

CONTRACT: C201363 TIP PROJECT: B-3872

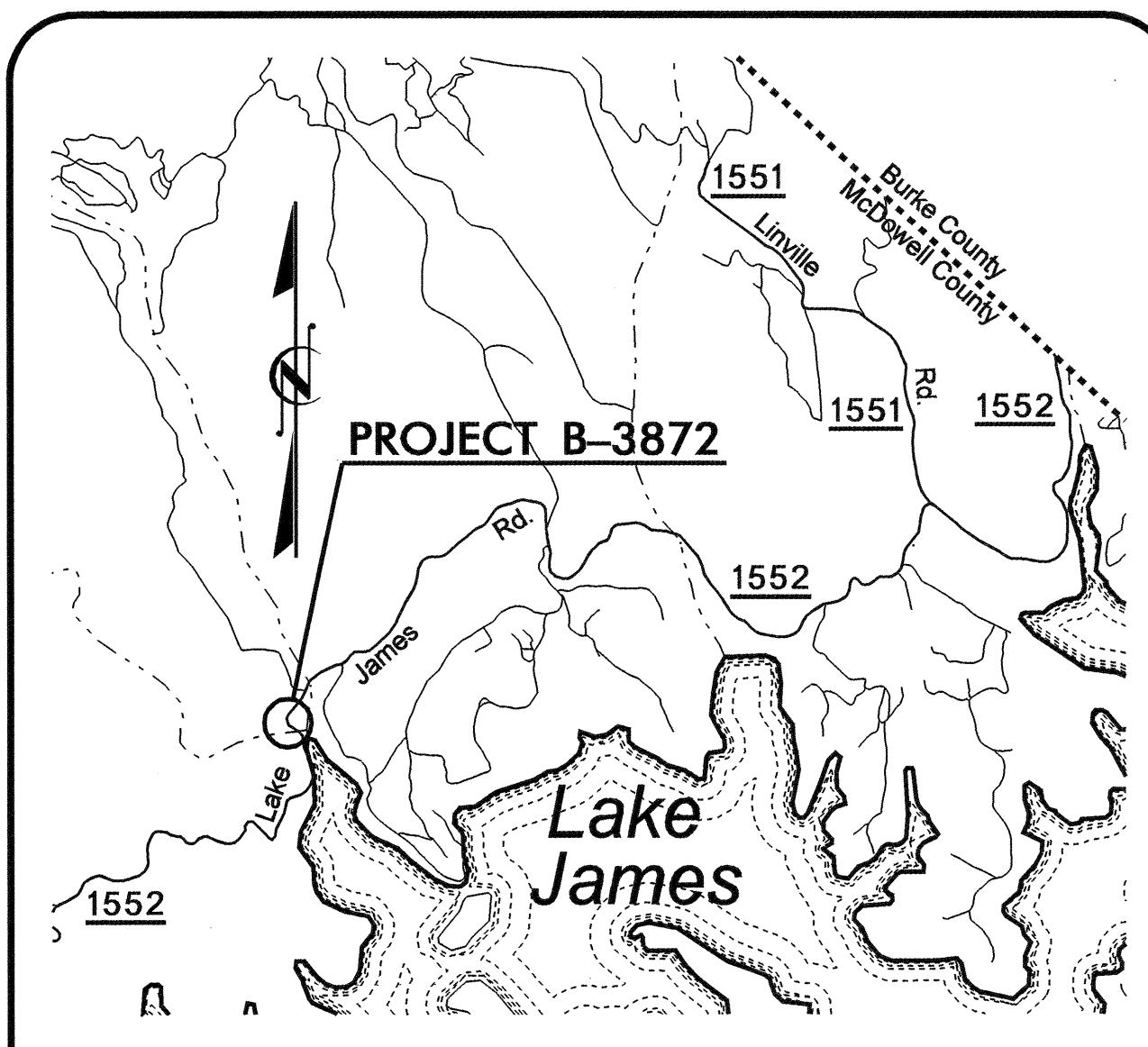
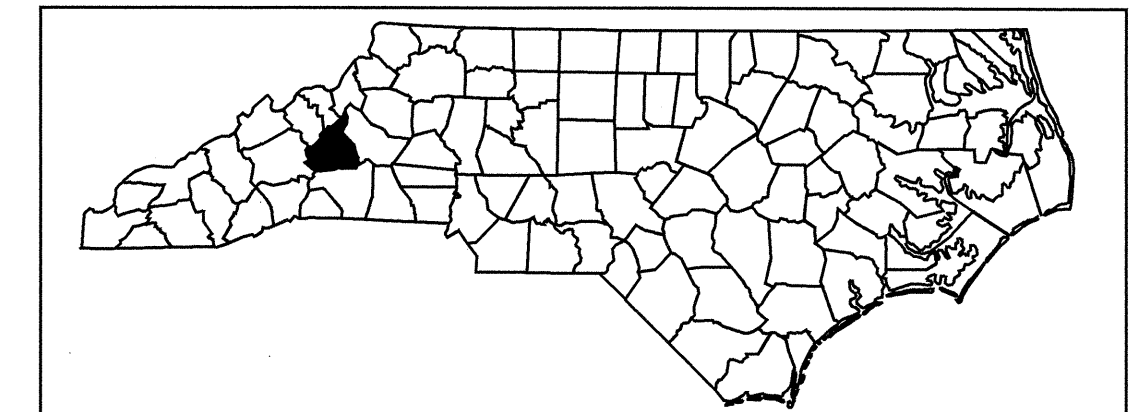
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

McDOWELL COUNTY

**LOCATION: BRIDGE No. 195 ON SR 1552
OVER LAKE JAMES CREEK**

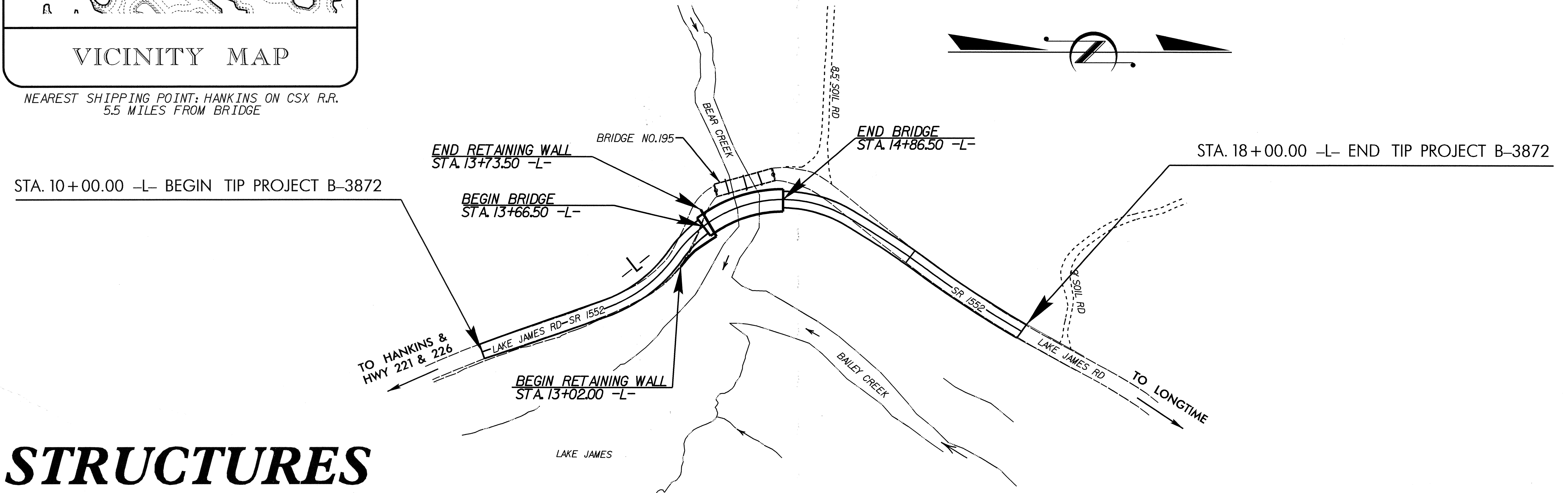
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL,
STRUCTURE AND RETAINING WALL**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3872		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33316.1.1	BRZ-1552(8)	PE	
33316.2.2	BRZ-1552(8)	RW, UTIL	
33316.3.1	BRZ-1552(10)	CONST.	



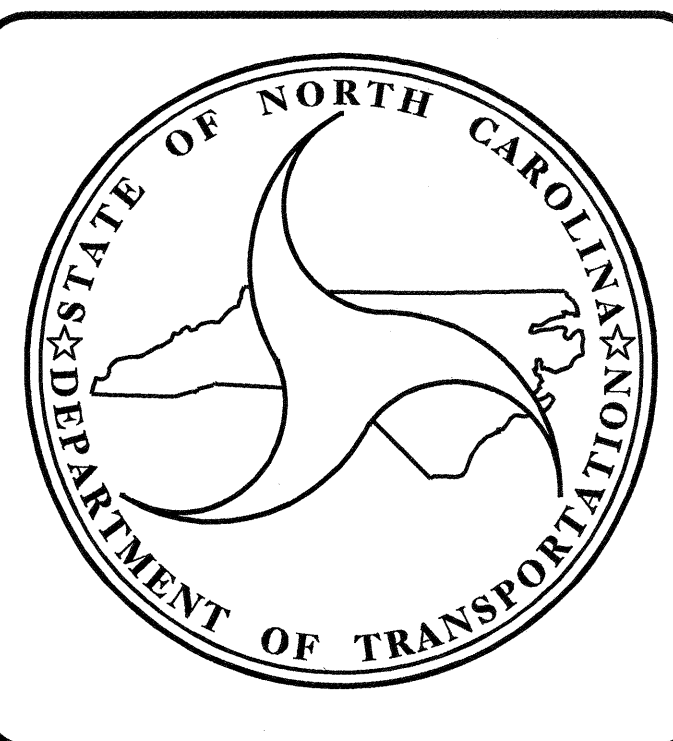
VICINITY MAP

NEAREST SHIPPING POINT: HANKINS ON CSX R.R.
5.5 MILES FROM BRIDGE



STRUCTURES

** DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED.



DESIGN DATA

ADT 2006 =	242
ADT 2025 =	400
DHV =	10 %
D =	60 %
T =	3 %
**V =	20 mph
TTST =	1% & DUAL = 2%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3872 =	0.129 mi
LENGTH STRUCTURE TIP PROJECT B-3872 =	0.023 mi
TOTAL LENGTH OF TIP PROJECT B-3872 =	0.152 mi

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., NC, 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
AUGUST 21, 2007

N.N. BULLOCK, PE
PROJECT ENGINEER

D.R. CALHOUN, PE
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.

STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR

DATE

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dkp/rtel

GRADE DATA

-4.1500% Δ +0.6920%

P.I. = 12+80.00 -L-
 E.L. = 1216.85
 V.C. = 80

GRADE DATA

+0.6920% Δ +2.2500%

P.I. = 15+30.00 -L-
 E.L. = 1218.58
 V.C. = 60'

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.
 REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF FOUR (1 @ 15'-8", 1 @ 24'-7", 1 @ 21'-7", 1 @ 18'-8") TIMBER DECK SPANS WITH A CLEAR ROADWAY WIDTH OF 15'-10" ON STEEL I-BEAMS ON TIMBER PILE AND CAP END BENTS AND BENTS (BENT 2 WITH A CONCRETE FOOTING) AND LOCATED APPROXIMATELY 28'-0" UPSTREAM FROM THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL PROVISION FOR "REMOVAL OF EXISTING STRUCTURE @ STA. 14+26.50 -L-".

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

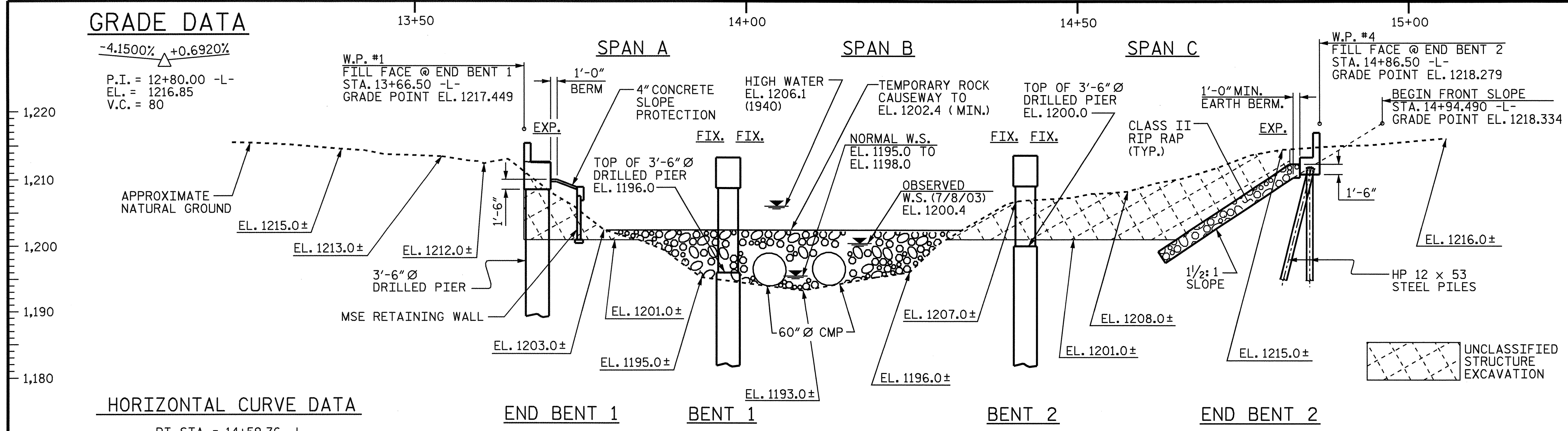
THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED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

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 14+26.50 -L-".

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED AS SHOWN ON LOCATION SKETCH AND AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR UNCLASSIFIED STRUCTURE EXCAVATION.

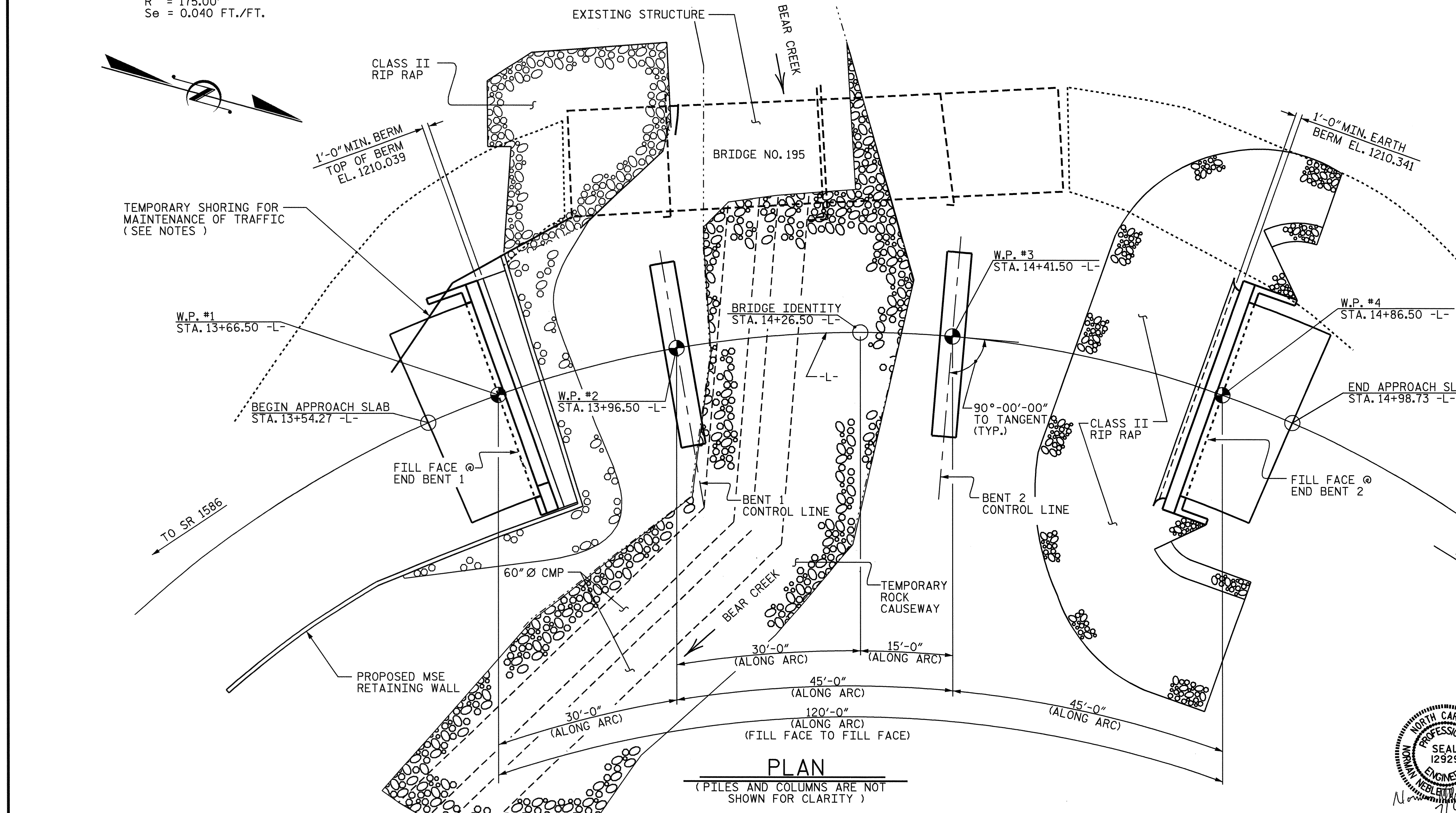
FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

SEE SHEET 4 OF 4 FOR ADDITIONAL NOTES.
 SEE SHEET 3 OF 4 FOR FOUNDATION NOTES.



HORIZONTAL CURVE DATA

PI STA = 14+59.76 -L-
 Δ = 85°49' 29.7" (RT)
 L = 262.14'
 T = 162.69'
 R = 175.00'
 Se = 0.040 FT./FT.



PROJECT NO. B-3872
McDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 1 OF 4 REPLACES BRIDGE NO. 195

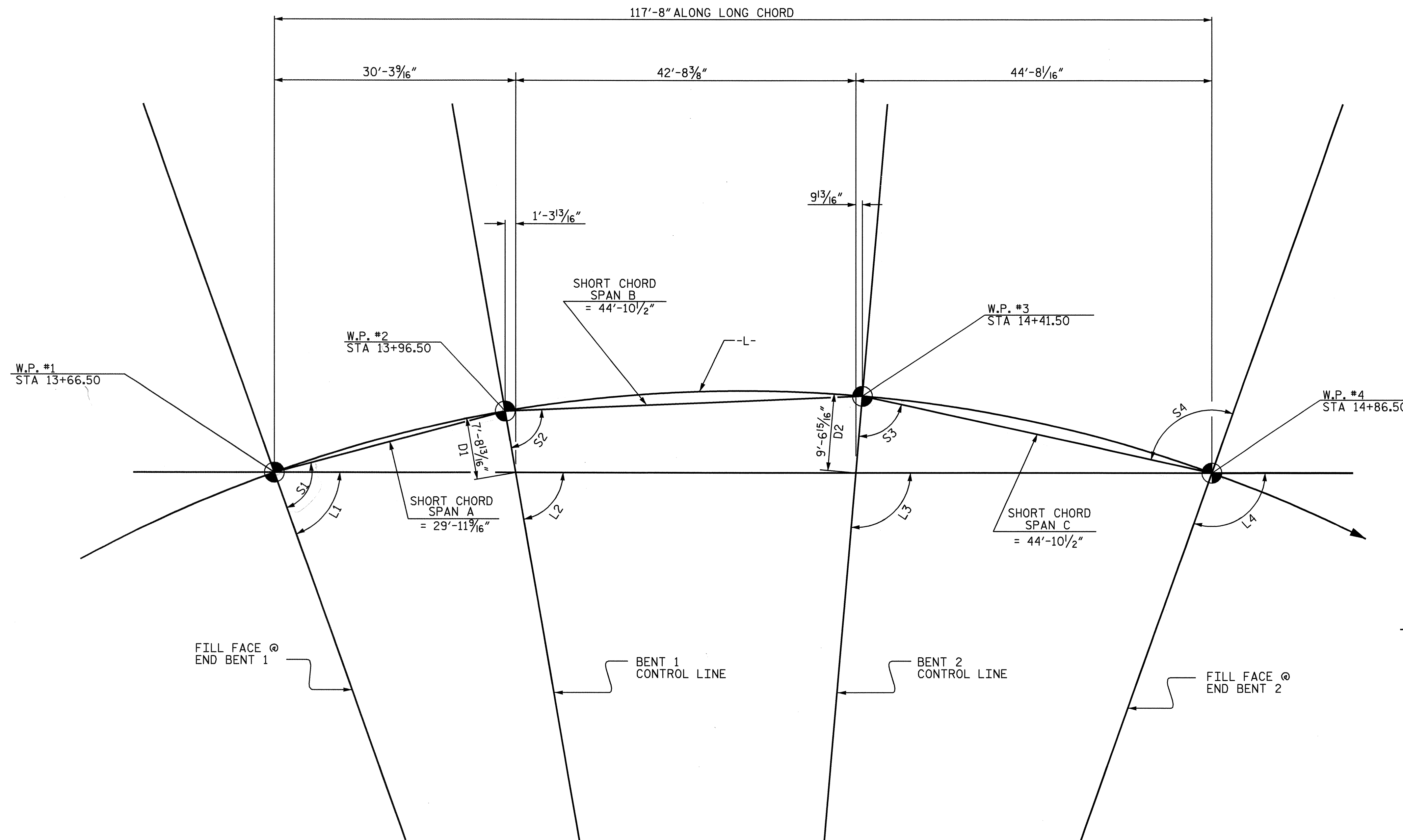
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1552
 OVER BEAR CREEK BETWEEN
 SR 1586 AND SR 1551

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12929
 NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 14855

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			36

DRAWN BY: E. G. ALLEN DATE: 8/25/05
 CHECKED BY: J. L. CLELLAND DATE: 10/20/05



HORIZONTAL CURVE DATA

PI STA = 14+59.76 -L-
 Δ = 85° 49' 29.7" (RT)
 L = 262.14'
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 Se = 0.040 FT./FT.

ANGLES			
	LONG CHORD		SHORT CHORD
L1	70°-21'-21"	S1	85°-05'-20"
L2	80°-10'-40"	S2	82°-38'-00"
L3	94°-54'-40"	S3	82°-38'-00"
L4	109°-38'-39"	S4	97°-22'-00"

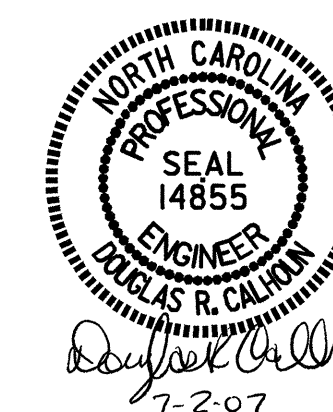
LONG CHORD LAYOUT

PROJECT NO. B-3872
McDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 2 OF 4

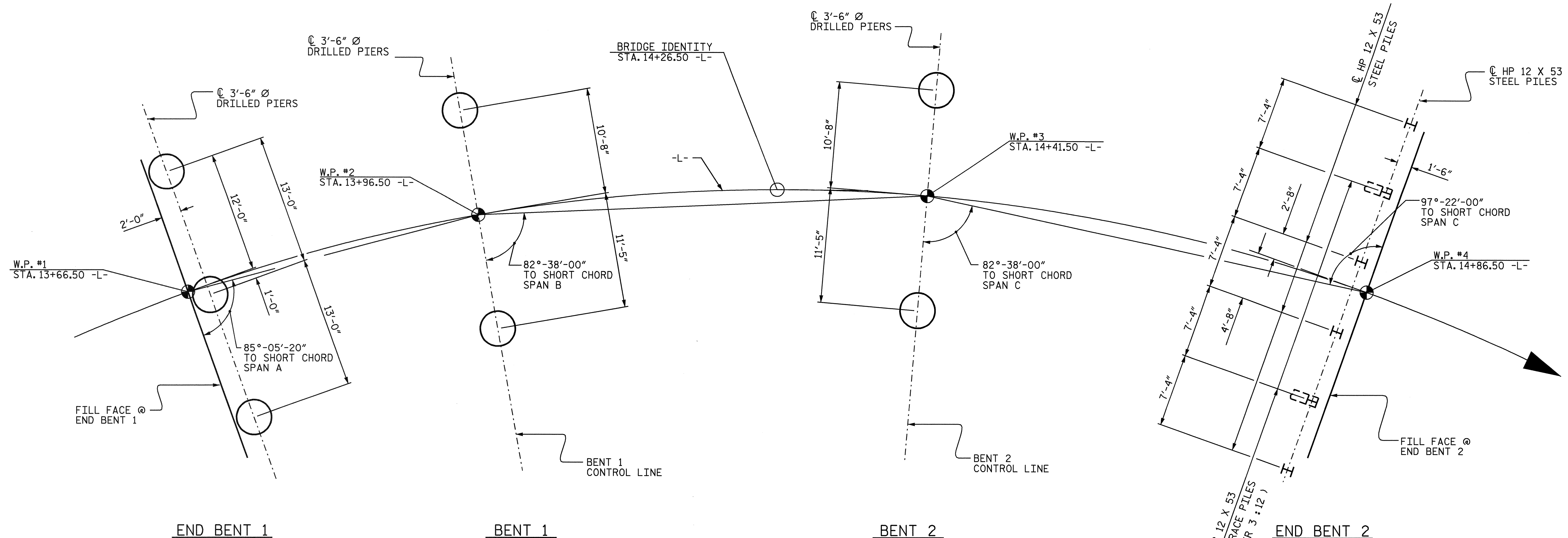
STATE OF NORTH CAROLINA
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GENERAL DRAWING
 FOR BRIDGE ON SR 1552
 OVER BEAR CREEK BETWEEN
 SR 1586 AND SR 1551



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			36

DRAWN BY : E. G. ALLEN DATE : 8/25/05
 CHECKED BY : T. L. CLELLAND DATE : 10/20/05



FOUNDATION LAYOUT

(DIMENSIONS LOCATING DRILLED PIERS AND PILES ARE SHOWN TO CENTERLINE OF DRILLED PIERS AND PILES)

FOUNDATION NOTES

DRILLED PIERS AT END BENT 1 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 30 TSF.

DRILLED PIERS AT BENT 1 AND 2 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 30 TSF.

DRILLED PIERS AT END BENT 1 ARE DESIGNED FOR AN APPLIED LOAD OF 111.0 TONS AT THE TOP OF THE COLUMN.

DRILLED PIERS AT BENT 1 AND 2 ARE DESIGNED FOR AN APPLIED LOAD OF 198.1 TONS AND 221.1 TONS RESPECTIVELY AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT END BENT 1, BENT 1, OR BENT 2. IF REQUIRED, DO NOT EXTEND THE CASING BELOW ELEVATION 1191 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING.

FOR PERMANENT STEEL CASING, SEE DRILLED PIERS SPECIAL PROVISION.

DRILLED PIERS AT END BENT 1 MUST EXTEND TO AN ELEVATION NO HIGHER THAN 1195.0 FT. (LT.), 1191.0 FT. (CTR.) AND 1188.0 FT. (RT.) AND SATISFY THE REQUIRED END BEARING CAPACITY.

DRILLED PIERS AT BENT 1 MUST EXTEND TO AN ELEVATION NO HIGHER THAN 1185.0 FT. AND SATISFY THE REQUIRED END BEARING CAPACITY.

DRILLED PIERS AT BENT 2 MUST EXTEND TO AN ELEVATION NO HIGHER THAN 1178.0 FT. (LT.), AND 1183.0 FT. (RT.) AND SATISFY THE REQUIRED END BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 AND 2 IS ELEVATION 1192 AND 1190 FT. RESPECTIVELY. BRIDGE MAINTENANCE USES SCOUR CRITICAL ELEVATIONS TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISIONS.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE END BEARING CAPACITY OF THE DRILLED PIERS AT END BENT 1, BENT 1, AND BENT 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.

DO NOT USE SLURRY CONSTRUCTION FOR DRILLED PIERS AT END BENT 1, BENT 1, OR BENT 2.

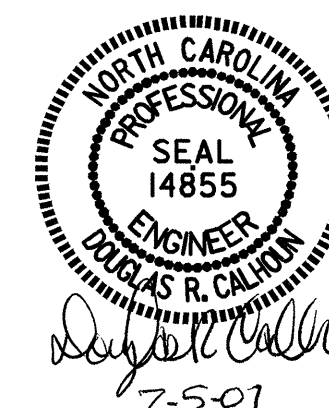
THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT 2 IS 60 TONS PER PILE.

DRIVE PILES AT END BENT 2 TO A REQUIRED BEARING CAPACITY OF 120 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

STEEL PILE POINTS ARE REQUIRED FOR STEEL PILES AT END BENT 2. SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

DRAWN BY : E. G. ALLEN DATE : 8/25/05
 CHECKED BY : T. L. CLELLAND DATE : 10/20/05

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PROJECT NO. B-3872
McDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1552
 OVER BEAR CREEK BETWEEN
 SR 1586 AND SR 1551

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			36

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	3'-6" Ø DRILLED PIERS IN SOIL	3'-6" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER	SID INSPECTION	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	36" PRESTRESSED CONCRETE GIRDERS	HP 12 X 53 STEEL PILES	STEEL PILE POINTS	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS		
	LUMP SUM	LUMP SUM	LIN.FT.	LIN.FT.	LIN.FT.	EA.	EA.	CU.YDS.	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN.FT.	NO.	LIN.FT.	EA.	LIN.FT.	TONS	SQ.YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	LUMP SUM	LUMP SUM							3898	3826		LUMP SUM			12	460.82			234.47				LUMP SUM	LUMP SUM
END BENT 1			30.75	21.00	52.62	1	1	826			33.4		8644	1182							103	114		
BENT 1			7.00	15.00	10.00	1	1				29.3		6722	1046										
BENT 2			28.00	11.00	18.00	1	1				27.4		7220	1237										
END BENT 2								1674			21.1		3142			6	210	6		255	283			
TOTAL	LUMP SUM	LUMP SUM	65.75	47.00	80.62	3	3	2500	3898	3826	111.2	LUMP SUM	25,728	3465	12	460.82	6	210	6	234.47	358	397	LUMP SUM	LUMP SUM

NOTES (CONT.):

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 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.

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.

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.

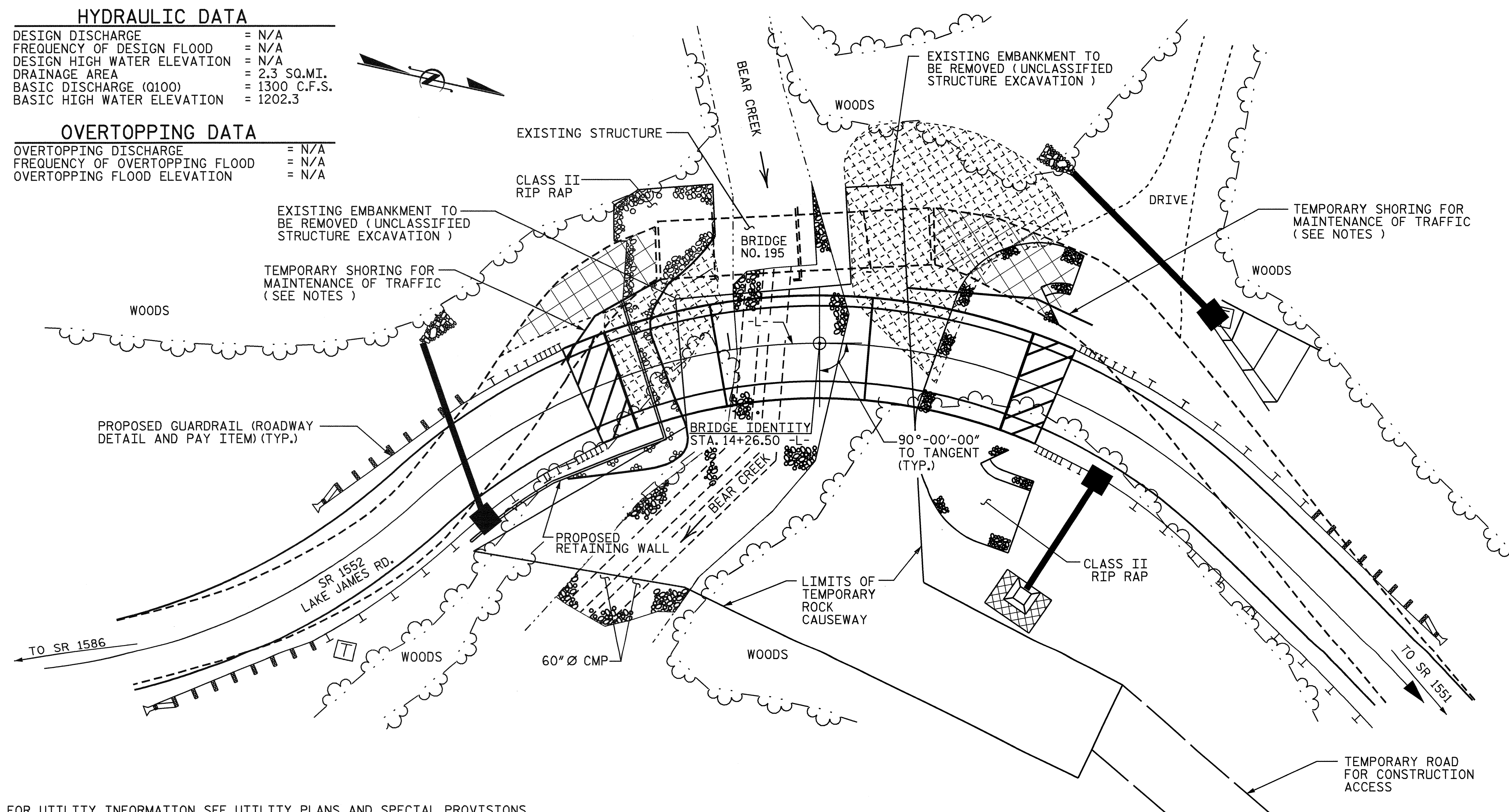
FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS AT BENT 2 IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.

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 14+26.50 -L-.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

BM#2 40.66' NE FROM BL- STA. 18+10.12 LEFT: 8" NAIL SET IN BASE OF 18" POPLAR ELEV. 1210.53 NAVD 88



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

DRAWN BY : E. G. ALLEN DATE : 8/25/05
 CHECKED BY : J. L. CLELLAND DATE : 10/20/05

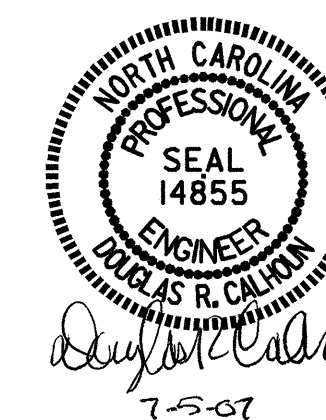
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PROJECT NO. B-3872
McDOWELL COUNTY
 STATION: 14+26.50 -L-

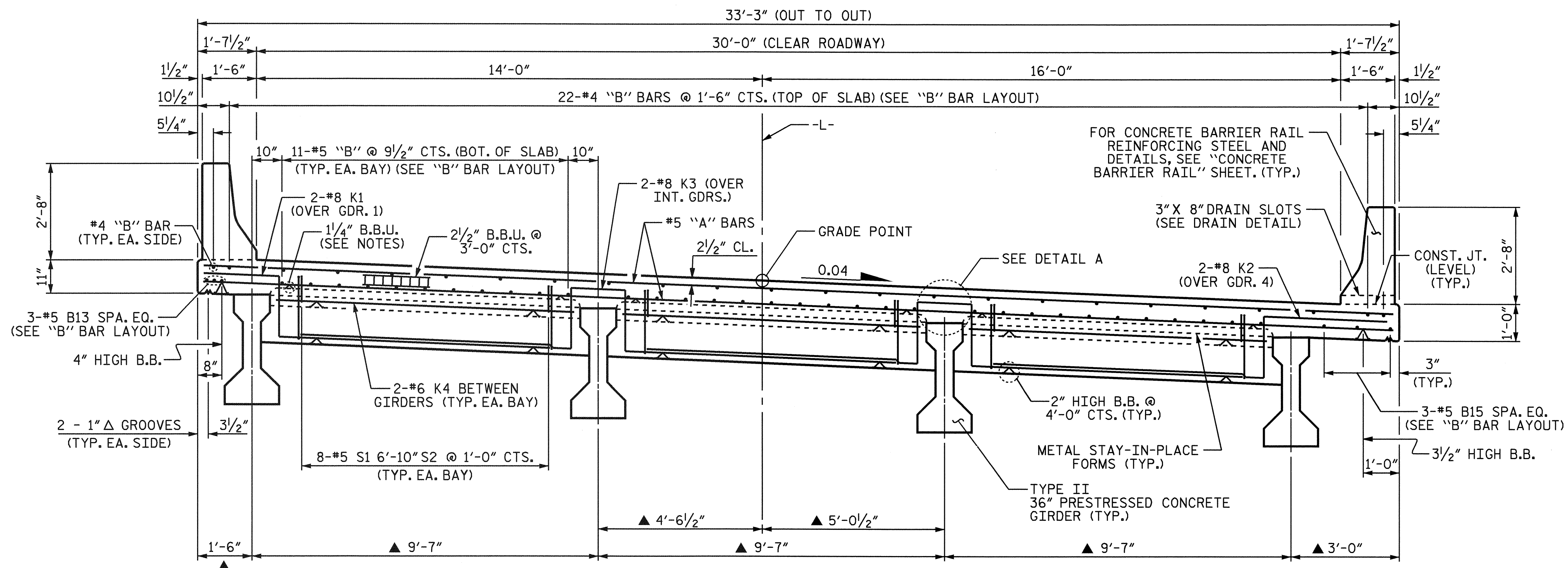
SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1552
 OVER BEAR CREEK BETWEEN
 SR 1586 AND SR 1551



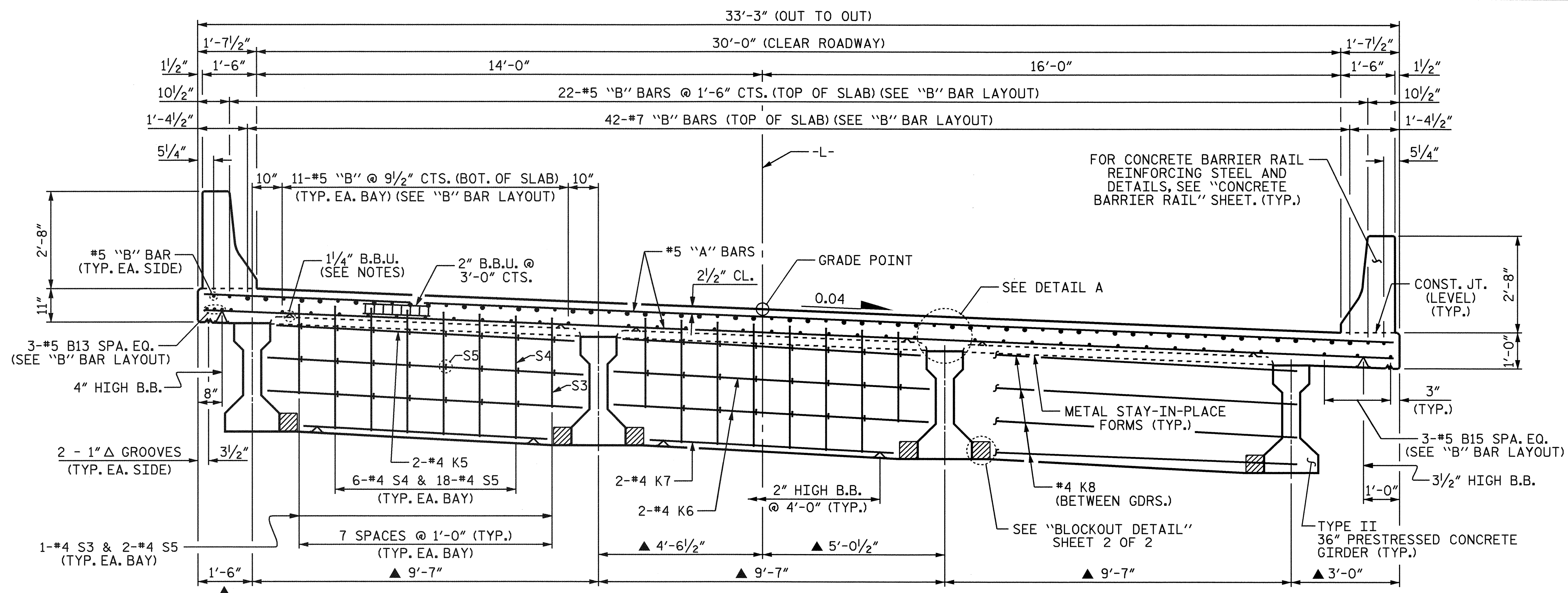
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			36



TYPICAL SECTION @ END BENT DIAPHRAGMS

FOR "B" BARS IN TOP AND BOTTOM OF SLAB, SEE "B" BAR LAYOUT SHEET.

NOTE: ALL HORIZONTAL DIMENSIONS ARE RADIAL EXCEPT AS NOTED.
 ▲ DIMENSIONS ARE RADIAL @ END BENT FILL FACES AND BENT CONTROL LINES.



TYPICAL SECTION @ BENT DIAPHRAGMS

FOR "B" BARS IN TOP AND BOTTOM OF SLAB, SEE "B" BAR LAYOUT SHEET.

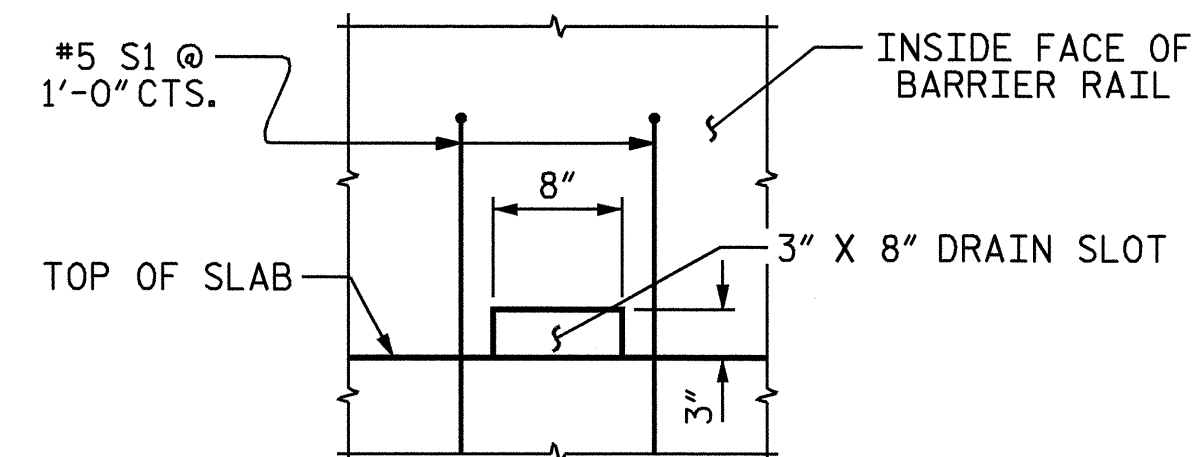
NOTES

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.

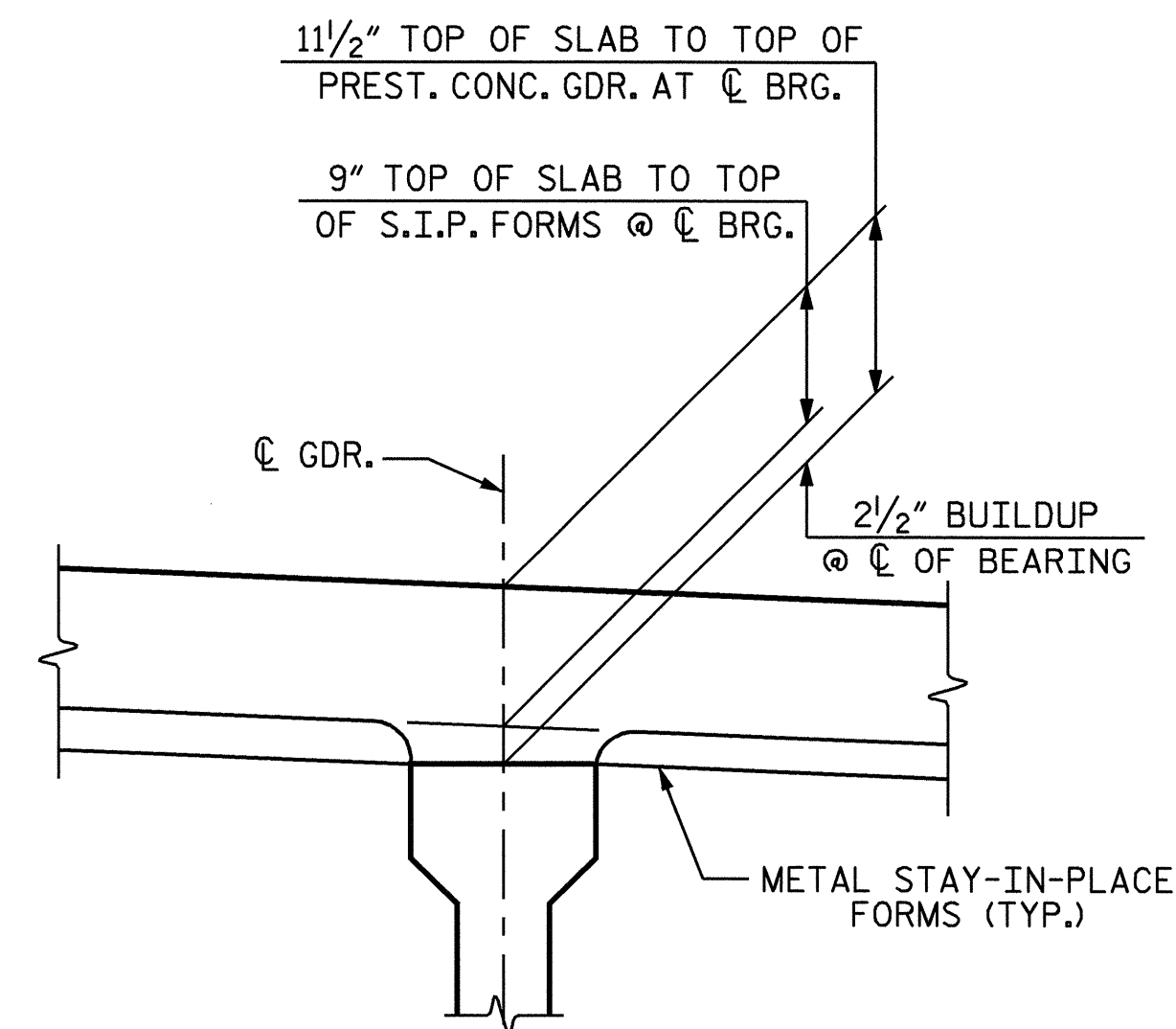
PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

FOR TYPICAL SECTION OF INTERMEDIATE DIAPHRAGMS, SEE "PRESTRESSED CONCRETE GIRDER" SHEET 6 OF 6.



DRAIN DETAIL

(CENTER DRAIN SLOT BETWEEN THE #5 S1 IN BARRIER RAIL) (5 DRAINS REQUIRED) (FOR LOCATION OF DRAINS, SEE PLAN OF SPAN C)



DETAIL A

PROJECT NO. B-3872
MCDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 1 OF 2



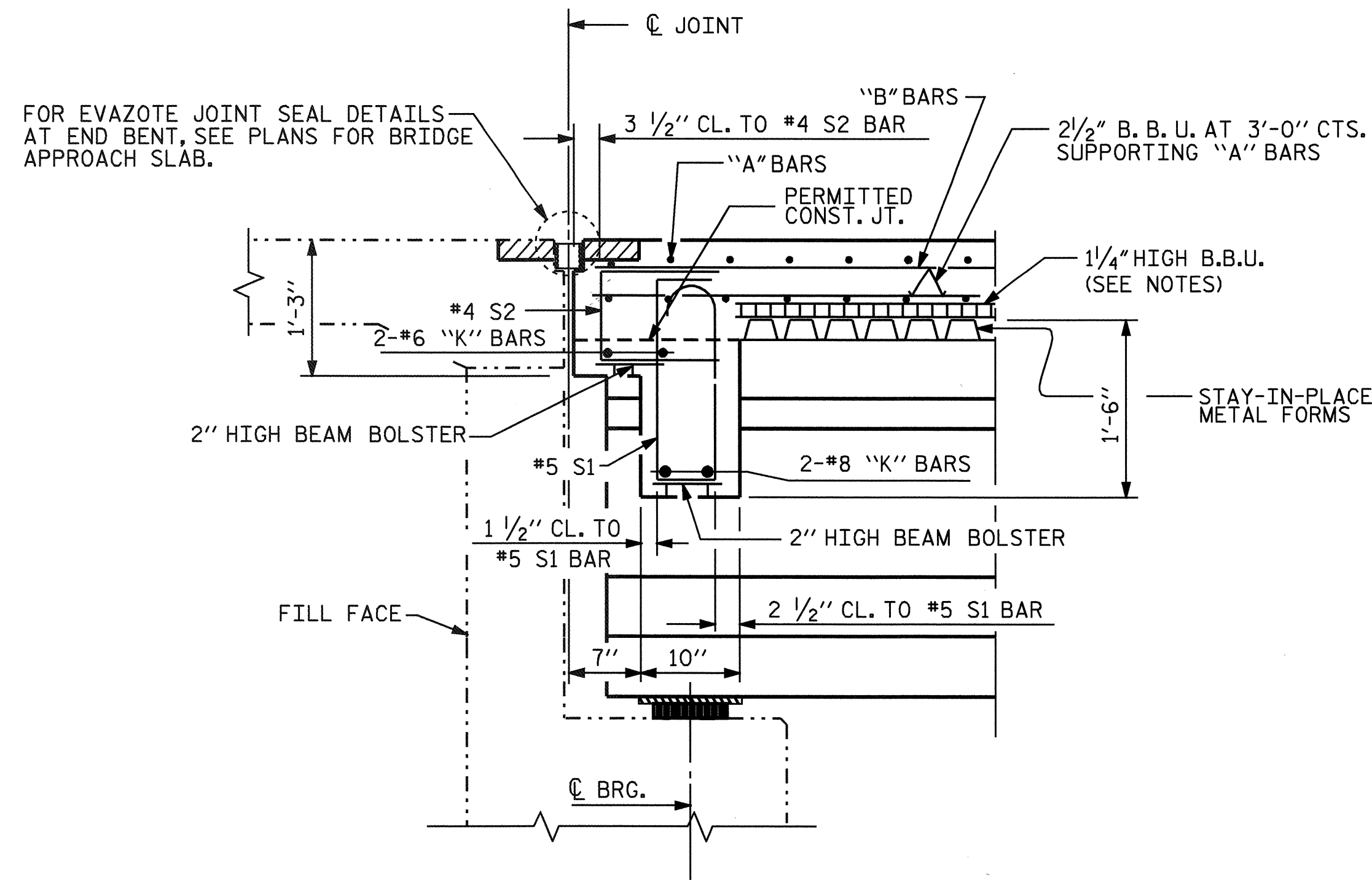
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 TYPICAL SECTION**

DRAWN BY : T. A. HARRIS DATE : 3/10/05
 CHECKED BY : T. L. CLELLAND DATE : 4/8/05

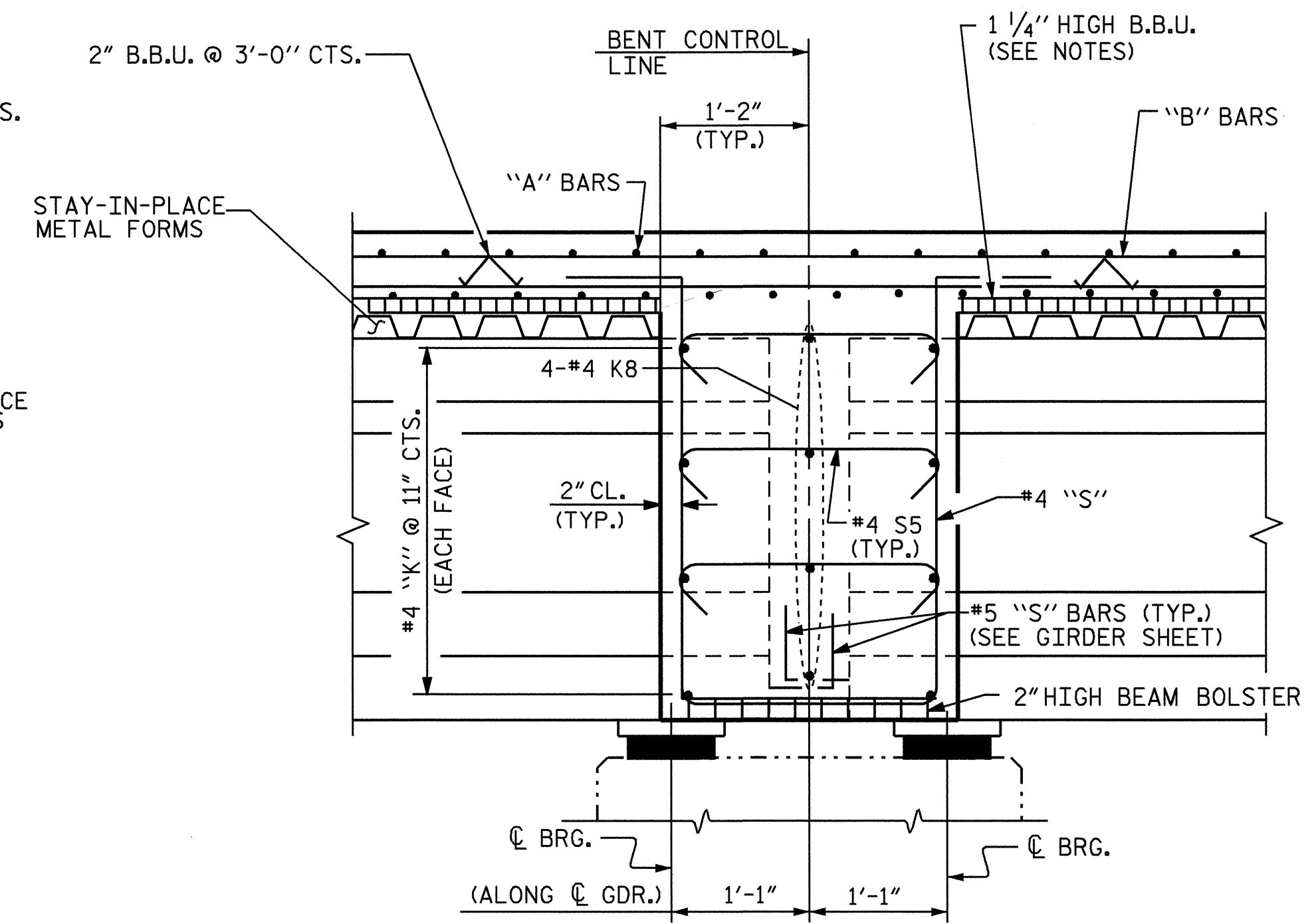
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
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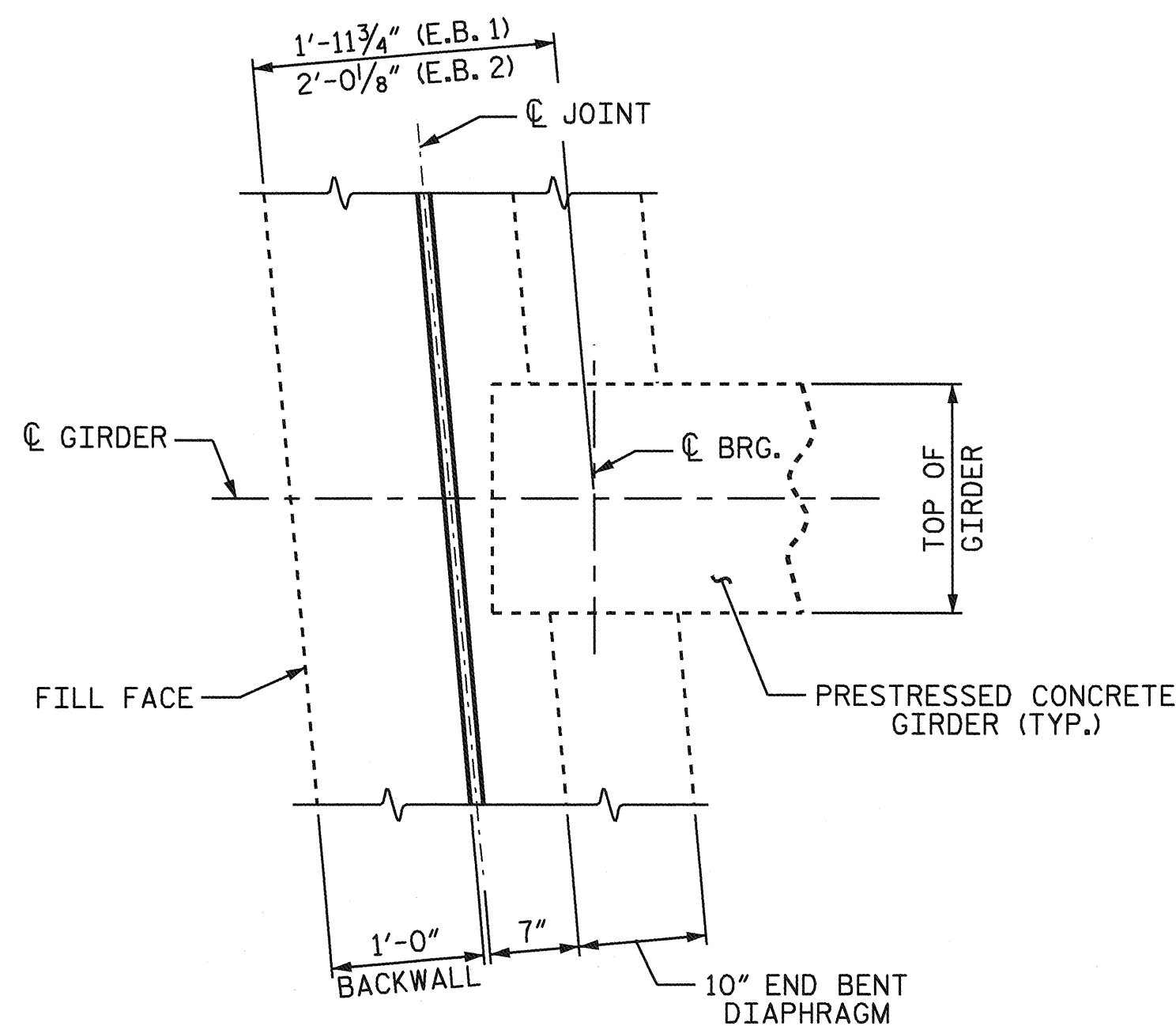
SECTION A-A

(THRU END BENT DIAPHRAGM)



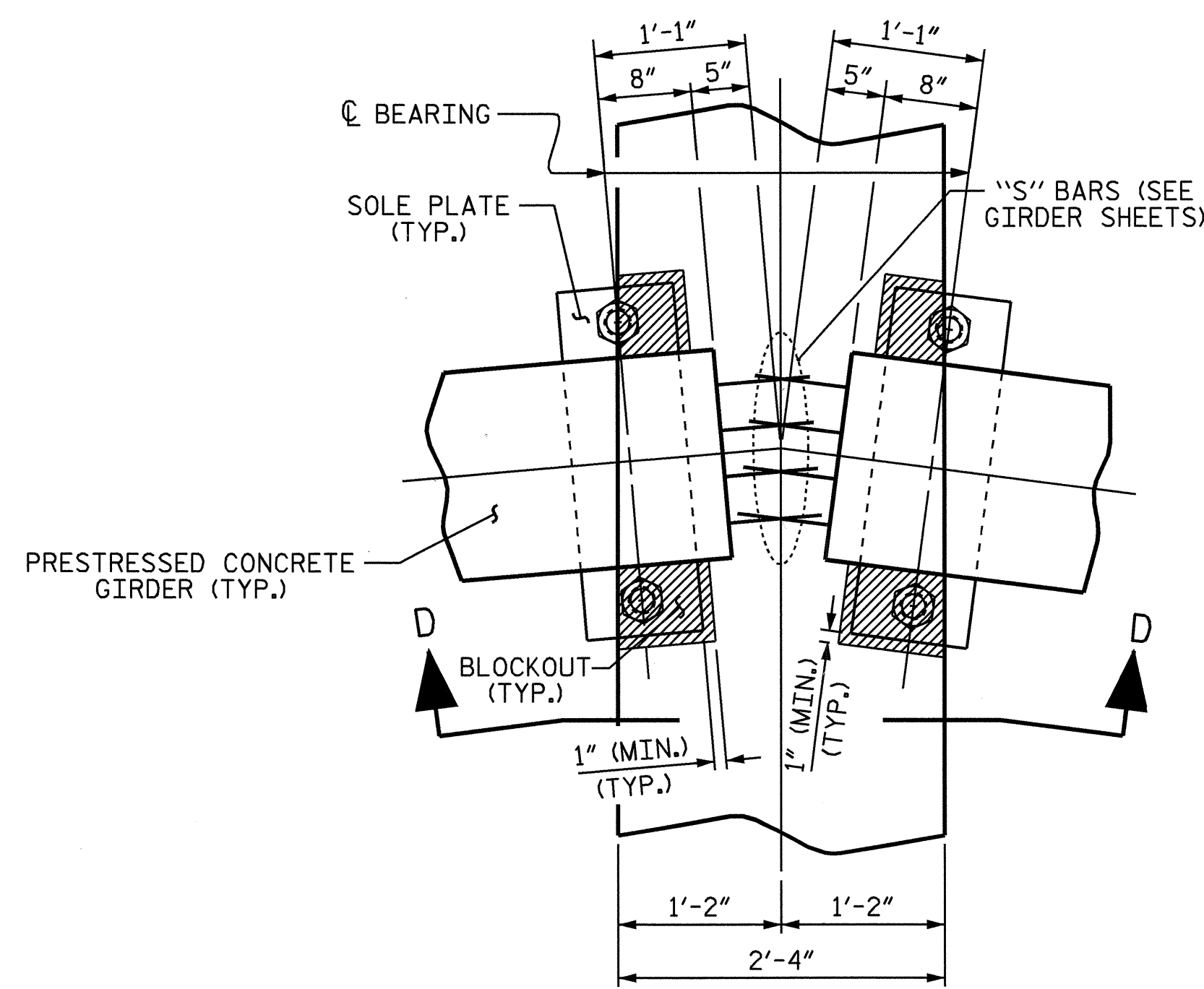
SECTION B-B

(THRU BENT DIAPHRAGM)



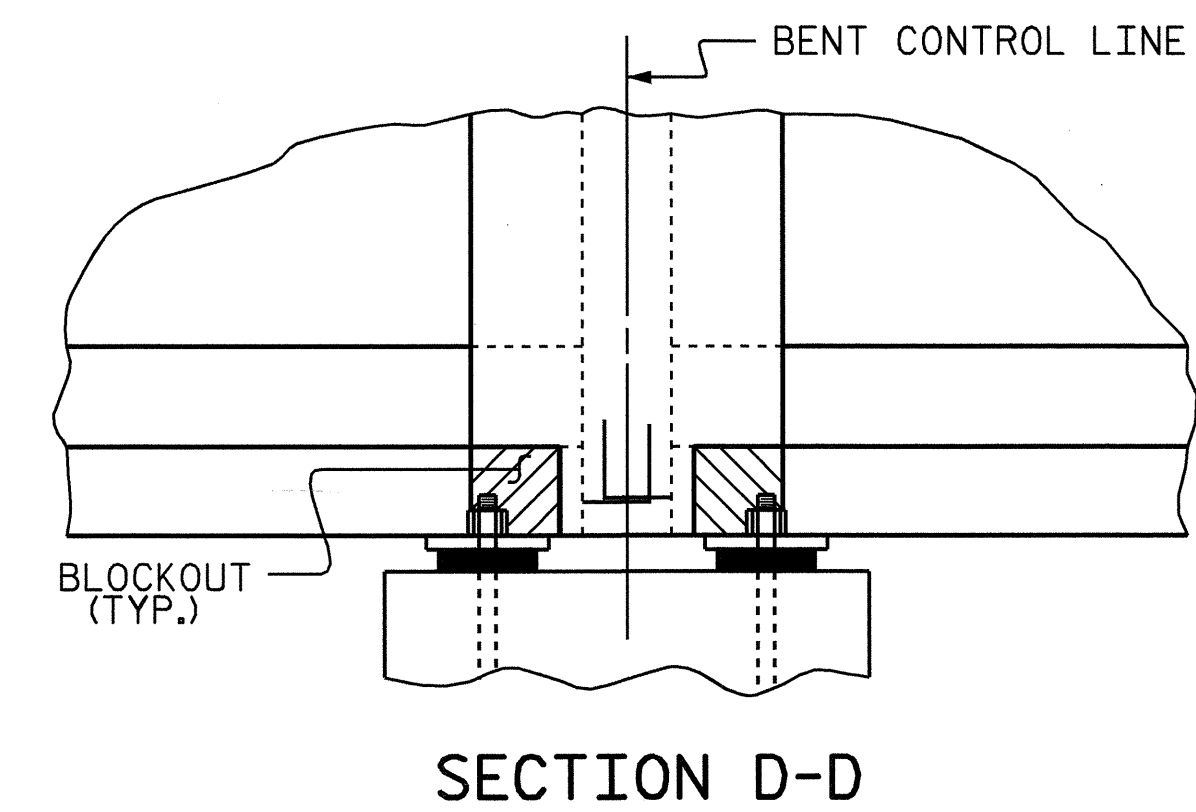
PLAN OF END BENT DIAPHRAGM

END BENT 1 SHOWN, END BENT 2 SIMILAR

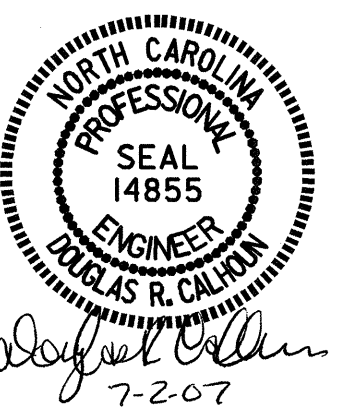


PLAN

BENT DIAPHRAGM BLOCKOUT DETAIL



SECTION D-D



PROJECT NO. B-3872
MCDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 TYPICAL SECTION**

DRAWN BY: I. A. HARRIS DATE: 3/10/05
 CHECKED BY: I. L. CLELLAND DATE: 4/11/05

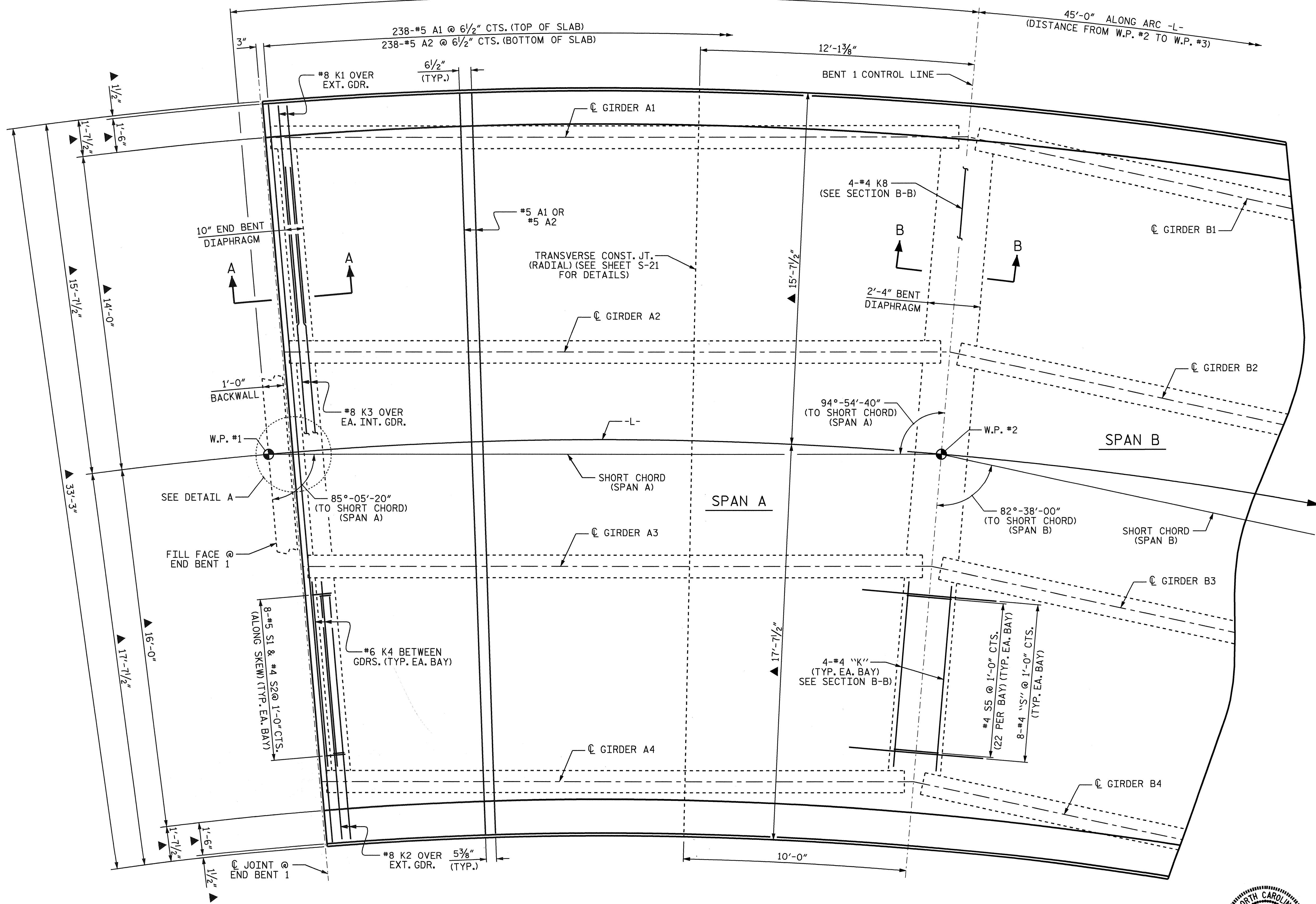
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REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S-6
1			3		TOTAL SHEETS
2			4		36

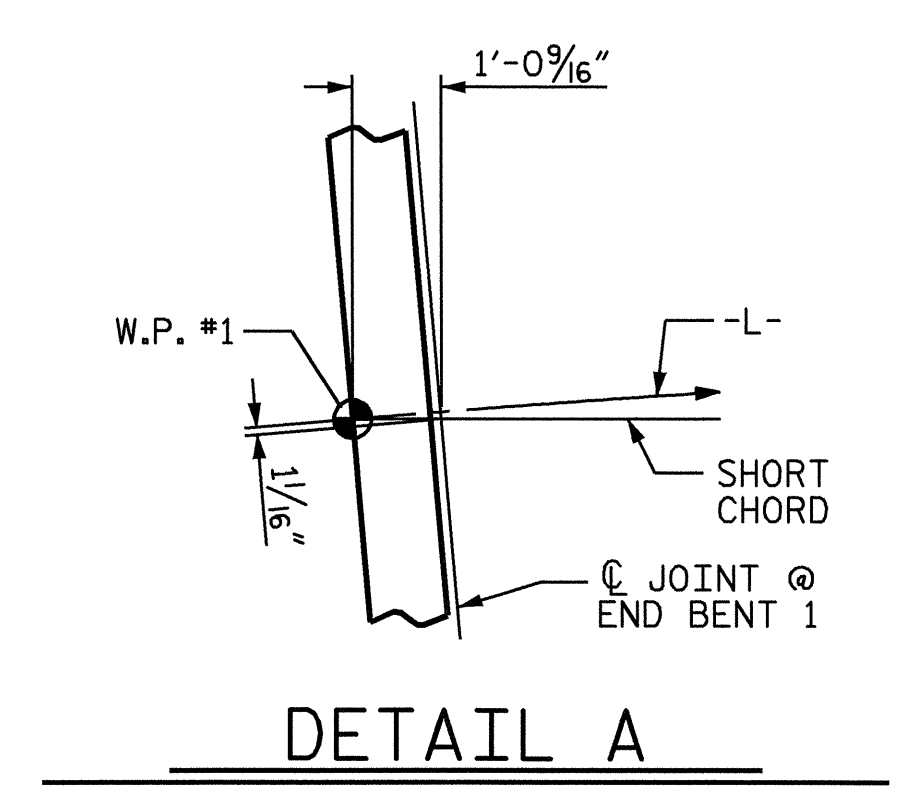
30'-0" ALONG ARC -L- (DISTANCE FROM W.P. #1 TO W.P. #2)

238-#5 A1 @ 6 1/2" CTS. (TOP OF SLAB)
238-#5 A2 @ 6 1/2" CTS. (BOTTOM OF SLAB)

45'-0" ALONG ARC -L- (DISTANCE FROM W.P. #2 TO W.P. #3)



NOTES
 FOR REINFORCING STEEL IN SLAB & BARRIER RAIL, SEE "CONCRETE BARRIER RAIL" SHEET.
 FOR SECTION A-A & B-B, SEE "TYPICAL SECTION" SHEET 2 OF 2.
 FOR ARC OFFSETS, SEE SHEET 5 OF 5.
 ALL "A" BARS ARE PLACED NORMAL TO ARC -L-.
 FOR "B" BAR LOCATIONS, SEE SHEET 4 OF 5.



PLAN OF SPAN A
▲ RADIAL DIMENSIONS TO -L-

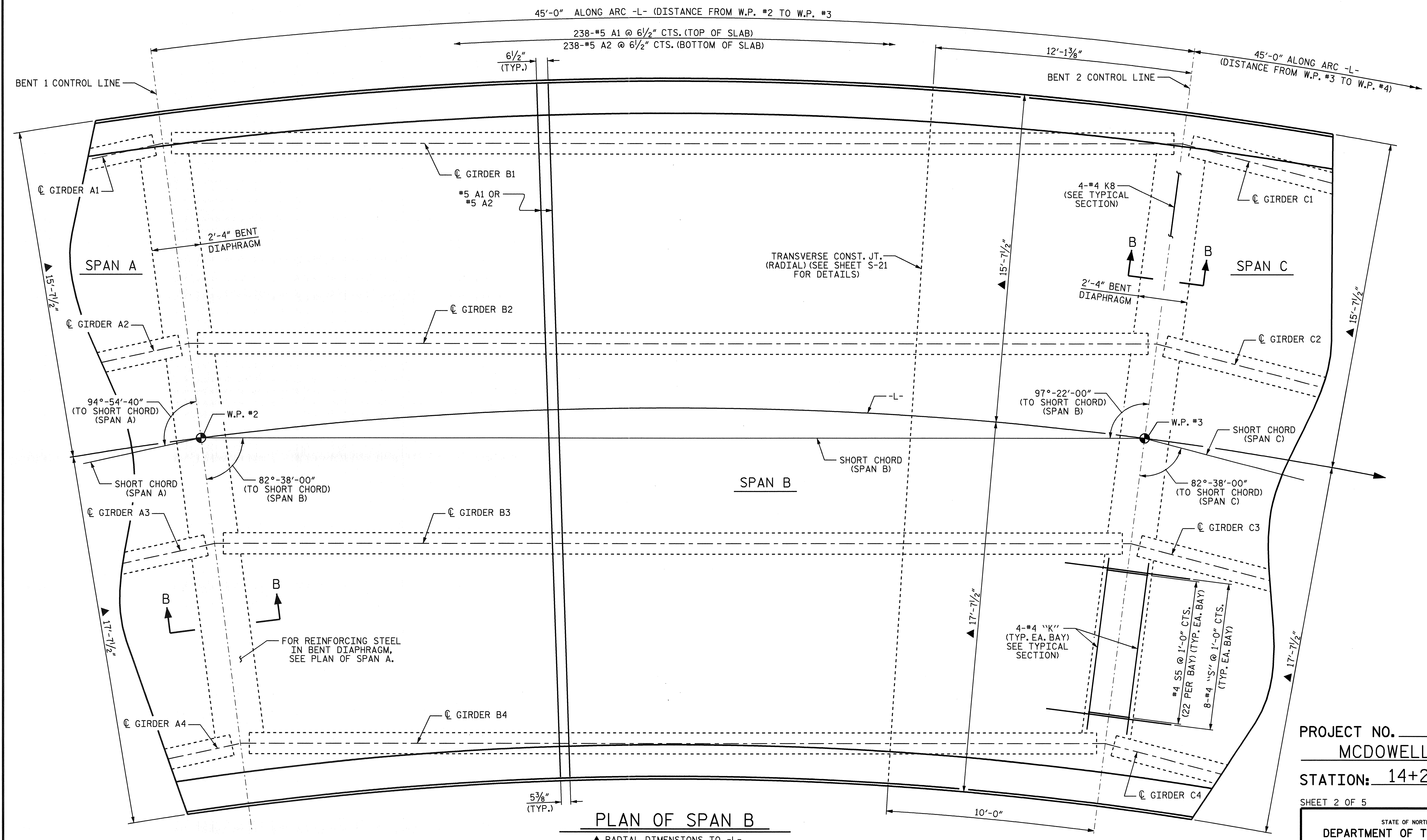


PROJECT NO. B-3872
MCDOWELL COUNTY
 STATION: 14+26.50 -L-
 SHEET 1 OF 5

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN A					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-7
					TOTAL SHEETS 36

DRAWN BY : T. A. HARRIS DATE : 3/16/05
 CHECKED BY : I. L. CLELLAND DATE : 4/11/05

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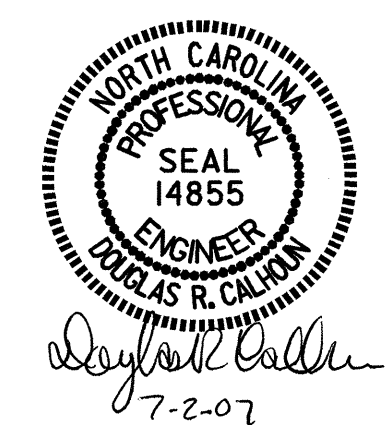


PLAN OF SPAN B
▲ RADIAL DIMENSIONS TO -L-

- NOTES**
- FOR REINFORCING STEEL IN SLAB & BARRIER RAIL, SEE "CONCRETE BARRIER RAIL" SHEET.
 - FOR SECTION VIEWS, SEE "TYPICAL SECTION" SHEET 2 OF 2.
 - FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "FRAMING PLAN."
 - FOR ARC OFFSETS, SEE SHEET 5 OF 5.
 - ALL "A" BARS ARE PLACED NORMAL TO ARC -L-.
 - FOR "B" BAR LOCATIONS, SEE SHEET 4 OF 5.

DRAWN BY : T. A. HARRIS DATE : 3/16/05
CHECKED BY : T. L. CLELLAND DATE : 4/11/05

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PROJECT NO. B-3872
MCDOWELL COUNTY
STATION: 14+26.50 -L-
SHEET 2 OF 5

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN B					
SHEET NO. S-8					
TOTAL SHEETS 36					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

45'-0" ALONG ARC -L- (DISTANCE W.P. #3 TO W.P. #4)

45'-0" ALONG ARC -L- (W.P. #2 TO W.P. #3)

238-#5 A1 @ 6 1/2" CTS. (TOP OF SLAB)
238-#5 A1 @ 6 1/2" CTS. (BOTTOM OF SLAB)

#8 K1 OVER EXT. GDR.

97°-22'-00" (TO SHORT CHORD) (SPAN C)

#8 K3 OVER EA. INT. GDR.

#6 K4 BETWEEN GDRS. (TYP. EA. BAY)

#8 K2 OVER EXT. GDR.

#8 K2 OVER EXT. GDR.

BENT 2 CONTROL LINE

6 1/2" (TYP.)

10" END BENT DIAPHRAGM

2'-4" BENT DIAPHRAGM

SPAN B

SPAN C

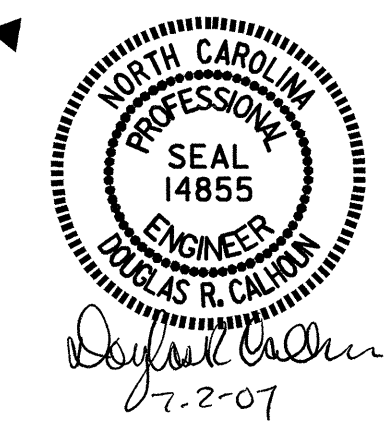
DETAIL B

PROJECT NO. B-3872
MCDOWELL COUNTY
STATION: 14+26.50 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
PLAN OF SPAN C



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9	
1			3			TOTAL SHEETS	
2			4			36	

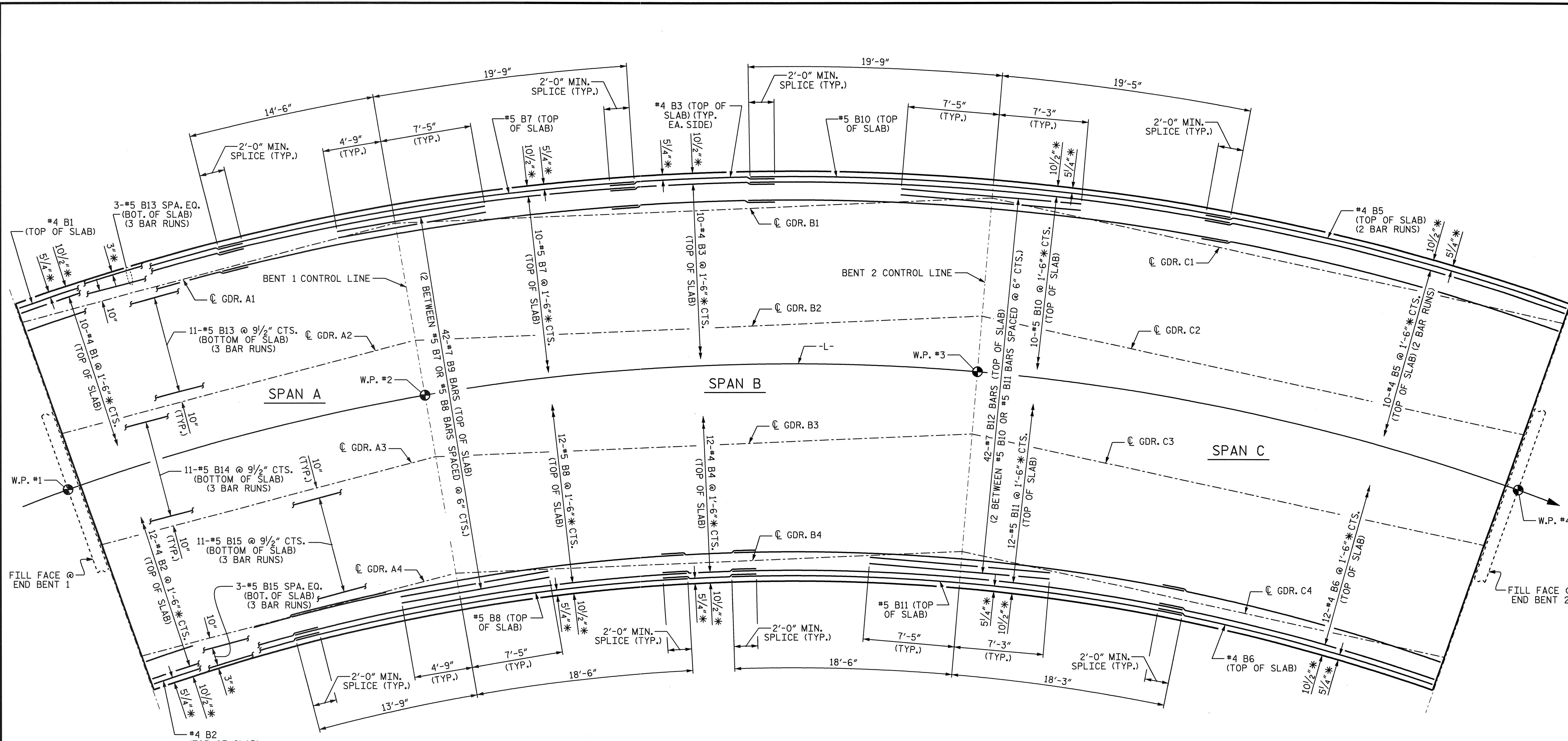
NOTES
 FOR REINFORCING STEEL IN SLAB & BARRIER RAIL, SEE "CONCRETE BARRIER RAIL" SHEET.
 FOR SECTION VIEWS, SEE "TYPICAL SECTION" SHEET 2 OF 2.
 FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "FRAMING PLAN."
 FOR ARC OFFSETS, SEE SHEET 5 OF 5.
 ALL "A" BARS ARE PLACED NORMAL TO ARC -L-.
 FOR "B" BAR LOCATIONS, SEE SHEET 4 OF 5.
 FOR DRAIN DETAIL, SEE "TYPICAL SECTION" SHEET 1 OF 2.

DRAWN BY : T. A. HARRIS DATE : 3/16/05
 CHECKED BY : T. L. CLELLAND DATE : 4/11/05

PLAN OF SPAN C

▲ RADIAL DIMENSIONS TO -L-.

5 - 3" X 8" DRAIN SLOTS @ 4'-0" CTS.



PLAN
(TOP & BOTTOM SLAB "B" BARS)

* RADIAL DIMENSION TO -L-

PROJECT NO. B-3872
MCDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 4 OF 5

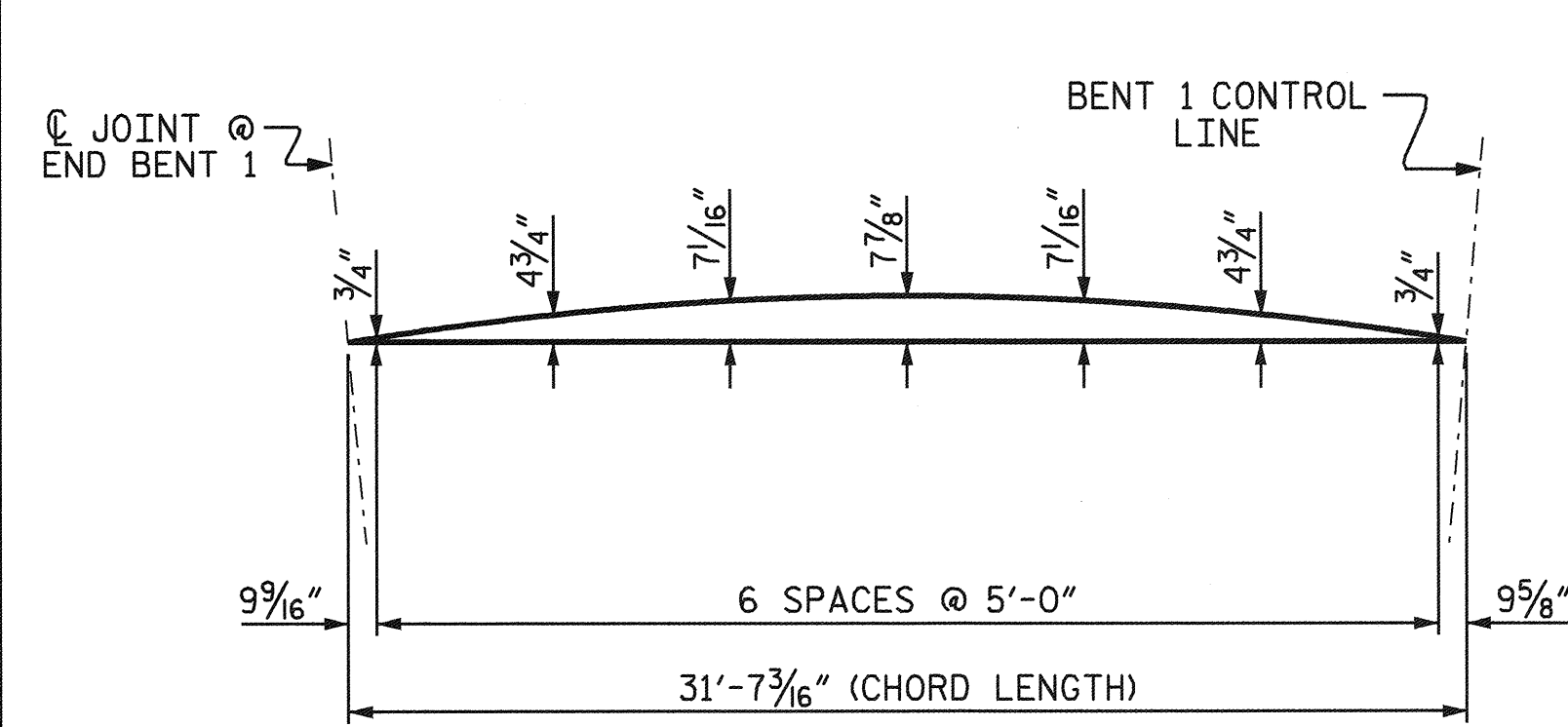


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE "B" BAR LAYOUT					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-10
					TOTAL SHEETS 36

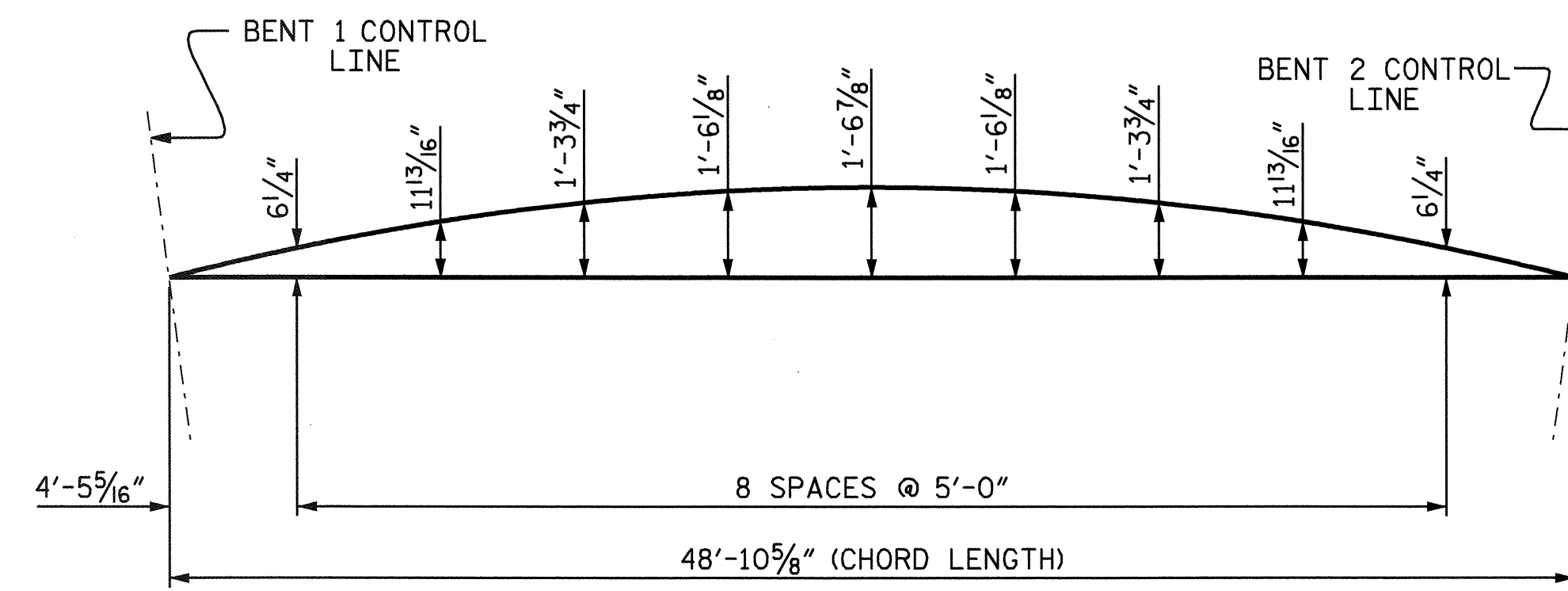
DRAWN BY : T. A. HARRIS DATE : 3/16/05
 CHECKED BY : T. L. CLELLAND DATE : 4/12/05

NOTES

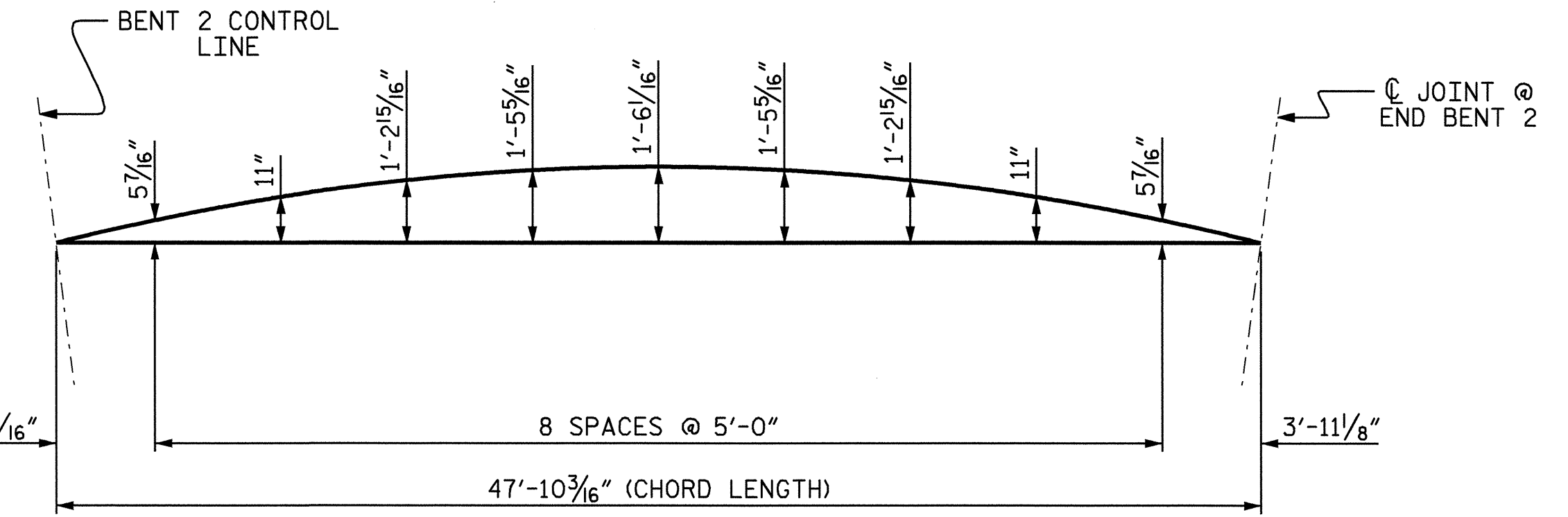
ARC OFFSETS ARE TAKEN ALONG THE OUTSIDE EDGE OF SUPERSTRUCTURE.



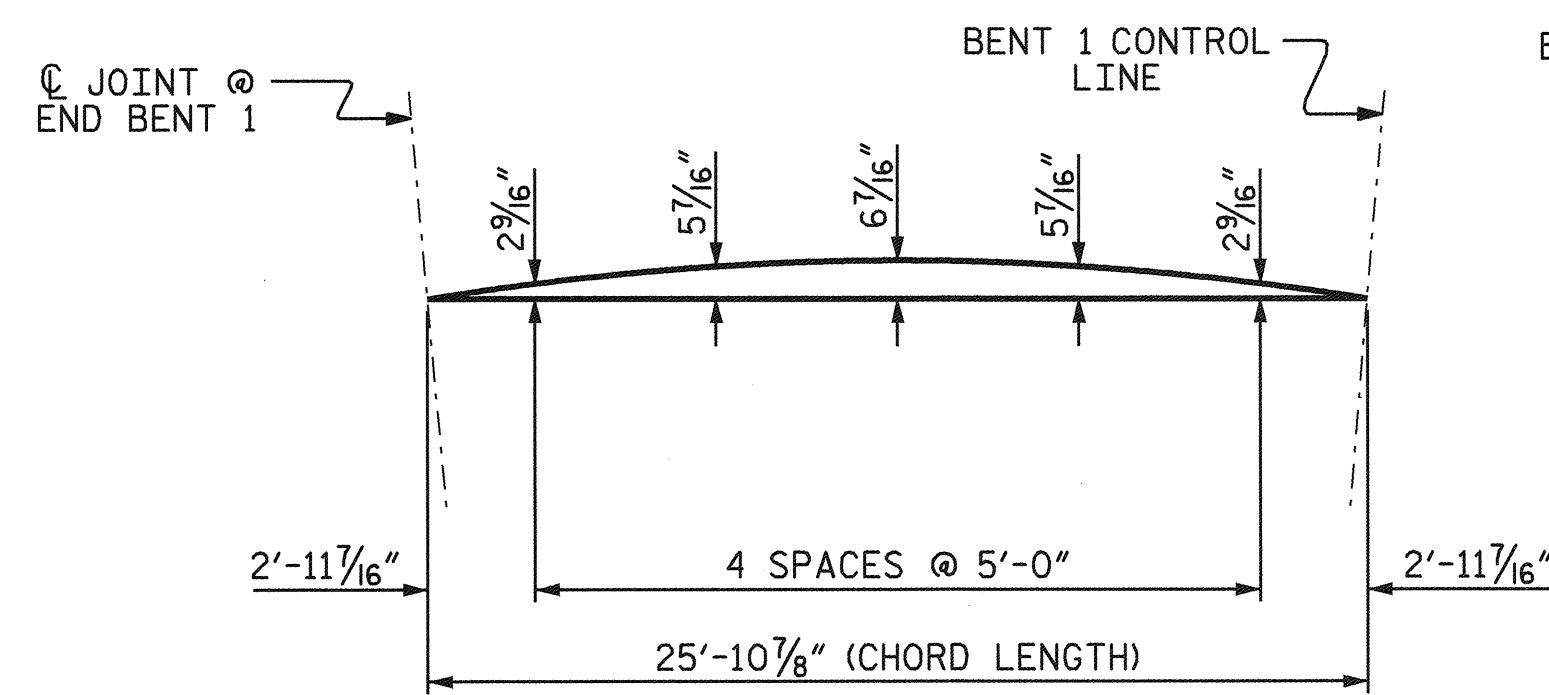
LEFT SIDE



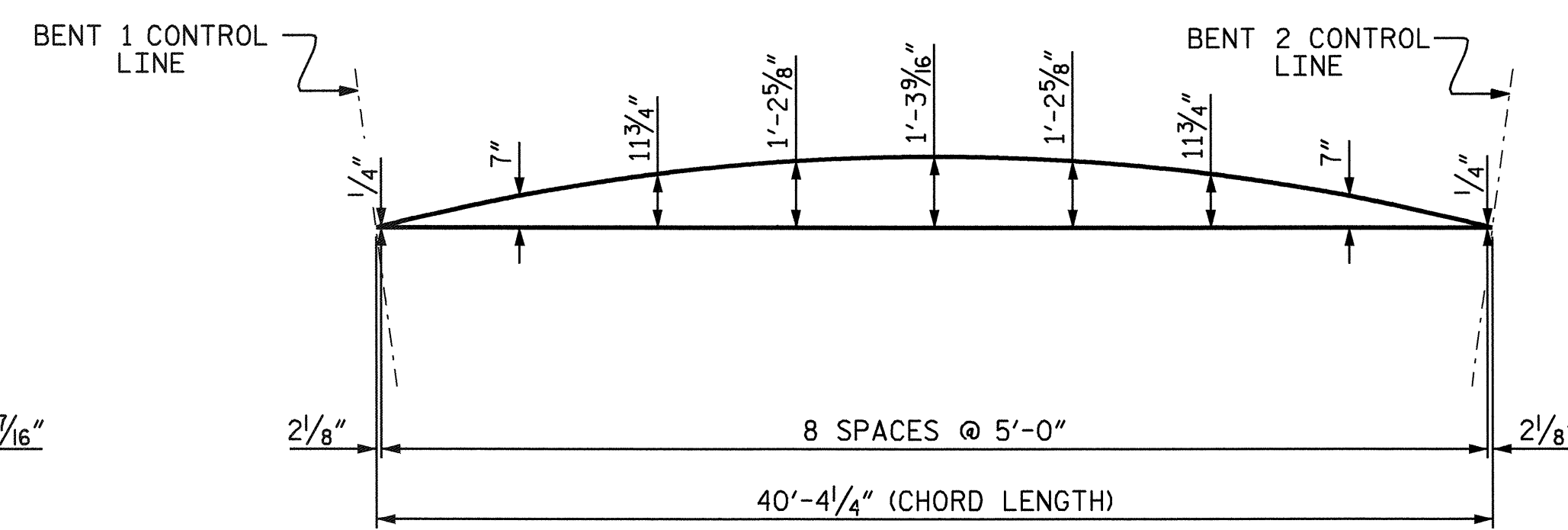
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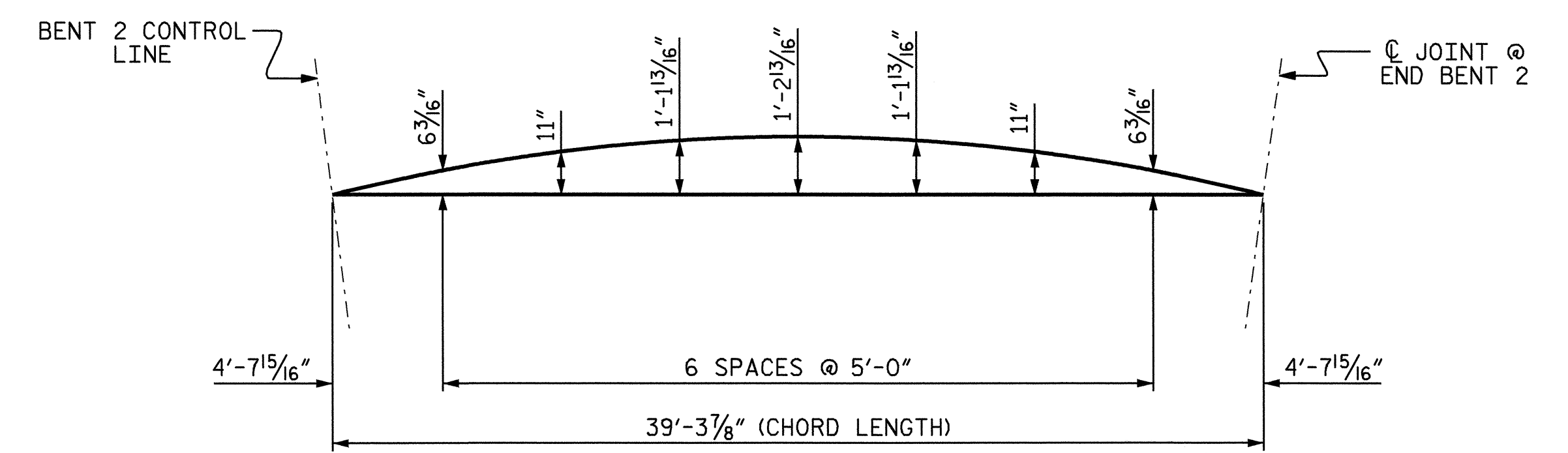
LEFT SIDE



RIGHT SIDE



RIGHT SIDE



RIGHT SIDE

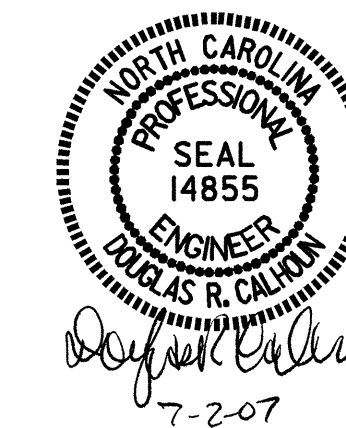
ARC OFFSETS - SPAN A

ARC OFFSETS - SPAN B

ARC OFFSETS - SPAN C

DRAWN BY : T.A. HARRIS DATE : 3/22/05
 CHECKED BY : T.L. CLELLAND DATE : 4/11/05

23-MAY-2007 11:04
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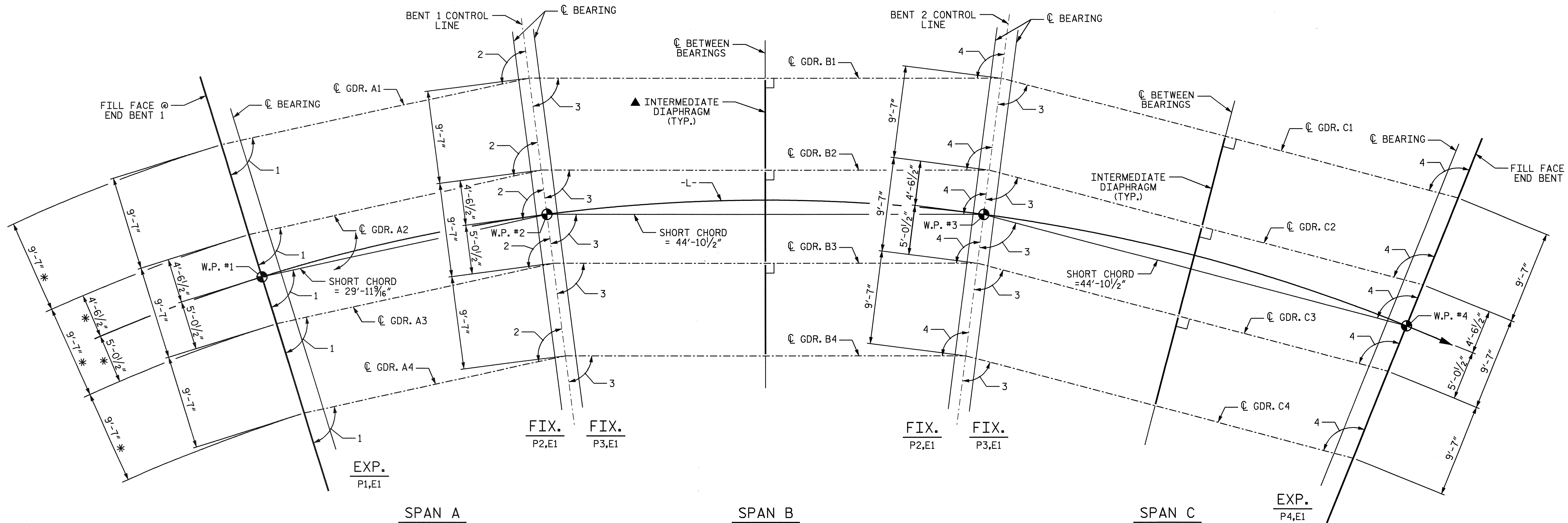
PROJECT NO. B-3872
MCDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 ARC OFFSETS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			36



* RADIAL DIMENSION THRU WORK POINT

FRAMING PLAN

ANGLES	
1	85°-05'-20"
2	94°-54'-40"
3	82°-38'-00"
4	97°-22'-00"

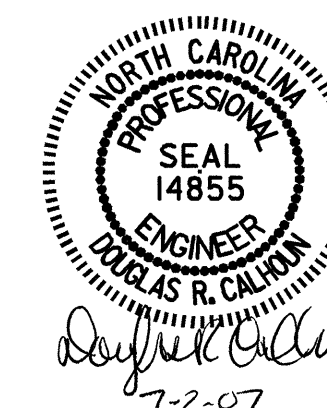
▲ FOR DETAILS OF INTERMEDIATE DIAPHRAGM, SEE SHEET 6 OF 6.

DRAWN BY : T. A. HARRIS DATE : 3/23/05
 CHECKED BY : T. L. CLELLAND DATE : 4/11/05

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PROJECT NO. B-3872
MCDOWELL COUNTY
 STATION: 14+26.50 -L-

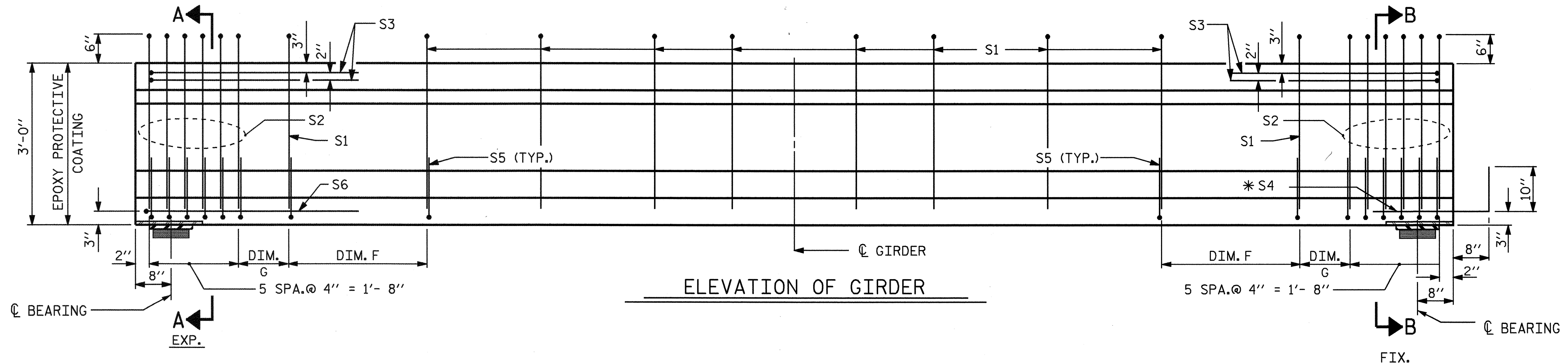
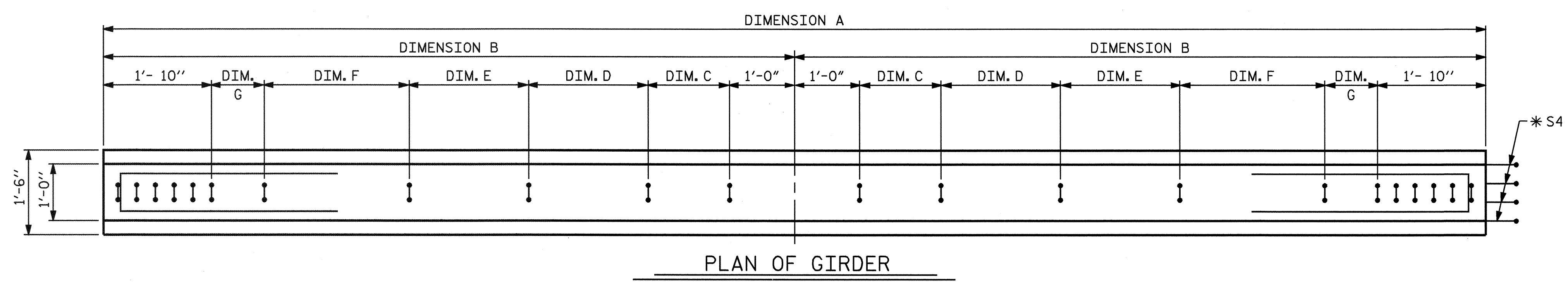
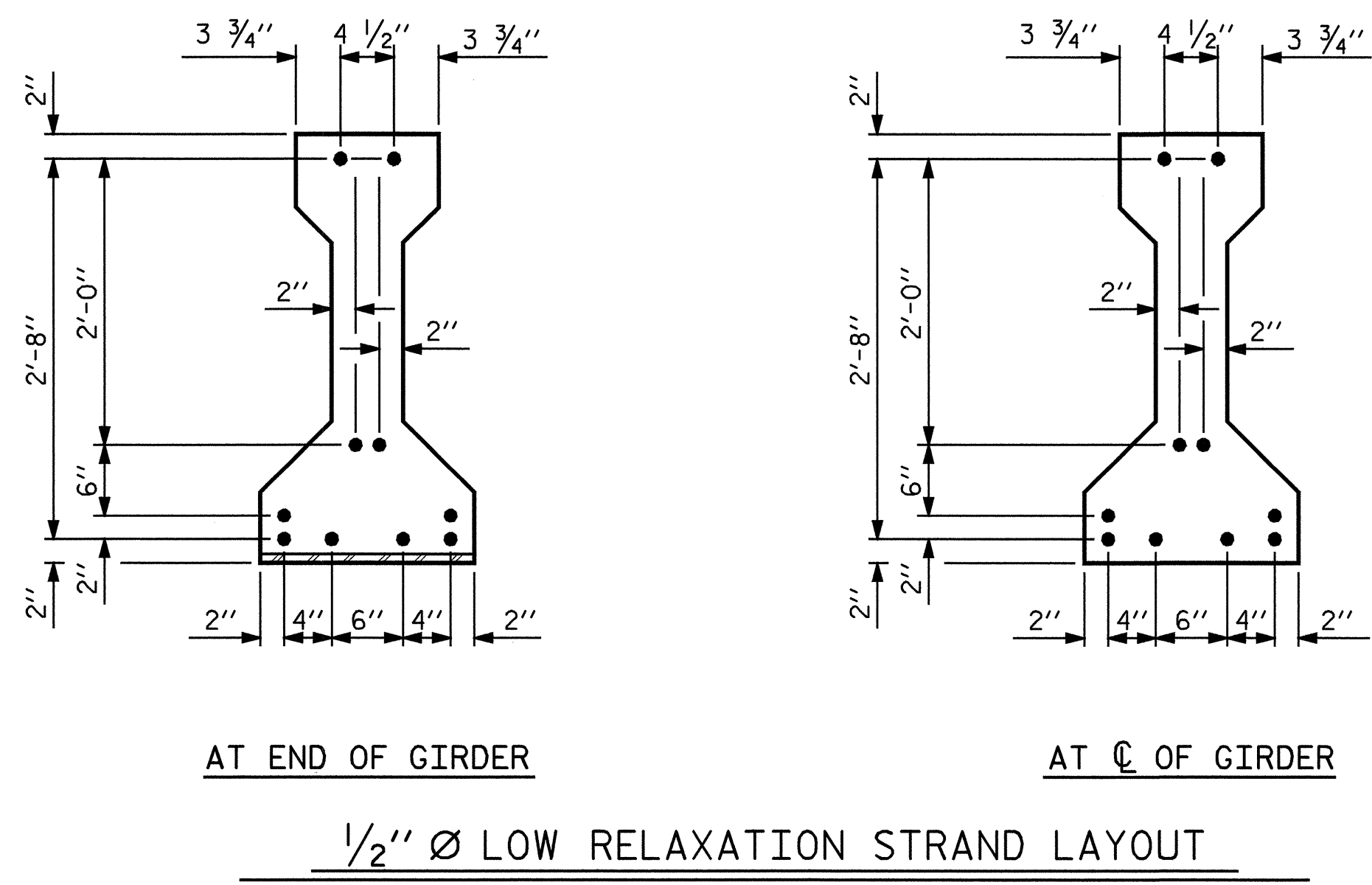
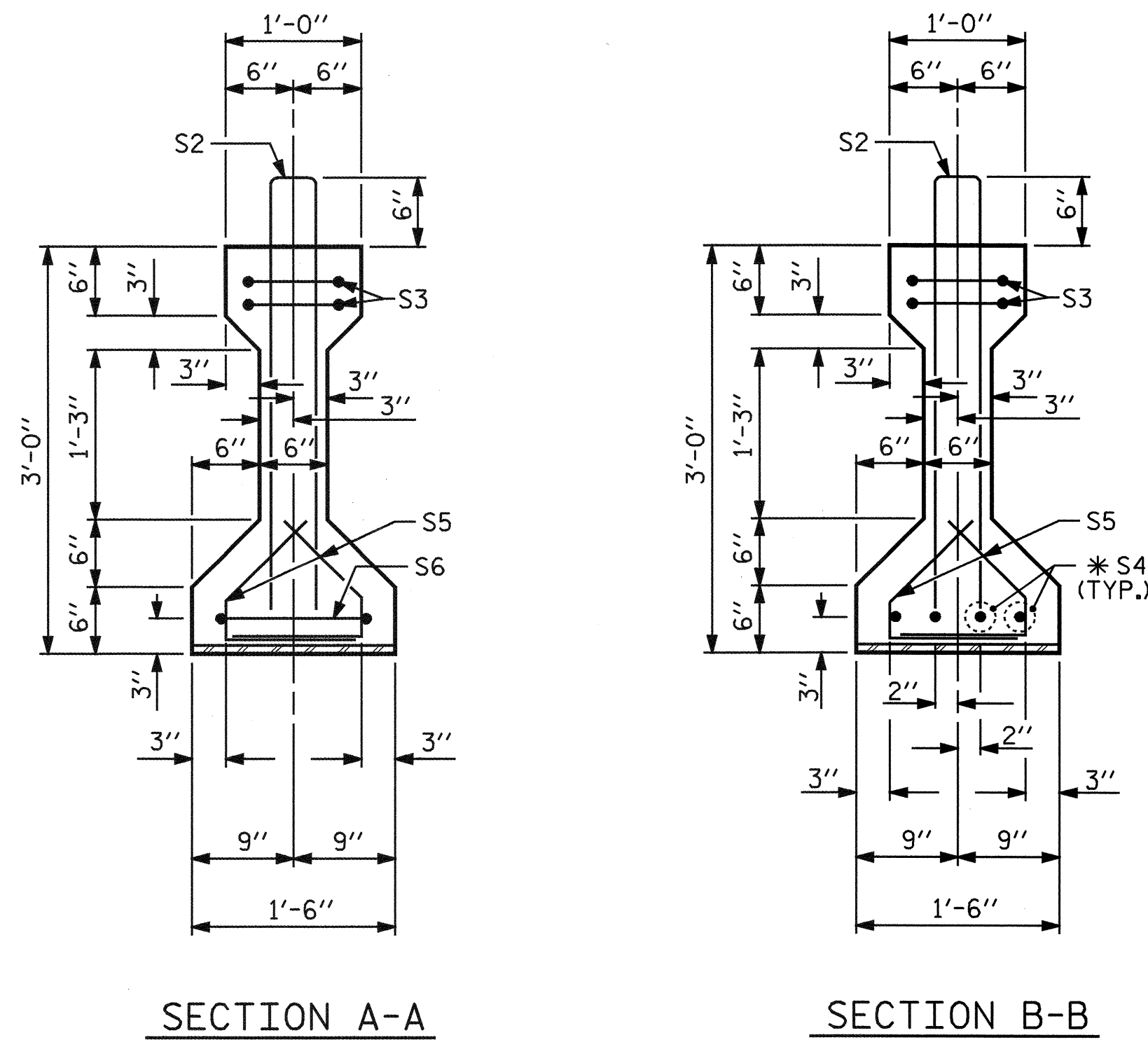
SHEET 1 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 FRAMING PLAN
 PRESTRESSED
 CONCRETE GIRDER

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			36

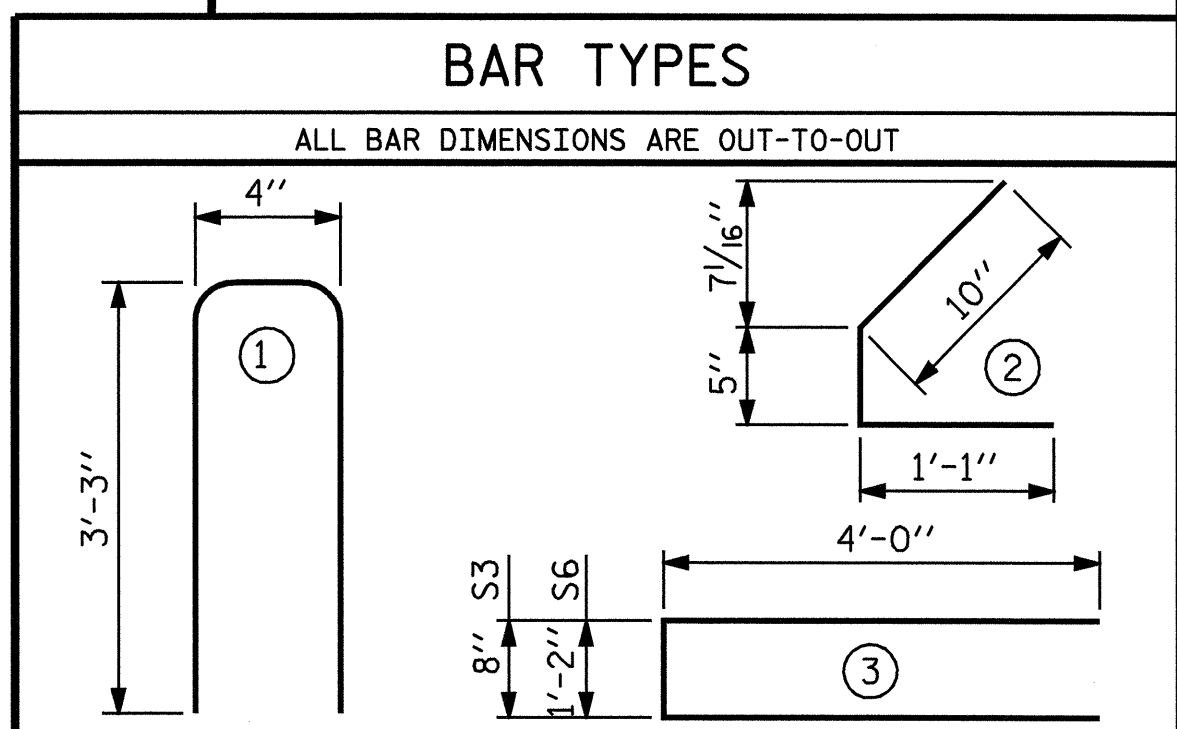


	DIMENSION A	DIMENSION B	DIMENSION C	DIMENSION D	DIMENSION E	DIMENSION F	DIMENSION G
GIRDER 1	30'-7 3/4"	15'-3 7/8"	2 SPA. @ 2'-0"	3 SPA. @ 1'-1"	5 SPA. @ 8"	3 SPA. @ 6"	4 7/8"
GIRDER 2	29'-0 1/8"	14'-6 1/16"	0	3 SPA. @ 1'-6"	3 SPA. @ 10"	10 SPA. @ 5 1/4"	3 9/16"
GIRDER 3	27'-4 3/8"	13'-8 3/16"	0	2 SPA. @ 1'-8"	4 SPA. @ 10"	8 SPA. @ 5 3/4"	4 3/16"
GIRDER 4	25'-8 3/4"	12'-10 3/8"	2 SPA. @ 2'-0"	2 SPA. @ 1'-1"	2 SPA. @ 9"	4 SPA. @ 6"	4 3/8"

1/2" Ø L. R. GRADE 270 STRANDS		
AREA (SQ. 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	
GDR. 1	S1	28	#4	1	6'-10"	128
GDR. 2	S1	34	#4	1	6'-10"	155
GDR. 3	S1	30	#4	1	6'-10"	137
GDR. 4	S1	22	#4	1	6'-10"	100
	S2	12	#5	1	6'-10"	86
	S3	4	#4	3	8'-8"	23
	*S4	4	#5	STR	3'-8"	15
GDR. 1	S5	40	#4	2	2'-4"	62
GDR. 2	S5	68	#4	2	2'-4"	106
GDR. 3	S5	60	#4	2	2'-4"	94
GDR. 4	S5	44	#4	2	2'-4"	69
	S6	1	#4	3	9'-2"	6

* NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL (LB.)	5,000 PSI CONCRETE (C.Y.)	1/2" Ø L.R. STRANDS (No.)
GIRDER 1	320	2.9	10
GIRDER 2	391	2.8	10
GIRDER 3	361	2.6	10
GIRDER 4	299	2.4	10

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
1	30'-7 3/4"	30'-7 3/4"
1	29'-0 1/8"	29'-0 1/8"
1	27'-4 3/8"	27'-4 3/8"
1	25'-8 3/4"	25'-8 3/4"
4 GIRDERS		112'-9"

PROJECT NO. B-3872
MCDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

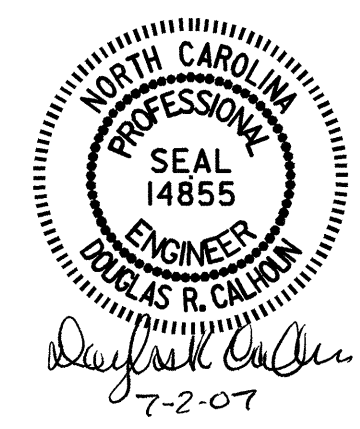
STANDARD
 AASHTO TYPE II
 PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD
 SPAN A

NOVEMBER 1991

REVISIONS

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

SHEET NO. **S-13**
 TOTAL SHEETS **36**



ASSEMBLED BY : T. A. HARRIS DATE : 3/28/05
 CHECKED BY : T. L. CLELLAND DATE : 4/11/05
 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

1/2" Ø L. R. GRADE 270 STRANDS

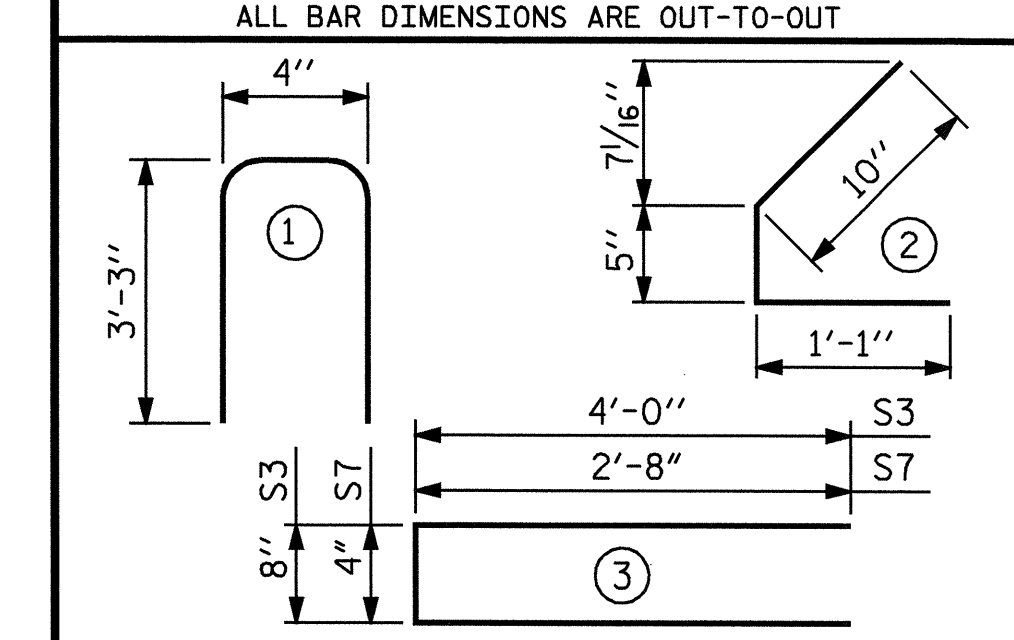
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.153	41,300	30,980

REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
GDR. 1	S1	54	#4	1	6'-10"	246
GDR. 2	S1	68	#4	1	6'-10"	310
GDR. 3	S1	56	#4	1	6'-10"	256
GDR. 4	S1	38	#4	1	6'-10"	173
	S2	12	#5	1	6'-10"	86
	S3	4	#4	3	8'-8"	23
	*S4	8	#5	STR	3'-8"	31
GDRS. 1 & 3	S5	60	#4	2	2'-4"	94
GDR. 2	S5	68	#4	2	2'-4"	106
GDR. 4	S5	52	#4	2	2'-4"	81
	S7	2	#5	3	5'-8"	12
	S8	5	#4	STR	7'-0"	23

* NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	6,000 PSI CONCRETE	1/2" Ø L.R. STRANDS
	LB.	C.Y.	No.
GIRDER 1	515	4.5	20
GIRDER 2	591	4.3	20
GIRDER 3	525	4.1	20
GIRDER 4	429	3.8	20

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
1	47'-8"	47'-8"
1	45'-2 1/2"	45'-2 1/2"
1	42'-9"	42'-9"
1	40'-3 1/2"	40'-3 1/2"
4 GIRDERS		175'-11"

PROJECT NO. B-3872
MCDOWELL COUNTY
STATION: 14+26.50 -L-

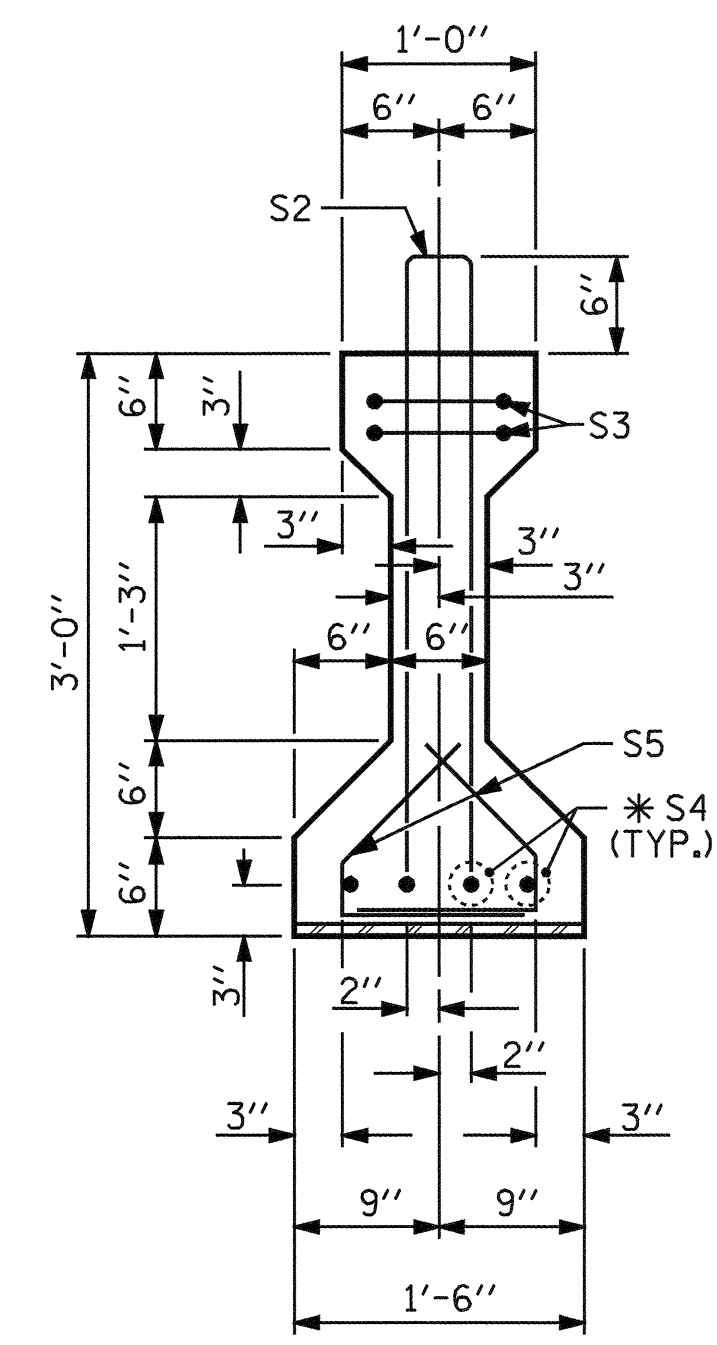
SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

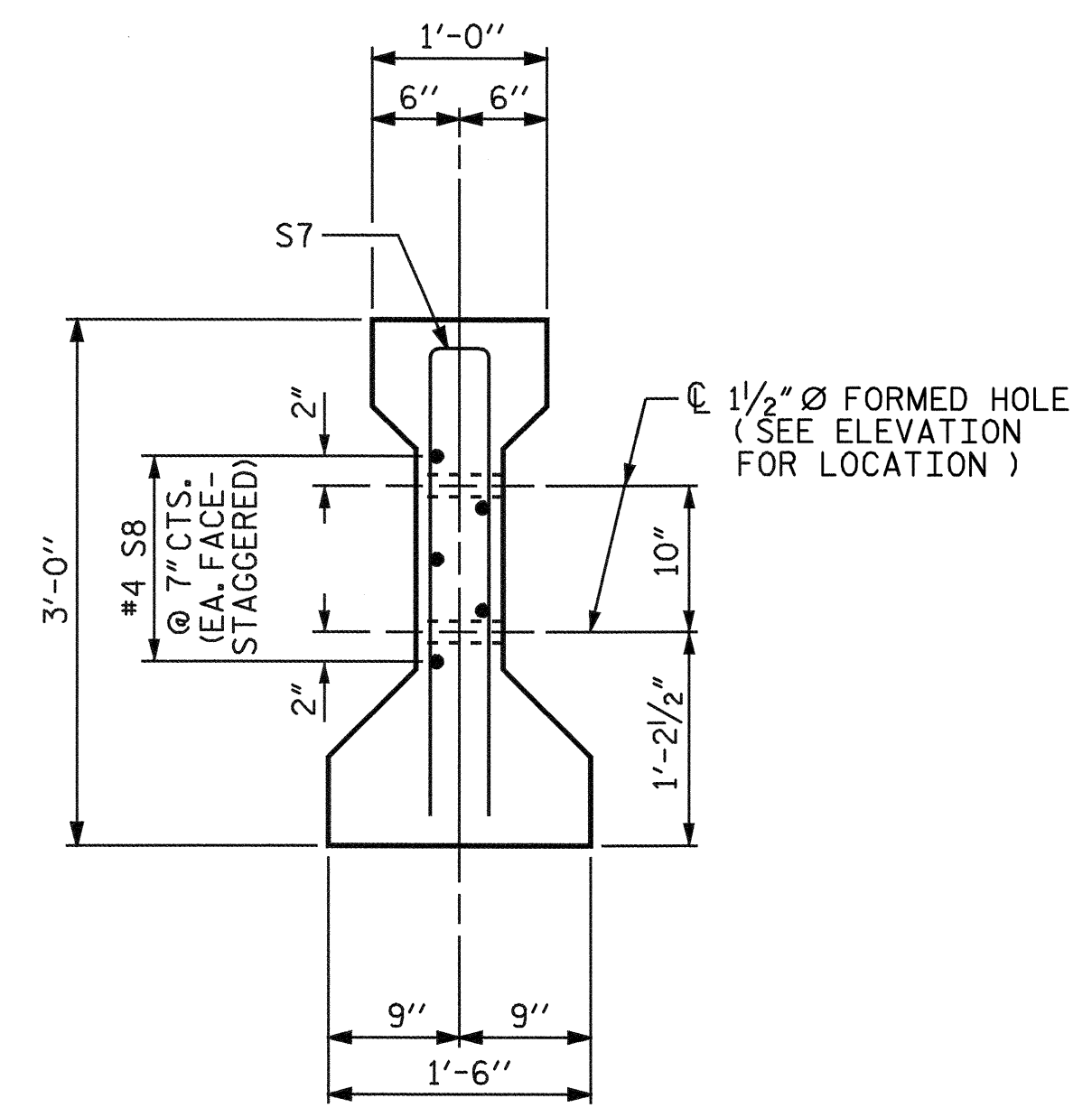
STANDARD
AASHTO TYPE II
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
SPAN B

NOVEMBER 1991

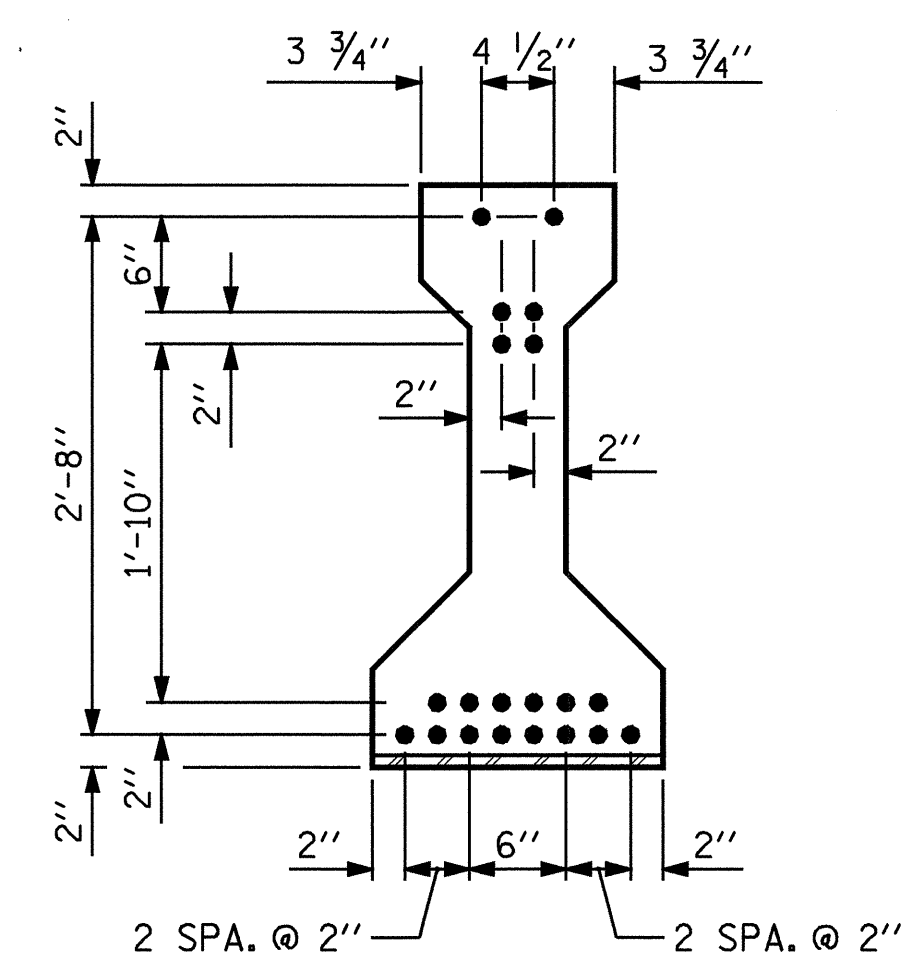
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-14
2			4			TOTAL SHEETS 36



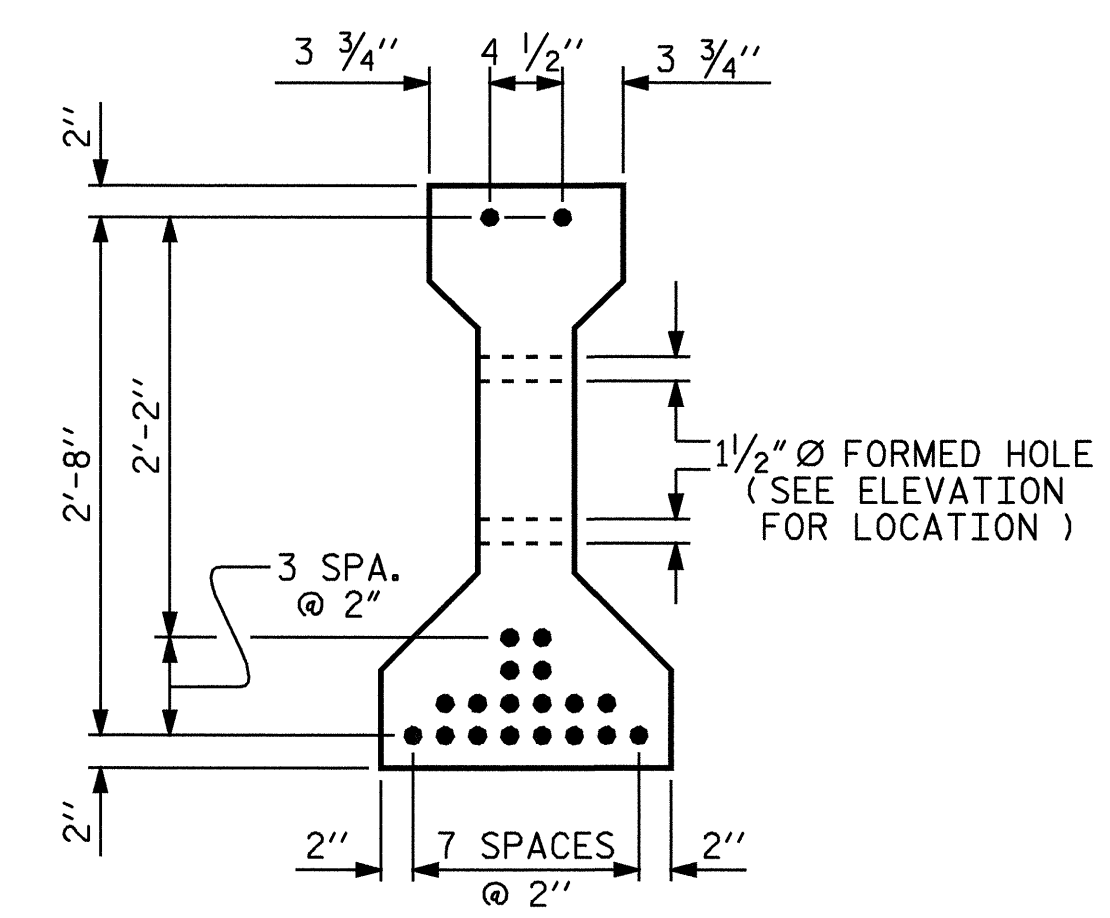
SECTION A-A



SECTION C-C
(S1 BARS NOT SHOWN)

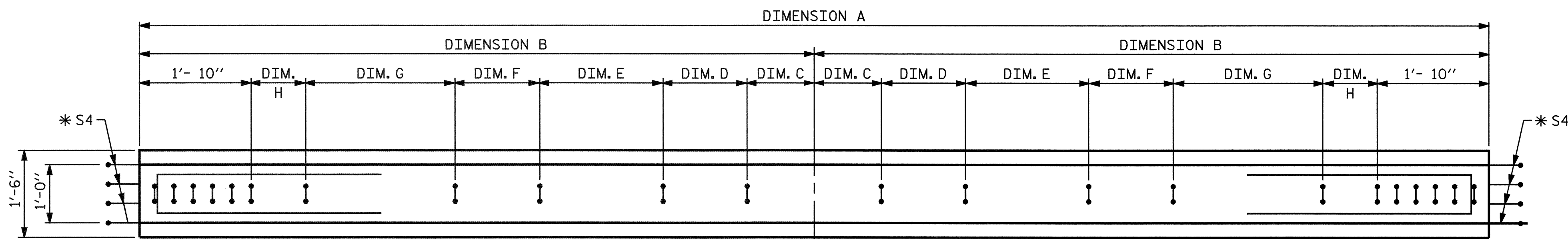


AT END OF GIRDER

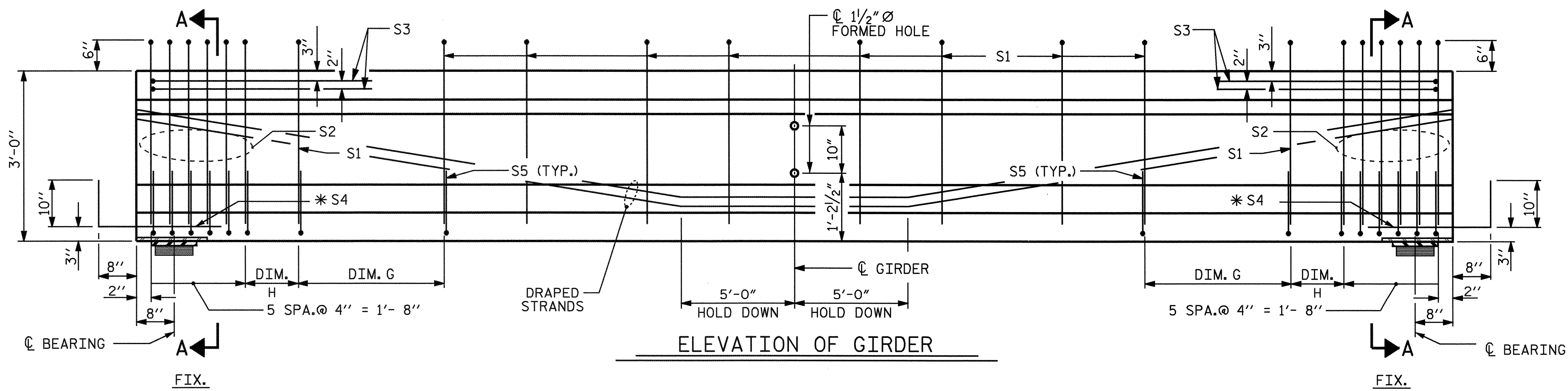


AT C OF GIRDER

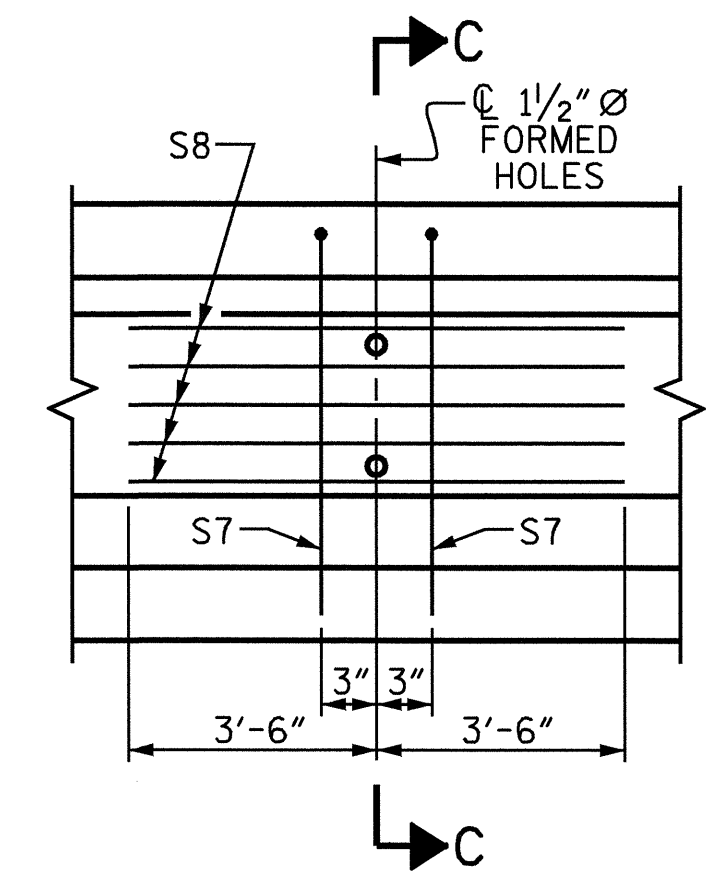
1/2" Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER



ELEVATION OF GIRDER

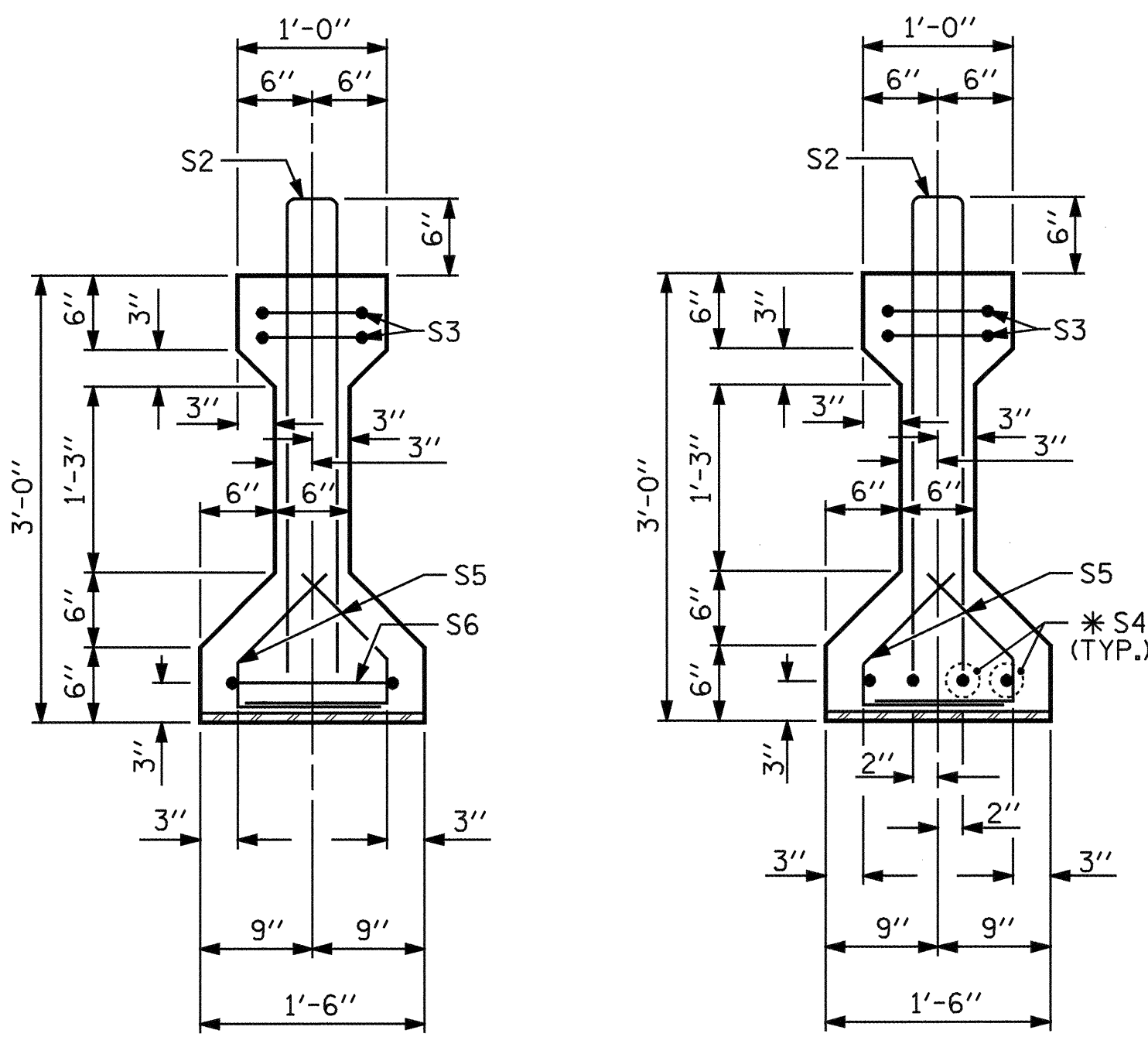


PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. 1 THRU 4

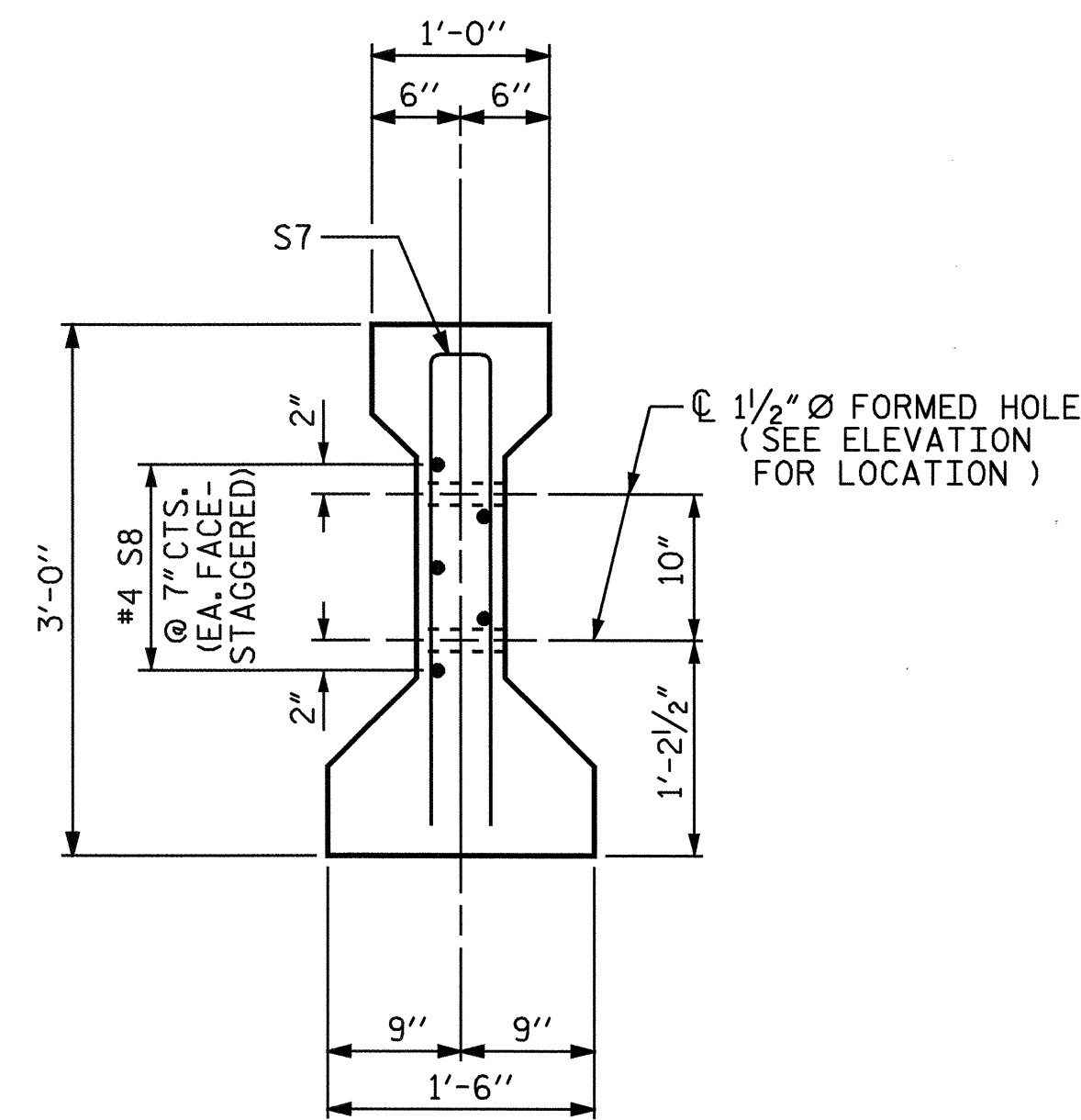
	DIMENSION A	DIMENSION B	DIMENSION C	DIMENSION D	DIMENSION E	DIMENSION F	DIMENSION G	DIMENSION H
GIRDER 1	47'-8"	23'-10"	8 1/2"	2 SPA. @ 1'-4 1/2"	8 SPA. @ 1'-2 1/2"	8 SPA. @ 7 1/4"	8 SPA. @ 5 1/4"	4 1/2"
GIRDER 2	45'-2 1/2"	22'-7 1/4"	6 1/2"	3 SPA. @ 1'-1"	11 SPA. @ 10"	9 SPA. @ 5 1/2"	10 SPA. @ 4"	4 1/4"
GIRDER 3	42'-9"	21'-4 1/2"	8"	6 SPA. @ 1'-3"	5 SPA. @ 10"	8 SPA. @ 6"	8 SPA. @ 4 1/4"	4 1/2"
GIRDER 4	40'-3 1/2"	20'-1 3/4"	1'-0"	3 SPA. @ 2'-0"	4 SPA. @ 1'-1 1/2"	5 SPA. @ 8"	6 SPA. @ 6 1/4"	4 1/4"

ASSEMBLED BY : T. A. HARRIS DATE : 3/28/05
CHECKED BY : T. L. CLELLAND DATE : 4/12/05
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

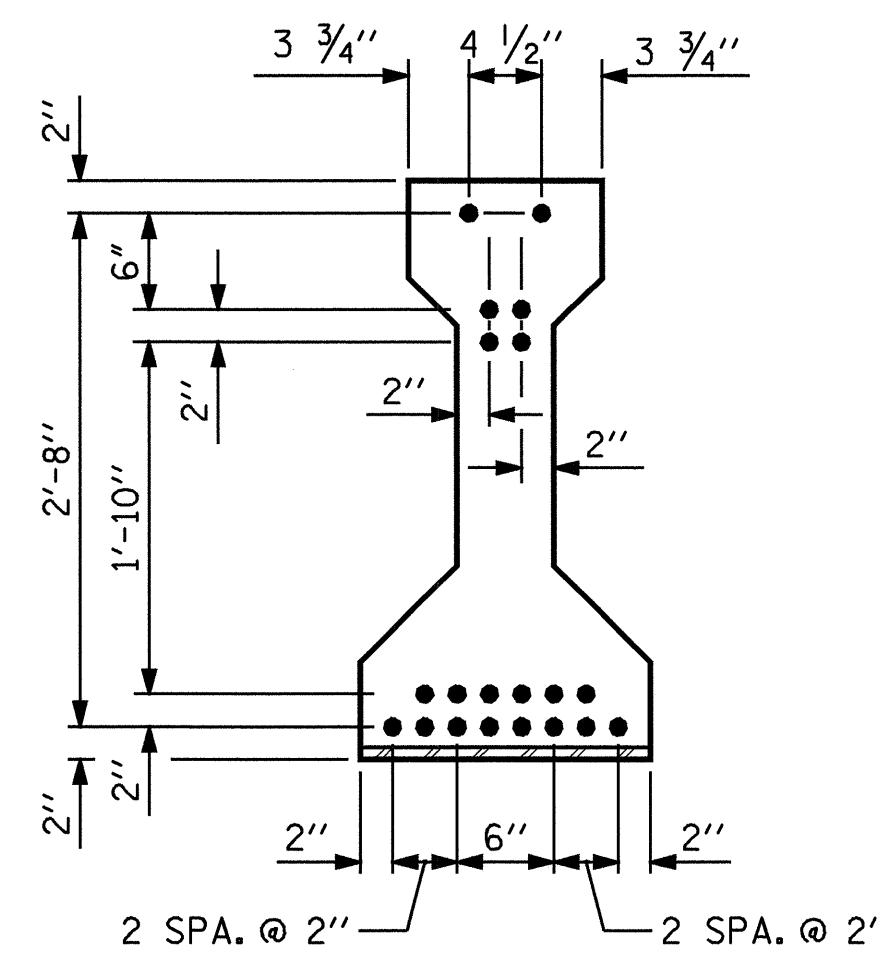


SECTION A-A

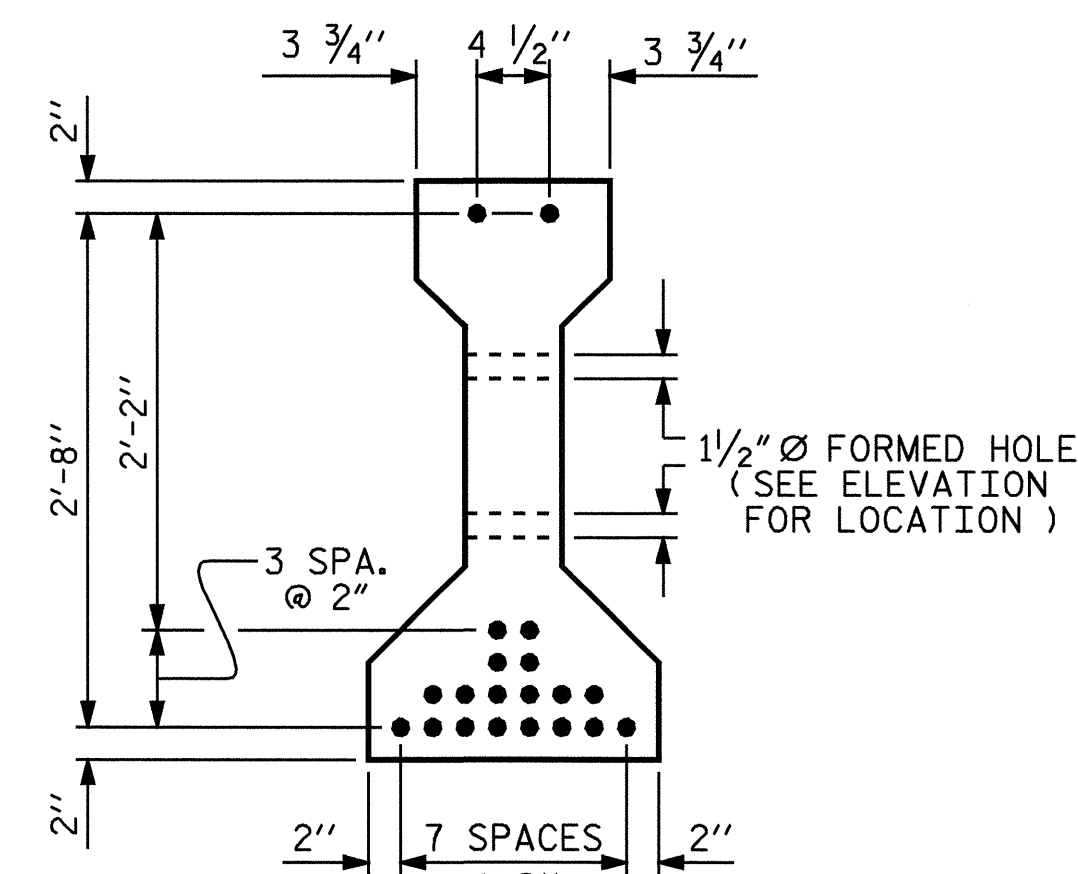
SECTION B-B



SECTION C-C
(S1 BARS NOT SHOWN)

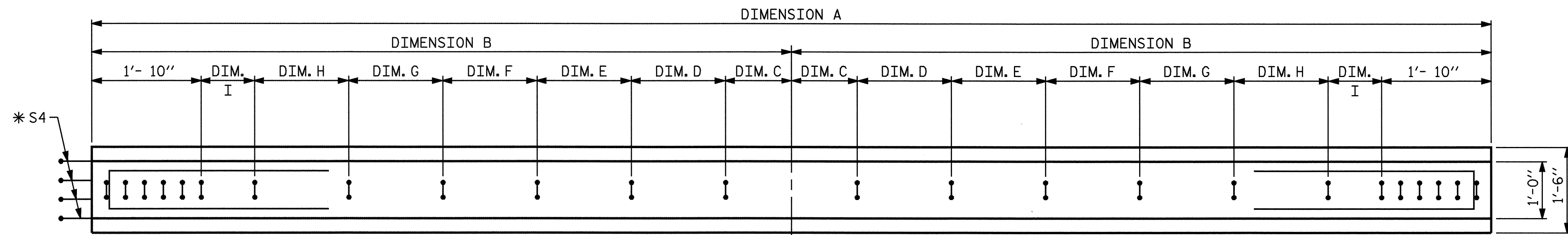


AT END OF GIRDER

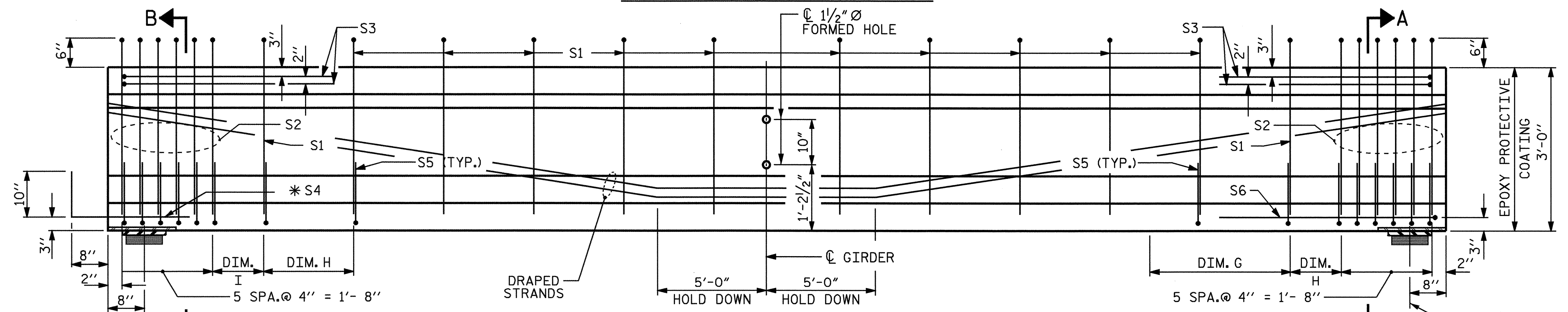


AT C OF GIRDER

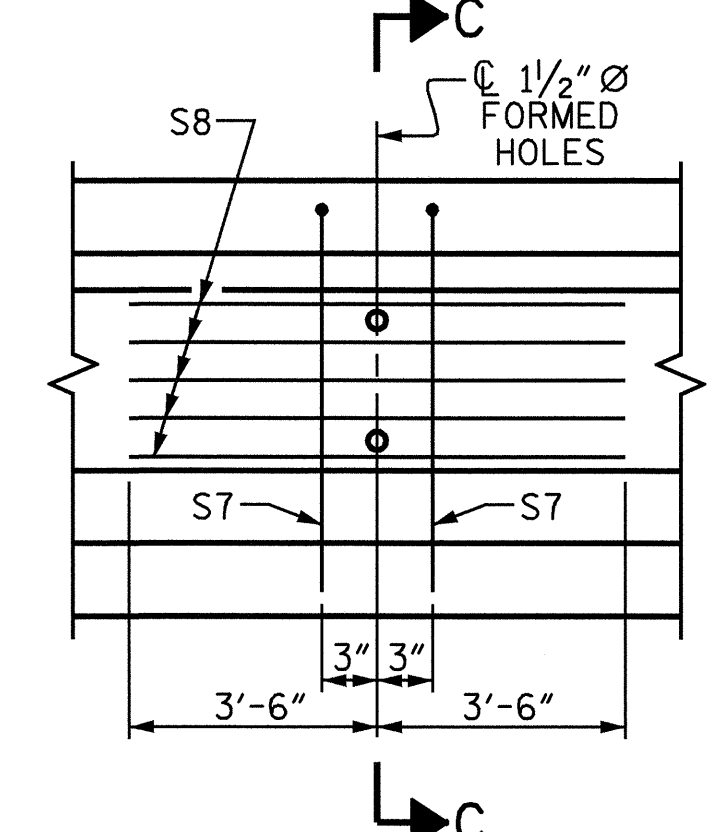
1/2" Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER



ELEVATION OF GIRDER



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos.1 THRU 4

	DIMENSION A	DIMENSION B	DIMENSION C	DIMENSION D	DIMENSION E	DIMENSION F	DIMENSION G	DIMENSION H	DIMENSION I
GIRDER 1	46'-8 5/8"	23'-4 5/16"	9"	0	2 SPA. @ 1'-6"	8 SPA. @ 1'-2 1/2"	7 SPA. @ 7 1/2"	8 SPA. @ 5"	4 3/16"
GIRDER 2	44'-3 1/4"	22'-1 5/8"	7"	3 SPA. @ 1'-2"	4 SPA. @ 1'-0"	5 SPA. @ 10 1/2"	9 SPA. @ 5 1/2"	9 SPA. @ 4 1/2"	4 1/8"
GIRDER 3	41'-9 3/4"	20'-10 7/8"	8 1/2"	0	5 SPA. @ 1'-5"	5 SPA. @ 10"	6 SPA. @ 6"	10 SPA. @ 4 1/2"	4 3/8"
GIRDER 4	39'-4 1/4"	19'-8 7/8"	1'-0"	0	3 SPA. @ 2'-0"	3 SPA. @ 1'-3"	6 SPA. @ 8 1/2"	5 SPA. @ 6"	4 1/8"

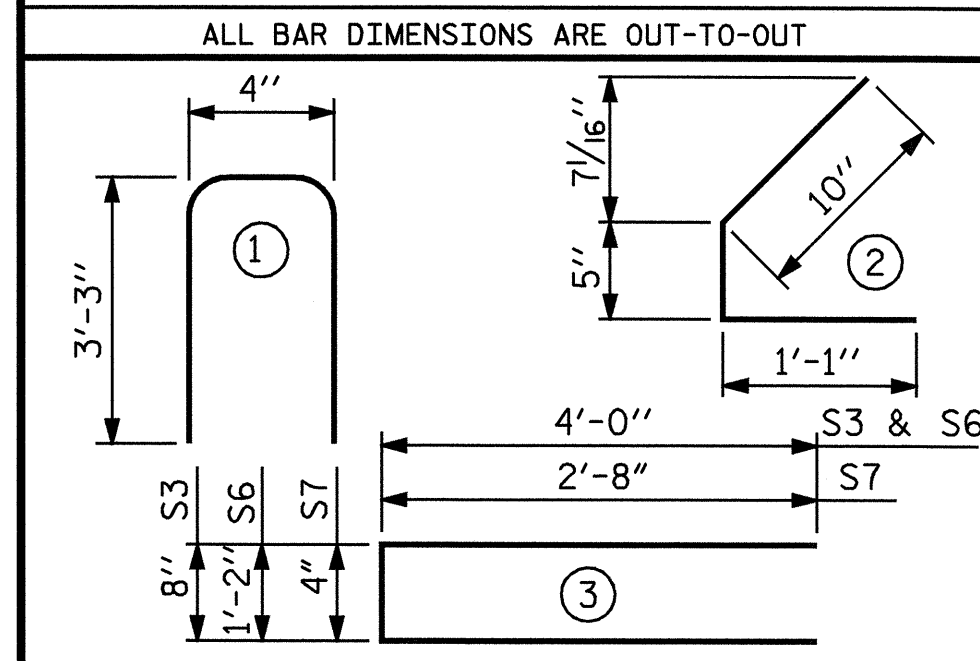
1/2" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.153	41,300	30,980

REINFORCING STEEL FOR ONE GIRDER

GDR.	BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
GDR. 1	S1	52	#4	1	6'-10"	237
	S2	12	#5	1	6'-10"	86
	S3	4	#4	3	8'-8"	23
	*S4	4	#5	STR	3'-8"	15
GDR. 2	S5	60	#4	2	2'-4"	94
	S6	64	#4	2	2'-4"	100
GDR. 3	S5	68	#4	2	2'-4"	106
	S6	48	#4	2	2'-4"	75
GDR. 4	S7	1	#4	3	9'-2"	6
	S8	2	#5	3	5'-8"	12
		5	#4	STR	7'-0"	23

* NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL LB.	6,000 PSI CONCRETE C.Y.	1/2" Ø L.R. STRANDS No.
GIRDER 1	496	4.4	20
GIRDER 2	548	4.2	20
GIRDER 3	517	4.0	20
GIRDER 4	404	3.7	20

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
1	46'-8 5/8"	46'-8 5/8"
1	44'-3 1/4"	44'-3 1/4"
1	41'-9 3/4"	41'-9 3/4"
1	39'-4 1/4"	39'-4 1/4"
4 GIRDERS		172'-1 7/8"

PROJECT NO. B-3872
MCDOWELL COUNTY
STATION: 14+26.50 -L-

SHEET 4 OF 6

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

NOVEMBER 1991			REVISIONS			SHEET NO. S-15	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 36	
1			3				
2			4				

ASSEMBLED BY : T. A. HARRIS DATE : 3/28/05
CHECKED BY : T. L. CLELLAND DATE : 4/12/05
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

DEAD LOAD DEFLECTION TABLE FOR SPAN A																																		
1/2" Ø LOW RELAXATION	GIRDER A1											GIRDERS A2 & A3										GIRDER A4												
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	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)	↑	0.000	0.006	0.011	0.016	0.018	0.019	0.018	0.016	0.011	0.006	0.000	0.000	0.006	0.011	0.014	0.017	0.018	0.017	0.014	0.011	0.006	0.000	0.000	0.005	0.009	0.012	0.014	0.015	0.014	0.012	0.009	0.005	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.002	0.004	0.006	0.007	0.007	0.007	0.006	0.004	0.002	0.000	0.000	0.002	0.004	0.006	0.007	0.008	0.007	0.006	0.004	0.002	0.000	0.000	0.001	0.002	0.003	0.004	0.004	0.004	0.003	0.002	0.001	0.000
FINAL CAMBER	↑	0	1/16"	1/16"	1/8"	1/8"	1/8"	1/8"	1/8"	1/16"	1/16"	0	0	1/16"	1/16"	1/8"	1/8"	1/8"	1/8"	1/8"	1/16"	1/16"	0	0	1/16"	1/16"	1/8"	1/8"	1/8"	1/8"	1/8"	1/16"	1/16"	0

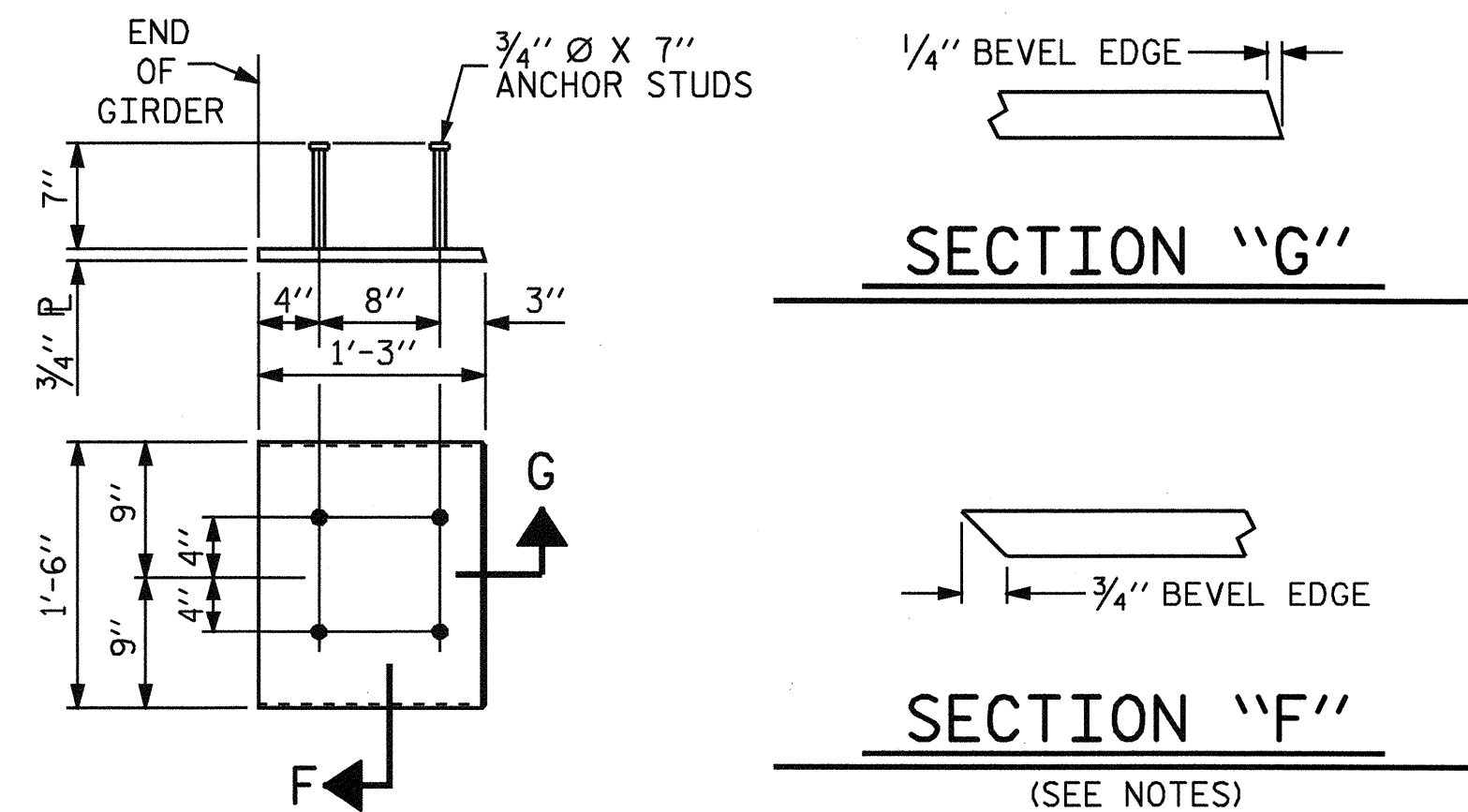
* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR SPAN B																																		
1/2" Ø LOW RELAXATION	GIRDER B1											GIRDERS B2 & B3										GIRDER B4												
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	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)	↑	0.000	0.042	0.079	0.108	0.127	0.133	0.127	0.108	0.079	0.042	0.000	0.000	0.039	0.073	0.100	0.118	0.123	0.118	0.100	0.073	0.039	0.000	0.000	0.032	0.061	0.084	0.098	0.103	0.098	0.084	0.061	0.032	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.014	0.027	0.036	0.043	0.045	0.043	0.036	0.027	0.014	0.000	0.000	0.014	0.027	0.037	0.043	0.045	0.043	0.037	0.027	0.014	0.000	0.000	0.006	0.012	0.017	0.019	0.020	0.019	0.017	0.012	0.006	0.000
FINAL CAMBER	↑	0	5/16"	5/8"	7/8"	1"	1 1/16"	1"	7/8"	5/8"	5/16"	0	0	5/16"	9/16"	3/4"	7/8"	15/16"	7/8"	3/4"	9/16"	5/16"	0	0	5/16"	9/16"	13/16"	15/16"	1"	15/16"	13/16"	9/16"	5/16"	0

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

DEAD LOAD DEFLECTION TABLE FOR SPAN C																																		
1/2" Ø LOW RELAXATION	GIRDER C1											GIRDERS C2 & C3										GIRDER C4												
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	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)	↑	0.000	0.041	0.077	0.105	0.123	0.130	0.123	0.105	0.077	0.041	0.000	0.000	0.038	0.071	0.097	0.114	0.120	0.114	0.097	0.071	0.038	0.000	0.000	0.031	0.059	0.081	0.095	0.099	0.095	0.081	0.059	0.031	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.013	0.024	0.033	0.039	0.041	0.039	0.033	0.024	0.013	0.000	0.000	0.013	0.025	0.034	0.040	0.042	0.040	0.034	0.025	0.013	0.000	0.000	0.006	0.011	0.015	0.018	0.019	0.018	0.015	0.011	0.006	0.000
FINAL CAMBER	↑	0	5/16"	5/8"	7/8"	1"	1 1/16"	1"	7/8"	5/8"	5/16"	0	0	5/16"	9/16"	3/4"	7/8"	15/16"	7/8"	3/4"	9/16"	5/16"	0	0	5/16"	9/16"	13/16"	15/16"	1"	15/16"	13/16"	9/16"	5/16"	0

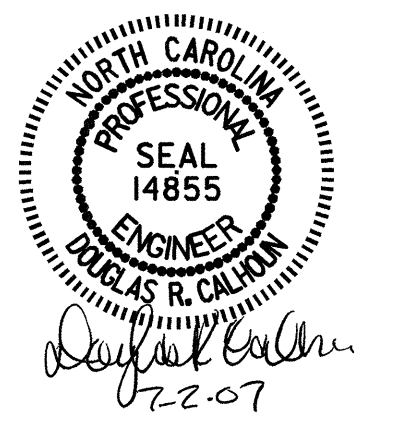
* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).



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

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 4000 PSI (SPAN A), 4800 PSI (SPAN B & C).
- DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.
- THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".
- WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 6" OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 1/2" OF THE THEORETICAL LOCATION SHOWN.
- FOR CRACK REPAIR OF PRESTRESSED CONCRETE GIRDERS, SEE SPECIAL PROVISIONS.
- FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.



PROJECT NO. B-3872
MCDOWELL COUNTY
STATION: 14+26.50 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-16
2			4			TOTAL SHEETS 36

ASSEMBLED BY : T. A. HARRIS DATE : 3/29/05
CHECKED BY : T. L. CLELLAND DATE : 4/12/05
DRAWN BY : ELR 11/91 REV. 10/17/00 RWW/LES
CHECKED BY : GRP 11/91 REV. 7/10/01RR LES/RDR
REV. 5/1/06 TLA/GM

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, BOLTS, WASHERS, PLATE WASHERS AND DIRECT TENSION INDICATORS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, OR METALLIZED. FOR METALLIZATION, 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.

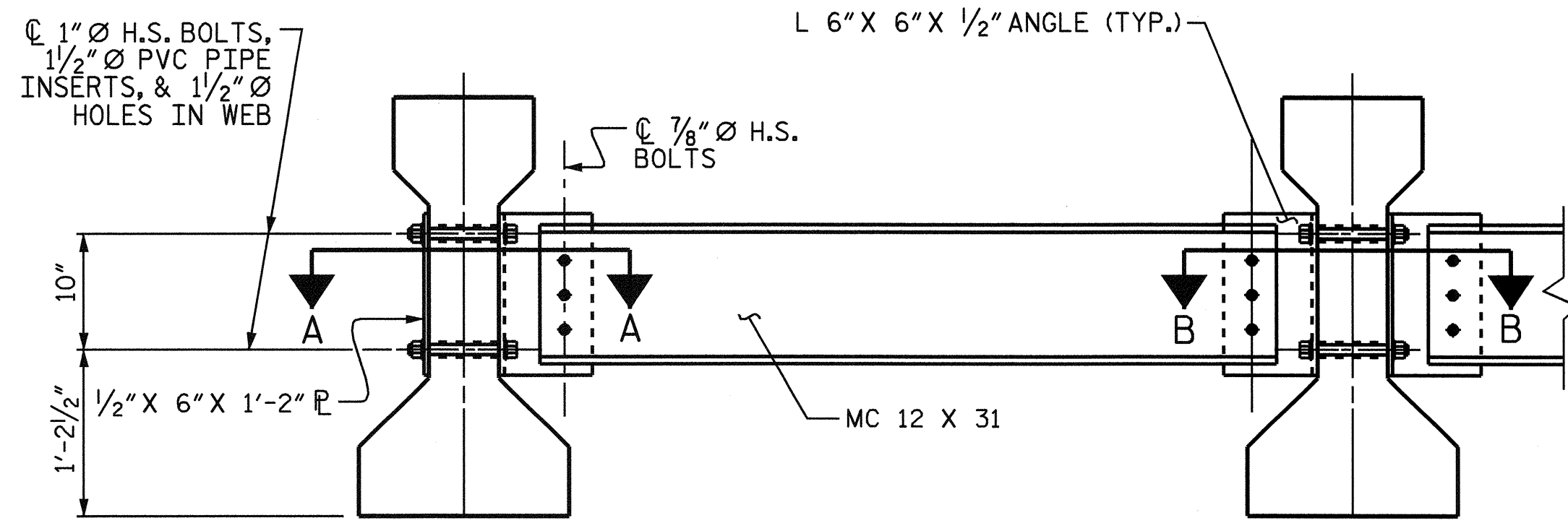
INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

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.

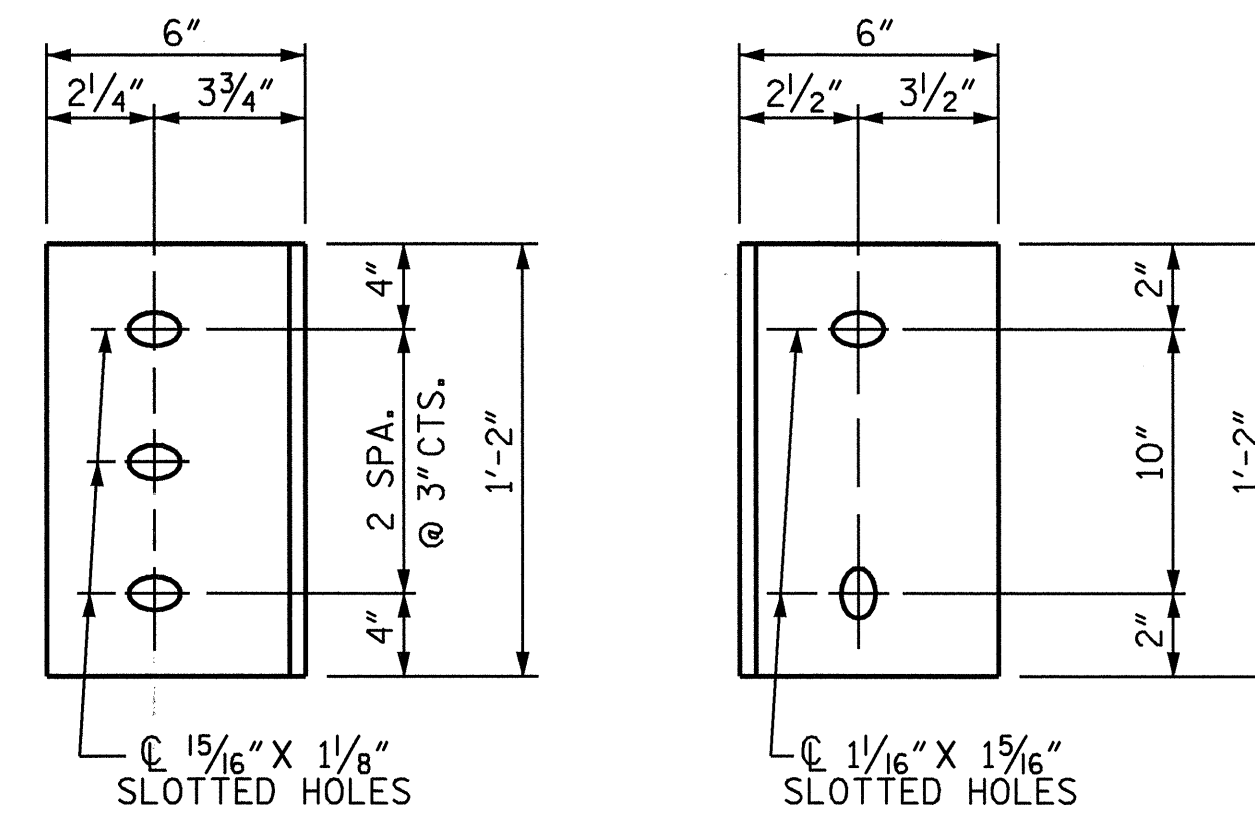
IN THE EXTERIOR BAYS, TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. ALL AASHTO M164 H.S. BOLTS SHALL BE FULLY TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

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

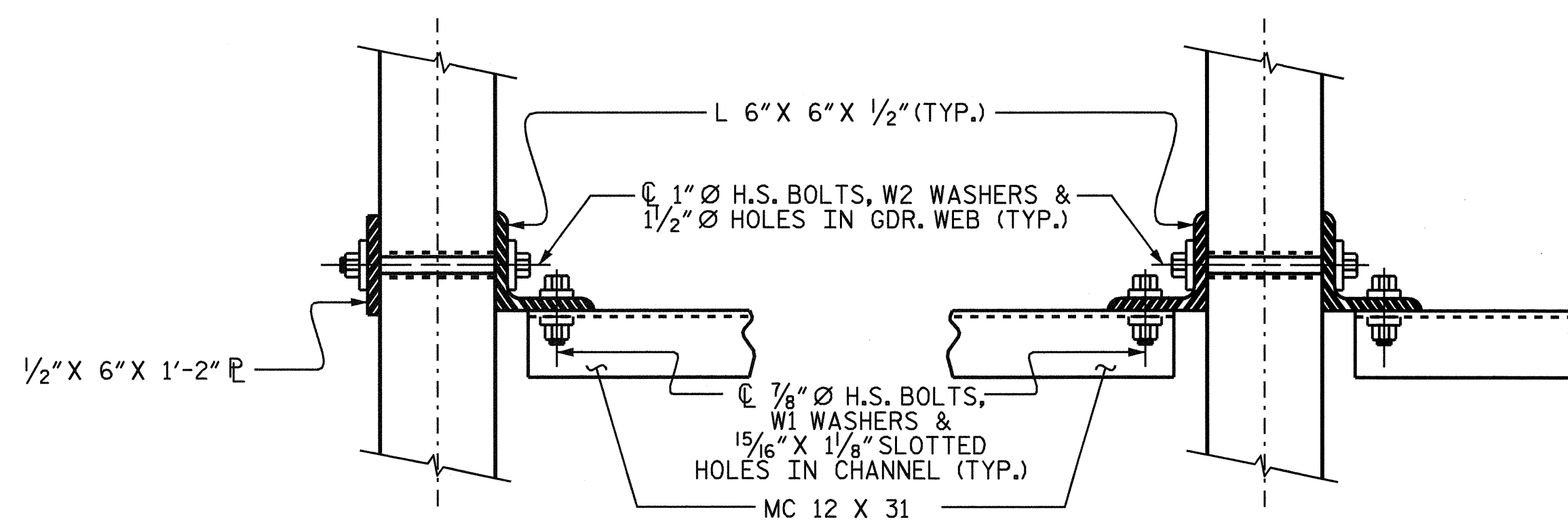
FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.



EXTERIOR GIRDER **INTERIOR GIRDER**
PART SECTION AT INTERMEDIATE DIAPHRAGM
 (TYPE II GIRDER SHOWN)



DIAPHRAGM FACE
 (TYPE II GDR.)
CONNECTOR PLATE DETAILS
WEB FACE



SECTION A-A **SECTION B-B**
CONNECTION DETAILS
 (FOR SKEW = 90°)

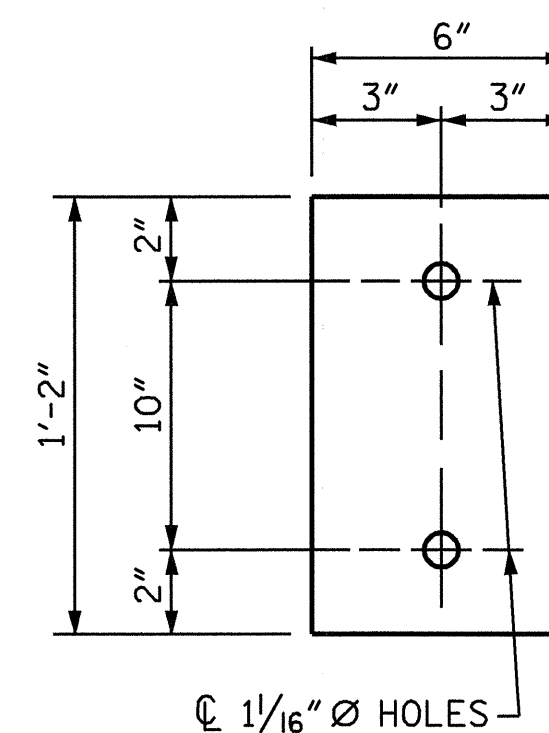
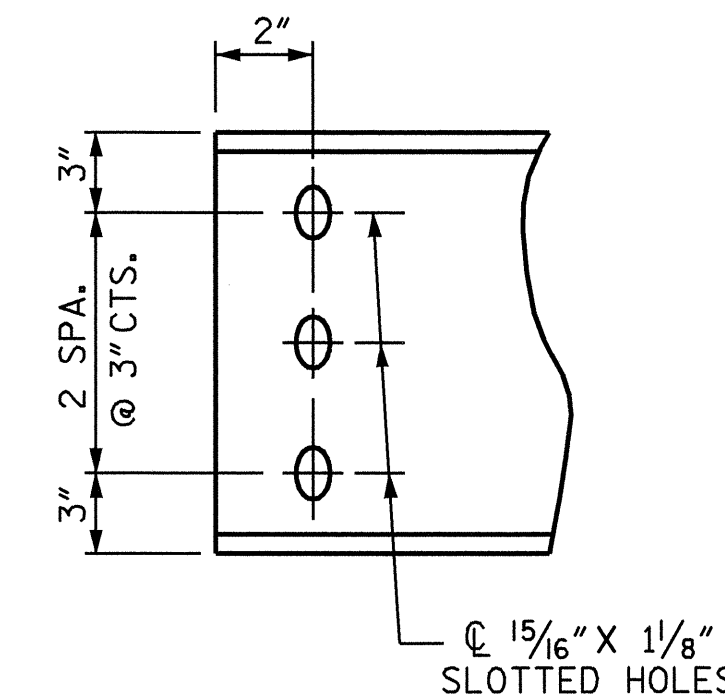
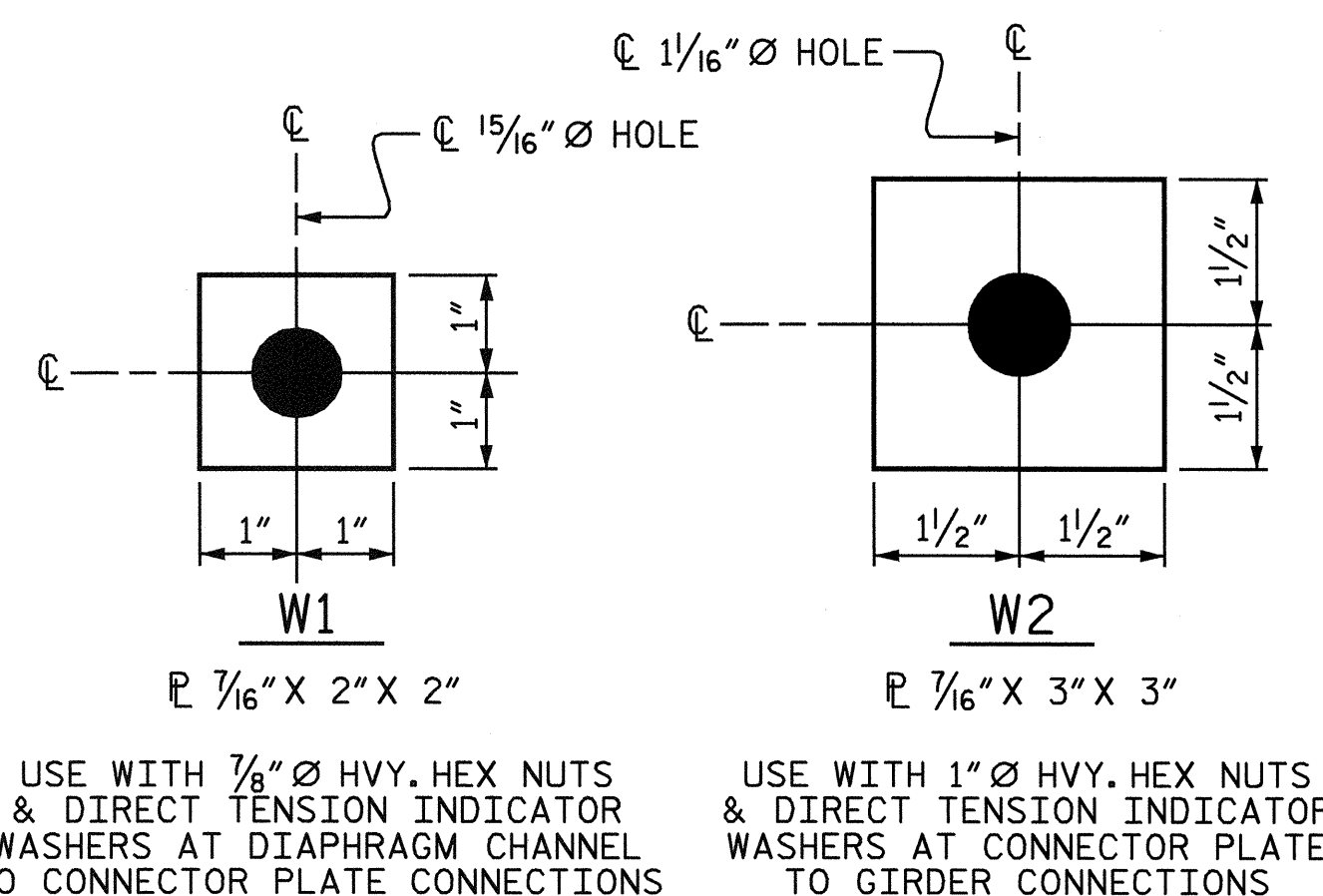


PLATE DETAILS



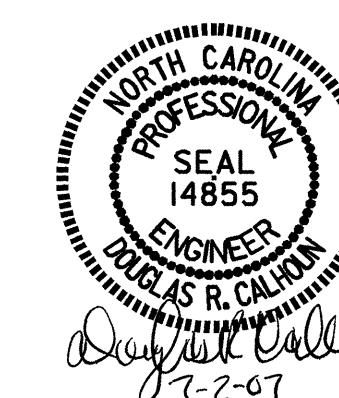
CHANNEL END
 (TYPE II GDR.)



WASHER DETAILS

ASSEMBLED BY : T. A. HARRIS	DATE : 10/24/05
CHECKED BY : T. L. CLELLAND	DATE : 10/24/05
DRAWN BY : TLA 6/05	ADDED 10/21/05
CHECKED BY : VC 6/05	REV. 5/1/06 TLA/GM

29-MAY-2007 11:08
 G:\Structures\Final Plans\B-3872.ed.G1.dgn
 akpatel



PROJECT NO. B-3872
MCDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE II PRESTRESSED CONCRETE GIRDERS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					36

STD.No.PCG12

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.

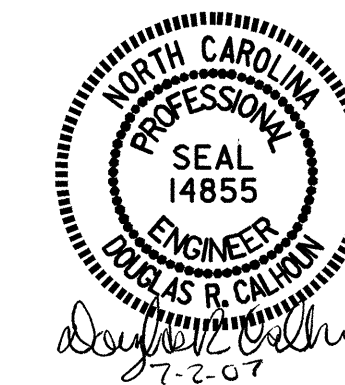
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

ELASTOMER IN ALL TYPE II BEARINGS SHALL BE 60 DUROMETER HARDNESS.

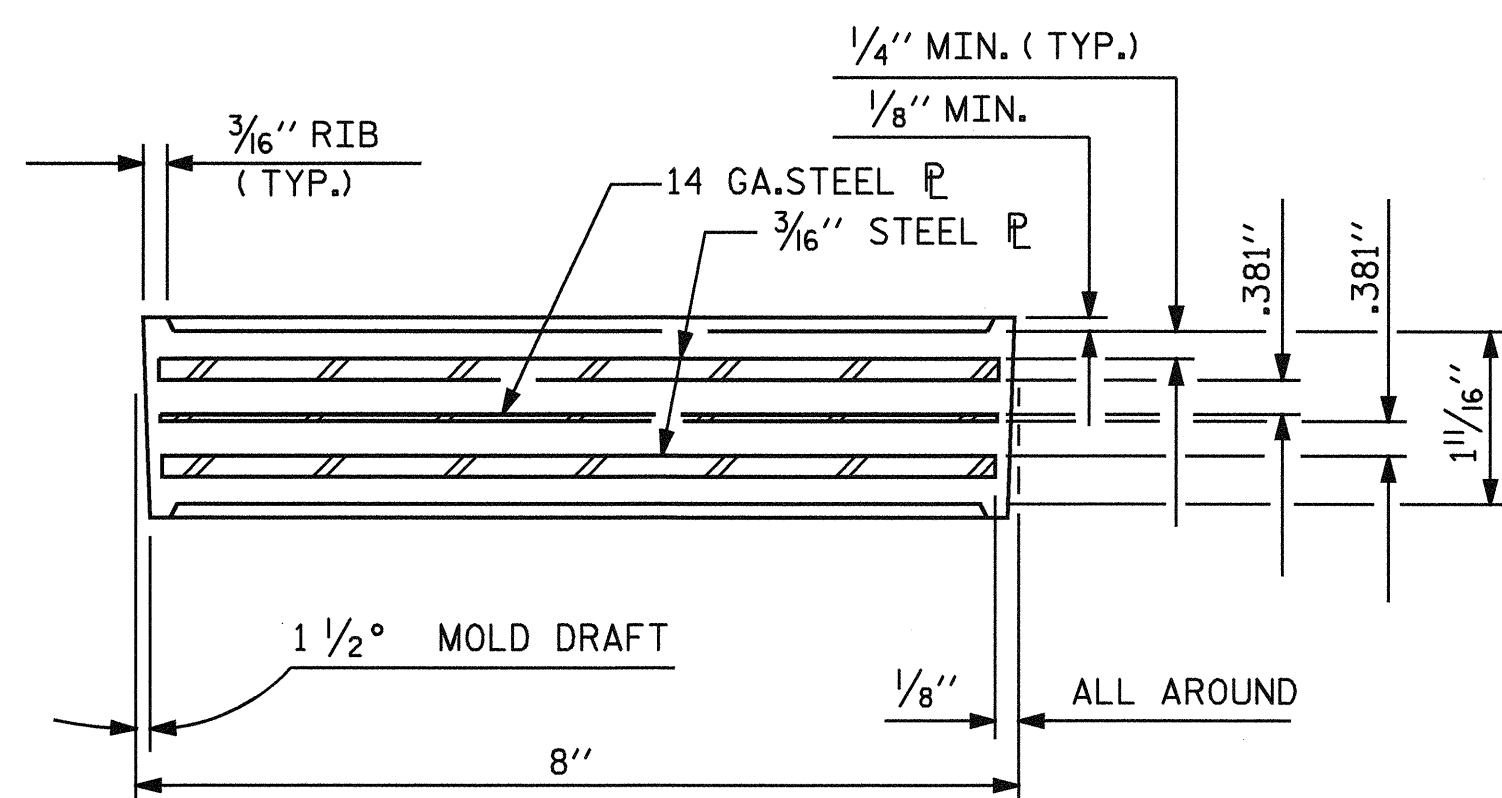
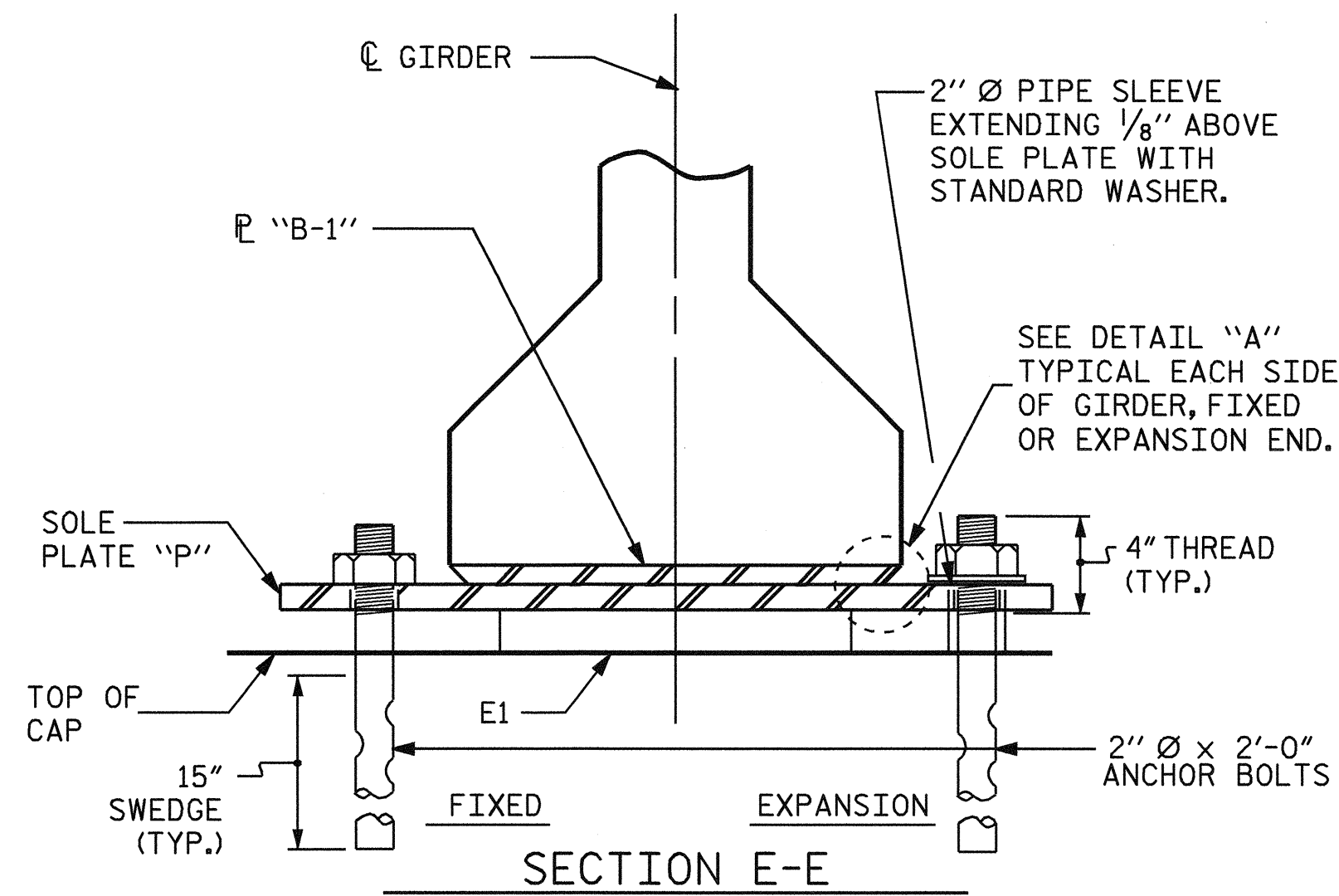
- LOAD RATINGS -	
	MAX. D.L. + L.L.
36" PCG - TYPE II	82 K

PROJECT NO. B-3872
MCDOWELL COUNTY
 STATION: 14+26.50 -L-

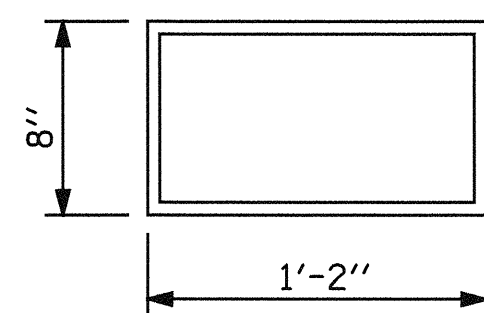
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**STANDARD
 ELASTOMERIC BEARING
 DETAILS**
 PRESTRESSED CONCRETE GIRDER
 AUGUST SUPERSTRUCTURE 1989



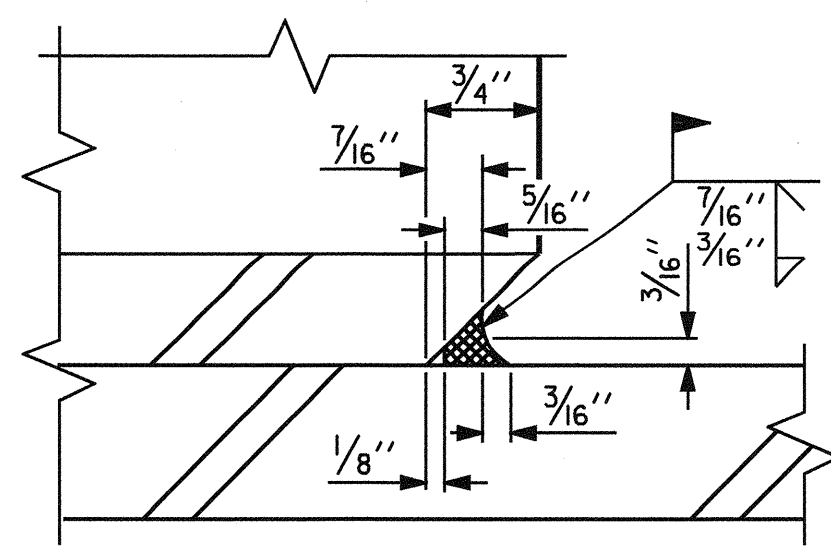
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			36



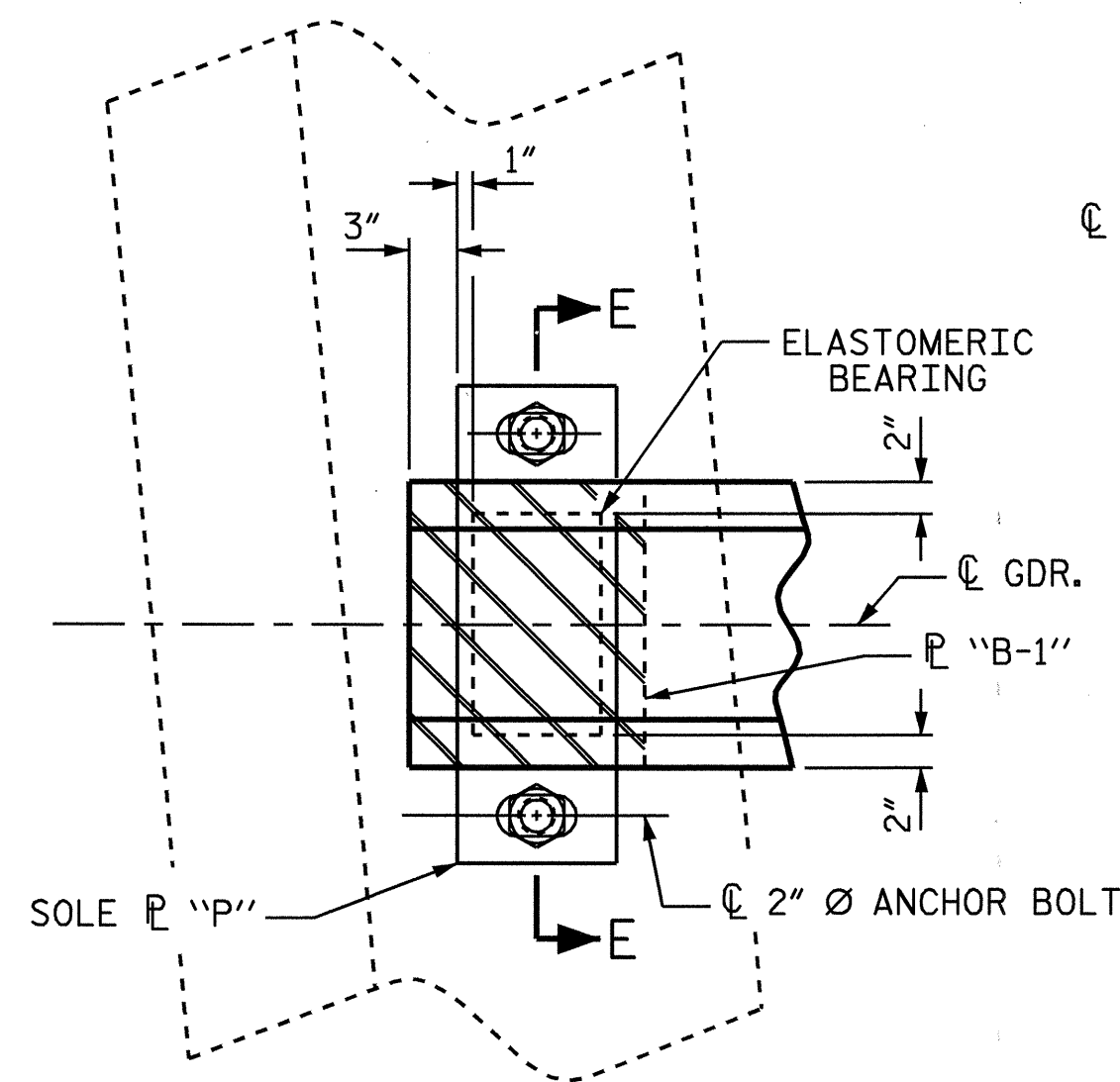
TYPICAL SECTION OF ELASTOMERIC BEARINGS



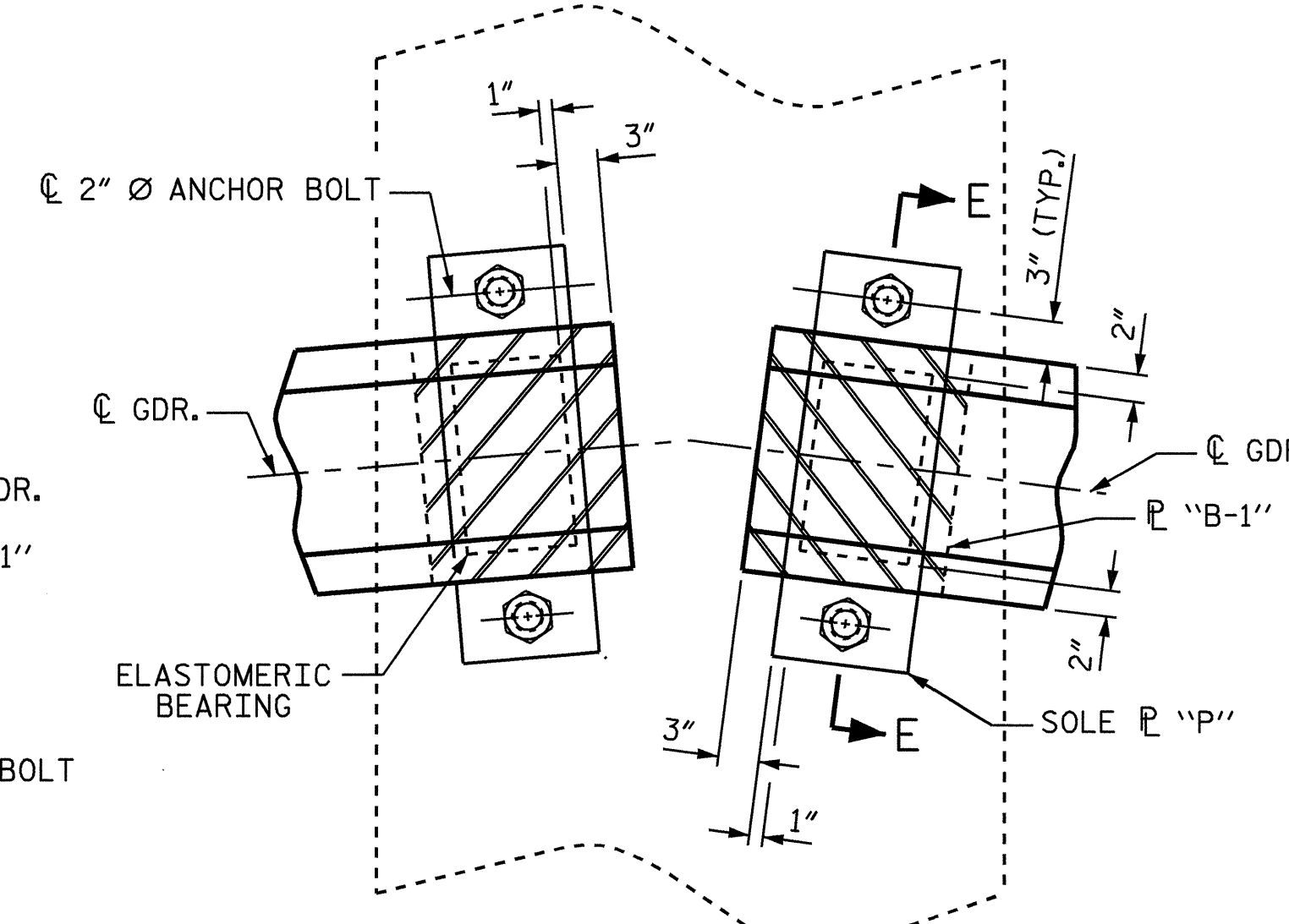
E1 (24 REQ'D)
 PLAN VIEW OF ELASTOMERIC BEARING
TYPE II



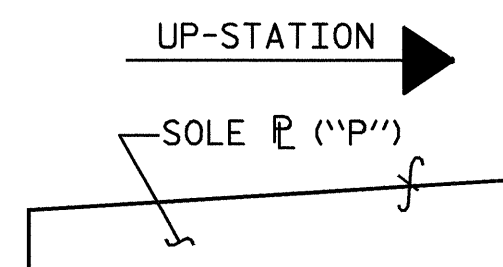
DETAIL "A"



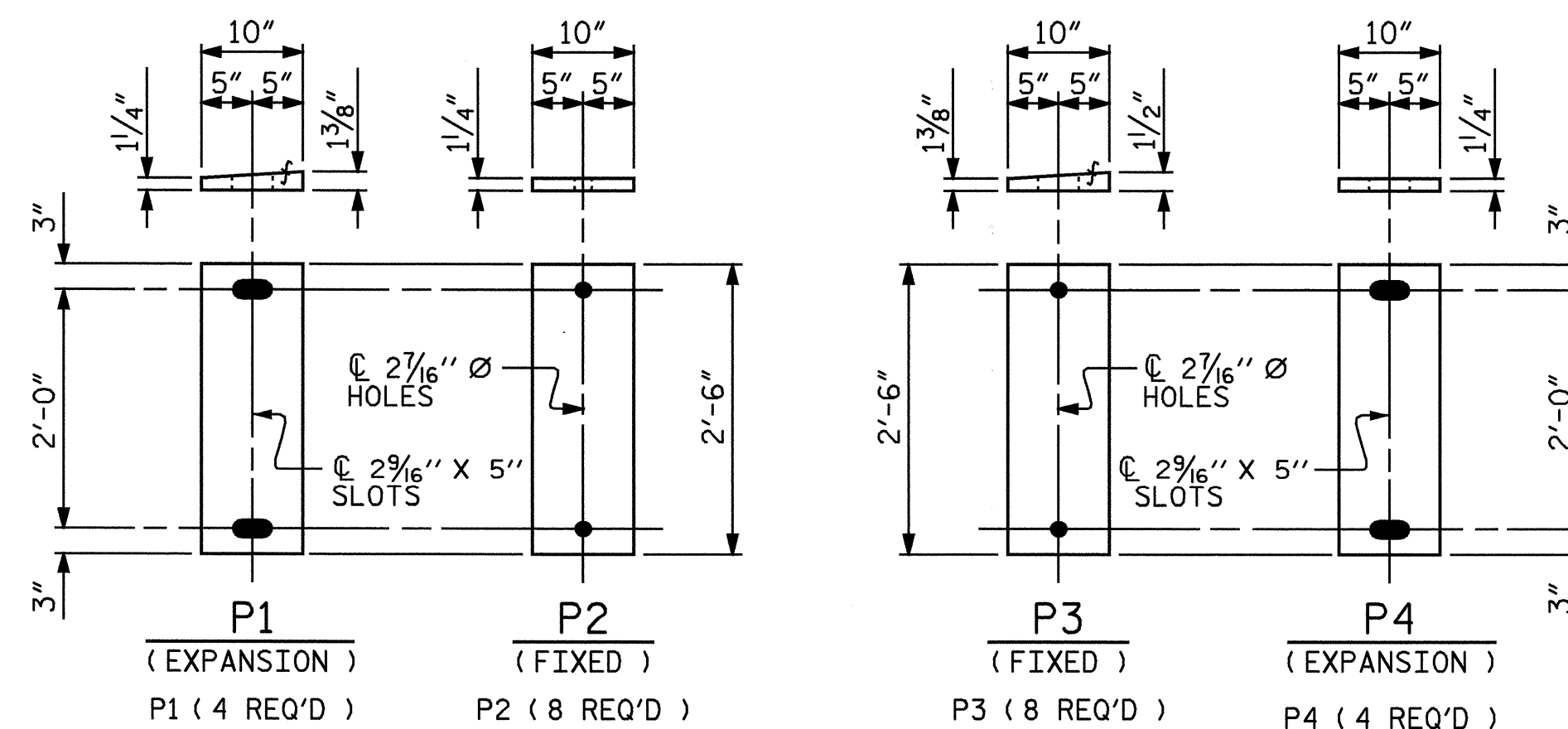
TYPICAL PLAN @ END BENT



TYPICAL PLAN @ BENT
 (SHOWING CONTINUOUS BENT)



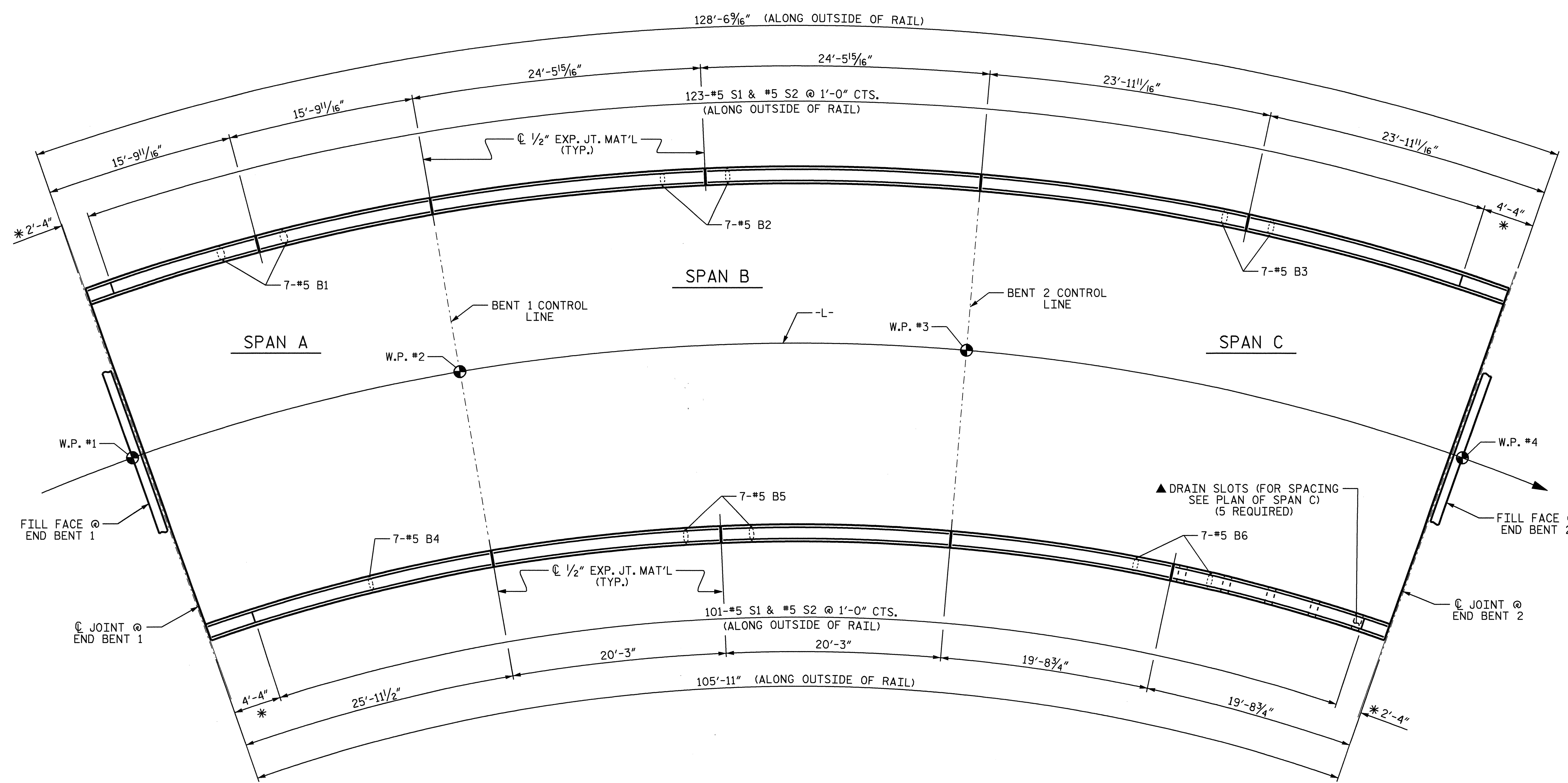
SOLE "P" PLACEMENT DETAIL



SOLE PLATE DETAILS ("P")

(SEE "SUPERSTRUCTURE FRAMING PLAN" ON SHEET S-12 FOR LOCATION OF SOLE PLATES)

ASSEMBLED BY : T. A. HARRIS	DATE : 3/29/05
CHECKED BY : T. L. CLELLAND	DATE : 4/12/05
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



PLAN OF BARRIER RAIL

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE FROM C JOINT TO C JOINT.
 * FOR REINFORCING STEEL AT ENDS OF RAIL, SEE "END OF RAIL DETAILS" SHEET 2 OF 2.
 ▲ SHIFT #5 B6 BARS AS NECESSARY TO CLEAR DRAIN SLOTS.

PROJECT NO. B-3872
MCDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 1 OF 2

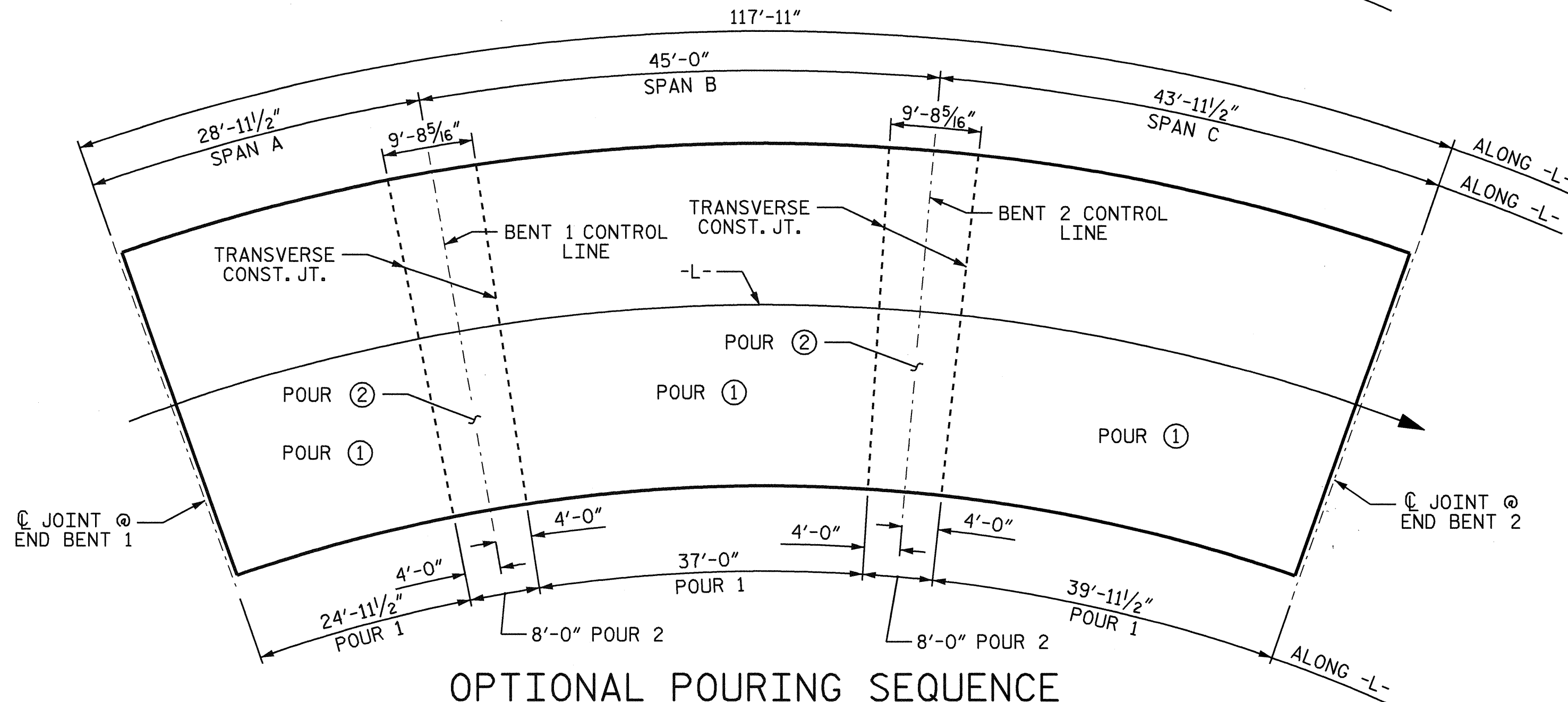
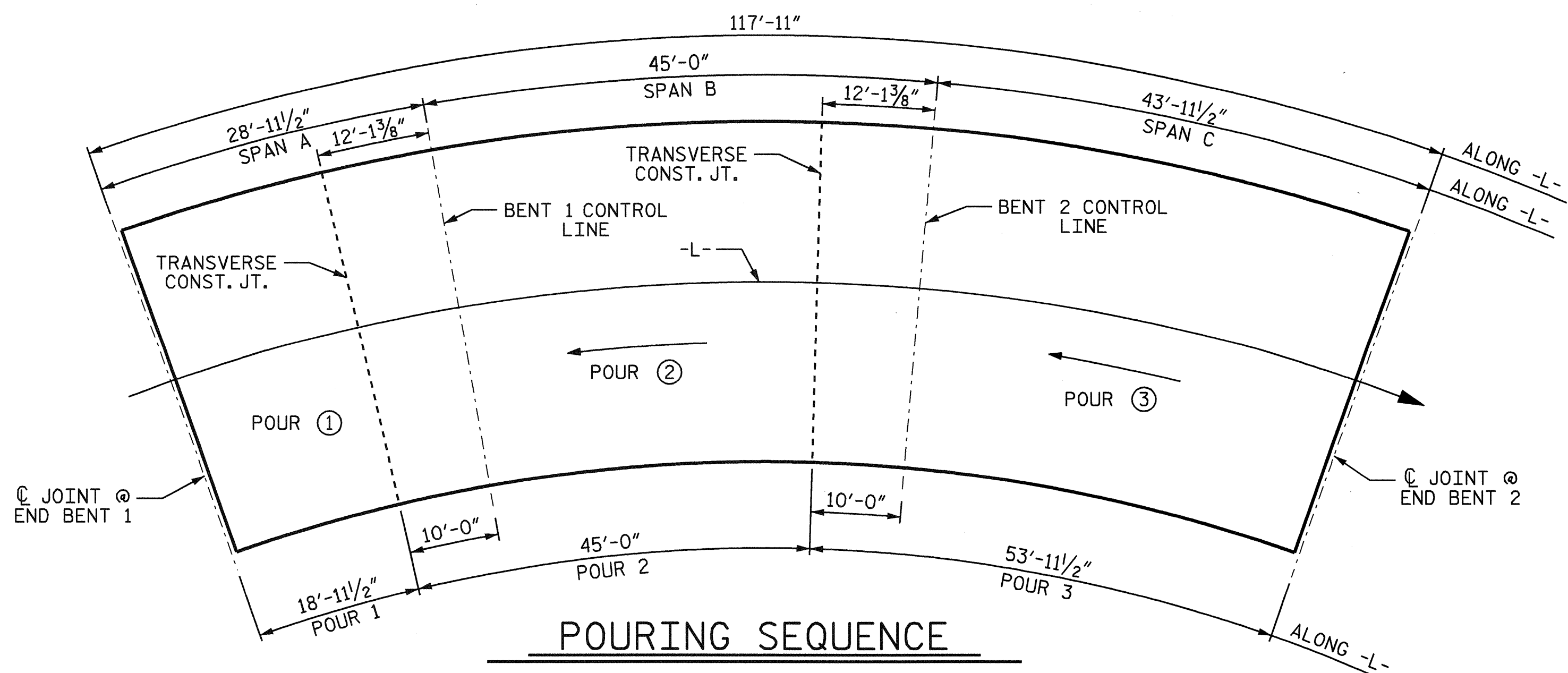


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

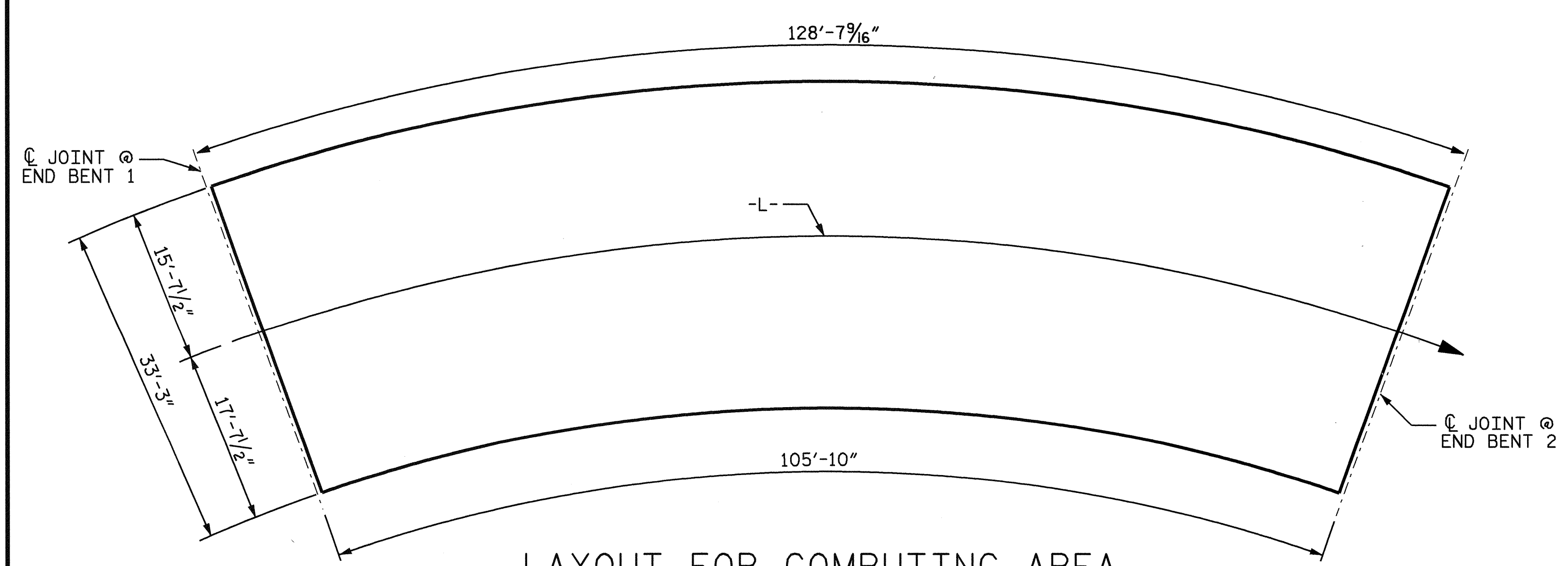
**SUPERSTRUCTURE
 CONCRETE BARRIER
 RAIL**

DRAWN BY : T. A. HARRIS DATE : 3/29/05
 CHECKED BY : T. L. CLELLAND DATE : 4/12/05

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			36



POUR ② CANNOT BE STARTED UNTIL BOTH ADJACENT ① POURS REACH A MINIMUM OF 3000 PSI.



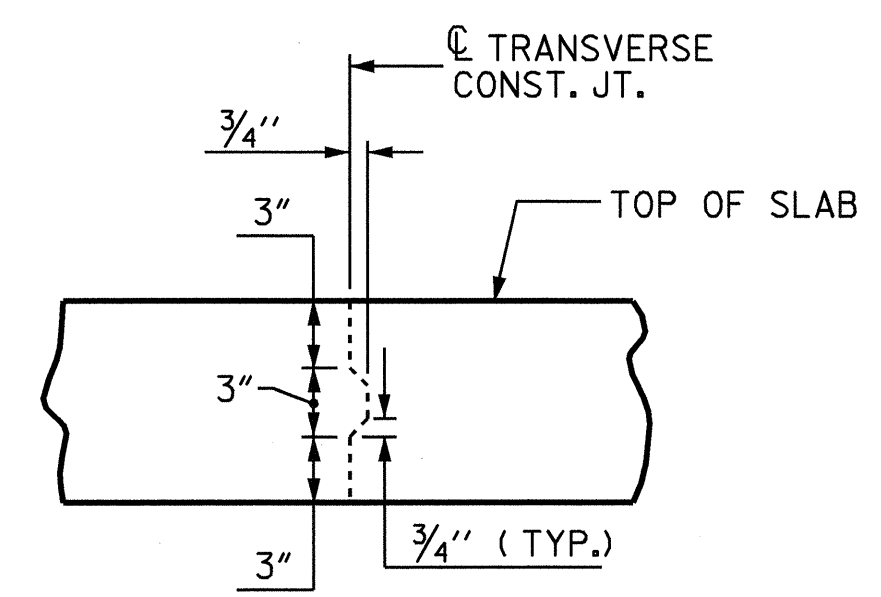
LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 3898)

REINFORCING BAR SCHEDULE					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
* A1	238	5	STR	32 - 11	8171
A2	238	5	STR	32 - 11	8171
* B1	11	4	STR	18 - 11	139
* B2	13	4	STR	17 - 0	148
* B3	11	4	STR	13 - 7	100
* B4	13	4	STR	12 - 0	104
* B5	22	4	STR	16 - 2	238
* B6	13	4	STR	27 - 6	239
* B7	11	5	STR	34 - 3	393
* B8	13	5	STR	32 - 3	437
* B9	42	7	STR	12 - 2	1044
* B10	11	5	STR	39 - 2	449
* B11	13	5	STR	36 - 9	498
* B12	42	7	STR	14 - 8	1259
B13	42	5	STR	44 - 2	1935
B14	33	5	STR	41 - 5	1426
B15	42	5	STR	39 - 3	1719
* K1	4	8	1	10 - 9	115
* K2	4	8	1	12 - 2	130
* K3	8	8	2	19 - 0	406
K4	12	6	STR	8 - 2	147
K5	12	4	STR	8 - 2	65
K6	24	4	STR	8 - 8	139
K7	12	4	STR	6 - 8	53
K8	8	4	STR	28 - 9	154
* S1	48	5	3	5 - 1	254
* S2	48	4	7	2 - 5	77
S3	12	4	2	11 - 0	88
S4	36	4	2	12 - 10	309
S5	132	4	6	2 - 9	242
REINFORCING STEEL			LBS	14448	
* EPOXY COATED REINFORCING STEEL			LBS	14201	

CLASS AA CONCRETE BREAKDOWN		
POUR 1	C.Y.	20.4
POUR 2	C.Y.	54.9
POUR 3	C.Y.	65.9
TOTAL	C.Y.	141.2

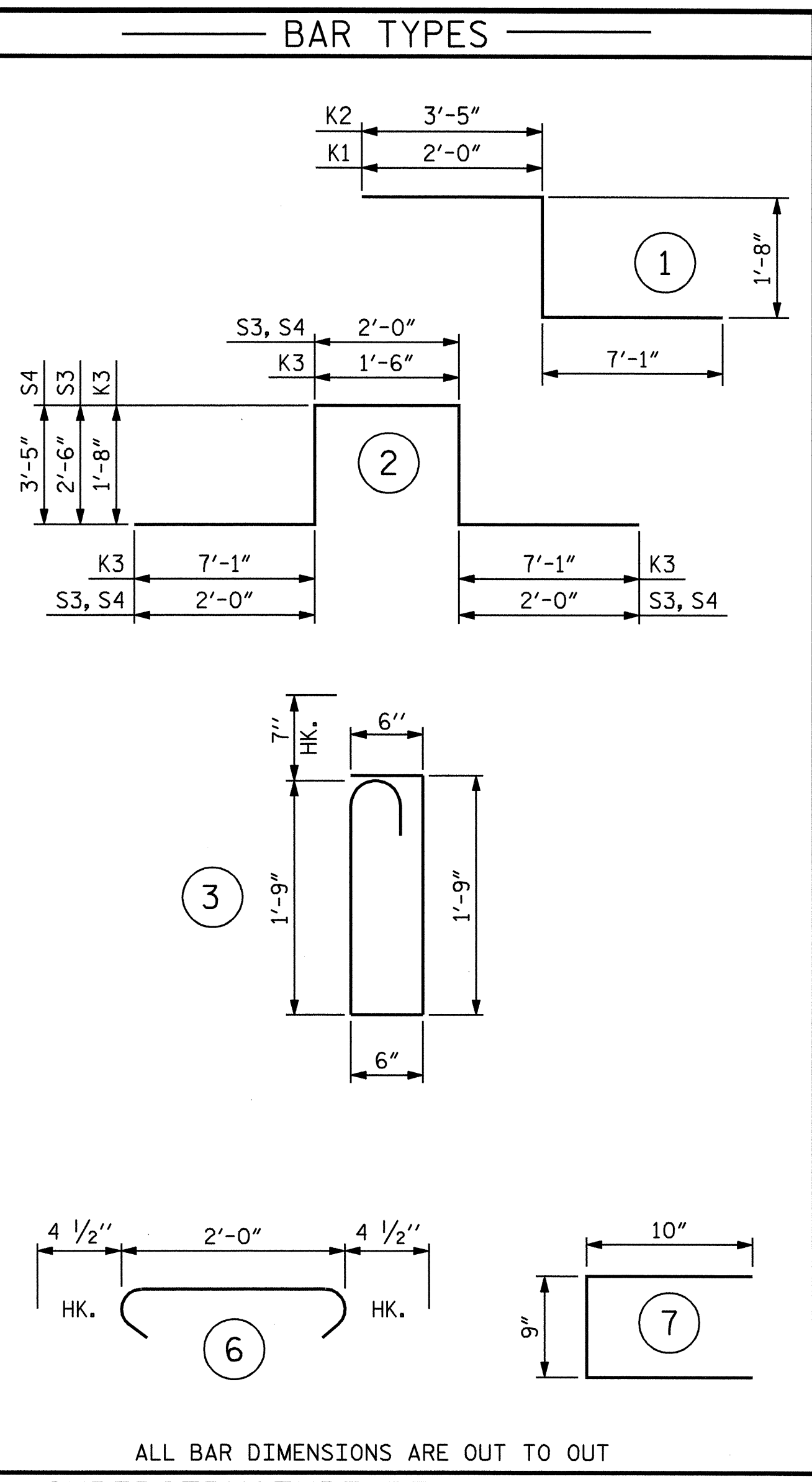
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS					
BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"	—	—	—
#8	6'-10"	4'-7"	—	—	—

GROOVING BRIDGE FLOORS	
APPROACH SLABS	670 SQ.FT.
BRIDGE DECK	3156 SQ.FT.
TOTAL	3826 SQ.FT.



TRANSVERSE CONSTRUCTION JOINT DETAIL

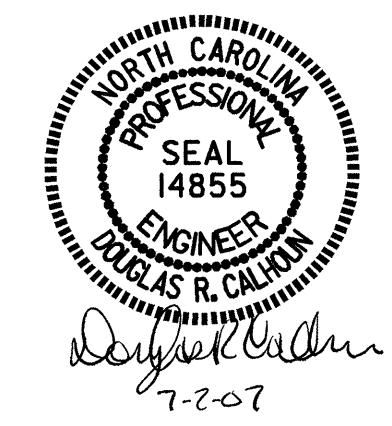
NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.



SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
TOTALS**	141.2	14448	14201

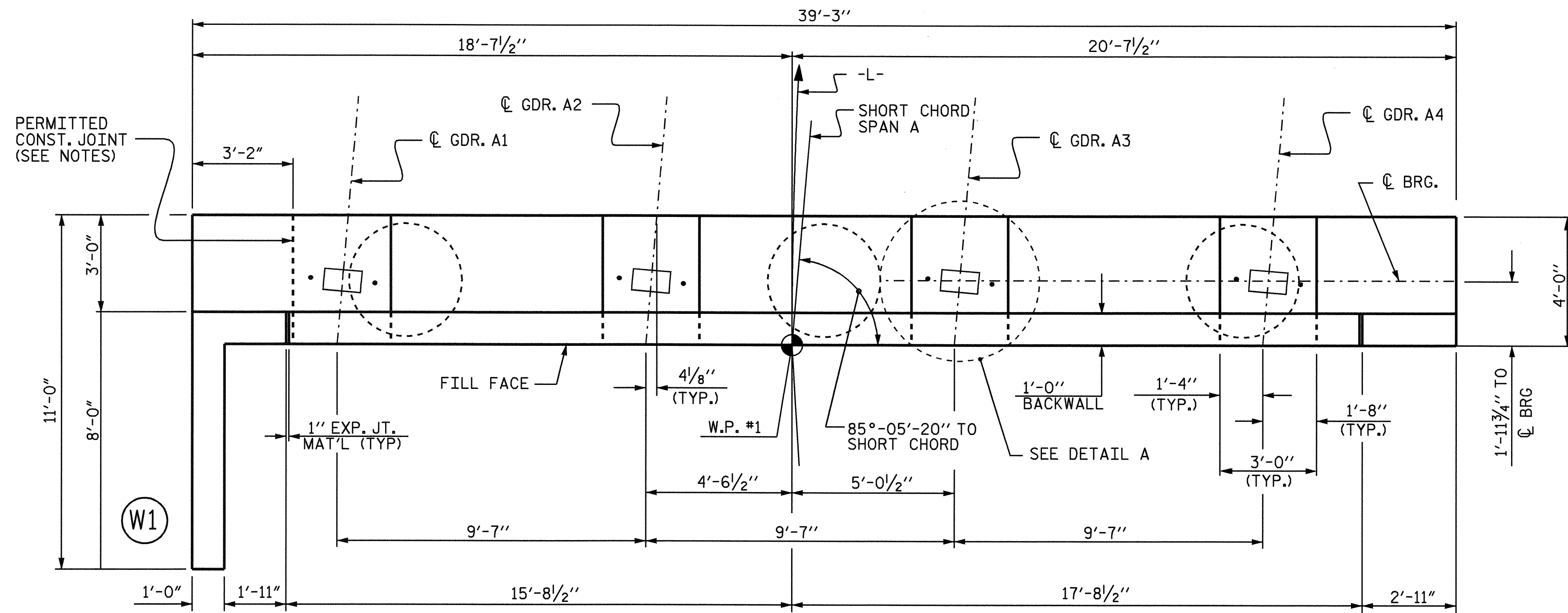
** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

PROJECT NO. B-3872
MCDOWELL COUNTY
 STATION: 14+26.50 -L-

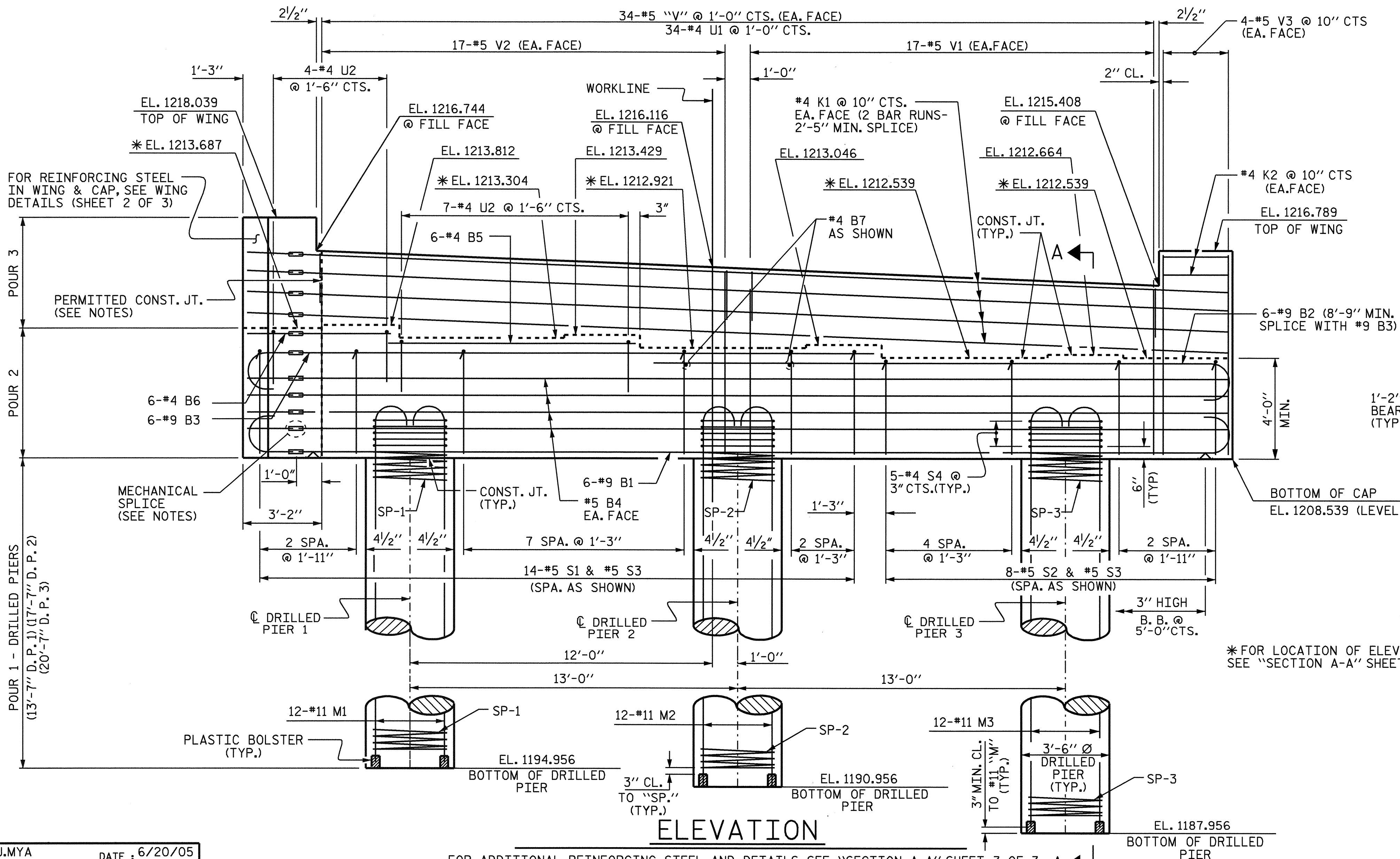


REVISIONS						SHEET NO. S-21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 36
2			4			

DRAWN BY: T. A. HARRIS DATE: 3/29/05
 CHECKED BY: I. L. CLELLAND DATE: 4/12/05



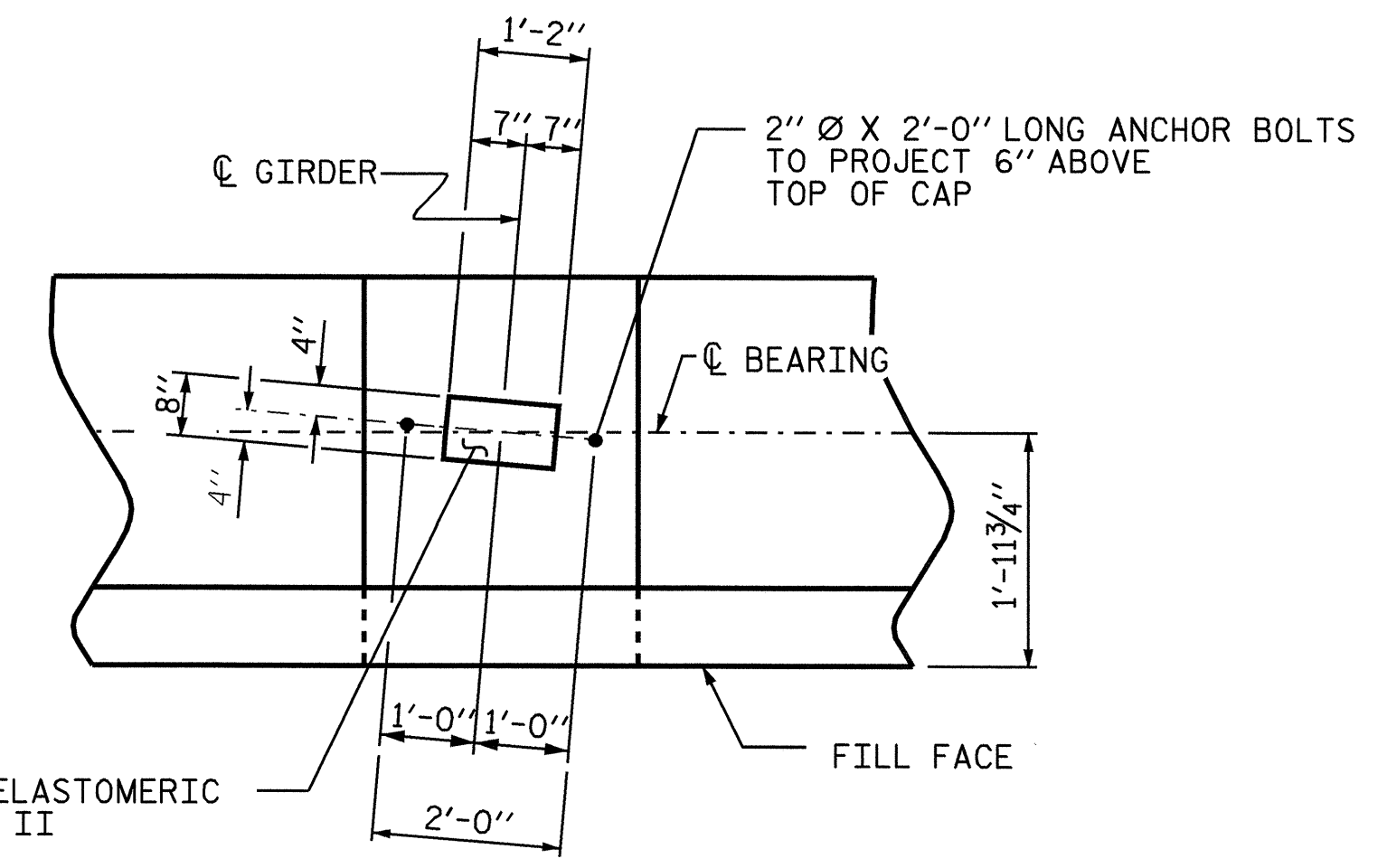
PLAN



ELEVATION

NOTES

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.
- HOOKS ON "M" 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.
- FOR MECHANICAL BUTT SPLICING FOR REINFORCING STEEL, SEE SECTION 425-5 OF THE STANDARD SPECIFICATIONS.
- THE PERMITTED CONSTRUCTION JOINT IN THE CAP AND BACKWALL IS PROVIDED IN THE EVENT THE CONTRACTOR IS UNABLE TO CONSTRUCT THE ENTIRE END BENT DUE TO THE PROXIMITY OF THE TEMPORARY SOIL NAIL WALL. IF THE PERMITTED CONSTRUCTION JOINT IS USED, THE CONTRACTOR SHALL CUT THE REINFORCING STEEL AND USE MECHANICAL SPLICES AS SHOWN. NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS OPTION.
- NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.



DETAIL A

PROJECT NO. B-3872
 McDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1

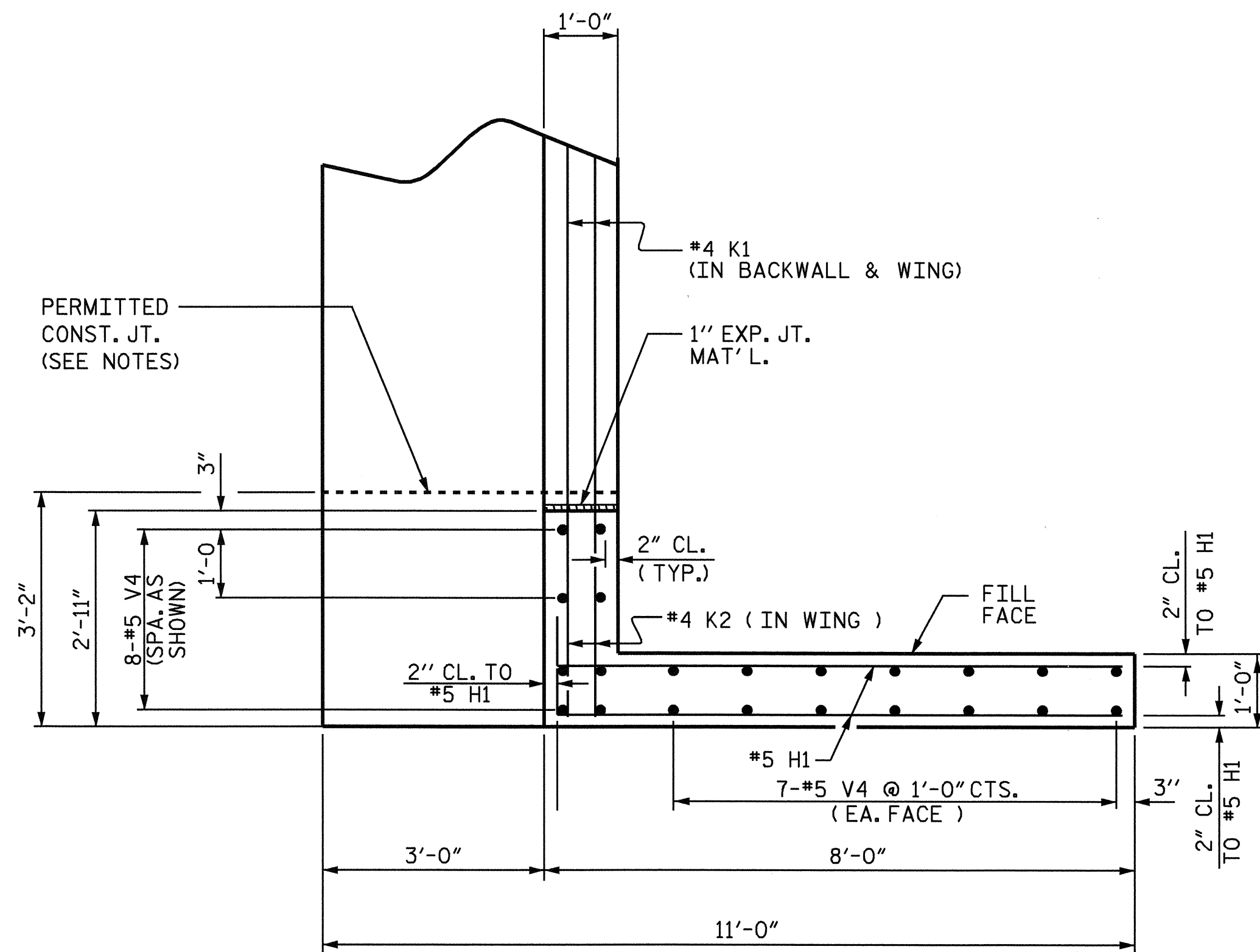
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-22
 TOTAL SHEETS 36

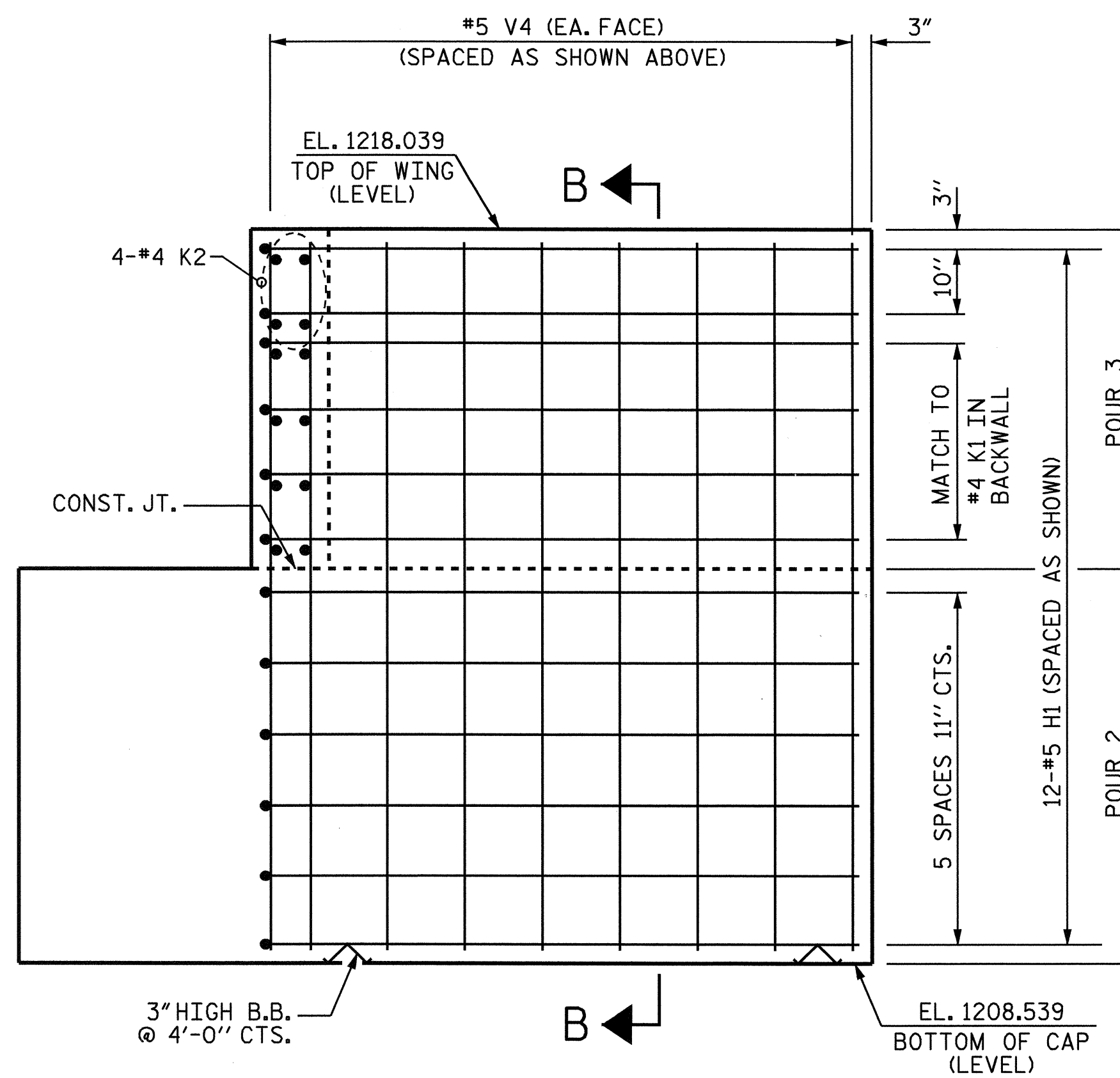
DRAWN BY: J.MYA DATE: 6/20/05
 CHECKED BY: T.A. HARRIS DATE: 7/13/05



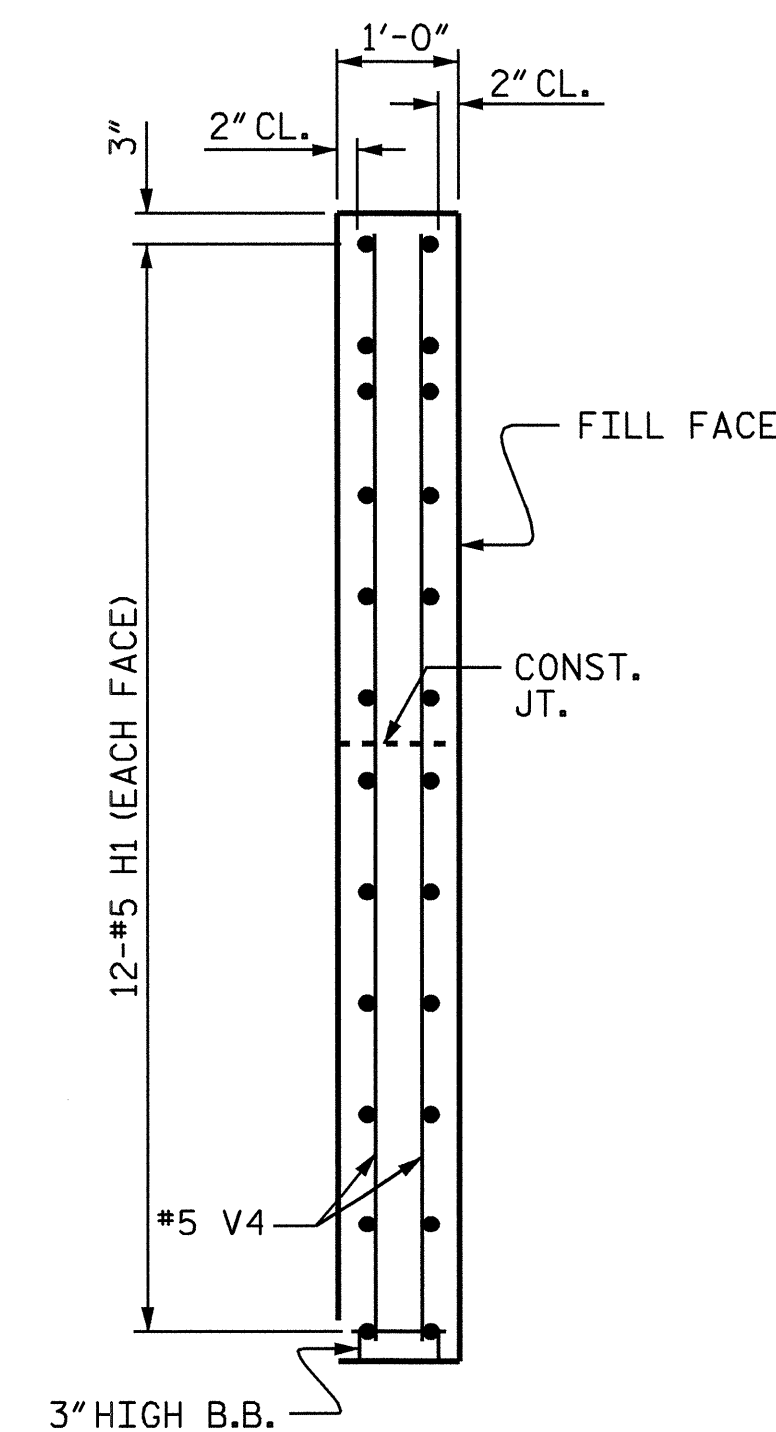
FOR ADDITIONAL REINFORCING STEEL AND DETAILS SEE "SECTION A-A" SHEET 3 OF 3.



PLAN OF WING - W1



ELEVATION OF WING - W1



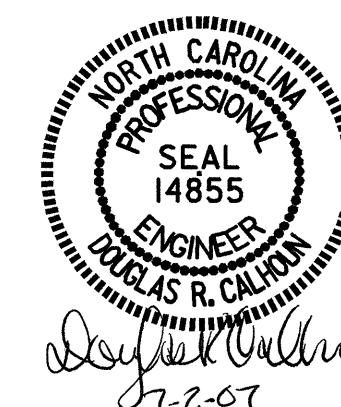
SECTION B-B

PROJECT NO. B-3872
McDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 2 OF 3

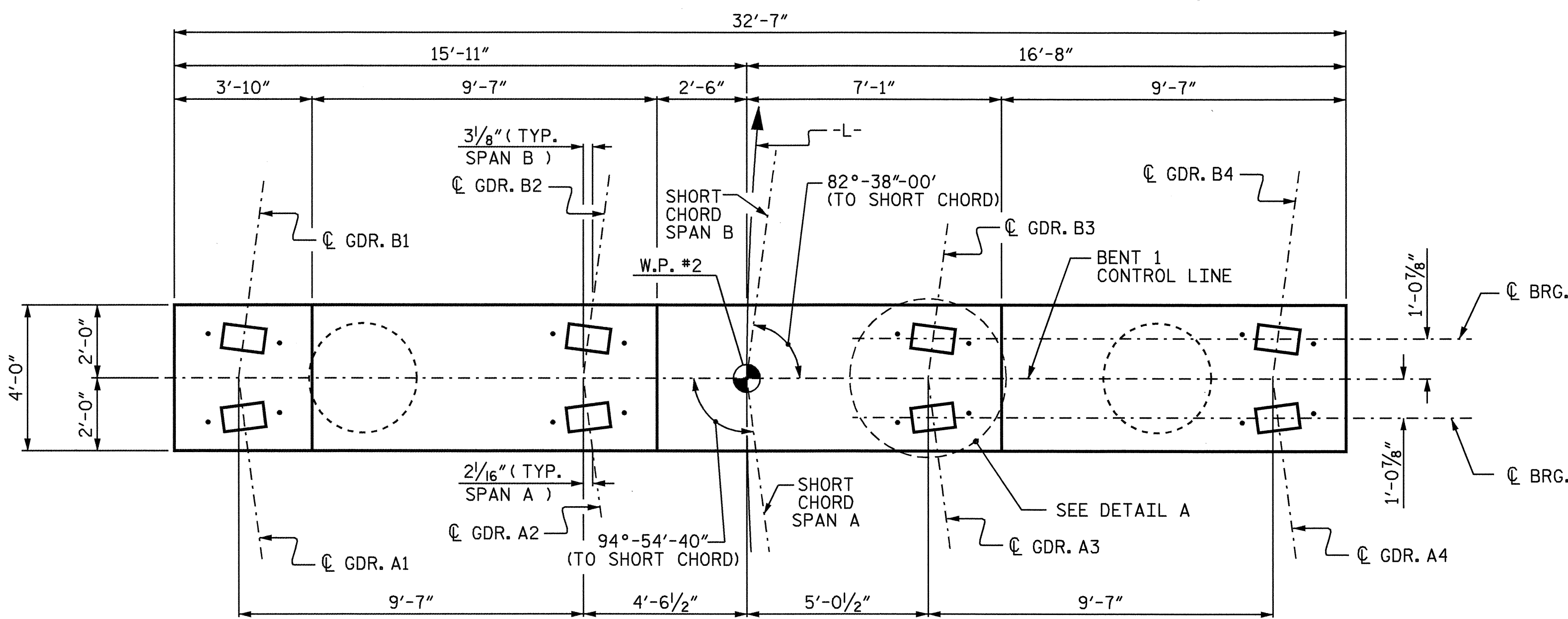
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1

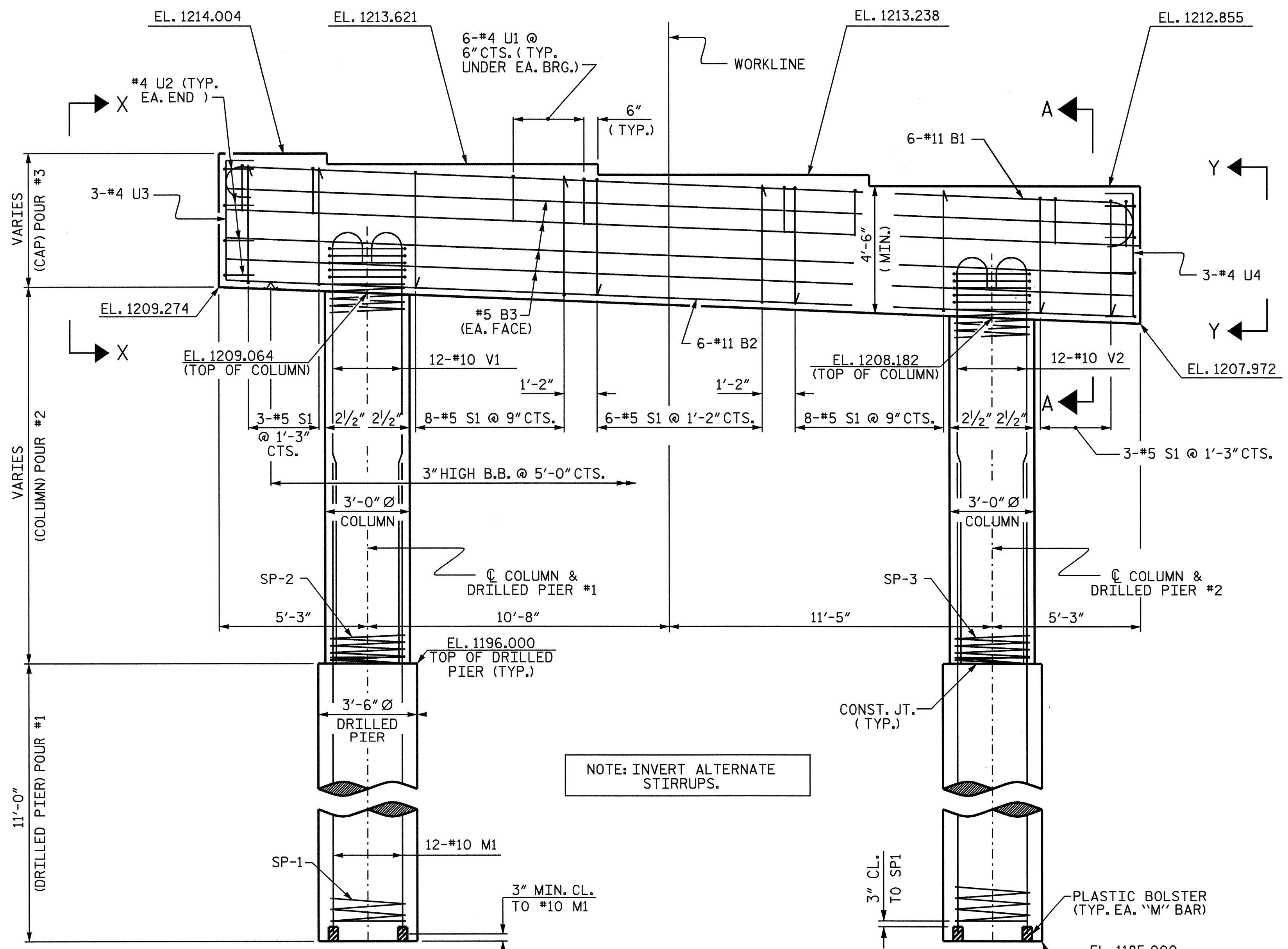


DRAWN BY: J.MYA DATE: 6/20/05
 CHECKED BY: T. A. HARRIS DATE: 7/13/05

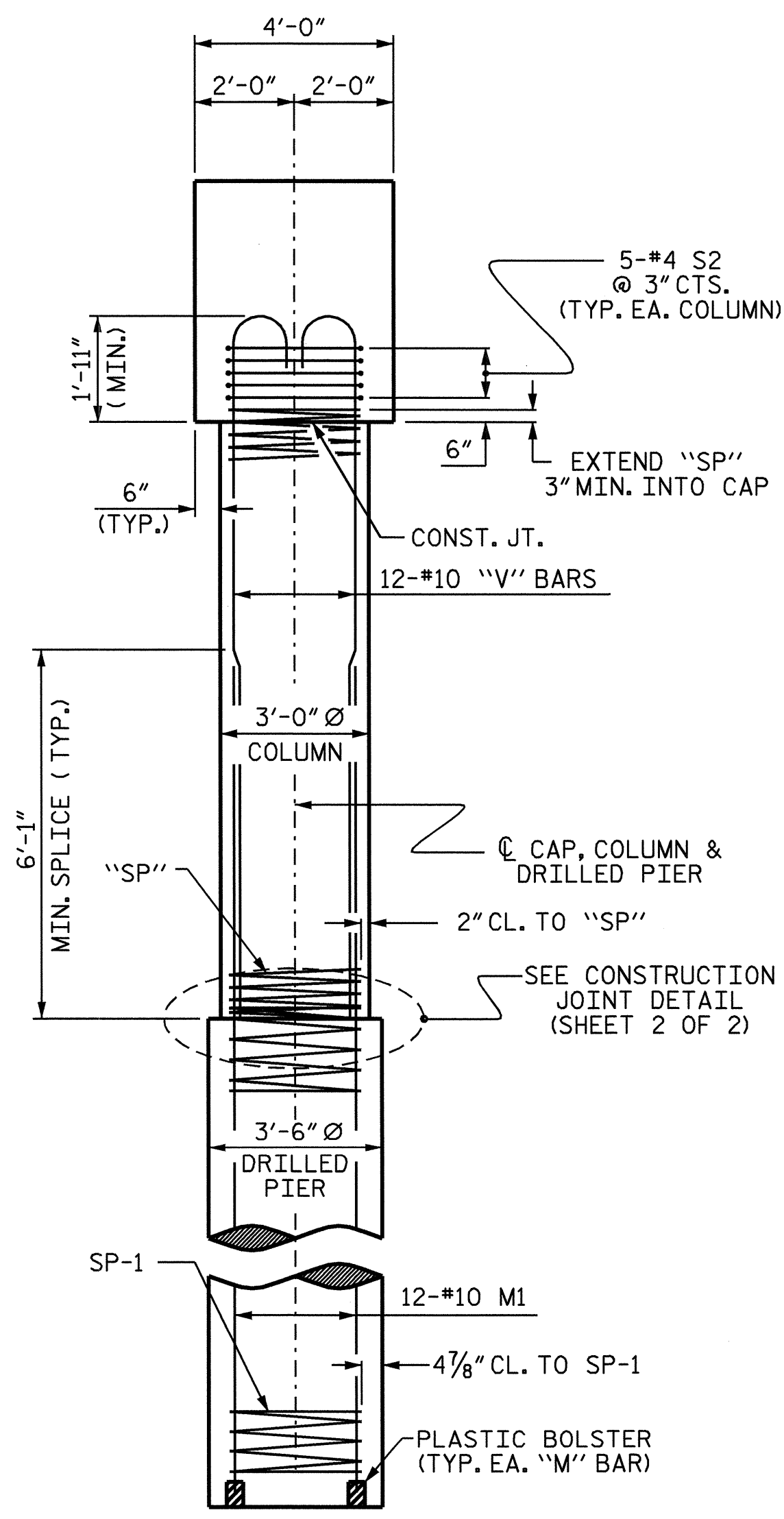
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			36



PLAN



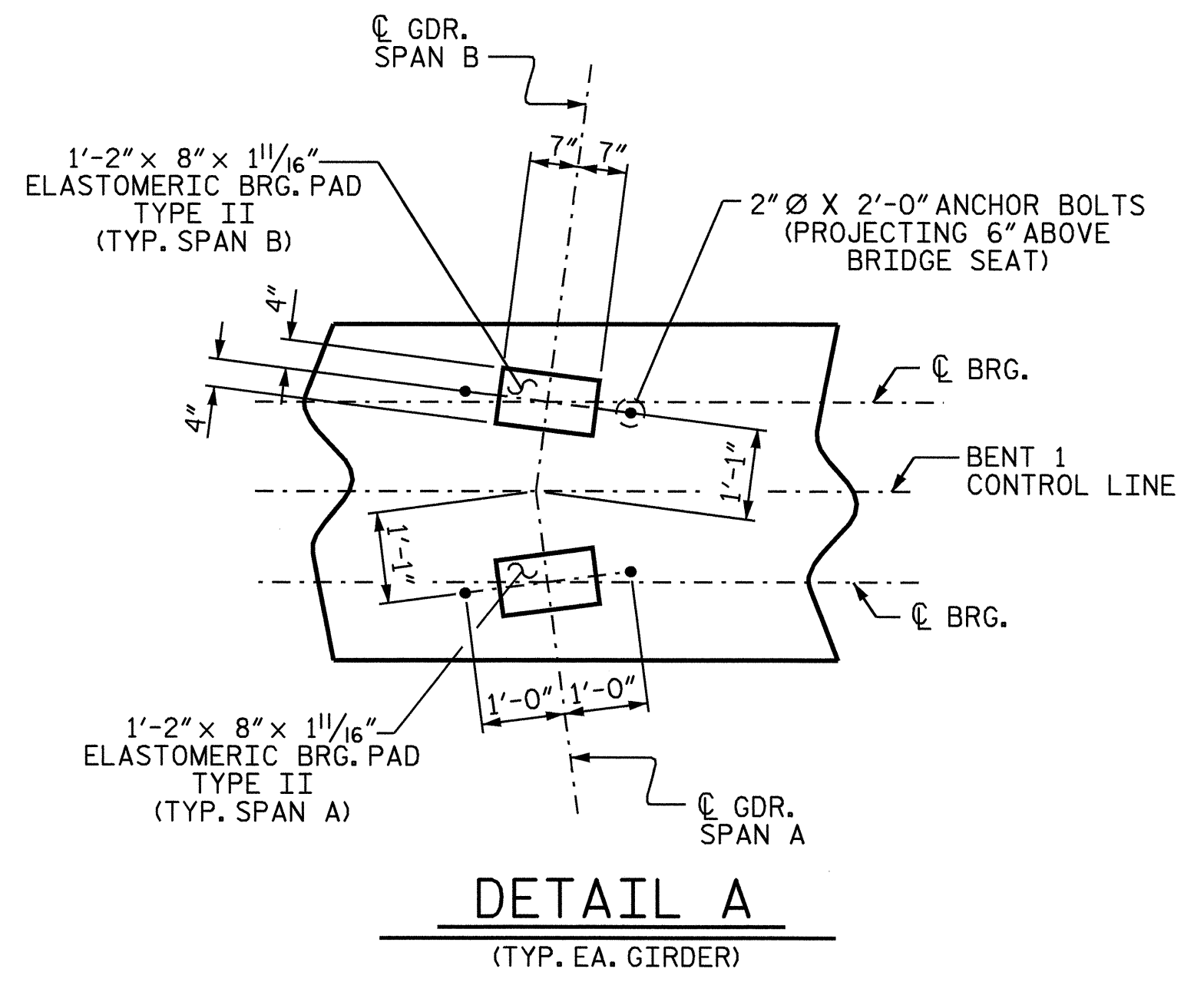
ELEVATION



END ELEVATION

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.
 NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.



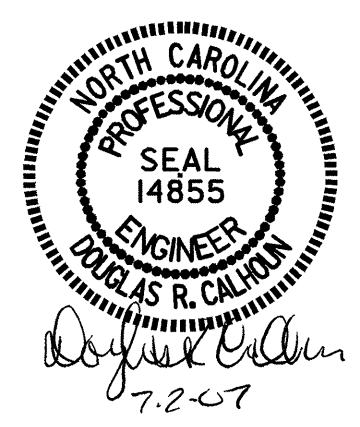
DETAIL A
(TYP. EA. GIRDER)

PROJECT NO. B-3872
 McDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 1

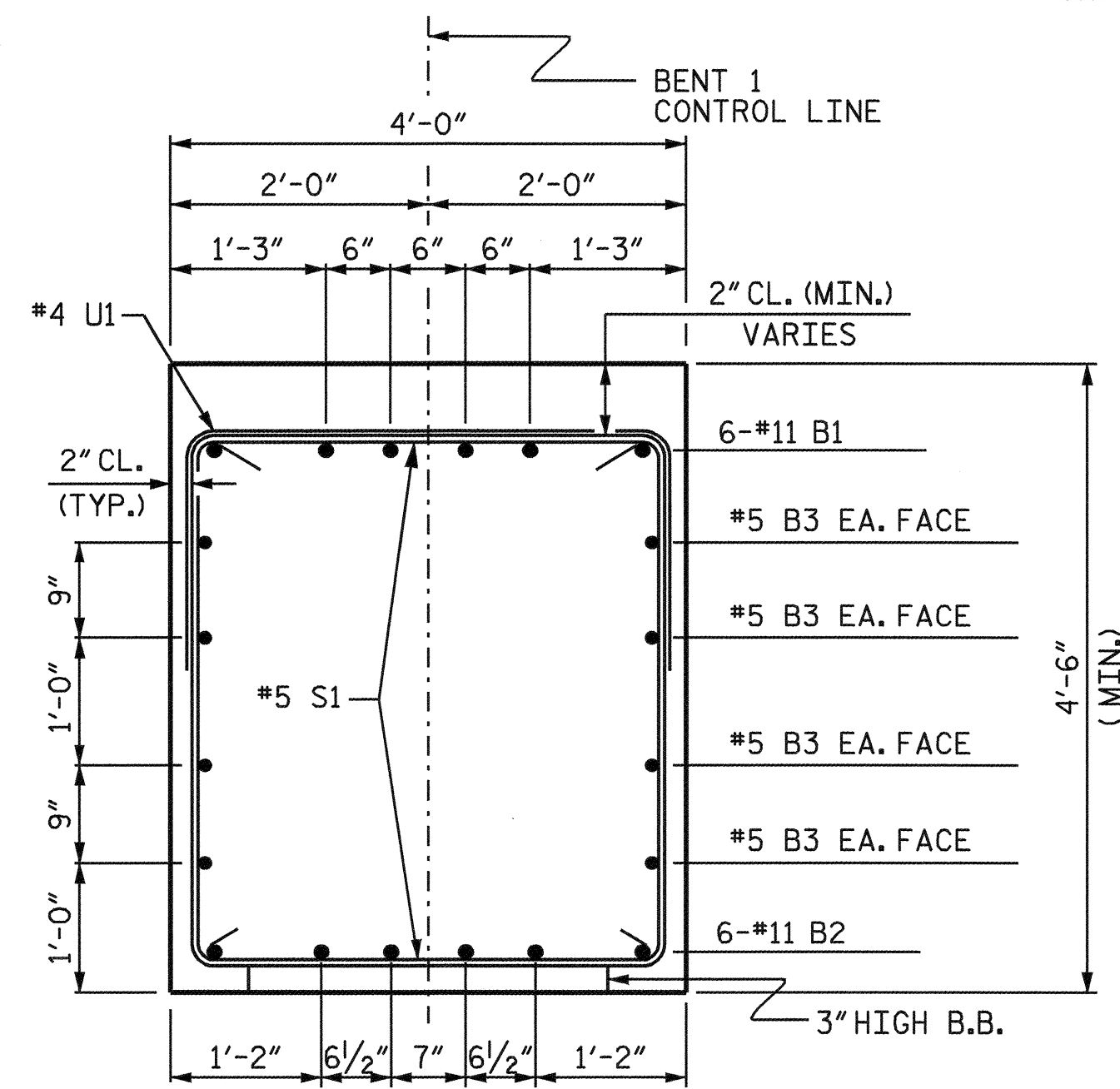


REVISIONS				SHEET NO.	
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2			4		

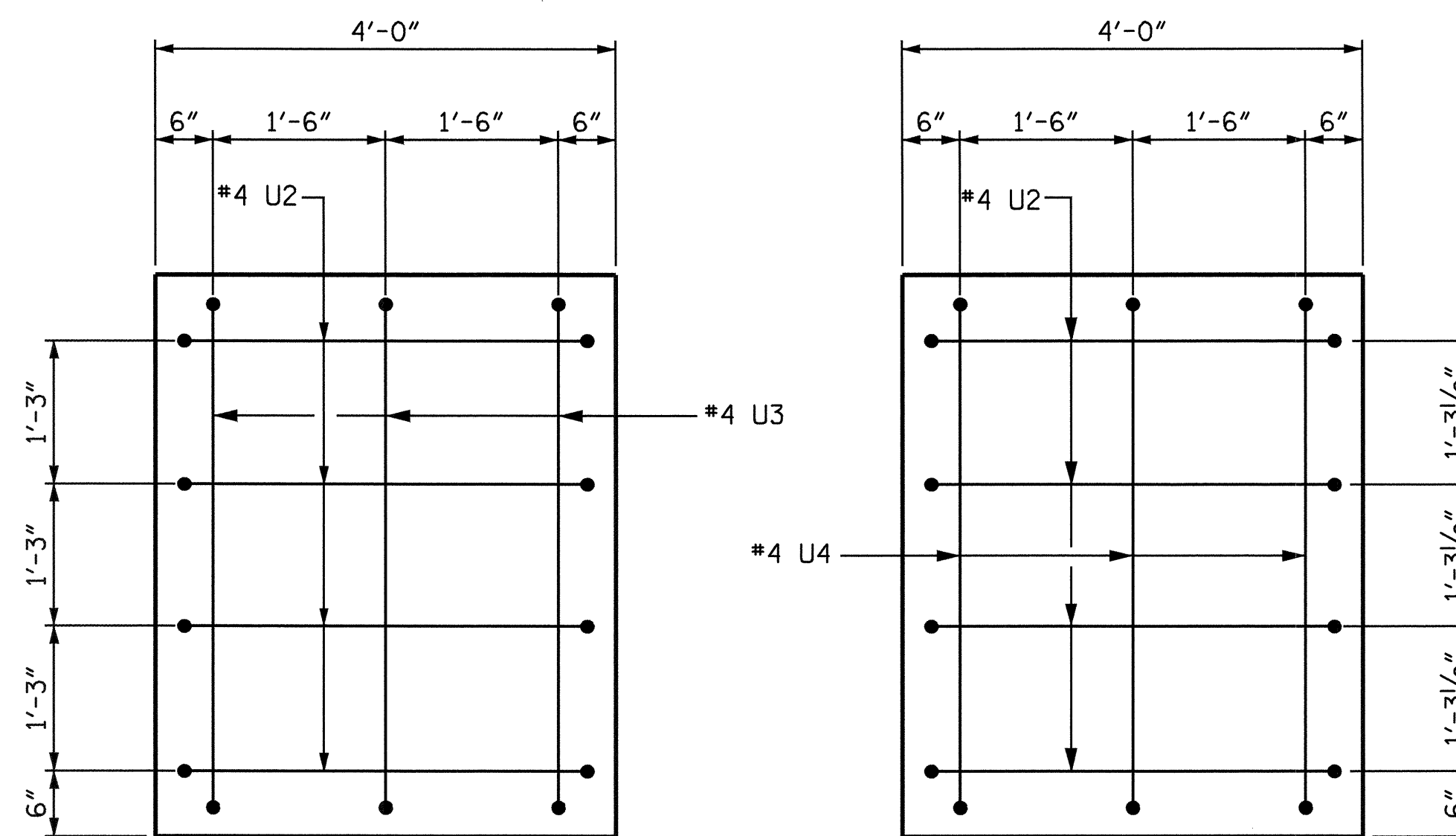
S-25
 TOTAL SHEETS
 36

DRAWN BY: J.B. WILSON DATE: 8/3/05
 CHECKED BY: K.P. SEDA DATE: 8/11/05

(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR EACH COLUMN AND DRILLED PIER EXCEPT AS NOTED)

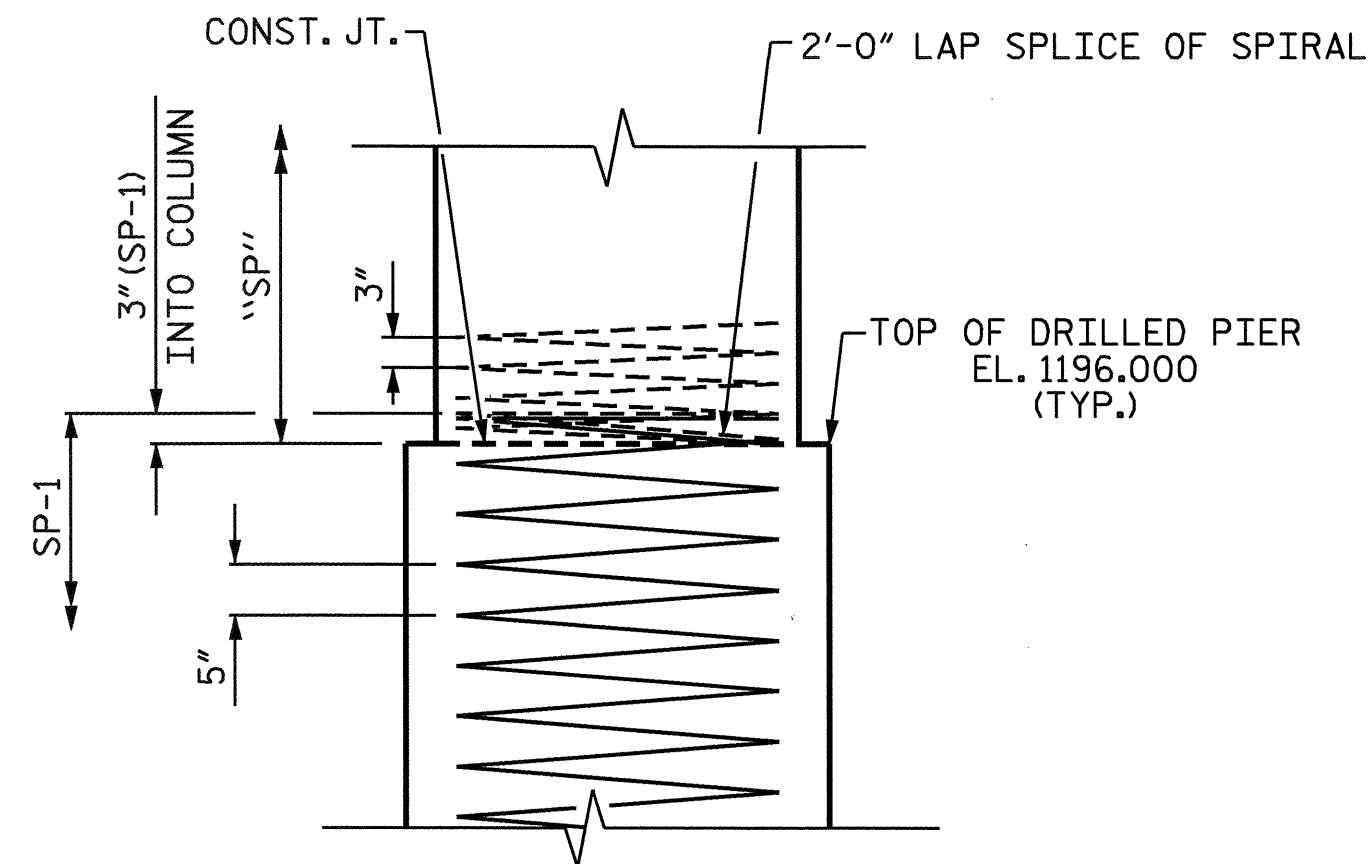


SECTION A-A

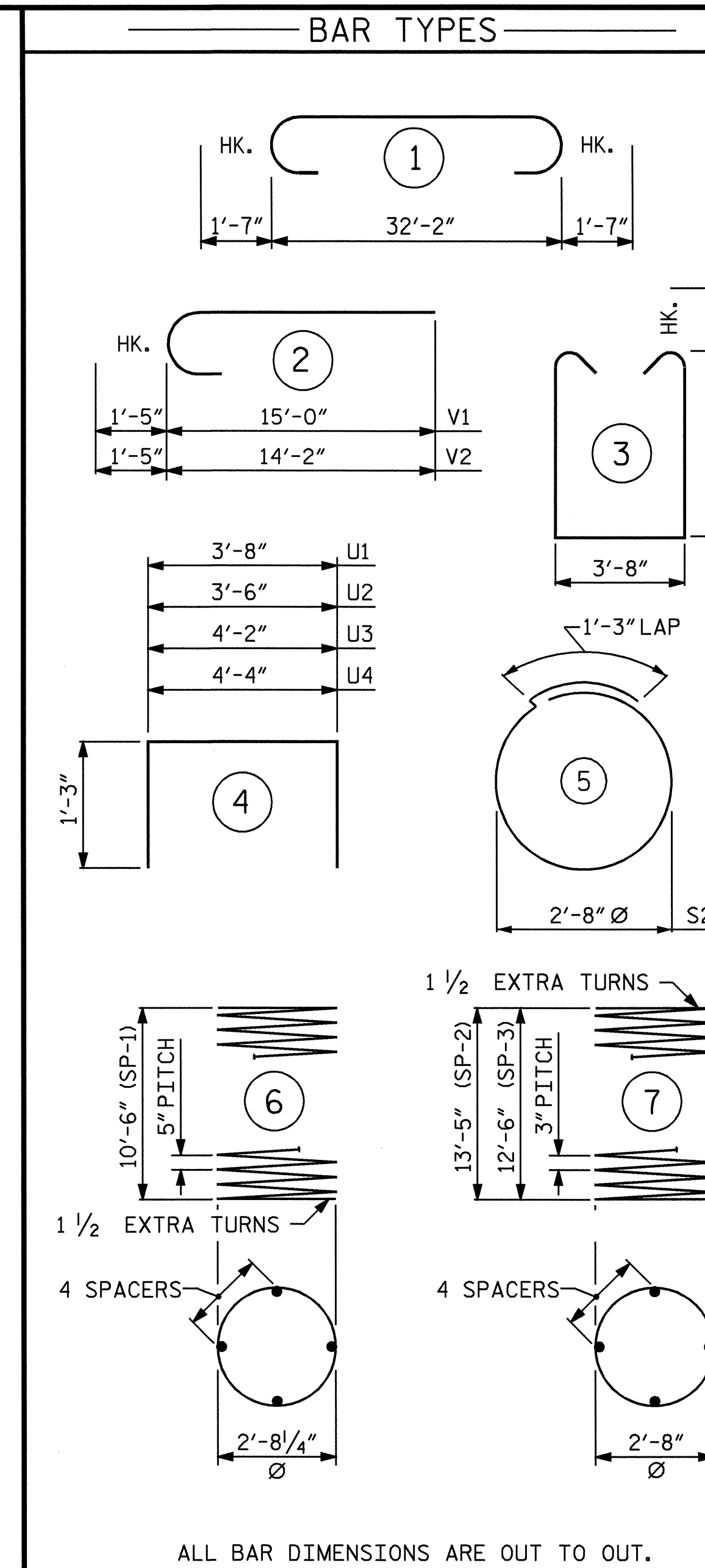


SECTION X-X

SECTION Y-Y



CONSTRUCTION JOINT DETAIL



ALL BAR DIMENSIONS ARE OUT TO OUT.

* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
 ** THE SP-2 & SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

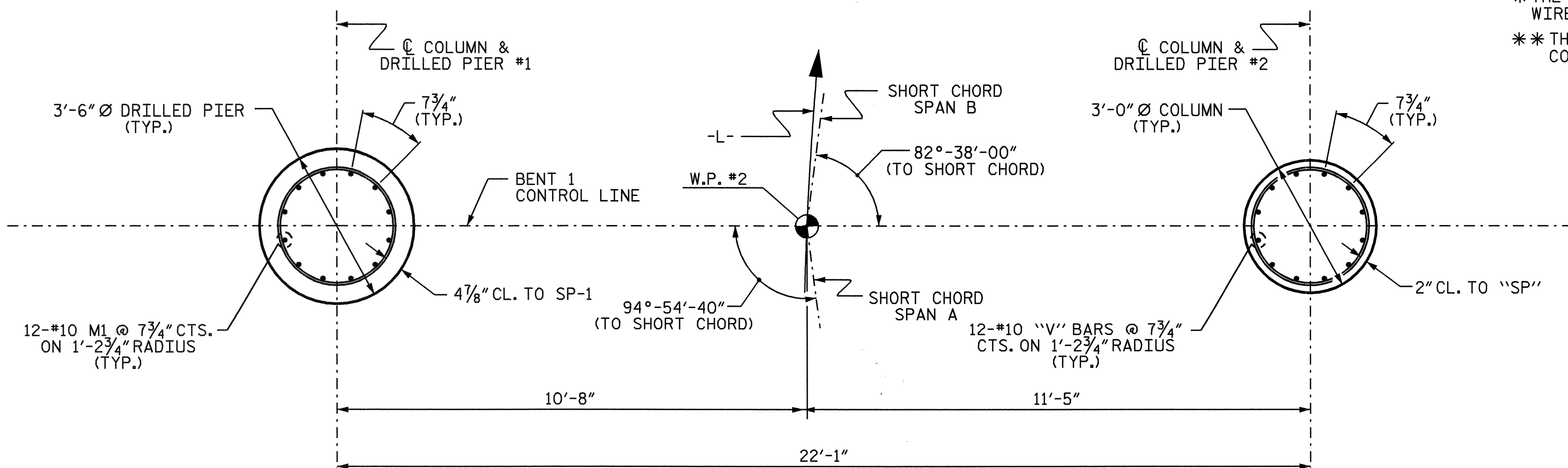
BILL OF MATERIAL

BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#11	1	35'-4"	1126
B2	6	#11	STR	32'-3"	1028
B3	8	#5	STR	32'-3"	269
M1	24	#10	STR	19'-10"	2048
S1	28	#5	3	12'-10"	375
S2	10	#4	5	9'-8"	101
U1	24	#4	4	6'-2"	99
U2	8	#4	4	6'-0"	32
U3	3	#4	4	6'-8"	13
U4	3	#4	4	6'-10"	14
V1	12	#10	2	16'-5"	848
V2	12	#10	2	15'-7"	805
SP-1	2	*	6	219'-8"	458
SP-2	1	**	7	455'-6"	304
SP-3	1	**	7	424'-11"	284

REINFORCING STEEL	=	6722 LBS
SPIRAL COLUMN REINFORCING STEEL	=	1046 LBS.
CLASS A CONCRETE :		
POUR #2 (COLUMNS)		6.6 C.Y.
POUR #3 (CAP)		22.7 C.Y.
TOTAL		29.3 C.Y.

DRILLED PIERS

DRILLED PIER CONCRETE		
POUR #1 (DRILLED PIERS)		7.8 C.Y.
3'-6" Ø DRILLED PIERS IN SOIL		7.0 LIN. FT.
3'-6" Ø DRILLED PIERS NOT IN SOIL		15.0 LIN. FT.
PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER :		10.00 LIN. FT.
SID INSPECTION		1 EACH
CROSSHOLE SONIC LOGGING		1 EACH
CSL TUBES		108.0 FT.



PLAN OF DRILLED PIERS

PLAN OF COLUMNS

PLAN OF COLUMNS AND DRILLED PIERS

(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL COLUMNS AND DRILLED PIERS)

DRAWN BY : J.B. WILSON DATE : 8/3/05
 CHECKED BY : K.P. SEDA DATE : 8/15/05

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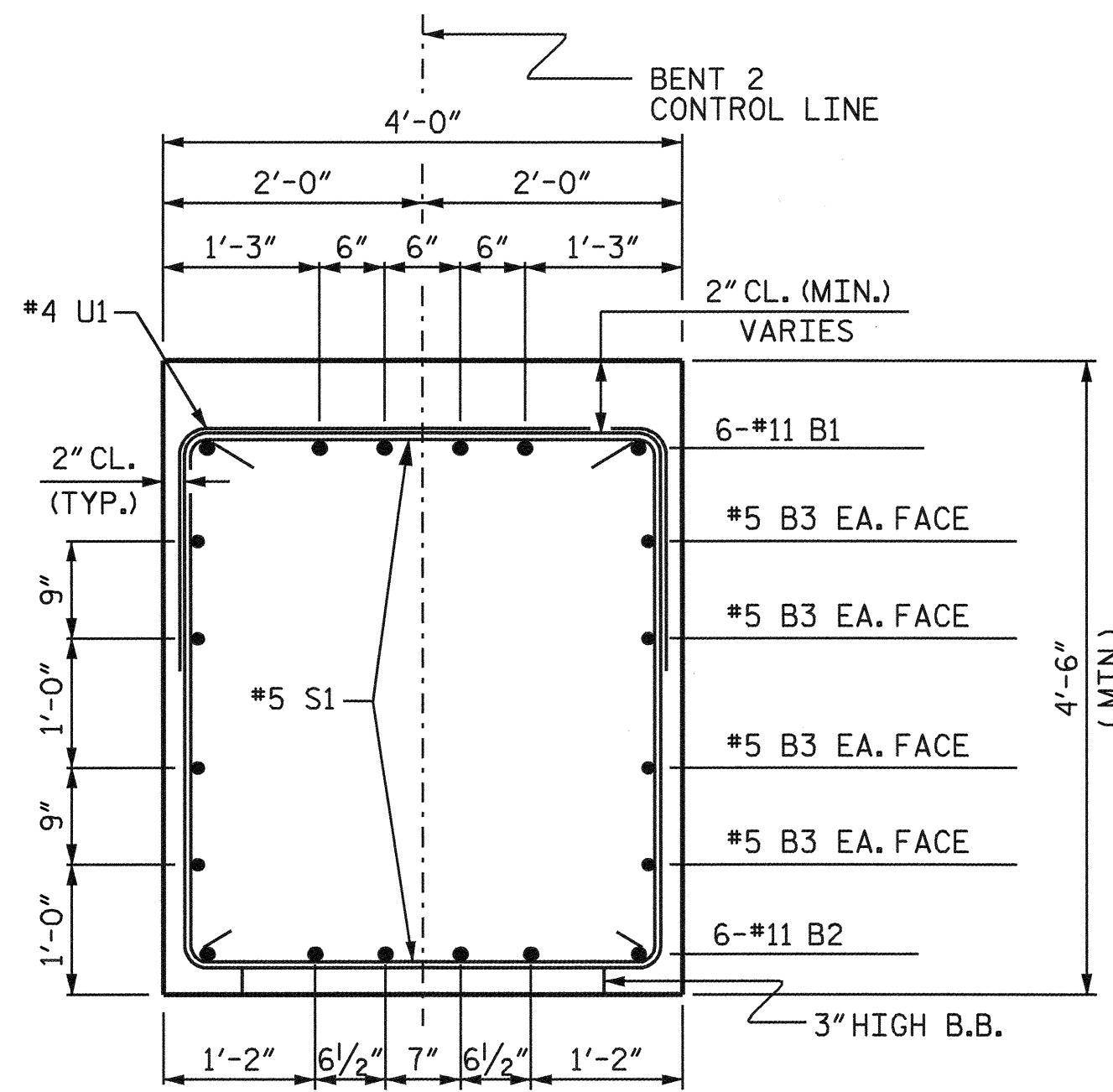
PROJECT NO. B-3872
 McDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 2 OF 2

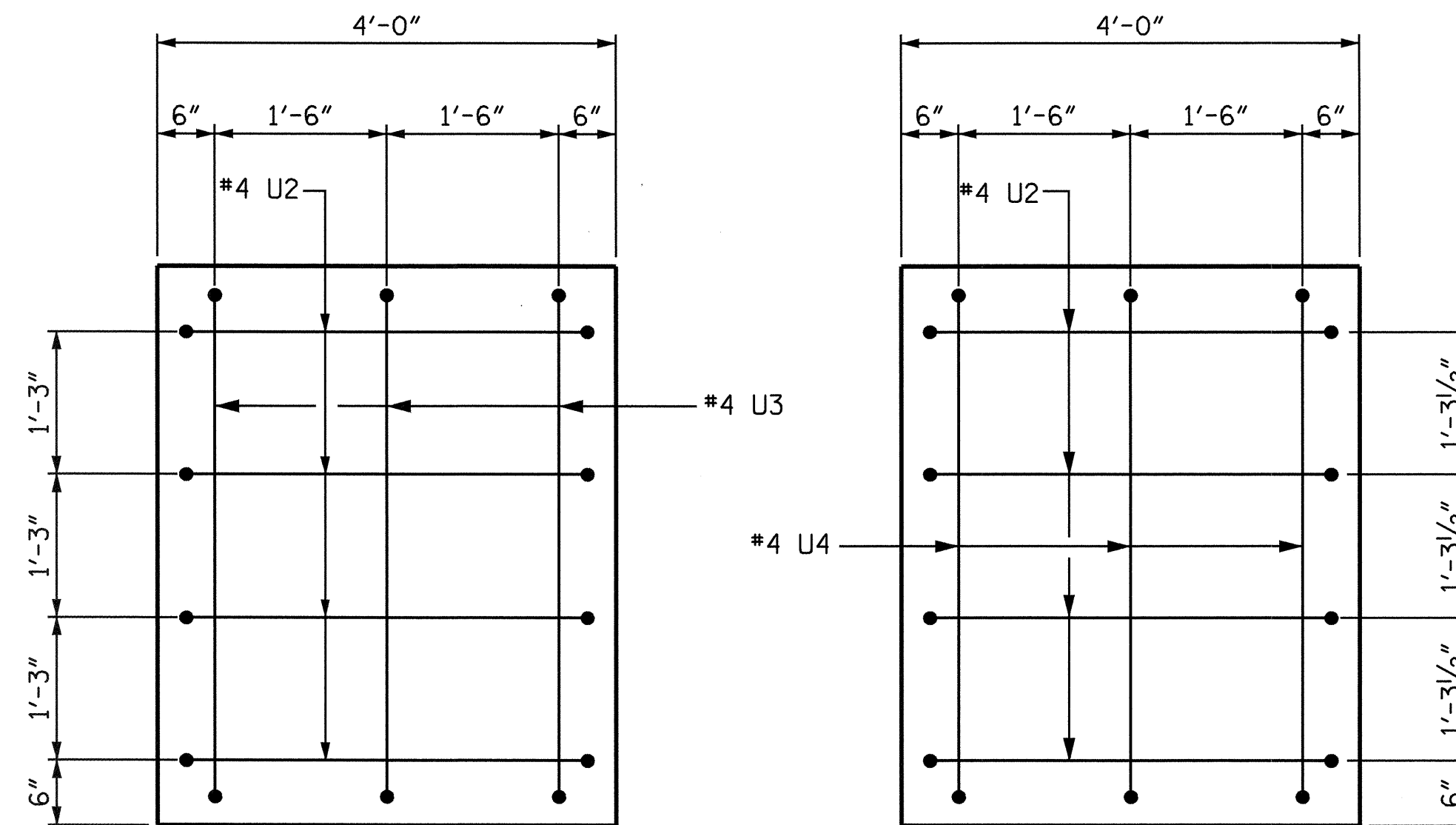
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			36

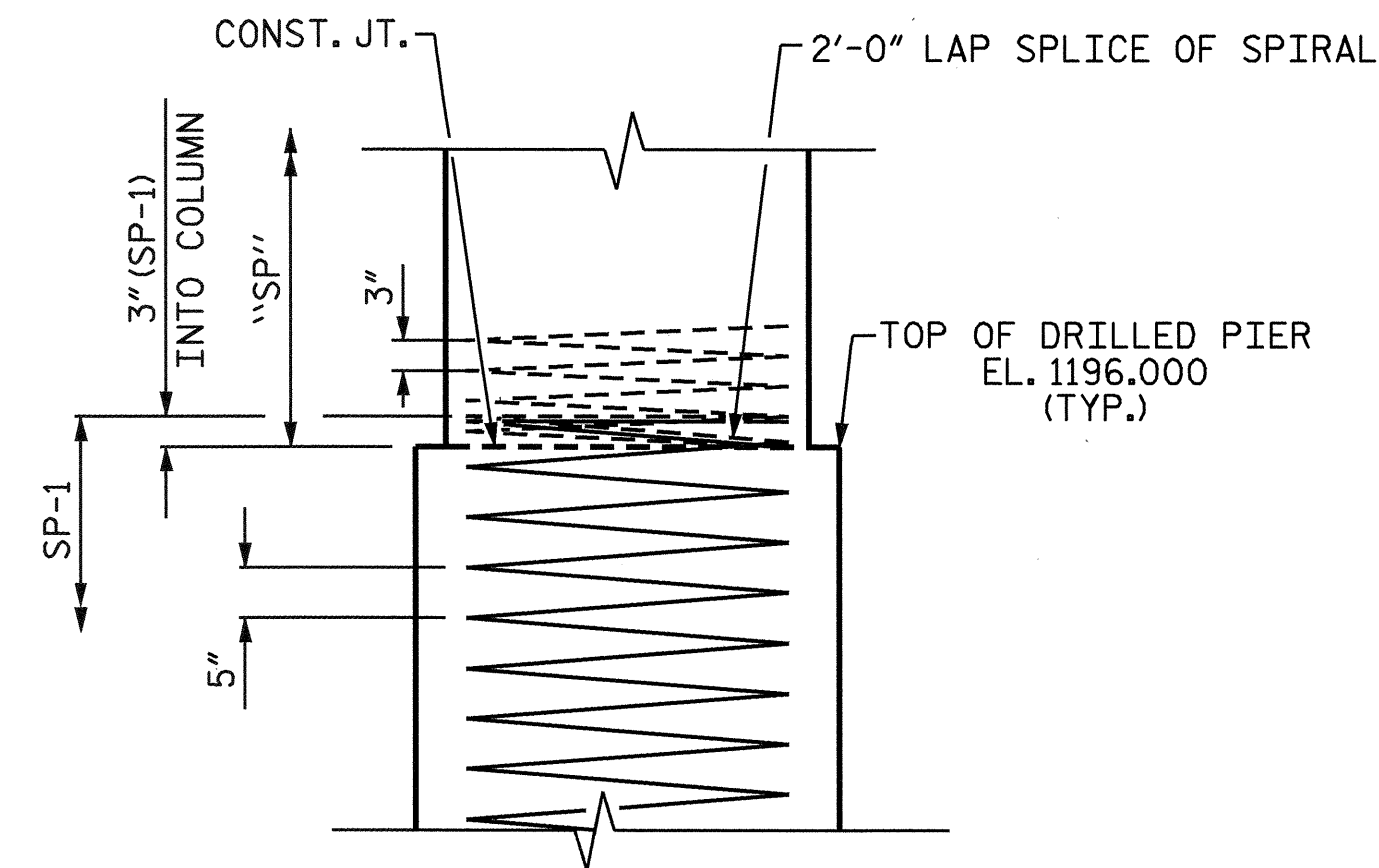


SECTION A-A

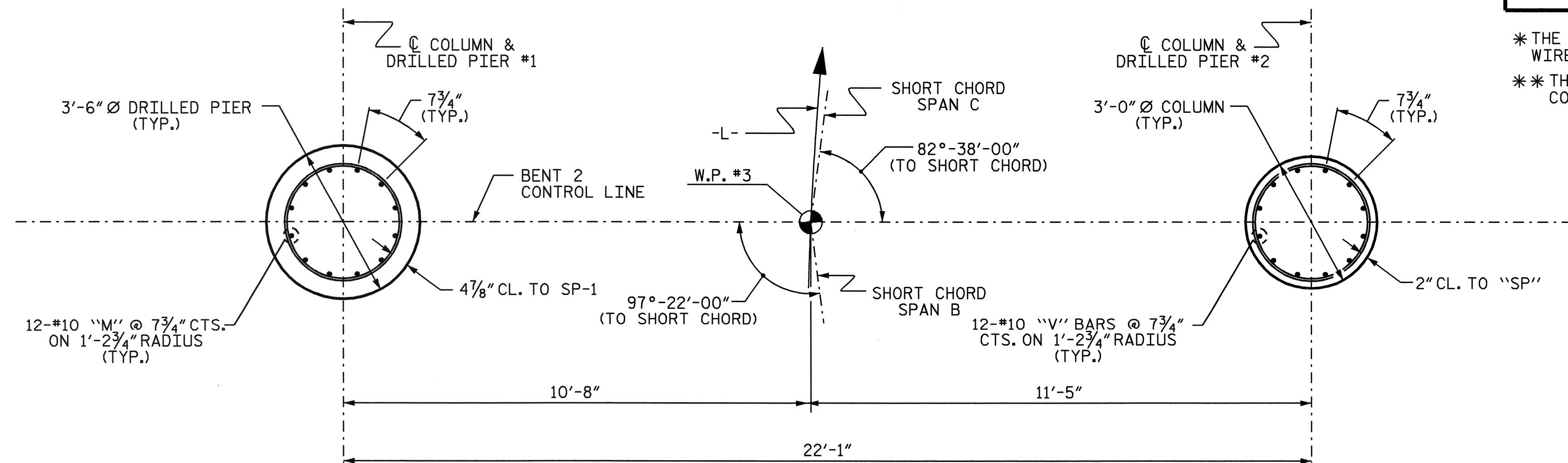


SECTION X-X

SECTION Y-Y



CONSTRUCTION JOINT DETAIL

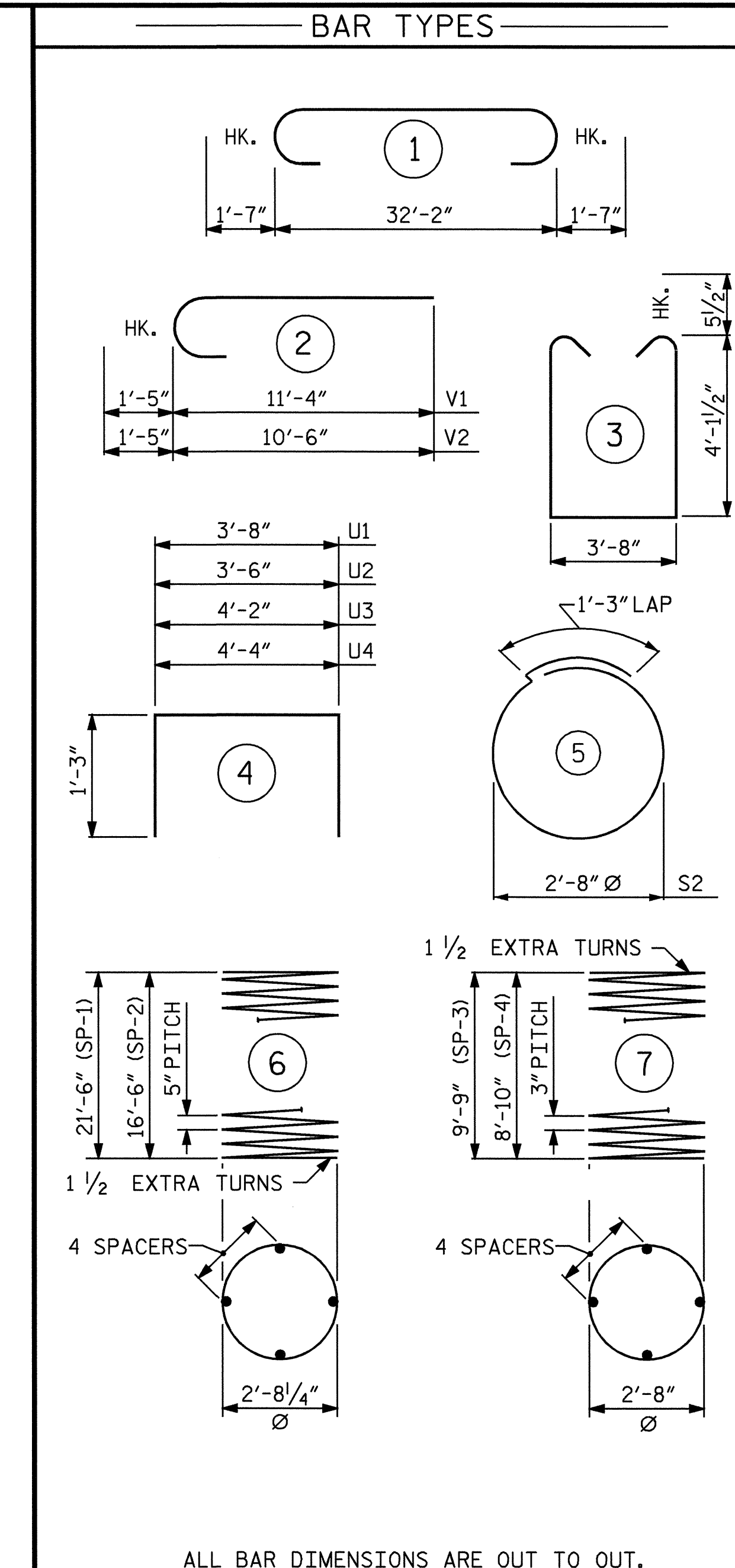


PLAN OF DRILLED PIERS

PLAN OF COLUMNS

PLAN OF COLUMNS AND DRILLED PIERS

(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL COLUMNS AND DRILLED PIERS)



ALL BAR DIMENSIONS ARE OUT TO OUT.

* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
 ** THE SP-2 & SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

BILL OF MATERIAL

BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#11	1	35'-4"	1126
B2	6	#11	STR	32'-3"	1028
B3	8	#5	STR	32'-3"	269
M1	12	#10	STR	30'-10"	1592
M2	12	#10	STR	25'-10"	1334
S1	28	#5	3	12'-10"	375
S2	10	#4	5	9'-8"	101
U1	24	#4	4	6'-2"	99
U2	8	#4	4	6'-0"	32
U3	3	#4	4	6'-8"	13
U4	3	#4	4	6'-10"	14
V1	12	#10	2	12'-9"	658
V2	12	#10	2	11'-11"	615
SP-1	1	*	6	438'-0"	457
SP-2	1	**	6	339'-4"	354
SP-3	1	**	7	334'-2"	223
SP-4	1	**	7	303'-8"	203

REINFORCING STEEL	=	7220 LBS
SPIRAL COLUMN REINFORCING STEEL	=	1237 LBS.
CLASS A CONCRETE :		
POUR #2 (COLUMNS)		4.7
POUR #3 (CAP)		22.7 C.Y.
TOTAL		27.4 C.Y.

DRILLED PIERS

DRILLED PIER CONCRETE		
POUR #1 (DRILLED PIERS)		13.9 C.Y.
3'-6" Ø DRILLED PIERS IN SOIL		28.0 LIN. FT.
3'-6" Ø DRILLED PIERS NOT IN SOIL		11.0 LIN. FT.

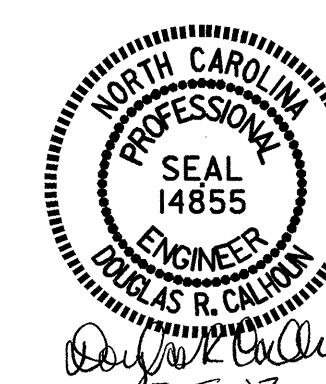
PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER :		18.00 LIN. FT.
SID INSPECTION		1 EACH
CROSSHOLE SONIC LOGGING		1 EACH
CSL TUBES		176.00 FT.

PROJECT NO. B-3872
McDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 2 OF 2

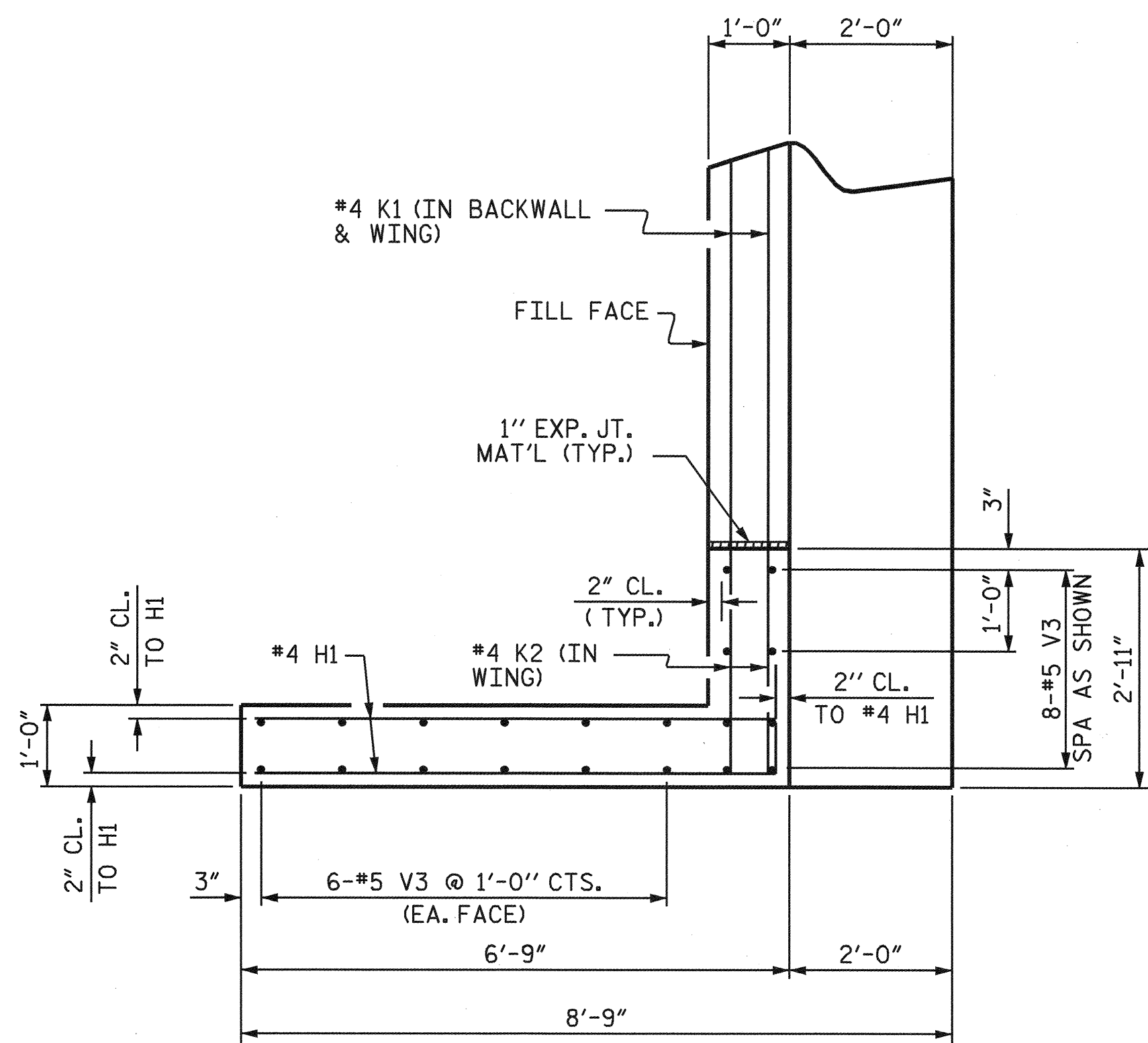
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 2

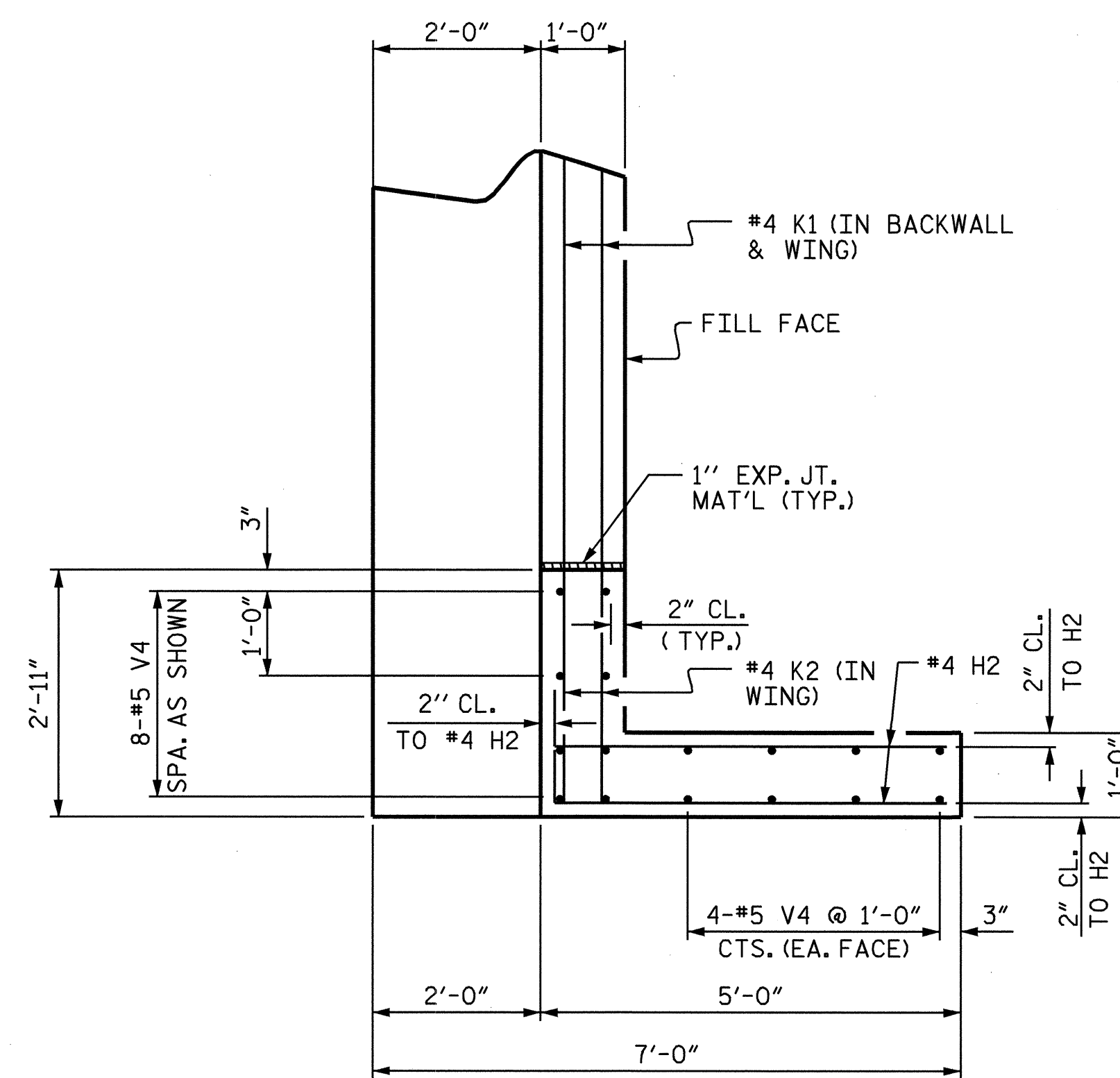


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NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
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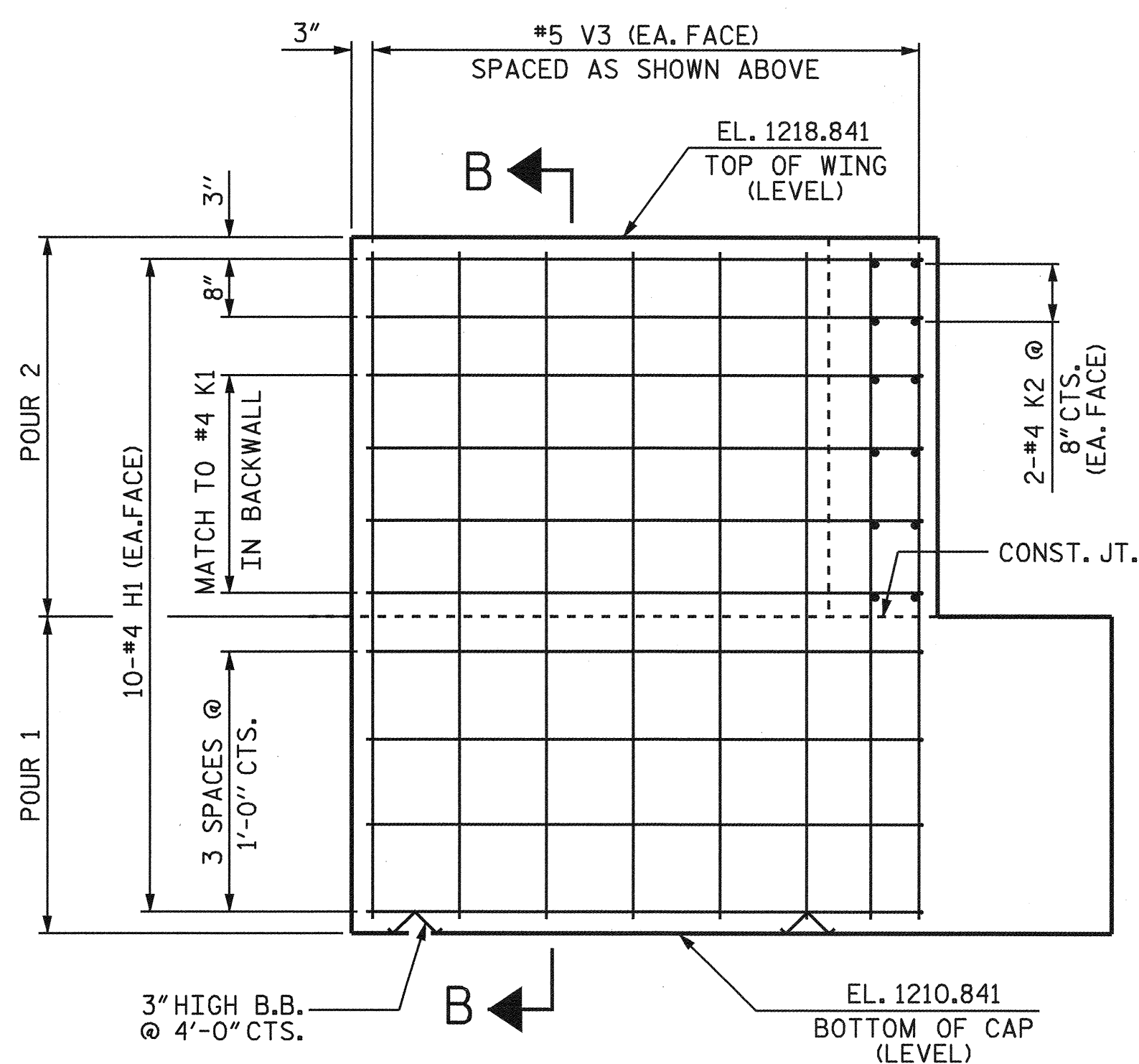
DRAWN BY : J.B. WILSON DATE : 8/3/05
 CHECKED BY : K.P. SEDAII DATE : 8/15/05



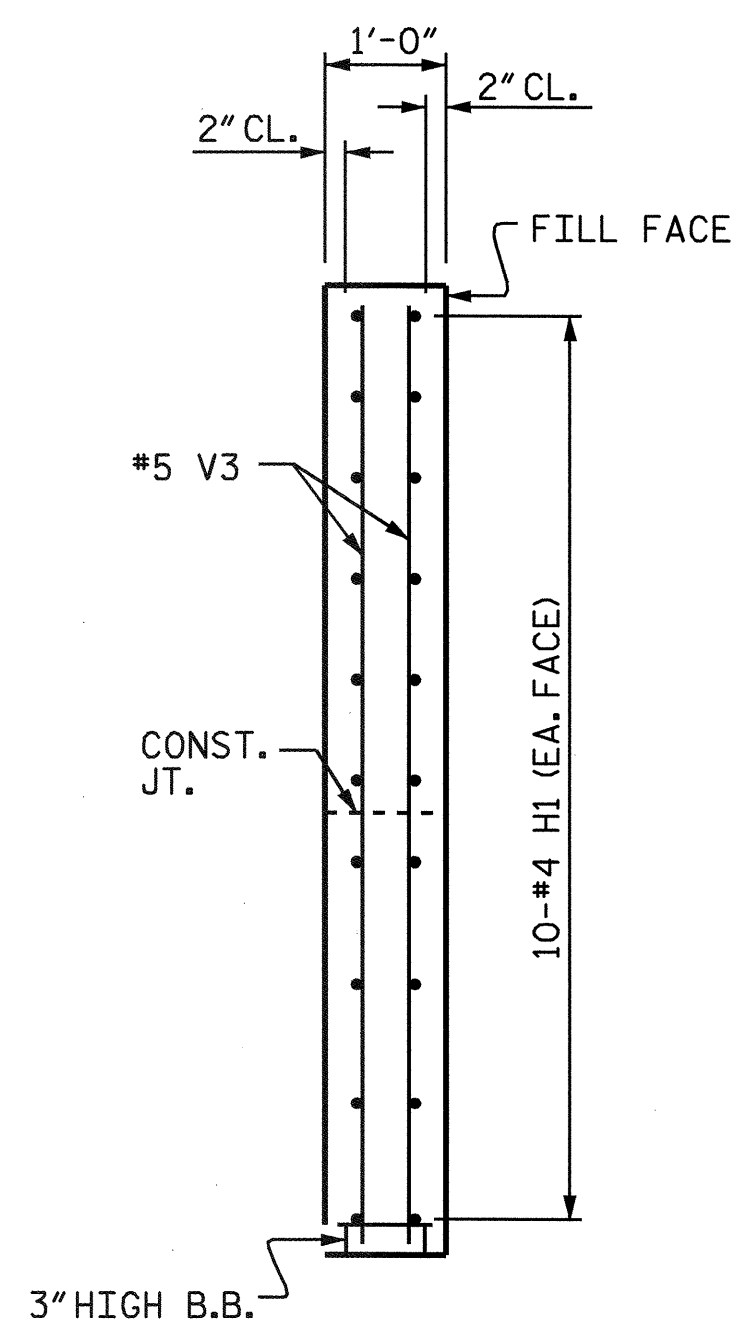
PLAN OF WING - W1



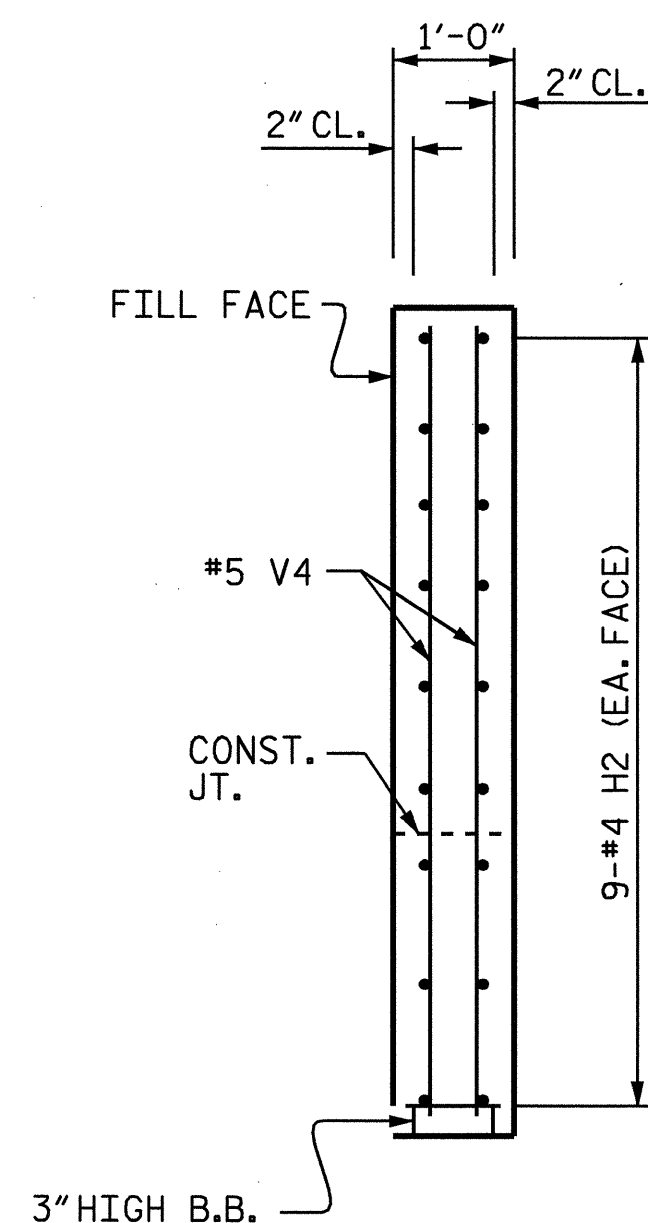
PLAN OF WING - W2



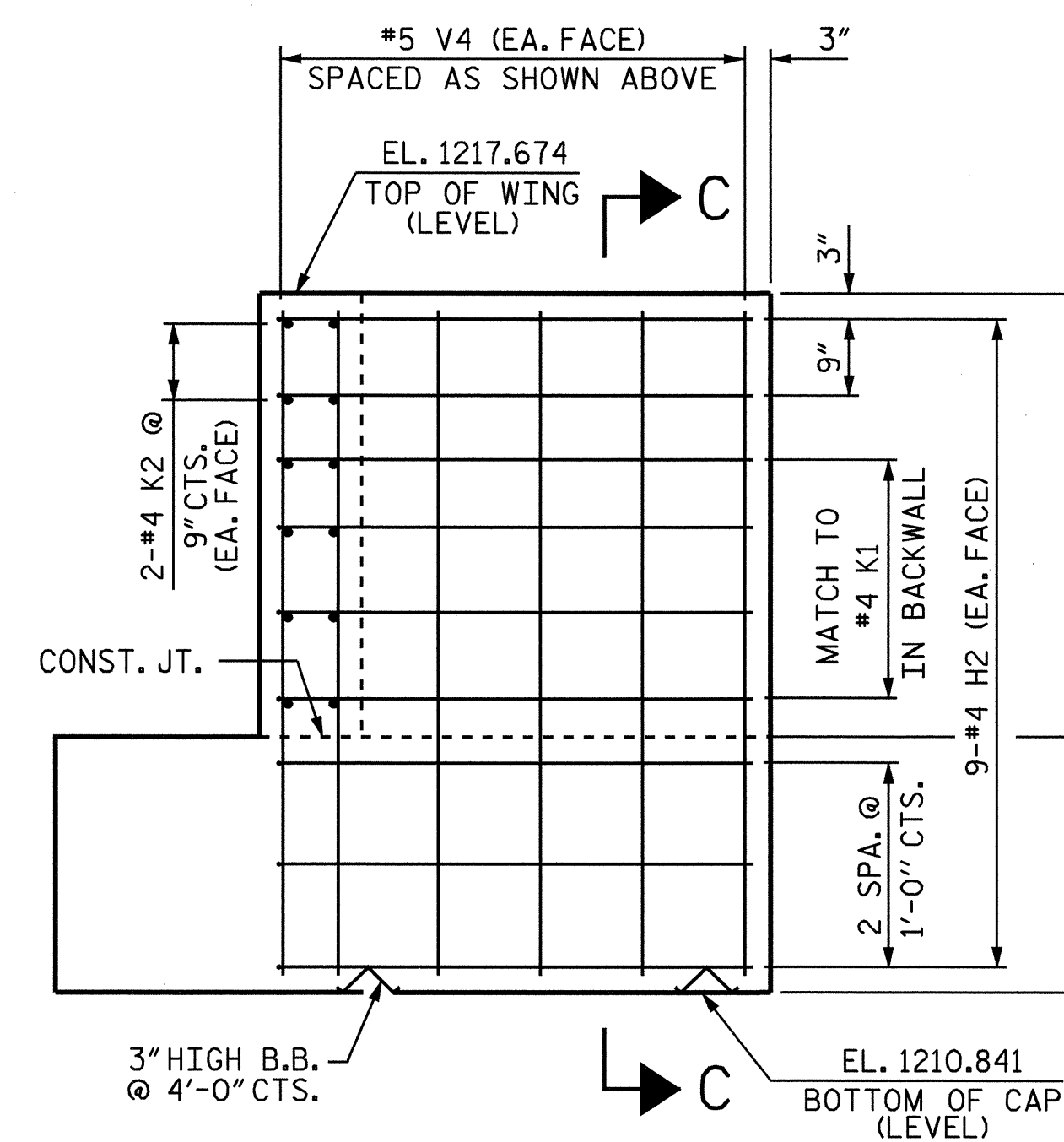
ELEVATION OF WING - W1



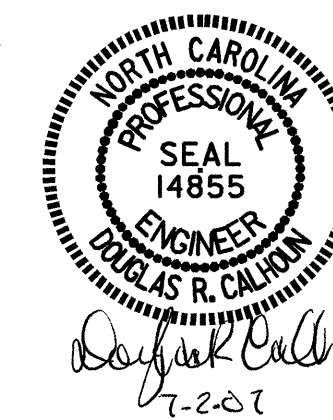
SECTION B-B



SECTION C-C



ELEVATION OF WING - W2

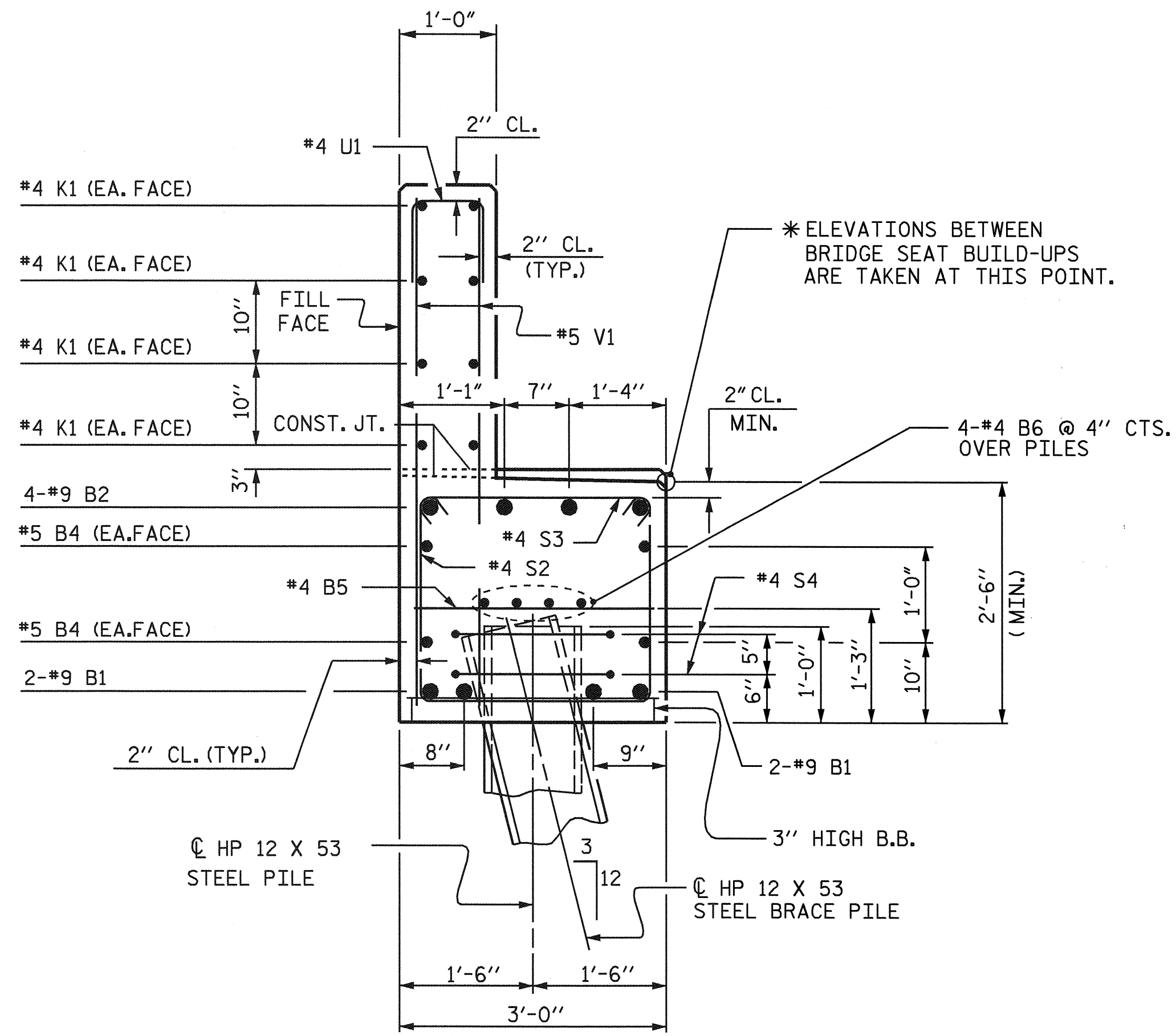


PROJECT NO. B-3872
McDOWELL COUNTY
 STATION: 14+26.50 -L-
 SHEET 2 OF 3

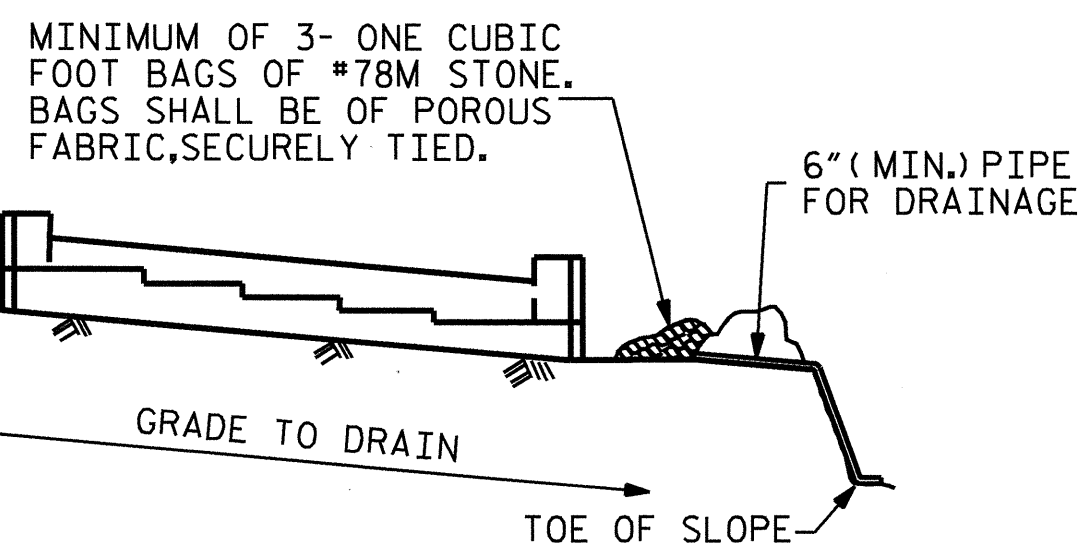
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 2					
SHEET NO. S-30					
TOTAL SHEETS 36					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY: J.MYA DATE: 7/2/05
 CHECKED BY: T.A. HARRIS DATE: 8/4/05

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SECTION A-A

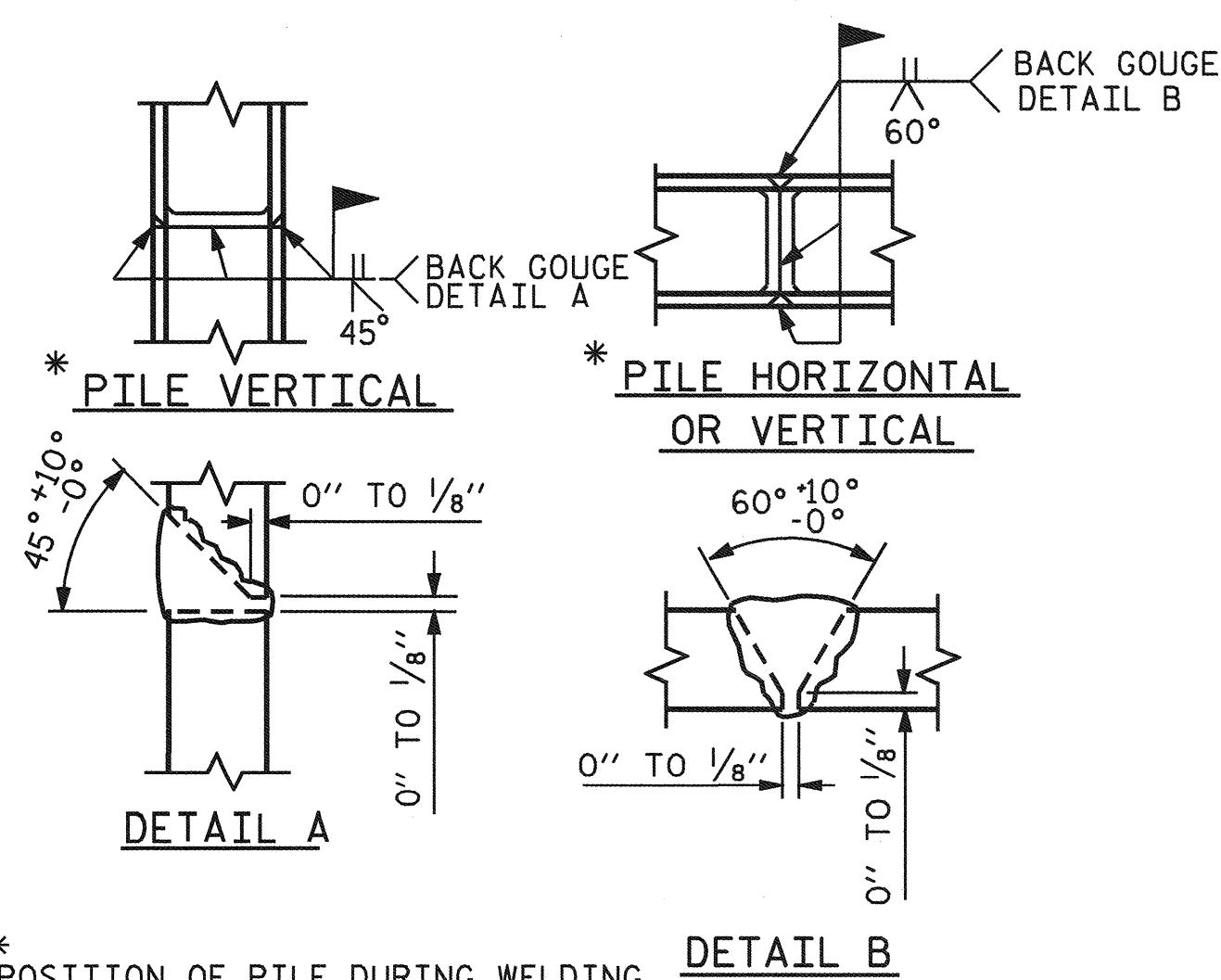


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

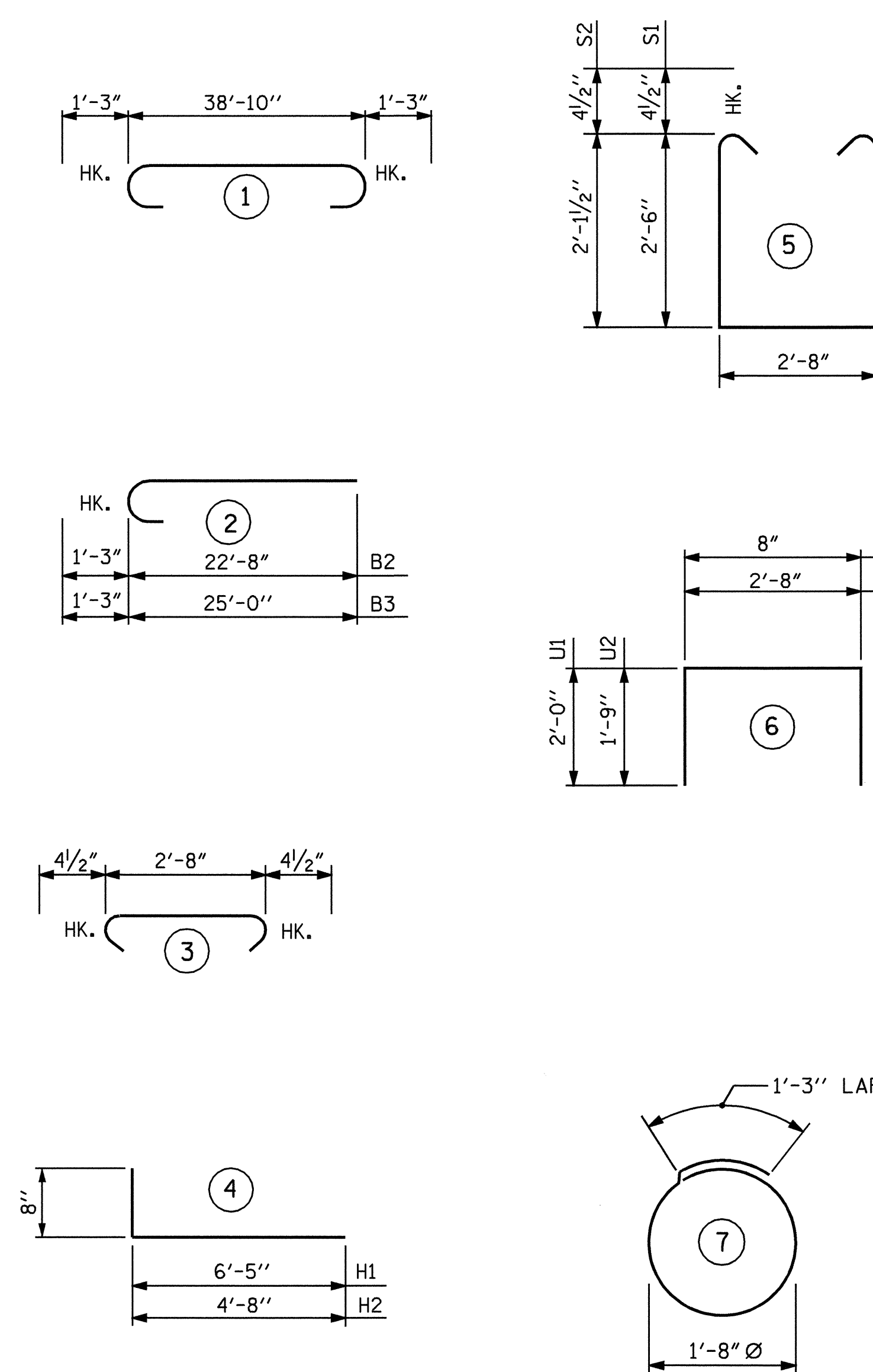
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2

BAR NO	SIZE	TYPE	LENGTH	WEIGHT	
B1	4	9	1	41'-4"	562
B2	4	9	2	23'-11"	325
B3	4	9	2	26'-3"	357
B4	4	5	STR	38'-11"	162
B5	12	4	STR	2'-8"	22
B6	8	4	STR	20'-8"	110
B7	4	4	STR	9'-6"	25
B8	4	4	STR	5'-11"	16
H1	20	4	4	7'-1"	95
H2	18	4	4	5'-4"	64
K1	16	4	STR	20'-8"	221
K2	8	4	STR	2'-7"	14
S1	26	4	5	8'-5"	146
S2	15	4	5	7'-8"	77
S3	41	4	3	3'-5"	94
S4	12	4	7	6'-6"	52
U1	34	4	6	4'-8"	106
U2	11	4	6	6'-2"	45
V1	34	5	STR	5'-0"	177
V2	34	5	STR	5'-9"	204
V3	20	5	STR	7'-8"	160
V4	16	5	STR	6'-6"	108

REINFORCING STEEL	LBS.	3142
CLASS A CONCRETE BREAKDOWN		
POUR 1 CAP & (LOWER PART OF WING)	C.Y.	14.4
POUR 2 (BACKWALL & UPPER PART OF WING)	C.Y.	6.7
TOTAL	C.Y.	21.1

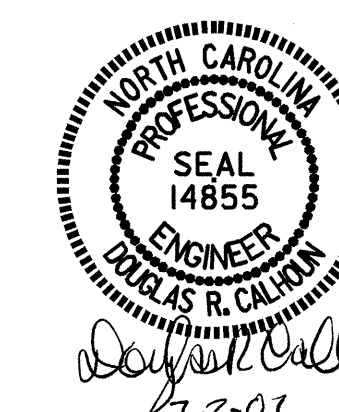
HP 12X53 STEEL PILES :	NO. 6	FT.	210
STEEL PILE POINTS :	EA.		6

PROJECT NO. B-3872
MCDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2



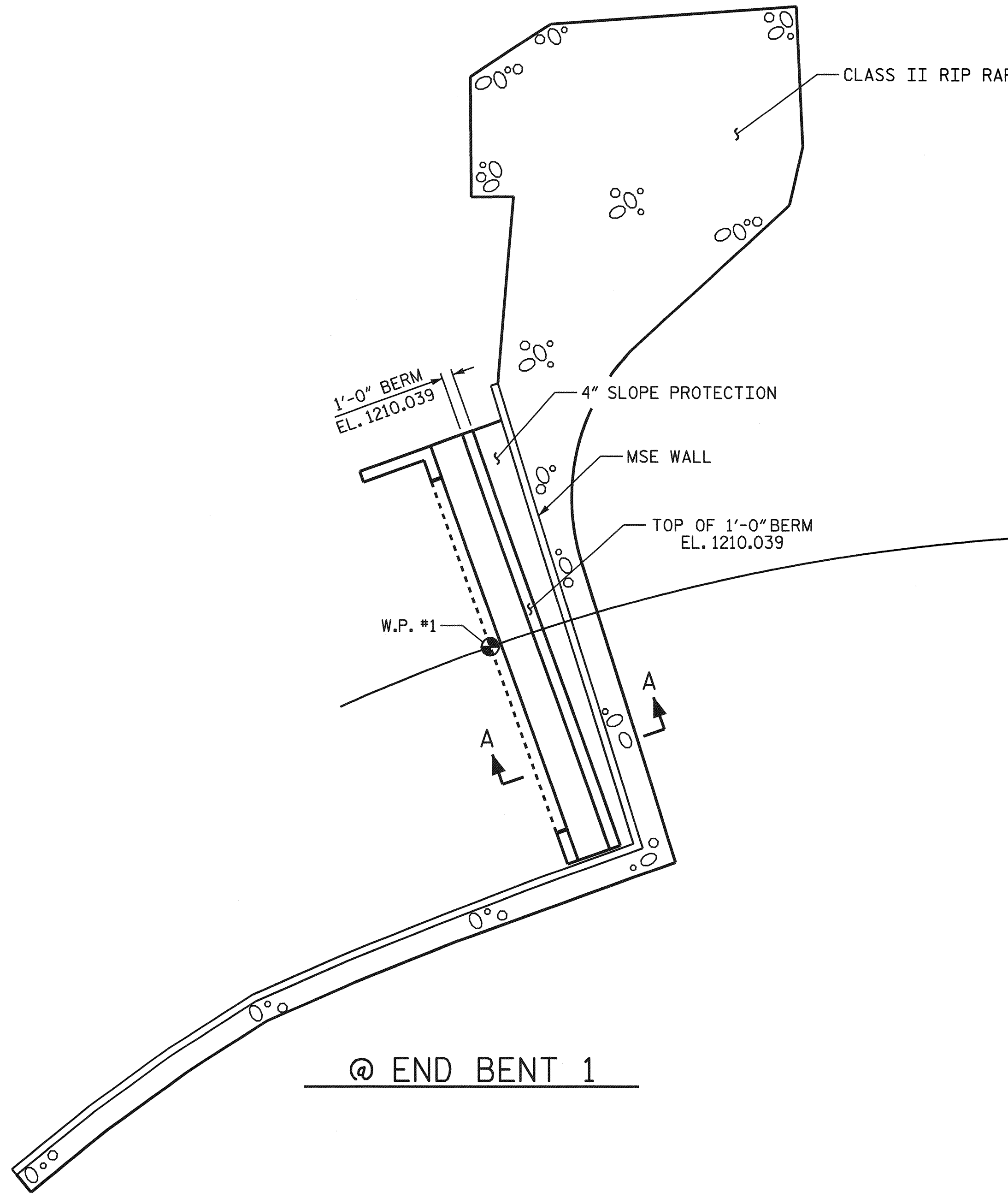
REVISIONS

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

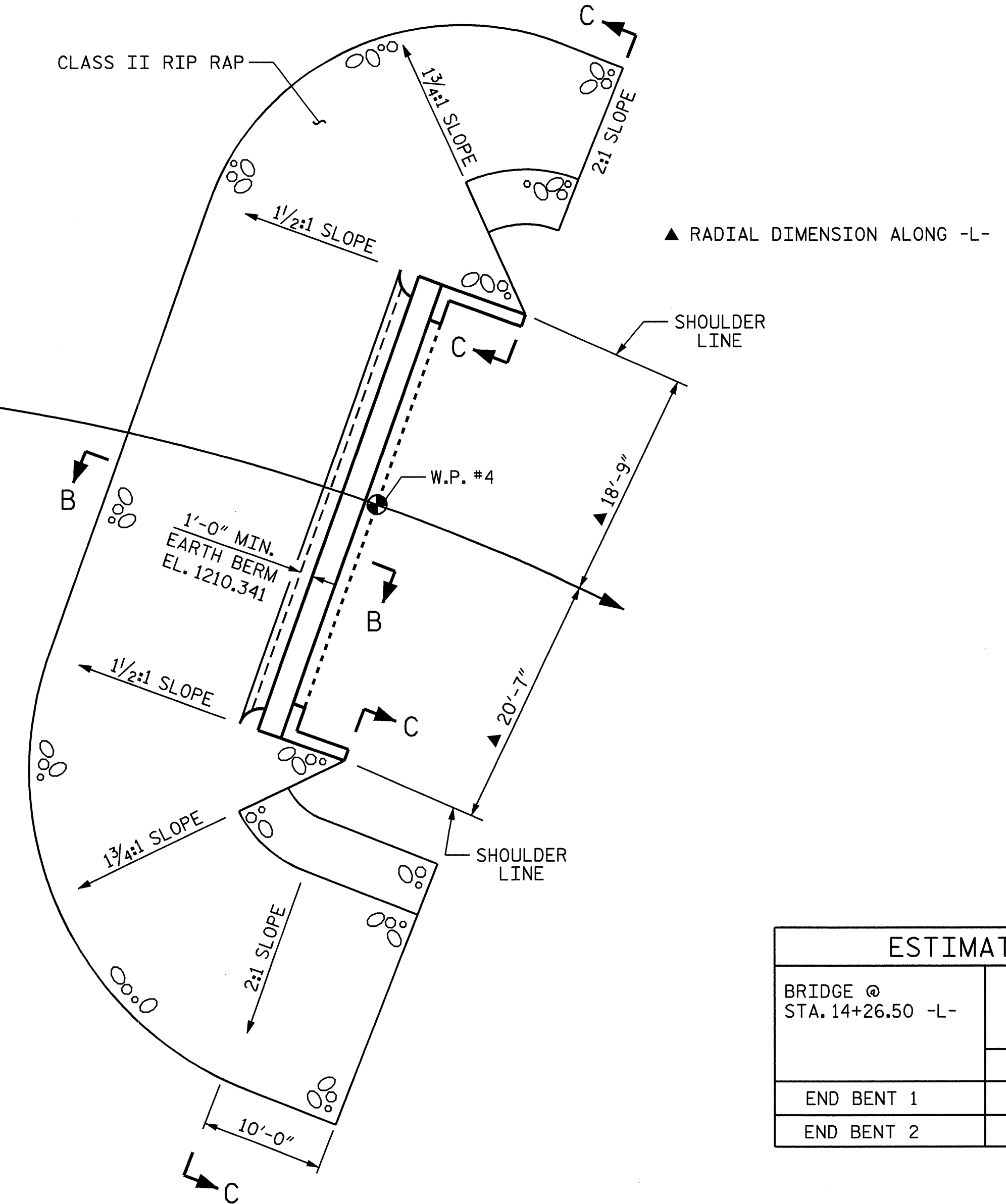
SHEET NO.	S-31
TOTAL SHEETS	36

DRAWN BY : J. MYA DATE : 7/2/05
 CHECKED BY : T. A. HARRIS DATE : 8/4/05

NOTES:
 FOR ADDITIONAL SLOPE PROTECTION AND MSE WALL
 DETAILS, SEE "MSE RETAINING WALL DETAILS" SHEETS.



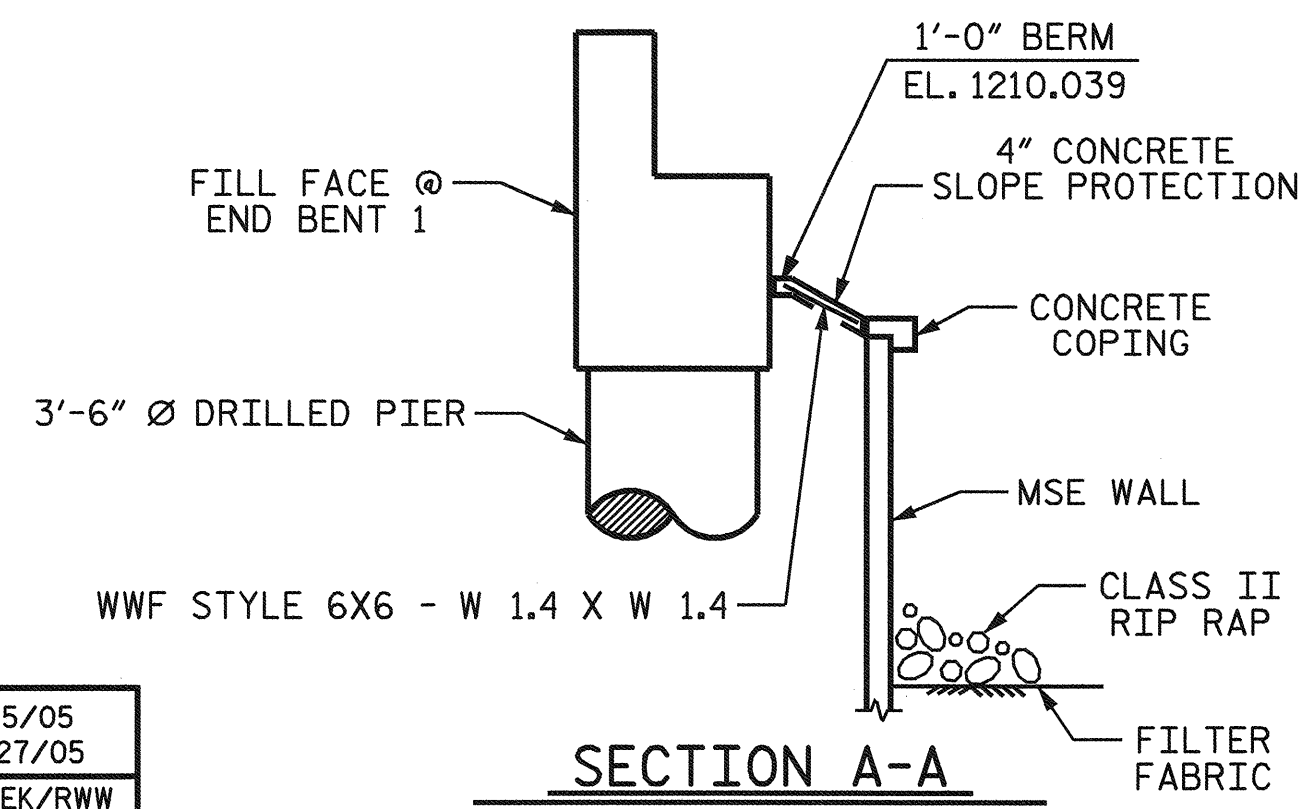
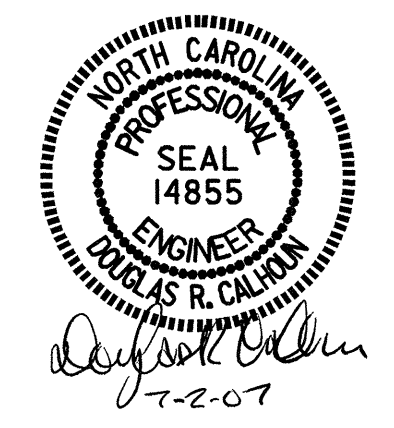
@ END BENT 1



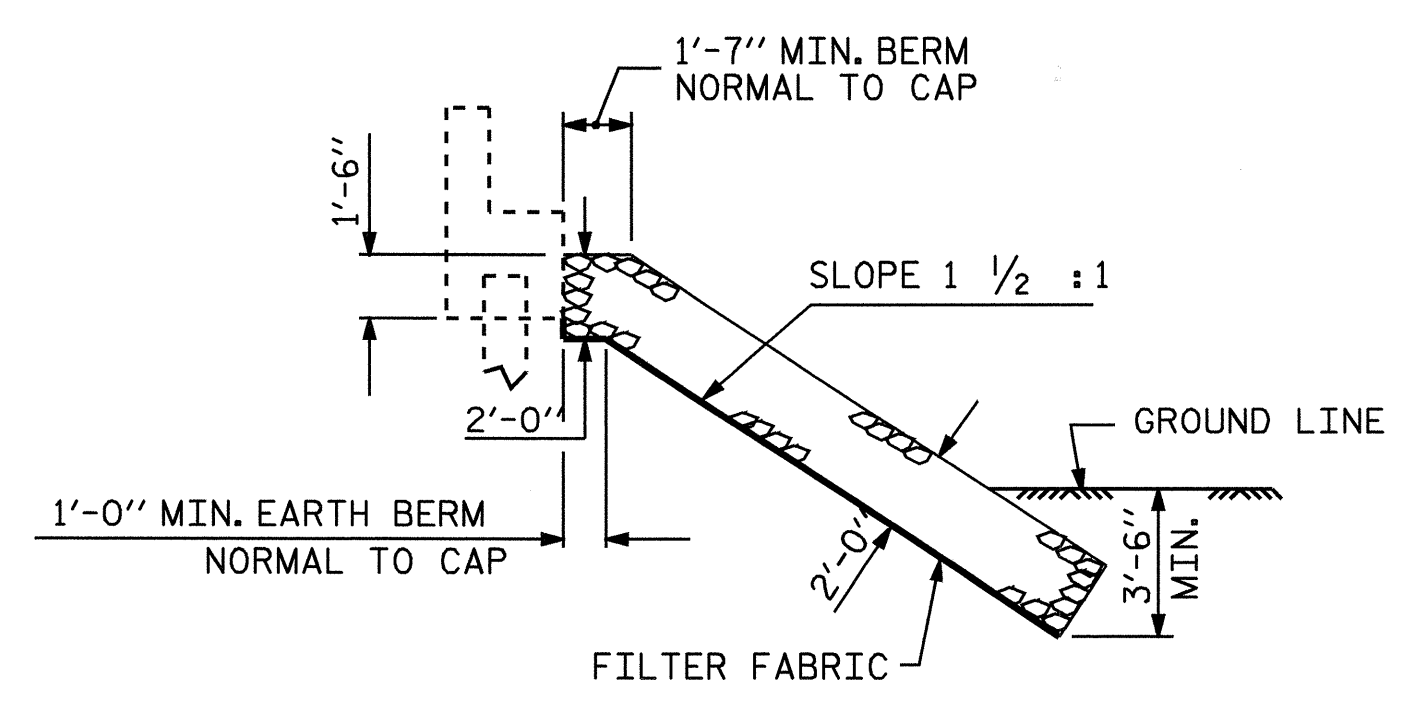
@ END BENT 2

PLAN OF RIP RAP & SLOPE PROTECTION

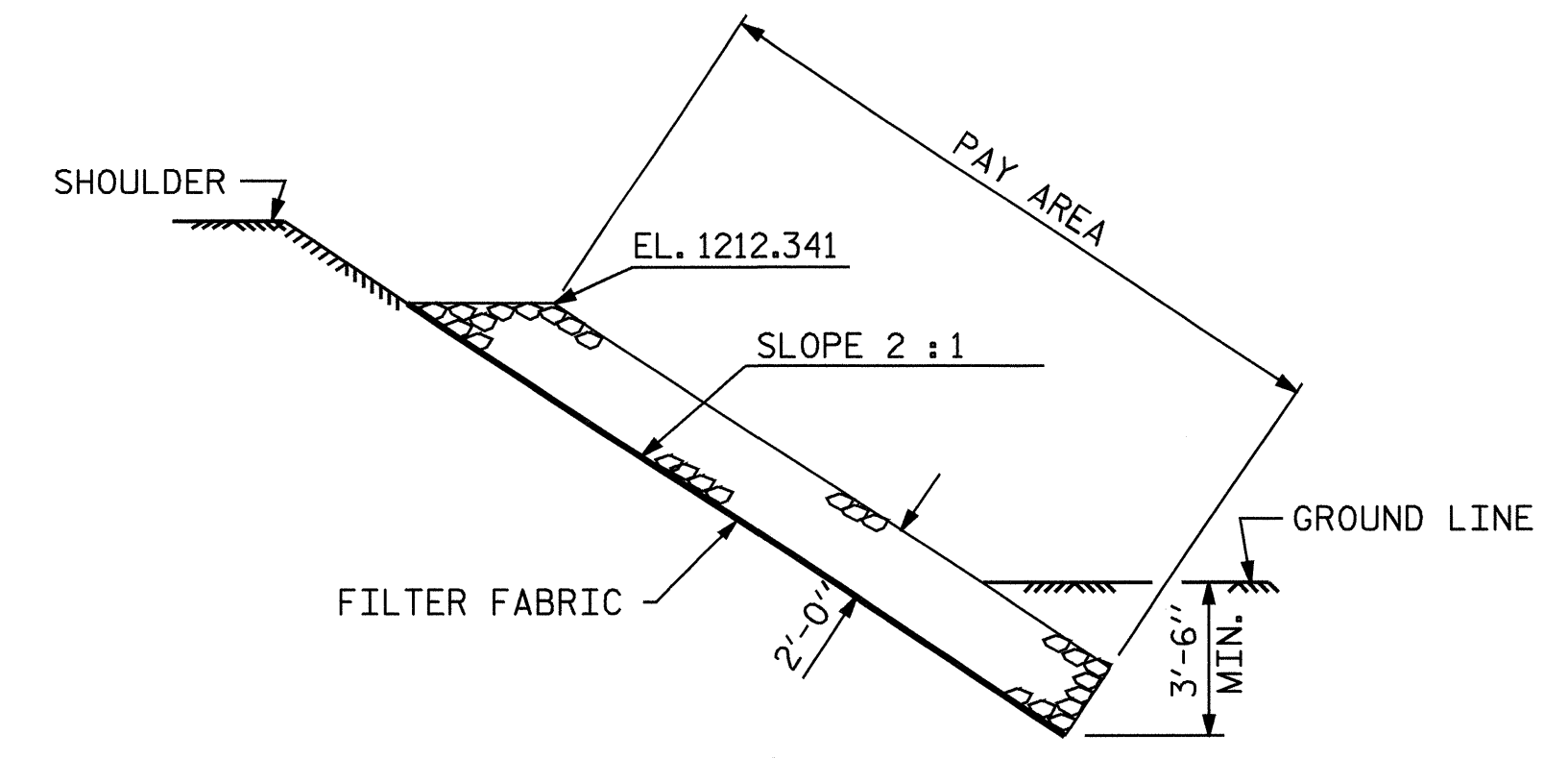
ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+26.50 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	103	114
END BENT 2	255	283



SECTION A-A



SECTION B-B



SECTION C-C

PROJECT NO. B-3872
MCDOWELL COUNTY
 STATION: 14+26.50 -L-

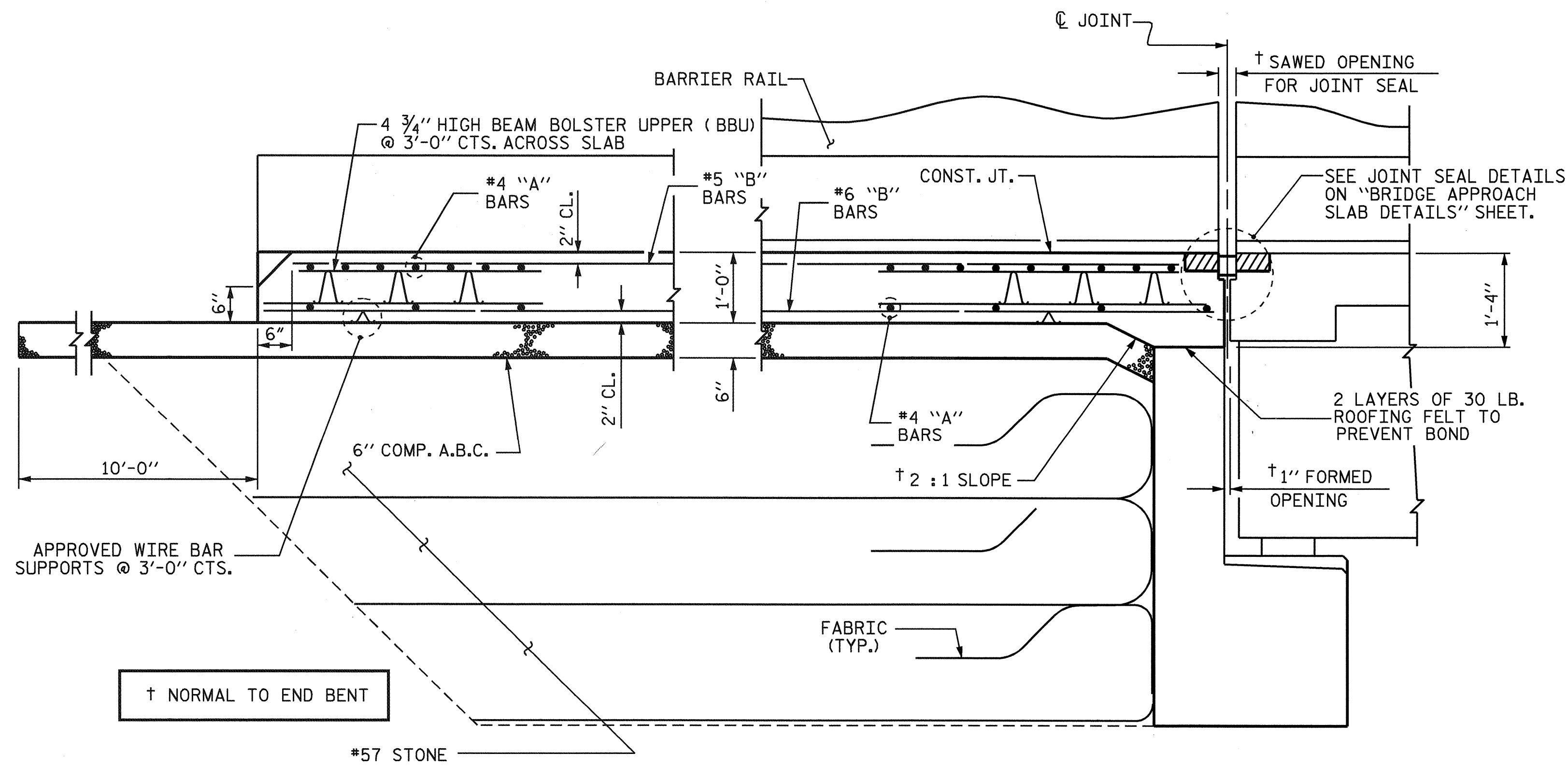
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**RIP RAP AND
 SLOPE PROTECTION
 DETAILS**

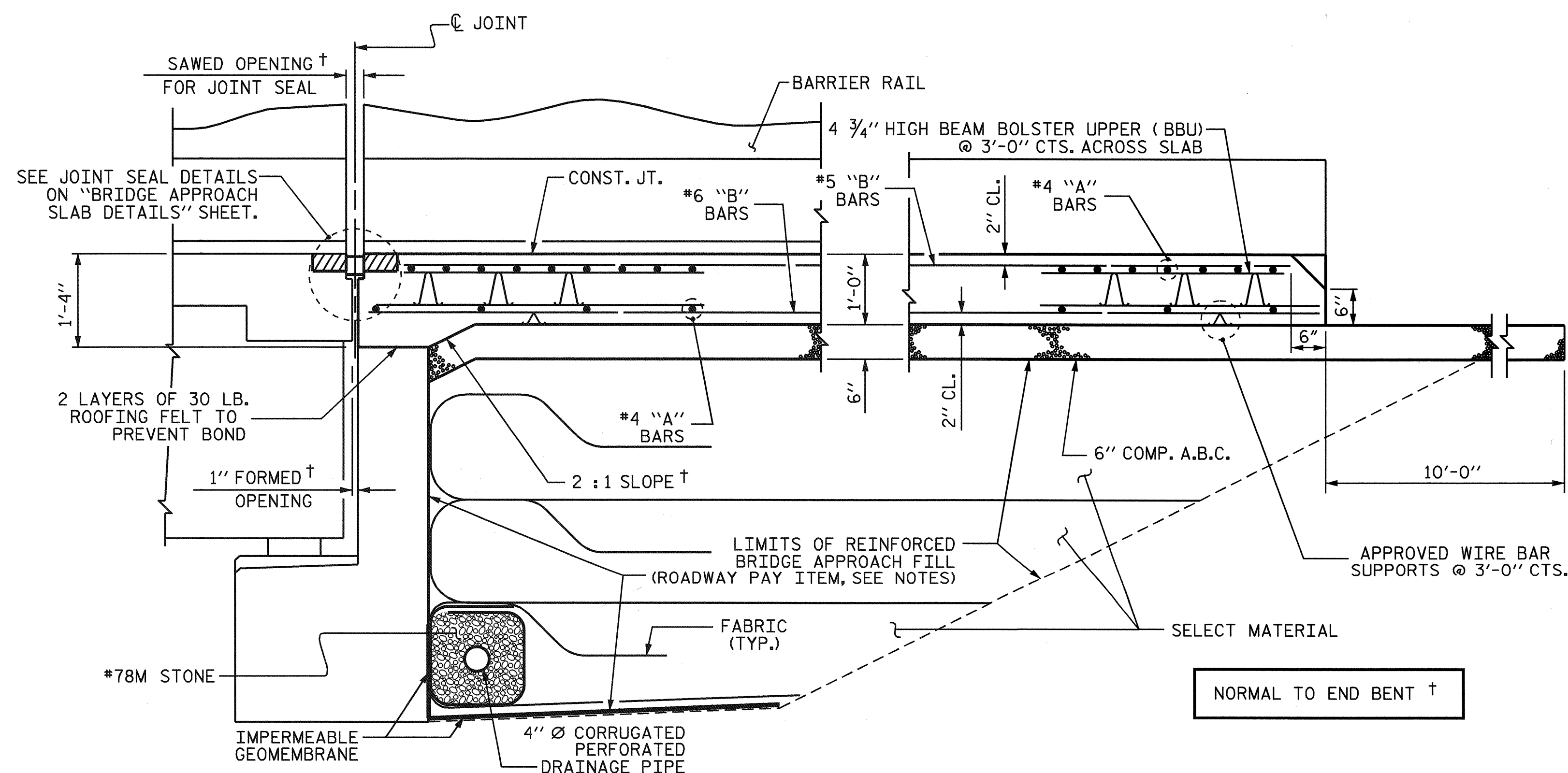
ASSEMBLED BY : T. A. HARRIS	DATE : 8/15/05
CHECKED BY : W. ARAFAT	DATE : 9/27/05
DRAWN BY : FCJ 2/88	REV. 7/17/98
CHECKED BY : ARB 8/88	REV. 8/16/99
	REV. 10/17/00

REK/RWW	
RWW/LES	
RWW/LES	

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			36



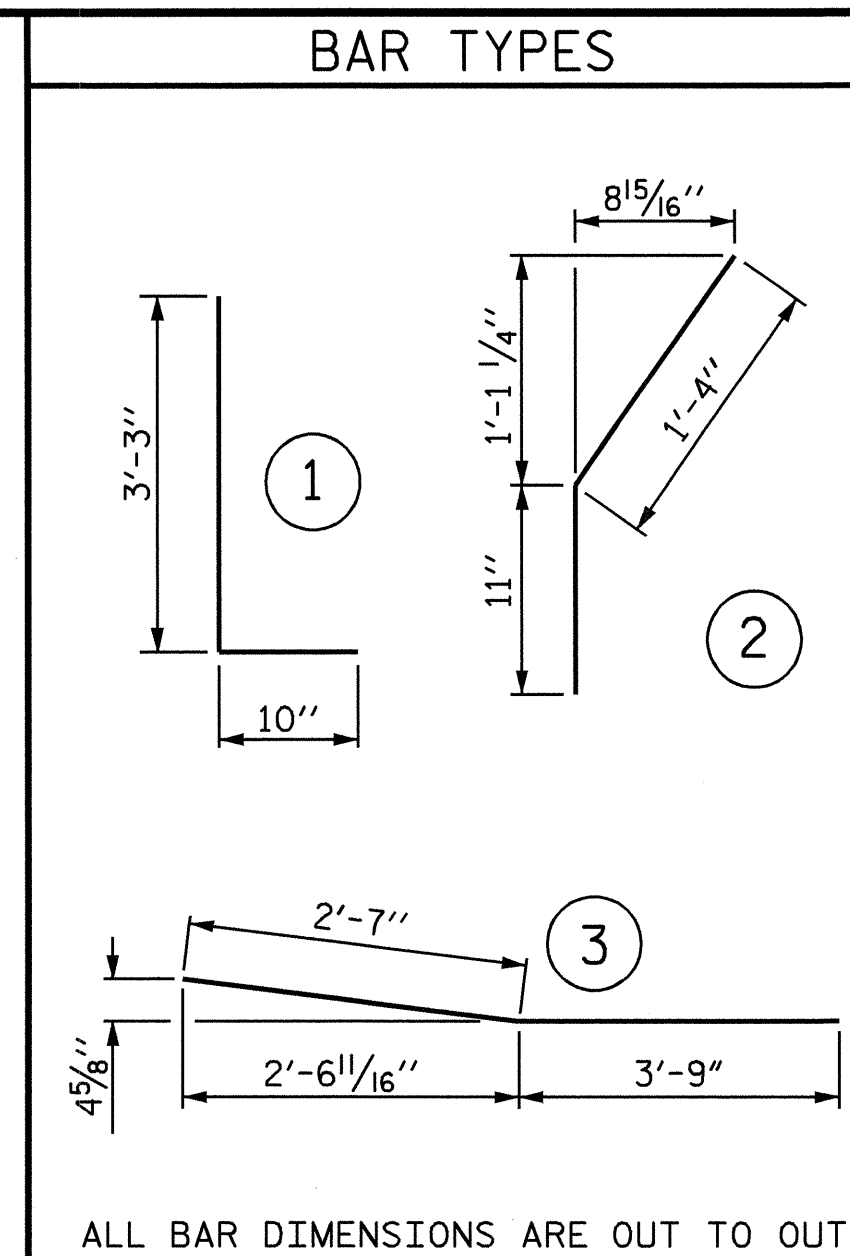
SECTION THRU SLAB @ END BENT 1



SECTION THRU SLAB @ END BENT 2

ASSEMBLED BY : T. A. HARRIS DATE : 8/11/05
 CHECKED BY : T. L. CLELLAND DATE : 8/12/05
 DRAWN BY : LES 8/01 REV. 5/7/03R RWW/JTE
 CHECKED BY : RDR 8/01 REV. 5/1/06 TLA/GM

29-MAY-2007 11:20
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ALL BAR DIMENSIONS ARE OUT TO OUT

BAR TYPES						BILL OF MATERIAL							
						END BENT 1 - STAGE 1			END BENT 1 - STAGE 2				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
*A1	14	#4	STR	27'-8"	259	*A3	14	#4	STR	7'-3"	68		
A2	14	#4	STR	27'-5"	256	A4	14	#4	STR	7'-3"	68		
*B1	102	#5	STR	8'-1"	860	*B1	30	#5	STR	8'-1"	253		
B2	102	#6	STR	8'-4"	1277	B2	30	#6	STR	8'-4"	375		
*B3	7	#5	STR	11'-8"	85	*B4	1	#5	3	6'-4"	7		
*B4	1	#5	3	6'-4"	7	*B5	7	#5	STR	13'-11"	102		
*S1	28	#5	STR	3'-3"	95	*S1	35	#5	STR	3'-3"	119		
*S2	20	#5	1	4'-1"	85	*S2	27	#5	1	4'-1"	115		
*S3	10	#5	2	2'-3"	23	*S3	10	#5	2	2'-3"	23		
REINFORCING STEEL					LBS.	1533	REINFORCING STEEL					LBS.	443
*EPOXY COATED REINFORCING STEEL					LBS.	1414	*EPOXY COATED REINFORCING STEEL					LBS.	687
CLASS AA CONCRETE BREAKDOWN						CLASS AA CONCRETE BREAKDOWN							
POUR 1 SLAB					C. Y.	12.7	POUR 1 SLAB					C. Y.	4.1
POUR 2 RAIL					C. Y.	1.1	POUR 2 RAIL					C. Y.	1.2
CLASS AA CONCRETE					C. Y.	13.8	CLASS AA CONCRETE					C. Y.	5.3

NOTES

THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR BRIDGE APPROACH SLABS.

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

TEMPORARY DRAINAGE AND TEMPORARY BERM AND SLOPE DRAINS WILL BE PAID FOR UNDER THE LUMP SUM PRICE FOR BRIDGE APPROACH SLAB.

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 EXTEND 10'-0" BEYOND THE END OF THE APPROACH SLAB AND 1'-0" OUTSIDE OF EACH EDGE OF 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 EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

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 EXTEND 1'-0" BEYOND THE 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.

THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

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

THE #57 STONE AND FABRIC AT END BENT 1 WILL BE PAID FOR UNDER THE LUMP SUM BID PRICE FOR BRIDGE APPROACH SLABS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL AT END BENT 2, SEE ROADWAY PLANS.

END BENT 2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A5	28	#4	STR	17'-4"	324	
A6	28	#4	STR	17'-4"	324	
*B1	132	#5	STR	8'-1"	1113	
B2	132	#6	STR	8'-4"	1652	
*B3	7	#5	STR	11'-8"	85	
*B4	2	#5	3	6'-4"	13	
*B5	7	#5	STR	13'-11"	102	
*S1	63	#5	STR	3'-3"	214	
*S2	47	#5	1	4'-1"	200	
*S3	20	#5	2	2'-3"	47	
REINFORCING STEEL					LBS.	1976
*EPOXY COATED REINFORCING STEEL					LBS.	2098
CLASS AA CONCRETE BREAKDOWN						
POUR 1 SLAB					C. Y.	16.8
POUR 2 RAIL					C. Y.	2.3
CLASS AA CONCRETE					C. Y.	19.1

SPlice LENGTHS CHART			
BAR	SIZE	MIN. SPLICE	
A5	#4	2'-0"	
A6	#4	1'-9"	
B1	#5	2'-6"	
B2	#6	2'-7"	

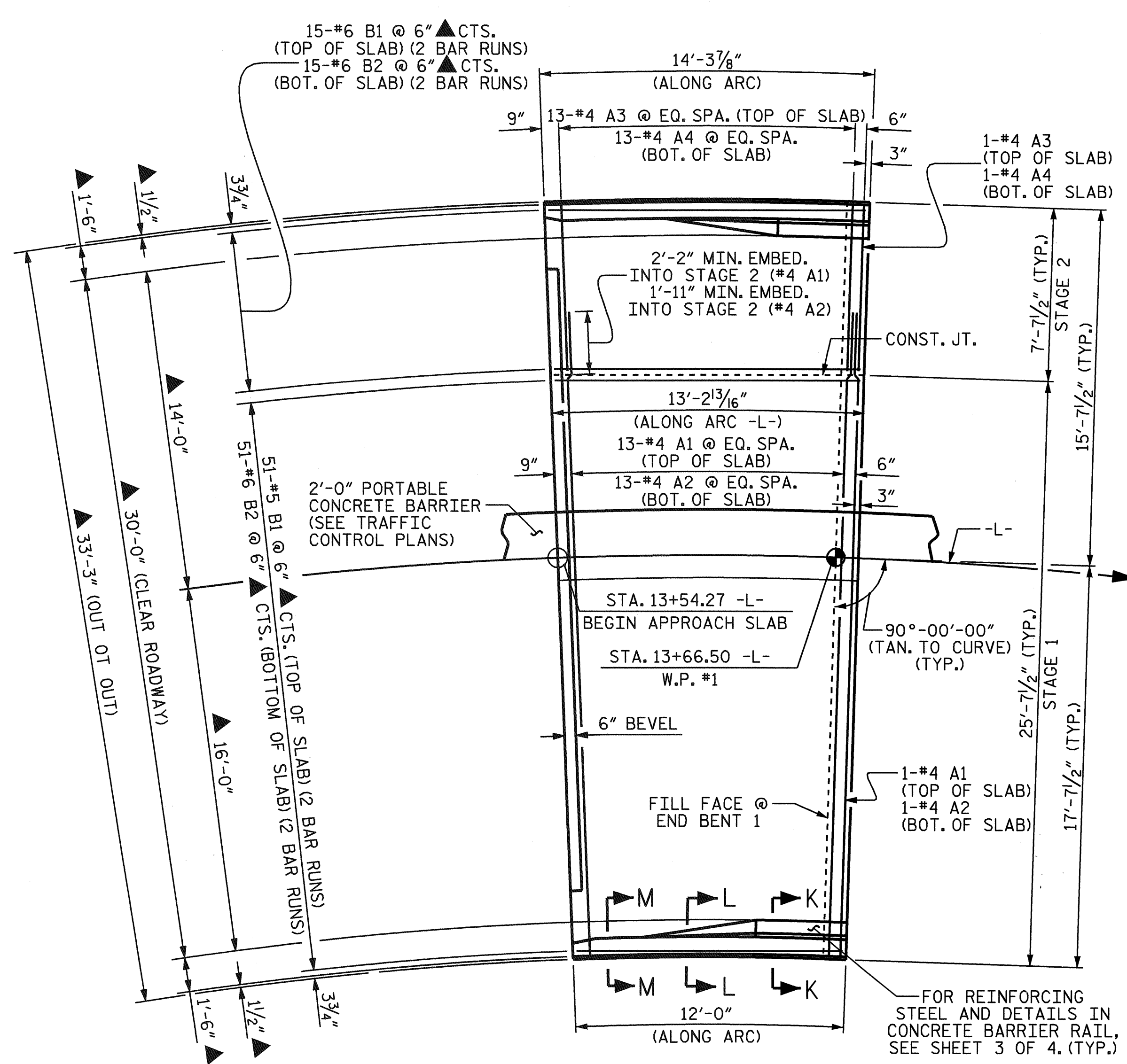
PROJECT NO. B-3872
MCDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 1 OF 4

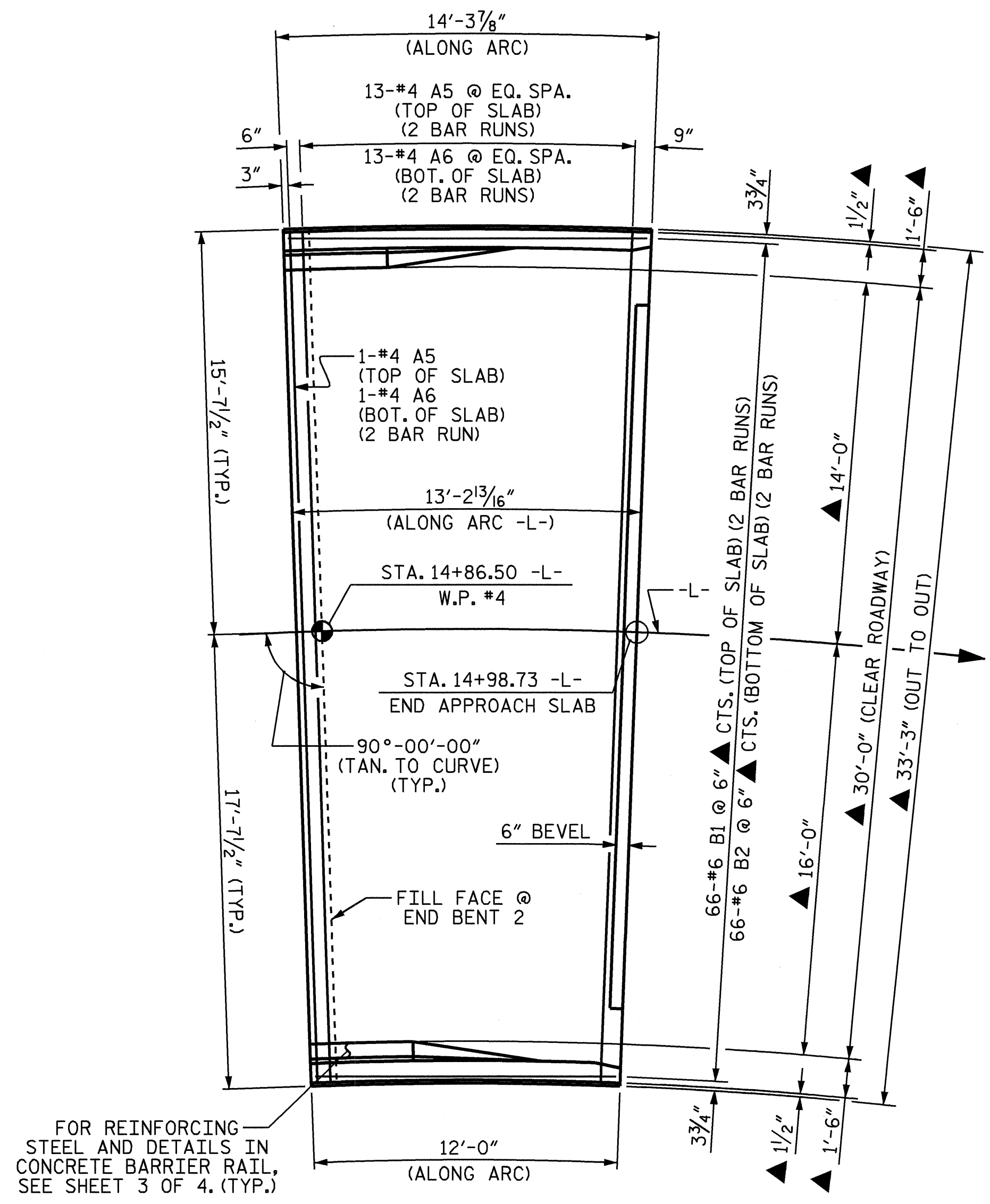


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT
 WITH BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33
1			3			TOTAL SHEETS
2			4			36

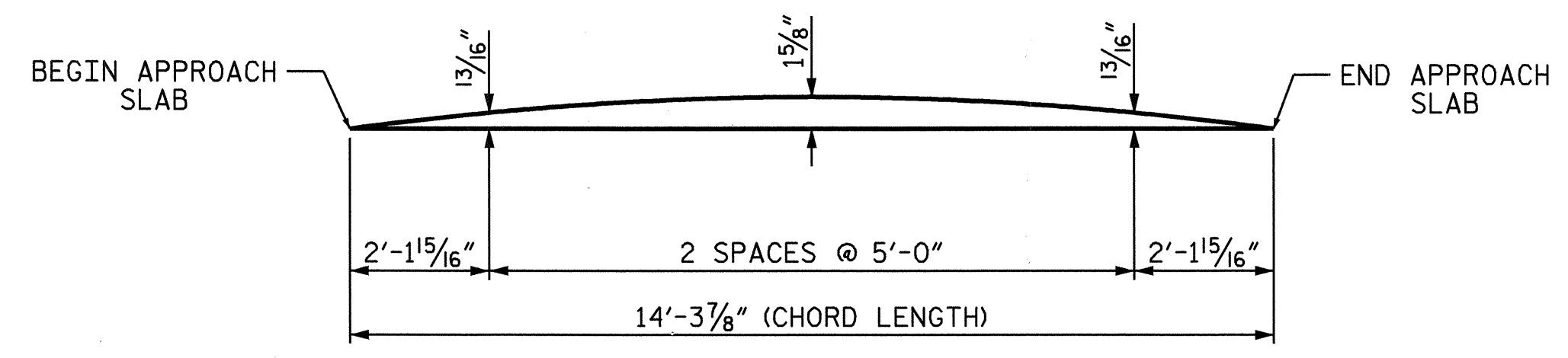


PLAN @ END BENT 1

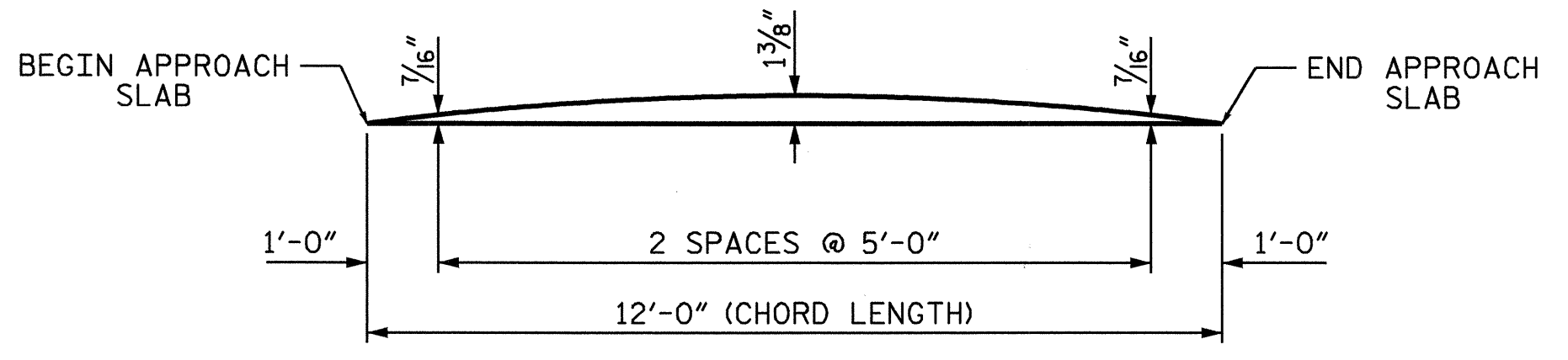


PLAN @ END BENT 2

▲ RADIAL DIMENSION ALONG -L-.

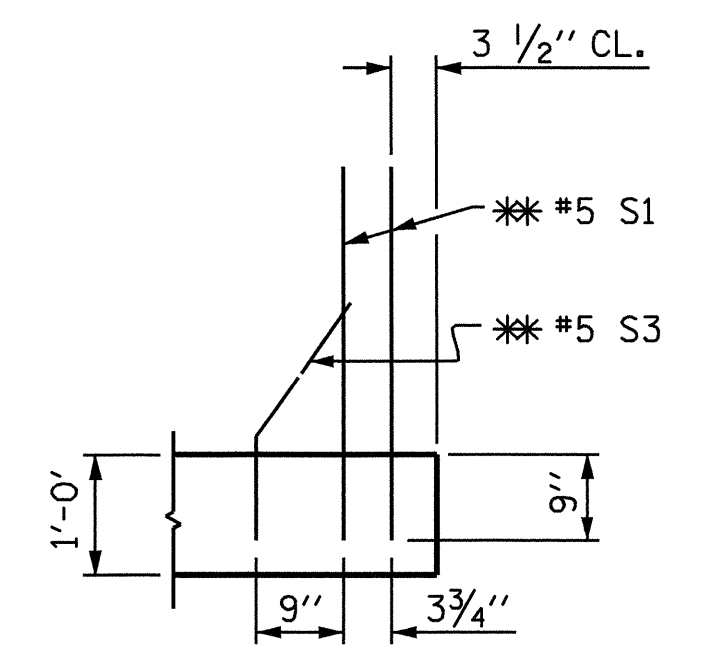


LEFT SIDE

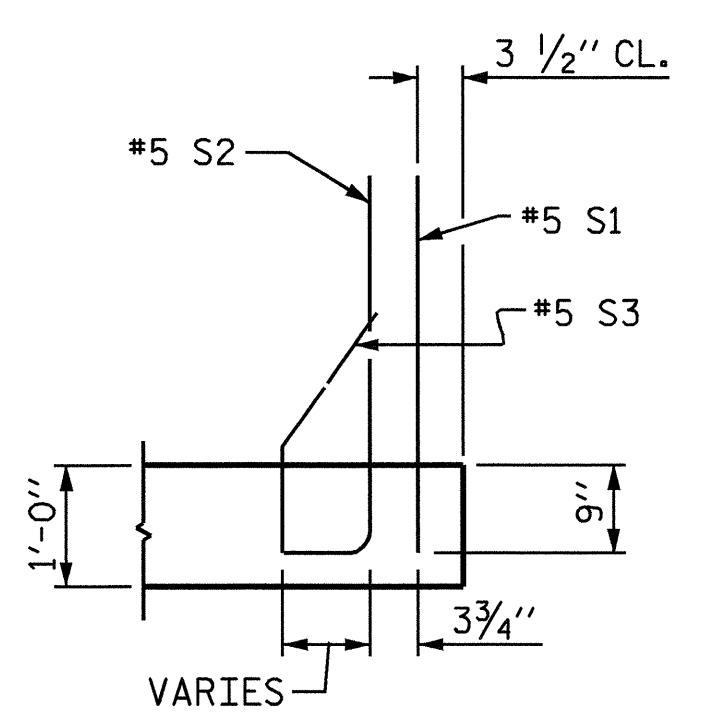


RIGHT SIDE

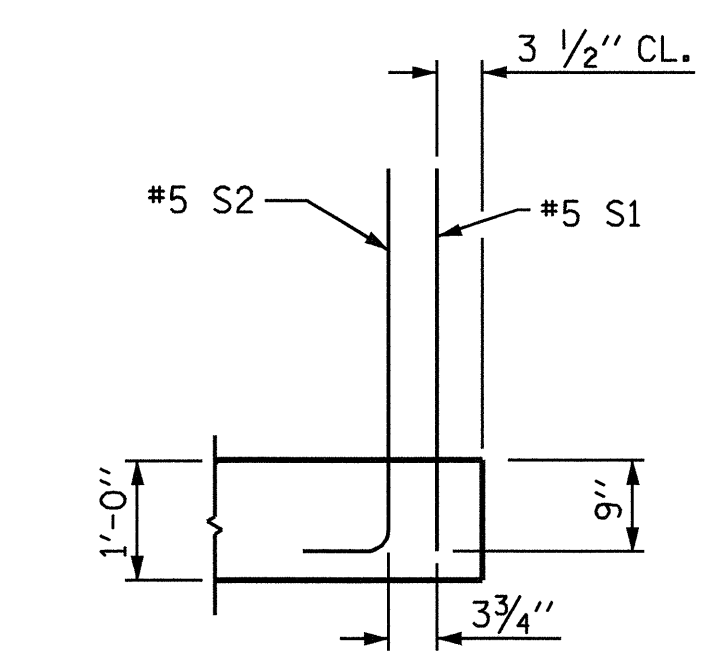
ARC OFFSETS - APPROACH SLABS



SECTION K-K
* ADHESIVELY ANCHORED



SECTION L-L



SECTION M-M

PROJECT NO. B-3872
MCDOWELL COUNTY
 STATION: 14+26.50 -L-

SHEET 2 OF 4

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



ASSEMBLED BY : T. A. HARRIS	DATE : 8/11/05
CHECKED BY : T. L. CLELLAND	DATE : 8/12/05
DRAWN BY : LES 8/01	REV. 5/7/03R RWW/JTE
CHECKED BY : RDR 8/01	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-34	
1			3			TOTAL SHEETS	36
2			4				

NOTES

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

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

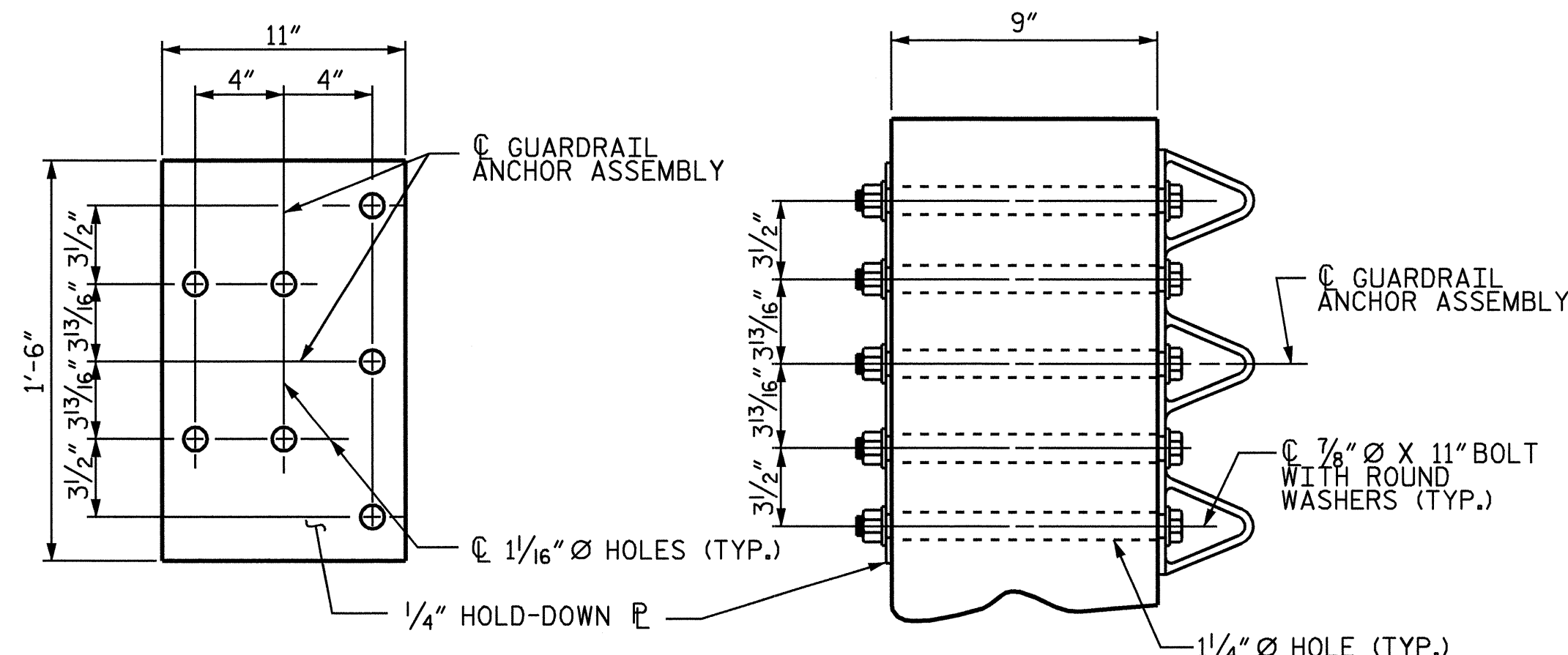
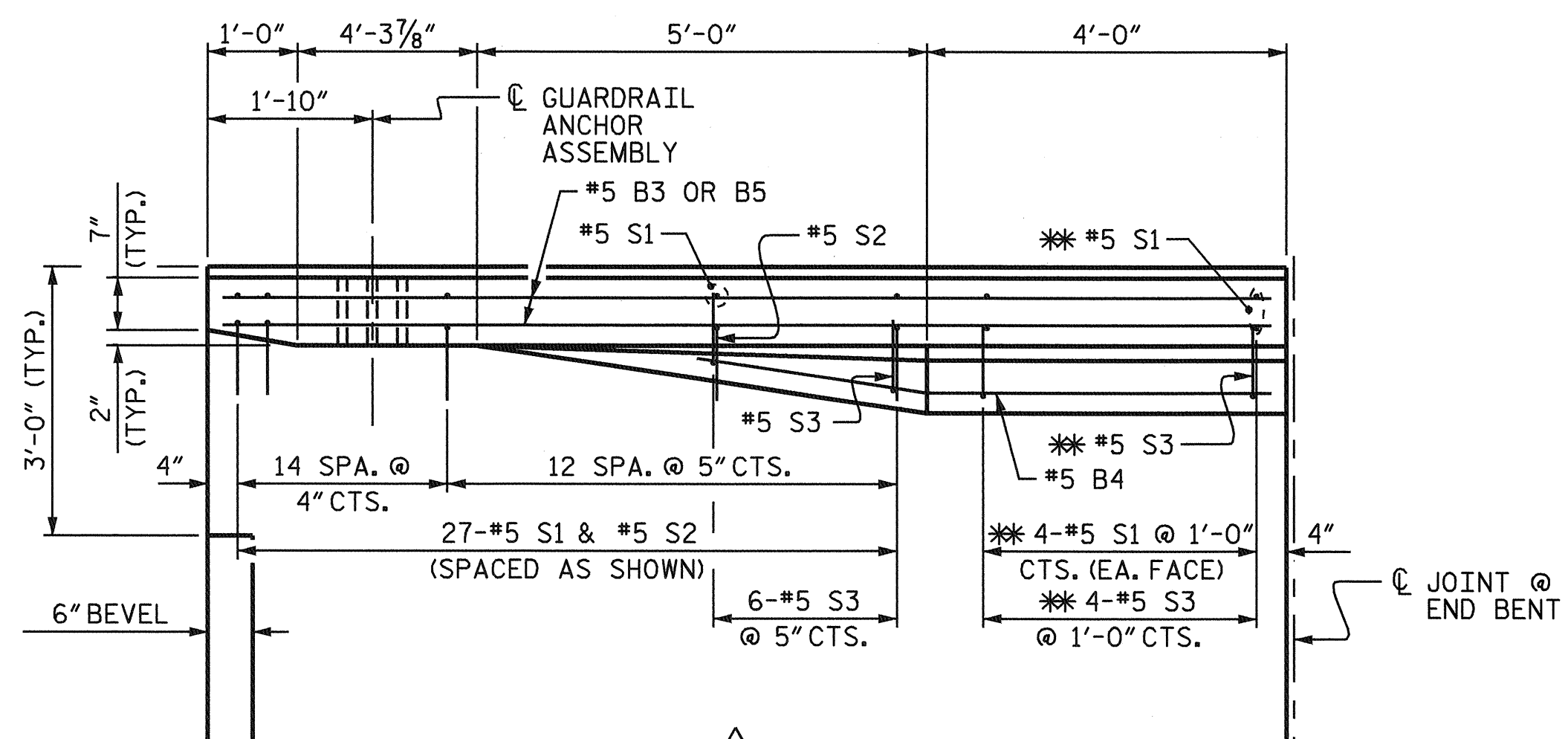
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

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

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR BRIDGE APPROACH SLABS.

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.

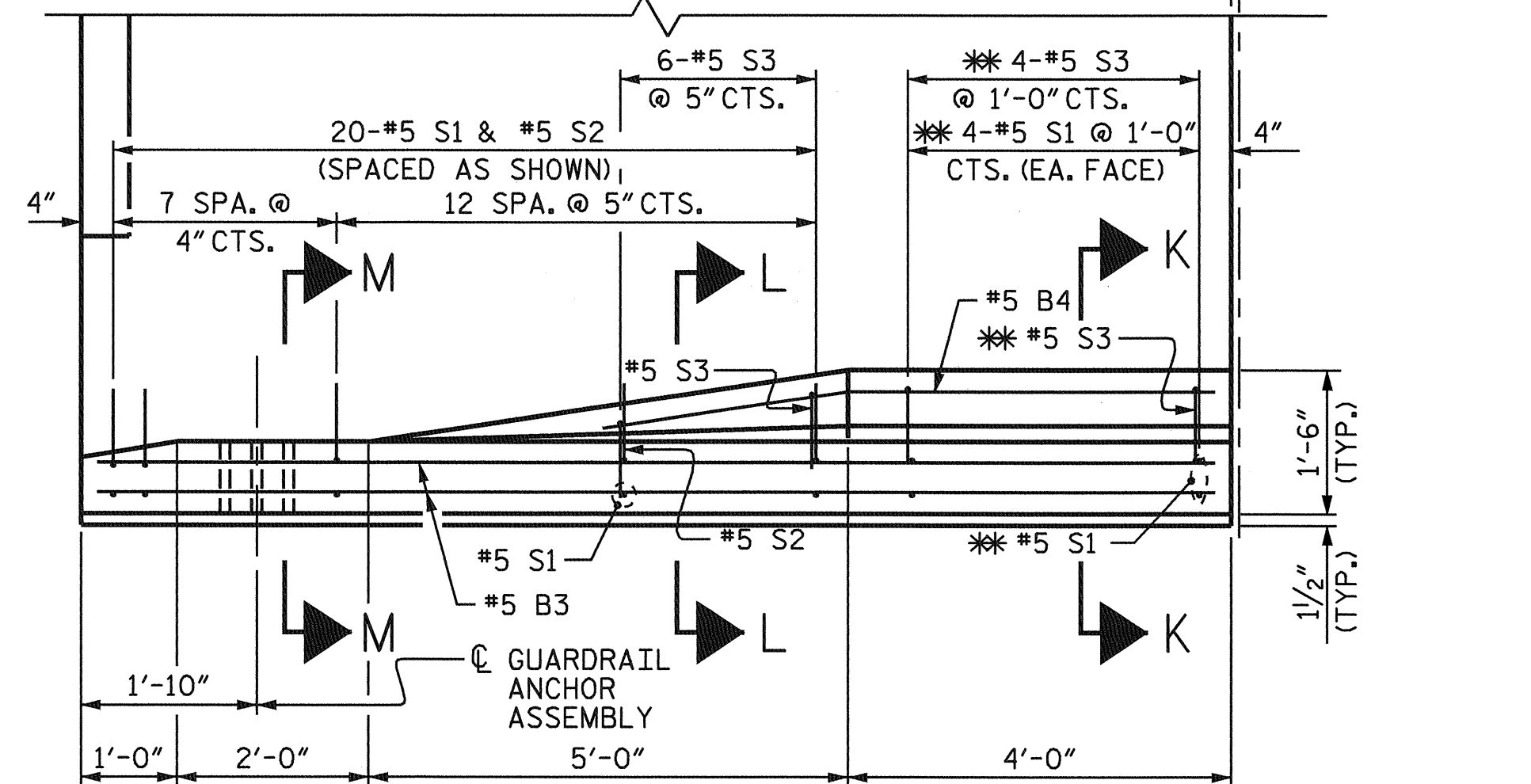
THE #5 S1 AND #5 S3 BARS SHALL BE INSTALLED, WHERE NOTED ON THE PLANS, USING AN ADHESIVE ANCHORING SYSTEM AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5 S1 AND #5 S3 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



PLAN

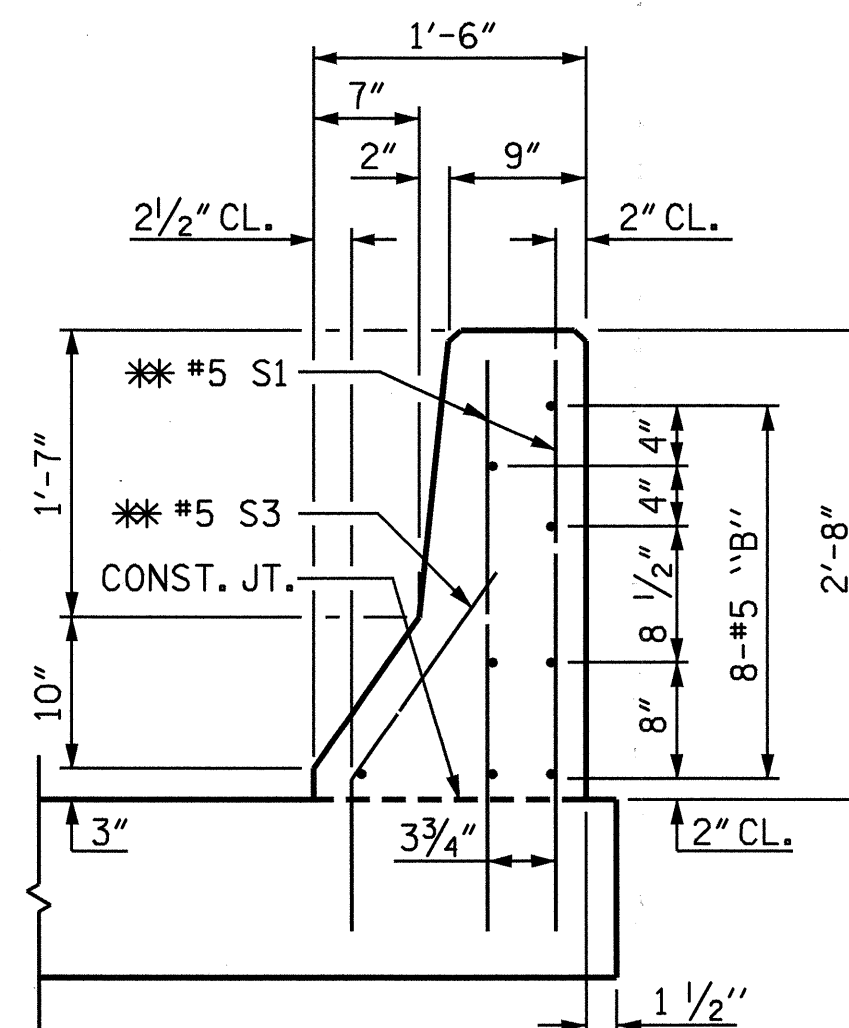
SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



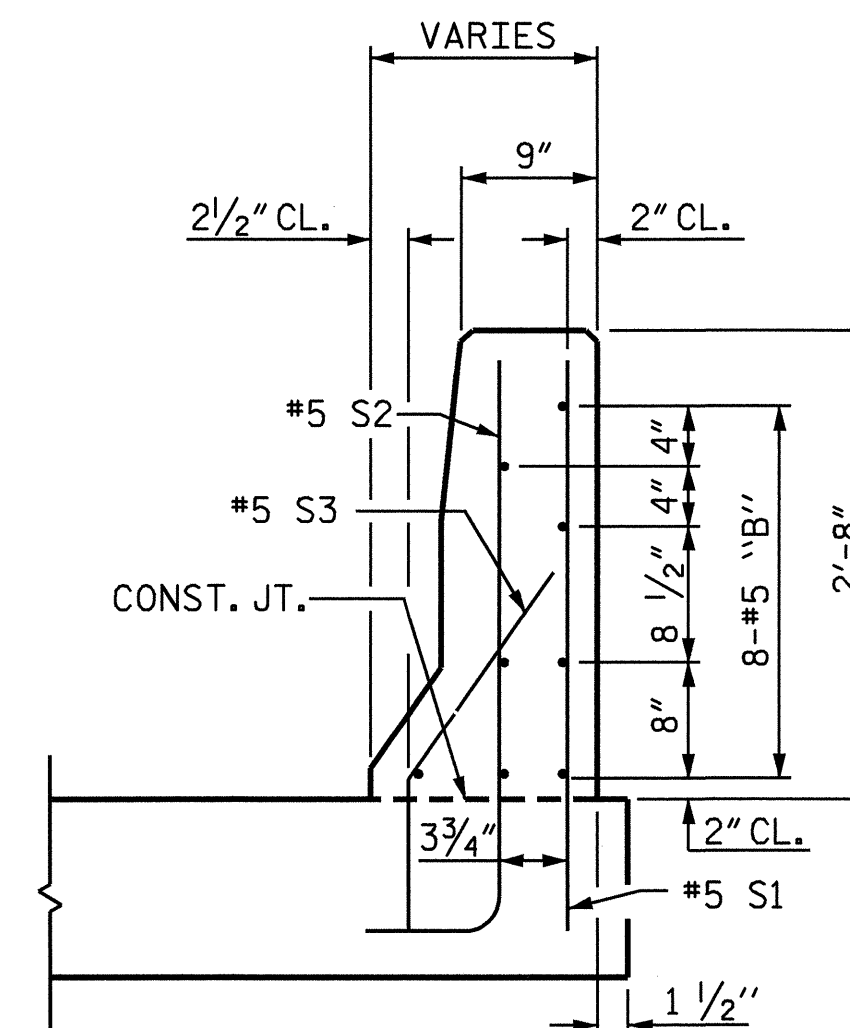
PLAN

BEGIN APPROACH SLAB SHOWN, END APPROACH SLAB SIMILAR DIMENSIONS TAKEN ALONG OUTSIDE OF BRIDGE RAIL ALONG ARC.

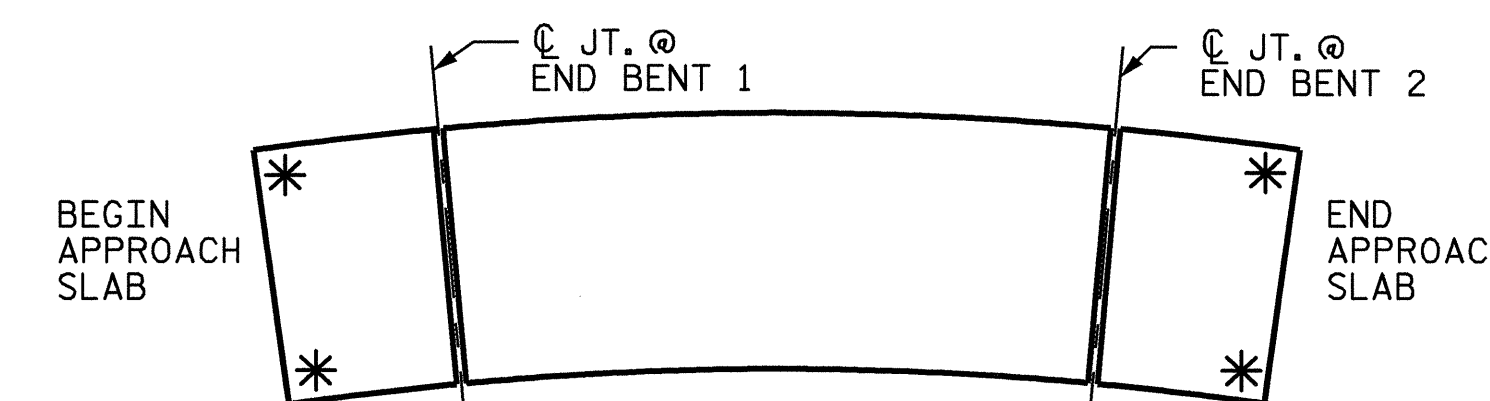


SECTION K-K

* ADHESIVELY ANCHORED

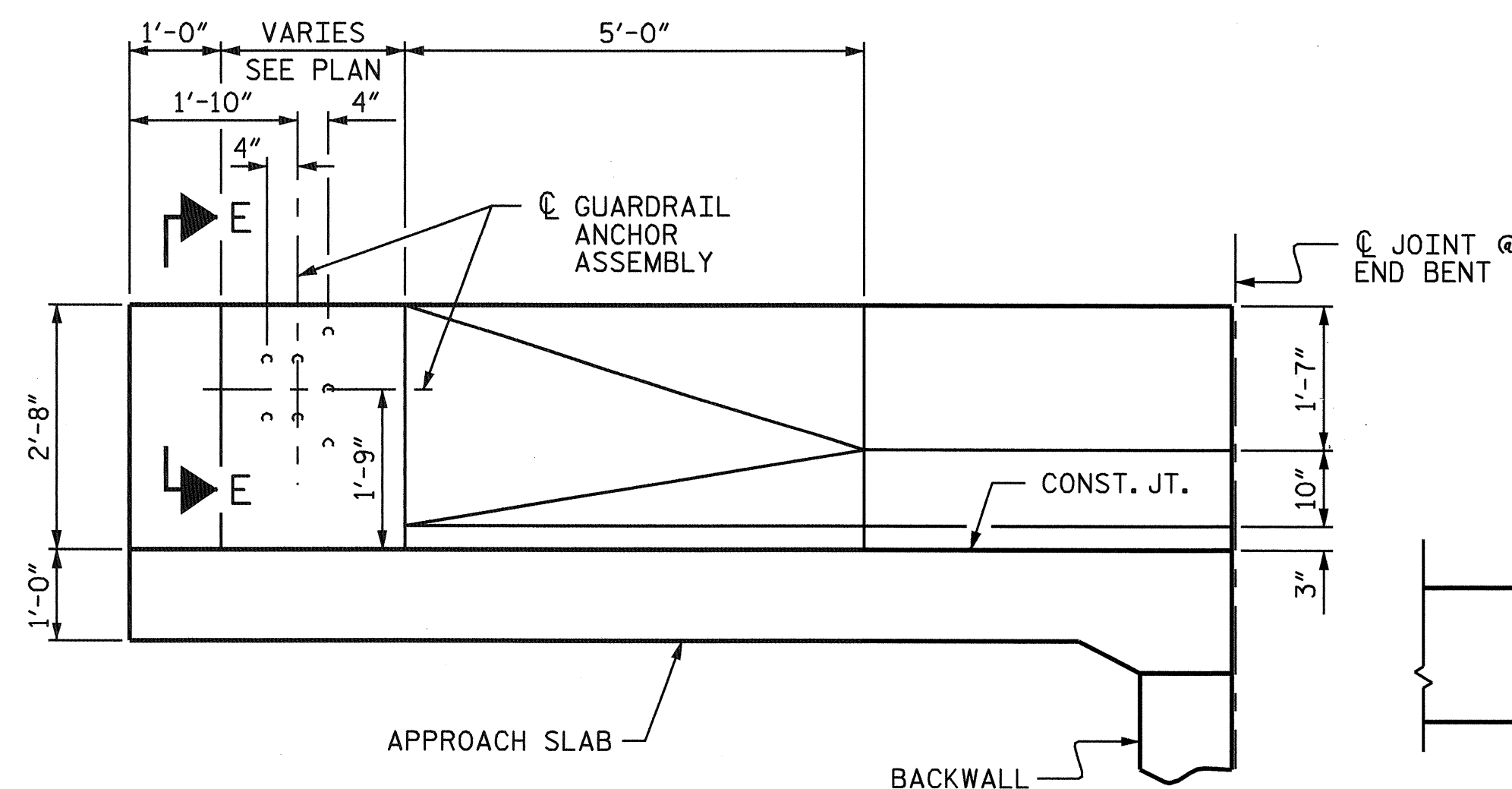


SECTION L-L

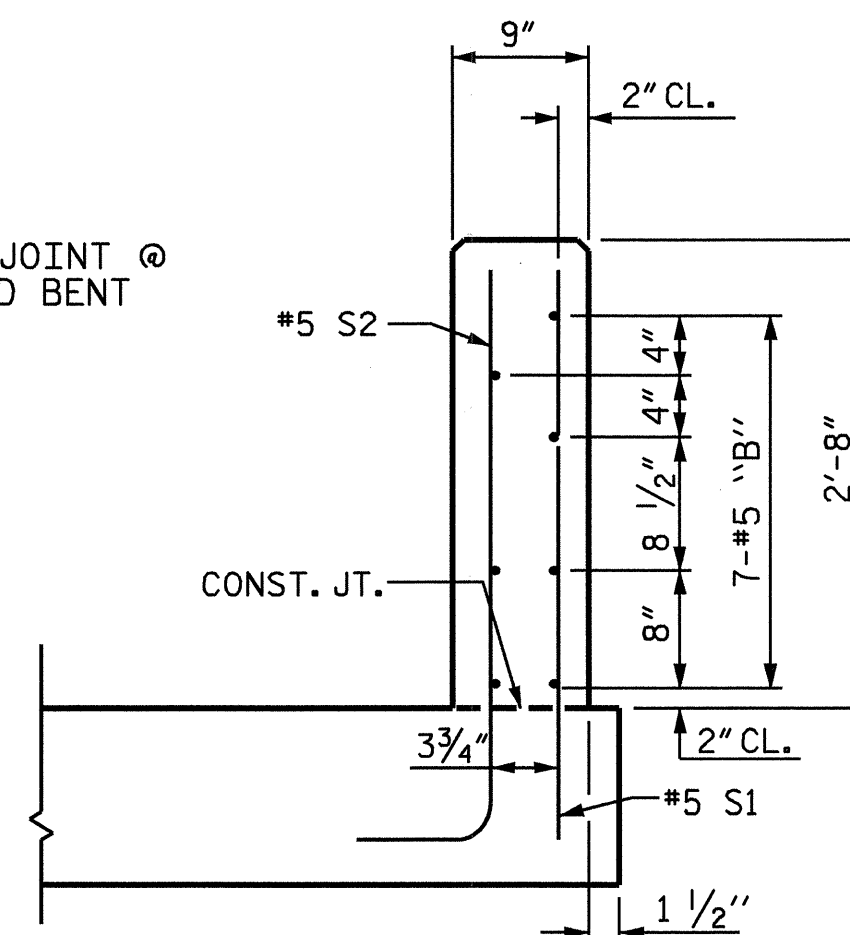


SKETCH SHOWING POINTS OF ATTACHMENT

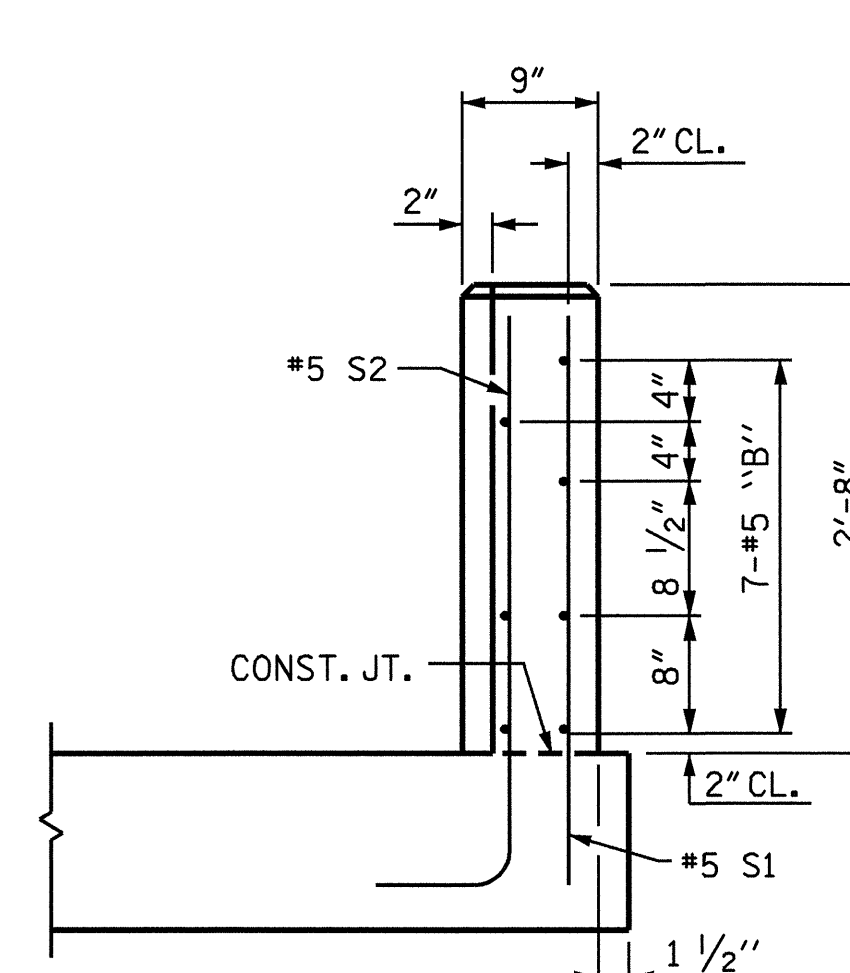
* INDICATES POINTS OF ATTACHMENT



ELEVATION



SECTION M-M



END VIEW

ASSEMBLED BY : T. A. HARRIS	DATE : 8/11/05
CHECKED BY : T. L. CLELLAND	DATE : 8/12/05
DRAWN BY : LES 8/01	REV. 5/7/03R RWW/JTE
CHECKED BY : RDR 8/01	REV. 5/1/06 TLA/GM

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akpatel



PROJECT NO. B-3872
MCDOWELL COUNTY
STATION: 14+26.50 -L-

SHEET 3 OF 4

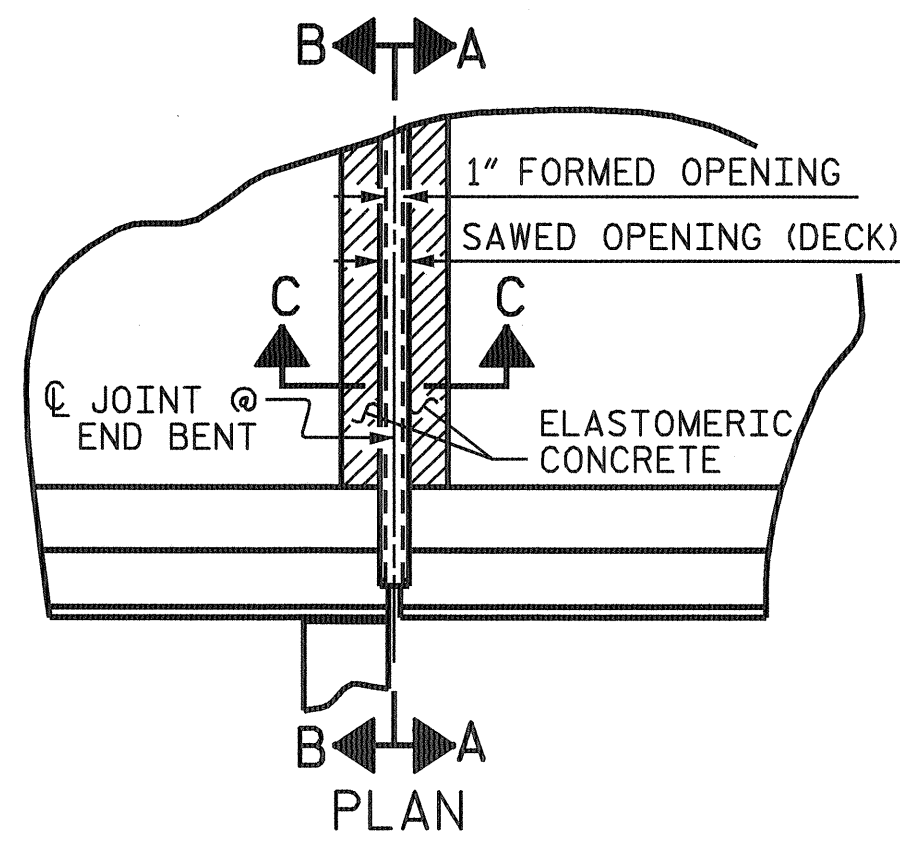
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

BRIDGE APPROACH SLAB
DETAILS FOR FLEXIBLE
PAVEMENT WITH BARRIER RAIL

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

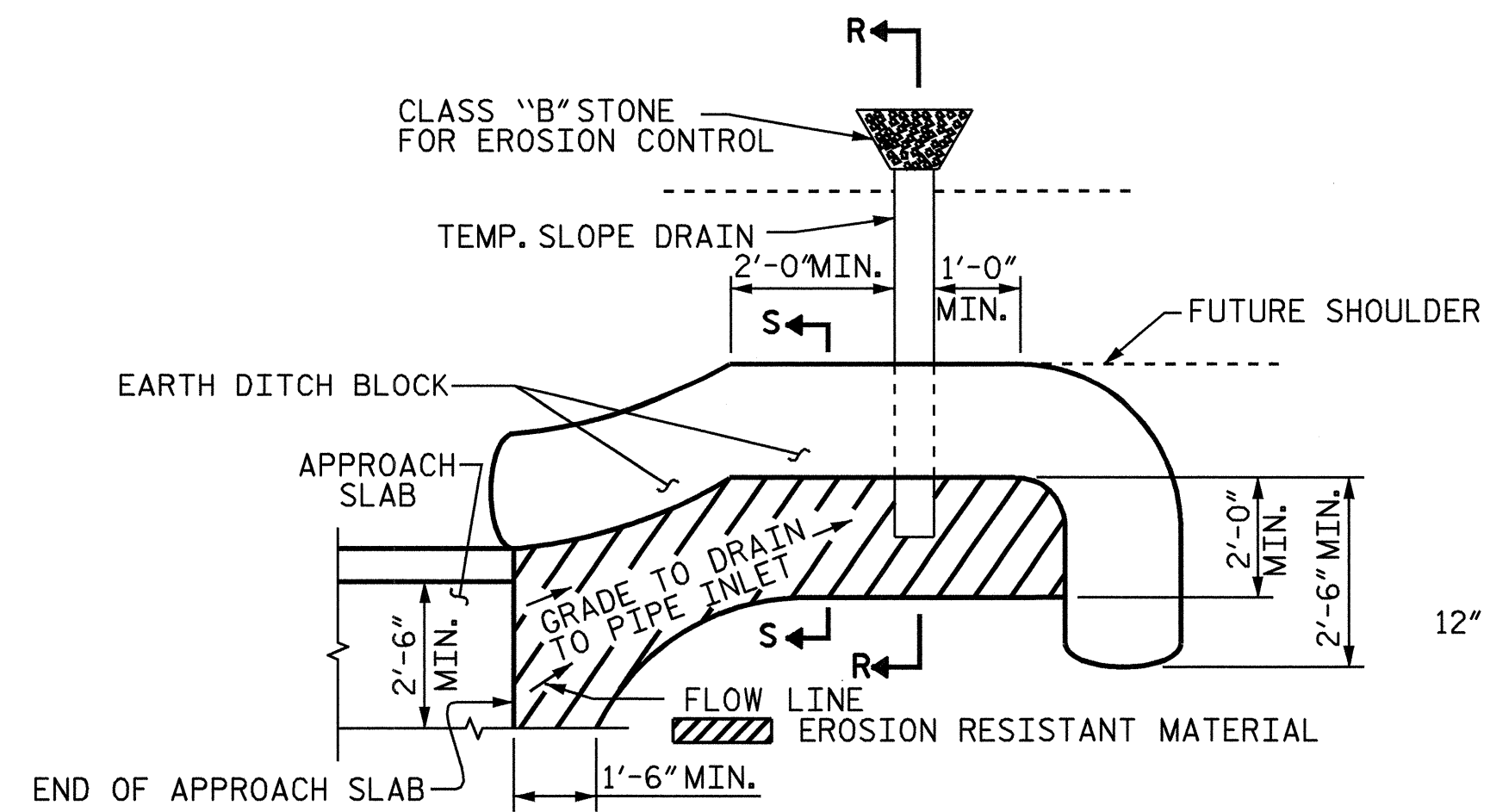
TOTAL SHEETS: 36

STD. NO. BAS6



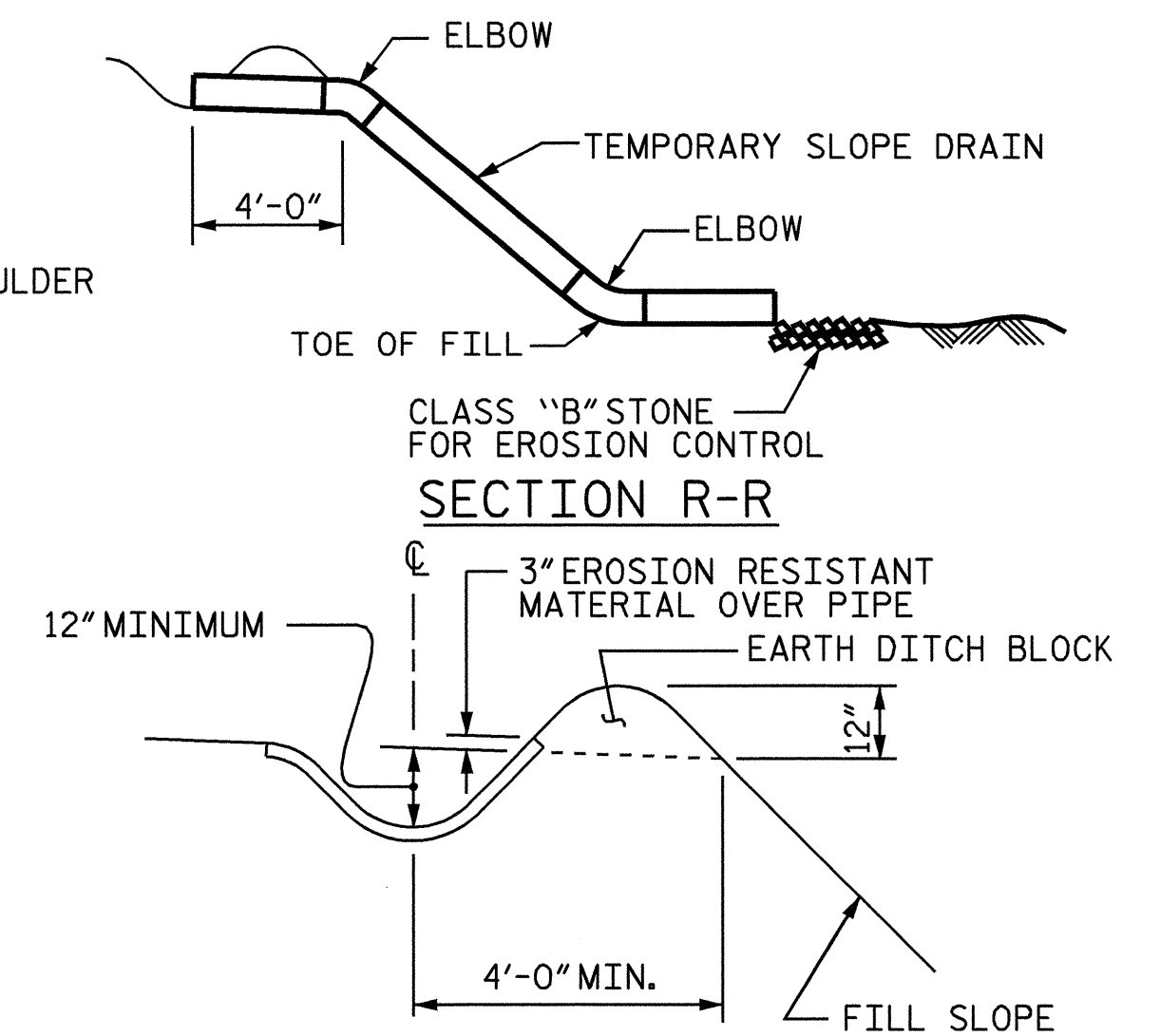
ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1 (STAGE 1)	4.13
1 (STAGE 2)	1.03
2	5.16
TOTAL	10.32

* BASED ON THE MINIMUM BLOCKOUT SHOWN.
NOTE: THE COST OF THE ELASTOMERIC CONCRETE IS INCLUDED IN THE PAY ITEM "EVAZOTE JOINT SEALS."



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

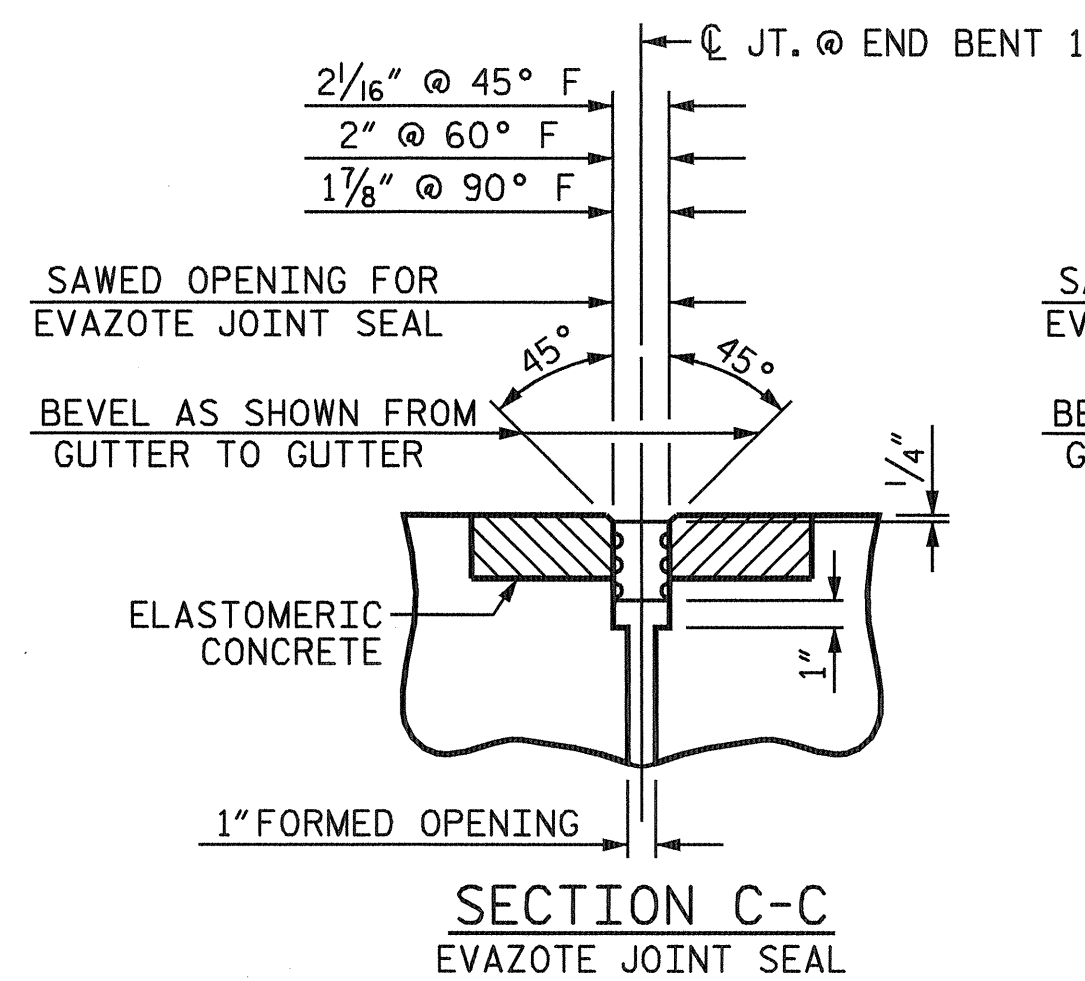
PLAN VIEW



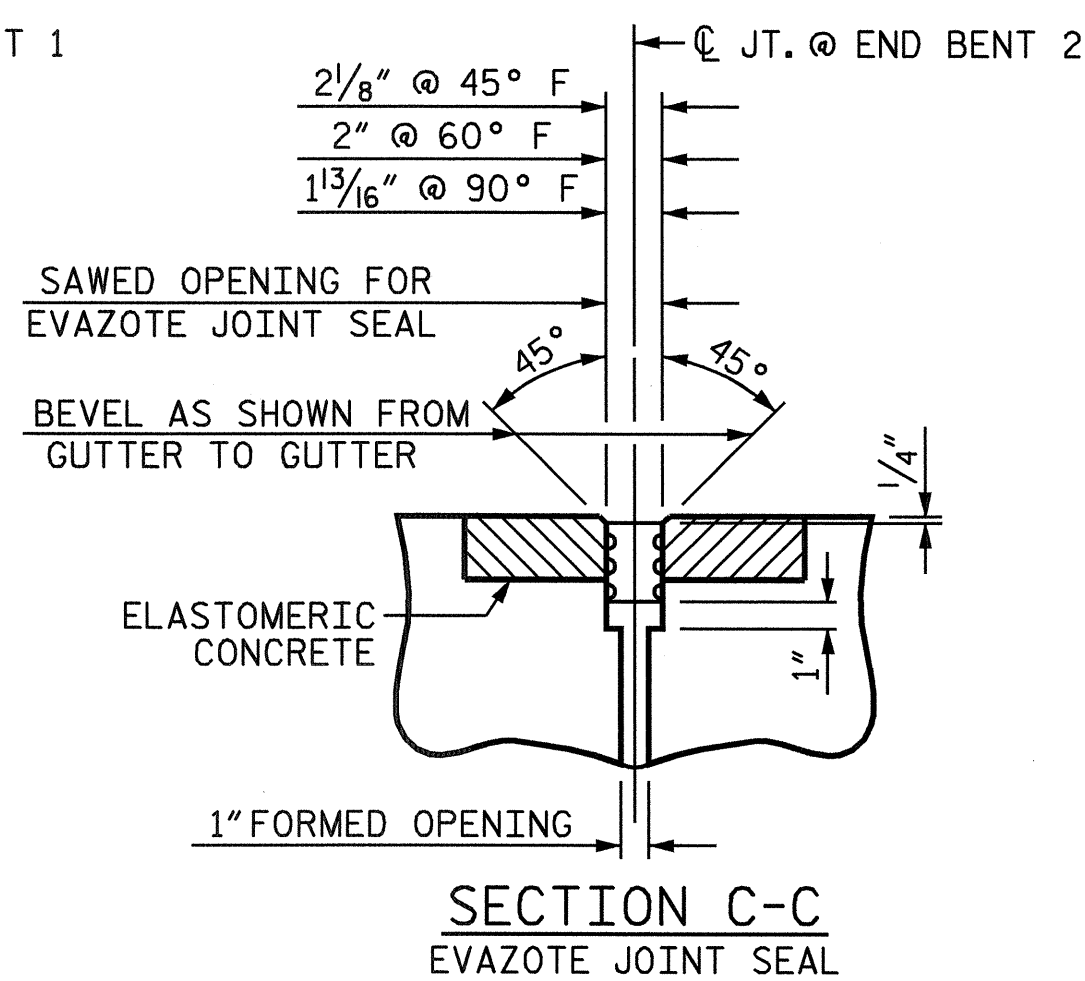
SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

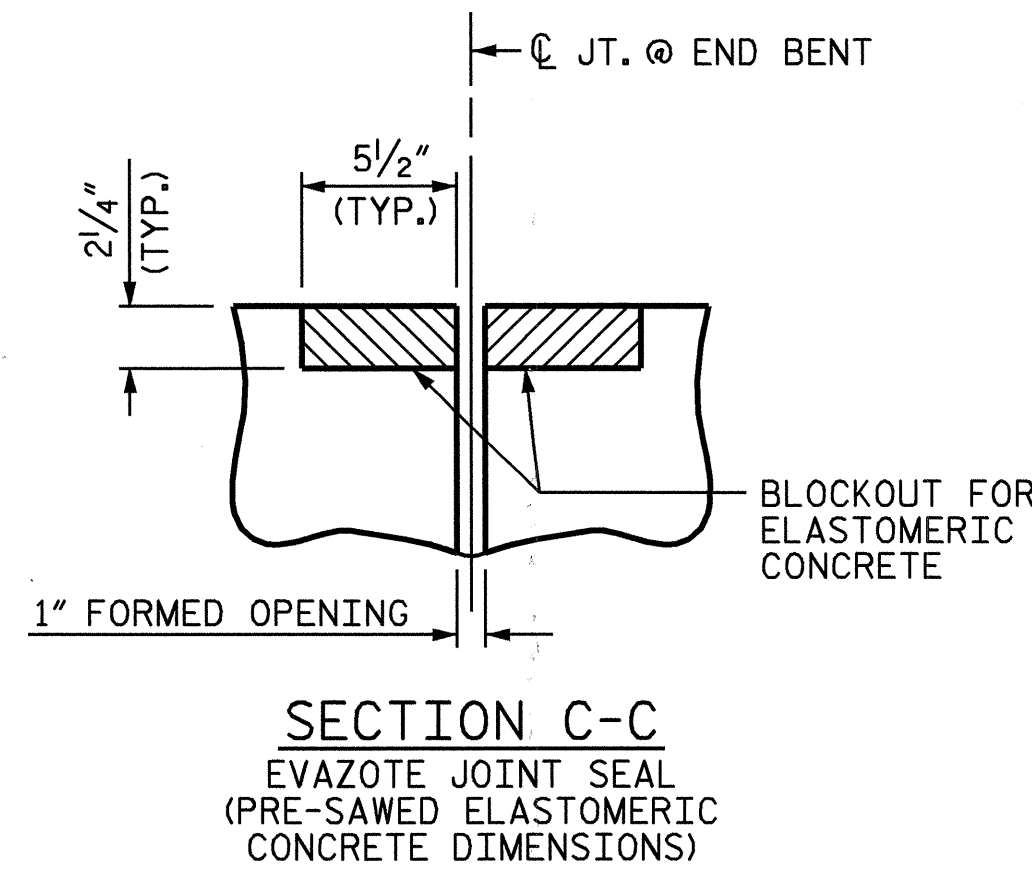
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



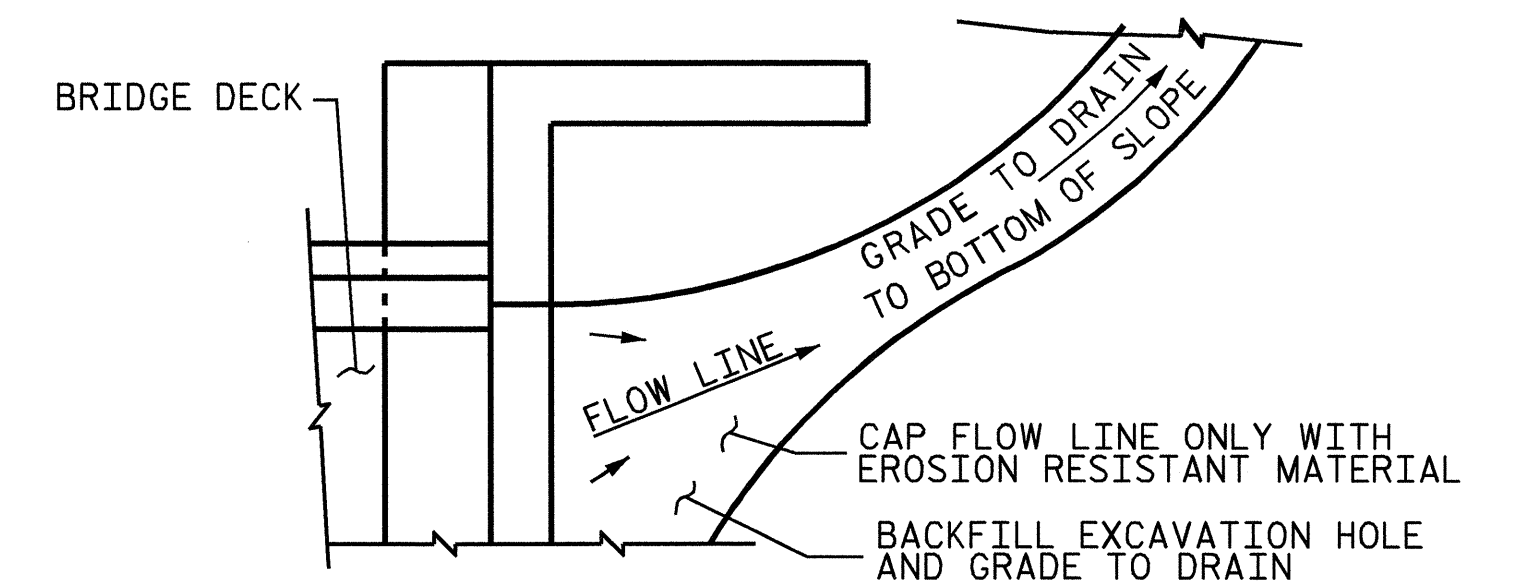
SECTION C-C
EVAZOTE JOINT SEAL



SECTION C-C
EVAZOTE JOINT SEAL

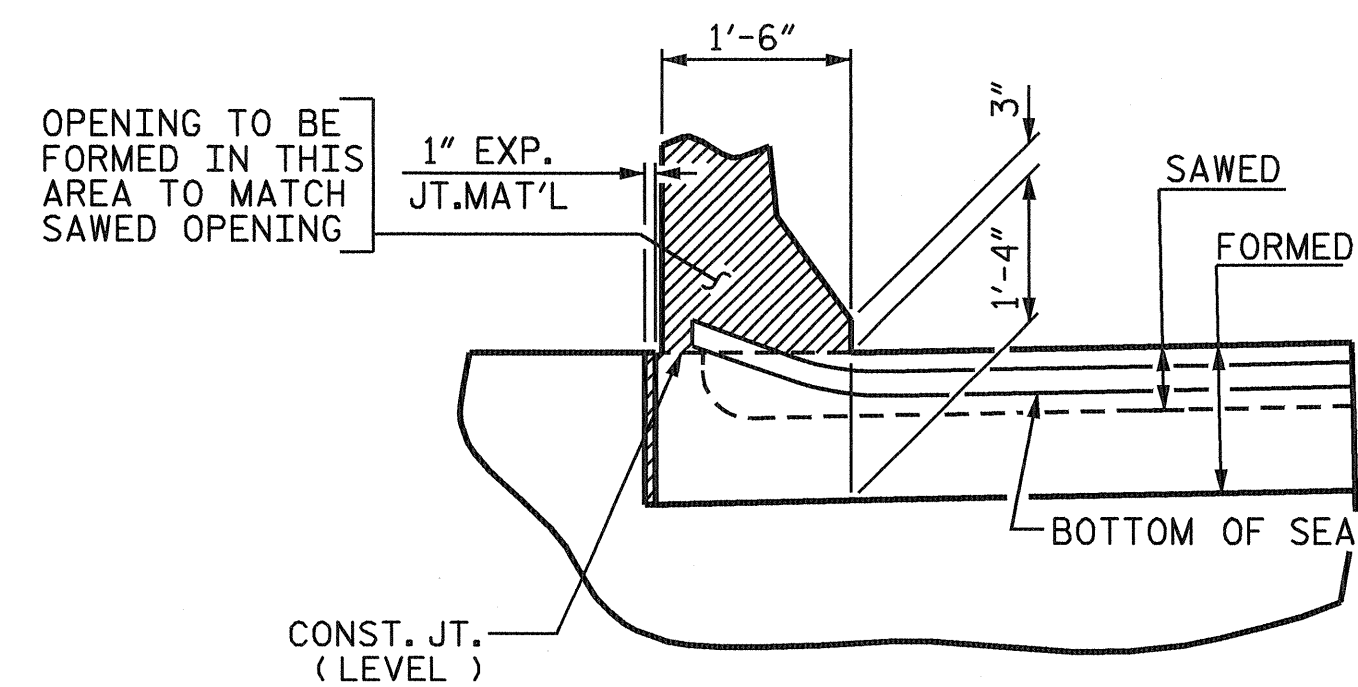


SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC CONCRETE DIMENSIONS)

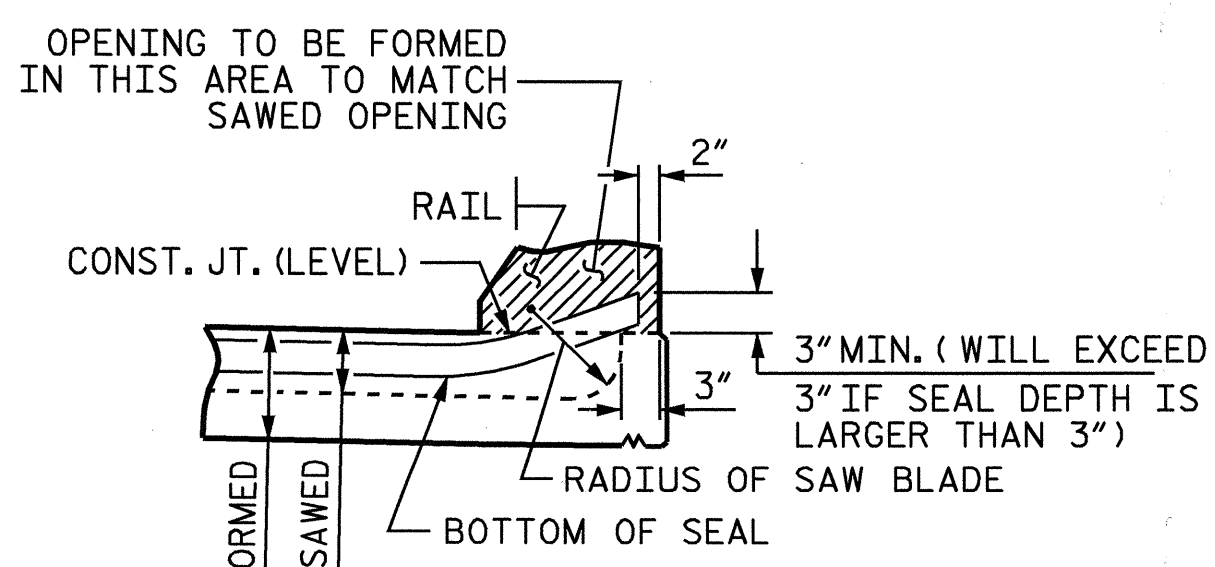


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



SECTION B-B

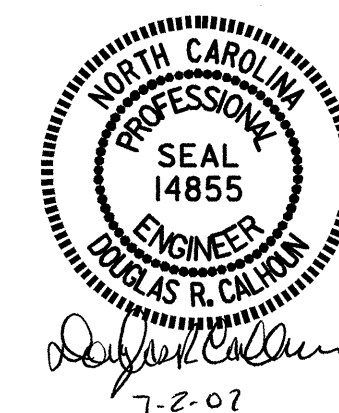


SECTION A-A

JOINT SEAL DETAILS @ END BENT

PROJECT NO. B-3872
MCDOWELL COUNTY
STATION: 14+26.50 -L-

SHEET 4 OF 4



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

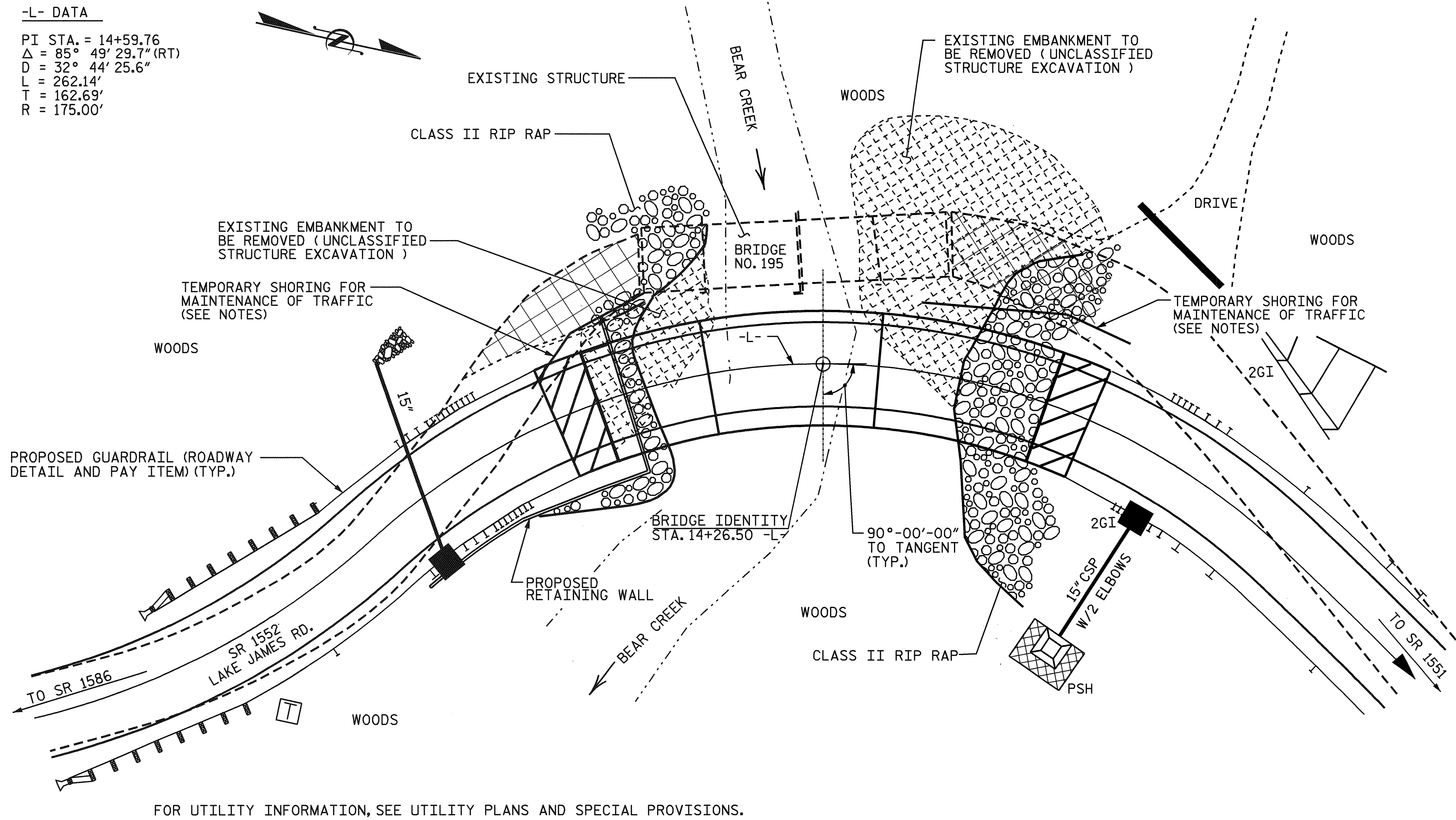
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CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

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REVISIONS						1988
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1			3			TOTAL SHEETS
2			4			36

STD. NO. BAS10

-L- DATA
 PI STA. = 14+59.76
 $\Delta = 85^\circ 49' 29.7''$ (RT)
 $D = 32^\circ 44' 25.6''$
 $L = 262.14'$
 $T = 162.69'$
 $R = 175.00'$



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

TOTAL BILL OF MATERIAL

	SQ. FT.
MSE RETAINING WALL	1100

NOTES

SUBMIT COMPLETE WORKING DRAWINGS, ERECTION PLANS, AND DESIGN CALCULATIONS FOR REVIEW AND APPROVAL PRIOR TO BEGINNING THE "MSE" WALL. SEE MSE RETAINING WALLS SPECIAL PROVISION.

DESIGN THE MSE WALL TO MEET ALL THE CRITERIA OF THE LATEST VERSION OF AASHTO ALLOWABLE STRENGTH DESIGN STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES AND ITS INTERIMS.

THE SERVICE LIFE OF THE MSE WALL SHALL BE 100 YEARS.

ALL WALL BACKFILL MATERIAL WITHIN THE REINFORCED ZONE SHALL BE #57 WASHED CRUSHED STONE. SEE SECTION 1005 OF THE STANDARD SPECIFICATIONS FOR #57 STONE.

USE THE FOLLOWING MATERIAL PARAMETERS IN THE WALL DESIGN:
 A. #57 STONE: UNIT WEIGHT = 110 PCF, $\phi = 34^\circ$, C = 0
 B. RETAINED MATERIAL: UNIT WEIGHT = 120 PCF, $\phi = 30^\circ$, C = 0
 C. ALL OTHER EARTH MATERIAL AROUND WALL: UNIT WEIGHT = 120 PCF, $\phi = 30^\circ$, C = 0
 D. ALLOWABLE BEARING PRESSURE = 1.5 TSF

THE TOP OF WALL ELEVATION IS WHERE THE FINISHED GRADE BEHIND THE MSE WALL INTERSECTS THE BACK OF THE WALL. SHOW A DETAIL LABELING THE TOP OF WALL.

IN ELEVATION VIEW, SHOW THE TOP OF WALL (SOLID LINE), THE EXISTING GROUND LINE (LARGE DASHED LINE), THE PROPOSED GROUND LINE (SMALL DASHED LINE), AND THE BOTTOM OF THE WALL (SOLID LINE). SHOW ELEVATIONS FOR THE TOP OF WALL AT VERTICAL BREAK POINTS, AND AT NO GREATER THAN 50 FOOT INTERVALS. LABEL WHETHER THE ELEVATION VIEW IS FRONT FACE OR BACK FACE.

CONCRETE COPING MUST BE CAST-IN-PLACE. TOP OF COPING ELEVATION MUST BE A MINIMUM OF 6 INCHES ABOVE FINISHED GRADE TO AVOID SPILLOVER

SHOW A DETAIL FOR FABRIC AND SOIL ABOVE THE #57 STONE WHERE APPROPRIATE.

SHOW THE LIMITS OF SOIL REINFORCEMENT AND THE #57 STONE.

THE PANELS SHALL HAVE A PLAIN GRAY FINISH.

A MINIMUM 4 FOOT BENCH IS REQUIRED IN FRONT OF THE WALL. GRADE BENCH WITH A MINIMUM SLOPE OF 0.02% TO CARRY WATER AWAY FROM THE WALL. PLACE RIP RAP AS DIRECTED BY THE ENGINEER.

SHOW ELEVATIONS OF TOP OF LEVELING PAD.

A MINIMUM PANEL EMBEDMENT OF 2 FEET BELOW THE PROPOSED GROUND LINE IS REQUIRED.

SHOW THE REQUIRED BEARING PRESSURE OF THE WALL ON PLANS.

DRAINAGE MUST BE AWAY FROM THE WALL AT THE TOP AND BOTTOM.

SHOW DETAILS IN THE PLANS FOR SKEWING REINFORCING STRIPS OR MATS AROUND ANY OBSTRUCTIONS, SUCH AS GUARDRAILS, PAVED DITCHES, PAVEMENT STRUCTURES, AND DRAINAGE STRUCTURES. SOIL REINFORCING MUST NOT BE IN CONTACT WITH ANY OBSTRUCTIONS.

FINAL PLANS MUST BE ON REPRODUCIBLE SHEETS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA.

THE LEVELING PAD SHALL BE CAST-IN-PLACE AND MADE CONTINUOUS AT STEPS.

CONSTRUCTION JOINTS IN THE COPING SHALL BE IN ACCORDANCE WITH ARTICLE 825-10 OF THE STANDARD SPECIFICATIONS. LOCATE JOINTS IN ALL EXPOSED FACES OF THE COPING, AT 10 FEET MAXIMUM CENTERS, TO COINCIDE WITH PANEL JOINTS. EVERY THIRD JOINT SHALL BE AN EXPANSION JOINT. STOP REINFORCING STEEL 2" OF EITHER SIDE OF EXPANSION JOINTS. OTHER JOINTS SHALL BE GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH.

USE PANELS WITH A FLAT SURFACE ON THE FRONT FACE.

INCLUDE THE FOLLOWING ON PLANS SUBMITTED FOR REVIEW:
 PLAN VIEW, ELEVATION VIEWS, TYPICAL SECTIONS, LEVELING PAD STEP DETAIL, PANEL AND COPING DETAILS, AND OBSTRUCTION AVOIDANCE DETAILS.

NOTE ON CONTRACTOR'S WORKING DRAWINGS: "VERIFY BEARING CAPACITY OF THE WALL FOUNDATION SOILS IN THE FIELD."

RELOCATE ALL UTILITIES PRIOR TO CONSTRUCTION OF THE MSE WALL. SEE UTILITY PLANS.

ALL EXCAVATION FOR THE CONSTRUCTION OF THE MSE WALL WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE WALL.

THE RESIDENT ENGINEER WILL SCHEDULE A PRECONSTRUCTION CONFERENCE WITH REPRESENTATIVES FROM THE CONTRACTOR, THE RETAINING WALL SYSTEM SUPPLIER, AND THE GEOTECHNICAL ENGINEERING UNIT TO DISCUSS DETAILS AND INSPECTION OF THE RETAINING WALL PRIOR TO ANY WORK BEING PERFORMED AT THIS SITE.

MSE WALL SHALL BE DESIGNED FOR OBSTRUCTIONS SUCH AS DRAINAGE STRUCTURES OR UTILITIES. SEE ROADWAY PLANS AND UTILITY PLANS.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

MSE WALLS, COPING, LEVELING PAD, 4" CONCRETE SLOPE PROTECTION, 4" CONCRETE DITCH, EXCAVATION AND BACKFILL SHALL BE PAID AT THE LUMP SUM PRICE FOR MSE RETAINING WALL AT STATION 13+02.00 -L-.

PROJECT NO. B-3872
McDOWELL COUNTY
 STATION: 13+02.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

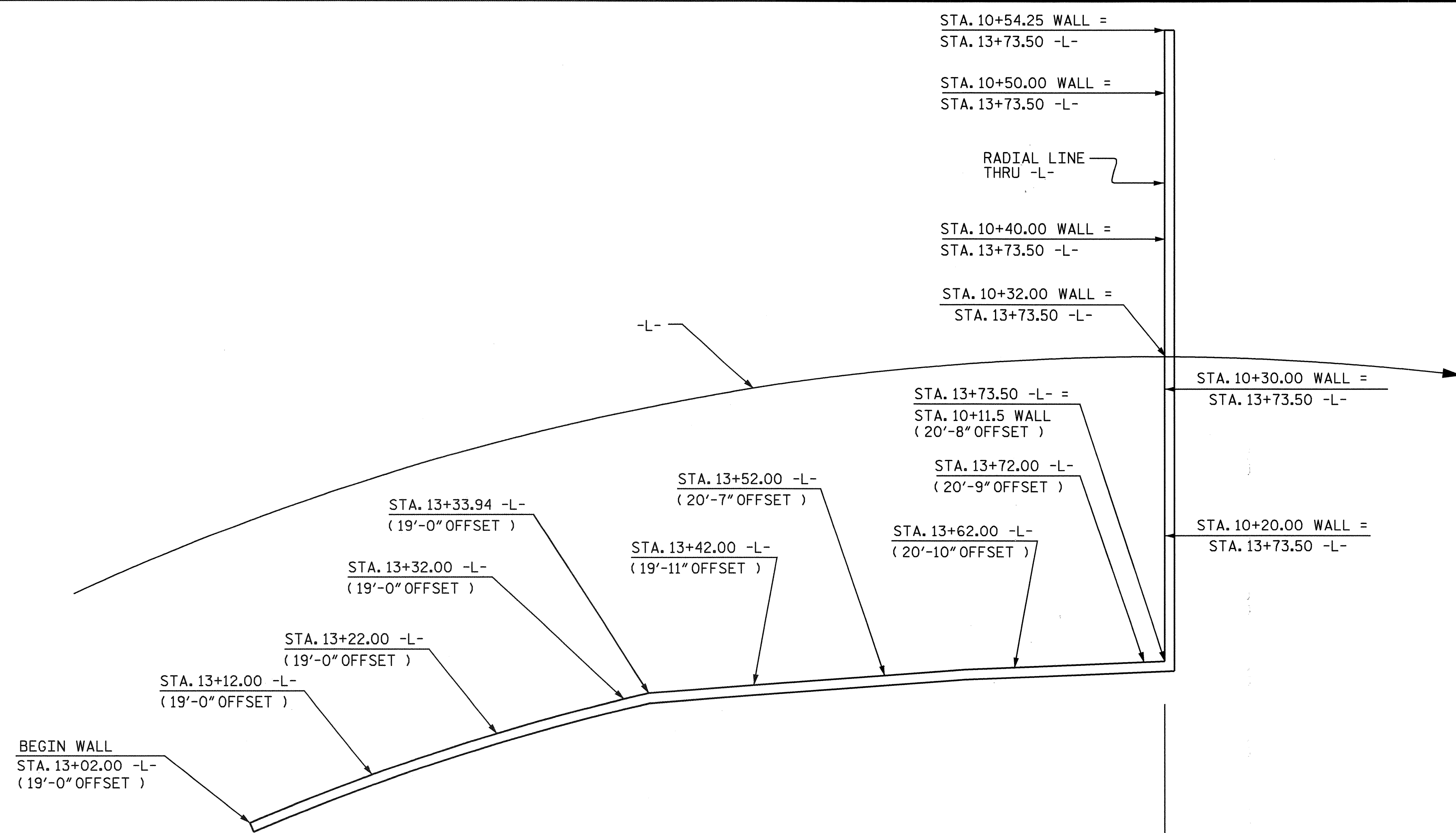
MSE RETAINING WALL DETAILS

REVISIONS						SHEET NO.
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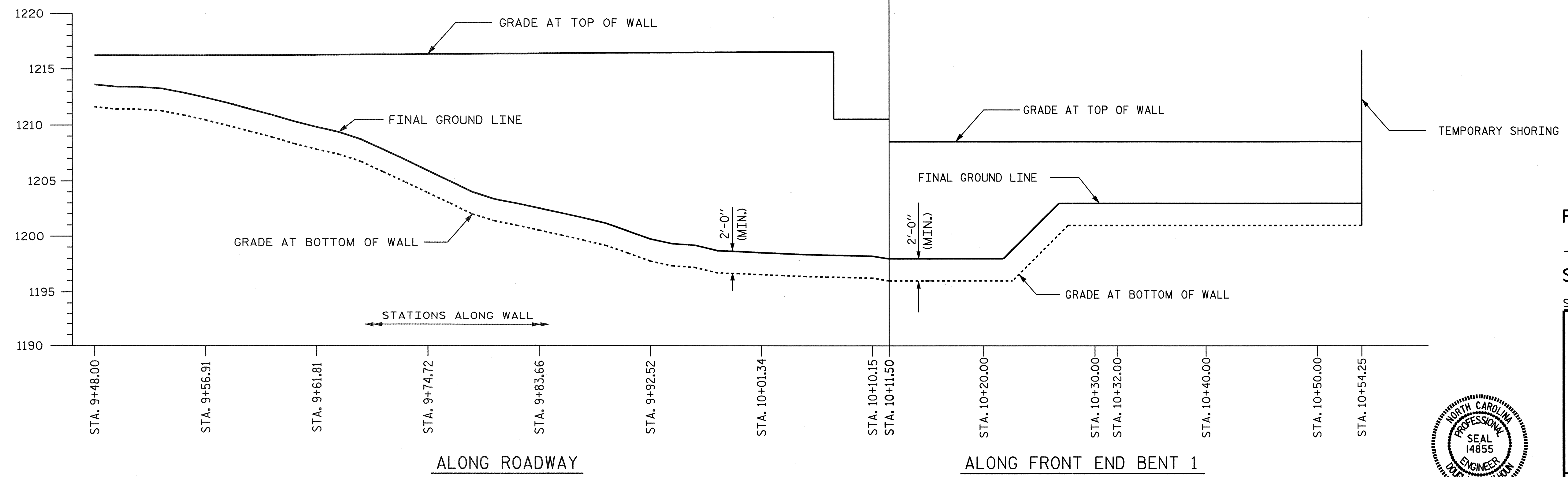


DRAWN BY: T.L.C. & E.G.A. DATE: 8/4/05
 CHECKED BY: W.S.ARAFAT DATE: 8/25/05

WALL OFFSETS AND ELEVATIONS						
-L- STATION	WALL STATION	OFFSET	EXISTING GROUND EL. @ WALL	GRADE EL. @ BOTTOM OF WALL	GRADE EL. @ TOP OF WALL	
13+02.00	9+48.00	19'-0" (RT.)	1213.620	1211.620	1216.230	
13+12.00	9+56.91	19'-0" (RT.)	1212.460	1210.460	1216.220	
13+22.00	9+61.81	19'-0" (RT.)	1209.840	1207.840	1216.270	
13+32.00	9+74.72	19'-0" (RT.)	1205.940	1203.940	1216.340	
13+34.00	9+76.52	19'-0" (RT.)	1205.030	1203.030	1216.570	
13+42.00	9+83.66	19'-11" (RT.)	1202.550	1200.550	1216.410	
13+52.00	9+92.52	20'-7" (RT.)	1199.770	1197.770	1216.480	
13+62.00	10+01.34	20'-10" (RT.)	1198.540	1196.540	1216.540	
13+72.00	10+10.15	20'-9" (RT.)	1198.240	1196.240	1210.540	
13+73.50	10+11.50	20'-8" (RT.)	1198.000	1196.000	1210.540	
13+73.50	10+11.50	20'-8" (RT.)	1198.000	1196.000	1208.540	
13+73.50	10+20.00	RADIAL 13+73.50	1198.000	1196.000	1208.540	
13+73.50	10+30.00	RADIAL 13+73.50	1203.000	1201.000	1208.540	
13+73.50	10+32.00	RADIAL 13+73.50	1203.000	1201.000	1208.540	
13+73.50	10+40.00	RADIAL 13+73.50	1203.000	1201.000	1208.540	
13+73.50	10+50.00	RADIAL 13+73.50	1203.000	1201.000	1208.540	
13+73.50	10+54.25	RADIAL 13+73.50	1203.000	1201.000	1208.540	



PLAN



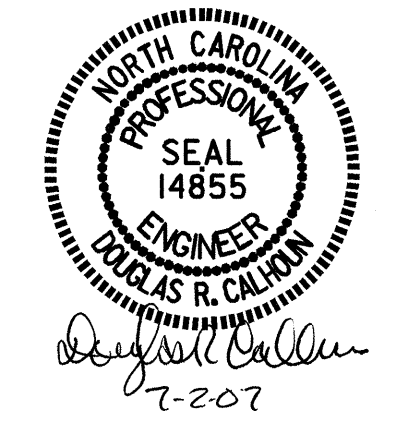
ELEVATION

PROJECT NO. B-3872
McDOWELL COUNTY
 STATION: 13+02.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

MSE RETAINING WALL DETAILS

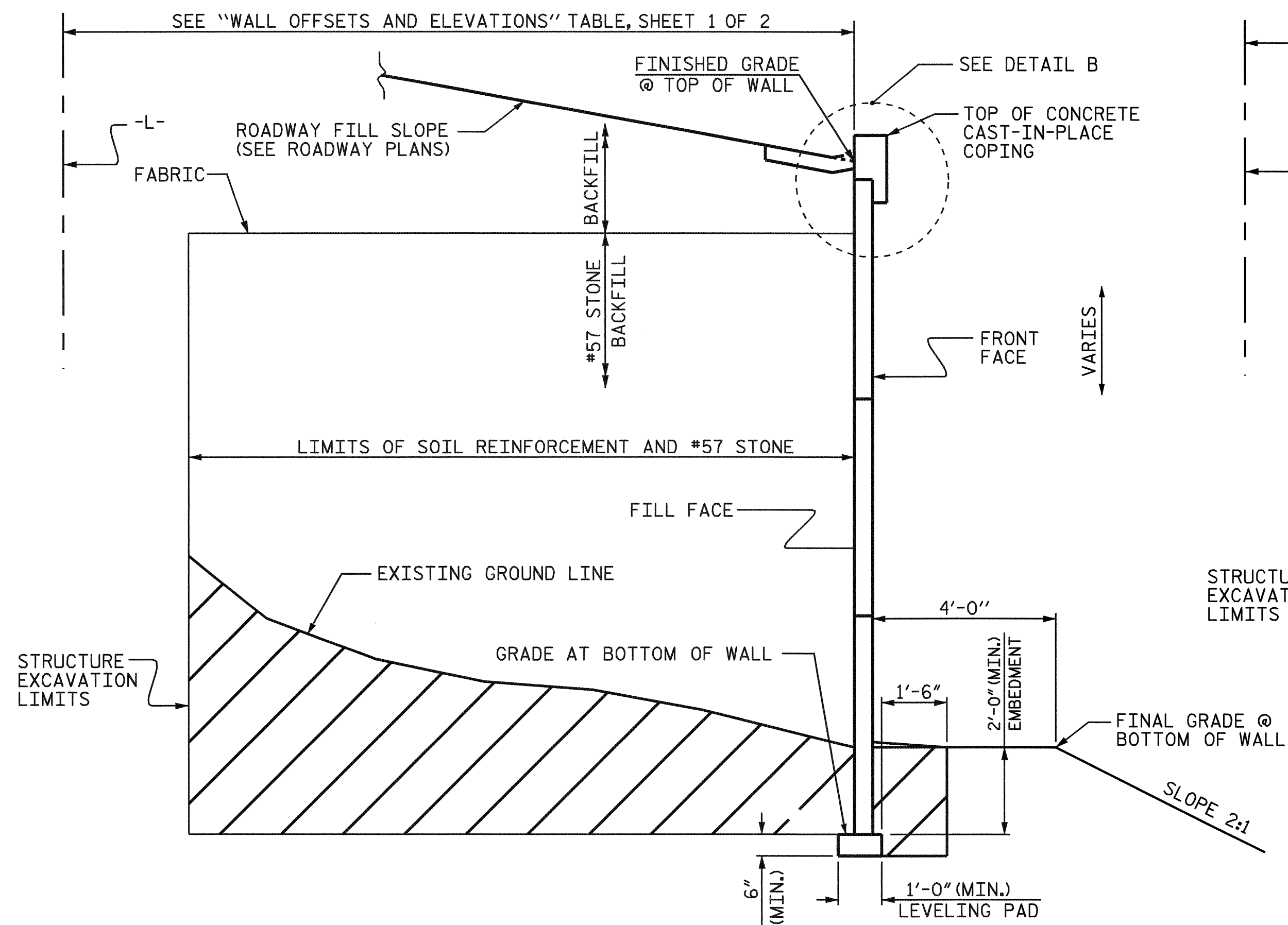


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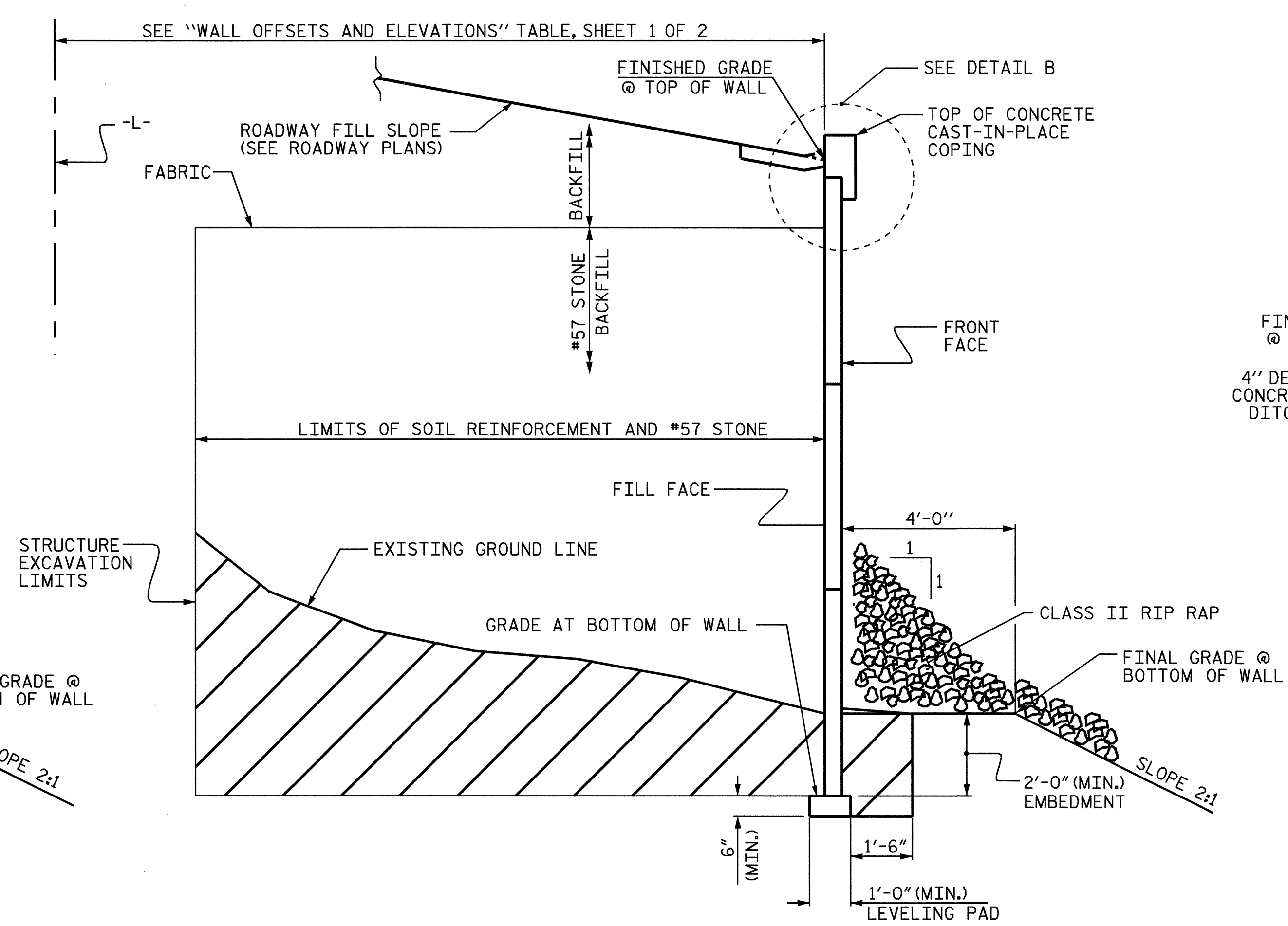
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 CHECKED BY : W.S.ARAFAT DATE : 8/25/05

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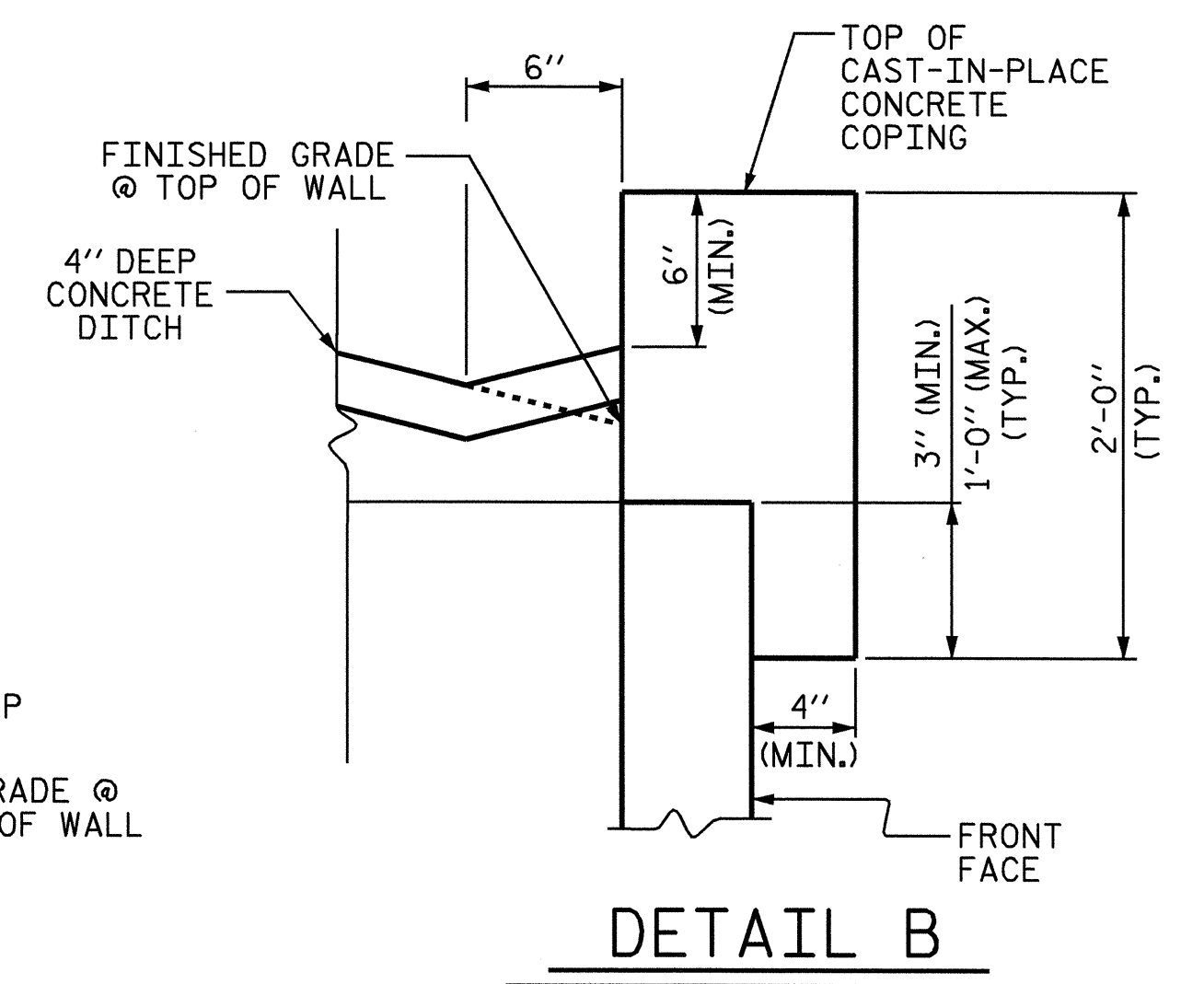
ESTIMATED QUANTITIES	
4" SLOPE PROTECTION	WELDED WIRE FABRIC 60 INCHES WIRE
SQUARE YARDS	APPROX. LIN. FT.
13	39



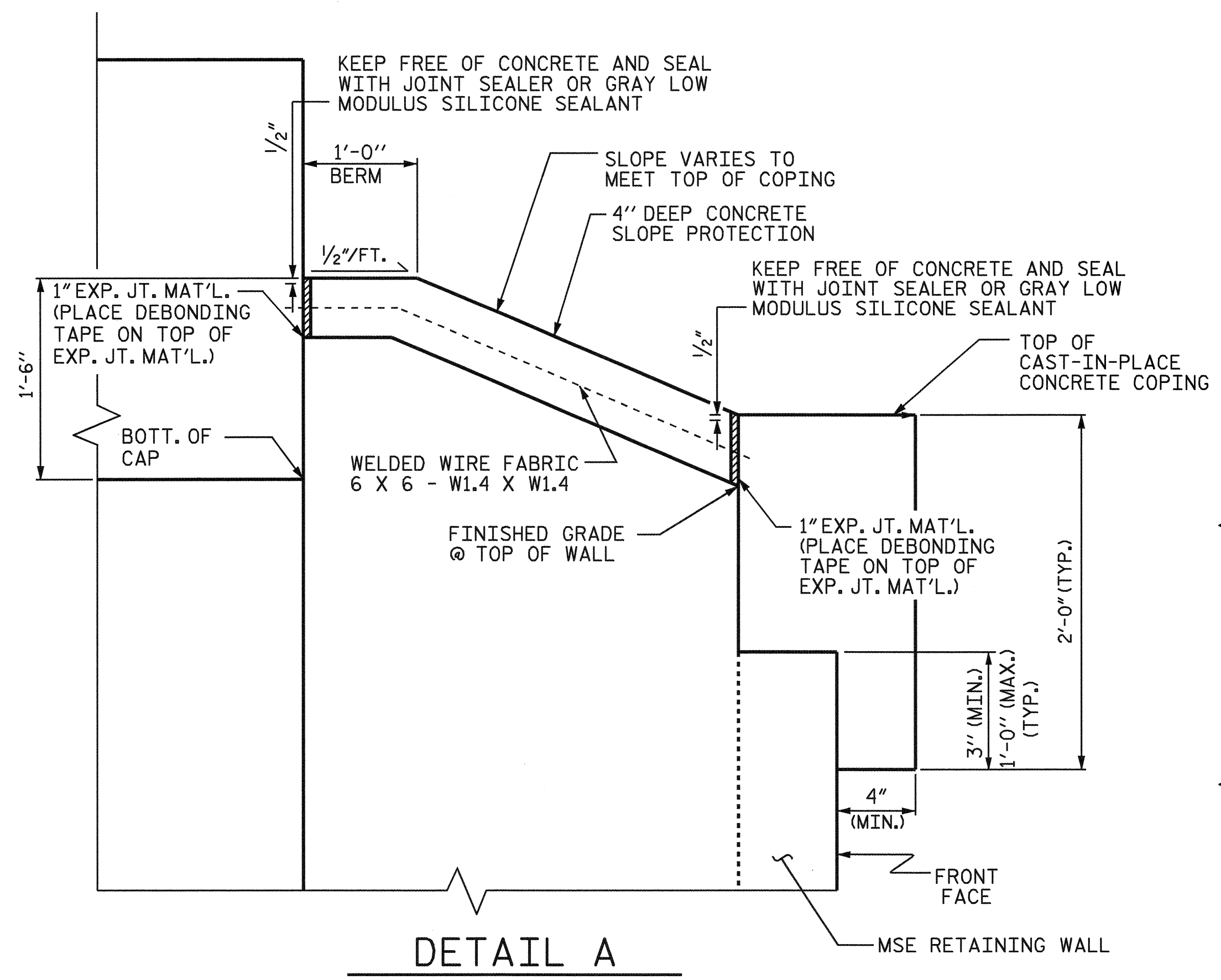
SECTION THROUGH WALL
STATION 13+02.00 -L- TO 13+33.94 -L-



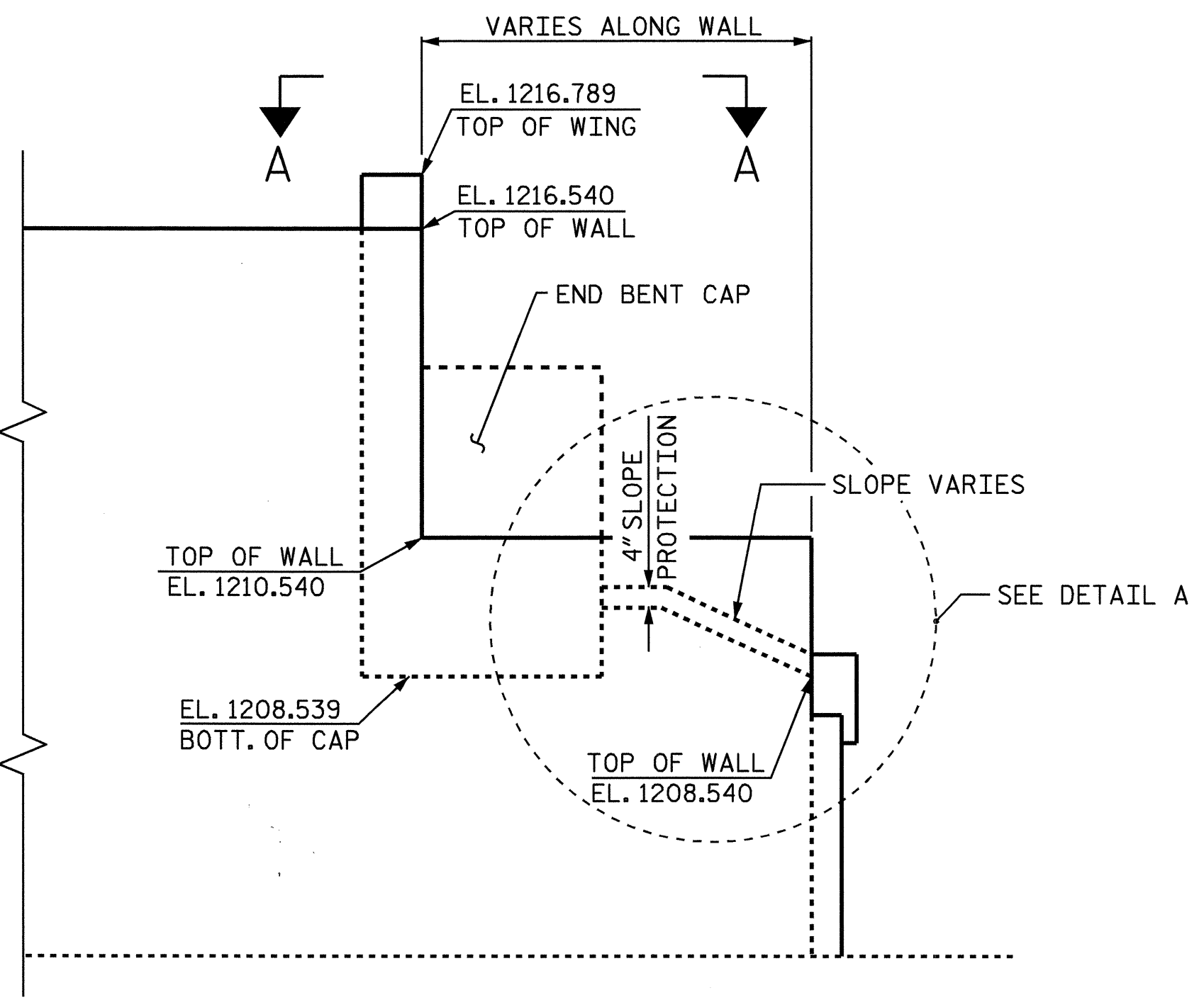
SECTION THRU WALL
STATION 13+33.94 -L- TO 13+73.50 -L- AND STATION 10+11.50 -WALL- TO 10+54.25 -WALL-



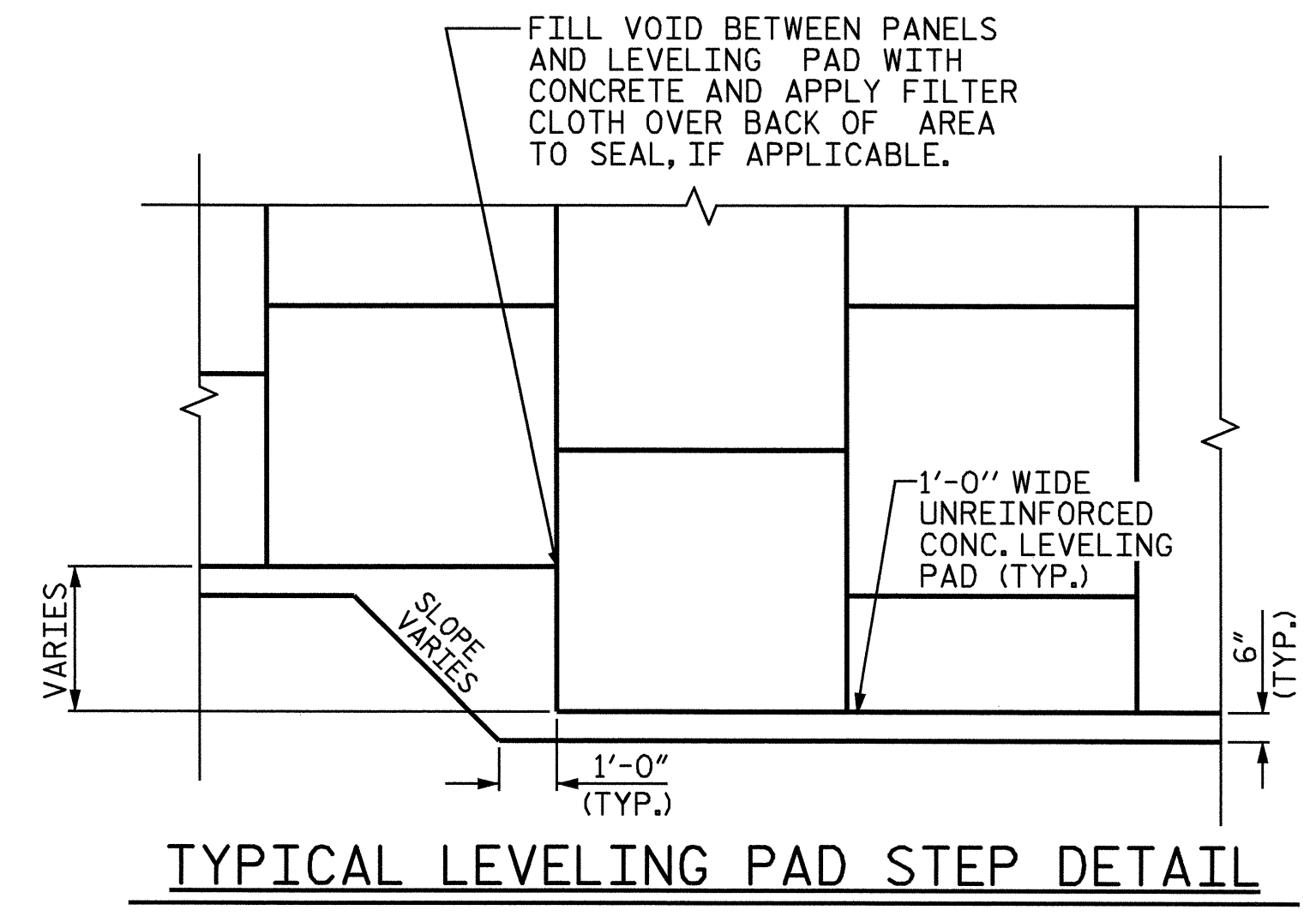
DETAIL B



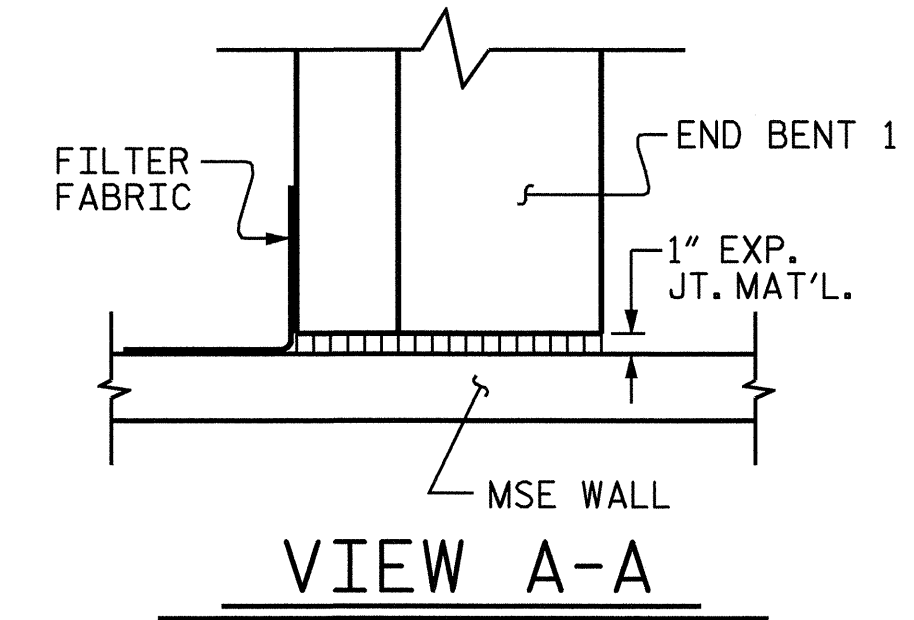
DETAIL A



SECTION OF WALL @ END BENT 1



TYPICAL LEVELING PAD STEP DETAIL



VIEW A-A

PROJECT NO. B-3872
McDOWELL COUNTY
 STATION: 13+02.00 -L-
 SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
MSE RETAINING WALL DETAILS					
REVISIONS					
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1			3		
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 CHECKED BY: W.S.ARAFAT DATE: 8/25/05

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STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 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. FINISHES 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