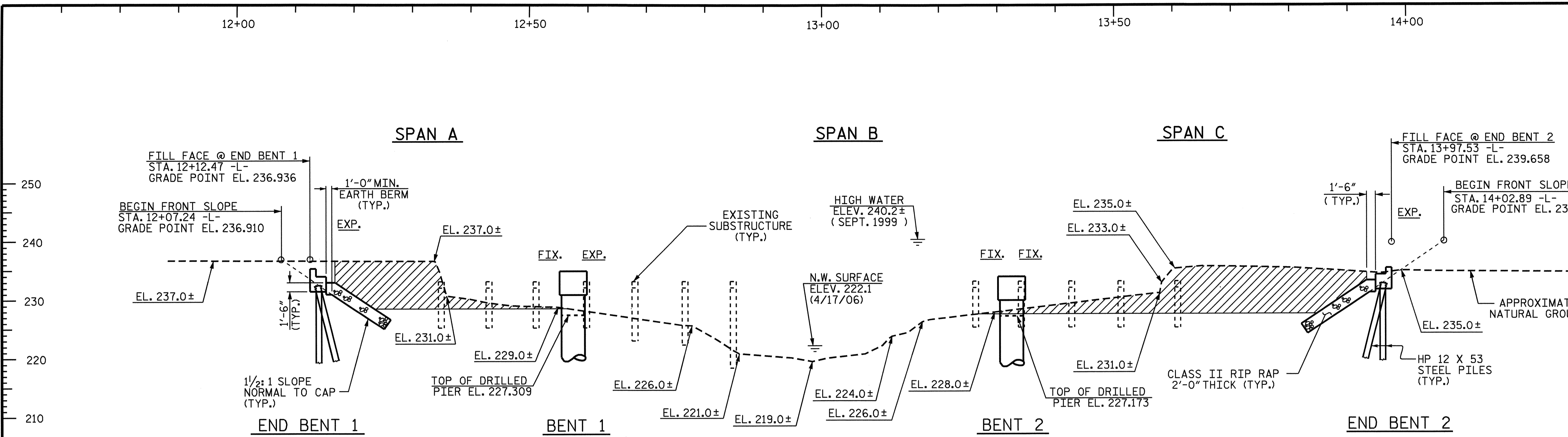


PI = 15+55.00
 EL = 238.05'
 VC = 720'
 +0.3300% +7.7986%
GRADE DATA

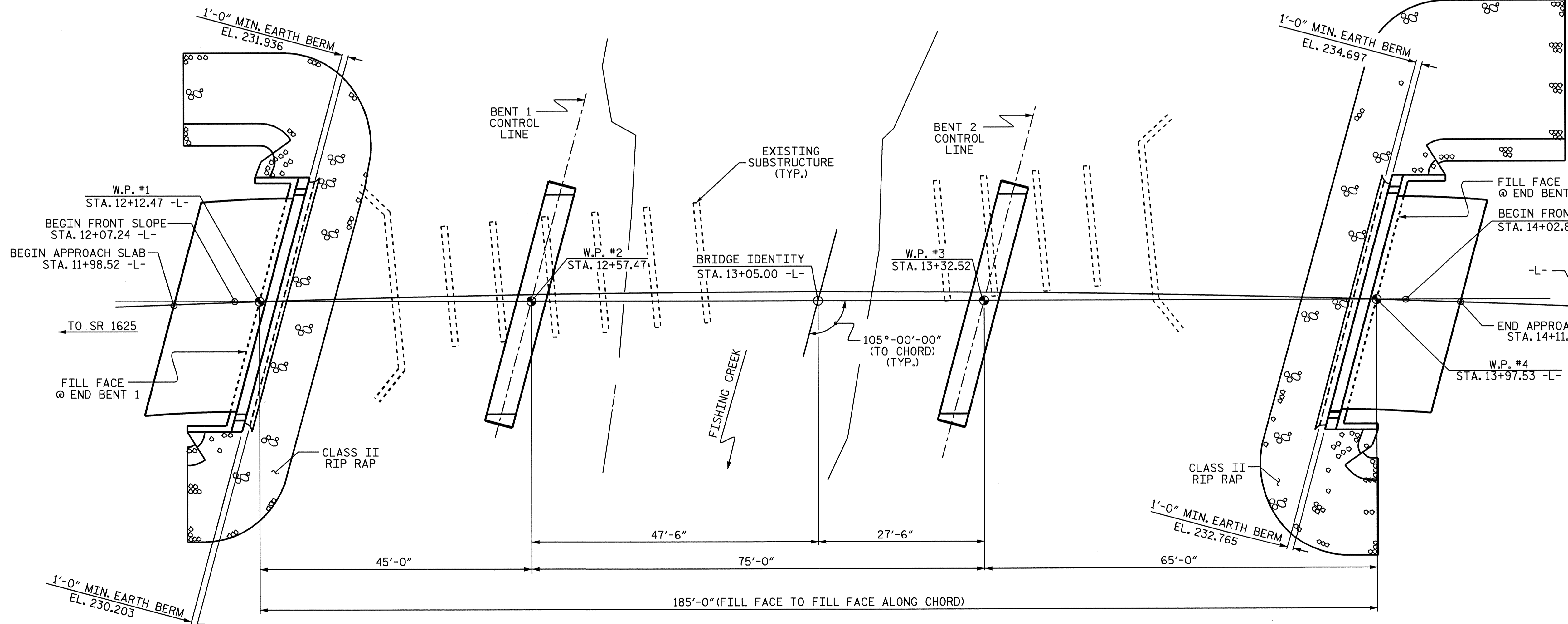


UNCLASSIFIED
 STRUCTURE
 EXCAVATION



HORIZONTAL CURVE DATA

P.I. STA. = 15+21.71
 Δ = 20°-26'-38.4" (RT)
 D = 2°-36'-15.7"
 L = 784.99'
 T = 369.71'
 R = 2200.00'



PROJECT NO. B-3921
 WARREN COUNTY
 STATION: 13+05.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO.45

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

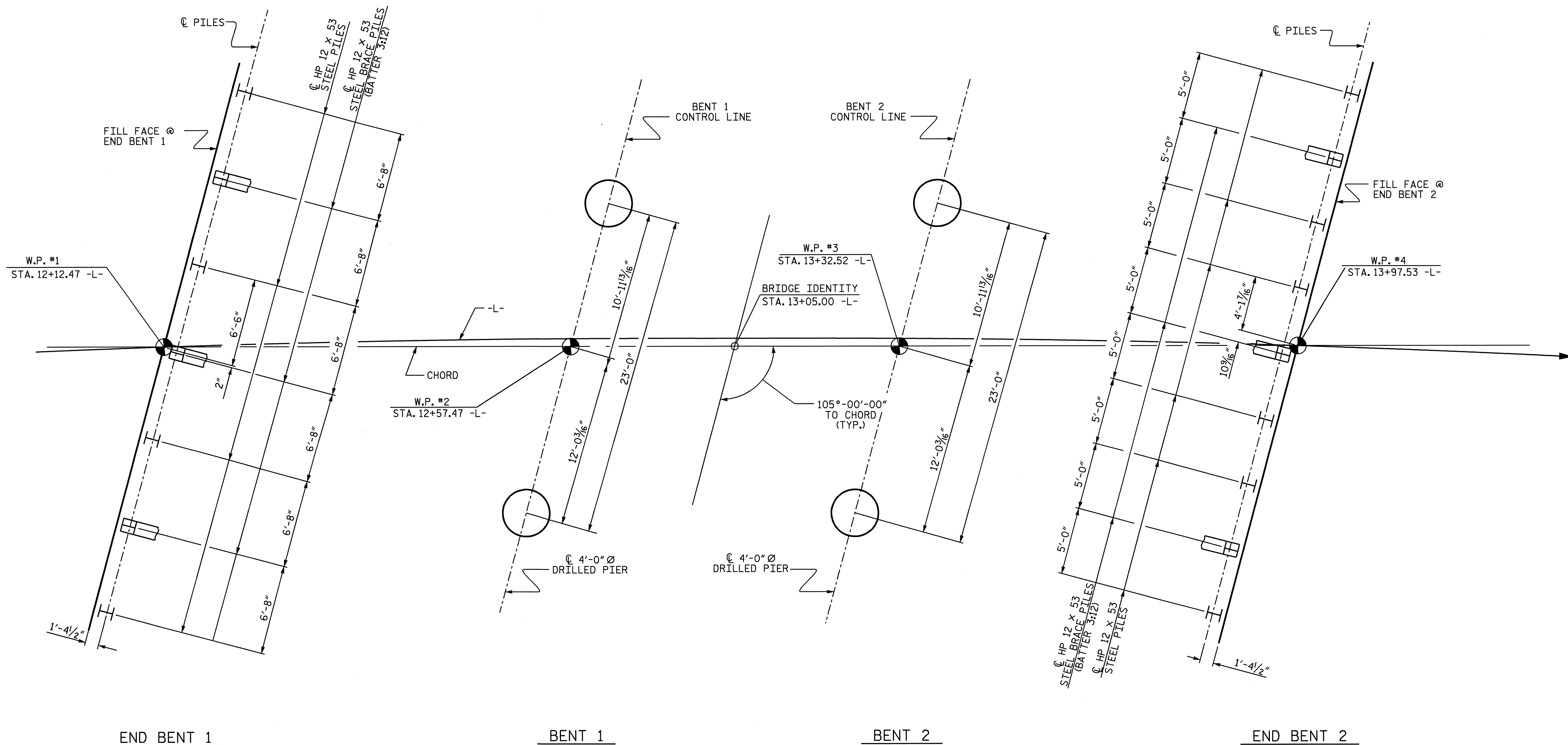
GENERAL DRAWING
 BRIDGE ON SR 1600 OVER
 FISHING CREEK BETWEEN
 SR 1625 AND SR 1606

REVISIONS

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

4/9/09

DRAWN BY : M.FOWLER DATE : 6/2/08
 CHECKED BY : J.G. KHARVA DATE : 10/22/08



FOUNDATION LAYOUT

(DIMENSIONS LOCATING END BENT PILES & DRILLED PIERS ARE SHOWN TO CENTERLINE PILES & DRILLED PIERS)

FOUNDATION NOTES :

DRILLED PIERS AT BENT 1 AND BENT 2 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 45 TSF.

DRILLED PIERS AT BENT 1 AND BENT 2 ARE DESIGNED FOR AN APPLIED LOAD OF 259 TONS AND 297 TONS, RESPECTIVELY, EACH AT THE TOP OF THE COLUMN.

INSTALL DRILLED PIERS AT BENT 1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 194 FT AND SATISFY THE REQUIRED END BEARING CAPACITY.

INSTALL DRILLED PIERS AT BENT 2 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 191 FT (LEFT) AND 187 FT (RIGHT), AND SATISFY THE REQUIRED END BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATIONS FOR BENT 1 AND BENT 2 ARE ELEVATION 205 FT AND ELEVATION 202 FT, RESPECTIVELY. THE SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CROSSHOLE SONIC LOGGING, SEE SPECIAL PROVISIONS.

DRIVE PILES AT END BENT 1 AND 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.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT 1 AND END BENT 2 IS 60 TONS PER PILE.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.



PROJECT NO. B-3921
WARREN COUNTY
 STATION: 13+05.00-L-

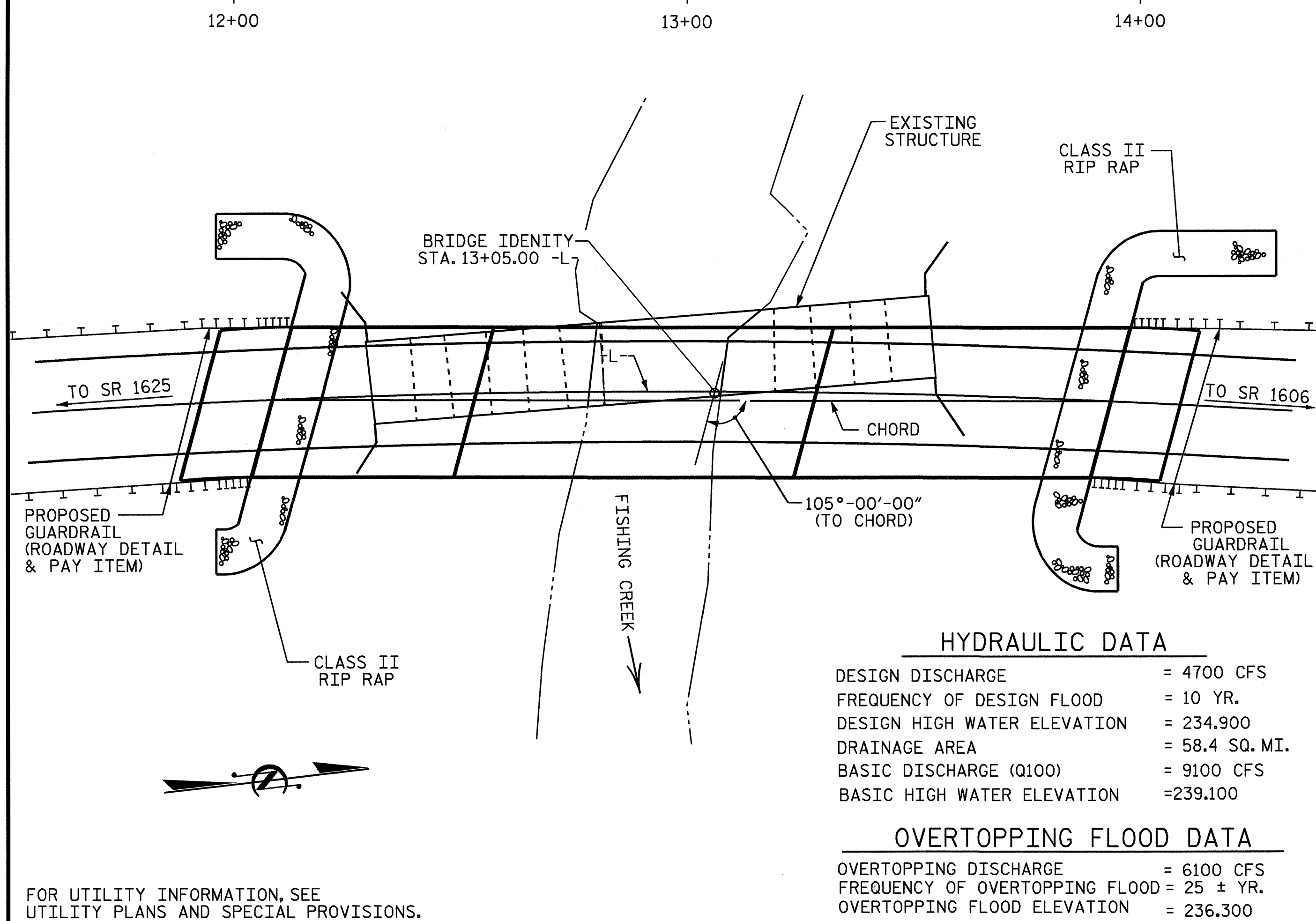
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 BRIDGE ON SR 1600 OVER
 FISHING CREEK BETWEEN
 SR 1625 AND SR 1606

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

DRAWN BY : M.FOWLER DATE : 06/16/08
 CHECKED BY : J.G. KHARVA DATE : 10/13/08

B.M. #1: RR SPIKE IN BASE OF 18" ELM 38.78' RIGHT STA. 14+23.95 -L- ELEV.= 231.990



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT BOX BEAM UNITS HAVE BEEN DESIGNED FOR HS25.

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.

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

THE EXISTING STRUCTURE CONSISTING OF 11 TIMBER DECK SPANS OF VARIOUS LENGTHS ON TIMBER JOIST AND I-BEAMS WITH A CLEAR ROADWAY WIDTH OF 19'-3" ON TIMBER CAP AND PILE END BENTS AND BENTS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. SEE SPECIAL PROVISIONS FOR REMOVAL OF EXISTING STRUCTURE.

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 13+05.00 -L-."

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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 A.

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.

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE	= 4700 CFS
FREQUENCY OF DESIGN FLOOD	= 10 YR.
DESIGN HIGH WATER ELEVATION	= 234.900
DRAINAGE AREA	= 58.4 SQ. MI.
BASIC DISCHARGE (Q100)	= 9100 CFS
BASIC HIGH WATER ELEVATION	= 239.100

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 6100 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 25 ± YR.
OVERTOPPING FLOOD ELEVATION	= 236.300

TOTAL BILL OF MATERIAL

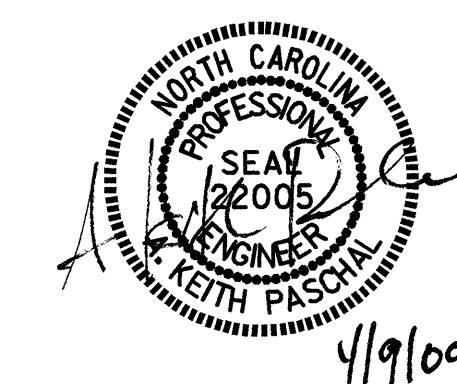
	REMOVAL OF EXISTING STRUCTURE	4'-0" DIA. DRILLED PIER IN SOIL	4'-0" DIA. DRILLED PIER NOT IN SOIL	SID INSPECTION	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12 x 53 STEEL PILES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 2'-3" PRESTRESSED CONCRETE BOX BEAMS		
	LUMP SUM	CU. YDS.	CU. YDS.	EA.	EA.	CU. YDS.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE												365.33				LUMP SUM	36	2189.00
END BENT 1						375	16.0		2611		7	210		137	153			
BENT 1		50.00	17.00	1	1		31.3		9522	1948								
BENT 2		61.66	15.00				32.4		10281	2254								
END BENT 2						465	16.0		2596		9	245		194	216			
TOTAL	LUMP SUM	111.66	32.00	1	1	840	95.7	LUMP SUM	25010	4202	16	455	365.33	331	369	LUMP SUM	36	2189.00

PROJECT NO. B-3921
WARREN COUNTY
 STATION: 13+05.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER FISHING CREEK ON SR 1600 BETWEEN SR 1625 AND SR 1606



DRAWN BY: M.FOWLER DATE: 6/13/08
 CHECKED BY: J.G. KHARVA DATE: 10/23/08

16-APR-2009 15:25
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 Kpaschal

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

NC006

NOTES

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

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

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

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO 1/2" ABOVE THE TOP OF DOWELS AND THEN FILLED WITH GROUT.

THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT. THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI IN SPAN A, 6400 PSI IN SPAN B AND 4800 PSI IN SPAN C.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

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

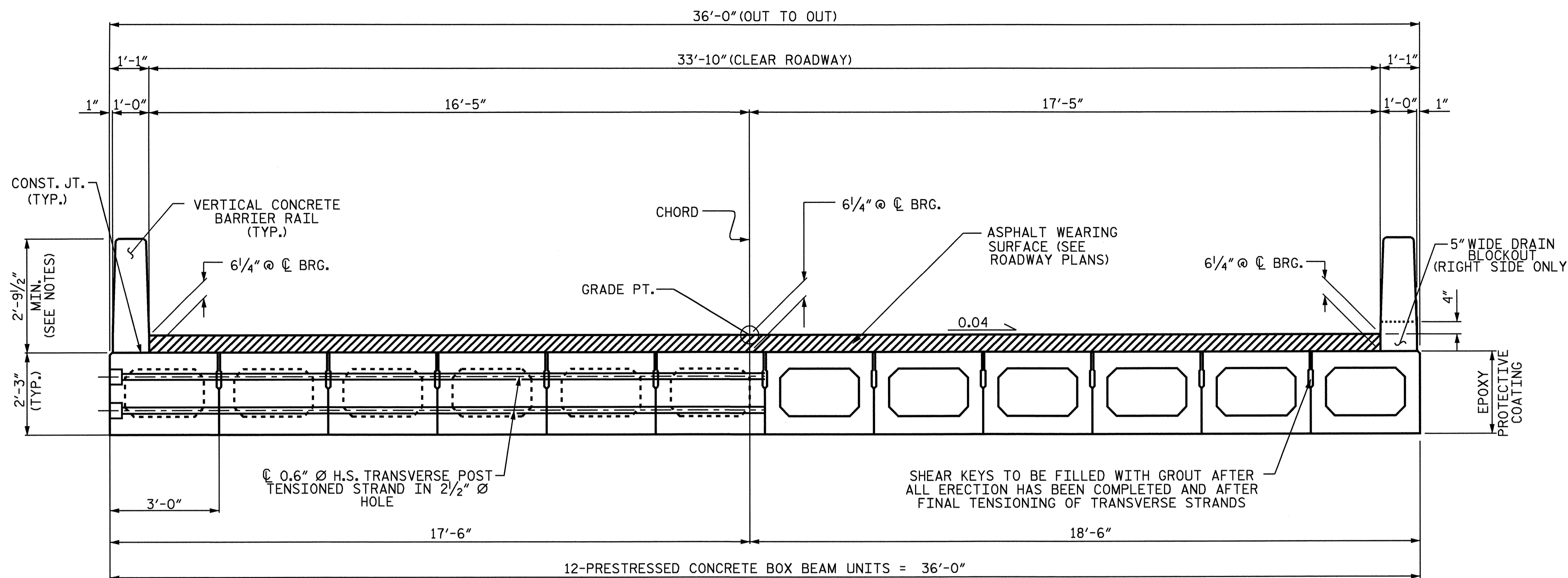
THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

THE MINIMUM HEIGHT OF THE BARRIER RAIL IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.

FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.



HALF SECTION @ DIAPHRAGMS

HALF SECTION @ VOIDS

TYPICAL SECTION

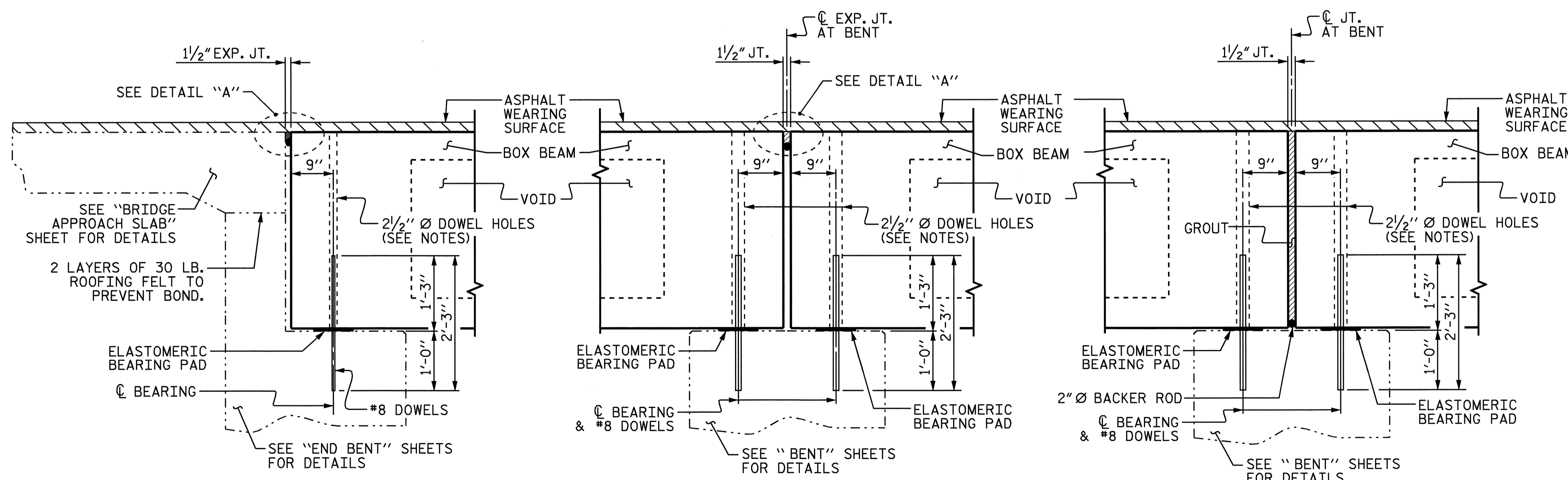
EXPANSION END

FIXED END

EXPANSION END

FIXED END

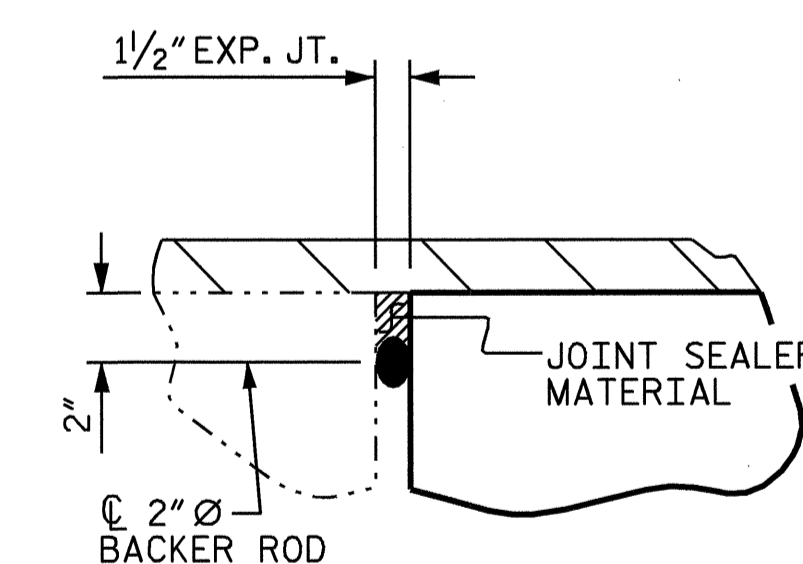
FIXED END



SECTION AT END BENTS

SECTION AT BENT 1

SECTION AT BENT 2



DETAIL "A"

PROJECT NO. B-3921
WARREN COUNTY
STATION: 13+05.00 -L-

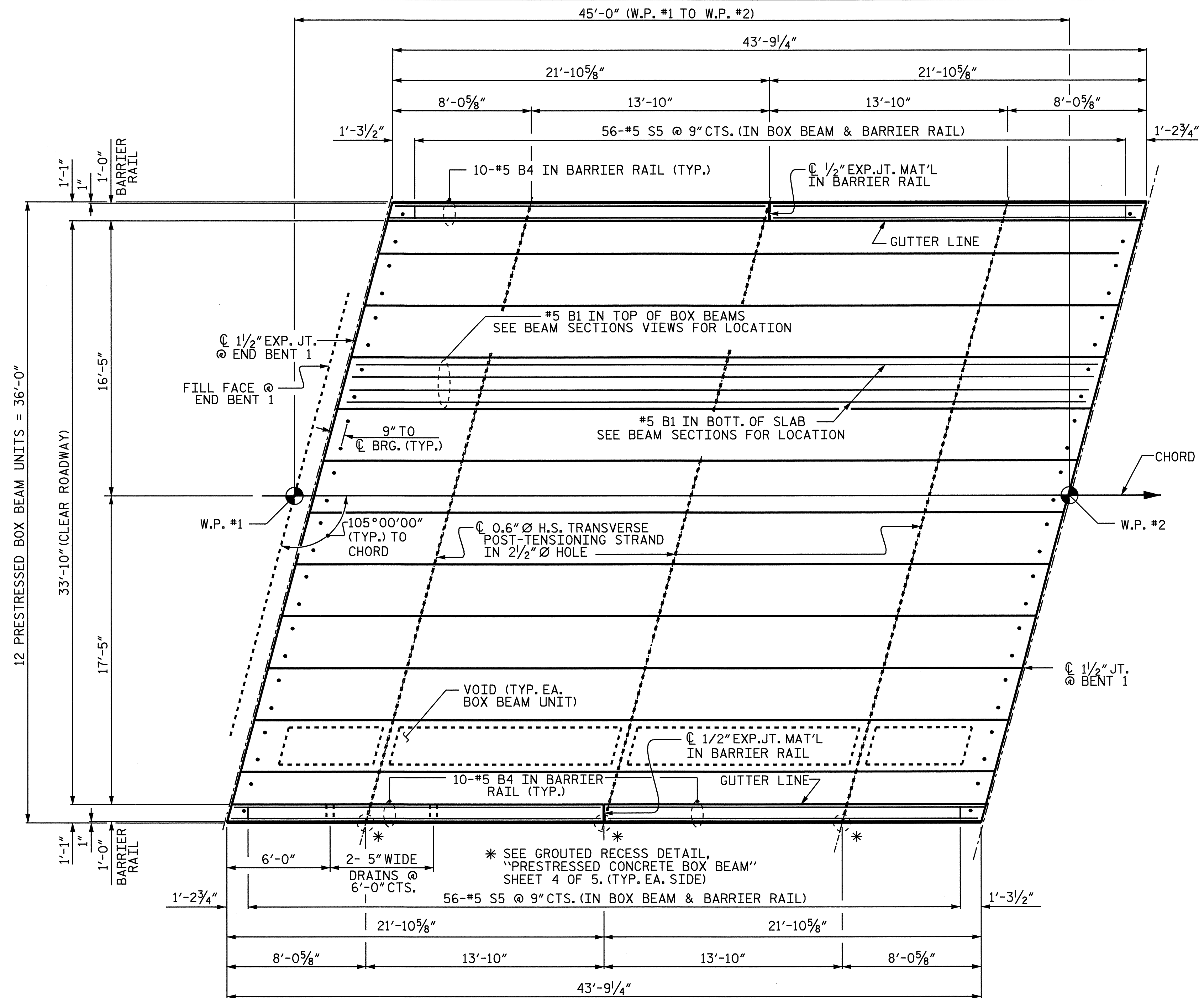


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-3"
PRESTRESSED CONCRETE
BOX BEAM UNIT

ASSEMBLED BY : J. G. KHARVA DATE : 10/05/06
CHECKED BY : J. D. HAWK DATE : 12/01/08
DRAWN BY : TLA 5/05
CHECKED BY : GM 6/05

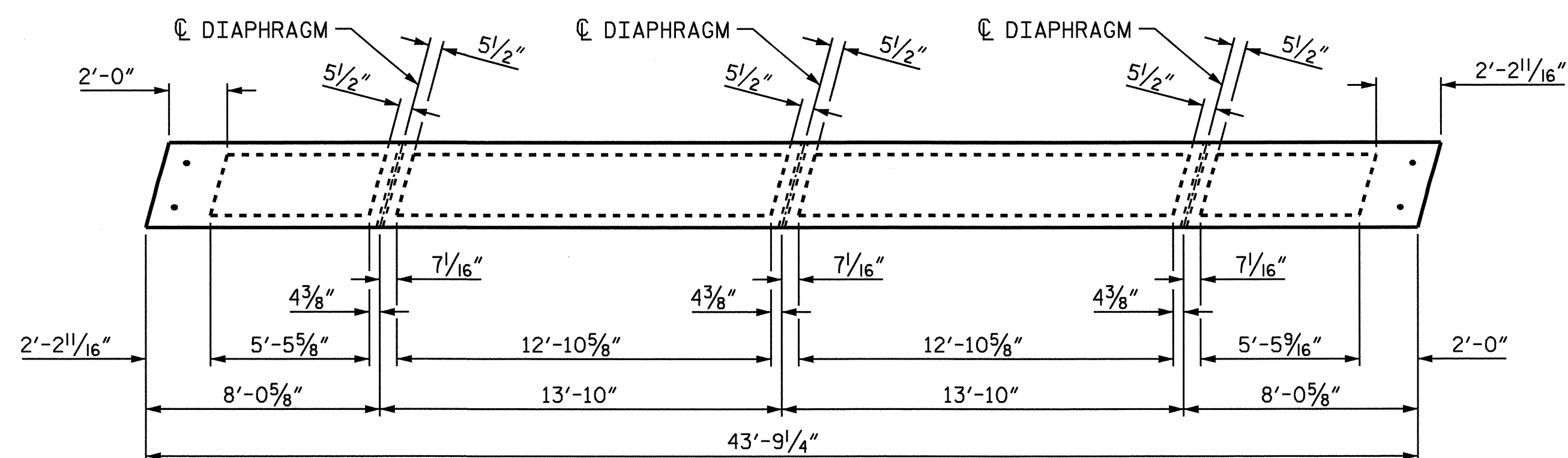
ADDED 7/11/05R
REV. 5/1/06R KMM/GM

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



PLAN OF SPAN - A

FOR ADDITIONAL REINFORCING STEEL IN THE BOX BEAM UNITS, SEE "3'-0" X 2'-3" PRESTRESSED CONCRETE BOX BEAM UNIT" SHEETS



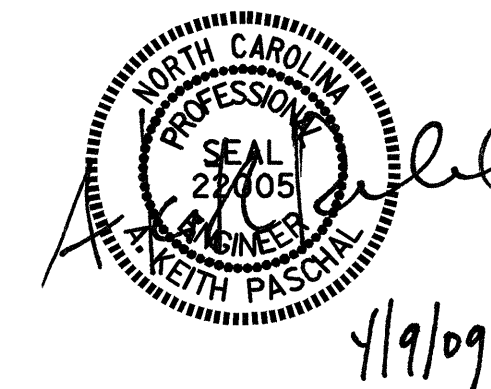
PLAN OF BOX BEAM - SPAN A

(SHOWING LOCATION OF VOIDS AND DIAPHRAGMS)

PROJECT NO. B-3921
 WARREN COUNTY
 STATION: 13+05.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN A

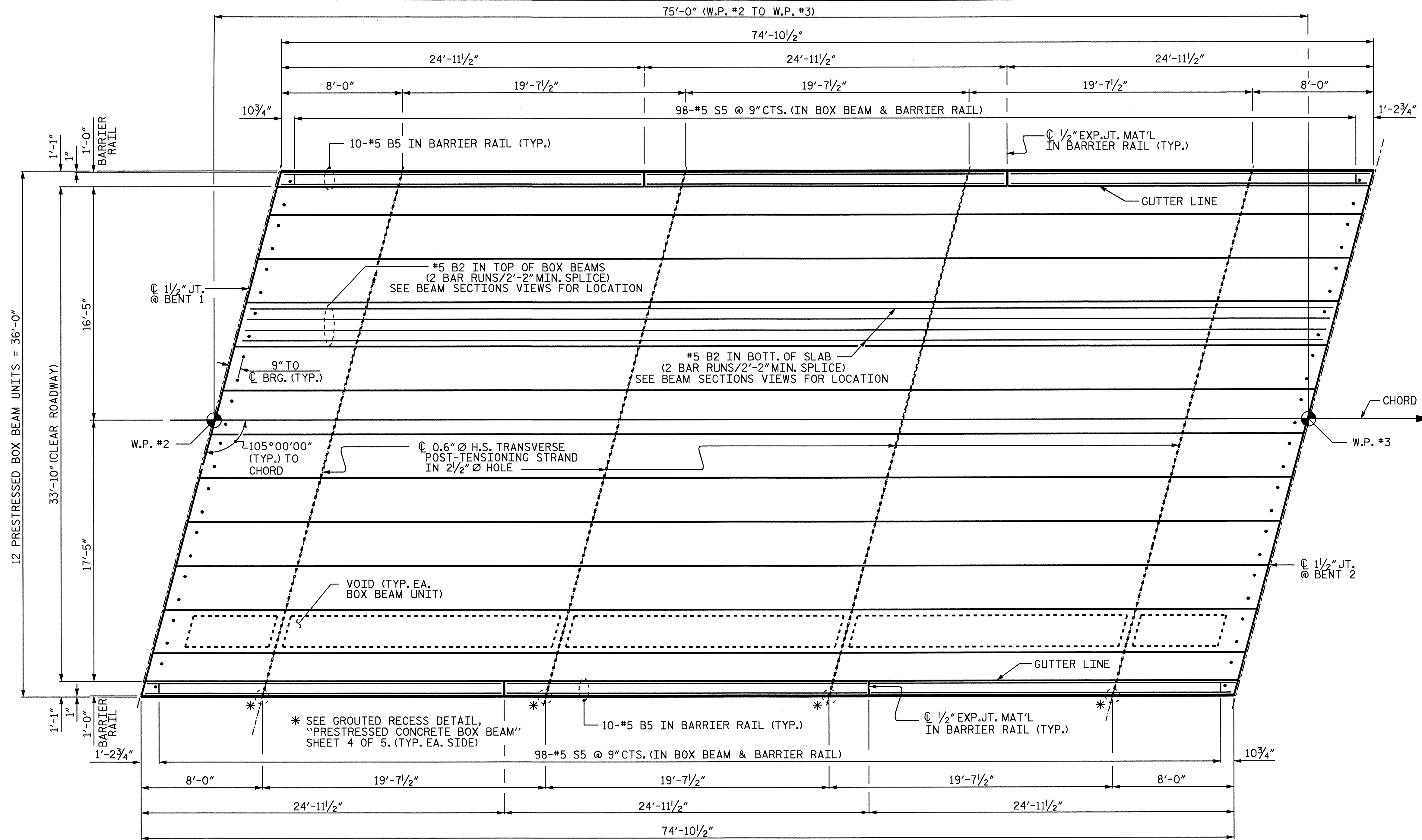


DRAWN BY: J. G. KHARVA DATE: 10-5-06
 CHECKED BY: J. D. HAWK DATE: 12-01-08

09-APR-2009 09:13
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 jdhawk

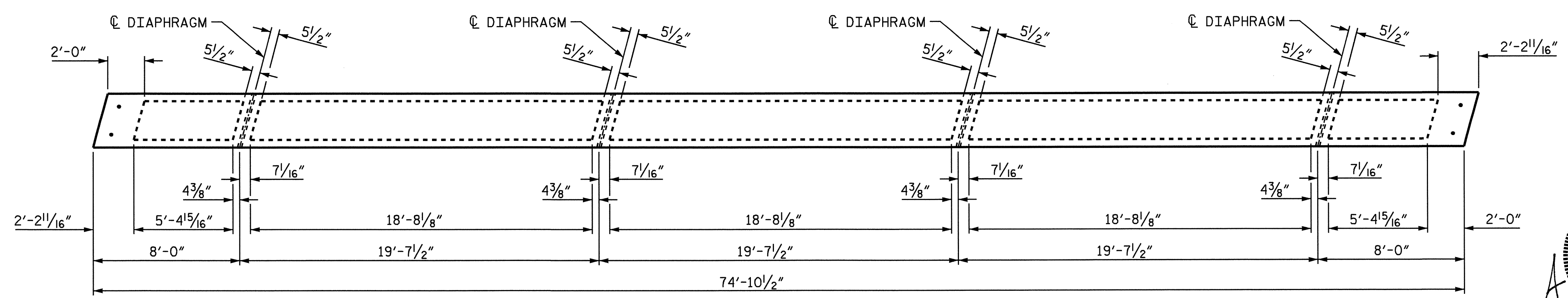
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS 26
2			4			

NC006



PLAN OF SPAN - B

FOR ADDITIONAL REINFORCING STEEL IN THE BOX BEAM UNITS, SEE "3'-0" X 2'-3" PRESTRESSED CONCRETE BOX BEAM UNIT" SHEETS



PLAN OF BOX BEAM - SPAN B

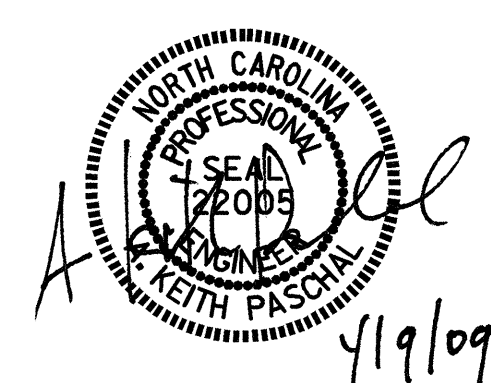
(SHOWING LOCATION OF VOIDS AND DIAPHRAGMS)

PROJECT NO. B-3921
WARREN COUNTY
STATION: 13+05.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

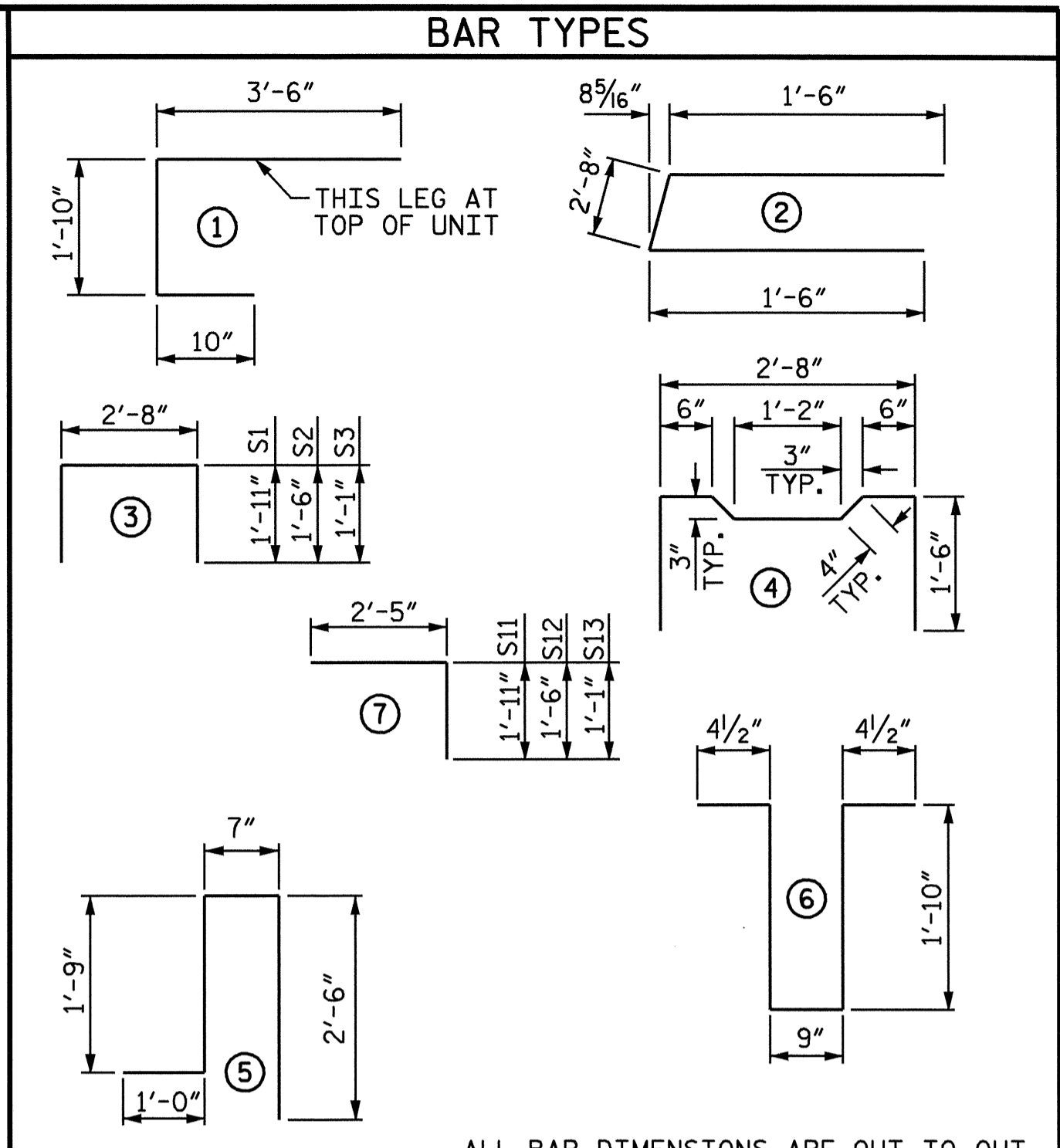
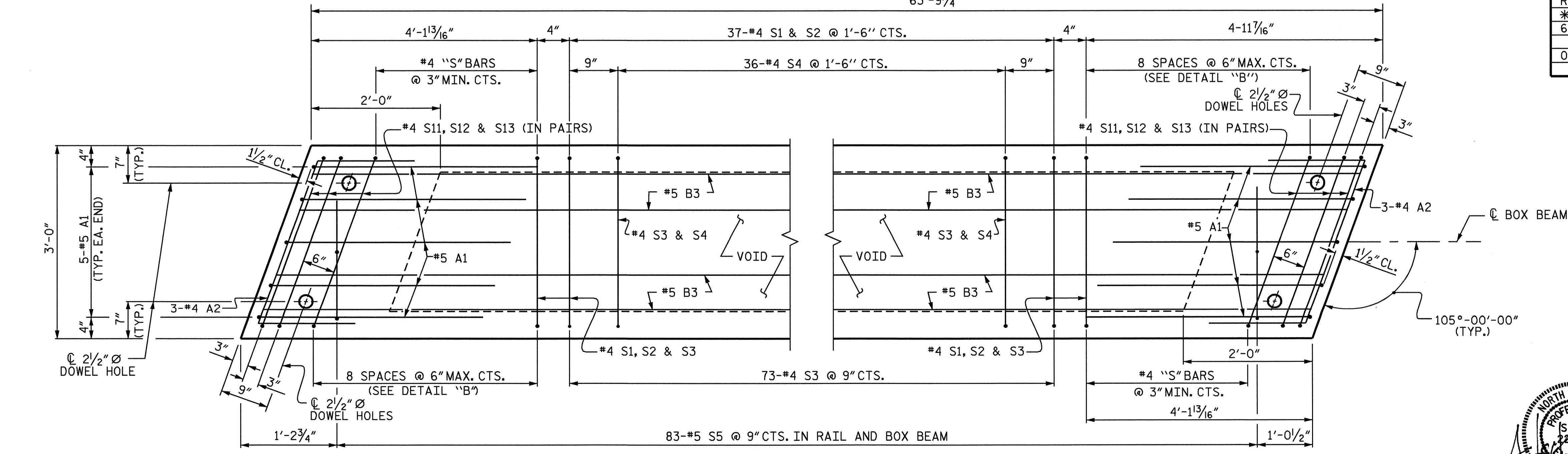
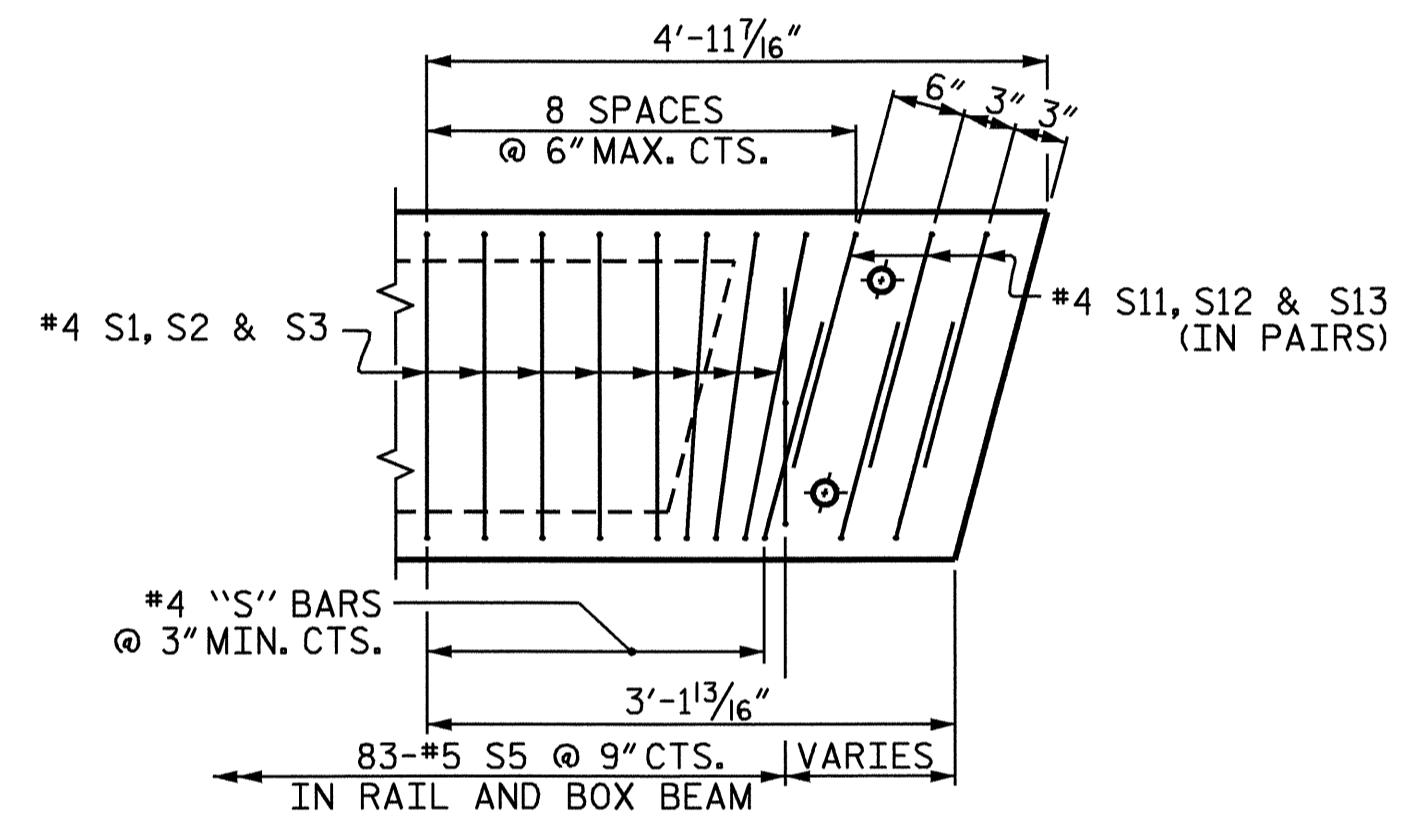
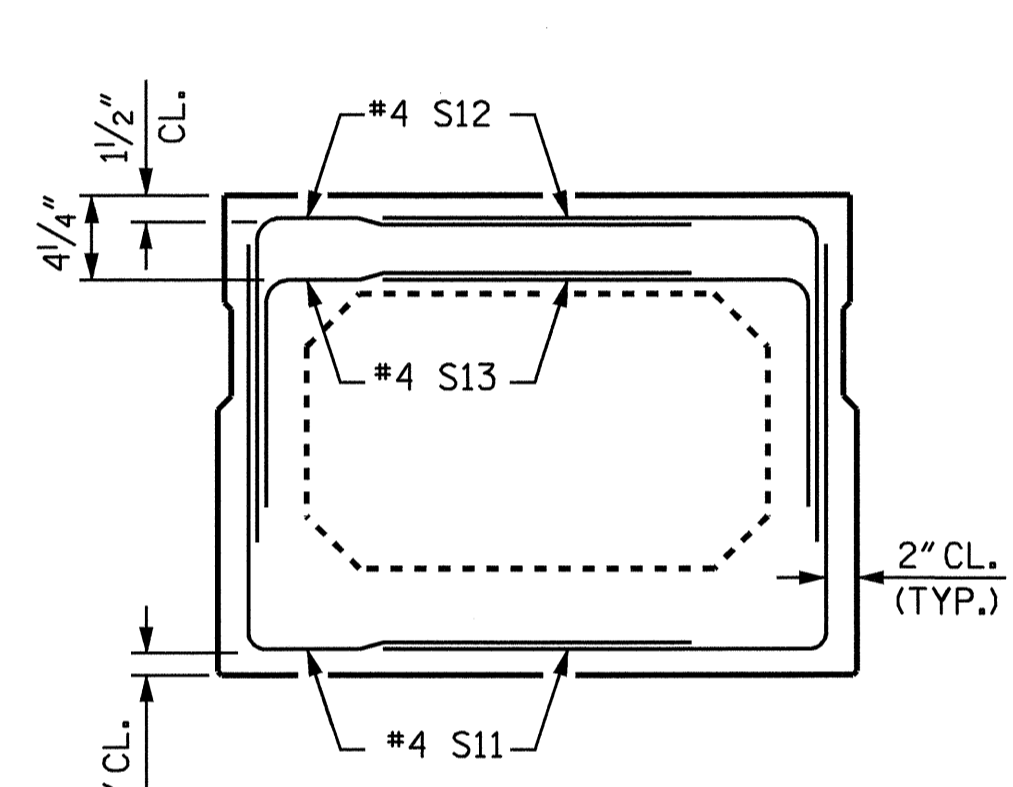
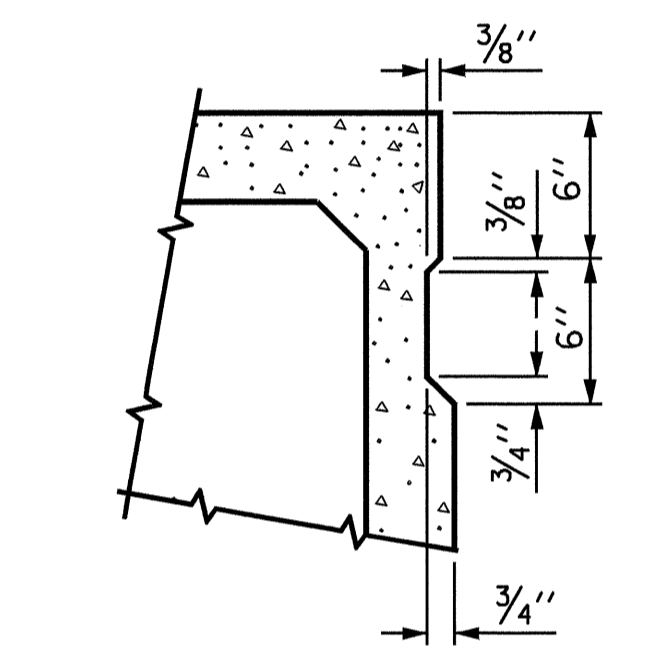
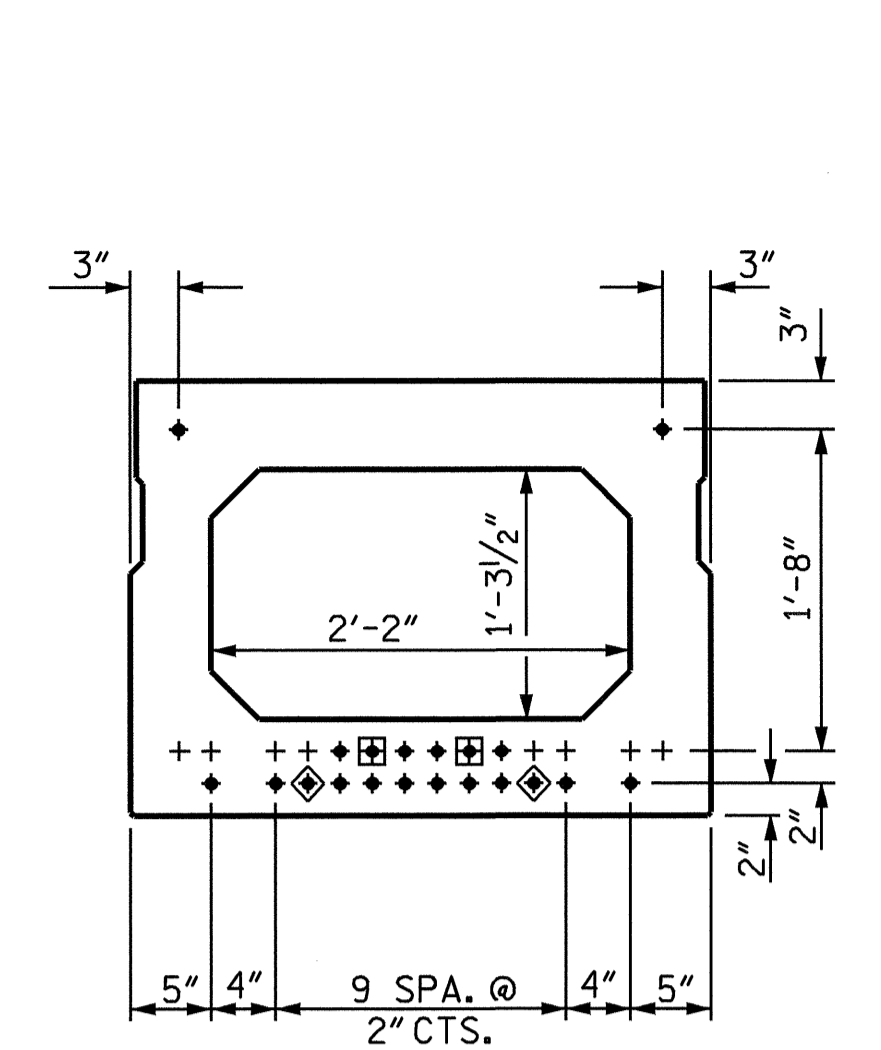
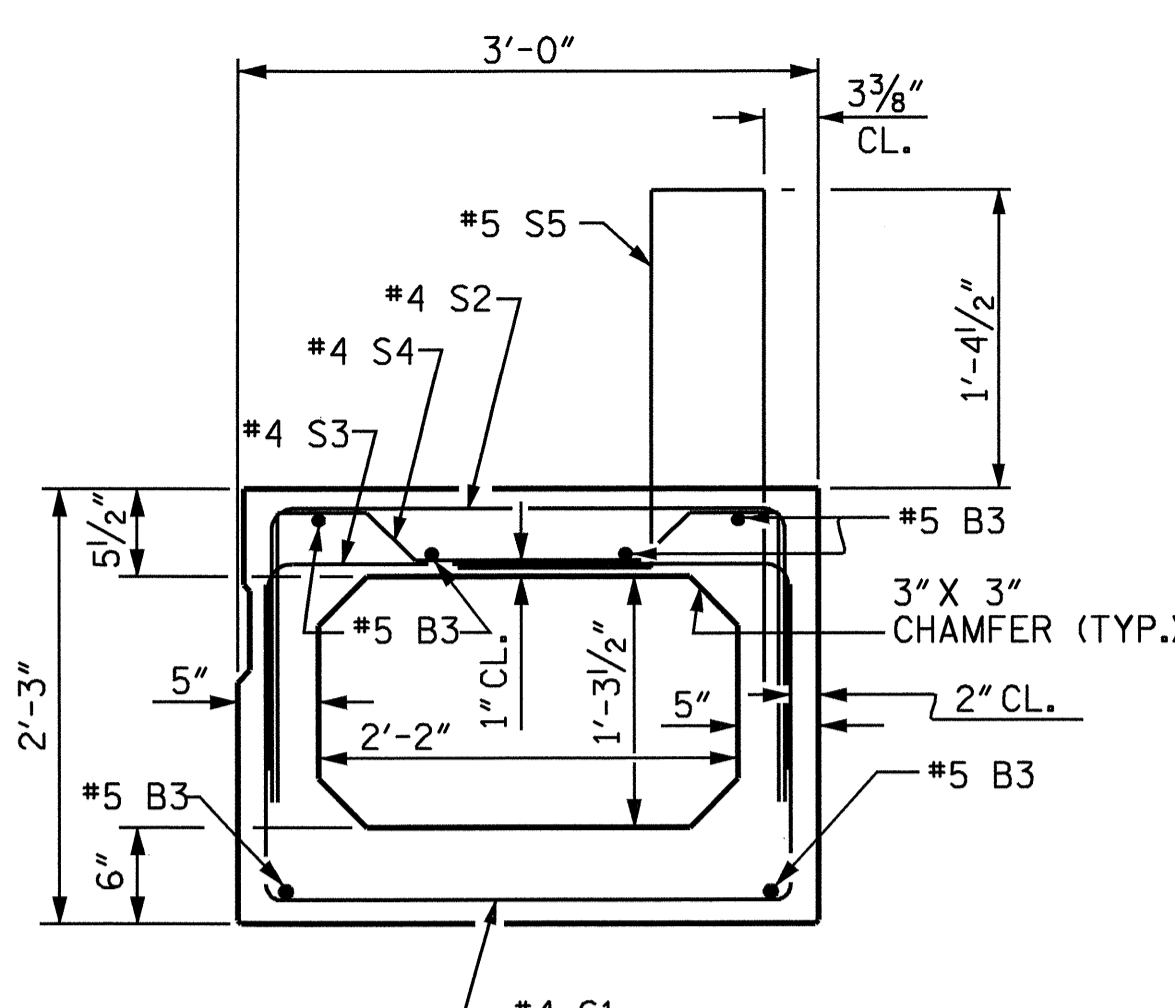
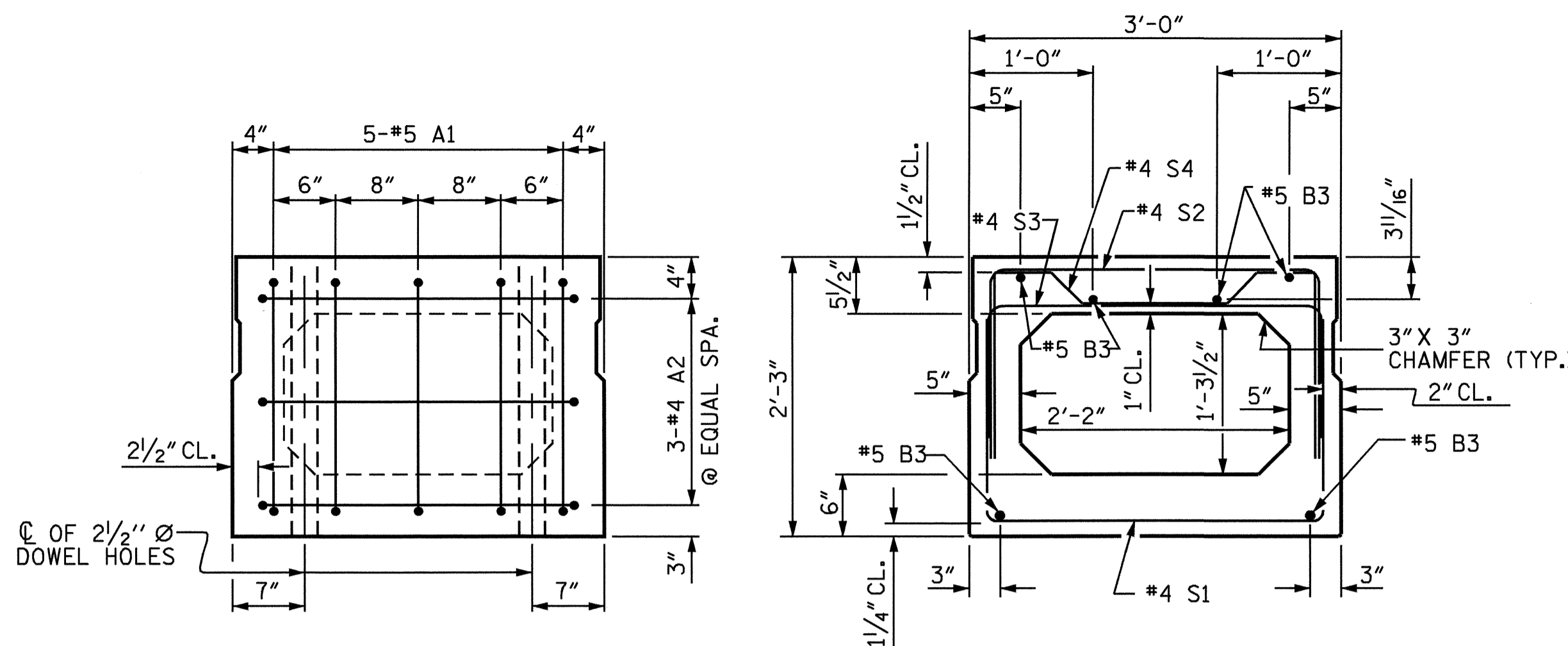
**SUPERSTRUCTURE
PLAN OF SPAN B**

NO. BY: DATE: NO. BY: DATE: SHEET NO. S-6
1 3 TOTAL SHEETS 26
2 4



DRAWN BY : J. G. KHARVA DATE : 10-5-06
CHECKED BY : J. D. HAWK DATE : 12-1-08

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jdhawk



DEBONDING LEGEND

- FULLY BONDED STRANDS
- ◊ DEBONDED 4'-0"
- ◼ DEBONDED 8'-0"

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

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-2"	64	6'-2"	64
A2	22	#4	2	5'-8"	83	5'-8"	83
B3	12	#5	STR	32'-10"	411	32'-10"	411
K1	12	#4	6	5'-2"	41	5'-2"	41
K2	8	#4	STR	2'-8"	14	2'-8"	14
S1	53	#4	3	6'-6"	230	6'-6"	230
S2	53	#4	3	5'-8"	201	5'-8"	201
S3	89	#4	3	4'-10"	287	4'-10"	287
S4	36	#4	4	5'-10"	140	5'-10"	140
S11	12	#4	7	4'-4"	35	4'-4"	35
S12	12	#4	7	3'-11"	31	3'-11"	31
S13	12	#4	7	3'-6"	28	3'-6"	28
* S5	83	#5	5	5'-10"	505	--	--
REINFORCING STEEL				1565 LBS.		1565 LBS.	
* EPOXY COATED REINF. STEEL				505 LBS.			
6000 P.S.I. CONCRETE				10.3 CU. YDS.		10.2 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 20		No. 20	

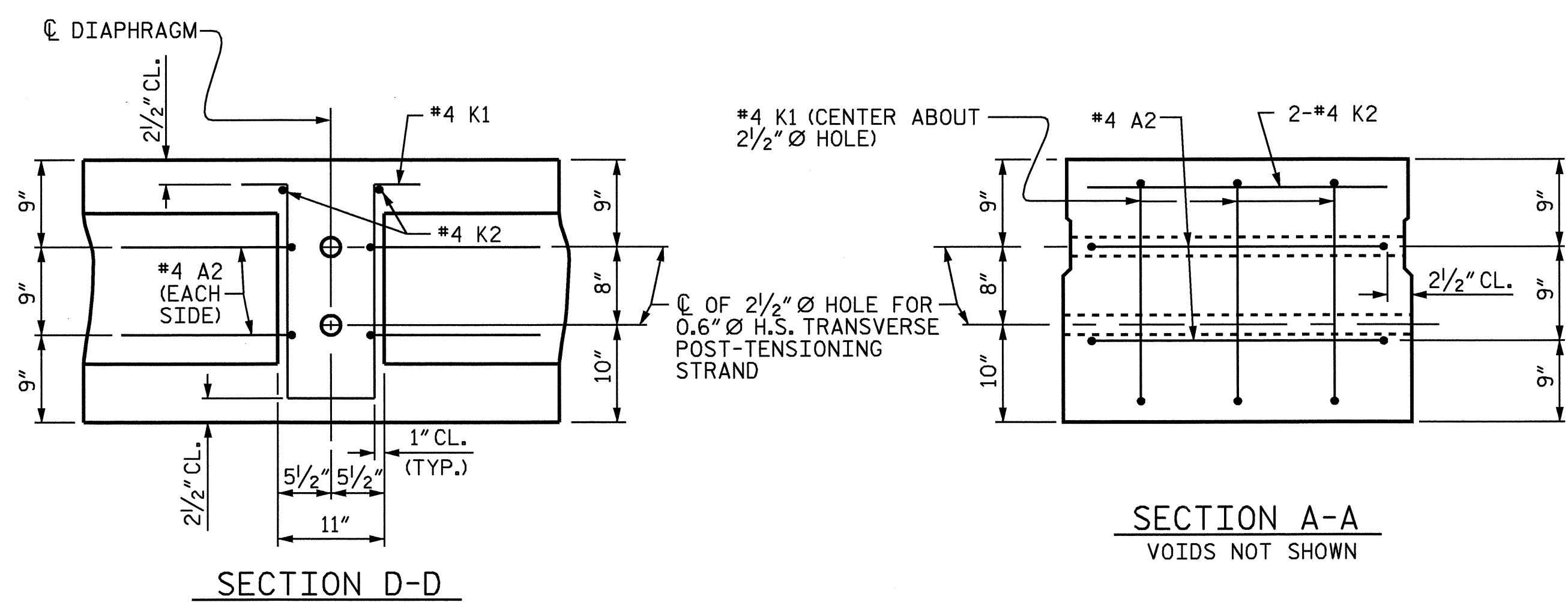
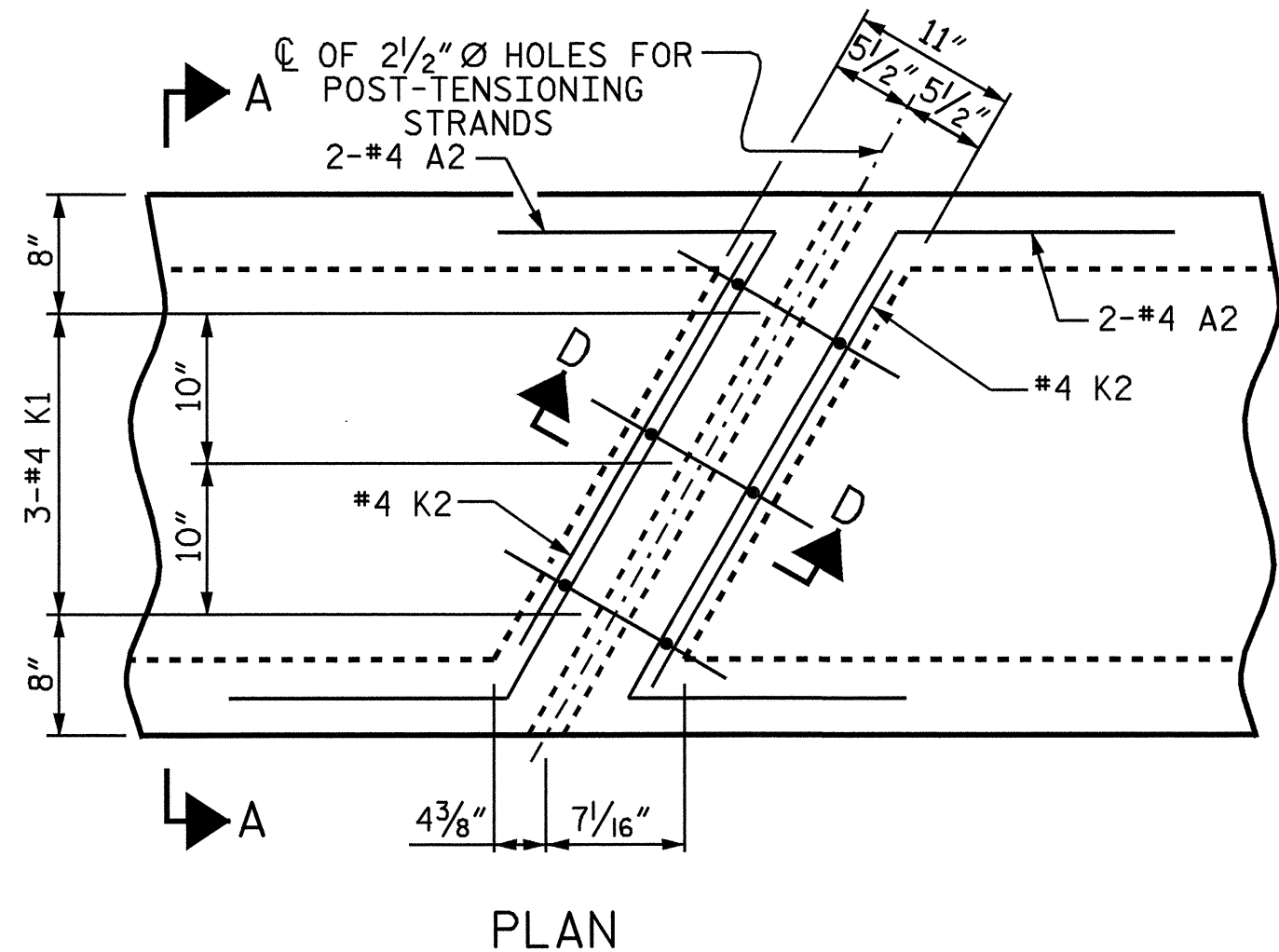
PROJECT NO. B-3921
WARREN COUNTY
STATION: 13+05.00 -L-

SHEET 3 OF 5
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-3"
PRESTRESSED CONCRETE
BOX BEAM UNIT
SPAN C



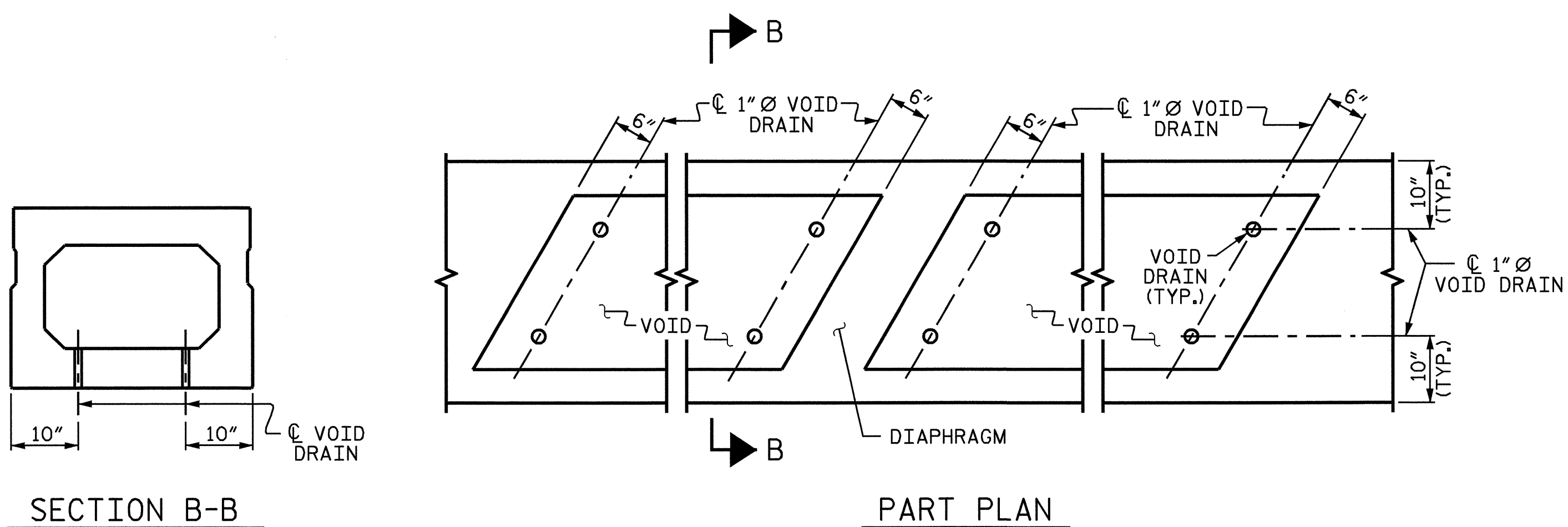
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			26

ASSEMBLED BY: J. G. KHARVA DATE: 10-10-06
CHECKED BY: J. D. HAWK DATE: 12-01-08
DRAWN BY: TLA 5/05
CHECKED BY: GM 6/05
ADDED 7/11/05
REV. 5/1/06 TLA/GM



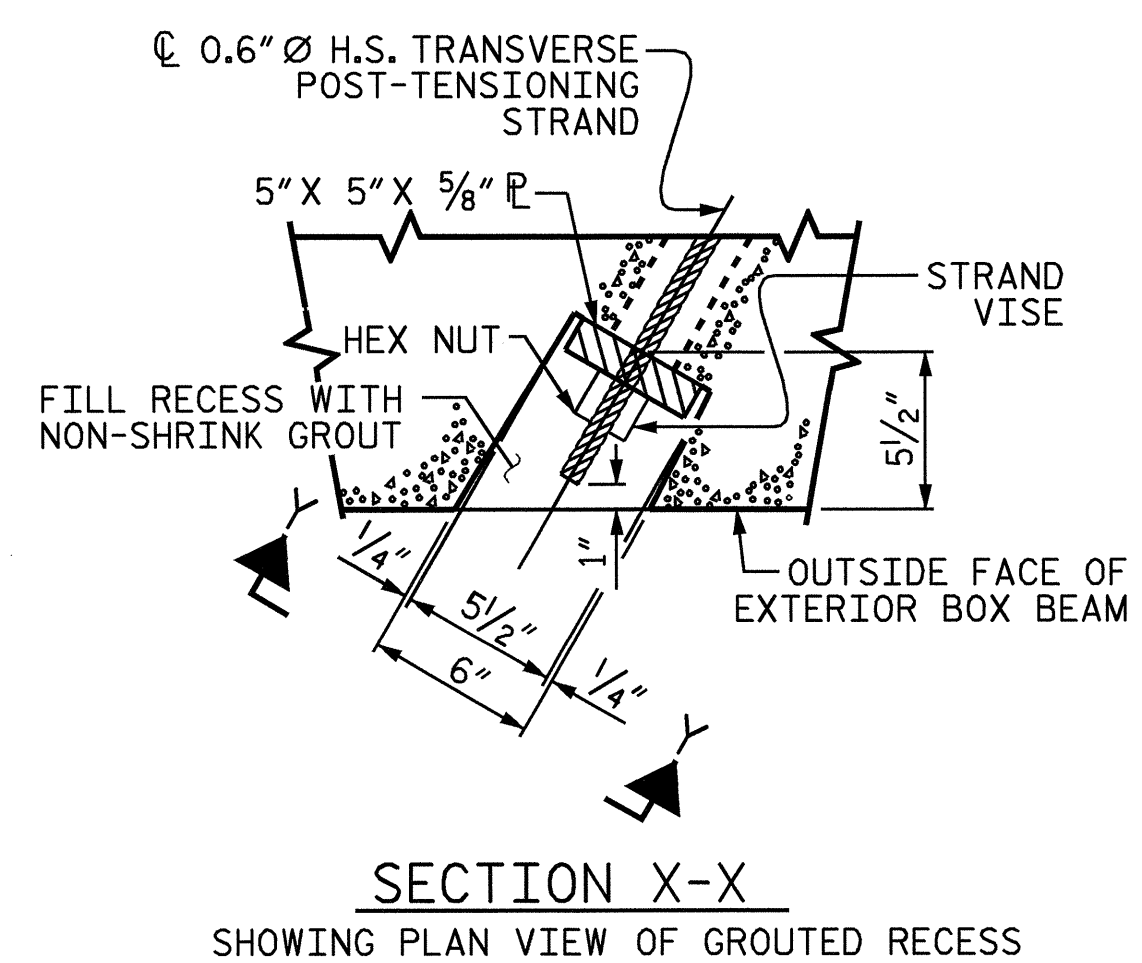
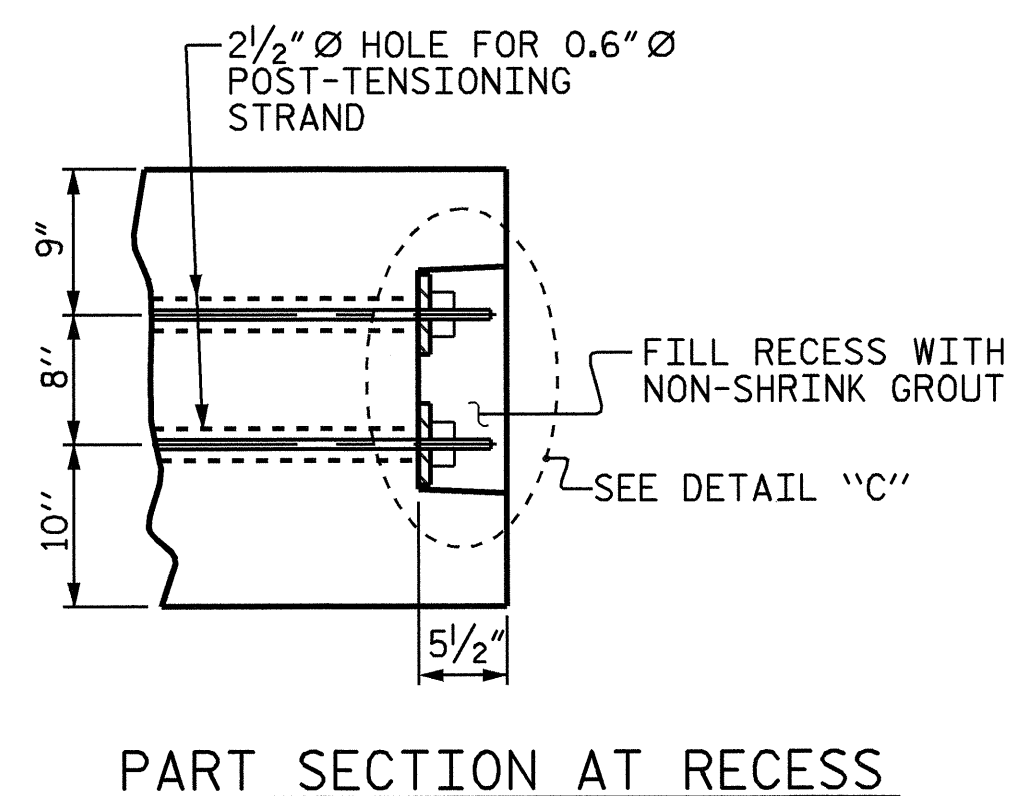
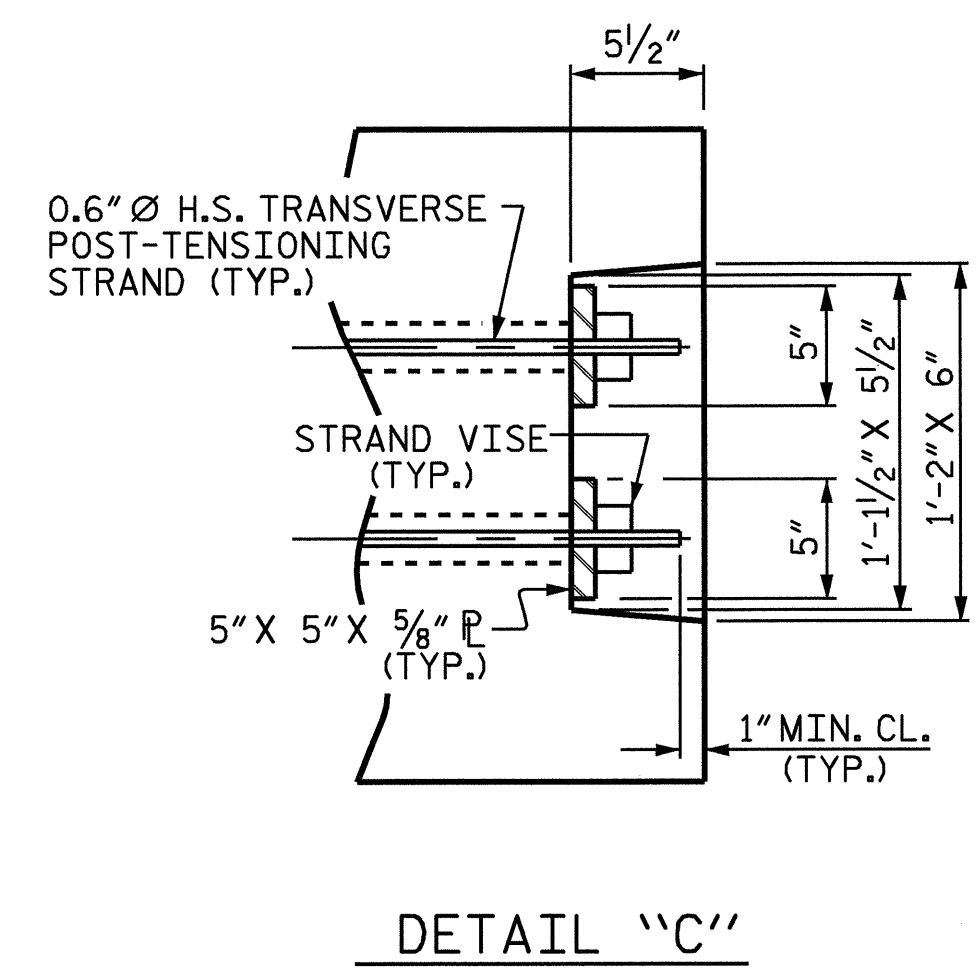
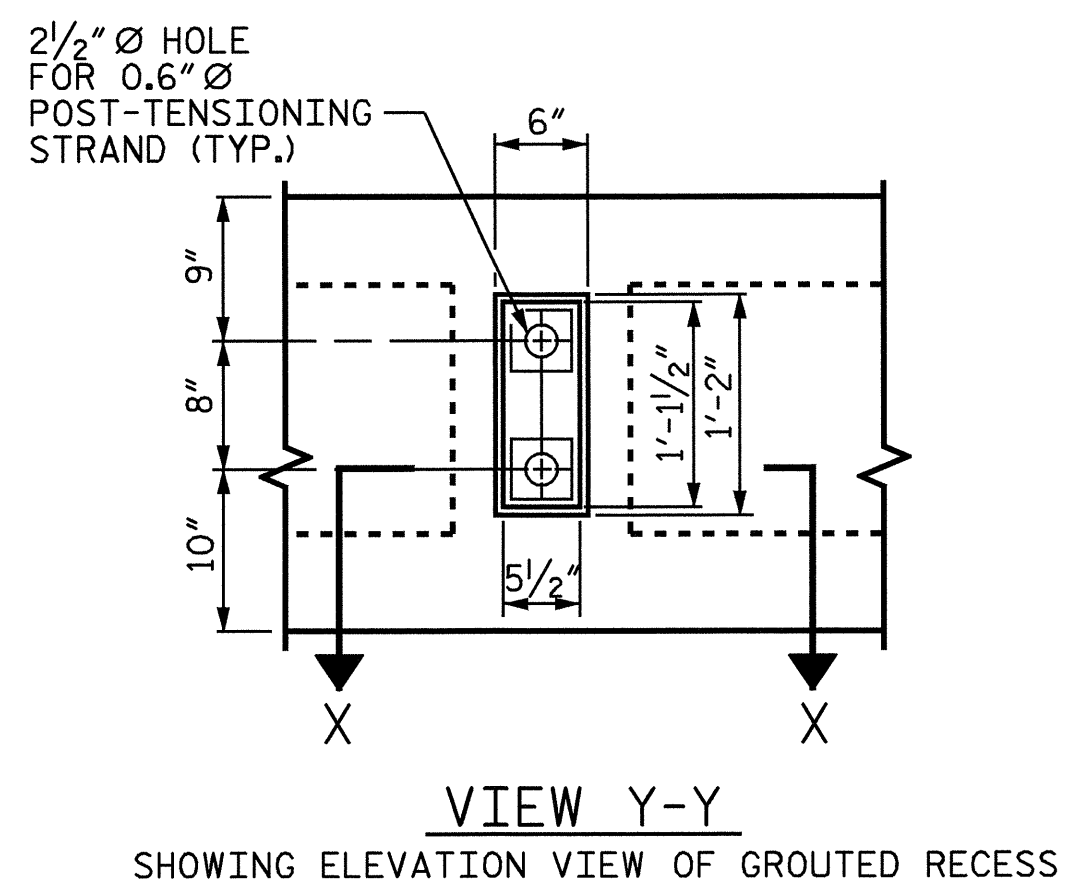
DOUBLE DIAPHRAGM DETAILS

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



VOID DRAIN DETAILS

(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)



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

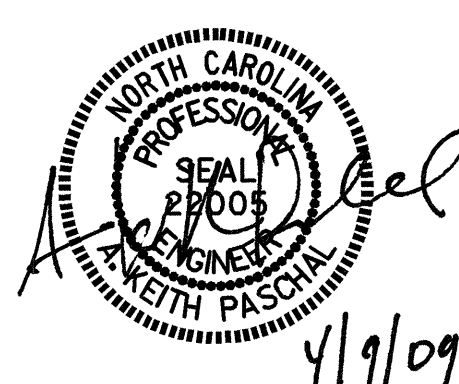
DEAD LOAD DEFLECTION AND CAMBER			
	3'-0" X 2'-3"		
	0.6" Ø L.R. STRAND		
	SPAN A	SPAN B	SPAN C
CAMBER (BEAM ALONE IN PLACE) ↑	7/8"	4 1/2"	2 15/16"
DEFLECTION DUE TO DEAD LOAD SUPERIMPOSED * ↓	1/8"	1 5/16"	3/16"
FINAL CAMBER ↑	3/4"	3 9/16"	2 3/8"

* INCLUDES FUTURE ASPHALT WEARING SURFACE

PROJECT NO. B-3921
WARREN COUNTY
STATION: 13+05.00 -L-

SHEET 4 OF 5

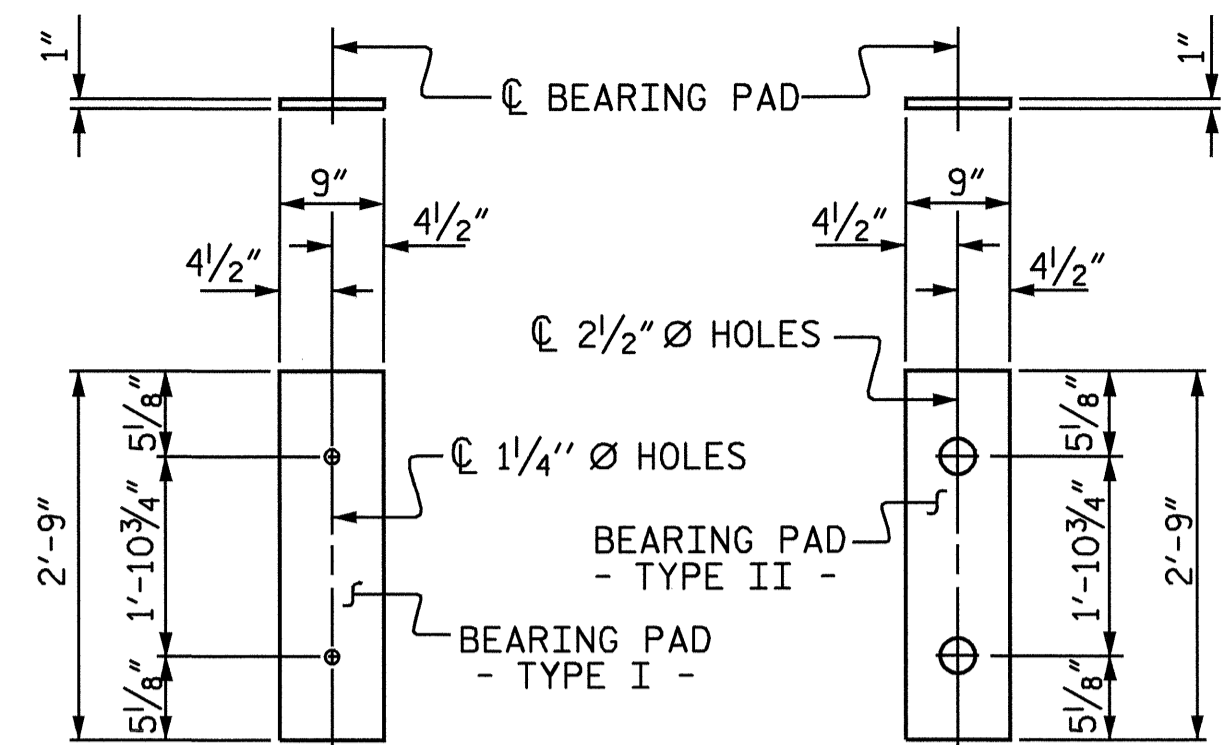
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-3"
PRESTRESSED CONCRETE
BOX BEAM UNIT



ASSEMBLED BY : J. G. KHARVA DATE : 10-10-06
CHECKED BY : J. D. HAWK DATE : 12-01-08
DRAWN BY : TLA 5/05
CHECKED BY : GM 6/05

ADDED 7/11/05
REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			26

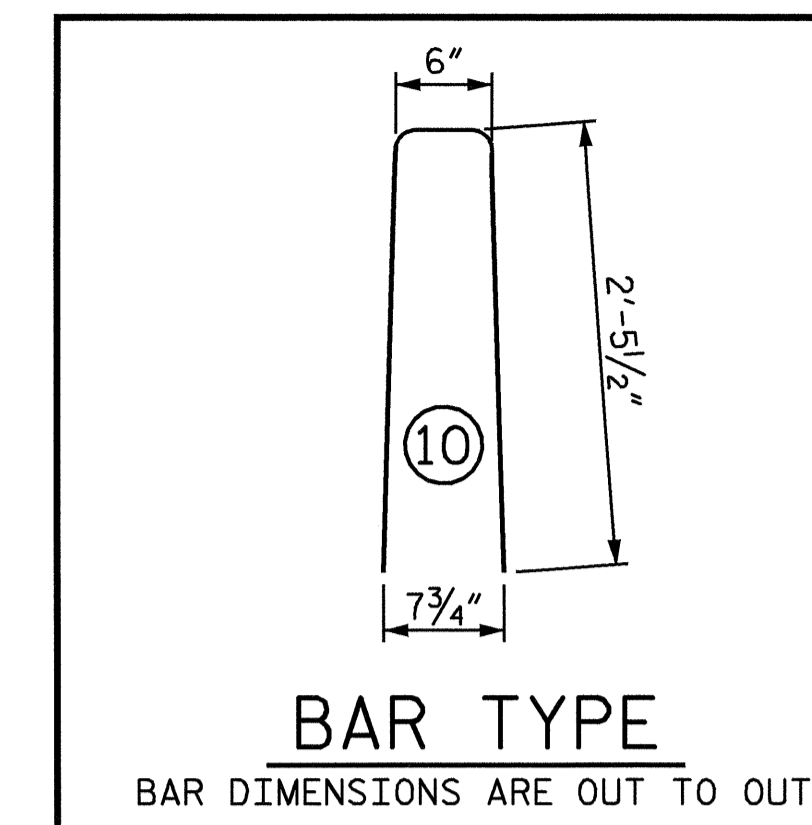


FIXED END (TYPE I - 36 REQ'D)
EXPANSION END (TYPE II - 36 REQ'D)

ELASTOMERIC BEARING DETAILS

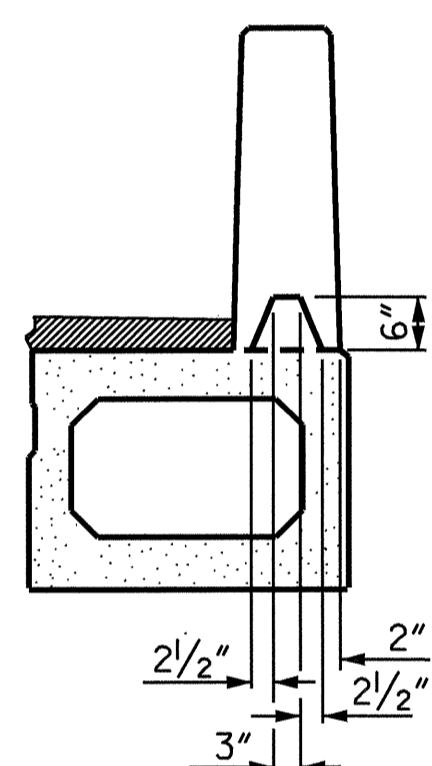
(60 DUROMETER HARDNESS)

BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
SPAN A	12	43'-9 1/4"	525'-3"
SPAN B	12	74'-10 1/2"	898'-6"
SPAN C	12	63'-9 1/4"	765'-3"
TOTAL	36		2189'-0"



BAR TYPE
BAR DIMENSIONS ARE OUT TO OUT

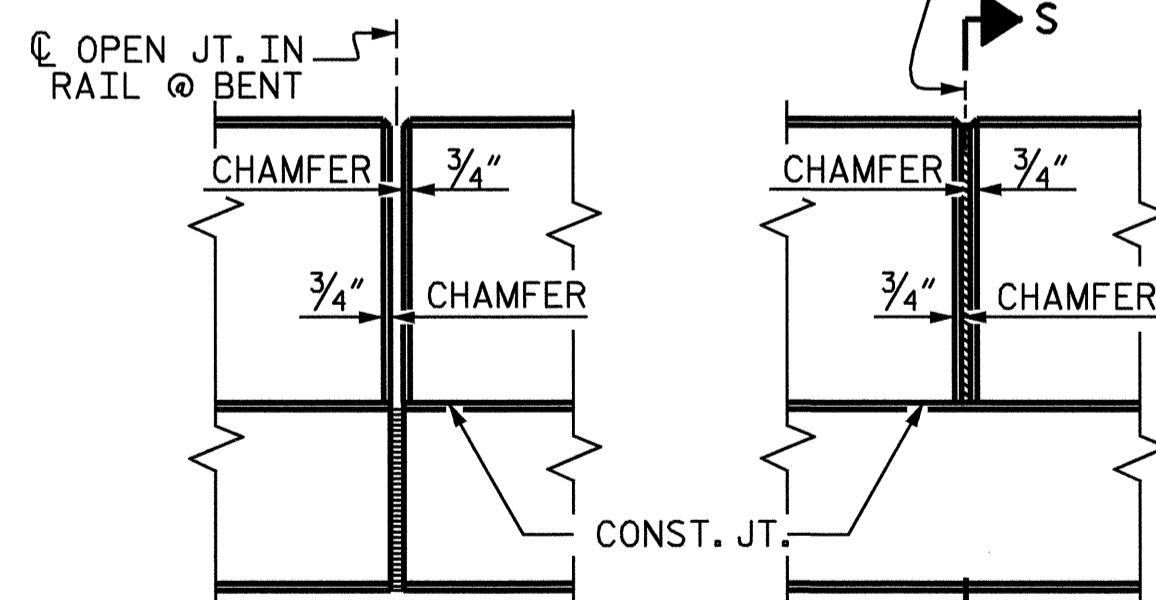
BILL OF MATERIAL FOR CONCRETE BARRIER RAIL								
BAR	BARS PER SPAN			TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B	SPAN C					
*B4	40			40	#5	STR	21'-4"	890
*B5		60		60	#5	STR	24'-3"	1518
*B6			60	60	#5	STR	20'-11"	1309
*S6	112	196	166	474	#5	10	5'-5"	2678
* EPOXY COATED REINFORCING STEEL							LBS.	6395
CLASS AA CONCRETE							CU.YDS.	37.4
TOTAL LIN. FT. OF CONCRETE BARRIER RAIL								365'-4"



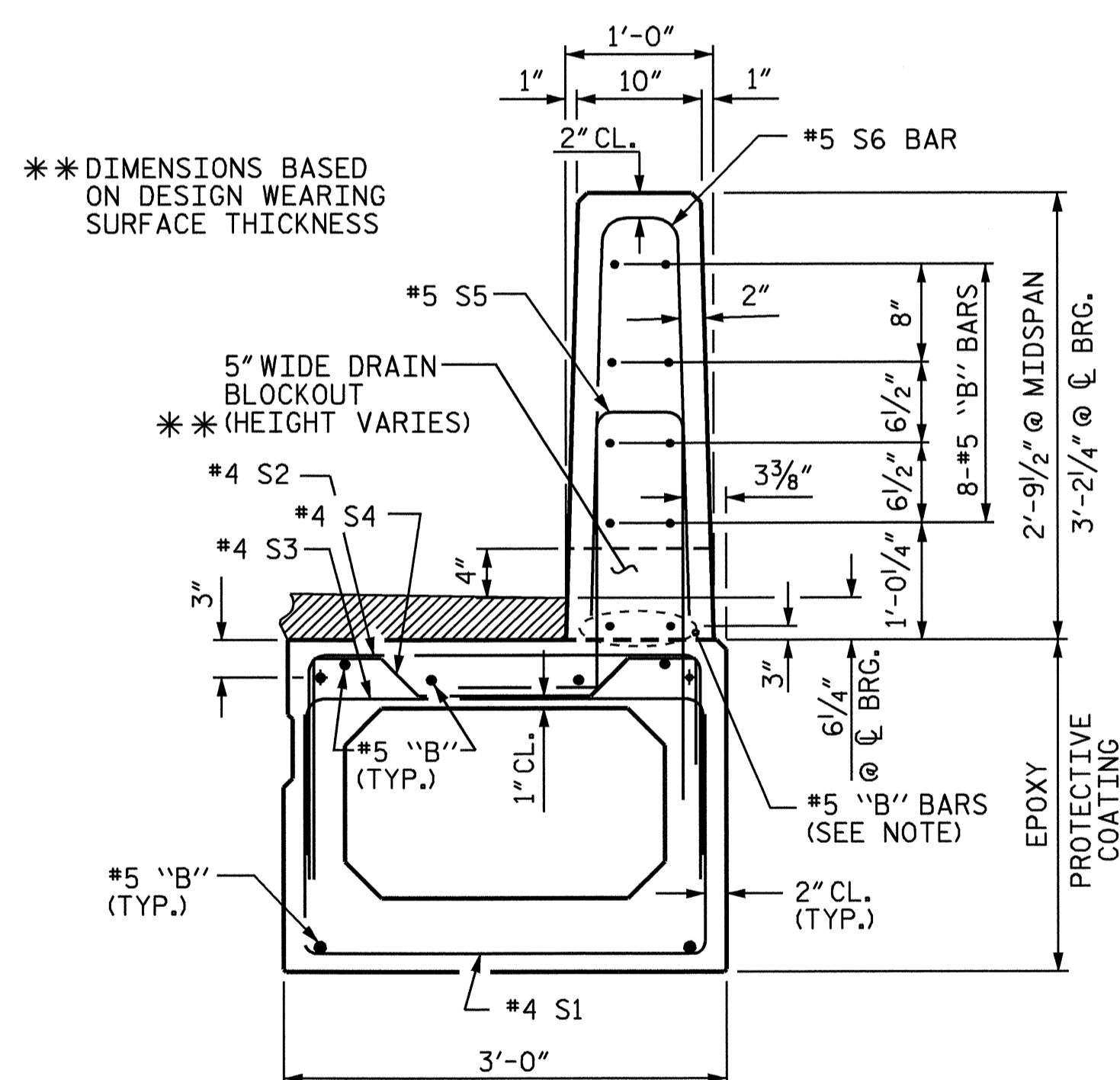
SECTION S-S

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

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



ELEVATION AT EXPANSION JOINTS



SECTION THRU RAIL

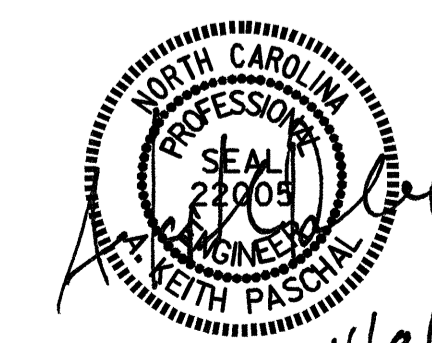
BARRIER RAIL DETAILS

NOTE: BOTTOM ROW OF #5 "B" BARS MAY BE CUT AS
NECESSARY TO AVOID DRAINAGE SLOTS.

PROJECT NO. B-3921
WARREN COUNTY
STATION: 13+05.00 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-3"
PRESTRESSED CONCRETE
BOX BEAM UNIT
DETAILS



ASSEMBLED BY :	J. G. KHARVA	DATE :	10-9-06
CHECKED BY :	J. D. HAWK	DATE :	12-01-08
DRAWN BY :	TLA 5/05	ADDED :	7/11/05R
CHECKED BY :	GM 6/05	REV. :	5/1/06
			TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			26

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 1/8" 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 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

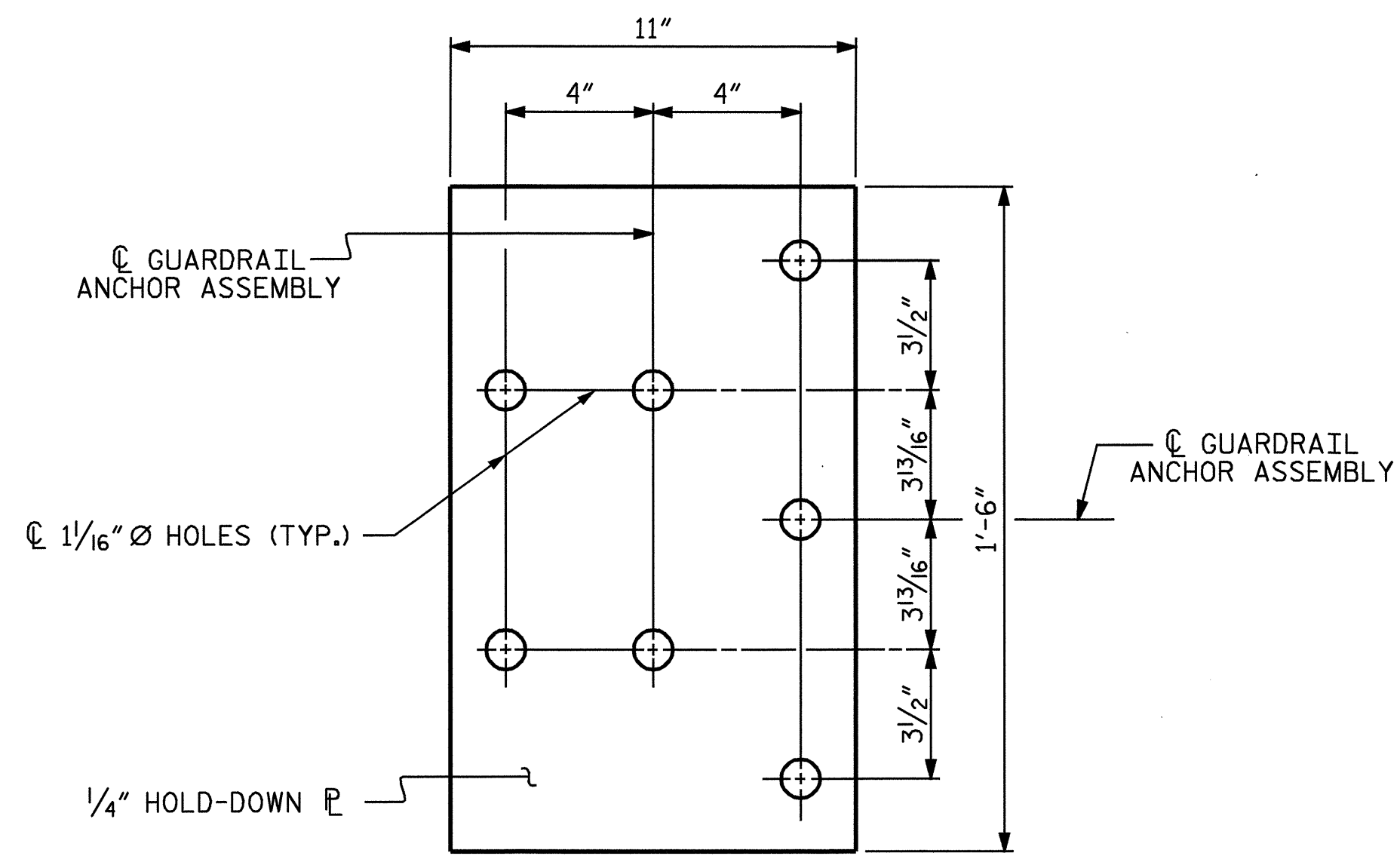
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

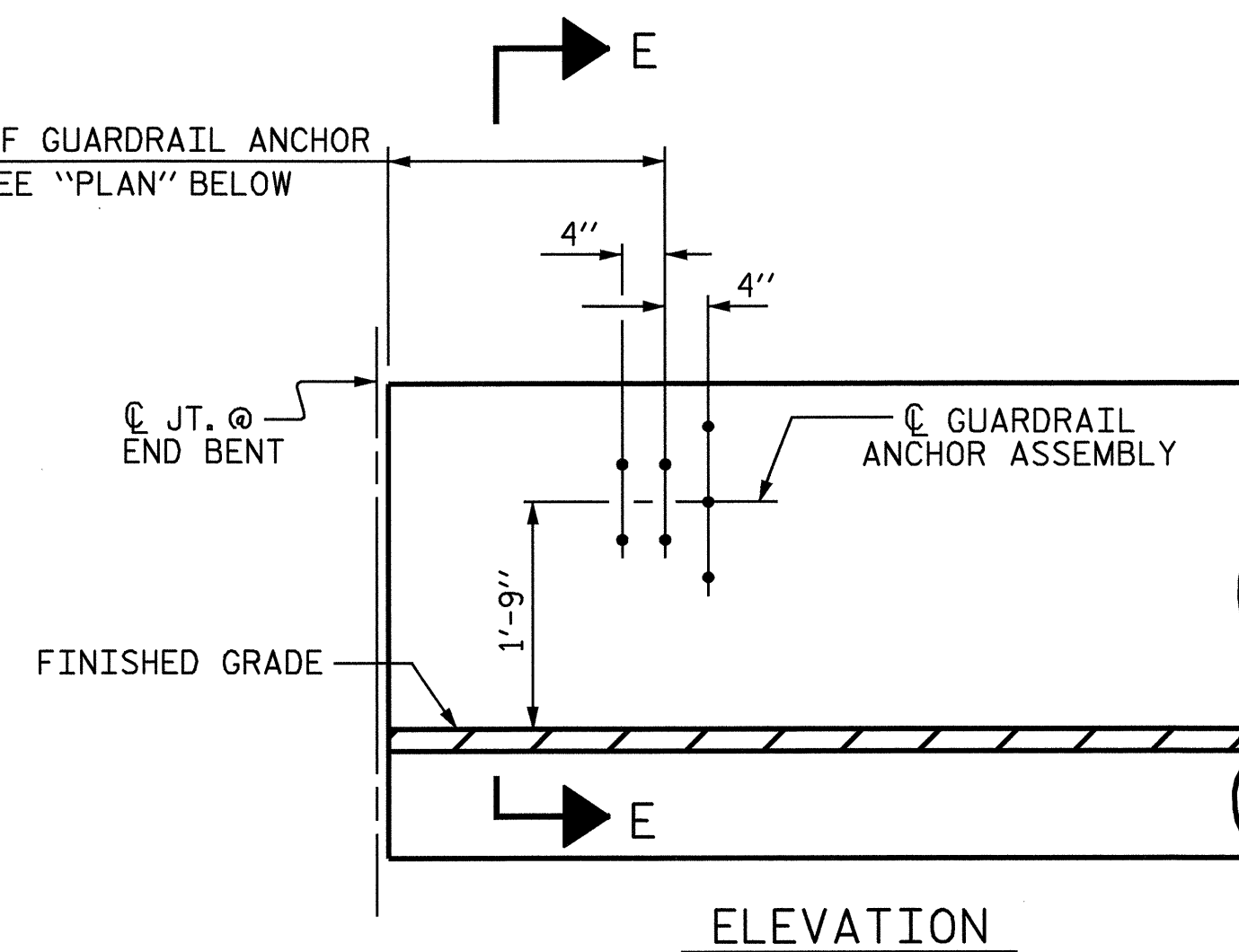
THE 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

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

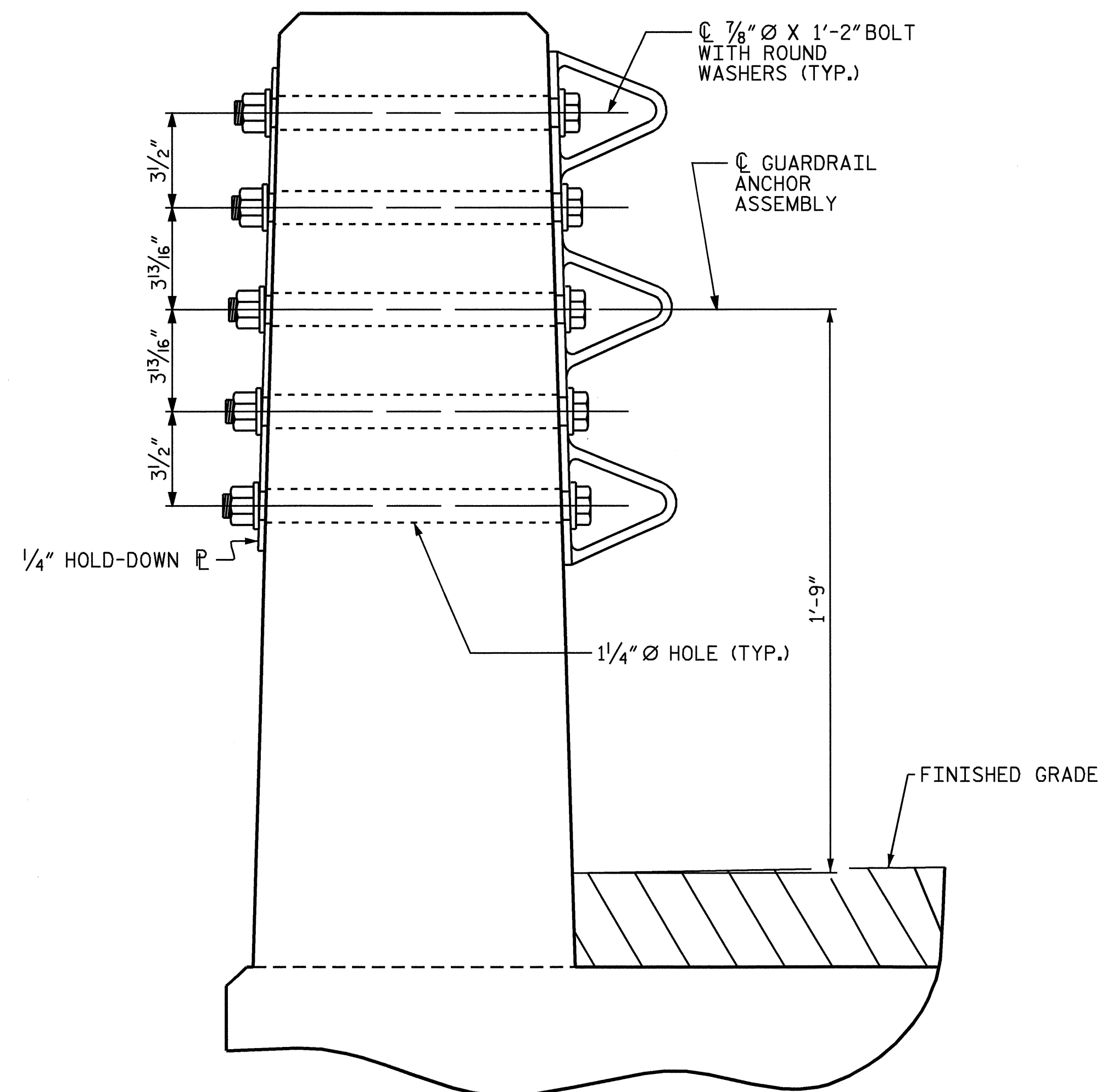


PLAN

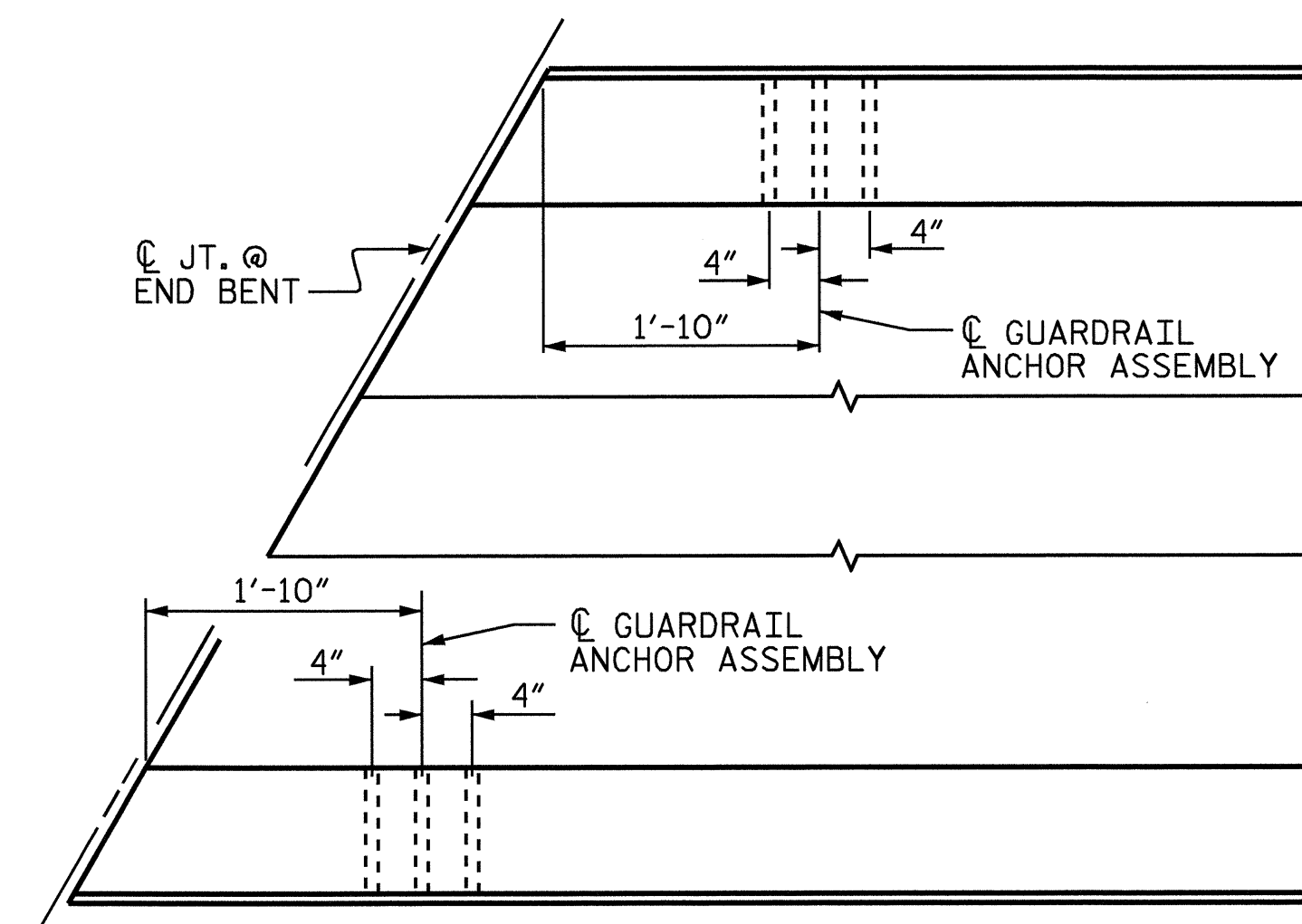
FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



ELEVATION



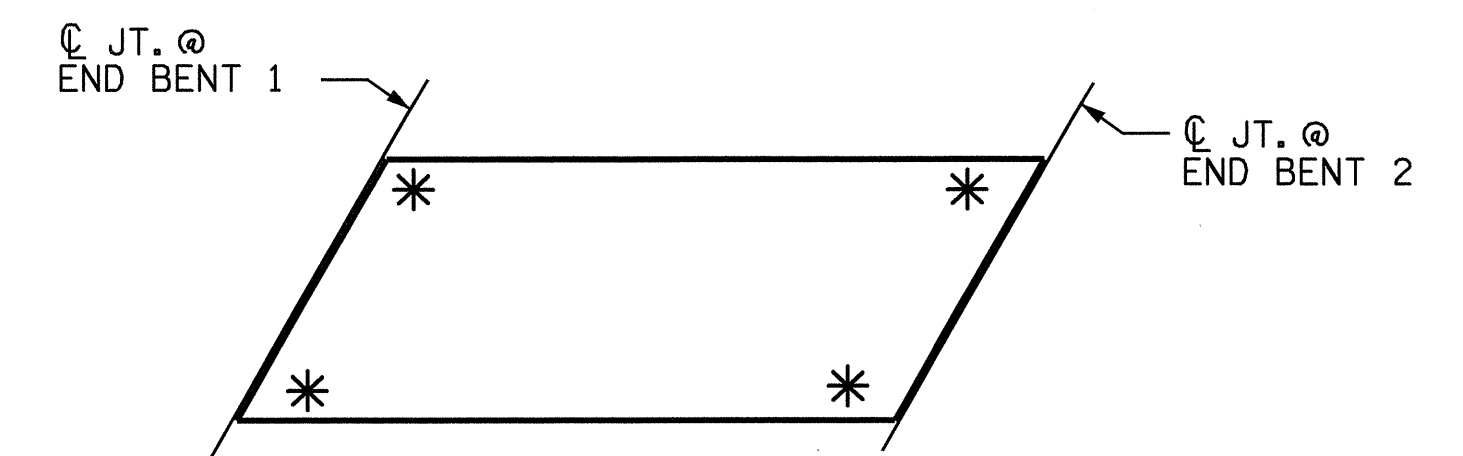
SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.

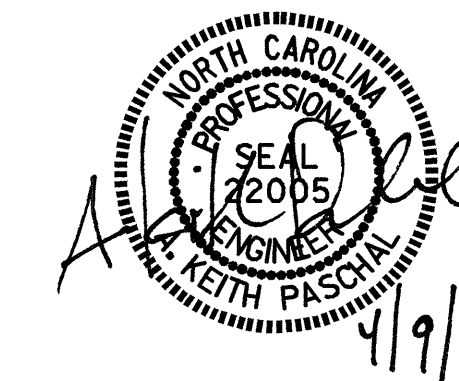


SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

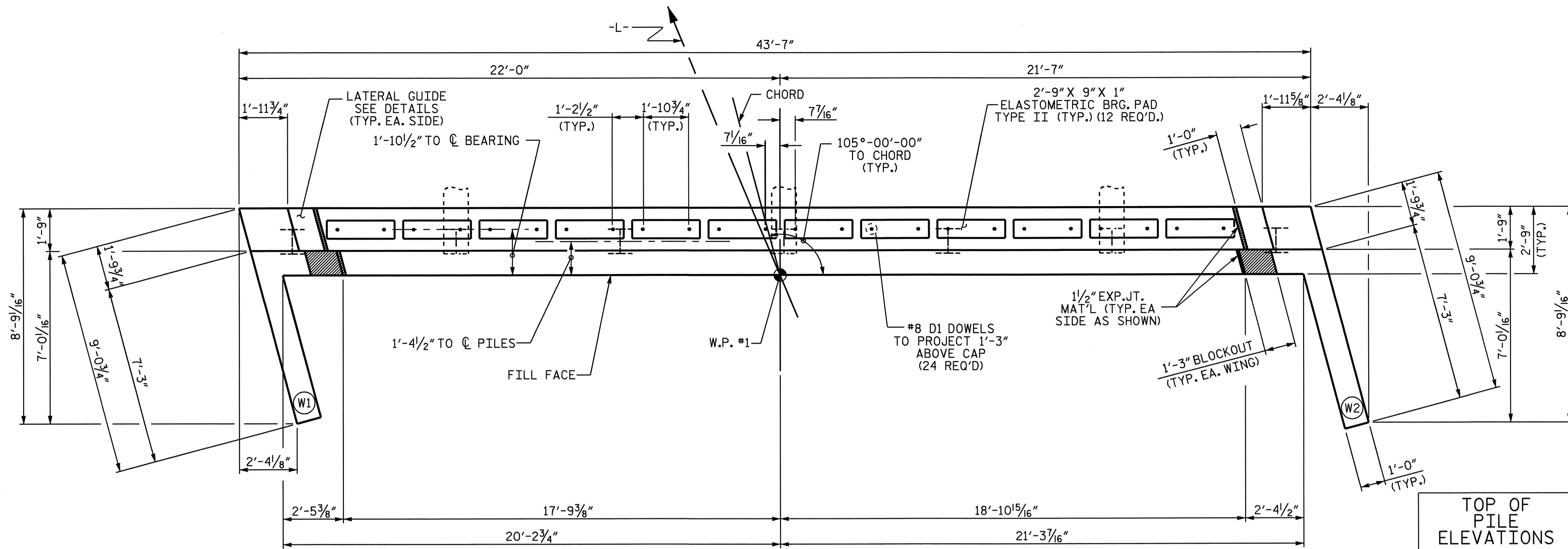
PROJECT NO. B-3921
WARREN COUNTY
STATION: 13+05.00 -L-

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



ASSEMBLED BY : J. G. KHARVA	DATE : 02/13/09
CHECKED BY : A. K. PASCHAL	DATE : 02/13/09
DRAWN BY : MAA 12/06	ADDED 12/15/06
CHECKED BY : GM 12/06	

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			26



PLAN

TOP OF PILE ELEVATIONS	
PILE	ELEVATION
1	233.359
2	233.094
3	232.829
4	232.564
5	232.299
6	232.034
7	231.769

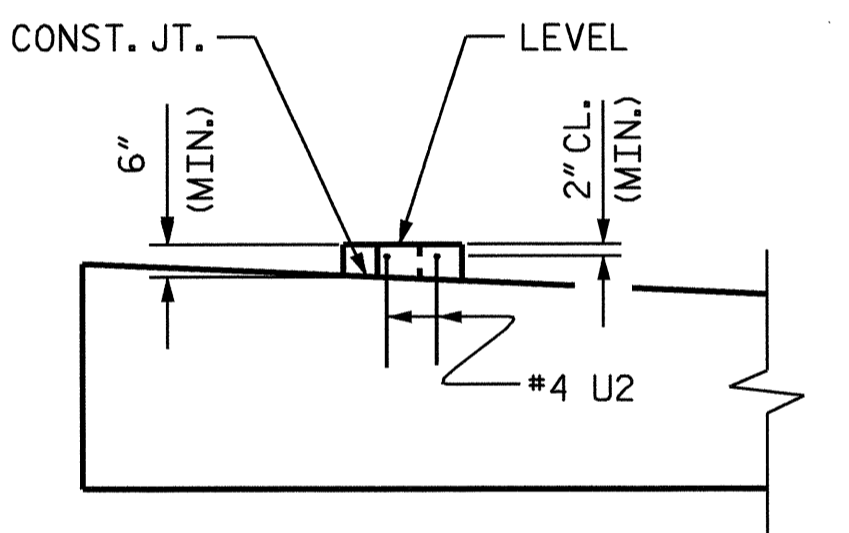
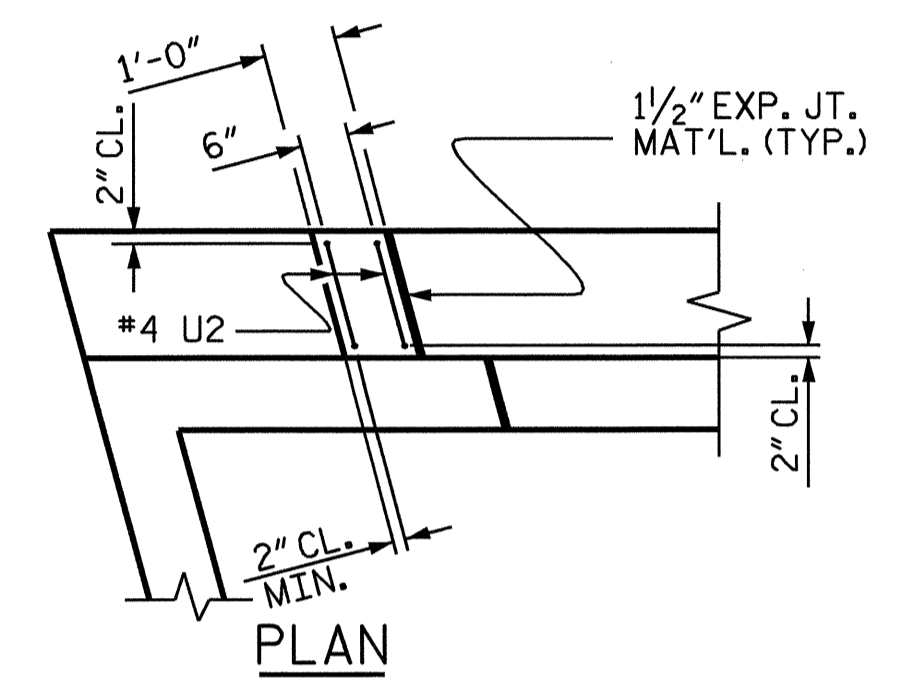
NOTES

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

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE BOX BEAM UNITS ARE IN PLACE.

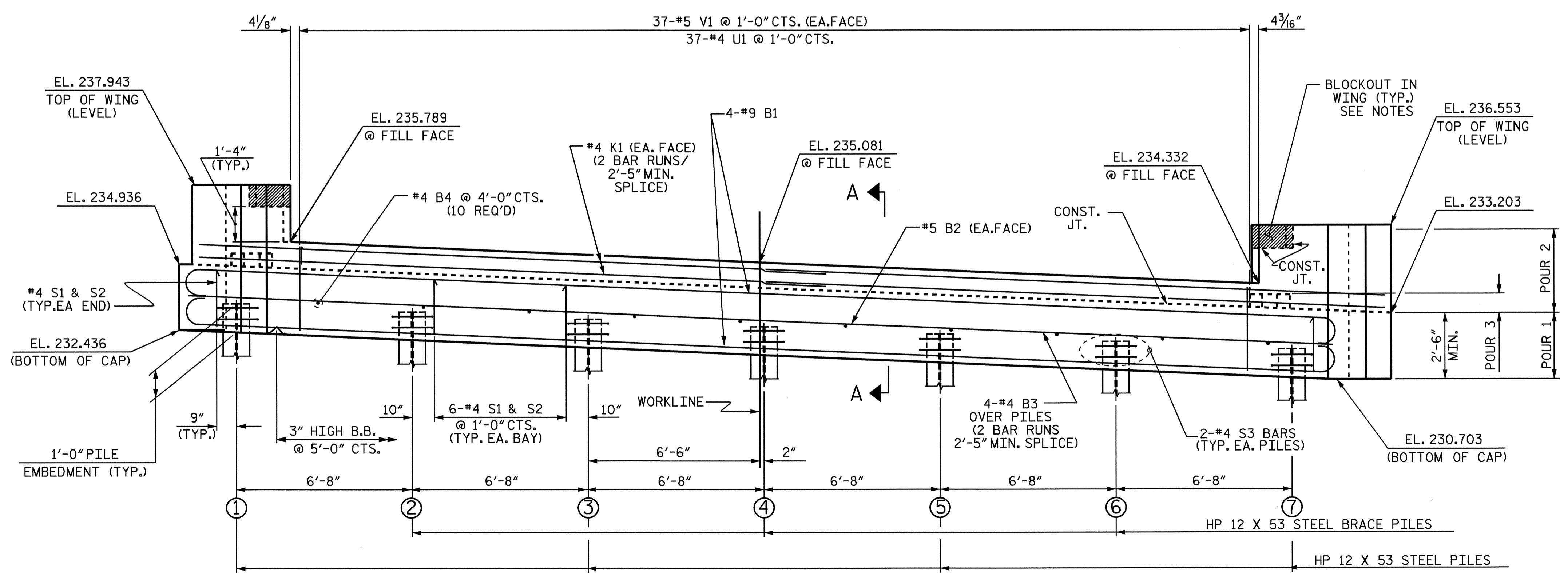
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

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



ELEVATION

LATERAL GUIDE DETAILS



ELEVATION

PROJECT NO. B-3921
 WARREN COUNTY
 STATION: 13+05.00 -L-
 SHEET 1 OF 3

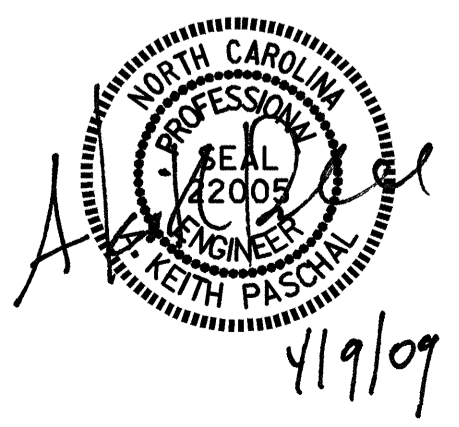
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

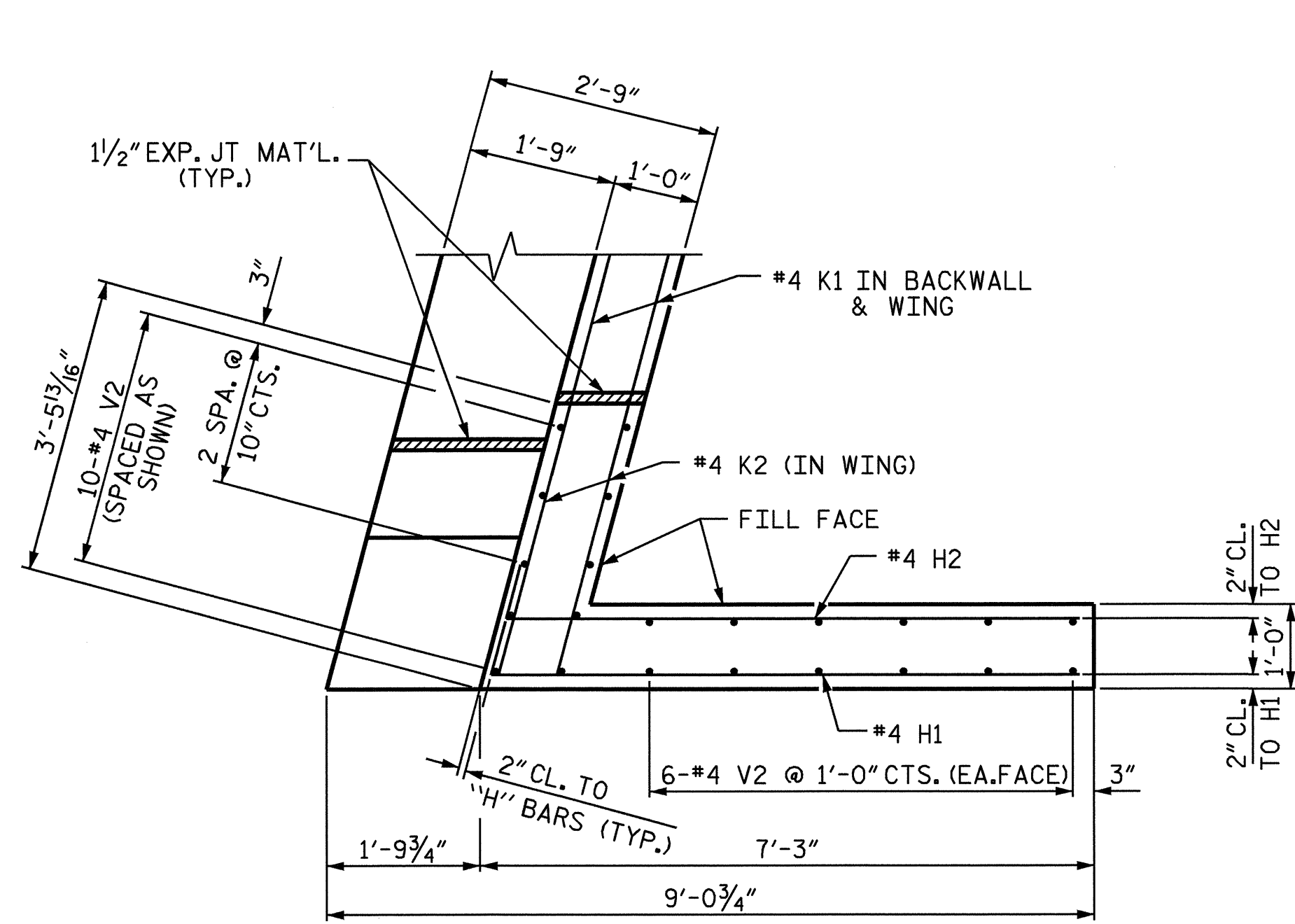
SUBSTRUCTURE
 END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			26

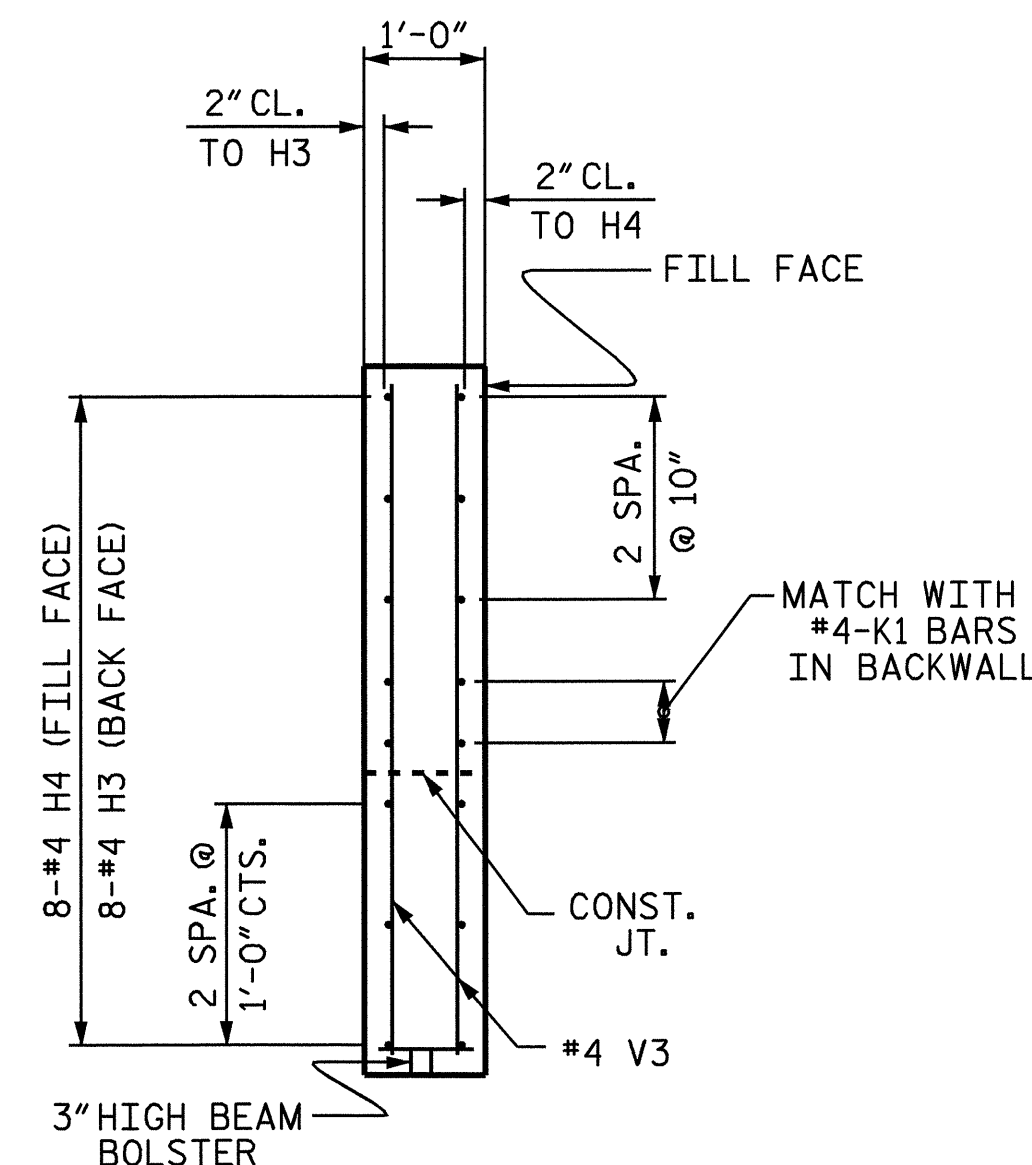
DRAWN BY: M.FOWLER DATE: 12/17/08
 CHECKED BY: J.G. KHARVA DATE: 1/12/09

09-APR-2009 11:06
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 jdhawk

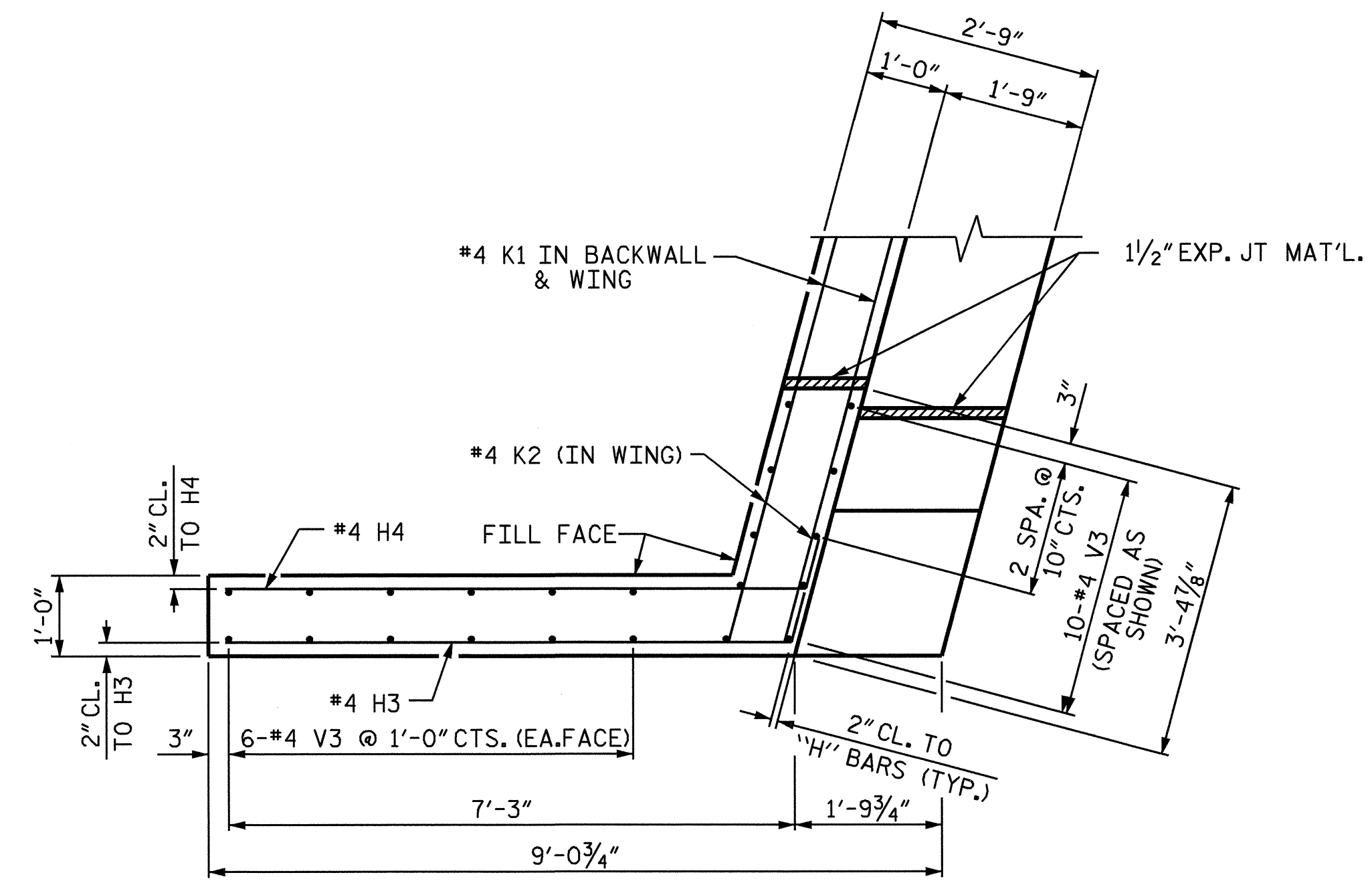




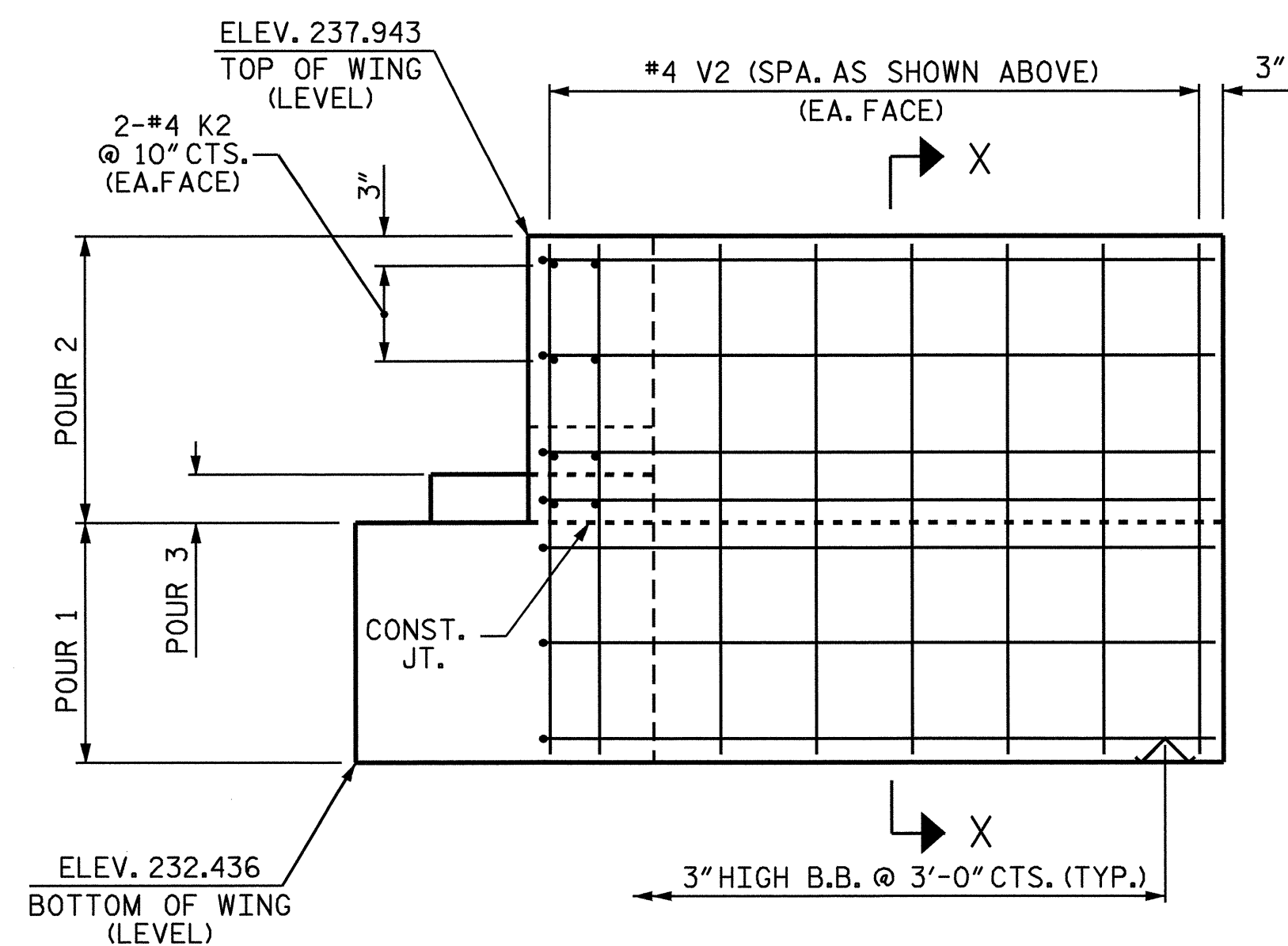
PLAN OF WING W1



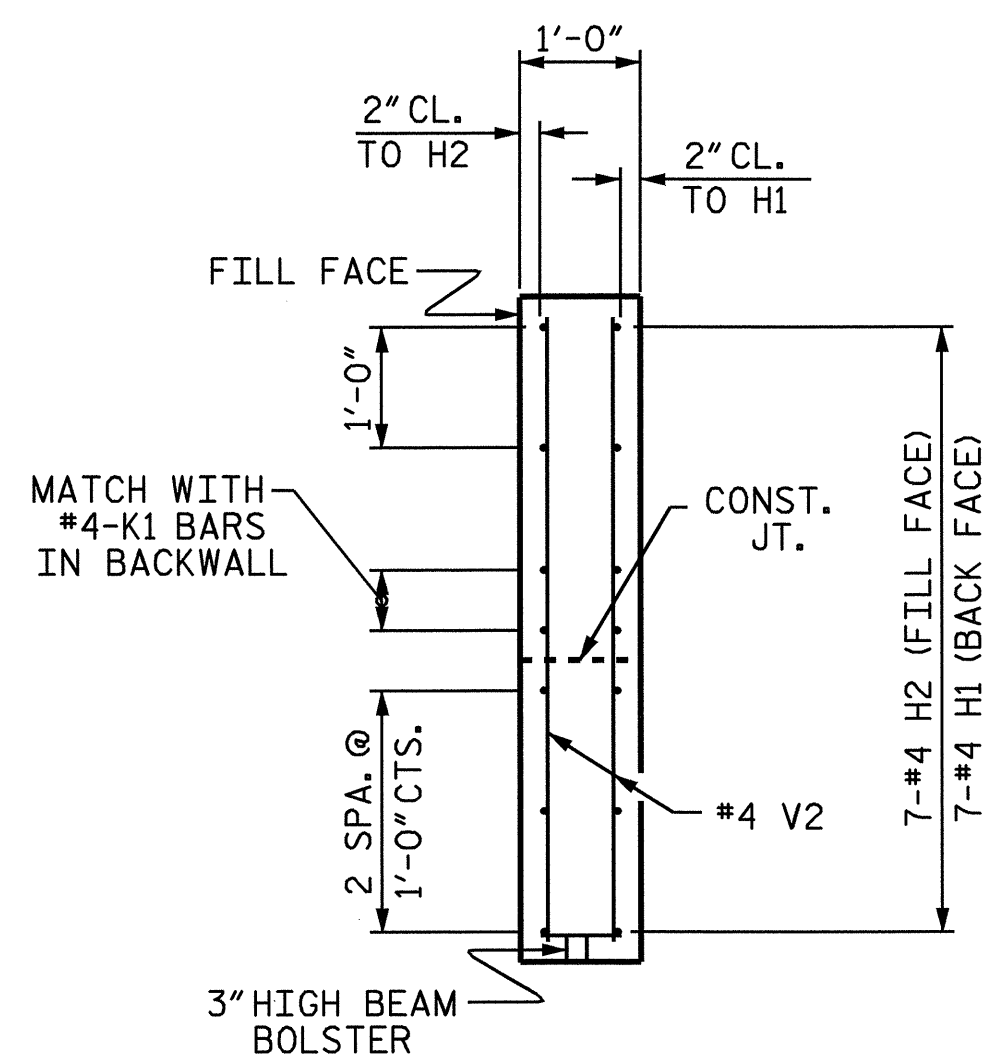
SECTION Y-Y



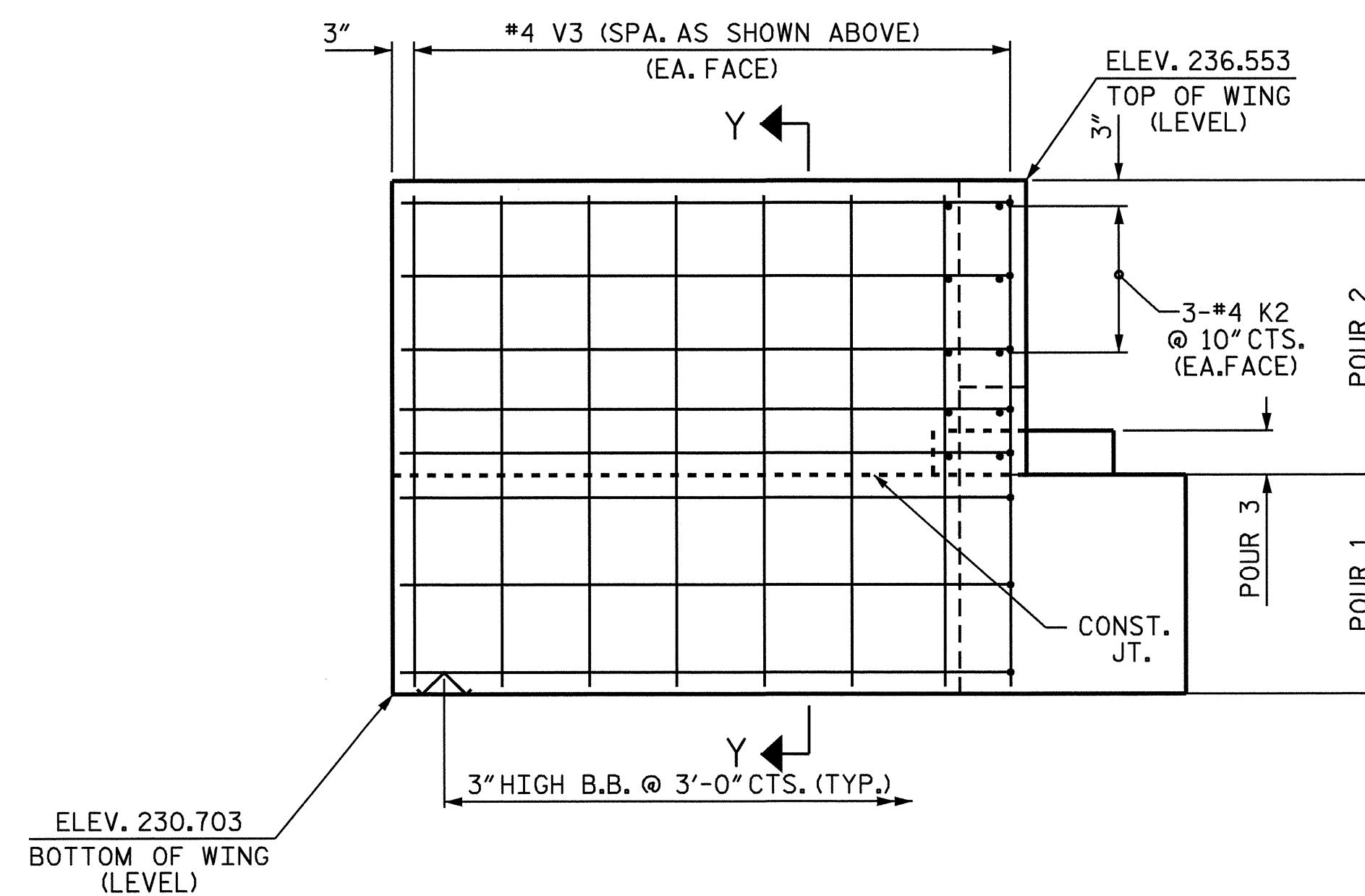
PLAN OF WING W2



ELEVATION OF WING W1



SECTION X-X



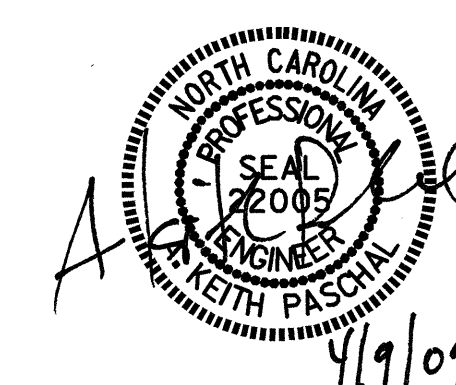
ELEVATION OF WING W2

PROJECT NO. B-3921
WARREN COUNTY
 STATION: 13+05.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

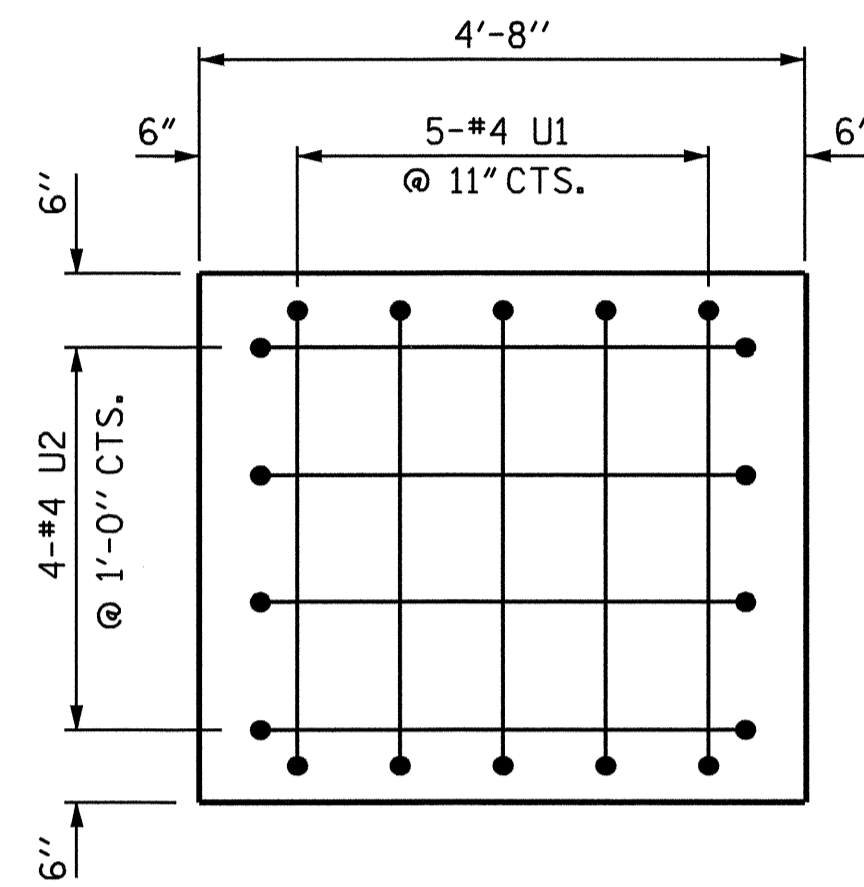
SUBSTRUCTURE
 END BENT 1



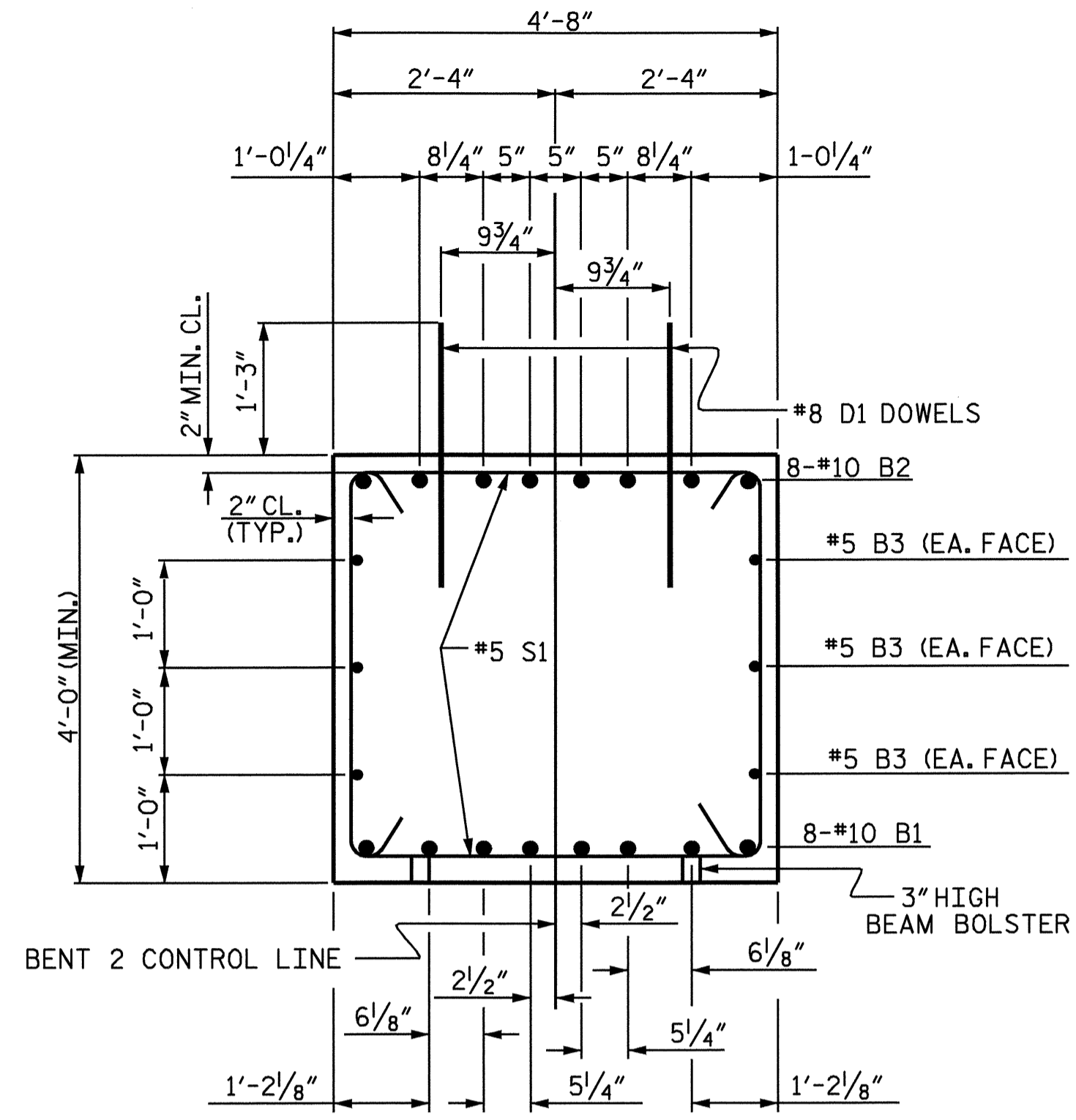
DRAWN BY : M. FOWLER DATE : 12/18/08
 CHECKED BY : J.G. KHARVA DATE : 1/12/09

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 Jdhawk

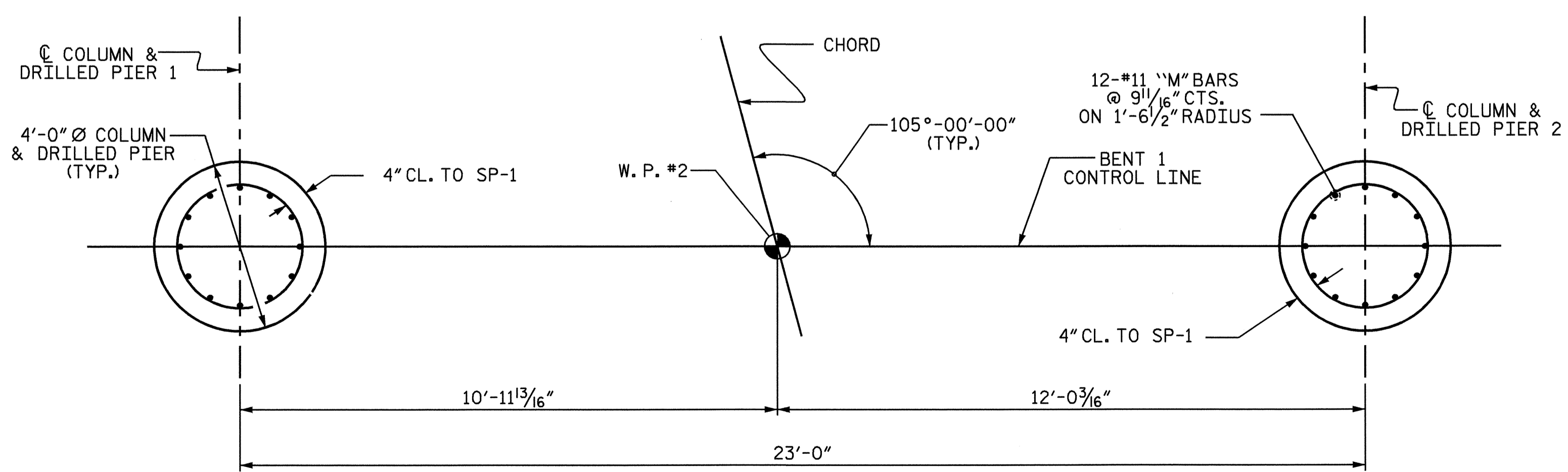
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-15
2			4			TOTAL SHEETS 26



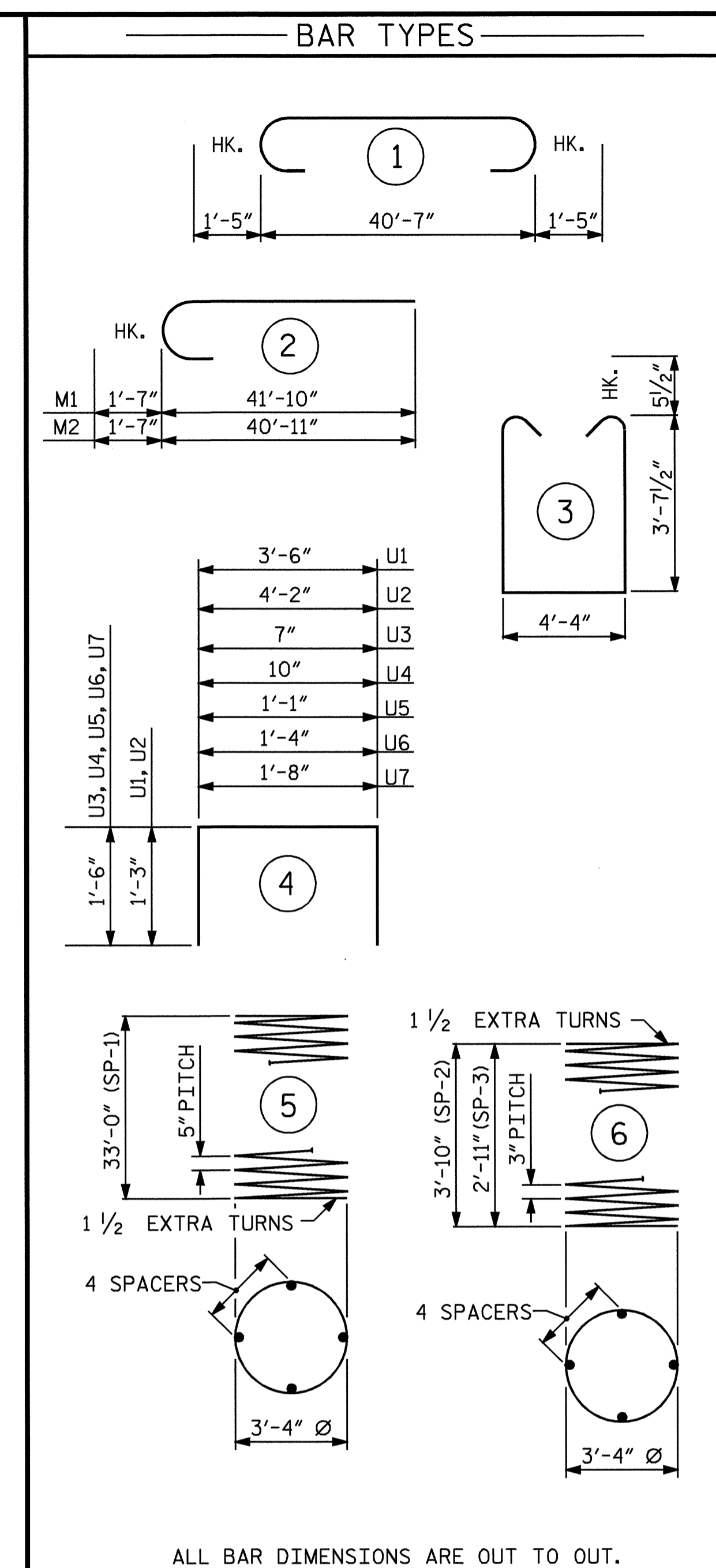
END VIEW



SECTION A-A



PLAN OF DRILLED PIERS & COLUMNS



ALL BAR DIMENSIONS ARE OUT TO OUT.

- * THE SP-2 OR SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
- ** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
- ▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

BILL OF MATERIAL

BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#10	STR	40'-7"	1397
B2	8	#10	STR	43'-5"	1495
B3	6	#5	STR	40'-7"	254
B4	2	#4	STR	4'-4"	6
B5	2	#4	STR	4'-6"	6
D1	48	#8	STR	2'-3"	288
M1	12	#11	2	43'-5"	2768
M2	12	#11	2	42'-6"	2710
S1	38	#5	3	12'-6"	495
U1	10	#4	4	6'-0"	41
U2	8	#4	4	6'-8"	36
U3	2	#4	4	3'-7"	5
U4	2	#4	4	3'-10"	5
U5	2	#4	4	4'-1"	5
U6	2	#4	4	4'-4"	6
U7	2	#4	4	4'-8"	6

REINFORCING STEEL = 9522 LBS.

SP-1	2	**	5	833'-1"	1738
SP-2	1	*	6	175'-11"	118
SP-3	1	*	6	137'-1"	92

SPIRAL COLUMN REINFORCING STEEL = 1948 LBS.

CLASS A CONCRETE BREAKDOWN	
POUR 2 (COLUMNS)	2.8 C.Y.
POUR 3 (CAP)	28.3 C.Y.
POUR 4 (LATERAL GUIDE)	0.2 C.Y.
TOTAL	31.3 C.Y.

DRILLED PIERS

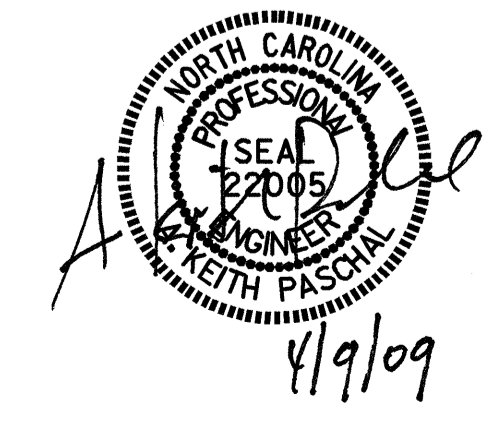
DRILLED PIER CONCRETE	
POUR 1 (DRILLED PIERS)	31.2 C.Y.
4'-0" Ø DRILLED PIERS IN SOIL	50.00 LIN. FT.
4'-0" Ø DRILLED PIERS NOT IN SOIL	17.00 LIN. FT.
▲ CSL TUBES	LIN. FT. = 288.00

PROJECT NO. B-3921
WARREN COUNTY
 STATION: 13+05.00 -L-

SHEET 2 OF 2

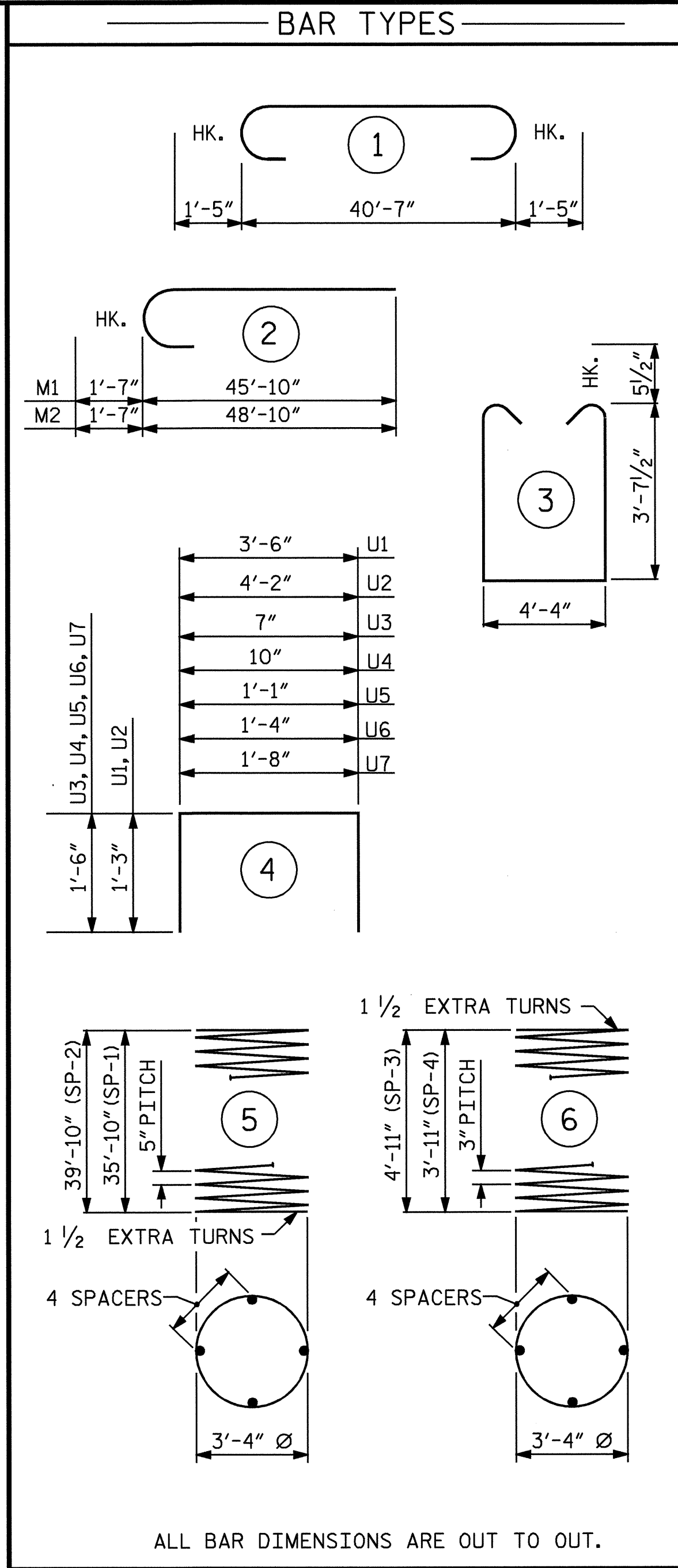
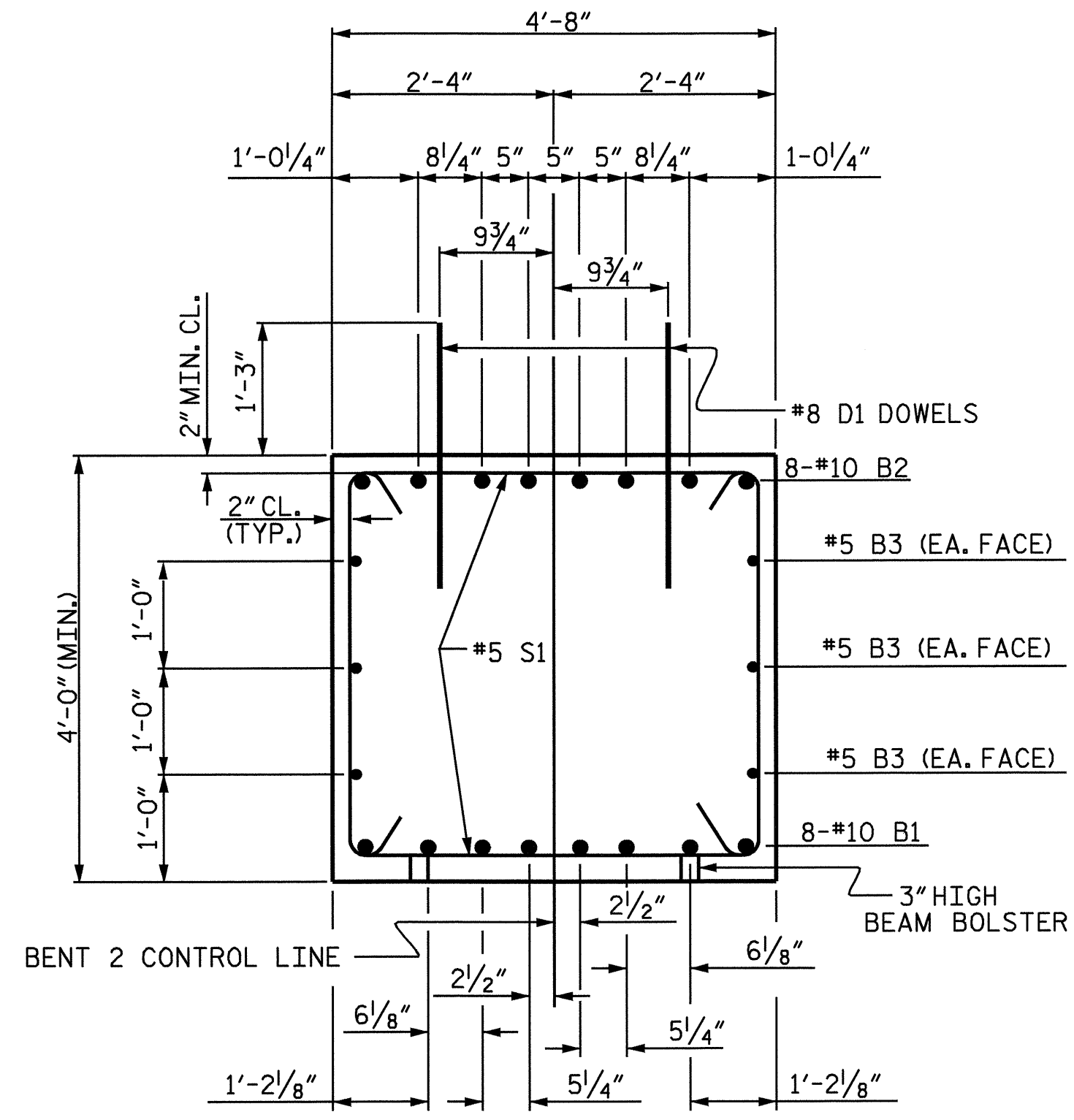
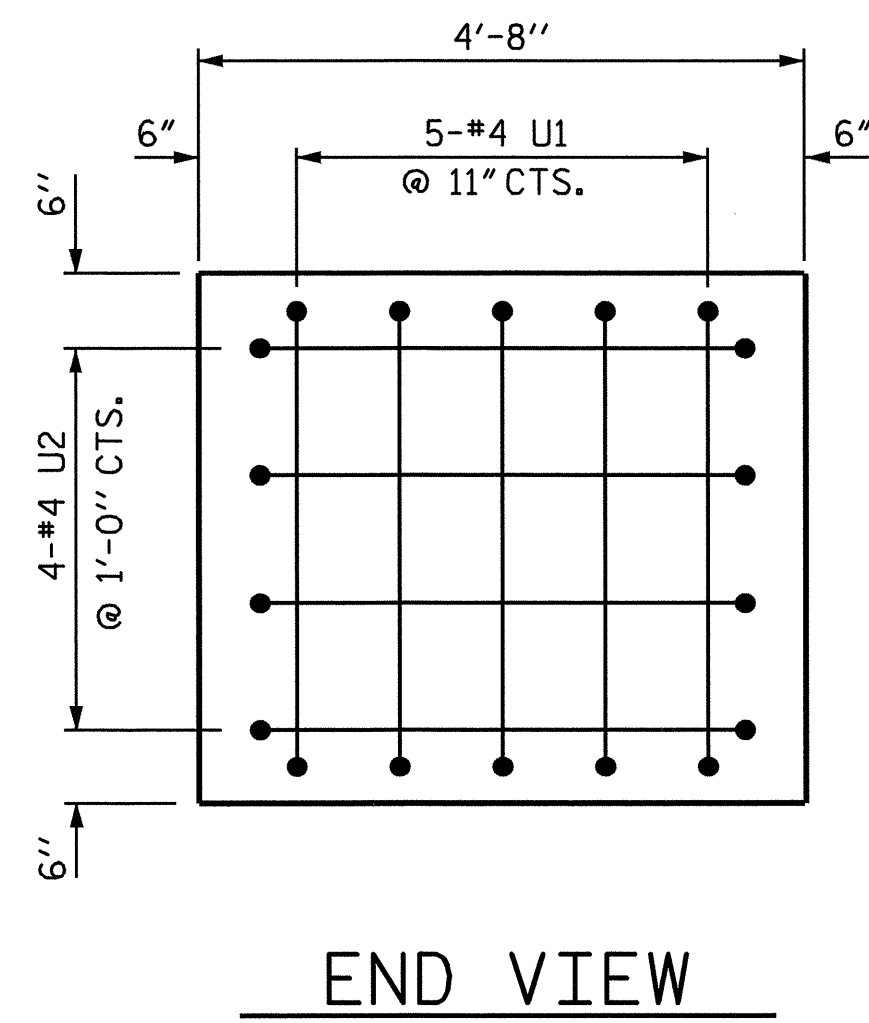
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 1



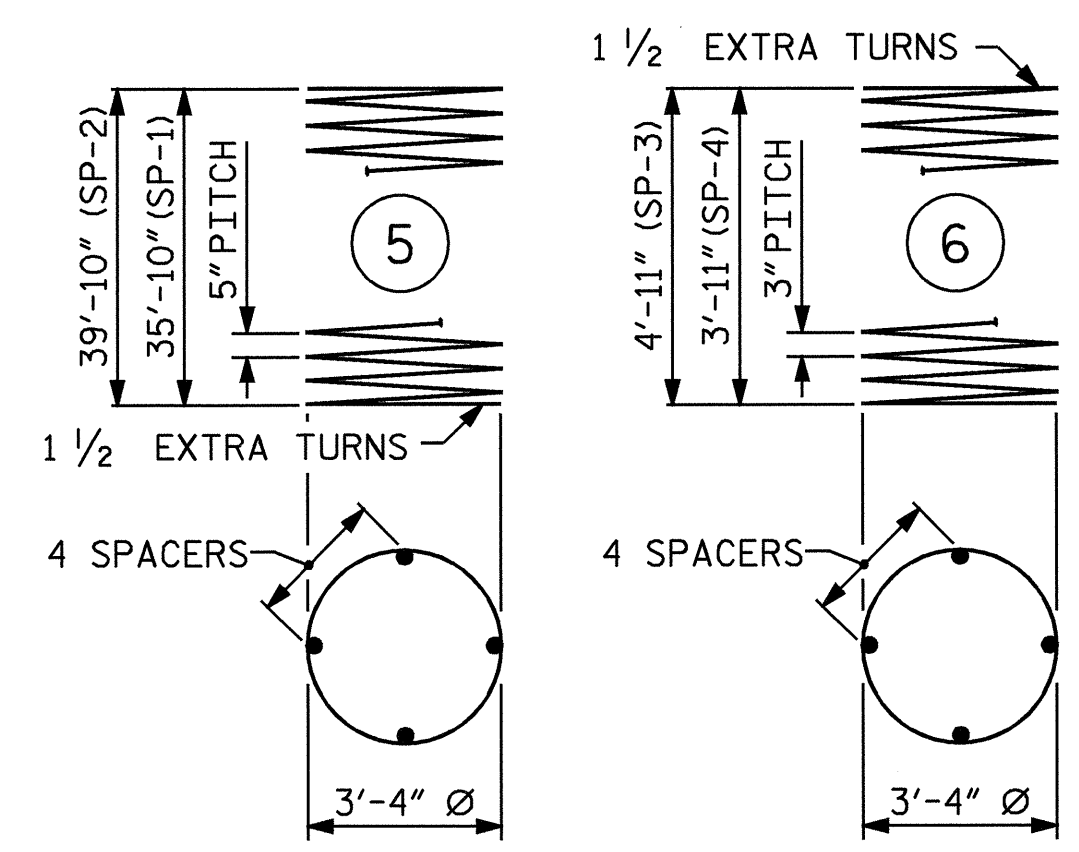
DRAWN BY : M.FOWLER DATE : 12/16/08
 CHECKED BY : J.D. HAWK DATE : 1/21/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			26



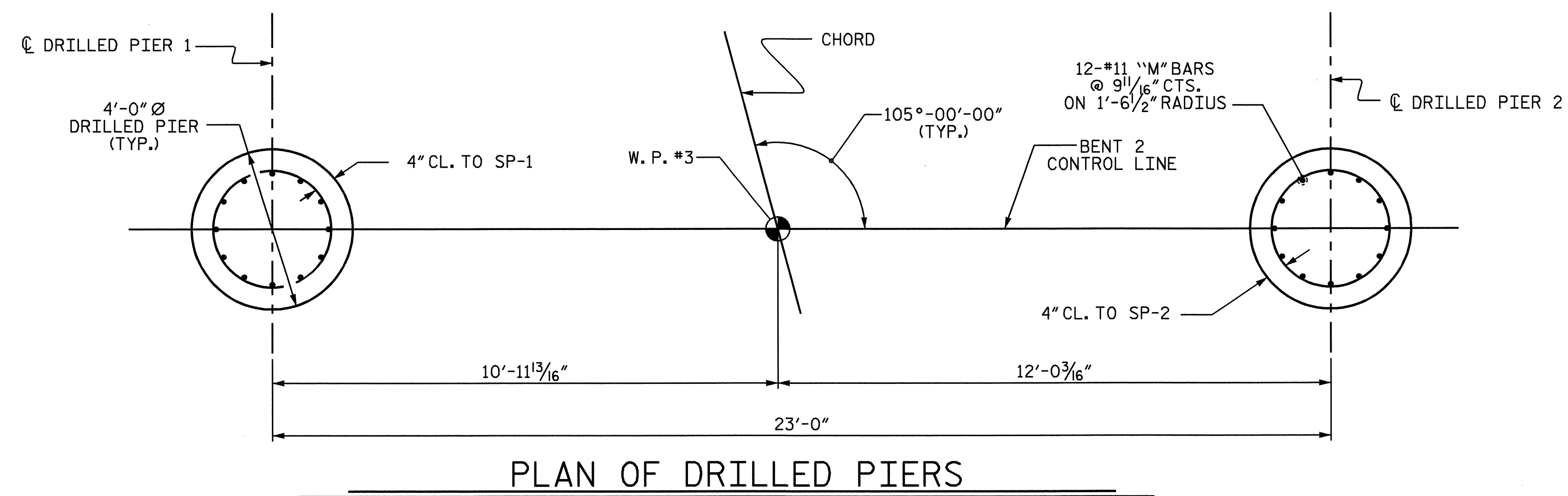
BILL OF MATERIAL					
BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#10	STR	40'-7"	1397
B2	8	#10	1	43'-5"	1495
B3	6	#5	STR	40'-7"	254
B4	2	#4	STR	4'-4"	6
B5	2	#4	STR	4'-6"	6
D1	48	#8	STR	2'-3"	288
M1	12	#11	2	47'-5"	3023
M2	12	#11	2	50'-5"	3214
S1	38	#5	3	12'-6"	495
U1	10	#4	4	6'-0"	40
U2	8	#4	4	6'-8"	36
U3	2	#4	4	3'-7"	5
U4	2	#4	4	3'-10"	5
U5	2	#4	4	4'-1"	5
U6	2	#4	4	4'-4"	6
U7	2	#4	4	4'-8"	6
REINFORCING STEEL					= 10,281 LBS.
SPIRAL COLUMN REINFORCING STEEL					= 2254 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR 2 (COLUMNS)					3.9 C.Y.
POUR 3 (CAP)					28.3 C.Y.
POUR 4 (LATERAL GUIDE)					0.2 C.Y.
TOTAL					32.4 C.Y.
DRILLED PIERS					
DRILLED PIER CONCRETE POUR 1 (DRILLED PIERS)					35.7 C.Y.
4'-0" Ø DRILLED PIERS IN SOIL					61.66 LIN. FT.
4'-0" Ø DRILLED PIERS NOT IN SOIL					15.00 LIN. FT.
▲ CSL TUBES					LIN. FT. = 326.62

SECTION A-A



ALL BAR DIMENSIONS ARE OUT TO OUT.

- * THE SP-2 OR SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
- ** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
- ▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.



PLAN OF DRILLED PIERS

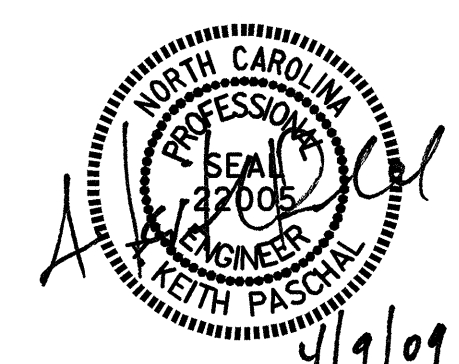
DRAWN BY : M.FOWLER DATE : 12/16/08
 CHECKED BY : J.D. HAWK DATE : 1/21/09

PROJECT NO. B-3921
 WARREN COUNTY
 STATION: 13+05.00 -L-

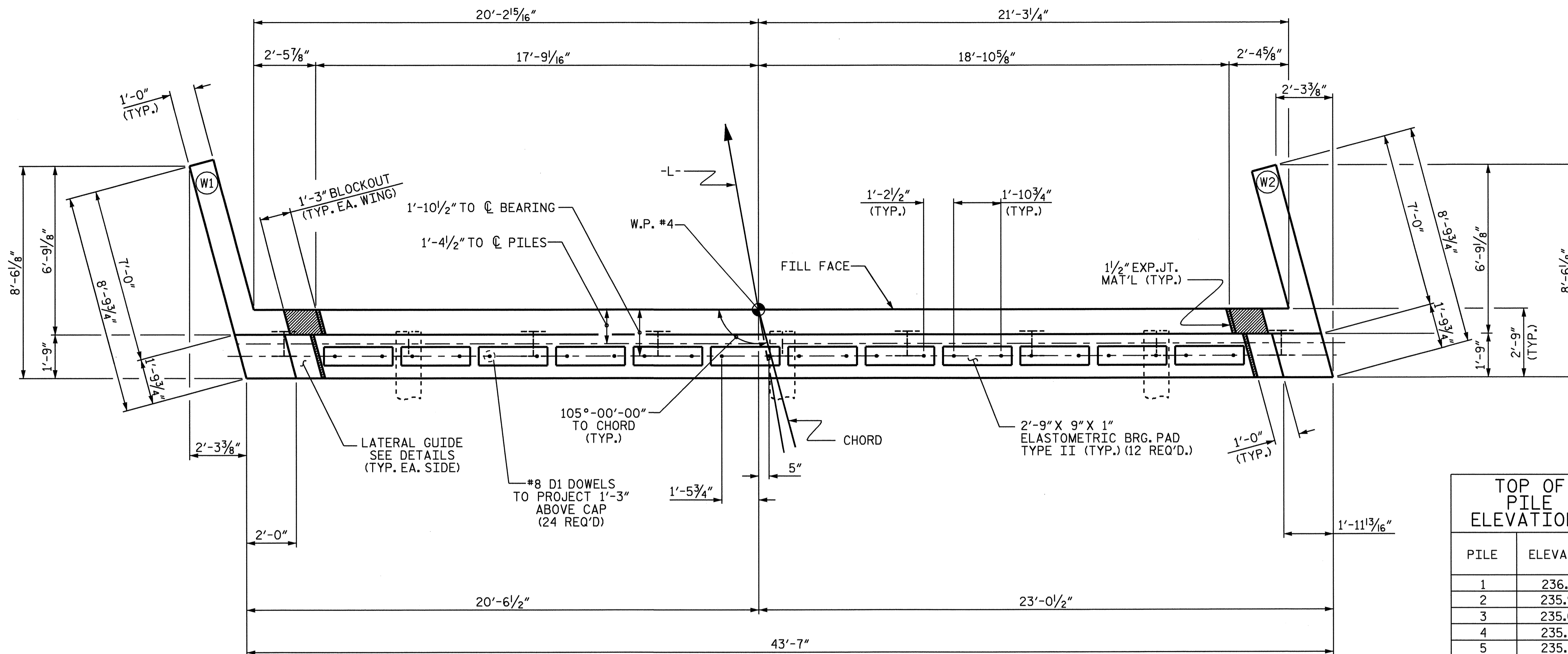
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 2



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			26



PLAN

TOP OF PILE ELEVATIONS	
PILE	ELEVATION
1	236.124
2	235.902
3	235.680
4	235.459
5	235.237
6	235.015
7	234.794
8	234.572
9	234.350

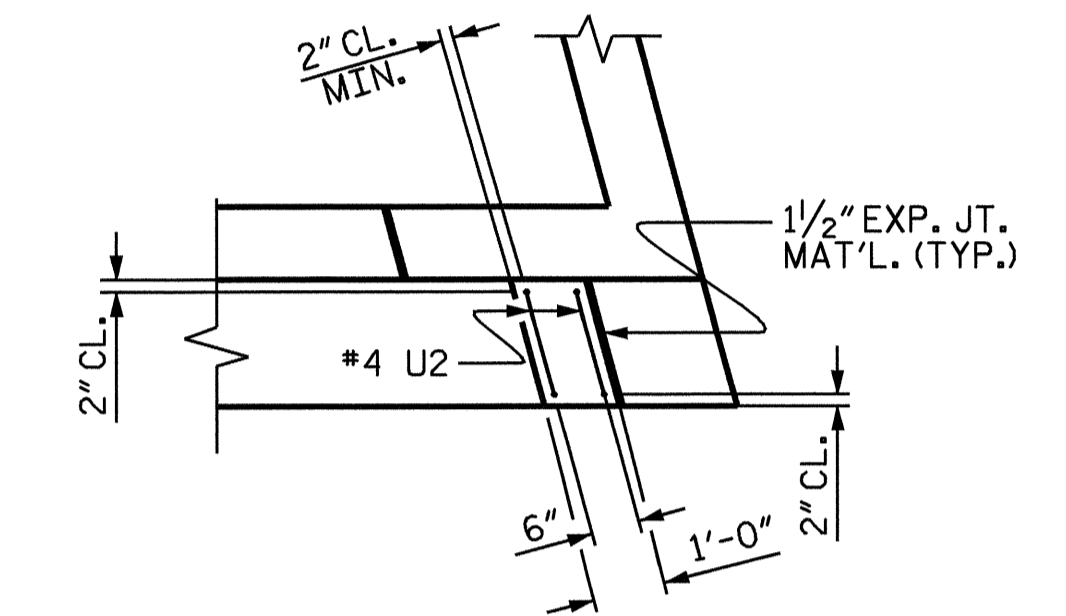
NOTES

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

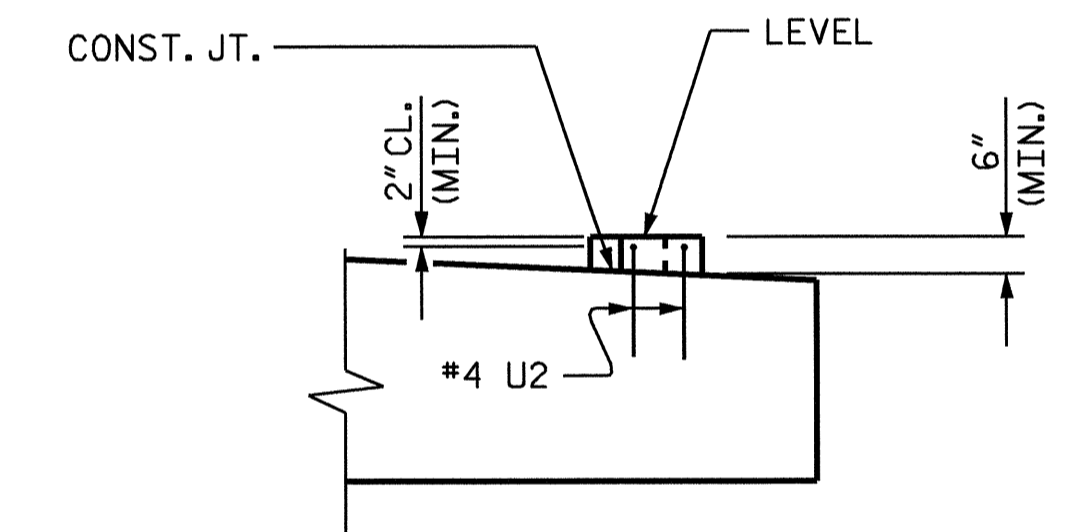
THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE BOX BEAM UNITS ARE IN PLACE.

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

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

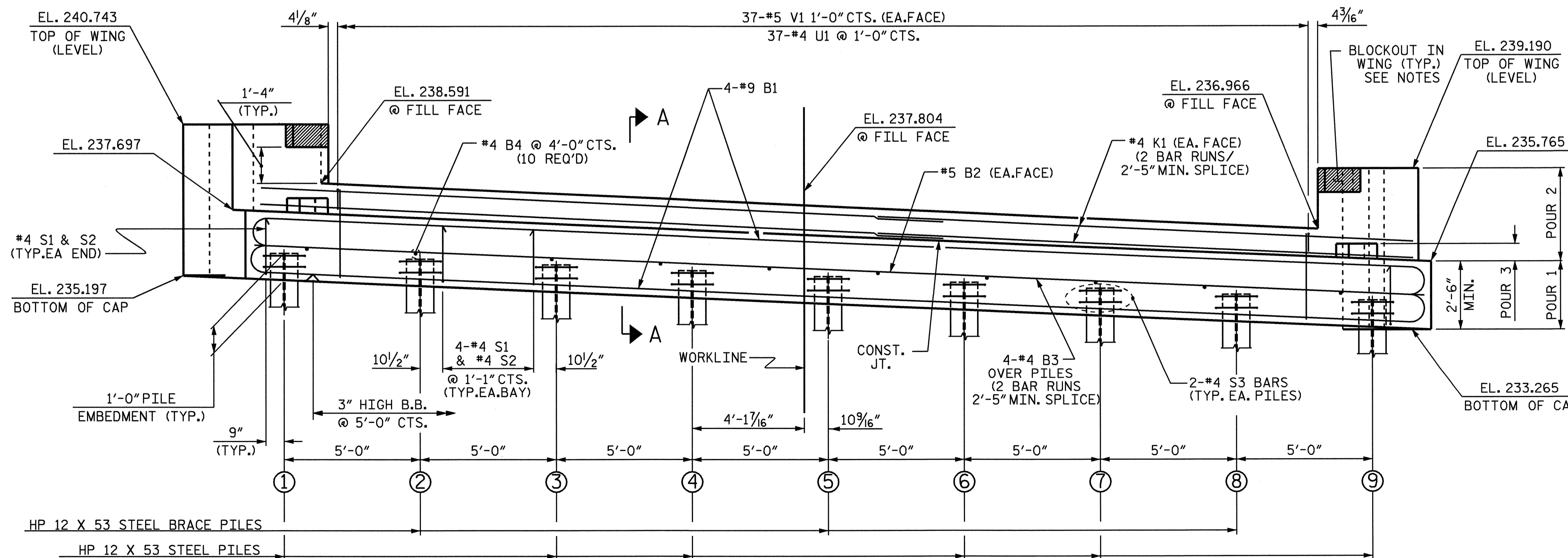


PLAN



ELEVATION

LATERAL GUIDE DETAILS



ELEVATION

PROJECT NO. B-3921
 WARREN COUNTY
 STATION: 13+05.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2

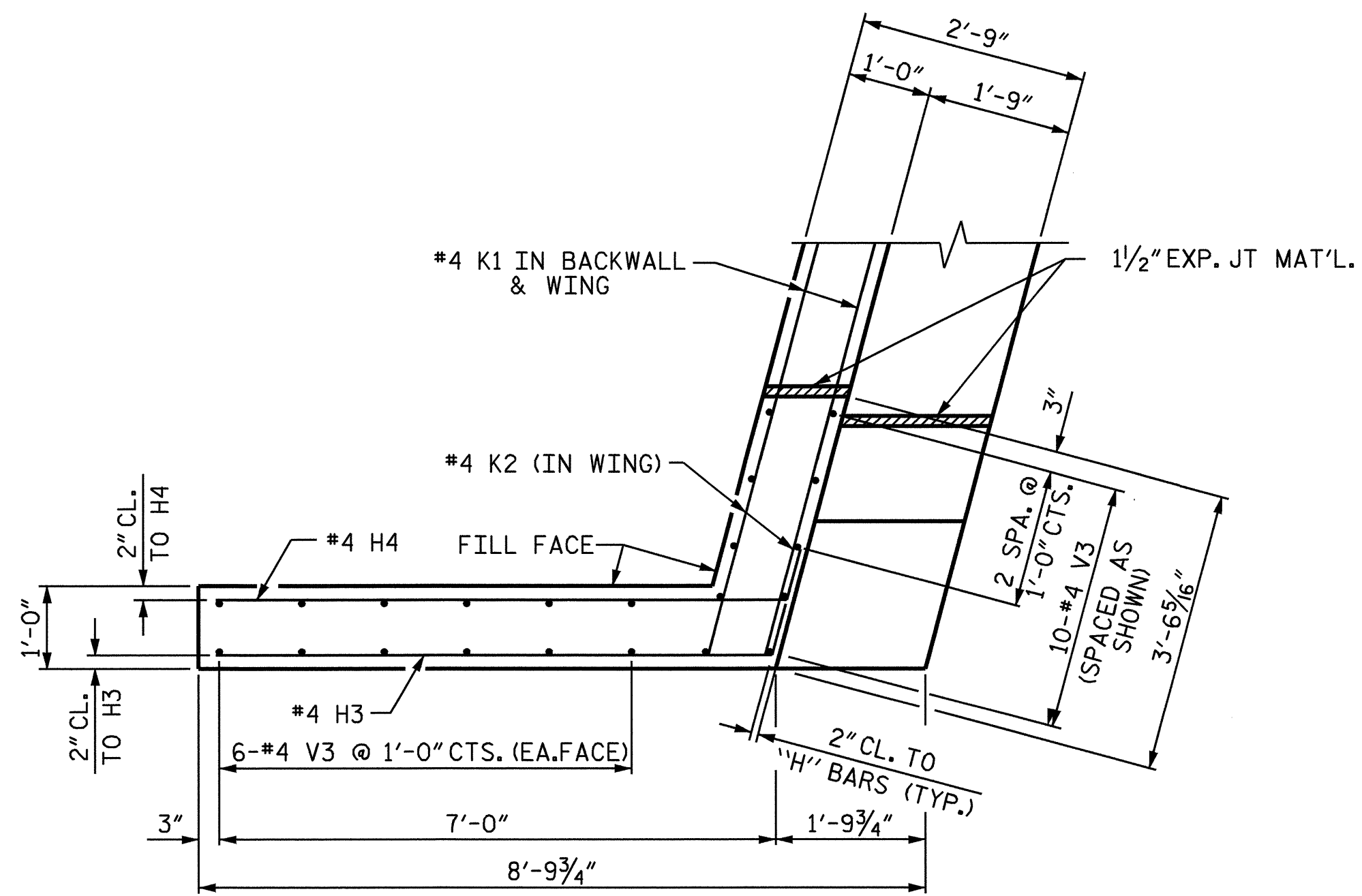


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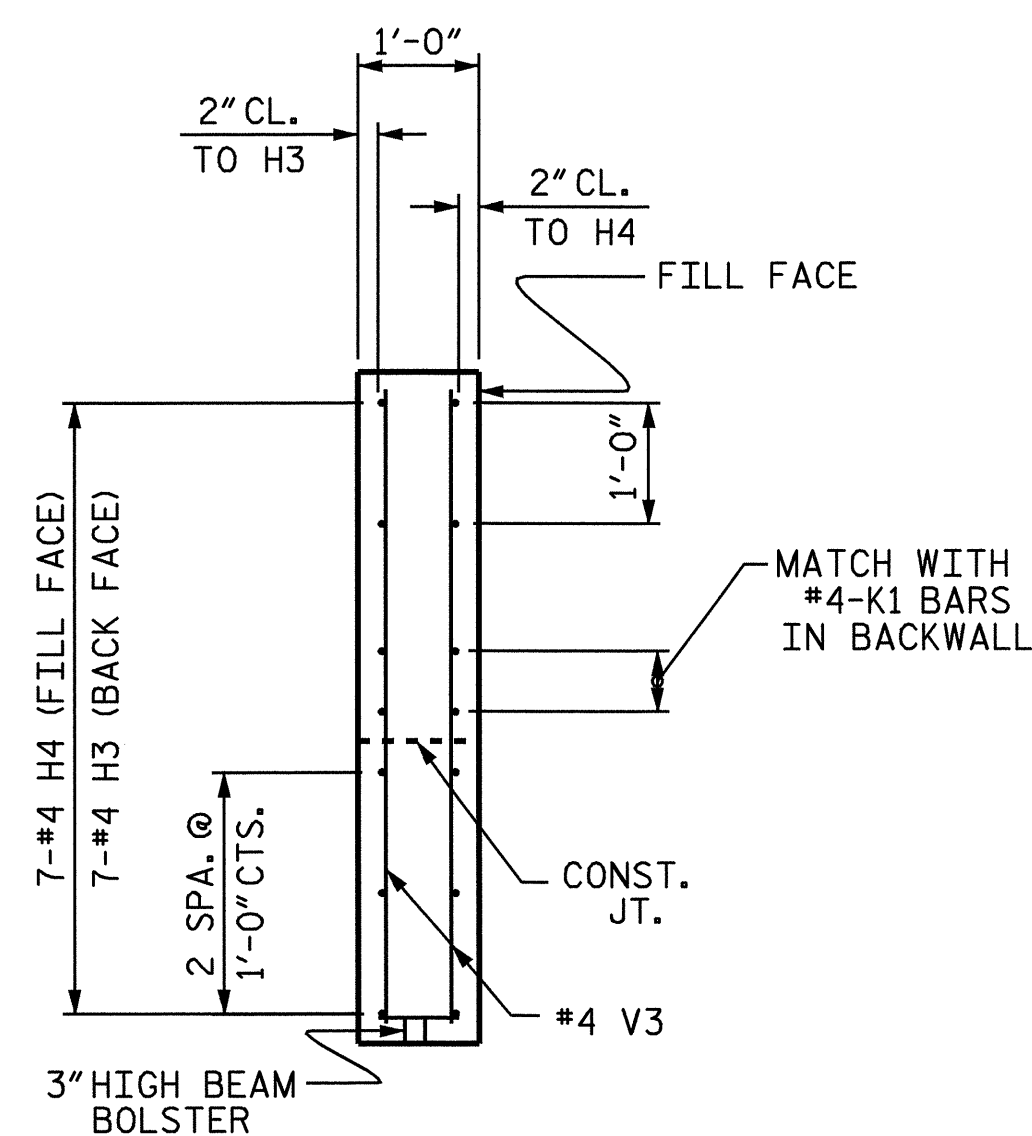
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 CHECKED BY : J.G. KHARVA DATE : 1/12/09

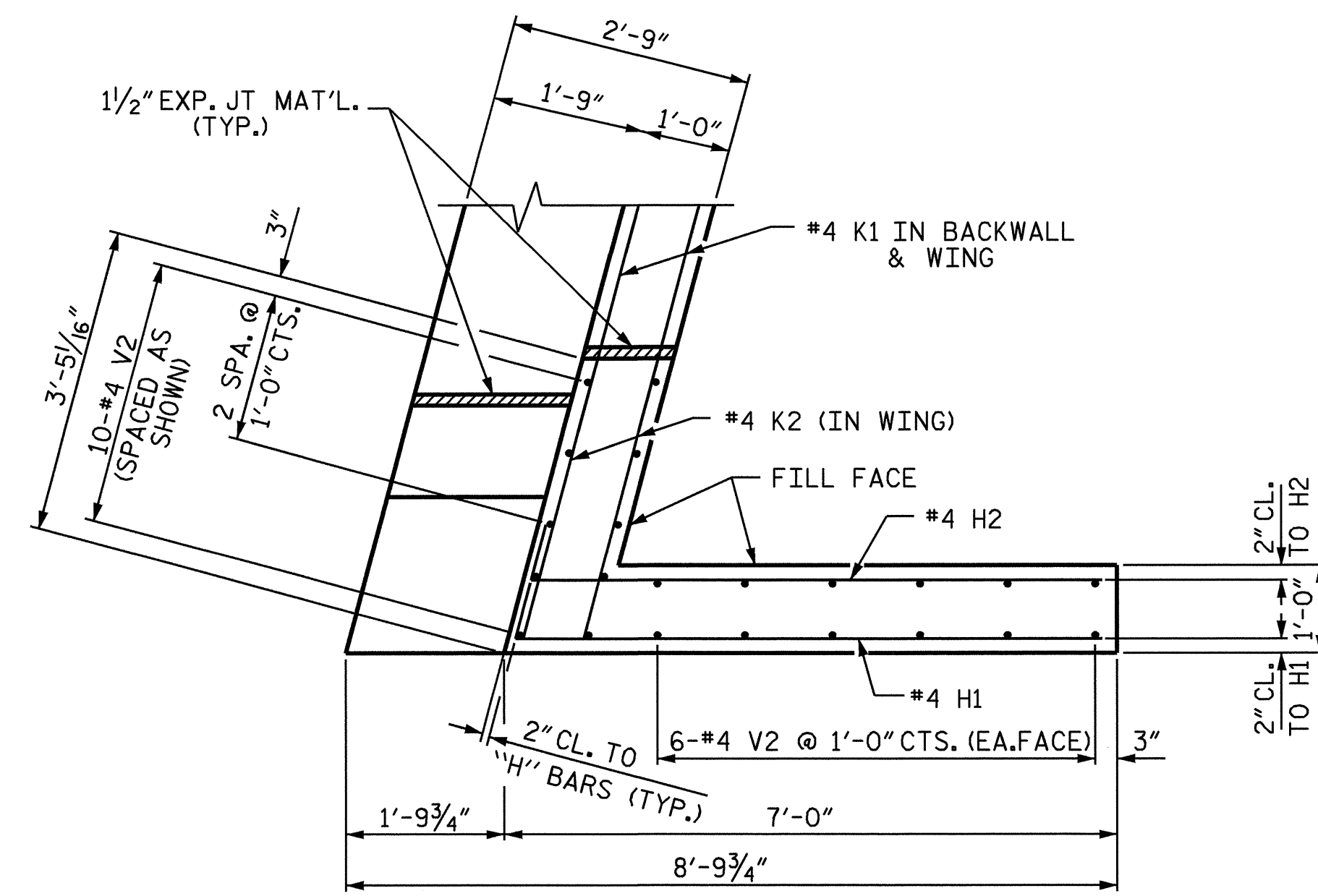
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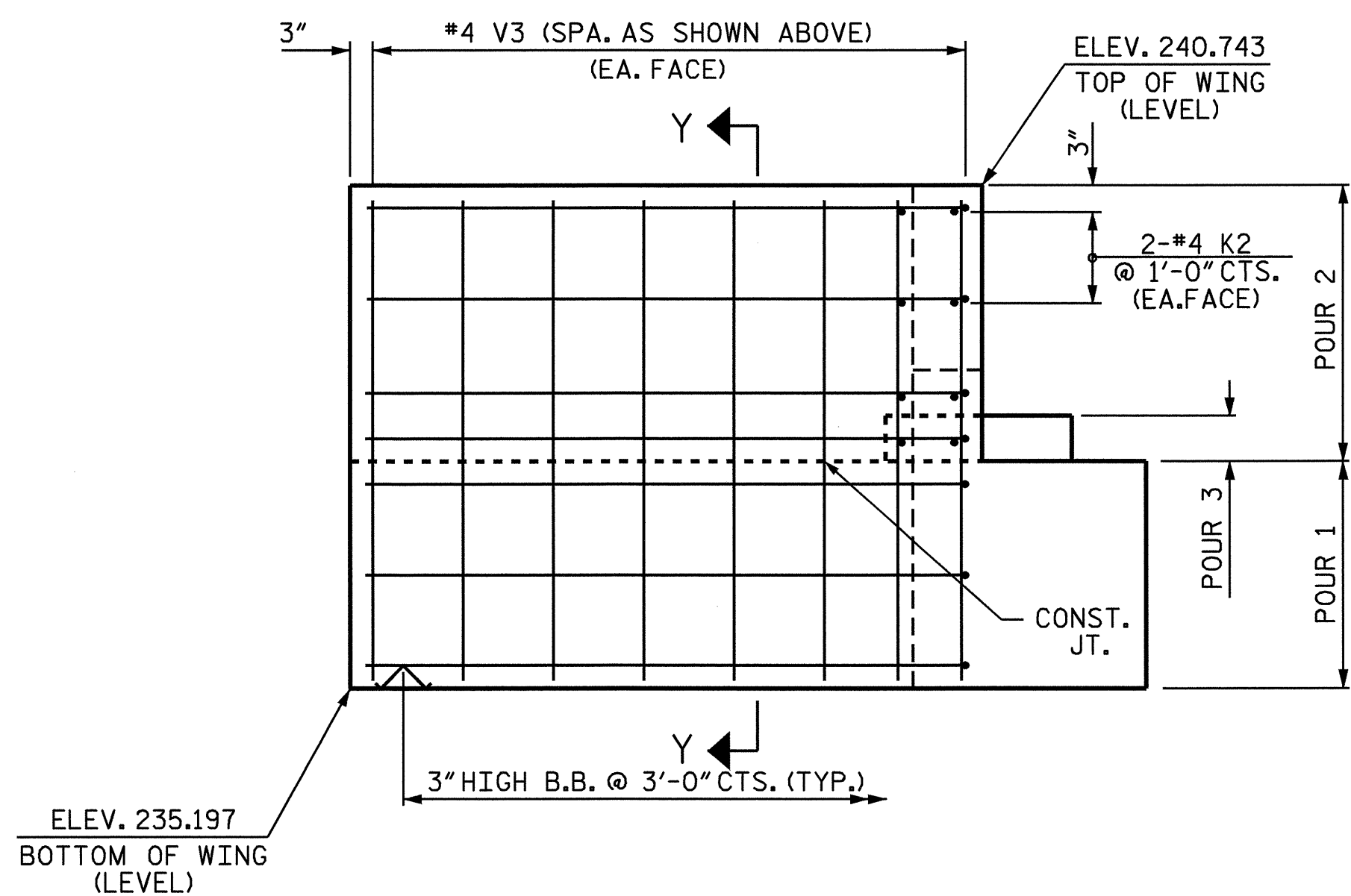
PLAN OF WING W1



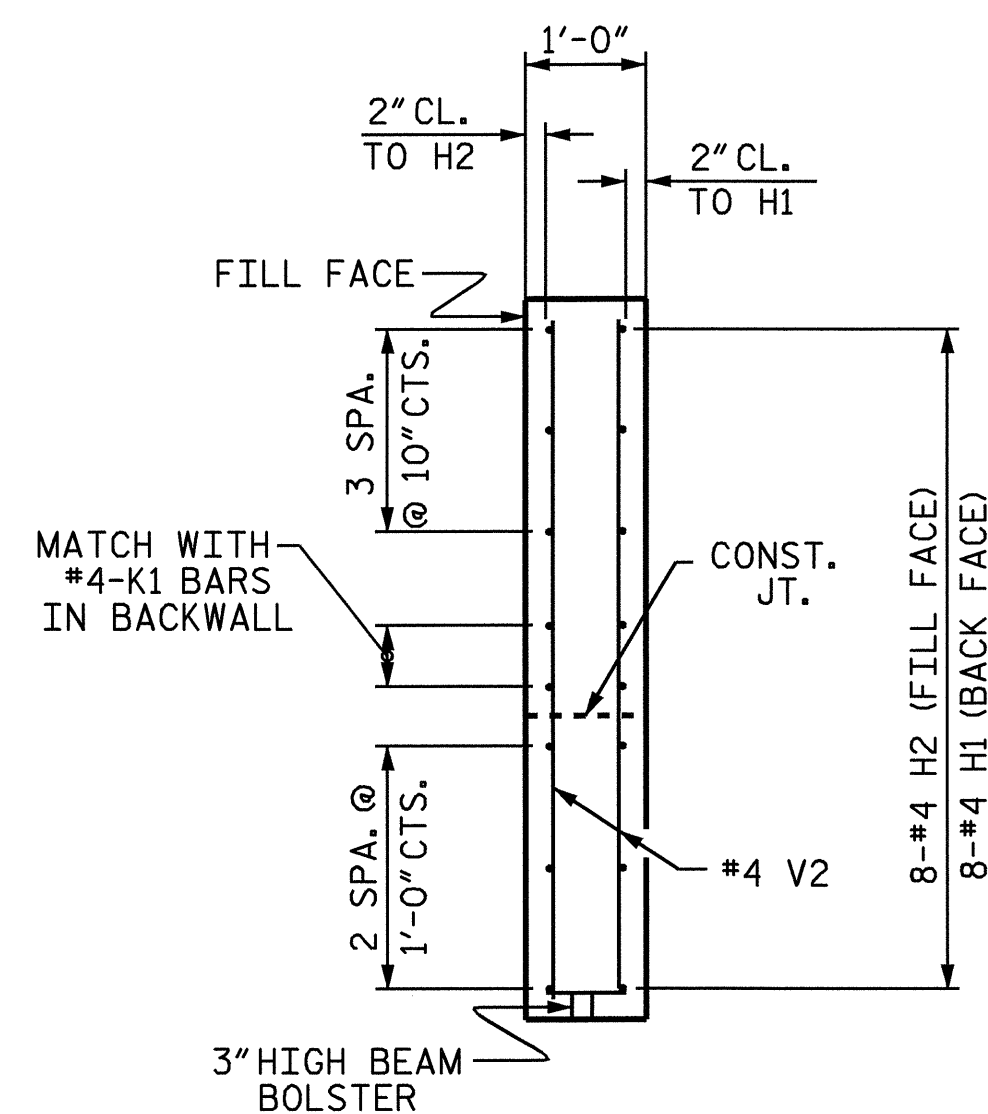
SECTION Y-Y



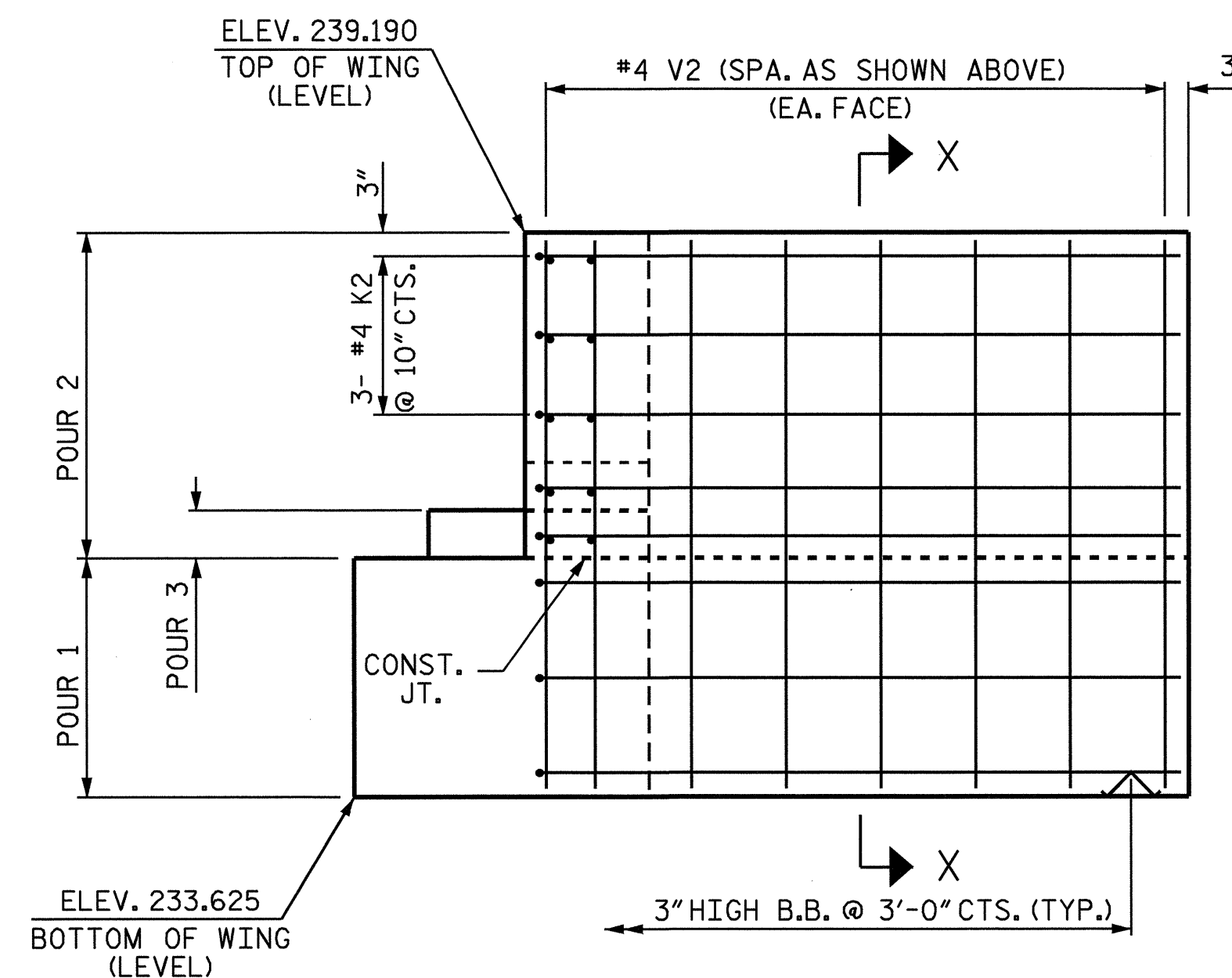
PLAN OF WING W2



ELEVATION OF WING W1



SECTION X-X



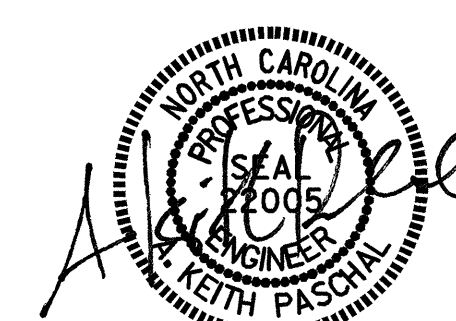
ELEVATION OF WING W2

PROJECT NO. B-3921
WARREN COUNTY
 STATION: 13+05.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

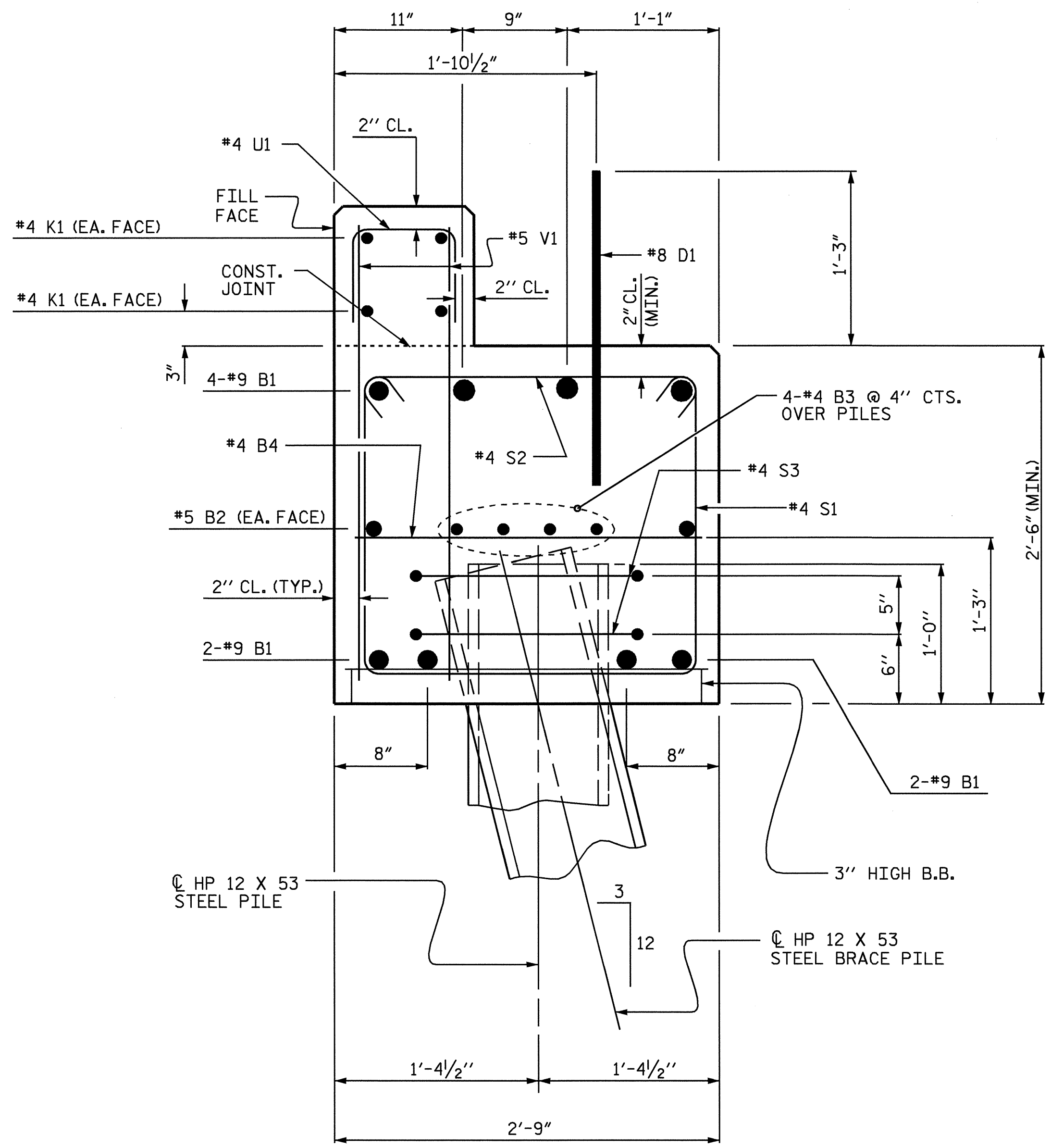
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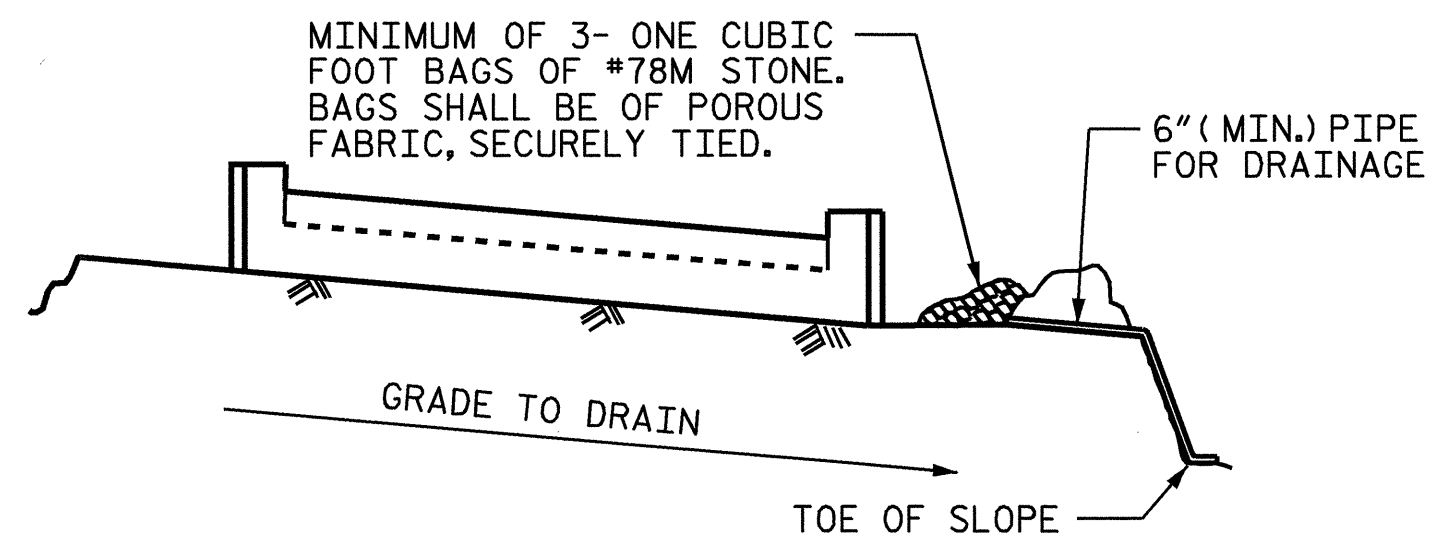
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SECTION A-A



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

6" (MIN.) PIPE FOR DRAINAGE

GRADE TO DRAIN

TOE OF SLOPE

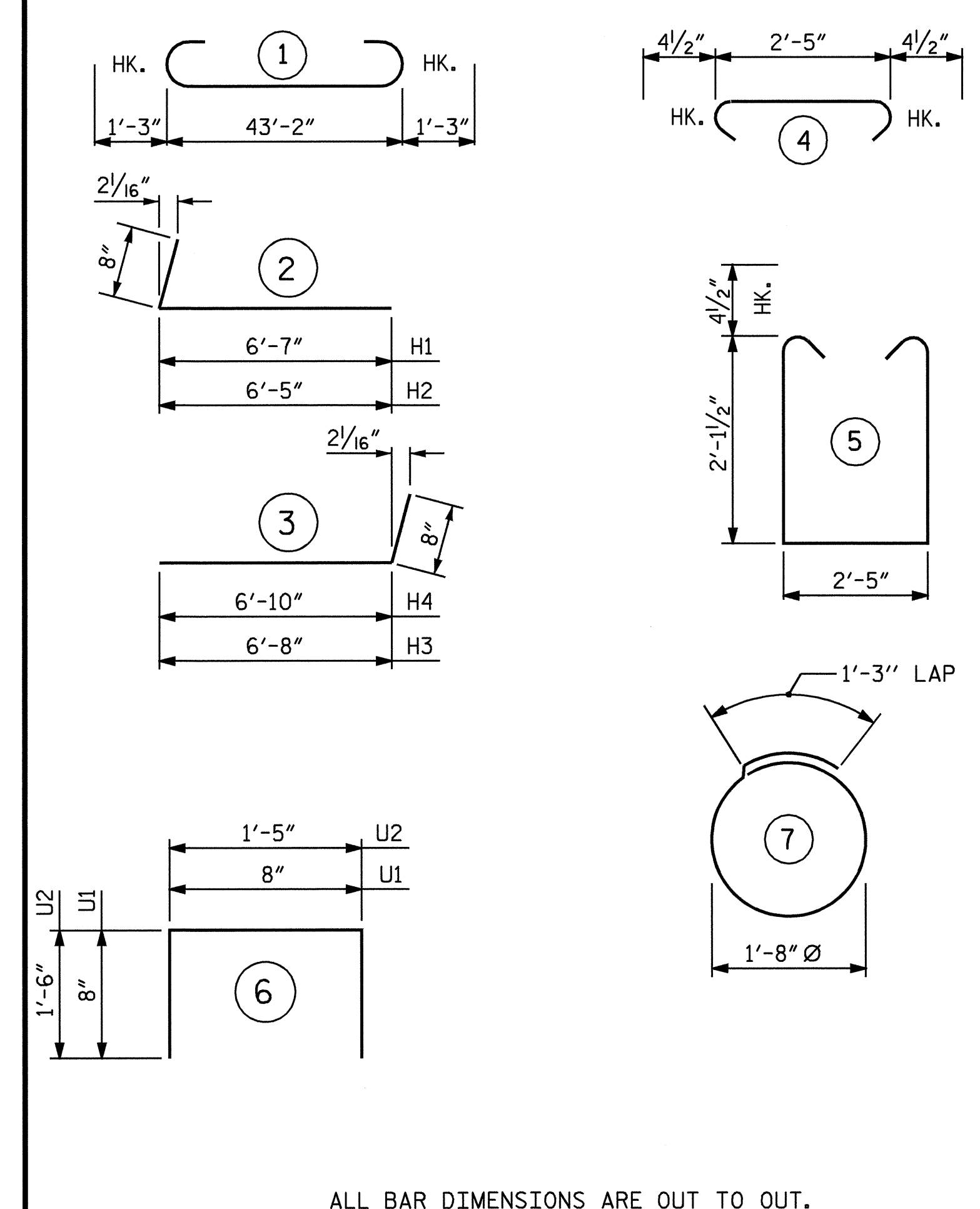
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2

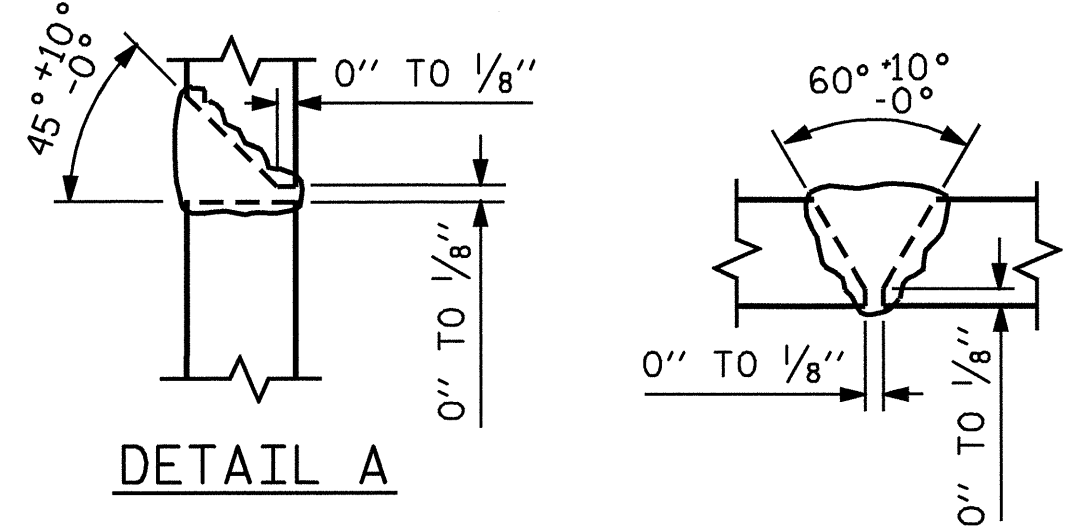
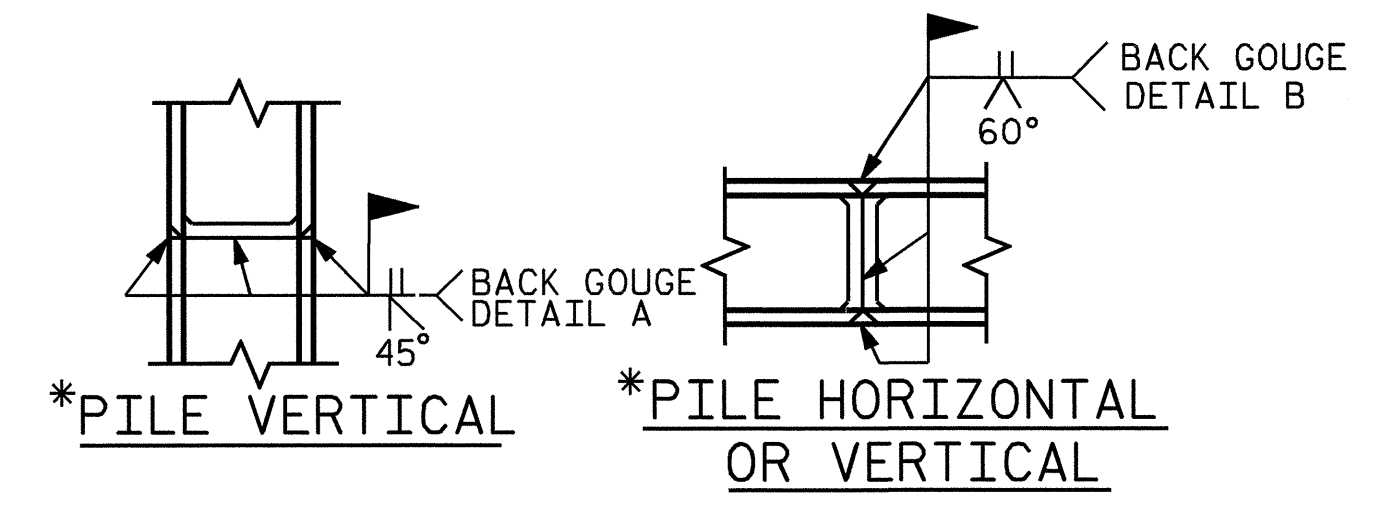
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	45'-8"	1242
B2	2	#5	STR	43'-3"	90
B3	8	#4	STR	22'-10"	122
B4	10	#4	STR	2'-5"	16
D1	24	#8	STR	2'-3"	144
H1	8	#4	2	7'-3"	39
H2	8	#4	2	7'-1"	38
H3	7	#4	3	7'-4"	34
H4	7	#4	3	7'-6"	35
K1	8	#4	STR	22'-9"	122
K2	10	#4	STR	3'-0"	20
S1	34	#4	5	7'-5"	168
S2	34	#4	4	3'-2"	72
S3	18	#4	7	6'-6"	78
U1	37	#4	6	2'-0"	49
U2	4	#4	6	4'-5"	12
V1	74	#4	STR	3'-2"	157
V2	22	#4	STR	5'-2"	76
V3	22	#4	STR	5'-7"	82

TOTAL REINFORCING STEEL = 2596 LBS

CLASS A CONCRETE BREAKDOWN

POUR 1	(CAP & LOWER PART OF WINGS)	12.2 C.Y.
POUR 2	(UPPER PART OF WINGS & BACKWALL)	3.7 C.Y.
POUR 3	(LATERAL GUIDE)	0.1 C.Y.
TOTAL CLASS A CONCRETE		16.0 C.Y.

HP 12 X 53 STEEL PILES		
NO. : 4 (LEFTSIDE)	120 LIN. FT.	
NO. : 5 (RIGHTSIDE)	125 LIN. FT.	
TOTAL : 9	245 LIN. FT.	



PILE SPLICE DETAILS

PROJECT NO. B-3921
WARREN COUNTY
STATION: 13+05.00 -L-

SHEET 3 OF 3

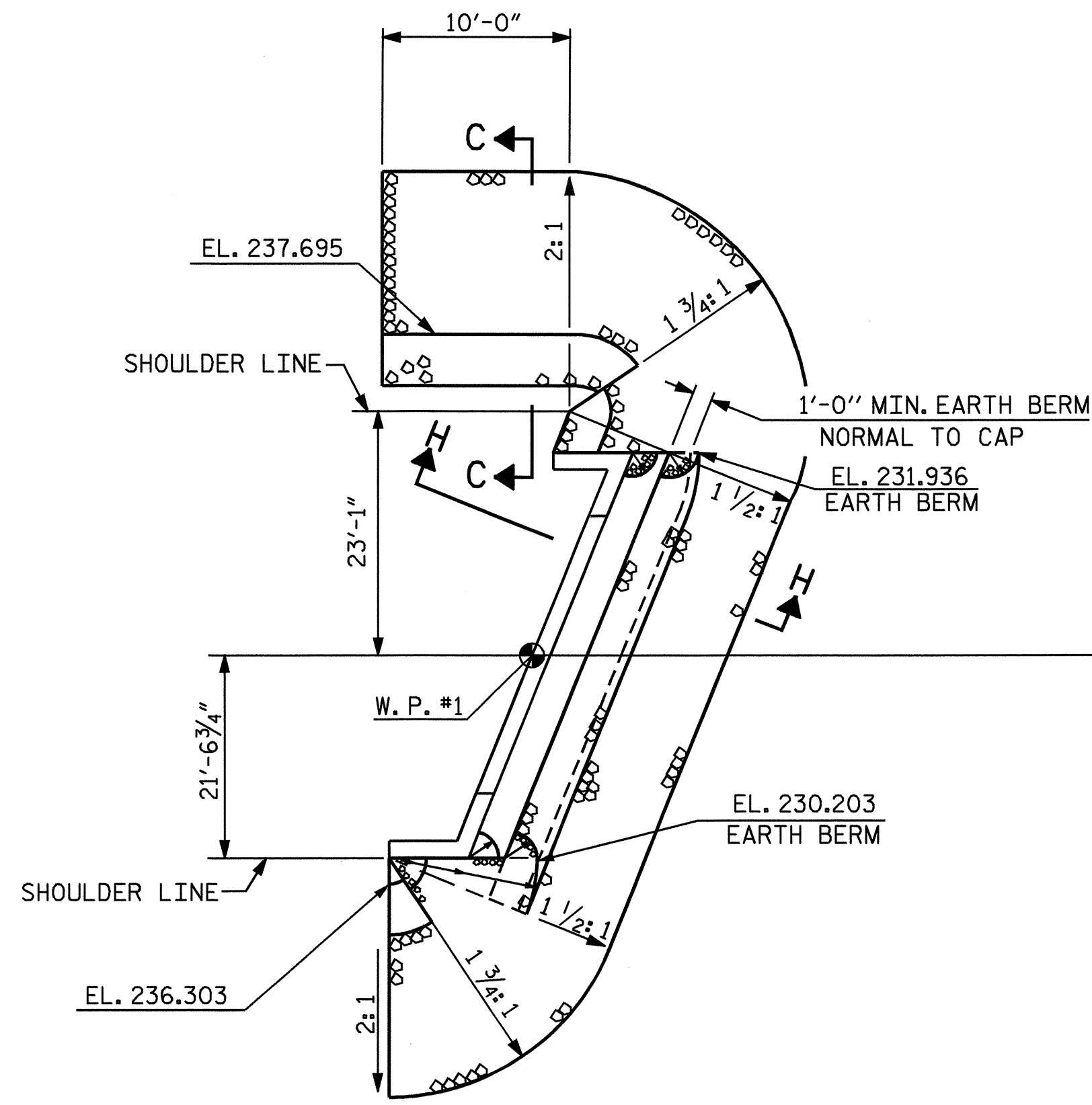
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 2

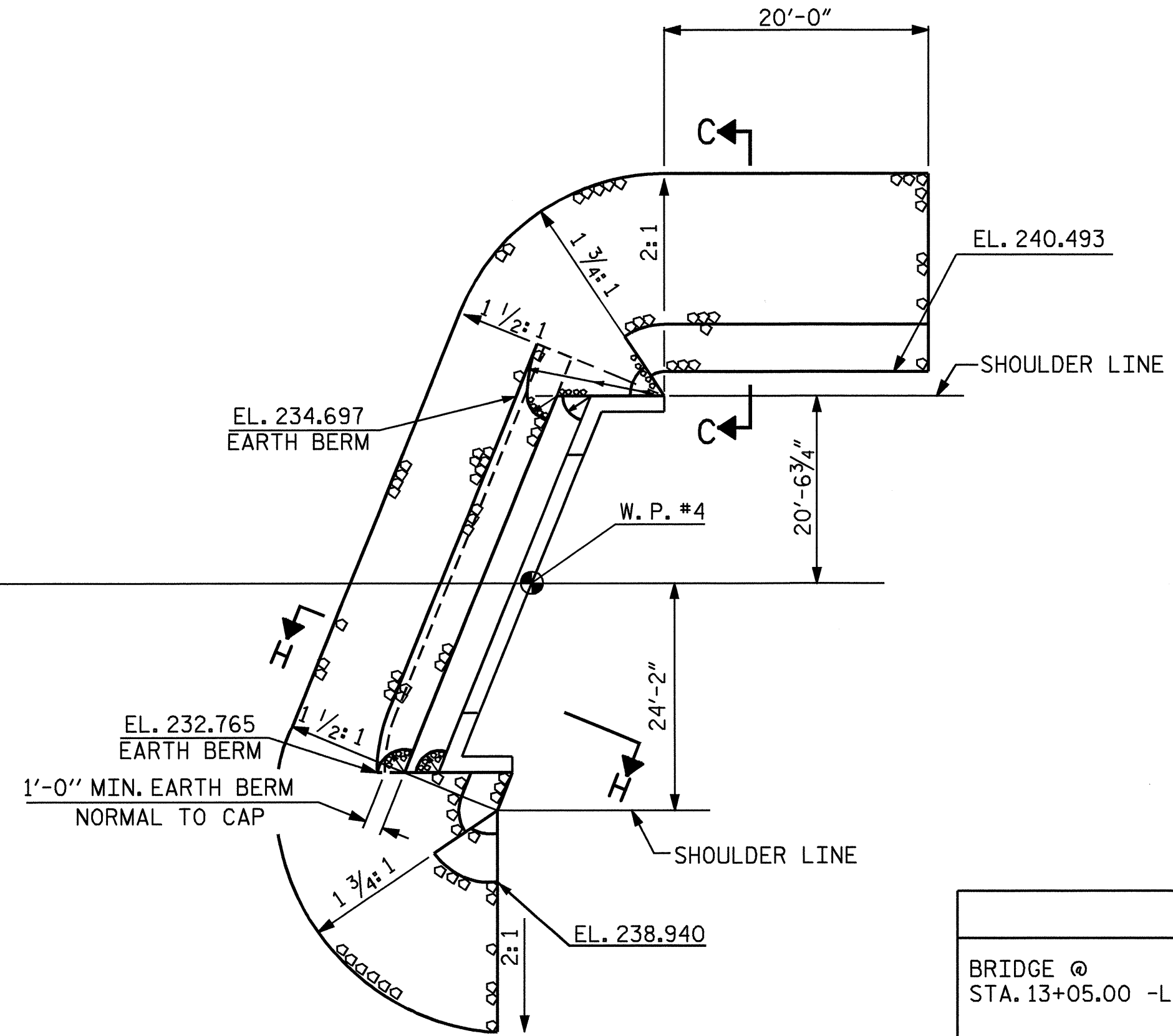


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NO.	BY:	DATE:	NO.	BY:	DATE:	
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DRAWN BY : M.FOWLER DATE : 12/29/08
CHECKED BY : J.G. KHARVA DATE : 1/12/09



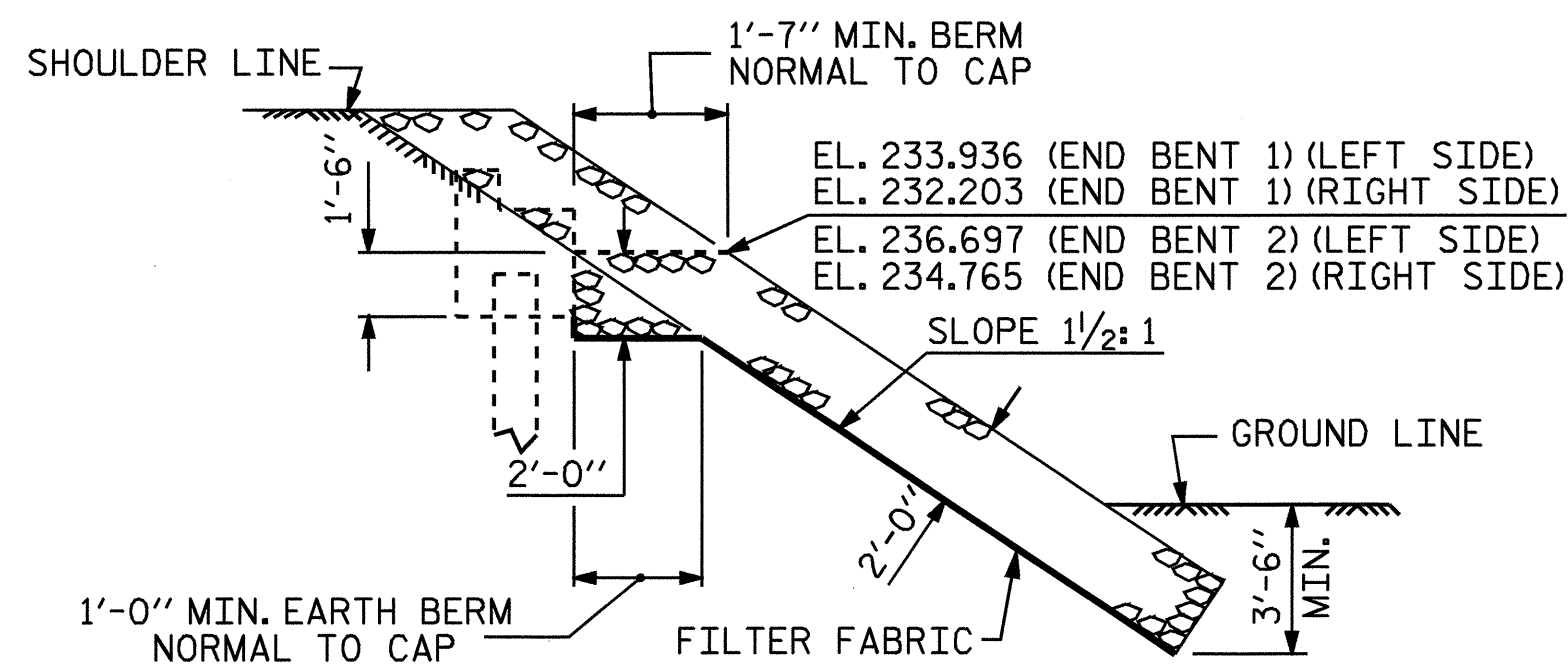
END BENT 1



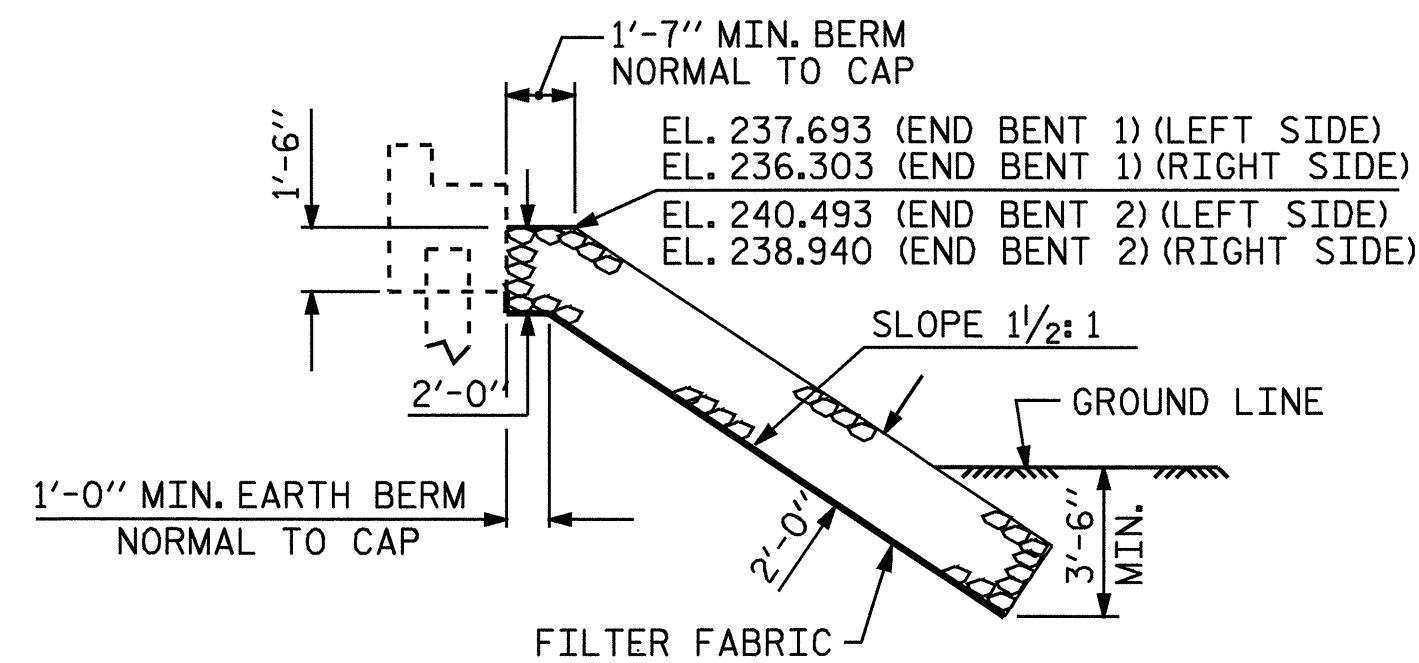
END BENT 2

ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+05.00 -L-	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	137	153
END BENT 2	194	216
TOTAL	331	369

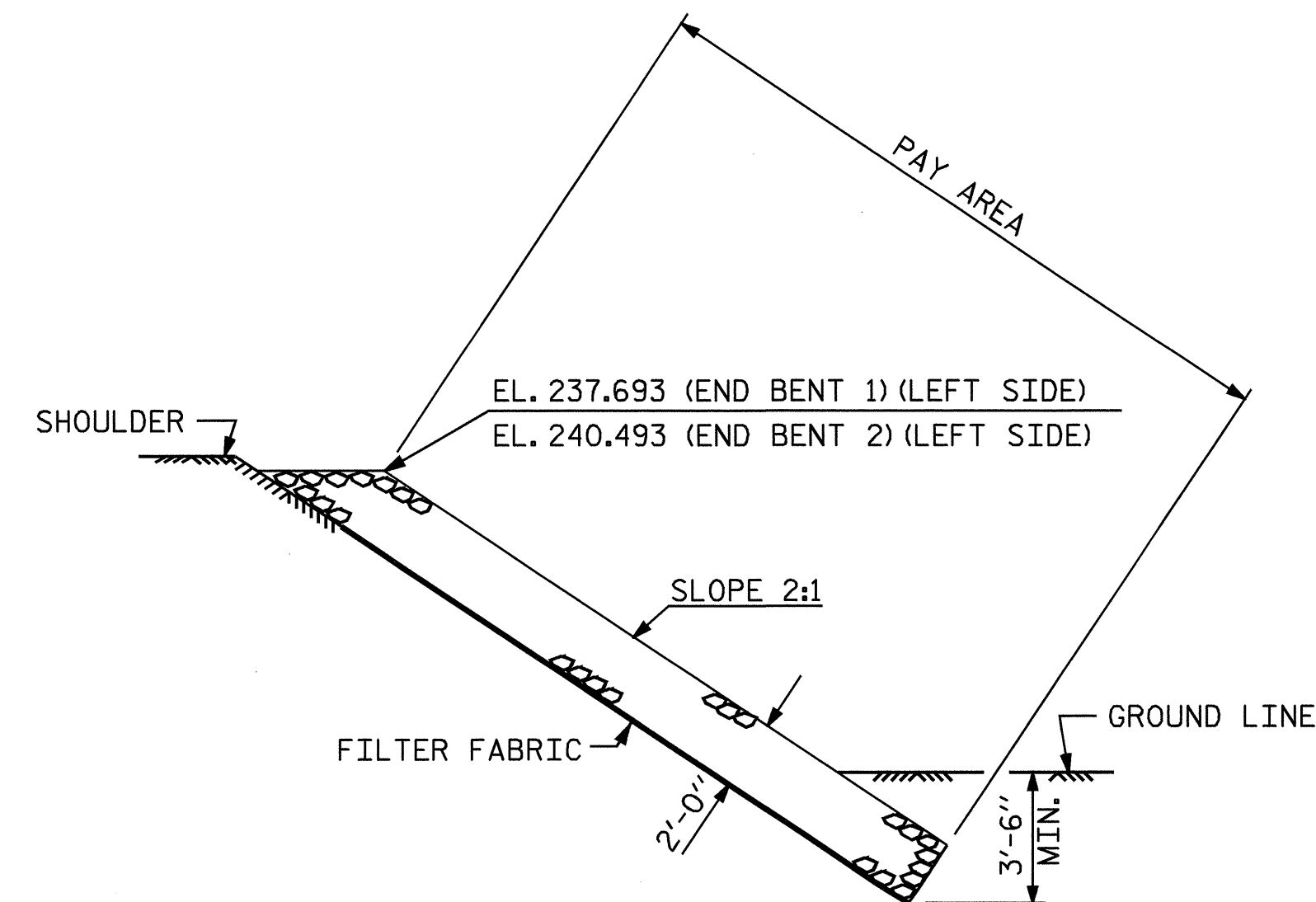
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SECTION H-H



SECTION C-C
BERM RIP RAPPED



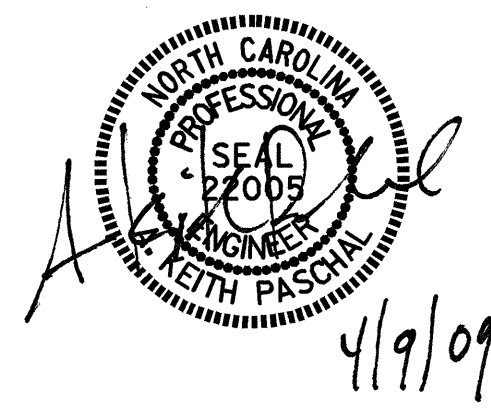
SECTION C-C

PROJECT NO. B-3921
WARREN COUNTY
STATION: 13+05.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
RIP RAP DETAILS

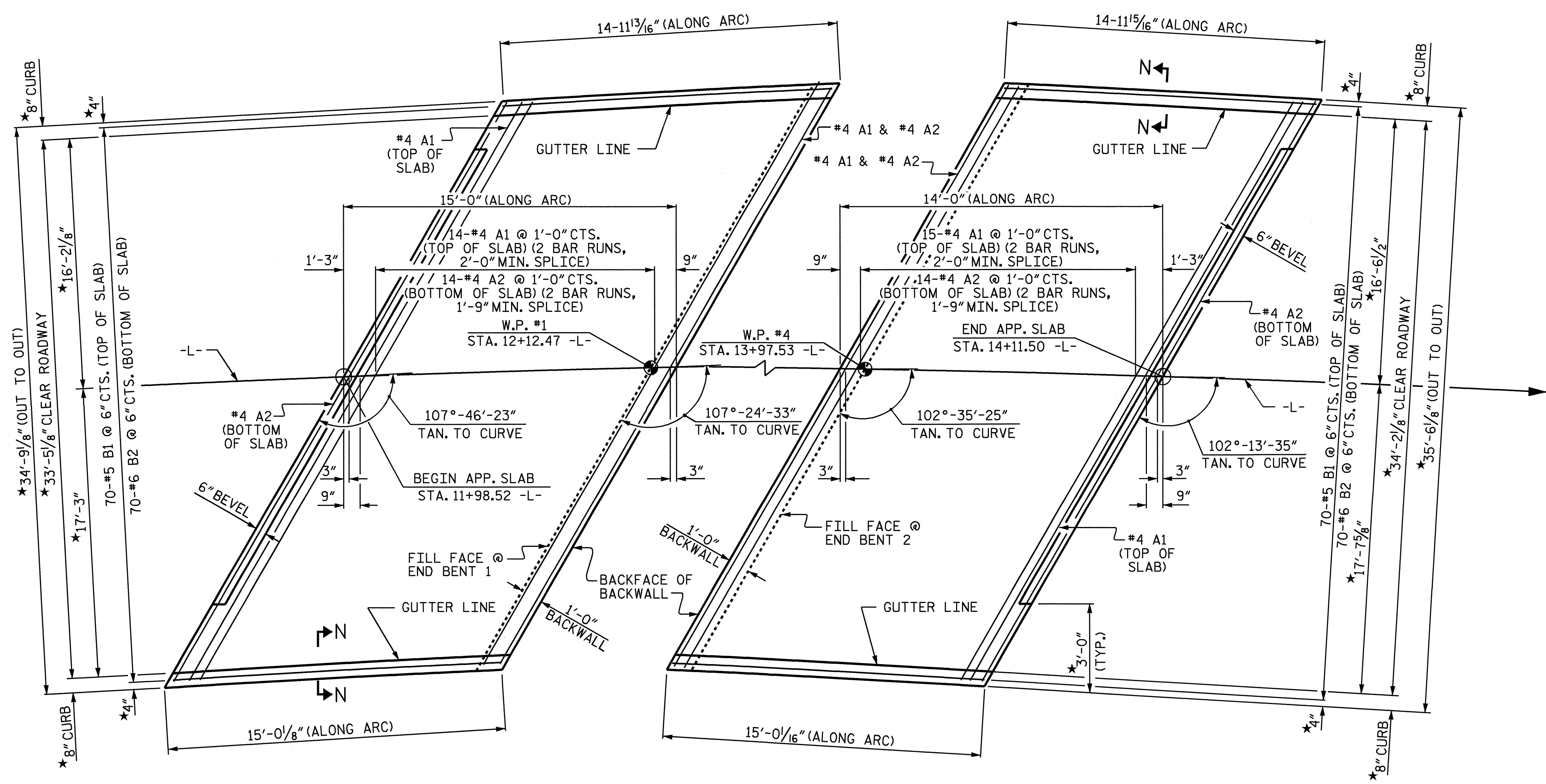
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ASSEMBLED BY : M.FOWLER DATE : 6/18/08
CHECKED BY : J.G.KHARVA DATE : 10/23/08
DRAWN BY : REK 1/84 REV. 8/16/99 RWW/LES
CHECKED BY : RDU 1/84 REV. 10/17/00 RWW/LES
REV. 5/1/06 TLA/GM

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BILL OF MATERIAL					
FOR ONE APPROACH SLAB (2 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	32	#4	STR	19'-2"	410
A2	32	#4	STR	19'-0"	406
*B1	70	#5	STR	14'-4"	1046
B2	70	#6	STR	14'-8"	1542
REINFORCING STEEL				LBS.	1948
*EPOXY COATED REINFORCING STEEL				LBS.	1456
CLASS AA CONCRETE				C. Y.	20.1



PLAN @ END BENT 1

PLAN @ END BENT 2

* RADIAL DIMENSIONS

NOTES

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

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

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

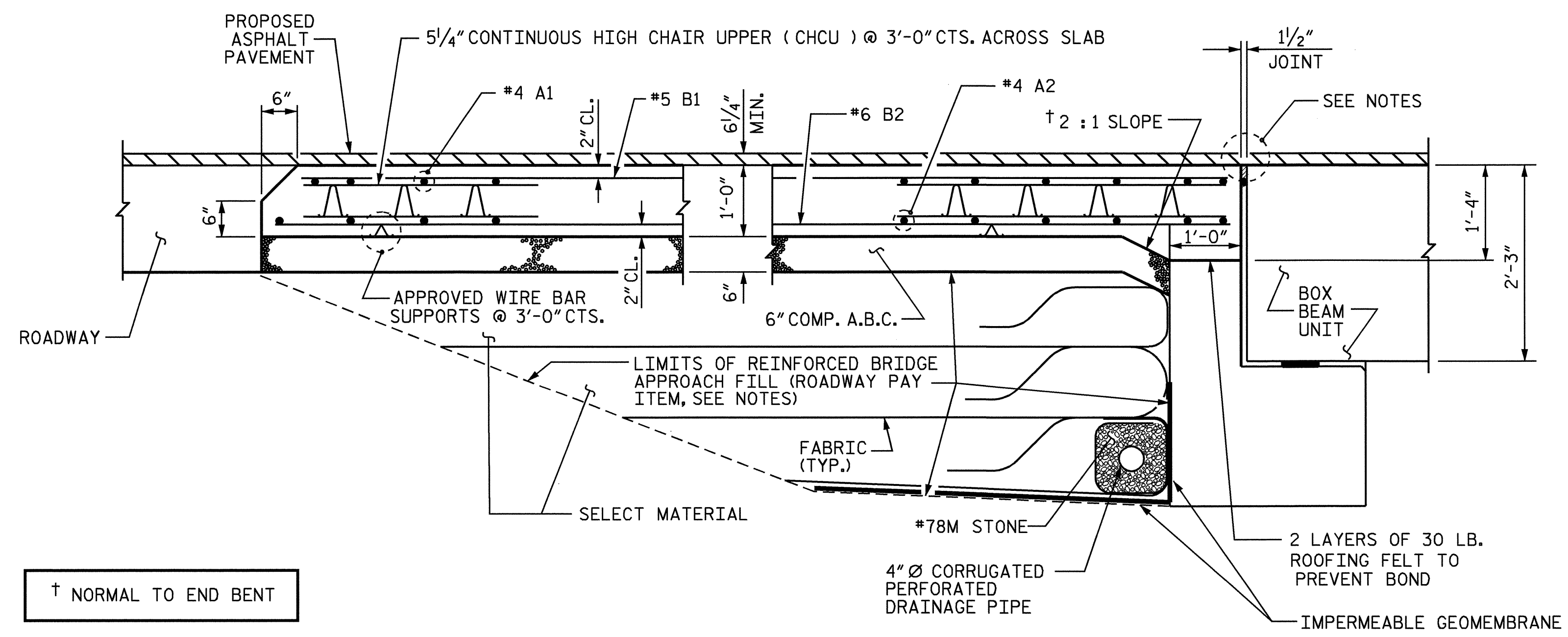
THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

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

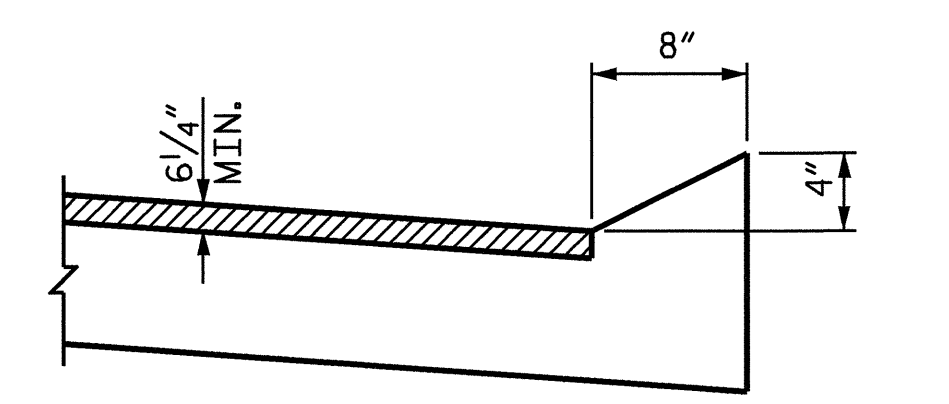
FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE BOX BEAM UNIT" SHEETS.

THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

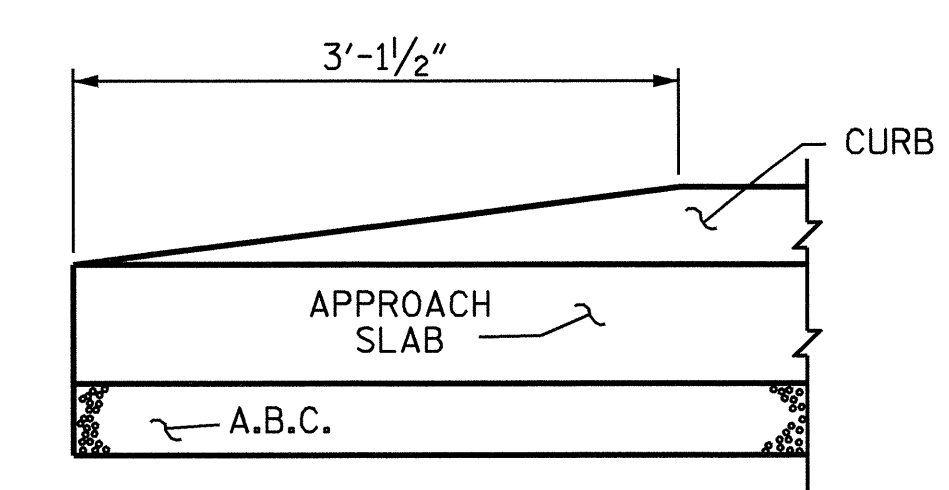
APPROACH SLAB GROOVING IS NOT REQUIRED.



SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

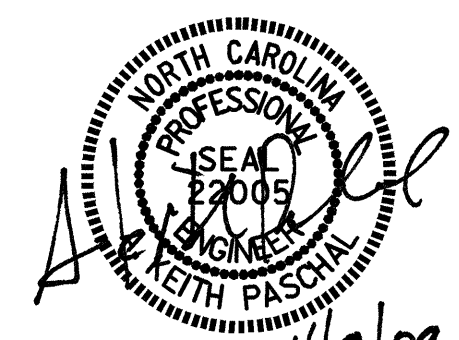
(OMIT TAPER WHEN SHOULDER BERM GUTTER IS REQUIRED)

CURB DETAILS

PROJECT NO. B-3921
WARREN COUNTY
STATION: 13+05.00 -L-

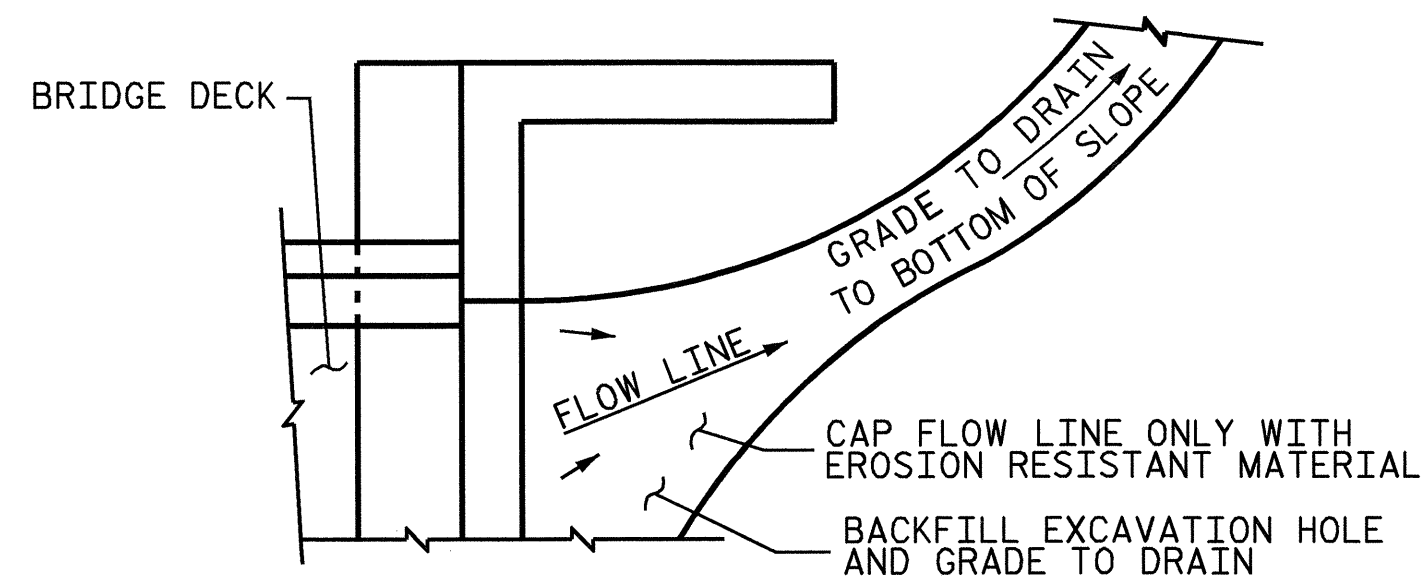
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
BOX SLAB



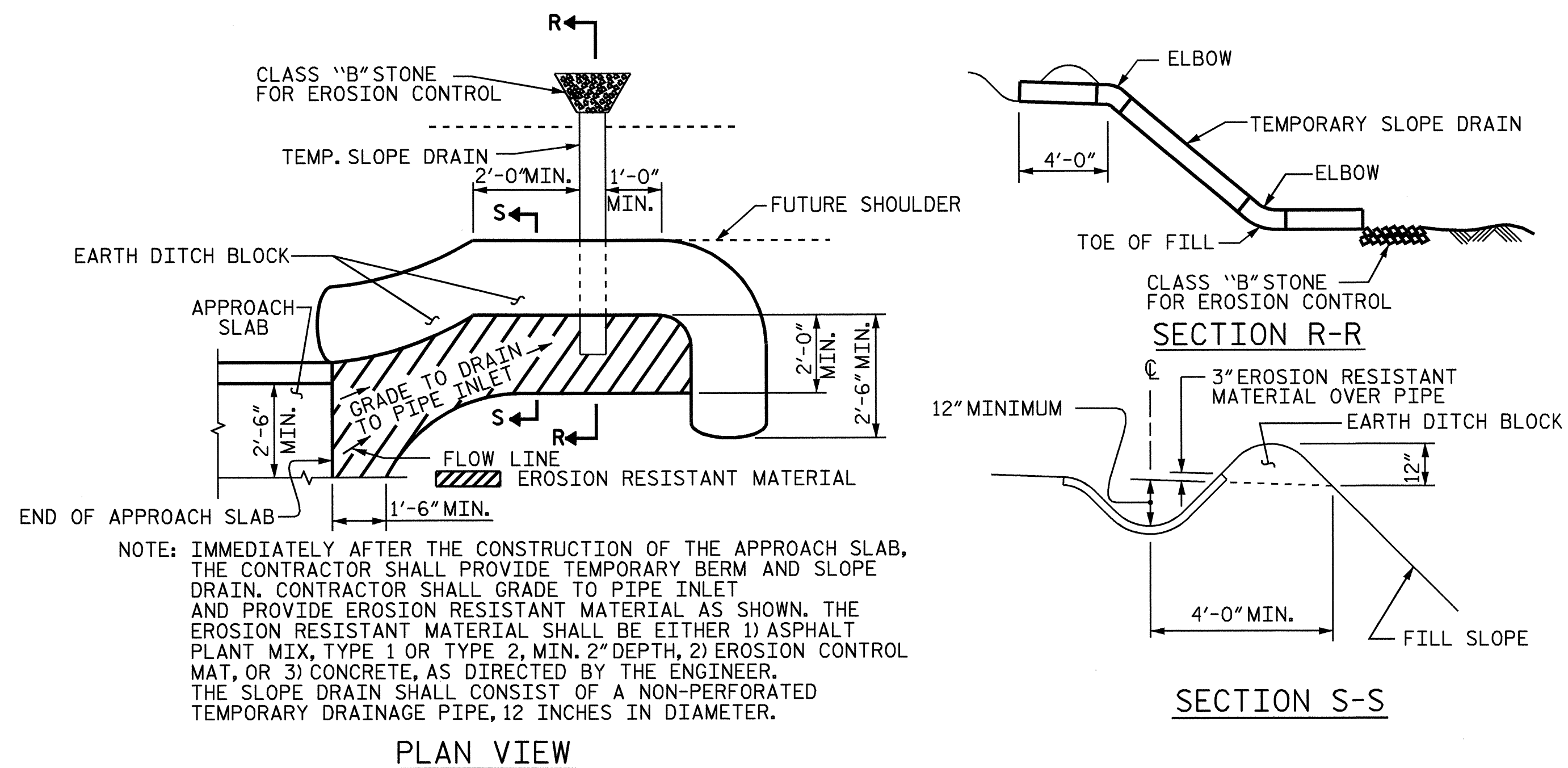
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
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2			4			26

ASSEMBLED BY : M.FOWLER	DATE : 6/3/08
CHECKED BY : J.G. KHARVA	DATE : 10/13/08
DRAWN BY : FCJ 6/87	REV. 7/10/01 LES/RDR
CHECKED BY : EGA 6/87	REV. 5/7/03R RWW/JTE
	REV. 5/1/06R KMM/GM



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



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 DRAINAGE SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

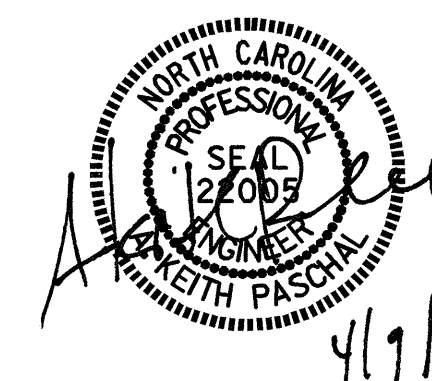
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

PROJECT NO. B-3921
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SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 BRIDGE APPROACH
 SLAB DETAILS



ASSEMBLED BY : M.FOWLER DATE : 6/6/08
 CHECKED BY : J. G. KHARVA DATE : 10/21/08

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

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 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. 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