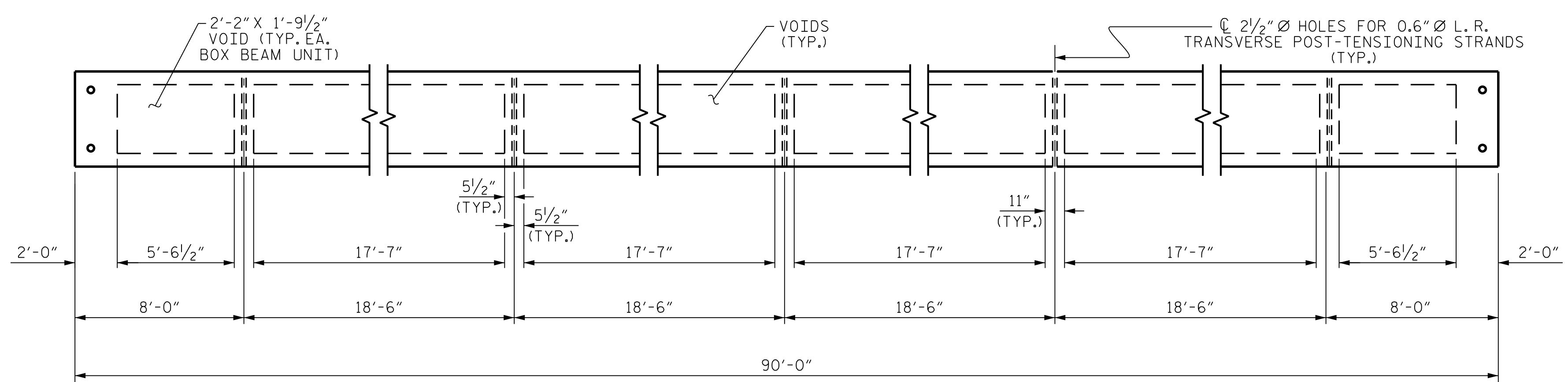
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PLAN OF UNIT



DIAPHRAGM AND VOID LAYOUT

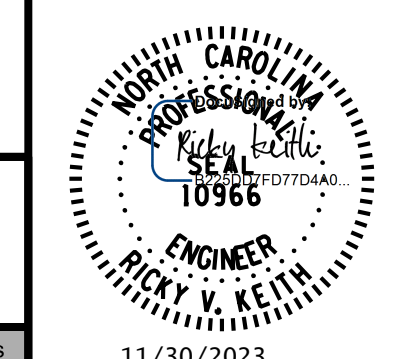
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SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE NO. 040122

PLAN OF 90' UNIT
 27'-10" CLEAR ROADWAY
 90° SKEW
 FOR ALL SPANS

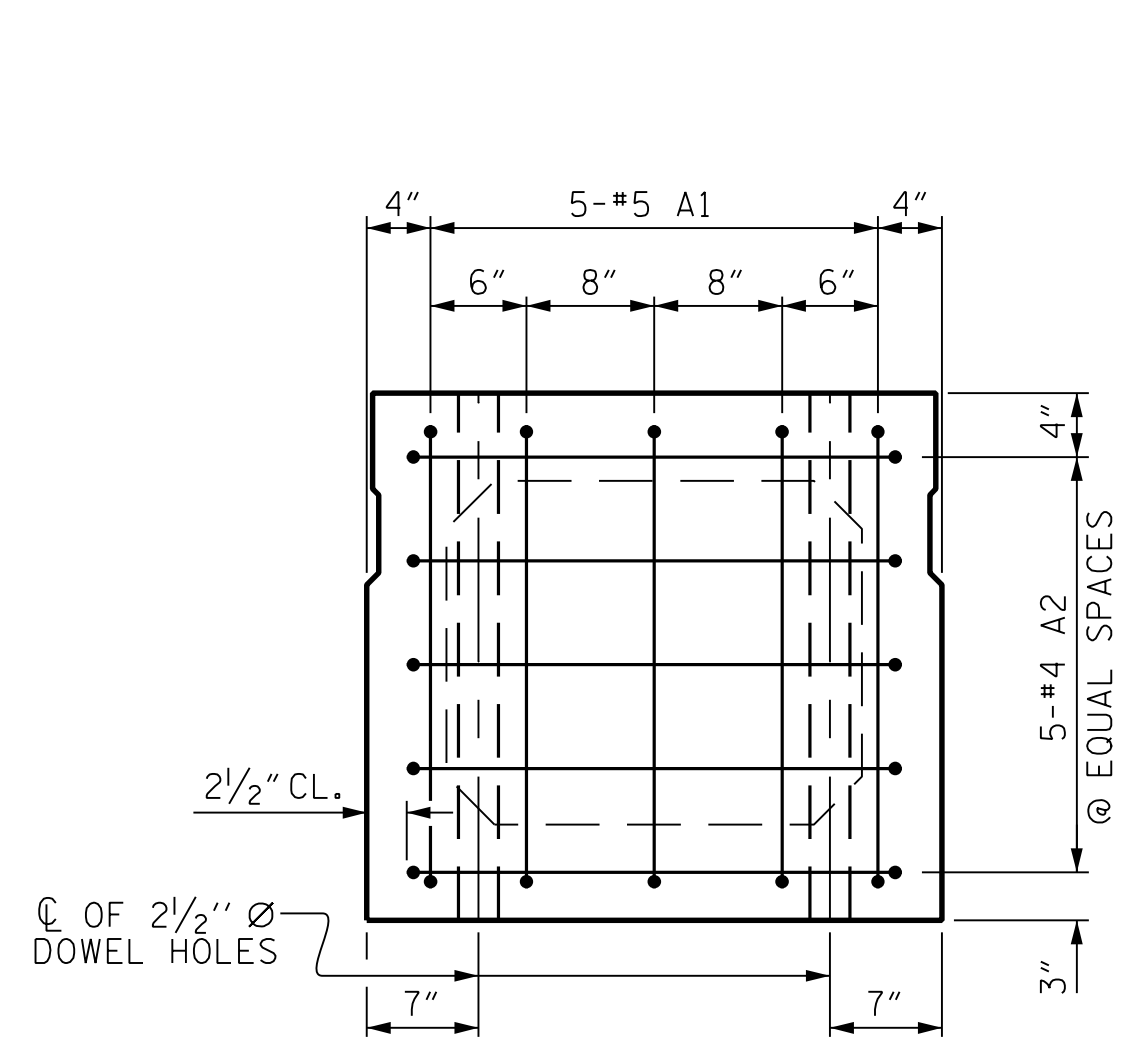


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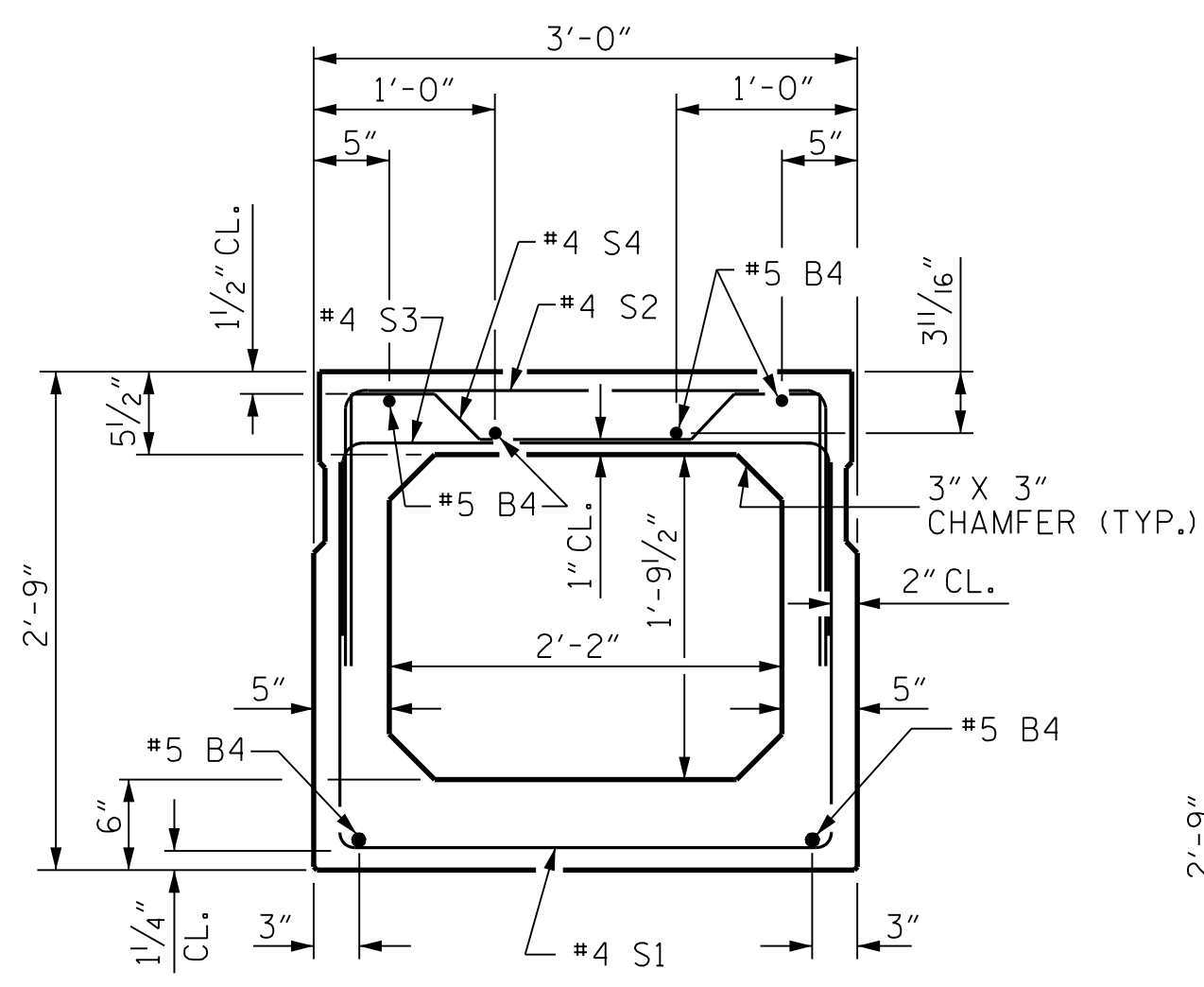
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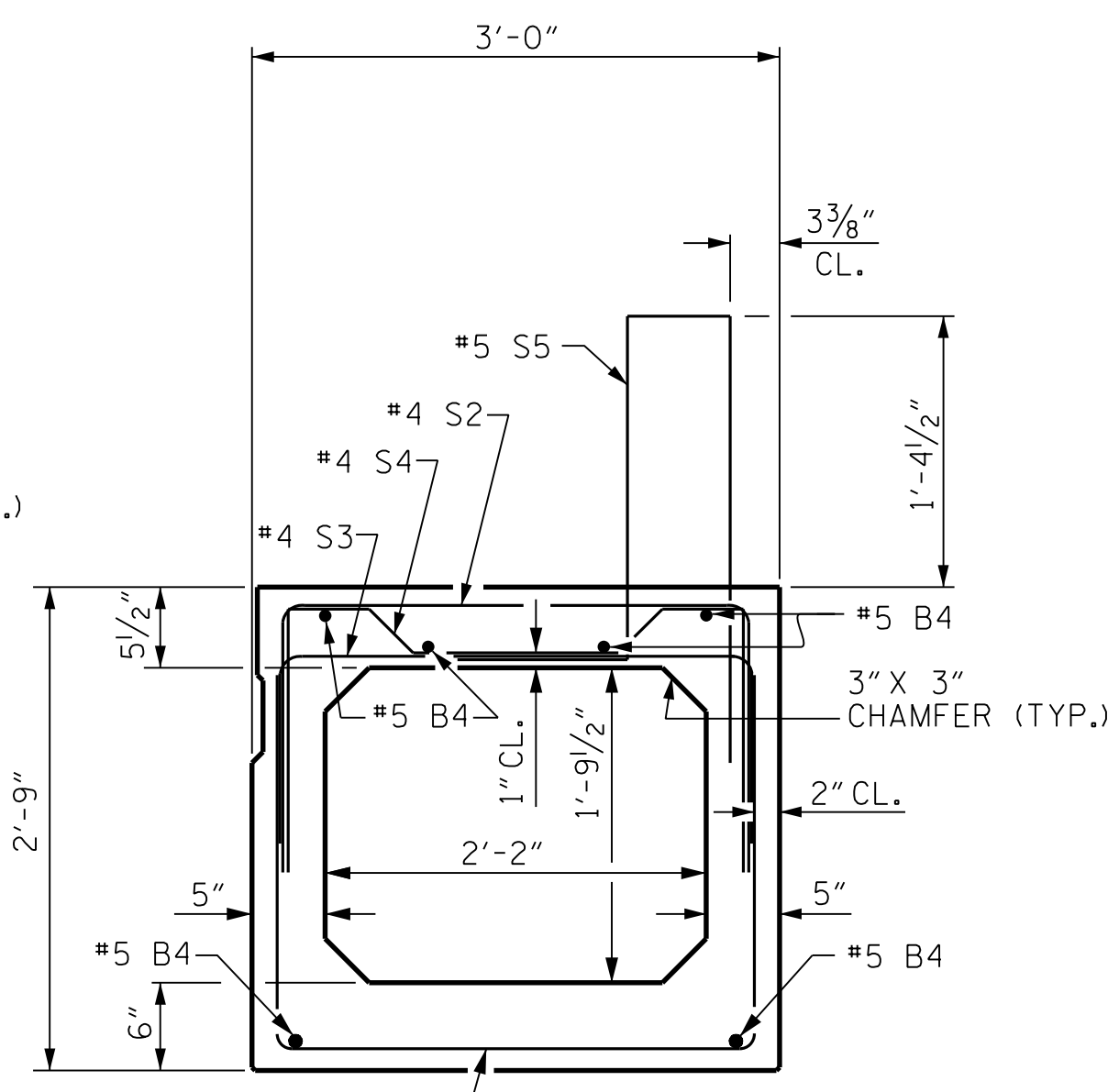
END ELEVATION

SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



INTERIOR BOX BEAM SECTION

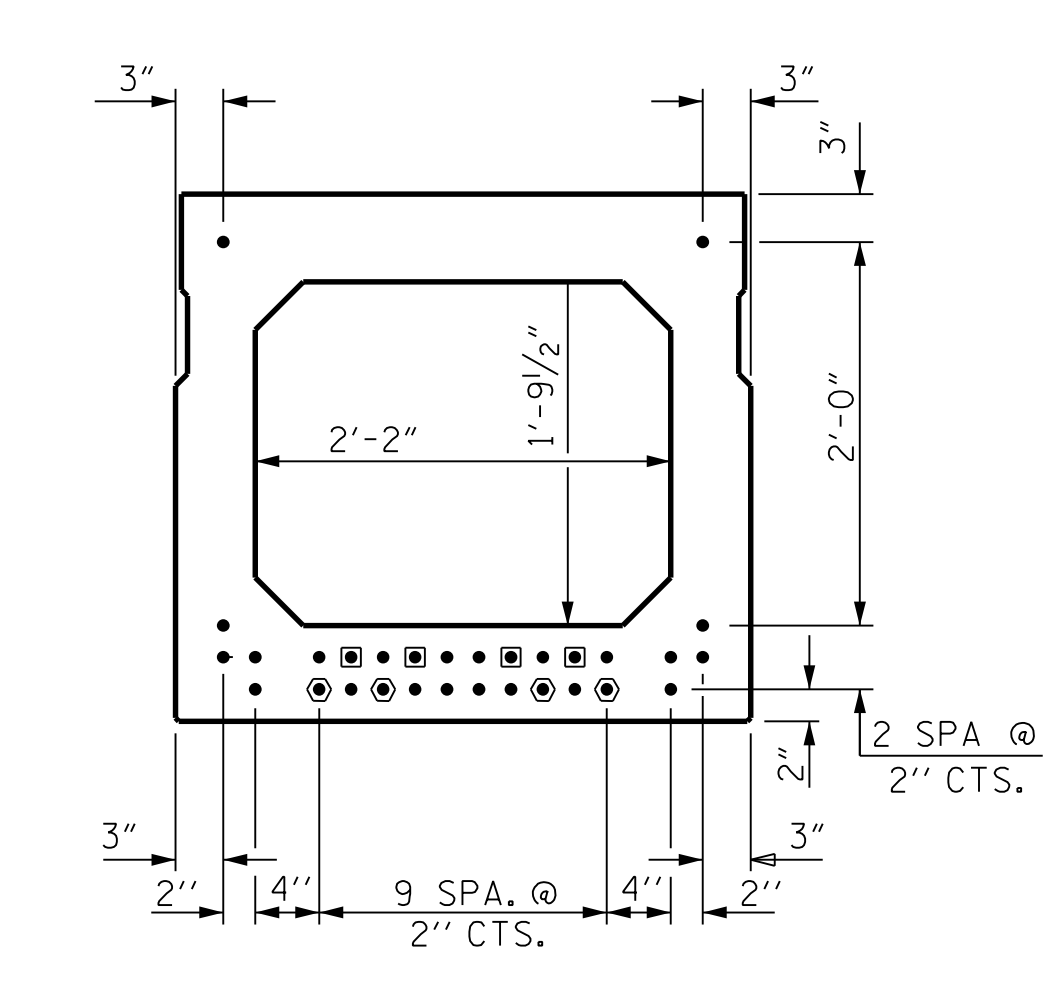
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT



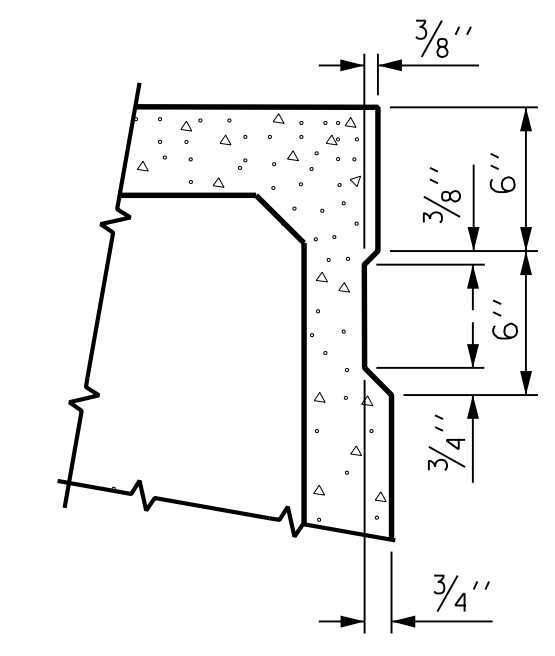
TYPICAL STRAND LOCATION

DEBONDING LEGEND

- FULLY BONDED STRANDS
- ◐ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
- ◑ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

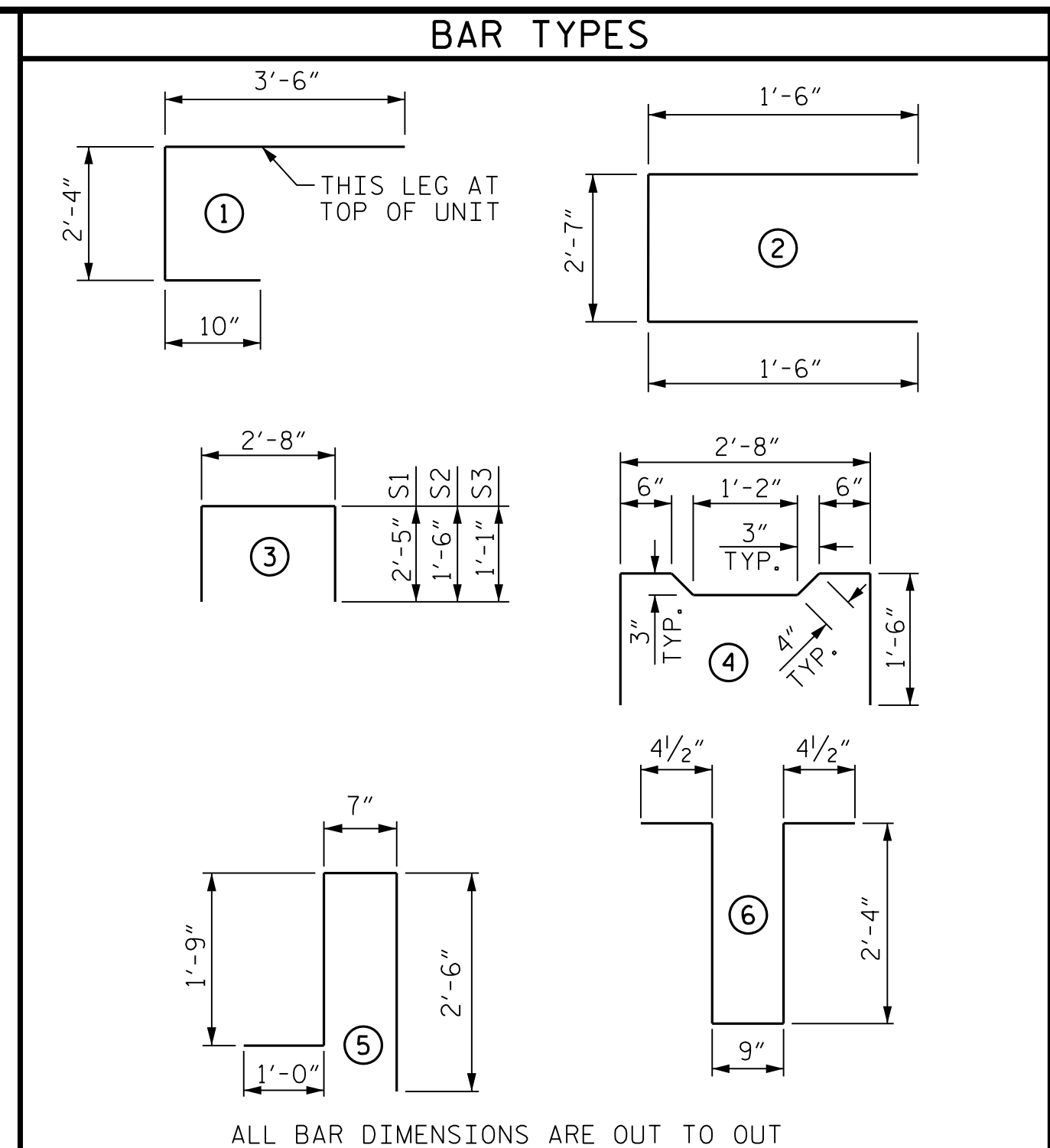
BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

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



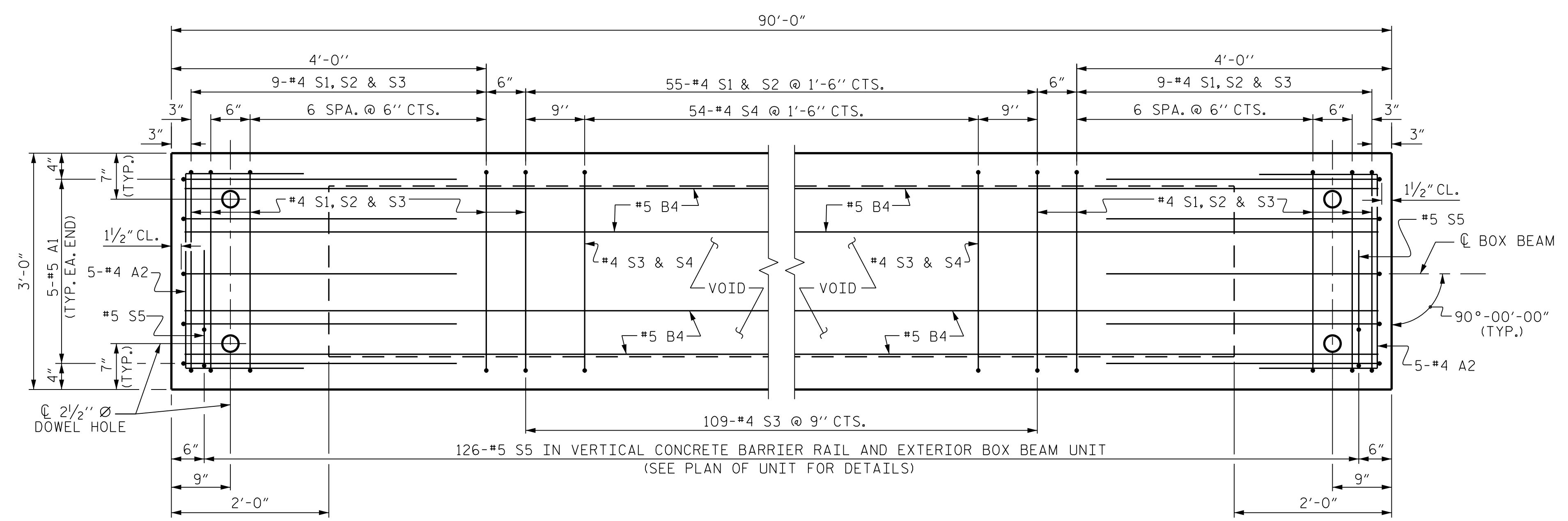
SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-8"	70	6'-8"	70
A2	40	#4	2	5'-7"	149	5'-7"	149
B4	12	#5	STR	45'-11"	575	45'-11"	575
K1	15	#4	6	6'-2"	62	6'-2"	62
K2	10	#4	STR	2'-7"	17	2'-7"	17
S1	73	#4	3	7'-6"	366	7'-6"	366
S2	73	#4	3	5'-8"	276	5'-8"	276
S3	127	#4	3	4'-10"	410	4'-10"	410
S4	54	#4	4	5'-10"	210	5'-10"	210
* S5	126	#5	5	5'-10"	767	--	--
REINFORCING STEEL				2135	LBS.	2135	LBS.
* EPOXY COATED REINF. STEEL				767	LBS.		
8000 P.S.I. CONCRETE				16.0	CU. YDS.	15.9	CU. YDS.
0.6" Ø L.R. STRANDS				No. 30		No. 30	



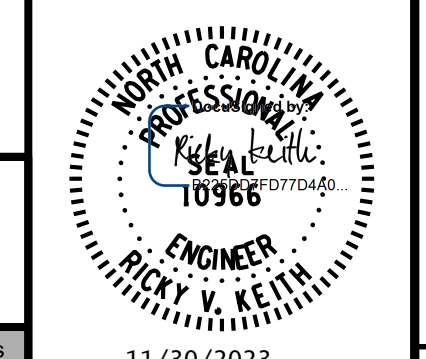
PLAN OF BOX BEAM

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. FOR LOCATION OF DIAPHRAGMS, SEE "PLAN OF UNIT". FOR THREADED INSERTS, SEE "THREADED INSERT DETAIL". FOR REINFORCING STEEL IN DIAPHRAGMS, SEE "DOUBLE DIAPHRAGM DETAILS".

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SHEET 2 OF 4

BRIDGE NO. 040122



STATE OF NORTH CAROLINA
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 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT
 FOR ALL SPANS

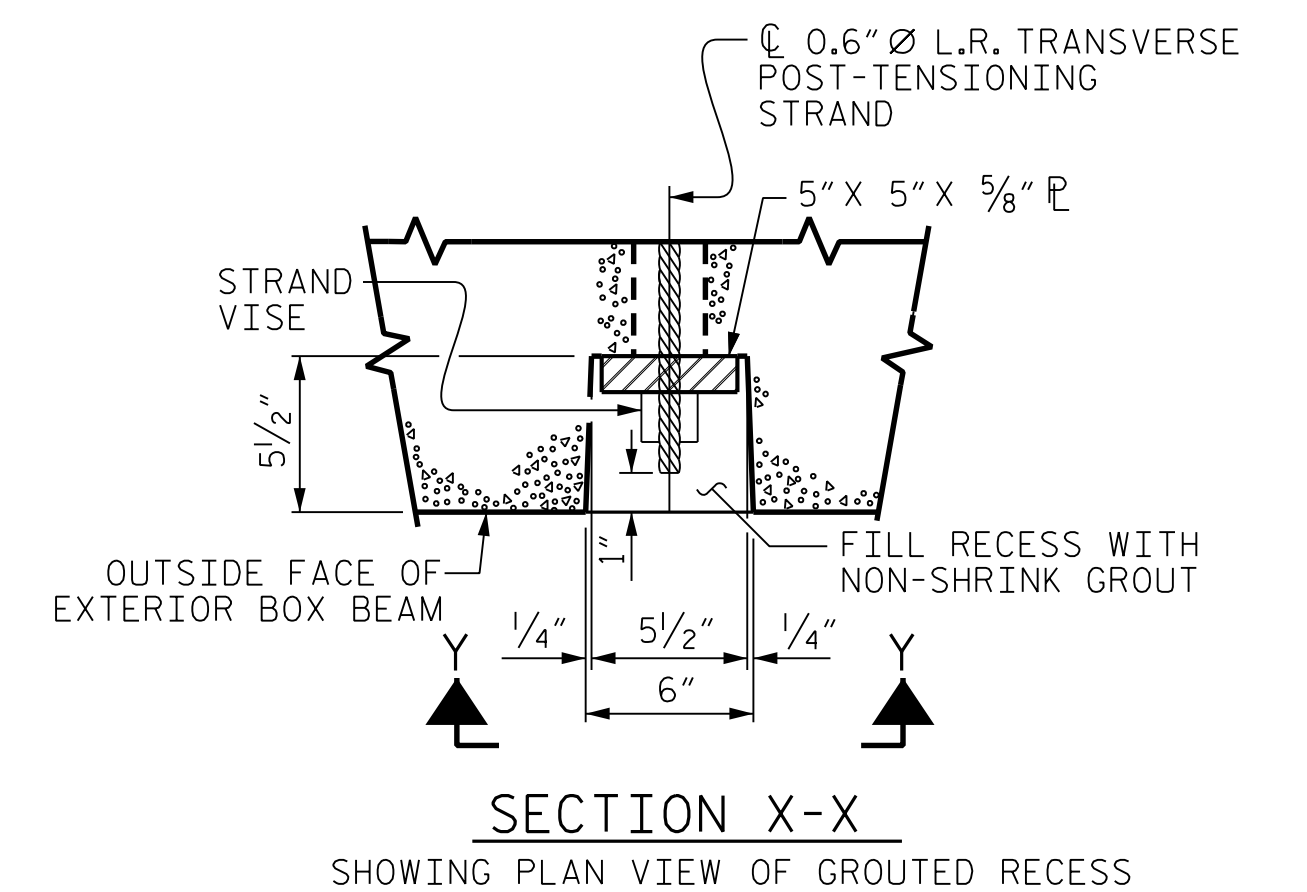
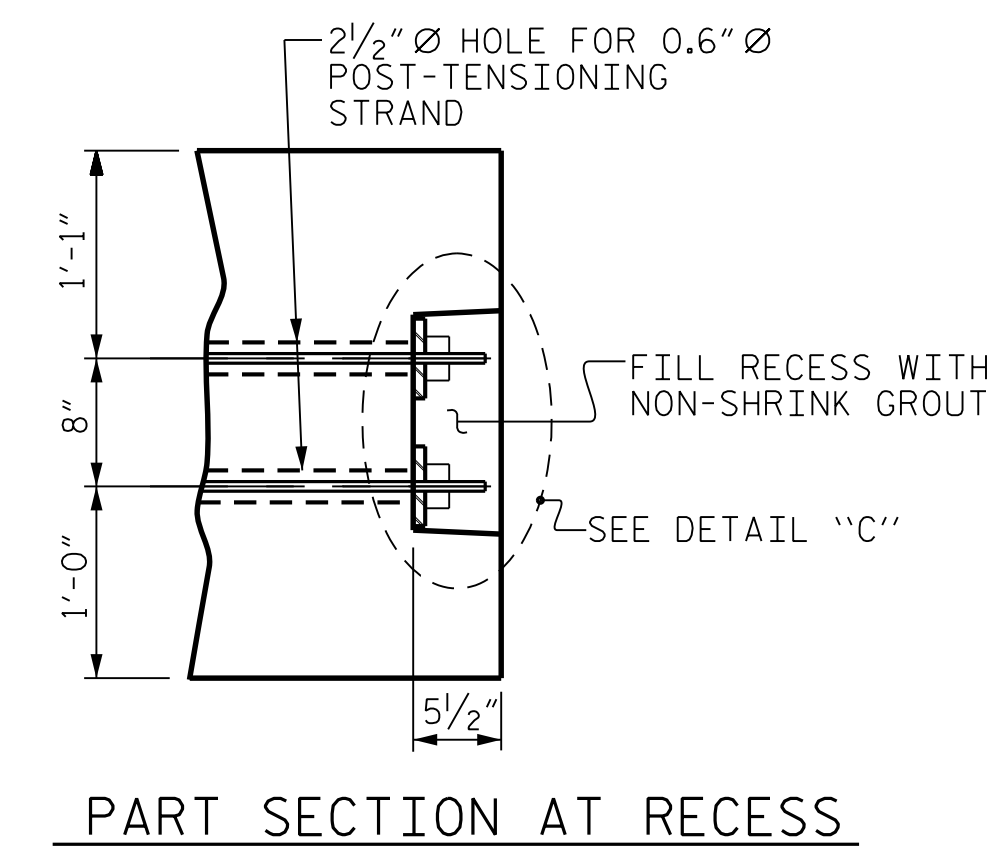
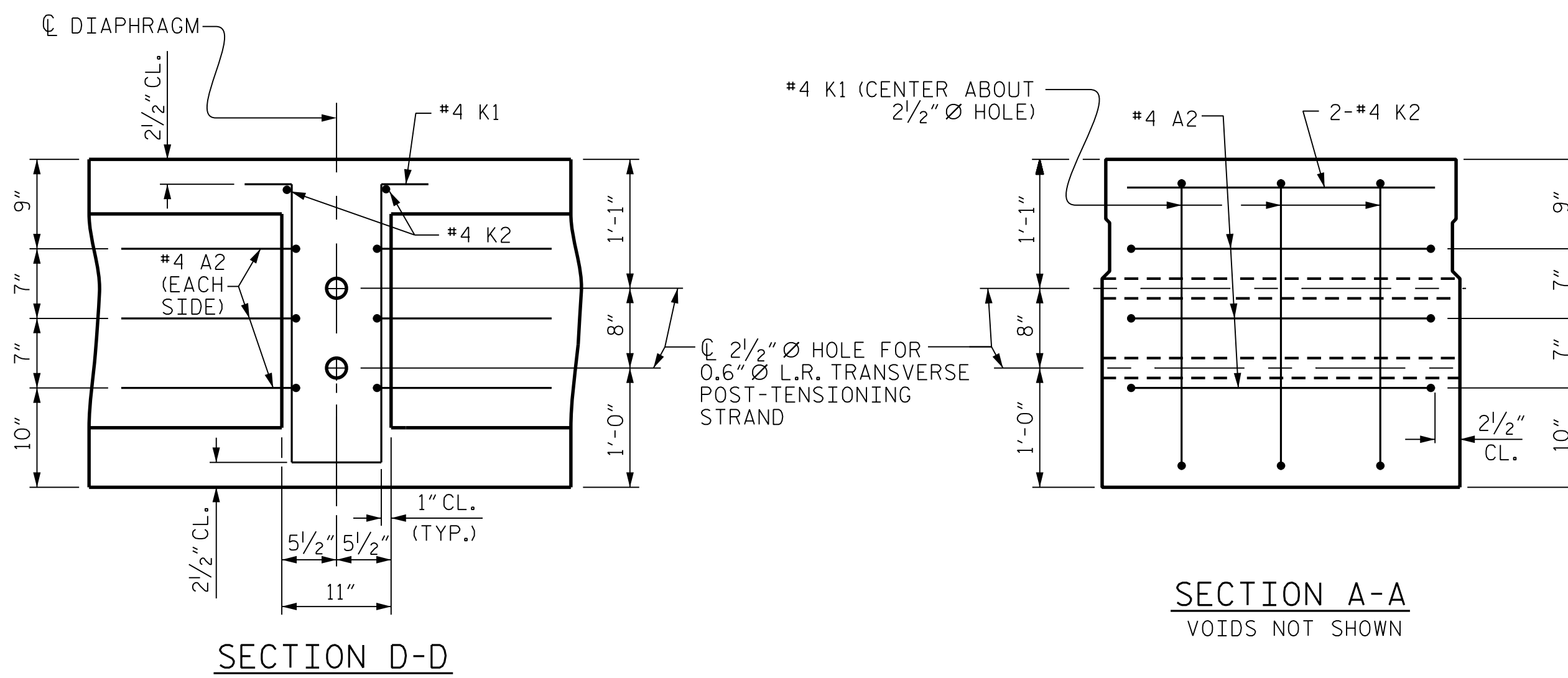
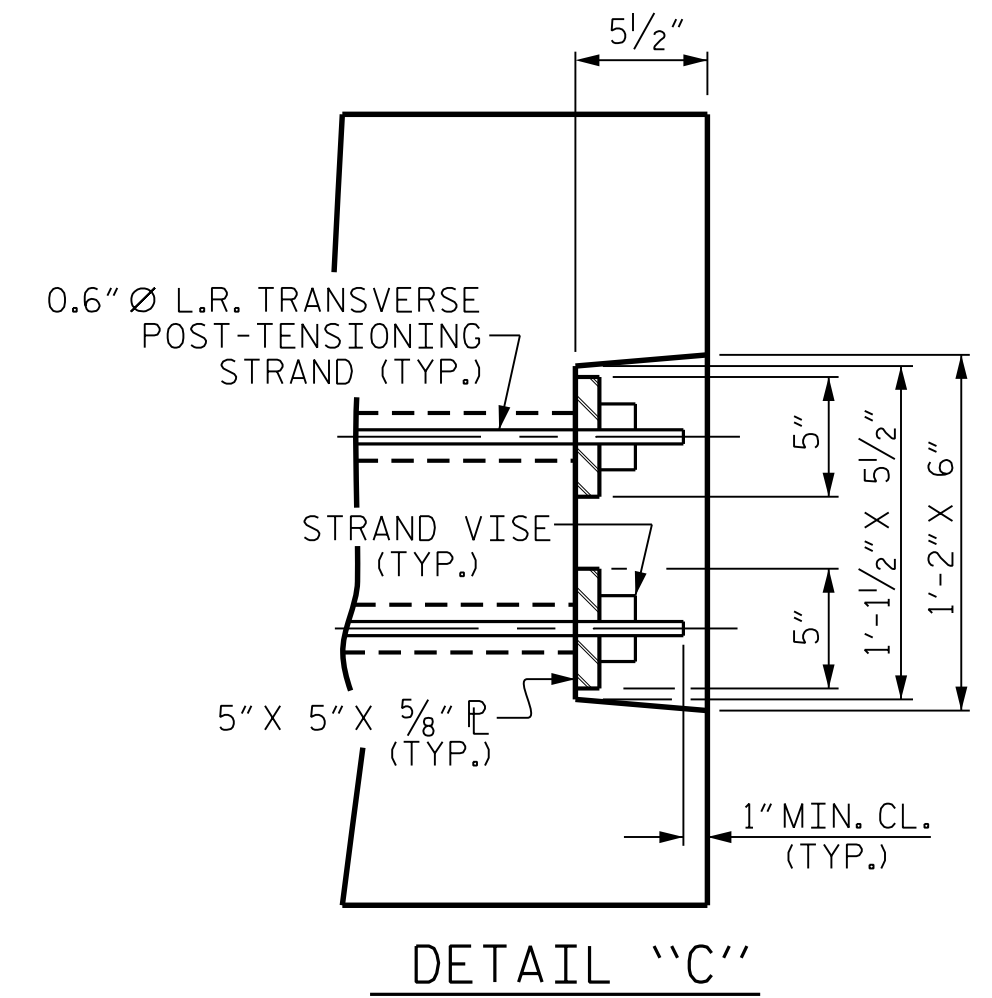
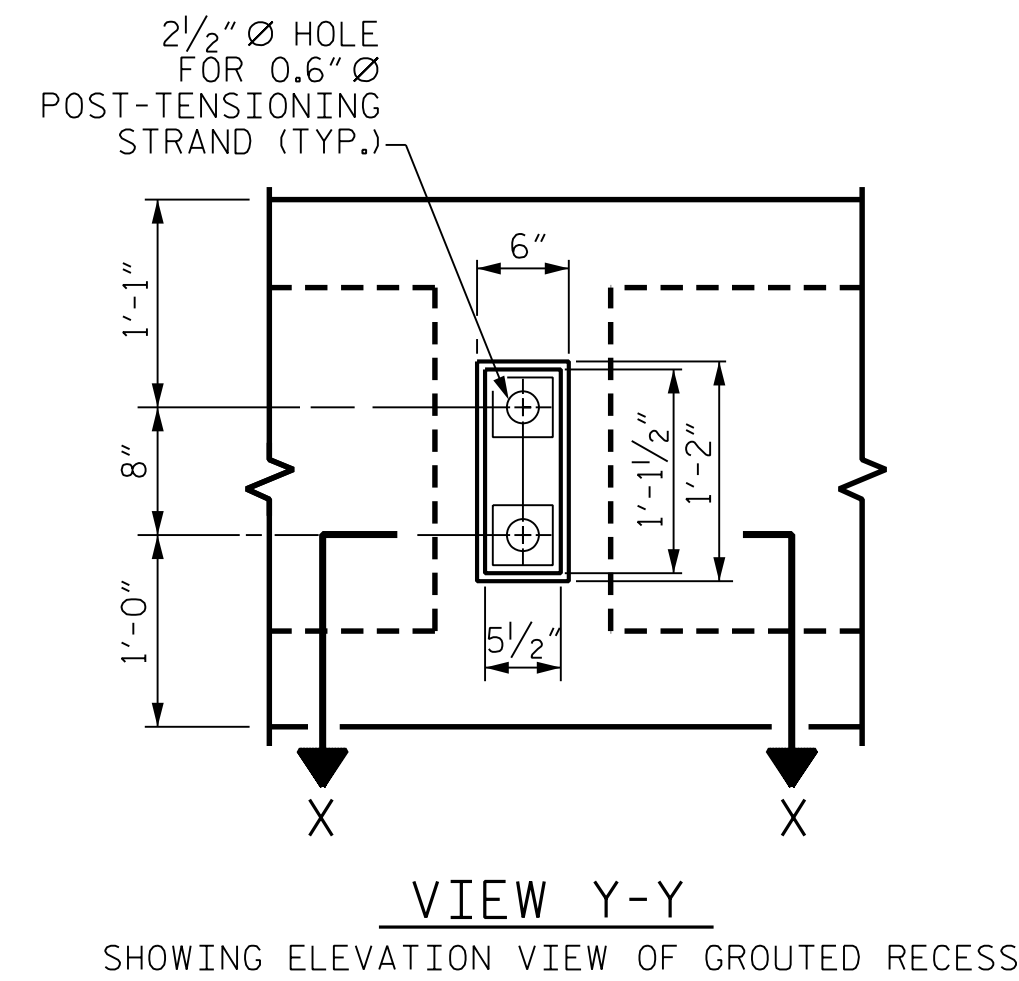
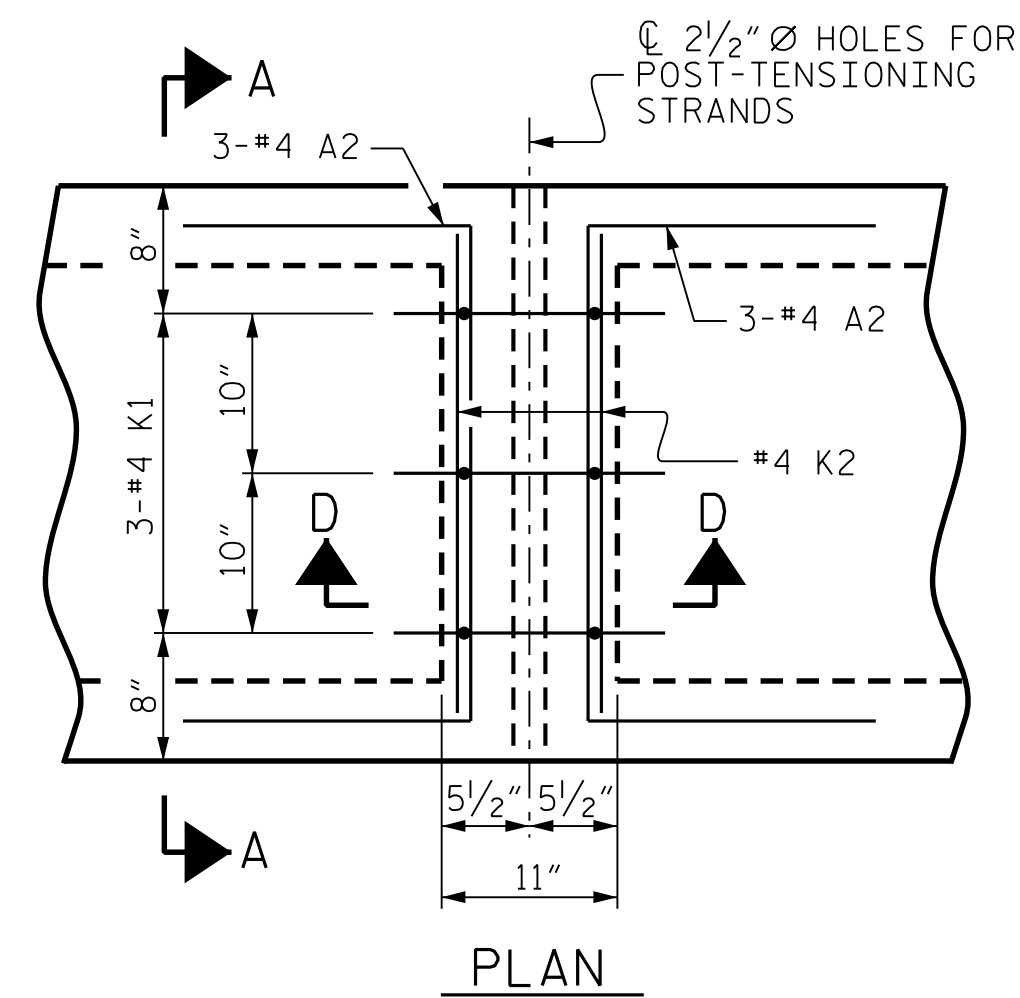
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SECTION D-D

SECTION A-A
VOIDS NOT SHOWN

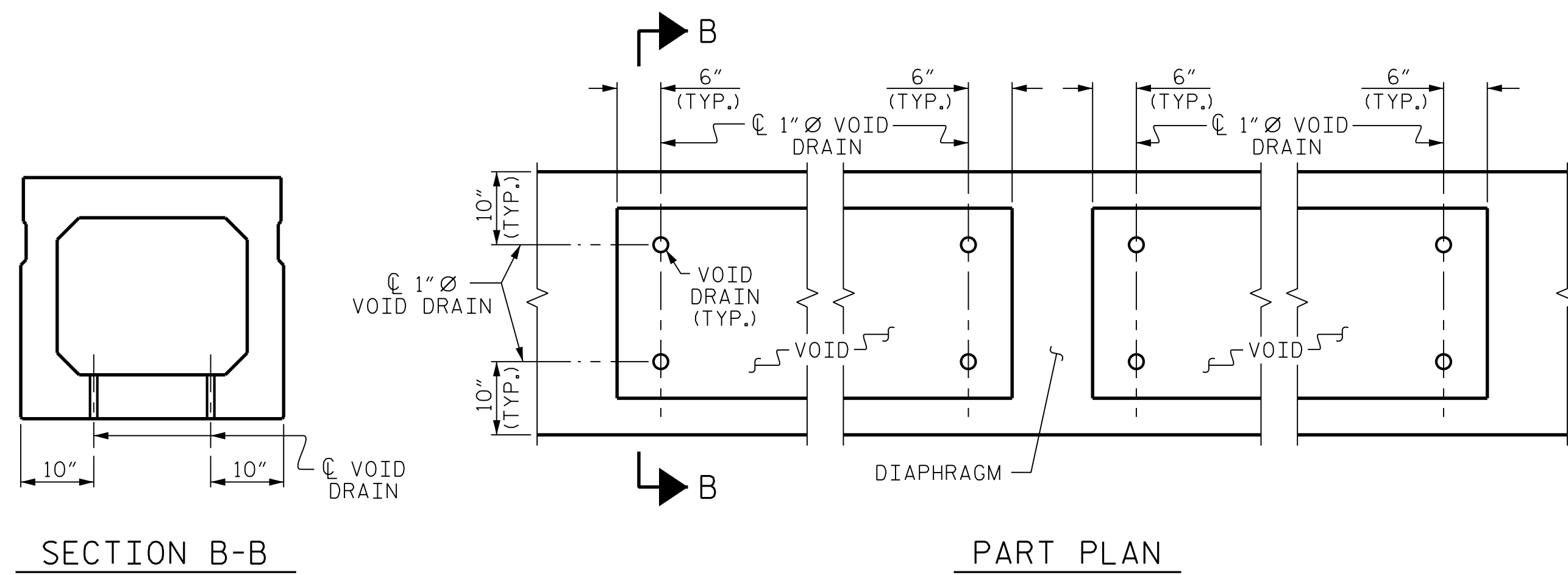
PART SECTION AT RECESS

SECTION X-X
SHOWING PLAN VIEW OF GROUTED RECESS

DOUBLE DIAPHRAGM DETAILS

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.

**GROUTED RECESS DETAIL AT
END OF POST-TENSIONED STRANDS
OF EXTERIOR BOX BEAM**



VOID DRAIN DETAILS

(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

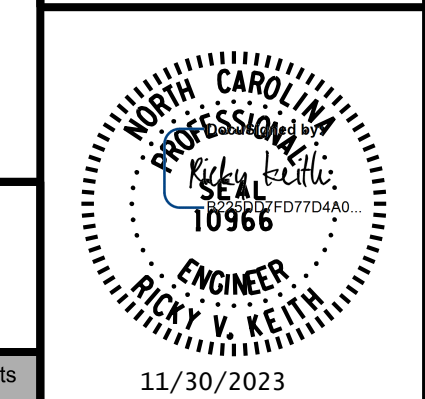
DEAD LOAD DEFLECTION AND CAMBER	
90' BOX BEAM UNIT (NC)	3'-0" x 2'-9"
CAMBER (SLAB ALONE IN PLACE)	2 3/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/4" ↓
FINAL CAMBER	2" ↑

** INCLUDES FUTURE WEARING SURFACE

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SHEET 3 OF 4

BRIDGE NO. 040122



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BOX BEAM UNIT
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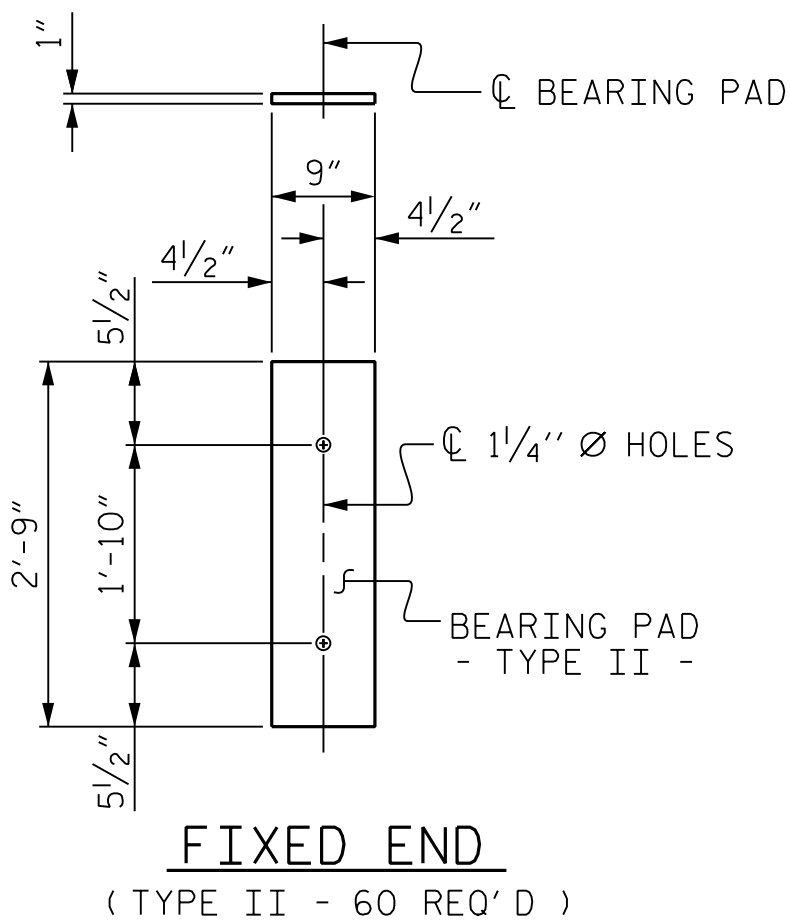
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S-8
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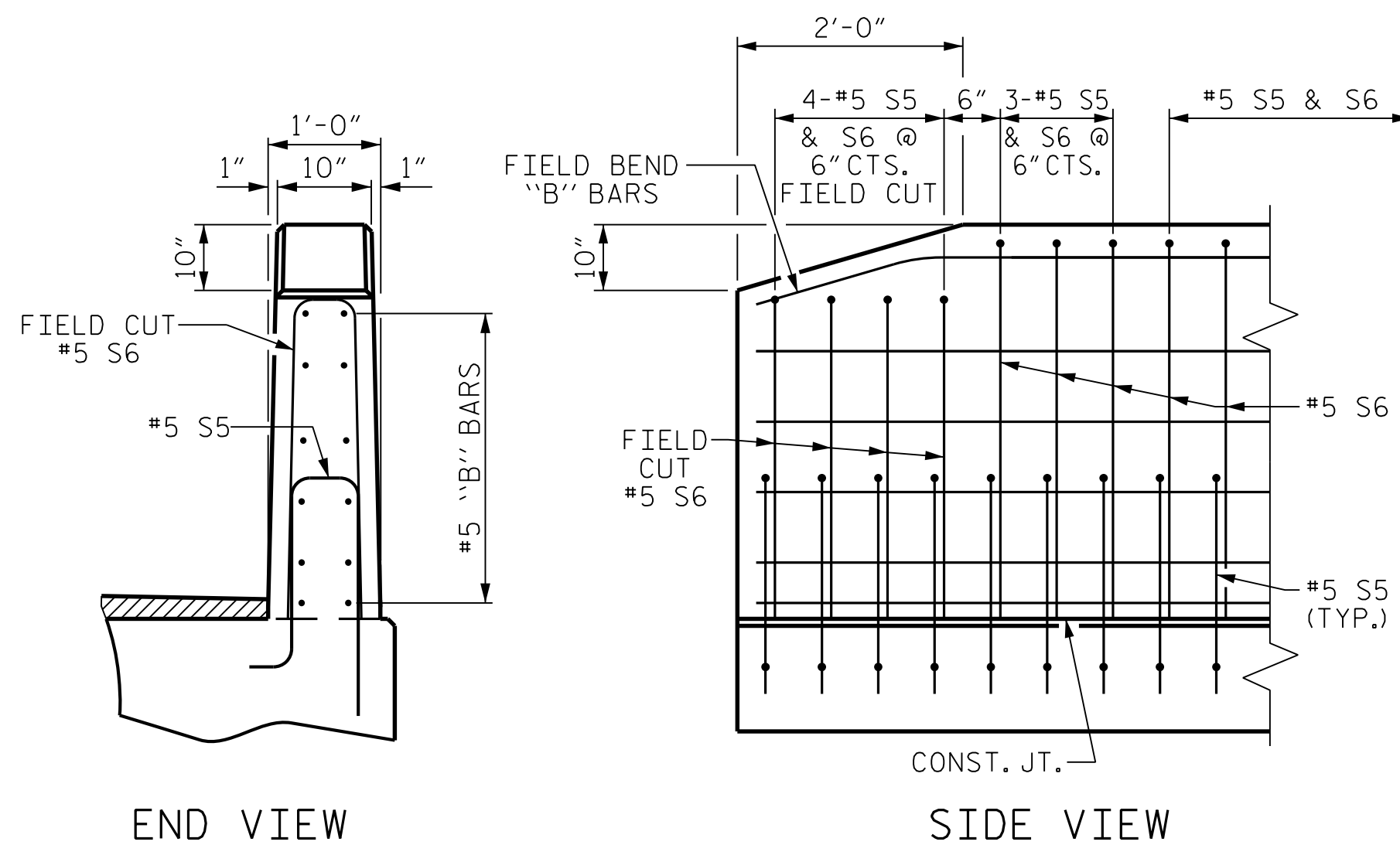
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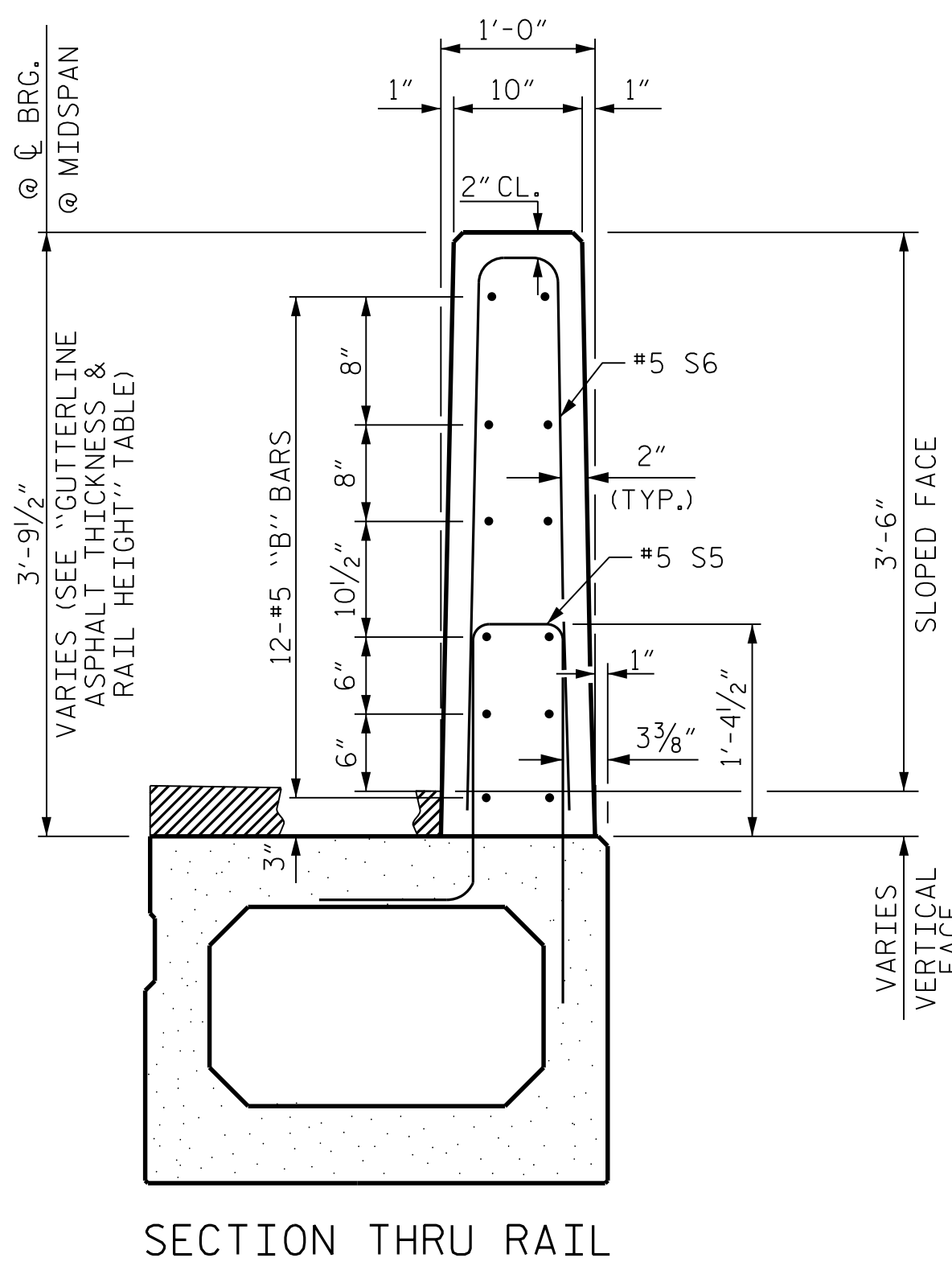


ELASTOMERIC BEARING DETAILS

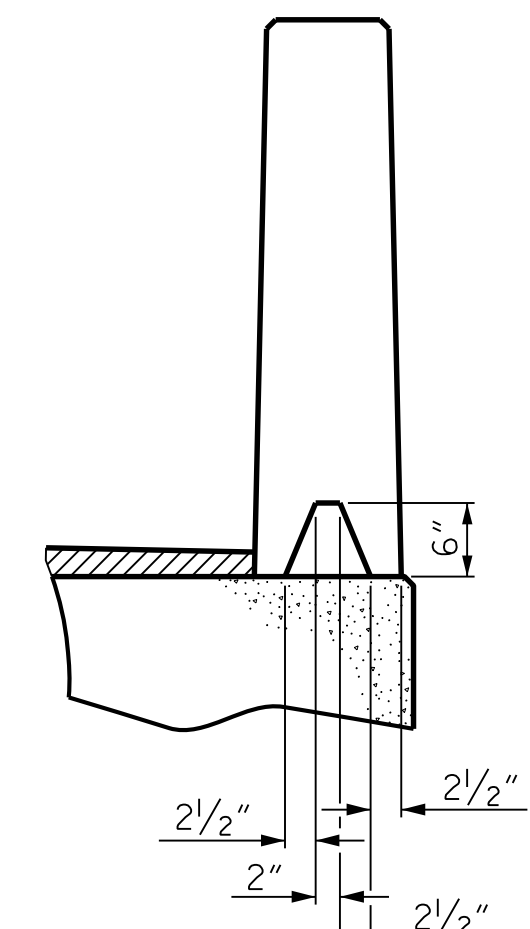
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.



END OF RAIL DETAILS

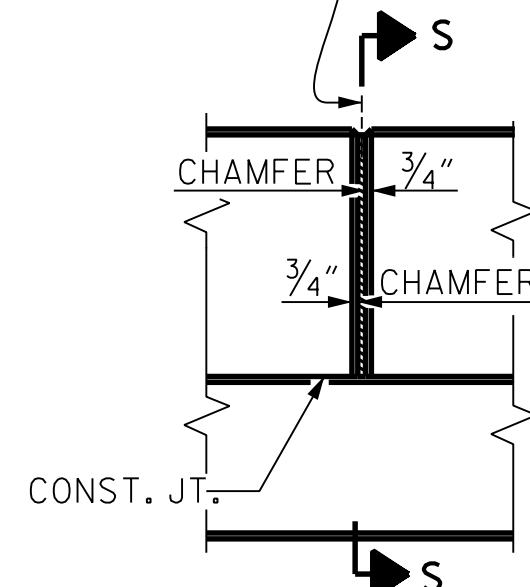


SECTION THRU RAIL



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

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

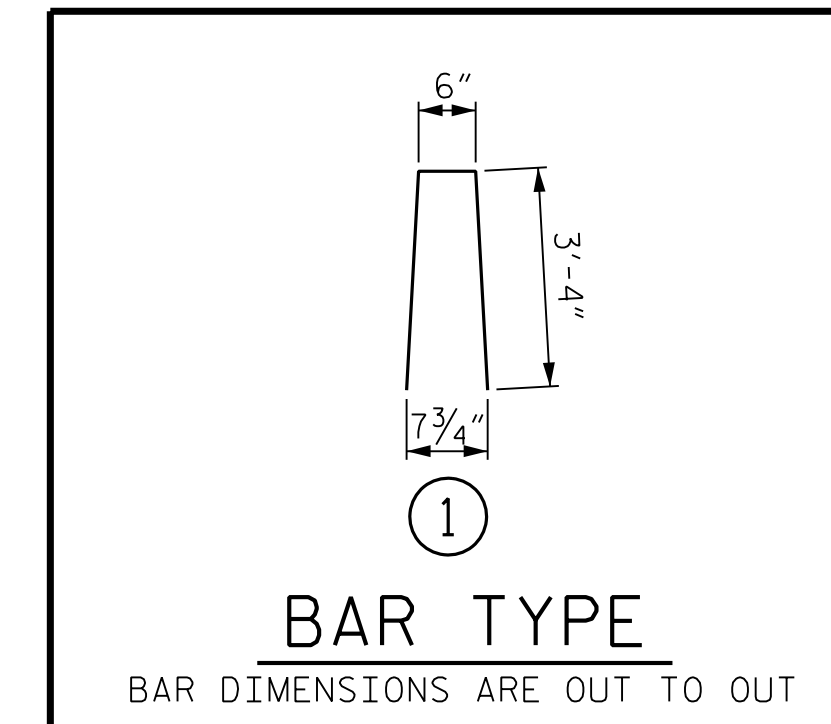


ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL DETAILS

BOX BEAM UNITS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	6	90'-0"	540'-0"
INTERIOR B.B.	24	90'-0"	2160'-0"
TOTAL	30		2700'-0"



BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS 90' UNIT	SIZE	TYPE	LENGTH	WEIGHT
*B10	96	#5	STR	22'-1"	2211
*S6	252	#5	1	7'-2"	1884
* EPOXY COATED REINFORCING STEEL				LBS.	4095
CLASS AA CONCRETE				CU.YDS.	23.3
TOTAL VERTICAL CONCRETE BARRIER RAIL FOR BRIDGE				LN.FT.	540.5

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
90' UNITS (SPAN A)	1 1/2"	3'-7 1/2"
90' UNITS (SPAN B)	2 1/2"	3'-8 1/2"
90' UNITS (SPAN C)	6"	4'-0"

GRADE POINT ASPHALT THICKNESS

	ASPHALT OVERLAY THICKNESS @ MID-SPAN
90' UNITS (SPAN A)	5 3/4"
90' UNITS (SPAN B)	6 3/4"
90' UNITS (SPAN C)	10 1/4"

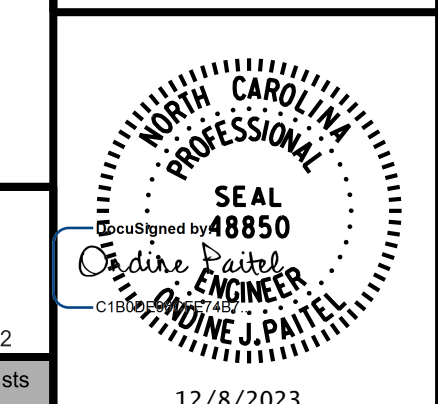
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 FOR EACH SPAN



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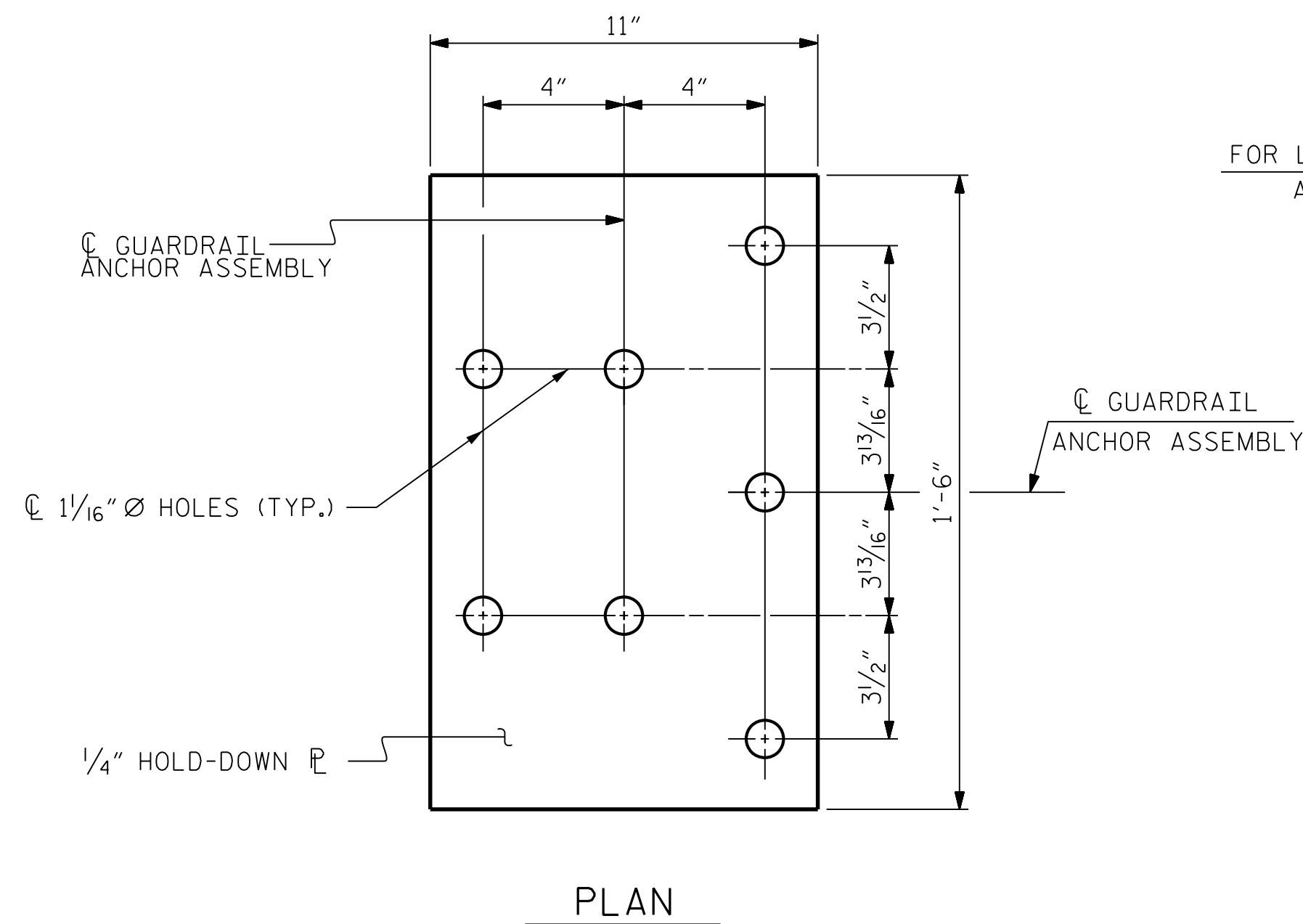
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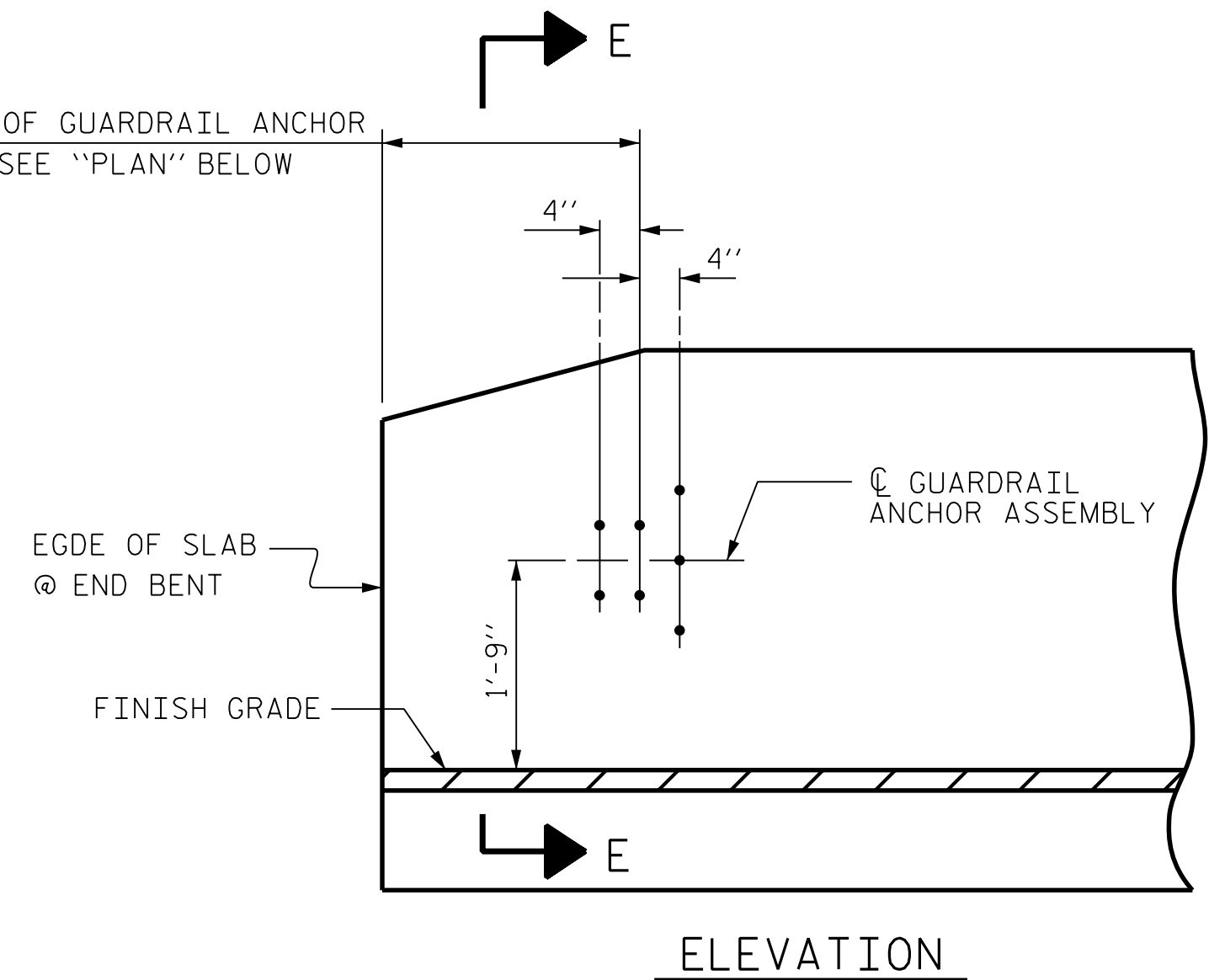
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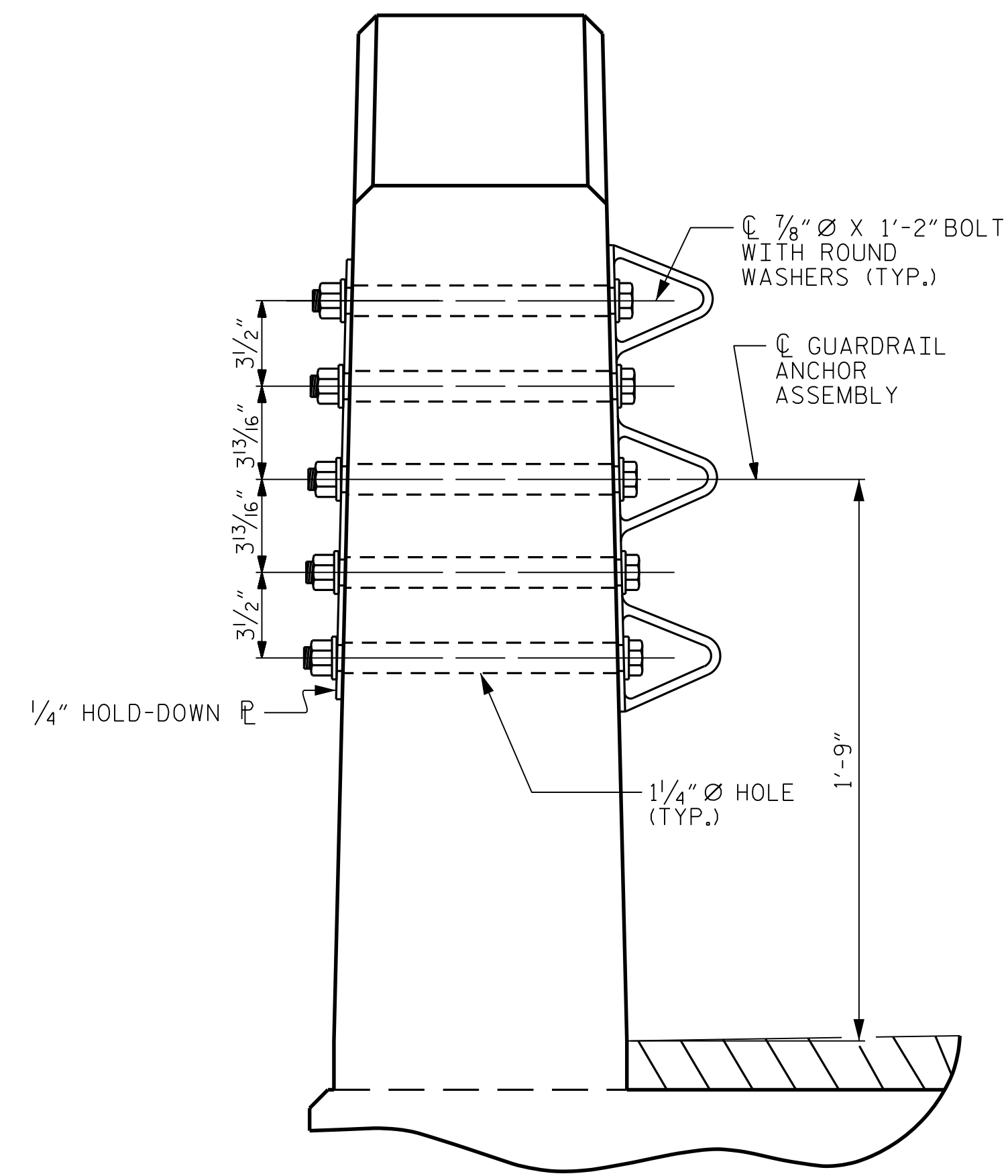


FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW

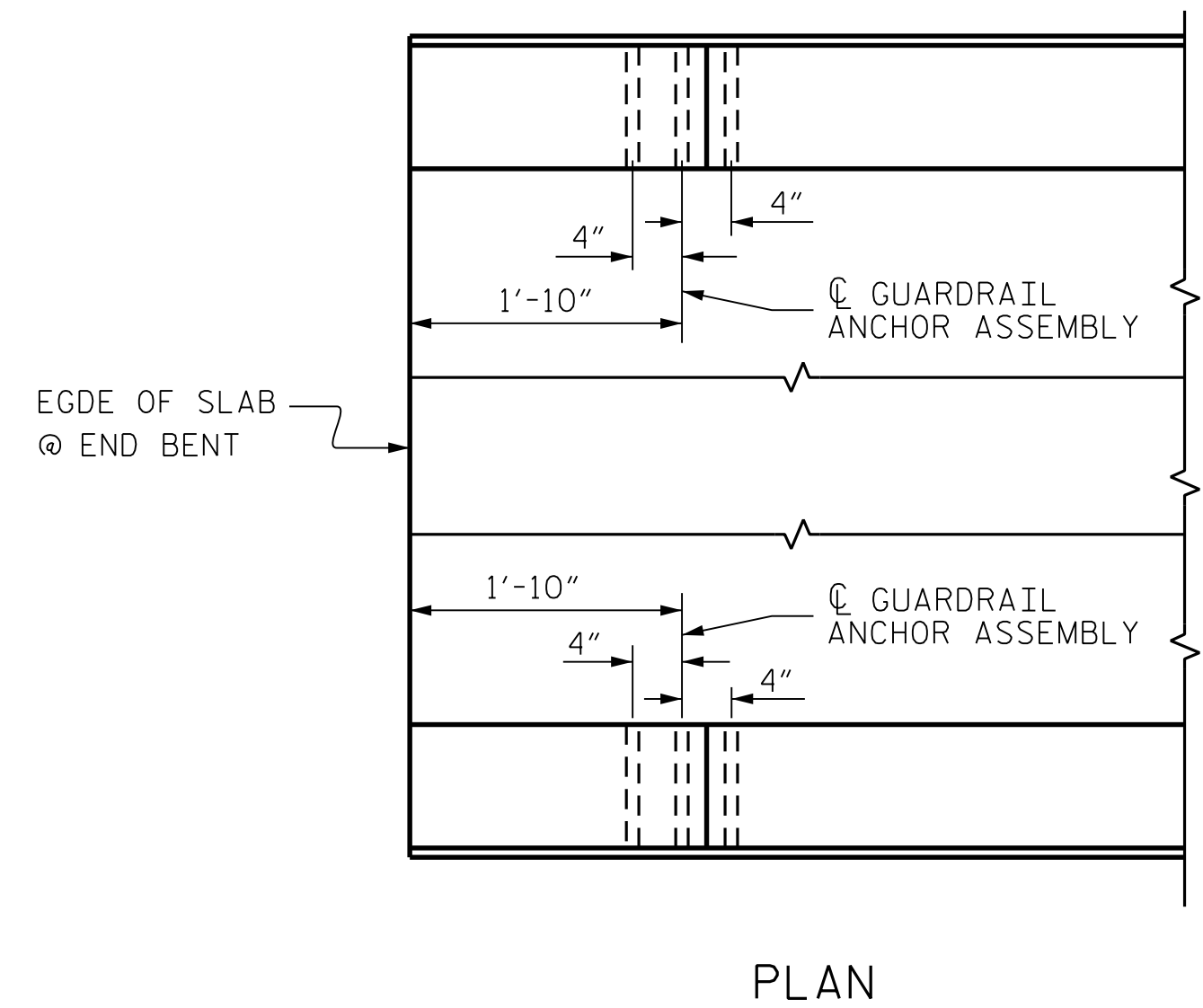


PLAN

ELEVATION



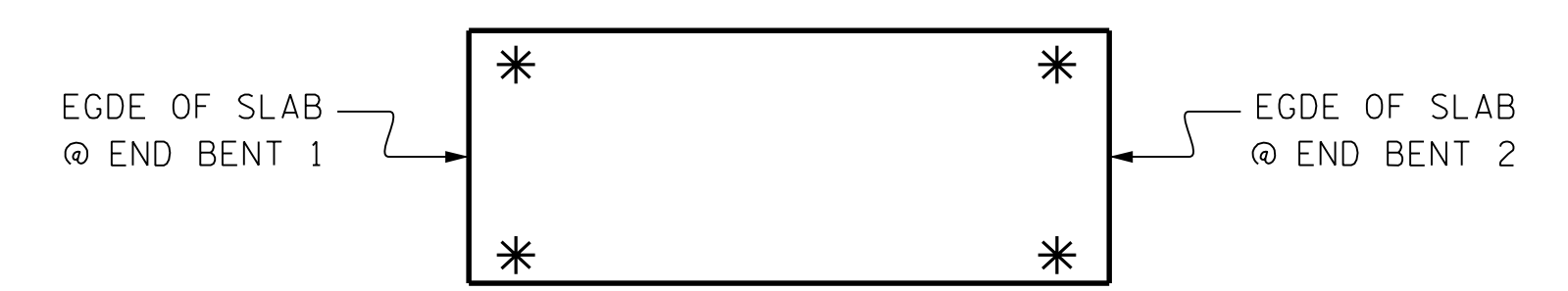
SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.

PLAN



SKETCH SHOWING POINTS OF ATTACHMENT

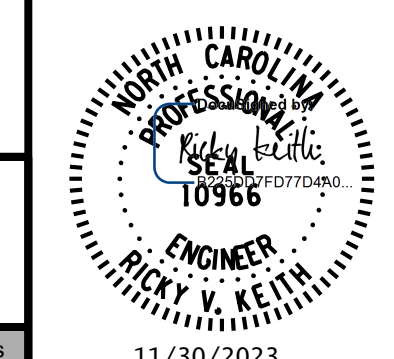
* DENOTES GUARDRAIL ANCHOR ASSEMBLY

NOTES

- 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 BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.
- AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.
- THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.
- THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.
- THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

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BRIDGE NO. 040122



STATE OF NORTH CAROLINA
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 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR VERTICAL CONCRETE
 BARRIER RAIL

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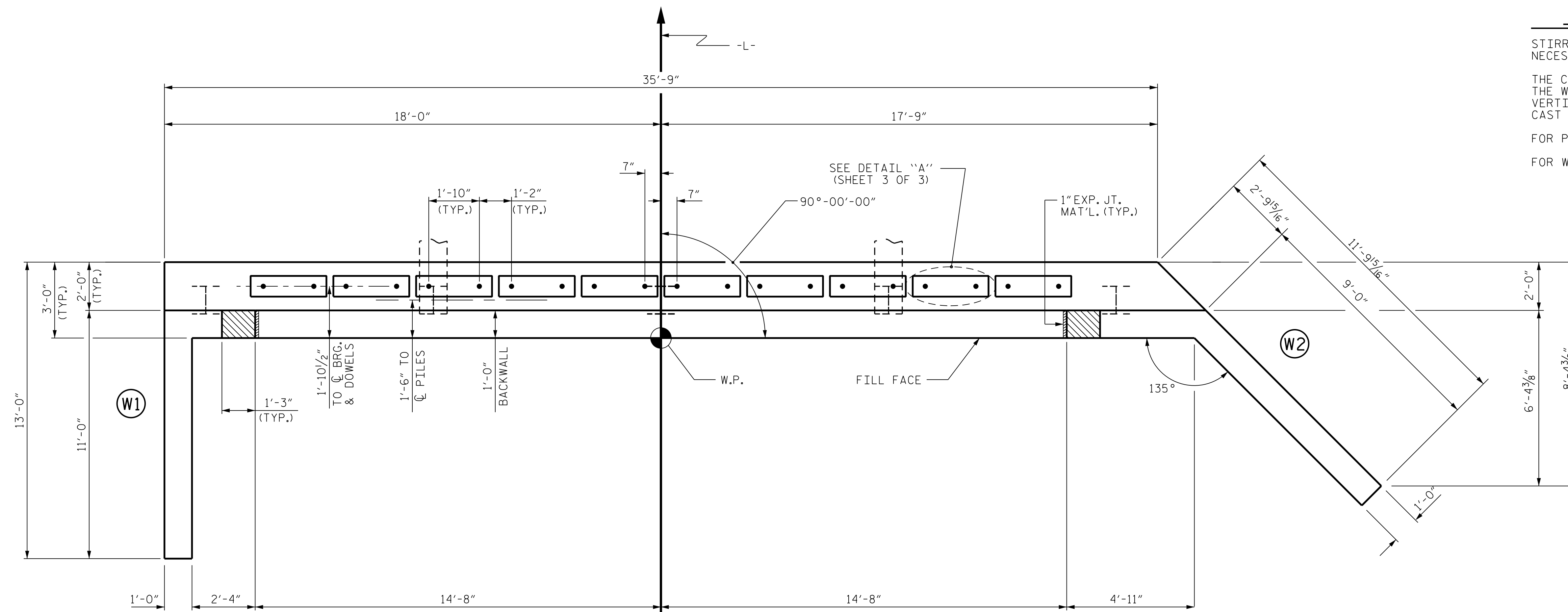
NOTES

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

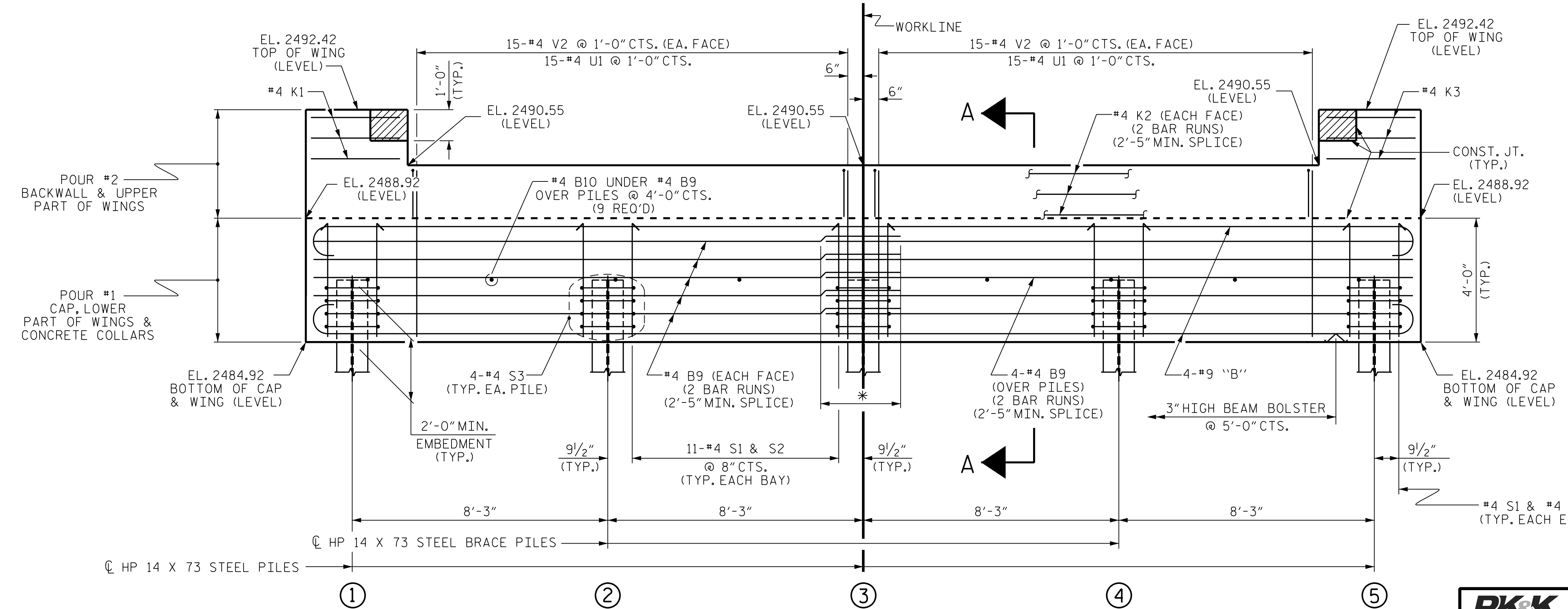
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEET 2 OF 3.



PLAN



ELEVATION

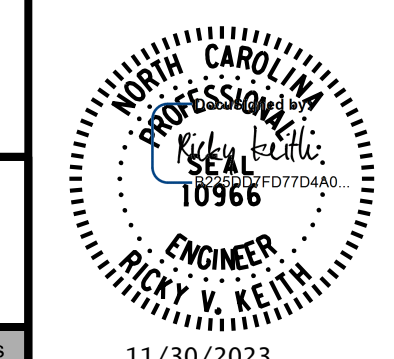
WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 3 OF 3.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.

*
2'-5" (MIN. LAP SPLICE)
#4 B9 BARS

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SHEET 1 OF 3

BRIDGE NO. 040122



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END BENT No. 1

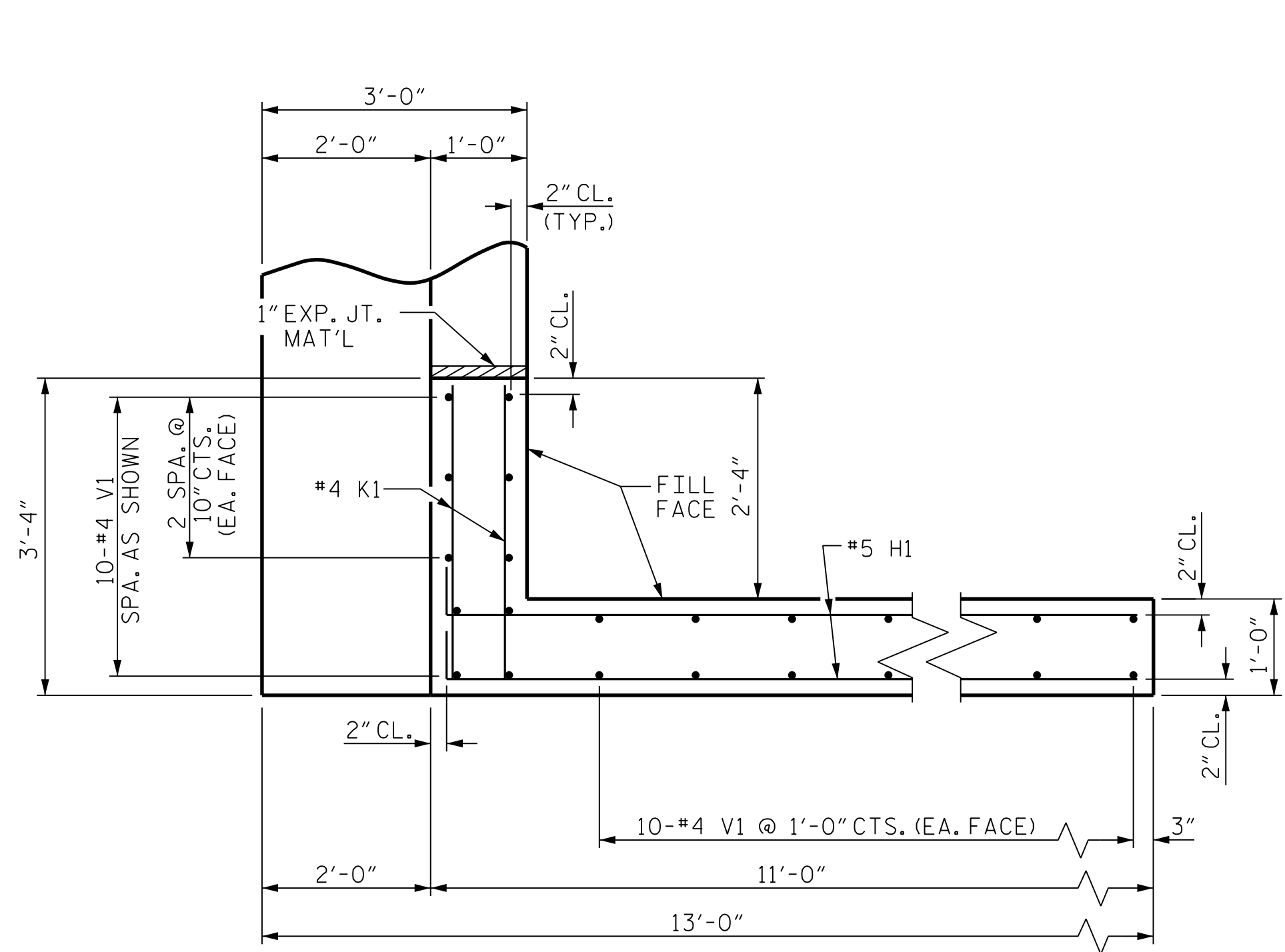
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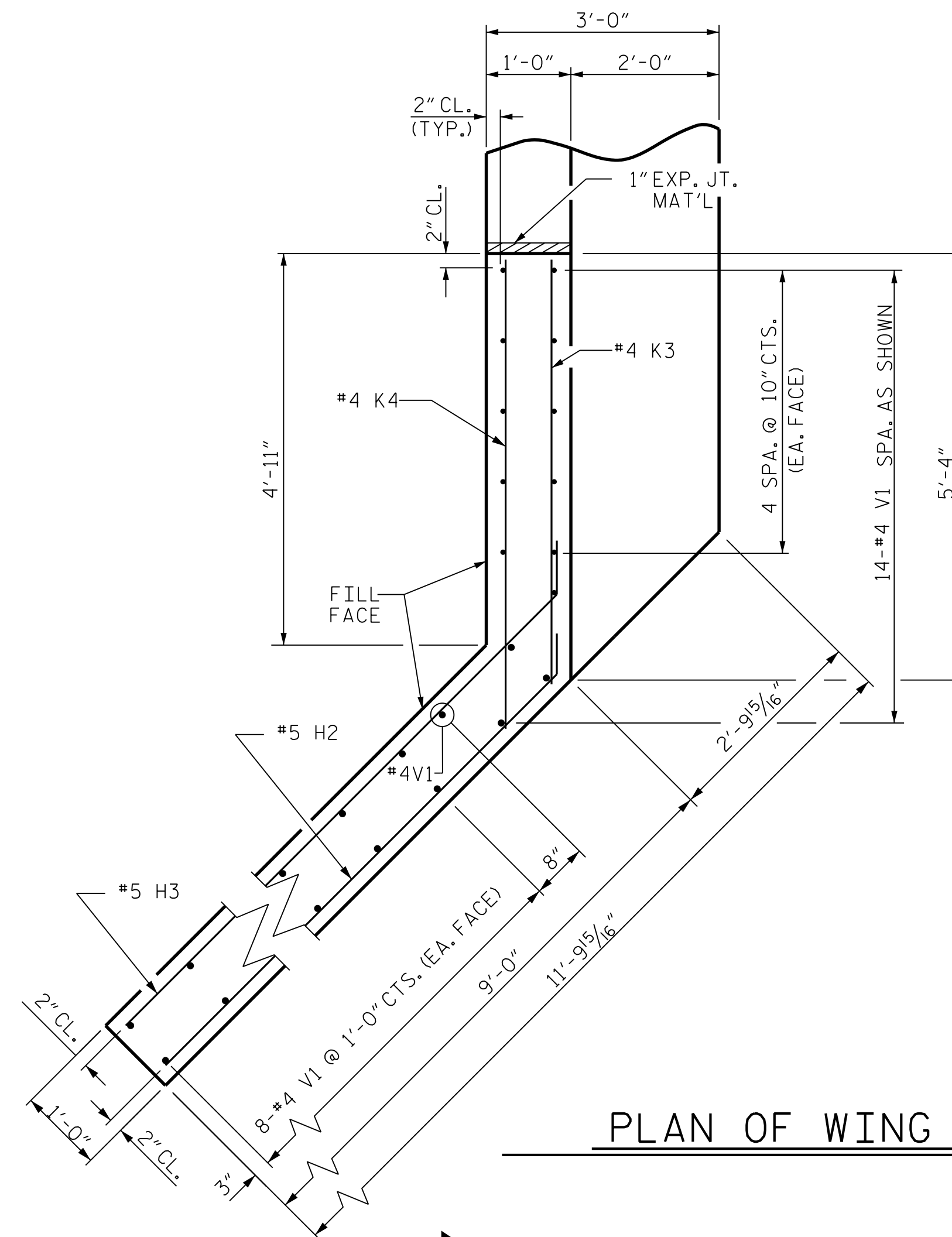
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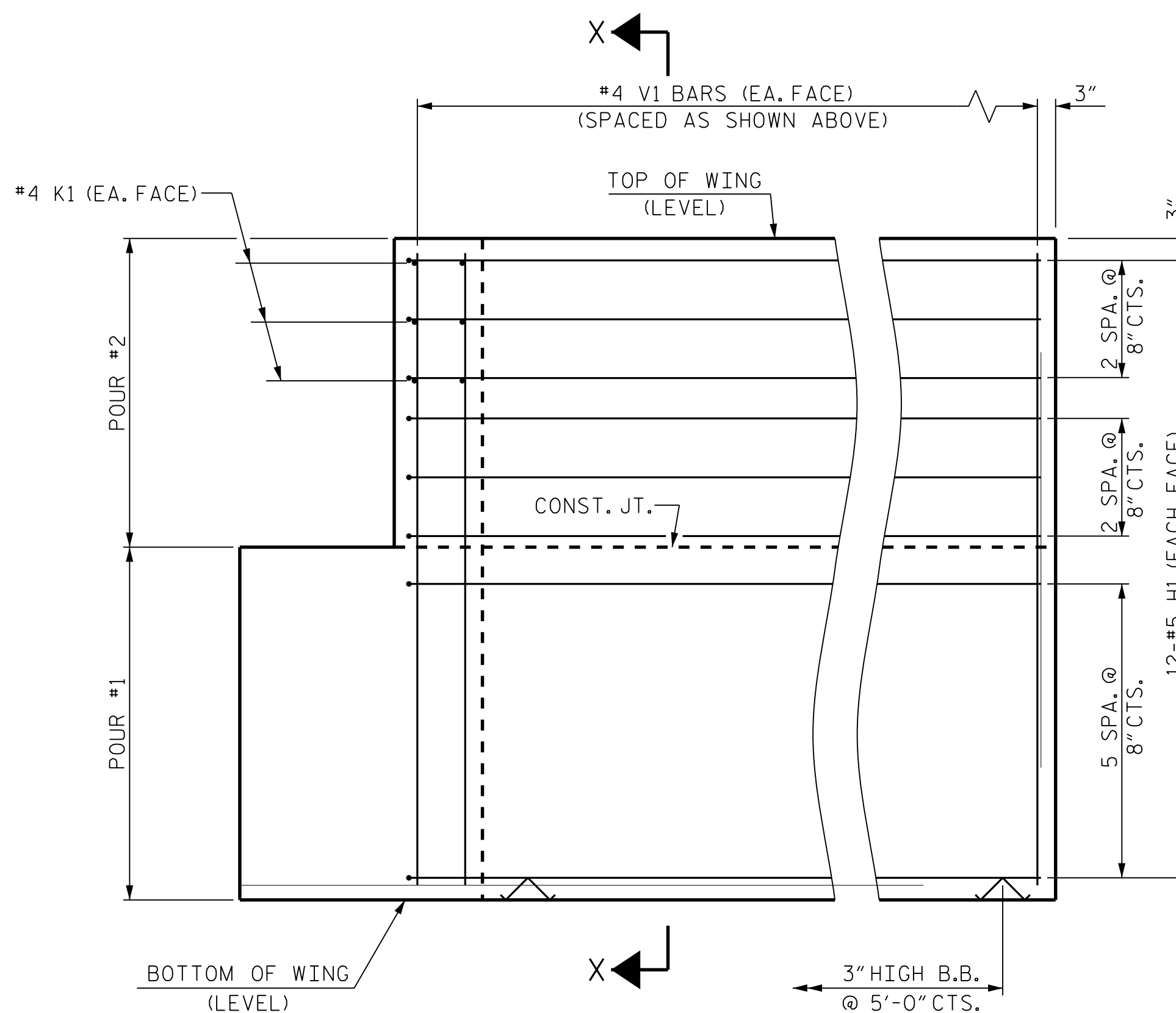
DRAWN BY : B.H.GONFA DATE : APR 2021
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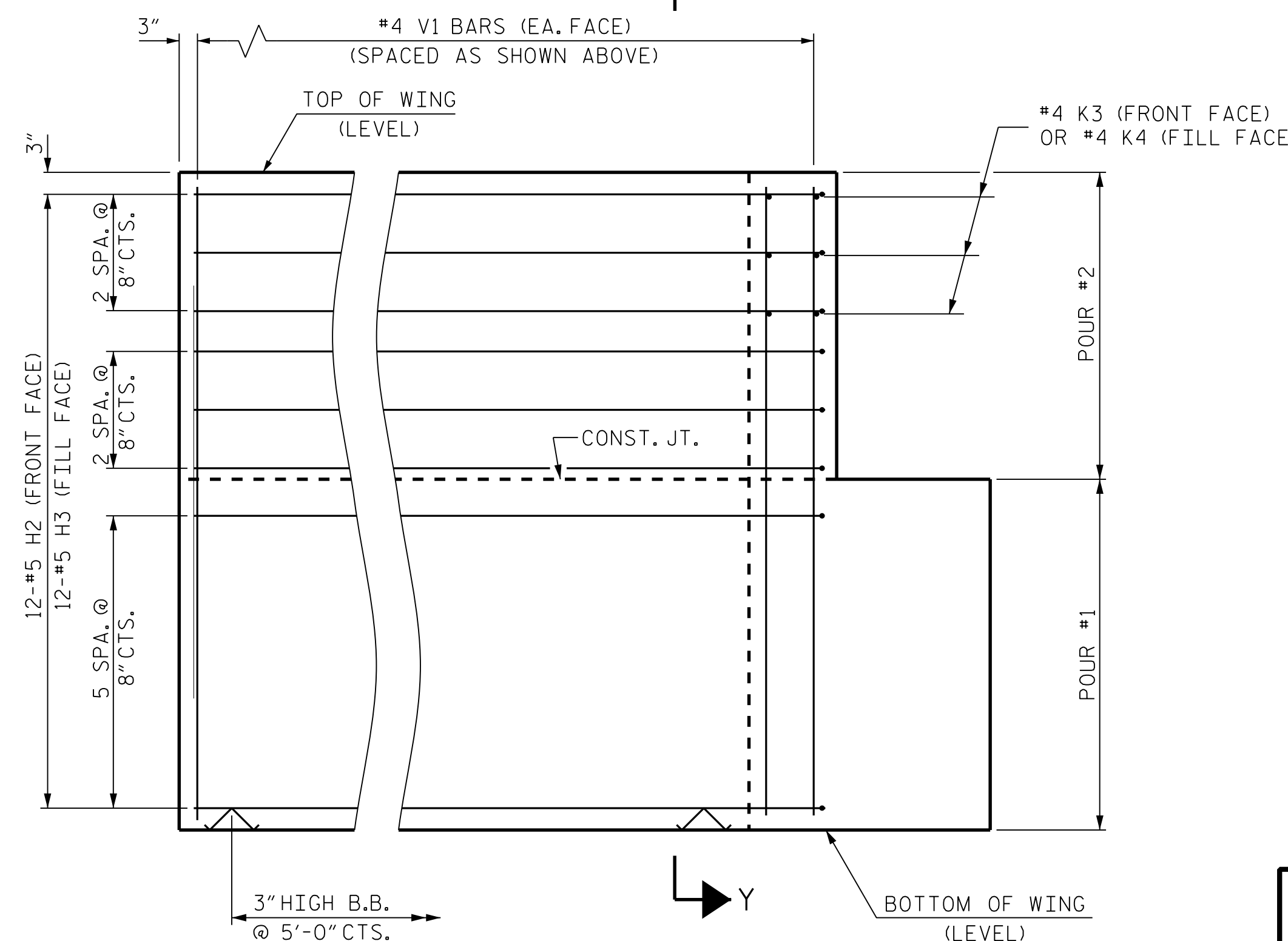
PLAN OF WING (W1)



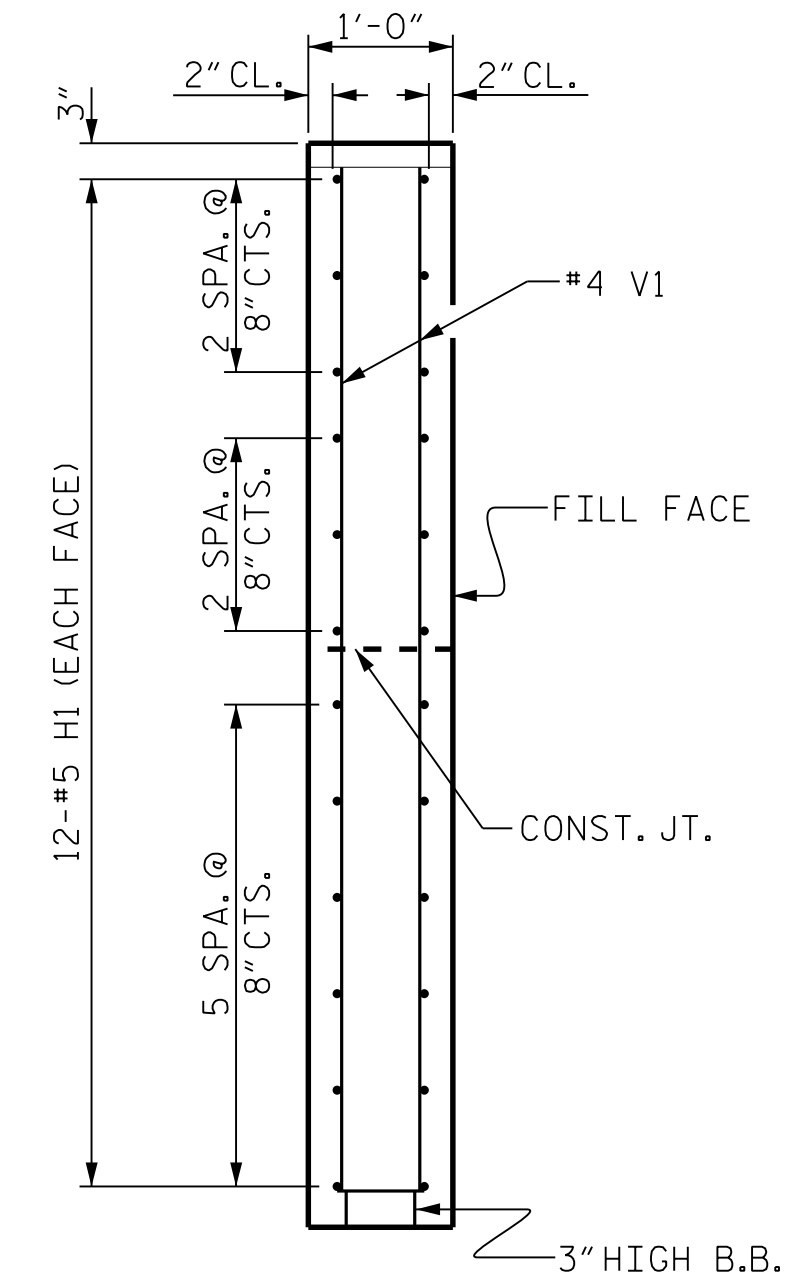
PLAN OF WING (W2)



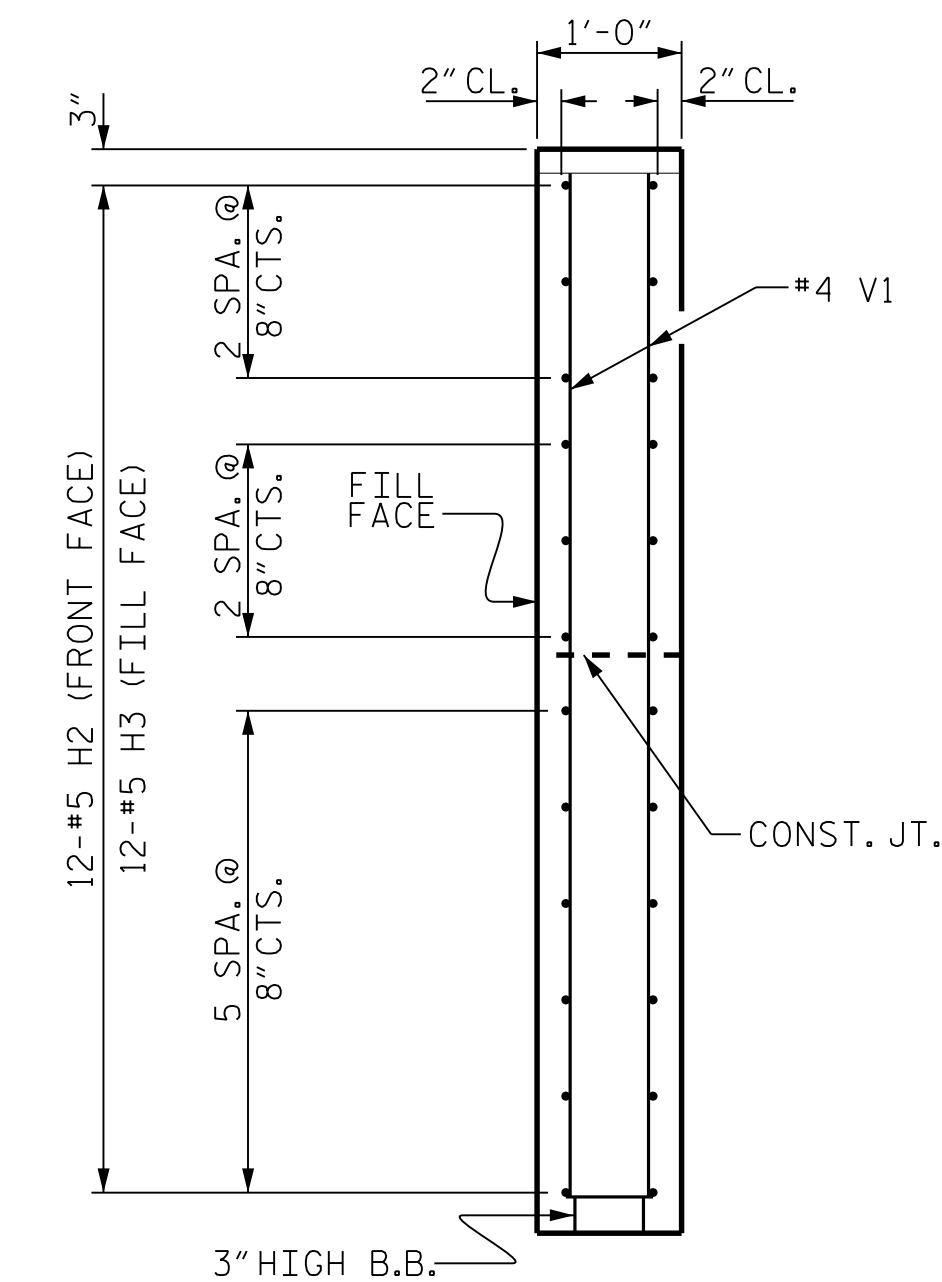
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X

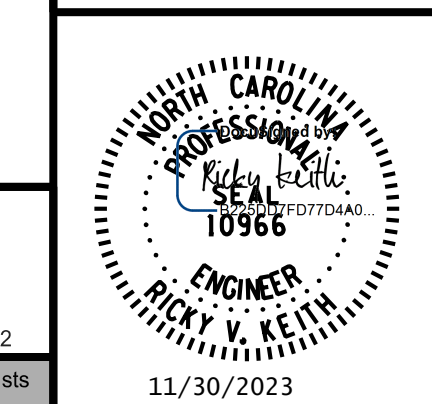


SECTION Y-Y

PROJECT NO. 17BP.11.R.131
 ASHE COUNTY
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SHEET 2 OF 3

BRIDGE NO. 040122



11/30/2023

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 1
 WING DETAILS

REVISIONS

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

SHEET NO.
 S-12
 TOTAL SHEETS
 24

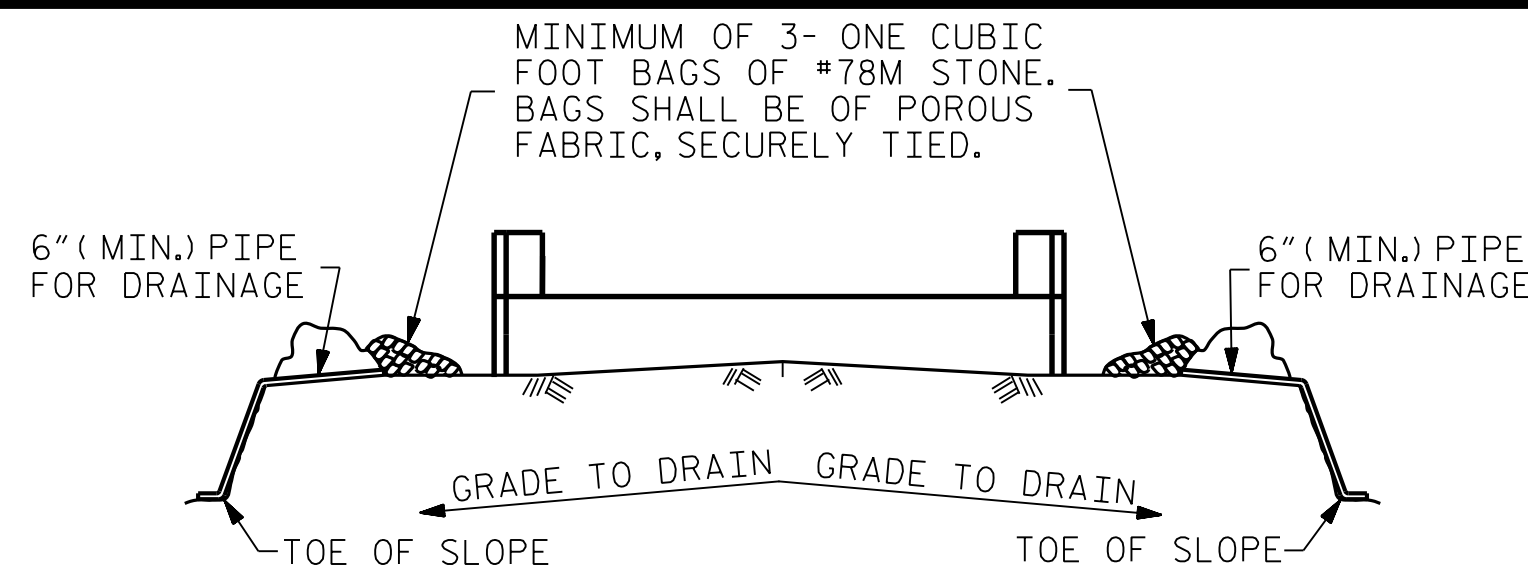
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WING DETAILS

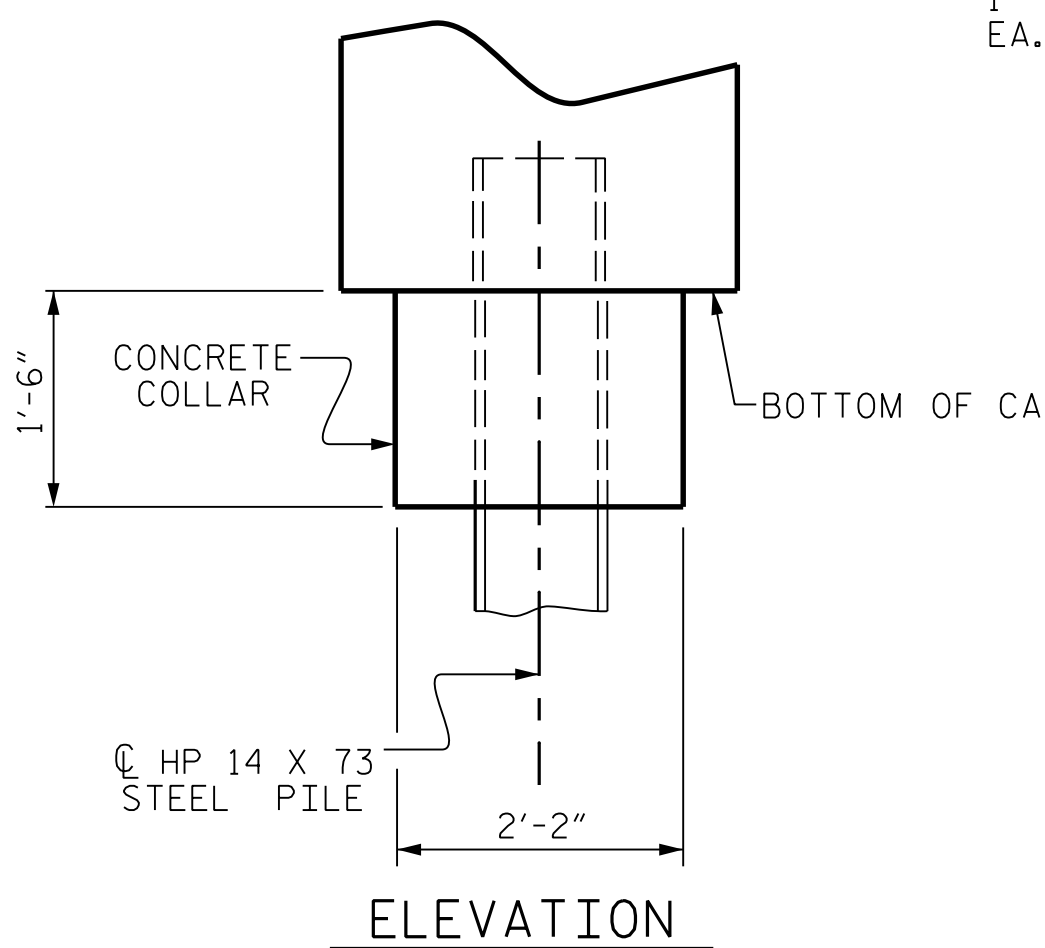
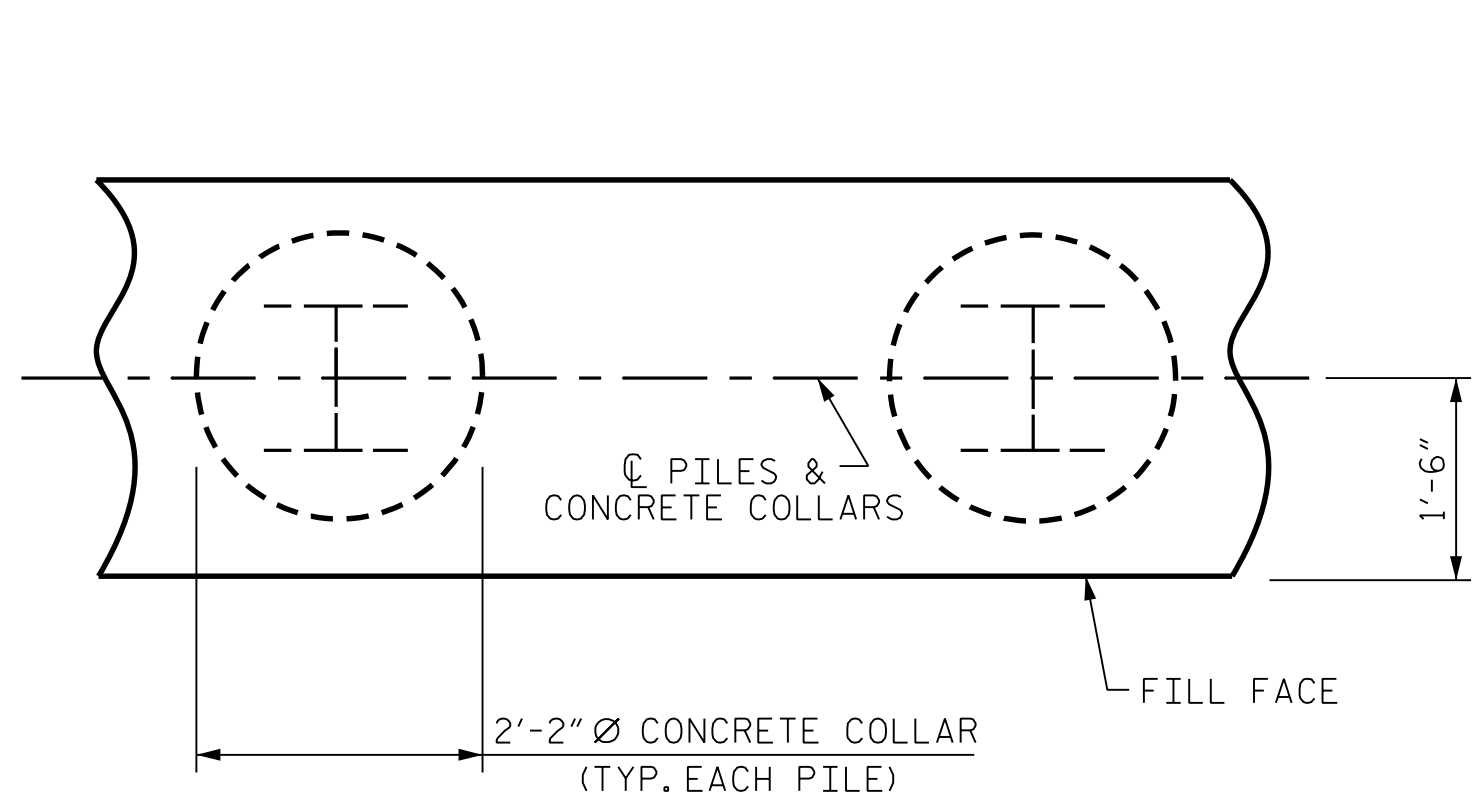
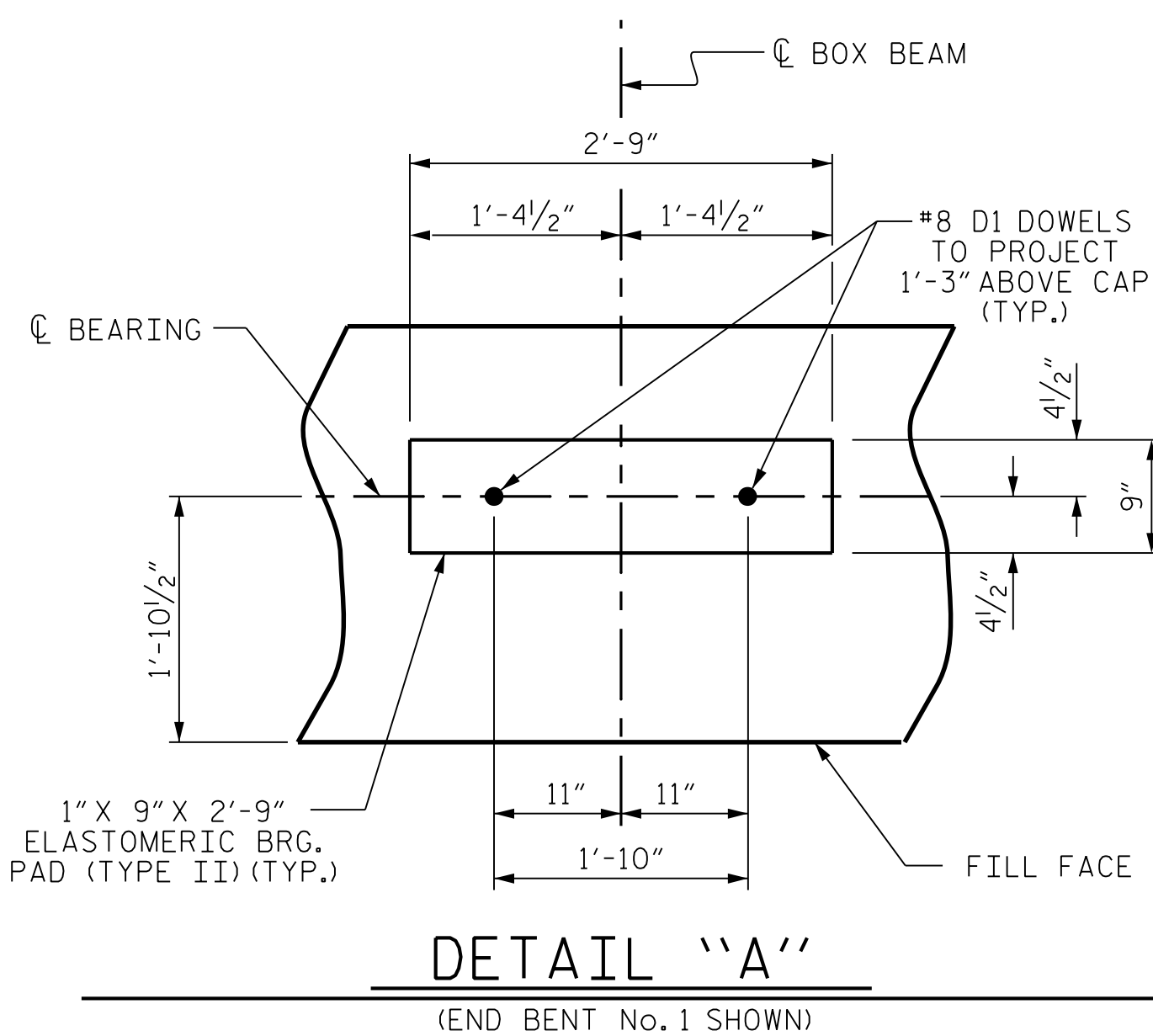


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

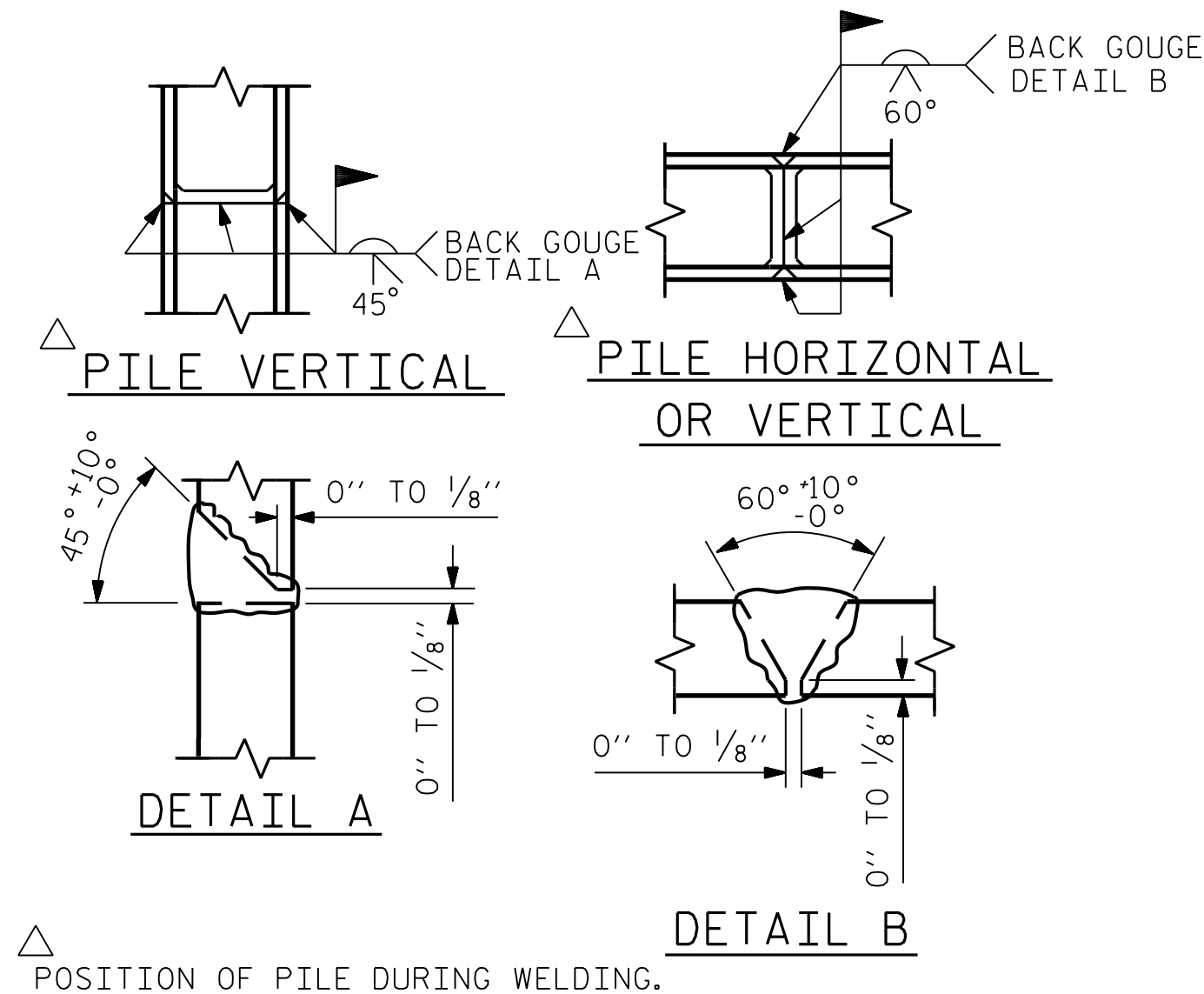
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No. 1 SHOWN)



BAR TYPES			
B1	1'-3"	35'-5"	1'-3"
B2	1'-3"	35'-10"	1'-3"
B3	1'-3"	37'-6"	1'-3"
B4	1'-3"	37'-11"	1'-3"
B5	1'-3"	35'-6"	1'-3"
B6	1'-3"	36'-7"	1'-3"
B7	1'-3"	37'-3"	1'-3"
B8	1'-3"	37'-11"	1'-3"

HK.

HK.

8"

10'-8"

H1

4 1/2"

2'-8"

4 1/2"

HK.

HK.

3'-7 1/2"

4 1/2"

HK.

2'-8"

8"

1'-5 1/2"

8"

6

5 1/16"

8"

8'-8"

H2

9'-1"

H3

1'-3" LAP

5

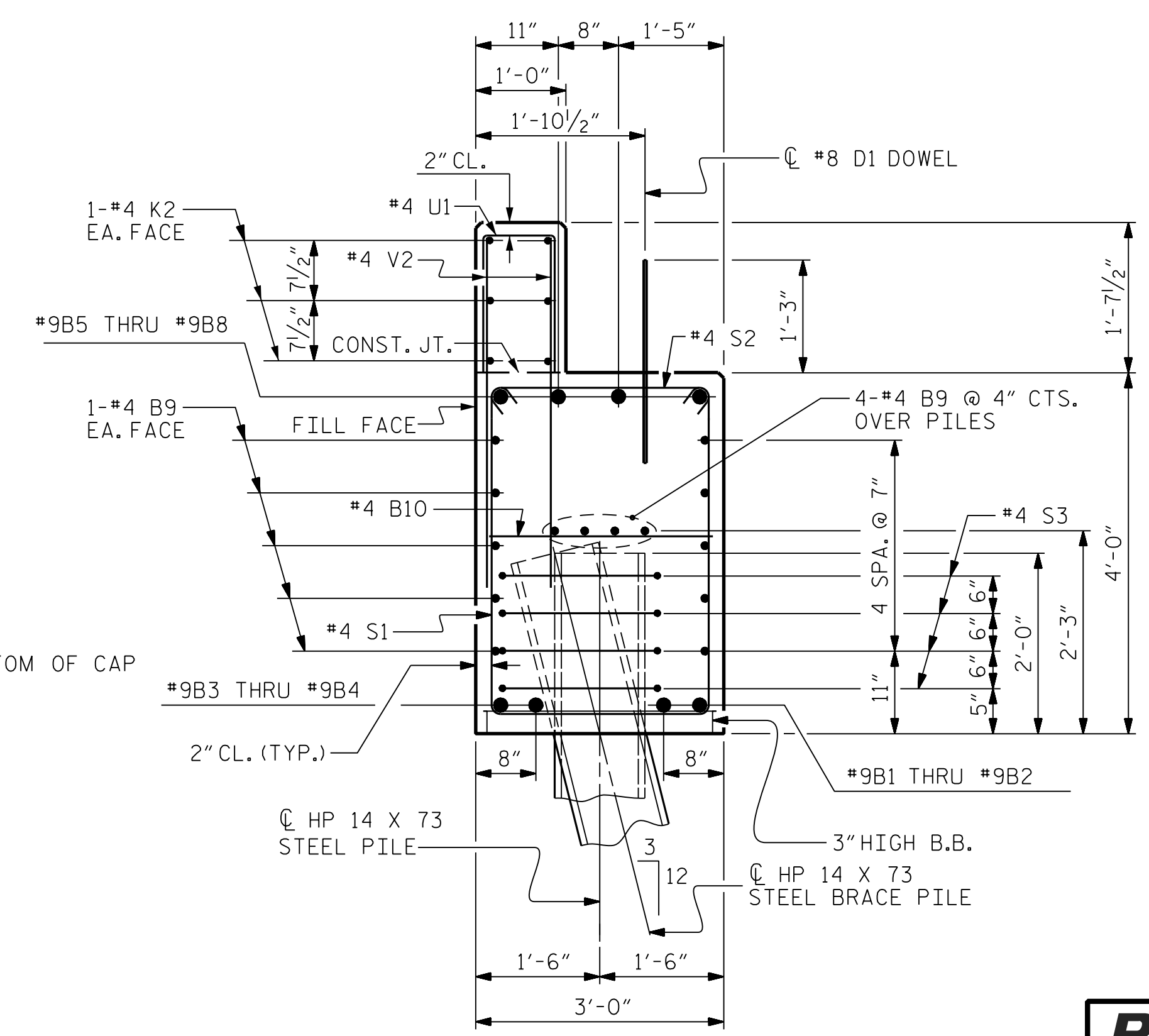
2'-0" Ø

ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1 HP 14 X 73 STEEL PILES NO: 5 LIN. FT. = 100	POUR #1 CAP, LOWER PART OF WINGS & COLLARS	20.3 C.Y.
PILE DRIVING EQUIPMENT SET UP FOR HP 14 X 73 STEEL PILES NO: 5	POUR #2 BACKWALL & UPPER PART OF WINGS	5.2 C.Y.
STEEL PILE POINTS NO: 5	TOTAL CLASS A CONCRETE	25.5 C.Y.

BILL OF MATERIAL FOR END BENT NO. 1					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	1	#9	1	37'-11"	129
B2	1	#9	1	38'-4"	130
B3	1	#9	1	40'-0"	136
B4	1	#9	1	40'-5"	137
B5	1	#9	1	37'-11"	129
B6	1	#9	1	39'-1"	133
B7	1	#9	1	39'-9"	135
B8	1	#9	1	40'-5"	137
B9	28	#4	STR	20'-2"	377
B10	9	#4	STR	2'-8"	16
D1	20	#8	STR	2'-3"	120
H1	24	#5	2	11'-4"	284
H2	12	#5	7	9'-4"	117
H3	12	#5	7	9'-9"	122
K1	6	#4	STR	2'-11"	12
K2	12	#4	STR	20'-2"	162
K3	3	#4	STR	5'-4"	11
K4	3	#4	STR	5'-10"	12
S1	46	#4	3	10'-8"	328
S2	46	#4	4	3'-5"	105
S3	20	#4	5	7'-7"	101
U1	30	#4	6	3'-7"	72
V1	61	#4	STR	7'-2"	292
V2	60	#4	STR	5'-3"	210

REINFORCING STEEL (FOR END BENT NO. 1)	3,407 LBS.
CLASS A CONCRETE BREAKDOWN (FOR END BENT NO. 1)	
POUR #1 CAP, LOWER PART OF WINGS & COLLARS	20.3 C.Y.
POUR #2 BACKWALL & UPPER PART OF WINGS	5.2 C.Y.
TOTAL CLASS A CONCRETE	25.5 C.Y.



(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

PROJECT NO. 17BP.11.R.131
ASHE COUNTY
STATION: 11+66.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE NO. 040122

PROFESSIONAL ENGINEER
RICKY V. KEITH
10966

11/30/2023

REVISIONS

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SHEET NO. S-13
TOTAL SHEETS 24

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NOTES

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

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

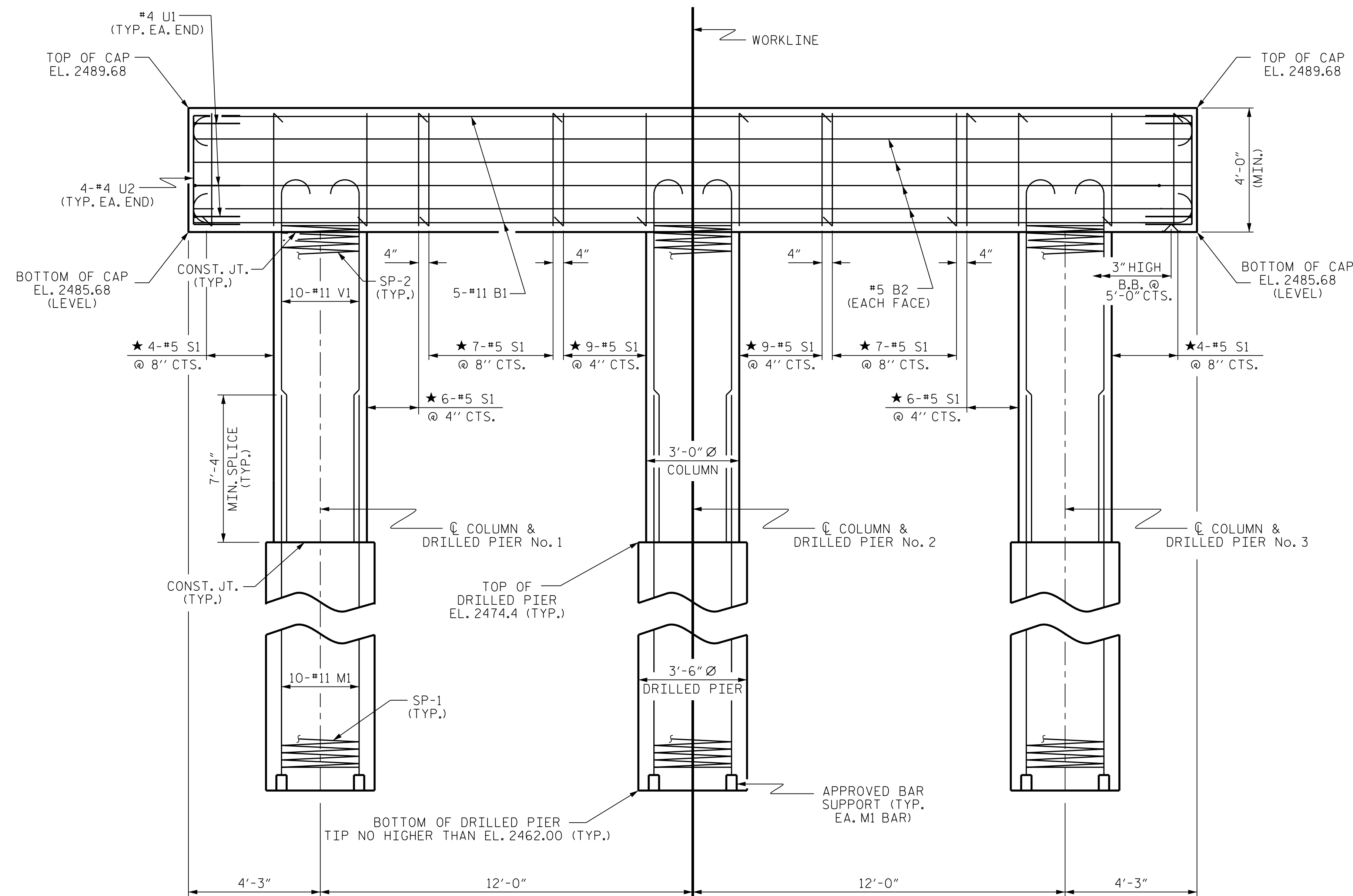
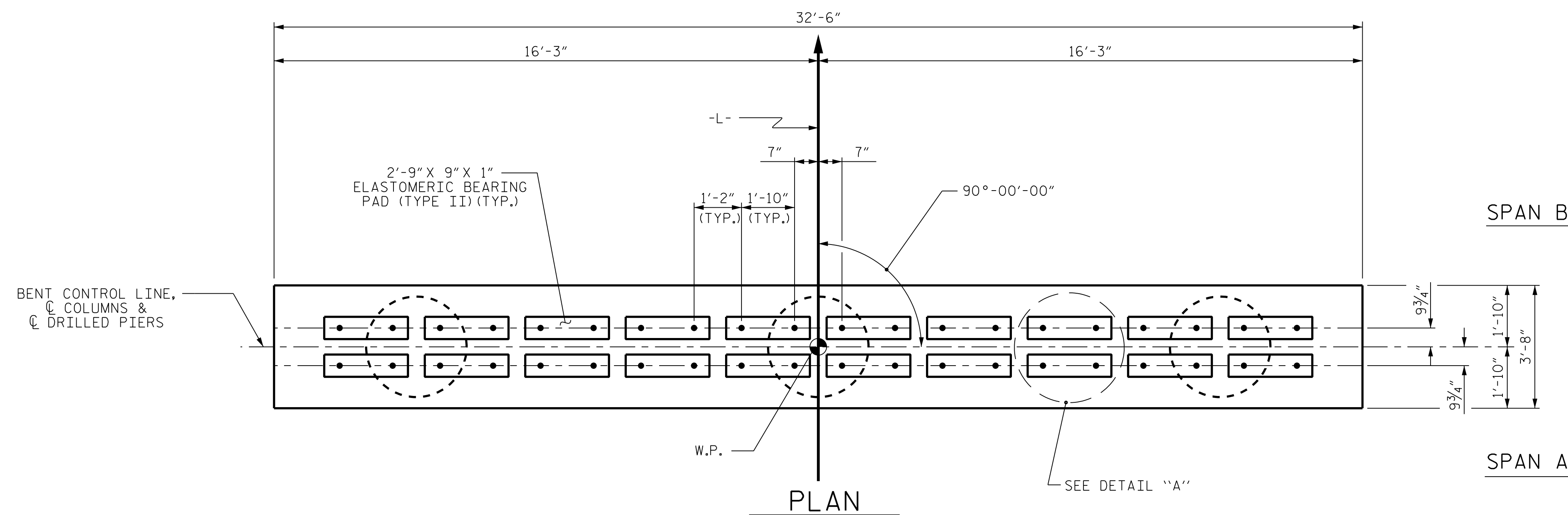
FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

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

★ INVERT ALTERNATE STIRRUPS.

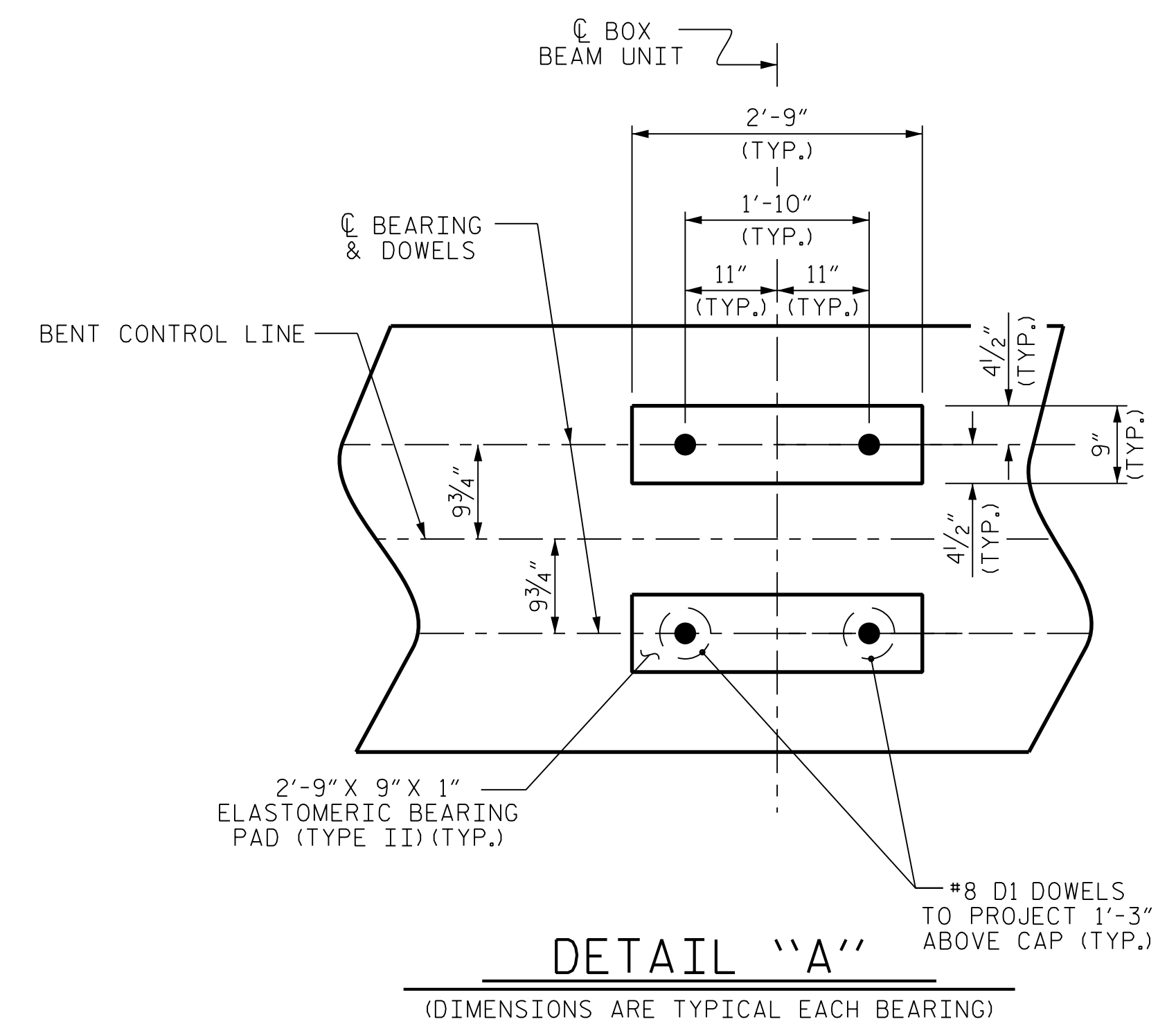
DRILLED PIERS SHALL BE TERMINATED ONE FOOT ± ABOVE NORMAL WATER SURFACE ELEVATION FOR SHAFTS LOCATED IN WATER.

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

DIMENSIONS & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER UNLESS OTHERWISE NOTED.



DETAIL "A"

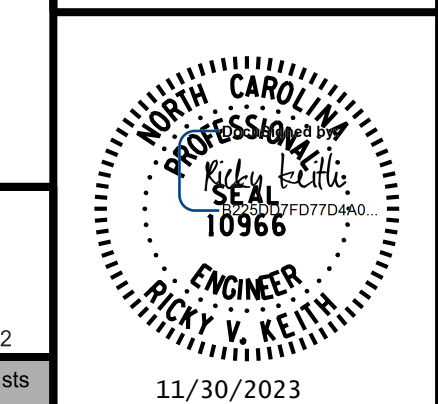
(DIMENSIONS ARE TYPICAL EACH BEARING)

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 ASHE COUNTY
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SHEET 1 OF 2

STATE OF NORTH CAROLINA
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 RALEIGH
 SUBSTRUCTURE
 BENT No. 1

BRIDGE NO. 040122



11/30/2023

REVISIONS

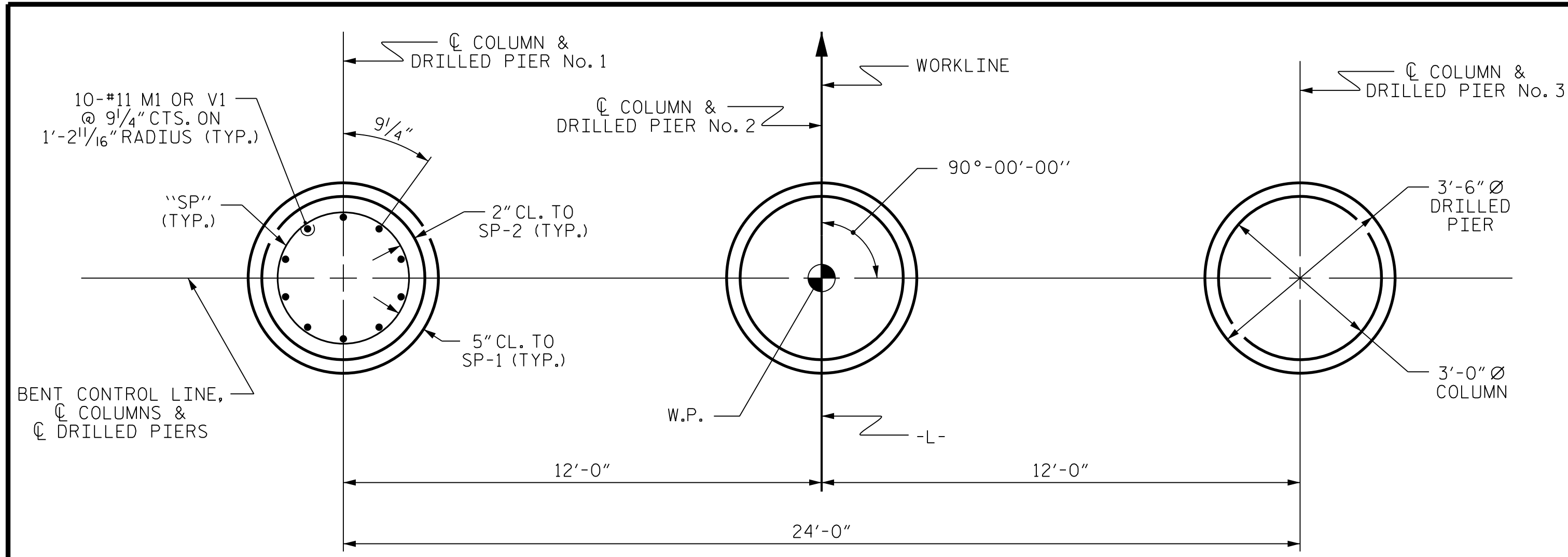
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SHEET NO.
 S-14
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 24

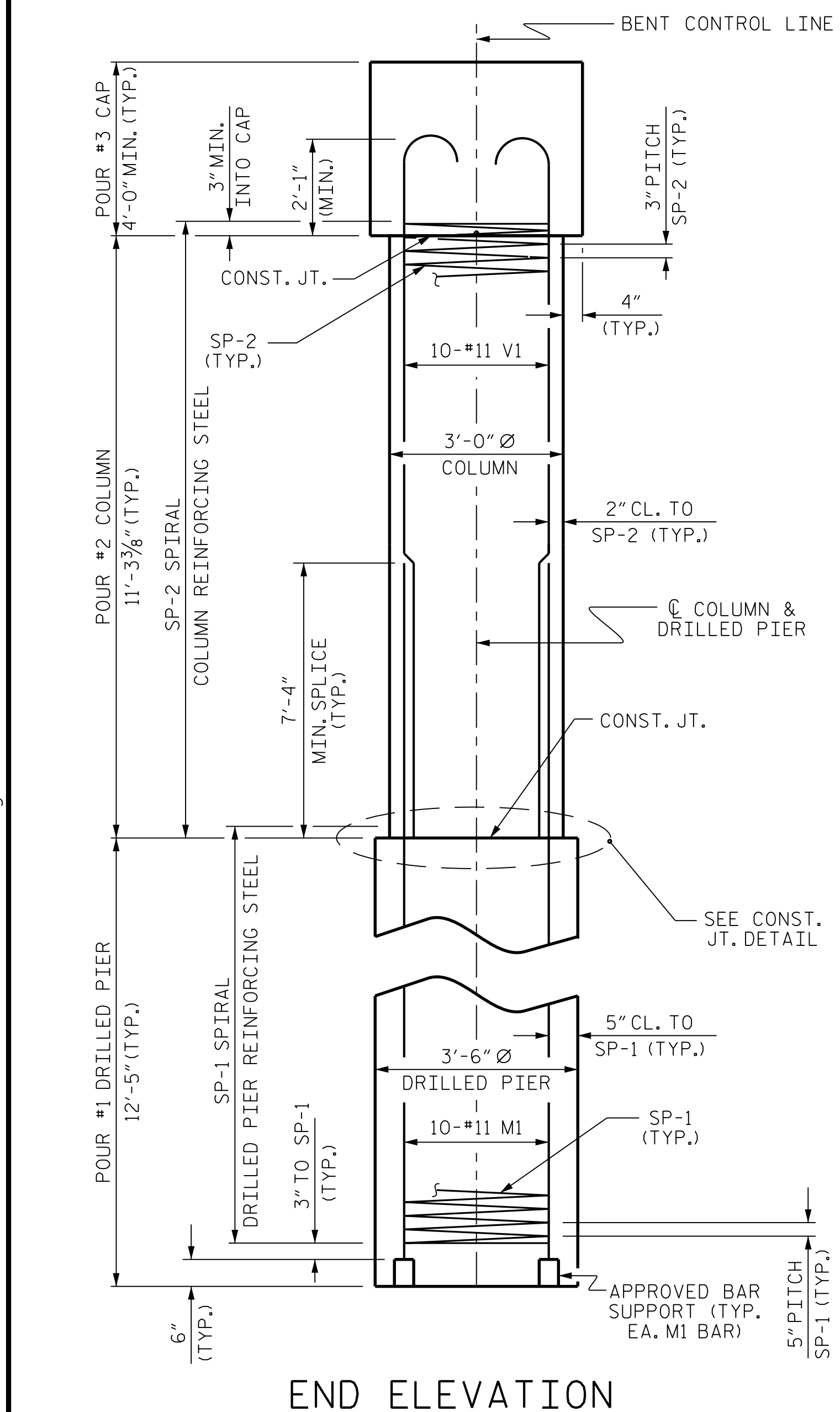
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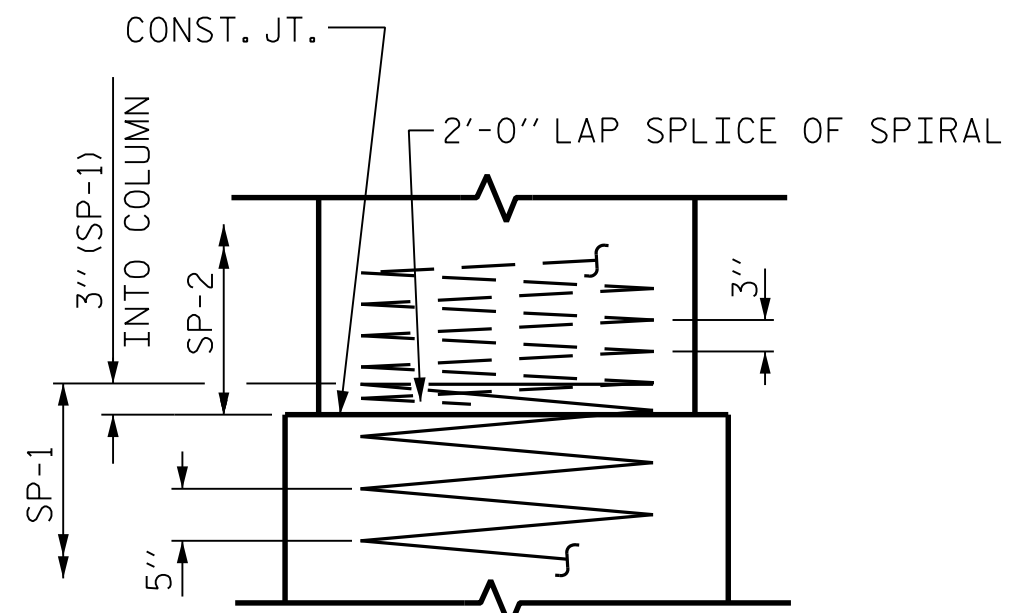
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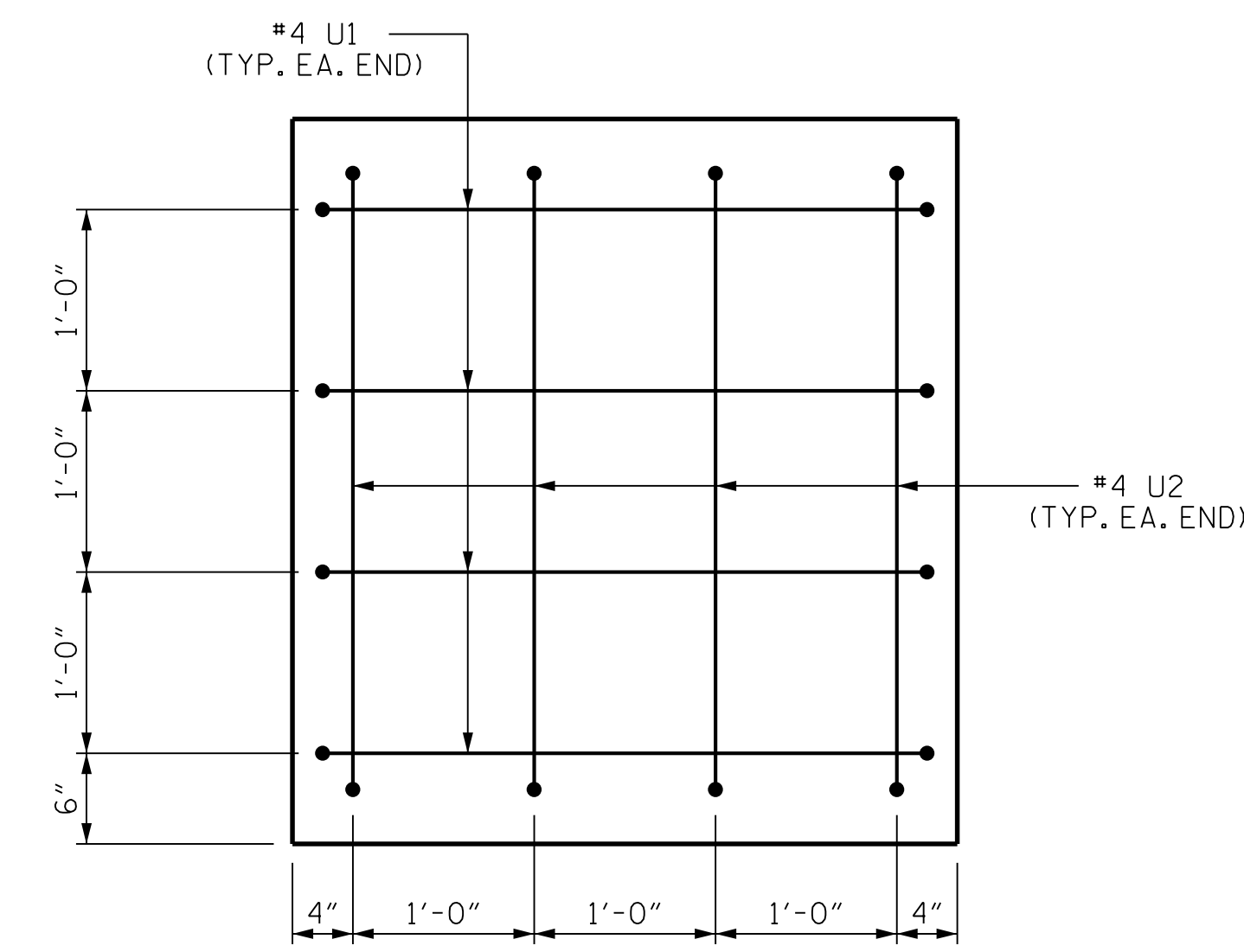
PLAN OF DRILLED PIERS & COLUMNS



END ELEVATION

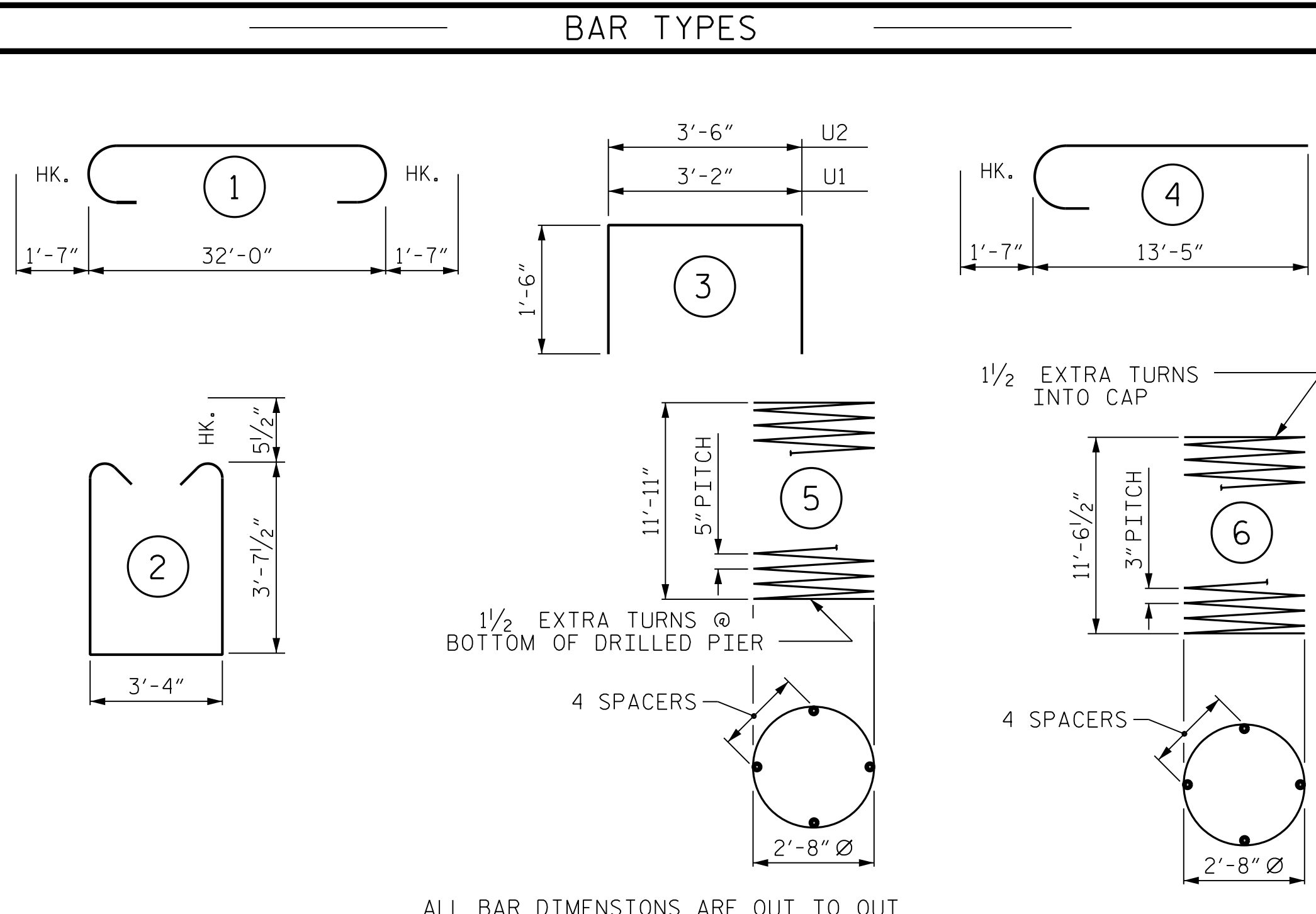


CONSTRUCTION JOINT DETAIL

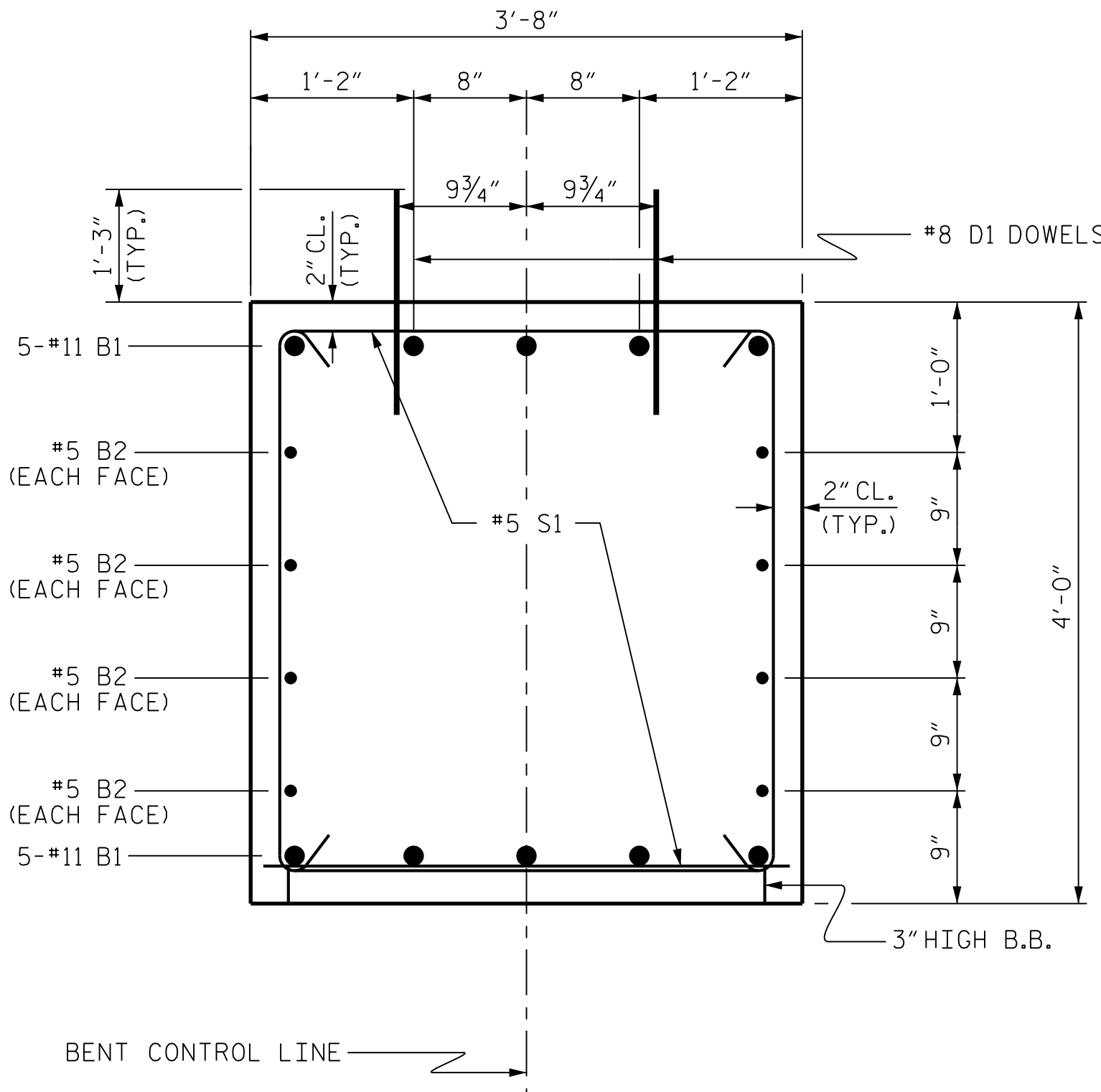


END OF CAP VIEW

(TYPICAL BOTH ENDS)



ALL BAR DIMENSIONS ARE OUT TO OUT



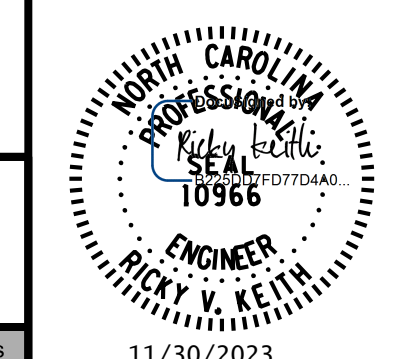
SECTION THRU CAP

BILL OF MATERIAL FOR BENT NO. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	1	35'-2"	1868
B2	8	#5	STR	32'-2"	268
D1	40	#8	STR	2'-3"	240
M1	30	#11	STR	22'-3"	3546
S1	52	#5	2	11'-6"	624
U1	8	#4	3	6'-2"	33
U2	8	#4	3	6'-6"	35
V1	30	#11	4	15'-0"	2391
REINFORCING STEEL (FOR BENT NO. 1)					9005 LBS.
SP-1	3	*	5	247'-1"	773
SP-2	3	**	6	393'-4"	788
SPIRAL COLUMN REINFORCING STEEL (FOR BENT NO. 1)					1561 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 BENT NO. 1)					
POUR #2 (COLUMNS)					8.9 C.Y.
POUR #3 (CAP)					17.7 C.Y.
TOTAL CLASS A CONCRETE					26.6 C.Y.
DRILLED PIERS: (FOR BENT NO. 1)					
DRILLED PIER CONCRETE POUR #1 (DRILLED PIERS)					13.3 C.Y.
3'-6" Ø DRILLED PIER NOT IN SOIL					23.00 LIN. FT.
3'-6" Ø DRILLED PIER IN SOIL					14.25 LIN. FT.
PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER					16.20 LIN. FT.
CSL TUBES					168 LIN. FT.
SID INSPECTIONS					EACH : 1
CSL TESTING					EACH : 1

PROJECT NO. 17BP.11.R.131
 ASHE COUNTY
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SHEET 2 OF 2

BRIDGE NO. 040122



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NOTES

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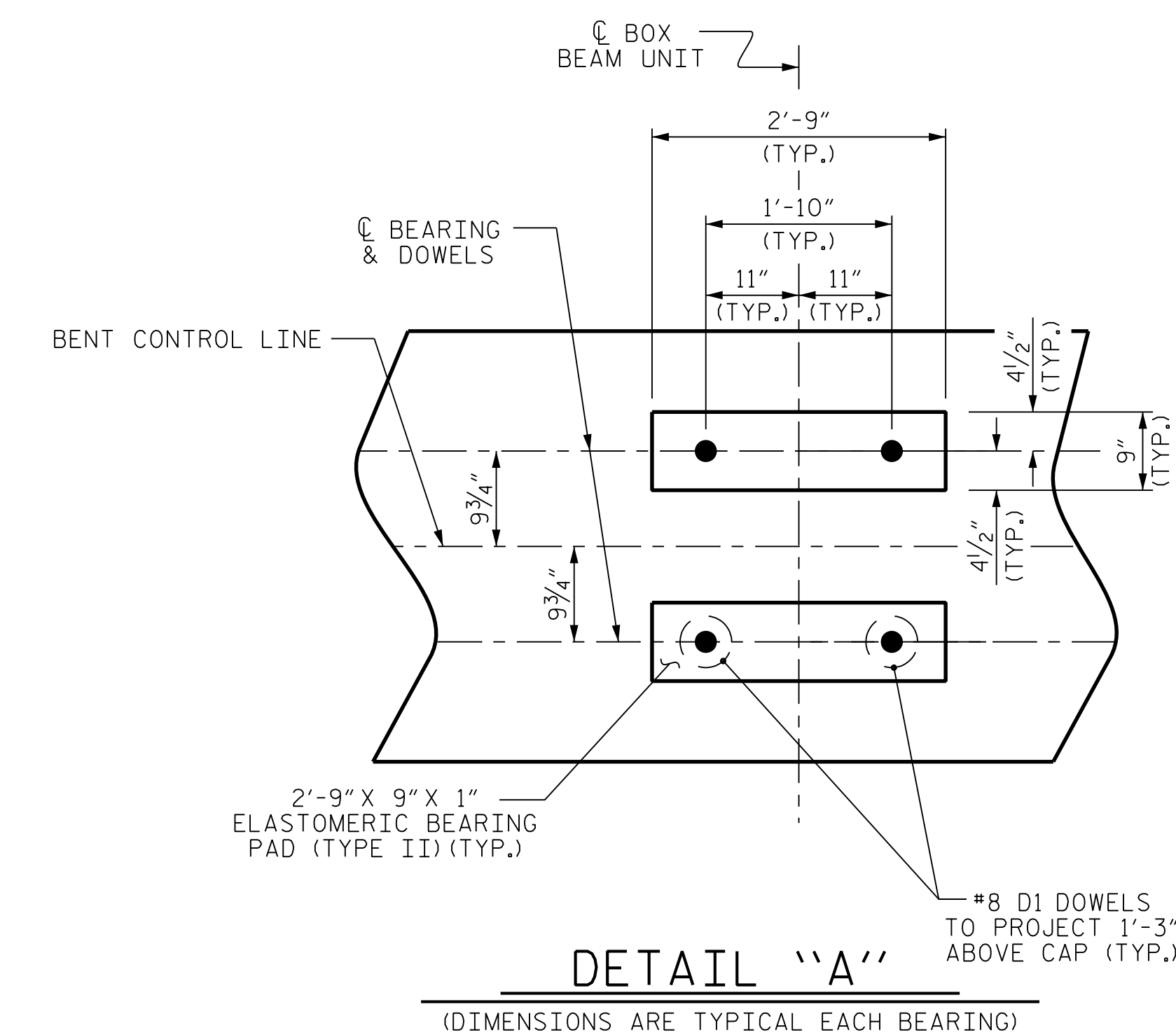
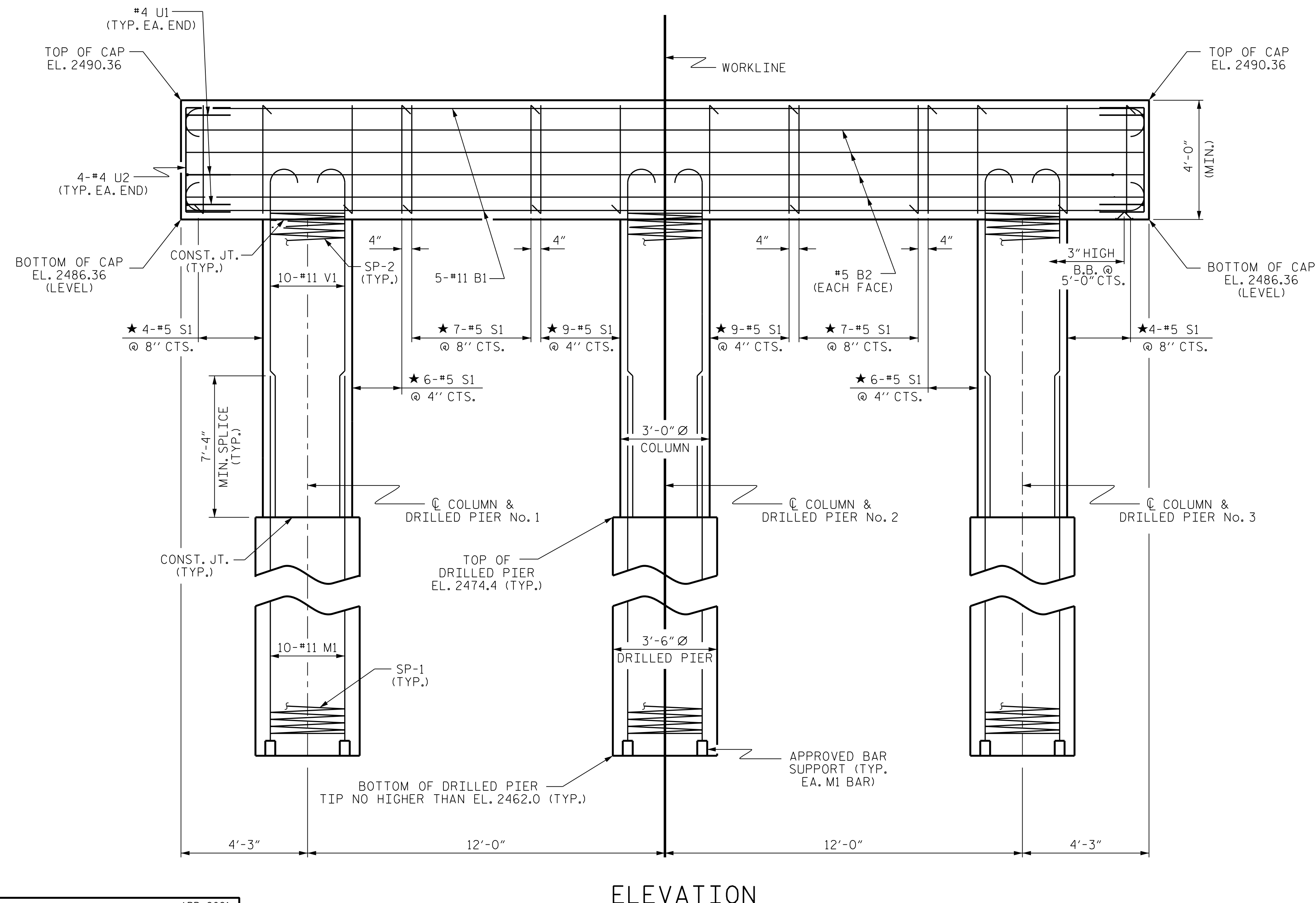
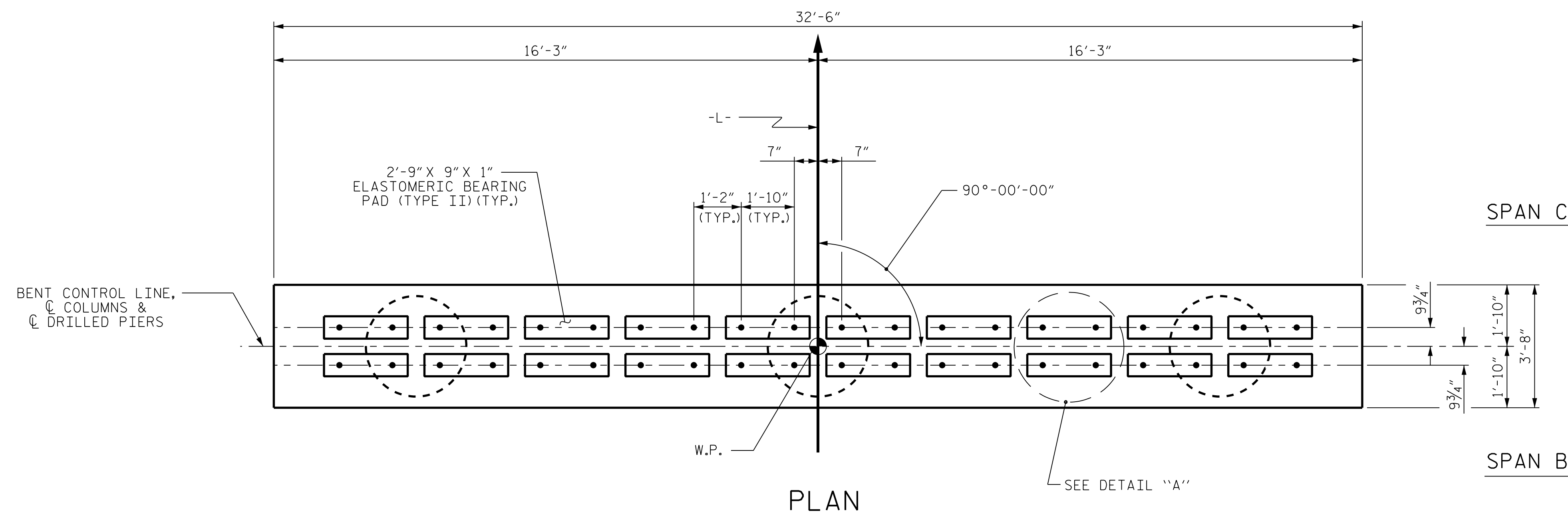
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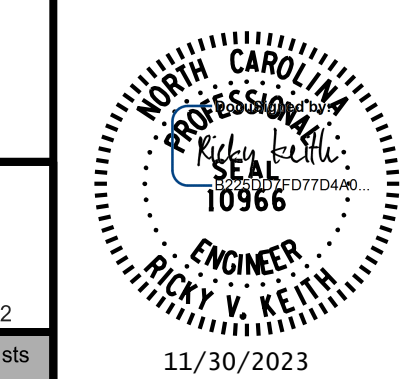
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PROJECT NO. 17BP.11.R.131
 ASHE COUNTY
 STATION: 11+66.00 -L-

SHEET 1 OF 2

BRIDGE NO. 040122



STATE OF NORTH CAROLINA
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 SUBSTRUCTURE
 BENT No. 2

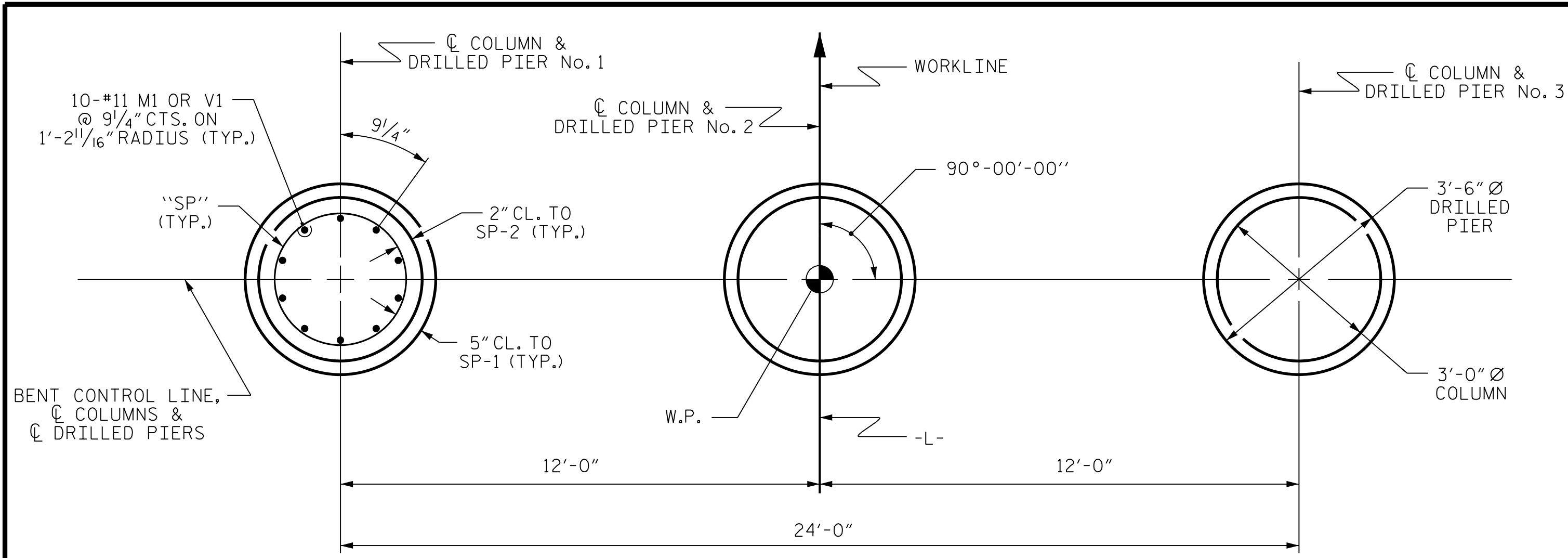
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2			4		
					TOTAL SHEETS
					24

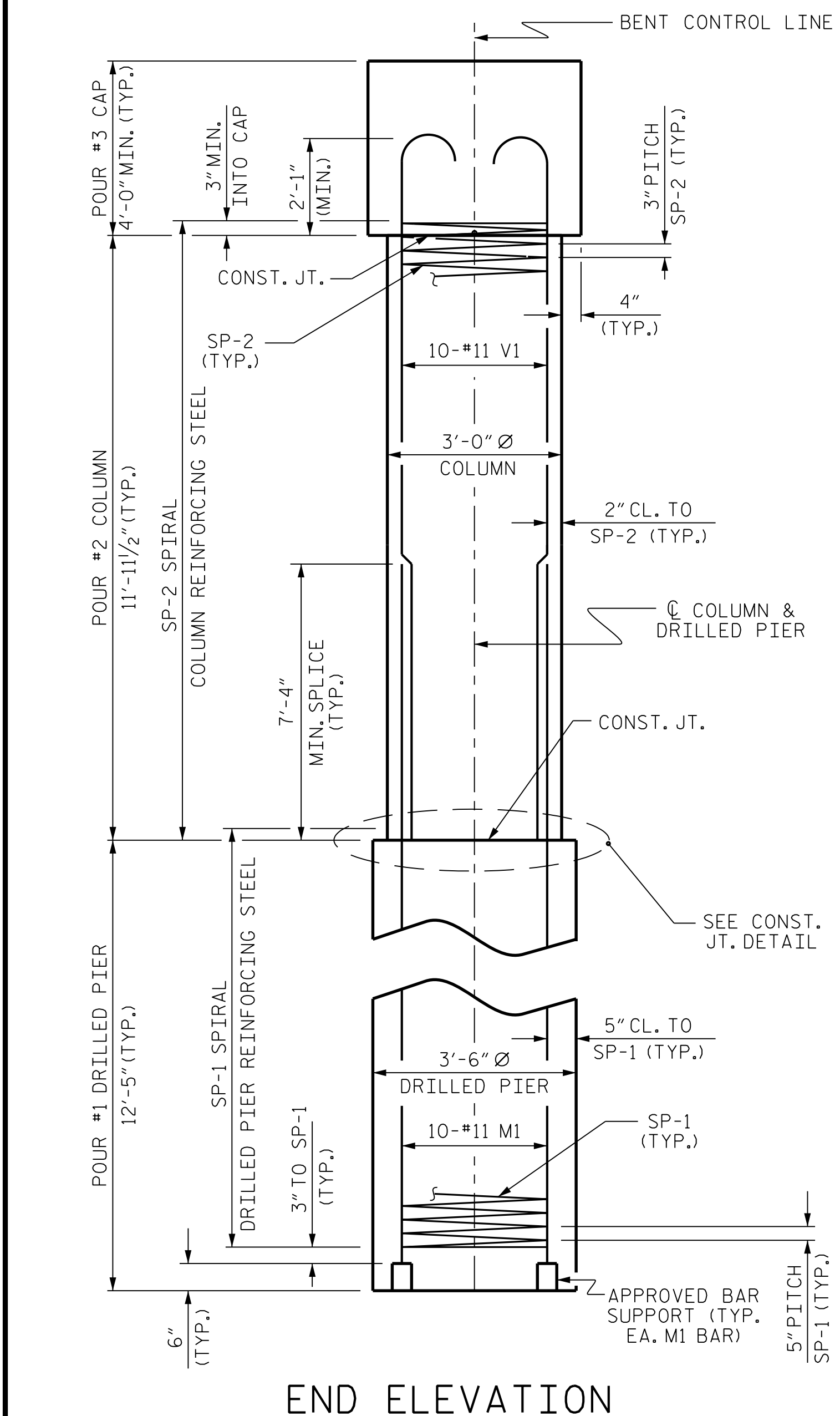
DIMENSIONS & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER UNLESS OTHERWISE NOTED.

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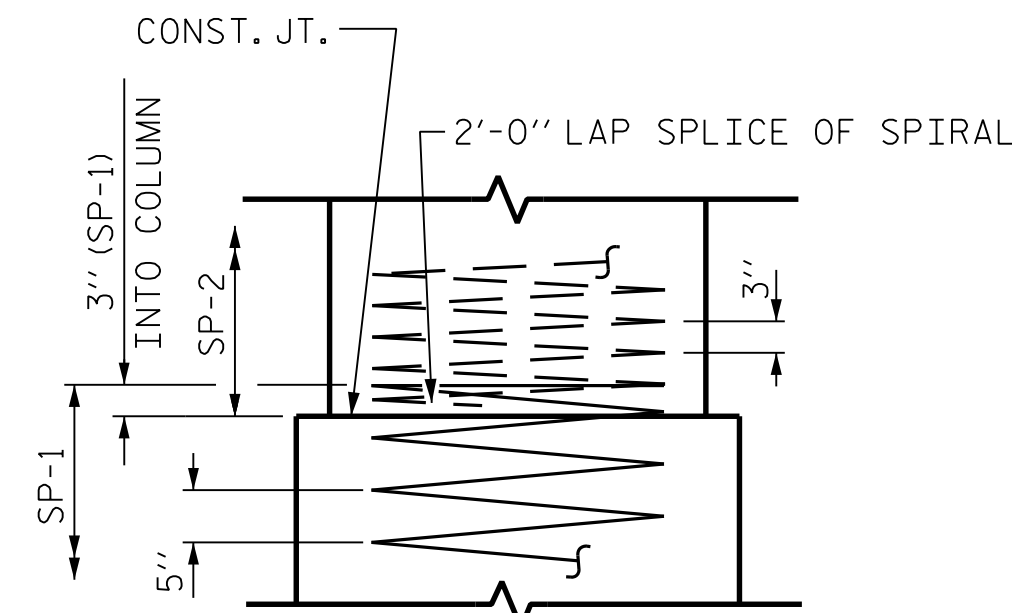
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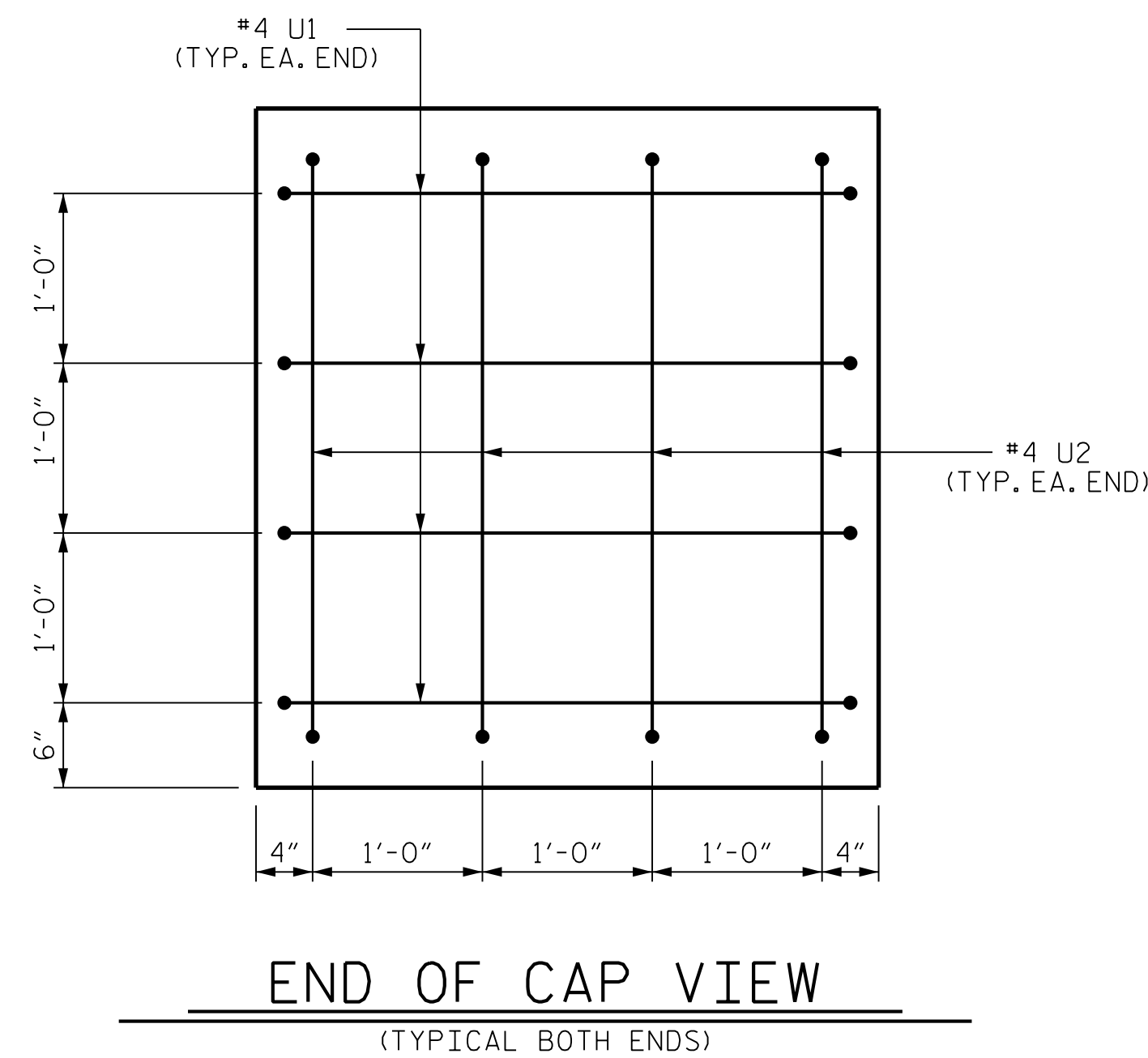
PLAN OF DRILLED PIERS & COLUMNS



END ELEVATION

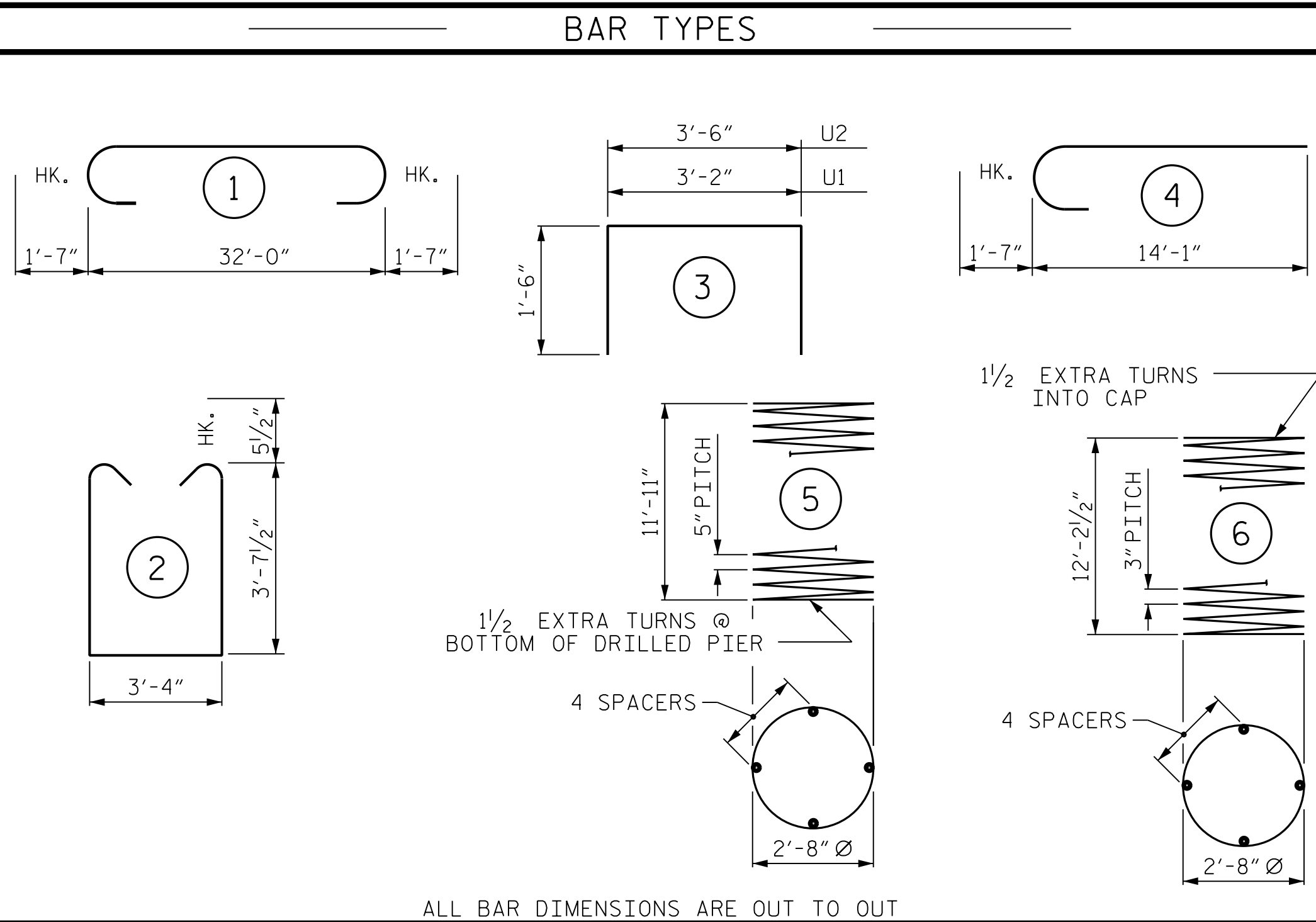


CONSTRUCTION JOINT DETAIL

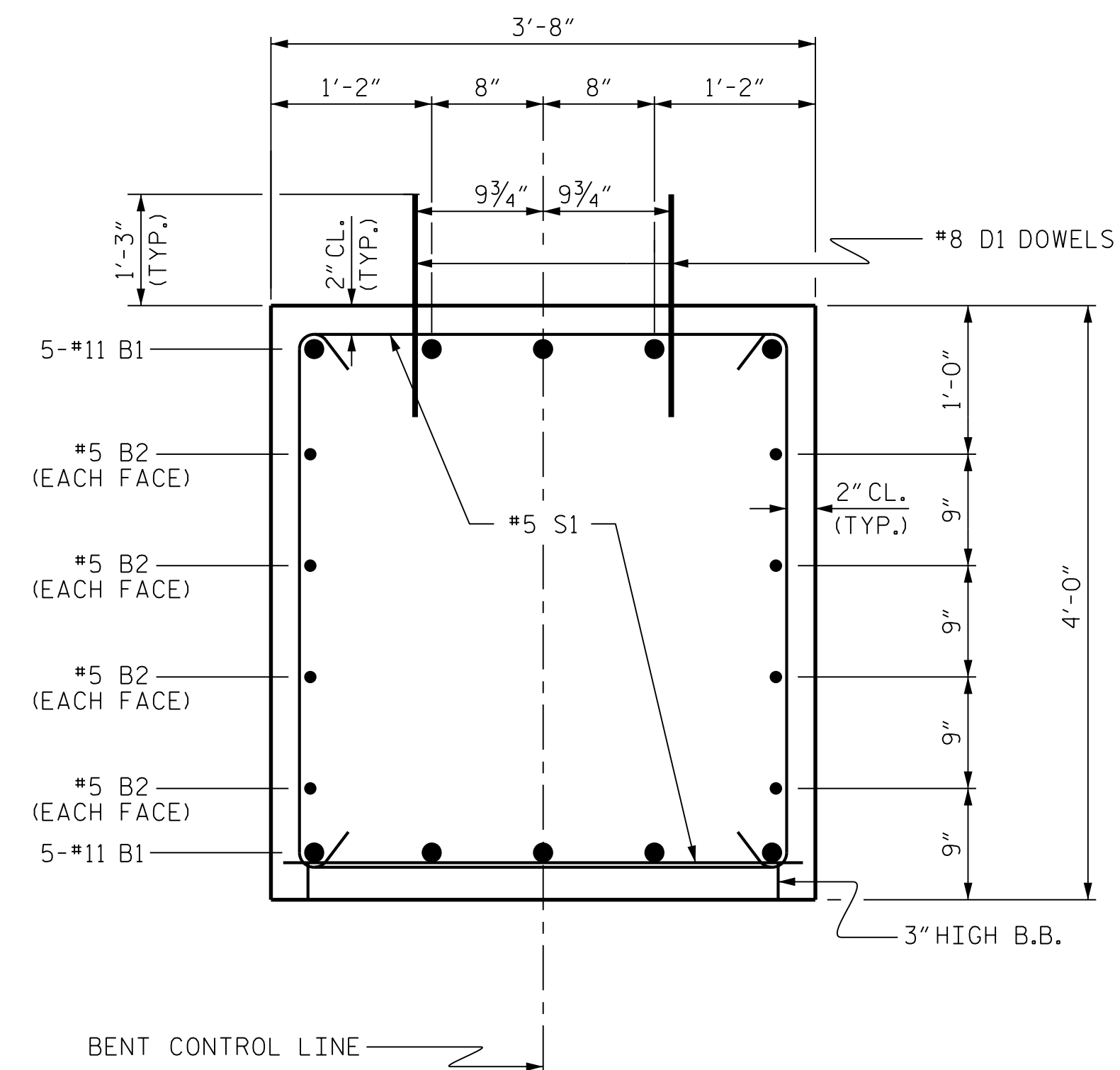


END OF CAP VIEW

(TYPICAL BOTH ENDS)



ALL BAR DIMENSIONS ARE OUT TO OUT



SECTION THRU CAP

BILL OF MATERIAL

FOR BENT NO. 2

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	1	35'-2"	1868
B2	8	#5	STR	32'-2"	268
D1	40	#8	STR	2'-3"	240
M1	30	#11	STR	22'-3"	3546
S1	52	#5	2	11'-6"	624
U1	8	#4	3	6'-2"	33
U2	8	#4	3	6'-6"	35
V1	30	#11	4	15'-8"	2497

REINFORCING STEEL (FOR BENT NO. 2) 9111 LBS.

SP-1 3 * 5 247'-1" 773
 SP-2 3 ** 6 415'-4" 832

SPIRAL COLUMN REINFORCING STEEL (FOR BENT NO. 2) 1605 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 BENT NO. 2)

POUR #2 (COLUMNS)	9.4 C.Y.
POUR #3 (CAP)	17.7 C.Y.

TOTAL CLASS A CONCRETE 27.1 C.Y.

DRILLED PIERS: (FOR BENT NO. 2)

DRILLED PIER CONCRETE POUR #1 (DRILLED PIERS) 13.3 C.Y.

3'-6" Ø DRILLED PIER NOT IN SOIL 24.00 LIN. FT.

3'-6" Ø DRILLED PIER IN SOIL 13.25 LIN. FT.

PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER 16.20 LIN. FT.

CSL TUBES 168 LIN. FT.

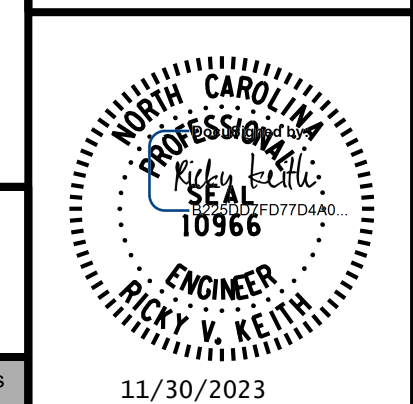
SID INSPECTIONS EACH : 1

CSL TESTING EACH : 1

PROJECT NO. 17BP.11.R.131
 ASHE COUNTY
 STATION: 11+66.00 -L-

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BRIDGE NO. 040122



STATE OF NORTH CAROLINA
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 RALEIGH
 SUBSTRUCTURE
 BENT No. 2
 DETAILS

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SHEET NO.

S-17

TOTAL SHEETS

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 CHECKED BY : O. J. PAITEL DATE : APR 2021
 DESIGN ENGINEER OF RECORD : R. V. KEITH DATE : APR 2021

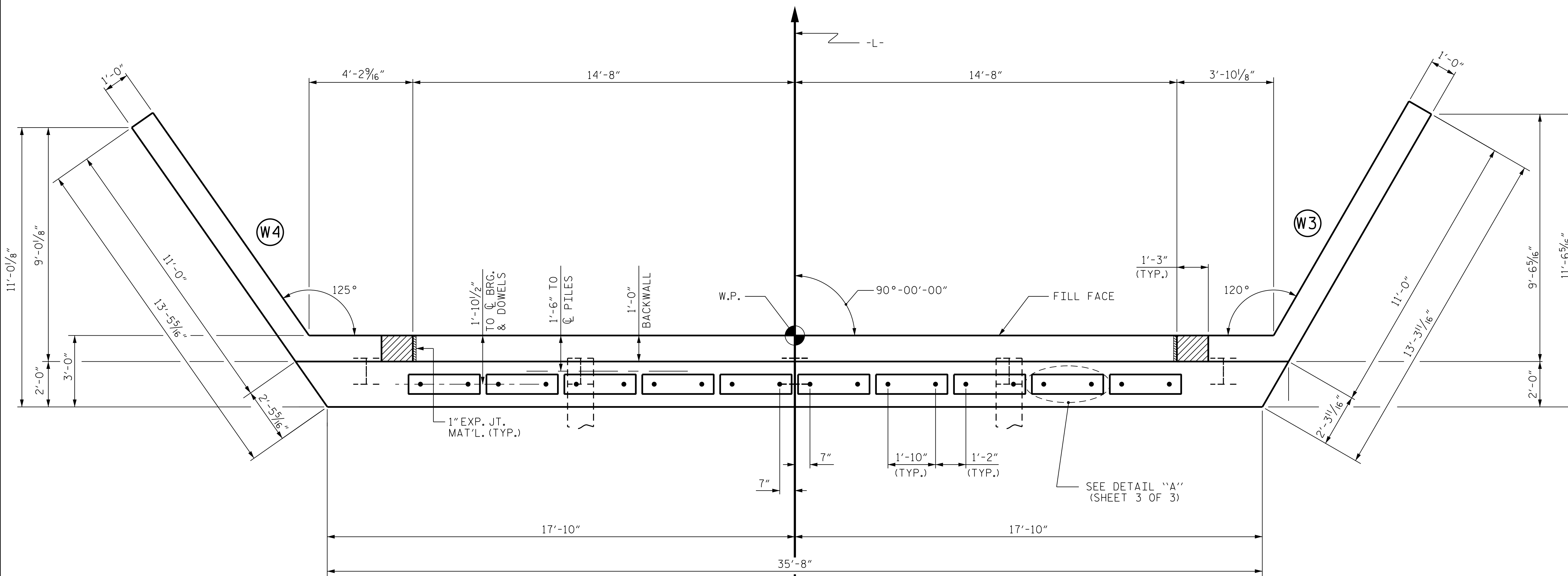
NOTES

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

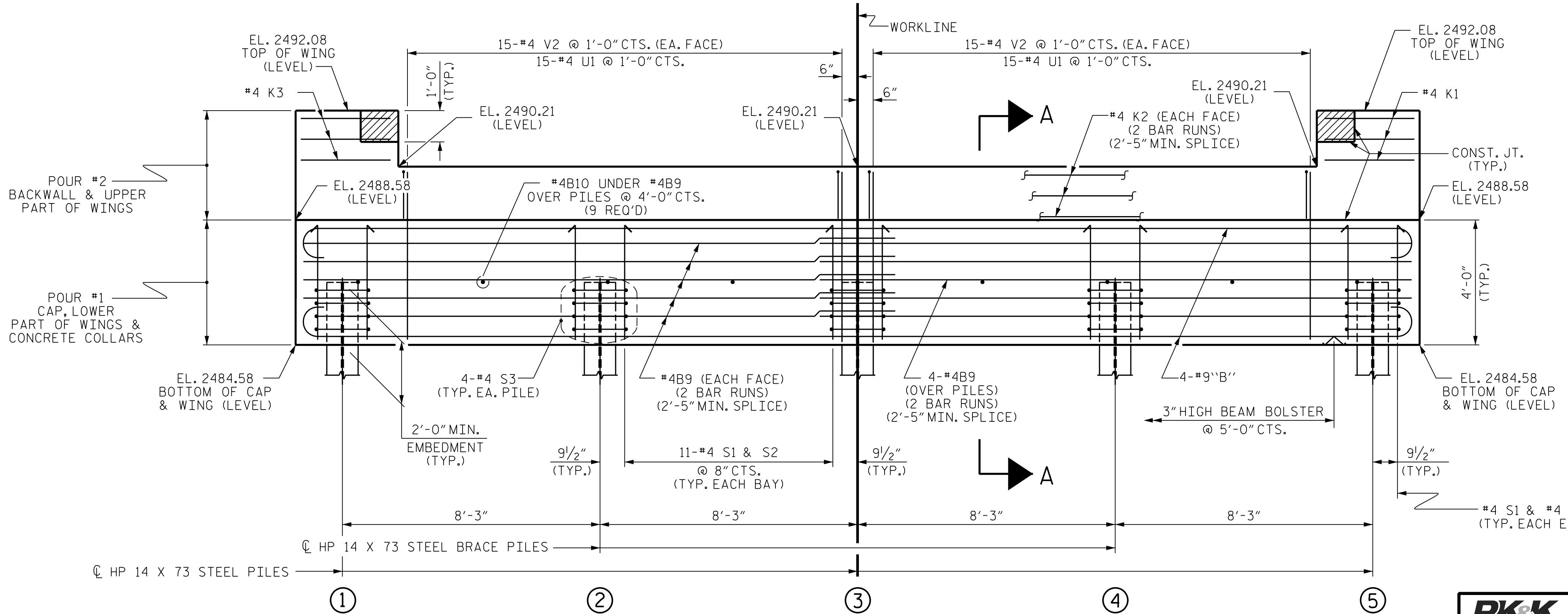
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEET 2 OF 3.



PLAN



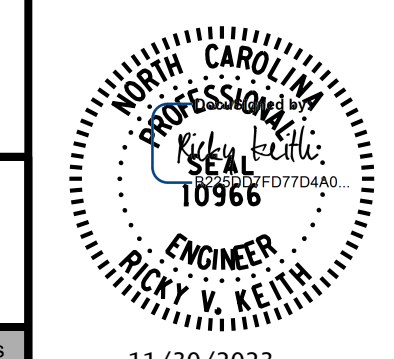
ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 3 OF 3.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.

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ASHE COUNTY
STATION: 11+66.00 -L-

SHEET 1 OF 3

BRIDGE NO. 040122



STATE OF NORTH CAROLINA
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RALEIGH
SUBSTRUCTURE
END BENT No. 2

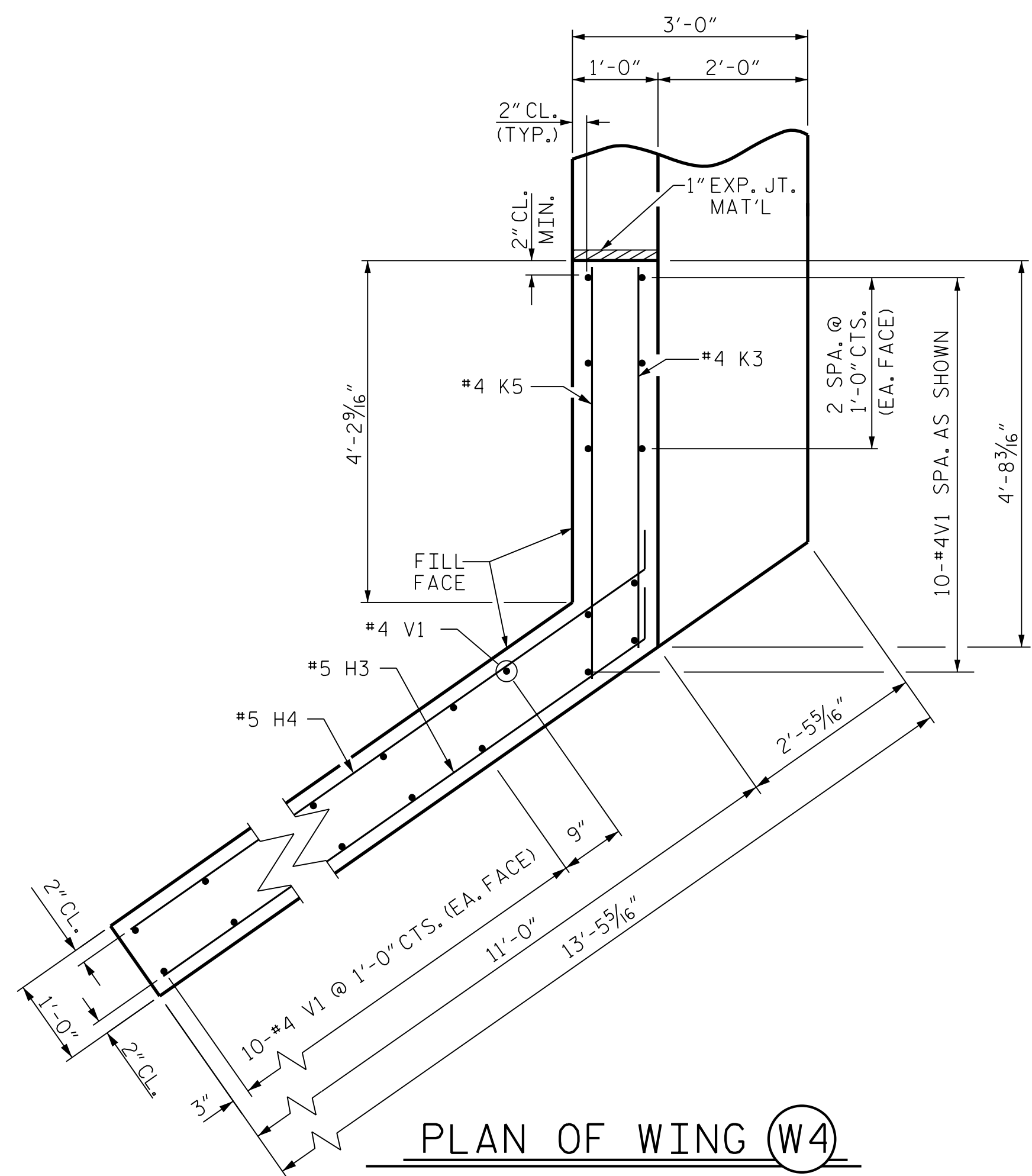
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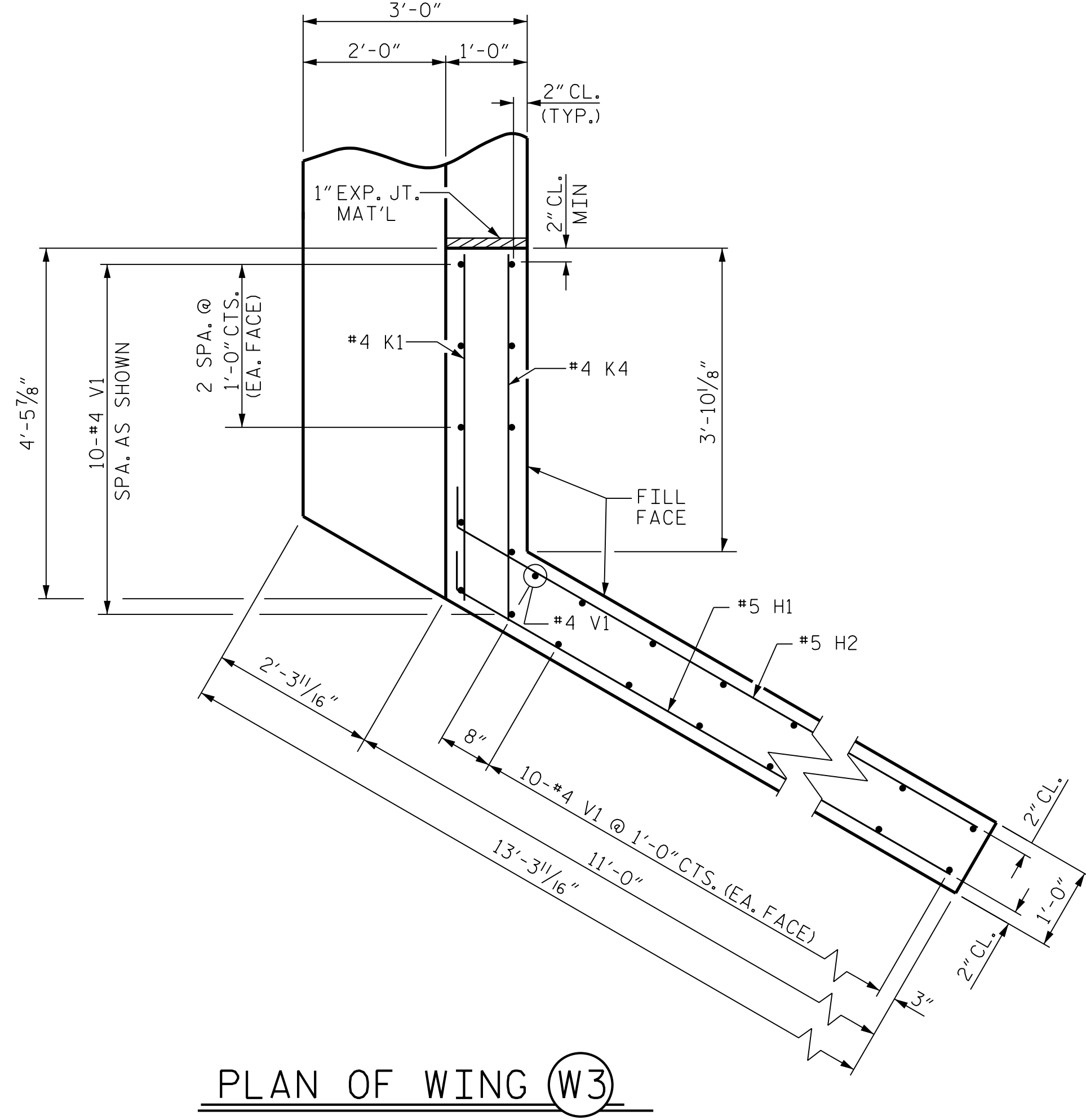
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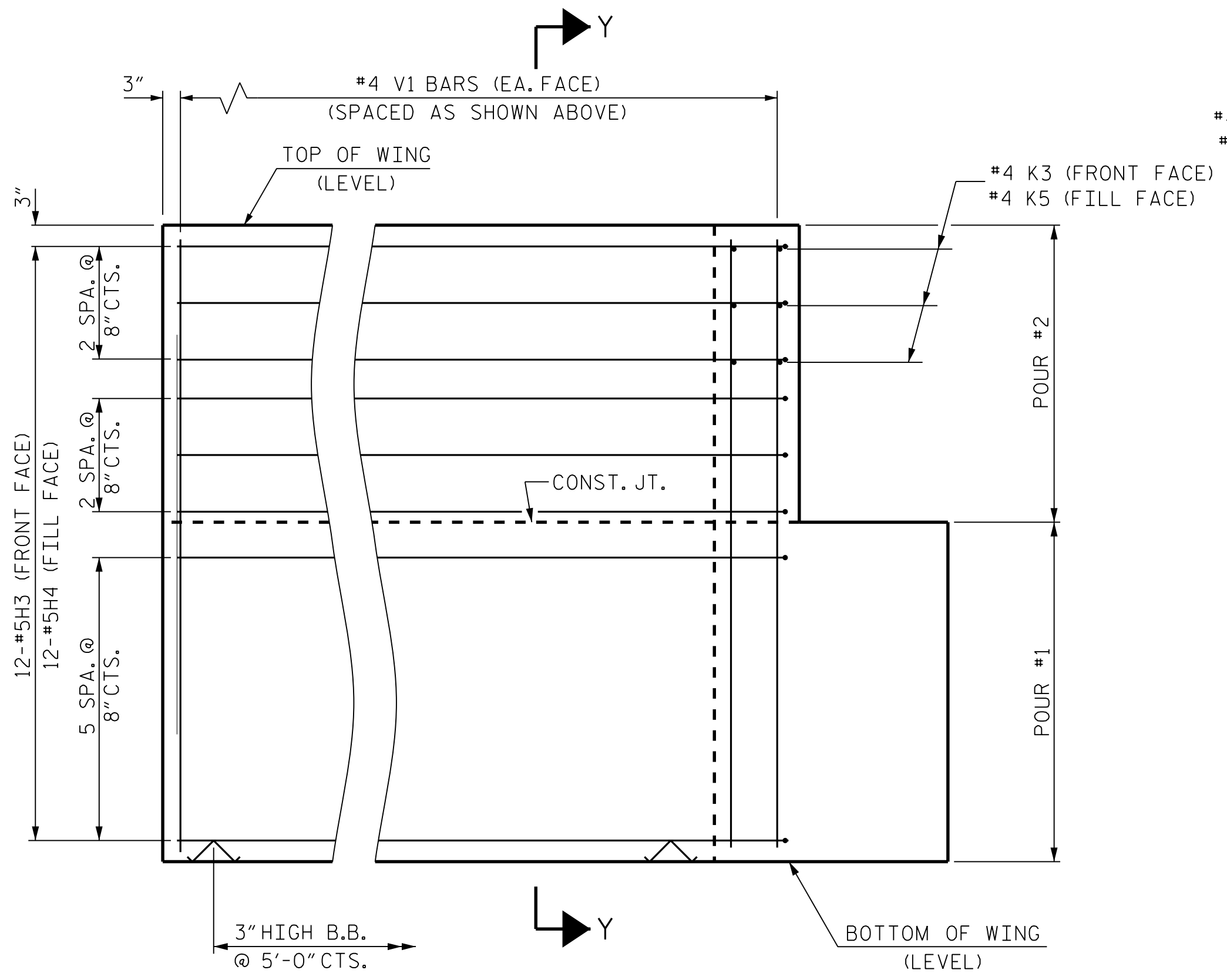
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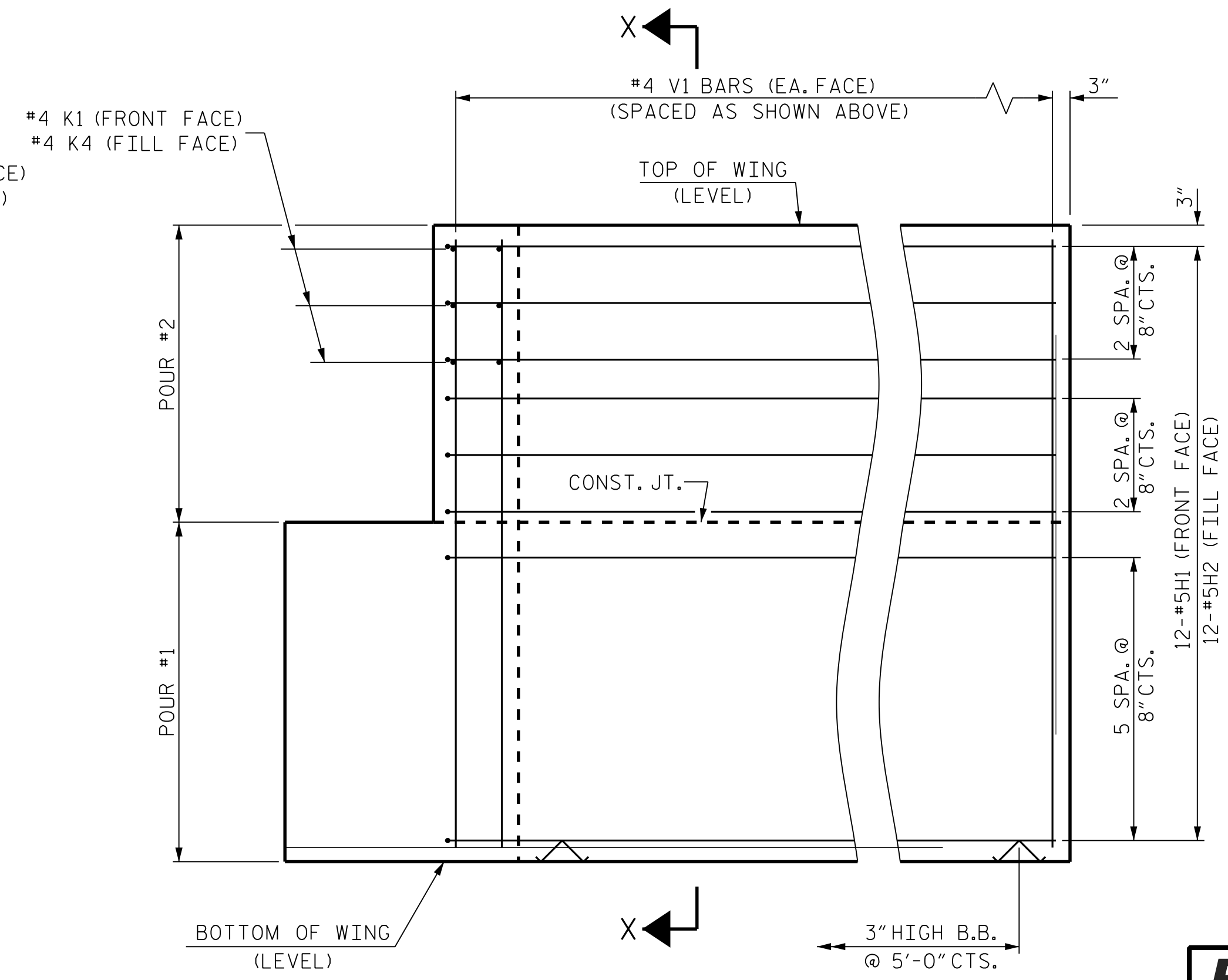
PLAN OF WING (W4)



PLAN OF WING (W3)

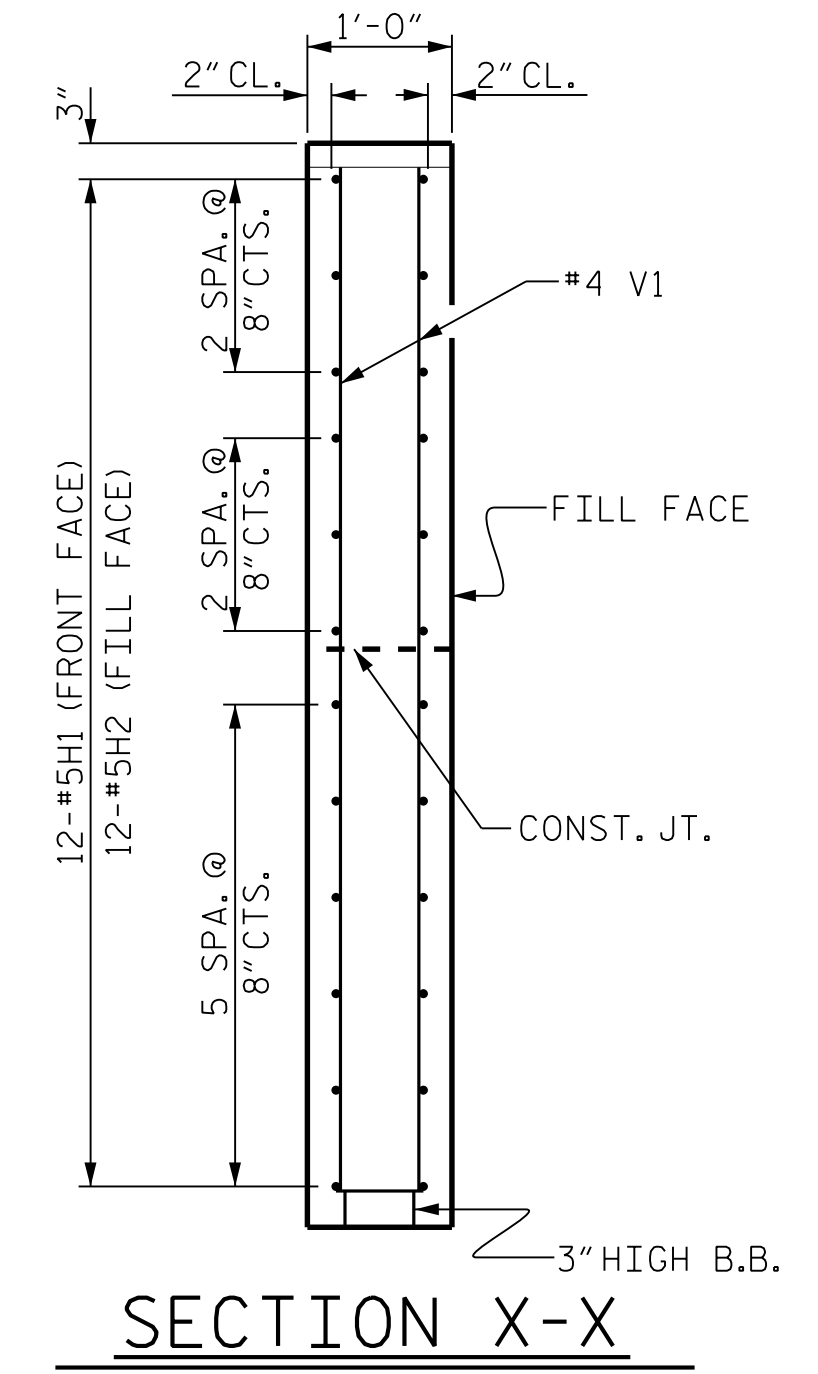


ELEVATION OF WING (W4)

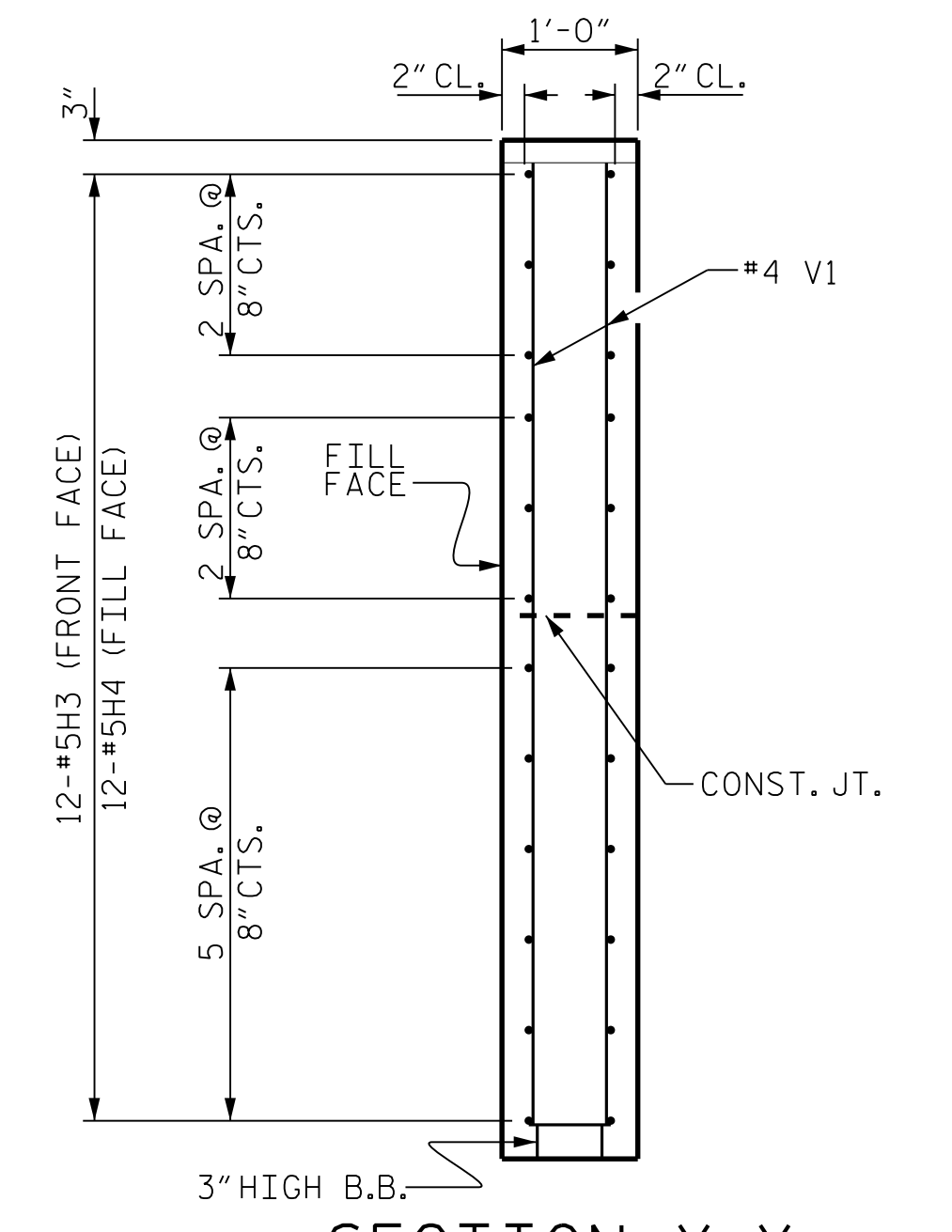


ELEVATION OF WING (W3)

WING DETAILS



SECTION X-X

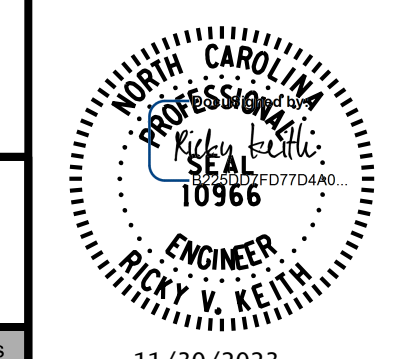


SECTION Y-Y

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ASHE COUNTY
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SHEET 2 OF 3

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RALEIGH
SUBSTRUCTURE
END BENT No. 2
WING DETAILS

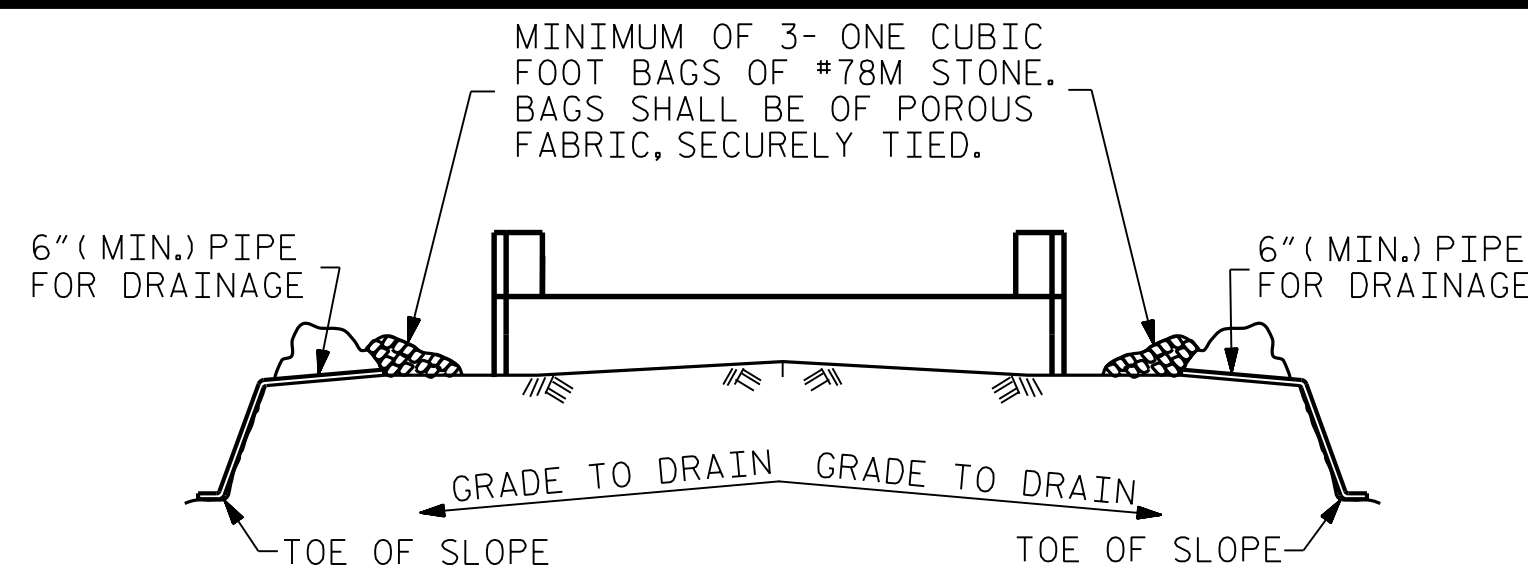
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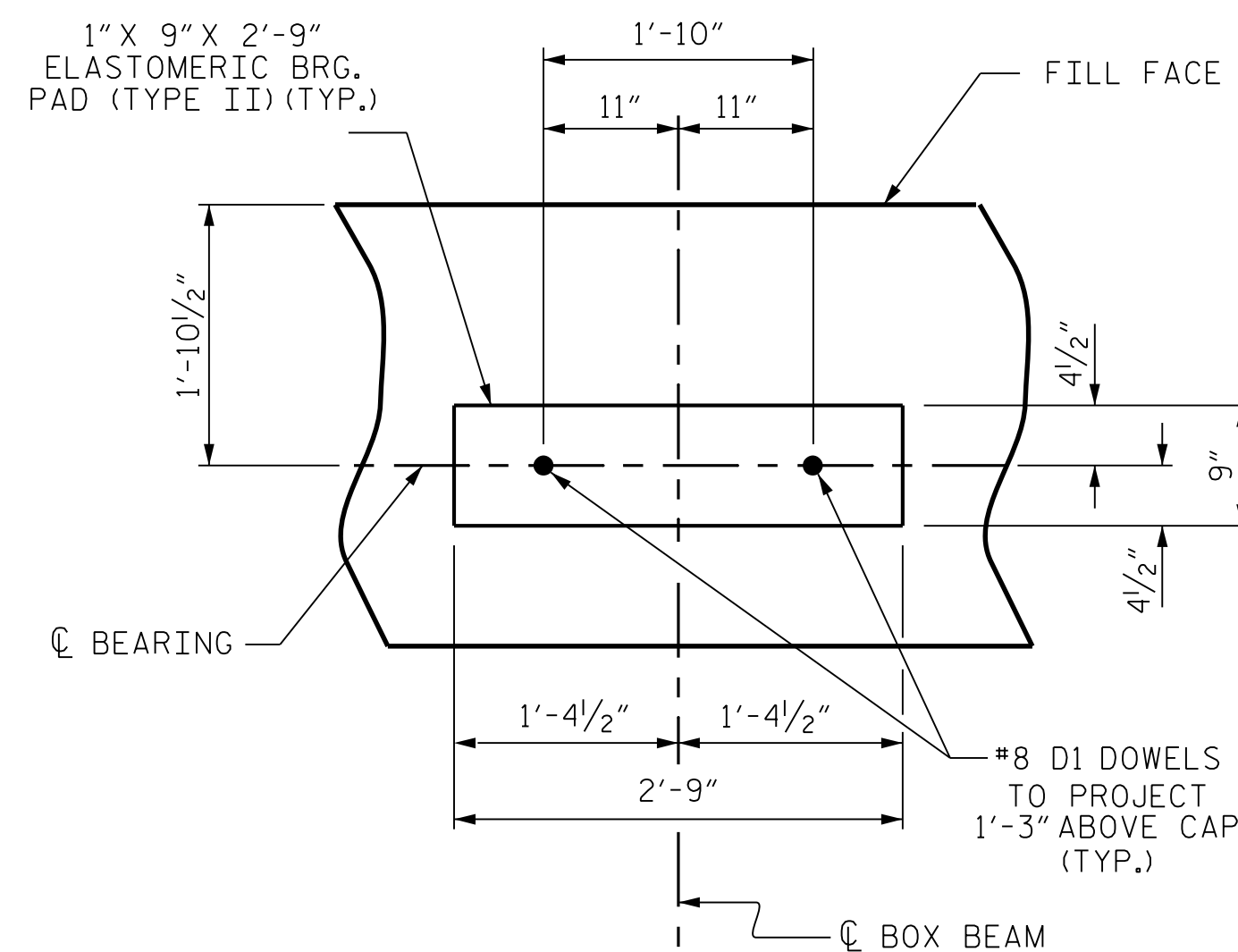


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

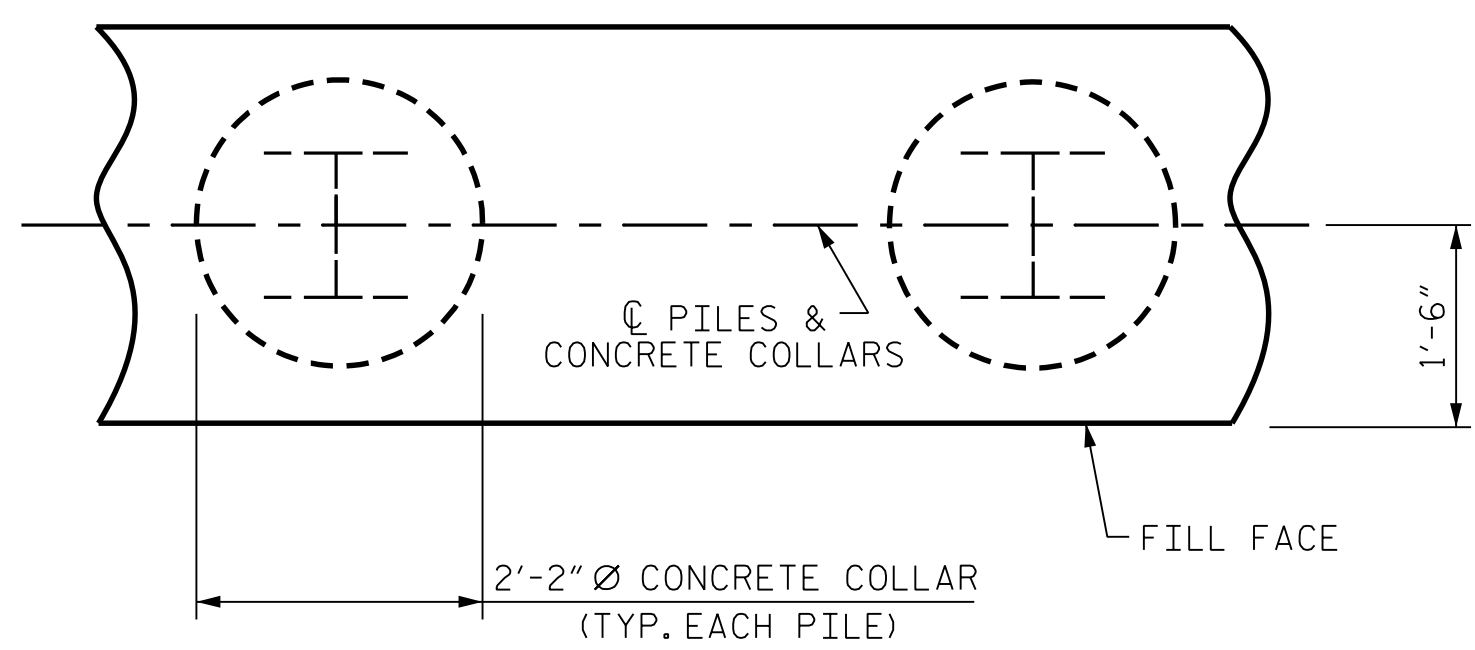
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



DETAIL "A"

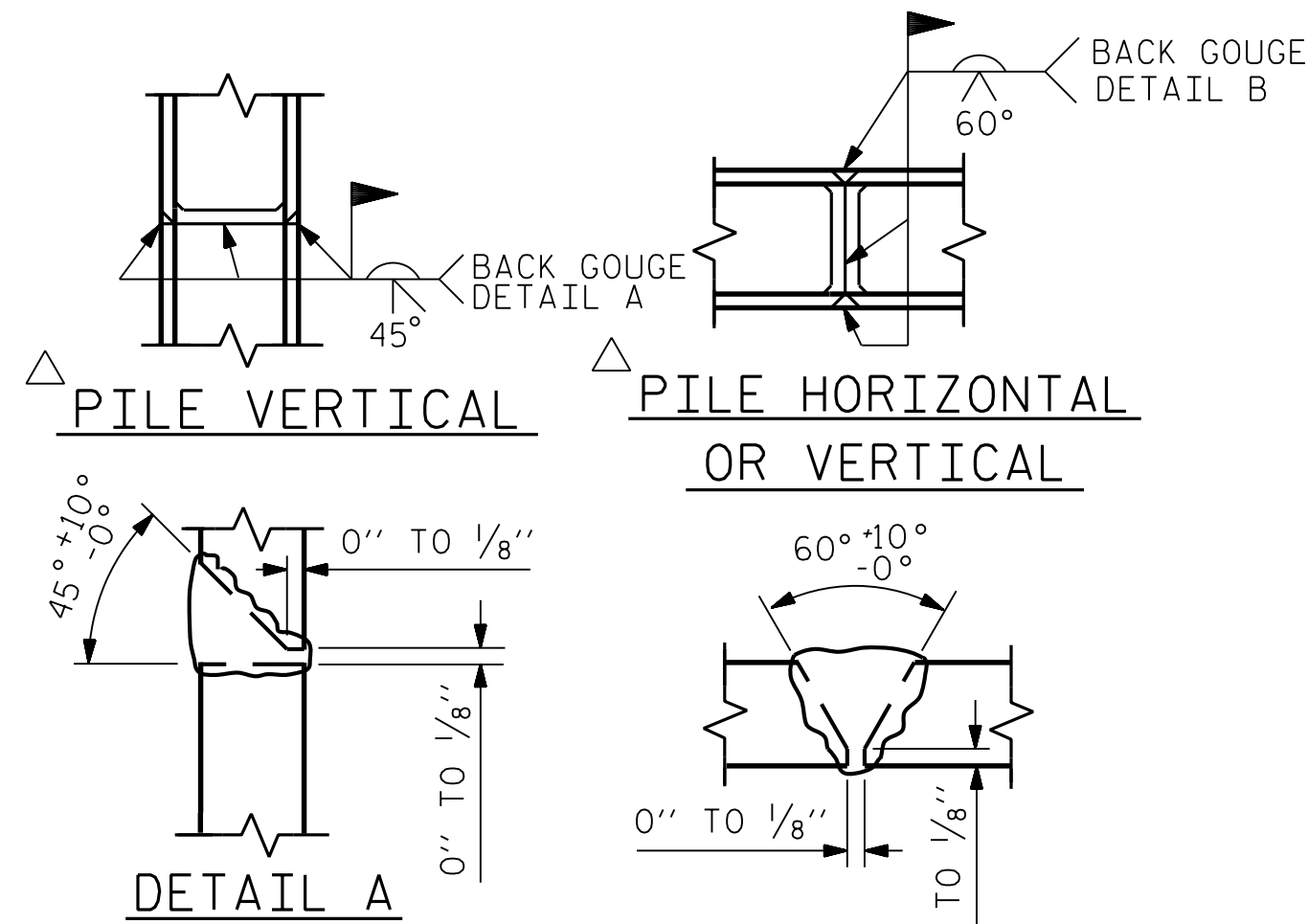
(END BENT No. 2 SHOWN)



PLAN

CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No. 2 SHOWN)



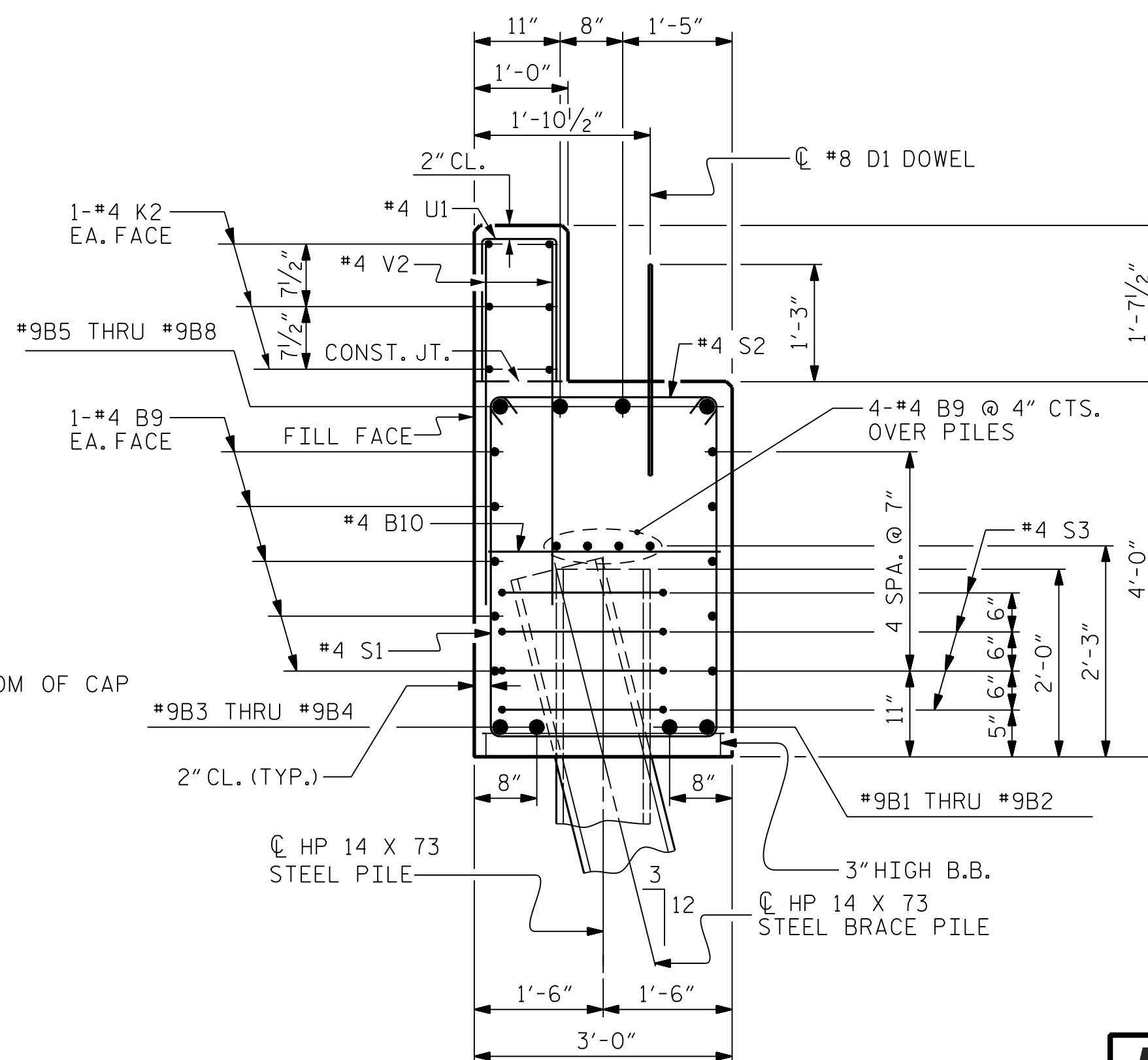
POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES		BILL OF MATERIAL FOR END BENT NO. 2				
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
B1	#9	1	37'-11"	129		
B2	#9	1	38'-5"	131		
B3	#9	1	40'-7"	138		
B4	#9	1	41'-1"	140		
B5	#9	1	37'-11"	129		
B6	#9	1	39'-5"	134		
B7	#9	1	40'-3"	137		
B8	#9	1	41'-1"	140		
B9	#4	STR	20'-6"	383		
B10	#4	STR	2'-8"	16		
					D1	#8 STR 2'-3" 120
					H1	#5 2 11'-4" 142
					H2	#5 2 11'-7" 145
					H3	#5 7 11'-4" 142
					H4	#5 7 11'-8" 146
					K1	#4 STR 4'-3" 9
					K2	#4 STR 20'-6" 164
					K3	#4 STR 4'-6" 9
					K4	#4 STR 4'-6" 9
					K5	#4 STR 4'-10" 10
					S1	#4 3 10'-8" 328
					S2	#4 4 3'-5" 105
					S3	#4 5 7'-7" 101
					U1	#4 6 3'-7" 72
					V1	#4 STR 7'-2" 297
					V2	#4 STR 5'-3" 210
					REINFORCING STEEL (FOR END BENT NO. 2) 3,486 LBS.	

ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 2 HP 14 X 73 STEEL PILES NO: 5 LIN. FT. = 75	CLASS A CONCRETE BREAKDOWN (FOR END BENT NO. 2)	POUR #1 CAP, LOWER PART OF WINGS & COLLARS 20.6 C.Y.	
PILE DRIVING EQUIPMENT SET UP FOR HP 14 X 73 STEEL PILES NO: 5			POUR #2 BACKWALL & UPPER PART OF WINGS 5.2 C.Y.
STEEL PILE POINTS NO: 5			TOTAL CLASS A CONCRETE 25.8 C.Y.



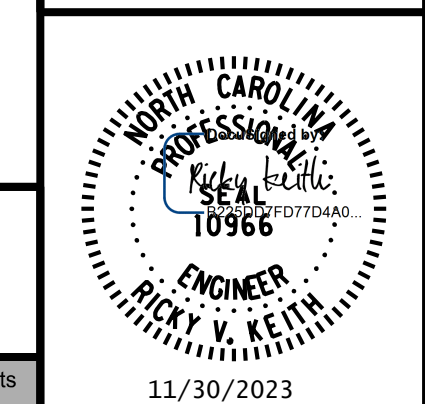
SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

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SHEET 3 OF 3

BRIDGE NO. 040122



STATE OF NORTH CAROLINA
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RALEIGH

SUBSTRUCTURE
END BENT No. 2
DETAILS

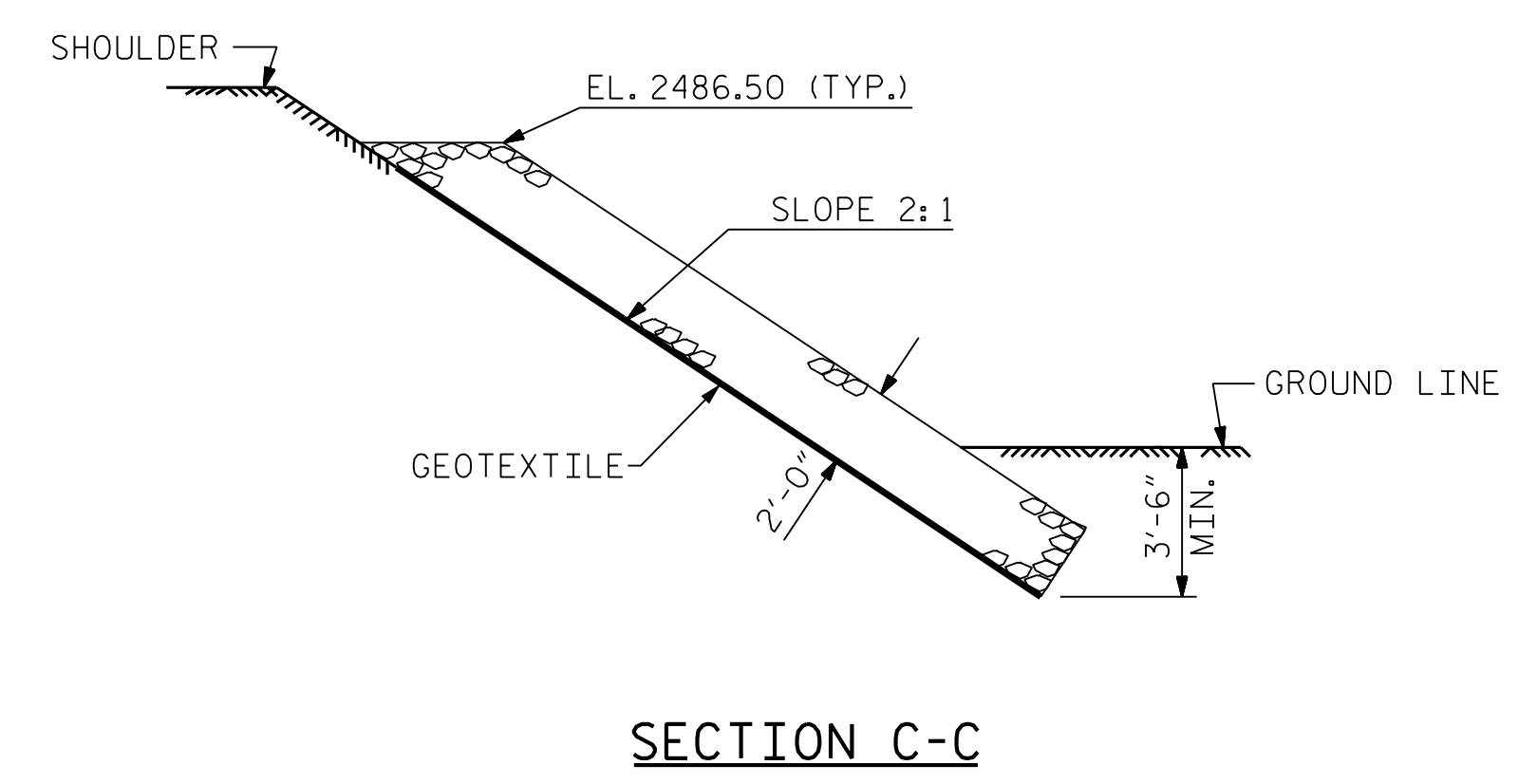
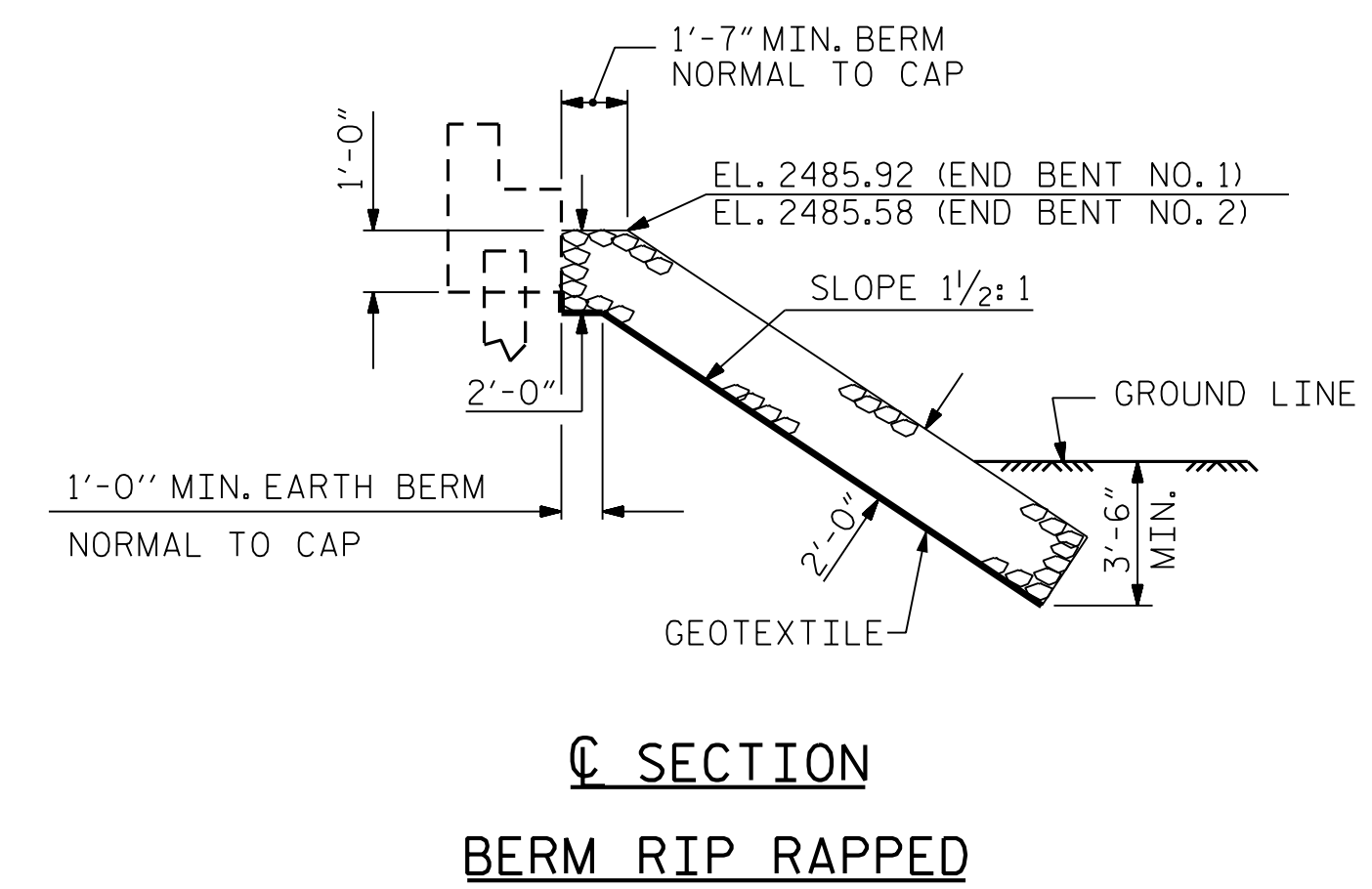
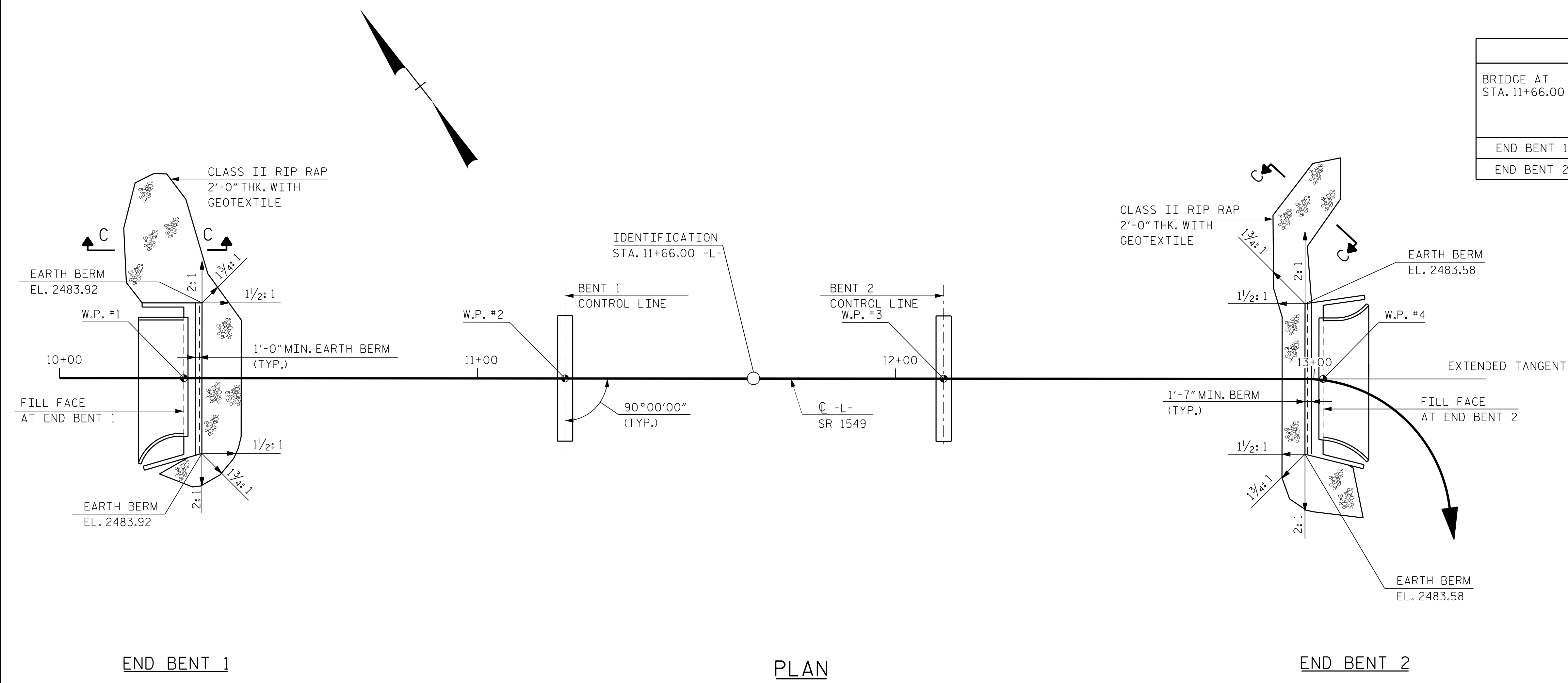
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ESTIMATED QUANTITIES		
BRIDGE AT STA. 11+66.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	190	212
END BENT 2	175	195

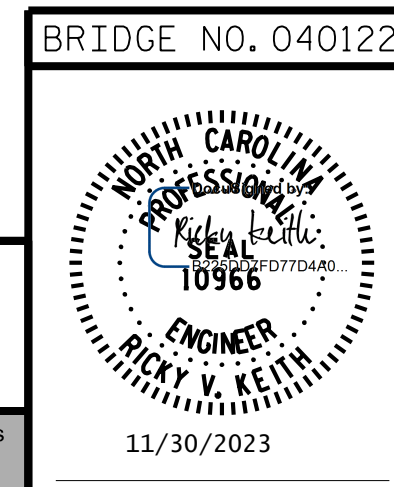


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BRIDGE NO. 040122

RIP RAP DETAILS

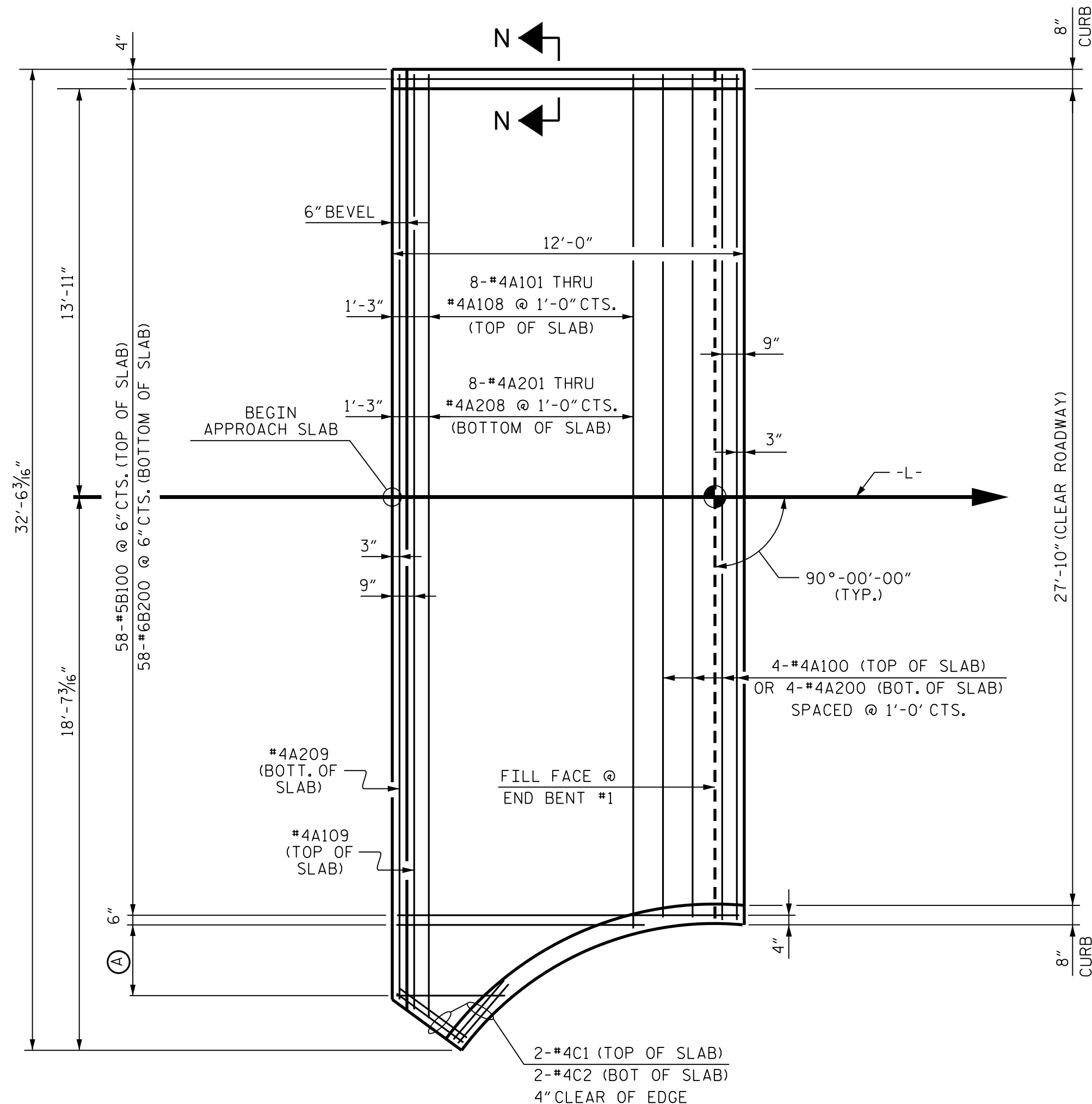


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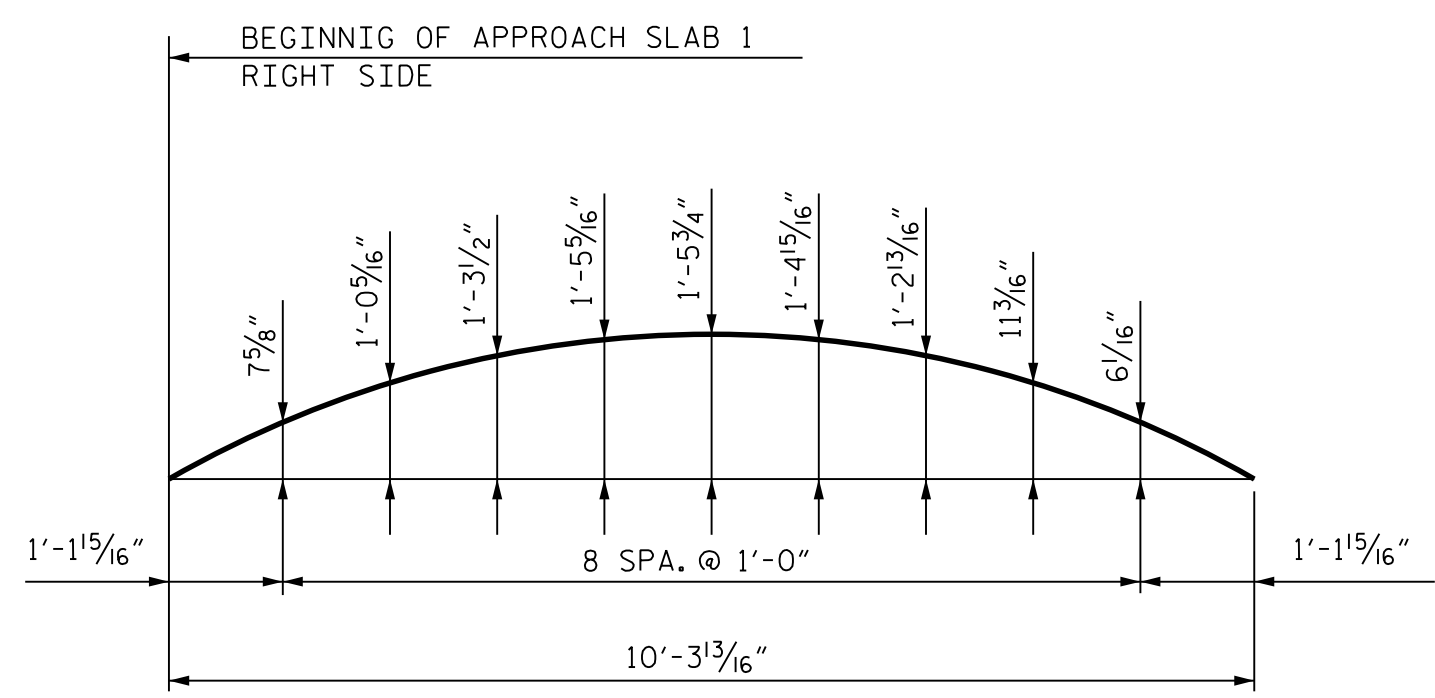


PLAN AT END BENT #1

- Ⓐ 6-#6B201 THRU #6B206 @ 6" CTS. (BOTTOM OF SLAB)
- Ⓐ 6-#5B101 THRU #5B106 @ 6" CTS. (TOP OF SLAB)

NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.
 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.
 APPROACH SLAB GROOVING IS NOT REQUIRED.

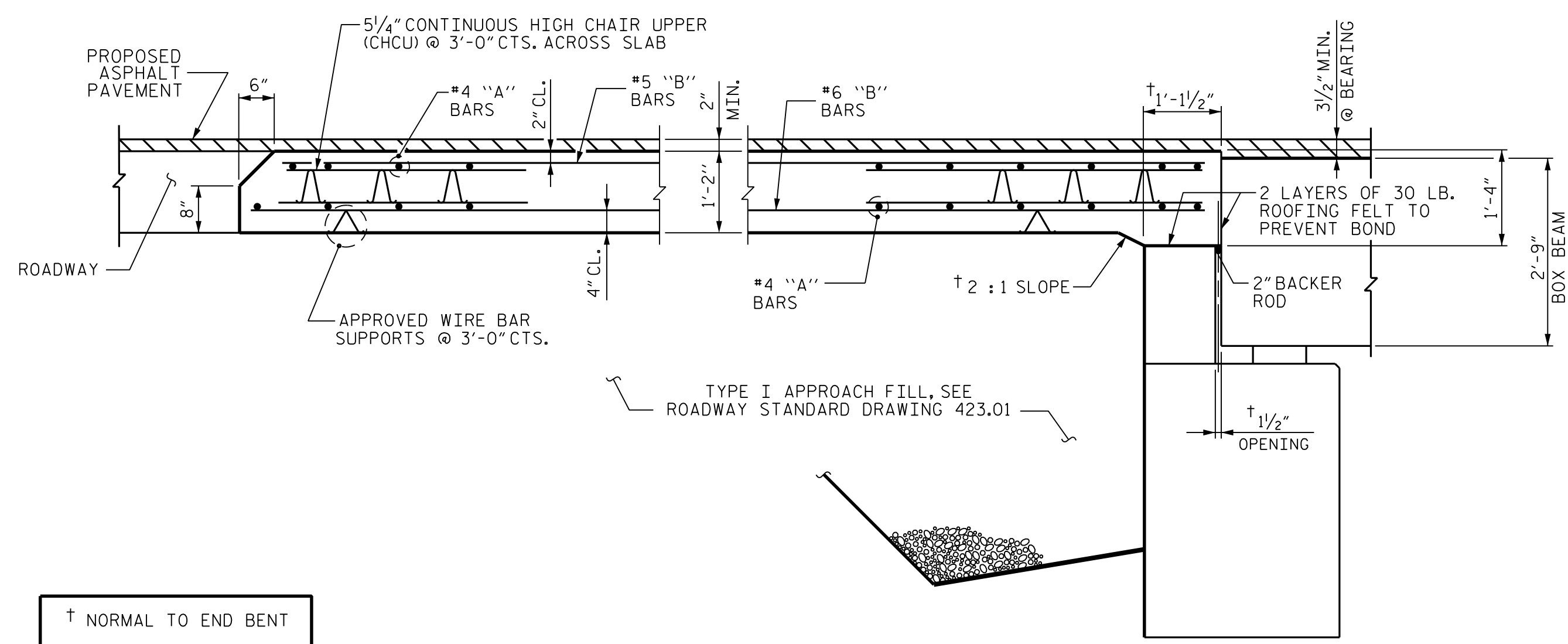


ARC OFFSETS ALONG RIGHT SIDE OF APPROACH SLAB 1

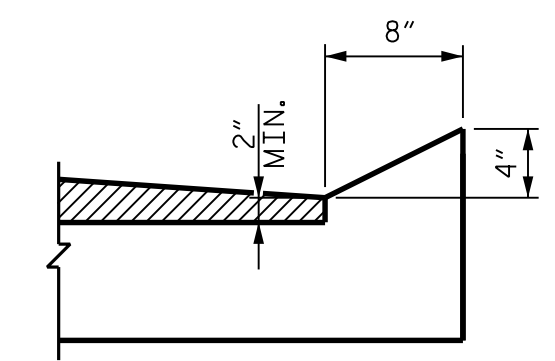
REFER TO NEXT SHEET FOR TEMPORARY BERM AND SLOPE DRAIN DETAILS

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

BILL OF MATERIAL						
APPROACH SLAB AT EB #1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A100	4	#4	STR	28'-8"	77	
*A101	1	#4	STR	28'-10"	19	
*A102	1	#4	STR	29'-1"	19	
*A103	1	#4	STR	29'-6"	20	
*A104	1	#4	STR	30'-0"	20	
*A105	1	#4	STR	30'-8"	20	
*A106	1	#4	STR	31'-7"	21	
*A107	1	#4	STR	32'-7"	22	
*A108	1	#4	STR	31'-11"	21	
*A109	1	#4	STR	31'-6"	21	
*B100	58	#5	STR	11'-2"	676	
*B101	1	#5	STR	2'-6"	3	
*B102	1	#5	STR	3'-1"	3	
*B103	1	#5	STR	3'-9"	4	
*B104	1	#5	STR	4'-5"	5	
*B105	1	#5	STR	5'-4"	6	
*B106	1	#5	STR	6'-7"	7	
*C1	2	#4	STR	2'-3"	3	
A200	4	#4	STR	28'-8"	77	
A201	1	#4	STR	28'-10"	19	
A202	1	#4	STR	29'-1"	19	
A203	1	#4	STR	29'-6"	20	
A204	1	#4	STR	30'-0"	20	
A205	1	#4	STR	30'-8"	20	
A206	1	#4	STR	31'-7"	21	
A207	1	#4	STR	32'-7"	22	
A208	1	#4	STR	31'-11"	21	
A209	1	#4	STR	31'-2"	21	
B200	58	#6	STR	11'-8"	1016	
B201	1	#6	STR	2'-6"	4	
B202	1	#6	STR	3'-7"	5	
B203	1	#6	STR	4'-3"	6	
B204	1	#6	STR	4'-11"	7	
B205	1	#6	STR	5'-10"	9	
B206	1	#6	STR	7'-1"	11	
C2	2	#4	STR	2'-3"	3	
REINFORCING STEEL			LBS.	1321		
* EPOXY COATED REINFORCING STEEL			LBS.	967		
CLASS AA CONCRETE			C. Y.	16.4		



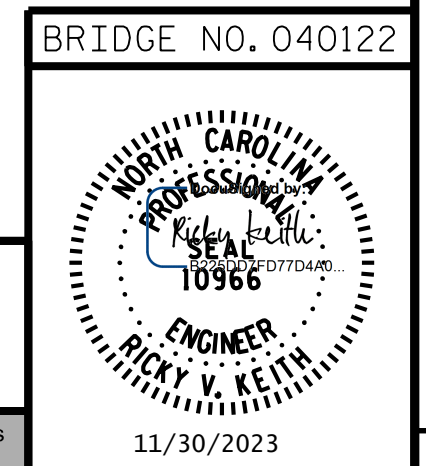
SECTION THRU SLAB



SECTION N-N CURB DETAILS

PROJECT NO. 17BP.11.R.131
 ASHE COUNTY
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SHEET 1 OF 2



STATE OF NORTH CAROLINA
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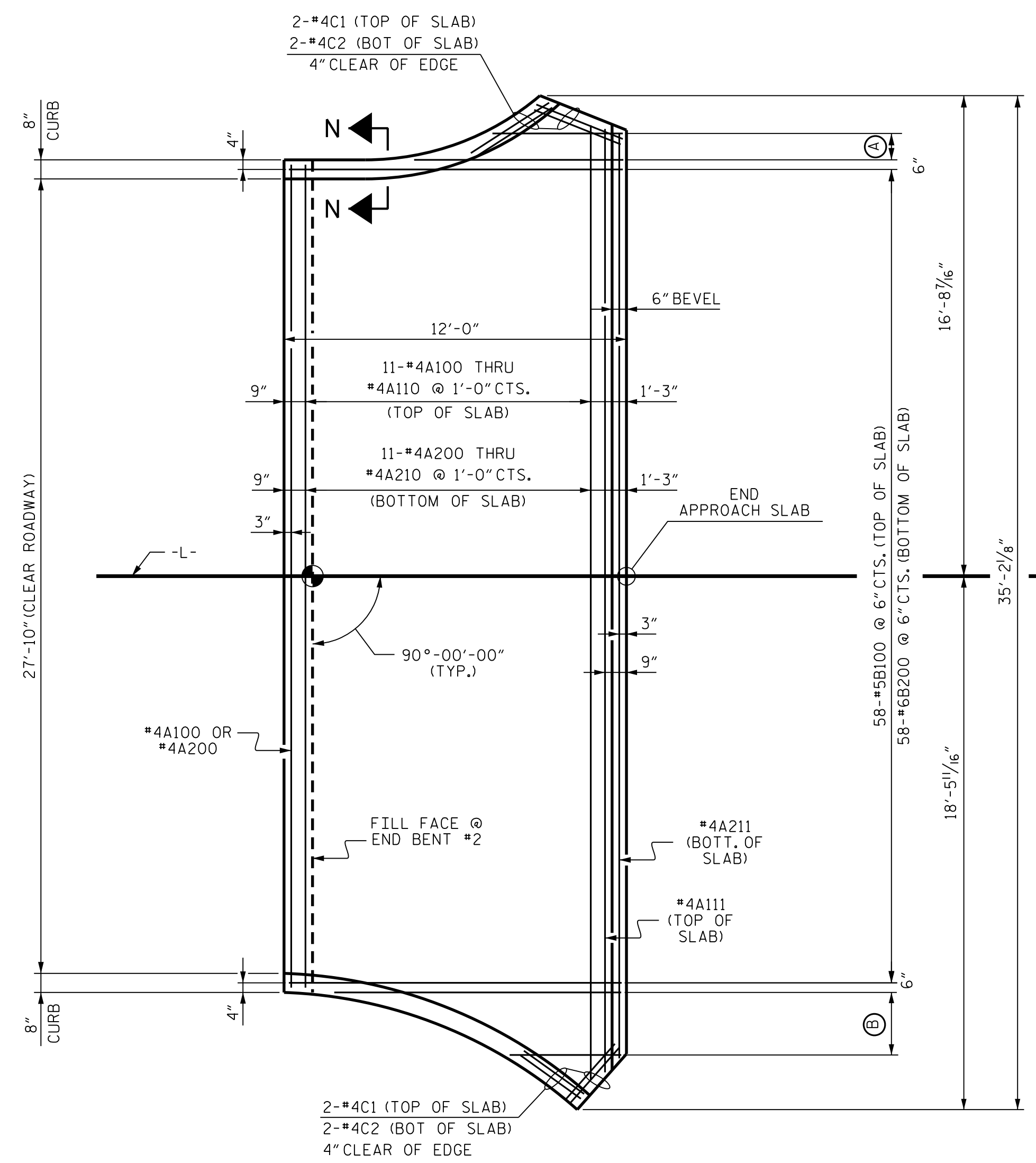
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† NORMAL TO END BENT

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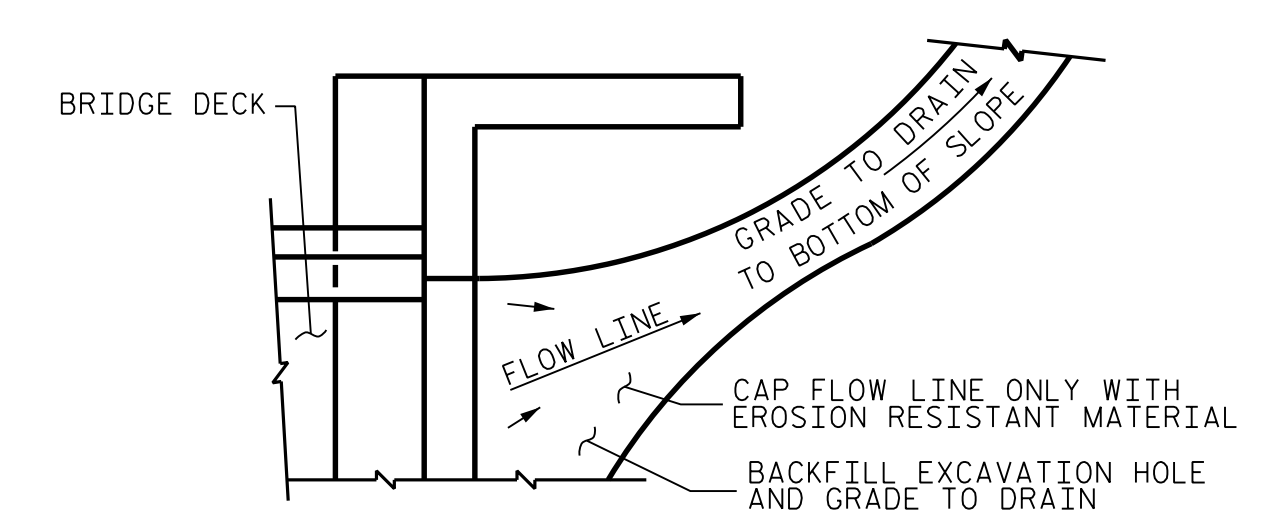


PLAN AT END BENT 2

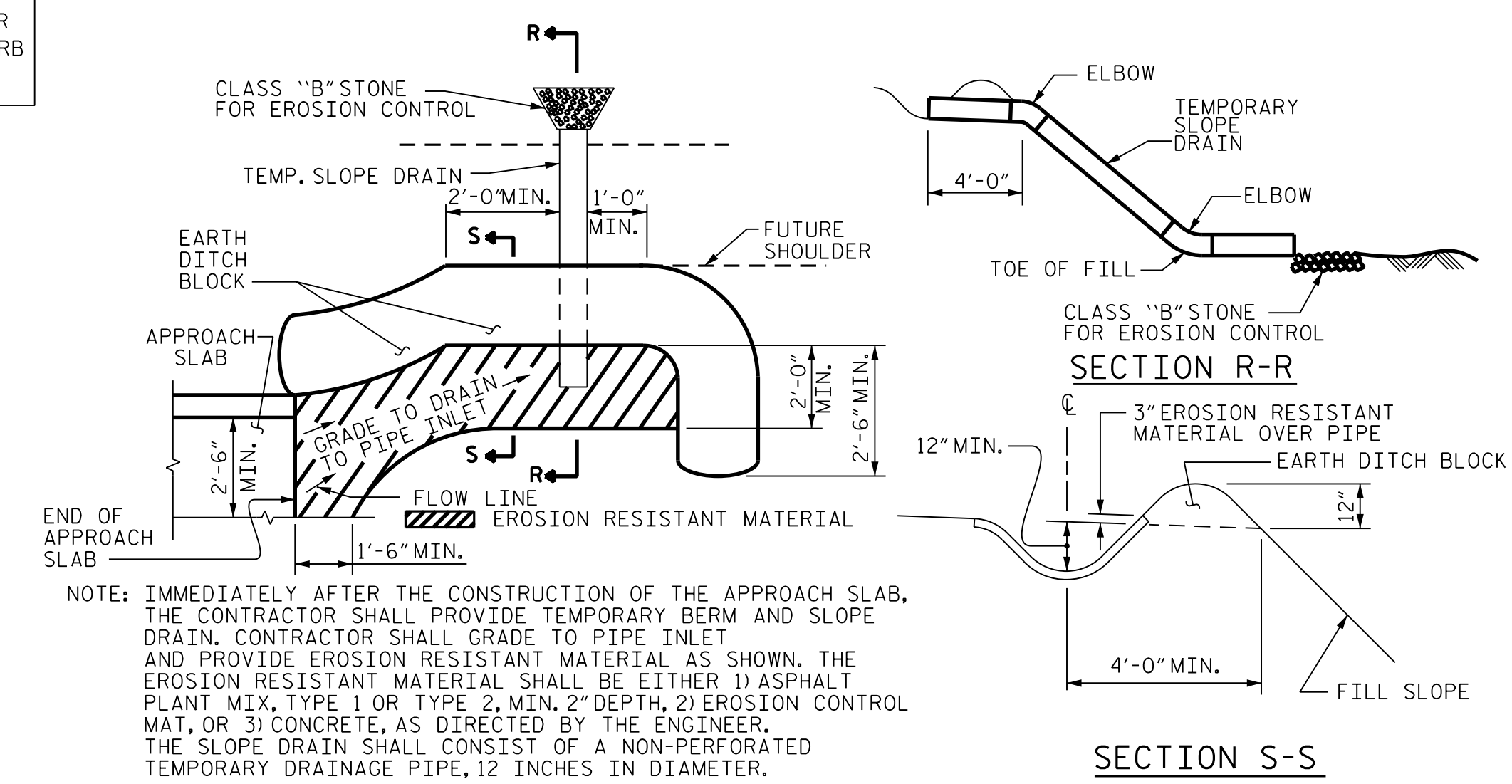
- (A) 2-#6B207 THRU #6B208 @ 6" CTS. (BOTTOM OF SLAB)
- (A) 2-#5B107 THRU #5B108 @ 6" CTS. (TOP OF SLAB)

- (B) 6-#6B201 THRU #6B206 @ 6" CTS. (BOTTOM OF SLAB)
- (B) 6-#5B101 THRU #5B106 @ 6" CTS. (TOP OF SLAB)

REFER TO PREVIOUS SHEET FOR APPROACH SLAB NOTES AND CURB DETAILS

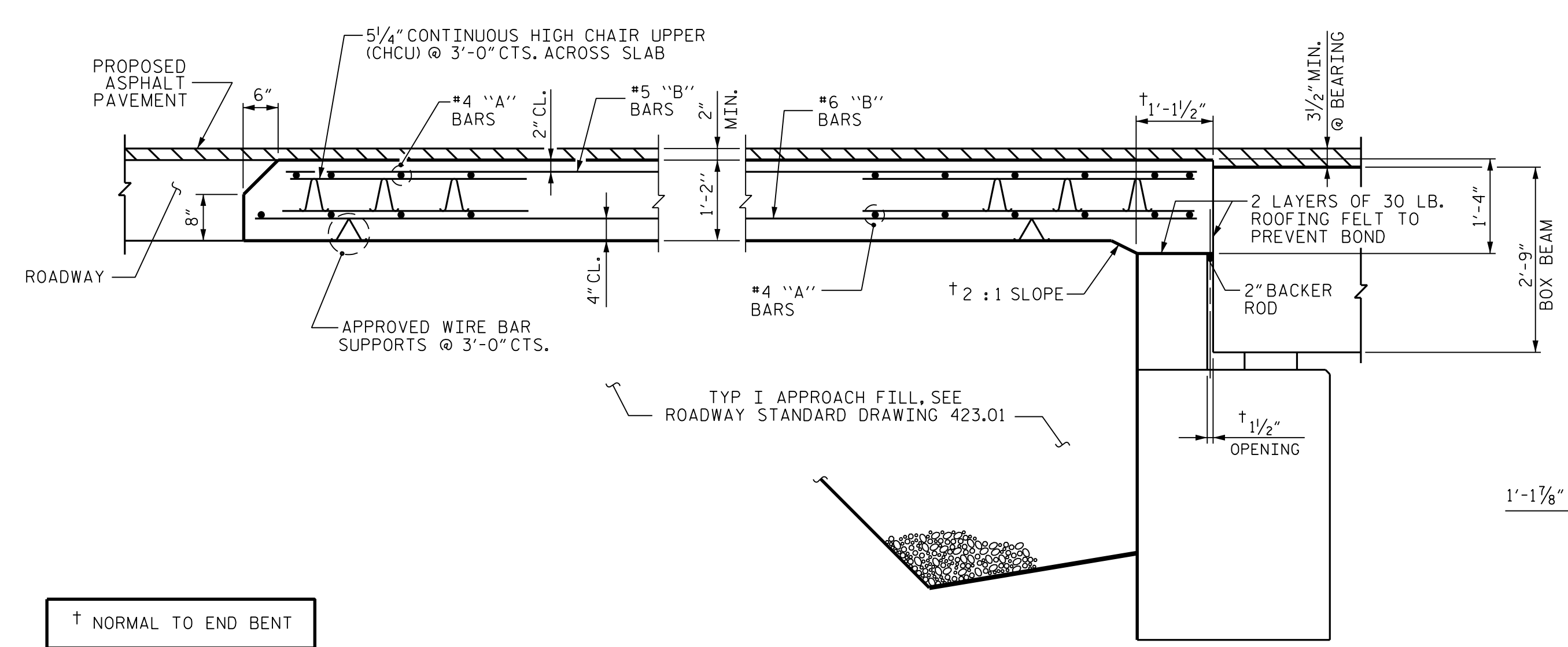


TEMPORARY DRAINAGE DETAIL

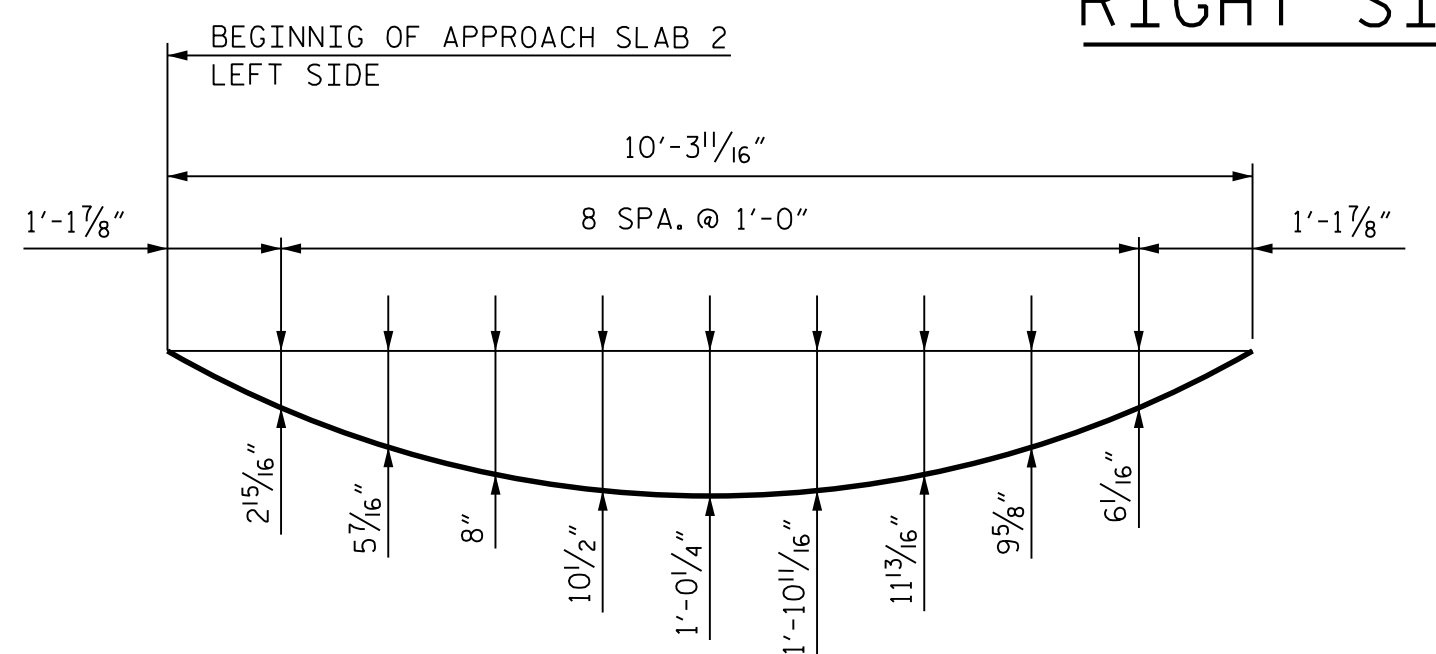


TEMPORARY BERM AND SLOPE DRAIN DETAILS

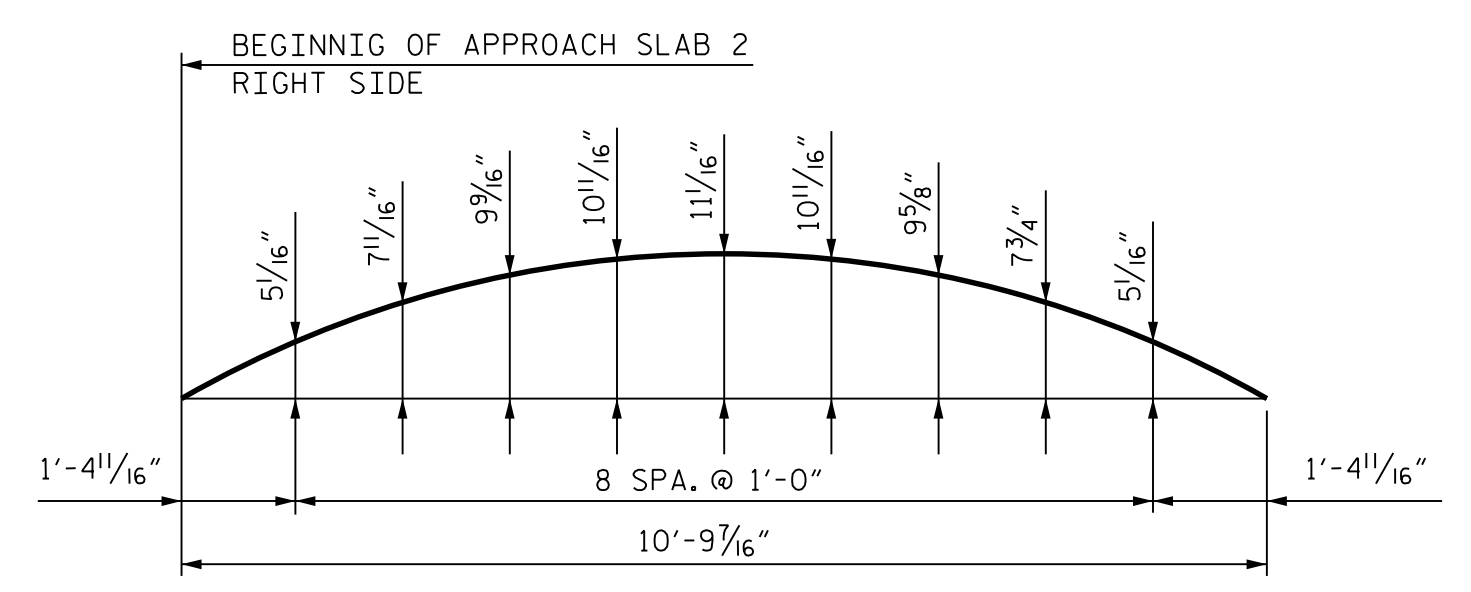
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION THRU SLAB



ARC OFFSETS ALONG LEFT SIDE OF APPROACH SLAB 2



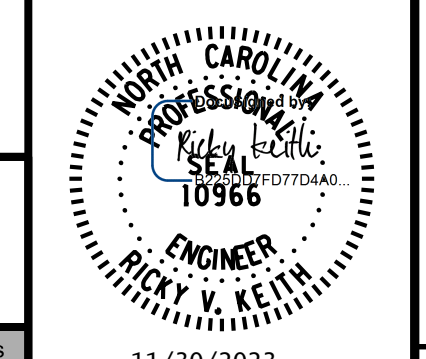
ARC OFFSETS ALONG RIGHT SIDE OF APPROACH SLAB 2

BILL OF MATERIAL					
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A100	2	#4	STR	28'-8"	38
*A101	1	#4	STR	28'-9"	19
*A102	1	#4	STR	28'-11"	19
*A103	1	#4	STR	29'-2"	19
*A104	1	#4	STR	29'-6"	20
*A105	1	#4	STR	30'-0"	20
*A106	1	#4	STR	30'-8"	20
*A107	1	#4	STR	31'-7"	21
*A108	1	#4	STR	32'-8"	22
*A109	1	#4	STR	34'-1"	23
*A110	1	#4	STR	33'-0"	22
*A111	1	#4	STR	31'-10"	21
*B100	58	#5	STR	11'-2"	676
*B101	1	#5	STR	2'-0"	4
*B102	1	#5	STR	3'-3"	3
*B103	1	#5	STR	4'-0"	4
*B104	1	#5	STR	5'-1"	5
*B105	1	#5	STR	6'-4"	7
*B106	1	#5	STR	7'-11"	8
*B107	1	#5	STR	4'-6"	5
*B108	1	#5	STR	2'-10"	3
*C1	4	#4	STR	2'-5"	6
A200	2	#4	STR	28'-8"	38
A201	1	#4	STR	28'-9"	19
A202	1	#4	STR	28'-11"	19
A203	1	#4	STR	29'-2"	19
A204	1	#4	STR	29'-6"	20
A205	1	#4	STR	30'-0"	20
A206	1	#4	STR	30'-8"	20
A207	1	#4	STR	31'-7"	21
A208	1	#4	STR	32'-8"	22
A209	1	#4	STR	34'-1"	23
A210	1	#4	STR	33'-0"	22
A211	1	#4	STR	30'-8"	20
B200	58	#6	STR	11'-8"	1016
B201	1	#6	STR	2'-0"	3
B202	1	#6	STR	3'-3"	5
B203	1	#6	STR	4'-6"	7
B204	1	#6	STR	5'-7"	8
B205	1	#6	STR	6'-10"	10
B206	1	#6	STR	8'-5"	13
B207	1	#6	STR	4'-6"	7
B208	1	#6	STR	2'-10"	4
C2	4	#4	STR	2'-5"	6
REINFORCING STEEL				LBS.	1342
* EPOXY COATED REINFORCING STEEL				LBS.	985
CLASS AA CONCRETE				C. Y.	16.7

PROJECT NO. 17BP.11.R.131
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SHEET 2 OF 2

BRIDGE NO. 040122



STATE OF NORTH CAROLINA
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 BRIDGE APPROACH SLAB No. 2
 FOR PRESTRESSED CONCRETE
 (SUB-REGIONAL TIER)
 90° SKEW

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RK&K
 P: (919) 878-9560
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DRAWN BY : B. H. GONFA DATE : APR 2021
 CHECKED BY : O. J. PAITEL DATE : APR 2021
 DESIGN ENGINEER OF RECORD : R. V. KEITH DATE : APR 2021

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

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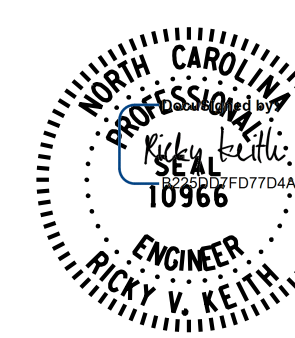
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