

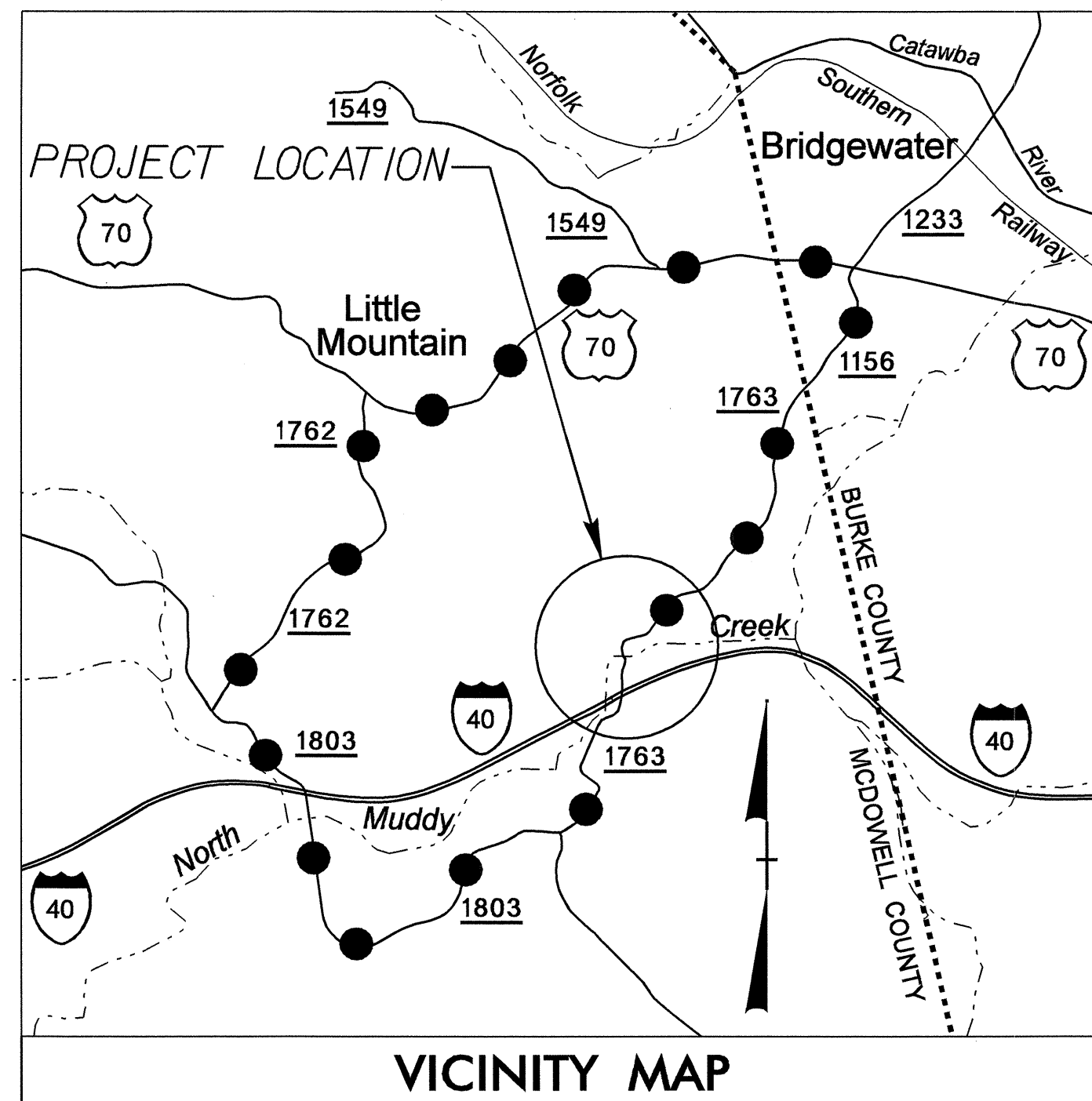
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3492		
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
33108.1.1	BRZ-1763(1)	PE	
33108.3.1	BRZ-1763(1)	RW & UTILITIES	
33108.2.2	BRZ-1763(1)	Construction	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

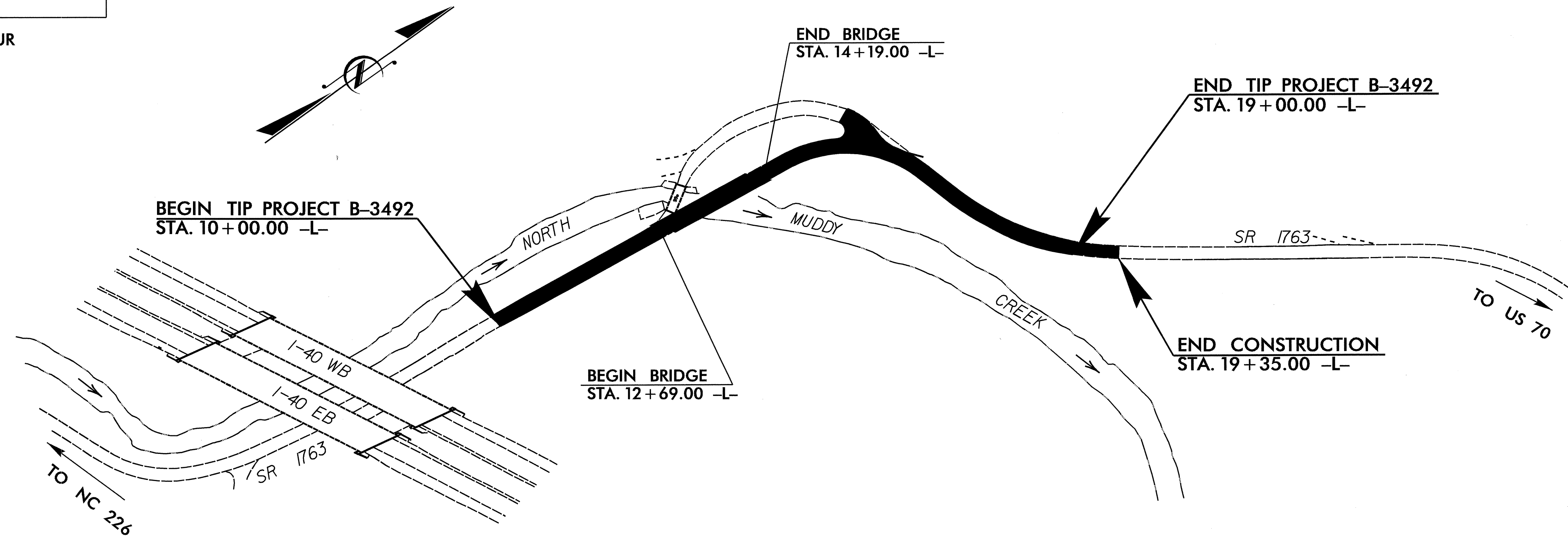
McDOWELL COUNTY

LOCATION: BRIDGE NO. 56 ON SR 1763 OVER NORTH MUDDY CREEK

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

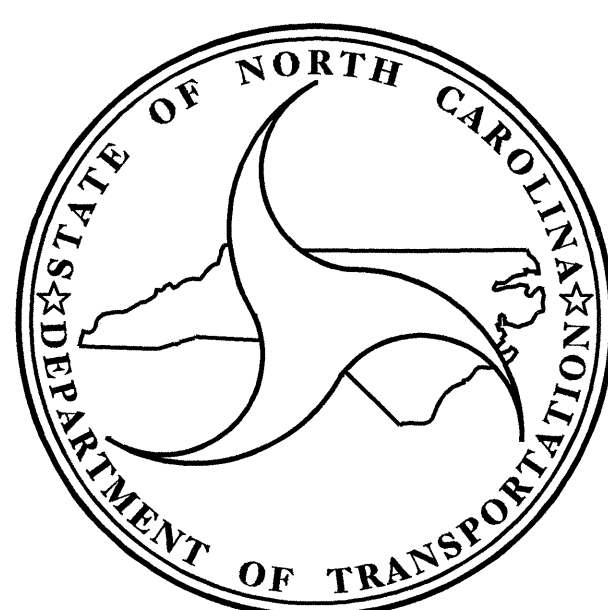


●●●●● OFF SITE DETOUR



STRUCTURE

** DESIGN EXCEPTION NEEDED FOR DESIGN SPEED



DESIGN DATA

ADT 2006 = 650 VPD
ADT 2030 = 1200 VPD
DHV = 10 %
D = 60 %
T = 10 % *
* * V = 25 MPH
* TTST 5% * DUAL 5%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3492 = 0.142 mi.
LENGTH STRUCTURE TIP PROJECT B-3492 = 0.028 mi.
TOTAL LENGTH TIP PROJECT B-3492 = 0.170 mi

Prepared In the Office of:

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

LETTING DATE:
JULY 15, 2008

B. C. Hunt, PE
PROJECT ENGINEER

V. A. Patel, PE
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, NC 27610

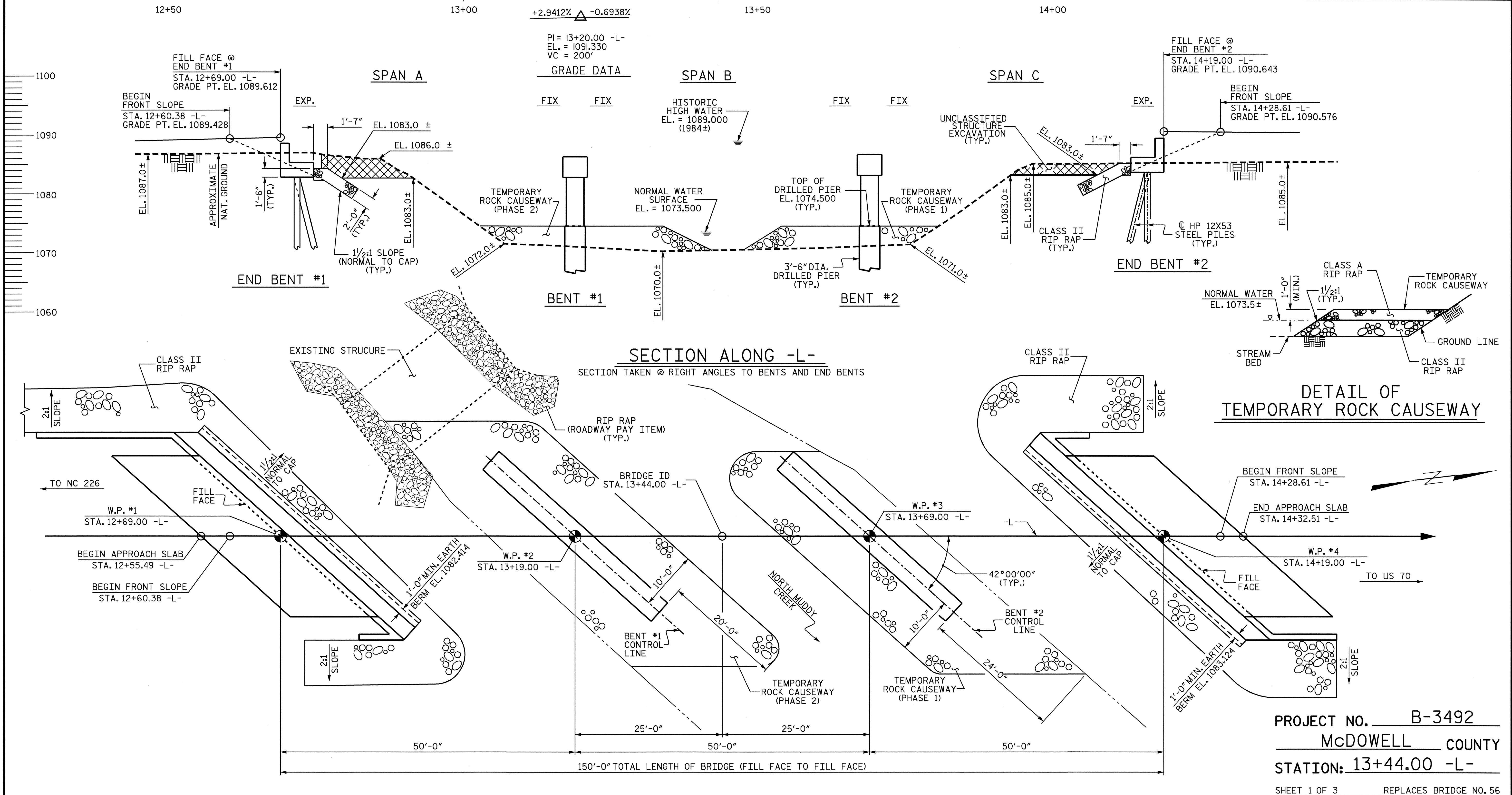
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

15-APR-2008 08:04
\$\$\$\$\$DGN\$\$\$\$\$
s.dombrowski

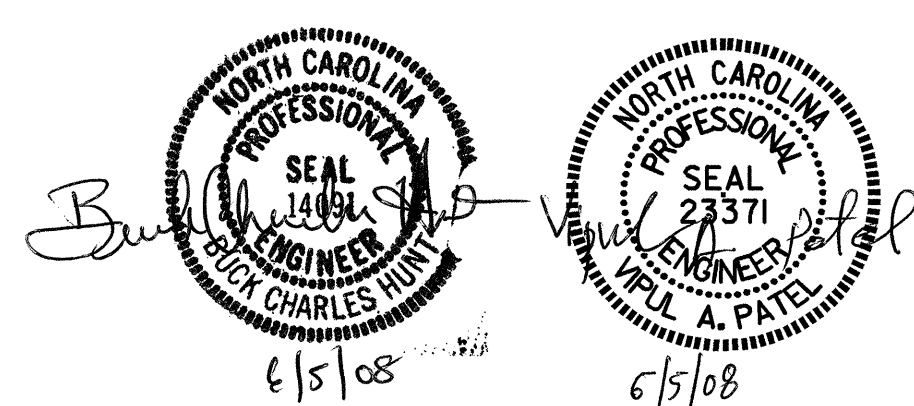
TIP PROJECT: B-3492

CONTRACT: C201867



DRAWN BY : S. DOMBROWSKI DATE : 9/07
 CHECKED BY : H. LOCKLEAR DATE : 2/08

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 sdombrowski

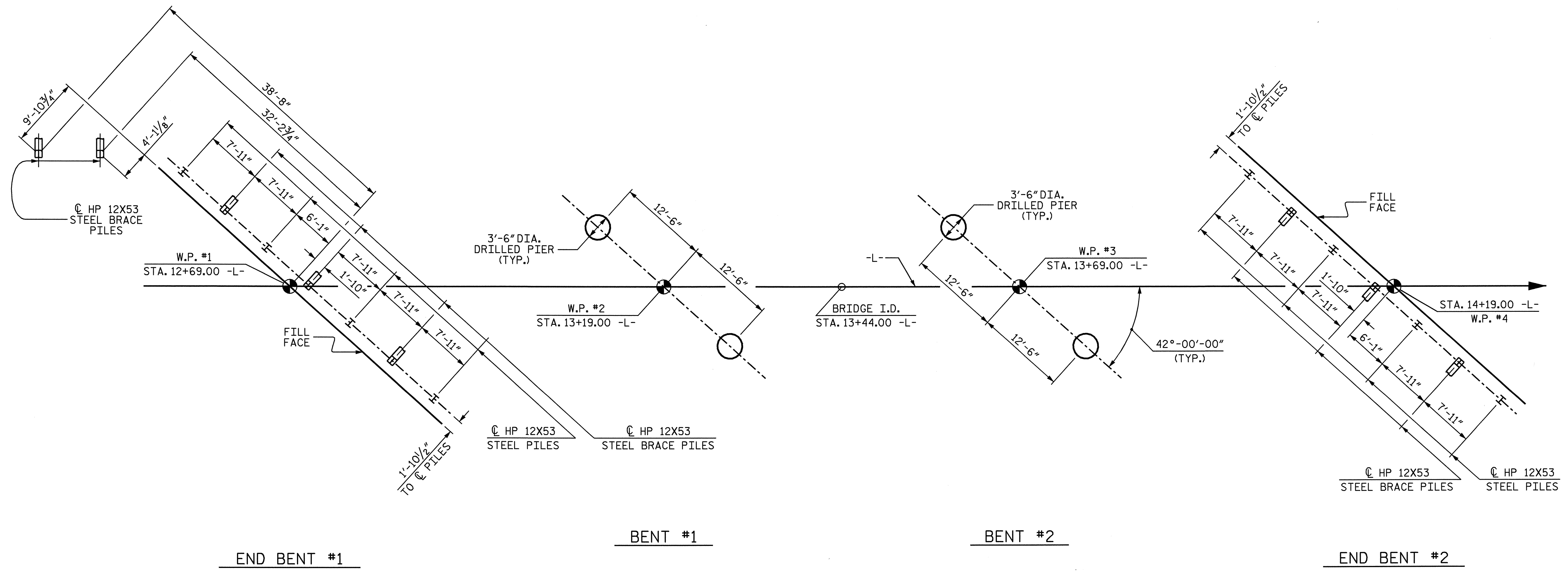


PROJECT NO. B-3492
 McDOWELL COUNTY
 STATION: 13+44.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 56

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE OVER NORTH MUDDY
 CREEK ON SR 1763 BETWEEN
 NC 226 & US 70

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



FOUNDATION LAYOUT

DIMENSIONS LOCATING DRILLED PIERS ARE TO DRILLED PIER CENTER.
 ALL PILES ARE HP 12X53.
 END BENT BRACE PILES ARE BATTERED 3:12.
 DIMENSIONS LOCATING PILES ARE TO THE CENTERLINE OF PILE.

NOTES

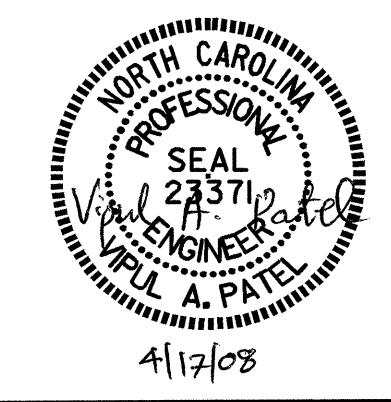
- THE DRILLED PIERS FOR BENTS #1 AND #2 HAVE BEEN DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 20 TSF.
- DRILLED PIERS FOR BENTS #1 AND #2 HAVE BEEN DESIGNED FOR AN APPLIED LOAD OF 317.6 KIPS EACH AT THE TOP OF THE COLUMN.
- DRILLED PIERS FOR BENT #1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 1046.000, AND BENT #2 NO HIGHER THAN 1049.000, AND SATISFY THE REQUIRED END BEARING CAPACITY.
- PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS AT BENTS #1 AND #2. FOR BENT #1, DO NOT EXTEND THE CASING BELOW EL. 1055.000 AND BENT #2 EL. 1058.000 WITHOUT PRIOR APPROVAL FROM THE ENGINEER. SEE DRILLED PIERS SPECIAL PROVISION.
- FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISION.
- THE SCOUR CRITICAL ELEVATION FOR BENT #1 IS EL. 1054.000 AND FOR BENT #2 IS EL. 1057.000. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
- SPT TESTING IS NOT REQUIRED TO DETERMINE THE END BEARING CAPACITY OF THE DRILLED PIERS AT BENTS #1 AND #2.
- DO NOT USE SLURRY CONSTRUCTION FOR DRILLED PIERS AT BENTS #1 AND #2.
- SID INSPECTIONS MAY BE REQUIRED TO INSPECT THE BOTTOM CLEANLINESS OF THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. SEE DRILLED PIERS SPECIAL PROVISION.
- CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. SEE CROSSHOLE SONIC LOGGING SPECIAL PROVISION.
- DRIVE PILES FOR END BENTS #1 AND #2 TO A REQUIRED BEARING CAPACITY OF 100 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.
- THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENTS #1 AND #2 IS 50 TONS PER PILE.

PROJECT NO. B-3492
McDOWELL COUNTY
 STATION: 13+44.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

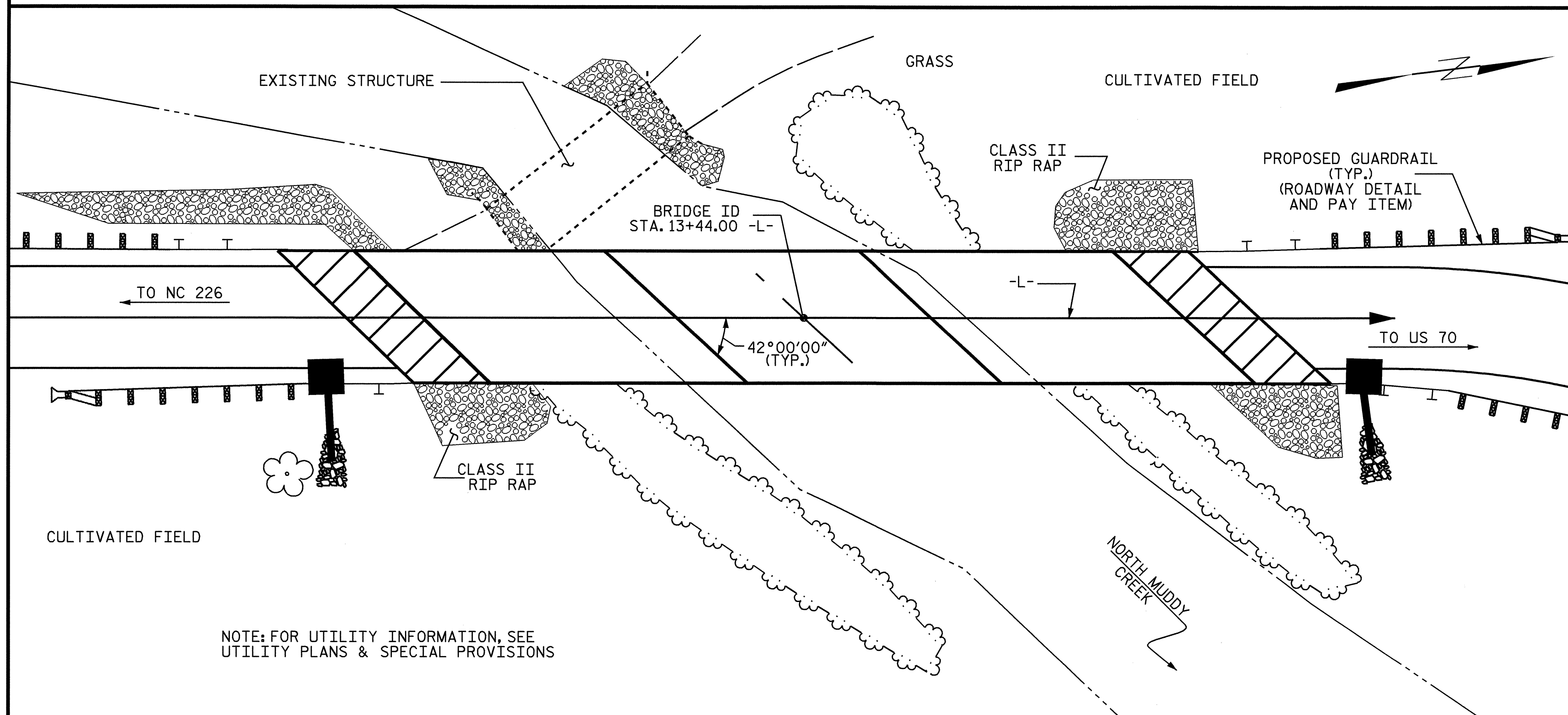
GENERAL DRAWING
 FOR BRIDGE OVER NORTH MUDDY CREEK ON SR 1763 BETWEEN NC 226 & US 70



DRAWN BY : S. DOMBROWSKI DATE : 9/07
 CHECKED BY : H. LOCKLEAR DATE : 2/08

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

BENCH MARK #2: R.R. SPIKE SET IN 22" WHITE OAK @ STA. 15+12.44 -L-, 271.42' LT., EL. 1093.870



NOTE: FOR UTILITY INFORMATION, SEE UTILITY PLANS & SPECIAL PROVISIONS

LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING, EXCEPT THAT THE GIRDERS HAVE BEEN DESIGNED FOR HS 25.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

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.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 402-3 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN OF 7 LINES OF 18" I-BEAMS (40'-3") WITH A CLEAR ROADWAY WIDTH OF 13'-5" AND HAVING A TIMBER DECK WITH ASPHALT WEARING SURFACE ON TIMBER PILES ON TIMBER CAPS AND LOCATED IMMEDIATELY UPSTREAM SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

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

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

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.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, 'EVALUATING SCOUR AT BRIDGES', MAY, 2001.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY B.

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.

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 13+44.00 -L-.'

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 13+44.00 -L-.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE = 2300 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 2 YR.
 DESIGN HIGH WATER ELEVATION = 1082.970
 DRAINAGE AREA = 57.0 SQ.MI.
 BASIC DISCHARGE (Q100) = 9300 C.F.S.
 BASIC HIGH WATER ELEVATION = 1090.060

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 3700 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = 5 YR.
 OVERTOPPING FLOOD ELEVATION = 1086.090

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	3'-6" DIA. DRILLED PIERS IN SOIL	3'-6" DIA. DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-6" DIA. DRILLED PIER	SID INSPECTION	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS
	LUMP SUM	LUMP SUM	LIN.FT.	LIN.FT.	LIN.FT.	EACH	EACH	LUMP SUM	SQ.FT.	SQ.FT.
SUPERSTRUCTURE								LUMP SUM	4,296	3,966
END BENT #1										
BENT #1			39.0	18.0	39.0		1			
BENT #2			36.0	15.0	33.0	1	1			
END BENT #2										
TOTAL	LUMP SUM	LUMP SUM	75.0	33.0	72.0	1	2	LUMP SUM	4,296	3,966

TOTAL BILL OF MATERIAL

	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	36" PRESTRESSED CONCRETE GIRDERS	HP 12X53 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS
	CU.YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN.FT.	LIN.FT.	TONS	SQ.YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE					12	569.33	293.77			LUMP SUM	LUMP SUM
END BENT #1	33.1		4,368			9	225	285	320		
BENT #1	21.8		6,595	1,595							
BENT #2	22.4		6,370	1,482							
END BENT #2	28.4		4,132			7	175	224	250		
TOTAL	105.7	LUMP SUM	21,465	3,077	12	569.33	16	400	293.77	509	570

DRAWN BY : S. DOMBROWSKI DATE : 9/07
 CHECKED BY : H. LOCKLEAR DATE : 2/08

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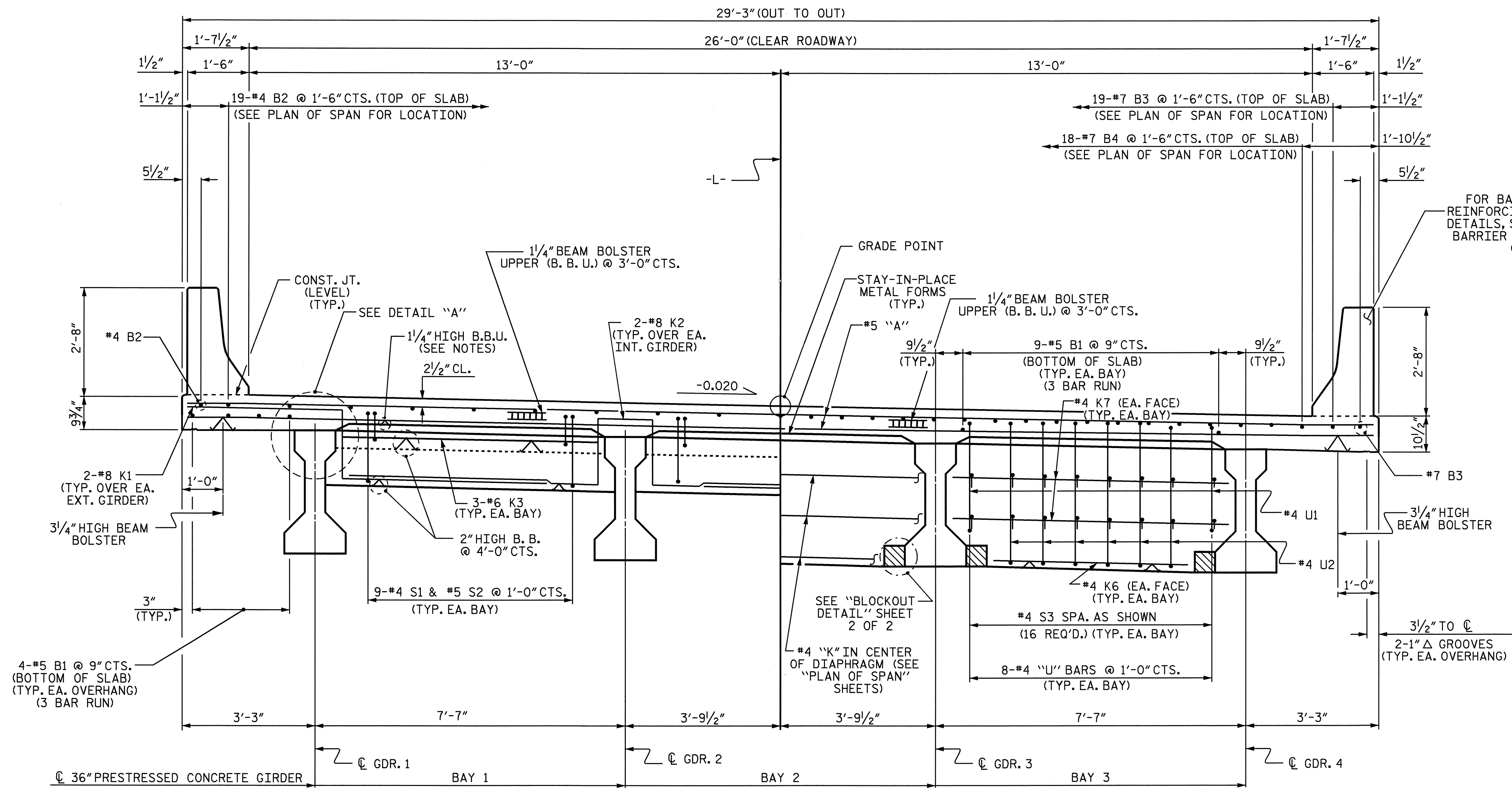
PROJECT NO. B-3492
 McDOWELL COUNTY
 STATION: 13+44.00 -L-

SHEET 3 OF 3

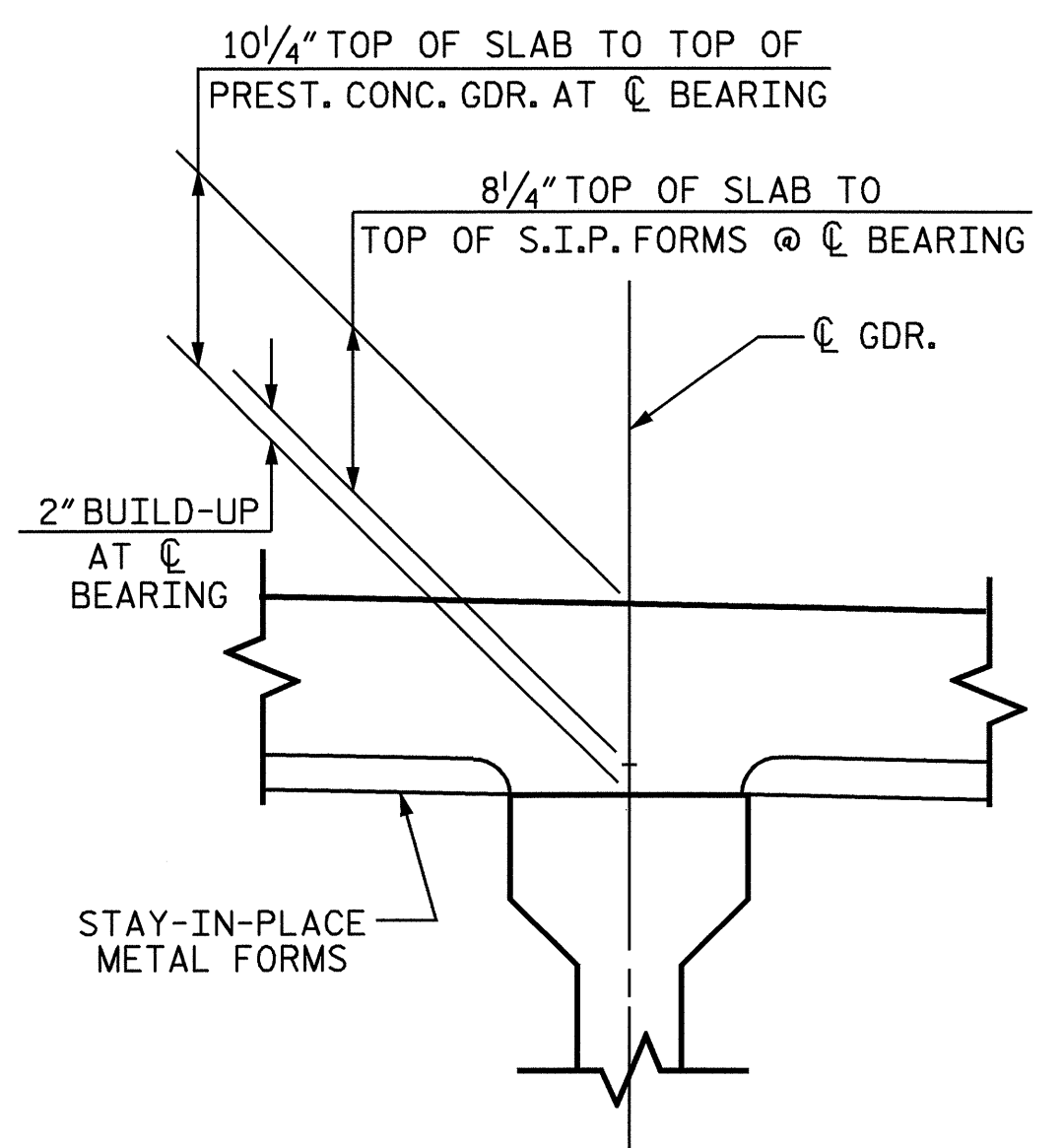
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER NORTH MUDDY
 CREEK ON SR 1763 BETWEEN
 NC 226 & US 70

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



FOR BARRIER RAIL REINFORCING STEEL AND DETAILS, SEE "CONCRETE BARRIER RAIL" SHEETS (TYP.)

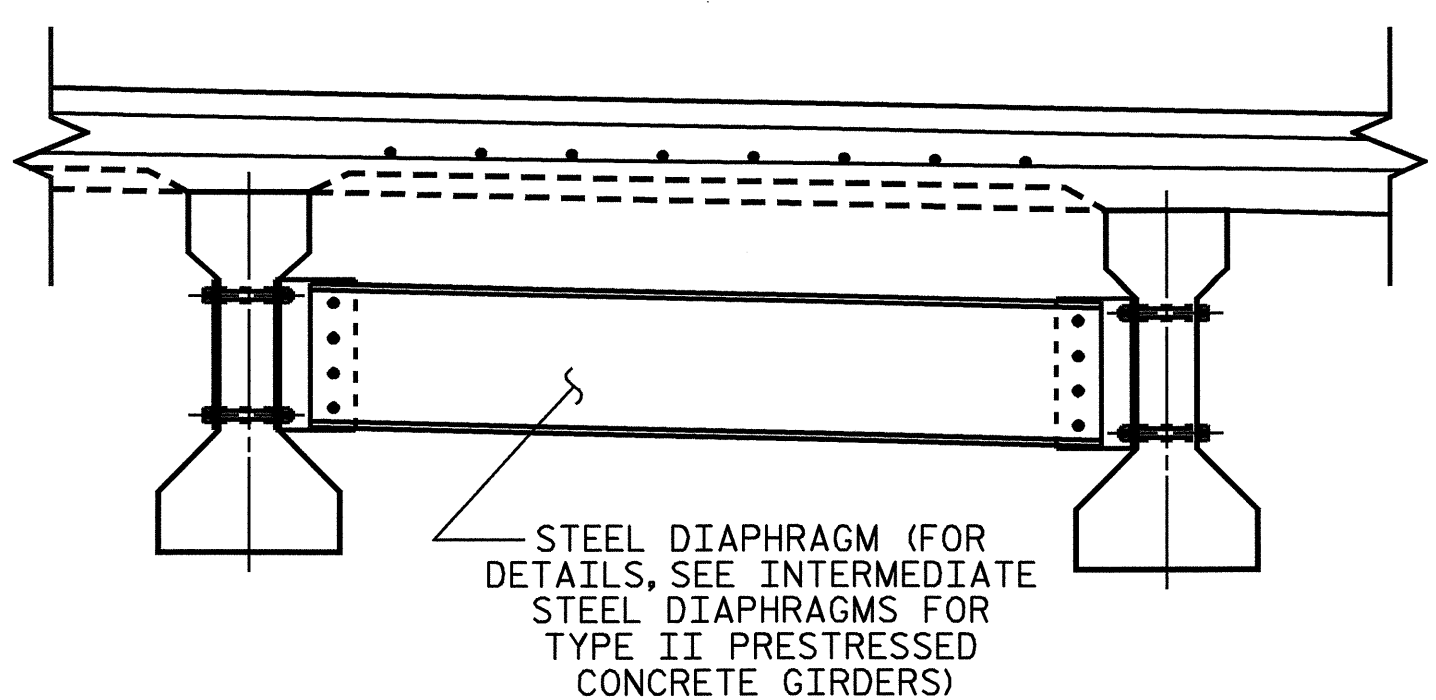


DETAIL "A"

TYPICAL HALF-SECTION AT END BENTS

TYPICAL HALF-SECTION AT BENTS

TYPICAL SECTION



INTERMEDIATE DIAPHRAGM

PROJECT NO. B-3492
McDOWELL COUNTY
 STATION: 13+44.00 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION

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

DRAWN BY: R. G. EMERSON DATE: 09/06
 CHECKED BY: J. P. ADAMS DATE: 09/21/06

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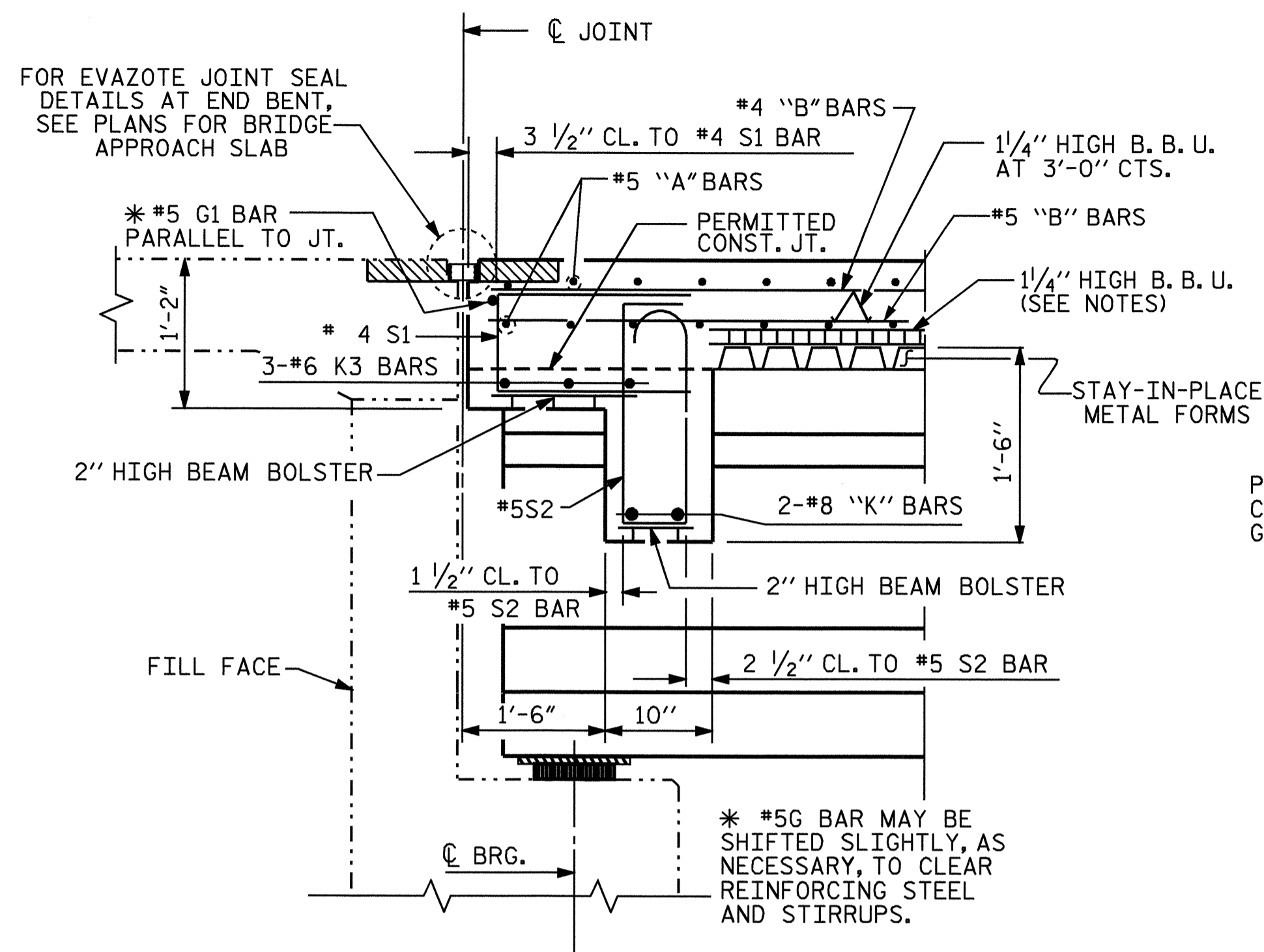
NOTES

PROVIDE 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.

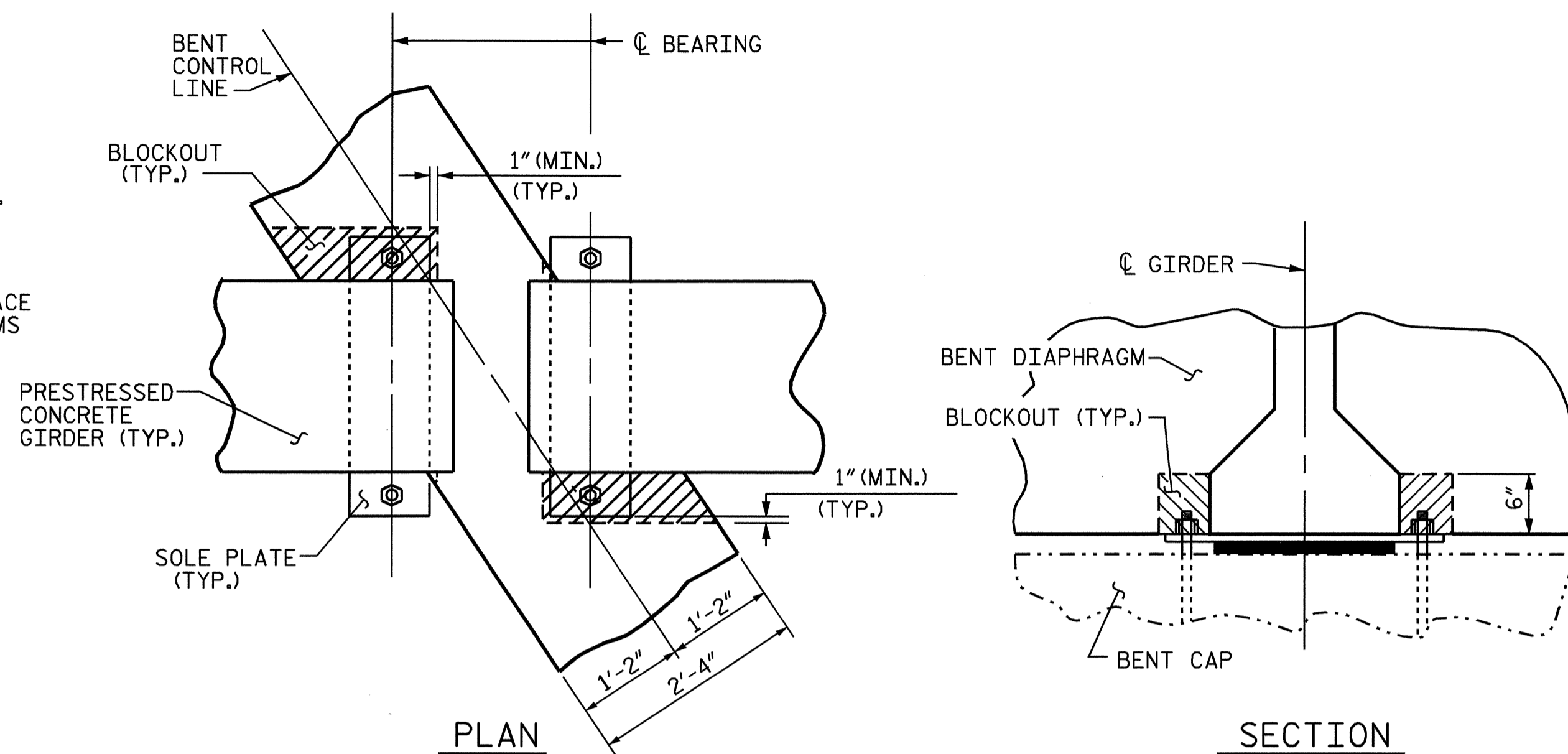
LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

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

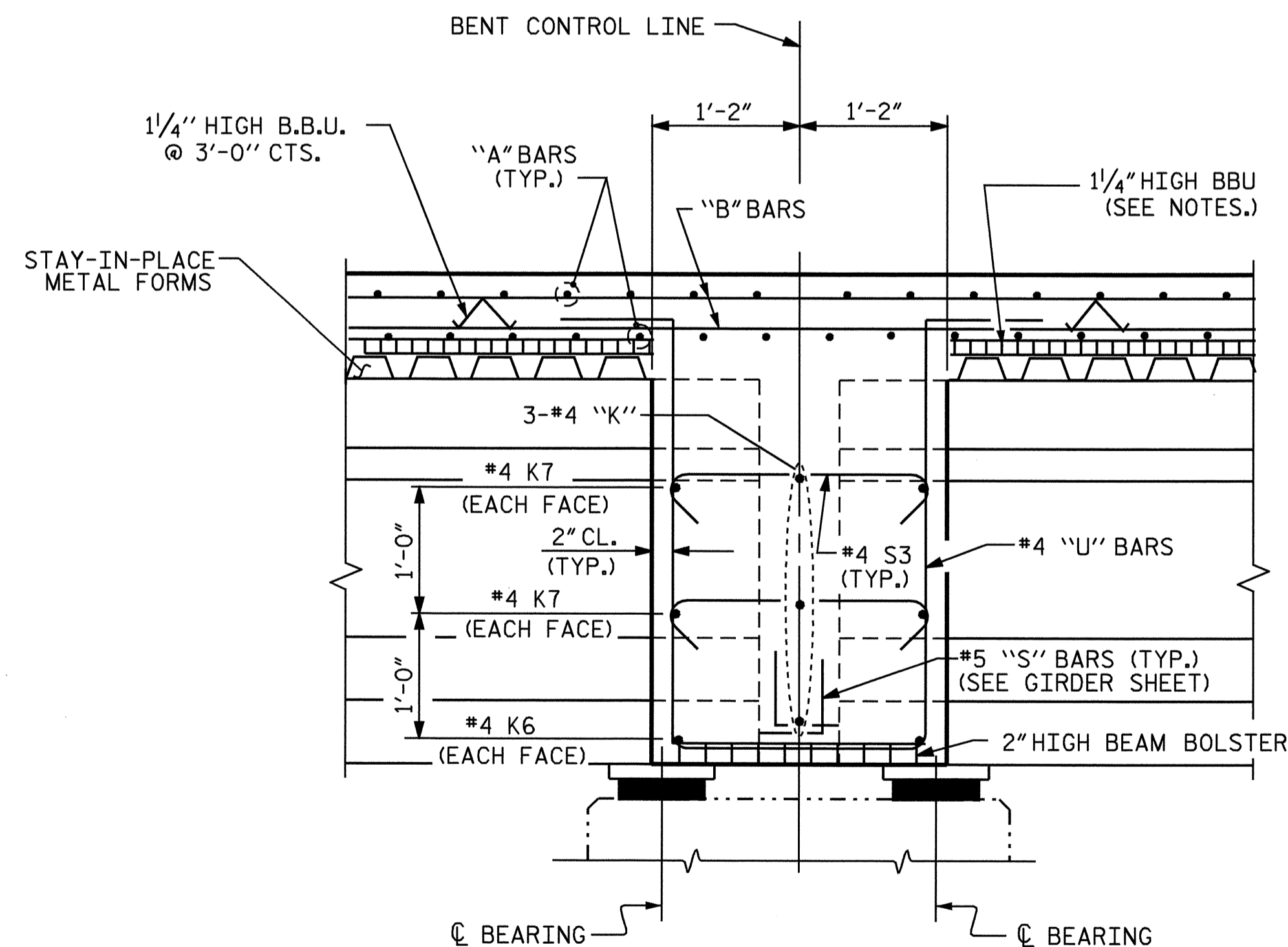
BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.



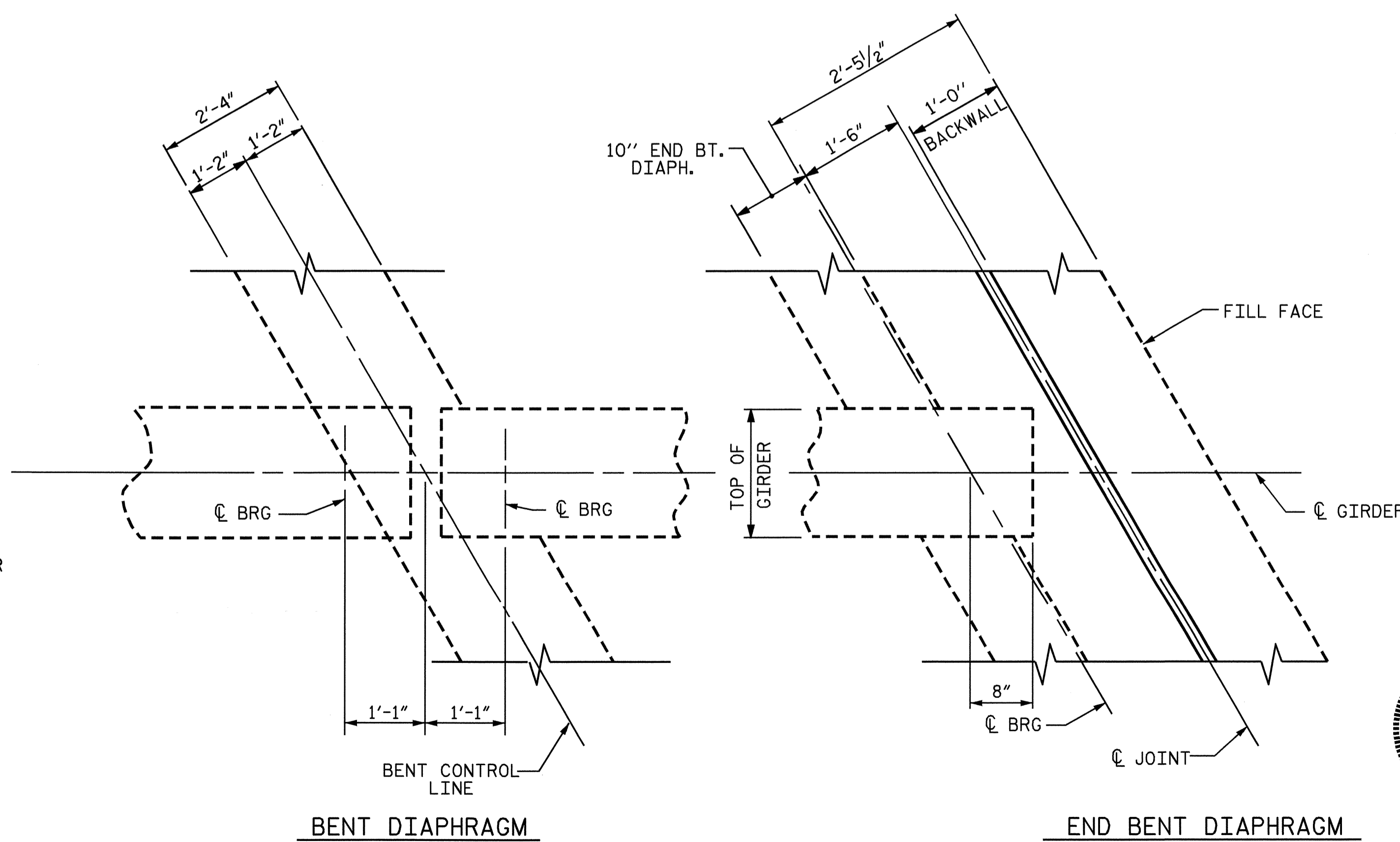
SECTION THRU END BENT DIAPHRAGM



BENT DIAPHRAGM BLOCK-OUT DETAIL



SECTION THRU BENT DIAPHRAGM



PLAN

PROJECT NO. B-3942
 McDOWELL COUNTY
 STATION: 13+44.00 -L-

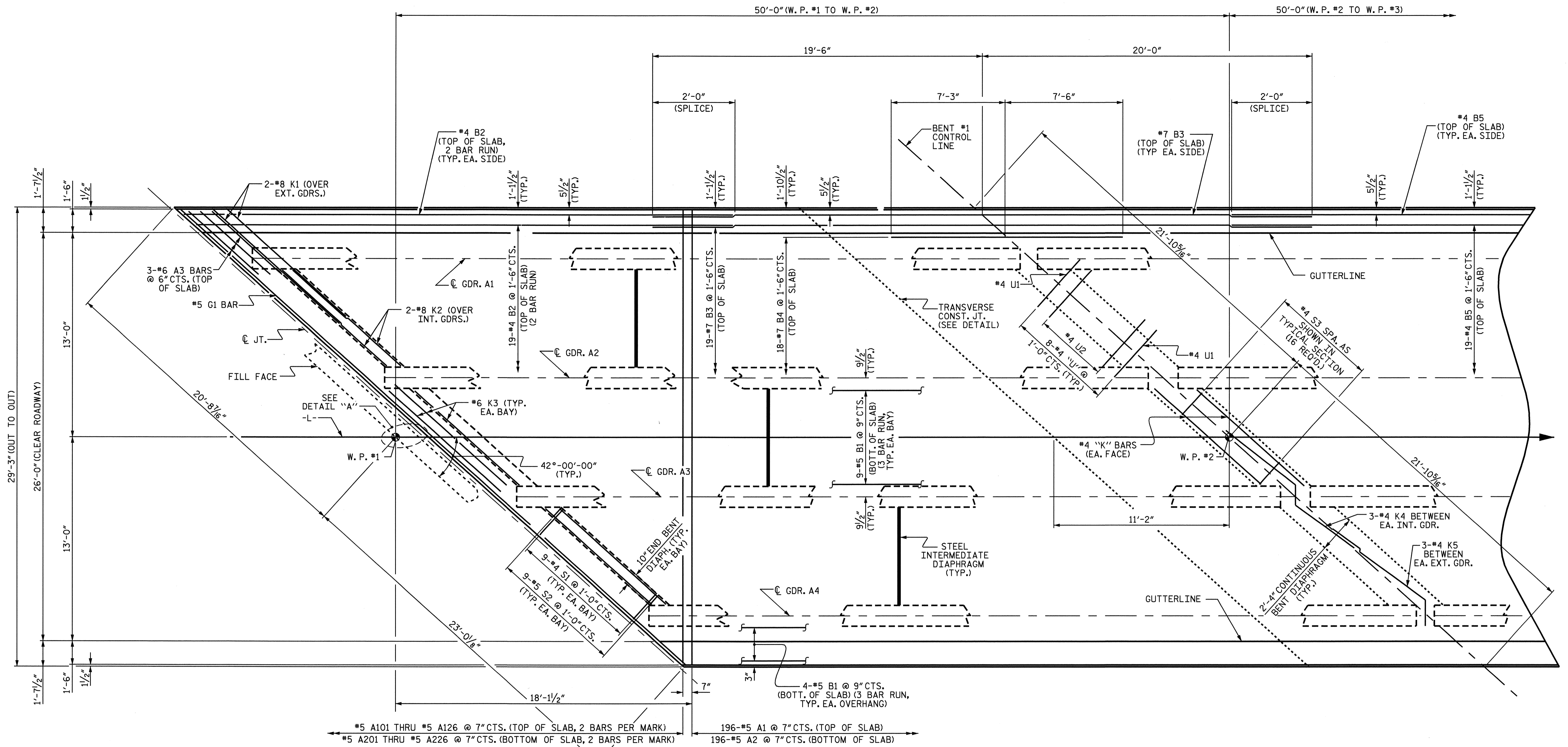
SHEET 2 OF 2



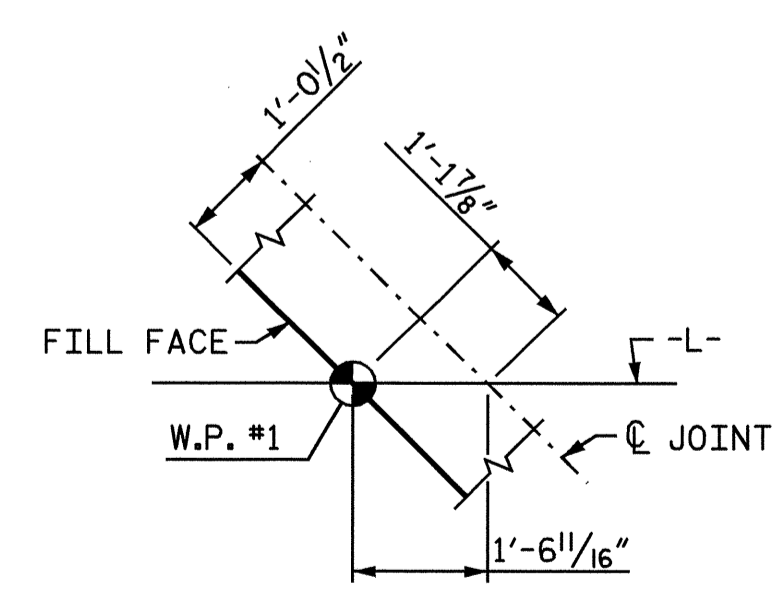
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION

DRAWN BY: R. G. EMERSON DATE: 09/06
 CHECKED BY: J. P. ADAMS DATE: 09/06

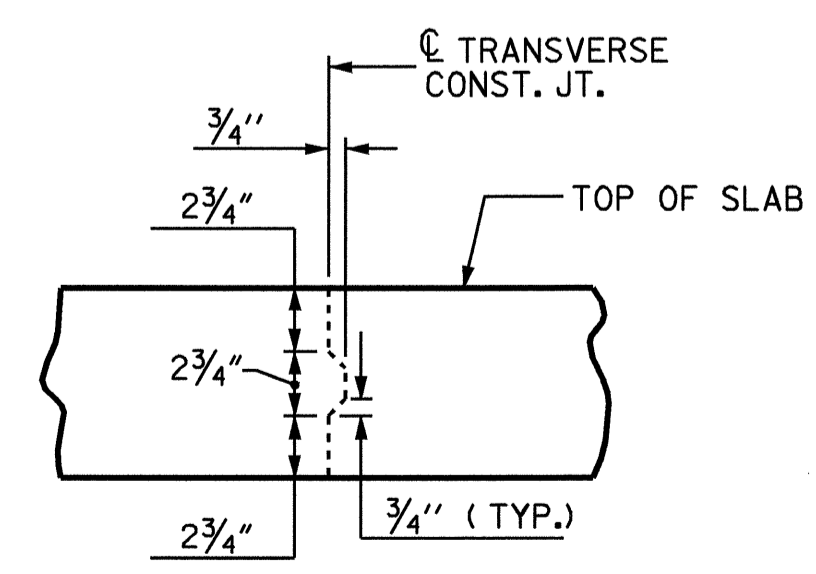
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5	
1			3			TOTAL SHEETS	
2			4			30	



PLAN OF SPAN A



DETAIL "A"

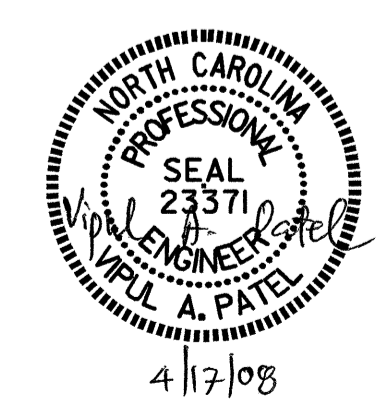


TRANSVERSE CONSTRUCTION JOINT DETAIL

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

PROJECT NO. B-3492
McDOWELL COUNTY
 STATION: 13+44.00 -L-

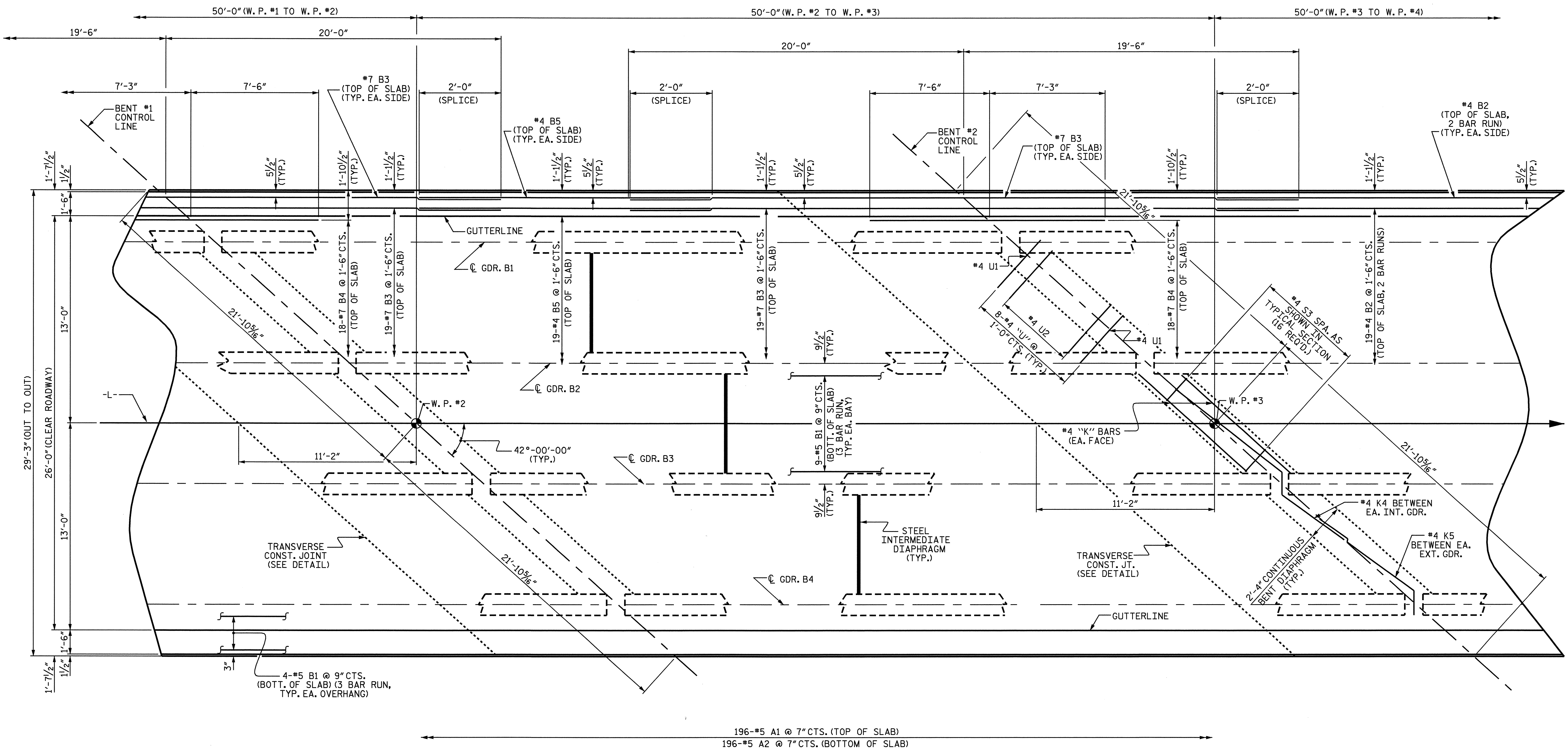
SHEET 1 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN A

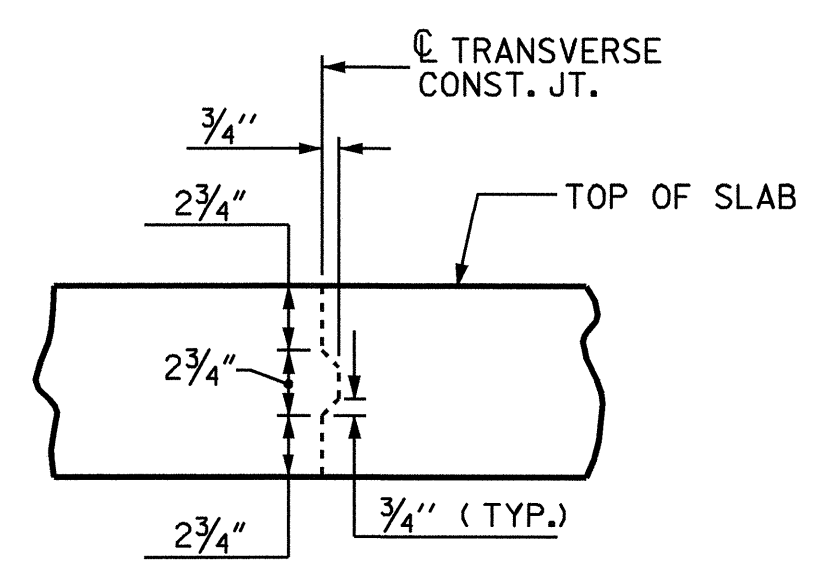
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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6	
1			3			TOTAL SHEETS	
2			4			30	



29'-3" (OUT TO OUT)
26'-0" (CLEAR ROADWAY)

196-#5 A1 @ 7" CTS. (TOP OF SLAB)
196-#5 A2 @ 7" CTS. (BOTTOM OF SLAB)



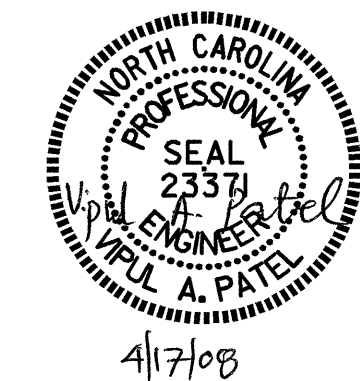
PLAN OF SPAN B

TRANSVERSE CONSTRUCTION JOINT DETAIL

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

PROJECT NO. B-3492
McDOWELL COUNTY
STATION: 13+44.00 -L-

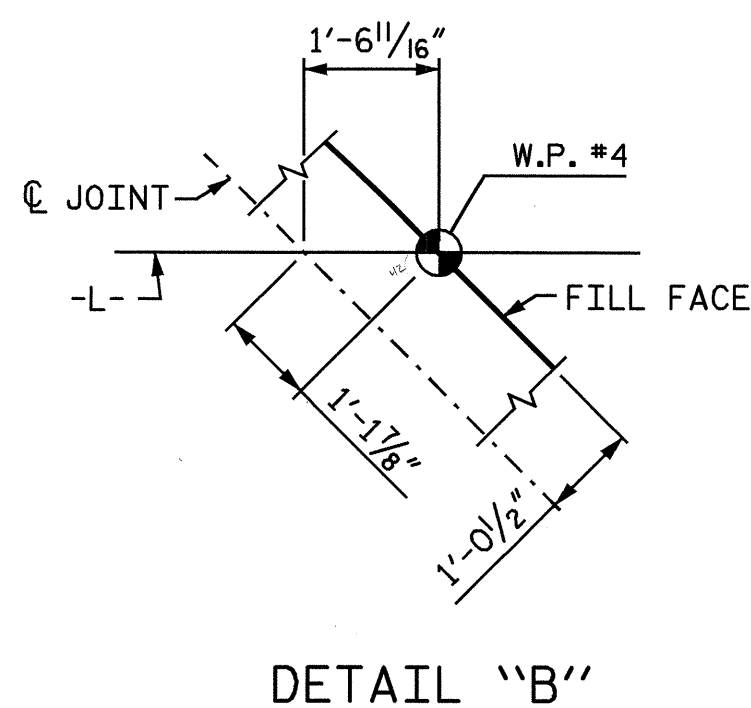
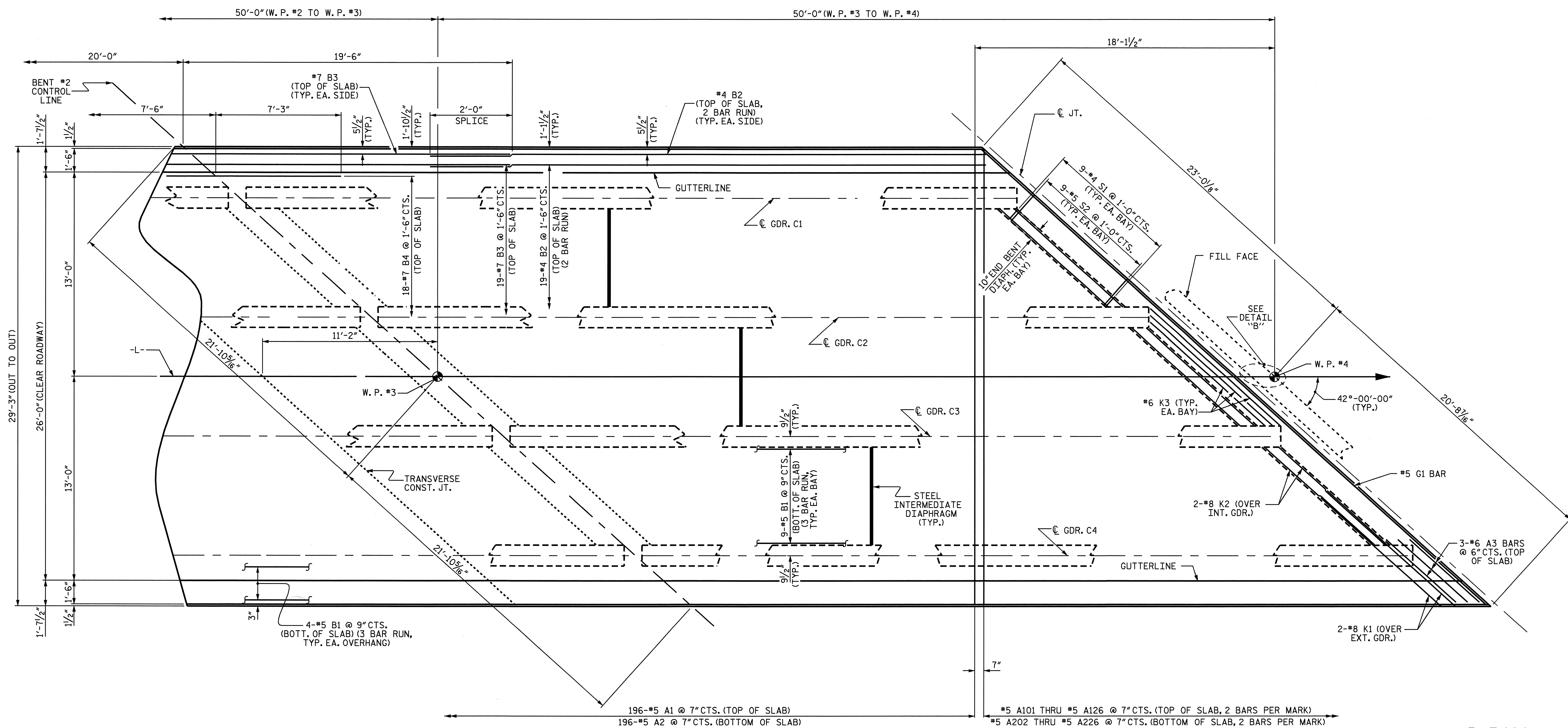
SHEET 2 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN B

DRAWN BY: R. G. EMERSON DATE: 09/06
CHECKED BY: J. P. ADAMS DATE: 09/06

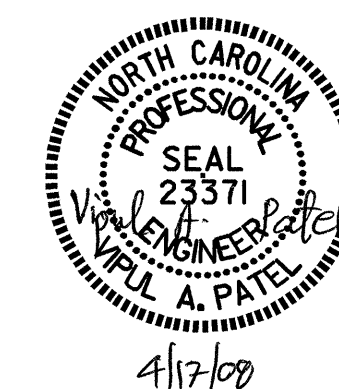
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-7
					TOTAL SHEETS
					30



PLAN OF SPAN C

PROJECT NO. B-3492
 McDOWELL COUNTY
 STATION: 13+44.00 -L-

SHEET 3 OF 3

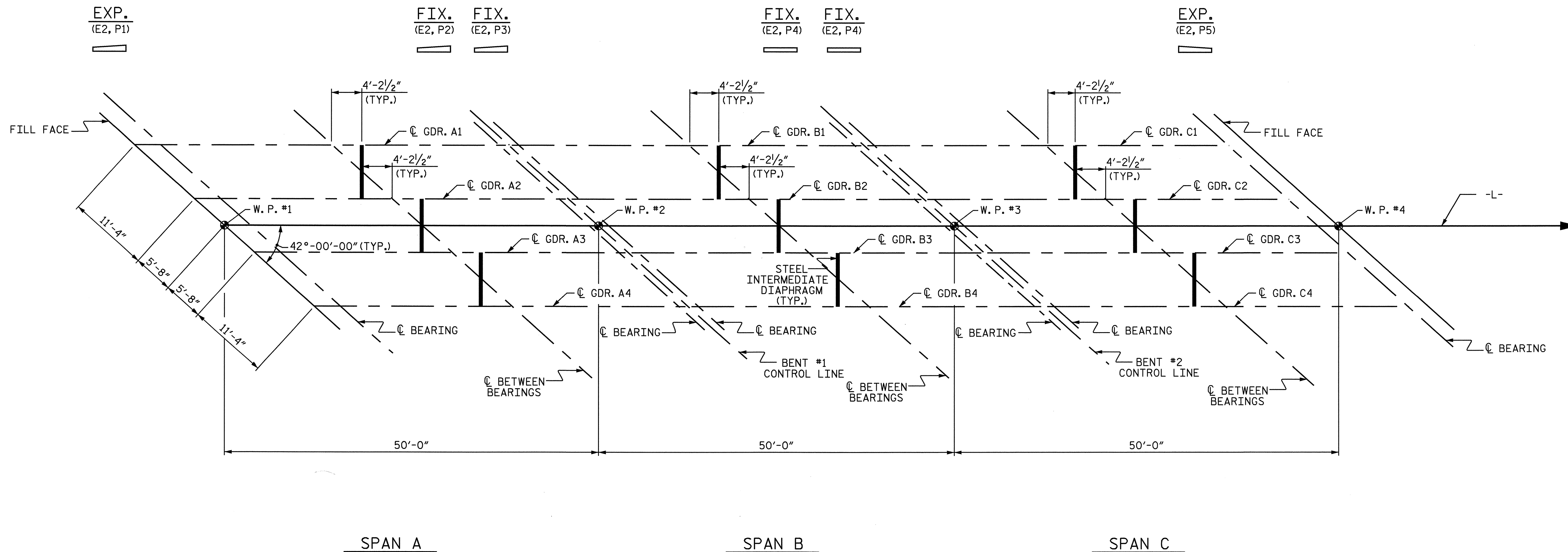


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN C

DRAWN BY: R. G. EMERSON DATE: 09/06
 CHECKED BY: J. P. ADAMS DATE: 09/06

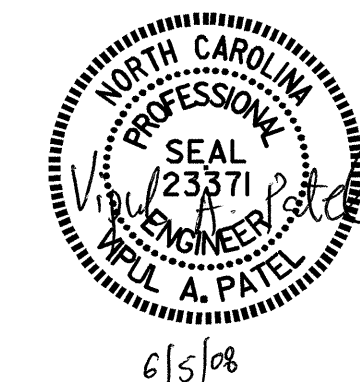
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 sdombrowski

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			30



GIRDER LAYOUT

PROJECT NO. B-3492
13+44.00 -L- COUNTY
 STATION: MCDOWELL

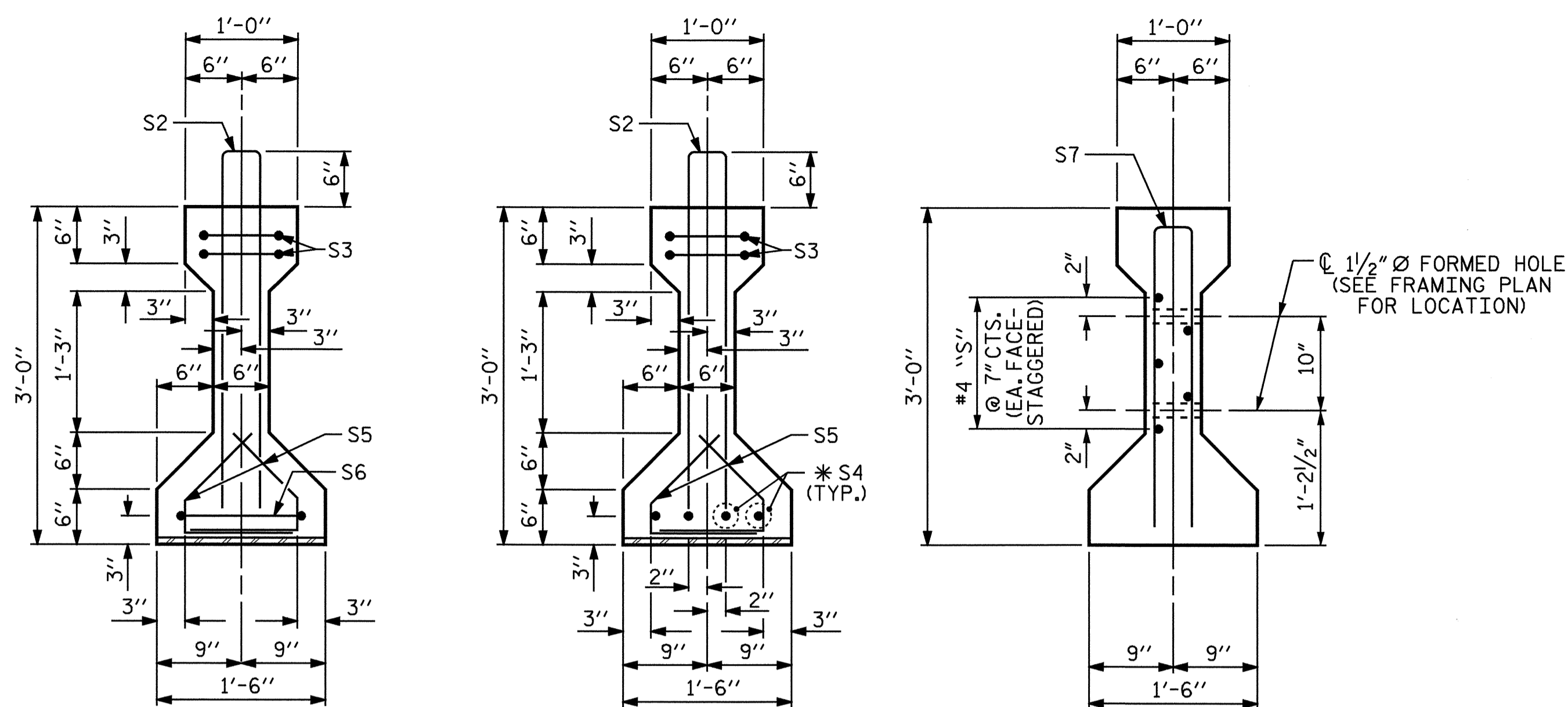


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 GIRDER LAYOUT

DRAWN BY : R. G. EMERSON DATE : 09/06
 CHECKED BY : J. P. A. DATE : 09/22/06

05-JUN-2008 09:22
 F:\structures\b-3492\plans\b3492_sd.fp.dgn
 sdombrowski

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			30

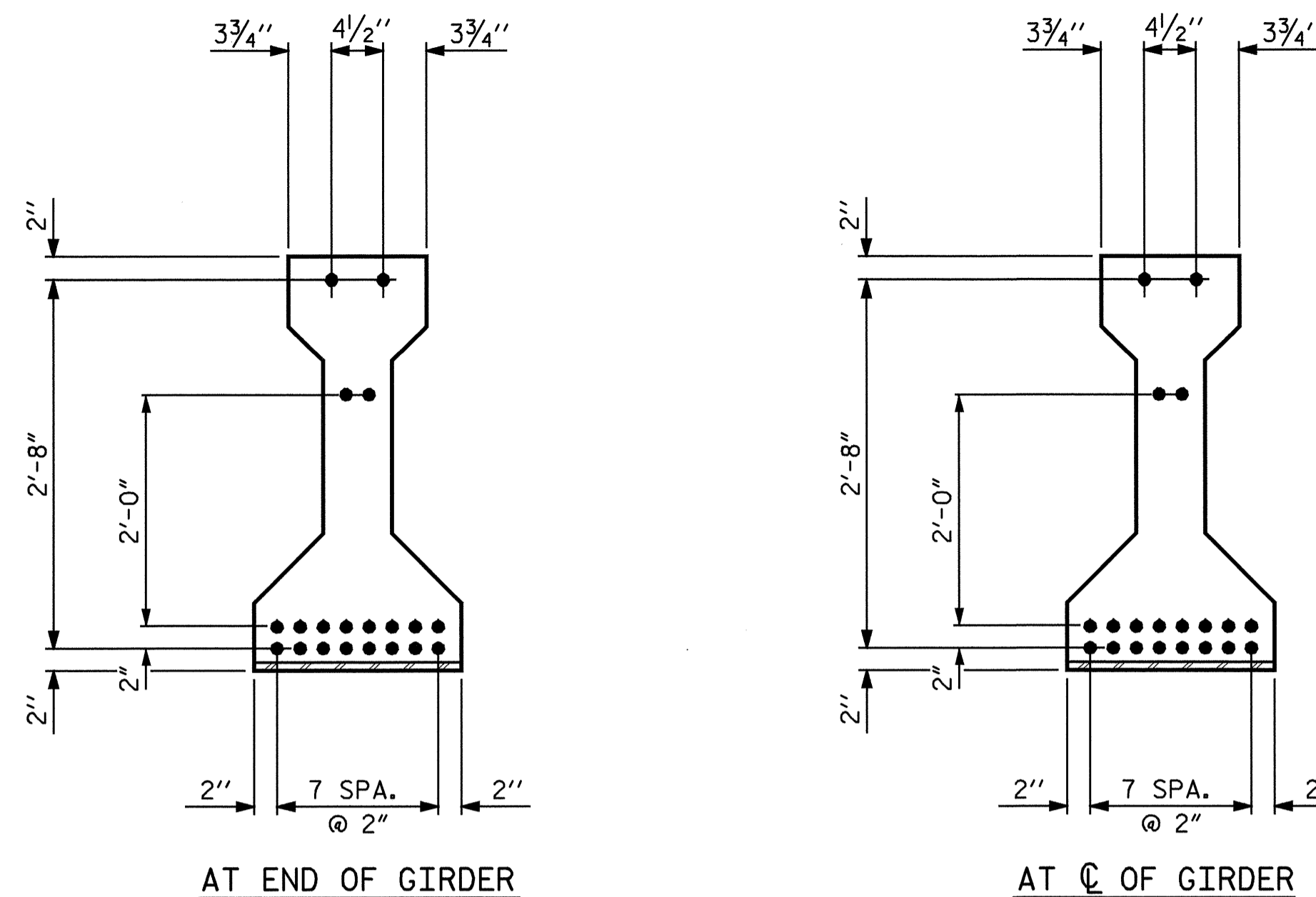


SECTION A-A

SECTION B-B

SECTION C-C

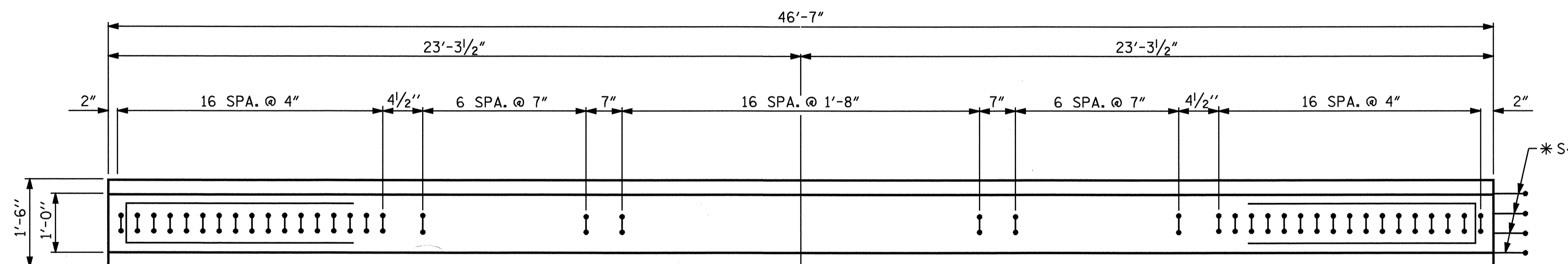
(S1 BARS NOT SHOWN)



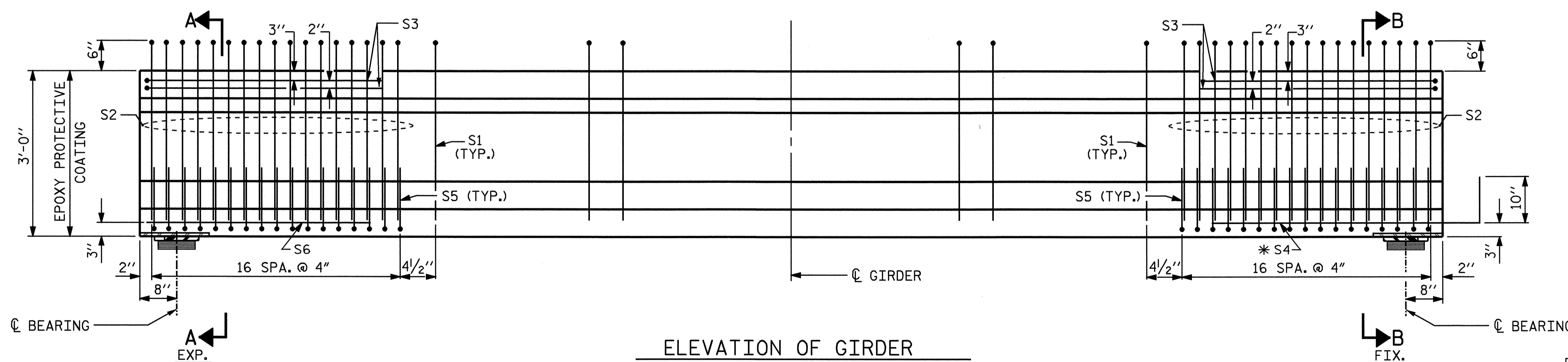
AT END OF GIRDER

AT C OF GIRDER

1/2" Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER

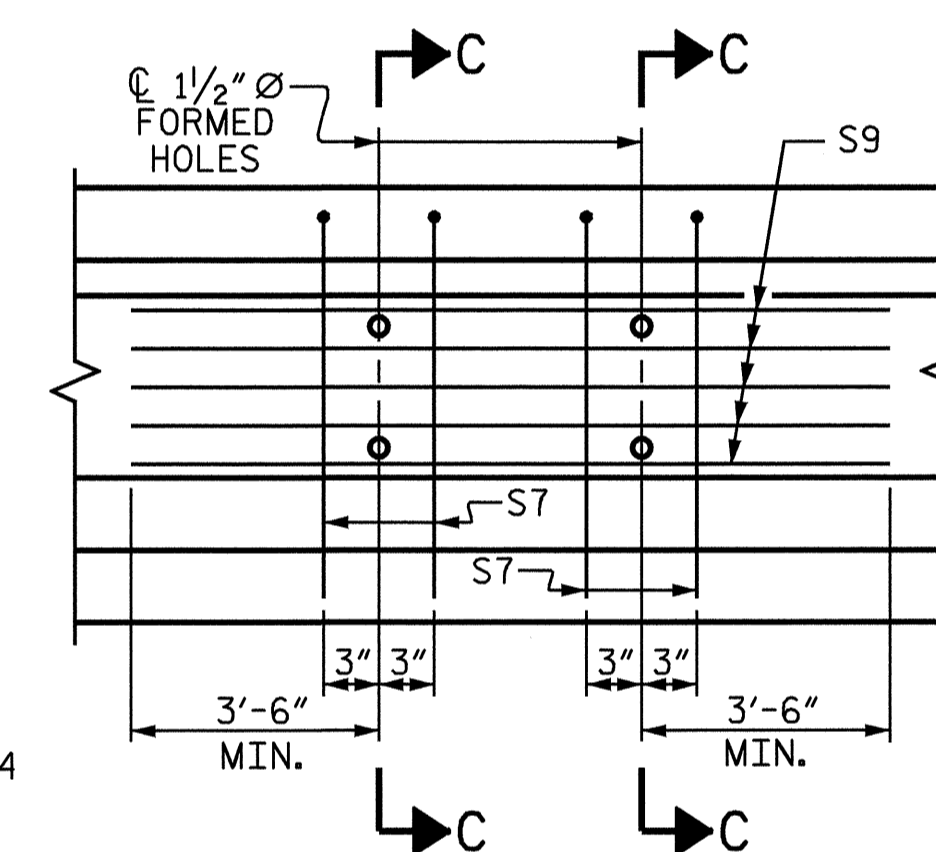


ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

SHOWING END BENT #1 OR END BENT #2

SHOWING BENT #1 OR BENT #2



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR INTERIOR GIRDERS

PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR EXTERIOR GIRDERS

1/2" Ø L. R. GRADE 270 STRANDS

AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.153	41,300	30,980

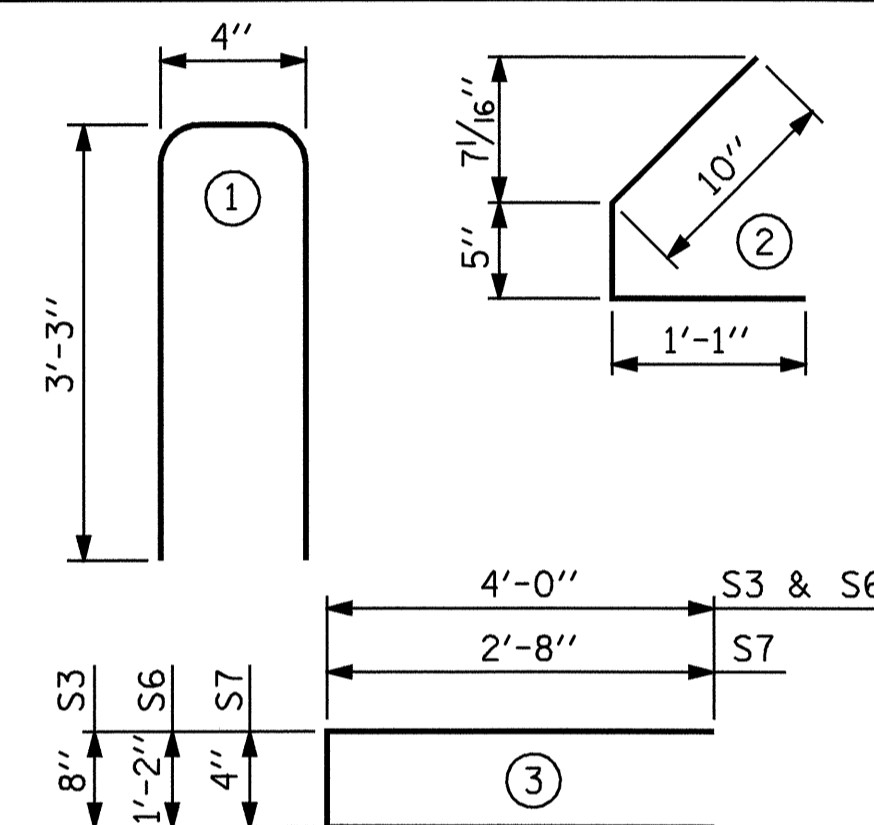
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
S1	31	#4	1	6'-10"	142	
S2	34	#5	1	6'-10"	242	
S3	4	#4	3	8'-8"	23	
* S4	4	#5	STR	3'-8"	15	
S5	68	#4	2	2'-4"	106	
S6	1	#4	3	9'-2"	6	
EXTERIOR GDR.	S7	2	#5	3	5'-8"	12
INTERIOR GDR.	S7	4	#5	3	5'-8"	24
EXTERIOR GDR.	S8	5	#4	STR	7'-0"	23
INTERIOR GDR.	S9	5	#4	STR	15'-5"	51

* NOTE: S4 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	7,500 PSI CONCRETE	1/2" Ø L.R. STRANDS
	LB.	C.Y.	No.
EXTERIOR	569	4.5	20
INTERIOR	609	4.5	20

GIRDERS REQUIRED PER SPAN

	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR GDR.	2	46'-7"	93'-2"
INTERIOR GDR.	2	46'-7"	93'-2"

PROJECT NO. B-3492
MCDOWELL COUNTY
STATION: 13+44.00 -L-

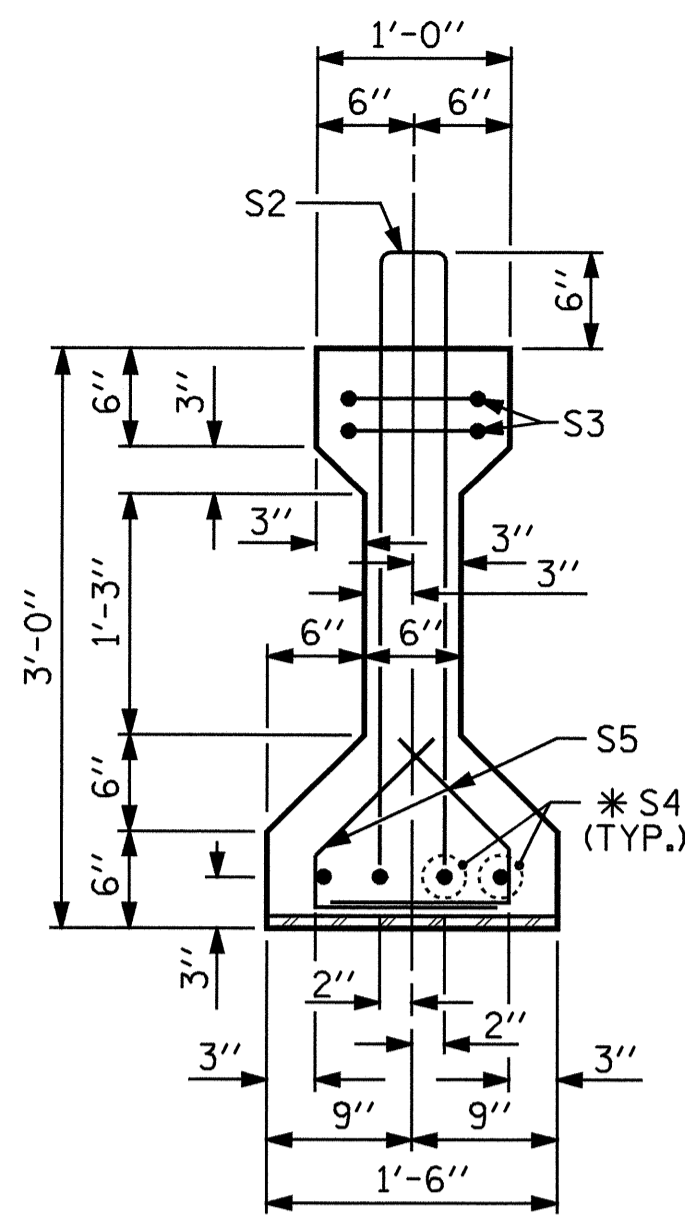
SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
AASHTO TYPE II
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
SPANS A OR C

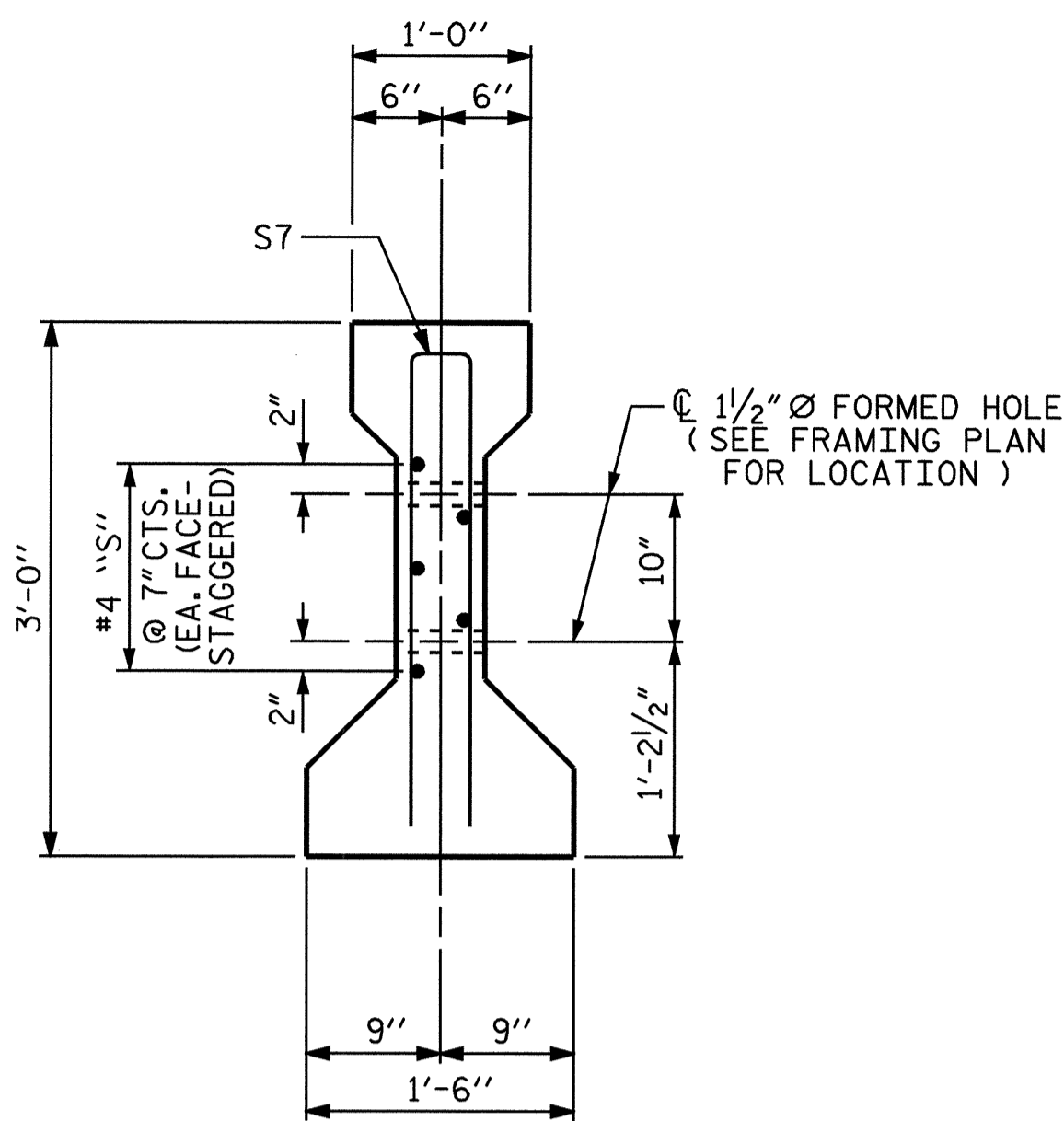


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-10
2			4			TOTAL SHEETS 30

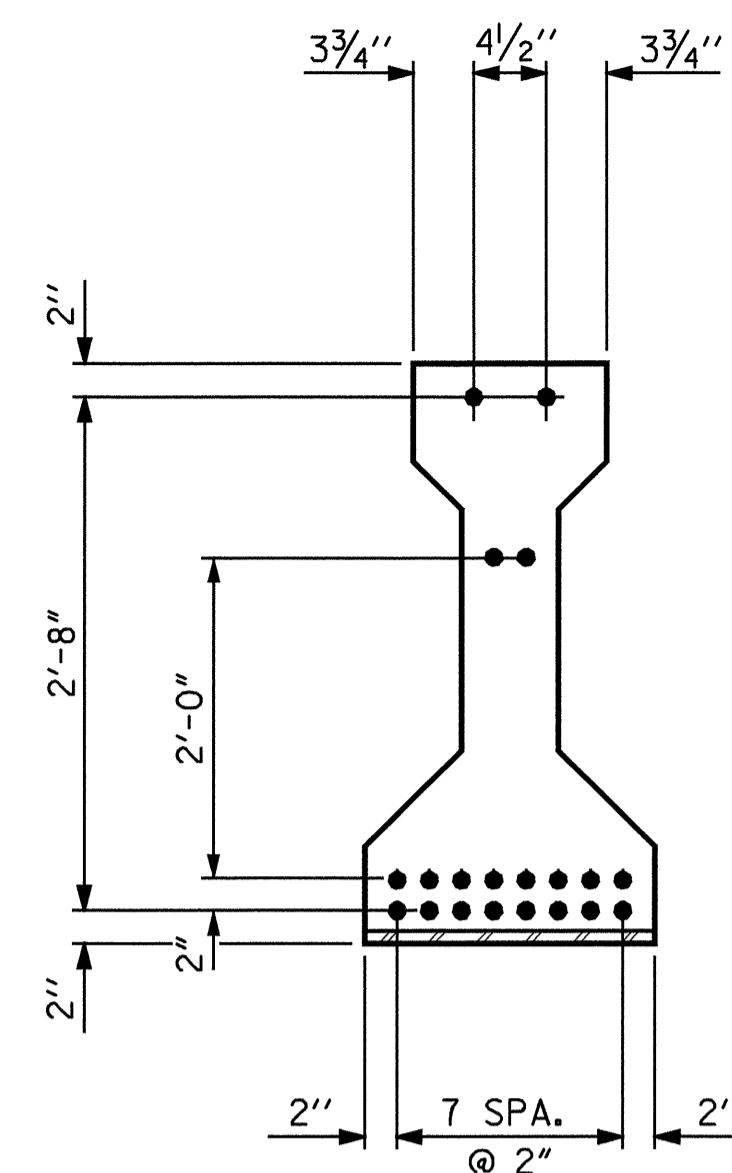
ASSEMBLED BY : R. G. EMERSON	DATE : 09/06
CHECKED BY : J. P. ADAMS	DATE : 09/06
DRAWN BY : ELR 8/91	REV. 8/16/99 RWW/LES
CHECKED BY : GRP 8/91	REV. 10/17/00R RWW/LES
	REV. 5/1/06 TLG/GM



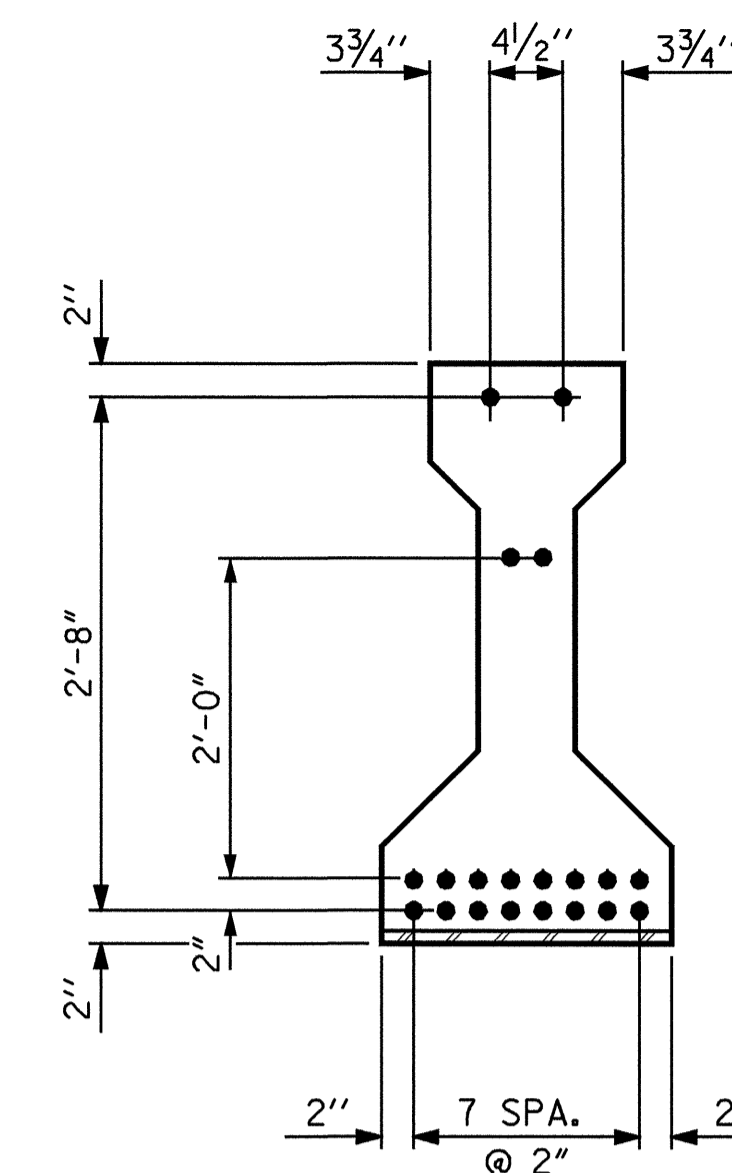
SECTION B-B



SECTION C-C
(S1 BARS NOT SHOWN)

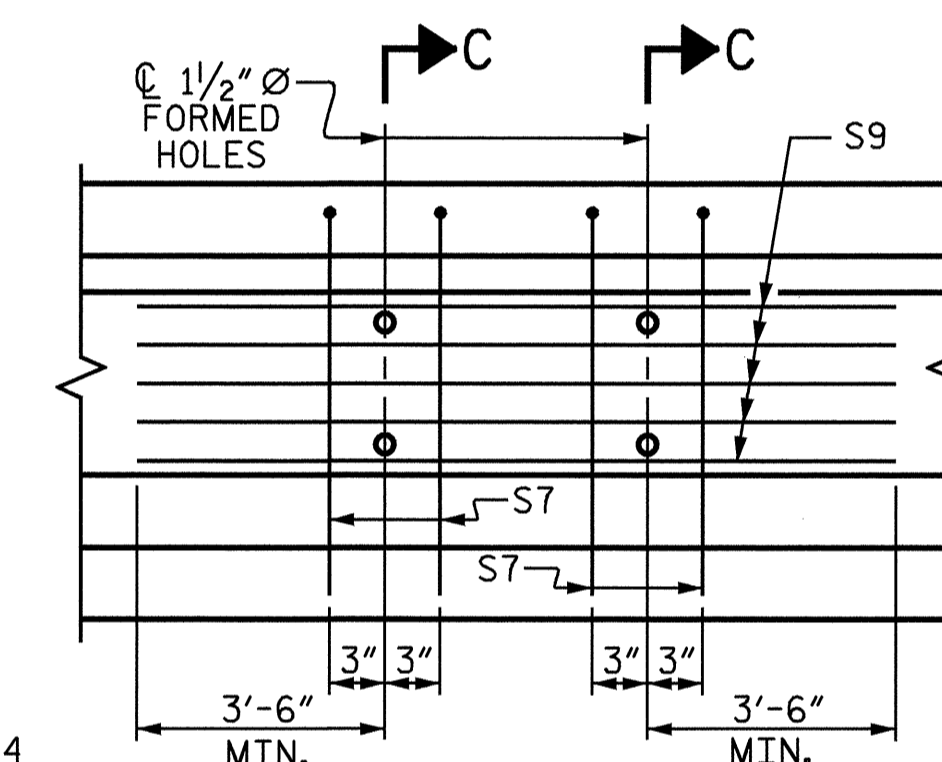


AT END OF GIRDER



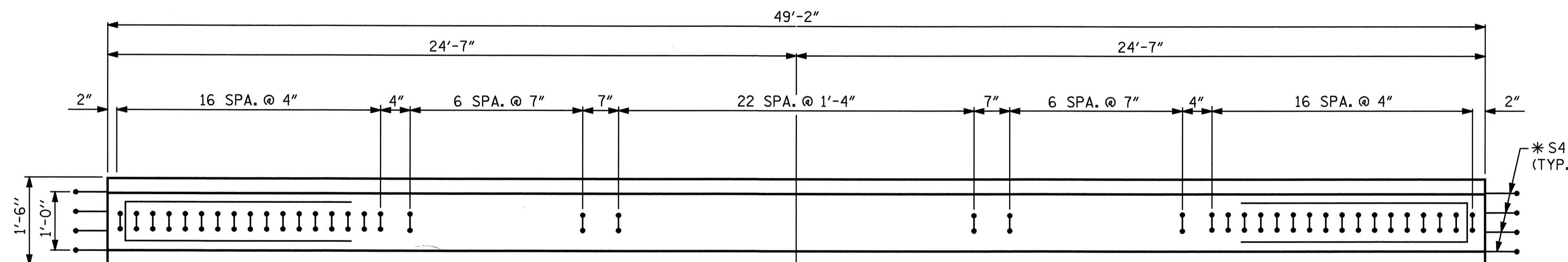
AT CL OF GIRDER

1/2" Ø LOW RELAXATION STRAND LAYOUT

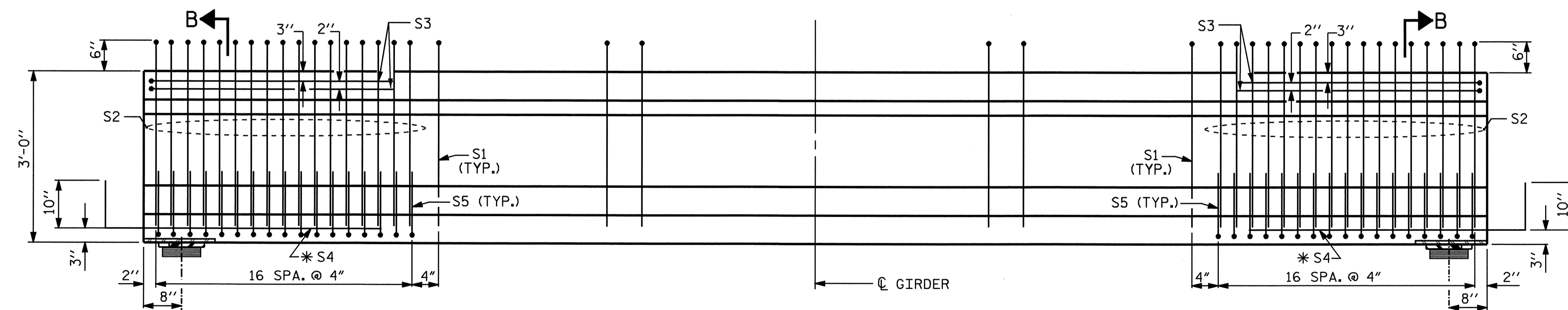


PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR INTERIOR GIRDERS.

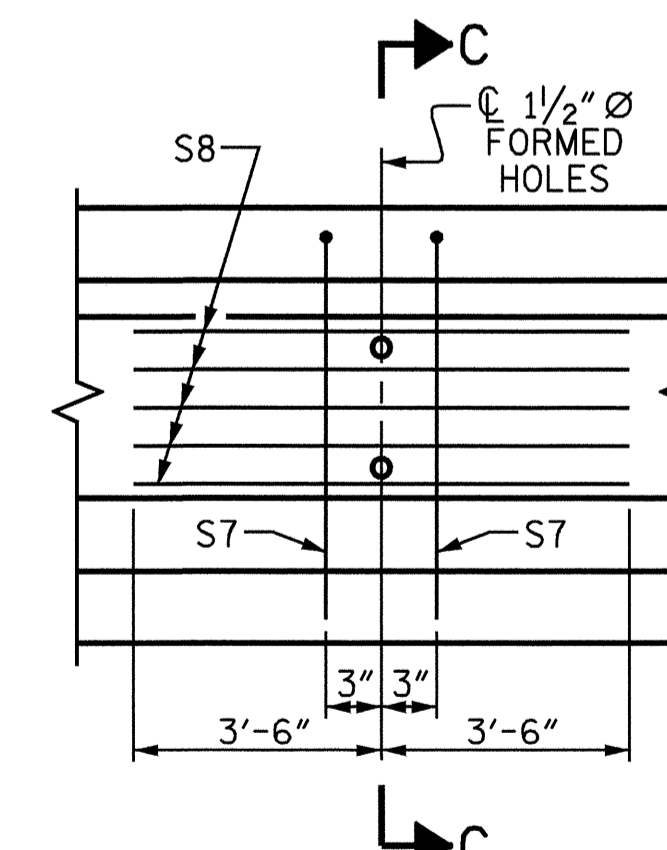


PLAN OF GIRDER



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR EXTERIOR GIRDERS.

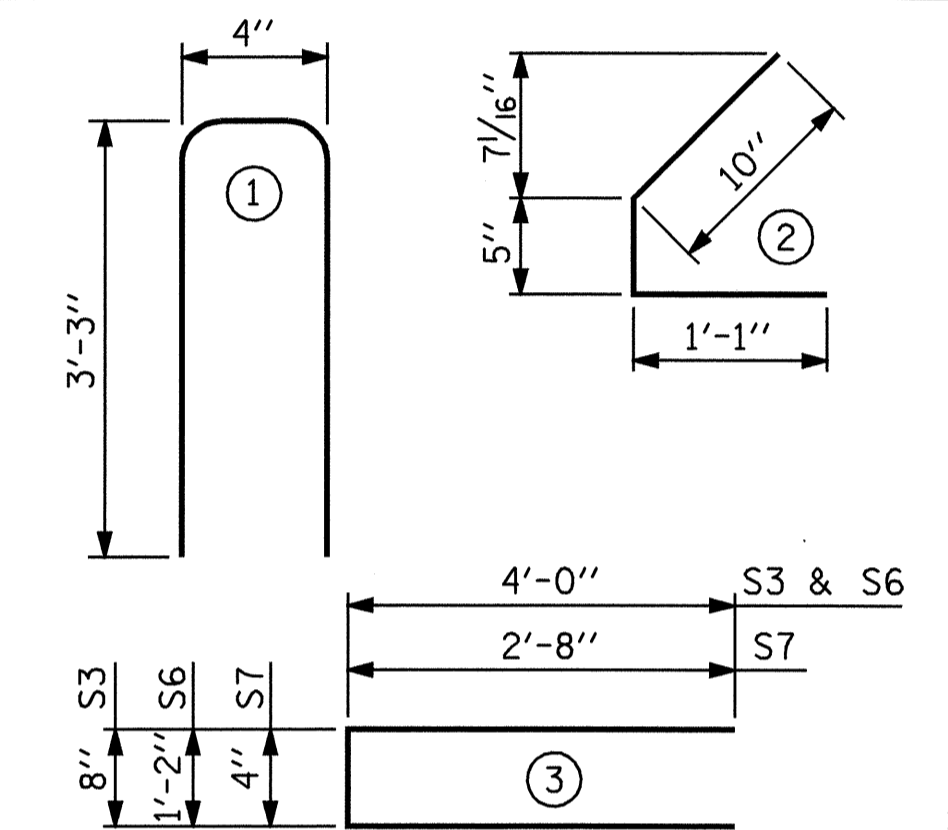
1/2" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.153	41,300	30,980

REINFORCING STEEL FOR ONE GIRDER						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
S1	37	#4	1	6'-10"	169	
S2	34	#5	1	6'-10"	242	
S3	4	#4	3	8'-8"	23	
* S4	8	#5	STR	3'-8"	31	
S5	68	#4	2	2'-4"	106	
EXTERIOR GDR.	S7	2	#5	3	5'-8"	12
INTERIOR GDR.	S7	4	#5	3	5'-8"	24
EXTERIOR GDR.	S8	5	#4	STR	7'-0"	23
INTERIOR GDR.	S9	5	#4	STR	15'-5"	51

* NOTE: S4 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	7,500 PSI CONCRETE	1/2" Ø L.R. STRANDS
	LB.	C.Y.	No.
EXTERIOR	606	4.7	20
INTERIOR	646	4.7	20

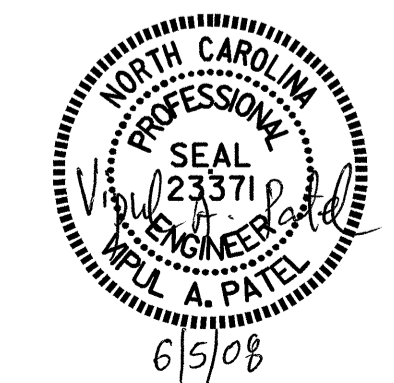
GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR GDR.	2	49'-2"
INTERIOR GDR.	2	49'-2"
		98'-4"

PROJECT NO. B-3492
MCDOWELL COUNTY
STATION: 13+44.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
AASHTO TYPE II
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
SPAN B



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-11
2			4			30

ASSEMBLED BY :	R. G. EMERSON	DATE :	09/06
CHECKED BY :	J. P. ADAMS	DATE :	09/06
DRAWN BY :	ELR 8/91	REV. 8/16/99	RWW/LES
CHECKED BY :	GRP 8/91	REV. 10/17/00R	RWW/LES
		REV. 5/1/06	TLA/GM

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 5,000 PSI.

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

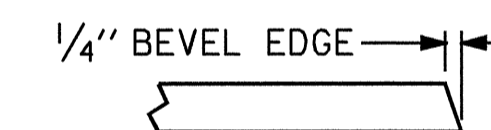
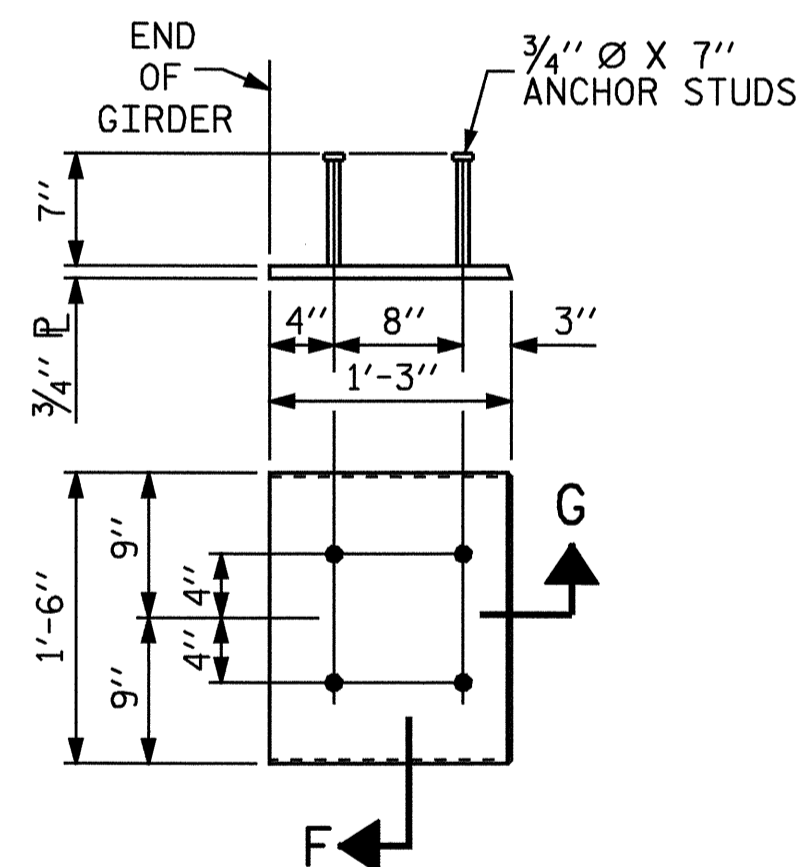
THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".

FOR CRACK REPAIR OF PRESTRESSED CONCRETE GIRDERS, SEE SPECIAL PROVISIONS.

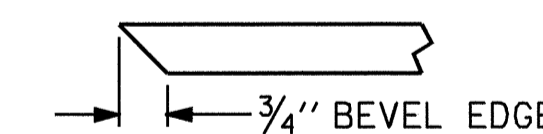
FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

DEAD LOAD DEFLECTION TABLE																						
1/2" Ø LOW RELAXATION	SPAN A & SPAN C											SPAN B										
	GIRDERS 1, 2, 3, & 4											GIRDERS 1, 2, 3, & 4										
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE) ↑	0.0	0.034	0.064	0.088	0.103	0.109	0.103	0.088	0.064	0.034	0.0	0.0	0.037	0.069	0.095	0.111	0.117	0.111	0.095	0.069	0.037	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0.0	0.011	0.020	0.028	0.033	0.035	0.033	0.028	0.020	0.011	0.0	0.0	0.013	0.026	0.035	0.041	0.043	0.041	0.035	0.026	0.013	0.0
VERTICAL CURVE ORDINATES ↑	0.0	0.019	0.033	0.044	0.050	0.052	0.050	0.044	0.033	0.019	0.0	0.0	0.019	0.033	0.044	0.050	0.052	0.050	0.044	0.033	0.019	0.0
FINAL CAMBER ↑	0.0	1/2"	5/16"	1/4"	1/16"	1/2"	1/16"	1/4"	5/16"	1/2"	0.0	0.0	1/2"	5/16"	1/4"	1/16"	1/2"	1/16"	1/4"	5/16"	1/2"	0.0

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



SECTION "G"



SECTION "F"

(SEE NOTES)

**EMBEDDED PLATE "B-1" DETAILS
FOR AASHTO TYPE II GIRDER**
(2 REQ'D PER GIRDER)

PROJECT NO. B-3492
MCDOWELL COUNTY
STATION: 13+44.00 -L-

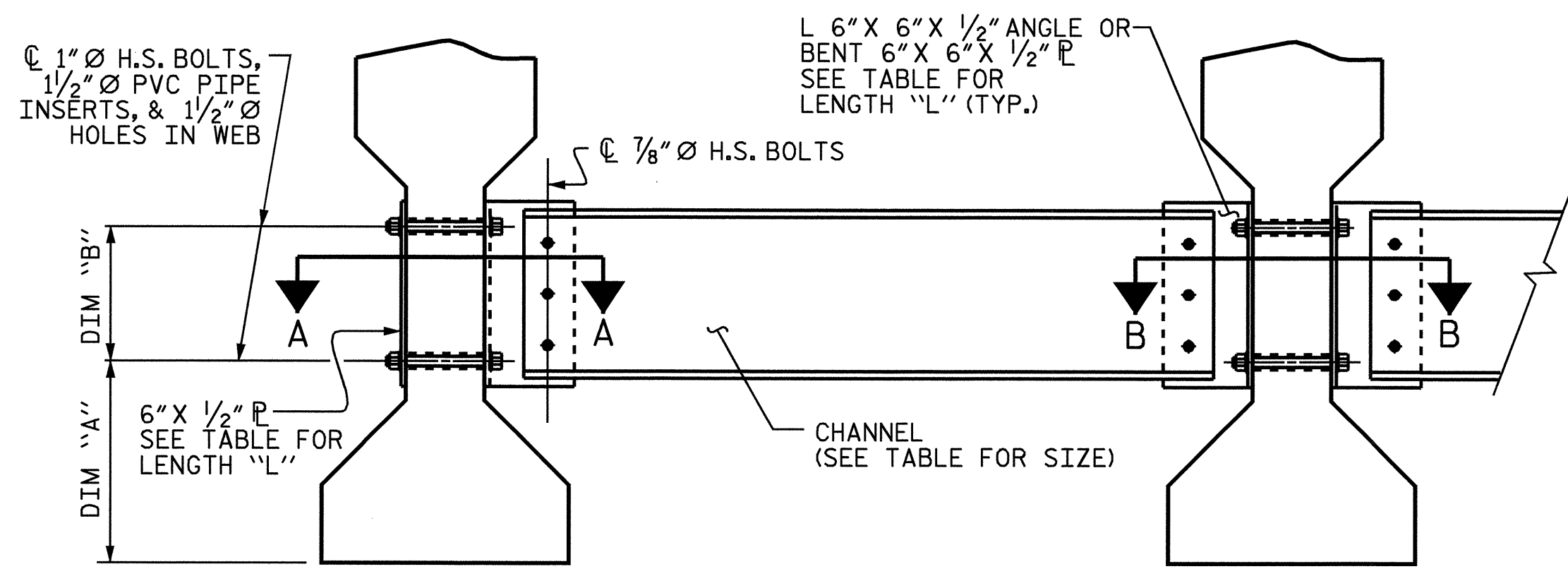
SHEET 3 OF 4



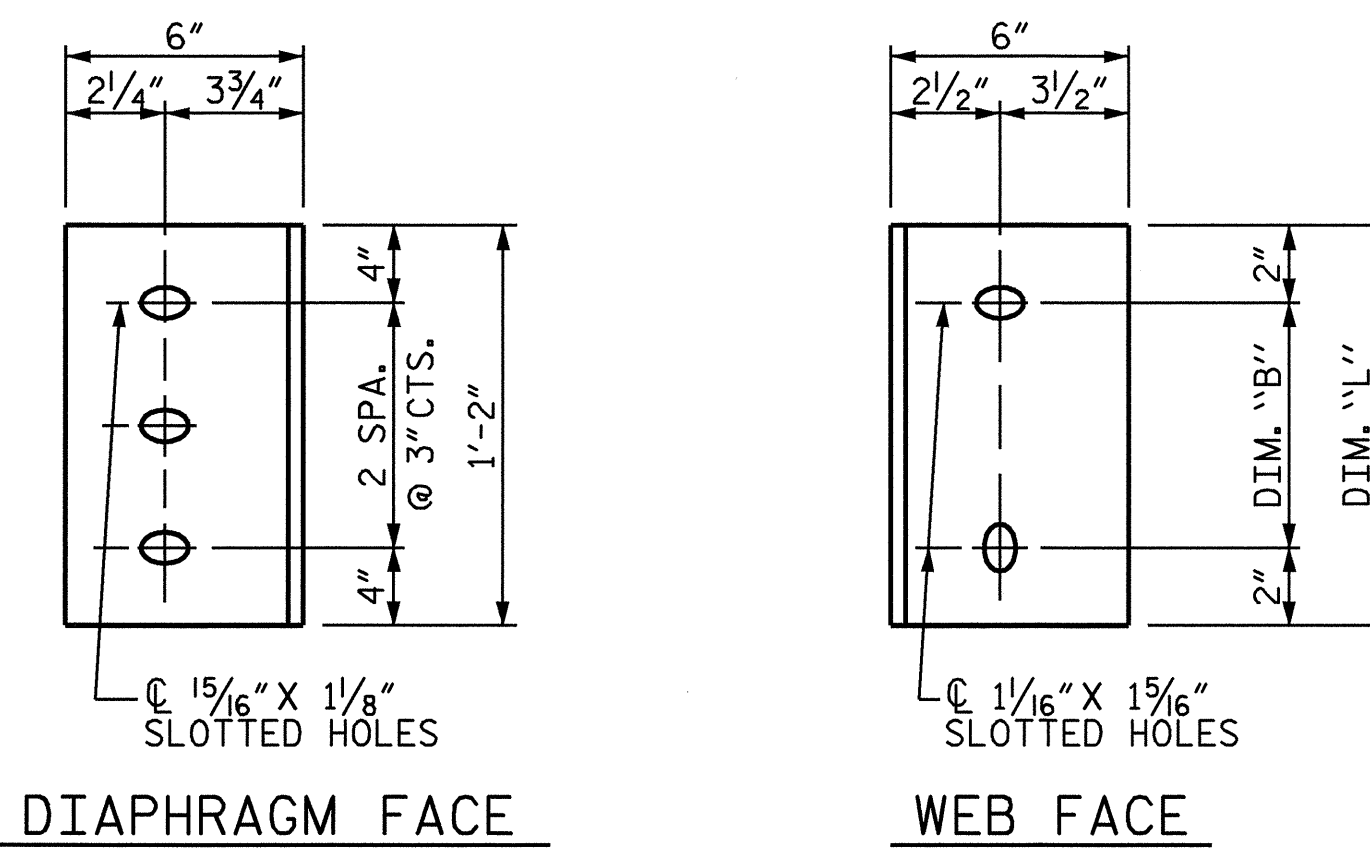
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
DETAILS
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD

ASSEMBLED BY : R. G. EMERSON	DATE : 09/06
CHECKED BY : J. P. ADAMS	DATE : 09/06
DRAWN BY : ELR 11/91	REV. 10/17/00 RW/LES
CHECKED BY : GRP 11/91	REV. 7/10/01RR LES/RDR
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			30



EXTERIOR GIRDER INTERIOR GIRDER
PART SECTION AT INTERMEDIATE DIAPHRAGM



DIAPHRAGM FACE WEB FACE
CONNECTOR PLATE DETAILS

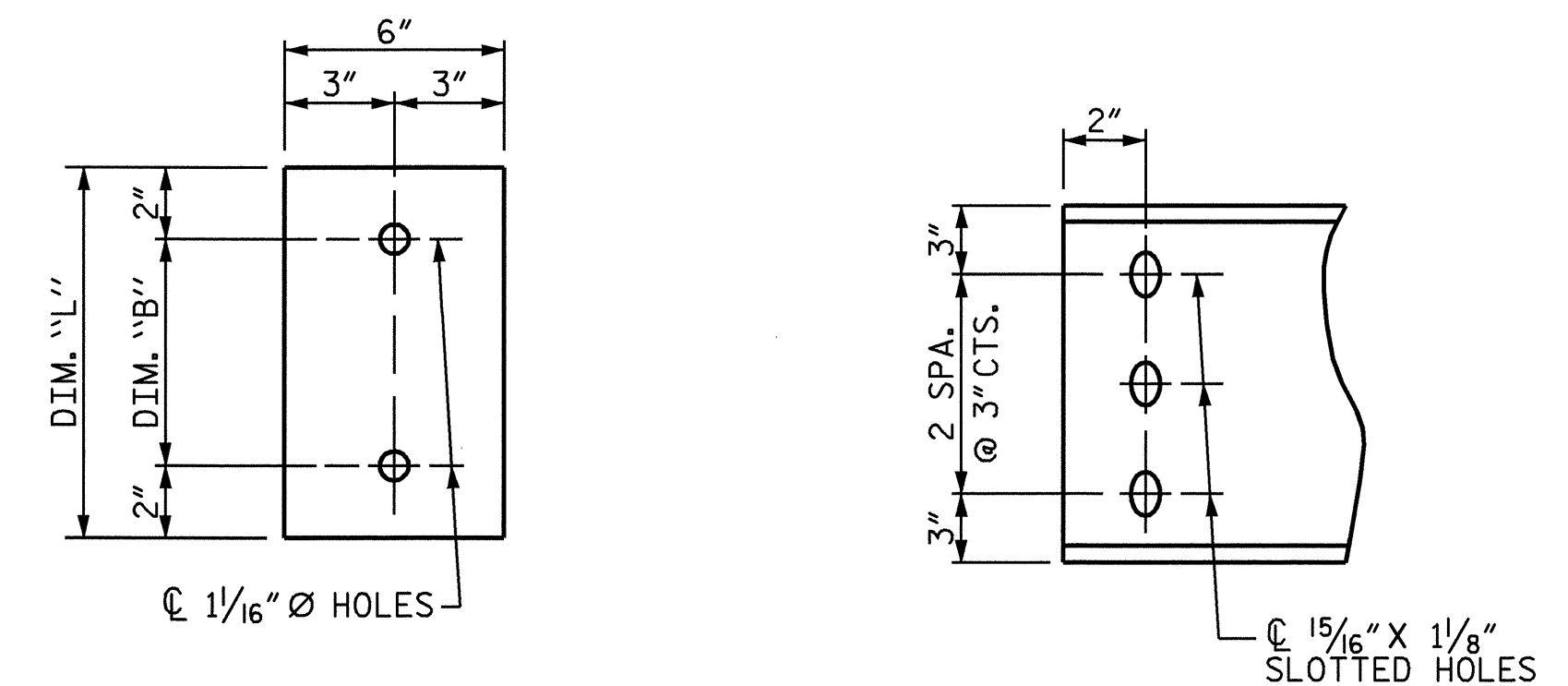
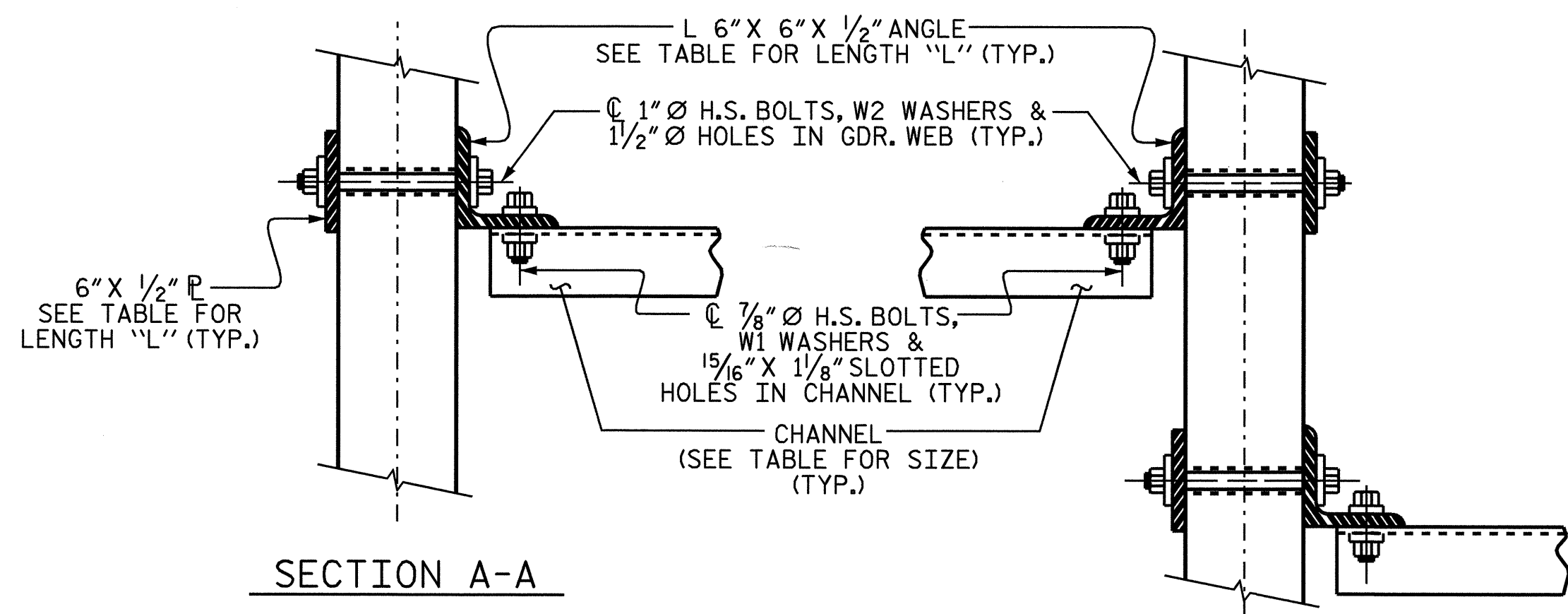
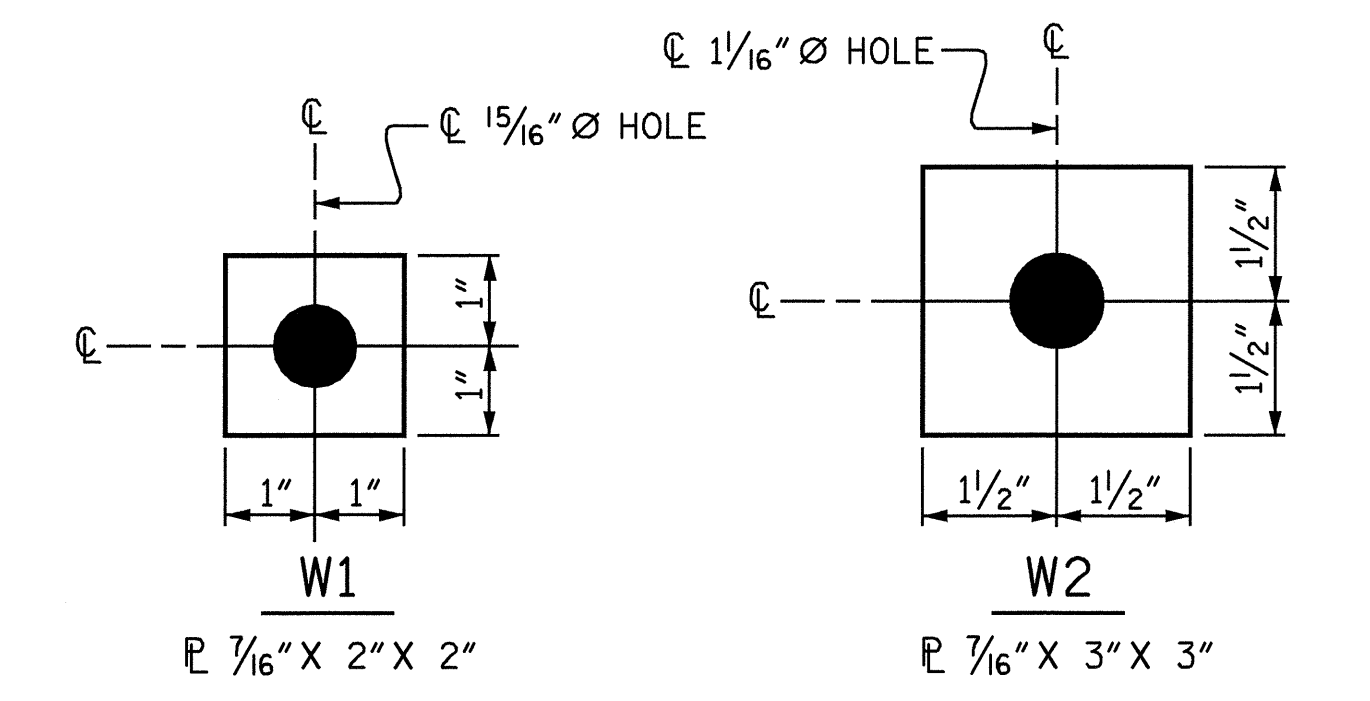


PLATE DETAILS CHANNEL END



SECTION A-A SECTION B-B
CONNECTION DETAILS



USE WITH 7/8" HVY. HEX NUTS & DIRECT TENSION INDICATOR WASHERS AT DIAPHRAGM CHANNEL TO CONNECTOR PLATE CONNECTIONS
USE WITH 1" HVY. HEX NUTS AT CONNECTOR PLATE TO GIRDER CONNECTIONS
WASHER DETAILS

STRUCTURAL STEEL NOTES

ALL INTERMEDIATE DIAPHRAGM STEEL, CONNECTOR PLATES AND PLATE WASHERS SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL.
TENSION ON THE AASHTO M164 BOLTS THROUGH THE CHANNEL MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.
TENSION ON THE AASHTO M164 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.
THE CHANNELS, ANGLES, WASHERS, PLATE WASHERS, AND DIRECT TENSION INDICATORS 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 PROVISIONS AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, AND WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

USE A MINIMUM 7/16" THICK PLATE WASHER WITH STANDARD HOLES UNDER EACH BOLT HEAD AND NUT. THE PLATE WASHERS SHALL HAVE SUFFICIENT SIZE TO COVER THE HOLES AFTER INSTALLATION. DIRECT TENSION INDICATORS ARE TO BE USED IN CONJUNCTION WITH THE PLATE WASHERS.

PROVIDE SUFFICIENT LENGTH OF ALL BOLTS TO ACCOMMODATE WASHERS, DIRECT TENSION INDICATORS, 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.

CONTRACTOR SHALL 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, TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. ALL AASHTO M164 H.S. BOLTS SHALL BE FULLY TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

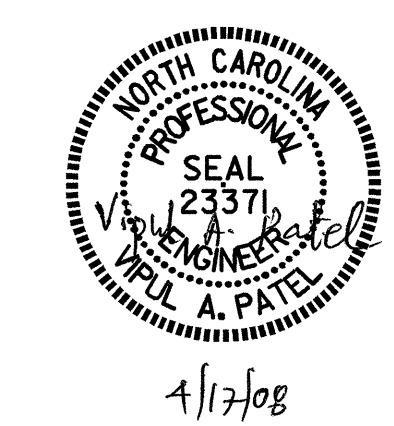
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.

TABLE

GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
II	MC 12 x 31	1'-2 1/2"	10"	1'-2"

PROJECT NO. B-3492
McDOWELL COUNTY
STATION: 13+44.00 -L-

SHEET 4 OF 4



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
INTERMEDIATE
STEEL DIAPHRAGMS
FOR TYPE II
PRESTRESSED CONCRETE
GIRDERS

ASSEMBLED BY : R. G. EMERSON	DATE : 01/08
CHECKED BY : J. P. ADAMS	DATE : 02/08
DRAWN BY : TLA 6/05	ADDED 10/21/05
CHECKED BY : VC 6/05	REV. 5/1/06R KMM/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			30

NOTES

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

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

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

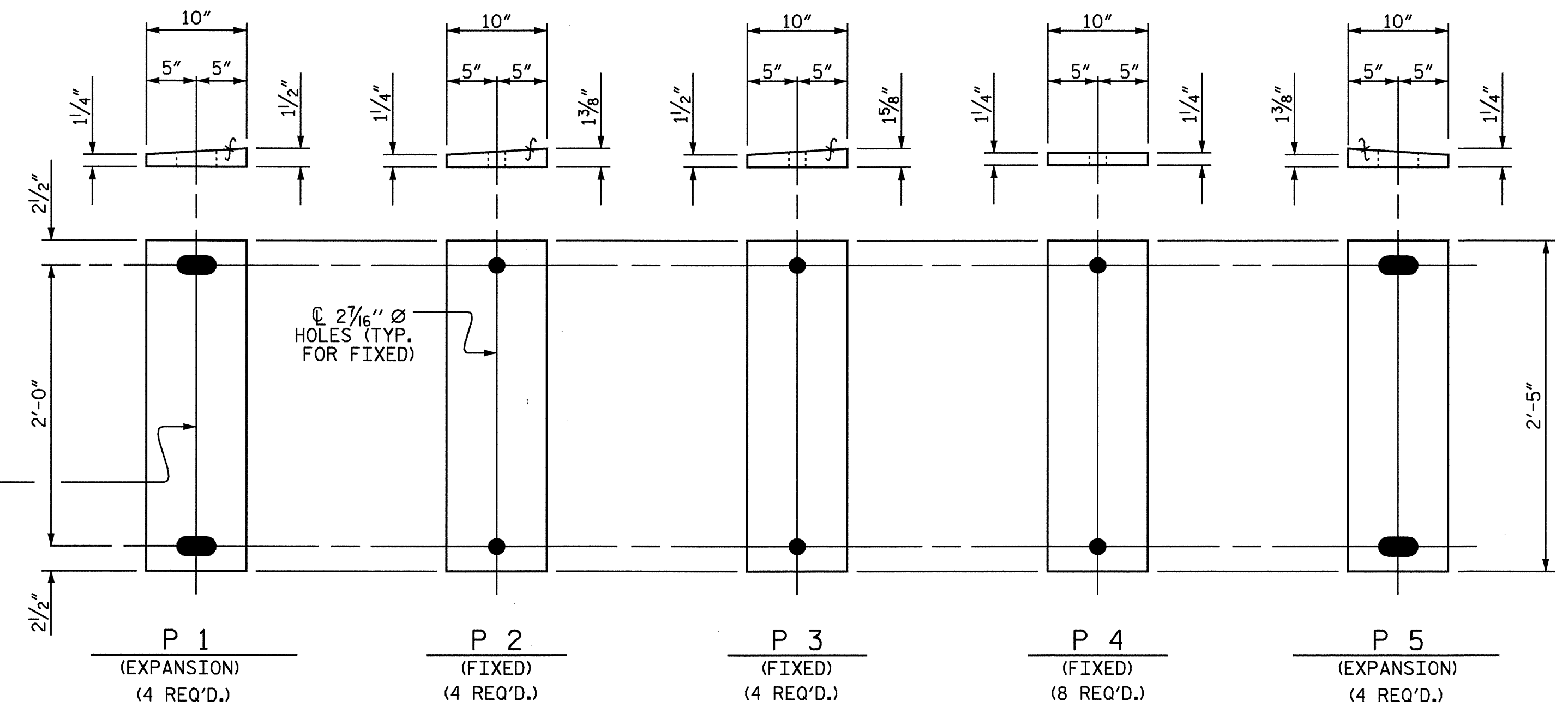
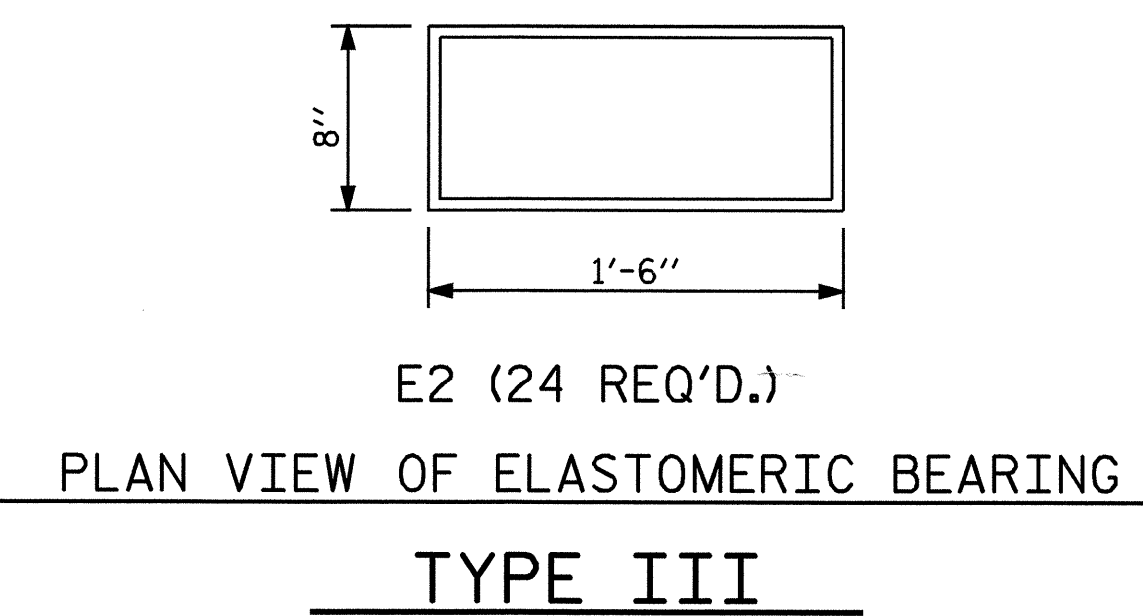
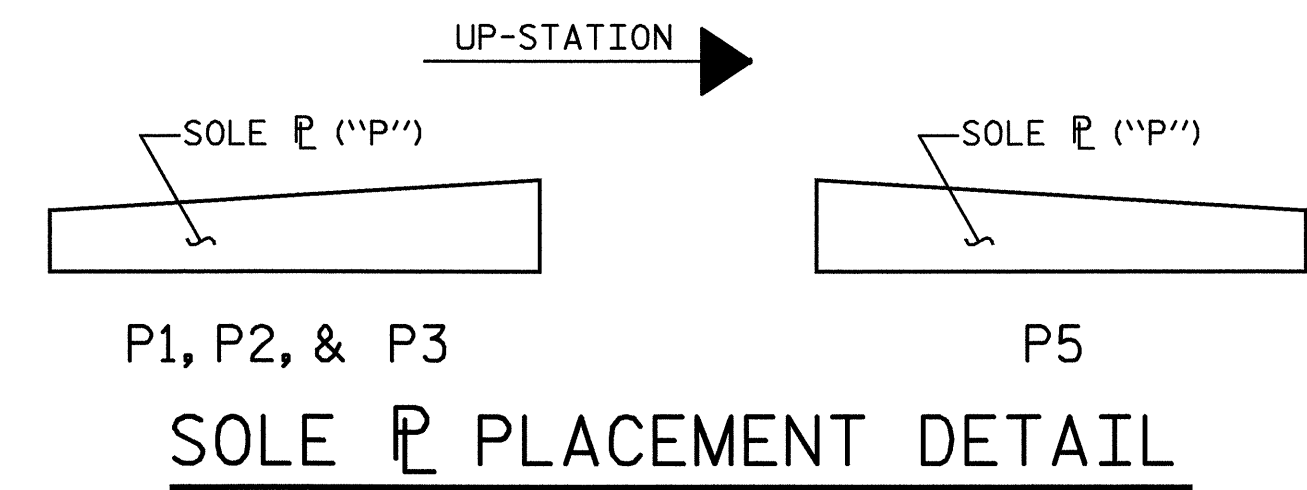
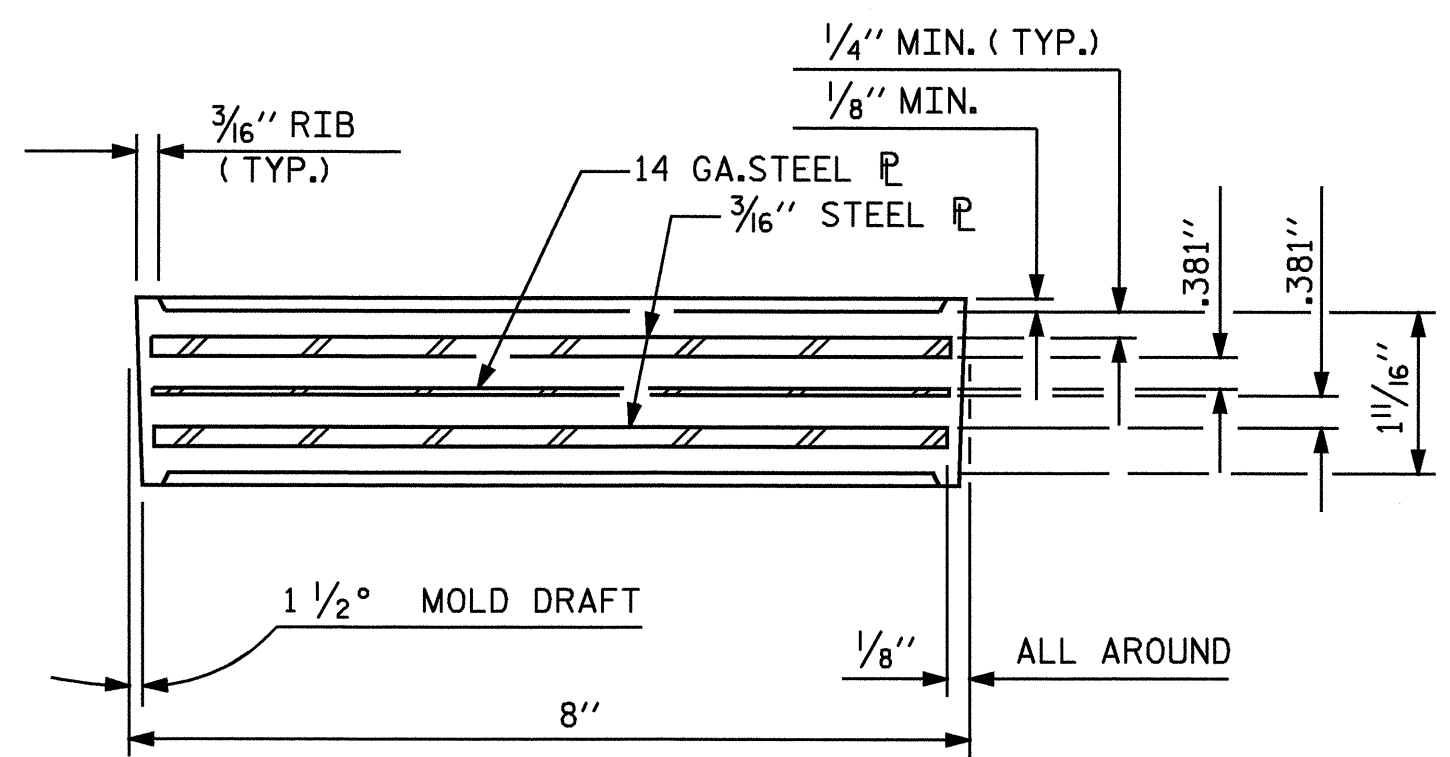
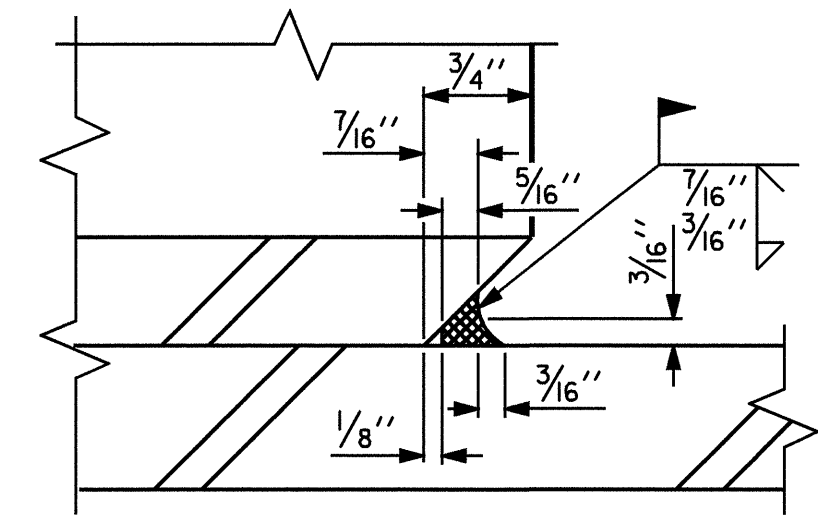
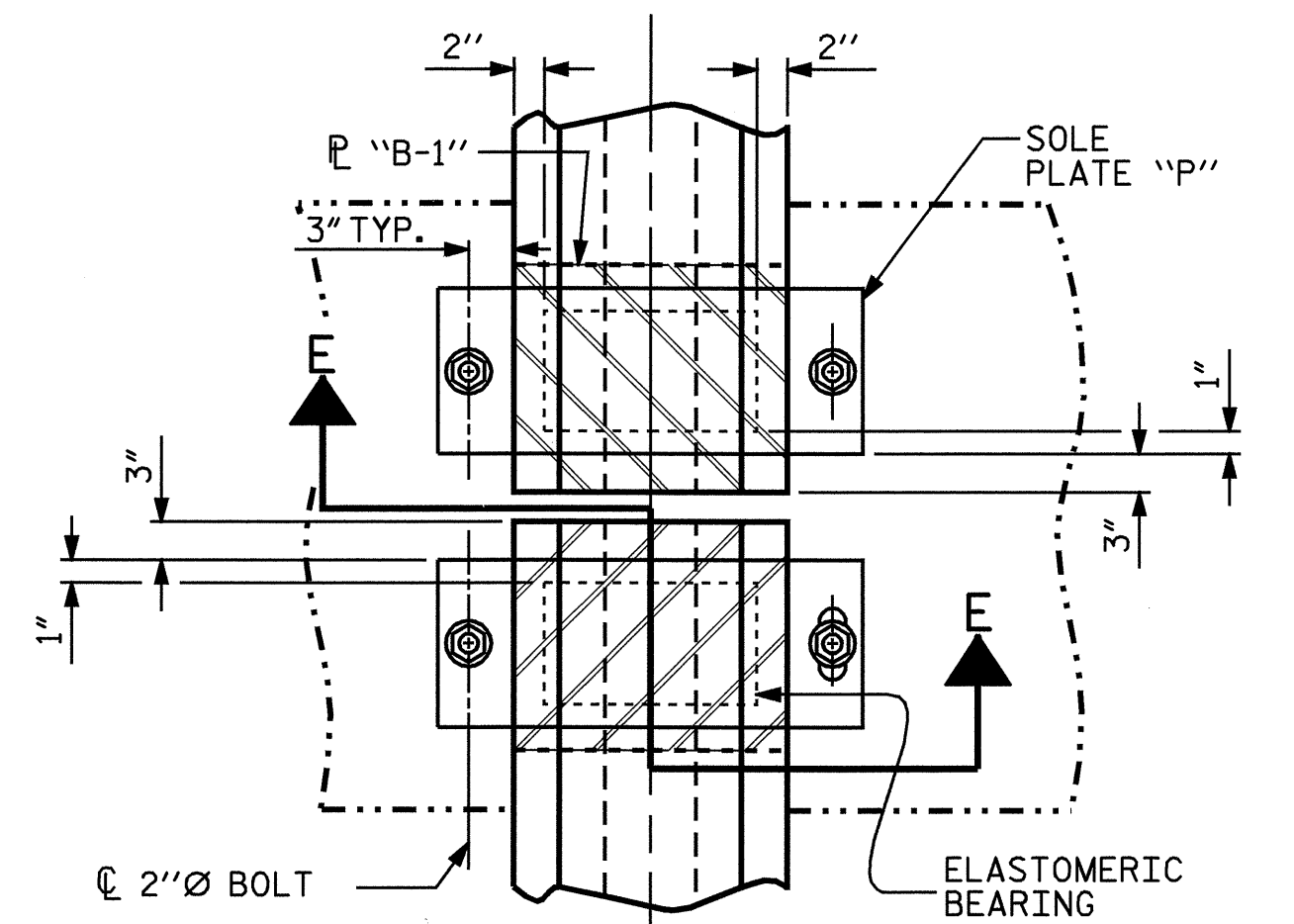
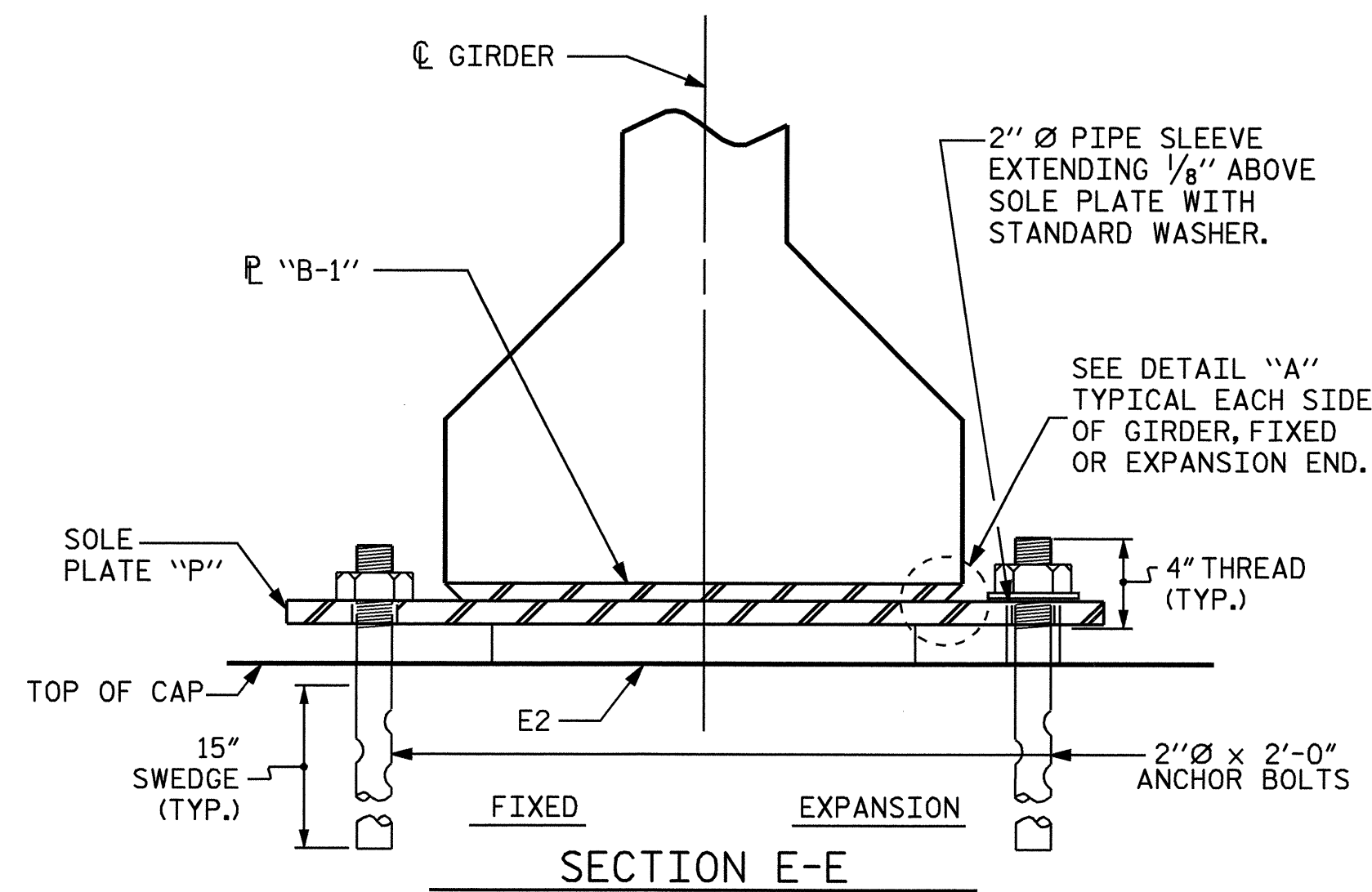
PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

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

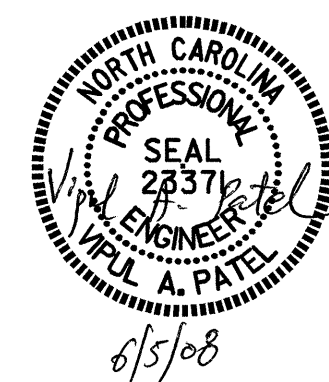
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.



— LOAD RATINGS —	
TYPE III	MAX.D.L.+L.L. 115 K

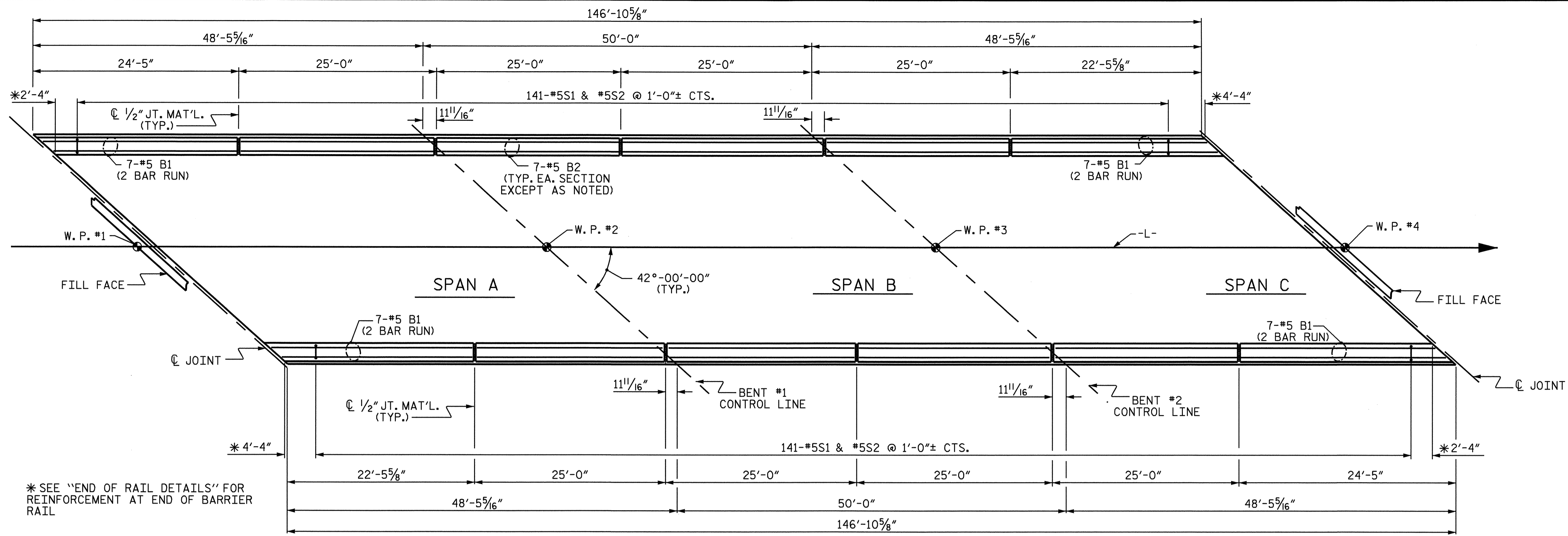
PROJECT NO. B-3492
MCDOWELL COUNTY
 STATION: 13+44.00 -L-



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

ASSEMBLED BY : R. G. EMERSON	DATE : 09/06
CHECKED BY : J. P. ADAMS	DATE : 09/06
DRAWN BY : WJH 8/89	REV. 10/17/00 RWW/LES
CHECKED BY : CRK 8/89	REV. 7/10/01 RWW/LES
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			30



PLAN OF BARRIER RAIL

NOTES

THE BARRIER RAIL IN EACH 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.

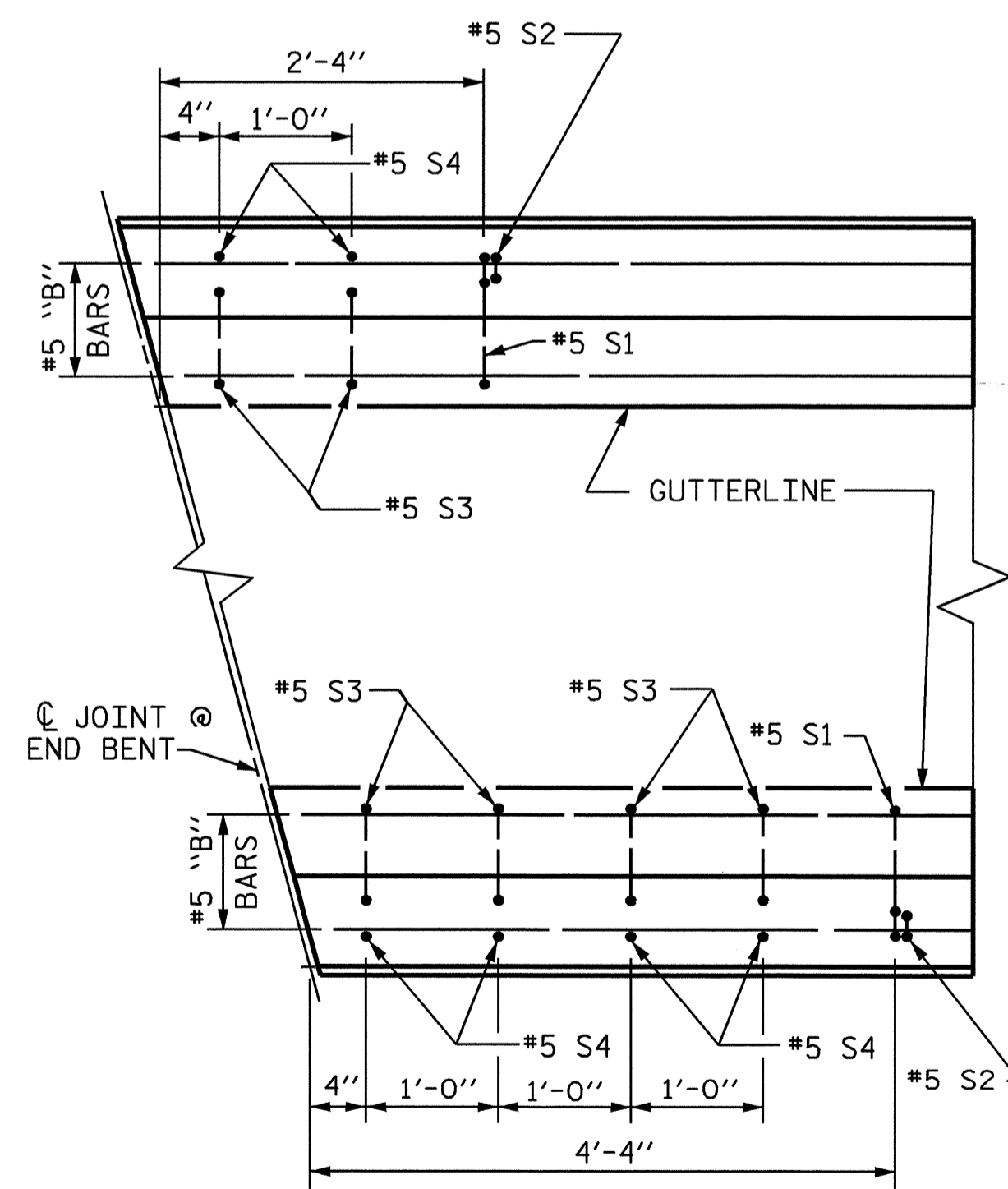
WHEN EVAZOTE JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #5 S3 AND #5 S4 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5 S3 AND #5 S4 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

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. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

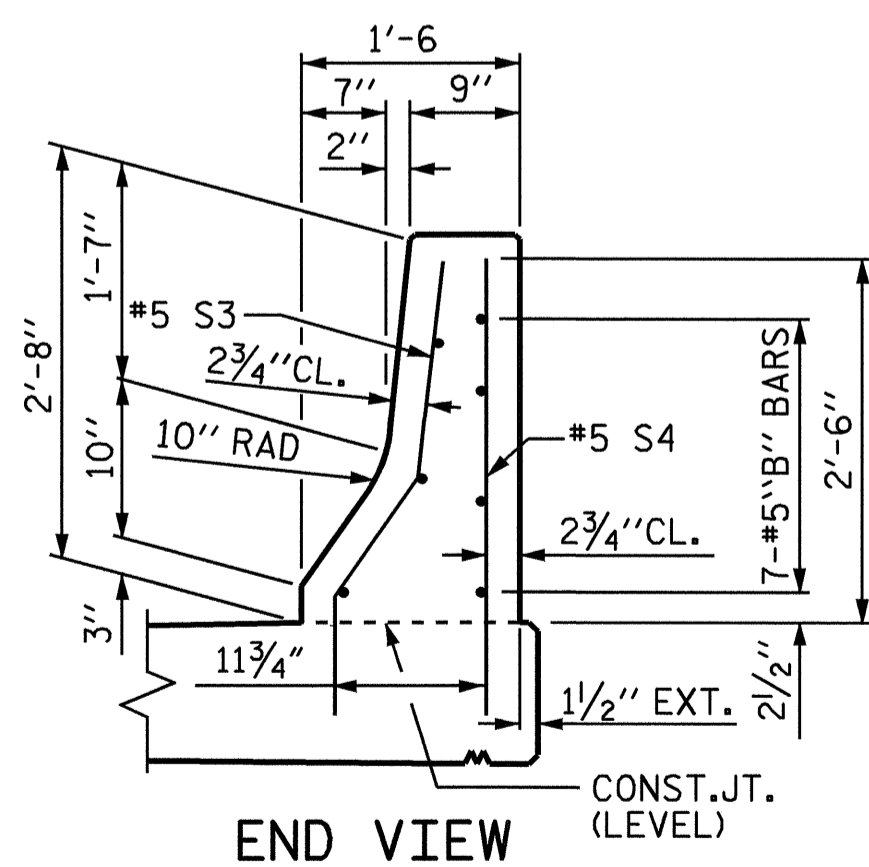
1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED.)



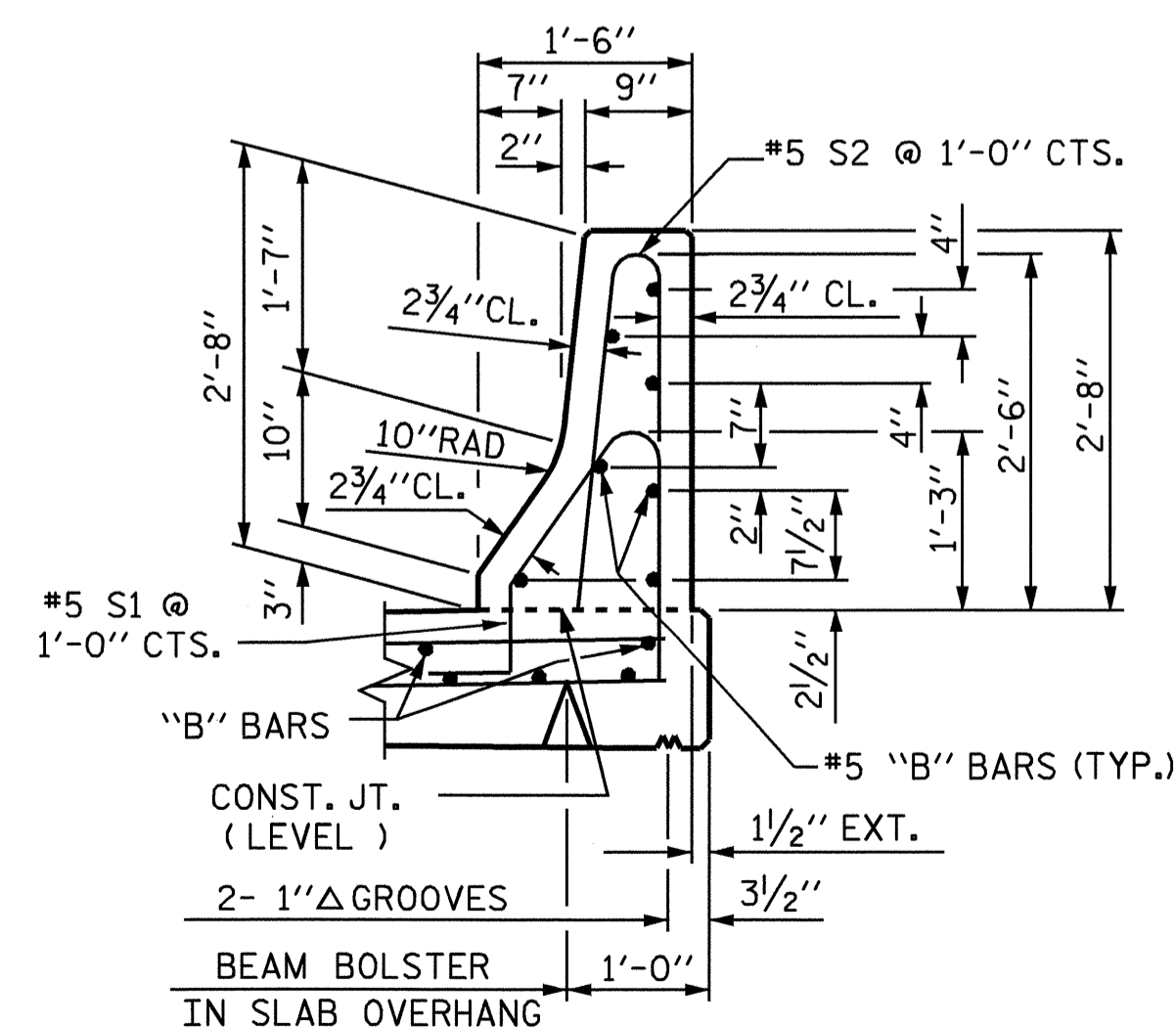
PLAN

END OF RAIL DETAILS

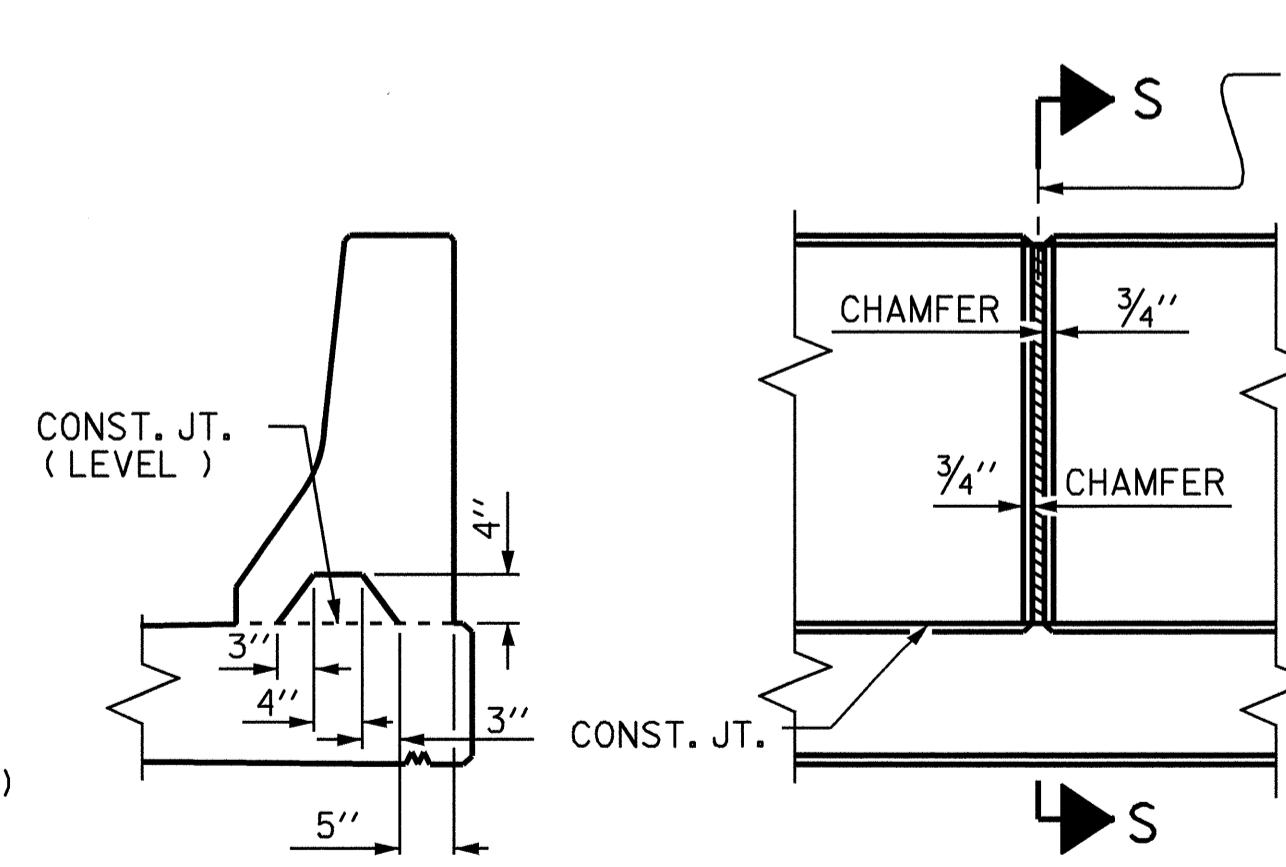
FOR ADHESIVE ANCHORING AT SAWED JOINTS



END VIEW



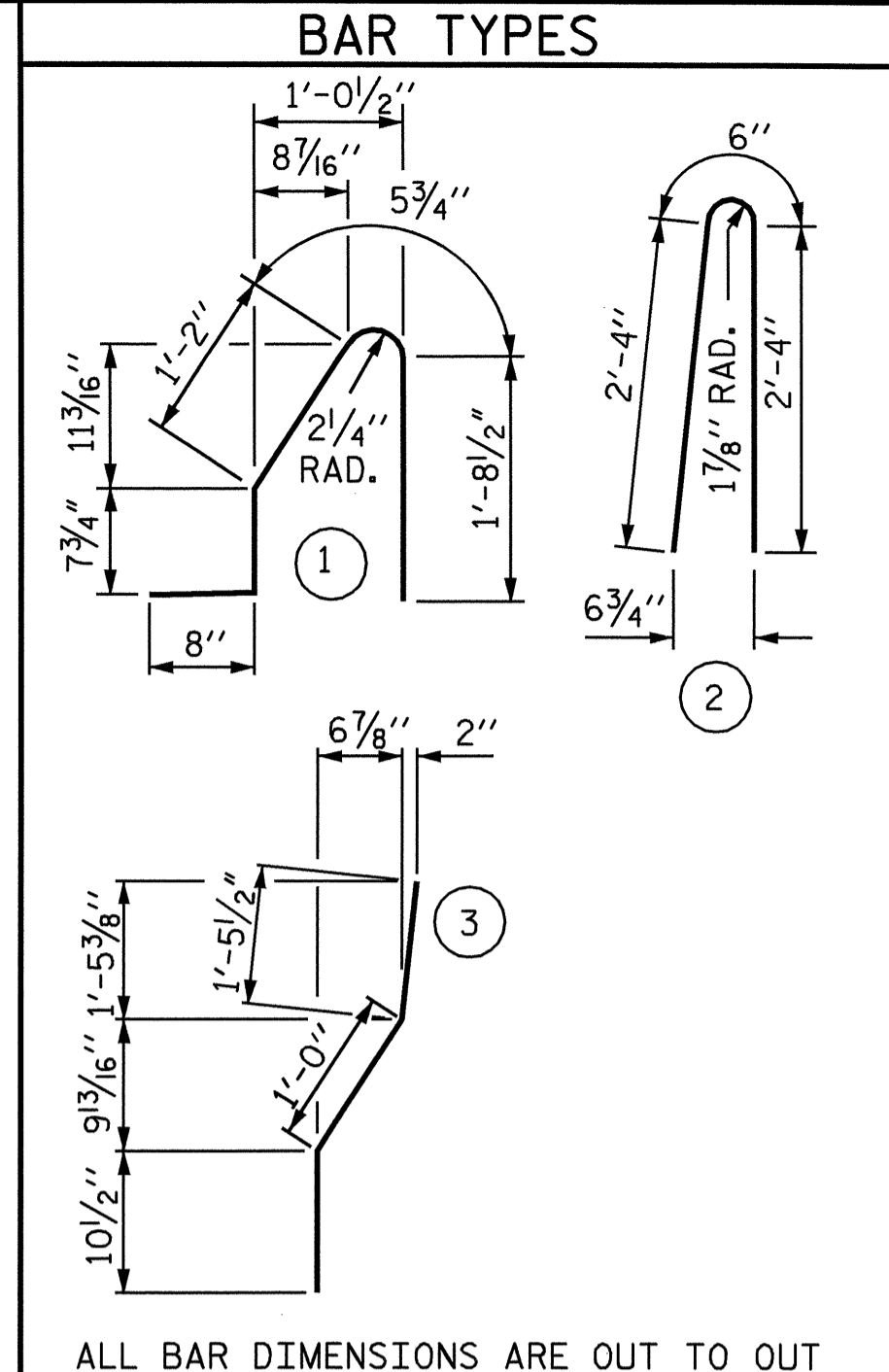
SECTION THRU RAIL



SECTION S-S

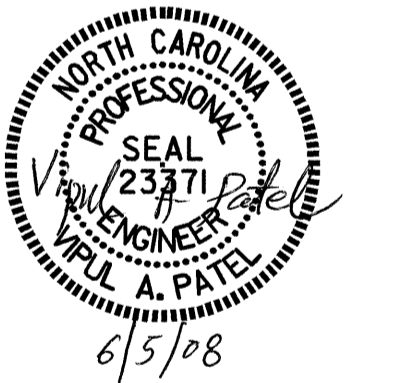
AT DAM IN OPEN JOINT (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

ELEVATION AT EXPANSION JOINTS



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL						
FOR CONCRETE BARRIER RAIL ONLY						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* S1	282	#5	1	4'-8"		1373
* S2	282	#5	2	5'-2"		1520
* S3	12	#5	3	3'-4"		42
* S4	12	#5	STR	3'-2"		40
* B1	56	#5	STR	13'-9"		803
* B2	56	#5	STR	24'-7"		1436
* EPOXY COATED REINFORCING STEEL						5214 LBS.
CLASS AA CONCRETE						29.4 CU. YDS.
CONCRETE BARRIER RAIL						293.77 LIN. FT.



PROJECT NO. B-3492
 McDOWELL COUNTY
 STATION: 13+44.00 -L-

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			30

ASSEMBLED BY: R. G. EMERSON	DATE: 09/06
CHECKED BY: J. P. ADAMS	DATE: 09/06
DRAWN BY: ARB 5/87	REV. 10/17/00 RWW/LES
CHECKED BY: SJD 9/87	REV. 5/1/03R RWW/JTE
	REV. 5/1/06 TLA/GM

BARRIER RAIL DETAILS

NOTES

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

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

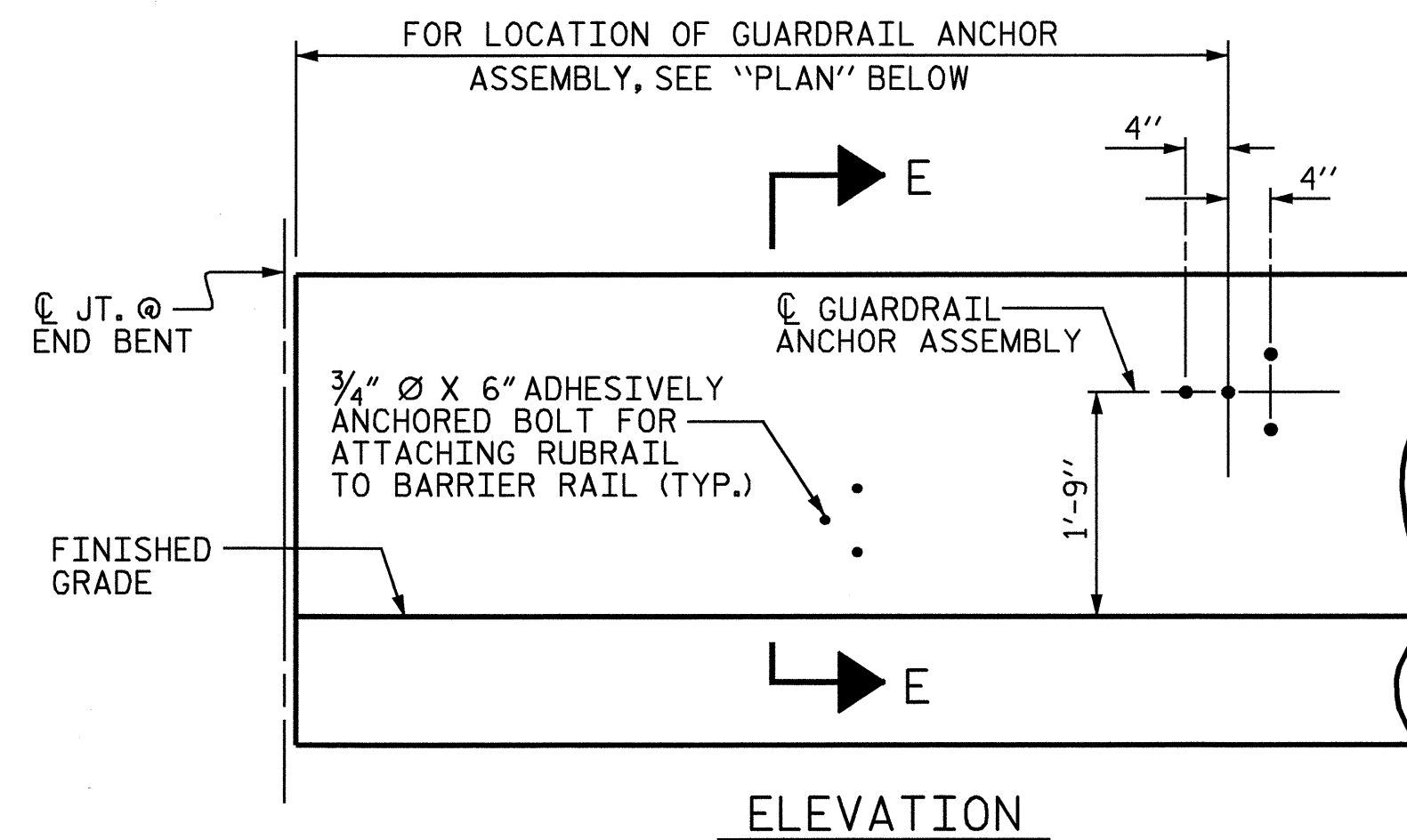
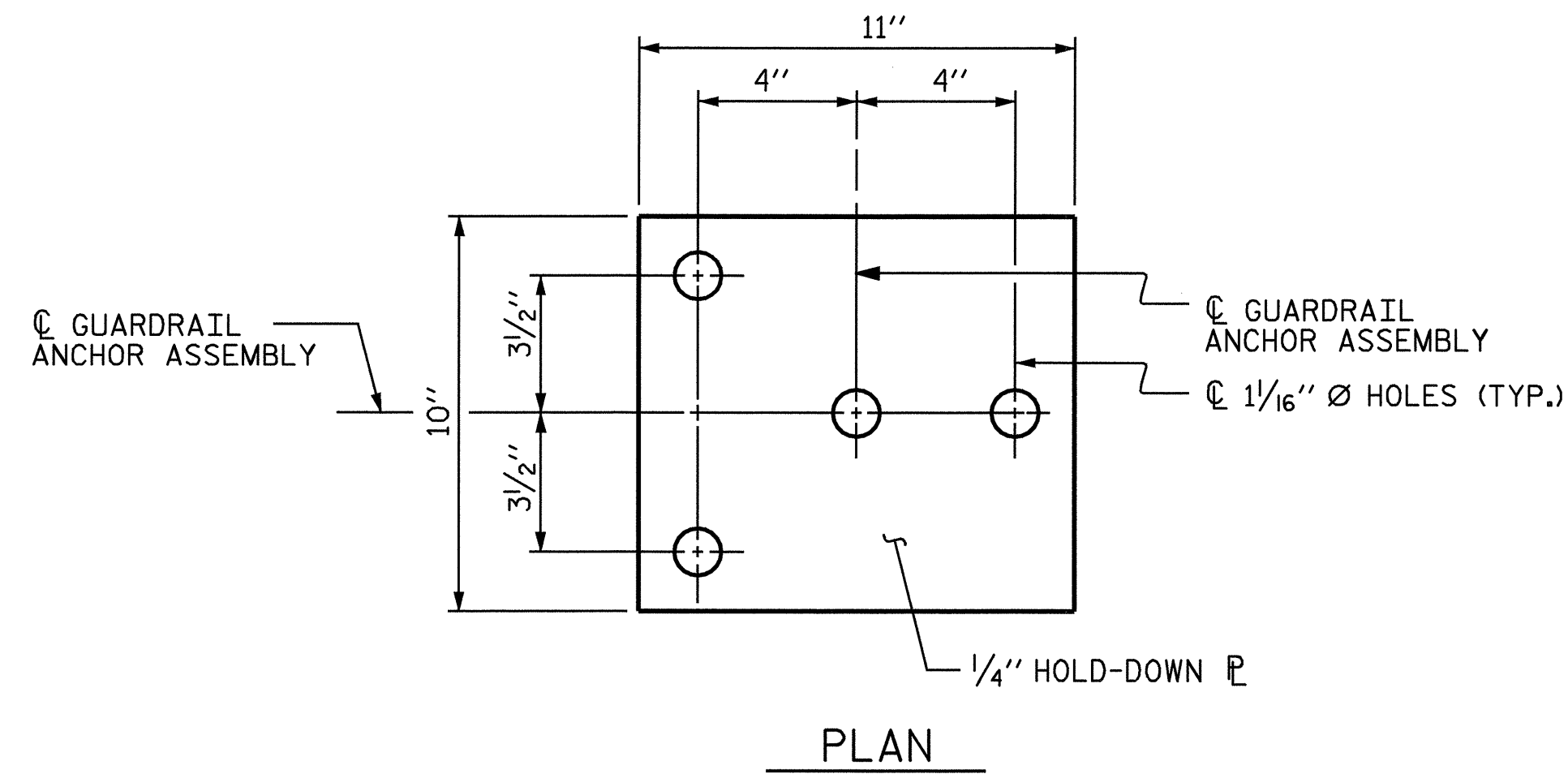
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

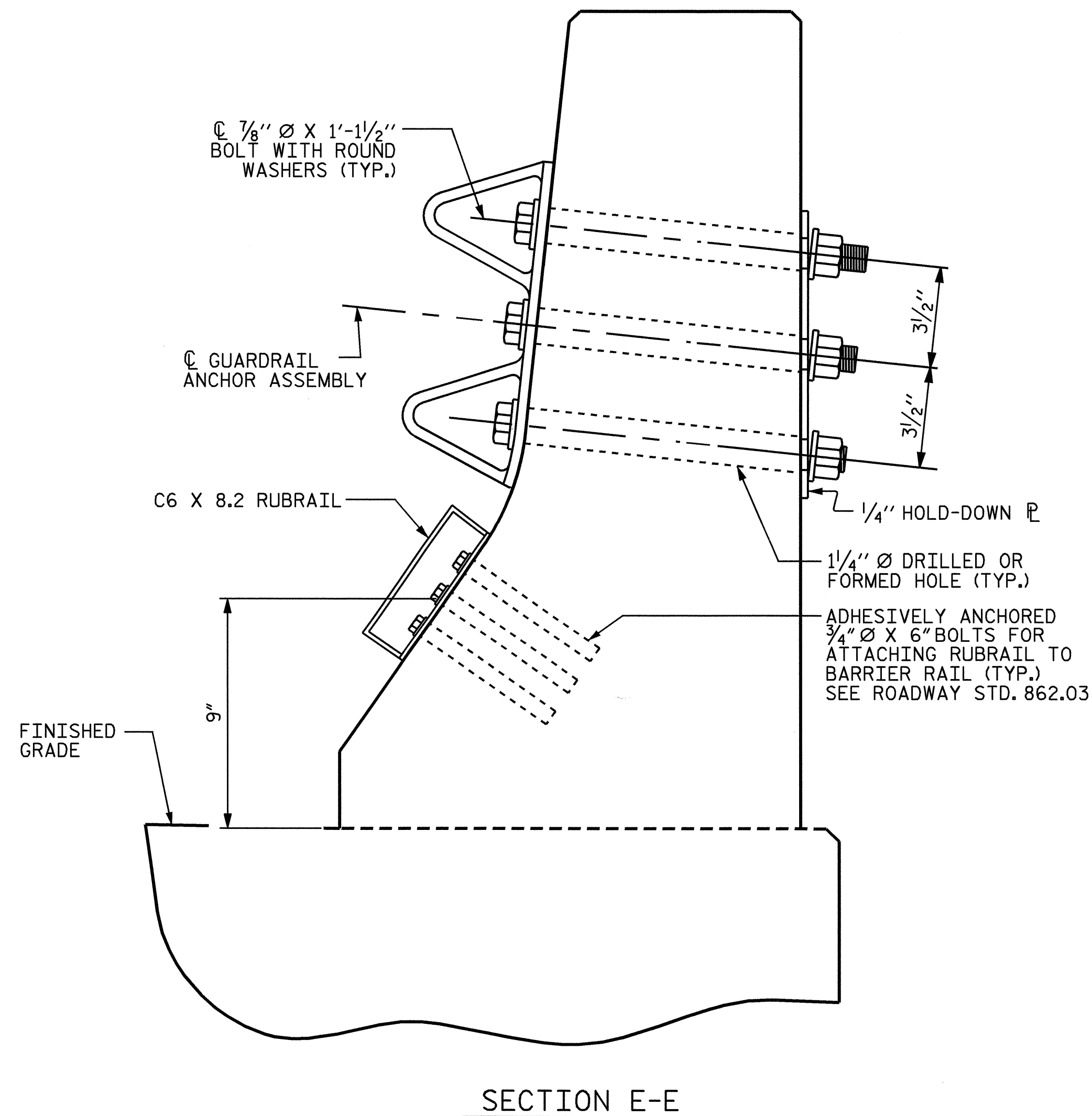
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

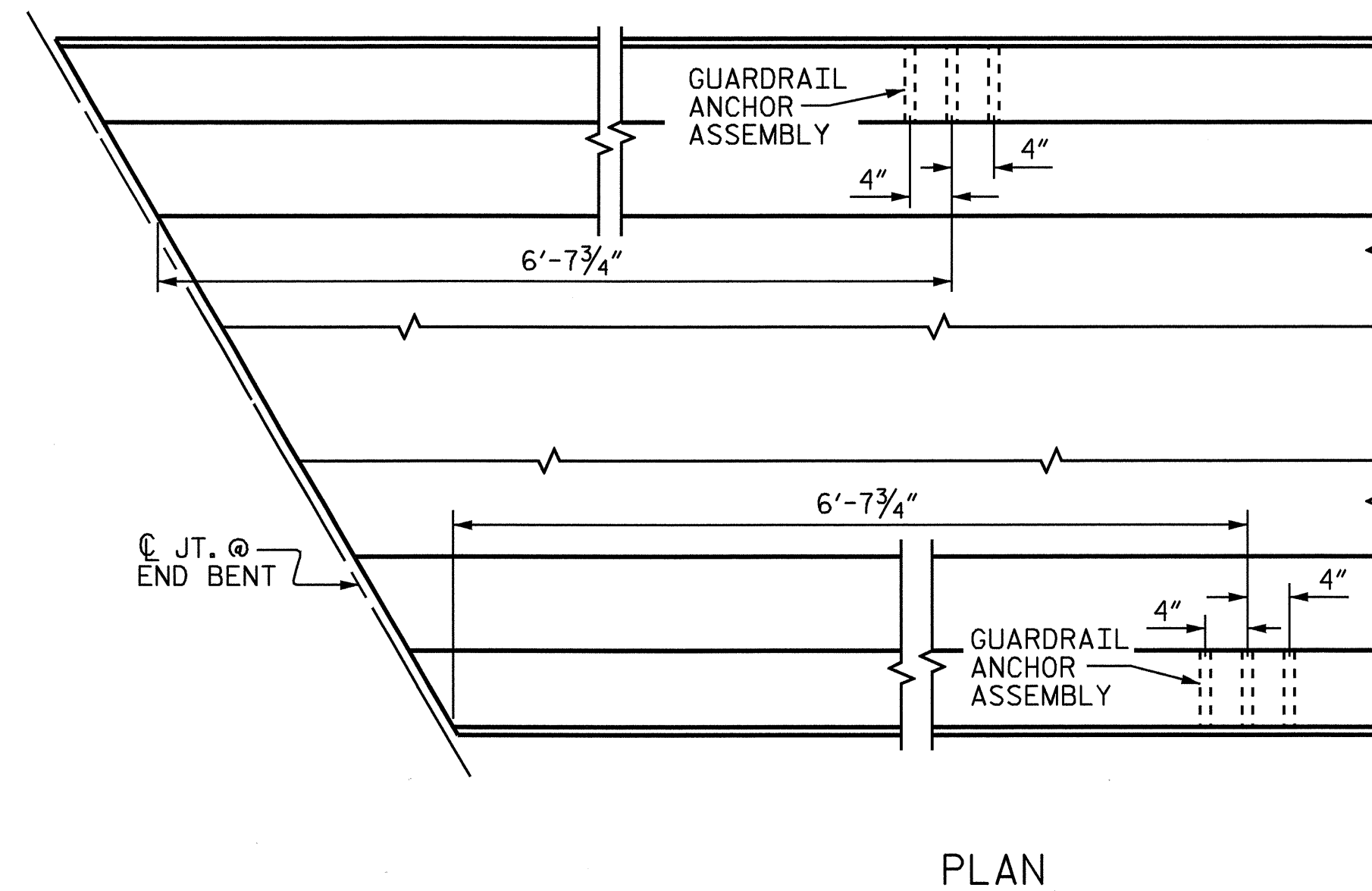
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS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



FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03

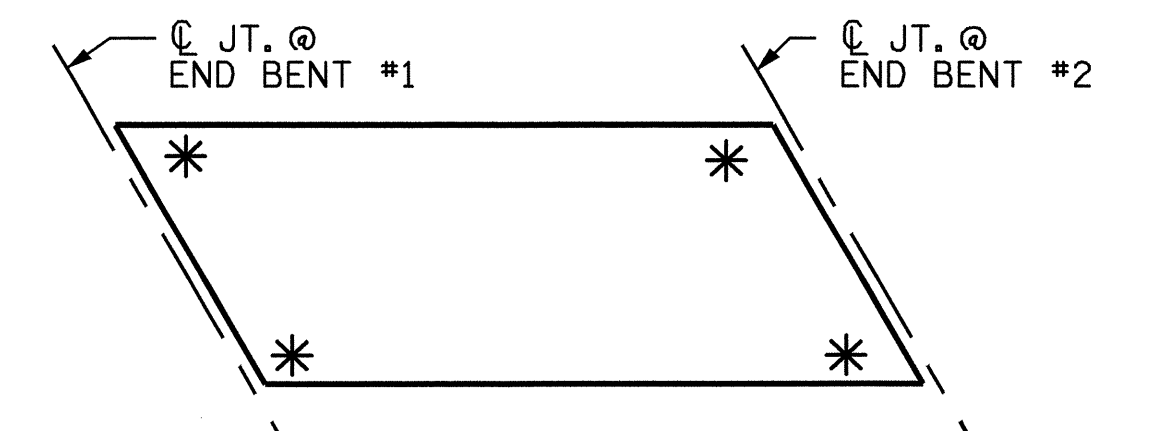


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

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



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-3492
McDOWELL COUNTY
 STATION: 13+44.00 -L-



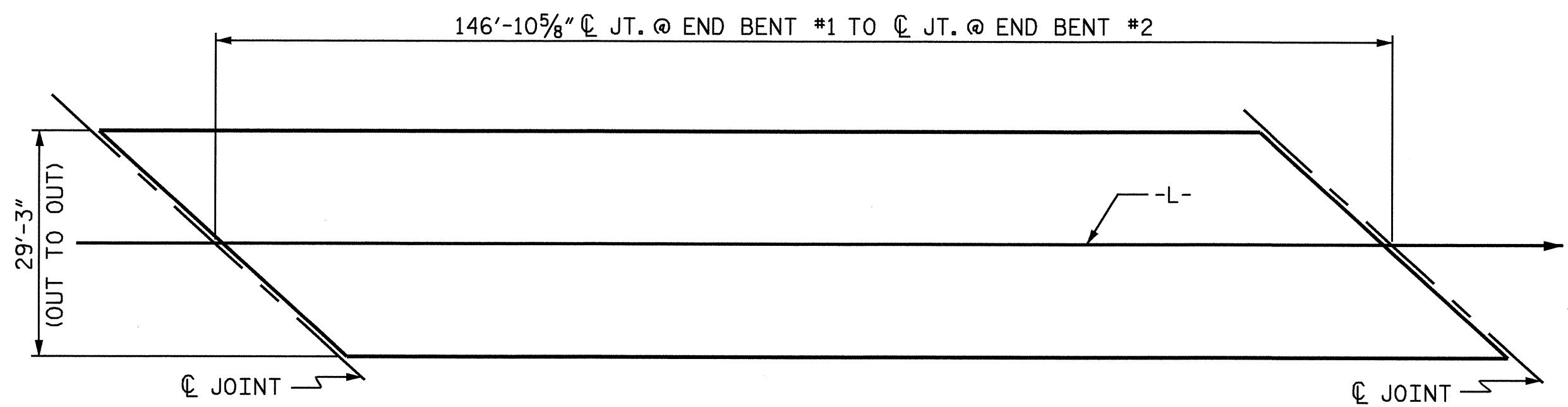
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR BARRIER RAIL

ASSEMBLED BY: R. G. EMERSON	DATE: 02/08
CHECKED BY: J. P. ADAMS	DATE: 02/08
DRAWN BY: TLA 5/06	ADDED 5/1/06R KMM/GM
CHECKED BY: GM 5/06	

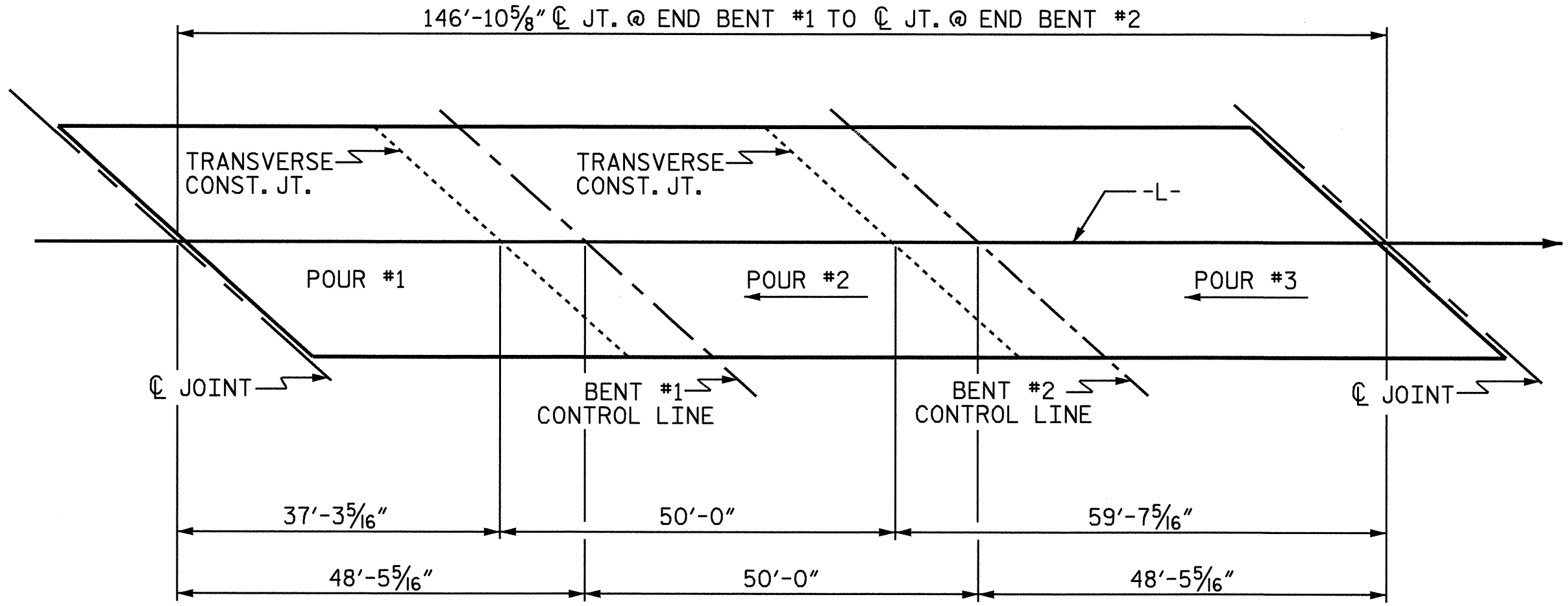
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 sdombrowski

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			30

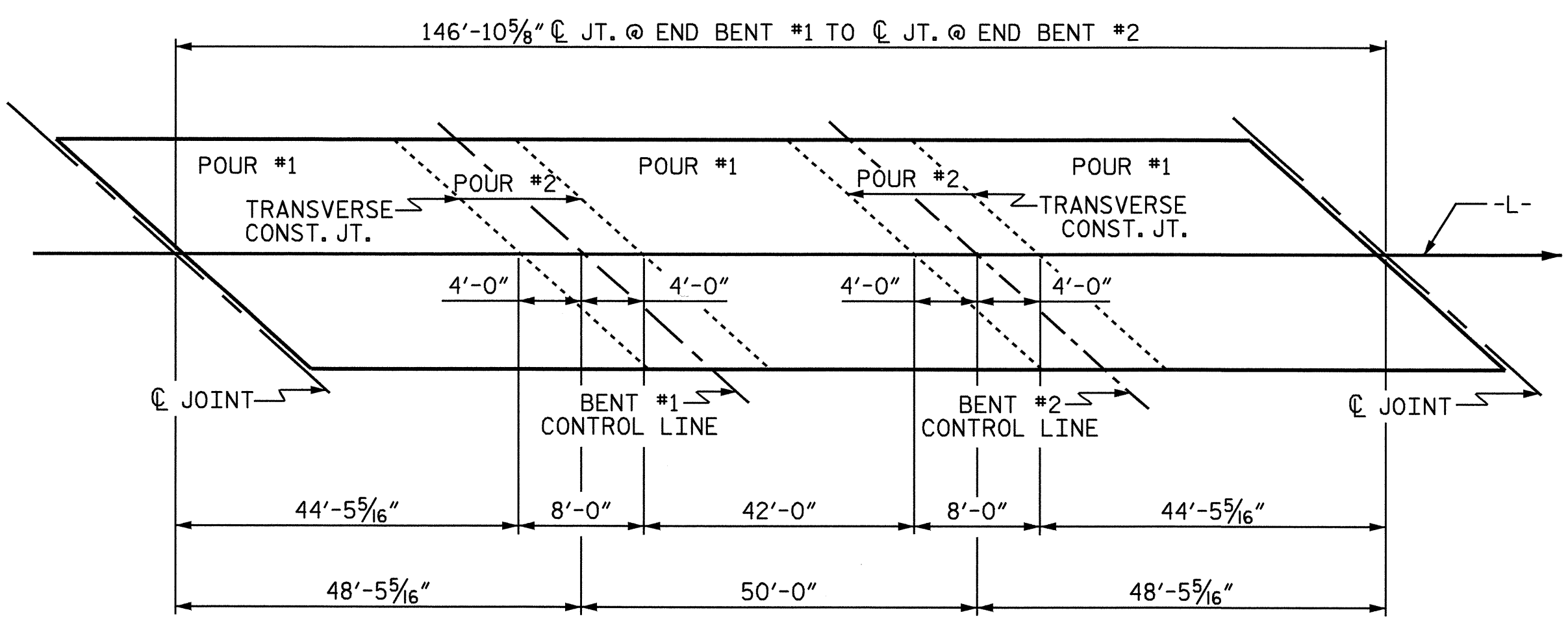
STD. NO. GRA2



LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ. FT. = 4,296)



POURING SEQUENCE



OPTIONAL POURING SEQUENCE

POUR #2 CAN NOT BE STARTED UNTIL BOTH ADJACENT #1 POURS REACH A MINIMUM OF 3000 PSI

REINFORCING BAR SCHEDULE

SPANS A, B, & C

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	196	#5	STR	28'-11"	5911	A217	4	#5	STR	11'-1"	46	
A2	196	#5	STR	28'-11"	5911	A218	4	#5	STR	10'-0"	42	
*A3	6	#6	STR	6'-0"	54	A219	4	#5	STR	8'-11"	37	
						A220	4	#5	STR	7'-11"	33	
*A101	4	#5	STR	27'-10"	116	A221	4	#5	STR	6'-10"	29	
*A102	4	#5	STR	26'-10"	112	A222	4	#5	STR	5'-10"	24	
*A103	4	#5	STR	25'-9"	107	A223	4	#5	STR	4'-9"	20	
*A104	4	#5	STR	24'-9"	103	A224	4	#5	STR	3'-8"	15	
*A105	4	#5	STR	23'-8"	99	A225	4	#5	STR	2'-8"	11	
*A106	4	#5	STR	22'-7"	94	A226	4	#5	STR	1'-7"	7	
*A107	4	#5	STR	21'-7"	90							
*A108	4	#5	STR	20'-6"	86							
*A109	4	#5	STR	19'-6"	81							
*A110	4	#5	STR	18'-5"	77	B1	105	#5	STR	50'-2"	5494	
*A111	4	#5	STR	17'-4"	72	*B2	84	#4	STR	16'-5"	921	
*A112	4	#5	STR	16'-4"	68	*B3	42	#7	STR	39'-6"	3391	
*A113	4	#5	STR	15'-3"	64	*B4	36	#7	STR	14'-9"	1085	
*A114	4	#5	STR	14'-2"	59	*B5	21	#4	STR	14'-0"	196	
*A115	4	#5	STR	13'-2"	55							
*A116	4	#5	STR	12'-1"	50	*G1	2	#5	STR	43'-2"	90	
*A117	4	#5	STR	11'-1"	46							
*A118	4	#5	STR	10'-0"	42	*K1	8	#8	1	16'-4"	349	
*A119	4	#5	STR	8'-11"	37	*K2	8	#8	2	23'-5"	500	
*A120	4	#5	STR	7'-11"	33	*K3	18	#6	STR	9'-4"	252	
*A121	4	#5	STR	6'-10"	29	K4	12	#4	3	13'-8"	110	
*A122	4	#5	STR	5'-10"	24	K5	12	#4	4	6'-11"	55	
*A123	4	#5	STR	4'-9"	20	K6	12	#4	STR	6'-10"	55	
*A124	4	#5	STR	3'-8"	15	K7	24	#4	STR	10'-1"	162	
*A125	4	#5	STR	2'-8"	11							
*A126	4	#5	STR	1'-7"	7	*S1	54	#4	5	4'-3"	153	
						*S2	54	#5	6	4'-10"	272	
A201	4	#5	STR	27'-10"	116	S3	96	#4	7	2'-9"	176	
A202	4	#5	STR	26'-10"	112							
A203	4	#5	STR	25'-9"	107							
A204	4	#5	STR	24'-9"	103	U1	12	#4	8	11'-0"	88	
A205	4	#5	STR	23'-8"	99	U2	36	#4	8	9'-10"	236	
A206	4	#5	STR	22'-7"	94							
A207	4	#5	STR	21'-7"	90							
A208	4	#5	STR	20'-6"	86							
A209	4	#5	STR	19'-6"	81							
A210	4	#5	STR	18'-5"	77							
A211	4	#5	STR	17'-4"	72							
A212	4	#5	STR	16'-4"	68							
A213	4	#5	STR	15'-3"	64							
A214	4	#5	STR	14'-2"	59							
A215	4	#5	STR	13'-2"	55							
A216	4	#5	STR	12'-1"	50							
										REINFORCING STEEL	LB.	13,884
										*EPOXY COATED REINFORCING STEEL	LB.	14,771

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR #1	33.7		
POUR #2	53.5		
POUR #3	62.5		
TOTALS**	149.7	13,884	14,771

QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

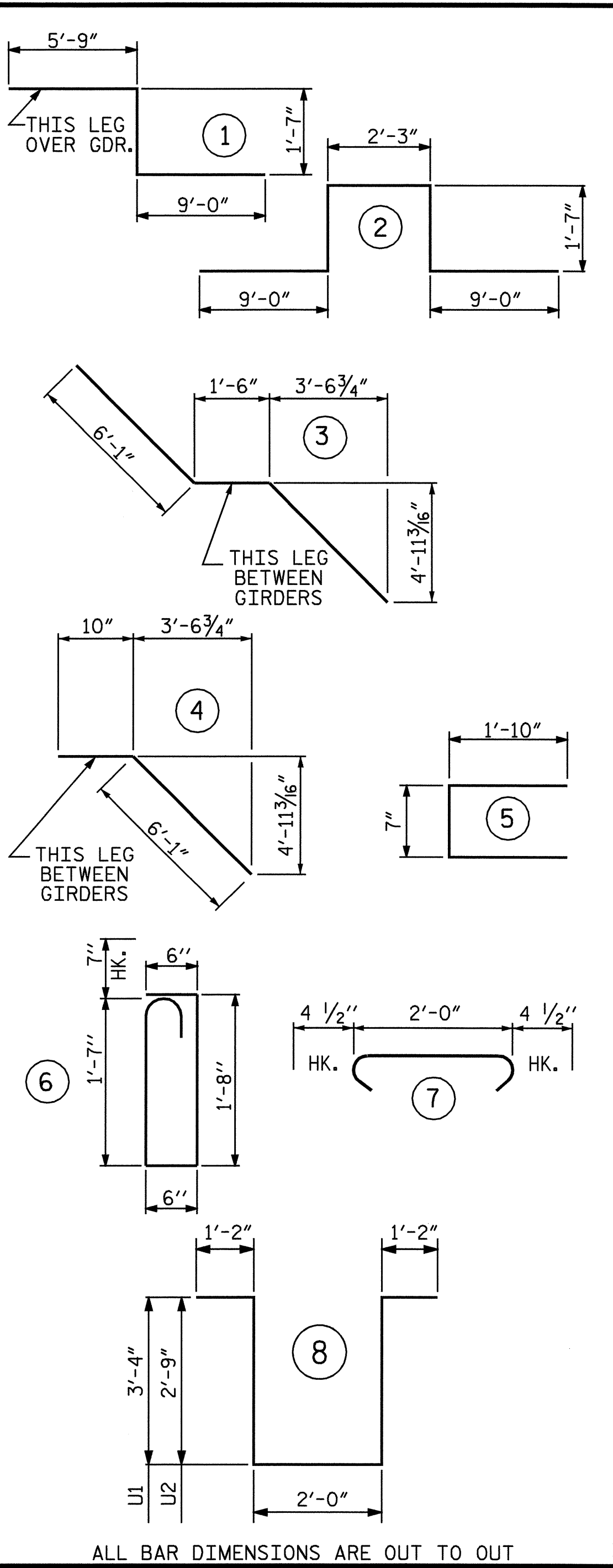
GROOVING BRIDGE FLOORS

APPROACH SLABS	602 SQ.FT.
BRIDGE DECK	3364 SQ.FT.
TOTAL	3966 SQ.FT.

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"	—	—	—

BAR TYPES

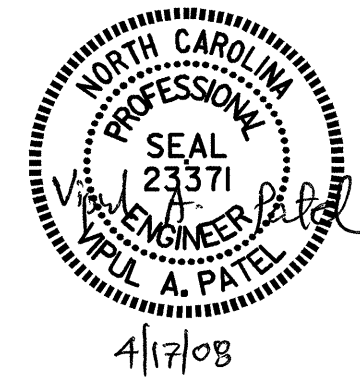


ALL BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. B-3492

McDOWELL COUNTY

STATION: 13+44.00 -L-



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS 30
2			4			

ASSEMBLED BY : R. G. EMERSON	DATE : 09/06
CHECKED BY : J. P. ADAMS	DATE : 09/06
DRAWN BY : JMB 5/87	REV. 6/1/94 EEM/GRP
CHECKED BY : SJD 9/87	REV. 8/16/99 RWW/LES
	REV. 5/1/06 TLA/GM

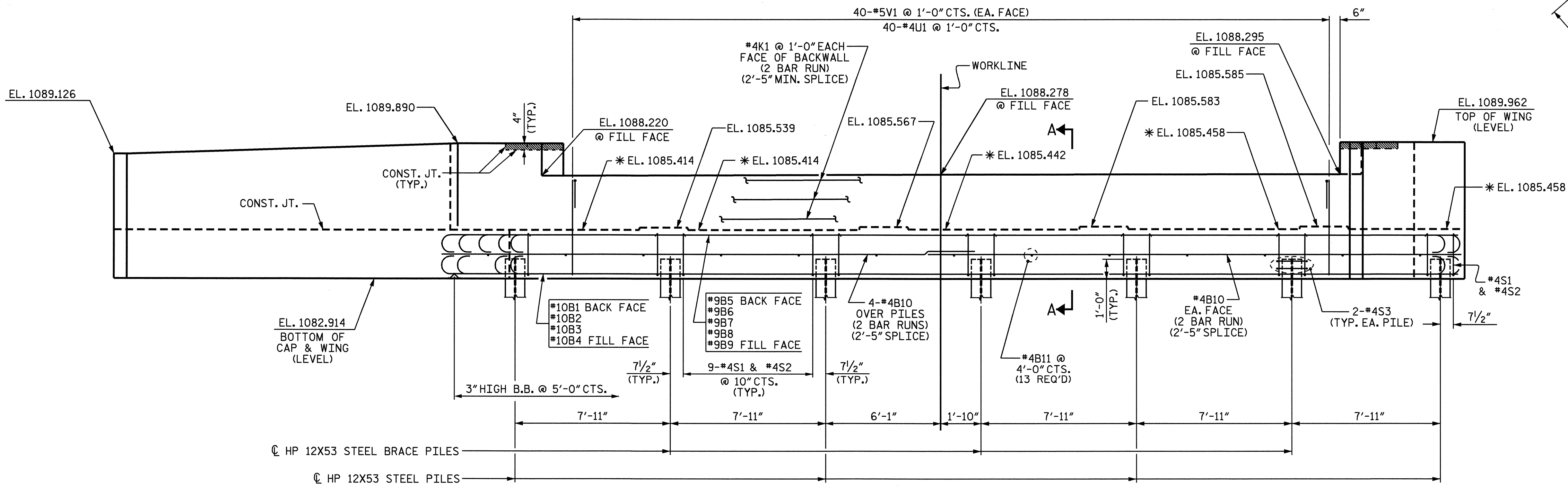
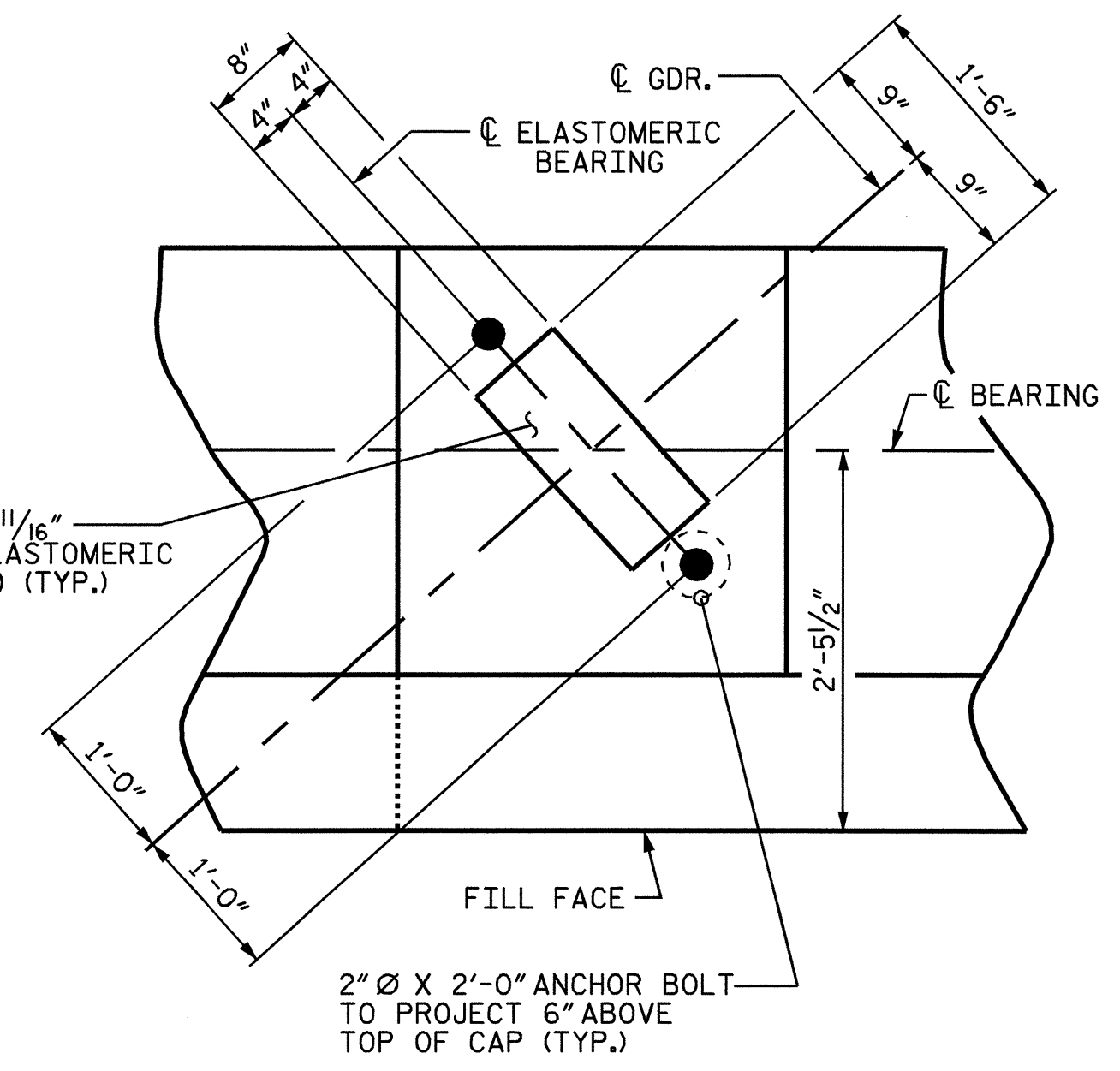
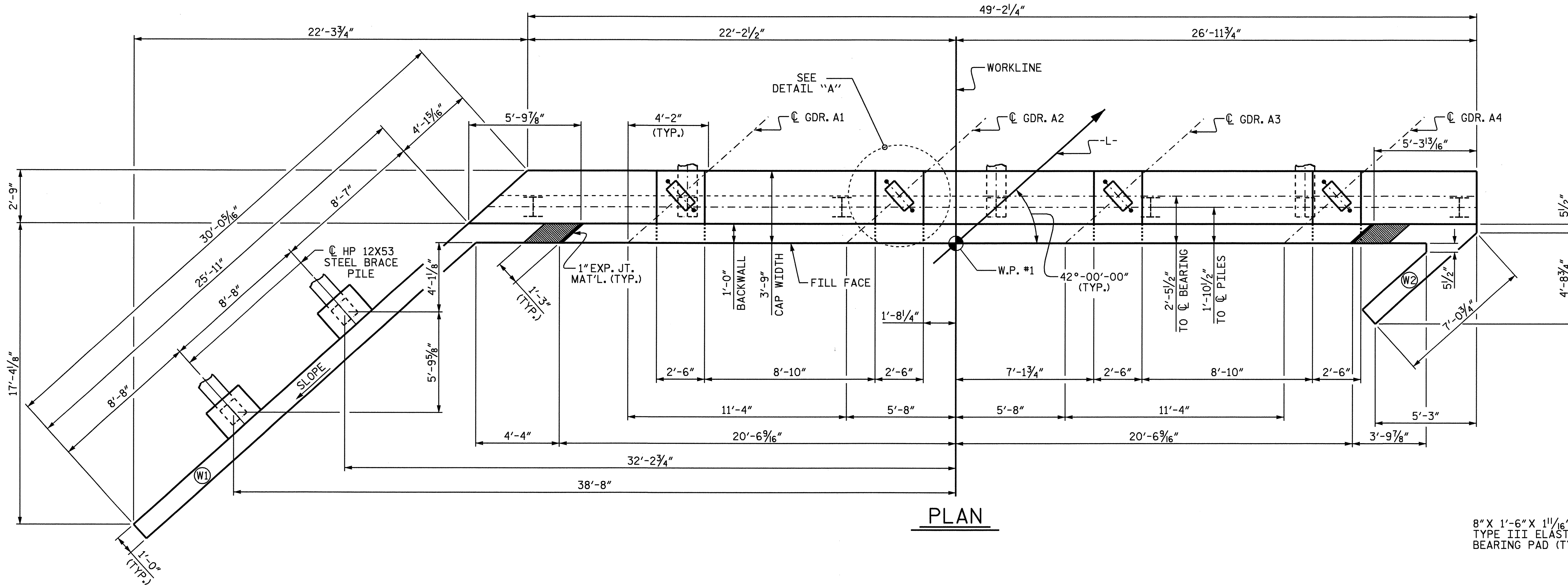
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

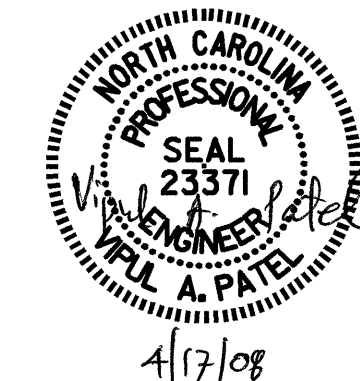
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



WING BRACE PILES NOT SHOWN FOR CLARITY

* SEE SHEET 3 OF 3 FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS.

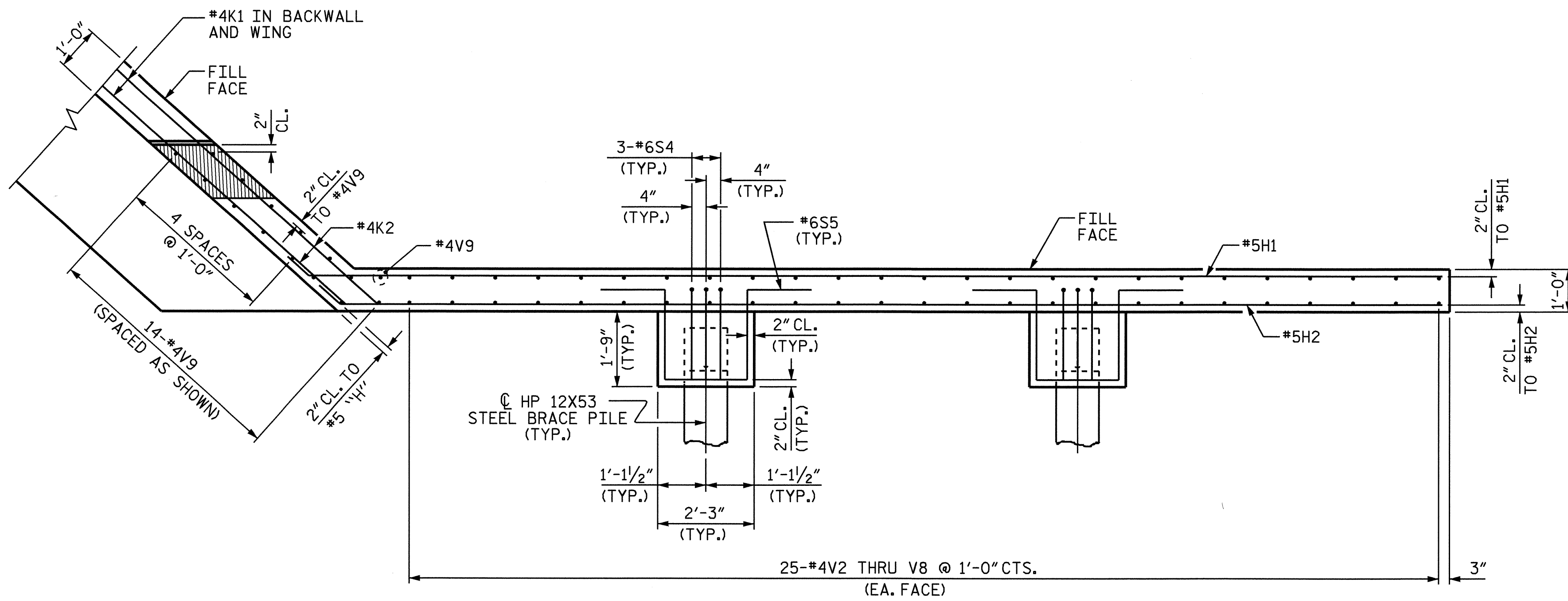


PROJECT NO. B-3492
 McDOWELL COUNTY
 STATION: 13+44.00 -L-

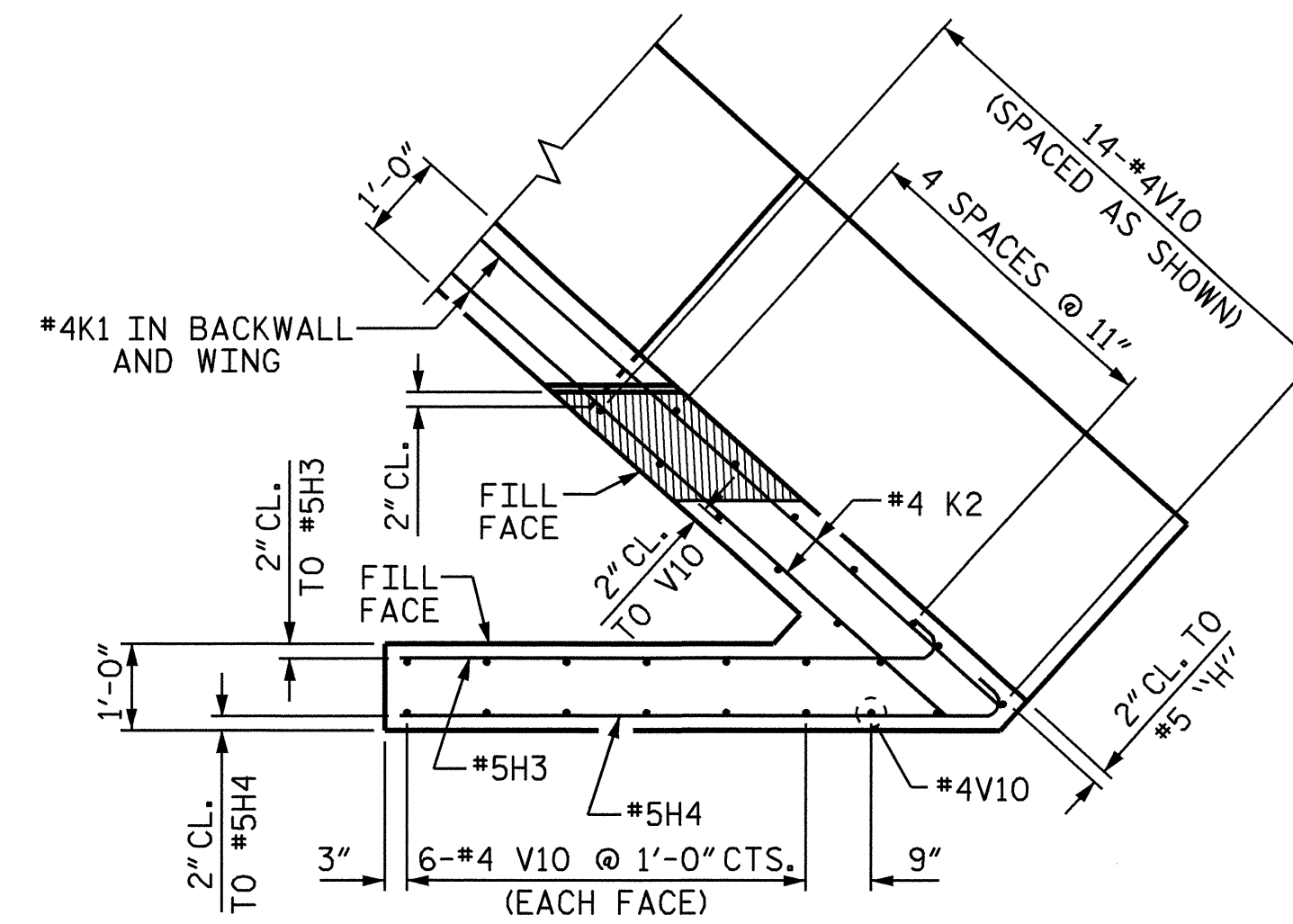
SHEET 1 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					30

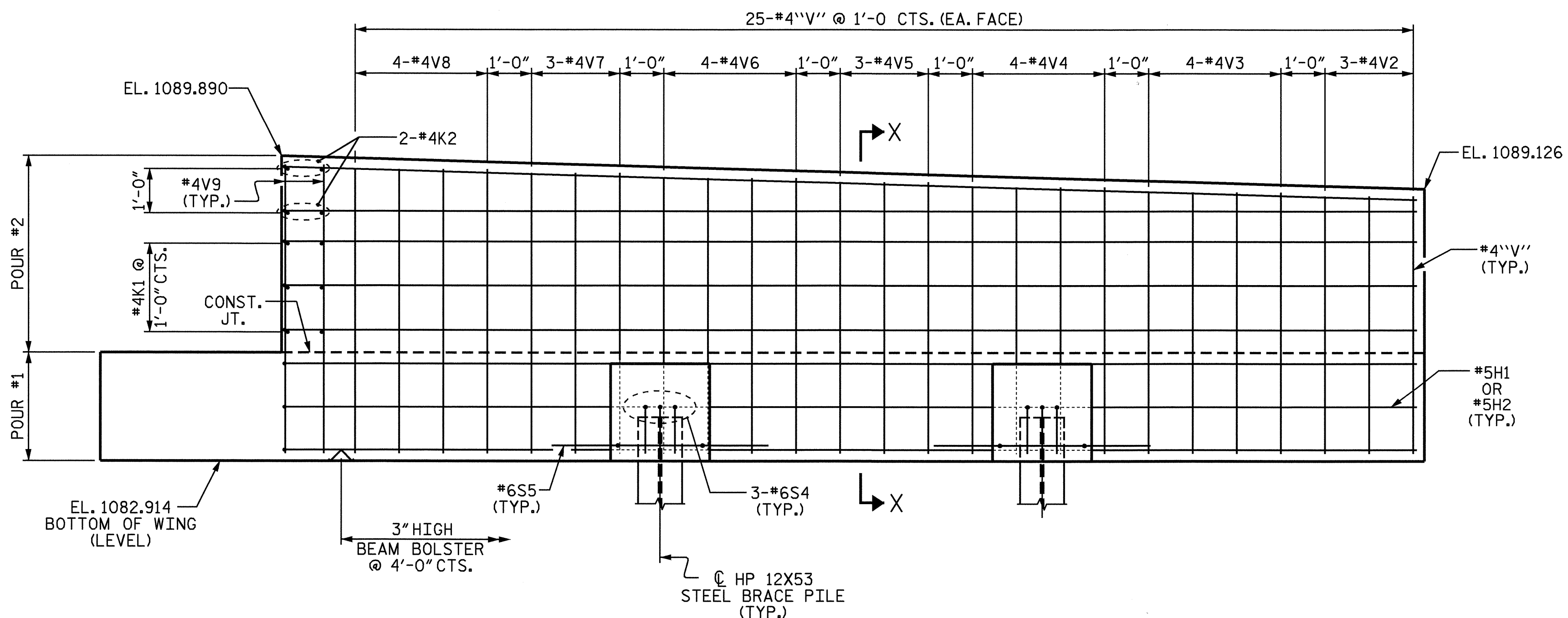
DRAWN BY: D.V. JOYNER DATE: 3-07
 CHECKED BY: S. DOMBROWSKI DATE: 3-07



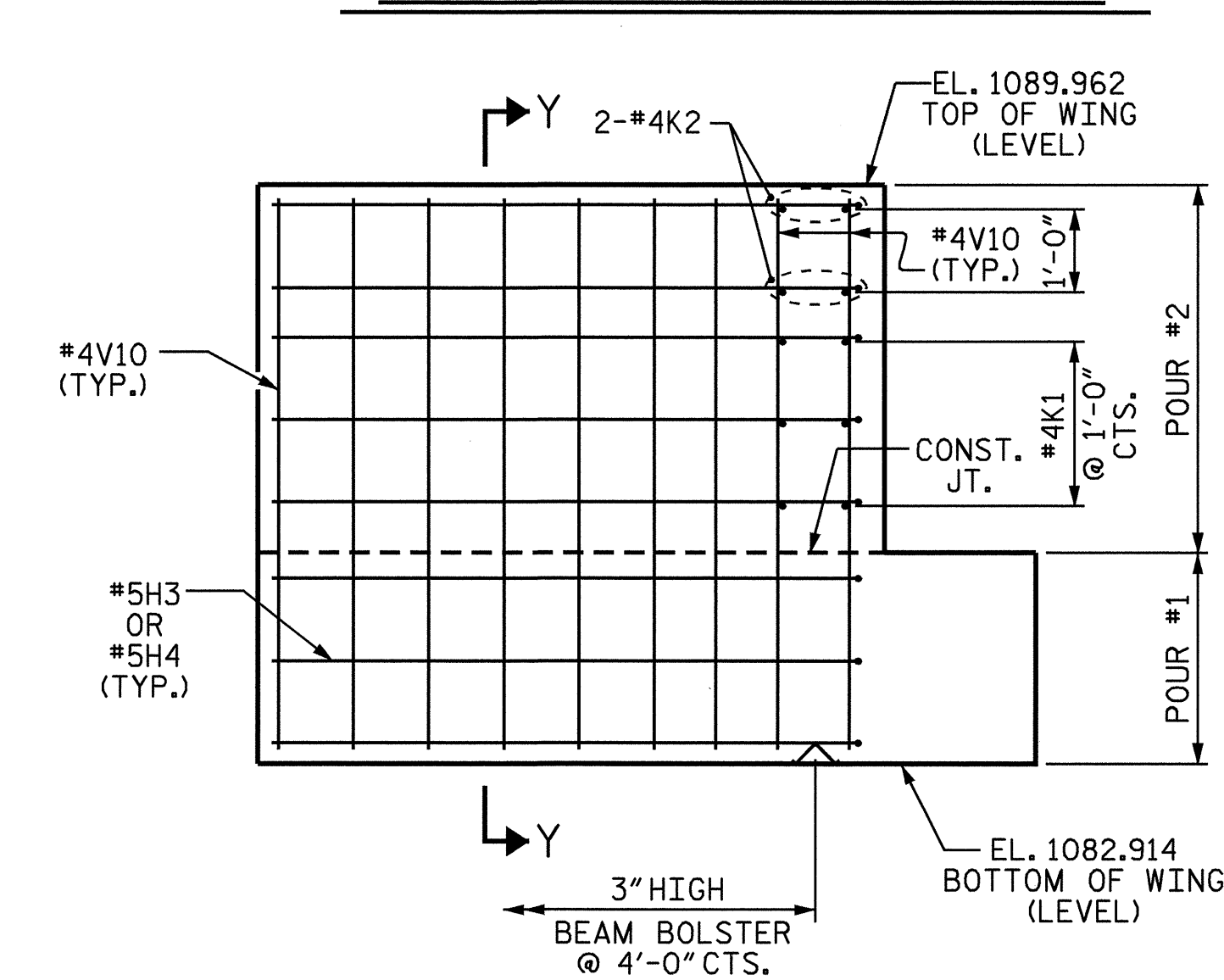
PLAN OF WING-W1



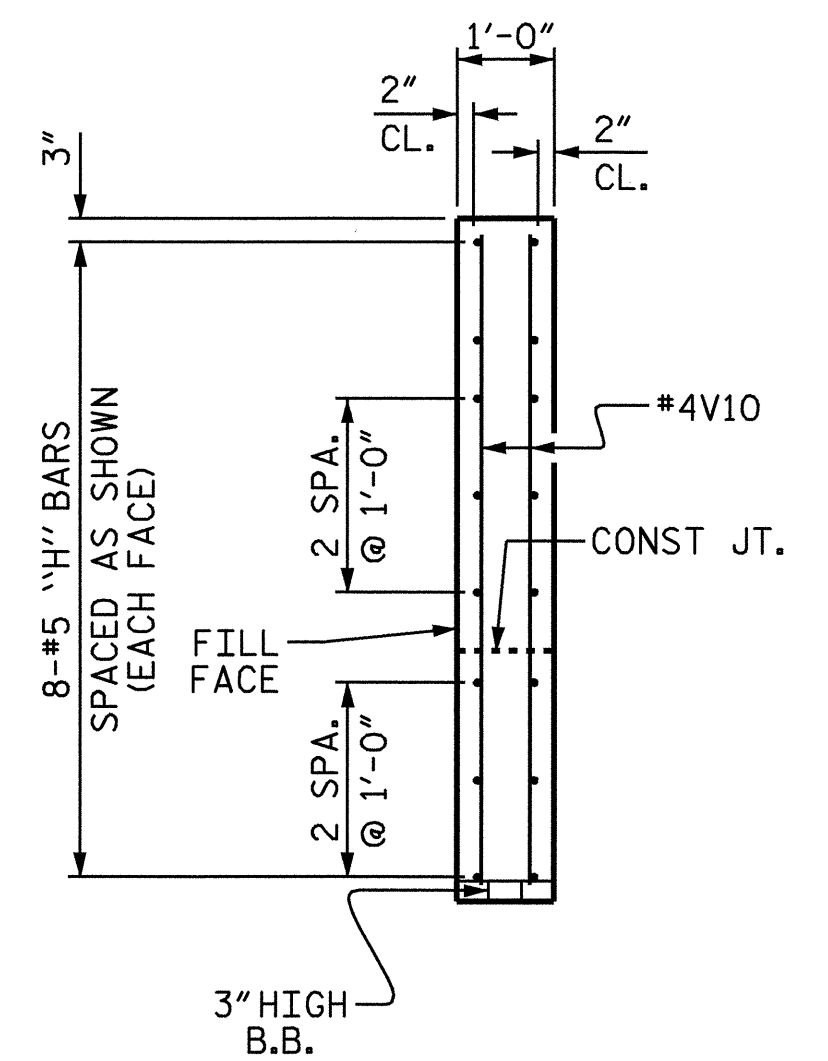
PLAN OF WING-W2



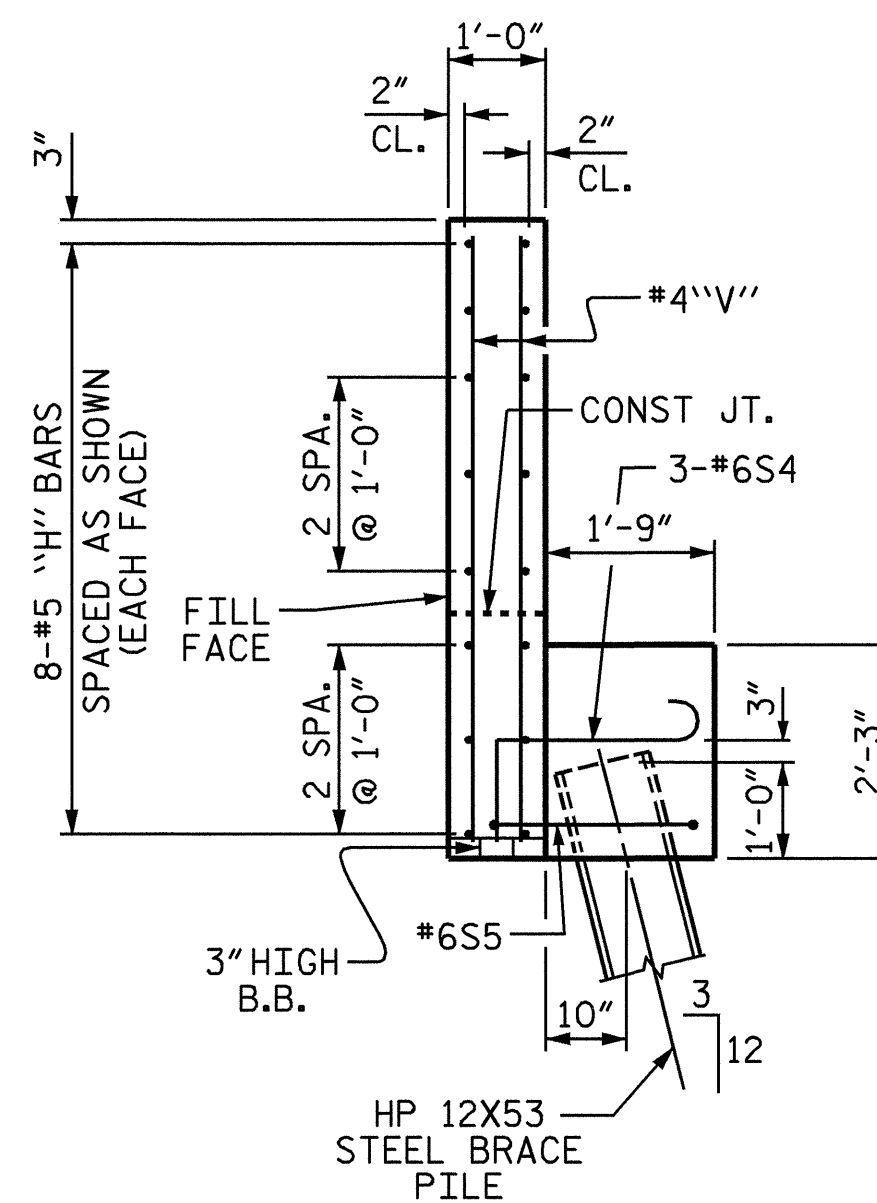
ELEVATION OF WING-W1



ELEVATION OF WING-W2



SECTION Y-Y



SECTION X-X

PROJECT NO. B-3492
 McDOWELL COUNTY
 STATION: 13+44.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #1



DRAWN BY: D.V. JOYNER DATE: 3-07
 CHECKED BY: S. DOMBROWSKI DATE: 3-07

15-APR-2008 08:03
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 sdombrowski

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			30

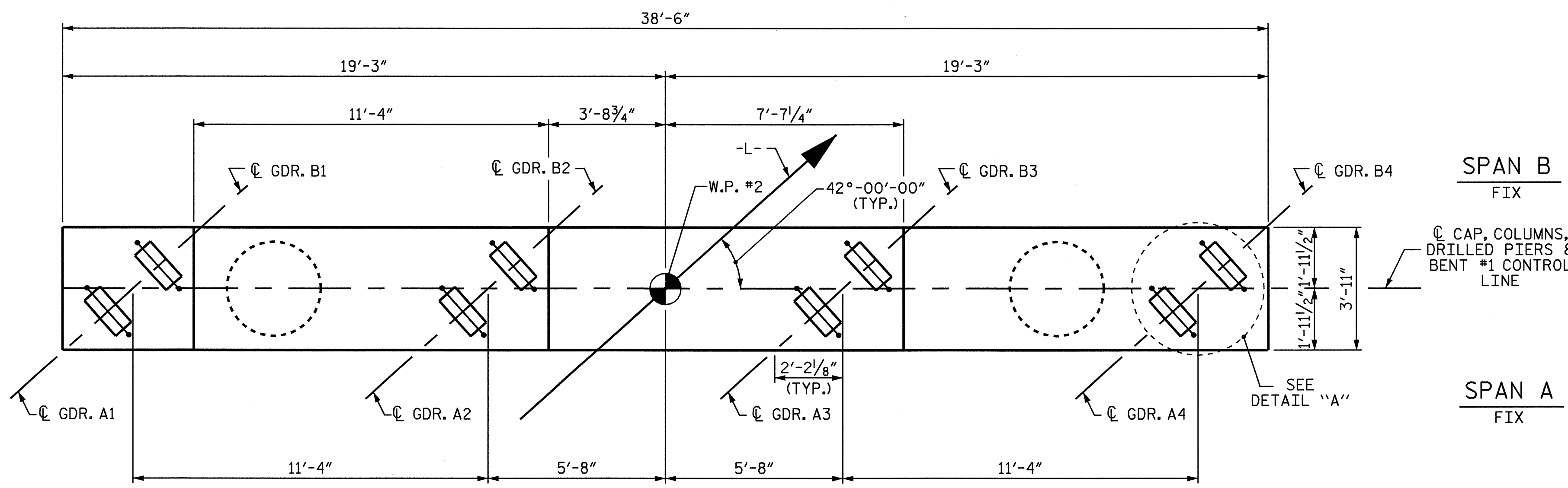
NOTES

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

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

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

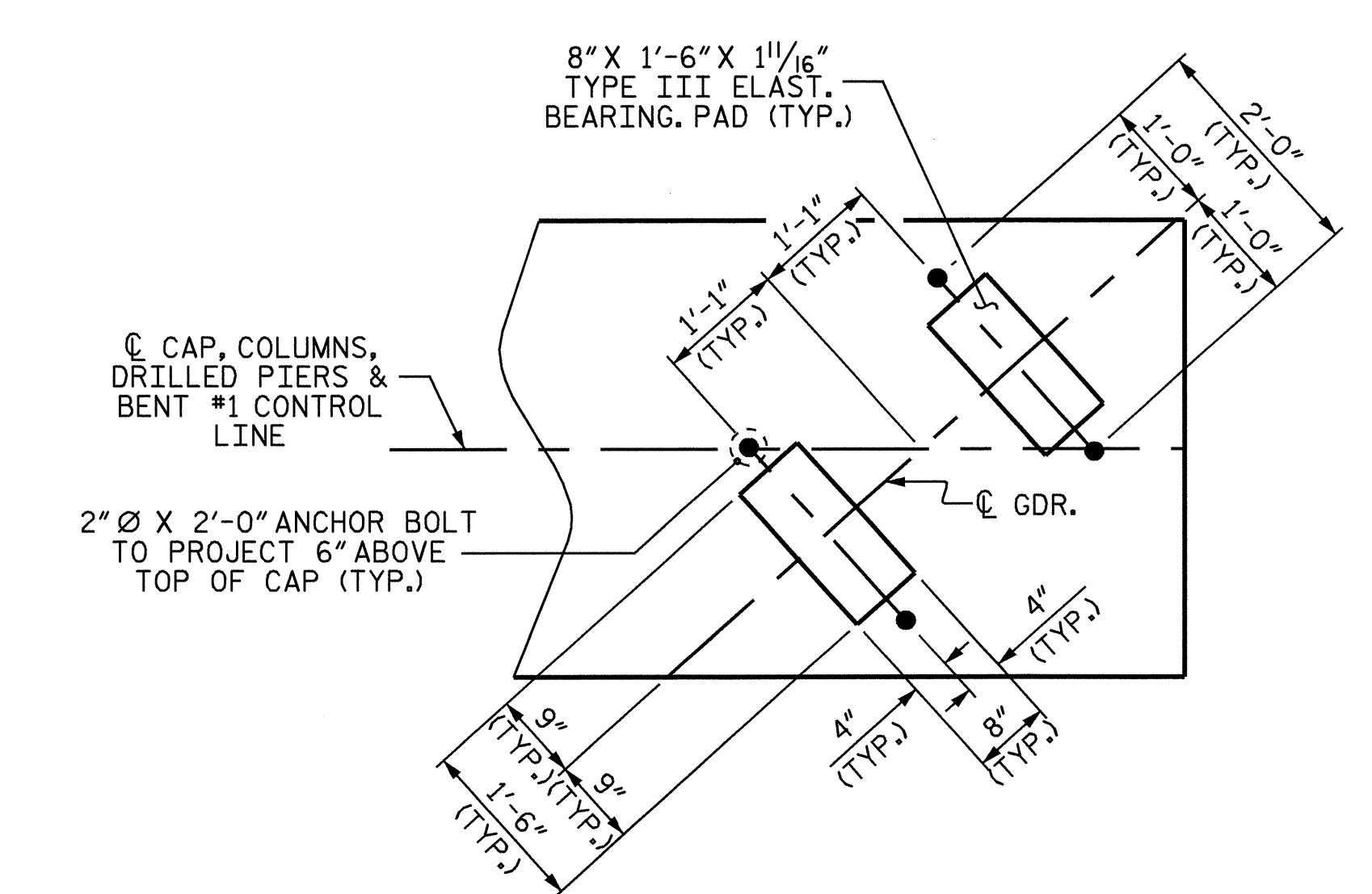
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.



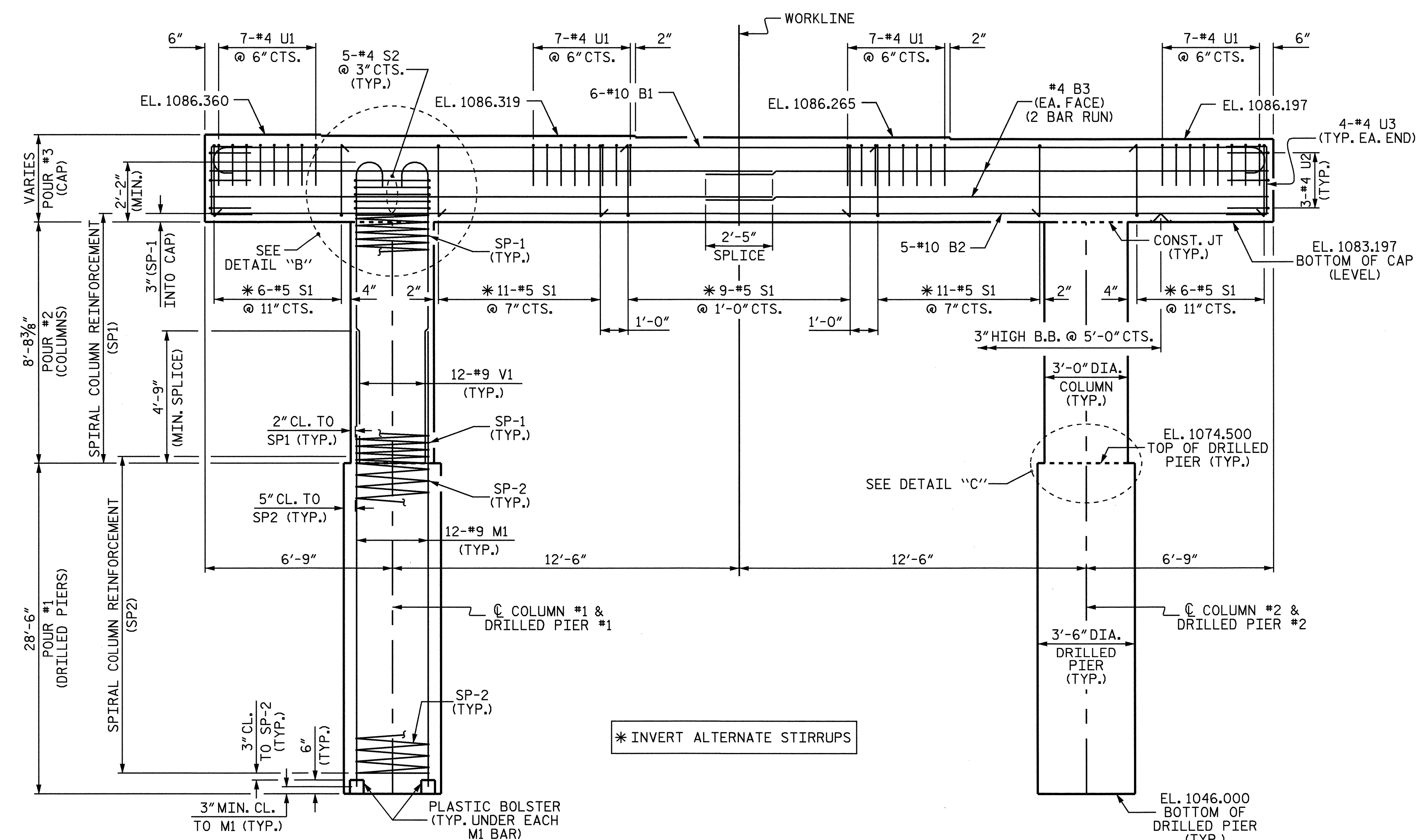
PLAN

SPAN B
FIX

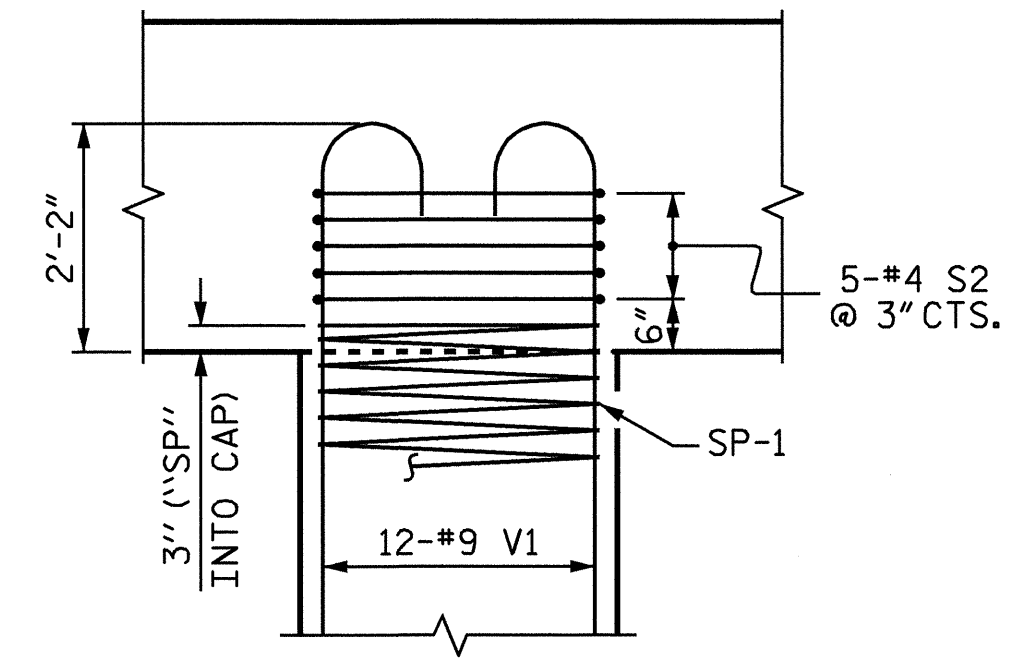
SPAN A
FIX



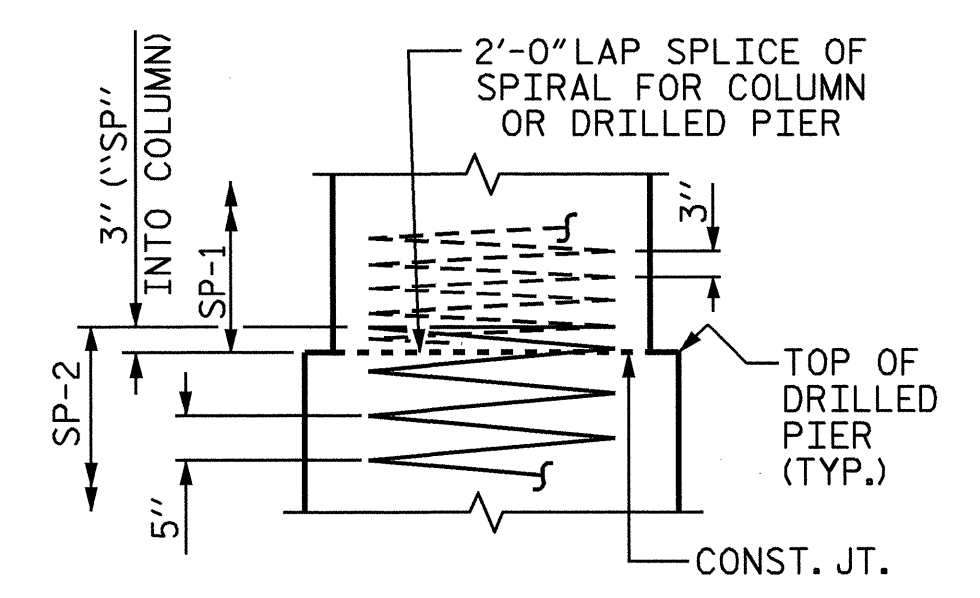
DETAIL "A"



ELEVATION



DETAIL "B"

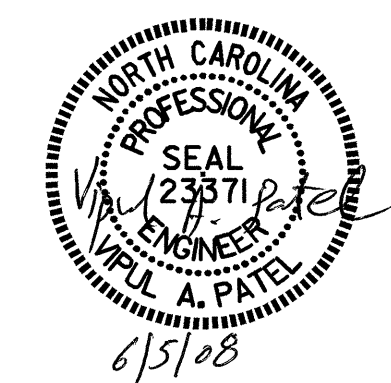


DETAIL "C"

PROJECT NO. B-3492
McDOWELL COUNTY
 STATION: 13+44.00 -L-

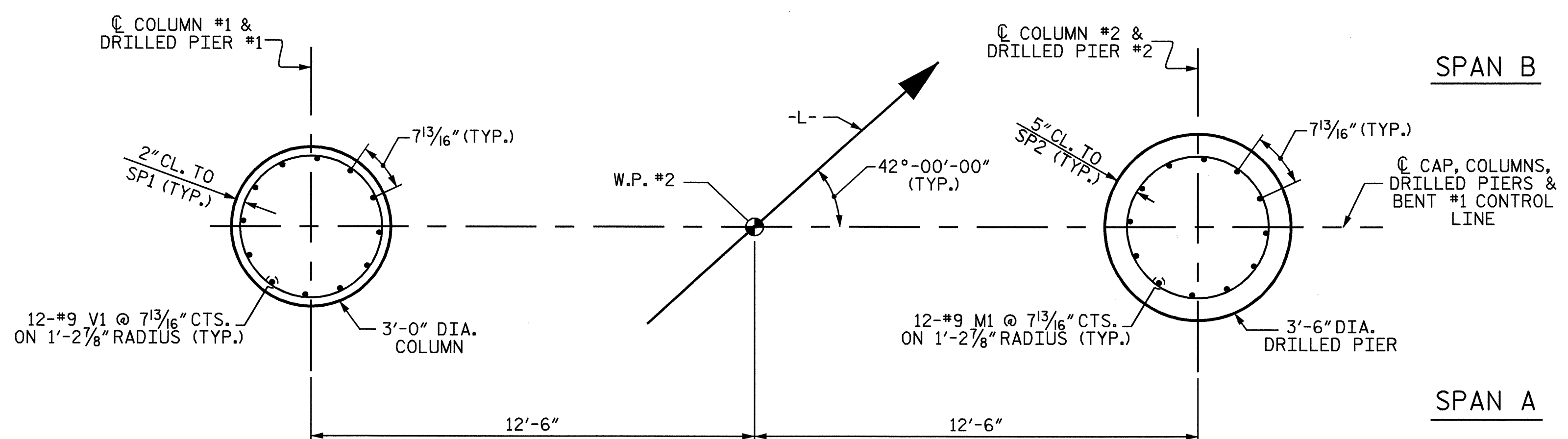
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT #1



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21	
1			3			TOTAL SHEETS	
2			4			30	

DRAWN BY: S. DOMBROWSKI DATE: 9/07
 CHECKED BY: H. LOCKLEAR DATE: 1/08

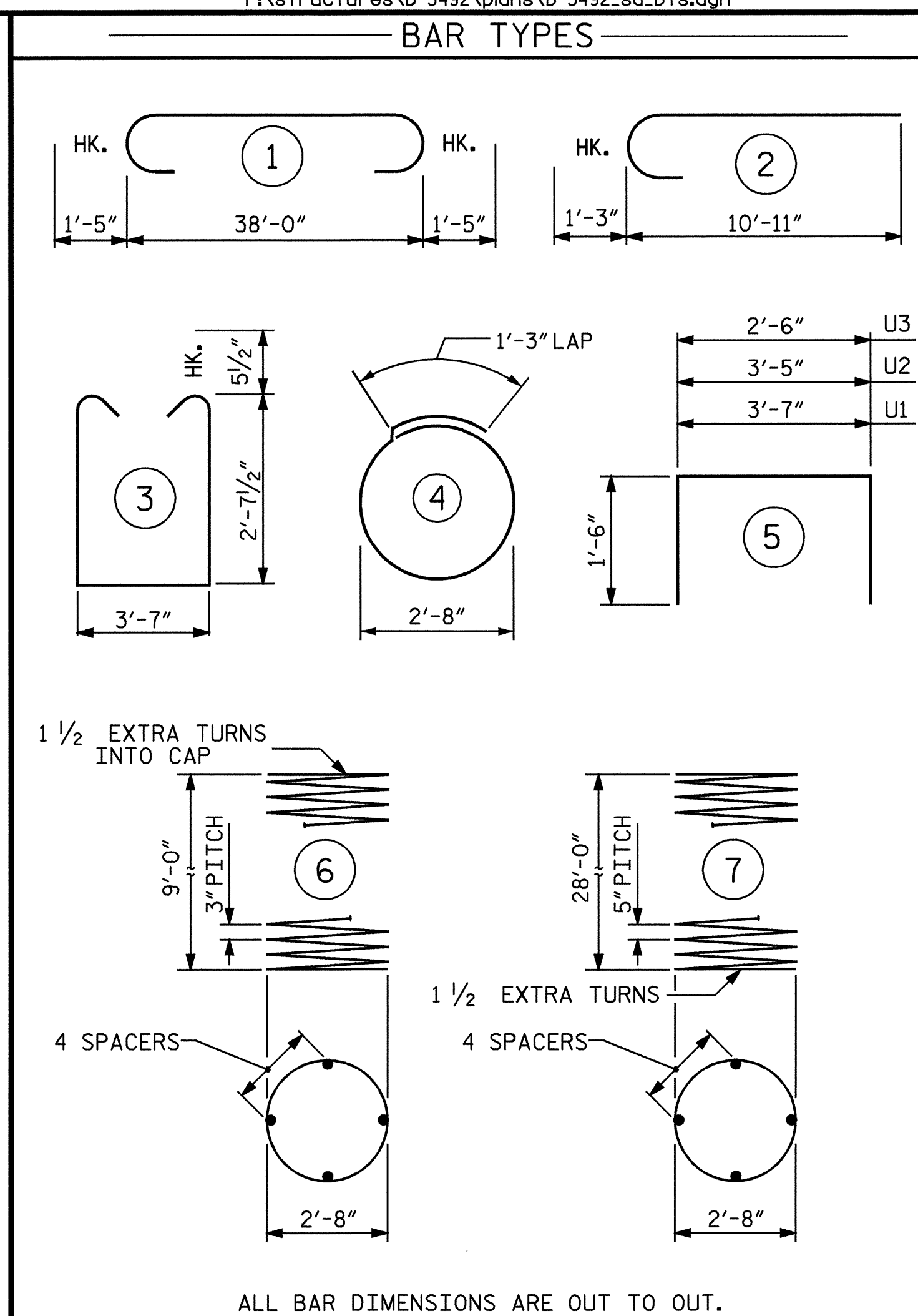


PARTIAL PLAN OF COLUMNS

PARTIAL PLAN OF DRILLED PIERS

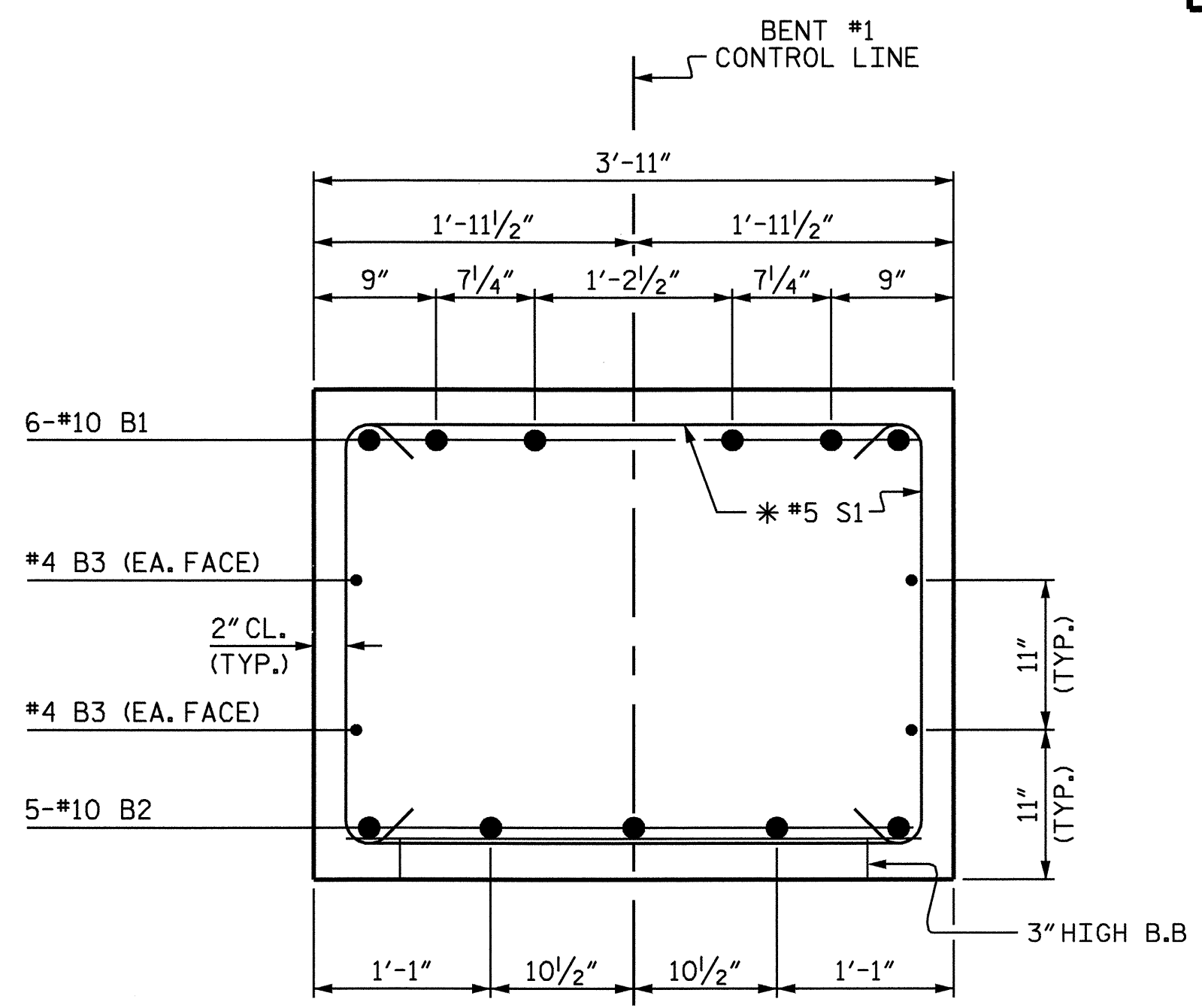
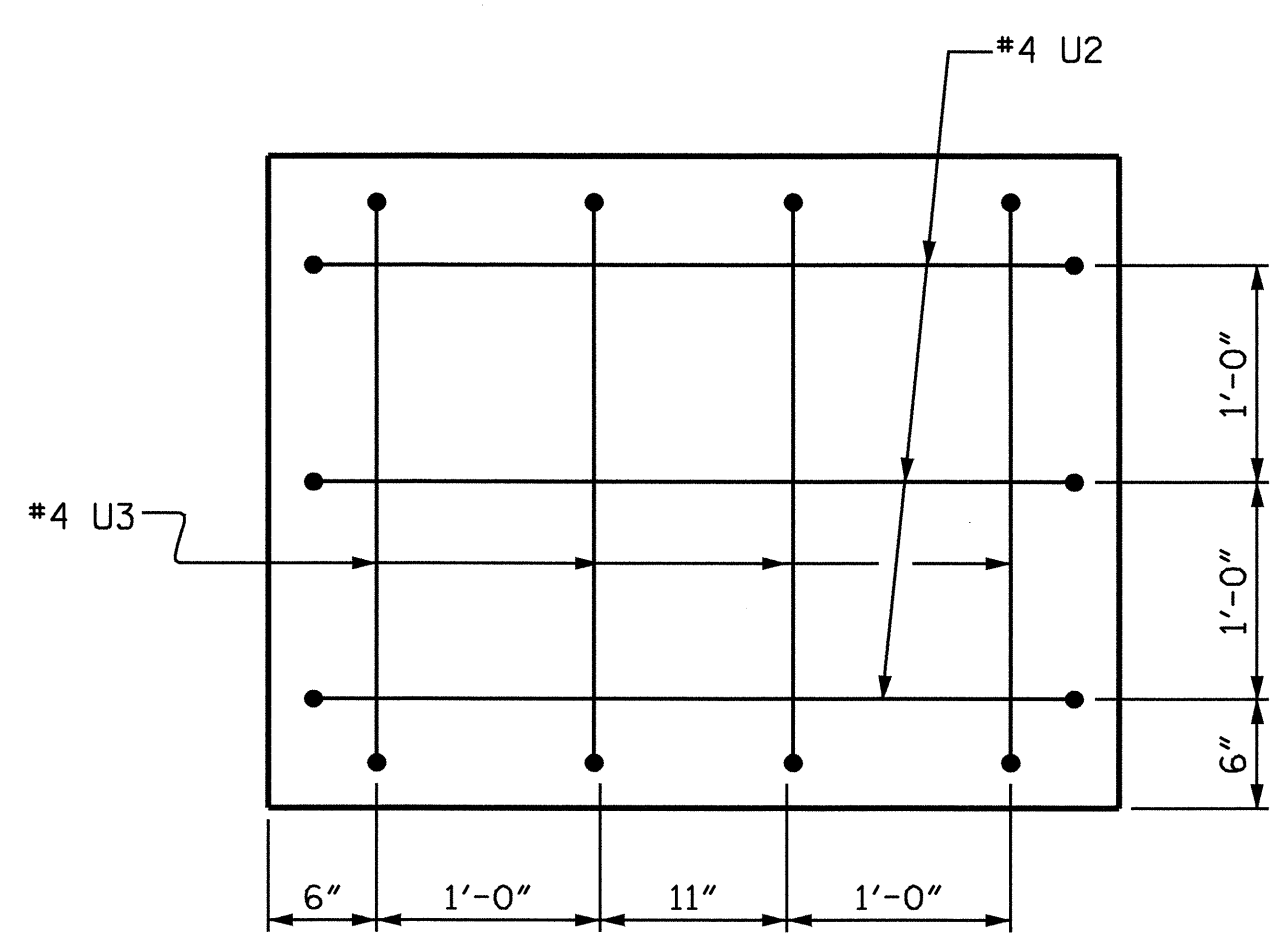
PLAN OF COLUMNS & DRILLED PIERS

REINFORCING STEEL, DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND DRILLED PIER



** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR
 *** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR

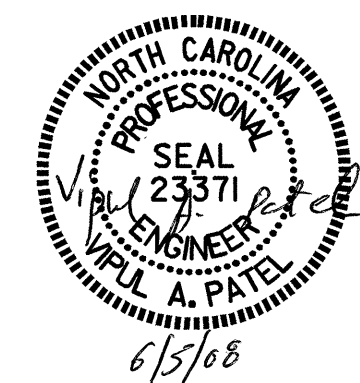
BILL OF MATERIAL					
BENT #1					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	#10		40'-10"	1054	
B2	#10	STR	38'-2"	821	
B3	#4	STR	20'-4"	109	
M1	#9	STR	36'-0"	2938	
S1	#5		9'-9"	437	
S2	#4		9'-8"	65	
U1	#4		6'-7"	123	
U2	#4		6'-5"	26	
U3	#4		5'-6"	29	
V1	#9		12'-2"	993	
TOTAL REINFORCING STEEL LBS.				6595	
SP1	**	6	311'-5"	416	
SP2	***	7	565'-1"	1179	
TOTAL SPIRAL COLUMN REINFORCING STEEL LBS.				1595	
CLASS A CONCRETE BREAKDOWN					
POUR #2 (COLUMNS)				4.6	C.Y.
POUR #3 (BENT CAP)				17.2	C.Y.
TOTAL CLASS A CONCRETE				21.8	C.Y.
DRILLED PIER QUANTITIES					
DRILLED PIER CONCRETE					
POUR #1 (DRILLED PIERS)				20.3	C.Y.
3'-6" DIA. DRILLED PIERS IN SOIL				39.0	LIN. FT.
3'-6" DIA. DRILLED PIERS NOT IN SOIL				18.0	LIN. FT.
PERMANENT STEEL CASING FOR 3'-6" DIA DRILLED PIER				39.0	LIN. FT.
CROSSHOLE SONIC LOGGING:				1	EACH
CSL TUBES:				248	LIN. FT.



PROJECT NO. B-3492
 McDOWELL COUNTY
 STATION: 13+44.00 -L-

SHEET 2 OF 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			30



DRAWN BY : S. DOMBROWSKI DATE : 9/07
 CHECKED BY : H. LOCKLEAR DATE : 1/08

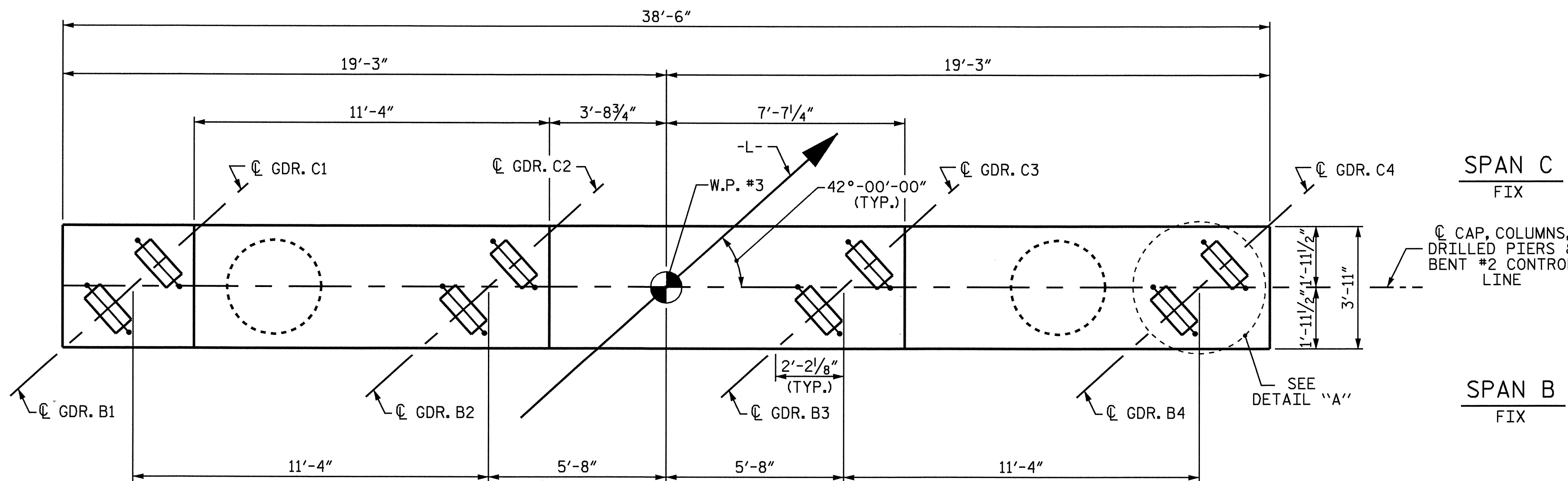
NOTES

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

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

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

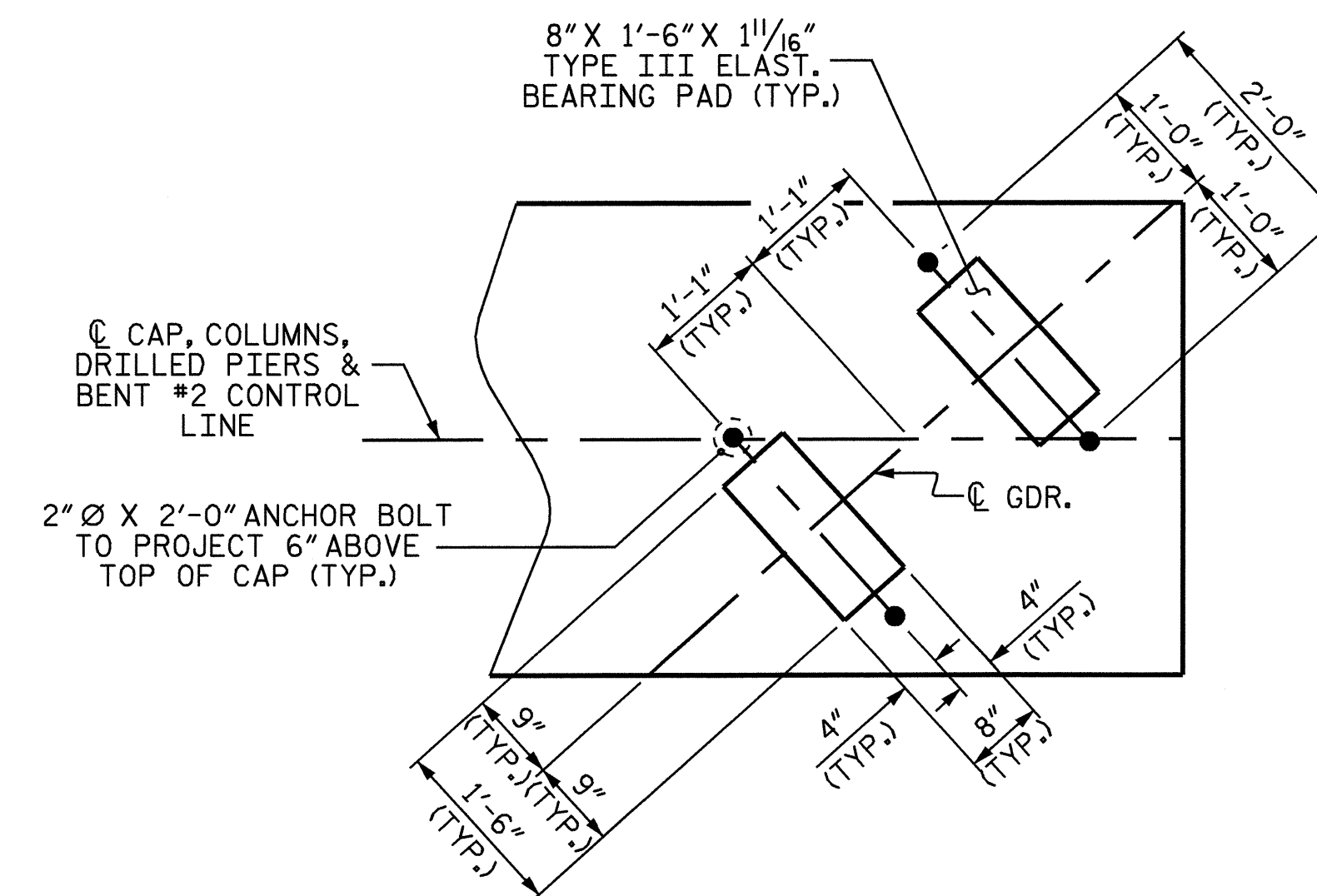
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.



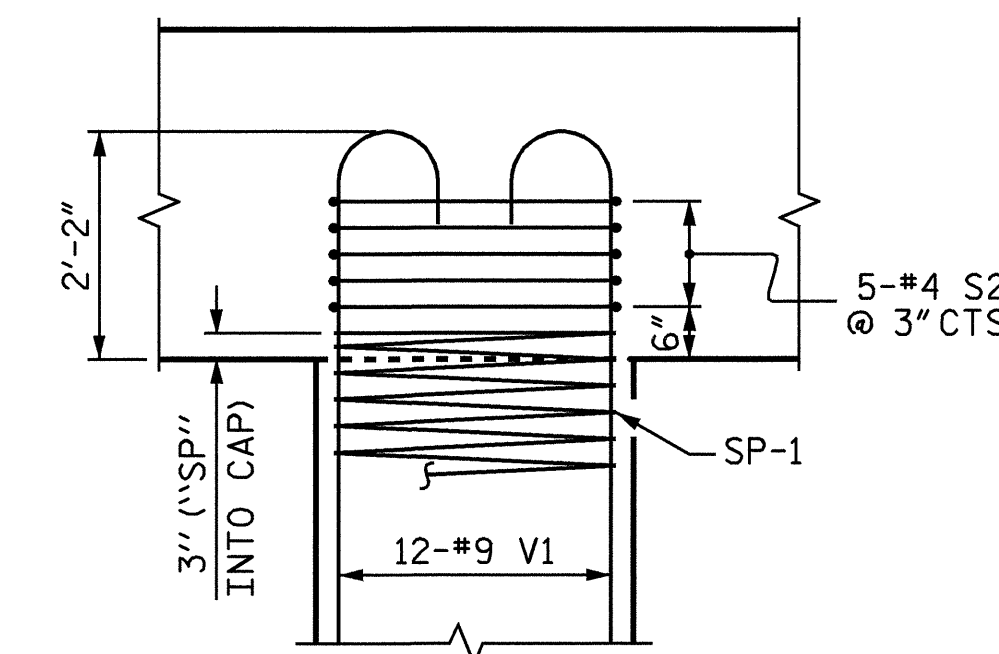
PLAN

SPAN C
FIX

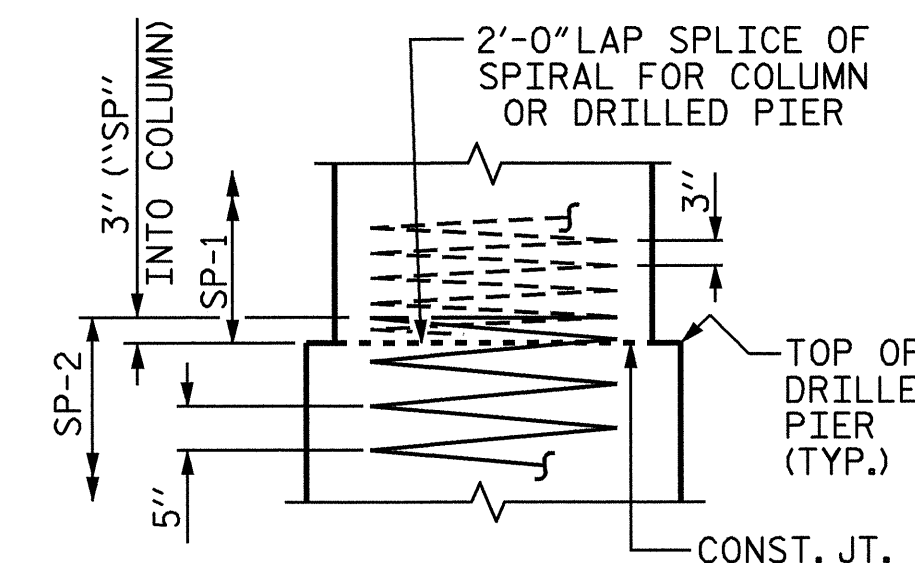
SPAN B
FIX



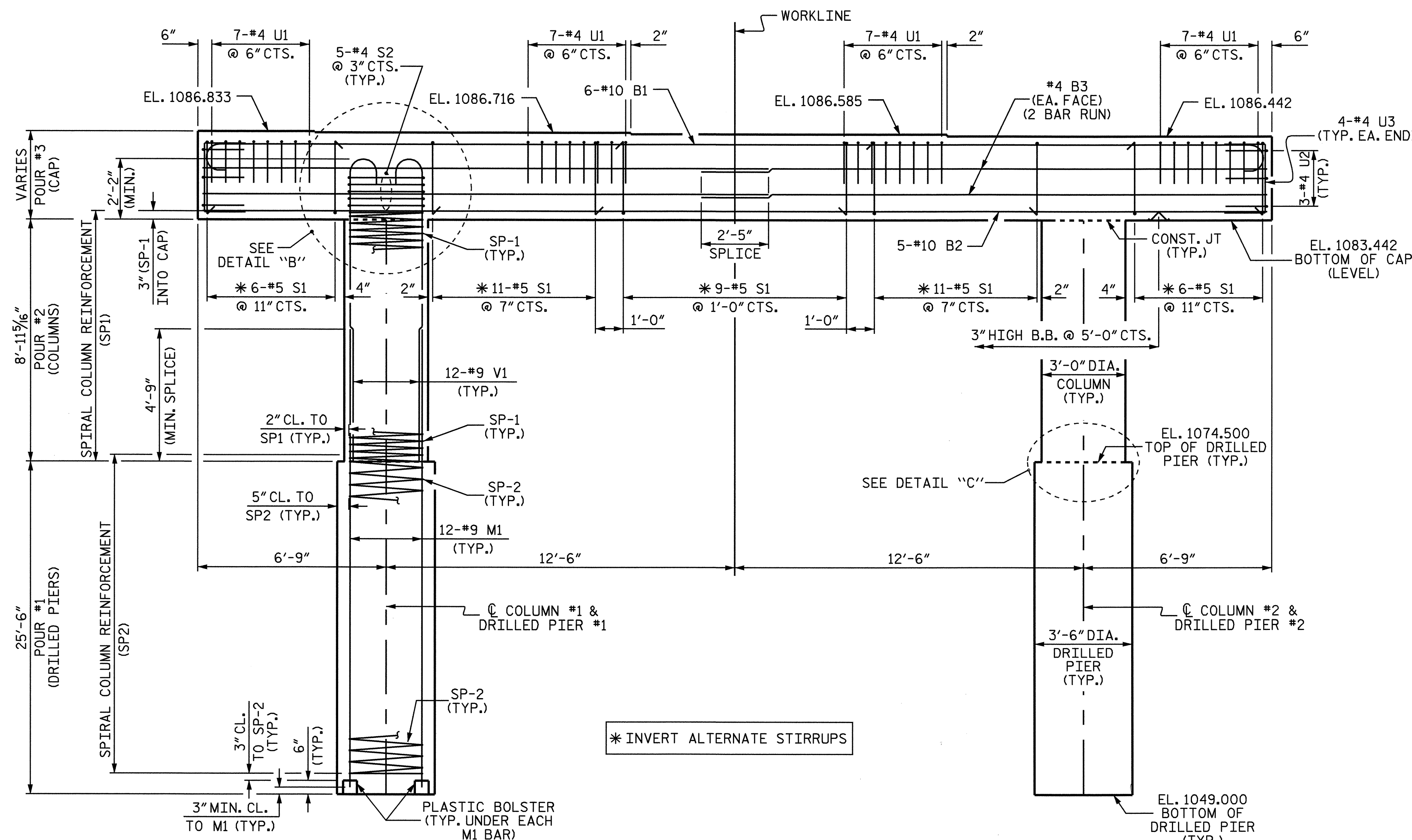
DETAIL "A"



DETAIL "B"



DETAIL "C"

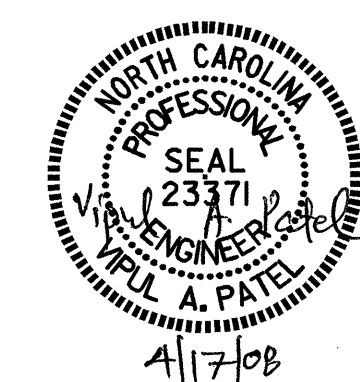


ELEVATION

PROJECT NO. B-3492
McDOWELL COUNTY
 STATION: 13+44.00 -L-

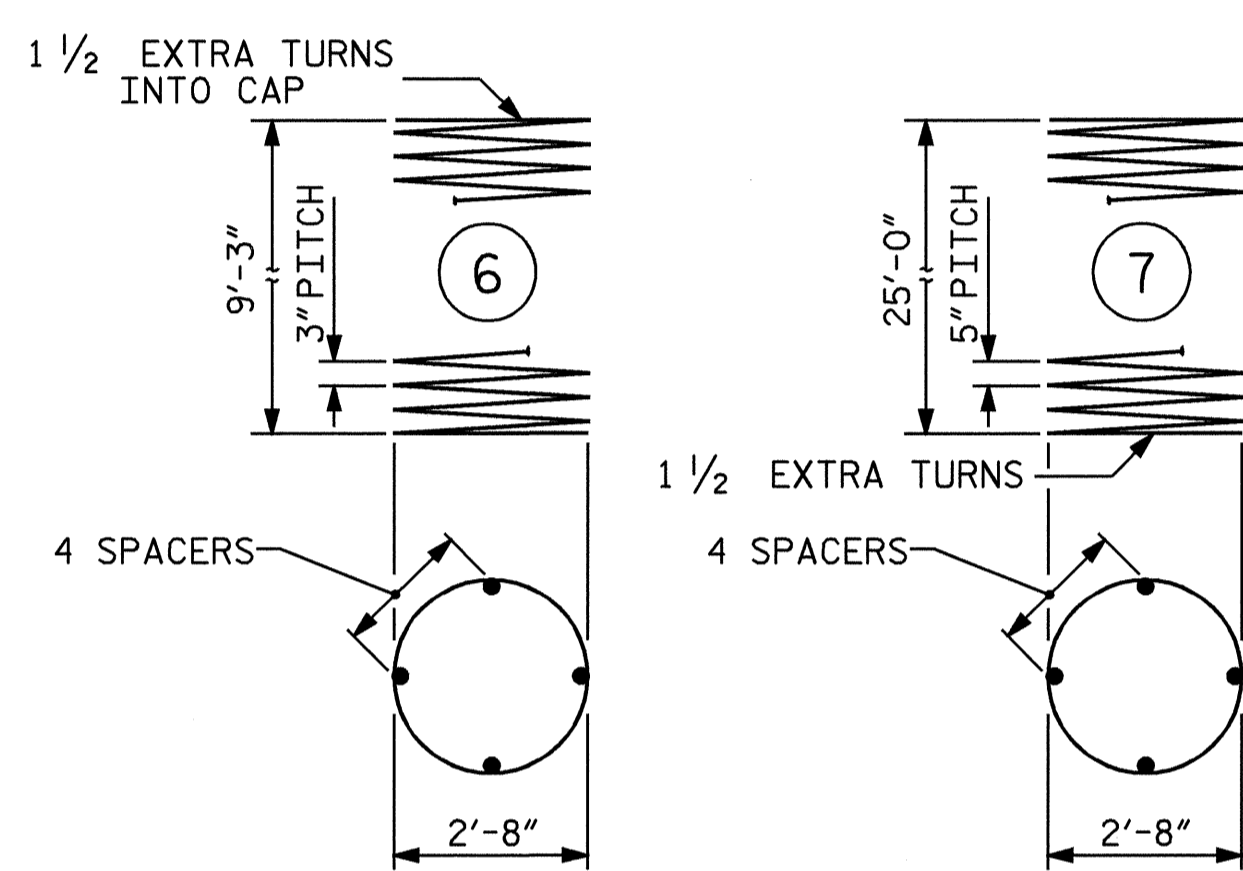
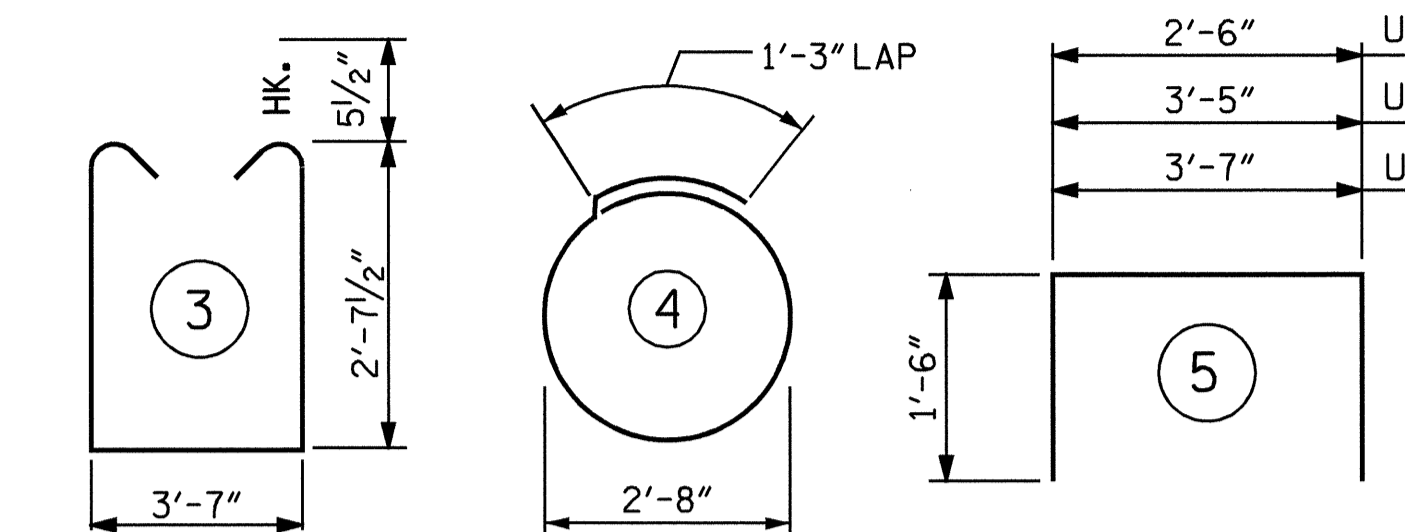
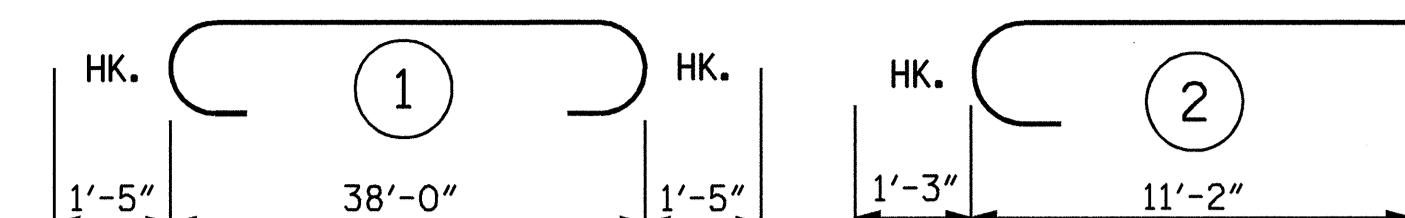
SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT #2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-23
					TOTAL SHEETS 30



DRAWN BY: S. DOMBROWSKI DATE: 9/07
 CHECKED BY: H. LOCKLEAR DATE: 1/08

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

*** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR
 *** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR

BILL OF MATERIAL

BENT #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#10	1	40'-10"	1054
B2	5	#10	STR	38'-2"	821
B3	8	#4	STR	20'-4"	109
M1	24	#9	STR	33'-0"	2693
S1	43	#5	3	9'-9"	437
S2	10	#4	4	9'-8"	65
U1	28	#4	5	6'-7"	123
U2	6	#4	5	6'-5"	26
U3	8	#4	5	5'-6"	29
V1	24	#9	2	12'-5"	1013

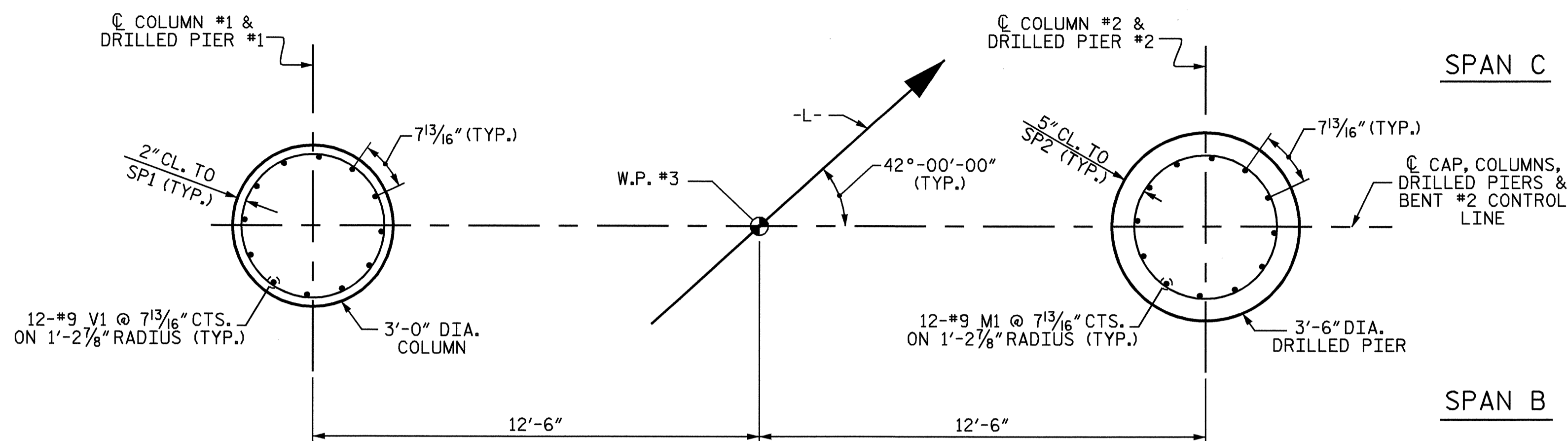
TOTAL REINFORCING STEEL LBS.	6370
SP1	2 *** 6 319'-8" 427
SP2	2 *** 7 505'-10" 1055

TOTAL SPIRAL COLUMN REINFORCING STEEL LBS.	1482
--	------

CLASS A CONCRETE BREAKDOWN	
POUR #2 (COLUMNS)	4.7 C.Y.
POUR #3 (BENT CAP)	17.7 C.Y.
TOTAL CLASS A CONCRETE	22.4 C.Y.

DRILLED PIER QUANTITIES	
DRILLED PIER CONCRETE	
POUR #1 (DRILLED PIERS)	18.2 C.Y.
3'-6" DIA. DRILLED PIERS IN SOIL	36.0 LIN. FT.
3'-6" DIA. DRILLED PIERS NOT IN SOIL	15.0 LIN. FT.
PERMANENT STEEL CASING FOR 3'-6" DIA DRILLED PIER	33.0 LIN. FT.

SID INSPECTION:	1 EACH
CROSSHOLE SONIC LOGGING:	1 EACH
CSL TUBES:	224 LIN. FT.

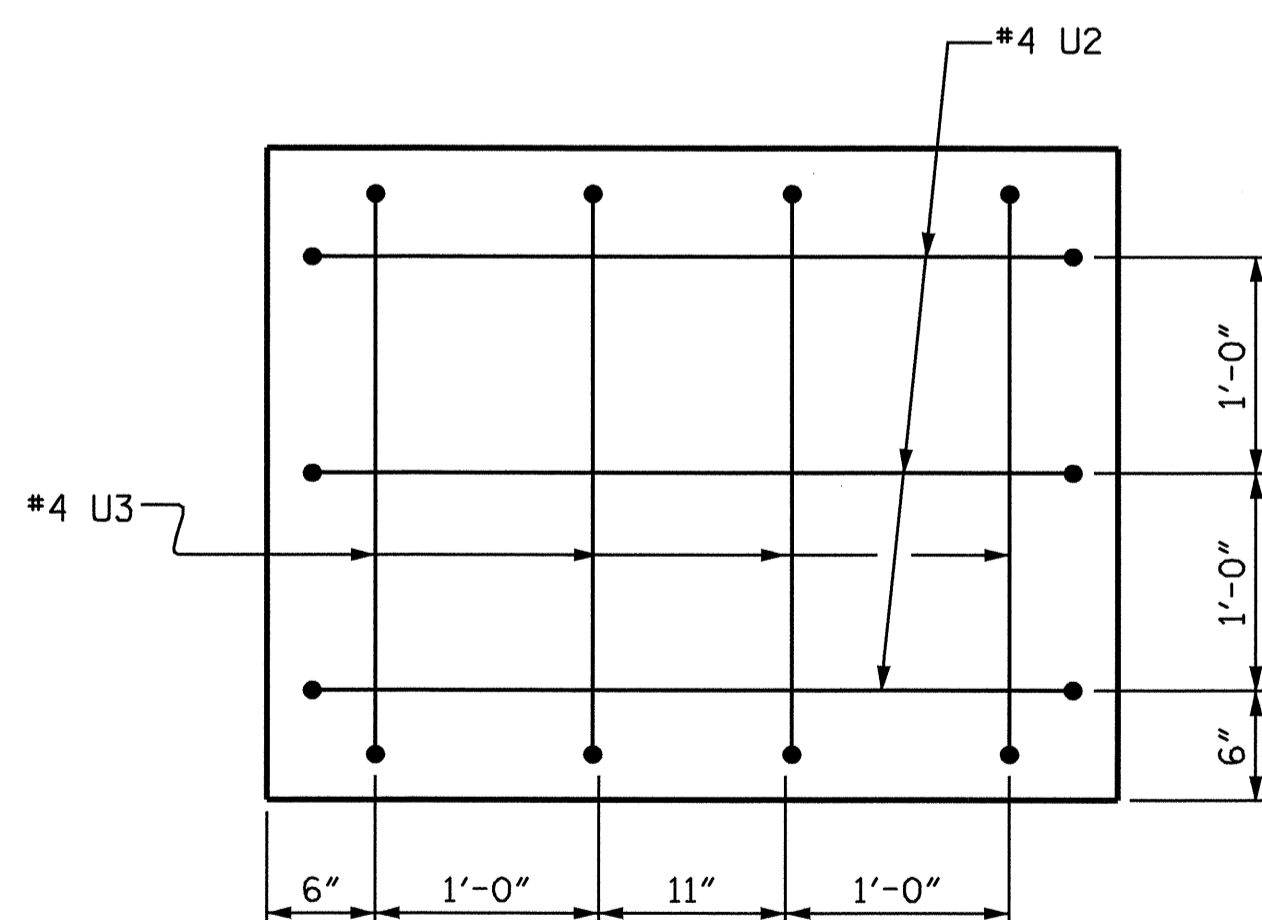


PARTIAL PLAN OF COLUMNS

PARTIAL PLAN OF DRILLED PIERS

PLAN OF COLUMNS & DRILLED PIERS

REINFORCING STEEL, DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND DRILLED PIER

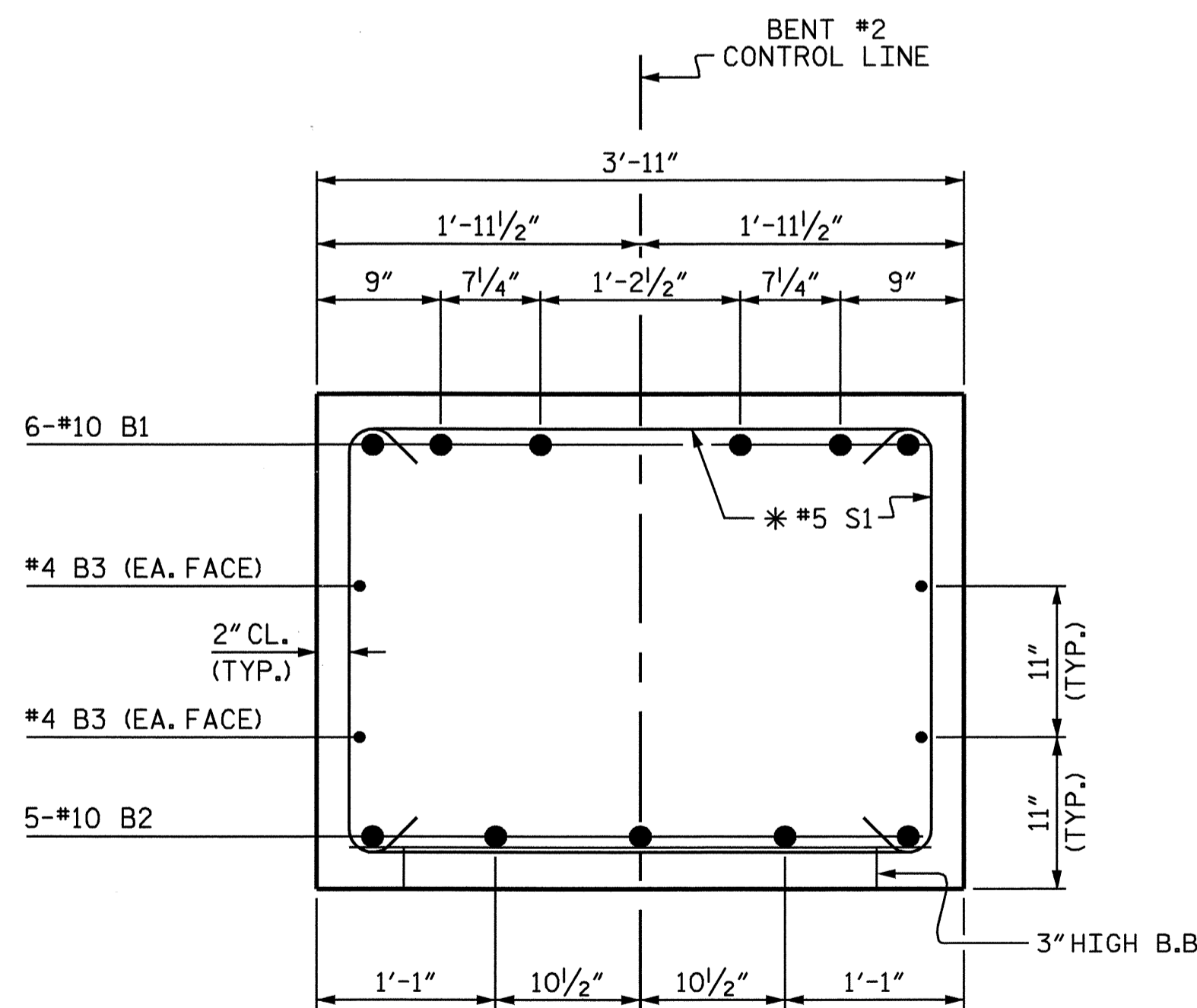


END VIEW

(TYP. BOTH ENDS)

2" MIN. CONCRETE COVER FROM END OF CAP REQUIRED FOR ALL #4 U2 AND #4 U3 BARS.

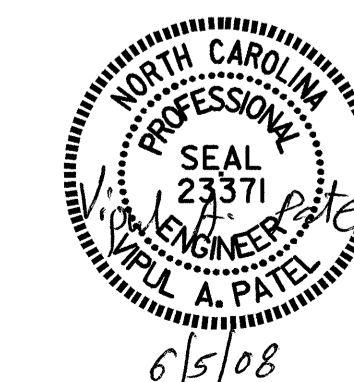
#4 U2 AND #4 U3 BARS MAY BE SHIFTED UP TO 2" TO CLEAR "B" BARS.



SECTION THRU CAP

* INVERT ALTERNATE STIRRUPS

DRAWN BY : S. DOMBROWSKI DATE : 9/07
 CHECKED BY : H. LOCKLEAR DATE : 1/08



PROJECT NO. B-3492
 McDOWELL COUNTY
 STATION: 13+44.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT #2

REVISIONS

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

SHEET NO. S-24

TOTAL SHEETS 30

NOTES

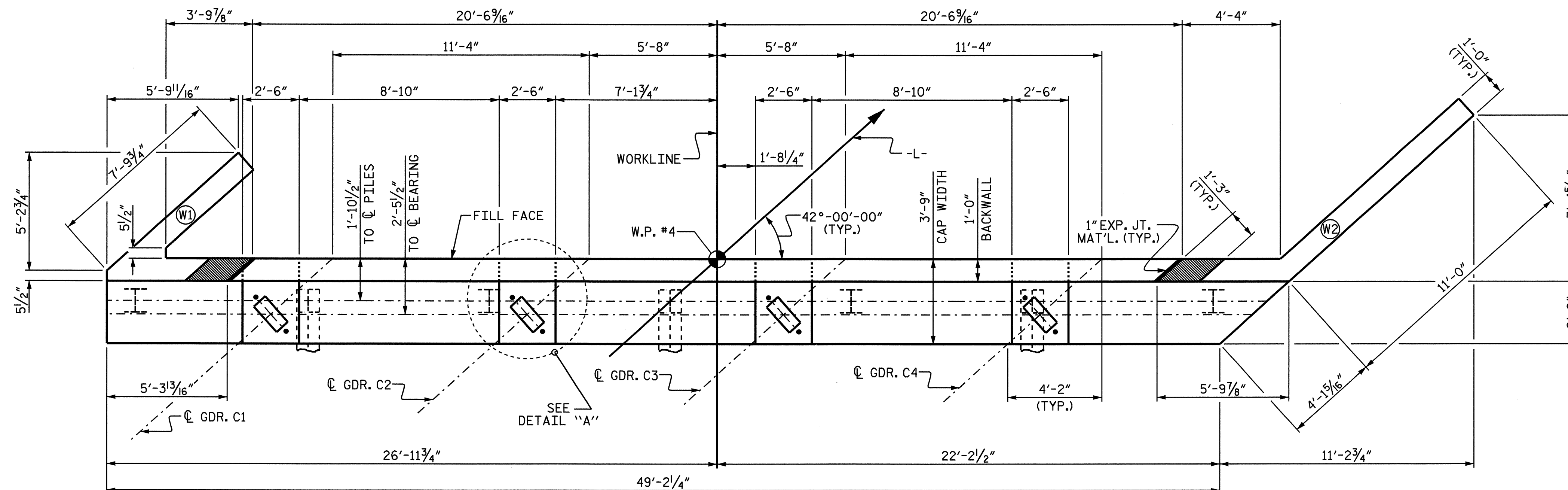
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

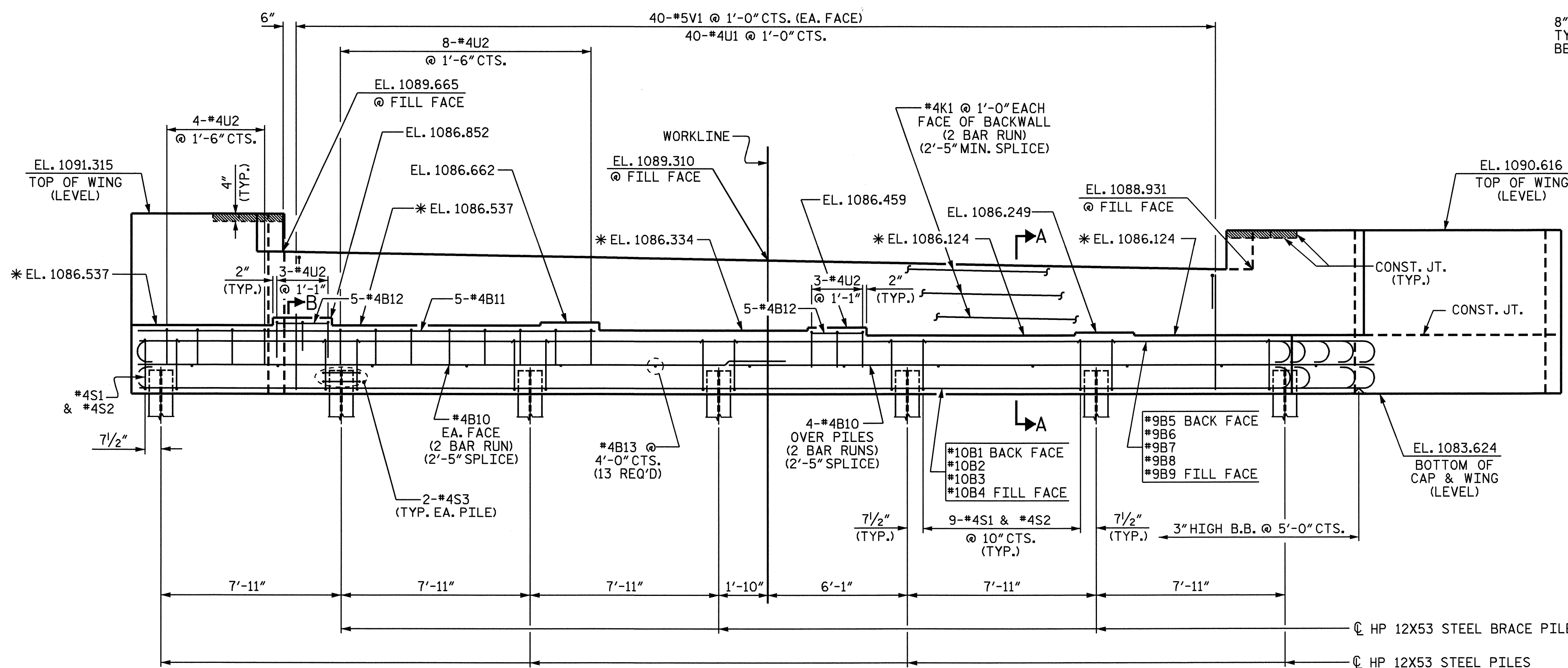
THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWEED AND THE CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

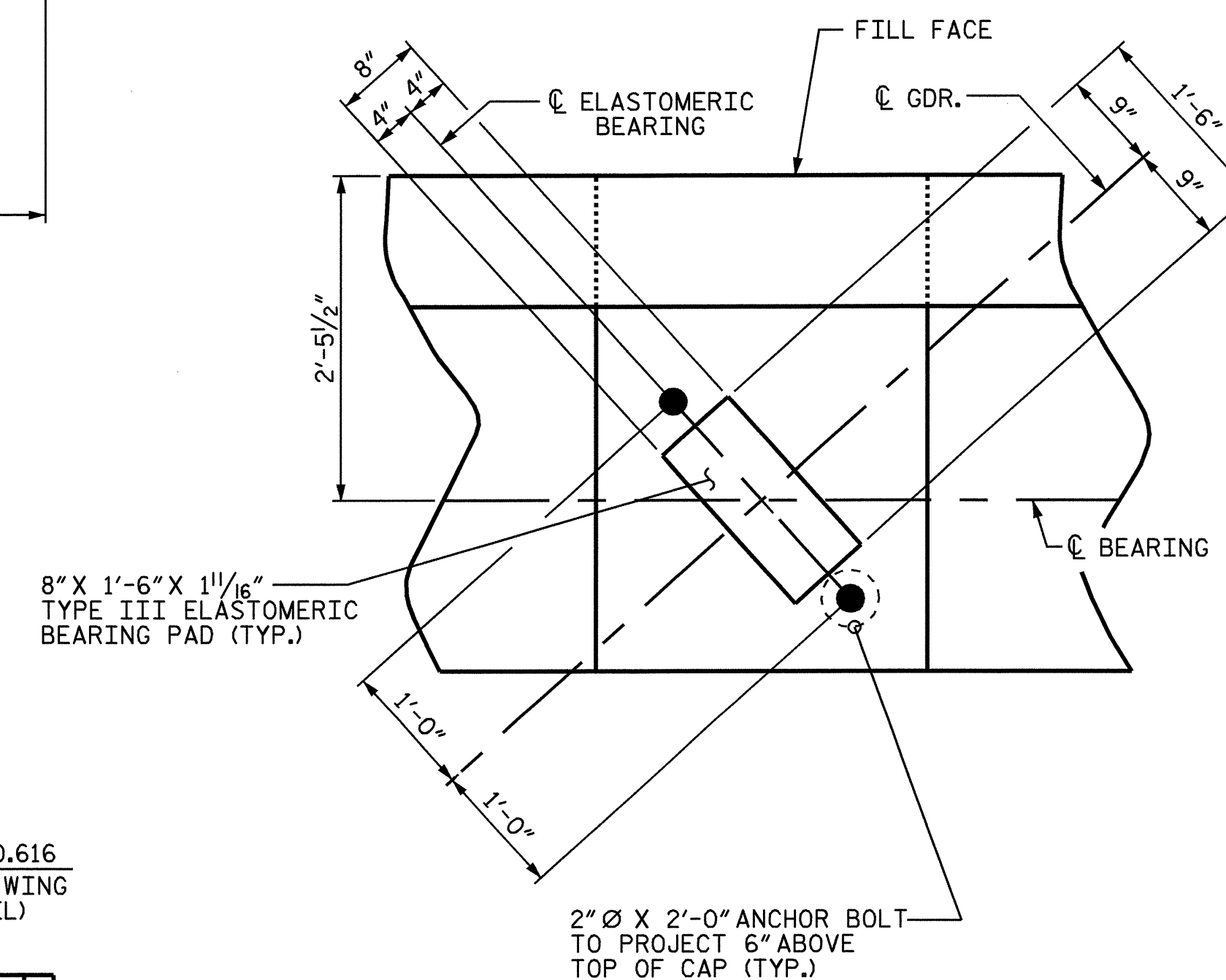
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



PLAN



ELEVATION



DETAIL "A"

PROJECT NO. B-3492
MCDOWELL COUNTY
 STATION: 13+44.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #2

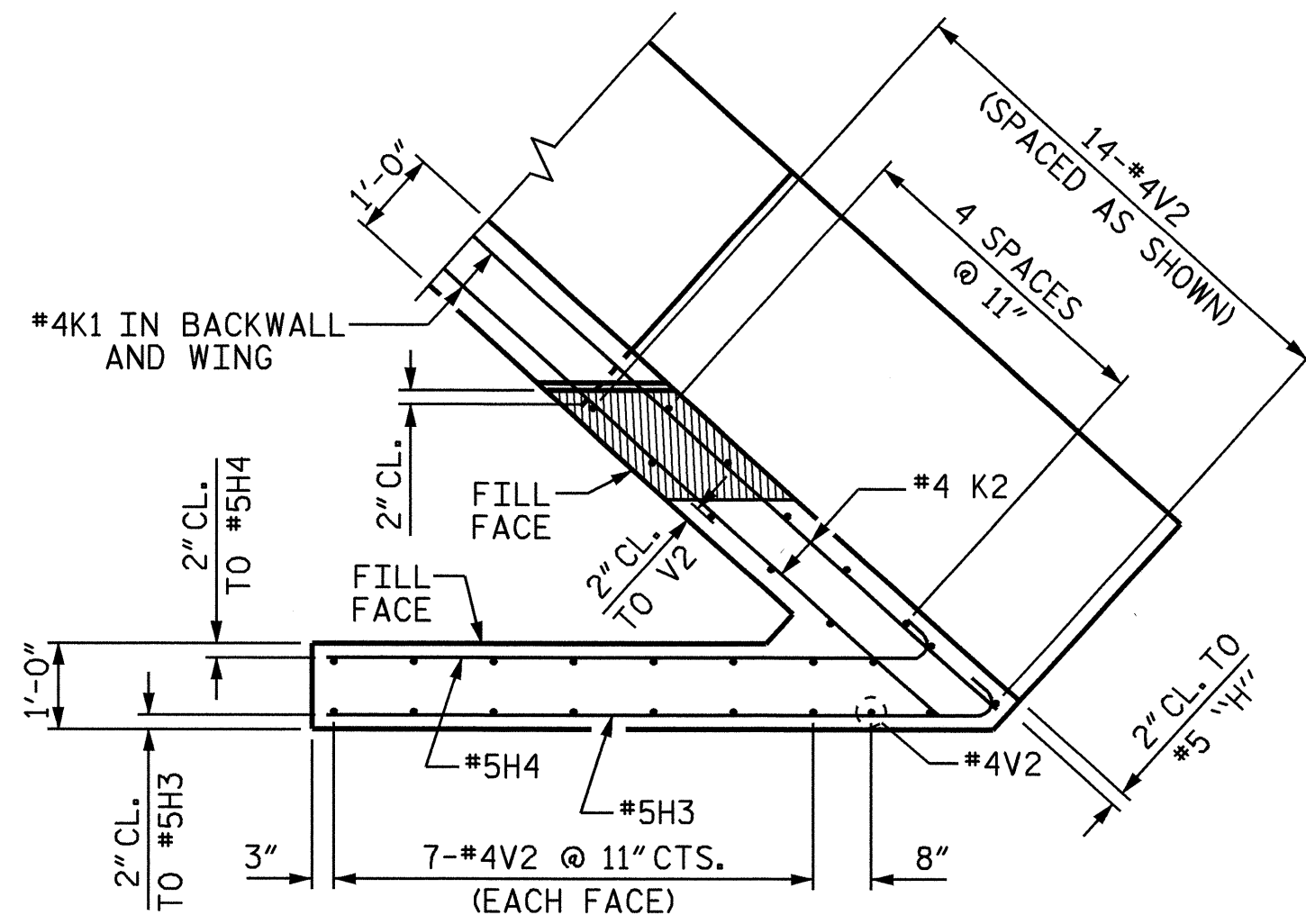


* SEE SHEET 3 OF 3 FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS.

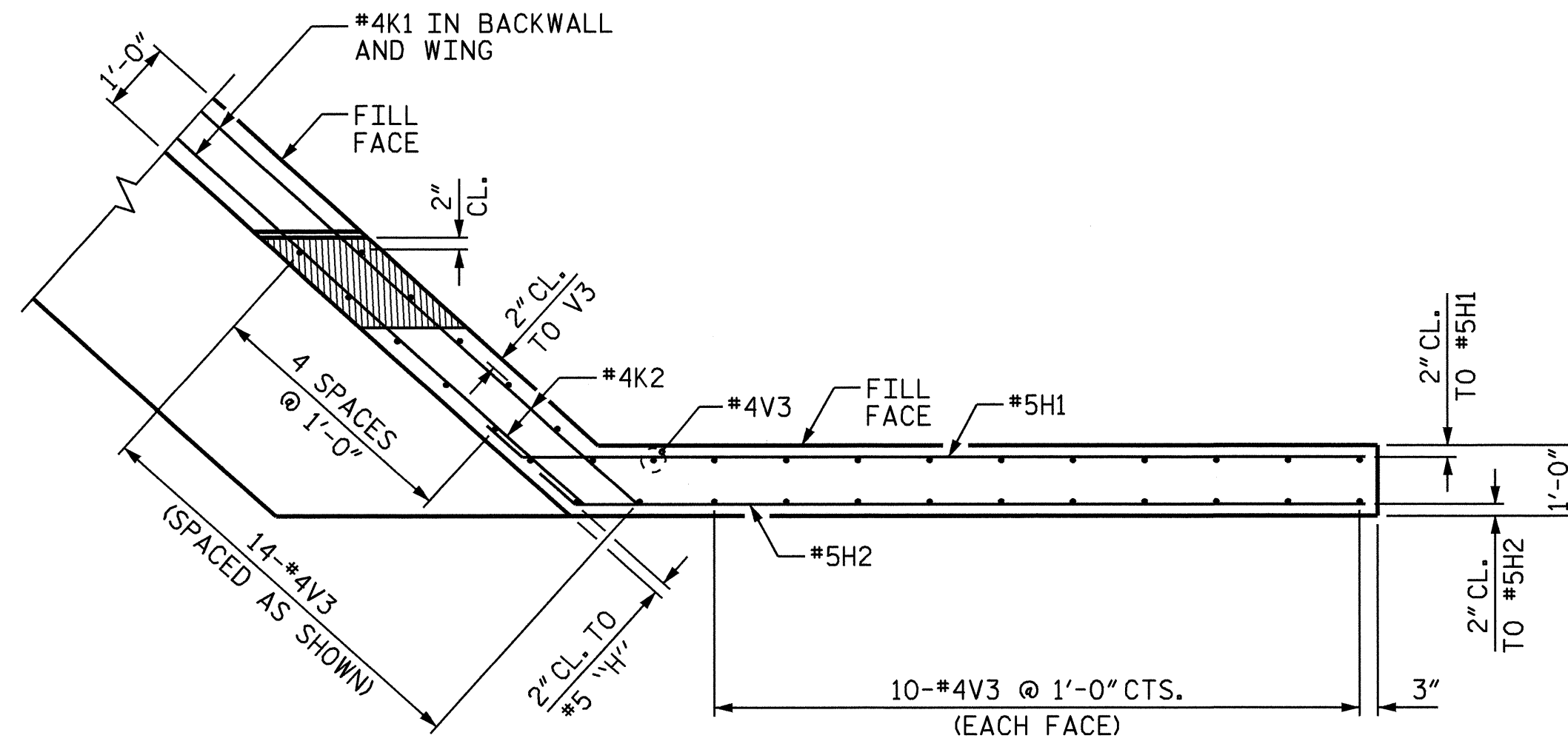
DRAWN BY : D.V. JOYNER DATE : 4-07
 CHECKED BY : S. DOMBROWSKI DATE : 4-07

15-APR-2008 08:02
 R:\Structures\B-3492\Plans\B-3492.sd.Ebts.dgn
 sdombrowski

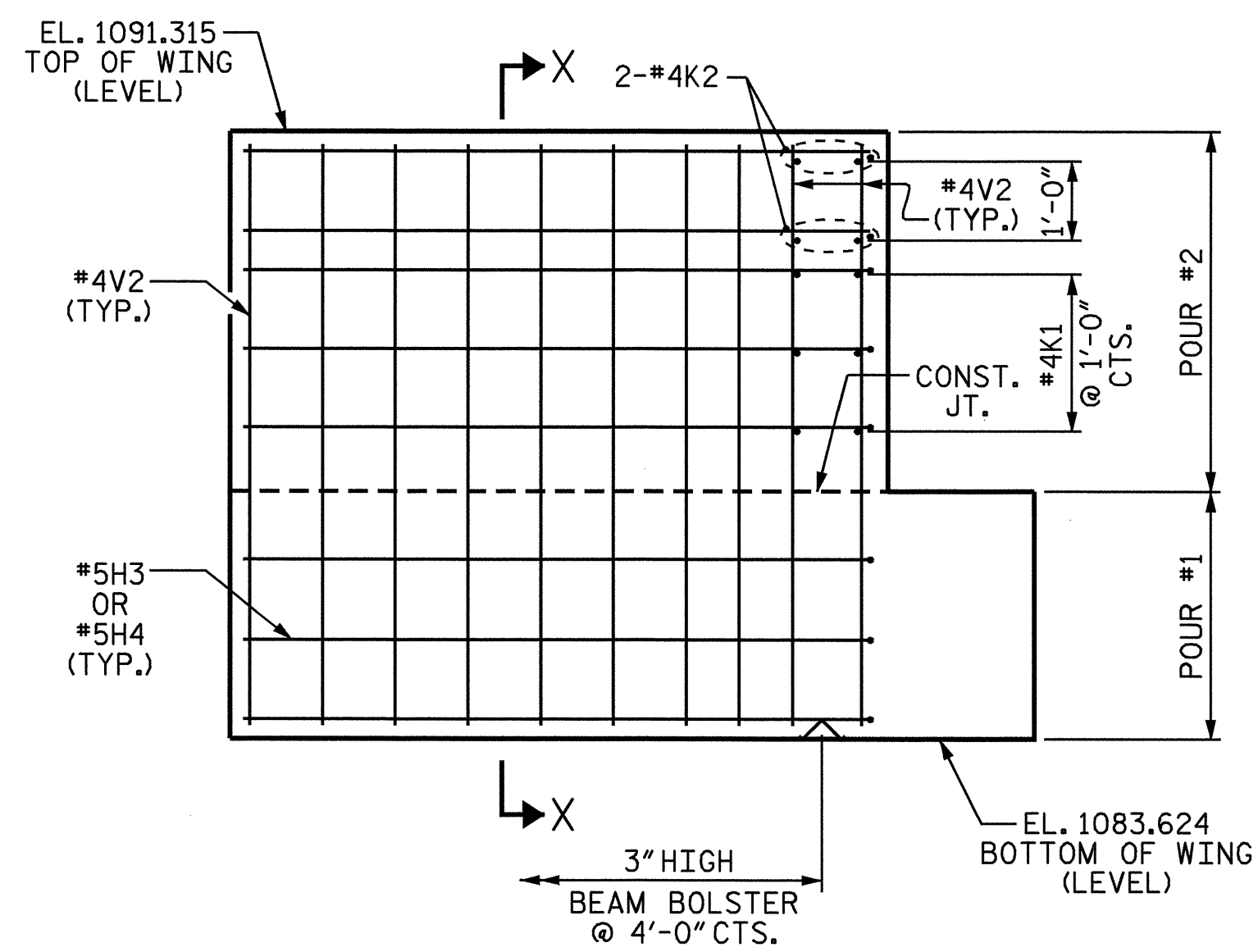
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS 30
2			4			



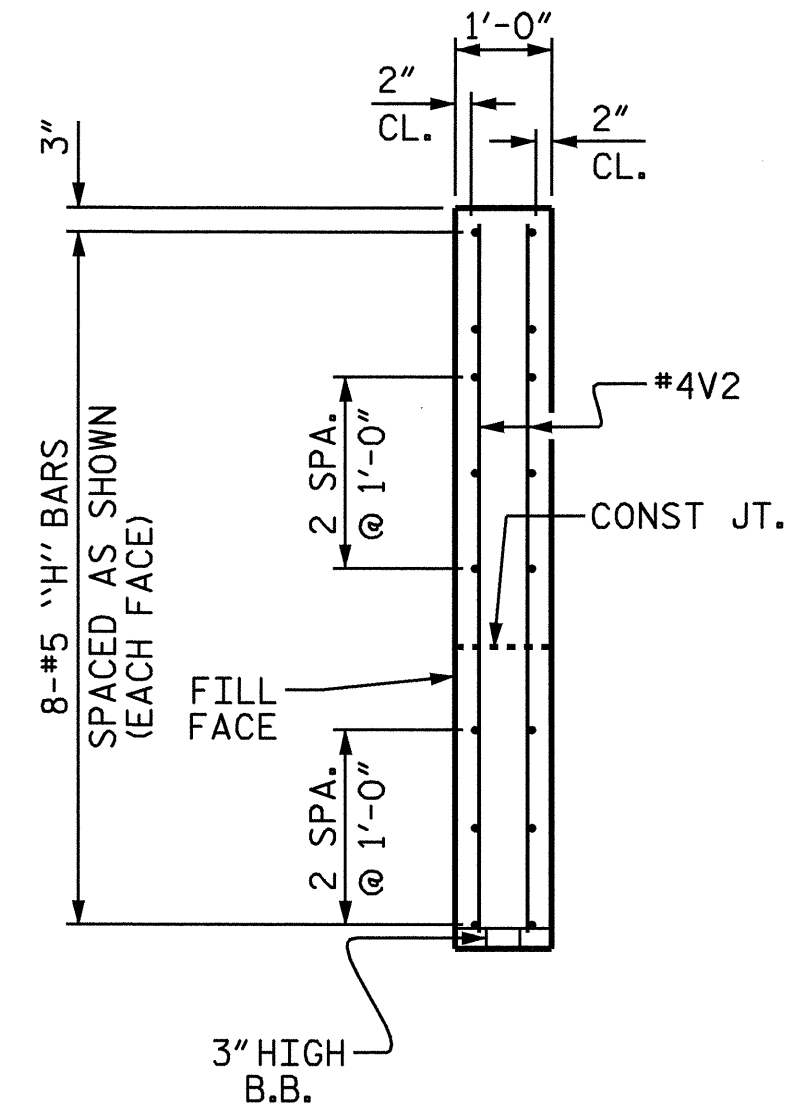
PLAN OF WING-W1



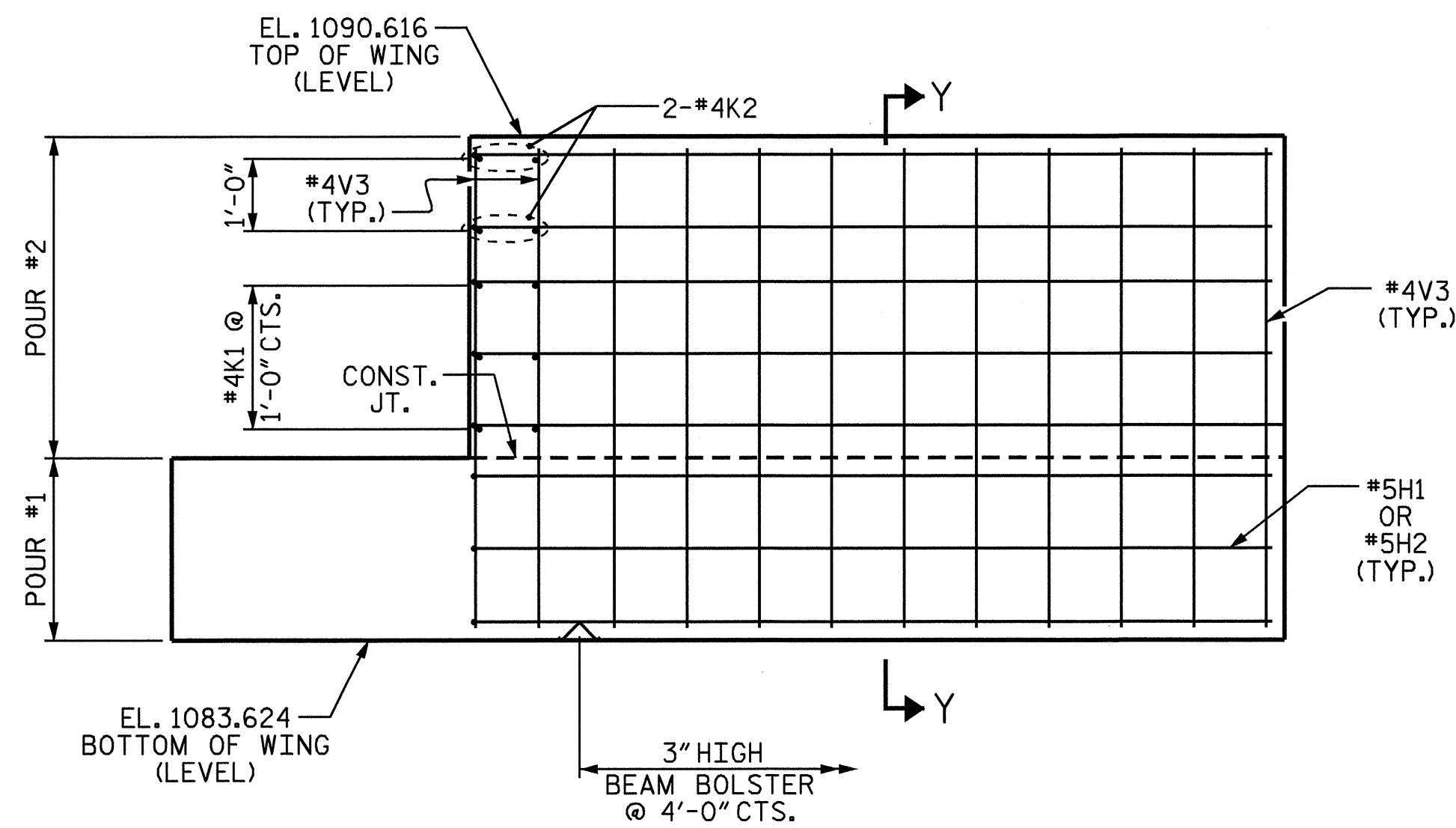
PLAN OF WING-W2



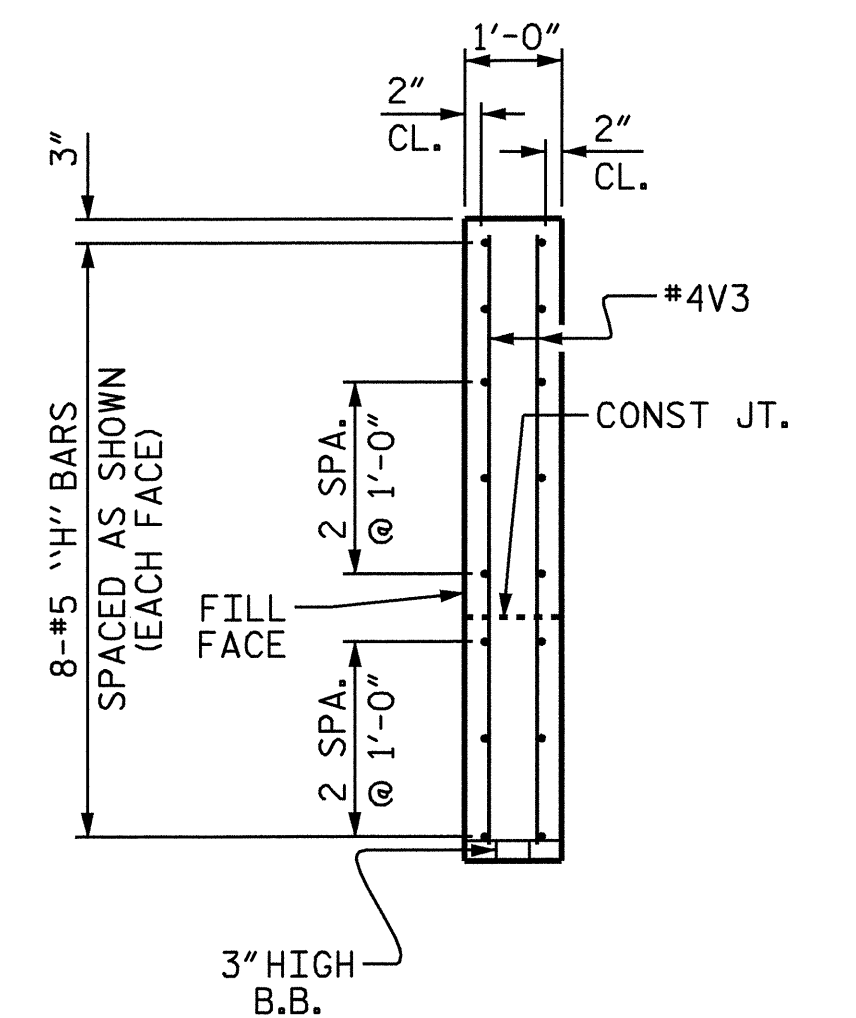
ELEVATION OF WING-W1



SECTION X-X



ELEVATION OF WING-W2



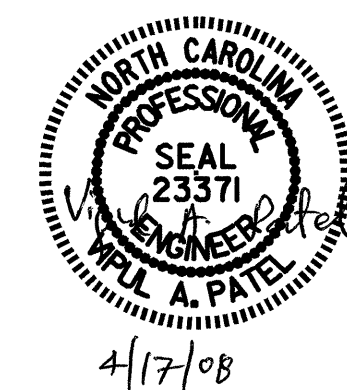
SECTION Y-Y

PROJECT NO. B-3492
 McDOWELL COUNTY
 STATION: 13+44.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #2



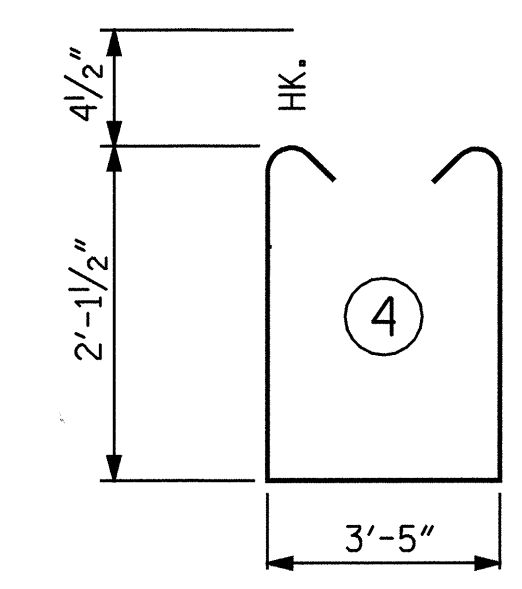
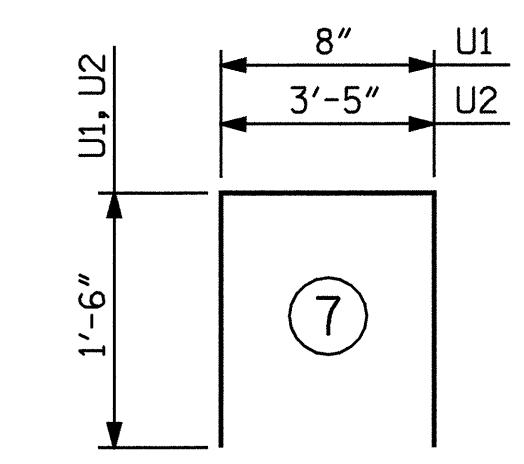
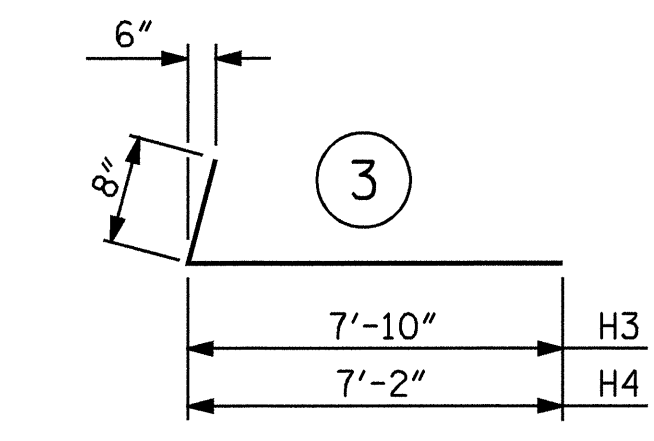
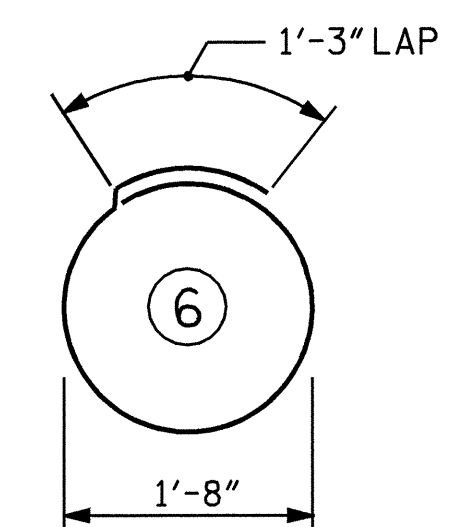
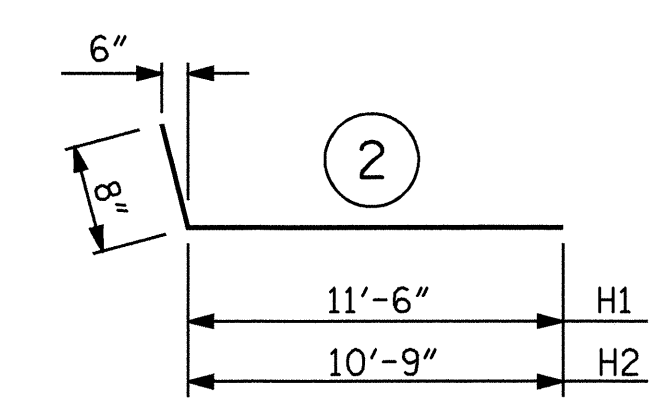
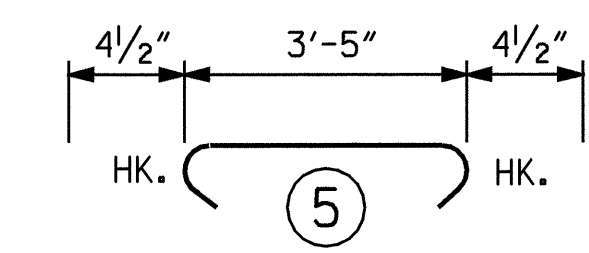
DRAWN BY: D.V. JOYNER DATE: 4-07
 CHECKED BY: S. DOMBROWSKI DATE: 3-07

15-APR-2008 08:02
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 sdombrowski

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			30

BAR TYPES

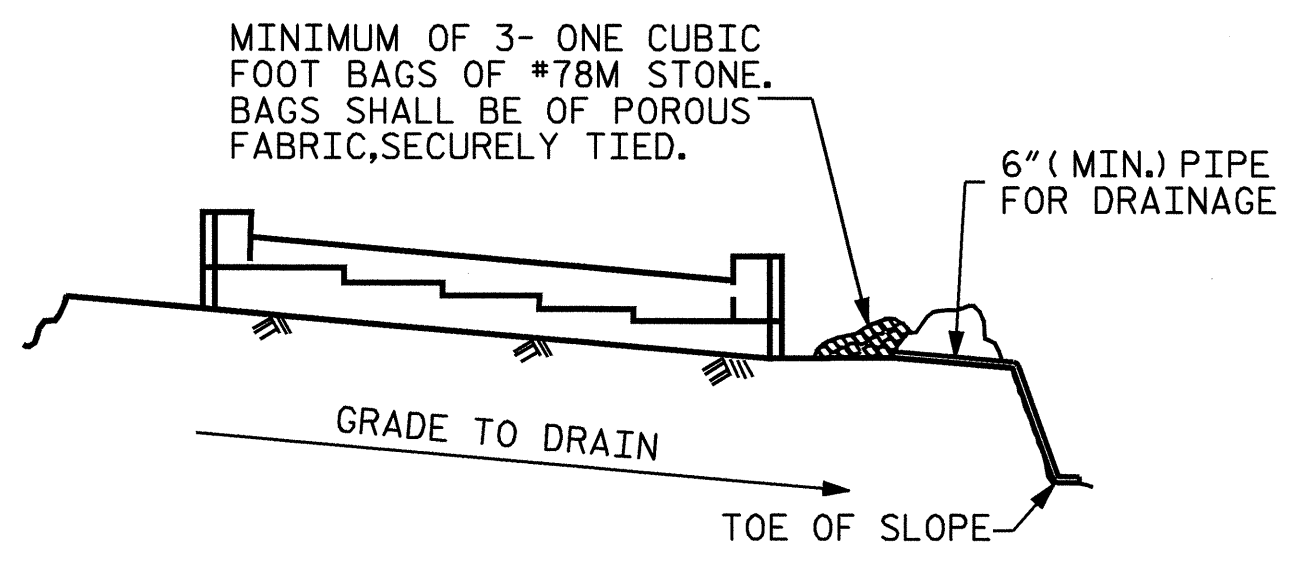
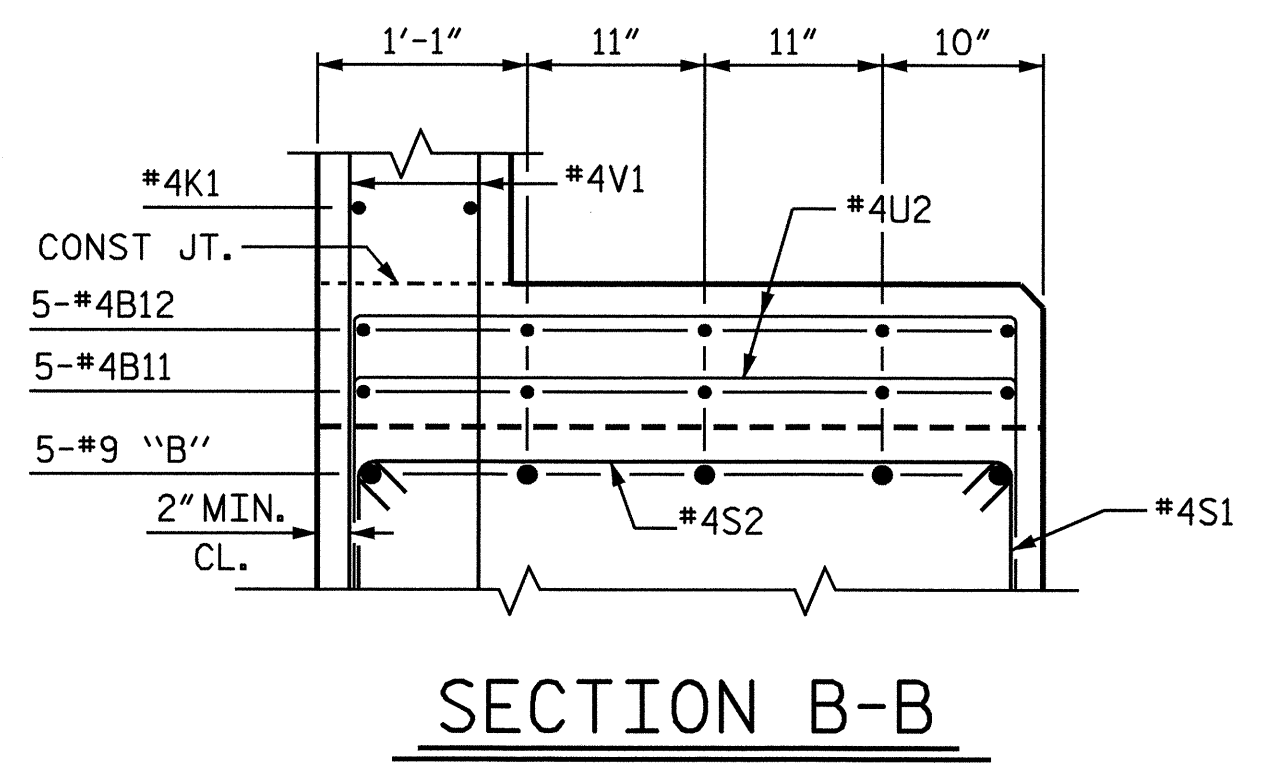
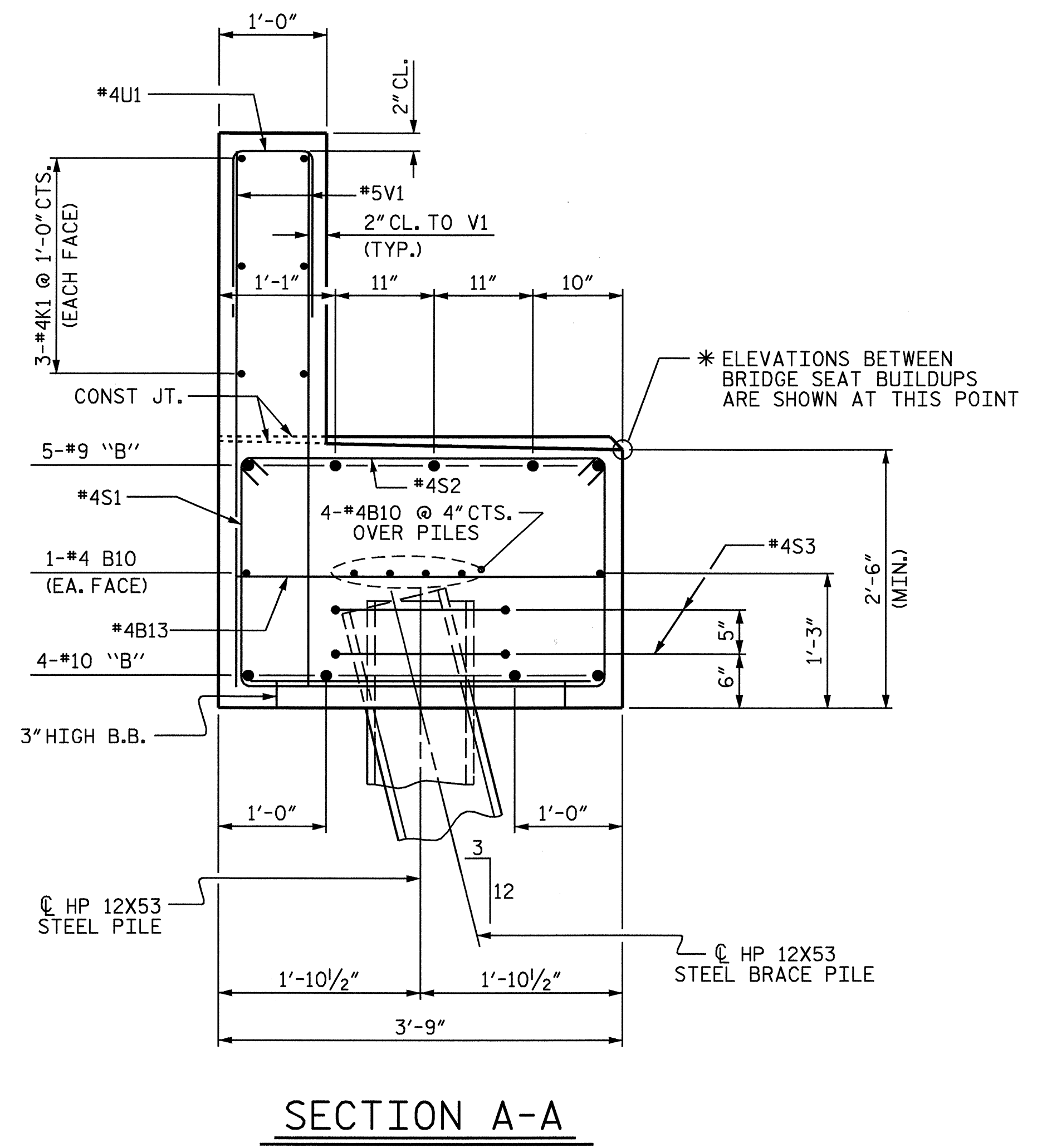
HK.	(1)	HK.
1'-5"	48'-10"	1'-5"
1'-5"	49'-8"	1'-5"
1'-5"	51'-7"	1'-5"
1'-5"	52'-0"	1'-5"
1'-3"	48'-10"	1'-3"
1'-3"	49'-5"	1'-3"
1'-3"	50'-6"	1'-3"
1'-3"	51'-6"	1'-3"
1'-3"	52'-0"	1'-3"
		B1
		B2
		B3
		B4
		B5
		B6
		B7
		B8
		B9



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

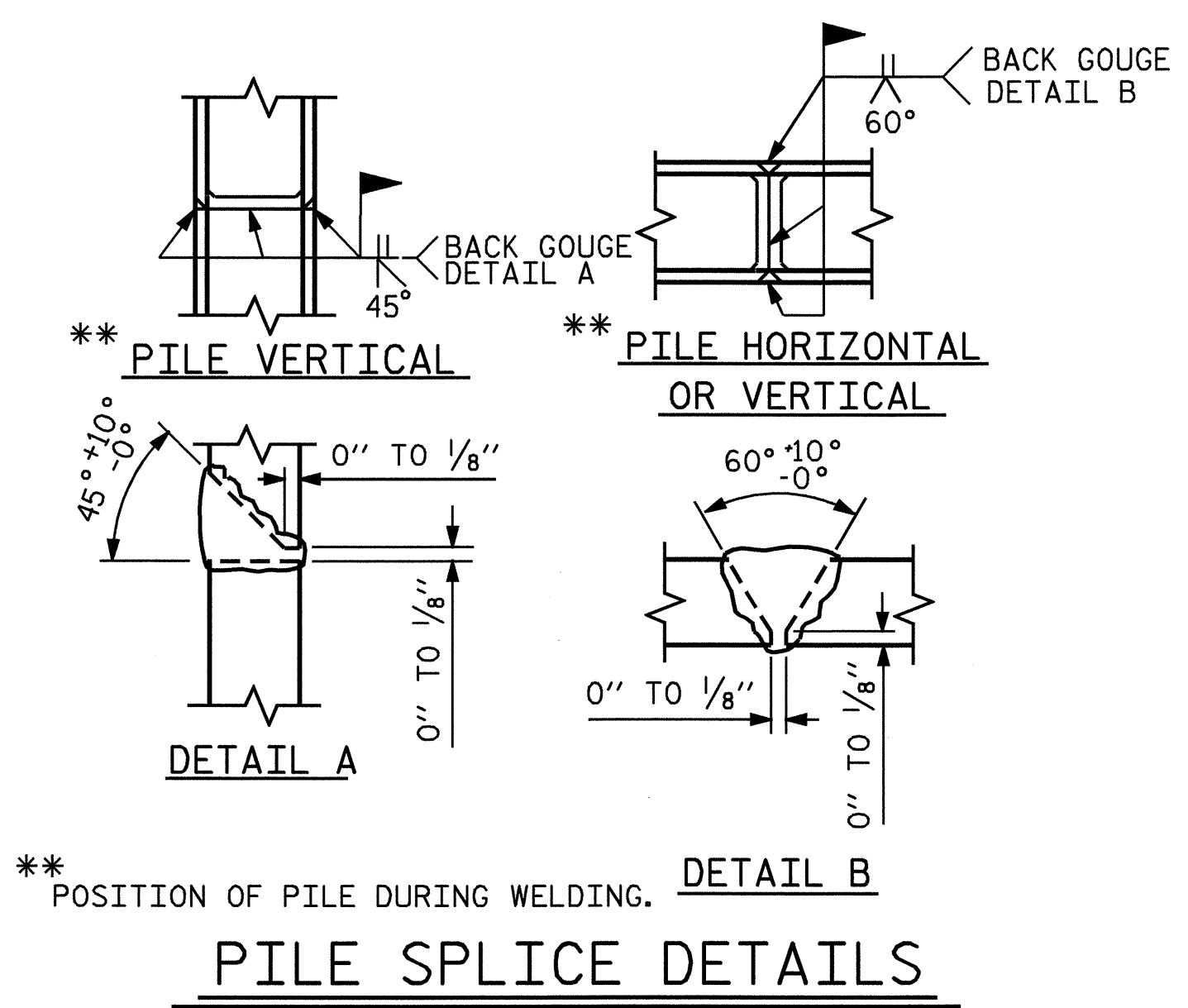
END BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	1	#10	1	51'-8"	222
B2	1	#10	1	52'-6"	226
B3	1	#10	1	54'-5"	234
B4	1	#10	1	54'-10"	236
B5	1	#9	1	51'-4"	175
B6	1	#9	1	51'-11"	177
B7	1	#9	1	53'-0"	180
B8	1	#9	1	54'-0"	184
B9	1	#9	1	54'-6"	185
B10	12	#4	STR	27'-4"	219
B11	5	#4	STR	19'-4"	65
B12	10	#4	STR	2'-2"	14
B13	13	#4	STR	3'-5"	30
H1	8	#5	2	12'-2"	102
H2	8	#5	2	11'-5"	95
H3	8	#5	3	8'-6"	71
H4	8	#5	3	7'-10"	65
K1	12	#4	STR	27'-4"	219
K2	8	#4	STR	5'-4"	29
S1	55	#4	4	8'-5"	309
S2	55	#4	5	4'-2"	153
S3	14	#4	6	6'-6"	61
U1	40	#4	7	3'-8"	98
U2	18	#4	7	6'-5"	77
V1	80	#5	STR	4'-11"	410
V2	29	#4	STR	7'-4"	142
V3	35	#4	STR	6'-7"	154
TOTAL REINFORCING STEEL LBS.					4132
CLASS A CONCRETE (CU. YDS.)					
POUR 1 CAP & LOWER PART OF WINGS					21.5
POUR 2 BACKWALL & UPPER PART OF WINGS					6.9
TOTAL (CU. YDS.)					28.4
HP 12X53 STEEL PILES					
No. 7					LIN. FT. 175



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.



** POSITION OF PILE DURING WELDING. DETAIL B

PILE SPLICE DETAILS

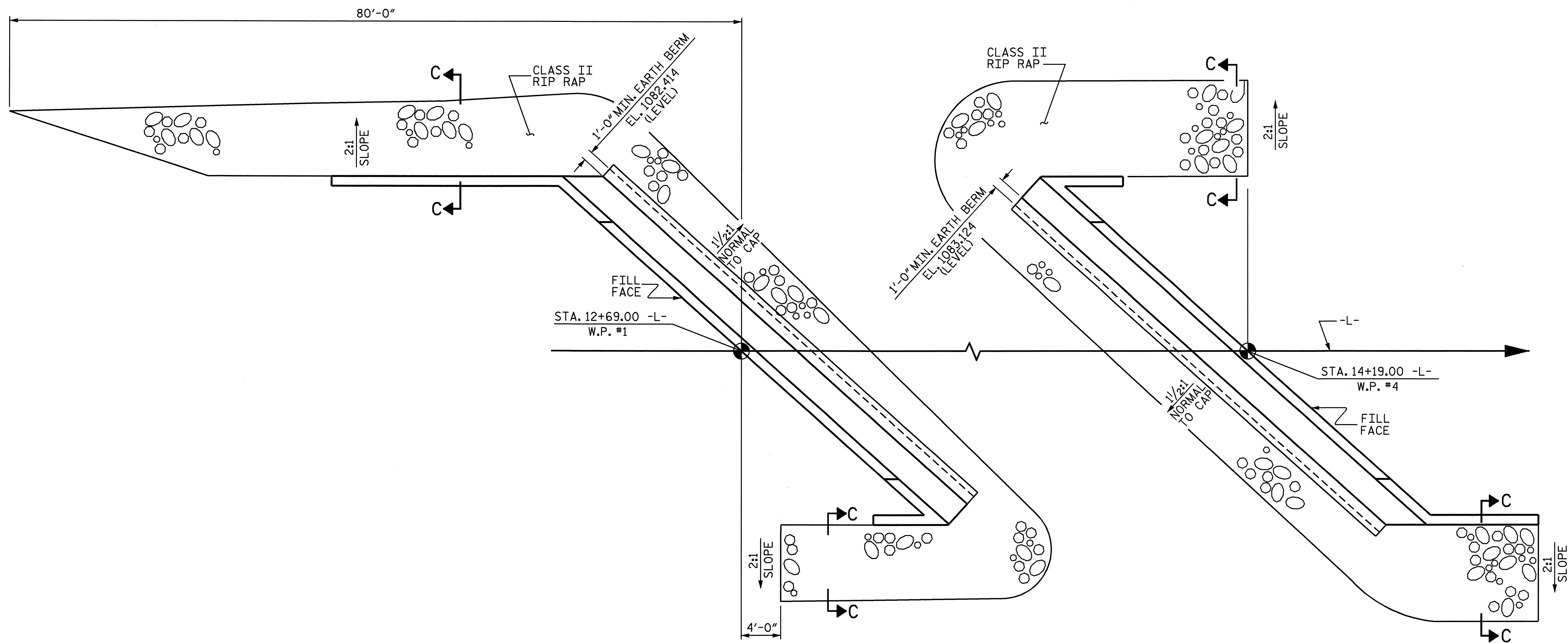
TEMPORARY DRAINAGE AT END BENT



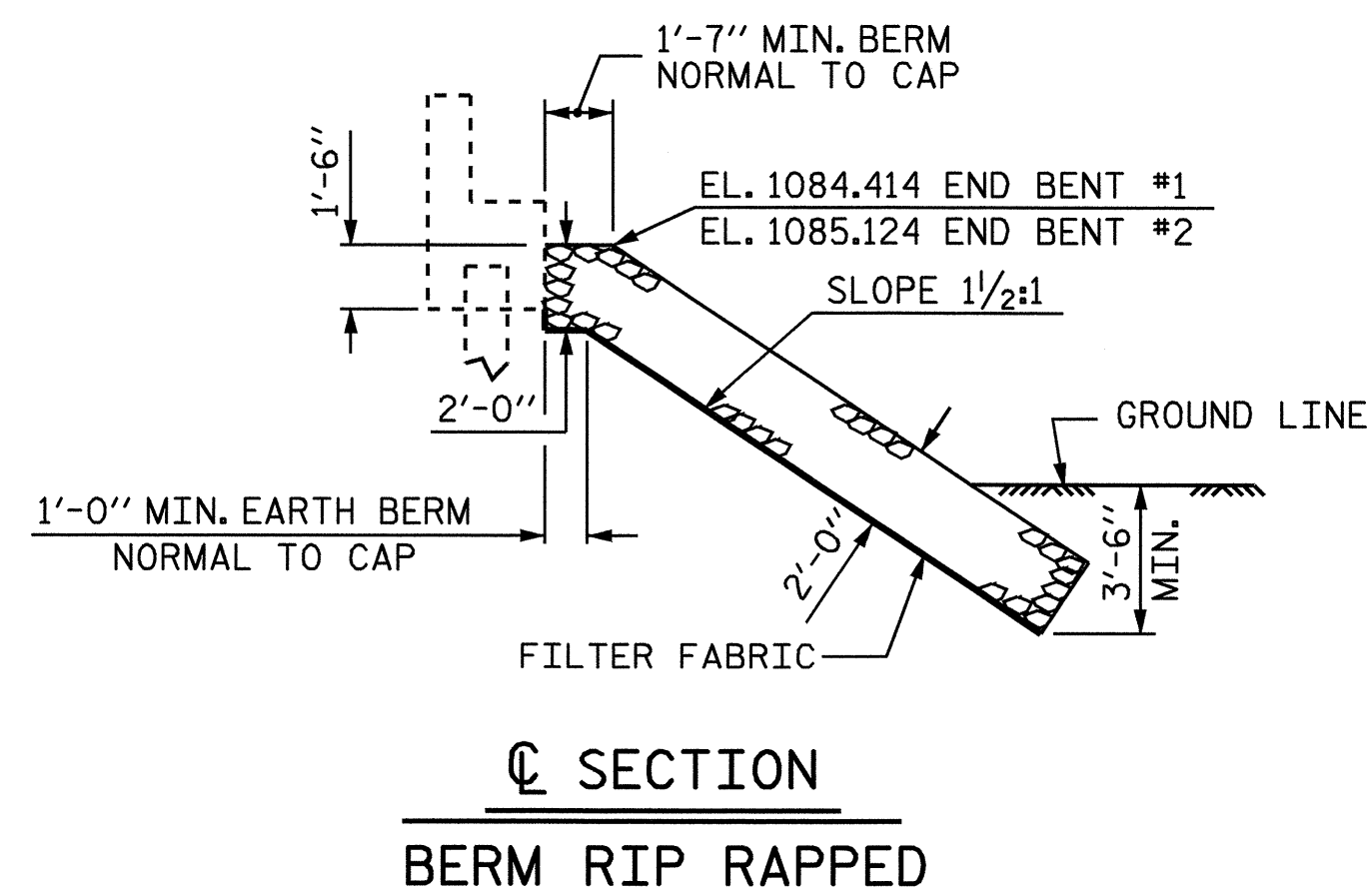
PROJECT NO. B-3492
McDOWELL COUNTY
STATION: 13+44.00 -L-

SHEET 3 OF 3

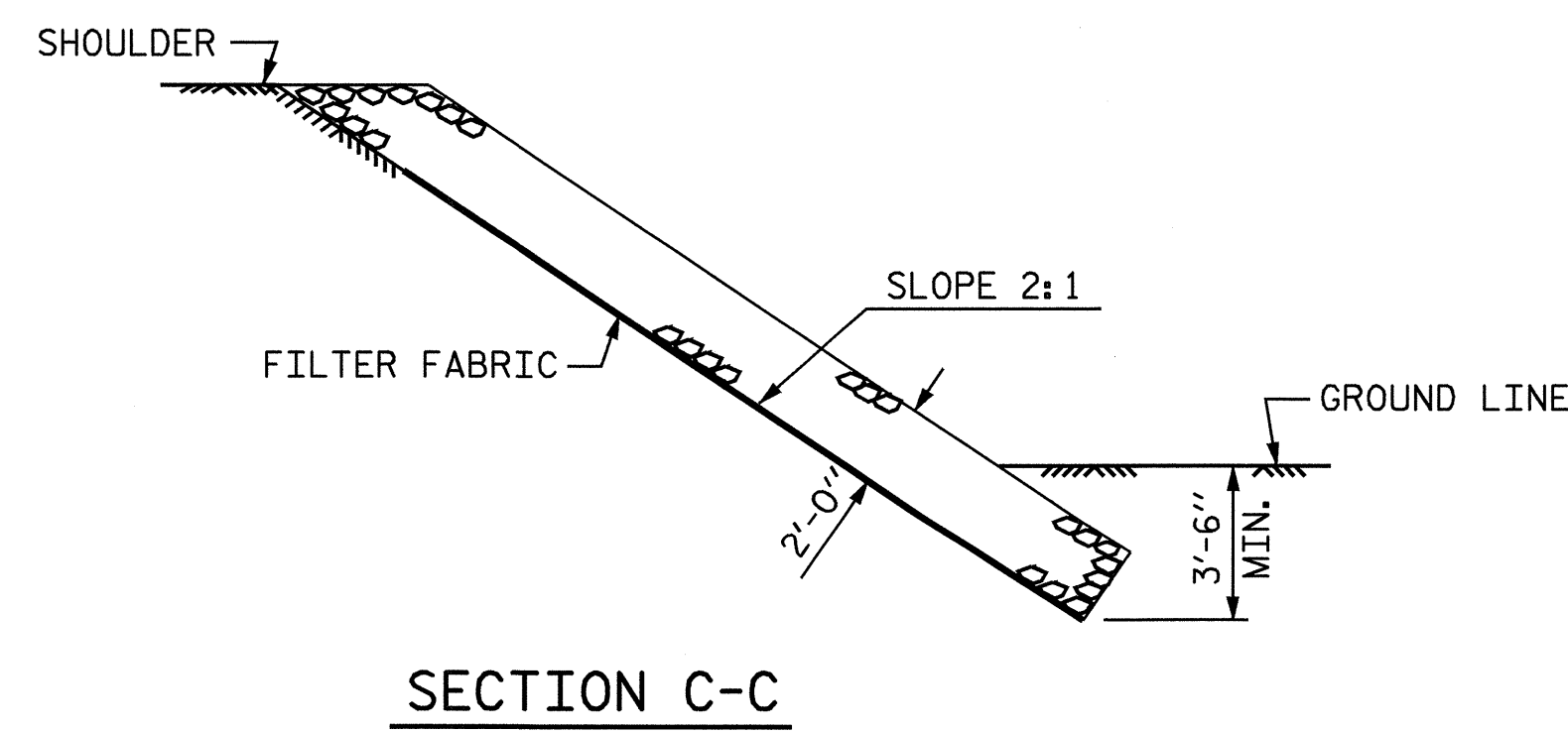
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			30



PLAN OF RIP RAP



SECTION C-C
BERM RIP RAPPED



SECTION C-C

ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+44.00 -L-	RIp RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT #1	285	320
END BENT #2	224	250

PROJECT NO. B-3492
McDOWELL COUNTY
 STATION: 13+44.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

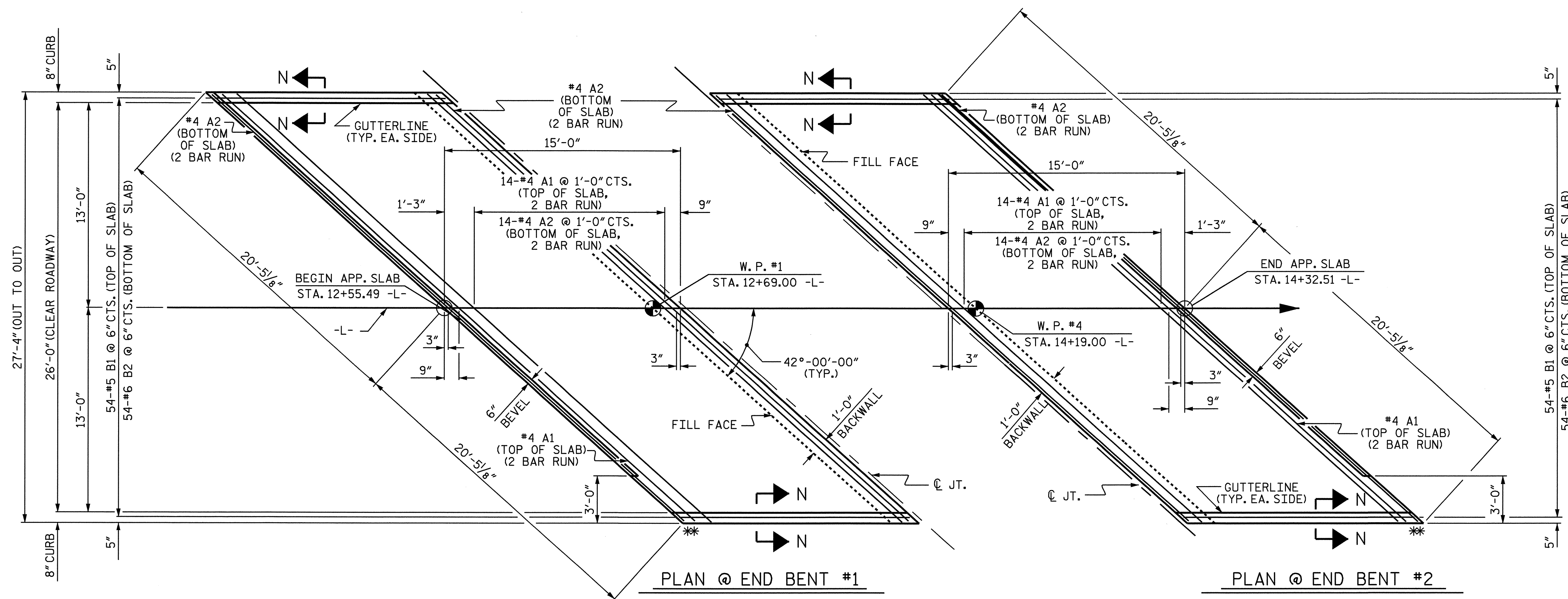
RIP RAP DETAILS



DRAWN BY: R. G. EMERSON DATE: 04/07
 CHECKED BY: K. D. LAYNE DATE: 07/07

15-APR-2008 08:02
 R:\Structures\B-3492\Plans\B3492.sd_RR.dgn
 sdombrowski

REVISIONS						SHEET NO. S-28
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 30
2			4			



BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	21'-3"	426
A2	32	#4	STR	21'-1"	451
*B1	54	#5	STR	13'-1"	737
B2	54	#6	STR	14'-8"	1190
REINFORCING STEEL				LBS.	1641
*EPOXY COATED REINFORCING STEEL				LBS.	1163
CLASS AA CONCRETE				C. Y.	15.6
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	21'-3"	426
A2	32	#4	STR	21'-1"	451
*B1	54	#5	STR	13'-1"	737
B2	54	#6	STR	14'-8"	1190
REINFORCING STEEL				LBS.	1641
*EPOXY COATED REINFORCING STEEL				LBS.	1163
CLASS AA CONCRETE				C. Y.	15.6

SPLICE CHART	
#4 A1	2'-0"
#4 A2	1'-9"

NOTES

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

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, 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.

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

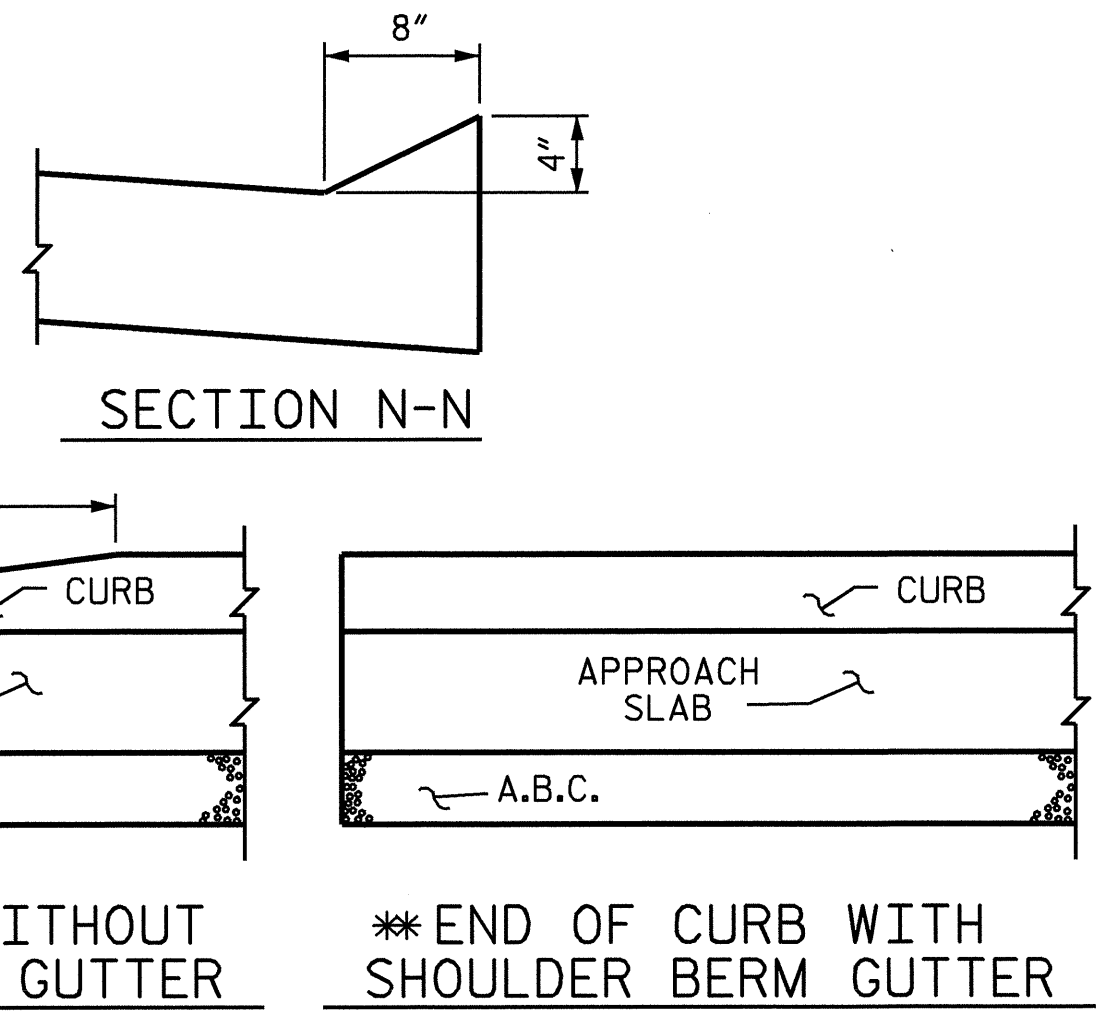
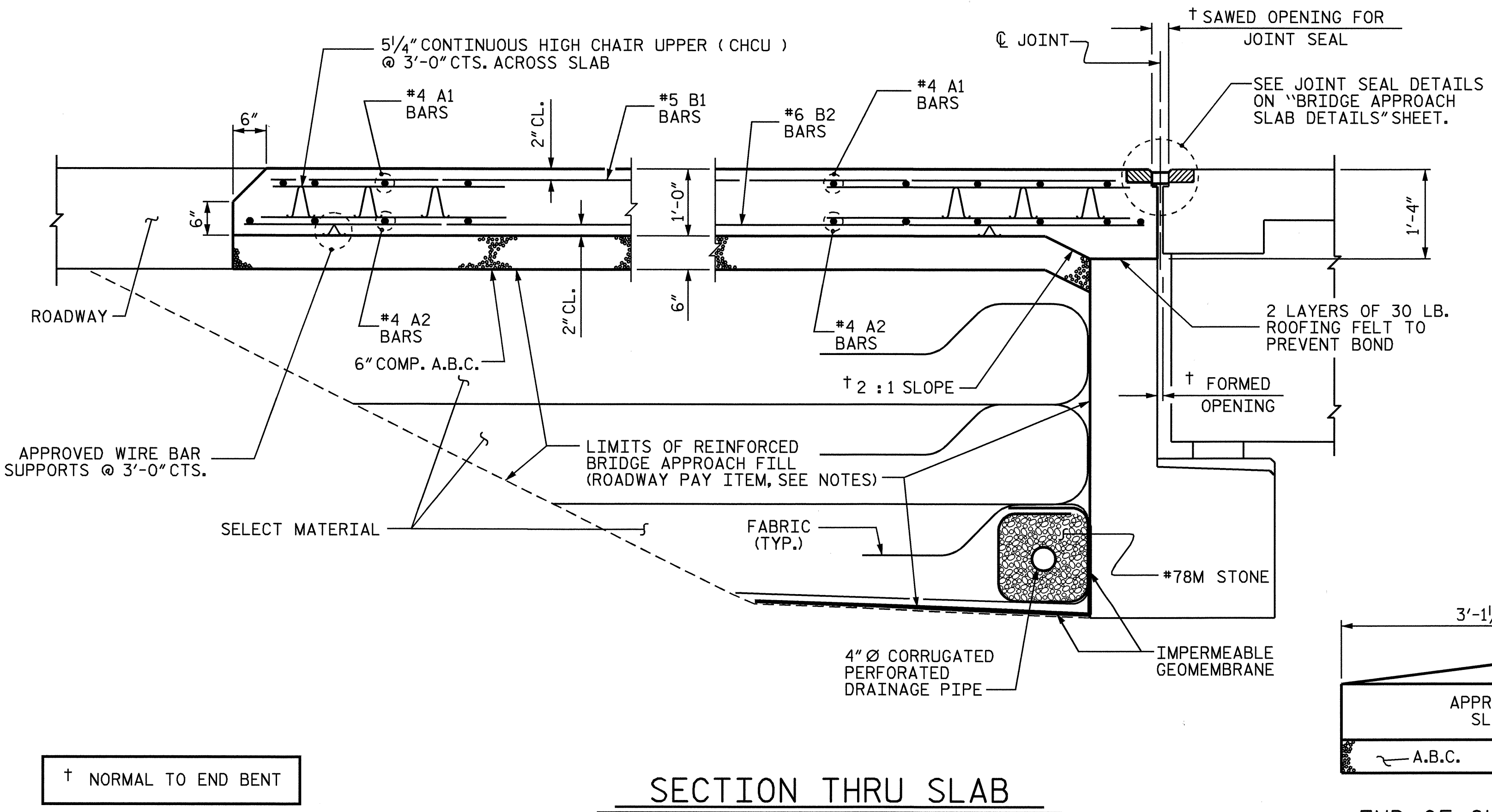
THE JOINT SHALL BE SAWS PRIOR TO THE CASTING OF THE CONCRETE BARRIER RAIL.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

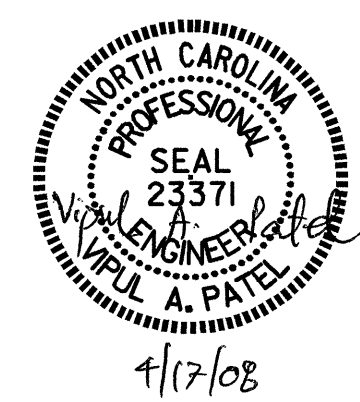
THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.



CURB DETAILS

PROJECT NO. B-3492
McDOWELL COUNTY
 STATION: 13+44.00 -L-

SHEET 1 OF 2

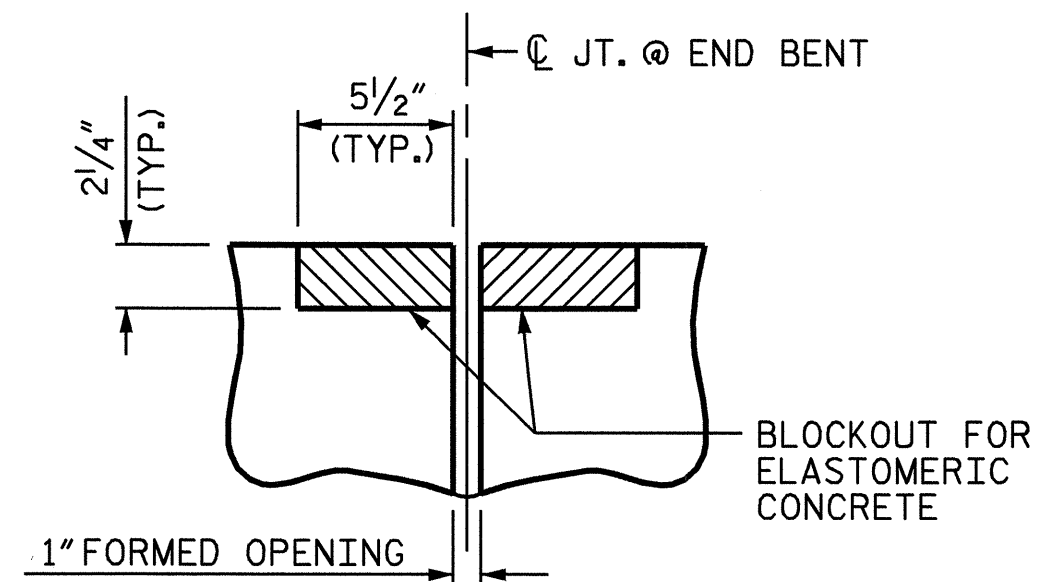
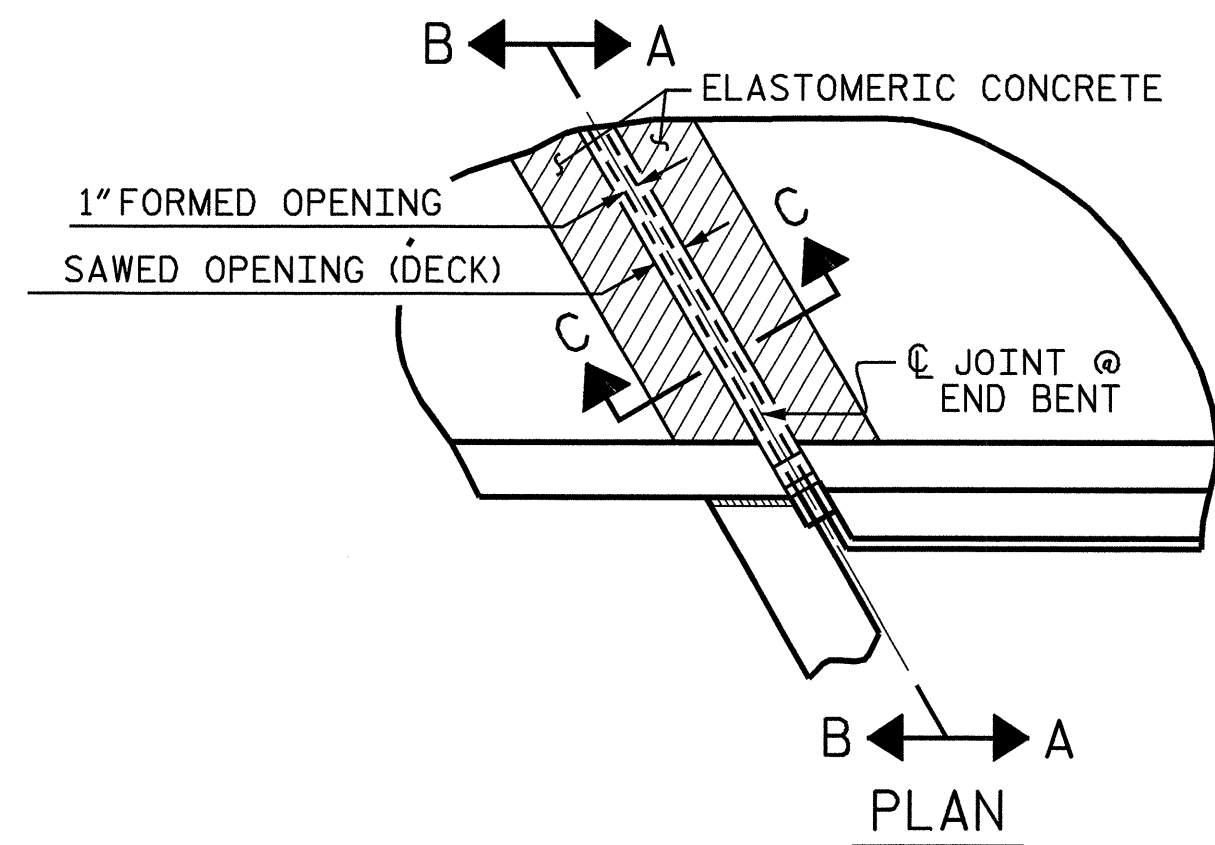


STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
STANDARD					
BRIDGE APPROACH SLAB					
FOR FLEXIBLE PAVEMENT					

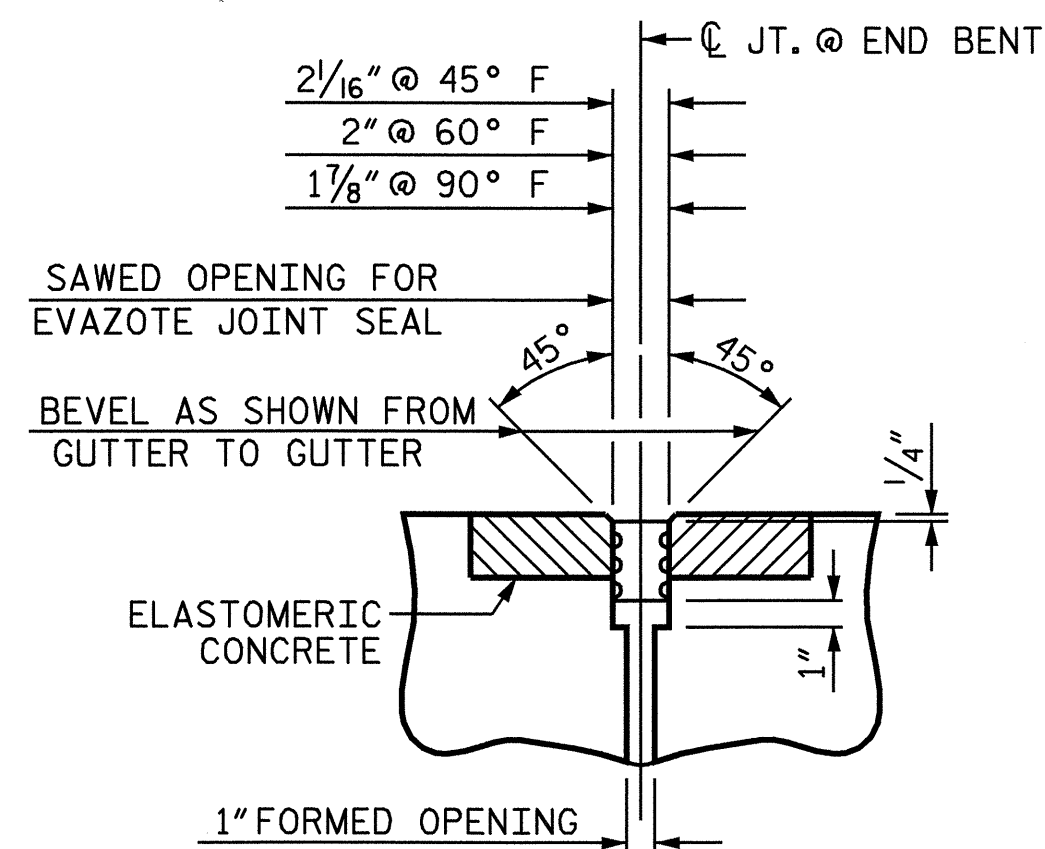
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.	
TOTAL SHEETS	30

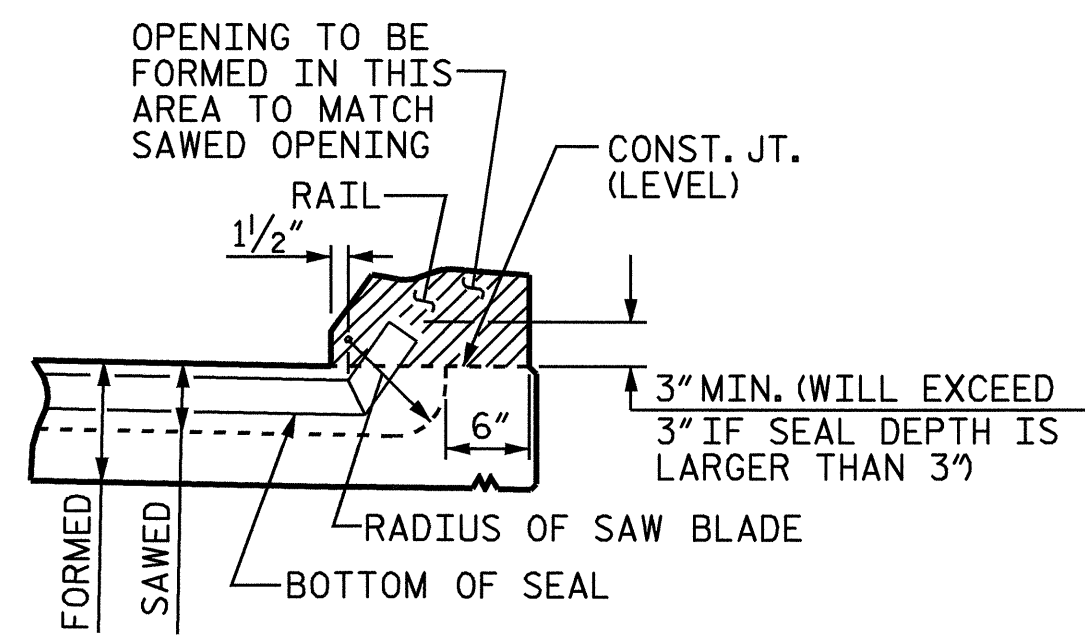
ASSEMBLED BY : R. G. EMERSON	DATE : 01/08
CHECKED BY : S. DOMBROWSKI	DATE : 01/08
DRAWN BY : EEM	3/95
CHECKED BY : VAP	3/95
REV. 7/10/01	LES/RDR
REV. 5/7/03R	RWW/JTE
REV. 5/1/06R	KMM/GM



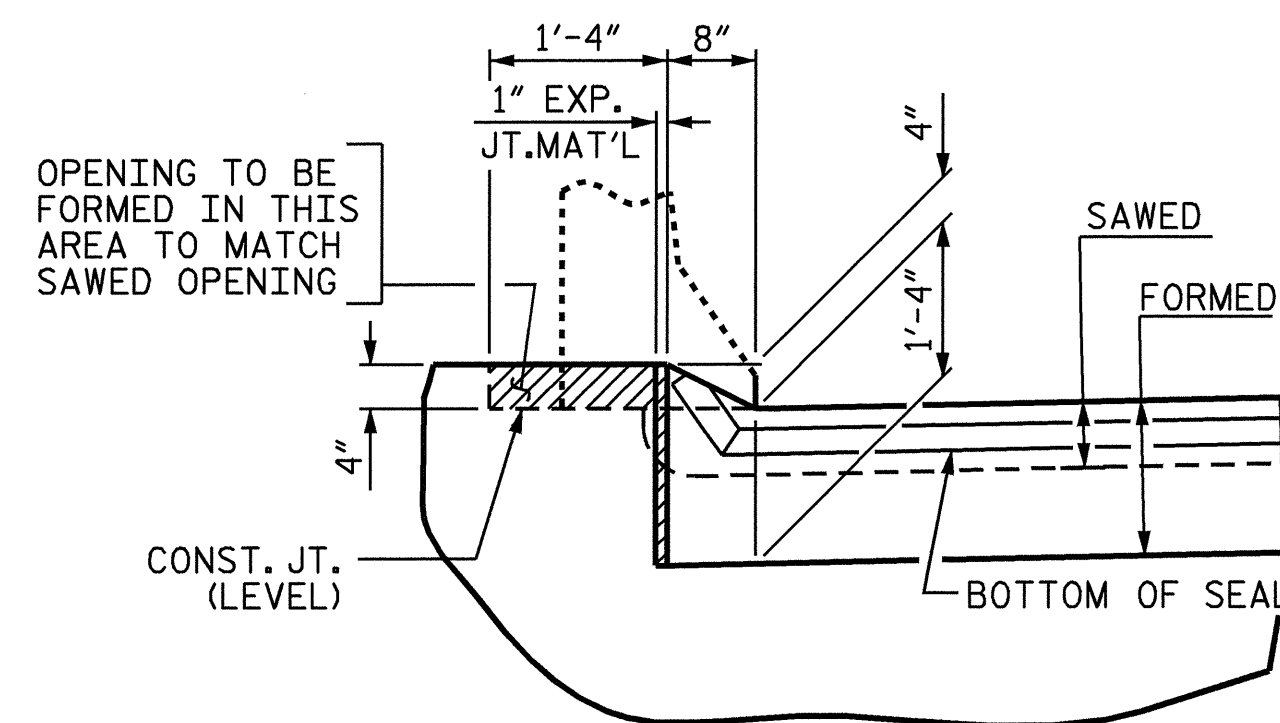
SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)



SECTION C-C
EVAZOTE JOINT SEAL
(EXPANSION)



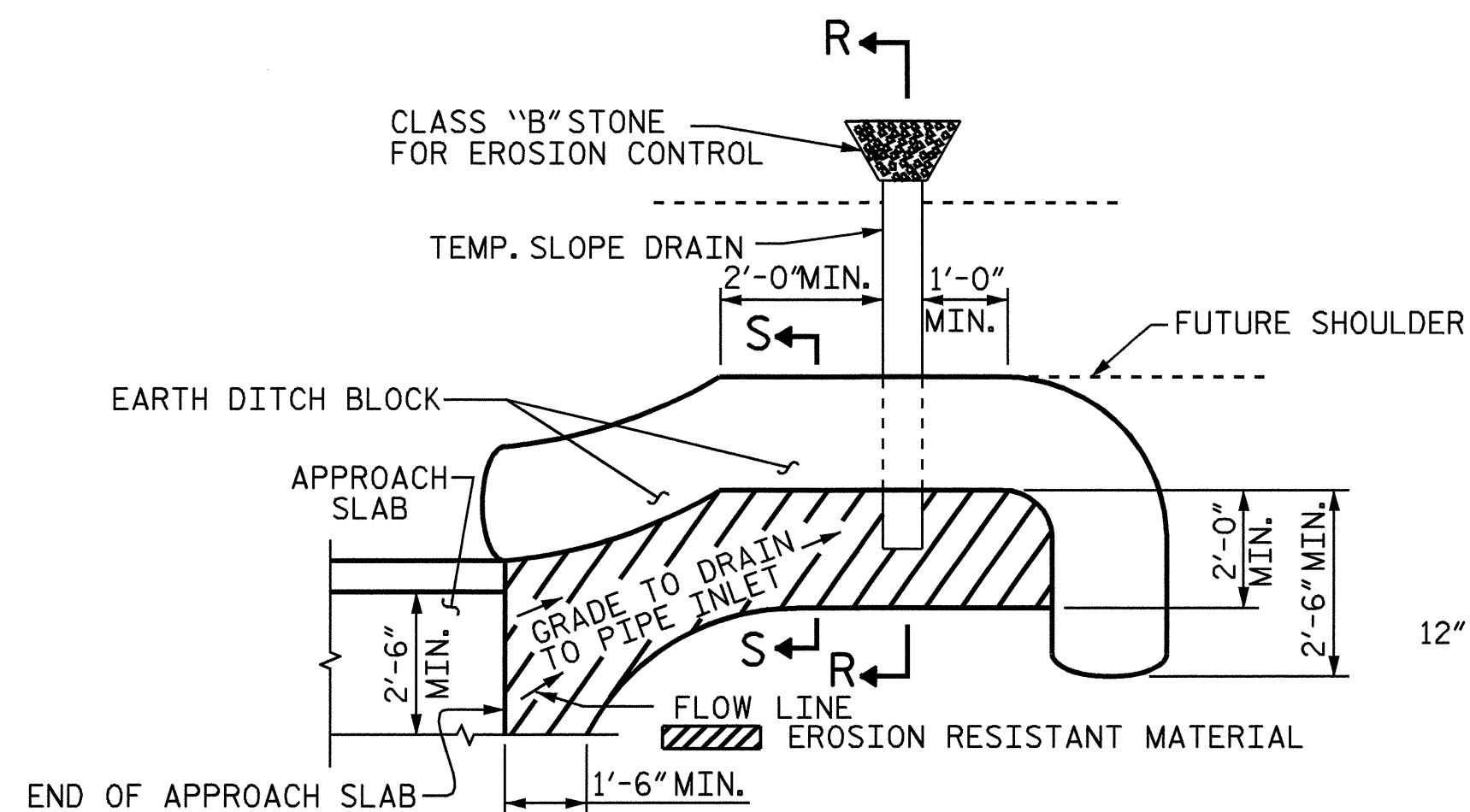
SECTION A-A



SECTION B-B

JOINT SEAL DETAILS @ END BENT

EVAZOTE JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE BARRIER RAIL.

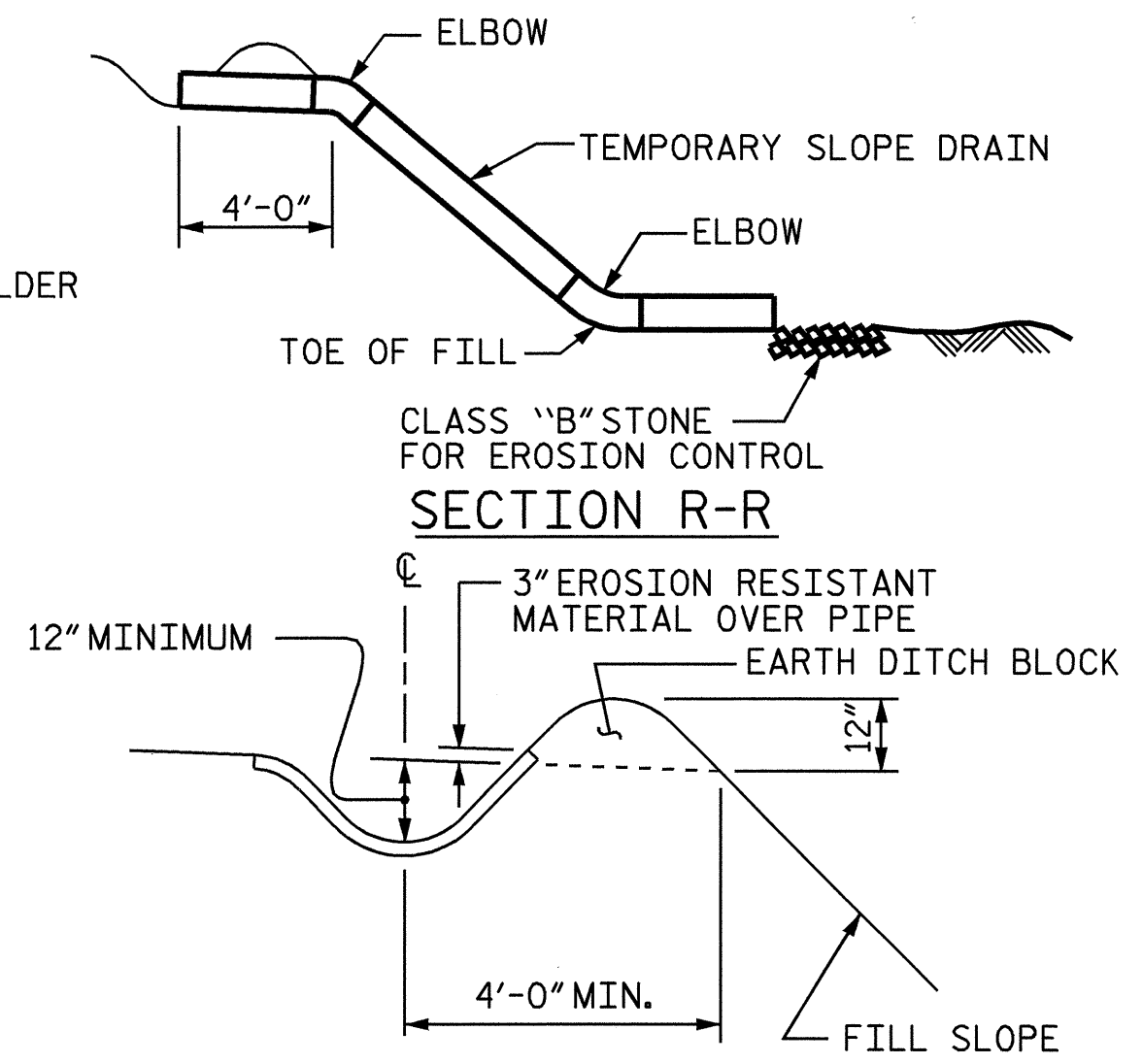


PLAN VIEW

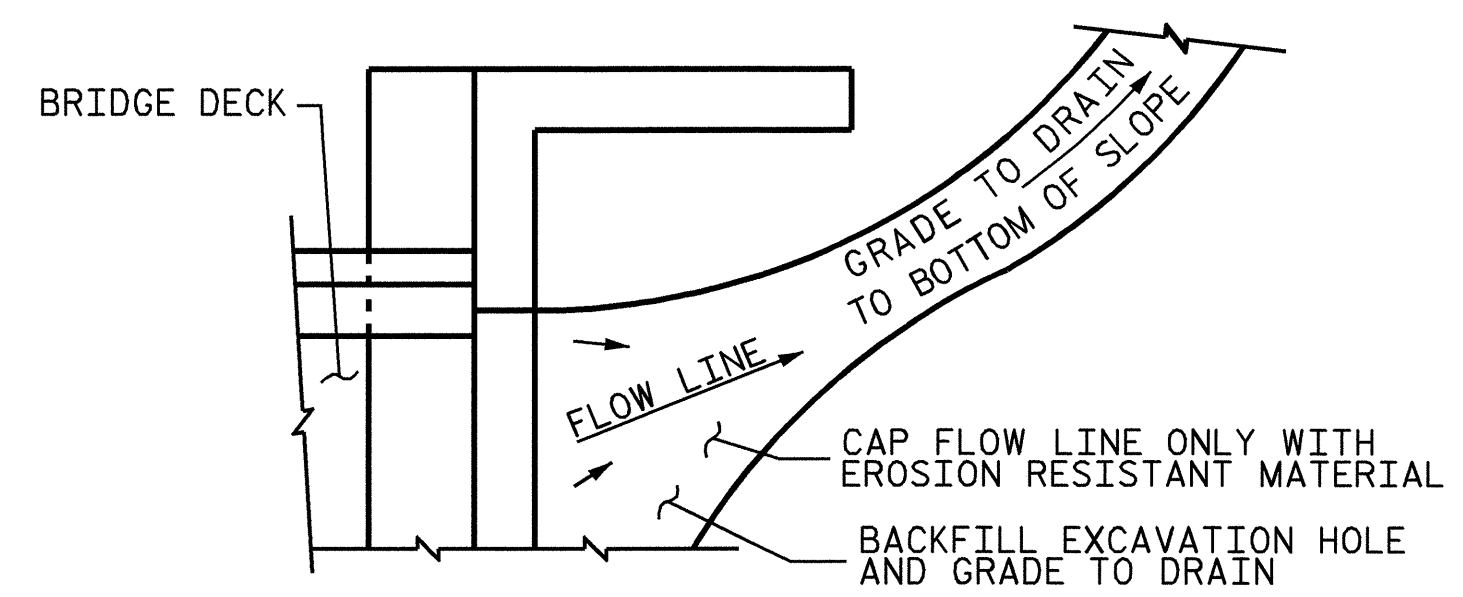
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION S-S



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.

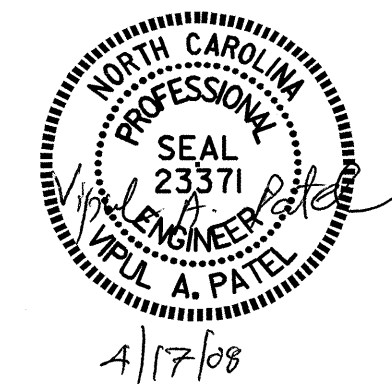
TEMPORARY DRAINAGE DETAIL

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	6.7
2	6.7
TOTAL	13.4

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

PROJECT NO. B-3492
McDOWELL COUNTY
STATION: 13+44.00 -L-

SHEET 2 OF 2



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

ASSEMBLED BY : R. G. EMERSON	DATE : 01/08
CHECKED BY : S. DOMBROWSKI	DATE : 09/08
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 3/1/06R MAA/KMM

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

STD. NO. BAS10 (SHT 4)

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 2002 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; CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP; AND CLASS S SHALL BE USED FOR UNDERWATER FOOTING SEALS.

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 WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. 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. PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED MAY 8, 1991. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORDANCE WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 1072-11. 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. FINS 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.

ENGLISH

JANUARY, 1990

STD. NO. SN