

TIP PROJECT: B-4281

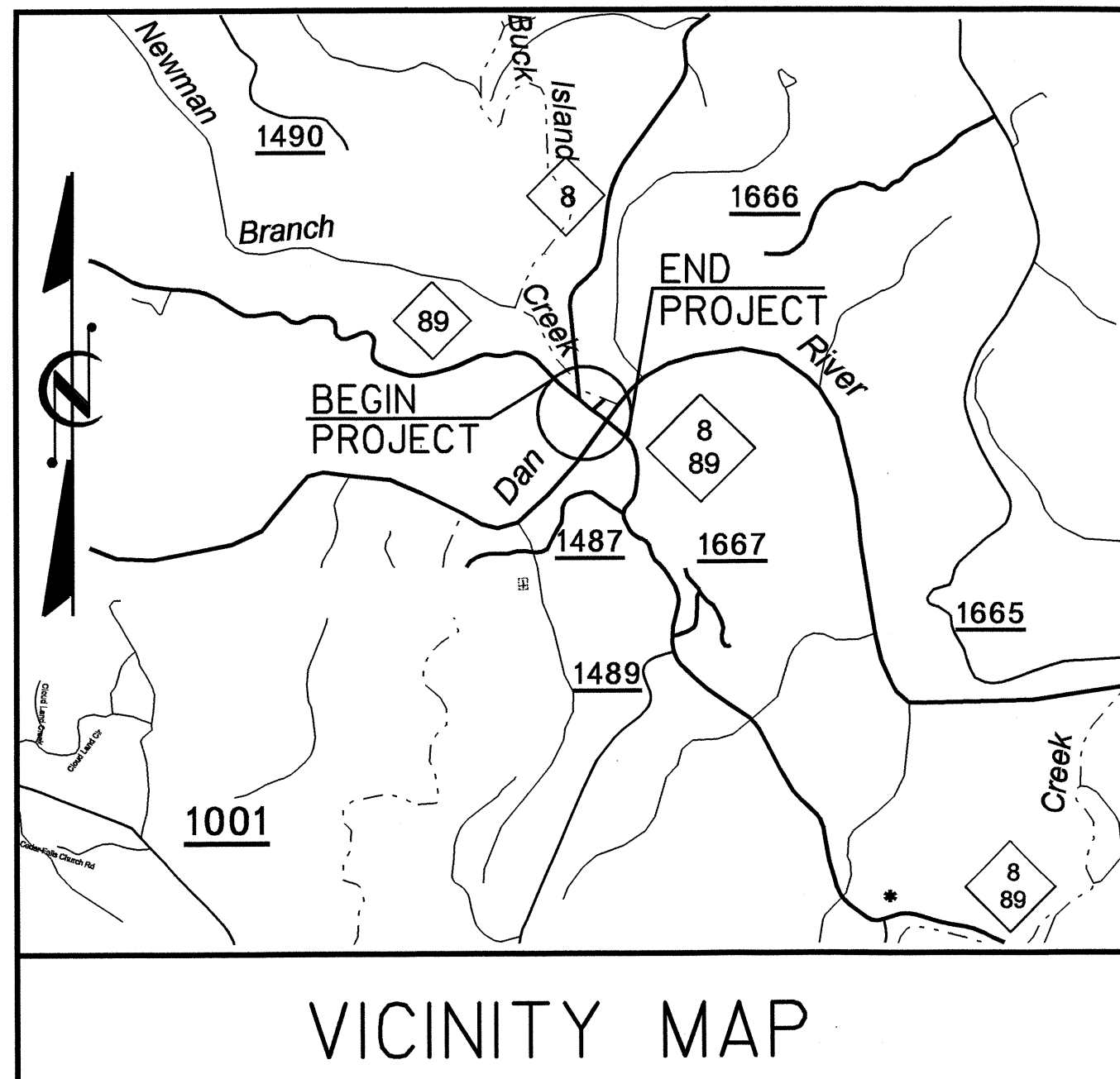
CONTRACT: C201815

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

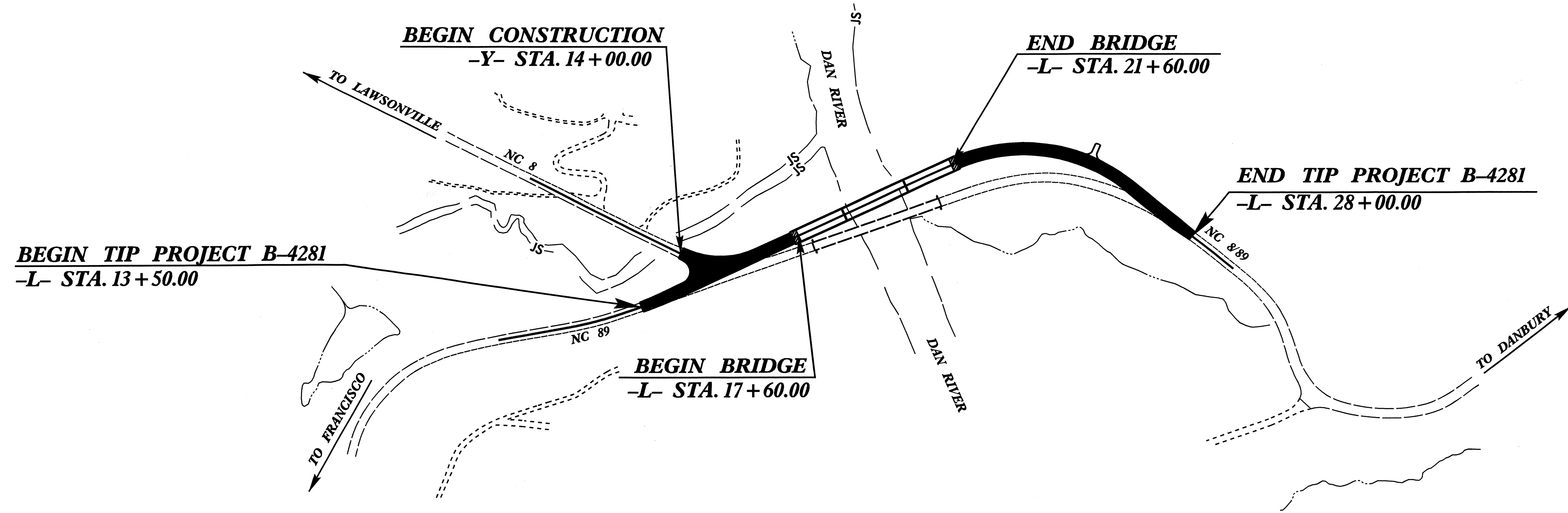
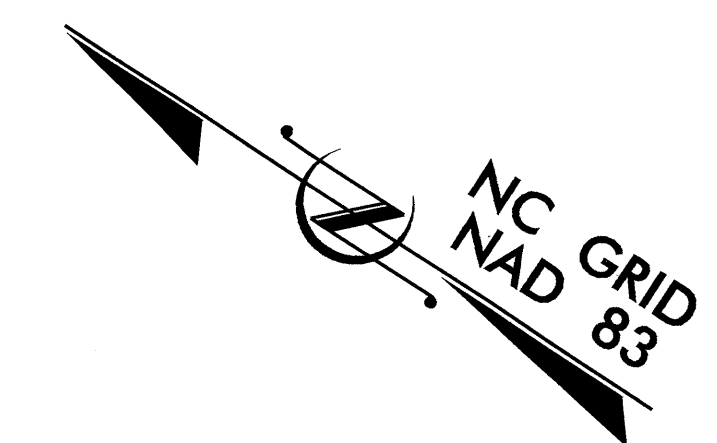
STOKES COUNTY

LOCATION: BRIDGE NO. 60 OVER DAN RIVER ON
NC 8/89

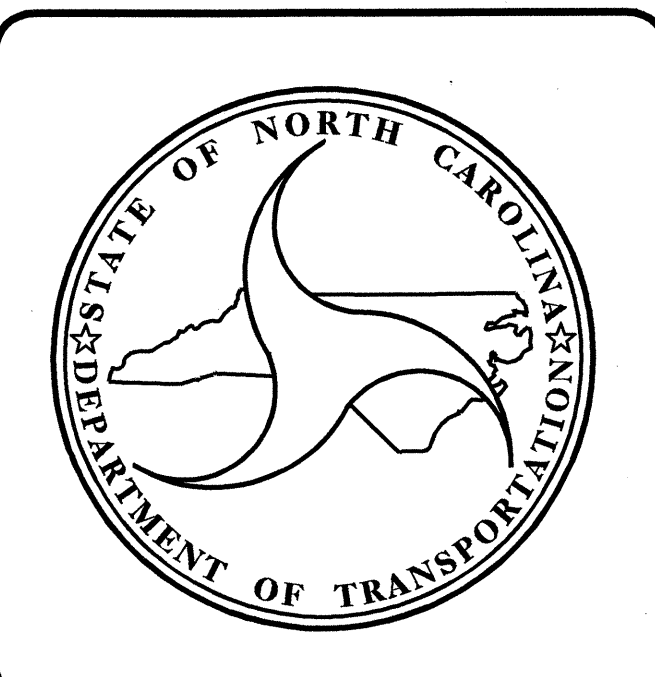
TYPE OF WORK: GRADING, DRAINAGE, PAVING &
STRUCTURE



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4281		
WBS PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
33621.1.1	BRSTP-008(4)	P.E.	
33621.2.1	BRSTP-008(4)	RW/UTL	
33621.3.1	BRSTP-008(4)	CONST	



STRUCTURE



DESIGN DATA	
ADT 2008 =	3300
ADT 2028 =	5100
DHV =	10 %
D =	65 %
T =	3 % *
** V =	60 MPH
* TTST 1%	DUAL 2%

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT B-4281	= 0.199 MI.
LENGTH STRUCTURE TIP PROJECT B-4281	= 0.076 MI.
TOTAL LENGTH OF TIP PROJECT B-4281	= 0.275 MI.
** DESIGN EXCEPTION REQUIRED FOR VERTICAL AND HORIZONTAL ALIGNMENT	

Prepared In the Office of: DIVISION OF HIGHWAYS	
2006 STANDARD SPECIFICATIONS	
LETTING DATE: JULY 15, 2008	R.M. GIROLAMI, PE PROJECT ENGINEER
	L.E. SUTTON, PE PROJECT DESIGN ENGINEER

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

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA	
	P.E.
STATE DESIGN ENGINEER	
DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED	DATE
DIVISION ADMINISTRATOR	

17+00

18+00

19+00

20+00

21+00

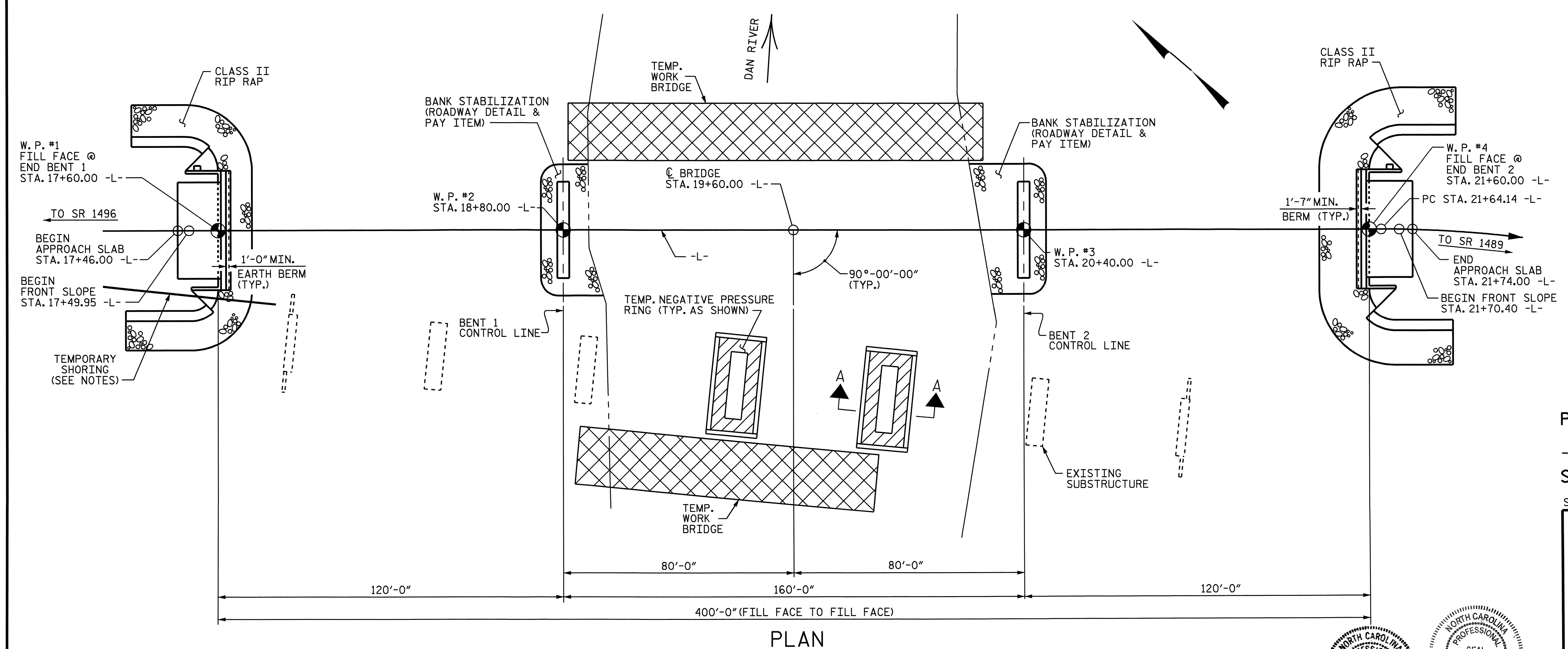
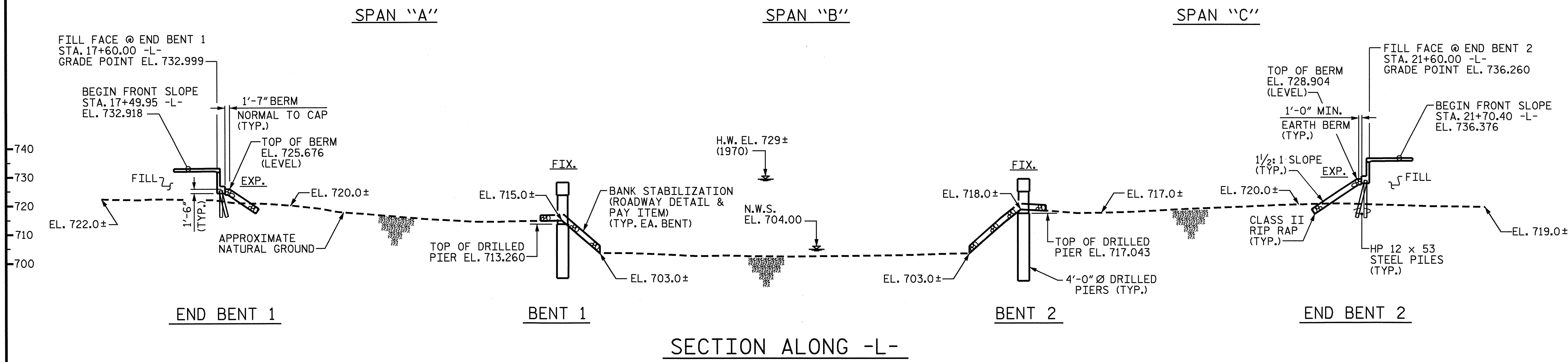
22+00

F. A. PROJ. NO. BRSTP-008(4)

(+).8019% (+).0054%

PI STA. 23+40.00
EL. = 737.650'
VC = 436.00'

GRADE DATA -L-



HORIZONTAL CURVE DATA -L-

PI STA. 24+08.81
Δ = 62°-54'-24.9" (RT)
L = 439.17'
T = 244.67'
R = 400.00'

PROJECT NO. B-4281
STOKES COUNTY
STATION: 19+60.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 60

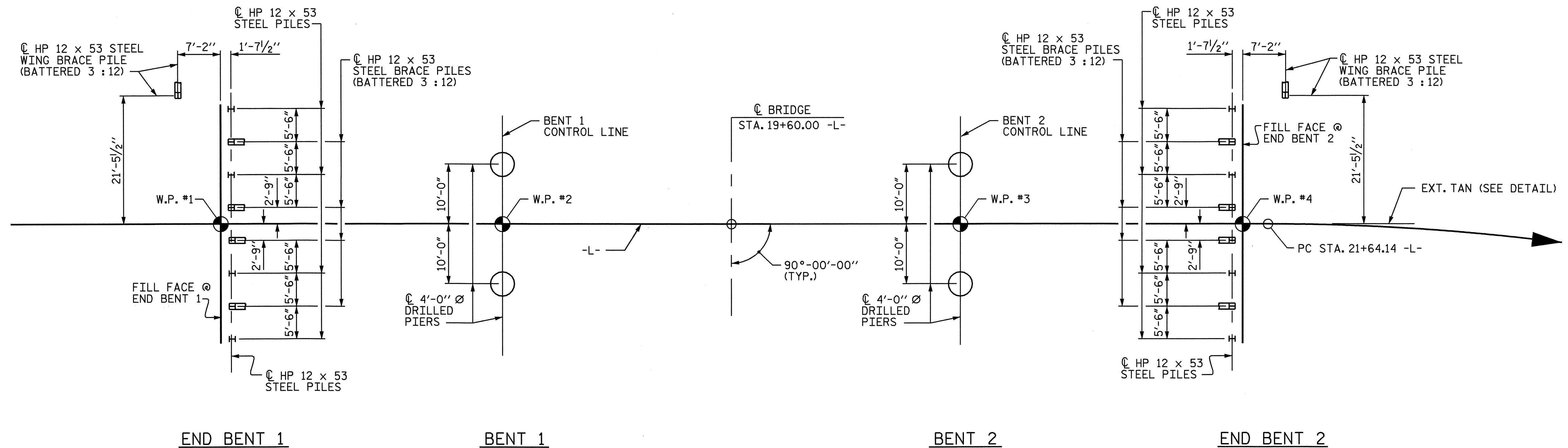
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER
DAN RIVER ON NC 8/89
BETWEEN SR 1496 & SR 1489

DRAWN BY: A.S. CALLAWAY DATE: 12/18/06
CHECKED BY: P.C. BREWER DATE: 2/8/07

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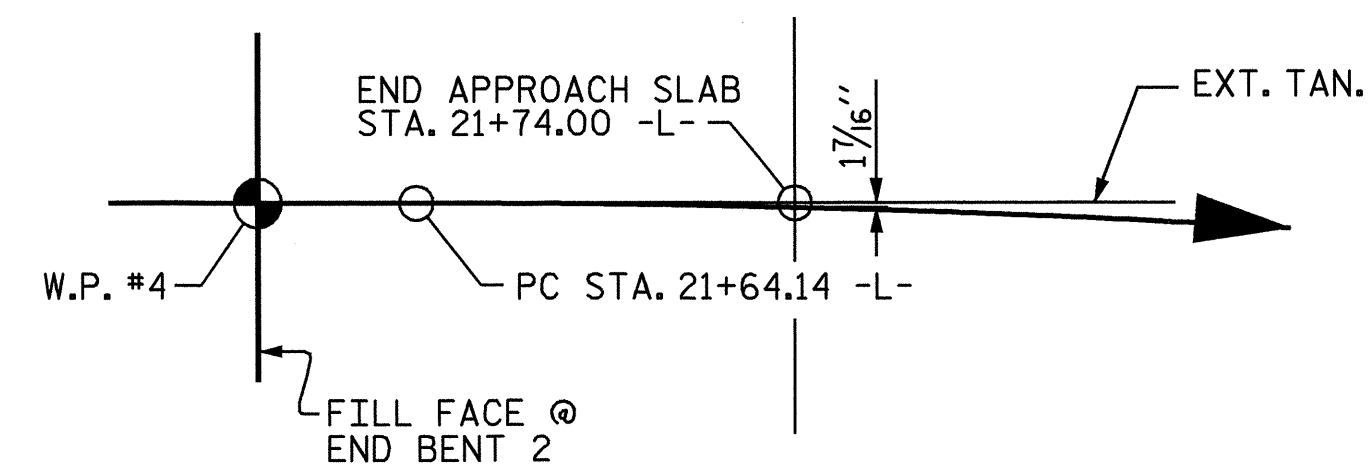
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9804
LURA E. SUTTON
4/25-08

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



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES AND DRILLED PIERS ARE TO PILE CENTERLINE OR DRILLED PIER CENTERLINE AT THE BOTTOM OF THE CAP.



EXTENDED TANGENT DETAIL

NOTES (CONTINUED ON SHEET 3 OF 3)

DRIVE PILES AT END BENTS 1 AND 2 TO A REQUIRED BEARING CAPACITY OF 100 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO. THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENTS 1 AND 2 IS 50 TONS PER PILE.

DRILLED PIERS AT BENTS 1 AND 2 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 55 TSF.

DRILLED PIERS AT BENTS 1 AND 2 ARE DESIGNED FOR AN APPLIED LOAD OF 570 TONS EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING IS NOT REQUIRED FOR DRILLED PIERS AT BENTS 1 AND 2.

DRILLED PIERS AT BENT 1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 694.0 AND SATISFY THE REQUIRED END BEARING CAPACITY.

DRILLED PIERS AT BENT 2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 693.0 AND SATISFY THE REQUIRED END BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATIONS FOR BENTS 1 AND 2 ARE ELEVATION 699 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISIONS.

SPT TESTING MAY BE REQUIRED TO DETERMINE THE END BEARING CAPACITY OF THE DRILLED PIERS AT BENT 2. SEE DRILLED PIERS SPECIAL PROVISIONS.

SID INSPECTIONS MAY BE REQUIRED TO INSPECT THE BOTTOM CLEANLINESS OF THE DRILLED PIERS AT BENTS 1 AND 2. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. SEE DRILLED PIERS SPECIAL PROVISIONS.

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 PROVISIONS.

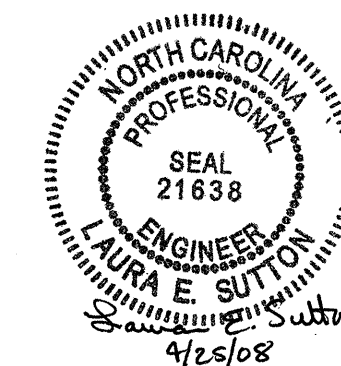
OBSERVE A ONE MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT, END BENT, AND REINFORCED BRIDGE APPROACH FILL, WHEN APPLICABLE, BEFORE BEGINNING APPROACH SLAB CONSTRUCTION AT END BENTS 1 AND 2.

PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

SHEET 2 OF 3

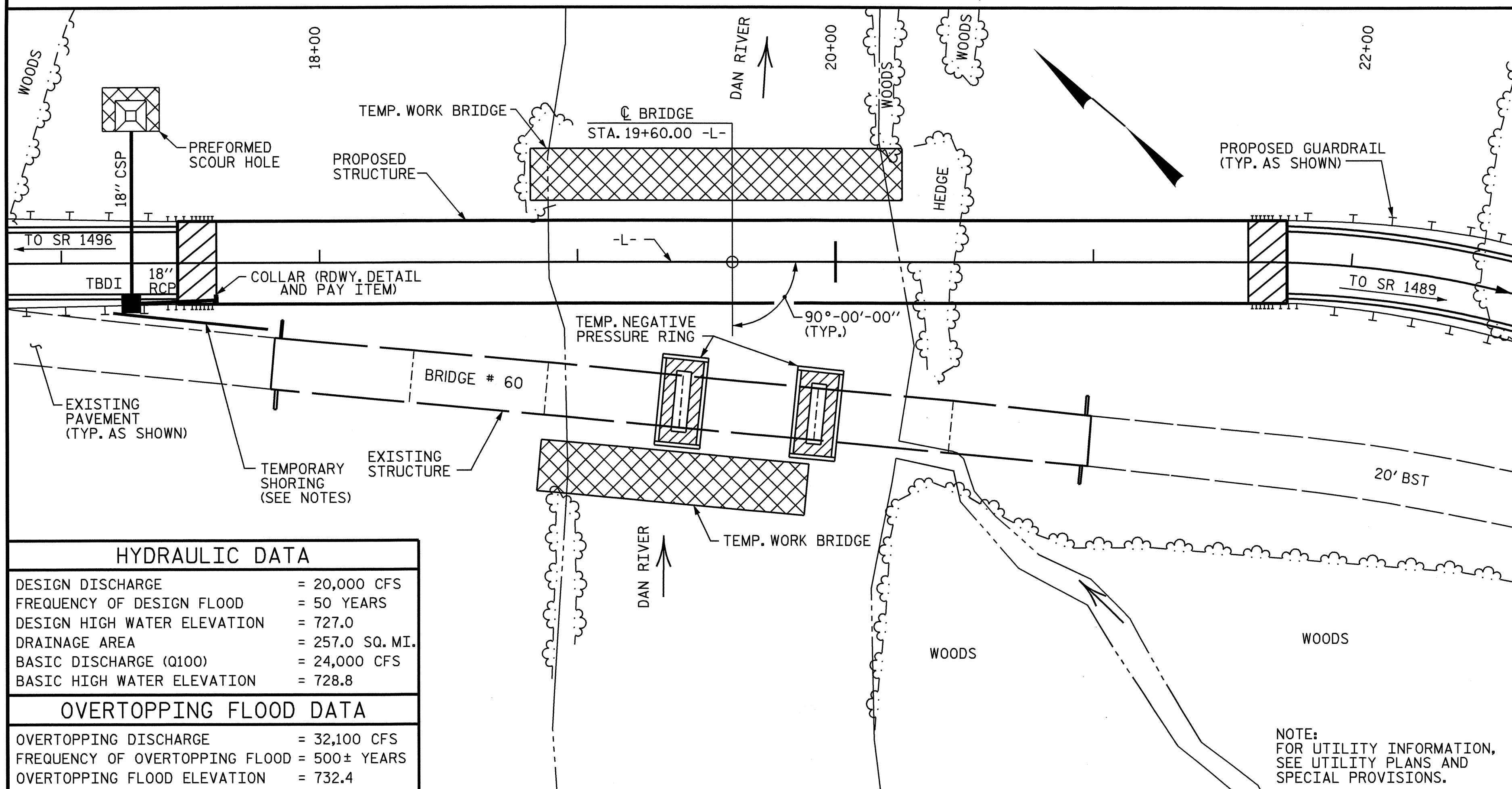
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 DAN RIVER ON NC 8/89
 BETWEEN SR 1496 & SR 1489



DRAWN BY : A.S. CALLAWAY DATE : 12/20/06
 CHECKED BY : P.C. BREWER DATE : 2/8/07

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



HYDRAULIC DATA	
DESIGN DISCHARGE	= 20,000 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YEARS
DESIGN HIGH WATER ELEVATION	= 727.0
DRAINAGE AREA	= 257.0 SQ. MI.
BASIC DISCHARGE (Q100)	= 24,000 CFS
BASIC HIGH WATER ELEVATION	= 728.8
OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE	= 32,100 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500± YEARS
OVERTOPPING FLOOD ELEVATION	= 732.4

LOCATION SKETCH

TOTAL BILL OF MATERIAL											
	CONSTRUCTION MAINTENANCE & REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	4'-0" Ø DRILLED PIERS IN SOIL	4'-0" Ø DRILLED PIERS NOT IN SOIL	SID INSPECTION	SPT TESTING	CROSSHOLE SONIC LOGGING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	EACH	EACH	EACH	SQ. FT.	SQ. FT.	CU. YDS.	
SUPERSTRUCTURE	LUMP SUM							14,025	12,293		
END BENT 1										26.6	
BENT 1			26.00	13.00						31.5	
BENT 2			34.50	14.00						29.7	
END BENT 2										26.6	
TOTAL	LUMP SUM	LUMP SUM	60.50	27.00	2	2	1	14,025	12,293	114.4	
	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	STRUCTURAL STEEL	HP 12 X 53 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	STRUCTURE DRAINAGE SYSTEM
	LUMP SUM	LBS.	LBS.	APPROX. LBS.	NO.	LIN. FT.	TON	SQ. YD.	LUMP SUM	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	LUMP SUM			534,100			795.74		LUMP SUM	LUMP SUM	LUMP SUM
END BENT 1		3,955			9	180		250			
BENT 1		8,685	1,545								
BENT 2		8,894	1,638								
END BENT 2		3,899			9	270		340		378	
TOTAL	LUMP SUM	25,433	3,183	534,100	18	450	795.74	590	656	LUMP SUM	LUMP SUM

NOTES (CONTINUED FROM SHEET 2 OF 3)

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT THE GIRDERS 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.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE 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 FOOT BELOW THE GROUND LINE.

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.

AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 52'-3", 4 SPANS @ 52'-6" & 1 SPAN @ 52'-6", REINFORCED CONCRETE DECK GIRDERS SUPPORTED BY REINFORCED CONCRETE SPILL THROUGH & REINFORCED CONCRETE POST & WEB WITH A CLEAR ROADWAY WIDTH OF 20'-0" AND LOCATED 56'± UPSTREAM FROM THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL PROVISIONS.

NEGATIVE PRESSURE RINGS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR REMOVAL OF EXISTING STRUCTURE. SEE SPECIAL PROVISIONS.

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY ACCESS AT STATION 19+60.00 -L- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE AND FOR REMOVAL OF THE EXISTING STRUCTURE. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS.

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.

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

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

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

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

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.

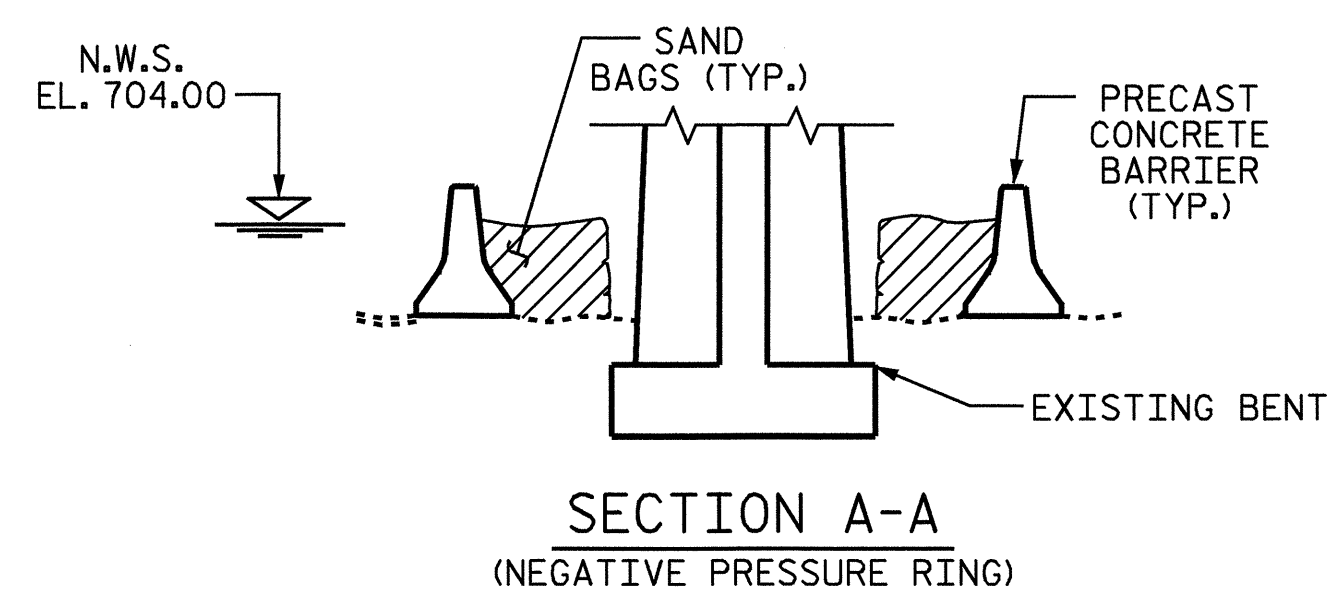
FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

FOR STRUCTURE DRAINAGE SYSTEM, SEE SPECIAL PROVISIONS.



PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 DAN RIVER ON NC 8/89
 BETWEEN SR 1496 & SR 1489



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

DRAWN BY: A.S. CALLAWAY DATE: 12/15/06
 CHECKED BY: P.C. BREWER DATE: 2/8/07

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 2/2" ABOVE THE TOP OF THE REMOVABLE FORM.

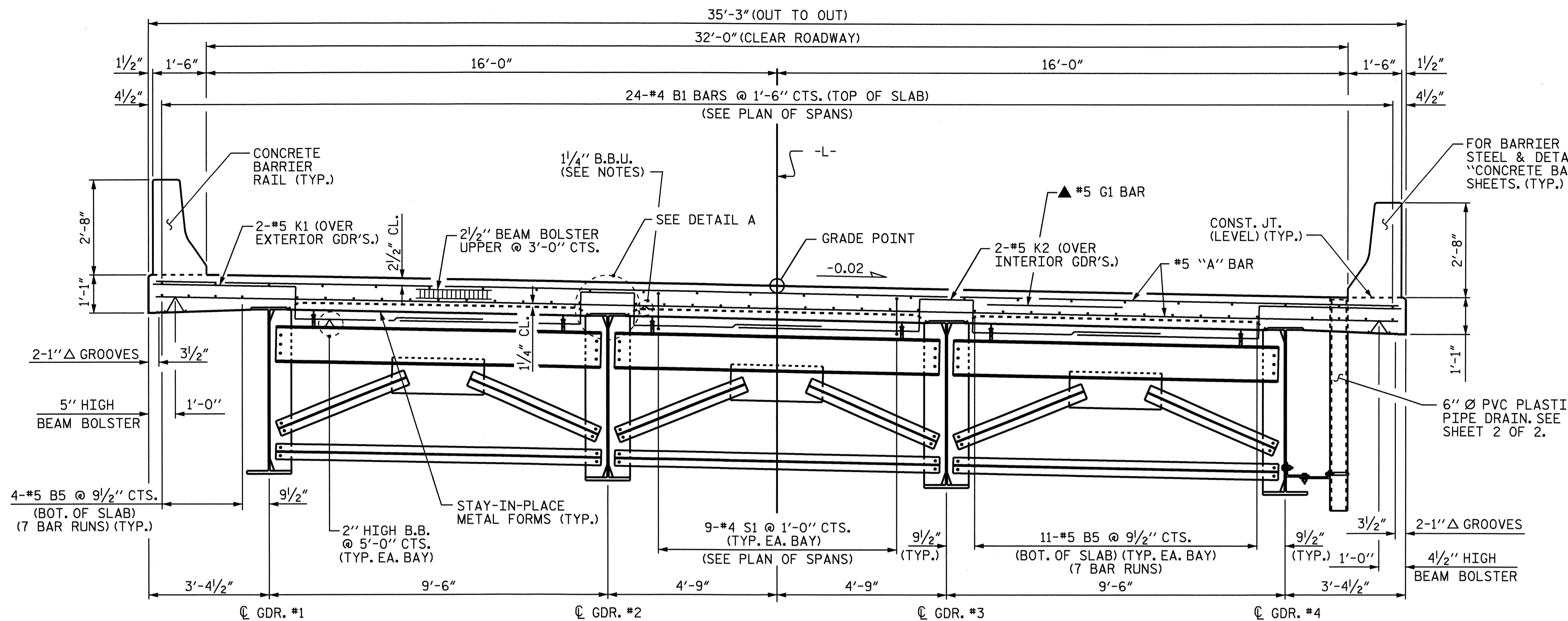
METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO BEAM OR GIRDER FLANGES IN THE ZONES REQUIRING CHARPY V-NOTCH TEST. SEE STRUCTURAL STEEL DETAIL SHEETS.

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

STRUCTURAL STEEL ERECTION IN A CONTINUOUS UNIT SHALL BE COMPLETE BEFORE FALSEWORK OR FORMS ARE PLACED ON THE UNIT.

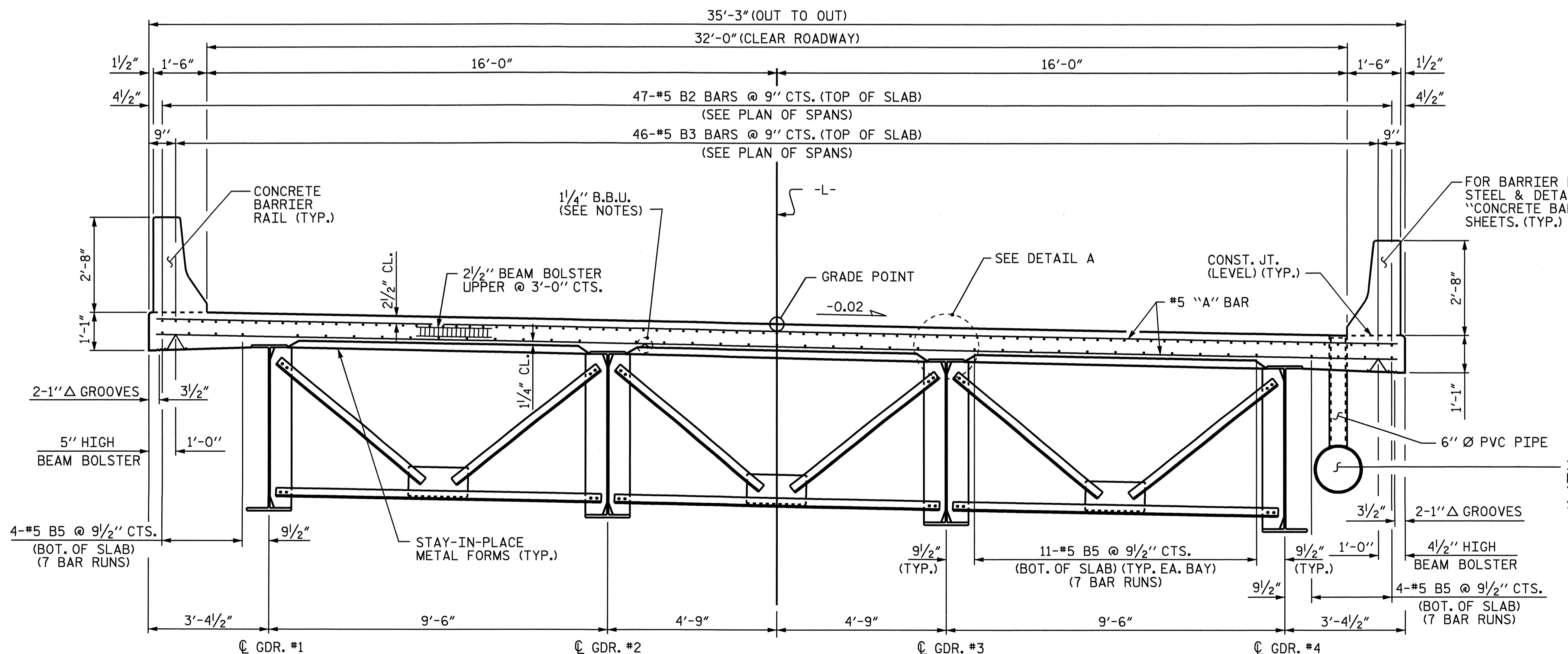
THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND BEAM/GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

▲ THE #5 G1 BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR DIAPHRAGM AND REINFORCING STEEL.



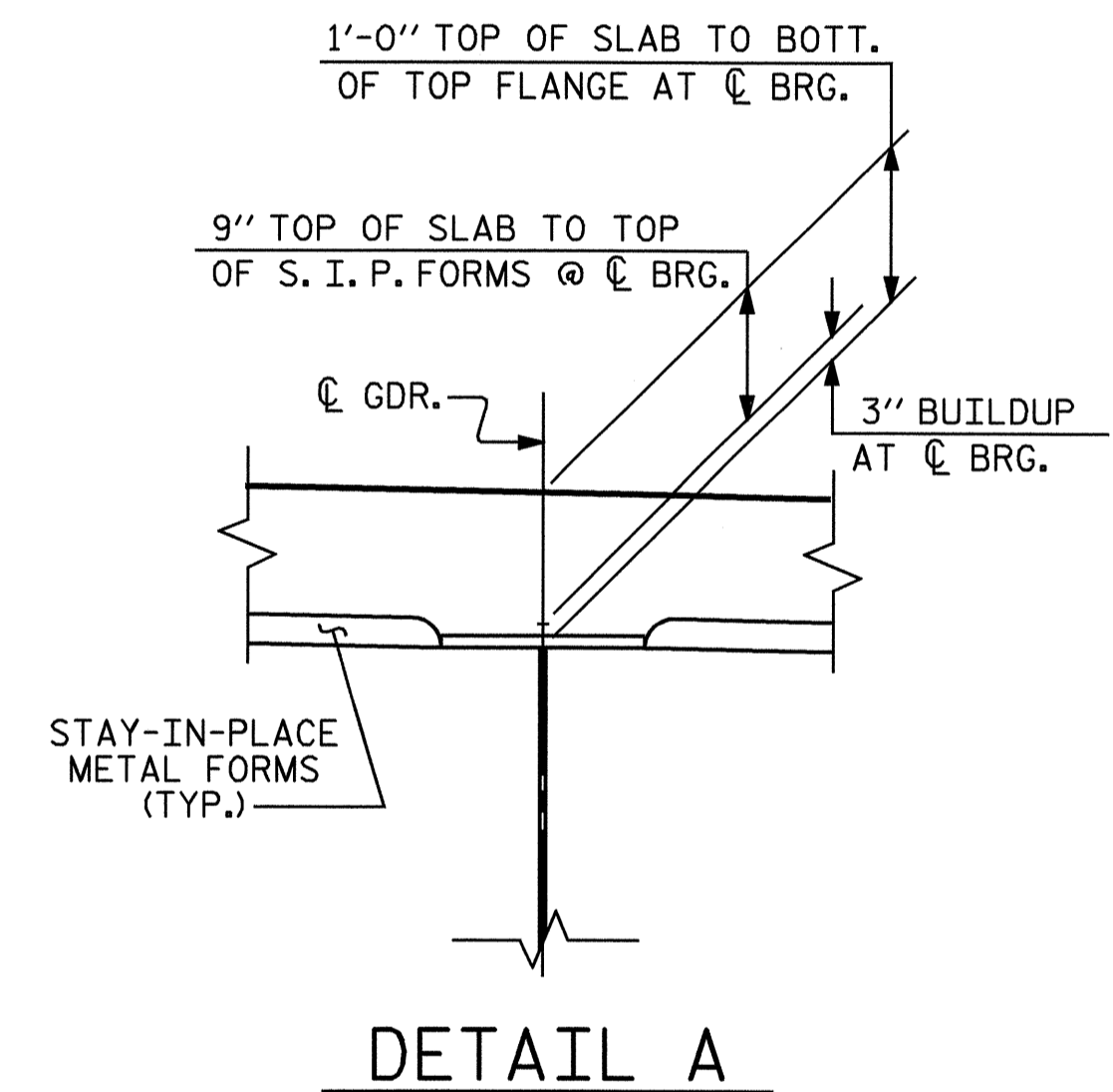
TYPICAL SECTION

(END BENT 2 SHOWN, END BENT 1 SIMILAR)



TYPICAL SECTION

(SHOWING BENT AND INTERMEDIATE DIAPHRAGMS)

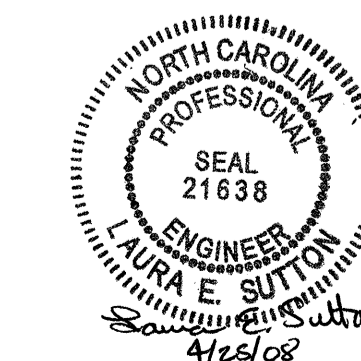


DETAIL A

PROJECT NO. B-4281
 STOKES COUNTY
 STATION: 19+60.00 -L-

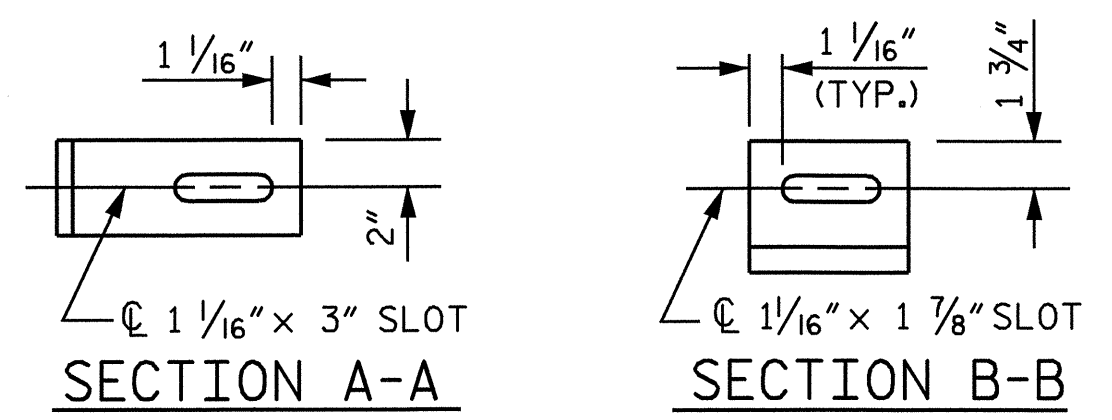
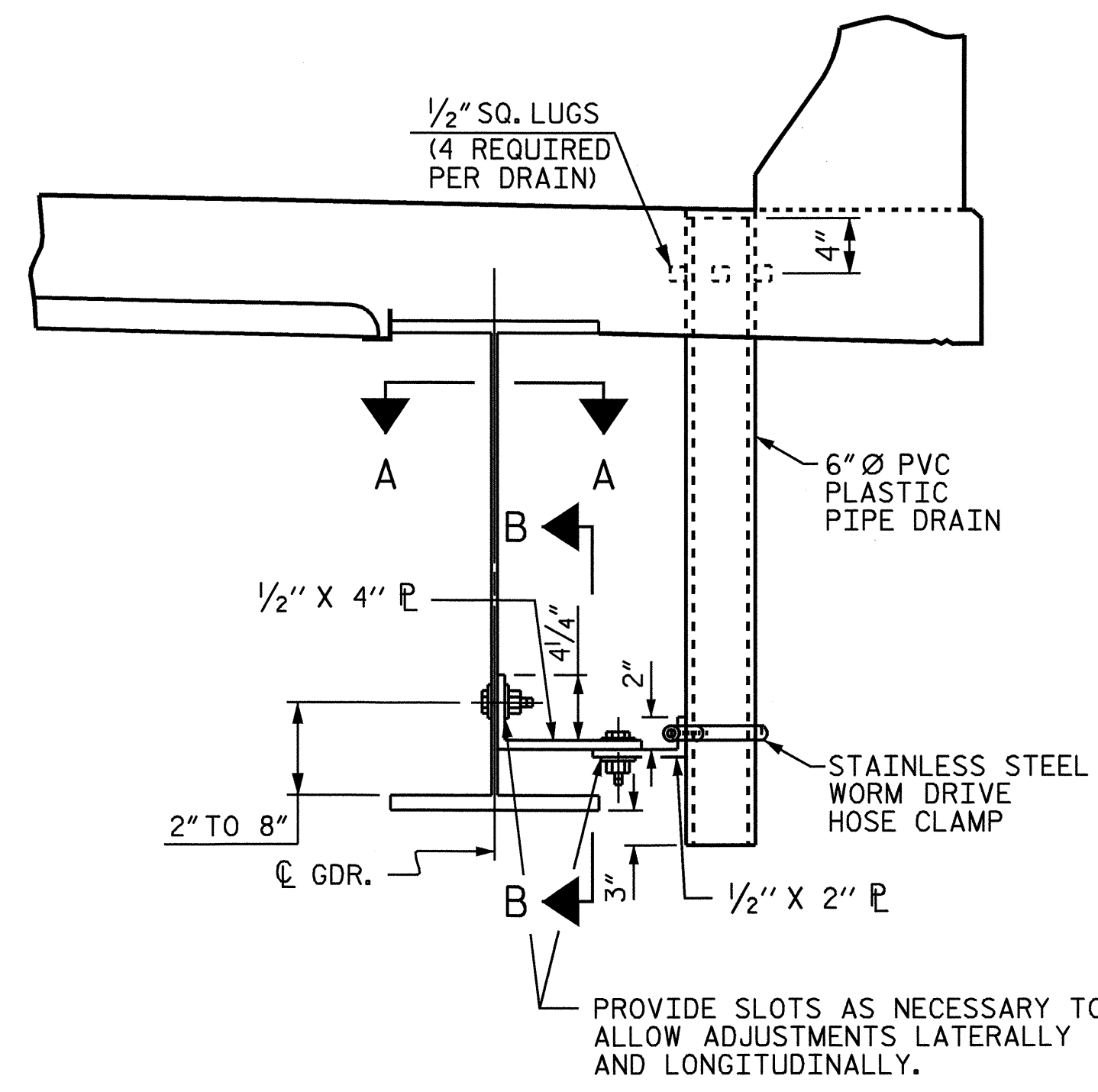
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTIONS



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 CHECKED BY: P.C. BREWER DATE: 7/12/06



NOTES

TOP OF FLOOR DRAIN TO BE SET $\frac{3}{8}$ " BELOW SURFACE OF SLAB.

4 - $\frac{1}{2}$ " SQUARE LUGS TO BE GLUED TO THE PVC PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF THE PIPE.

COUPLING IN DRAIN PIPE WILL BE PERMITTED AS APPROVED BY THE ENGINEER.

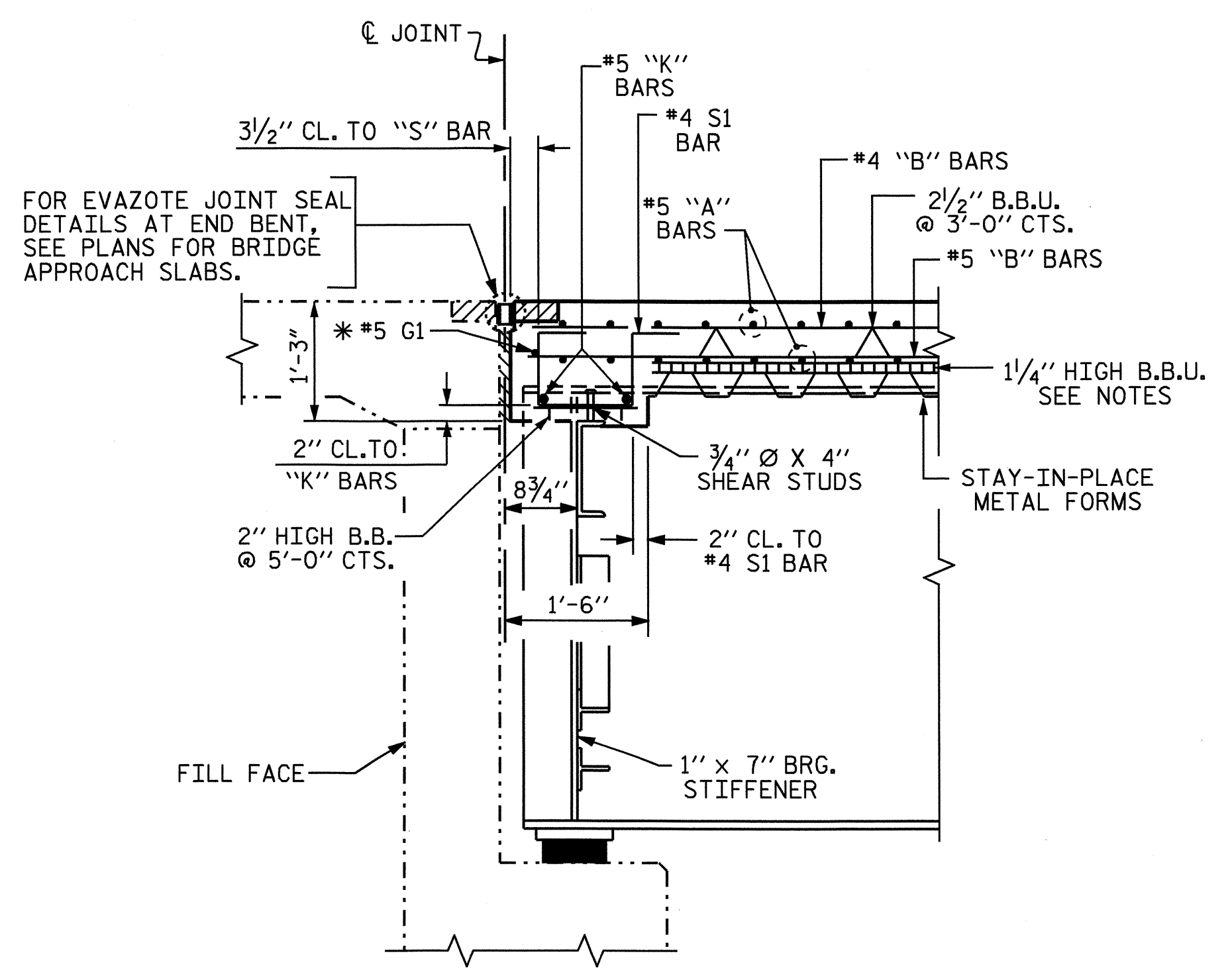
BOLT SIZE TO BE SAME AS DIAPHRAGMS AND CROSSFRAME CONNECTIONS. STAINLESS STEEL WORM DRIVE HOSE CLAMP SHALL BE COMMERCIAL QUALITY.

THE 6" \varnothing PVC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.

NOTE: THIS DETAIL TO BE USED BETWEEN STA. 21+06.00 -L- AND STA. 21+54.00 -L-, RIGHT SIDE ONLY.

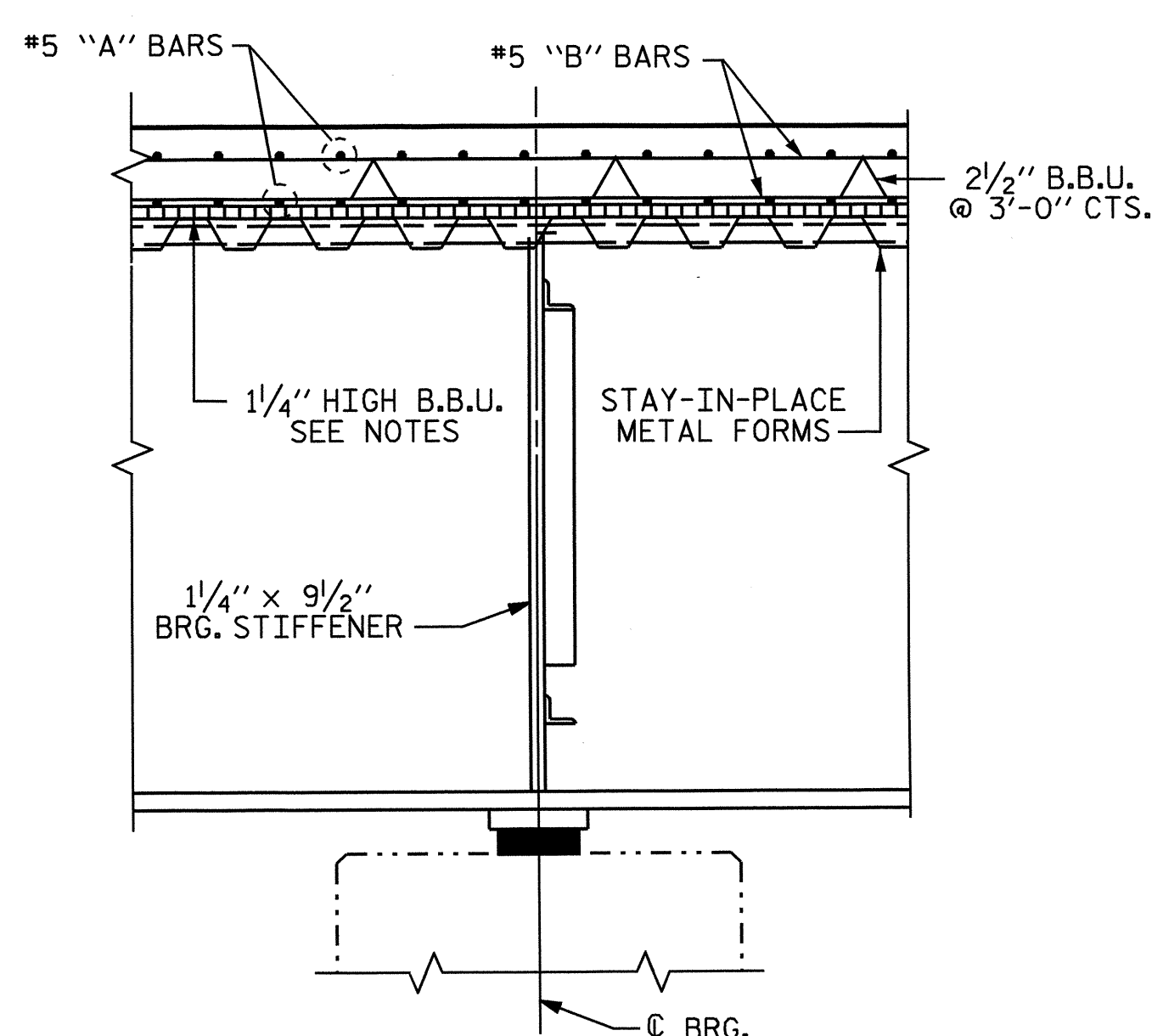
DRAIN CONNECTOR DETAIL

(5 DRAINS REQUIRED)



SECTION AT END BENT

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



SECTION AT BENT

PROJECT NO. B-4281
STOKES COUNTY
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SHEET 2 OF 2

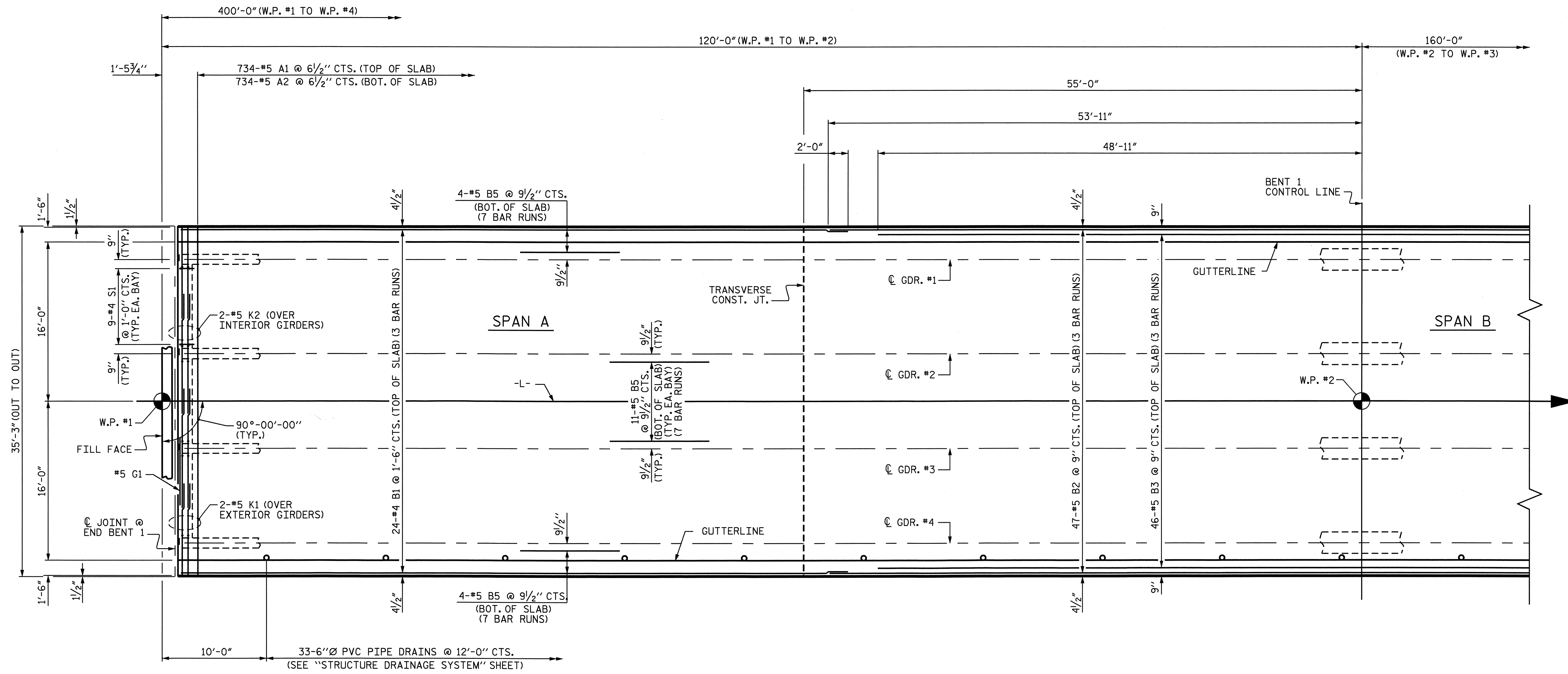
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 TYPICAL SECTIONS

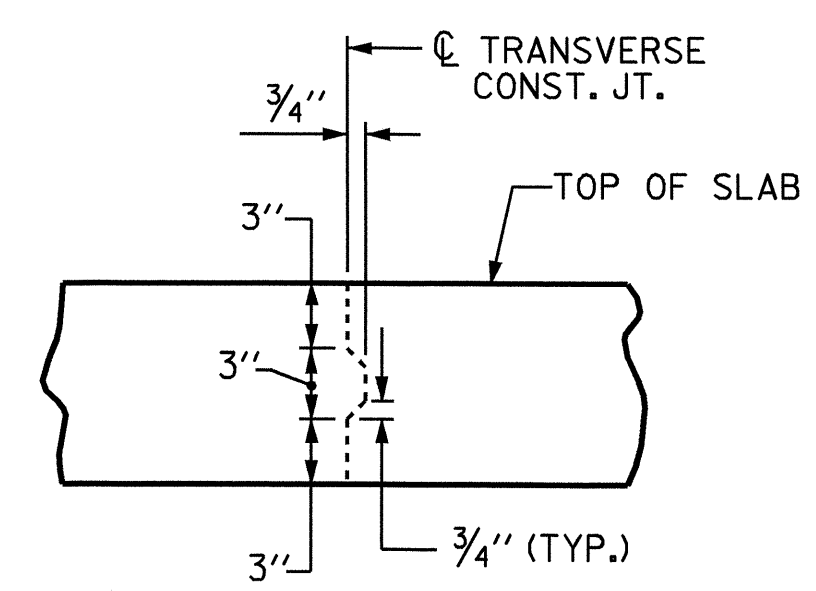


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			36

DRAWN BY: A.S. CALLAWAY DATE: 7/10/06
 CHECKED BY: P.C. BREWER DATE: 7/12/06



PLAN OF SPAN A



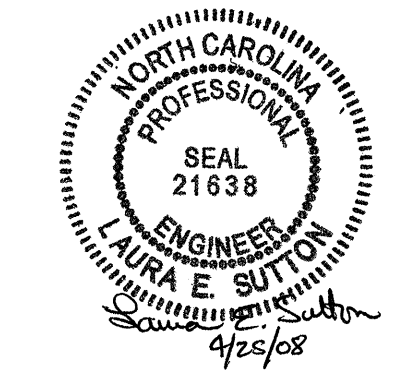
TRANSVERSE CONSTRUCTION JOINT DETAIL

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

PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

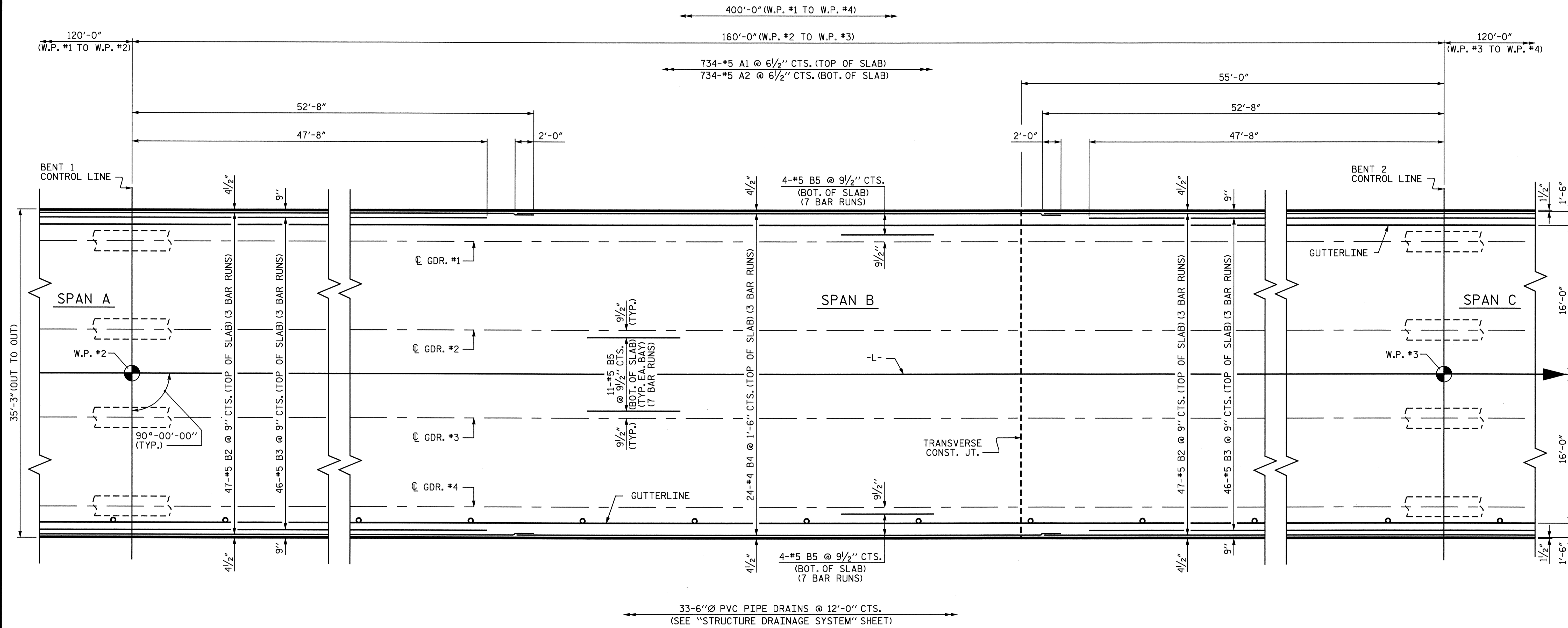
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPANS

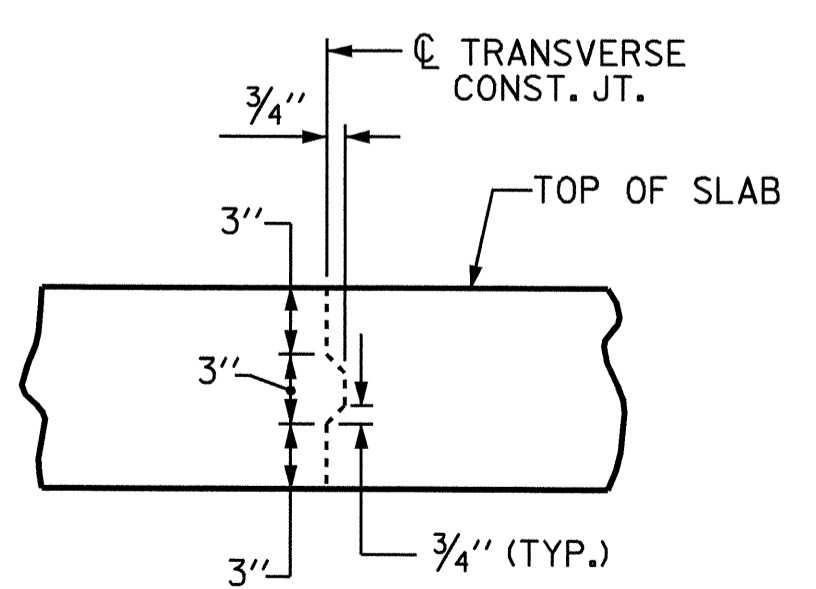


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			36

DRAWN BY: A.S. CALLAWAY DATE: 7/11/06
 CHECKED BY: P.C. BREWER DATE: 7/12/06



PLAN OF SPAN B



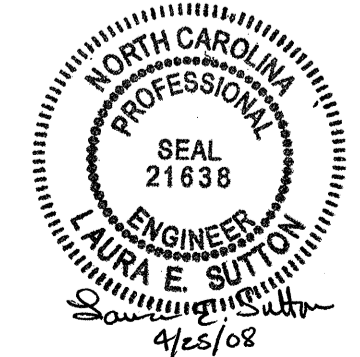
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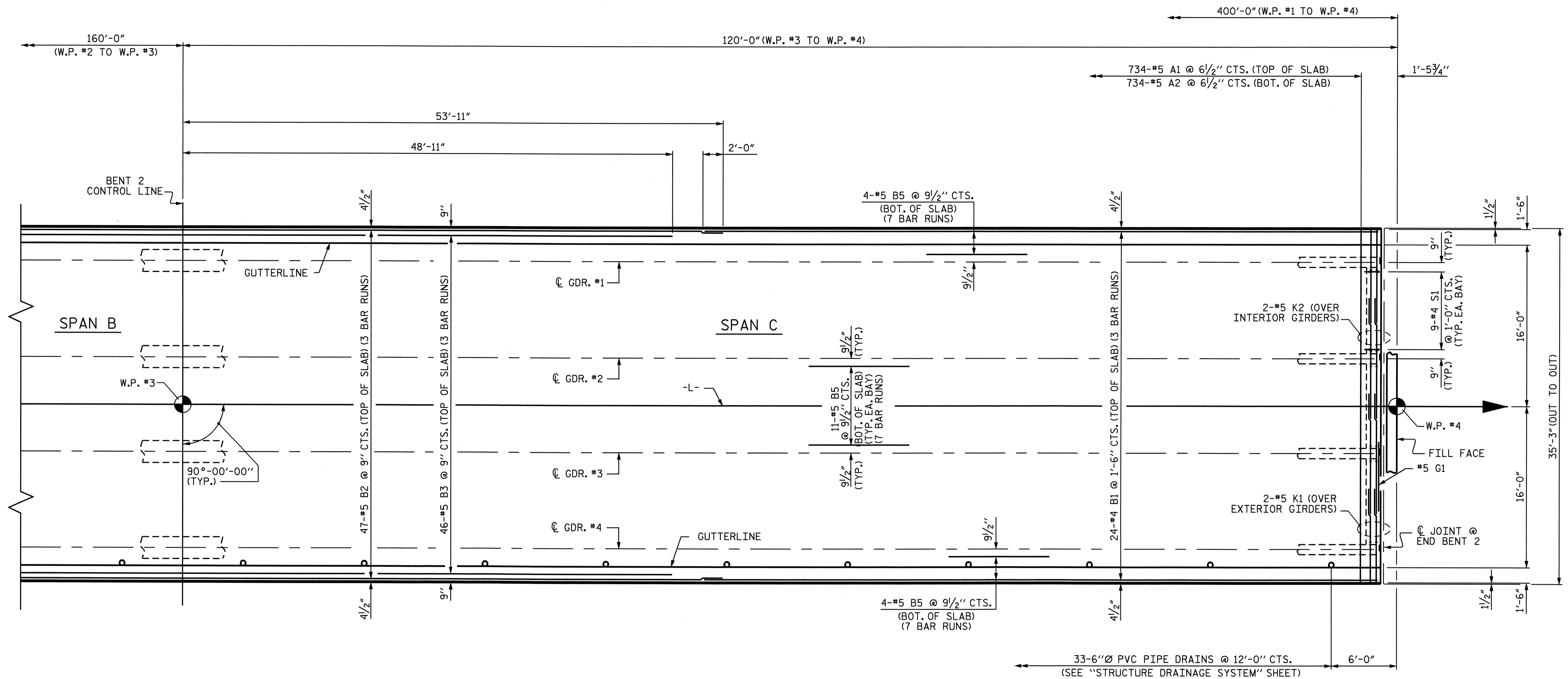
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPANS



DRAWN BY: A.S. CALLAWAY DATE: 7/11/06
 CHECKED BY: P.C. BREWER DATE: 7/12/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			36



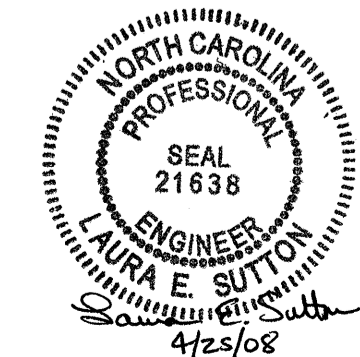
PLAN OF SPAN C

PROJECT NO. B-4281
 STOKES COUNTY
 STATION: 19+60.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

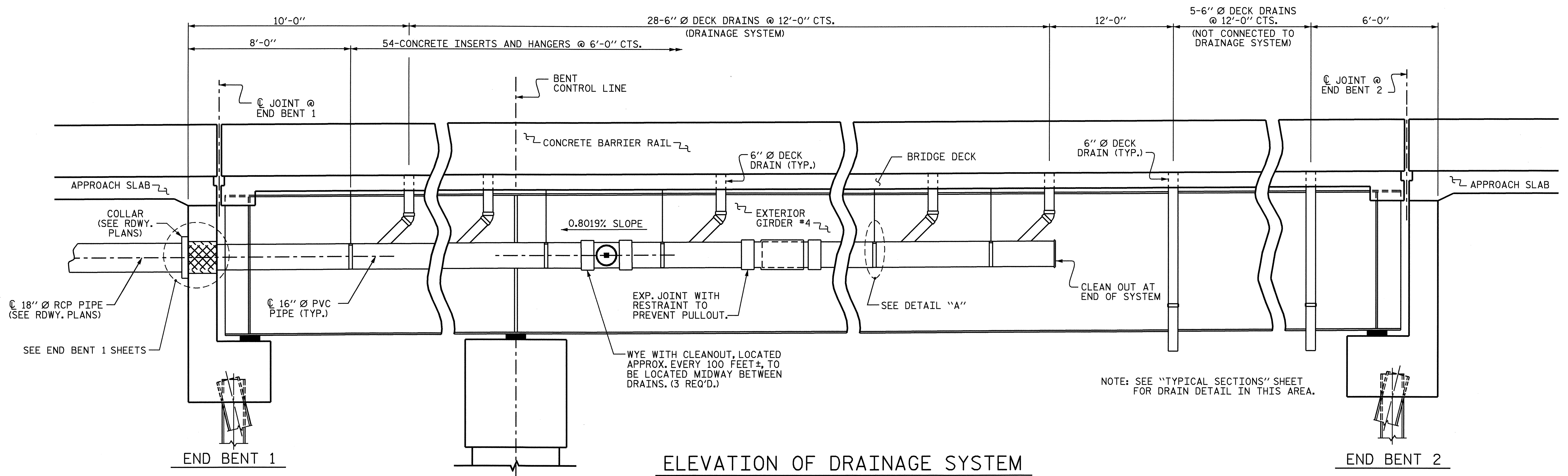
SUPERSTRUCTURE
 PLAN OF SPANS



DRAWN BY: A.S. CALLAWAY DATE: 7/11/06
 CHECKED BY: P.C. BREWER DATE: 7/12/06

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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			TOTAL SHEETS 36

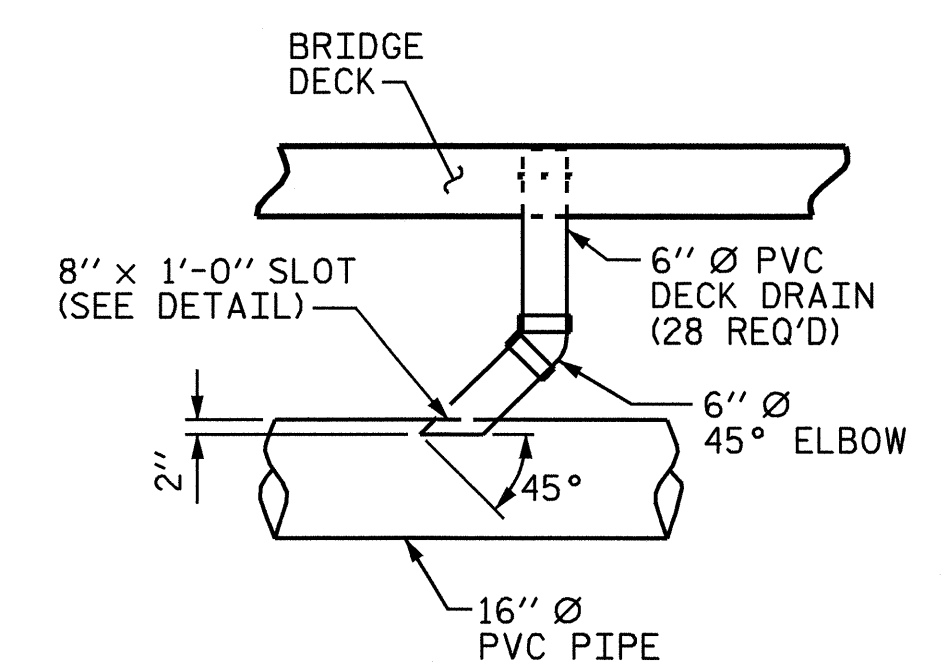
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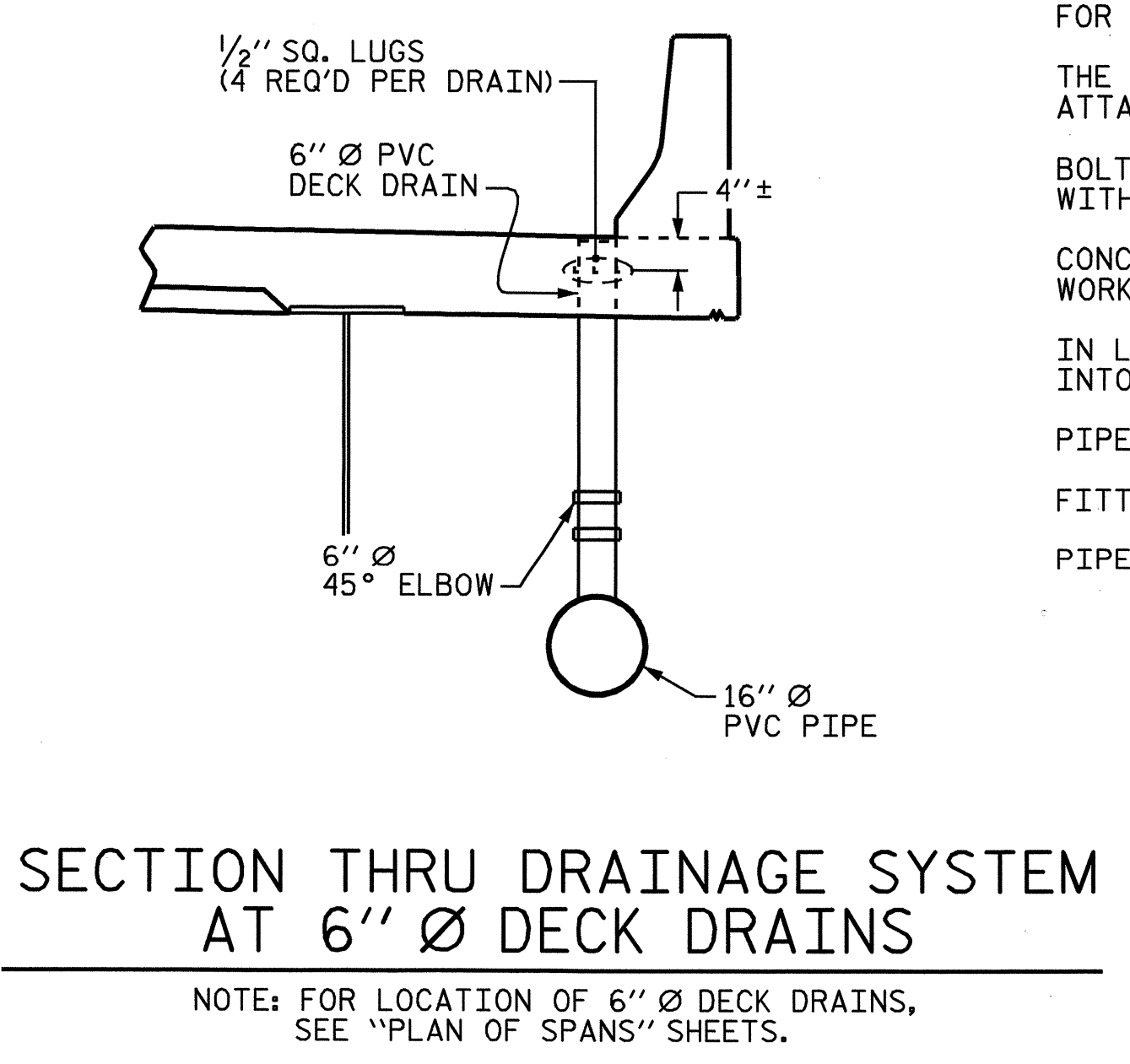
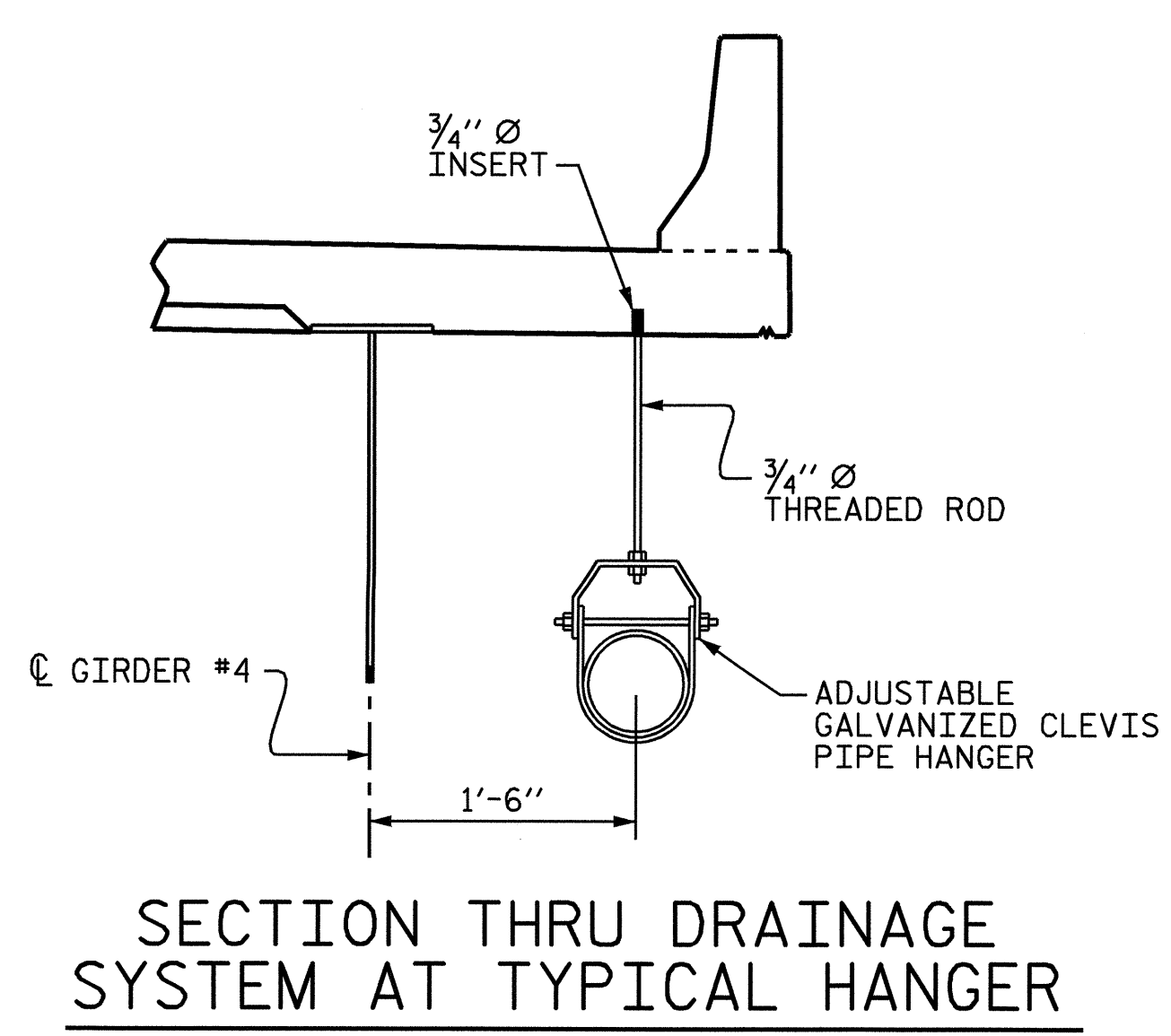
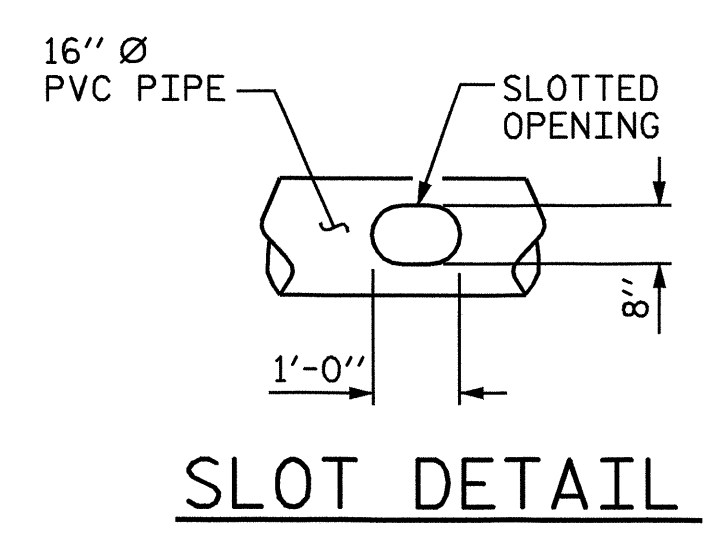
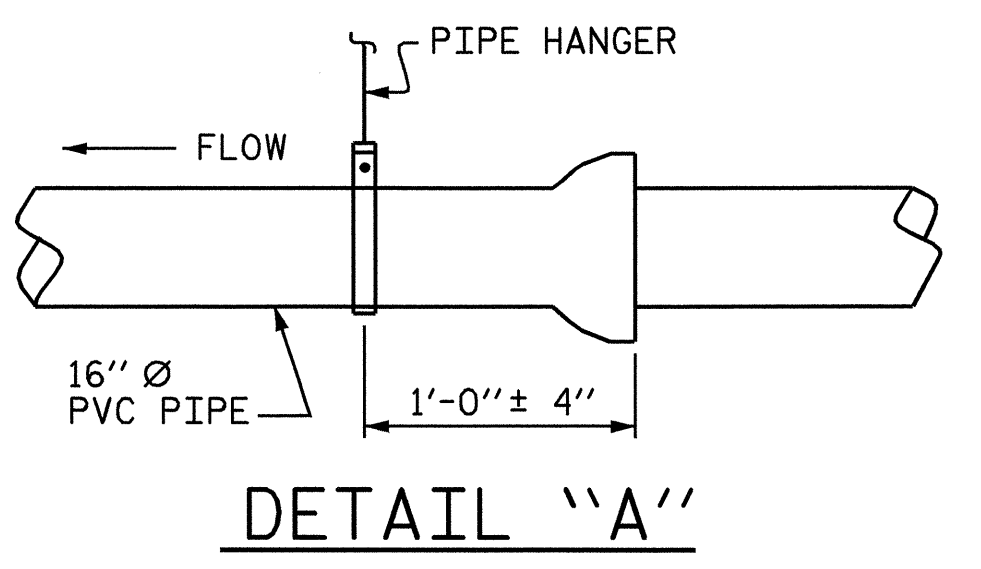
ELEVATION OF DRAINAGE SYSTEM

NOTES

- SEE "PLAN OF SPANS" SHEETS, FOR LOCATION OF 6" Ø DECK DRAINS.
- THE DRAINAGE SYSTEM DETAILS ARE SCHEMATIC DRAWINGS ONLY.
- PROVIDE EXPANSION JOINTS IN THE DRAIN PIPE AT A MAXIMUM SPACING OF 25'-0".
- THE CONTRACTOR SHALL SUBMIT FOR ACCEPTANCE, PRIOR TO PURCHASE, A PLAN FOR THE PVC DRAINAGE SYSTEM, INCLUDING ATTACHMENTS TO THE BRIDGE SUPERSTRUCTURE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE HORIZONTAL AND VERTICAL ALIGNMENT OF THE PVC DRAINAGE SYSTEM USING NECESSARY FITTINGS, ELBOWS, TEES AND WYES TO PROVIDE A CONTINUOUS DRAINAGE SYSTEM.
- DRAINAGE SYSTEM WILL BE PAID FOR UNDER THE PAY ITEM "STRUCTURE DRAINAGE SYSTEM". FOR "STRUCTURE DRAINAGE SYSTEM", SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL DETERMINE THE QUANTITY OF FITTINGS, PIPE LENGTHS, GUIDES AND ATTACHMENTS REQUIRED TO CARRY THE WATER FROM THE DECK DRAINS TO THE OUTLETS.
- BOLTS, NUTS AND WASHERS SHALL BE HIGH STRENGTH AND GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- CONCRETE INSERTS SHALL BE OF AN APPROVED GALVANIZED TYPE HAVING A MINIMUM WORKING LOAD TENSION CAPACITY OF 2.5 KIPS.
- IN LIEU OF CASTING INSERTS INTO THE DECK, THREADED RODS MAY BE ADHESIVELY ANCHORED INTO THE DECK.
- PIPE AND FITTINGS SHALL BE PVC, SDR 35, ASTM D3034.
- FITTING JOINTS SHALL BE SOLVENT CEMENT TYPE.
- PIPE JOINTS SHALL BE ELASTOMERIC TYPE.

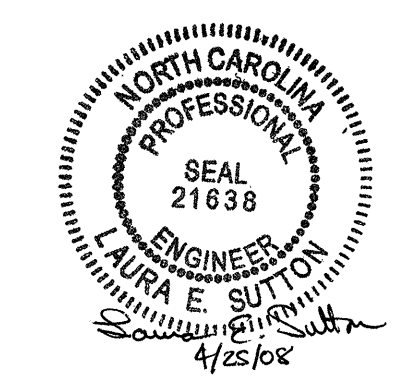


ELEVATION VIEW OF DECK DRAIN AND DRAIN LINE INTERSECTION



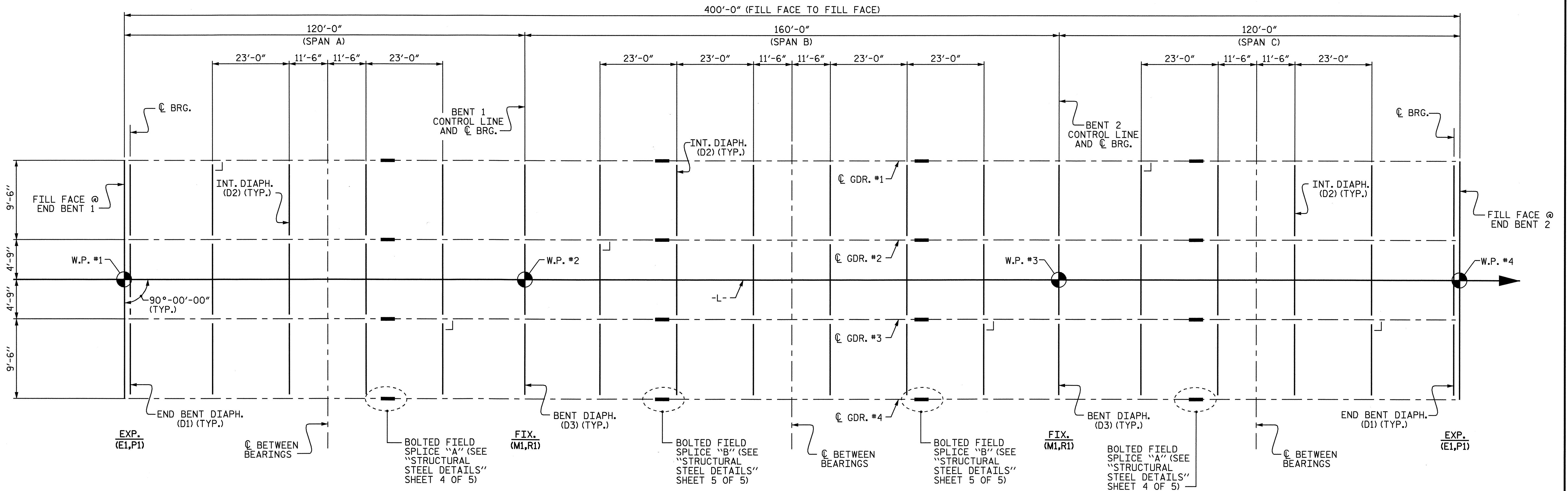
TOP OF DECK DRAIN IS TO BE SET 3/8" BELOW SURFACE OF SLAB.
 4 - 1/2" SQUARE LUGS ARE TO BE GLUED TO THE PVC PIPE AT EQUAL SPACES AROUND THE DECK DRAIN.

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 STATION: 19+60.00 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE STRUCTURE DRAINAGE SYSTEM					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-9
TOTAL SHEETS					36

DRAWN BY: A.S. CALLAWAY DATE: 6/30/06
 CHECKED BY: P.C. BREWER DATE: 7/12/06



FRAMING PLAN

PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

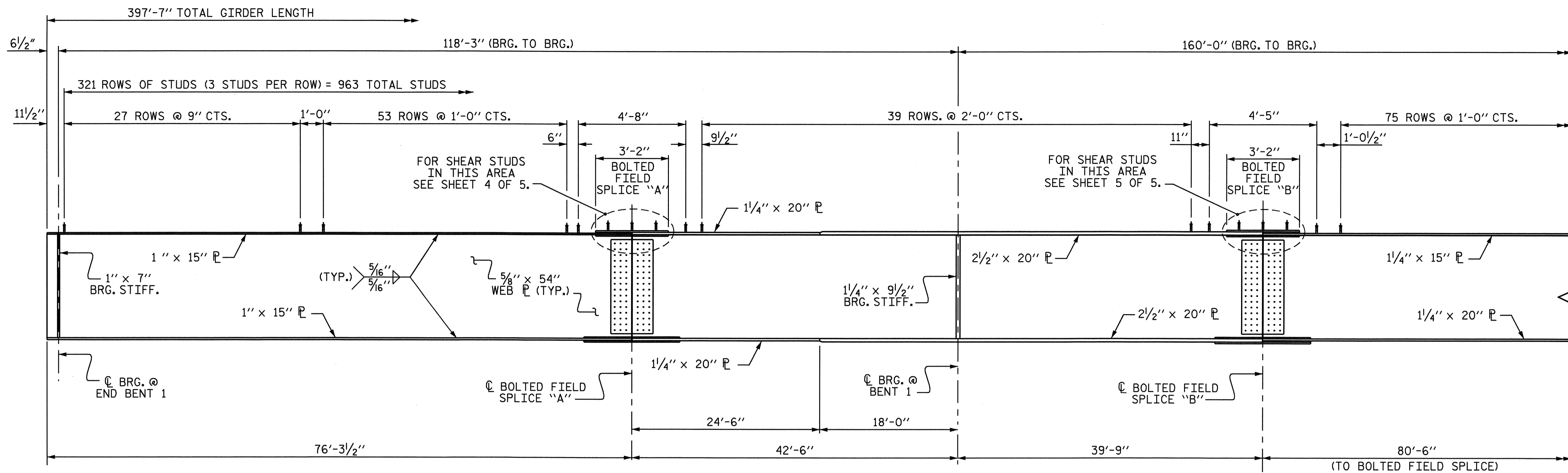


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

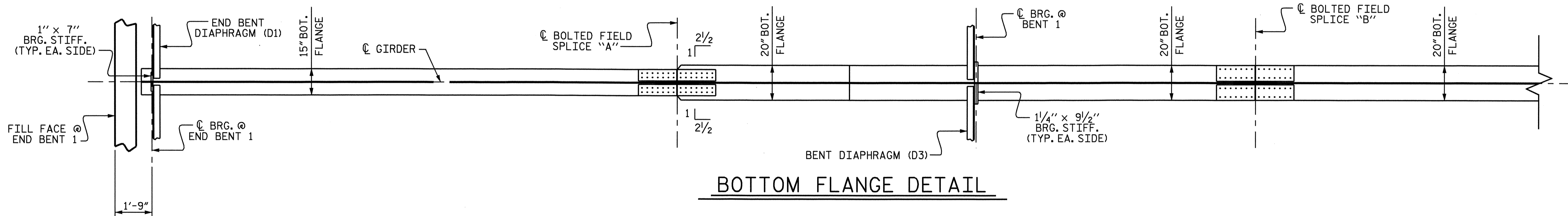
**SUPERSTRUCTURE
 FRAMING PLAN**

REVISIONS						SHEET NO. S-10 TOTAL SHEETS 36
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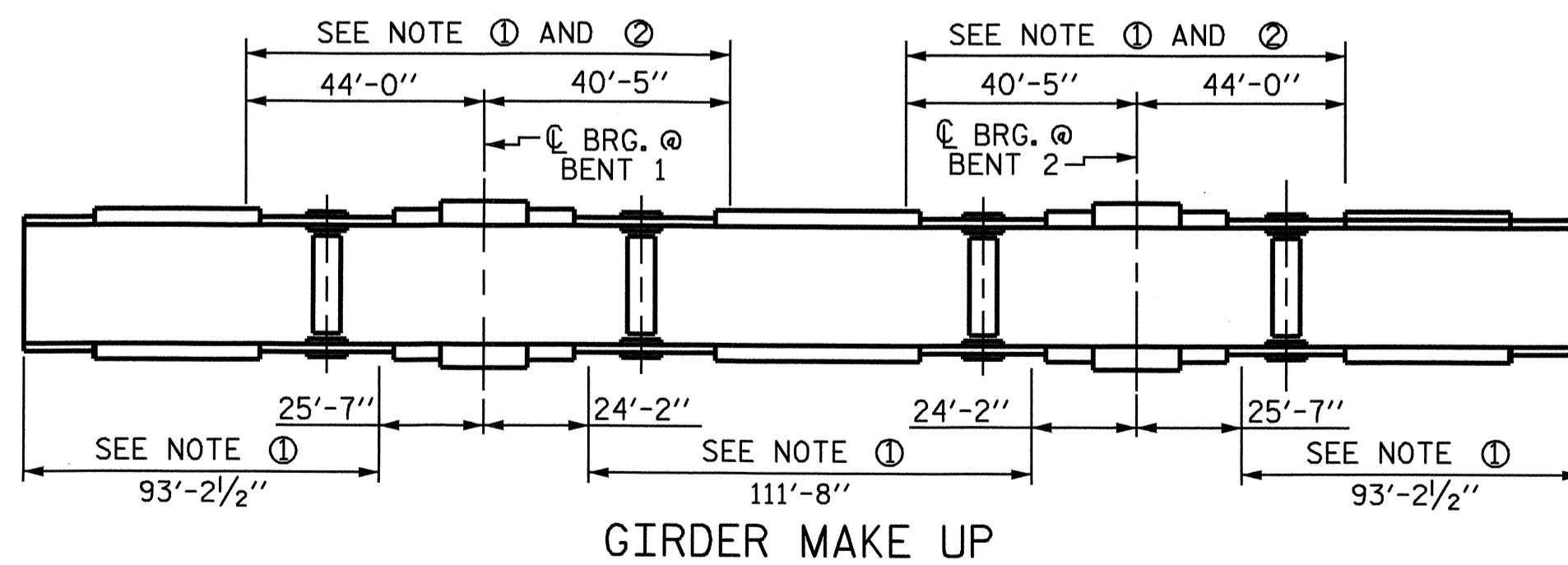
DRAWN BY : A.S. CALLAWAY DATE : 11/15/07
 CHECKED BY : P.C. BREWER DATE : 11/19/07



GIRDER ELEVATION



BOTTOM FLANGE DETAIL



GIRDER MAKE UP

NOTE ① : CHARPY V-NOTCH TESTS ARE REQUIRED FOR ALL TOP OR BOTTOM FLANGE PLATES WHICH FALL WITHIN THESE LIMITS, ALL WEB PLATES, AND ALL SPLICE PLATES. IF A PERMITTED SHOP FLANGE SPLICE IS NOT USED, CHARPY V-NOTCH TESTS WILL BE REQUIRED FOR THE ENTIRE FLANGE PLATE. FOR CHARPY V-NOTCH TESTS, SEE ARTICLE 1072-9 OF THE STANDARD SPECIFICATIONS.

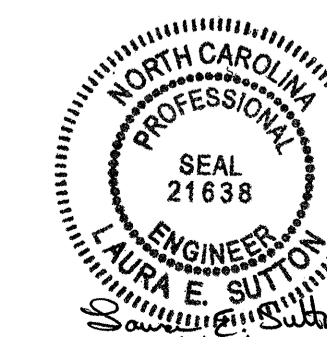
NOTE ② : NO WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL BE PERMITTED IN THIS REGION.

CHARPY V-NOTCH TESTS FOR CONTINUOUS PLATE GIRDERS

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STOKES COUNTY
 STATION: 19+60.00 -L-

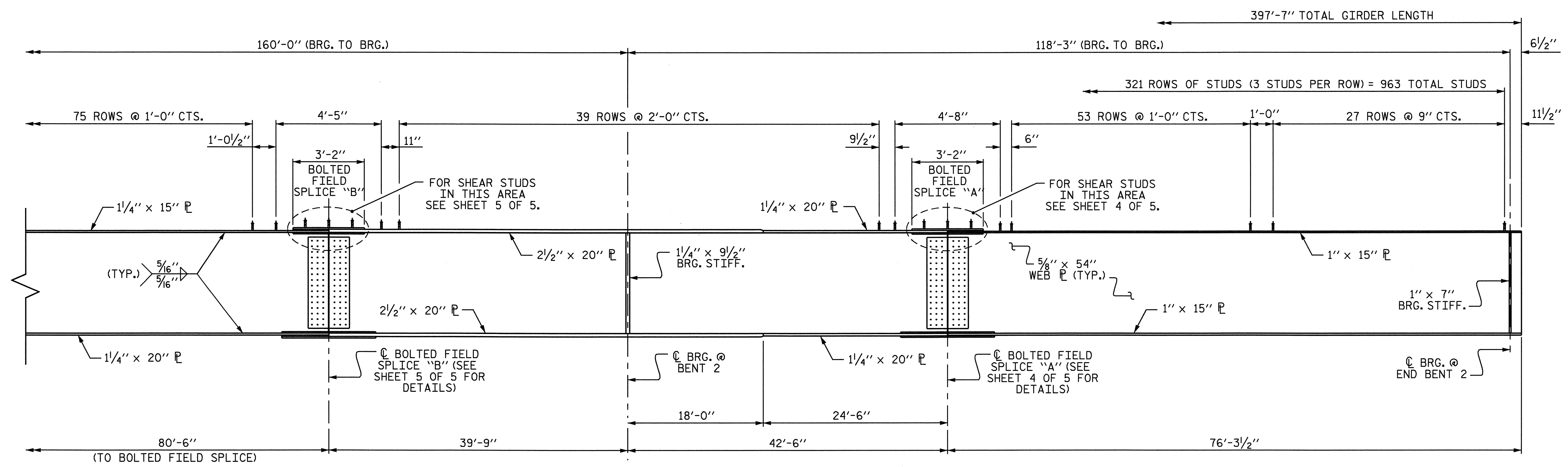
SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURAL
 STEEL DETAILS

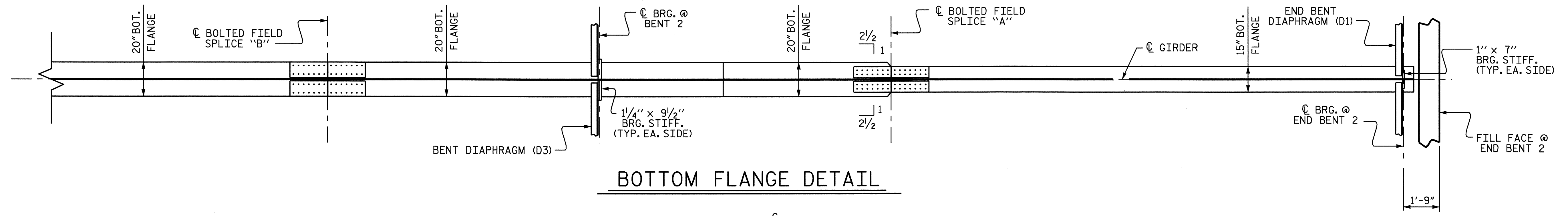


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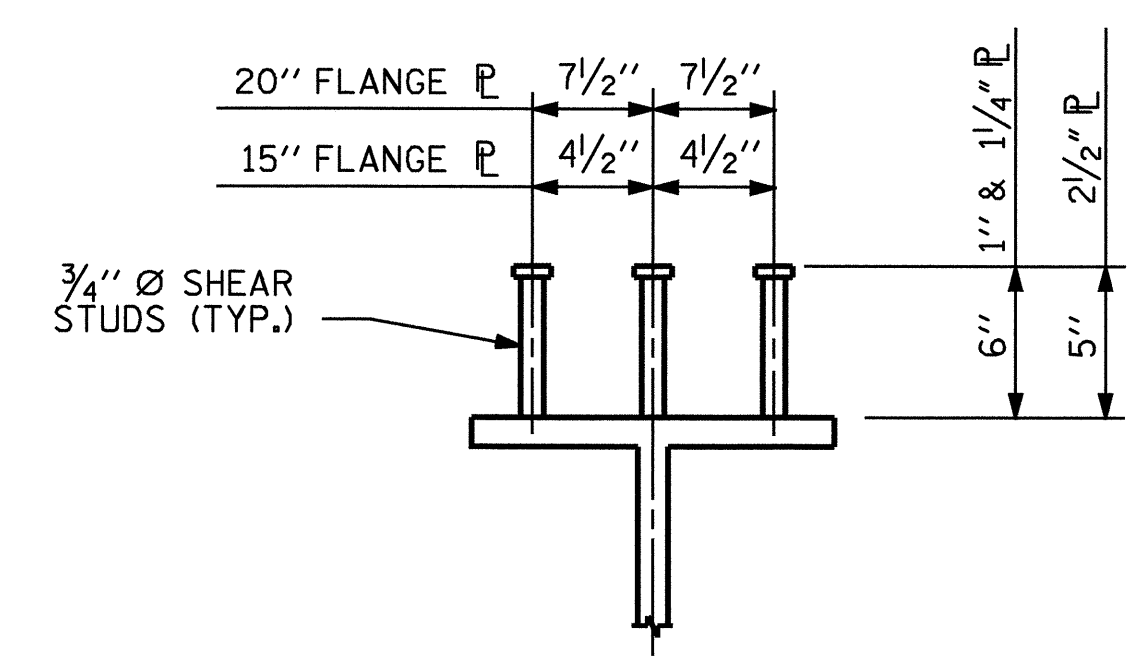
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 CHECKED BY : P.C. BREWER DATE : 11/19/07



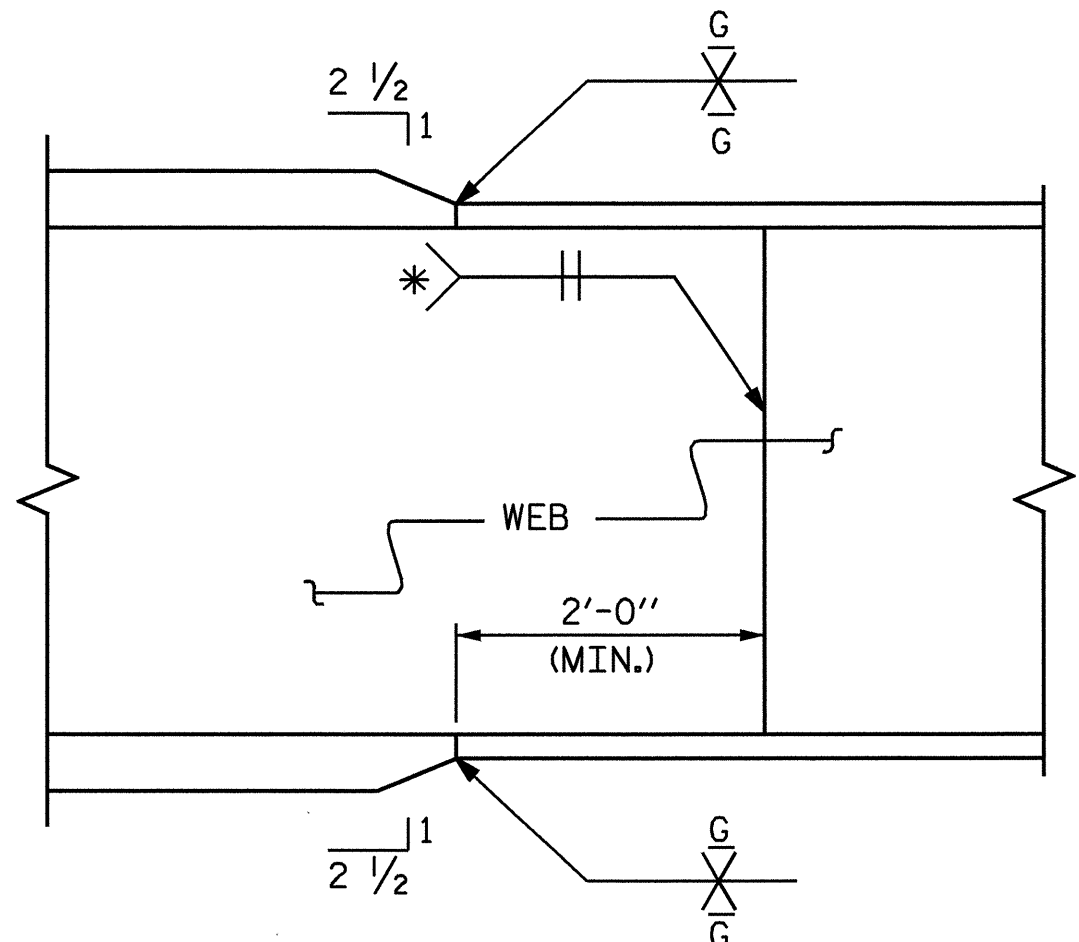
GIRDER ELEVATION



BOTTOM FLANGE DETAIL



SHEAR STUD DETAIL



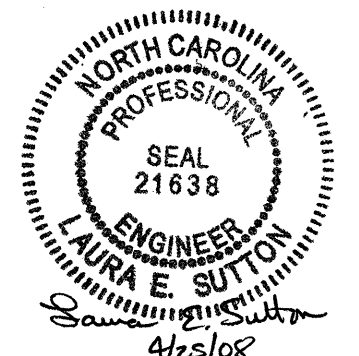
ELEVATION

* GRIND SMOOTH AND FLUSH ON OUTER FACE OF EXTERIOR GIRDERS

TYPICAL FLANGE AND WEB BUTT JOINT

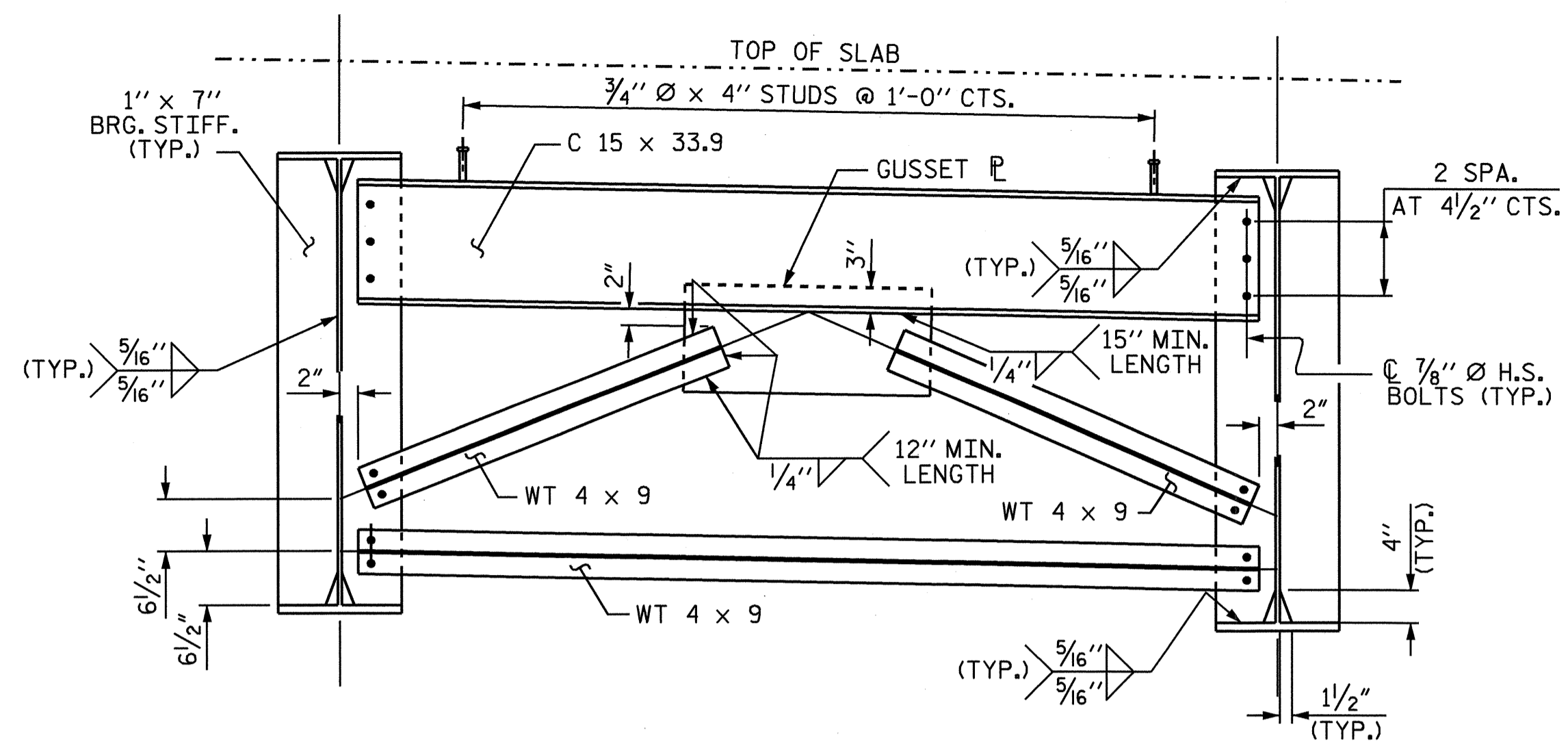
PROJECT NO. B-4281
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 SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURAL
 STEEL DETAILS

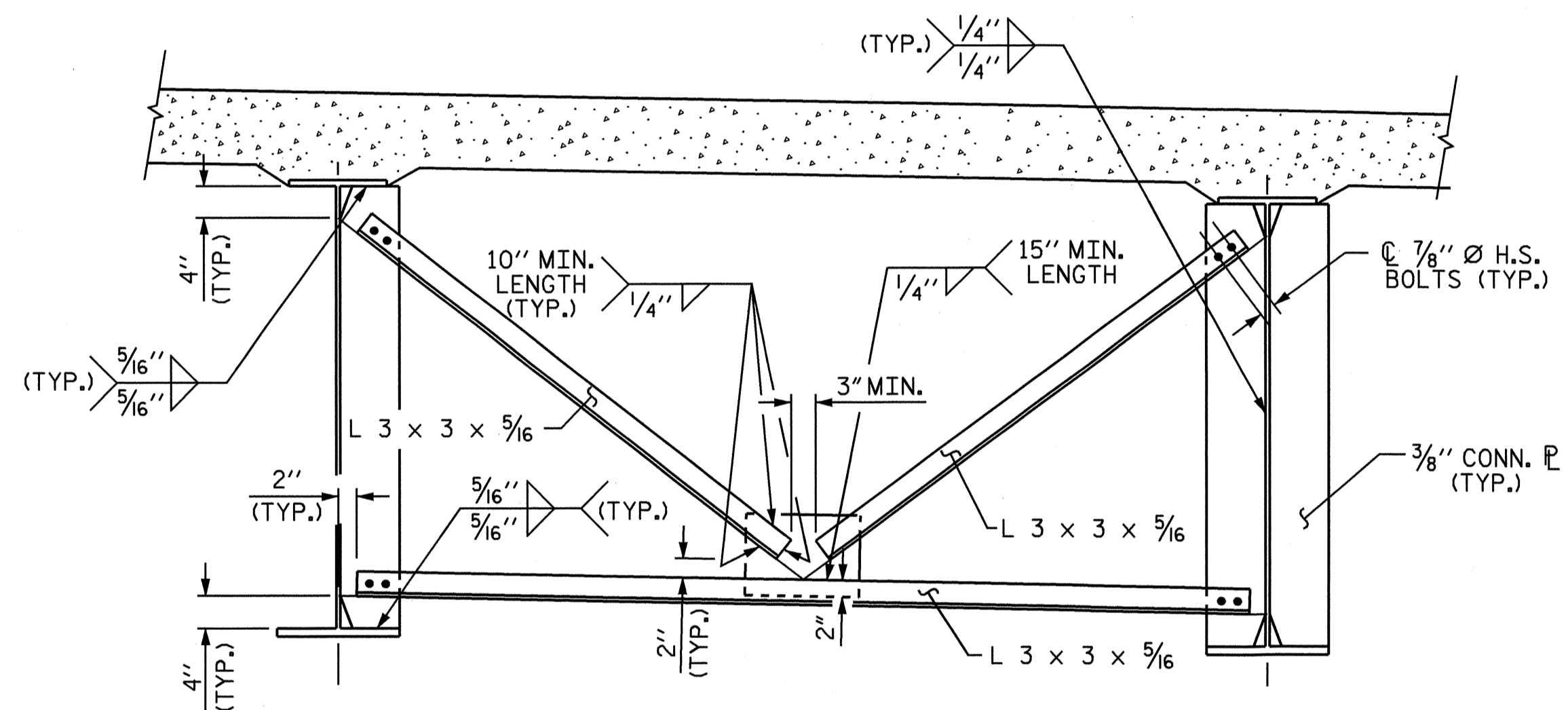


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1			3			TOTAL SHEETS
2			4			36

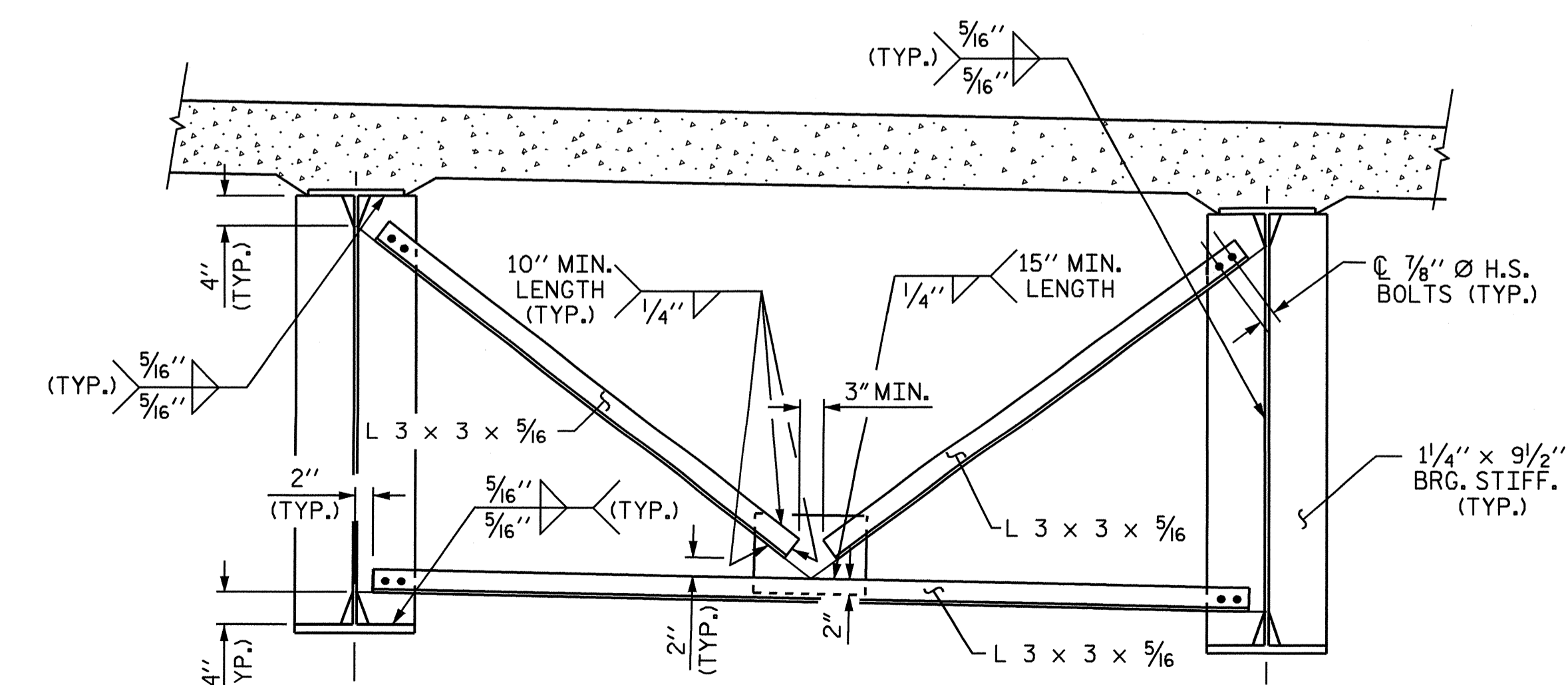
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 CHECKED BY : P.C. BREWER DATE : 11/19/07



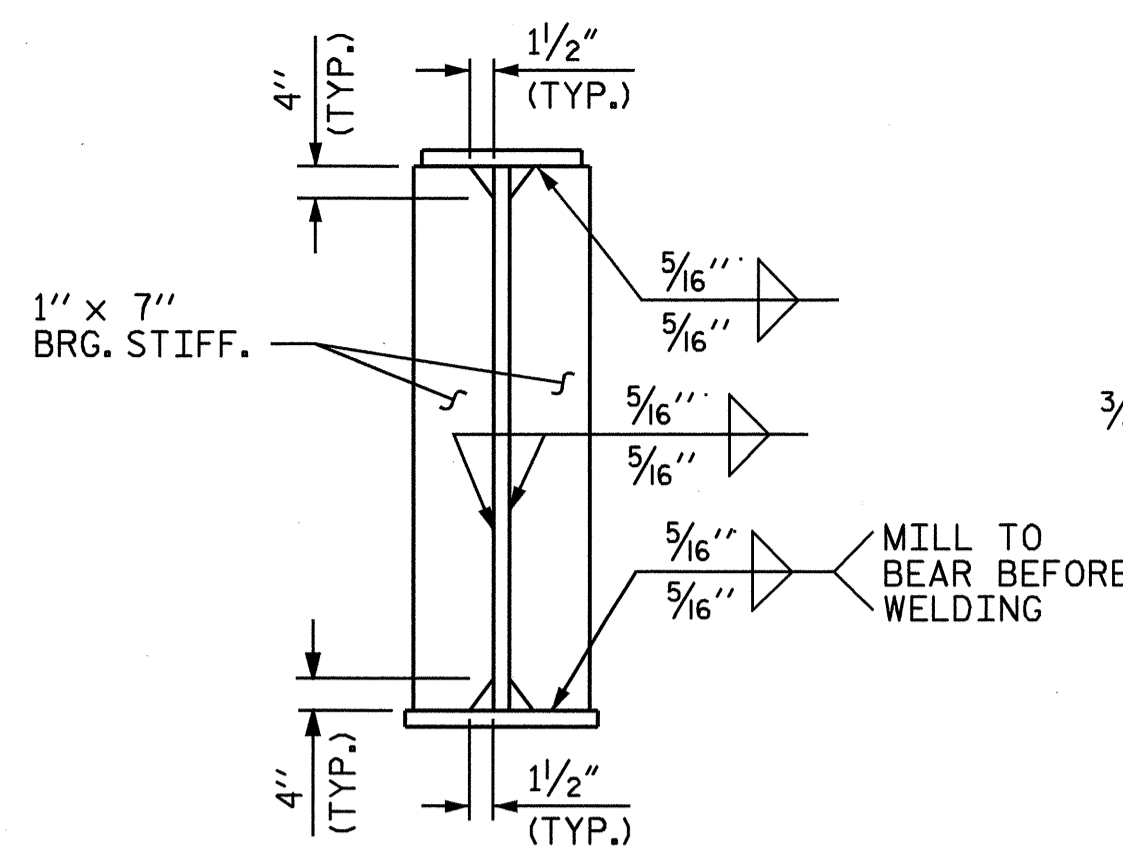
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INTERMEDIATE DIAPHRAGM (D2)

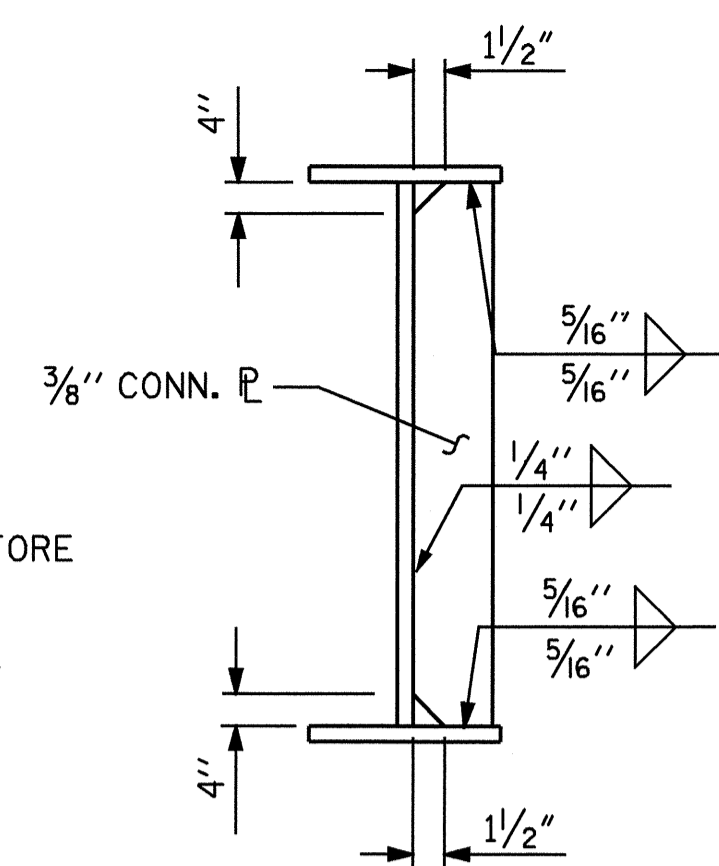


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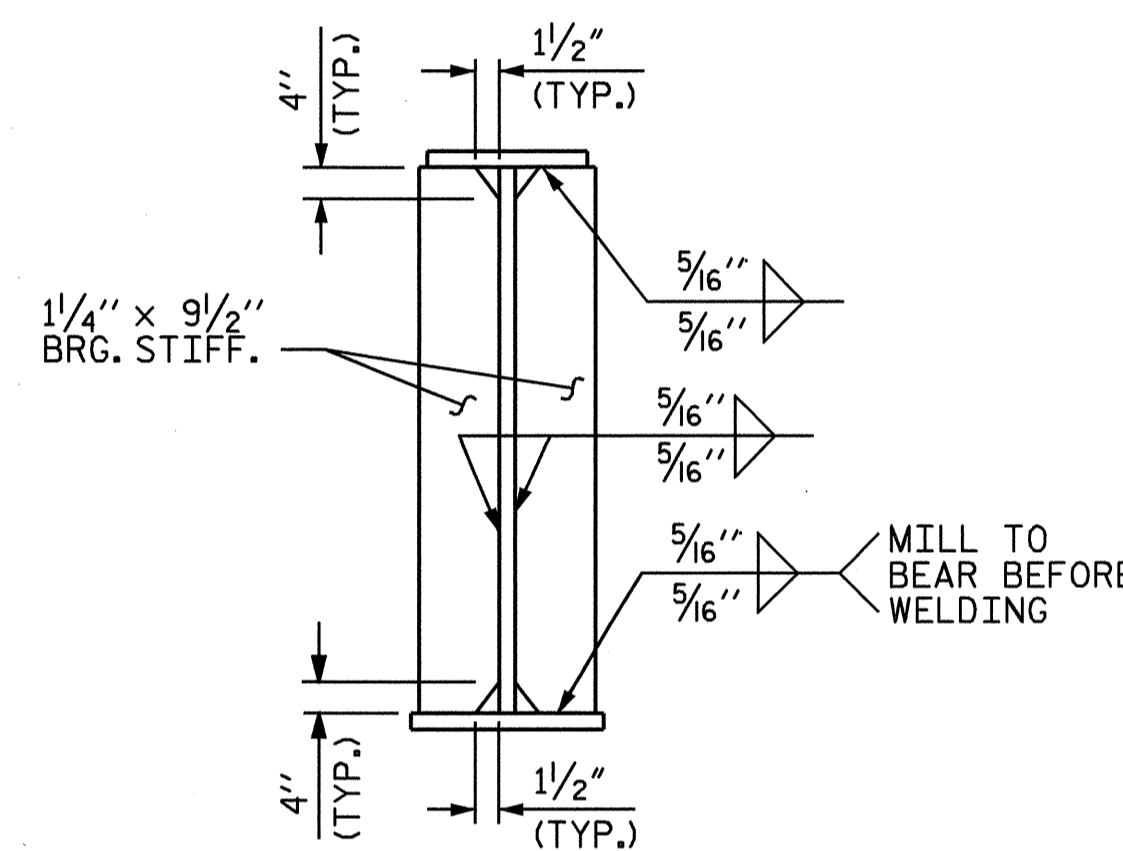


BEARING STIFFENER

(AT END BENTS)

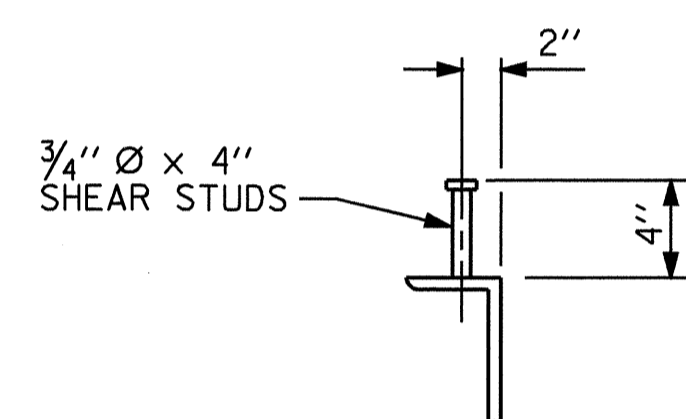


CONNECTOR PLATE

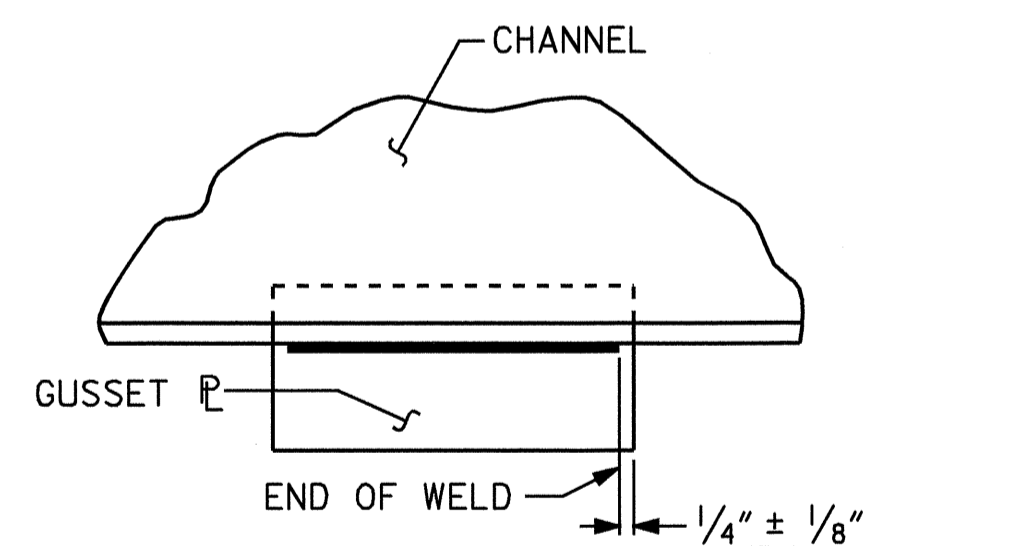


BEARING STIFFENER

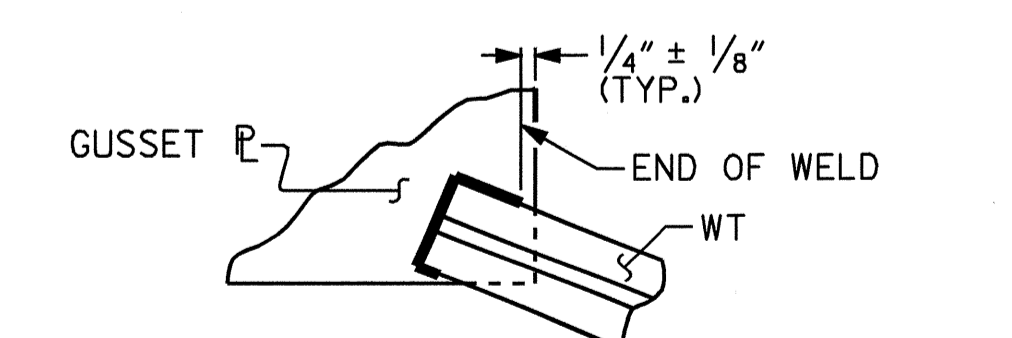
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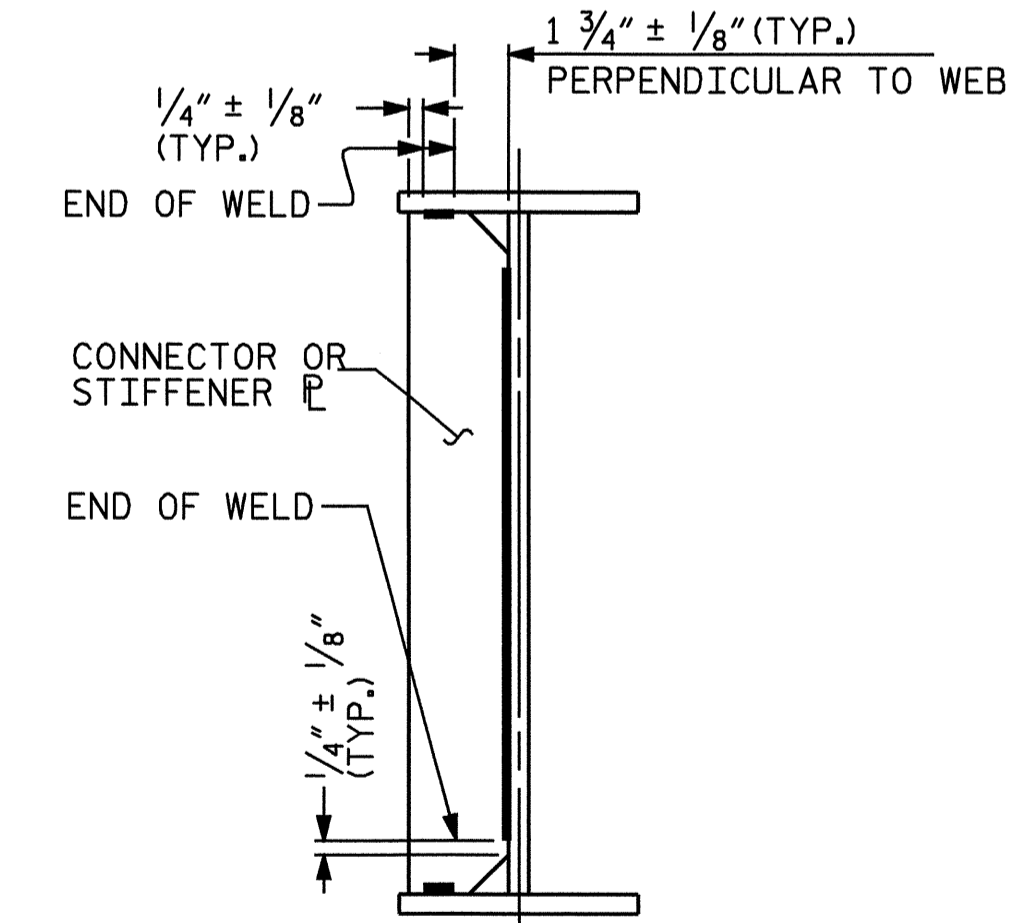
SHEAR STUD DETAILS



TYPICAL GUSSET PLATE CONNECTION



TYPICAL "TEE" TO GUSSET PLATE CONNECTION



TYPICAL STIFFENER OR CONNECTOR PLATE CONNECTIONS

WELD TERMINATION DETAILS

NOTES

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED. FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.

CAMBERED GIRDER LENGTHS SHALL BE ADJUSTED AND BEARINGS ARE TO BE PLACED ON THE CAMBERED GIRDER SO AS TO BE ALIGNED WITH THE ANCHORS AFTER THE DEAD LOAD DEFLECTION HAS OCCURRED. SHOP DRAWINGS SHALL BE PREPARED ACCORDINGLY.

SHOP SPLICES ARE PERMITTED TO LIMIT THE MAXIMUM REQUIRED FLANGE PIECE LENGTHS TO 60 FEET AND WEB PIECE LENGTHS TO 45 FEET. PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION (NOR WITHIN 15 FEET OF INTERMEDIATE BEARINGS OF CONTINUOUS UNITS). KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPlice WELD.

END OF BEAMS AND GIRDERS SHALL BE PLUMB.

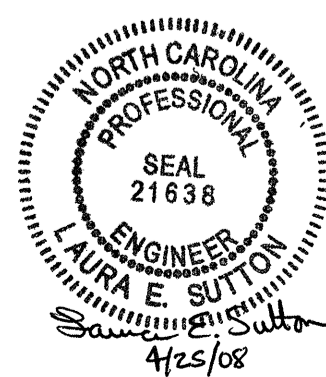
BEARING STIFFENER MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE TO AVOID INTERFERENCE WITH THE ANCHOR BOLT.

TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

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SHEET 3 OF 5

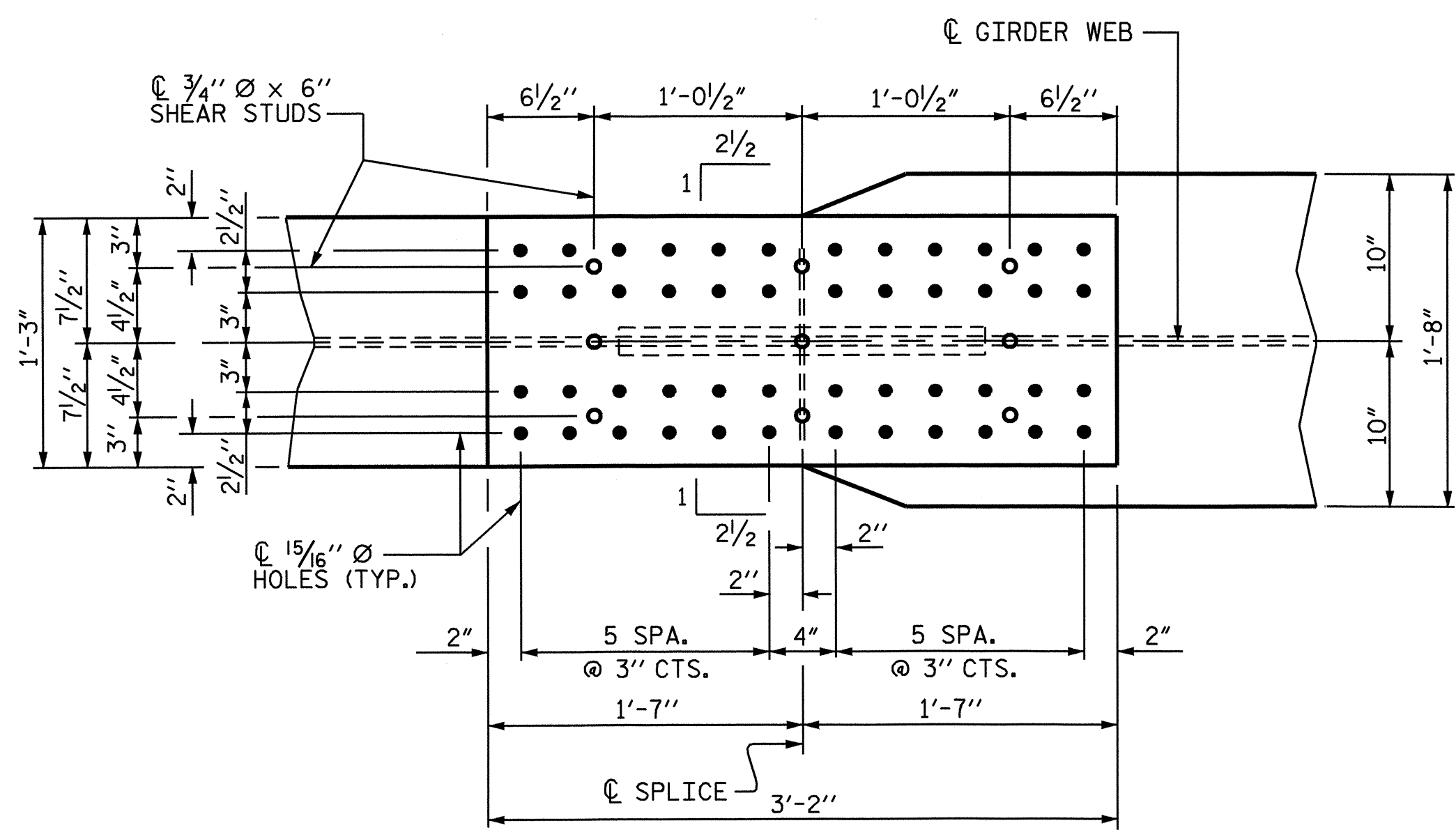
STATE OF NORTH CAROLINA
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 STRUCTURAL
 STEEL DETAILS



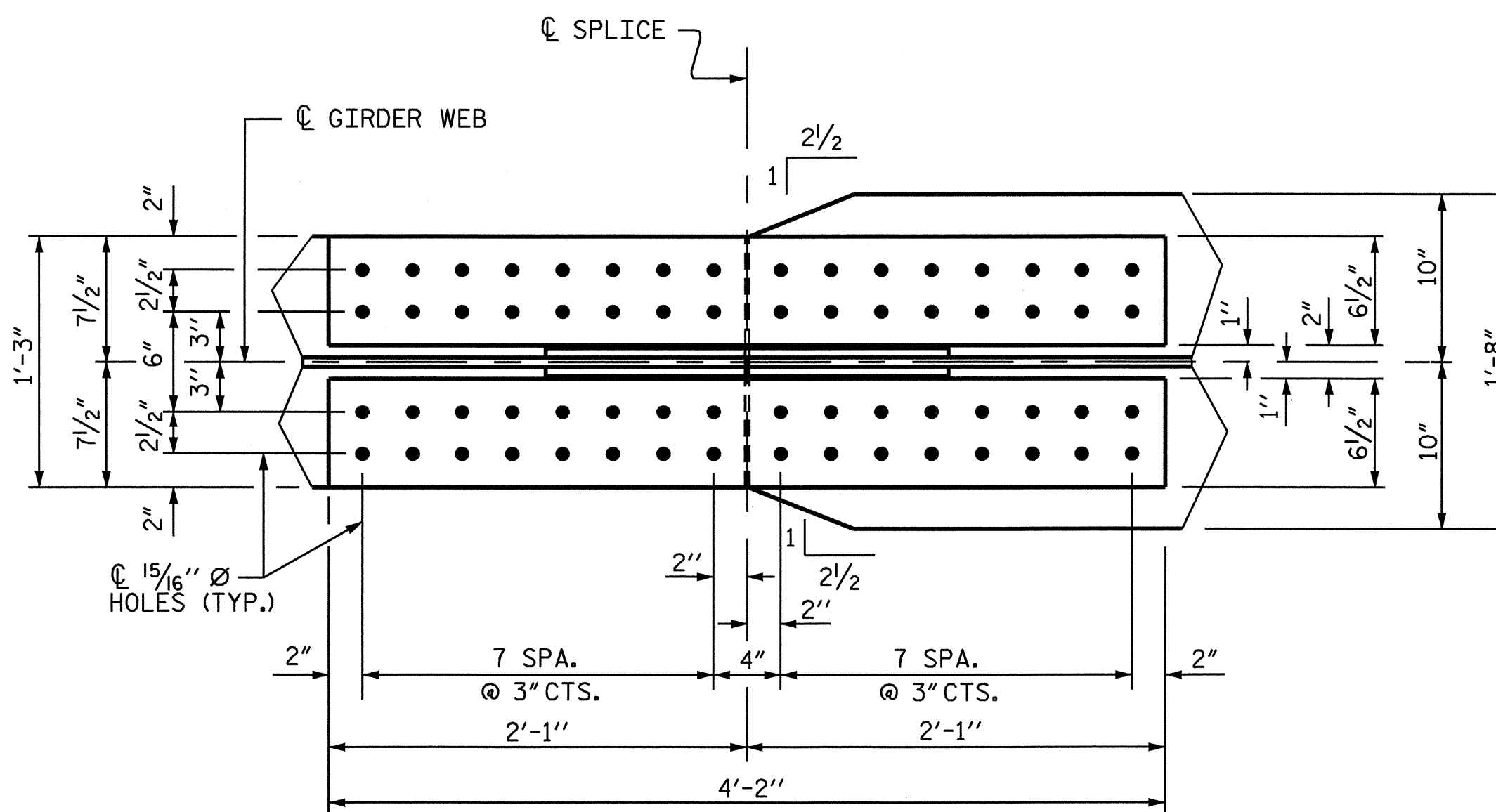
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S-13
TOTAL SHEETS
36

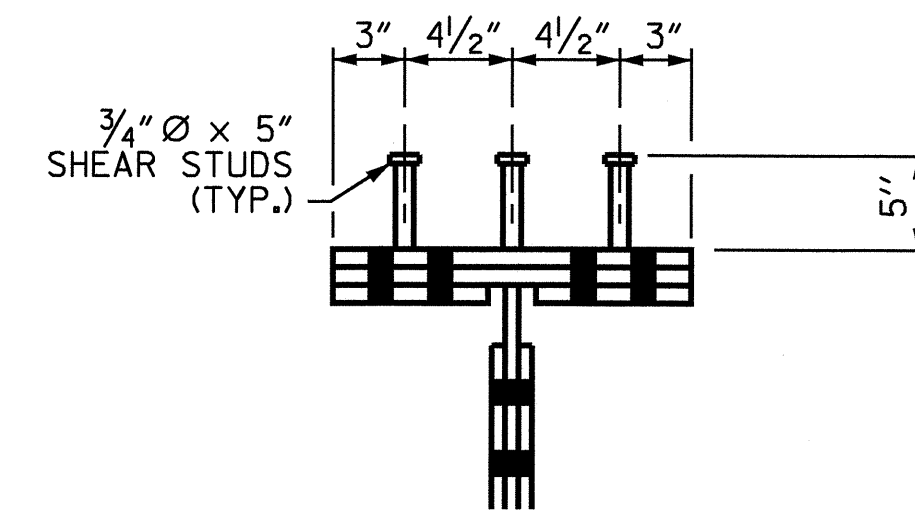
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PLAN (TOP OF TOP FLANGE)

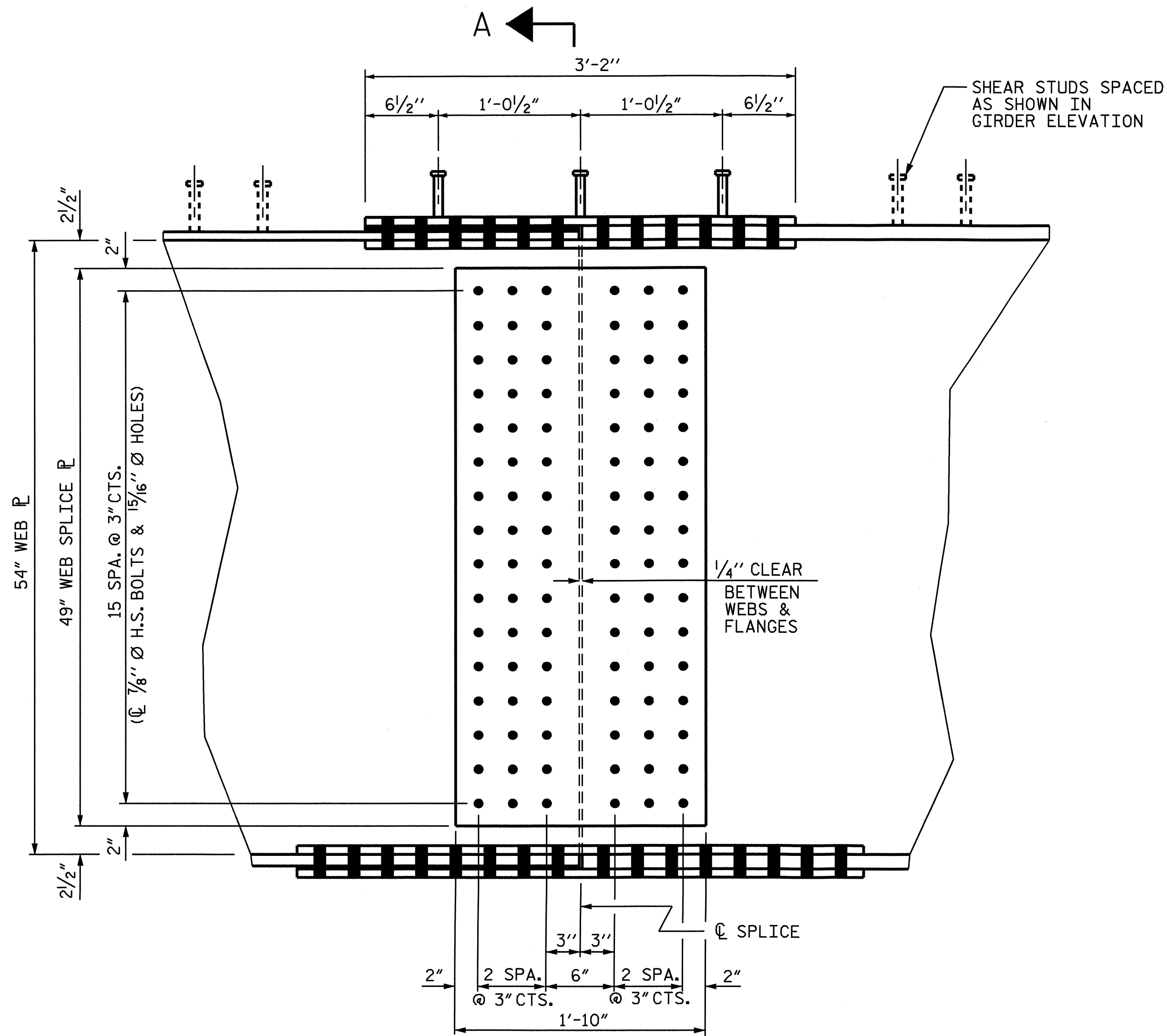


PLAN (TOP OF BOTTOM FLANGE)

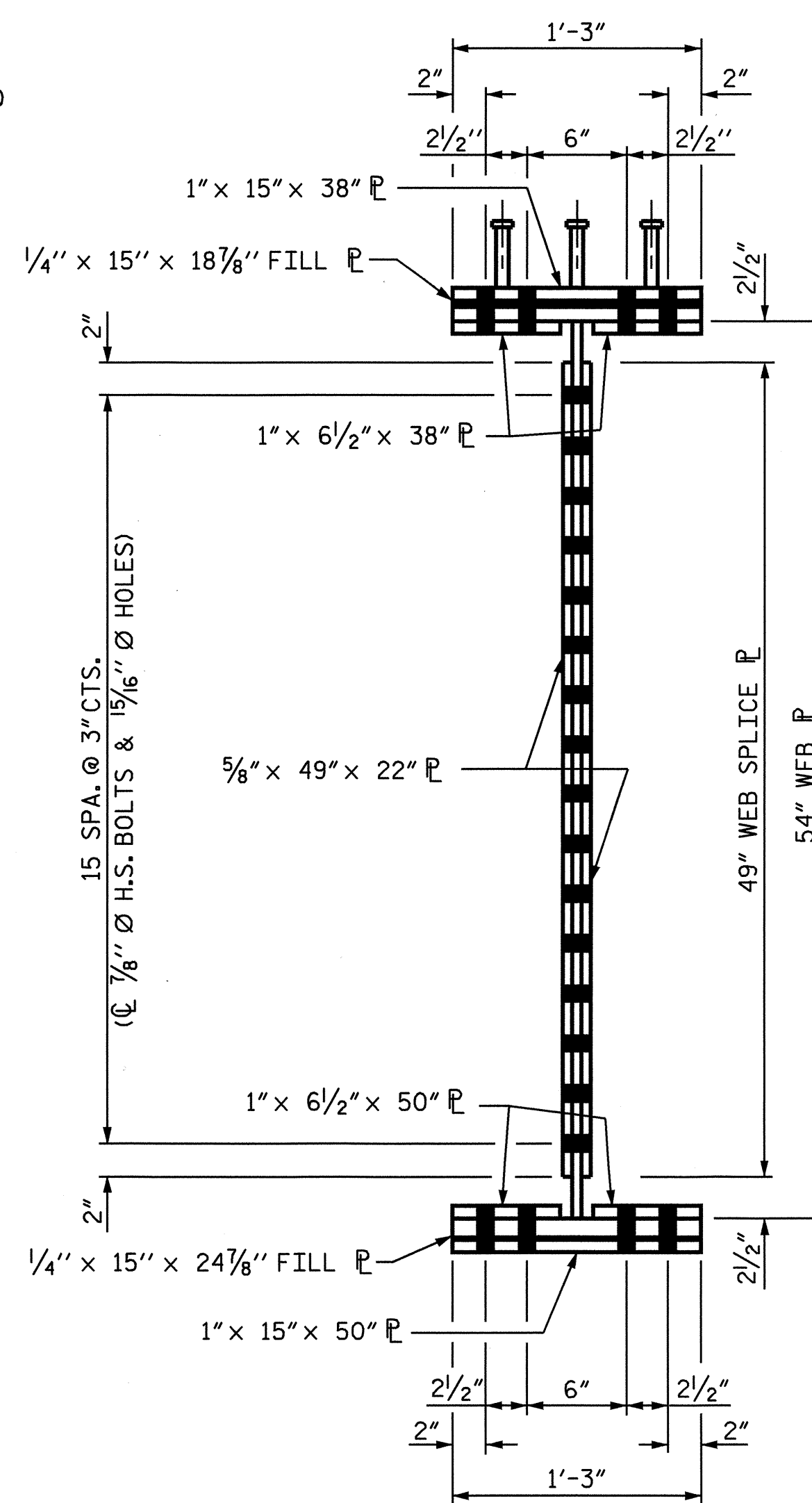


SHEAR STUD DETAIL FOR TOP FLANGE SPLICE PLATE

NOTE: SHEAR STUDS ARE TO BE SHOP WELDED ON TOP OF PLATE BEFORE FIELD ASSEMBLY.



ELEVATION



SECTION A-A

BOLTED FIELD "A" SPLICE QUANTITIES			
DESCRIPTION	SIZE	NO. REQ'D. FOR ONE FIELD SPLICE	TOTAL REQ'D.
WEB SPLICE PL	5/8" x 49" x 22"	2	16
TOP FLANGE SPLICE PL (TOP OF FLANGE)	1" x 15" x 38"	1	8
TOP FLANGE SPLICE PL (BOTTOM OF FLANGE)	1" x 6 1/2" x 38"	2	16
TOP FLANGE FILL PL	1/4" x 15" x 18 7/8"	1	8
BOTTOM FLANGE FILL PL	1/4" x 15" x 24 7/8"	1	8
BOTTOM FLANGE SPLICE PL (TOP OF FLANGE)	1" x 6 1/2" x 50"	2	16
BOTTOM FLANGE SPLICE PL (BOTTOM OF FLANGE)	1" x 15" x 50"	1	8

BOLTED FIELD SPLICE "A" DETAILS

DRAWN BY: A.S. CALLAWAY DATE: 11/15/07
 CHECKED BY: P.C. BREWER DATE: 11/19/07

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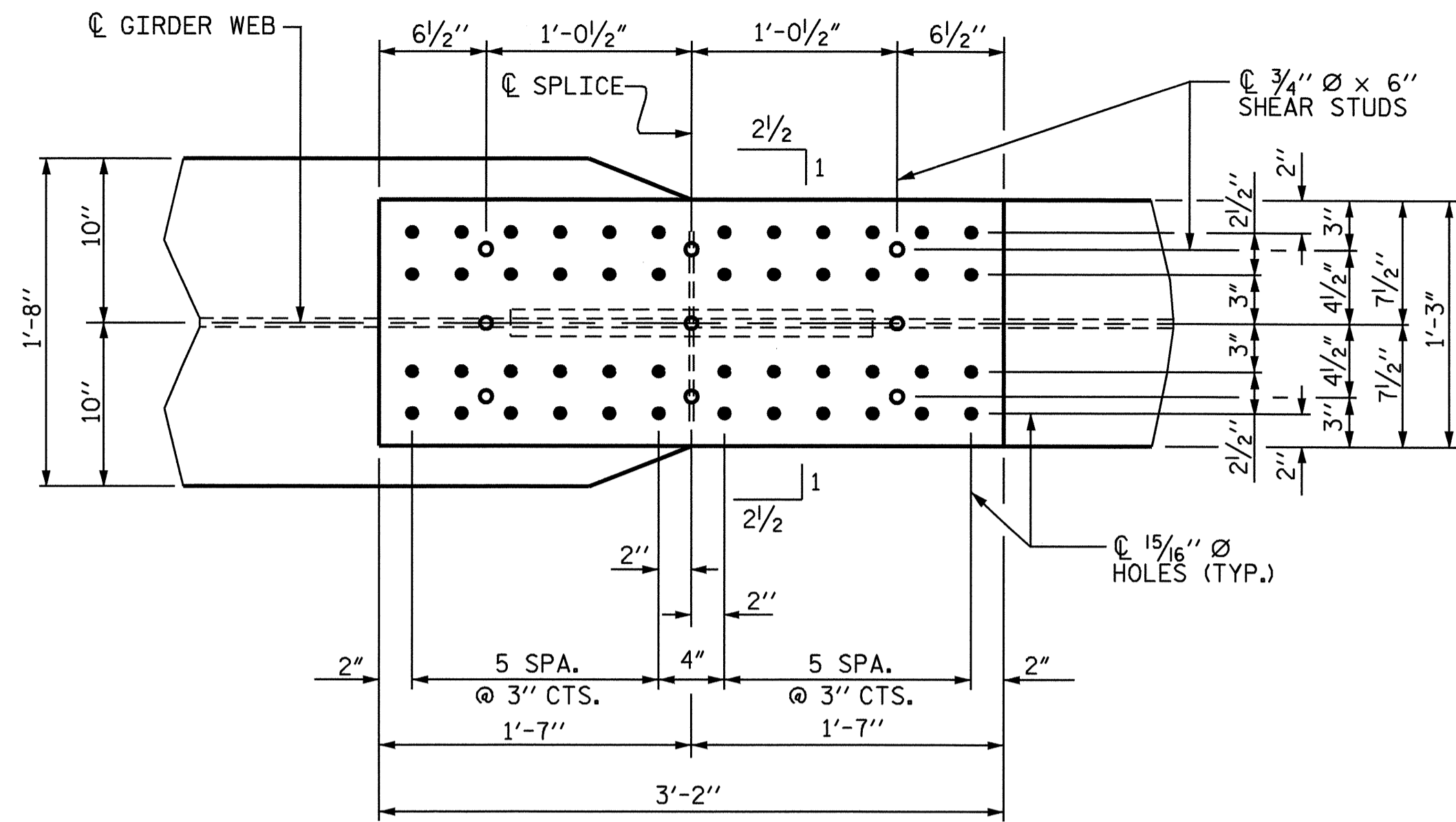
PROJECT NO. B-4281
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SHEET 4 OF 5

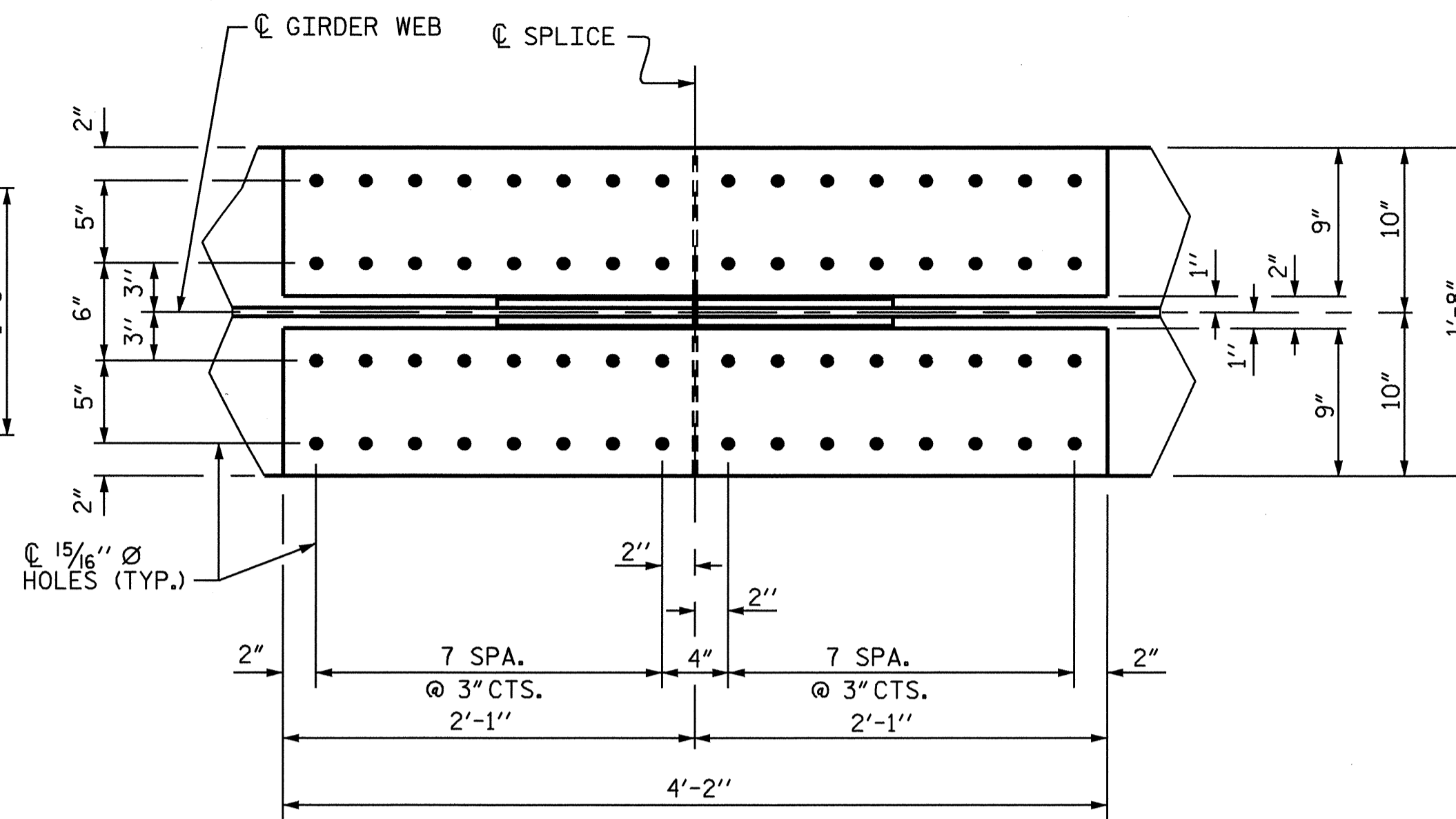


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE STRUCTURAL STEEL DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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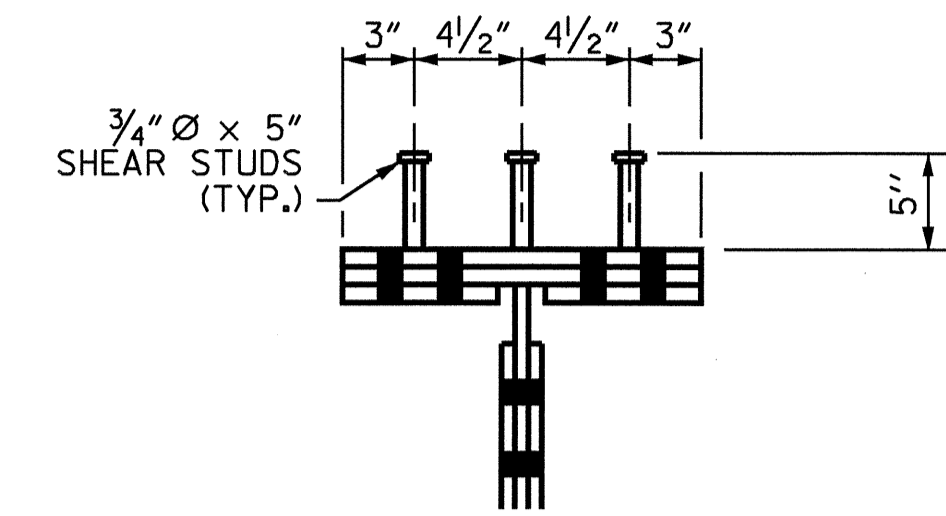
SHEET NO.	S-14
TOTAL SHEETS	36



PLAN (TOP OF TOP FLANGE)

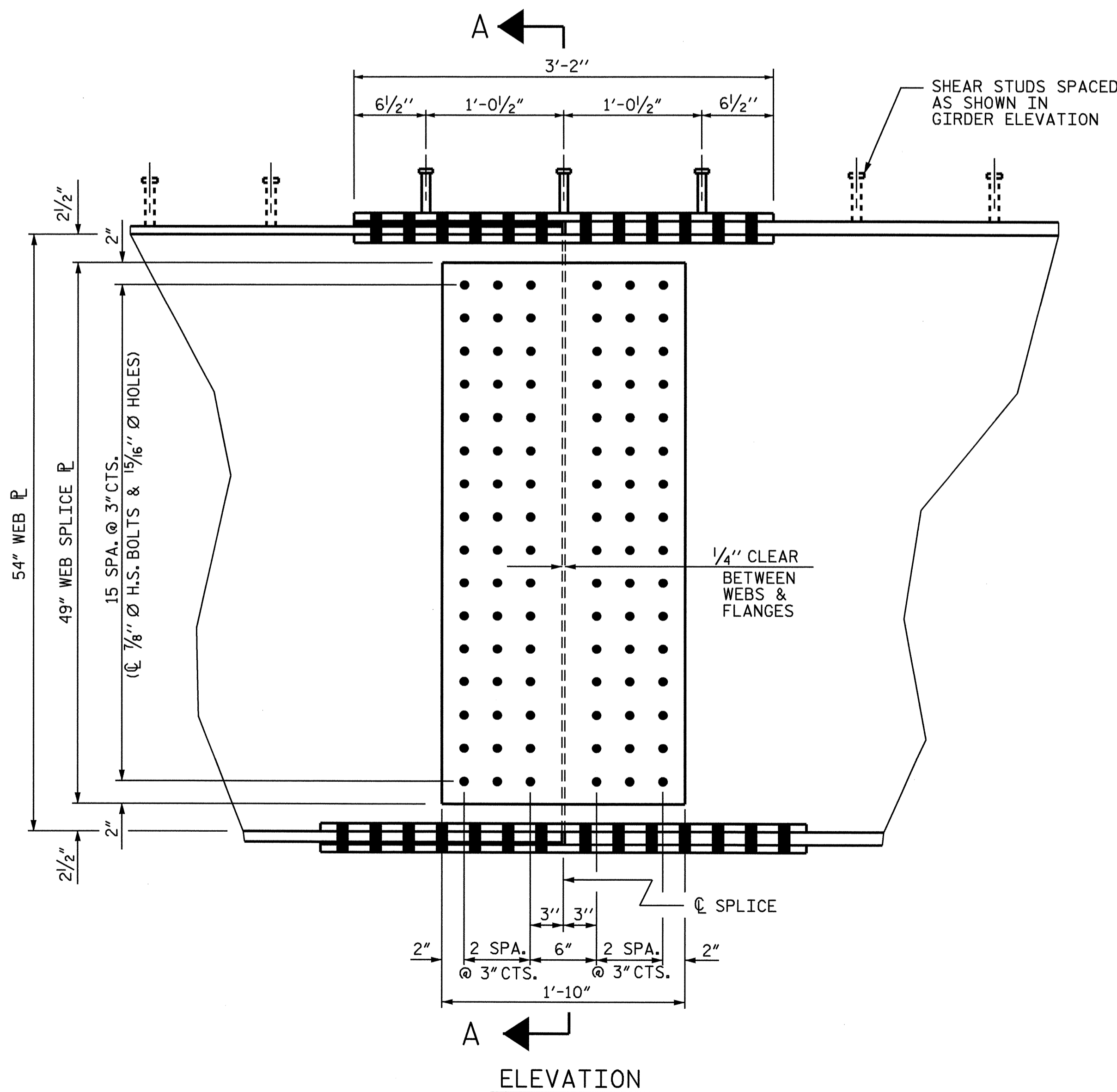


PLAN (TOP OF BOTTOM FLANGE)

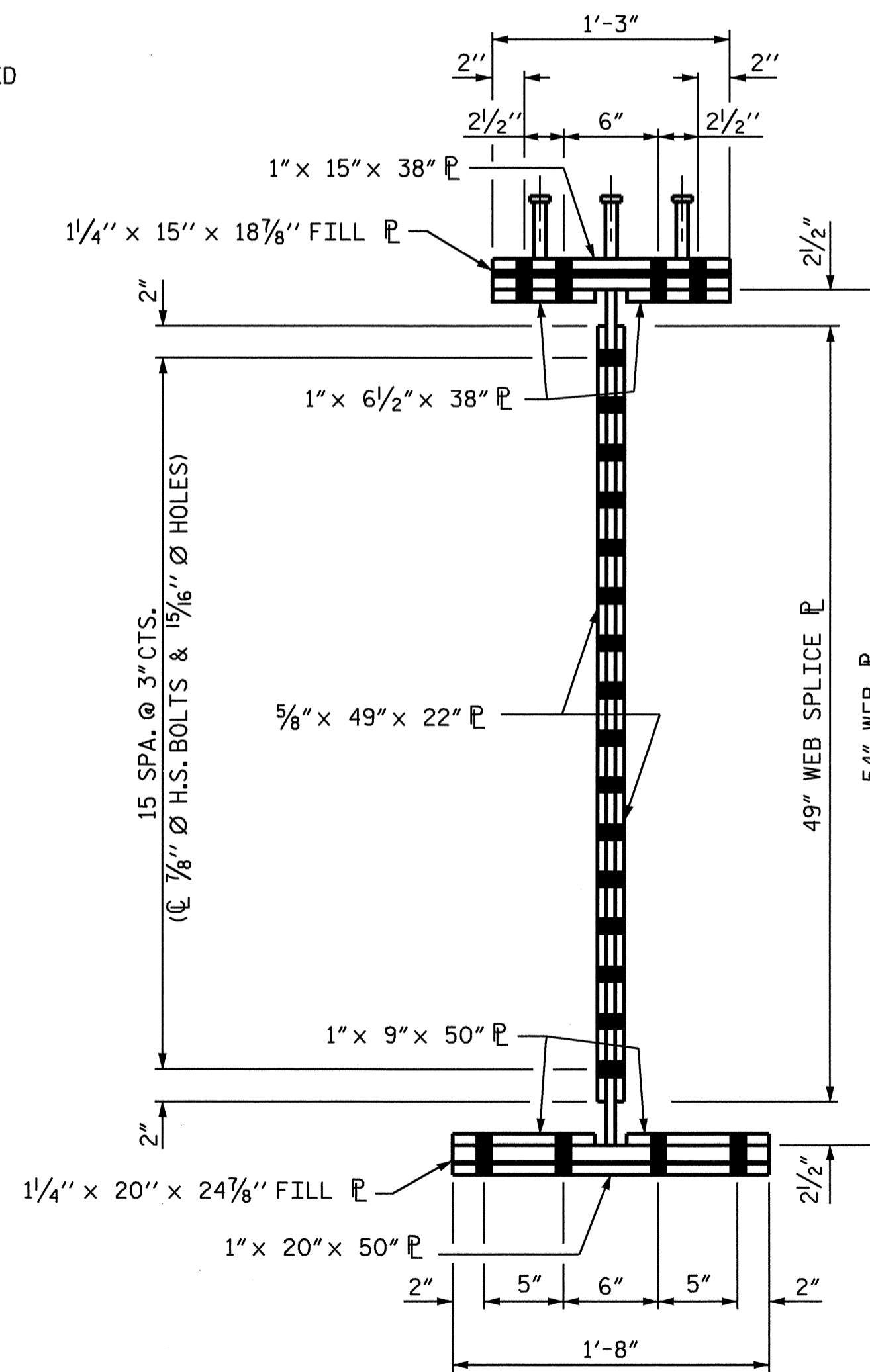


SHEAR STUD DETAIL FOR TOP FLANGE SPLICE PLATE

NOTE: SHEAR STUDS ARE TO BE SHOP WELDED ON TOP OF PLATE BEFORE FIELD ASSEMBLY.



ELEVATION



SECTION A-A

BOLTED FIELD "B" SPLICE QUANTITIES			
DESCRIPTION	SIZE	NO. REQ'D. FOR ONE FIELD SPLICE	TOTAL REQ'D.
WEB SPLICE P	5/8" x 49" x 22"	2	16
TOP FLANGE SPLICE P (TOP OF FLANGE)	1" x 15" x 38"	1	8
TOP FLANGE SPLICE P (BOTTOM OF FLANGE)	1" x 6 1/2" x 38"	2	16
TOP FLANGE FILL P	1/4" x 15" x 18 7/8"	1	8
BOTTOM FLANGE FILL P	1/4" x 20" x 24 7/8"	1	8
BOTTOM FLANGE SPLICE P (TOP OF FLANGE)	1" x 9" x 50"	2	16
BOTTOM FLANGE SPLICE P (BOTTOM OF FLANGE)	1" x 20" x 50"	1	8

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SHEET 5 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURAL
 STEEL DETAILS

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

DRAWN BY: A.S. CALLAWAY DATE: 1/15/07
 CHECKED BY: P.C. BREWER DATE: 11/19/07

BOLTED FIELD SPLICE "B" DETAILS

NOTES

AT 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.

THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATES AND MASONRY PLATES SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE CLOSURE P & THE STANDARD PIPE FOR THIS ASSEMBLY NEED NOT BE GALVANIZED.

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 BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

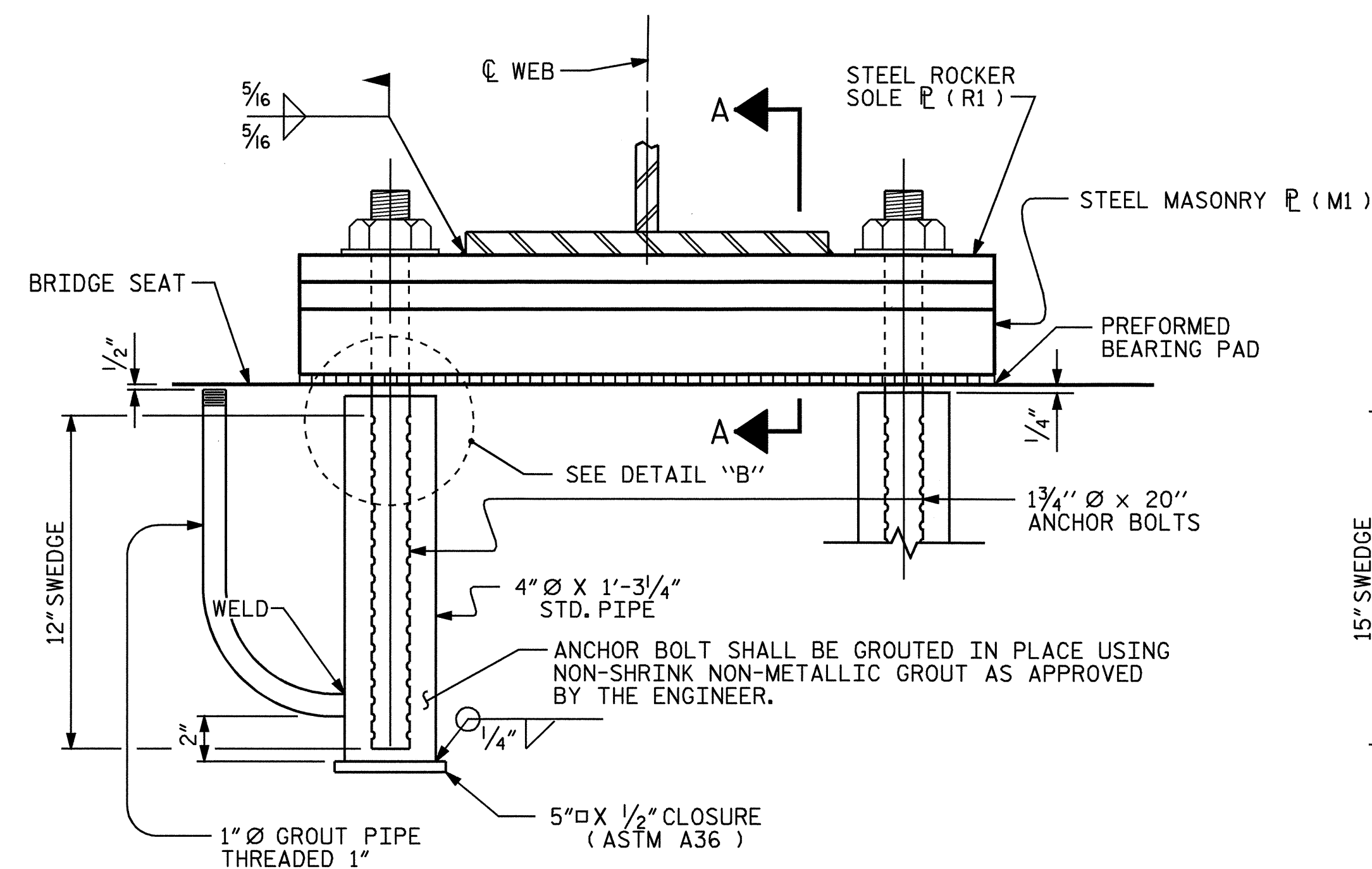
WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

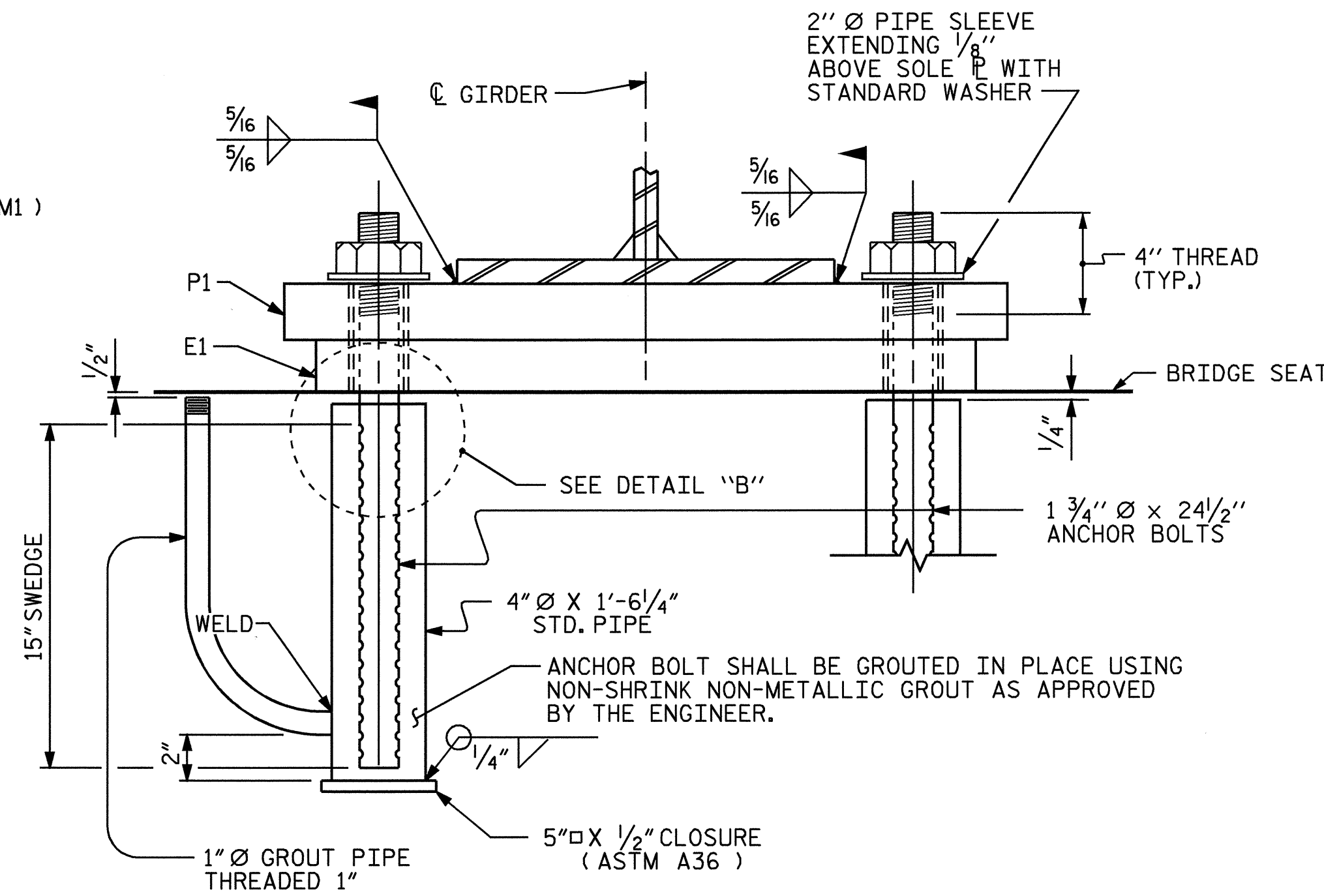
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FOLLOWING PROCEDURES TO ACCOMMODATE GIRDER TRANSLATION AND END ROTATION:

1. ONCE THE DECK HAS CURED, THE GIRDERS SHALL BE JACKED AND THE ANCHOR BOLTS, SOLE PLATE AND ELASTOMERIC BEARING SLOTS SHALL BE CENTERED AS NEARLY AS PRACTICAL ABOUT THE BEARING STIFFENER. THIS OPERATION SHALL BE PERFORMED AT APPROXIMATELY 60° F.
2. AFTER CENTERING THE SLOTS ABOUT THE ANCHOR BOLTS, THE SOLE PLATES SHALL BE FIELD WELDED TO THE GIRDER FLANGES AND ANCHOR BOLTS GROUDED.

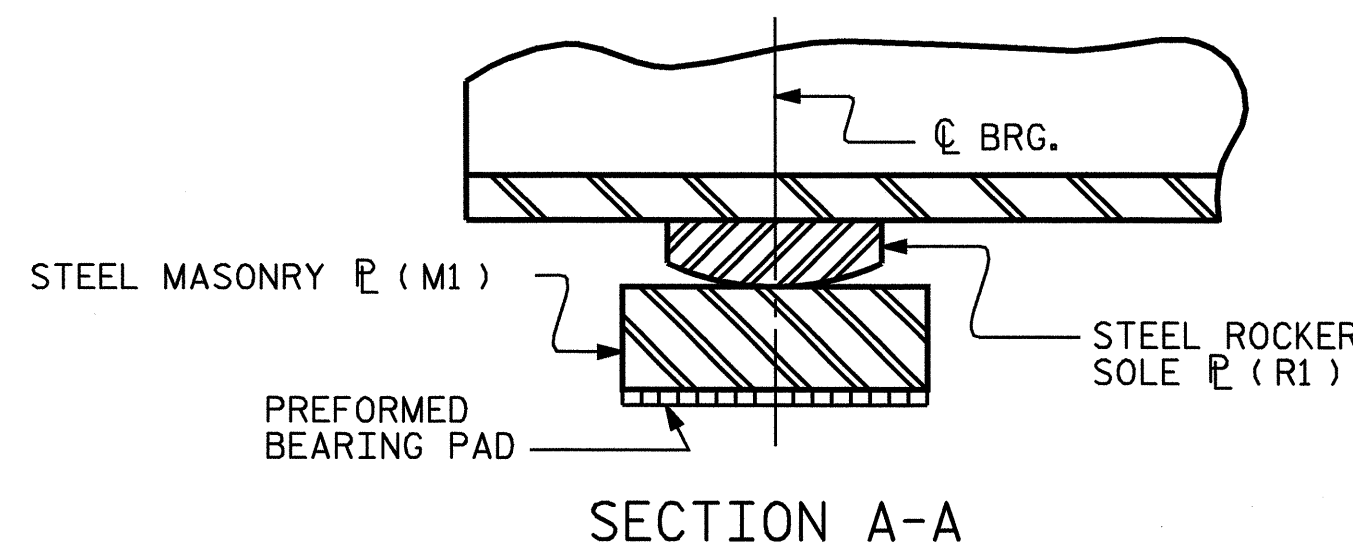
THE CONTRACTOR MAY PROPOSE ALTERNATE METHODS PROVIDED DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.



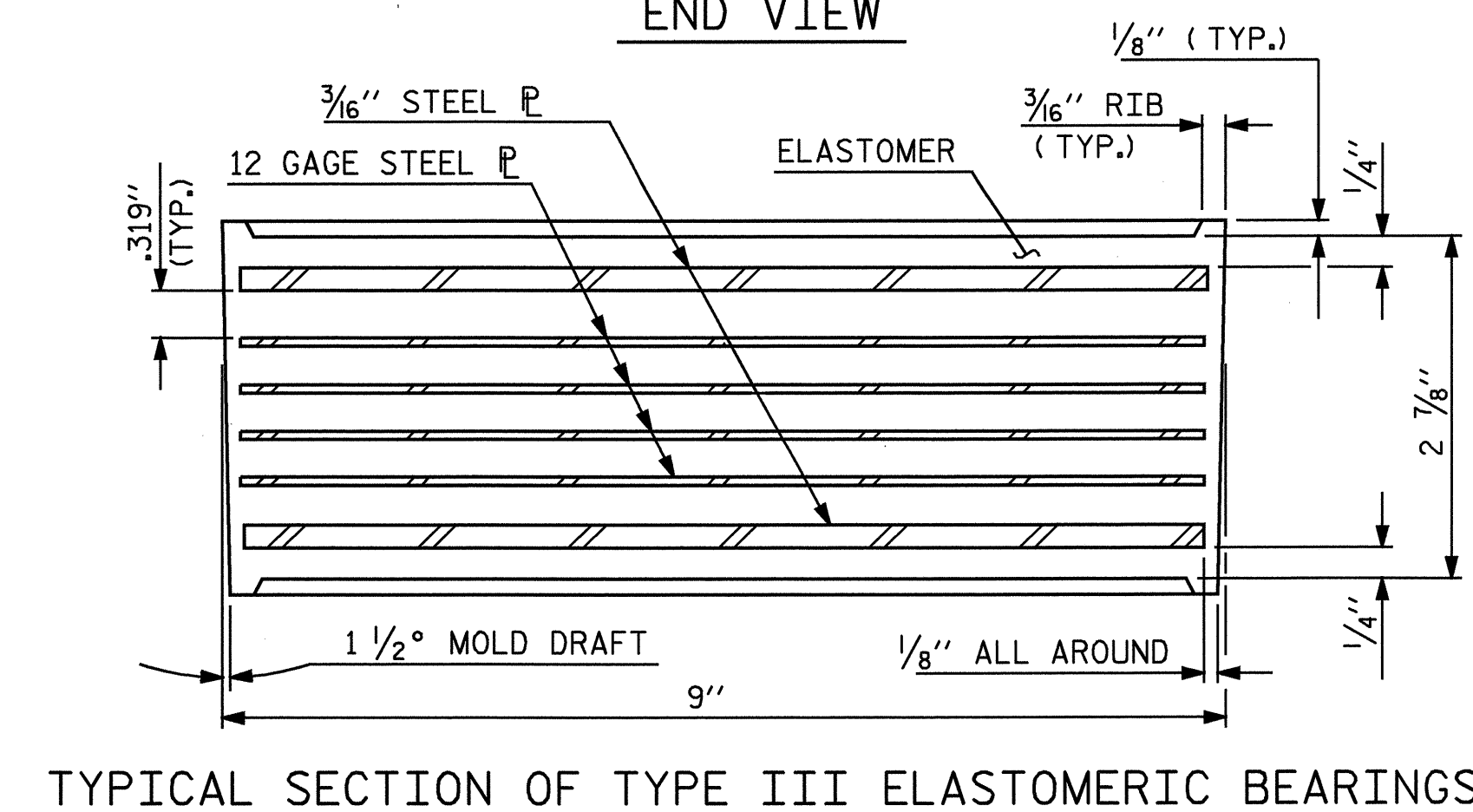
ELEVATION



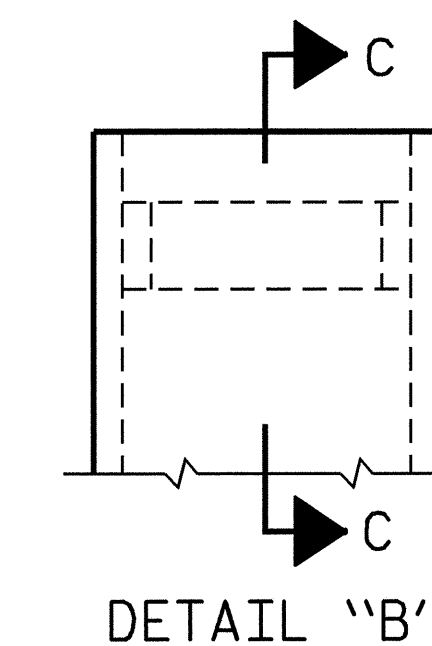
END VIEW



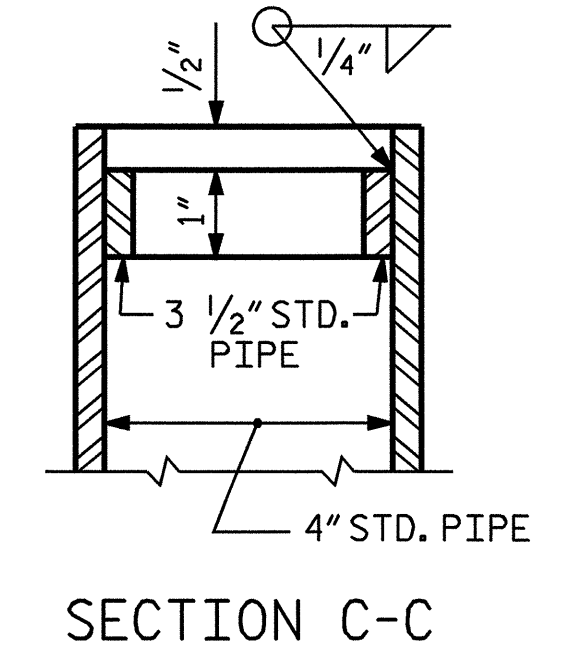
SECTION A-A



TYPICAL SECTION OF TYPE III ELASTOMERIC BEARINGS

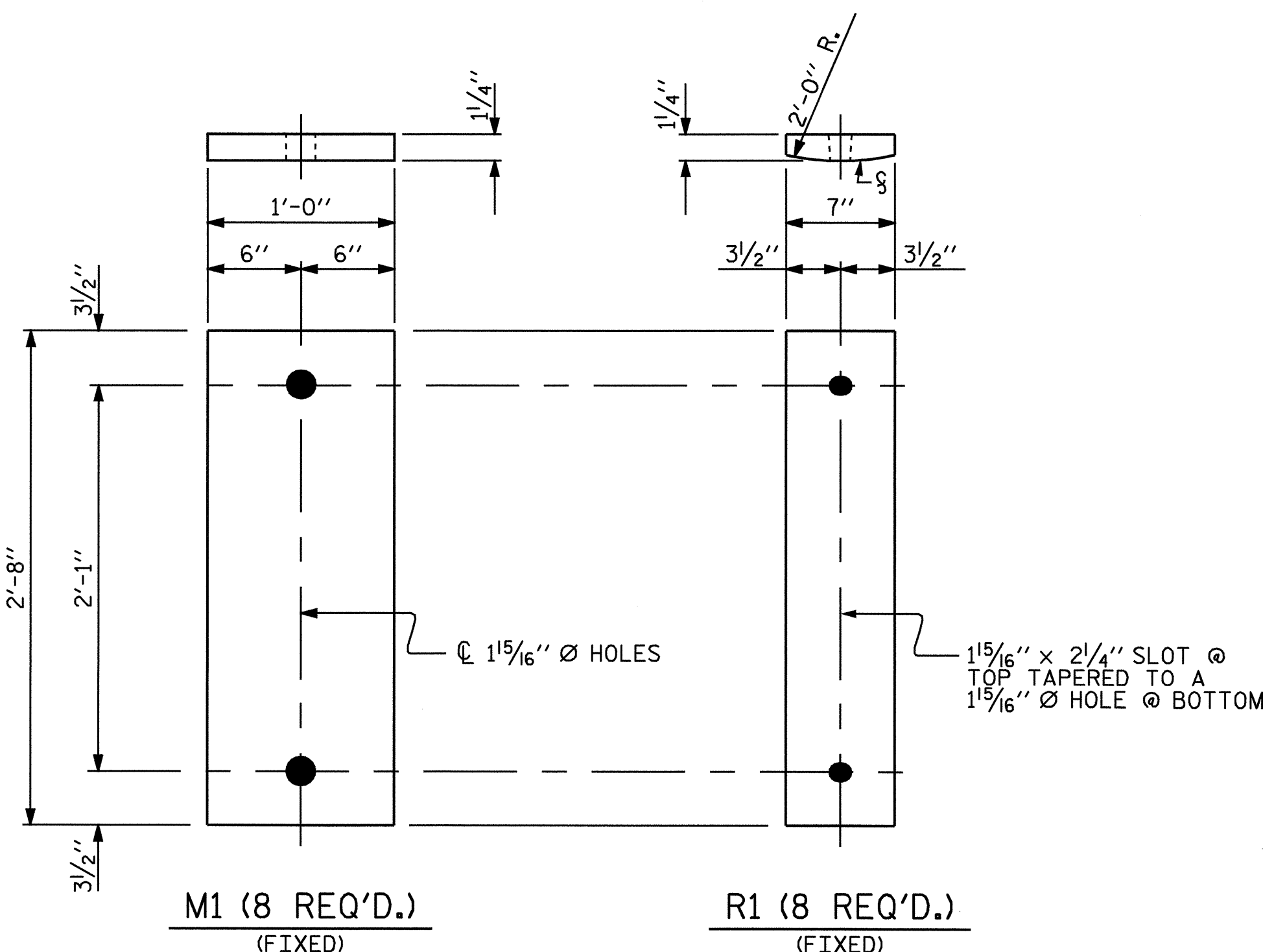


DETAIL "B"

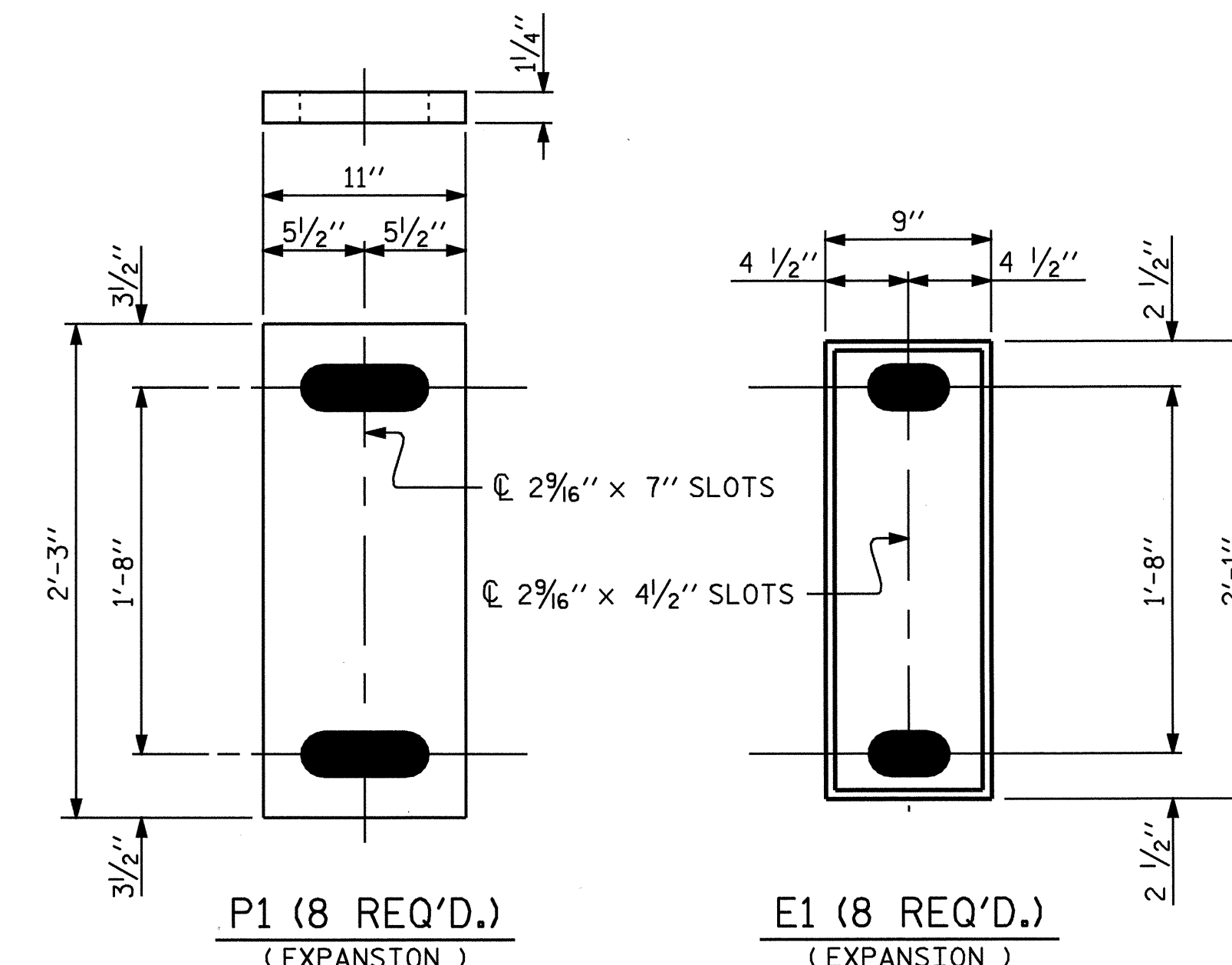


SECTION C-C

-LOAD RATINGS-	
	MAX.D.L.+L.L.
TYPE III	144 K



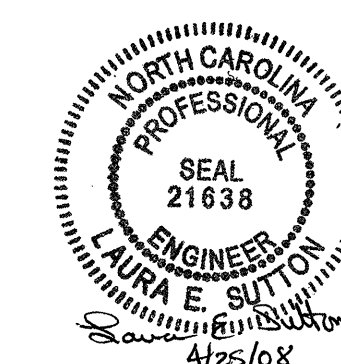
BEARING DETAILS AT BENTS



BEARING DETAILS AT END BENTS

DRAWN BY : A.S. CALLAWAY DATE : 6/29/06
 CHECKED BY : P.C. BREWER DATE : 7/12/06

25-APR-2008 12:42
 R:\STRUCTURES\scallaway\lforstation\B4281.sd.bg.01.dgn
 isutton

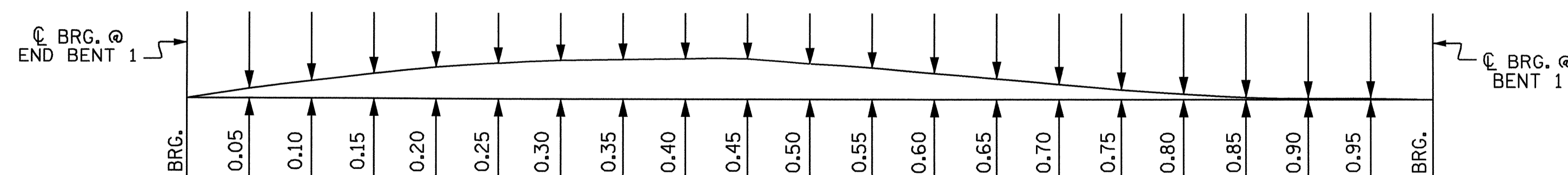


PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE BEARING DETAILS					SHEET NO.
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-16
					TOTAL SHEETS 36

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
SPAN A - GIRDER #1																					
TWENTIETH POINTS	BRG.	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	-0.004	-0.006	-0.008	-0.008	-0.008	-0.005	-0.002	0.002	0.005	0.008	0.011	0.014	0.015	0.015	0.015	0.013	0.011	0.008	0.004	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.027	0.052	0.074	0.093	0.108	0.119	0.124	0.125	0.120	0.112	0.100	0.085	0.068	0.052	0.036	0.021	0.011	0.003	0.000	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0	0.000	0.000	0.001	0.002	0.004	0.006	0.007	0.009	0.011	0.012	0.013	0.013	0.013	0.013	0.011	0.010	0.008	0.005	0.003	0
TOTAL DEAD LOAD DEFLECTION	0	0.023	0.046	0.067	0.087	0.104	0.120	0.129	0.136	0.136	0.132	0.124	0.112	0.096	0.080	0.062	0.044	0.030	0.016	0.007	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
REQUIRED CAMBER	0	1/4"	3/16"	1/2"	1/4"	1/4"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	0
SPAN A - GIRDER #2																					
TWENTIETH POINTS	BRG.	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	-0.004	-0.007	-0.008	-0.008	-0.007	-0.005	-0.002	0.002	0.005	0.009	0.012	0.014	0.015	0.016	0.015	0.014	0.011	0.008	0.004	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.026	0.051	0.074	0.093	0.108	0.118	0.123	0.124	0.120	0.111	0.099	0.085	0.068	0.051	0.035	0.021	0.011	0.003	0.000	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0	0.000	0.000	0.001	0.002	0.004	0.005	0.007	0.009	0.010	0.012	0.012	0.013	0.013	0.012	0.011	0.010	0.008	0.005	0.003	0
TOTAL DEAD LOAD DEFLECTION	0	0.022	0.044	0.067	0.087	0.105	0.118	0.128	0.135	0.135	0.132	0.123	0.112	0.096	0.079	0.061	0.045	0.030	0.016	0.007	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
REQUIRED CAMBER	0	1/4"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	0
SPAN A - GIRDER #3																					
TWENTIETH POINTS	BRG.	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	-0.004	-0.007	-0.008	-0.008	-0.007	-0.005	-0.002	0.002	0.005	0.009	0.012	0.014	0.015	0.016	0.015	0.014	0.011	0.008	0.004	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.026	0.051	0.073	0.092	0.107	0.117	0.123	0.123	0.119	0.111	0.099	0.084	0.068	0.051	0.035	0.021	0.011	0.003	0.000	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0	0.000	0.000	0.001	0.002	0.004	0.005	0.007	0.009	0.010	0.012	0.012	0.013	0.012	0.012	0.011	0.010	0.008	0.005	0.003	0
TOTAL DEAD LOAD DEFLECTION	0	0.022	0.044	0.066	0.086	0.104	0.117	0.128	0.134	0.134	0.132	0.123	0.111	0.095	0.079	0.061	0.045	0.030	0.016	0.007	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
REQUIRED CAMBER	0	1/4"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	0
SPAN A - GIRDER #4																					
TWENTIETH POINTS	BRG.	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	-0.004	-0.006	-0.008	-0.008	-0.007	-0.005	-0.002	0.002	0.005	0.008	0.011	0.014	0.015	0.015	0.015	0.013	0.011	0.008	0.004	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.026	0.051	0.073	0.092	0.106	0.117	0.122	0.122	0.118	0.110	0.098	0.084	0.067	0.051	0.035	0.021	0.011	0.003	0.000	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0	0.000	0.000	0.001	0.002	0.004	0.006	0.007	0.009	0.011	0.012	0.013	0.013	0.013	0.011	0.010	0.008	0.005	0.003	0	
TOTAL DEAD LOAD DEFLECTION	0	0.022	0.045	0.066	0.086	0.103	0.118	0.127	0.133	0.134	0.130	0.122	0.111	0.095	0.079	0.061	0.044	0.030	0.016	0.007	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
REQUIRED CAMBER	0	1/4"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
 ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).



SCHEMATIC CAMBER ORDINATES
 SLOPE FOR ZERO CAMBER BASE LINE VARIES

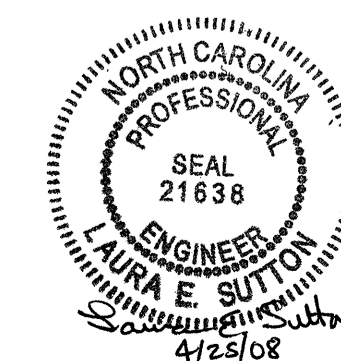
PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 DEAD LOAD DEFLECTIONS
 SPAN A

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			36

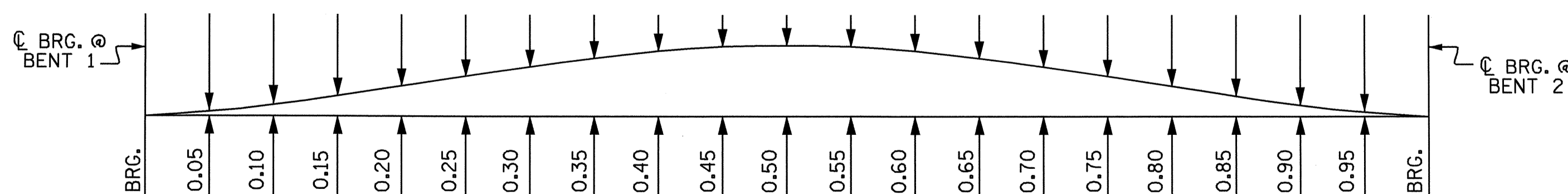


DRAWN BY: A.S. CALLAWAY DATE: 11/16/07
 CHECKED BY: P.C. BREWER DATE: 11/19/07

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

SPAN B - GIRDER #1																					
TWENTIETH POINTS	BRG.	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	-0.004	-0.006	-0.008	-0.008	-0.008	-0.005	-0.002	0.002	0.005	0.008	0.011	0.014	0.015	0.015	0.015	0.013	0.011	0.008	0.004	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.008	0.024	0.045	0.069	0.094	0.119	0.141	0.158	0.168	0.172	0.168	0.158	0.141	0.119	0.094	0.069	0.045	0.024	0.009	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0	0.000	0.000	0.001	0.002	0.004	0.006	0.007	0.009	0.011	0.012	0.013	0.013	0.013	0.013	0.011	0.010	0.008	0.005	0.003	0
TOTAL DEAD LOAD DEFLECTION	0	0.004	0.018	0.038	0.063	0.090	0.120	0.146	0.169	0.184	0.192	0.192	0.185	0.169	0.147	0.120	0.092	0.064	0.037	0.016	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
REQUIRED CAMBER	0	1/16"	3/16"	7/16"	3/4"	1 1/16"	1 7/16"	1 3/4"	2"	2 3/16"	2 5/16"	2 5/16"	2 1/4"	2"	1 3/4"	1 7/16"	1 1/8"	3/4"	7/16"	3/16"	0
SPAN B - GIRDER #2																					
TWENTIETH POINTS	BRG.	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	-0.004	-0.007	-0.008	-0.008	-0.007	-0.005	-0.002	0.002	0.005	0.009	0.012	0.014	0.015	0.016	0.015	0.014	0.011	0.008	0.004	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.008	0.024	0.045	0.068	0.094	0.118	0.140	0.157	0.167	0.171	0.167	0.157	0.140	0.118	0.094	0.068	0.045	0.024	0.008	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0	0.000	0.000	0.001	0.002	0.004	0.005	0.007	0.009	0.010	0.012	0.012	0.013	0.013	0.012	0.011	0.010	0.008	0.005	0.003	0
TOTAL DEAD LOAD DEFLECTION	0	0.004	0.017	0.038	0.062	0.091	0.118	0.145	0.168	0.182	0.192	0.191	0.184	0.168	0.146	0.120	0.092	0.064	0.037	0.015	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
REQUIRED CAMBER	0	1/16"	3/16"	7/16"	3/4"	1 1/16"	1 7/16"	1 3/4"	2"	2 3/16"	2 5/16"	2 5/16"	2 3/16"	2"	1 3/4"	1 7/16"	1 1/8"	3/4"	7/16"	3/16"	0
SPAN B - GIRDER #3																					
TWENTIETH POINTS	BRG.	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	-0.004	-0.007	-0.008	-0.008	-0.007	-0.005	-0.002	0.002	0.005	0.009	0.012	0.014	0.015	0.016	0.015	0.014	0.011	0.008	0.004	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.008	0.024	0.045	0.068	0.093	0.117	0.139	0.156	0.166	0.170	0.166	0.156	0.139	0.117	0.093	0.068	0.045	0.024	0.008	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0	0.000	0.000	0.001	0.002	0.004	0.005	0.007	0.009	0.010	0.012	0.012	0.013	0.012	0.012	0.011	0.010	0.008	0.005	0.003	0
TOTAL DEAD LOAD DEFLECTION	0	0.004	0.017	0.038	0.062	0.090	0.117	0.144	0.167	0.181	0.191	0.190	0.183	0.166	0.145	0.119	0.092	0.064	0.037	0.015	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
REQUIRED CAMBER	0	1/16"	3/16"	7/16"	3/4"	1 1/16"	1 3/8"	1 3/4"	2"	2 3/16"	2 5/16"	2 1/4"	2 3/16"	2"	1 3/4"	1 7/16"	1 1/8"	3/4"	7/16"	3/16"	0
SPAN B - GIRDER #4																					
TWENTIETH POINTS	BRG.	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	-0.004	-0.006	-0.008	-0.008	-0.007	-0.005	-0.002	0.002	0.005	0.008	0.011	0.014	0.015	0.015	0.015	0.013	0.011	0.008	0.004	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.008	0.024	0.044	0.068	0.093	0.117	0.138	0.155	0.165	0.169	0.165	0.155	0.138	0.117	0.093	0.068	0.044	0.024	0.008	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0	0.000	0.000	0.001	0.002	0.004	0.006	0.007	0.009	0.011	0.012	0.013	0.013	0.013	0.013	0.011	0.010	0.008	0.005	0.003	0
TOTAL DEAD LOAD DEFLECTION	0	0.004	0.018	0.037	0.062	0.090	0.118	0.143	0.166	0.181	0.189	0.189	0.182	0.166	0.145	0.119	0.091	0.063	0.037	0.015	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
REQUIRED CAMBER	0	1/16"	3/16"	7/16"	3/4"	1 1/16"	1 1/16"	1 1 1/16"	2"	2 3/16"	2 1/4"	2 1/4"	2 3/16"	2"	1 3/4"	1 7/16"	1 1/16"	3/4"	7/16"	3/16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
 ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).



SCHEMATIC CAMBER ORDINATES
 SLOPE FOR ZERO CAMBER BASE LINE VARIES

PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 DEAD LOAD DEFLECTIONS
 SPAN B

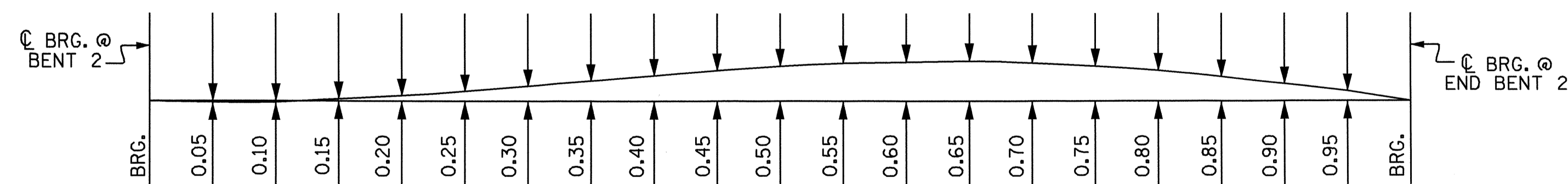


REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	

DRAWN BY : A.S. CALLAWAY DATE : 11/16/07
 CHECKED BY : P.C. BREWER DATE : 11/19/07

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
SPAN C - GIRDER #1																					
TWENTIETH POINTS	BRG.	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	-0.004	-0.006	-0.008	-0.008	-0.008	-0.005	-0.002	0.002	0.005	0.008	0.011	0.014	0.015	0.015	0.015	0.013	0.011	0.008	0.004	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.000	0.003	0.011	0.021	0.036	0.052	0.068	0.085	0.100	0.112	0.120	0.125	0.124	0.119	0.108	0.093	0.074	0.052	0.027	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0	0.000	0.000	0.001	0.002	0.004	0.006	0.007	0.009	0.011	0.012	0.013	0.013	0.013	0.013	0.011	0.010	0.008	0.005	0.003	0
TOTAL DEAD LOAD DEFLECTION	0	-0.004	-0.003	0.004	0.015	0.032	0.053	0.073	0.096	0.116	0.132	0.144	0.152	0.152	0.147	0.134	0.116	0.093	0.065	0.034	0
VERTICAL CURVE ORDINATE	0	-0.002	-0.005	-0.007	-0.010	-0.012	-0.015	-0.017	-0.019	-0.022	-0.024	-0.027	-0.029	-0.031	-0.034	-0.035	-0.033	-0.028	-0.022	-0.012	0
REQUIRED CAMBER	0	-1/16"	-1/8"	-1/16"	1/16"	1/4"	7/16"	11/16"	15/16"	1 1/8"	1 1/4"	1 1/2"	1 3/4"	1 7/8"	1 7/8"	1 3/4"	1 1/2"	1 1/4"	1 1/4"	1 1/4"	0
SPAN C - GIRDER #2																					
TWENTIETH POINTS	BRG.	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	-0.004	-0.007	-0.008	-0.008	-0.007	-0.005	-0.002	0.002	0.005	0.009	0.012	0.014	0.015	0.016	0.015	0.014	0.011	0.008	0.004	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.000	0.003	0.011	0.021	0.035	0.051	0.068	0.085	0.099	0.111	0.020	0.124	0.123	0.118	0.108	0.093	0.074	0.051	0.026	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0	0.000	0.000	0.001	0.002	0.004	0.005	0.007	0.009	0.010	0.012	0.012	0.013	0.013	0.012	0.011	0.010	0.008	0.005	0.003	0
TOTAL DEAD LOAD DEFLECTION	0	-0.004	-0.004	0.004	0.015	0.032	0.051	0.073	0.096	0.114	0.132	0.144	0.151	0.151	0.146	0.134	0.117	0.093	0.064	0.033	0
VERTICAL CURVE ORDINATE	0	-0.002	-0.005	-0.007	-0.010	-0.012	-0.015	-0.017	-0.019	-0.022	-0.024	-0.027	-0.029	-0.031	-0.034	-0.035	-0.033	-0.028	-0.022	-0.012	0
REQUIRED CAMBER	0	-1/16"	-1/8"	-1/16"	1/16"	1/4"	7/16"	11/16"	15/16"	1 1/8"	1 1/4"	1 1/2"	1 3/4"	1 7/8"	1 7/8"	1 3/4"	1 1/2"	1 1/4"	1 1/4"	1 1/4"	0
SPAN C - GIRDER #3																					
TWENTIETH POINTS	BRG.	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	-0.004	-0.007	-0.008	-0.008	-0.007	-0.005	-0.002	0.002	0.005	0.009	0.012	0.014	0.015	0.016	0.015	0.014	0.011	0.008	0.004	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.000	0.003	0.011	0.021	0.035	0.051	0.068	0.084	0.099	0.111	0.119	0.123	0.123	0.117	0.107	0.092	0.073	0.051	0.026	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0	0.000	0.000	0.001	0.002	0.004	0.005	0.007	0.009	0.010	0.012	0.012	0.013	0.012	0.012	0.011	0.010	0.008	0.005	0.003	0
TOTAL DEAD LOAD DEFLECTION	0	-0.004	-0.004	0.004	0.015	0.032	0.051	0.073	0.095	0.114	0.132	0.143	0.150	0.150	0.145	0.133	0.116	0.092	0.064	0.033	0
VERTICAL CURVE ORDINATE	0	-0.002	-0.005	-0.007	-0.010	-0.012	-0.015	-0.017	-0.019	-0.022	-0.024	-0.027	-0.029	-0.031	-0.034	-0.035	-0.033	-0.028	-0.022	-0.012	0
REQUIRED CAMBER	0	-1/16"	-1/8"	-1/16"	1/16"	1/4"	7/16"	11/16"	15/16"	1 1/8"	1 1/4"	1 1/2"	1 3/4"	1 7/8"	1 7/8"	1 3/4"	1 1/2"	1 1/4"	1 1/4"	1 1/4"	0
SPAN C - GIRDER #4																					
TWENTIETH POINTS	BRG.	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	-0.004	-0.006	-0.008	-0.008	-0.007	-0.005	-0.002	0.002	0.005	0.008	0.011	0.014	0.015	0.015	0.015	0.013	0.011	0.008	0.004	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.000	0.003	0.011	0.021	0.035	0.051	0.067	0.084	0.098	0.110	0.118	0.122	0.122	0.117	0.106	0.092	0.073	0.051	0.026	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0	0.000	0.000	0.001	0.002	0.004	0.006	0.007	0.009	0.011	0.012	0.013	0.013	0.013	0.013	0.011	0.010	0.008	0.005	0.003	0
TOTAL DEAD LOAD DEFLECTION	0	-0.004	-0.003	0.004	0.015	0.032	0.052	0.072	0.095	0.114	0.130	0.142	0.149	0.150	0.145	0.132	0.115	0.092	0.064	0.033	0
VERTICAL CURVE ORDINATE	0	-0.002	-0.005	-0.007	-0.010	-0.012	-0.015	-0.017	-0.019	-0.022	-0.024	-0.027	-0.029	-0.031	-0.034	-0.035	-0.033	-0.028	-0.022	-0.012	0
REQUIRED CAMBER	0	-1/16"	-1/8"	-1/16"	1/16"	1/4"	7/16"	11/16"	15/16"	1 1/8"	1 1/4"	1 1/2"	1 3/4"	1 7/8"	1 7/8"	1 3/4"	1 1/2"	1 1/4"	1 1/4"	1 1/4"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
 ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).



SCHMATIC CAMBER ORDINATES
 SLOPE FOR ZERO CAMBER BASE LINE VARIES

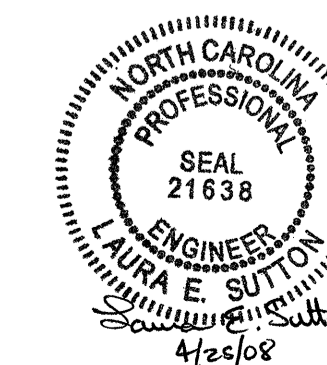
PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

SHEET 3 OF 3

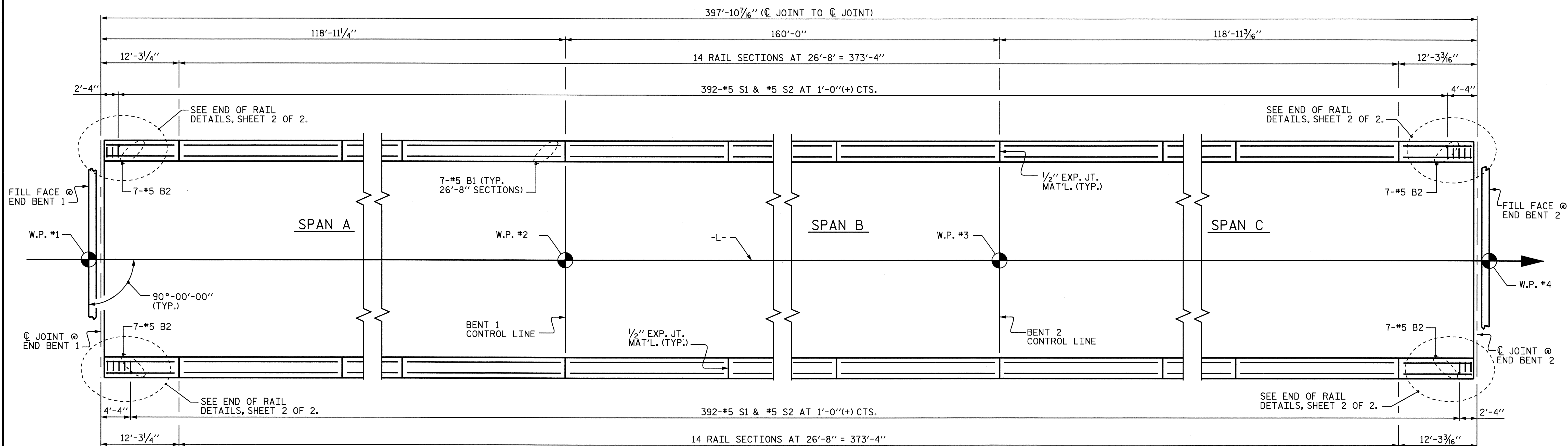
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
DEAD LOAD DEFLECTIONS
SPAN C

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



DRAWN BY: A.S. CALLAWAY DATE: 11/16/07
 CHECKED BY: P.C. BREWER DATE: 11/19/07



PLAN

PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 CONCRETE
 BARRIER RAIL



DRAWN BY: A.S. CALLAWAY DATE: 7/7/06
 CHECKED BY: P.C. BREWER DATE: 7/12/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			36

(SEE SHEET 1 OF 2 FOR PLAN)

NOTES

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

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

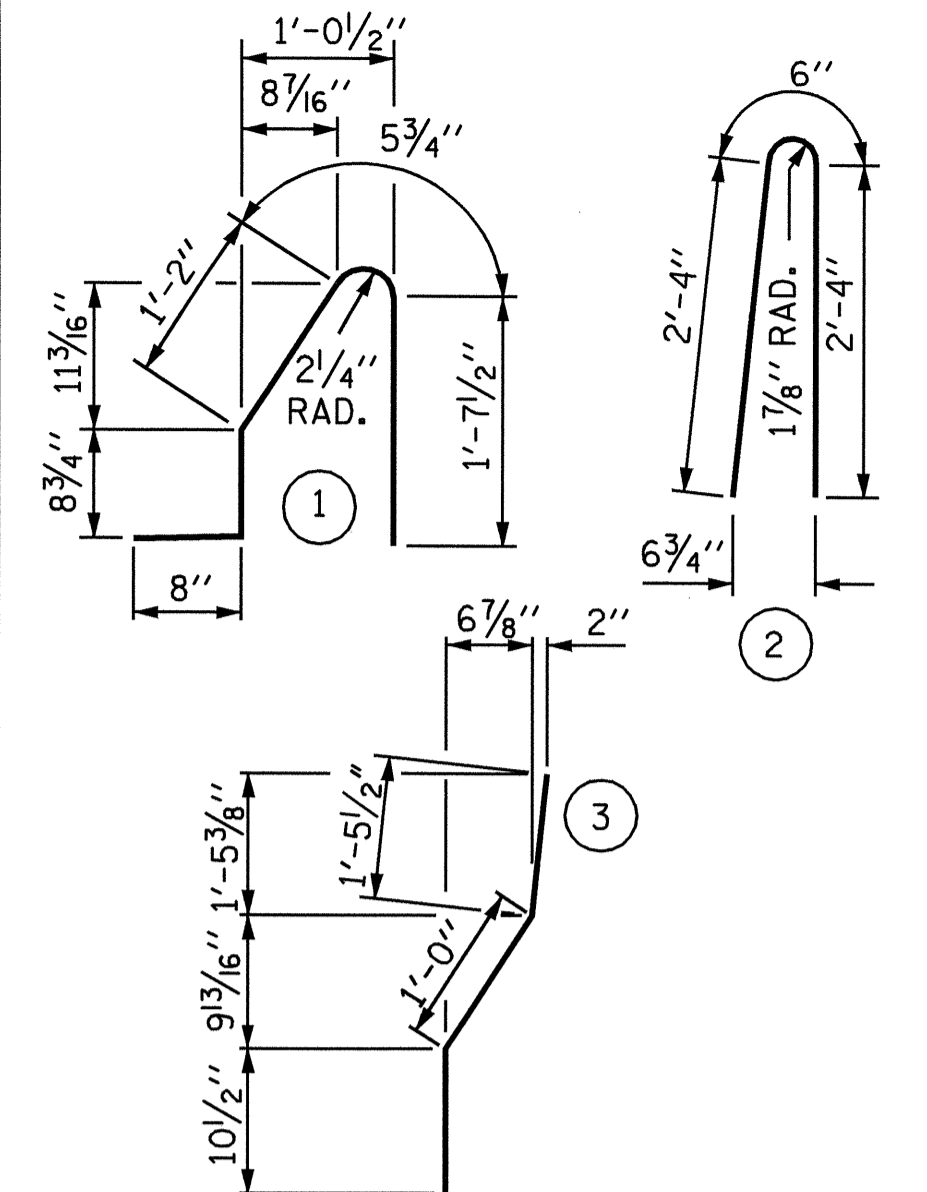
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

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

THE #5 S1 AND #5 S2 BAR MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE 1/2" EXPANSION JOINT MATERIAL IN THE BARRIER RAIL.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

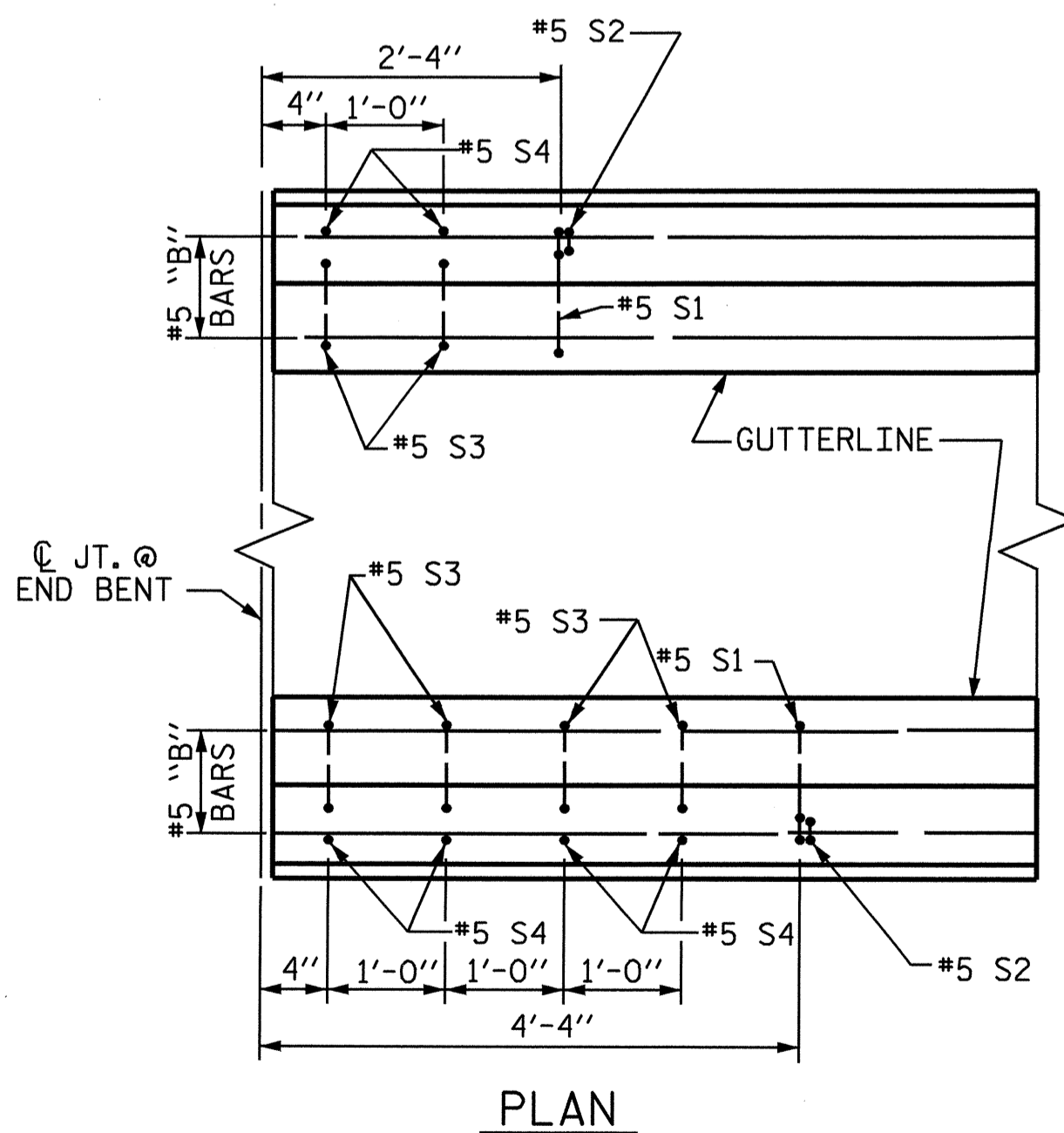
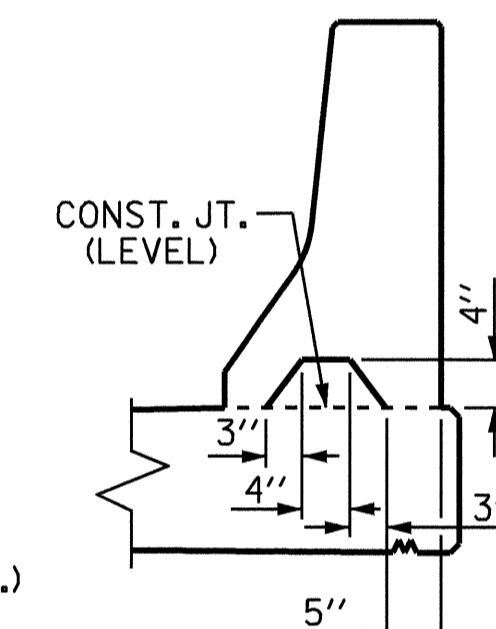
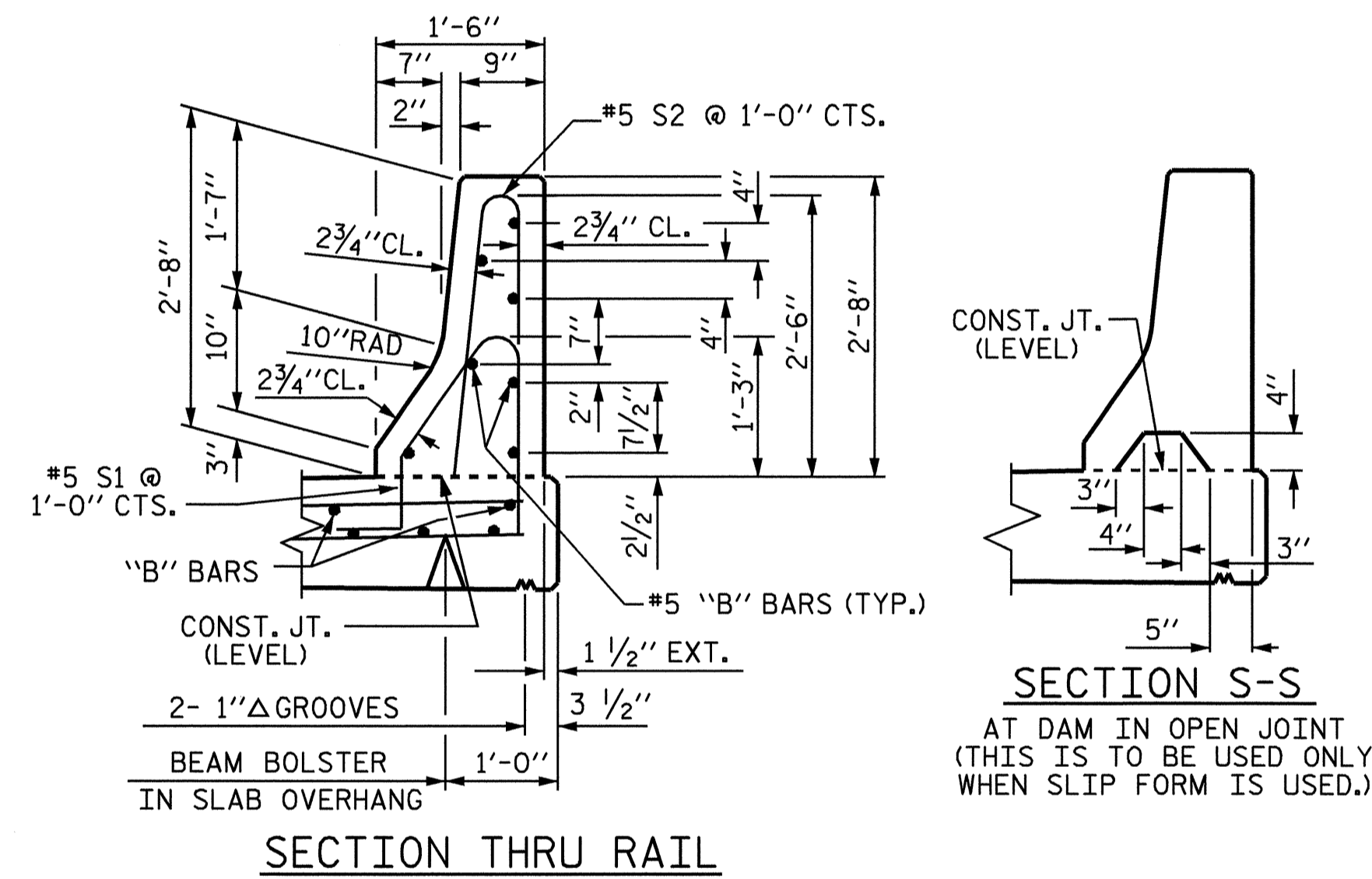
FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	196	#5	STR	26'-3"	5366
* B2	28	#5	STR	11'-10"	346
* S1	784	#5	1	4'-8"	3816
* S2	784	#5	2	5'-2"	4225
* S3	12	#5	3	3'-4"	42
* S4	12	#5	STR	3'-2"	40

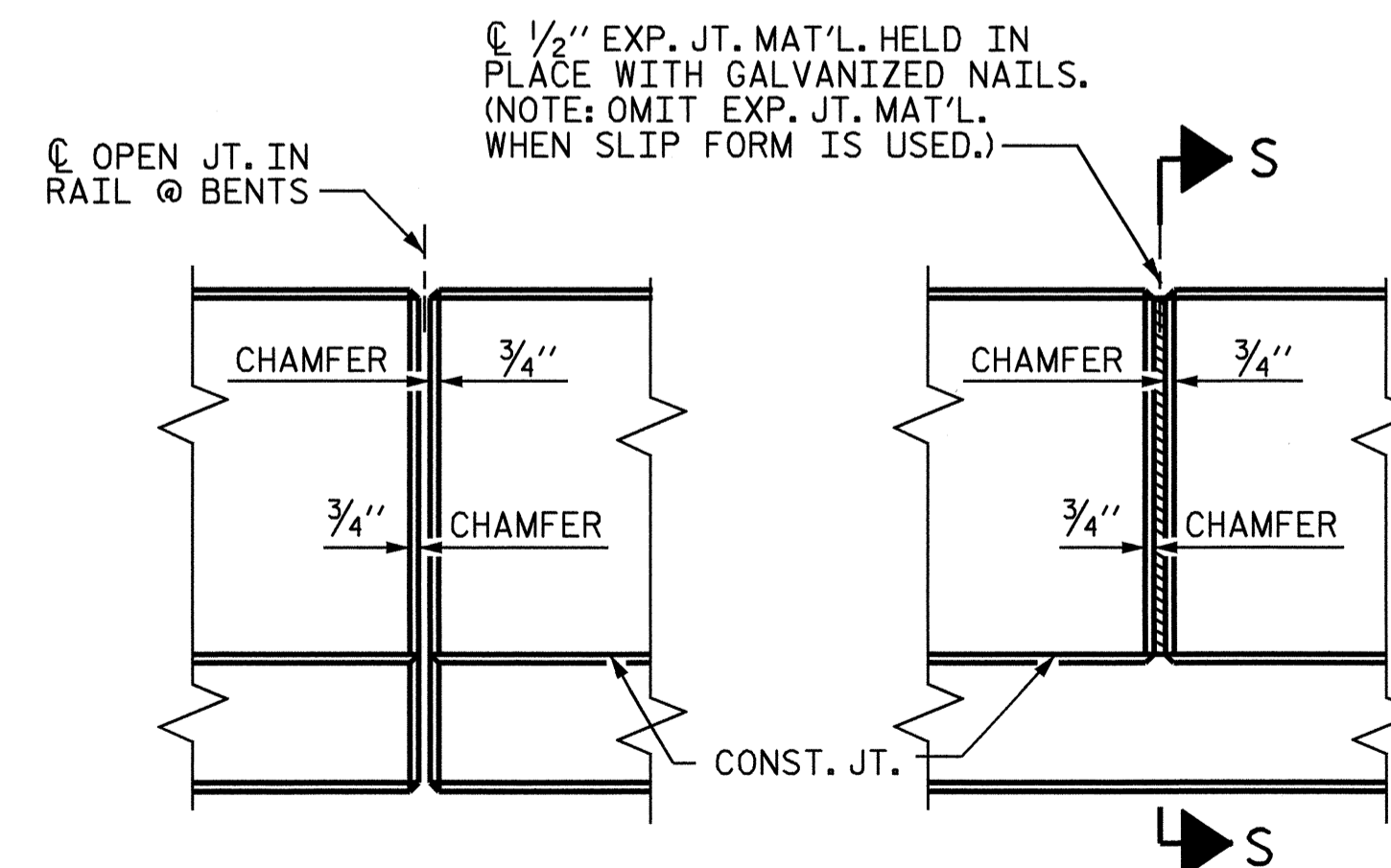
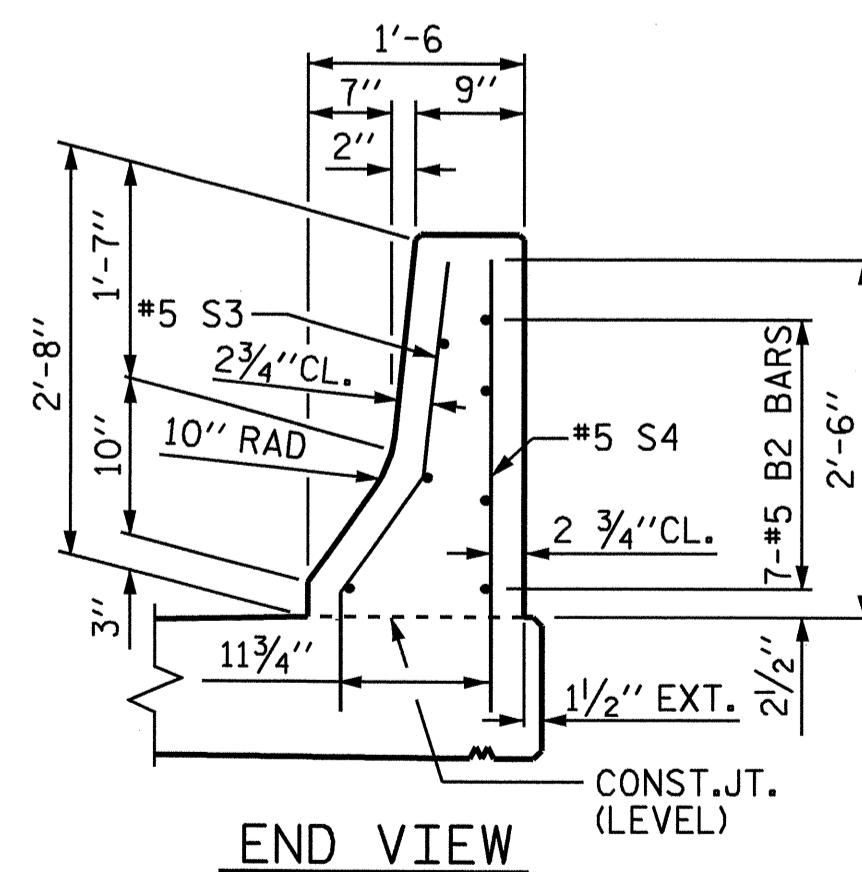
* EPOXY COATED REINFORCING STEEL LBS. 13,835

CLASS AA CONCRETE CU. YDS. 79.8

CONCRETE BARRIER RAIL LIN. FT. 795.74



END OF RAIL DETAILS
FOR ADHESIVE ANCHORING AT SAWED JOINTS



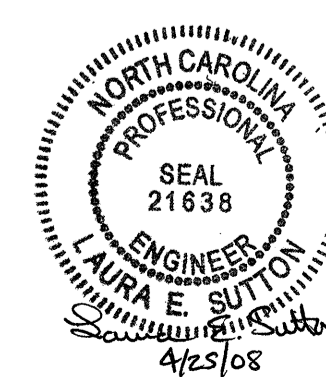
BARRIER RAIL DETAILS

PROJECT NO. B-4281
STOKES COUNTY
STATION: 19+60.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
CONCRETE
BARRIER RAIL



ASSEMBLED BY : A.S. CALLAWAY	DATE : 7/7/06
CHECKED BY : P.C. BREWER	DATE : 7/12/06
DRAWN BY : ARB 5/87	REV. 10/17/00 RWW/LES
CHECKED BY : SJD 9/87	REV. 5/7/03R RWW/JTE
	REV. 5/1/06 TLA/GM

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

NOTES

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

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

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

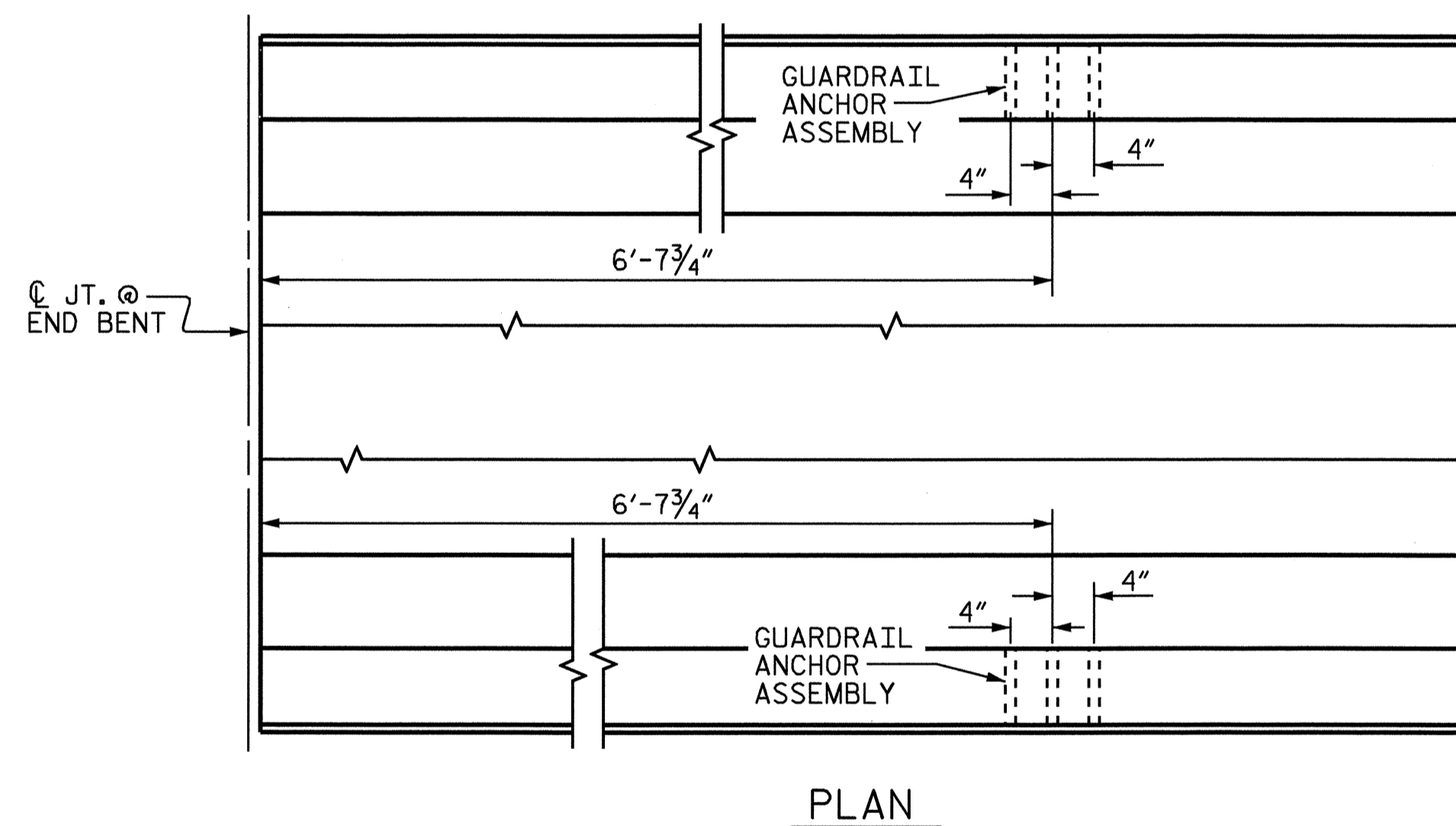
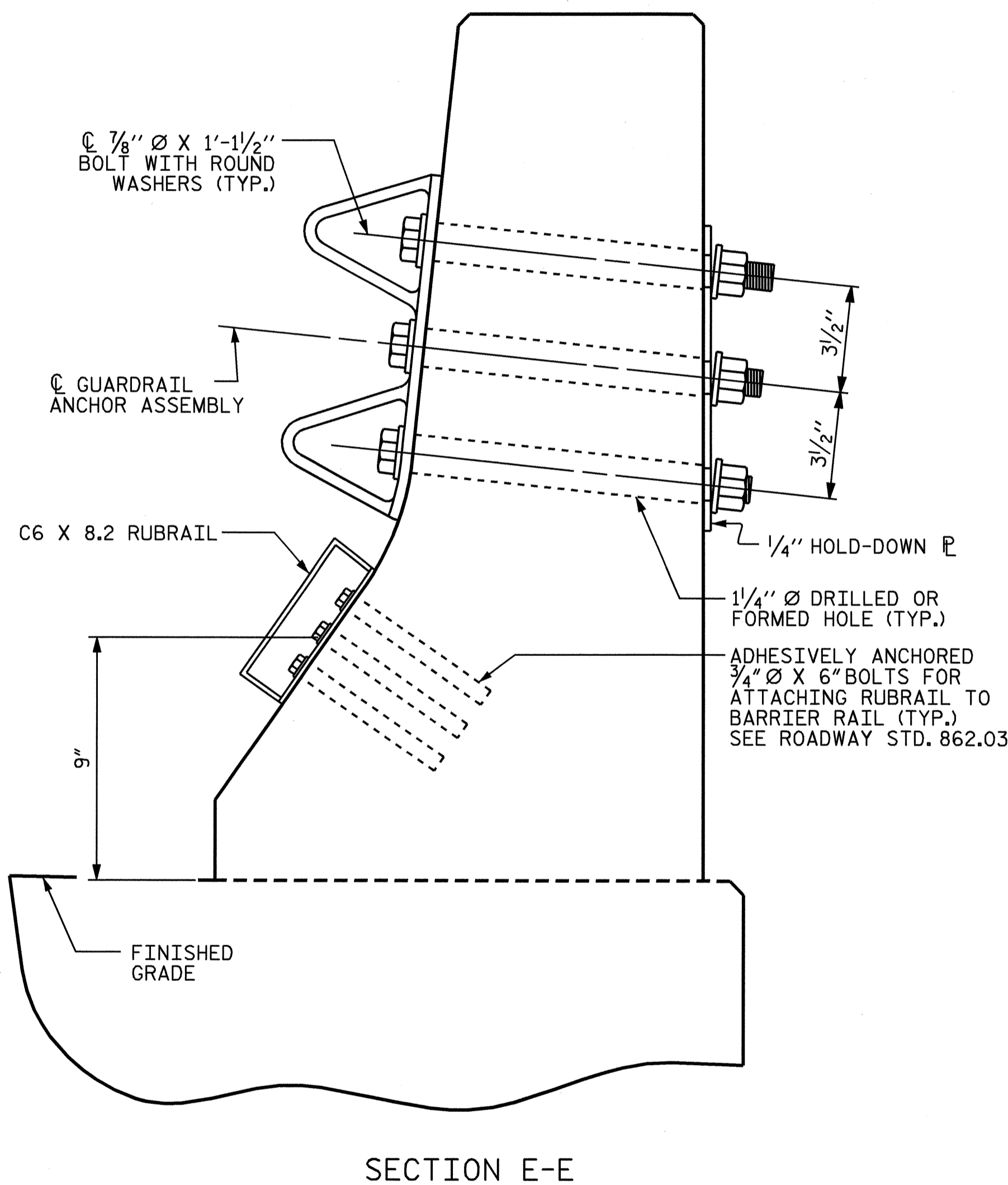
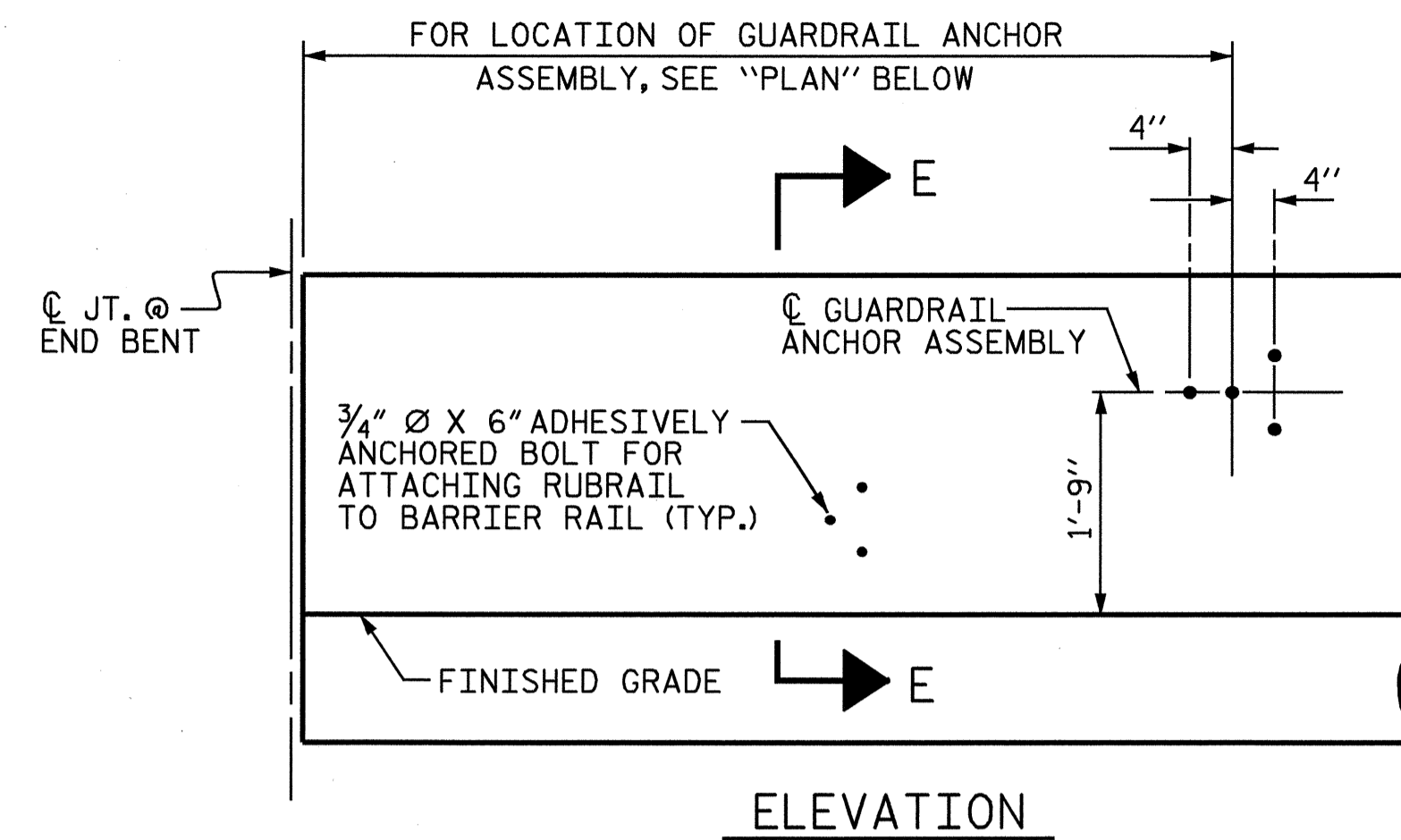
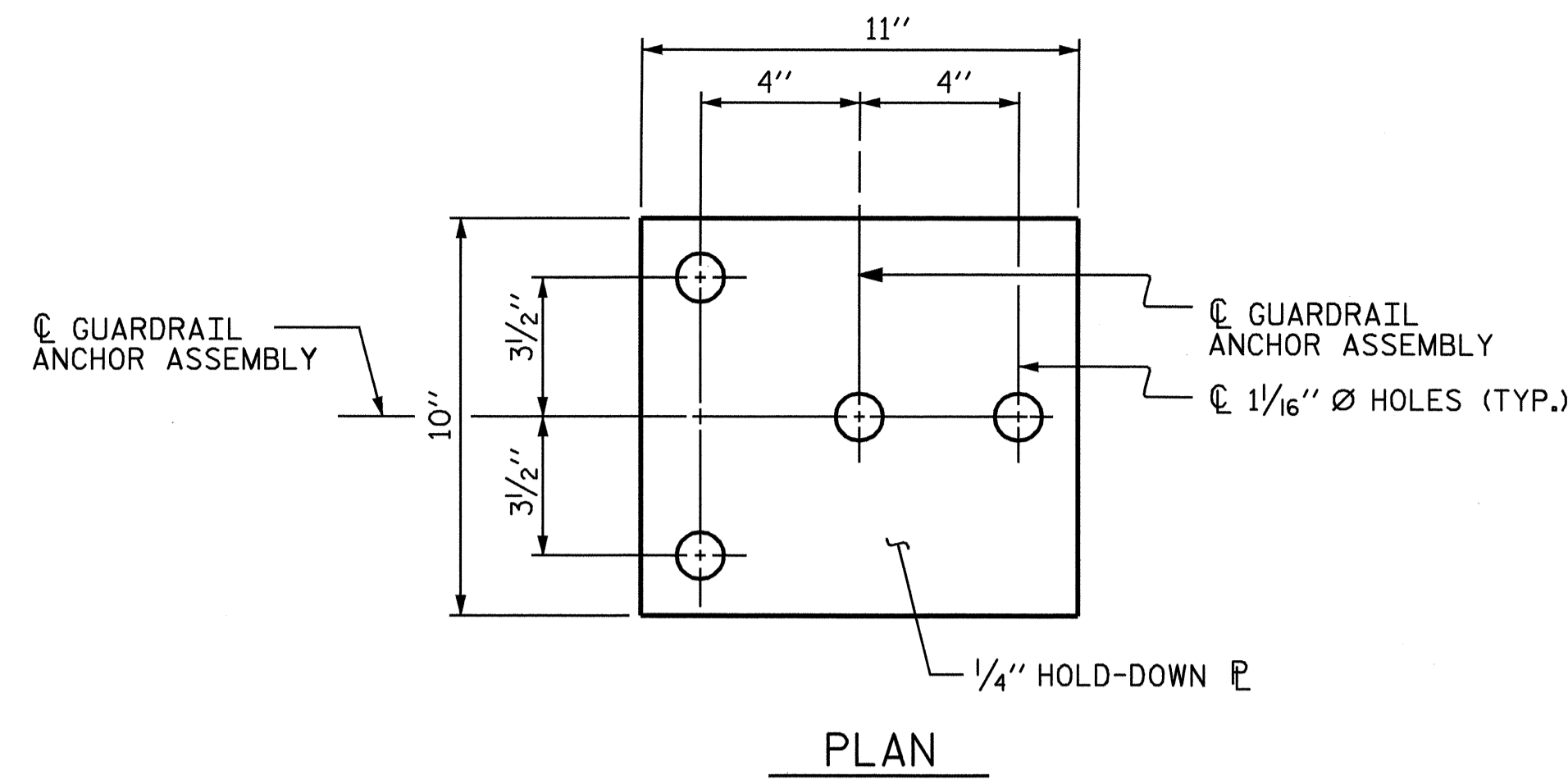
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

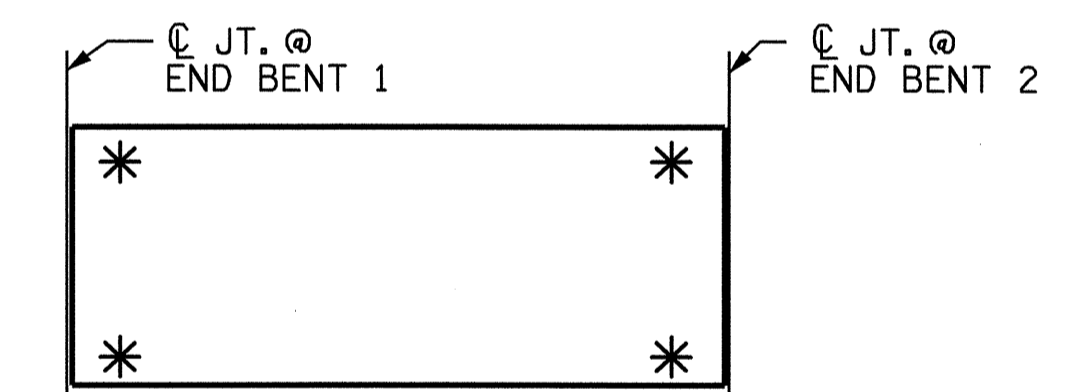
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

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



LOCATION OF ANCHORS FOR GUARDRAIL

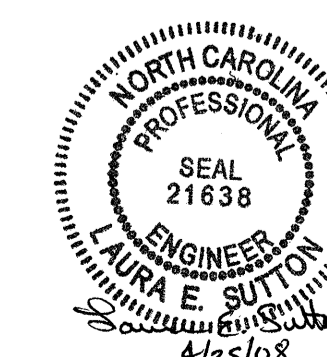
END BENT 1 SHOWN, END BENT 2 SIMILAR.



* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4281
 STOKES COUNTY
 STATION: 19+60.00 -L-

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



ASSEMBLED BY : A.S. CALLAWAY DATE : 7/7/06
 CHECKED BY : P.C. BREWER DATE : 7/12/06
 DRAWN BY : TLA 5/06
 CHECKED BY : GM 5/06

ADDED 5/1/06R KMM/GM

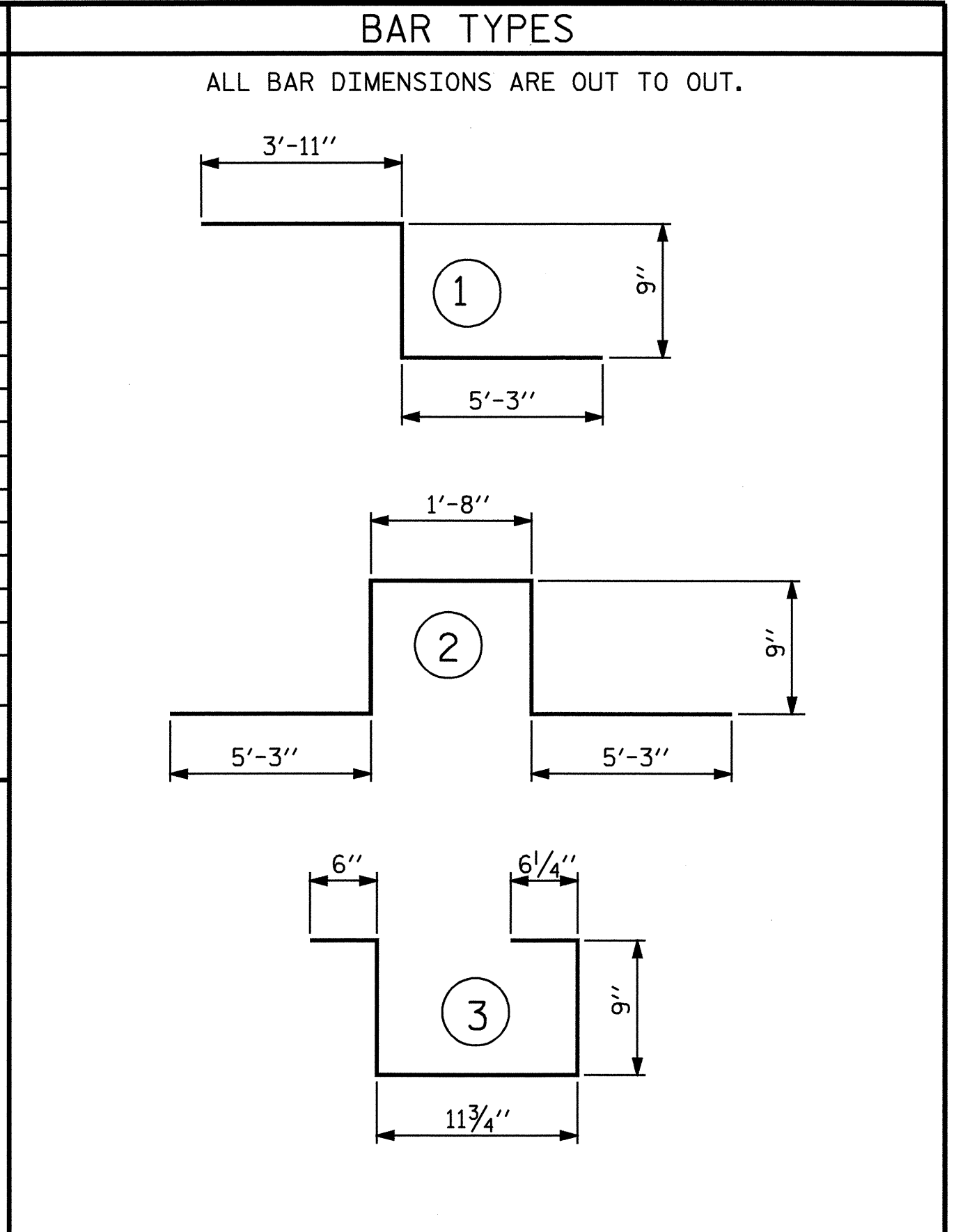
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			36
2			4			

BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	734	#5	STR	34'-11"	26731
A2	734	#5	STR	34'-11"	26731
*B1	144	#4	STR	23'-8"	2277
*B2	282	#5	STR	37'-2"	10932
*B3	276	#5	STR	33'-10"	9740
*B4	72	#4	STR	20'-11"	1006
B5	287	#5	STR	58'-8"	17561
*G1	2	#5	STR	34'-11"	73
*K1	8	#5	1	9'-11"	83
*K2	8	#5	2	13'-8"	114
*S1	54	#4	3	3'-6"	126
REINFORCING STEEL				LBS.	44,292
*EPOXY COATED REINFORCING STEEL				LBS.	51,082

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

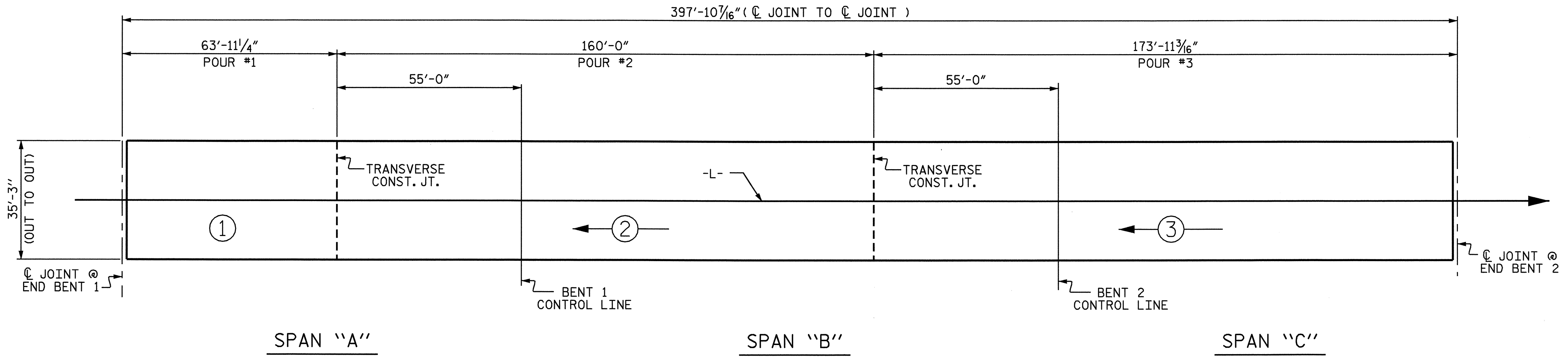
BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			

GROOVING BRIDGE FLOORS		
APPROACH SLABS	795	SQ.FT.
BRIDGE DECK	11,498	SQ.FT.
TOTAL	12,293	SQ.FT.



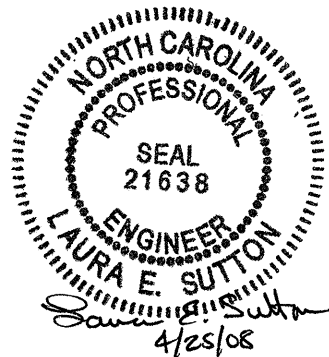
SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU.YDS.)	(LBS.)	(LBS.)
POUR #1	75.0		
POUR #2	186.7		
POUR #3	204.9		
TOTALS**	466.6	44,292	51,082

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED.



POURING SEQUENCE & LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 14,025)

PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

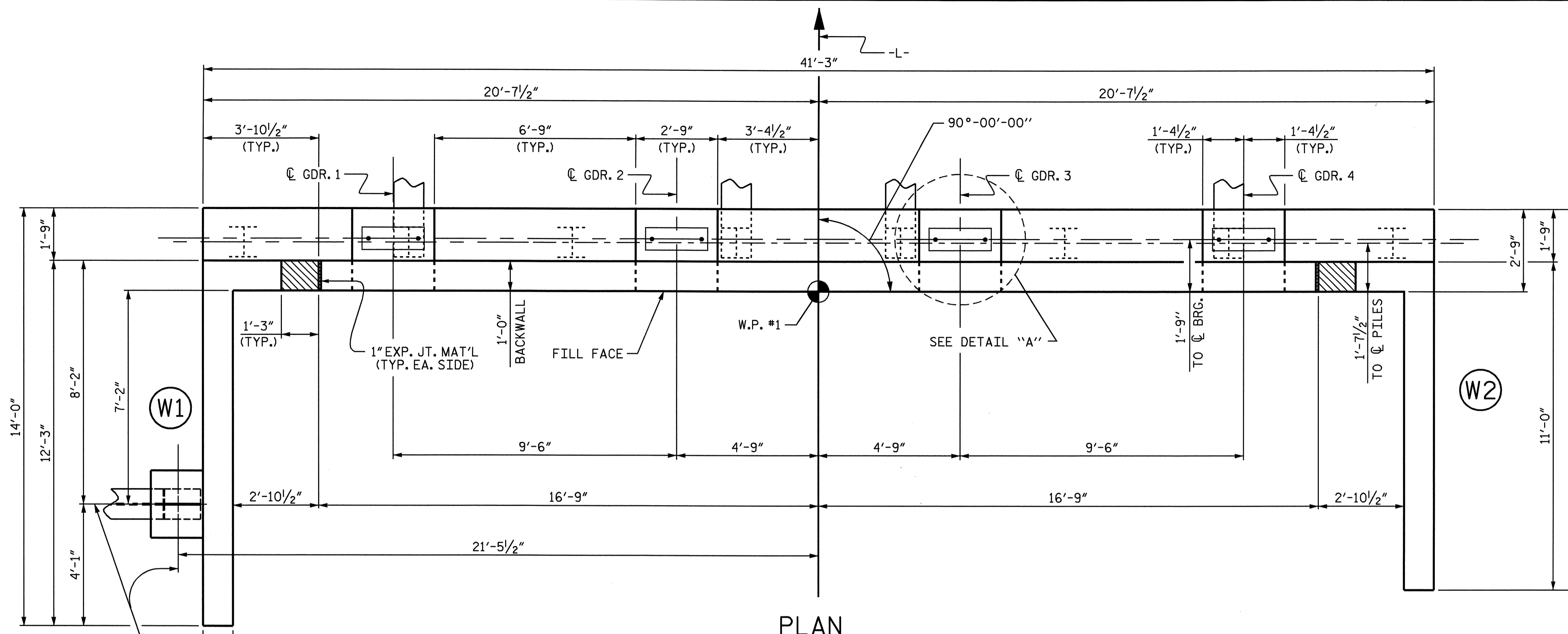


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 SUPERSTRUCTURE
 BILL OF MATERIAL

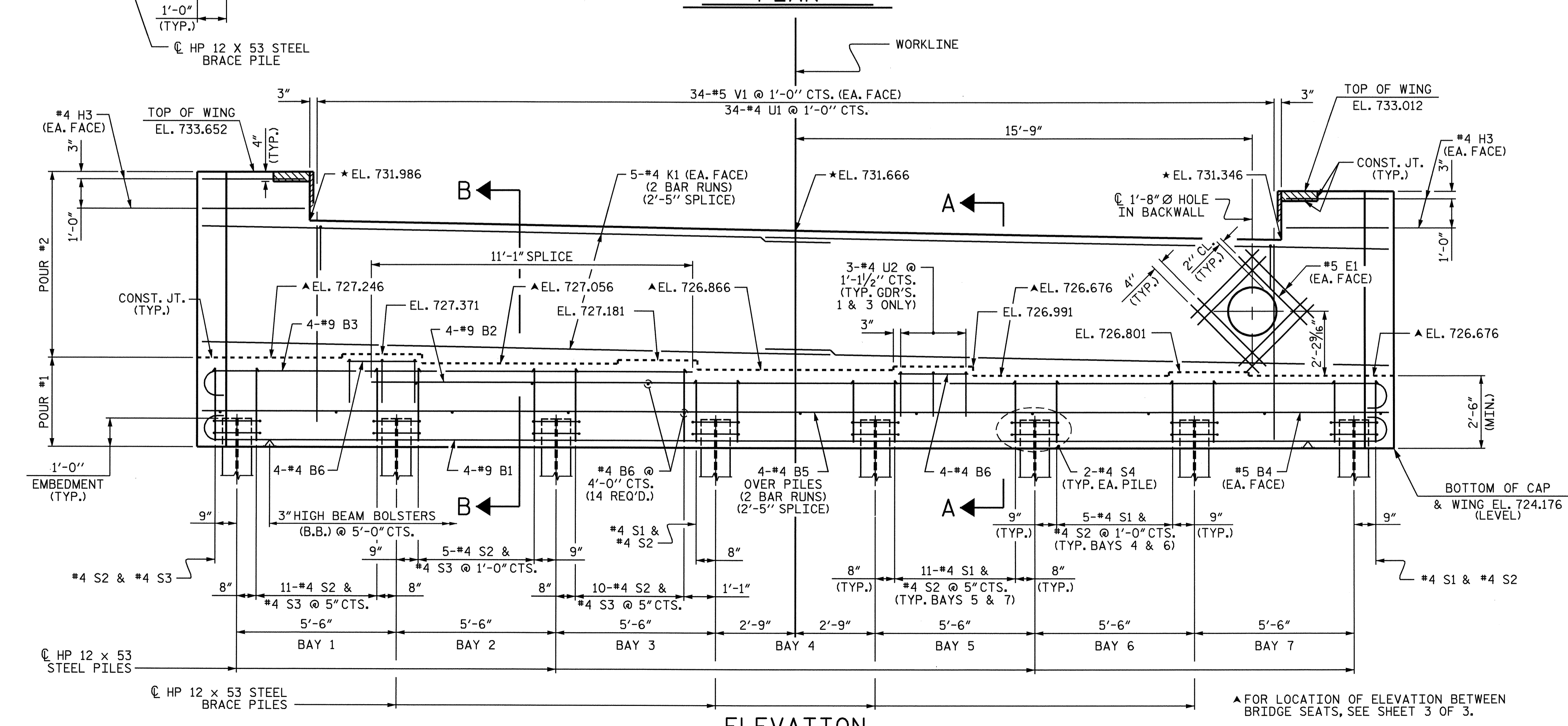
ASSEMBLED BY : A.S. CALLAWAY	DATE : 7/11/06
CHECKED BY : P.C. BREWER	DATE : 7/12/06
DRAWN BY : JMB 5/87	REV. 6/1/94 EEM/GRP
CHECKED BY : SJD 9/87	REV. 8/16/99 RWW/LES
	REV. 5/1/06 TLA/GM

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

S-23
TOTAL SHEETS
36



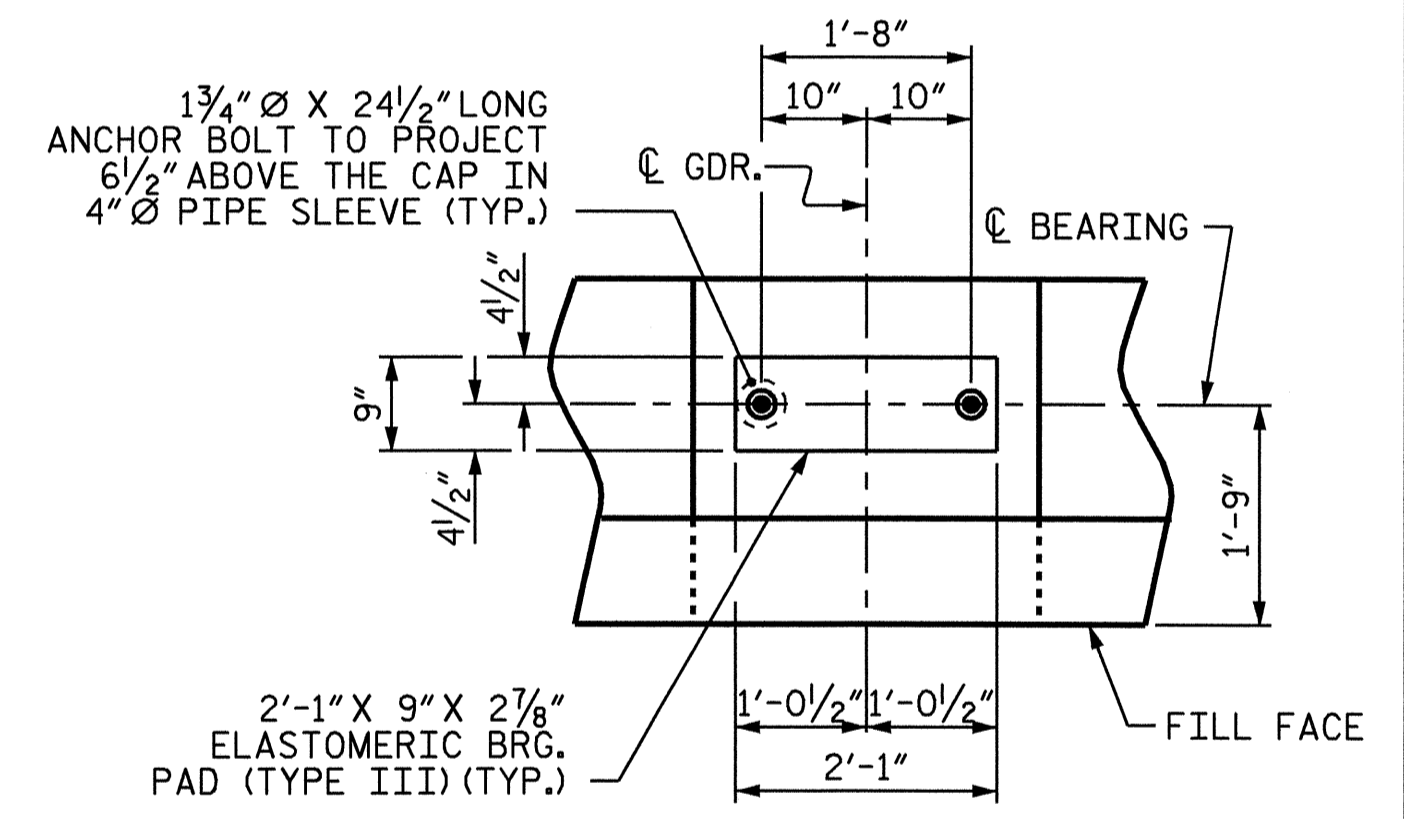
PLAN



ELEVATION

(FOR CLARITY, BRACE PILE CAP AT WING NOT SHOWN)

- 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 CAP 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%.
 - THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE PARAPET AND END POST ARE 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.
 - CENTER UTILITY IN BLOCKOUT AND FILL ANNULAR SPACE AROUND UTILITY PIPE WITH JOINT FILLER IN ACCORDANCE WITH STANDARD SPECIFICATION ARTICLE 1028-1.
 - EPOXY COAT THE END BENT CAP AFTER ADJUSTMENTS ARE MADE TO BEARINGS AND ANCHOR BOLTS ARE GROUTED.
 - THE #5 V1 BARS IN THE BACKWALL SHALL BE PLACED 2" CLEAR FROM THE TOP OF THE BACKWALL.



DETAIL "A"

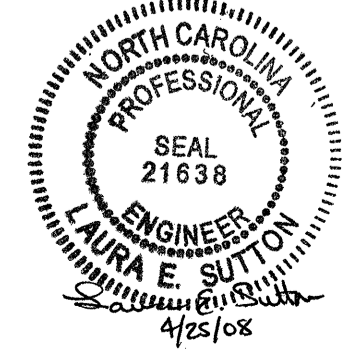
(TYP. EA. GIRDER)
GROUT CANS ARE REQUIRED, SEE BEARING SHEETS.

PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

SHEET 1 OF 3

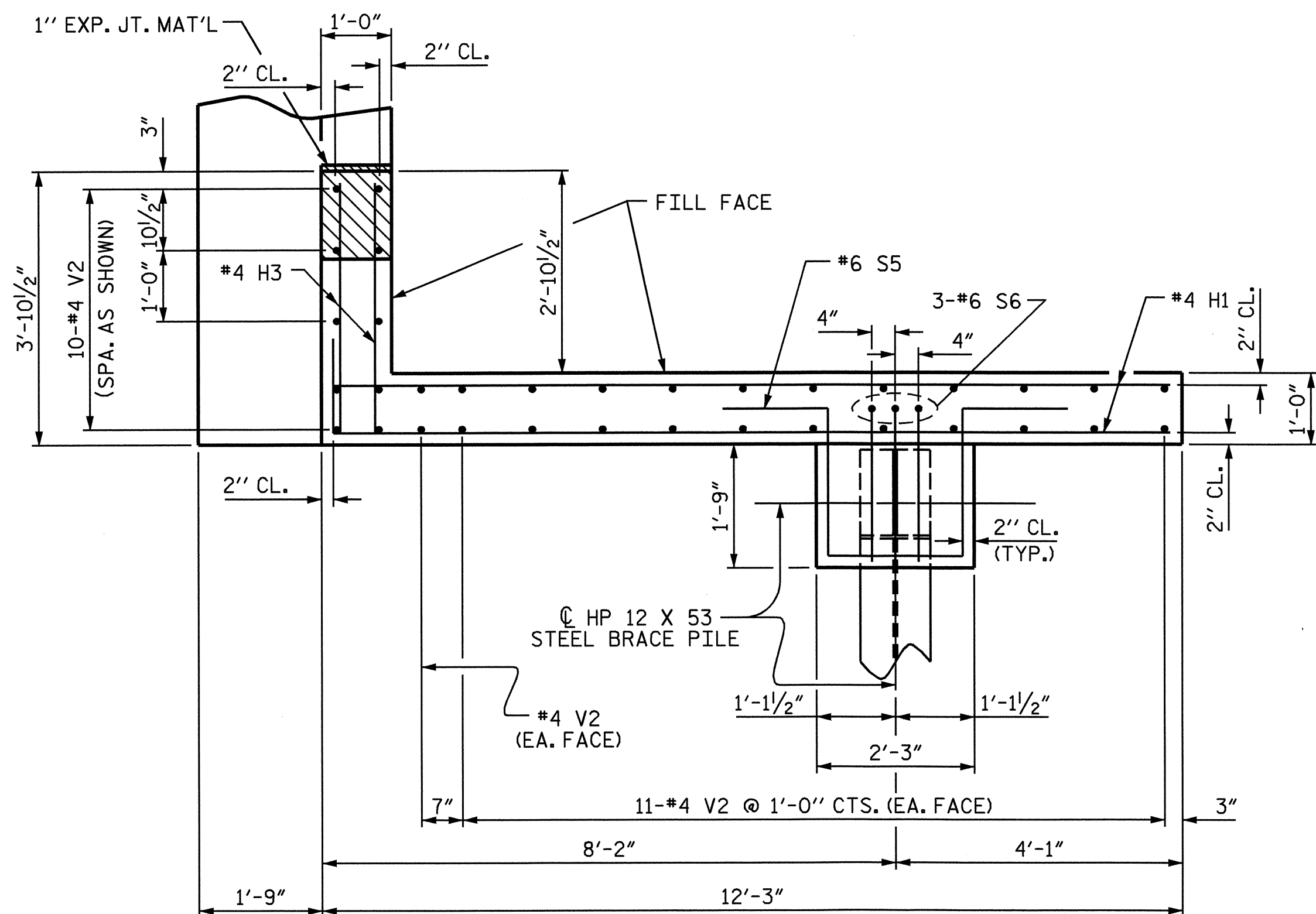
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1

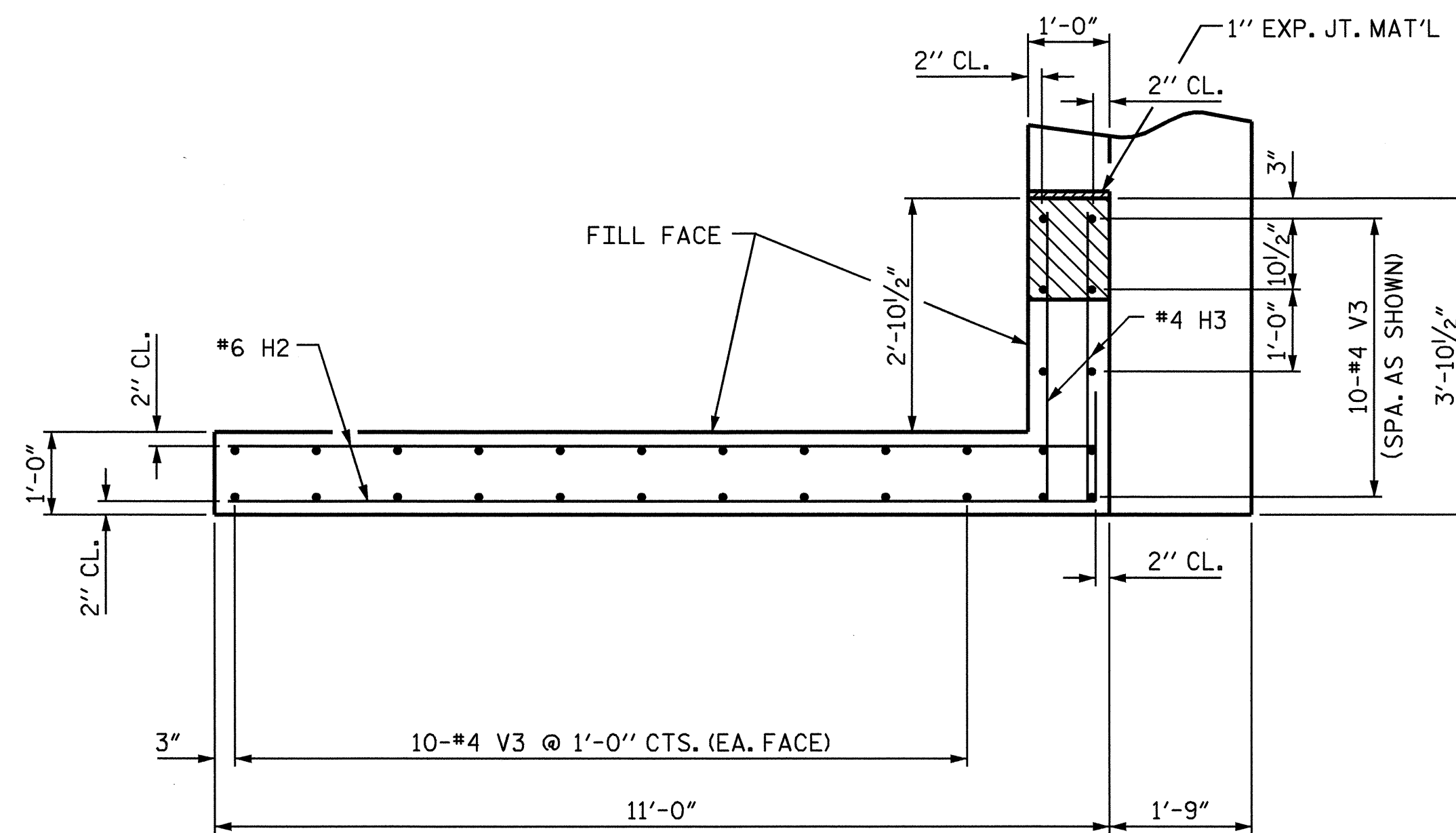


REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	

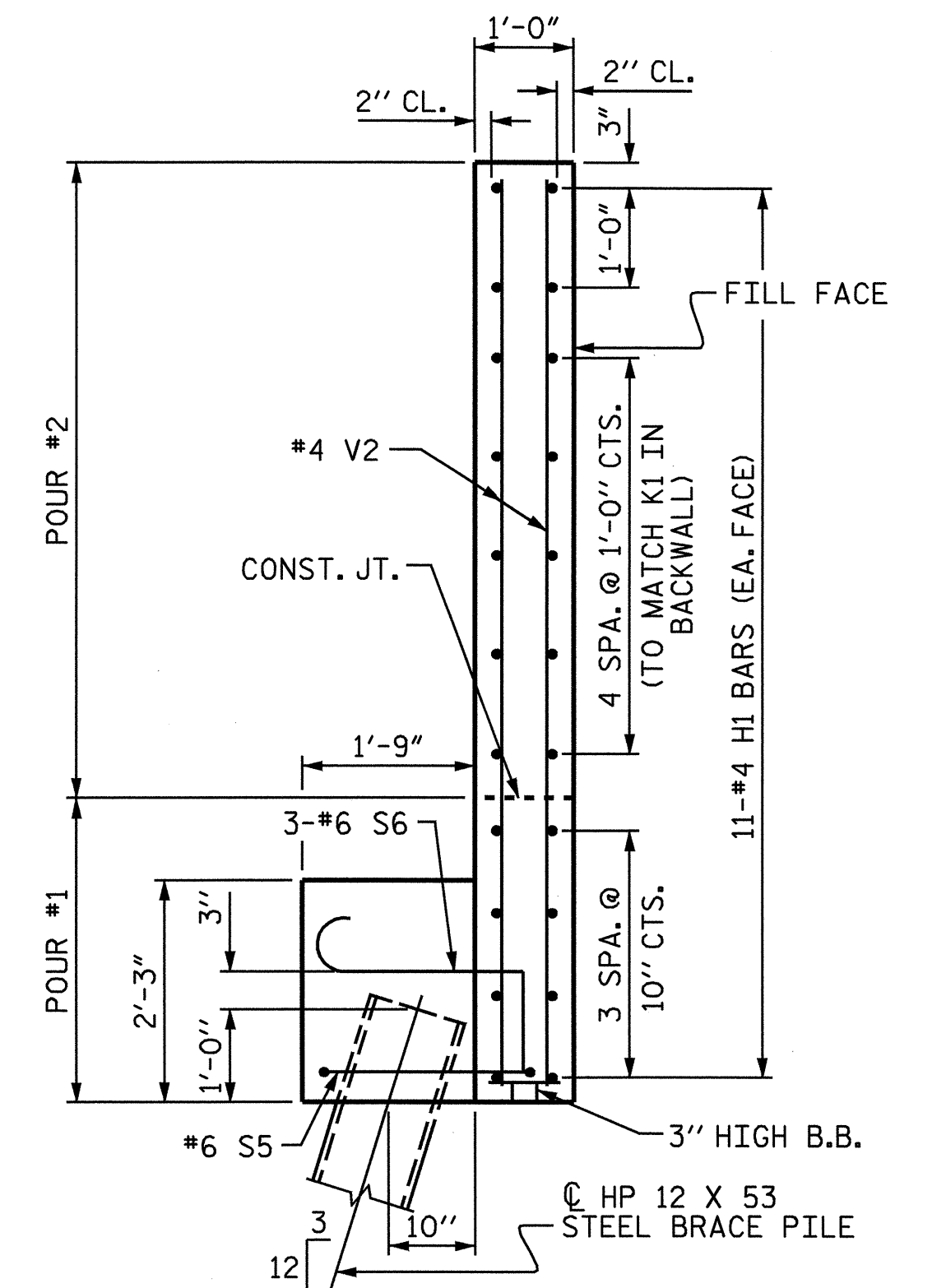
DRAWN BY: B. L. GREEN DATE: 12/1/06
 CHECKED BY: A. S. CALLAWAY DATE: 12/19/06



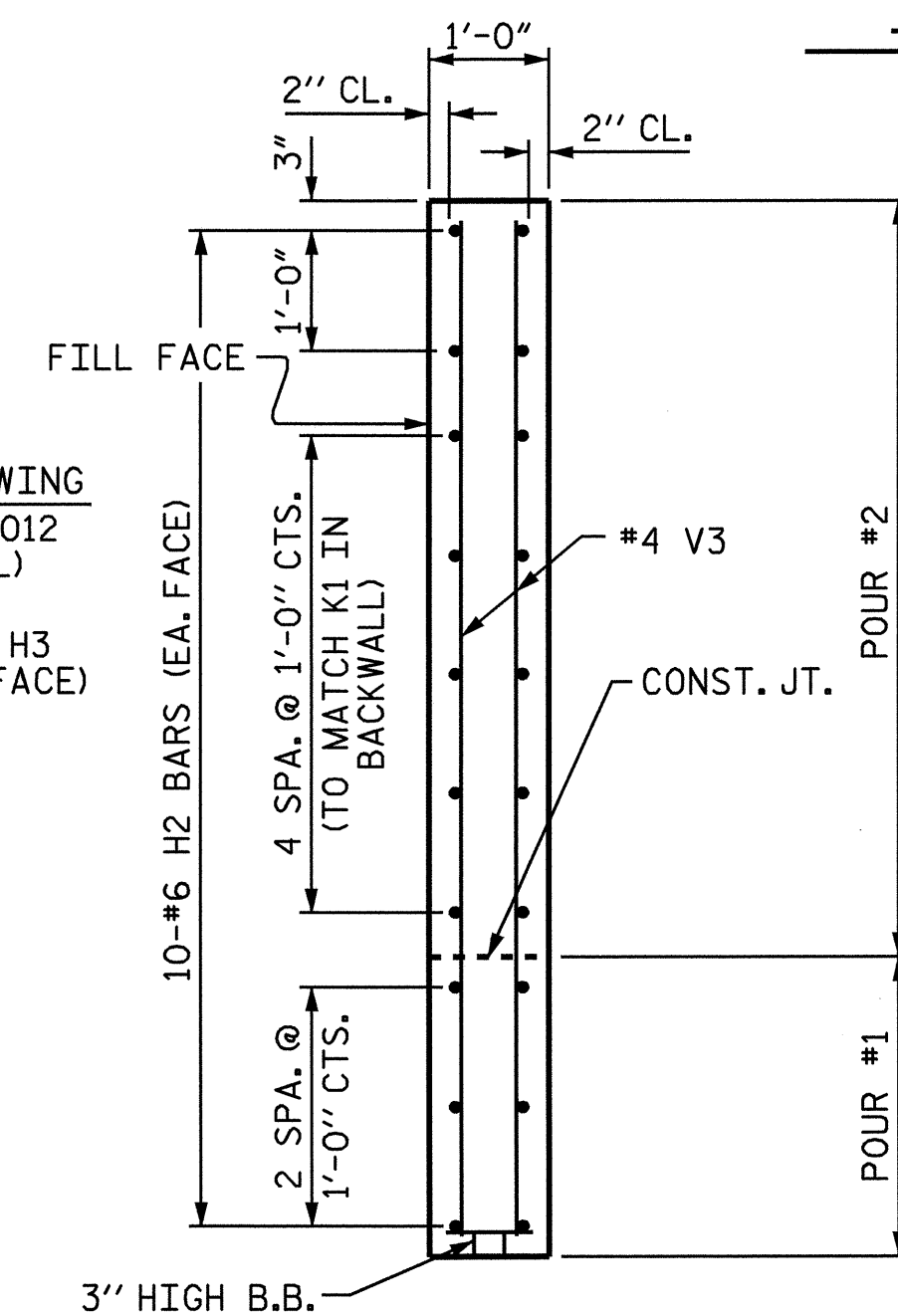
PLAN OF WING (W1)



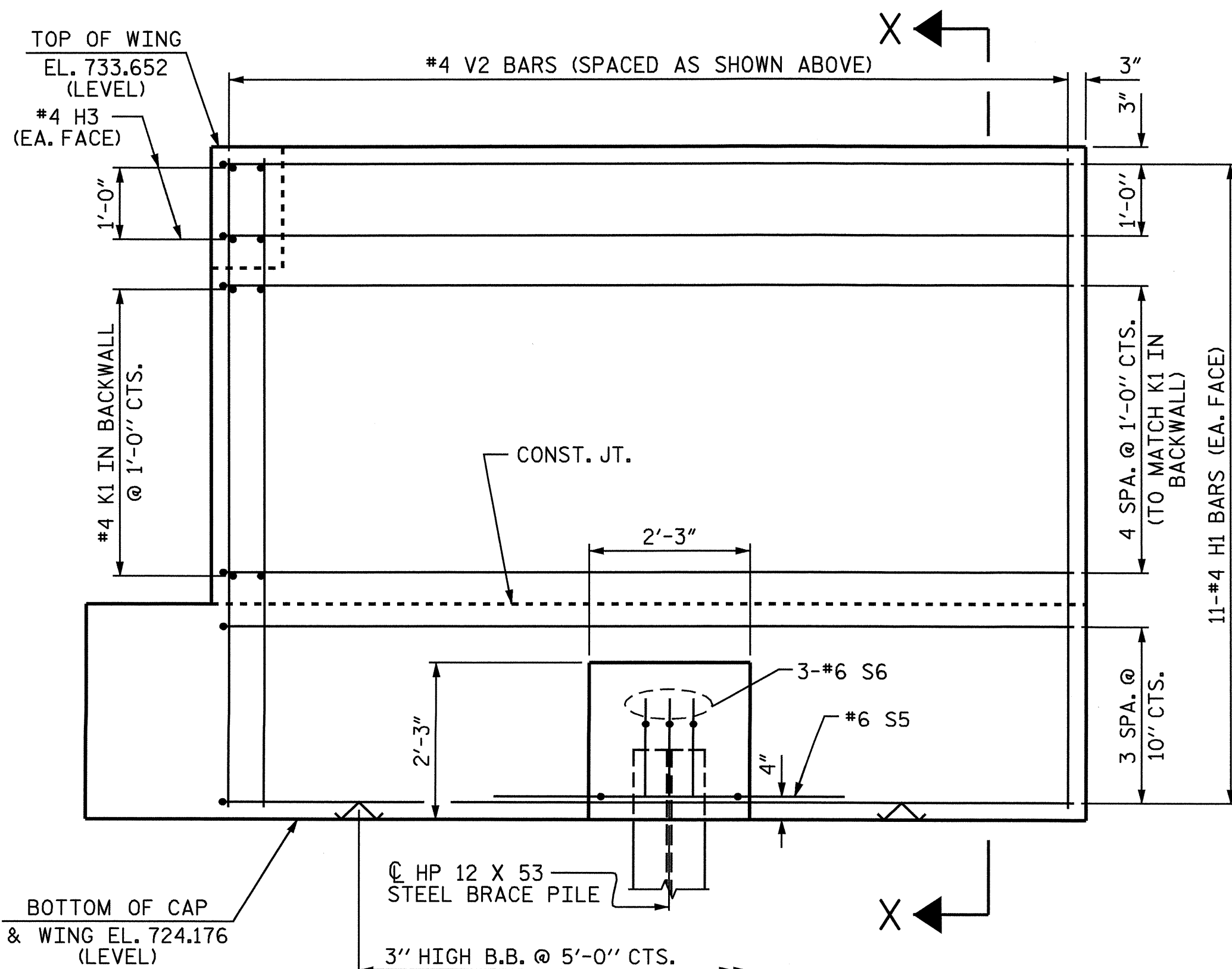
PLAN OF WING (W2)



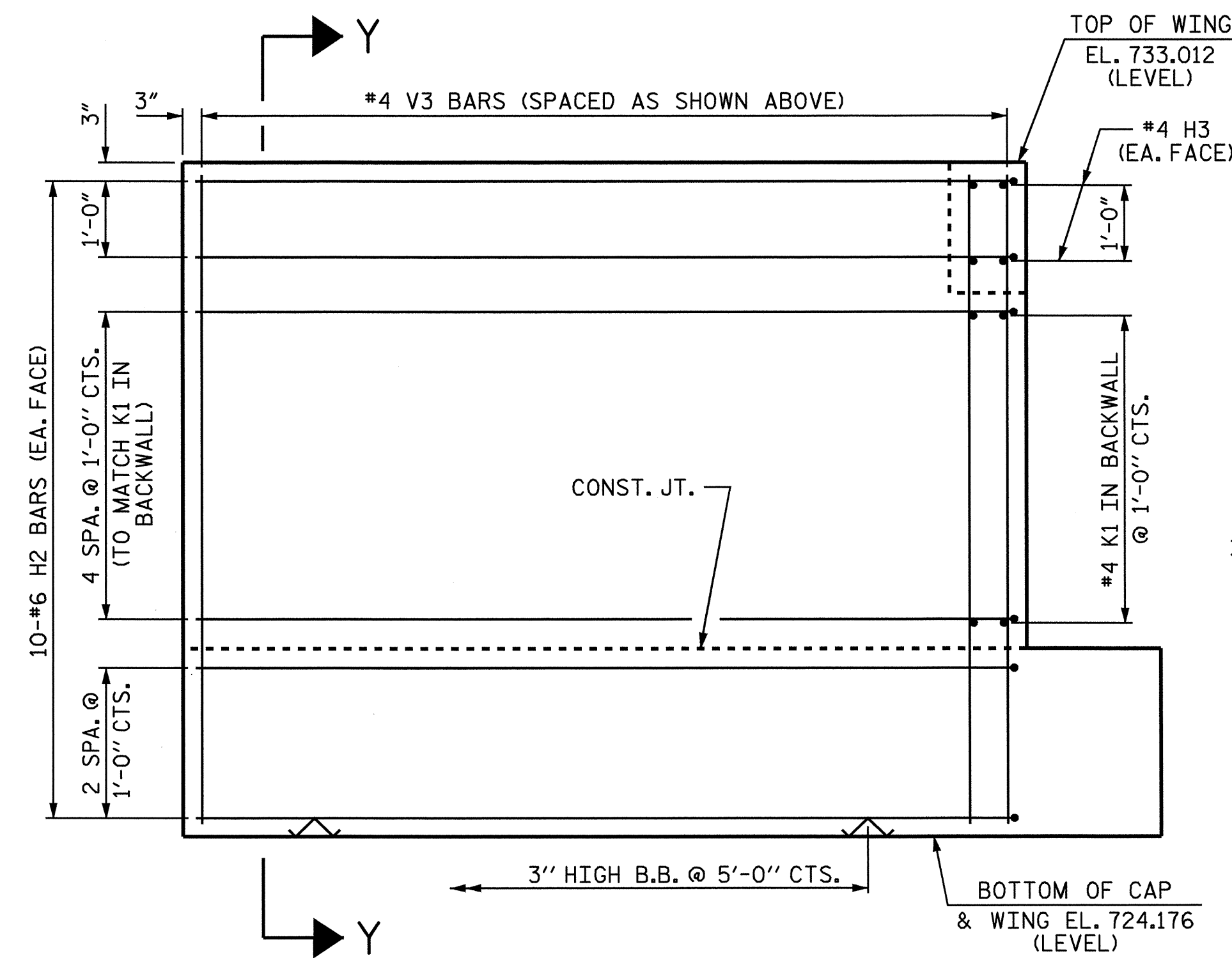
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



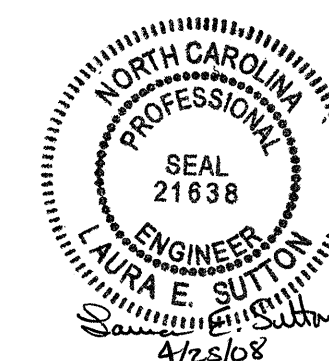
ELEVATION OF WING (W2)

PROJECT NO. B-4281
STOKES COUNTY
STATION: 19+60.00 -L-

SHEET 2 OF 3

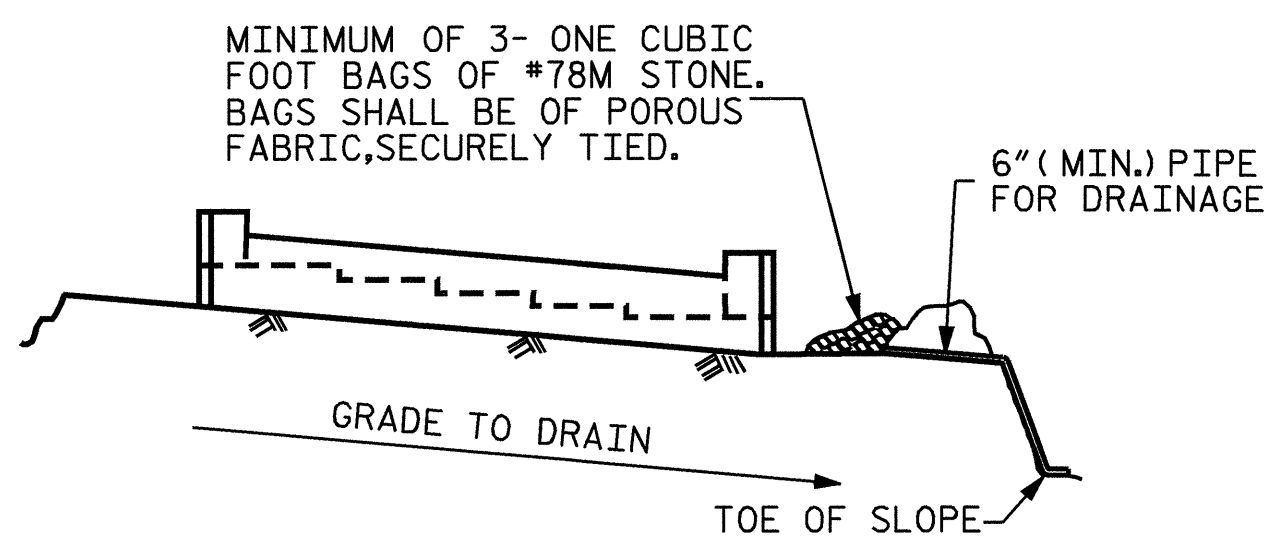
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			36

DRAWN BY: B. L. GREEN DATE: 12/05/06
CHECKED BY: A. S. CALLAWAY DATE: 12/19/06

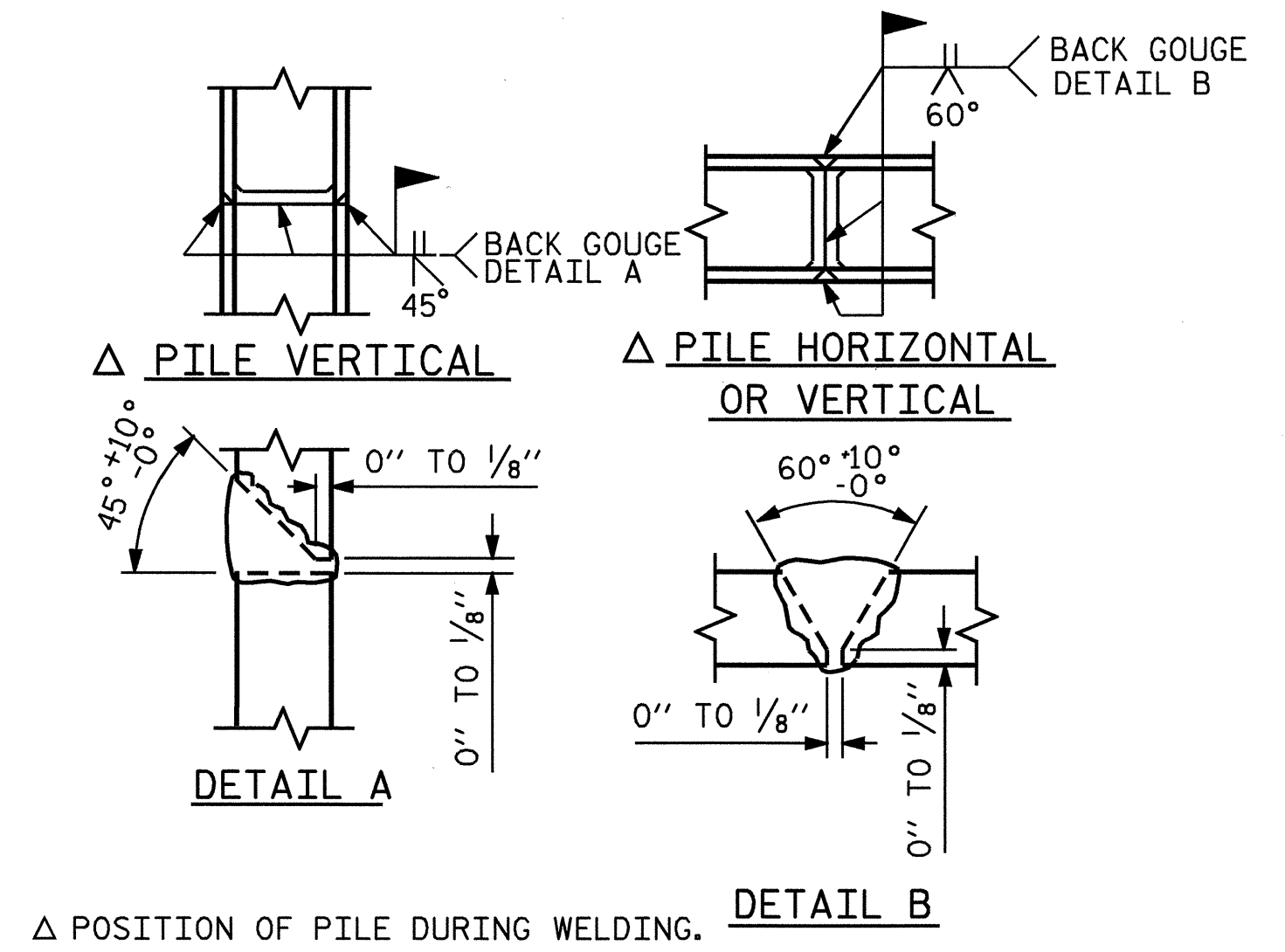


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

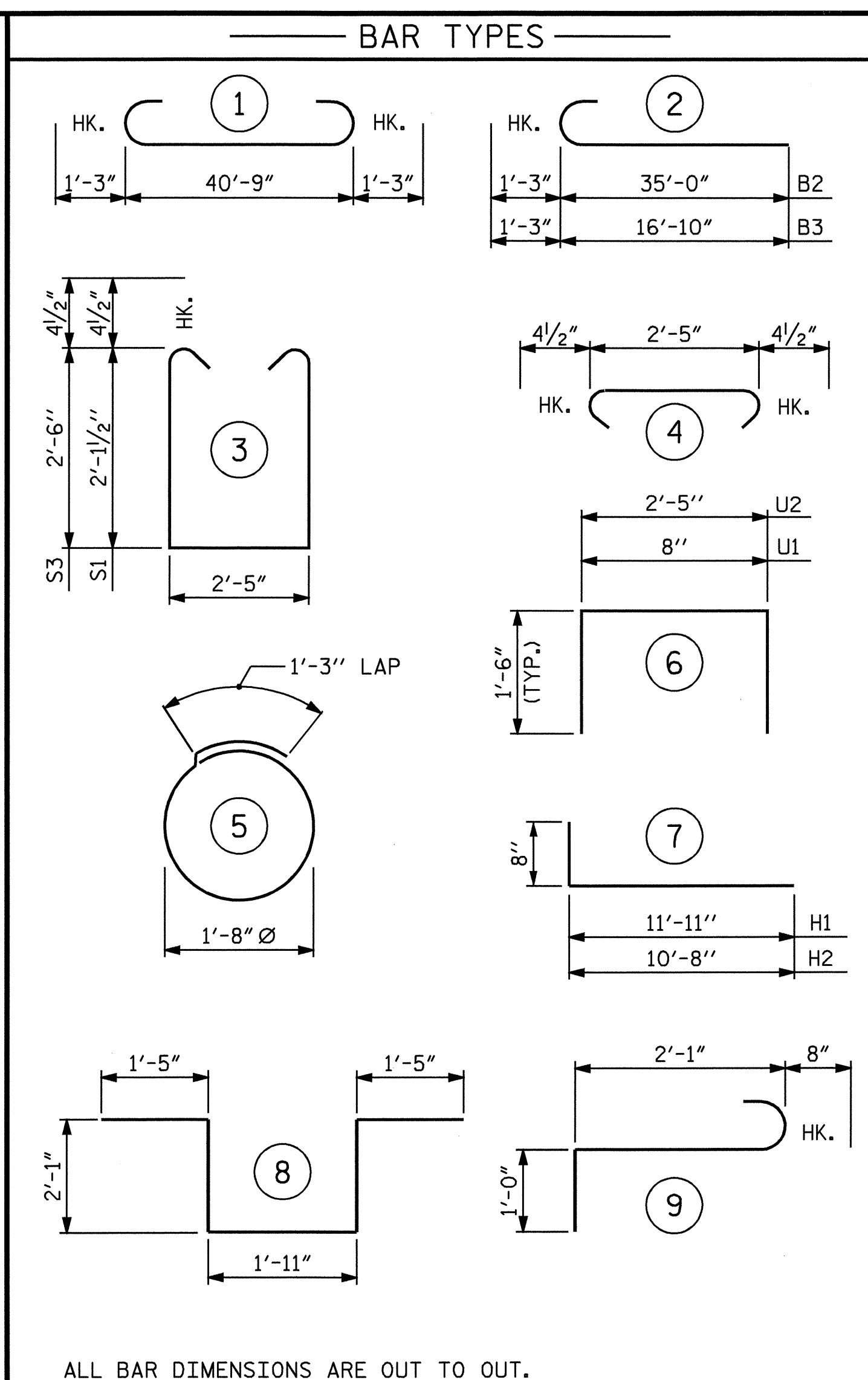
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

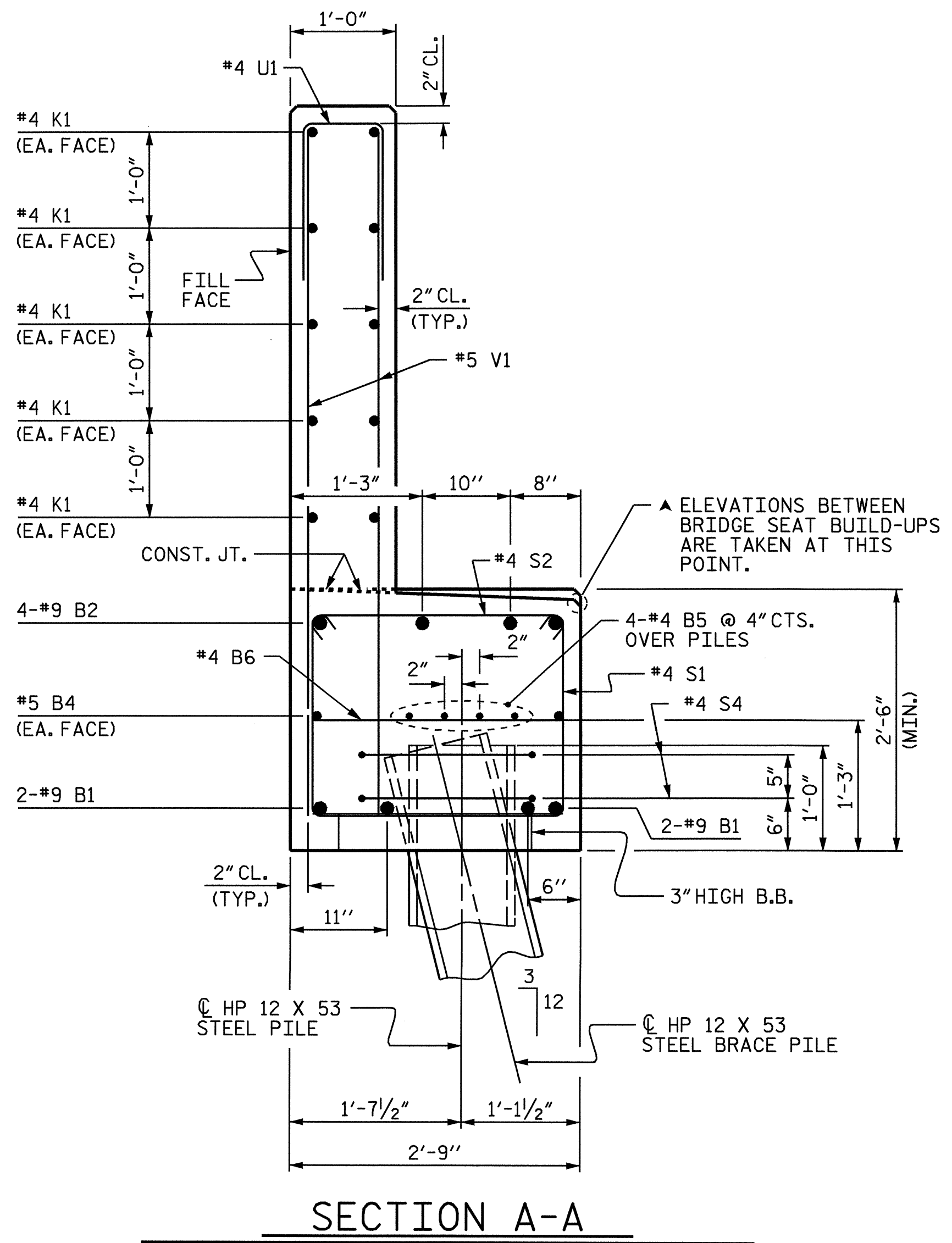


ALL BAR DIMENSIONS ARE OUT TO OUT.

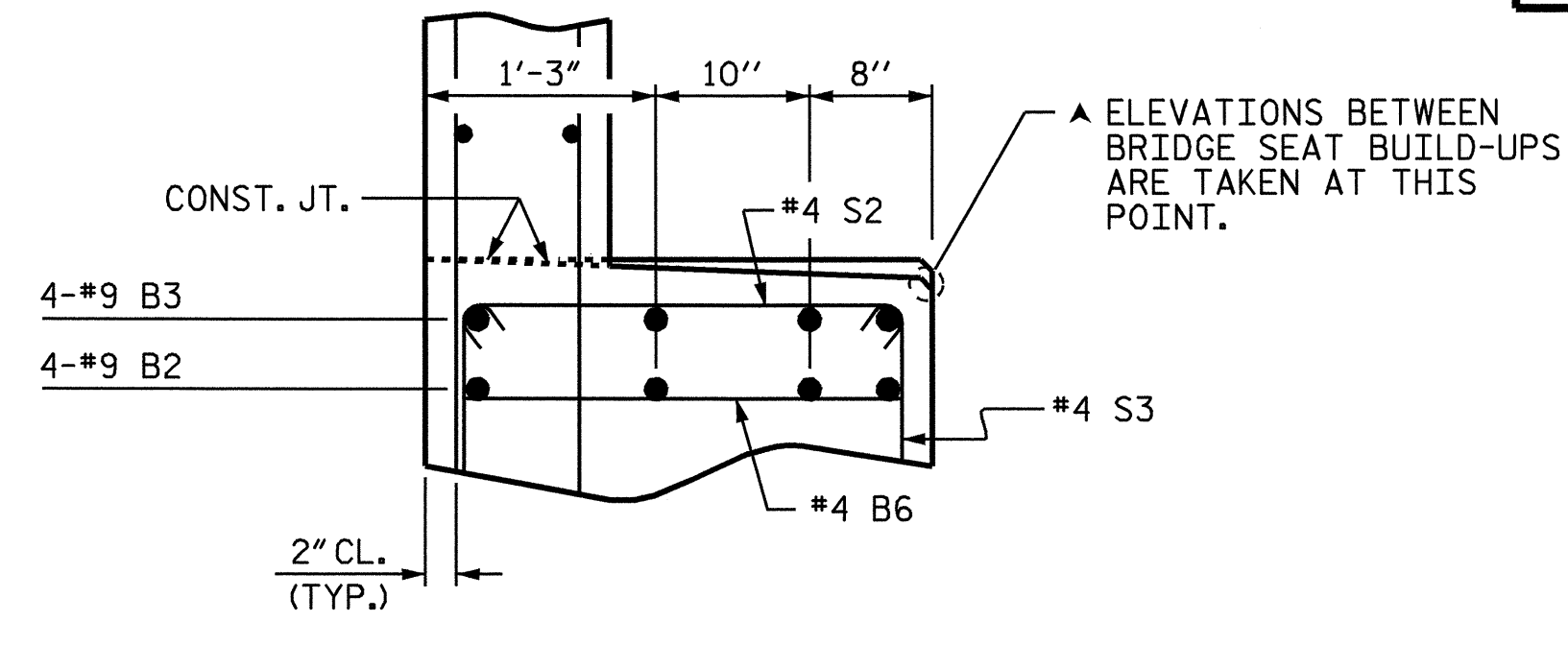
BILL OF MATERIAL

END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	1	43'-3"	588
B2	4	#9	2	36'-3"	493
B3	4	#9	2	18'-1"	246
B4	2	#5	STR	40'-11"	85
B5	8	#4	STR	21'-8"	116
B6	22	#4	STR	2'-5"	36
E1	16	#5	STR	3'-4"	56
H1	22	#4	7	12'-7"	185
H2	20	#6	7	11'-4"	340
H3	8	#4	STR	3'-6"	19
K1	20	#4	STR	21'-8"	289
S1	34	#4	3	7'-5"	168
S2	61	#4	4	3'-2"	129
S3	27	#4	3	8'-2"	147
S4	16	#4	5	6'-6"	69
S5	1	#6	8	8'-11"	13
S6	3	#6	9	3'-9"	17
U1	34	#4	6	3'-8"	83
U2	6	#4	6	5'-5"	22
V1	68	#5	STR	6'-9"	479
V2	34	#4	STR	9'-1"	206
V3	30	#4	STR	8'-5"	169

REINFORCING STEEL	LBS.	3,955
CLASS A CONCRETE BREAKDOWN :		
POUR #1 - CAP, LOWER WINGS & BRACE PILE CAPS	CU. YDS.	14.1
POUR #2 - UPPER WINGS	CU. YDS.	12.5
TOTAL	CU. YDS.	26.6
HP 12 x 53 STEEL PILES	LIN. FT.	180
NO. = 9		

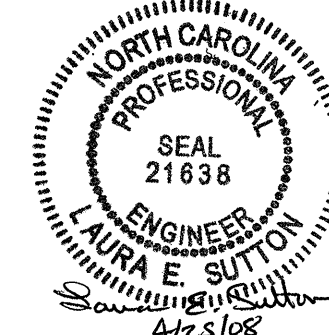


SECTION A-A



PARTIAL SECTION B-B

DRAWN BY : B.L. GREEN DATE : 12/5/06
 CHECKED BY : A. S. CALLAWAY DATE : 12/19/06



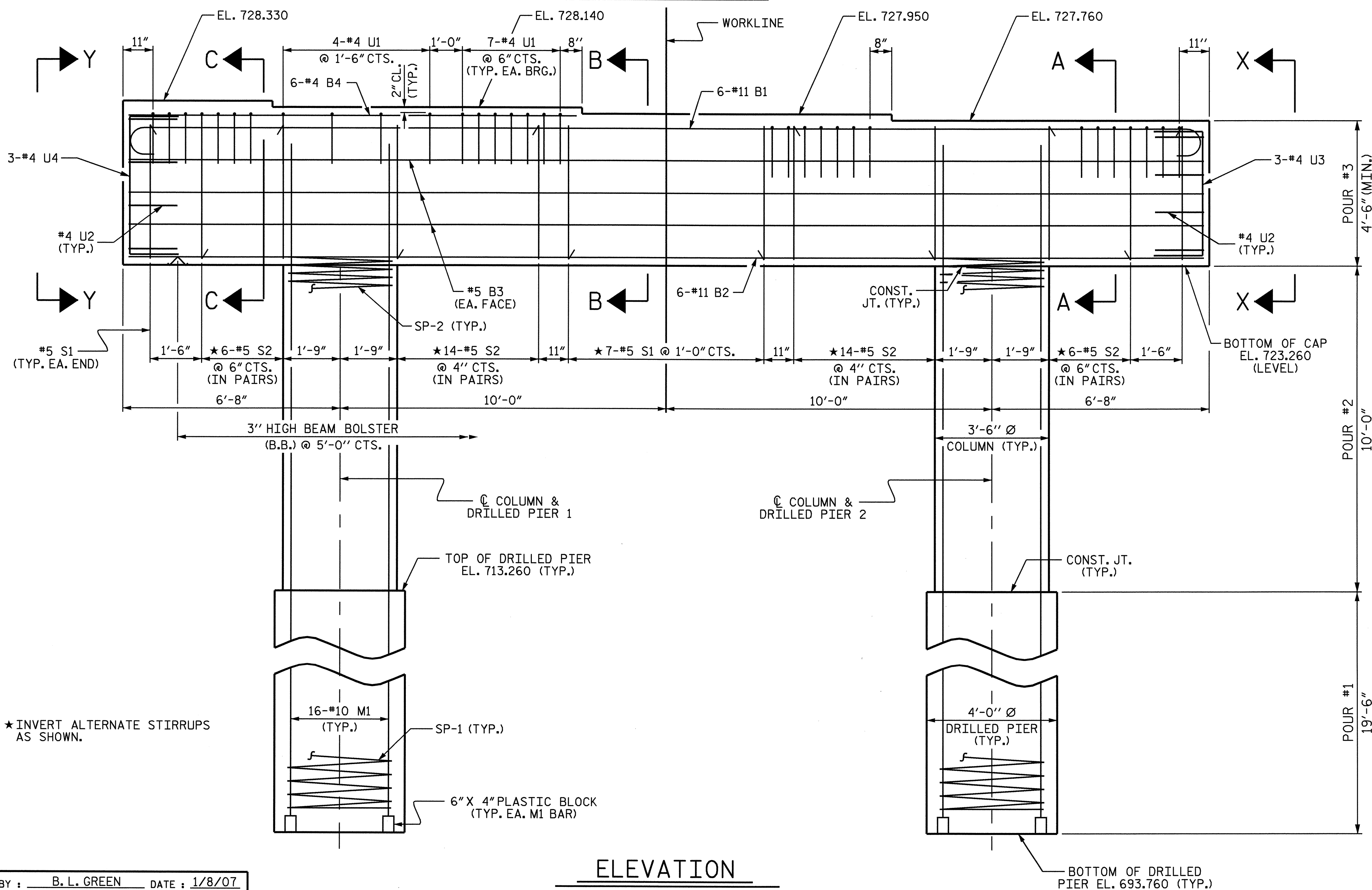
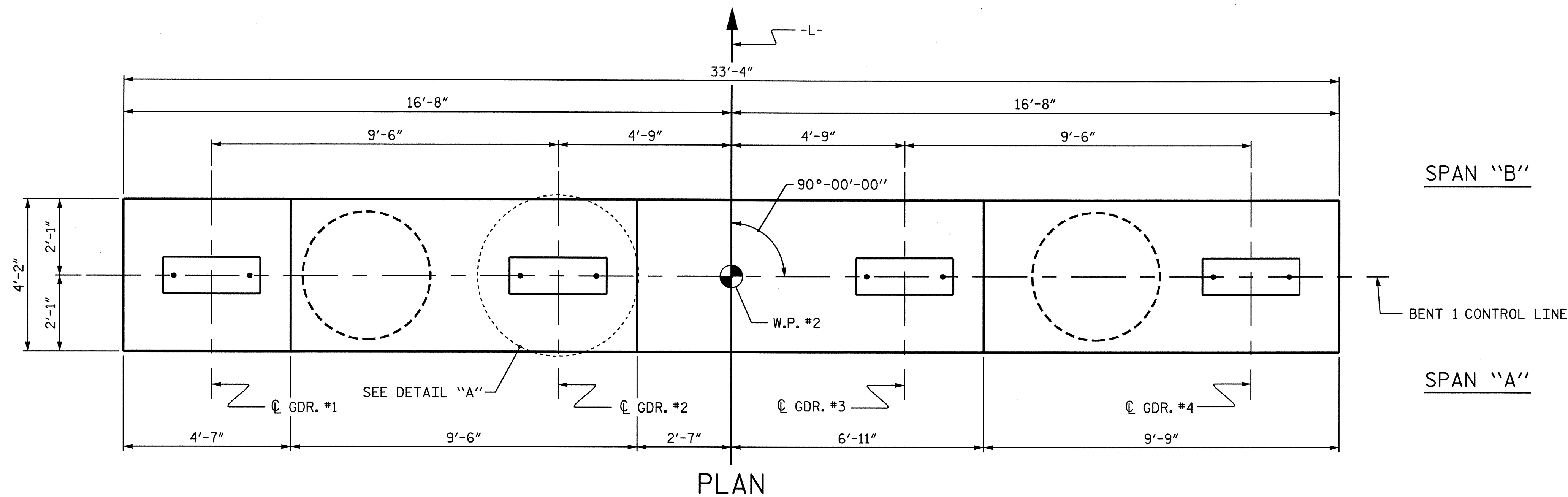
PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-26
2			4			36



NOTES

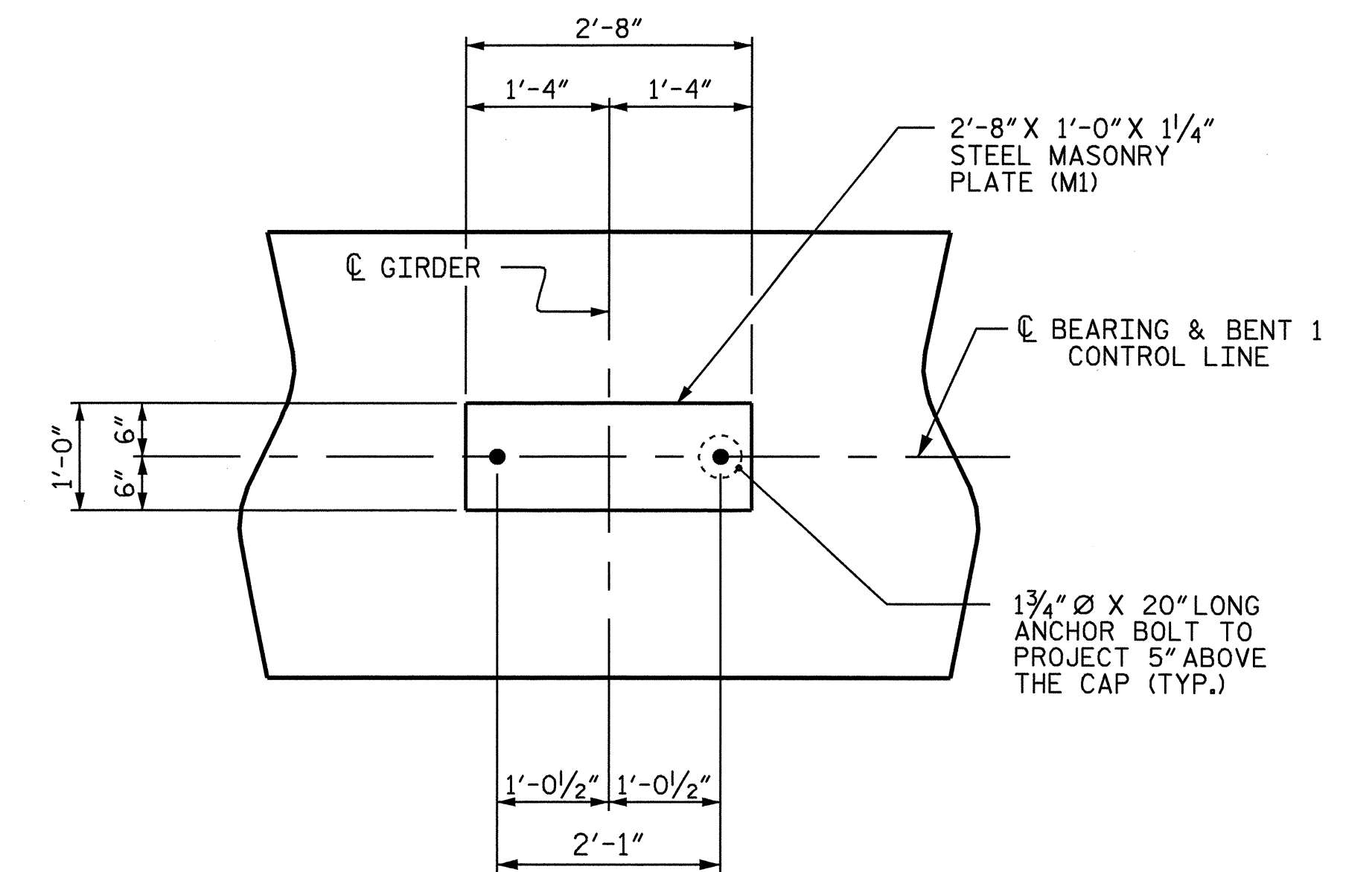
STIRRUPS AND U1 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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

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

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 DRILLED PIERS, SEE SPECIAL PROVISIONS.



PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

SHEET 1 OF 2

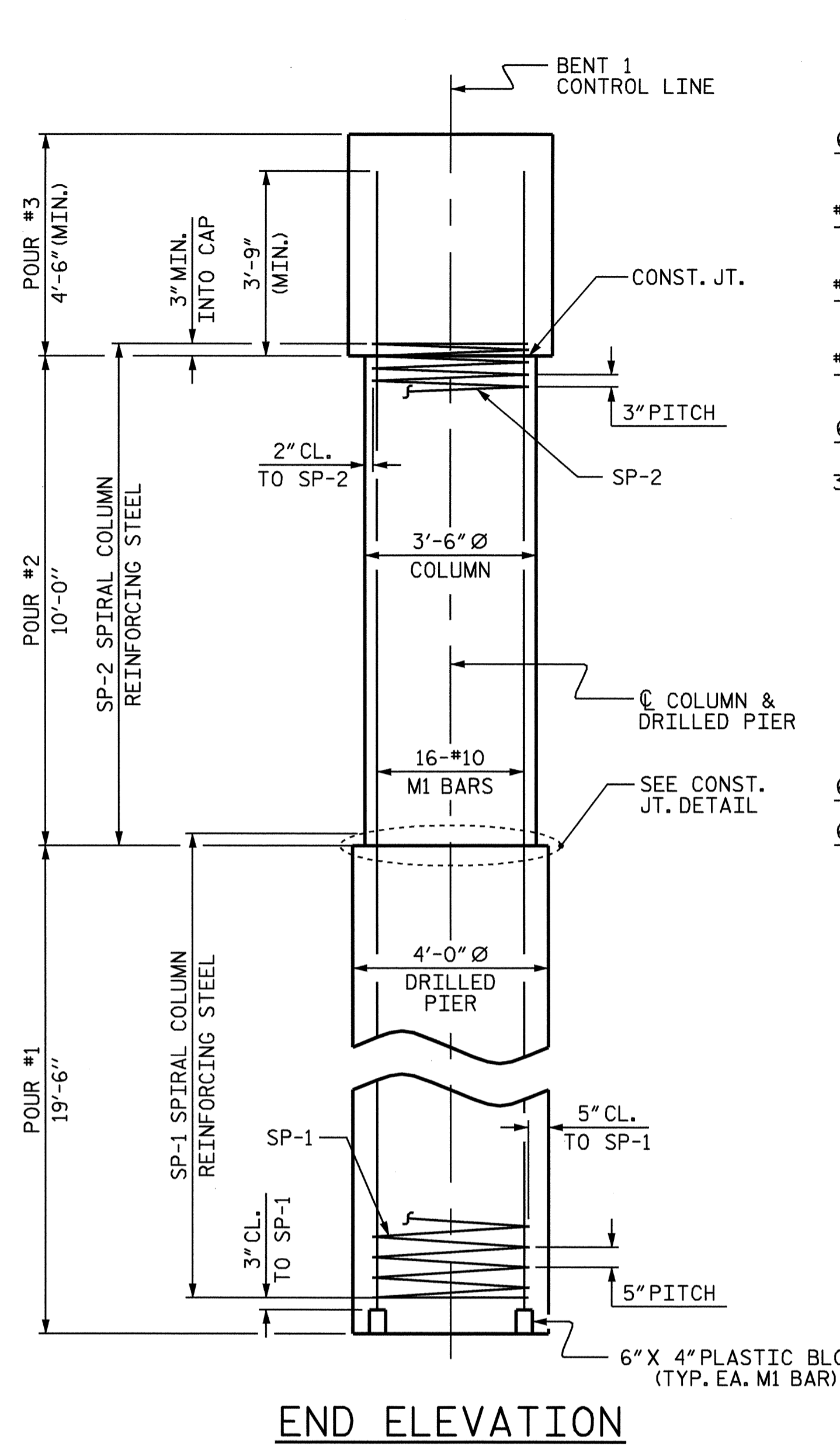
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 1

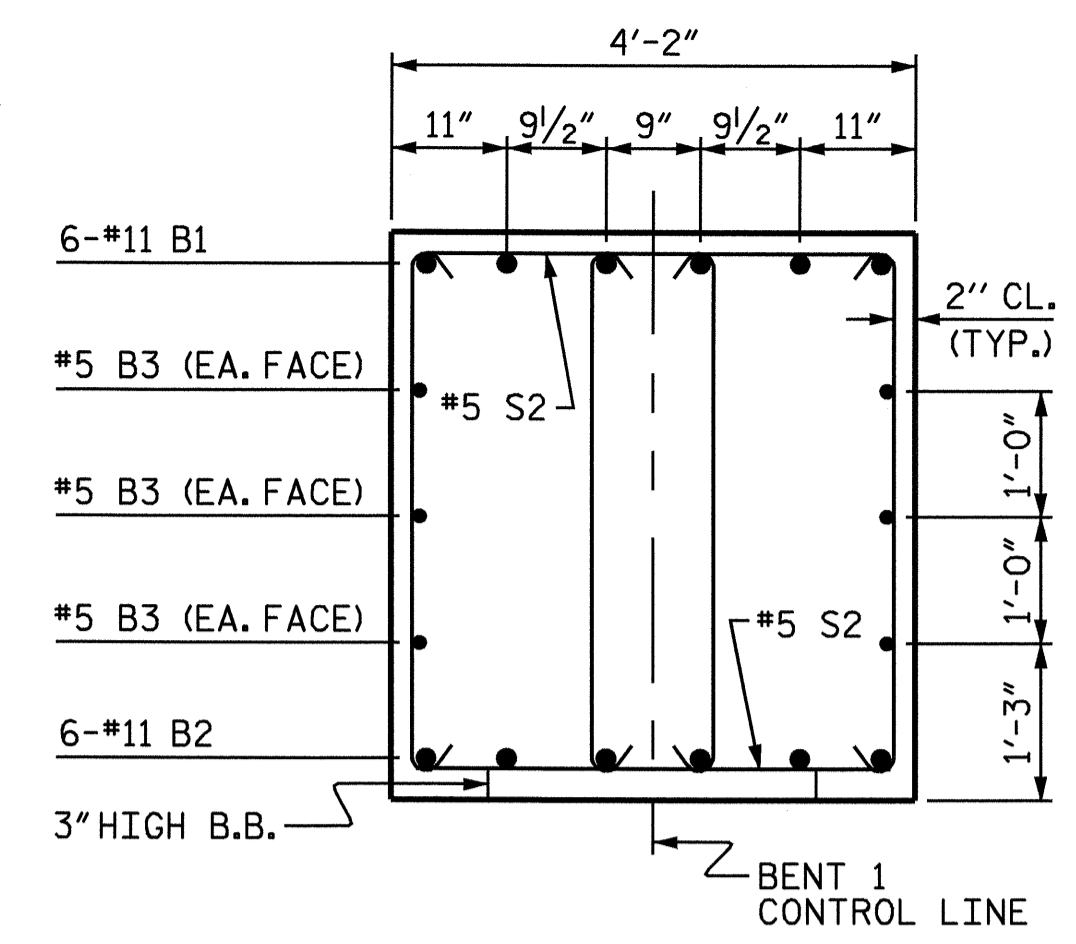


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27	
1			3			TOTAL SHEETS	
2			4			36	

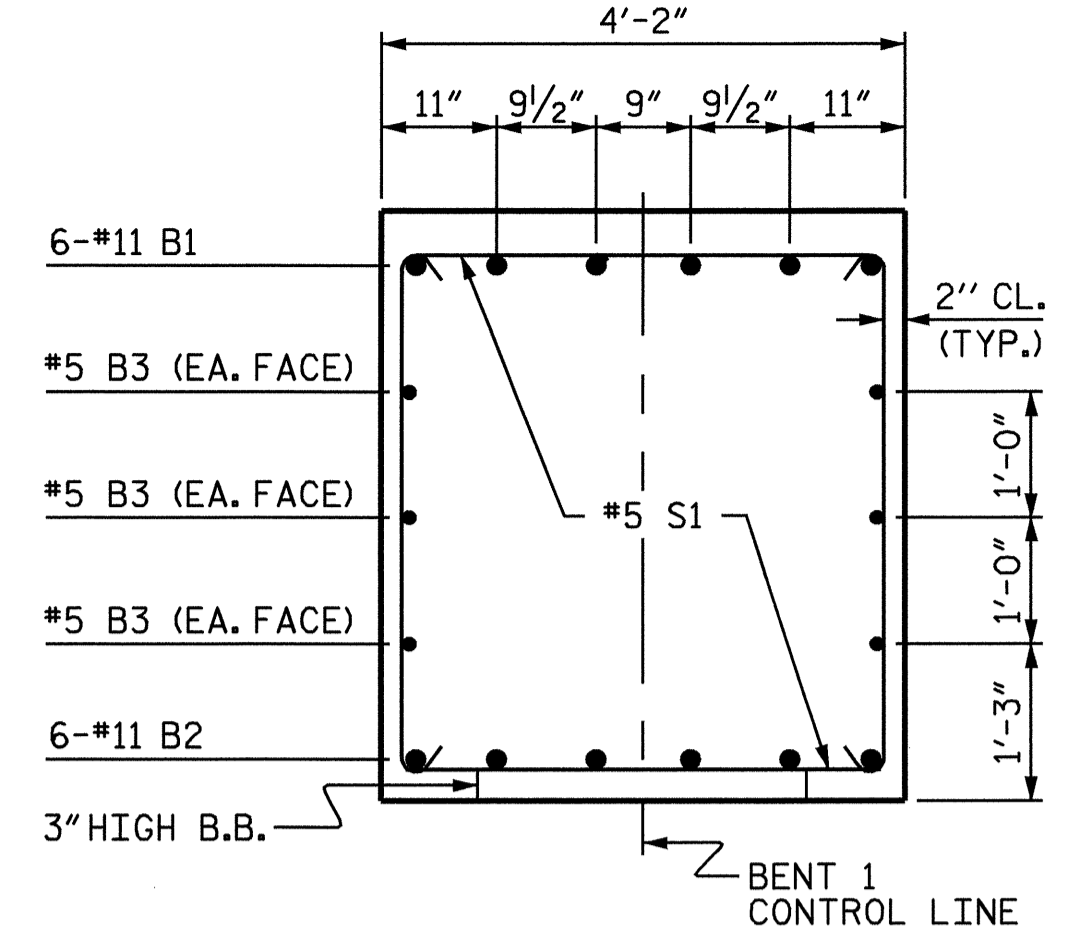
DRAWN BY: B. L. GREEN DATE: 1/8/07
 CHECKED BY: A. S. CALLAWAY DATE: 1/17/07



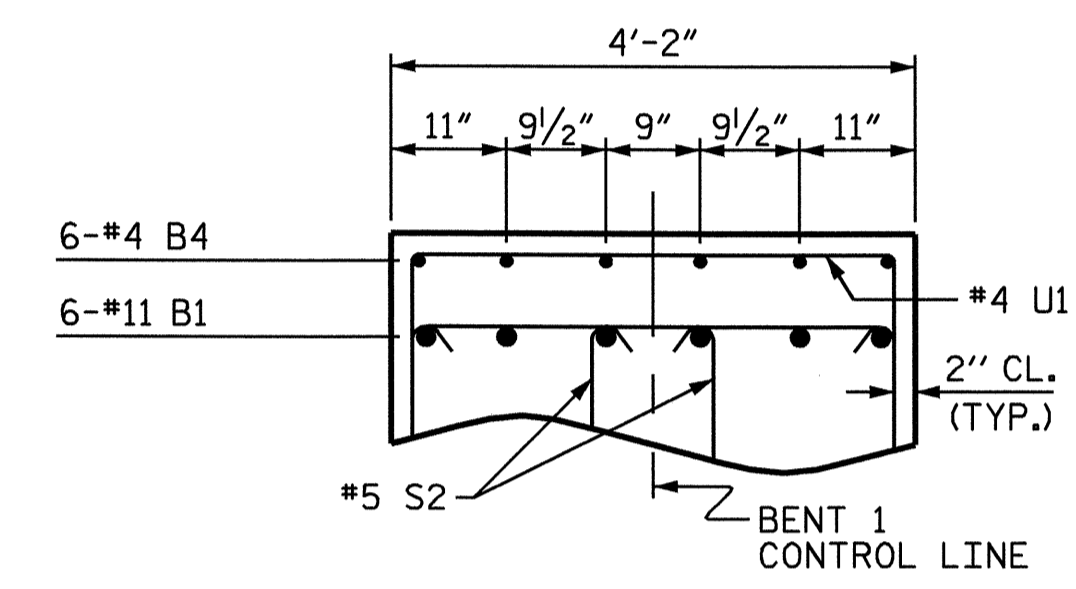
END ELEVATION



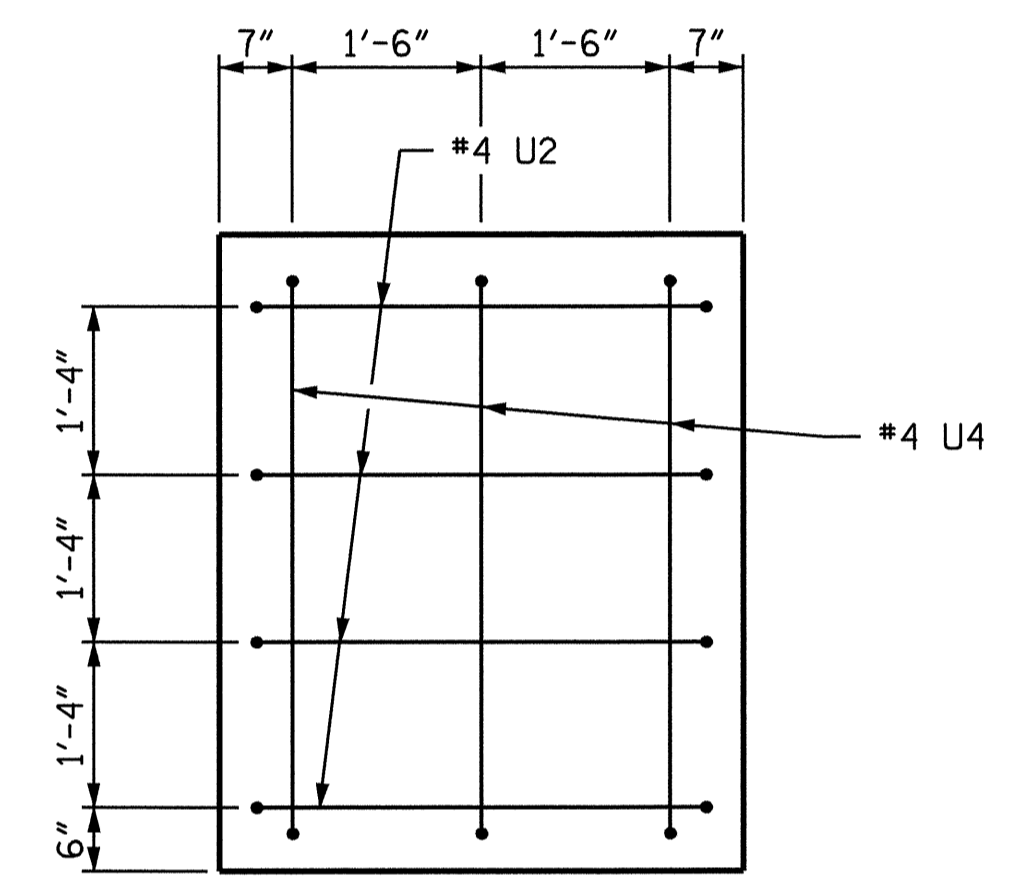
SECTION A-A



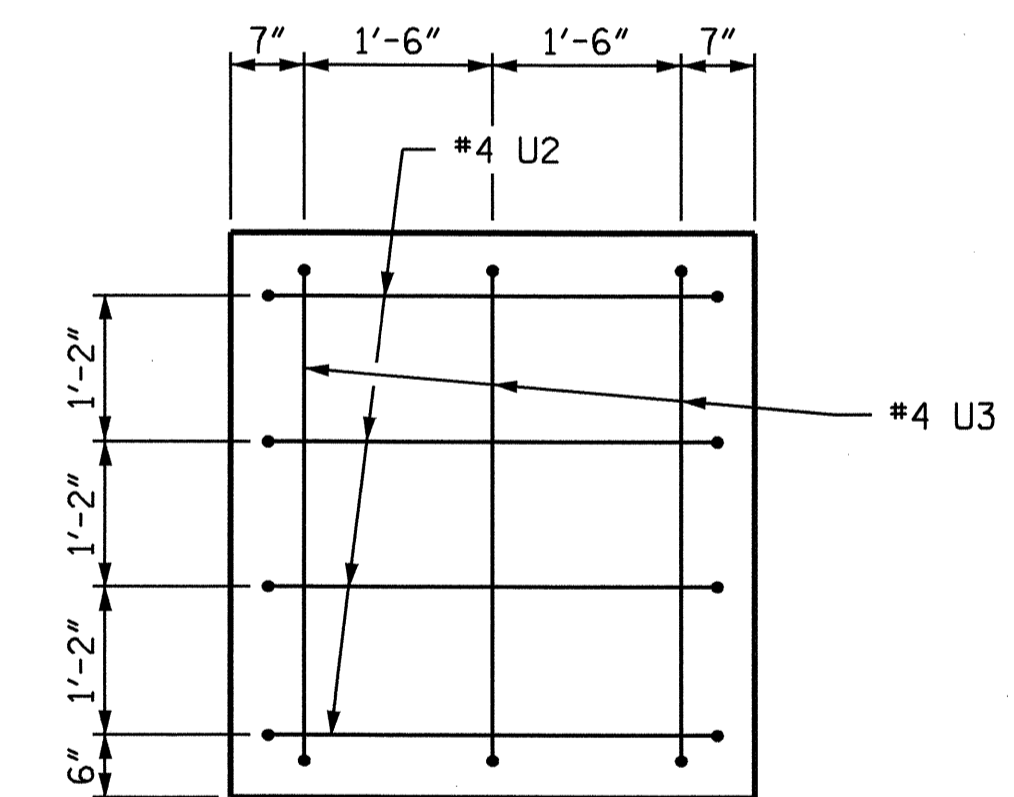
SECTION B-B



PART SECTION C-C



VIEW Y-Y

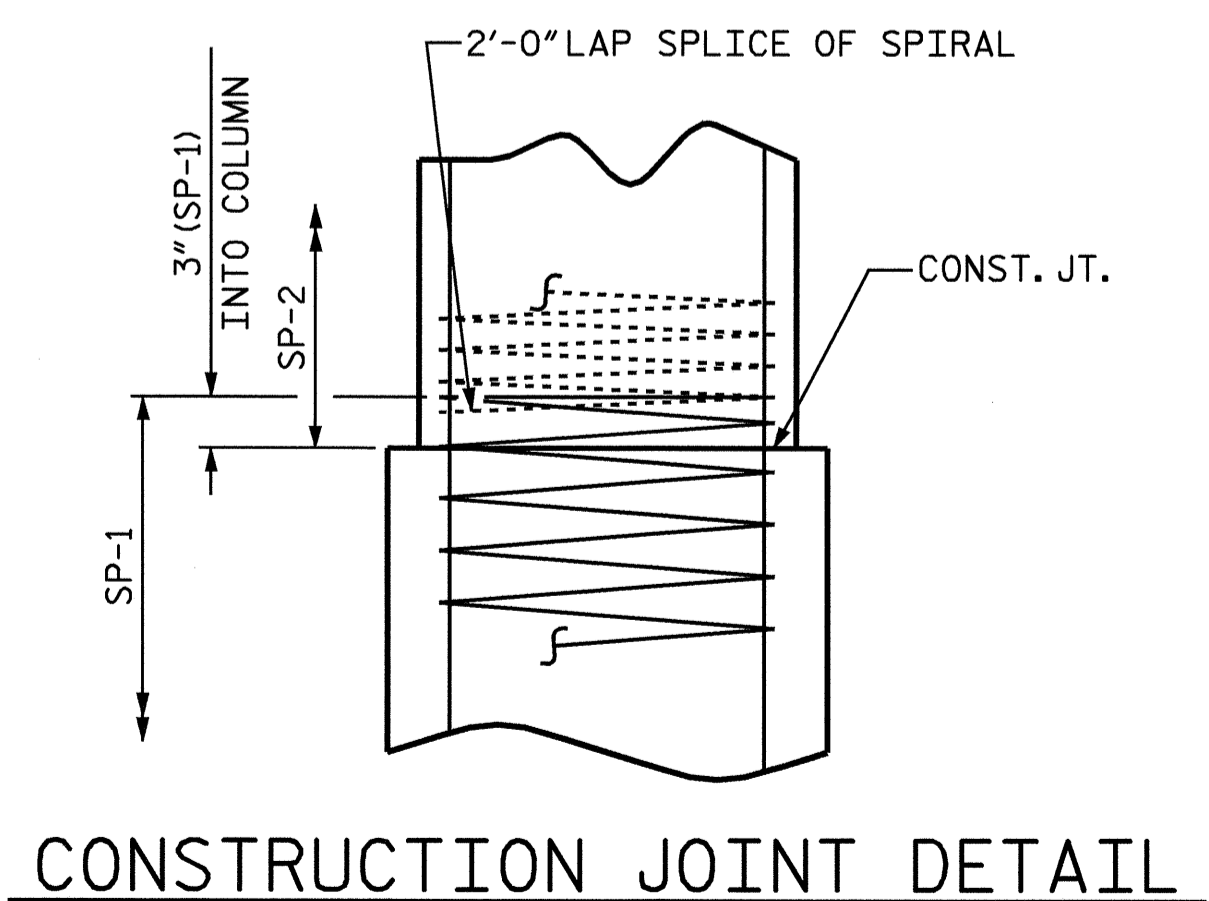


VIEW X-X

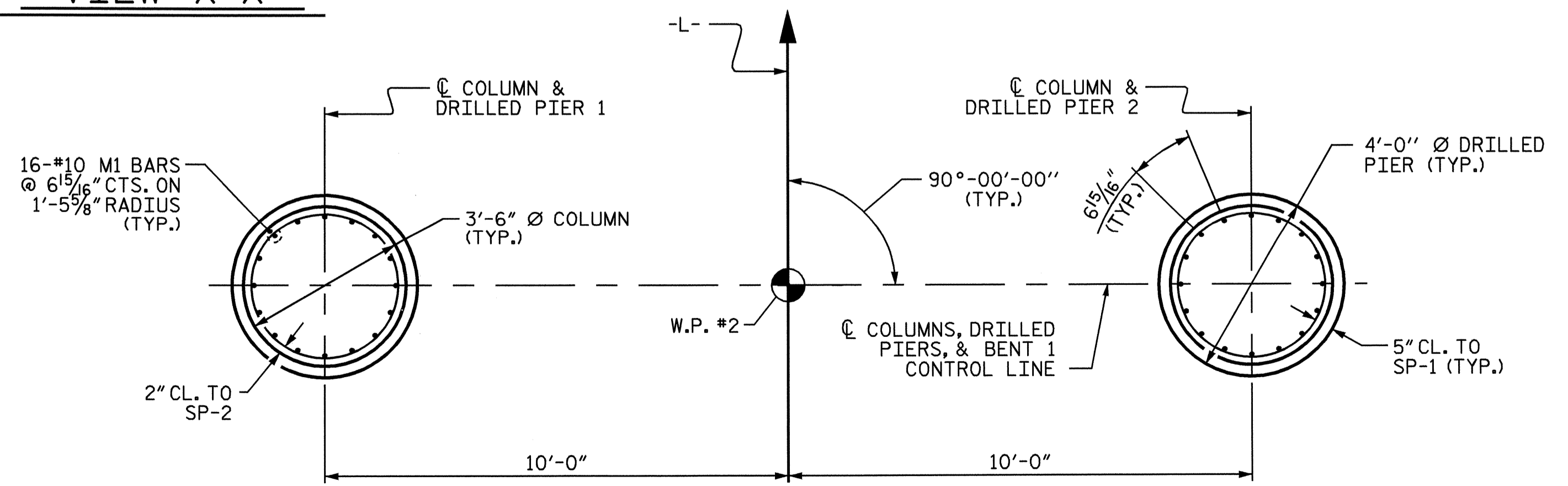
BAR TYPES				
HK.	(1)	HK.	1'-7"	32'-10"
U1	3'-10"			
U2	3'-8"			
U3	4'-0"			
U4	4'-6"			
(3)				
		HK.	3'-10"	4'-1 1/2"
			2'-5"	S1
				S2
		1 1/2 EXTRA TURNS		
		19'-0"		
		5" PITCH		
		(4)		
		4 SPACERS		
		3'-2"		
		1 1/2 EXTRA TURNS		
		10'-3"		
		3" PITCH		
		(5)		
		4 SPACERS		
		3'-2"		

ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#11		36'-0"	1148
B2	6	#11	STR	33'-0"	1052
B3	6	#5	STR	33'-0"	207
B4	6	#4	STR	13'-9"	55
M1	32	#10	STR	35'-9"	4923
S1	9	#5	2	13'-0"	122
S2	80	#5	2	11'-7"	967
U1	32	#4	3	6'-10"	146
U2	8	#4	3	6'-8"	36
U3	3	#4	3	7'-0"	14
U4	3	#4	3	7'-6"	15
REINFORCING STEEL				LBS.	8,685
SP-1	2	*	4	470'-2"	981
SP-2	2	**	5	422'-4"	564
SPIRAL COLUMN REINFORCING STEEL				LBS.	1,545
CLASS A CONCRETE					
POUR #2 - COLUMNS				CU. YDS.	7.1
POUR #3 - CAP				CU. YDS.	24.4
TOTAL				CU. YDS.	31.5
DRILLED PIER QUANTITIES:					
DRILLED PIER CONCRETE					
POUR #1 - DRILLED PIERS				CU. YDS.	18.2
4'-0" Ø DRILLED PIERS					
IN SOIL				LIN. FT.	26.00
4'-0" Ø DRILLED PIERS					
NOT IN SOIL				LIN. FT.	13.00
CSL TUBES				LIN. FT.	176.00
* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.					
** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.					



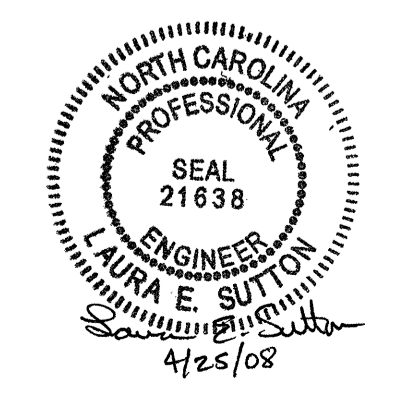
CONSTRUCTION JOINT DETAIL



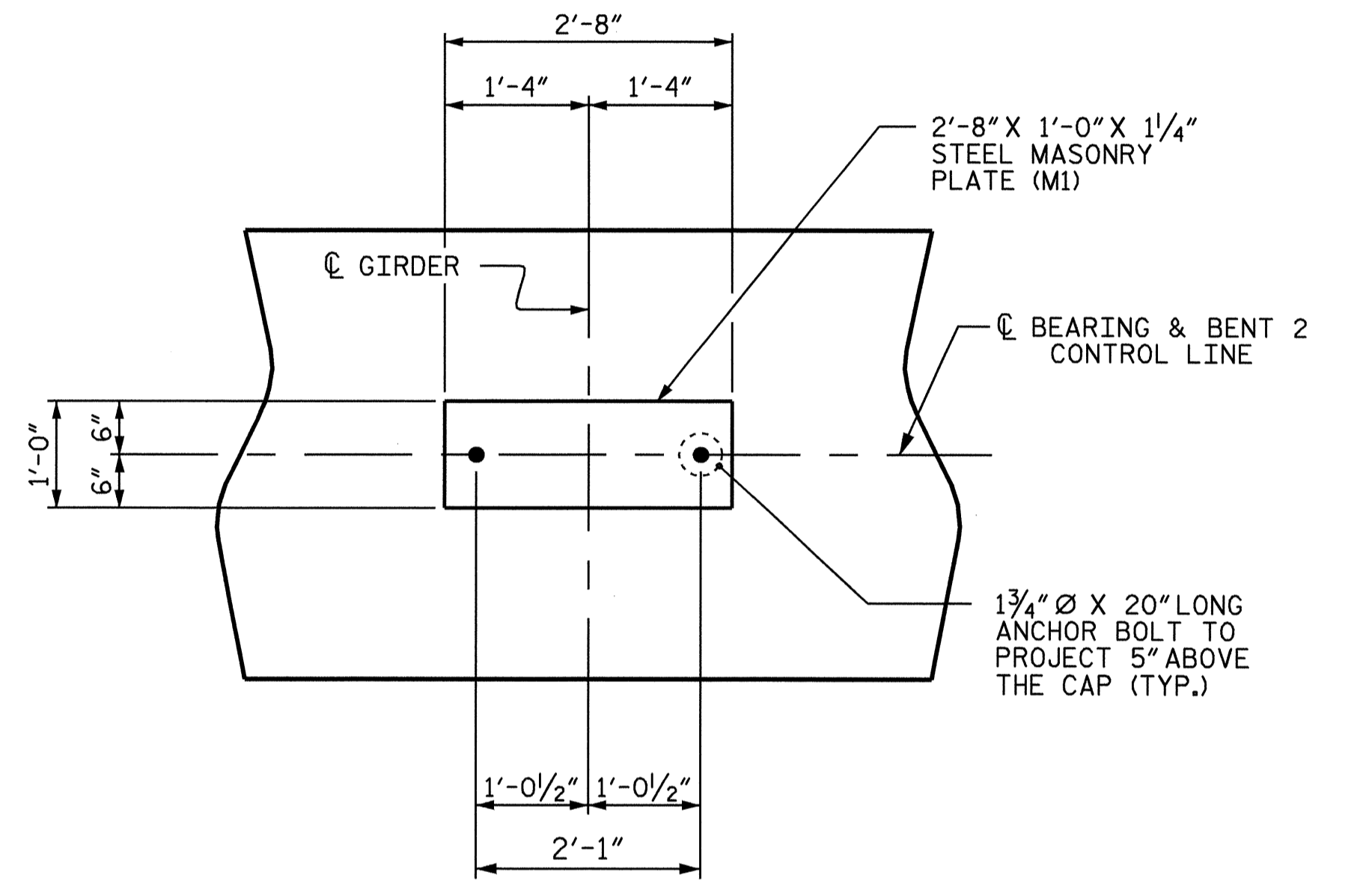
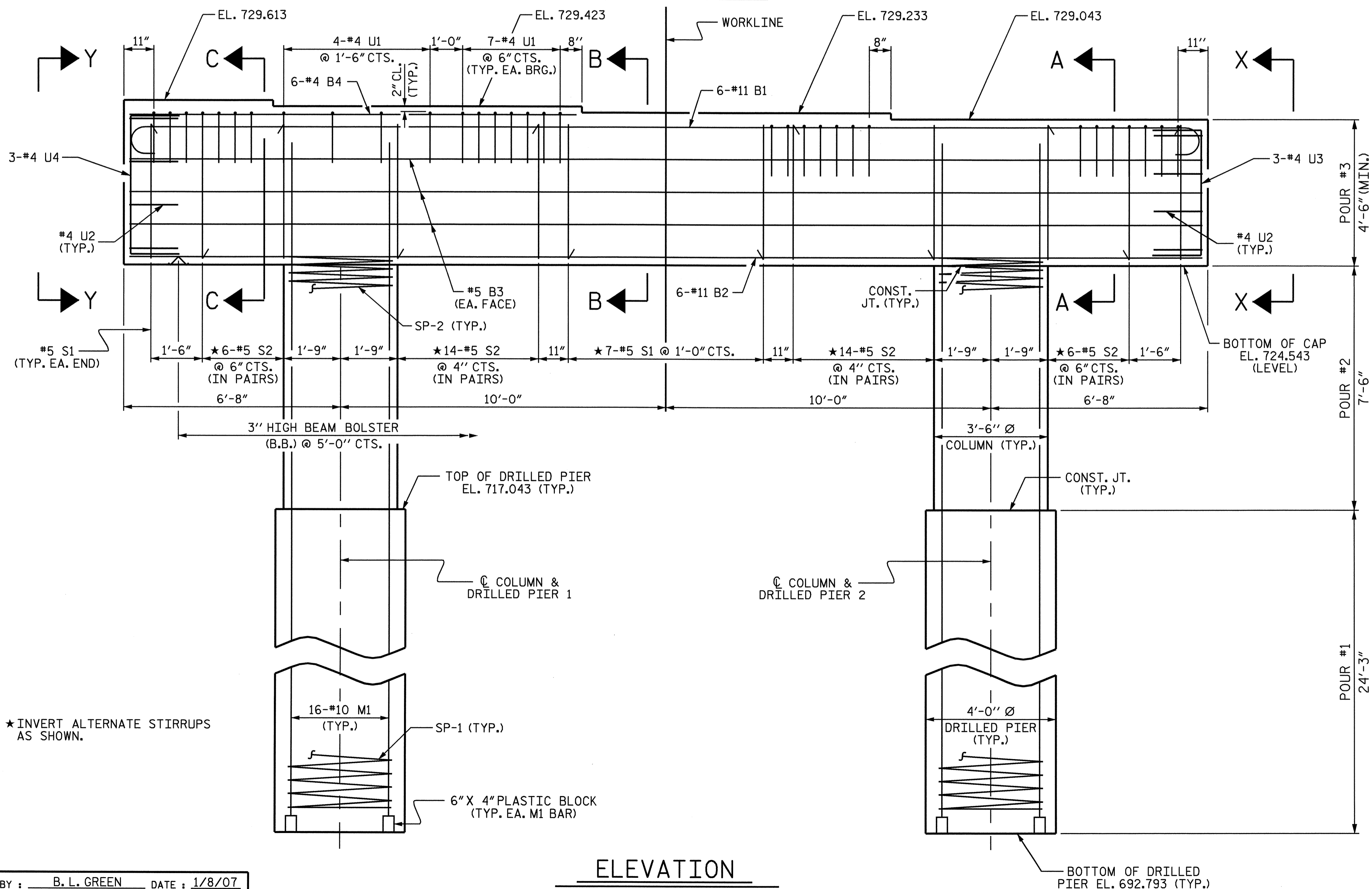
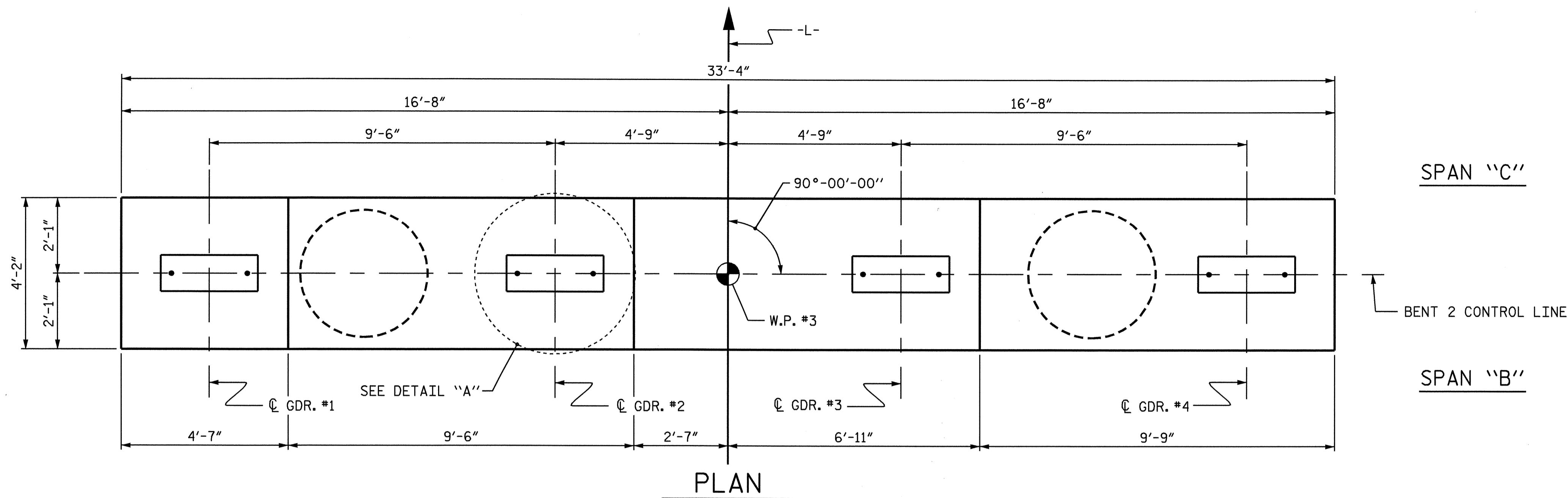
PLAN OF COLUMNS & DRILLED PIERS
(REINFORCING STEEL IS TYPICAL FOR EACH COLUMN & DRILLED PIER)

PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -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:
1			3		
2			4		
					S-28
					TOTAL SHEETS 36



DRAWN BY: B. L. GREEN DATE: 1/10/06
 CHECKED BY: A. S. CALLAWAY DATE: 1/17/07



NOTES

STIRRUPS AND U1 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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

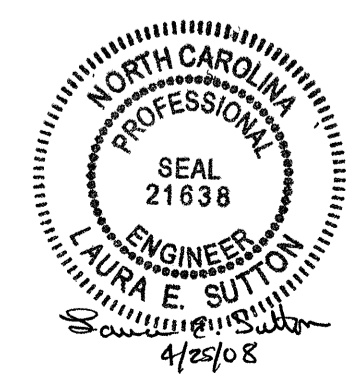
THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FOOT BELOW THE GROUND LINE.

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.

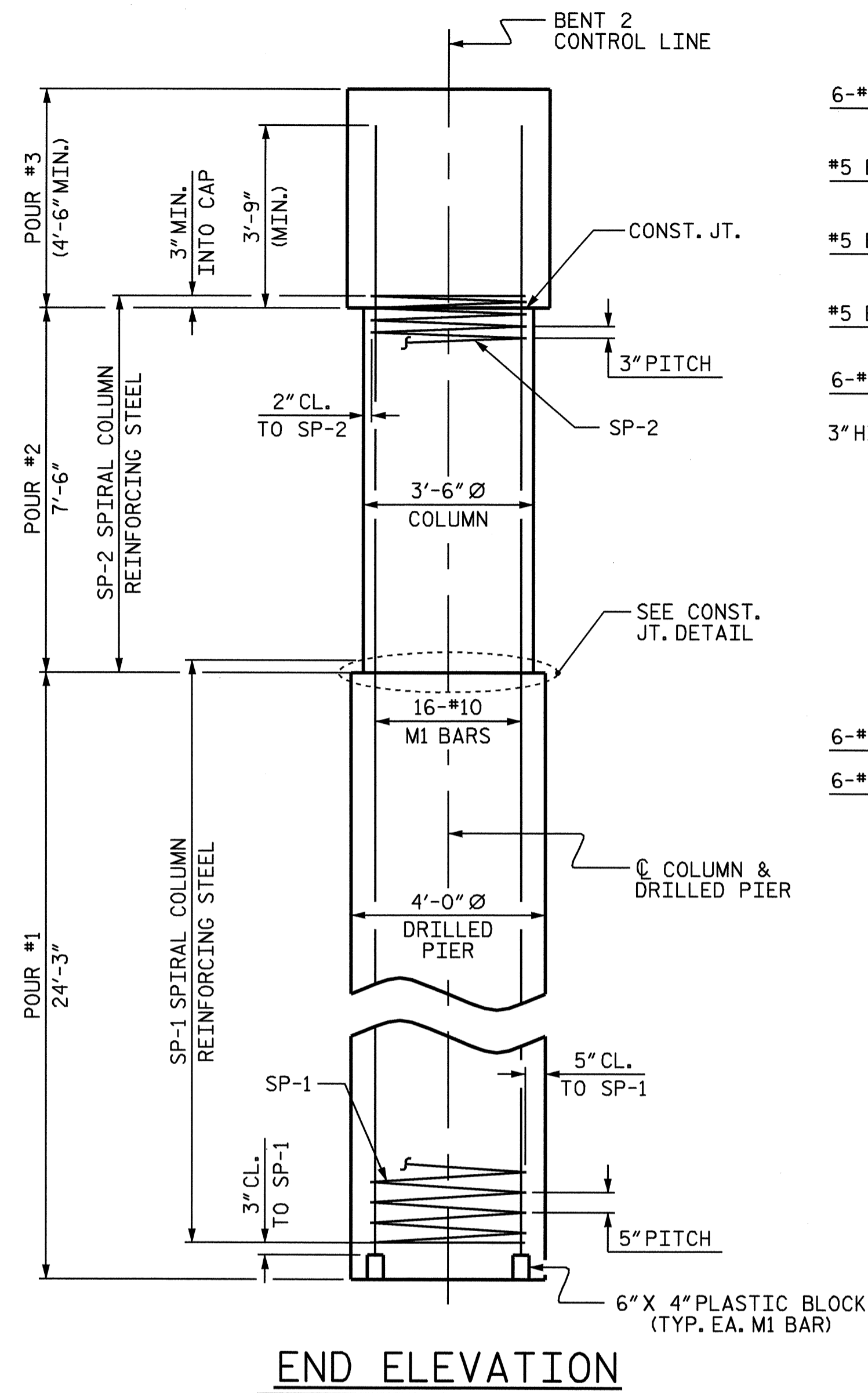
FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-
 SHEET 1 OF 2

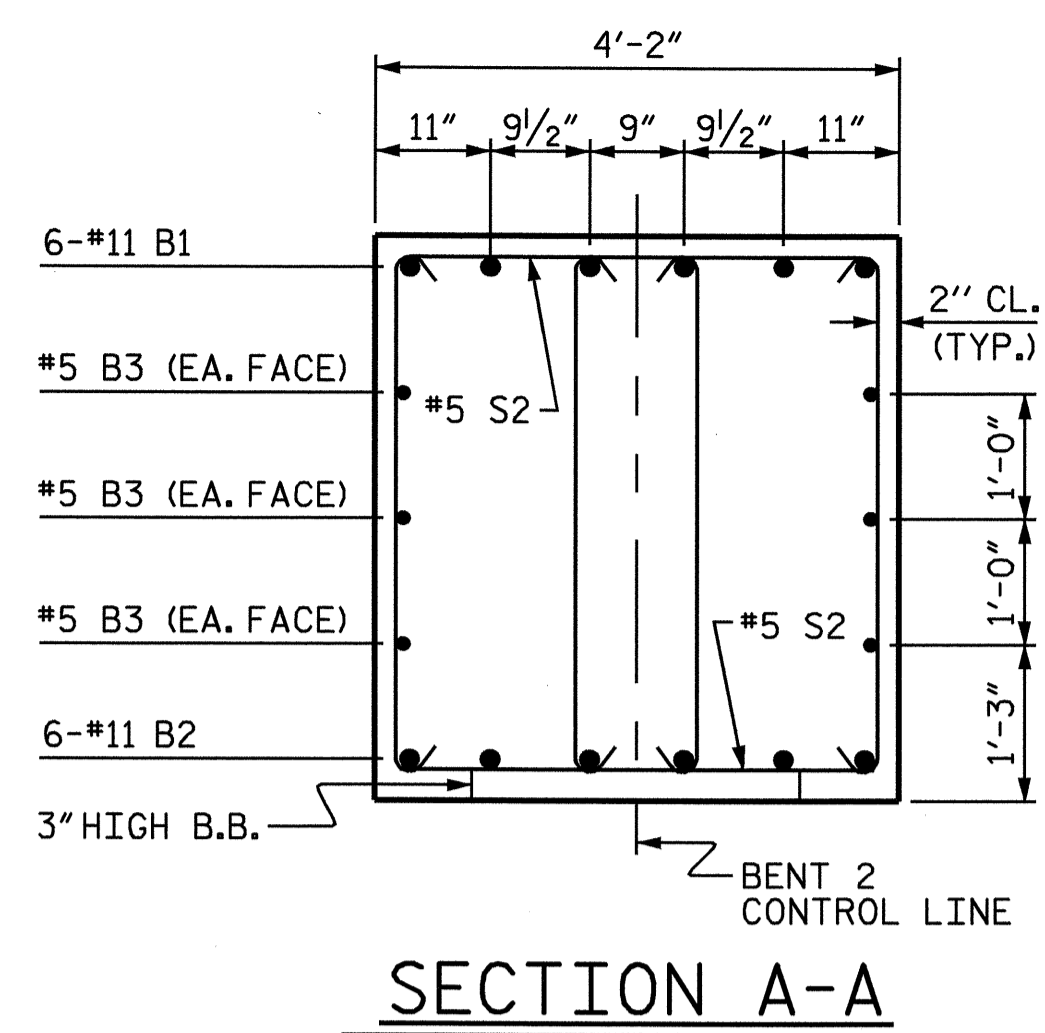
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-29
					TOTAL SHEETS
					36



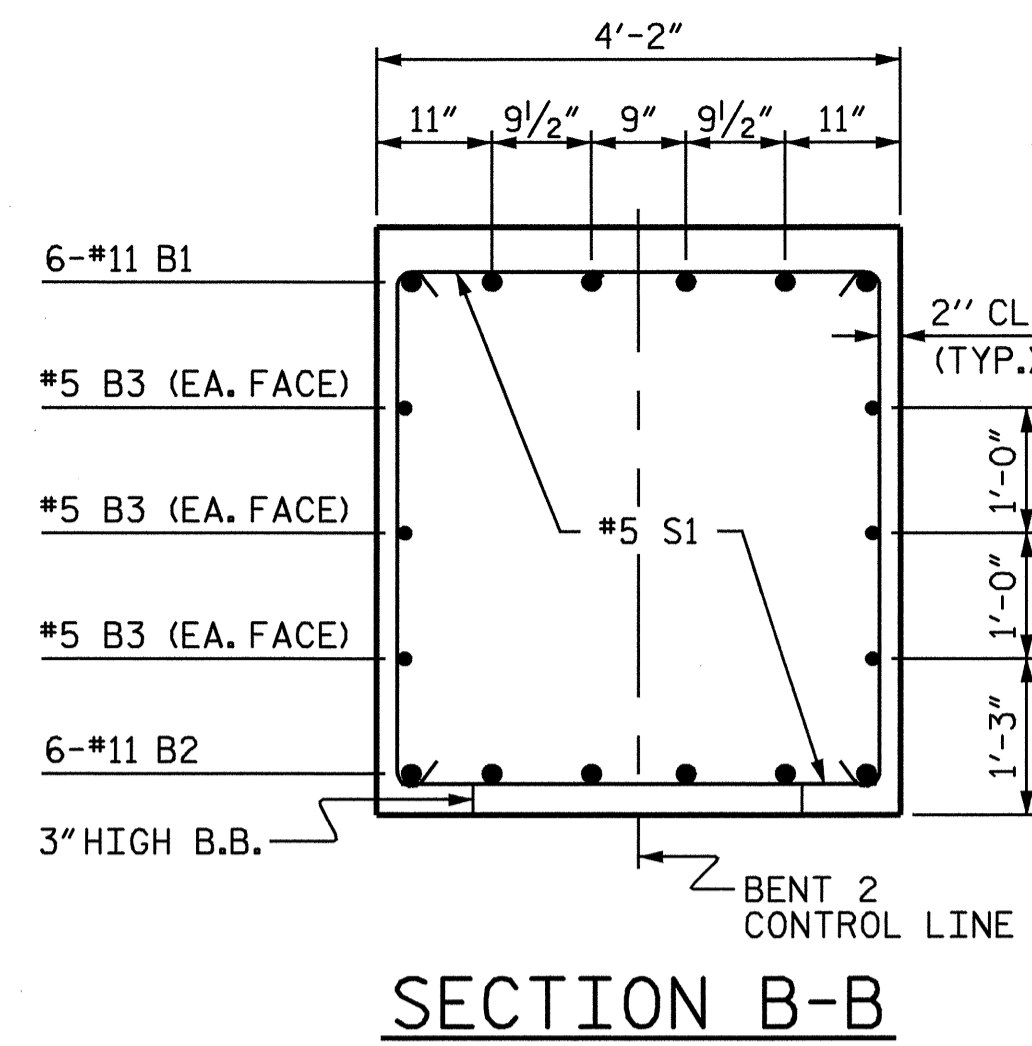
DRAWN BY: B. L. GREEN DATE: 1/8/07
 CHECKED BY: A. S. CALLAWAY DATE: 1/17/07



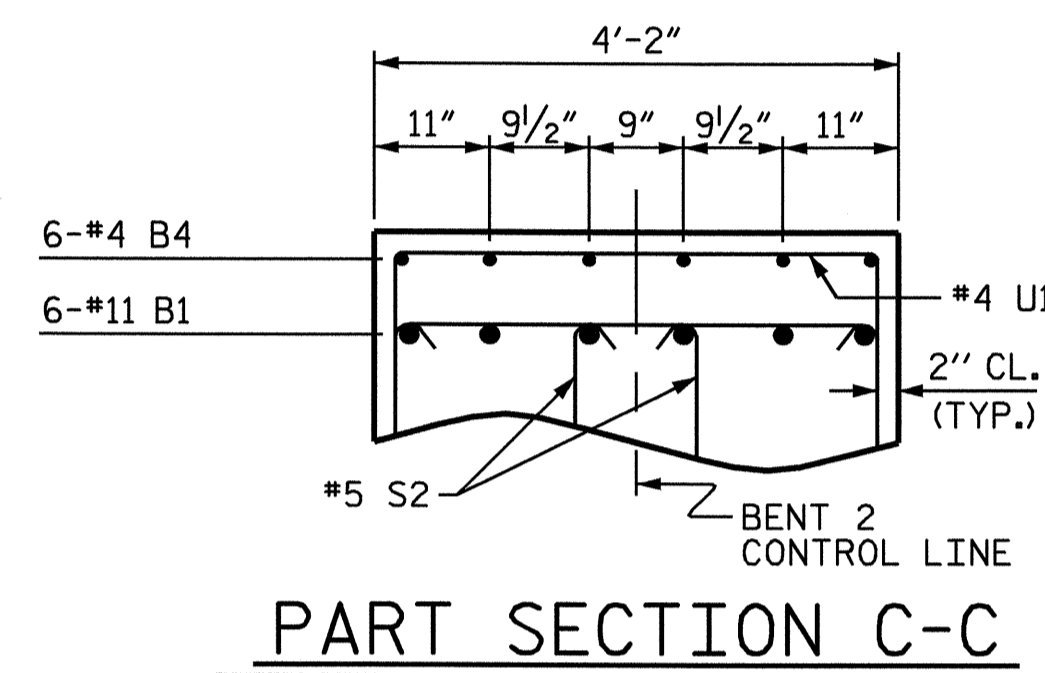
END ELEVATION



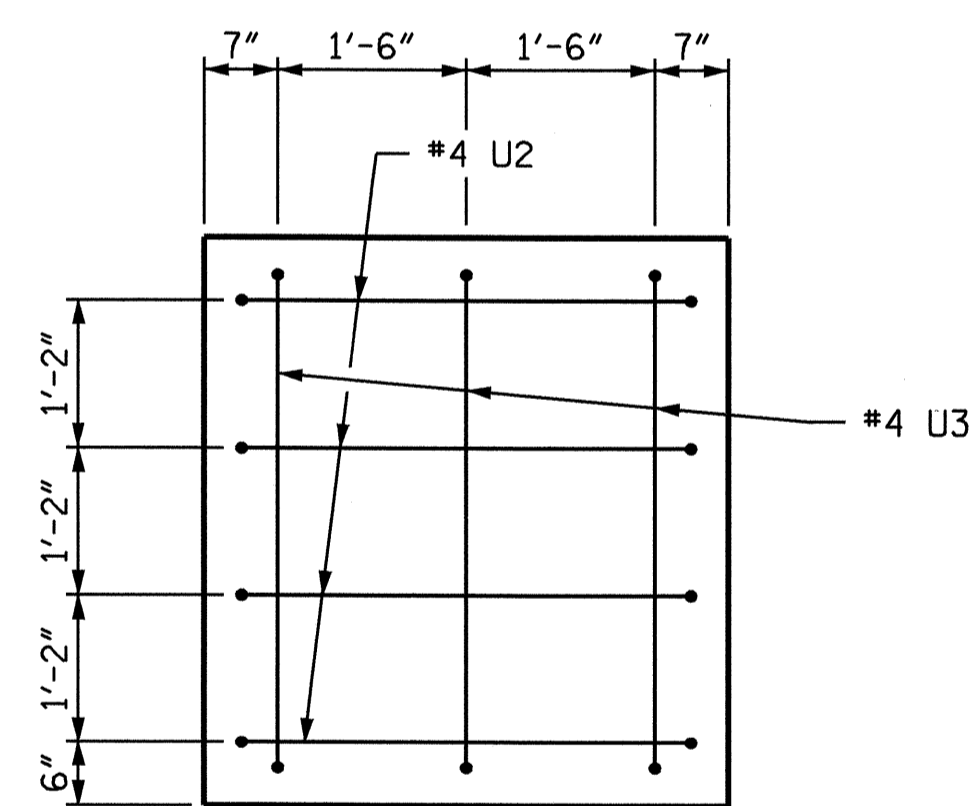
SECTION A-A



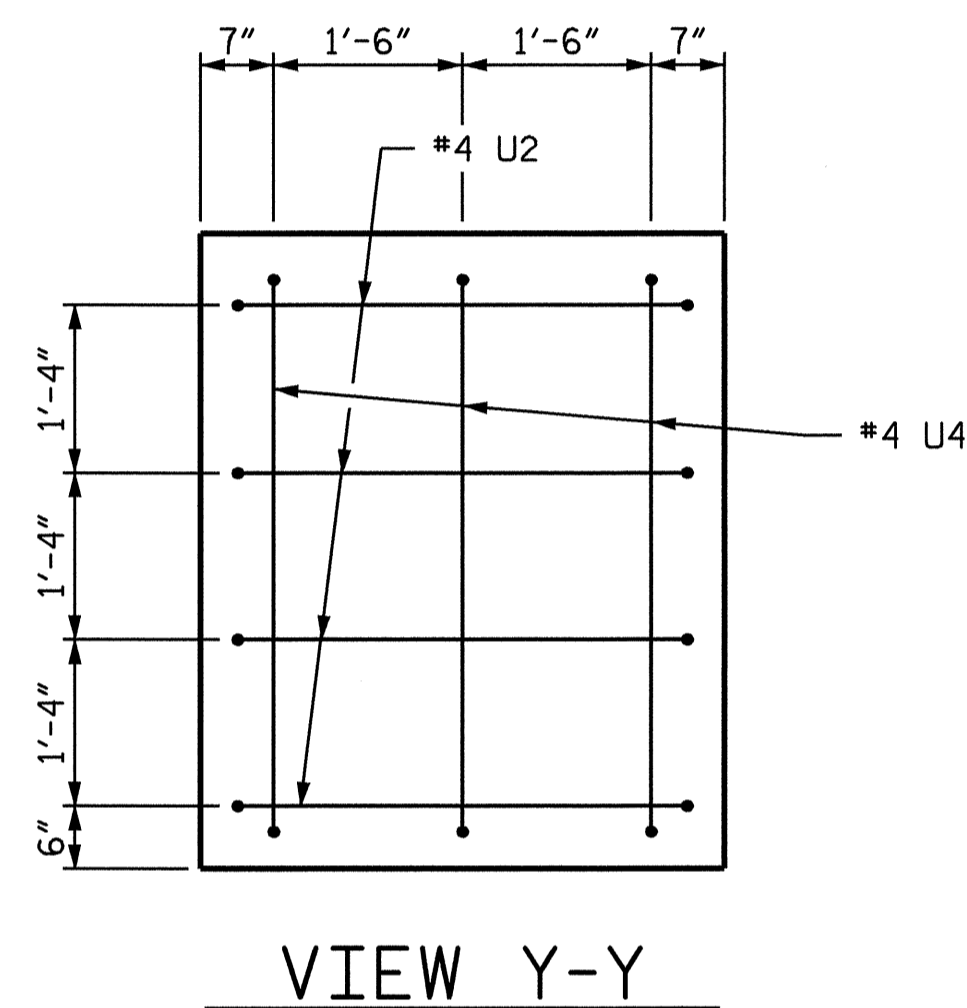
SECTION B-B



PART SECTION C-C



VIEW X-X

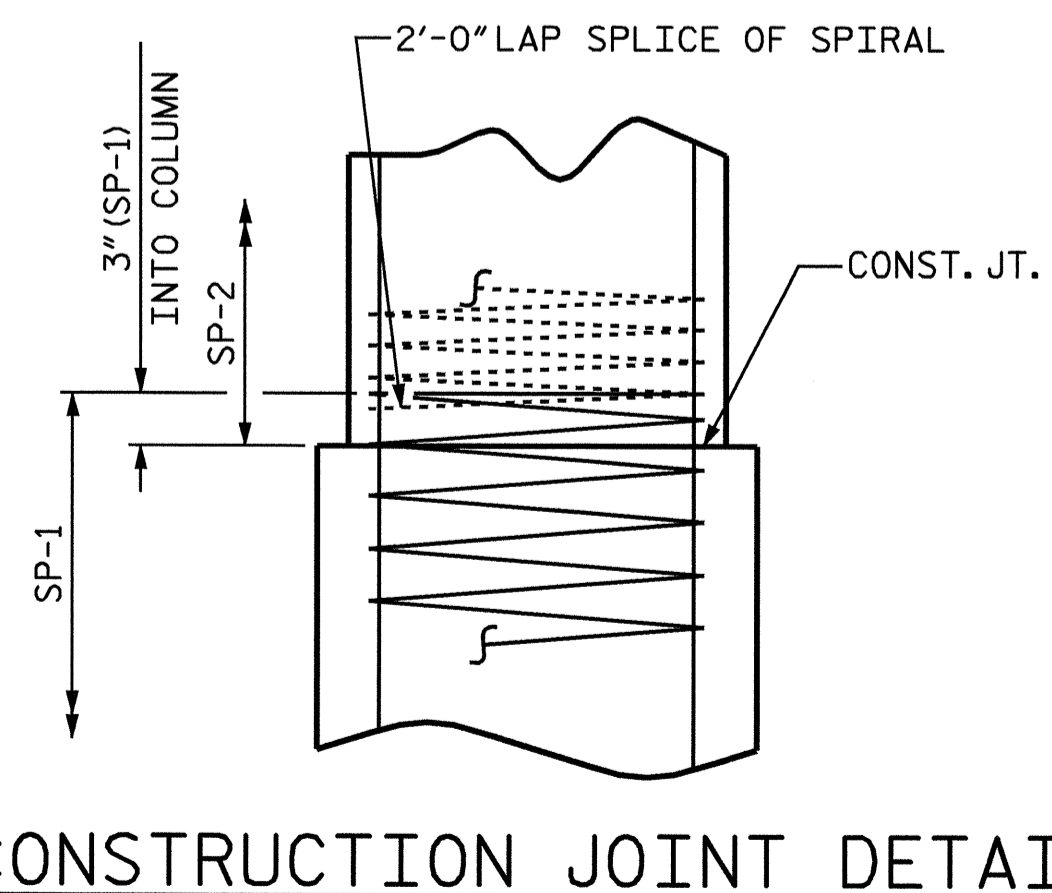


VIEW Y-Y

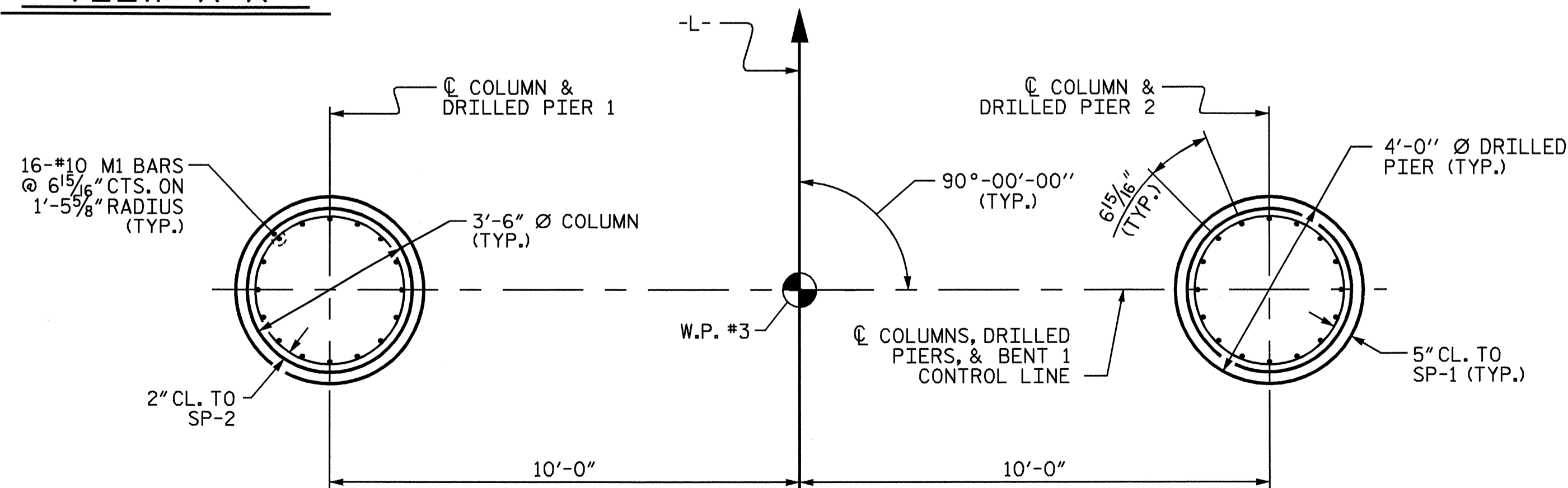
BAR TYPES				

BILL OF MATERIAL					
BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#11		36'-0"	1148
B2	6	#11	STR	33'-0"	1052
B3	6	#5	STR	33'-0"	207
B4	6	#4	STR	13'-9"	55
M1	32	#10	STR	38'-0"	5232
S1	9	#5	2	13'-0"	122
S2	80	#5	2	11'-7"	967
U1	32	#4	3	6'-10"	146
U2	8	#4	3	6'-8"	36
U3	3	#4	3	7'-0"	14
U4	3	#4	3	7'-6"	15
REINFORCING STEEL				LBS.	8,994
SP-1	2	*	4	577'-10"	1205
SP-2	2	**	5	324'-1"	433
SPIRAL COLUMN REINFORCING STEEL				LBS.	1,638
CLASS A CONCRETE					
POUR #2 - COLUMNS				CU. YDS.	5.3
POUR #3 - CAP				CU. YDS.	24.4
TOTAL				CU. YDS.	29.7
DRILLED PIER QUANTITIES:					
DRILLED PIER CONCRETE					
POUR #1 - DRILLED PIERS				CU. YDS.	22.6
4'-0" Ø DRILLED PIERS IN SOIL				LIN. FT.	34.50
4'-0" Ø DRILLED PIERS NOT IN SOIL				LIN. FT.	14.00
CSL TUBES				LIN. FT.	214.00
* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.					
** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.					

ALL BAR DIMENSIONS ARE OUT TO OUT.



CONSTRUCTION JOINT DETAIL



PLAN OF COLUMNS & DRILLED PIERS
(REINFORCING STEEL IS TYPICAL FOR EACH COLUMN & DRILLED PIER)

PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

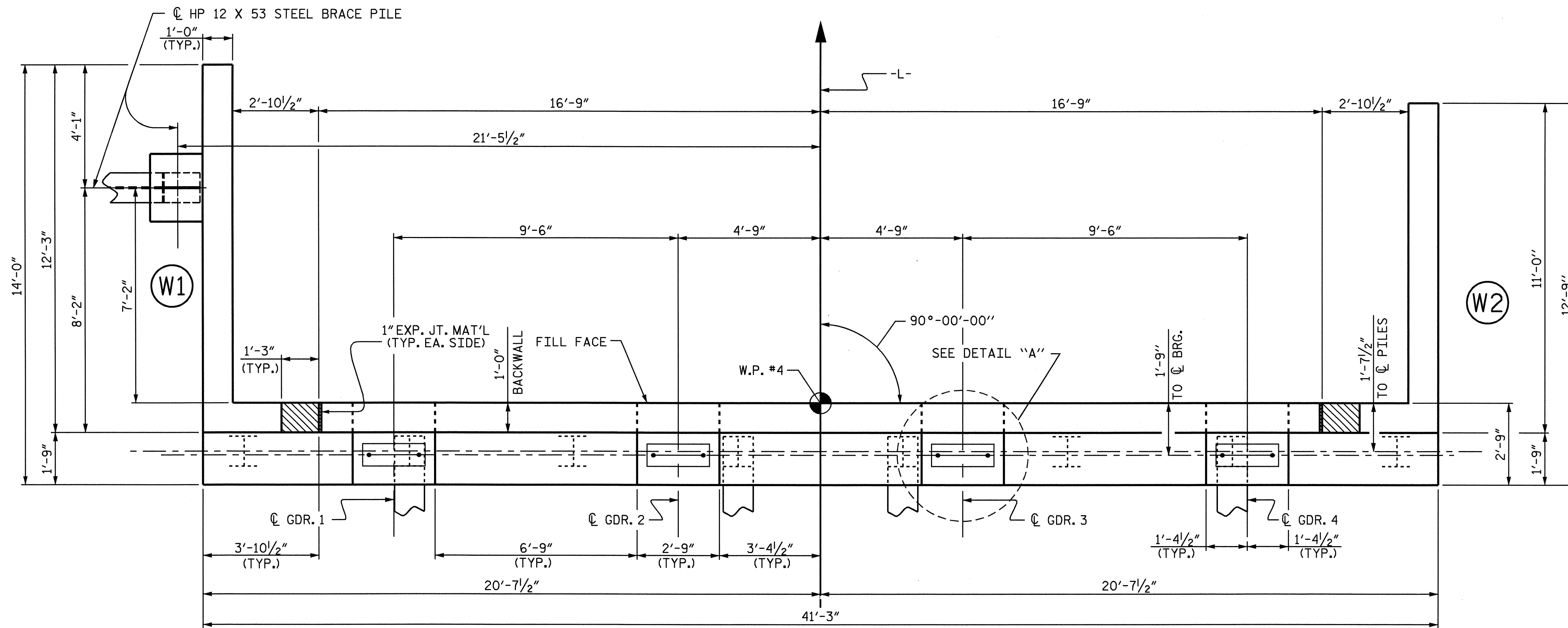
SUBSTRUCTURE
 BENT 2

REVISIONS

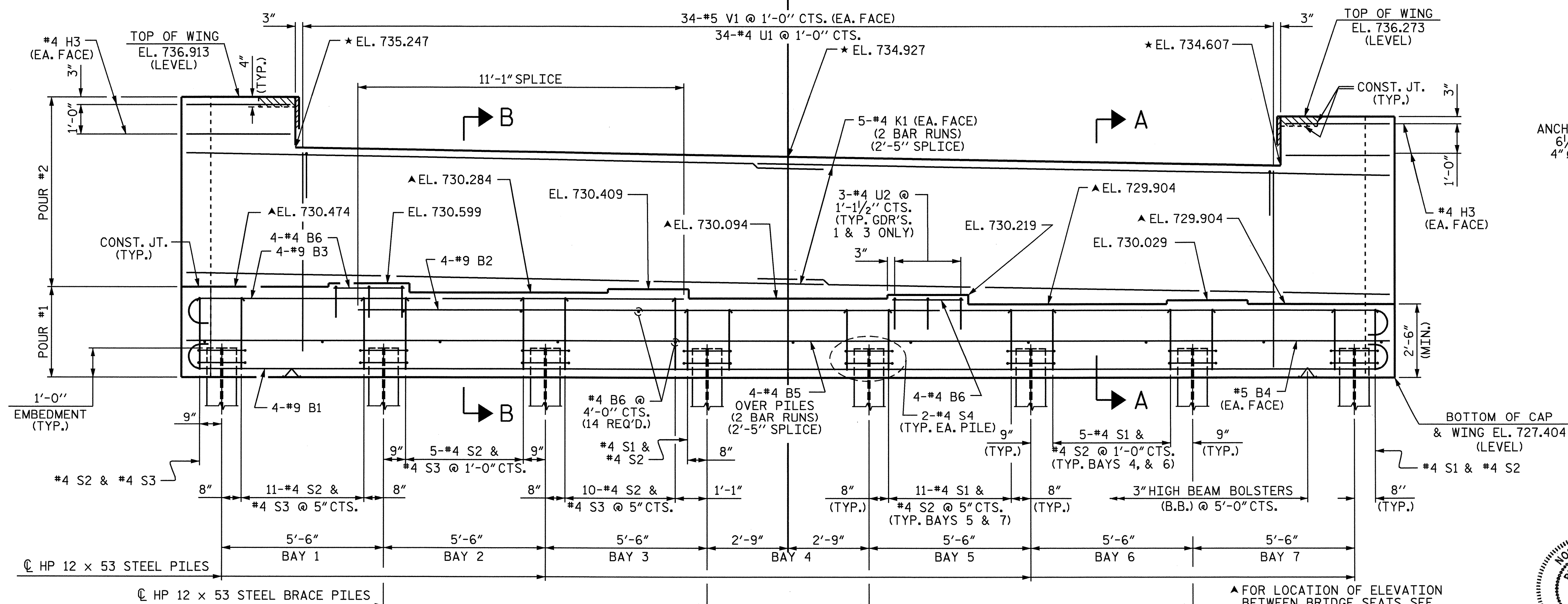
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-30
2			4			TOTAL SHEETS 36



DRAWN BY: B. L. GREEN DATE: 1/10/06
 CHECKED BY: A. S. CALLAWAY DATE: 1/17/07



PLAN

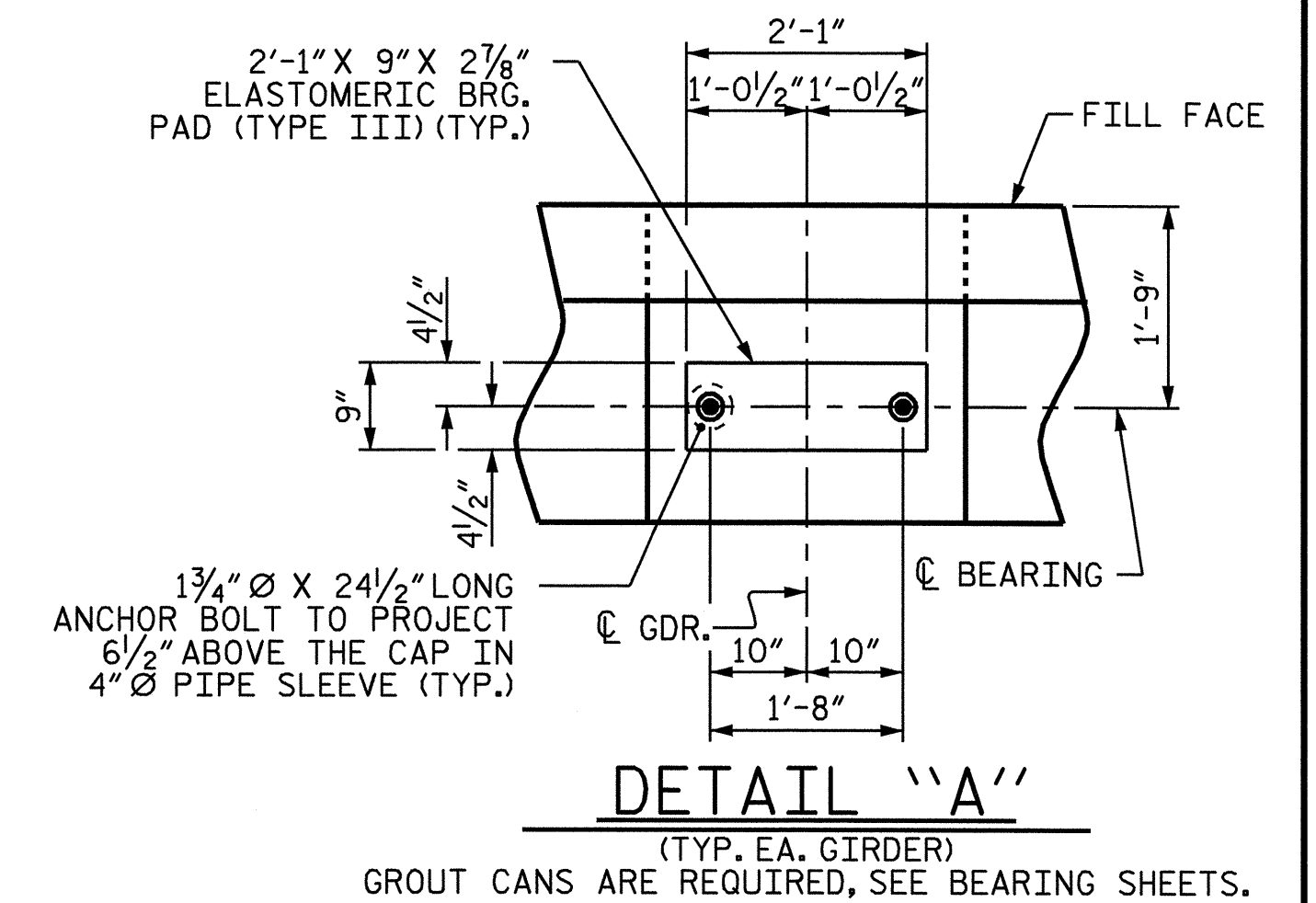


ELEVATION

(FOR CLARITY, BRACE PILE CAPS AT WINGS NOT SHOWN)

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 CAP 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%.
- THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE PARAPET AND END POST ARE 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.
- EPOXY COAT THE END BENT CAP AFTER ADJUSTMENTS ARE MADE TO BEARINGS AND ANCHOR BOLTS ARE GROUTED.
- THE #5 V1 BARS IN THE BACKWALL SHALL BE PLACED 2" CLEAR FROM THE TOP OF THE BACKWALL.



DETAIL "A"

(TYP. EA. GIRDER)
GROUT CANS ARE REQUIRED, SEE BEARING SHEETS.

PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

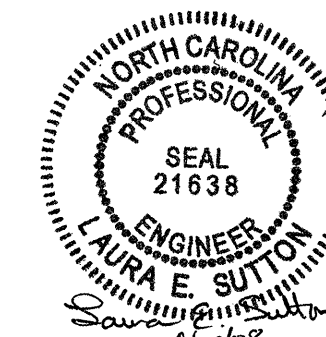
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT 2**

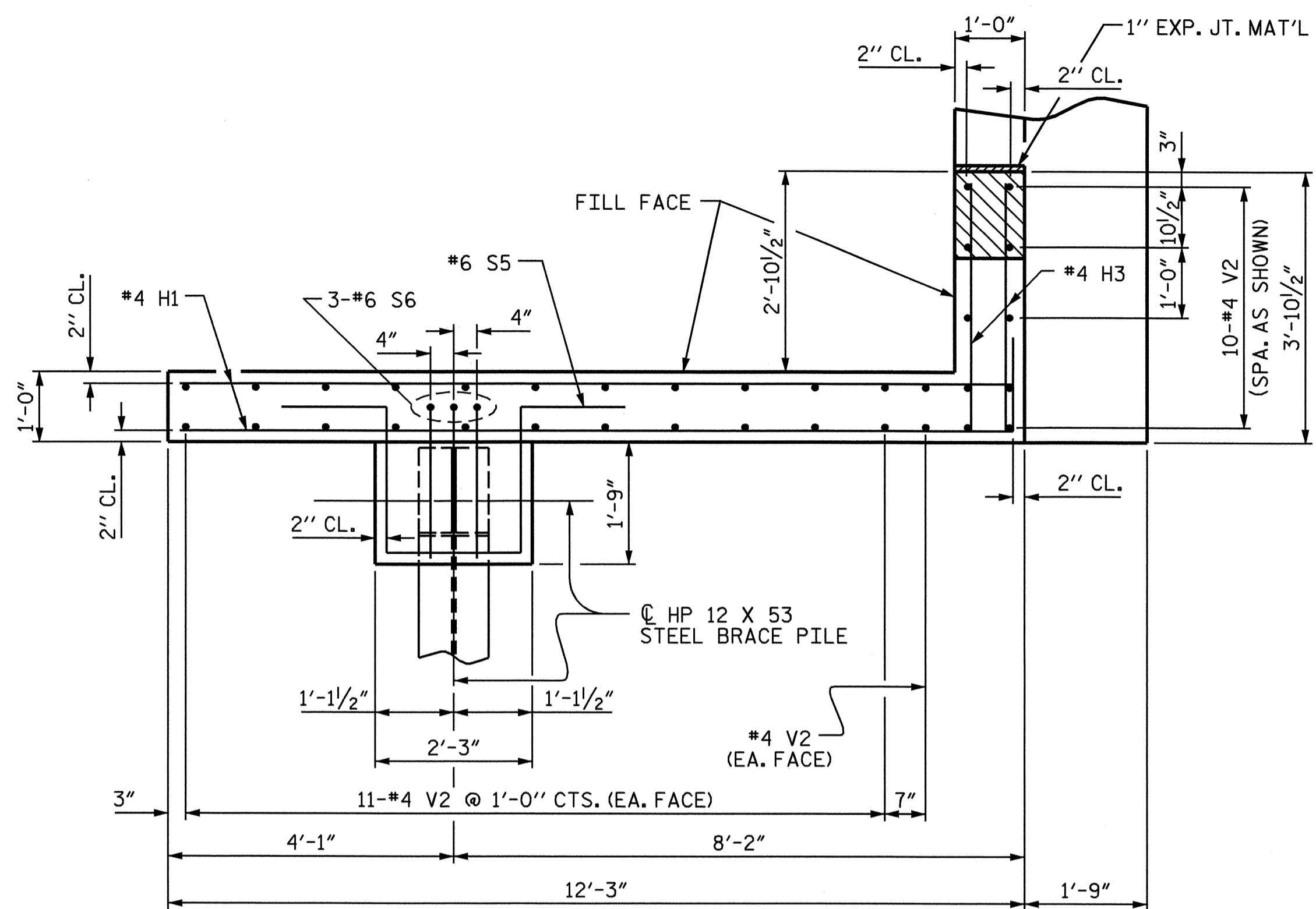
REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-31
2			4			TOTAL SHEETS 36

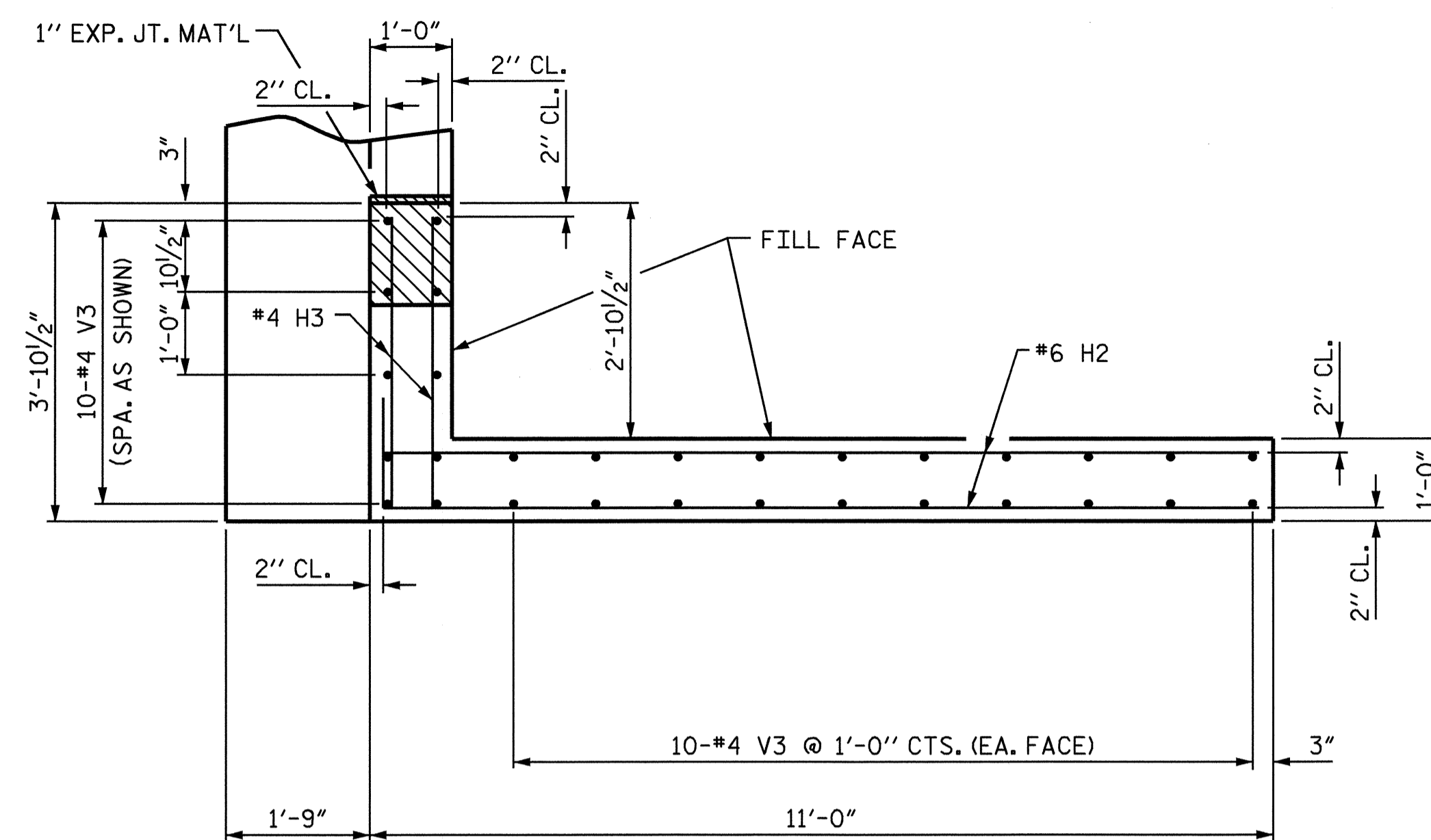


DRAWN BY: B. L. GREEN DATE: 12/11/06
 CHECKED BY: A. S. CALLAWAY DATE: 12/19/06

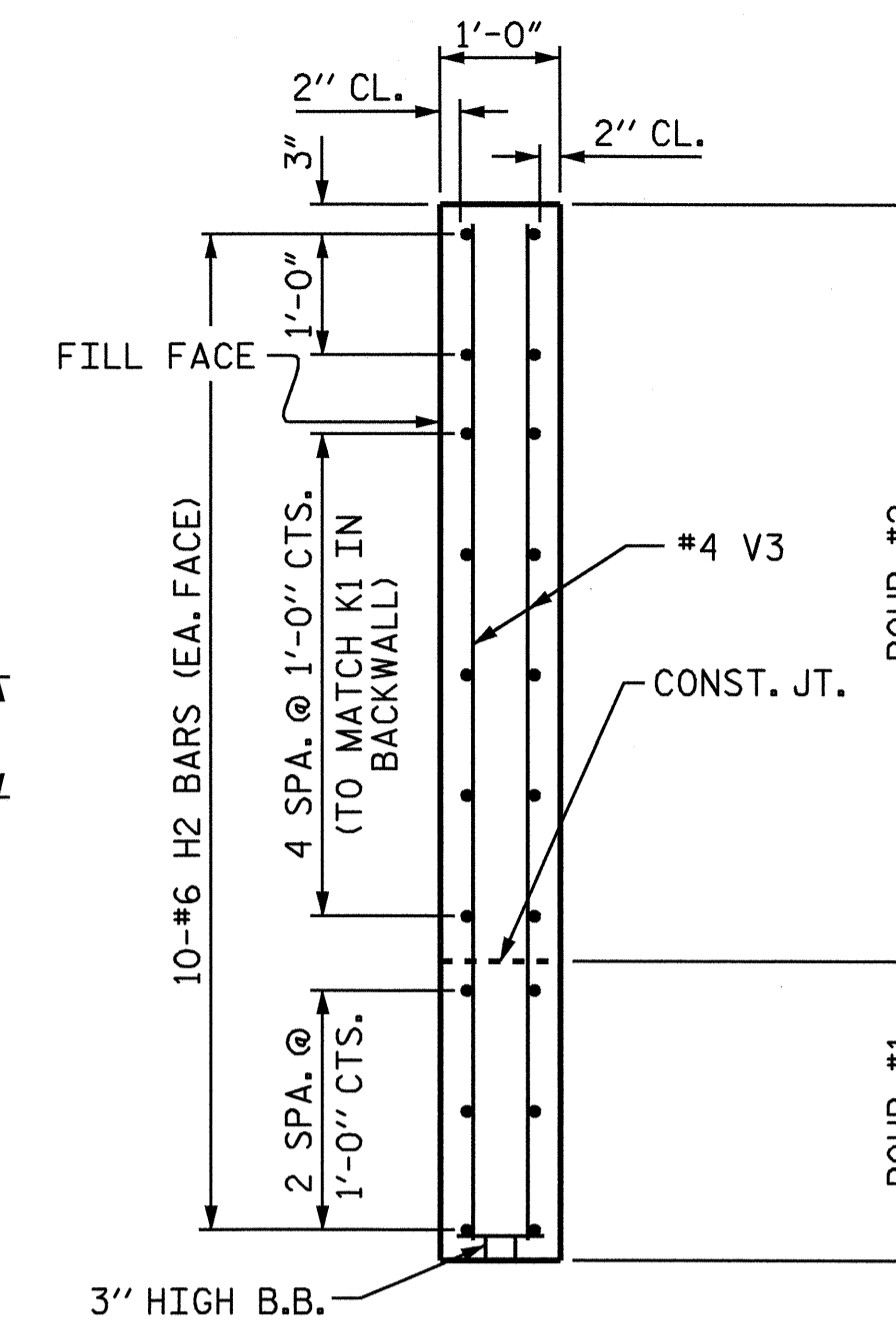
▲ FOR LOCATION OF ELEVATION BETWEEN BRIDGE SEATS, SEE SHEET 3 OF 3.
 * THIS ELEVATION TAKEN ON FILL FACE OF BACKWALL.



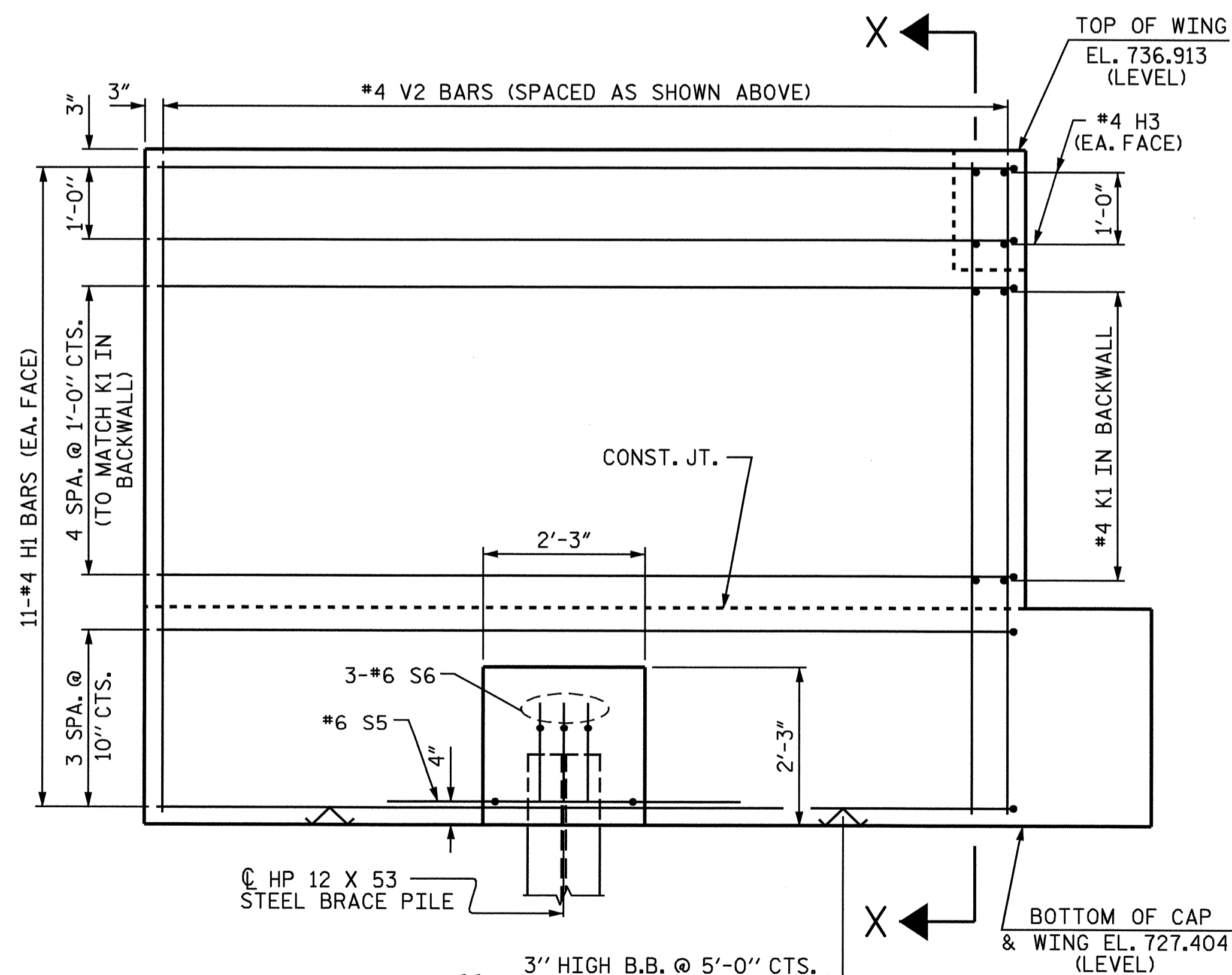
PLAN OF WING (W1)



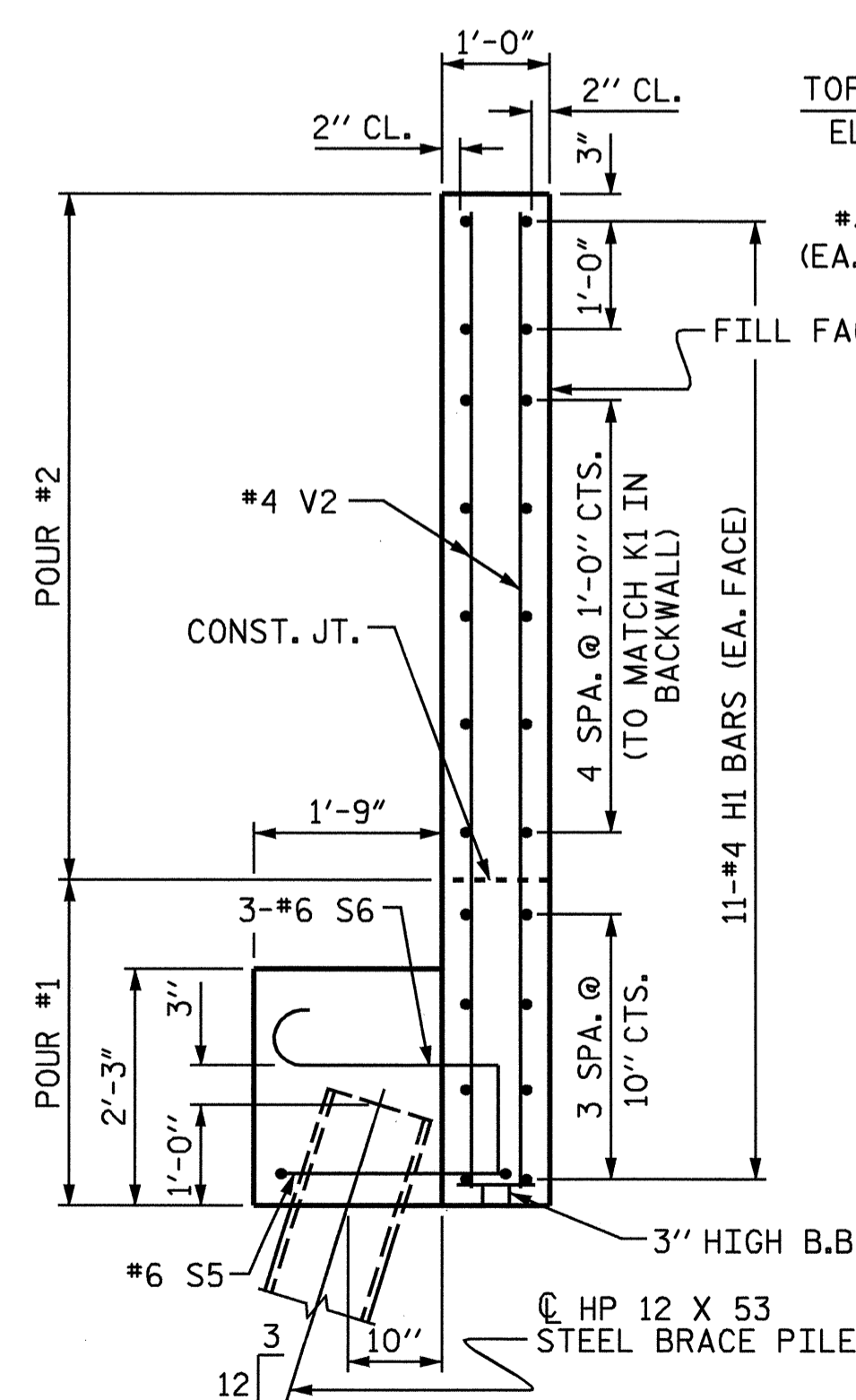
PLAN OF WING (W2)



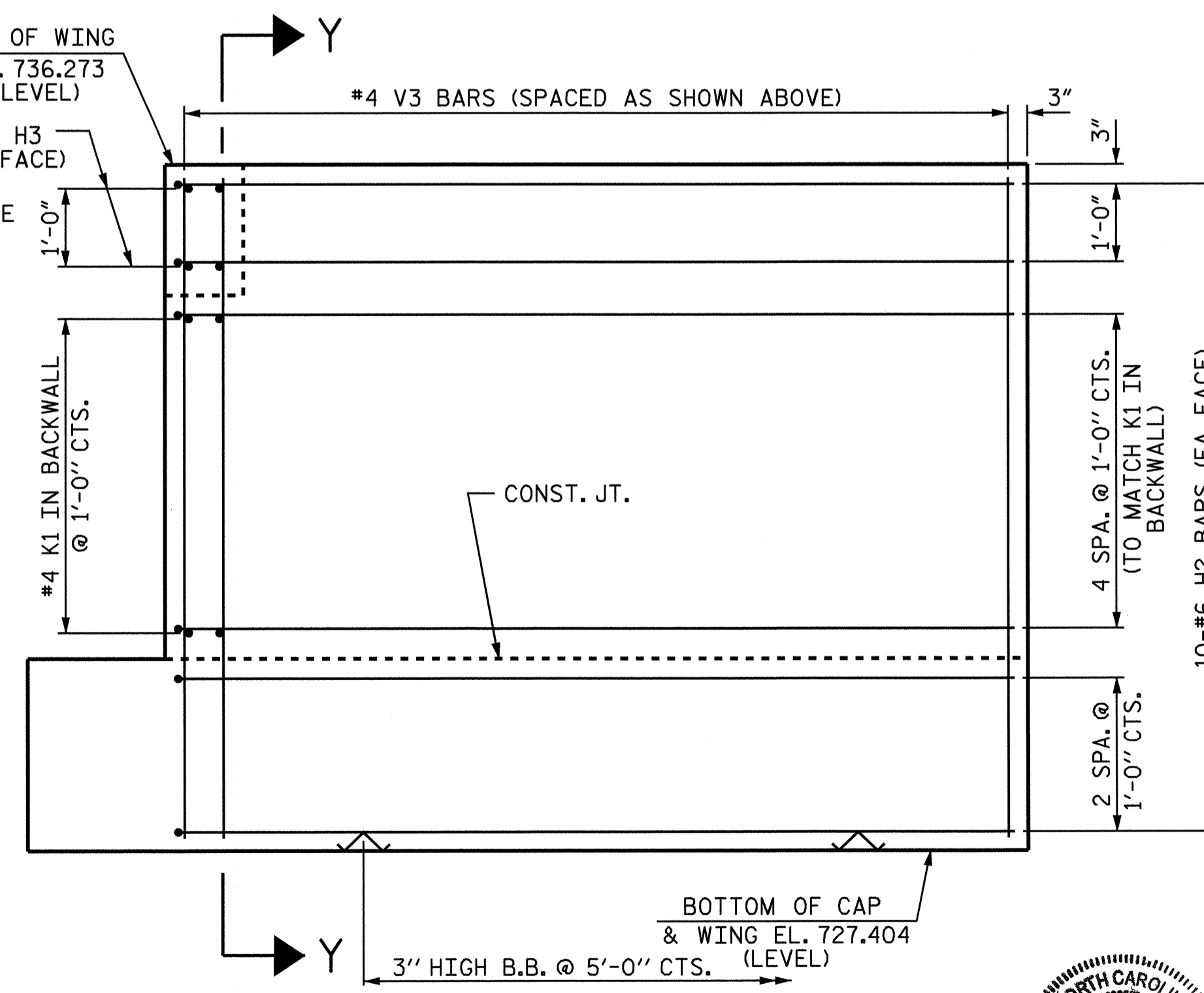
SECTION Y-Y



ELEVATION OF WING (W1)



SECTION X-X



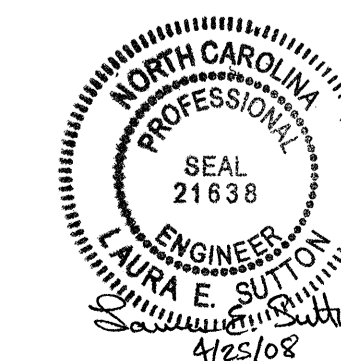
ELEVATION OF WING (W2)

PROJECT NO. B-4281
 STOKES COUNTY
 STATION: 19+60.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2

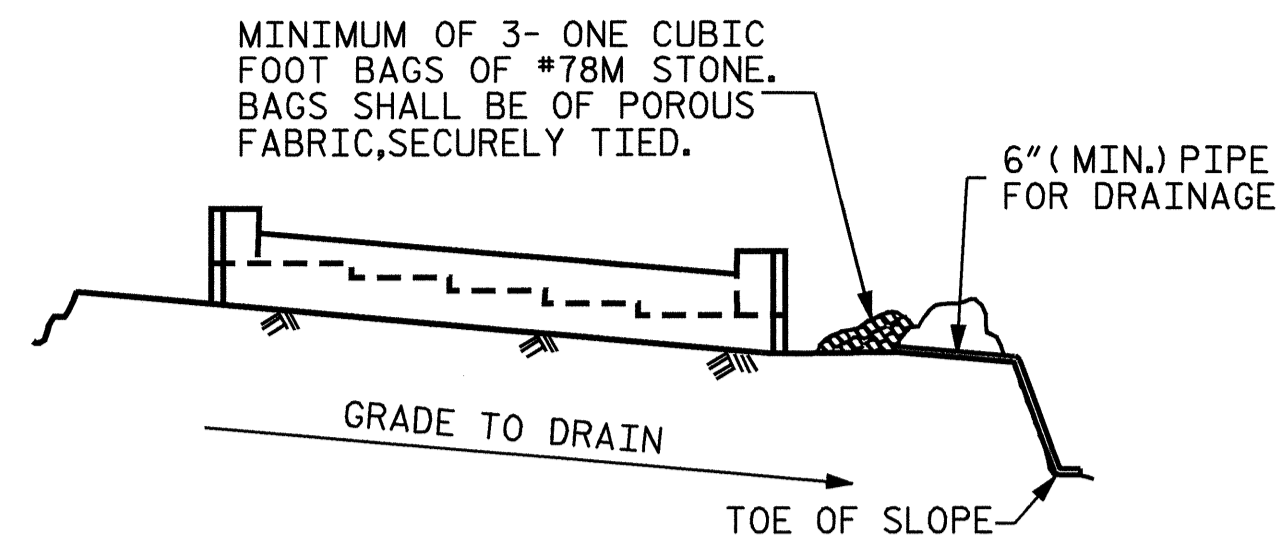


DRAWN BY: B. L. GREEN DATE: 12/11/06
 CHECKED BY: A. S. CALLAWAY DATE: 12/19/06

22-APR-2008 10:52
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 warker

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

S-32
 TOTAL SHEETS
 36



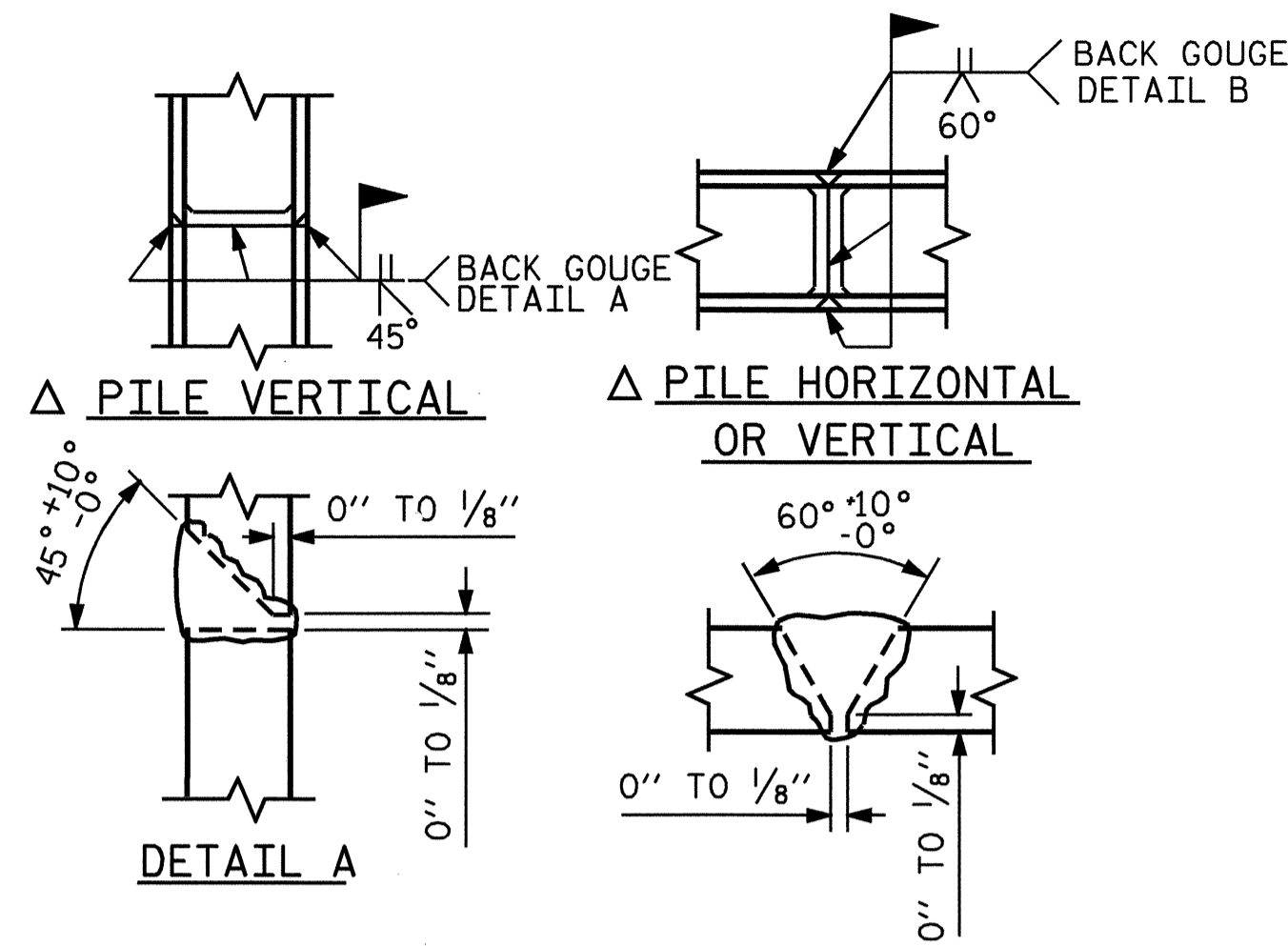
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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

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

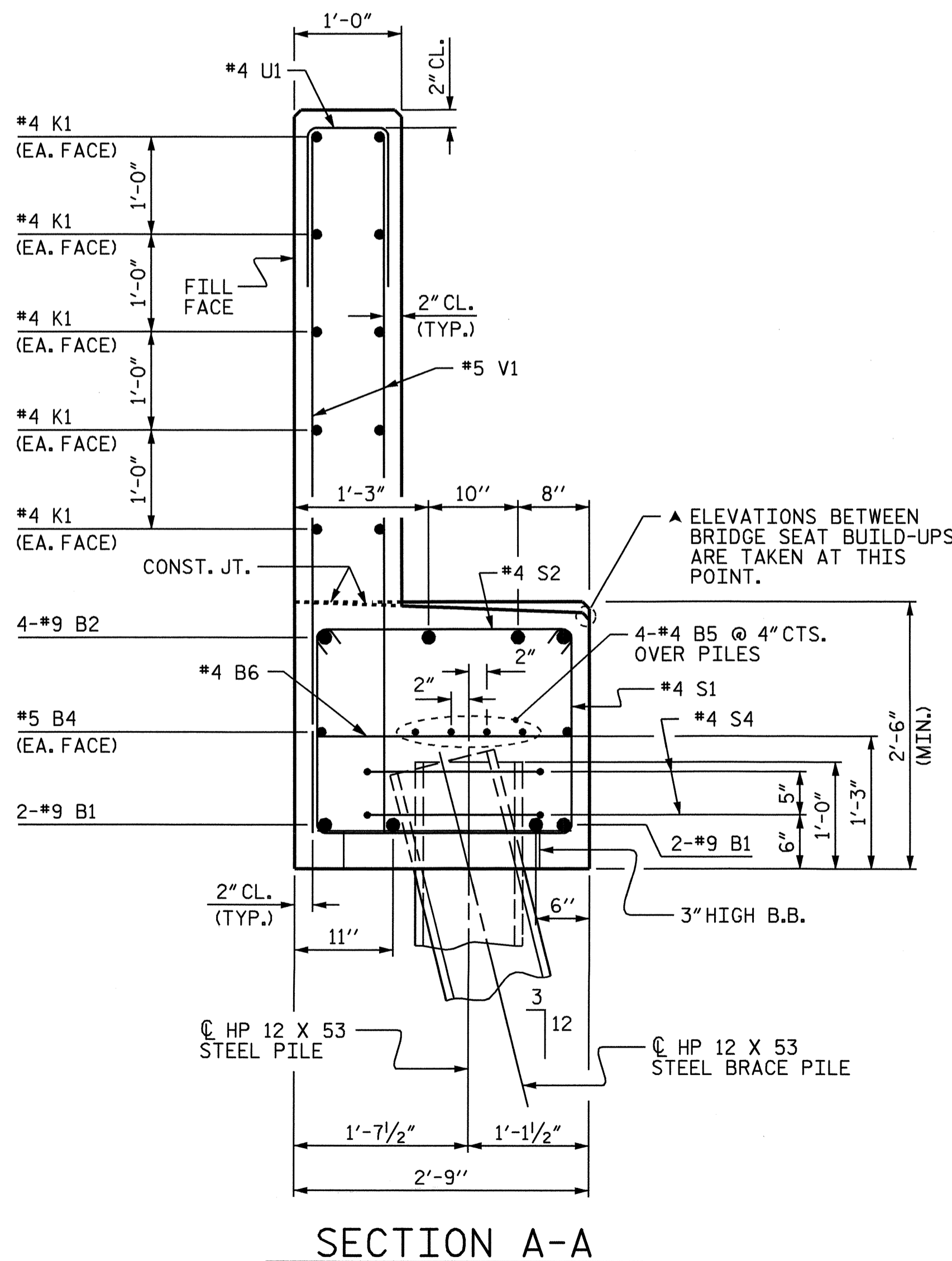
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

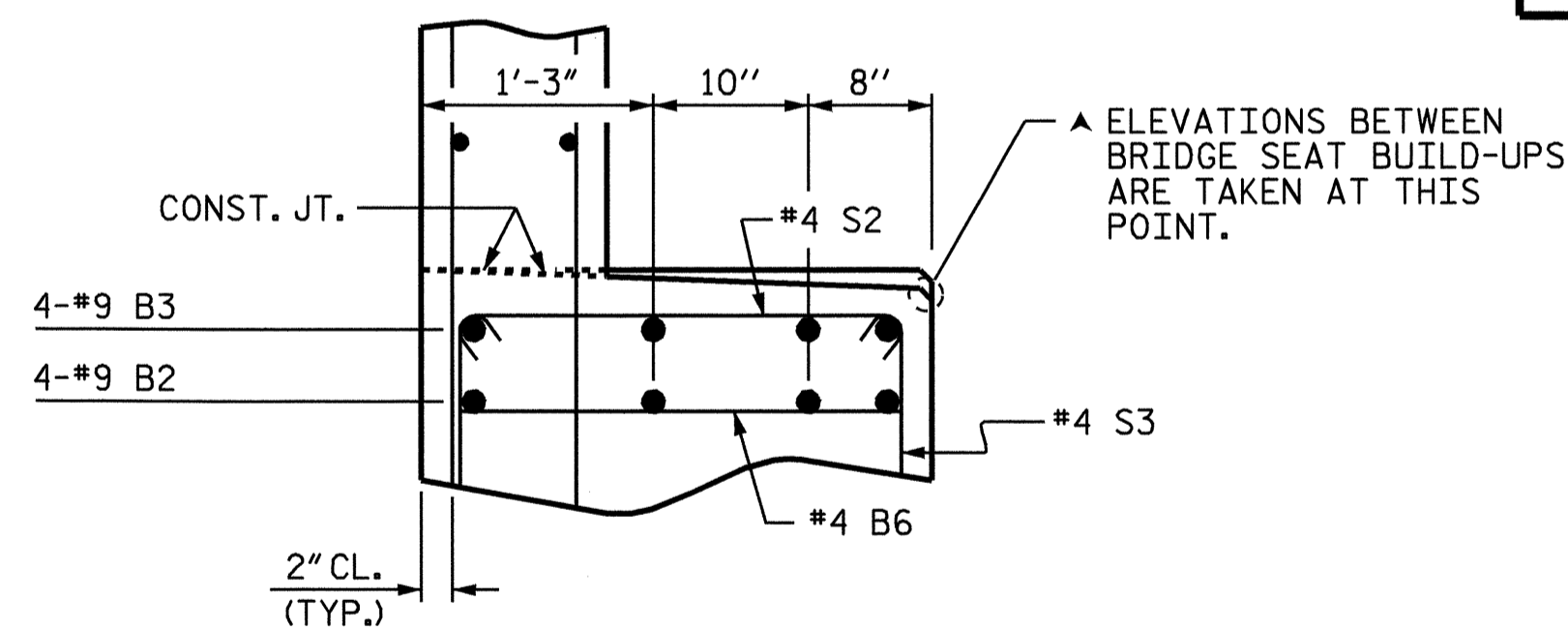


△ POSITION OF PILE DURING WELDING. **PILE SPLICE DETAILS**

BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	1	43'-3"	588
B2	4	#9	2	36'-3"	493
B3	4	#9	2	18'-1"	246
B4	2	#5	STR	40'-11"	85
B5	8	#4	STR	21'-8"	116
B6	22	#4	STR	2'-5"	36
H1	22	#4	7	12'-7"	185
H2	20	#6	7	11'-4"	340
H3	8	#4	STR	3'-6"	19
K1	20	#4	STR	21'-8"	289
S1	34	#4	3	7'-5"	168
S2	61	#4	4	3'-2"	129
S3	27	#4	3	8'-2"	147
S4	16	#4	5	6'-6"	69
S5	1	#6	8	8'-11"	13
S6	3	#6	9	3'-9"	17
U1	34	#4	6	3'-8"	83
U2	6	#4	6	5'-5"	22
V1	68	#5	STR	6'-9"	479
V2	34	#4	STR	9'-1"	206
V3	30	#4	STR	8'-5"	169
REINFORCING STEEL				LBS.	3,899
CLASS A CONCRETE BREAKDOWN :					
POUR #1 - CAP, LOWER WINGS & BRACE PILE CAPS				CU. YDS.	14.1
POUR #2 - UPPER WINGS				CU. YDS.	12.5
TOTAL				CU. YDS.	26.6
HP 12 x 53 STEEL PILES				LIN. FT.	270
NO. = 9					



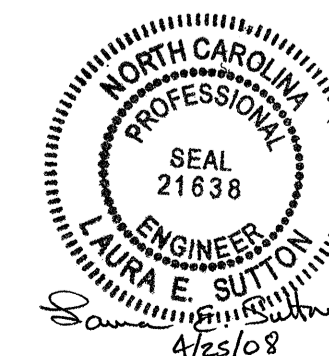
SECTION A-A



PARTIAL SECTION B-B

DRAWN BY : B.L. GREEN DATE : 12/5/06
 CHECKED BY : A. S. CALLAWAY DATE : 12/19/06

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PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

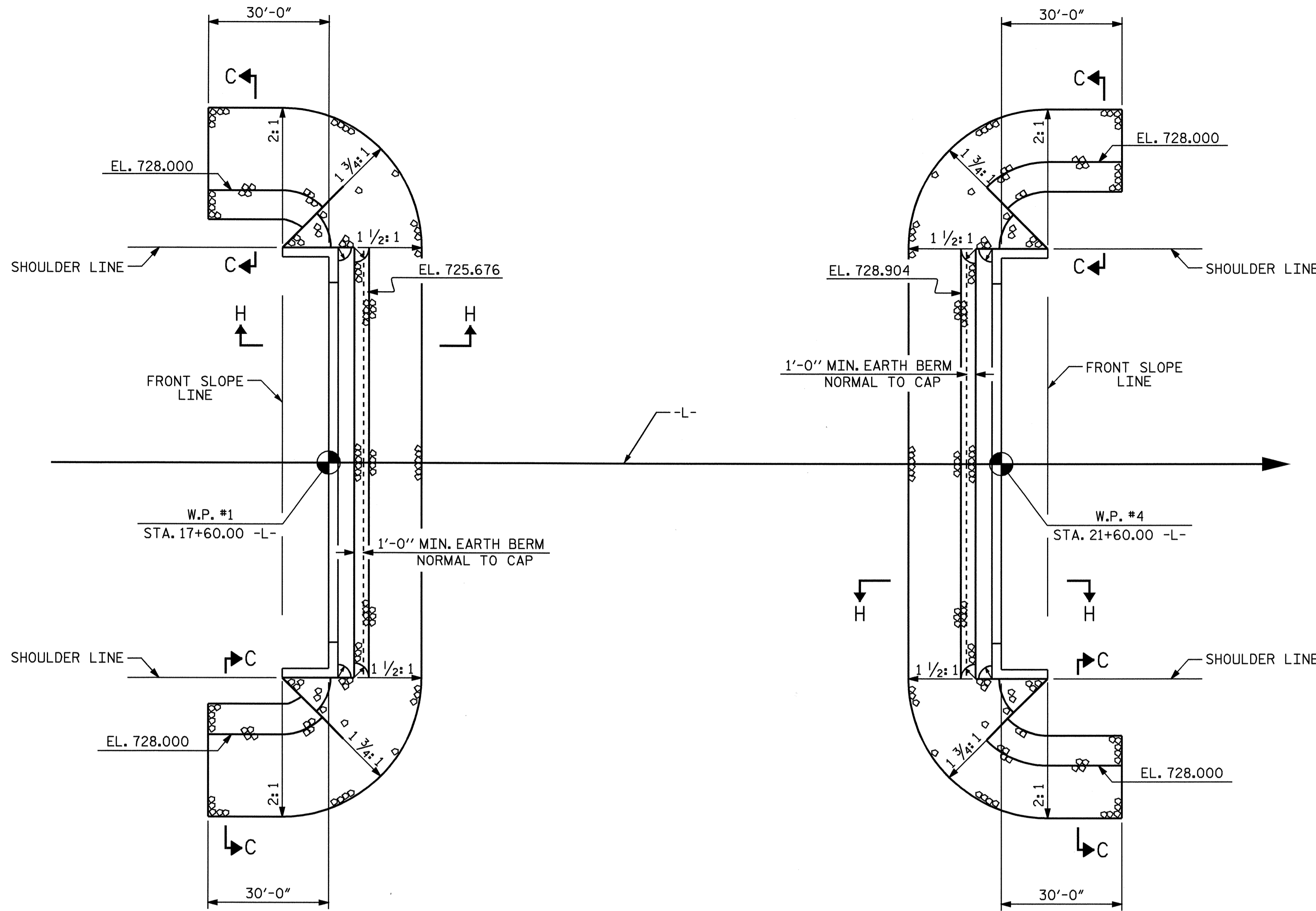
SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2

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

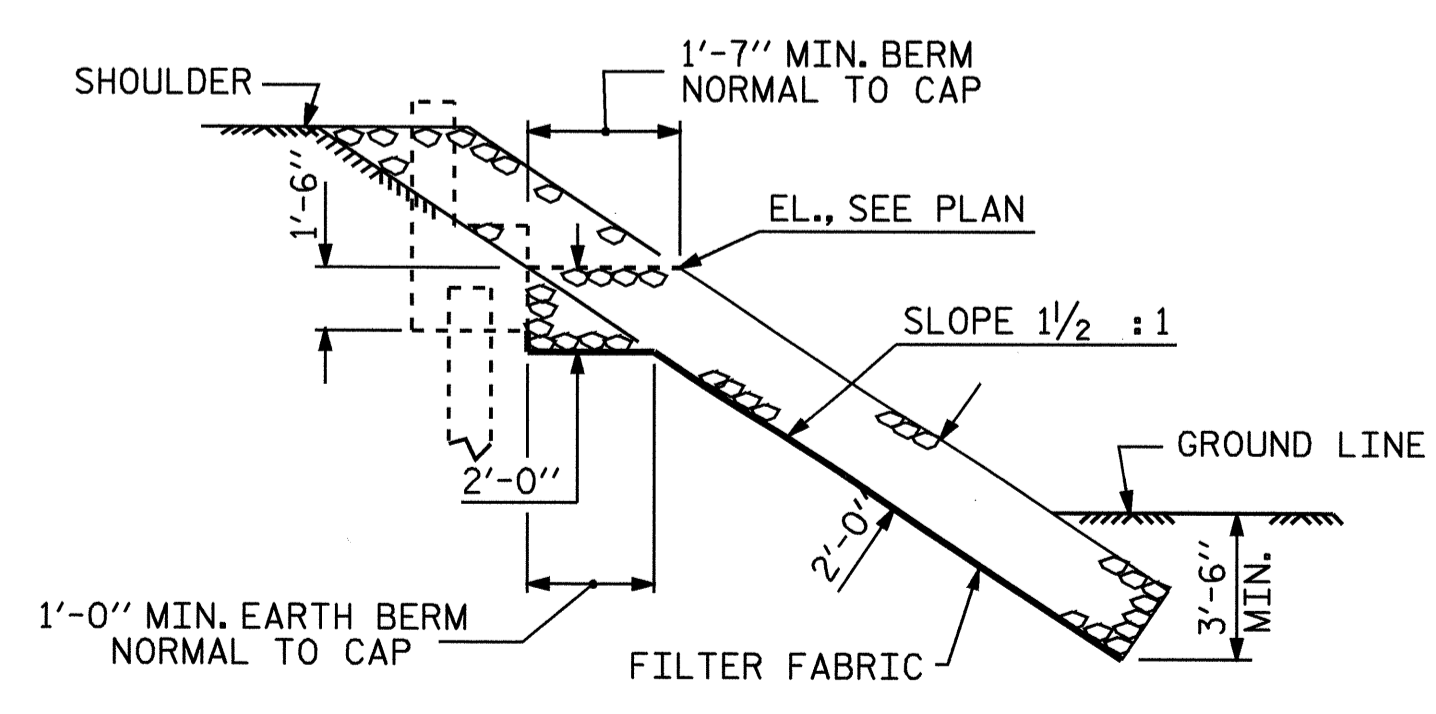
S-33
 TOTAL SHEETS
 36



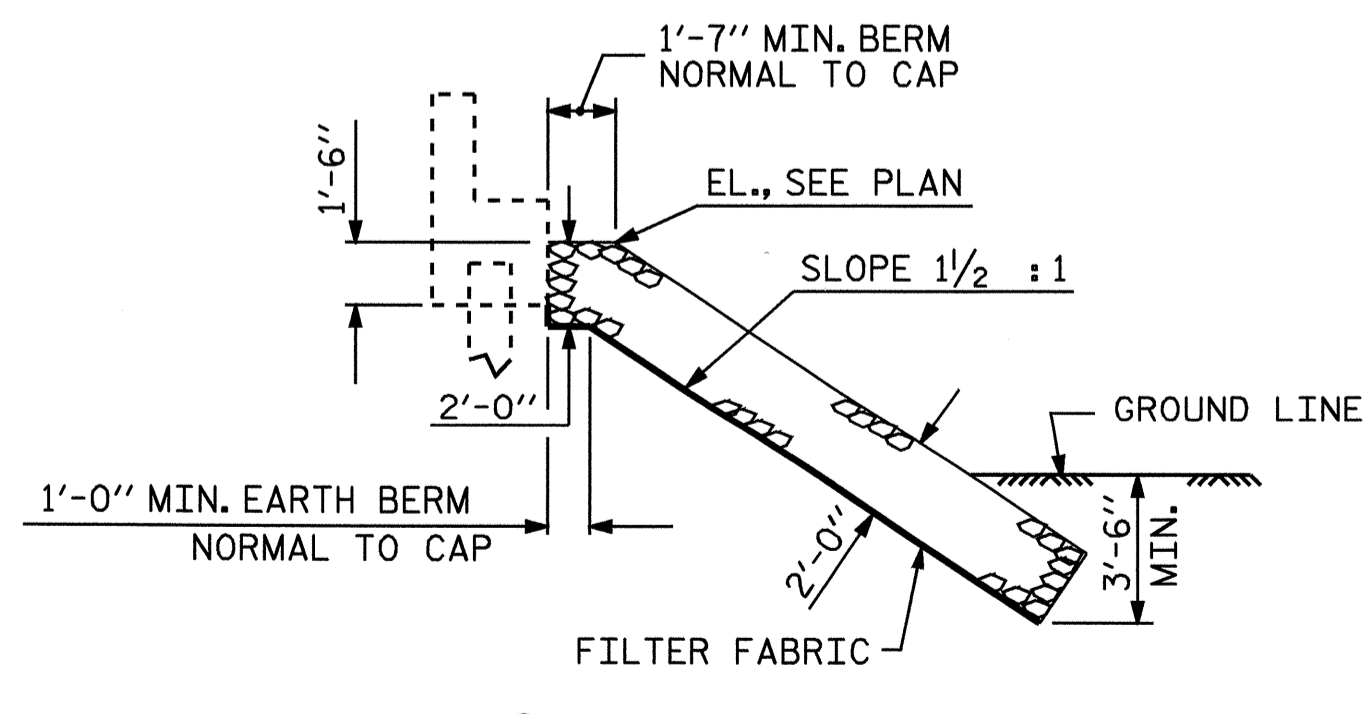
@ END BENT 1

@ END BENT 2

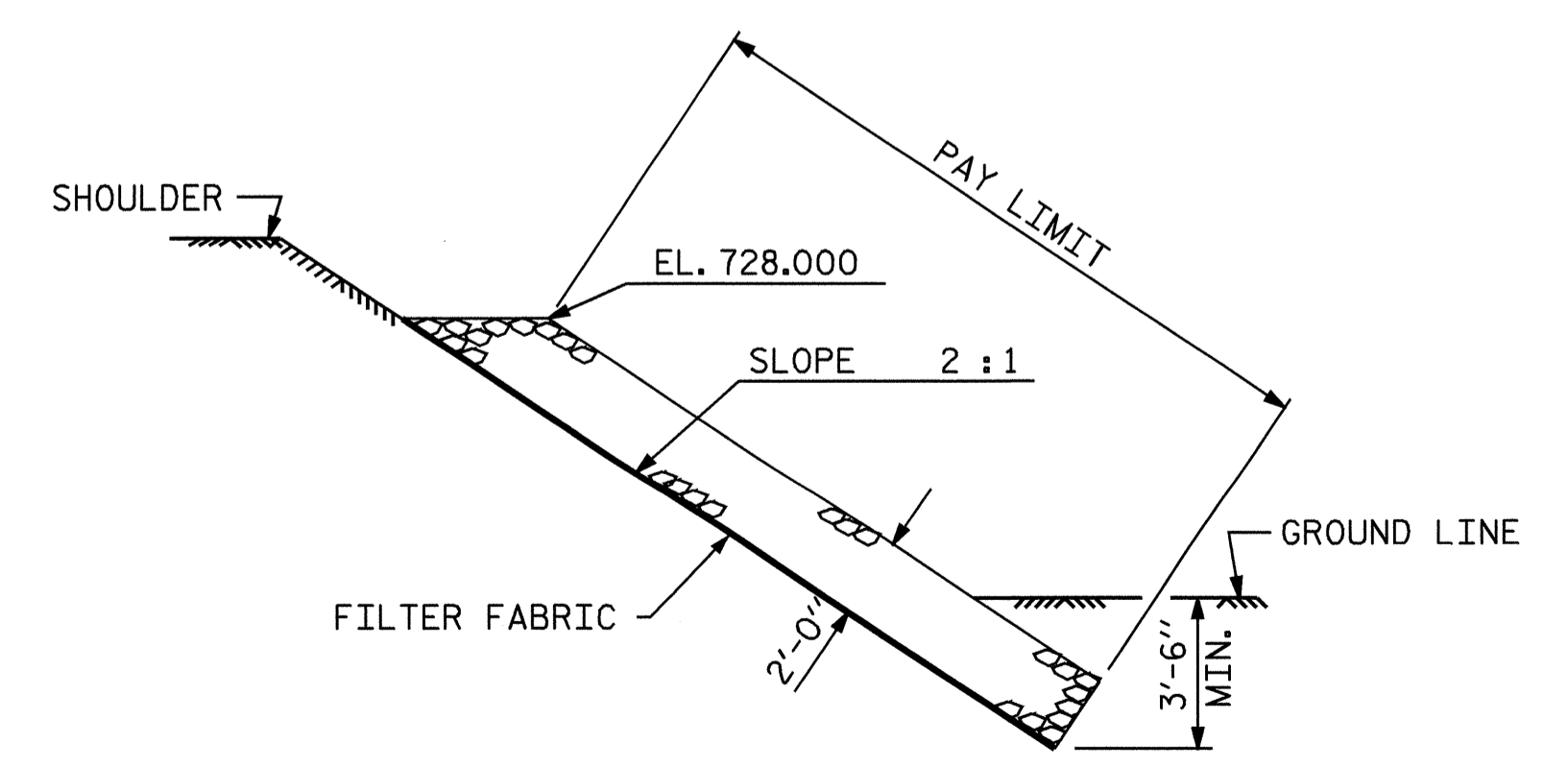
ESTIMATED QUANTITIES		
BRIDGE @ STA. 19+60.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	250	278
END BENT 2	340	378



SECTION H-H



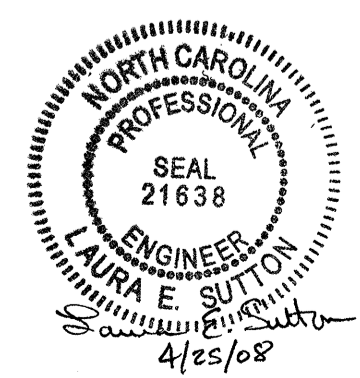
SECTION C-C



SECTION C-C

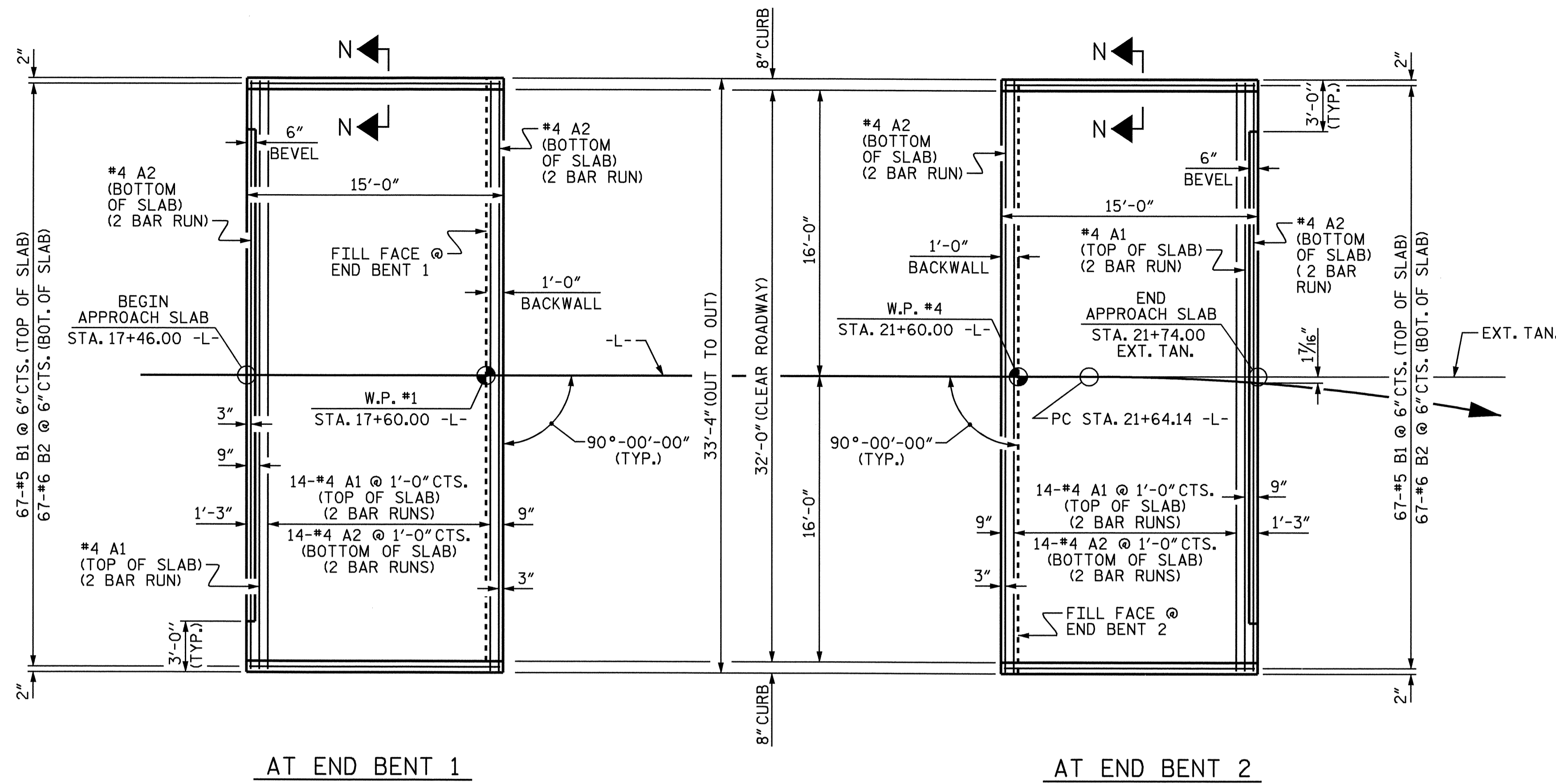
PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RIP RAP DETAILS

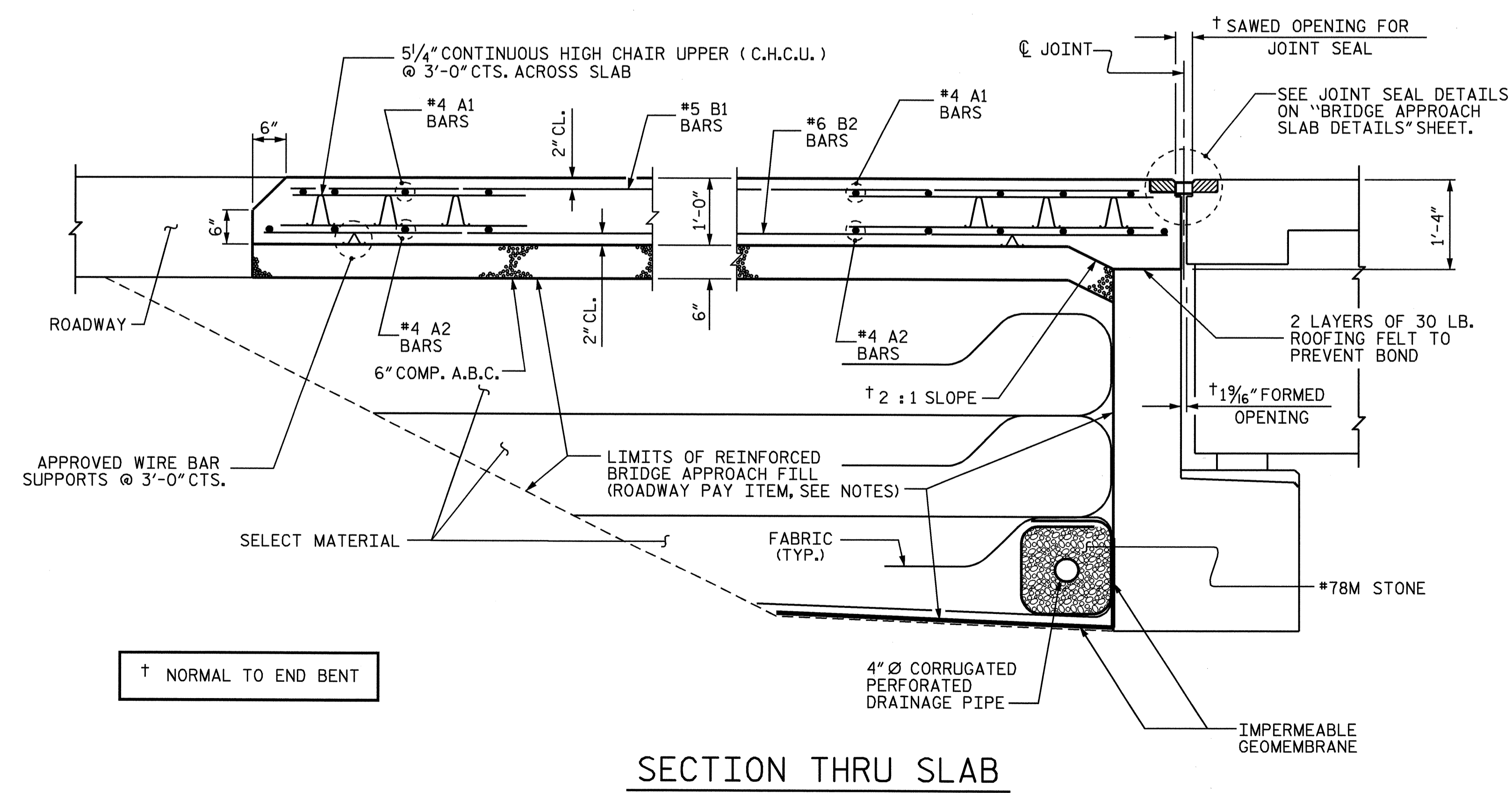


ASSEMBLED BY: E.C. LOCKLEAR DATE: 4-05-06
 CHECKED BY: P.C. BREWER DATE: 5-24-06
 DRAWN BY: FCJ 2/88 REV. 8/16/99 RWW/LES
 CHECKED BY: ARB 8/88 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM

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



PLAN OF APPROACH SLAB



SECTION THRU SLAB

NOTES

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

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

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

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

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

THE 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.

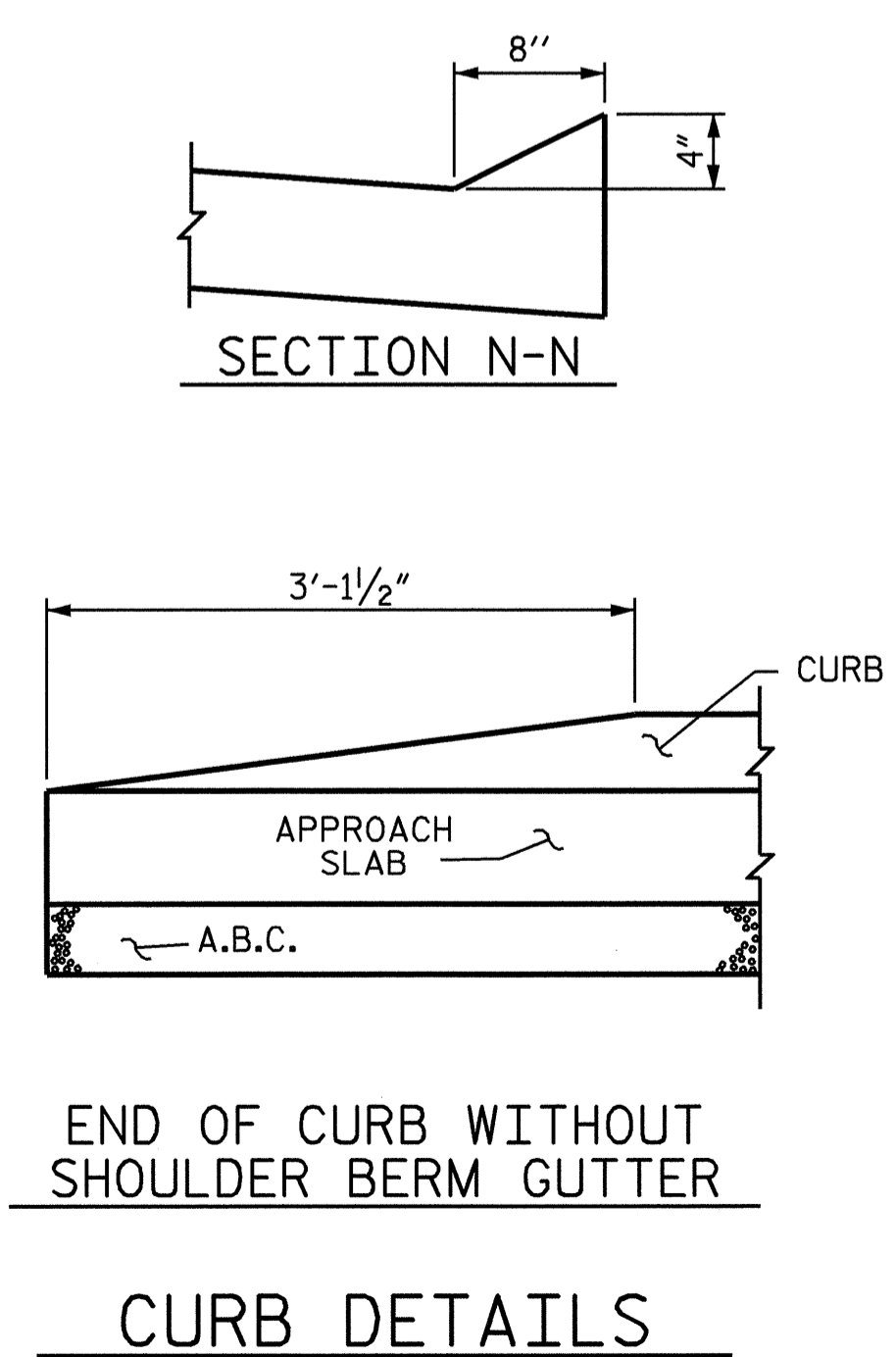
THE JOINT SHALL BE SAWS PRIOR TO THE CASTING OF THE BARRIER RAIL. FOR EXTENDED TANGENT DETAILS, SEE "GENERAL DRAWING" SHEETS.

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 3/16".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.



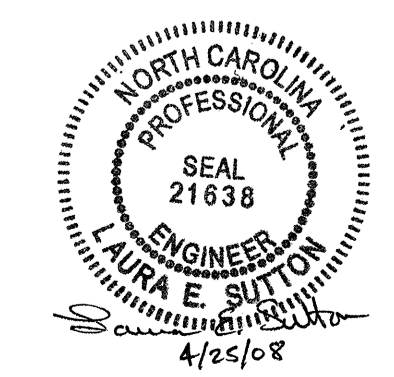
CURB DETAILS

BILL OF MATERIAL					
AT END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	17'-6"	351
A2	32	#4	STR	17'-5"	372
*B1	67	#5	STR	13'-10"	967
B2	67	#6	STR	14'-8"	1476
REINFORCING STEEL					LBS. 1,848
* EPOXY COATED REINFORCING STEEL					LBS. 1,318
CLASS AA CONCRETE					CU. YDS. 19.1
AT END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	17'-6"	351
A2	32	#4	STR	17'-5"	372
*B1	67	#5	STR	13'-10"	967
B2	67	#6	STR	14'-8"	1476
REINFORCING STEEL					LBS. 1,848
* EPOXY COATED REINFORCING STEEL					LBS. 1,318
CLASS AA CONCRETE					CU. YDS. 19.1

PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

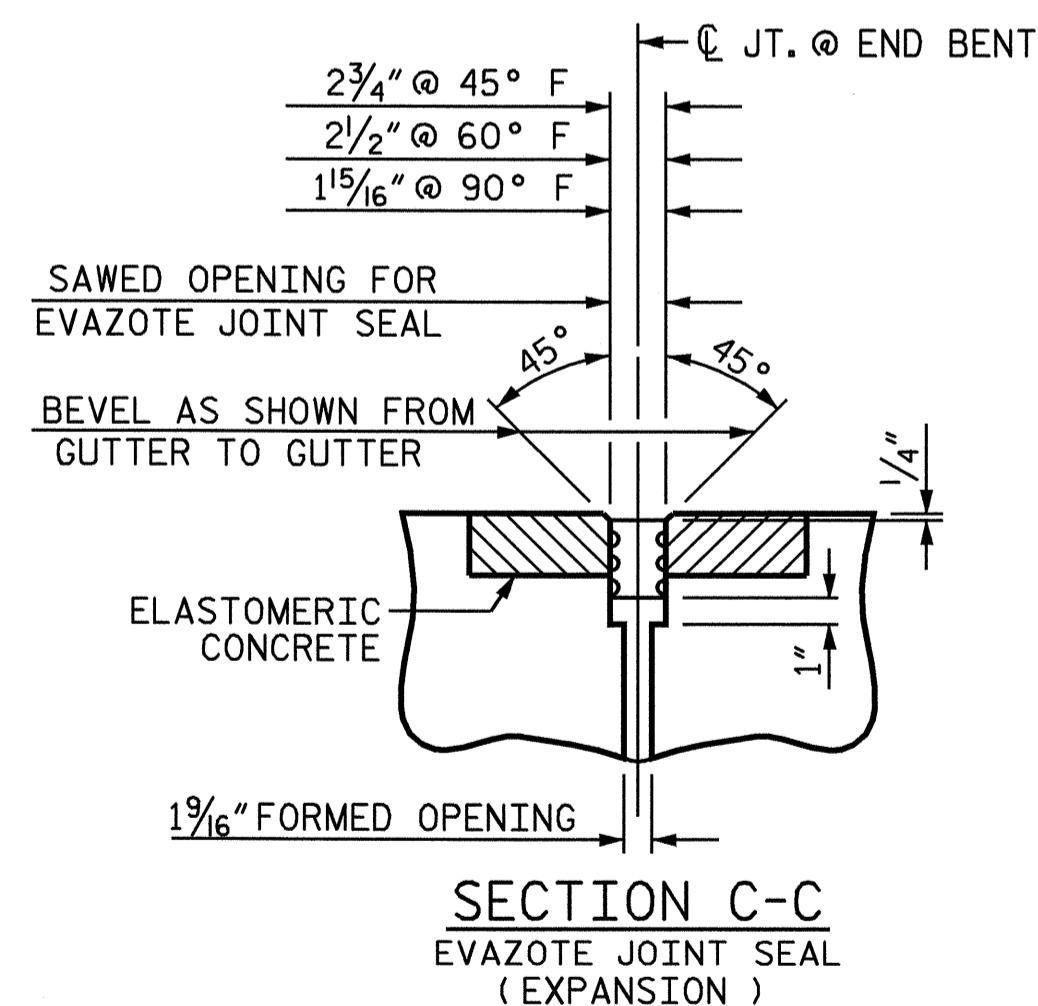
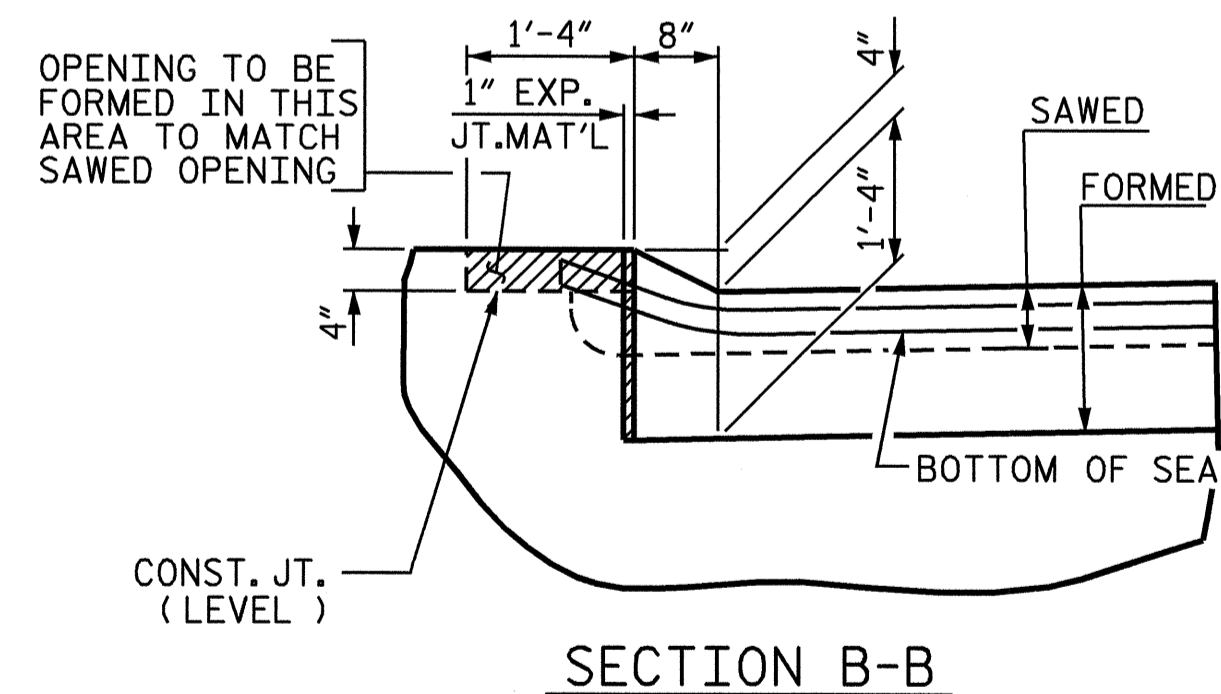
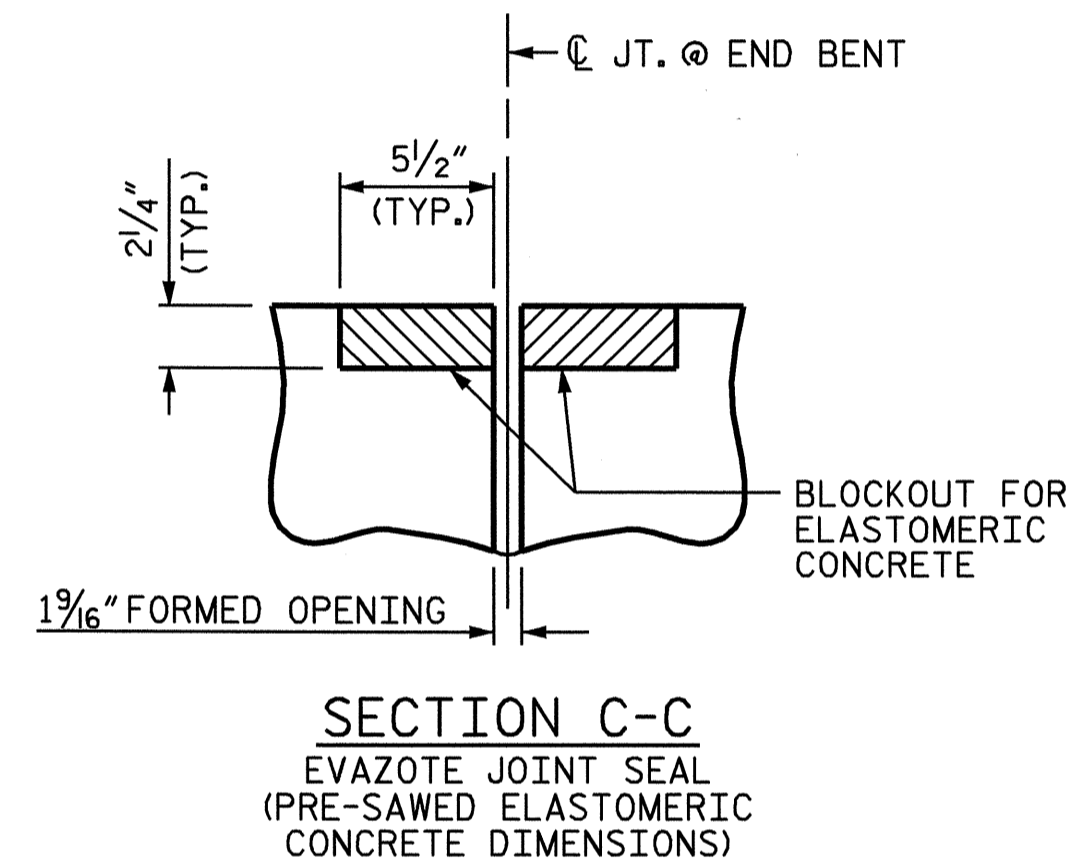
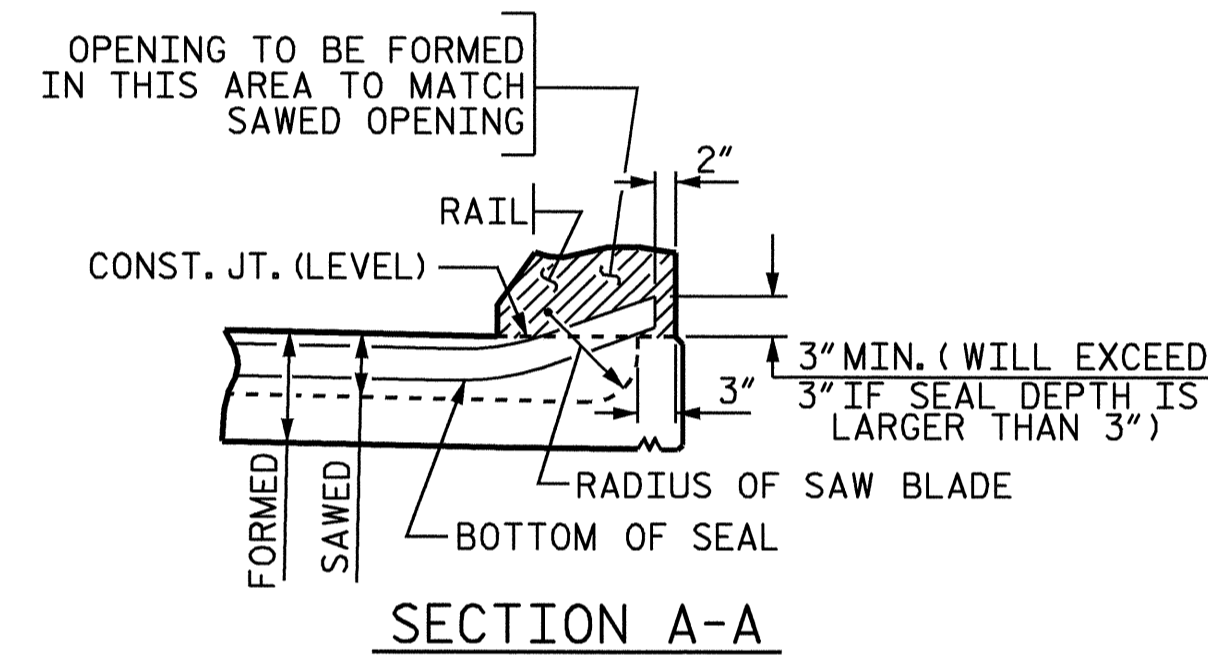
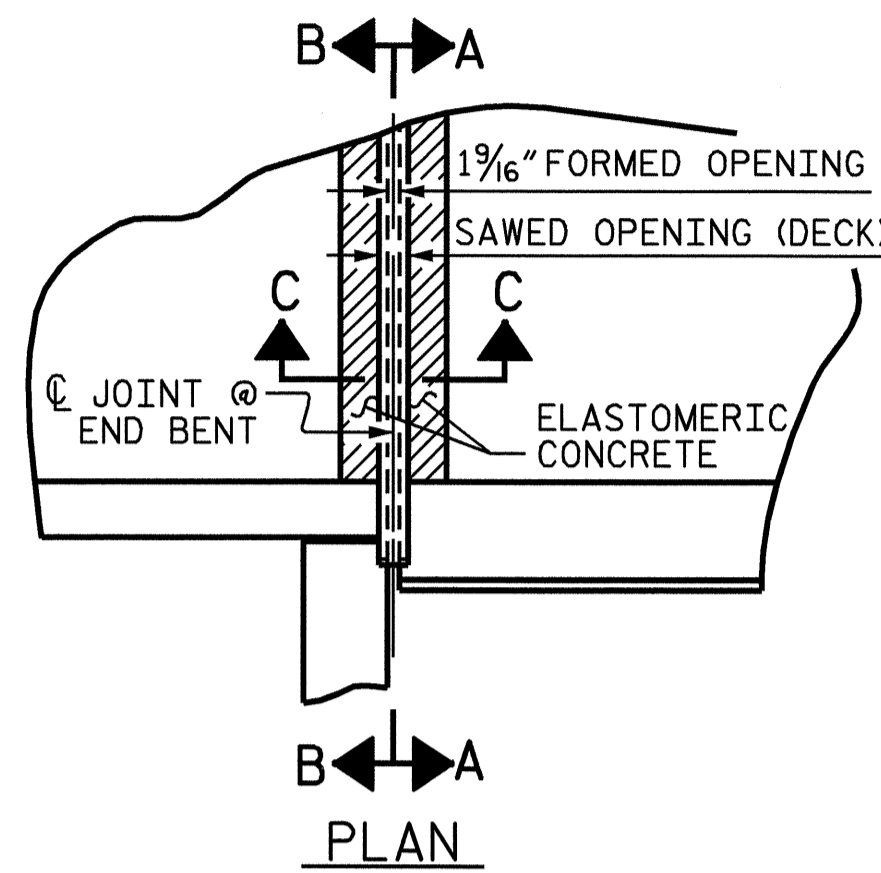
SHEET 1 OF 2

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

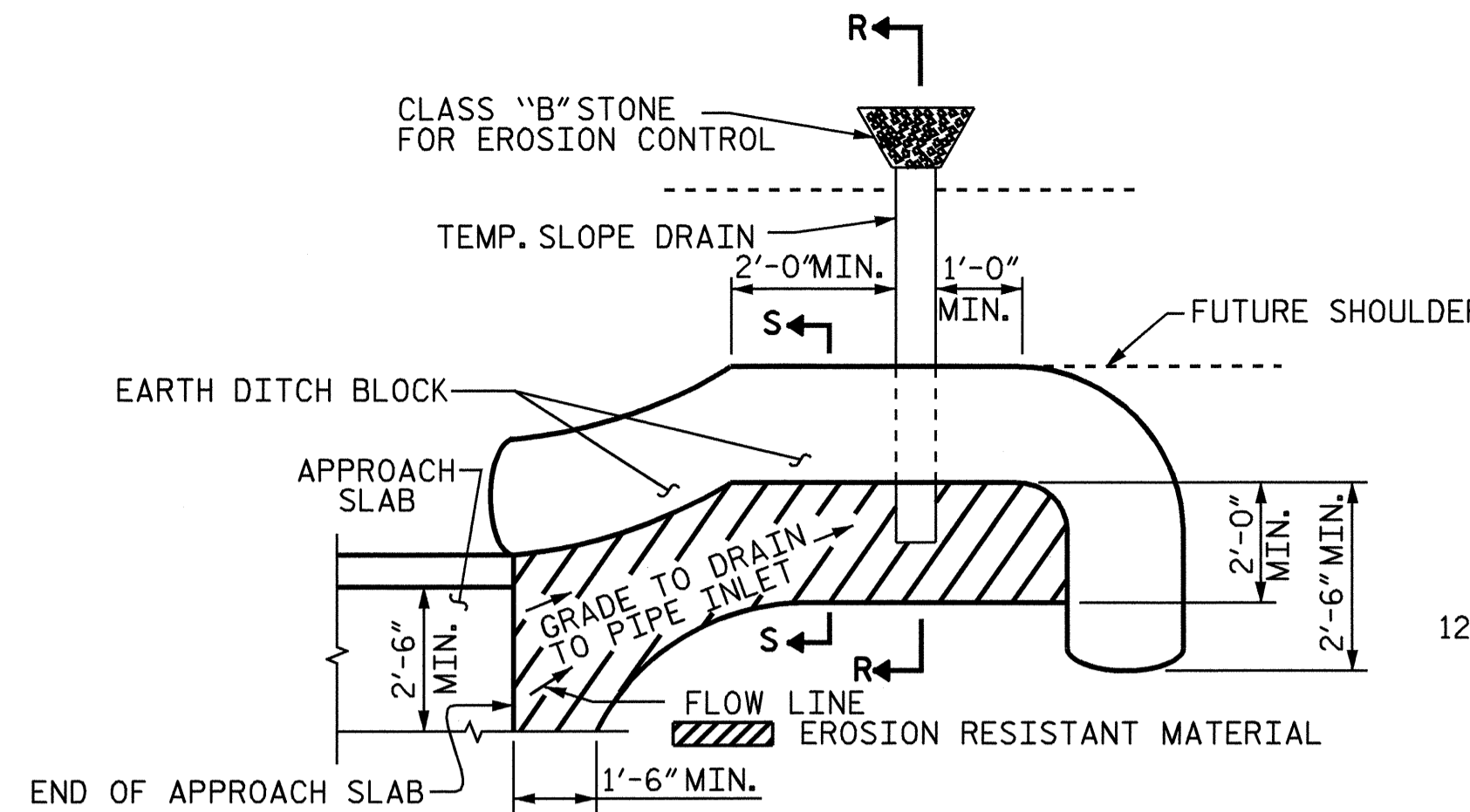


REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

ASSEMBLED BY : E.C. LOCKLEAR DATE : 4-04-06
 CHECKED BY : P.C. BREWER DATE : 4-18-06
 DRAWN BY : EEM 3/95 REV. 7/10/01 LES/RDR
 CHECKED BY : VAP 3/95 REV. 5/7/03R RWW/JTE
 REV. 5/1/06R KMM/GM



JOINT SEAL DETAILS @ END BENT

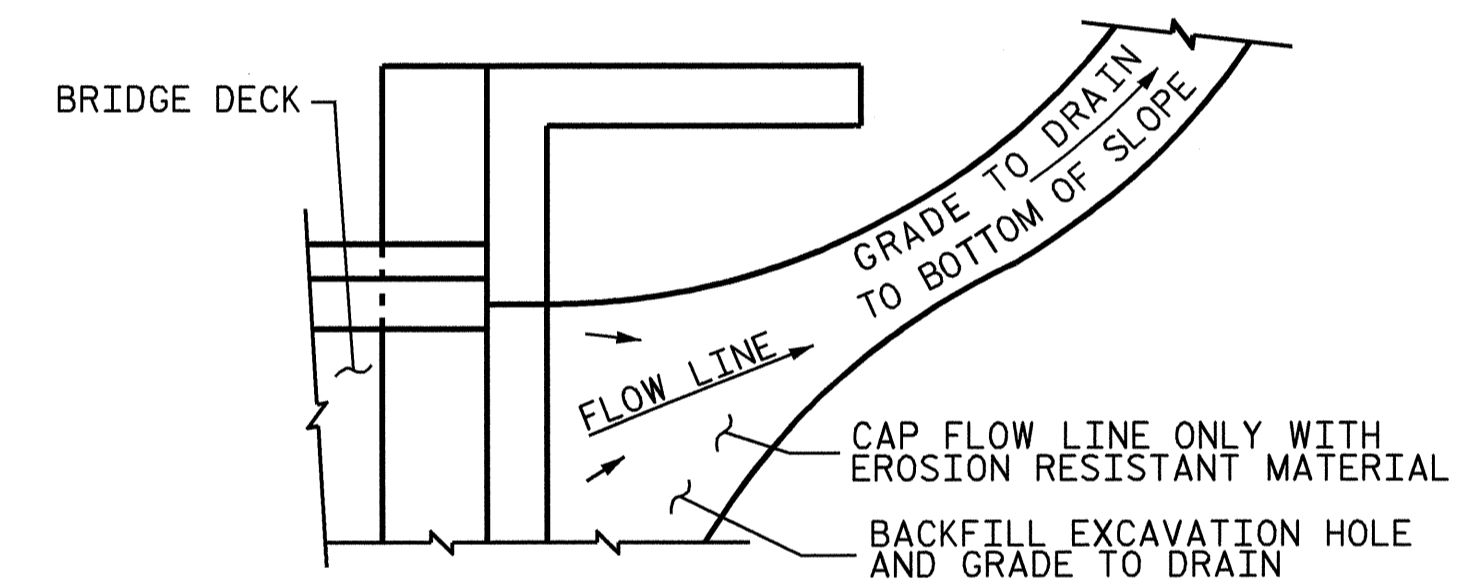
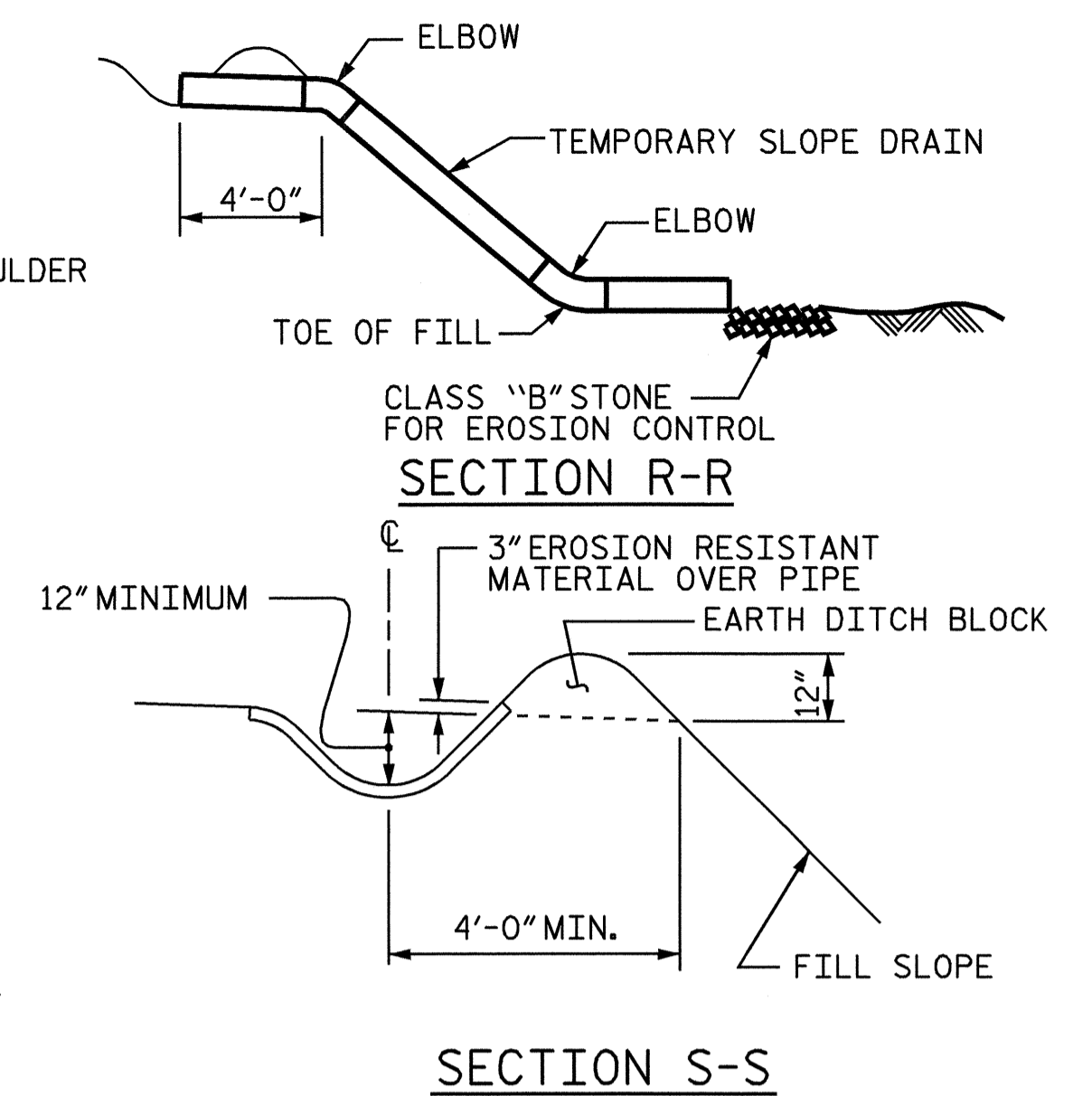


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

TEMPORARY DRAINAGE DETAIL

ELASTOMERIC CONCRETE	
END BENT	ELASTOMERIC CONCRETE * (CU. FT.)
1	5.5
2	5.5
TOTAL	11.0

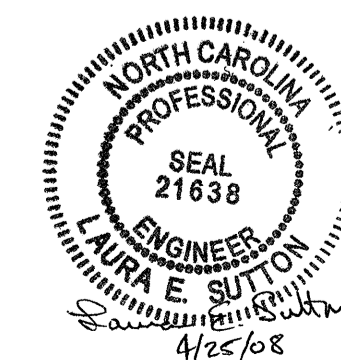
* BASED ON THE MINIMUM BLOCKOUT SHOWN.

PROJECT NO. B-4281
STOKES COUNTY
 STATION: 19+60.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 BRIDGE APPROACH
 SLAB DETAILS



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

ASSEMBLED BY : E.C. LOCKLEAR DATE : 4-04-06
 CHECKED BY : P.C. BREWER DATE : 4-18-06
 DRAWN BY : FCJ 11/88 REV. 10/17/00 RWW/LJS
 CHECKED BY : ARB 11/88 REV. 5/7/03 RWW/JTE
 REV. 5/1/06R MAA/KMM

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

SPECIAL NOTES:

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

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