

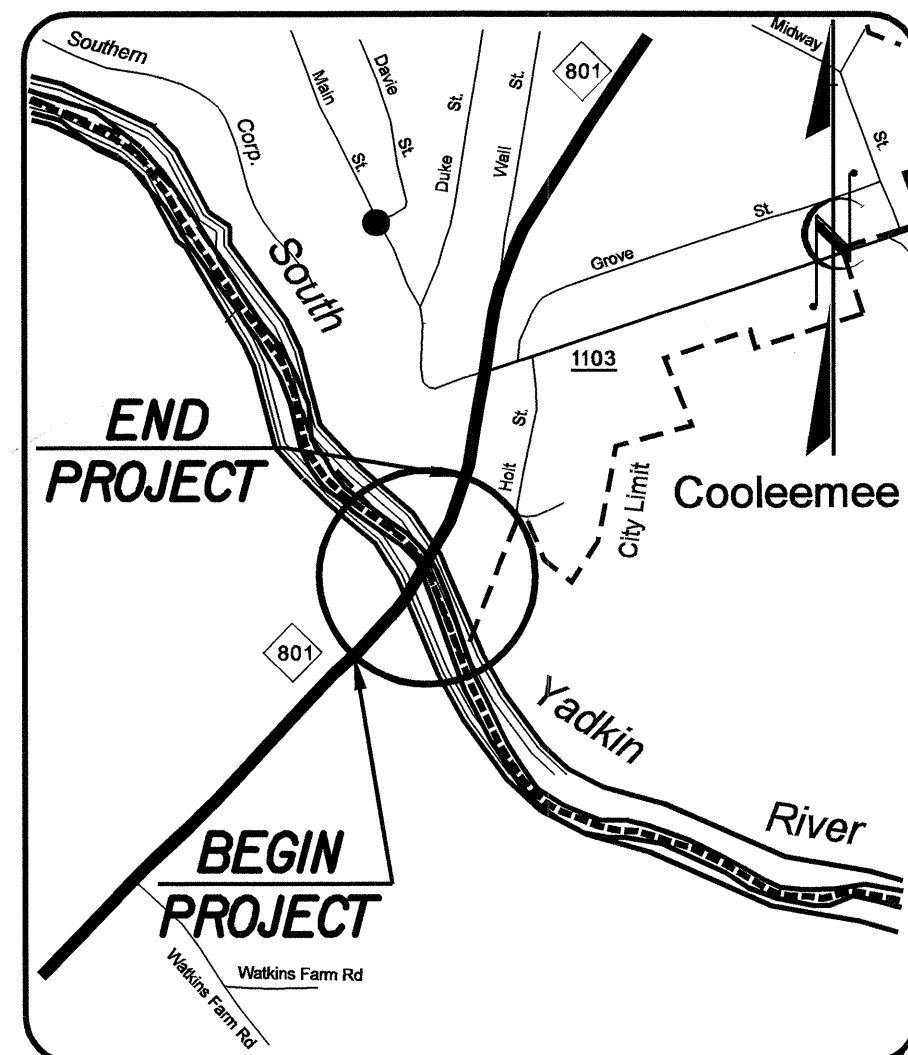
TIP: B-4256

CONTRACT: C201224

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

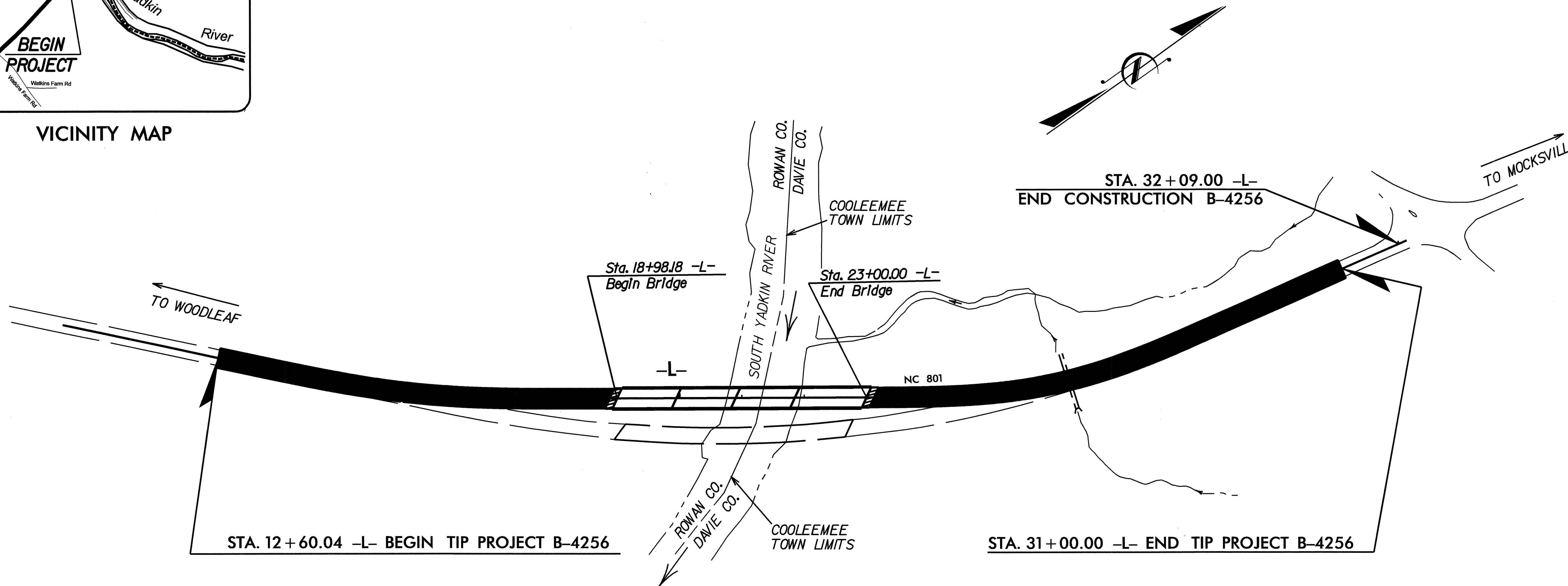
ROWAN-DAVIE COUNTIES

LOCATION: BRIDGE NO. 80 OVER SOUTH YADKIN RIVER ON NC 801
TYPE OF WORK: GRADING, DRAINAGE, STRUCTURES, AND PAVING

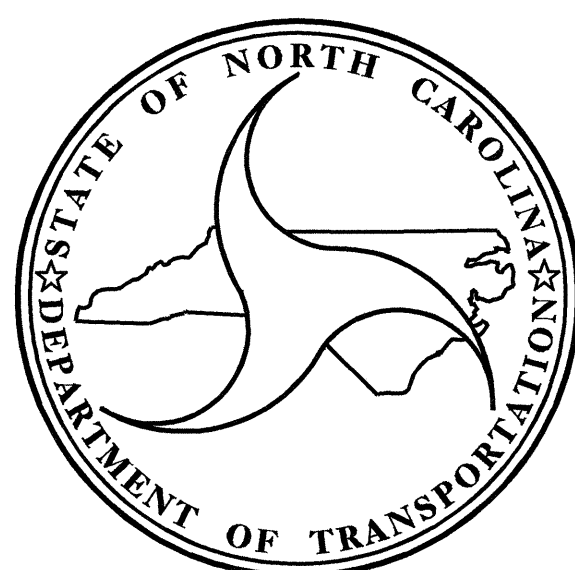


VICINITY MAP

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4256		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33598.1.1	BRSTP-801(1)	P.E.	
33598.2.1	BRSTP-801(1)	RW, UTILITY	
33598.3.2	BRSTP-801(6)	CONST.	



STRUCTURES



DESIGN DATA

ADT 2007 = 6400
 ADT 2030 = 11000
 DHV = 10 %
 D = 60 %
 T = 5 % *
 ** V = 50 MPH
 *** V = 60 MPH
 * TTST 2% DUAL 3%
 ** V DAVIE CO.
 *** V ROWAN CO.

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4256 = 0.273 mi
 LENGTH STRUCTURE TIP PROJECT B-4256 = 0.076 mi
 TOTAL LENGTH OF TIP PROJECT B-4256 = 0.349 mi

Prepared in the Office of:
DIVISION OF HIGHWAYS

1000 BIRCH RIDGE DR., RALEIGH, NC 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
SEPTEMBER 18, 2007

B. C. HUNT, P.E.
PROJECT ENGINEER

V. A. PATEL, P.E.
PROJECT DESIGN ENGINEER

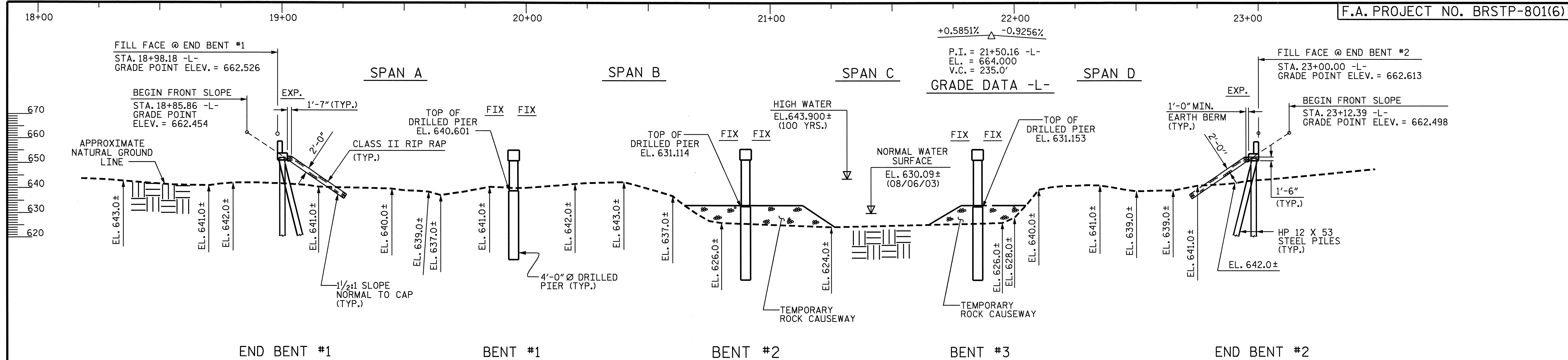
STRUCTURE DESIGN UNIT

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

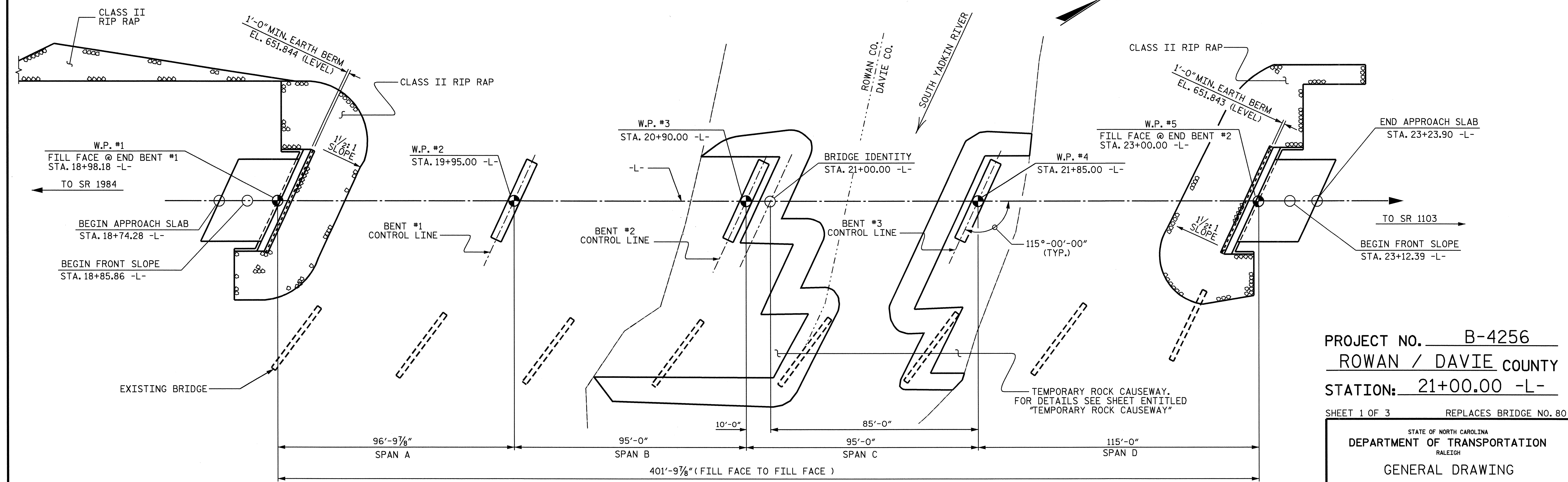
STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR

DATE



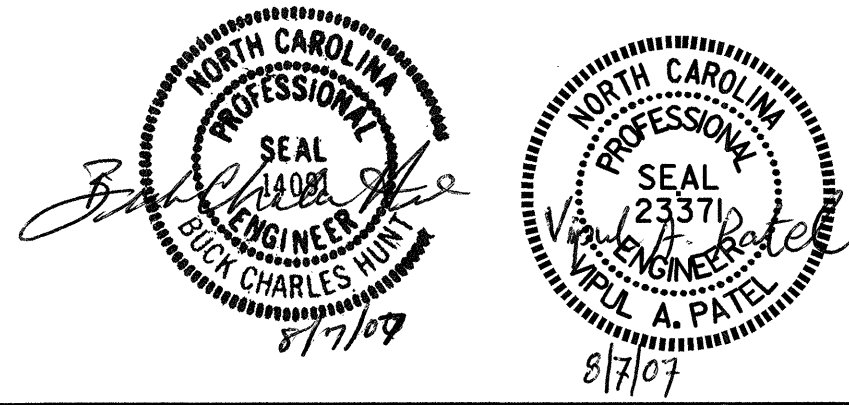
SECTION ALONG Q SURVEY -L-
(SECTIONS @ BENTS AND END BENTS ARE TAKEN AT RIGHT ANGLES.)



PLAN
(PILES AND COLUMNS ARE NOT SHOWN FOR CLARITY)

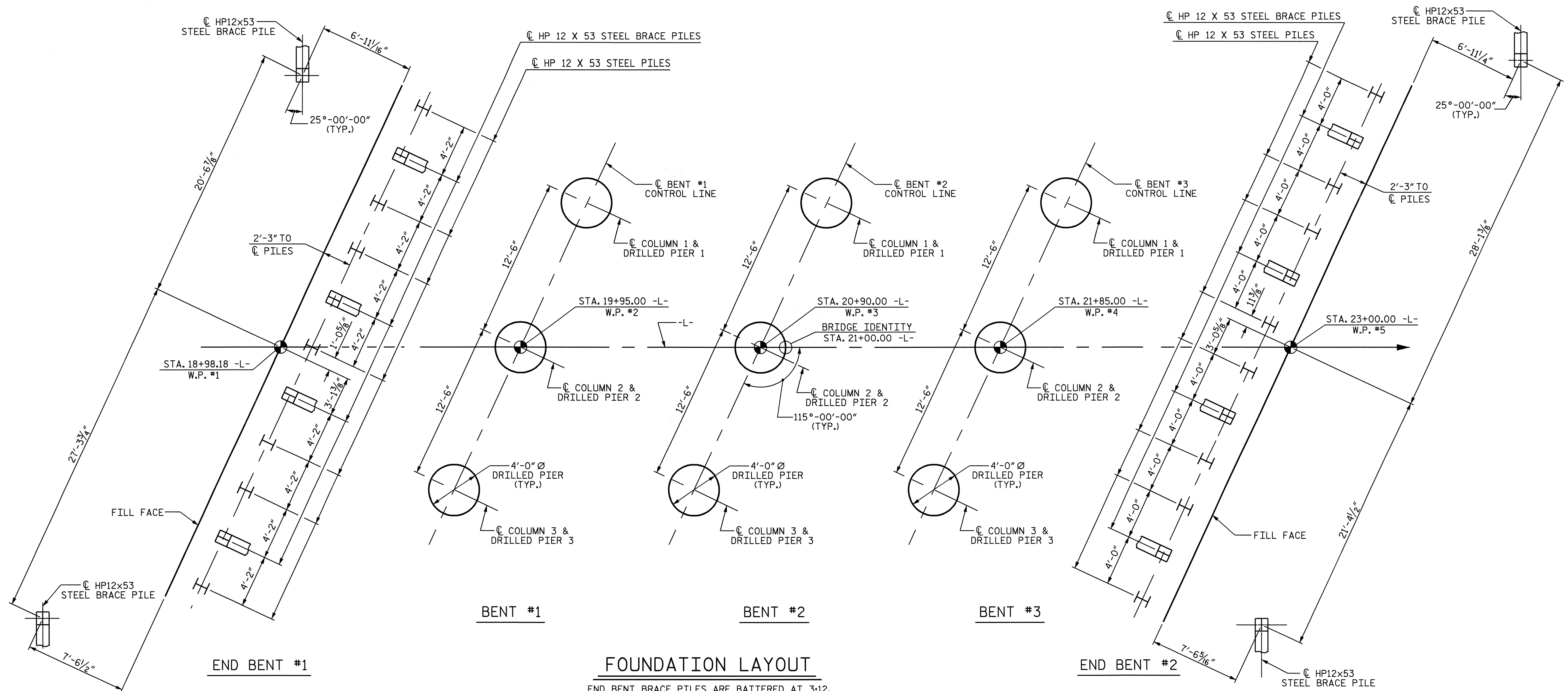
DRAWN BY : A. K. PATEL DATE : 12-15-04
CHECKED BY : M. K. BEARD DATE : 01-05

18-JUN-2007 13:33
E:\S\Structures\B4256\Final Plans\B4256_SD_01.dgn
sdombrowski



PROJECT NO. B-4256
ROWAN / DAVIE COUNTY
STATION: 21+00.00 -L-
SHEET 1 OF 3 REPLACES BRIDGE NO. 80

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING FOR BRIDGE OVER SOUTH YADKIN RIVER ON NC 801 BETWEEN SR 1984 & SR 1103					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-1 TOTAL SHEETS 35



FOUNDATION LAYOUT
 END BENT BRACE PILES ARE BATTERED AT 3:1.
 DIMENSIONS LOCATING PILES ARE TO THE CENTERLINE OF PILES.
 DIMENSION LOCATING DRILLED PIERS ARE TO THE DRILLED PIER CENTER.

NOTES

DRIVE PILES AT END BENT #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 REQUIRED BEARING CAPACITY FOR PILES AT END BENT #1 AND #2 IS 50 TONS PER PILE.

DRILLED PIERS AT BENT #1 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 95 TSF.

DRILLED PIERS AT BENT #2 AND #3 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 95 TSF.

DRILLED PIERS FOR BENT #1 ARE DESIGNED FOR AN APPLIED LOAD OF 270 TONS EACH AT THE TOP OF THE COLUMN.

DRILLED PIERS FOR BENT #2 AND #3 ARE DESIGNED FOR AN APPLIED LOAD OF 310 TONS EACH AT THE TOP OF THE COLUMN.

FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISION.

PERMANENT STEEL CASING IS NOT REQUIRED FOR DRILLED PIERS AT BENT #1.

PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS AT BENTS #2 AND #3. THE CASING SHALL NOT EXTEND BELOW ELEVATION 622.000 AND 618.000, RESPECTIVELY, WITHOUT THE ENGINEER'S PERMISSION.

DRILLED PIERS AT BENT #1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 609.000 AND SATISFY THE REQUIRED END BEARING CAPACITY.

DRILLED PIERS AT BENT #2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 605.000 AND SATISFY THE REQUIRED END BEARING CAPACITY.

DRILLED PIERS AT BENT #3 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 610.000 AND SATISFY THE REQUIRED END BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATIONS FOR BENTS ARE AS FOLLOWS: #1 = 629.000, #2 = 616.000, AND #3 = 618.000. SCOUR CRITICAL ELEVATIONS ARE USE TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

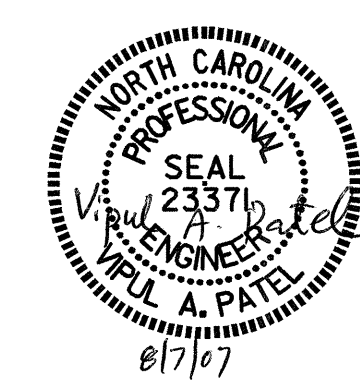
SPT TESTING IS REQUIRED TO DETERMINE THE END BEARING CAPACITY OF THE DRILLED PIERS AT BENT #1 (RIGHT SIDE) SEE DRILLED PIERS SPECIAL PROVISION.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE END BEARING CAPACITY OF THE DRILLED PIERS AT BENT #1 (LEFT AND CENTER), BENT #2, AND BENT #3. SEE DRILLED PIERS SPECIAL PROVISION.

SID INSPECTIONS MAY BE REQUIRED TO INSPECT THE BOTTOM CLEANLINESS OF THE DRILLED PIERS AT BENT #1 (LEFT AND CENTER), BENT #2, AND BENT #3. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. SEE DRILLED PIERS SPECIAL PROVISION.

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

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-4256
ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

SHEET 2 OF 3

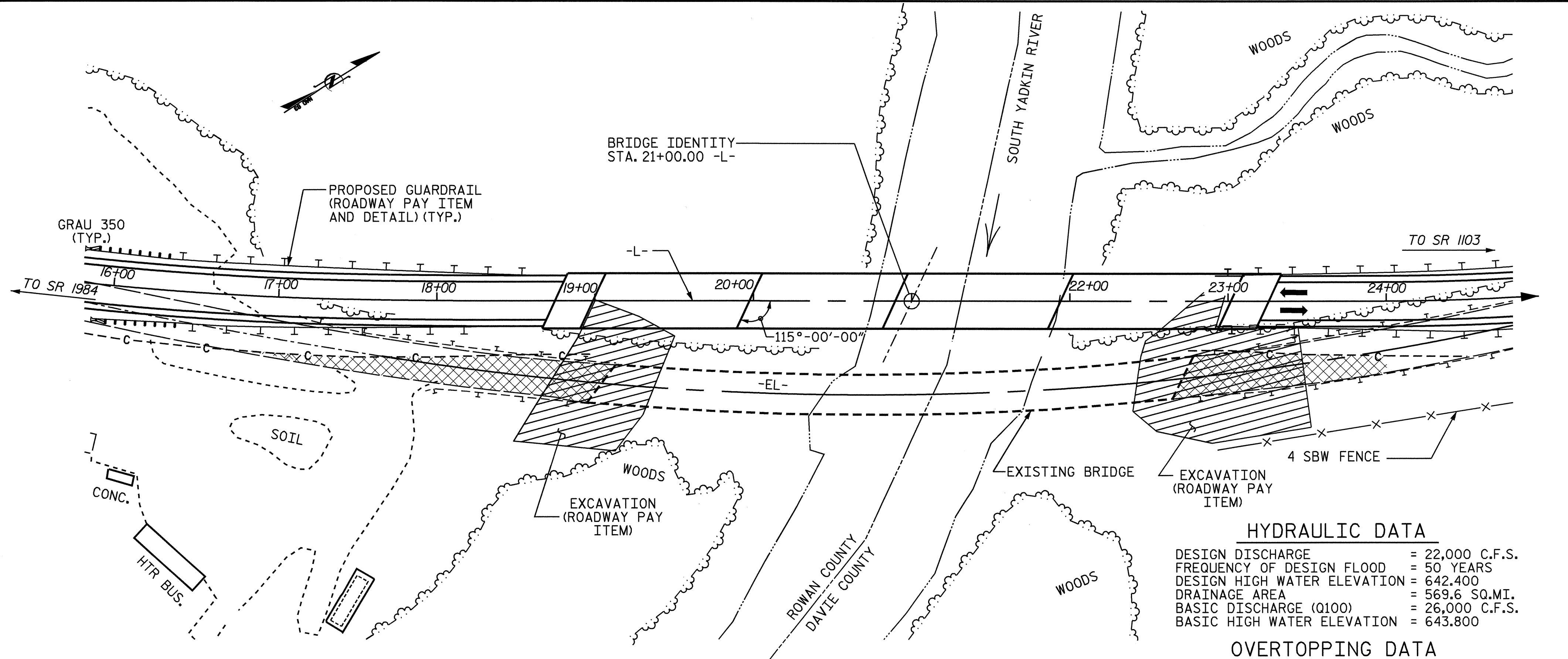
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 SOUTH YADKIN RIVER
 ON NC 801 BETWEEN
 SR 1984 AND SR 1103

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			35
2			4			

DRAWN BY : A. K. PATEL DATE : 12/14/04
 CHECKED BY : M. K. BEARD DATE : 01/05

BENCH MARK #2 IS RR SPIKE IN ROOT ON THE NORTH WEST SIDE OF A 24" WILLOW OAK,
17.25' FROM THE EP OF CENTER STREET ELEV. 674.020 NGVD 29



NOTE: FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	= 22,000 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 50 YEARS
DESIGN HIGH WATER ELEVATION	= 642.400
DRAINAGE AREA	= 569.6 SQ.MI.
BASIC DISCHARGE (Q100)	= 26,000 C.F.S.
BASIC HIGH WATER ELEVATION	= 643.800

OVERTOPPING DATA

OVERTOPPING DISCHARGE	= 38,000+ C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YEARS
OVERTOPPING FLOOD ELEVATION	= 661.500

NOTES

ASSUMED LIVE LOAD = HS 20 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.

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

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

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 7 SPANS @ 52'-6" WITH A CLEAR ROADWAY WIDTH OF 25.8 FEET (32.3 FEET OUT TO OUT) AND HAVING A REINFORCED CONCRETE DECK COVERED BY 6" OF ASPHALT WEARING SURFACE ON REINFORCED CONCRETE DECK GIRDERS AND A SUBSTRUCTURE OF REINFORCED CONCRETE CAP AND COLUMNS SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

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

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 21+00.00 -L-.

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS	REMOVAL OF EXISTING STRUCTURE	4'-0" DIA. DRILLED PIERS IN SOIL	4'-0" DIA. DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 4'-0" DIA. DRILLED PIER	SID INSPECTION	SPT TESTING	CROSSHOLE SONIC LOGGING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	EACH	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM
SUPERSTRUCTURE									14,081	12,977		LUMP SUM
END BENT #1											38.9	
BENT #1			76.80	18.00		2	1	1			32.0	
BENT #2			42.34	36.00	27.4	1		1			42.8	
BENT #3			36.45	27.00	39.3	1		1			43.9	
END BENT #2											40.9	
TOTAL	LUMP SUM	LUMP SUM	155.59	81.00	66.7	4	1	3	14,081	12,977	198.5	LUMP SUM

TOTAL BILL OF MATERIAL

	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	MODIFIED 72" PRESTRESSED CONCRETE GIRDERS	HP 12X53 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS
	LBS.	LBS.	No., LBS.	No., LIN. FT.	LIN. FT.	TON	SQ. YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE			16, 1,579.43		798.94			LUMP SUM	LUMP SUM
END BENT #1	5,335			13, 455.0		480	535		
BENT #1	15,222	3,292							
BENT #2	16,208	3,666							
BENT #3	15,122	3,272							
END BENT #2	5,560			14, 490.0		405	450		
TOTAL	57,447	10,230	16, 1,579.43	27, 945.0	798.94	885	985	LUMP SUM	LUMP SUM

ALL FALSEWORK AND FORMS FOR THE CAST-IN-PLACE DECK SLAB CONTINUOUS UNIT SHALL REMAIN IN PLACE UNTIL THE ENTIRE UNIT IS CAST AND CURED.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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

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

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

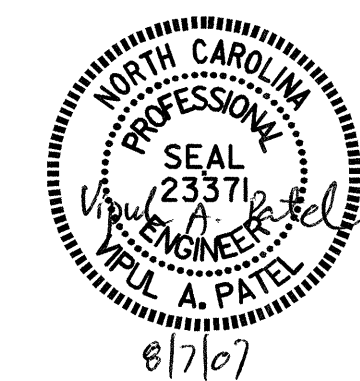
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

SHEET 3 OF 3

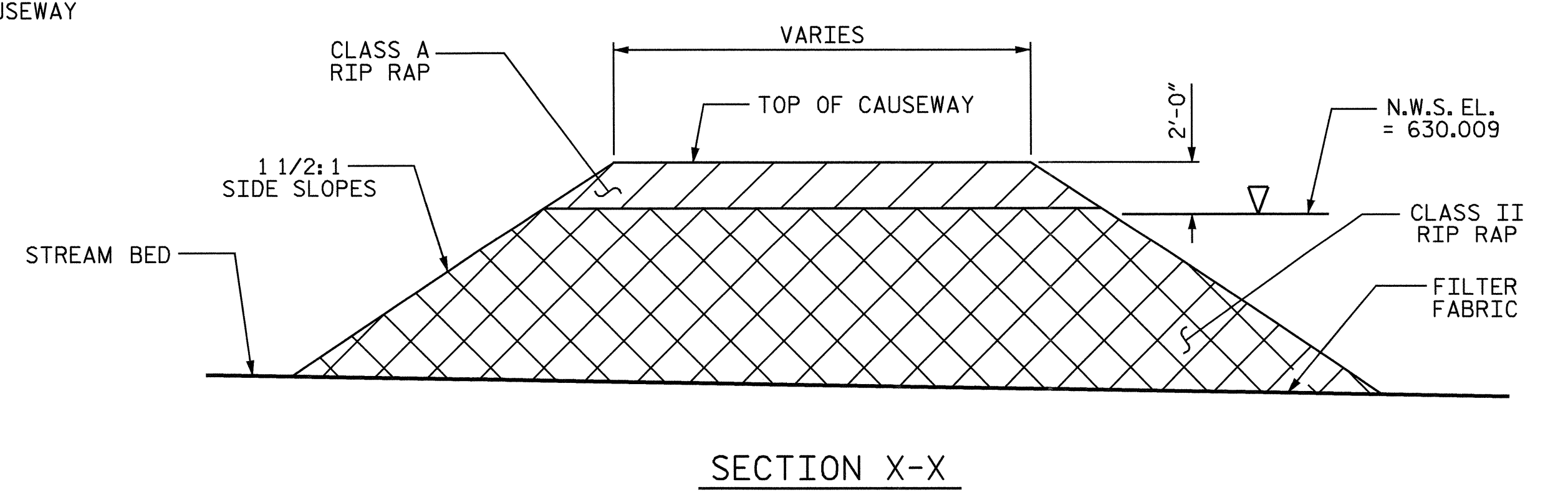
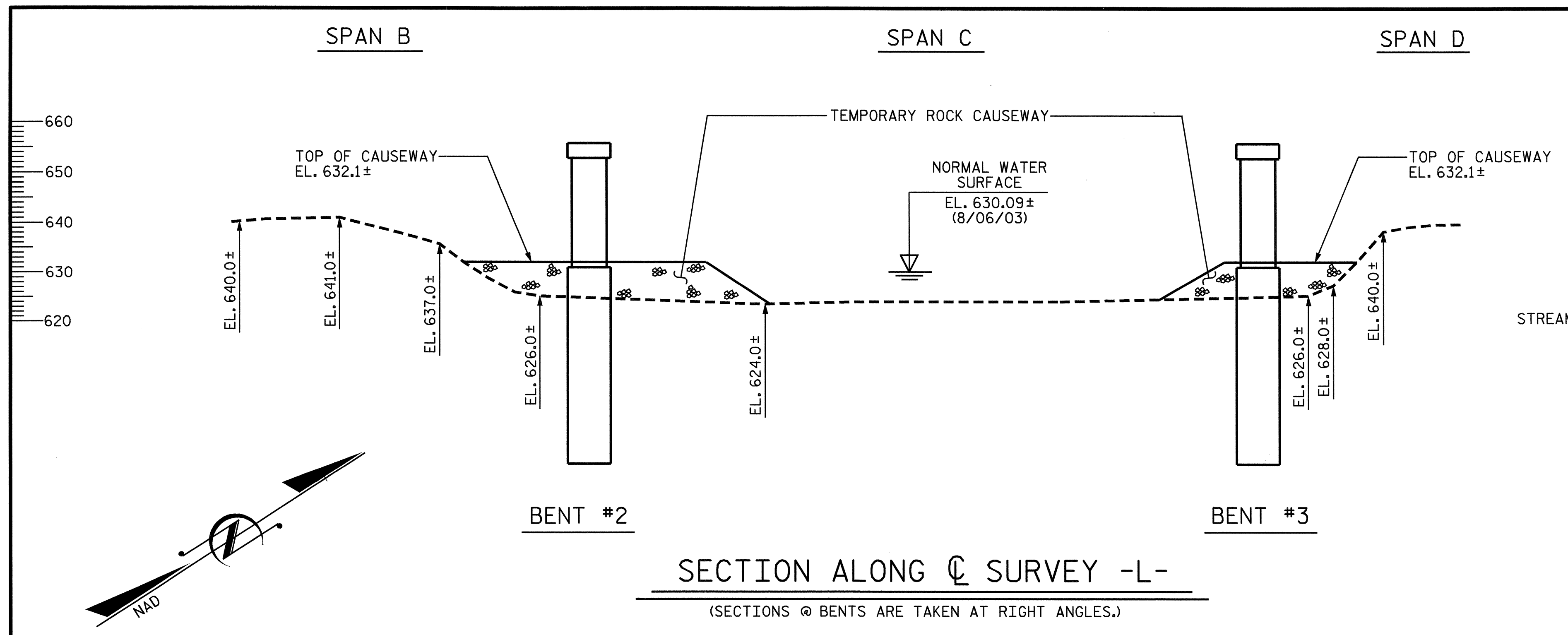
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 SOUTH YADKIN RIVER
 ON NC 801 BETWEEN
 SR 1984 AND SR 1103



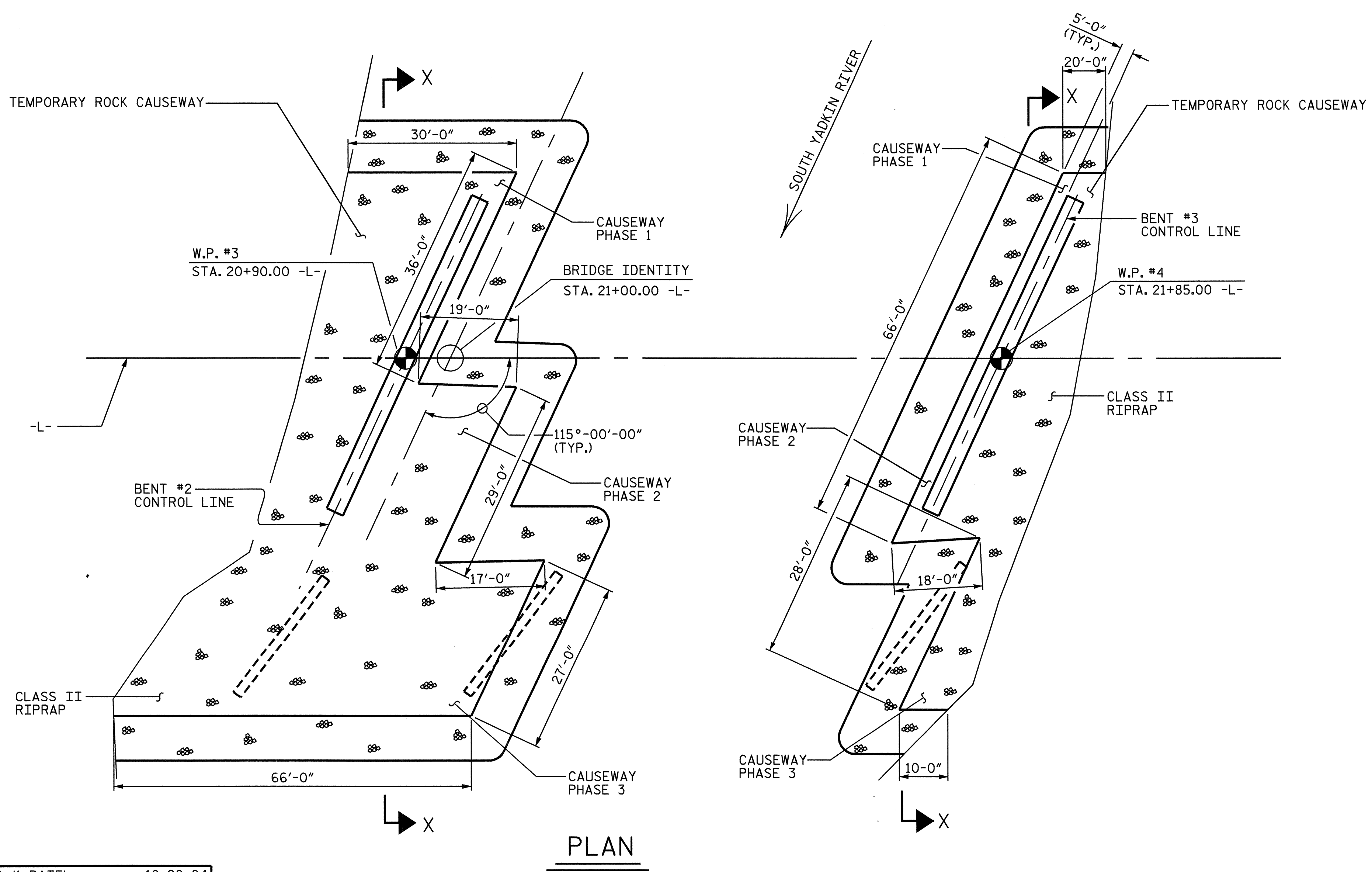
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			35

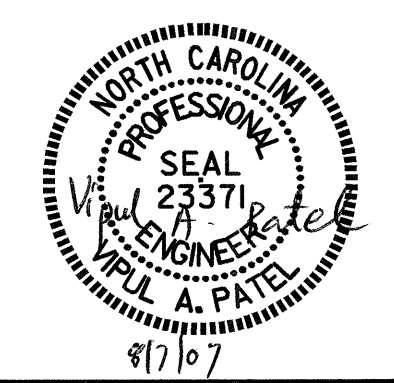


PHASING SEQUENCE:

- PHASE 1:**
CONSTRUCT ROCK CAUSEWAYS ON EAST AND WEST BANK TO ACCESS AND CONSTRUCT PROPOSED BRIDGE PIERS IN THE RIVER.
- PHASE 2:**
REMOVE PHASE 1 CAUSEWAYS (OR PORTION OF) AND CONSTRUCT ADDITIONAL CAUSEWAYS ON THE EAST AND WEST BANK TO ACCESS AND CONSTRUCT PROPOSED SPAN C. CONSTRUCT REMAINDER OF PROPOSED BRIDGE.
- PHASE 3:**
UPON COMPLETION OF PROPOSED BRIDGE, PHASE TRAFFIC ONTO NEW ROAD FACILITY. REMOVE PHASE 2 CAUSEWAYS (OR PORTION OF) AND CONSTRUCT ADDITIONAL CAUSEWAYS ON THE EAST AND WEST BANK TO ACCESS AND REMOVE EXISTING BRIDGE SUPERSTRUCTURE AND PIERS LOCATED OVER OR IN THE RIVER.
- UPON COMPLETION OF PHASE 3, REMOVE REMAINING CAUSEWAYS.



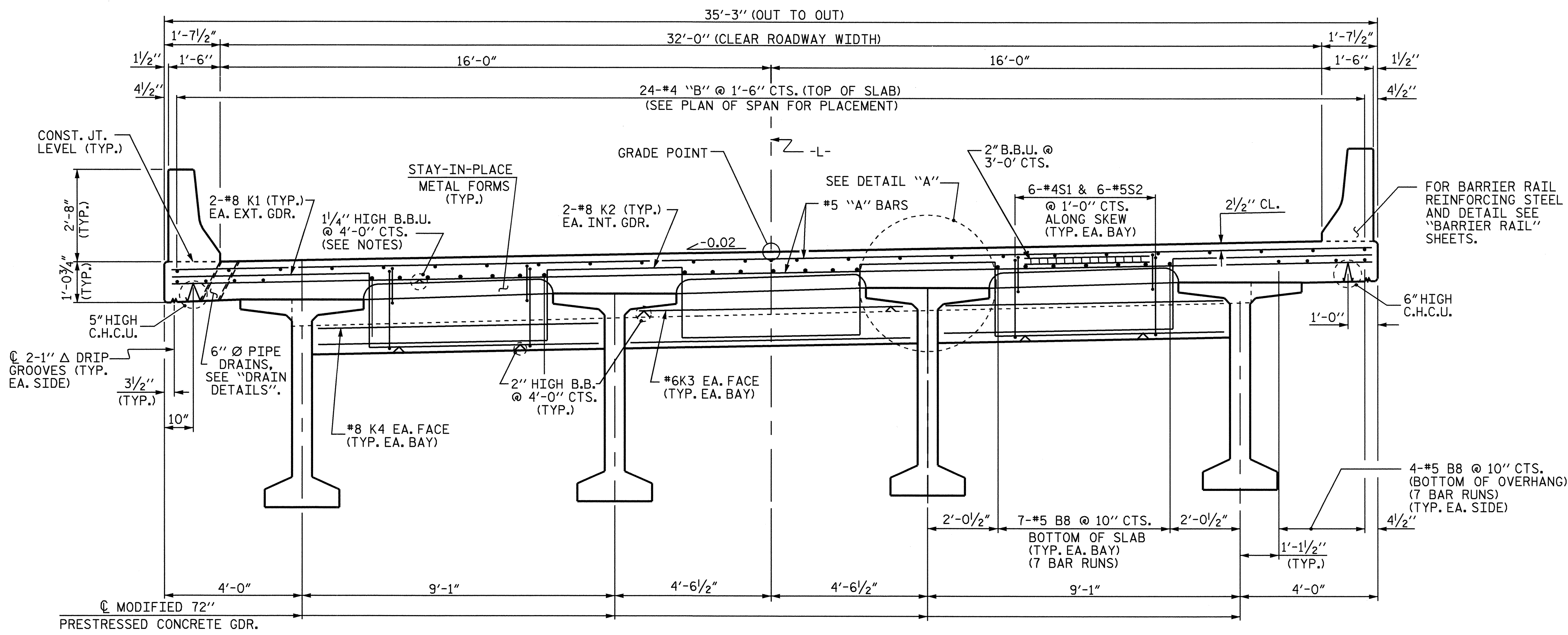
PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-



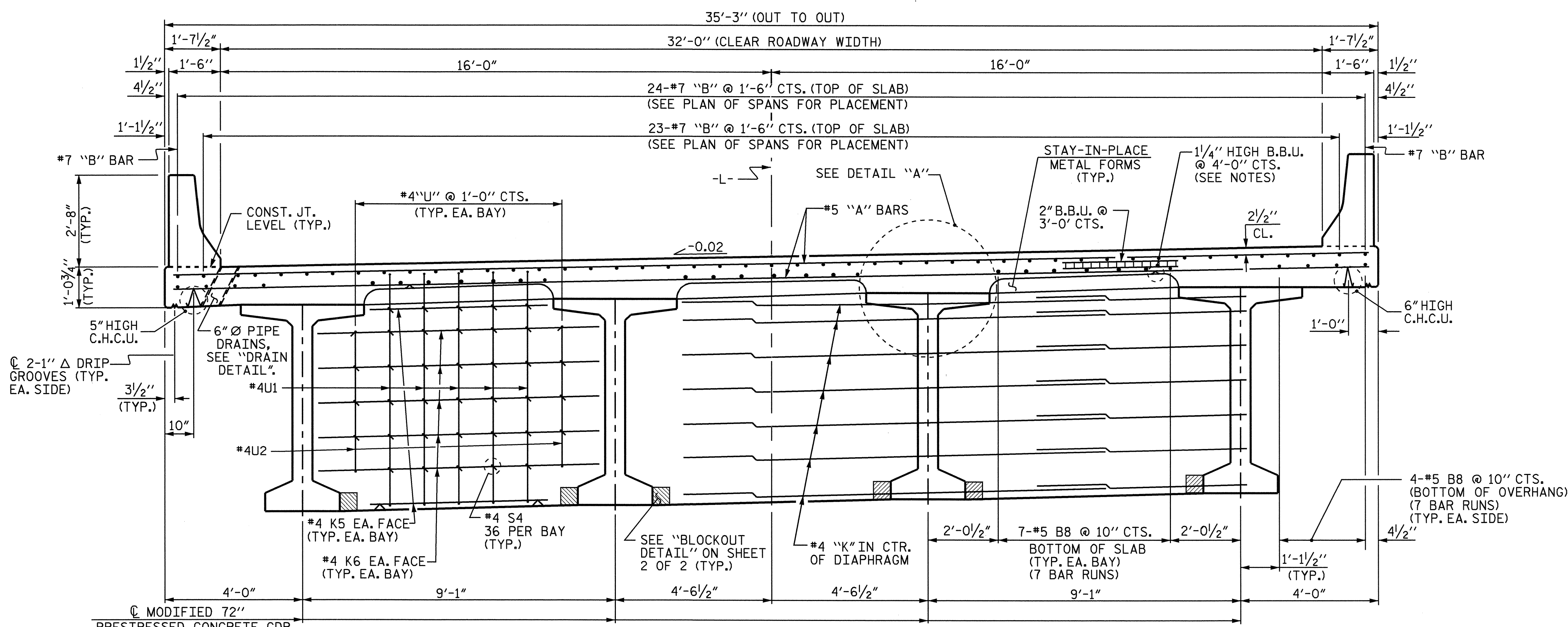
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-4	
TEMPORARY ROCK CAUSEWAY						TOTAL SHEETS 35	
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

DRAWN BY: A. K. PATEL DATE: 10-20-04
 CHECKED BY: M. K. BEARD DATE: 12-07-04

18-JUN-2007 13:33
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 scombrowski



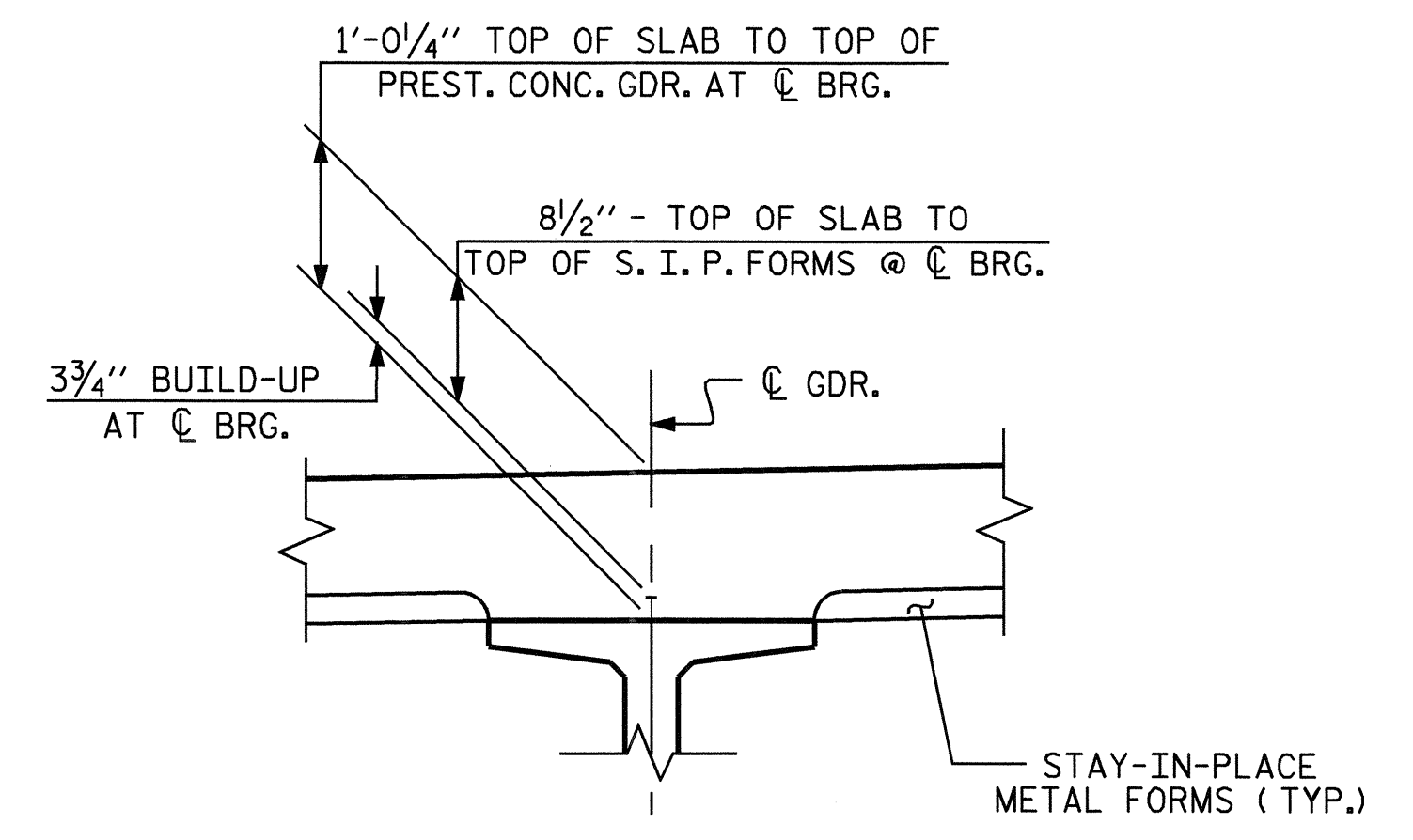
TYPICAL SECTION @ END BENT DIAPHRAGM



TYPICAL SECTION @ BENT DIAPHRAGM

NOTES

- PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.
- LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS AND DRAIN PIPES.
- PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.
- BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
- TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GDR.S ADJACENT TO THE DIAPHRAGMS AND THE NUTS ON THE 1/4" DIA. TIE RODS SHALL BE FULLY TIGHTENED BEFORE THE DIAPHRAGMS ARE CAST. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. THE TIE RODS SHALL BE RE-TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.
- CONCRETE IN INTERMEDIATE DIAPHRAGMS MAY BE CLASS A IN LIEU OF CLASS AA. PAYMENT SHALL BE MADE UNDER THE UNIT CONTRACT PRICE FOR REINFORCED CONCRETE DECK SLAB.



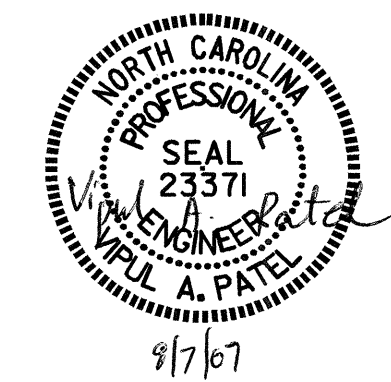
DETAIL "A"

PROJECT NO. B-4256
 ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

SHEET 1 OF 2

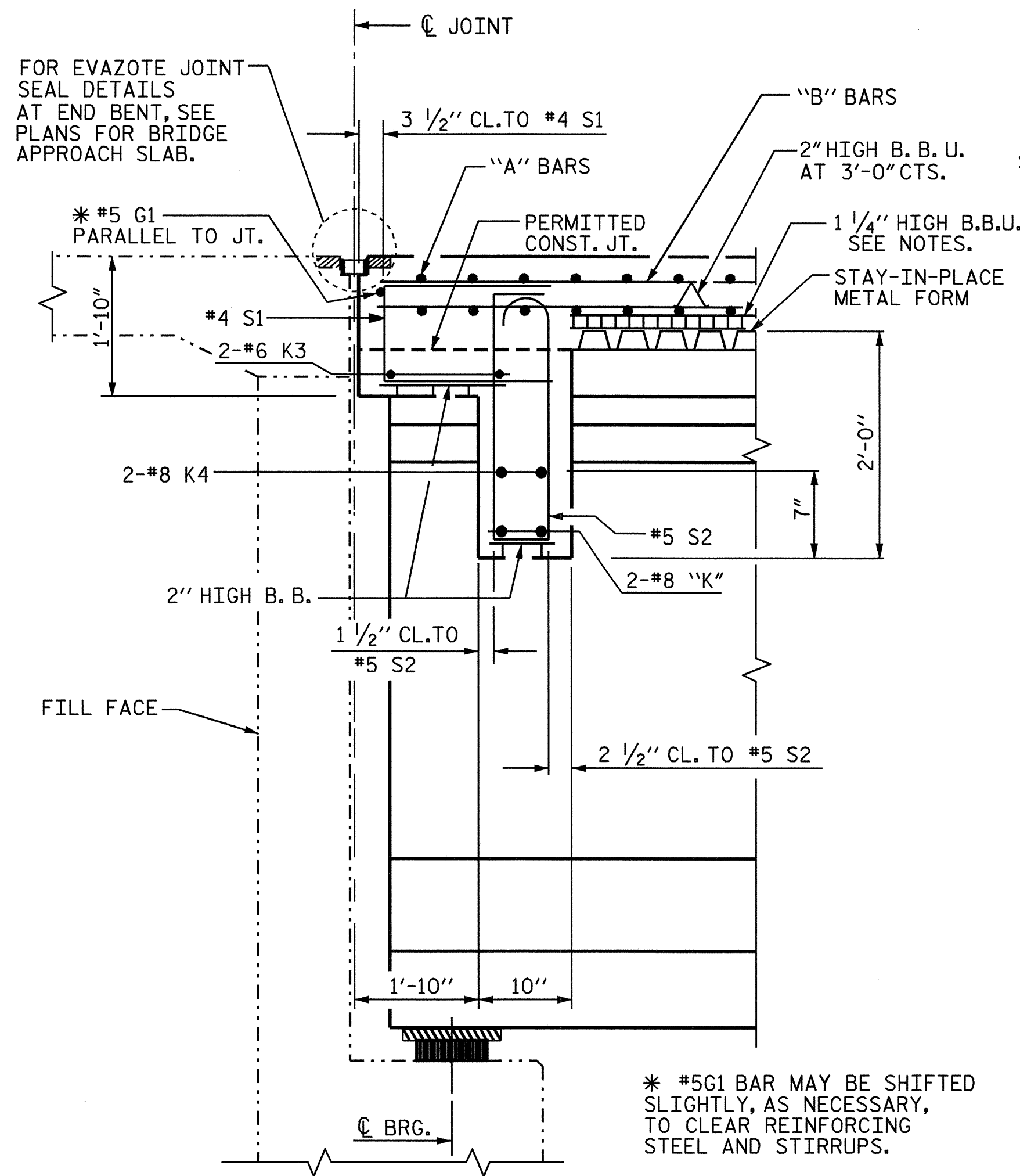
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 TYPICAL SECTIONS

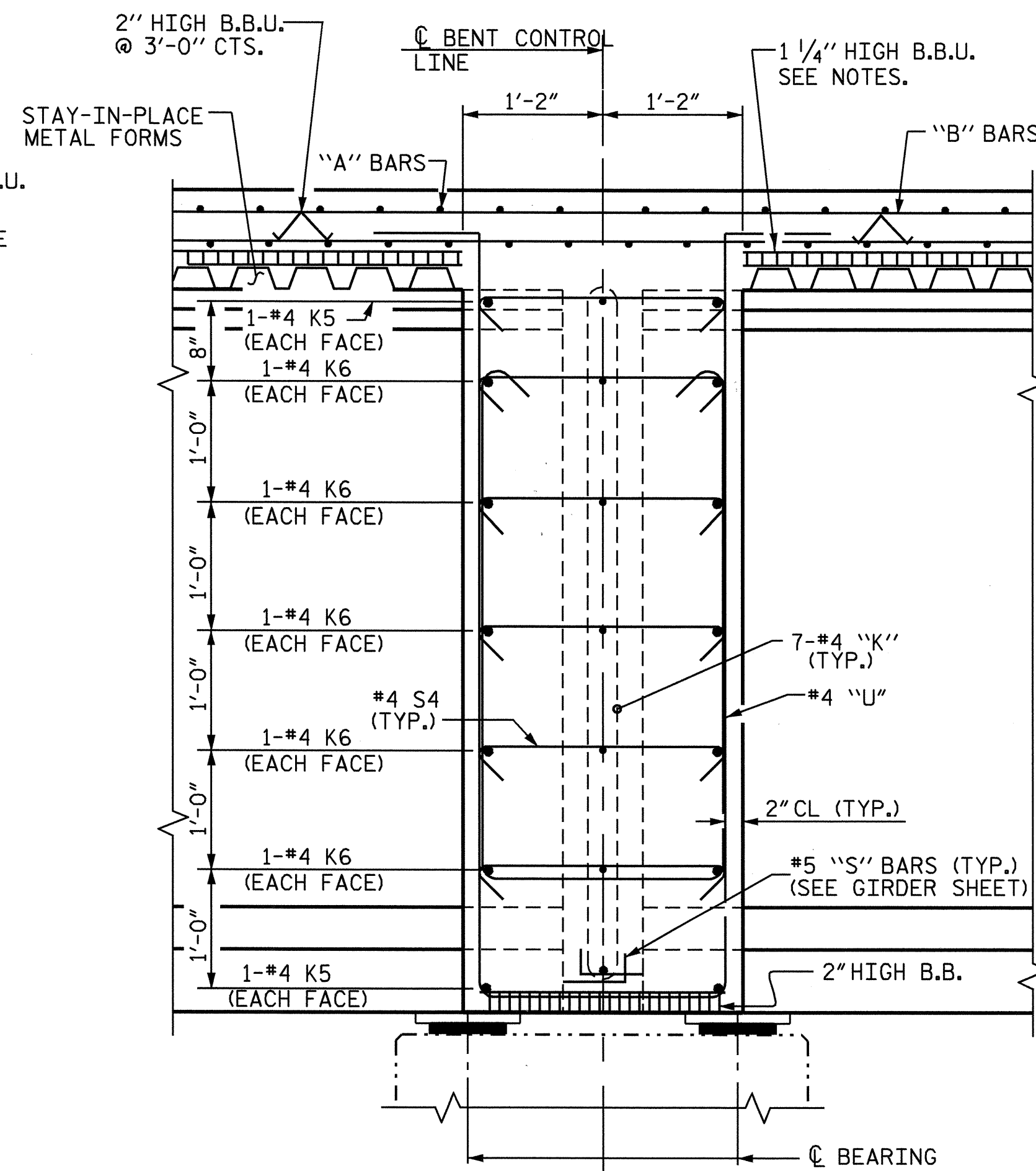


REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S-5
1			3		TOTAL SHEETS
2			4		35

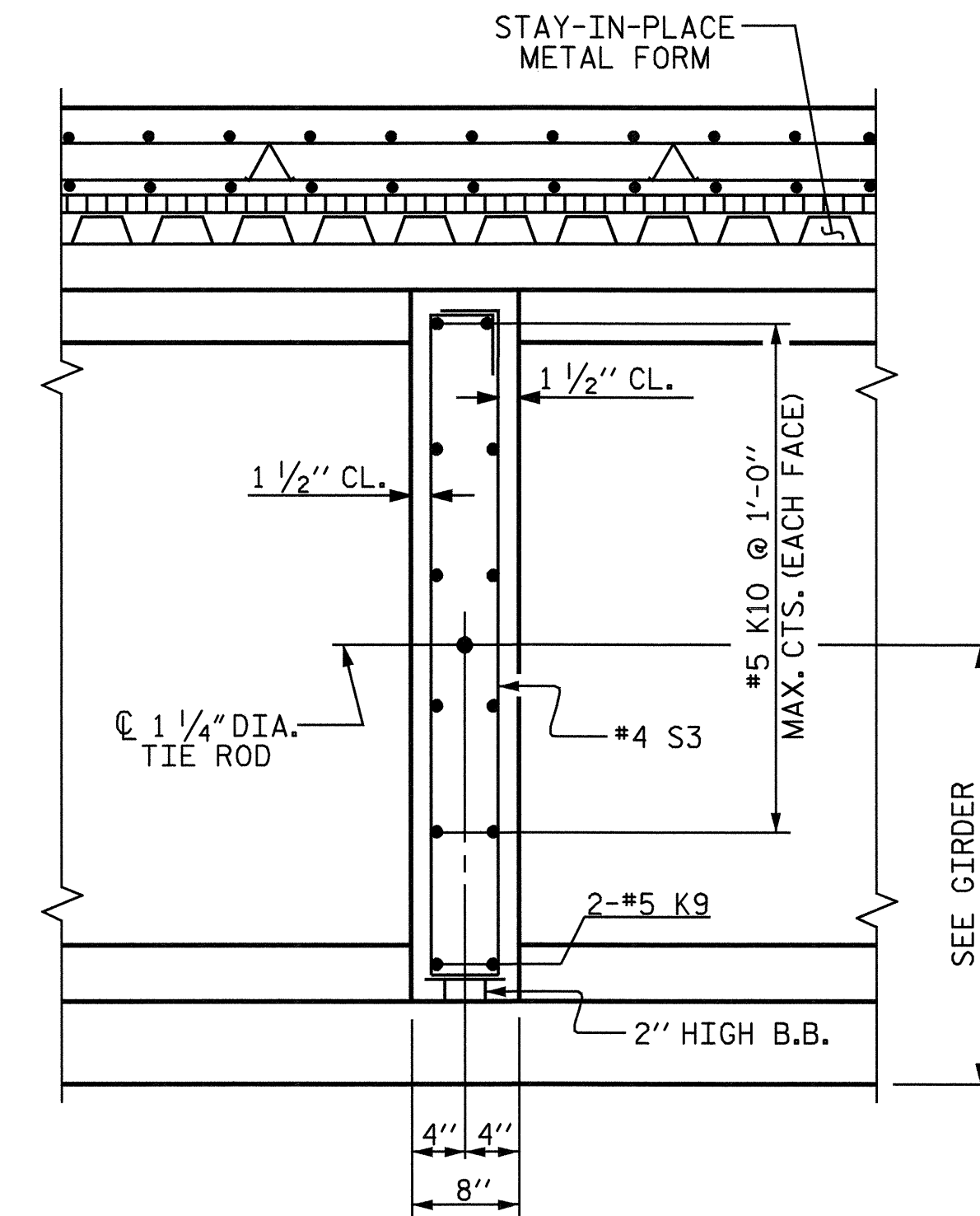
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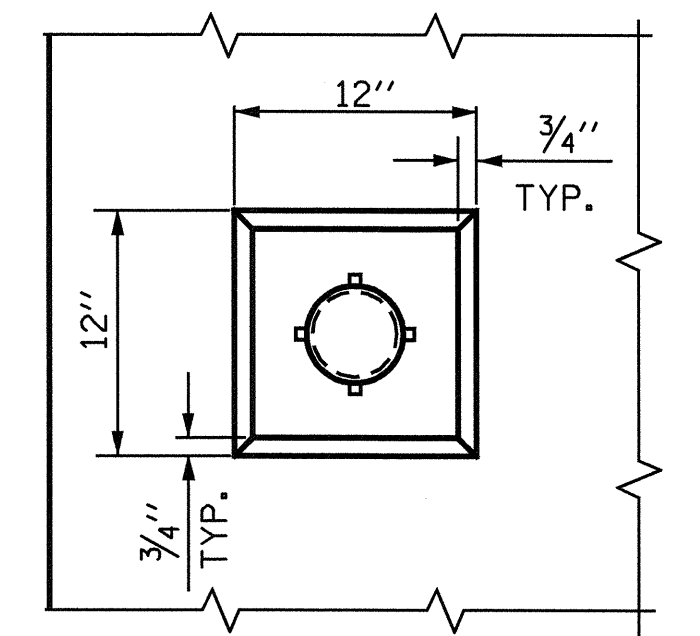
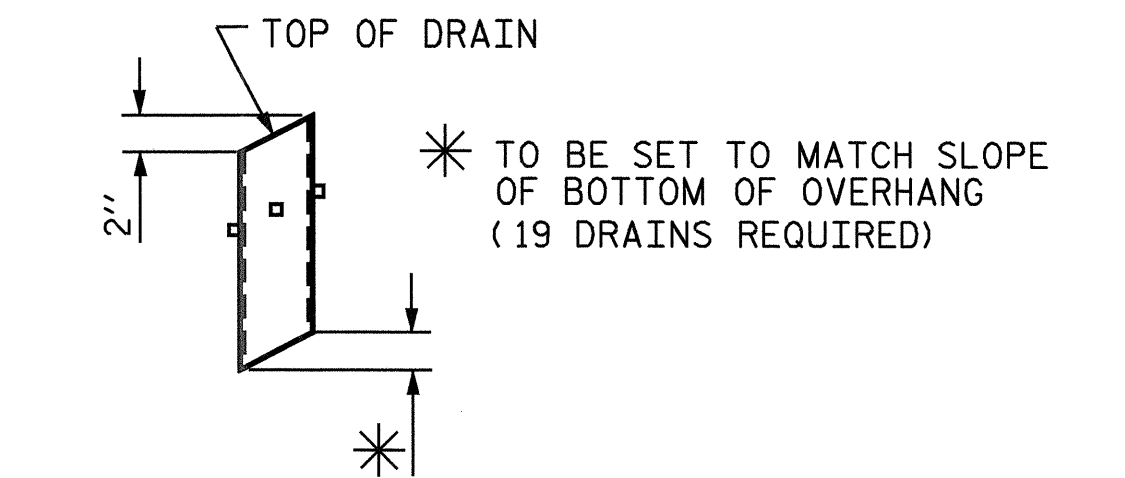
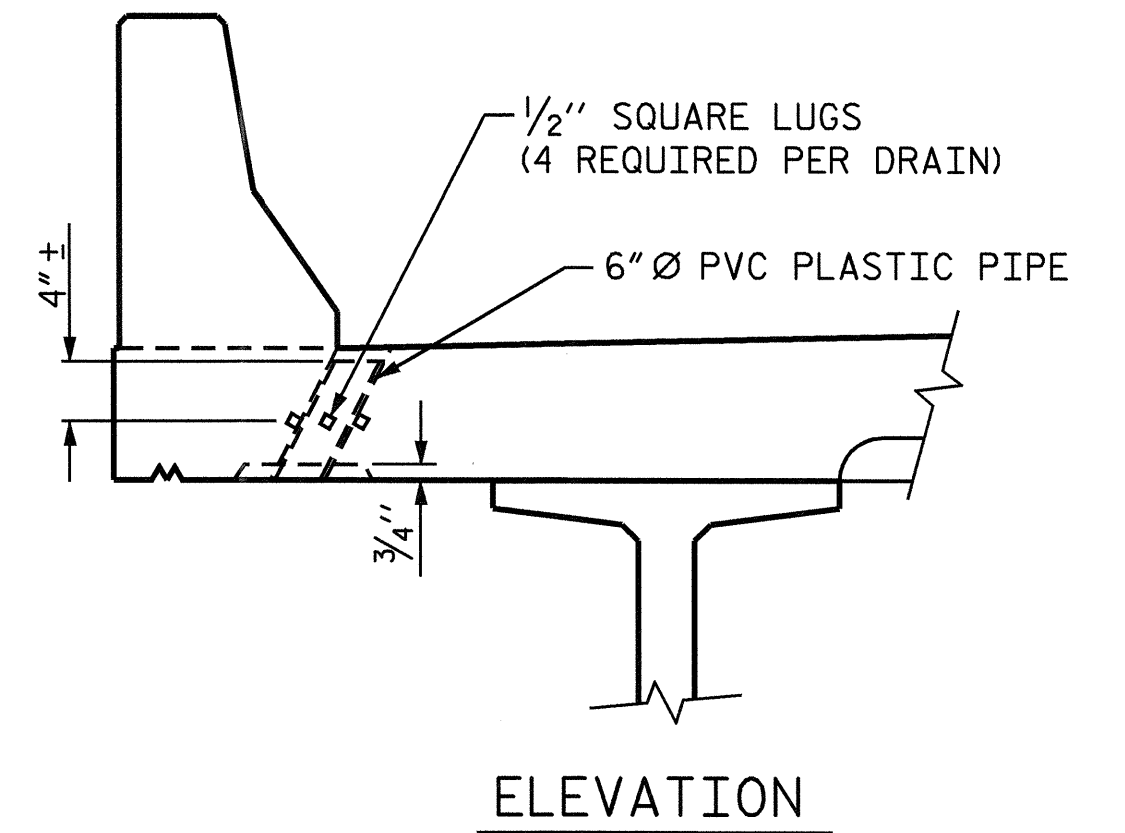
SECTION THRU END BENT DIAPHRAGM



SECTION THRU BENT DIAPHRAGM



SECTION THRU INTERMEDIATE DIAPHRAGM

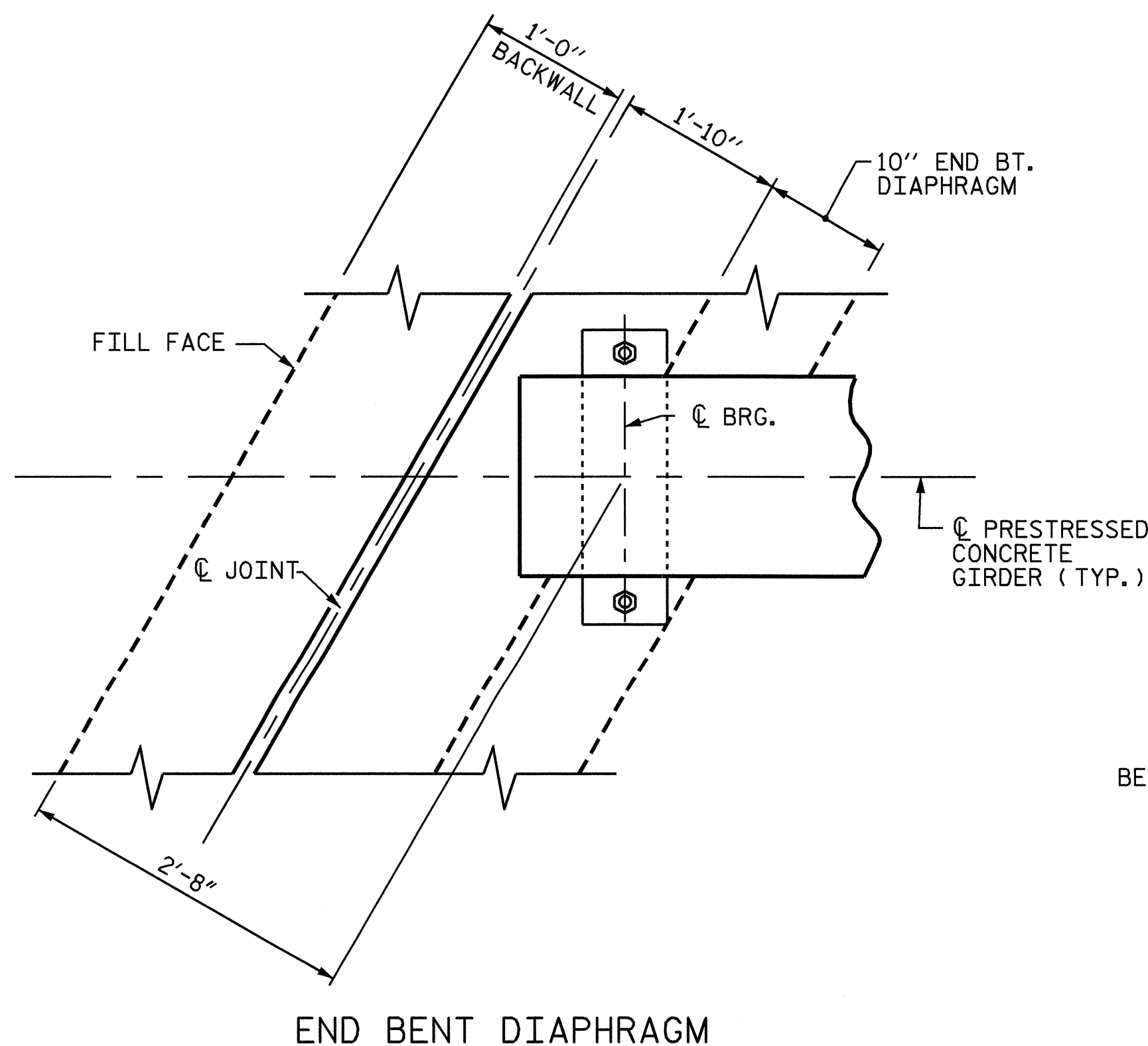


PLAN OF RECESS

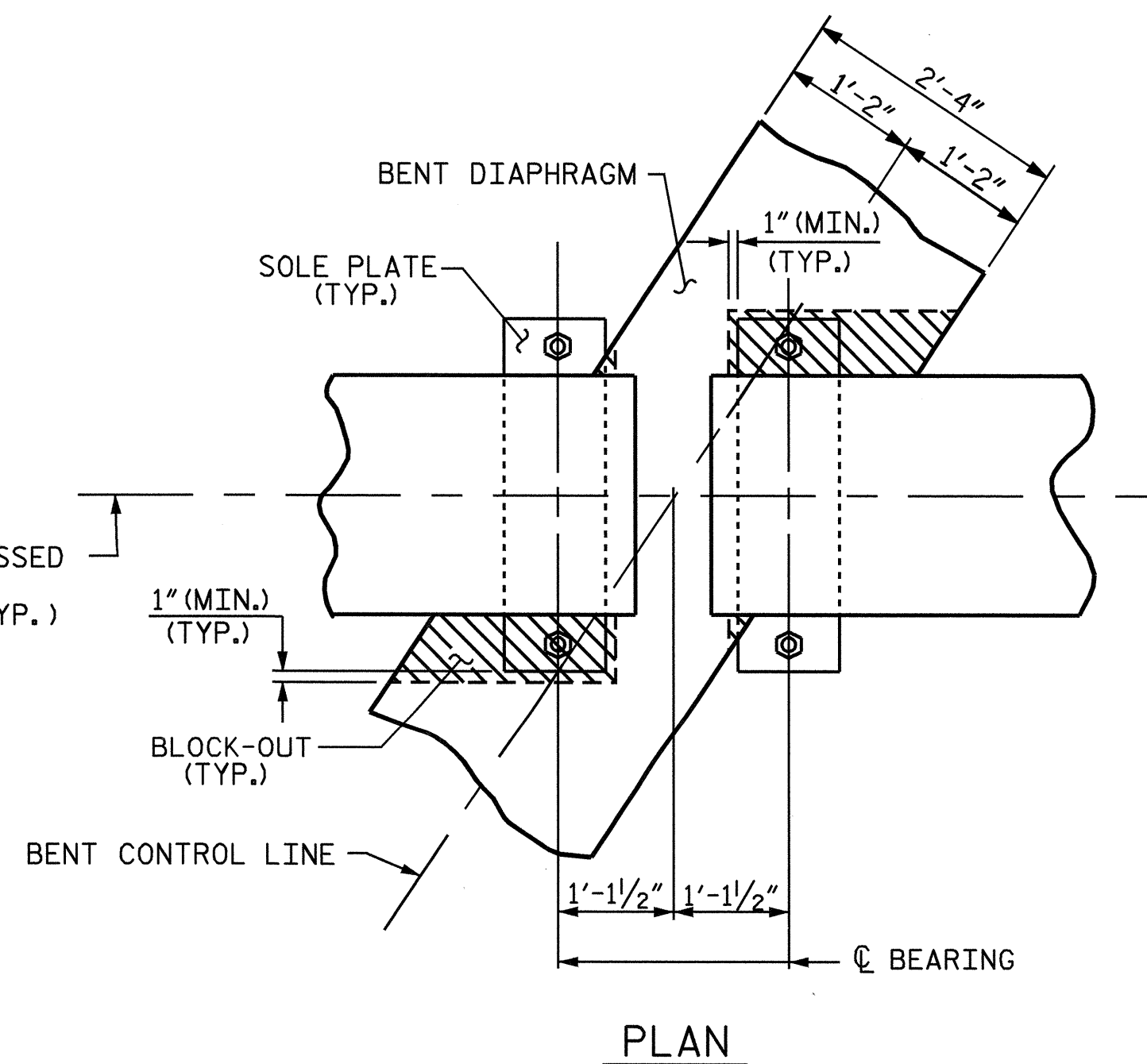
PIPE DETAIL

TOP OF FLOOR DRAINS TO BE SET 3/8" BELOW SURFACE OF SLAB.
 4 - 1/2" SQUARE LUGS TO BE GLUED TO THE P.V.C. PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF THE PIPE.
 THE 6" Ø PVC PLASTIC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.

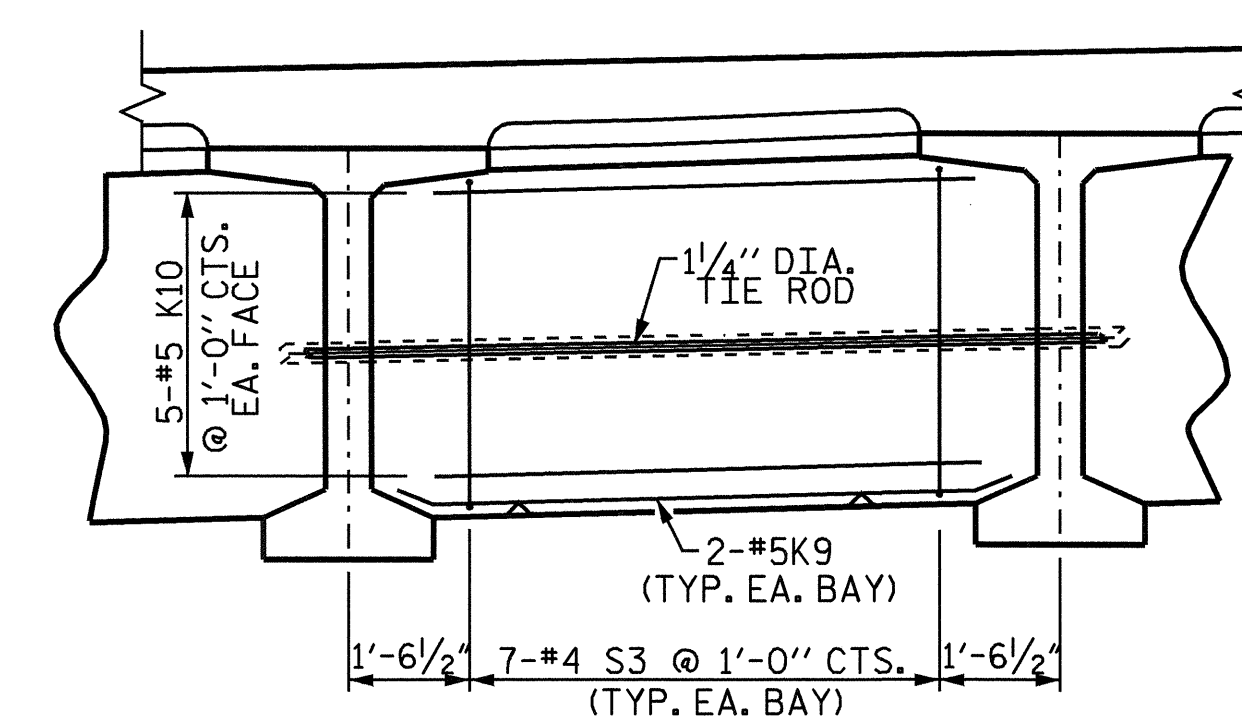
DRAIN DETAILS



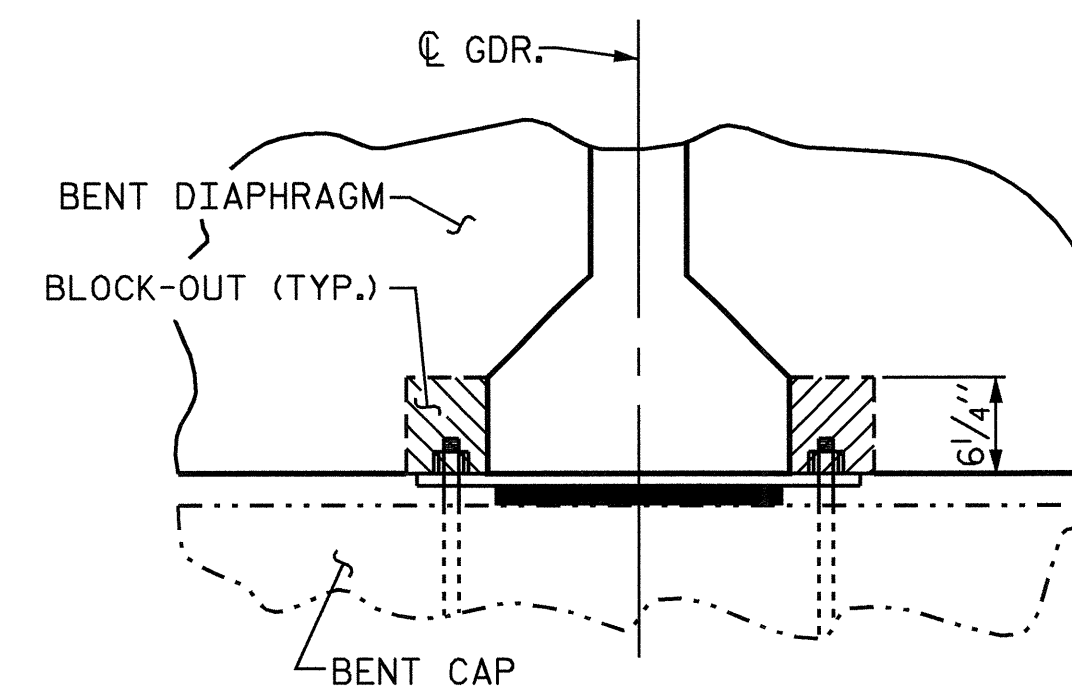
END BENT DIAPHRAGM



BENT DIAPHRAGM BLOCK-OUT DETAIL



INTERMEDIATE DIAPHRAGM



SECTION

PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

SHEET 2 OF 2

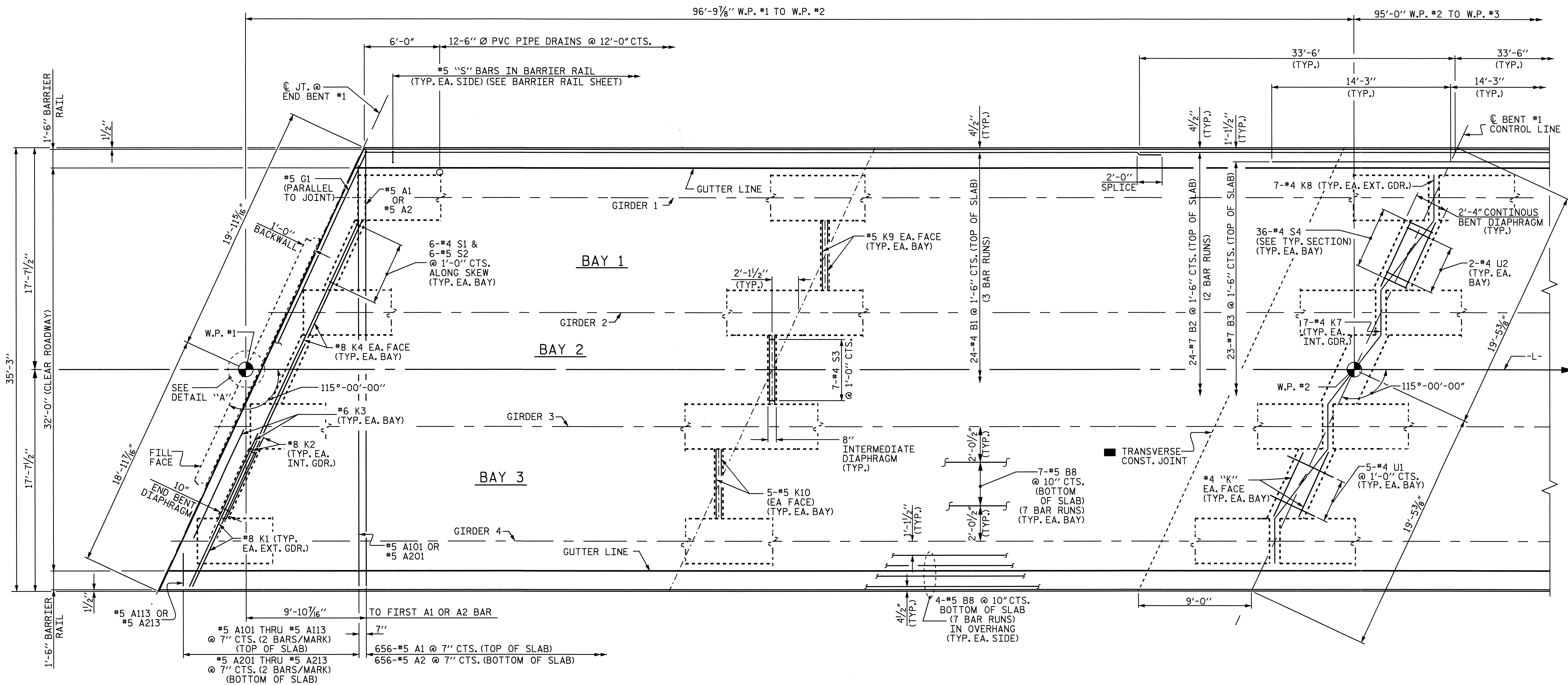
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 TYPICAL SECTIONS

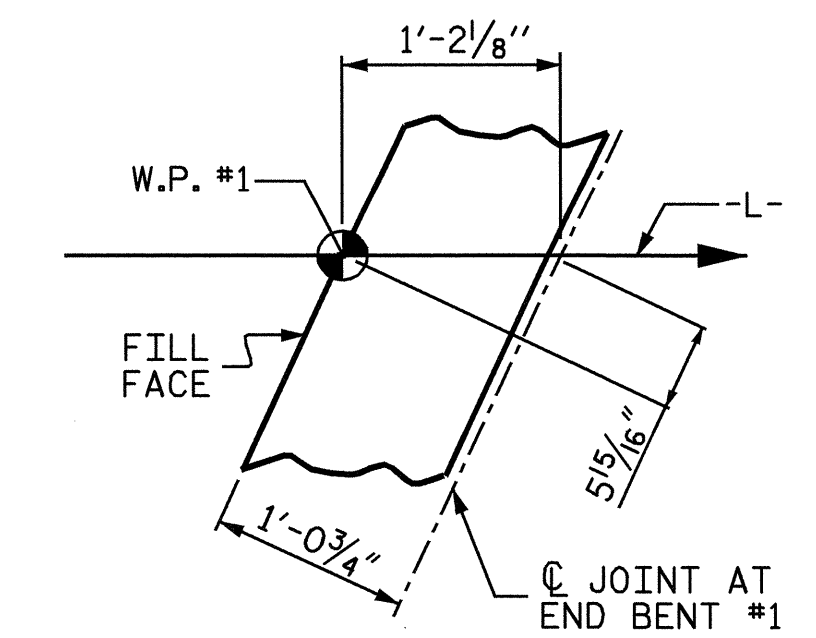


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6	
1			3			TOTAL SHEETS	
2			4			35	

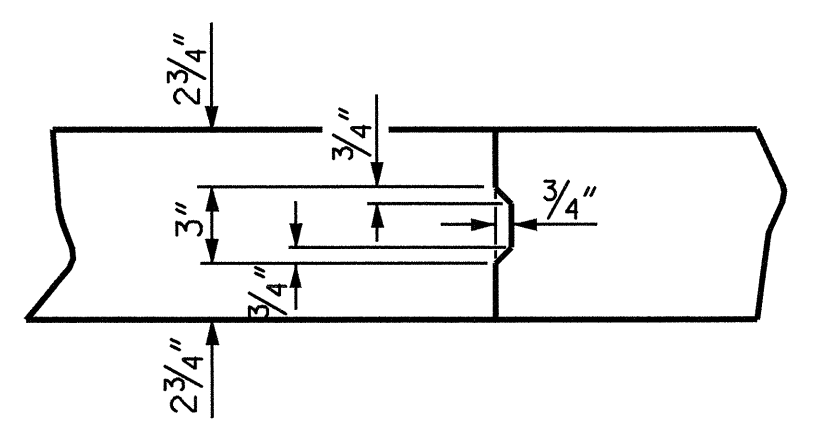
DRAWN BY: D. PLATICA/SFD DATE: 4/07/04
 CHECKED BY: J.P. ADAMS DATE: 8/09/04



PLAN OF SPAN A



DETAIL "A"



TRANSVERSE CONSTRUCTION JOINT IN DECK SLAB

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

PROJECT NO. B-4256
 ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

SHEET 1 OF 4

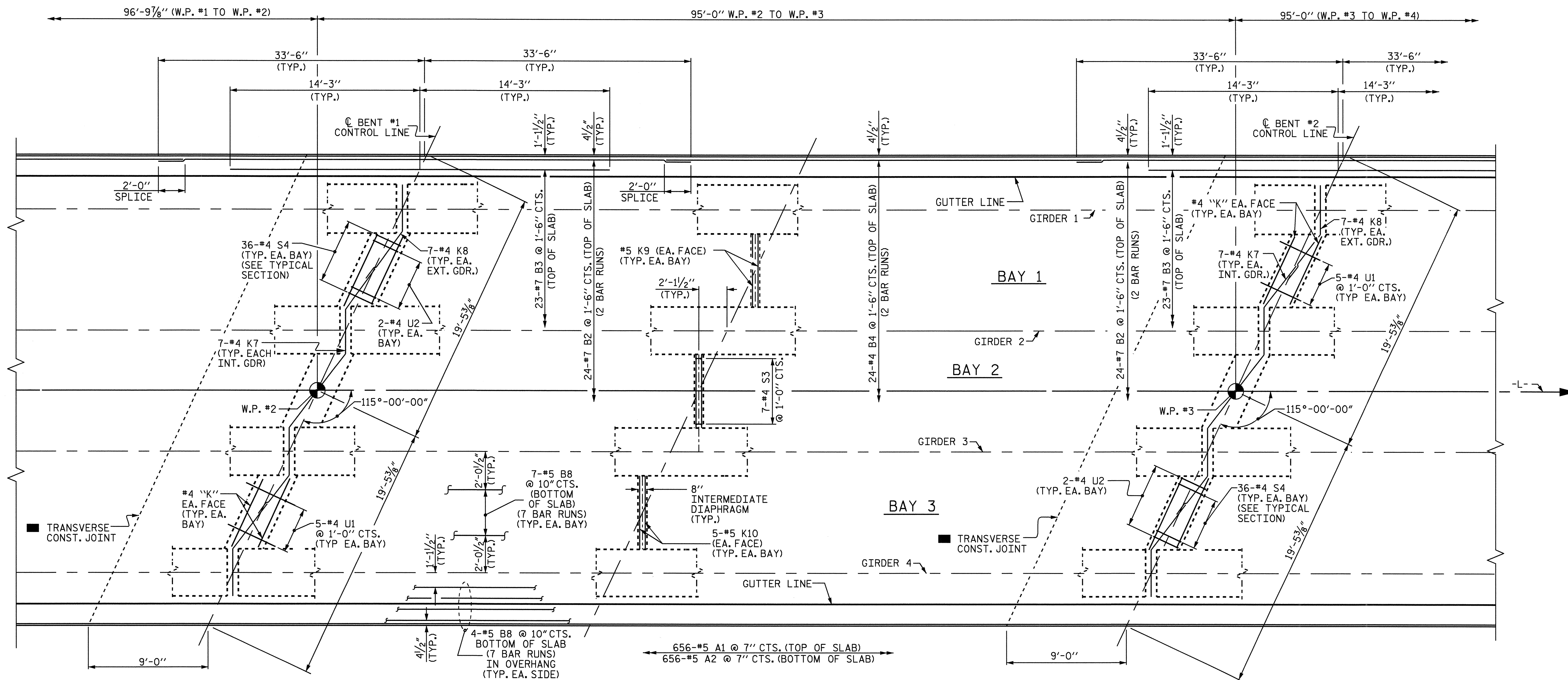
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN A					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-7
					TOTAL SHEETS 35



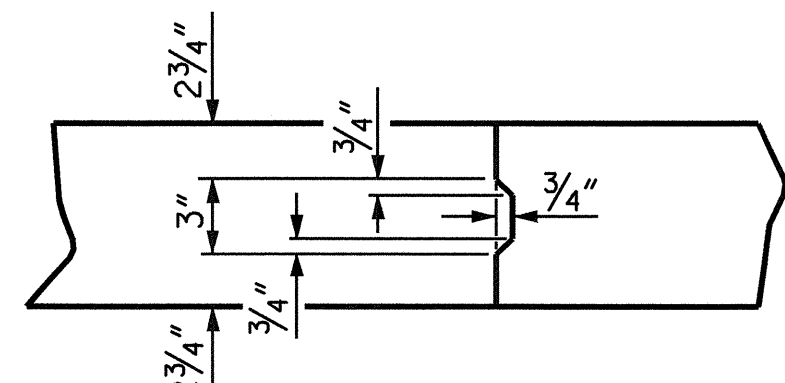
DRAWN BY: DAN PLATICA/SFD DATE: 6/29/04
 CHECKED BY: J. P. ADAMS DATE: 8/9/04

06-AUG-2007 12:57
 RA:\Structures\B4256\Final Plans\B-4256.ed.S*.dgn
 sdbrowski

STR. #1



PLAN OF SPAN B



TRANSVERSE CONSTRUCTION JOINT IN DECK SLAB

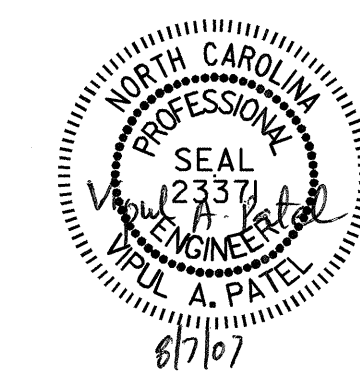
REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THROUGH JOINT.

PROJECT NO. B-4256
 ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN B

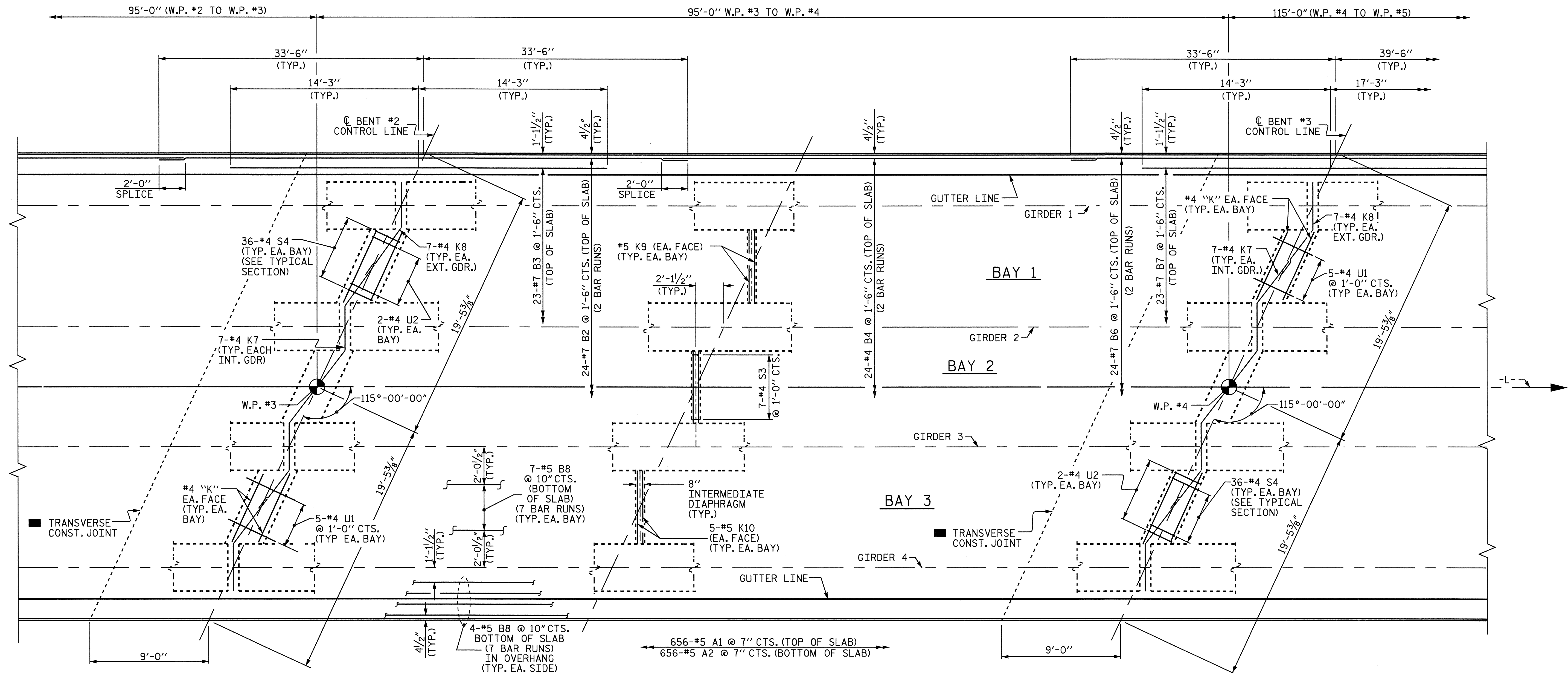


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			35

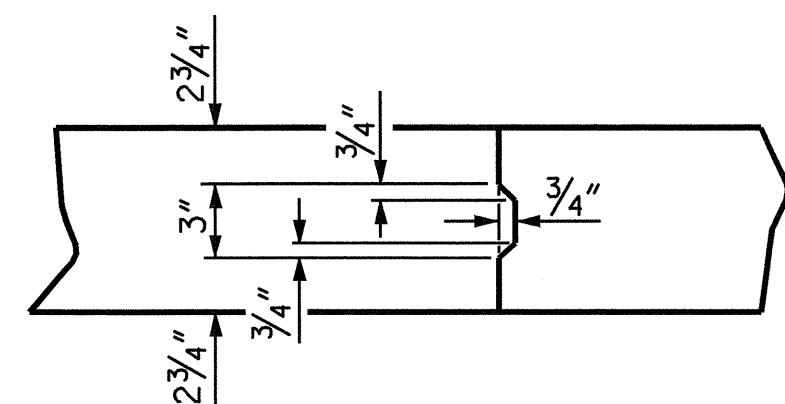
DRAWN BY: DAN PLATICA/SFD DATE: 6/29/04
 CHECKED BY: J. P. ADAMS DATE: 8/09/04

06-AUG-2007 12:58
 R:\Structures\B4256\Final Plans\B-4256.ed.S*.dgn
 sdombrowski

STR. #1



PLAN OF SPAN C



**TRANSVERSE CONSTRUCTION JOINT
IN DECK SLAB**

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

PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

SHEET 3 OF 4

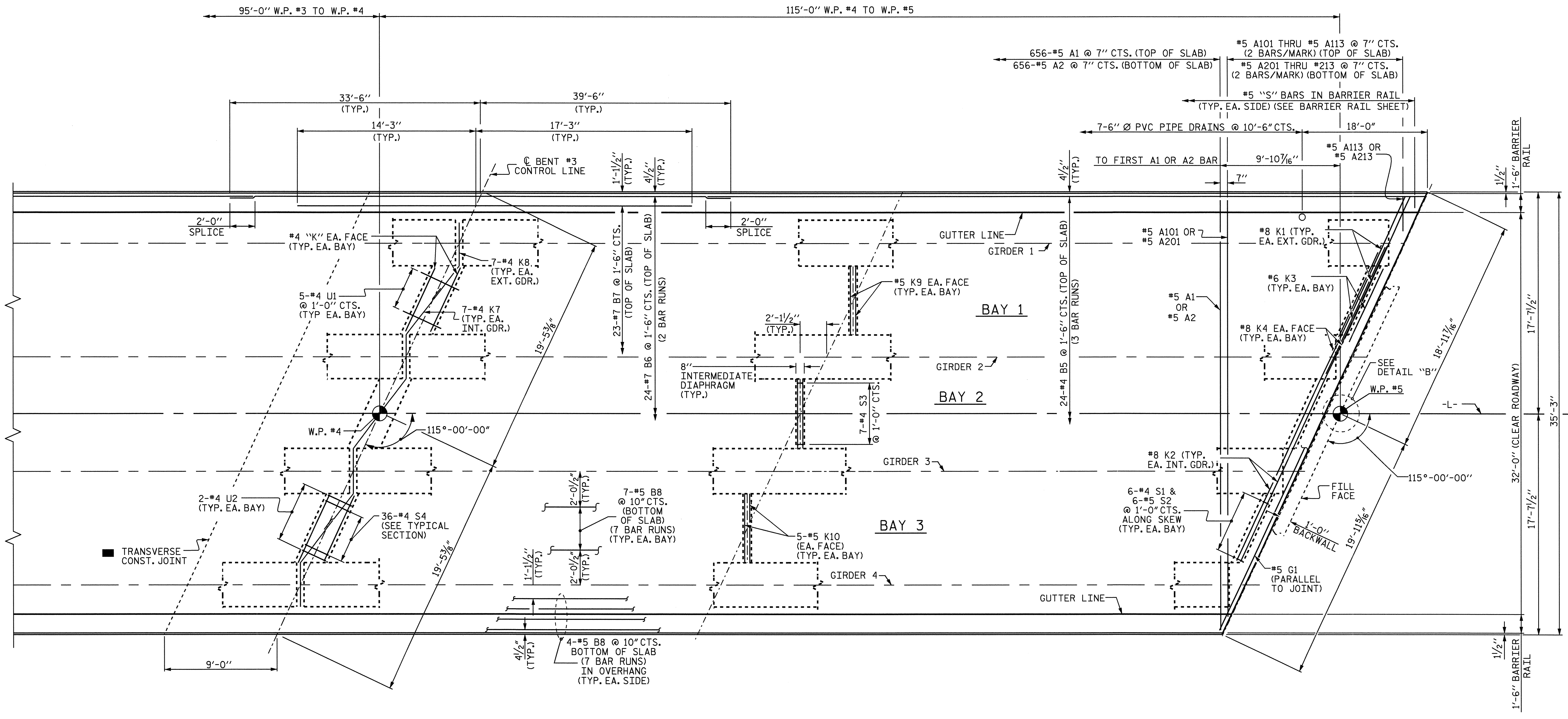
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN C

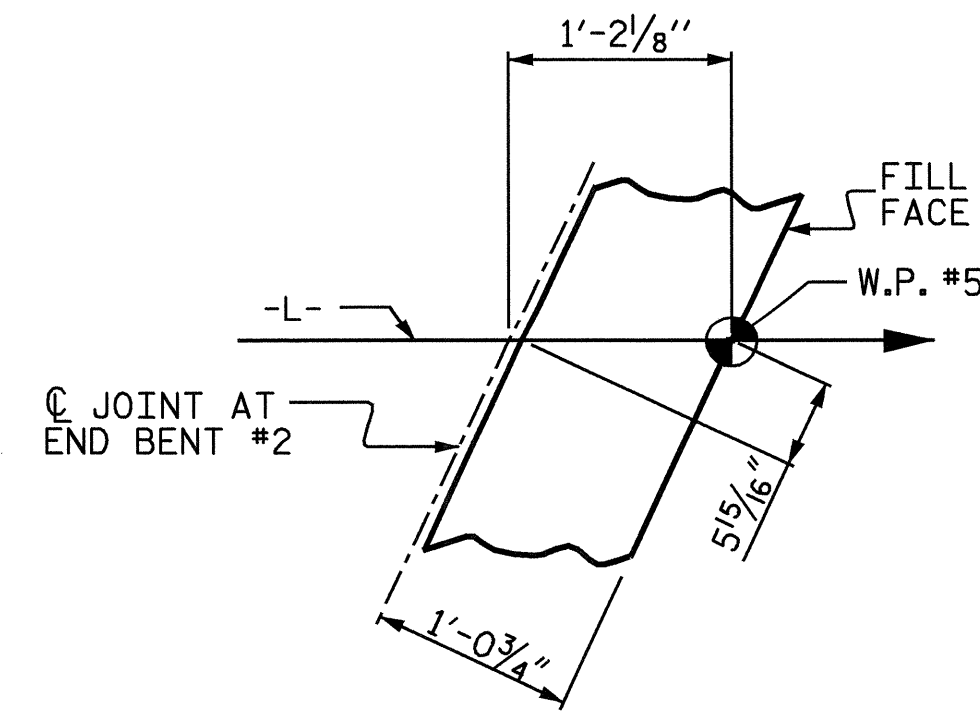


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			35

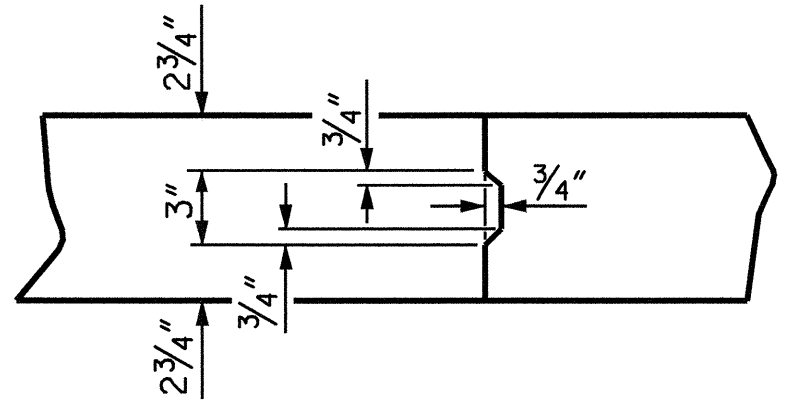
DRAWN BY: DAN PLATICA/SFD DATE: 6/29/04
 CHECKED BY: J. P. ADAMS DATE: 8/09/04



PLAN OF SPAN D



DETAIL "B"



TRANSVERSE CONSTRUCTION JOINT IN DECK SLAB

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

PROJECT NO. B-4256
 ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN D

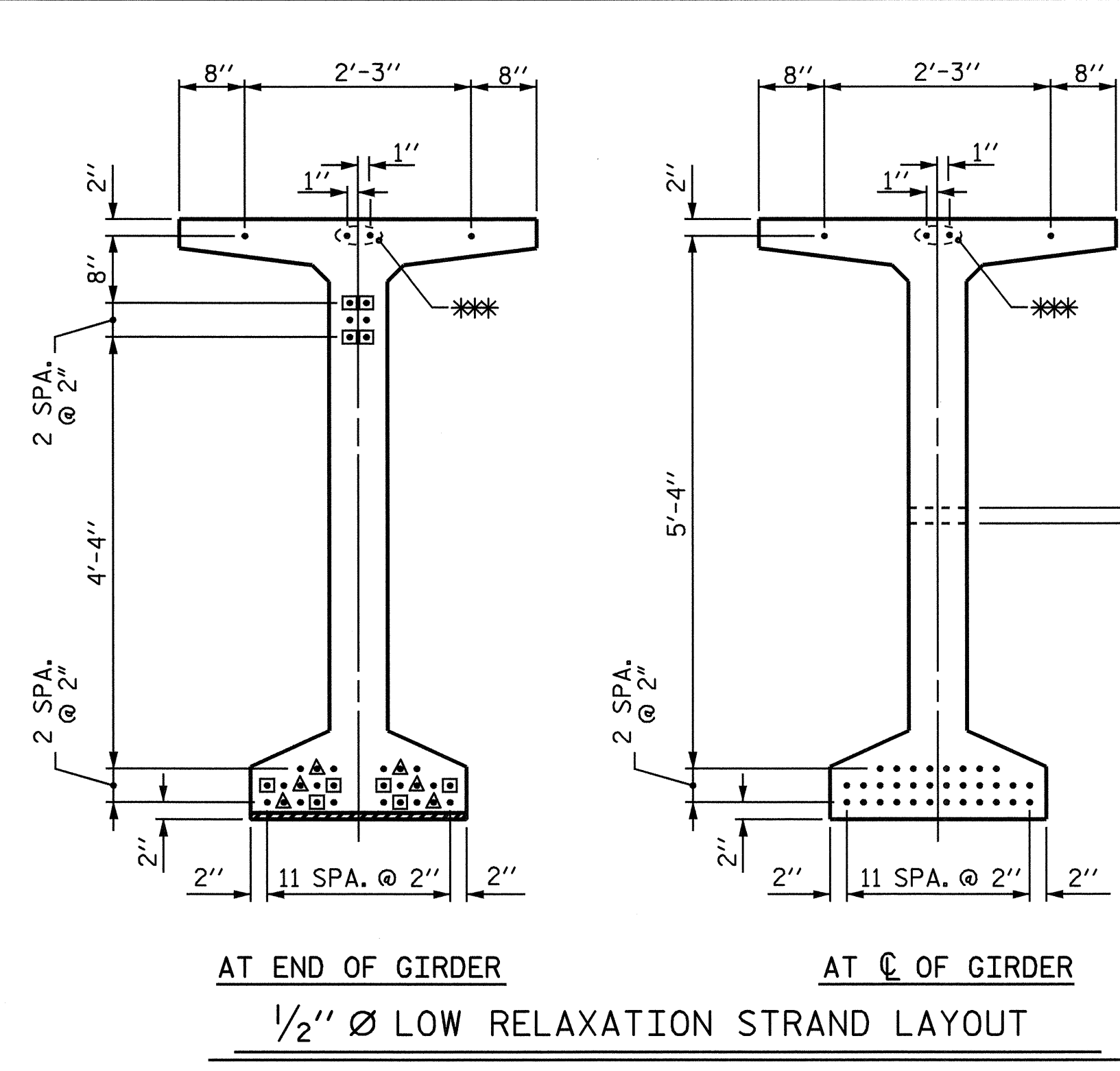
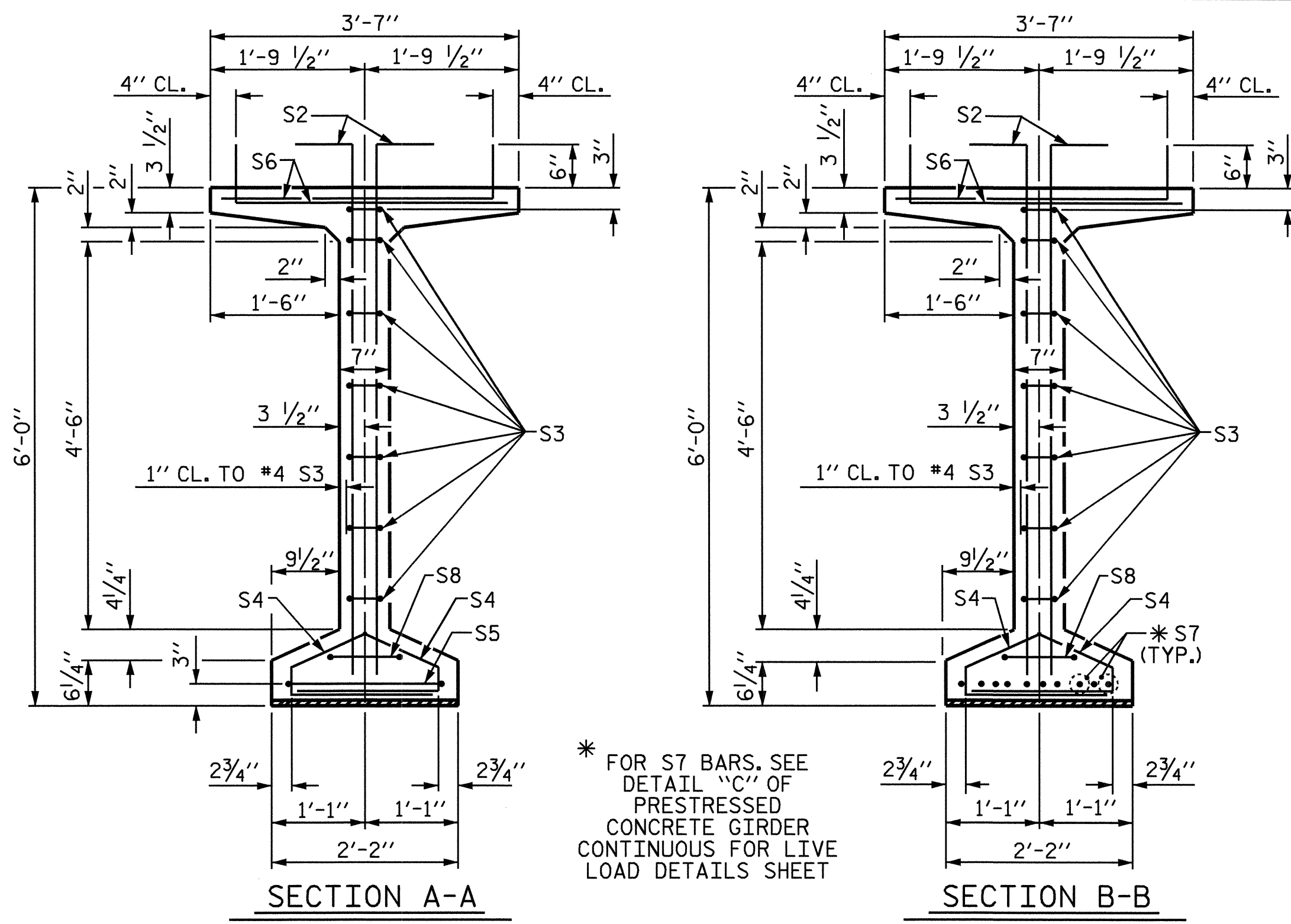


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			TOTAL SHEETS 35	
2			4				

DRAWN BY: DAN PLATICA/SFD DATE: 6/28/04
 CHECKED BY: J. P. ADAMS DATE: 8/09/04

06-AUG-2007 12:58
 R:\Structures\B4256\Final Plans\B-4256.sd.s*.dgn
 sdombr@owaki

STR. #1



DEBONDING LEGEND

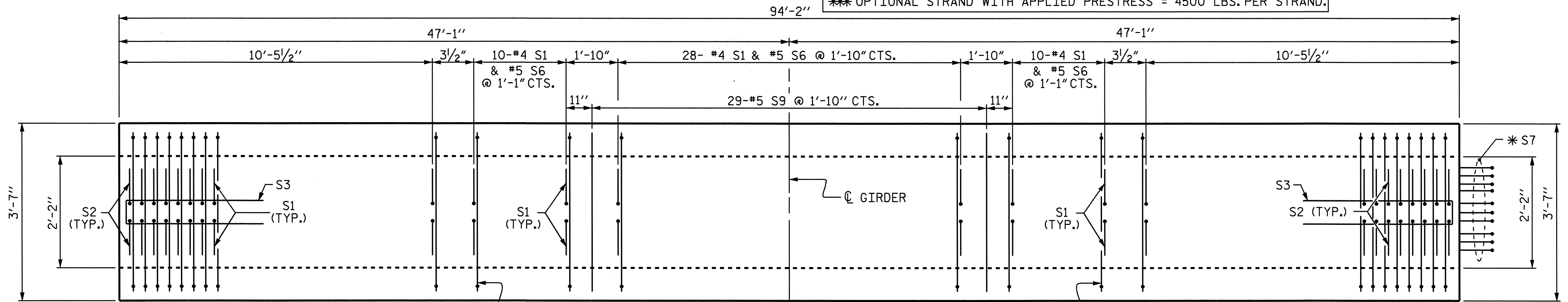
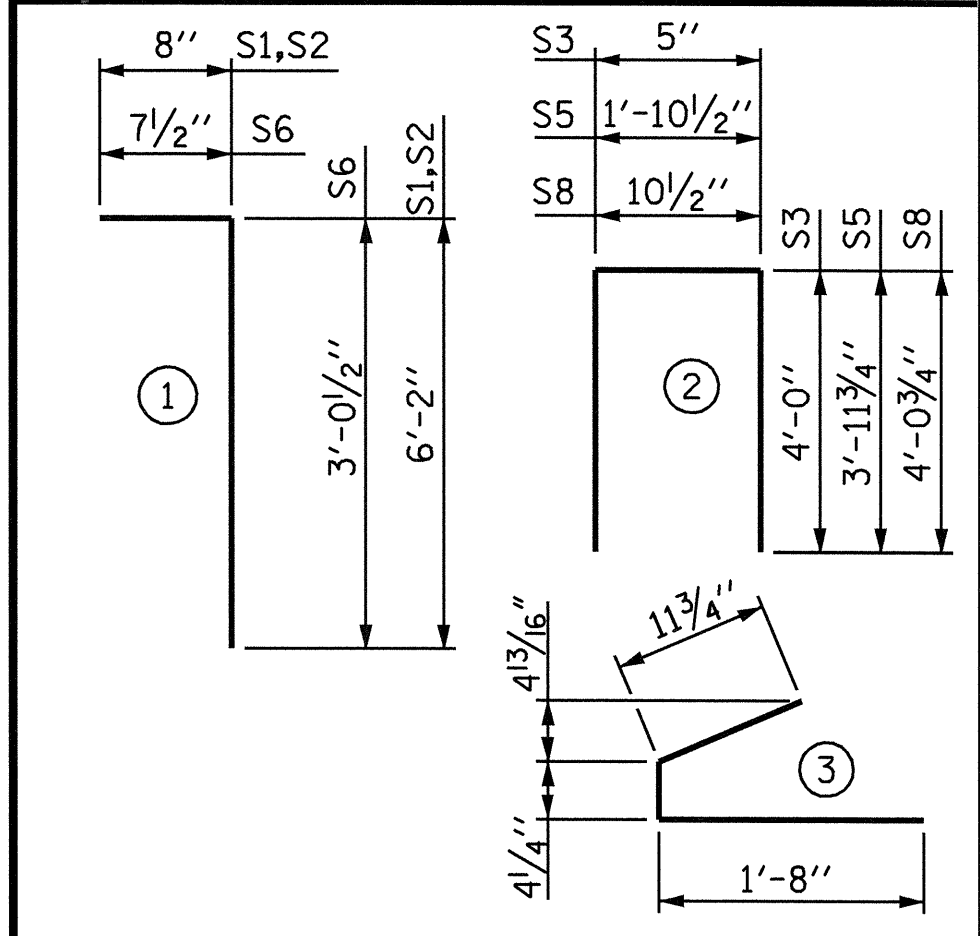
- FULLY BONDED STRANDS
- ◻ STRANDS DEBONDED FOR 2'-0" FROM END OF GIRDER
- ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER

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

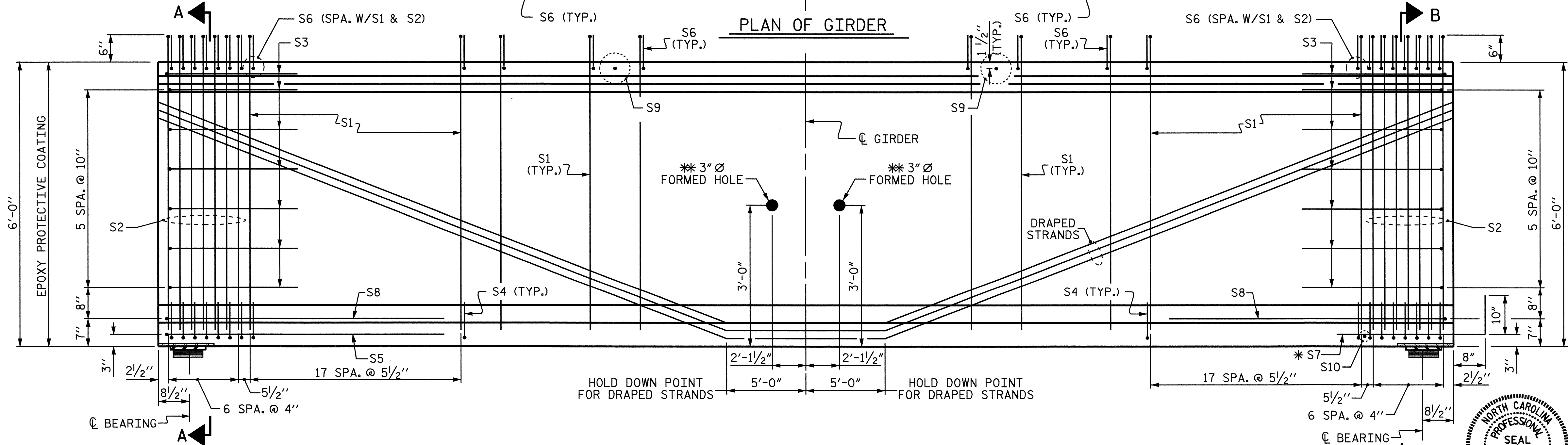
REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	168	#4	1	6'-10"	767
S2	28	#5	1	6'-10"	200
S3	14	#4	2	8'-5"	79
S4	100	#4	3	3'-0"	200
S5	1	#5	2	9'-10"	10
S6	196	#5	1	3'-8"	750
*S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	29	#5	STR	3'-3"	98
S10	1	#3	STR	1'-10"	1

* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES
ALL BAR DIMENSIONS ARE OUT-TO-OUT



** OPTIONAL STRAND WITH APPLIED PRESTRESS = 4500 LBS. PER STRAND.



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	5,500 PSI CONCRETE	1/2" Ø L.R. STRANDS
	LB.	C.Y.	No.
SPAN A	2162	20.2	34

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
4 (SPAN A)	94'-2"	376'-8"

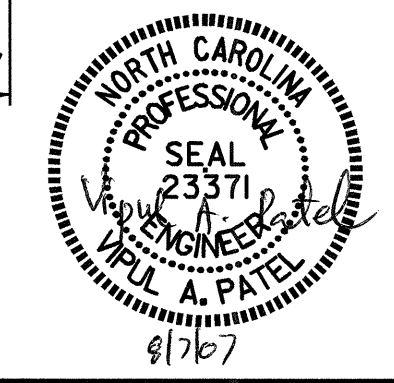
PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
STATION: 21+00.00 -L-

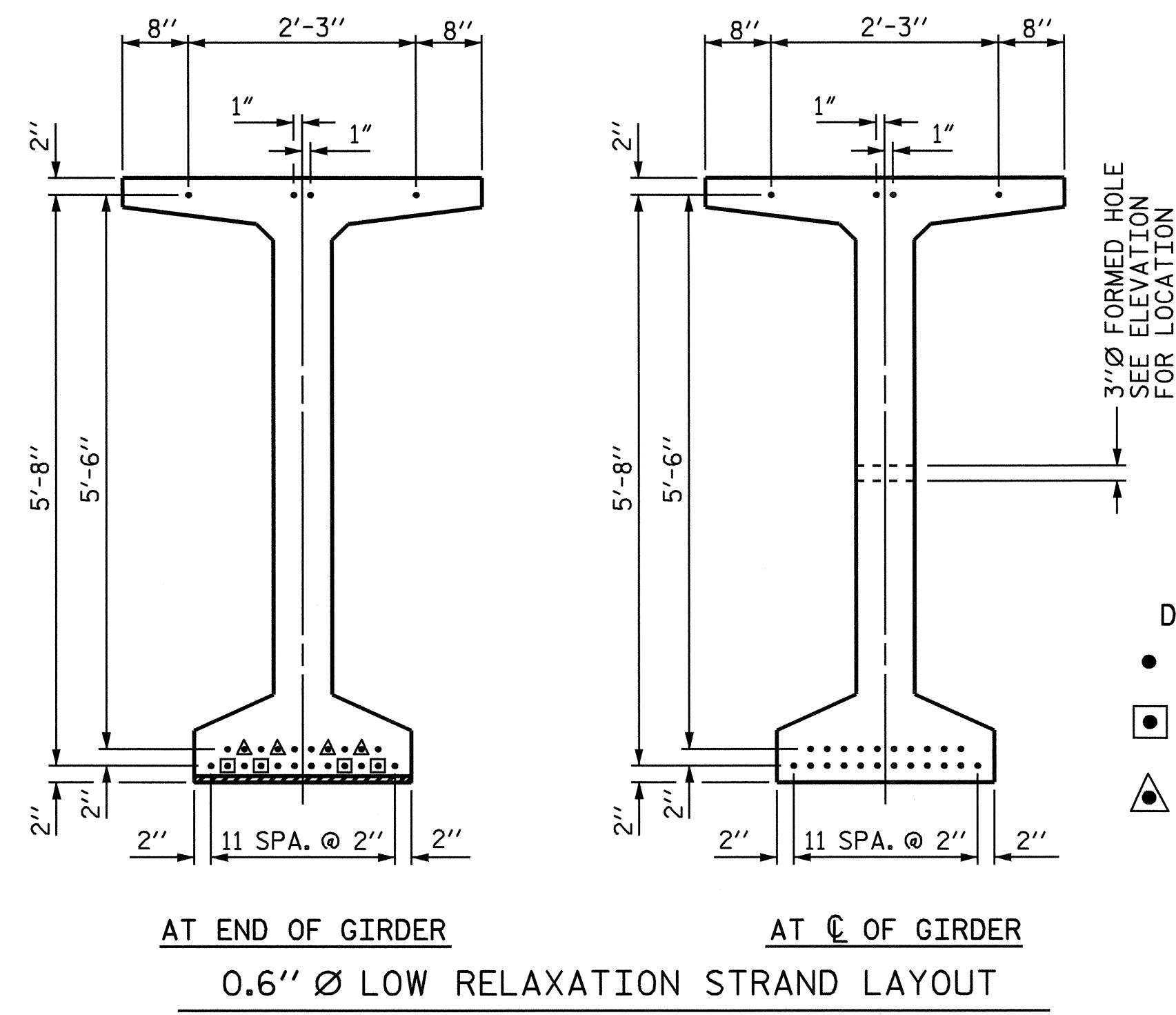
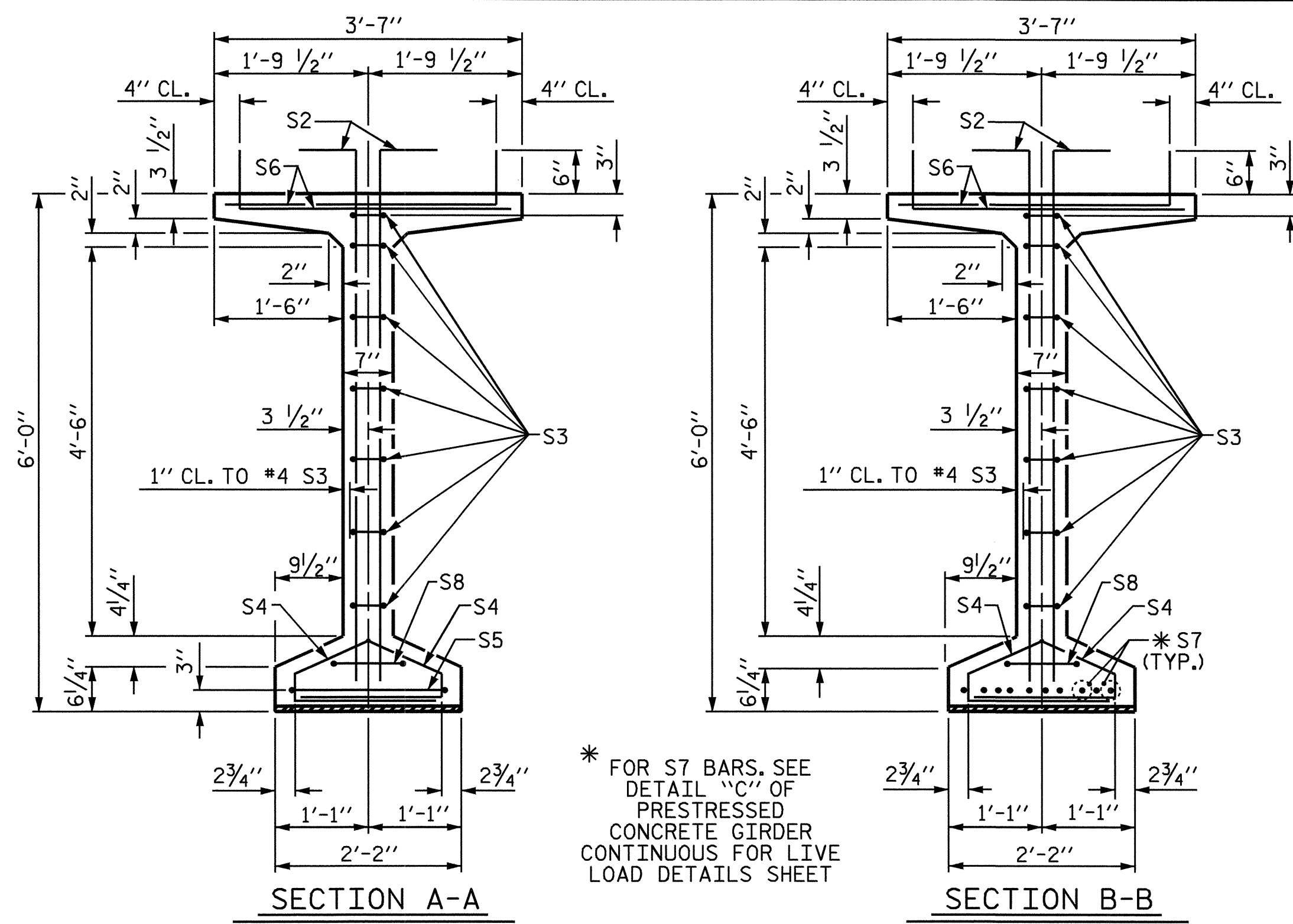
SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
72" PRESTRESSED CONCRETE
MODIFIED BULB TEE
CONTINUOUS FOR LIVE LOAD
SPAN A

REVISIONS						SHEET NO. S-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

ASSEMBLED BY : S. DOMBROWSKI DATE : 4/07
CHECKED BY : V.A.PATEL DATE : 5/07
DRAWN BY : EEM 2/6/97 REV. 8/16/99 RWW/LES
CHECKED BY : VAP 2/6/97 REV. 10/17/00 RWW/LES
REV. 5/1/06 TLA/GM





- DEBONDING LEGEND**
- FULLY BONDED STRANDS
 - ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
 - ◻ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER

0.6" Ø L. R. GRADE 270 STRANDS

AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

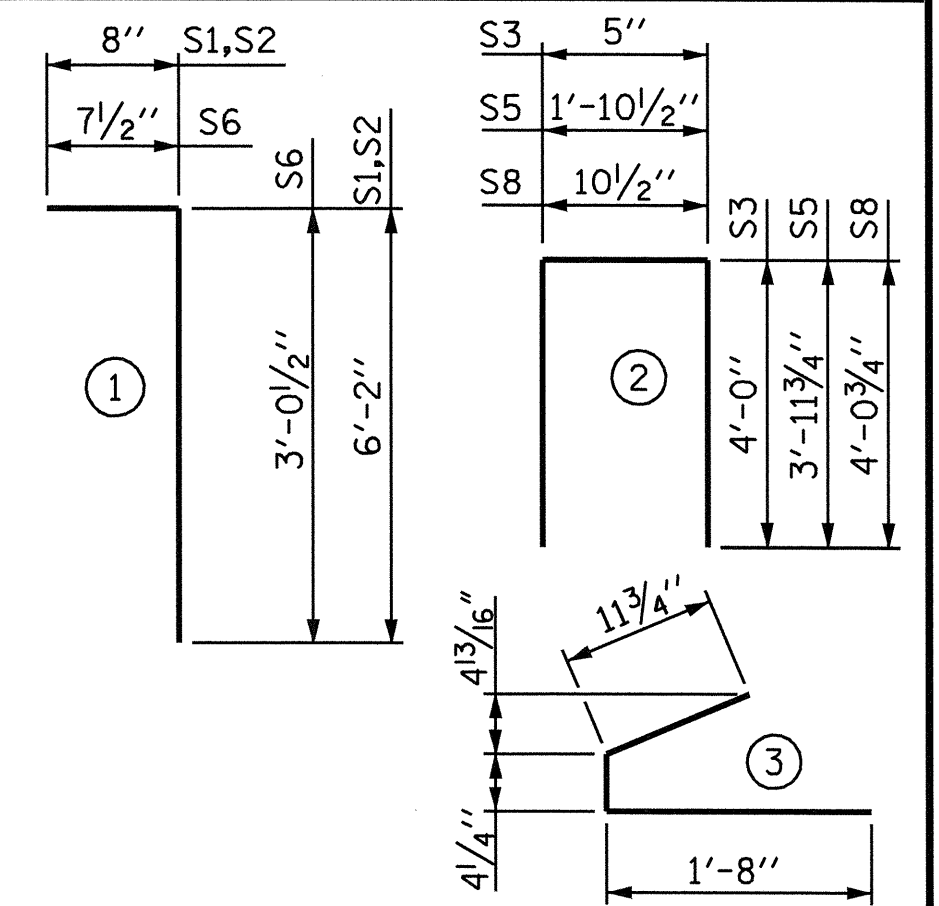
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	164	#4	1	6'-10"	749
S2	24	#5	1	6'-10"	171
S3	14	#4	2	8'-5"	79
S4	88	#4	3	3'-0"	176
S5	1	#5	2	9'-10"	10
S6	188	#5	1	3'-8"	719
*S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	29	#5	STR	3'-3"	98
S10	1	#3	STR	1'-10"	1

* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	6,500 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
SPAN A	2060	20.2	26

GIRDERS REQUIRED

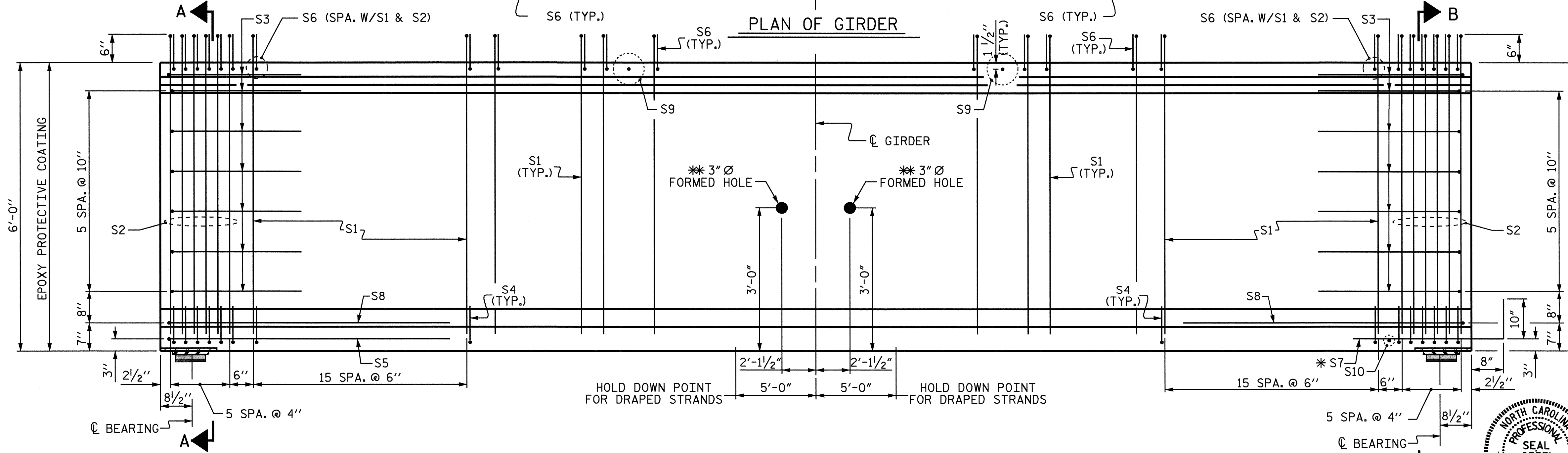
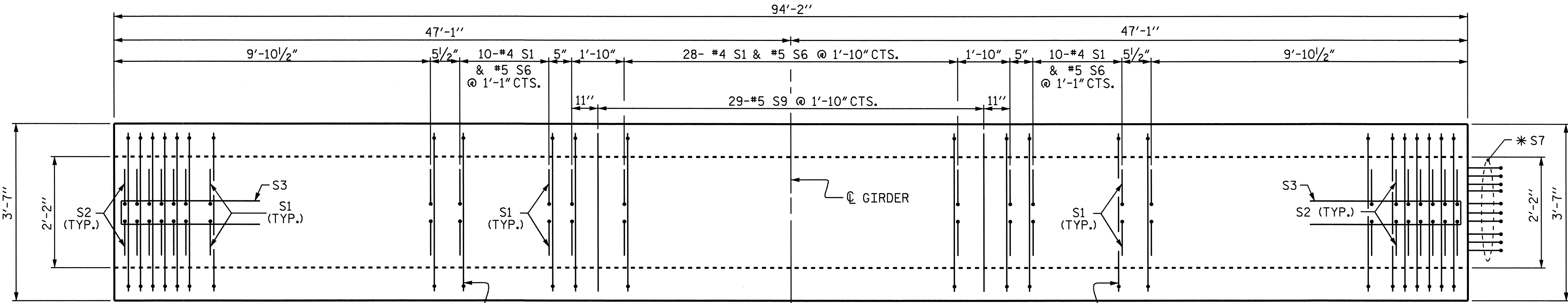
NUMBER	LENGTH	TOTAL LENGTH
4 (SPAN A)	94'-2"	376'-8"

PROJECT NO. B-4256
 ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

SHEET 2 OF 5

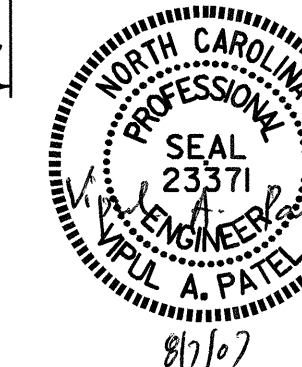
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 OPTIONAL
 72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 (WITH 0.6" Ø PARTIALLY
 DEBONDED STRANDS)
SPAN A

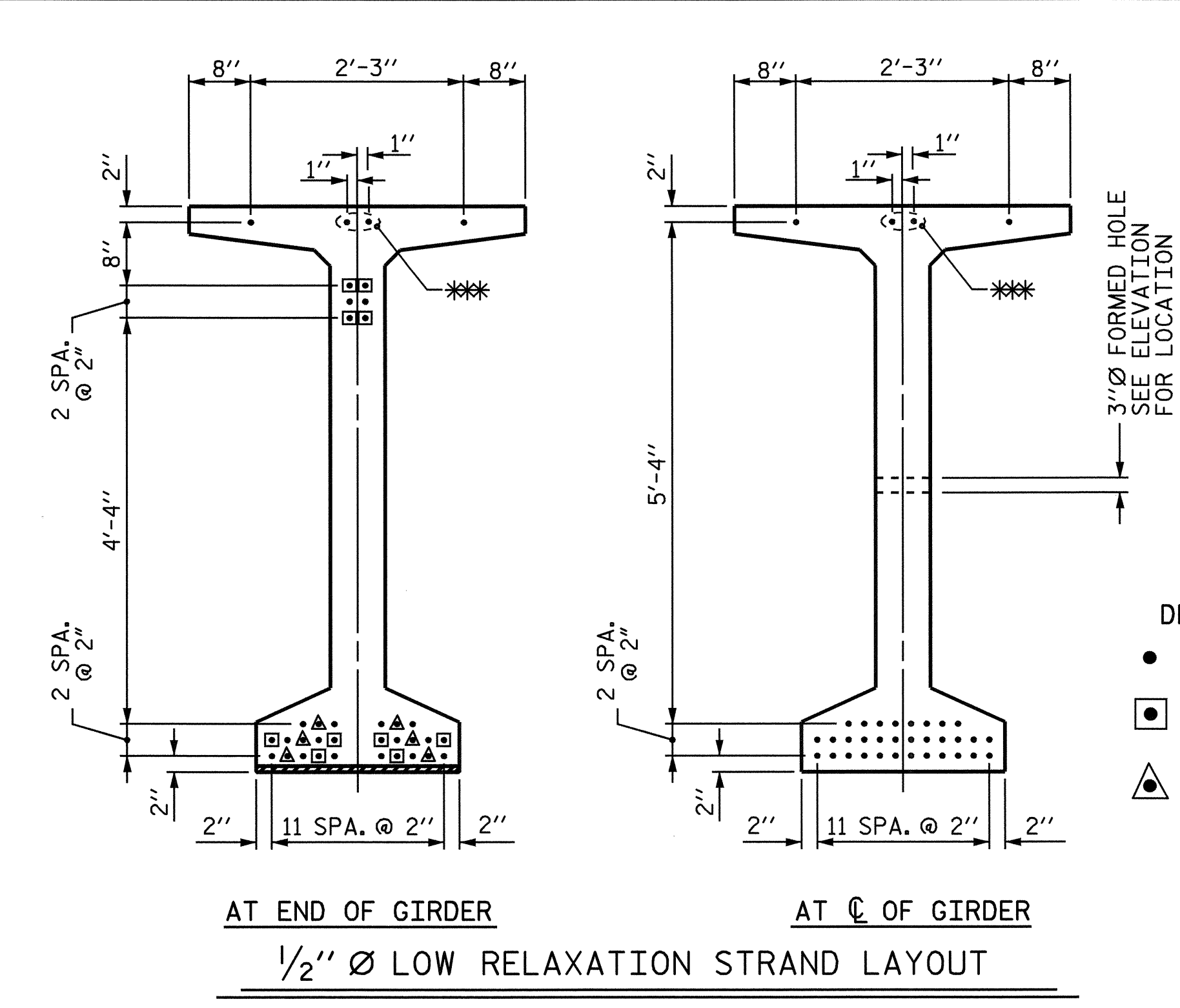
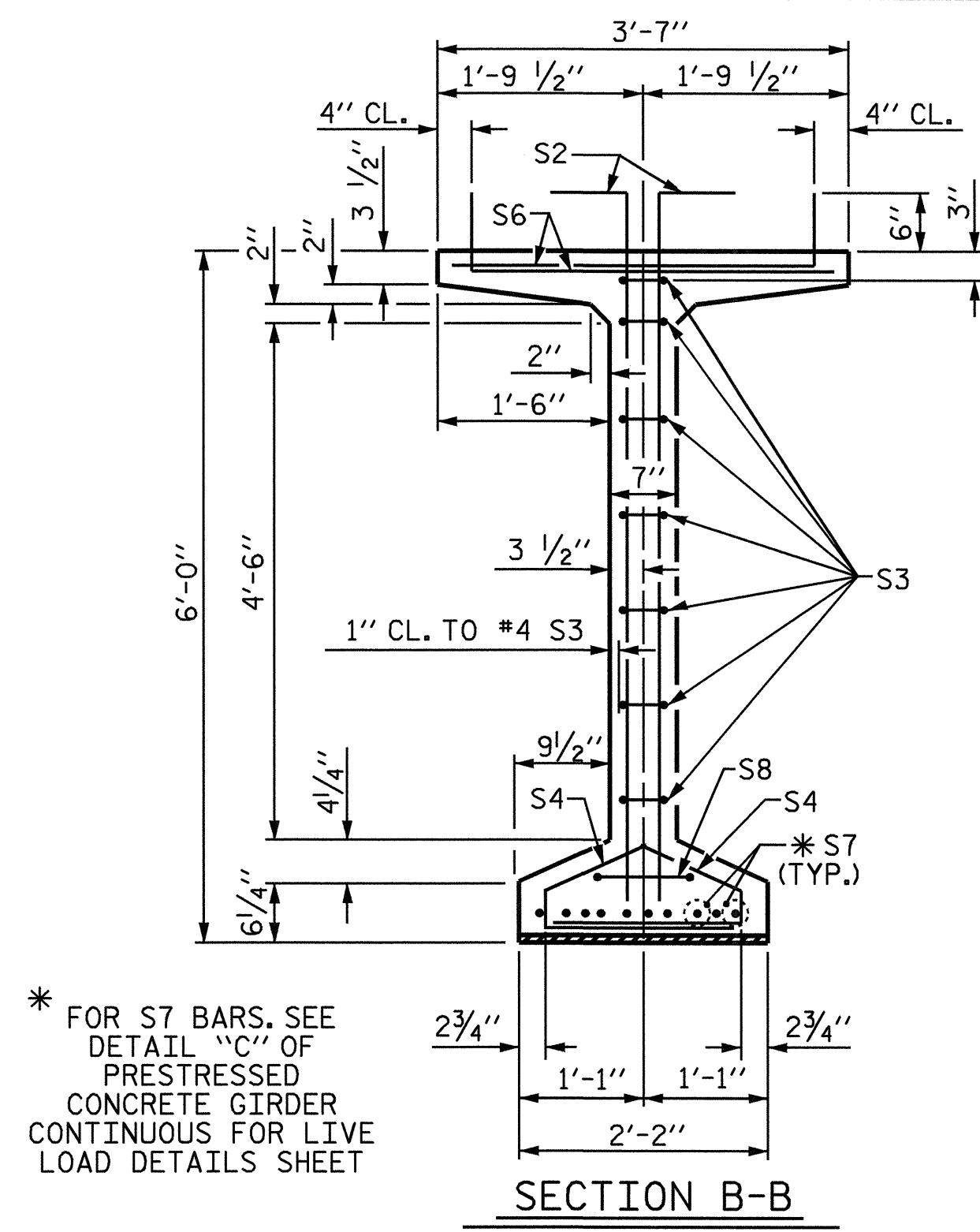
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS 35
2			4			



ELEVATION OF GIRDER
 * ONLY ONE 3" Ø CORED OR FORMED HOLE REQUIRED FOR EXTERIOR GIRDER

ASSEMBLED BY : S. DOMBROWSKI DATE : 4/07
 CHECKED BY : V.A. PATEL DATE : 5/07
 DRAWN BY : RWW 9/19/02 ADDED 9/19/02
 CHECKED BY : GM 9/19/02 REV. 5/1/06 TLA/GM





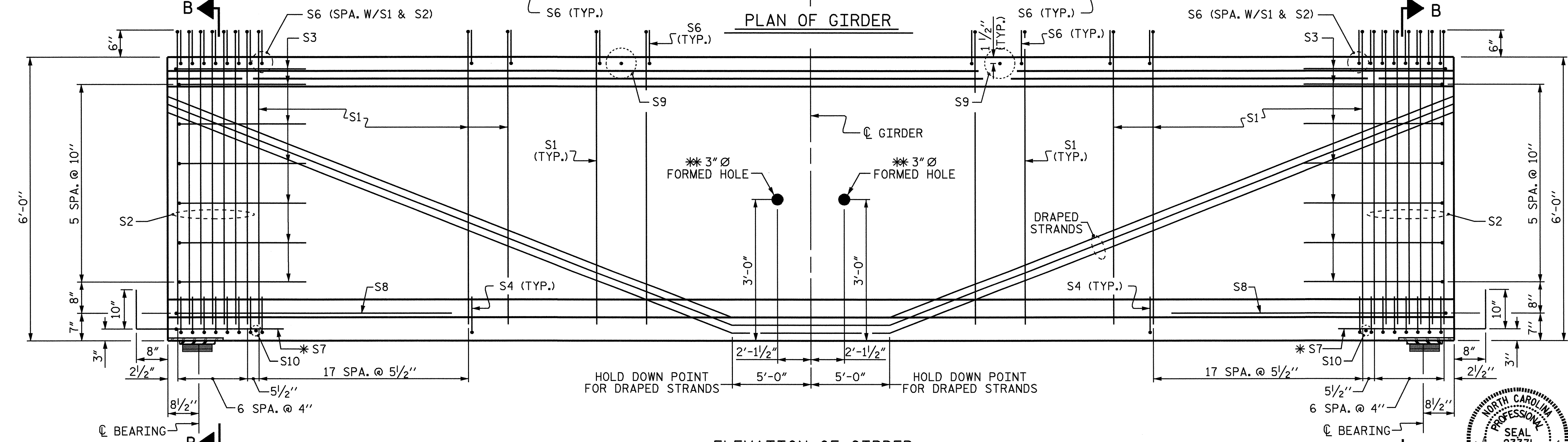
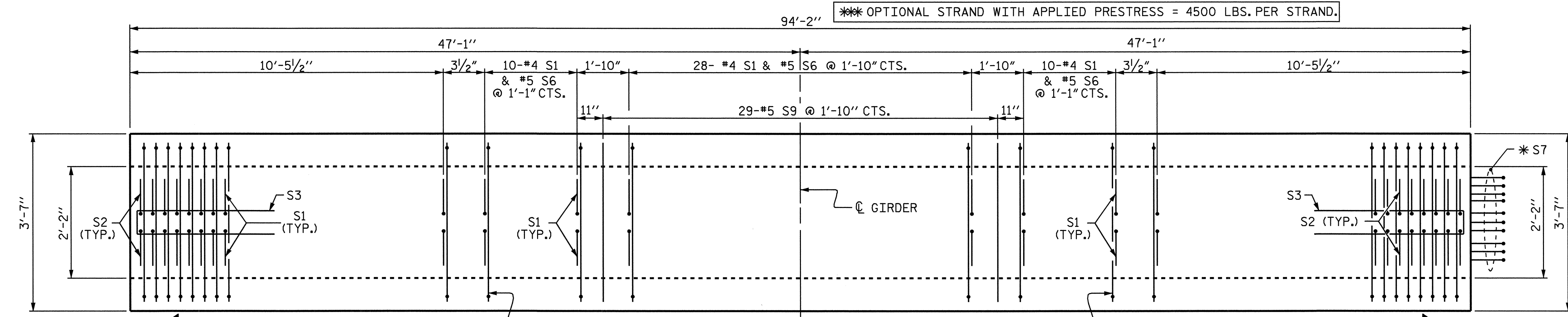
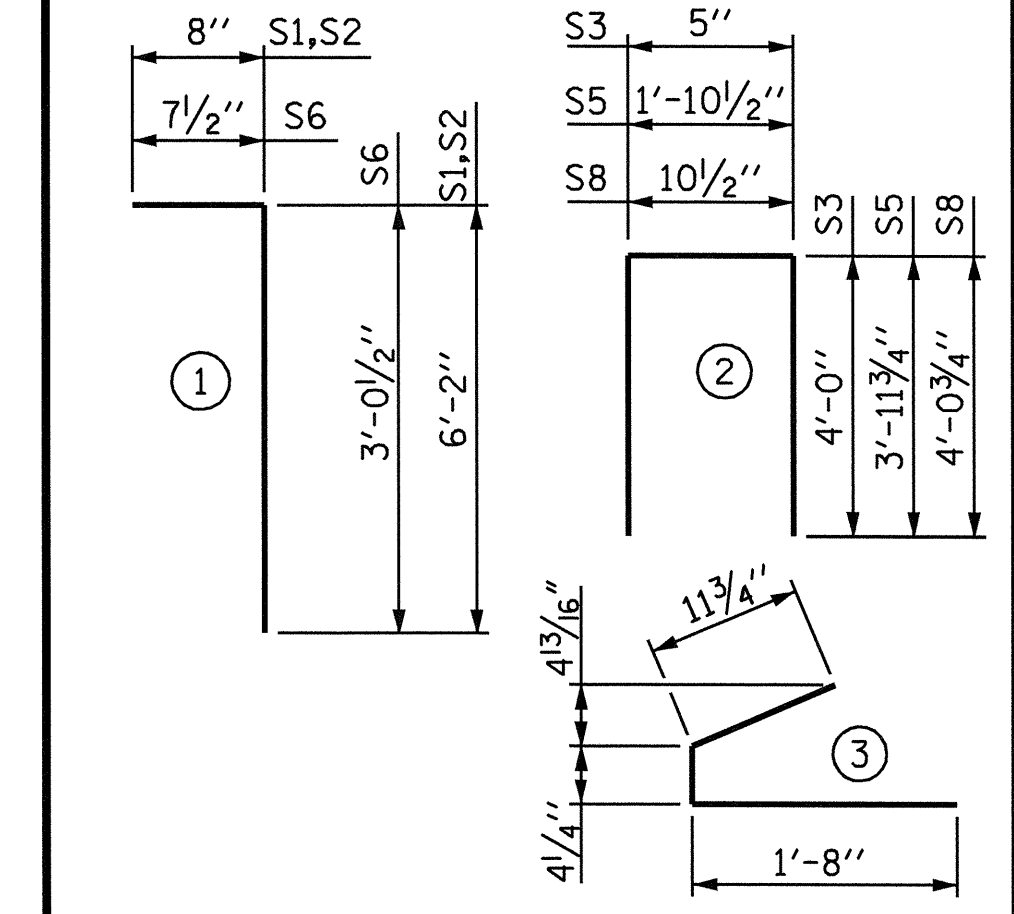
- DEBONDING LEGEND**
- FULLY BONDED STRANDS
 - ◻ STRANDS DEBONDED FOR 2'-0" FROM END OF GIRDER
 - ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER

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

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	168	#4	1	6'-10"	767
S2	28	#5	1	6'-10"	200
S3	14	#4	2	8'-5"	79
S4	100	#4	3	3'-0"	200
S6	196	#5	1	3'-8"	750
*S7	20	#5	STR	3'-8"	76
S8	2	#5	2	9'-0"	19
S9	29	#5	STR	3'-3"	98
S10	2	#3	STR	1'-10"	1

* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES
ALL BAR DIMENSIONS ARE OUT-TO-OUT



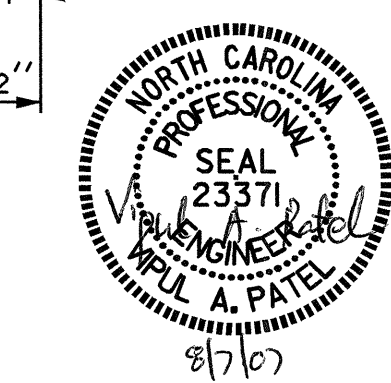
QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	5,500 PSI CONCRETE	1/2" Ø L.R. STRANDS
	LB.	C.Y.	No.
SPAN B & C	2190	20.2	34

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4 (SPAN B)	94'-2"	376'-8"
4 (SPAN C)	94'-2"	376'-8"

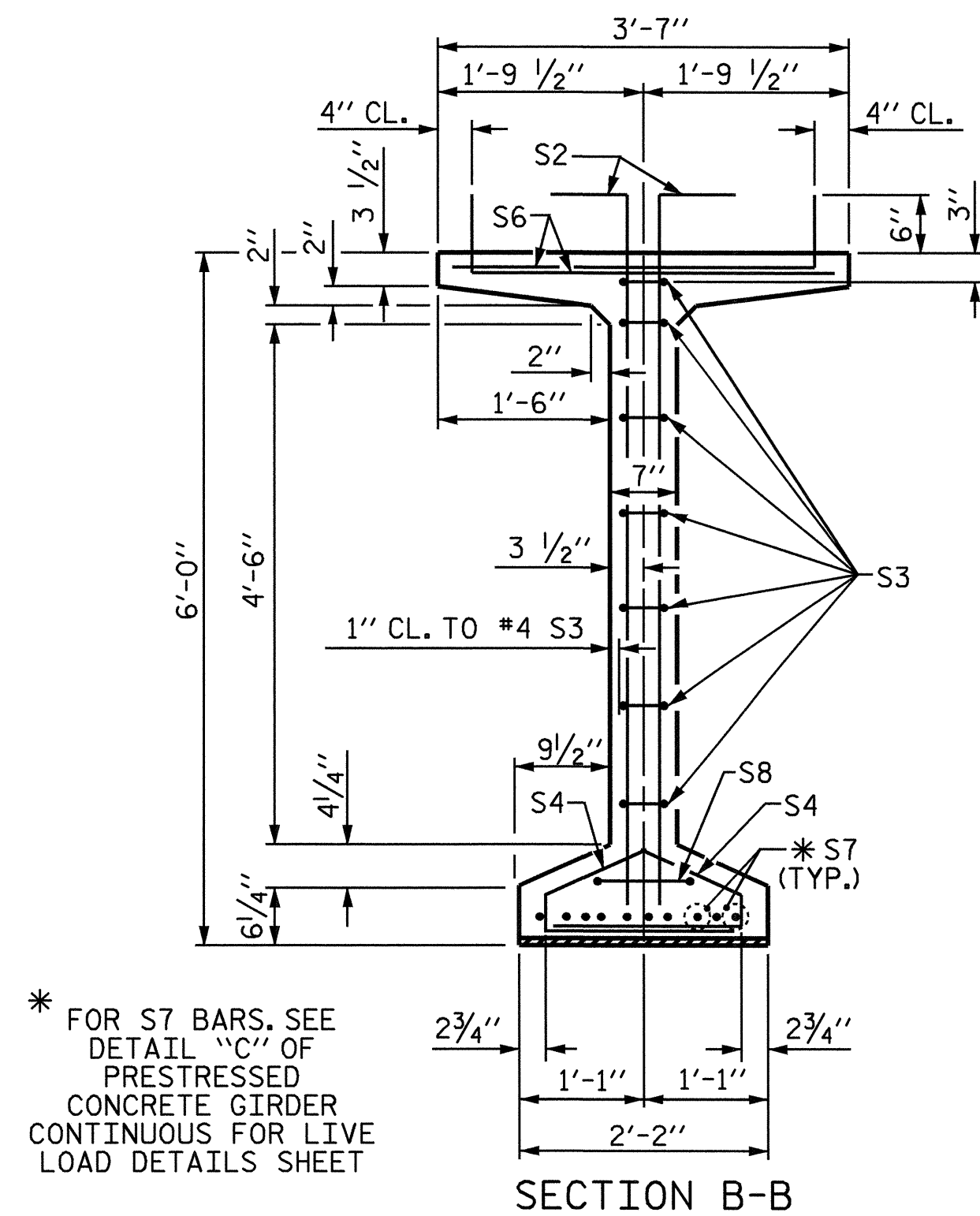
PROJECT NO. B-4256
 ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-
 SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 SPAN B & C

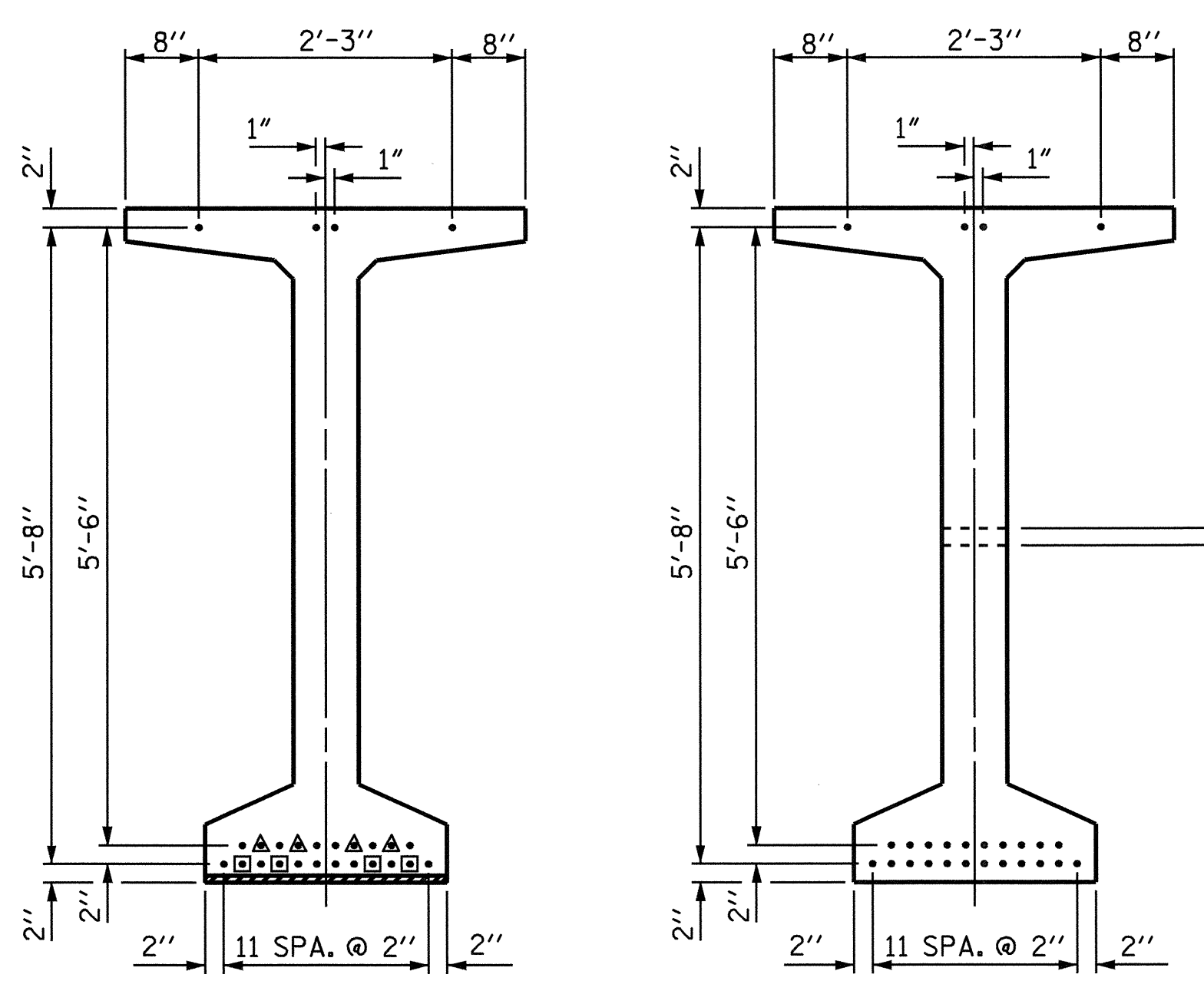
ASSEMBLED BY : S. DOMBROWSKI DATE : 4/07
 CHECKED BY : V.A. PATEL DATE : 5/07
 DRAWN BY : EEM 2/6/97 REV. 8/16/99 RWW/LES
 CHECKED BY : VAP 2/6/97 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			35



* FOR S7 BARS, SEE
DETAIL "C" OF
PRESTRESSED
CONCRETE GIRDER
CONTINUOUS FOR LIVE
LOAD DETAILS SHEET



AT END OF GIRDER AT C OF GIRDER
0.6" Ø LOW RELAXATION STRAND LAYOUT

- DEBONDING LEGEND**
- FULLY BONDED STRANDS
 - ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
 - ◻ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER

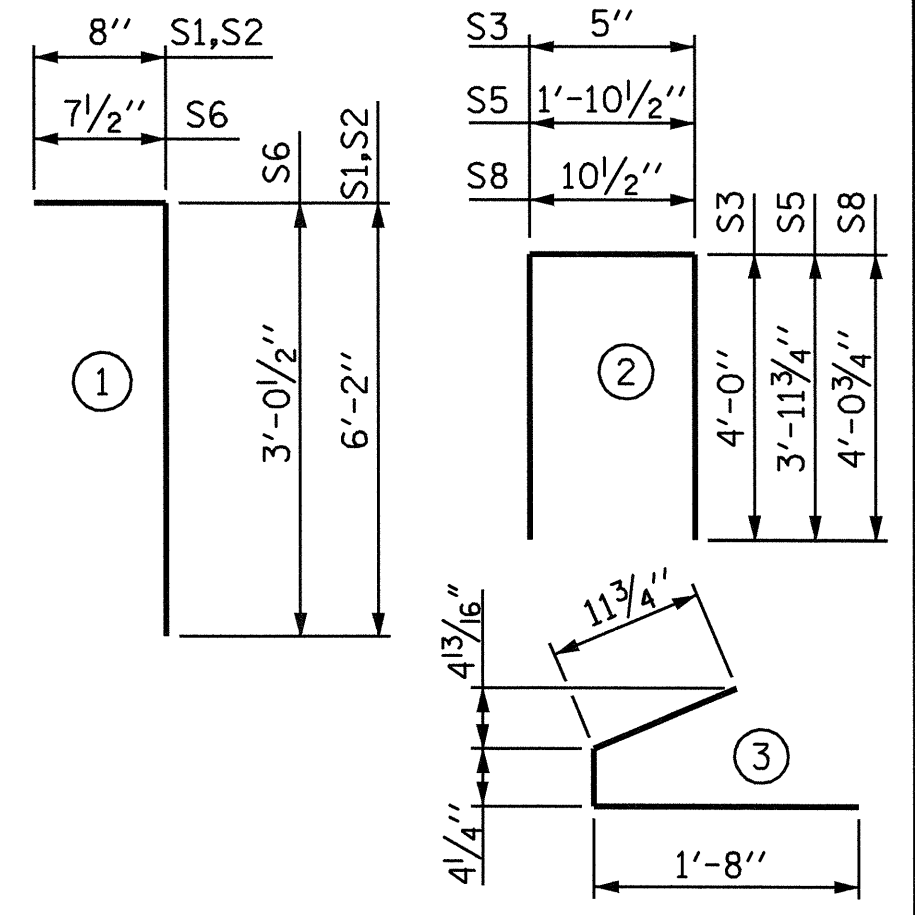
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	164	#4	1	6'-10"	749
S2	24	#5	1	6'-10"	171
S3	14	#4	2	8'-5"	79
S4	88	#4	3	3'-0"	176
S6	188	#5	1	3'-8"	719
*S7	20	#5	STR	3'-8"	76
S8	2	#5	2	9'-0"	19
S9	29	#5	STR	3'-3"	98
S10	2	#3	STR	1'-10"	1

* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	6,500 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
SPAN B & C	2088	20.2	26

GIRDERS REQUIRED

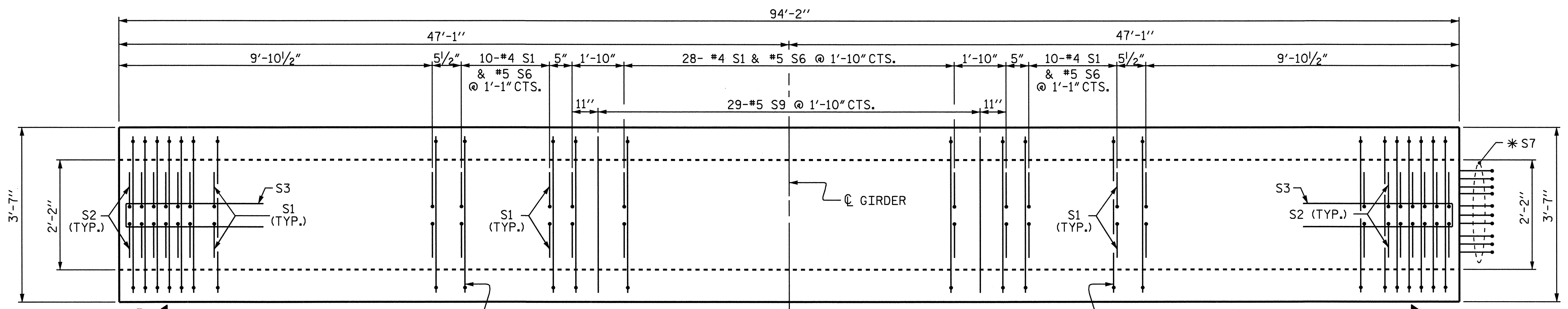
NUMBER	LENGTH	TOTAL LENGTH
4 (SPAN B)	94'-2"	376'-8"
4 (SPAN C)	94'-2"	376'-8"

PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

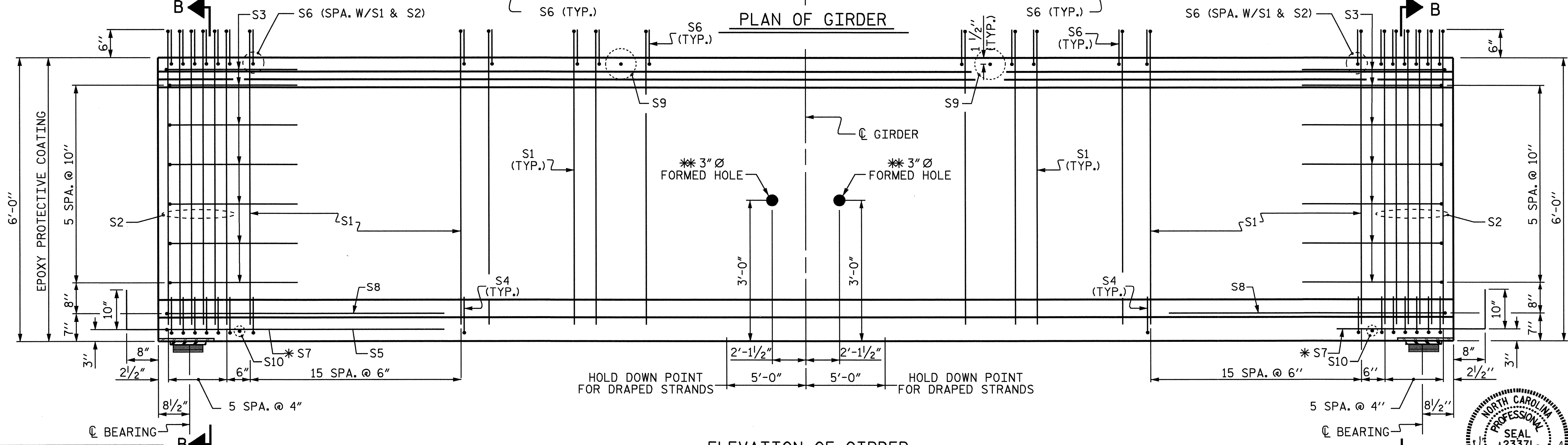
SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 OPTIONAL
 72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 (WITH 0.6" Ø PARTIALLY
 DEBONDED STRANDS)
 SPAN B & C

REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			



PLAN OF GIRDER

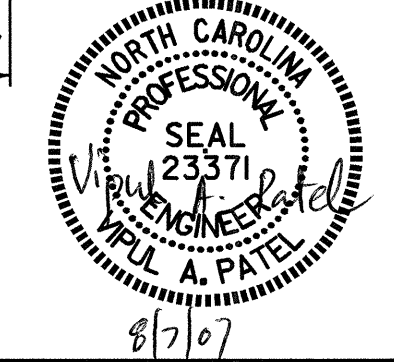


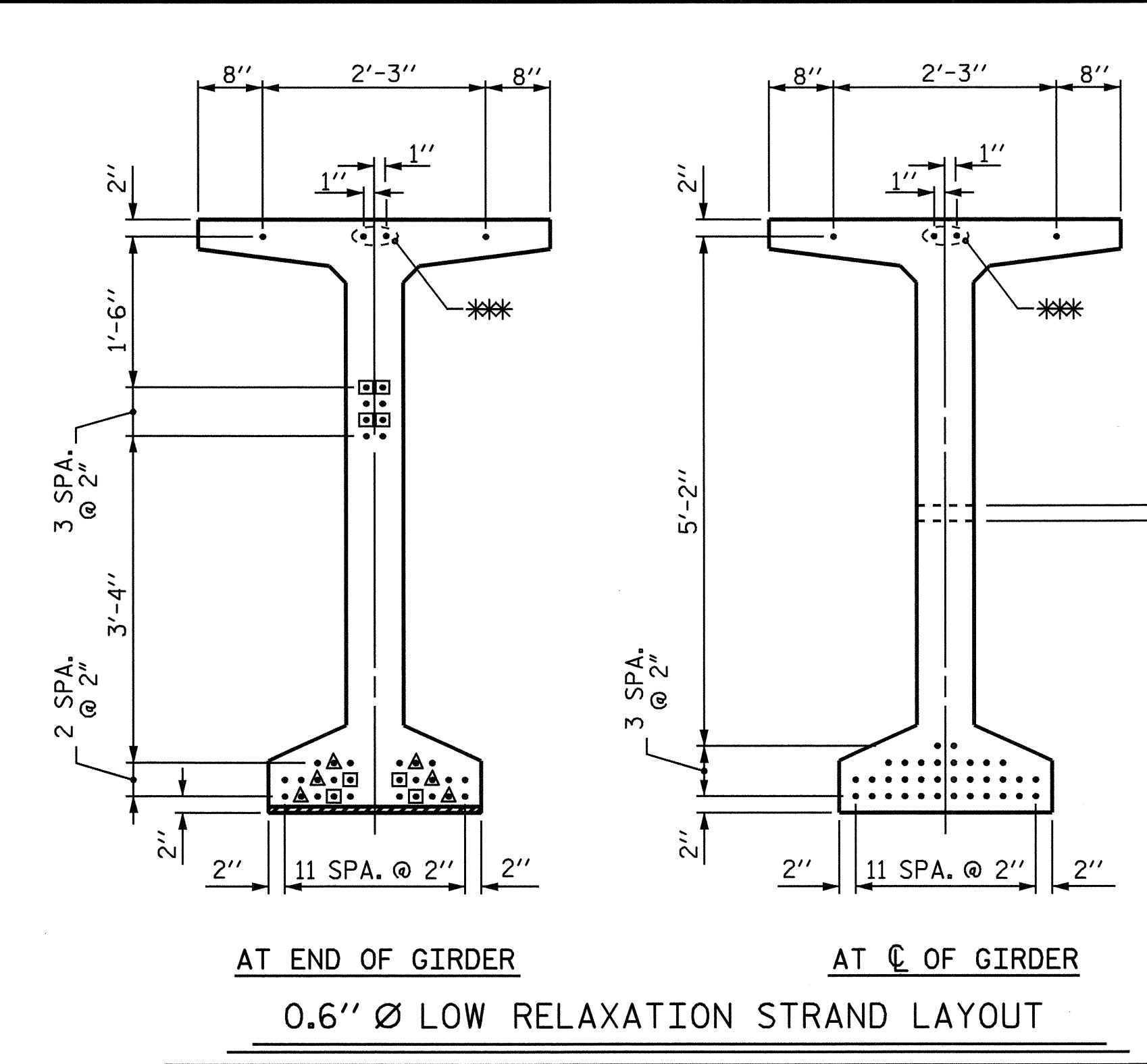
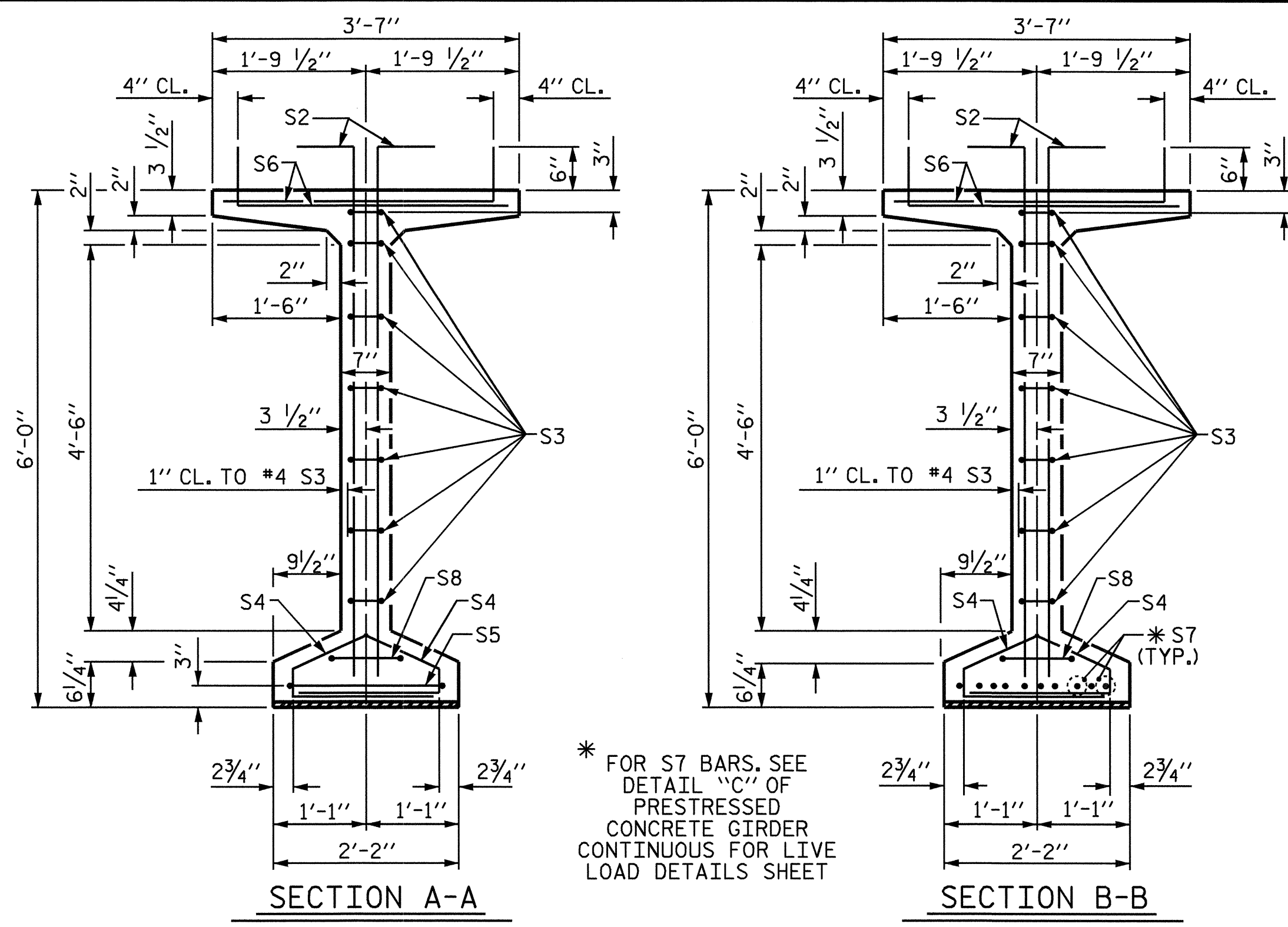
ELEVATION OF GIRDER

* ONLY ONE 3" Ø CORED OR FORMED HOLE
 REQUIRED FOR EXTERIOR GIRDER

ASSEMBLED BY : S. DOMBROWSKI DATE : 4/07
 CHECKED BY : V.A. PATEL DATE : 5/07
 DRAWN BY : RWW 9/19/02
 CHECKED BY : GM 9/19/02

ADDED 9/19/02
 REV. 5/1/06 TLA/GM





DEBONDING LEGEND

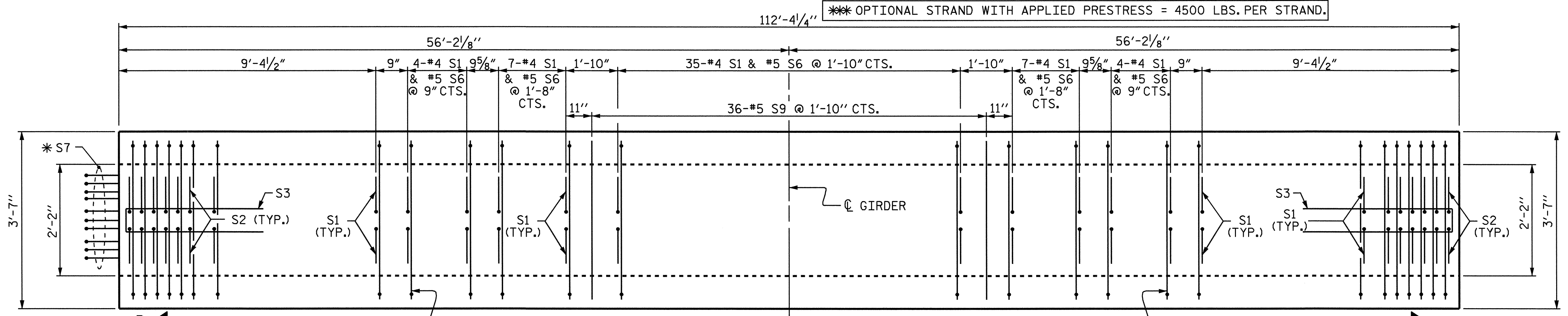
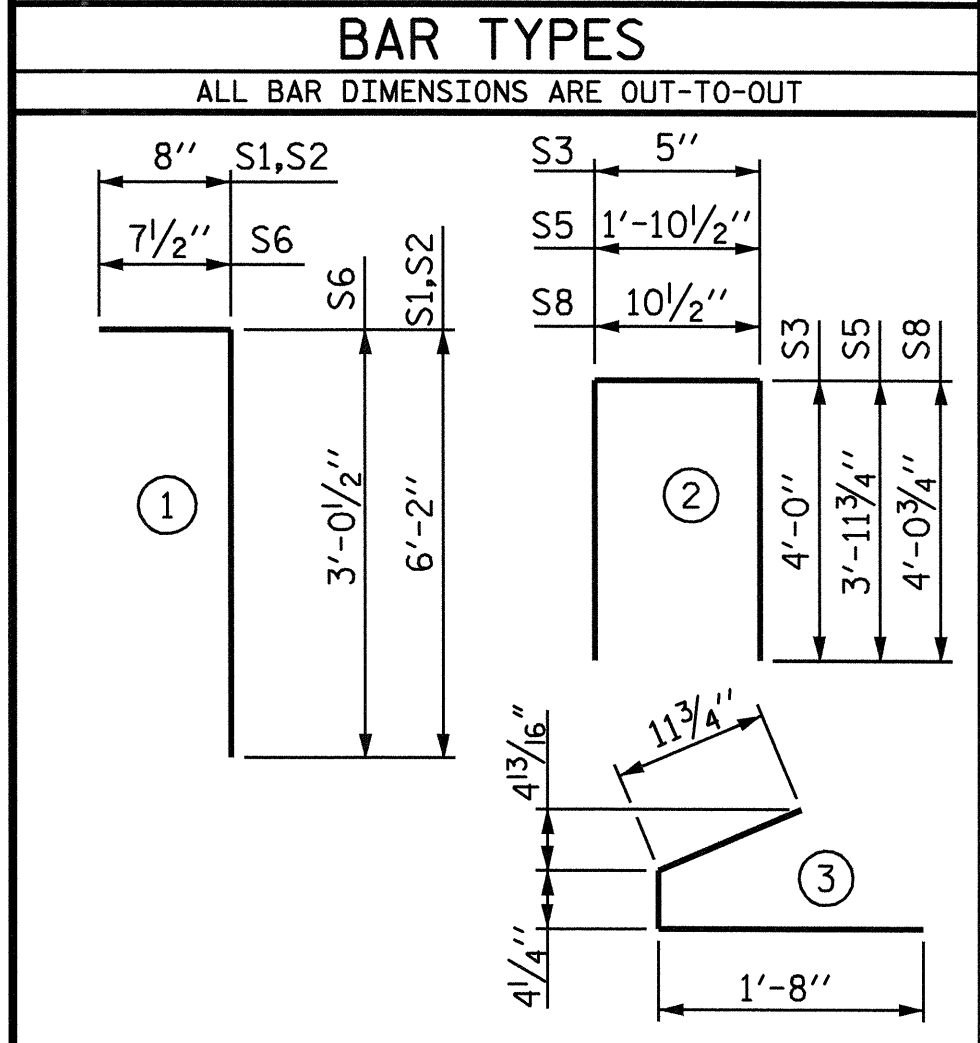
- FULLY BONDED STRANDS
- ◻ STRANDS DEBONDED FOR 2'-0" FROM END OF GIRDER
- ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER

* FOR S7 BARS, SEE DETAIL "C" OF PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS SHEET

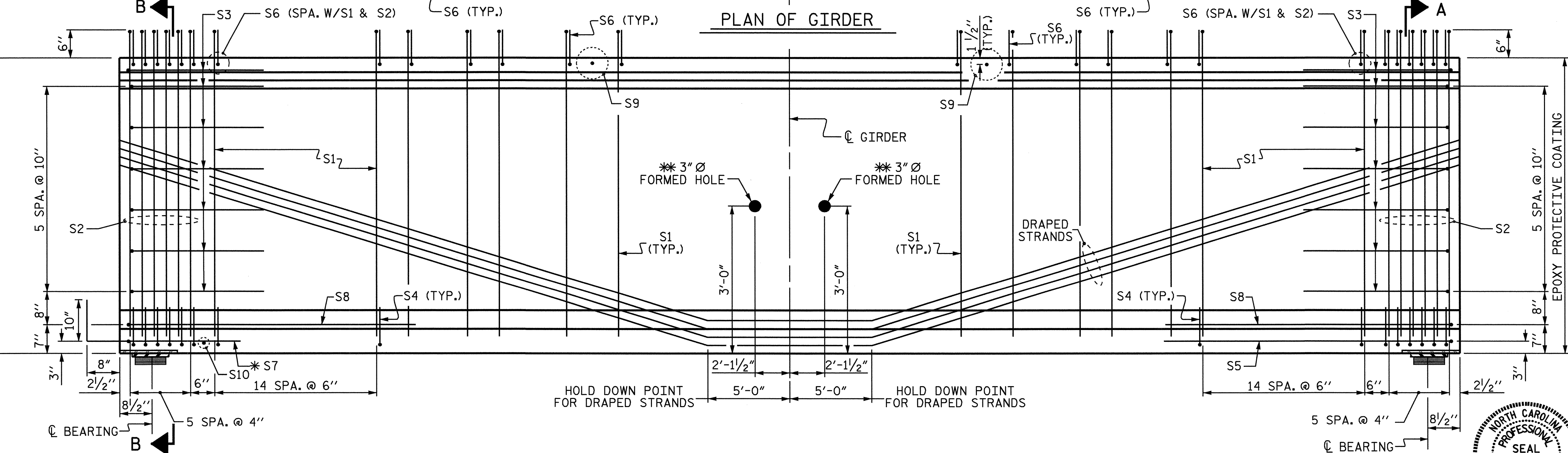
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	174	#4	1	6'-10"	794
S2	24	#5	1	6'-10"	171
S3	14	#4	2	8'-5"	79
S4	84	#4	3	3'-0"	168
S5	1	#5	2	9'-10"	10
S6	198	#5	1	3'-8"	757
* S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	36	#5	STR	3'-3"	122
S10	1	#3	STR	1'-10"	1

* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	7,500 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
SPAN D	2159	24.1	36



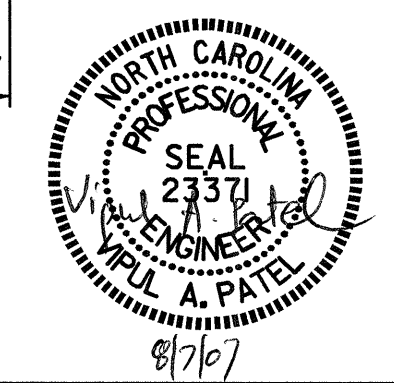
GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4 (SPAN D)	112'-4 1/4"	449'-5"

PROJECT NO. B-4256
 ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-
 SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 (WITH 0.6" Ø STRANDS)
 SPAN D

ASSEMBLED BY : S. DOMBROWSKI DATE : 4/07
 CHECKED BY : V.A. PATEL DATE : 5/07
 DRAWN BY : EEM 2/6/97 REV. 8/16/99 RWW/LES
 CHECKED BY : VAP 2/6/97 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM

* ONLY ONE 3" Ø CORED OR FORMED HOLE REQUIRED FOR EXTERIOR GIRDER



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

SHEET NO. S-15
 TOTAL SHEETS 35

NOTES

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

TIE ROD ASSEMBLY SHALL BE AASHTO M270 GRADE 36 STRUCTURAL STEEL.

ALL REINFORCING STEEL SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS..

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

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

WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 6" OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 1/2" OF THE THEORETICAL LOCATION SHOWN.

A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 63" AND 72" MODIFIED BULB TEES ONLY.

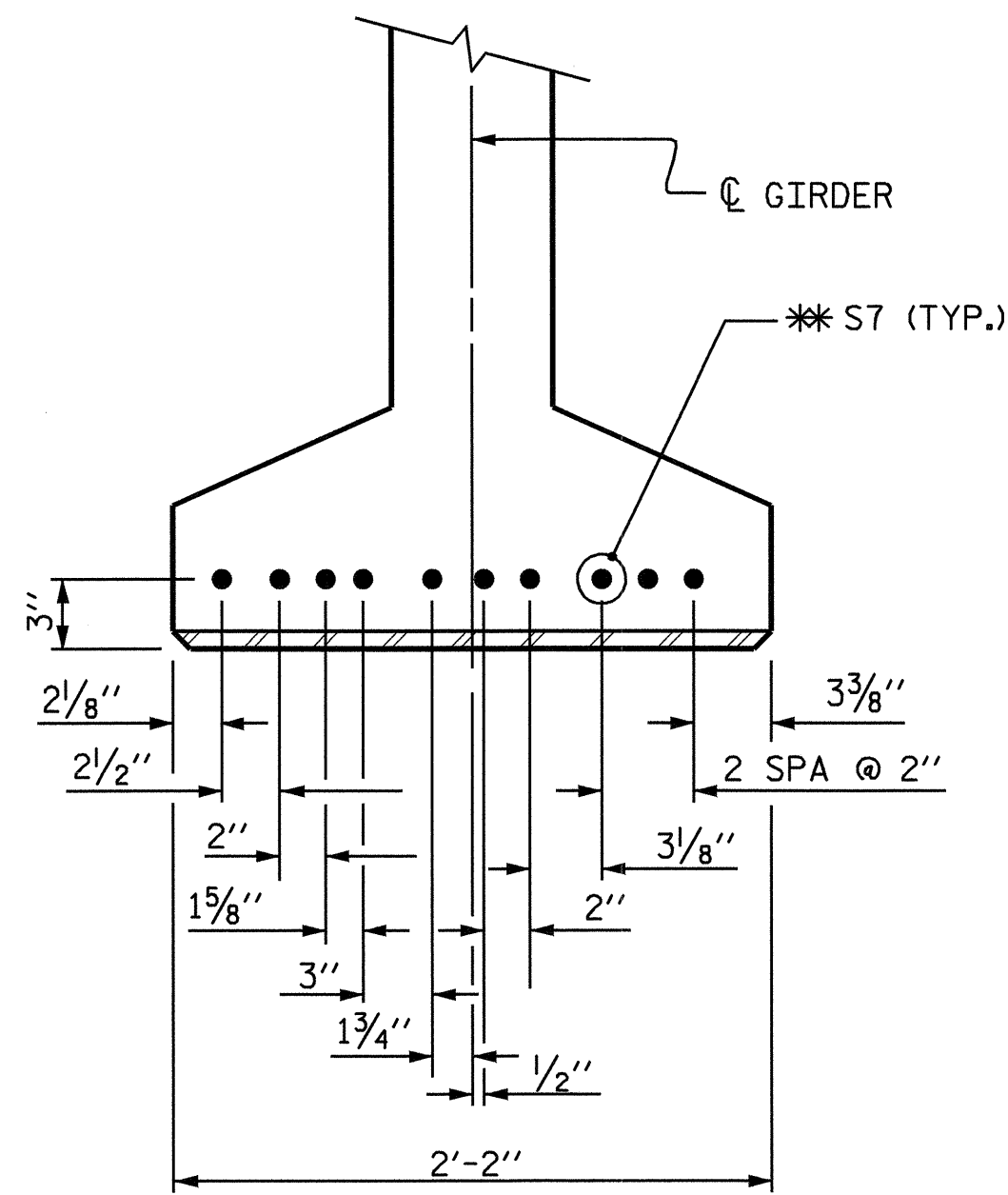
FOR 1/2" Ø LOW-RELAXATION GRADE 270 STRANDS THE TRANSFER LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI FOR GIRDERS IN SPANS A THRU C.

FOR 0.6" Ø LOW-RELAXATION GRADE 270 STRANDS THE TRANSFER LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 5000 PSI FOR GIRDERS IN SPANS A THRU C AND 6000 PSI FOR GIRDERS IN SPAN D.

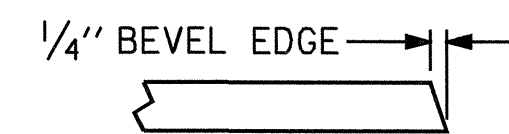
THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 LBS.

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

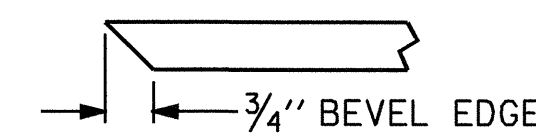
FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.



DETAIL "C"
(FOR 72" BULB TEES)

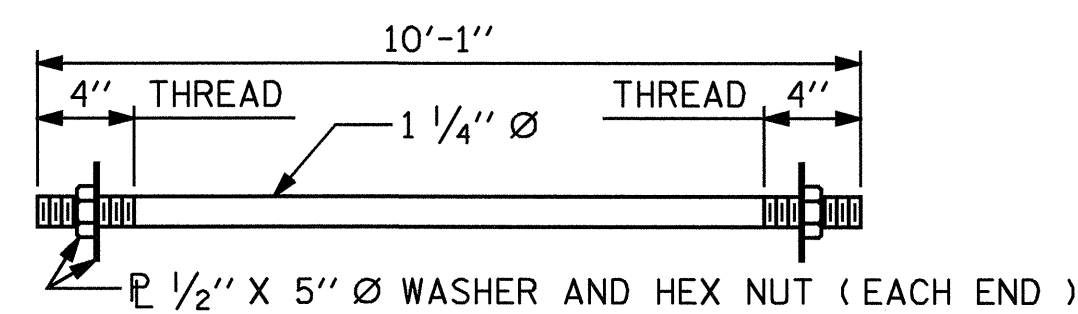


SECTION "G"

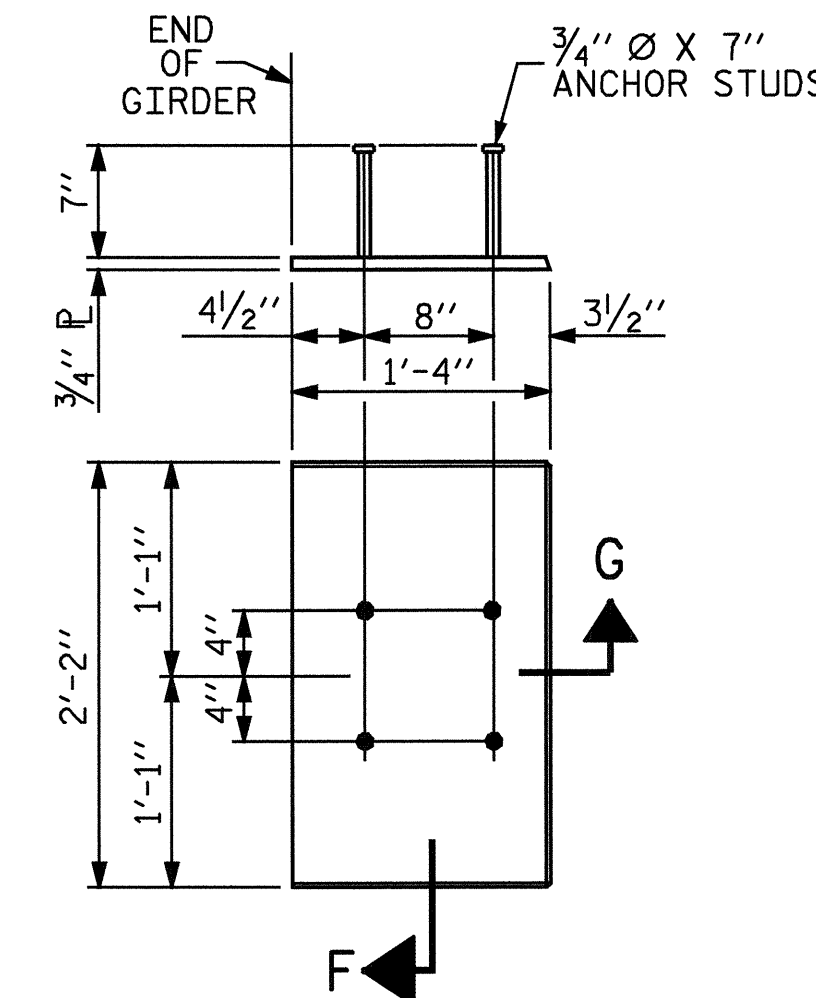


SECTION "F"

(SEE NOTES)



1 1/4" Ø TIE ROD ASSEMBLY
(12 COMPLETE ASSEMBLIES REQUIRED)



EMBEDDED PLATE "B-1" DETAILS
FOR 72" MODIFIED BULB TEES
(2 REQ'D PER GIRDER)

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
1/2" Ø LOW RELAXATION	SPAN A, B & C											SPAN D										
	GIRDERS											GIRDERS										
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE)	↑	.000	.073	.139	.190	.222	.233	.222	.190	.139	.073	.000	-	-	-	-	-	-	-	-	-	-
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	.000	.026	.050	.068	.080	.084	.080	.068	.050	.026	.000	-	-	-	-	-	-	-	-	-	-
FINAL CAMBER	↑	0	9/16"	1 1/16"	1 7/16"	1 11/16"	1 13/16"	1 11/16"	1 7/16"	1 1/16"	9/16"	0	-	-	-	-	-	-	-	-	-	-

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

DEAD LOAD DEFLECTION TABLE FOR GIRDERS WITH DEBONDED STRANDS																						
0.6" Ø LOW RELAXATION	SPAN A, B & C											SPAN D										
	GIRDERS											GIRDERS										
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.4	.3	.2	.1	0
CAMBER (GIRDER ALONE IN PLACE)	↑	.000	.063	.120	.164	.192	.201	.192	.164	.120	.063	.000	-	-	-	-	-	-	-	-	-	-
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	.000	.024	.046	.063	.074	.078	.074	.063	.046	.024	.000	-	-	-	-	-	-	-	-	-	-
FINAL CAMBER	↑	0	7/16"	7/8"	1 3/16"	1 1/16"	1 1/2"	1 7/16"	1 3/16"	7/8"	7/16"	0	-	-	-	-	-	-	-	-	-	-

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

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION	SPAN A, B & C											SPAN D										
	GIRDERS											GIRDERS										
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE)	↑	-	-	-	-	-	-	-	-	-	-	.000	.128	.242	.331	.388	.407	.388	.331	.242	.128	.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	-	-	-	-	-	-	-	-	-	-	.000	.046	.088	.120	.141	.148	.141	.120	.088	.046	.000
FINAL CAMBER	↑	-	-	-	-	-	-	-	-	-	-	0	1"	1 7/8"	2 9/16"	2 15/16"	3 1/8"	2 15/16"	2 9/16"	1 7/8"	1"	0

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

GIRDERS REQUIRED			
SPAN	NUMBER	LENGTH	TOTAL LENGTH
A	4	94'-2"	376.67 LIN. FT.
B	4	94'-2"	376.67 LIN. FT.
C	4	94'-2"	376.67 LIN. FT.
D	4	112'-4 1/4"	449.42 LIN. FT.
	16		1579.43 LIN. FT.

PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
STATION: 21+00.00 -L-

SHEET 7 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
DETAILS



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			35

DRAWN BY: DAN PLATICA/SFD DATE: 4/14/04
CHECKED BY: J.P. ADAMS DATE: 8/09/04

NOTES

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

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

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

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

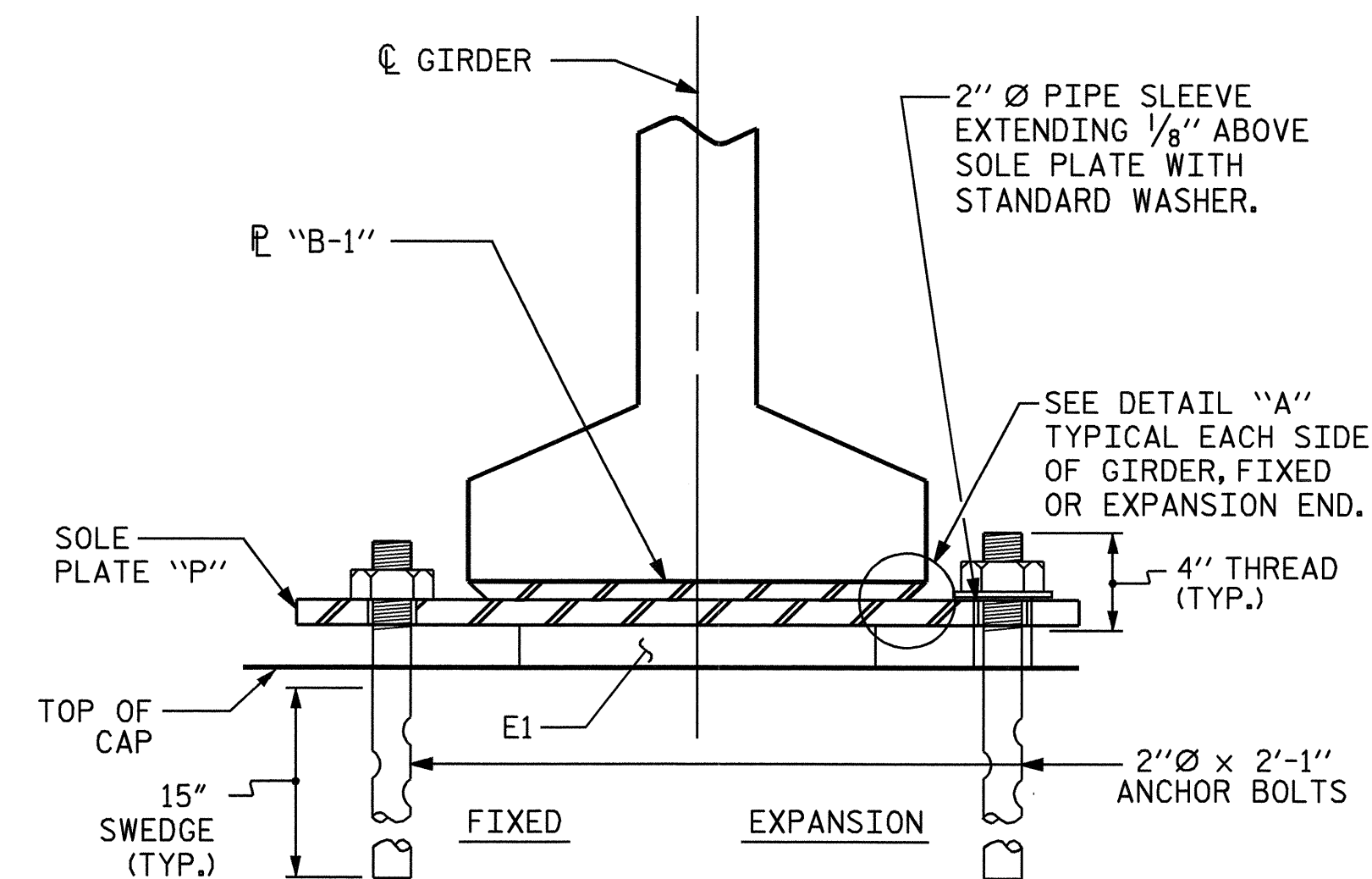
WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

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

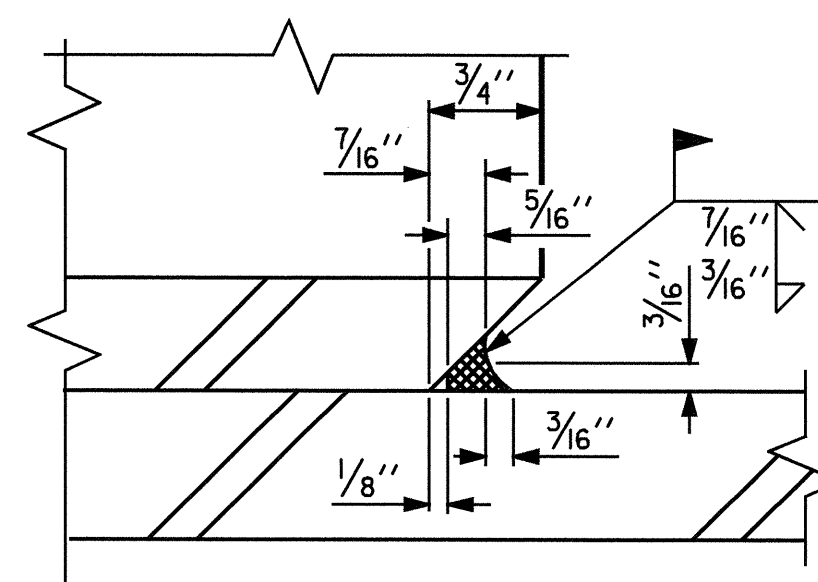
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

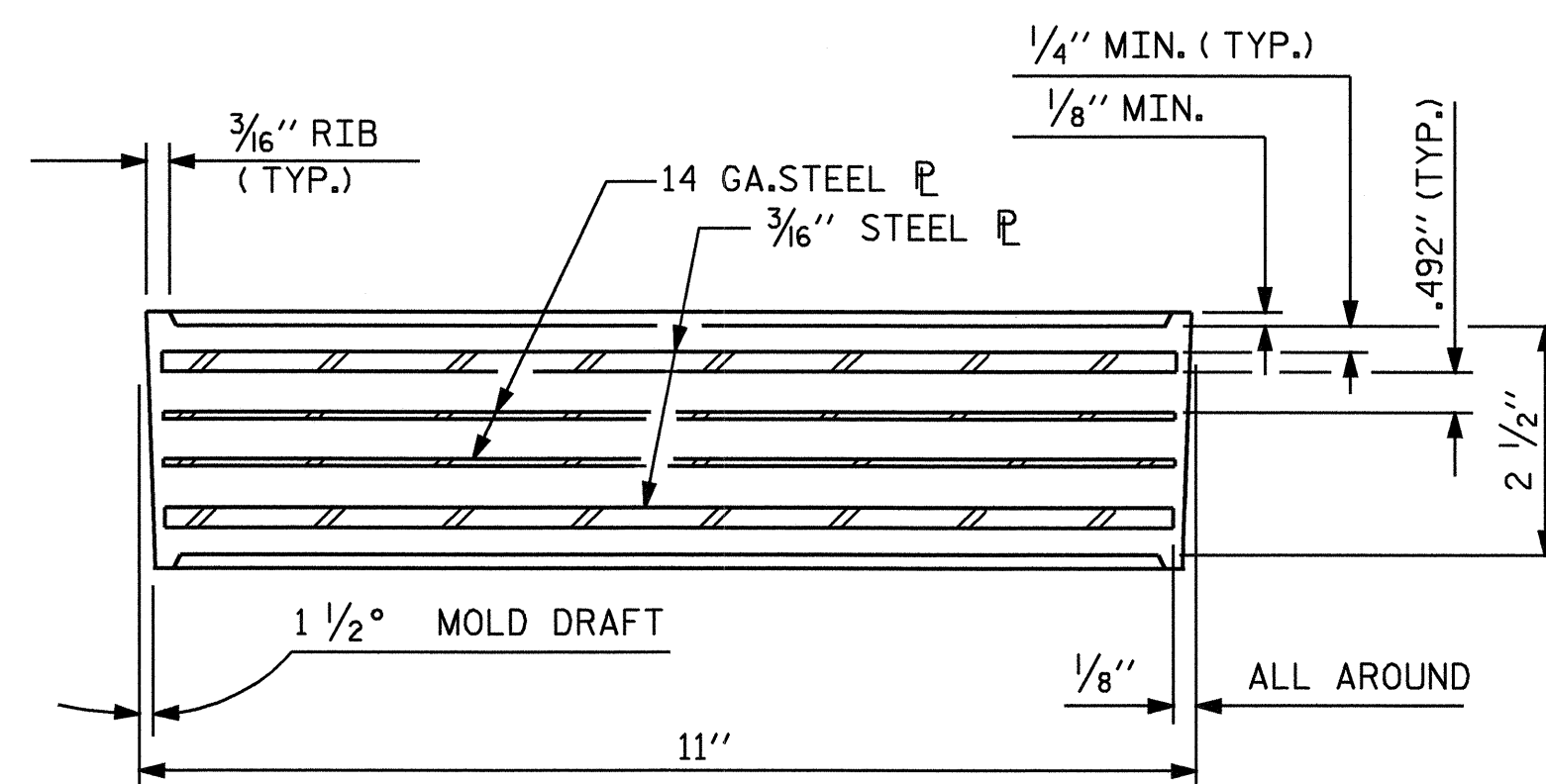
- LOAD RATINGS -	
	MAX.D.L.+ L.L.
TYPE VI	211 K



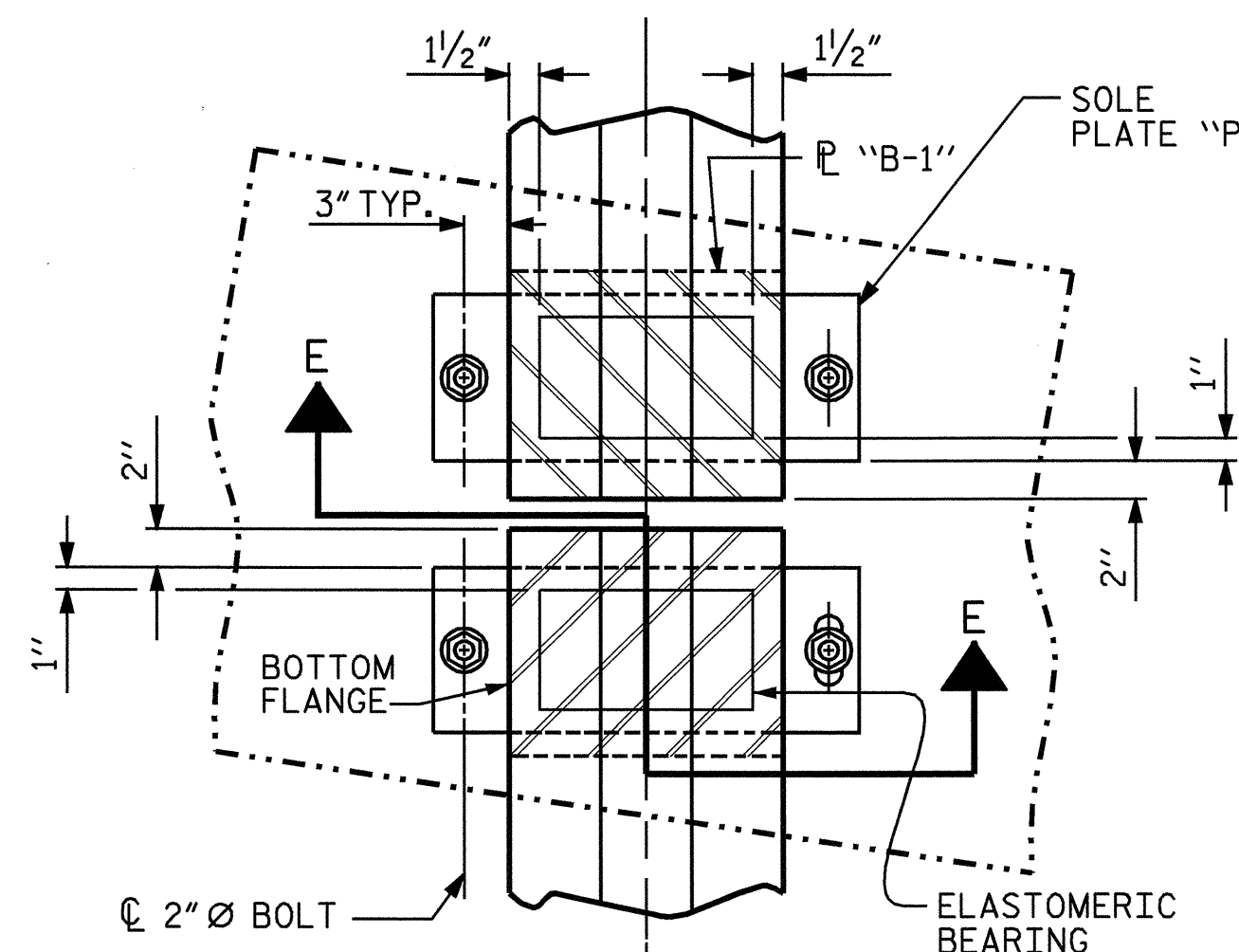
SECTION E-E



DETAIL "A"

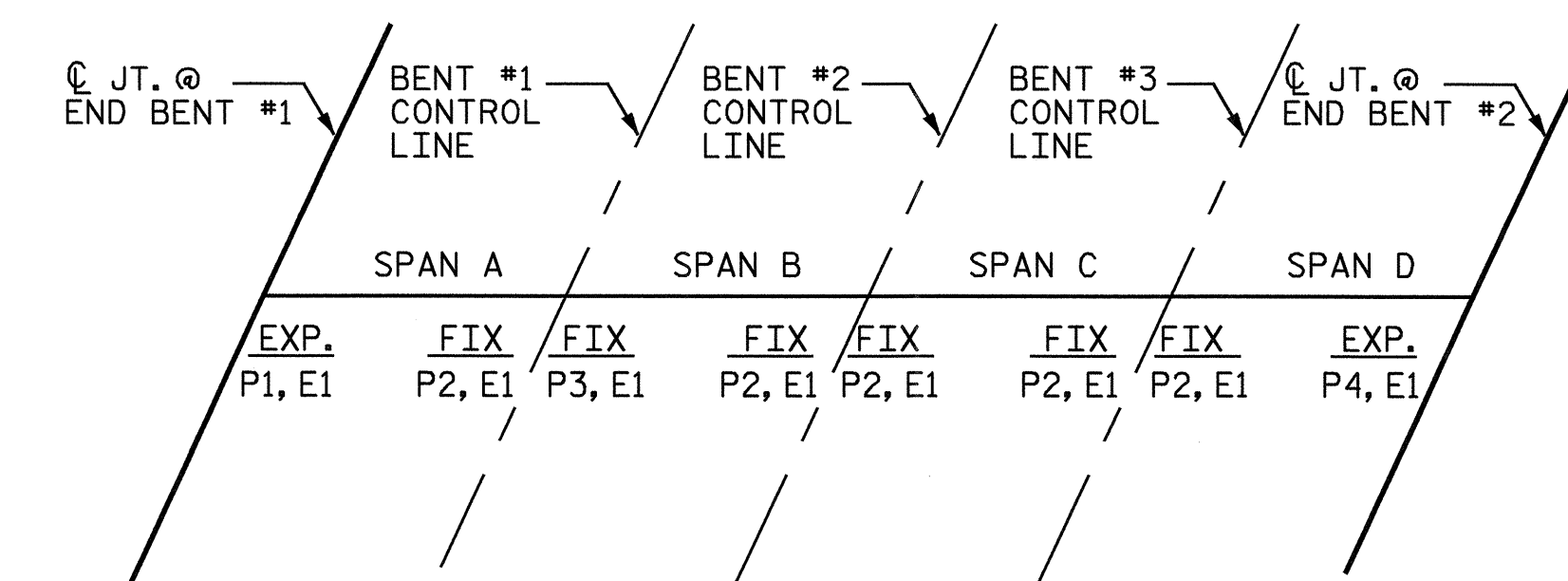


TYPICAL SECTION OF ELASTOMERIC BEARINGS

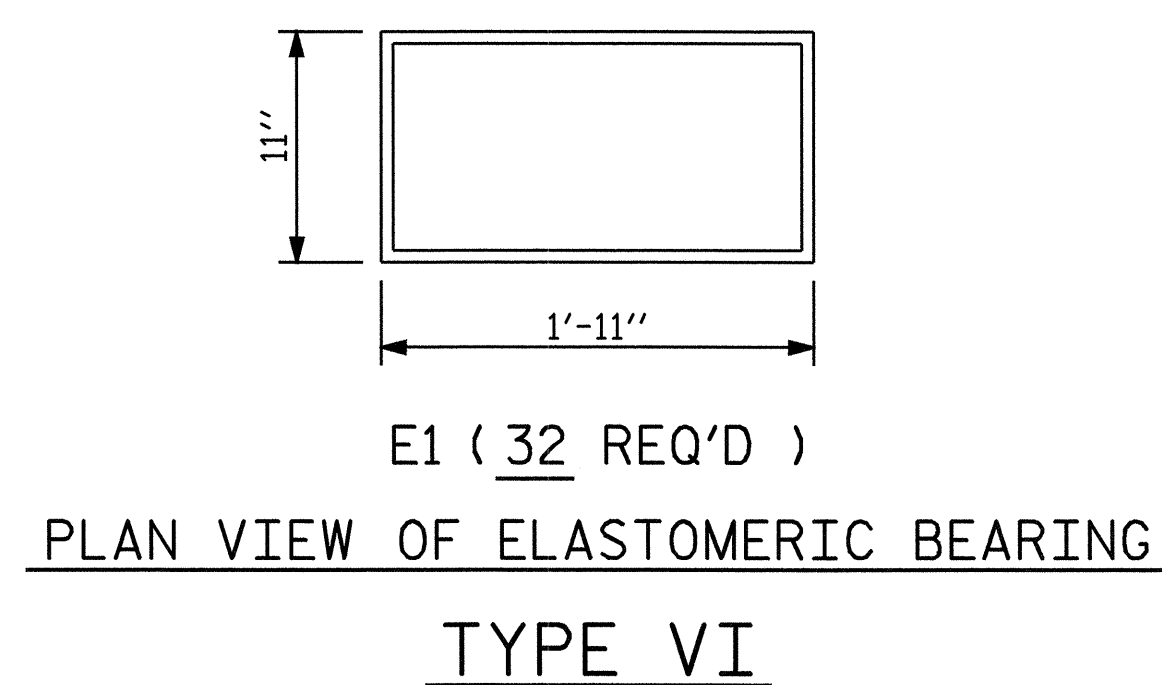


TYPICAL HALF-PLAN (SHOWING CONTINUOUS BENT) (FIXED)

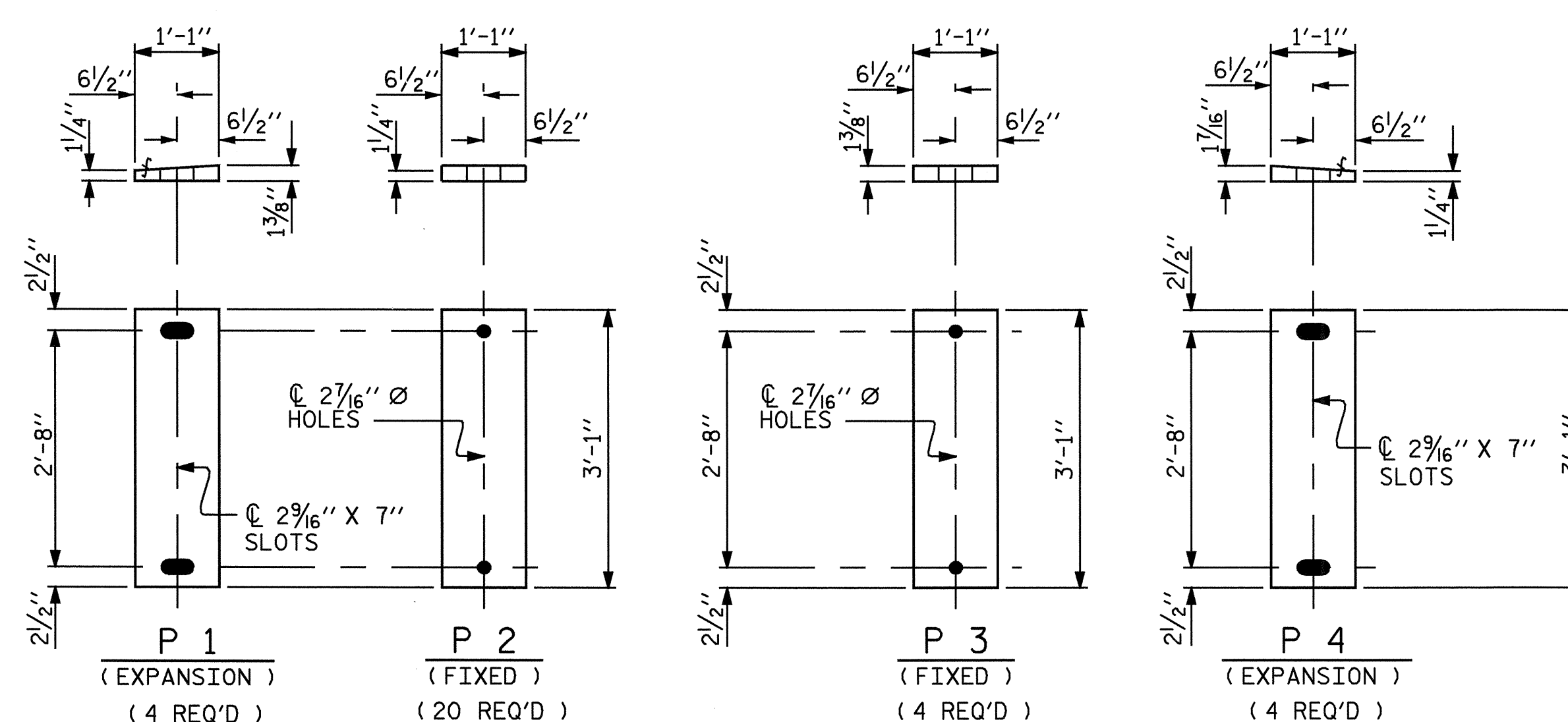
TYPICAL HALF-PLAN (SHOWING SIMPLE SPAN BENT) (EXPANSION)



SOLE PLATE ORIENTATION



E1 (32 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE VI



SOLE PLATE DETAILS ("P")

UP-STATION

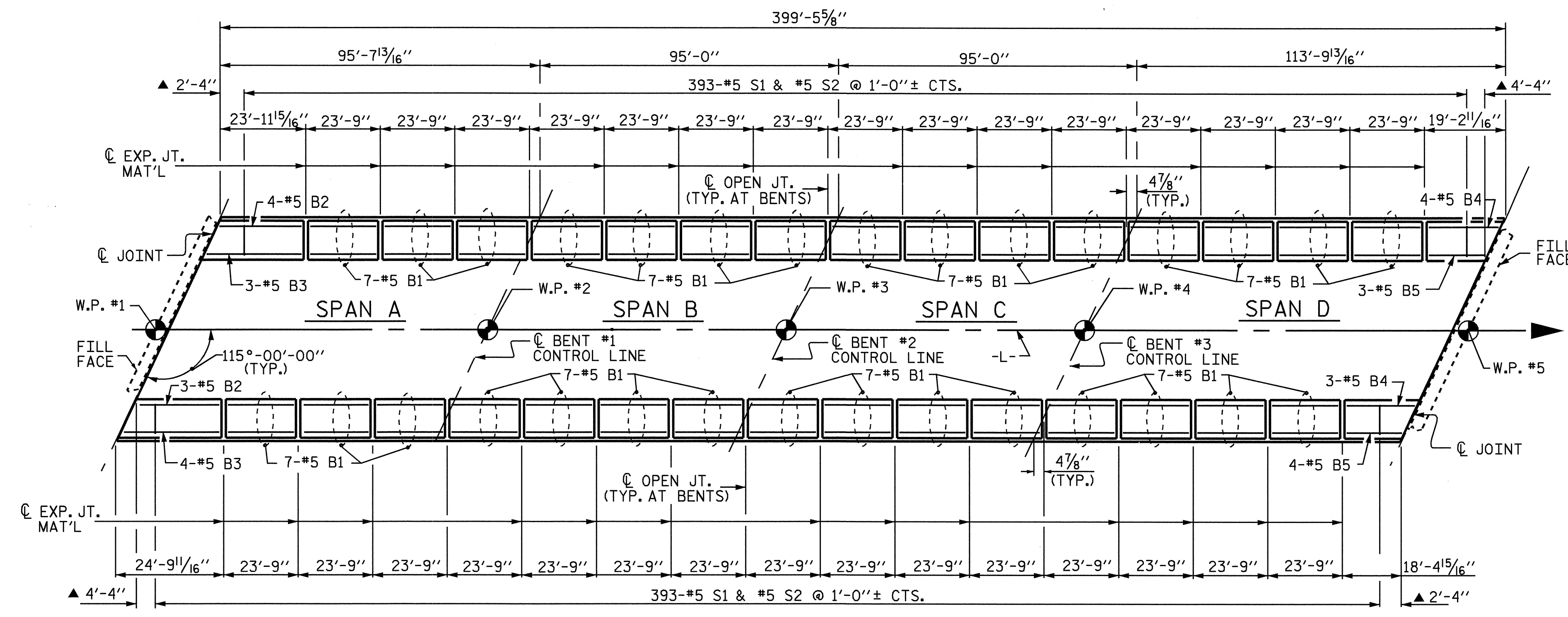
PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
STATION: 21+00.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
ELASTOMERIC BEARING DETAILS					
PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					35



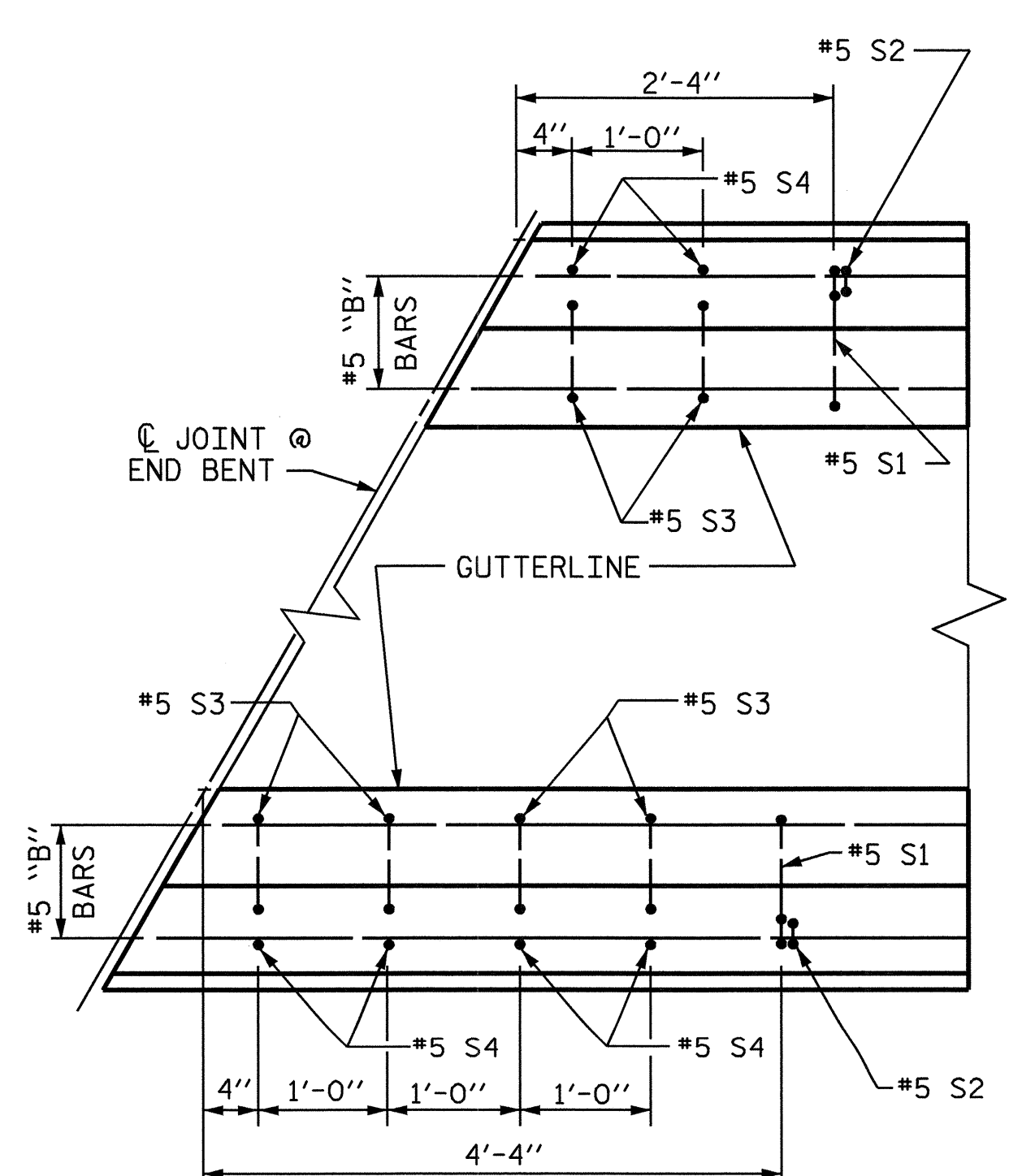
DRAWN BY: DAN PLATICA DATE: 4/21/04
CHECKED BY: J. P. ADAMS DATE: 8/09/04

18-JUN-2007 13:32
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sdombrowski

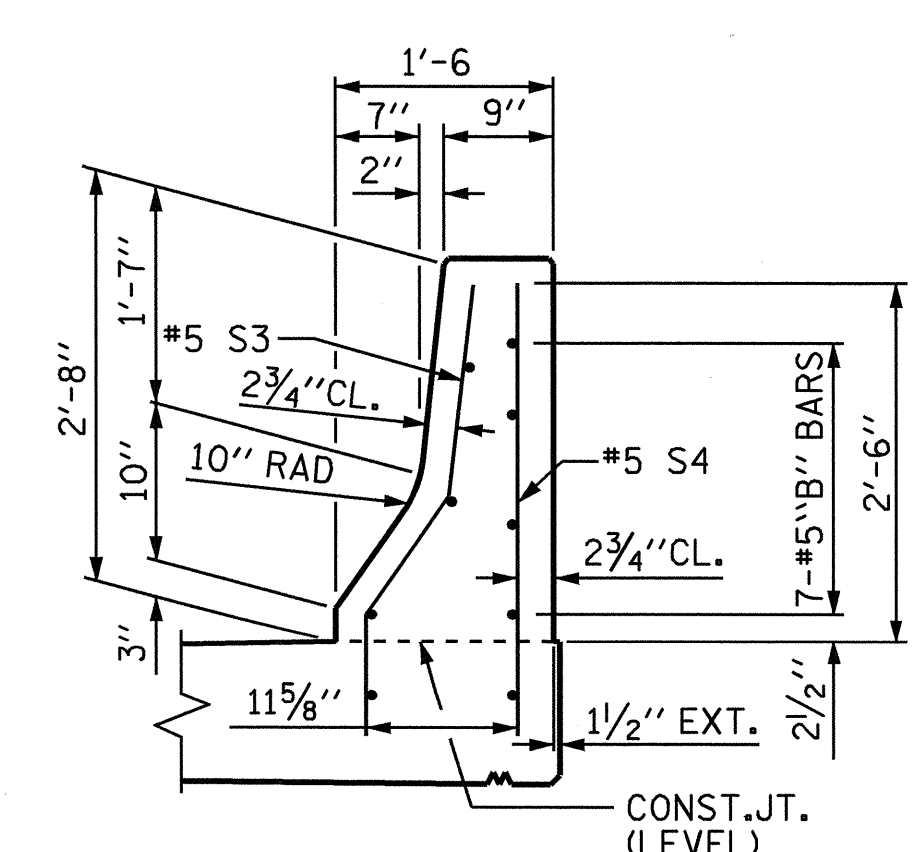


PLAN

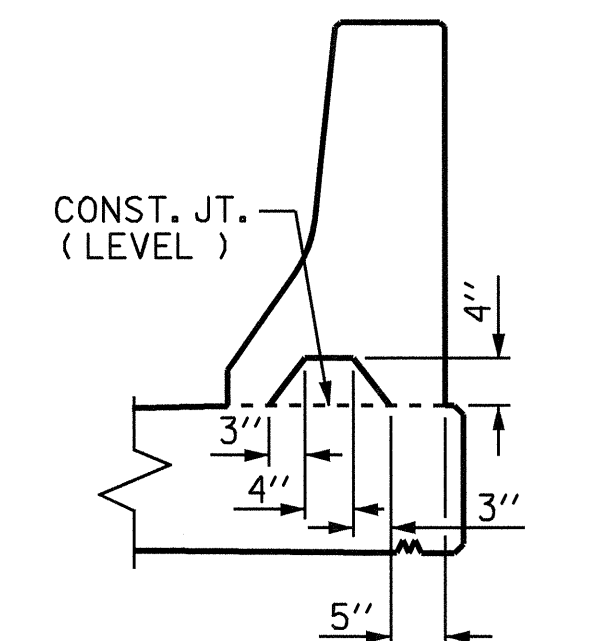
▲ SEE "END OF RAIL DETAILS" FOR ADDITIONAL REINFORCEMENT



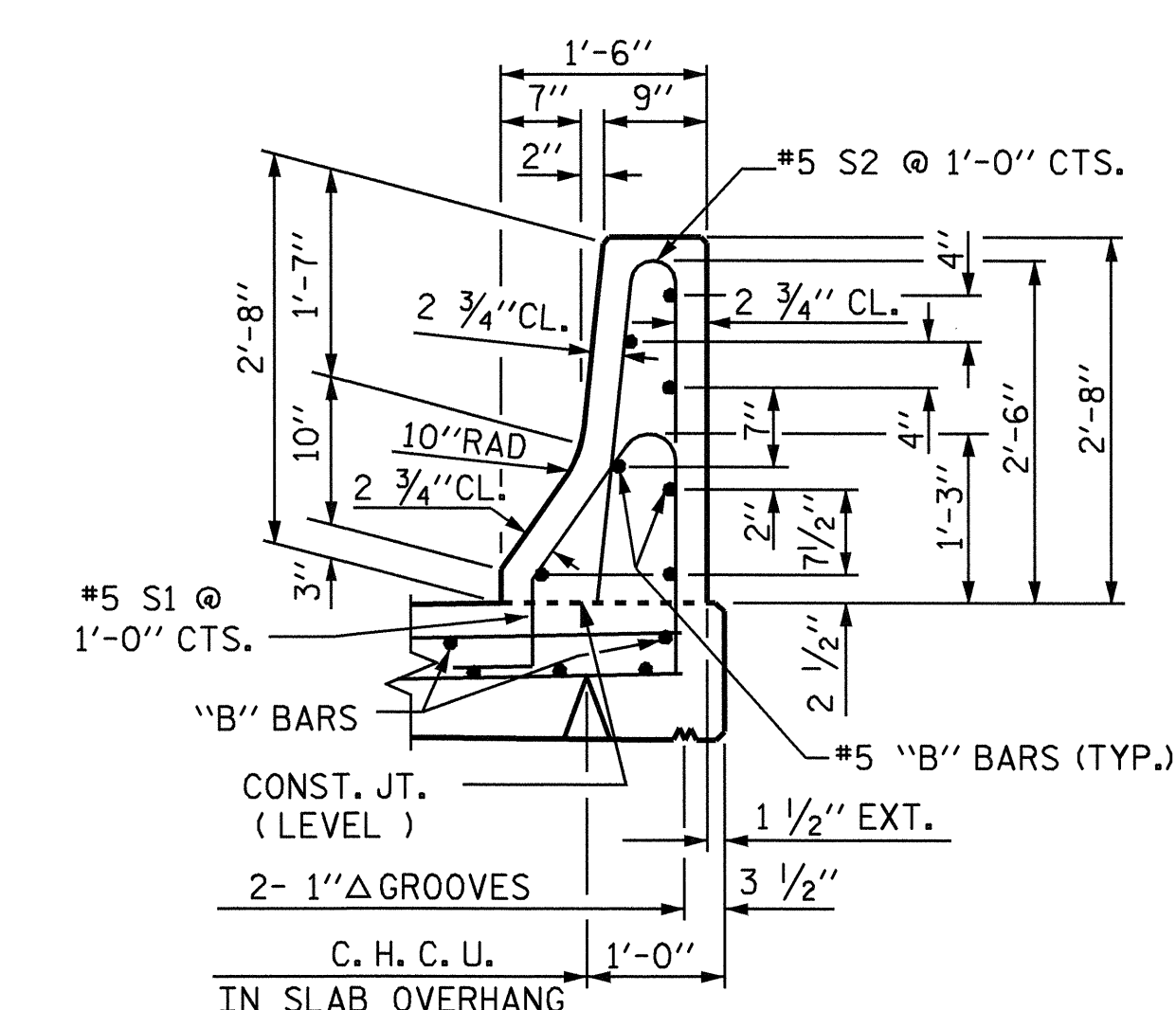
PLAN
END BENT #1 SHOWN,
END BENT #2 SIMILAR



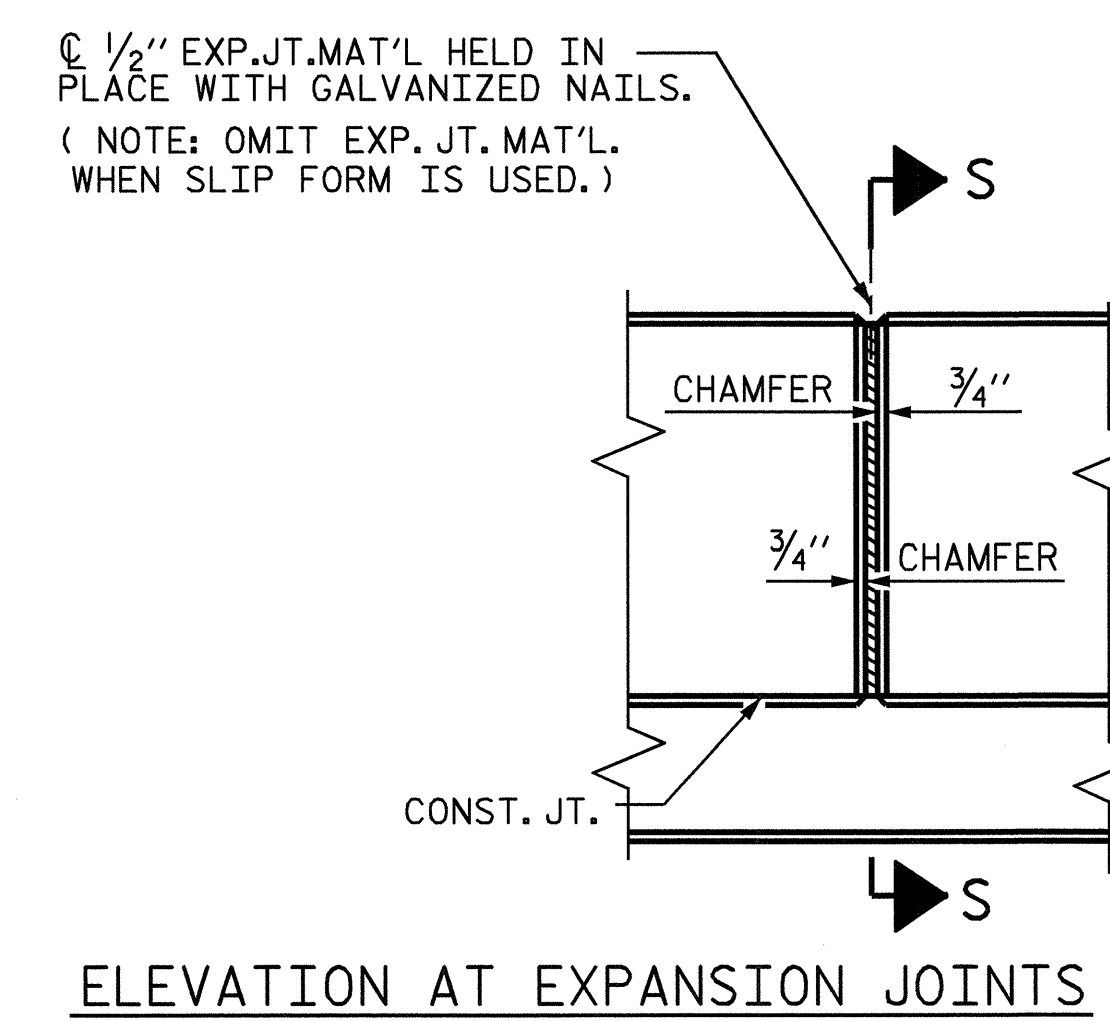
END VIEW



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



SECTION THRU RAIL



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

NOTES

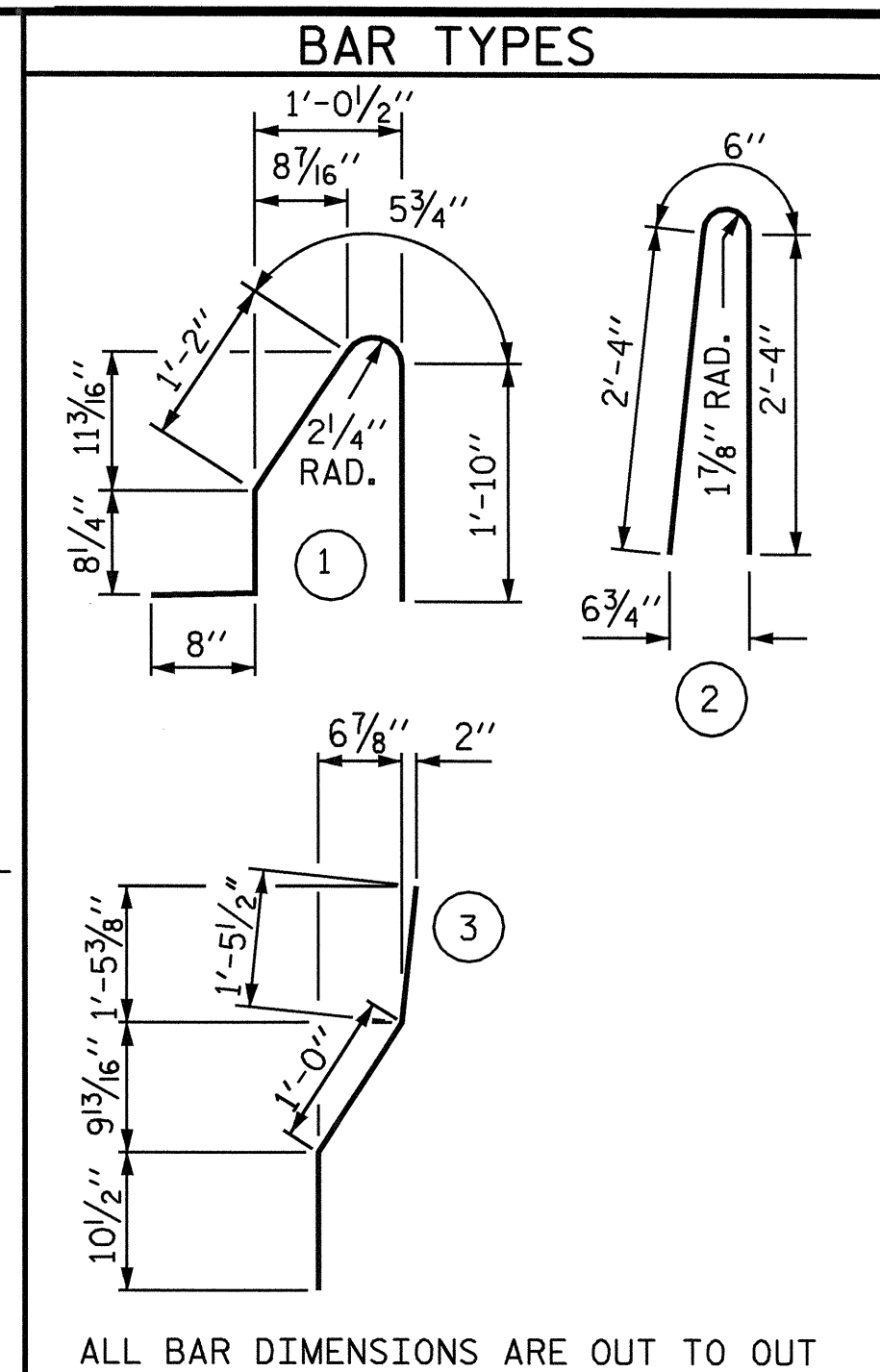
THE BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF THE 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 JOINTS SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER 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.



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
FOR CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* S1	786	#5	1	4'-10"	3962
* S2	786	#5	2	5'-2"	4236
* S3	12	#5	3	3'-4"	42
* S4	12	#5	STR	3'-2"	40
* B1	210	#5	STR	23'-3"	5092
* B2	7	#5	STR	23'-7"	172
* B3	7	#5	STR	24'-0"	175
* B4	7	#5	STR	18'-5"	134
* B5	7	#5	STR	18'-0"	131
* EPOXY COATED REINFORCING STEEL					13,984 LBS.
CLASS AA CONCRETE					80.0 CU. YDS.
CONCRETE BARRIER RAIL					798.94 LIN. FT.

PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

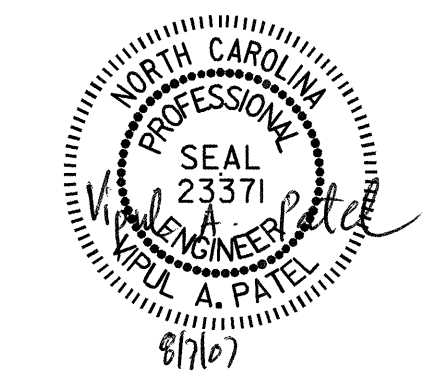
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 CONCRETE
 BARRIER RAIL

REVISIONS

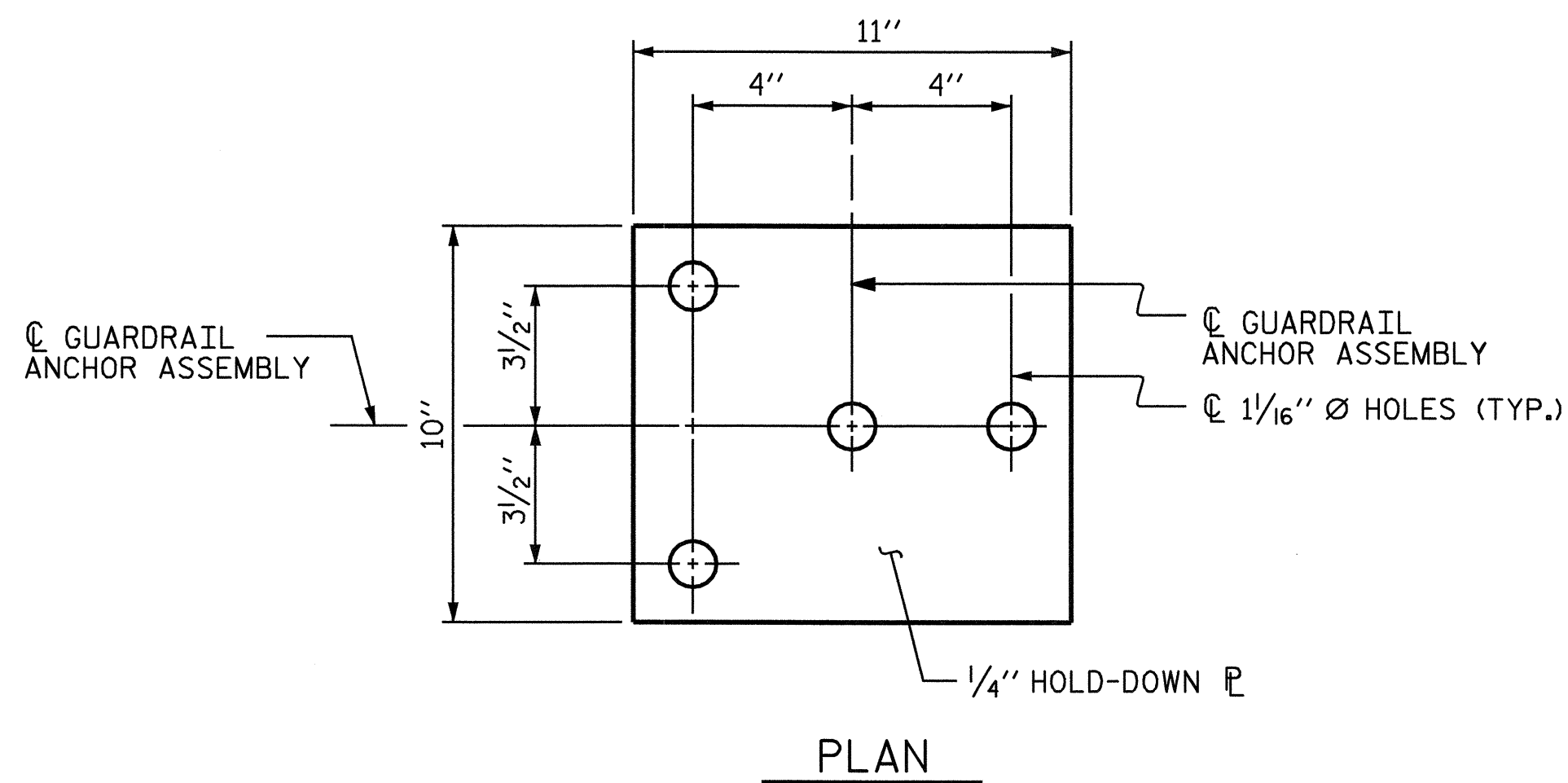
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. **S-18**
 TOTAL SHEETS **35**

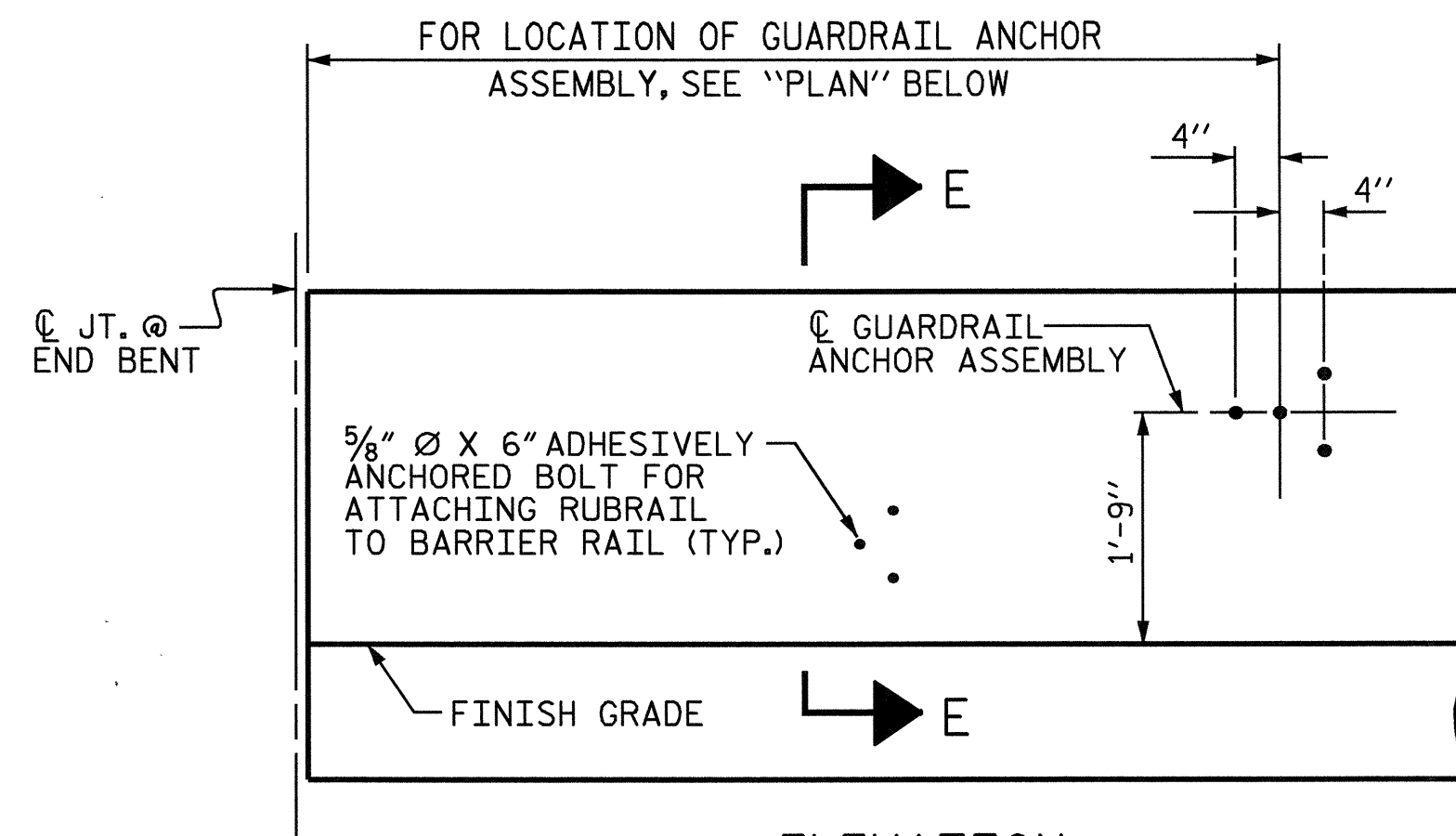


ASSEMBLED BY: D. PLATICA/SFD DATE: 5/04/04
 CHECKED BY: J. P. ADAMS DATE: 8/09/04
 DRAWN BY: ARB 5/87
 CHECKED BY: SJD 9/87

REV. 8/16/99 RWW/LES
 REV. 10/17/00 RWW/LES
 REV. 5/7/03 RWW/JTE

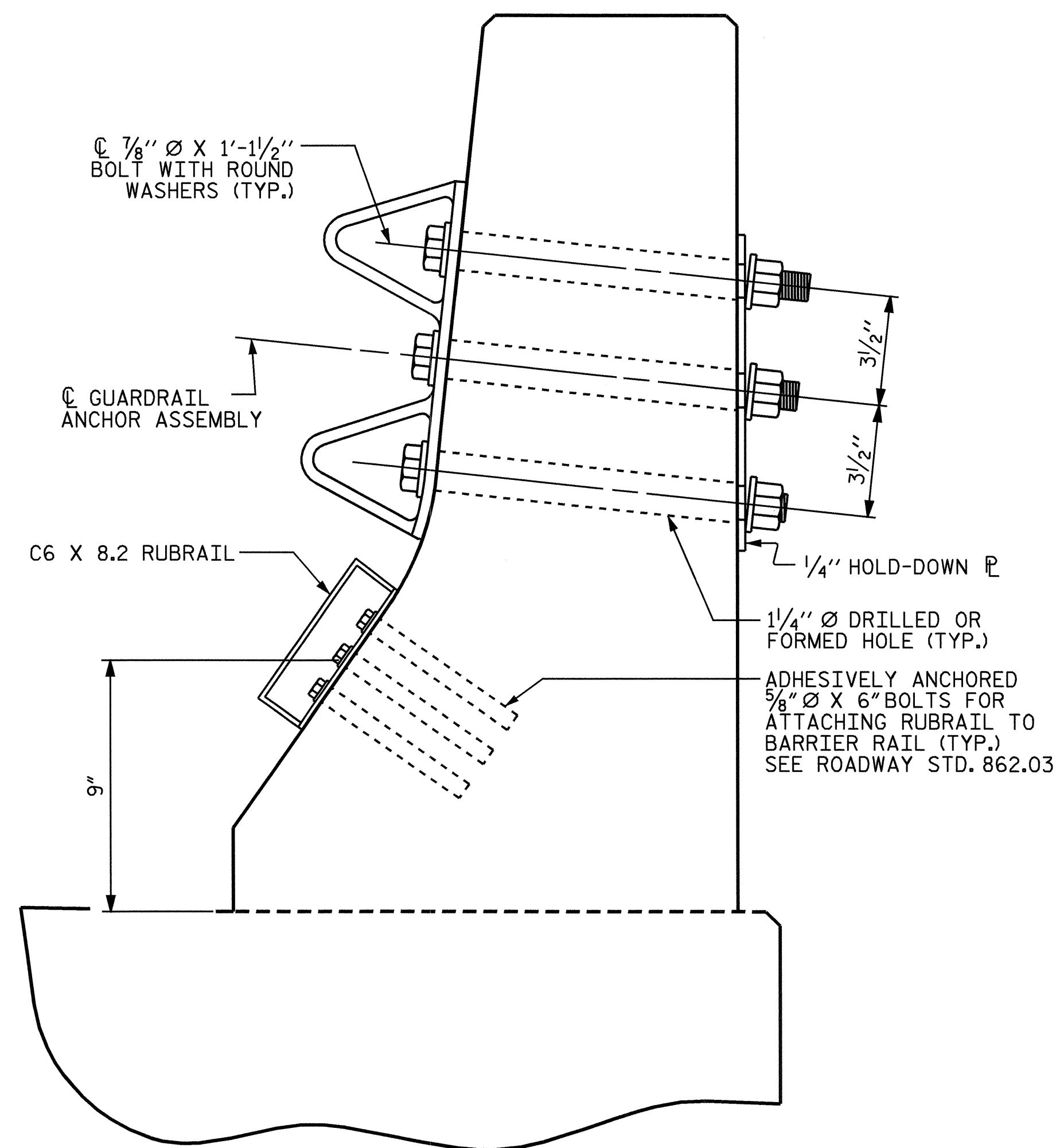


PLAN



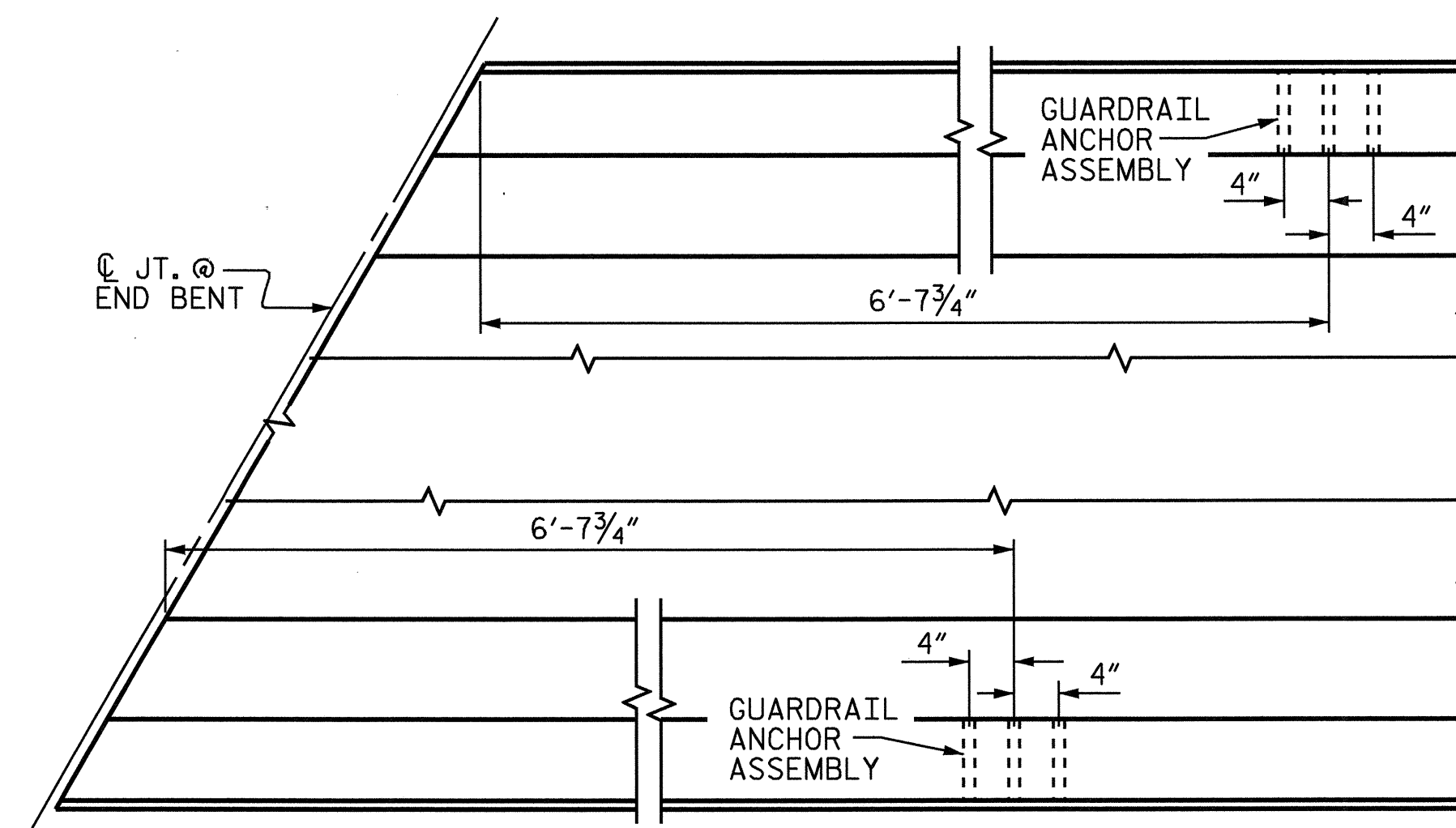
ELEVATION

FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION E-E

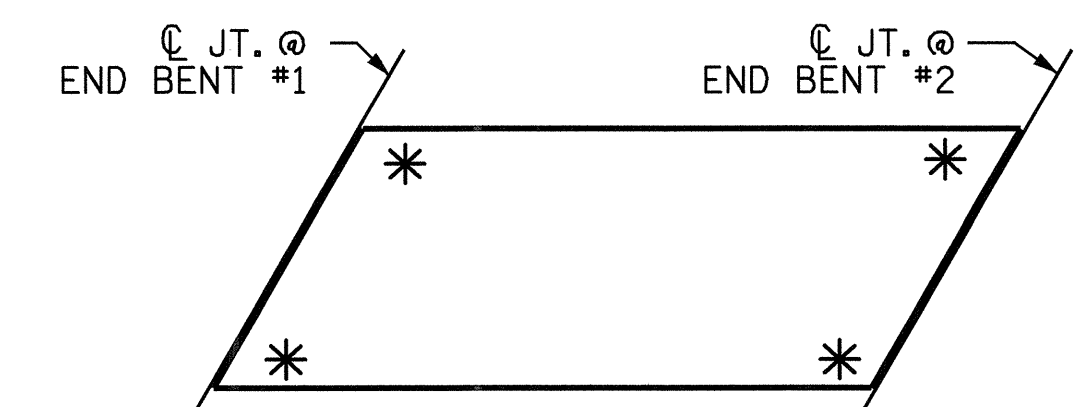
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

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.

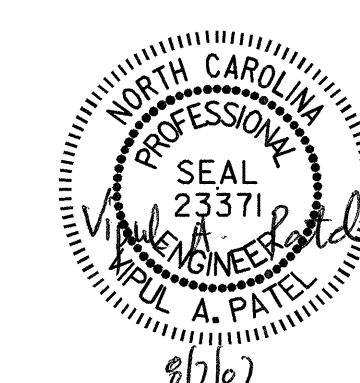
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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 5/8" Ø X 6" BOLTS WITH WASHERS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

PROJECT NO. B-4256
 ROWAN / DAVIE COUNTY
 STATION: 21+00.00 -L-

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



ASSEMBLED BY : KEITH D. LAYNE	DATE : 08-08-06
CHECKED BY : V.A. PATEL	DATE : 4/27/07
DRAWN BY : TLA 5/06	ADDED 5/1/06
CHECKED BY : GM 5/06	

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			35

STD. NO. GRA2

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
SPANS A, B, C & D	542.7	41,614	45,130
TOTALS**	542.7	41,614	45,130

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

GROOVING BRIDGE FLOORS

BRIDGE DECK	11,575 SQ.FT.
APPROACH SLAB	1,402 SQ.FT.
TOTAL	12,977 SQ.FT.

POUR SEQUENCE

SPANS A, B, C & D	CLASS AA CONCRETE (CU. YDS.)
POUR #1	110.6
POUR #2	131.8
POUR #3	131.8
POUR #4	168.5
TOTALS**	542.7

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

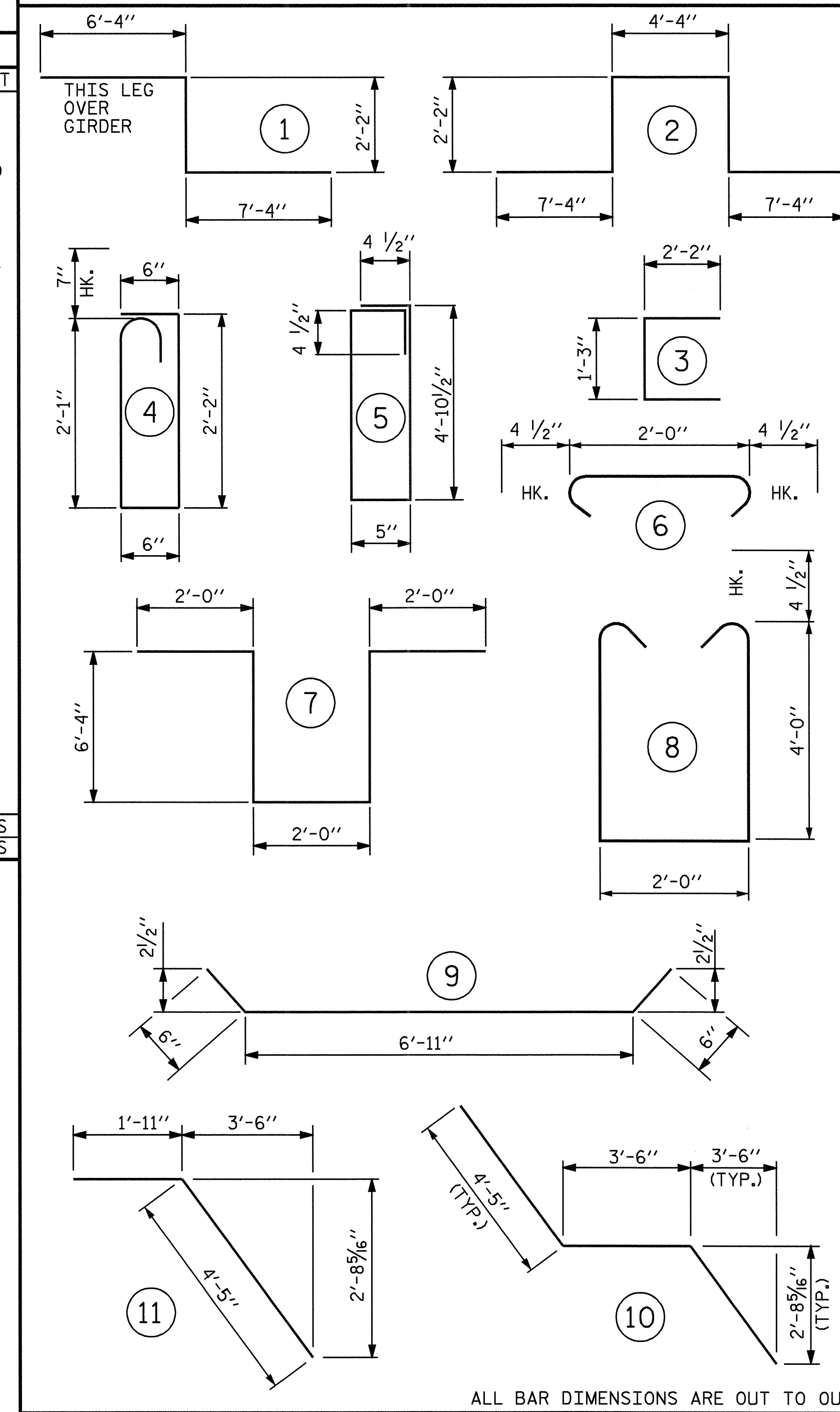
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL				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"	—	—	—

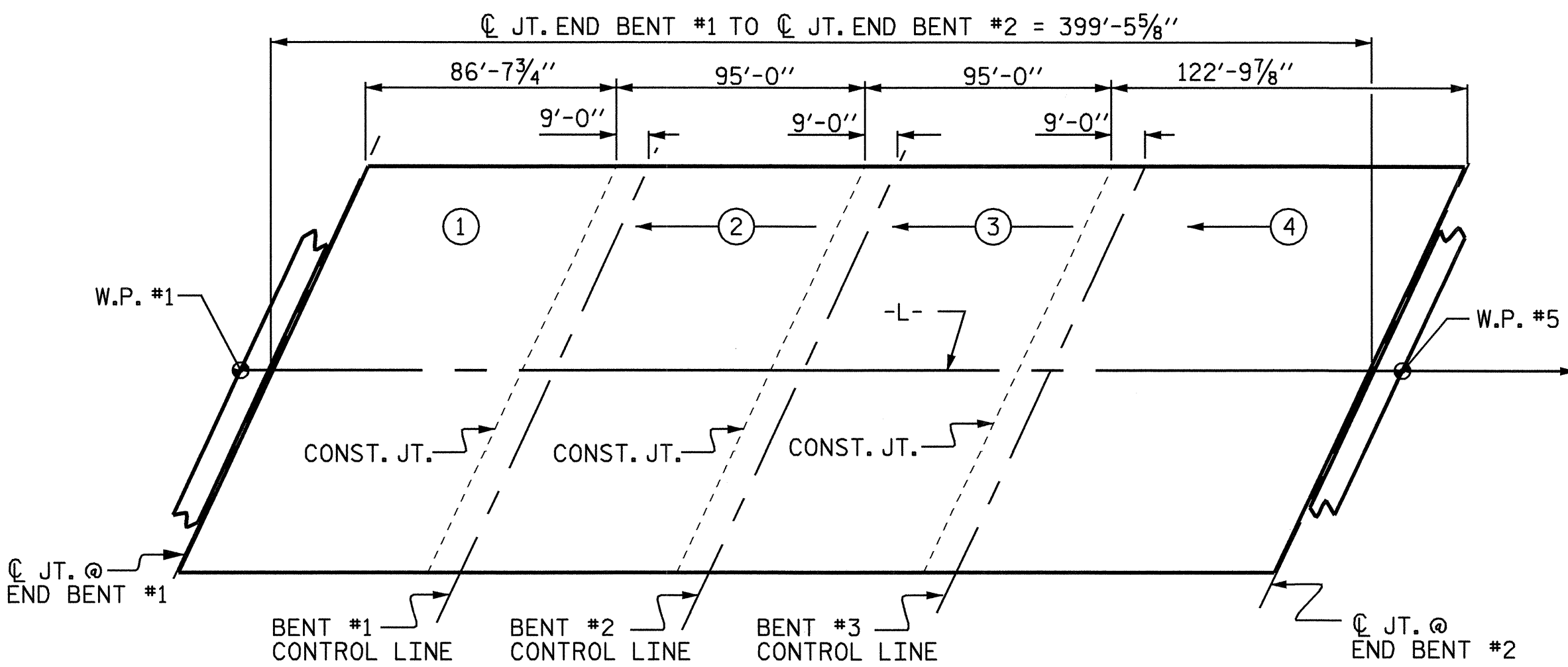
BILL OF MATERIAL REINFORCING BAR SCHEDULE

SPANS A, B, C & D											
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
*A1	656	#5	STR	34'-11"	23890	*B1	72	#4	STR	22'-9"	1094
*A101	4	#5	STR	32'-8"	136	*B2	96	#7	STR	36'-2"	7097
*A102	4	#5	STR	30'-2"	126	*B3	46	#7	STR	28'-6"	2680
*A103	4	#5	STR	27'-8"	115	*B4	96	#4	STR	17'-0"	1090
*A104	4	#5	STR	25'-2"	105	*B5	72	#4	STR	26'-10"	1291
*A105	4	#5	STR	22'-8"	95	*B6	48	#7	STR	39'-2"	3843
*A106	4	#5	STR	20'-2"	84	*B7	23	#7	STR	31'-6"	1481
*A107	4	#5	STR	17'-8"	74	B8	203	#5	STR	58'-11"	12474
*A108	4	#5	STR	15'-2"	63	*G1	2	#5	STR	38'-5"	80
*A109	4	#5	STR	12'-8"	53	*K1	8	#8	1	15'-10"	338
*A110	4	#5	STR	10'-2"	42	*K2	8	#8	2	23'-4"	498
*A111	4	#5	STR	7'-8"	32	*K3	12	#6	STR	8'-3"	149
*A112	4	#5	STR	5'-2"	22	*K4	12	#8	STR	9'-0"	288
*A113	4	#5	STR	2'-8"	11	K5	36	#4	STR	5'-8"	136
A2	656	#5	STR	34'-11"	23890	K6	90	#4	STR	9'-0"	541
A201	4	#5	STR	32'-8"	136	K7	42	#4	10	12'-5"	348
A202	4	#5	STR	30'-2"	126	K8	42	#4	11	6'-4"	178
A203	4	#5	STR	27'-8"	115	K9	24	#5	9	7'-11"	198
A204	4	#5	STR	25'-2"	105	K10	120	#5	STR	7'-9"	970
A205	4	#5	STR	22'-8"	95	*S1	36	#4	3	5'-7"	134
A206	4	#5	STR	20'-2"	84	*S2	36	#5	4	5'-10"	219
A207	4	#5	STR	17'-8"	74	S3	84	#4	5	11'-4"	636
A208	4	#5	STR	15'-2"	63	S4	324	#4	6	2'-9"	595
A209	4	#5	STR	12'-8"	53	U1	45	#4	7	18'-8"	561
A210	4	#5	STR	10'-2"	42	U2	18	#4	8	10'-9"	129
A211	4	#5	STR	7'-8"	32						
A212	4	#5	STR	5'-2"	22						
A213	4	#5	STR	2'-8"	11						
									REINFORCING STEEL	= 41,614 LBS	
									*EPOXY COATED REINF. STEEL	= 45,130 LBS	

BAR TYPES

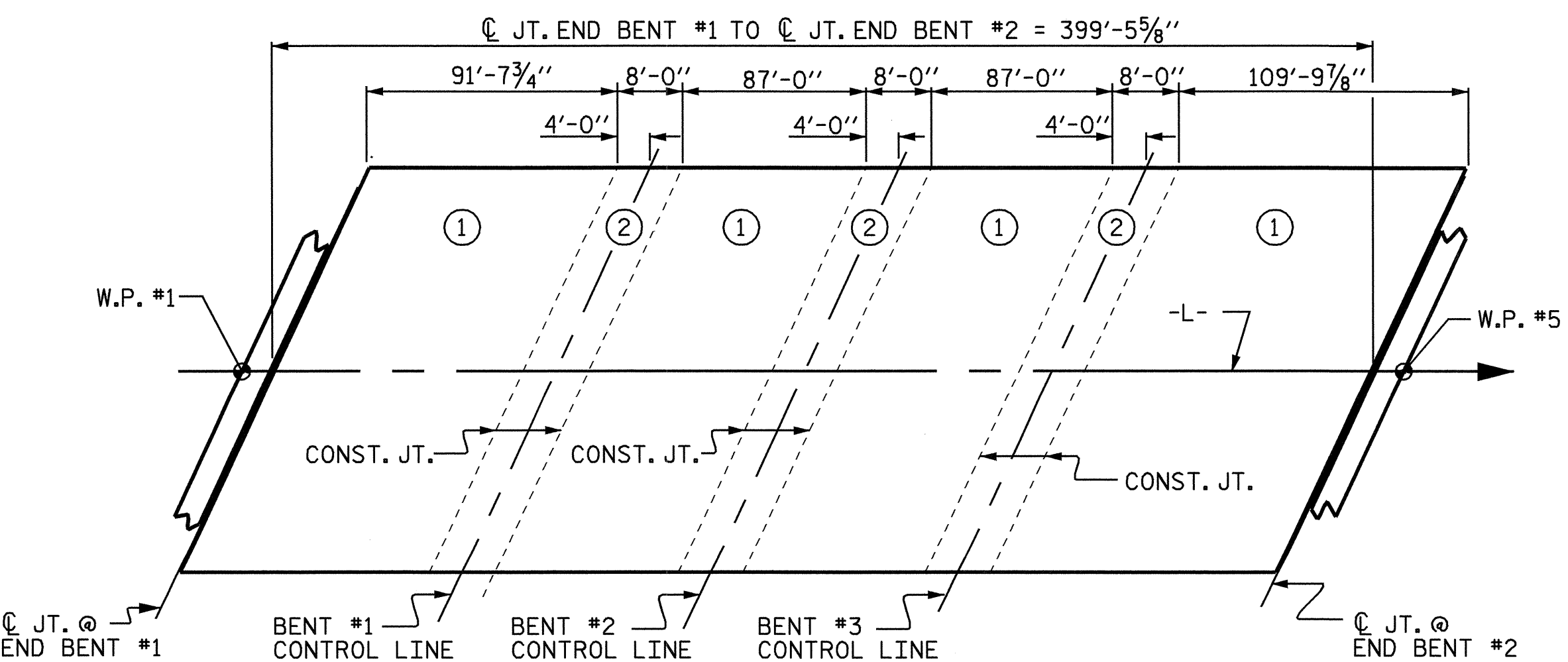


ALL BAR DIMENSIONS ARE OUT TO OUT



POUR SEQUENCE

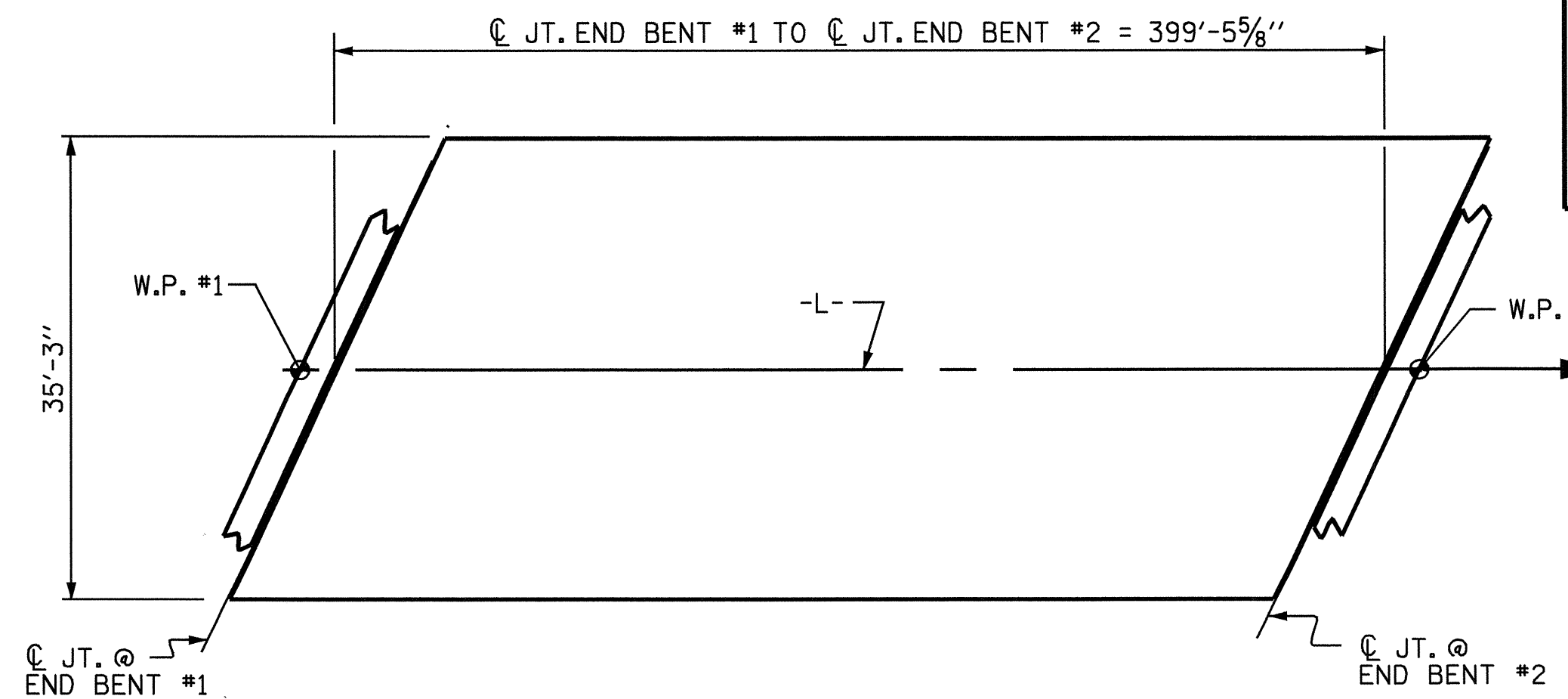
← POUR DIRECTION
○ POUR NUMBER



OPTIONAL POUR SEQUENCE

○ POUR NUMBER

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



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 14,081)

PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
STATION: 21+00.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
BILL OF MATERIAL



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS 35
2			4			

ASSEMBLED BY : D. PLATICA/SFD DATE: 7/26/04
CHECKED BY : J. P. ADAMS DATE: 8/09/04
DRAWN BY : JMB 5/87 REV. 6/1/94 EEM/GRP
CHECKED BY : SJD 9/87

NOTES

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

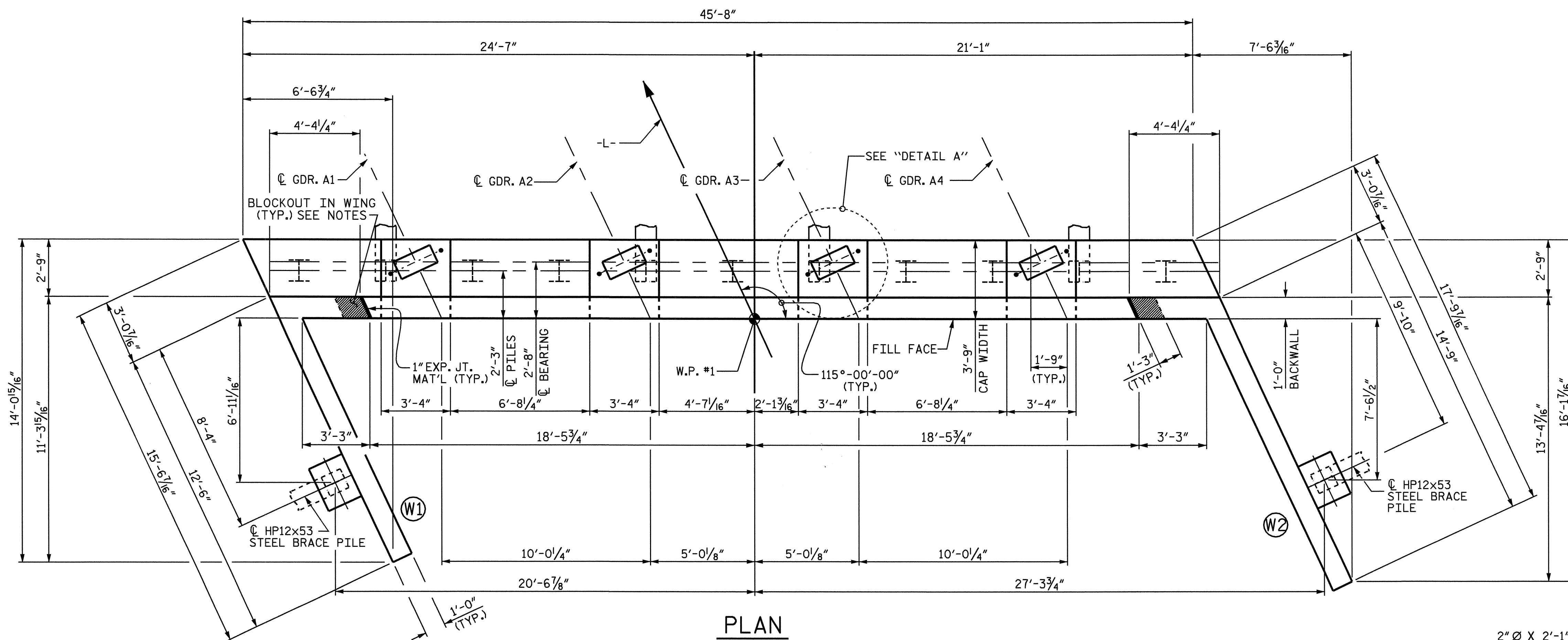
BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

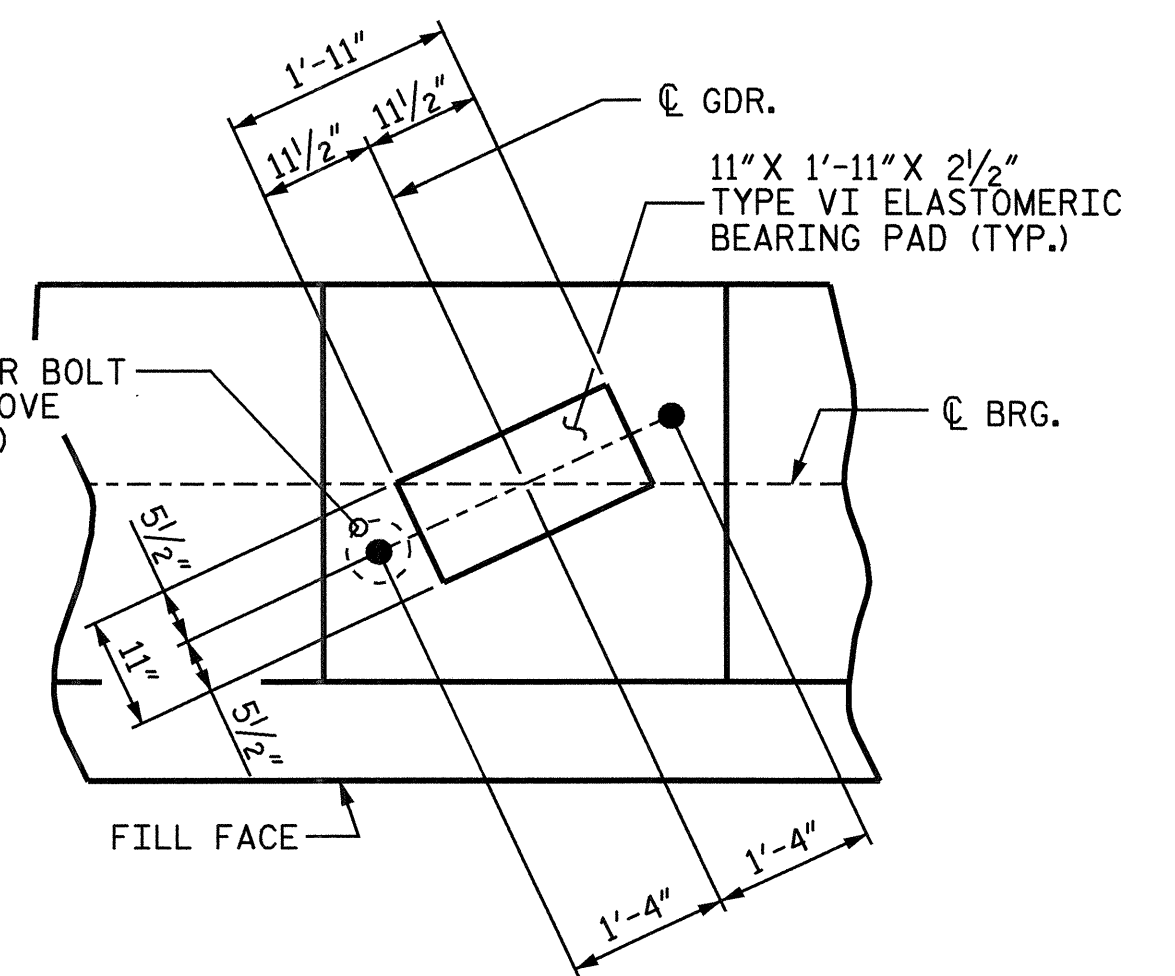
THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

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

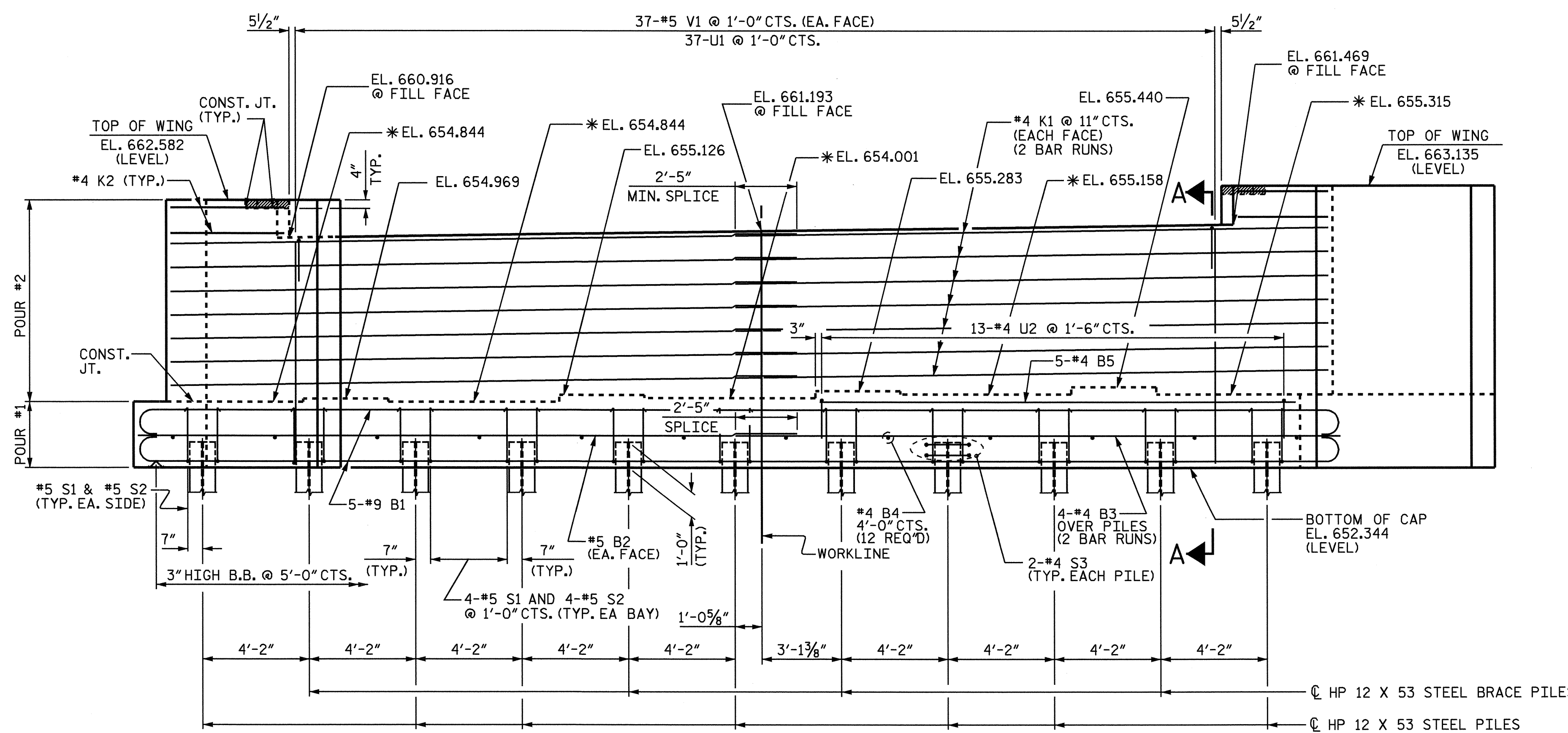
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND AFTER THE CASTING OF THE BARRIER RAIL.



PLAN



DETAIL A



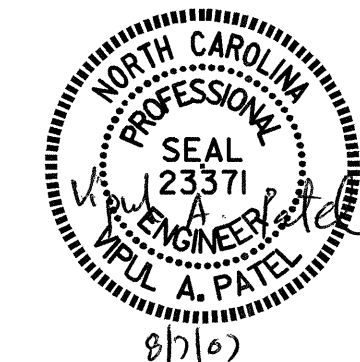
ELEVATION

(WING BRACE PILES NOT SHOWN FOR CLARITY)

* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILDUPS, SEE SHEET 3 OF 3.

DRAWN BY: A. K. PATEL DATE: 11-08-04
 CHECKED BY: J. P. ADAMS DATE: 12-07-04

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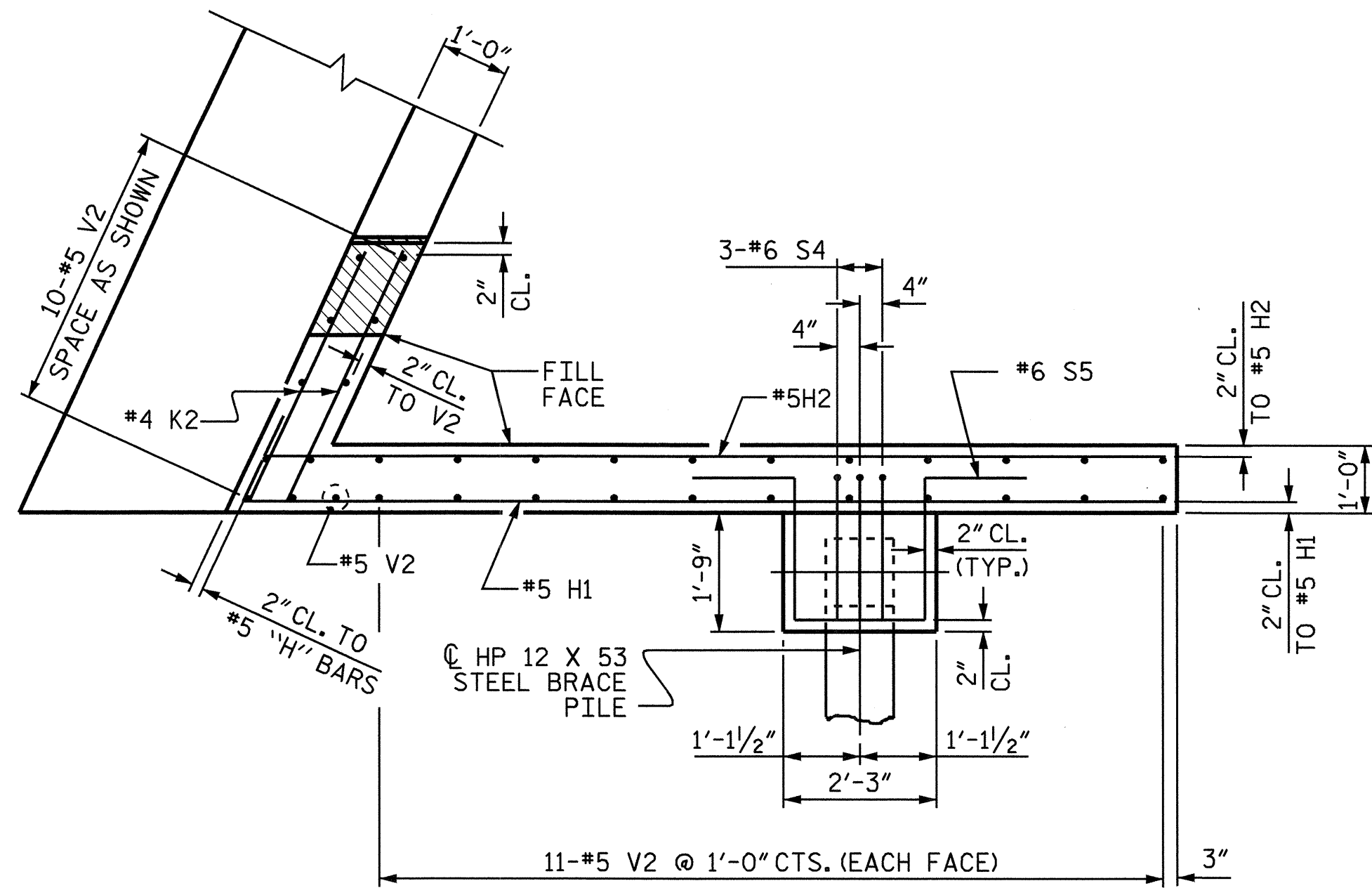
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

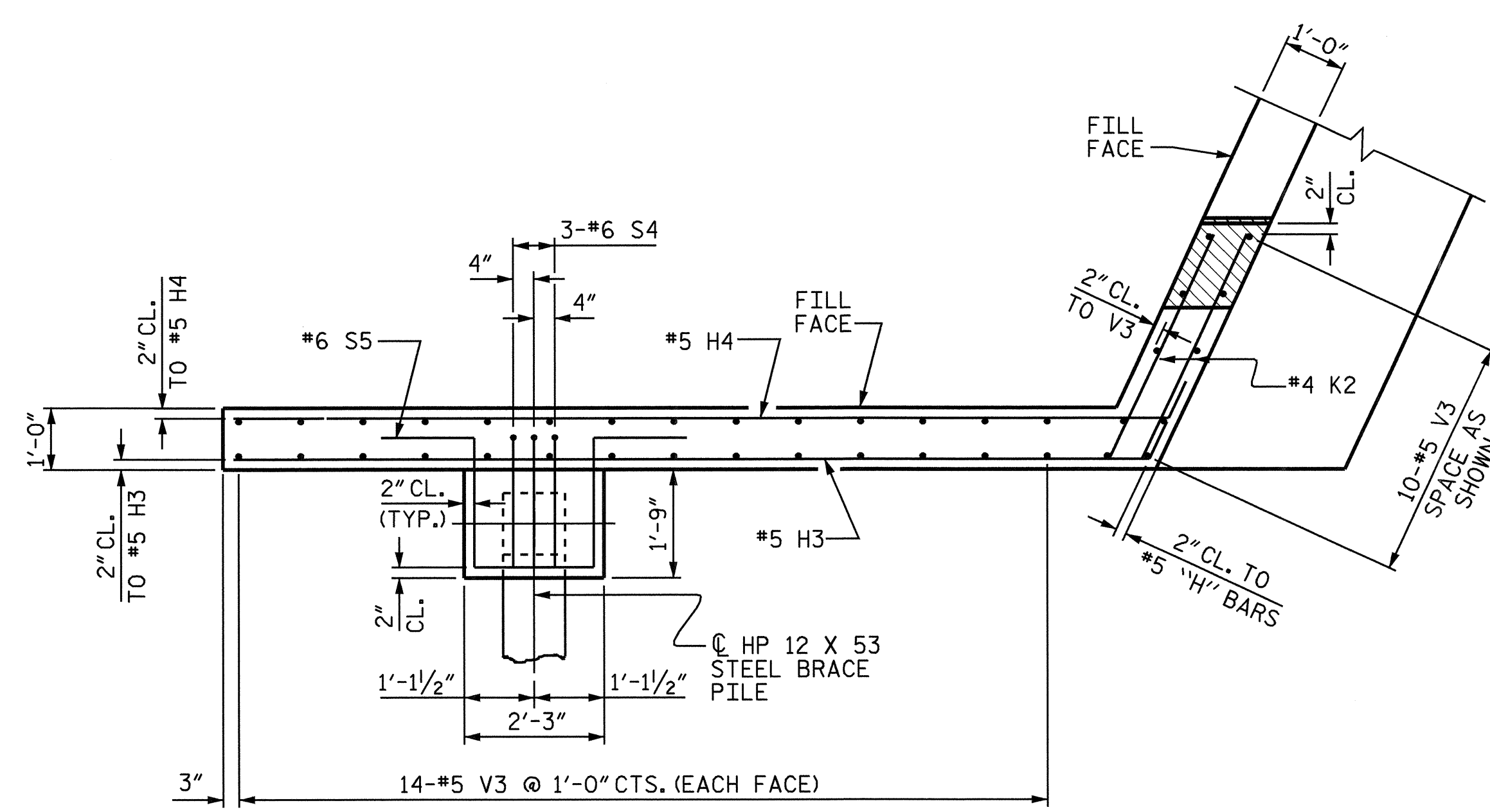
SUBSTRUCTURE
 END BENT #1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS 35
2			4			

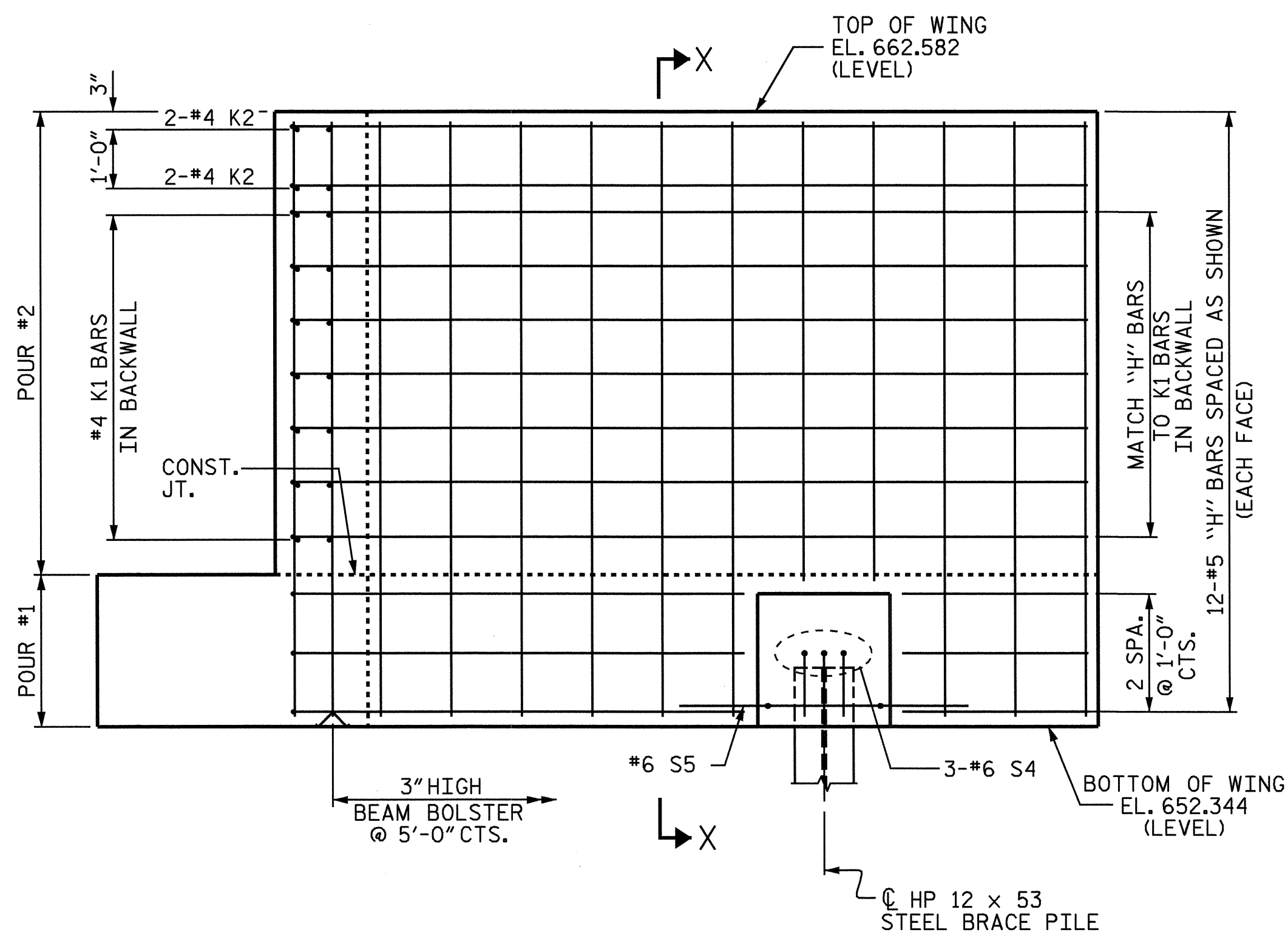
STR. #1



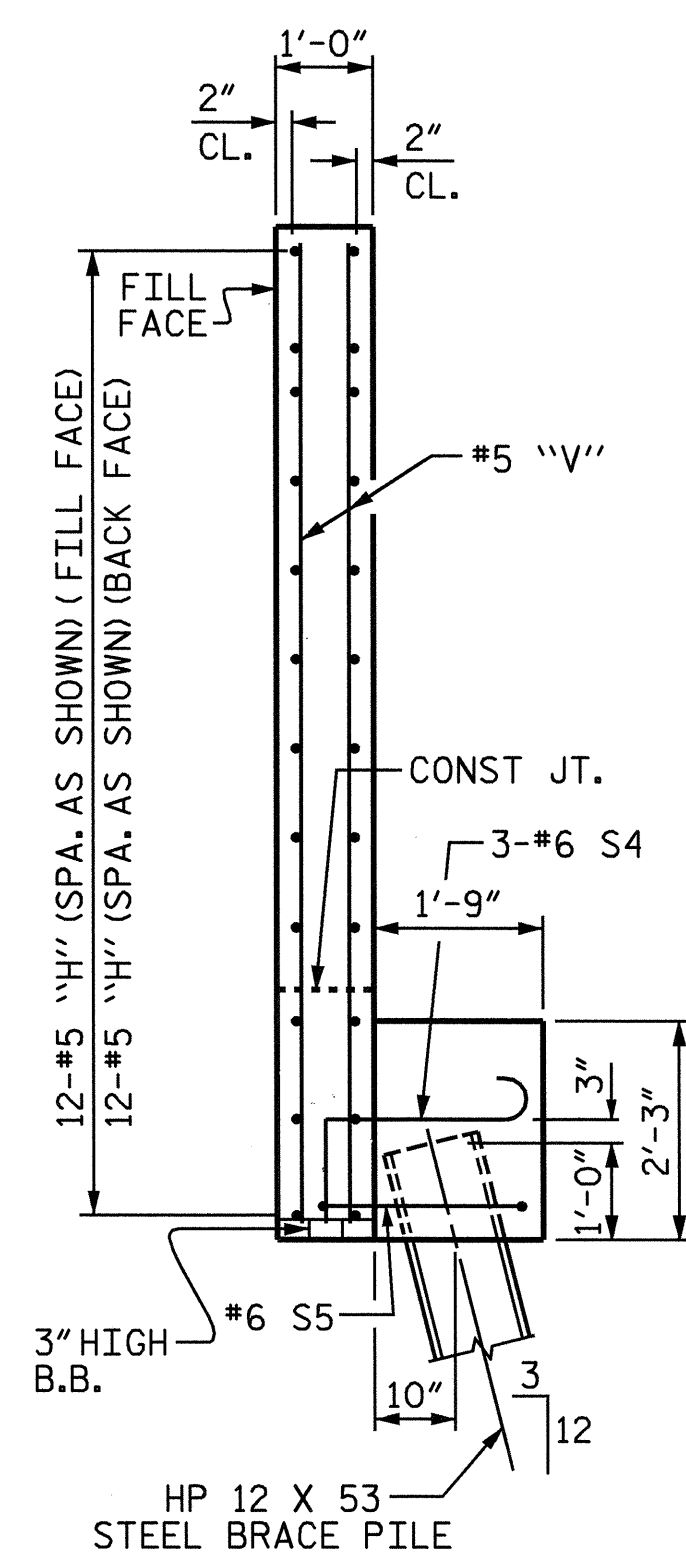
PLAN OF WING - W1



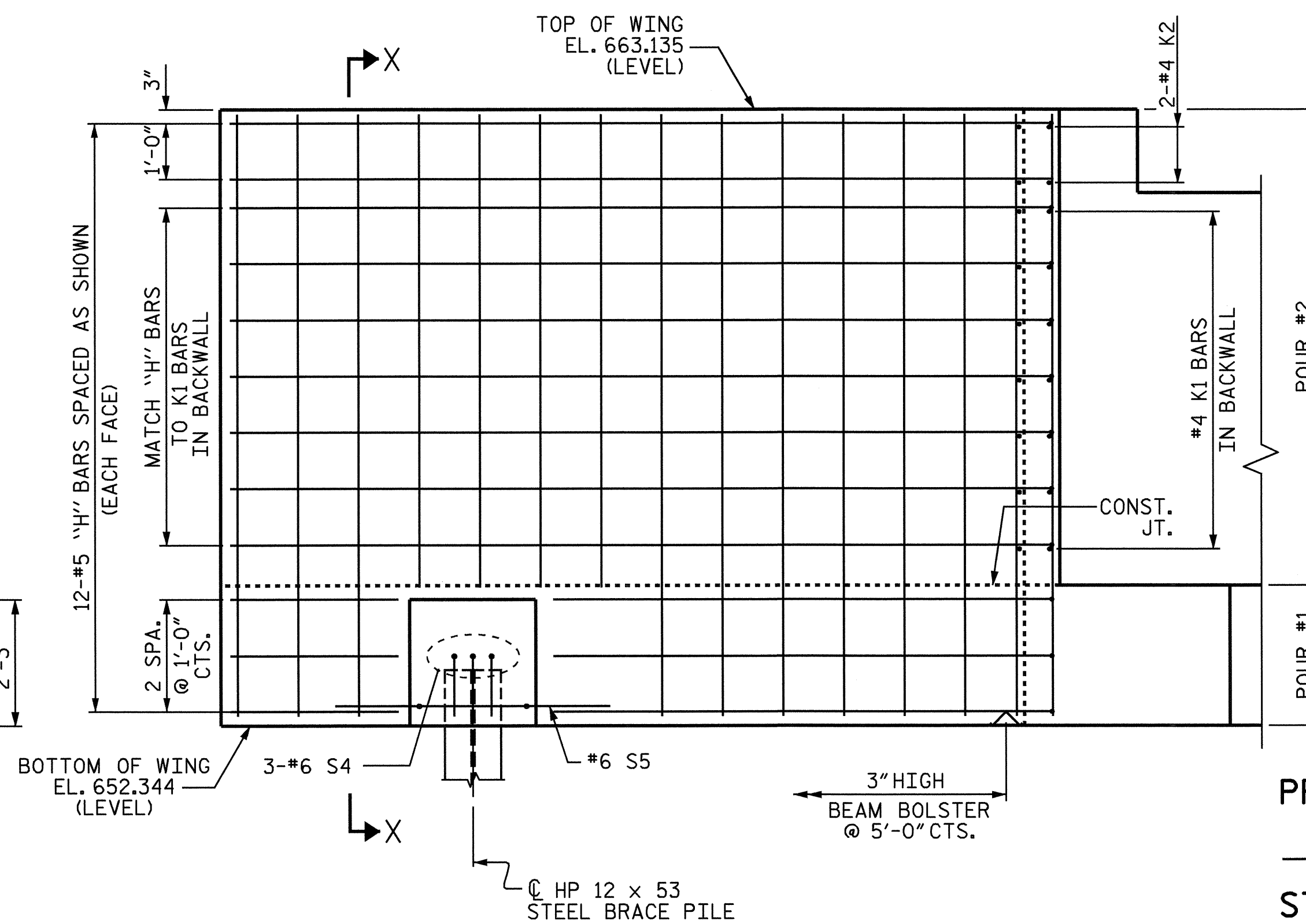
PLAN OF WING - W2



ELEVATION OF WING - W1



SECTION X-X



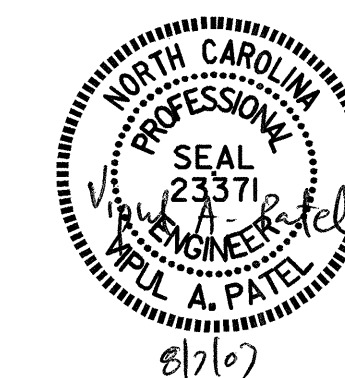
ELEVATION OF WING - W2

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ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

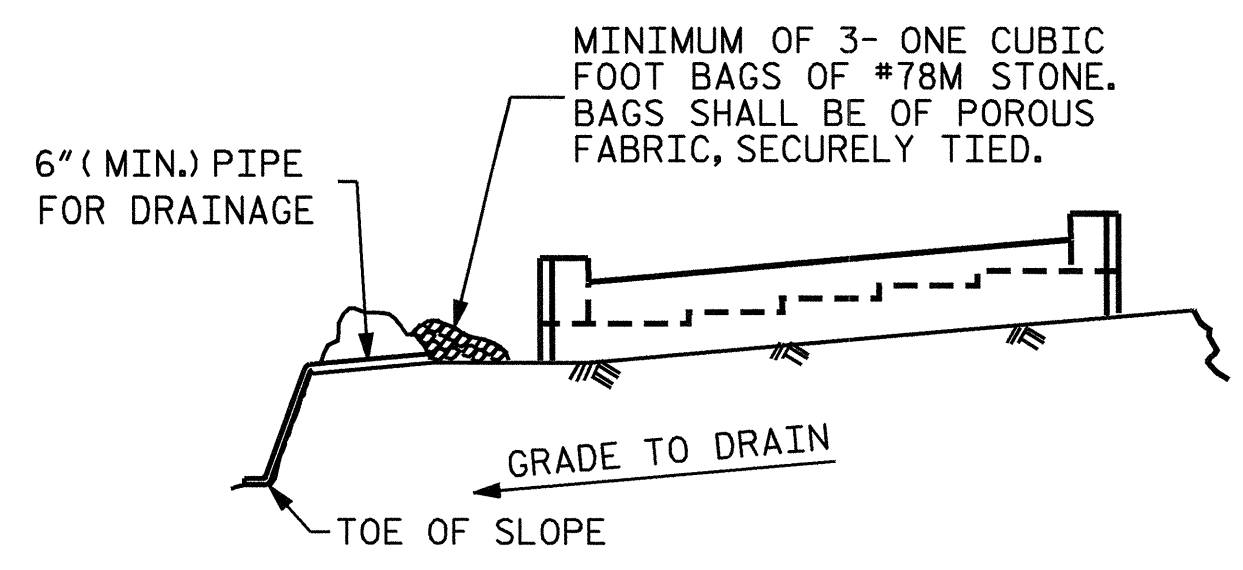
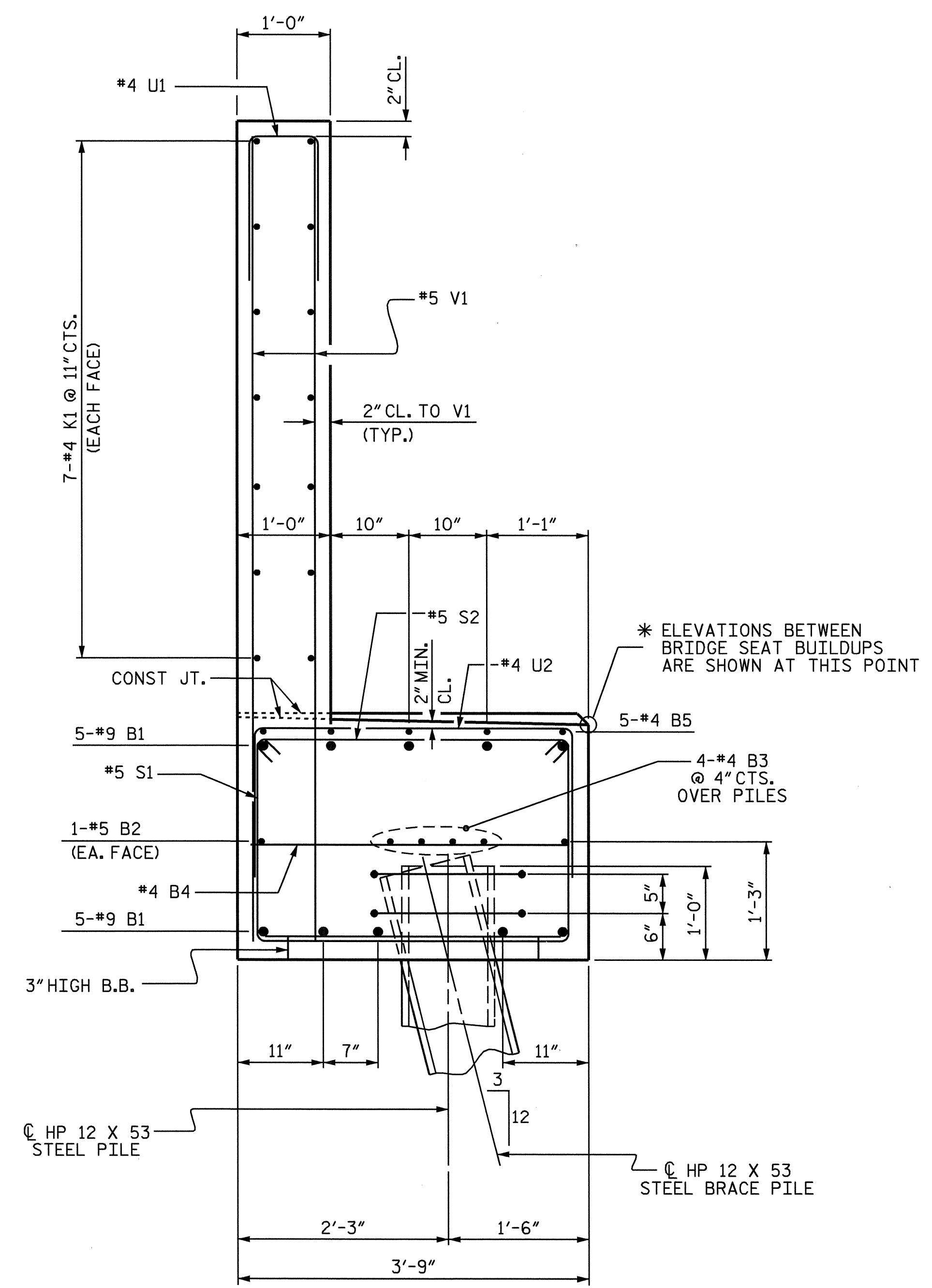
SUBSTRUCTURE
 END BENT #1



DRAWN BY: A.K. PATEL DATE: 11/08/04
 CHECKED BY: J.P. ADAMS DATE: 12-07-04

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			35
2			4			



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.

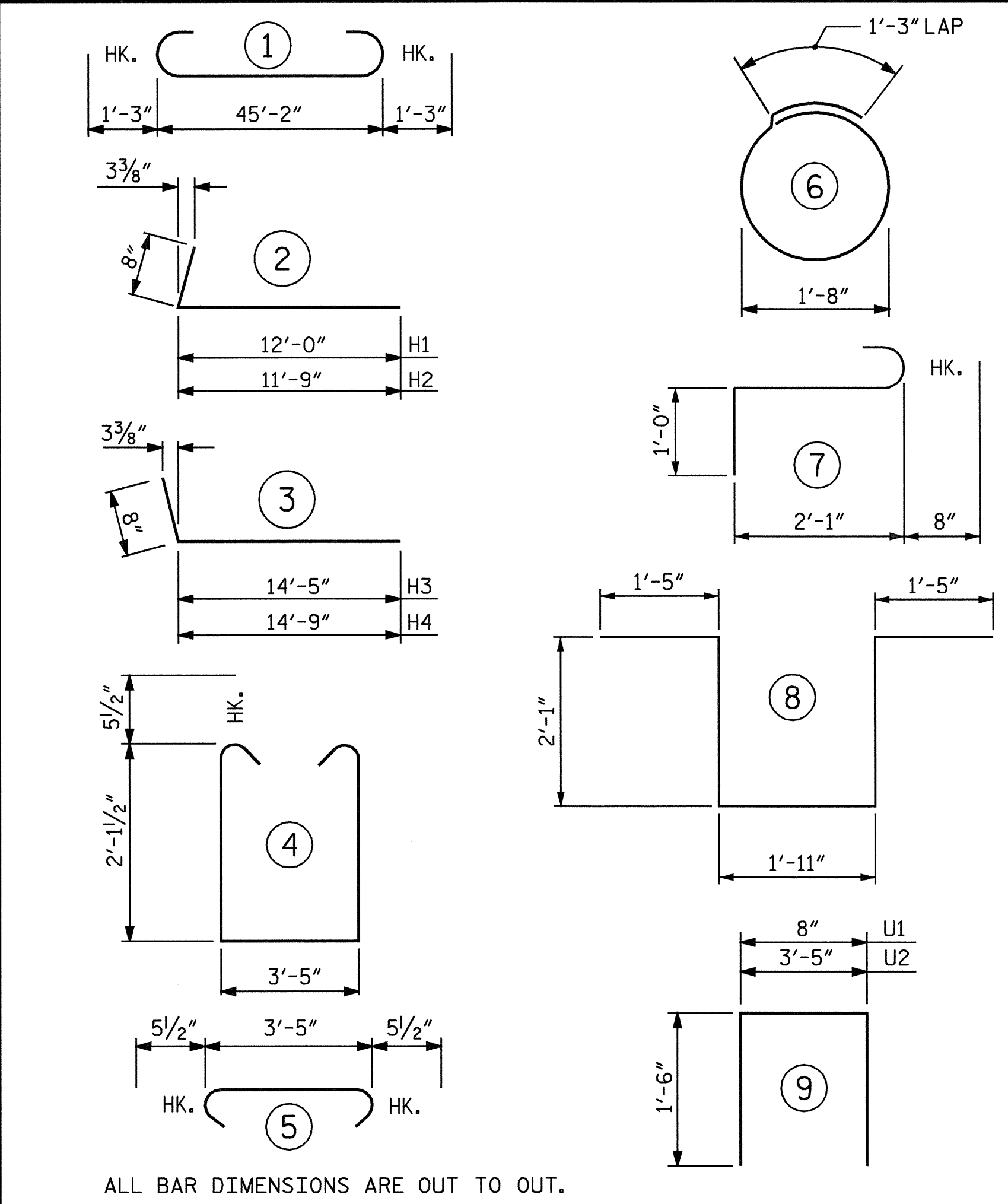
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

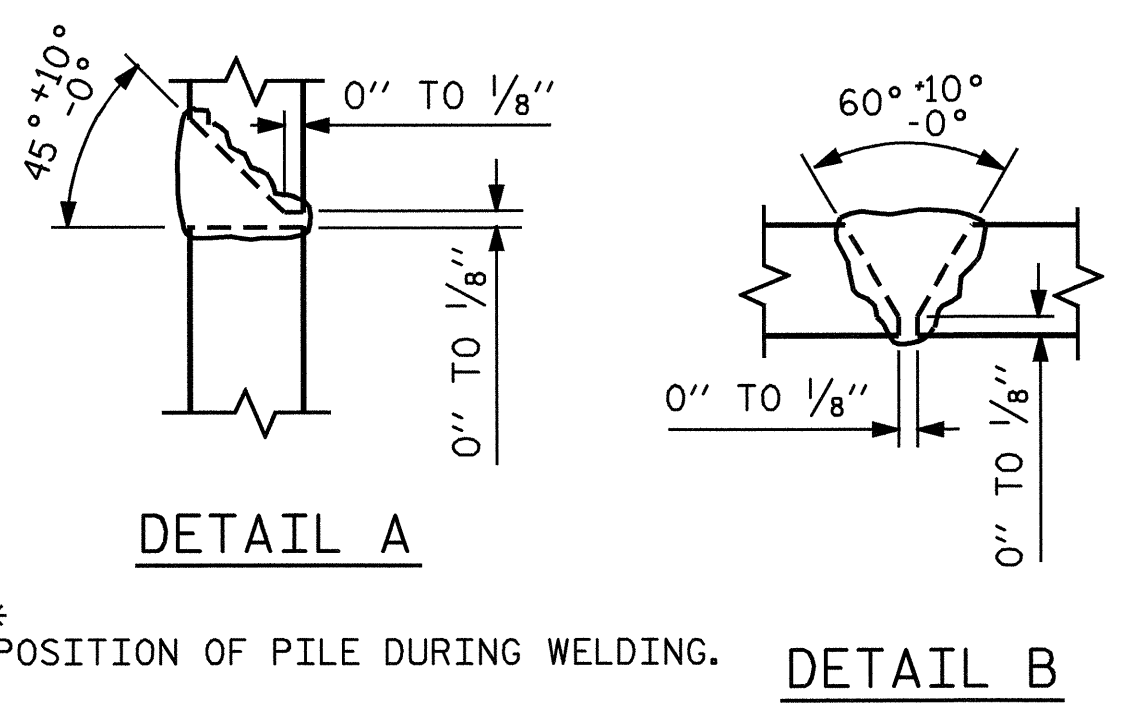
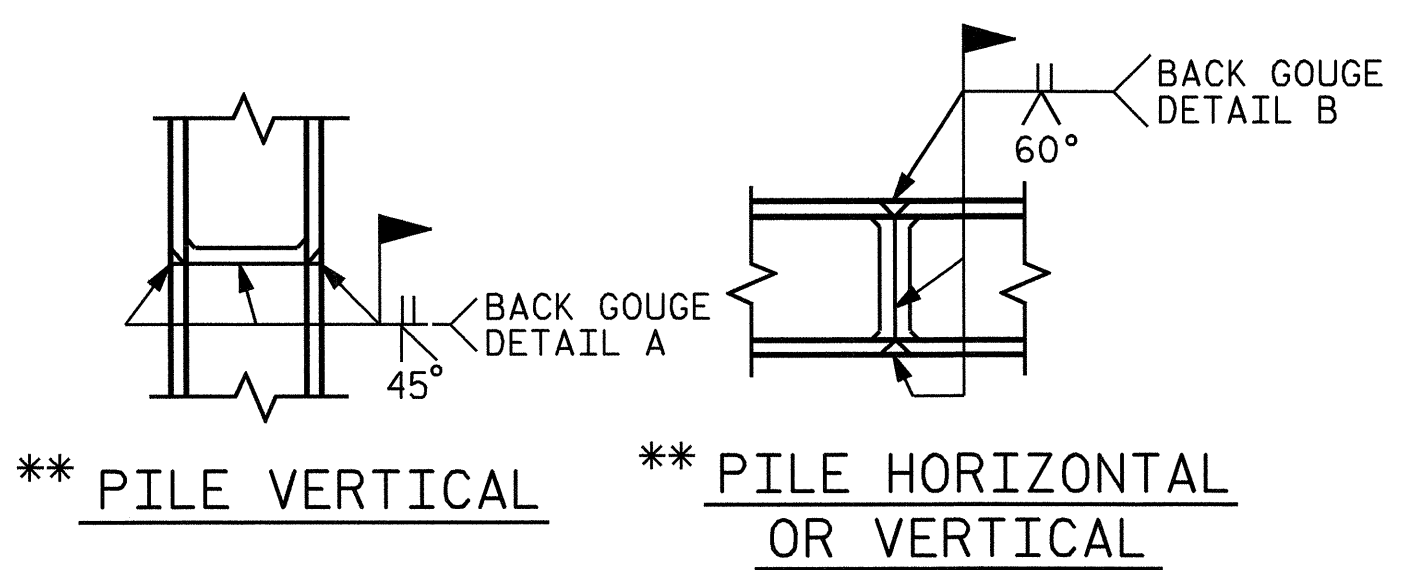
DRAWN BY : A. K. PATEL DATE : 11/08/04
CHECKED BY : J. P. ADAMS DATE : 12-07-04

BAR TYPES



BILL OF MATERIAL

END BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	9	1	47'-8"	1621
B2	2	5	STR	45'-4"	95
B3	8	4	STR	23'-11"	128
B4	12	4	STR	3'-5"	27
B5	5	4	STR	18'-8"	62
H1	12	5	2	12'-8"	159
H2	12	5	2	12'-5"	155
H3	12	5	3	15'-1"	189
H4	12	5	3	15'-5"	193
K1	28	4	STR	23'-11"	447
K2	8	4	STR	3'-11"	21
S1	42	5	4	8'-7"	376
S2	42	5	5	4'-4"	190
S3	22	4	6	6'-6"	96
S4	6	6	7	3'-9"	34
S5	2	6	8	8'-11"	27
U1	37	4	9	3'-8"	91
U2	13	4	9	6'-5"	56
V1	74	5	STR	8'-0"	617
V2	33	5	STR	9'-10"	338
V3	38	5	STR	10'-5"	413
TOTAL REINFORCING STEEL LBS.					5335
CLASS A CONCRETE (CU. YDS.)					
POUR #1 CAP & LOWER PART OF WINGS CU.YDS. 20.7					
POUR #2 BACKWALL & UPPER PART OF WINGS CU. YDS. 18.2					
TOTAL (CU. YDS.)					38.9
HP 12 x 53 STEEL PILES					
					No. 13 LIN.FT. 455.0



PILE SPLICE DETAILS

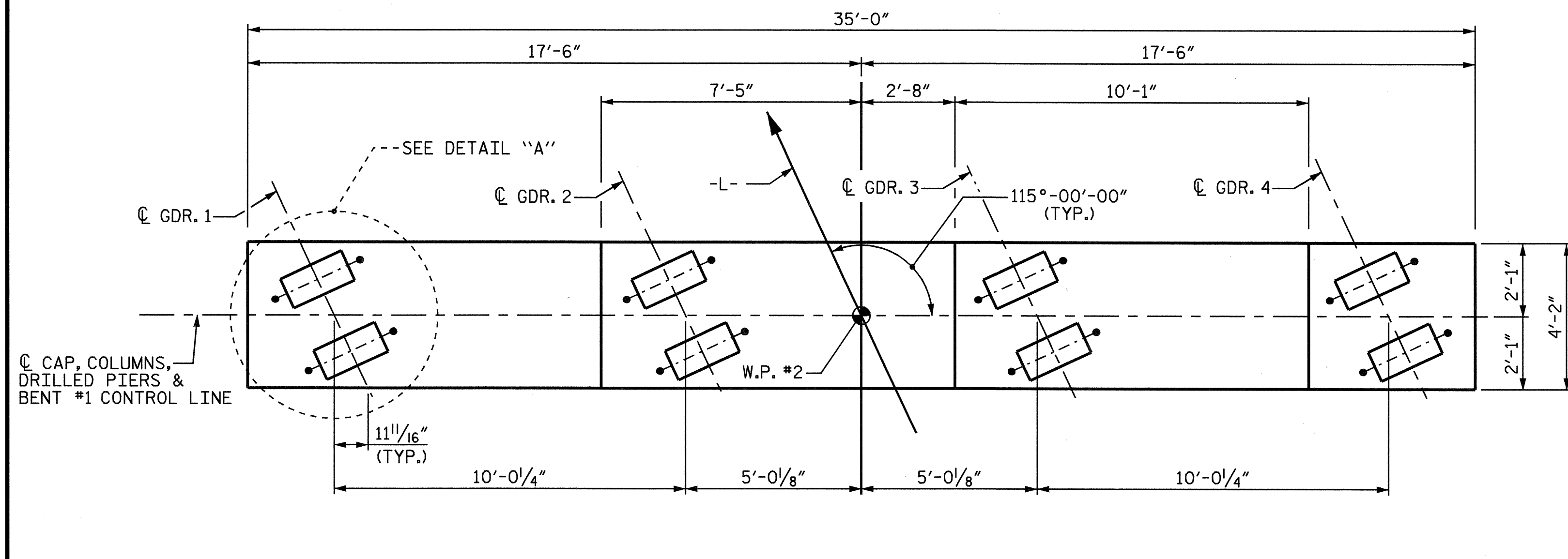
PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
STATION: 21+00.00 -L-
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT #1



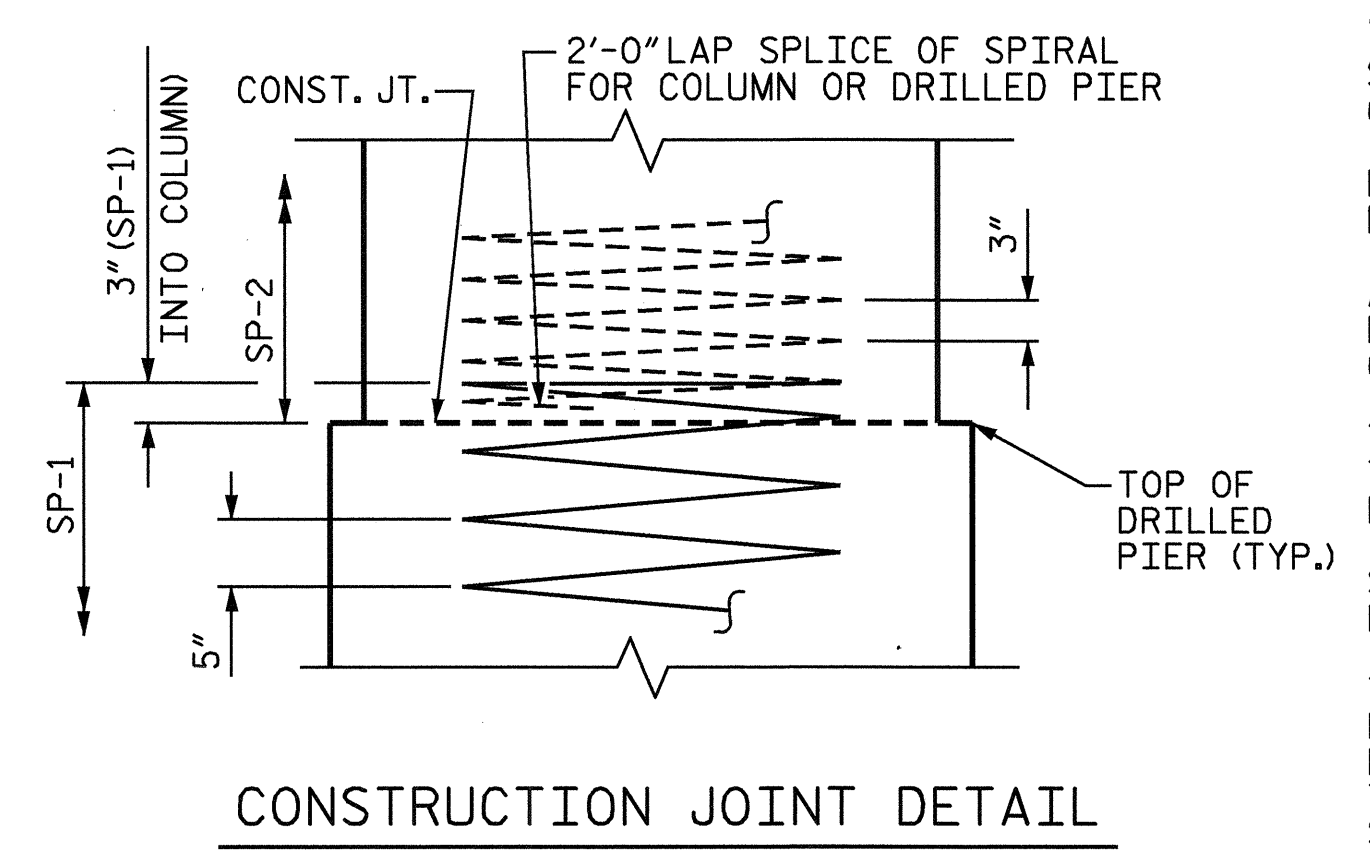
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS 35
2			4			



PLAN

SPAN B

SPAN A

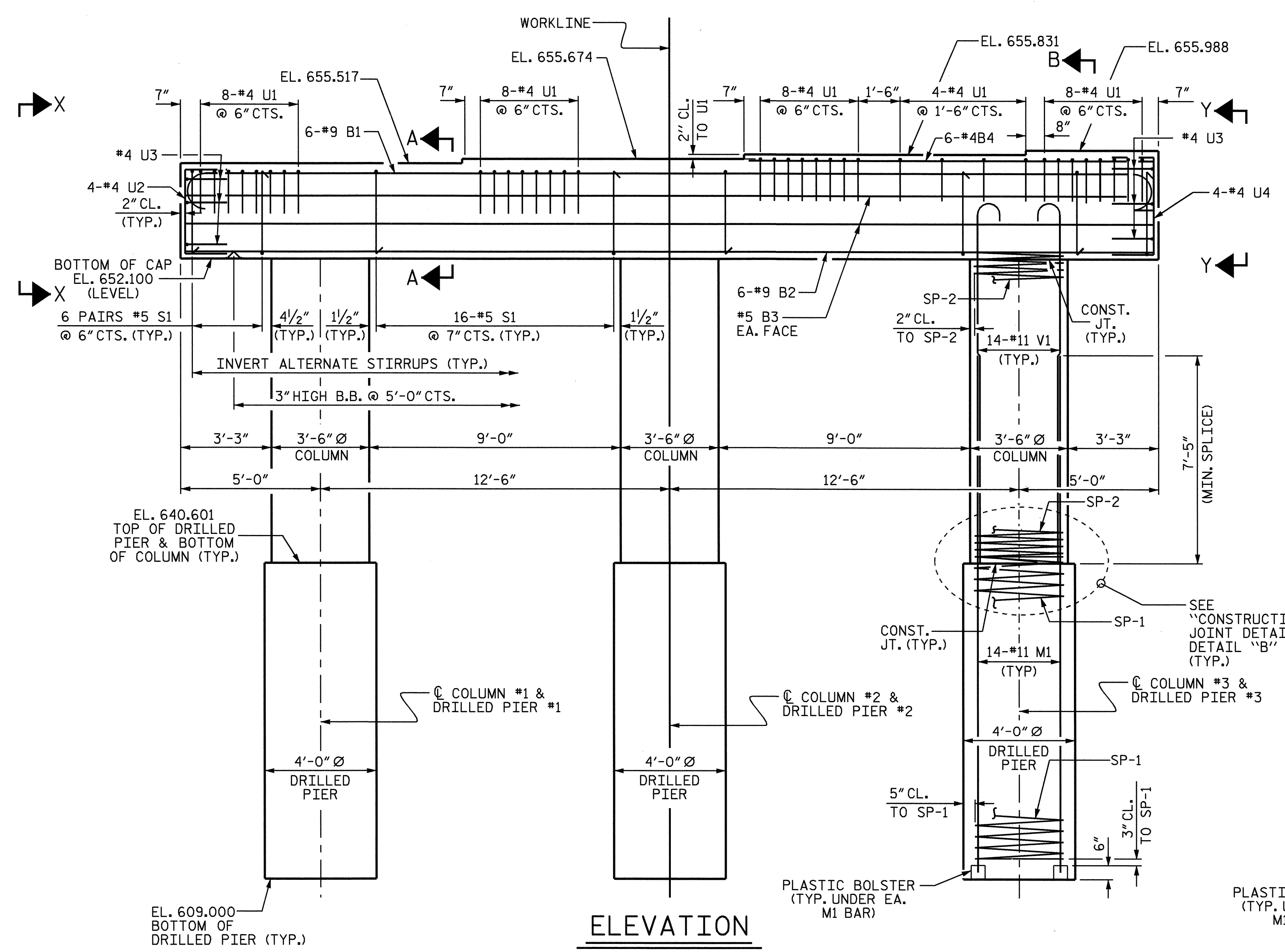


CONSTRUCTION JOINT DETAIL

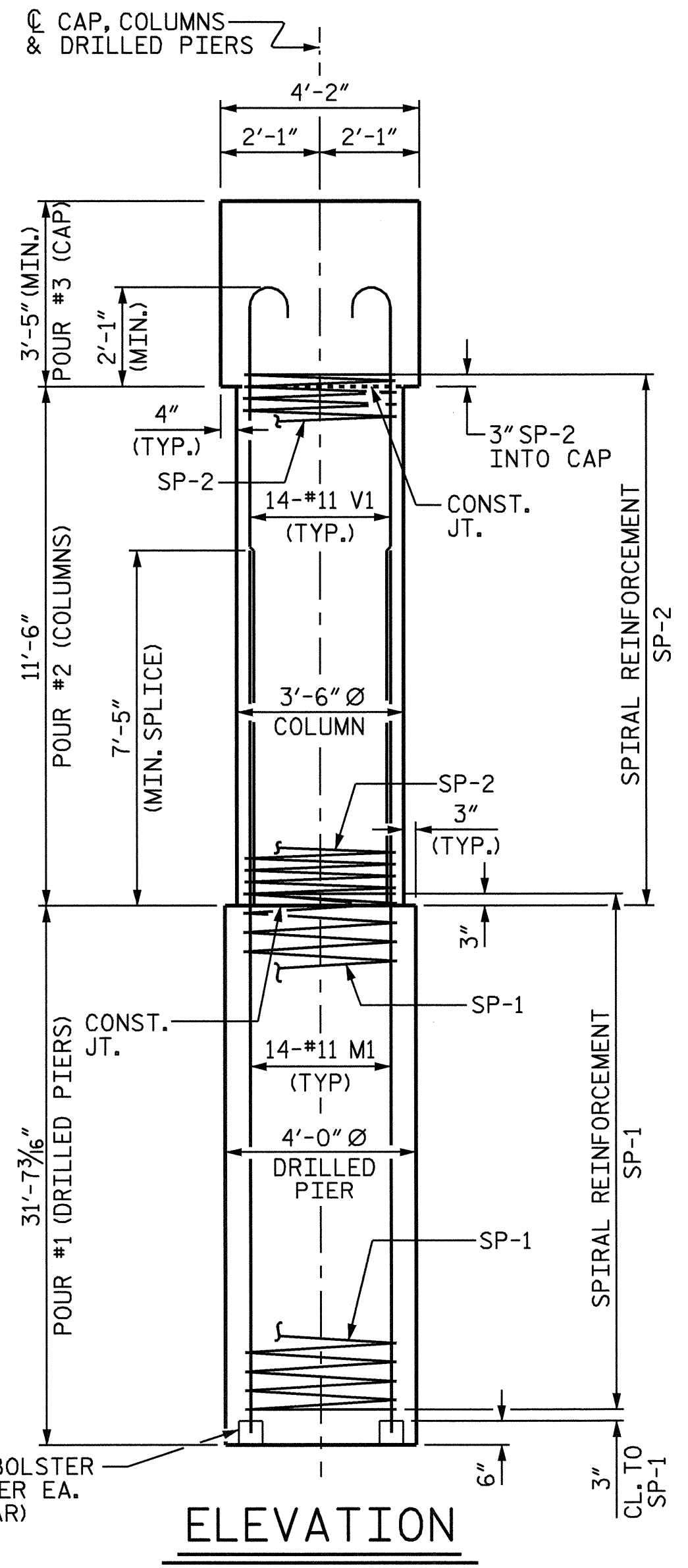
DETAIL "B"

NOTES

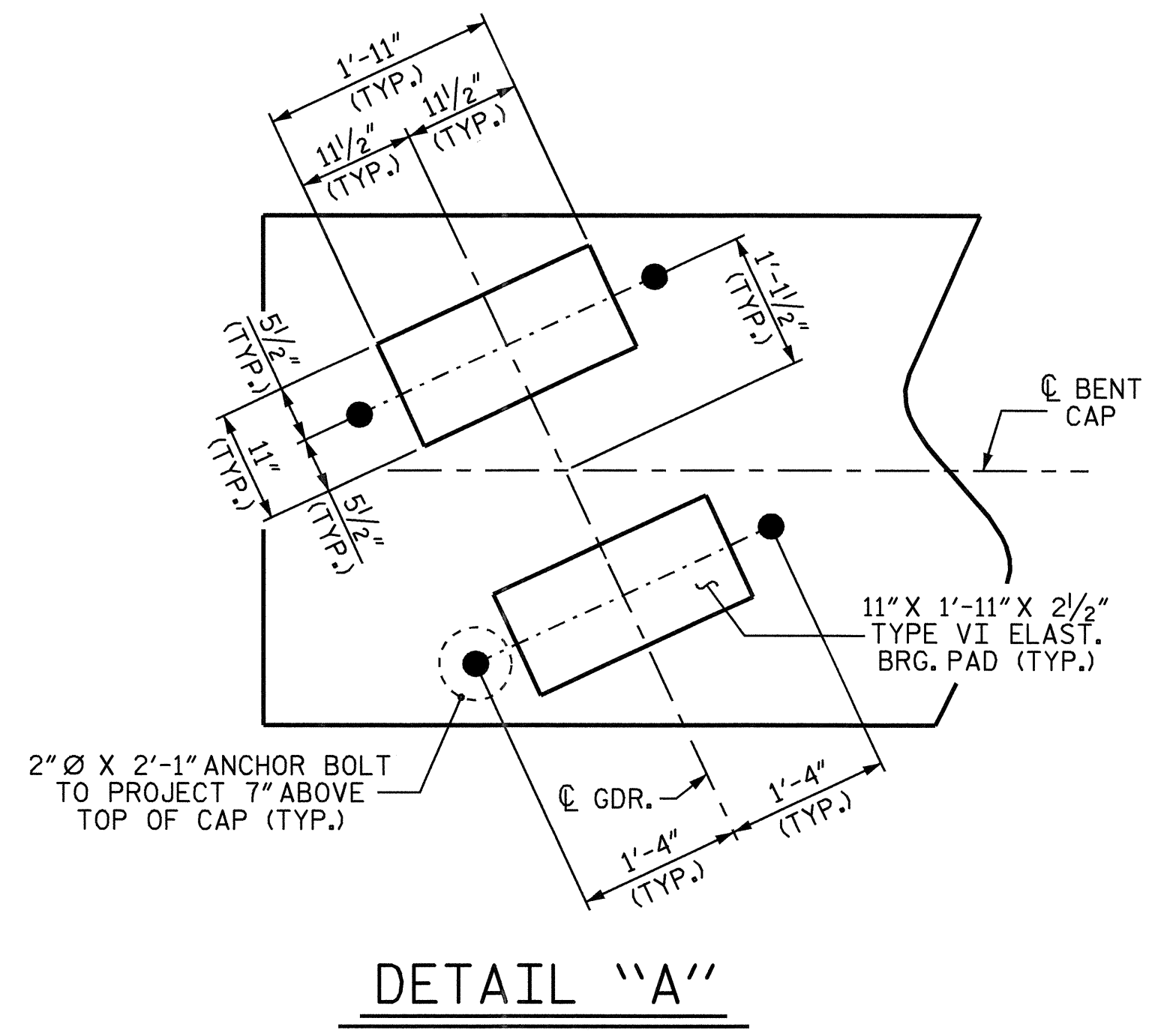
- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
- ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3' OF EXTRA LENGTH.
- SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.
- 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' BELOW THE GROUND LINE.
- FOR DRILLED PIERS, SEE DRILLED PIER SPECIAL PROVISION.



ELEVATION



ELEVATION

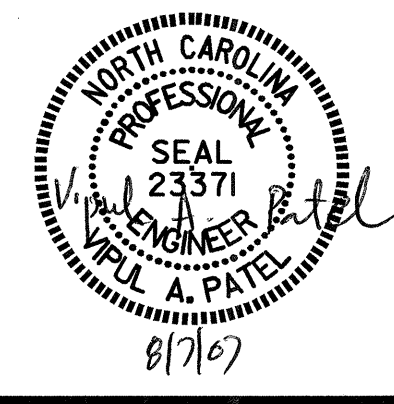


DETAIL "A"

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

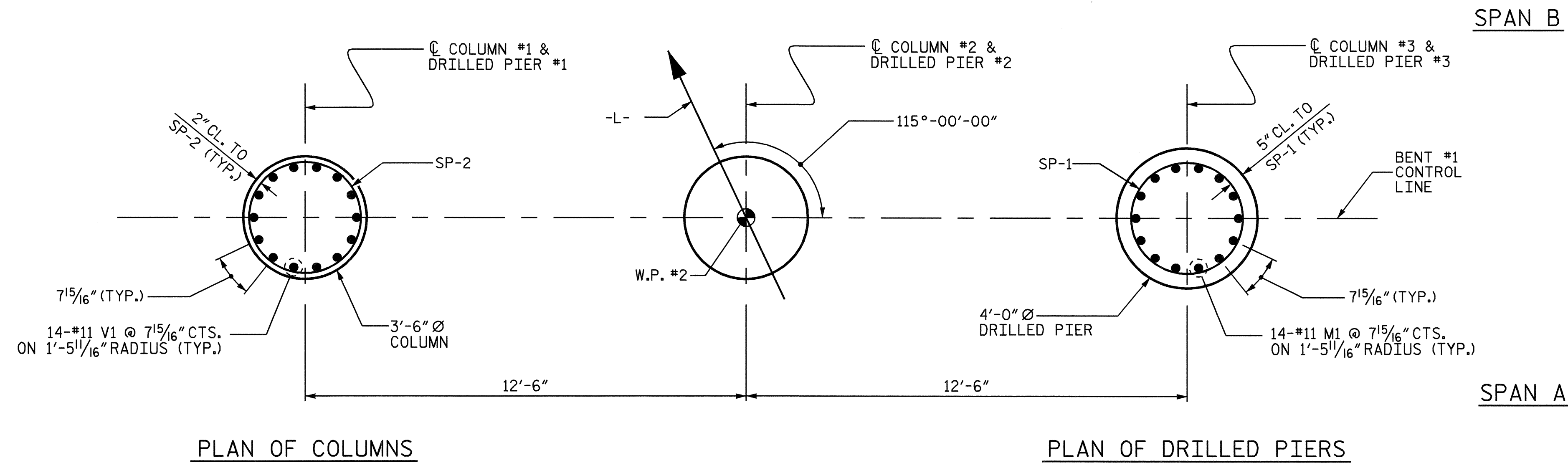
DRAWN BY: S. DOMBROWSKI DATE: 5/07
 CHECKED BY: V. PATEL DATE: 5/07

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PROJECT NO. B-4256
 ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT #1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-24
					TOTAL SHEETS 35

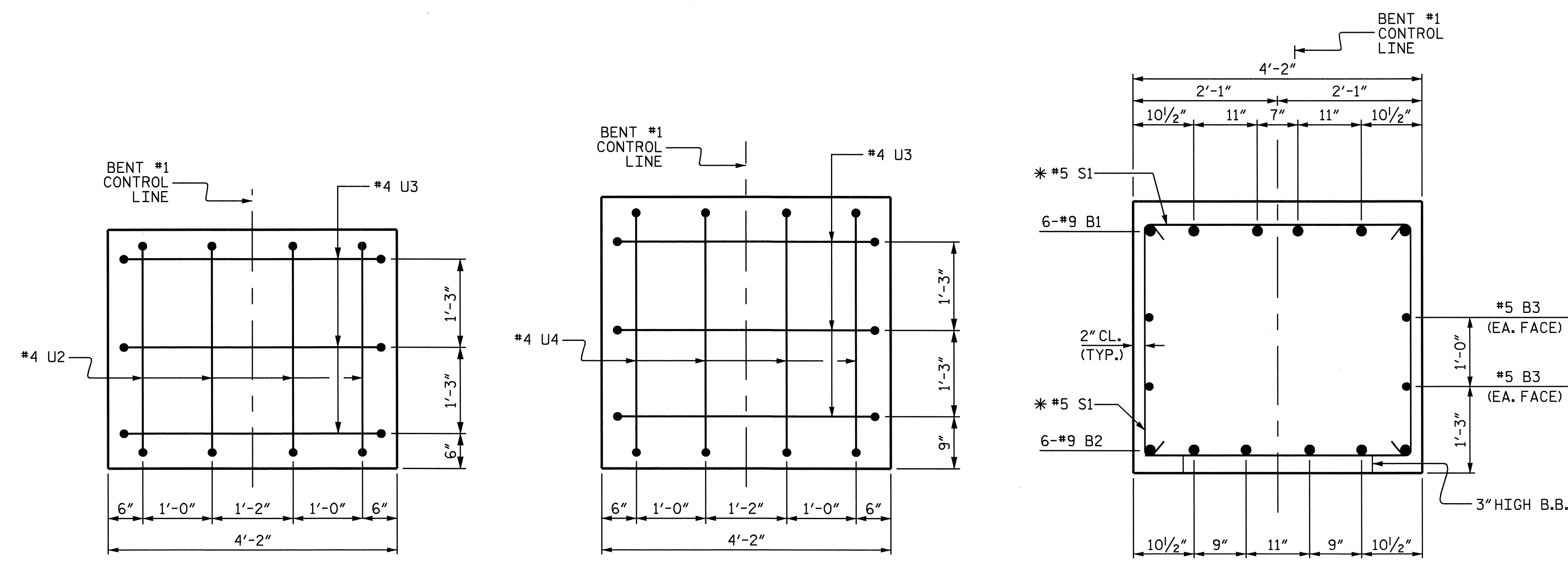


PLAN OF COLUMNS

PLAN OF DRILLED PIERS

PLAN OF COLUMNS & DRILLED PIERS

BAR TYPES					
<p>ALL BAR DIMENSIONS ARE OUT TO OUT.</p>					
BILL OF MATERIAL BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	9	1	37'-0"	755
B2	6	9	STR	34'-8"	707
B3	4	5	STR	34'-8"	145
B4	6	4	STR	14'-6"	58
M1	42	11	STR	41'-9"	9316
S1	56	5	2	10'-10"	633
U1	36	4	3	6'-10"	164
U2	4	4	3	5'-11"	16
U3	6	4	3	6'-9"	27
U4	4	4	3	6'-5"	17
V1	42	11	4	15'-2"	3384
TOTAL REINFORCING STEEL LBS.					15222
SP-1	3	**	5	745'-8"	2333
SP-2	3	***	6	478'-4"	959
TOTAL SPIRAL REINFORCING STEEL LBS.					3292
CLASS A CONCRETE BREAKDOWN					
POUR #2 (COLUMNS)					12.3 C.Y.
POUR #3 (BENT CAP)					19.7 C.Y.
TOTAL					32.0 C.Y.
DRILLED PIER QUANTITIES					
DRILLED PIER CONCRETE (C. Y.)					
POUR #1 (DRILLED PIERS) =					44.1 C.Y.
4'-0" DIA DRILLED PIERS IN SOIL =					76.80 LIN. FT.
4'-0" DIA DRILLED PIERS NOT IN SOIL =					18.00 LIN. FT.
SID INSPECTION:					2 EACH
SPT TESTING:					1 EACH
CROSSHOLE SONIC LOGGING :					1 EACH
CSL TUBES:					409.2 LIN. FT.

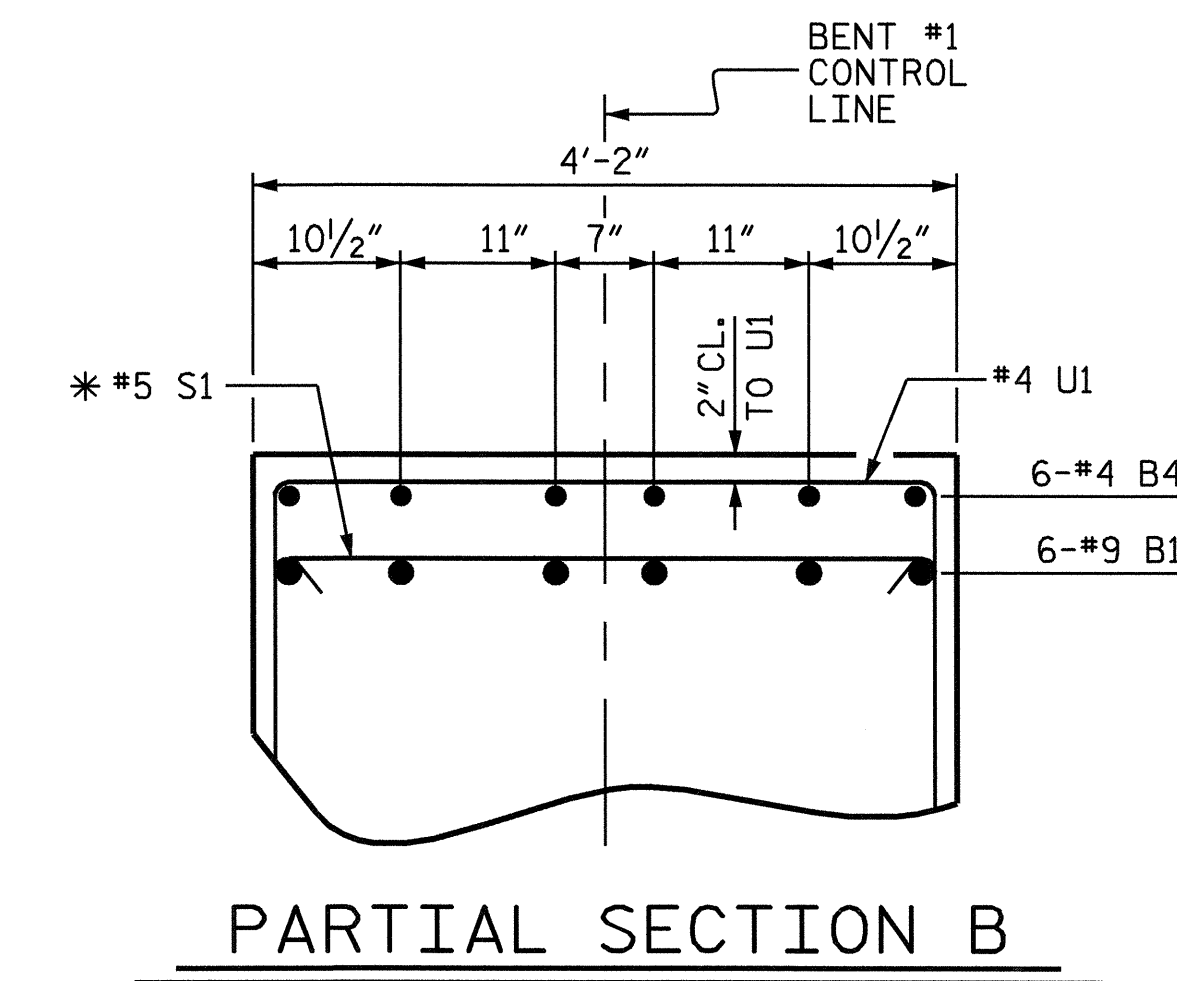


VIEW X-X

VIEW Y-Y

SECTION A-A

* INVERT ALTERNATE STIRRUPS



PARTIAL SECTION B

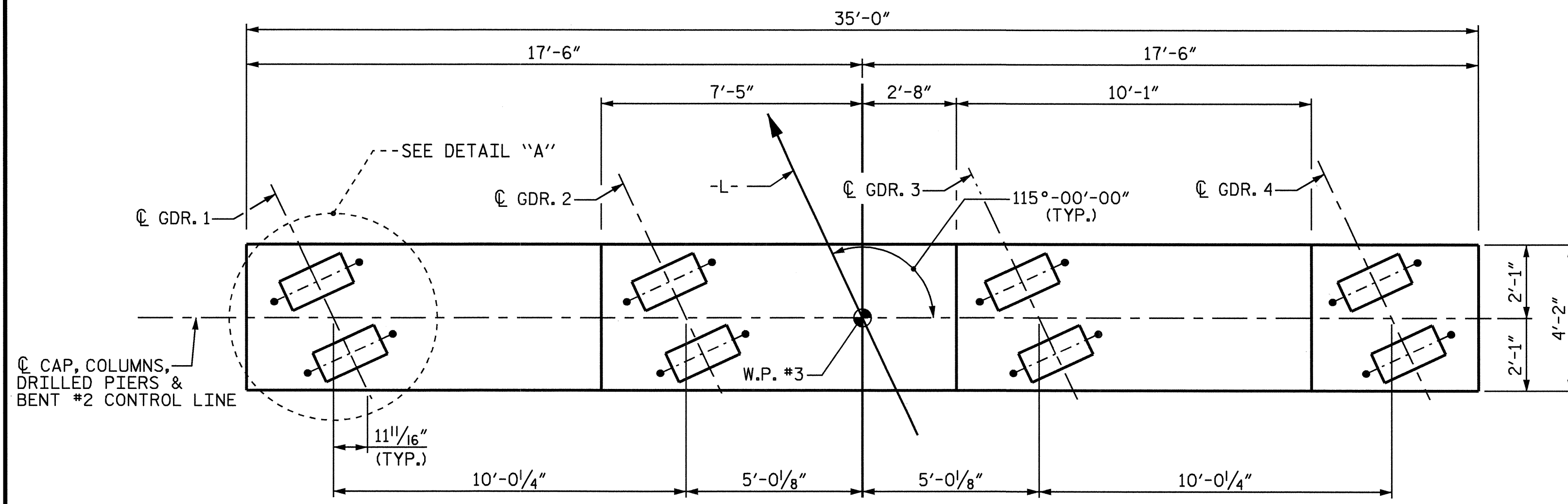
PROJECT NO. B-4256
 ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

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		
TOTAL SHEETS					35



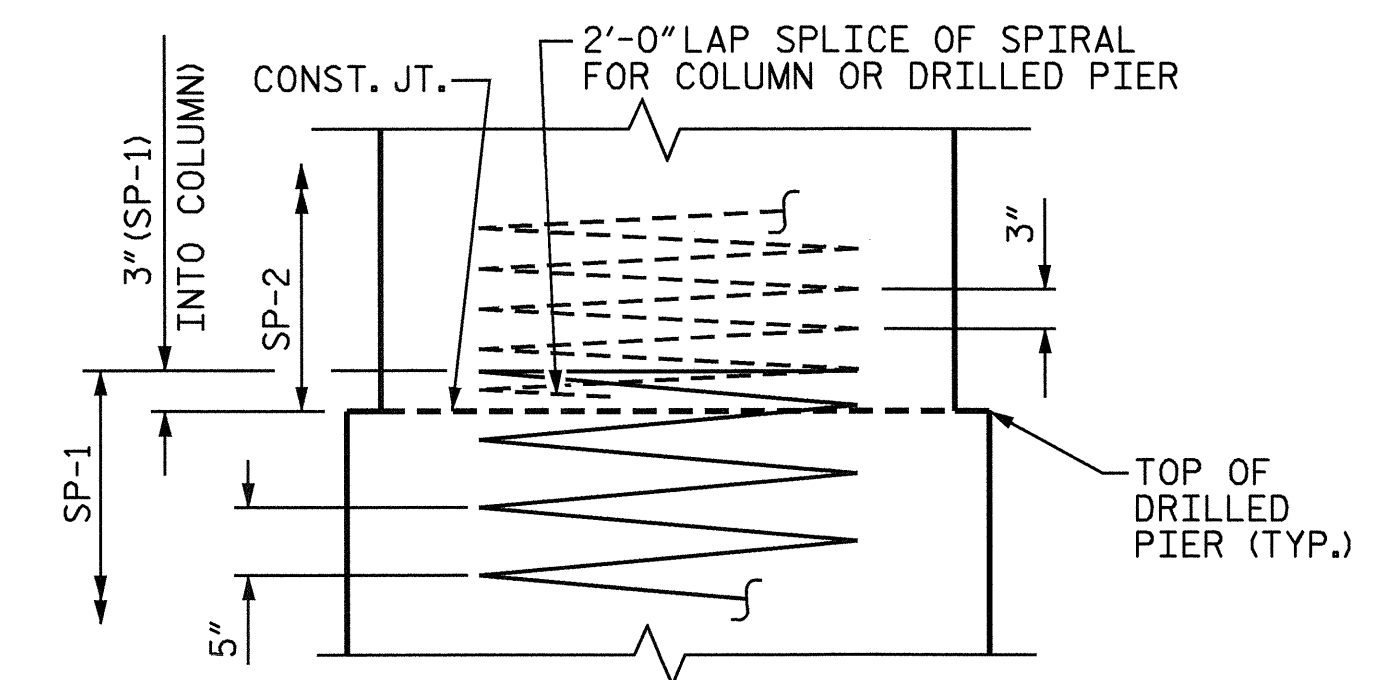
DRAWN BY : S. DOMBROWSKI DATE : 5/07
 CHECKED BY : V. PATEL DATE : 5/07



PLAN

SPAN C

SPAN B

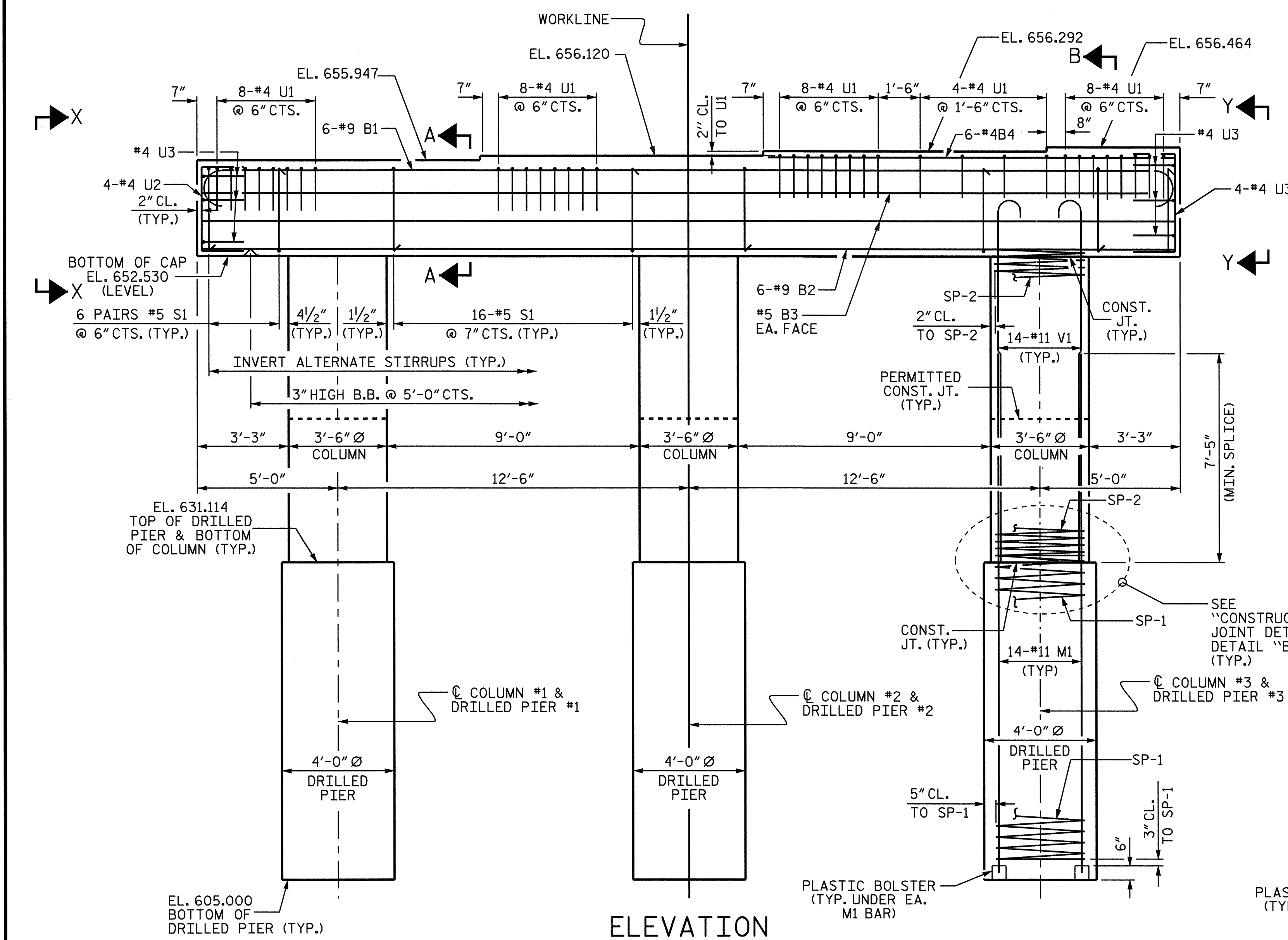


CONSTRUCTION JOINT DETAIL

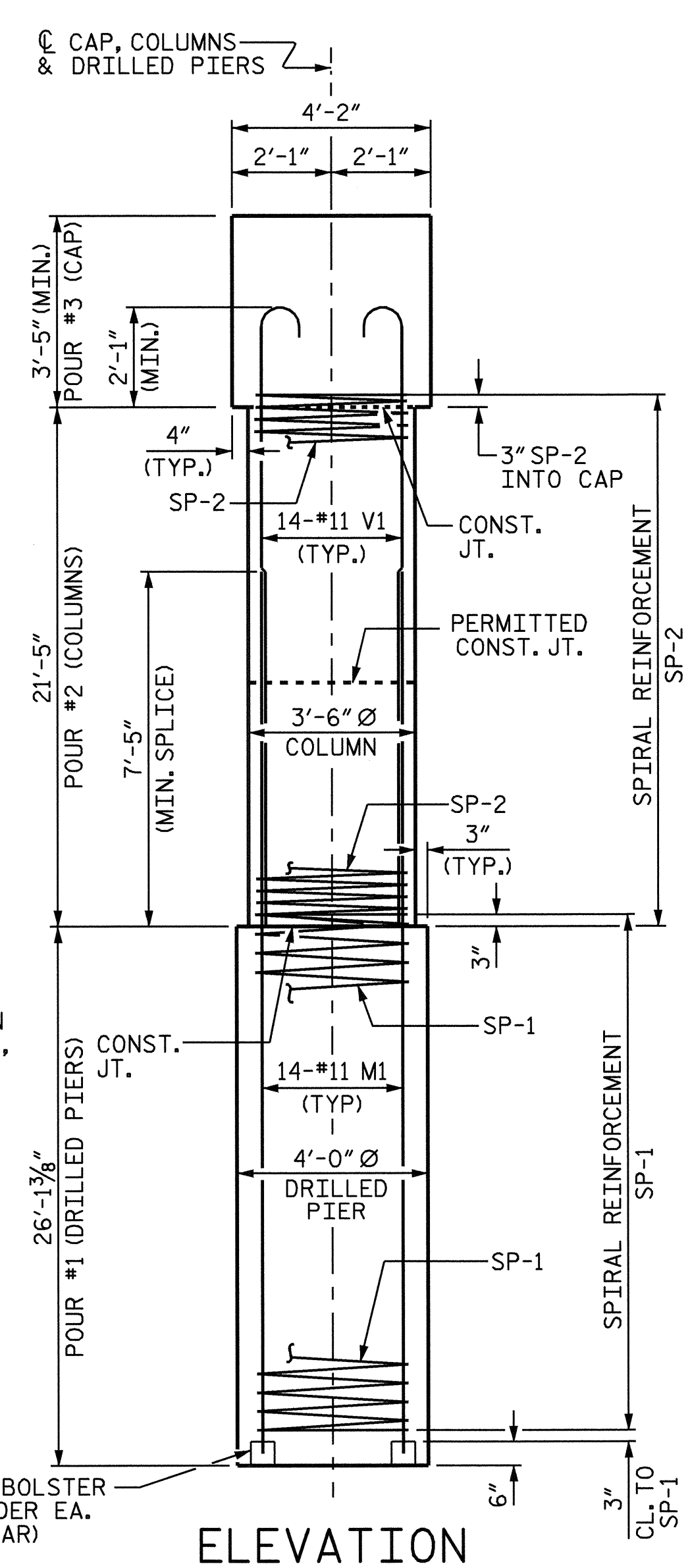
DETAIL "B"

NOTES

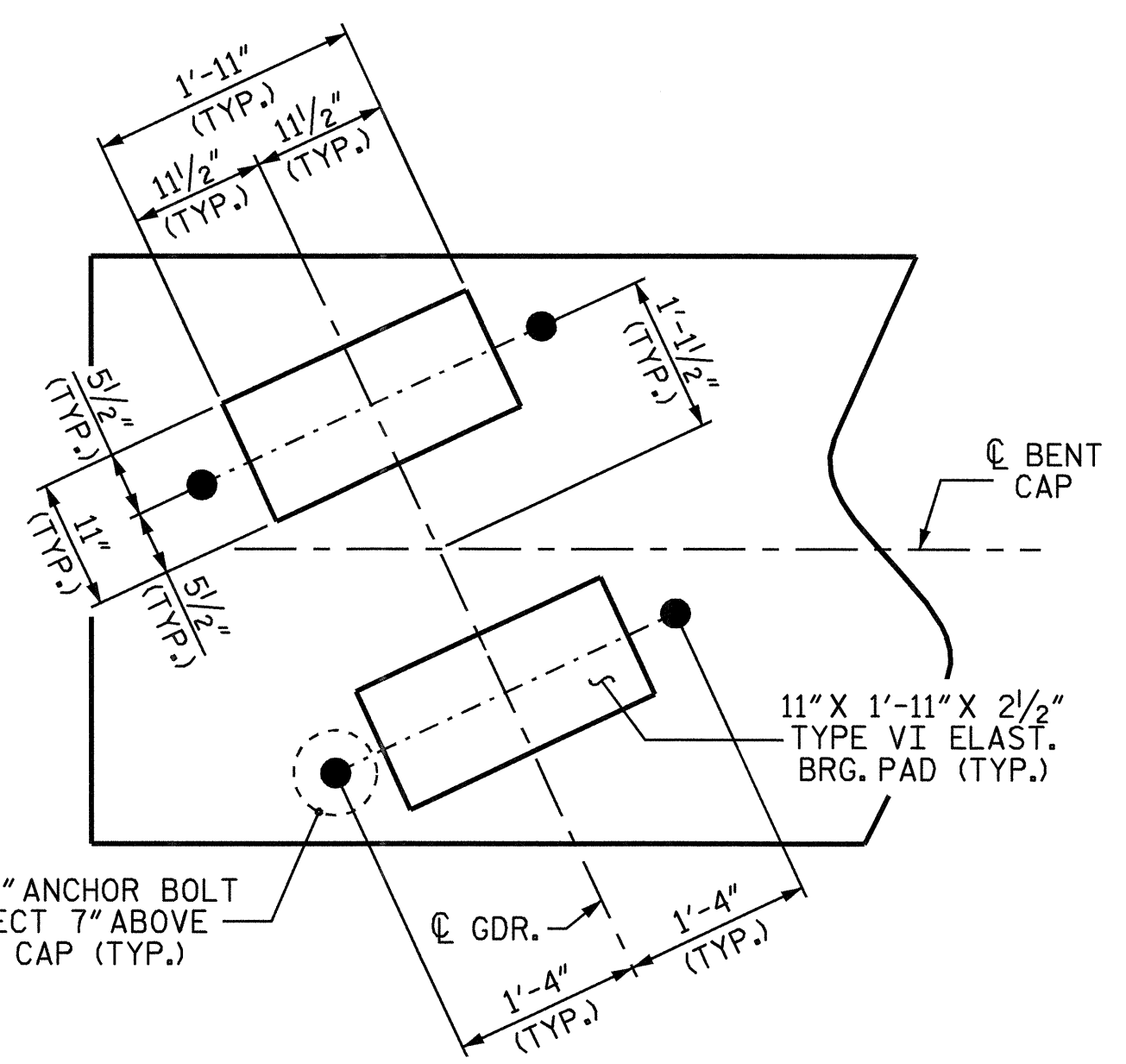
- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
- ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3' OF EXTRA LENGTH.
- SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.
- FOR DRILLED PIERS, SEE DRILLED PIER SPECIAL PROVISION.
- PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS, SEE DRILLED PIER SPECIAL PROVISION.



ELEVATION



ELEVATION

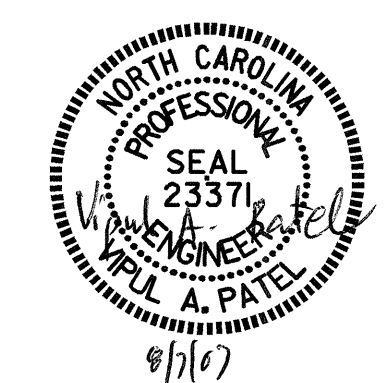


DETAIL "A"

PROJECT NO. B-4256
 ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

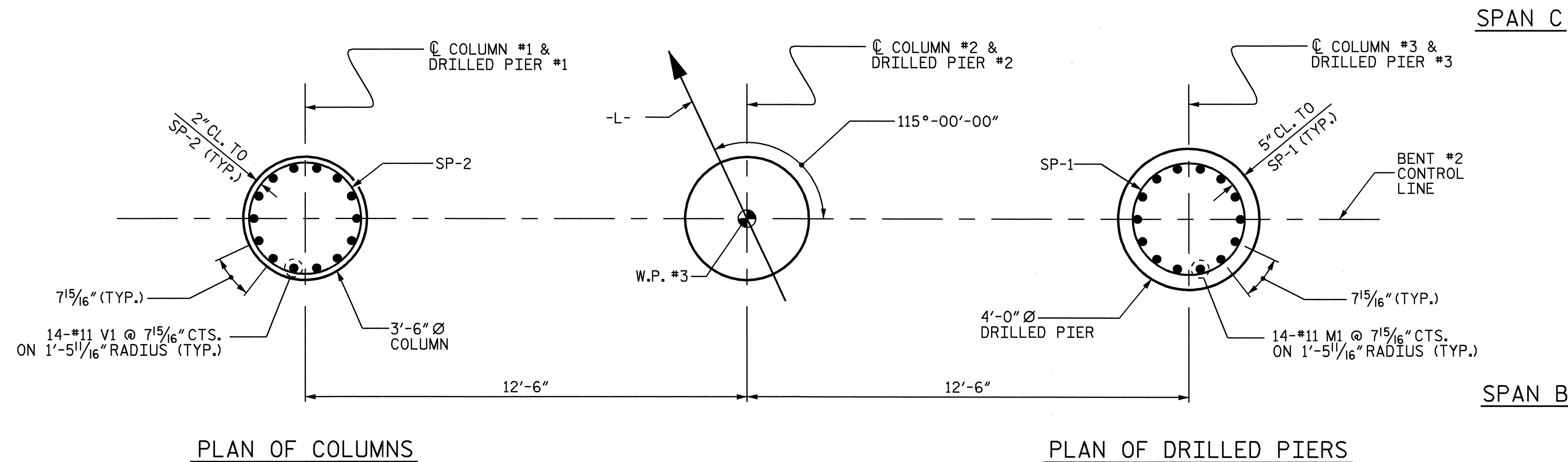
SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT #2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-26
					TOTAL SHEETS 35



DRAWN BY: S. DOMBROWSKI DATE: 5/07
 CHECKED BY: V. PATEL DATE: 5/07

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



PLAN OF COLUMNS & DRILLED PIERS

BAR TYPES

BILL OF MATERIAL BENT #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	9	1	37'-0"	755
B2	6	9	STR	34'-8"	707
B3	4	5	STR	34'-8"	145
B4	6	4	STR	14'-6"	58
M1	42	11	STR	36'-3"	8089
S1	56	5	2	10'-10"	633
U1	36	4	3	6'-10"	164
U2	4	4	3	5'-11"	16
U3	6	4	3	6'-9"	27
U4	4	4	3	6'-5"	17
V1	42	11	4	25'-1"	5597

TOTAL REINFORCING STEEL LBS. 16208

SP-1	3	**	5	616'-0"	1927
SP-2	3	***	6	867'-11"	1739

TOTAL SPIRAL REINFORCING STEEL LBS. 3666

CLASS A CONCRETE BREAKDOWN

POUR #2 (COLUMNS)	22.9 C.Y.
POUR #3 (BENT CAP)	19.9 C.Y.
TOTAL	42.8 C.Y.

DRILLED PIER QUANTITIES

DRILLED PIER CONCRETE (C. Y.)
POUR #1 (DRILLED PIERS) = 36.5 C.Y.

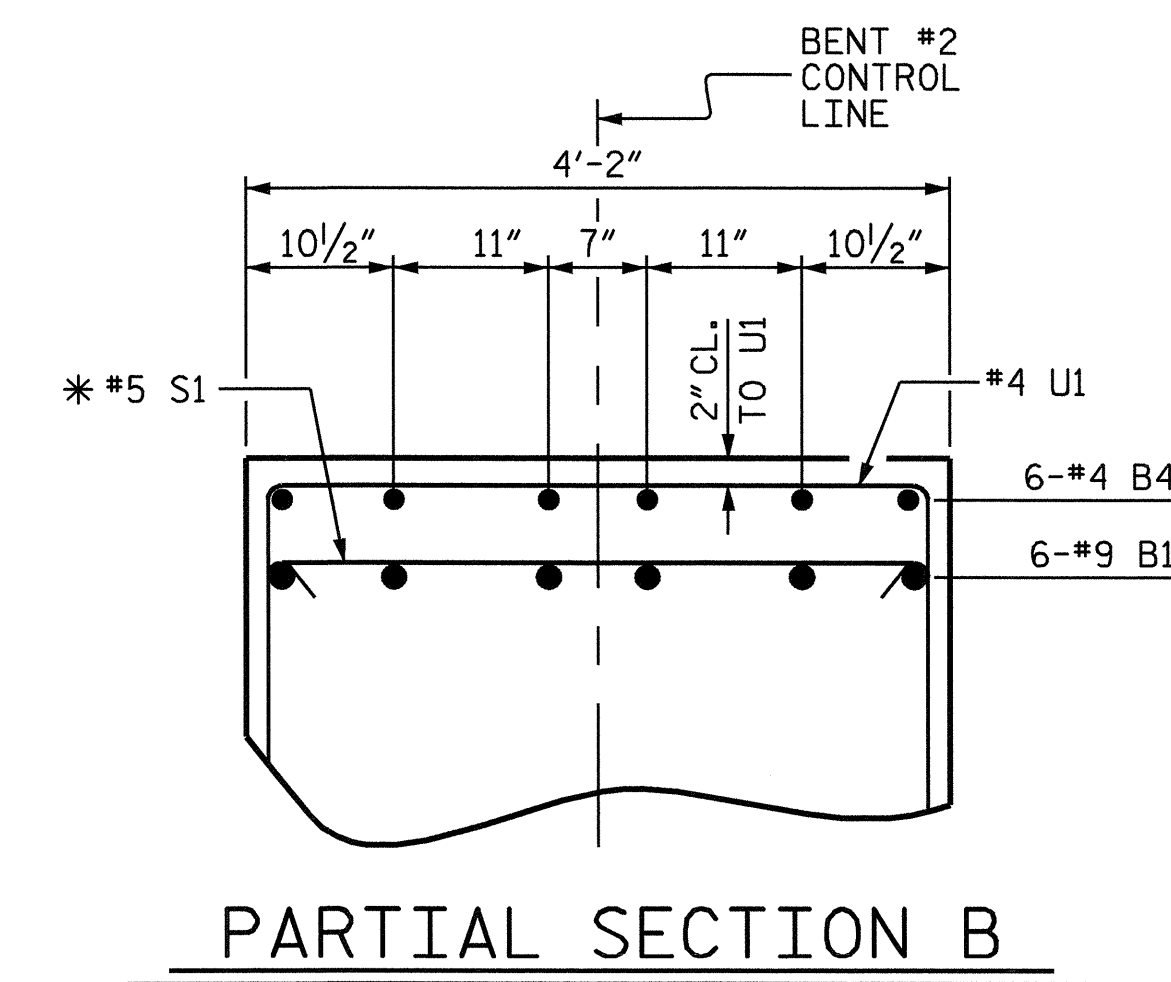
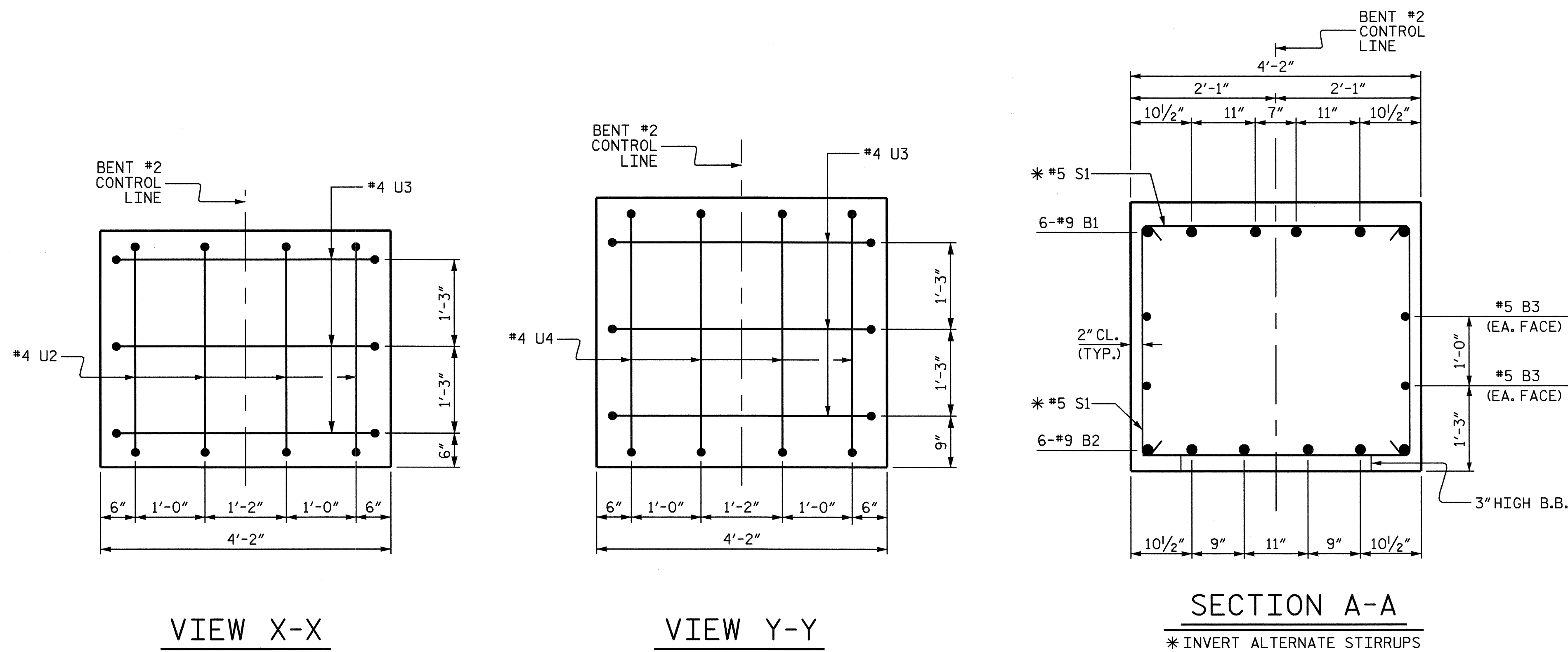
4'-0" DIA. DRILLED PIERS IN SOIL = 42.34 LIN. FT.

4'-0" DIA. DRILLED PIERS NOT IN SOIL = 36.00 LIN. FT.

PERMANENT STEEL CASING FOR 4'-0" DIA. DRILLED PIERS = 27.4 LIN. FT.

SID INSPECTION: 1 EACH
CROSSHOLE SONIC LOGGING: 1 EACH
CSL TUBES: 344.0 LIN. FT.

ALL BAR DIMENSIONS ARE OUT TO OUT.



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

PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
STATION: 21+00.00 -L-

SHEET 2 OF 2

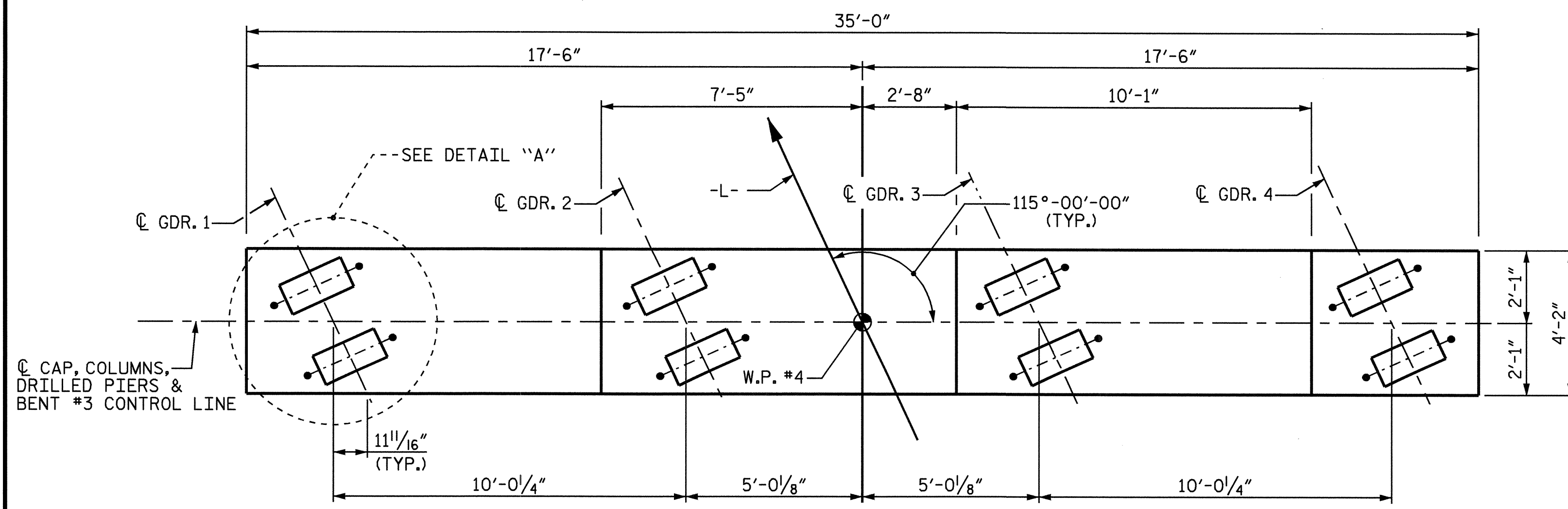
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT #2

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27	
1			3			TOTAL SHEETS	35
2			4				

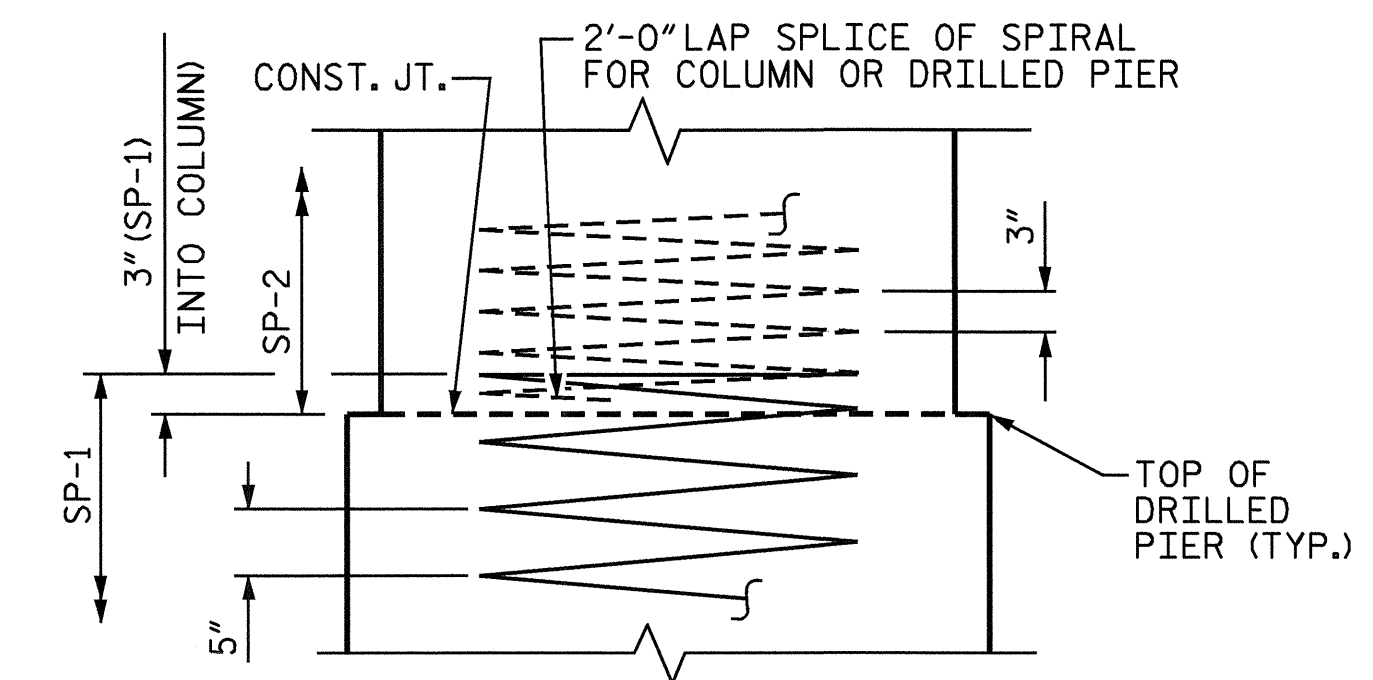
DRAWN BY : S. DOMBROWSKI DATE : 5/07
CHECKED BY : V. PATEL DATE : 5/07





SPAN D

SPAN C

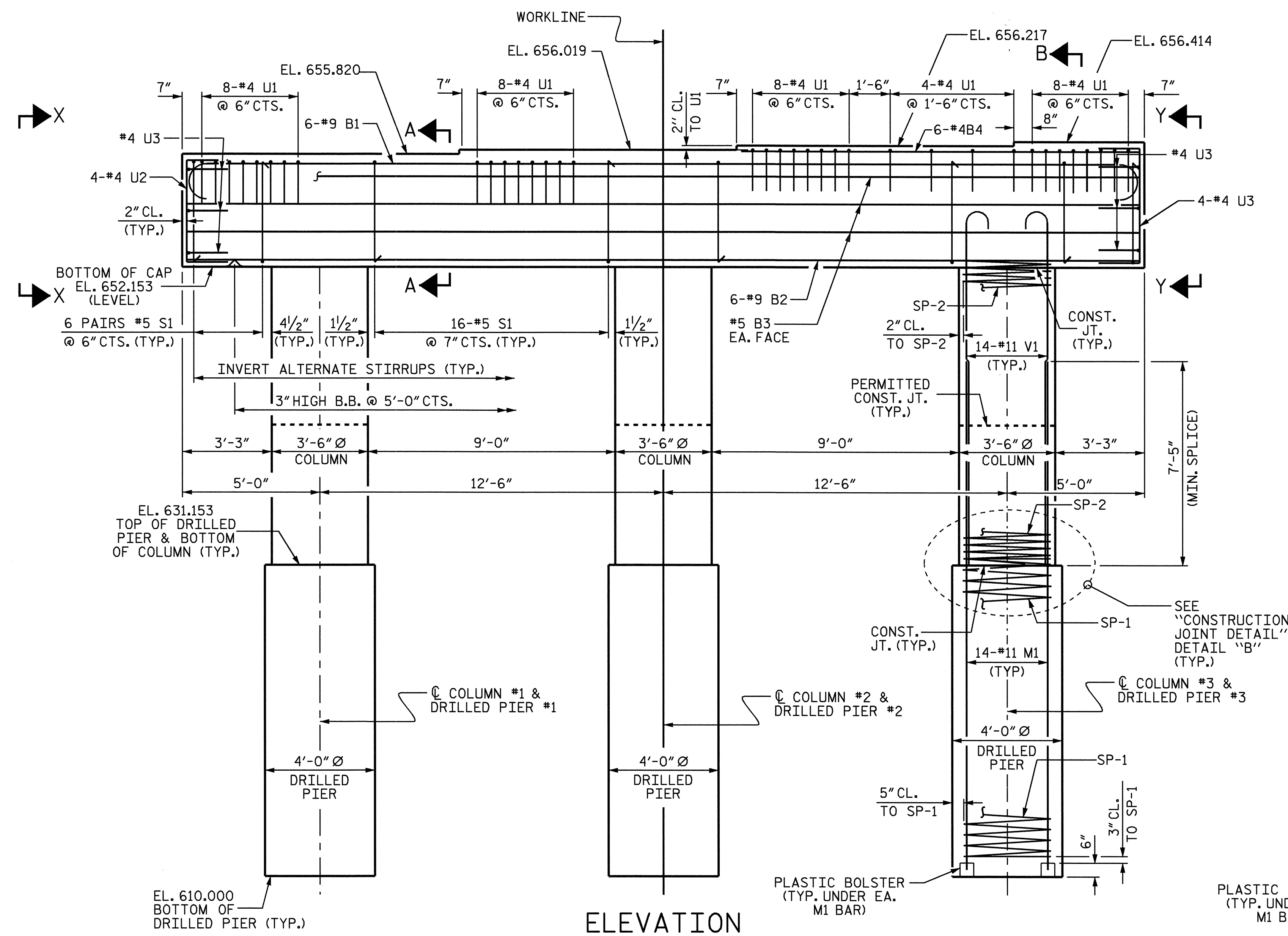


CONSTRUCTION JOINT DETAIL

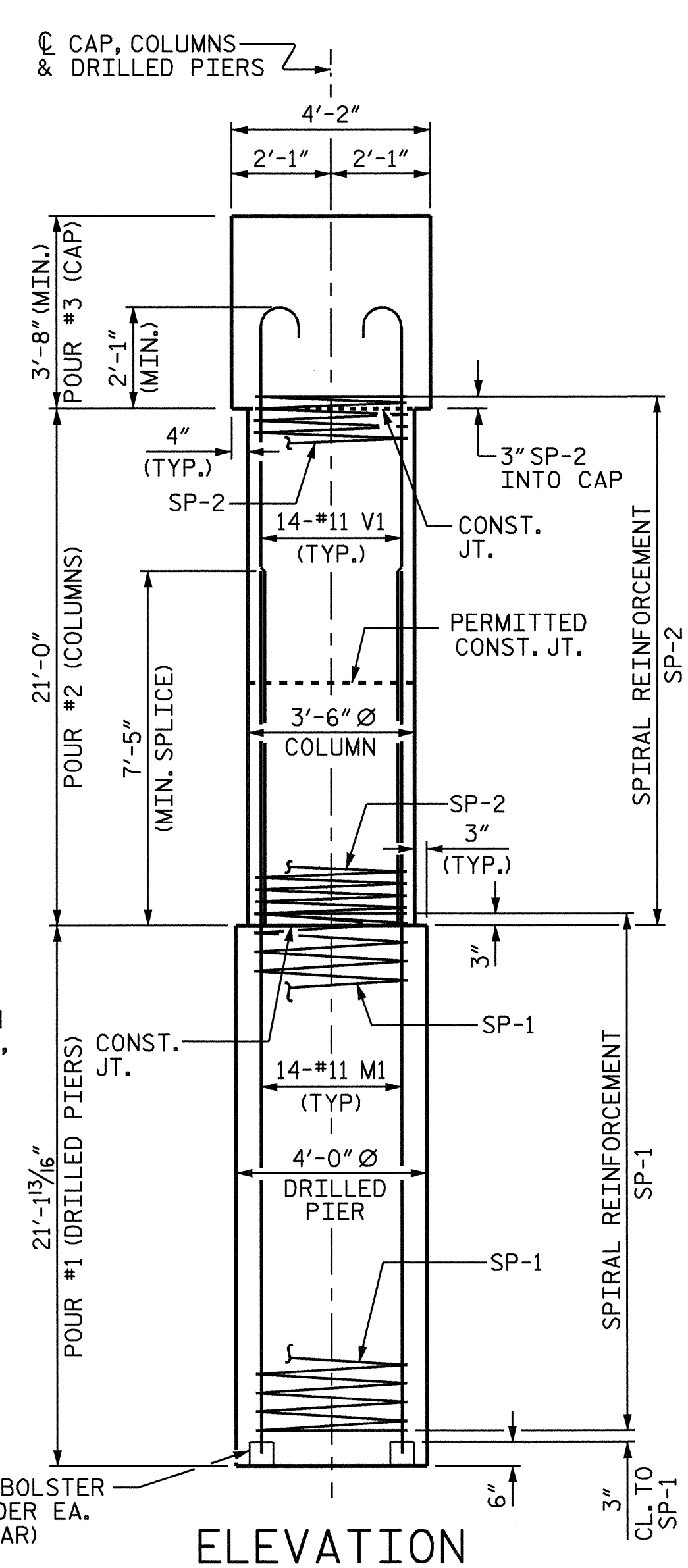
DETAIL "B"

NOTES

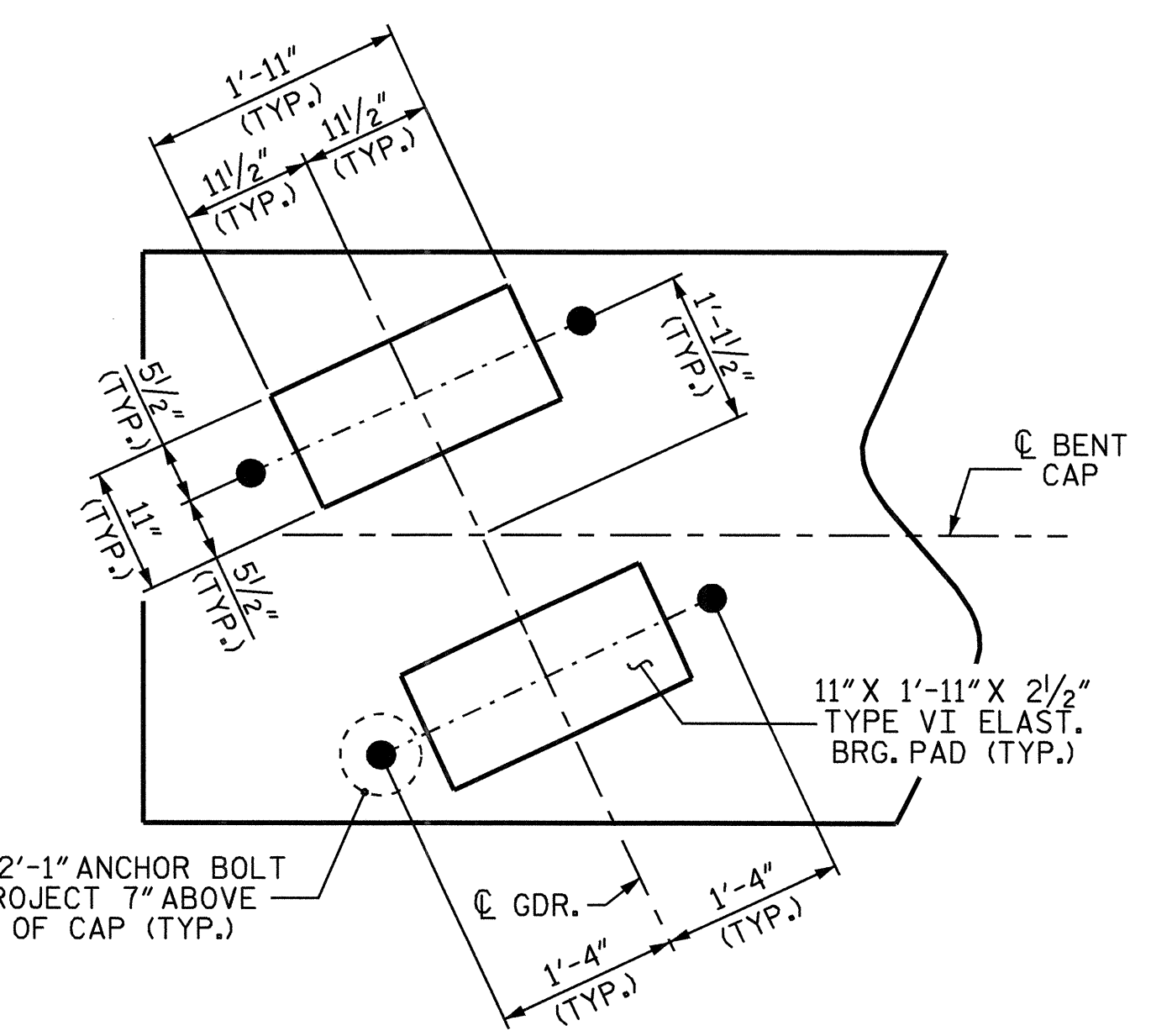
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".
 THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3' OF EXTRA LENGTH.
 SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.
 FOR DRILLED PIERS, SEE DRILLED PIER SPECIAL PROVISION.
 PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS, SEE DRILLED PIER SPECIAL PROVISION.



ELEVATION



ELEVATION

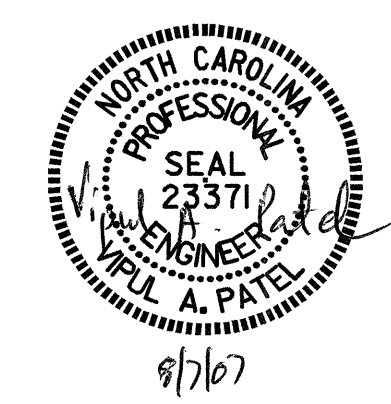


DETAIL "A"

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

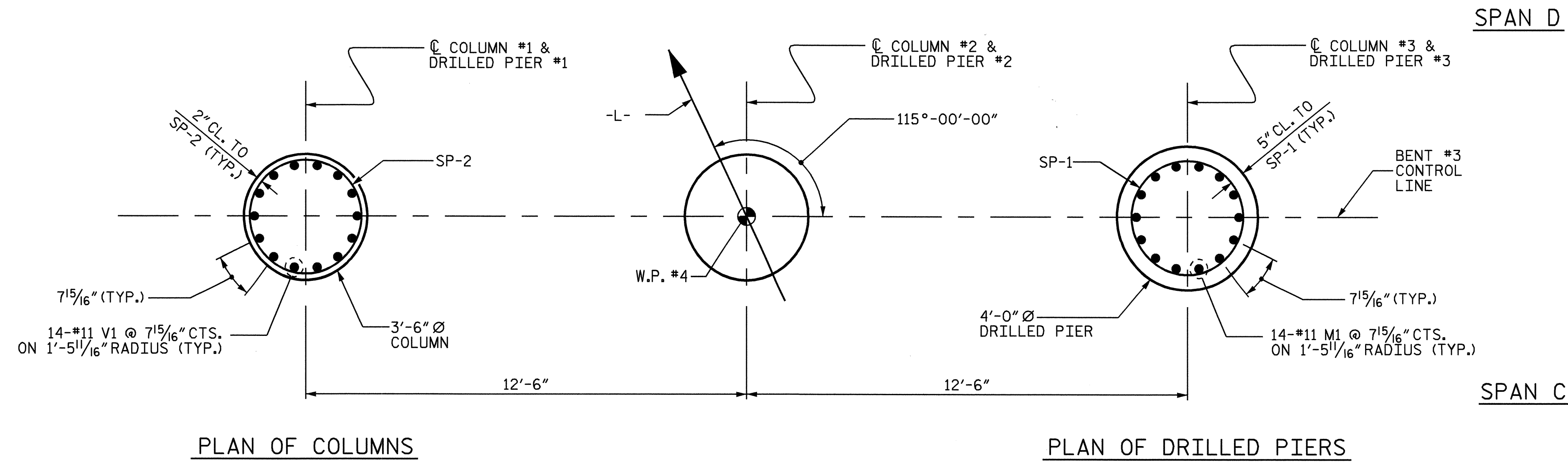
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 CHECKED BY: V. PATEL DATE: 5/07

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PROJECT NO. B-4256
 ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-
 SHEET 1 OF 2

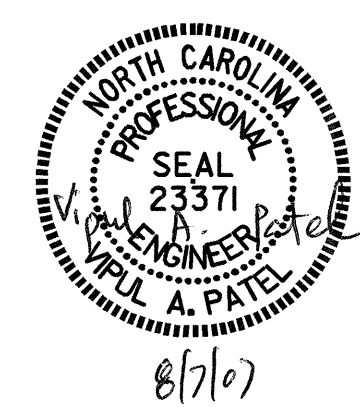
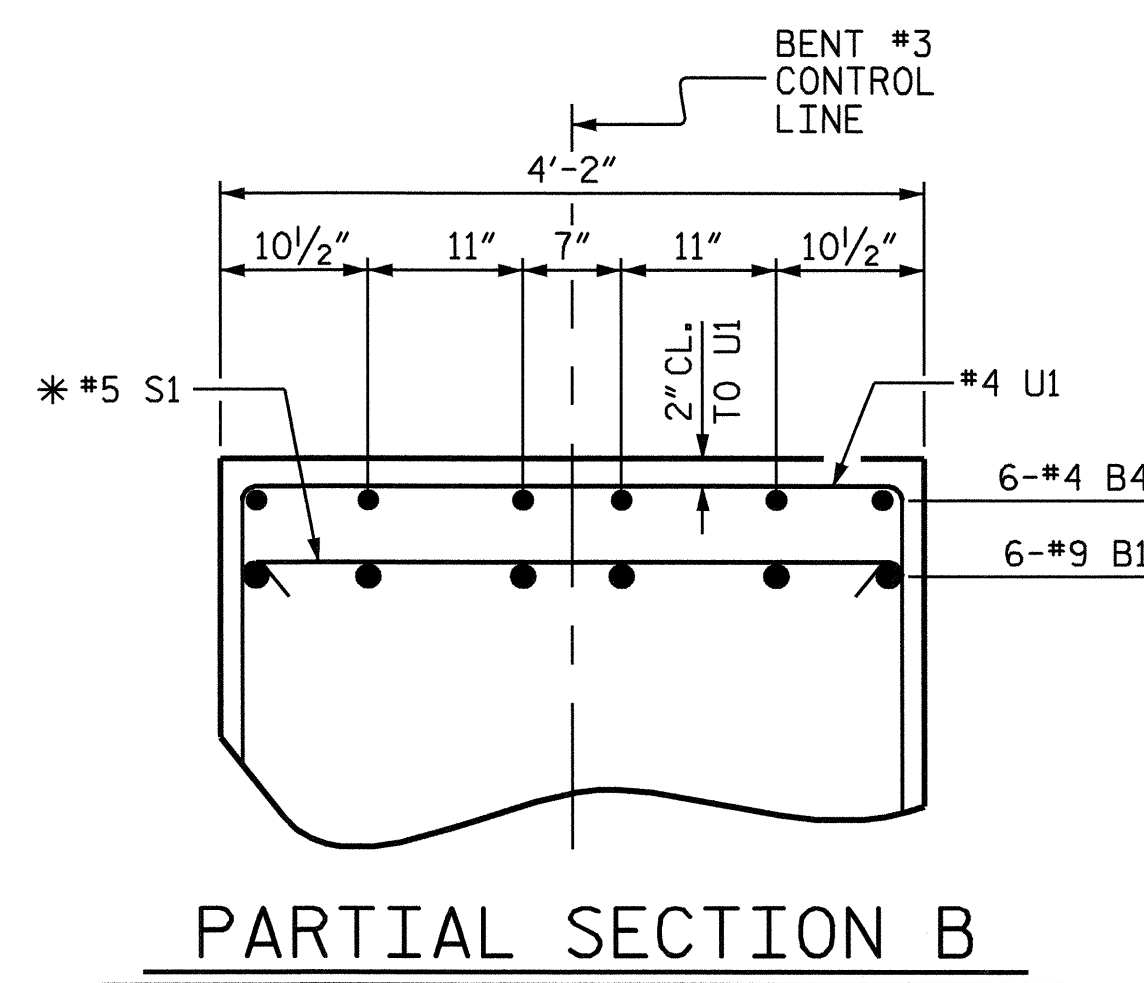
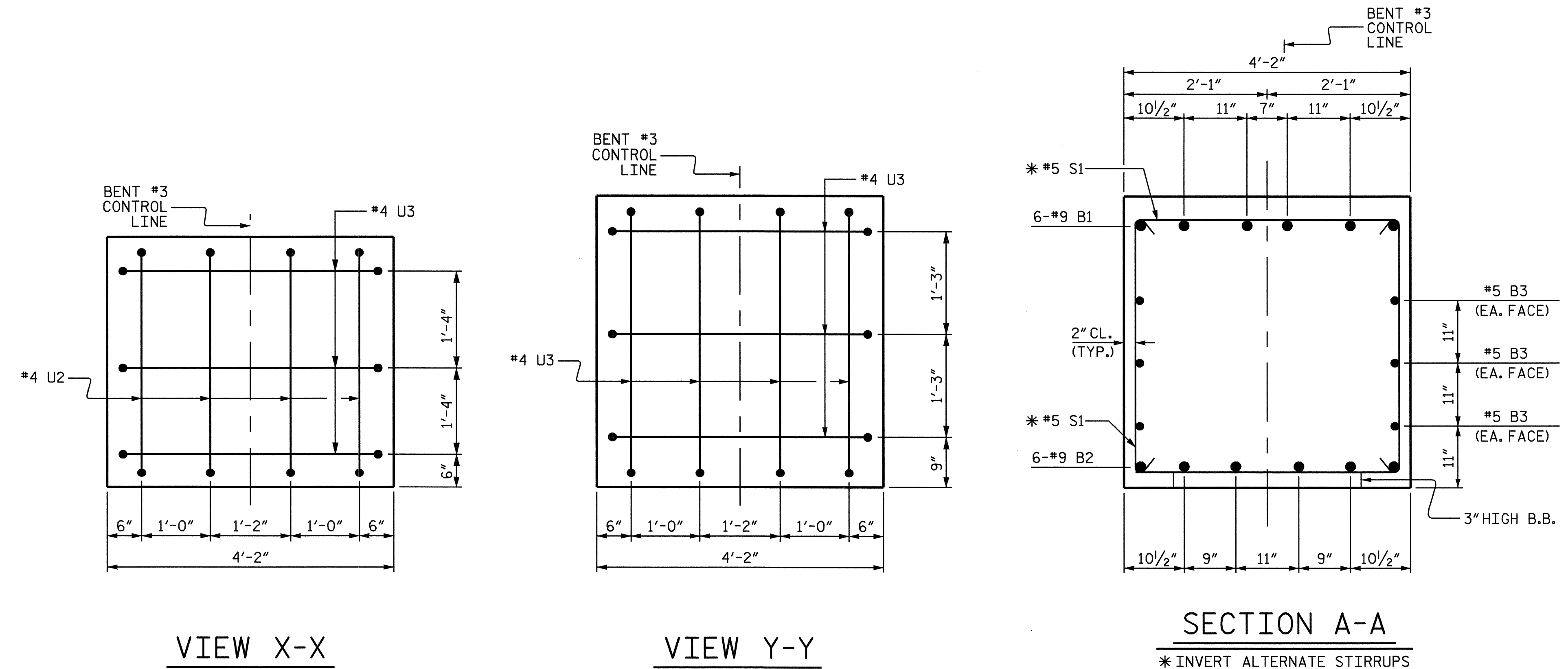
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28	
1			3			TOTAL SHEETS	
2			4			35	



PLAN OF COLUMNS & DRILLED PIERS

BILL OF MATERIAL BENT #3					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	9	1	37'-0"	755
B2	6	9	STR	34'-8"	707
B3	6	5	STR	34'-8"	217
B4	6	4	STR	14'-6"	58
M1	42	11	STR	31'-3"	6973
S1	56	5	2	11'-4"	662
U1	36	4	3	6'-10"	164
U2	4	4	3	6'-11"	18
U3	10	4	3	6'-9"	45
V1	42	11	4	24'-9"	5523
TOTAL REINFORCING STEEL LBS.					15122
SP-1	3	**	5	500'-6"	1566
SP-2	3	**	6	851'-6"	1706
TOTAL SPIRAL REINFORCING STEEL LBS.					3272
CLASS A CONCRETE BREAKDOWN					
				POUR #2 (COLUMNS)	22.5 C.Y.
				POUR #3 (BENT CAP)	21.4 C.Y.
TOTAL					43.9 C.Y.
DRILLED PIER QUANTITIES					
DRILLED PIER CONCRETE (C. Y.)					
POUR #1 (DRILLED PIERS) =					29.5 C.Y.
4'-0" DIA. DRILLED PIERS IN SOIL =					36.45 LIN. FT.
4'-0" DIA. DRILLED PIERS NOT IN SOIL =					27.00 LIN. FT.
PERMANENT STEEL CASING FOR 4'-0" DIA. DRILLED PIERS =					39.3 LIN. FT.
SID INSPECTION:					1 EACH
CROSSHOLE SONIC LOGGING:					1 EACH
CSL TUBES:					283.0 LIN. FT.

ALL BAR DIMENSIONS ARE OUT TO OUT.

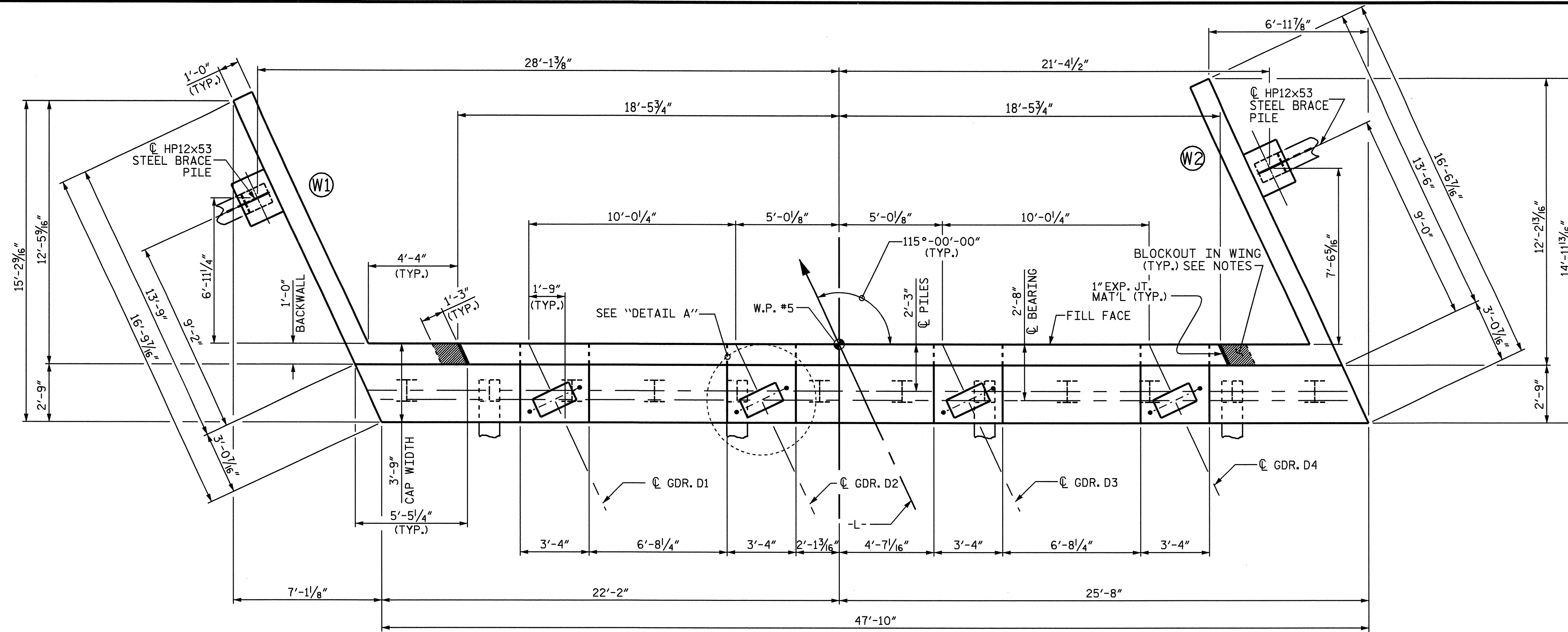


PROJECT NO. B-4256
 ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

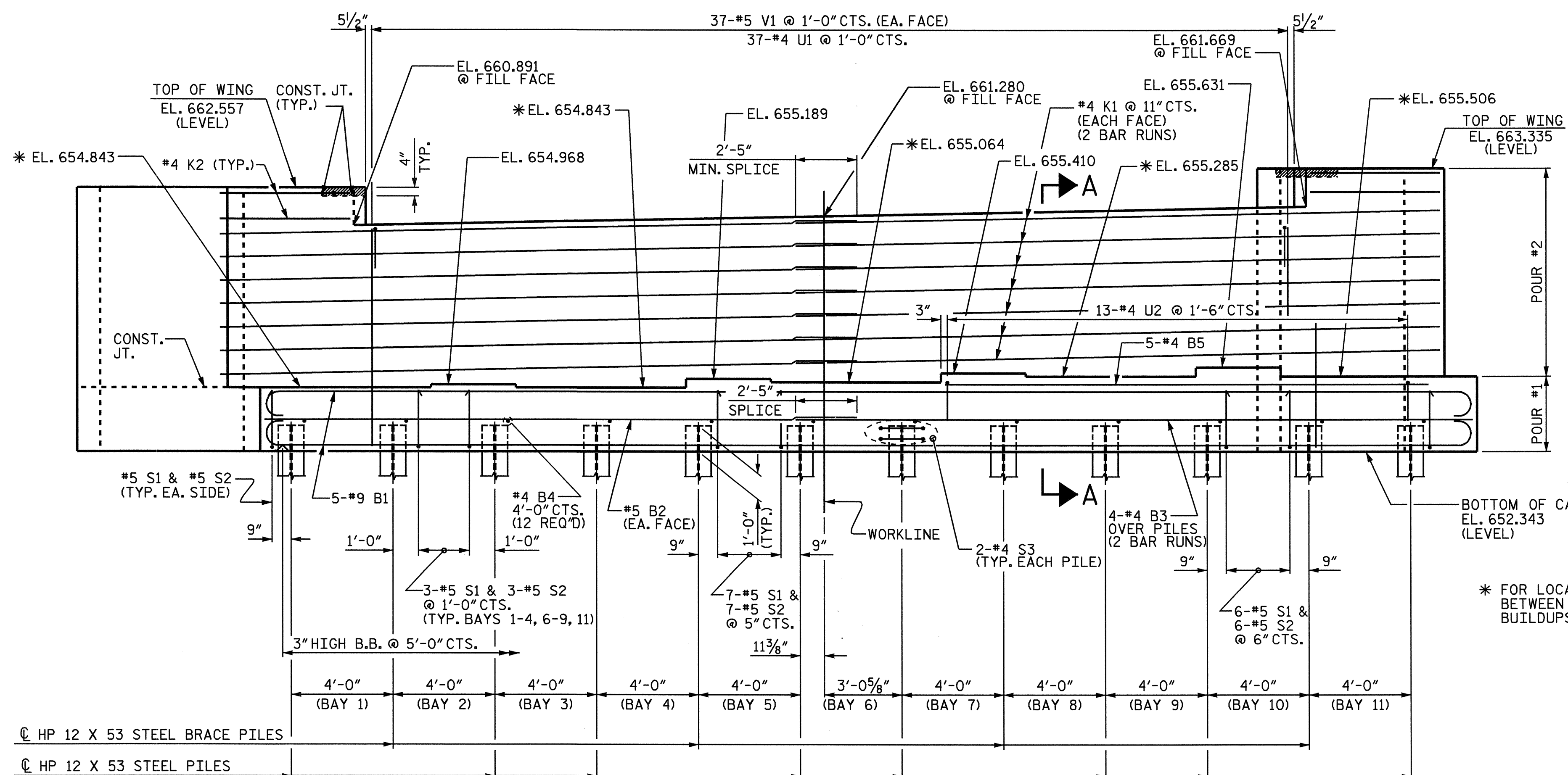
SHEET 2 OF 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			35

DRAWN BY : S. DOMBROWSKI DATE : 5/07
 CHECKED BY : V. PATEL DATE : 5/07



PLAN



ELEVATION

(WING BRACE PILES NOT SHOWN FOR CLARITY)

NOTES

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

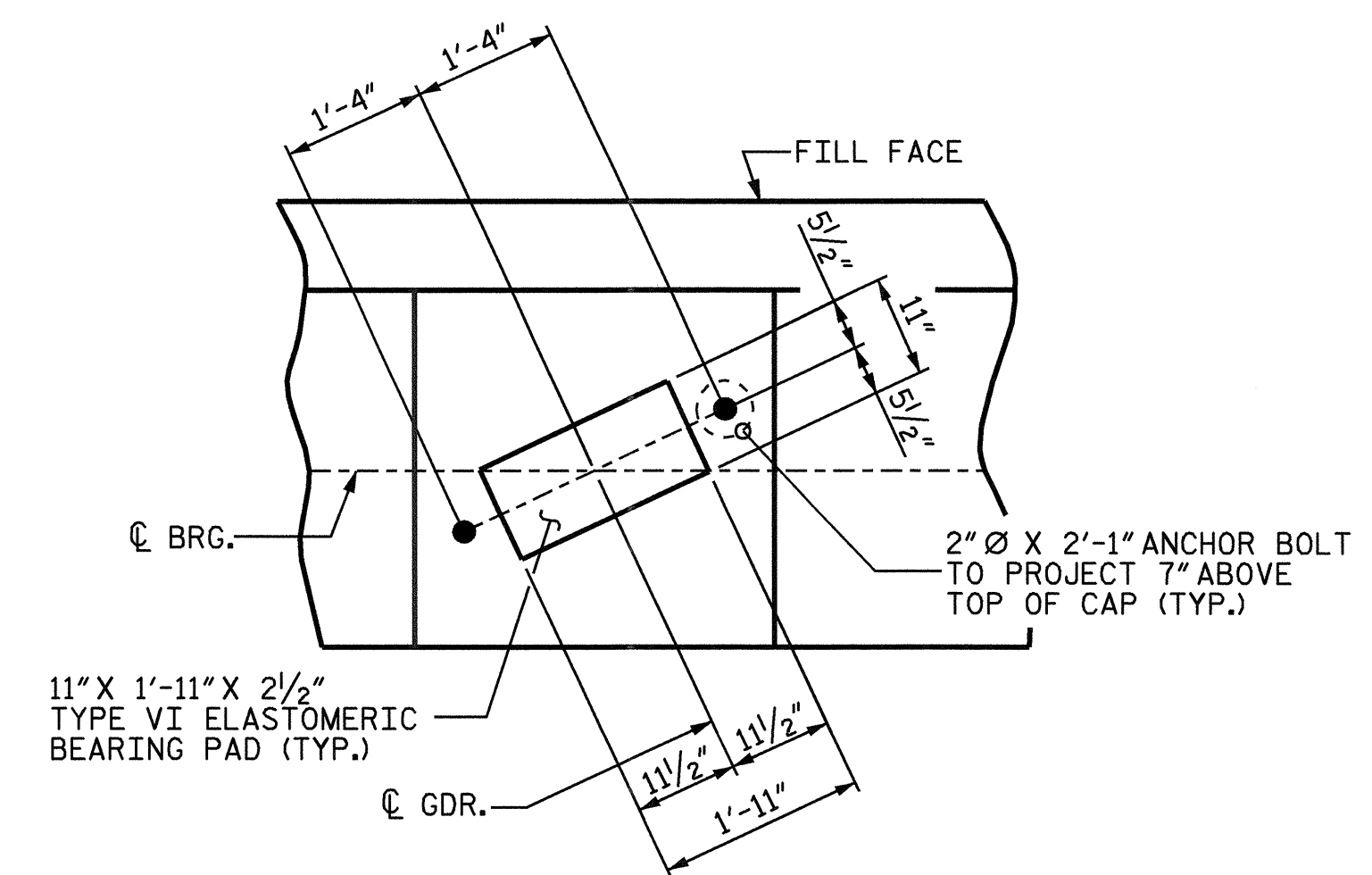
BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT 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 CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILL, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

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 AFTER THE CASTING OF THE BARRIER RAIL.



DETAIL A

PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

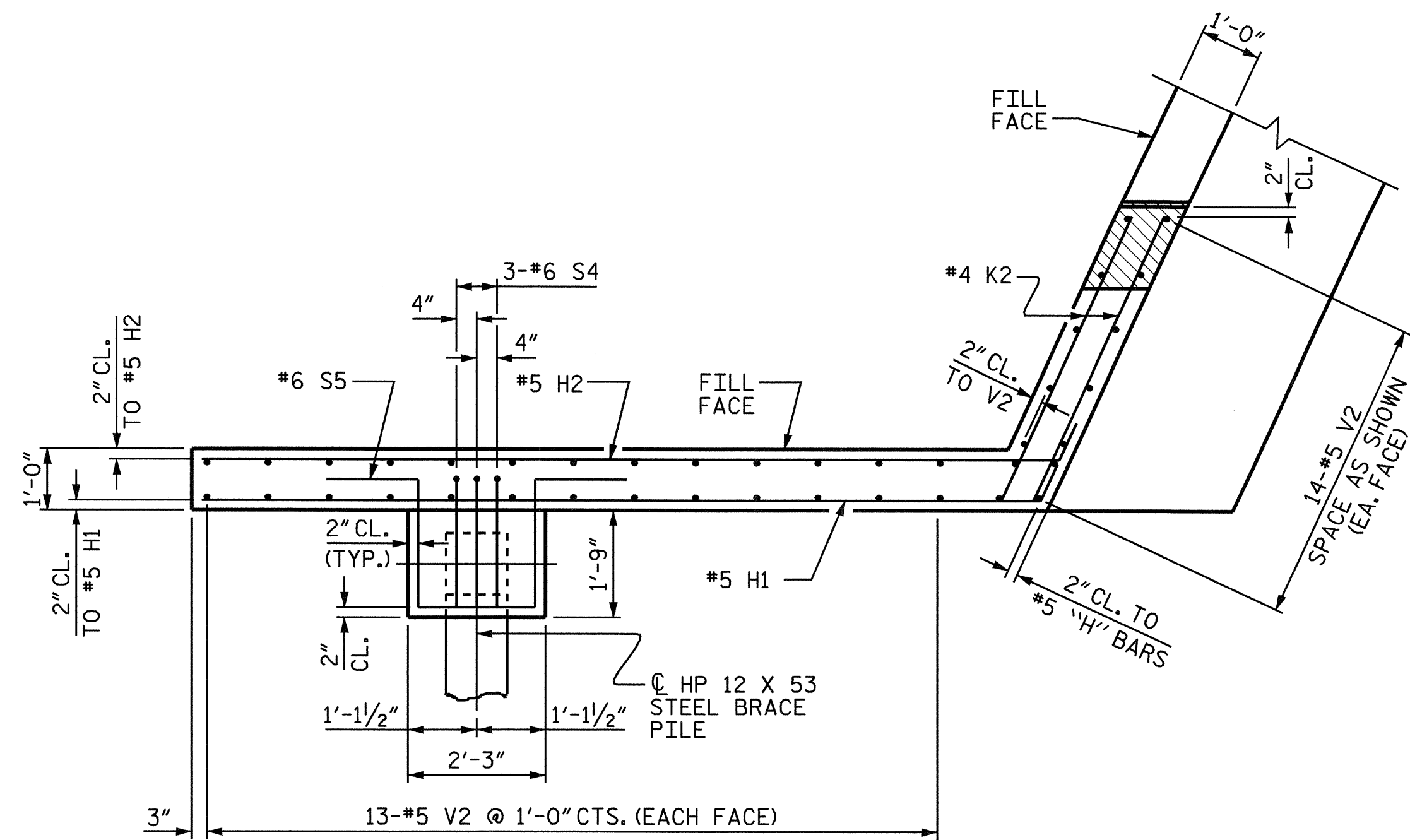
SHEET 1 OF 3

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

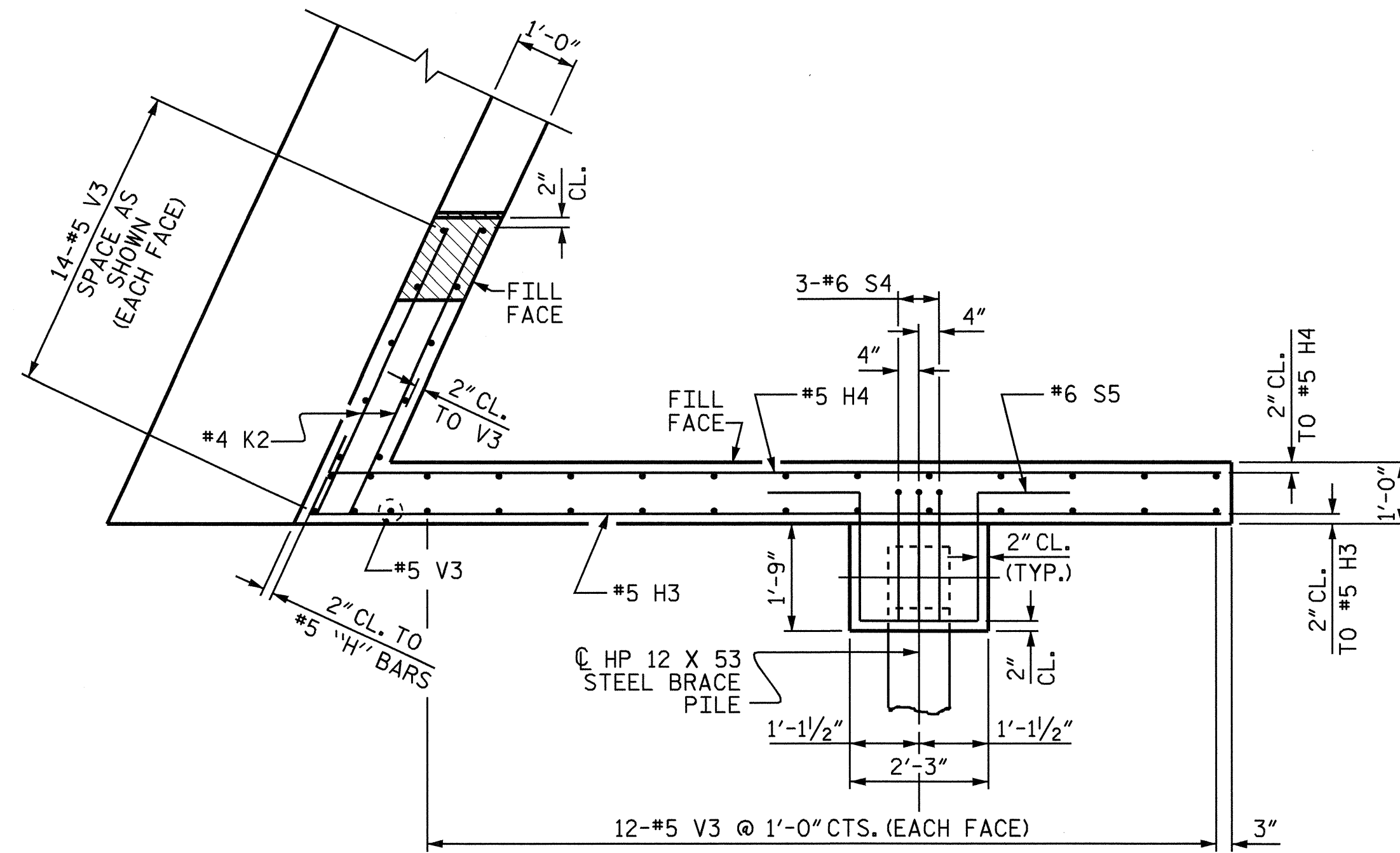
SHEET NO. S-30
TOTAL SHEETS 35



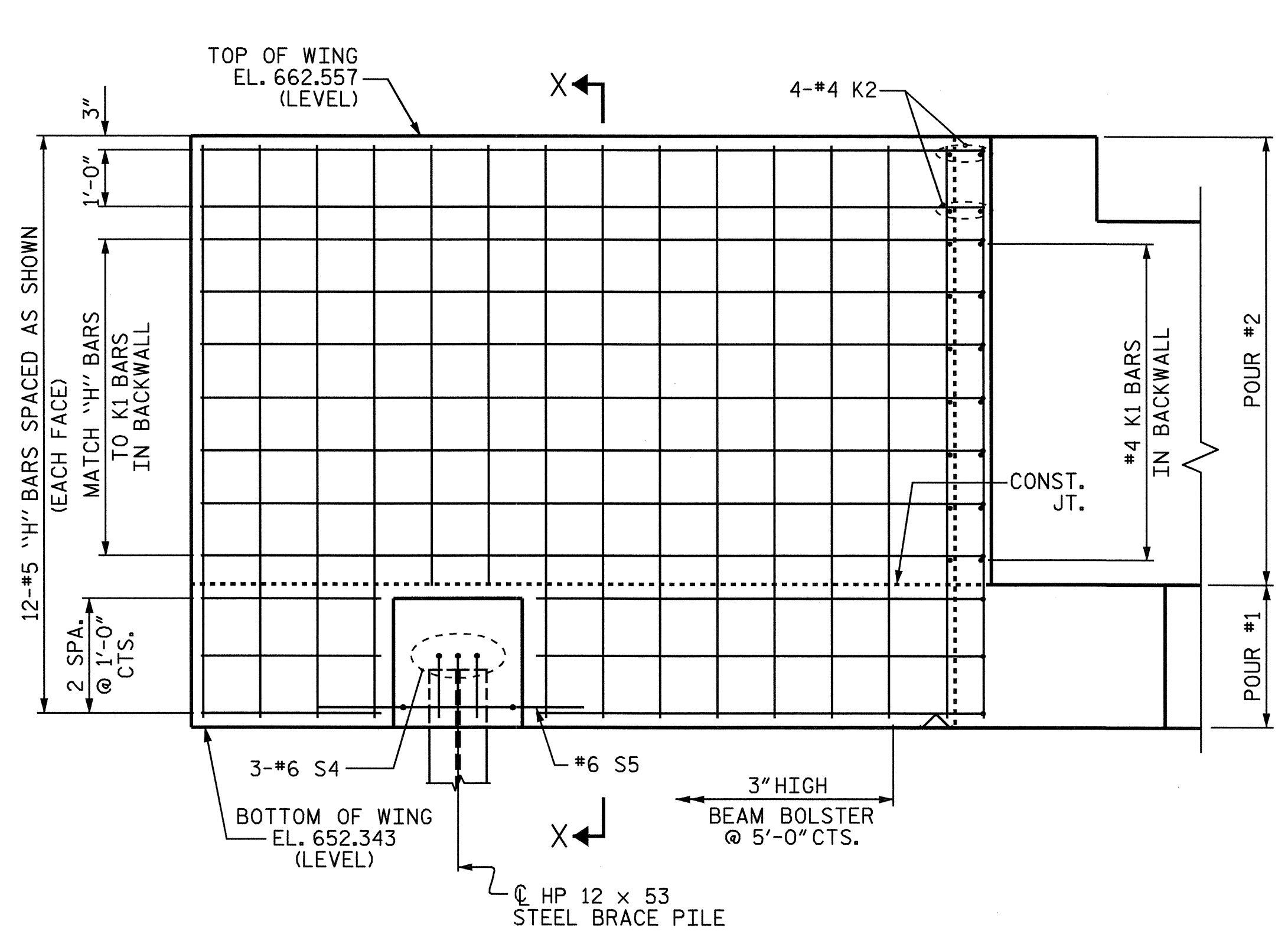
DRAWN BY: A. K. PATEL DATE: 11-08-04
 CHECKED BY: J. P. ADAMS DATE: 12-07-04



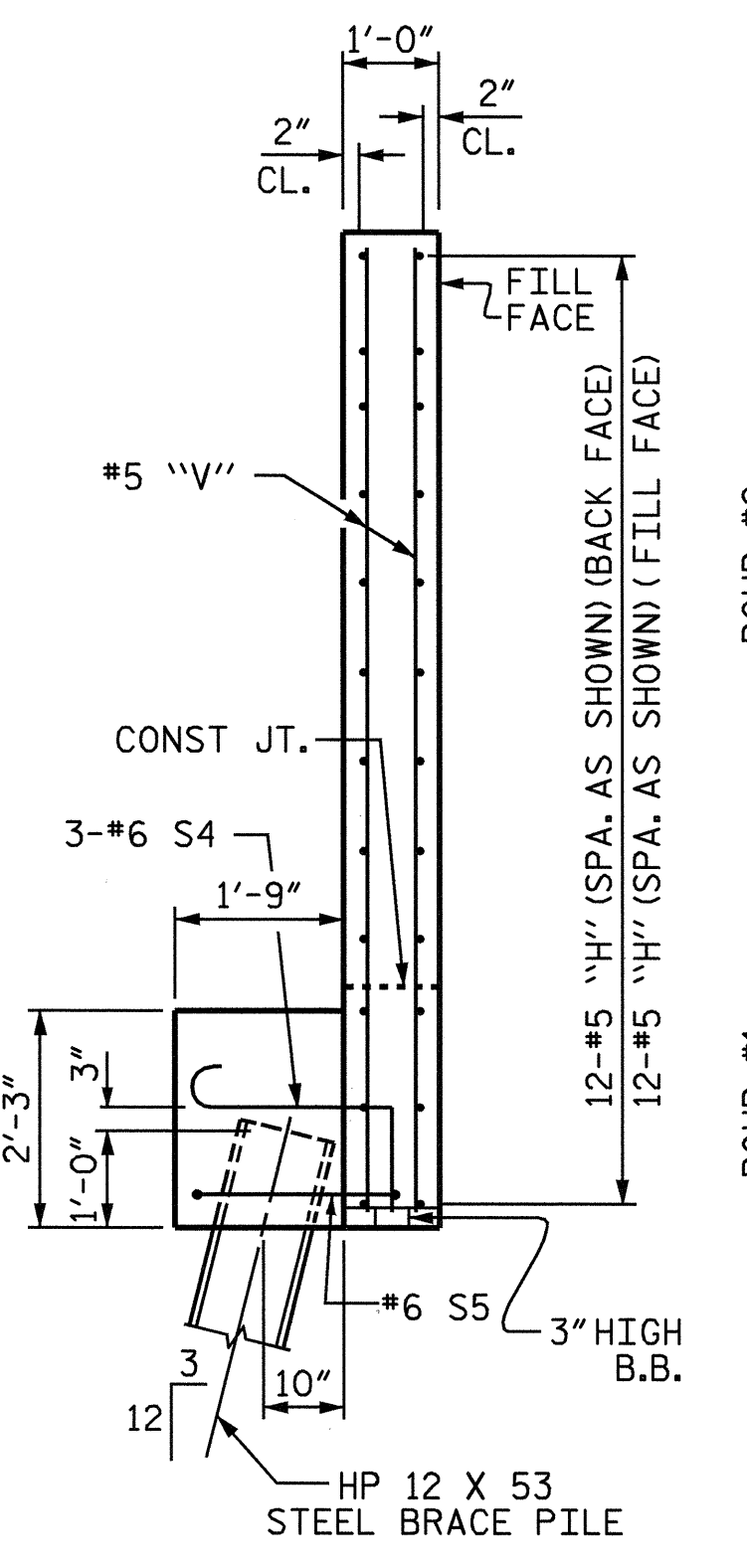
PLAN OF WING -W1



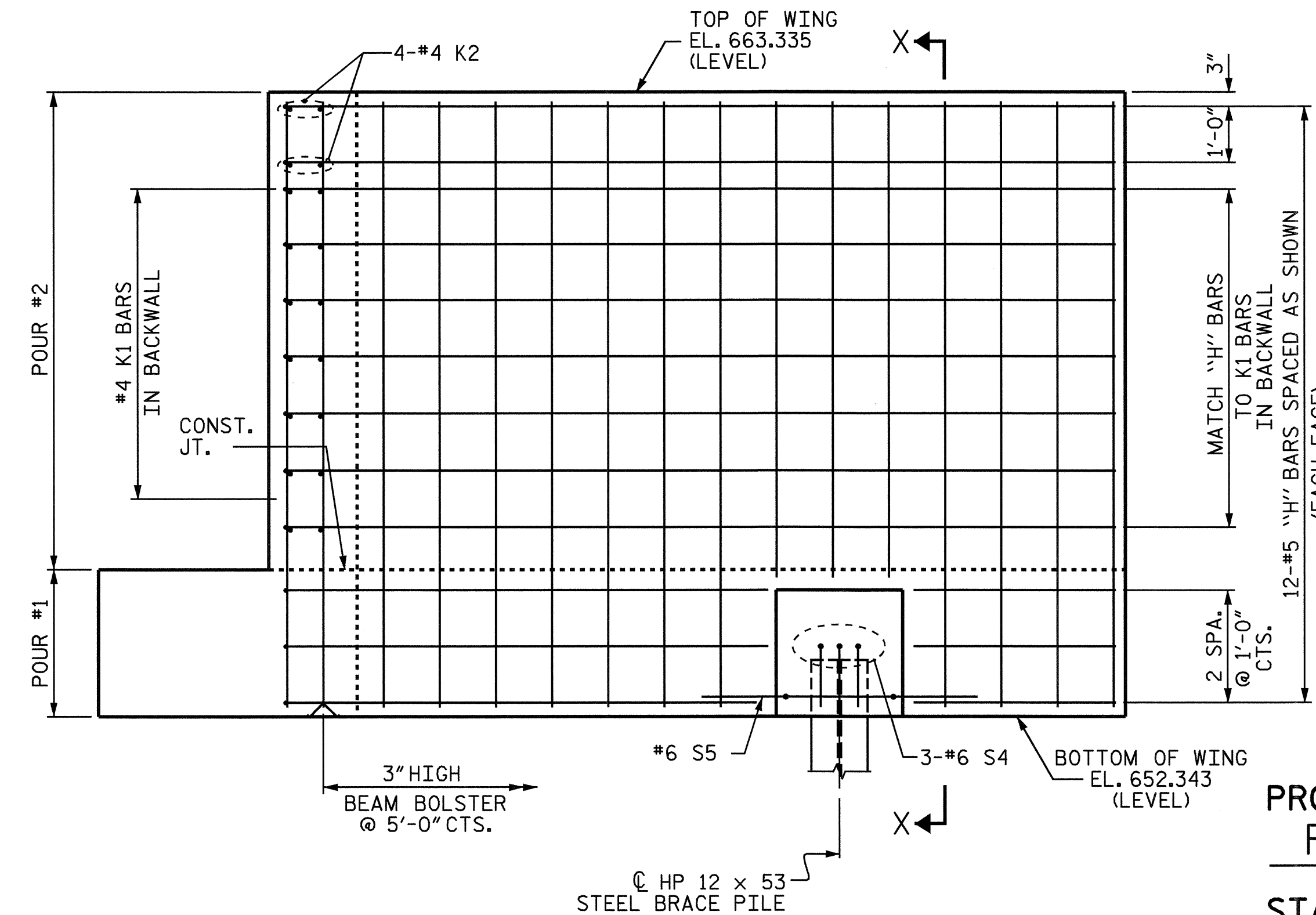
PLAN OF WING -W2



ELEVATION OF WING - W1



SECTION X-X



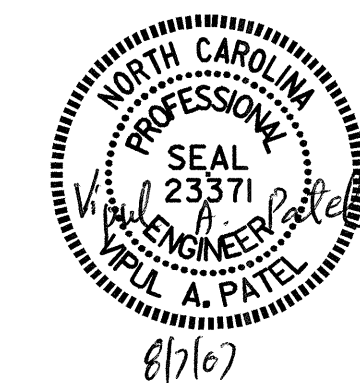
ELEVATION OF WING - W2

PROJECT NO. B-4256
 ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

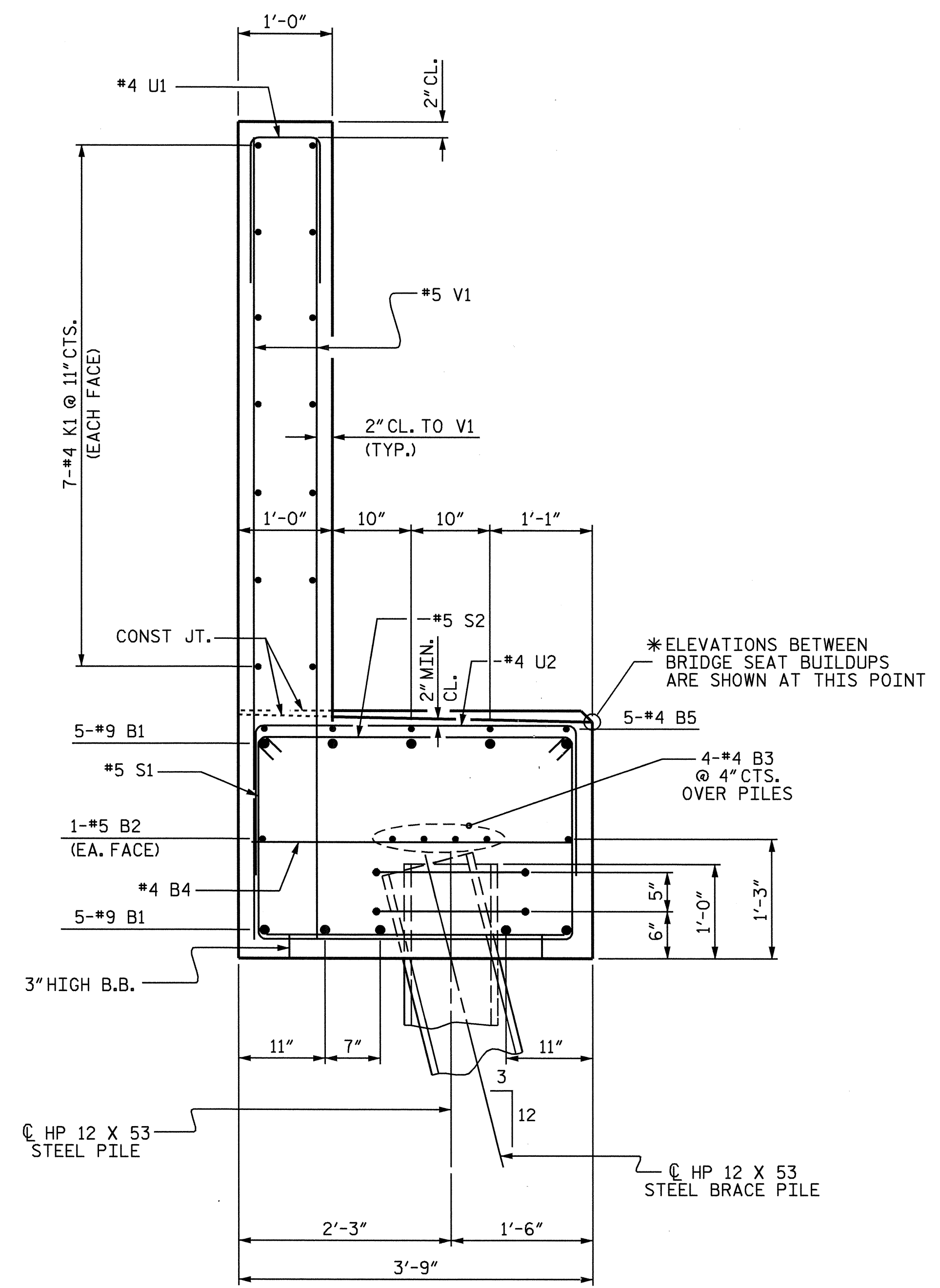
SUBSTRUCTURE
 END BENT #2



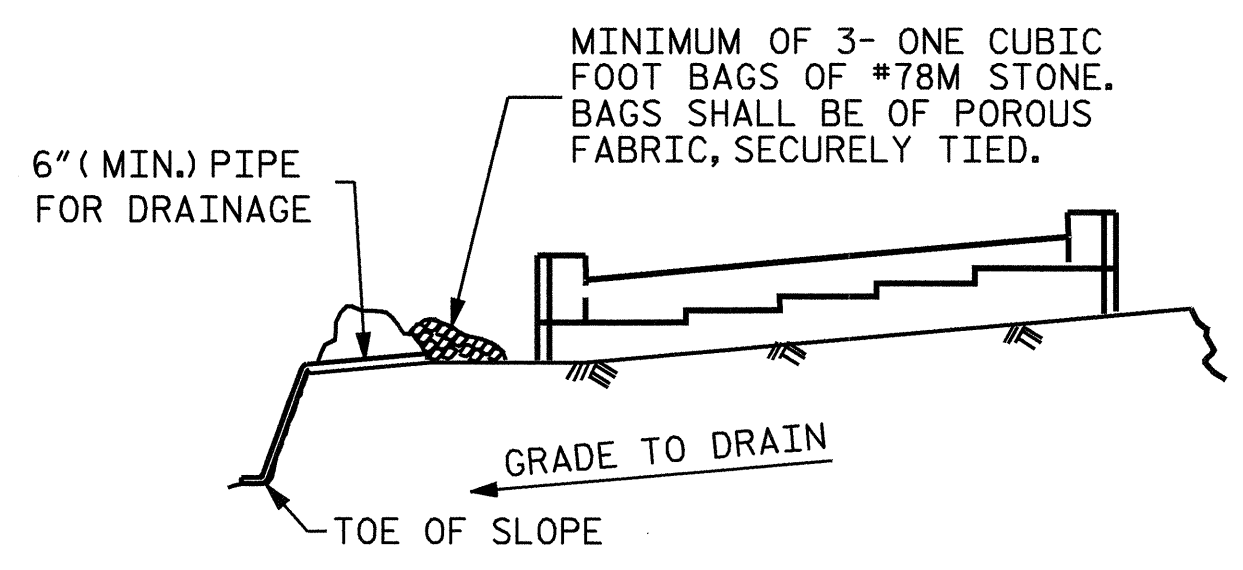
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

DRAWN BY: A.K. PATEL DATE: 11/08/04
 CHECKED BY: J.P. ADAMS DATE: 12-07-04

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 adombrowski



SECTION A-A



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

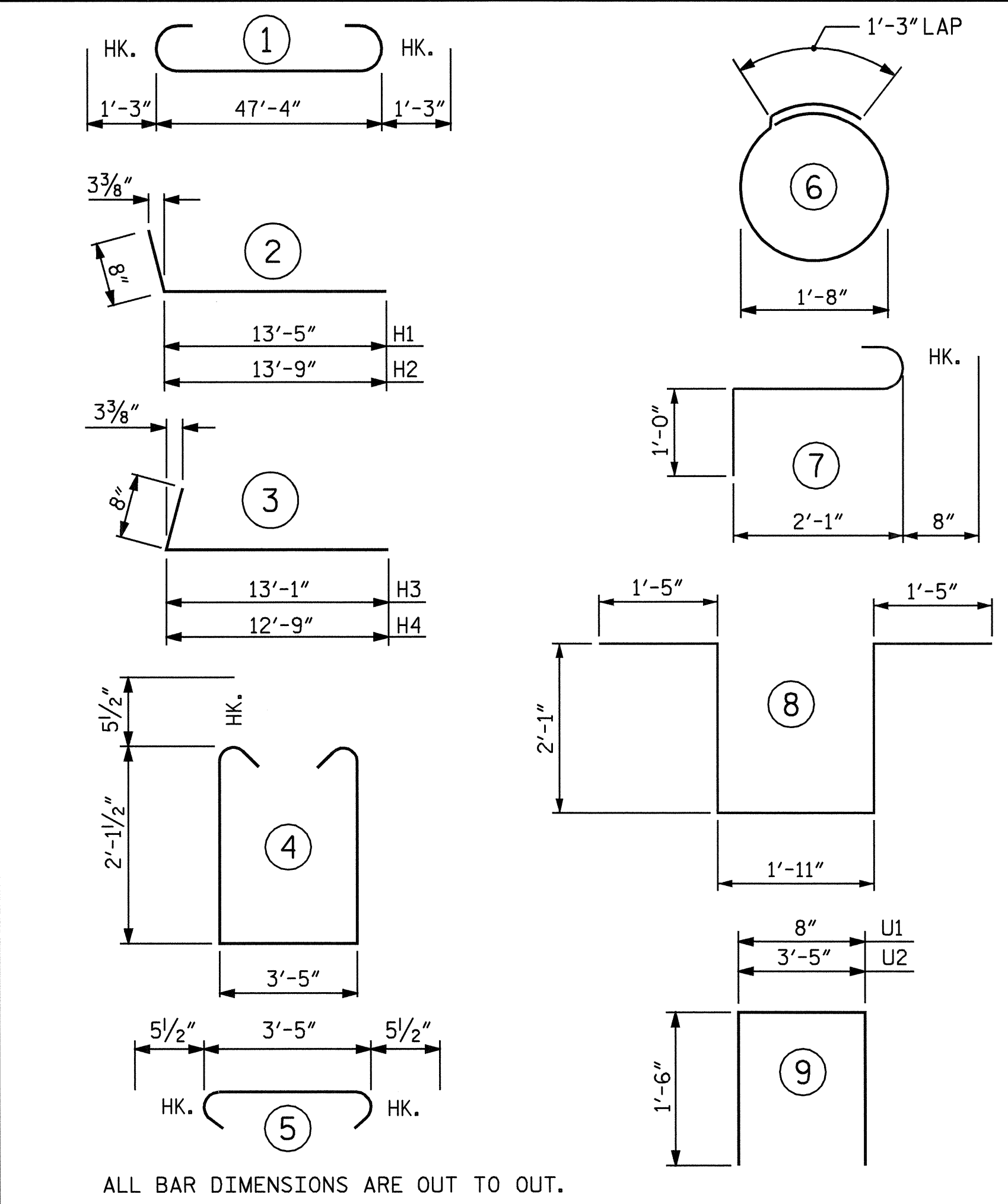
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT

DRAWN BY: A. K. PATEL DATE: 11/08/04
CHECKED BY: J. P. ADAMS DATE: 12-07-04

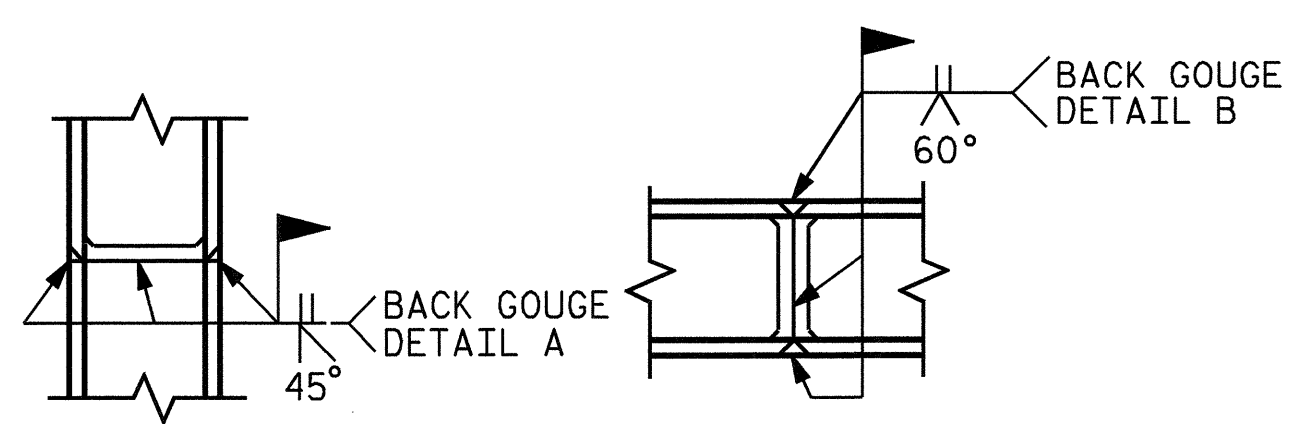
BAR TYPES



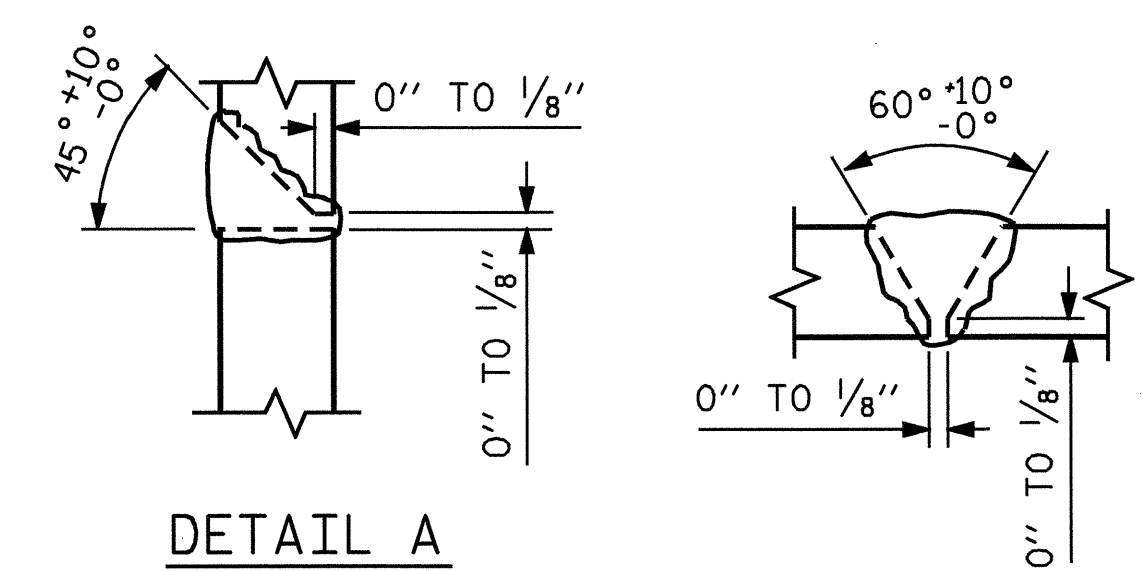
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	9	1	49'-10"	1694
B2	2	5	STR	47'-6"	99
B3	8	4	STR	25'-0"	134
B4	12	4	STR	3'-5"	27
B5	5	4	STR	19'-0"	63
H1	12	5	2	14'-1"	176
H2	12	5	2	14'-5"	180
H3	12	5	3	13'-9"	172
H4	12	5	3	13'-5"	168
K1	28	4	STR	25'-0"	468
K2	8	4	STR	5'-0"	27
S1	42	5	4	8'-7"	376
S2	42	5	5	4'-4"	190
S3	24	4	6	6'-6"	104
S4	6	6	7	3'-9"	34
S5	2	6	8	8'-11"	27
U1	37	4	9	3'-8"	91
U2	13	4	9	6'-5"	56
V1	74	5	STR	8'-2"	630
V2	40	5	STR	9'-10"	410
V3	39	5	STR	10'-8"	434
TOTAL REINFORCING STEEL LBS.					5560
CLASS A CONCRETE (CU. YDS.)					
POUR #1 CAP & LOWER PART OF WINGS					22.1
POUR #2 BACKWALL & UPPER PART OF WINGS					18.8
TOTAL (CU. YDS.)					40.9
HP 12 x 53 STEEL PILES					490.0
No. 14 LIN.FT.					490.0



** PILE VERTICAL ** PILE HORIZONTAL OR VERTICAL



** POSITION OF PILE DURING WELDING. DETAIL B

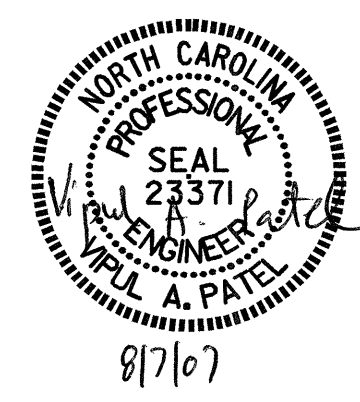
PILE SPLICE DETAILS

PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
STATION: 21+00.00 -L-

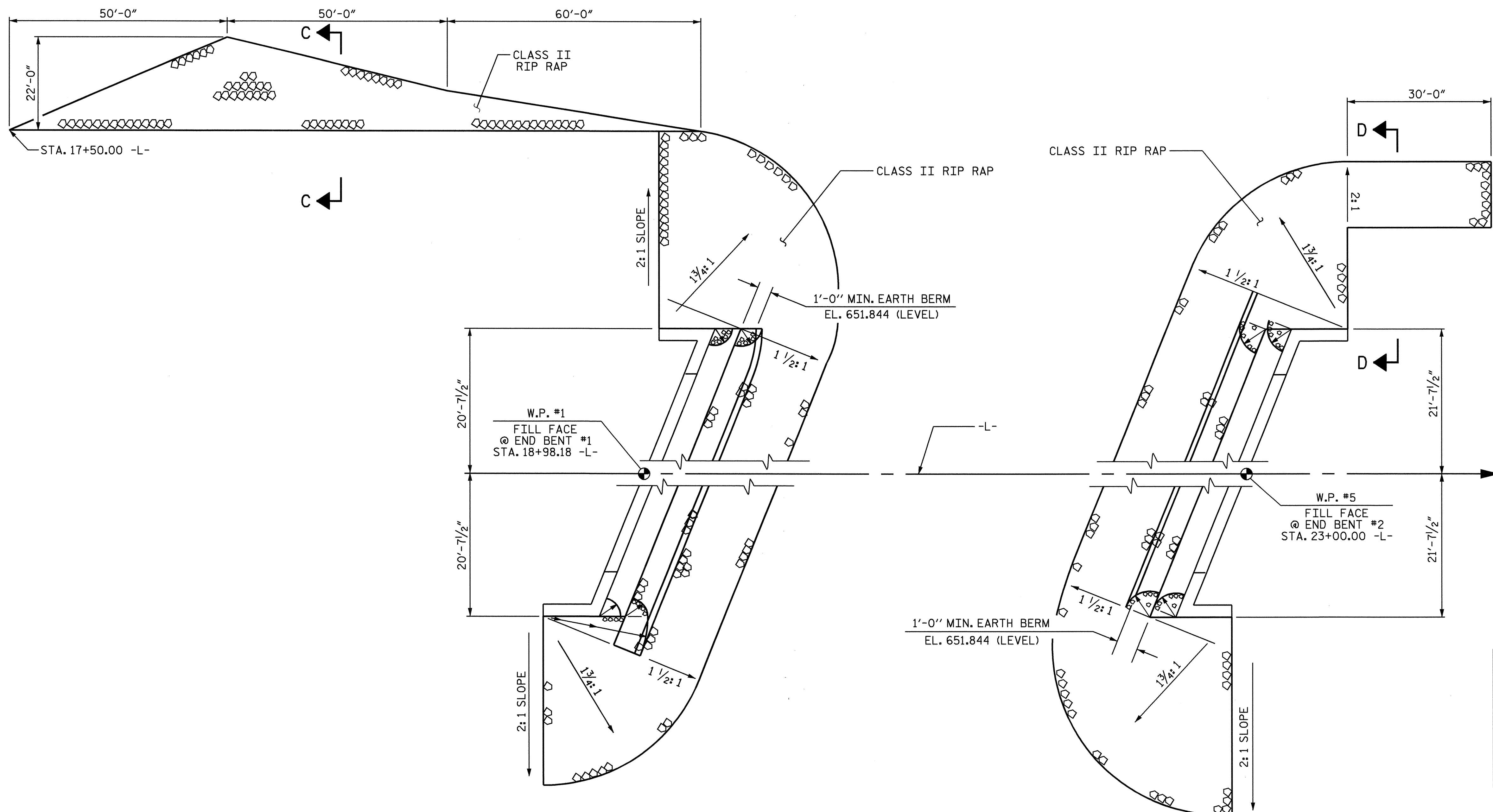
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUBSTRUCTURE
END BENT #2**

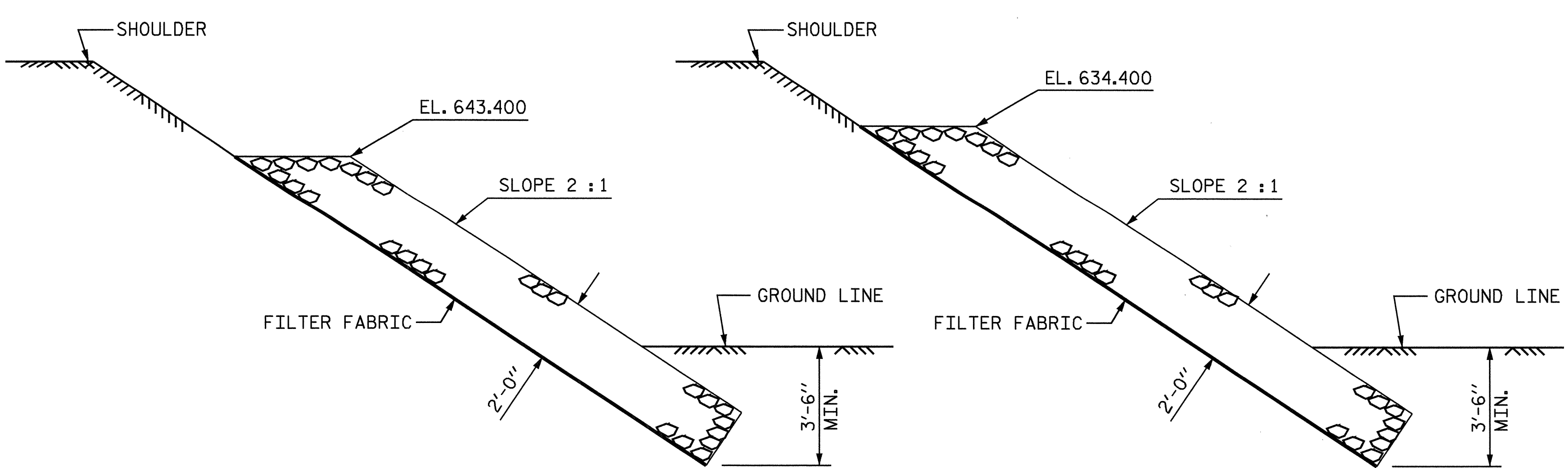


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			35

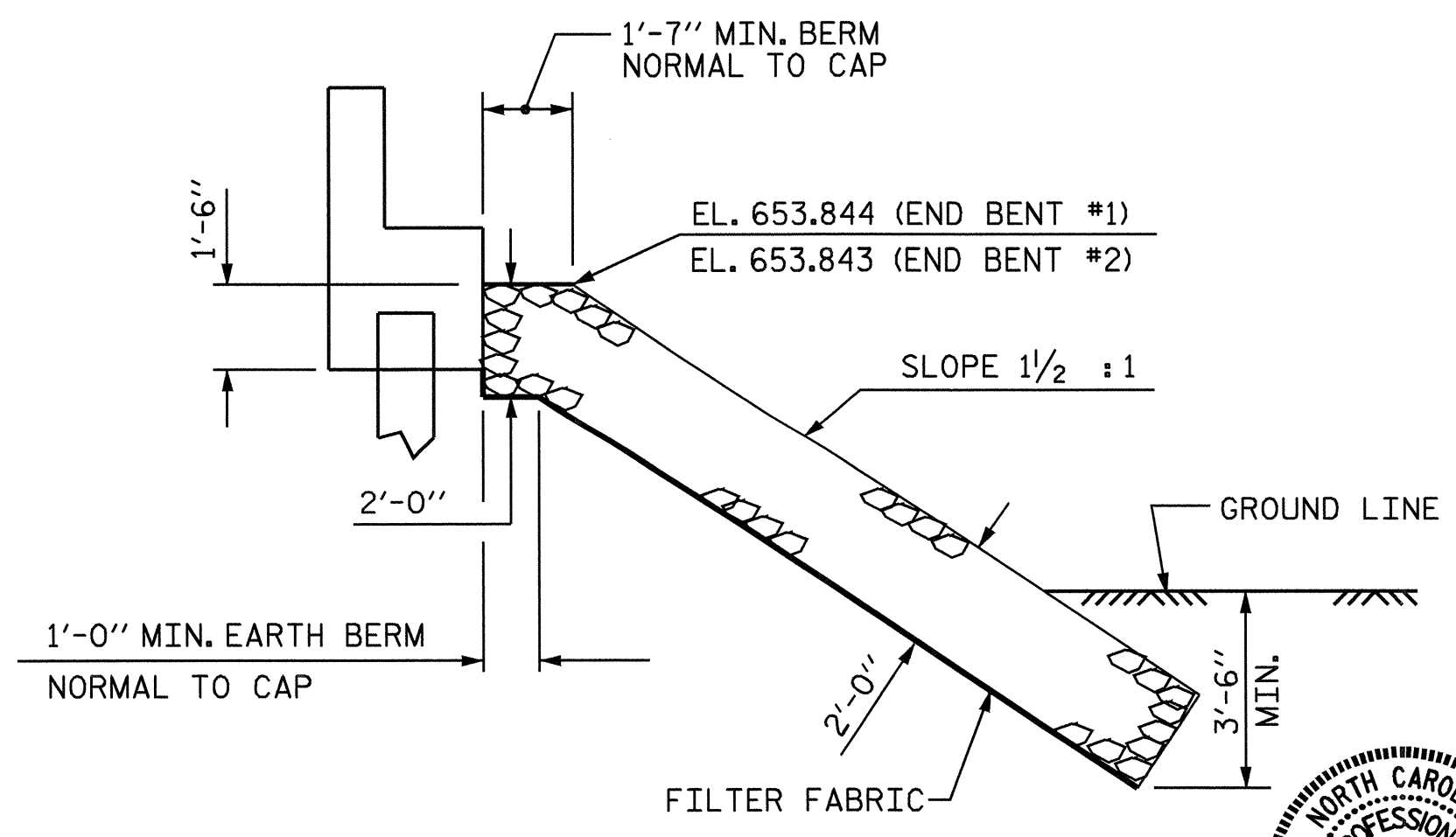


ESTIMATED QUANTITIES		
BRIDGE @ STA. 21+00.00 -L-	CL. II RIP RAP	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT #1	480	535
END BENT #2	405	450

END BENT #1 PLAN OF RIP RAP END BENT #2



SECTION C-C SECTION D-D

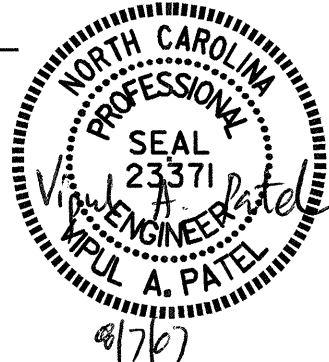


SECTION C-C BERM RIP RAPPED

PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
 STATION: 21+00.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

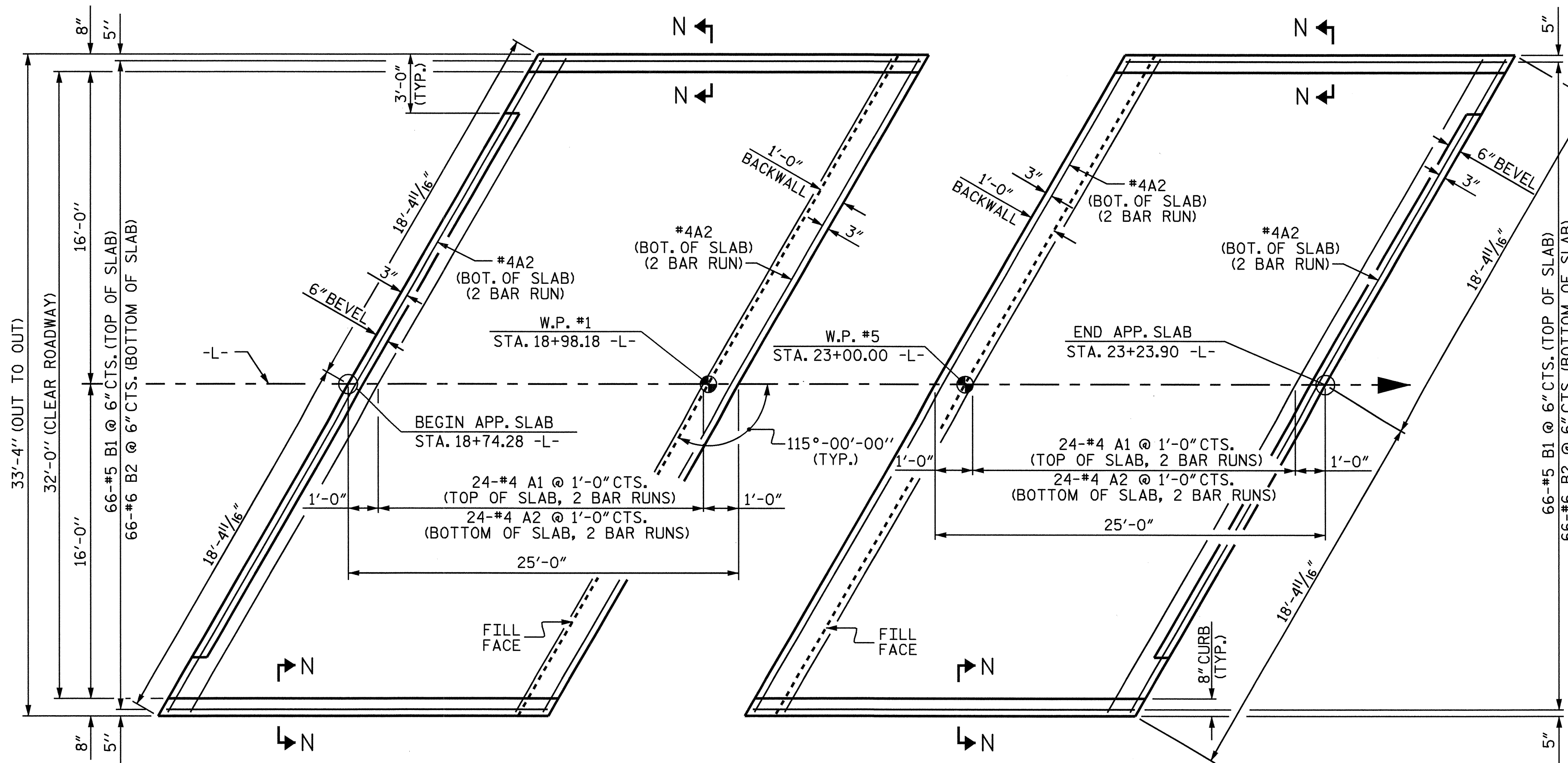
STANDARD
 RIP RAP DETAILS



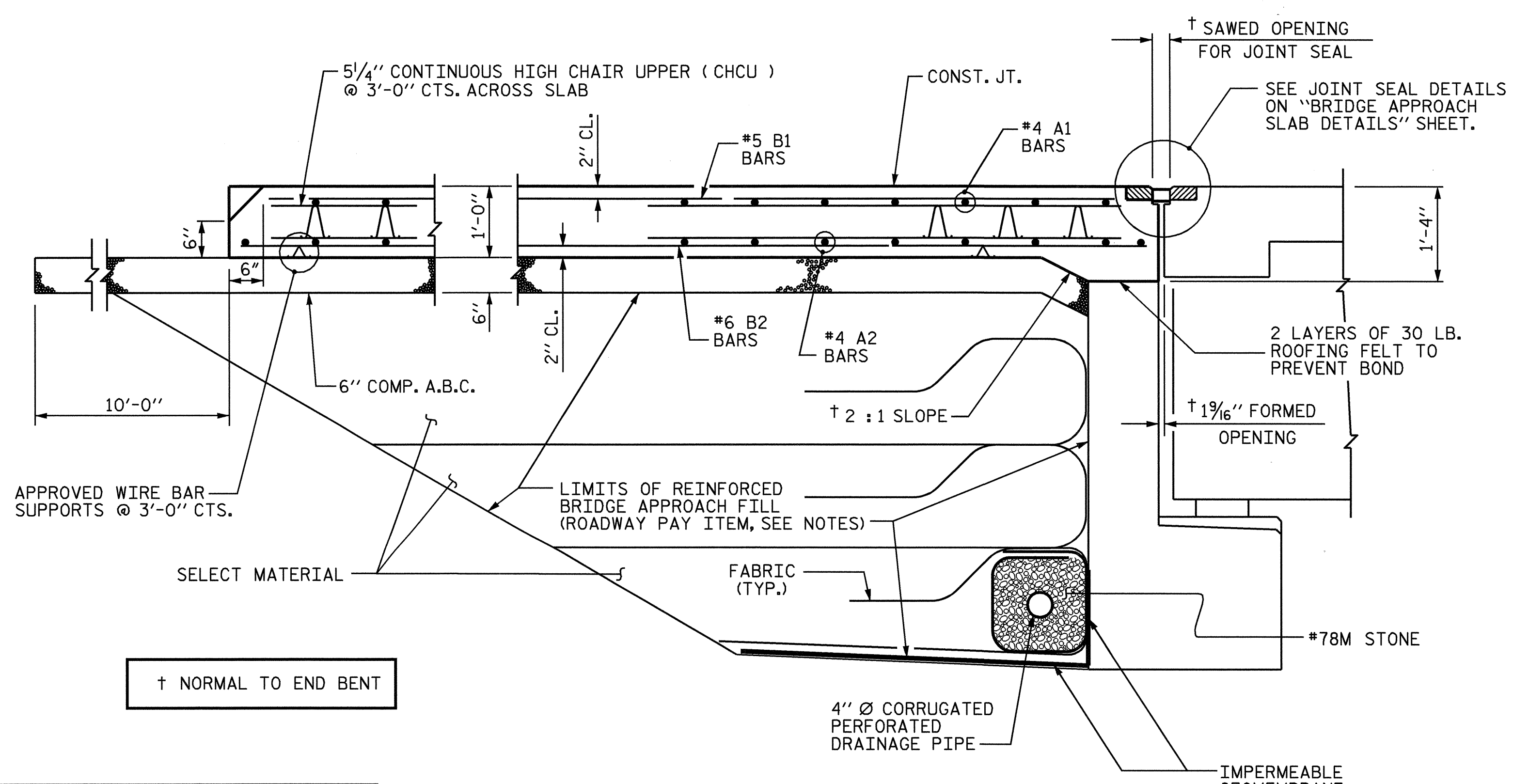
ASSEMBLED BY : A. K. PATEL	DATE : 9-02-04
CHECKED BY : M. K. BEARD	DATE : 1-11-05
DRAWN BY : REK 1/84	REV. 7/17/98 REK/RWW
CHECKED BY : RDU 1/84	REV. 8/16/99 RWW/LES
	REV. 10/17/00 RWW/LES

18-JUN-2007 13:33
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 sdombrowski

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33
1			3			TOTAL SHEETS 35
2			4			



PLAN @ END BENT #1 PLAN @ END BENT #2
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



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 EXTEND 10'-0" BEYOND THE END OF THE APPROACH SLAB AND 1'-0" OUTSIDE OF EACH EDGE OF SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

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

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 3 7/16".

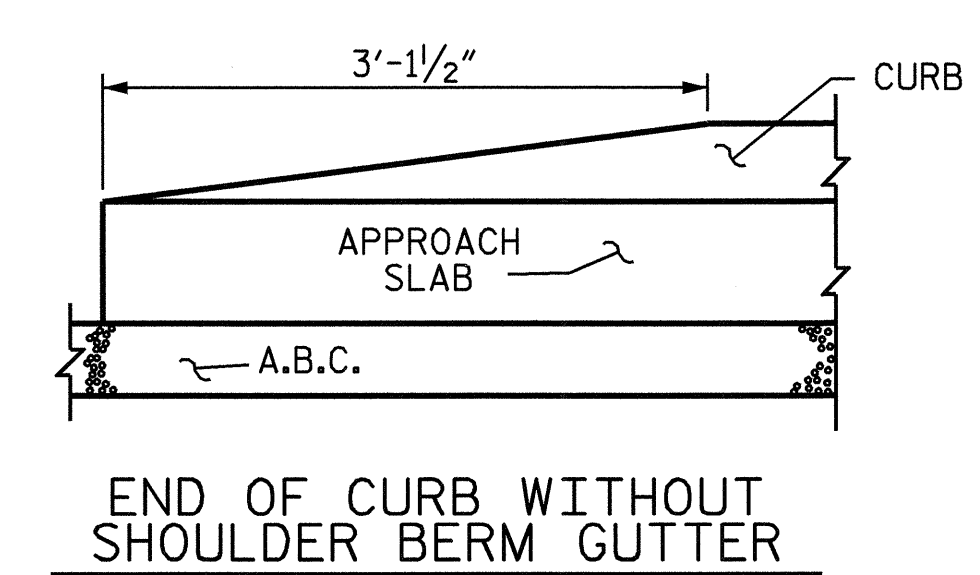
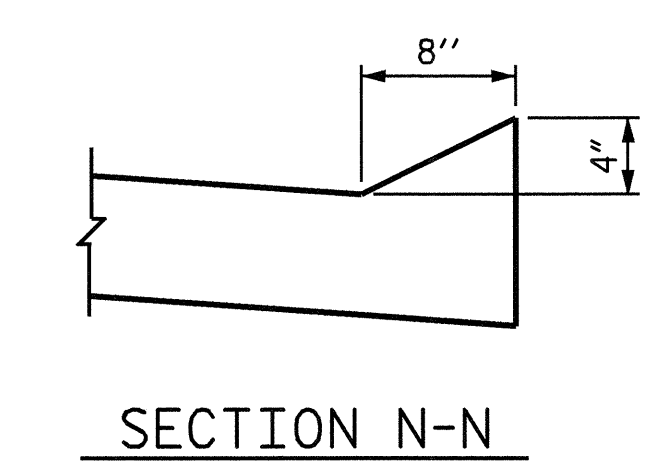
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL
FOR ONE APPROACH SLAB
(2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	48	#4	STR	19'-3"	617
A2	52	#4	STR	19'-1"	663
*B1	66	#5	STR	23'-9"	1635
B2	66	#6	STR	24'-8"	2445
REINFORCING STEEL				LBS.	3108
*EPOXY COATED REINFORCING STEEL				LBS.	2252
CLASS AA CONCRETE				C. Y.	31.4

SPLICE CHART

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



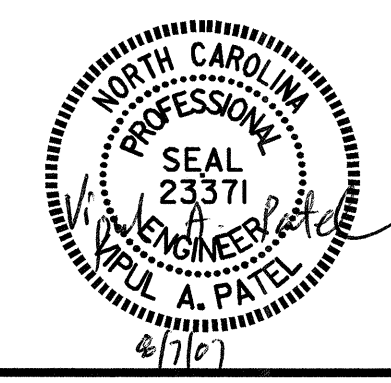
PROJECT NO. B-4256
ROWAN COUNTY
STATION: 21+00.00 -L-

SHEET 1 OF 2

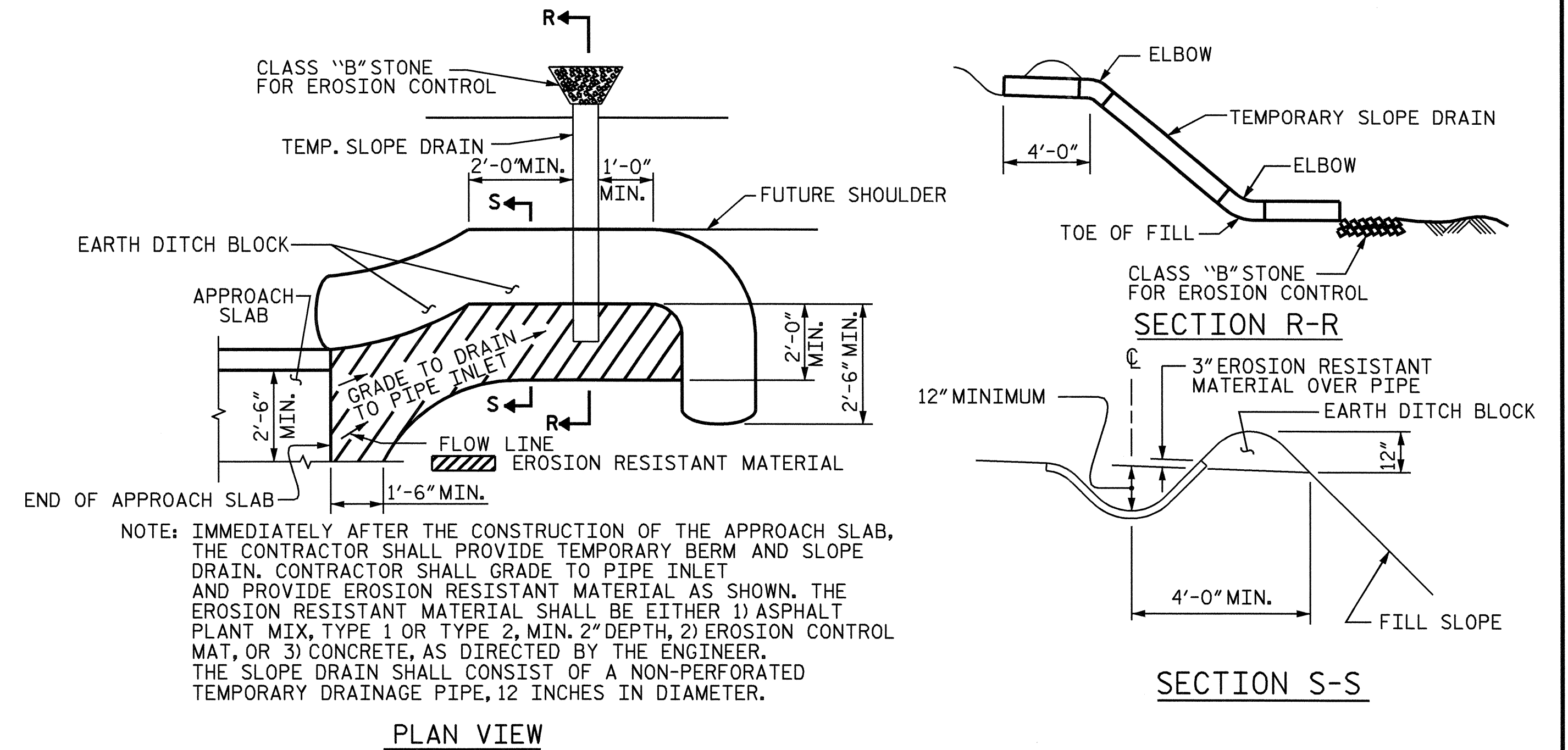
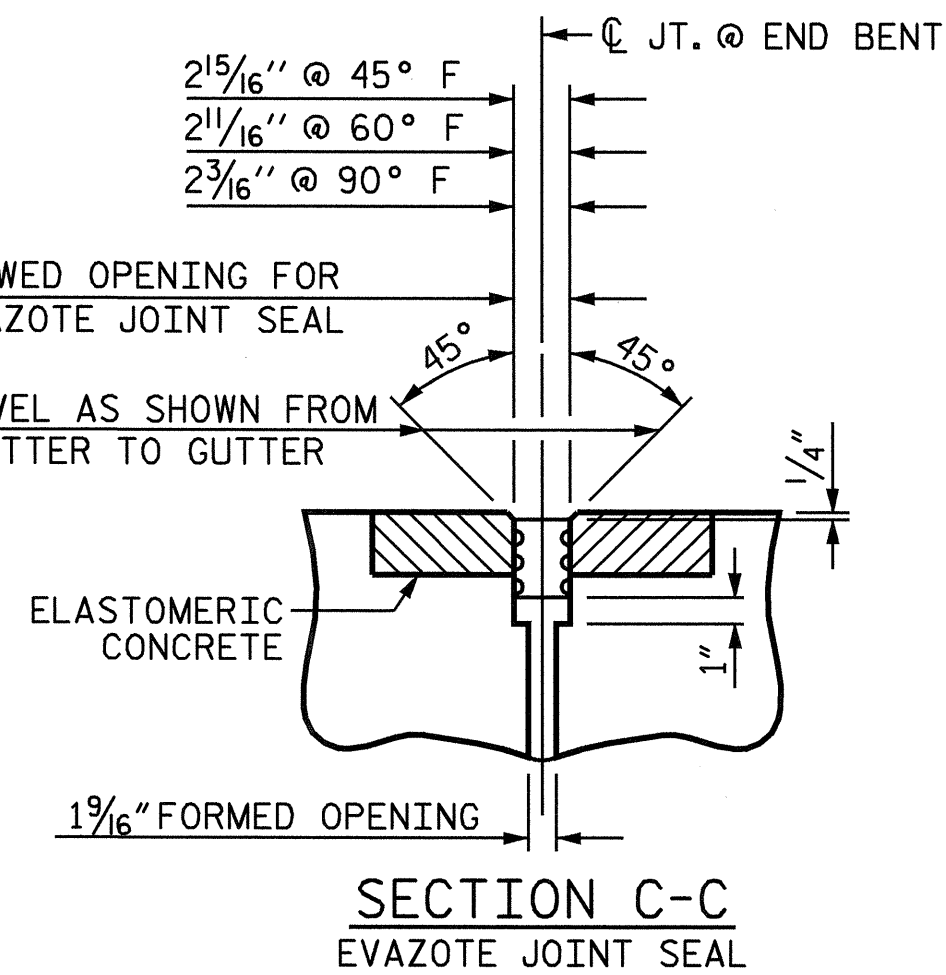
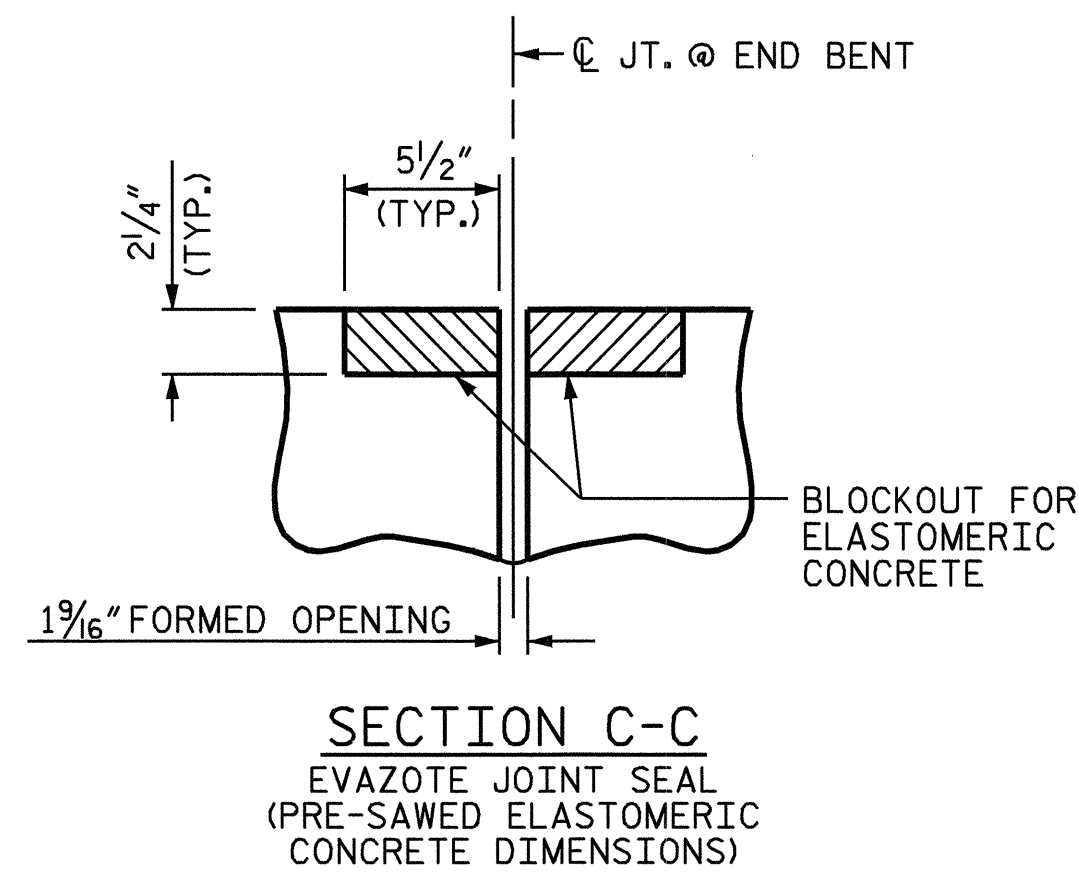
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

BRIDGE APPROACH SLAB
FOR FLEXIBLE PAVEMENT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-34
1			3			TOTAL SHEETS 35
2			4			

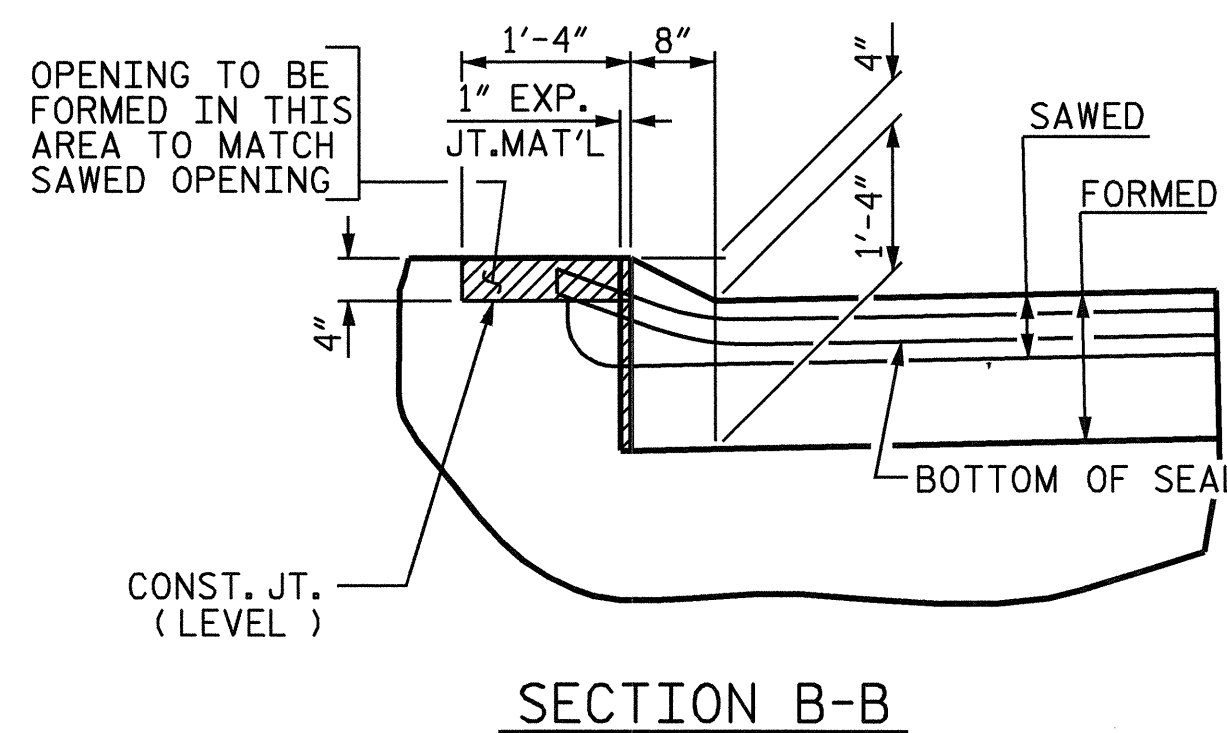
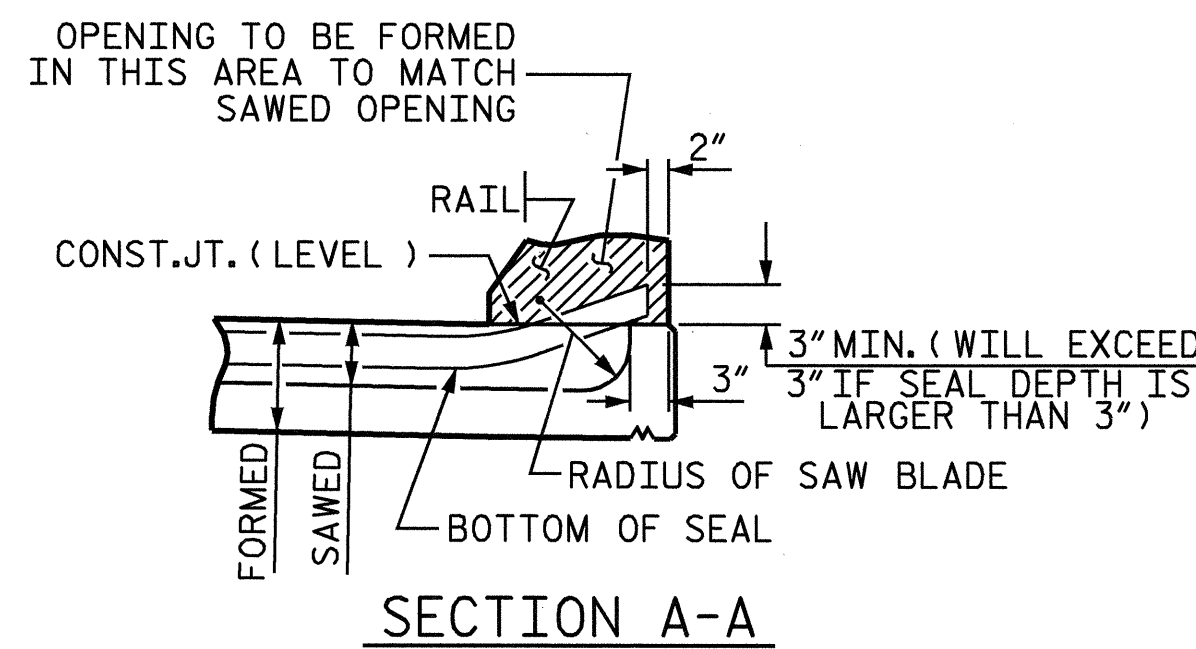
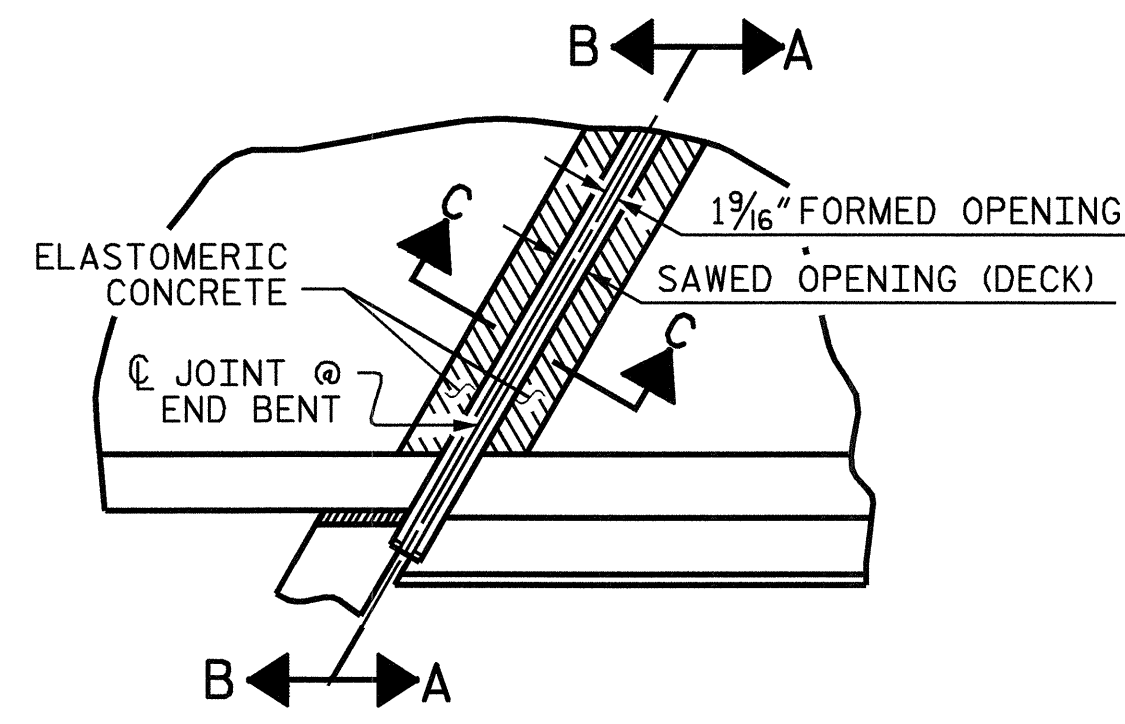


ASSEMBLED BY: J.P. ADAMS/SFD DATE: 9/28/05
CHECKED BY: S.H. SOCKWELL DATE: 10/5/05
DRAWN BY: EEM 3/95 7/10/01 LES / RDR
CHECKED BY: VAP 3/95 5/7/03R RWW / JTE
5/1/06 TLA / GM



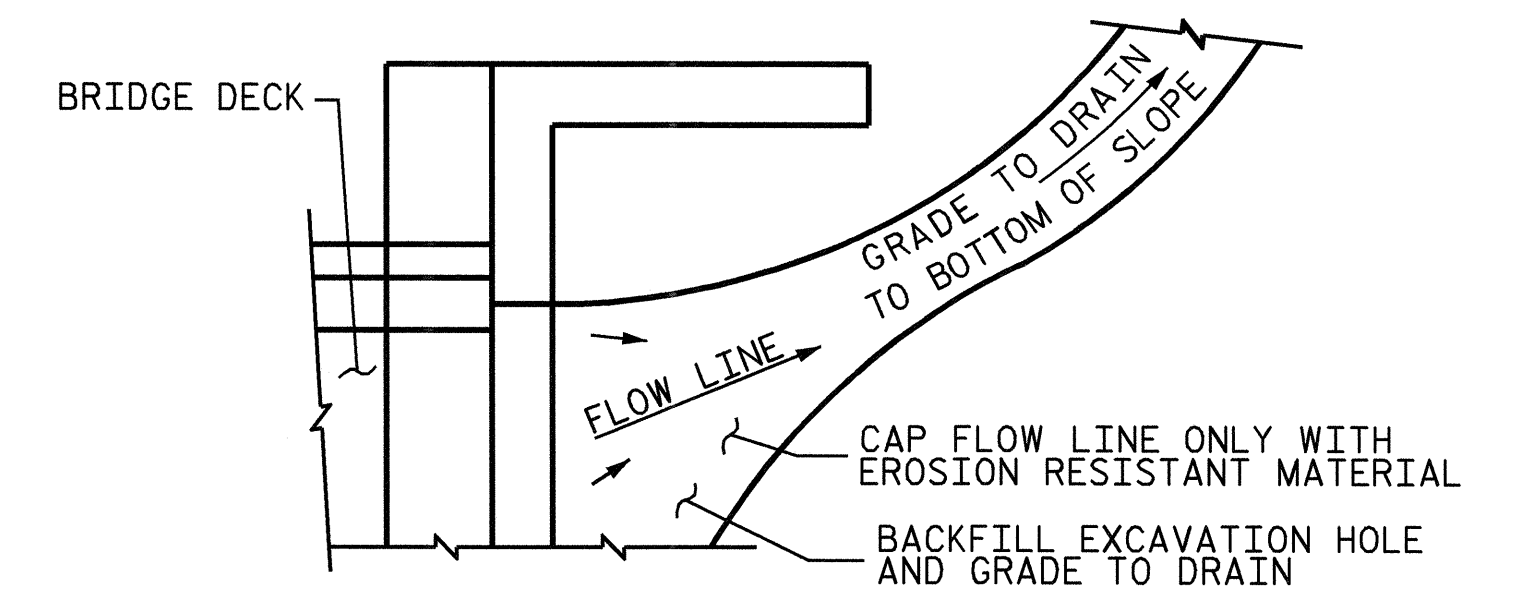
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	6.1
2	6.1
TOTAL	12.2

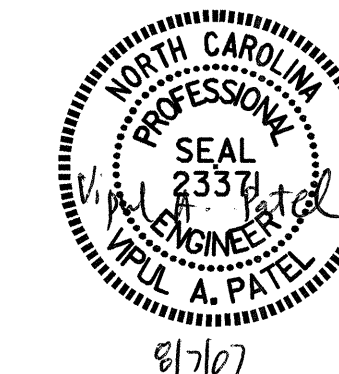
* BASED ON THE MINIMUM BLOCKOUT SHOWN.



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.

JOINT SEAL DETAILS @ END BENT
(FOR BARRIER RAIL)

ASSEMBLED BY : J.P. ADAMS DATE : 9/28/05
 CHECKED BY : S.H. SOCKWELL DATE : 10/5/05
 DRAWN BY : FCJ 11/88 REV. 10/17/00 RWW/LJS
 CHECKED BY : ARB 11/88 REV. 5/1/03 RWW/JTE
 REV. 5/1/06 TLA/GM



PROJECT NO. B-4256
ROWAN COUNTY
 STATION: 21+00.00 -L-

SHEET 2 OF 2

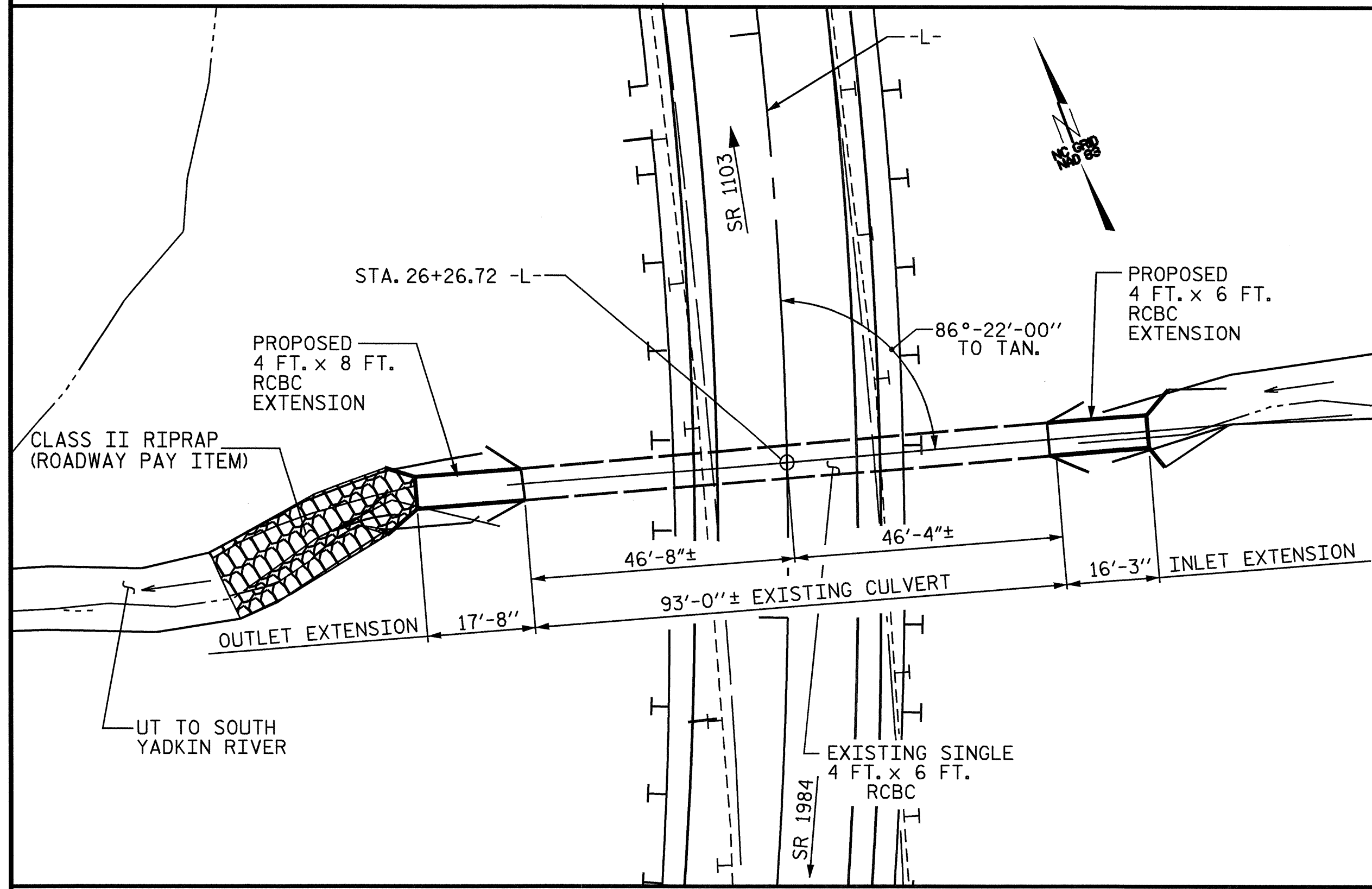
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-35
TOTAL SHEETS 35

STD. NO. BAS10

BM #2 RR SPIKE IN ROOT ON THE NORTH WEST SIDE OF A 24" WILLOW 17.25' FROM EP OF CENTER STREET, EL. 674.02

F.A. PROJECT NO. BRSTP-801(6)



LOCATION SKETCH

TOTAL STRUCTURE QUANTITIES			
	OUTLET EXTENSION	INLET EXTENSION	TOTAL
CLASS A CONCRETE (C.Y.)			
BARREL @ 0.539 CY/FT =		8.8 CY	
BARREL @ 0.638 CY/FT =	11.3 CY		
WINGS, HEADWALLS, ETC. =	11.1 CY	7.3 CY	
TOTAL =	22.4 CY	16.1 CY	38.5 CY
REINFORCING STEEL (Lbs)			
BARREL =	1,851 LBS	1,234 LBS	
2 WINGS ETC. =	721 LBS	396 LBS	
TOTAL =	2,572 LBS	1,630 LBS	4,202 LBS
FOUNDATION COND. MAT'L	7 TONS	6 TONS	13 TONS
CULVERT EXCAVATION			LUMP SUM

ROADWAY DATA

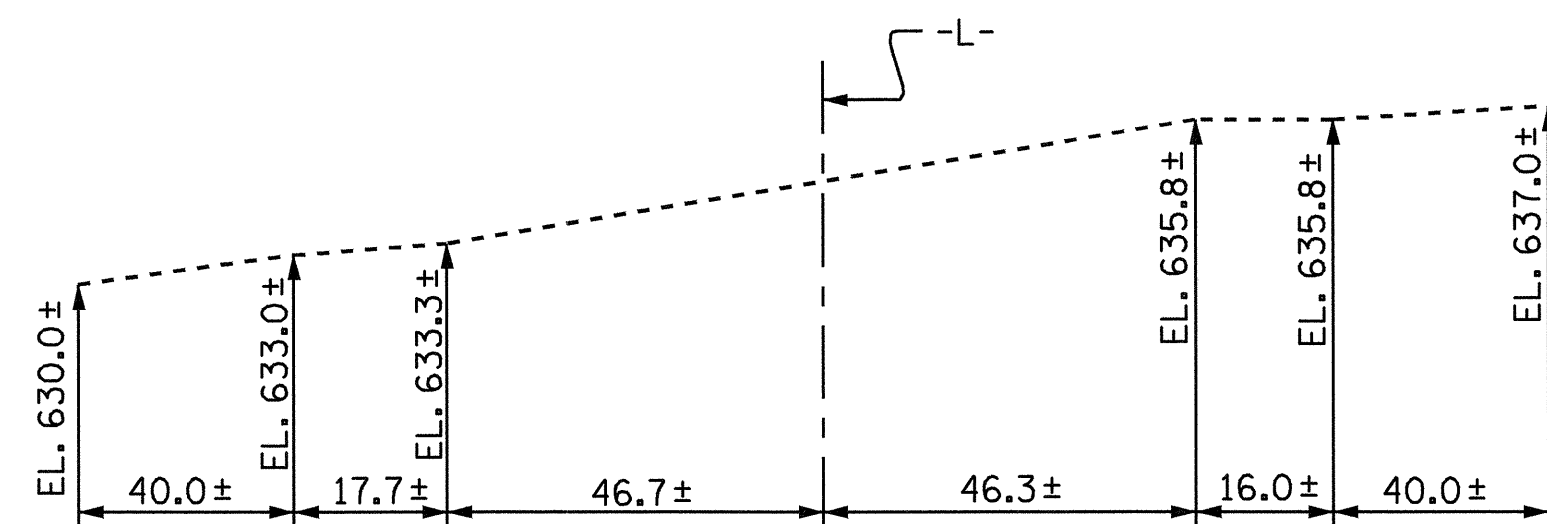
GRADE POINT EL. @ STA. 26+26.72 -L- = 661.590
 BED ELEVATION @ STA. 26+26.72 -L- = 634.580
 ROADWAY SLOPES = 2:1

HYDRAULIC DATA

DESIGN DISCHARGE = 110 CFS
 FREQUENCY OF DESIGN FLOOD = 50 Yrs.
 DESIGN HIGH WATER ELEVATION = 640.200
 DRAINAGE AREA = 0.06 Sq. Mi.
 BASIC DISCHARGE (Q100) = 125 CFS
 BASIC HIGH WATER ELEVATION = 640.700

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = +210 CFS
 FREQUENCY OF OVERTOPPING FLOOD = +500 YRS.
 OVERTOPPING FLOOD ELEVATION = 659.200



PROFILE ALONG CULVERT

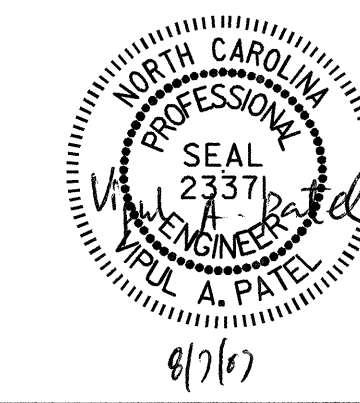
NOTES

- ASSUMED LIVE LOAD ----- HS20-44 OR ALTERNATE LOADING.
- DESIGN FILL = 21.02' (OUTLET EXTENSION) 21.55' (INLET EXTENSION)
- FOR OTHER DESIGN DATA AND NOTES SEE STANDARD SHEET SN.
- 3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONCRETE IN CULVERT TO BE POURED IN THE FOLLOWING ORDER.
 1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
 2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.
- THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
- DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.
- AT THE CONTRACTOR'S OPTION, HE MAY DRILL AND GROUT DOWELS AT THE CONSTRUCTION JOINT BETWEEN STAGES. THE EXTRA COST FOR DOWELS AND DRILLING AND GROUTING SHALL BE PAID FOR BY THE CONTRACTOR. IF DOWELS ARE USED, THE DOWELS SHOULD BE 2'-6" LONG. FOR NOTE REGARDING SETTING OF DOWELS, SEE SHEET SN.
- 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.
- A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.
- FOR CONSTRUCTION SEQUENCE, SEE EROSION CONTROL PLANS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.
- DOWELS SHALL BE USED TO CONNECT THE CULVERT EXTENSION TO THE EXISTING CULVERT AS SHOWN. FOR NOTE REGARDING SETTING OF DOWELS, SEE SHEET SN.
- IF APPROVED BY ENGINEER, THE CONTRACTOR MAY USE THE EXISTING WINGS AS TEMPORARY SHORING FOR THE CONSTRUCTION OF CULVERT EXTENSION. IN THIS CASE, THE BOTTOM SLAB OF THE EXTENSION SHALL BE POURED AT LEAST 72 HOURS PRIOR TO CUTTING THE WINGS. THE WINGS MAY BE CUT EARLIER PROVIDED THE SLAB CONCRETE STRENGTH HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

PROJECT NO. B-4256
 ROWAN/DAVIE COUNTY
 STATION 26+26.72 -L-

SHEET 1 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SINGLE 4 FT. x 6 FT.
 INLET EXTENSION
 SINGLE 4 FT. x 8 FT.
 OUTLET EXTENSION
 CONCRETE BOX CULVERT
 86°-22'-00" SKEW

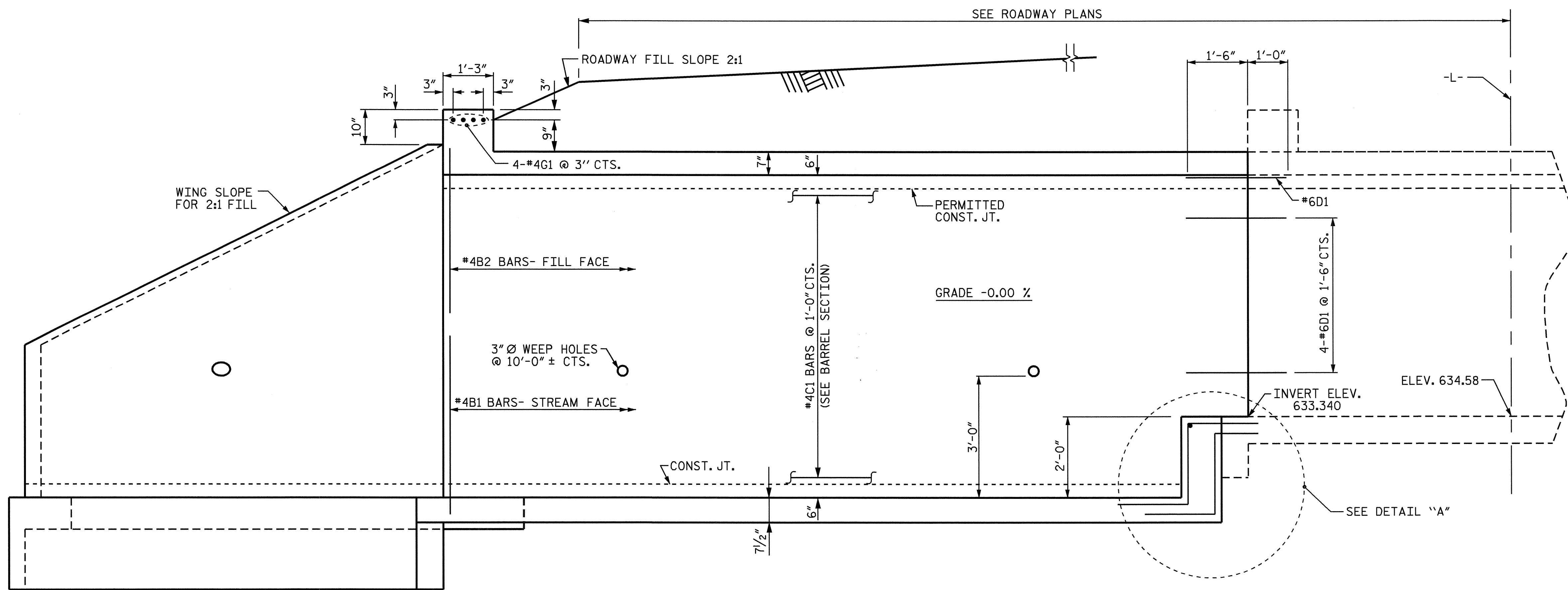


REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
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2			4	

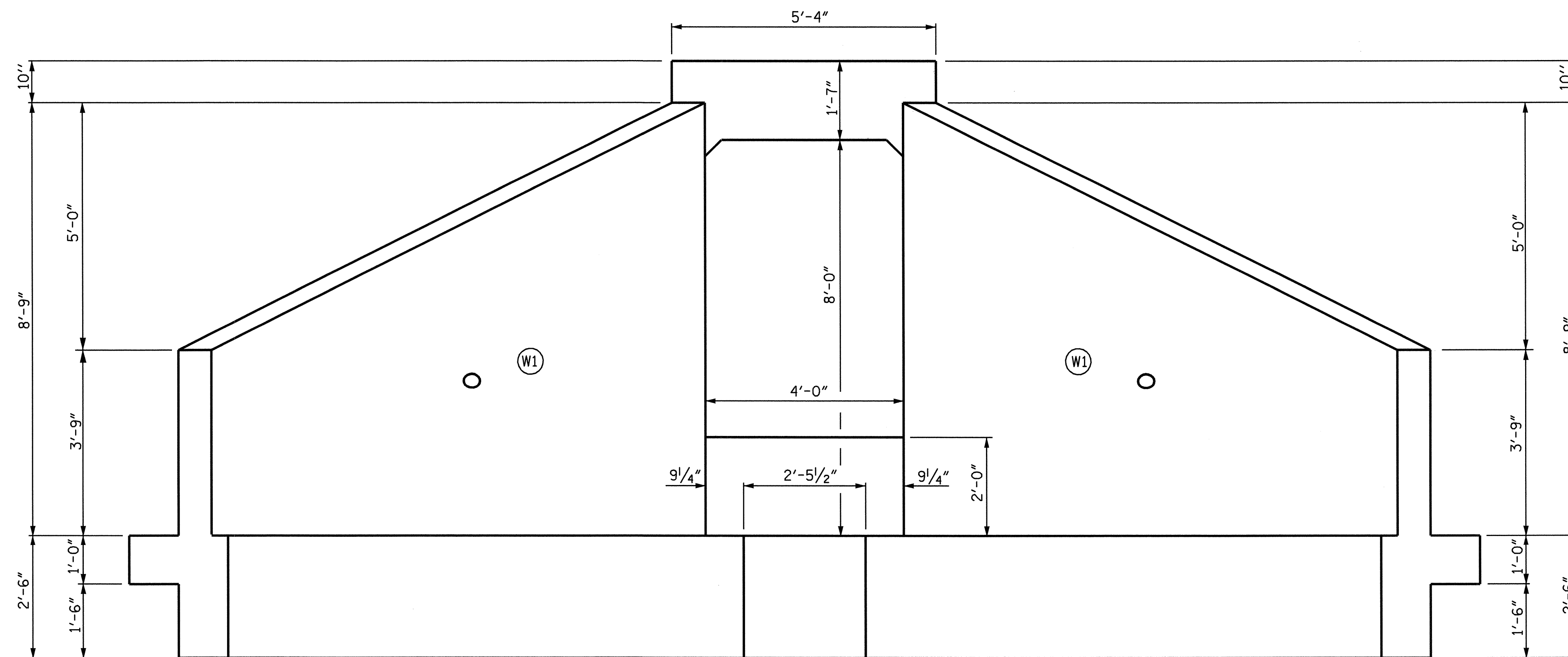
TOTAL SHEETS: 7

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 J.P.A.

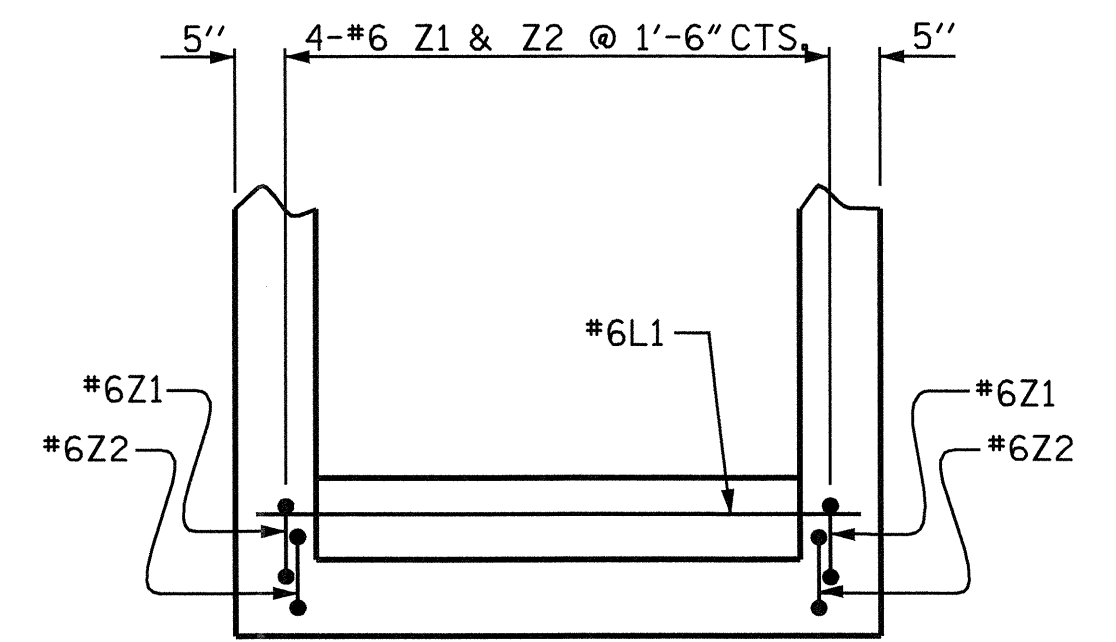
DRAWN BY: DAN L. PLATICA/SFD DATE: 8-09-04
 CHECKED BY: J. P. ADAMS DATE: 9/07/04



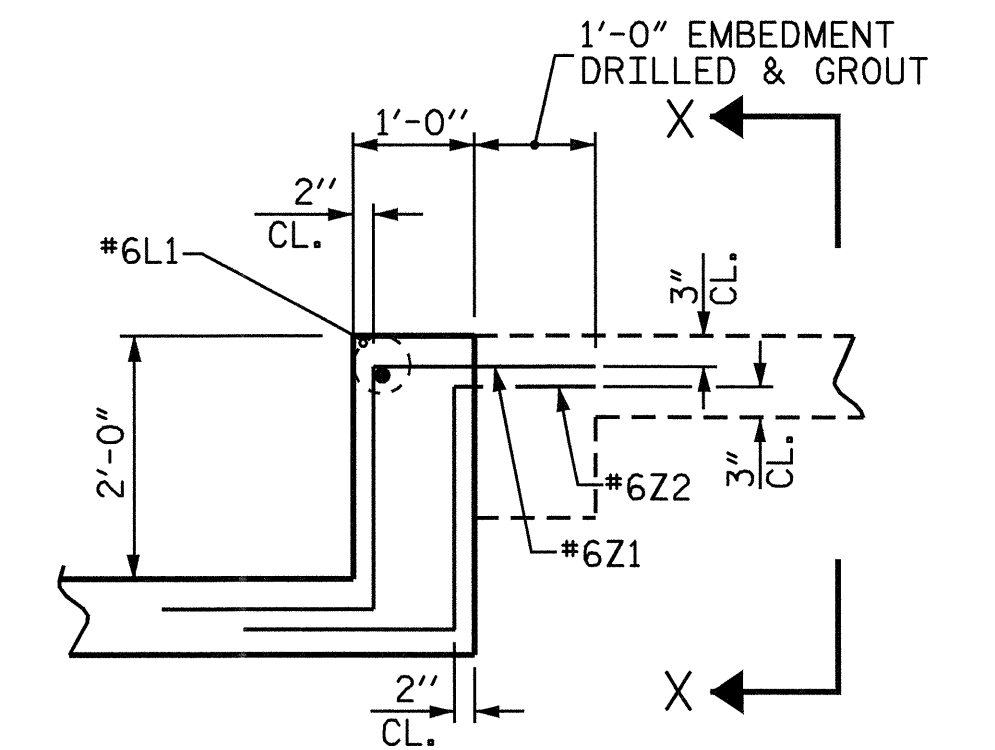
CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION NORMAL TO SKEW



VIEW X-X

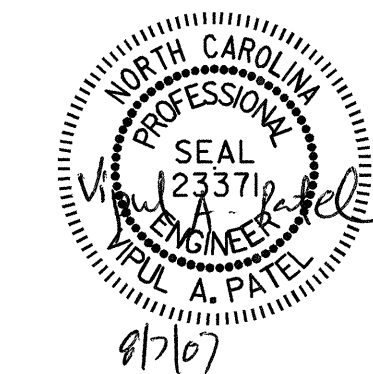


DETAIL A

PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
 STATION: 26+26.72 -L-

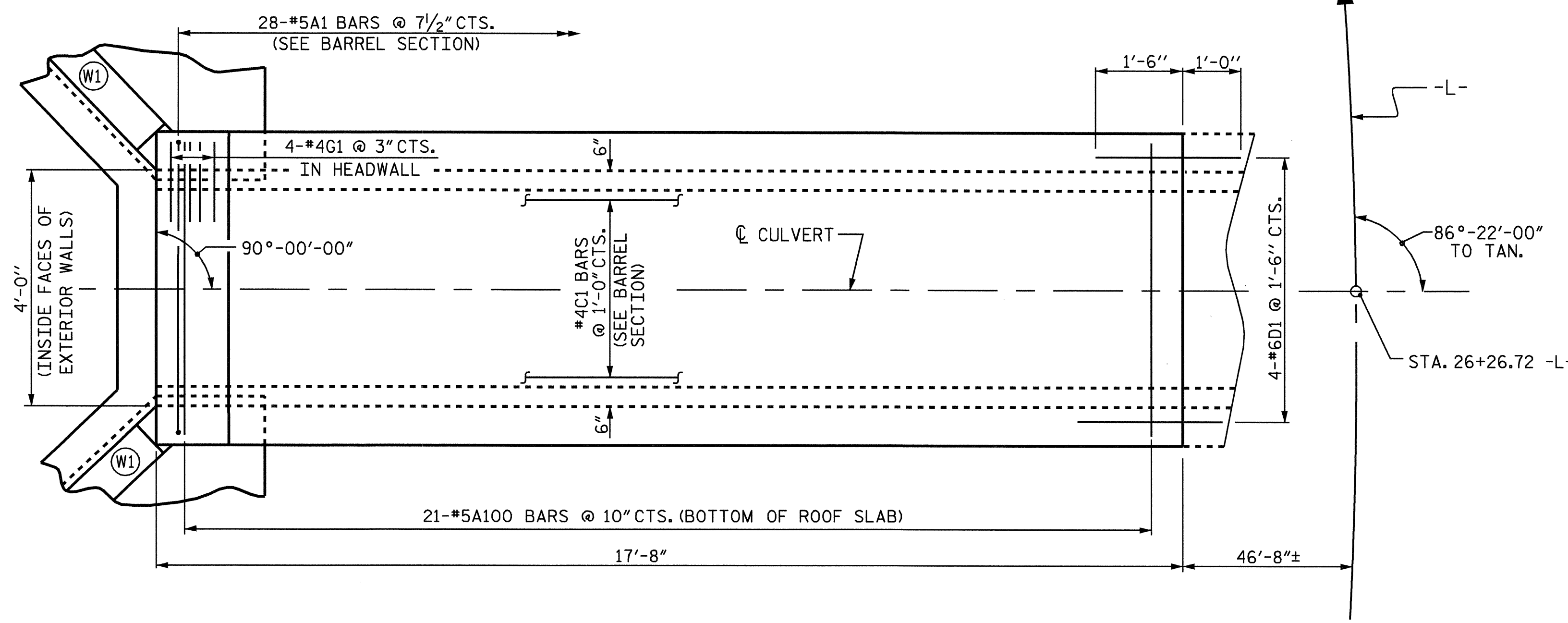
SHEET 2 OF 7

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SINGLE 4 FT. x 8 FT. OUTLET EXTENSION CONCRETE BOX CULVERT 86°-22'-00" SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. C-2
					TOTAL SHEETS 7

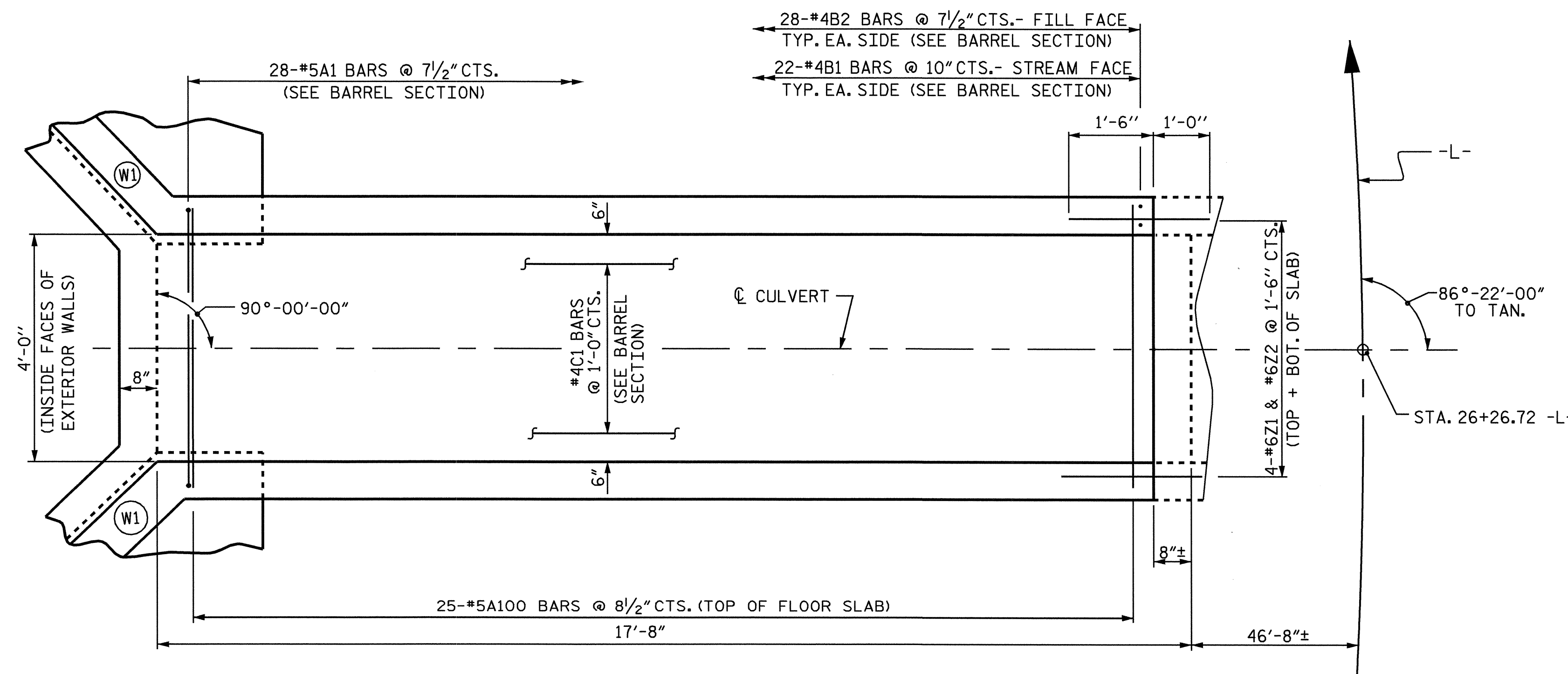


DRAWN BY: DAN PLATICA/SFD DATE: 8/05/04
 CHECKED BY: J.P. ADAMS DATE: 9/07/04

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 sdombrowski

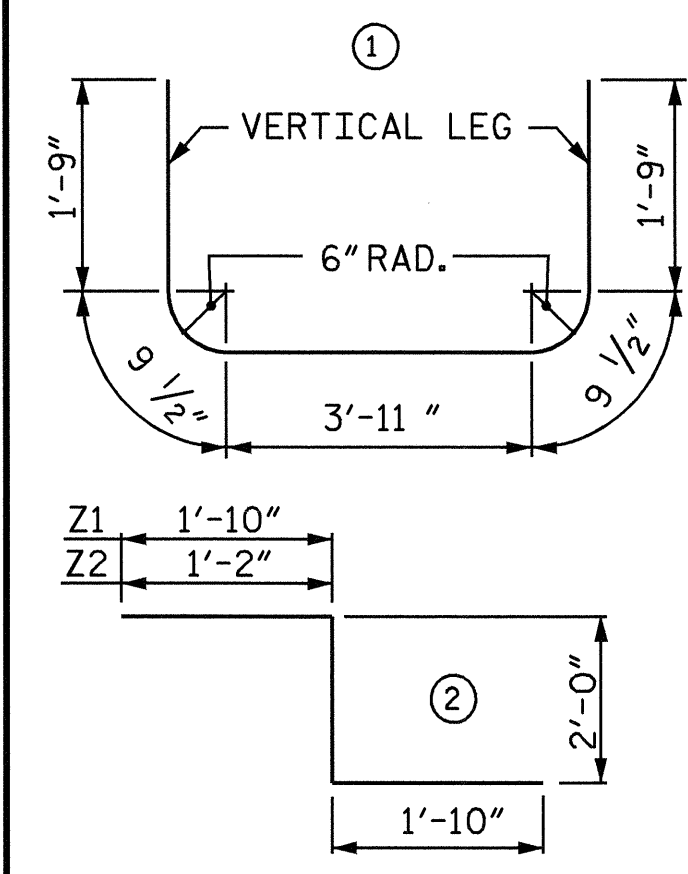


PLAN - ROOF SLAB



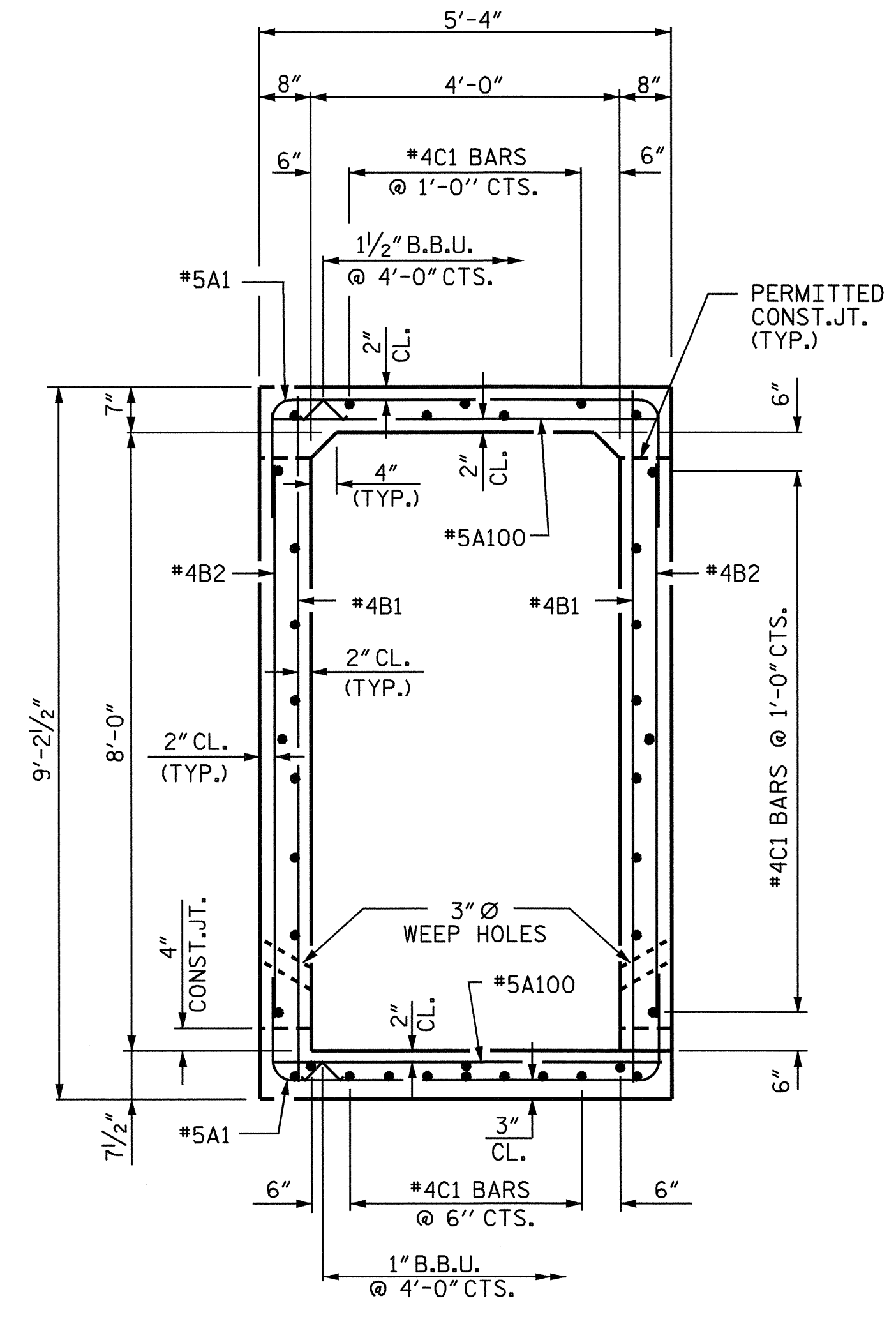
PLAN - FLOOR SLAB

BAR TYPE		BILL OF MATERIAL				
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
A100	#5	STR	5'-0"	240		
A1	#5	1	9'-0"	526		
B1	#4	STR	8'-9"	257		
B2	#4	STR	7'-4"	274		
C1	#4	STR	17'-2"	424		
D1	#6	STR	2'-6"	45		
G1	#4	STR	5'-0"	13		
L1	#6	STR	5'-0"	8		
Z1	#6	2	5'-8"	34		
Z2	#6	2	5'-0"	30		
TOTAL REINFORCING STEEL (LBS.)					1,851	



SPLICE LENGTHS CHART

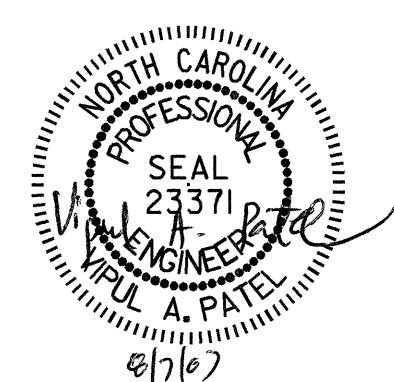
BAR SIZE	SPLICE LENGTH
B1 #4	1'-9"
C1 #4	1'-11"



RIGHT ANGLE SECTION OF BARREL
THERE ARE 37 "C" BARS IN SECTION OF BARREL

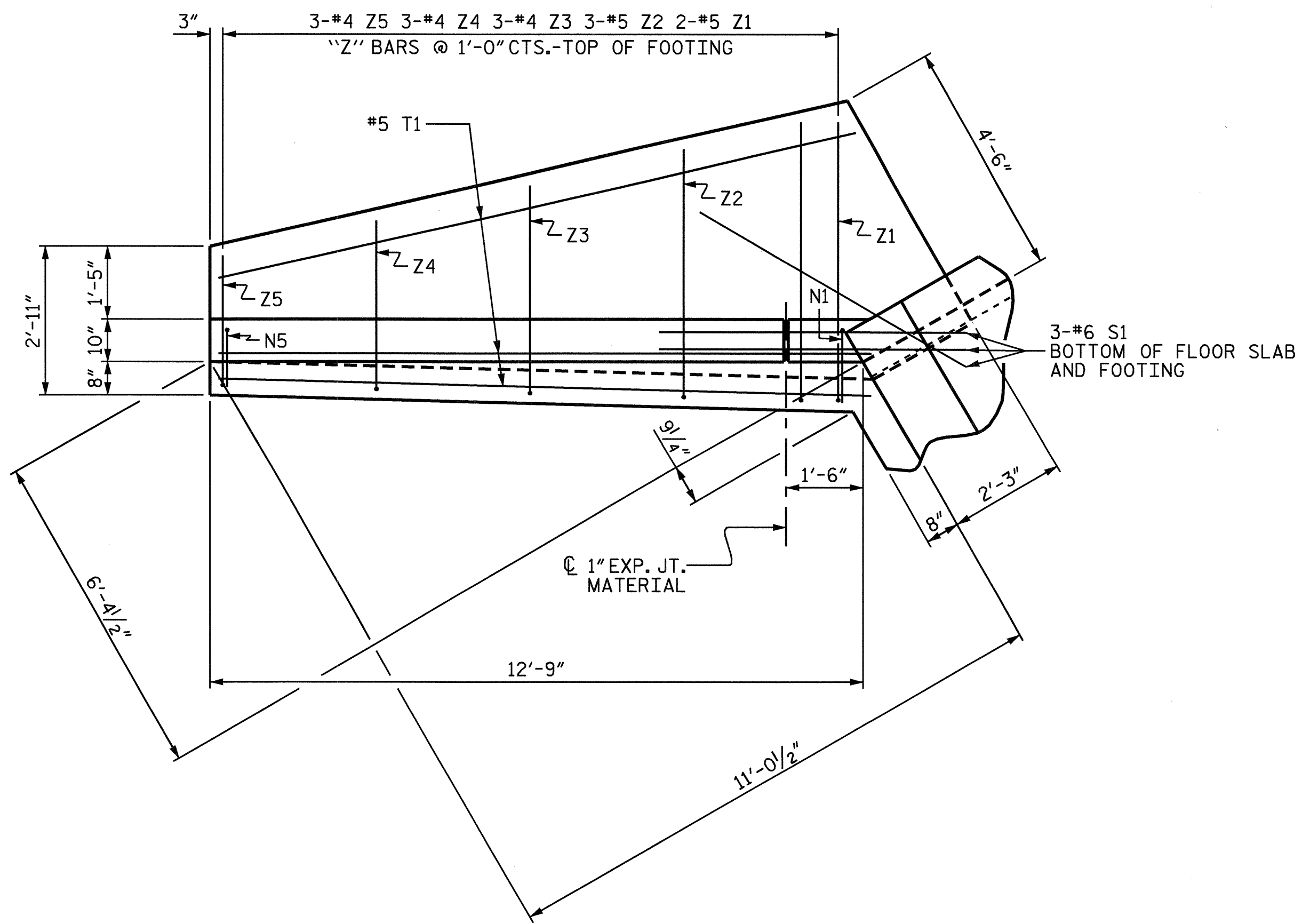
PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
 STATION: 26+26.72 -L-
 SHEET 3 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SINGLE 4 FT. x 8 FT.
 OUTLET EXTENSION
 CONCRETE BOX CULVERT
 86°-22'-00" SKEW

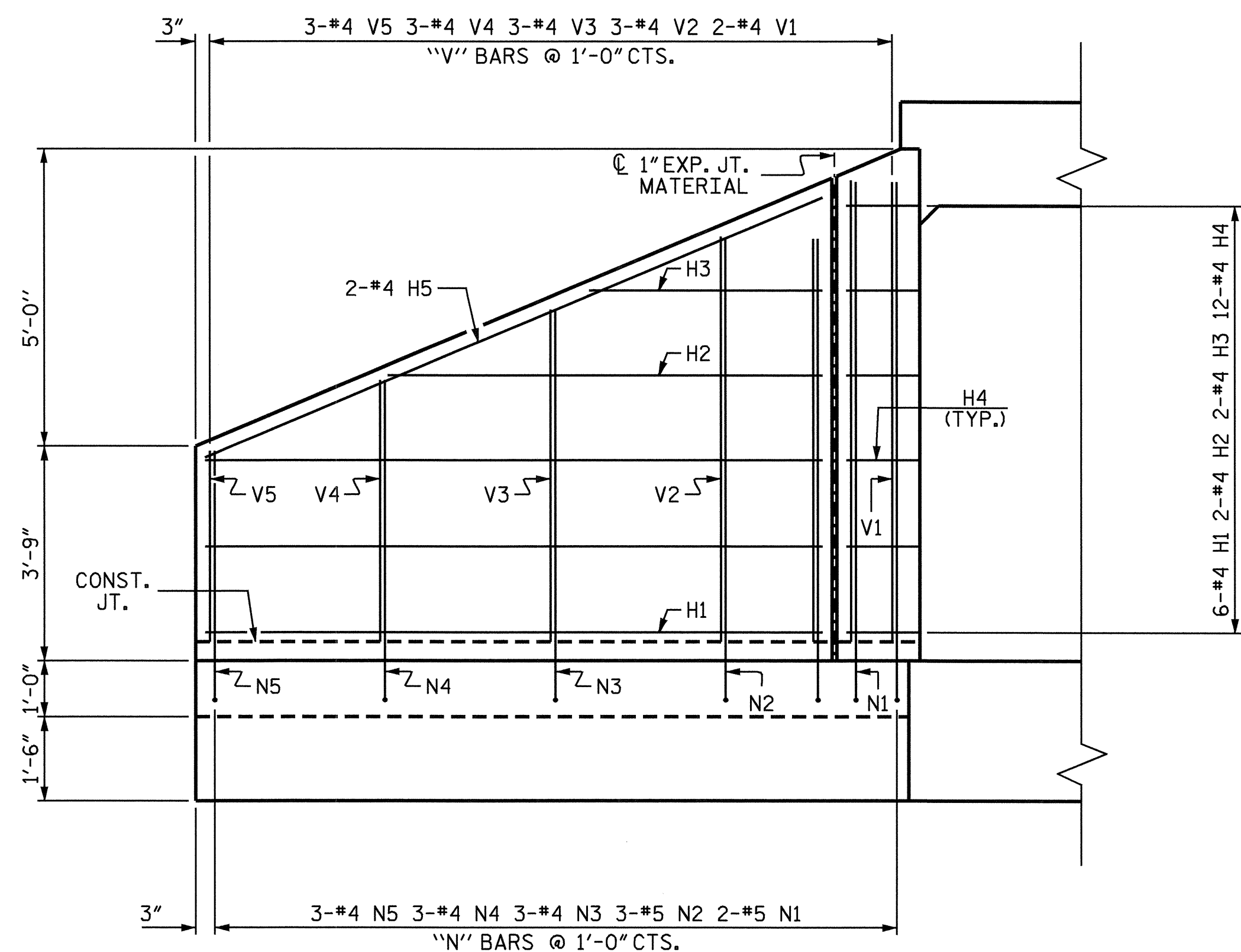


REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			C-3
2			4			7

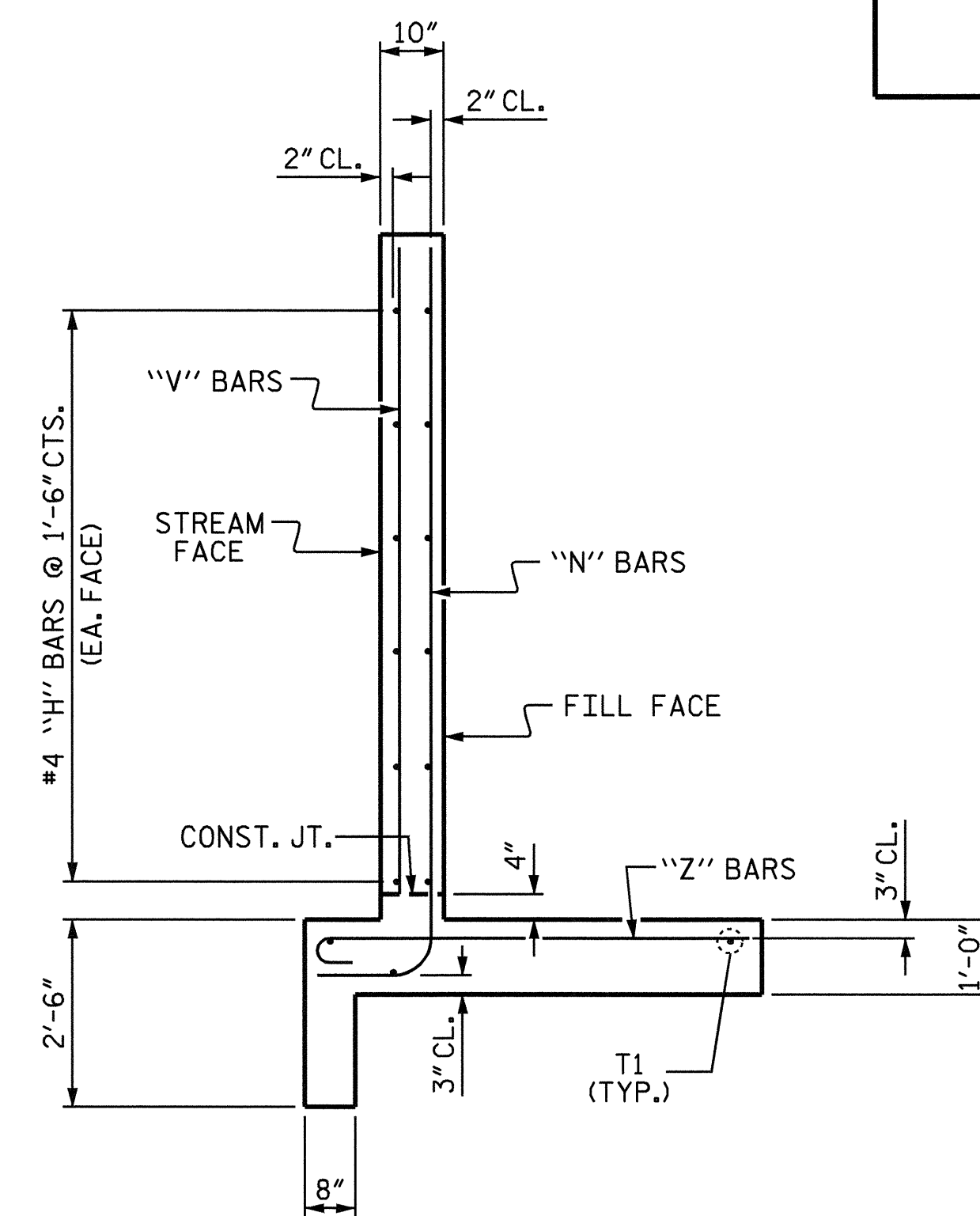
DRAWN BY: DAN PLATICA/SFD DATE: 7/30/04
 CHECKED BY: J.P. ADAMS DATE: 9/07/04



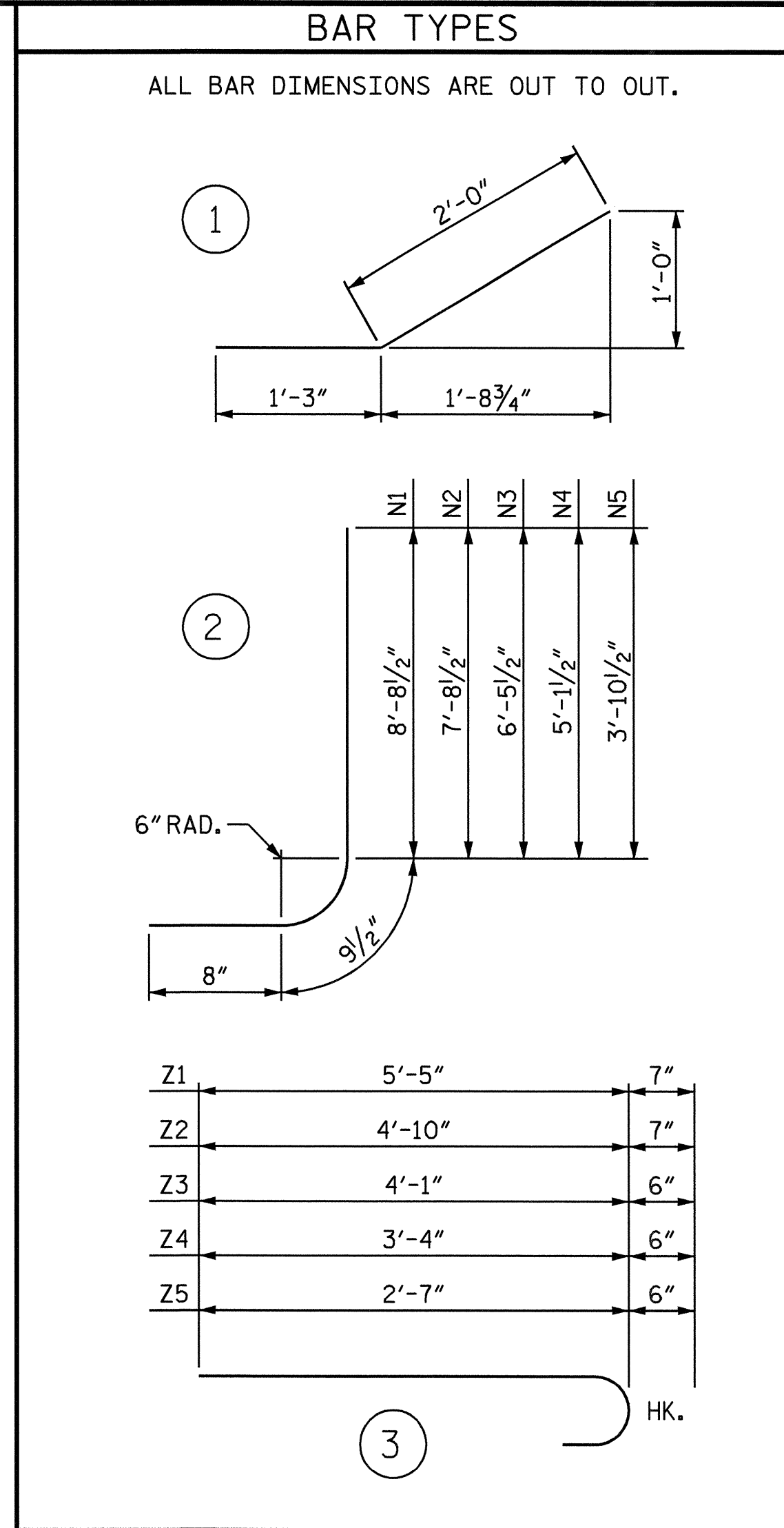
PLAN



ELEVATION



TYPICAL WING SECTION



BILL OF MATERIAL

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	12	#4	STR 10'-10"	87
H2	4	#4	STR 7'-8"	20
H3	4	#4	STR 4'-1"	11
H4	24	#4	1 3'-3"	52
H5	4	#4	STR 11'-9"	31
N1	4	#5	2 10'-2"	42
N2	6	#5	2 9'-2"	57
N3	6	#4	2 7'-11"	32
N4	6	#4	2 6'-7"	26
N5	6	#4	2 5'-4"	21
S1	6	#6	STR 6'-0"	54
T1	6	#5	STR 12'-9"	80
V1	4	#4	STR 8'-1"	22
V2	6	#4	STR 7'-1"	28
V3	6	#4	STR 5'-10"	23
V4	6	#4	STR 4'-7"	18
V5	6	#4	STR 3'-4"	13
Z1	4	#5	3 6'-0"	25
Z2	6	#5	3 5'-5"	34
Z3	6	#4	3 4'-7"	18
Z4	6	#4	3 3'-10"	15
Z5	6	#4	3 3'-1"	12

REINFORCING STEEL FOR 2 WINGS 721 LBS

CLASS A CONCRETE
 2 WINGS 10.7 CY
 1 HEADWALL 0.2 CY
 1 END CURTAIN WALL 0.2 CY
 TOTAL 11.1 CY

ASSEMBLED BY : D. PLATICA/SFD DATE : 8/04/04
 CHECKED BY : J.P. ADAMS DATE : 9/07/04
 DRAWN BY : CCJ 10/99
 CHECKED BY : RWW 03/00

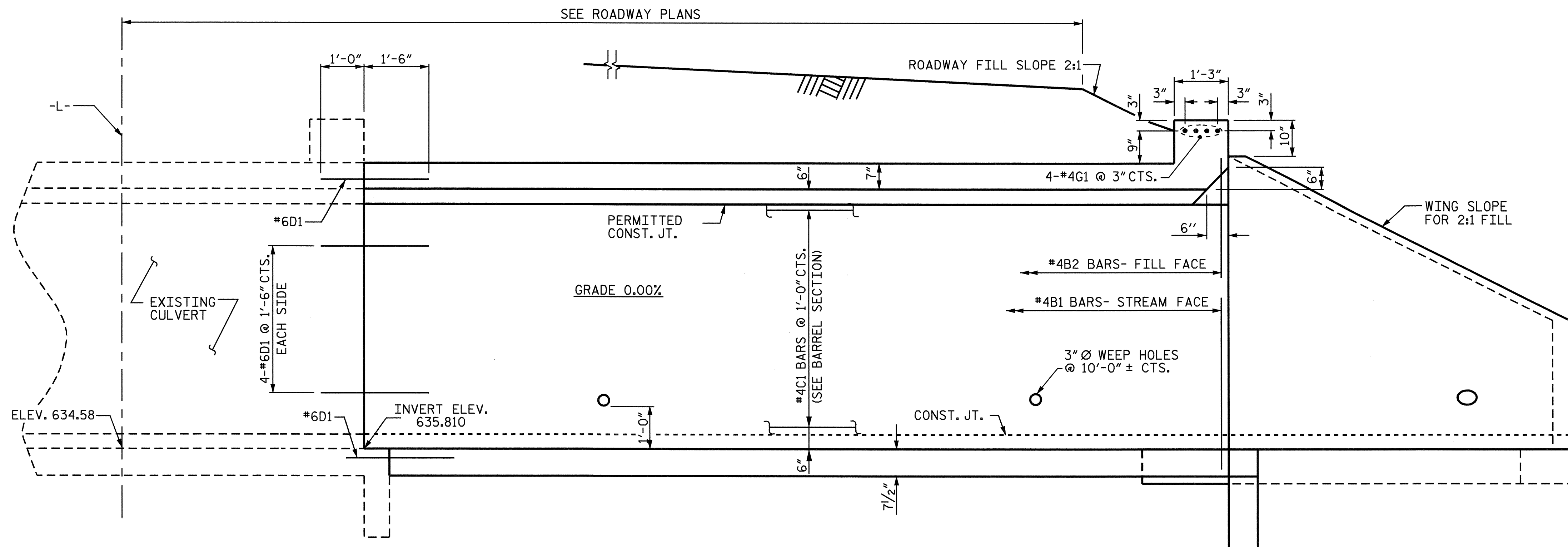
PROJECT NO. B-4256
 ROWAN/DAVIE COUNTY
 STATION: 26+26.72 -L-

SHEET 4 OF 7

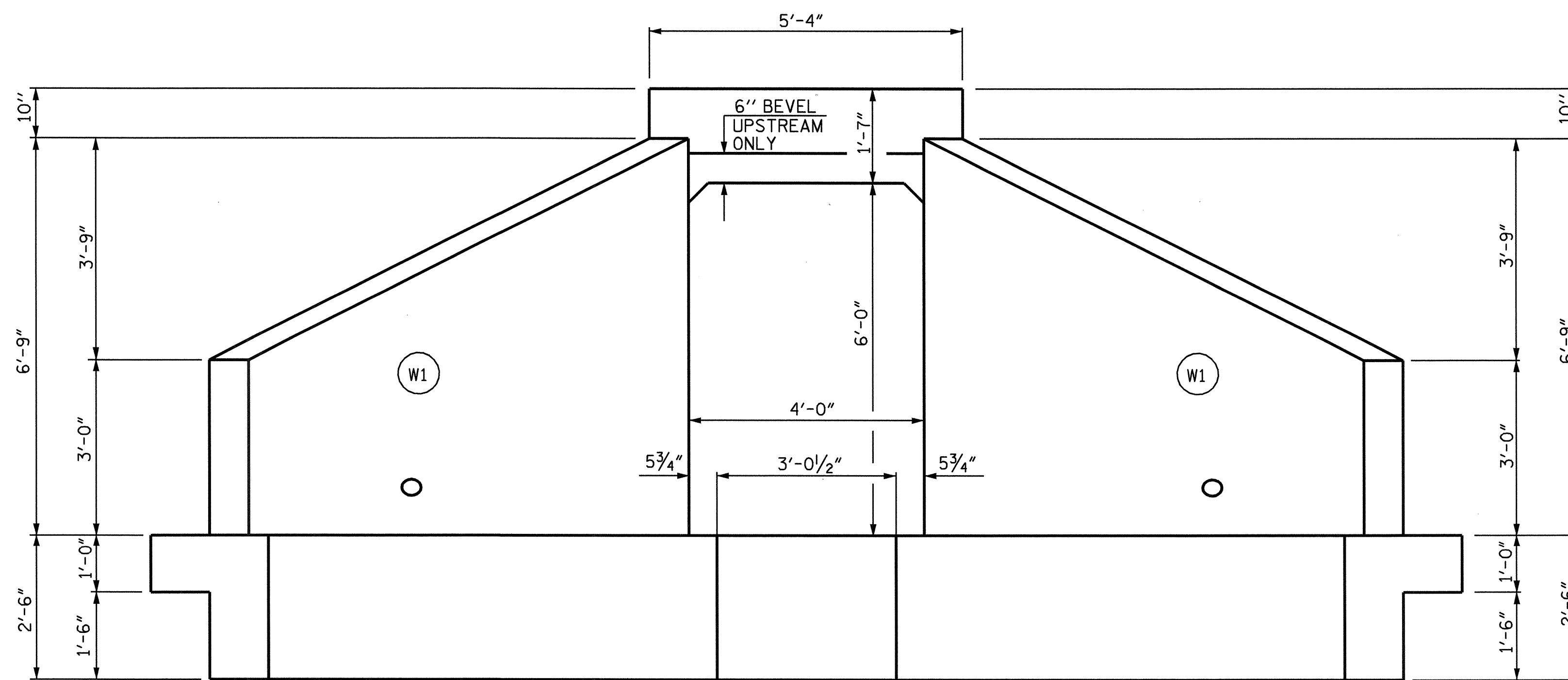
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD WINGS
 FOR OUTLET EXTENSION
 CONCRETE BOX CULVERT
 H = 8'-0" SLOPE = 2:1
 90° SKEW



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



CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION NORMAL TO SKEW

PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
 STATION: 26+26.72 -L-

SHEET 5 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SINGLE 4 FT. x 6 FT.
 INLET EXTENSION
 CONCRETE BOX CULVERT
 86°-22'-00" SKEW

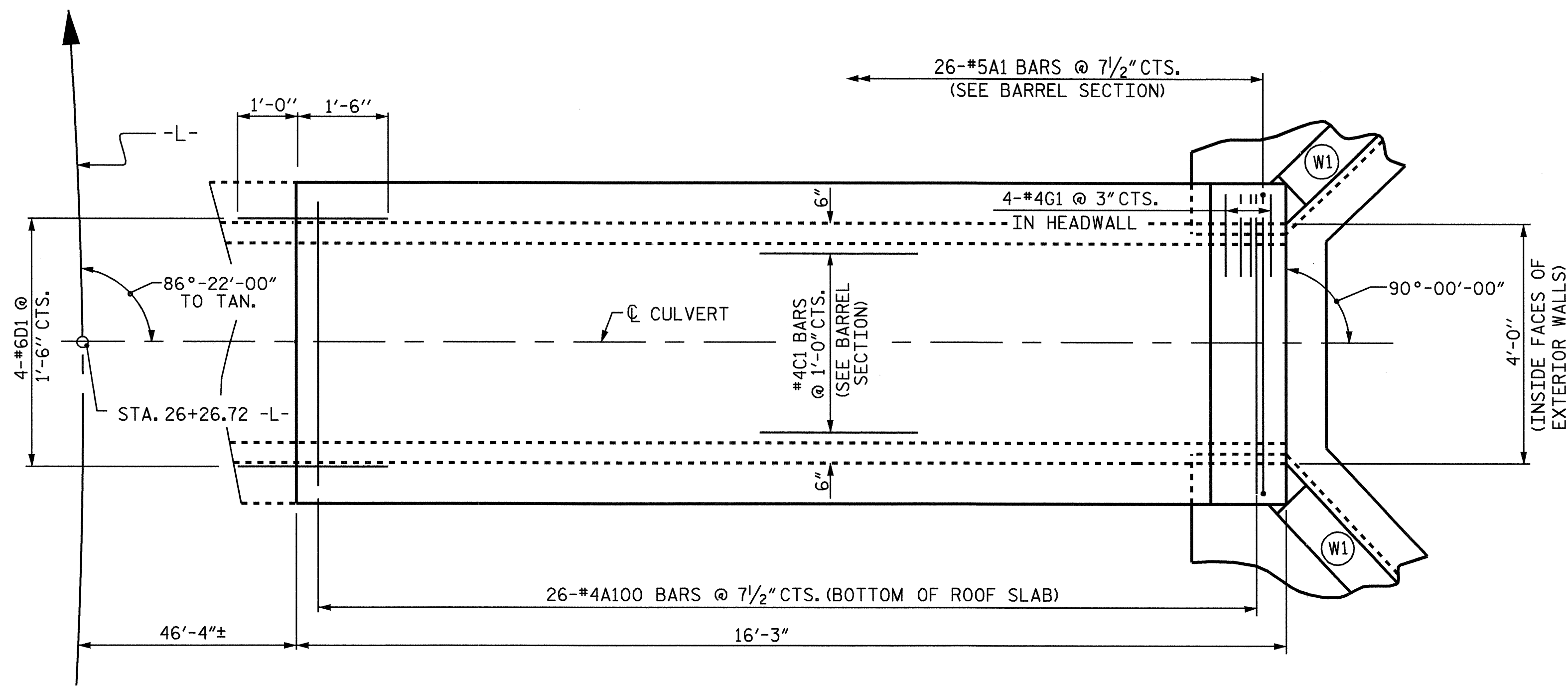


DRAWN BY : DAN PLATICA/SFD DATE : 8/10/04
 CHECKED BY : J. P. ADAMS DATE : 9/07/04

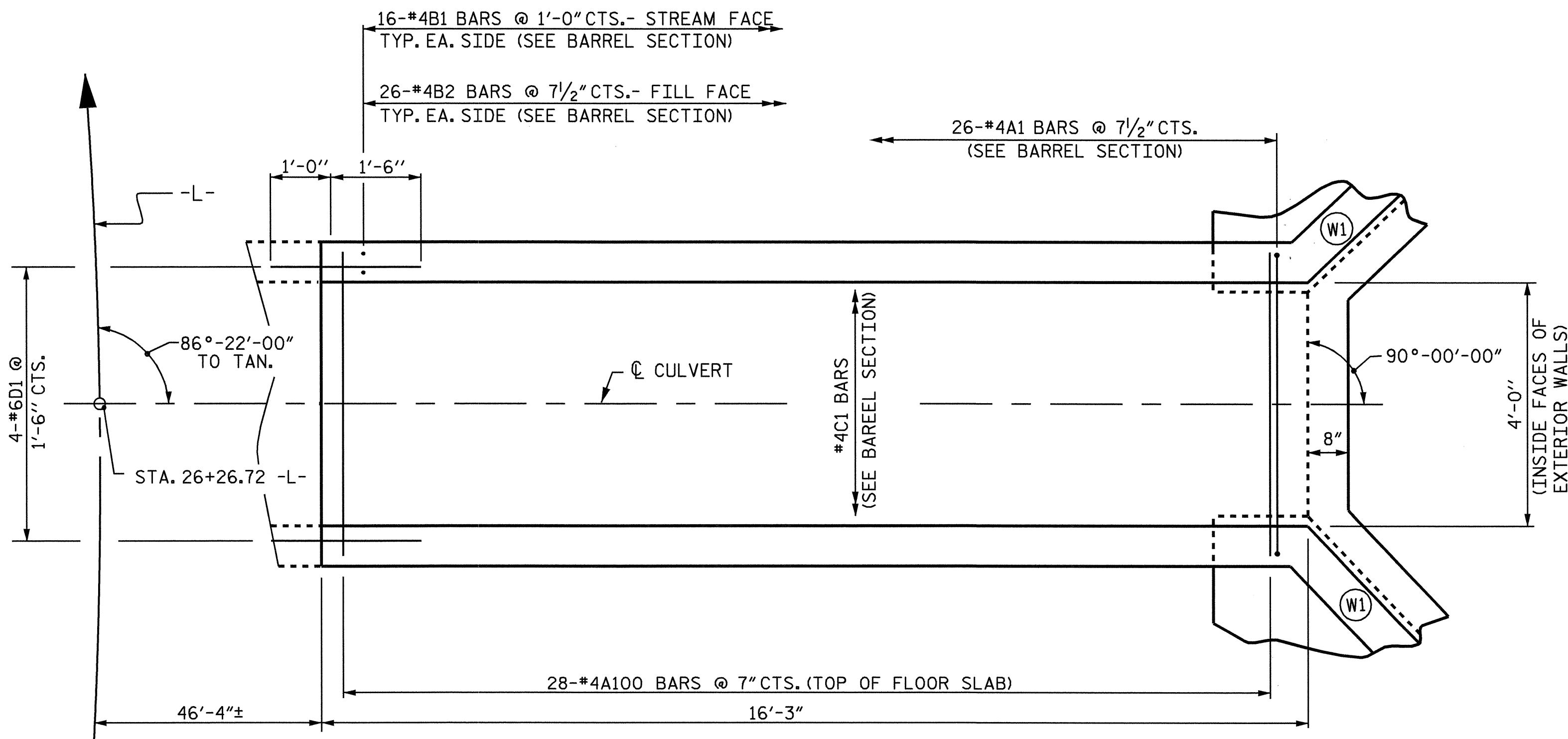
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-5
1			3			TOTAL SHEETS
2			4			7

STR. #2

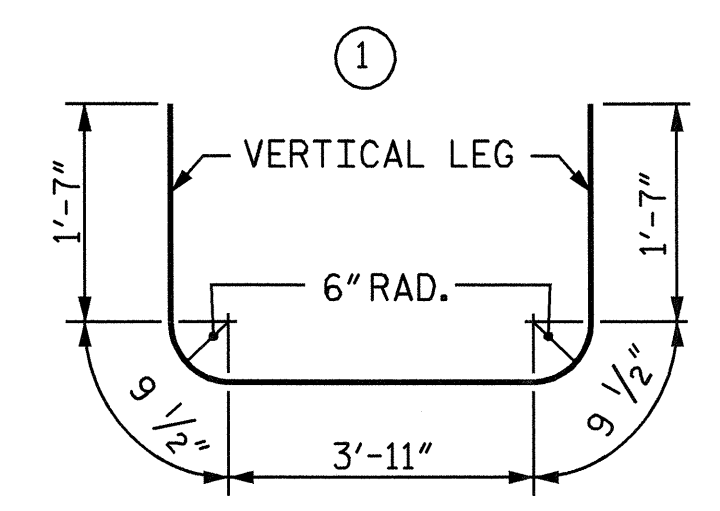


PLAN - ROOF SLAB



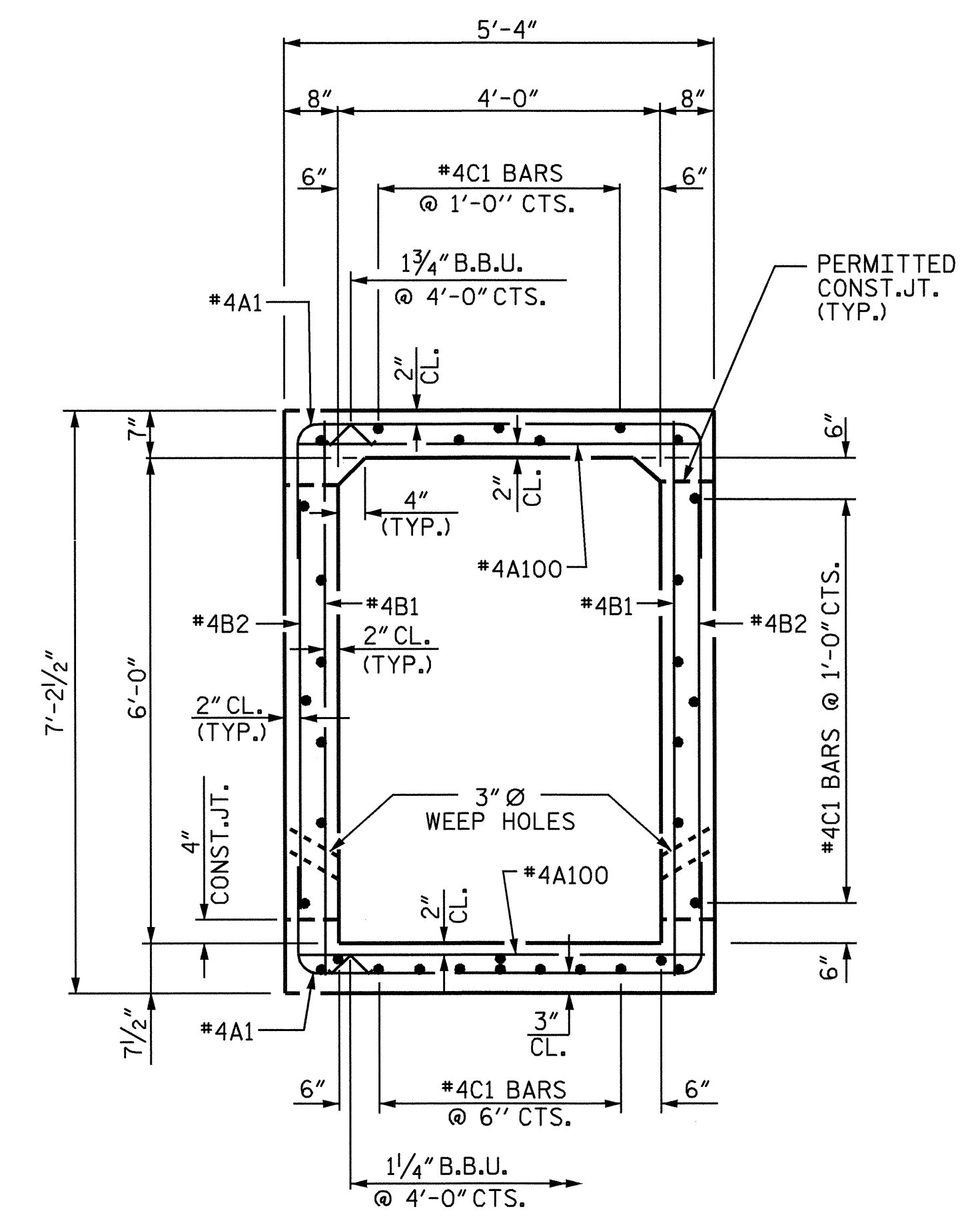
PLAN - FLOOR SLAB

BAR TYPE		BILL OF MATERIAL				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
A100	54	#4	STR	5'-0"	180	
A1	52	#4	1	8'-8"	301	
B1	32	#4	STR	6'-9"	144	
B2	52	#4	STR	5'-4"	185	
C1	33	#4	STR	15'-11"	351	
D1	16	#6	STR	2'-6"	60	
G1	4	#4	STR	5'-0"	13	
TOTAL REINFORCING STEEL (LBS.)					1,234	



BAR DIMENSIONS ARE OUT TO OUT

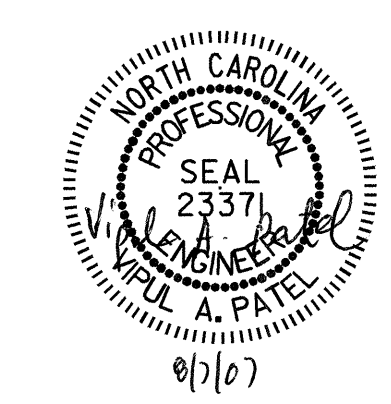
SPLICE LENGTHS CHART		
BAR	SIZE	SPLICE LENGTH
B1	#4	1'-9"
C1	#4	1'-11"



RIGHT ANGLE SECTION OF BARREL
THERE ARE 33 "C" BARS IN SECTION OF BARREL

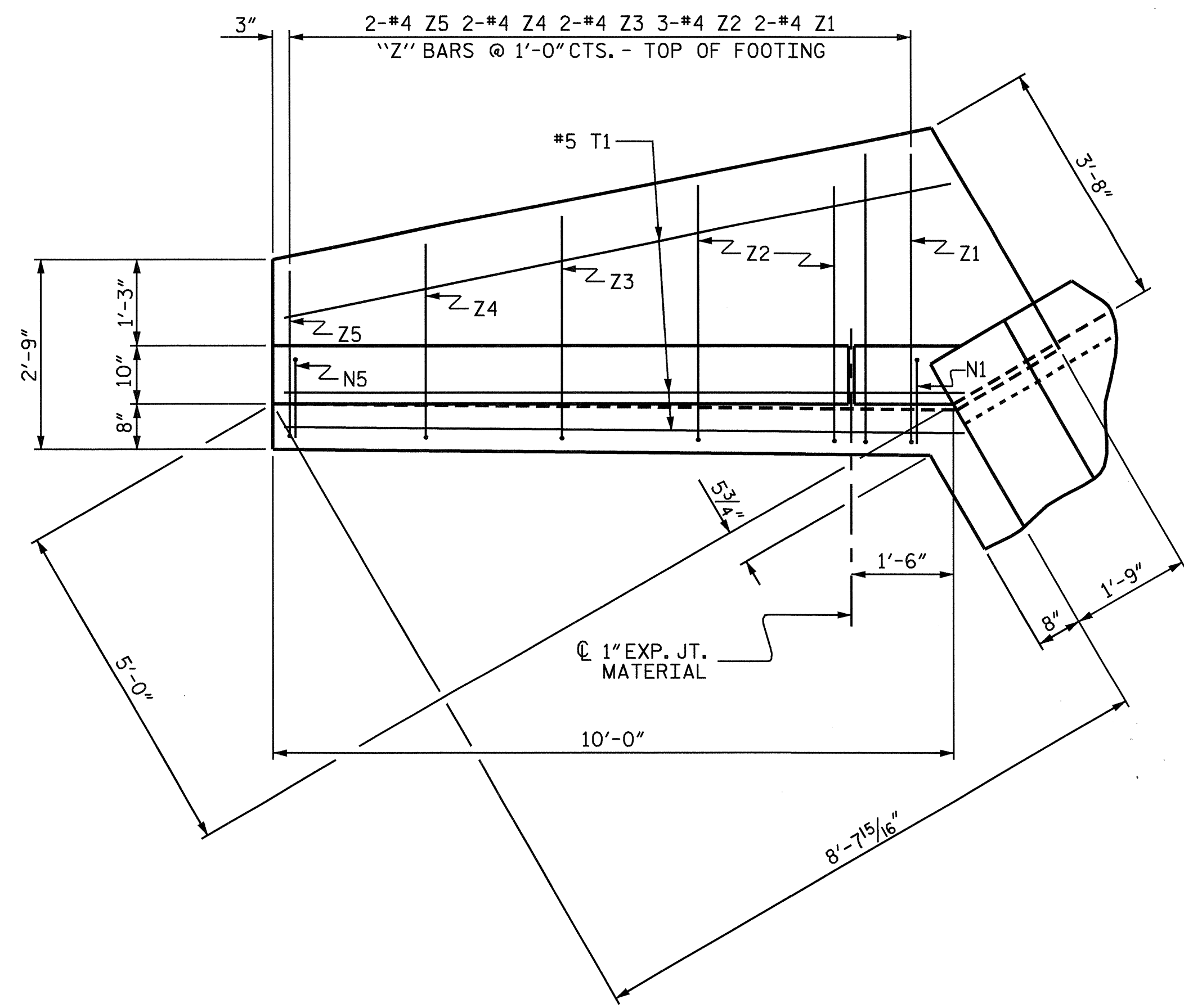
PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
 STATION: 26+26.72 -L-

SHEET 6 OF 7
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SINGLE 4 FT. x 6 FT.
 INLET EXTENSION
 CONCRETE BOX CULVERT
 86°-22'-00" SKEW

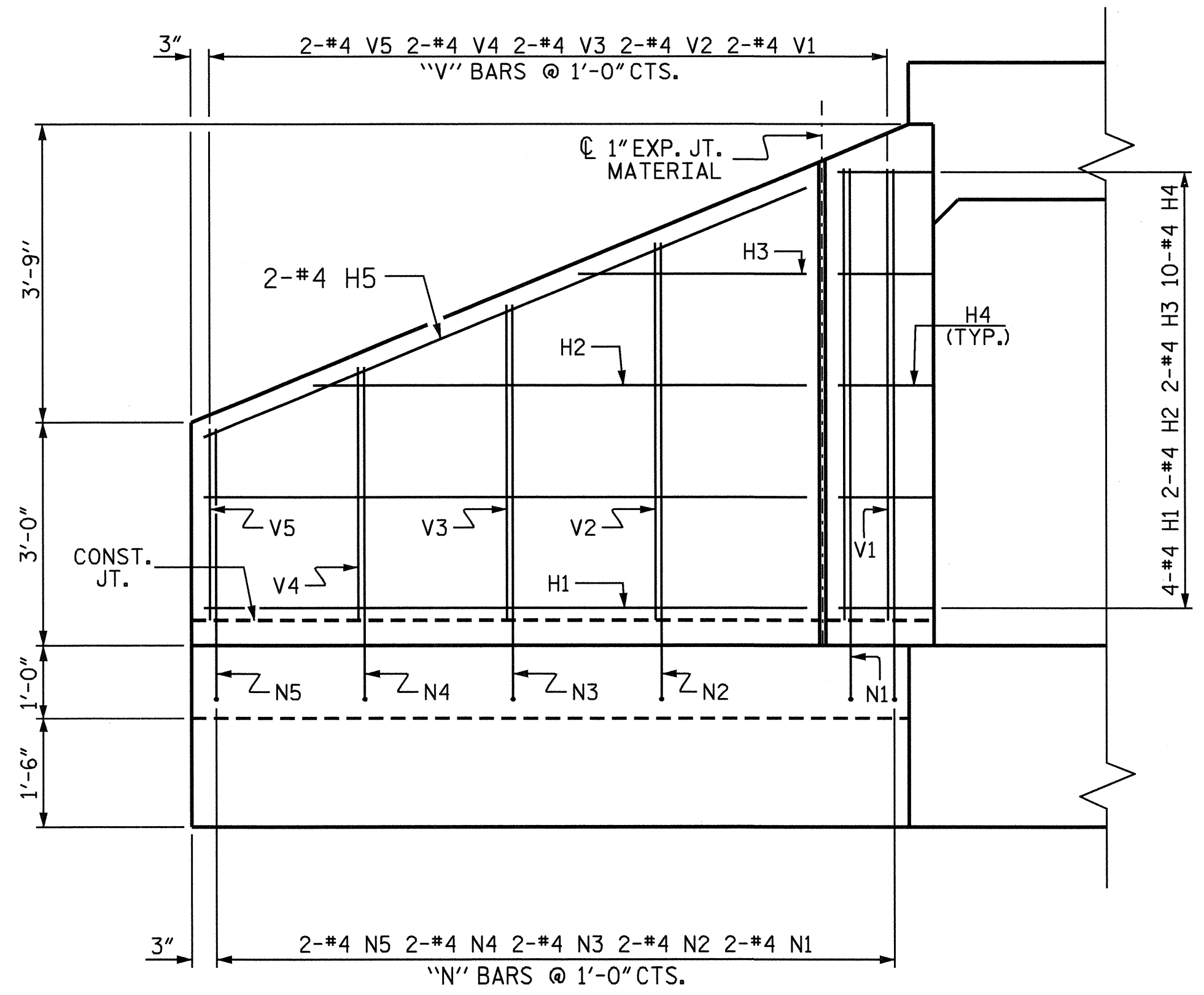


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-6
1			3			TOTAL SHEETS
2			4			7

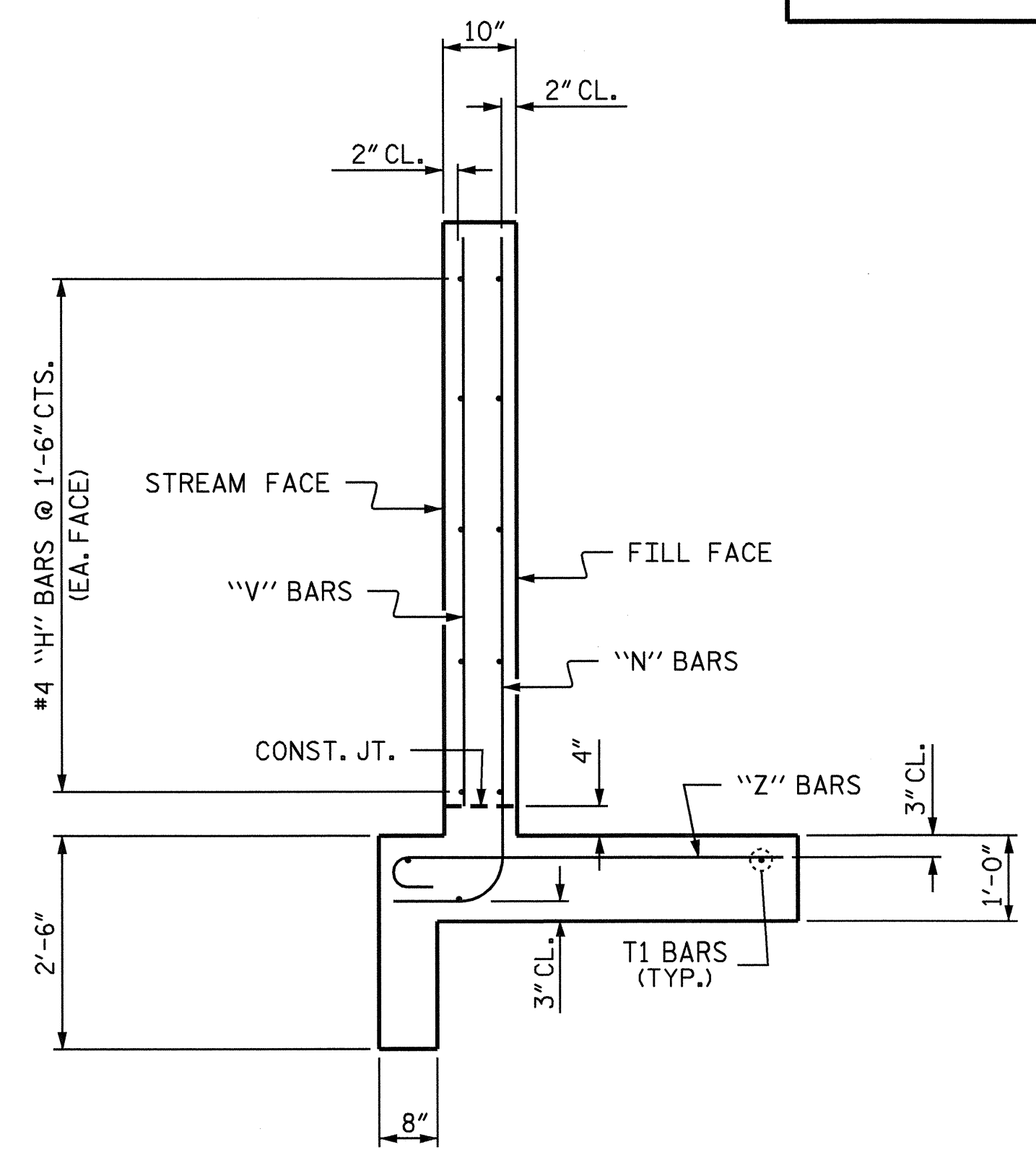
DRAWN BY : DAN PLATICA/SFD DATE : 8/09/04
 CHECKED BY : J.P. ADAMS DATE : 9/07/04



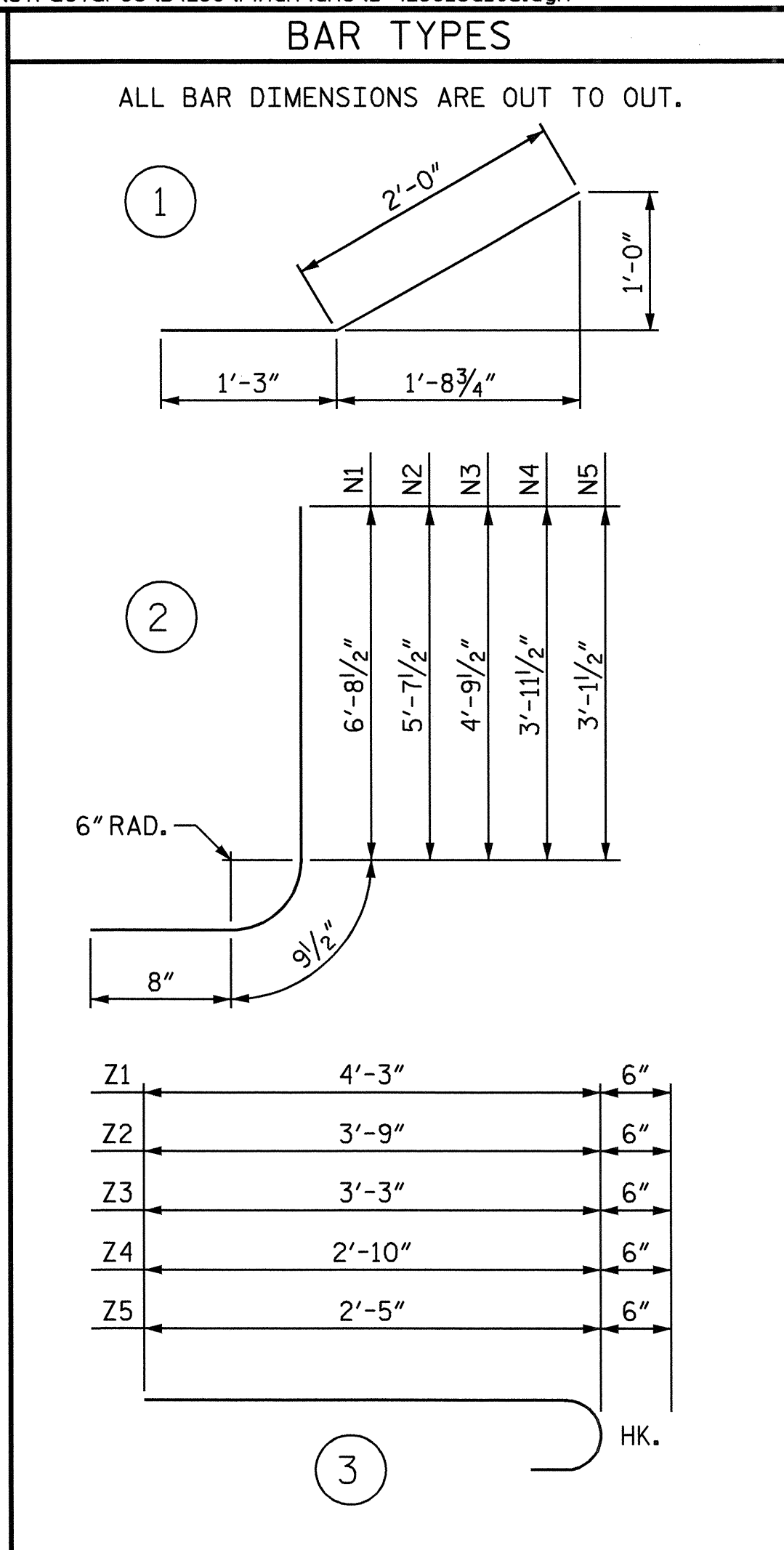
PLAN



ELEVATION



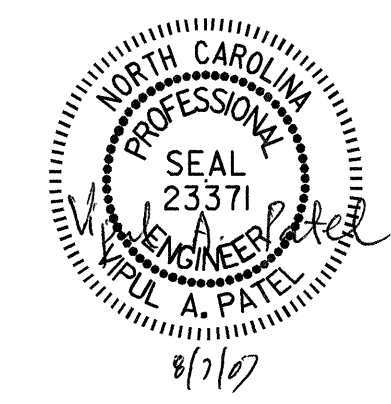
TYPICAL WING SECTION



BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	8	#4	STR	8'-1"	43
H2	4	#4	STR	6'-8"	18
H3	4	#4	STR	3'-1"	8
H4	20	#4	1	3'-3"	43
H5	4	#4	STR	8'-9"	23
N1	4	#4	2	8'-2"	22
N2	4	#4	2	7'-1"	19
N3	4	#4	2	6'-3"	17
N4	4	#4	2	5'-5"	14
N5	4	#4	2	4'-7"	12
T1	6	#5	STR	10'-0"	63
V1	4	#4	STR	6'-1"	16
V2	4	#4	STR	5'-1"	14
V3	4	#4	STR	4'-3"	11
V4	4	#4	STR	3'-5"	9
V5	4	#4	STR	2'-7"	7
Z1	4	#4	3	4'-9"	13
Z2	6	#4	3	4'-3"	17
Z3	4	#4	3	3'-9"	10
Z4	4	#4	3	3'-4"	9
Z5	4	#4	3	2'-11"	8

REINFORCING STEEL FOR 2 WINGS	396 LBS
CLASS A CONCRETE	
2 WINGS	6.9 CY
1 HEADWALL	0.2 CY
1 END CURTAIN WALL	0.2 CY
TOTAL	7.3 CY

ASSEMBLED BY : D. PLATICA/SFD DATE : 8/04/04
 CHECKED BY : J.P. ADAMS DATE : 9/07/04
 DRAWN BY : CCJ 10/99
 CHECKED BY : RWW 03/00



PROJECT NO. B-4256
ROWAN/DAVIE COUNTY
 STATION: 26+26.72 -L-

SHEET 7 OF 7
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
STANDARD WINGS FOR INLET EXTENSION CONCRETE BOX CULVERT
 H = 6'-0" SLOPE = 2:1
 90° SKEW

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

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.

ENGLISH

JANUARY, 1990

STD. NO. SN