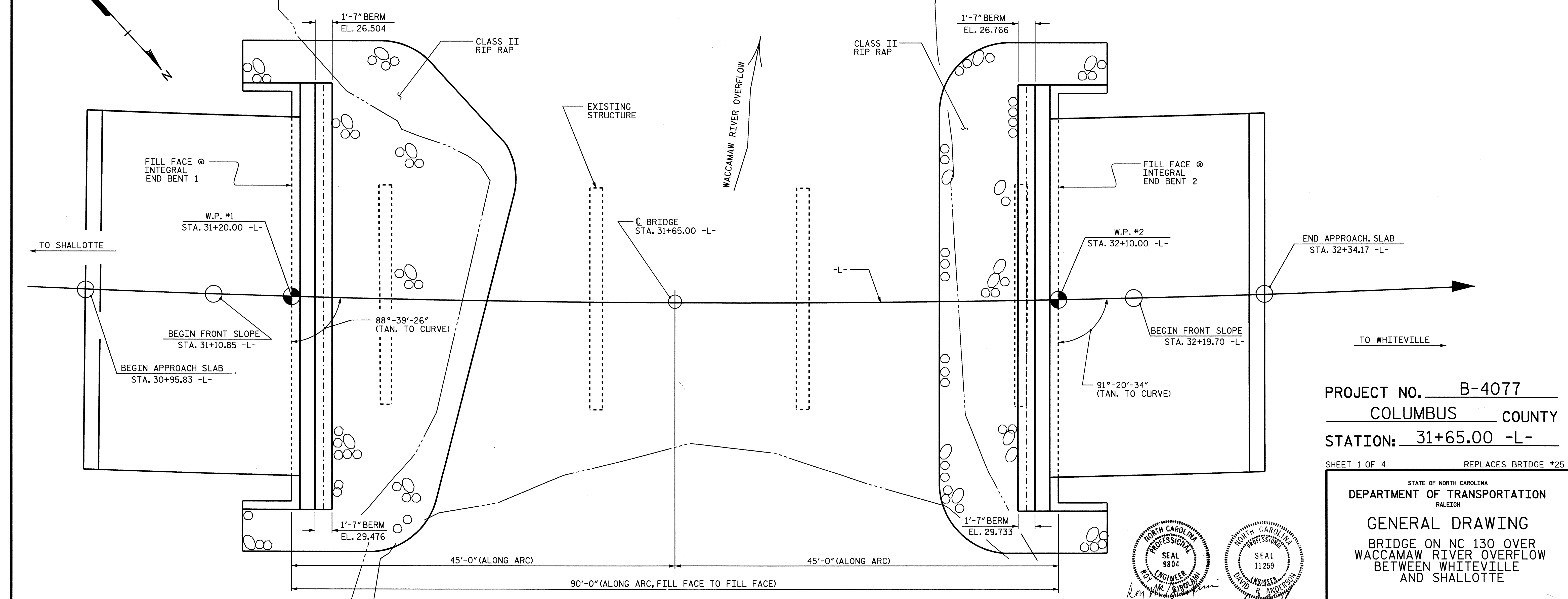


HYDRAULIC DATA

DESIGN DISCHARGE..... 3631 CFS.
 FREQUENCY OF DESIGN FLOOD..... 50 YEARS
 DESIGN HIGH WATER ELEVATION..... 34.300
 DRAINAGE AREA..... 139 SQ. MI.
 BASIC DISCHARGE(Q100)..... 4263 CFS
 BASIC HIGH WATER ELEVATION..... 35.500

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE 6138 CFS
 FREQUENCY OF OVERTOPPING FLOOD..... 500 YRS.
 OVERTOPPING FLOOD ELEVATION..... 36.600



PLAN
(PILES NOT SHOWN FOR CLARITY)

DRAWN BY : S.M. RASHIDI DATE : 2-27-06
 CHECKED BY : N. TRAN DATE : 3-27-06

PROJECT NO. B-4077
 COLUMBUS COUNTY
 STATION: 31+65.00 -L-

SHEET 1 OF 4 REPLACES BRIDGE #25

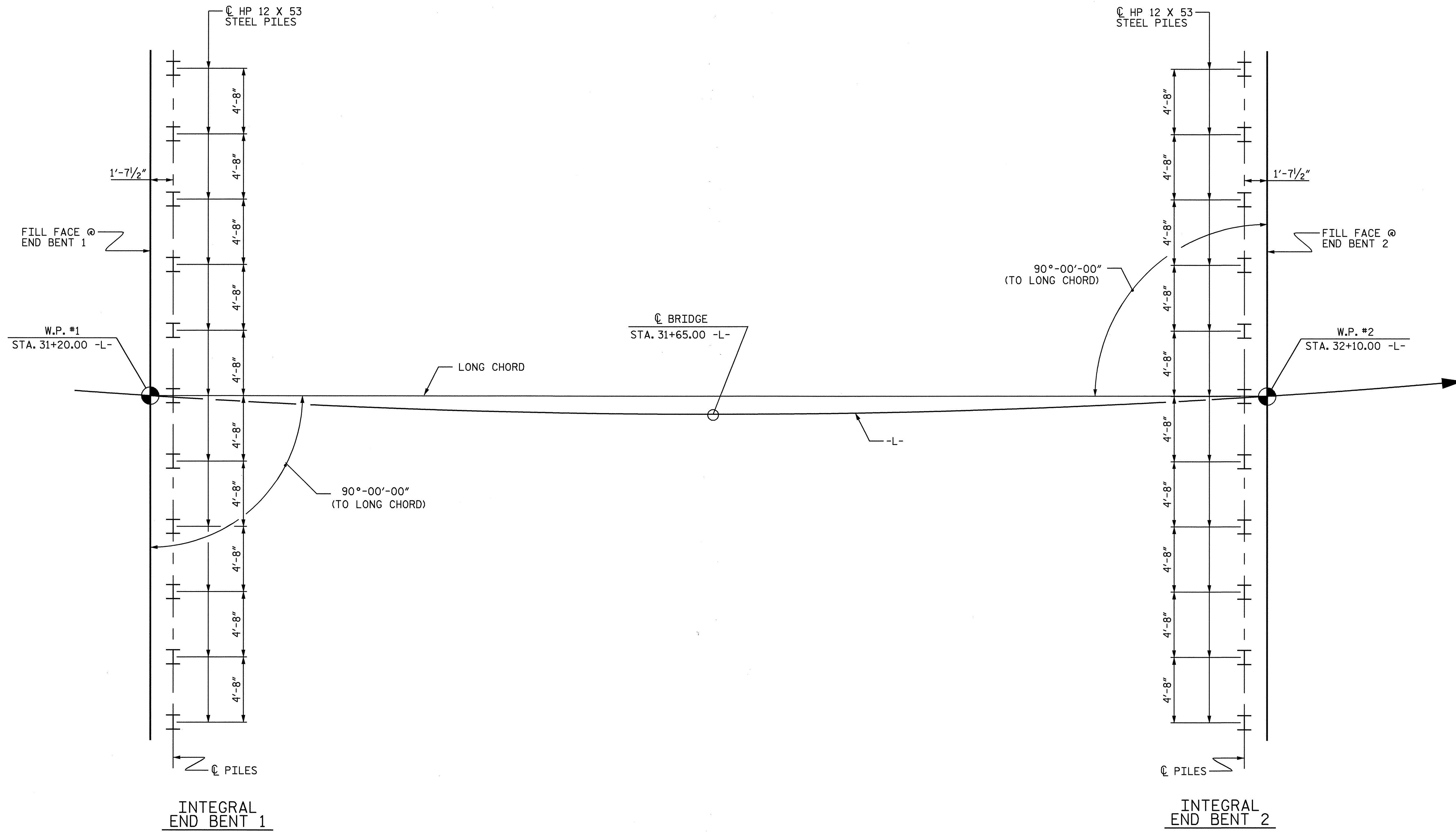
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON NC 130 OVER
 WACCAMAW RIVER OVERFLOW
 BETWEEN WHITEVILLE
 AND SHALLOTTE

REVISIONS						SHEET NO. S-22
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 49
2			4			

PROFESSIONAL ENGINEER
 SEAL 9804
 RAY M. RASHIDI
 6-19-08

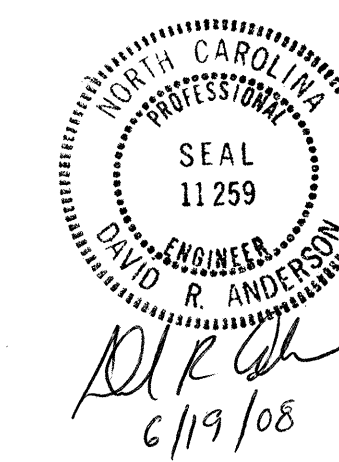
PROFESSIONAL ENGINEER
 SEAL 11259
 DAVID R. ANDERSON
 6/19/08



FOUNDATION LAYOUT
 DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE

PROJECT NO. B-4077
COLUMBUS COUNTY
 STATION: 31+65.00 -L-

SHEET 2 OF 4

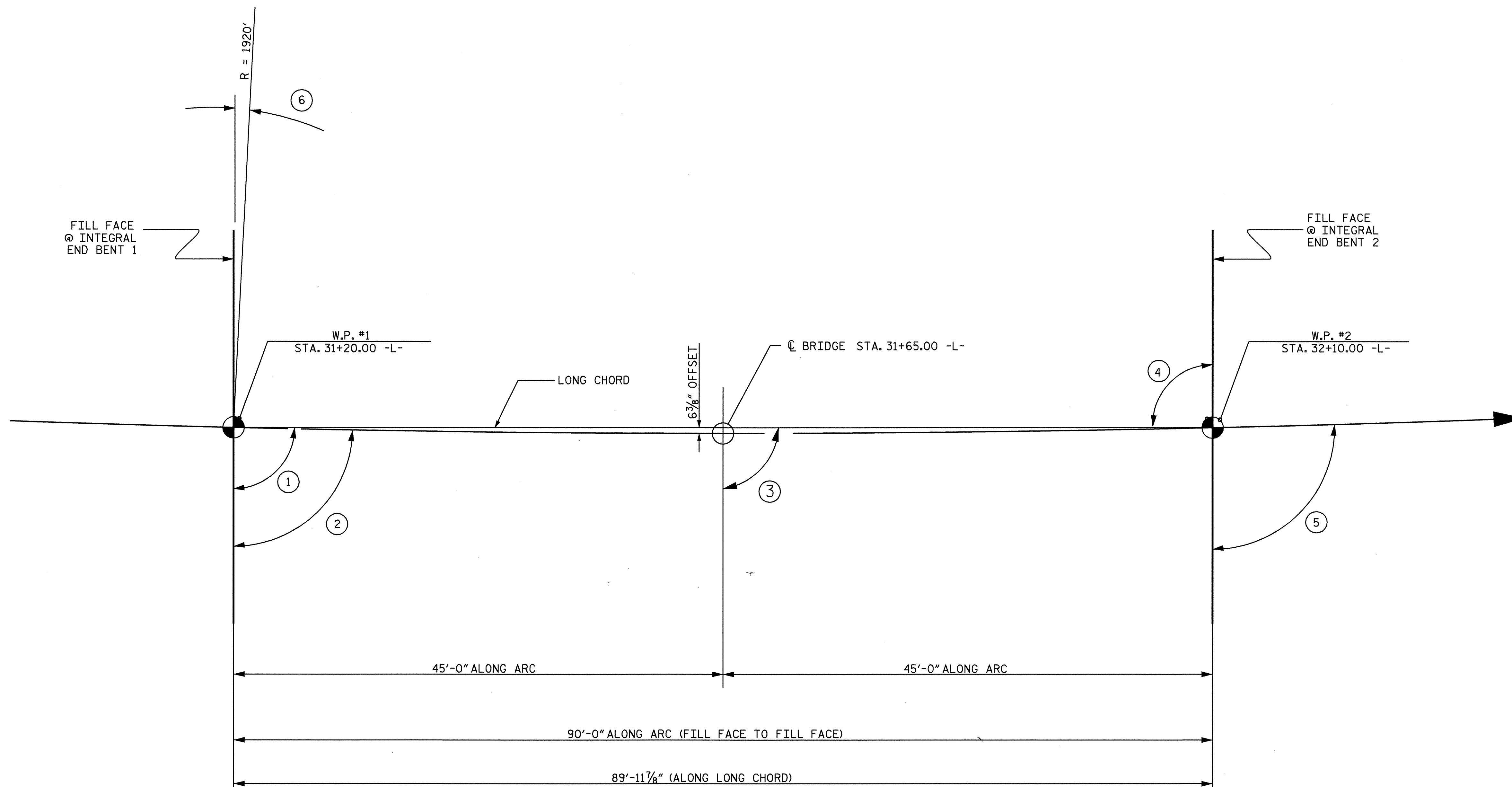


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON NC 130 OVER
 WACCAMAW RIVER OVERFLOW
 BETWEEN WHITEVILLE
 AND SHALLOTTE

DRAWN BY: E.C. LOCKLEAR DATE: 5-22-07
 CHECKED BY: N. Q. TRAN DATE: 2-22-08

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	5-23	
1			3			TOTAL SHEETS	49
2			4				



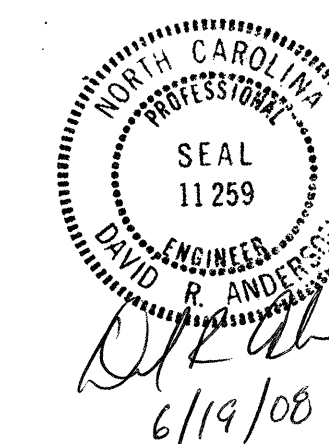
LONG CHORD LAYOUT

ANGLES

- ① 90°-00'-00"
- ② 88°-39'-26" (TANGENT TO CURVE)
- ③ 90°-00'-00"
- ④ 90°-00'-00"
- ⑤ 91°-20'-34" (TANGENT TO CURVE)
- ⑥ 1°-20'-34"

PROJECT NO. B-4077
COLUMBUS COUNTY
 STATION: 31+65.00 -L-

SHEET 3 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 BRIDGE ON NC 130 OVER
 WACCAMAW RIVER OVERFLOW
 BETWEEN WHITEVILLE
 AND SHALLOTTE

DRAWN BY : S. L. WANCE DATE : 04-17-08
 CHECKED BY : N. Q. TRAN DATE : 04-22-08

18-JUN-2008 12:50
 I:\Structures\FINAL PLANS\04_B4077_SD_01.LC.dgn
 danderson

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-24
1			3			TOTAL SHEETS
2			4			49

TOTAL BILL OF MATERIAL																		
	CONST., MAINT. & REMOVAL OF TEMP. STR.	REMOVAL OF EXISTING STRUCTURE	PDA ASSISTANCE	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	54" PRESTRESSED CONC. GIRDERS	HP 12 X 53 STEEL PILES	PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	LIN. FT.	NO.	LIN. FT.	EACH	LIN. FT.	TONS	SQ. YARDS	LUMP SUM	LUMP SUM
SUPERSTRUCTURE					3,826	4,099				440.78			180.0					
END BENT 1							28.4		4,666		11	550		290	320			
END BENT 2							28.4		4,666		11	605		135	150			
TOTAL	LUMP SUM	LUMP SUM	1	LUMP SUM	3,826	4,099	56.8	LUMP SUM	9,332	440.78	22	1,155	8	180.0	425	470	LUMP SUM	LUMP SUM

NOTES

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

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING, EXCEPT THAT 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 STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.

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

DRIVE PILES AT END BENT NO. 1 AND NO. 2 TO A REQUIRED BEARING CAPACITY OF 120 TONS PER PILE; THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT NO. 1 AND END BENT NO. 2 IS 60 TONS PER PILE.

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.

THE EXISTING BRIDGE IS 77' LONG, CONSISTING OF 3 SPANS (1 @ 25'-9", 1 @ 25' AND 1 @ 26') WITH REINFORCED CONCRETE DECK ON CONTINUOUS I-BEAMS, CLEAR ROADWAY IS 25'-11", TIMBER CAPS AND TIMBER PILES FOR THE END BENTS AND INTERIOR BENTS AND LOCATED AT PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING STRUCTURE PRESENTLY IS POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF PROJECT.

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

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.

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

TESTING PILES WITH THE PILE DRIVING ANALYZER FOR LRFD IS REQUIRED AT END BENT 2. SEE PILE DRIVING ANALYZER FOR LRFD SPECIAL PROVISIONS.

THE CONTRACTOR'S ATTENTION IS DRAWN TO THE ORIENTATION OF THE HP 12 x 53 PILES AS SHOWN ON THE FOUNDATION LAYOUT AT THE END BENTS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE".

FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

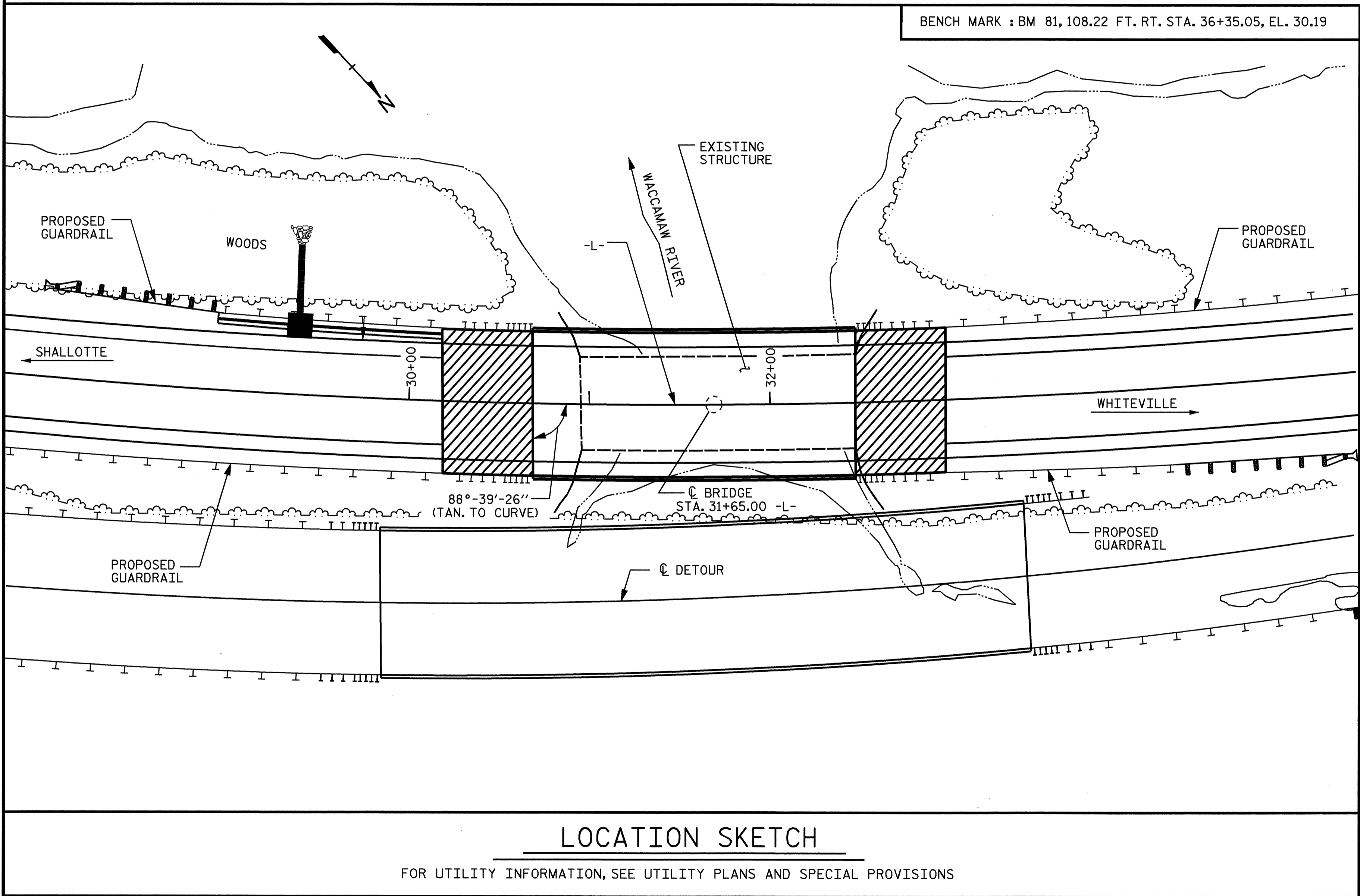
NO WAITING PERIOD IS REQUIRED FOR END BENT CONSTRUCTION AFTER COMPLETION OF EMBANKMENT.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF APPROXIMATELY 30 FT. EACH SIDE OF ROADWAY CENTERLINE AT END BENT 1 AND END BENT 2 AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

THE TEMPORARY STRUCTURE IS TO BE CONSTRUCTED SO THAT NO BENTS ARE PLACED IN THE WATER.

THE BRIDGE RAILS ON THE TEMPORARY STRUCTURE SHALL BE DESIGNED FOR THE AASHTO LRFD TEST LEVEL 3 (TL-3) CRASH TEST CRITERIA. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.



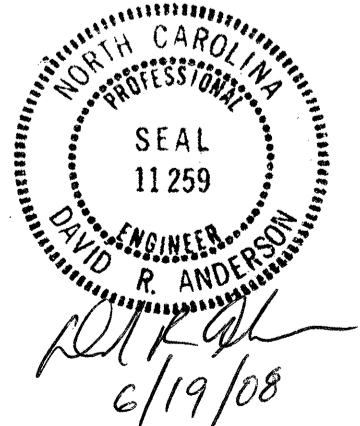
DRAWN BY : N. Q. TRAN DATE : 10-17-07
 CHECKED BY : J. A. TILLMAN DATE : 4-15-08

PROJECT NO. B-4077
 COLUMBUS COUNTY
 STATION: 31+65.00 -L-

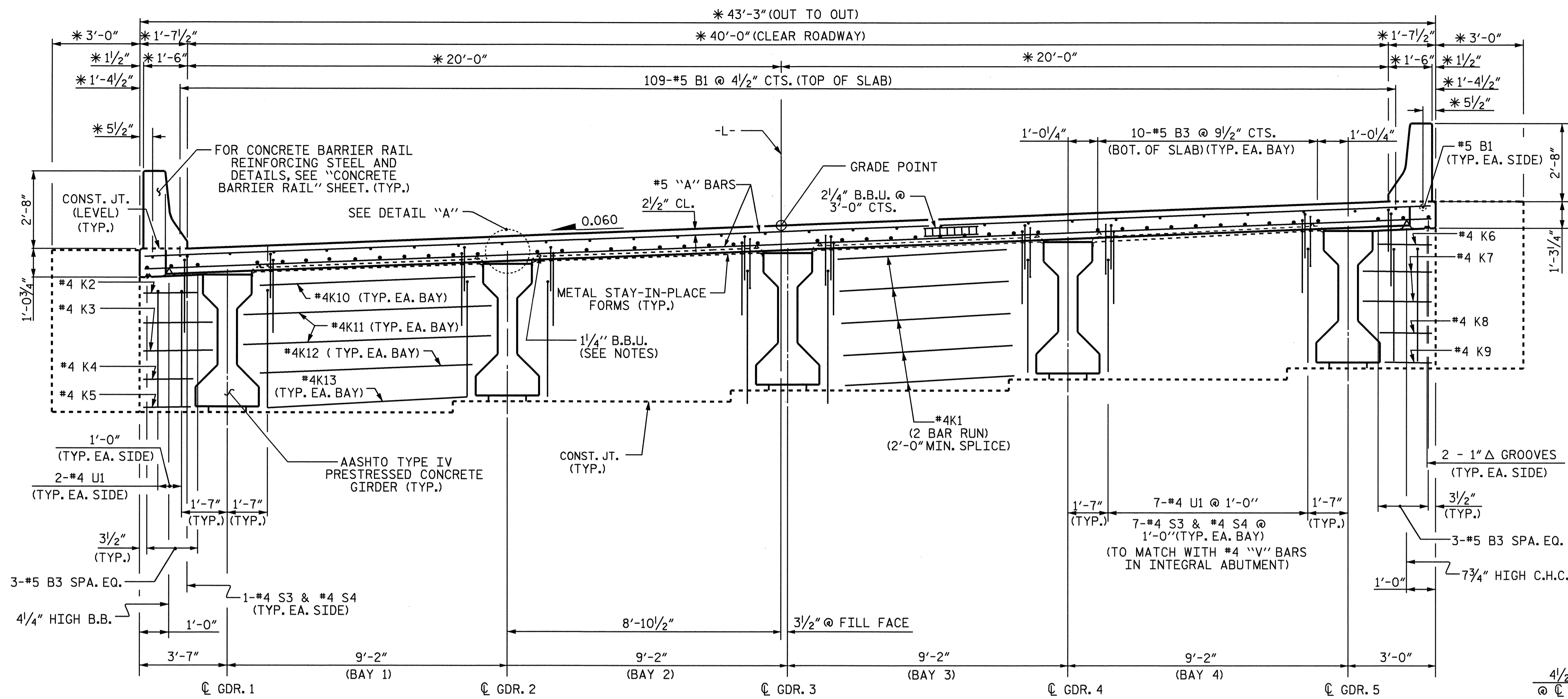
SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

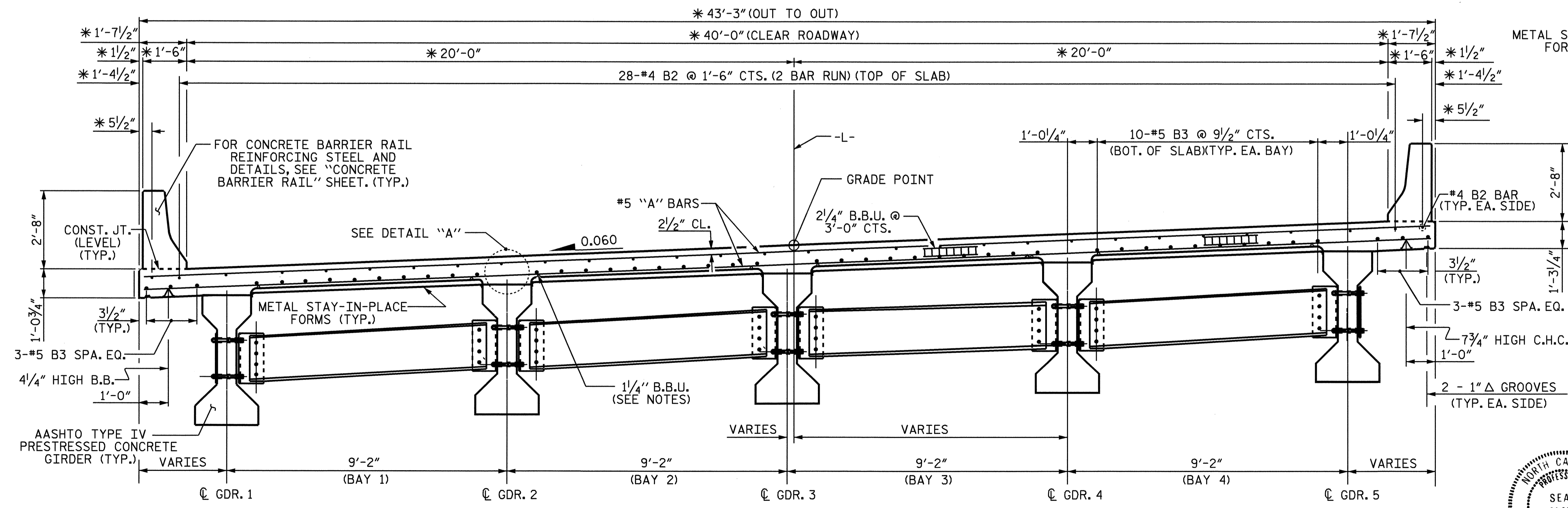
GENERAL DRAWING
 BRIDGE ON NC 130 OVER
 WACCAMAW RIVER OVERFLOW
 BETWEEN WHITEVILLE
 AND SHALLOTTE



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	3-25
1			3			TOTAL SHEETS 49
2			4			



TYPICAL SECTION @ INTEGRAL END BENT



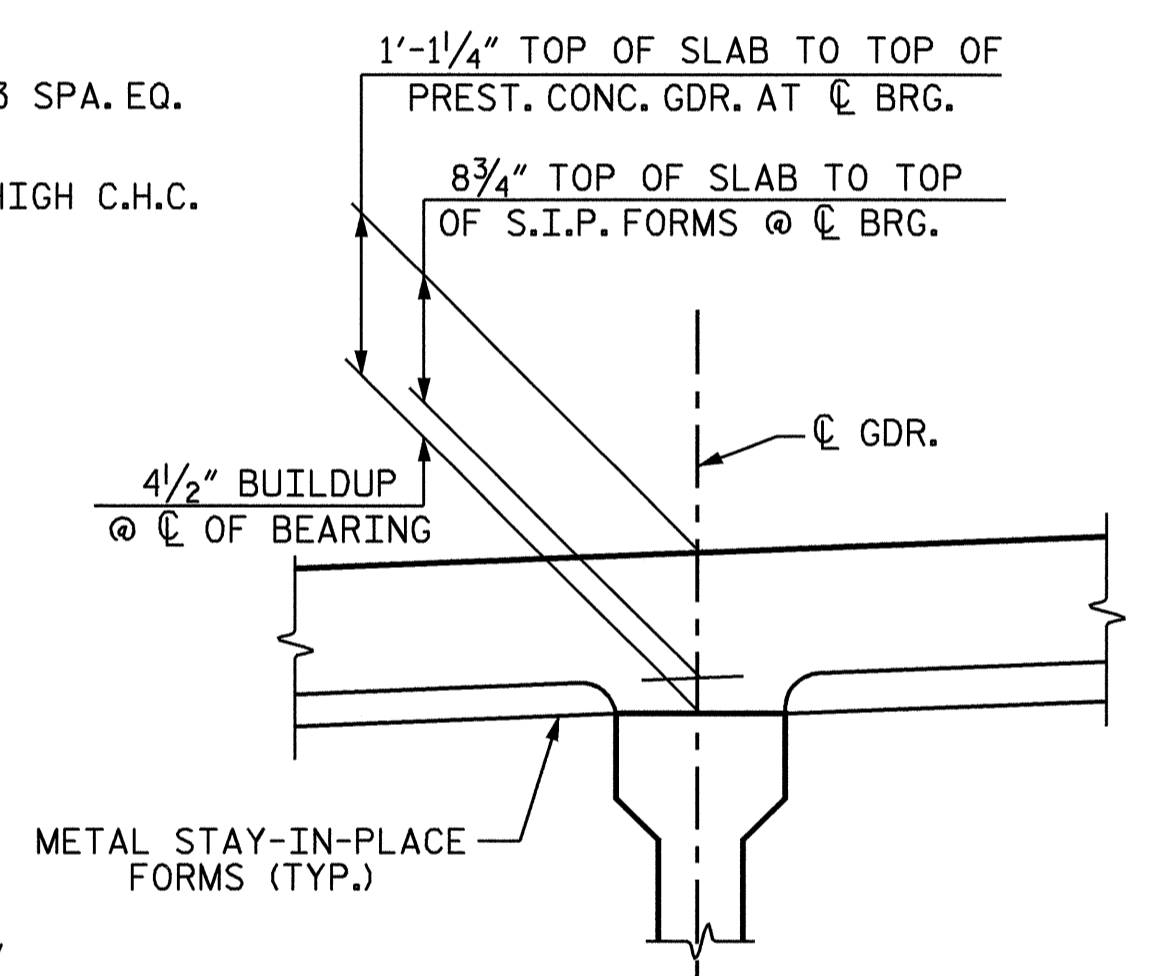
TYPICAL SECTION @ INTERMEDIATE DIAPHRAGM

FOR ADDITIONAL DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS", SHEET 3 OF 3.

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.

* RADIAL DIMENSIONS TO -L-

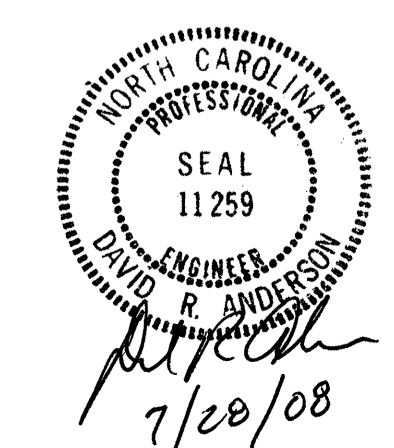


DETAIL A

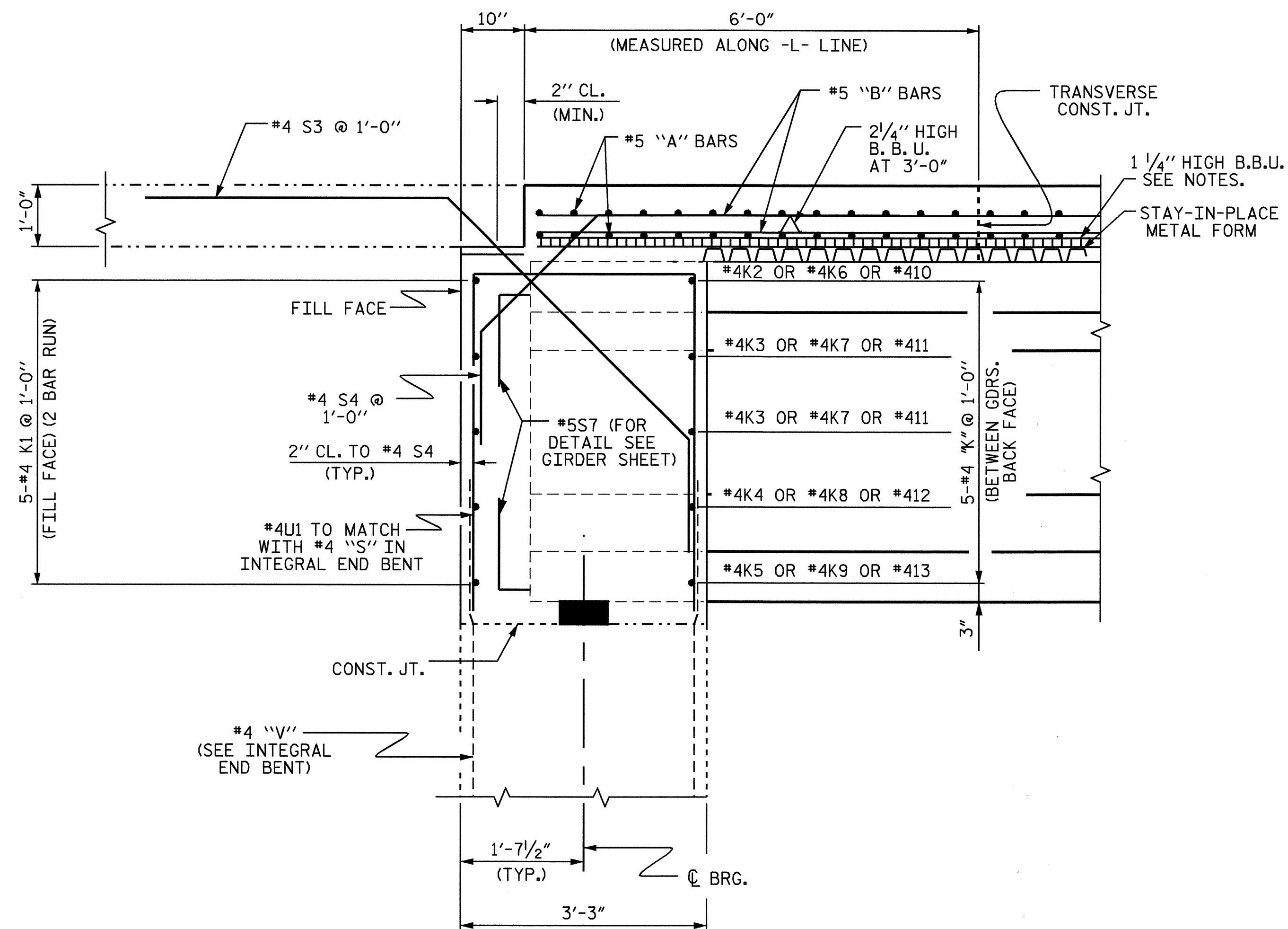
PROJECT NO. B-4077
 COLUMBUS COUNTY
 STATION: 31+65.00 -L-

SHEET 1 OF 2

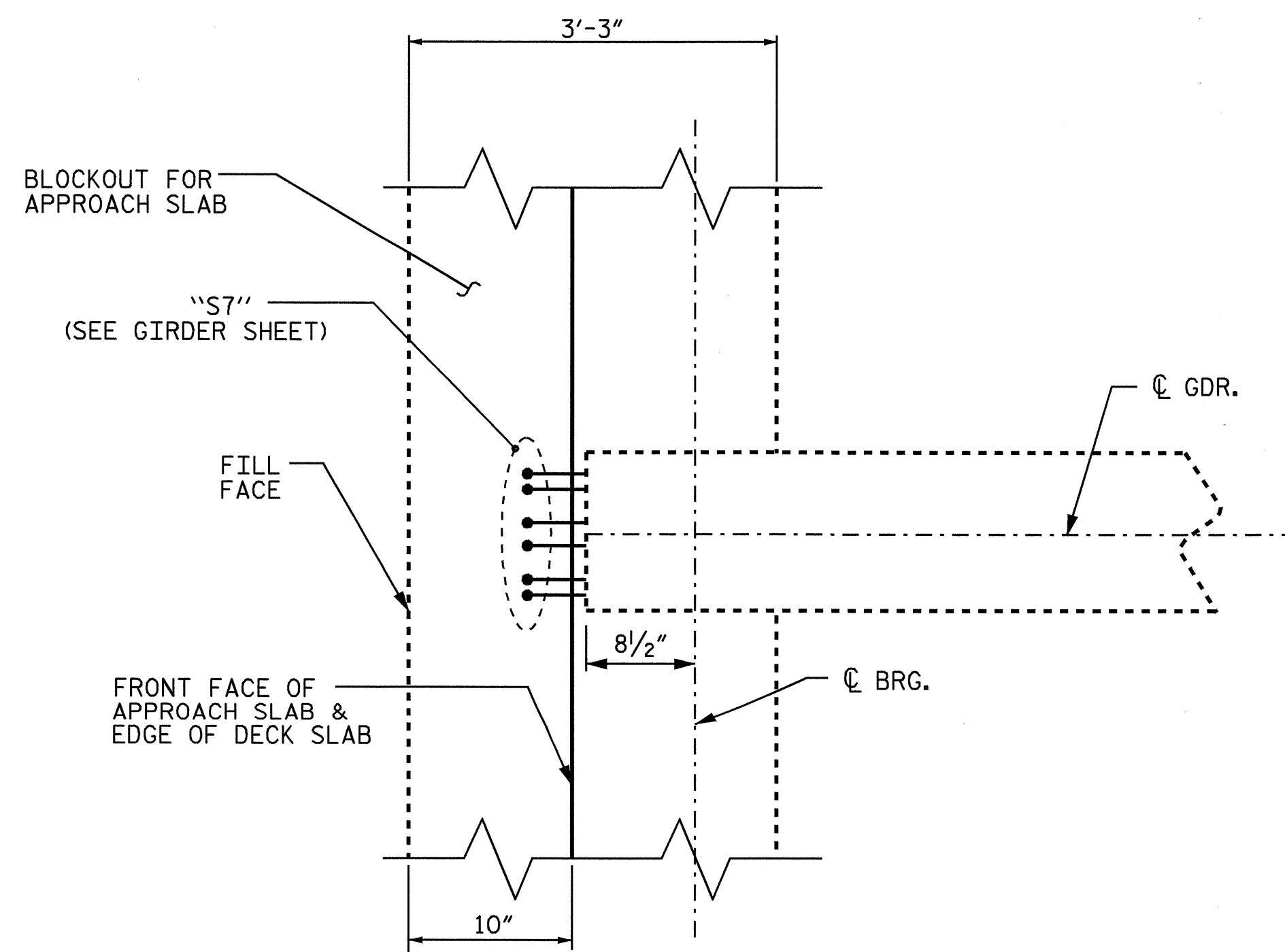
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 49



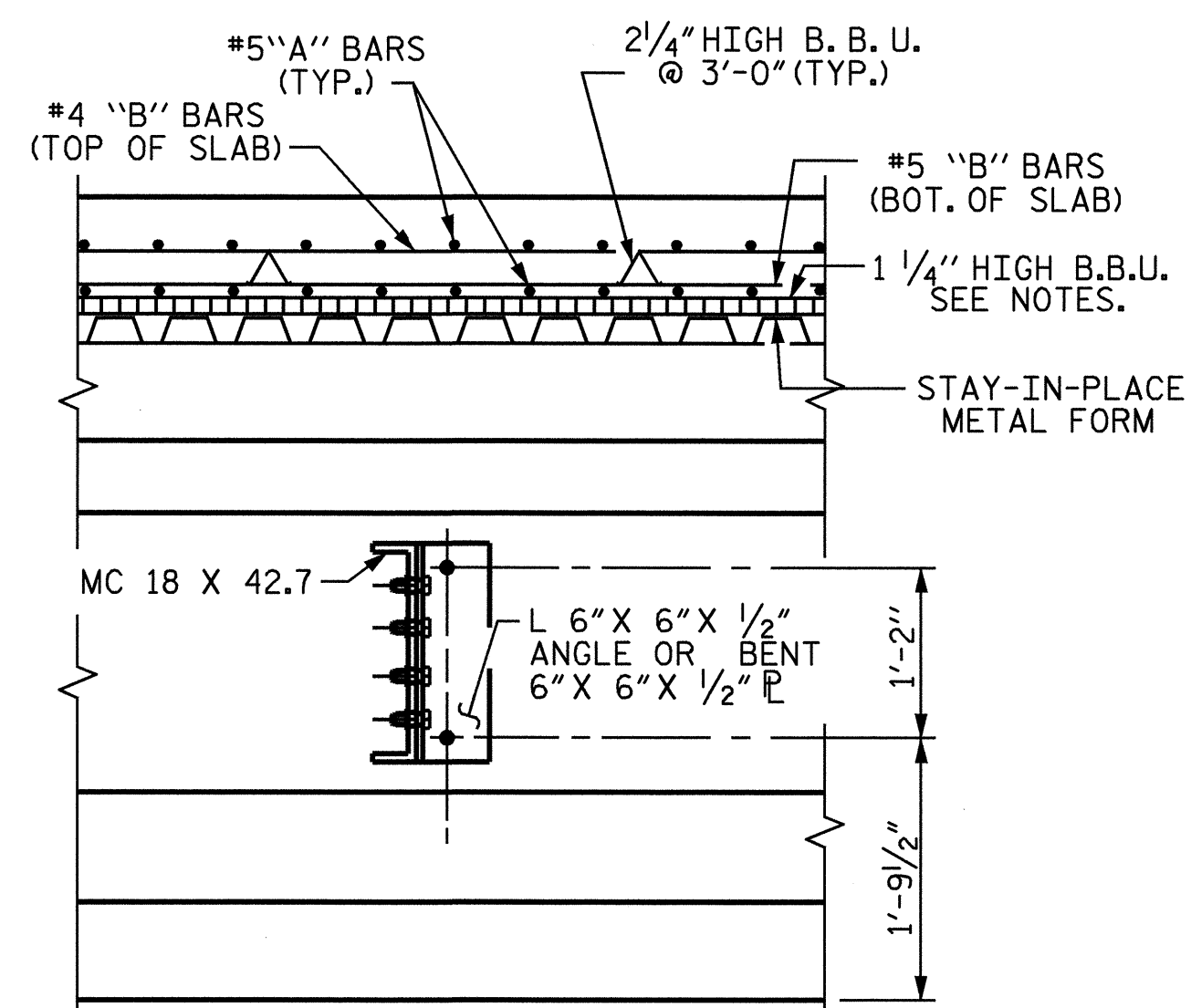
DRAWN BY: S. M. RASHIDI DATE: 2/07
 CHECKED BY: WILLIAM F. PARKER DATE: 4/07



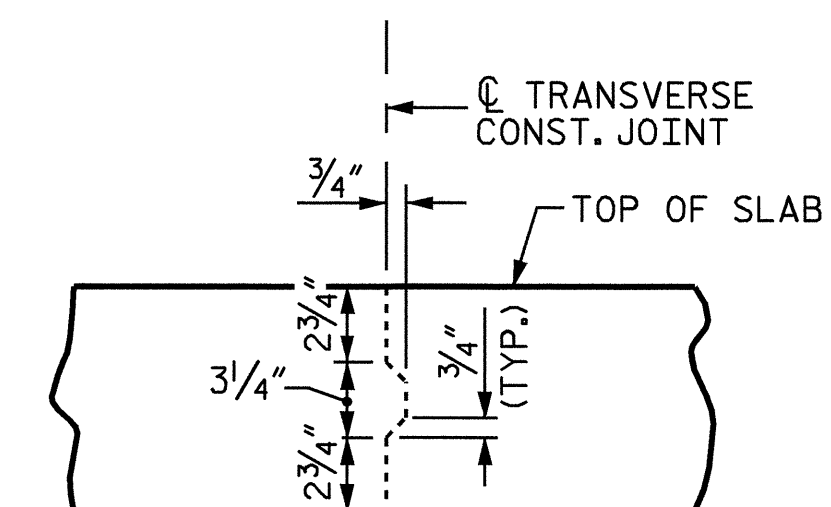
SECTION THRU INTEGRAL END BENT



PLAN OF GIRDER AT INTEGRAL ABUTMENT



INTERMEDIATE STEEL DIAPHRAGM



TRANSVERSE CONSTRUCTION JOINT DETAIL

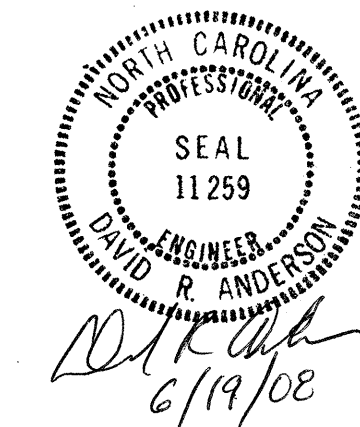
NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THROUGH JOINT.

PROJECT NO. B-4077
COLUMBUS COUNTY
 STATION: 31+65.00 -L-

SHEET 2 OF 2

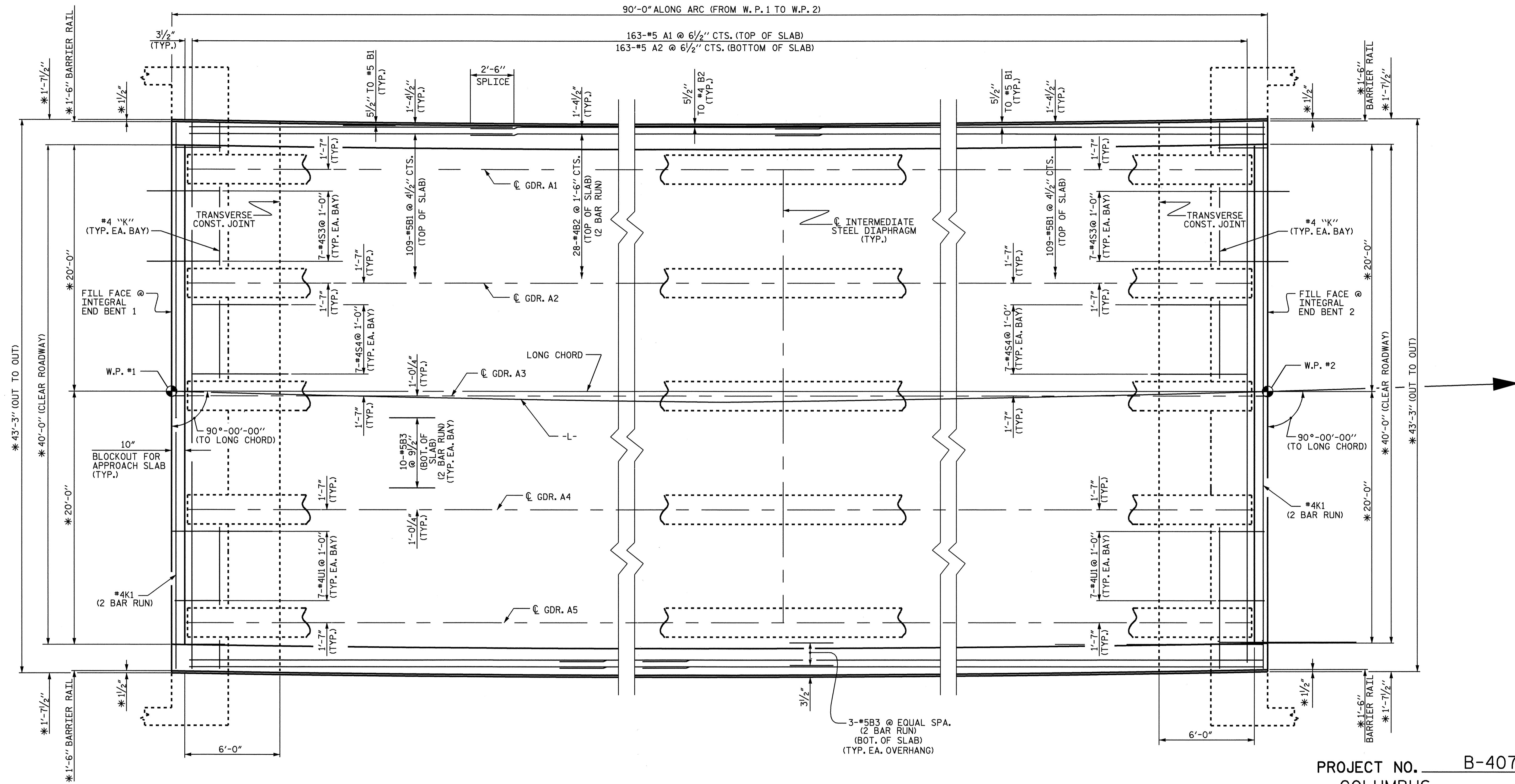
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 TYPICAL SECTION



DRAWN BY: S. M. RASHIDI DATE: 2/7/07
 CHECKED BY: WILLIAM F. PARKER DATE: 4/07

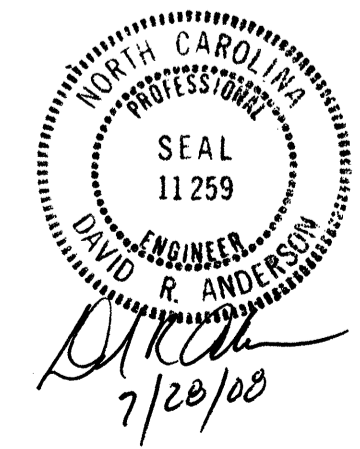
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-27
2			4			49



PLAN OF SPAN A
* RADIAL DIMENSION TO -L-

PROJECT NO. B-4077
COLUMBUS COUNTY
 STATION: 31+65.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. 5-28					TOTAL SHEETS 49

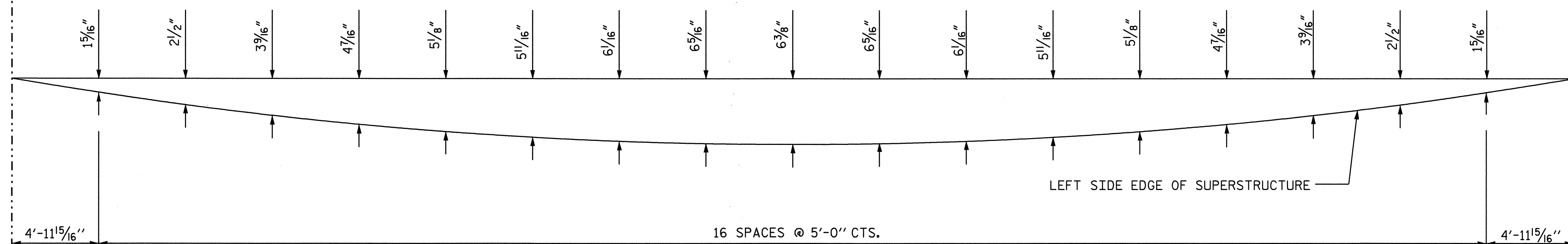


DRAWN BY: S. M. RASHIDI DATE: 2/12/07
 CHECKED BY: WILLIAM F. PARKER DATE: 4/07

FILL FACE
INTEGRAL
END BENT 1

FILL FACE
INTEGRAL
END BENT 2

89'-11 7/8"



LEFT SIDE EDGE OF SUPERSTRUCTURE

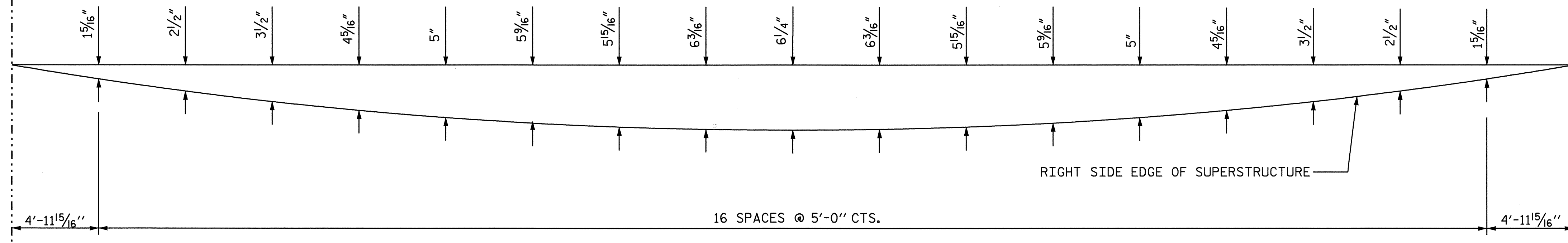
16 SPACES @ 5'-0" CTS.

SPAN A
ARC OFFSETS
 (LEFT SIDE)

FILL FACE
INTEGRAL
END BENT 1

FILL FACE
INTEGRAL
END BENT 2

89'-11 7/8"



RIGHT SIDE EDGE OF SUPERSTRUCTURE

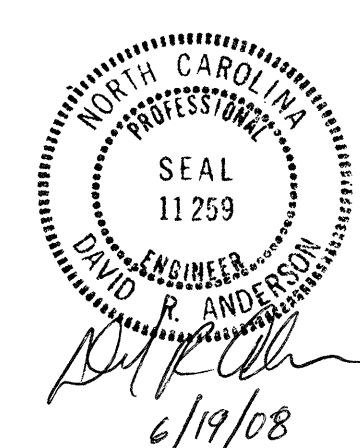
16 SPACES @ 5'-0" CTS.

SPAN A
ARC OFFSETS
 (RIGHT SIDE)

PROJECT NO. B-4077
COLUMBUS COUNTY
 STATION: 31+65.00 -L-

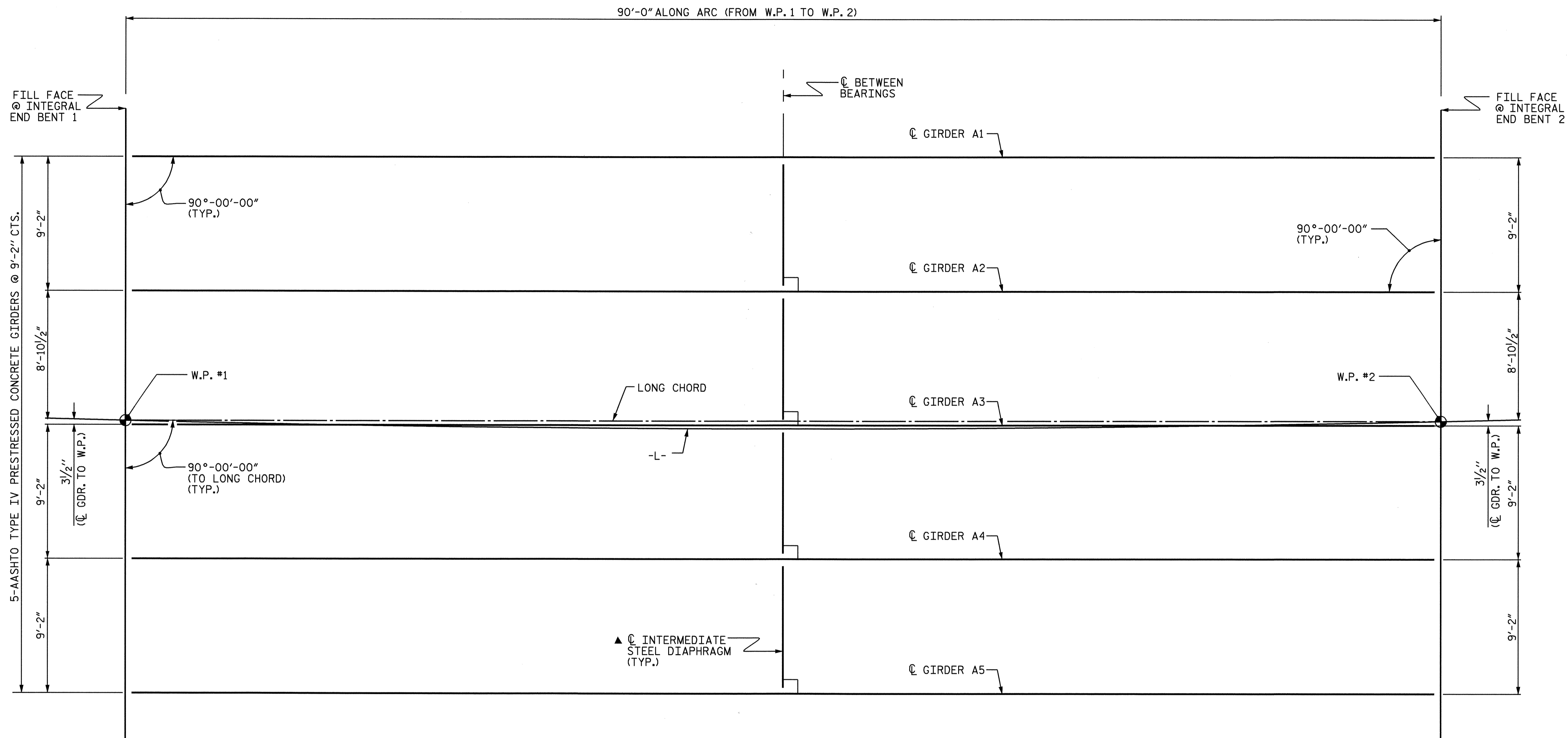
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 ARC OFFSETS



DRAWN BY : S. M. RASHIDI DATE : 2/7/07
 CHECKED BY : WILLIAM F. PARKER DATE : 4/07

REVISIONS						SHEET NO. 5-29
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			49



90'-0" ALONG ARC (FROM W.P. 1 TO W.P. 2)

FILL FACE
@ INTEGRAL
END BENT 1

FILL FACE
@ INTEGRAL
END BENT 2

CL BETWEEN
BEARINGS

CL GIRDER A1

90°-00'-00"
(TYP.)

CL GIRDER A2

90°-00'-00"
(TYP.)

W.P. #2

LONG CHORD

CL GIRDER A3

W.P. #1

-L-

90°-00'-00"
(TO LONG CHORD)
(TYP.)

CL GIRDER A4

3 1/2"
(CL GDR. TO W.P.)

▲ CL INTERMEDIATE
STEEL DIAPHRAGM
(TYP.)

CL GIRDER A5

5-AASHTO TYPE IV PRESTRESSED CONCRETE GIRDERS @ 9'-2" CTS.

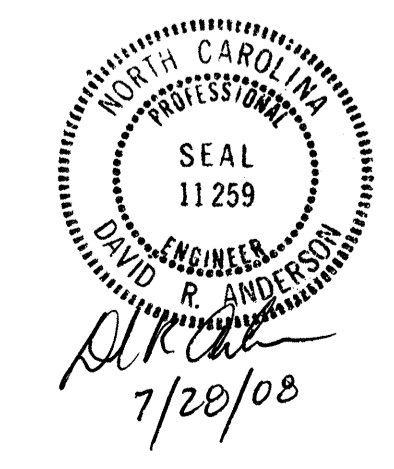
FIX
E2

FIX
E2

FRAMING PLAN

▲ FOR DETAILS OF INTERMEDIATE
STEEL DIAPHRAGMS SEE "INTERMEDIATE
STEEL DIAPHRAGMS FOR TYPE IV
PRESTRESSED CONCRETE GIRDERS",
SHEET 3 OF 3.

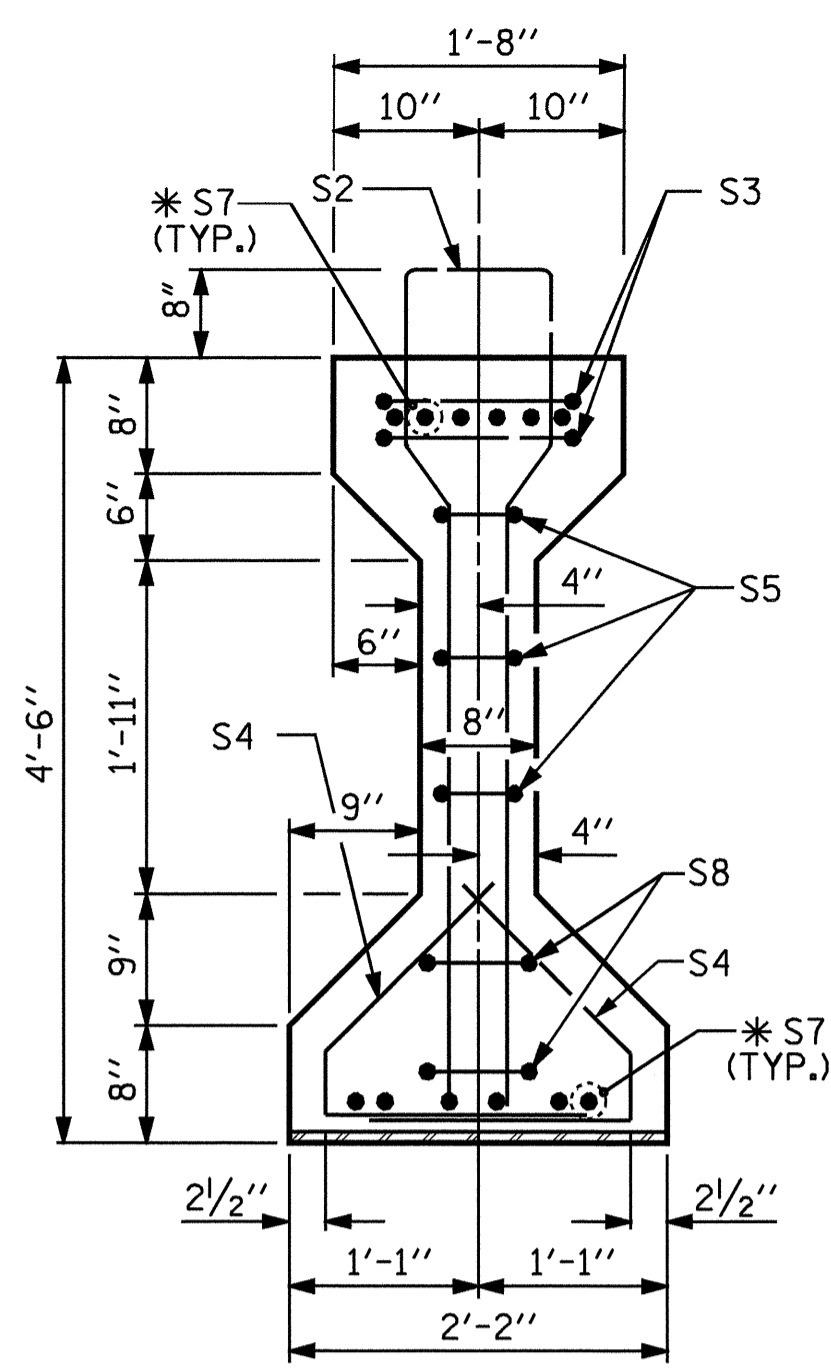
PROJECT NO. B-4077
COLUMBUS COUNTY
 STATION: 31+65.00 -L-



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

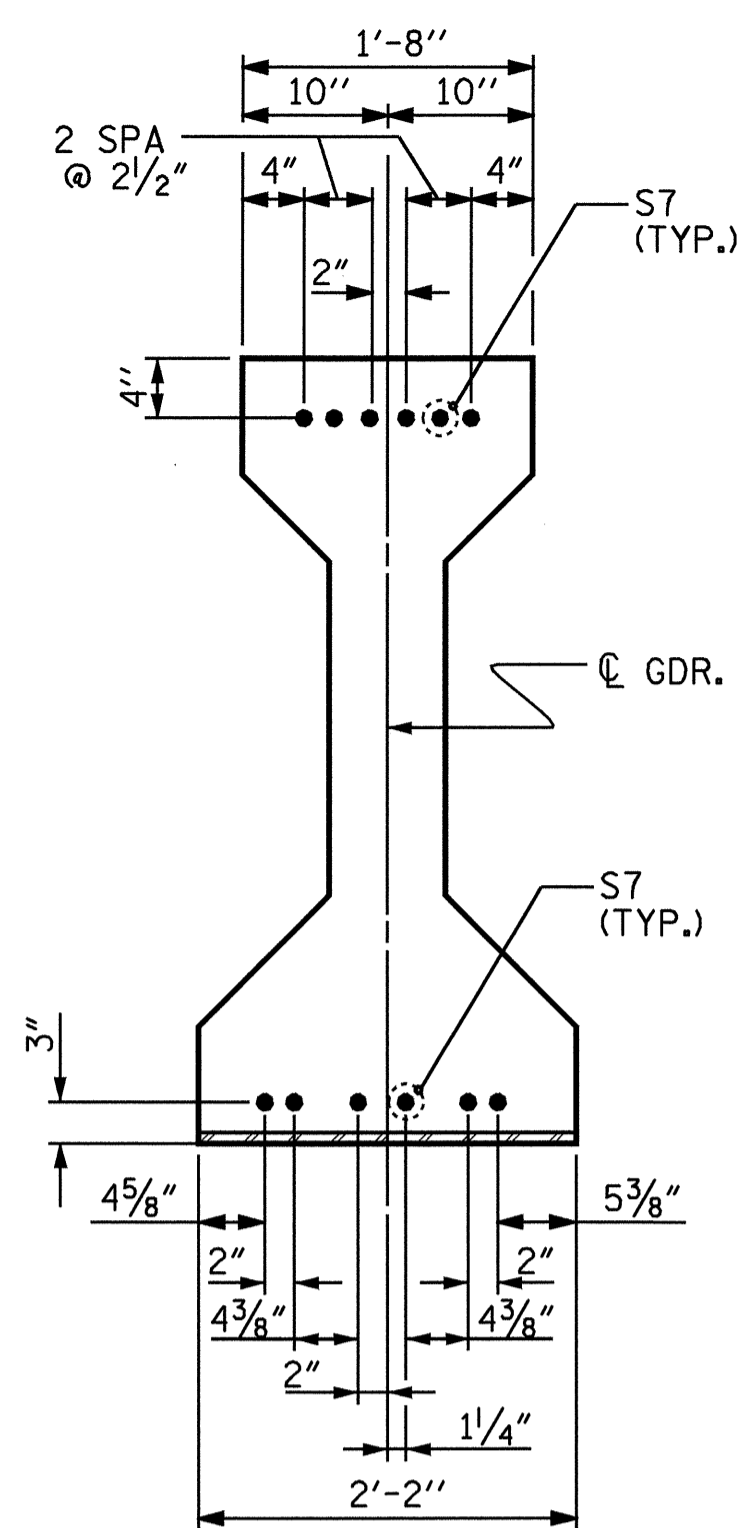
DRAWN BY : S. M. RASHIDI DATE : 2/12/07
 CHECKED BY : WILLIAM F. PARKER DATE : 4/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			9-30
2			4			TOTAL SHEETS 49

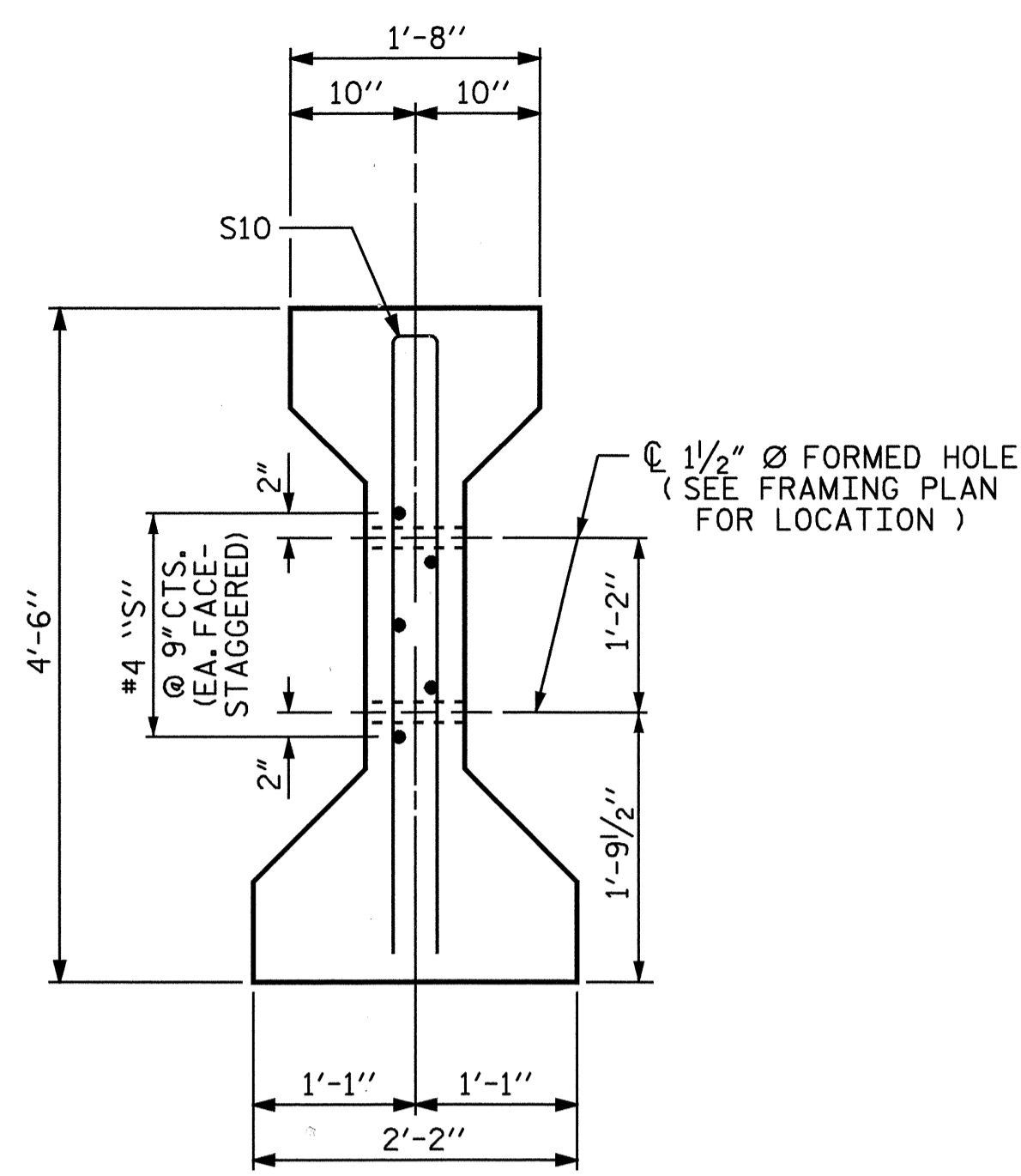


SECTION A-A

FOR S7 BARS, SEE
DETAIL "A"

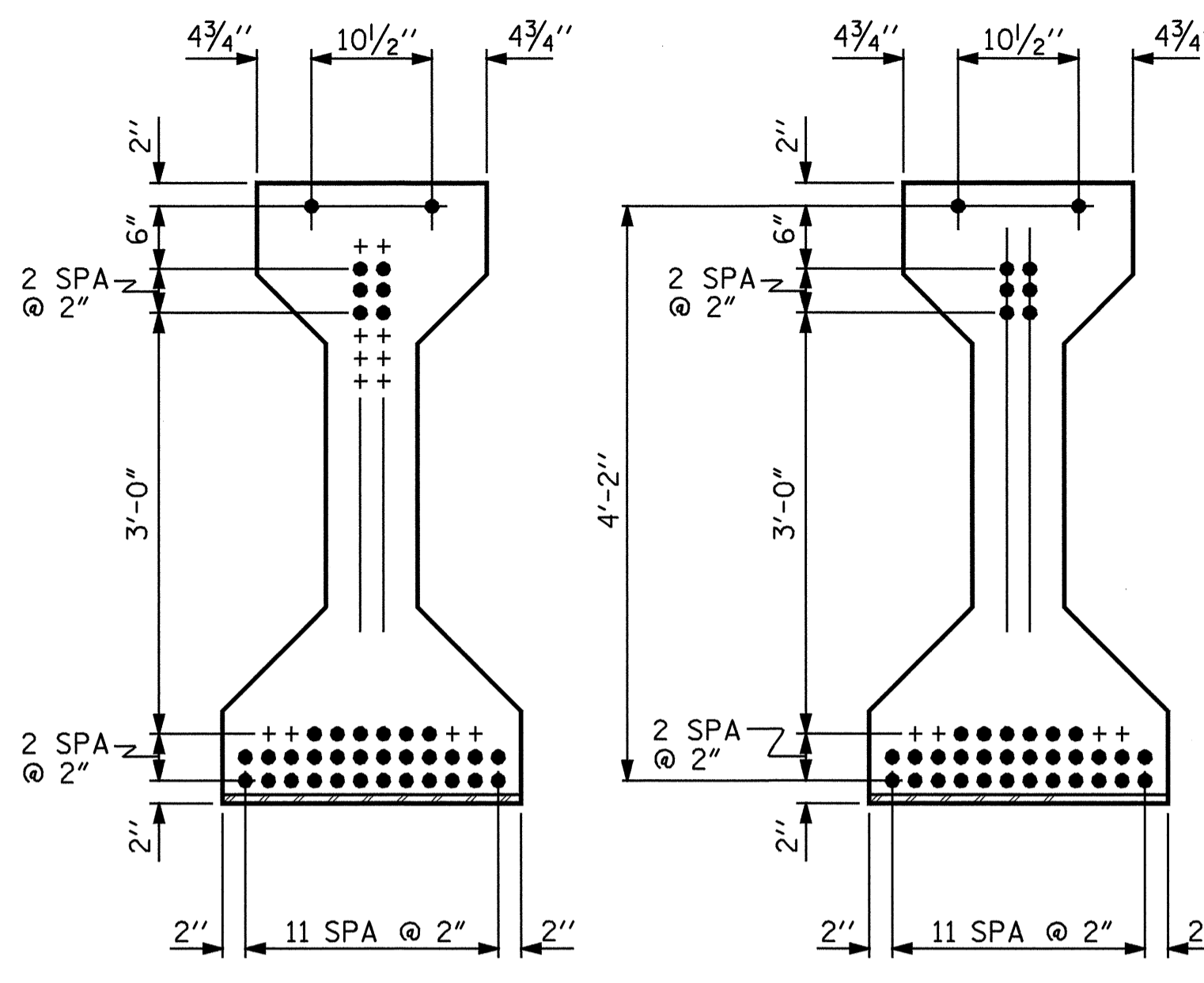


DETAIL A

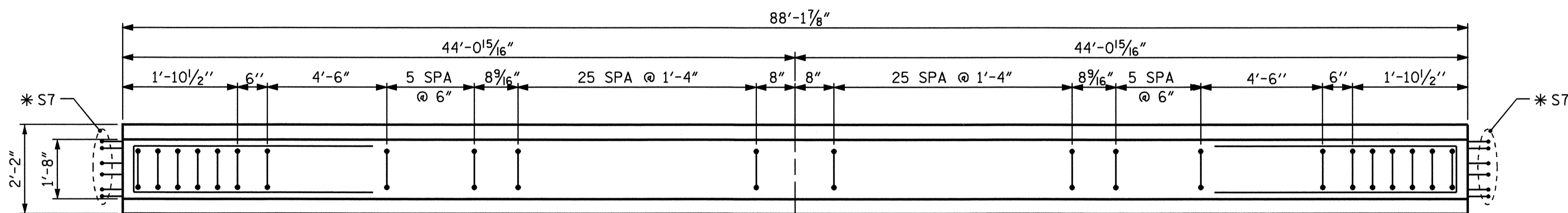


SECTION B-B

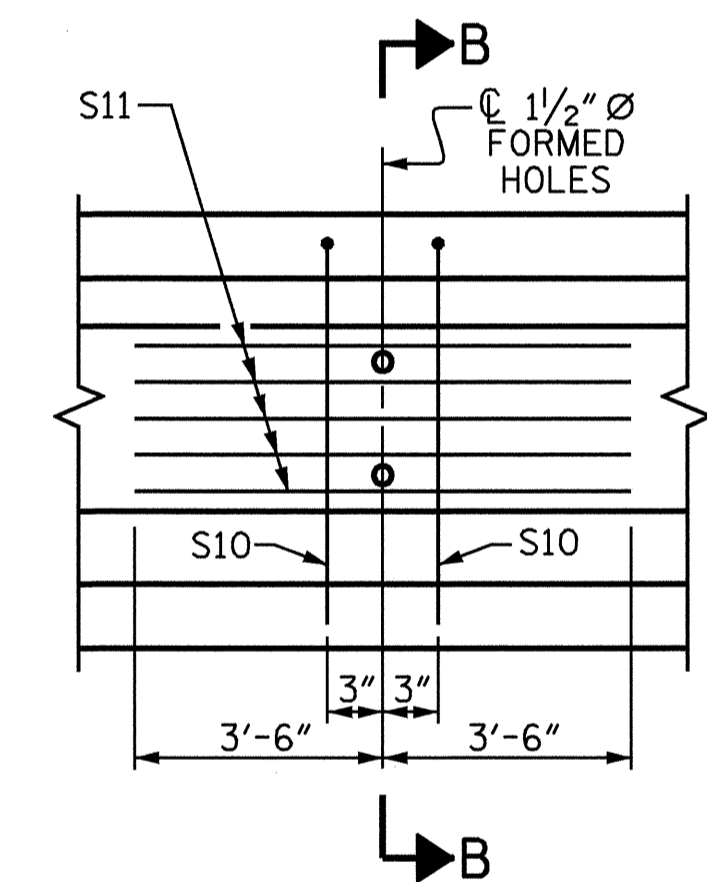
(S1 BARS NOT SHOWN)



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

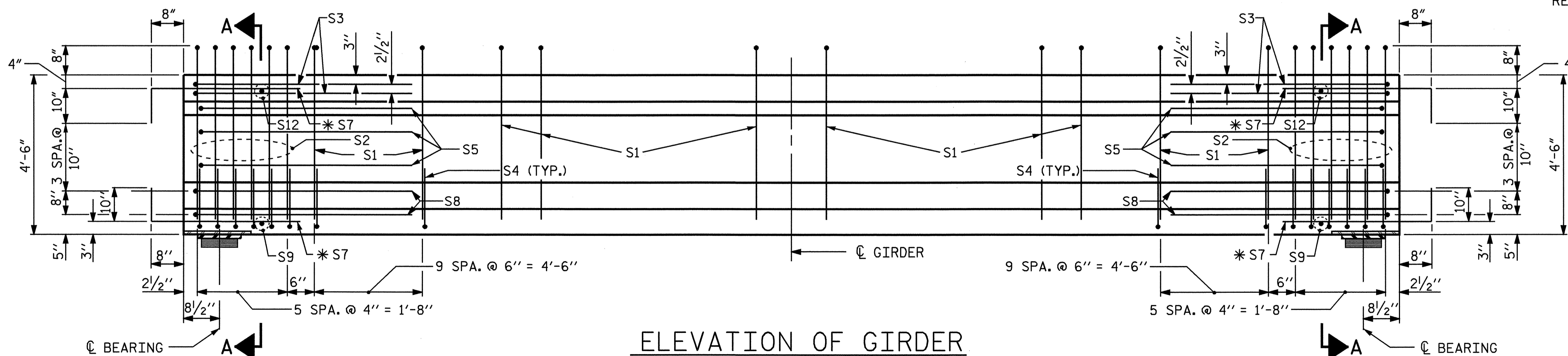


PLAN OF GIRDER



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM
REINFORCING STEEL FOR GIRDER 1 THRU 5



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

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

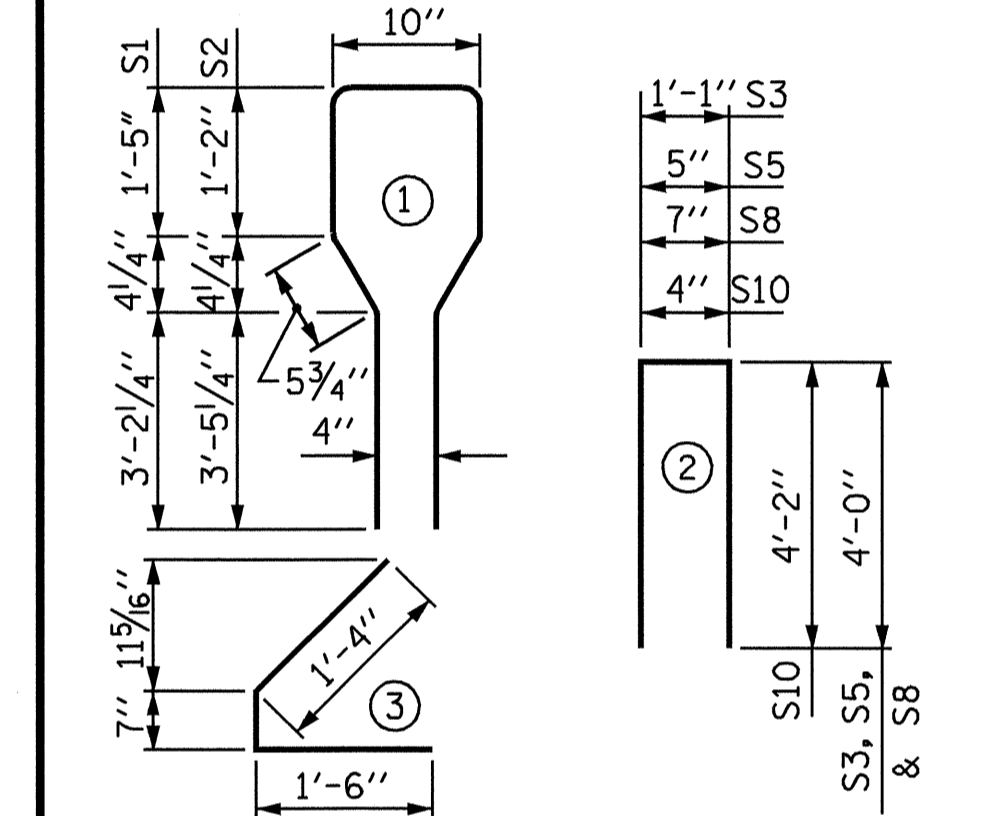
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	82	#4	1	11'-0"	603
S2	12	#6	1	11'-0"	198
S3	4	#4	2	9'-1"	24
S4	64	#4	3	3'-5"	146
S5	6	#4	2	8'-5"	34
*S7	24	#5	STR	3'-8"	92
S8	4	#4	2	8'-7"	23
S9	2	#3	STR	1'-10"	1
S10	2	#5	2	8'-8"	18
S11	5	#4	STR	7'-0"	23
S12	2	#3	STR	1'-4"	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

GIRDER	REINFORCING STEEL	8200 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
GIRDER	1163	17.9	38

GIRDERS REQUIRED

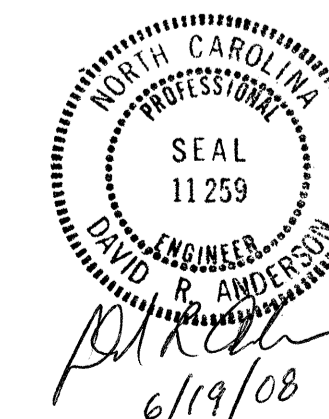
NUMBER	LENGTH	TOTAL LENGTH
5	88'-1 7/8"	440'-9 3/8"

PROJECT NO. B-4077
COLUMBUS COUNTY
STATION: 31+65.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
AASHTO
TYPE IV
PRESTRESSED
CONCRETE GIRDER



REVISIONS						SHEET NO. 3-31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 49
2			4			

ASSEMBLED BY : S. M. RASHIDI	DATE : 2/12/07
CHECKED BY : WILLIAM F. PARKER	DATE : 4/07
DRAWN BY : ELR 8/91	REV. 7/17/98 RWW/LES
CHECKED BY : GRP 8/91	REV. 10/17/00R RWW/LES
	REV. 5/1/06 TLA/GM

NOTES

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

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

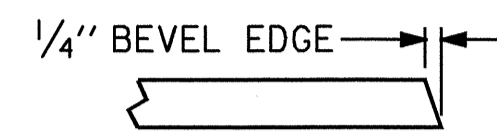
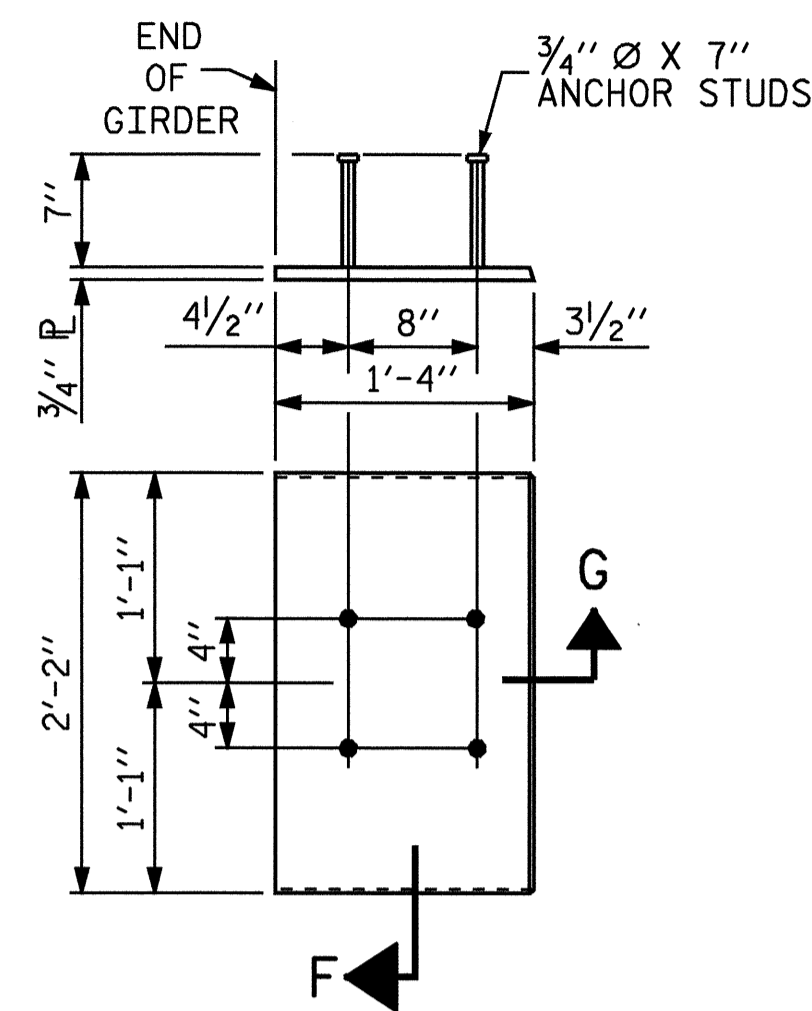
AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6400 PSI.

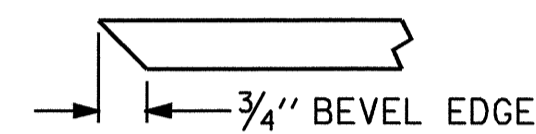
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

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

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



SECTION "G"



SECTION "F"

(SEE NOTES)

EMBEDDED PLATE "B-1" DETAILS FOR AASHTO TYPE IV GIRDER

(2 REQ'D PER GIRDER)

DEAD LOAD DEFLECTION TABLE FOR SPAN A

0.6" LOW RELAXATION		GIRDER 1									
TENTH POINTS	BRG.	.1	.2	.3	.4	.5	.6	.7	.8	.9	BRG.
CAMBER (GIRDER ALONE IN PLACE)	0	0.075	0.142	0.194	0.228	0.239	0.228	0.194	0.142	0.075	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	0	0.033	0.062	0.084	0.099	0.104	0.099	0.084	0.062	0.033	0
FINAL CAMBER	0	1/2"	5/16"	3/8"	1/2"	5/8"	1/2"	3/8"	5/16"	1/2"	0

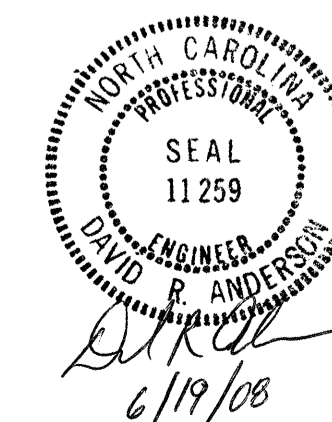
0.6" LOW RELAXATION		GIRDER 2, 3 & 4									
TENTH POINTS	BRG.	.1	.2	.3	.4	.5	.6	.7	.8	.9	BRG.
CAMBER (GIRDER ALONE IN PLACE)	0	0.075	0.142	0.194	0.228	0.239	0.228	0.194	0.142	0.075	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	0	0.036	0.068	0.093	0.109	0.114	0.109	0.093	0.068	0.036	0
FINAL CAMBER	0	7/16"	7/8"	1 3/16"	1 1/8"	1 1/2"	1 1/8"	1 3/16"	7/8"	7/16"	0

0.6" LOW RELAXATION		GIRDER 5									
TENTH POINTS	BRG.	.1	.2	.3	.4	.5	.6	.7	.8	.9	BRG.
CAMBER (GIRDER ALONE IN PLACE)	0	0.075	0.142	0.194	0.228	0.239	0.228	0.194	0.142	0.075	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	0	0.035	0.066	0.091	0.106	0.112	0.106	0.091	0.066	0.035	0
FINAL CAMBER	0	1/2"	5/16"	1 1/4"	1 1/8"	1 1/2"	1 1/8"	1 1/4"	5/16"	1/2"	0

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

PROJECT NO. B-4077
COLUMBUS COUNTY
STATION: 31+65.00 -L-

SHEET 2 OF 3



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

ASSEMBLED BY : S. M. RASHIDI DATE : 2/13/07
CHECKED BY : WILLIAM F. PARKER DATE : 4/07
DRAWN BY : ELR 11/91 REV. 10/17/00 RWW/LES
CHECKED BY : GRP 11/91 REV. 7/10/01RR LES/RDR
REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-32
1			3			TOTAL SHEETS
2			4			49

STRUCTURAL STEEL NOTES

ALL INTERMEDIATE DIAPHRAGM STEEL, CONNECTOR PLATES AND PLATE WASHERS SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL.

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

TENSION ON THE AASHTO M164 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE CHANNELS, ANGLES, WASHERS, PLATE WASHERS, AND DIRECT TENSION INDICATORS SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY AN 8 MIL THICK 99.99 PERCENT ZINC (W-Zn-1) THERMAL SPRAYED COATING WITH A 0.5 MIL THICK SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISIONS AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

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

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

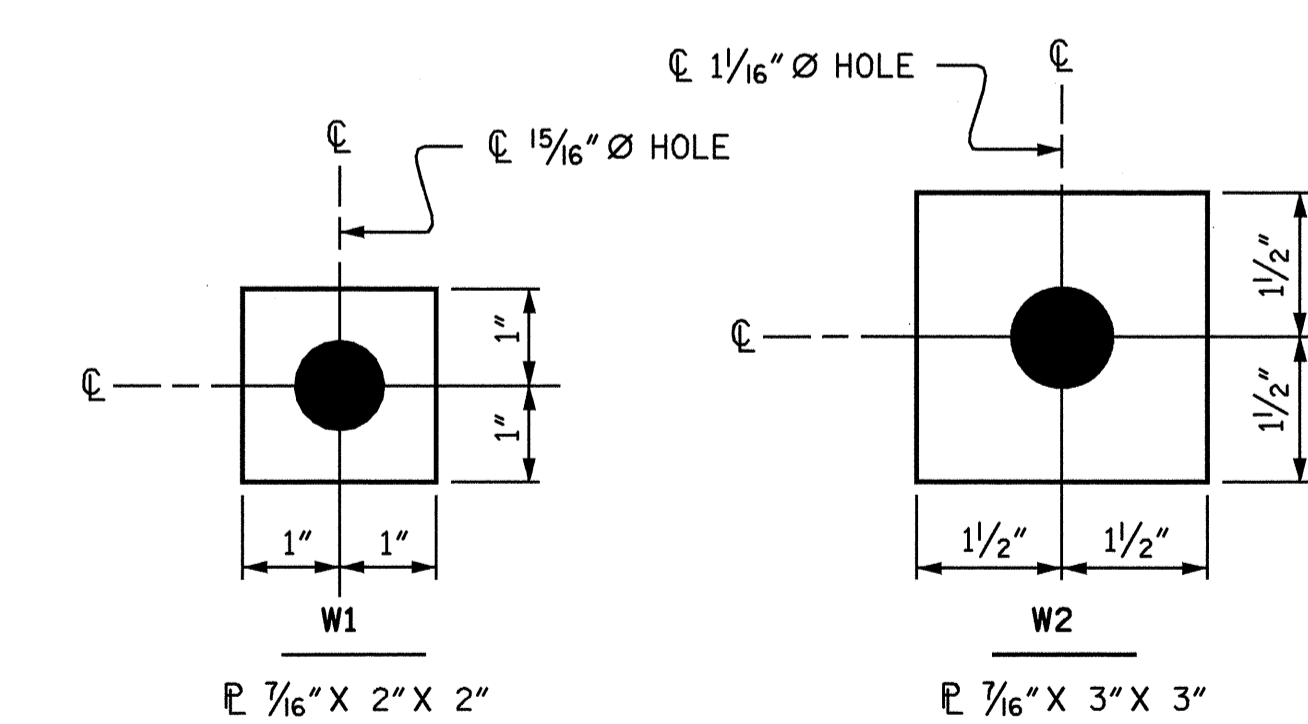
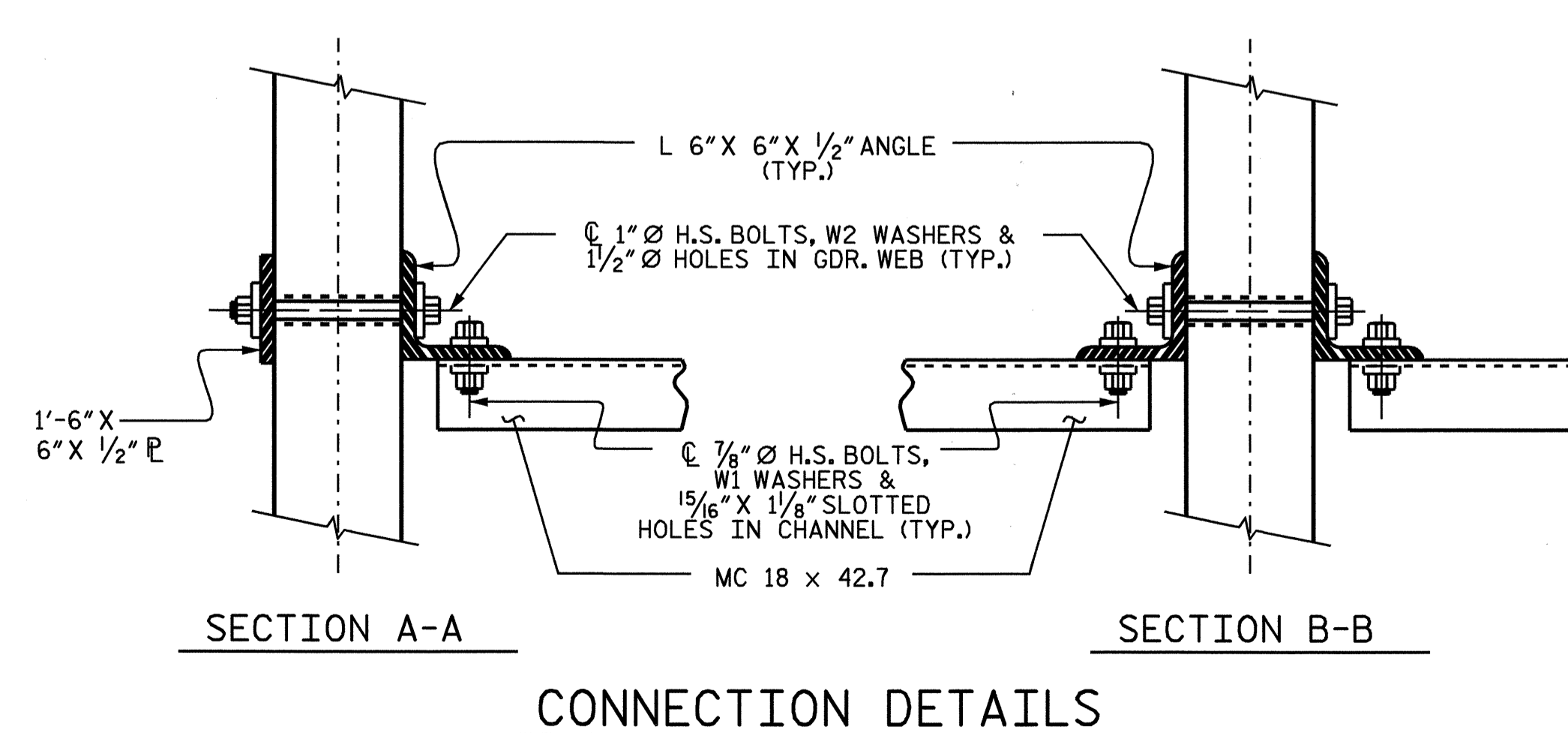
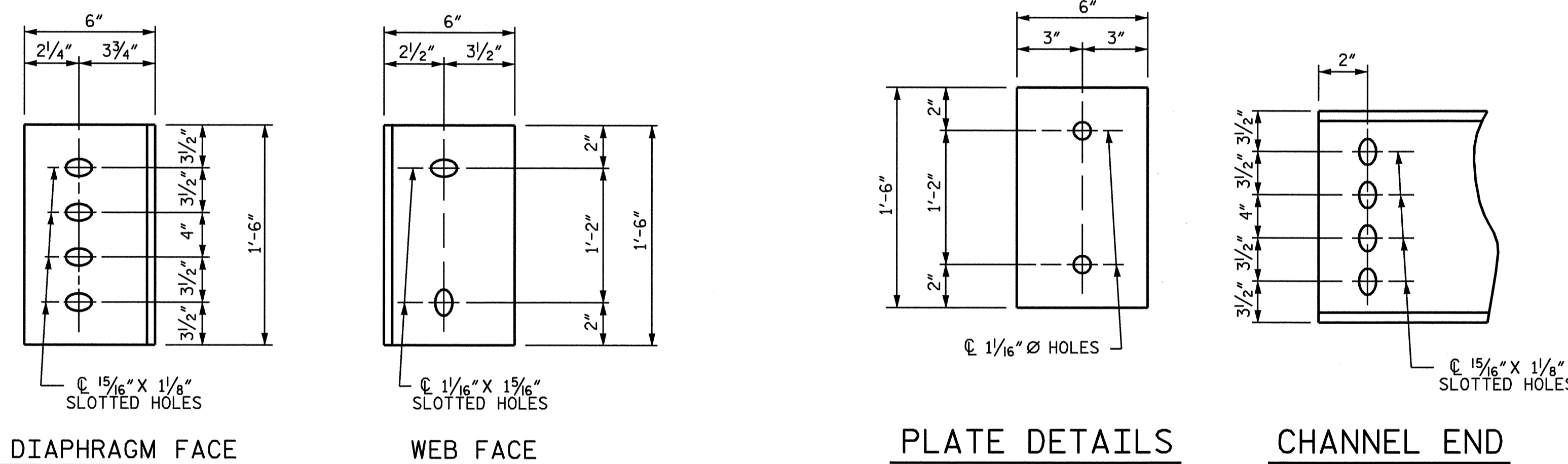
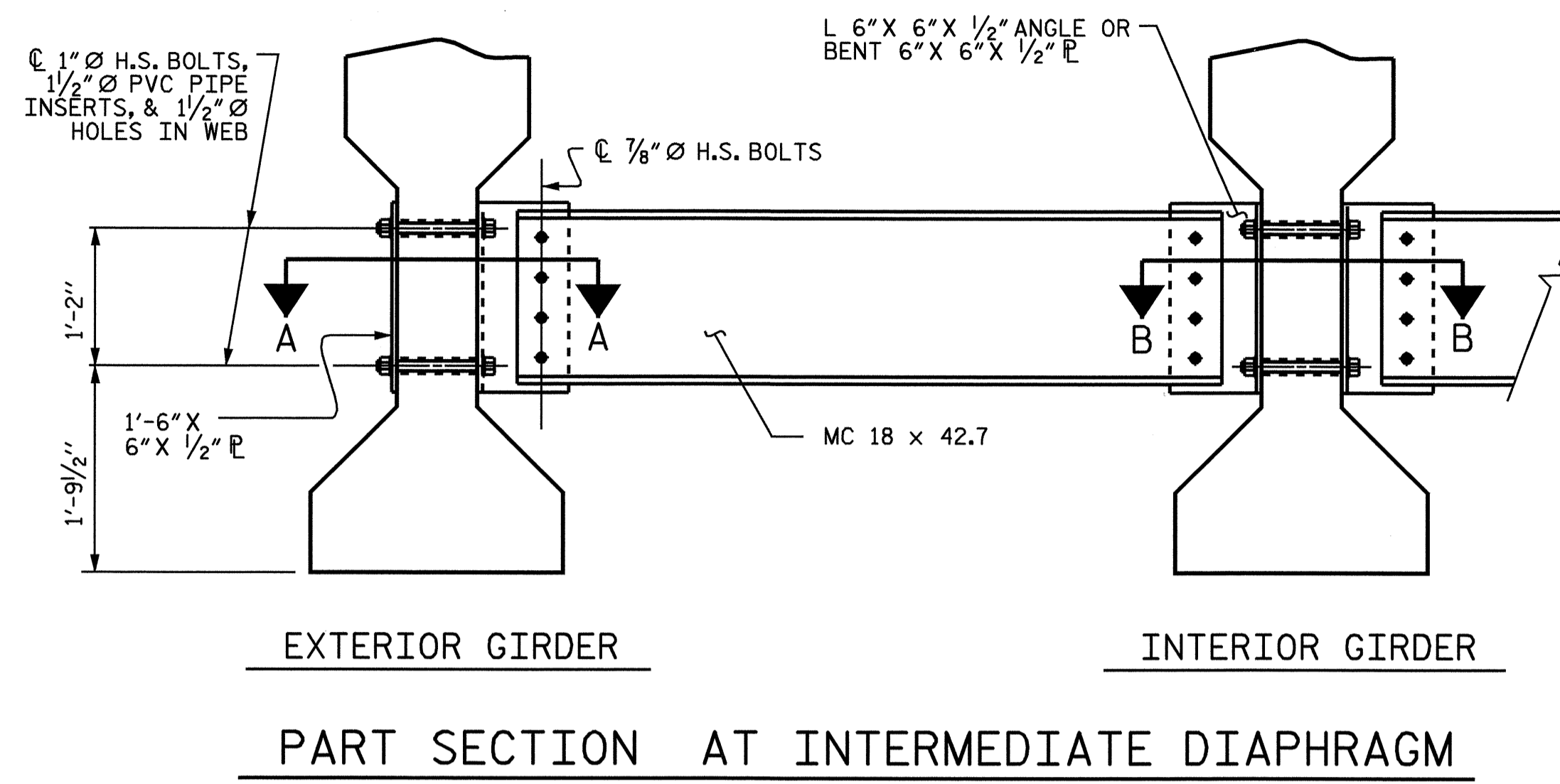
PROVIDE SUFFICIENT LENGTH OF ALL BOLTS TO ACCOMMODATE WASHERS, DIRECT TENSION INDICATORS, THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

CONTRACTOR SHALL SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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

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



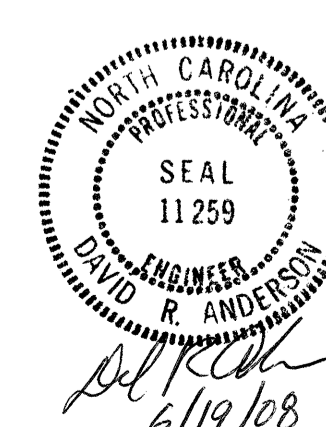
USE WITH 7/8" Ø HVY. HEX NUTS & DIRECT TENSION INDICATOR WASHERS AT DIAPHRAGM CHANNEL TO CONNECTOR PLATE CONNECTIONS

USE WITH 1" Ø HVY. HEX NUTS & DIRECT TENSION INDICATOR WASHERS AT CONNECTOR PLATE TO GIRDER CONNECTIONS

PROJECT NO. B-4077
COLUMBUS COUNTY
STATION: 31+65.00 -L-

SHEET 3 OF 3

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

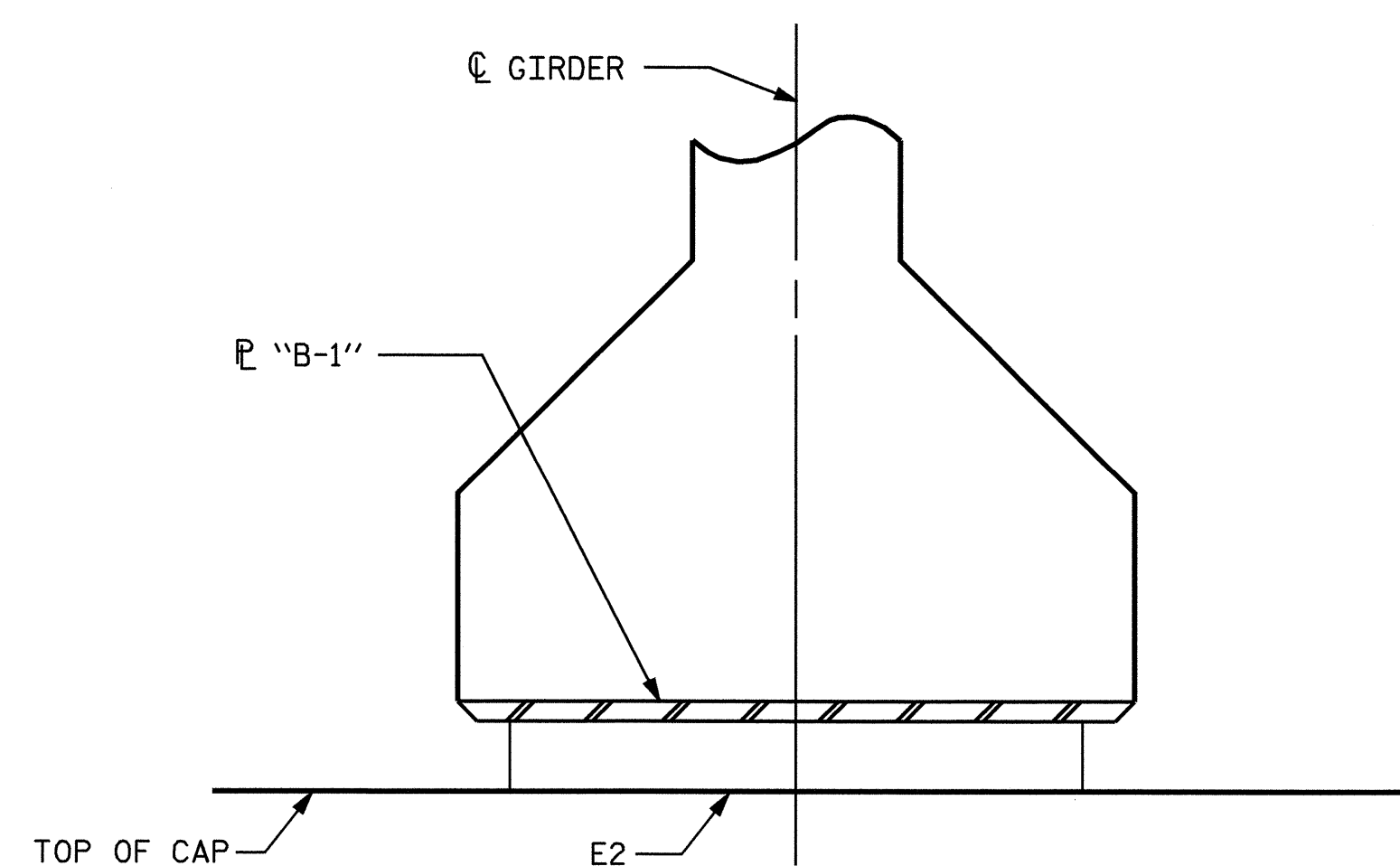


REVISIONS						SHEET NO. 5-33
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 49
2			4			

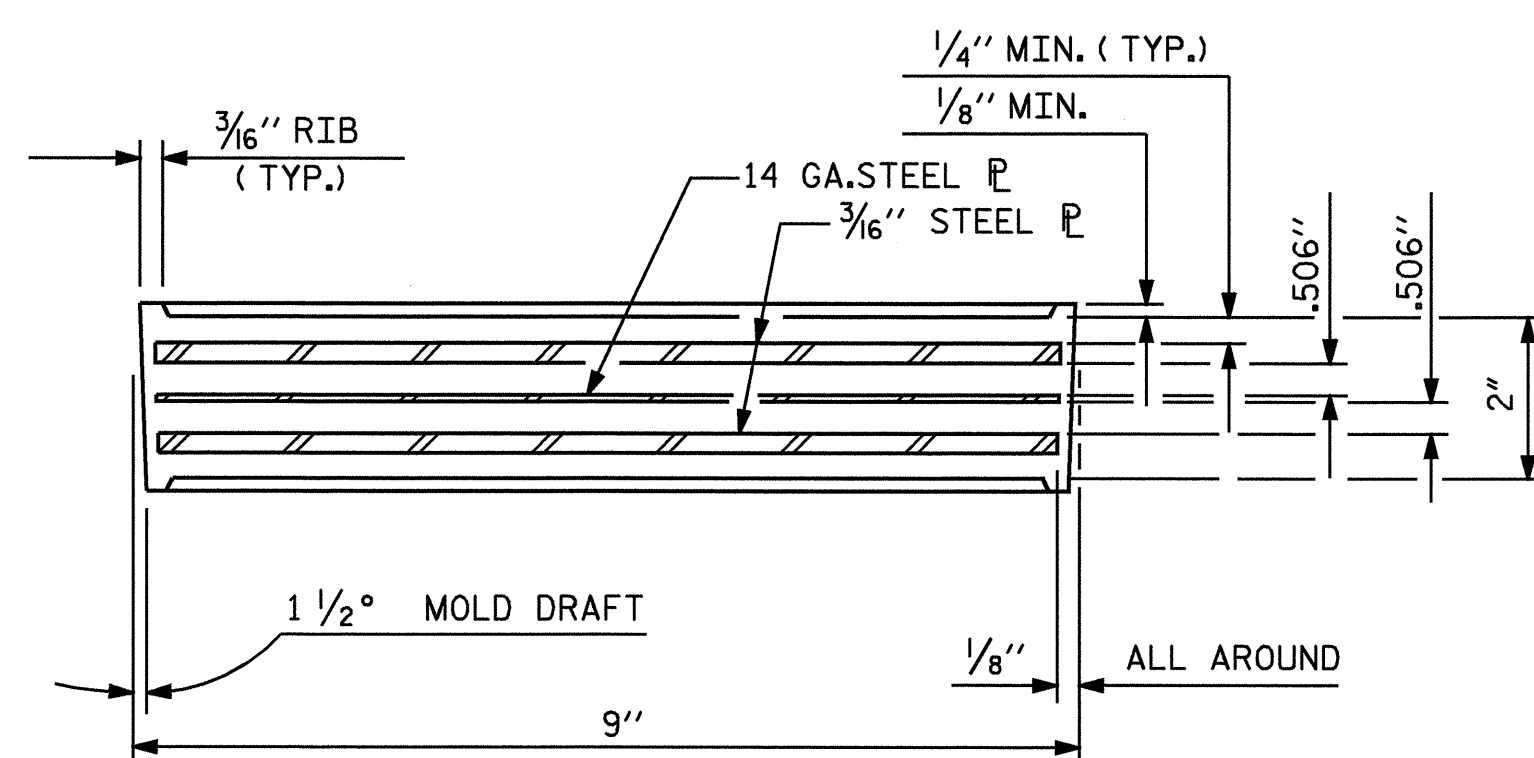
ASSEMBLED BY : S. M. RASHIDI DATE : 2/12/07
CHECKED BY : WILLIAM F. PARKER DATE : 4/07
DRAWN BY : TLA 6/05
CHECKED BY : VC 6/05
ADDED 10/21/05
REV. 5/1/06R KMM/GMM

NOTES

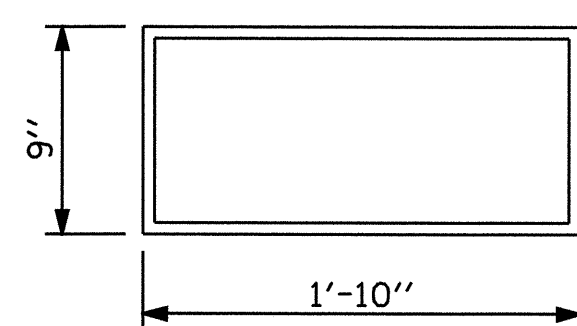
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.



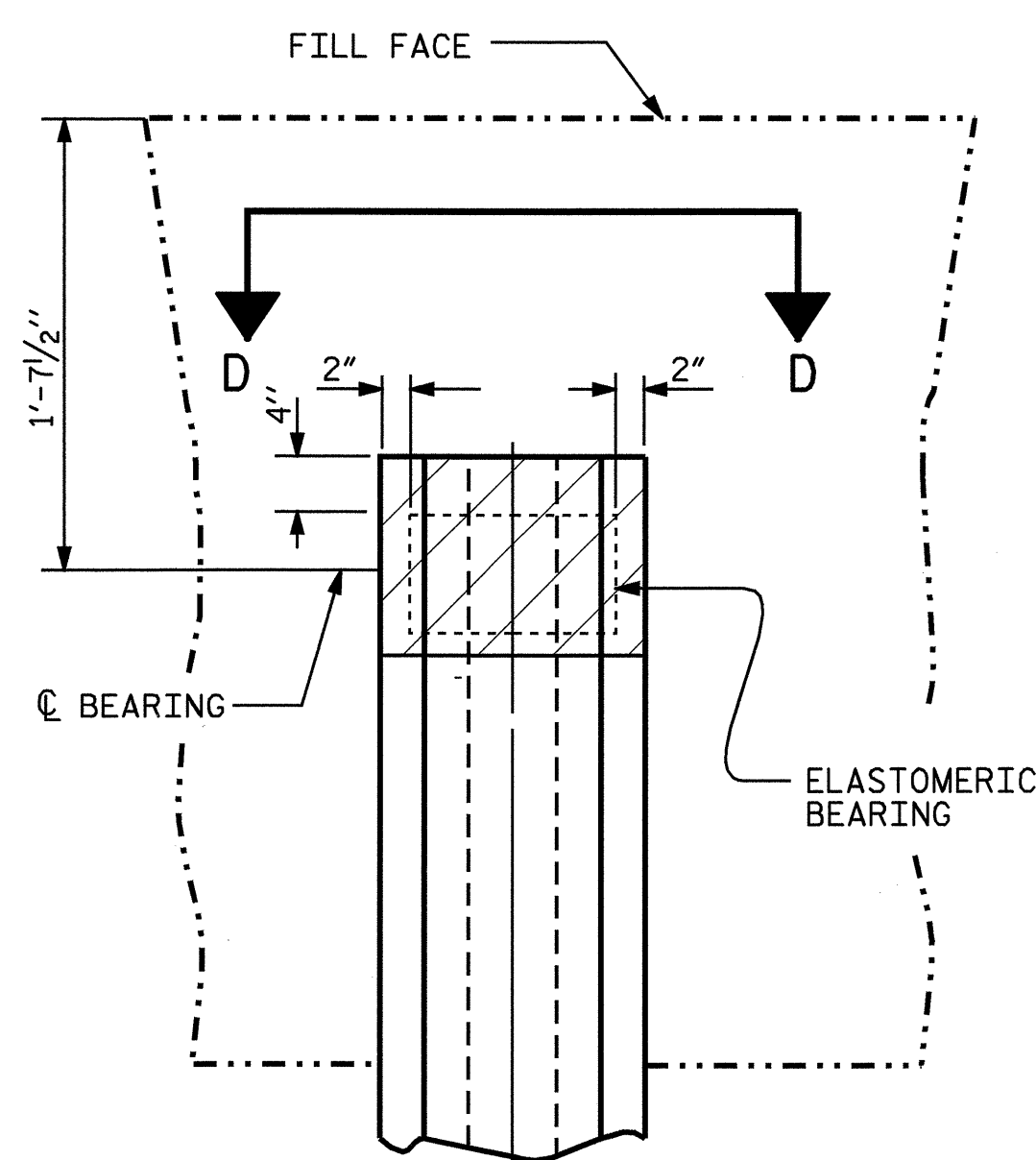
SECTION D-D



TYPICAL SECTION OF ELASTOMERIC BEARINGS

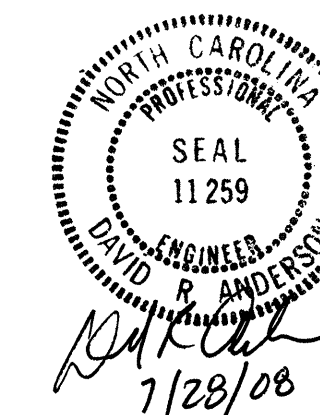


E2 (10 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE IV



PLAN VIEW AT INTEGRAL END BENTS

— LOAD RATINGS —	
	MAX.D.L.+L.L.
54" PCG -TYPE IV	137 K



PROJECT NO. B-4077
COLUMBUS COUNTY
 STATION: 31+65.00 -L-

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			9-34
2			4			49

ASSEMBLED BY : S. M. RASHIDI DATE : 2/12/07
 CHECKED BY : WILLIAM F. PARKER DATE : 4/07
 DRAWN BY : WJH 8/89 REV. 10/17/00 RWW/LES
 CHECKED BY : CRK 8/89 REV. 7/10/01 RWW/LES
 REV. 5/1/06 TLA/GM

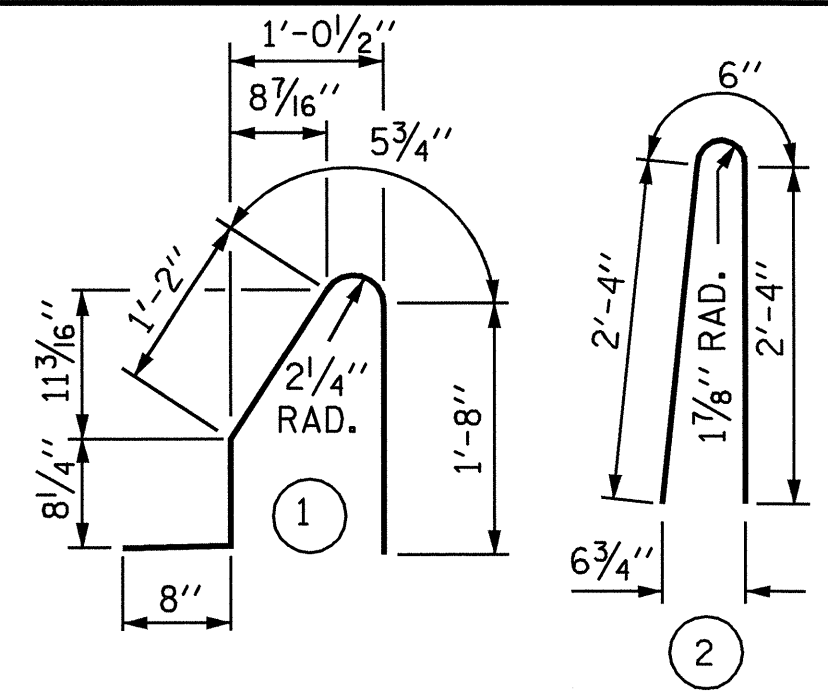
NOTES

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

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

BAR TYPES



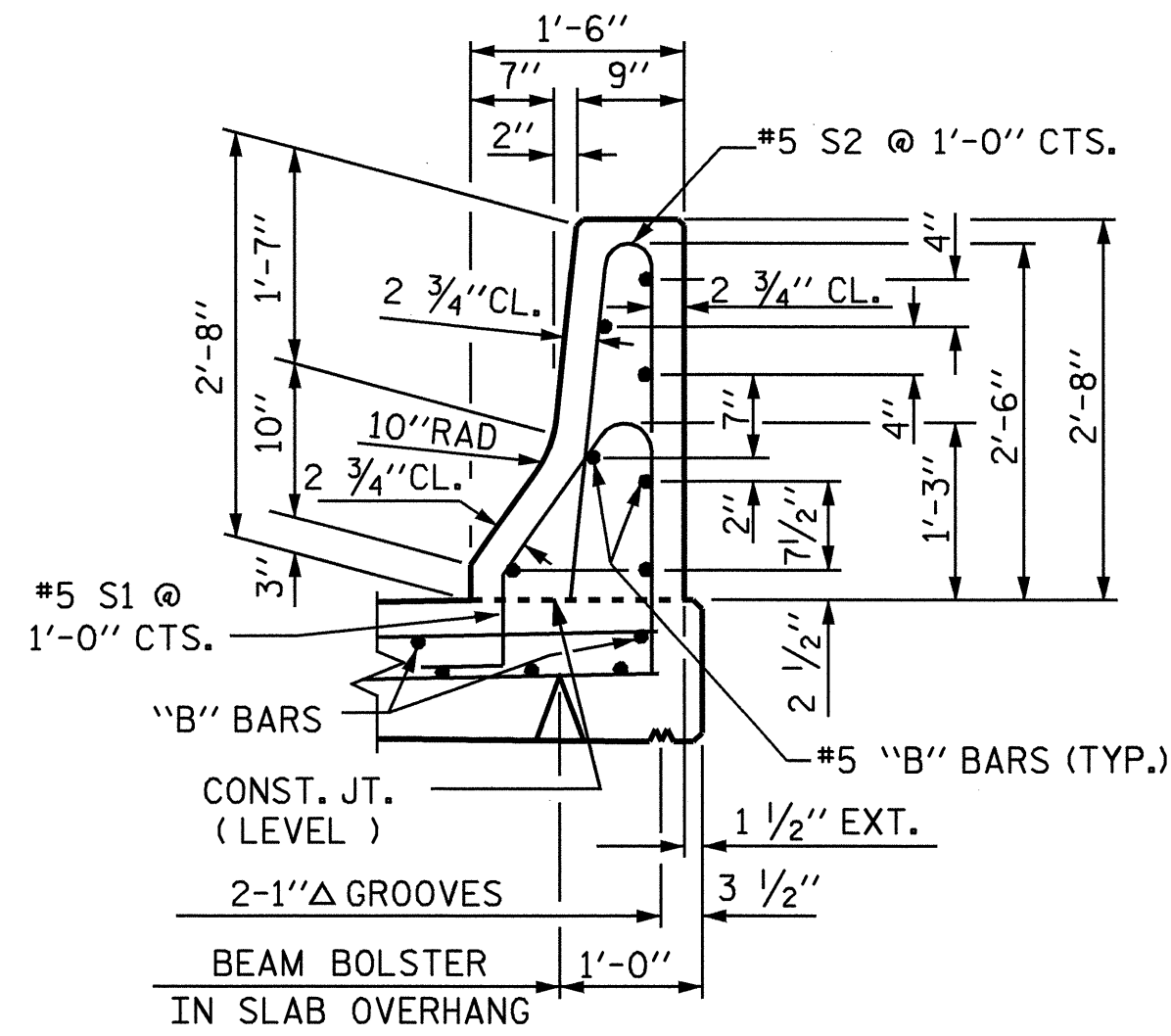
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

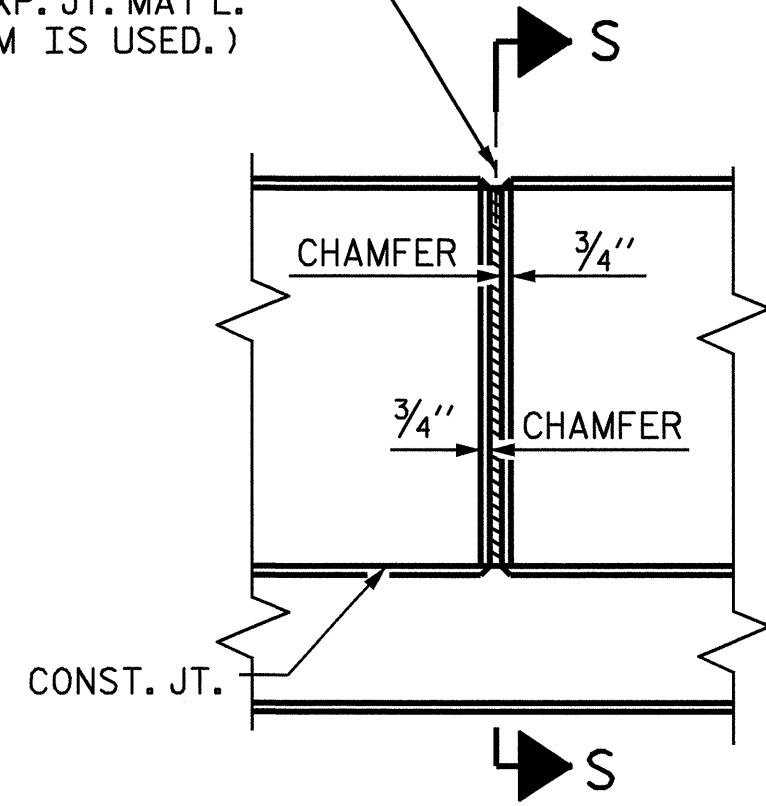
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	42	#5	STR	29'-7"	1296
* S1	180	#5	1	4'-8"	876
* S2	180	#5	2	5'-2"	970

* EPOXY COATED REINFORCING STEEL 3142 LBS.
 CLASS AA CONCRETE 18.0 CU. YDS.
 CONCRETE BARRIER RAIL 180.0 LIN. FT.

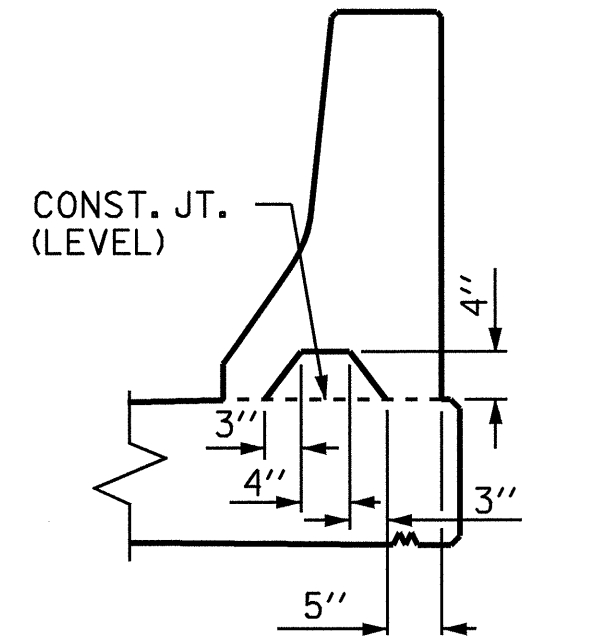


SECTION THRU RAIL

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

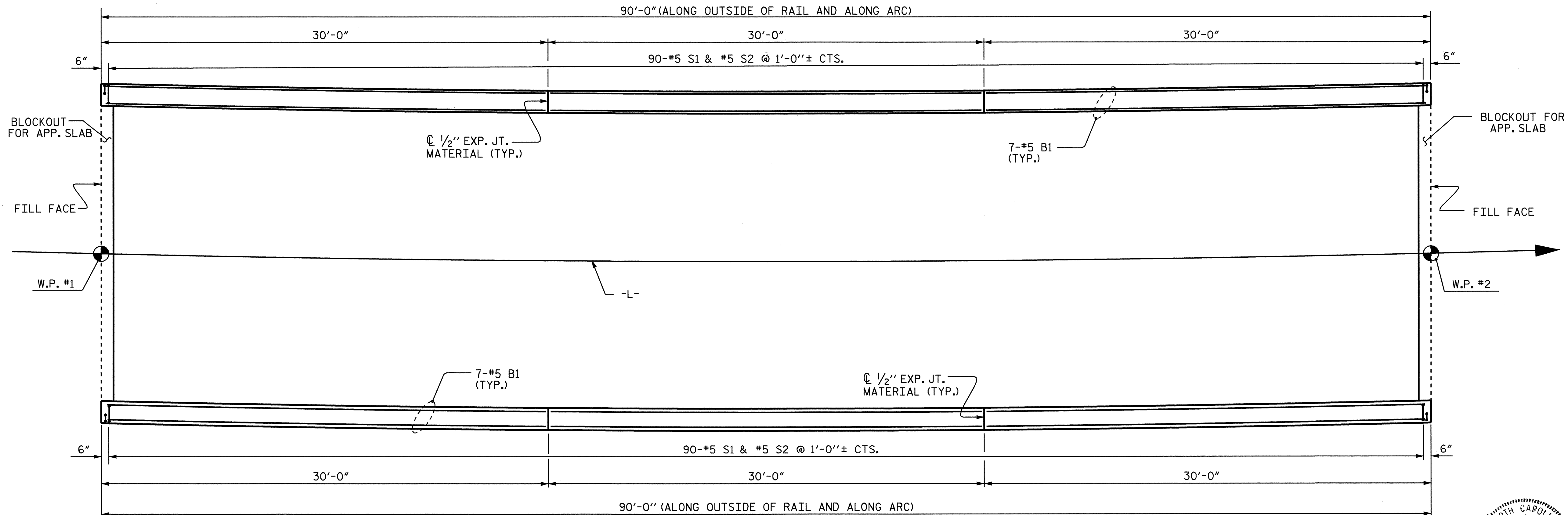


ELEVATION AT EXPANSION JOINTS



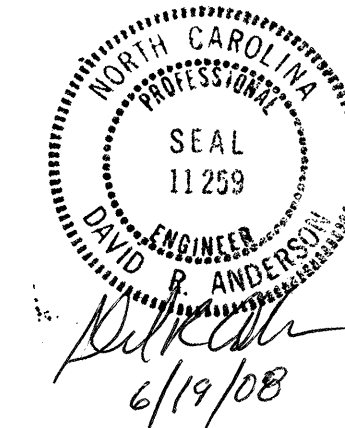
SECTION S-S AT DAM IN OPEN JOINT (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

BARRIER RAIL DETAILS



PLAN OF BARRIER RAIL

PROJECT NO. B-4077
COLUMBUS COUNTY
 STATION: 31+65.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 CONCRETE
 BARRIER RAIL

REVISIONS						SHEET NO. 5-35
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 49
2			4			

ASSEMBLED BY : S. M. RASHIDI	DATE: 4/07
CHECKED BY : WILLIAM F. PARKER	
DRAWN BY : ARB 5/87	REV. 10/17/00 RWW/LES
CHECKED BY : SJD 9/87	REV. 5/1/03R RWW/JTE
	REV. 5/1/06 TLA/GM

NOTES

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

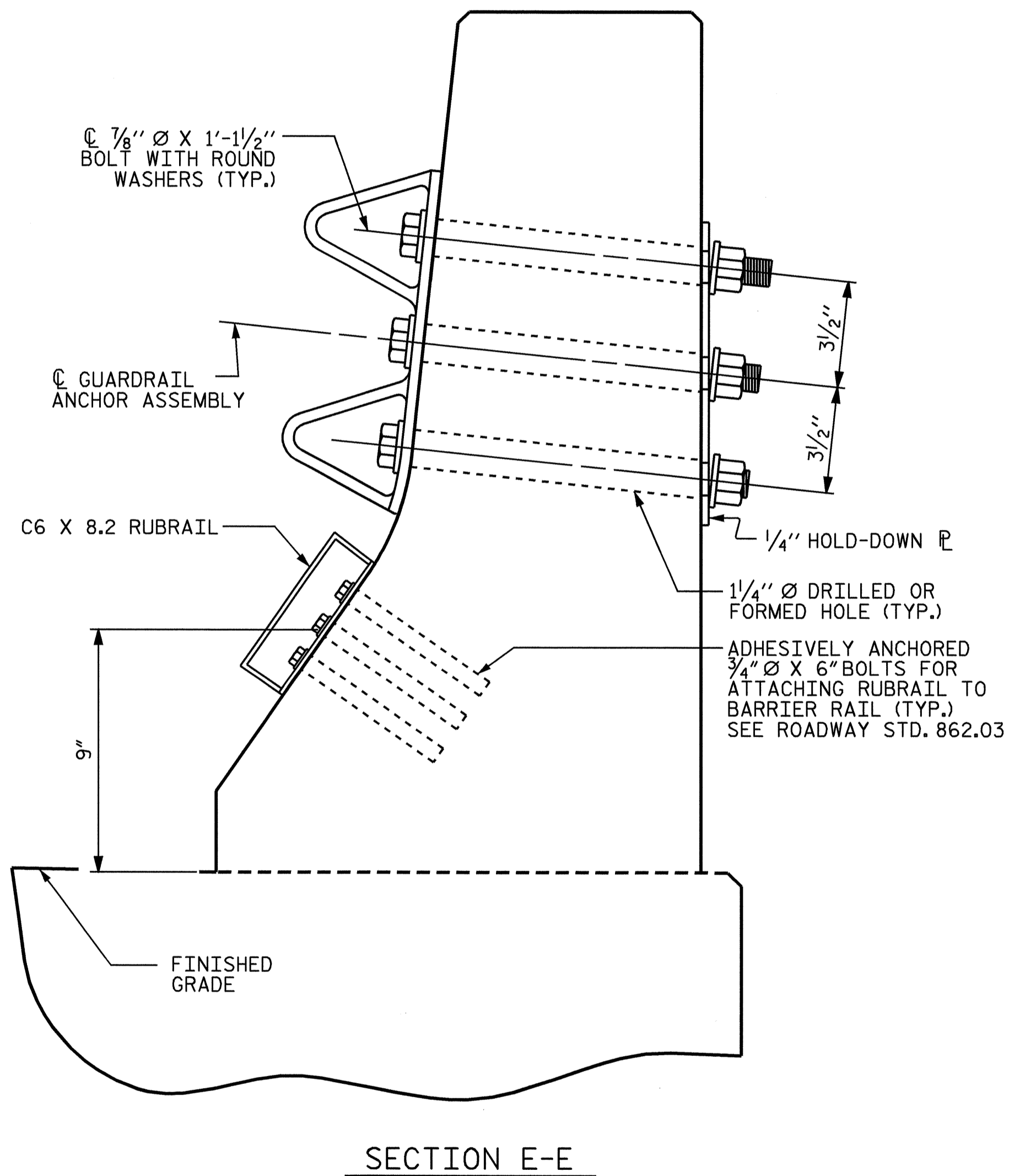
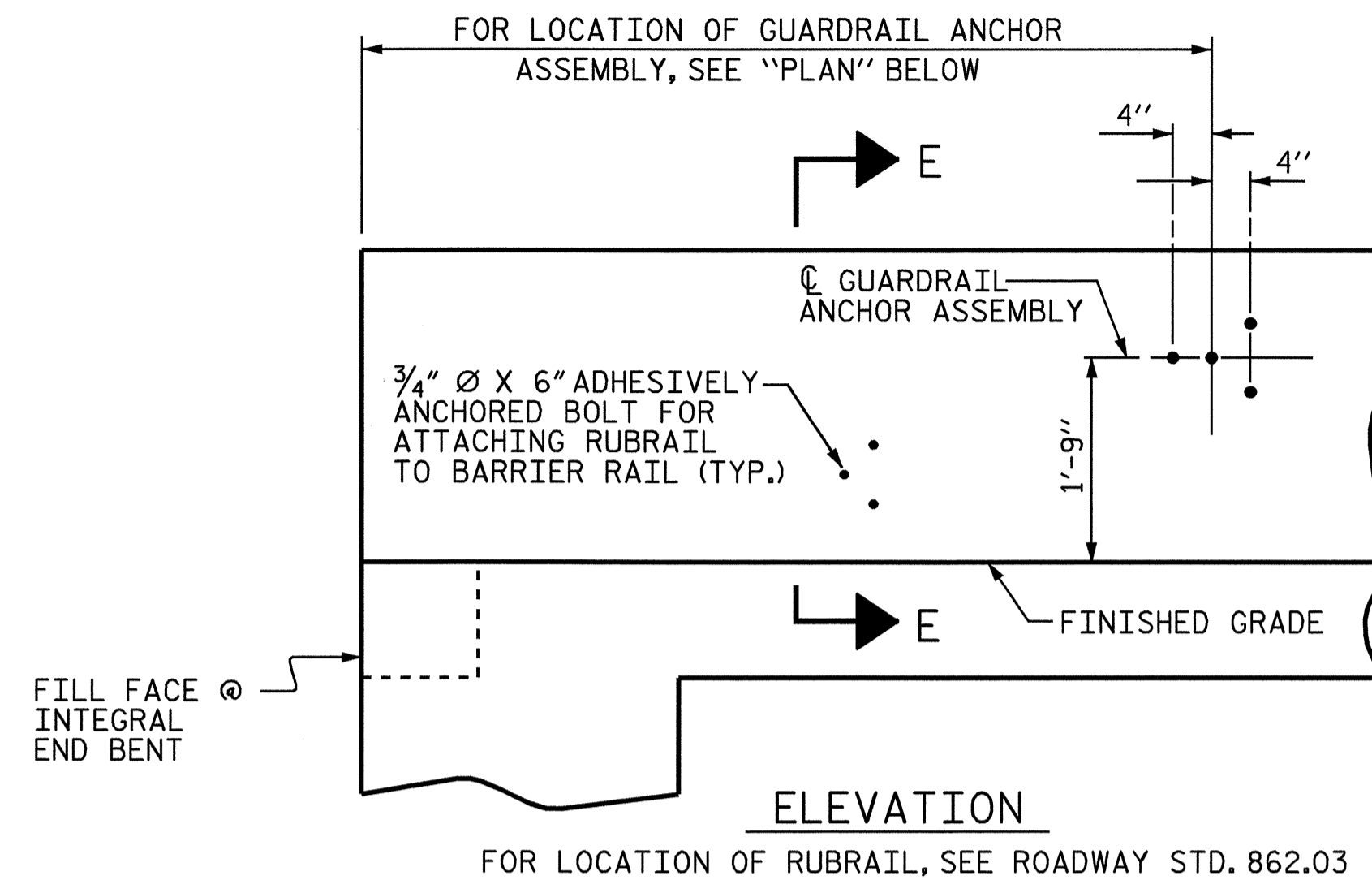
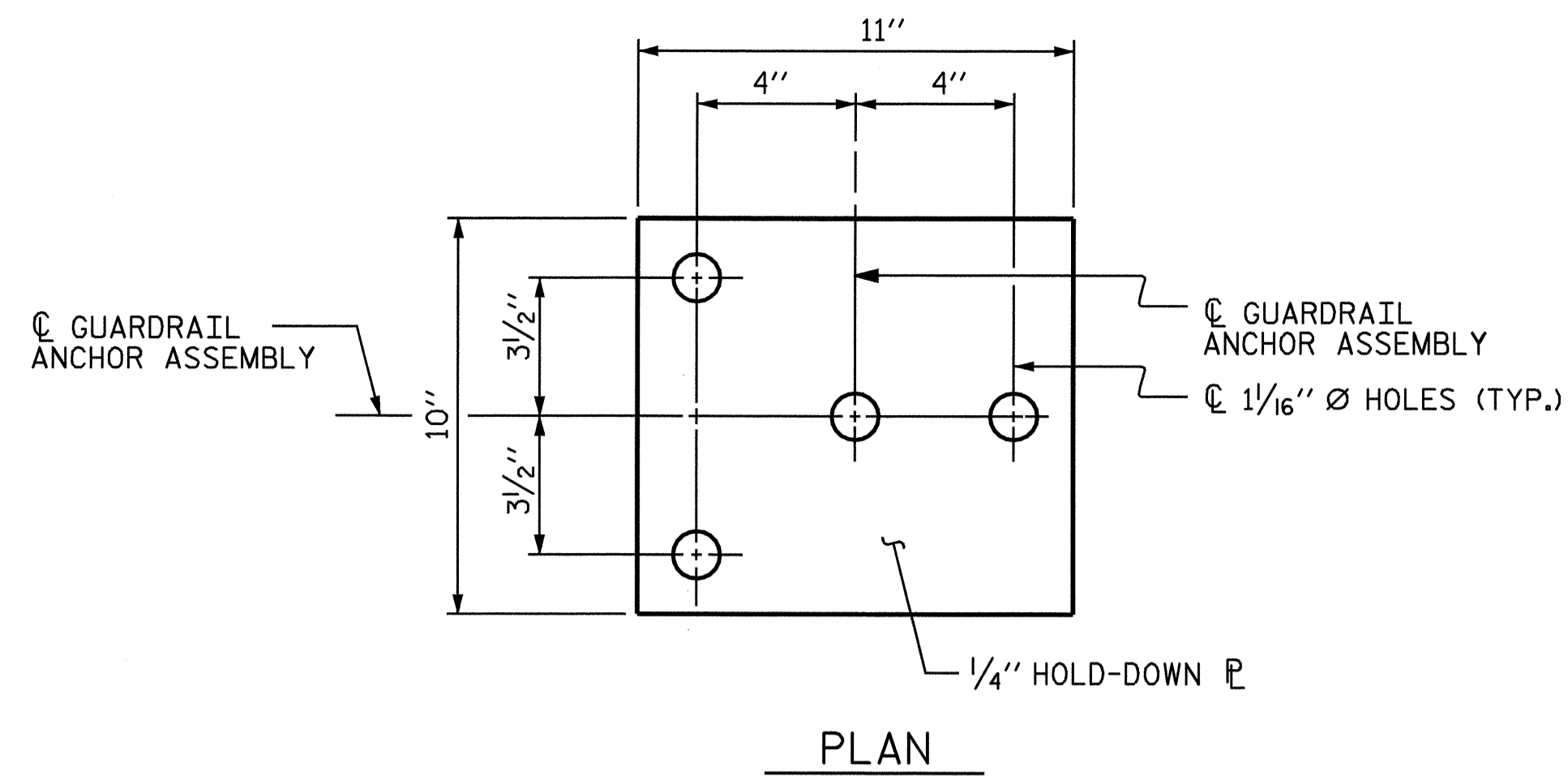
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

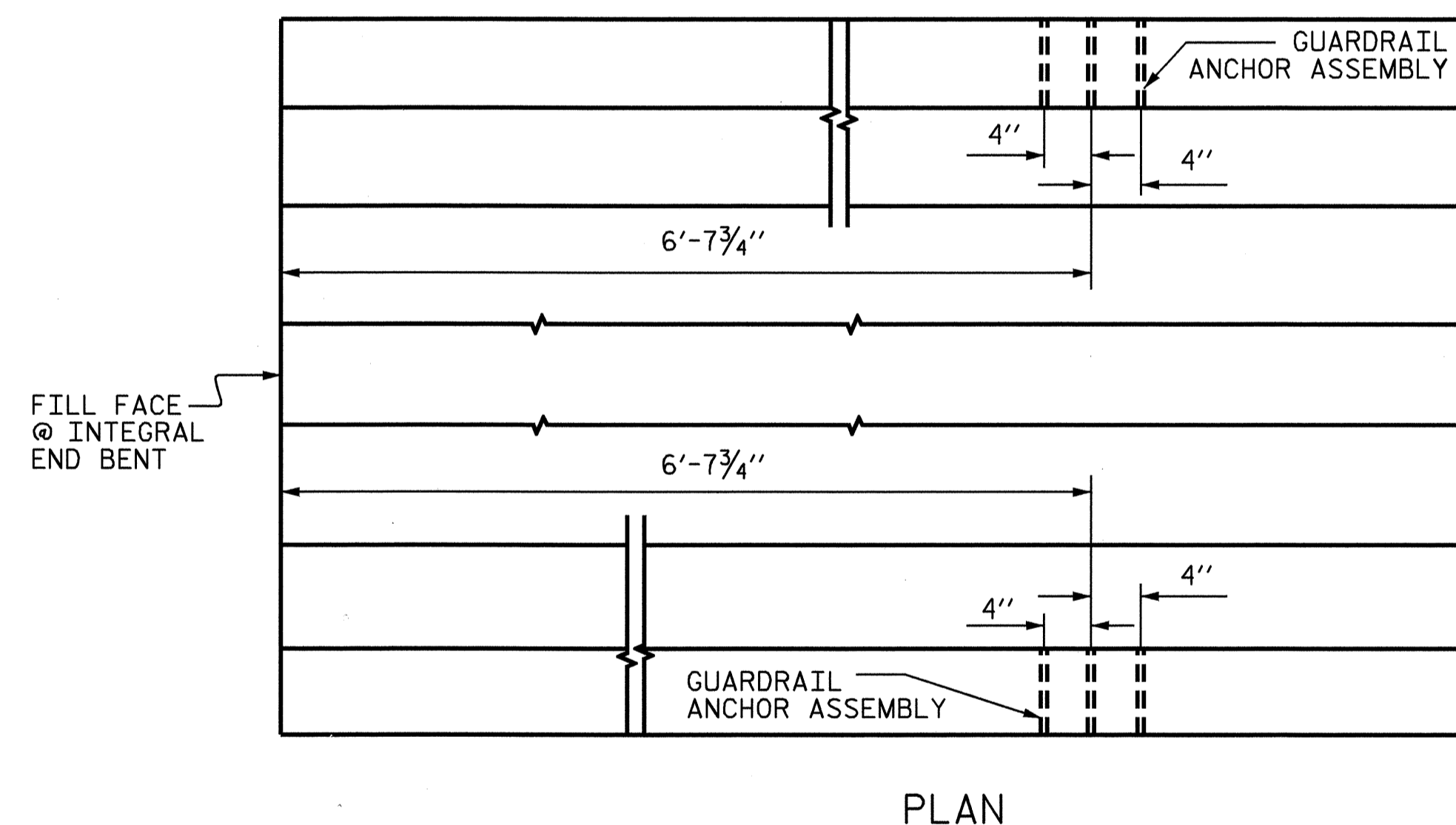
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

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

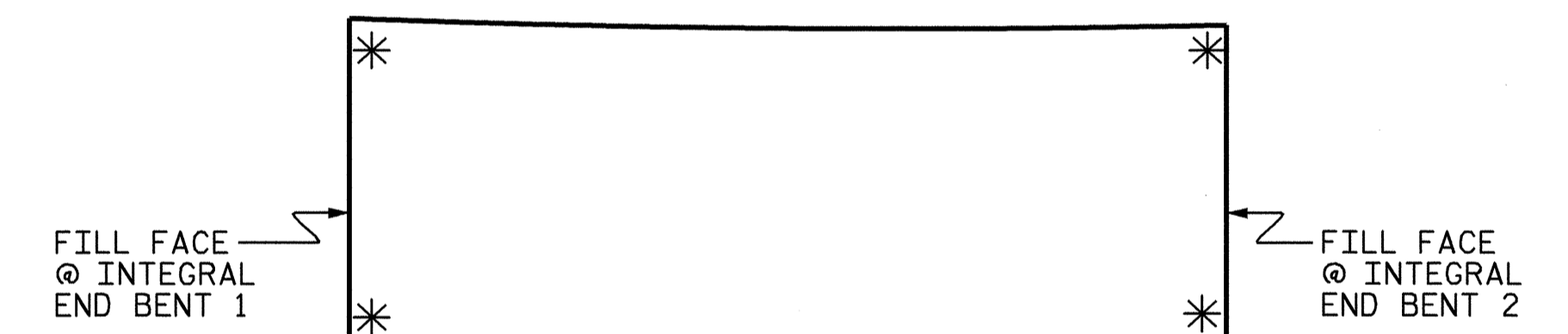


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

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

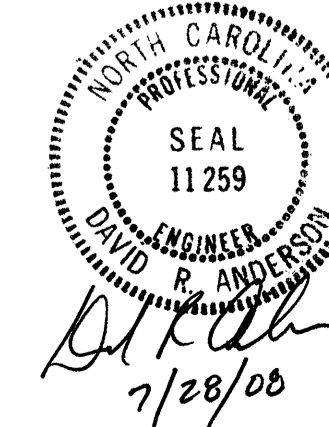


SKETCH SHOWING POINTS OF ATTACHMENTS

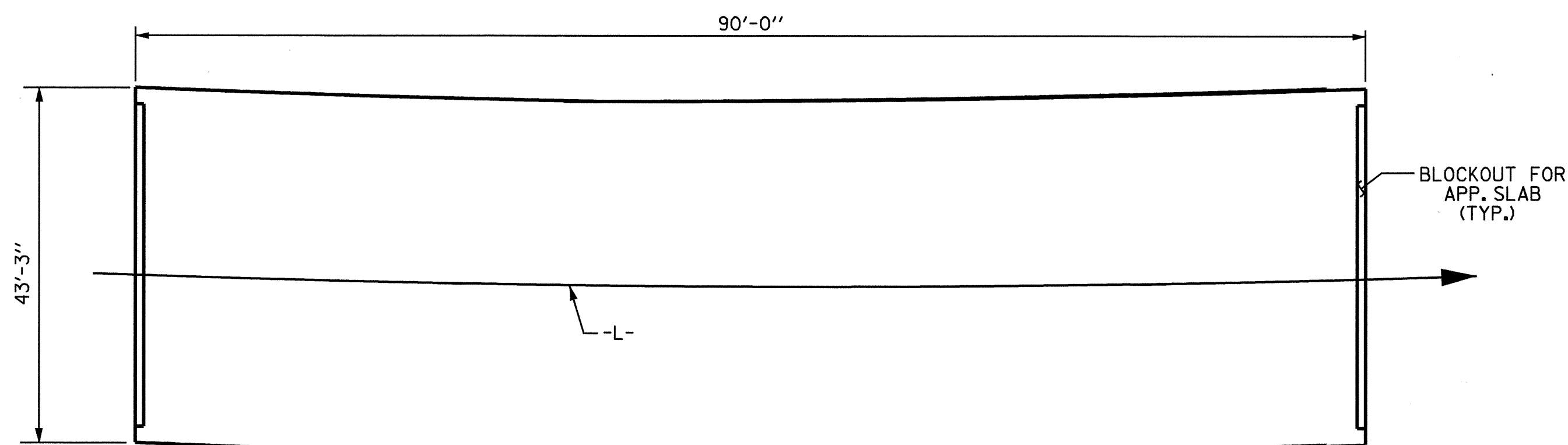
* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4077
COLUMBUS COUNTY
 STATION: 31+65.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD GUARDRAIL ANCHORAGE FOR BARRIER RAIL					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTALS					49



ASSEMBLED BY : S. M. RASHIDI DATE : 2/12/07
 CHECKED BY : WILLIAM PARKER DATE : 4/07
 DRAWN BY : TLA 5/06
 CHECKED BY : GM 5/06



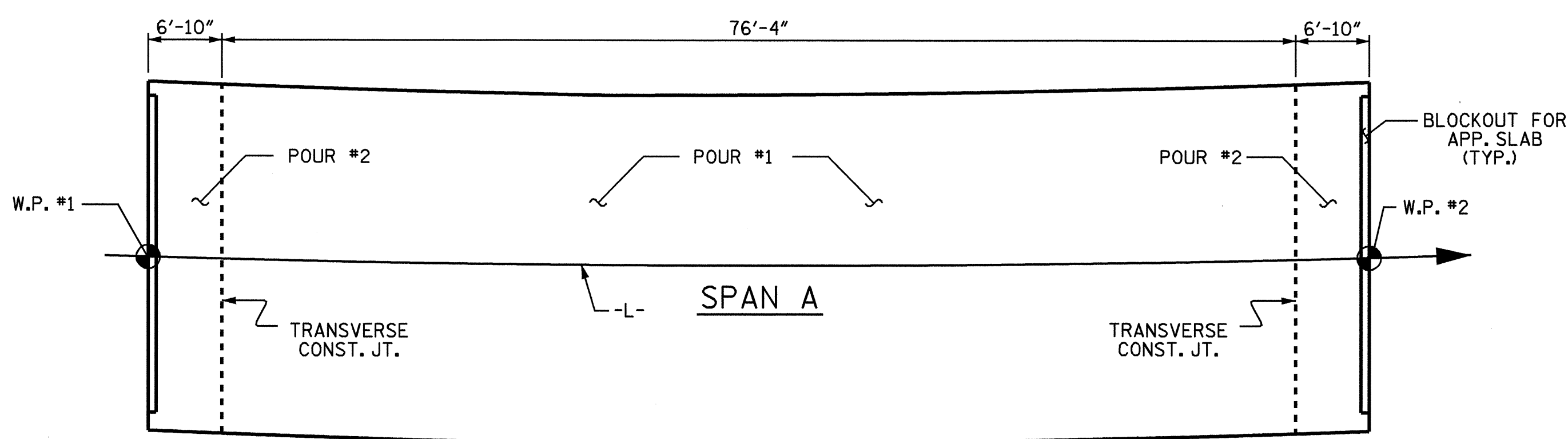
LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 3826)

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

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

BAR TYPES						REINFORCING BAR SCHEDULE					
						SPAN A					
						BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	163	#5	STR	42'-10"	7282						
A2	163	#5	STR	42'-10"	7282						
*B1	222	#5	STR	17'-10"	4129						
*B2	60	#4	STR	29'-8"	1189						
B3	92	#5	STR	45'-1"	4326						
K1	20	#4	STR	22'-5"	299						
K2	2	#4	STR	2'-5"	3						
K3	4	#4	STR	2'-11"	8						
K4	2	#4	STR	2'-8"	4						
K5	2	#4	STR	2'-2"	3						
K6	2	#4	STR	1'-10"	2						
K7	4	#4	STR	2'-4"	6						
K8	2	#4	STR	2'-1"	3						
K9	2	#4	STR	1'-7"	2						
K10	8	#4	STR	7'-2"	38						
K11	16	#4	STR	8'-2"	87						
K12	8	#4	STR	7'-8"	41						
K13	8	#4	STR	6'-8"	36						
*U1	64	#4	1	11'-7"	495						
*S3	60	#4	2	11'-8"	468						
*S4	60	#4	2	10'-9"	431						
REINFORCING STEEL = 12140 LBS											
*EPOXY COATED REINF. STEEL = 13994 LBS											

ALL BAR DIMENSIONS ARE OUT TO OUT



POURING SEQUENCE FOR SPAN A

— SUPERSTRUCTURE BILL OF MATERIAL —

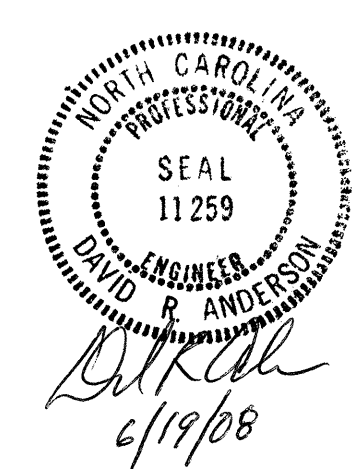
	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR #1	119.3		
POUR #2	64.8		
TOTALS**	184.1	12140	13994

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

GROOVING BRIDGE FLOOR

BRIDGE DECK	3256 SQ.FT.
APPROACH SLABS	843 SQ.FT.
TOTAL	4099 SQ.FT.

PROJECT NO. B-4077
COLUMBUS COUNTY
 STATION: 31+65.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

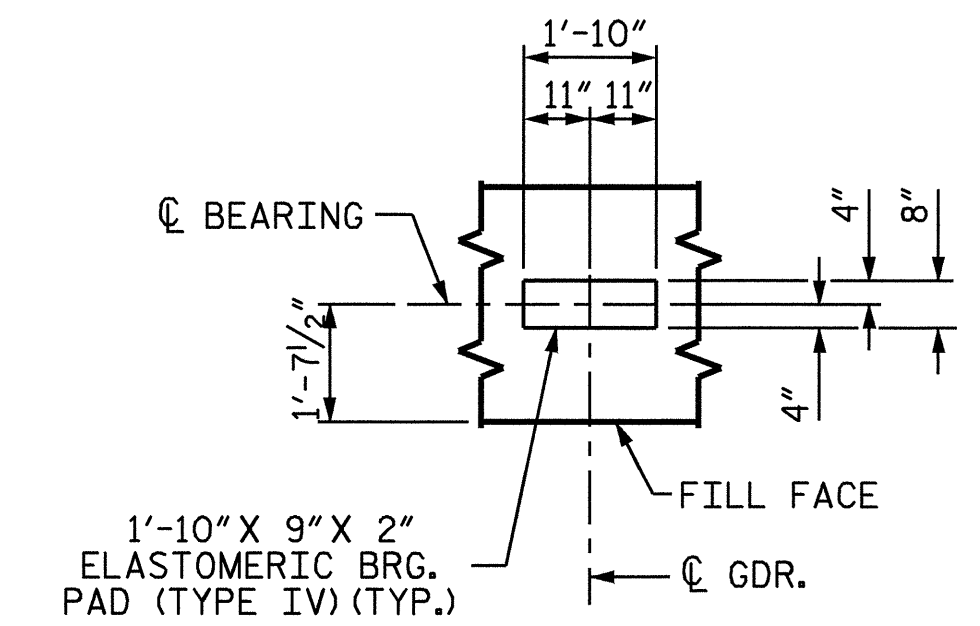
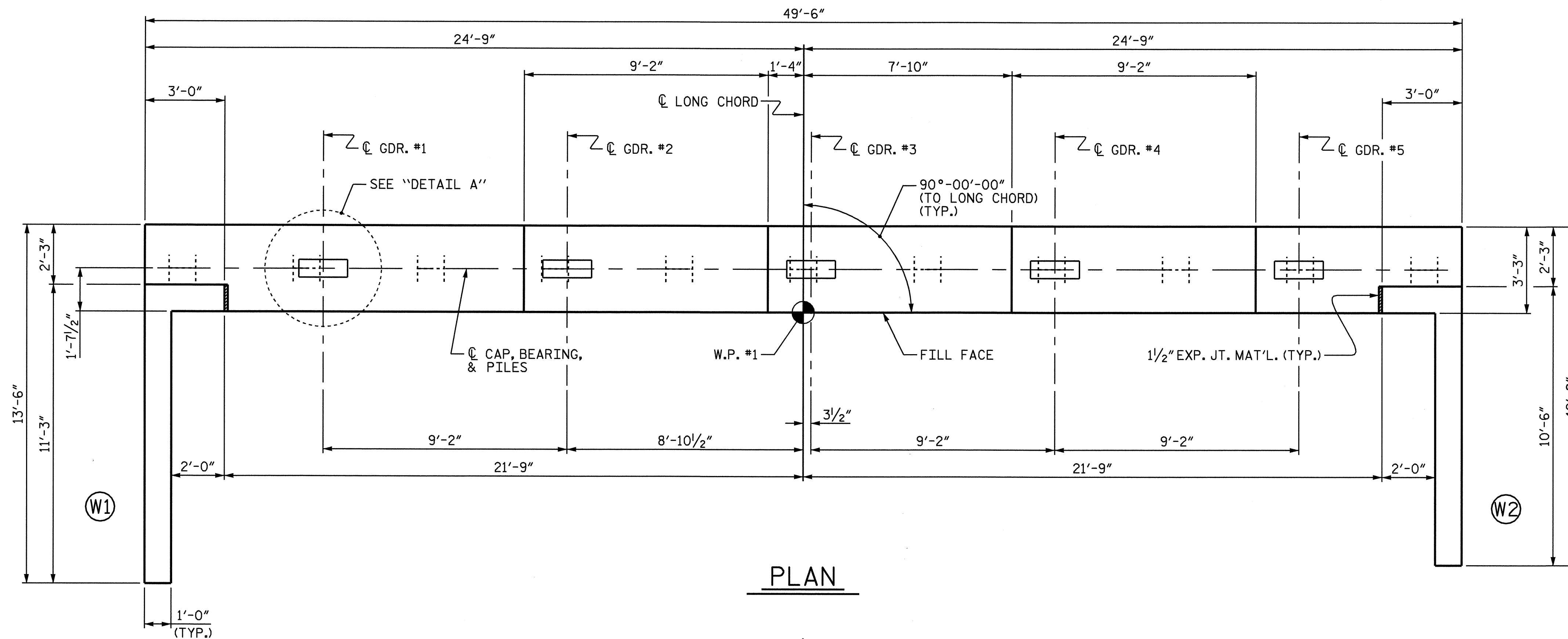
**SUPERSTRUCTURE
 BILL OF MATERIAL**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-37
2			4			49

DRAWN BY: S. M. RASHIDI DATE: 2/7
 CHECKED BY: WILLIAM F. PARKER DATE: 4/07

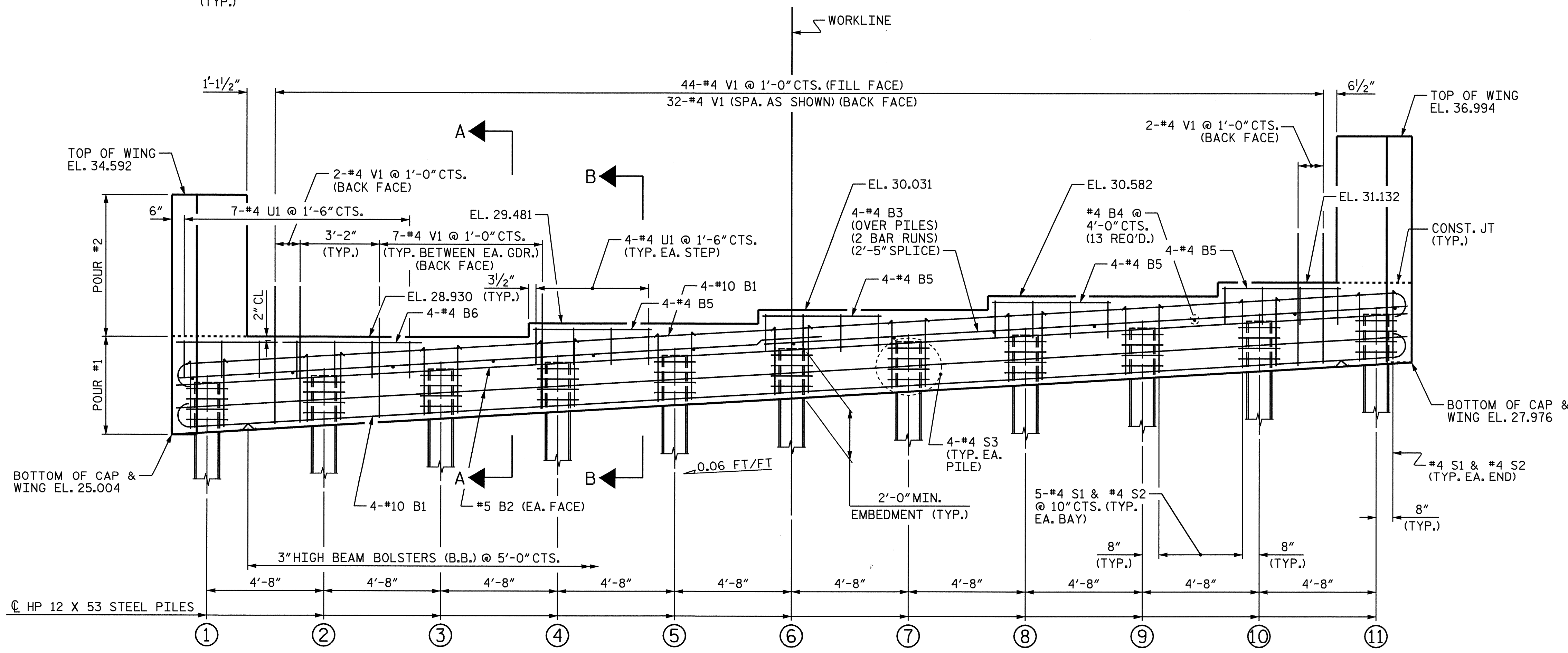
NOTES

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



DETAIL A

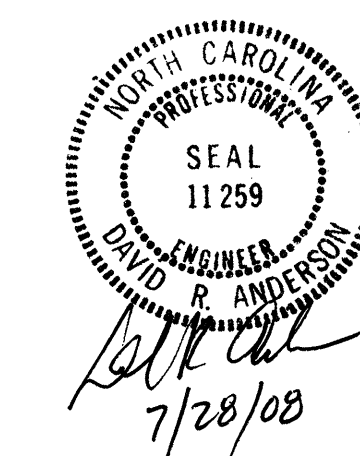
TOP OF PILE ELEVATIONS	
PILE NO.	ELEVATION
①	27.119
②	27.399
③	27.680
④	27.960
⑤	28.240
⑥	28.520
⑦	28.800
⑧	29.080
⑨	29.361
⑩	29.641
⑪	29.921



ELEVATION

PROJECT NO. B-4077
COLUMBUS COUNTY
 STATION: 31+65.00 -L-

SHEET 1 OF 3

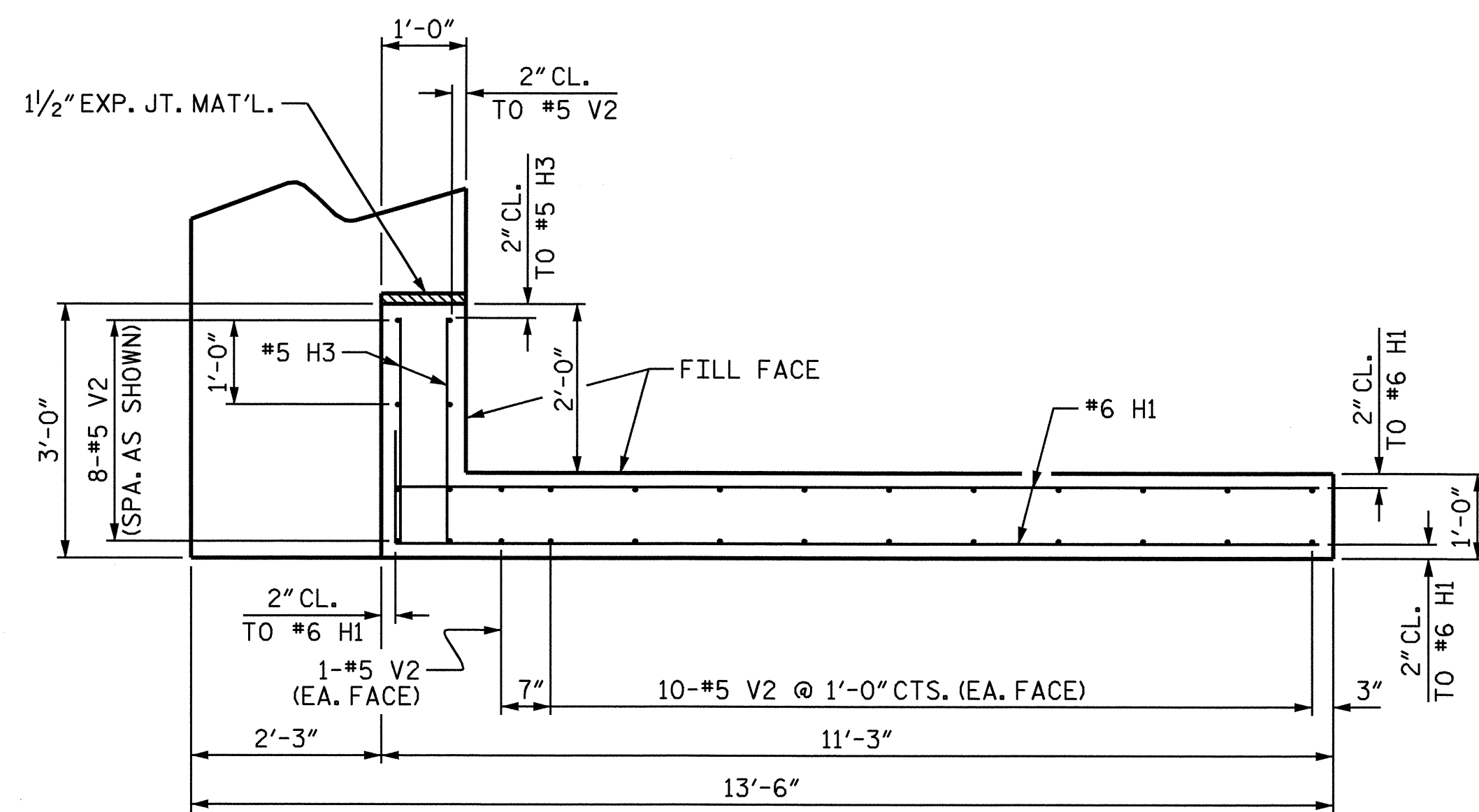


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

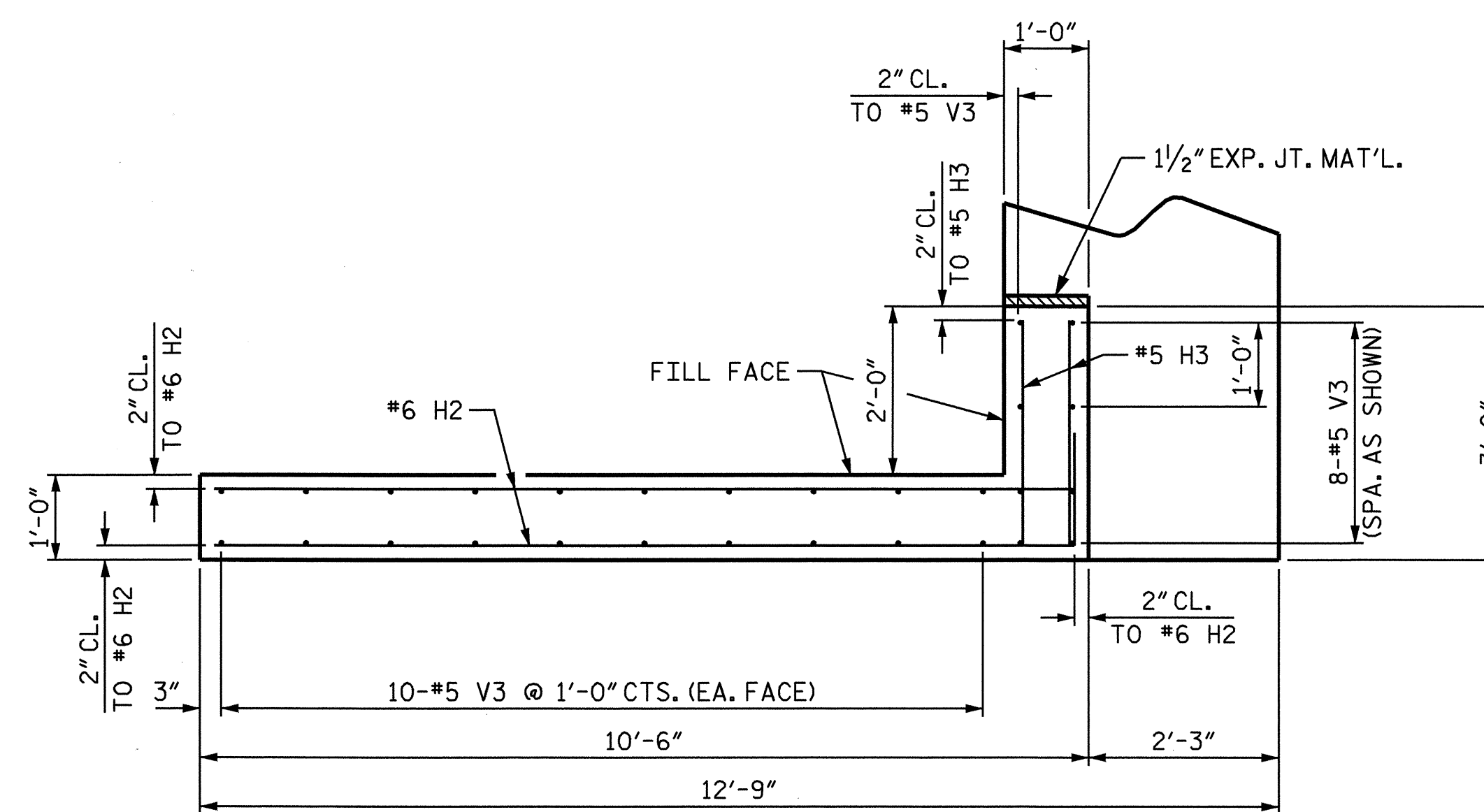
**SUBSTRUCTURE
 INTEGRAL
 END BENT 1**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-38
1			3			TOTAL SHEETS 49
2			4			

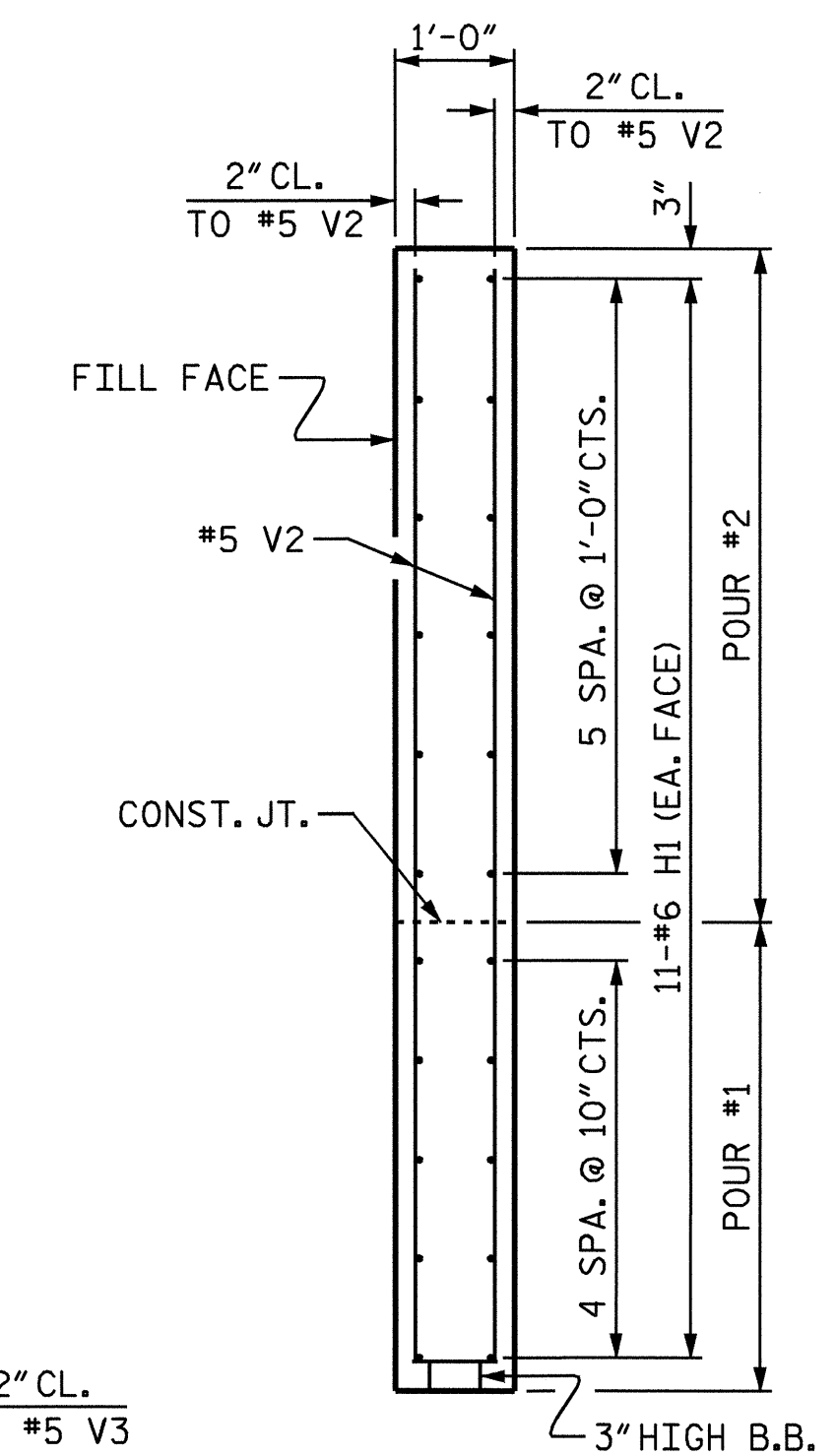
DRAWN BY: E.C. LOCKLEAR (JAT) DATE: 4-16-08
 CHECKED BY: N.Q. TRAN DATE: 4-22-08



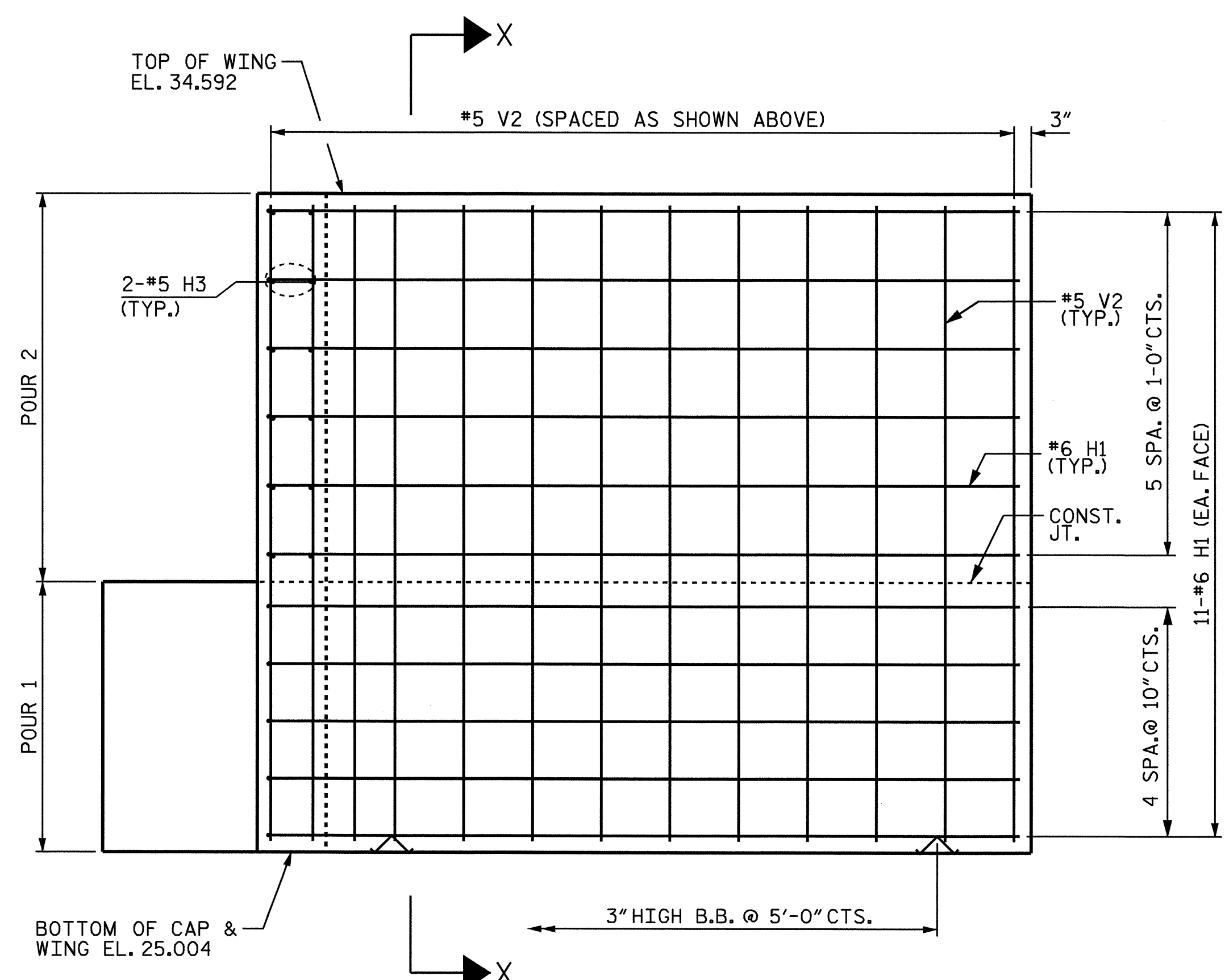
PLAN OF WING (W1)



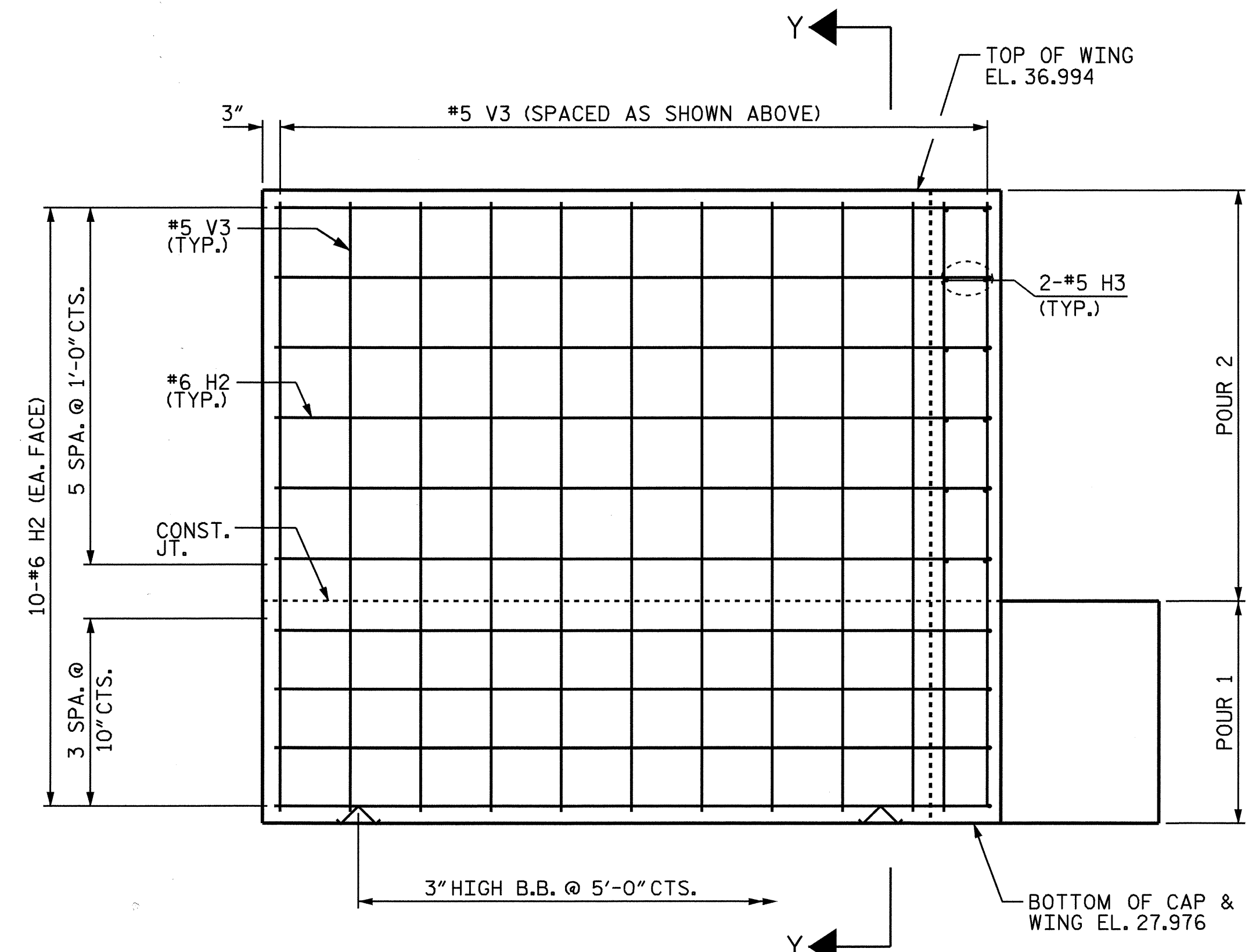
PLAN OF WING (W2)



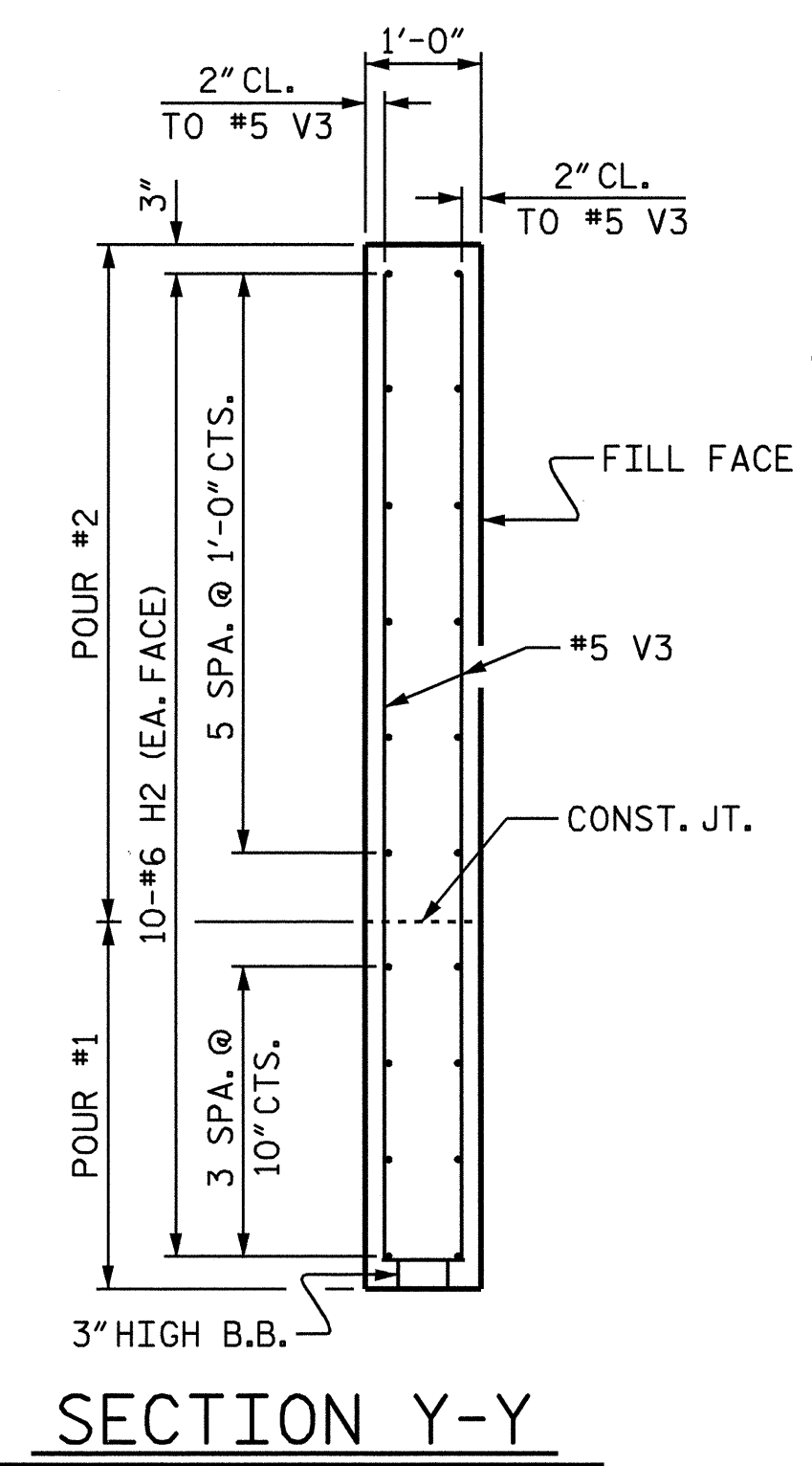
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y

PROJECT NO. B-4077
 COLUMBUS COUNTY
 STATION: 31+65.00 -L-

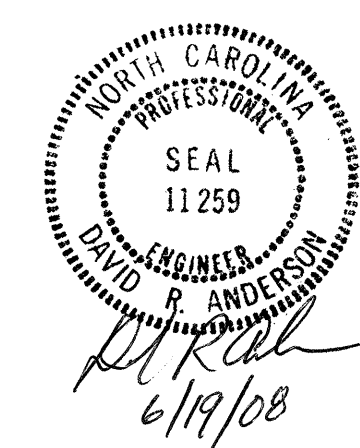
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

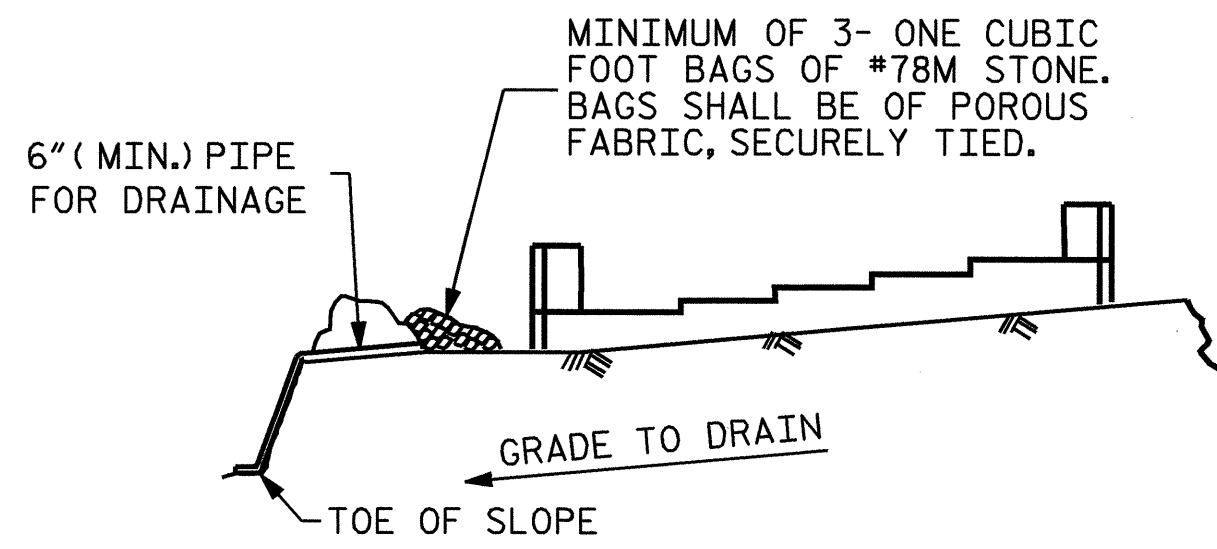
SUBSTRUCTURE
 INTEGRAL
 END BENT 1

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

SHEET NO. 5-39
 TOTAL SHEETS 49



DRAWN BY: E.C. LOCKLEAR (JAT) DATE: 4-16-08
 CHECKED BY: N. Q. TRAN DATE: 4-22-08

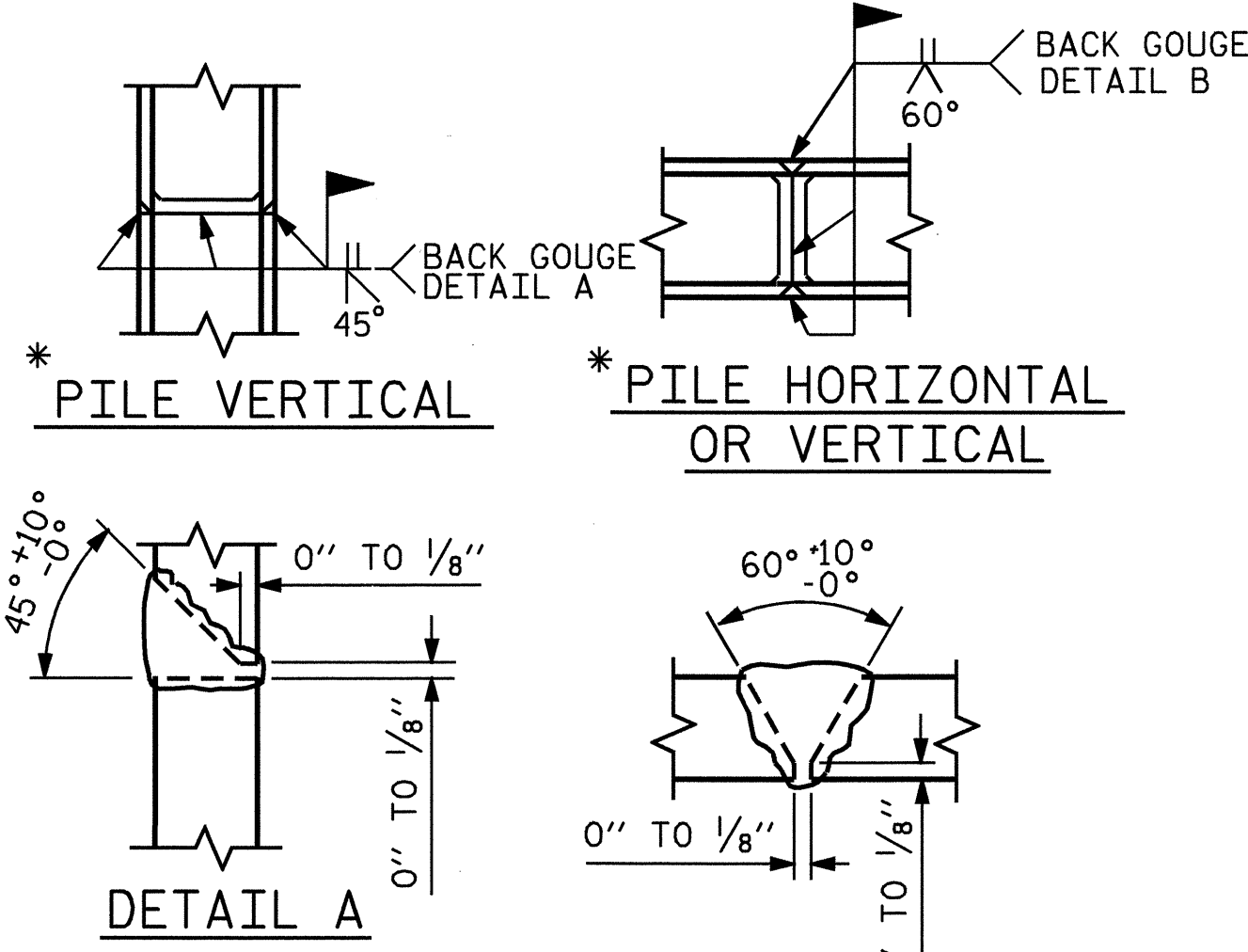


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

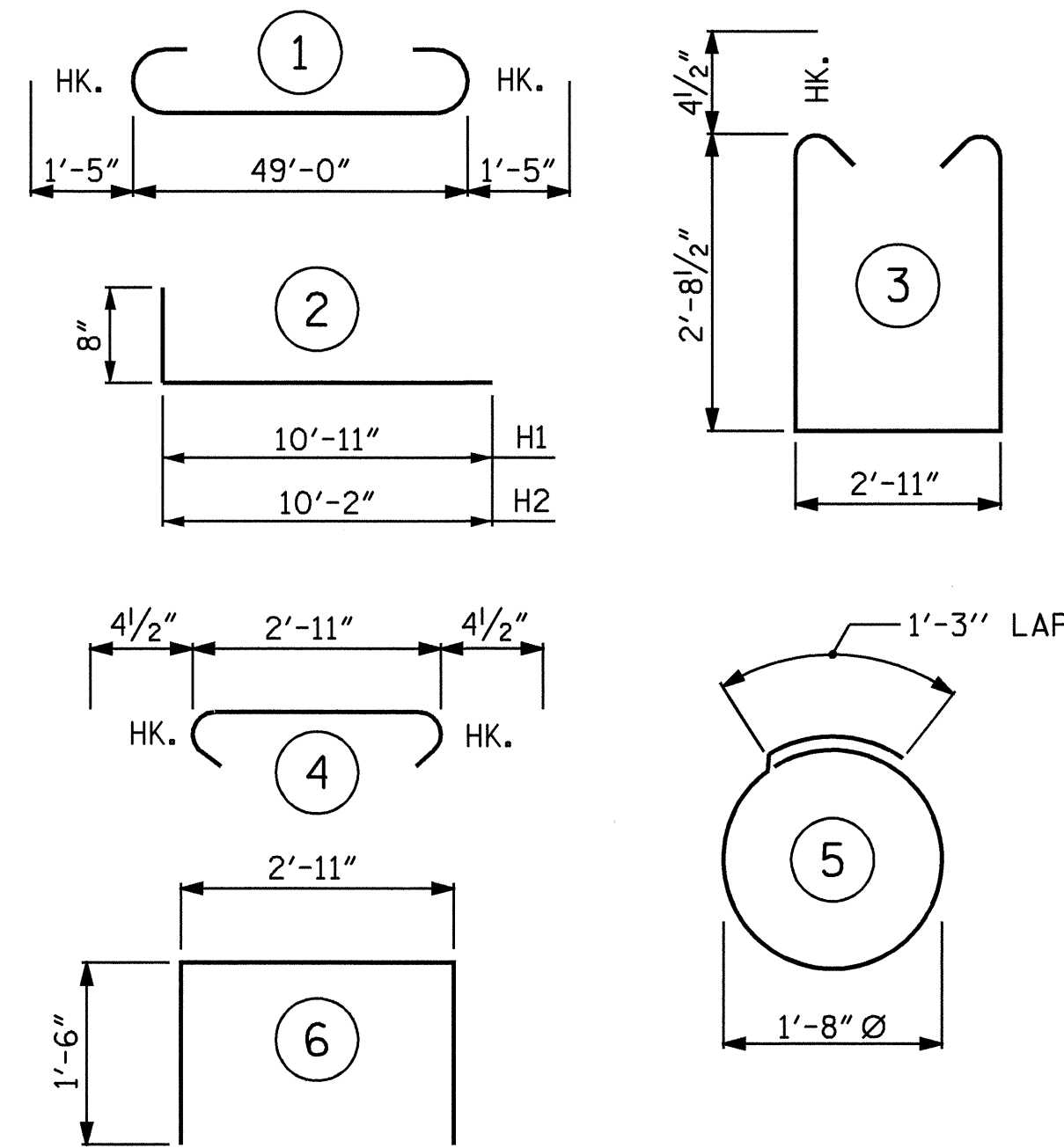
TEMPORARY DRAINAGE AT END BENT



* POSITION OF PILE DURING WELDING. DETAIL B

PILE SPLICE DETAILS

BAR TYPES

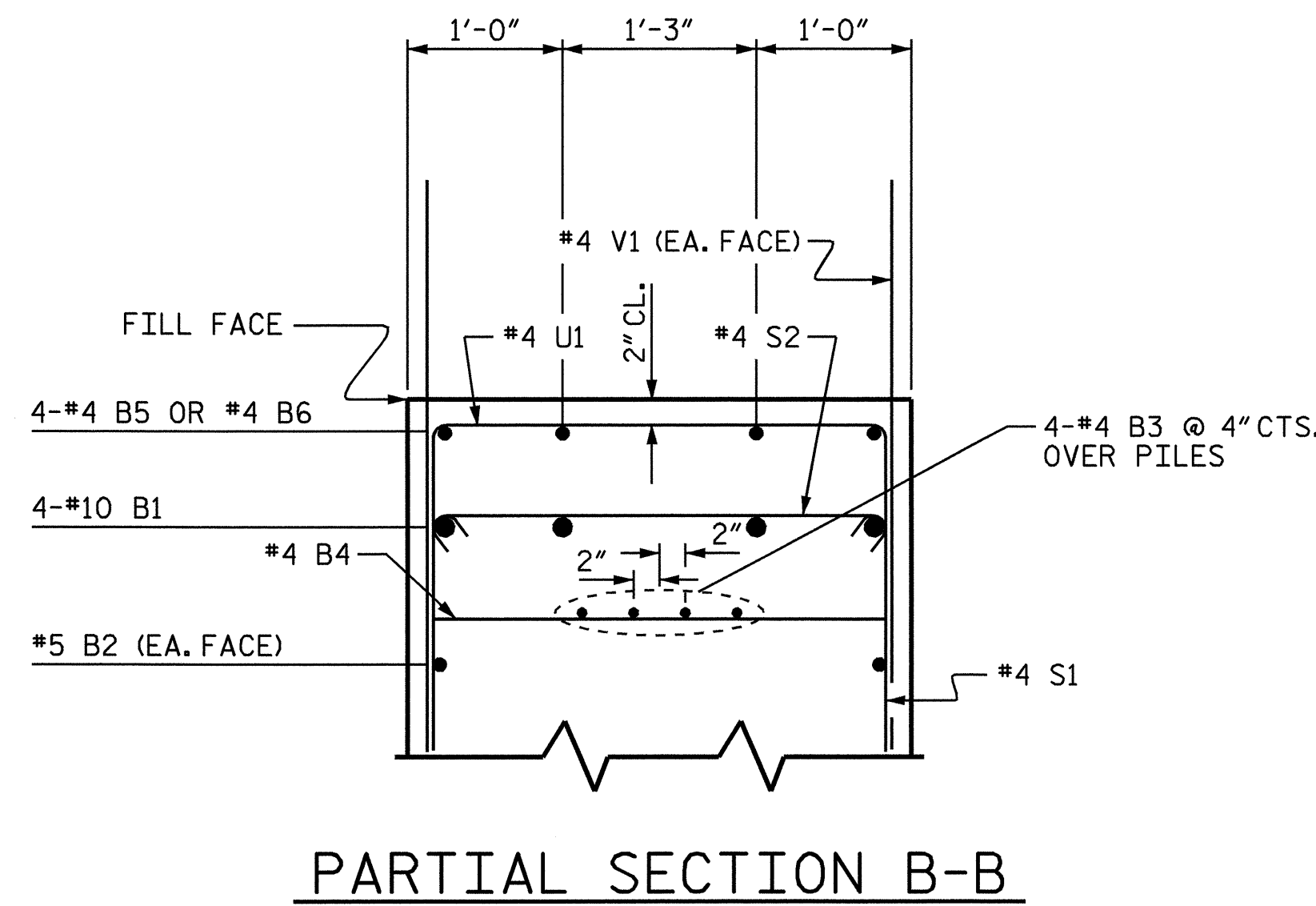
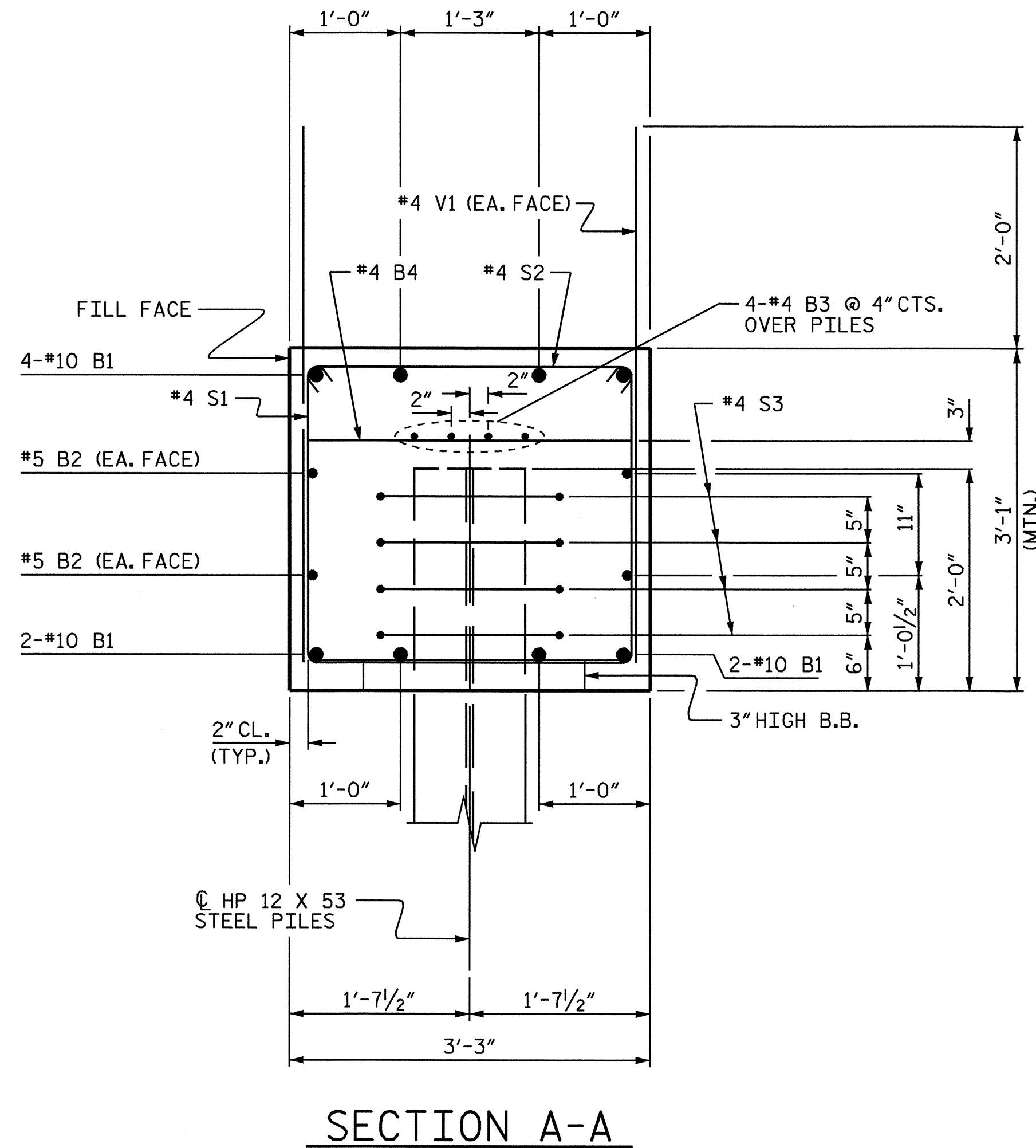


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#10	1	51'-10"	1784
B2	4	#5	STR	49'-2"	205
B3	8	#4	STR	25'-10"	138
B4	13	#4	STR	2'-11"	25
B5	16	#4	STR	4'-9"	51
B6	4	#4	STR	9'-10"	26
H1	22	#6	2	11'-7"	383
H2	20	#6	2	10'-10"	325
H3	24	#5	STR	2'-8"	67
S1	52	#4	3	9'-1"	316
S2	52	#4	4	3'-8"	127
S3	44	#4	5	6'-6"	191
U1	23	#4	6	5'-11"	91
V1	76	#5	STR	4'-11"	390
V2	30	#5	STR	9'-3"	289
V3	28	#5	STR	8'-10"	258
REINFORCING STEEL					LBS. 4,666
CLASS A CONCRETE BREAKDOWN :					
POUR #1 - CAP & LOWER WINGS				CU. YDS.	22.9
POUR #2 - UPPER WINGS				CU. YDS.	5.5
TOTAL				CU. YDS.	28.4
HP 12 x 53 STEEL PILES					
NO. = 11				LIN. FT.	550

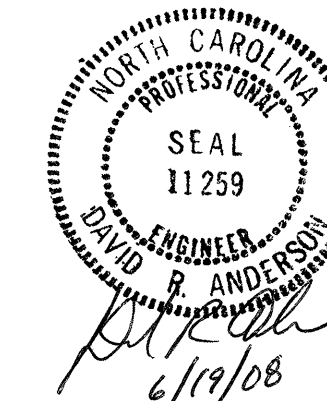


PROJECT NO. B-4077
COLUMBUS COUNTY
 STATION: 31+65.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 INTEGRAL
 END BENT 1



REVISIONS

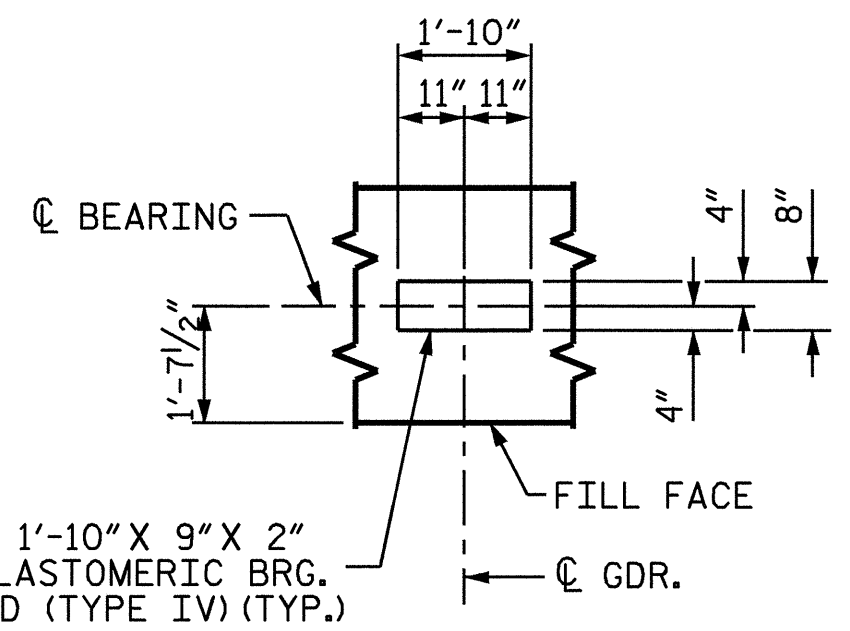
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
5-40
 TOTAL SHEETS
49

DRAWN BY: E.C. LOCKLEAR (JAT) DATE: 4-16-08
 CHECKED BY: N. Q. TRAN DATE: 4-22-08

NOTES

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



DETAIL A

TOP OF PILE ELEVATIONS	
PILE NO.	ELEVATION
①	27.381
②	27.661
③	27.904
④	28.220
⑤	28.500
⑥	28.780
⑦	29.059
⑧	29.339
⑨	29.619
⑩	29.898
⑪	30.178

PROJECT NO. B-4077
COLUMBUS COUNTY
 STATION: 31+65.00 -L-

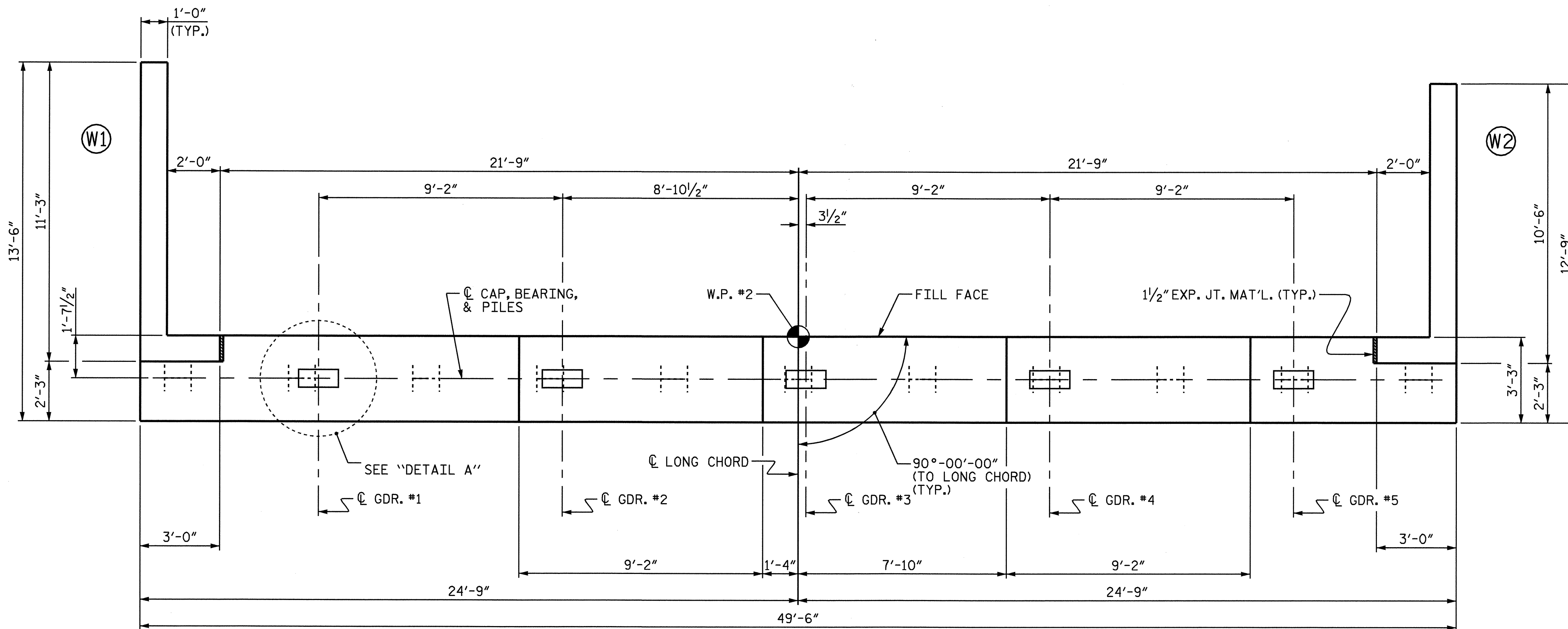
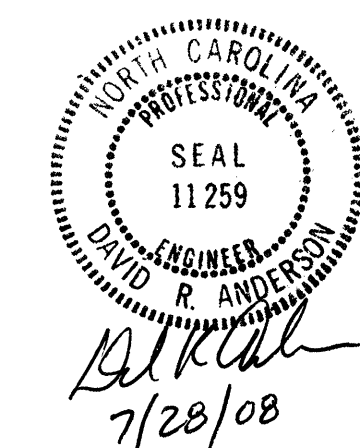
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

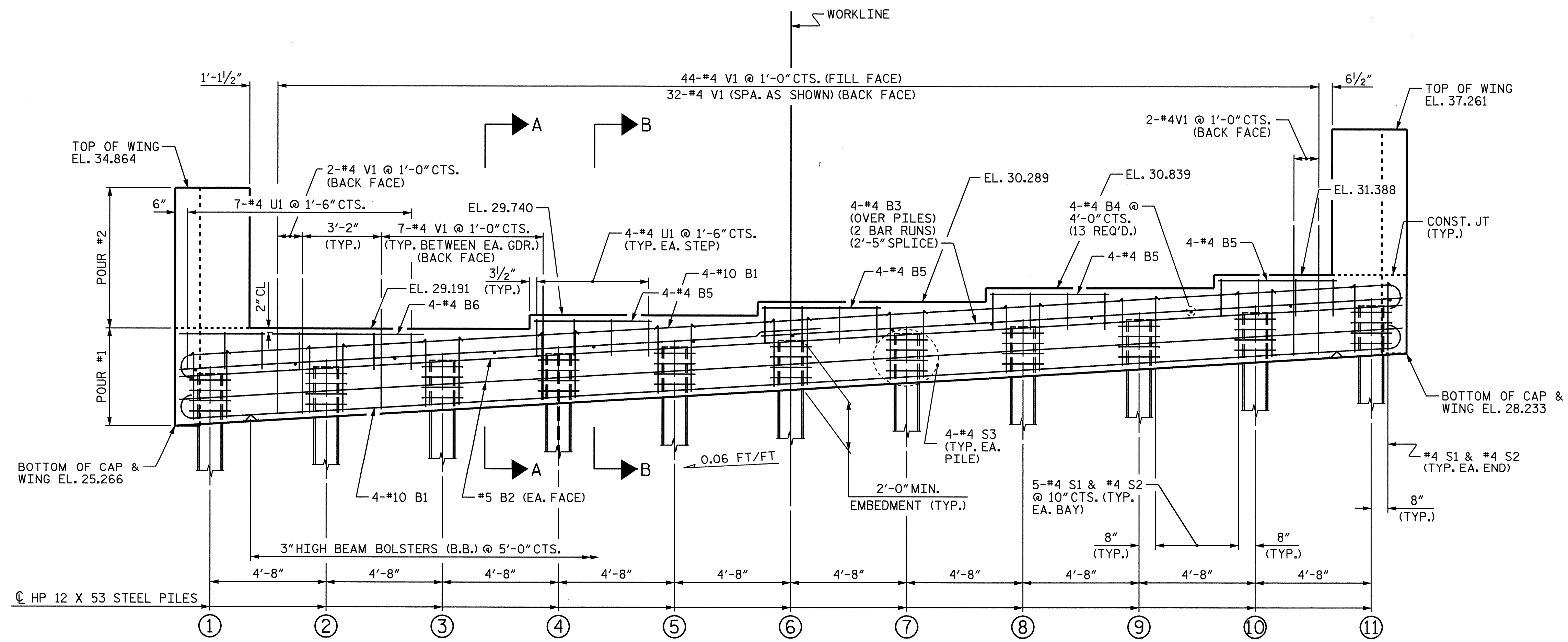
**SUBSTRUCTURE
 INTEGRAL
 END BENT 2**

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

SHEET NO. S-41
 TOTAL SHEETS 49

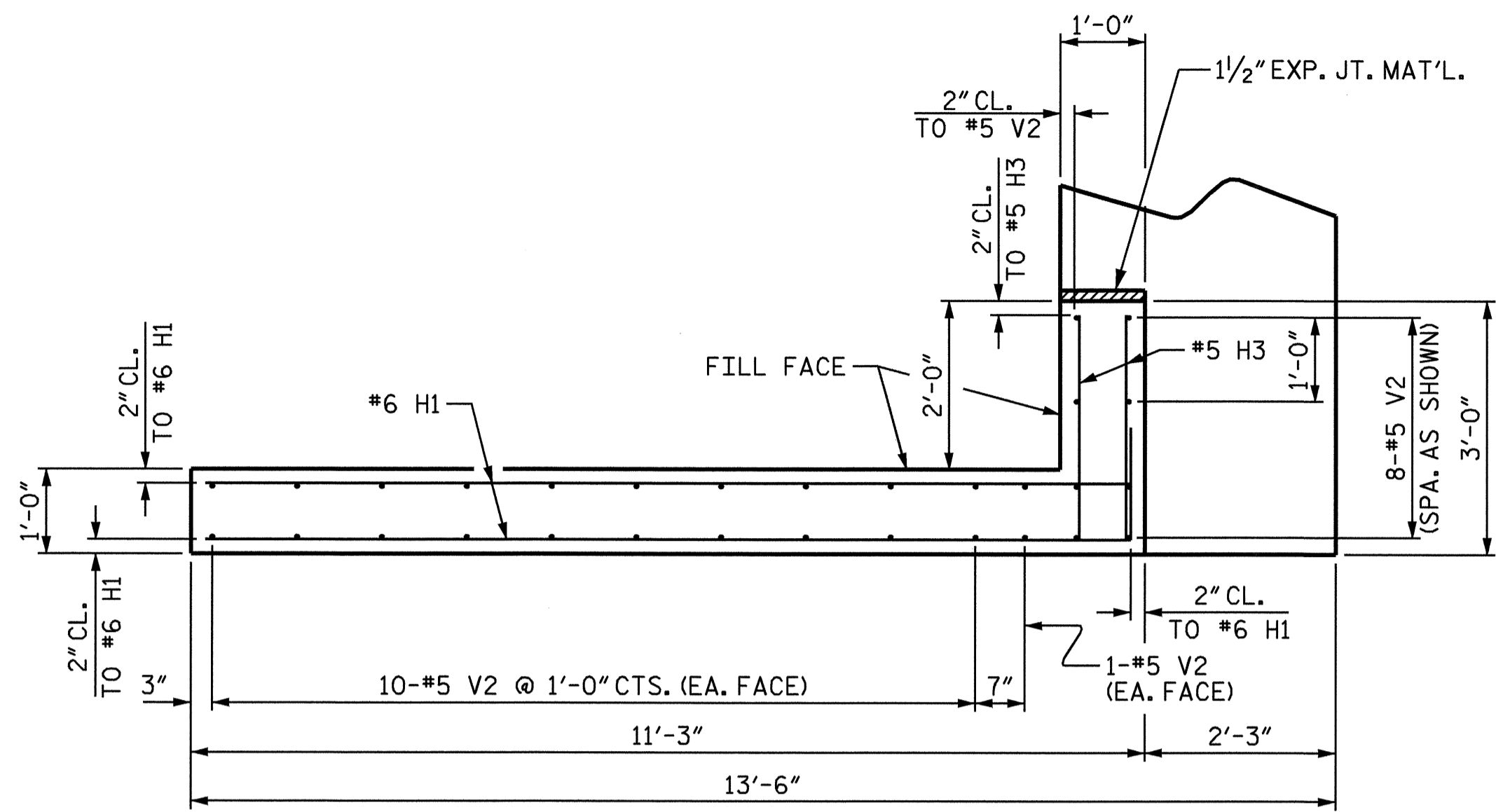


PLAN

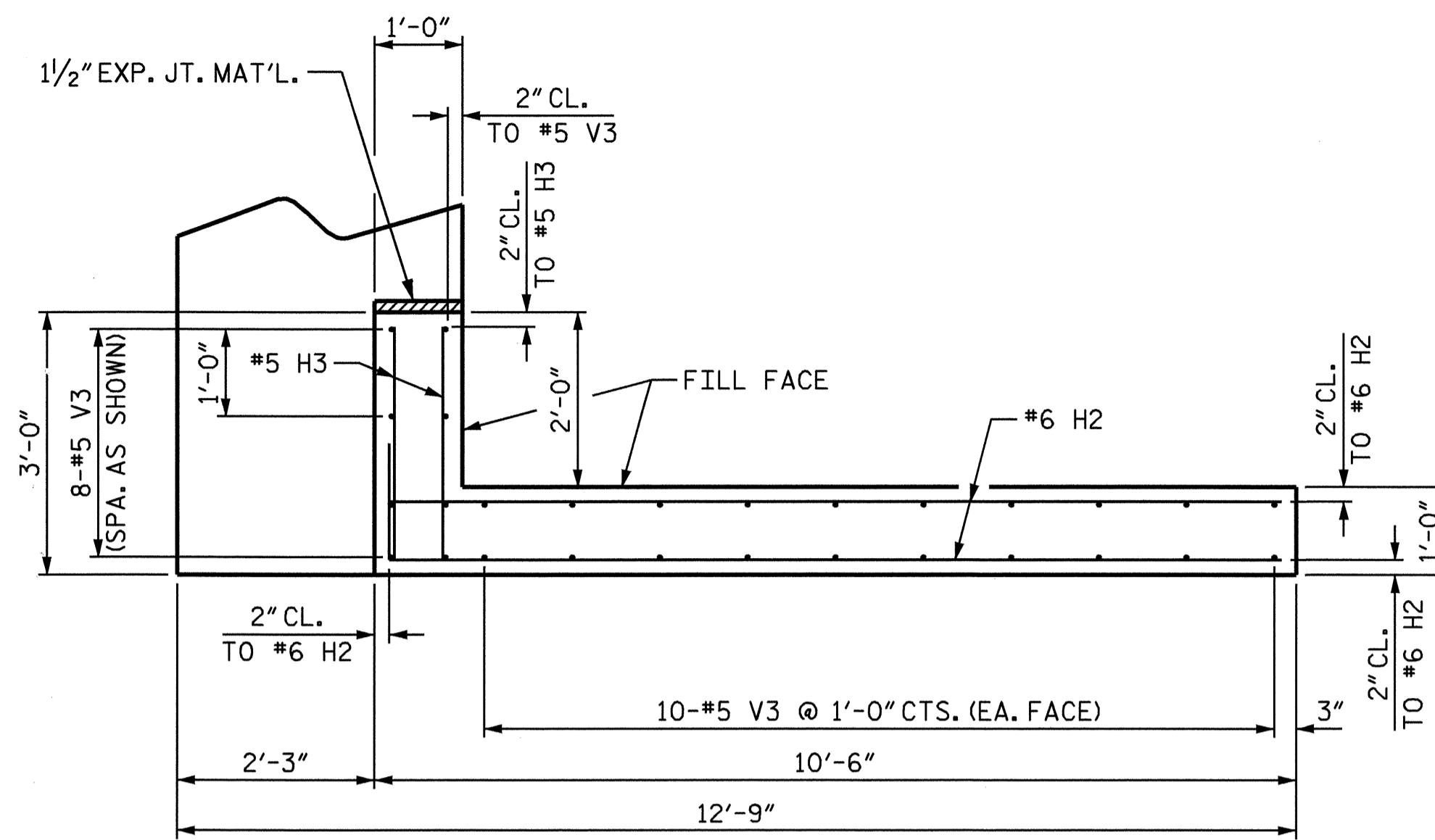


ELEVATION

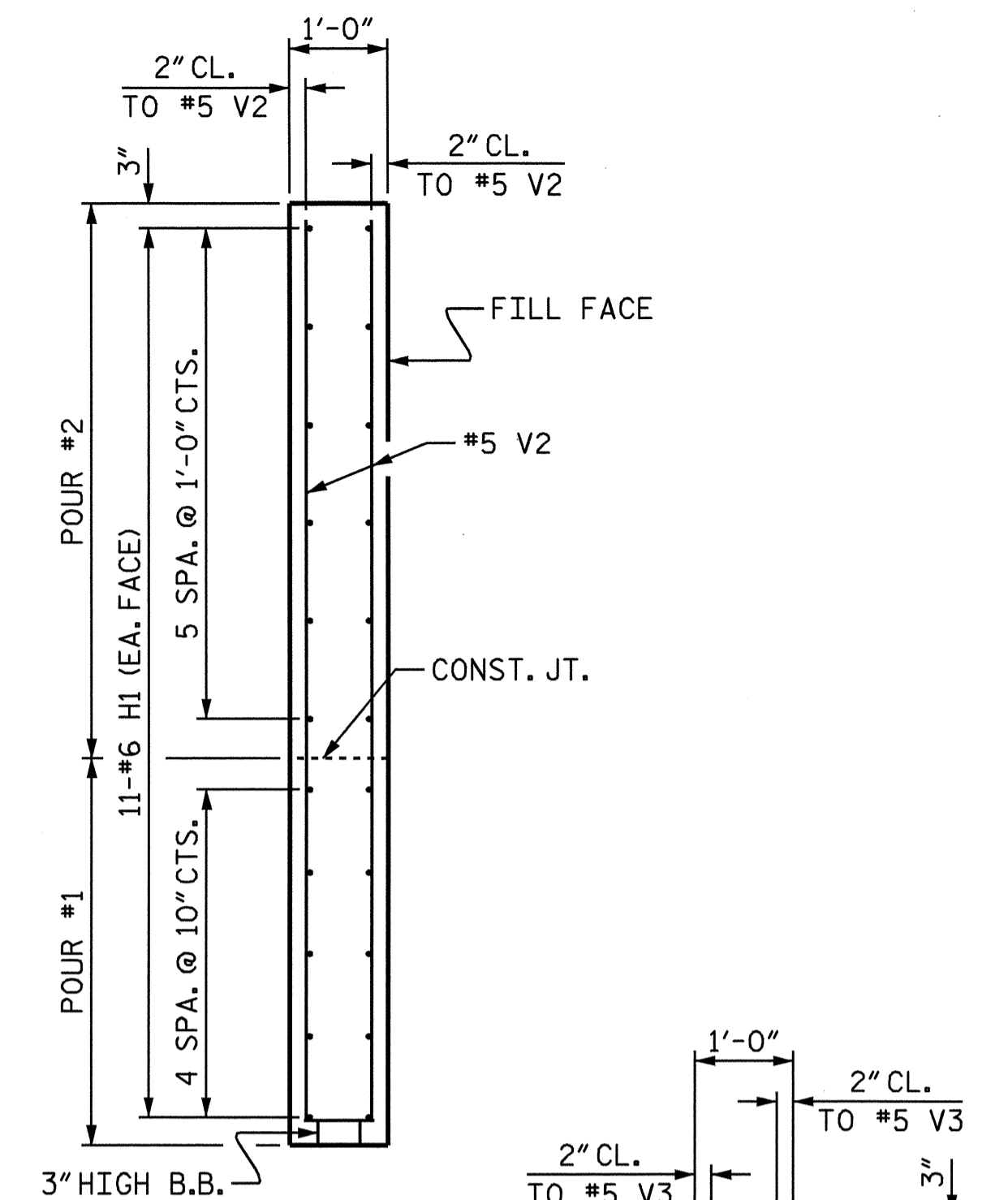
DRAWN BY: E.C. LOCKLEAR (JAT) DATE: 4-16-08
 CHECKED BY: N.O. TRAN DATE: 4-22-08



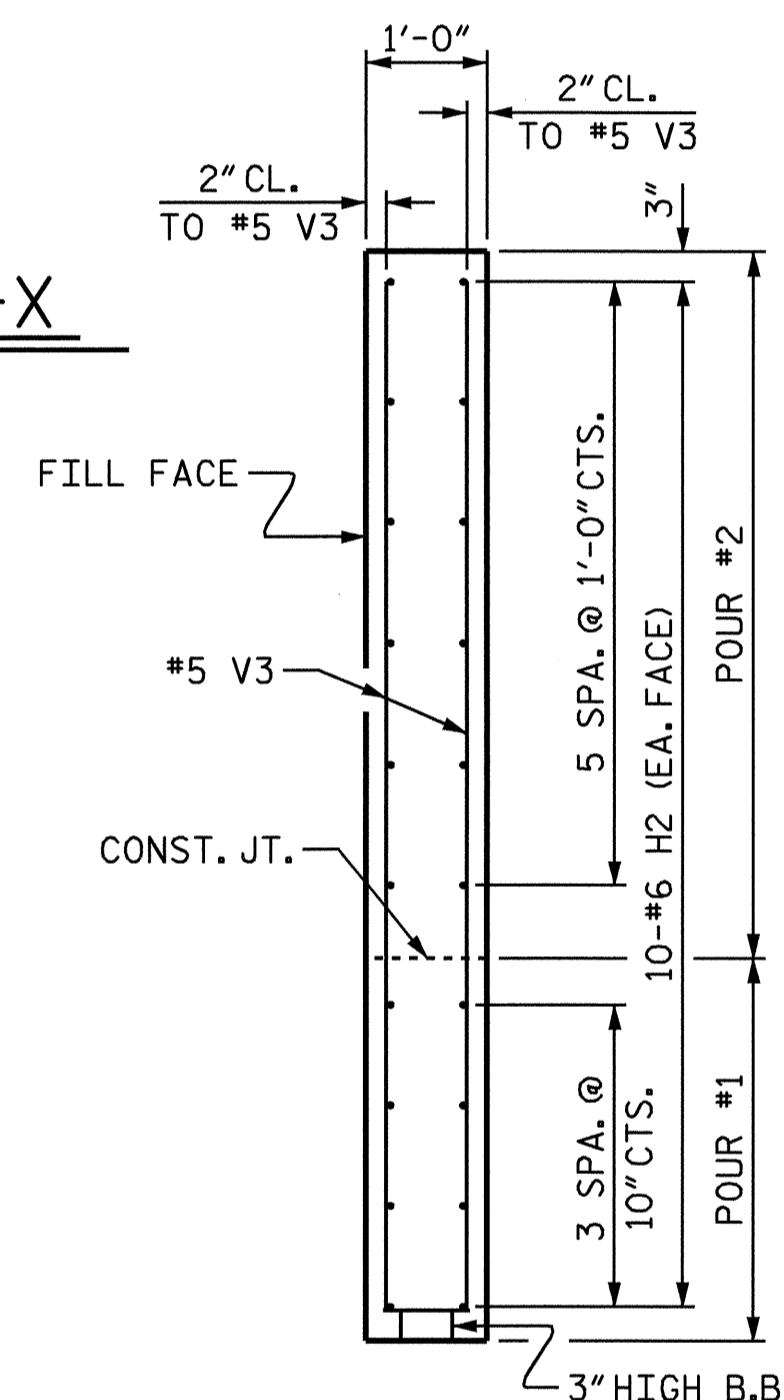
PLAN OF WING (W1)



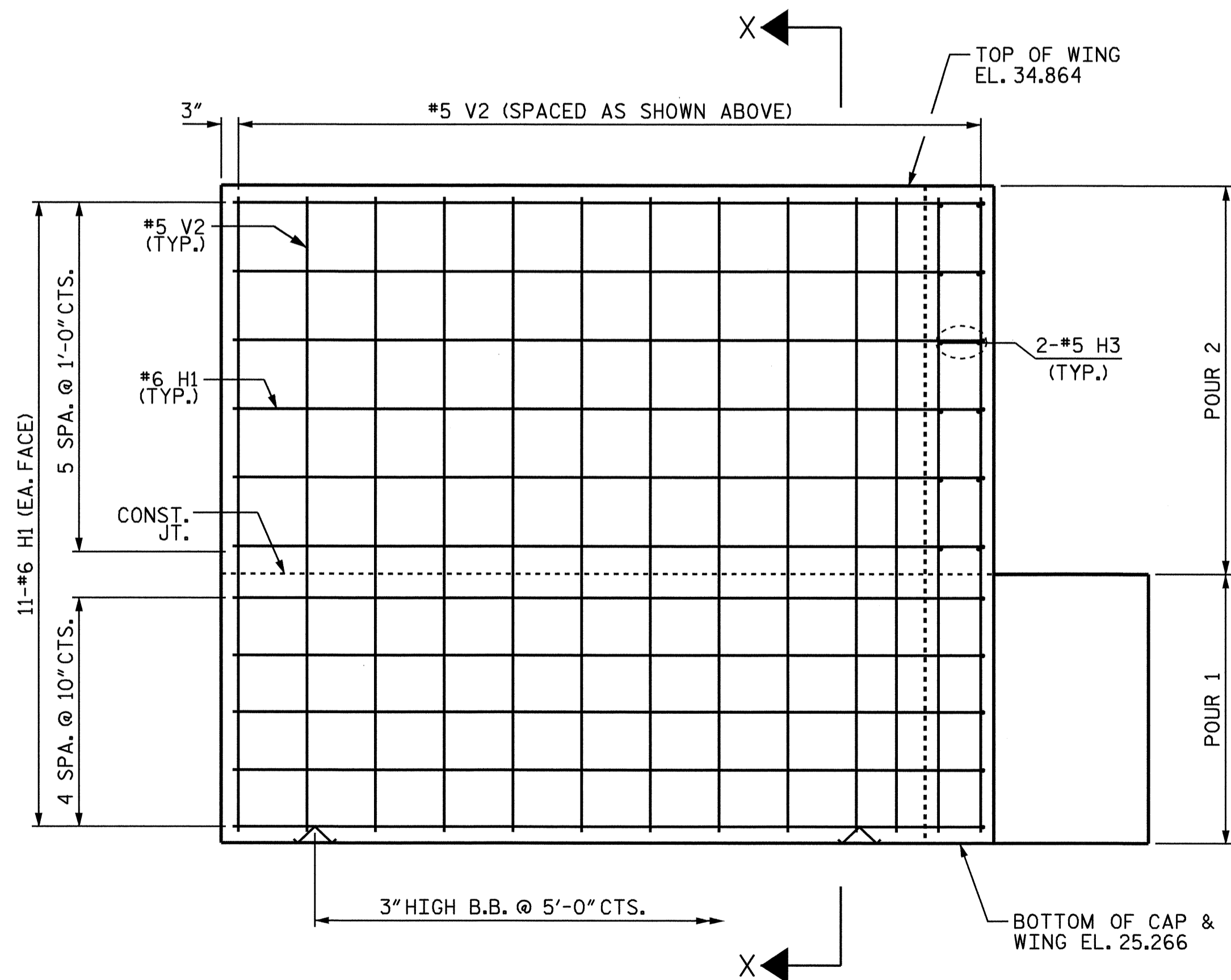
PLAN OF WING (W2)



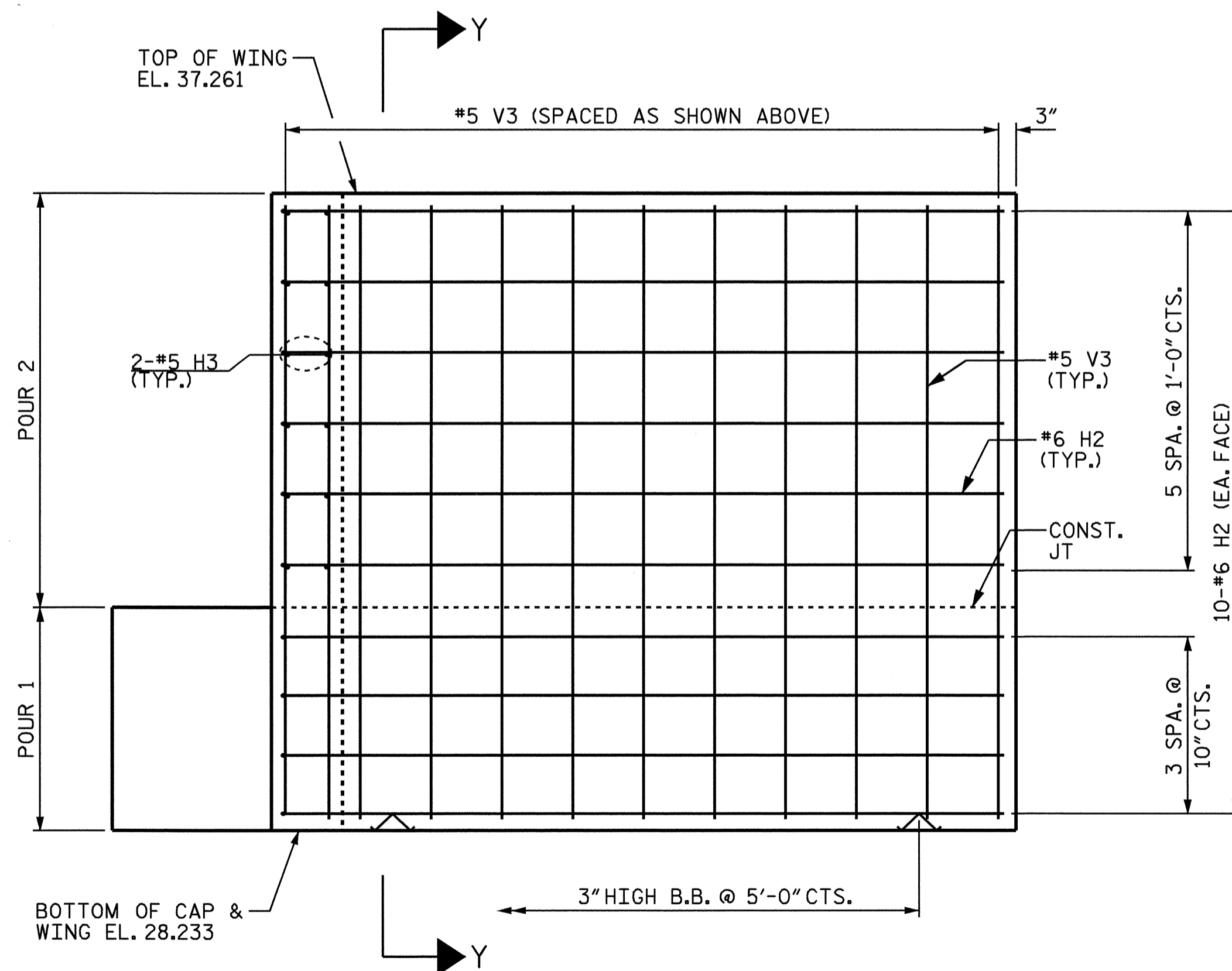
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

PROJECT NO. B-4077
 COLUMBUS COUNTY
 STATION: 31+65.00 -L-

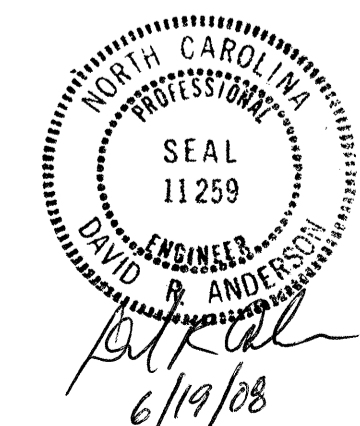
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

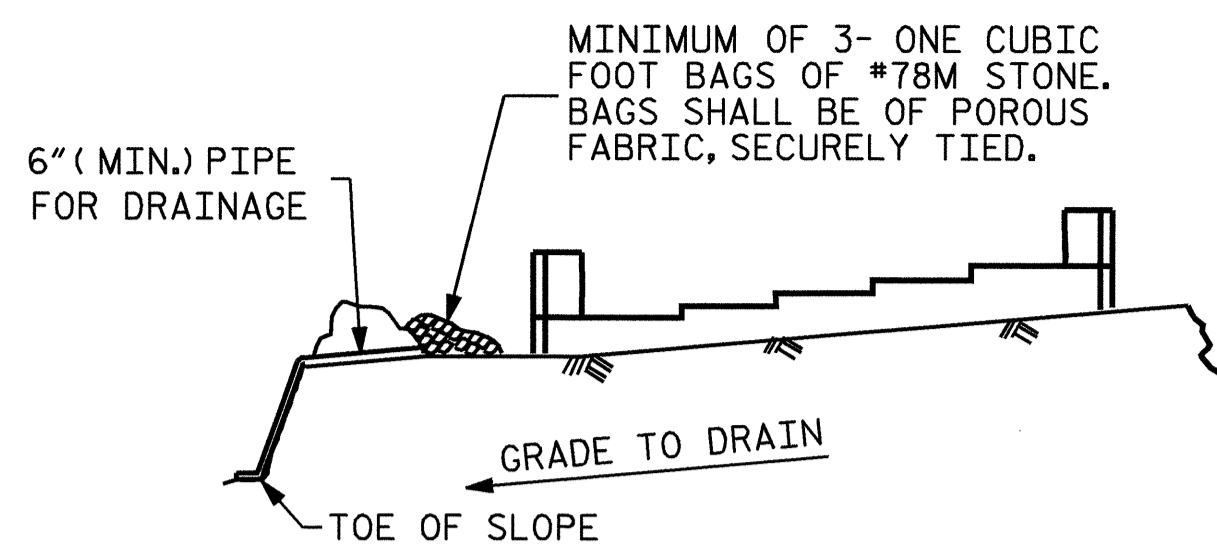
SUBSTRUCTURE
 INTEGRAL
 END BENT 2

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

SHEET NO. 5-42
 TOTAL SHEETS 49



DRAWN BY: E.C. LOCKLEAR (JAT) DATE: 4-16-08
 CHECKED BY: N.Q. TRAN DATE: 4-22-08

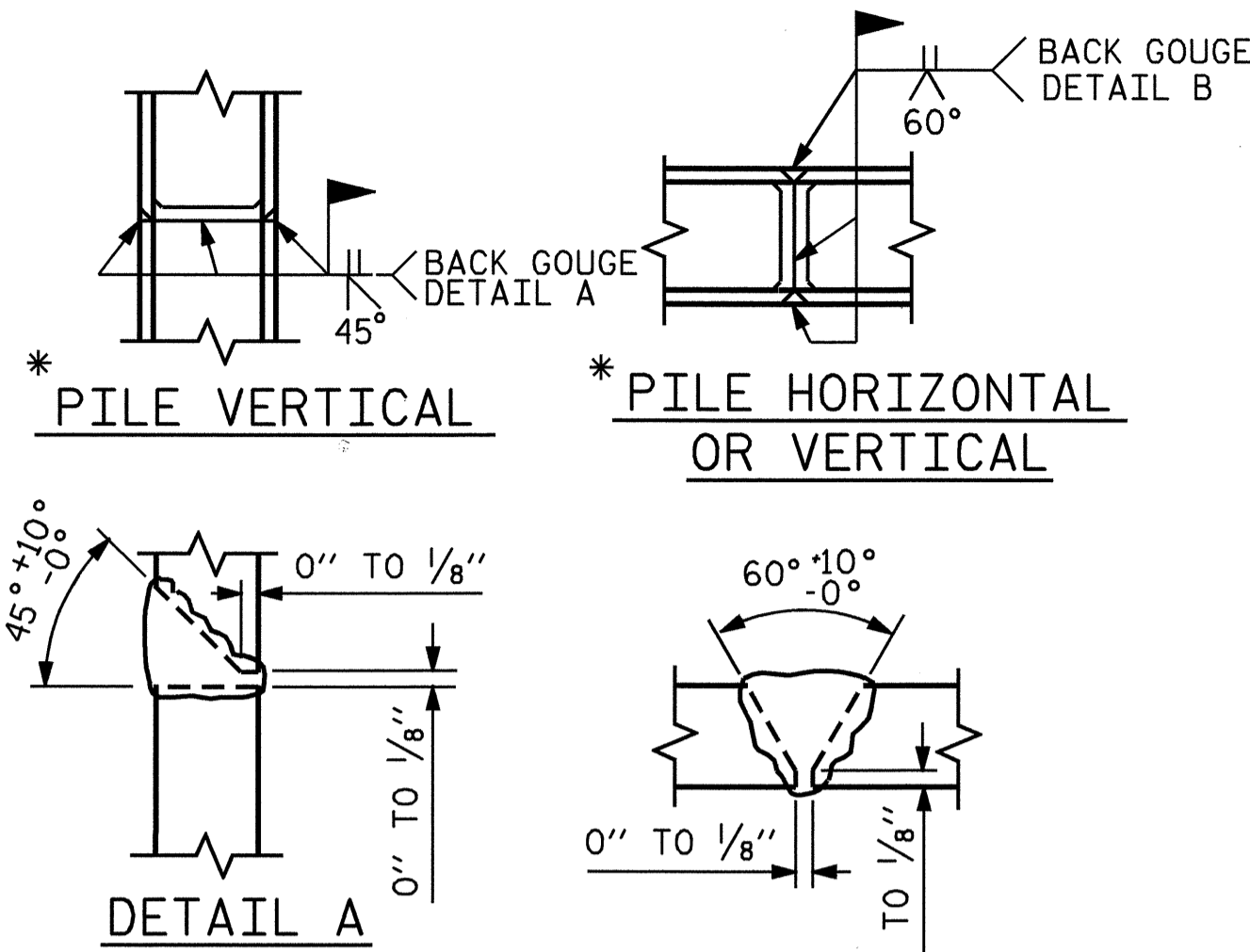


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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TEMPORARY DRAINAGE AT END BENT

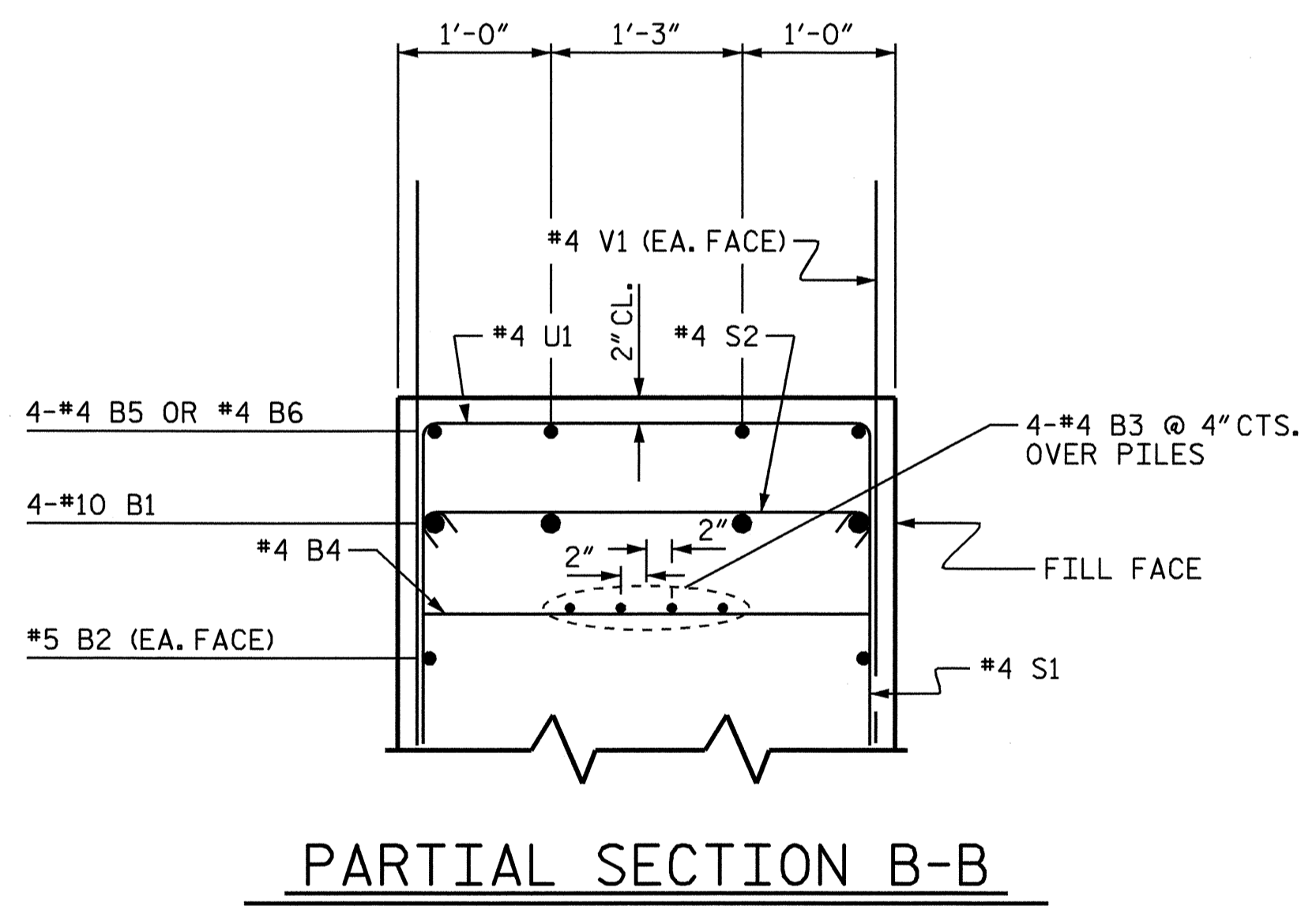
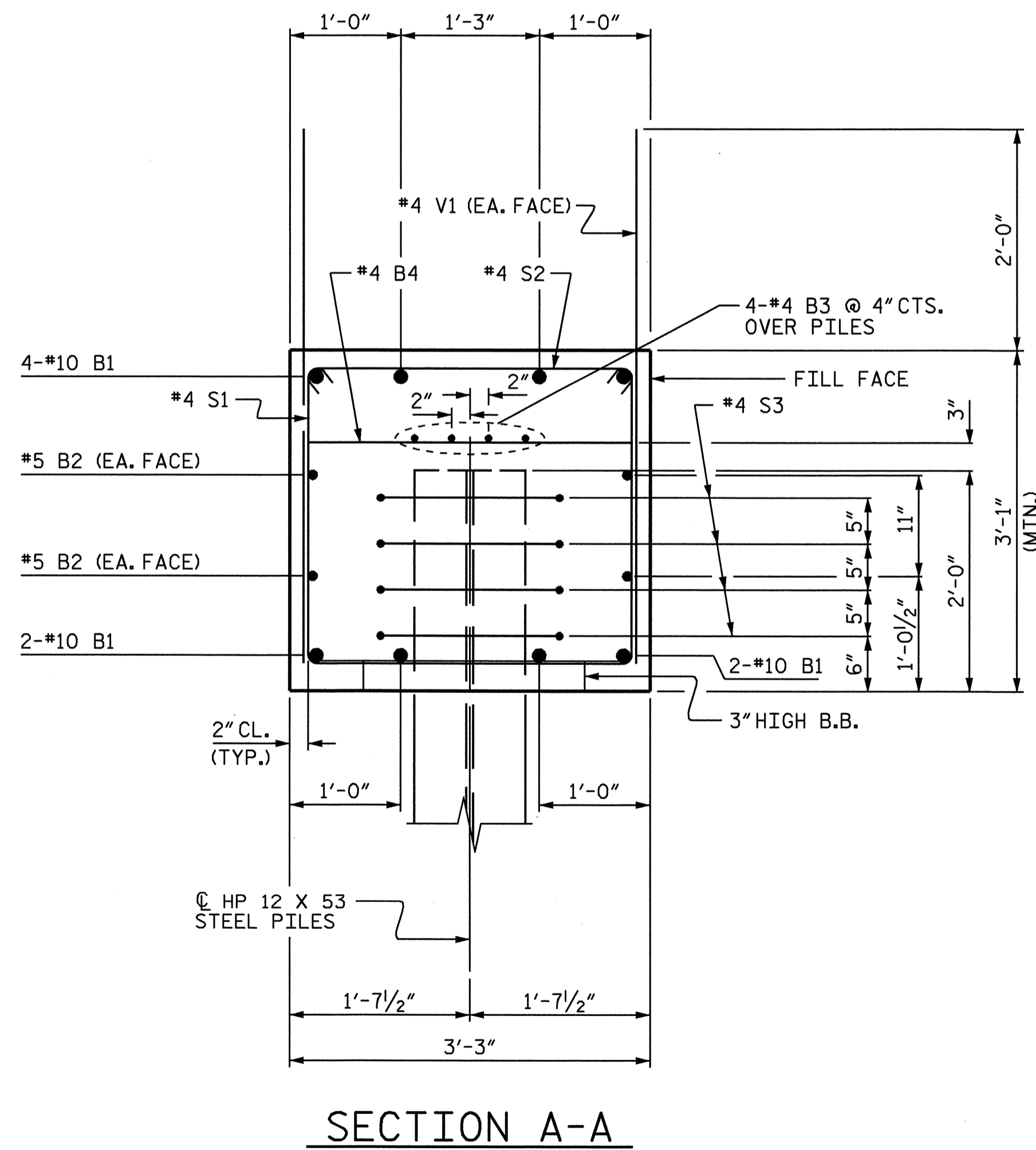


* POSITION OF PILE DURING WELDING. **DETAIL B**

PILE SPLICE DETAILS

BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#10		51'-10"	1784
B2	4	#5	STR	49'-2"	205
B3	8	#4	STR	25'-10"	138
B4	13	#4	STR	2'-11"	25
B5	16	#4	STR	4'-9"	51
B6	4	#4	STR	9'-10"	26
H1	22	#6		11'-7"	383
H2	20	#6		10'-10"	325
H3	24	#5	STR	2'-8"	67
S1	52	#4		9'-1"	316
S2	52	#4		3'-8"	127
S3	44	#4		6'-6"	191
U1	23	#4		5'-11"	91
V1	76	#5	STR	4'-11"	390
V2	30	#5	STR	9'-3"	289
V3	28	#5	STR	8'-10"	258
REINFORCING STEEL					LBS. 4,666
CLASS A CONCRETE BREAKDOWN :					
POUR #1 - CAP & LOWER WINGS				CU. YDS.	22.9
POUR #2 - UPPER WINGS				CU. YDS.	5.5
TOTAL				CU. YDS.	28.4
HP 12 x 53 STEEL PILES					LIN. FT. 605
NO. = 11					

ALL BAR DIMENSIONS ARE OUT TO OUT.



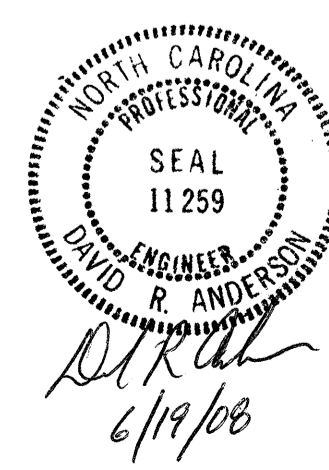
PROJECT NO. B-4077
COLUMBUS COUNTY
 STATION: 31+65.00 -L-

SHEET 3 OF 3

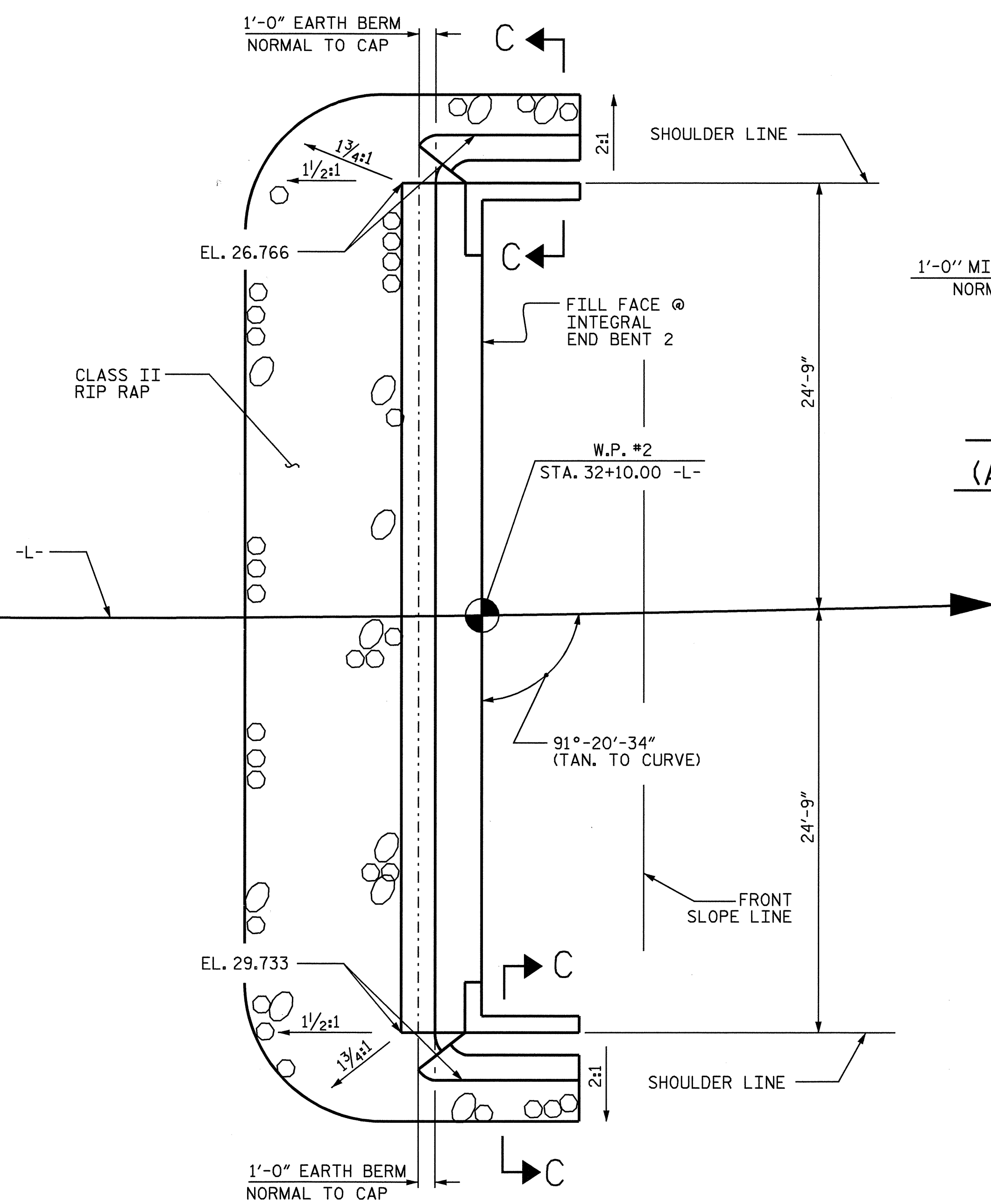
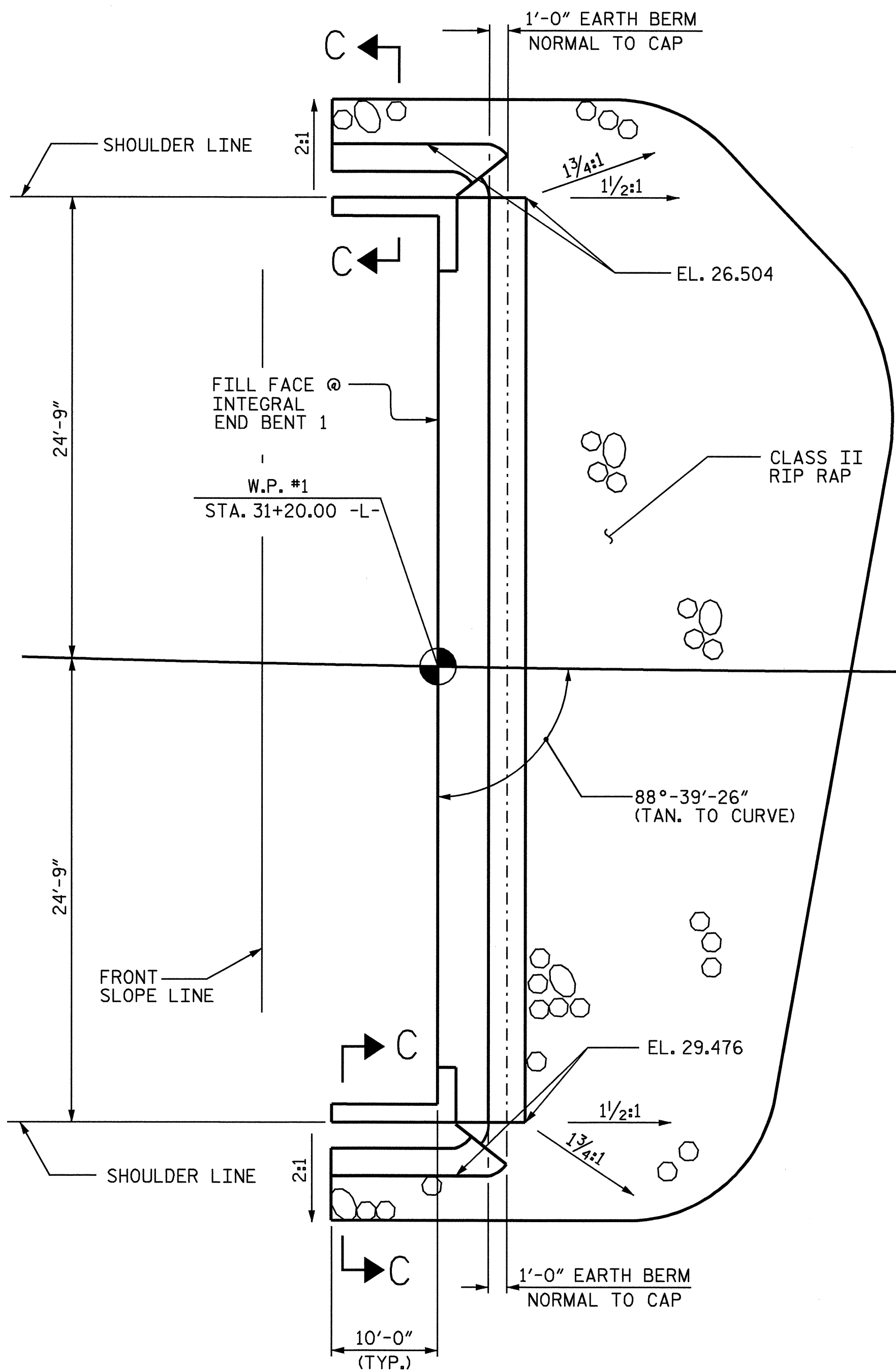
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 INTEGRAL
 END BENT 2

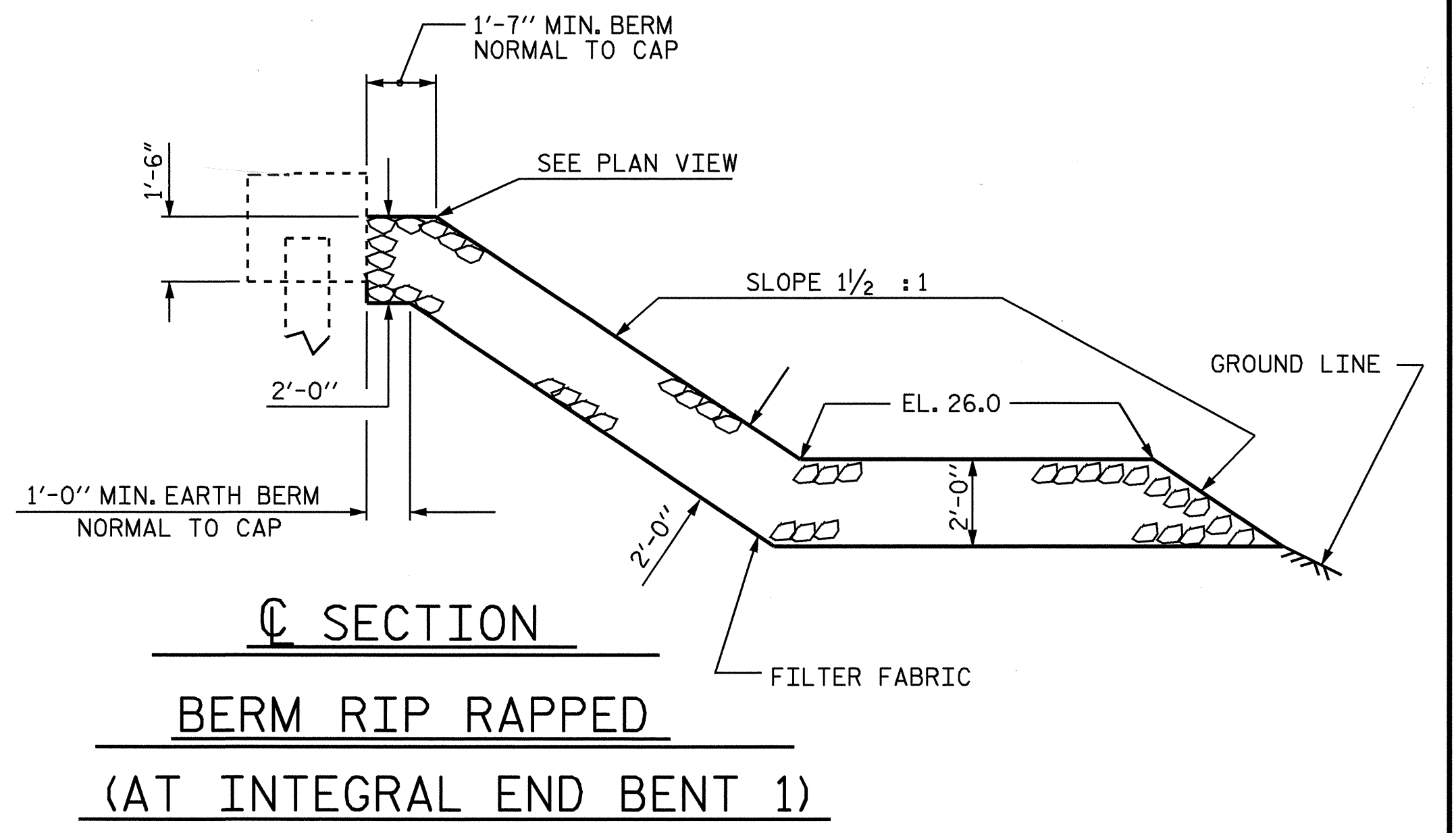
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			5-43
2			4			TOTAL SHEETS 49



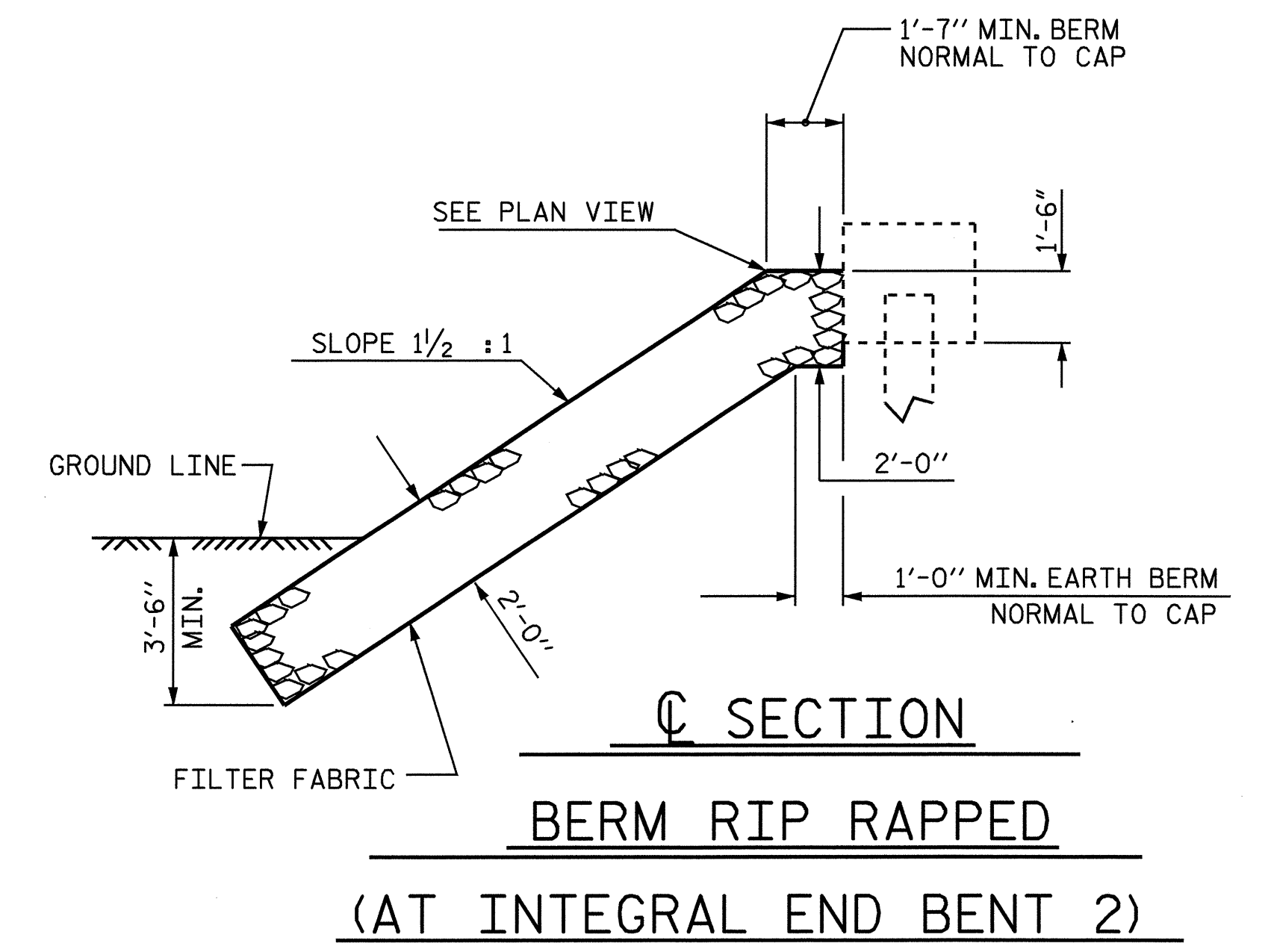
DRAWN BY: E.C. LOCKLEAR (JAT) DATE: 4-16-08
 CHECKED BY: N.Q. TRAN DATE: 4-22-08



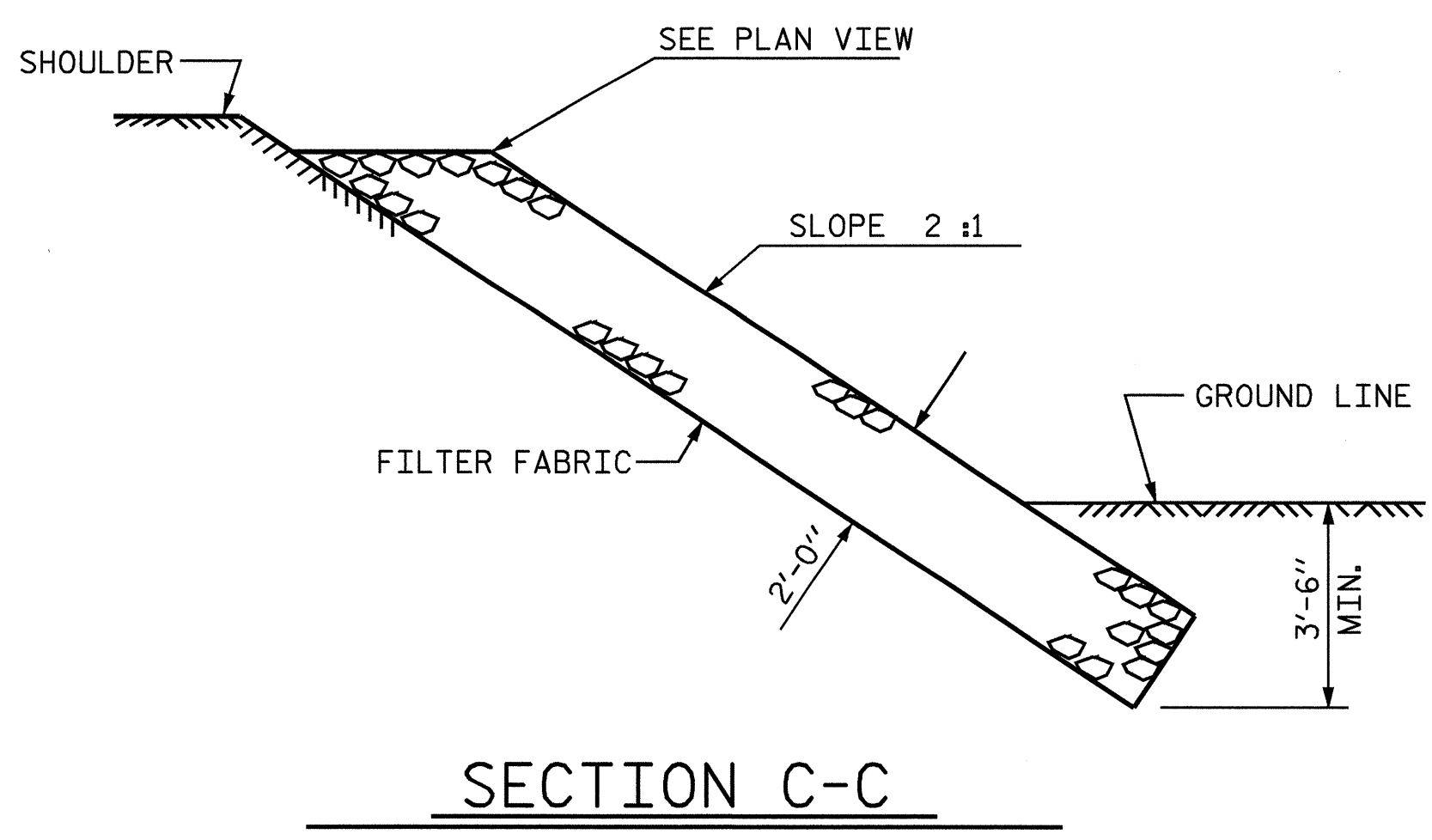
PLAN OF RIP RAP



SECTION C-C
BERM RIP RAPPED
(AT INTEGRAL END BENT 1)



SECTION C-C
BERM RIP RAPPED
(AT INTEGRAL END BENT 2)



SECTION C-C

NOTE: FILTER FABRIC SHALL BE PLACED UNDER ENTIRE AREA OF RIP RAP.

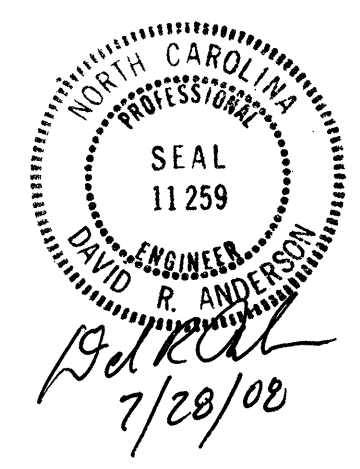
ESTIMATED QUANTITIES		
BRIDGE @ STA. 31+65.00 -L-	RIE RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
INTEGRAL END BENT 1	290	320
INTEGRAL END BENT 2	135	150

PROJECT NO. B-4077
COLUMBUS COUNTY
STATION: 31+65.00 -L-

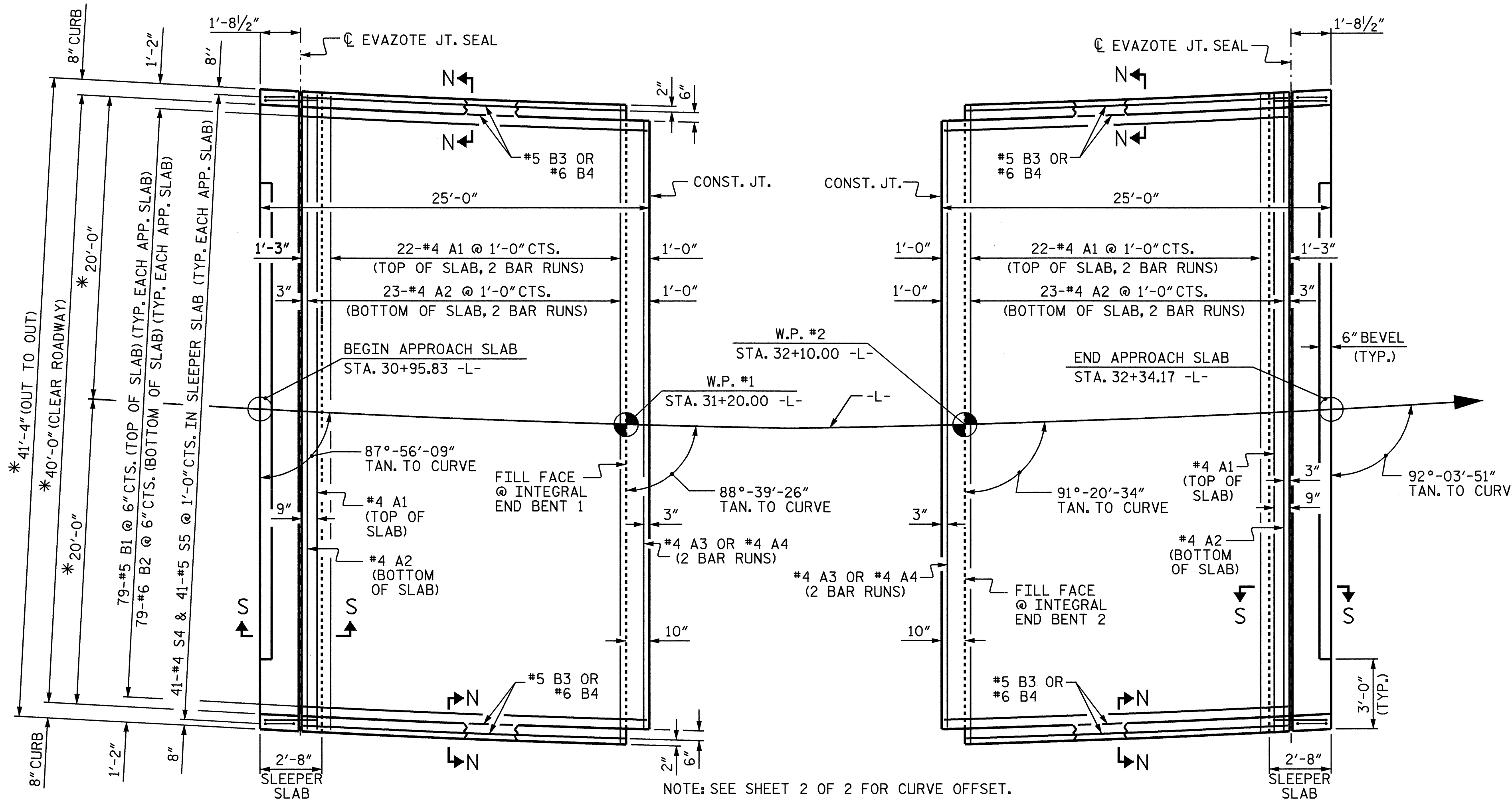
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RIP RAP DETAILS

REVISIONS						SHEET NO. 5-44
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 44
2			4			



DRAWN BY: S. M. RASHIDI DATE: 5/14/06
CHECKED BY: N. Q. TRAN DATE: 5/21/06



PLAN @ INTEGRAL END BENT 1

(DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS.) (#4 A1 BARS IN SLEEPER SLAB NOT SHOWN FOR CLARITY.)

PLAN @ INTEGRAL END BENT 2

NOTES

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

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

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

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

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE SLEEPER 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 SHALL BE FLUSH WITH THE SLEEPER 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 VERTICAL JOINT ON THE RIGHT AND LEFT SIDE OF THE APPROACH SLAB AT THE ENDS OF THE EVAZOTE JOINT SHALL BE FILLED WITH SILICONE OR OTHER APPROVED MATERIAL IN ORDER TO PREVENT BACKFILL FROM ENTERING THE JOINT OPENING.

THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT.

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

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

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	60	#4	STR	21'-6"	862
A2	46	#4	STR	21'-5"	658
* A3	2	#4	STR	20'-10"	28
A4	2	#4	STR	20'-8"	28
* B1	79	#5	STR	22'-5"	1847
B2	79	#6	STR	22'-11"	2719
* B3	4	#5	STR	21'-7"	91
B4	4	#6	STR	22'-1"	133
* S4	41	#4	1	3'-11"	107
S5	41	#5	2	2'-11"	125

REINFORCING STEEL LBS. 3663

* EPOXY COATED REINFORCING STEEL LBS. 2935

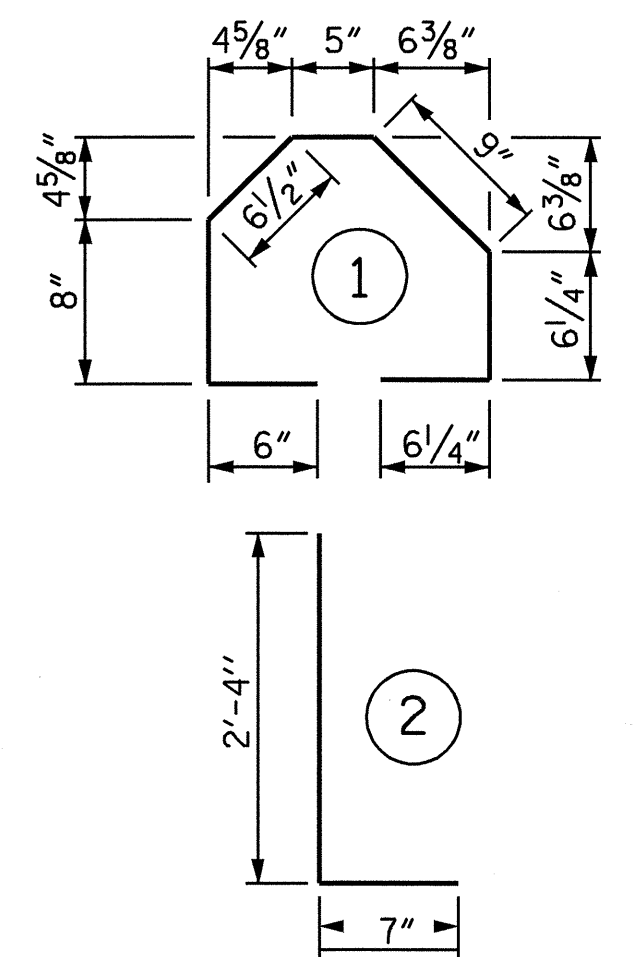
CLASS AA CONCRETE

POUR #1 - SLEEPER SLAB C.Y. 4.3

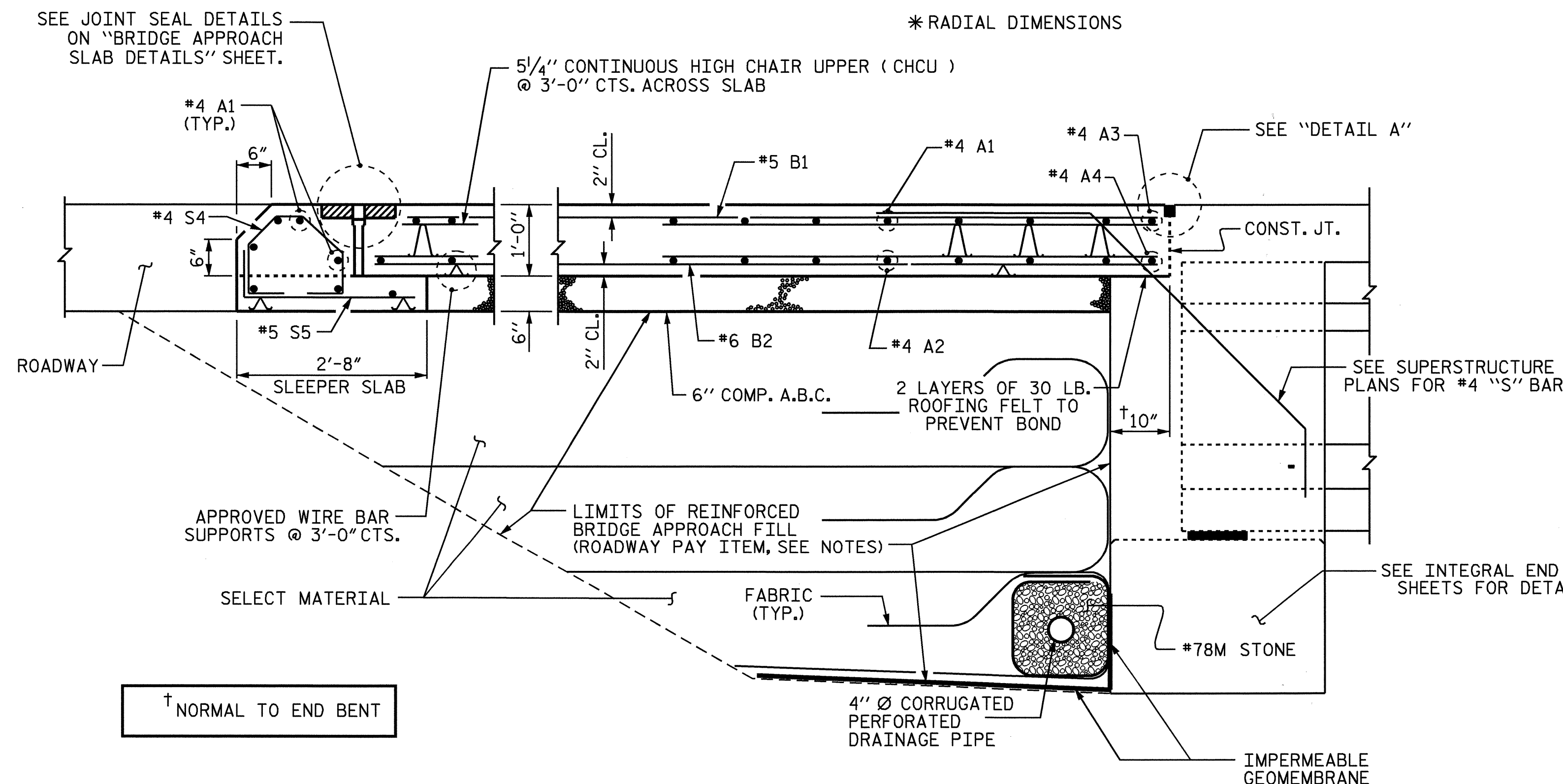
POUR #2 - SLAB & CURB C.Y. 35.7

TOTAL C.Y. 40.0

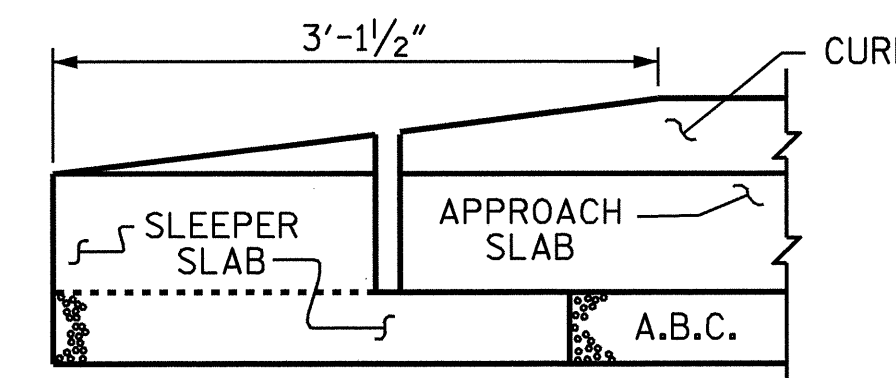
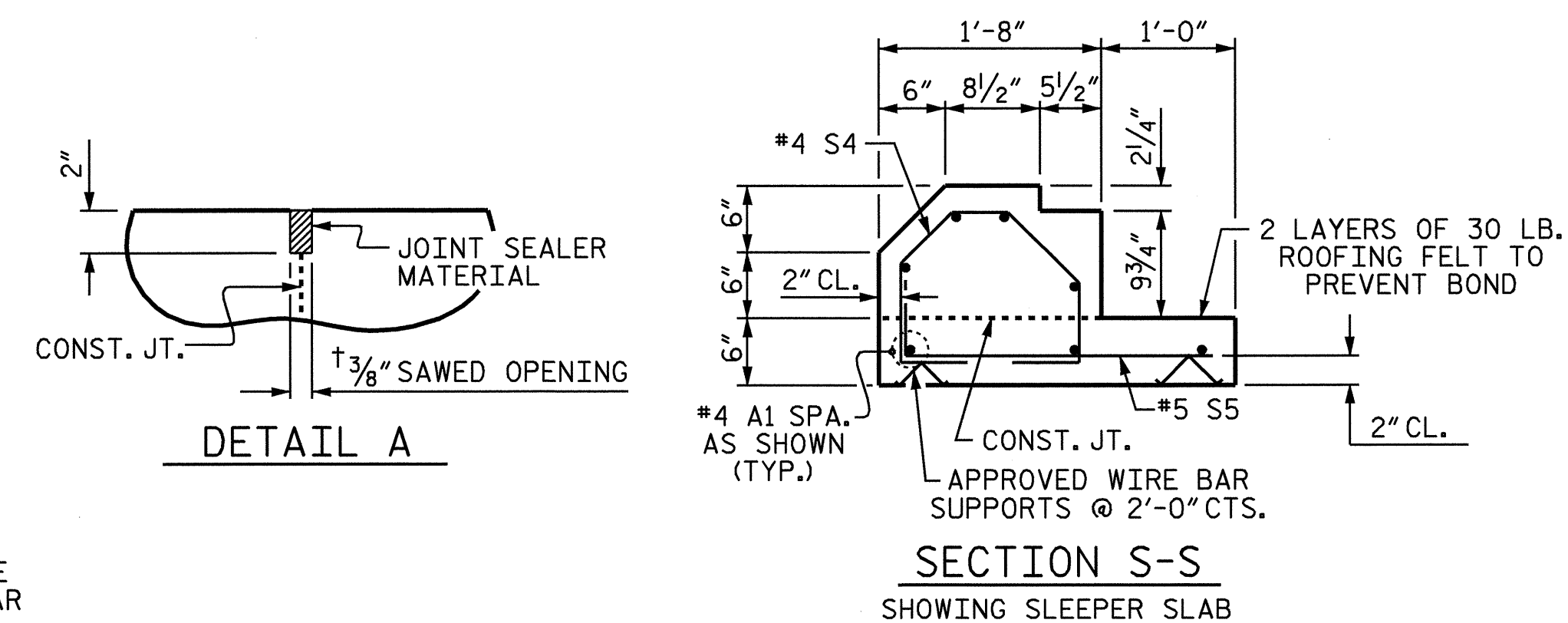
BAR TYPES



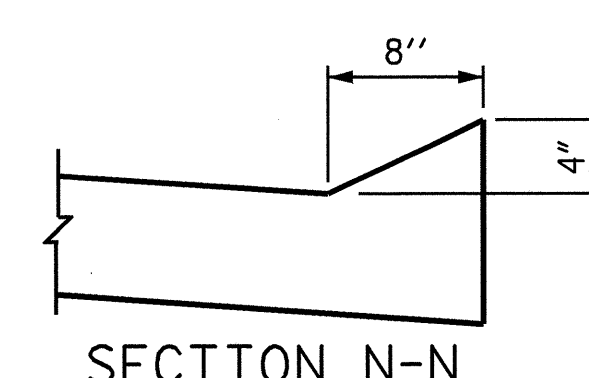
ALL BAR DIMENSIONS ARE OUT TO OUT



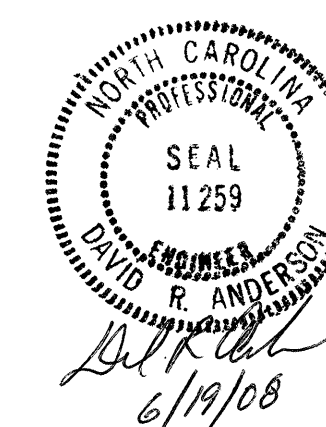
SECTION THRU SLAB



END OF CURB WITHOUT SHOULDER BERM GUTTER



SECTION N-N



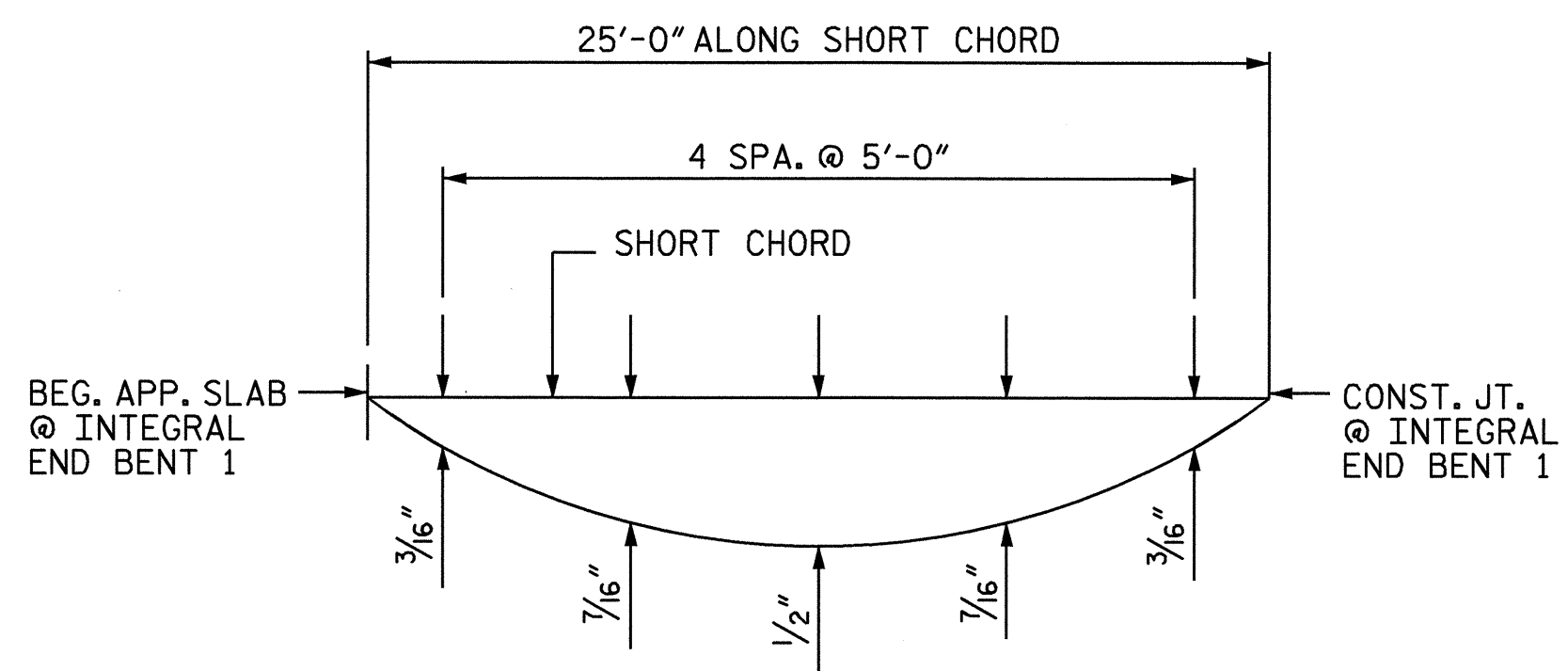
ASSEMBLED BY: S. M. RASHIDI DATE: 3/24/08
 CHECKED BY: N. TRAN DATE: 4/12/08
 DRAWN BY: TLA 10/05 ADDED 5/1/06R KMM/GM
 CHECKED BY: GM 5/06

PROJECT NO. B-4077
COLUMBUS COUNTY
 STATION: 31+65.00 -L-

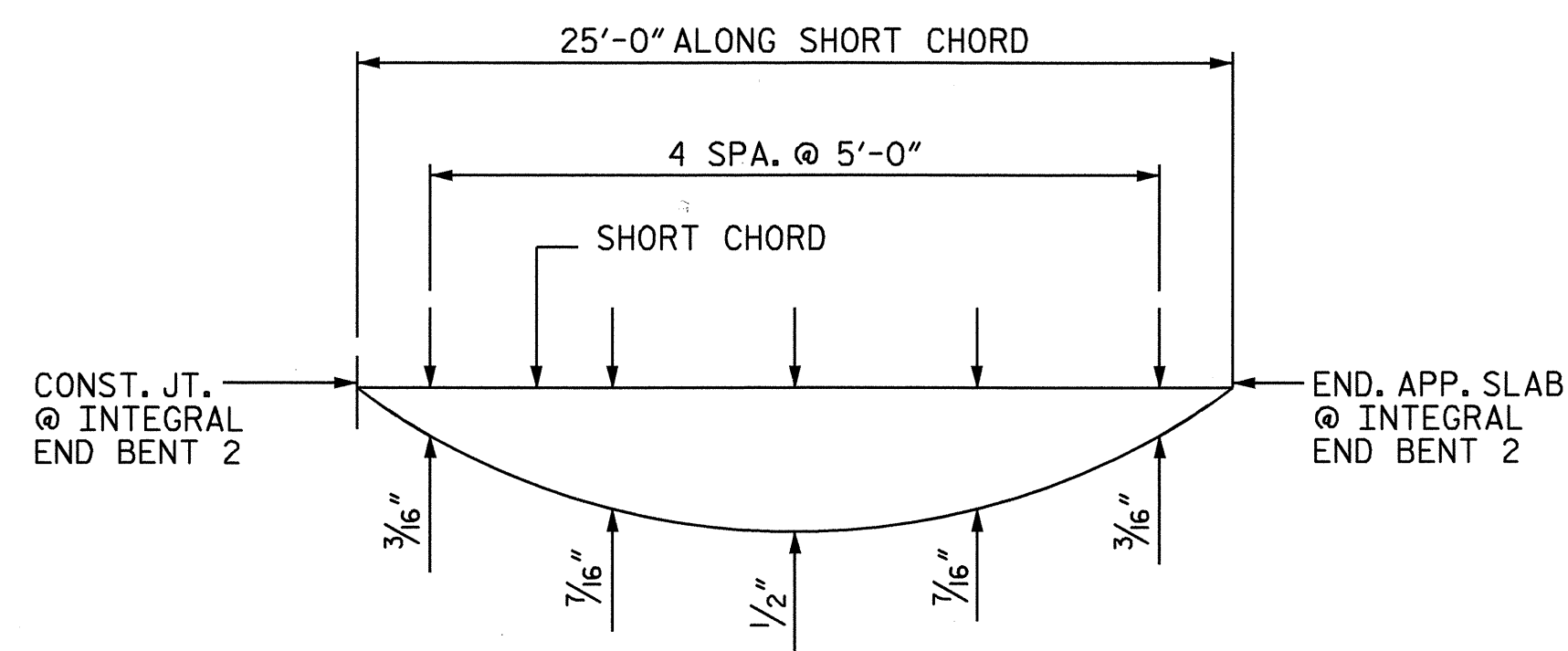
SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
BRIDGE APPROACH SLAB FOR INTEGRAL ABUTMENT					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					49

STD. NO. BAS11

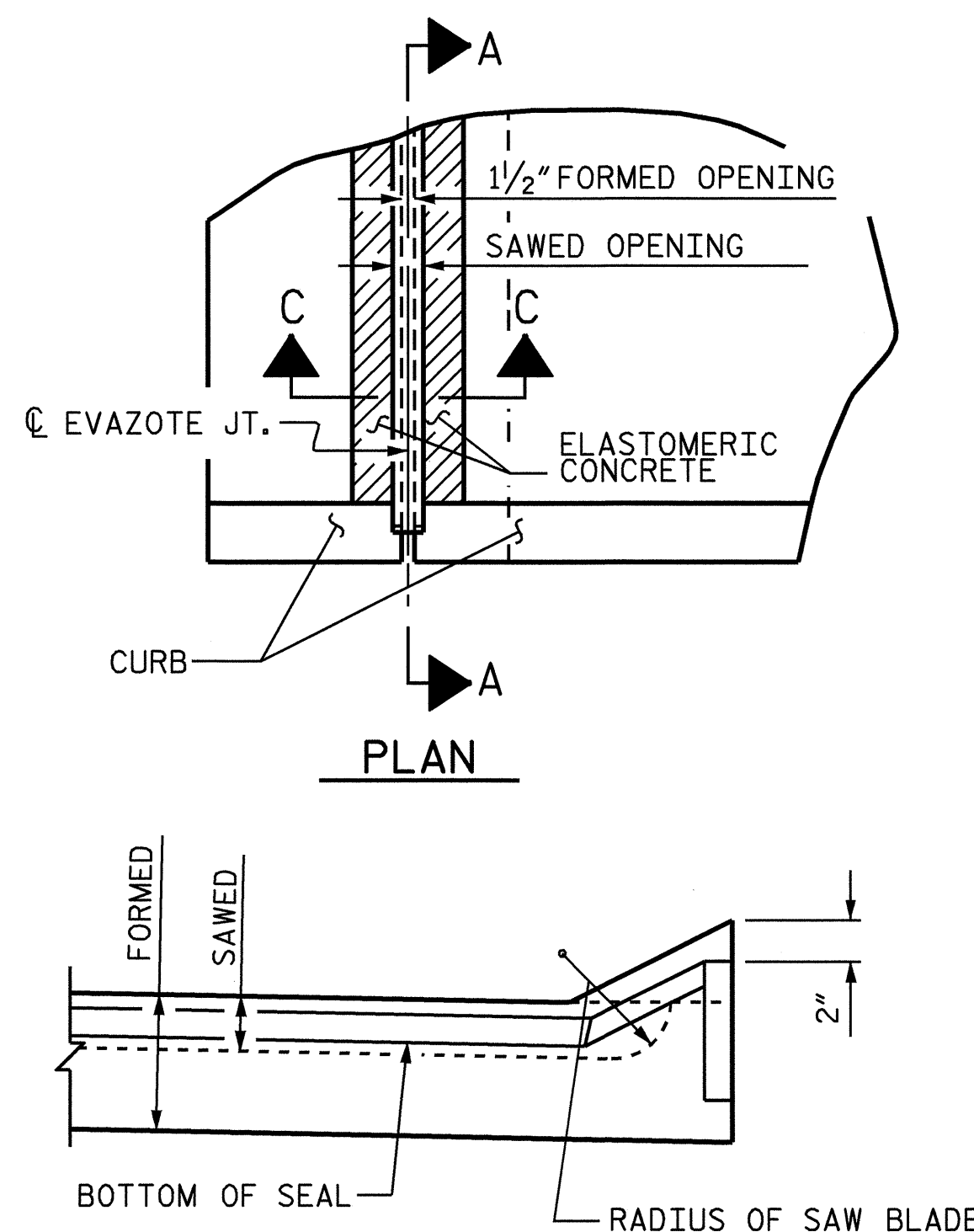


APP. SLAB @ INTEGRAL END BENT 1

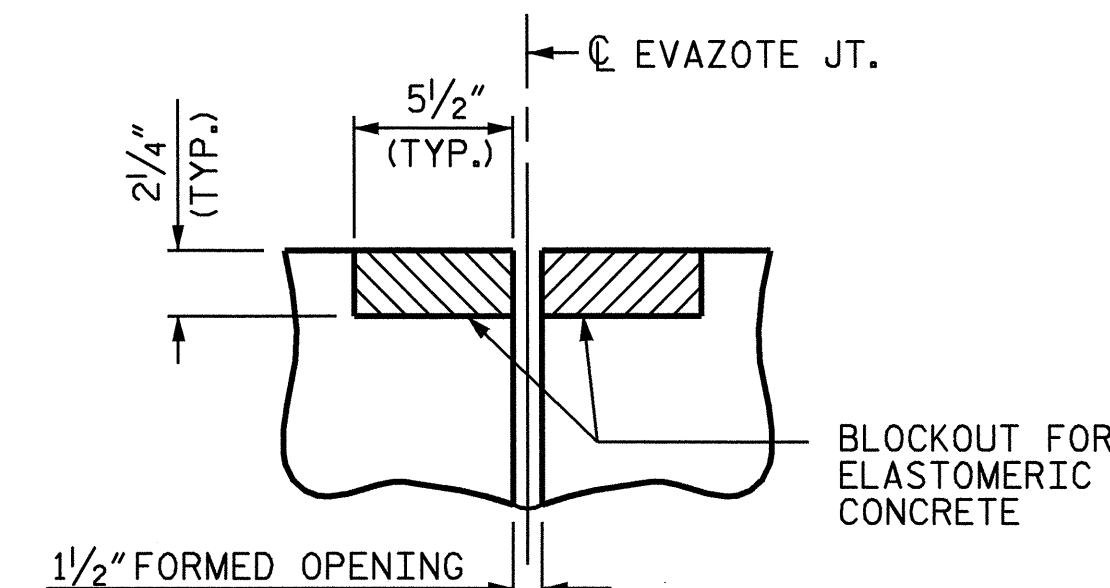


APP. SLAB @ INTEGRAL END BENT 2

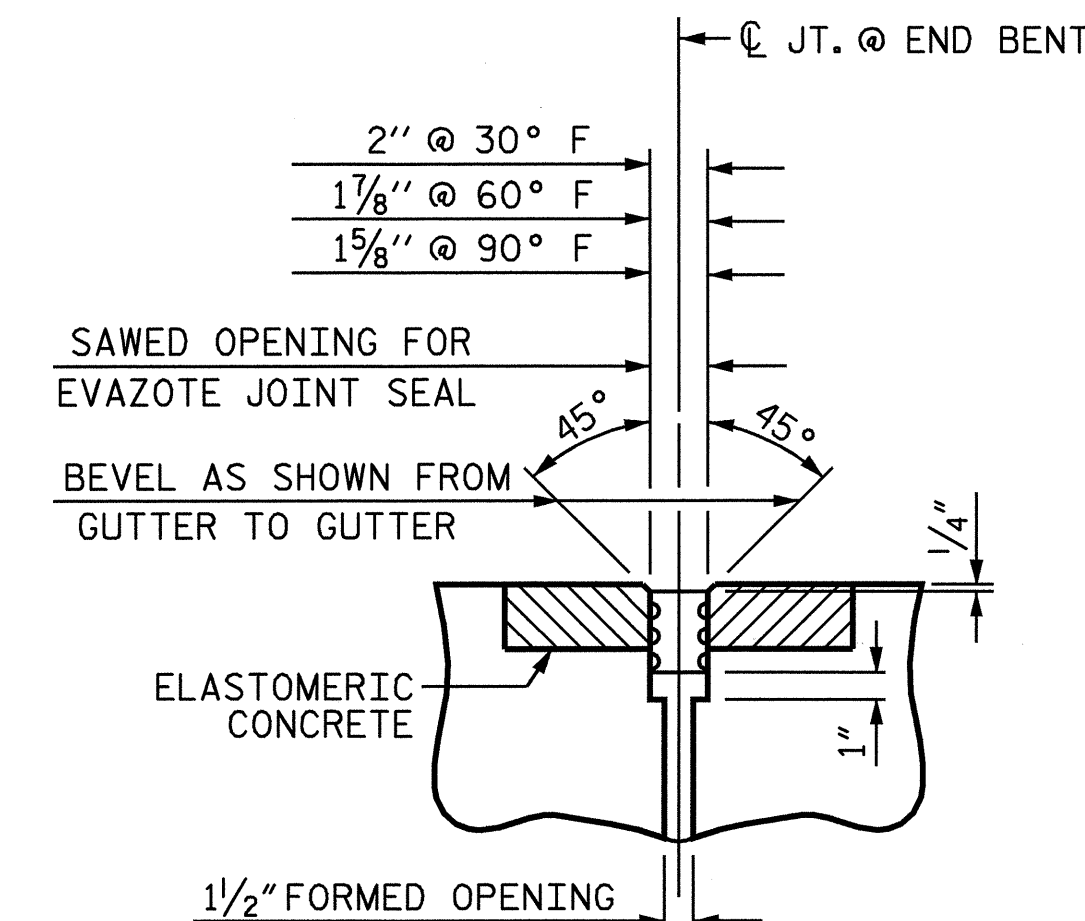
ARC OFFSETS



SECTION A-A



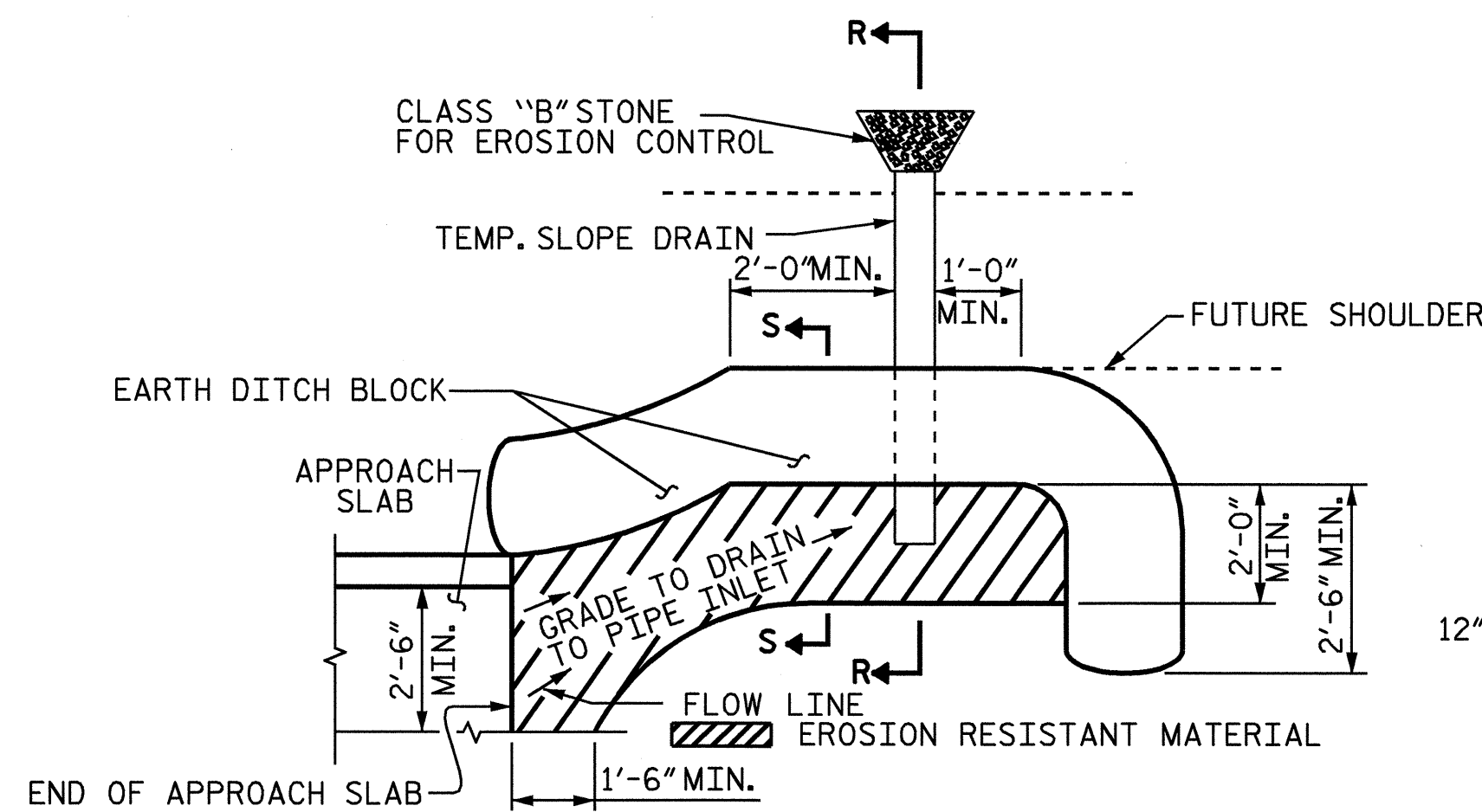
SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC CONCRETE DIMENSIONS)



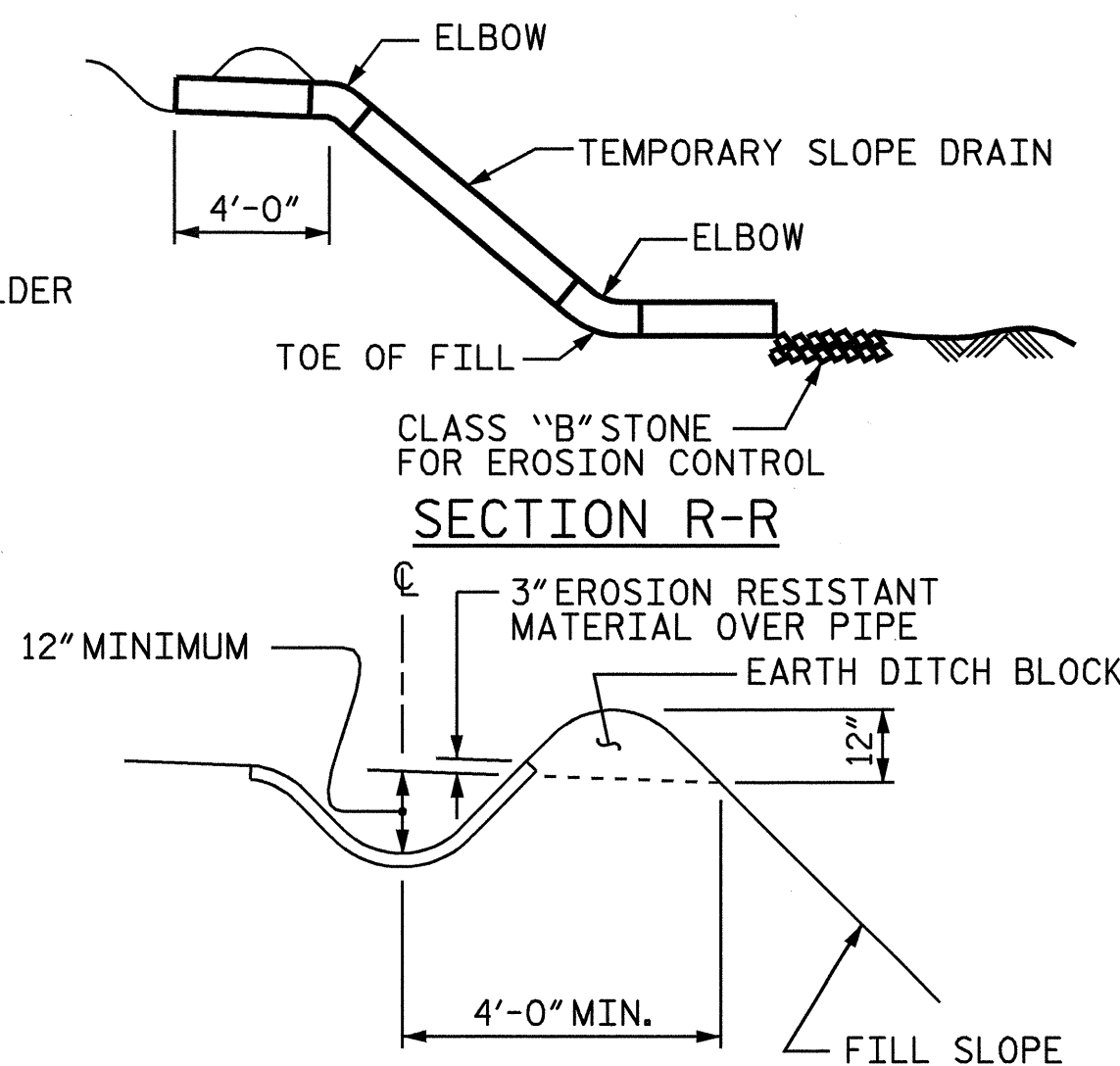
SECTION C-C
EVAZOTE JOINT SEAL

ELASTOMERIC CONCRETE	
INTEGRAL END BENT	ELASTOMERIC CONCRETE * (CU. FT.)
1	7.2
2	7.2
TOTAL	14.4

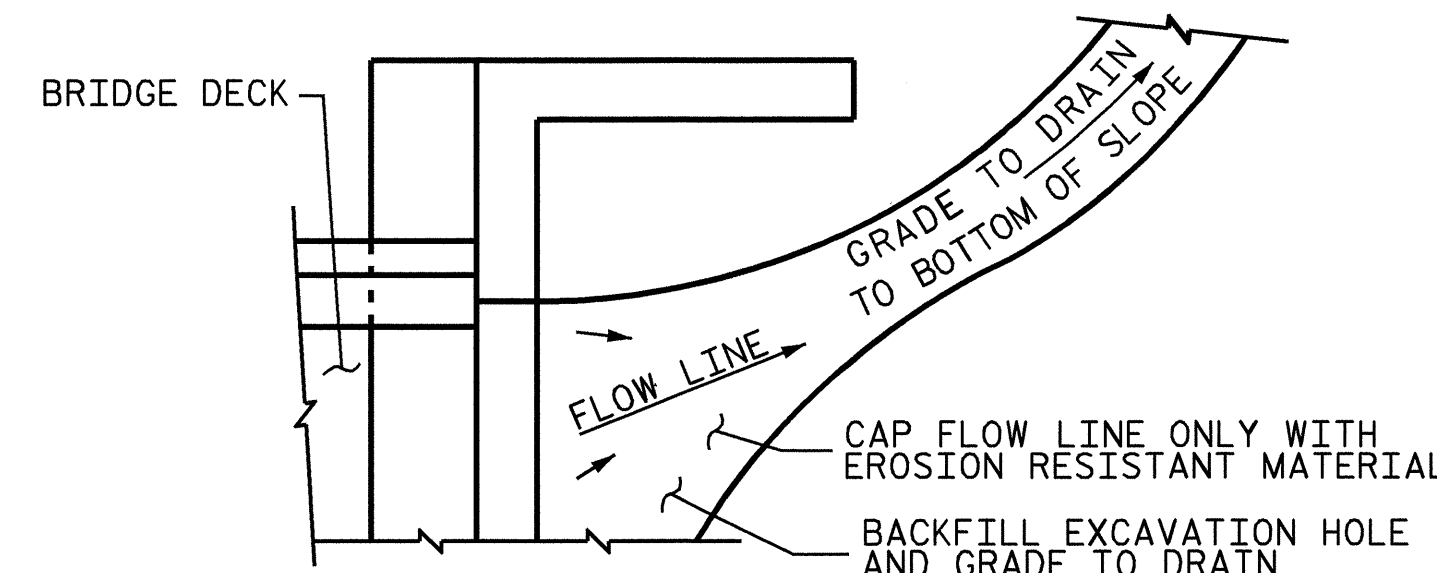
* BASED ON THE MINIMUM BLOCKOUT SHOWN.



PLAN VIEW



SECTION S-S



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

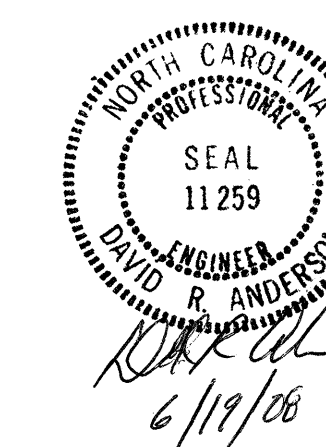
TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4077
COLUMBUS COUNTY
STATION: 31+65.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDART
BRIDGE APPROACH
SLAB DETAILS



REVISIONS						SHEET NO. 5-46
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 49
2			4			

ASSEMBLED BY : S. M. RASHIDI	DATE : 3/25/08
CHECKED BY : N. TRAN	DATE : 4/12/08
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06R MAA/KMM

OVERHANG BRACKET CALCULATION INSTRUCTIONS

AASHTO SHAPES - TYPES III, IV, V, AND VI

- RECORD KNOWN INFORMATION ON "BRIDGE OVERHANG BRACKET SUMMARY" ON SHEET 2
- CALCULATE THE MAXIMUM SCREED LOAD PER BRACKET (SLPB) WITH AN ESTIMATED $R = 1.5$. $SLPB = R \times W$. ROUND VALUE UP TO NEAREST SLPB VALUE INDICATED ON APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4.
- WITH THE ESTIMATED SLPB, OVERHANG SLAB THICKNESS, "K" VALUE, AND 45° HANGER SAFE WORKING LOAD (SWL), ENTER THE APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4 (BASED ON OVERHANG DIMENSION) AND DETERMINE THE BRACKET SPACING, S.
- CALCULATE S/D1 AND S/D2, ROUNDING UP TO NEAREST VALUE IN TABLE 2. ENTER TABLE 2 AND DETERMINE R VALUE.
- CALCULATE REVISED SLPB. ROUND VALUE UP TO NEAREST SLPB VALUE INDICATED ON APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4.
- WITH THE REVISED SLPB, OVERHANG SLAB THICKNESS, "K" VALUE, AND 45° HANGER SAFE WORKING LOAD (SWL), ENTER THE APPROPRIATE TABLE 1-1, 1-2, 1-3 OR 1-4 (BASED ON OVERHANG DIMENSION) AND DETERMINE REVISED BRACKET SPACING, S.
- CONTINUE ITERATIONS OF STEPS 4-6 UNTIL THE REVISED BRACKET SPACING, S, IS THE SAME AS THE PREVIOUS S VALUE.
- CHECK LUMBER JOIST SPACING: WITH BRACKET SPACING VALUE, S, ROUND THIS VALUE UP TO THE NEAREST VALUE OF ALLOWABLE SPAN LENGTH OF JOIST OF TABLE 3. USING THIS VALUE, ALONG WITH THE AVERAGE OVERHANG SLAB THICKNESS AND THE LUMBER JOIST SIZE, DETERMINE JOIST SPACING FROM TABLE 3. IF NECESSARY, ADJUST LUMBER JOIST SIZE AND/OR JOIST SPACING TO MEET ALLOWABLE SPAN LENGTH OF JOIST.
- CONVERSELY, IF THE DESIRED JOIST SPACING IS KNOWN, USE THIS ALONG WITH THE AVERAGE OVERHANG SLAB THICKNESS AND THE LUMBER JOIST SIZE TO DETERMINE IF ALLOWABLE SPAN LENGTH OF JOIST IS GREATER THAN THE BRACKET SPACING, S. IF NECESSARY, ADJUST LUMBER JOIST SIZE TO MEET REQUIREMENTS OF ALLOWABLE SPAN LENGTH OF JOIST AND JOIST SPACING.
- RECORD REMAINING INFORMATION ON "BRIDGE OVERHANG BRACKET SUMMARY" FORM.
- SUBMIT FORM AND CALCULATIONS FOR REVIEW AND APPROVAL.

TABLE 1-1 (FOR USE ON UP TO 2'-0" OVERHANG (L) & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (t) (in)	BRACKET (K) DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
		BRACKET SPACING									
10	30	3'-6"	4'-0"	4'-5"	4'-9"	5'-1"	5'-3"	5'-5"	5'-7"	6'-7"	6000
	40	3'-6"	4'-0"	4'-5"	4'-9"	5'-1"	5'-3"	5'-5"	5'-7"	6'-7"	6000
	50	3'-6"	4'-0"	4'-5"	4'-9"	5'-1"	5'-3"	5'-5"	5'-7"	6'-7"	6000
12	30	3'-2"	3'-7"	4'-1"	4'-7"	5'-0"	5'-2"	5'-4"	5'-7"	6'-5"	6000
	40	3'-2"	3'-7"	4'-1"	4'-7"	5'-0"	5'-2"	5'-4"	5'-7"	6'-5"	6000
	50	3'-2"	3'-7"	4'-1"	4'-7"	5'-0"	5'-2"	5'-4"	5'-7"	6'-5"	6000
14	30	2'-10"	3'-4"	3'-9"	4'-2"	4'-7"	5'-0"	5'-4"	5'-7"	6'-4"	6000
	40	2'-10"	3'-4"	3'-9"	4'-2"	4'-7"	5'-0"	5'-4"	5'-7"	6'-4"	6000
	50	2'-10"	3'-4"	3'-9"	4'-2"	4'-7"	5'-0"	5'-4"	5'-7"	6'-4"	6000
16	30	2'-8"	3'-0"	3'-5"	3'-10"	4'-3"	4'-7"	5'-0"	5'-5"	6'-3"	6000
	40	2'-8"	3'-0"	3'-5"	3'-10"	4'-3"	4'-7"	5'-0"	5'-5"	6'-3"	6000
	50	2'-8"	3'-0"	3'-5"	3'-10"	4'-3"	4'-7"	5'-0"	5'-5"	6'-3"	6000

TABLE 1-2 (FOR USE ON OVER 2'-0" TO 2'-6" OVERHANG (L) & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (t) (in)	BRACKET (K) DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
		BRACKET SPACING									
10	30	3'-1"	3'-6"	4'-0"	4'-5"	4'-11"	5'-3"	5'-5"	5'-7"	6'-7"	6000
	40	3'-1"	3'-6"	4'-0"	4'-5"	4'-11"	5'-3"	5'-5"	5'-7"	6'-7"	6000
	50	3'-1"	3'-6"	4'-0"	4'-5"	4'-11"	5'-3"	5'-5"	5'-7"	6'-7"	6000
12	30	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-5"	6000
	40	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-5"	6000
	50	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-5"	6000
14	30	2'-6"	2'-10"	3'-3"	3'-7"	4'-0"	4'-4"	4'-9"	5'-1"	6'-3"	6000
	40	2'-6"	2'-10"	3'-3"	3'-7"	4'-0"	4'-4"	4'-9"	5'-1"	6'-3"	6000
	50	2'-6"	2'-10"	3'-3"	3'-7"	4'-0"	4'-4"	4'-9"	5'-1"	6'-3"	6000
16	30	2'-3"	2'-7"	2'-11"	3'-4"	3'-8"	4'-0"	4'-4"	4'-8"	5'-8"	6000
	40	2'-3"	2'-7"	2'-11"	3'-4"	3'-8"	4'-0"	4'-4"	4'-8"	5'-8"	6000
	50	2'-3"	2'-7"	2'-11"	3'-4"	3'-8"	4'-0"	4'-4"	4'-8"	5'-8"	6000

TABLE 1-3 (FOR USE ON OVER 2'-6" TO 3'-0" OVERHANG (L) & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (t) (in)	BRACKET (K) DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
		BRACKET SPACING									
10	30					2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000
	40					2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000
	50	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-7"	6000
12	30					2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000
	40					2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000
	50	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-7"	6000
14	30					3'-11"	4'-3"	4'-8"	5'-0"	6'-1"	6000
	40					3'-11"	4'-3"	4'-8"	5'-0"	6'-1"	6000
	50	2'-5"	2'-10"	3'-2"	3'-6"	3'-11"	4'-3"	4'-8"	5'-0"	6'-1"	6000
16	30					3'-2"	3'-6"	3'-10"	4'-2"	4'-6"	6000
	40					3'-2"	3'-6"	3'-10"	4'-2"	4'-6"	6000
	50	2'-0"	2'-4"	2'-7"	2'-11"	3'-2"	3'-6"	3'-10"	4'-2"	4'-6"	6000

TABLE 1-4 (FOR USE ON OVER 3'-0" TO 3'-6" OVERHANG (L) & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (t) (in)	BRACKET (K) DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
		BRACKET SPACING									
10	30					2'-3"	2'-1"	2'-5"	2'-9"	3'-10"	4000
	40					2'-3"	2'-1"	2'-5"	2'-9"	3'-10"	4000
	50			2'-4"	3'-0"	3'-7"	4'-1"	4'-5"	4'-9"	5'-9"	6000
12	30					2'-1"	2'-8"	3'-4"	3'-11"	5'-2"	6000
	40					2'-1"	2'-8"	3'-4"	3'-11"	5'-2"	6000
	50	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-1"	4'-5"	4'-9"	5'-9"	6000
14	30					2'-0"	2'-6"	3'-1"	3'-8"	4'-8"	6000
	40					2'-0"	2'-6"	3'-1"	3'-8"	4'-8"	6000
	50			2'-2"	2'-5"	2'-8"	3'-0"	3'-3"	3'-6"	3'-10"	4'-8"
16	30					2'-4"	2'-10"	3'-5"	4'-3"	5'-2"	6000
	40					2'-4"	2'-10"	3'-5"	4'-3"	5'-2"	6000
	50			2'-2"	2'-5"	2'-8"	3'-0"	3'-3"	3'-6"	3'-10"	4'-8"

PROJECT NO. B-4077

COLUMBUS COUNTY

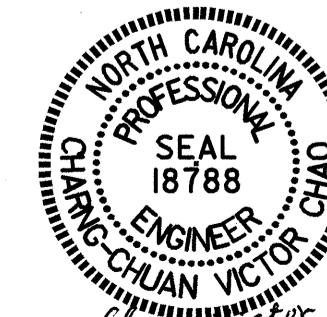
STATION: 31+65.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD OVERHANG FALSEWORK

AASHTO TYPES
III, IV, V, AND VI



Chang-Chuan Victor Chao
5-12-2008

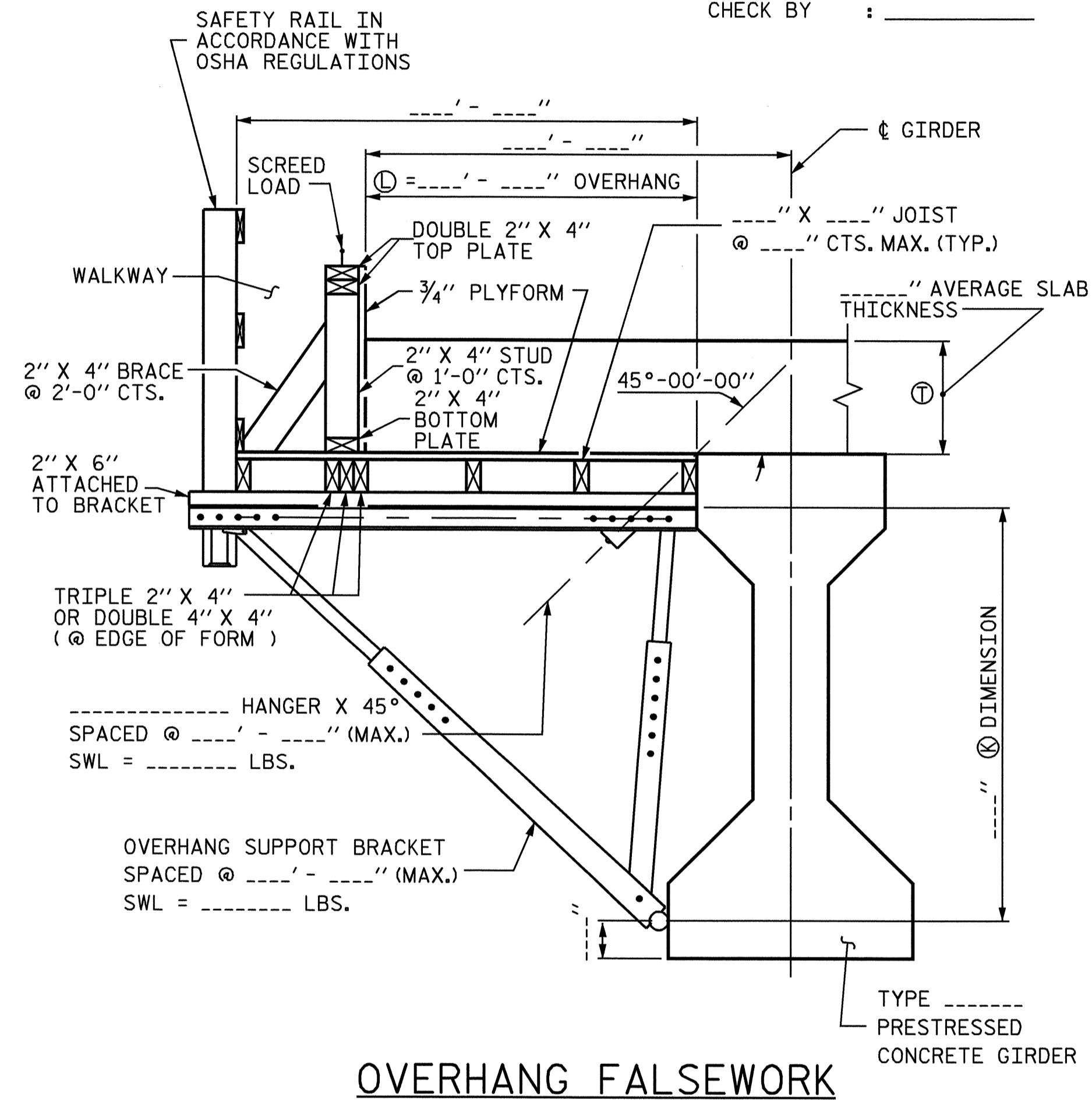
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CHECKED BY: _____ DATE: _____
DRAWN BY: R. WRIGHT 06/04 REV.
CHECKED BY: C. V. CHAO 06/04

12-MAY-2008 14:55
d:\ndlr\vlctor\overhangfalsework\1tblar&strut\4077.tbl-IV\b4077overhangsheets.dgn
vhaeo

REVISIONS						SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:	5-47	TOTAL SHEETS 49	
1			3					
2			4					

BRIDGE OVERHANG BRACKET SUMMARY

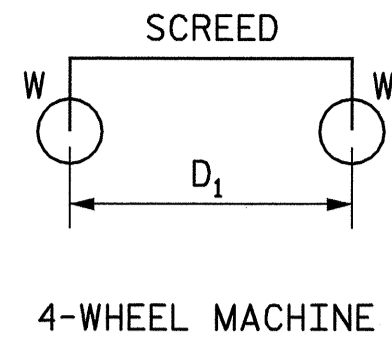
TOTAL SCREED WEIGHT = _____ LBS. PROJECT No. : _____
 NUMBER OF SCREED WHEELS = _____ COUNTY : _____
 SCREED WHEEL LOAD (W) = _____ LBS. STATION : _____
 SCREED LOAD PER BRACKET = _____ LBS. DESCRIPTION : _____
 DATE : _____
 DESIGN BY : _____
 CHECK BY : _____



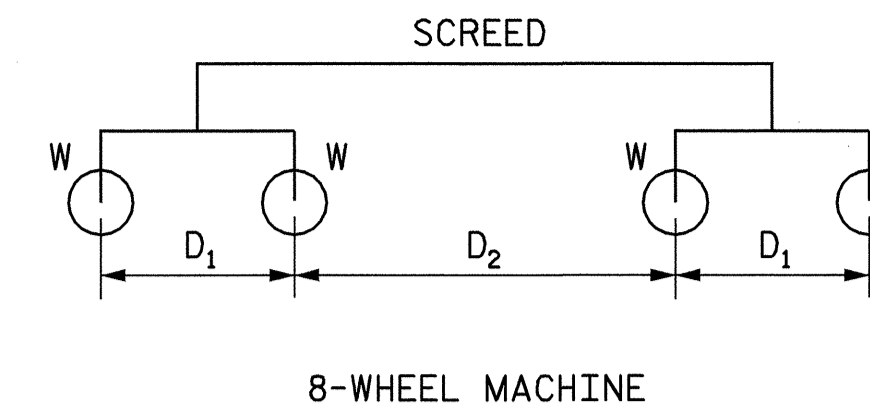
OVERHANG FALSEWORK

NOTES

DESIGN INCLUDES CONSTRUCTION LIVE LOAD 20 PSF ON THE AREA SUPPORTED AND 75 PLF AT THE OUTSIDE DECK OF OVERHANGS.
 REQUIRED MINIMUM DIAGONAL LEG CAPACITY: 3600 LB WORKING LOAD
 THE CONTRACTOR HAS THE OPTION OF SUBMITTING HIS OWN DESIGN FOR OVERHANG FALSEWORK IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
 SUBMITTALS UTILIZING THE INSTRUCTIONS AND PROCEDURES DESCRIBED ON SHEET 1 OF 3 SHALL BE IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE SPECIFICATIONS AND SPECIAL PROVISIONS, EXCEPT THAT CALCULATIONS FOR OVERHANG FALSEWORK NEED NOT BE SEALED BY A REGISTERED ENGINEER.
 FOR OVERHANG FALSEWORK BRACING DESIGN, SEE SHEET 3 OF 3.



4-WHEEL MACHINE



8-WHEEL MACHINE

TABLE 2: SCREED LOAD FACTOR "R"

4 WHEEL MACHINE	
S/D1	R
<= 1.0	1.00
1.1	1.09
1.2	1.17
1.3	1.23
1.4	1.29
1.5	1.33
1.6	1.38
1.7	1.41
1.8	1.44
1.9	1.47
2.0	1.50
2.2	1.55
2.4	1.58
2.6	1.62
2.8	1.64
3.0	1.67
3.5	1.71
4.0	1.75

		THE SCREED LOAD FACTOR R (FOR 8 WHEEL MACHINE)																	
		S/D ₂																	
		<= 1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.2	2.4	2.6	2.8	3.0	3.5	4.0
S/D ₁	<= 1.0	1.00	1.09	1.17	1.23	1.29	1.33	1.38	1.41	1.44	1.47	1.50	1.55	1.58	1.62	1.64	1.67	1.71	1.75
	1.1	1.09	1.18	1.26	1.32	1.38	1.42	1.47	1.50	1.54	1.56	1.59	1.64	1.67	1.71	1.73	1.76	1.81	1.84
	1.2	1.17	1.26	1.33	1.40	1.45	1.50	1.54	1.58	1.61	1.64	1.67	1.71	1.75	1.78	1.81	1.83	1.88	1.92
	1.3	1.23	1.32	1.40	1.46	1.52	1.56	1.61	1.64	1.68	1.70	1.73	1.78	1.81	1.85	1.87	1.90	1.95	1.98
	1.4	1.29	1.38	1.45	1.52	1.57	1.62	1.66	1.70	1.73	1.76	1.79	1.83	1.87	1.90	1.93	1.95	2.00	2.07
	1.5	1.33	1.42	1.50	1.56	1.62	1.67	1.71	1.75	1.78	1.81	1.83	1.88	1.92	1.95	1.98	2.00	2.10	2.17
	1.6	1.38	1.47	1.54	1.61	1.66	1.71	1.75	1.79	1.82	1.85	1.88	1.92	1.96	1.99	2.04	2.08	2.18	2.25
	1.7	1.41	1.50	1.58	1.64	1.70	1.75	1.79	1.82	1.86	1.89	1.91	1.96	2.00	2.05	2.11	2.16	2.25	2.32
	1.8	1.44	1.54	1.61	1.68	1.73	1.78	1.82	1.86	1.89	1.92	1.94	1.99	2.06	2.11	2.18	2.23	2.32	2.39
	1.9	1.47	1.56	1.64	1.70	1.76	1.81	1.85	1.89	1.92	1.95	1.97	2.04	2.11	2.18	2.23	2.28	2.38	2.45
	2.0	1.50	1.59	1.67	1.73	1.79	1.83	1.88	1.91	1.94	1.97	2.00	2.09	2.17	2.23	2.29	2.33	2.43	2.50
	2.2	1.55	1.64	1.71	1.78	1.83	1.88	1.92	1.96	1.99	2.04	2.09	2.18	2.26	2.32	2.38	2.42	2.52	2.59
	2.4	1.58	1.67	1.75	1.81	1.87	1.92	1.96	2.00	2.06	2.11	2.17	2.26	2.33	2.40	2.45	2.50	2.60	2.67
	2.6	1.62	1.71	1.78	1.85	1.90	1.95	1.99	2.05	2.12	2.18	2.23	2.32	2.40	2.46	2.52	2.56	2.66	2.73
	2.8	1.64	1.73	1.81	1.87	1.93	1.98	2.04	2.11	2.17	2.23	2.29	2.38	2.45	2.52	2.57	2.62	2.71	2.79
	3.0	1.67	1.76	1.83	1.90	1.95	2.00	2.08	2.16	2.22	2.28	2.33	2.42	2.50	2.56	2.62	2.67	2.76	2.83
	3.5	1.71	1.81	1.88	1.95	2.00	2.10	2.18	2.25	2.32	2.38	2.43	2.52	2.60	2.66	2.71	2.76	2.86	2.93
4.0	1.75	1.84	1.92	1.98	2.07	2.17	2.25	2.32	2.39	2.45	2.50	2.59	2.67	2.73	2.79	2.83	2.93	3.00	

TABLE 3: ALLOWABLE SPAN LENGTH OF JOISTS AND JOIST SPACINGS

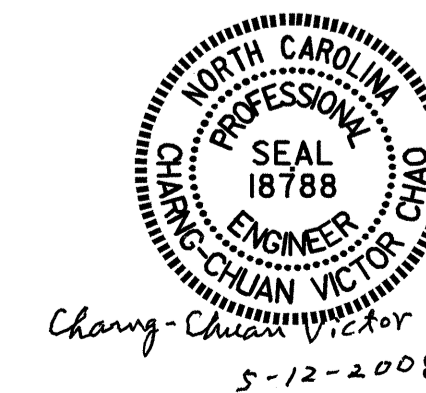
AVG. SLAB THICKNESS (IN)	LUMBER JOIST SIZE (IN X IN)	JOIST SPACINGS			
		15 IN	12 IN	10 IN	8 IN
10	2 X 4	---	4' - 6"	4' - 9"	5' - 0"
	4 X 4	5' - 9"	6' - 3"	6' - 6"	6' - 7"
12	2 X 4	---	4' - 3"	4' - 9"	5' - 0"
	4 X 4	5' - 3"	6' - 0"	6' - 3"	6' - 5"
14	2 X 4	---	4' - 0"	4' - 6"	5' - 0"
	4 X 4	---	5' - 6"	6' - 0"	6' - 4"
16	2 X 4	---	4' - 0"	4' - 3"	4' - 9"
	4 X 4	---	5' - 3"	5' - 9"	6' - 3"

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COLUMBUS COUNTY
 STATION: 31+65.00 -L-

SHEET 2 OF 3

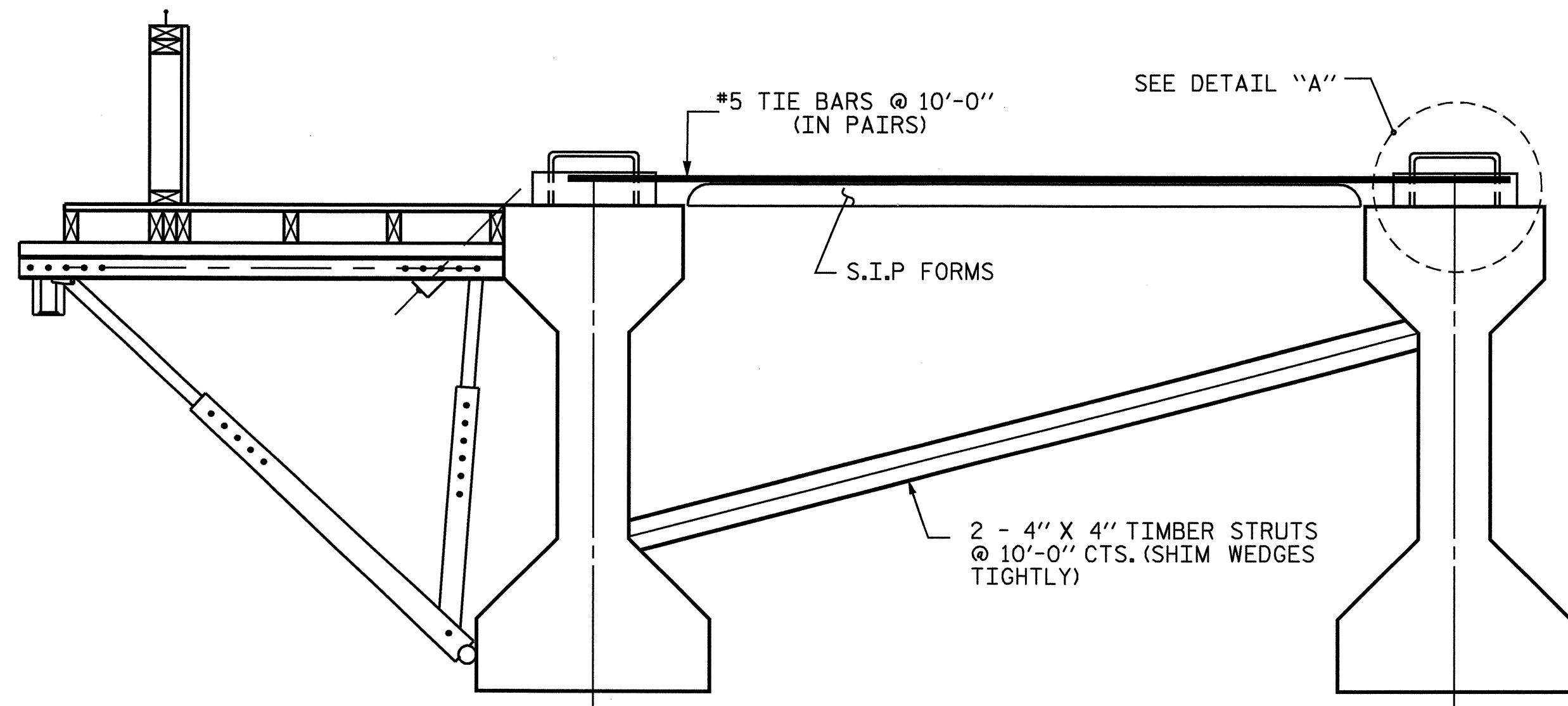
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD OVERHANG FALSEWORK
 AASHTO TYPES III, IV, V, AND VI



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-48
2			4			49

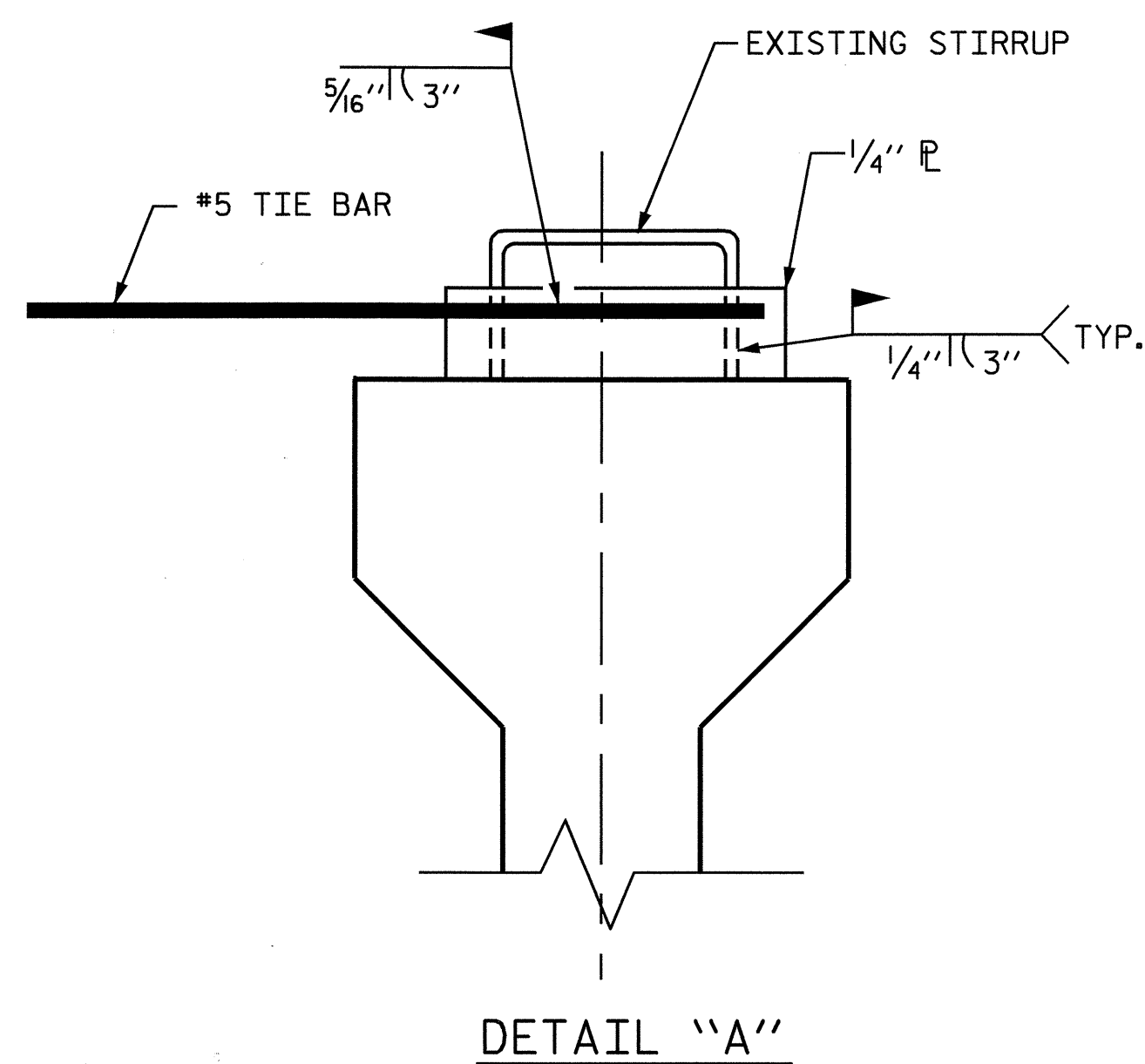
ASSEMBLED BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____
 DRAWN BY: R. WRIGHT 06/04 REV. _____
 CHECKED BY: C. V. CHAO 06/04



EXTERIOR GIRDER

INTERIOR GIRDER

DETAIL OF REQUIRED OVERHANG FALSEWORK BRACING SYSTEM



NOTES:

EACH #5 TIE BAR SHALL BE WELDED TO ONE STIRRUP LOOP AS SHOWN IN DETAIL "A". #5 TIE BARS SHALL BE WELDED TO TWO ADJACENT STIRRUPS OF THE EXTERIOR GIRDER AND THE ADJACENT INTERIOR GIRDER BETWEEN PERMANENT DIAPHRAGMS. WELD STEEL PLATES IN BETWEEN THE TIE BARS AND THE STIRRUP LOOP. WELDING TWO TIE BARS TO THE SAME STIRRUP LOOP SHALL NOT BE PERMITTED.

MAXIMUM SPACING BETWEEN THE BRACING (TIE BARS-TIMBER STRUT) IS 10'-0" CTS. #5 TIE BARS SHALL BE LOCATED OVER A TIMBER STRUT.

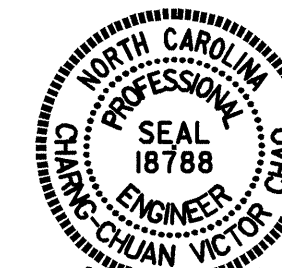
INSTALL TIE BARS AND TIMBER STRUTS PRIOR TO PLACEMENT OF CONCRETE OR SCREED WEIGHT ONTO THE OVERHANG FALSEWORK.

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SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD OVERHANG FALSEWORK
 AASHTO TYPES
 III, IV, V, AND VI



Chang-Chuan Victor Chao
 5-12-2008

REVISIONS

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

SHEET NO.

5-49

TOTAL SHEETS

4-9

DRAWN BY: R. WRIGHT 06/04 DATE : _____
 CHECKED BY: C. V. CHAO 06/04 DATE : _____

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