

CONTRACT: C201564 TIP PROJECT: B-3337

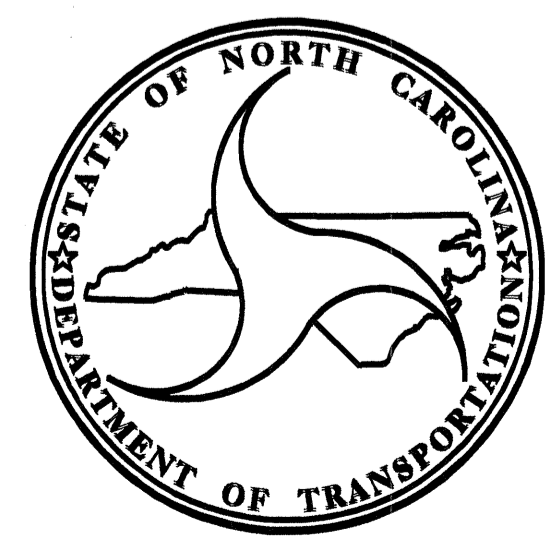
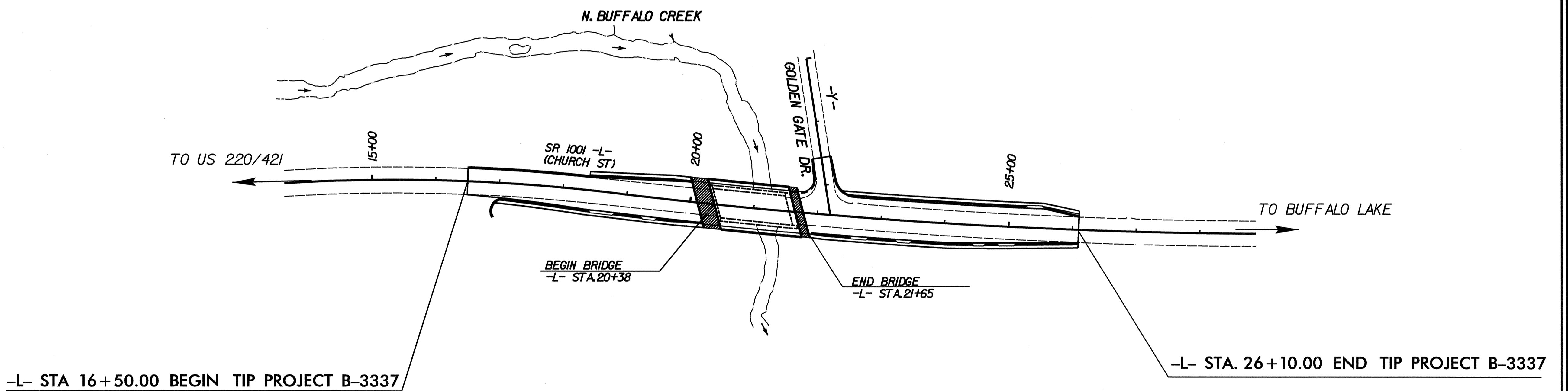
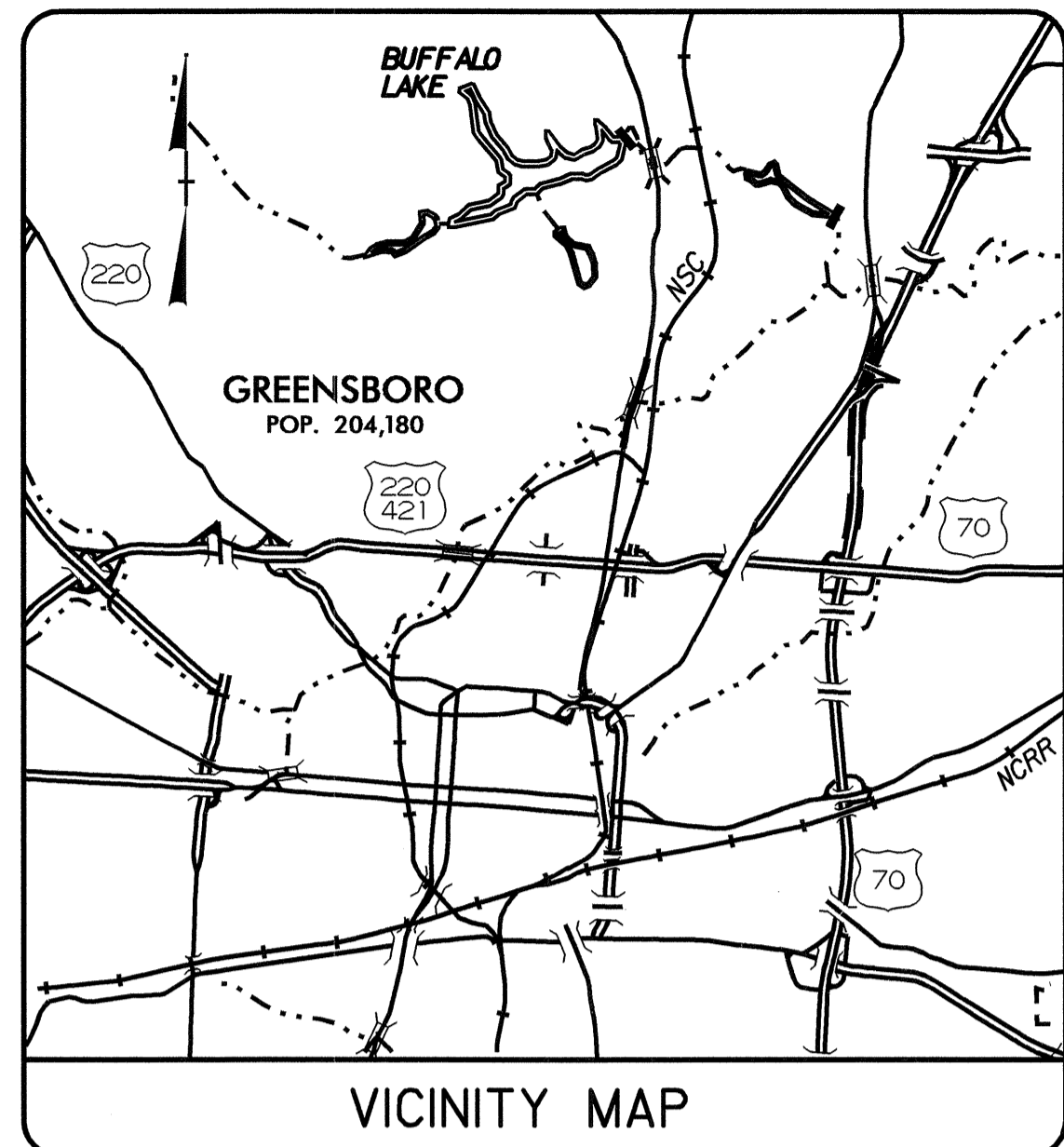
STRUCTURES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

LOCATION: BRIDGE NO. 527 OVER NORTH BUFFALO CREEK ON SR 1001 (CHURCH ST)
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3337		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33000.1.1	BRSTP-1001(18)	PE	
33000.2.2	BRSTP-1001(18)	RW, UTIL.	
33000.3.1	BRSTP-1001(18)	CONST.	



DESIGN DATA

ADT 2008 =	17,300
ADT 2028 =	19,300
DHV =	9 %
D =	65 %
T =	3 % *
V =	40 MPH

* (TTST 1% + DUAL 2%)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3337 =	0.158 MI
LENGTH STRUCTURE TIP PROJECT B-3337 =	0.024 MI
TOTAL LENGTH TIP PROJECT B-3337 =	0.182 MI

PLANS PREPARED FOR:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr.
Raleigh, NC 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
NOVEMBER 20, 2007

Q. H. NGUYEN, PE
PROJECT ENGINEER

J. R. DUGGINS, JR., PE
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DRIVE
RALEIGH, N.C. 27610

P.E.

SIGNATURE: _____

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.

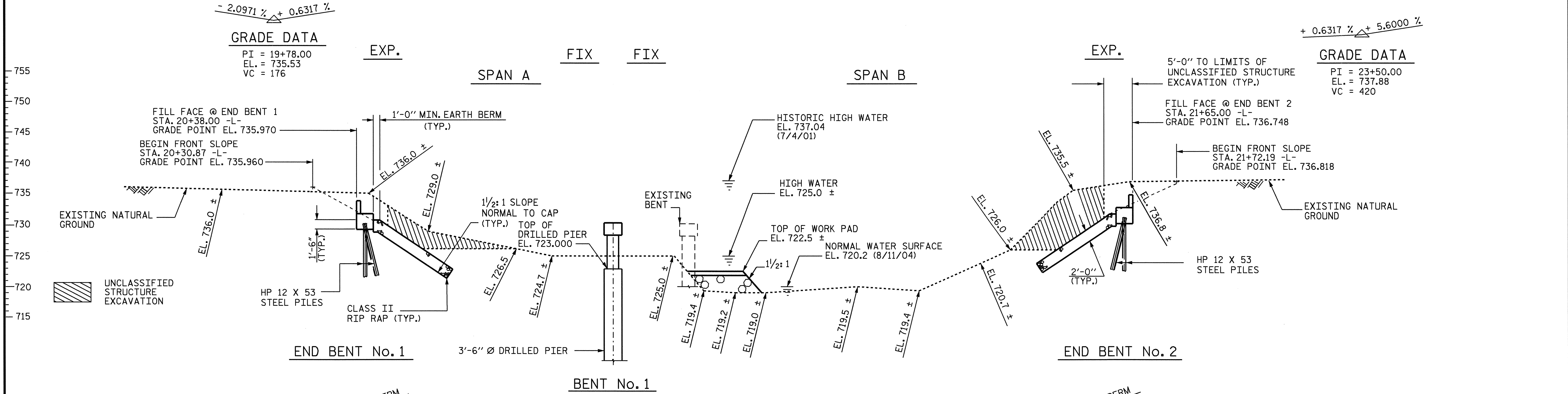
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

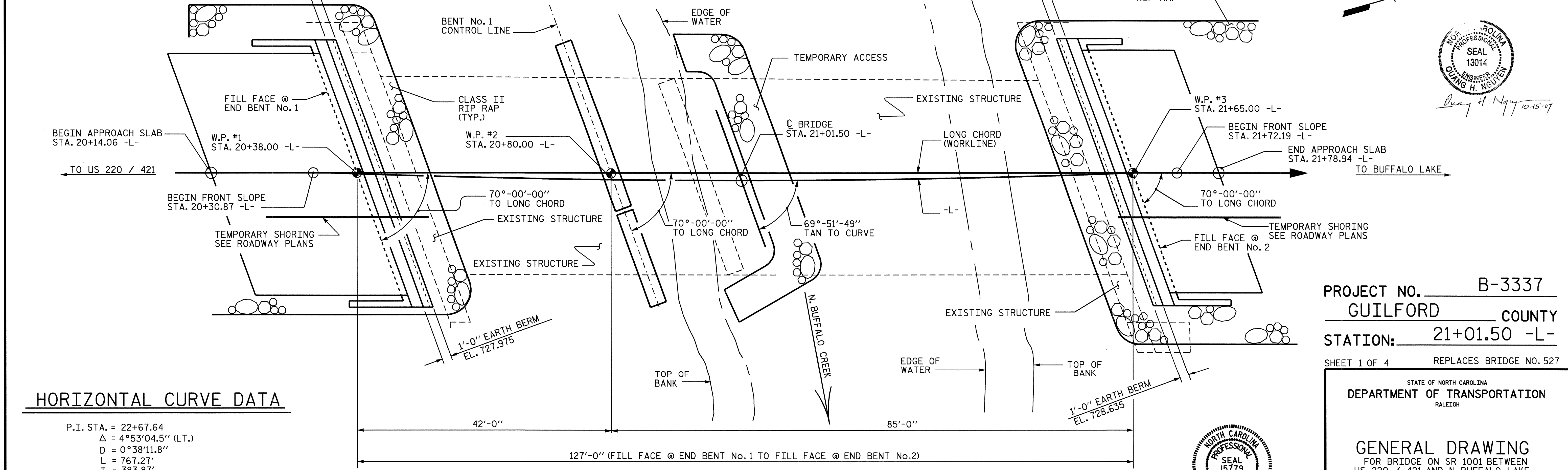
APPROVED
DIVISION ADMINISTRATOR

DATE _____

16-OCT-2007 11:56
 \$\$\$\$\$\$DCN\$\$\$\$\$



SECTION ALONG C SURVEY -L-
SECTIONS @ BENTS & END BENTS ARE TAKEN AT RIGHT ANGLES



HORIZONTAL CURVE DATA

P.I. STA. = 22+67.64
 $\Delta = 4^\circ 53' 04.5''$ (L.T.)
 D = 0° 38' 11.8"
 L = 767.27'
 T = 383.87'
 R = 9,000.00'

PLAN

ALL DIMENSIONS ARE ALONG THE LONG CHORD



Quang H. Nguyen 10-15-07

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-
 SHEET 1 OF 4 REPLACES BRIDGE NO. 527

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SR 1001 BETWEEN
 US 220 / 421 AND N. BUFFALO LAKE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			45

DRAWN BY : M. POOLE DATE : 08/07
 CHECKED BY : J.R. DUGGINS DATE : 08/07

NOTES

DRILLED PIERS AT BENT No.1 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 60 TSF.

DRILLED PIERS AT BENT No.1 ARE DESIGNED FOR AN APPLIED LOAD OF 195 TONS EACH AT THE TOP OF THE COLUMN.

DRILLED PIERS AT BENT No.1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 702 FT., SATISFY THE REQUIRED END BEARING CAPACITY AND HAVE A MINIMUM PENETRATION OF 7 FT. INTO ROCK AS DEFINED BY THE DRILLED PIERS SPECIAL PROVISION.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT No.1. DO NOT EXTEND THE CASING BELOW ELEVATION 708 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. SEE DRILLED PIERS SPECIAL PROVISION.

DO NOT USE SLURRY CONSTRUCTION FOR DRILLED PIERS AT BENT No.1.

THE SCOUR CRITICAL ELEVATION FOR BENT No.1 IS 710 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE END BEARING CAPACITY OF THE DRILLED PIERS AT BENT No.1.

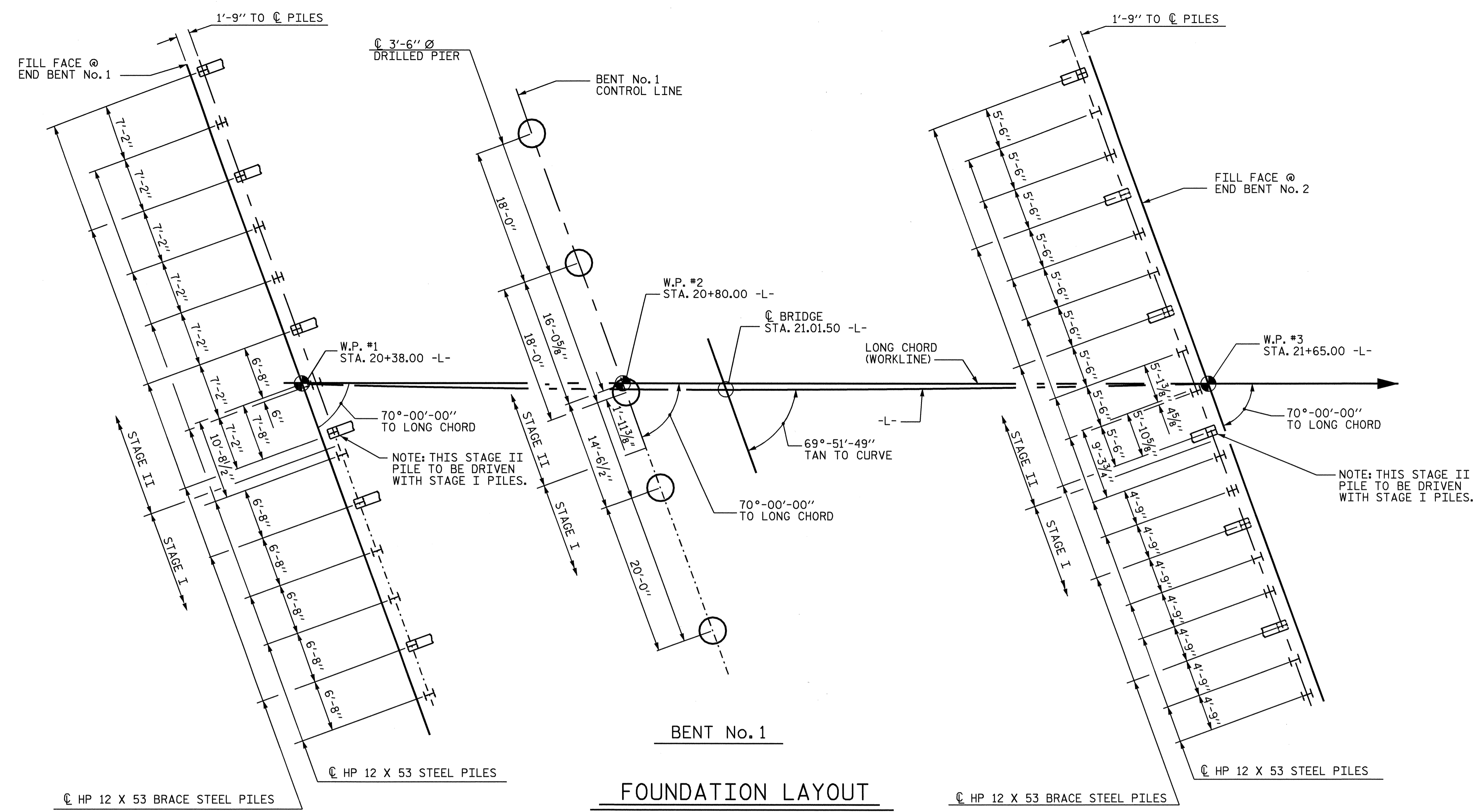
SID INSPECTIONS MAY BE REQUIRED TO INSPECT THE BOTTOM CLEANLINESS OF THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. SEE DRILLED PIERS SPECIAL PROVISION.

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

FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISION.

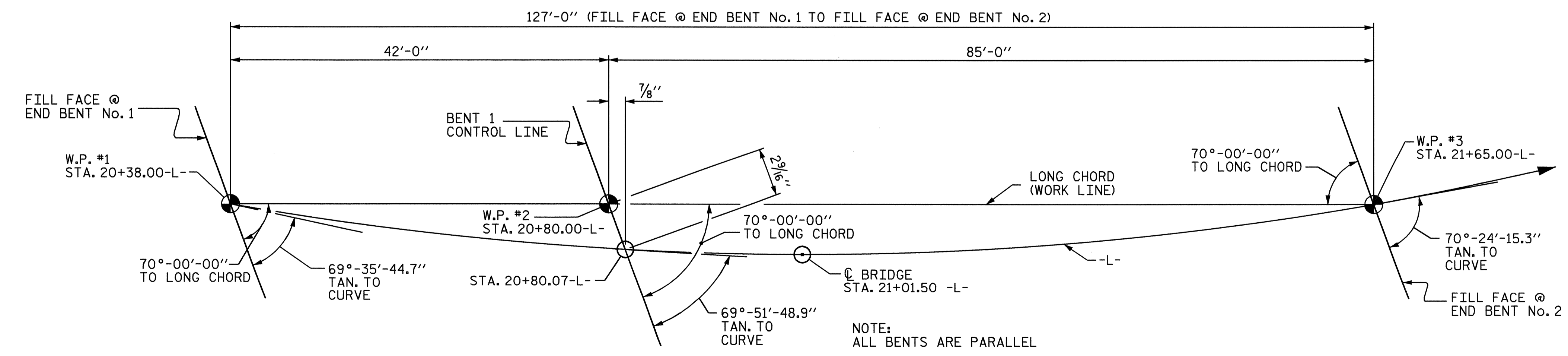
DRIVE PILES AT END BENT No.1 AND END BENT No.2 TO A REQUIRED BEARING CAPACITY OF 100 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT No.1 AND END BENT No.2 IS 50 TONS PER PILE.



FOUNDATION LAYOUT

ALL PILES IN THE END BENTS ARE HP 12 X 53 STEEL PILES
 ALL END BENT BRACE PILES ARE BATTERED AT 3 : 12
 DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE AT THE BOTTOM OF THE CAP.



CHORD LAYOUT

NOTE:
 ALL BENTS ARE PARALLEL
 THE EFFECTS OF THE HORIZONTAL CURVE SHALL BE NEGLECTED IN THE CONSTRUCTION OF THIS BRIDGE.

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

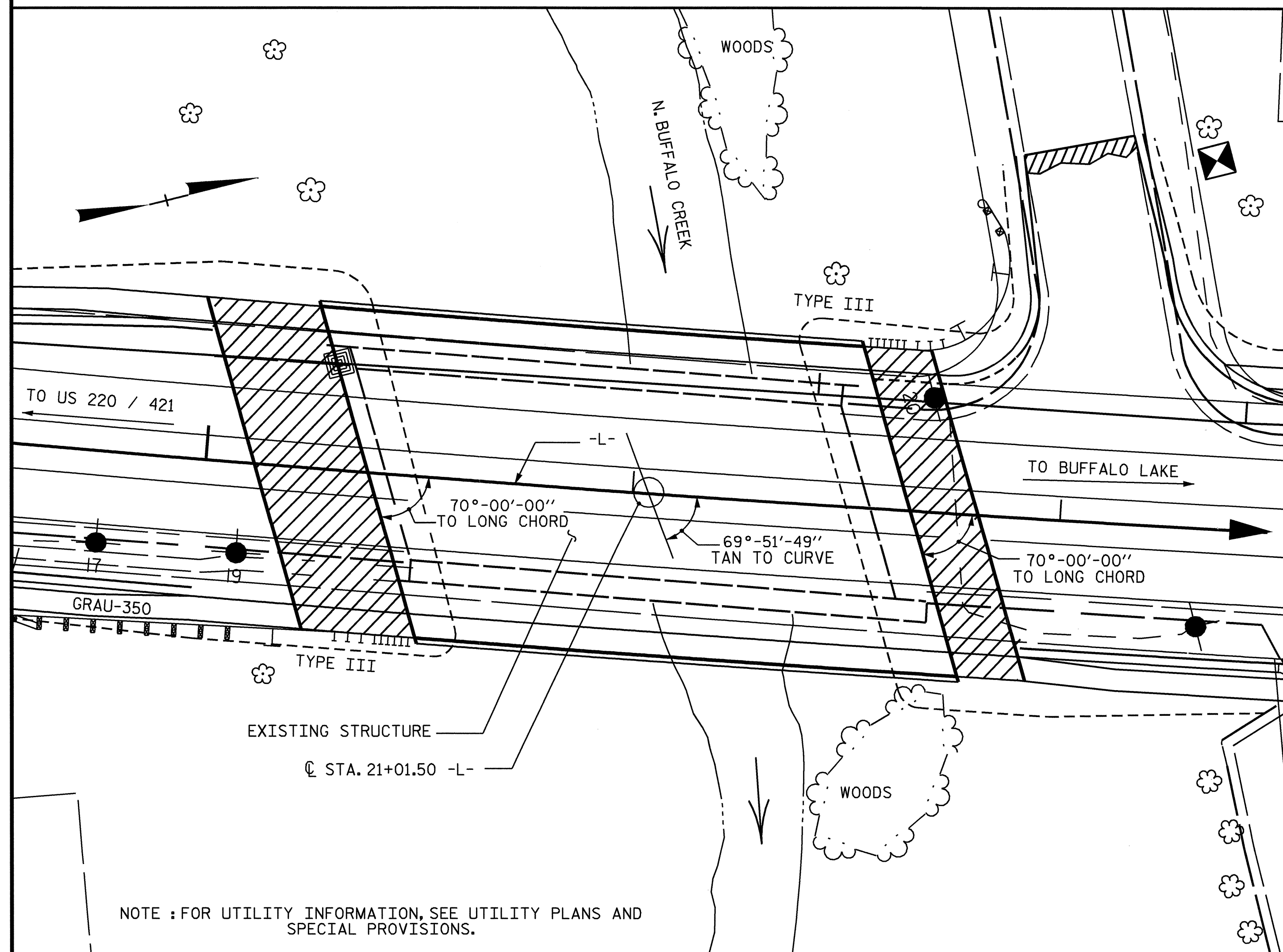
SHEET 2 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING FOR BRIDGE ON SR 1001 BETWEEN US 220 / 421 AND N. BUFFALO LAKE					
SHEET NO. <u>3-2</u>					
TOTAL SHEETS <u>45</u>					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



DRAWN BY : M. POOLE DATE : 06/05
 CHECKED BY : J.R. DUGGINS DATE : 08/07

B.M. #2 - R/R SPIKE SET IN BASE OF 12" MAPLE TREE ON NORTH SIDE OF GOLDEN GATE DR.,
 -BL- STA. 16+89.42, 60.13' LT., ELEV. 738.45



LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING, EXCEPT THAT THE GIRDERS HAVE BEEN DESIGNED FOR HS 25.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

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

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

AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING STRUCTURE CONSISTING OF 2 SPANS AT 56'-6" EACH WITH A REINFORCED CONCRETE DECK ON STEEL I-BEAMS SUPERSTRUCTURE AND A CLEAR ROADWAY WIDTH OF 44'-0" ON A SUBSTRUCTURE CONSISTING OF REINFORCED CONCRETE END BENT CAPS ON STEEL PILES AND REINFORCED CONCRETE POST & BEAM BENT ON SPREAD FOOTINGS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL PROVISION FOR REMOVAL OF EXISTING STRUCTURE.

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 45 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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.

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

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

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

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

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.

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

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

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE.....5,600 CFS.
 FREQUENCY OF DESIGN FLOOD.....50 YEARS
 DESIGN HIGH WATER ELEVATION.....734.5 FT.
 DRAINAGE AREA.....14.2 SQ. MI.
 BASIC DISCHARGE(Q100).....6,250 CFS.
 BASIC HIGH WATER ELEVATION.....735.4 FT.

OVERTOPPING FLOOD DATA

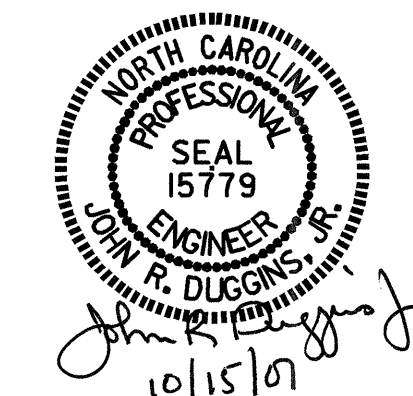
OVERTOPPING DISCHARGE.....6,700 CFS.
 FREQUENCY OF OVERTOPPING FLOOD.....100 + YRS.
 OVERTOPPING FLOOD ELEVATION.....735.8 FT.

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1001 BETWEEN
 US 220 / 421 AND N. BUFFALO LAKE



DRAWN BY: M. POOLE DATE: 06/05
 CHECKED BY: J. R. DUGGINS DATE: 08/07

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

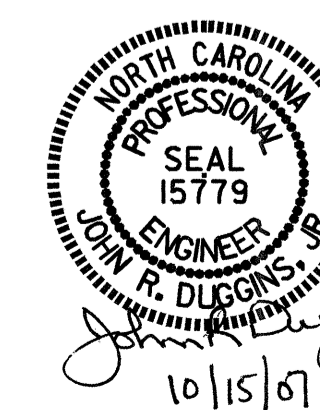
TOTAL BILL OF MATERIAL												
	CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	3'-6" Ø DRILLED PIERS IN SOIL	3'-6" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIERS	SID INSPECTION	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	LUMP SUM	SQ. FT.	SQ. FT.	CU.YD.	
SUPERSTRUCTURE	LUMP SUM	LUMP SUM							9744	9888		
END BENT No. 1											45.1	
BENT No. 1			70.00	35.00	75.00	1	1				50.2	
END BENT No. 2											50.8	
TOTAL	LUMP SUM	LUMP SUM	70.00	35.00	75.00	1	1	LUMP SUM	9744	9888	146.1	
	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	STRUCTURAL STEEL	HP 12 X 53 STEEL PILES	TWO BAR METAL RAIL	1'-2" X 3'-3 7/16" CONCRETE PARAPET	RIP RAP CLASS II 2'-0" THICK	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	
	LUMP SUM	LBS.	LBS.	APPROX. LBS.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM	
SUPERSTRUCTURE	LUMP SUM			215300			233.72	249.56		LUMP SUM	LUMP SUM	
END BENT No. 1		6855			14	280		220	245			
BENT No. 1		13399	2864									
END BENT No. 2		7130			18	360		227	252			
TOTAL	LUMP SUM	27384	2864	215300	32	640	233.72	249.56	447	497	LUMP SUM	LUMP SUM

PROJECT NO. B-3337
GUILFORD COUNTY
STATION: 21+01.50 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

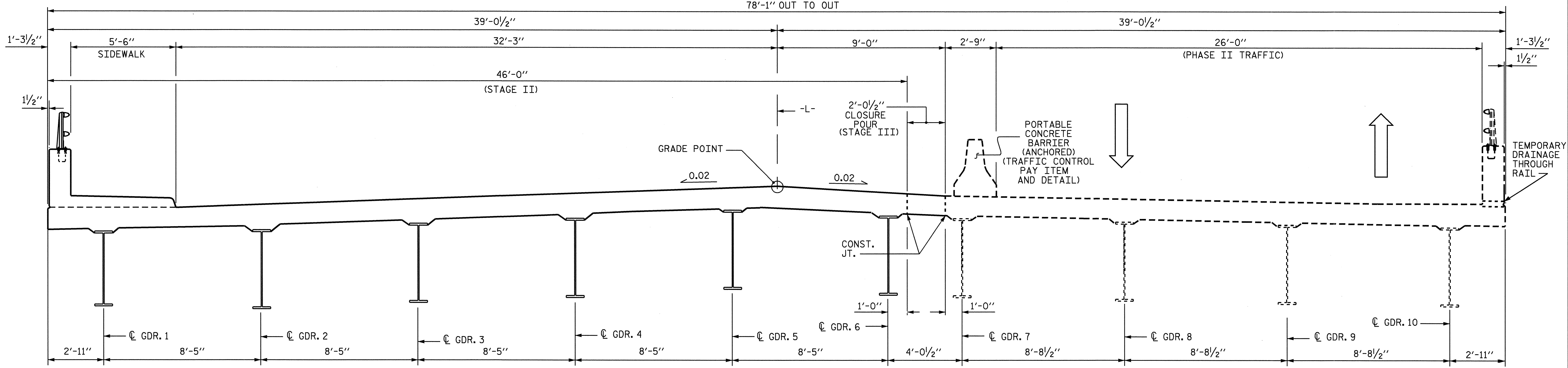
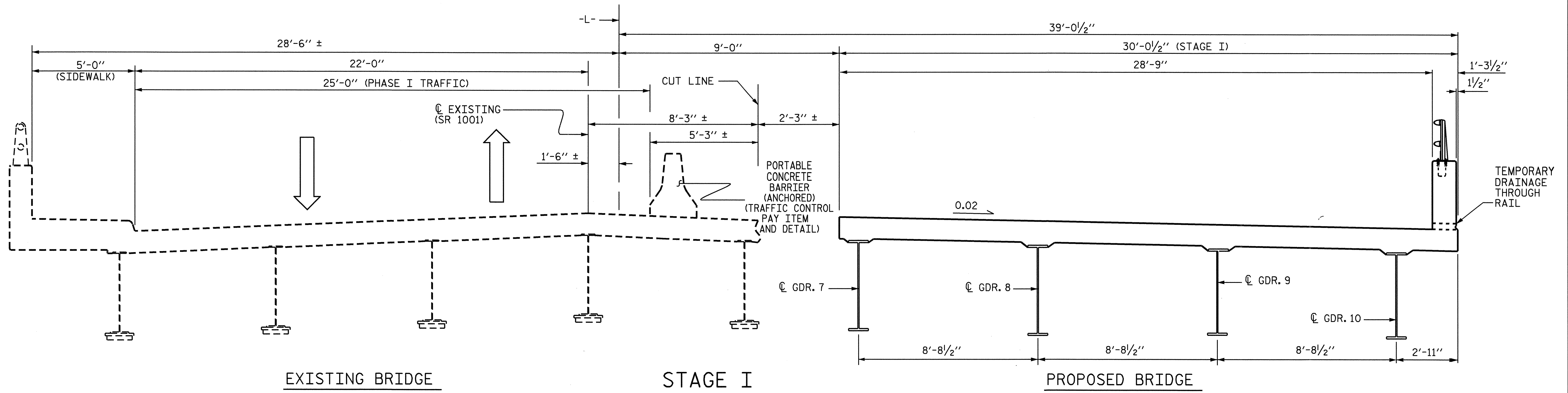
GENERAL DRAWING
FOR BRIDGE ON SR 1001 BETWEEN
US 220 / 421 AND N. BUFFALO LAKE



DRAWN BY : M. POOLE DATE : 08/07
CHECKED BY : J.R. DUGGINS DATE : 08/07

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			3-4
2			4			45

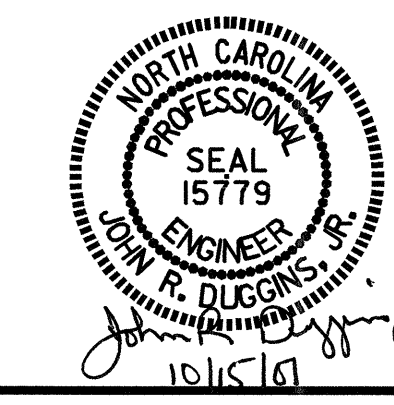


PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

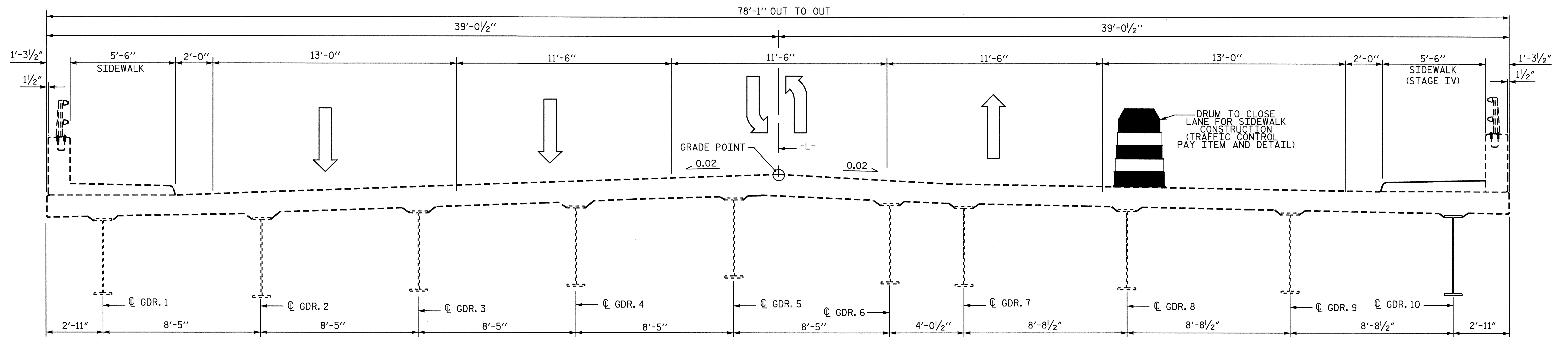
CONSTRUCTION SEQUENCE
 FOR BRIDGE ON SR 1001 BETWEEN
 US 220 / 421 AND N. BUFFALO LAKE



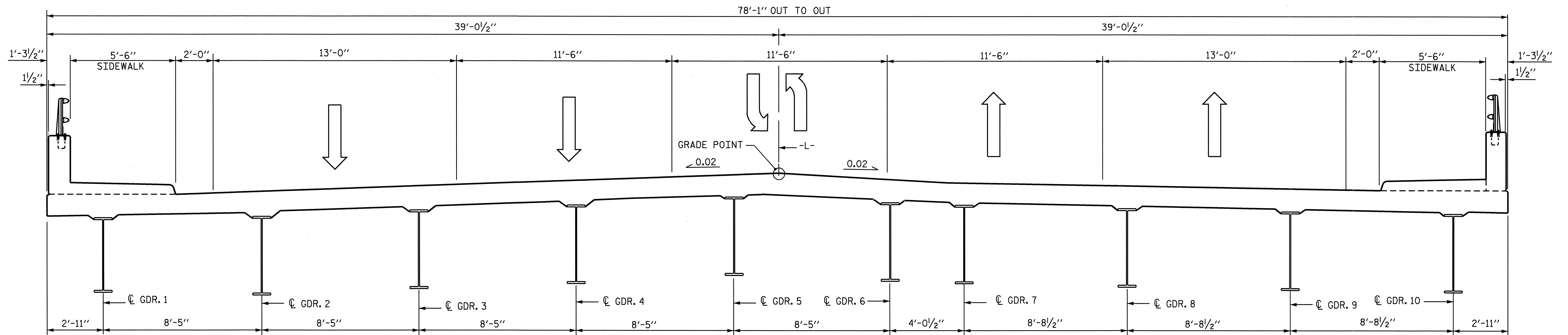
DRAWN BY: M. POOLE DATE: 09/05
 CHECKED BY: J.R. DUGGINS DATE: 08/07

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REVISIONS						SHEET NO.
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2			4			TOTAL SHEETS 4-5



STAGE IV



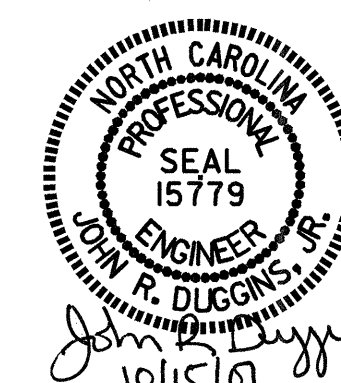
FINAL TYPICAL SECTION

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 2 OF 2

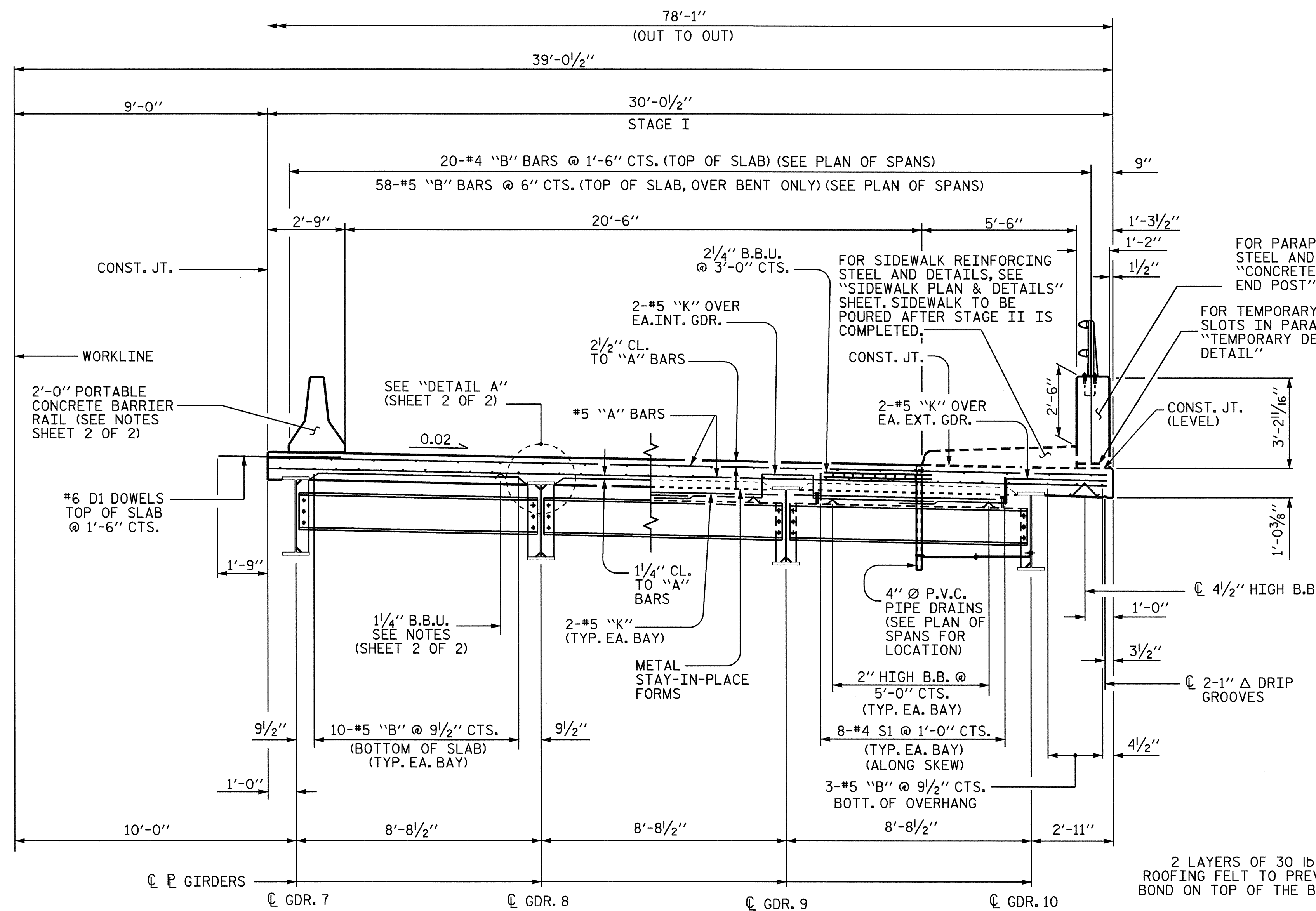
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

CONSTRUCTION SEQUENCE
 FOR BRIDGE ON SR 1001 BETWEEN
 US 220 / 421 AND N. BUFFALO LAKE



DRAWN BY: M. POOLE DATE: 09/05
 CHECKED BY: J.R. DUGGINS DATE: 08/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-6
2			4			TOTAL SHEETS 45

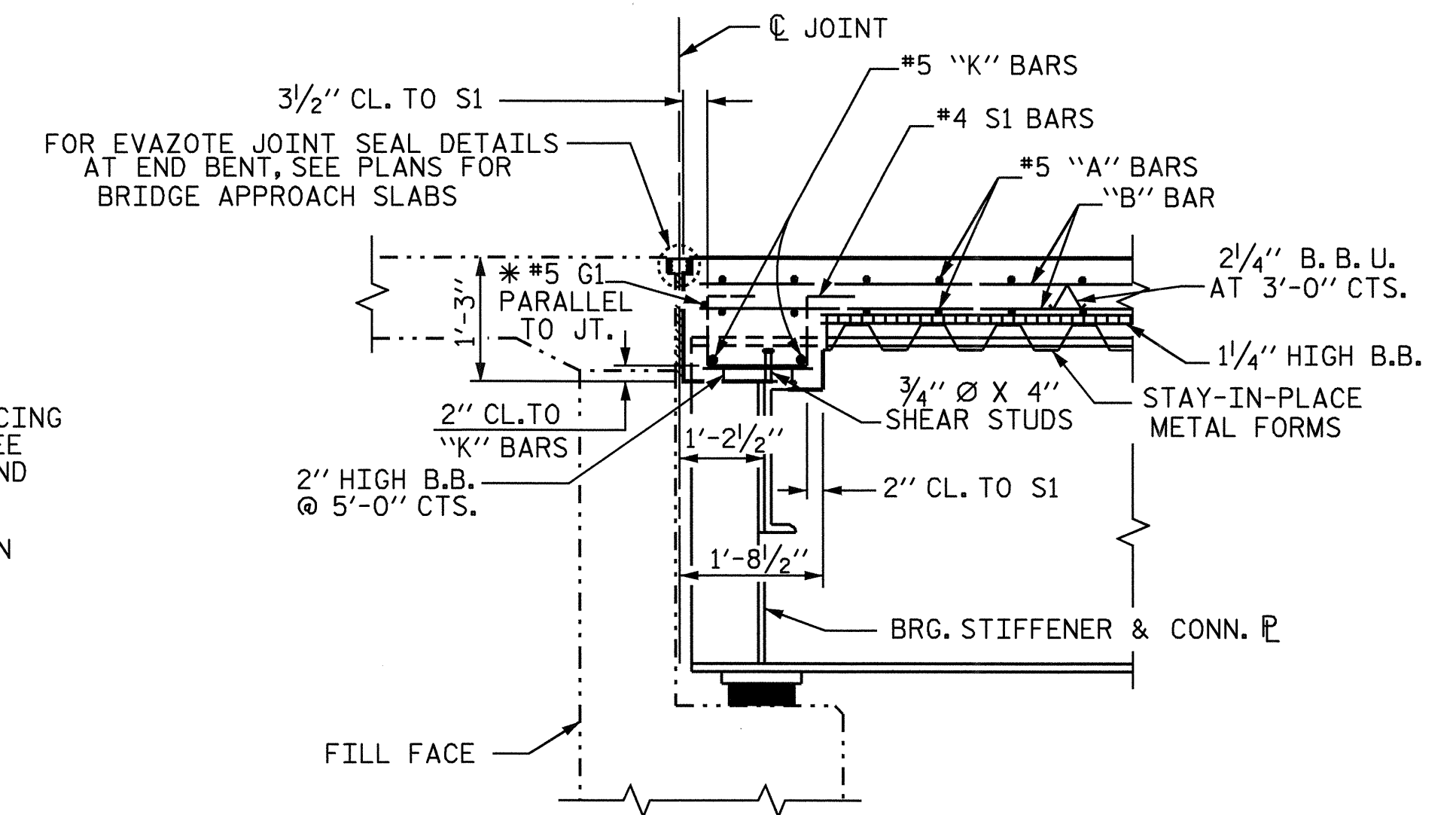


HALF TYPICAL SECTION

SHOWING INTERMEDIATE DIAPHRAGMS

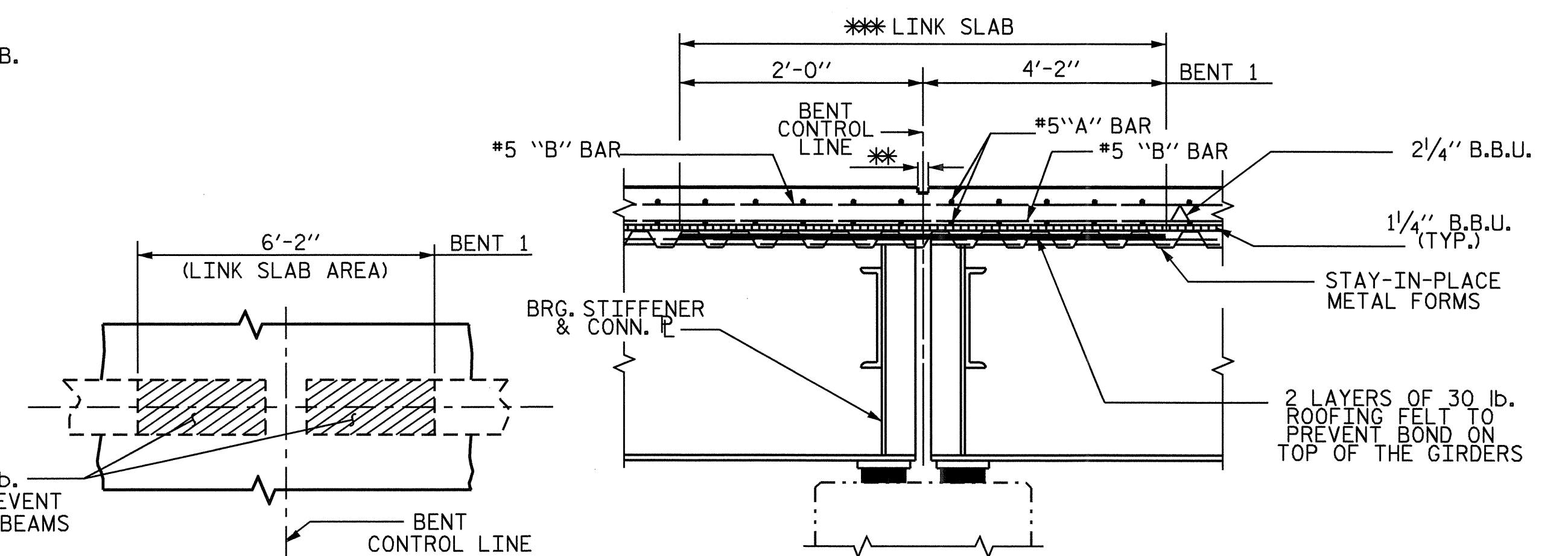
HALF TYPICAL SECTION

SHOWING END BENT DIAPHRAGMS



SECTION THRU END BENT

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

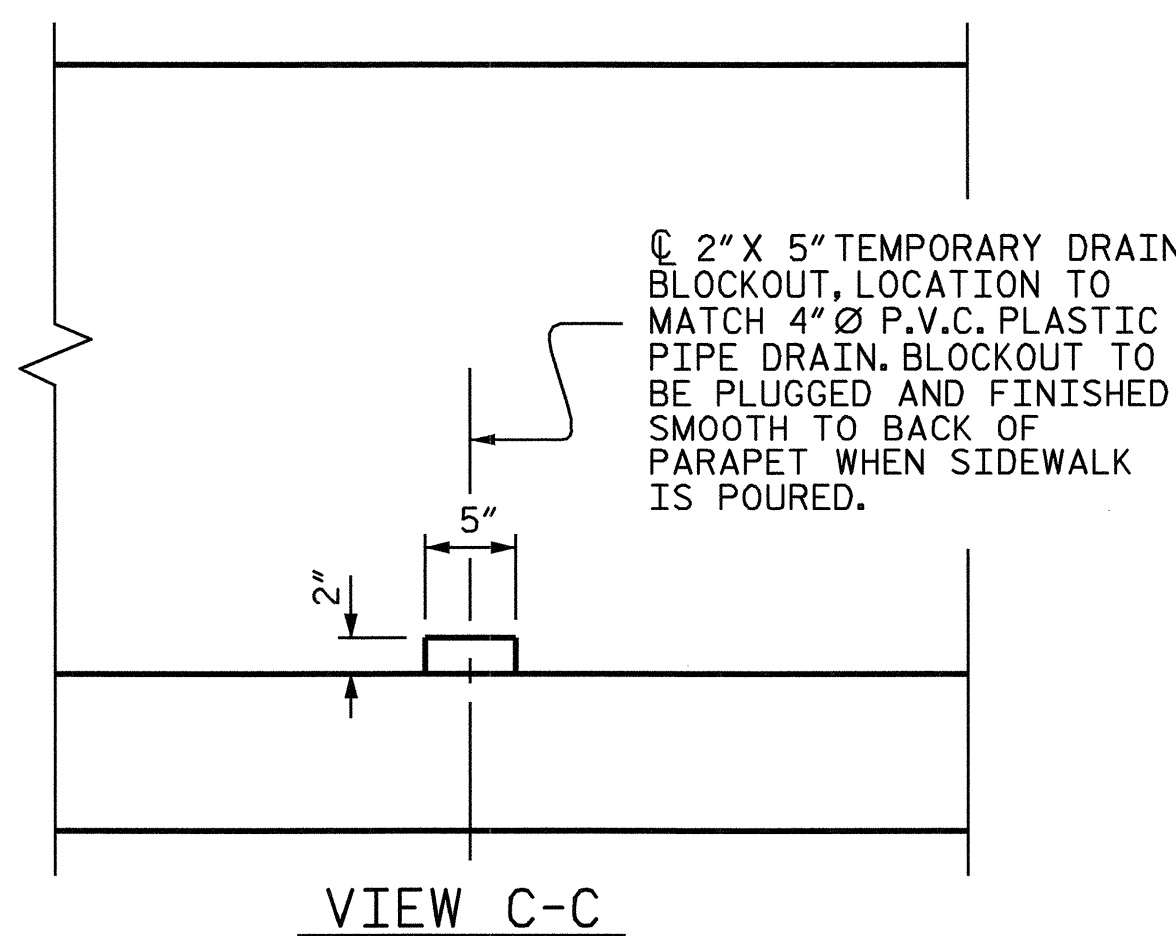


PLAN OF LINK SLAB

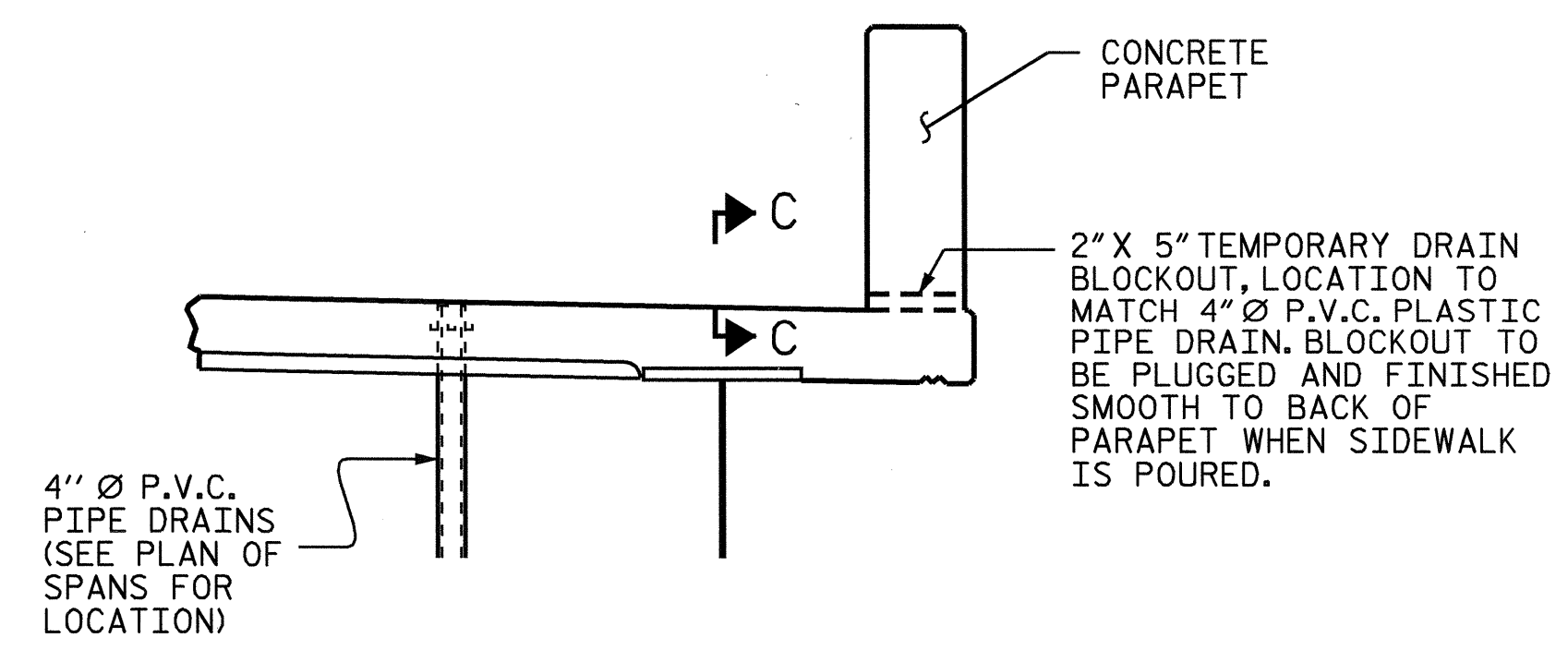
SECTION AT BENT

*** NOTE: THE TOP OF THE GIRDER IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH AND FREE OF SHEAR STUDS. NO WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL BE PERMITTED IN THIS REGION.

*** THE CONTRACTOR SHALL SAW A 1/2" DEEP CONTRACTION JOINT AT THE BENT CONTROL LINE, WITHIN 24 HOURS OF POURING THE DECK. THE JOINT SHALL BE FILLED WITH JOINT SEALER MATERIAL. THE JOINT FILLER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE B LOW MODULUS SILICONE SEALANT, SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.



VIEW C-C



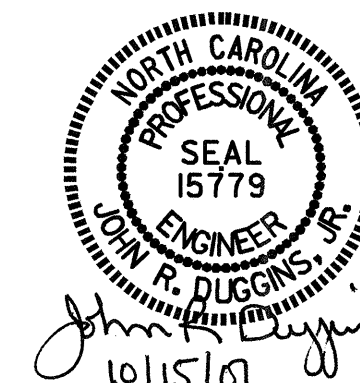
TEMPORARY DECK DRAIN DETAIL

(STAGE I, ONLY)

2" X 5" TEMPORARY DRAIN BLOCKOUT MAY BE SHIFTED AS NECESSARY TO AVOID INTERFERENCE WITH CONCRETE PARAPET REINFORCING STEEL.

DRAWN BY: M. POOLE DATE: 02/06
 CHECKED BY: D. HODGE DATE: 09/07

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PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 1 OF 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-7
2			4			45

NOTES

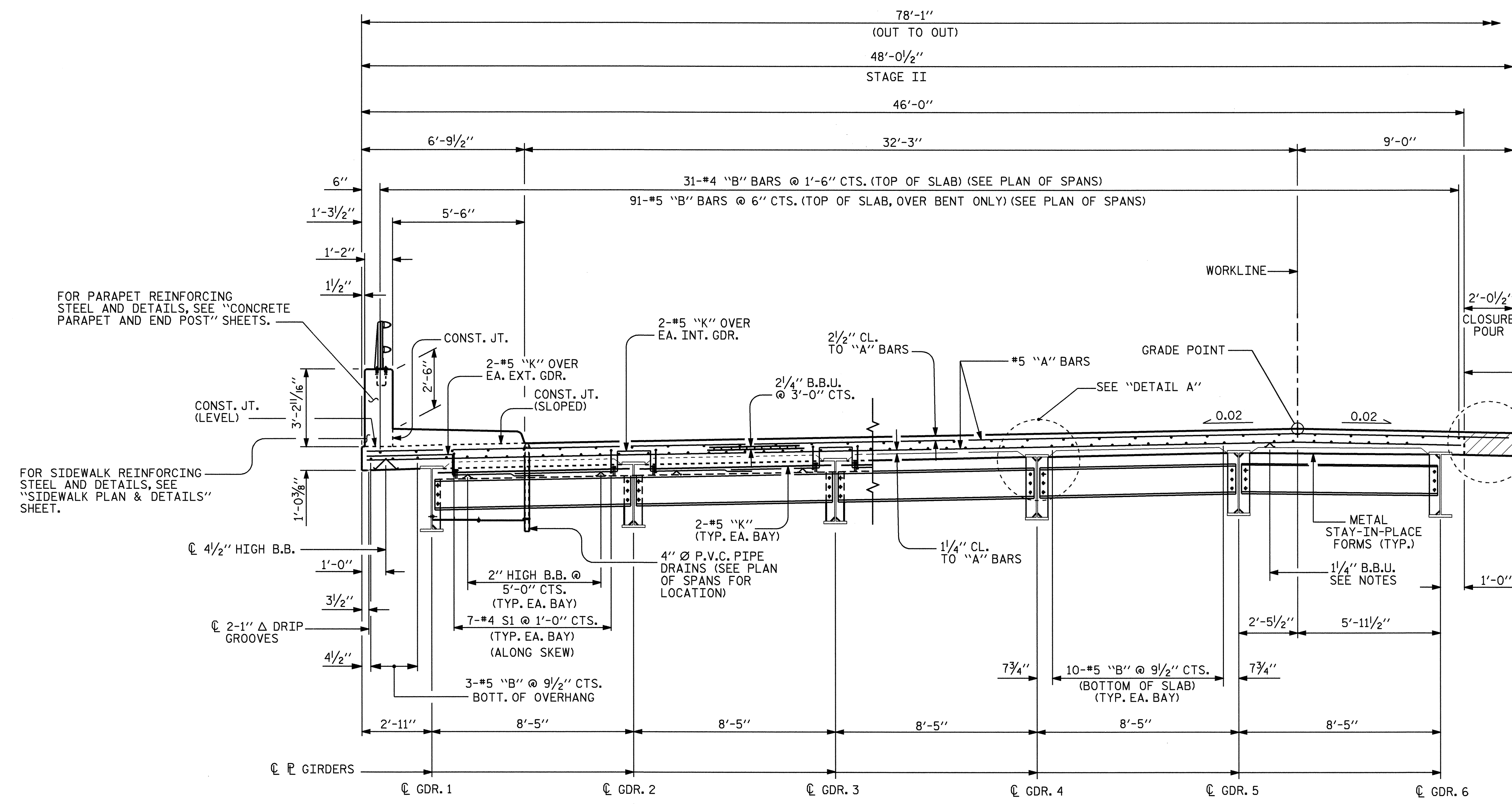
PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

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

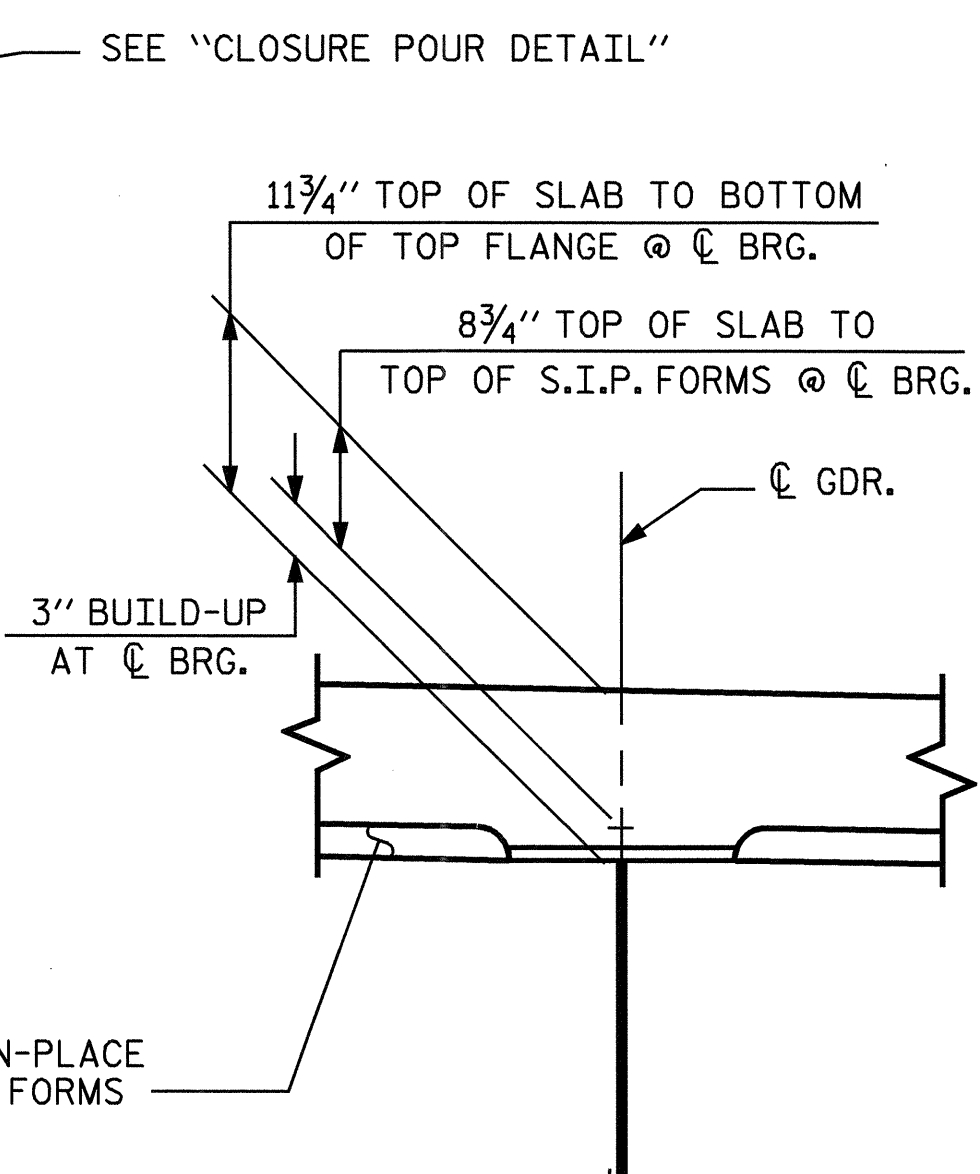
THE TOP OF THE BEAM IN THE REGION OF LINK SLAB SHALL BE SMOOTH AND FREE OF SHEAR STUDS, NO WELDING OF THE FORMS OR FALSEWORK TO TOP FLANGE WILL BE PERMITTED IN THIS REGION.

SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.



FOR PARAPET REINFORCING STEEL AND DETAILS, SEE "CONCRETE PARAPET AND END POST" SHEETS.

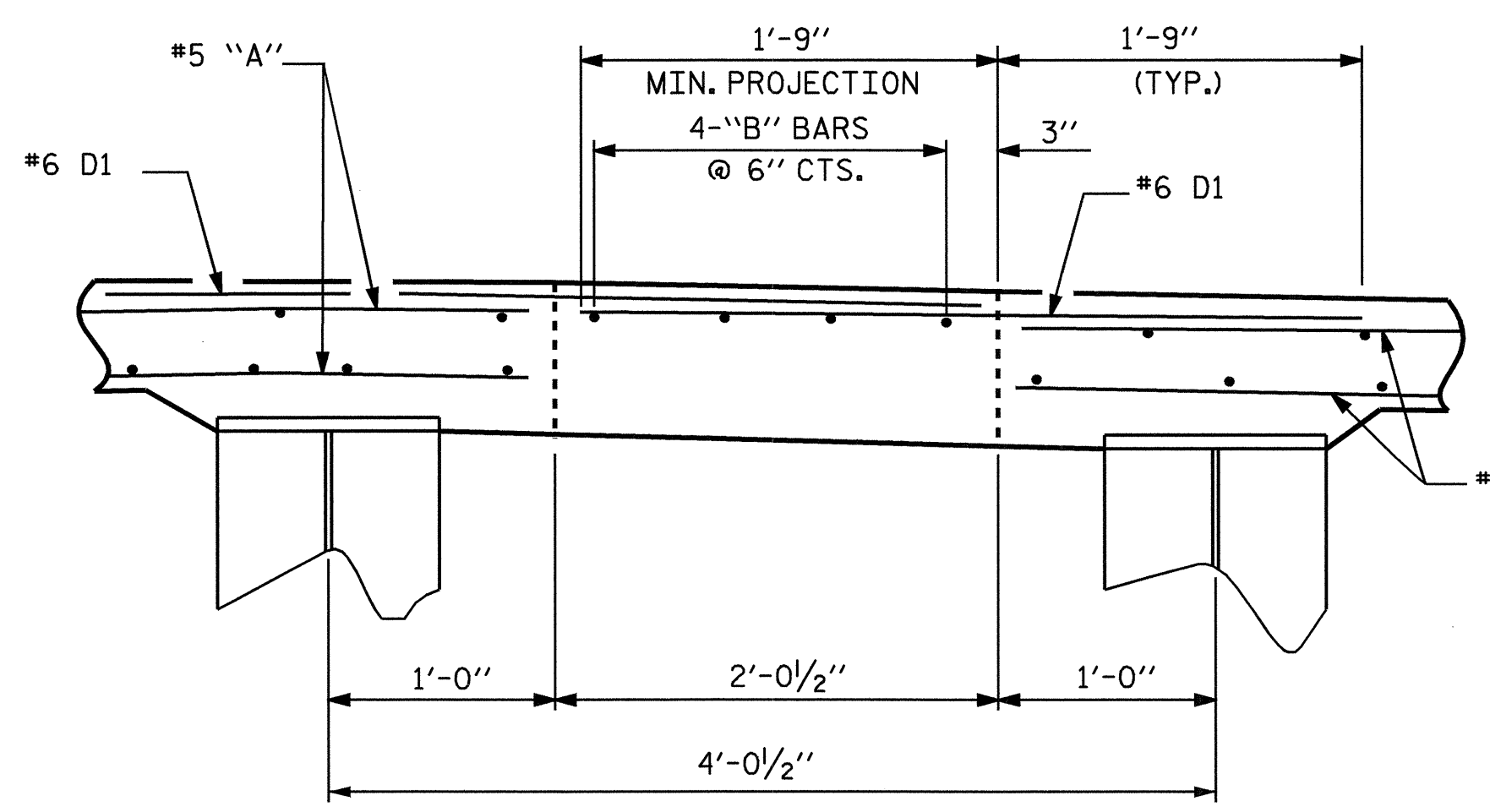
FOR SIDEWALK REINFORCING STEEL AND DETAILS, SEE "SIDEWALK PLAN & DETAILS" SHEET.



HALF TYPICAL SECTION
SHOWING END BENT DIAPHRAGMS

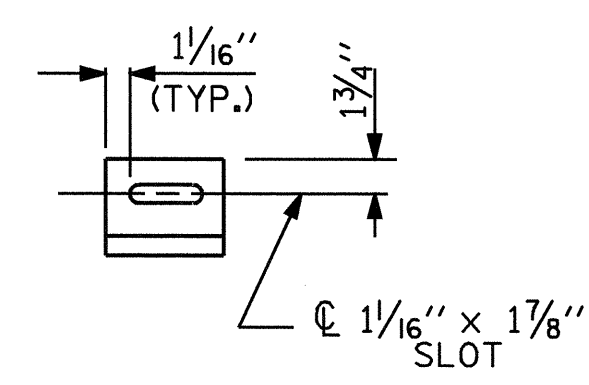
HALF TYPICAL SECTION
SHOWING INTERMEDIATE DIAPHRAGMS

DETAIL A

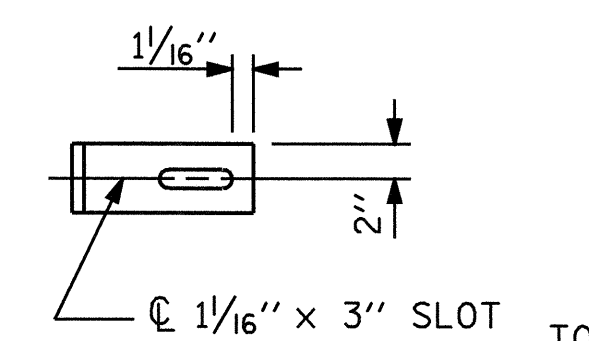


CLOSURE POUR DETAILS

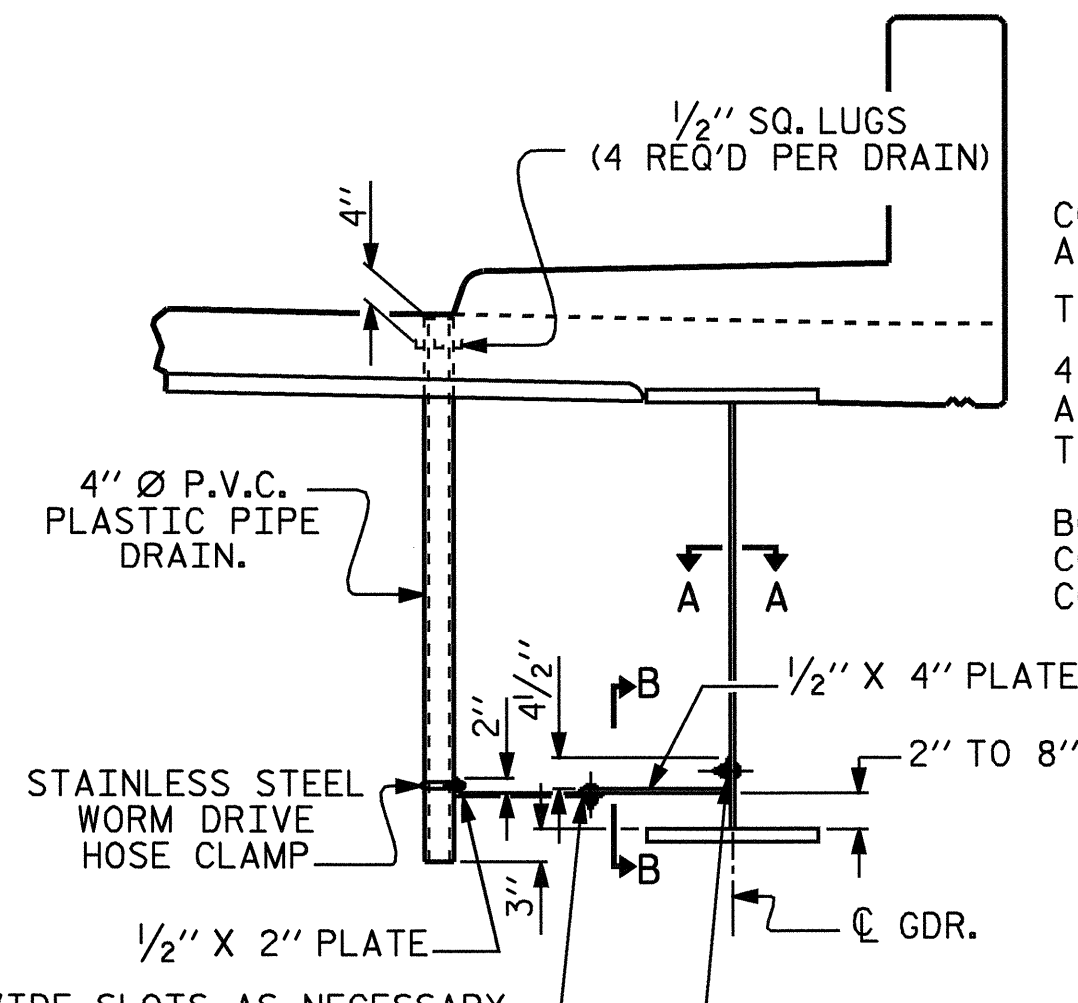
"B" BAR DETAIL



SECTION B-B



SECTION A-A



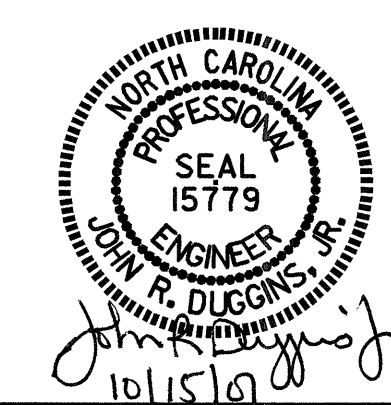
DRAIN CONNECTOR DETAIL

COUPLING IN DRAIN PIPE WILL BE PERMITTED AS APPROVED BY THE ENGINEER.
TOP OF FLOOR DRAIN TO BE SET 3/8" BELOW SURFACE OF SLAB.
4 - 1/2" SQUARE LUGS TO BE GLUED TO THE PVC PLASTIC PIPE AT EQUAL SOACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF THE PIPE.
BOLT SIZE TO BE SAME AS DIAPHRAGM AND CROSSFRAME CONNECTIONS. STAINLESS STEEL WORM DRIVE HOSE CLAMP SHALL BE COMMERCIAL QUALITY.

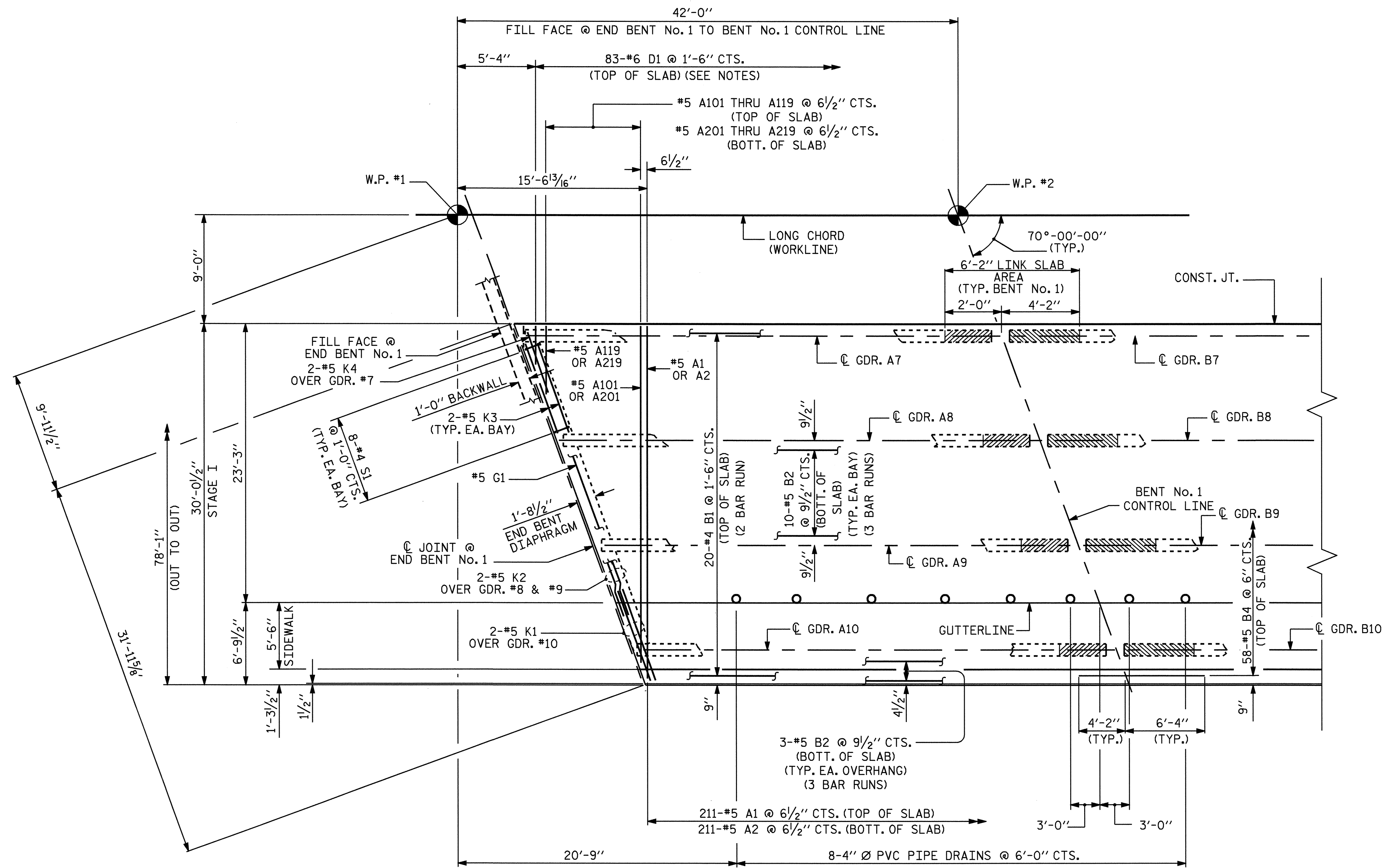
PROJECT NO. B-3337
GUILFORD COUNTY
STATION: 21+01.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION STAGE II					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-8 TOTAL SHEETS 45



DRAWN BY: M. POOLE DATE: 02/06
CHECKED BY: D. HODGE DATE: 09/07



PLAN OF SPAN A

STAGE I

FOR REINFORCING STEEL IN SIDEWALK, SEE "SIDEWALK DETAILS" SHEET.

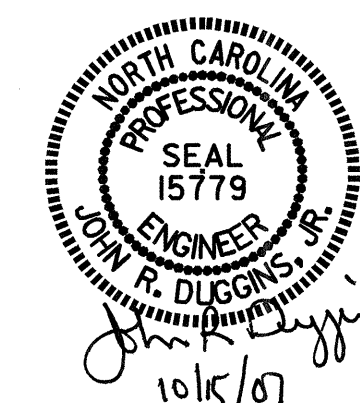
THE #6 D1 BARS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE MAIN SLAB REINFORCING STEEL. THE #6 D1 BARS SHALL EXTEND 1'-9" INTO CLOSURE POUR.

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

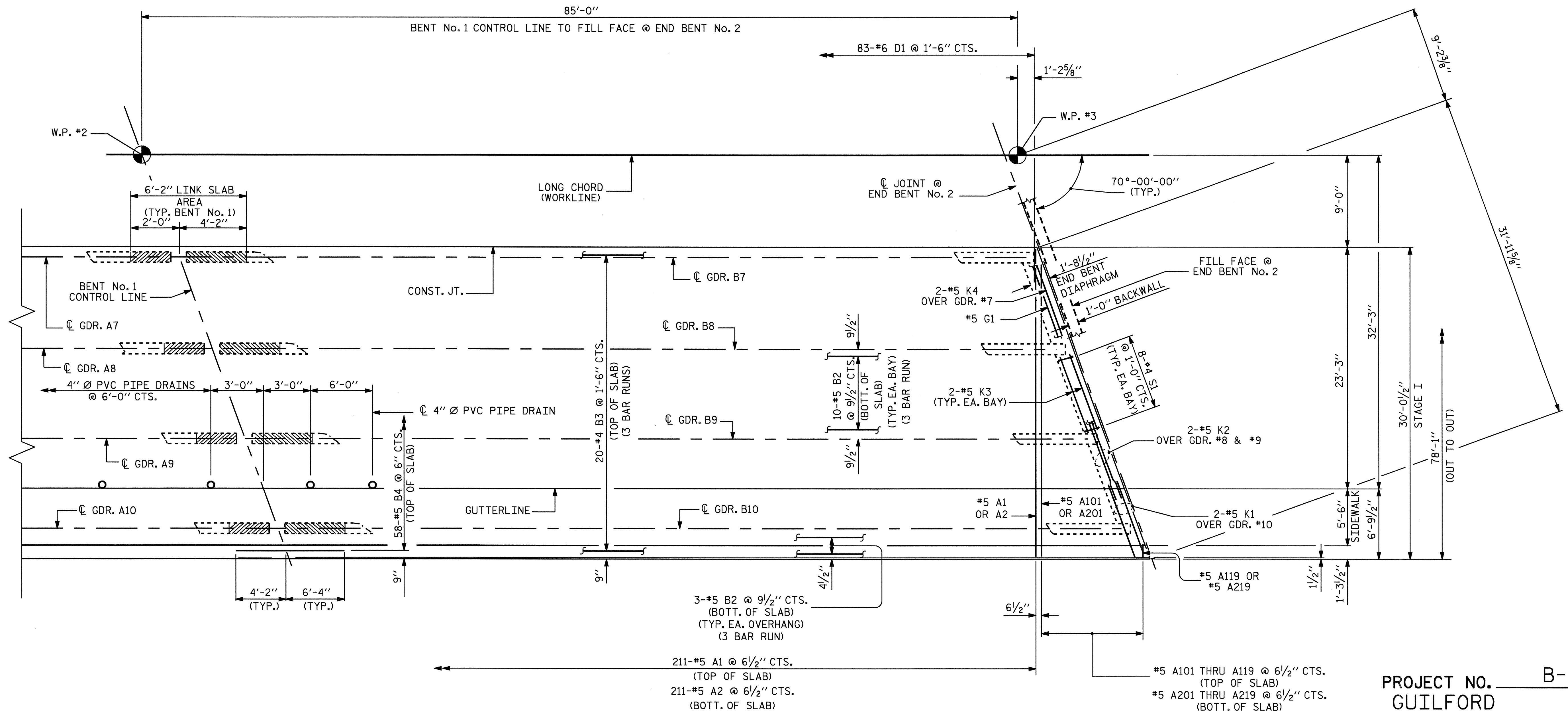
**SUPERSTRUCTURE
 PLAN OF SPAN A
 STAGE I**



DRAWN BY : M. POOLE DATE : 02/06
 CHECKED BY : D. HODGE DATE : 09/07

11-OCT-2007 16:10
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 ddhodge

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-9
2			4			45



PLAN OF SPAN B

STAGE I

FOR REINFORCING STEEL IN SIDEWALK, SEE "SIDEWALK DETAILS" SHEET.

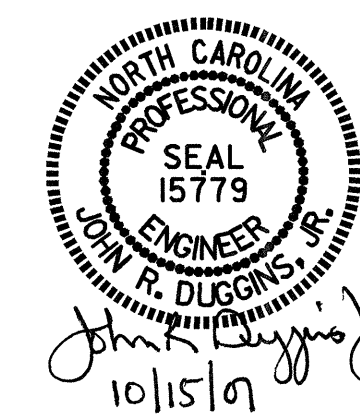
THE #6 D1 BARS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE MAIN SLAB REINFORCING STEEL. THE #6 D1 BARS SHALL EXTEND 1'-9" INTO CLOSURE POUR.

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

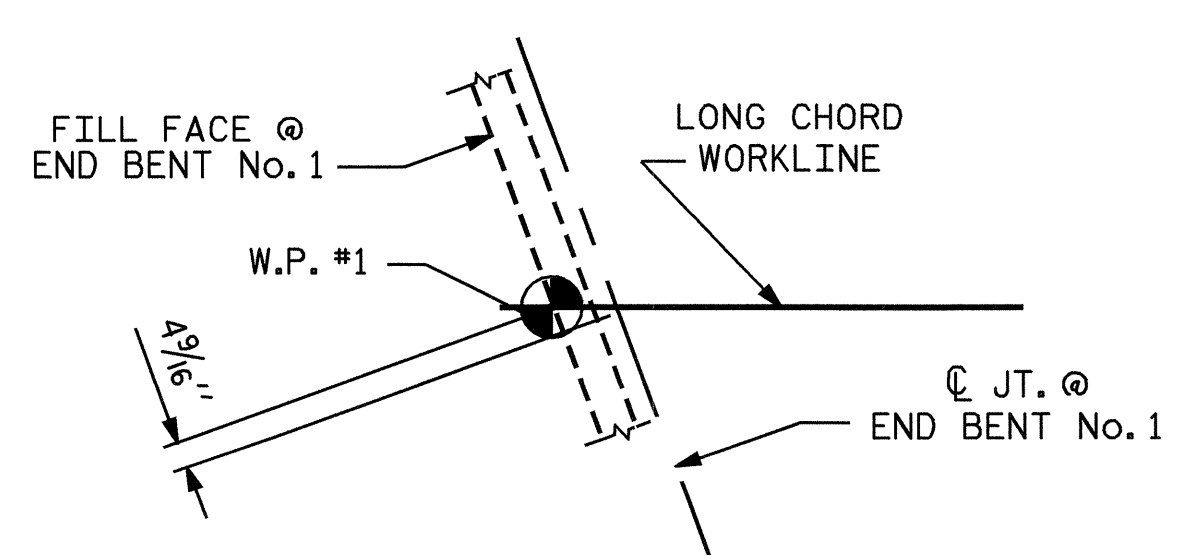
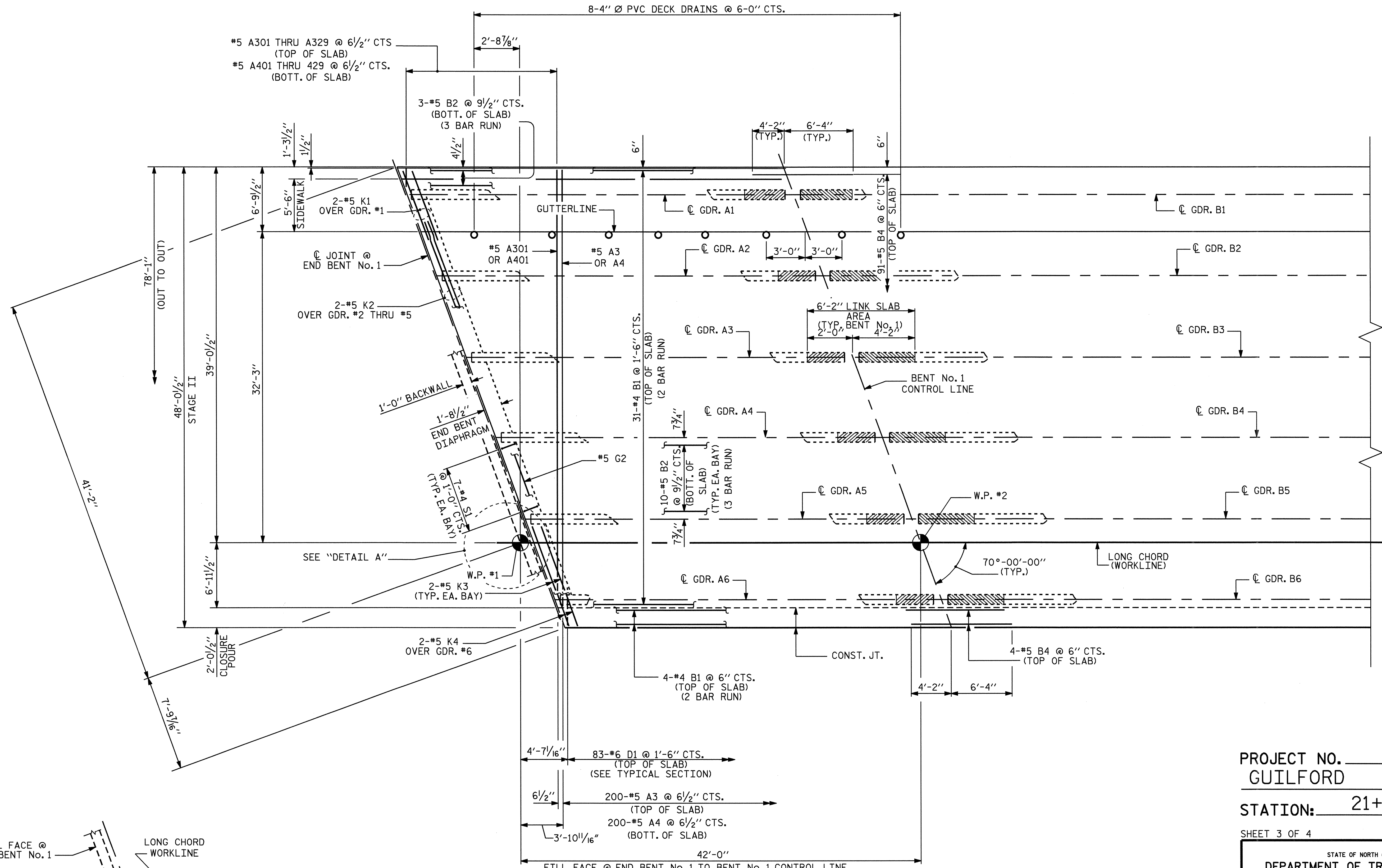
SUPERSTRUCTURE
 PLAN OF SPAN B
 STAGE I



DRAWN BY: M. POOLE DATE: 02/06
 CHECKED BY: D. HODGE DATE: 9/07

11-OCT-2007 16:11
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 dhodge

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			TOTAL SHEETS	
2			4			45	

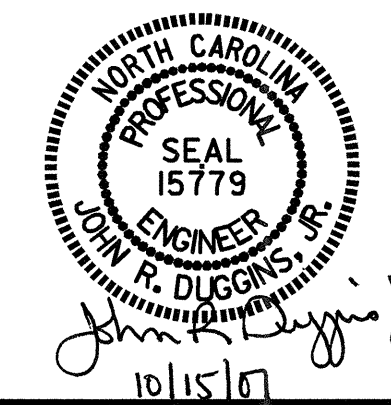


PLAN OF SPAN A
STAGE II

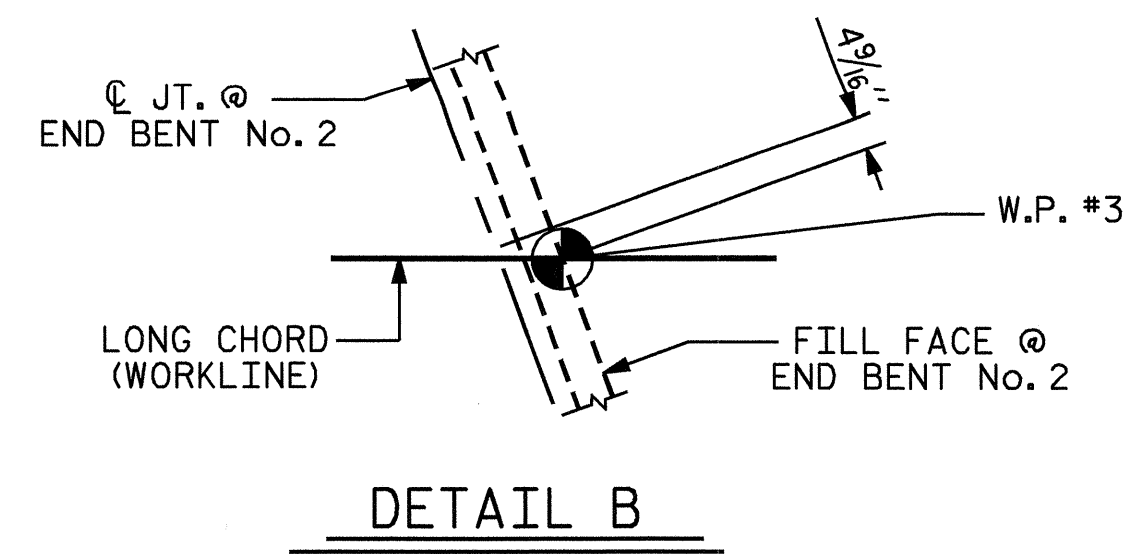
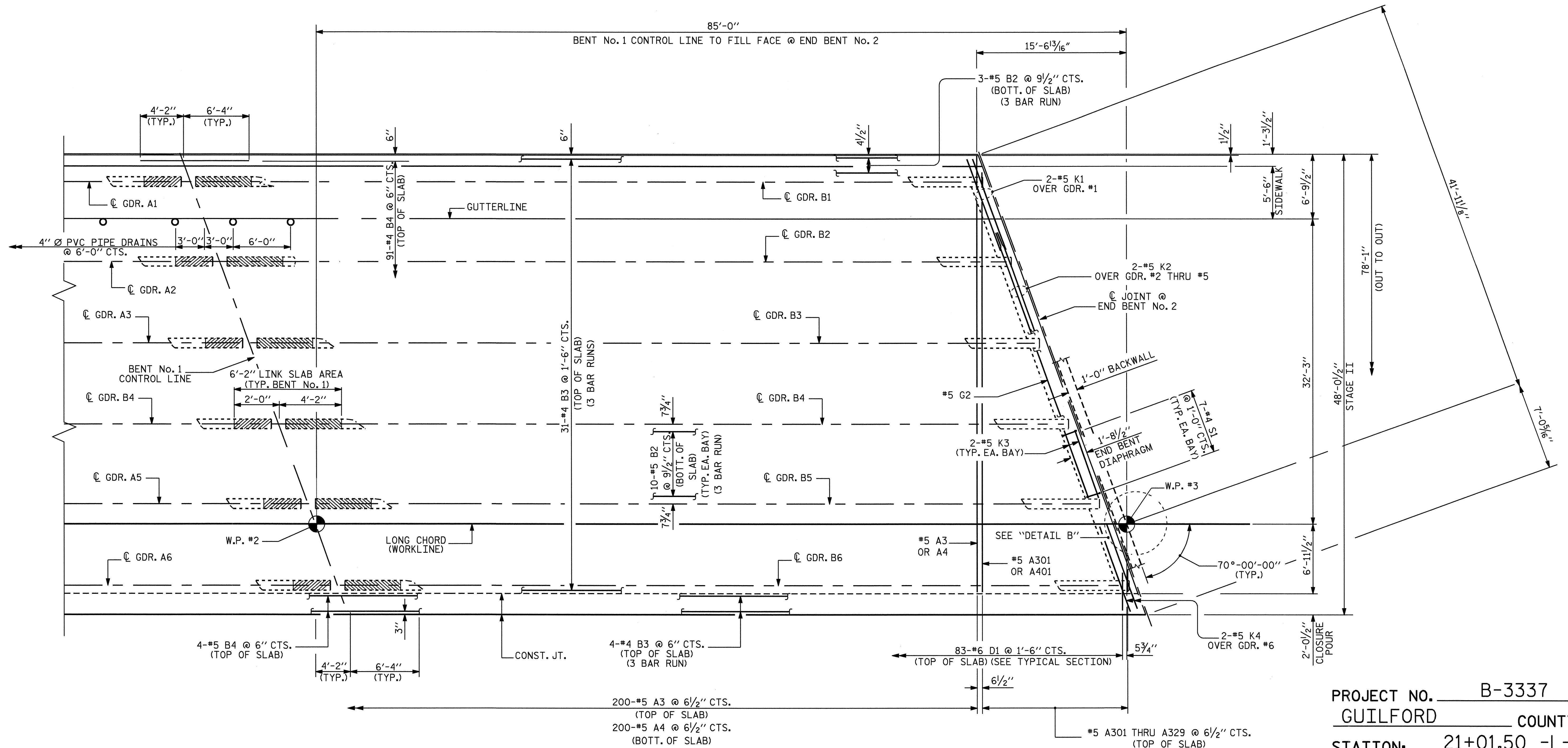
FOR REINFORCING STEEL IN SIDEWALK SEE "SIDEWALK DETAILS" SHEET.
THE #6 D1 BARS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE MAIN SLAB REINFORCING STEEL. THE #6 D1 BARS SHALL EXTEND 1'-9" INTO CLOSURE POUR.

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-
 SHEET 3 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN A STAGE II					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-11
					TOTAL SHEETS 45



DRAWN BY: M. POOLE DATE: 02/06
 CHECKED BY: D. HODGE DATE: 09/07



PLAN OF SPAN B

STAGE II

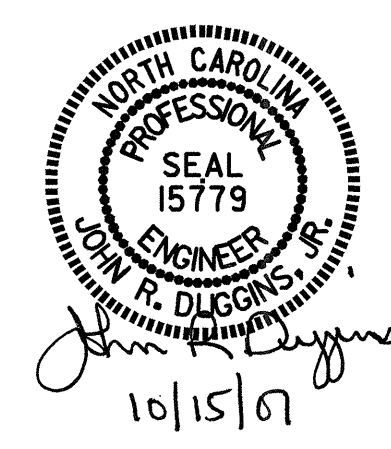
FOR REINFORCING STEEL IN SIDEWALK SEE "SIDEWALK DETAILS" SHEET.
 THE #6 D1 BARS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE MAIN SLAB REINFORCING STEEL. THE #6 D1 BARS SHALL EXTEND 1'-9" INTO CLOSURE POUR.

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

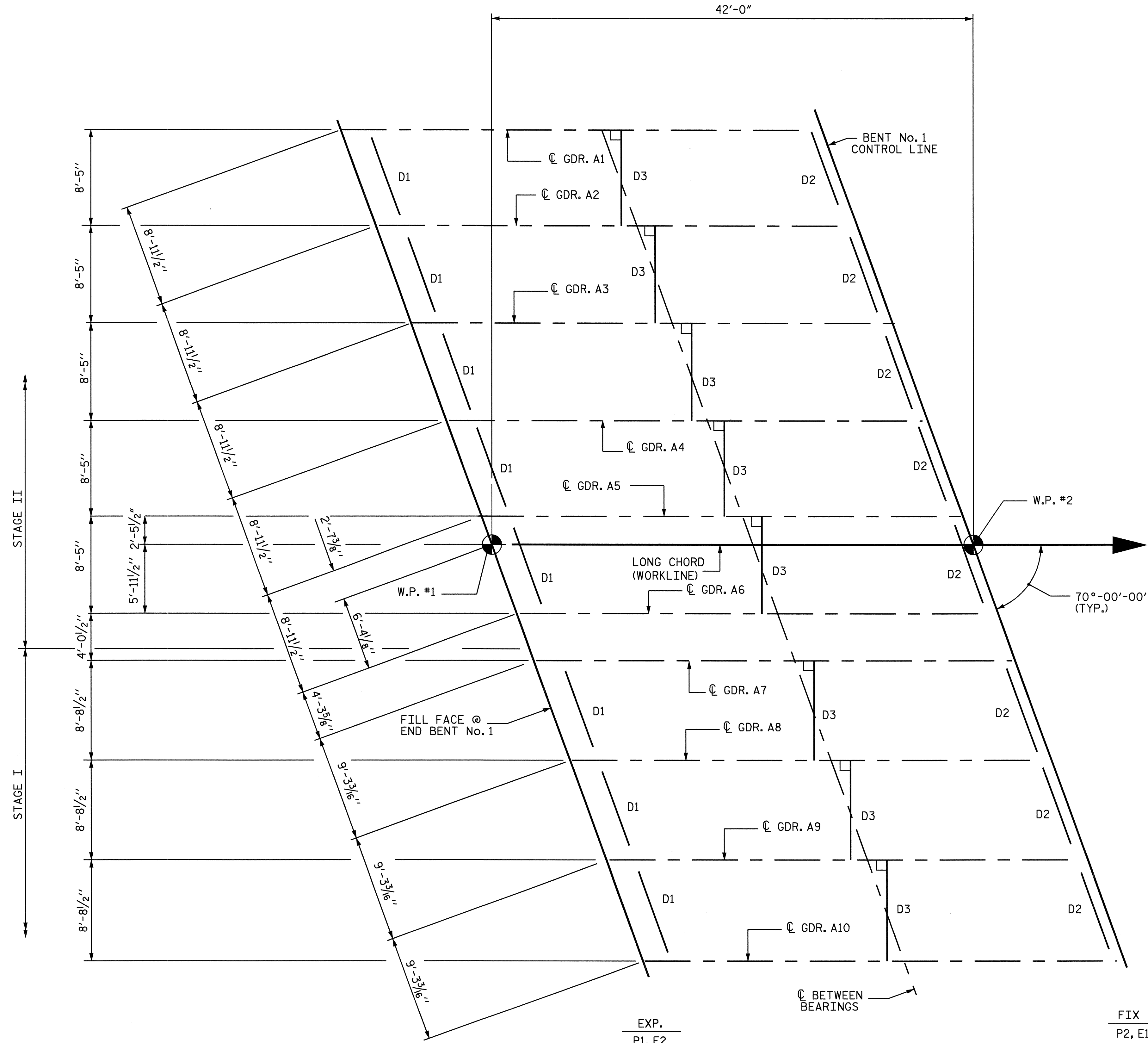
SUPERSTRUCTURE
 PLAN OF SPAN B
 STAGE II



DRAWN BY: M. POOLE DATE: 02/06
 CHECKED BY: D. HODGE DATE: 09/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-12
1			3			TOTAL SHEETS
2			4			45

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 dhodge

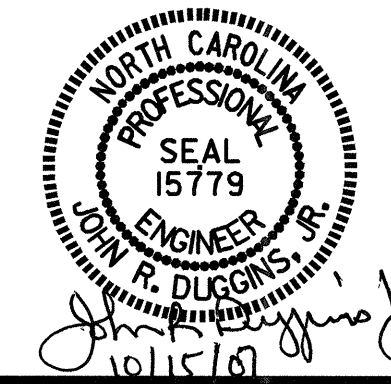


SPAN A

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 1 OF 8

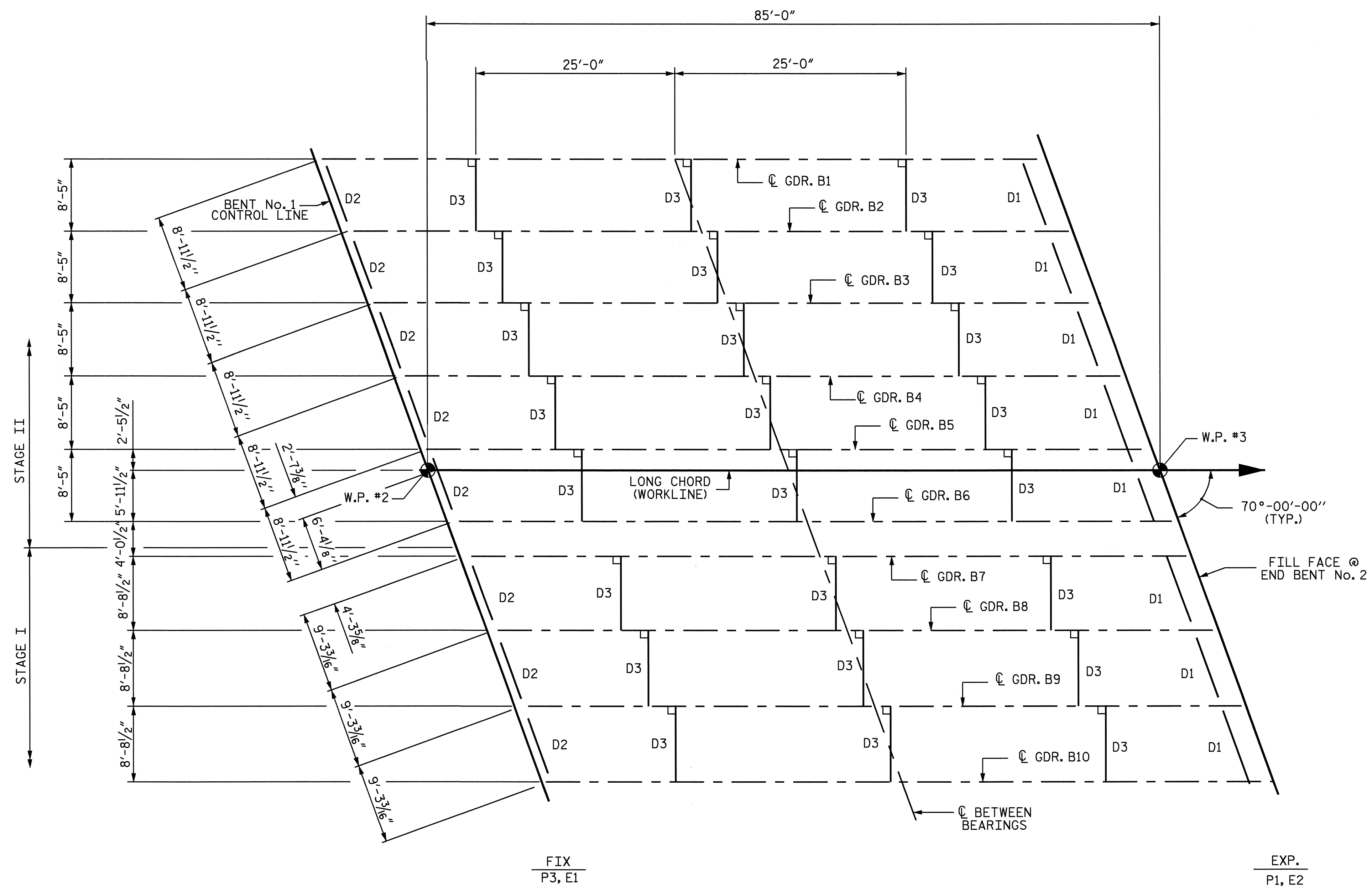
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS
 FRAMING PLAN



DRAWN BY: M. POOLE DATE: 02/06
 CHECKED BY: D. Hodges DATE: 9/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			13
2			4			45

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 mpoole



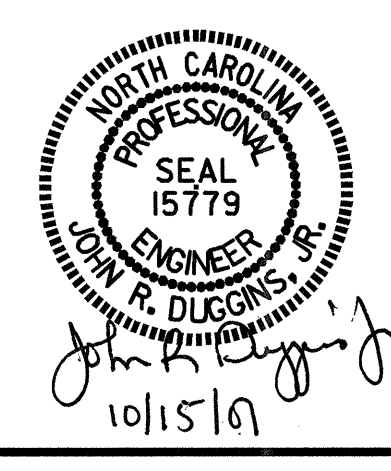
SPAN B

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 2 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS
 FRAMING PLAN



DRAWN BY: M. POOLE DATE: 02/06
 CHECKED BY: D. Hodge DATE: 9/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			45
2			4			45

NOTES

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

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

ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

ENDS OF GIRDERS SHALL BE PLUMB.

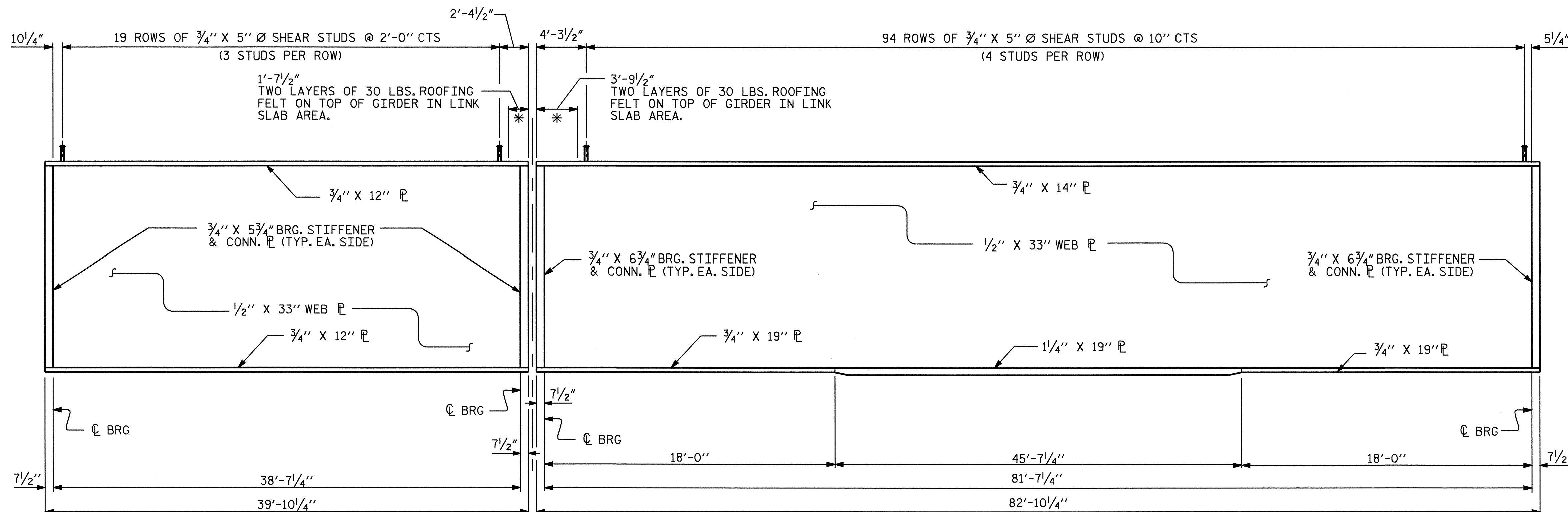
TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

A CHARPY V-NOTCH TEST IS REQUIRED FOR WEB PLATES AND BOTTOM FLANGE PLATES FOR ALL GIRDERS AND IN ACCORDANCE WITH ARTICLE 1072-9 OF THE STANDARD SPECIFICATIONS.

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

SHOP SPLICES ARE PERMITTED TO LIMIT THE MAXIMUM REQUIRED FLANGE PIECE LENGTHS TO 60 FEET AND WEB PIECE LENGTHS TO 45 FEET. PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION. KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

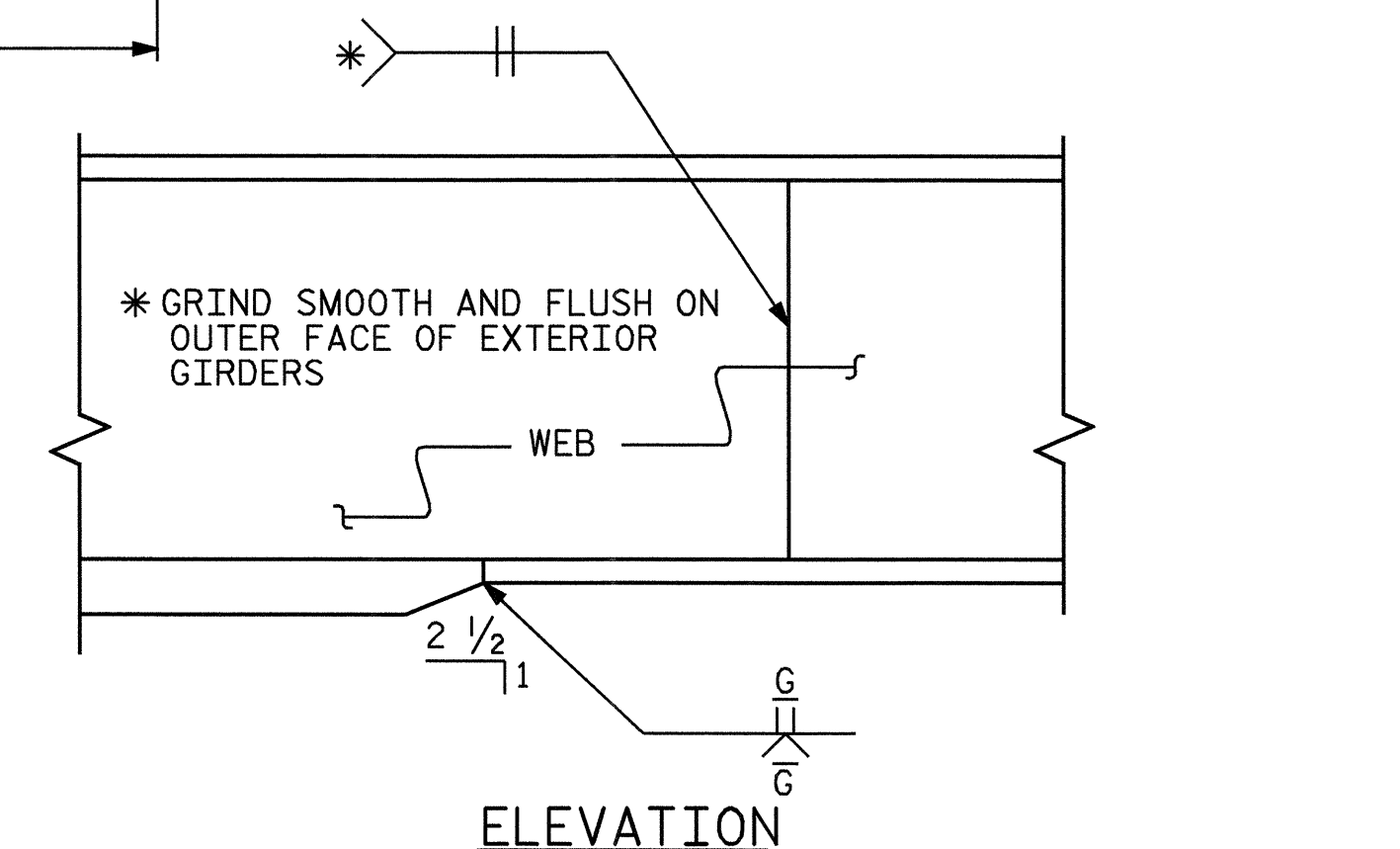
STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPLICE WELD.



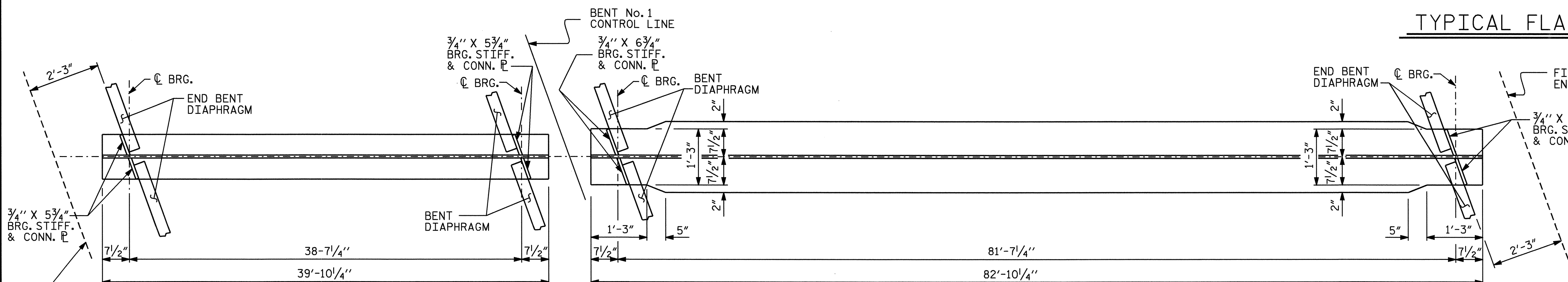
GIRDER ELEVATION

(INTERMEDIATE DIAPHRAGMS NOT SHOWN)

* THE TOP OF THE GIRDER IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH AND FREE OF SHEAR STUDS. NO WELDING OF THE FORMS OR FALSEWORK TO THE TOP FLANGE WILL BE PERMITTED IN THIS REGION.



TYPICAL FLANGE AND WEB BUTT JOINT

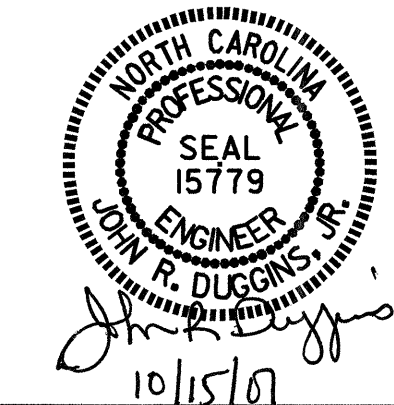


BOTTOM FLANGE DETAIL

PROJECT NO. **B-3337**
 GUILFORD COUNTY
 STATION: **21+01.50 -L-**

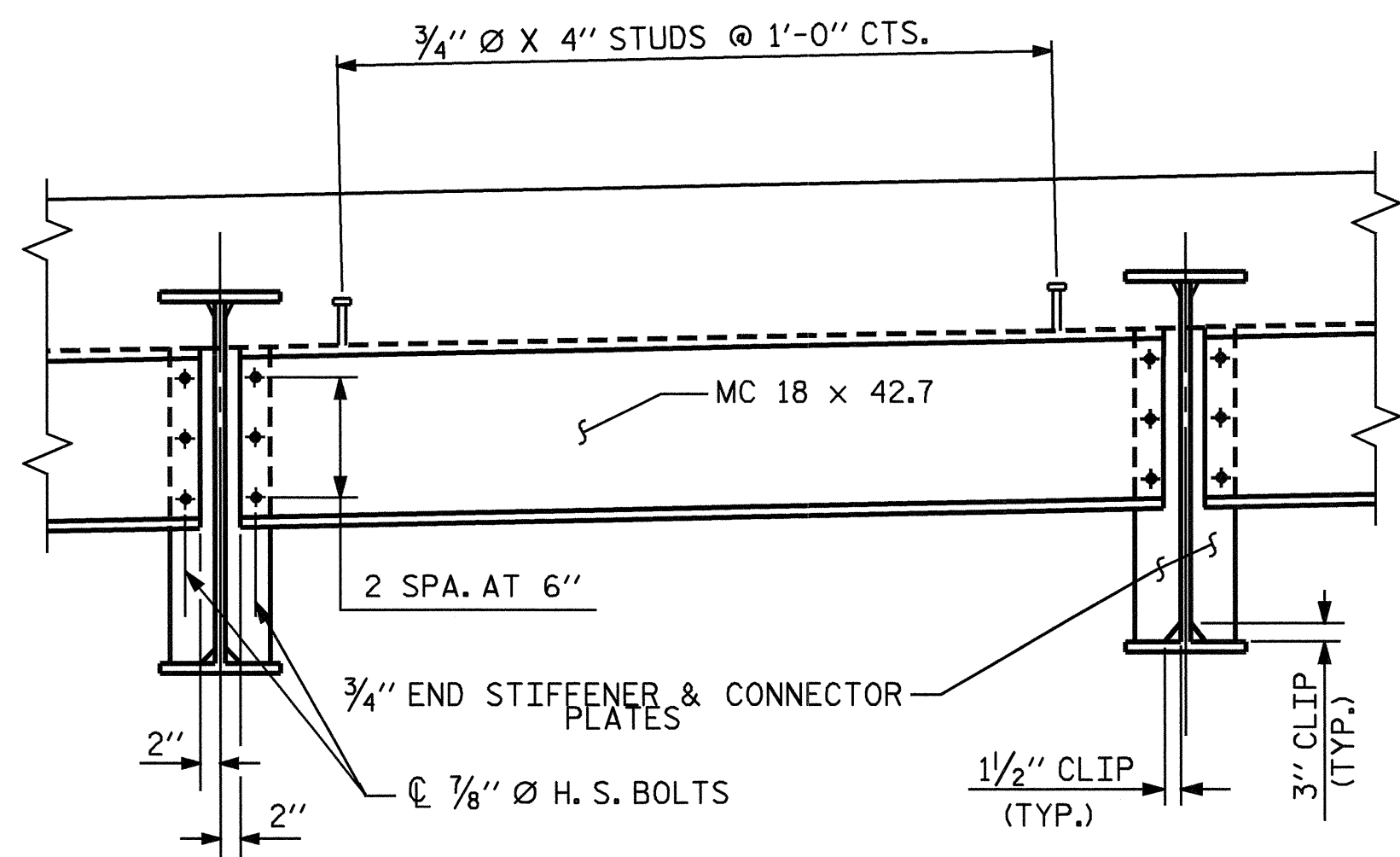
SHEET 3 OF 8

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



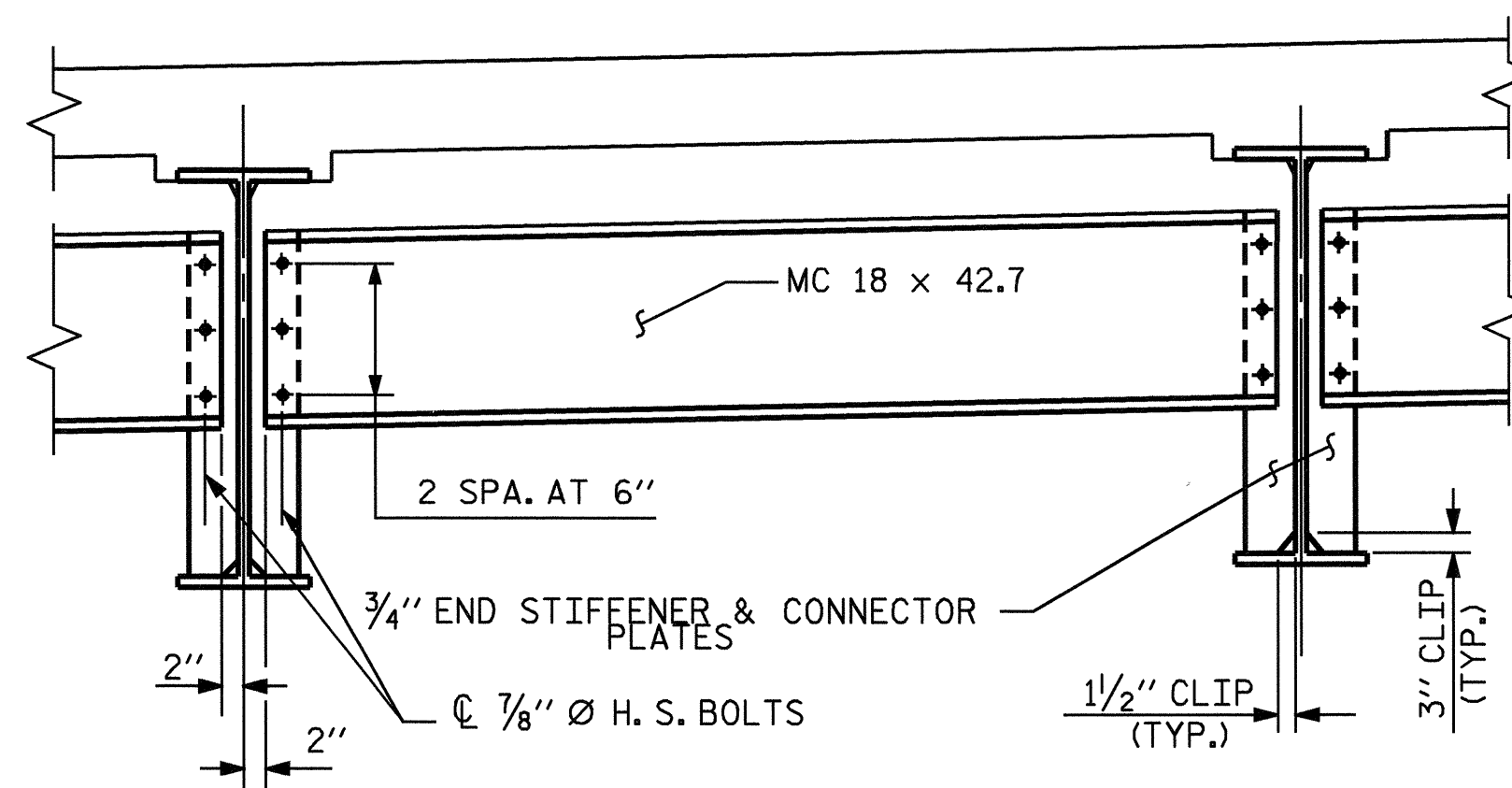
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS	
2			4			45	

DRAWN BY: **M. POOLE** DATE: **02/06**
 CHECKED BY: **D. HODGE** DATE: **9/07**



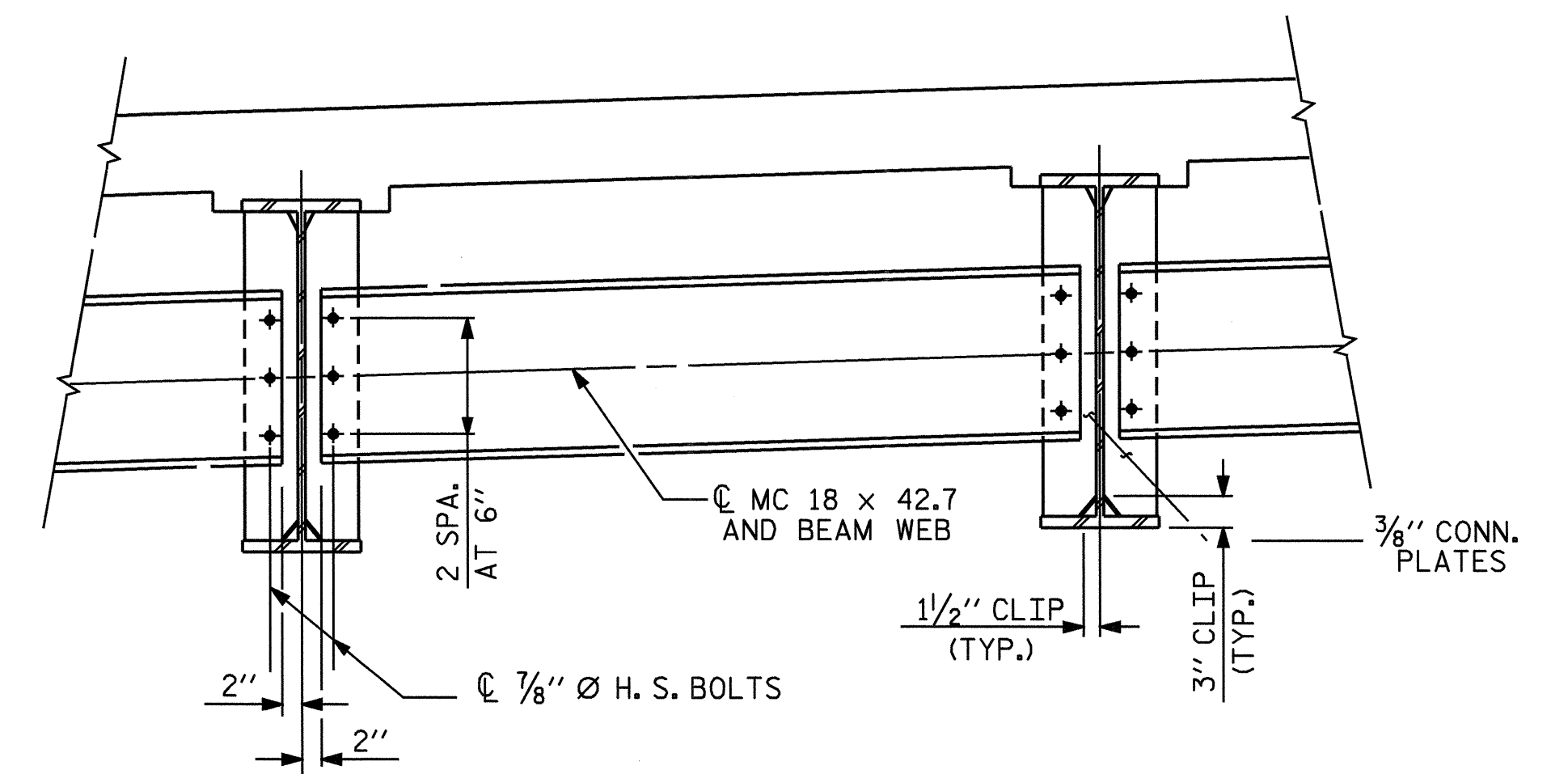
TYPICAL END BENT DIAPHRAGM

D1



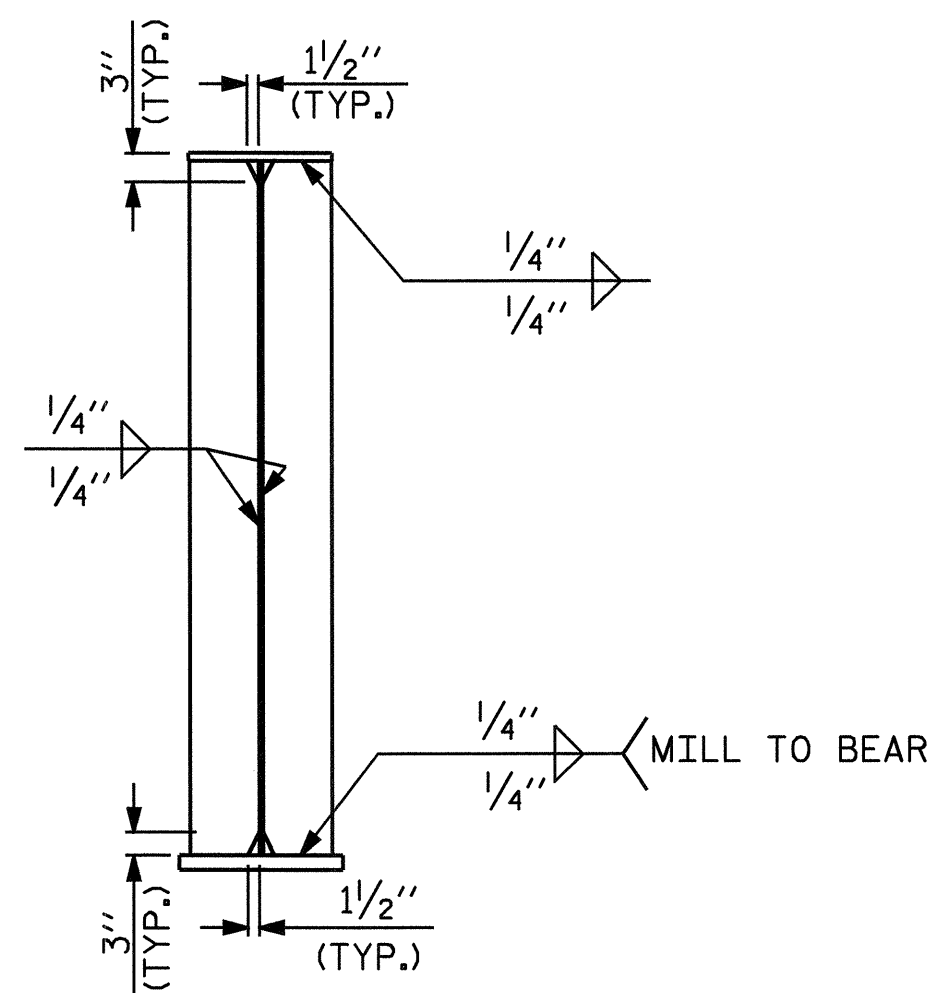
TYPICAL BENT DIAPHRAGM

D2

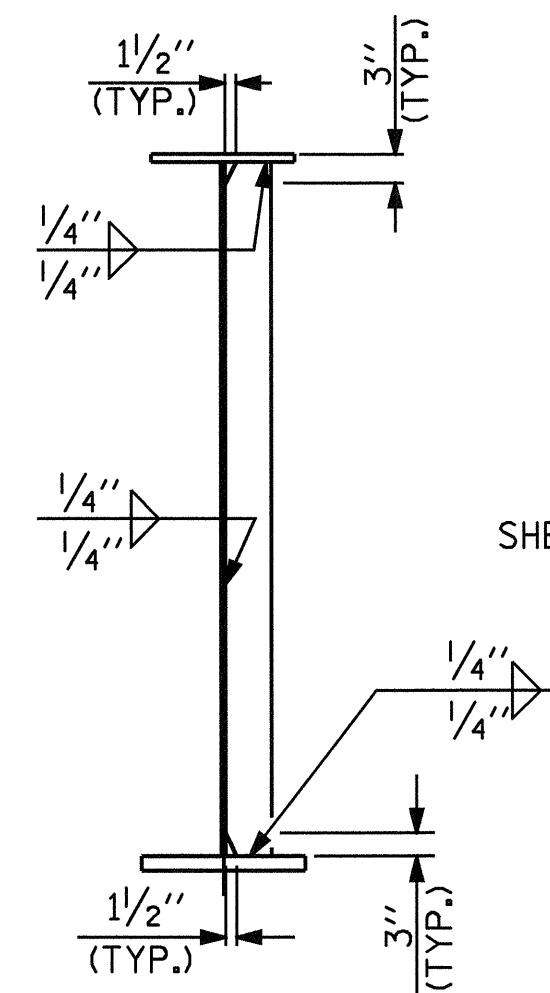


TYPICAL INTERMEDIATE DIAPHRAGM

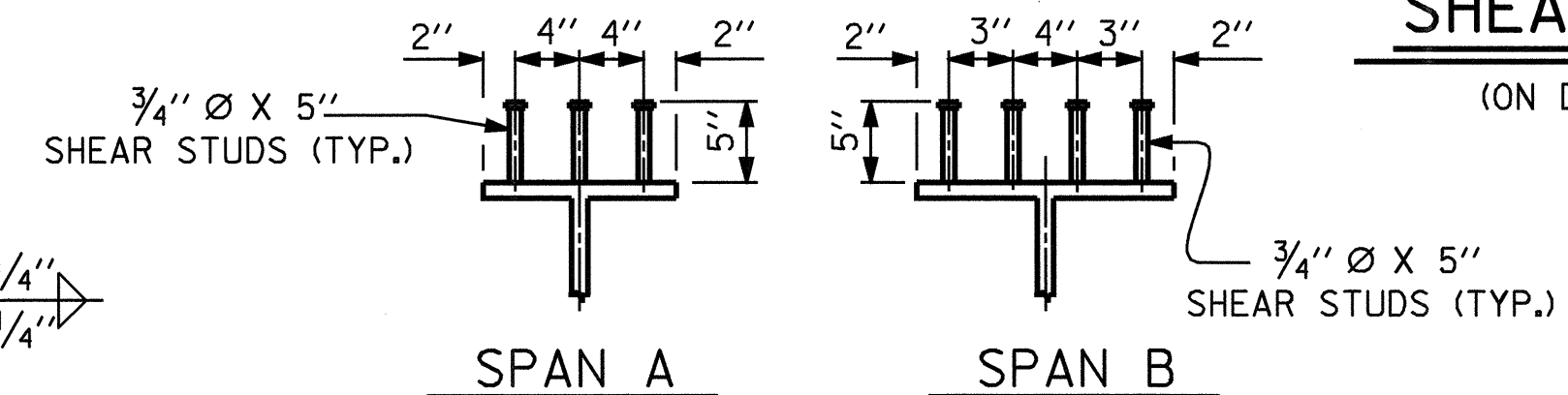
D3



BEARING STIFFENER & CONN. P



INTERMEDIATE DIAPHRAGM CONNECTOR P



SHEAR CONNECTORS

SHEAR STUD DETAILS
(ON DIAPHRAGMS, END BENT ONLY)

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 4 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS



DRAWN BY: M. POOLE DATE: 02/06
 CHECKED BY: D. HODGE DATE: 08/07

11-OCT-2007 16:12
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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16	
1			3			TOTAL SHEETS	
2			4			45	

DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
	SPAN A										
	GIRDER 1, 2 & 3										
TENTH POINTS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.001	0.002	0.002	0.003	0.003	0.003	0.002	0.002	0.001	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.007	0.013	0.018	0.021	0.022	0.021	0.018	0.013	0.007	0.000
DEFLECTION DUE TO WEIGHT OF SIDEWALK & PARAPET	0.000	0.002	0.004	0.006	0.007	0.007	0.007	0.006	0.004	0.002	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.010	0.019	0.026	0.031	0.032	0.031	0.026	0.019	0.010	0.000
VERTICAL CURVE ORDINATE	0.000	-0.010	-0.018	-0.024	-0.028	-0.029	-0.027	-0.024	-0.018	-0.010	0.000
REQUIRED CAMBER	0	0	0	0	1/16"	1/16"	1/16"	0	0	0	0

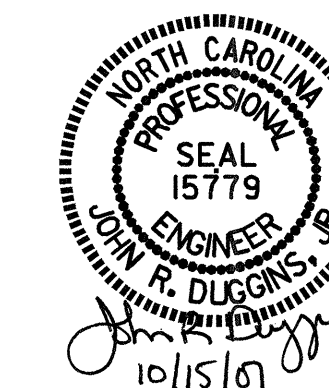
DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
	SPAN A										
	GIRDER 4 & 5										
TENTH POINTS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.001	0.002	0.002	0.003	0.003	0.003	0.002	0.002	0.001	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.007	0.013	0.018	0.022	0.023	0.022	0.018	0.013	0.007	0.000
DEFLECTION DUE TO WEIGHT OF SIDEWALK & PARAPET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.008	0.015	0.020	0.025	0.026	0.025	0.020	0.015	0.008	0.000
VERTICAL CURVE ORDINATE	0.000	-0.009	-0.017	-0.022	-0.025	-0.026	-0.024	-0.020	-0.014	-0.007	0.000
REQUIRED CAMBER	0	0	0	0	0	0	0	0	0	0	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
	SPAN A										
	GIRDER 6 & 7										
TENTH POINTS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.001	0.002	0.002	0.003	0.003	0.003	0.002	0.002	0.001	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.004	0.008	0.011	0.013	0.014	0.013	0.011	0.008	0.004	0.000
DEFLECTION DUE TO WEIGHT OF SIDEWALK & PARAPET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.005	0.010	0.013	0.016	0.017	0.016	0.013	0.010	0.005	0.000
VERTICAL CURVE ORDINATE	0.000	-0.006	-0.012	-0.014	-0.018	-0.018	-0.017	-0.013	-0.009	-0.004	0.000
REQUIRED CAMBER	0	0	0	0	0	0	0	0	0	0	0

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

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 5 OF 8



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS
 DEAD LOAD DEFLECTION
 TABLES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-17
2			4			45

DRAWN BY: M. POOLE DATE: 02/06
 CHECKED BY: D. HODGE DATE: 09/07

DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
	SPAN A										
	GIRDER 8, 9 & 10										
TENTH POINTS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.001	0.002	0.002	0.003	0.003	0.003	0.002	0.002	0.001	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.007	0.014	0.019	0.022	0.023	0.022	0.019	0.014	0.007	0.000
DEFLECTION DUE TO WEIGHT OF SIDEWALK & PARAPET	0.000	0.002	0.004	0.006	0.007	0.007	0.007	0.006	0.004	0.002	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.010	0.020	0.027	0.032	0.033	0.032	0.027	0.020	0.010	0.000
VERTICAL CURVE ORDINATE	0.000	-0.006	-0.010	-0.012	-0.011	-0.010	-0.008	-0.006	-0.004	-0.002	0.000
REQUIRED CAMBER	0	1/16"	1/8"	3/16"	1/4"	1/4"	5/16"	1/4"	3/16"	1/8"	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
	SPAN B										
	GIRDER 1										
TENTH POINTS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.016	0.030	0.040	0.047	0.049	0.047	0.040	0.030	0.016	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.093	0.174	0.235	0.274	0.287	0.274	0.235	0.174	0.093	0.000
DEFLECTION DUE TO WEIGHT OF SIDEWALK & PARAPET	0.000	0.013	0.025	0.033	0.039	0.041	0.039	0.033	0.025	0.013	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.122	0.229	0.308	0.360	0.377	0.360	0.308	0.229	0.122	0.000
VERTICAL CURVE ORDINATE	0.000	-0.001	-0.001	-0.002	-0.002	-0.003	-0.003	-0.004	-0.004	-0.005	0.000
REQUIRED CAMBER	0	1 1/16"	2 3/4"	3 11/16"	4 5/16"	4 1/2"	4 5/16"	3 5/8"	2 11/16"	1 3/8"	0

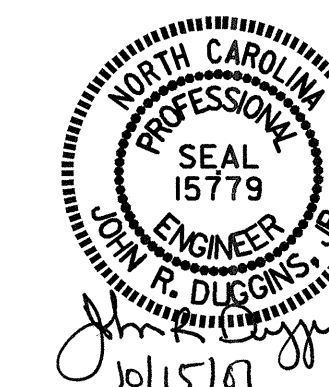
DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
	SPAN B										
	GIRDER 2 & 3										
TENTH POINTS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.016	0.030	0.040	0.047	0.049	0.047	0.040	0.030	0.016	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.095	0.178	0.241	0.281	0.295	0.281	0.241	0.178	0.095	0.000
DEFLECTION DUE TO WEIGHT OF SIDEWALK & PARAPET	0.000	0.013	0.023	0.032	0.037	0.038	0.037	0.032	0.023	0.013	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.124	0.231	0.313	0.365	0.382	0.365	0.313	0.231	0.124	0.000
VERTICAL CURVE ORDINATE	0.000	-0.001	-0.002	-0.003	-0.004	-0.005	-0.006	-0.006	-0.007	-0.007	0.000
REQUIRED CAMBER	0	1 1/2"	2 3/4"	3 3/4"	4 5/16"	4 1/2"	4 5/16"	3 11/16"	2 11/16"	1 3/8"	0

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

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 6 OF 8

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE STRUCTURAL STEEL DETAILS DEAD LOAD DEFLECTION TABLES					
SHEET NO. 5-18					
TOTAL SHEETS 45					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



DRAWN BY: M. POOLE DATE: 02/06
 CHECKED BY: D. HODGE DATE: 09/07

DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
	SPAN B										
	GIRDER 4 & 5										
TENTH POINTS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.016	0.030	0.040	0.047	0.049	0.047	0.040	0.030	0.016	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.095	0.178	0.241	0.281	0.295	0.281	0.241	0.178	0.095	0.000
DEFLECTION DUE TO WEIGHT OF SIDEWALK & PARAPET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.111	0.208	0.281	0.328	0.344	0.328	0.281	0.208	0.111	0.000
VERTICAL CURVE ORDINATE	0.000	-0.003	-0.006	-0.008	-0.011	-0.014	-0.017	-0.020	-0.021	-0.014	0.000
REQUIRED CAMBER	0	1 $\frac{1}{16}$ "	2 $\frac{1}{16}$ "	3 $\frac{1}{4}$ "	3 $\frac{1}{16}$ "	3 $\frac{1}{16}$ "	3 $\frac{3}{4}$ "	3 $\frac{1}{8}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{16}$ "	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
	SPAN B										
	GIRDER 6										
TENTH POINTS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.016	0.030	0.040	0.047	0.049	0.047	0.040	0.030	0.016	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.059	0.111	0.151	0.176	0.184	0.176	0.151	0.111	0.059	0.000
DEFLECTION DUE TO WEIGHT OF SIDEWALK & PARAPET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.075	0.141	0.191	0.223	0.233	0.223	0.191	0.141	0.075	0.000
VERTICAL CURVE ORDINATE	0.000	-0.004	-0.007	-0.011	-0.015	-0.018	-0.022	-0.025	-0.025	-0.016	0.000
REQUIRED CAMBER	0	$\frac{7}{8}$ "	1 $\frac{5}{8}$ "	2 $\frac{3}{16}$ "	2 $\frac{1}{2}$ "	2 $\frac{9}{16}$ "	2 $\frac{7}{16}$ "	2"	1 $\frac{3}{8}$ "	1 $\frac{1}{16}$ "	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
	SPAN B										
	GIRDER 7										
TENTH POINTS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.016	0.030	0.040	0.047	0.049	0.047	0.040	0.030	0.016	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.061	0.114	0.155	0.181	0.189	0.181	0.155	0.114	0.061	0.000
DEFLECTION DUE TO WEIGHT OF SIDEWALK & PARAPET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.077	0.144	0.195	0.228	0.238	0.228	0.195	0.144	0.077	0.000
VERTICAL CURVE ORDINATE	0.000	-0.004	-0.008	-0.012	-0.016	-0.020	-0.024	-0.028	-0.027	-0.017	0.000
REQUIRED CAMBER	0	$\frac{7}{8}$ "	1 $\frac{5}{8}$ "	2 $\frac{3}{16}$ "	2 $\frac{5}{16}$ "	2 $\frac{5}{16}$ "	2 $\frac{7}{16}$ "	2"	1 $\frac{7}{16}$ "	$\frac{3}{4}$ "	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.

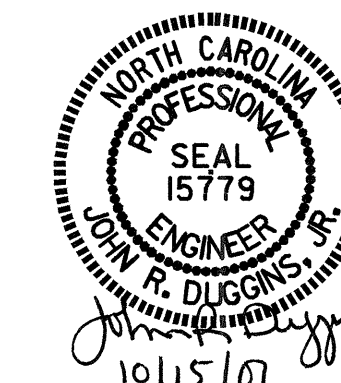
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "REQUIRED CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 7 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS
 DEAD LOAD DEFLECTION
 TABLES



DRAWN BY: M. POOLE DATE: 02/06
 CHECKED BY: D. HODGE DATE: 09/07

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-19
1			3			TOTAL SHEETS
2			4			45

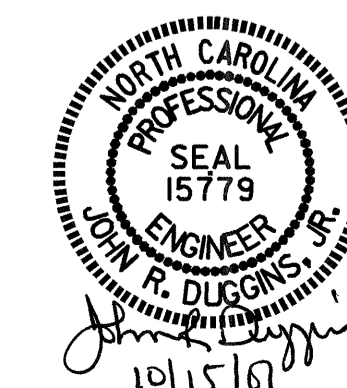
DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
	SPAN B										
	GIRDER 8 & 9										
TENTH POINTS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.016	0.030	0.040	0.047	0.049	0.047	0.040	0.030	0.016	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.098	0.184	0.249	0.290	0.304	0.290	0.249	0.184	0.098	0.000
DEFLECTION DUE TO WEIGHT OF SIDEWALK & PARAPET	0.000	0.012	0.023	0.031	0.037	0.038	0.037	0.031	0.023	0.012	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.126	0.237	0.320	0.374	0.391	0.374	0.320	0.237	0.126	0.000
VERTICAL CURVE ORDINATE	0.000	-0.006	-0.013	-0.019	-0.025	-0.031	-0.038	-0.040	-0.035	-0.021	0.000
REQUIRED CAMBER	0	1 $\frac{1}{16}$ "	2 $\frac{1}{16}$ "	3 $\frac{5}{8}$ "	4 $\frac{3}{16}$ "	4 $\frac{3}{16}$ "	4 $\frac{1}{16}$ "	3 $\frac{3}{8}$ "	2 $\frac{7}{16}$ "	1 $\frac{1}{4}$ "	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
	SPAN B										
	GIRDER 10										
TENTH POINTS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.016	0.030	0.040	0.047	0.049	0.047	0.040	0.030	0.016	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.099	0.185	0.250	0.292	0.306	0.292	0.250	0.185	0.099	0.000
DEFLECTION DUE TO WEIGHT OF SIDEWALK & PARAPET	0.000	0.013	0.025	0.033	0.039	0.041	0.039	0.033	0.025	0.013	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.128	0.240	0.323	0.378	0.396	0.378	0.323	0.240	0.128	0.000
VERTICAL CURVE ORDINATE	0.000	-0.008	-0.015	-0.023	-0.030	-0.038	-0.045	-0.045	-0.038	-0.023	0.000
REQUIRED CAMBER	0	1 $\frac{1}{16}$ "	2 $\frac{1}{16}$ "	3 $\frac{5}{8}$ "	4 $\frac{3}{16}$ "	4 $\frac{1}{4}$ "	3 $\frac{5}{16}$ "	3 $\frac{5}{16}$ "	2 $\frac{7}{16}$ "	1 $\frac{1}{4}$ "	0

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

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 8 OF 8



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE STRUCTURAL STEEL DETAILS DEAD LOAD DEFLECTION TABLES					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 45

DRAWN BY : M. POOLE DATE : 02/06
 CHECKED BY : D. HODGE DATE : 09/07

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.

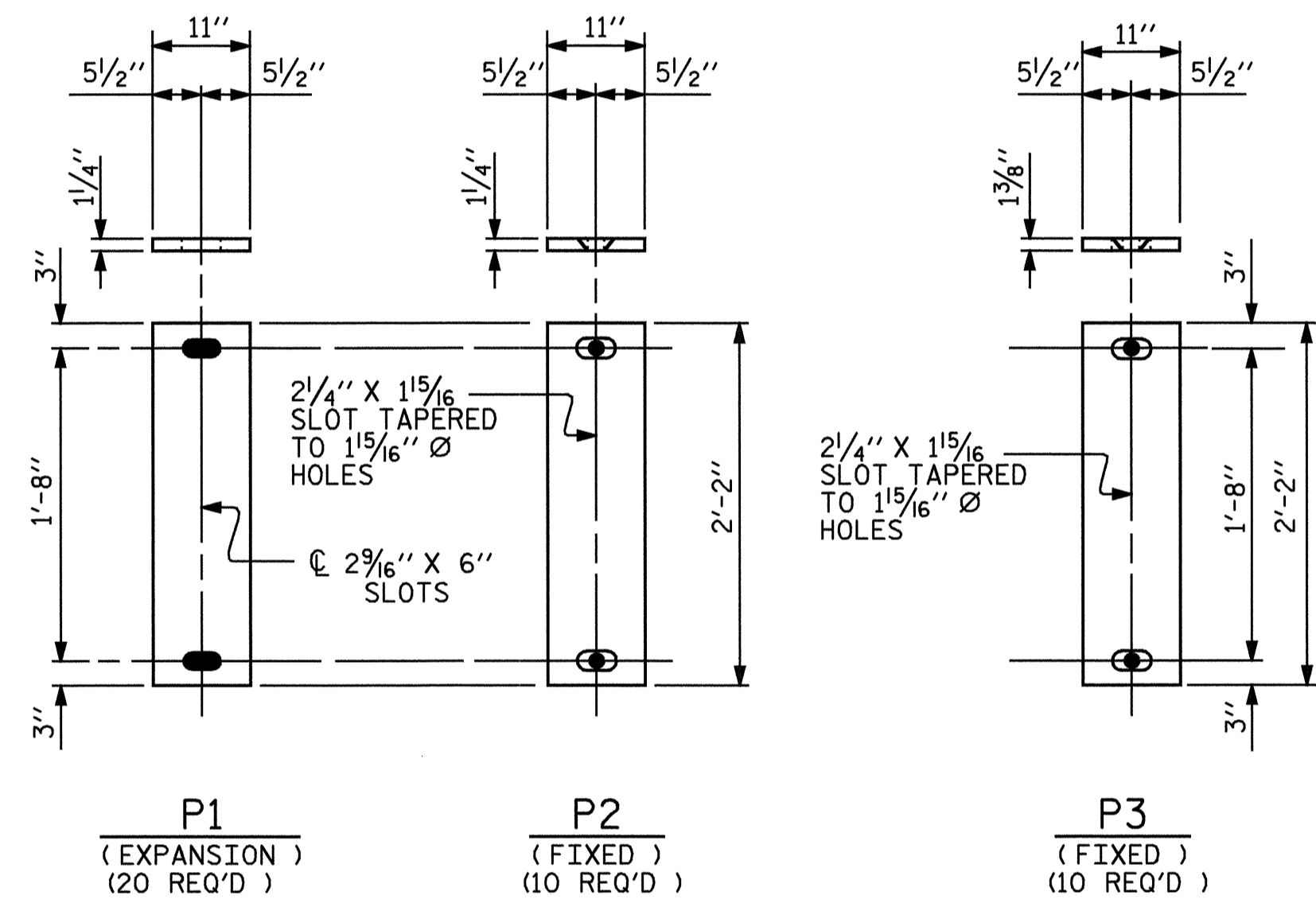
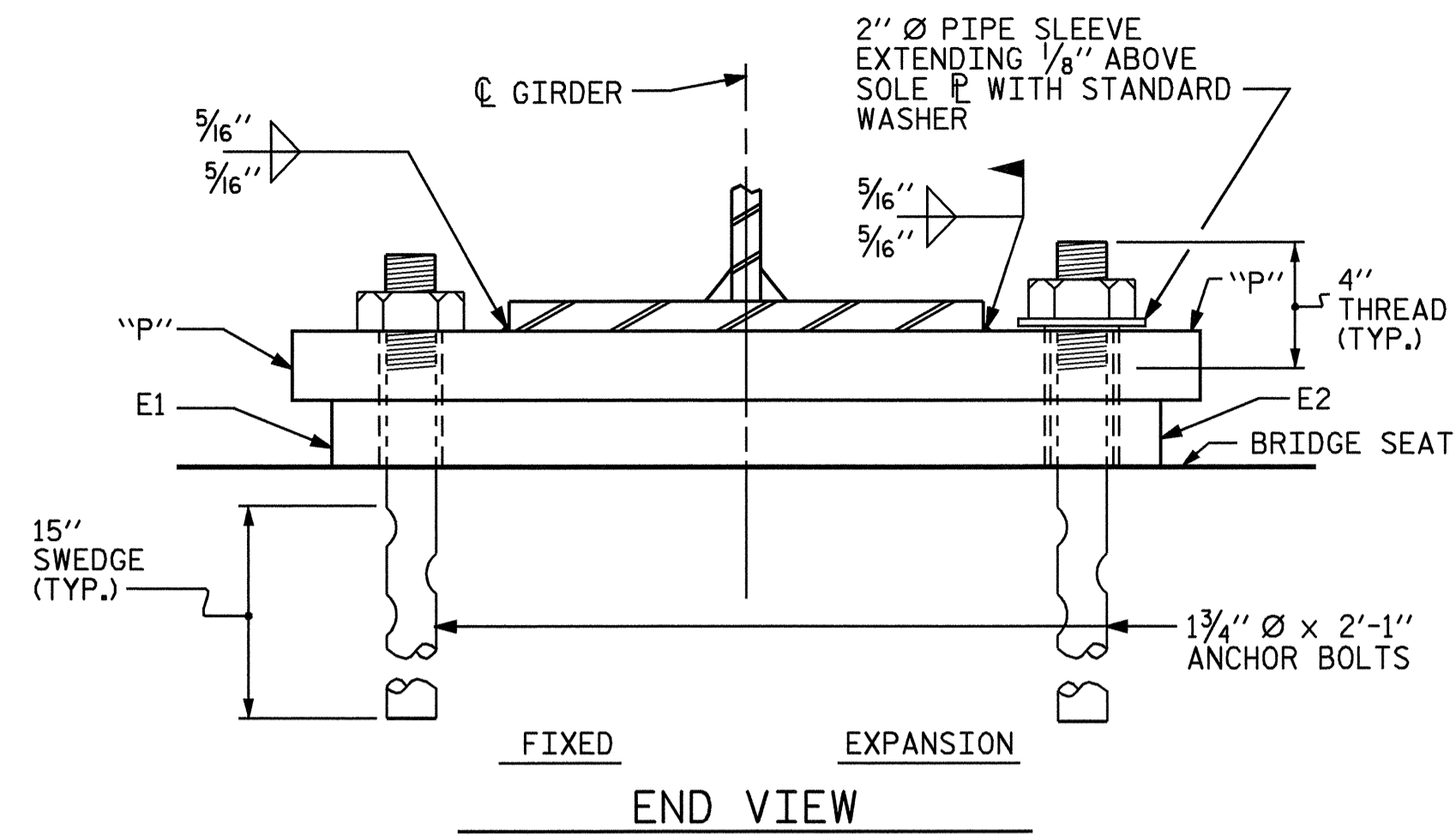
THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

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

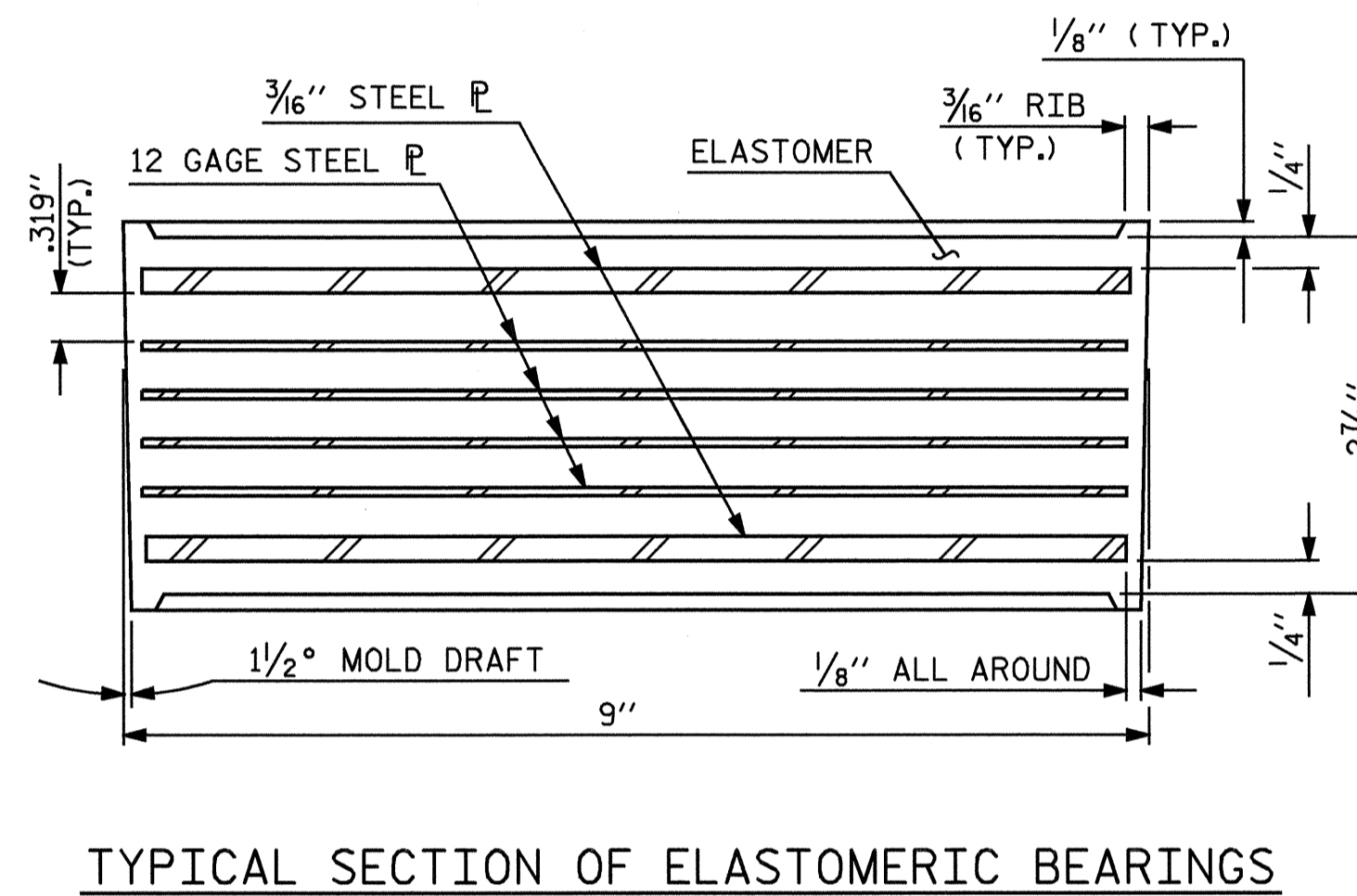
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

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

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

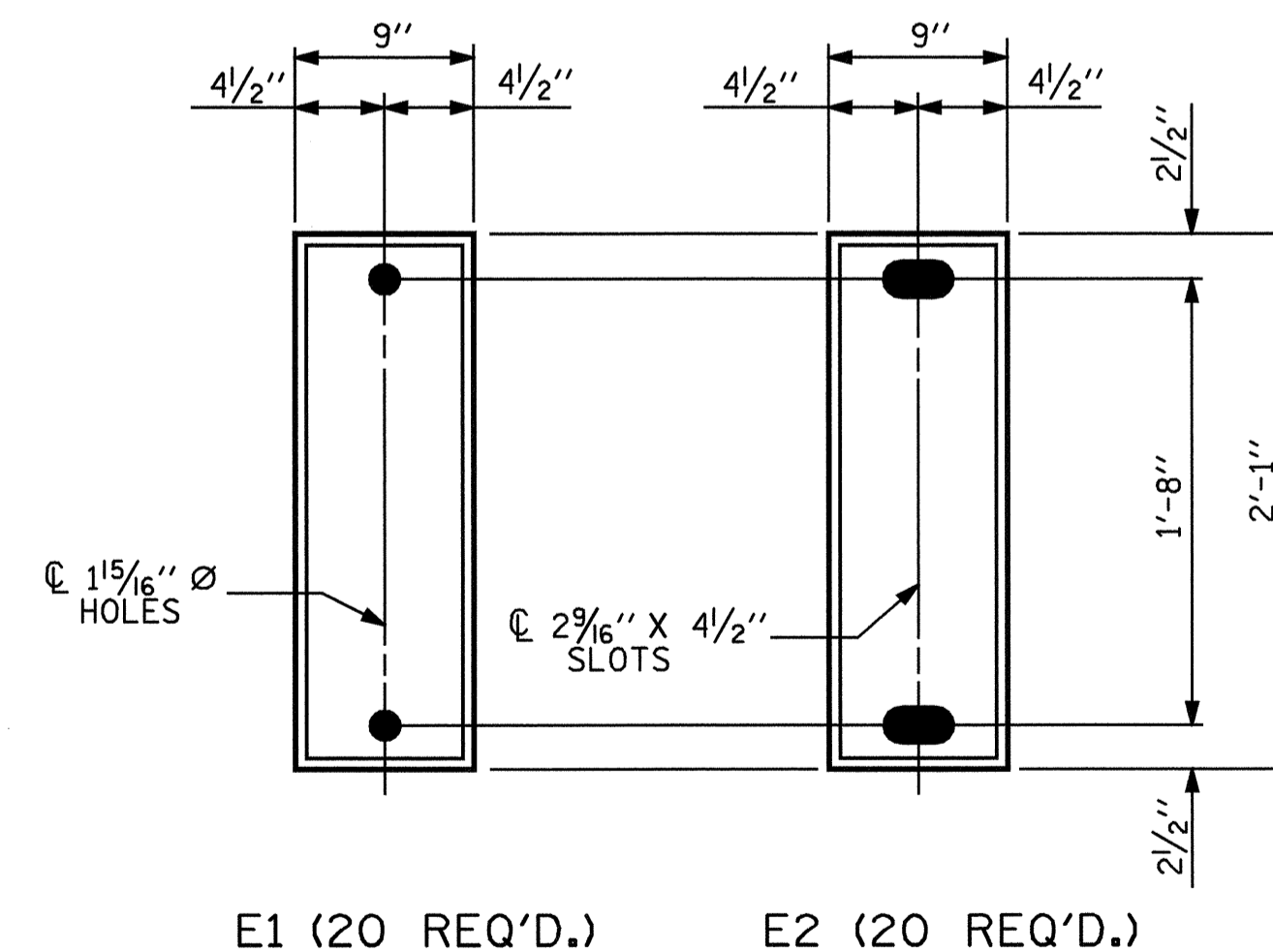


SOLE PLATE DETAILS ("P")



TYPICAL SECTION OF ELASTOMERIC BEARINGS

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



E1 (20 REQ'D.) E2 (20 REQ'D.)

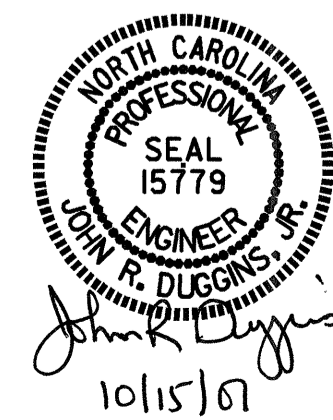
PLAN VIEW OF ELASTOMERIC BEARING

TYPE III

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**ELASTOMERIC BEARING
 DETAILS**
 (STEEL SUPERSTRUCTURE)

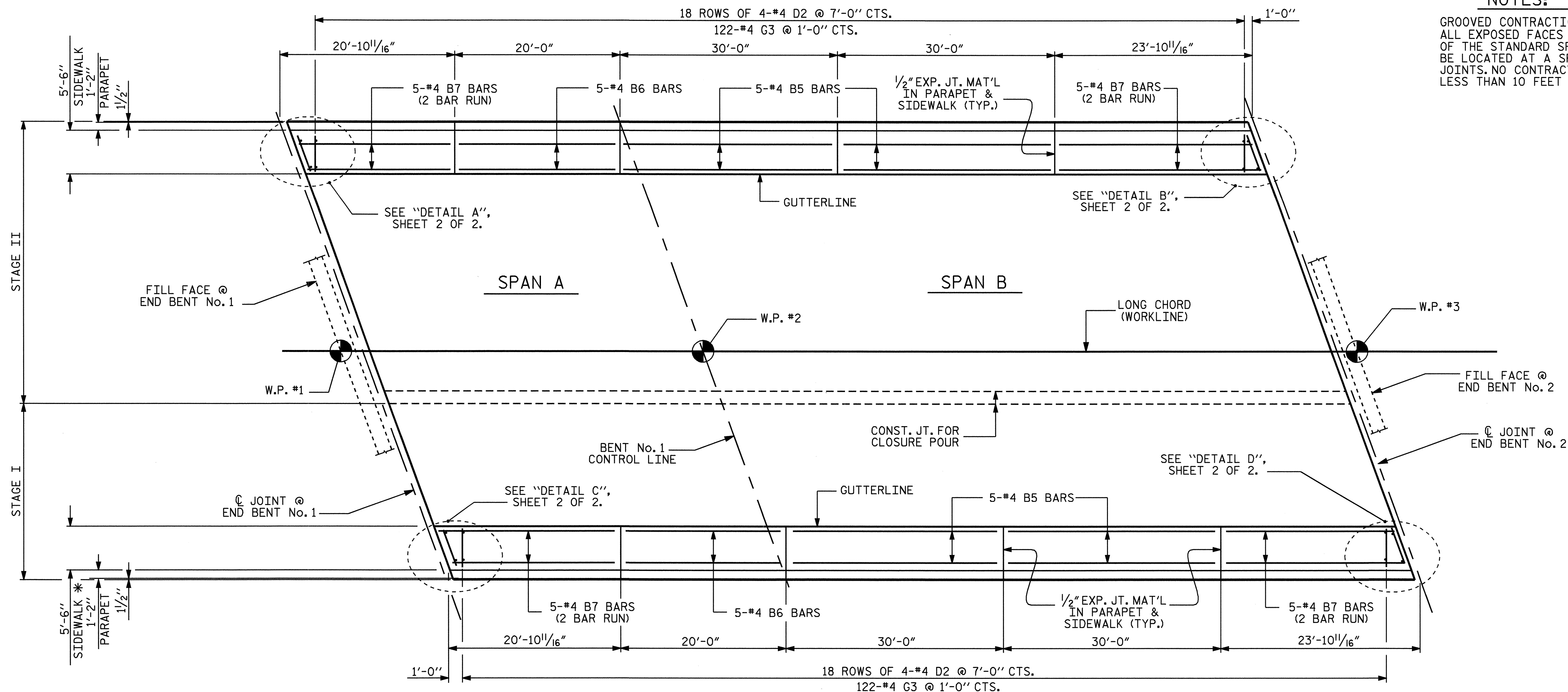


ASSEMBLED BY : M. POOLE	DATE : 02/06
CHECKED BY : D. HODGE	DATE : 09/07
DRAWN BY : JMB 11/87	REV. 7/17/98 RWW/LES
CHECKED BY : ARB 11/87	REV. 8/16/99 MAB/LES
	REV. 10/17/00 RWW/LES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-21
1			3			TOTAL SHEETS
2			4			45

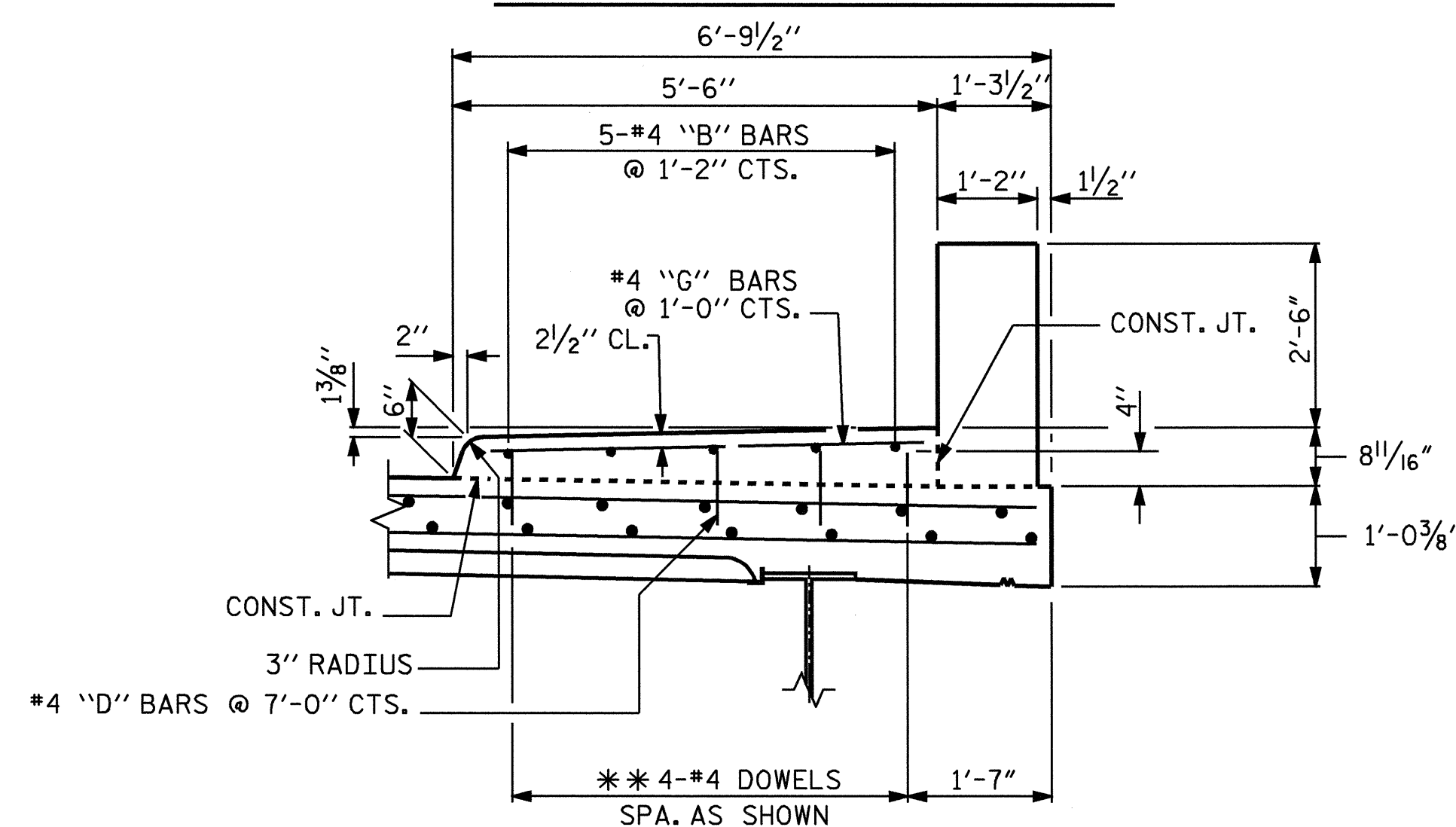
NOTES:

GROOVED CONTRACTION JOINTS 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF SIDEWALK IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FEET TO 10 FEET BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.



PLAN OF SIDEWALK

* SIDEWALK ON RIGHT SIDE OF BRIDGE TO BE ADDED AS PART OF STAGE II CONSTRUCTION



SECTION THRU SIDEWALK

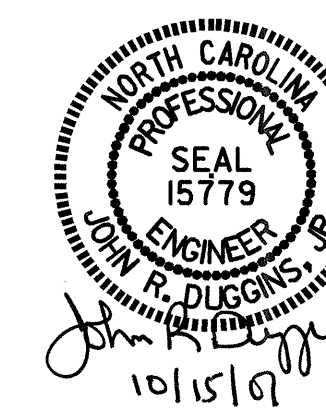
** DOWELS ON LEFT SIDEWALK MAY BE PUSHED INTO GREEN CONCRETE AFTER SPAN HAS BEEN SCREEDED OFF. DOWELS ON RIGHT SIDEWALK SHALL BE DRILLED & ADHESIVELY ANCHORED AFTER TRAFFIC IS SWITCHED TO LEFT SIDE OF BRIDGE. NO FIELD TESTING IS REQUIRED FOR ADHESIVELY ANCHORED DOWELS, SEE SPECIAL PROVISIONS.

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 1 OF 2

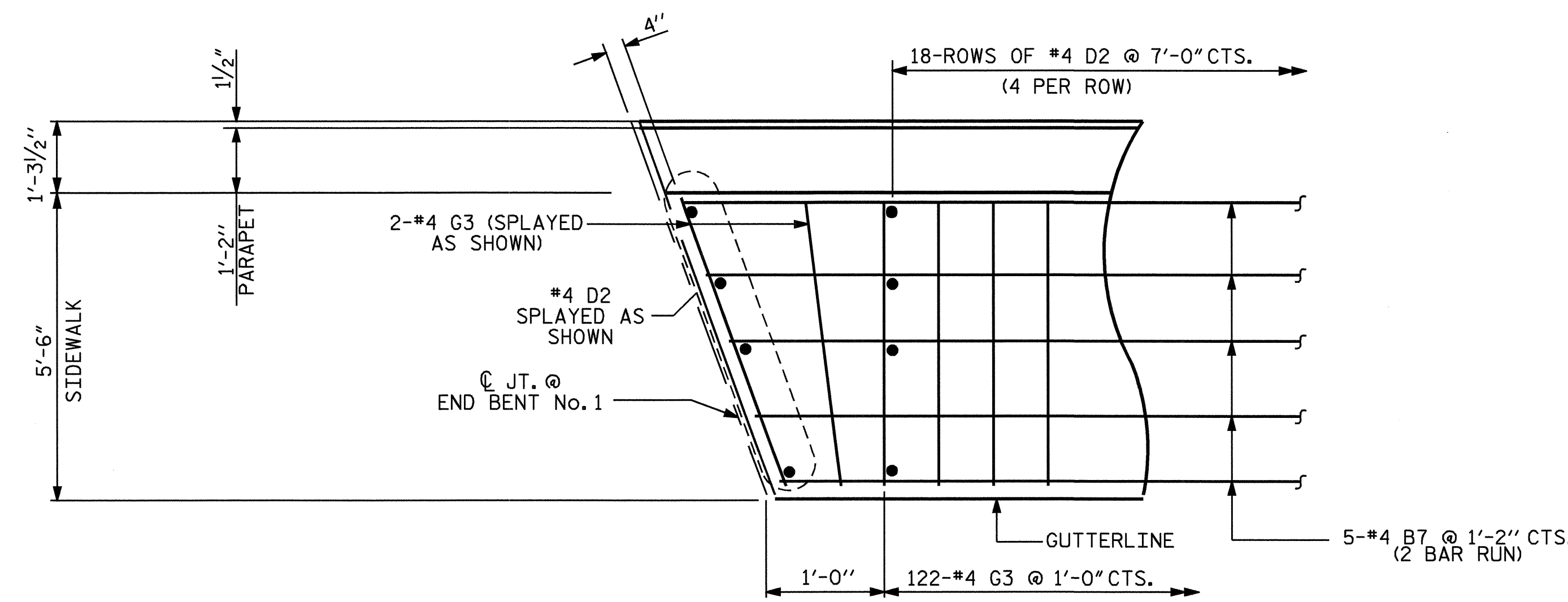
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 SIDEWALK DETAILS

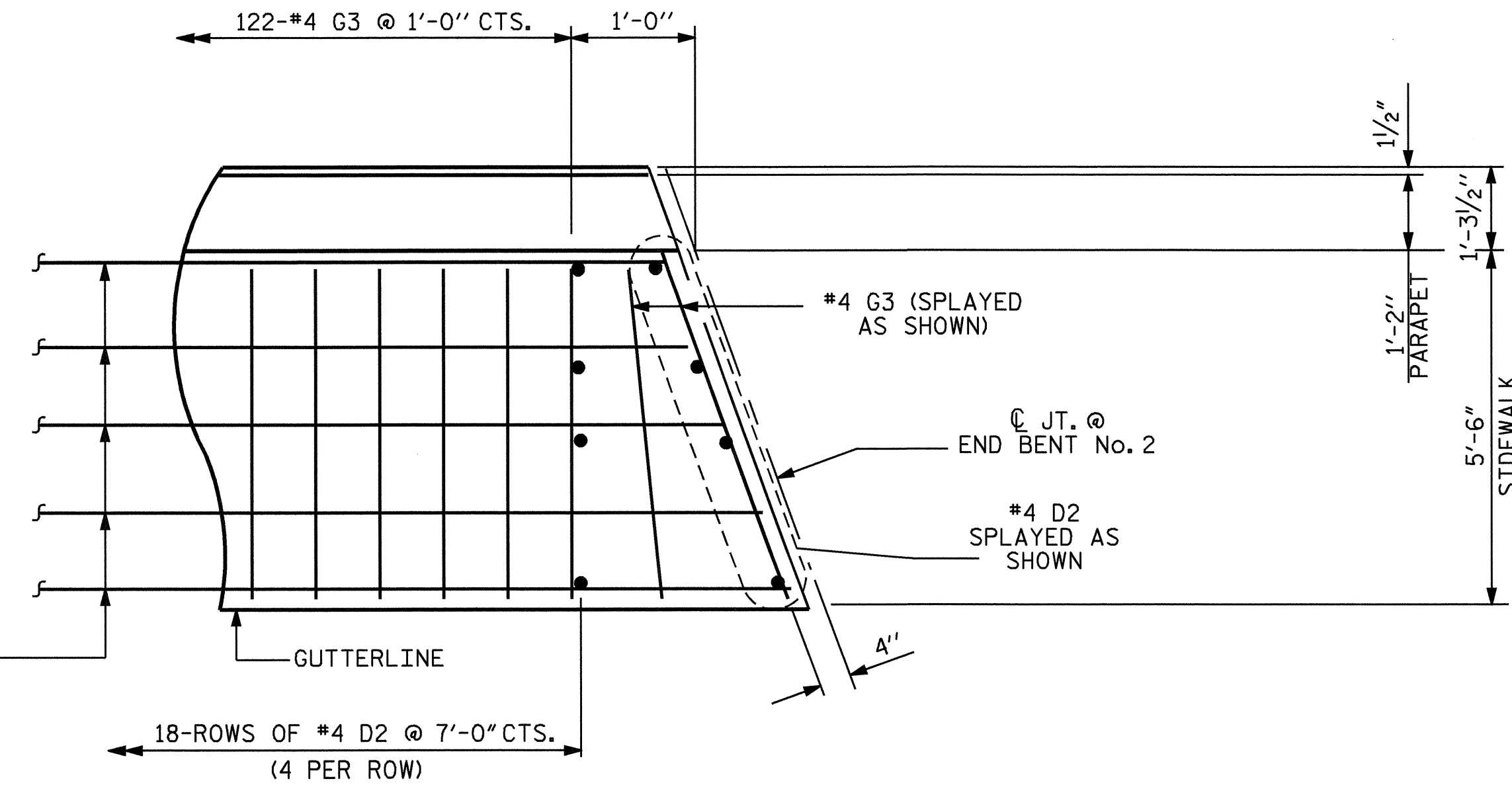


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			45

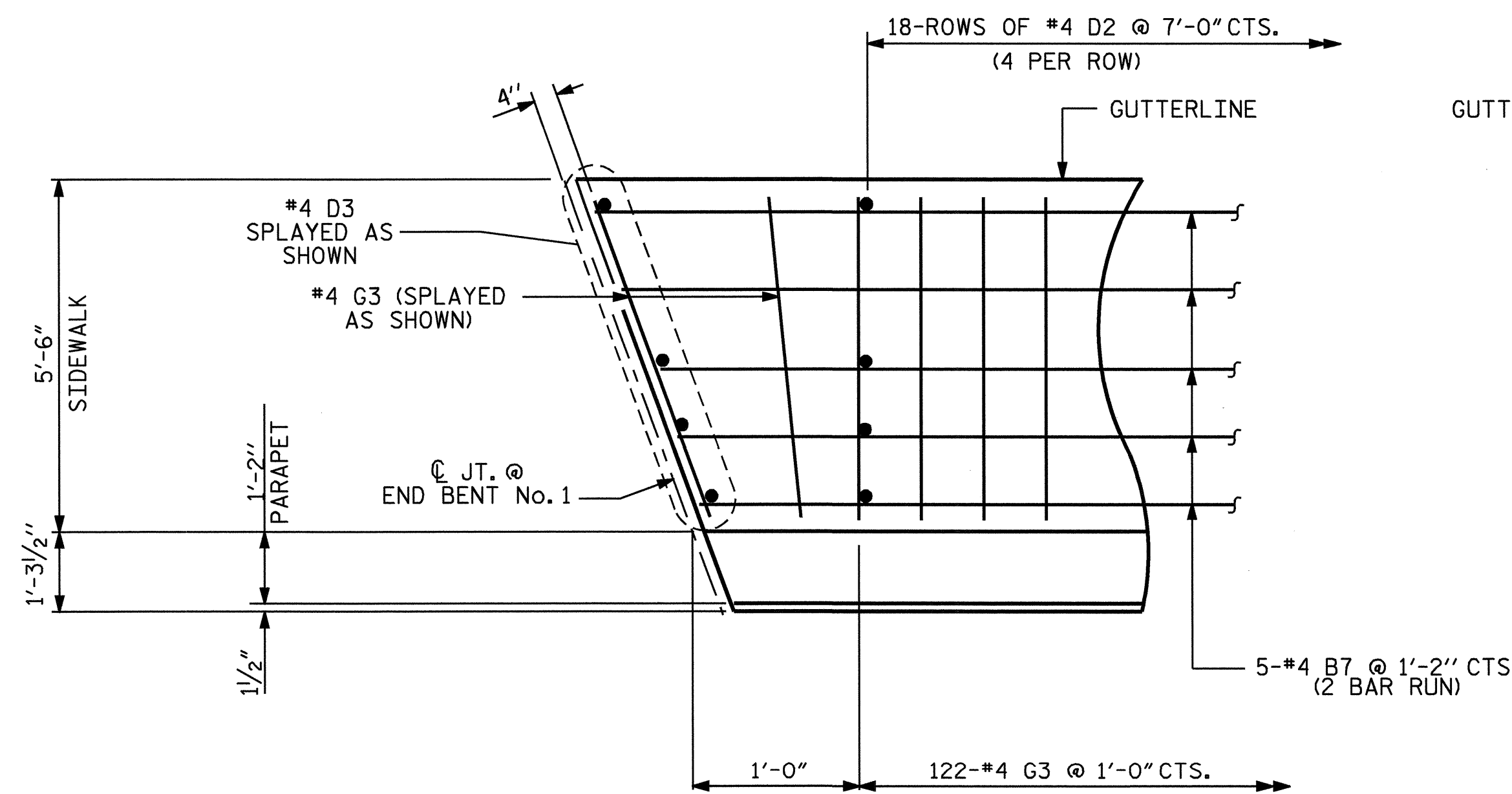
DRAWN BY: M. POOLE DATE: 03/06
 CHECKED BY: D. HODGE DATE: 09/07



DETAIL A

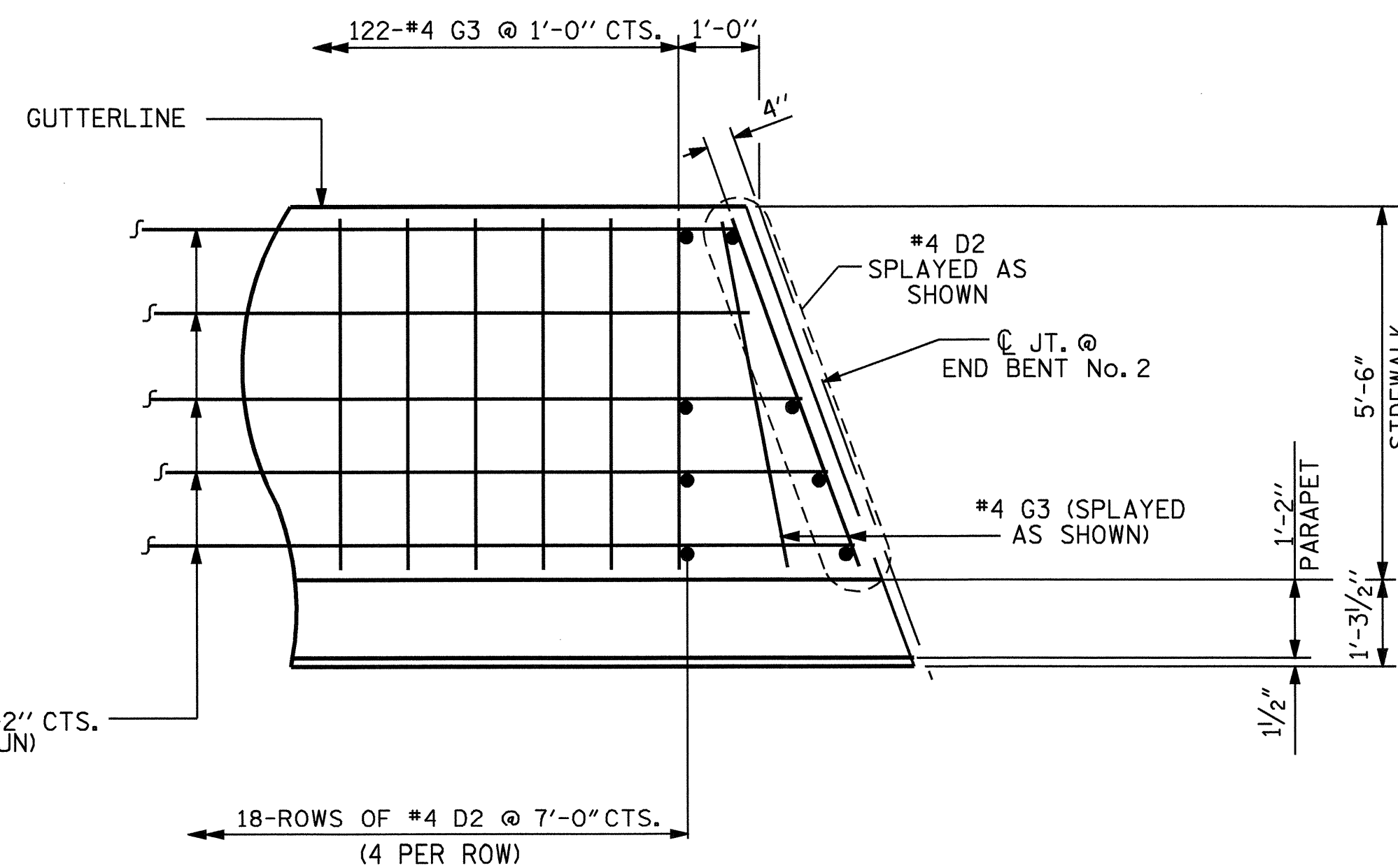


DETAIL B



DETAIL C

#4 D2 ON RIGHT SIDEWALK ARE TO BE PLACED AFTER STAGE II IS COMPLETE AND TRAFFIC IS MOVED FROM STAGE I. THE HOLES SHALL BE DRILLED AND THE DOWELS GROUTED IN PLACE.



DETAIL D

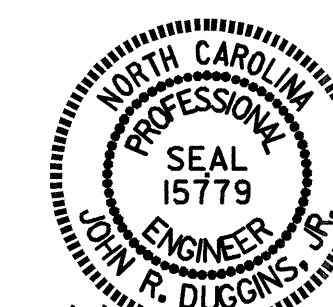
#4 D2 ON RIGHT SIDEWALK ARE TO BE PLACED AFTER STAGE II IS COMPLETE AND TRAFFIC IS MOVED FROM STAGE I. THE HOLES SHALL BE DRILLED AND THE DOWELS GROUTED IN PLACE.

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SIDEWALK DETAILS



John R. Duggins
 10/11/07

DRAWN BY: M. POOLE DATE: 03/06
 CHECKED BY: D. HODGE DATE: 09/07

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

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

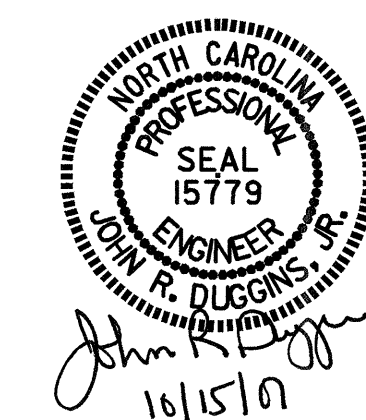
ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT A SPACING OF 8FT. TO 10FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

PAY LENGTH = 233.72 LIN. FT.

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-



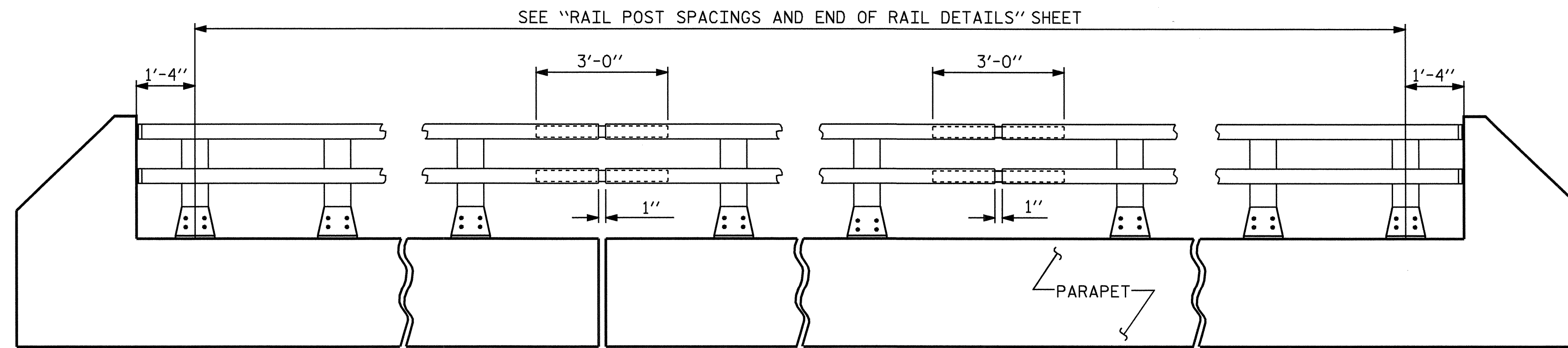
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

2 BAR METAL RAIL

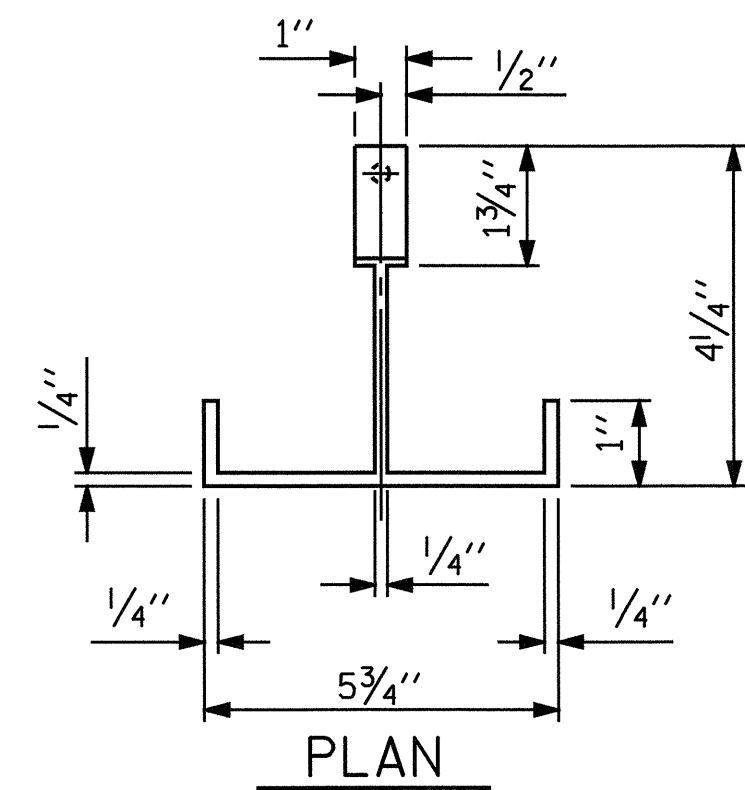
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	
1			3			S-24	
2			4			45	

STD. NO. BMR3

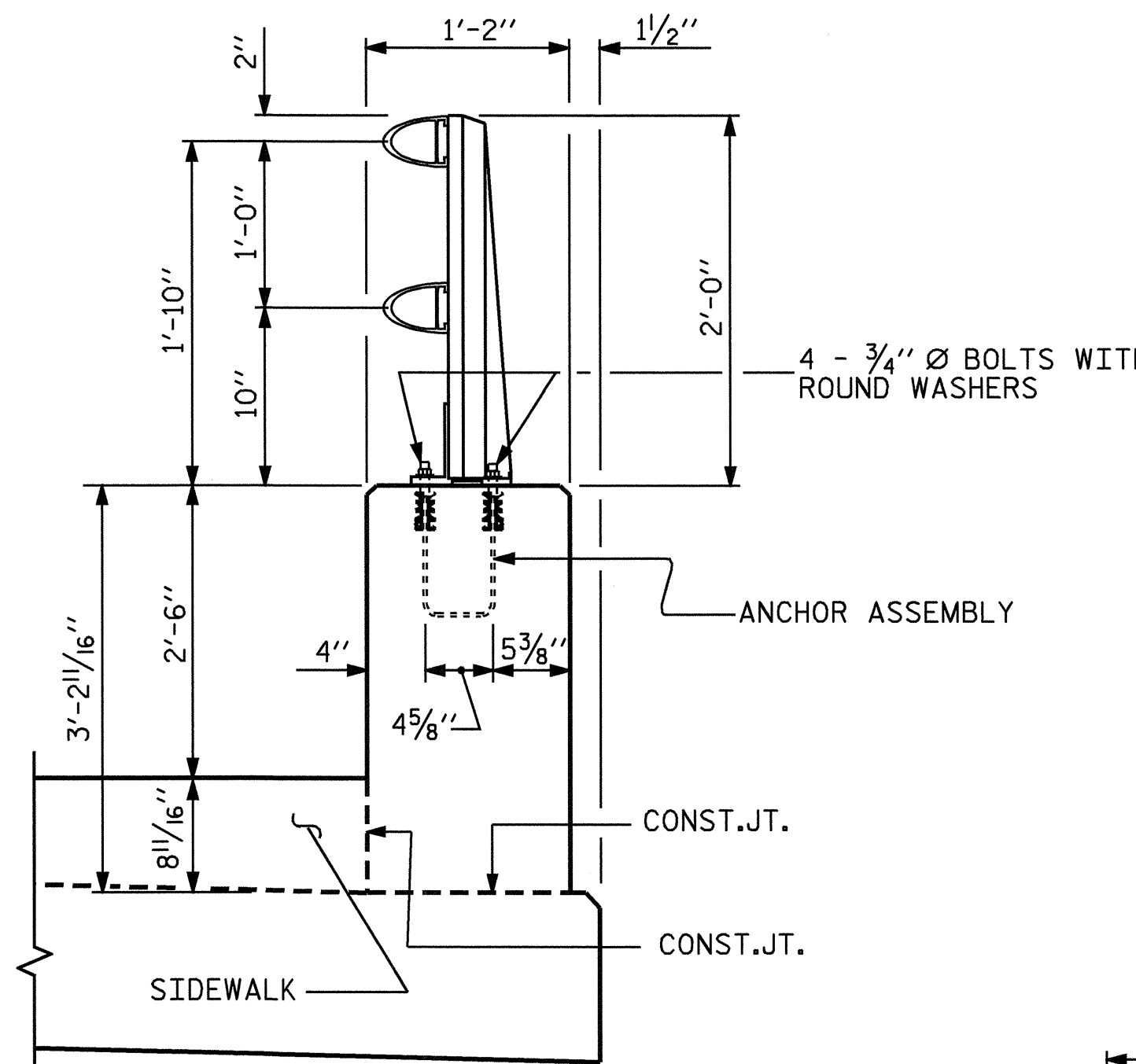


ELEVATION

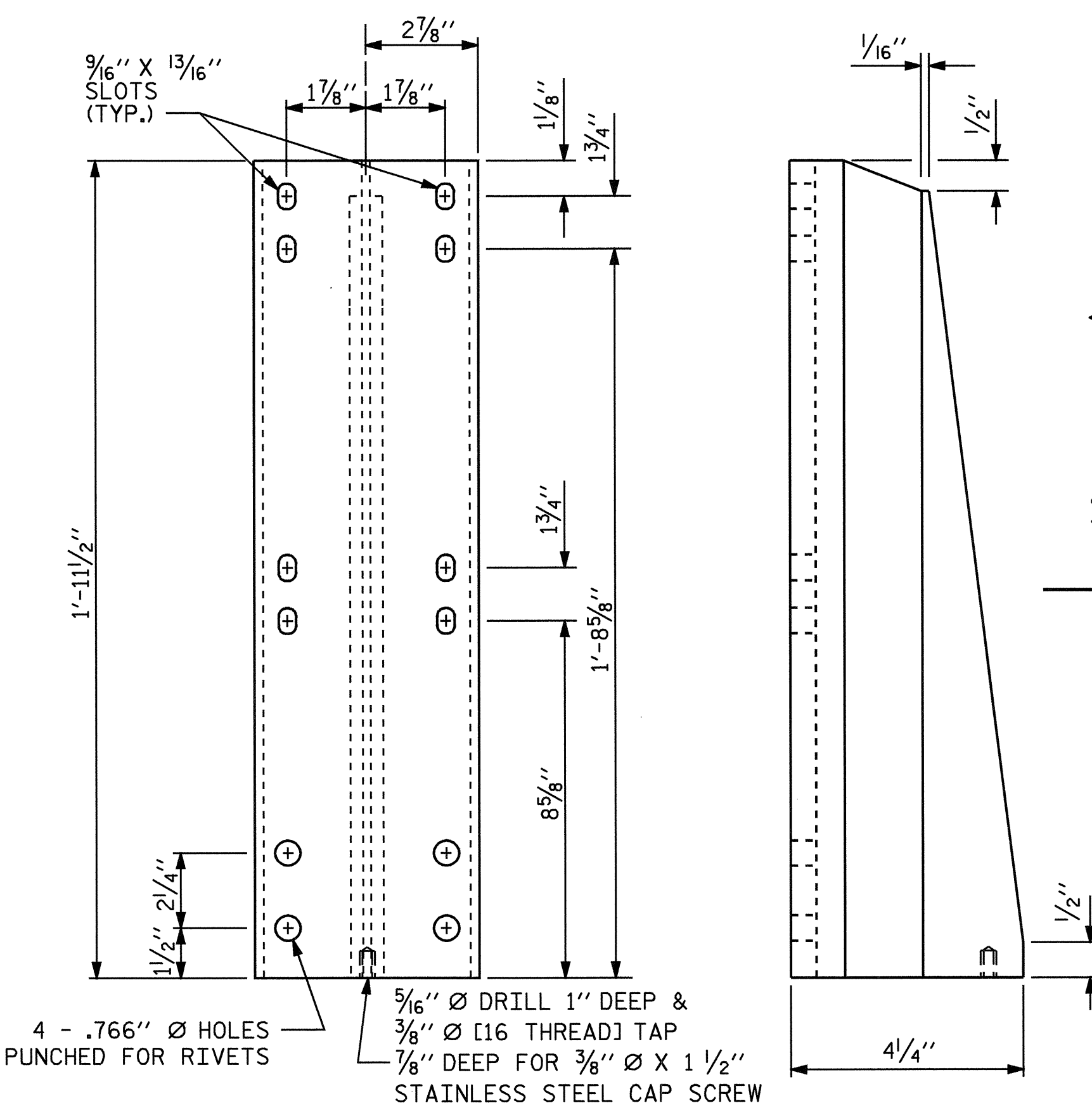
NOTE: FOR ATTACHMENT OF METAL RAIL TO END POST, SEE SHEET 2 OF 2.



PLAN



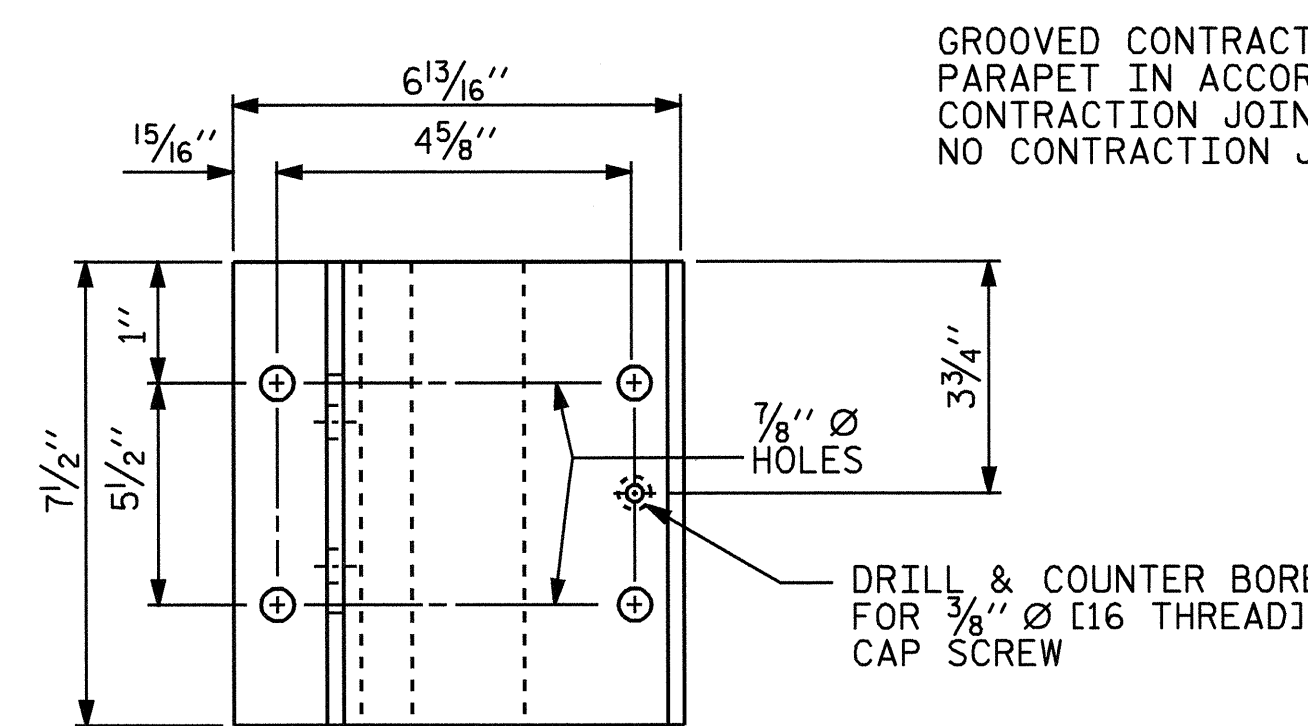
SECTION THRU PARAPET AND RAIL



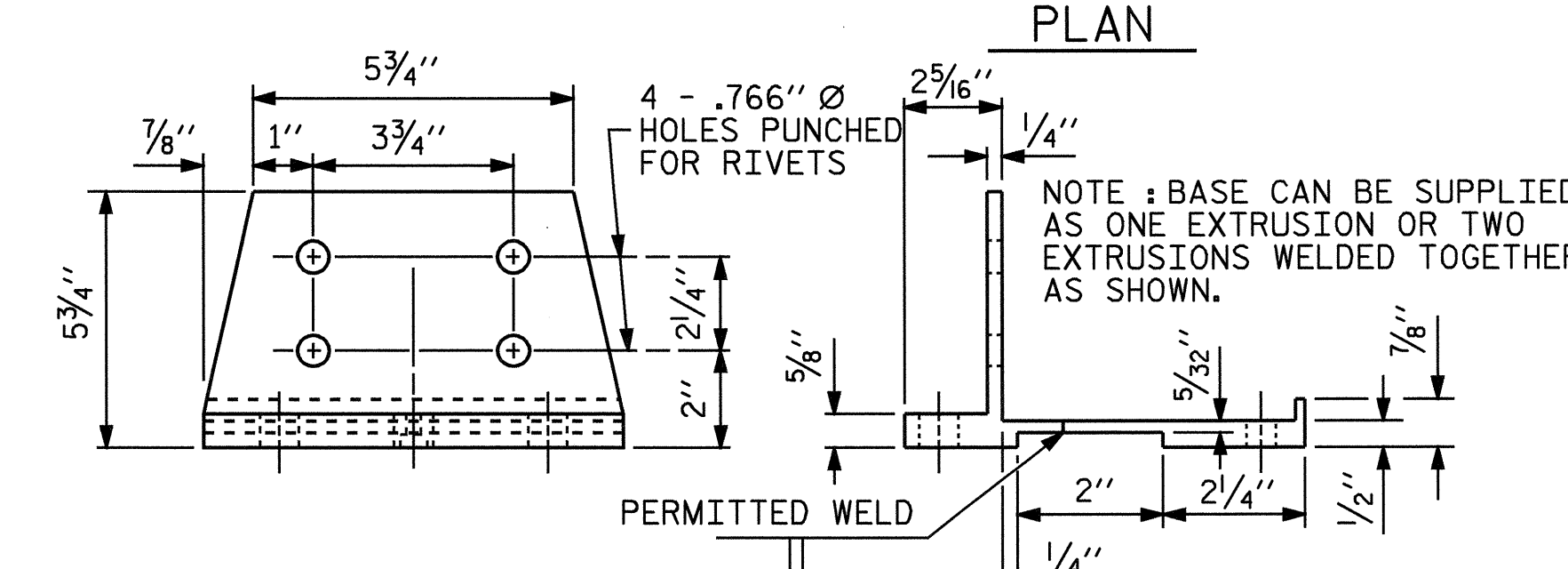
FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST



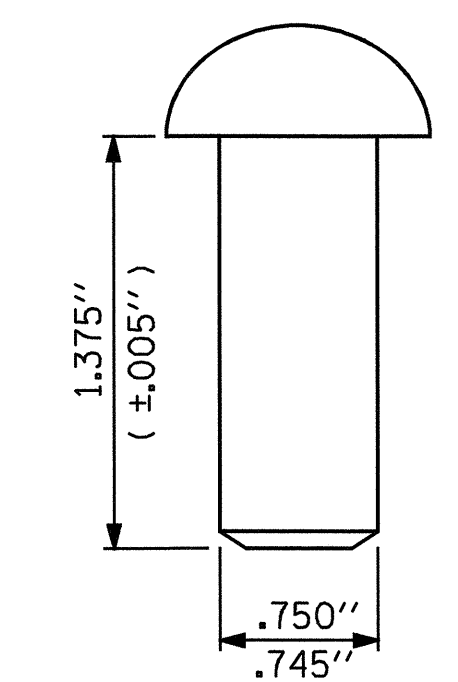
PLAN



FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS



RIVET DETAIL

ASSEMBLED BY: M. POOLE	DATE: 03/06
CHECKED BY: D. HODGE	DATE: 09/07
DRAWN BY: EEM 6/94	REV. 10/17/00 LES/RDR
CHECKED BY: RGW 6/94	REV. 5/7/03R RWW/JTE
	REV. 5/1/06 TLA/GM

NOTES

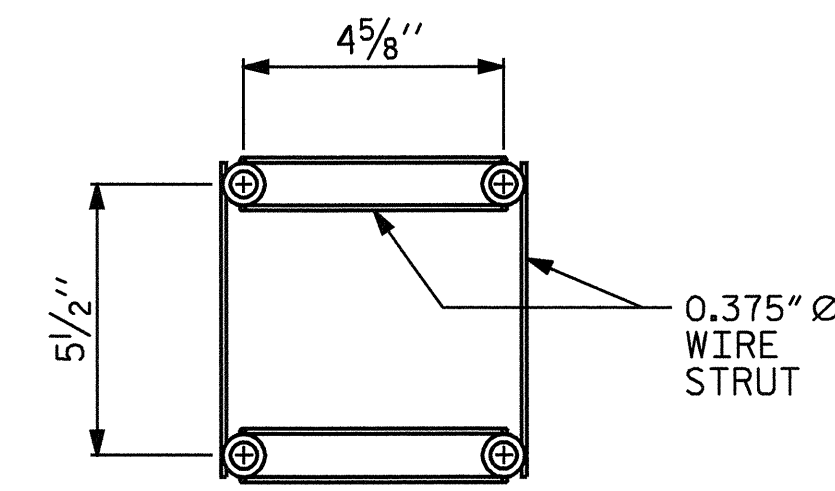
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

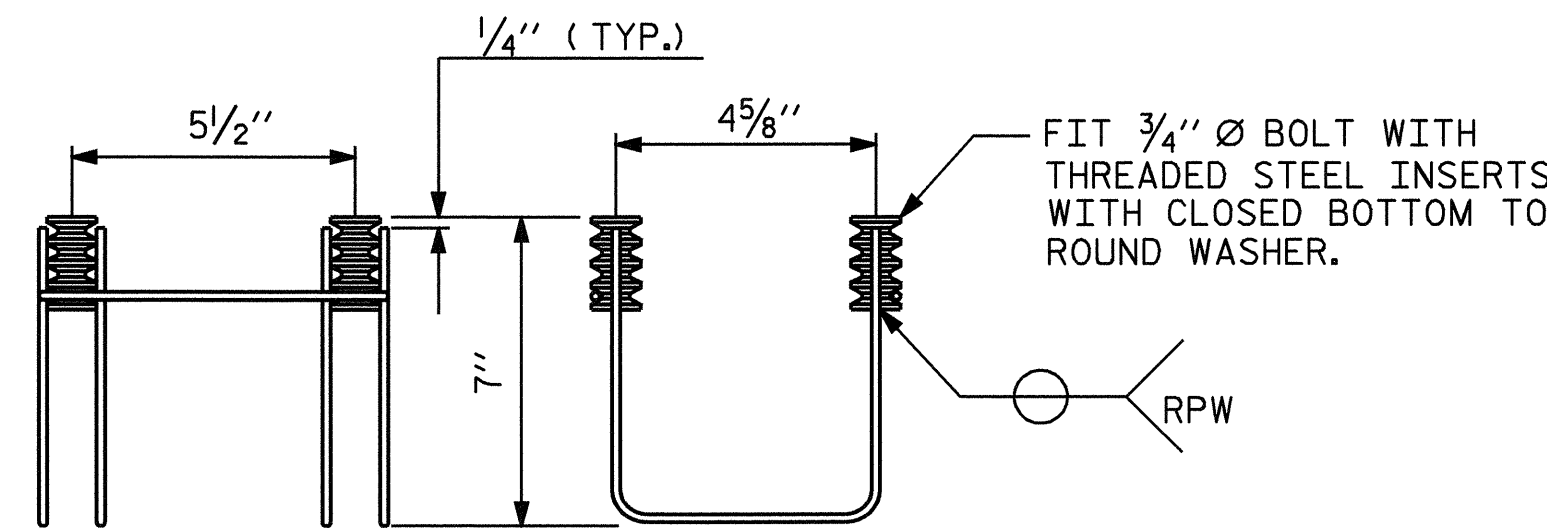
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS 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.
- C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLY TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



PLAN



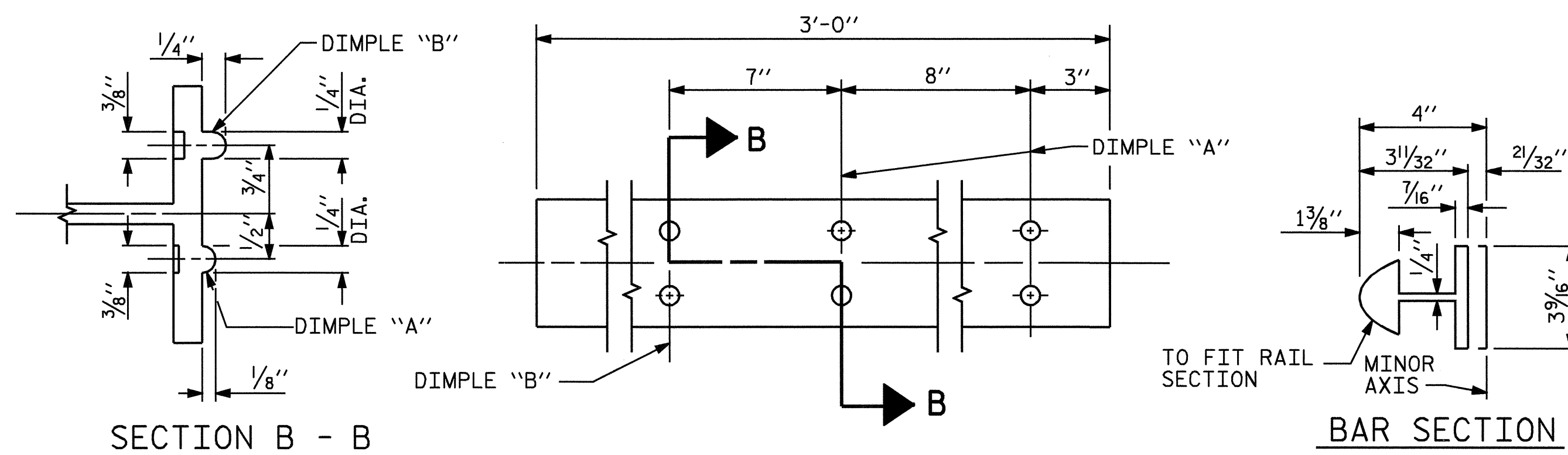
SIDE VIEW

ELEVATION

MINIMUM LENGTH OF THREADS IN INSERT (FERRULE) : 1 3/4"

4-BOLT METAL RAIL ANCHOR ASSEMBLY

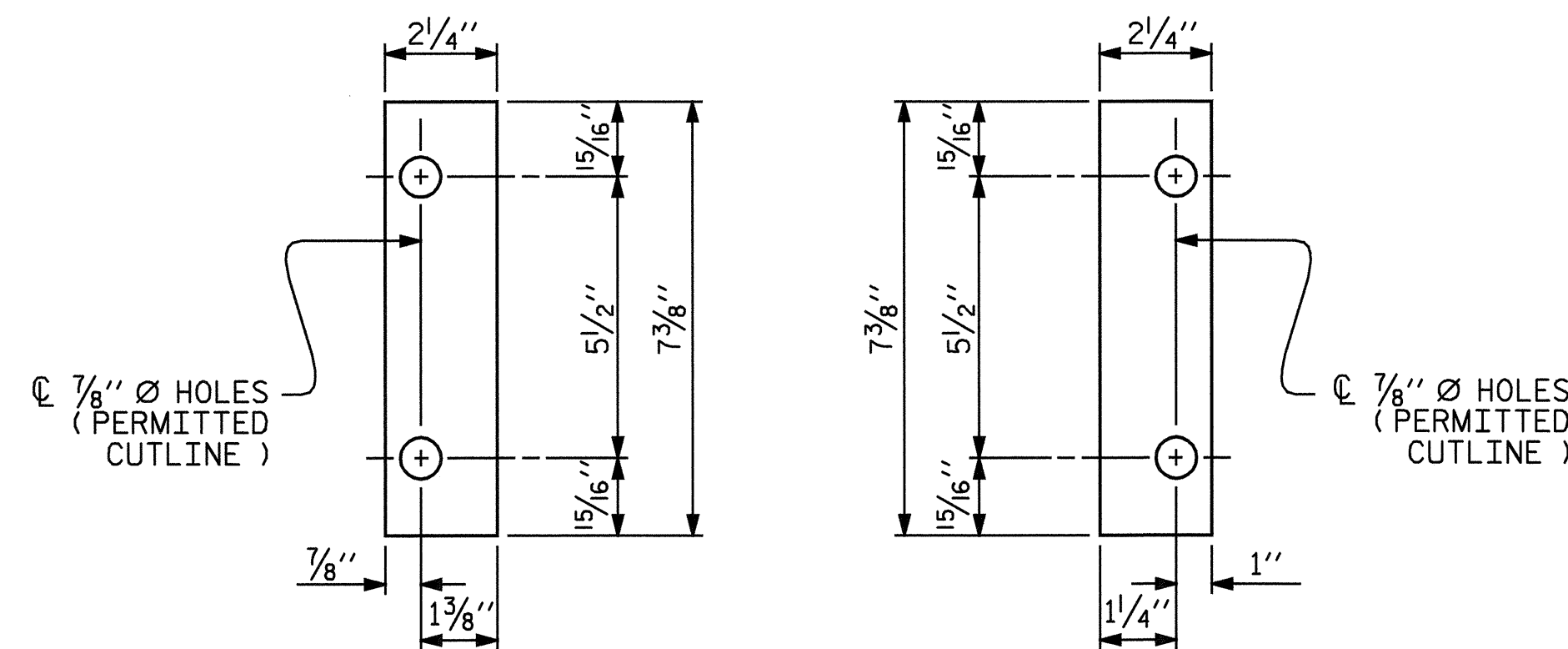
(38 ASSEMBLIES REQUIRED)



SECTION B - B

EXPANSION BAR DETAILS

BAR SECTION

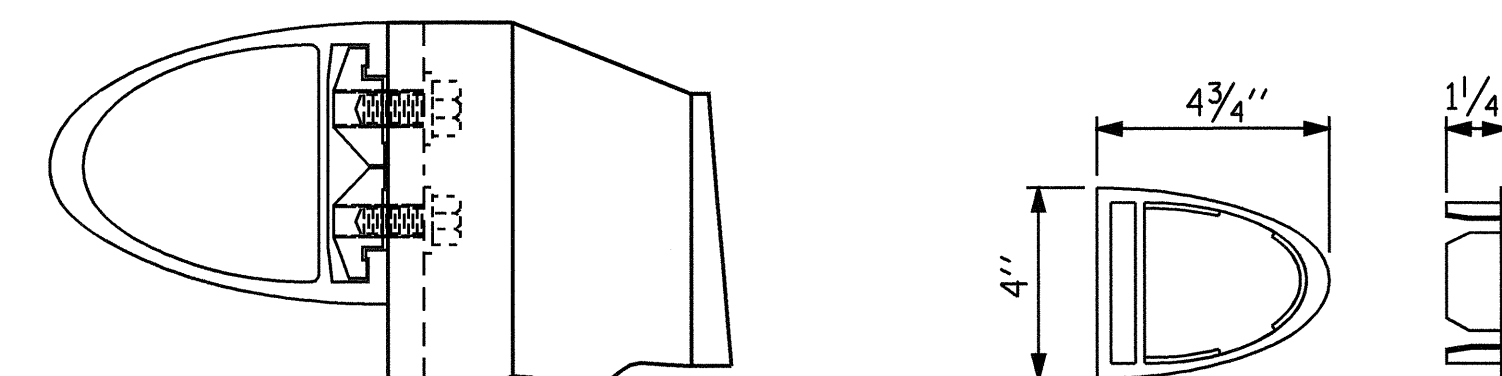


FRONT PLATE

REAR PLATE

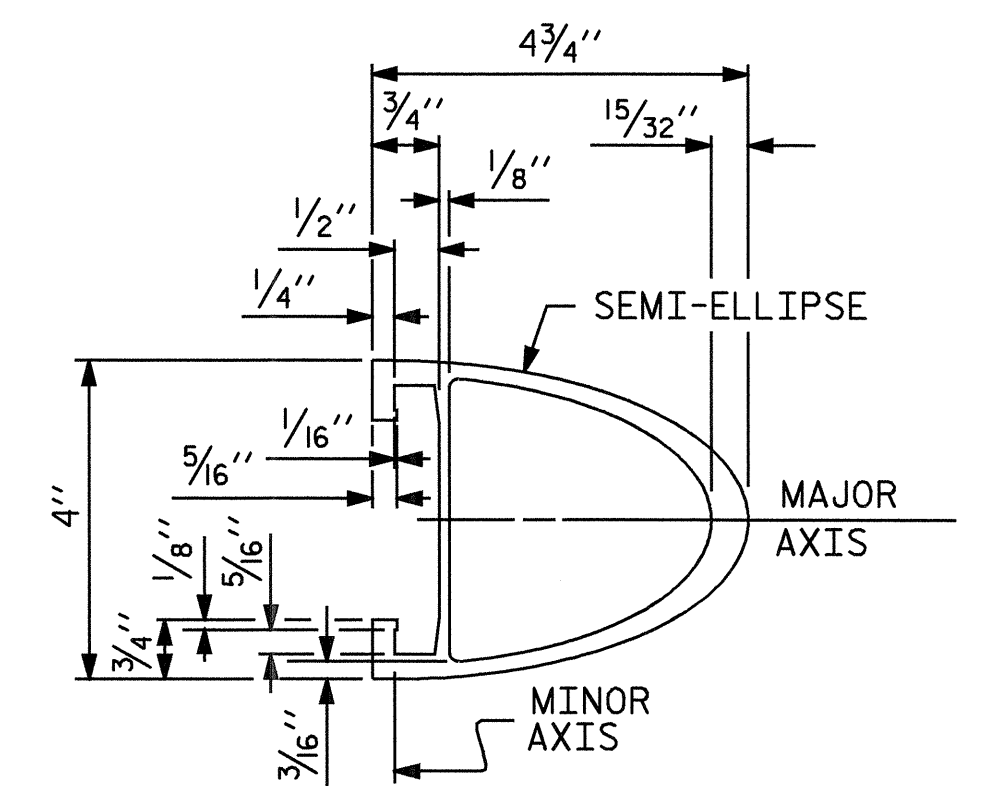
SHIM DETAILS

NOTE : SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.

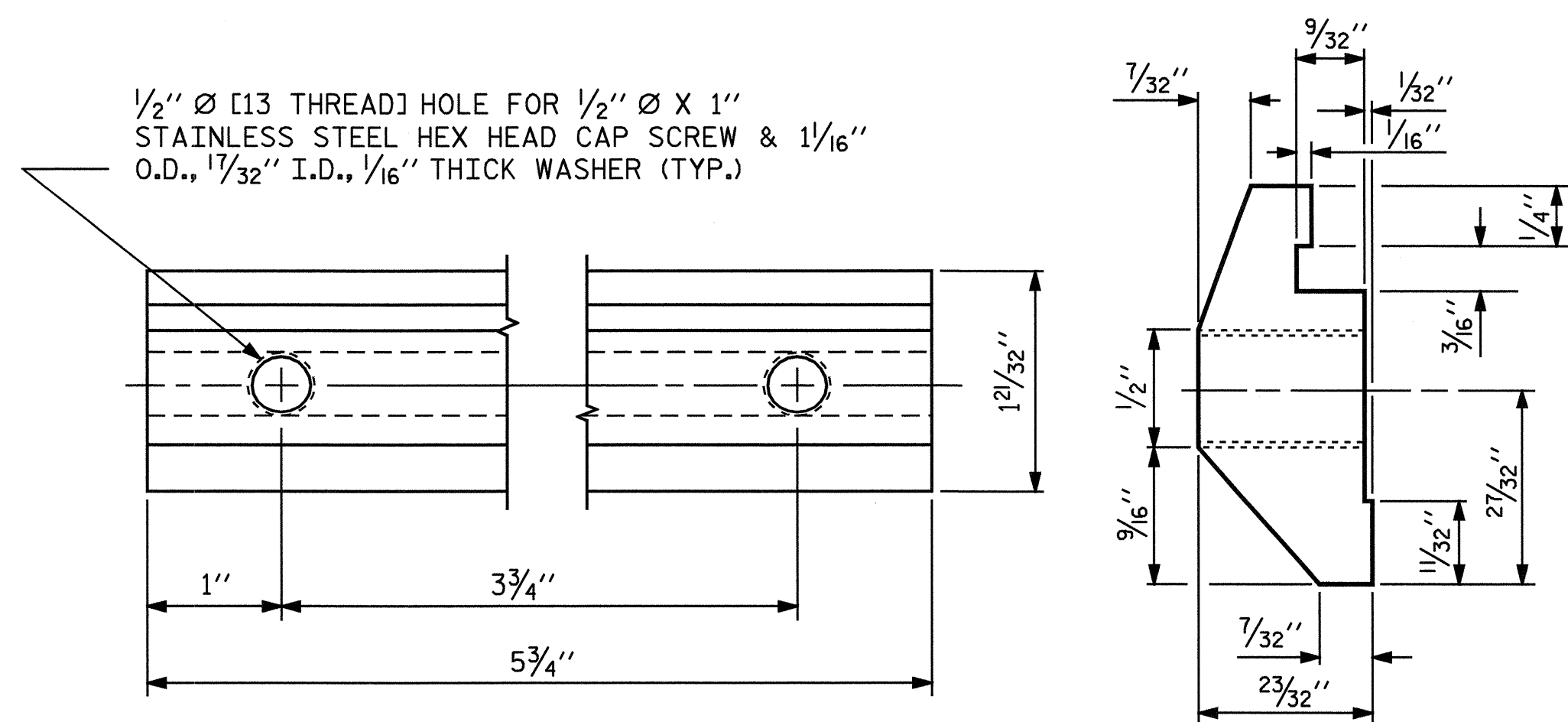


CLAMP ASSEMBLY

RAIL CAP



RAIL SECTION



CLAMP BAR DETAIL

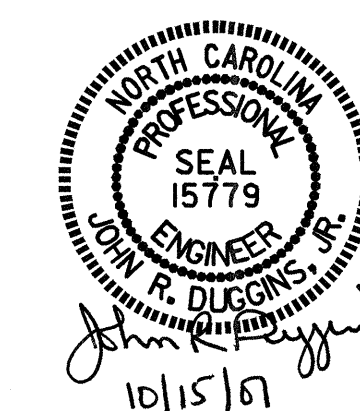
(4 REQUIRED PER POST)

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

2 BAR METAL RAIL



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-25
1			3			TOTAL SHEETS
2			4			45

ASSEMBLED BY : M. POOLE	DATE : 03/06
CHECKED BY : D. HODGE	DATE : 09/07
DRAWN BY : EEM 6/94	REV. 2/6/97 EEM/RGW
CHECKED BY : RGW 6/94	REV. 8/16/99 MAB/LES
	REV. 5/7/03 RWW/JTE

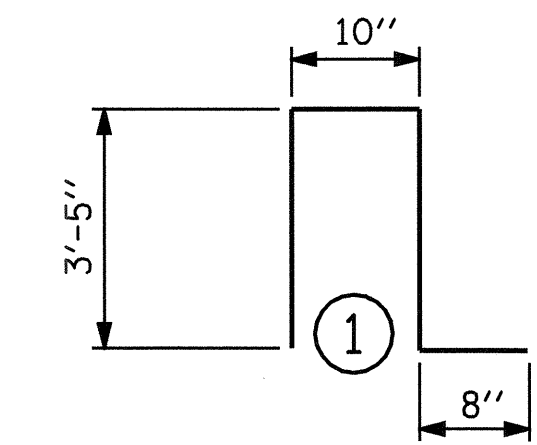
BILL OF MATERIAL

CONCRETE PARAPET & END POSTS

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
* B1	40	5	STR	11'-11"	497
* B2	20	5	STR	19'-7"	409
* B3	40	5	STR	29'-7"	1234
* B4	40	5	STR	13'-8"	570
* E1	8	7	STR	3'-3"	53
* E2	8	7	STR	3'-9"	61
* E3	8	7	STR	4'-3"	69
* E4	8	7	STR	4'-9"	78
* E5	8	7	STR	5'-1"	83
* F1	8	6	STR	1'-10"	22
* F2	4	6	STR	3'-4"	20
* F3	4	6	STR	3'-8"	22
* F4	4	6	STR	3'-0"	18
* F5	4	6	STR	3'-4"	20
* S1	234	5	1	8'-4"	2034
* S2	32	5	STR	3'-9"	125

* EPOXY COATED REINFORCING STEEL 5315 LBS.
 CLASS AA CONCRETE 36.3 C.Y.
 CONCRETE PARAPET 249.56 LIN FEET

BAR TYPE



ALL BAR DIMENSIONS ARE OUT TO OUT
 * THESE BARS ARE EPOXY COATED

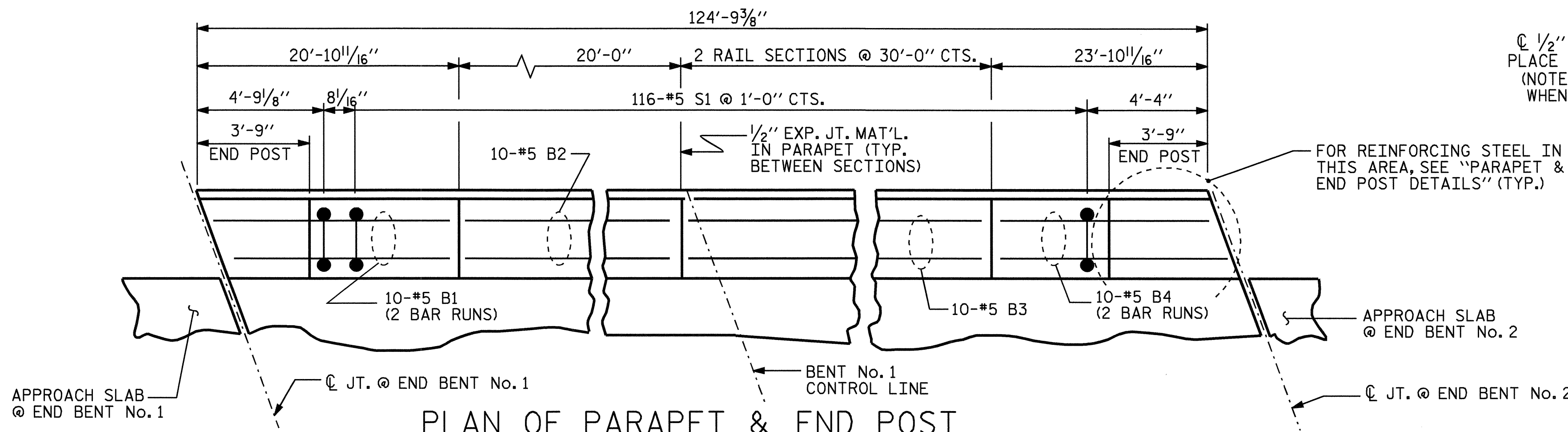
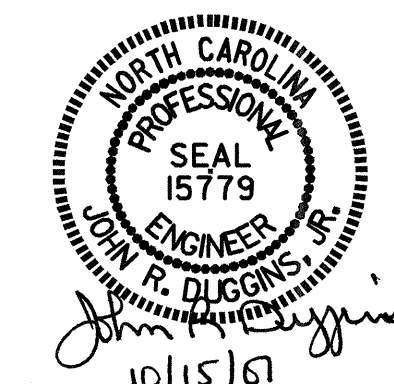
NOTES:

- ALL REINFORCING STEEL IN CONCRETE PARAPET SHALL BE EPOXY COATED.
- THE REINFORCING STEEL & CONCRETE IN THE END POSTS IS INCLUDED IN THE UNIT PRICE BID FOR THE CONCRETE PARAPET.
- FOR DETAILS OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEETS.
- THE #5 S2 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5 S2 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

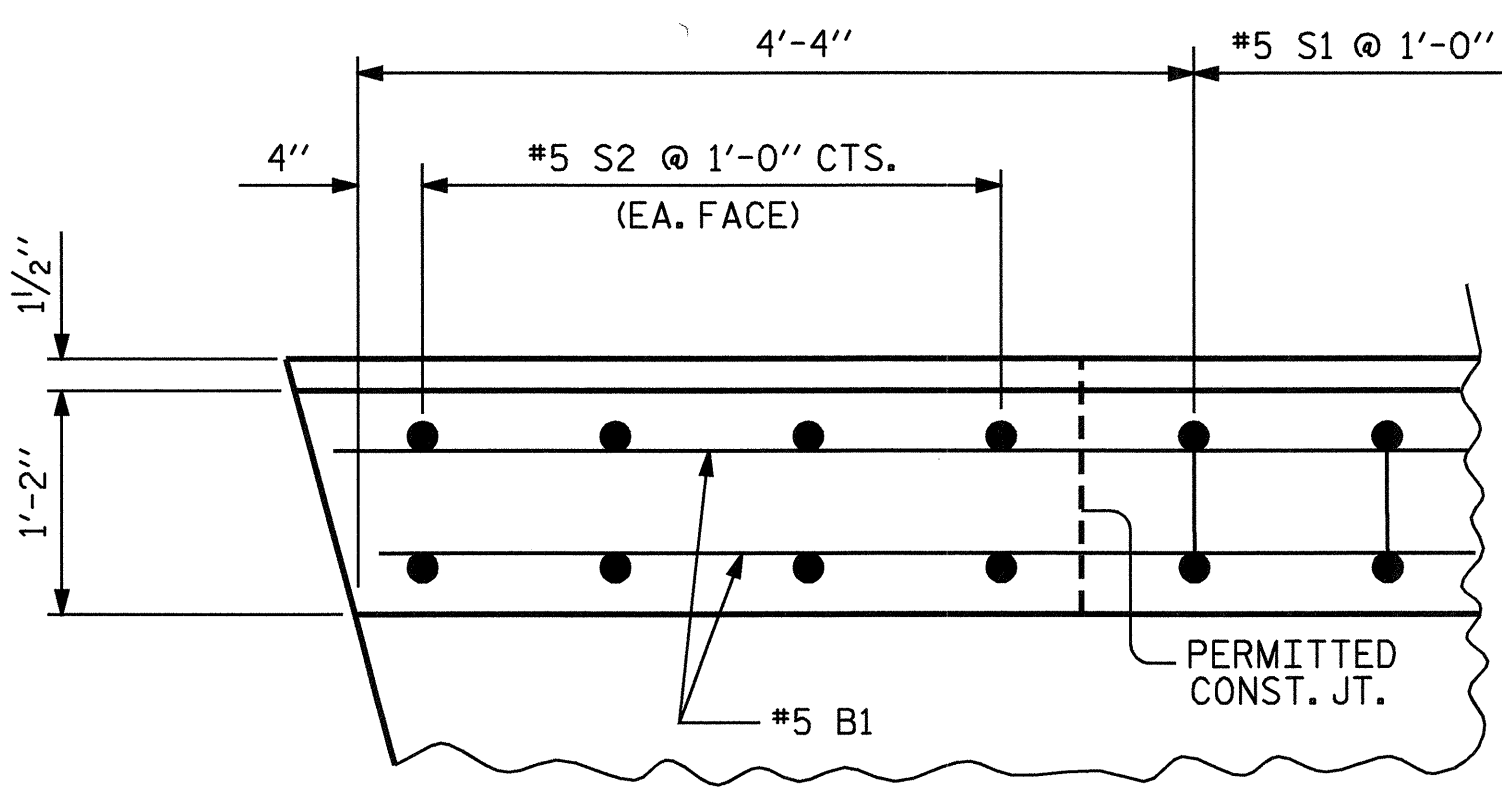
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
1'-2" X 3'-3 7/16"
CONCRETE PARAPET
FOR
2 BAR METAL RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			6-26
2			4			45

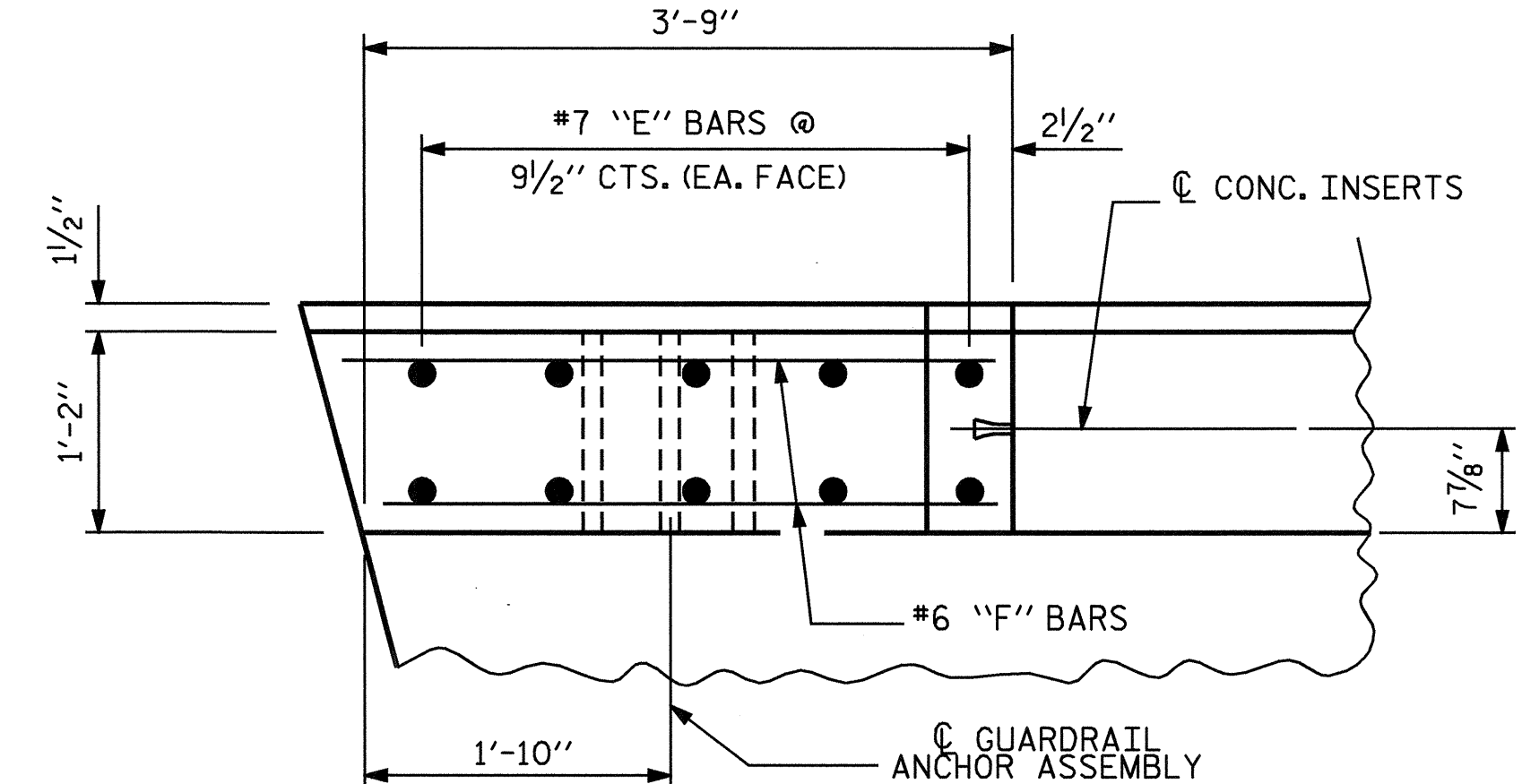


PLAN OF PARAPET & END POST

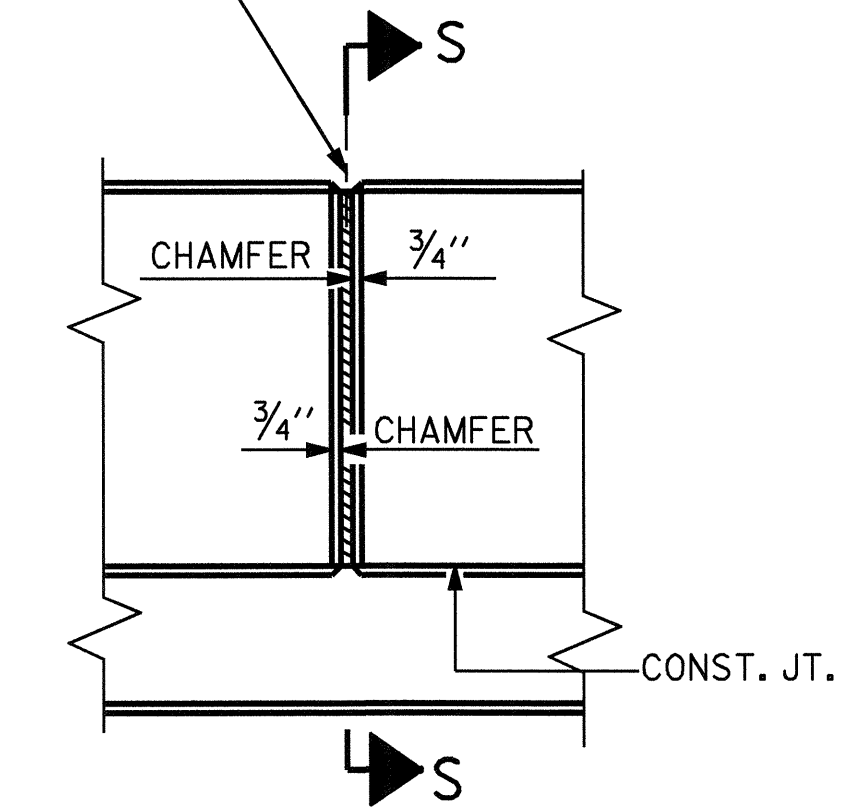
(TYP. EA. SIDE)
 NOTE: #5 "S" BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE 1/2" EXPANSION JOINT MATERIAL IN PARAPET.



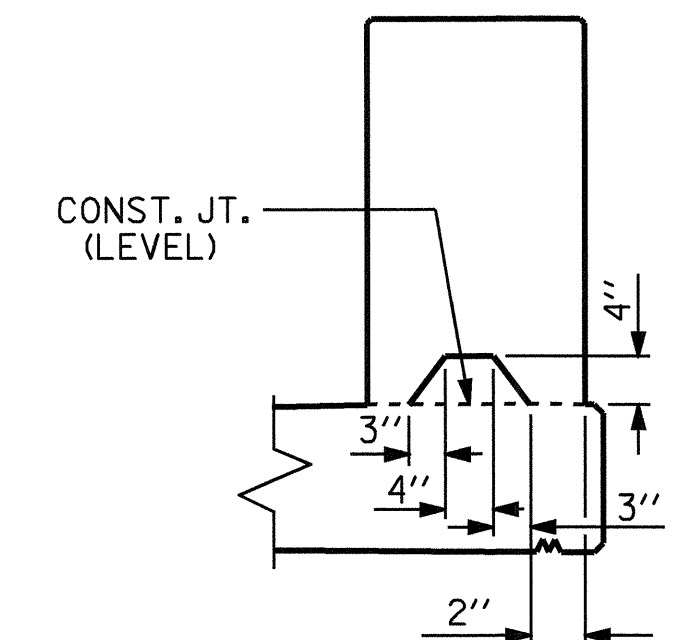
PLAN OF PARAPET



PLAN OF END POST

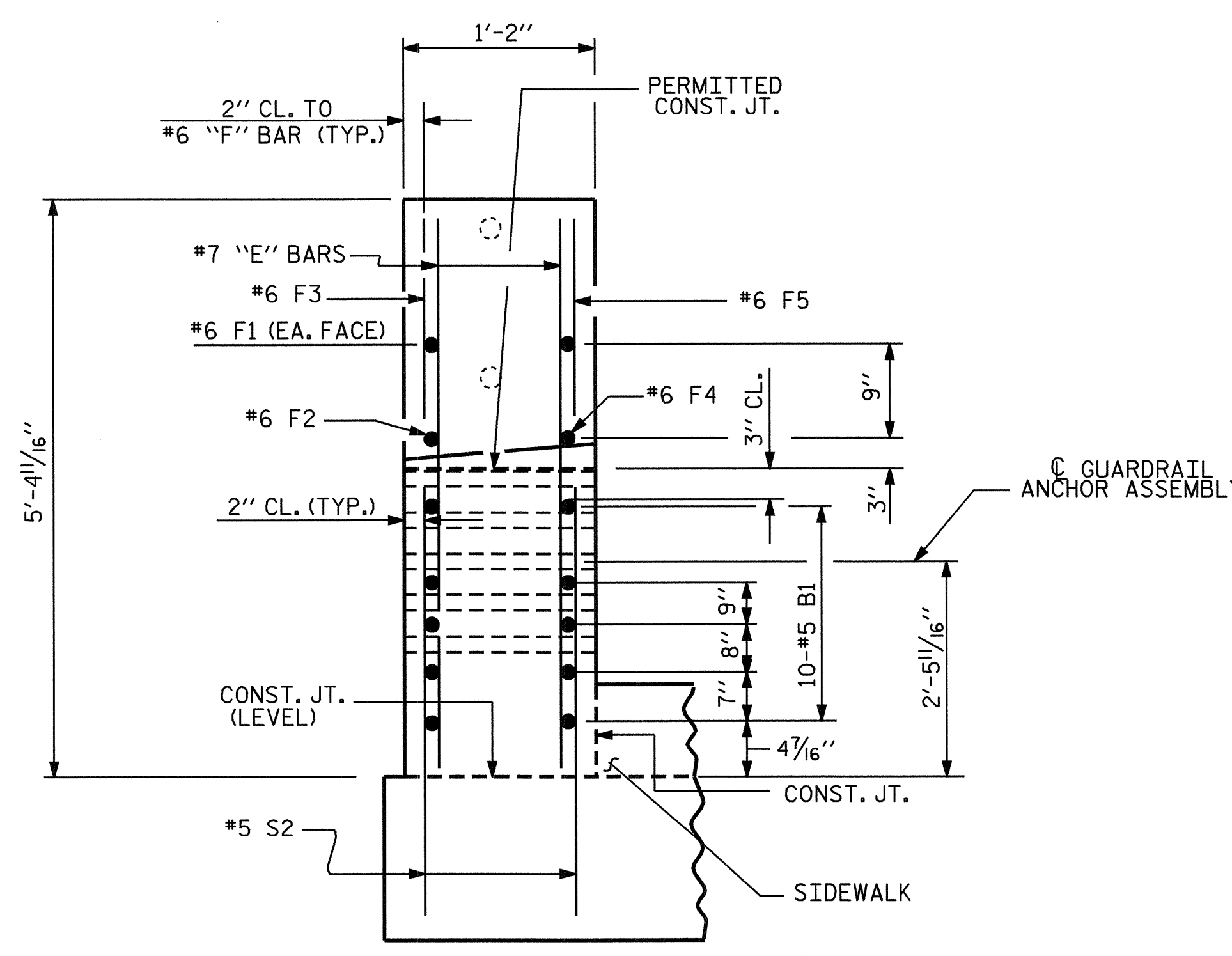


ELEVATION AT JOINTS IN PARAPET

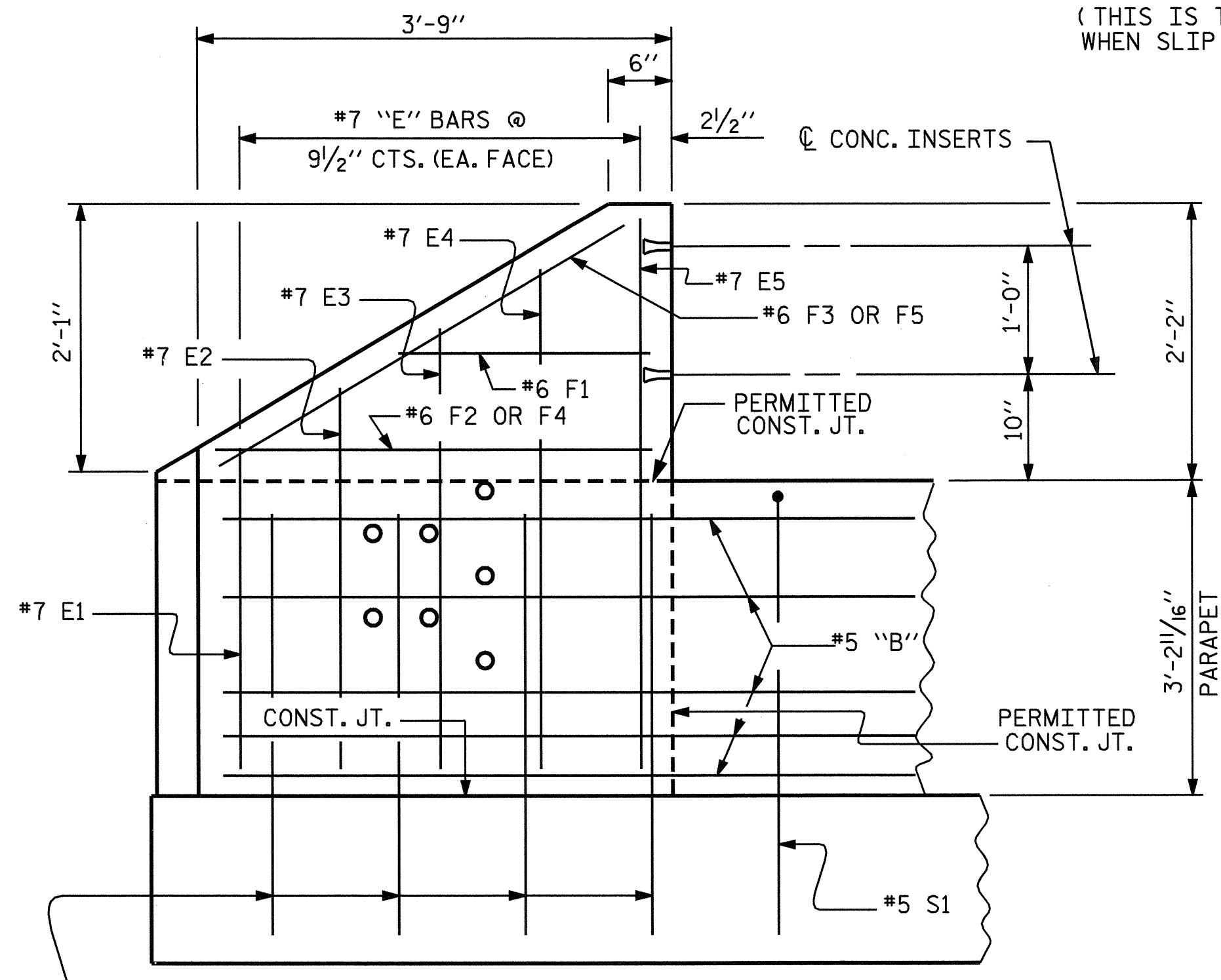


SECTION S-S

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



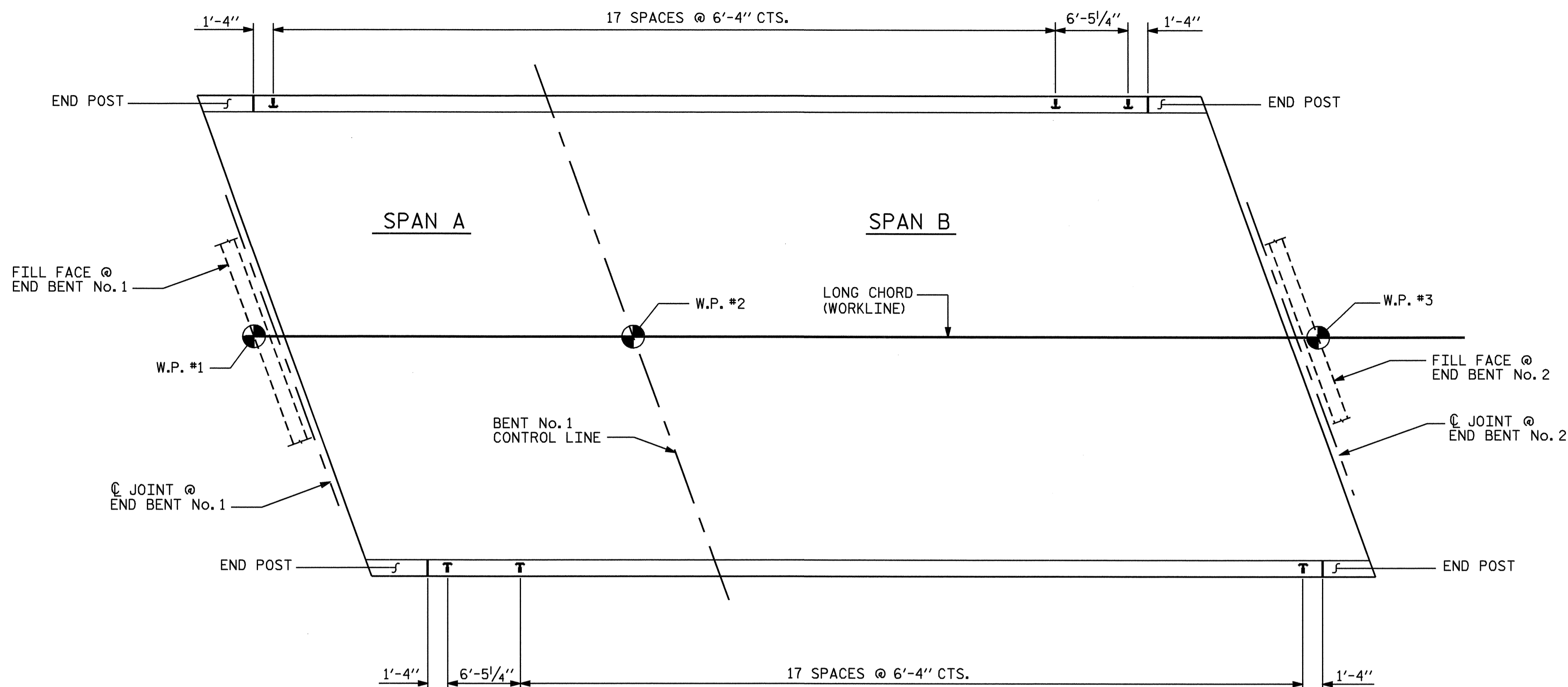
END VIEW



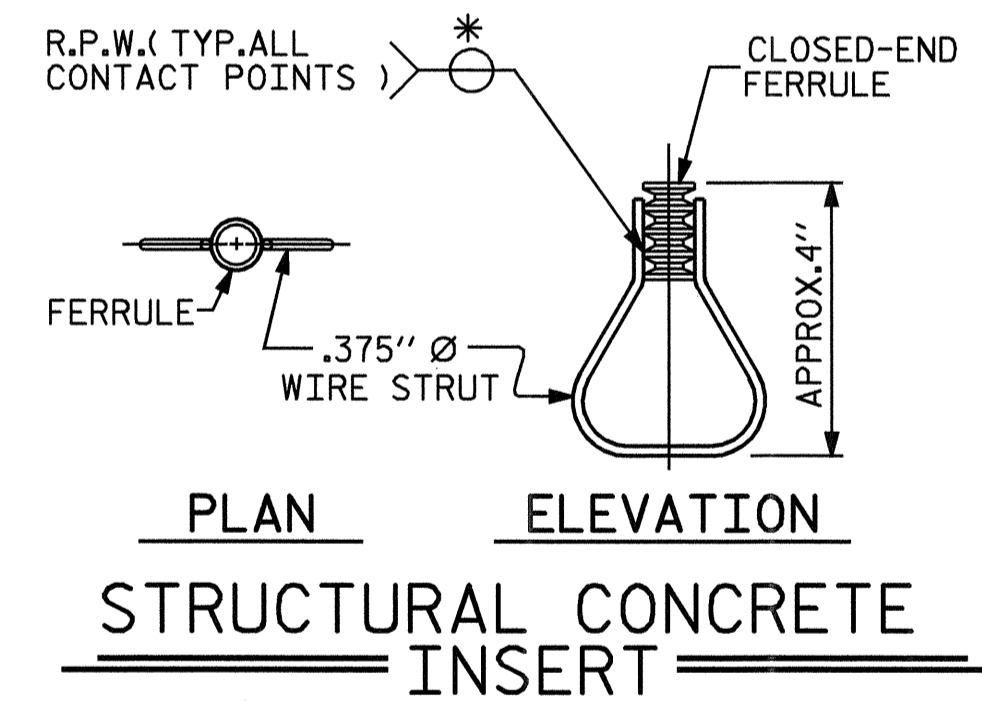
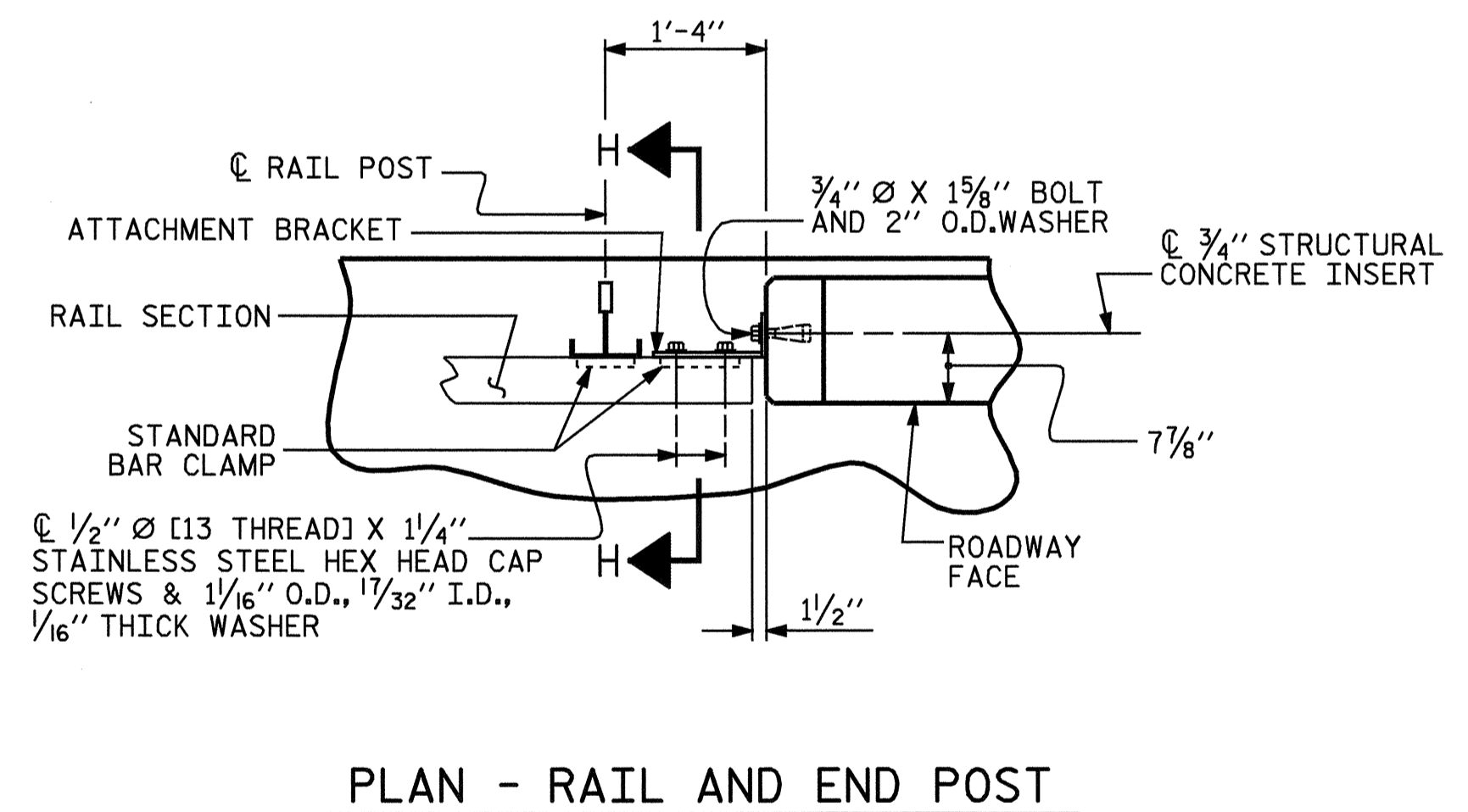
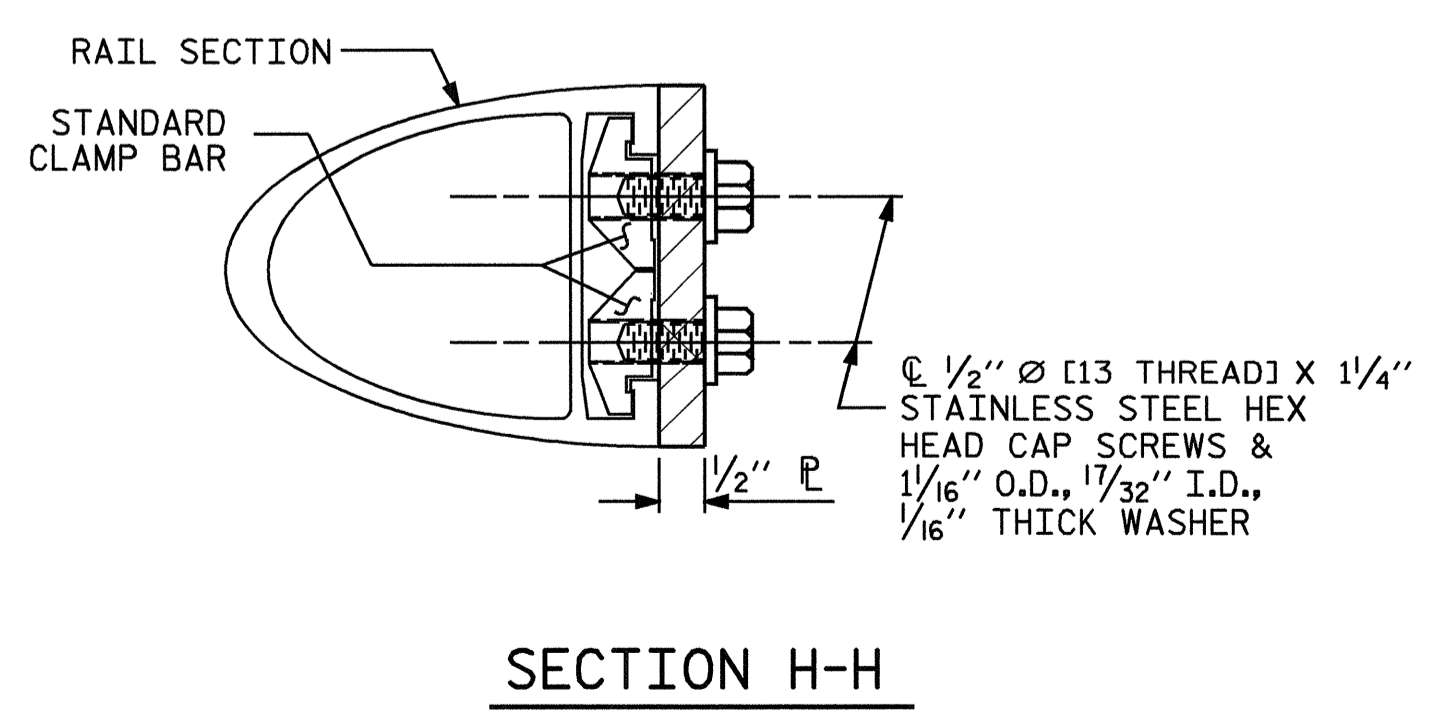
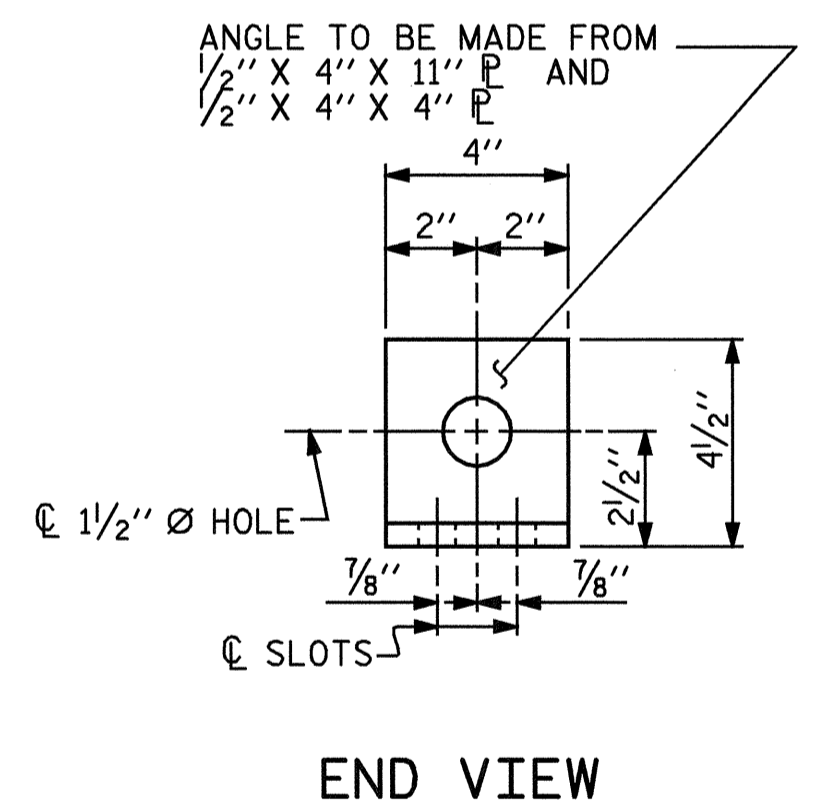
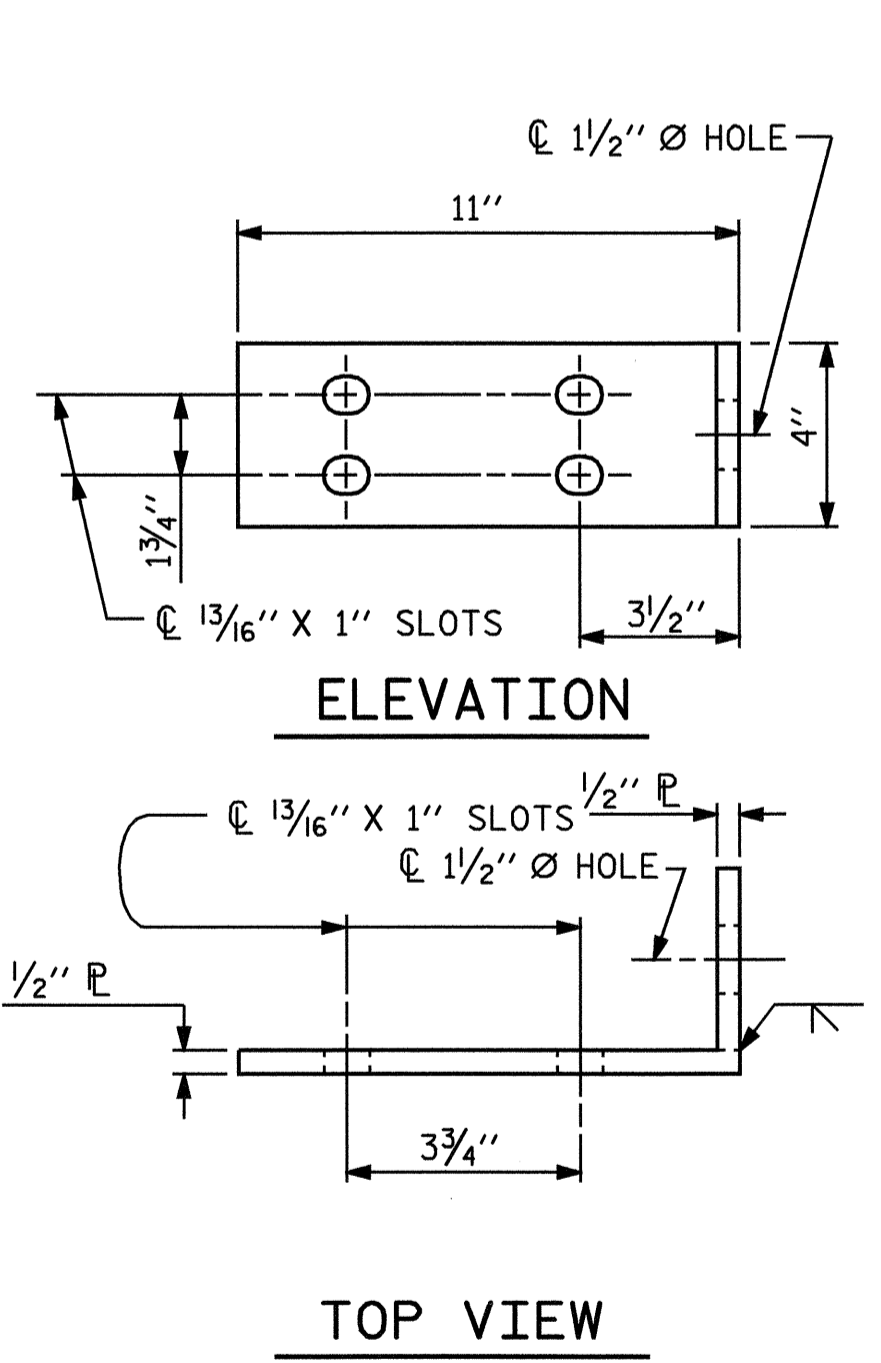
ELEVATION

PARAPET AND END POST FOR TWO BAR RAIL

DRAWN BY: M. POOLE DATE: 03/06
 CHECKED BY: D. HODGE DATE: 09/07

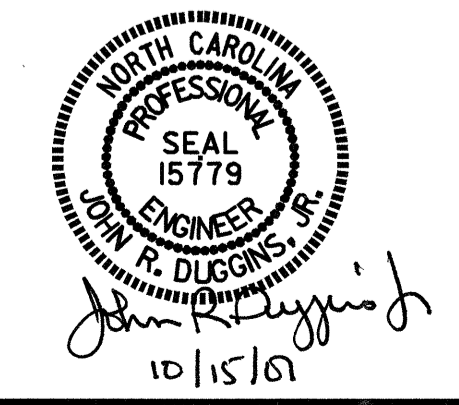


PLAN OF RAIL POST SPACINGS



* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS
 FOR ONE OR TWO BAR METAL RAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27	
1			3			TOTAL SHEETS 45	
2			4				

ASSEMBLED BY : M. POOLE	DATE : 03/06
CHECKED BY : D. HODGE	DATE : 09/07
DRAWN BY : FCJ 1/88	REV. 10/17/00 LES/RDR
CHECKED BY : CRK 3/89	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

NOTES

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

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

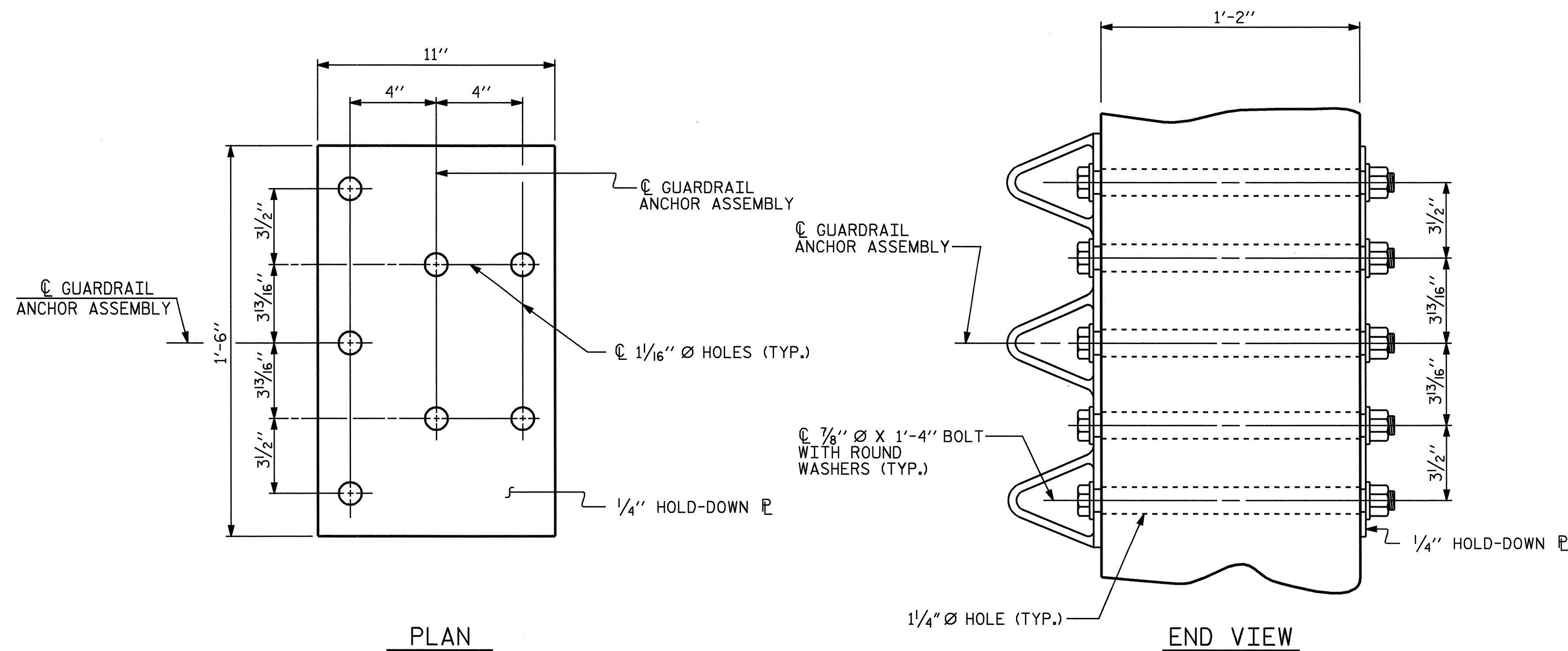
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

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

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

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

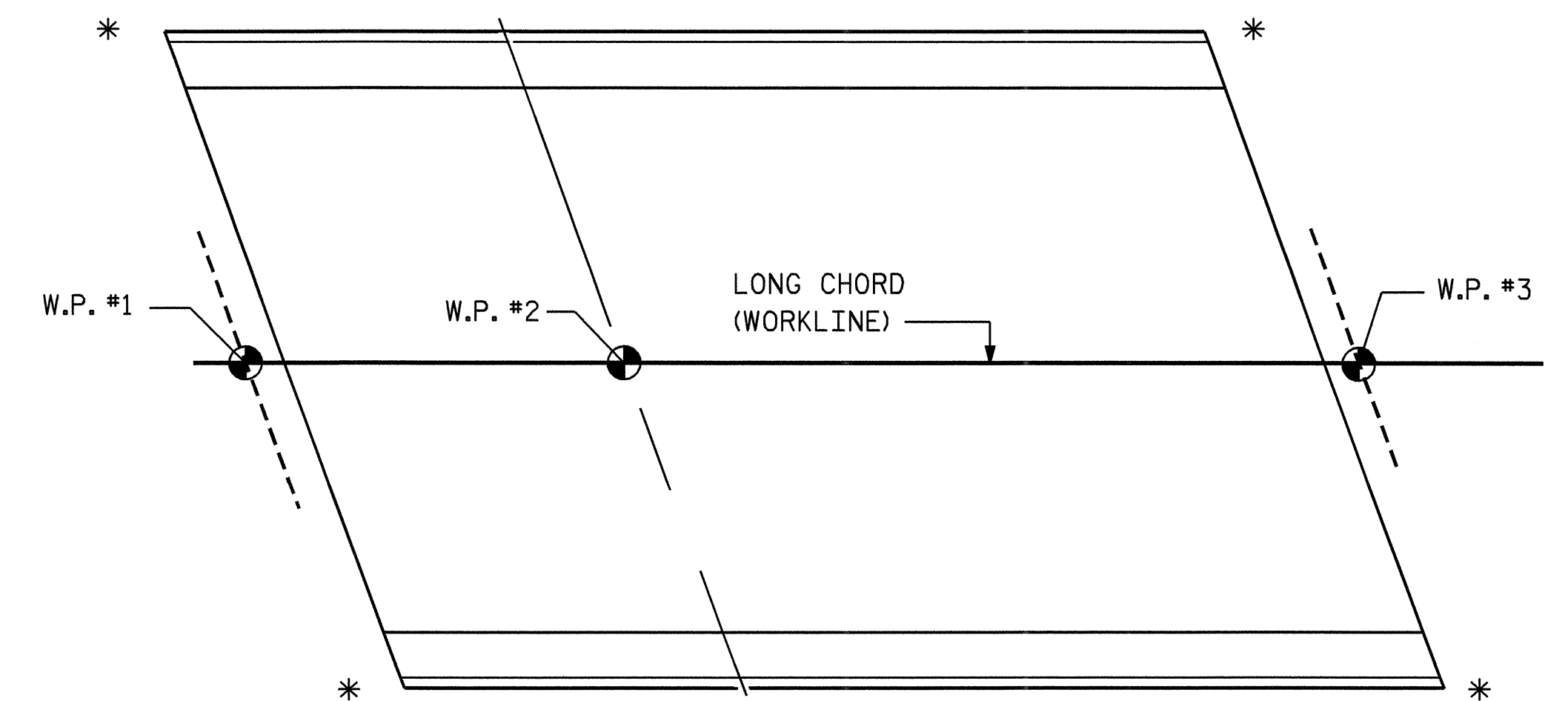
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



PLAN

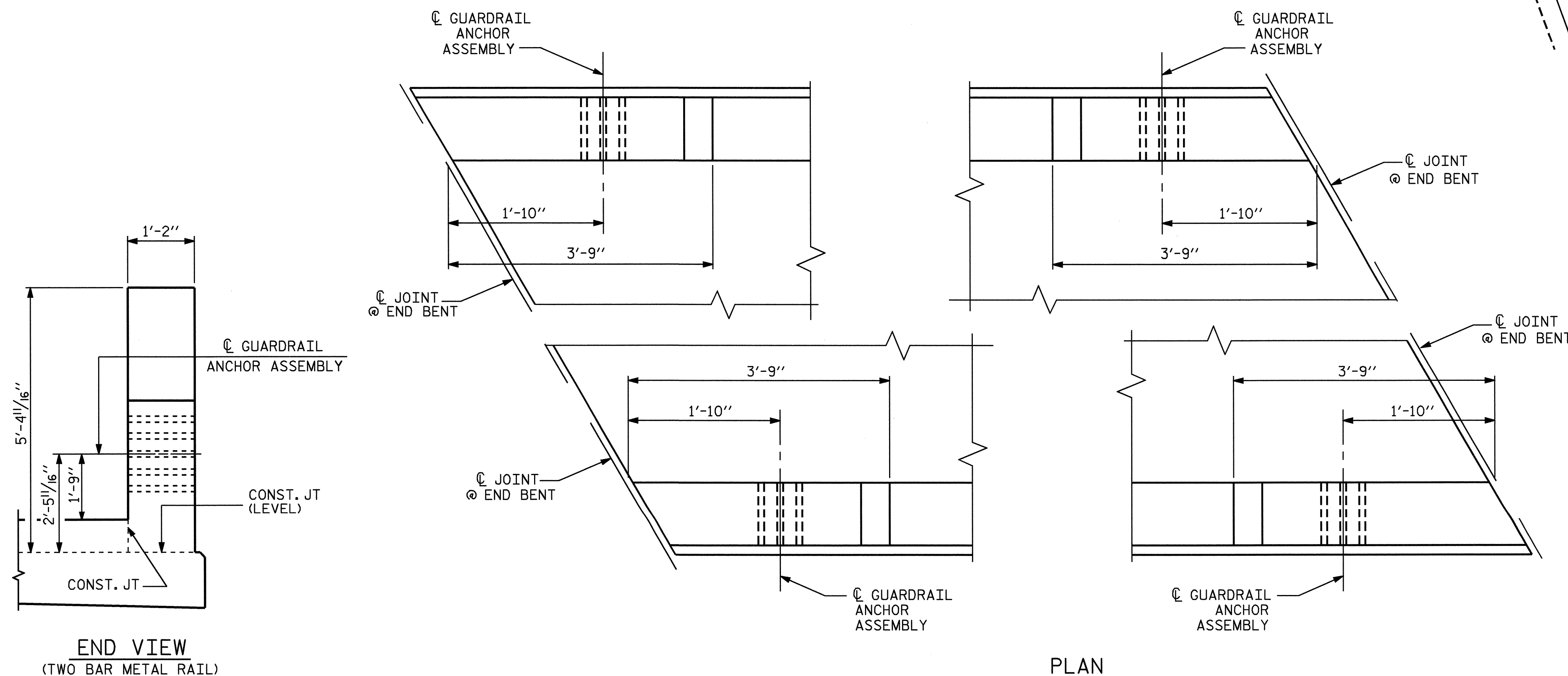
END VIEW

GUARDRAIL ANCHOR ASSEMBLY DETAILS

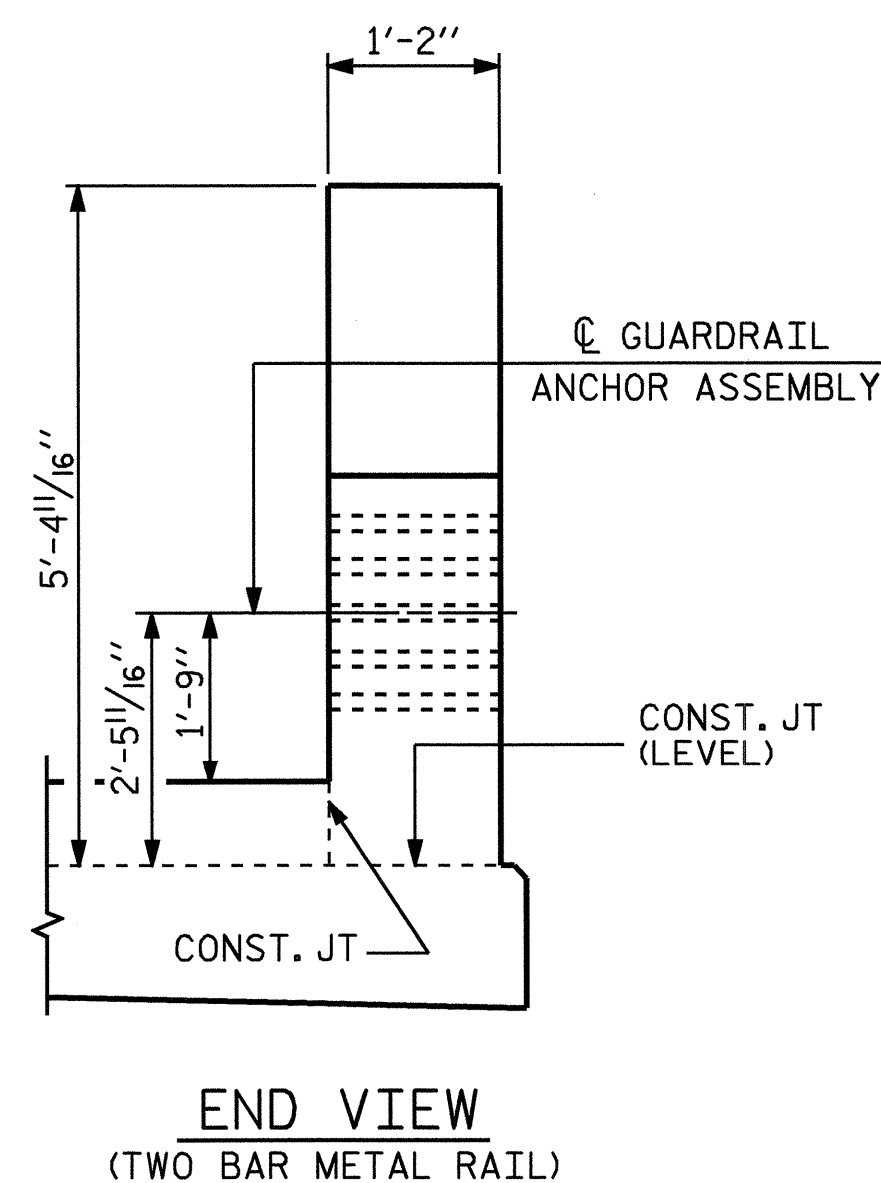


SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



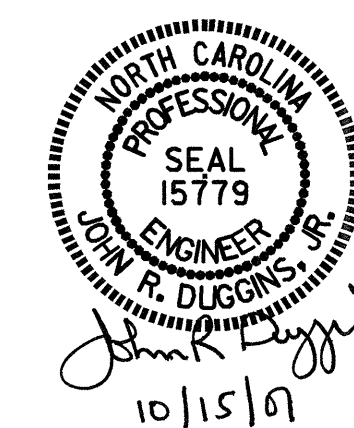
LOCATION OF GUARDRAIL ANCHOR AT END POST



END VIEW
(TWO BAR METAL RAIL)

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS



ASSEMBLED BY :	M. POOLE	DATE :	03/06
CHECKED BY :	D. HODGE	DATE :	09/07
DRAWN BY :	EEM 6/94	REV. 10/17/00	RWW/LES
CHECKED BY :	RGW 6/94	REV. 5/7/03	RWW/JTE
		REV. 5/1/06	TLA/GM

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	5-28	
1			3			TOTAL SHEETS	
2			4			45	

SPAN A & SPAN B STAGE I					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	211	5	STR	29'-8"	6529
A2	211	5	STR	29'-8"	6529
*A101	1	5	STR	28'-3"	29
*A102	1	5	STR	26'-9"	28
*A103	1	5	STR	25'-3"	26
*A104	1	5	STR	23'-9"	25
*A105	1	5	STR	22'-3"	23
*A106	1	5	STR	20'-9"	22
*A107	1	5	STR	19'-3"	20
*A108	1	5	STR	17'-9"	19
*A109	1	5	STR	16'-4"	17
*A110	1	5	STR	14'-10"	15
*A111	1	5	STR	13'-4"	14
*A112	1	5	STR	11'-10"	12
*A113	1	5	STR	10'-4"	11
*A114	1	5	STR	8'-10"	9
*A115	1	5	STR	7'-4"	8
*A116	1	5	STR	5'-11"	6
*A117	1	5	STR	4'-5"	5
*A118	1	5	STR	2'-11"	3
*A119	1	5	STR	1'-5"	1
A201	1	5	STR	28'-3"	29
A202	1	5	STR	26'-9"	28
A203	1	5	STR	25'-3"	26
A204	1	5	STR	23'-9"	25
A205	1	5	STR	22'-3"	23
A206	1	5	STR	20'-9"	22
A207	1	5	STR	19'-3"	20
A208	1	5	STR	17'-9"	19
A209	1	5	STR	16'-4"	17
A210	1	5	STR	14'-10"	15
A211	1	5	STR	13'-4"	14
A212	1	5	STR	11'-10"	12
A213	1	5	STR	10'-4"	11
A214	1	5	STR	8'-10"	9
A215	1	5	STR	7'-4"	8
A216	1	5	STR	5'-11"	6
A217	1	5	STR	4'-5"	5
A218	1	5	STR	2'-11"	3
A219	1	5	STR	1'-5"	1
*B1	40	4	STR	20'-5"	546
B2	99	5	STR	42'-11"	4431
*B3	60	4	STR	27'-11"	1119
*B4	58	5	STR	10'-6"	635
*D1	83	6	STR	3'-6"	436
*G1	2	5	STR	31'-7"	66
*K1	4	5	1	7'-0"	29
*K2	8	5	2	8'-3"	69
*K3	12	5	STR	7'-5"	93
*K4	4	5	1	5'-0"	21
*S1	48	4	3	3'-8"	118

REINFORCING STEEL 11,253 LBS.
 *EPOXY COATED REINFORCING STEEL 9,954 LBS.

CLASS AA CONCRETE 128.3 CU. YDS.

SPAN A & SPAN B STAGE II & CLOSURE POUR					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A3	200	5	STR	45'-8"	9526
A4	200	5	STR	45'-8"	9526
*A301	1	5	STR	44'-0"	46
*A302	1	5	STR	42'-6"	44
*A303	1	5	STR	41'-0"	43
*A304	1	5	STR	39'-6"	41
*A305	1	5	STR	38'-0"	40
*A306	1	5	STR	36'-7"	38
*A307	1	5	STR	35'-1"	37
*A308	1	5	STR	33'-7"	35
*A309	1	5	STR	32'-1"	33
*A310	1	5	STR	30'-7"	32
*A311	1	5	STR	29'-1"	30
*A312	1	5	STR	27'-8"	29
*A313	1	5	STR	26'-2"	27
*A314	1	5	STR	24'-8"	26
*A315	1	5	STR	23'-2"	24
*A316	1	5	STR	21'-8"	23
*A317	1	5	STR	20'-2"	21
*A318	1	5	STR	18'-8"	19
*A319	1	5	STR	17'-3"	18
*A320	1	5	STR	15'-9"	16
*A321	1	5	STR	14'-3"	15
*A322	1	5	STR	12'-9"	13
*A323	1	5	STR	11'-3"	12
*A324	1	5	STR	9'-9"	10
*A325	1	5	STR	8'-3"	9
*A326	1	5	STR	6'-9"	7
*A327	1	5	STR	5'-4"	6
*A328	1	5	STR	3'-10"	4
*A329	1	5	STR	2'-4"	2
A401	1	5	STR	44'-0"	46
A402	1	5	STR	42'-6"	44
A403	1	5	STR	41'-0"	43
A404	1	5	STR	39'-6"	41
A405	1	5	STR	38'-0"	40
A406	1	5	STR	36'-7"	38
A407	1	5	STR	35'-1"	37
A408	1	5	STR	33'-7"	35
A409	1	5	STR	32'-1"	33
A410	1	5	STR	30'-7"	32
A411	1	5	STR	29'-1"	30
A412	1	5	STR	27'-8"	29
A413	1	5	STR	26'-2"	27
A414	1	5	STR	24'-8"	26
A415	1	5	STR	23'-2"	24
A416	1	5	STR	21'-8"	23
A417	1	5	STR	20'-2"	21
A418	1	5	STR	18'-8"	19
A419	1	5	STR	17'-3"	18
A420	1	5	STR	15'-9"	16
A421	1	5	STR	14'-3"	15
A422	1	5	STR	12'-9"	13
A423	1	5	STR	11'-3"	12
A424	1	5	STR	9'-9"	10
A425	1	5	STR	8'-3"	9
A426	1	5	STR	6'-9"	7
A427	1	5	STR	5'-4"	6
A428	1	5	STR	3'-10"	4
A429	1	5	STR	2'-4"	2
*B1	70	4	STR	20'-5"	955
B2	159	5	STR	42'-11"	7117
*B3	105	4	STR	27'-11"	1958
*B4	95	5	STR	10'-6"	1040
*D1	83	6	STR	3'-6"	436
*G2	2	5	STR	48'-7"	101
*K1	4	5	1	7'-0"	29
*K2	16	5	2	8'-3"	138
*K3	20	5	STR	7'-5"	155
*K4	4	5	1	5'-0"	21
*S1	70	4	3	3'-8"	171

REINFORCING STEEL 17,343 LBS.
 *EPOXY COATED REINFORCING STEEL 15,230 LBS.

CLASS AA CONCRETE 197.1 CU. YDS.
 CLOSURE POUR 9.2 CU. YDS.

SPAN A & B STAGE II SIDEWALK					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*B5	10	4	STR	29'-7"	198
*B6	5	4	STR	19'-7"	65
*B7	20	4	STR	14'-3"	190
*D2	80	4	STR	10"	45
*G3	126	4	STR	4'-11"	414

*EPOXY COATED REINFORCING STEEL 912 LBS.
 CLASS AA CONCRETE 15.3 CU. YDS.

SPAN A & B STAGE IV SIDEWALK					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*B5	10	4	STR	29'-7"	198
*B6	5	4	STR	19'-7"	65
*B7	20	4	STR	14'-3"	190
*D2	80	4	STR	10"	45
*G3	126	4	STR	4'-11"	414

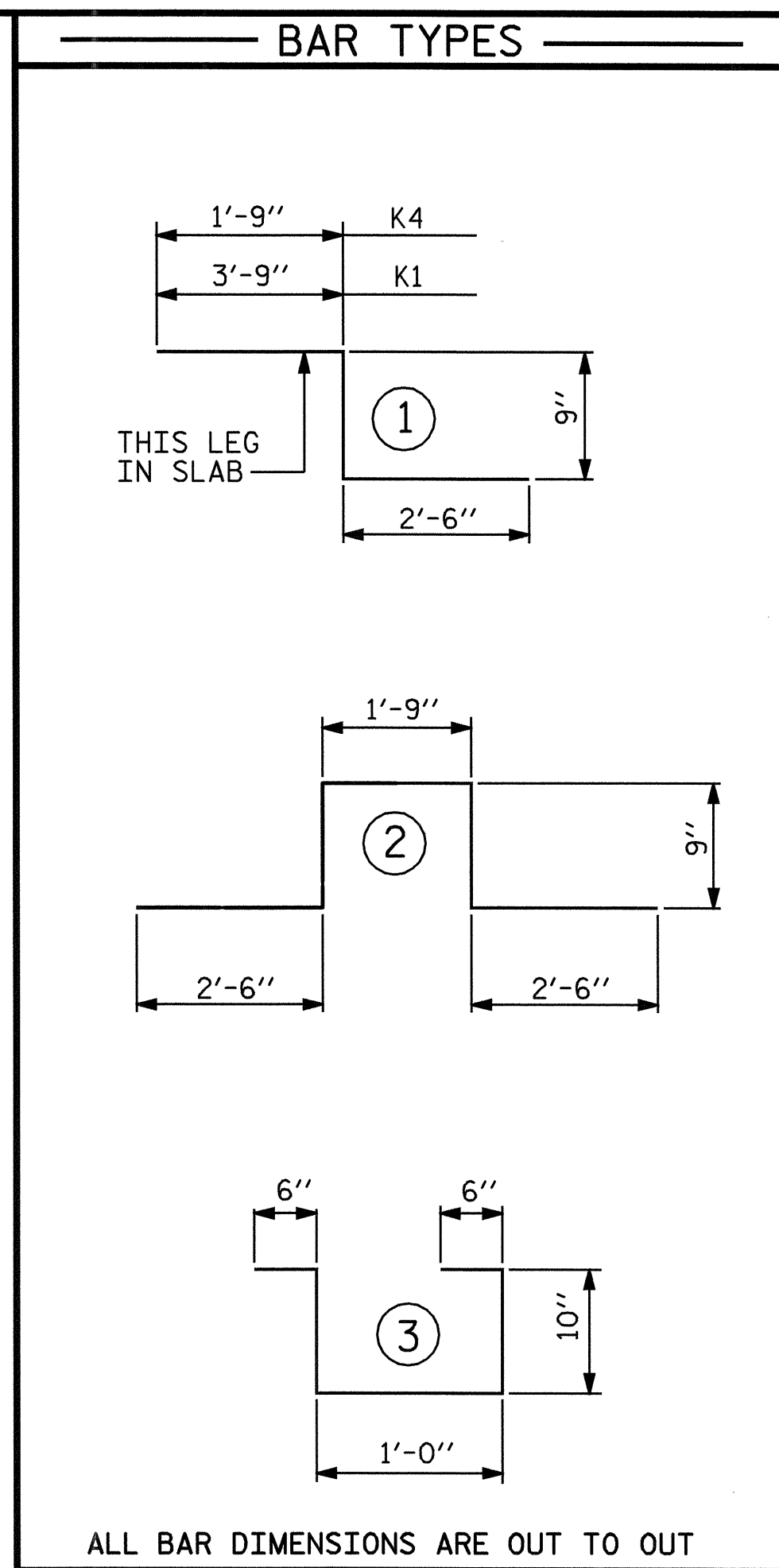
*EPOXY COATED REINFORCING STEEL 912 LBS.
 CLASS AA CONCRETE 15.3 CU. YDS.

	SUPERSTRUCTURE BILL OF MATERIAL		
	CLASS AA CONCRETE (CU. YDS)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
SPAN A & B STAGE I	128.3	11,253	9,954
SPAN A & B STAGE II &	197.1	17,343	15,230
CLOSURE POUR	9.2		
SIDEWALK STAGE II	15.3		912
SIDEWALK STAGE IV	15.3		912
TOTAL **	365.2	28,596	27,008

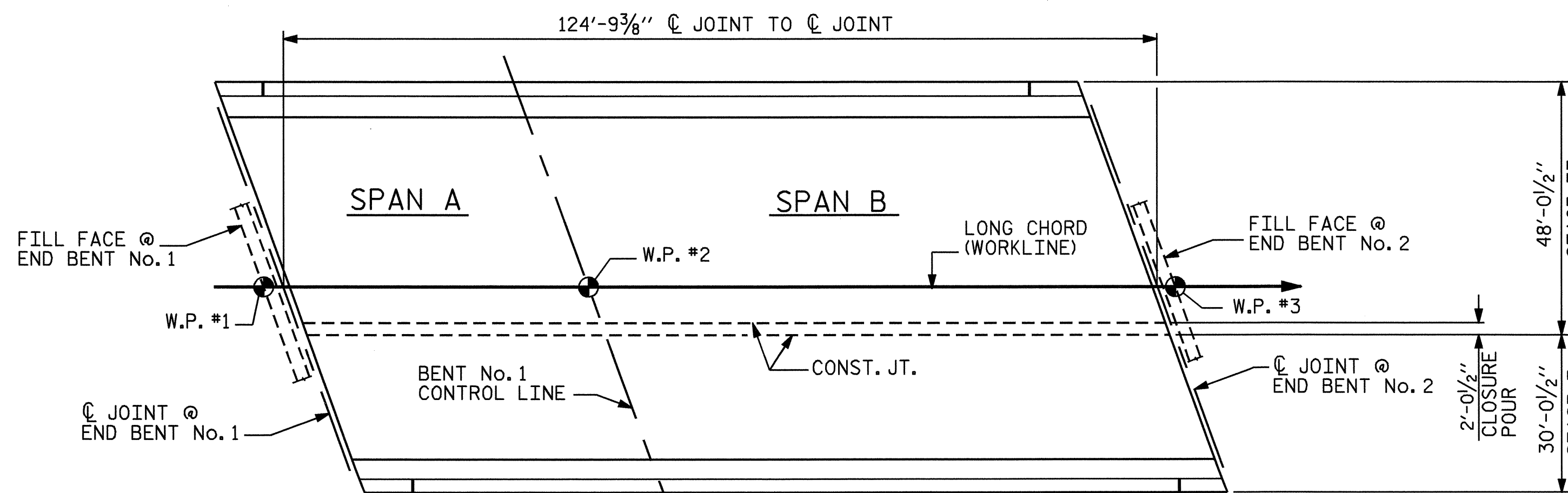
** QUANTITIES FOR PARAPET ARE NOT INCLUDED

BRIDGE DECK	SPAN A & B	
	STAGE I	STAGE II
	2685	4907
	SQ.FEET	SQ.FEET
APPROACH SLAB	812	1484
	SQ.FEET	SQ.FEET
TOTAL	= 9888 SQ. FEET	

BAR SIZE	SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS				
	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"			



ALL BAR DIMENSIONS ARE OUT TO OUT



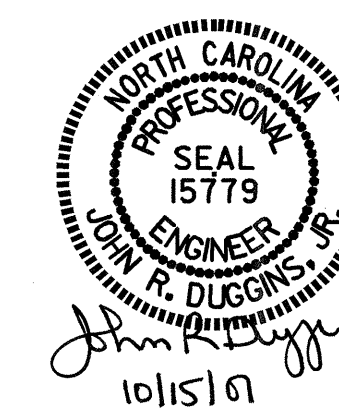
LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB

STAGE I - SQ. FEET = 3749
 STAGE II - SQ. FEET = 5995
 TOTAL = 9744 SQ. FEET

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 BILL OF MATERIAL

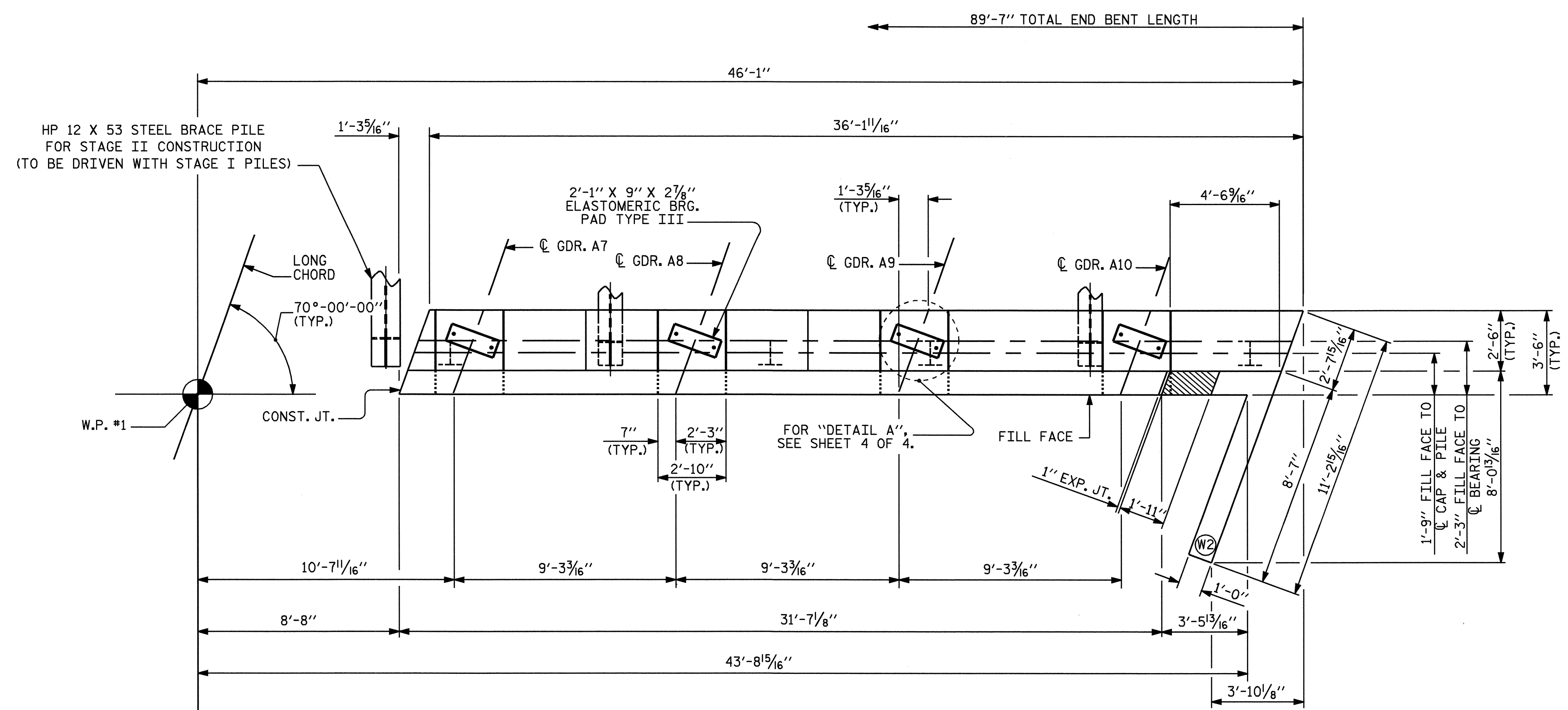


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-29
2			4			

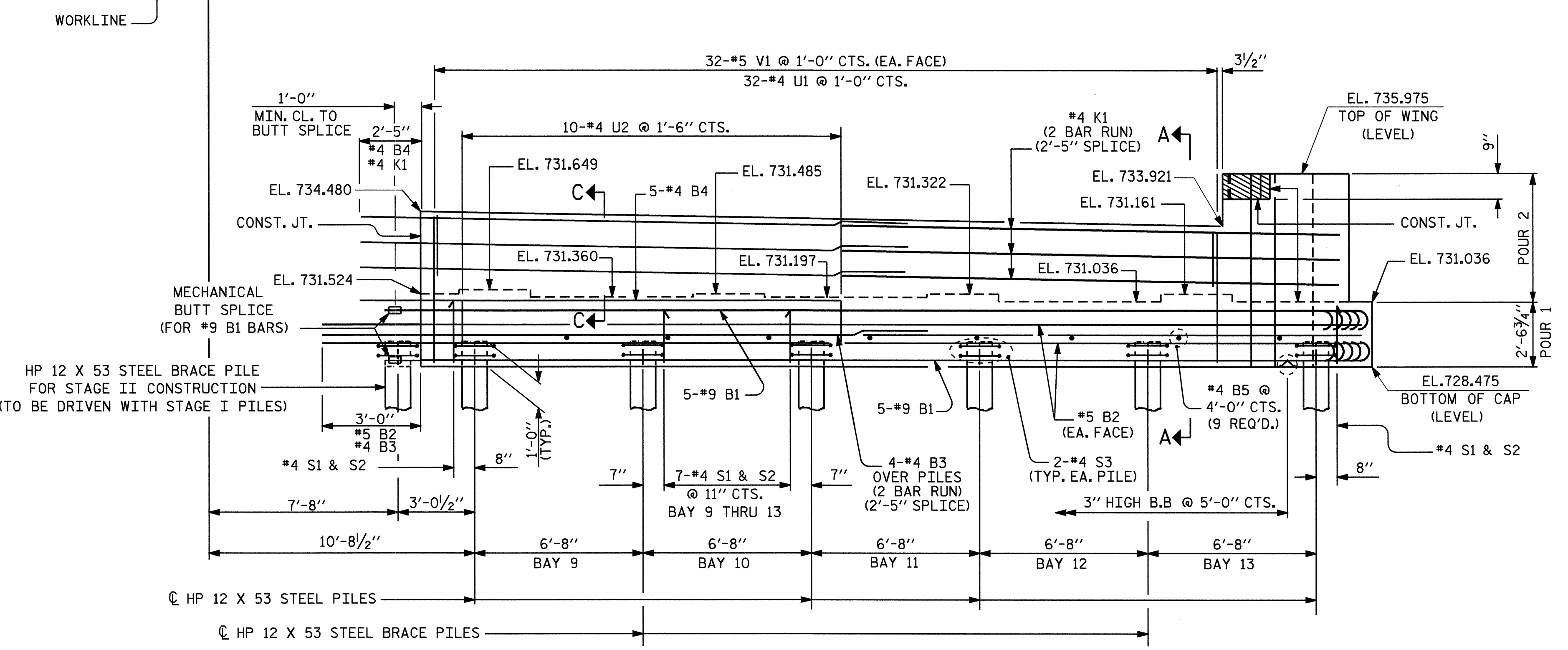
DRAWN BY : M. POOLE DATE : 03/06
 CHECKED BY : D. HODGE DATE : 09/07

NOTES

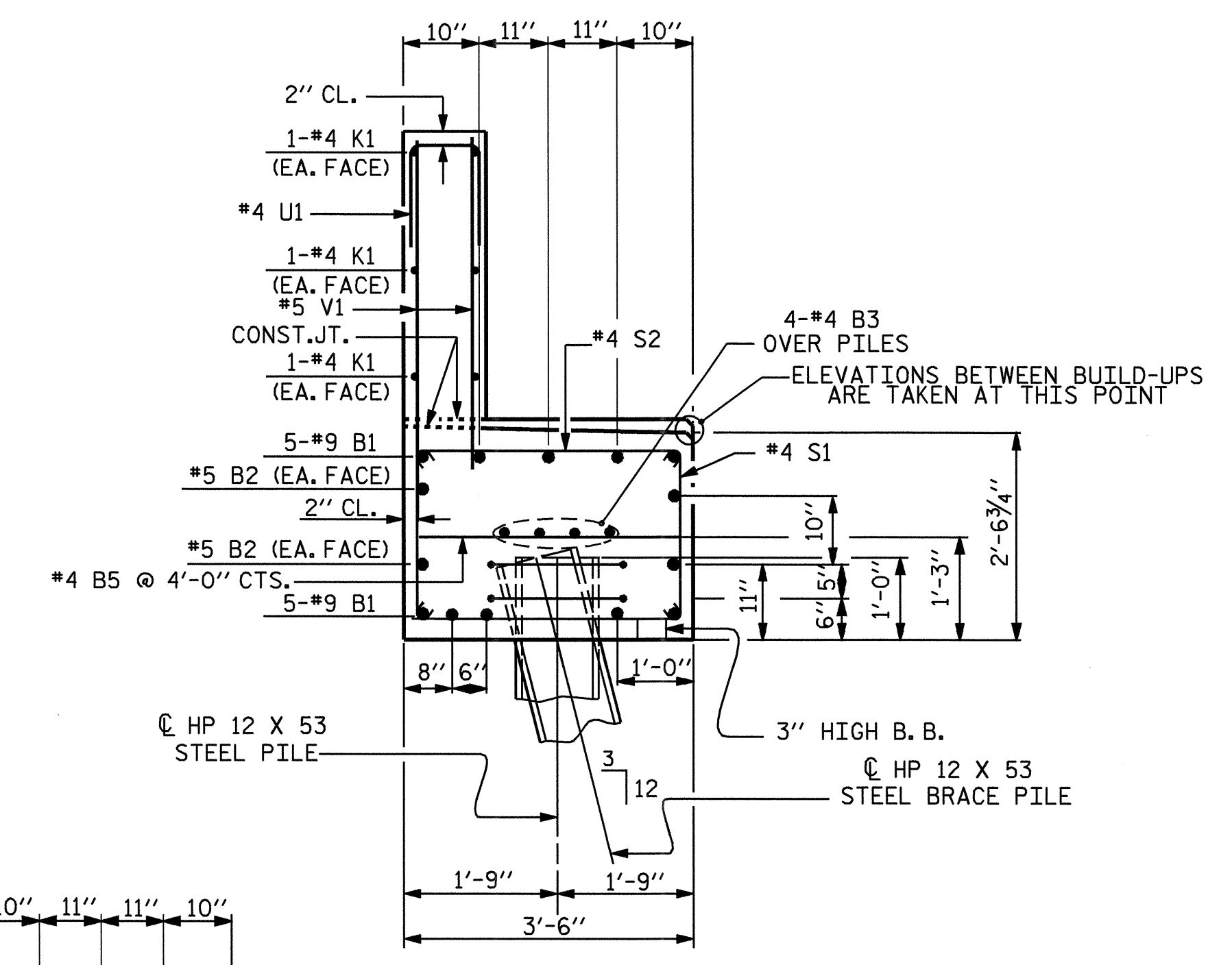
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.
 BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
 THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
 THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.
 THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



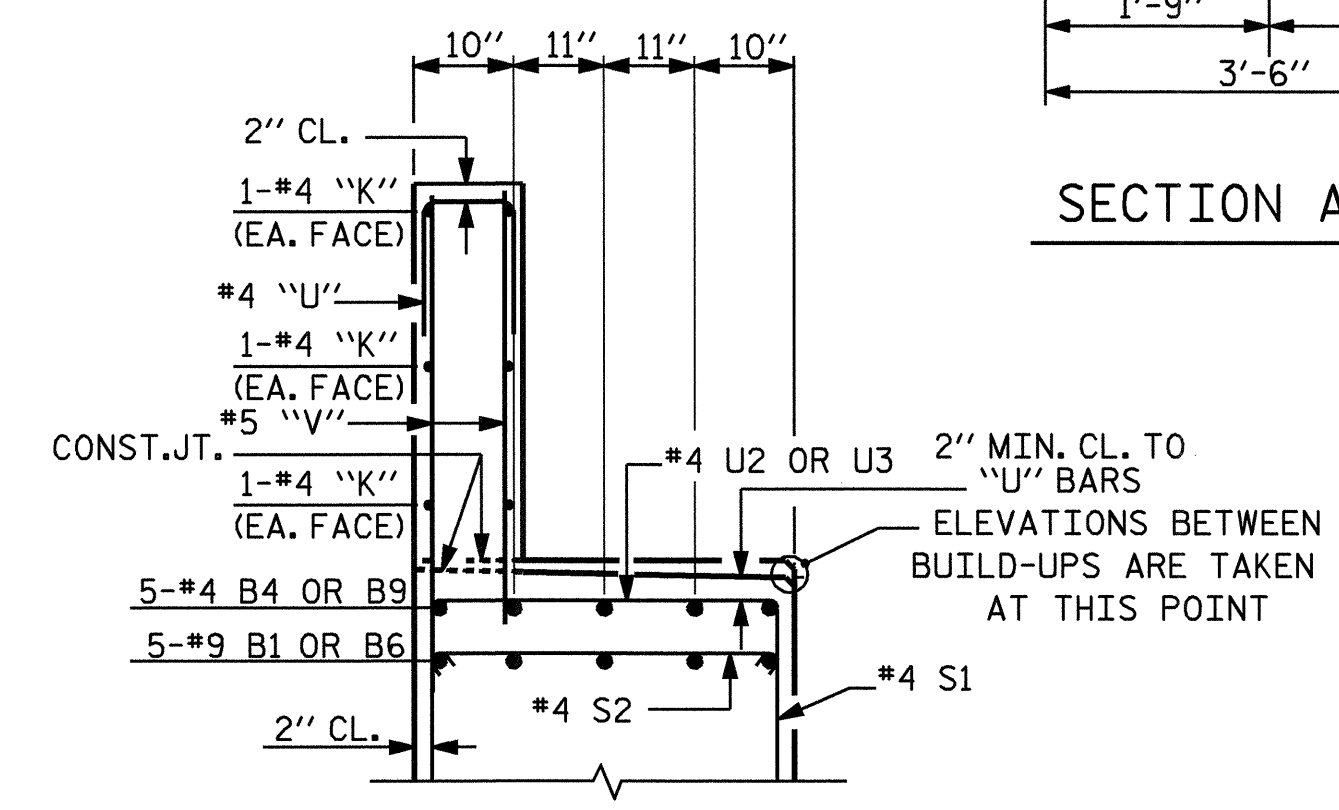
PLAN - STAGE I



ELEVATION - STAGE I



SECTION A-A



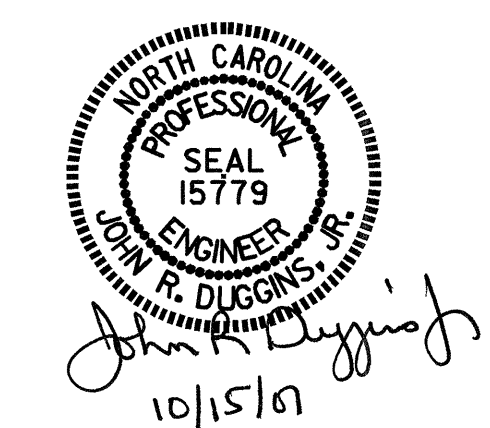
SECTION C-C

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

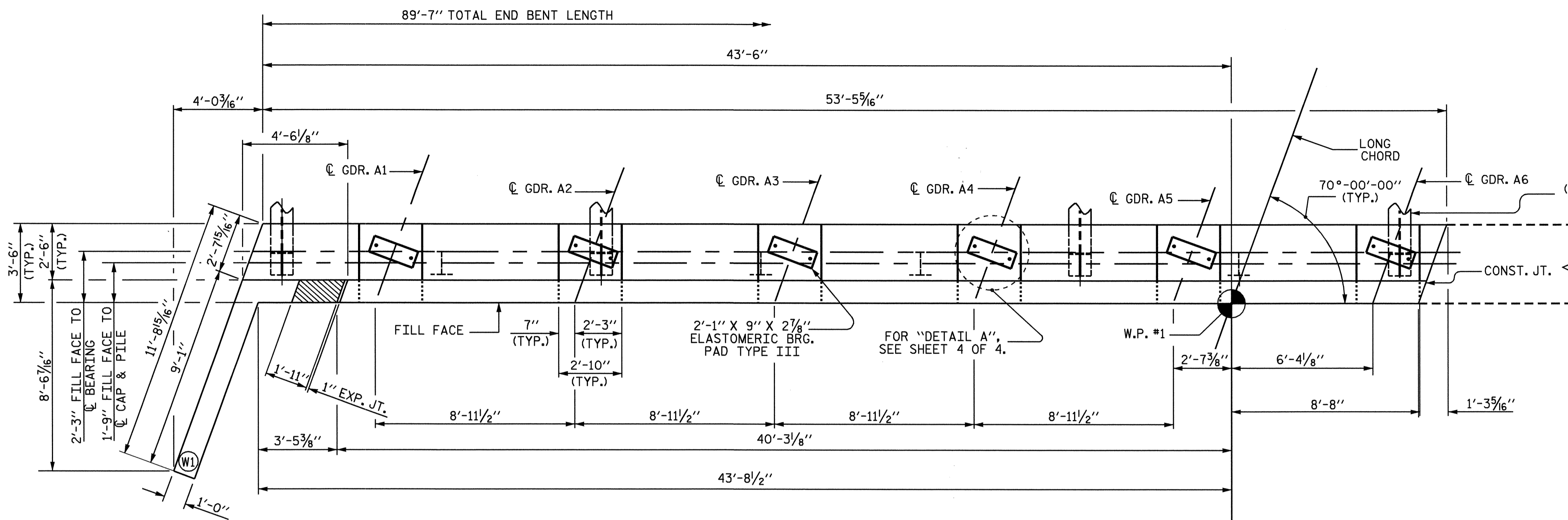
SUBSTRUCTURE
 END BENT No. 1
 STAGE I



DRAWN BY: M. POOLE DATE: 08/06
 CHECKED BY: J. LAMBERT DATE: 07/07

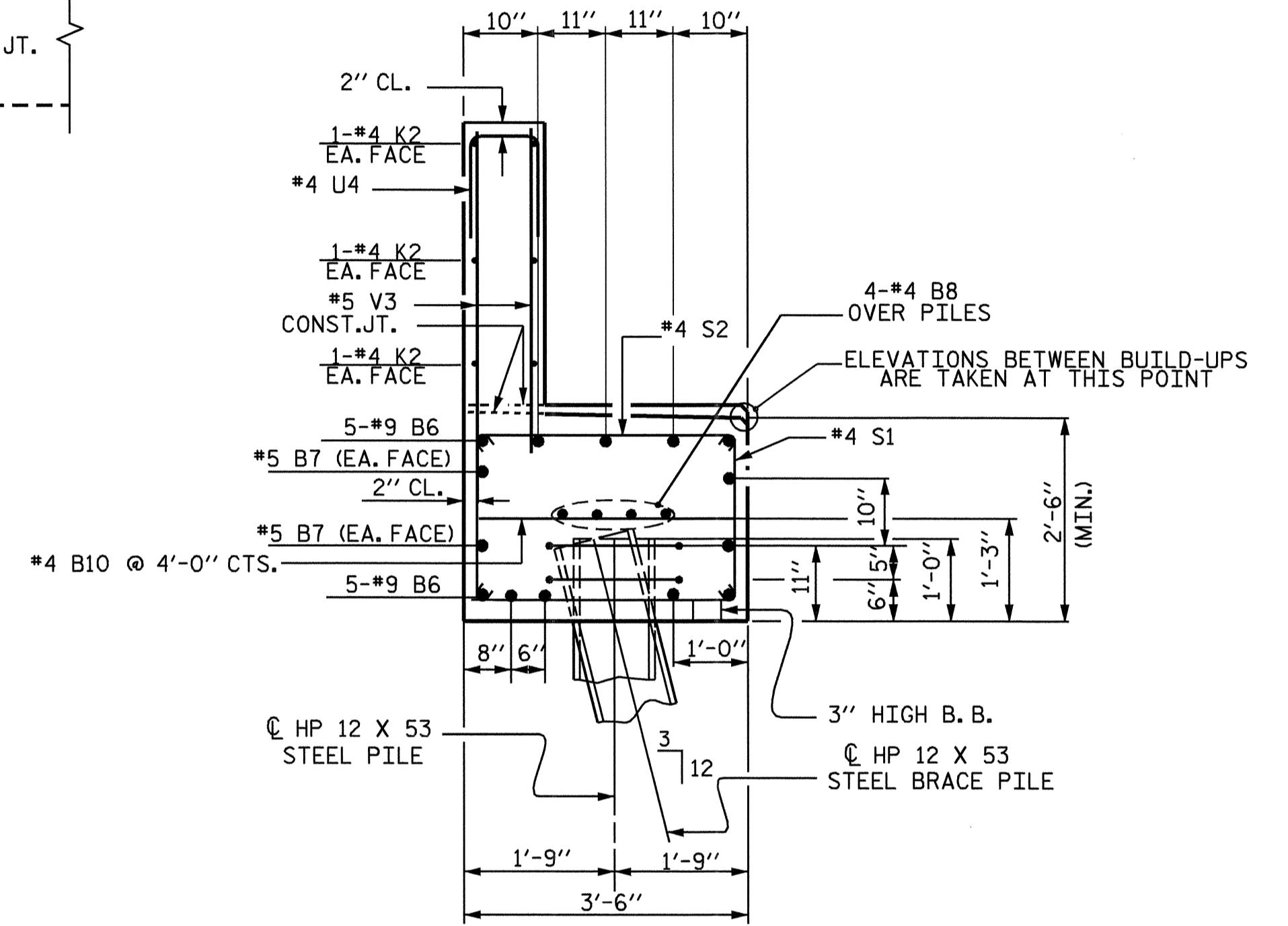
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			45
2			4			

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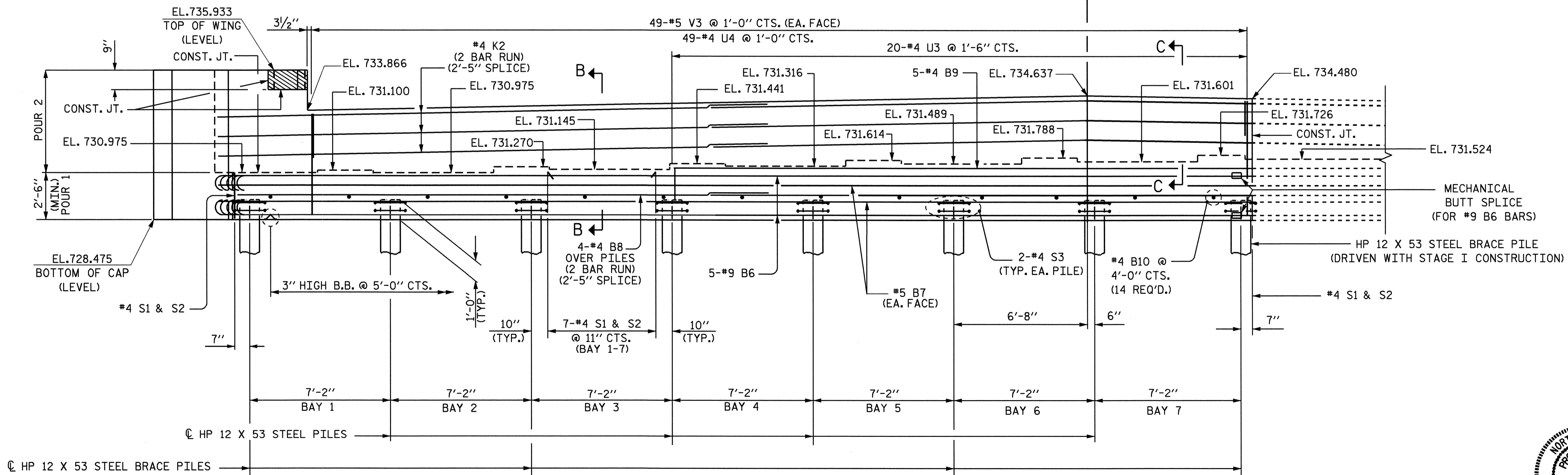


PLAN - STAGE II

HP 12 X 53 STEEL BRACE PILE
(DRIVEN WITH STAGE I CONSTRUCTION)



SECTION B-B



ELEVATION - STAGE II

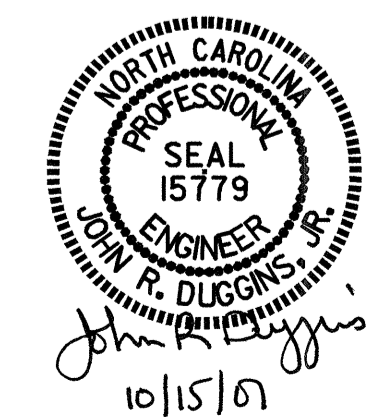
FOR SECTION C-C, SEE SHEET 1 OF 4

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

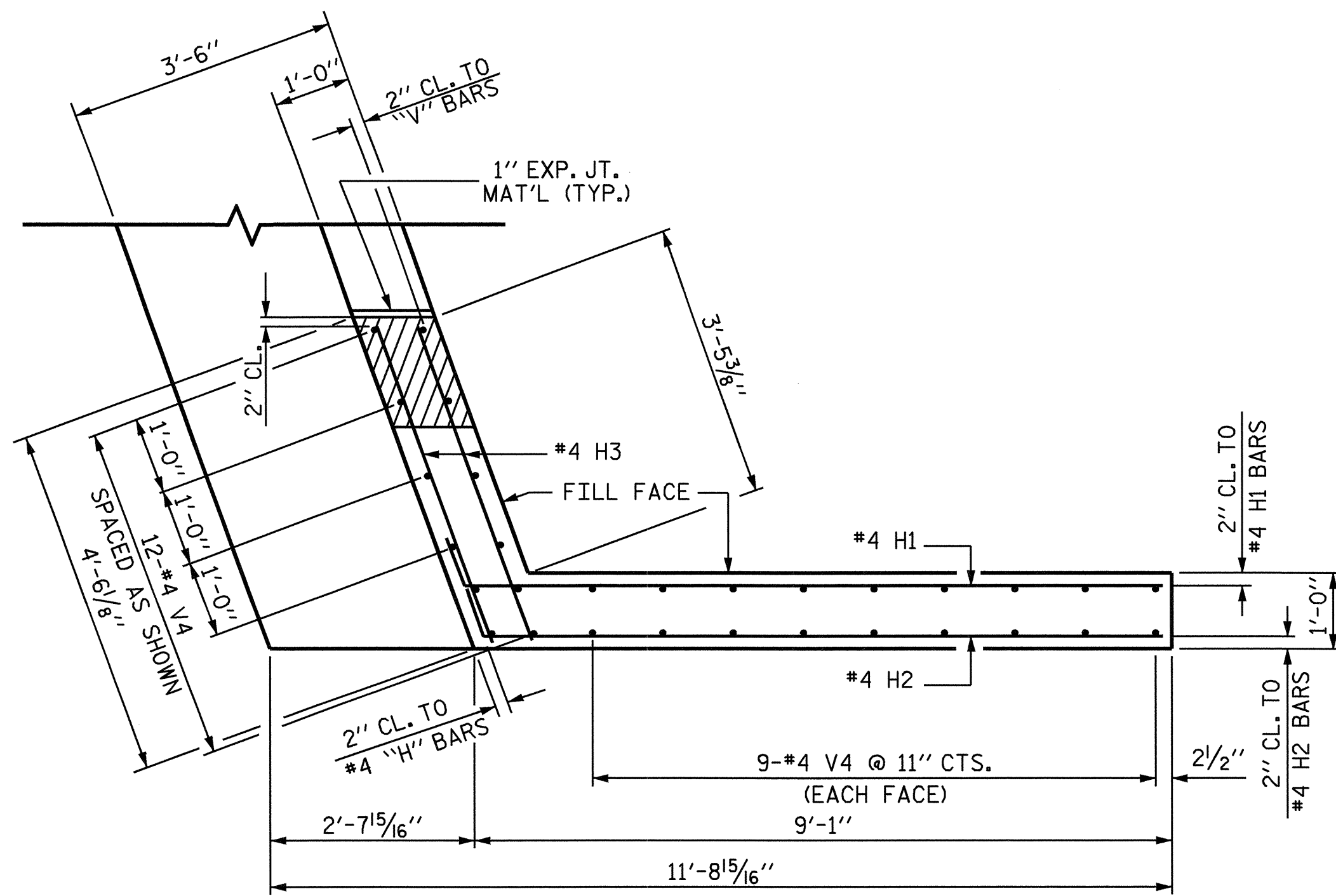
SUBSTRUCTURE
 END BENT No. 1
 STAGE II



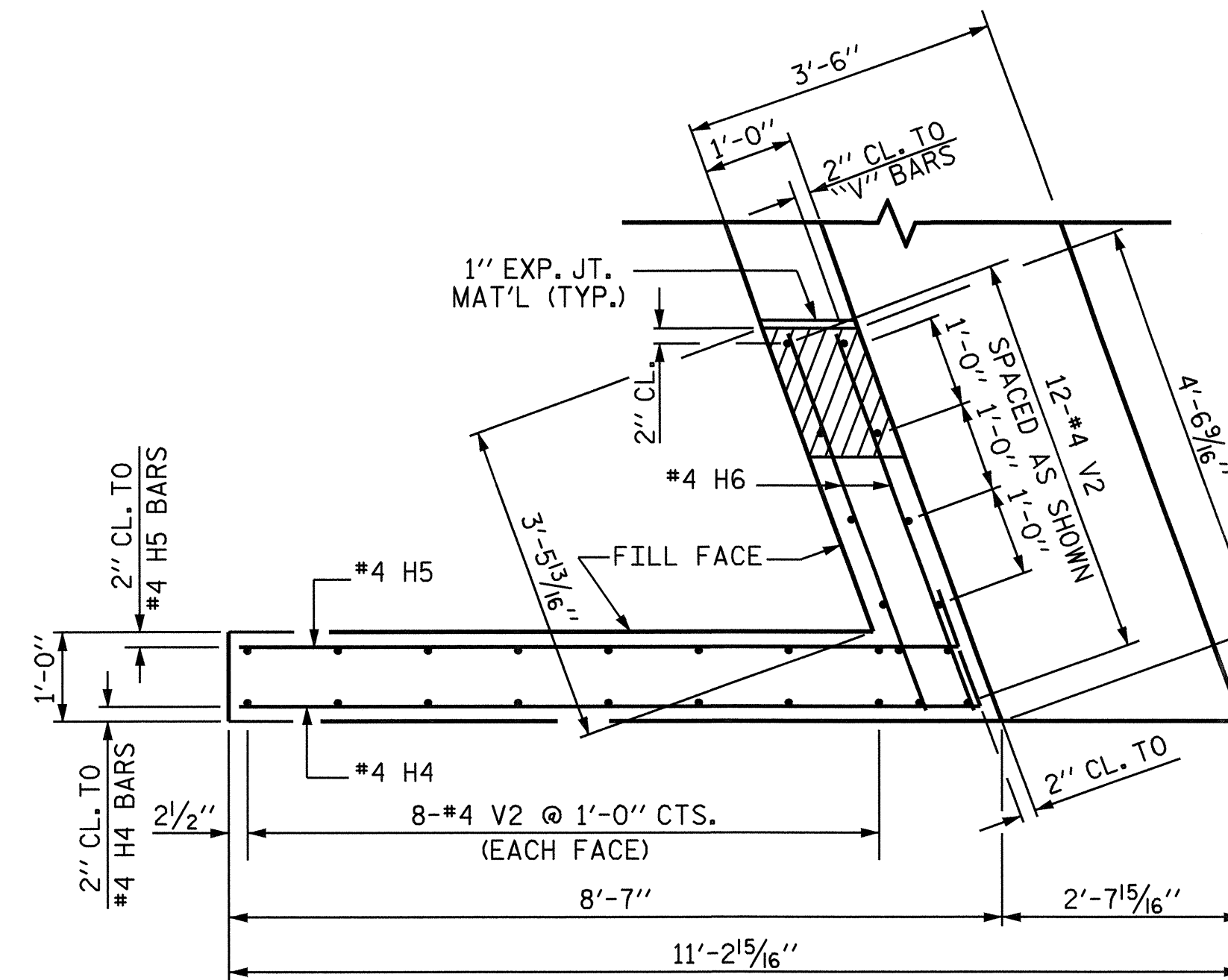
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 CHECKED BY: J. LAMBERT DATE: 07/07

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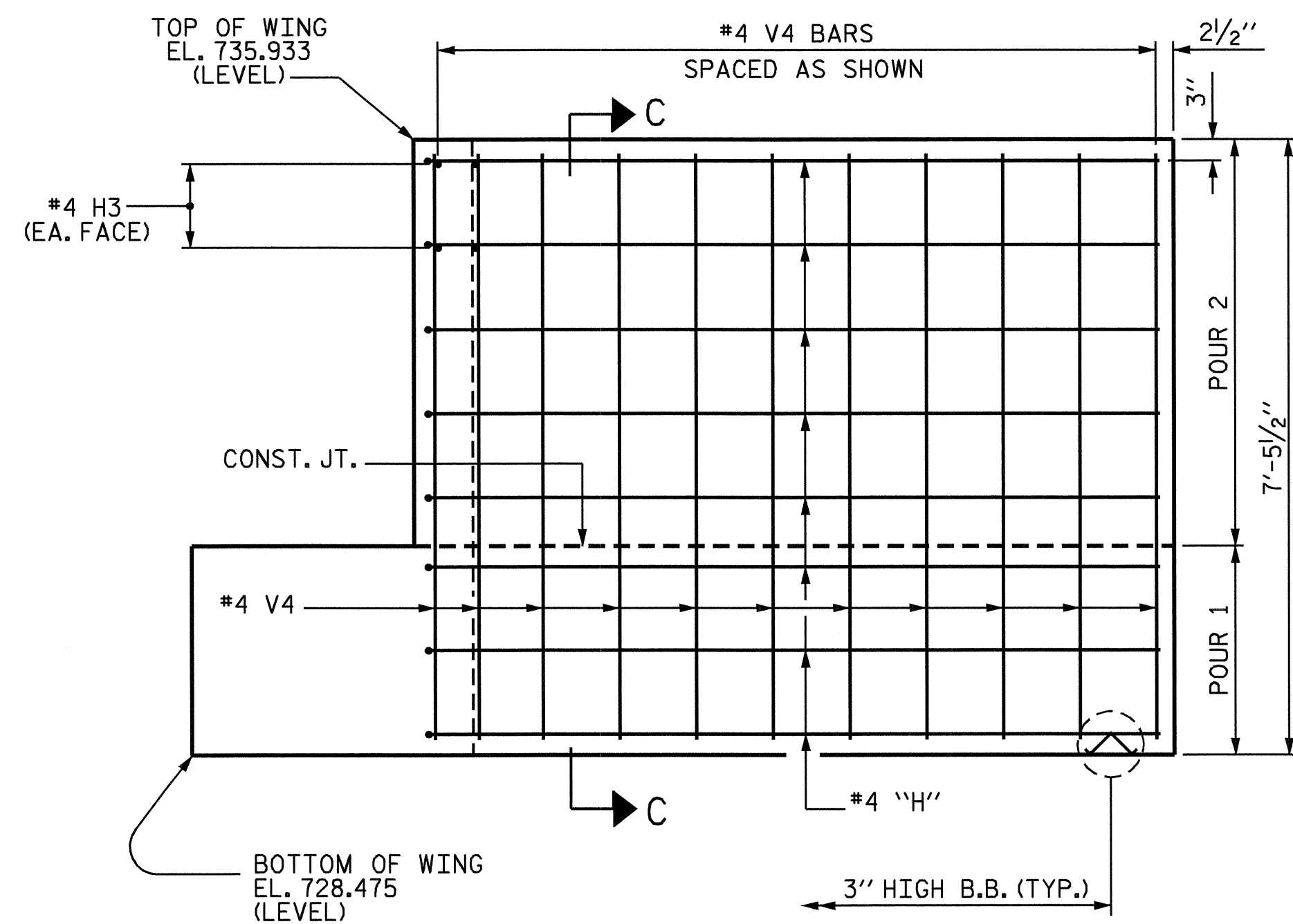
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			9-31
2			4			TOTAL SHEETS 45



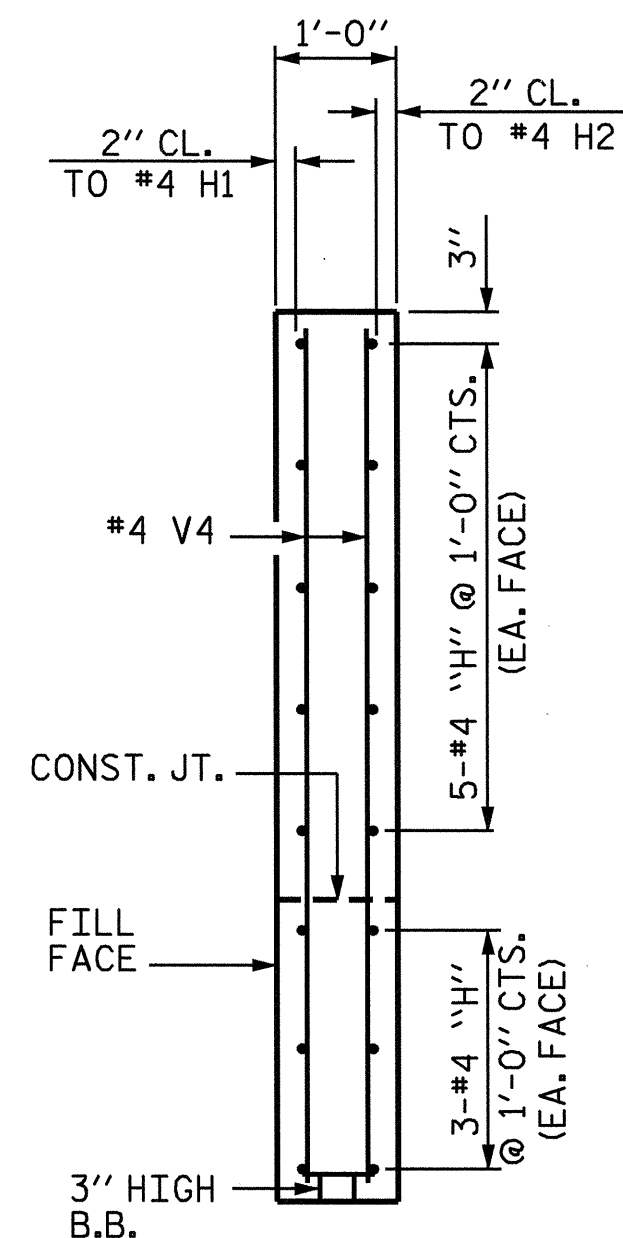
PLAN OF LEFT WING - W1
STAGE II



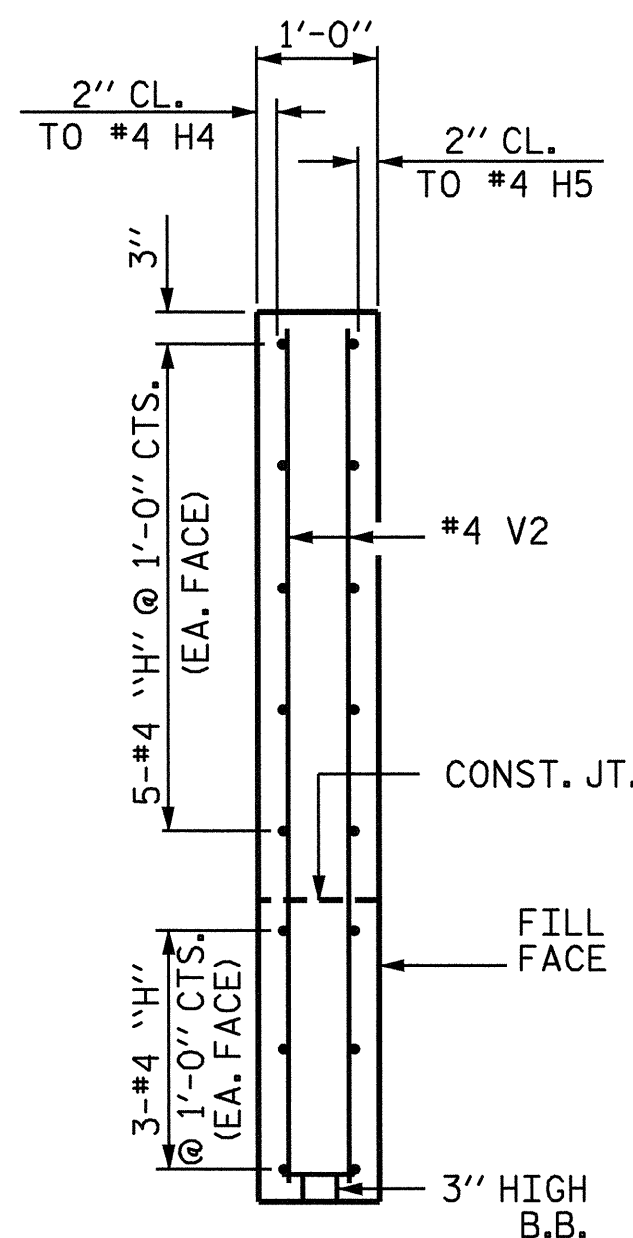
PLAN OF RIGHT WING - W2
STAGE I



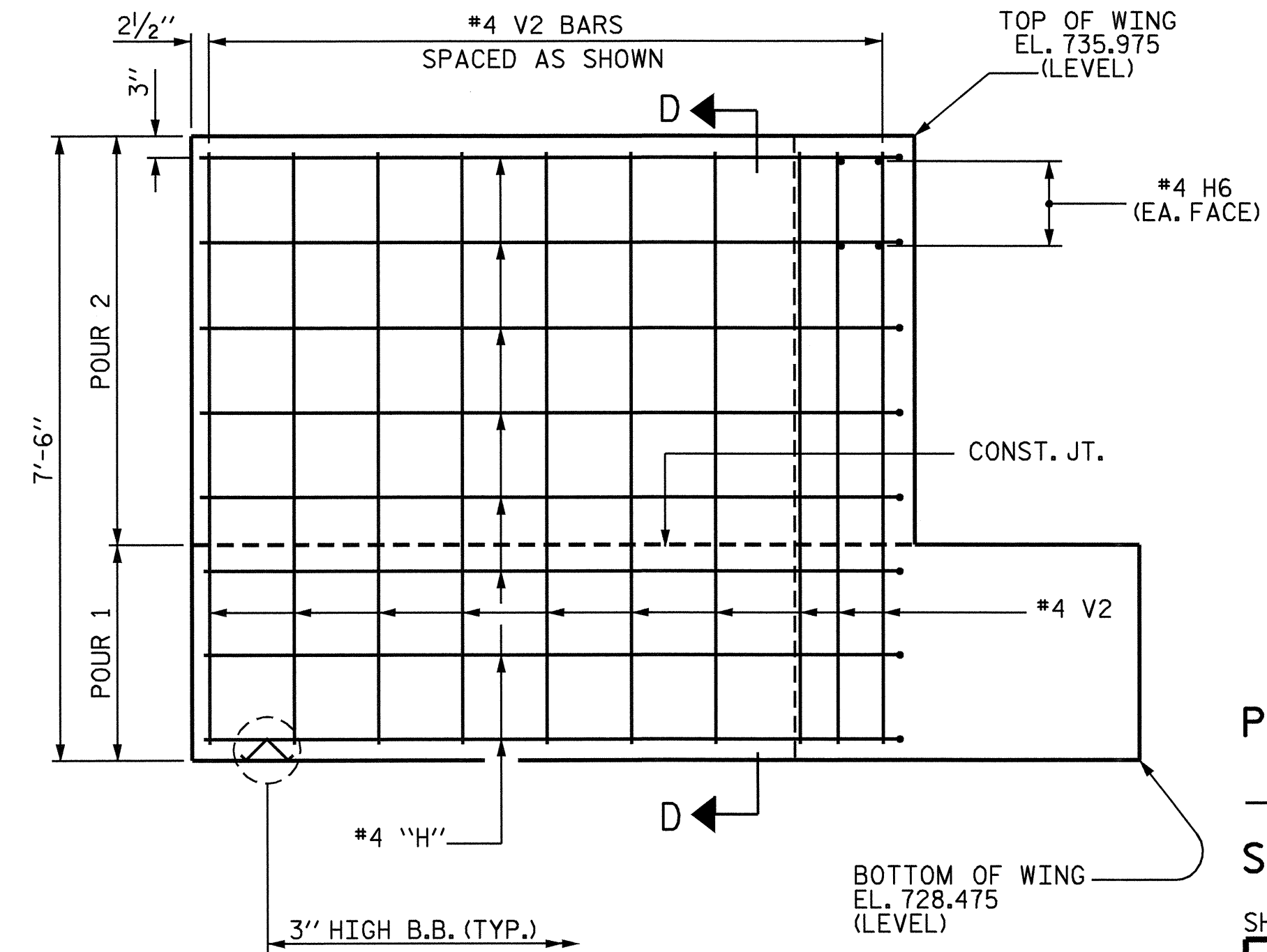
ELEVATION OF LEFT WING - W1
STAGE II



SECTION C-C
STAGE II



SECTION D-D
STAGE I



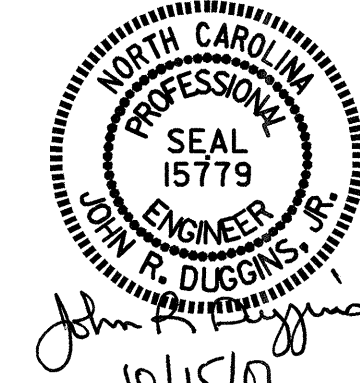
ELEVATION OF RIGHT WING - W2
STAGE I

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 1

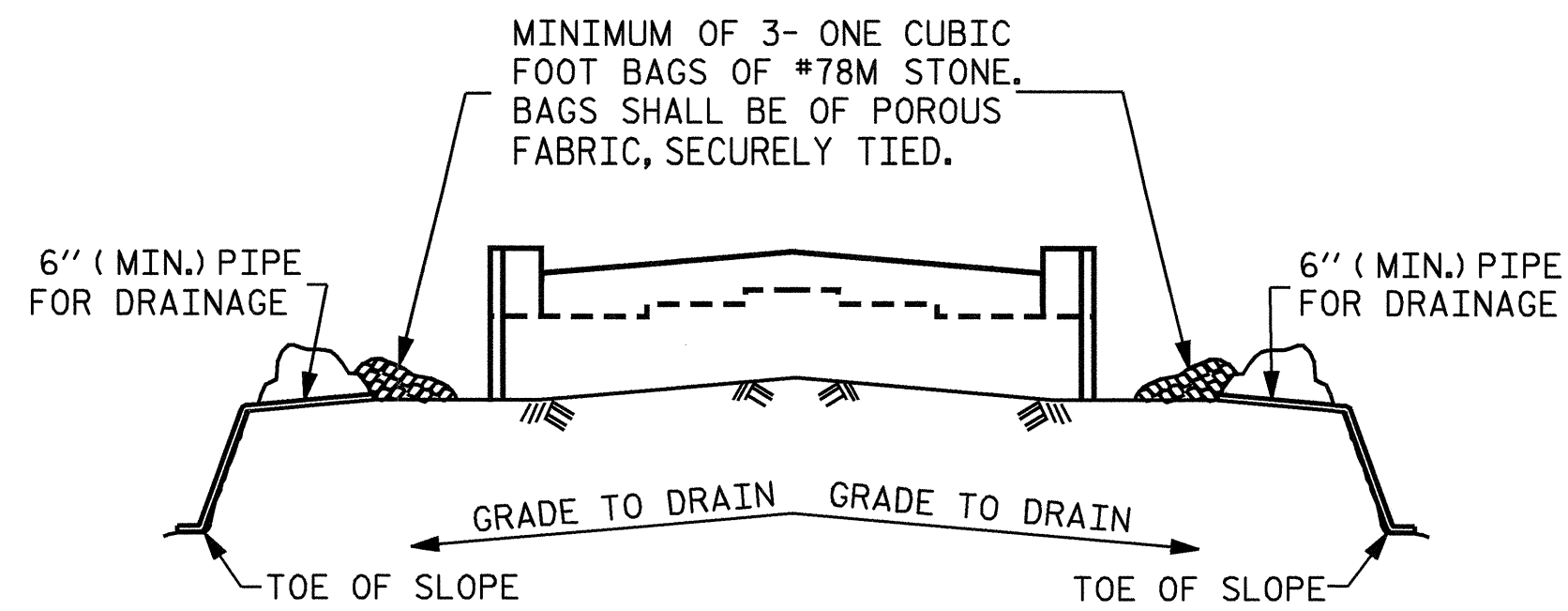


DRAWN BY: M. POOLE DATE: 08/06
 CHECKED BY: J. LAMBERT DATE: 07/07

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REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	45
1			3			
2			4			

SHEET NO.
S-32

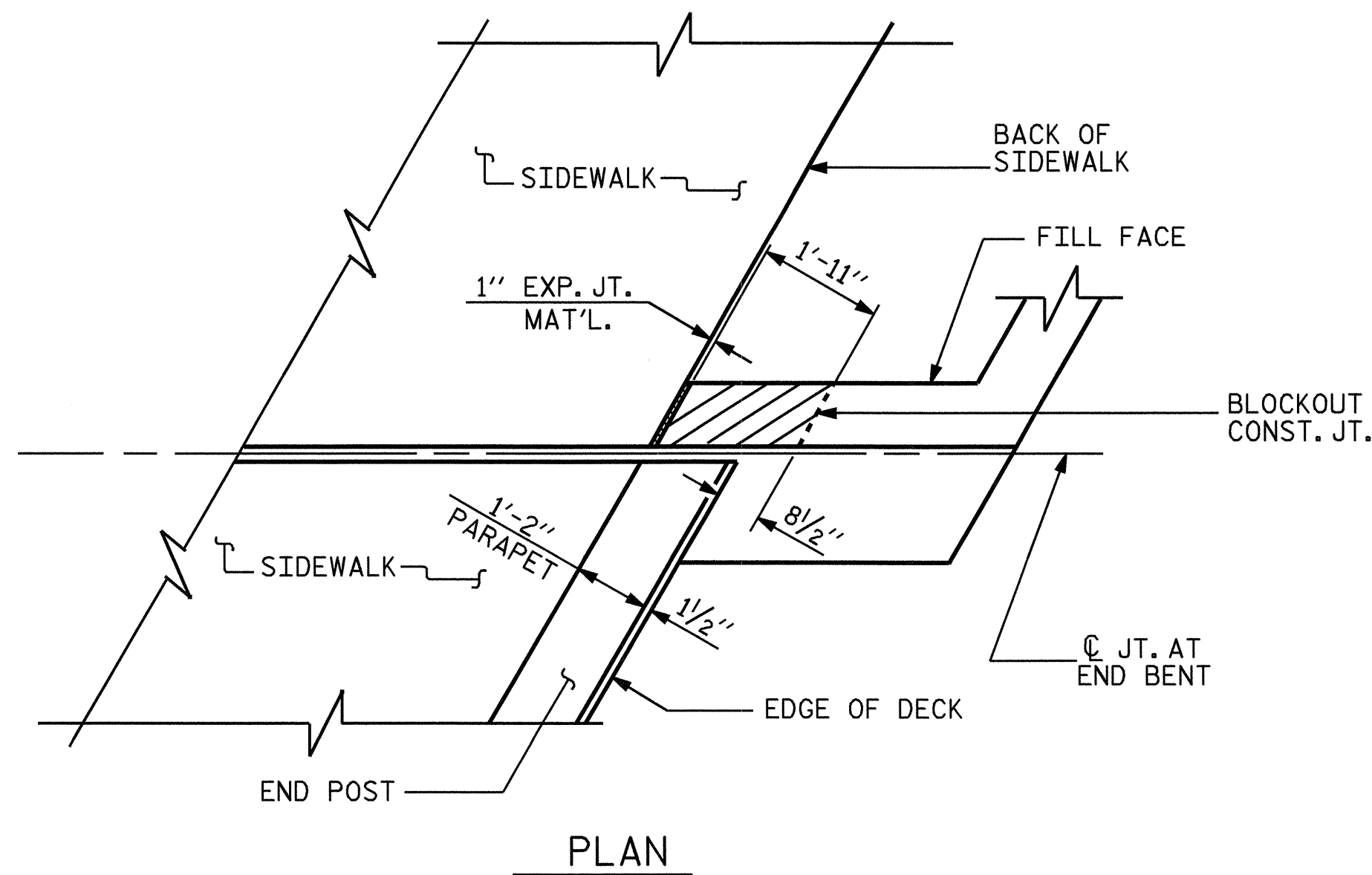


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

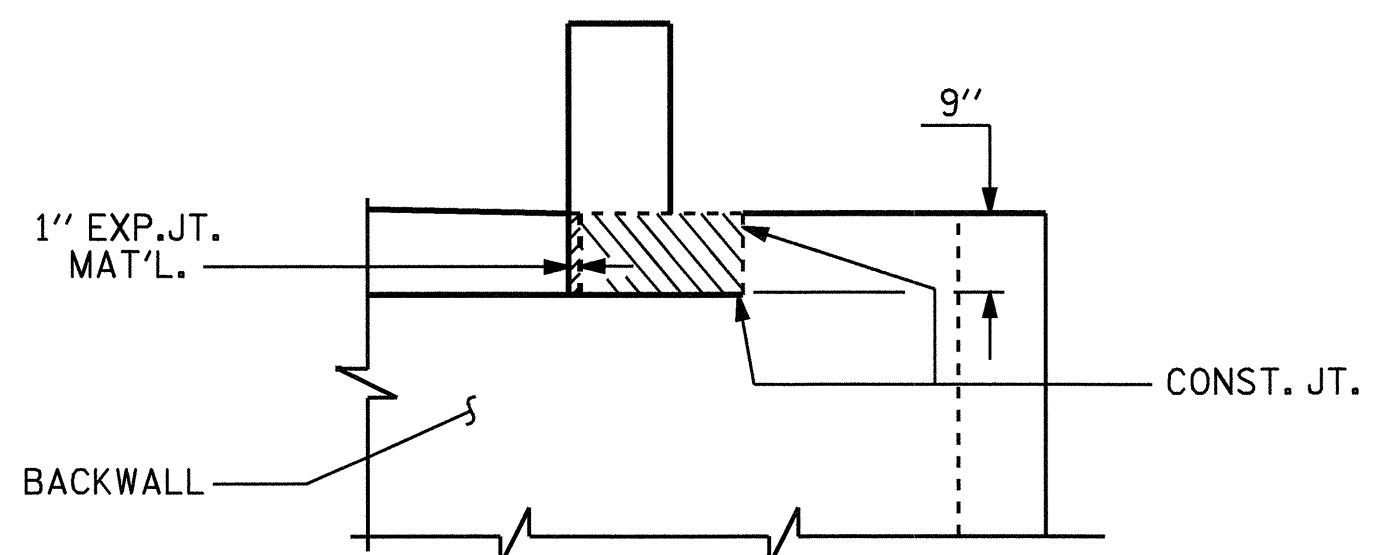
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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



PLAN



ELEVATION

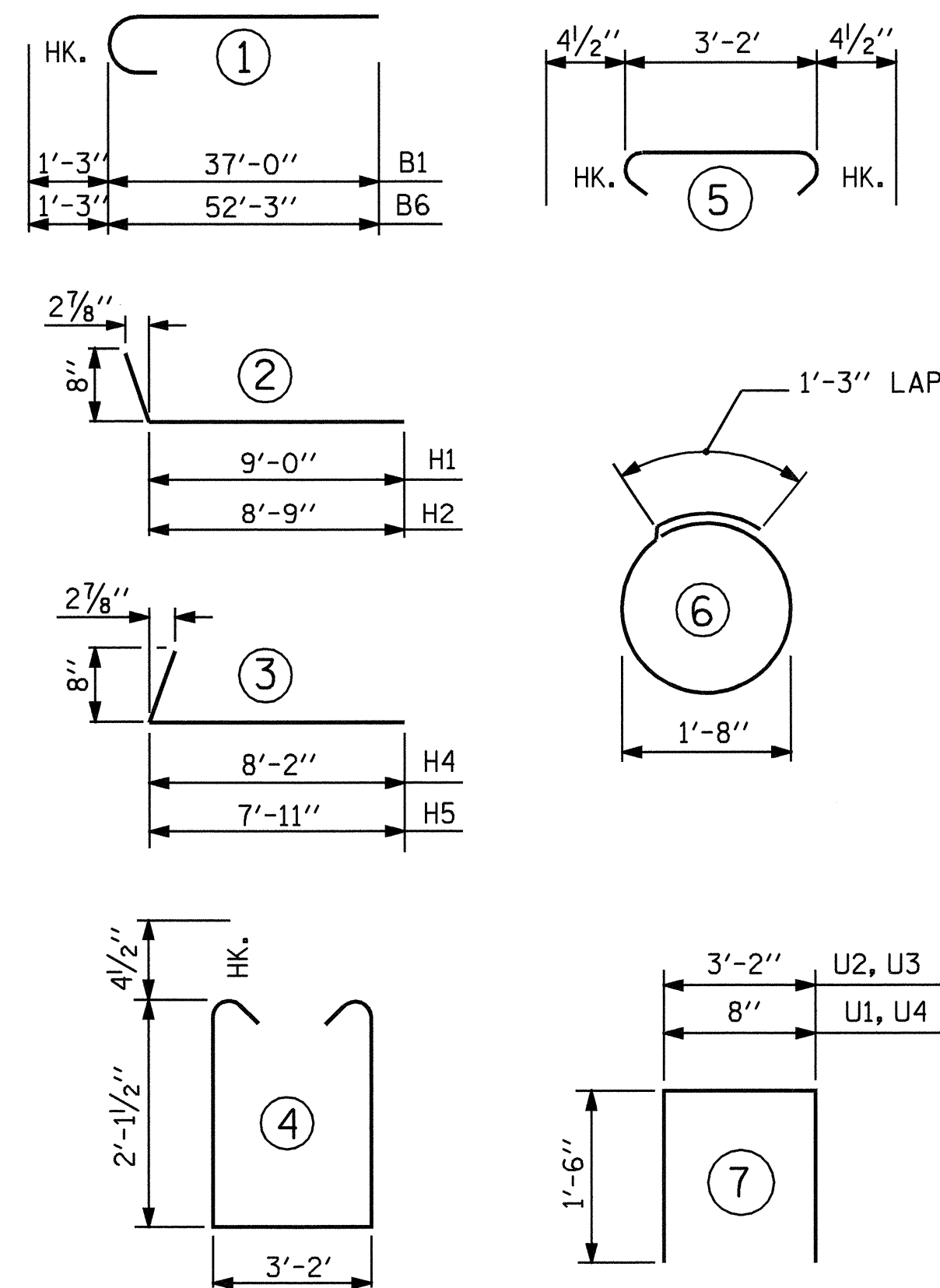
BLOCKOUT IN WING WALL FOR FITTING EVAZOTE JOINT SEAL

NOTE: THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND APPROACH SLAB HAS BEEN SAWED AND THE PARAPET IS CAST IF SLIP FORMING IS USED.

DRAWN BY: M. POOLE DATE: 08/06
CHECKED BY: J. LAMBERT DATE: 09/07

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BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

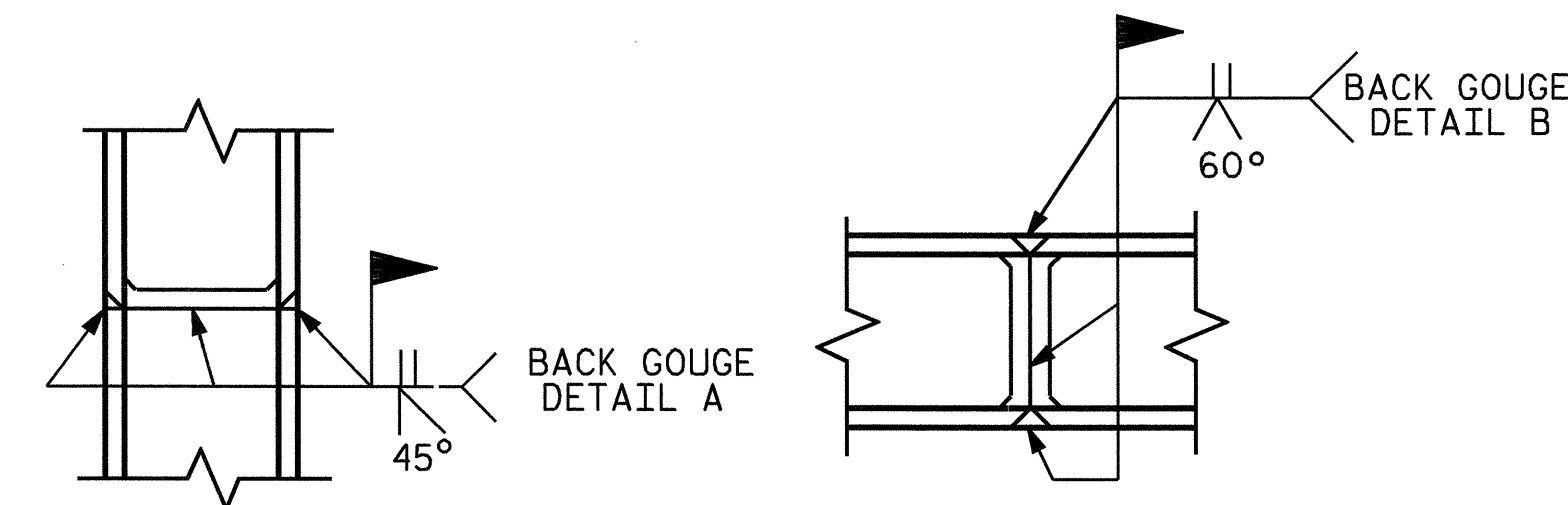
END BENT No. 1

STAGE I						STAGE II					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	#9		38'-3"	1301		B6	#9		53'-6"	1819	
B2	#5	STR	39'-0"	163		B7	#5	STR	53'-2"	222	
B3	#4	STR	20'-9"	111		B8	#4	STR	27'-10"	149	
B4	#4	STR	15'-9"	53		B9	#4	STR	29'-7"	99	
B5	#4	STR	3'-2"	19		B10	#4	STR	3'-2"	30	
H4	#4		8'-10"	47		H1	#4		9'-8"	52	
H5	#4		8'-7"	46		H2	#4		9'-5"	50	
H6	#4	STR	4'-2"	11		H3	#4	STR	4'-2"	11	
K1	#4	STR	20'-7"	165		K2	#4	STR	27'-10"	223	
S1	#4		8'-2"	202		S1	#4		8'-2"	278	
S2	#4		3'-11"	97		S2	#4		3'-11"	133	
S3	#4		6'-6"	52		S3	#4		6'-6"	69	
U1	#4		3'-8"	78		U3	#4		6'-2"	82	
U2	#4		6'-2"	41		U4	#4		3'-8"	120	
V1	#5	STR	5'-2"	345		V3	#5	STR	5'-0"	511	
V2	#4	STR	7'-2"	134		V4	#4	STR	7'-1"	142	

REINFORCING STEEL		2865 LBS.	REINFORCING STEEL		3990 LBS.		
CLASS A CONCRETE BREAKDOWN			CLASS A CONCRETE BREAKDOWN				
POUR 1 (CAP & LOWER WINGS)			13.9 C.Y.	POUR 1 (CAP & LOWER WINGS)			19.9 C.Y.
POUR 2 (BACKWALL & UPPER WINGS)			5.5 C.Y.	POUR 2 (BACKWALL & UPPER WINGS)			5.8 C.Y.
TOTAL			19.4 C.Y.	TOTAL			25.7 C.Y.
HP 12 x 53 STEEL PILES				HP 12 x 53 STEEL PILES			
No. 6		120 LIN FT.		No. 8		160 LIN FT.	

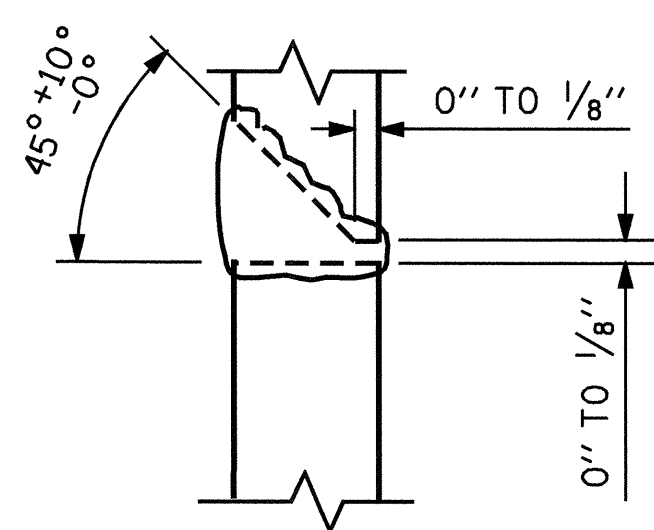
TOTAL QUANTITIES

REINFORCING STEEL	6855 LBS.
CLASS A CONCRETE	45.1 C.Y.
HP 12 X 53 STEEL PILES	280 LIN. FT.
No. 14	

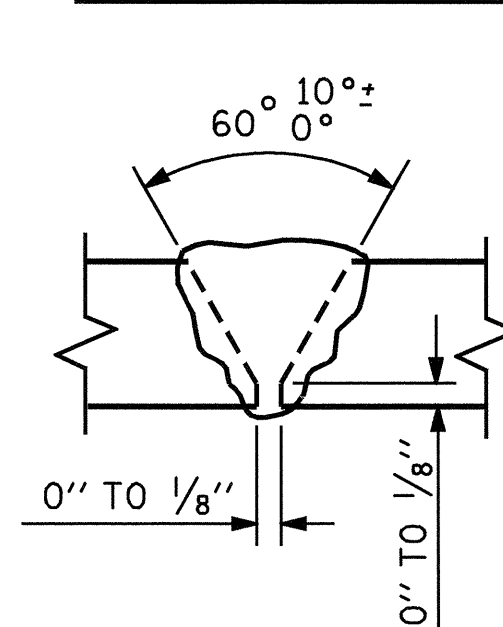


* PILE VERTICAL

* PILE HORIZONTAL OR VERTICAL



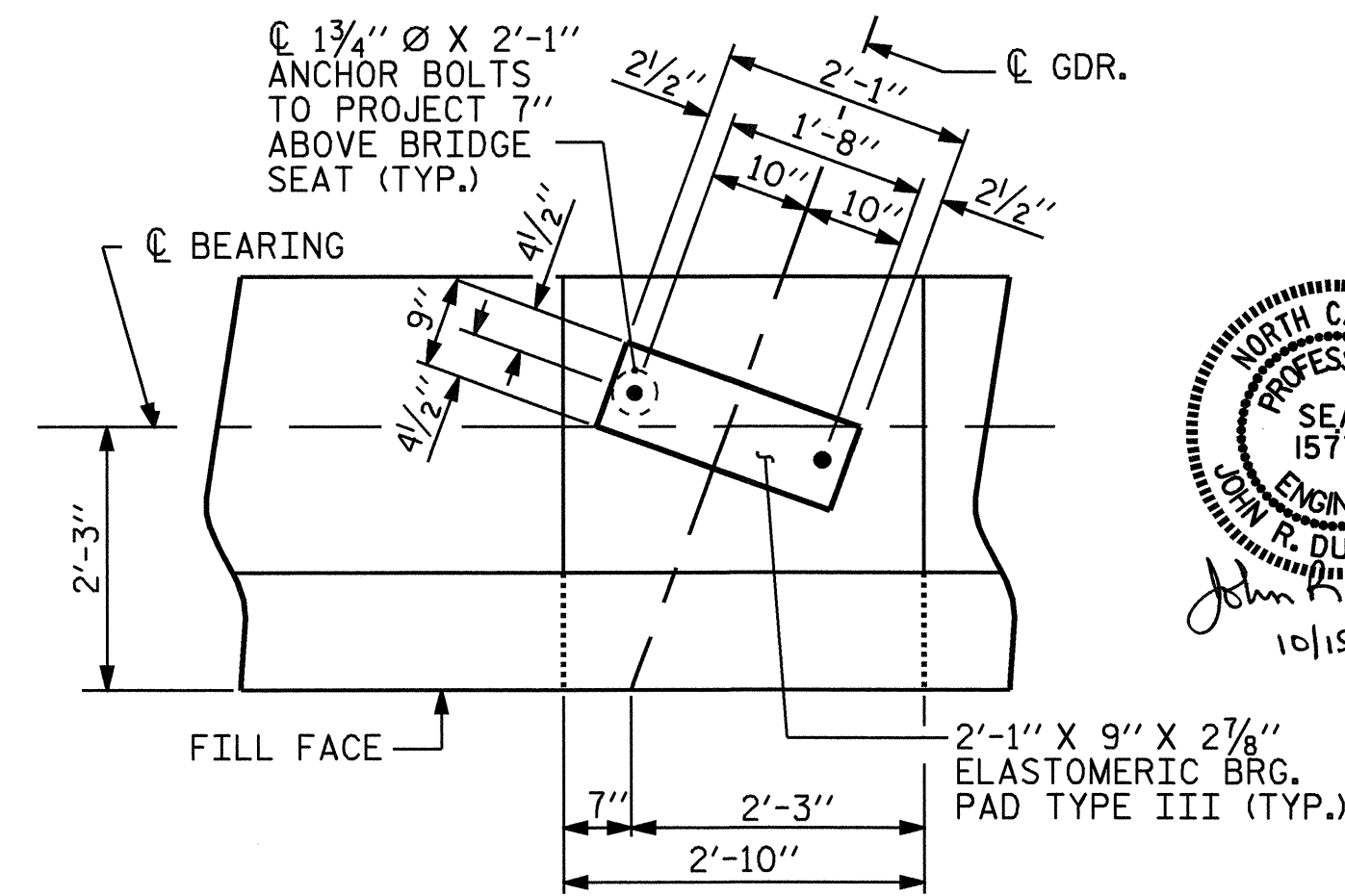
DETAIL A



DETAIL B

* POSITION OF PILE DURING WELDING.

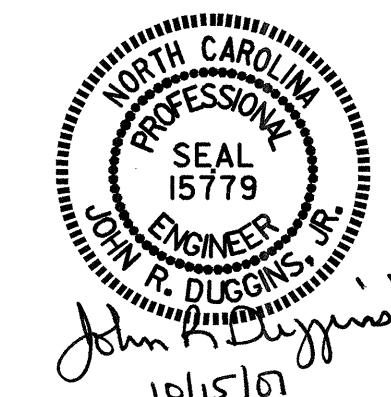
PILE SPLICE DETAILS



DETAIL A (TYP. EA. GDR.)

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GUILFORD COUNTY
STATION: 21+01.50 -L-

SHEET 4 OF 4



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS 45
2			4			

NOTES

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

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

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH. THE "M" BARS SHALL BE FIELD CUT TO THE PROPER LENGTH.

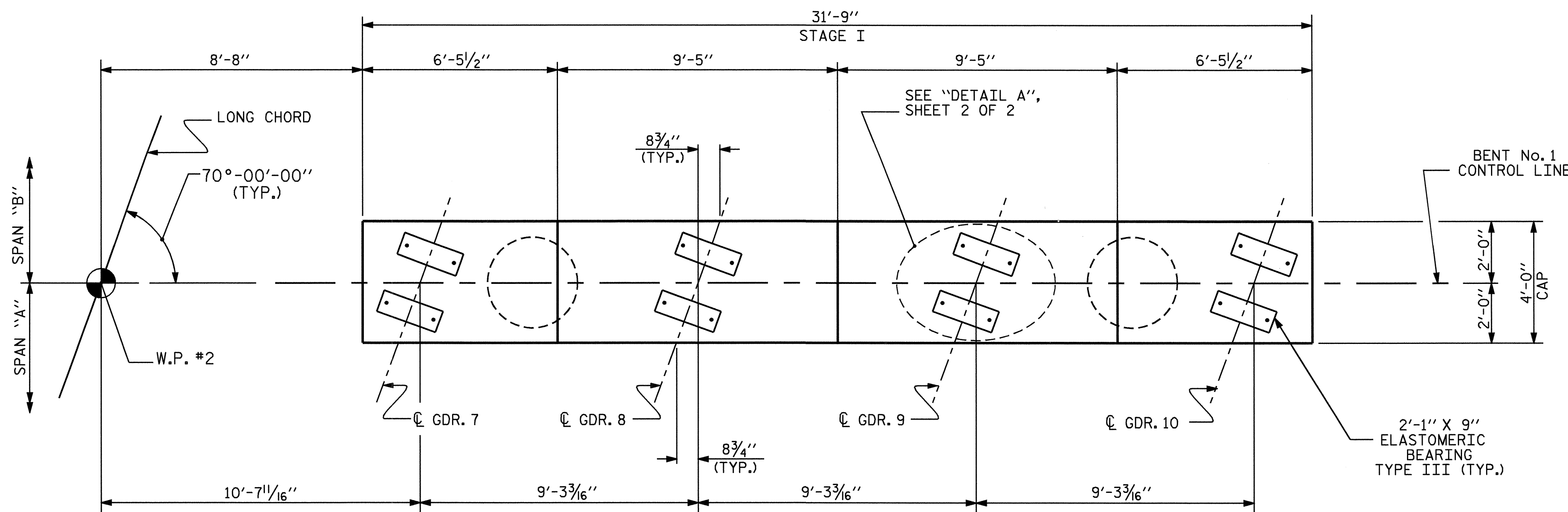
SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.

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 FT. BELOW THE GROUND LINE.

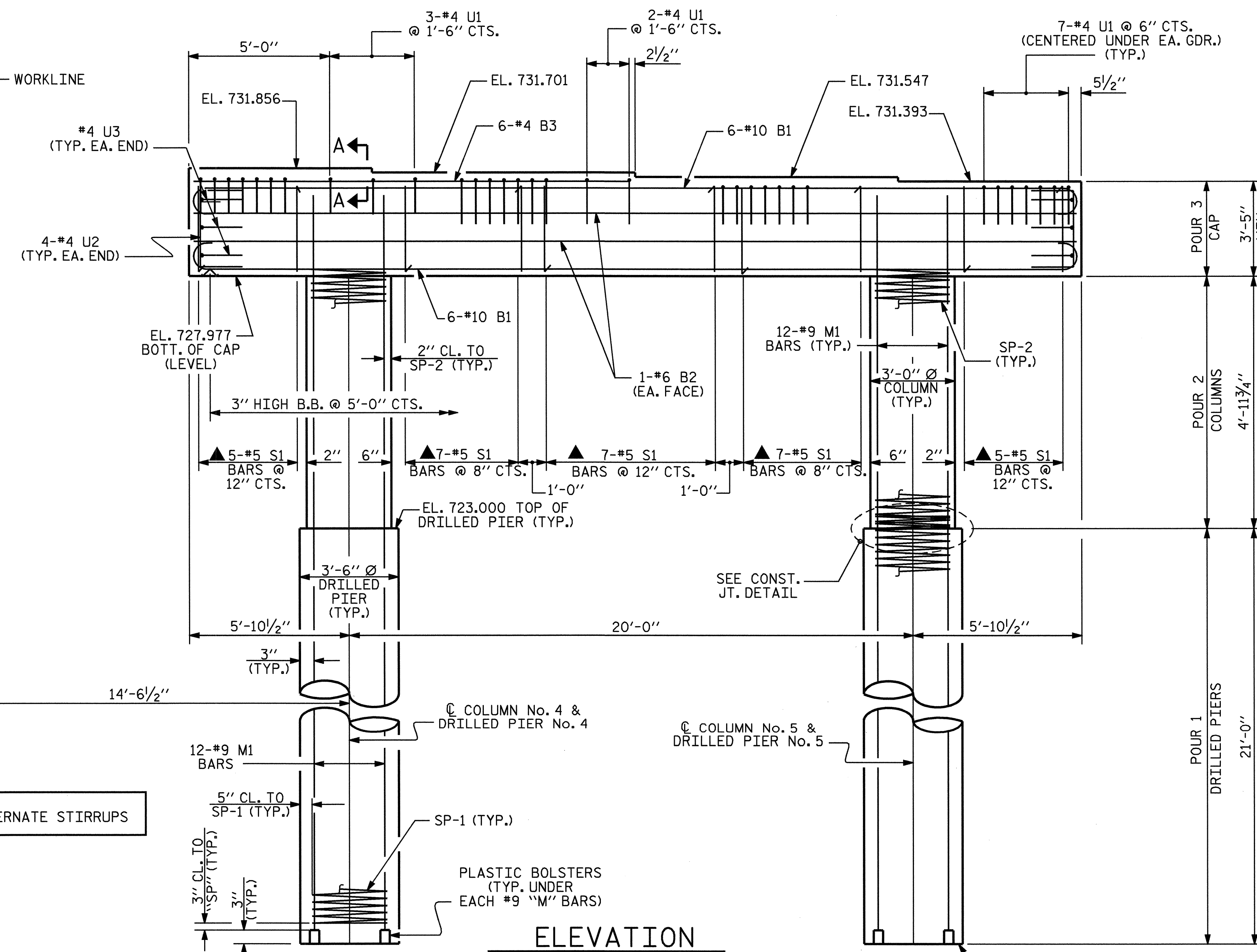
"U" BARS IN THE END OF CAP MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR "B" BARS.

2" MINIMUM CONCRETE COVER FROM END OF CAP REQUIRED FOR ALL "U" BARS.

THE CONTRACTOR SHALL ALIGN THE "M" BARS AS SHOWN IN THE PLAN OF DRILLED PIERS AND COLUMNS.

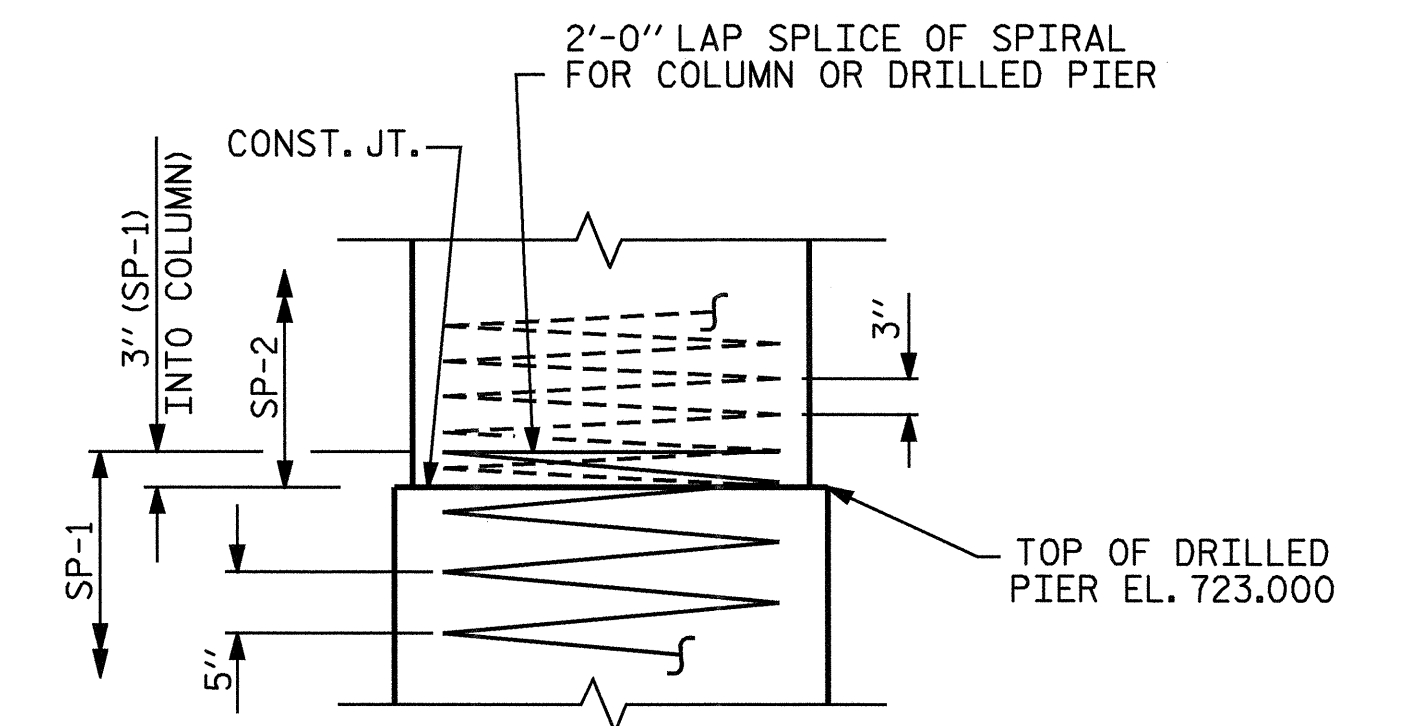


PLAN

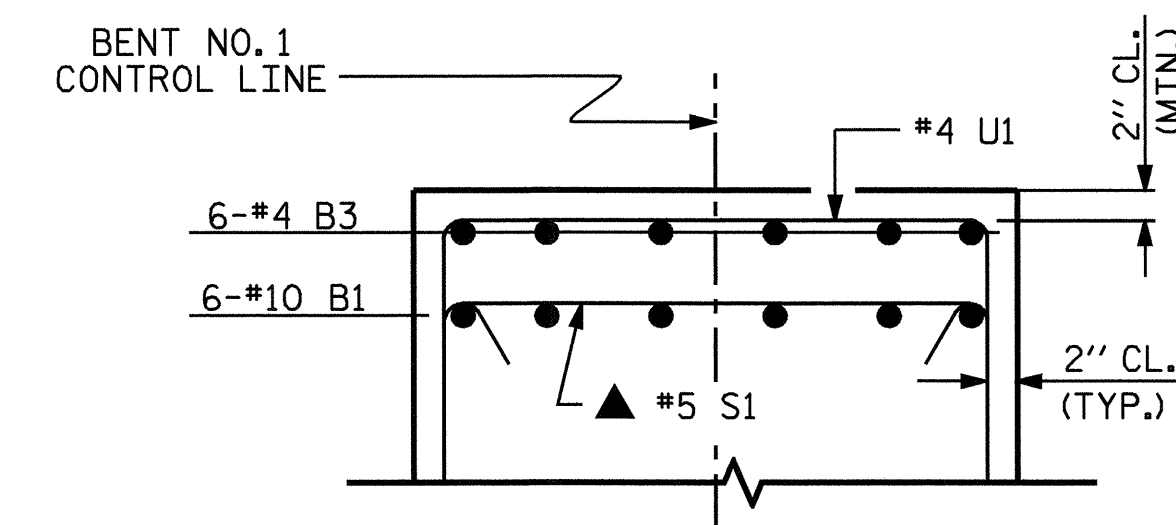


ELEVATION

(DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER)



CONSTRUCTION JOINT DETAIL



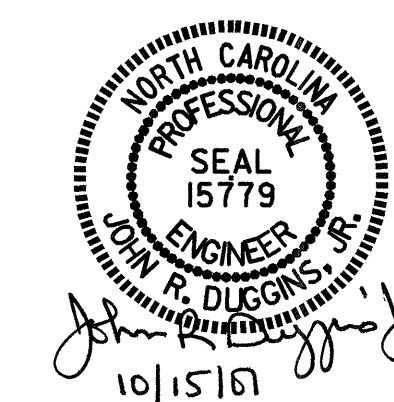
SECTION A-A

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 1 OF 2

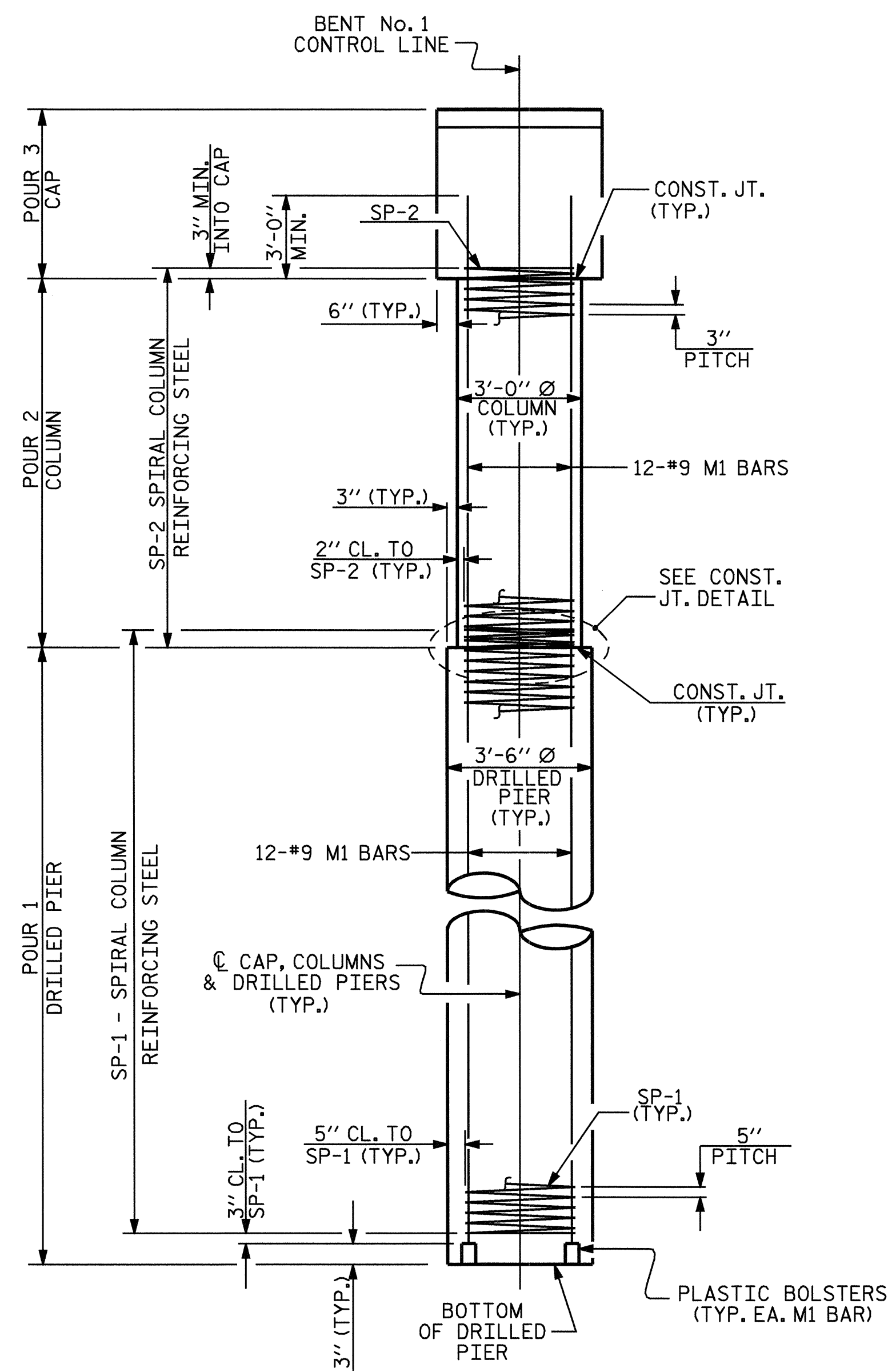
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT No. 1
 STAGE I

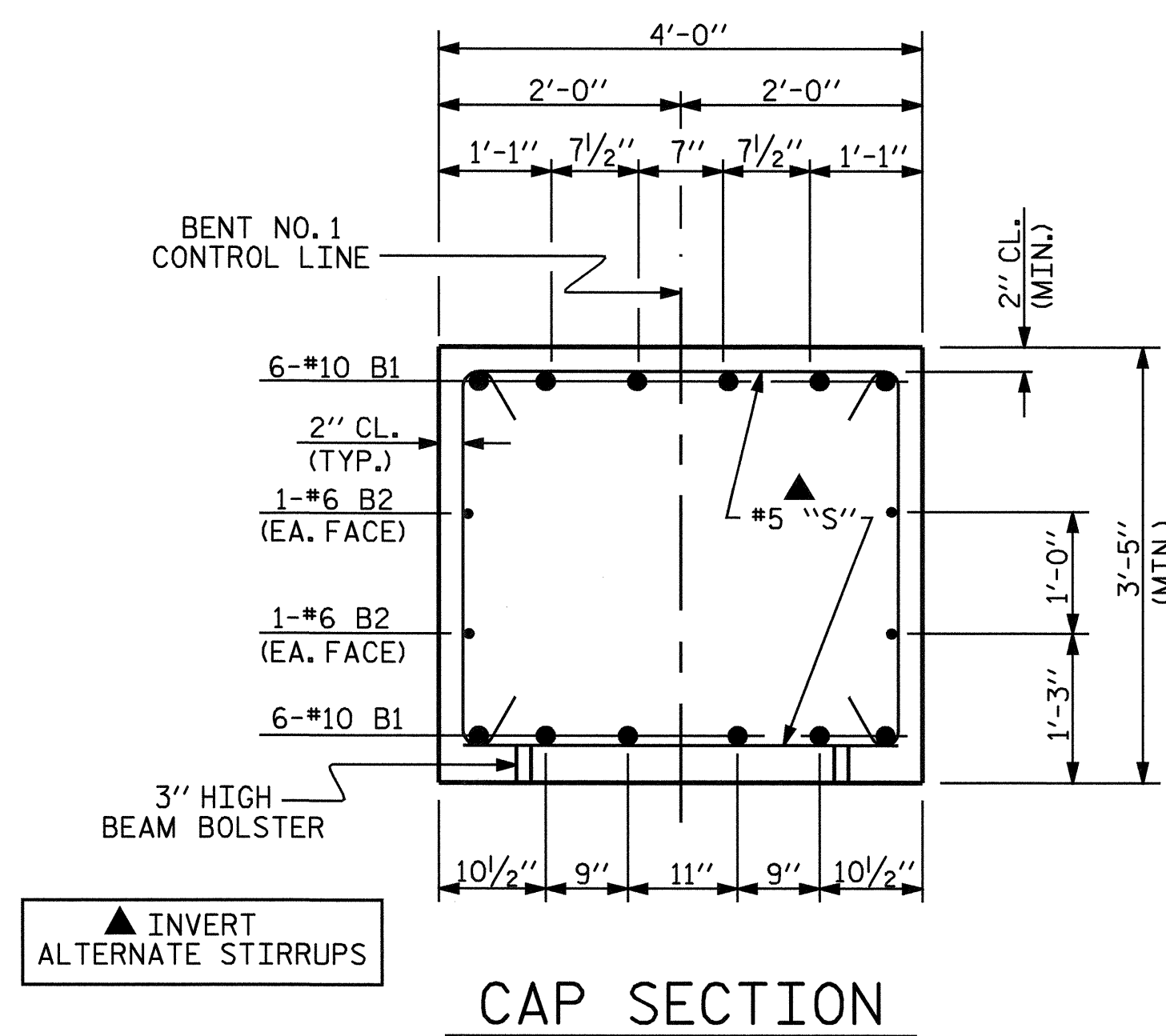


REVISIONS						SHEET NO. S-34
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 45
2			4			

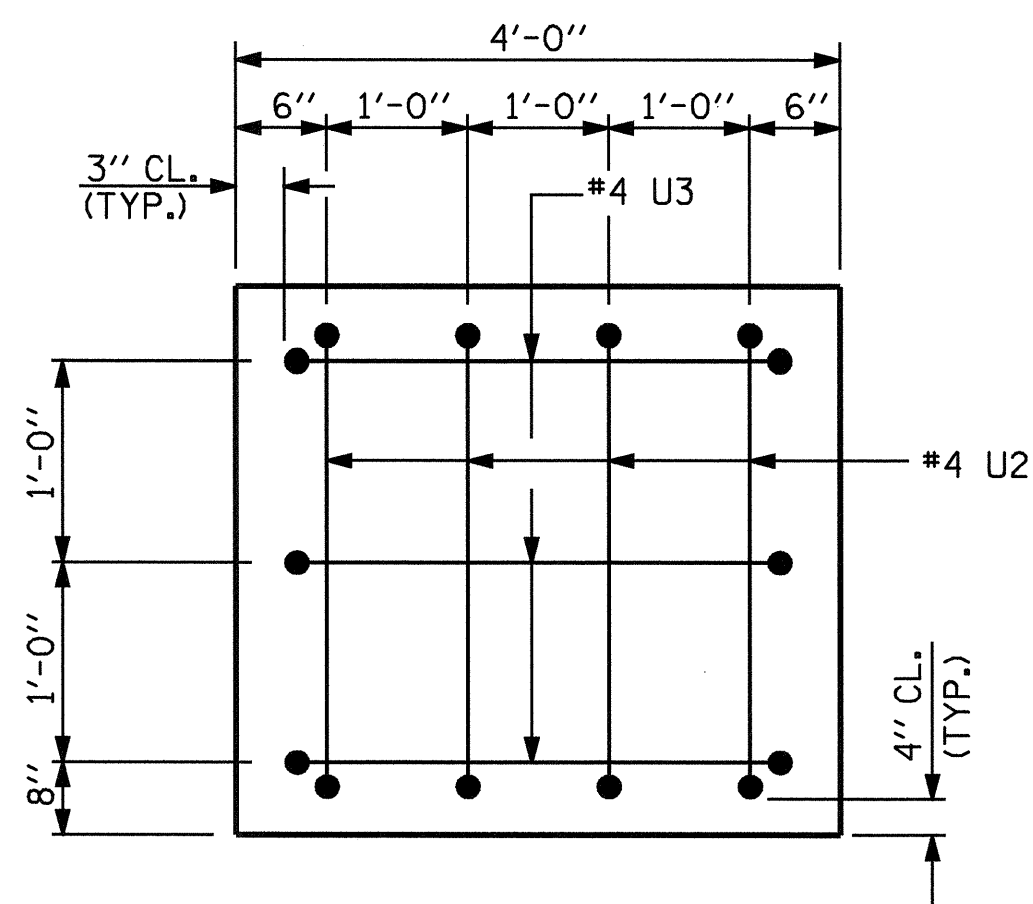
DRAWN BY: J. LAMBERT DATE: 06/2006
 CHECKED BY: J.R. DUGGINS DATE: 08/2007



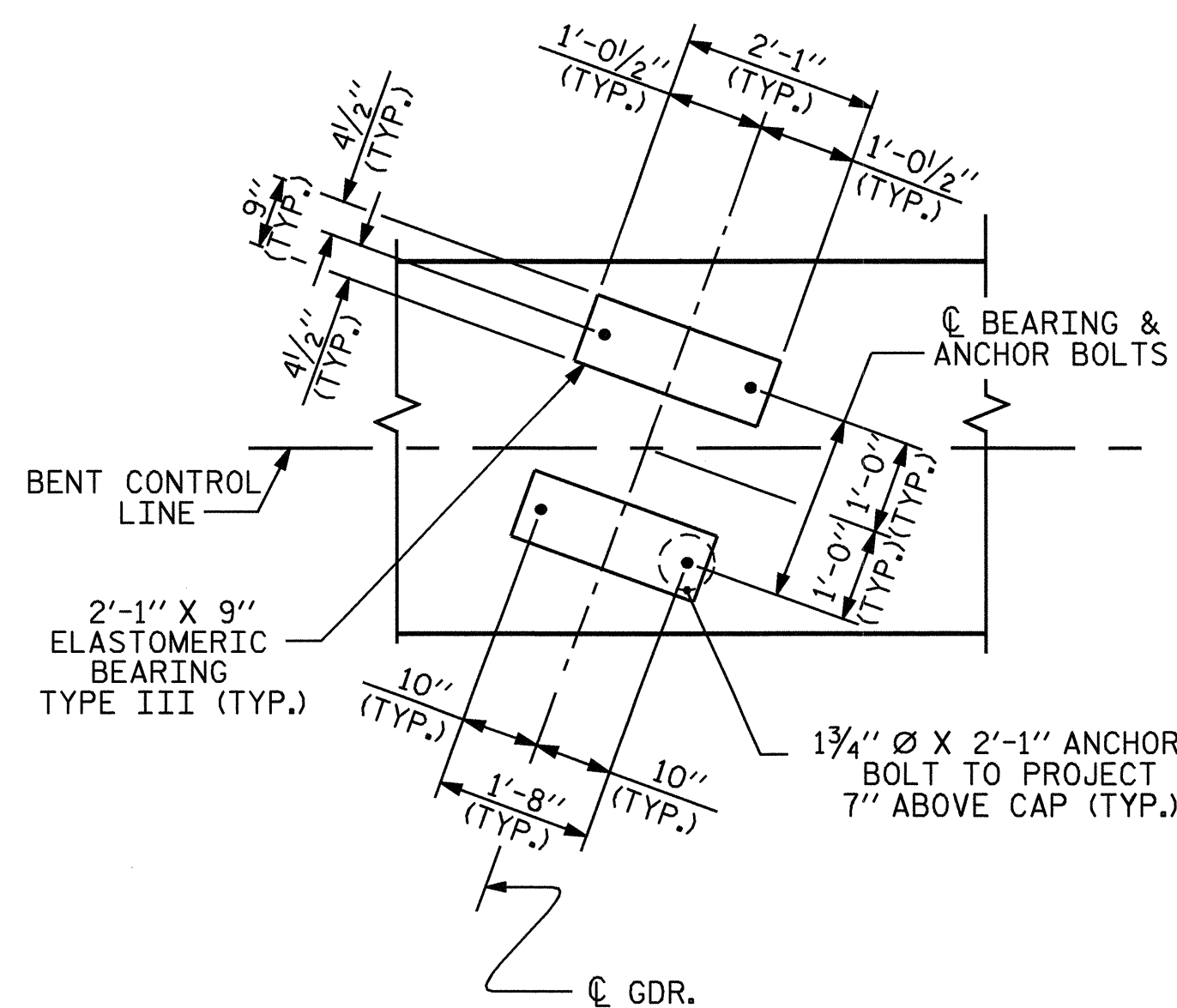
END ELEVATION



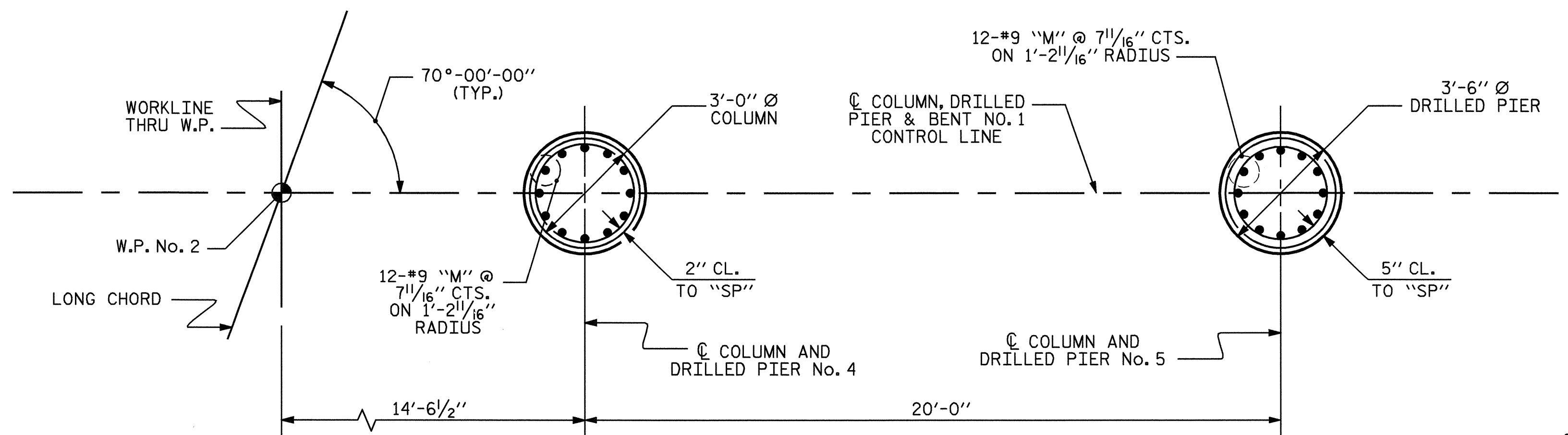
CAP SECTION



END OF CAP ELEVATION
(TYP. EA. END)

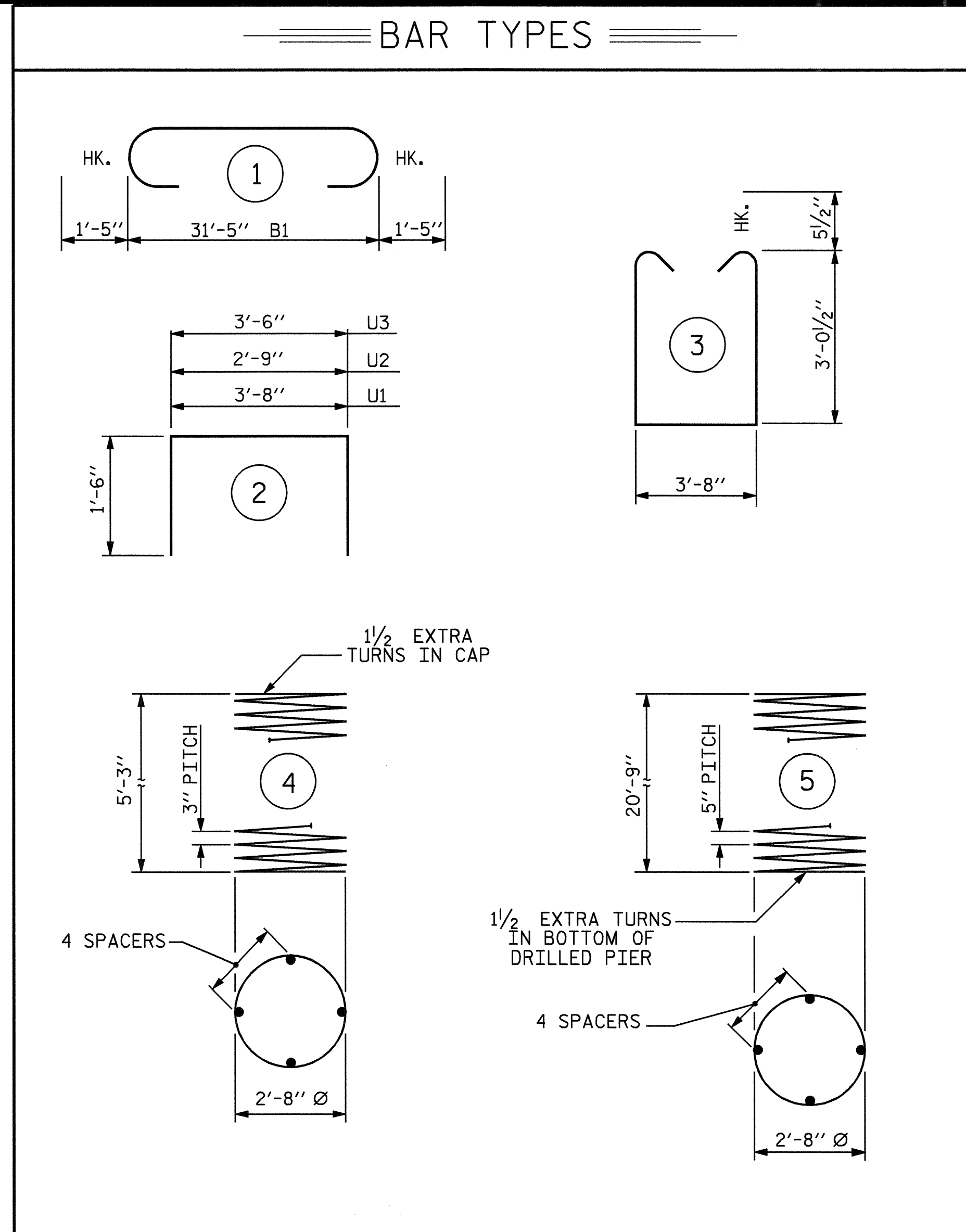


DETAIL A



PLAN OF DRILLED PIERS AND COLUMNS

REINFORCING STEEL AND DIMENSIONS TYPICAL FOR ALL DRILLED PIERS AND COLUMNS



BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.

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

BILL OF MATERIAL

BENT No. 1 STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	10	1	34'-3"	1769
B2	4	6	STR	31'-5"	189
B3	6	4	STR	15'-6"	62
M1	24	9	STR	31'-9"	2591
S1	31	5	3	10'-8"	345
U1	33	4	2	6'-8"	147
U2	8	4	2	5'-9"	31
U3	6	4	2	6'-6"	26
REINFORCING STEEL				LBS	5160

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
SP-1	2	***	5	427'-9"	892
SP-2	2	**	4	189'-10"	254
SPIRAL COLUMN REINFORCING STEEL				1146 LBS	
CLASS A CONCRETE BREAKDOWN					
POUR 2 (COLUMNS)				2.6 C.Y.	
POUR 3 (CAP)				17.1 C.Y.	
TOTAL				19.7 C.Y.	

DRILLED PIER QUANTITIES	
DRILLED PIER CONCRETE BREAKDOWN	
POUR 1 (DRILLED PIERS)	15.0 C.Y.
3'-6" Ø DRILLED PIERS NOT IN SOIL	14.00 LIN. FT.
3'-6" Ø DRILLED PIERS IN SOIL	28.00 LIN. FT.
PERMANENT STEEL CASING	30.00 LIN. FT.
CSL TUBES	188 LIN. FT.

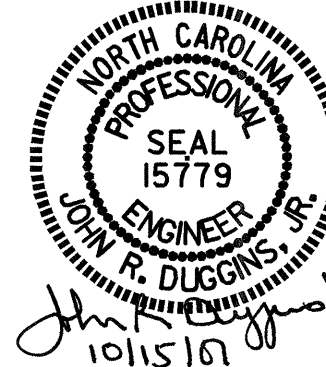
FOR TOTAL QUANTITIES FOR BENT No. 1 STAGES I AND II, SEE SHEET No. S-37.

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT No. 1
 STAGE I



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-35	
1			3			TOTAL SHEETS	45
2			4				

DRAWN BY: J. LAMBERT DATE: 6/06
 CHECKED BY: J.R. DUGGINS DATE: 8/07

NOTES

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

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

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH. THE "M" BARS SHALL BE FIELD CUT TO THE PROPER LENGTH.

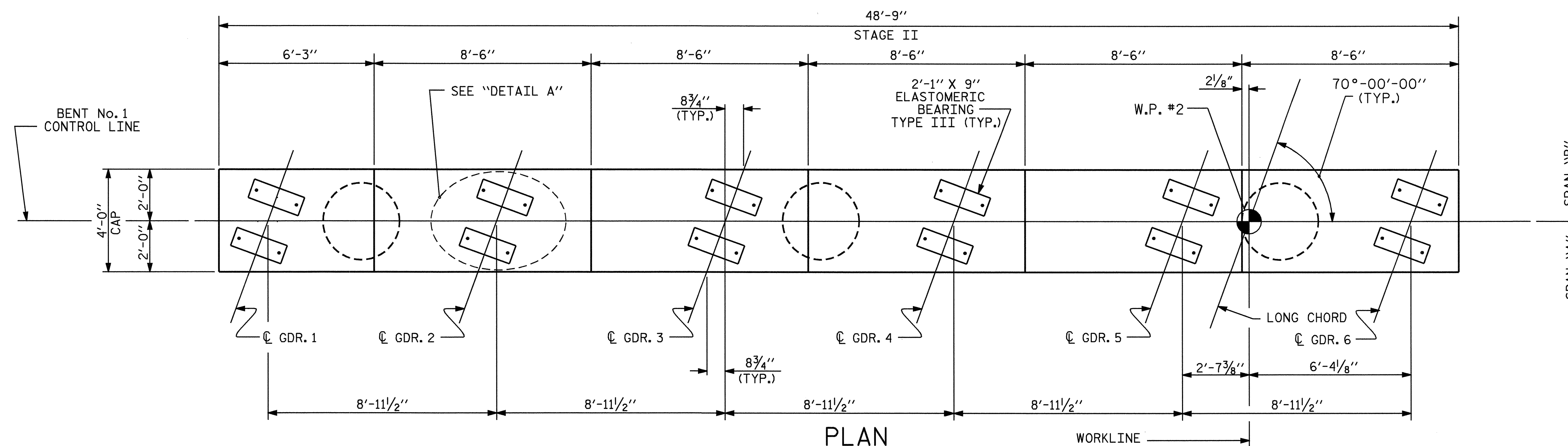
SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.

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 FT. BELOW THE GROUND LINE.

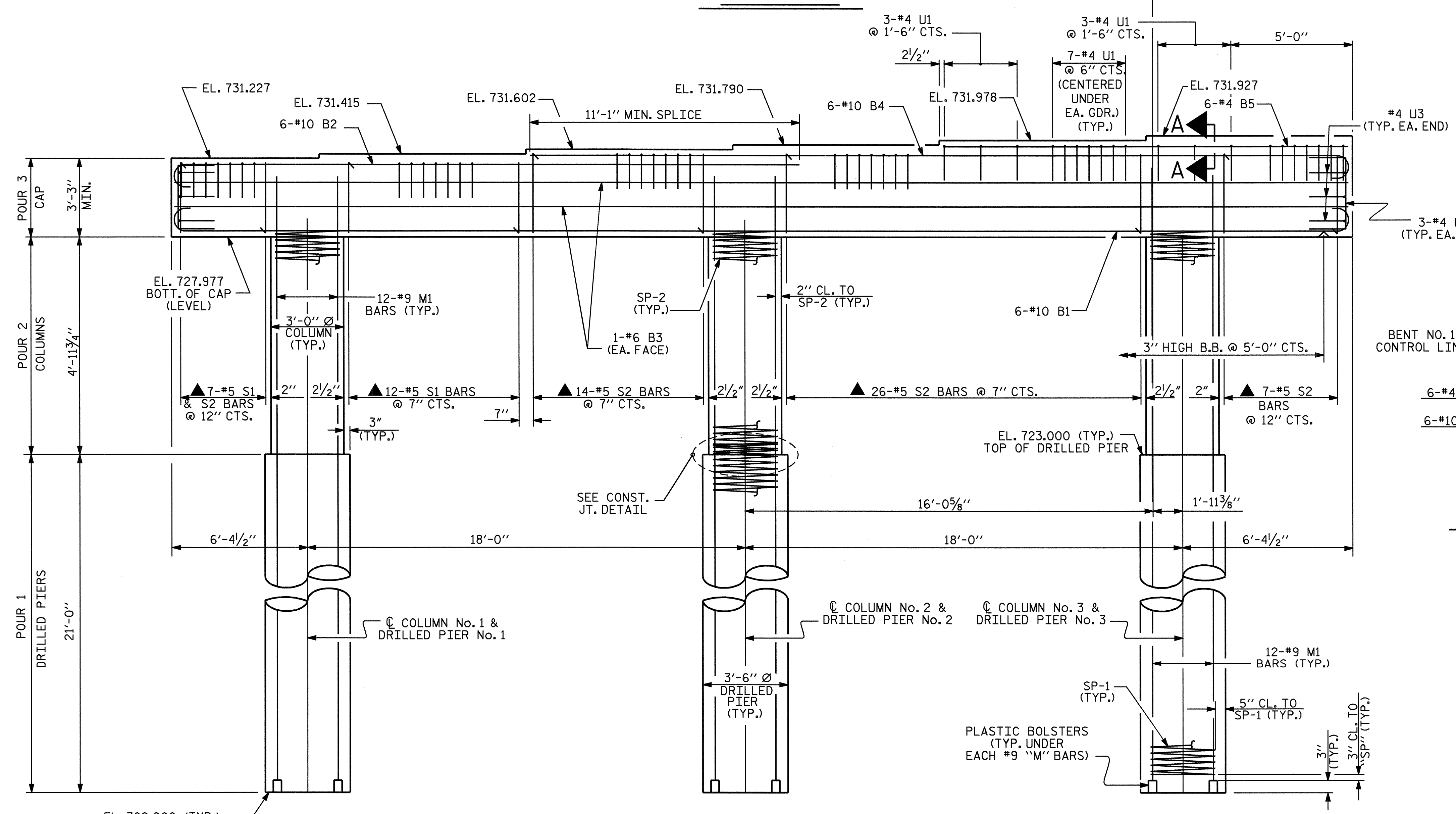
"U" BARS IN THE END OF CAP MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR "B" BARS.

2" MINIMUM CONCRETE COVER FROM END OF CAP REQUIRED FOR ALL "U" BARS.

THE CONTRACTOR SHALL ALIGN THE "M" BARS AS SHOWN IN THE PLAN OF DRILLED PIERS AND COLUMNS.

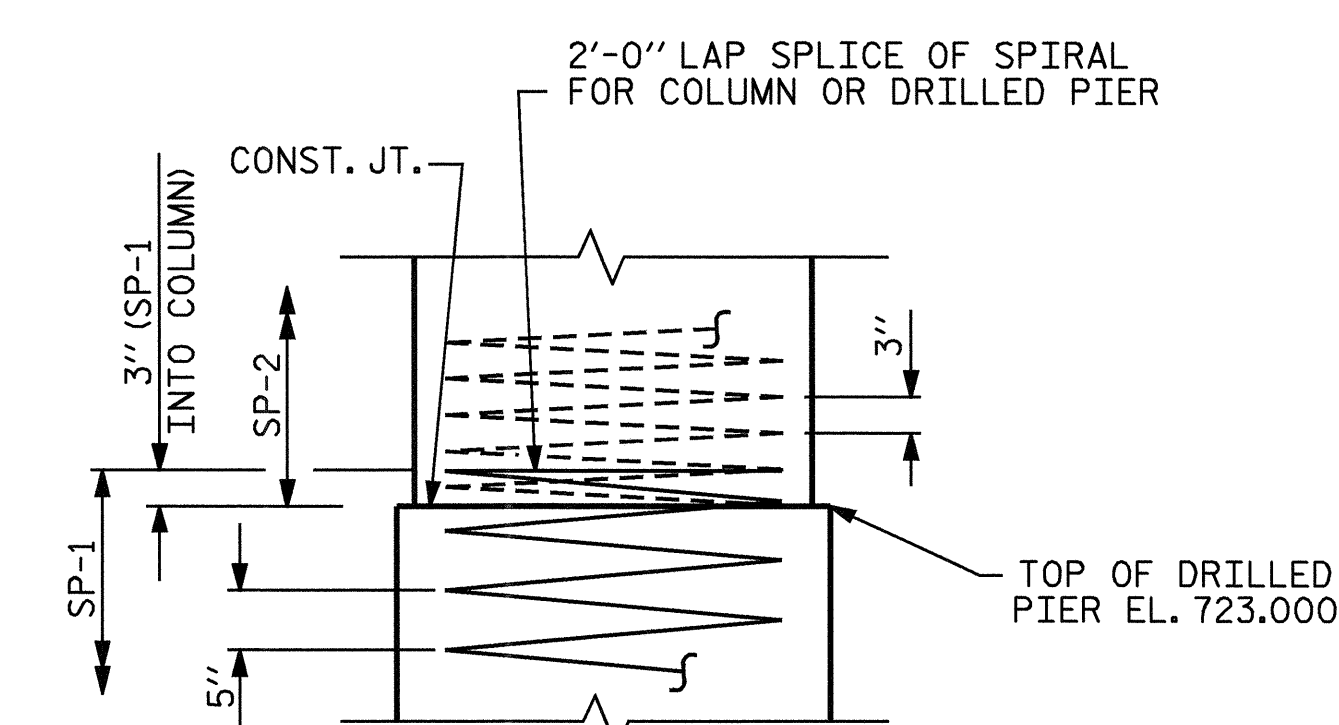


PLAN

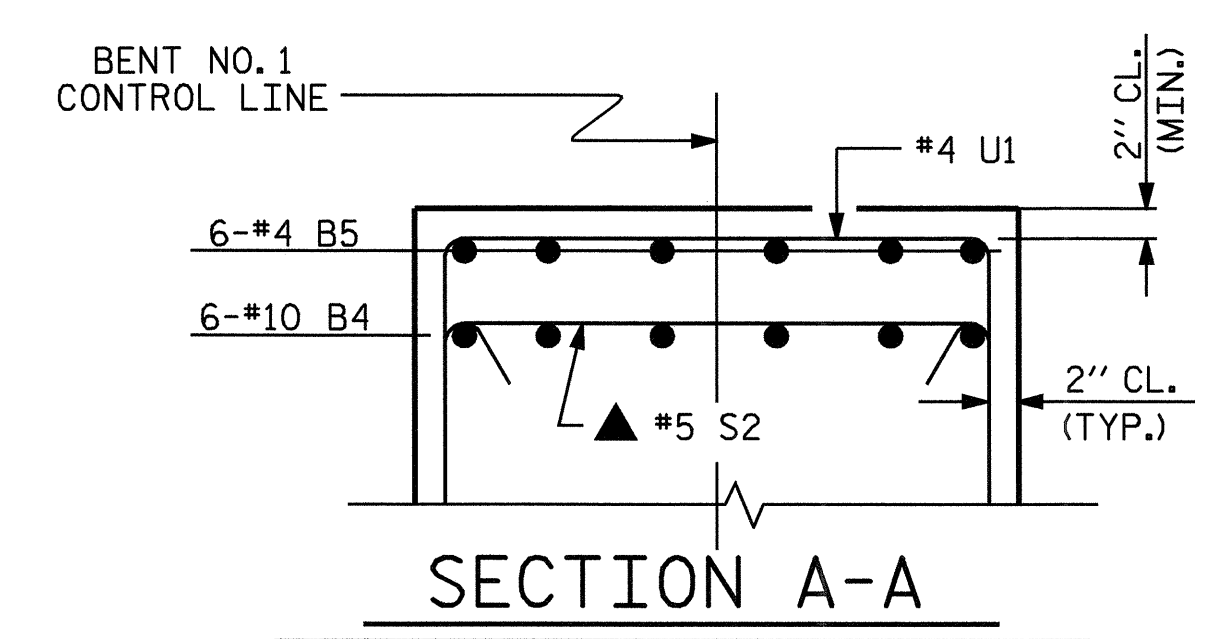


ELEVATION

(DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER)



CONSTRUCTION JOINT DETAIL



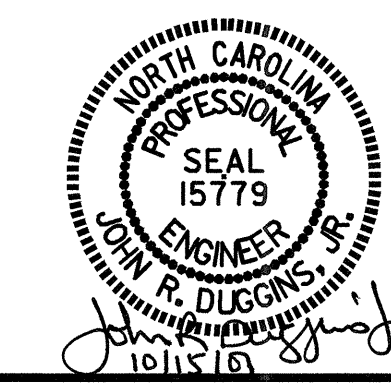
SECTION A-A

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 BENT No. 1
 STAGE II**

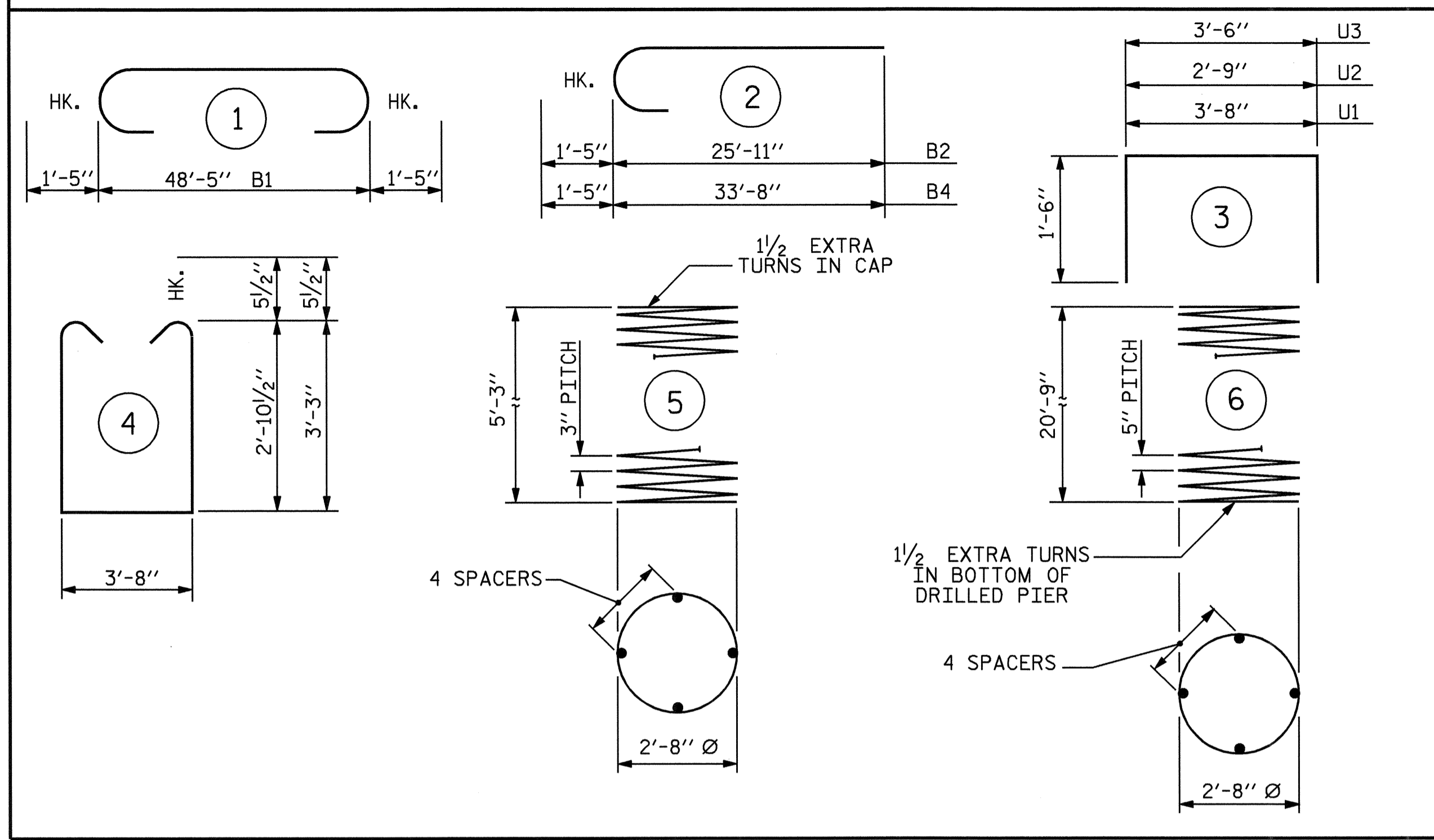


REVISIONS						SHEET NO. S-36
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 45
2			4			

DRAWN BY : J. LAMBERT DATE : 6/06
 CHECKED BY : J.R. DUGGINS DATE : 08/07

▲ INVERT ALTERNATE STIRRUPS

BAR TYPES



BILL OF MATERIAL

BENT No. 1 STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	10	1	51'-3"	1323
B2	6	10	2	27'-4"	706
B3	4	6	STR	48'-5"	291
B4	6	10	2	35'-1"	906
B5	6	4	STR	16'-8"	67
M1	36	9	STR	31'-9"	3886
S1	19	5	4	10'-4"	205
S2	47	5	4	11'-1"	584
U1	48	4	3	6'-8"	214
U2	8	4	3	5'-9"	31
U3	6	4	3	6'-6"	26

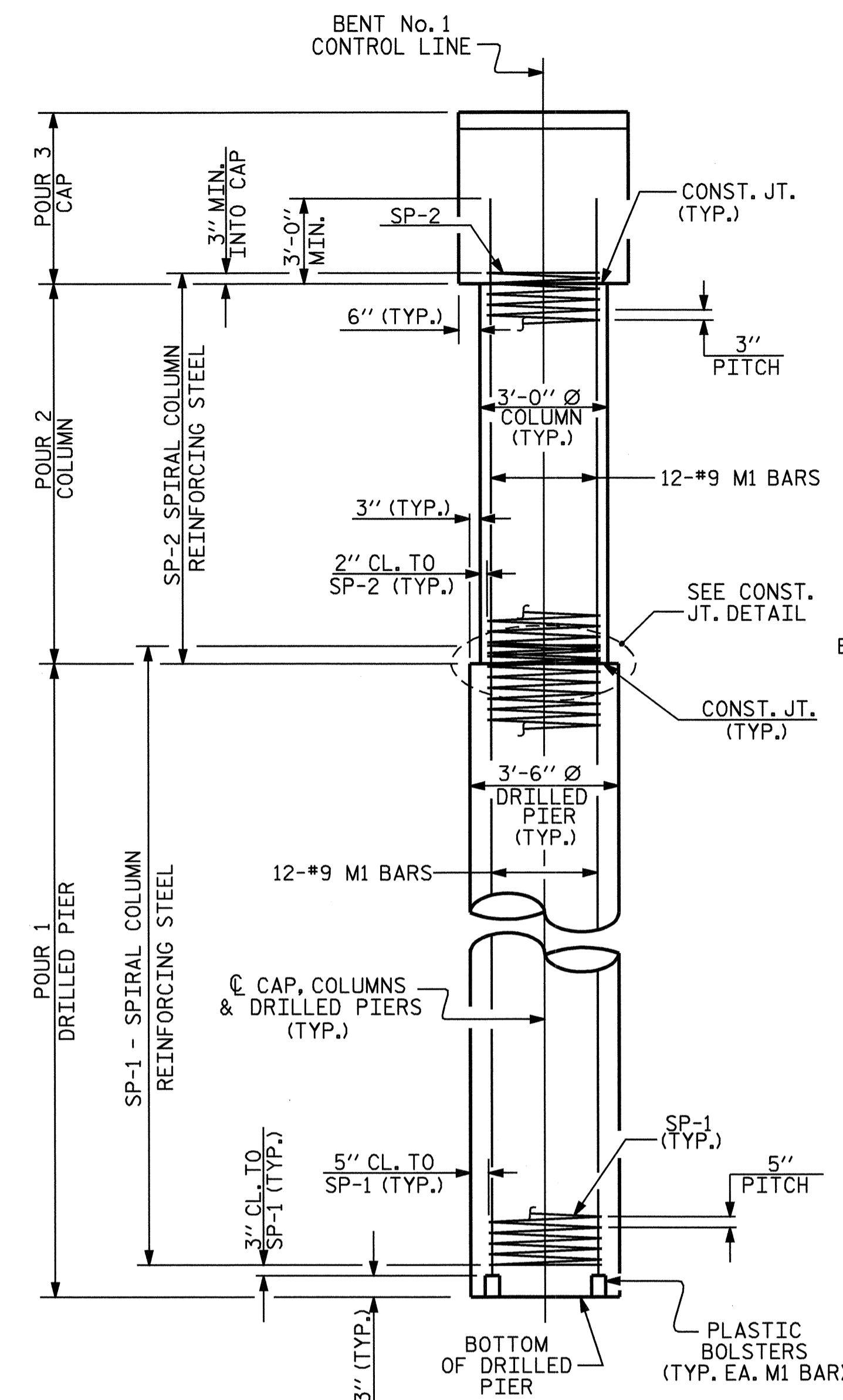
REINFORCING STEEL LBS					8239
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
SP-1	3	***	5	427'-9"	1338
SP-2	3	*	4	189'-10"	380
SPIRAL COLUMN REINFORCING STEEL					1718 LBS
CLASS A CONCRETE BREAKDOWN					
POUR 2 (COLUMNS)					3.9 C.Y.
POUR 3 (CAP)					26.6 C.Y.
TOTAL					30.5 C.Y.

DRILLED PIER QUANTITIES		
DRILLED PIER CONCRETE BREAKDOWN		
POUR 1 (DRILLED PIERS)		22.5 C.Y.
3'-6" Ø DRILLED PIERS NOT IN SOIL		21.00 LIN. FT.
3'-6" Ø DRILLED PIERS IN SOIL		42.00 LIN. FT.
PERMANENT STEEL CASING		45.00 LIN. FT.
CSL TUBES		282 LIN. FT.

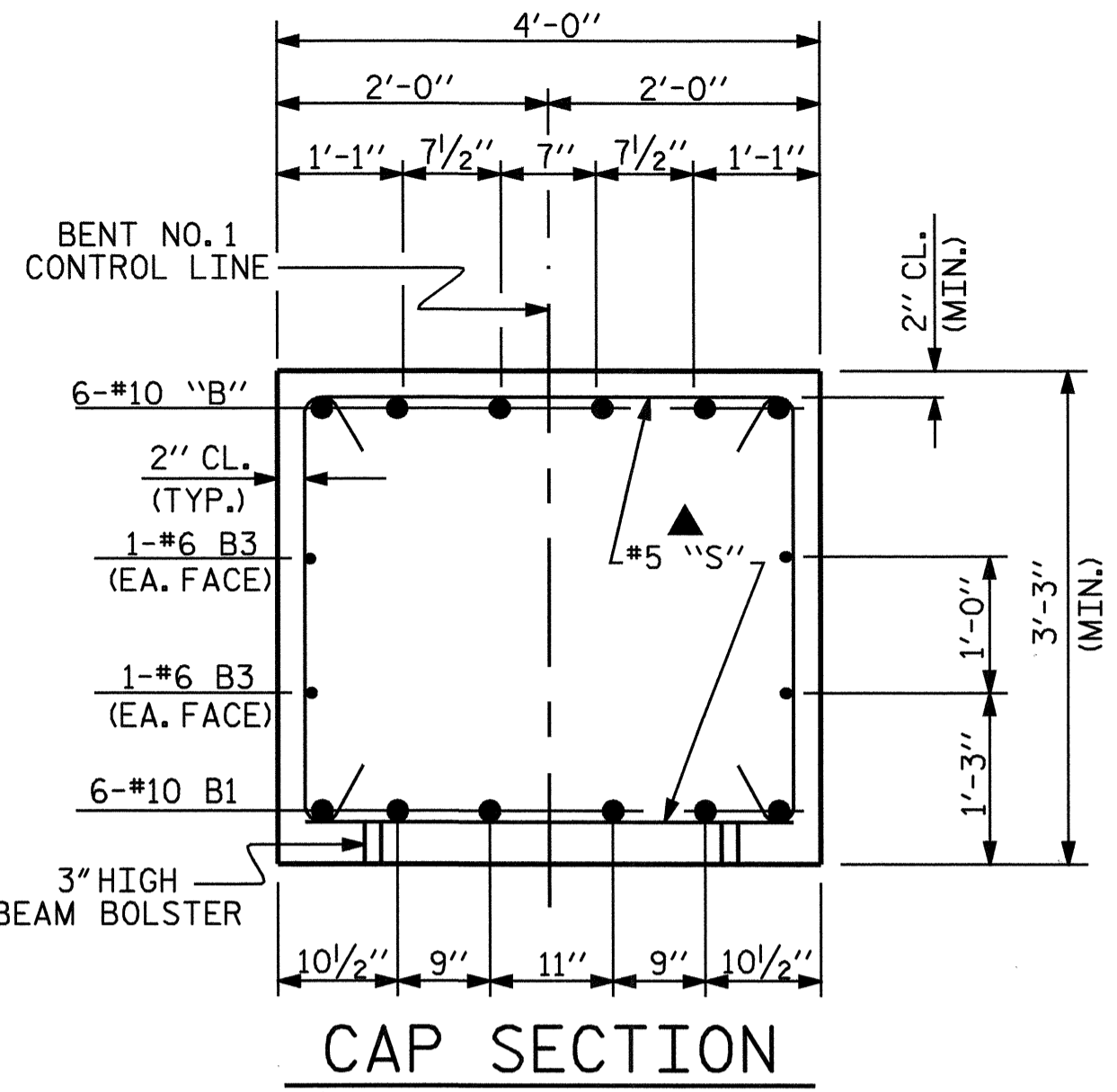
ALL BAR DIMENSIONS ARE OUT TO OUT.

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

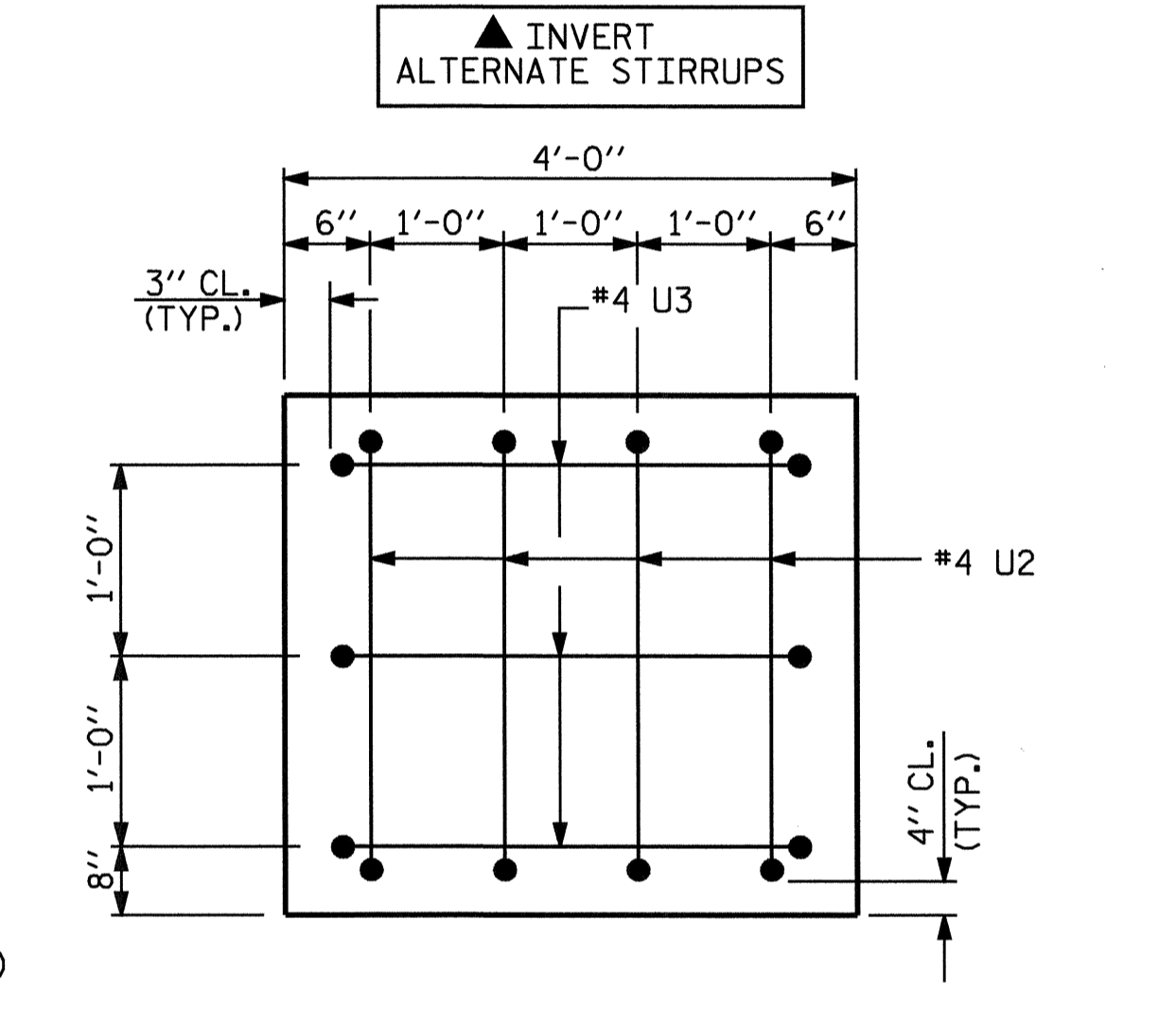
TOTAL QUANTITIES FOR STAGES I AND II	
REINFORCING STEEL	13,399 LBS.
SPIRAL COLUMN REINFORCING STEEL	2864 LBS.
CLASS A CONCRETE	50.2 C.Y.
3'-6" Ø DRILLED PIERS IN SOIL	70.00 LIN. FT.
3'-6" Ø DRILLED PIERS NOT IN SOIL	35.00 LIN. FT.
PERMANENT STEEL CASING	75.00 LIN. FT.
CSL TUBES	470 LIN. FT.



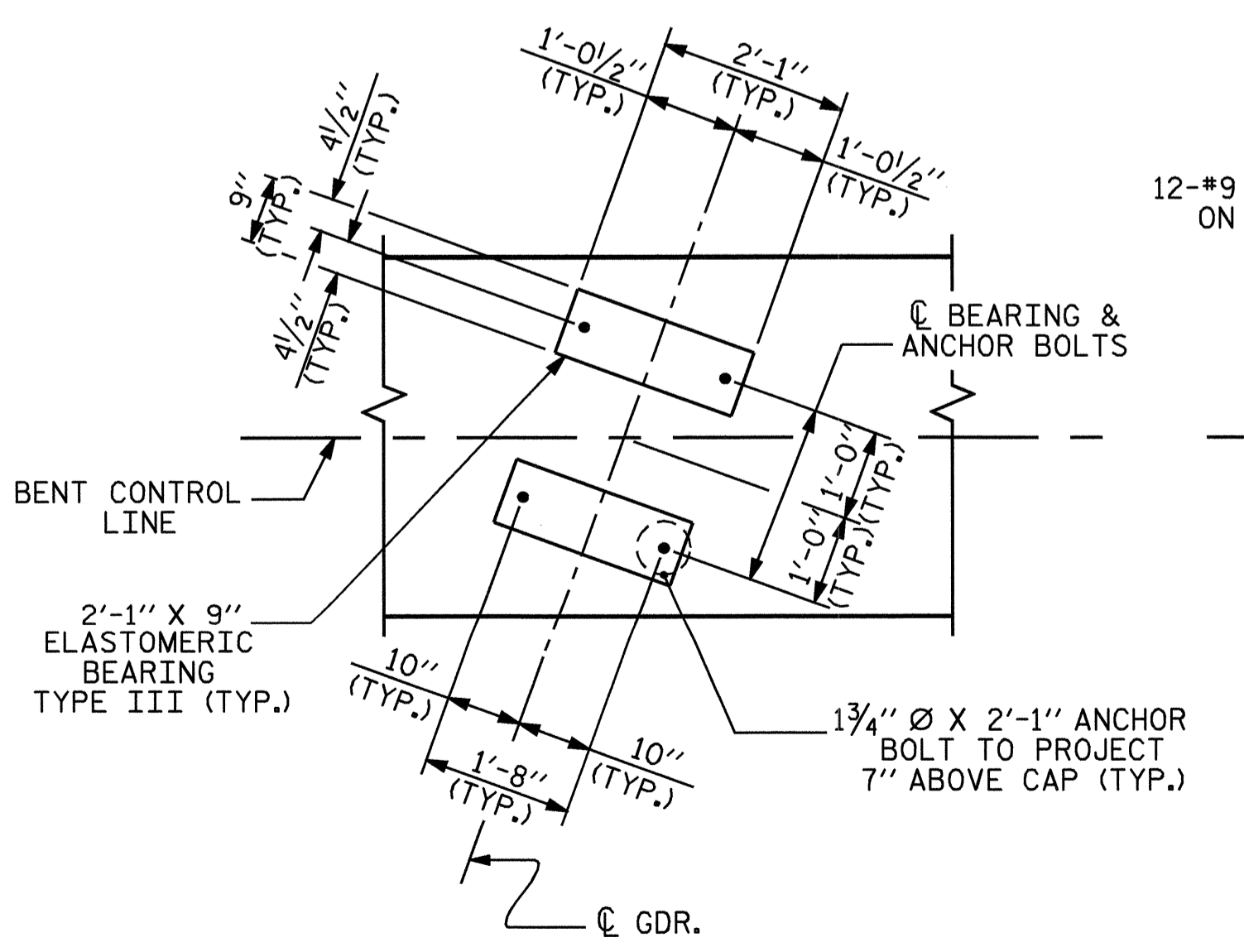
END ELEVATION



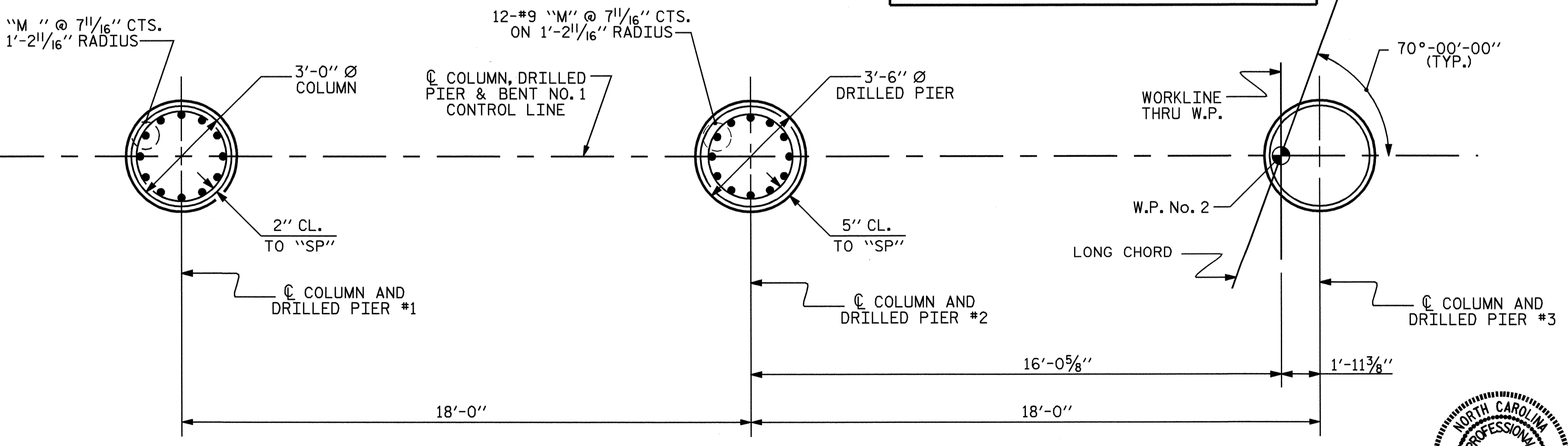
CAP SECTION



END OF CAP ELEVATION (TYP. EA. END)



DETAIL A



PLAN OF DRILLED PIERS AND COLUMNS

REINFORCING STEEL AND DIMENSIONS TYPICAL FOR ALL DRILLED PIERS AND COLUMNS

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT No. 1
 STAGE II

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37
1			3			TOTAL SHEETS 45
2			4			

DRAWN BY: J. LAMBERT DATE: 6/06
 CHECKED BY: J.R. DUGGINS DATE: 08/07

NOTES

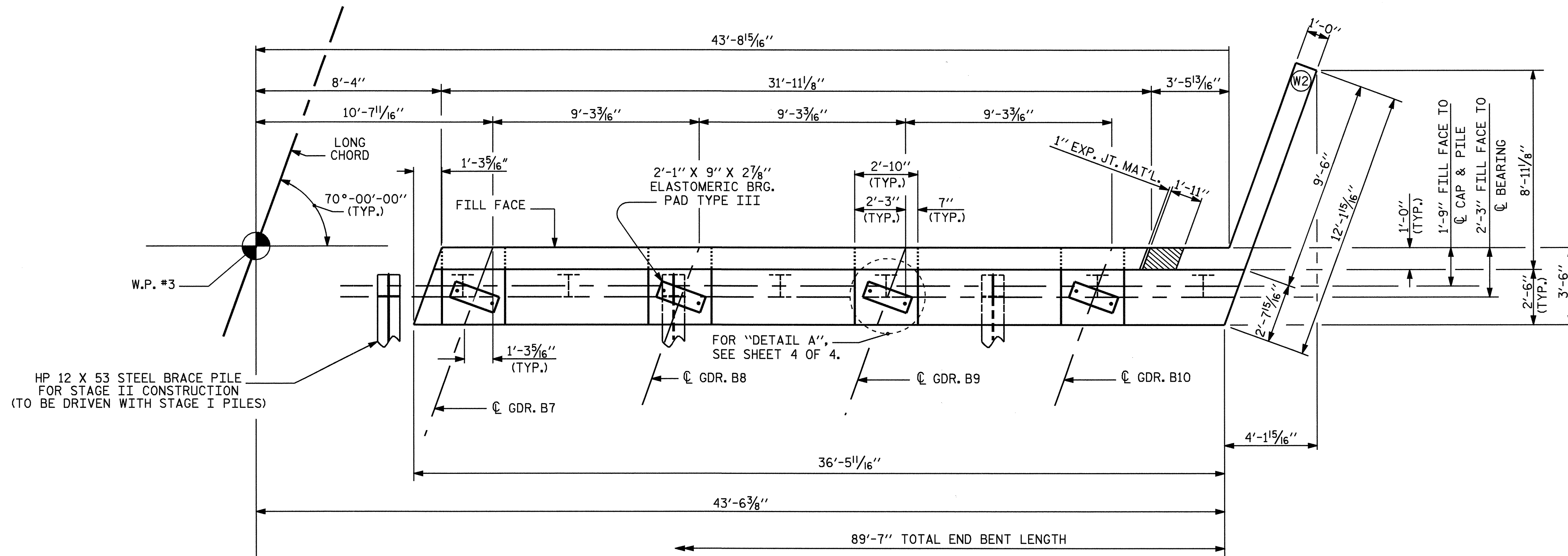
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.
 BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

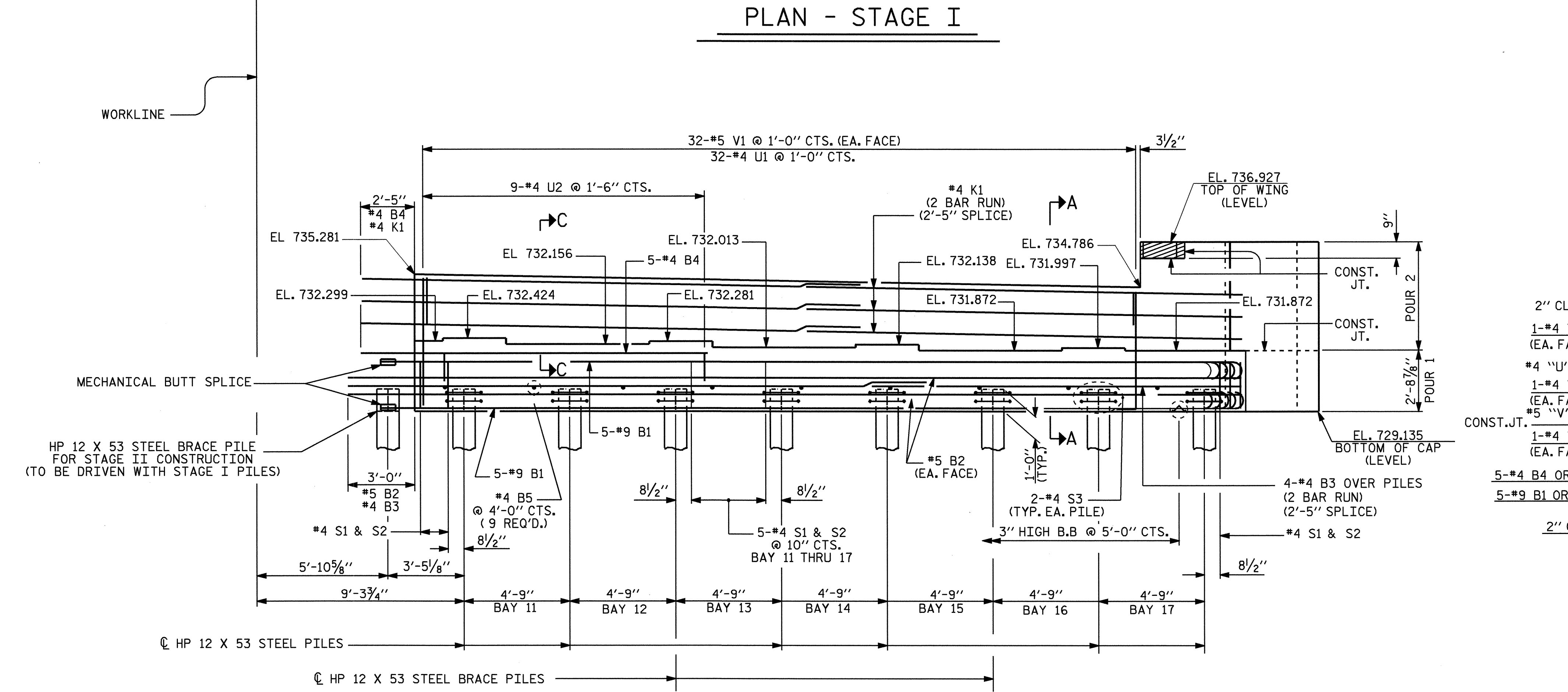
THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.

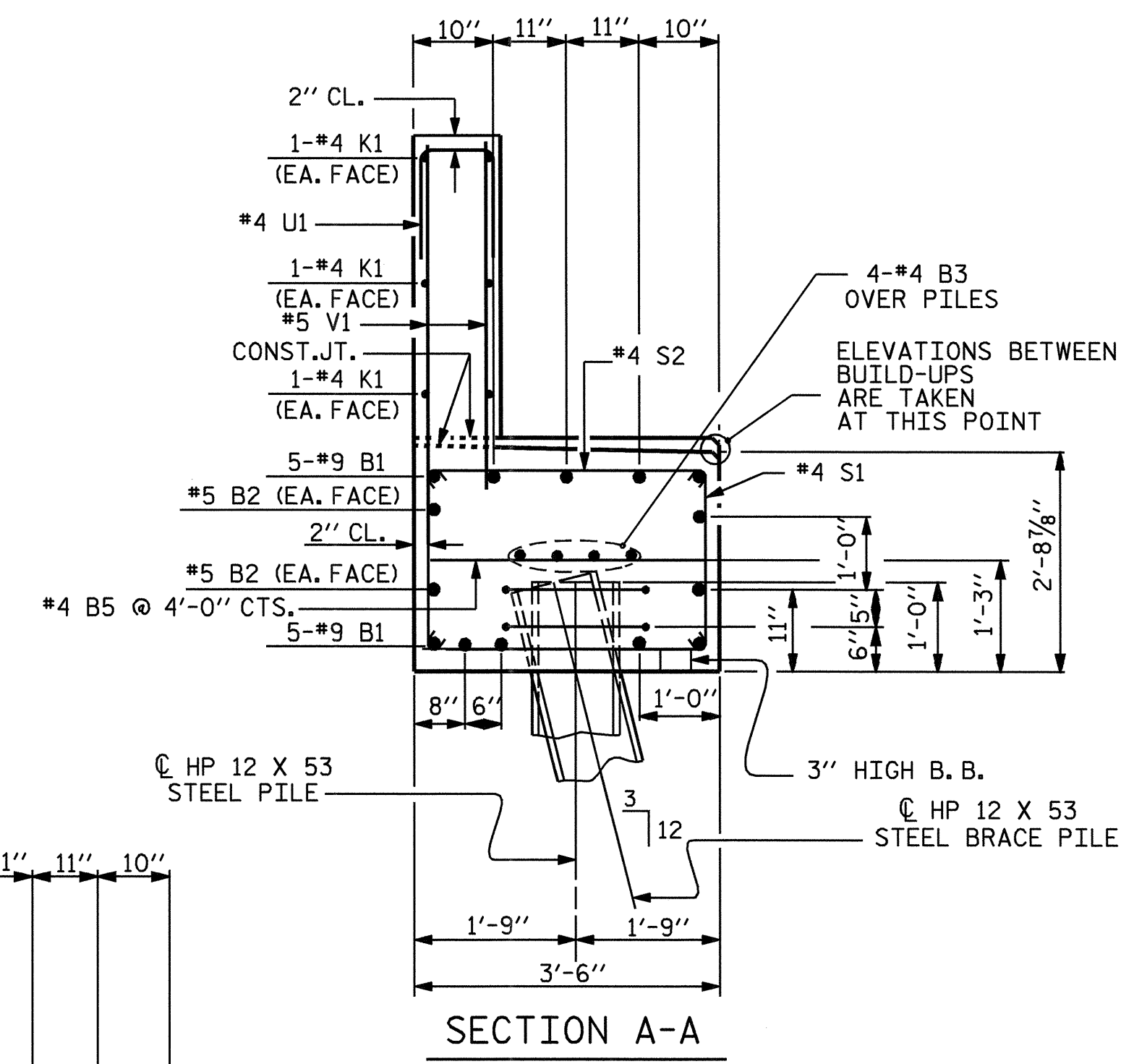
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



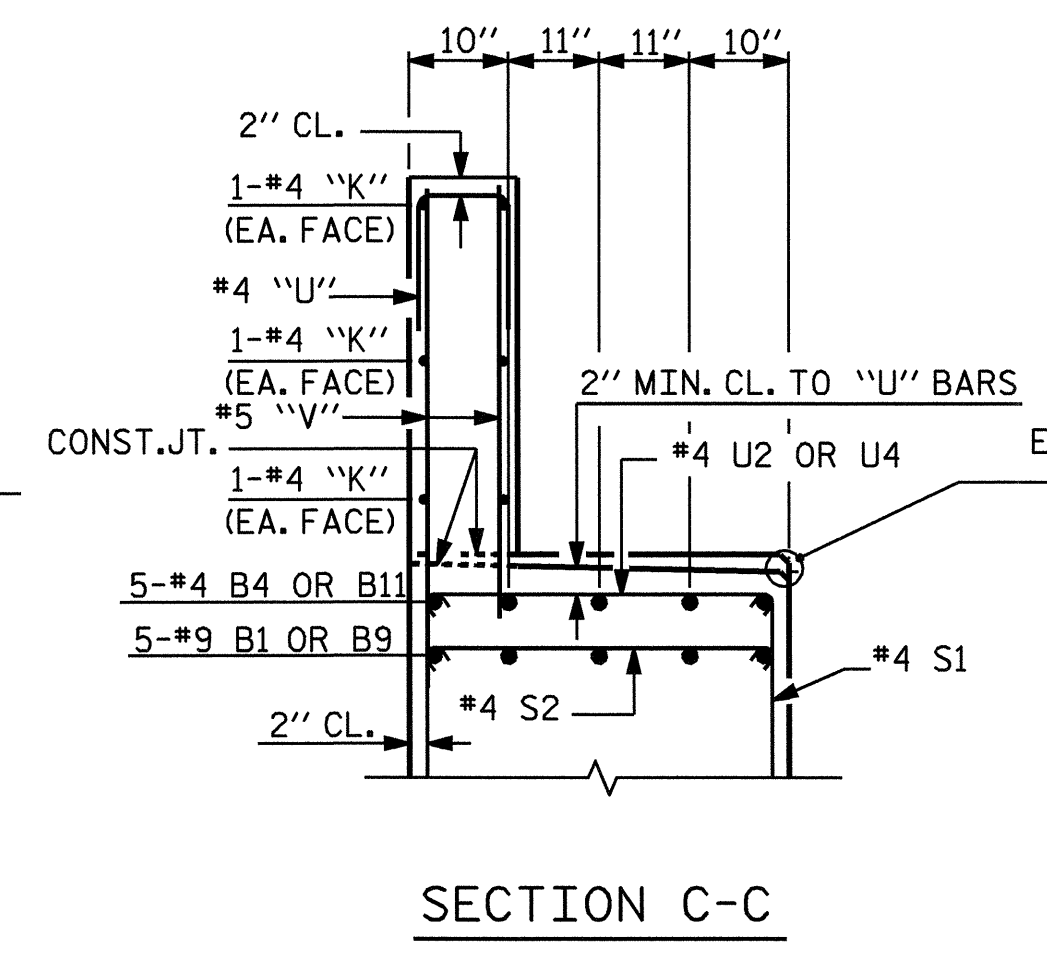
PLAN - STAGE I



ELEVATION - STAGE I



SECTION A-A



SECTION C-C

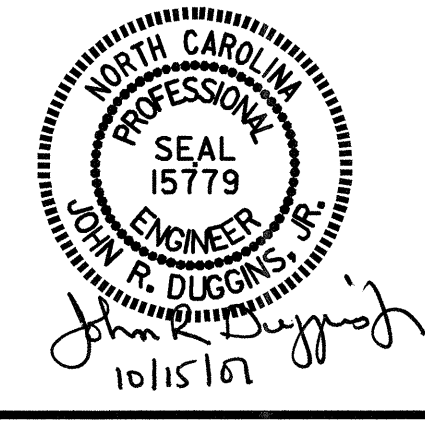
PROJECT NO. **B-3337**
 GUILFORD COUNTY
 STATION: **21+01.50 -L-**

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

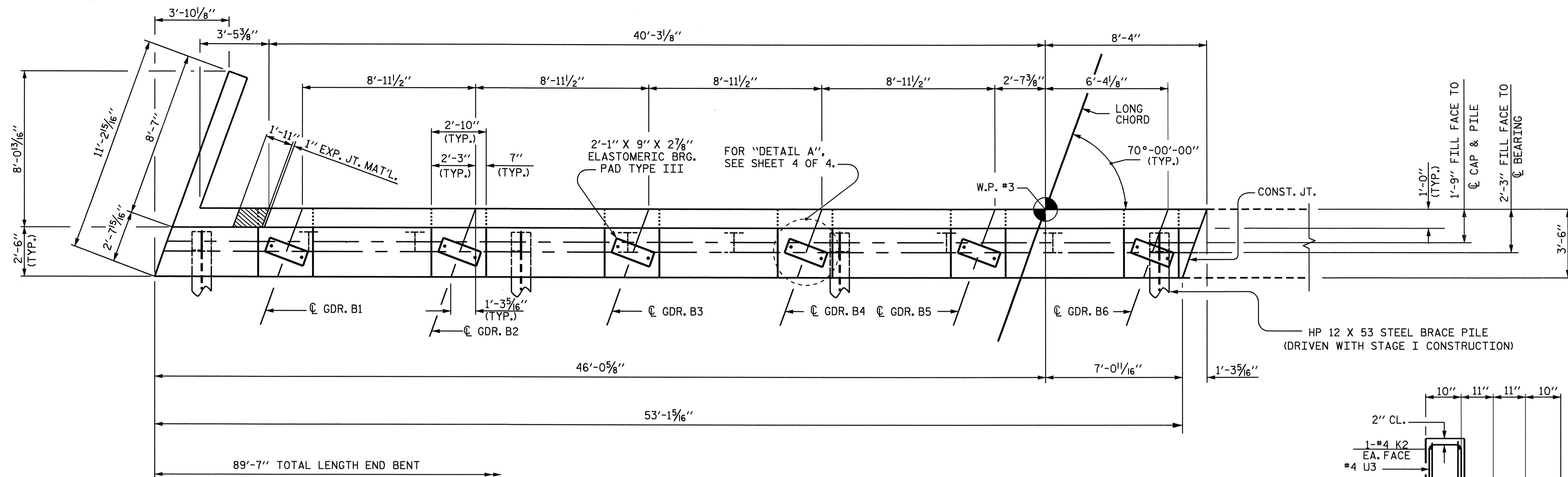
**SUBSTRUCTURE
 END BENT No. 2
 STAGE I**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-38
1			3			TOTAL SHEETS 45
2			4			

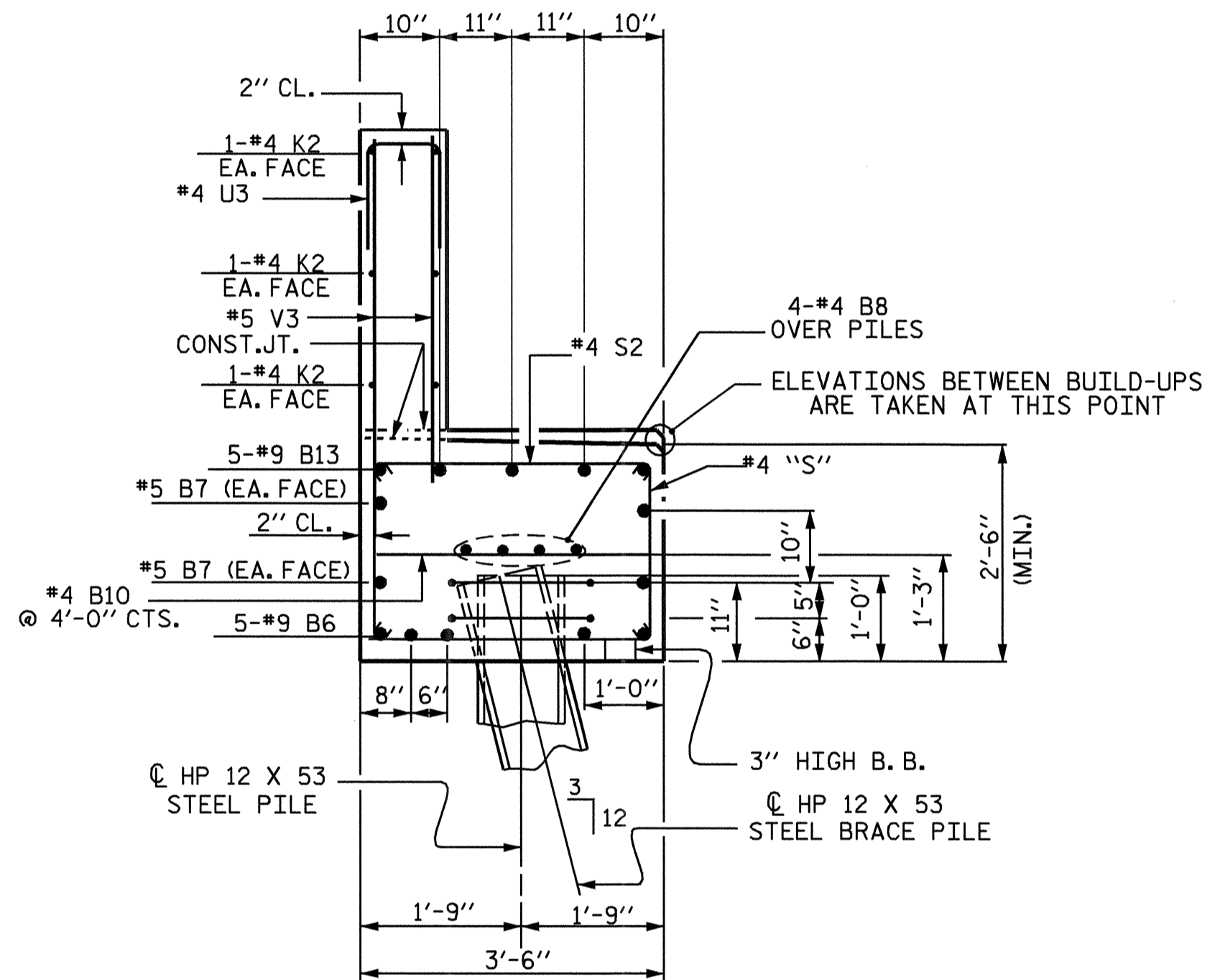


DRAWN BY: **M. POOLE** DATE: **08/06**
 CHECKED BY: **J. LAMBERT** DATE: **07/07**

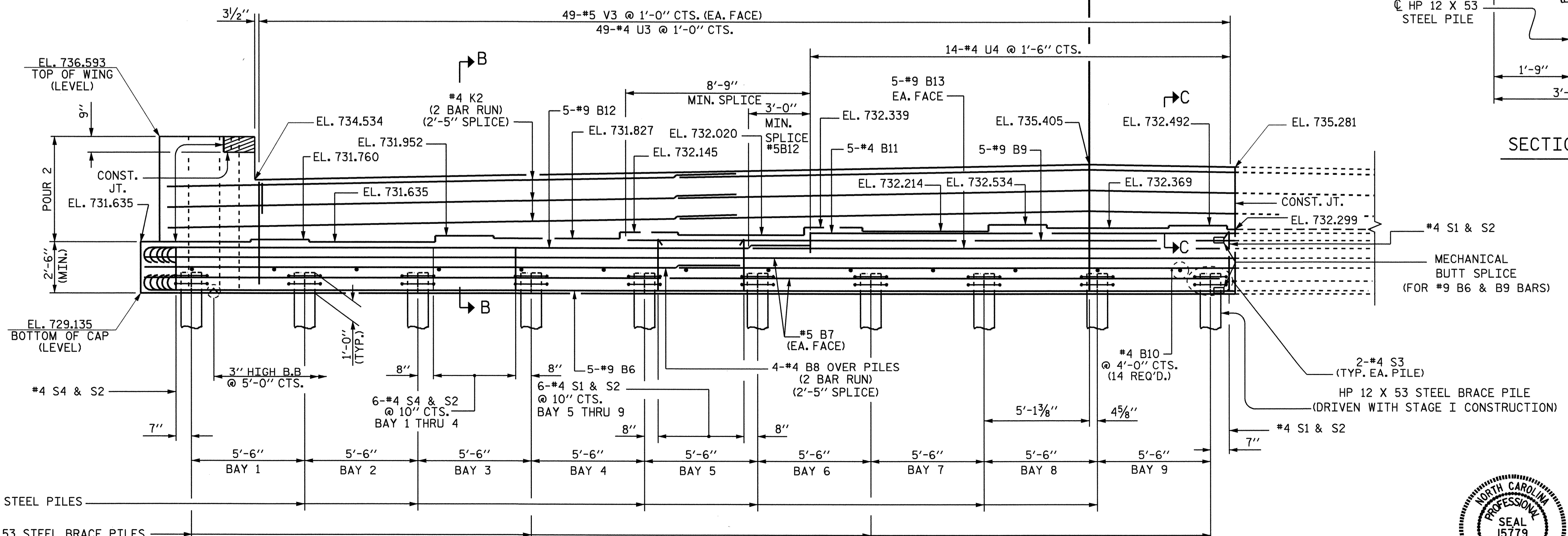
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 dhdodge



PLAN - STAGE II



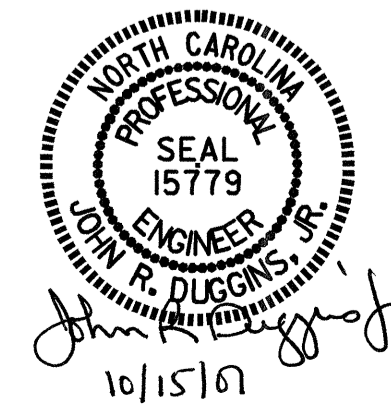
SECTION B-B



ELEVATION - STAGE II

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-
 SHEET 2 OF 4

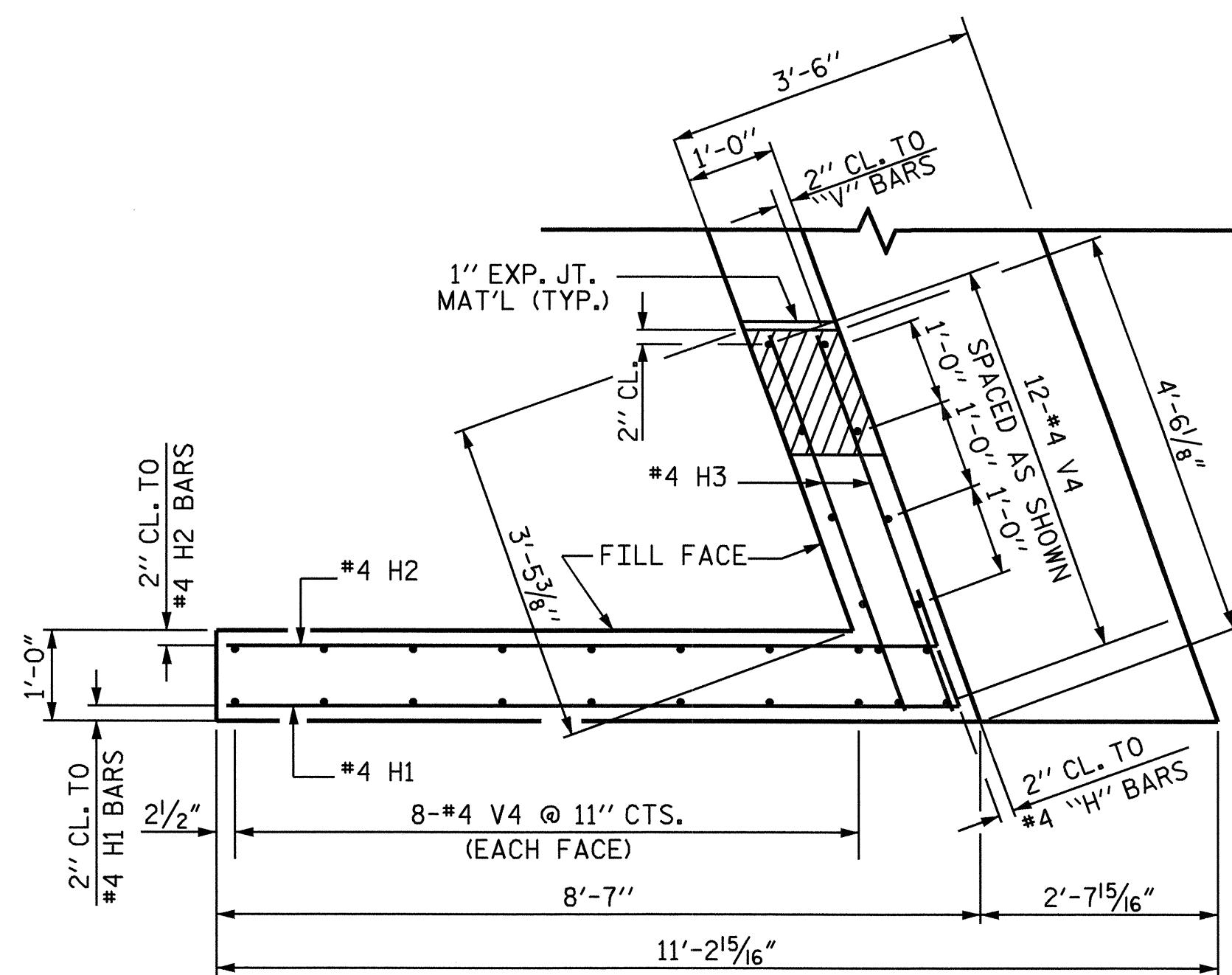
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT No. 2 STAGE II					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-39
					TOTAL SHEETS 45



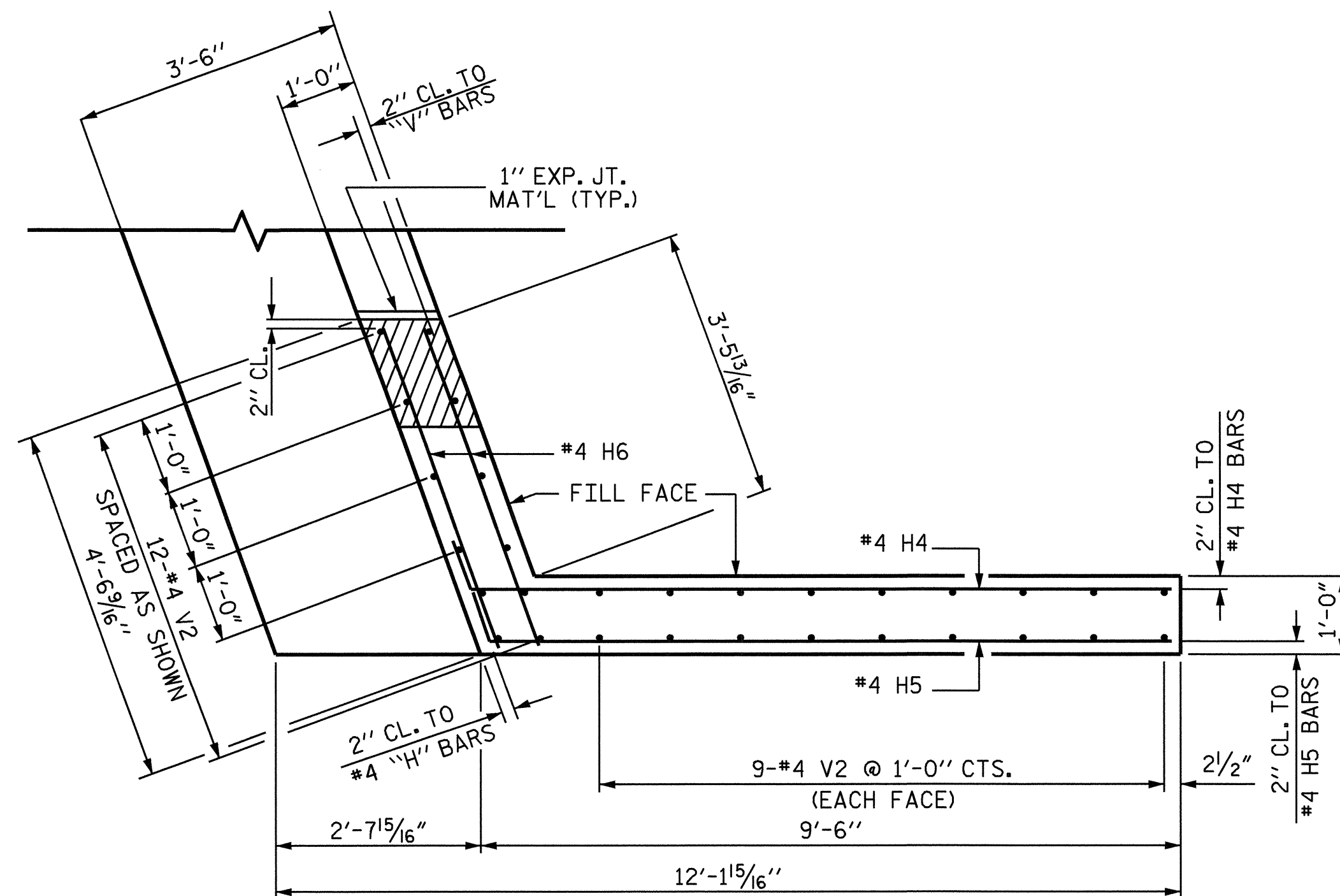
DRAWN BY: M. POOLE DATE: 08/06
 CHECKED BY: J. LAMBERT DATE: 07/07

17-SEP-2007 12:11
 R:\Structures\B3337\mpool\Microstation\B3337_sd.E2.01.dgn
 mpool

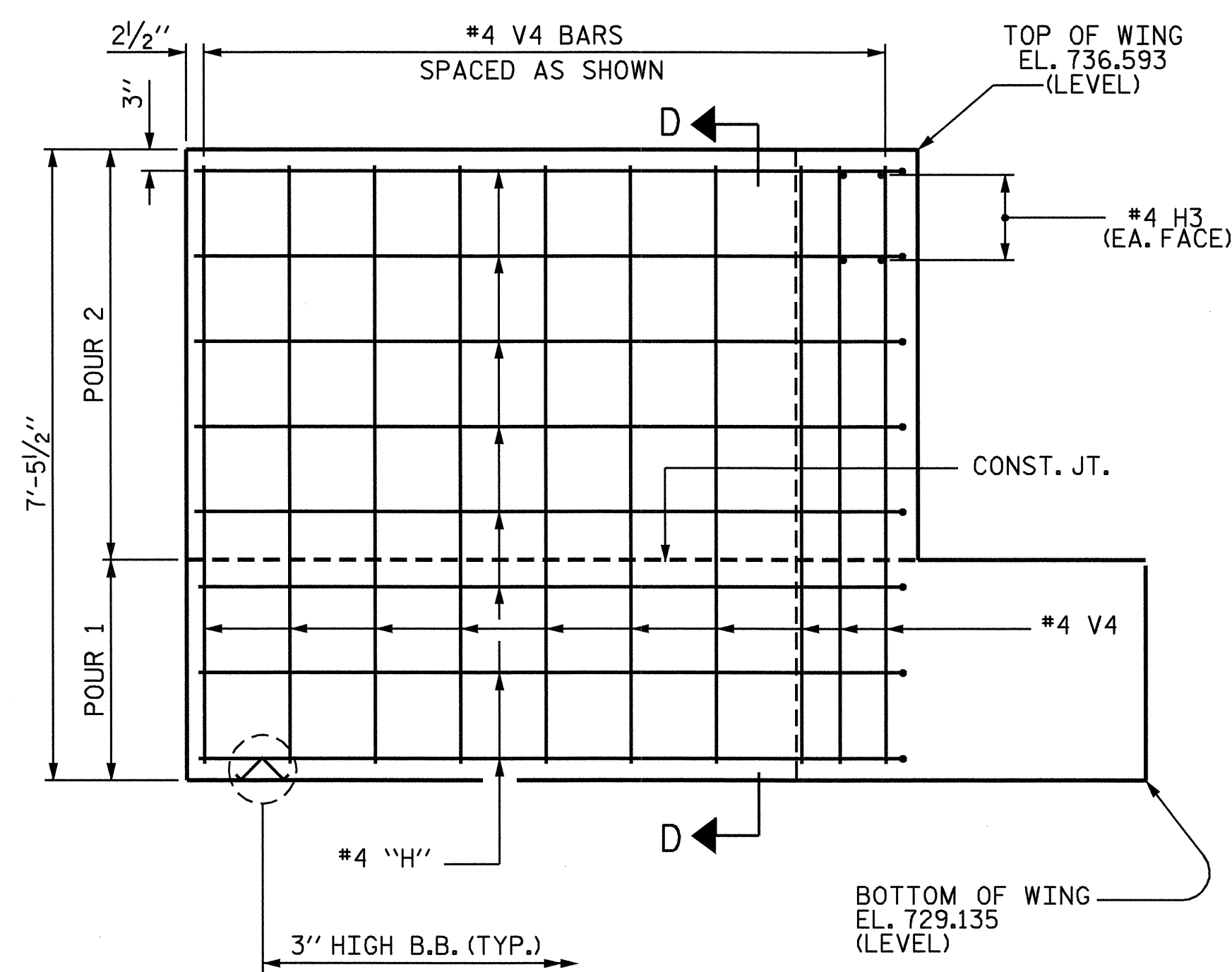
FOR SECTION C-C, SEE SHEET 1 OF 4.



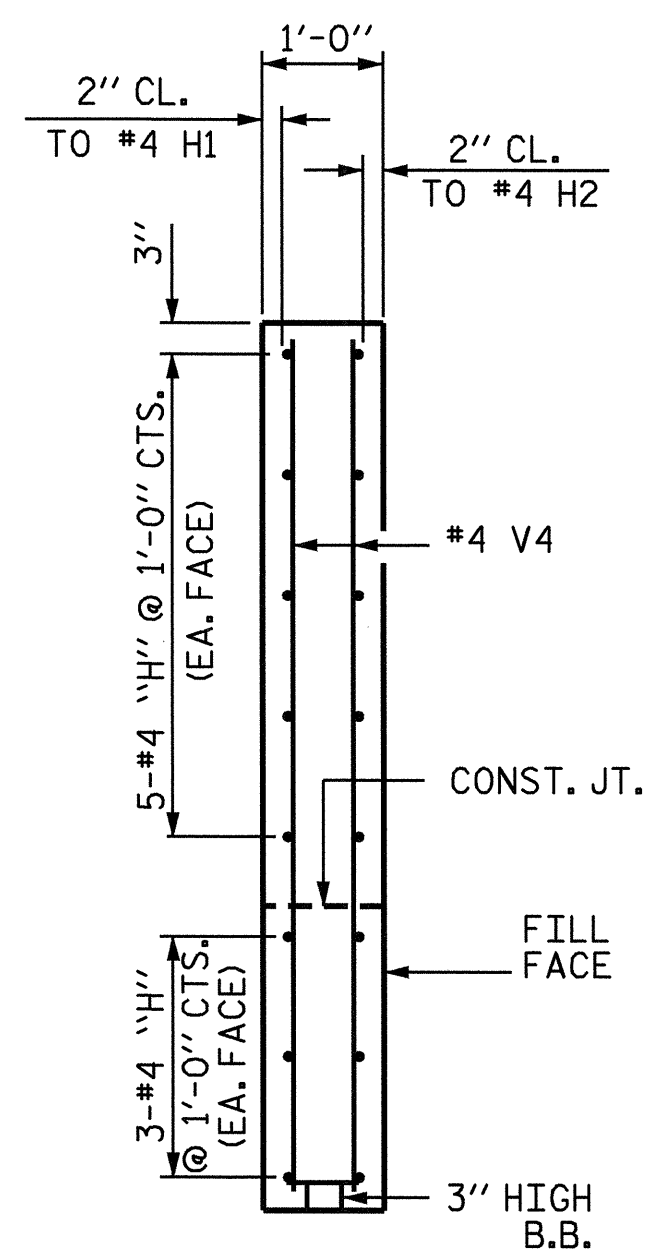
PLAN OF RIGHT WING - W1
STAGE II



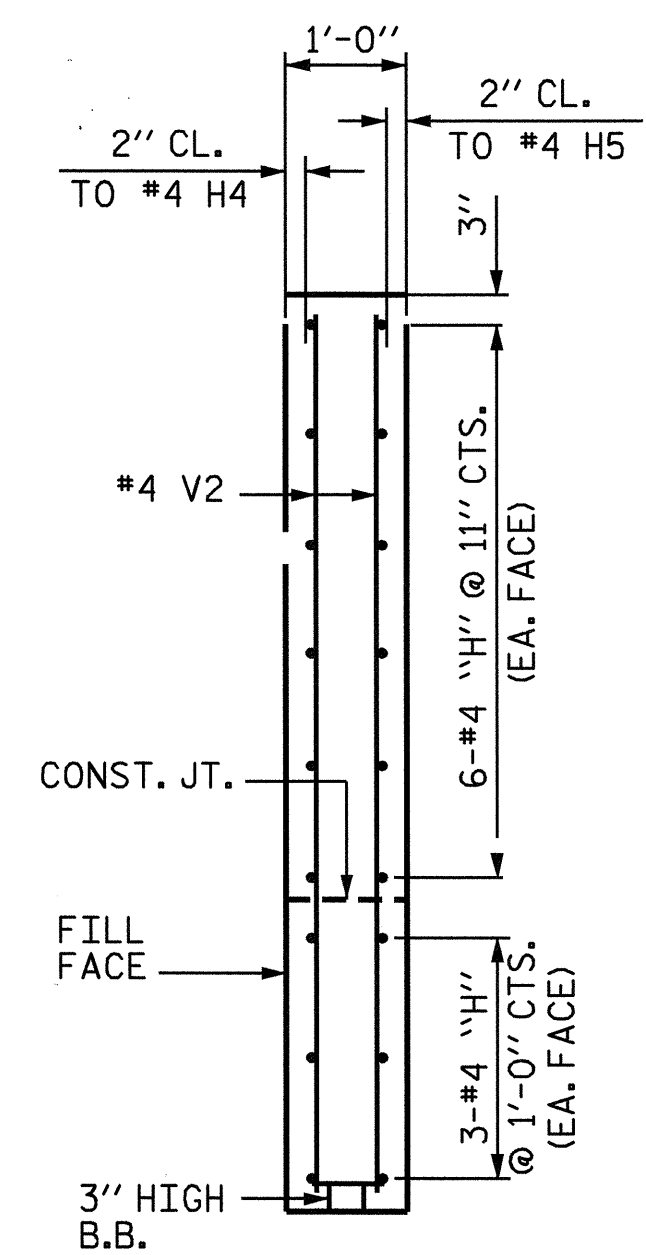
PLAN OF LEFT WING - W2
STAGE I



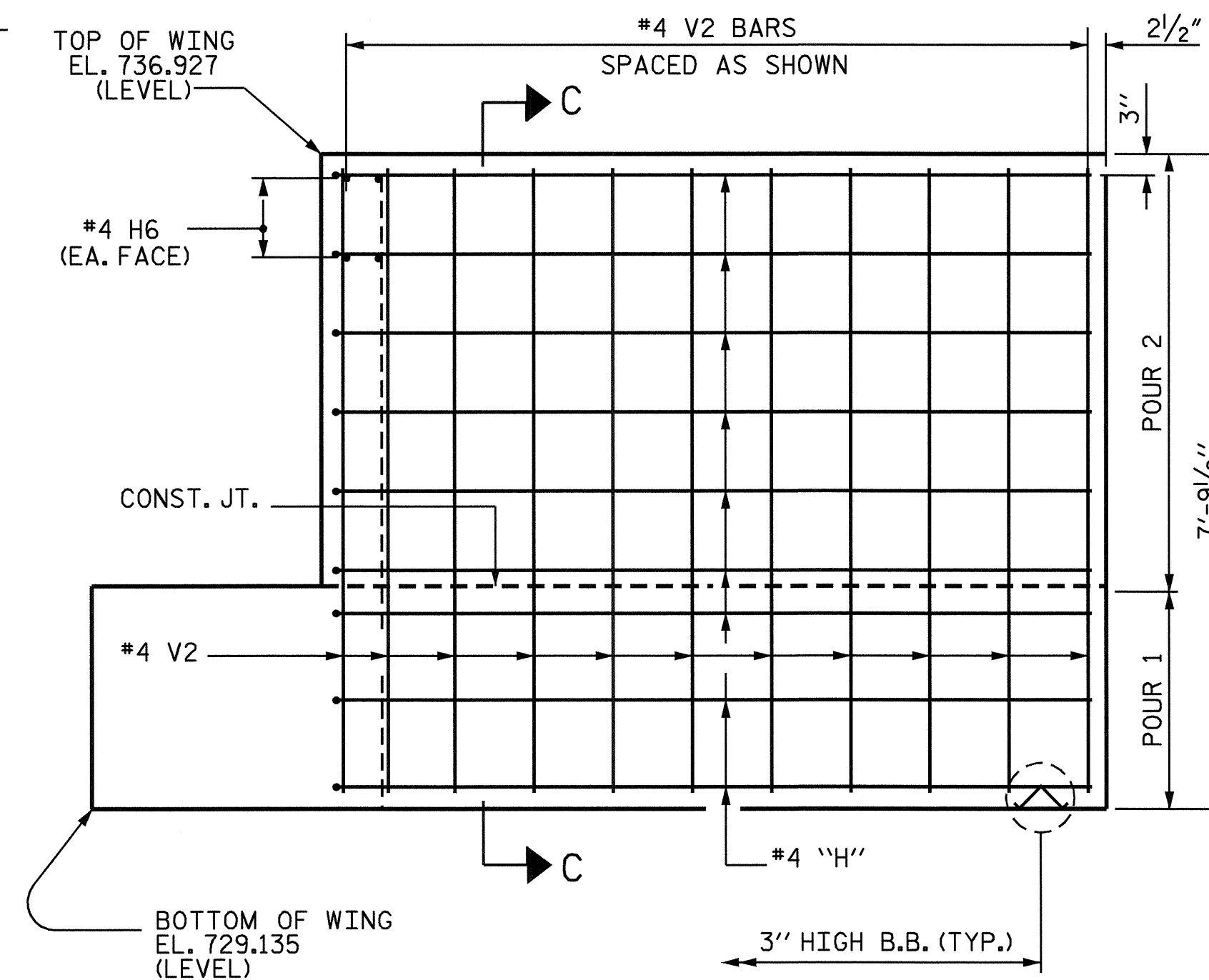
ELEVATION OF RIGHT WING - W1
STAGE II



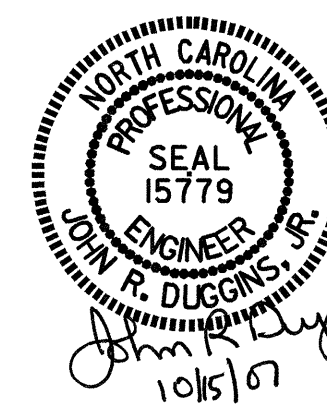
SECTION C-C
STAGE II



SECTION D-D
STAGE I



ELEVATION OF LEFT WING - W2
STAGE I



PROJECT NO. B-3337
GUILFORD COUNTY
STATION: 21+01.50 -L-

SHEET 3 OF 4

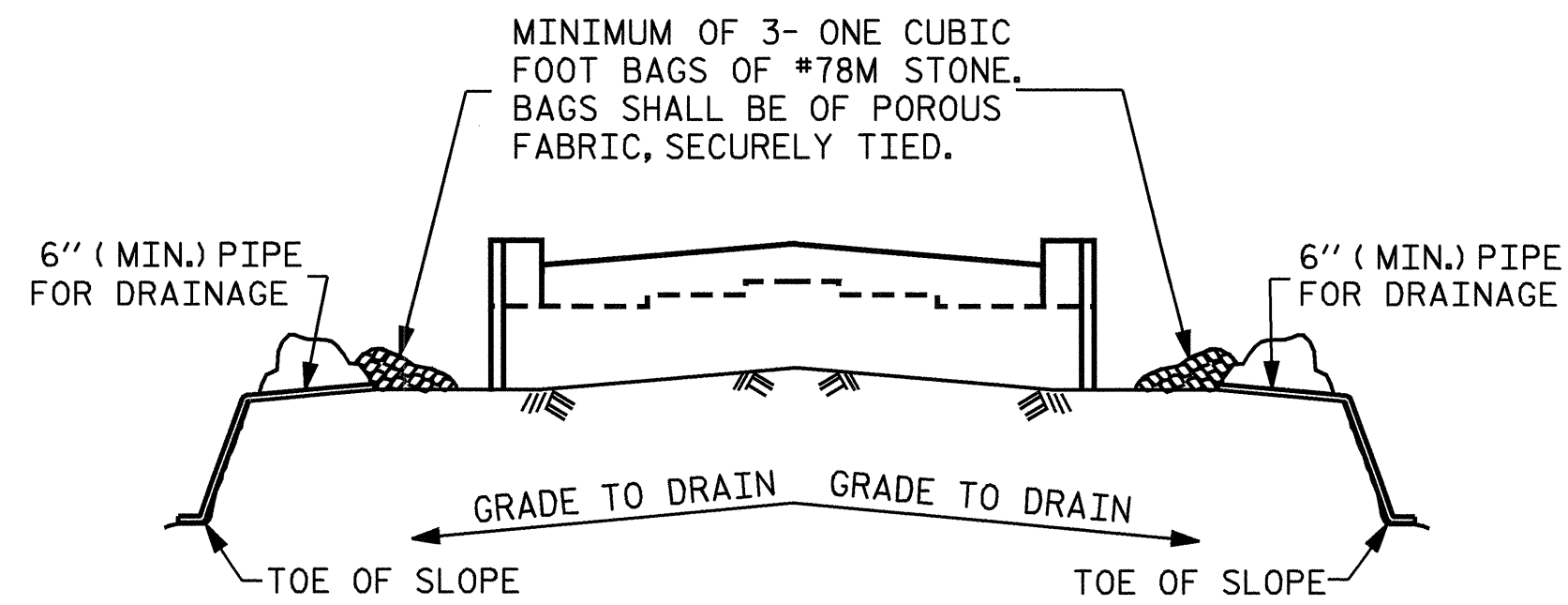
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 2

DRAWN BY: M. POOLE DATE: 08/06
CHECKED BY: J. LAMBERT DATE: 07/07

17-SEP-2007 12:11
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mpoole

REVISIONS						SHEET NO. S-40
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 45
2			4			

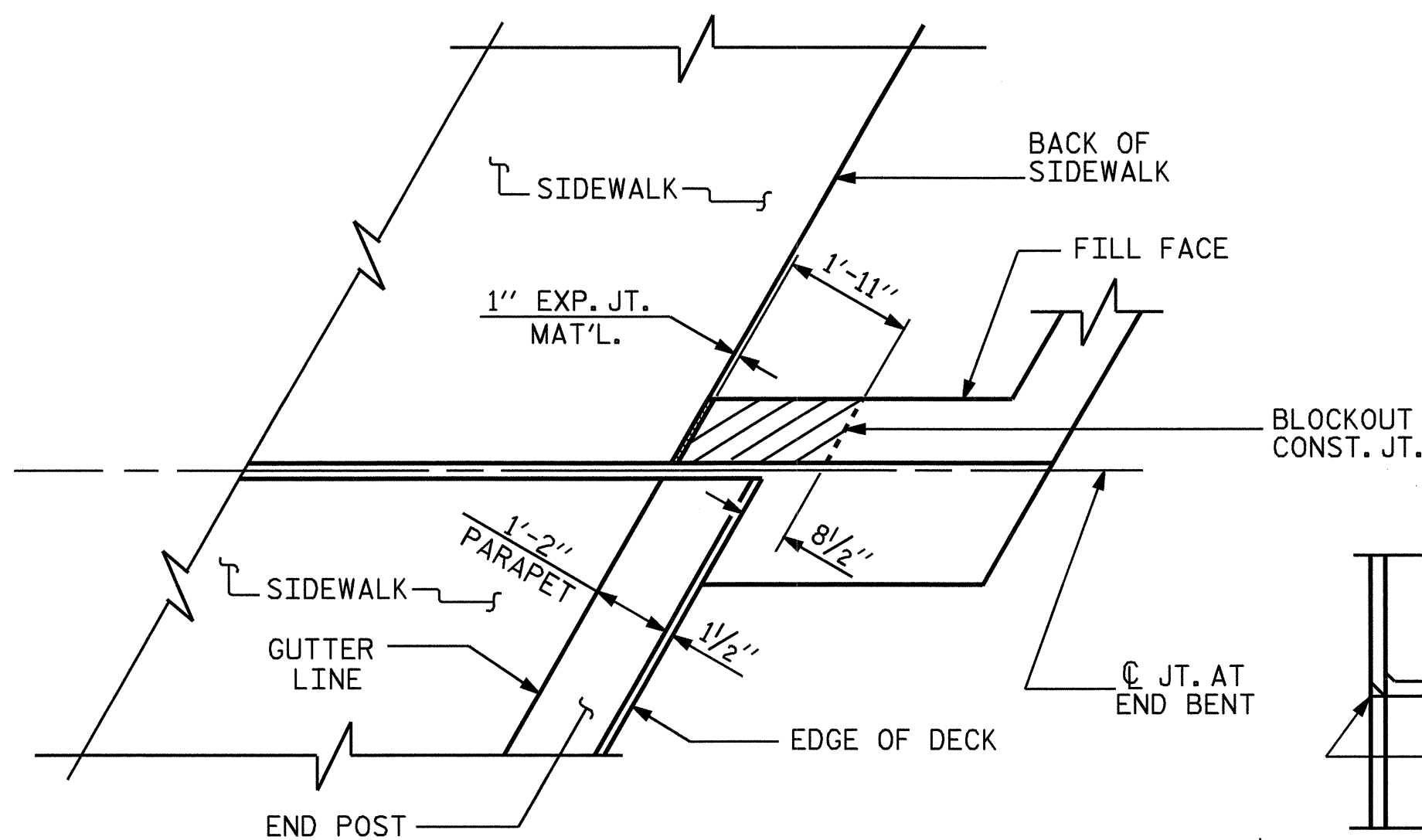


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

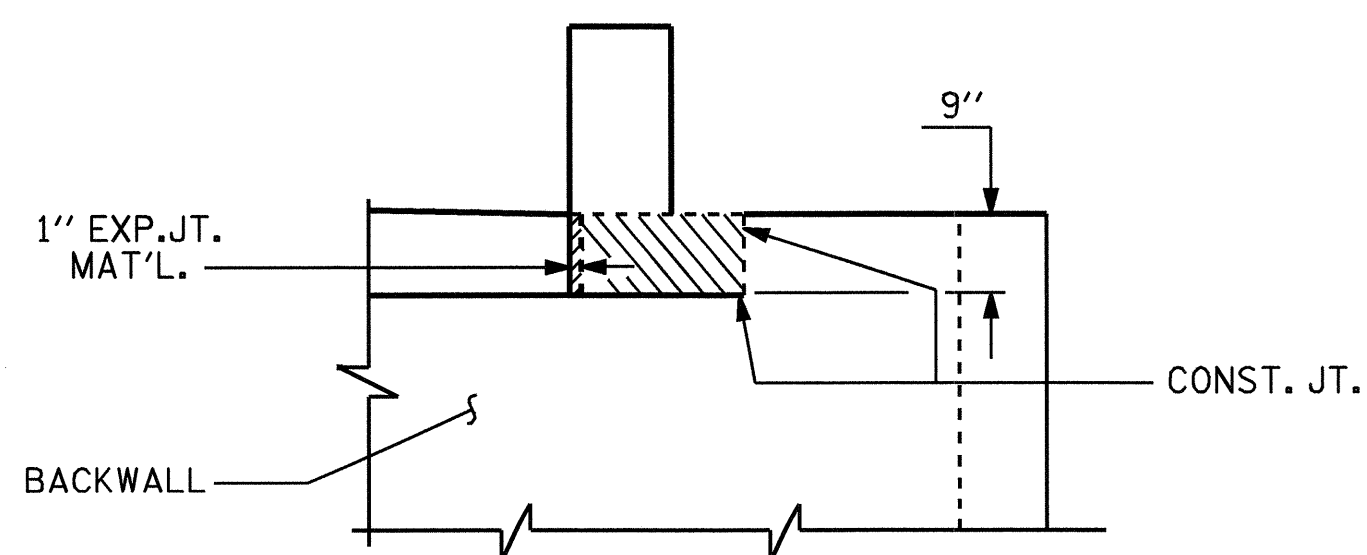
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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



PLAN



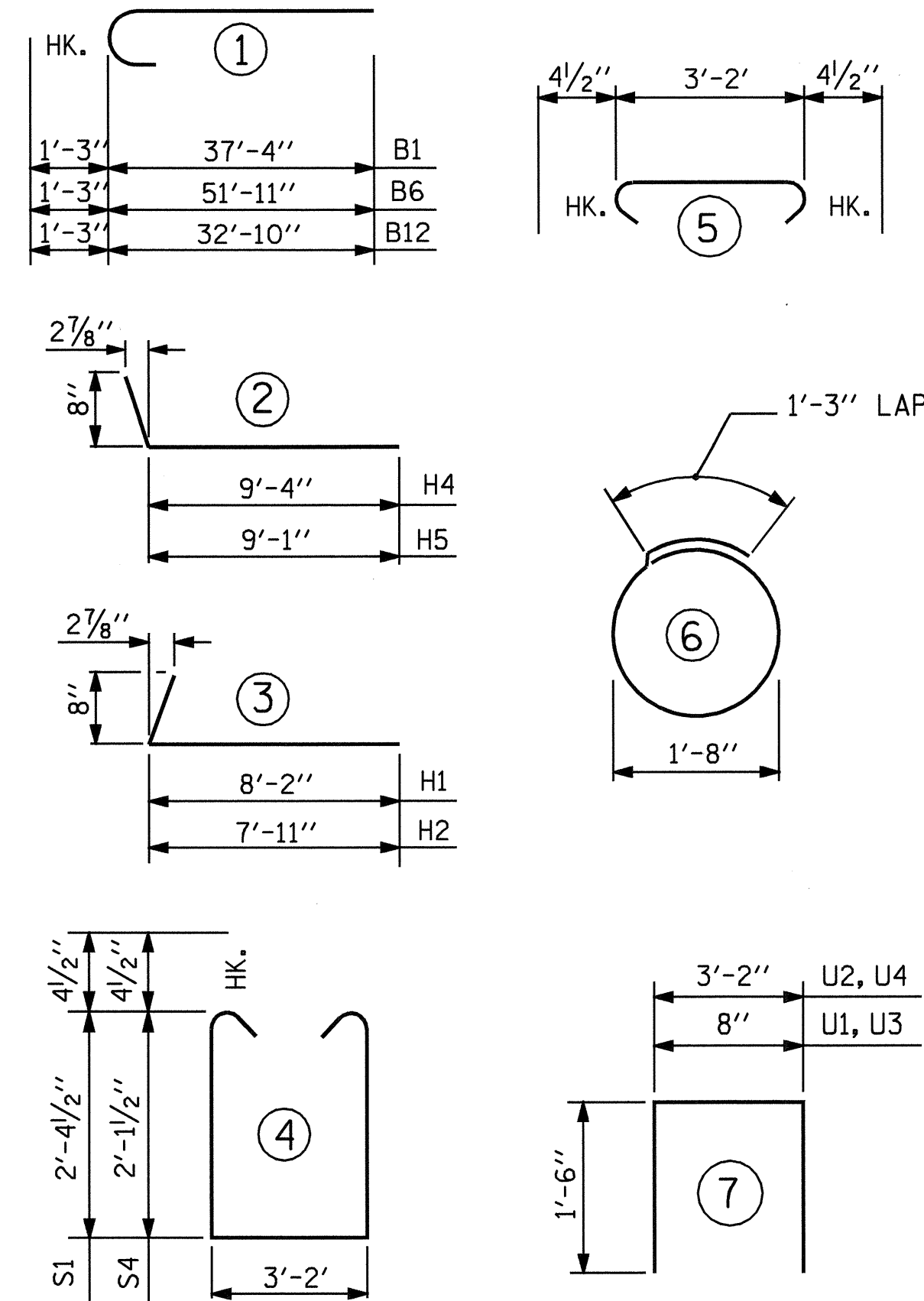
BLOCKOUT IN WING WALL FOR FITTING EVAZOTE JOINT SEAL

NOTE: THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE Poured AFTER THE JOINT BETWEEN THE DECK AND APPROACH SLAB HAS BEEN SAWED AND THE PARAPET IS CAST IF SLIP FORMING IS USED.

DRAWN BY: M. POOLE DATE: 08/06
 CHECKED BY: J. LAMBERT DATE: 09/07

11-OCT-2007 16:19
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 dhdodge

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

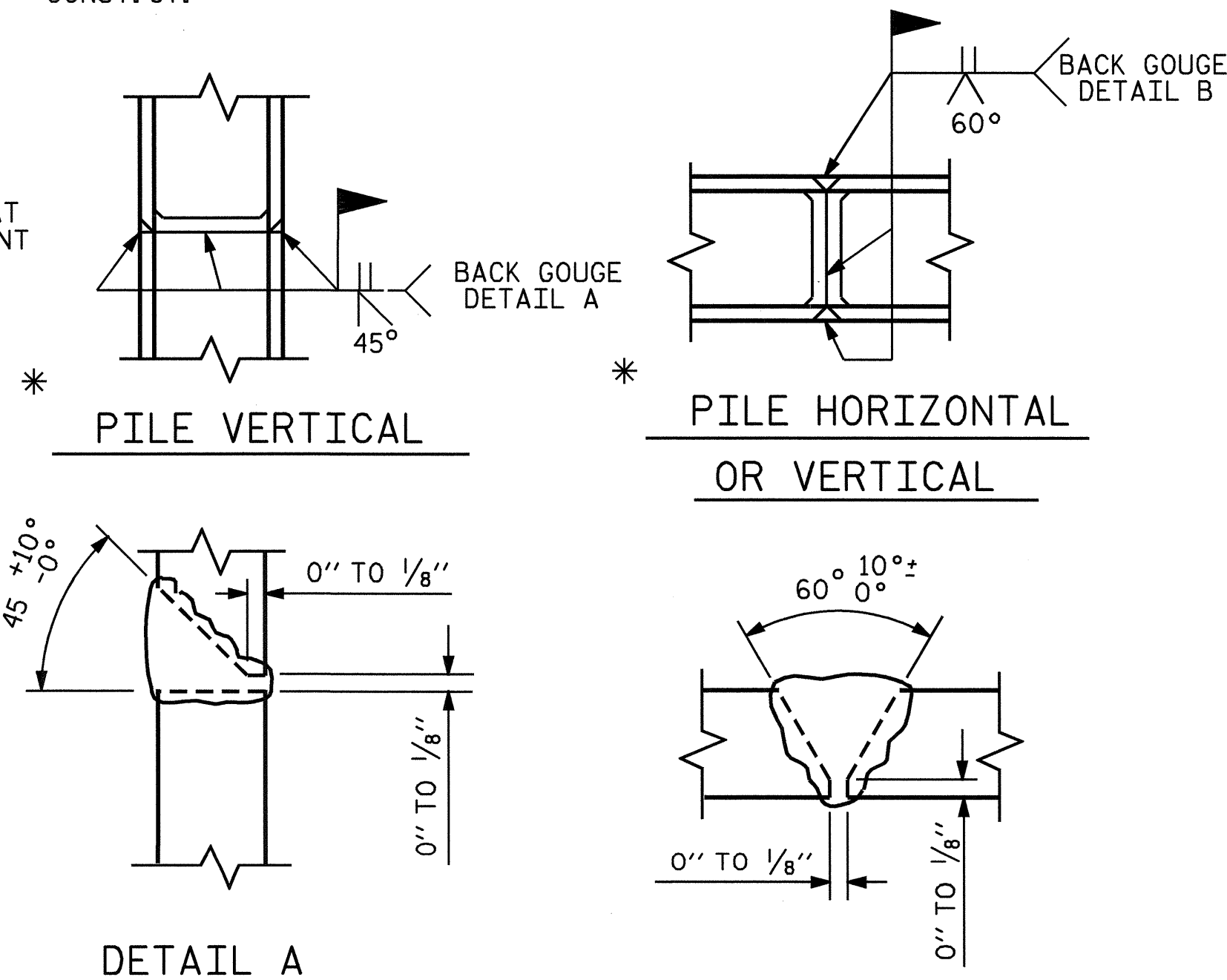
BILL OF MATERIAL

END BENT No. 2

STAGE I						STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9	1	38'-7"	1312	B6	5	#9	1	53'-2"	904
B2	4	#5	STR	39'-3"	164	B7	4	#5	STR	52'-11"	221
B3	8	#4	STR	20'-11"	112	B8	8	#4	STR	27'-8"	148
B4	5	#4	STR	15'-8"	52	B9	5	#9	STR	28'-8"	487
B5	9	#4	STR	3'-2"	19	B10	14	#4	STR	3'-2"	30
						B11	5	#4	STR	20'-9"	69
H4	9	#4	2	10'-0"	60	B12	5	#9	1	34'-1"	579
H5	9	#4	2	9'-9"	59	B13	2	#5	STR	23'-0"	48
H6	4	#4	STR	4'-2"	11	H1	8	#4	3	8'-10"	47
						H2	8	#4	3	8'-7"	46
K1	12	#4	STR	20'-7"	165	H3	4	#4	STR	4'-2"	11
S1	37	#4	4	8'-8"	214						
S2	37	#4	5	3'-11"	97	K2	12	#4	STR	27'-8"	222
S3	16	#4	6	6'-6"	69						
						S1	31	#4	4	8'-8"	179
U1	32	#4	7	3'-8"	78	S2	56	#4	5	3'-11"	147
U2	9	#4	7	6'-2"	37	S3	20	#4	6	6'-6"	87
						S4	25	#4	4	8'-2"	136
V1	64	#5	STR	5'-3"	350						
V2	30	#4	STR	7'-5"	149	U3	49	#4	7	3'-8"	120
						U4	14	#4	7	6'-2"	58
REINFORCING STEEL 2948 LBS.						V3	98	#5	STR	5'-0"	511
CLASS A CONCRETE BREAKDOWN						V4	28	#4	STR	7'-1"	132
POUR 1 (CAP & LOWER WINGS) 15.0 C.Y.						REINFORCING STEEL 4182 LBS.					
POUR 2 (BACKWALL & UPPER WINGS) 6.8 C.Y.						CLASS A CONCRETE BREAKDOWN					
TOTAL 21.8 C.Y.						POUR 1 (CAP & LOWER WINGS) 21.0 C.Y.					
HP 12 x 53 STEEL PILES NO. 8 160 LIN. FT.						POUR 2 (BACKWALL & UPPER WINGS) 8.0 C.Y.					
						TOTAL 29.0 C.Y.					
						HP 12 x 53 STEEL PILES NO. 10 200 LIN. FT.					

TOTAL QUANTITIES

REINFORCING STEEL	7130 LBS.
CLASS A CONCRETE	50.8 C.Y.
HP 12 X 53 STEEL PILES No. 18	360 LIN. FT.

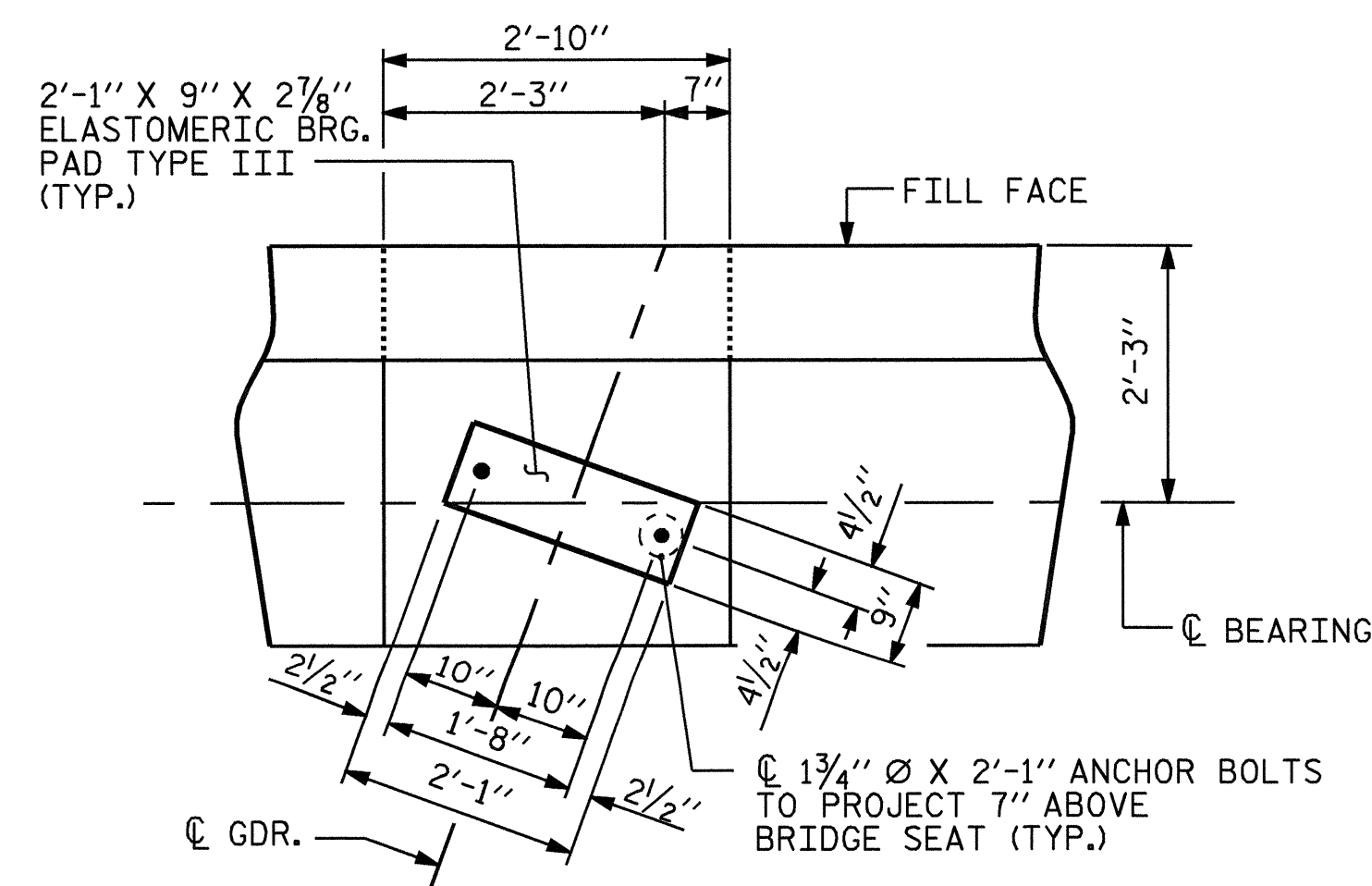


DETAIL A

DETAIL B

* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



DETAIL A

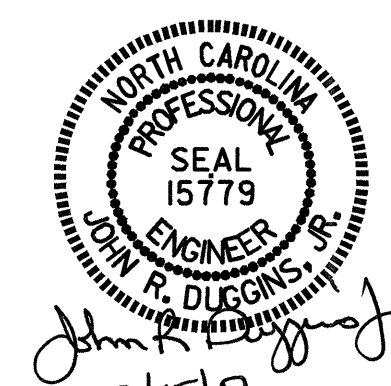
(TYP. EA. GDR.)

PROJECT NO. B-3337
 GUILFORD COUNTY
 STATION: 21+01.50 -L-

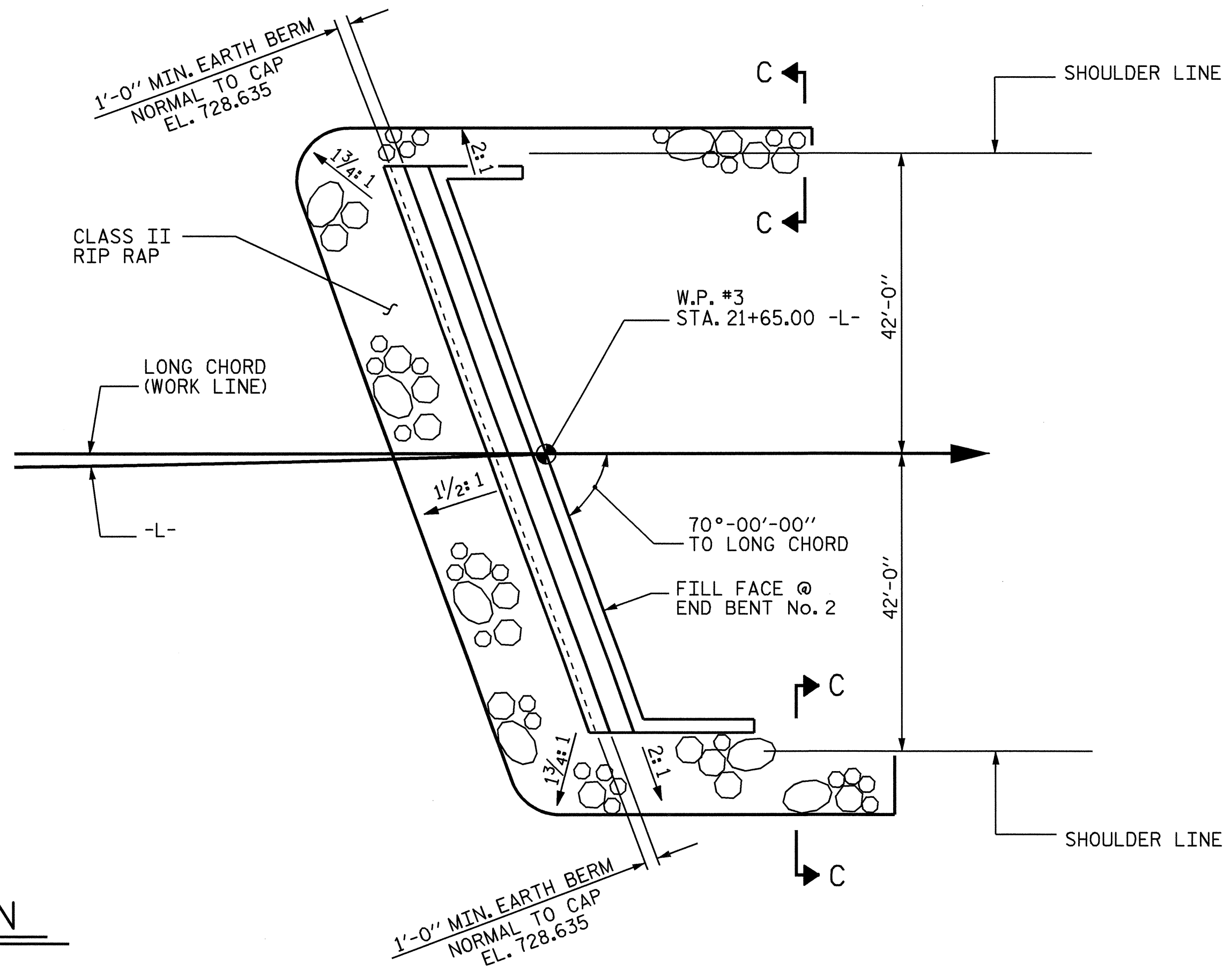
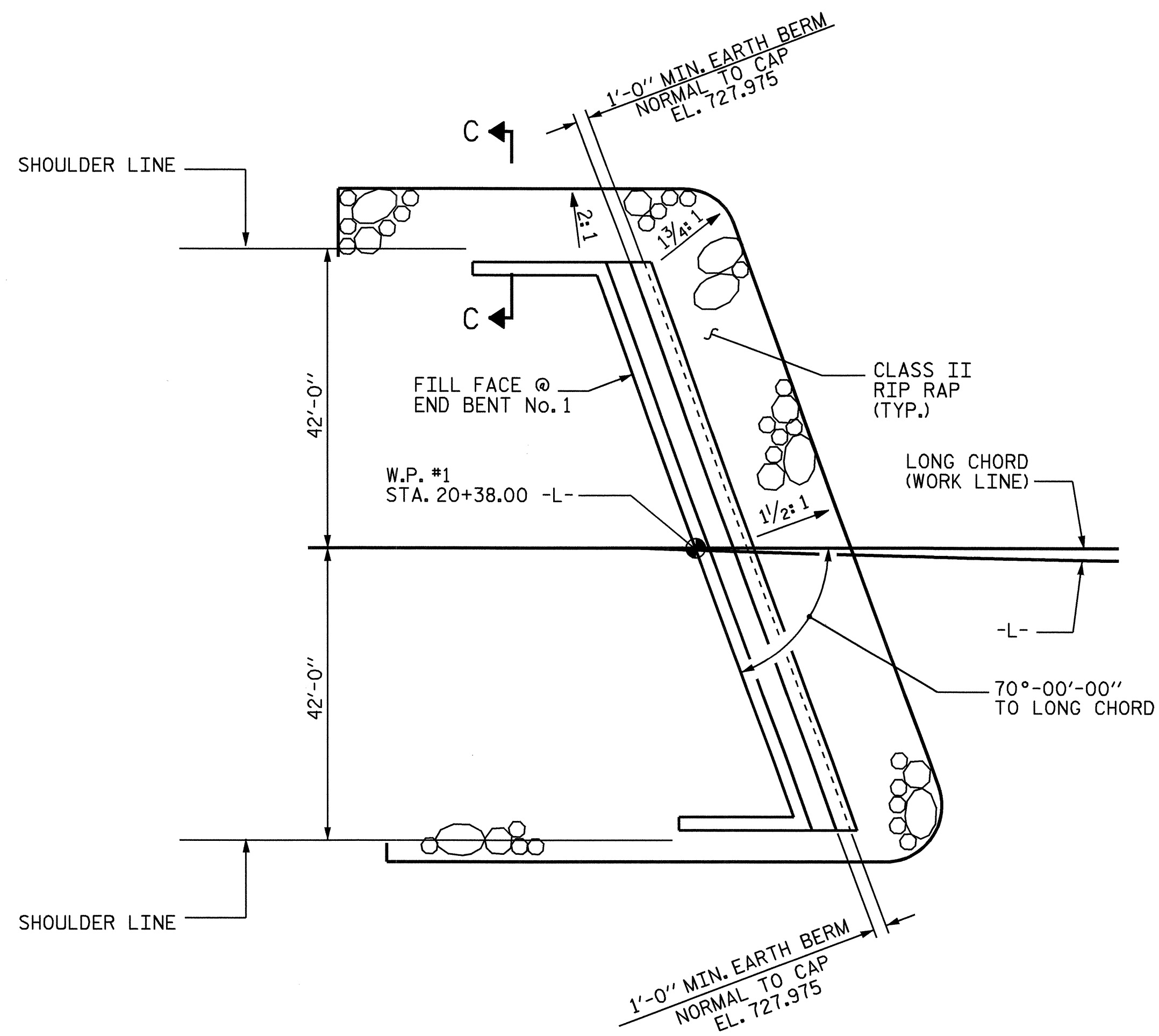
SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE END BENT No. 2

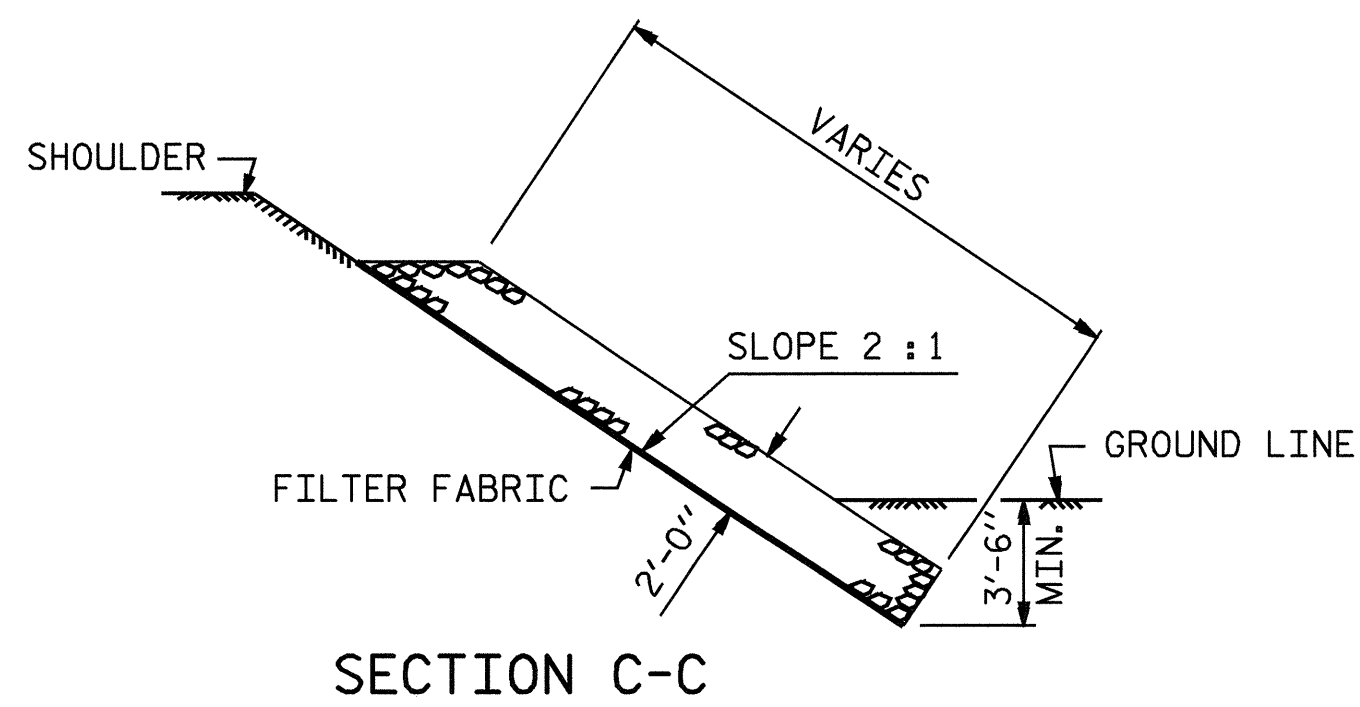
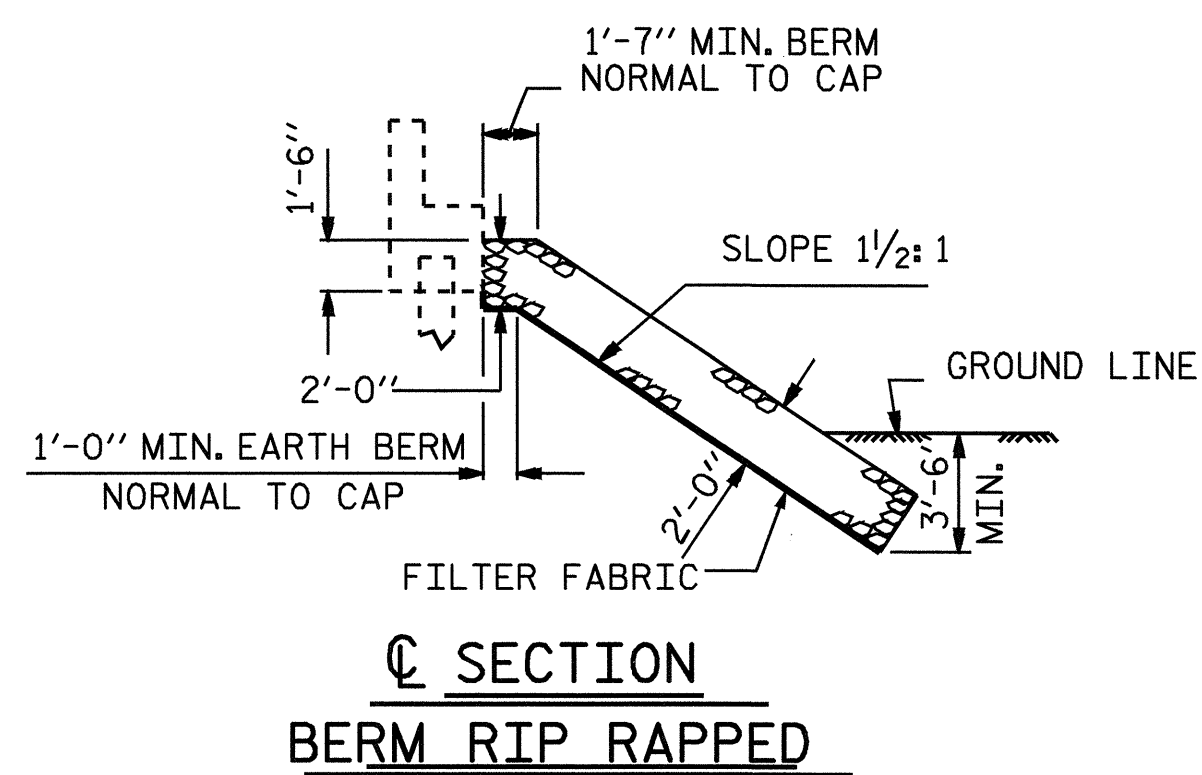


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS 45
2			4			



PLAN

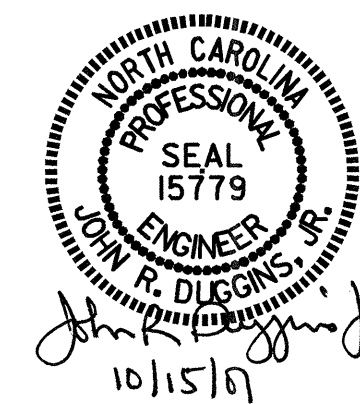
ESTIMATED QUANTITIES		
BRIDGE @ STA. 21+01.50 -L-	RIP RAP CLASS II TONS	FILTER FABRIC FOR DRAINAGE SQUARE YARDS
END BENT 1	220	245
END BENT 2	227	252



PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

RIP RAP DETAILS

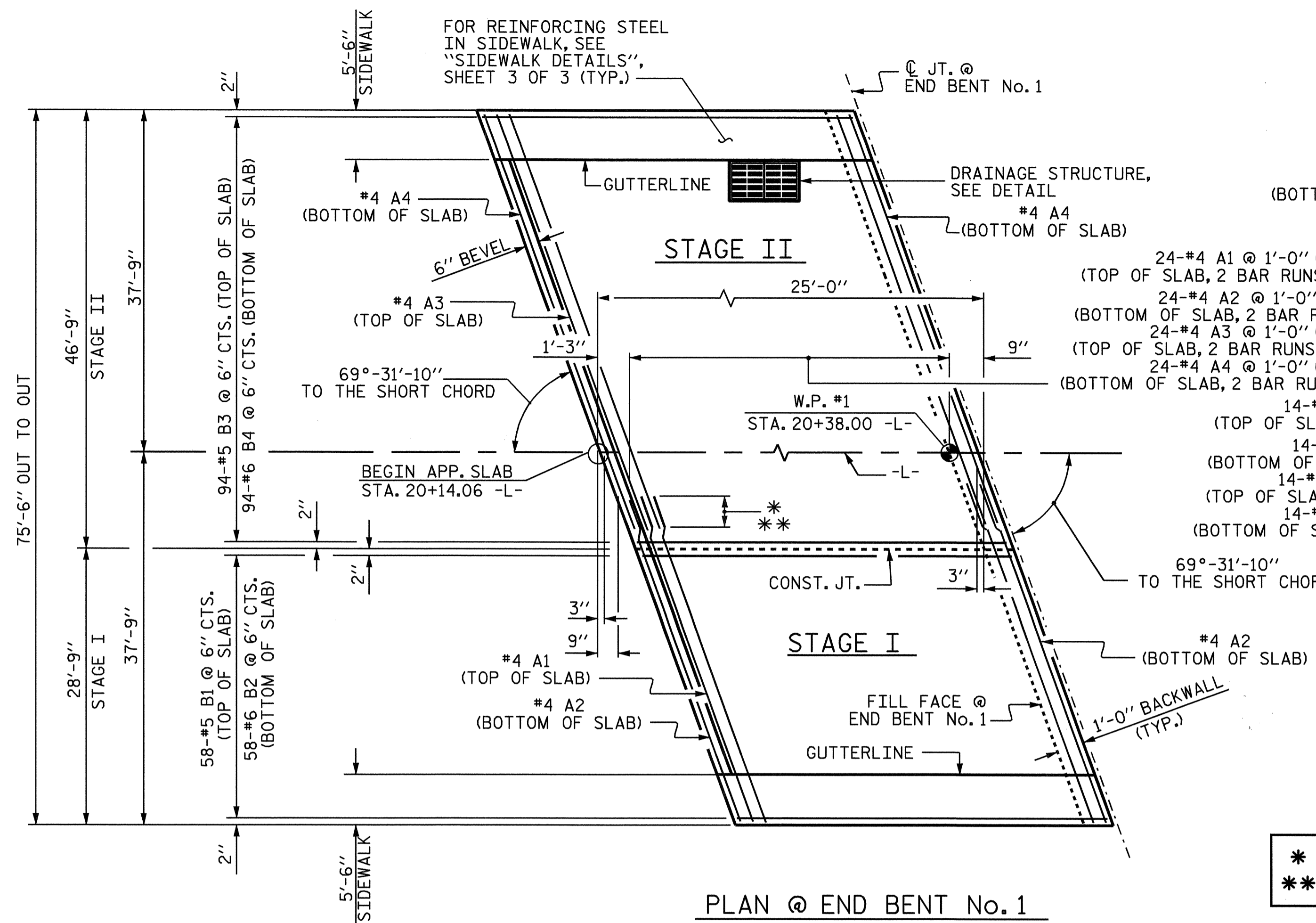


DRAWN BY : M. POOLE DATE : 06/07
 CHECKED BY : J. R. DUGGINS DATE : 07/07

26-SEP-2007 08:17
 Z:\Structures\B3337\mpoole\Microstation\B3337_sd_RR_01.dgn
 mpoole

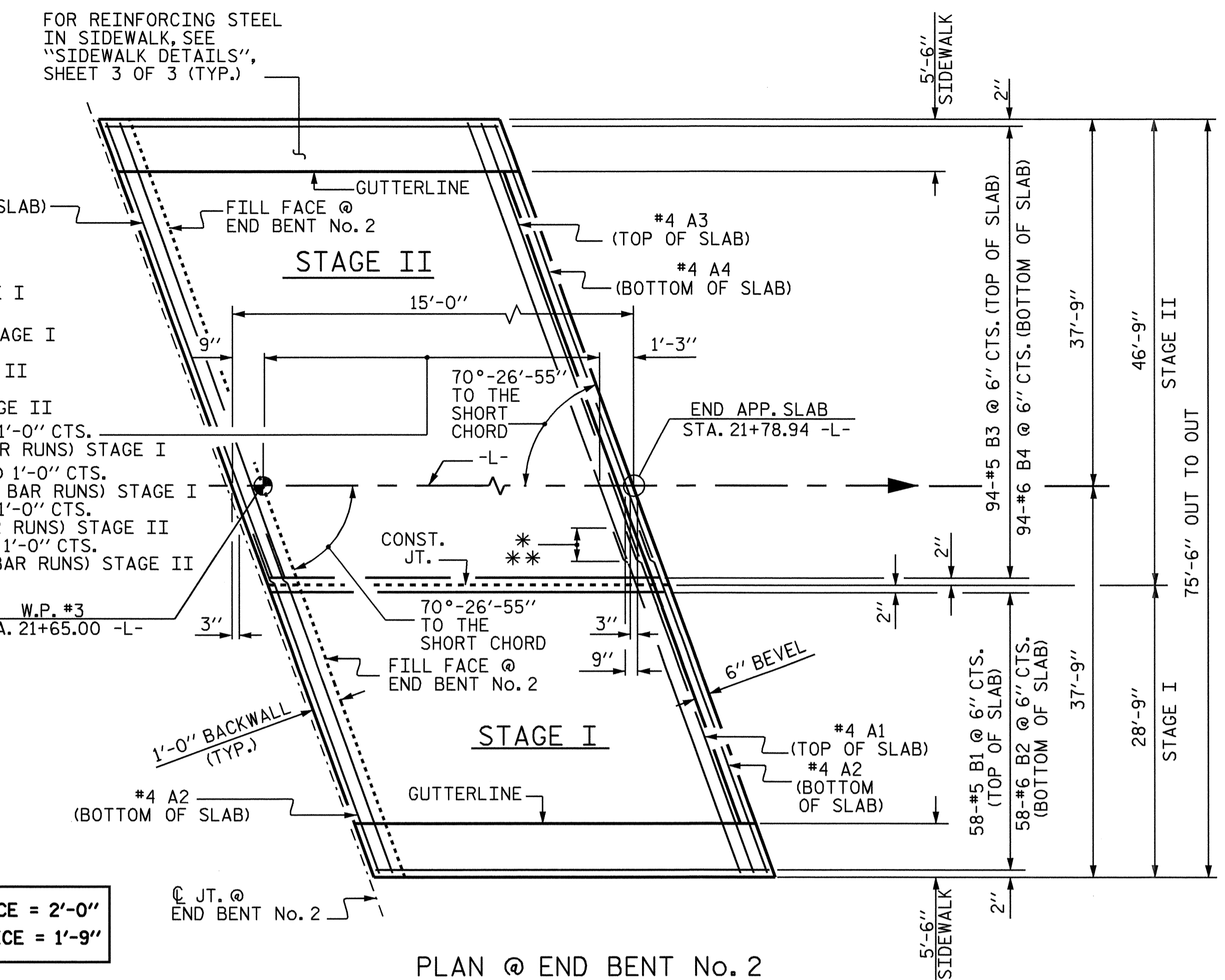
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			45

S-42

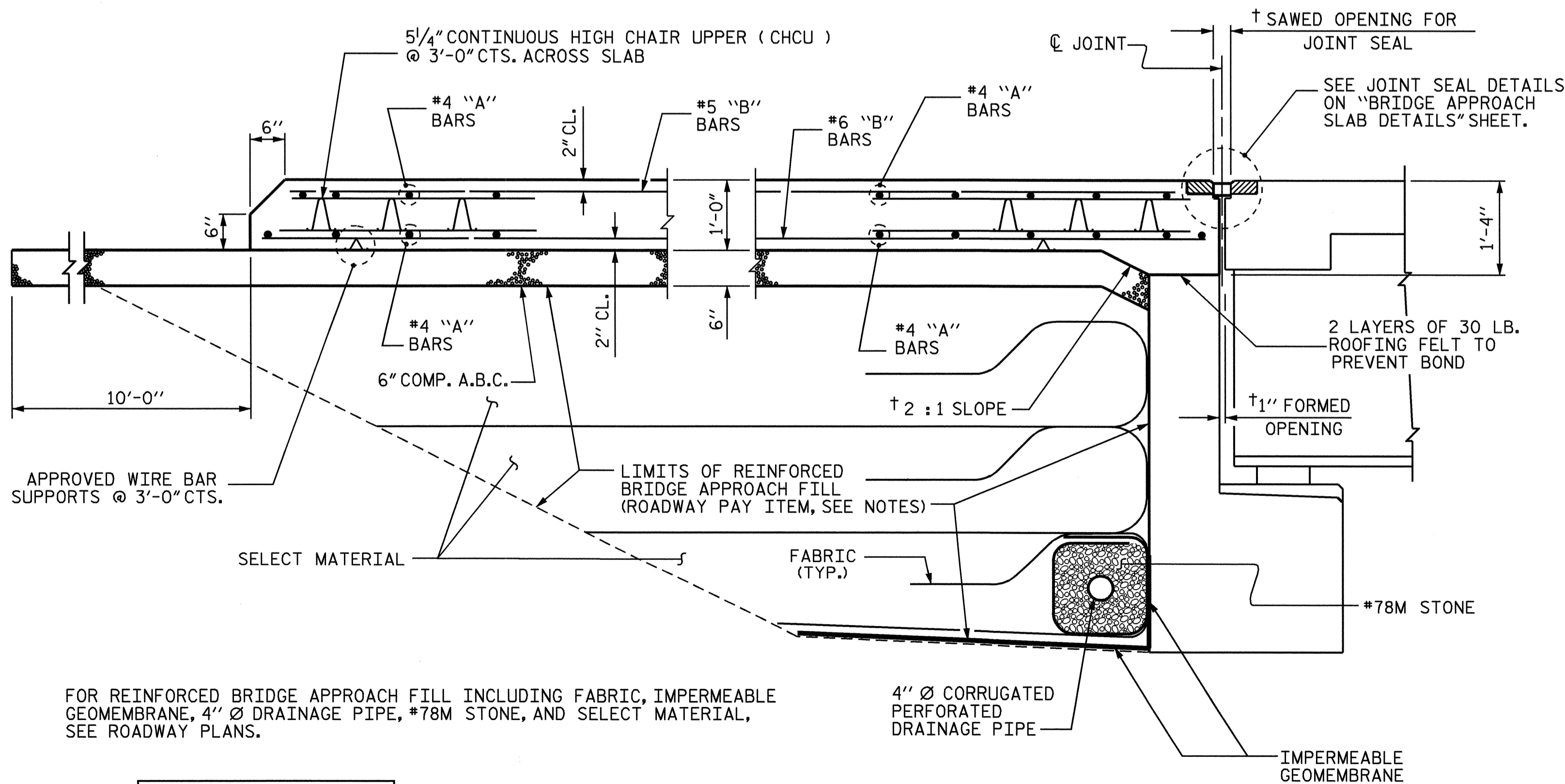


PLAN @ END BENT No. 1

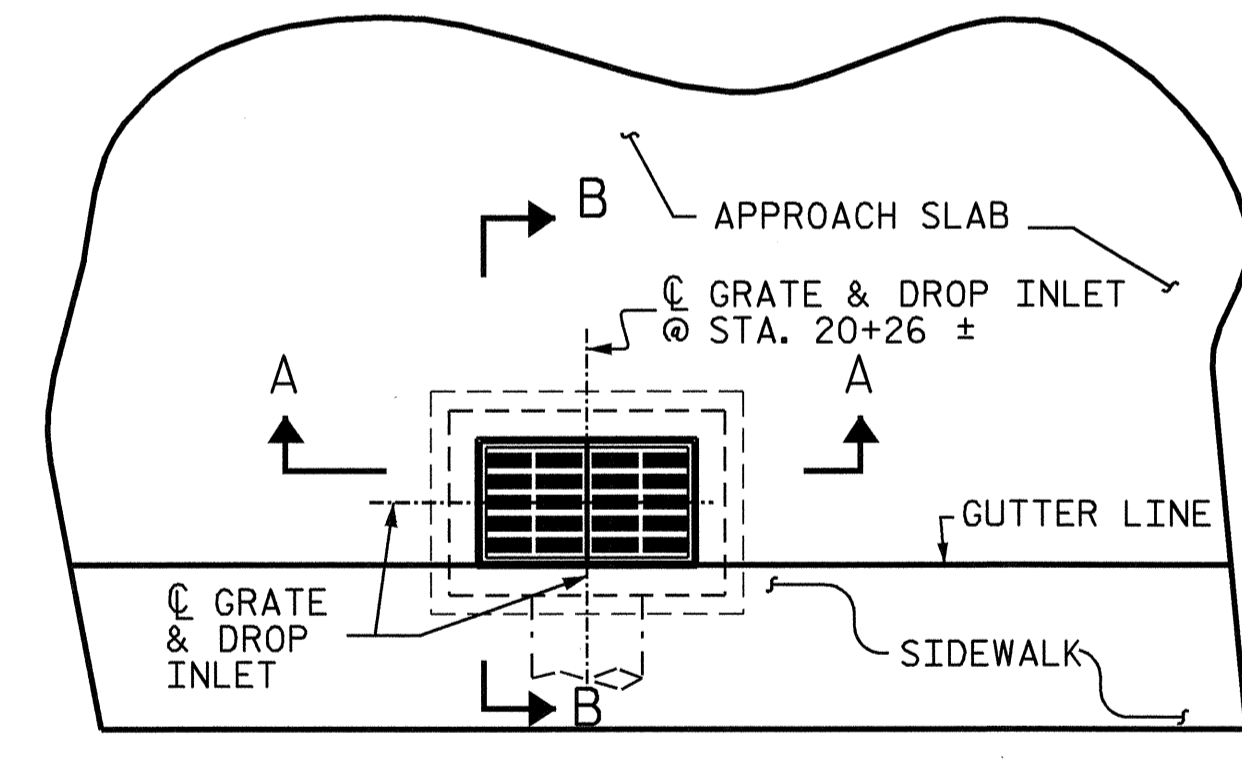
* A1 SPLICE = 2'-0"
 ** A2 SPLICE = 1'-9"



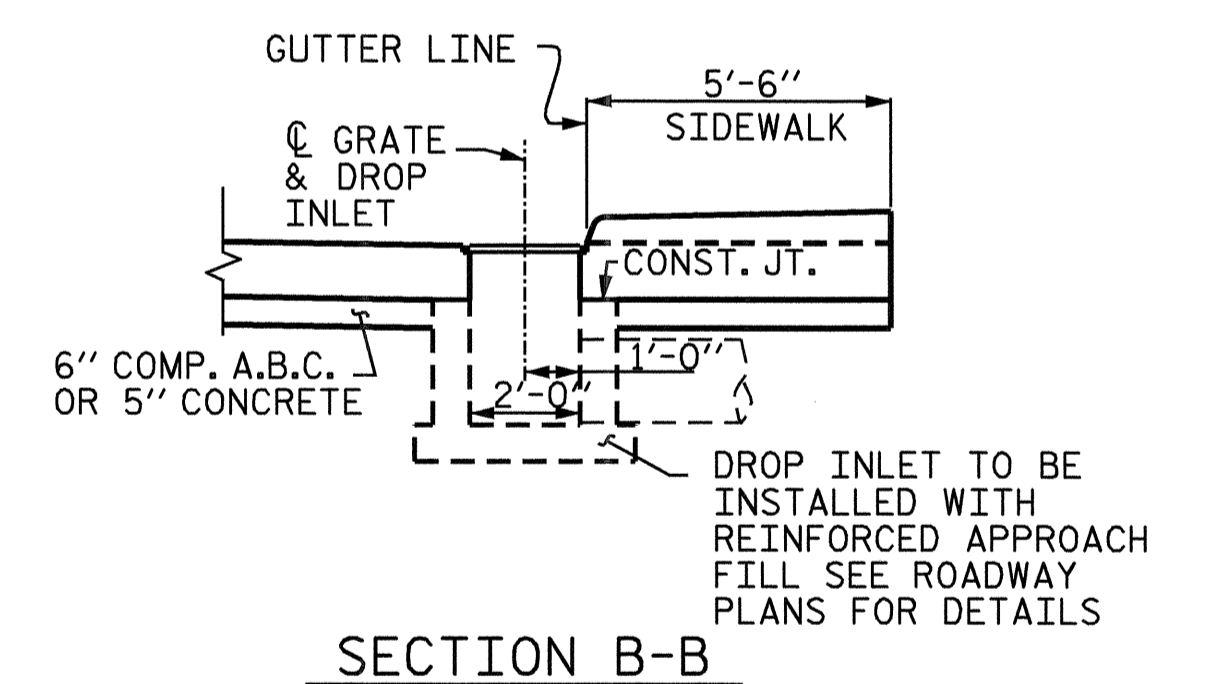
PLAN @ END BENT No. 2



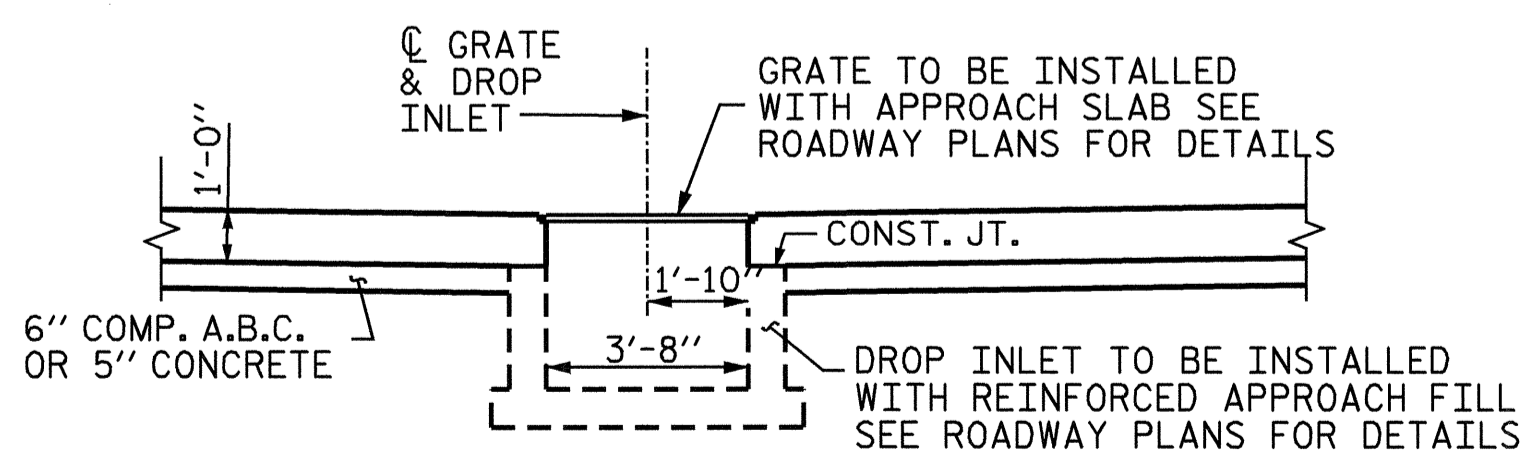
SECTION THRU SLAB



TYPICAL PART PLAN



SECTION B-B



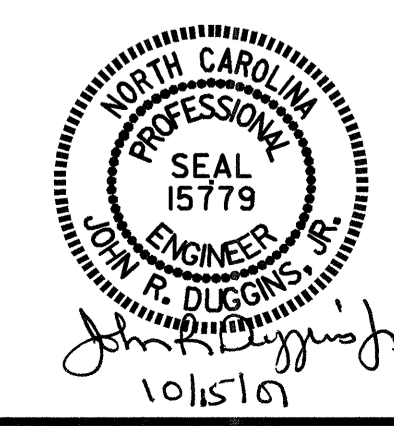
SECTION A-A

DRAINAGE STRUCTURE
 ROADWAY DETAIL AND PAY ITEM
 (SEE ROADWAY PLANS)

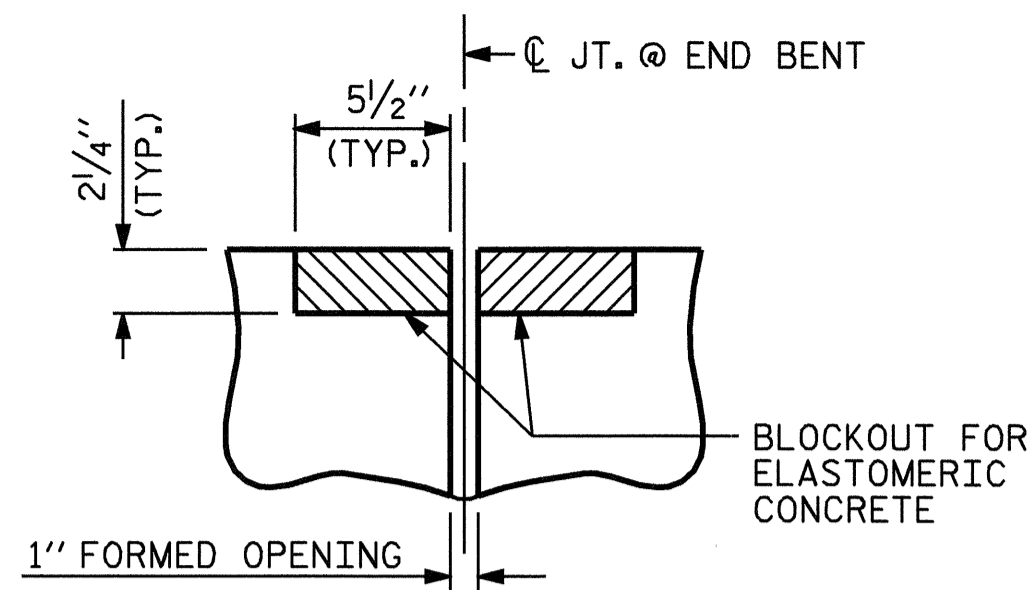
PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BRIDGE APPROACH FOR FLEXIBLE PAVEMENT WITH SIDEWALK					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-43
TOTAL SHEETS					45



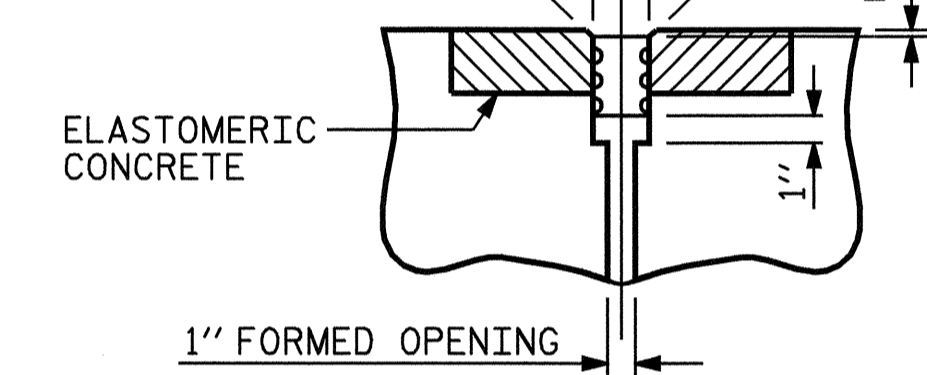
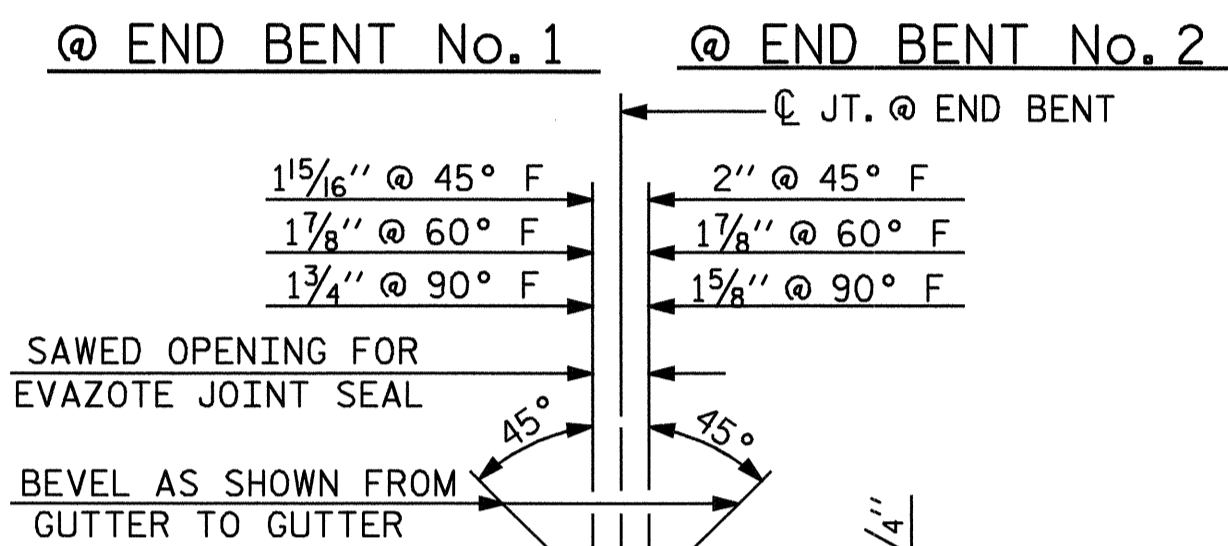
DRAWN BY: M. POOLE DATE: 06/07
 CHECKED BY: J.R. DUGGINS DATE: 08/07



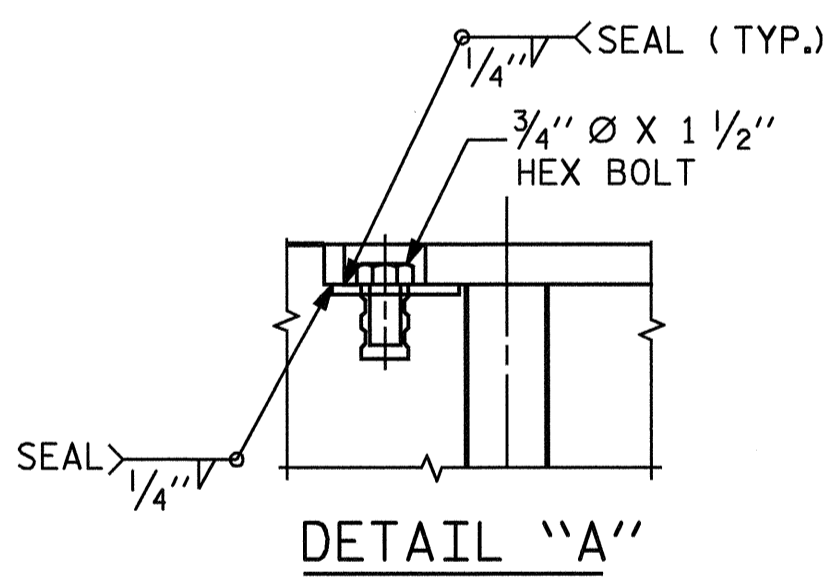
SECTION B-B
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1 - STAGE I	5.3
1 - STAGE II	7.5
2 - STAGE I	5.3
2 - STAGE II	7.5
TOTAL	25.6

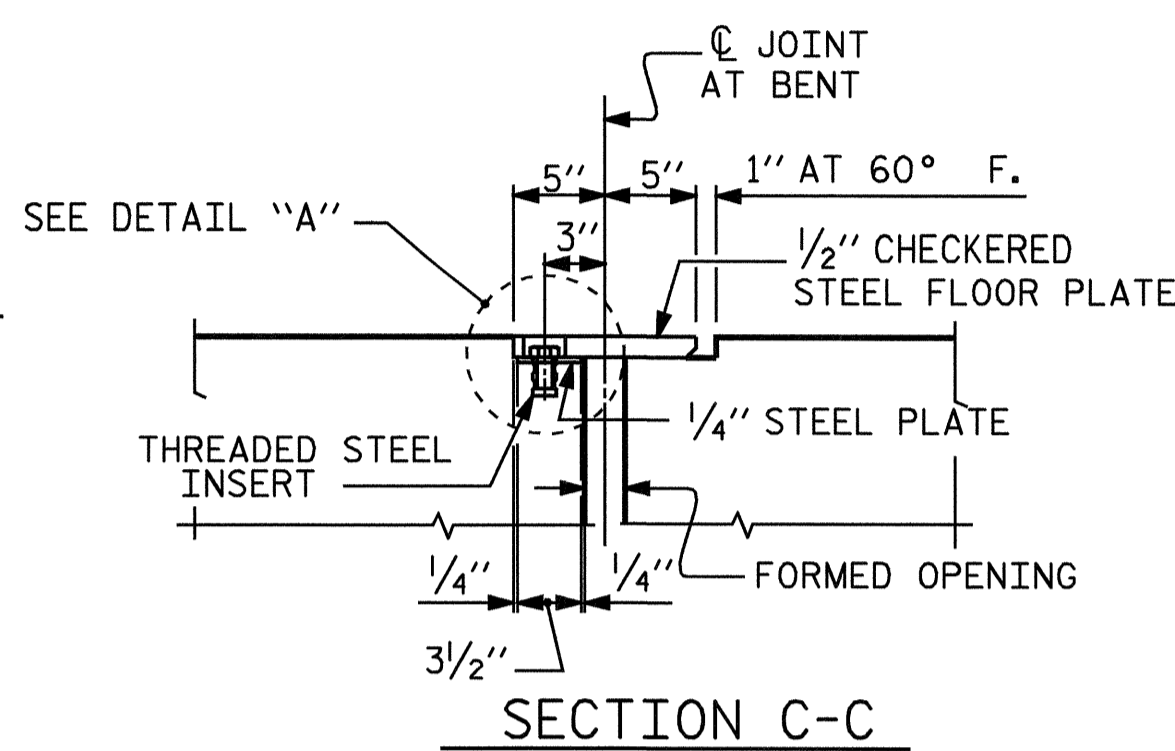
* BASED ON THE MINIMUM BLOCKOUT SHOWN.



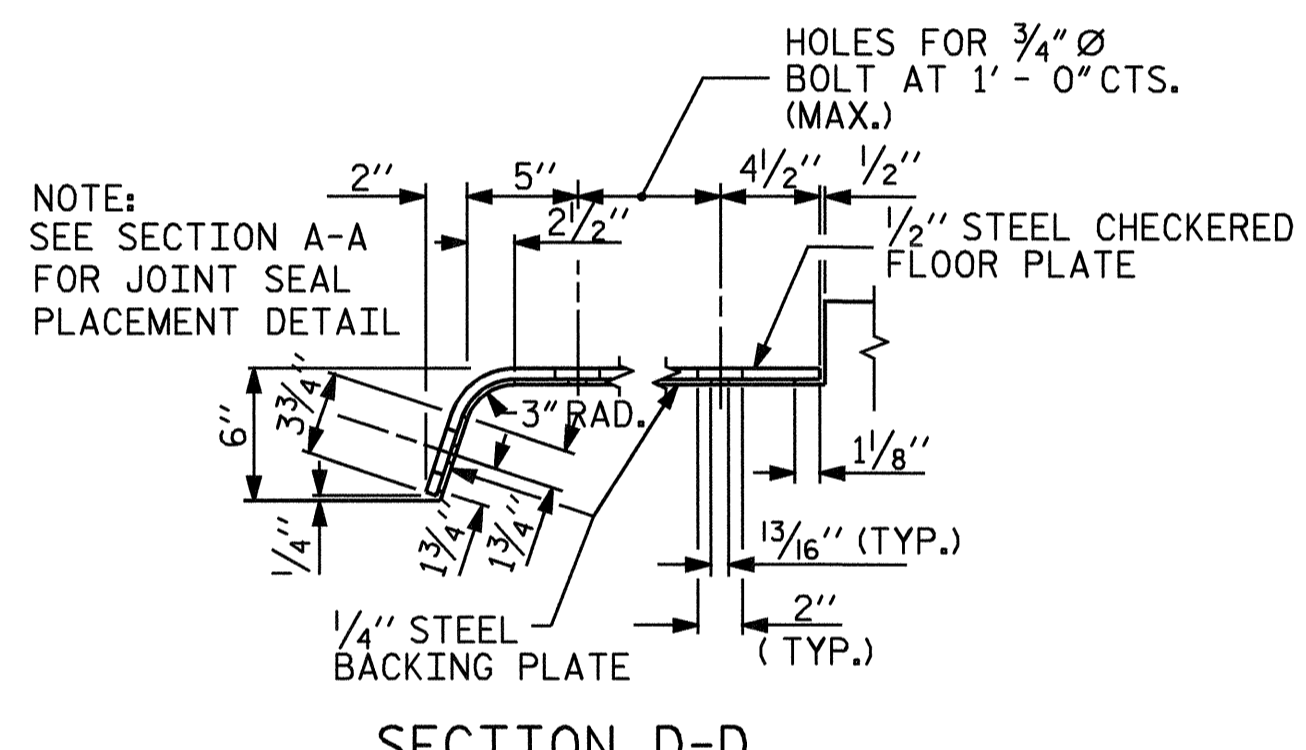
SECTION B-B
EVAZOTE JOINT SEAL
(EXPANSION)



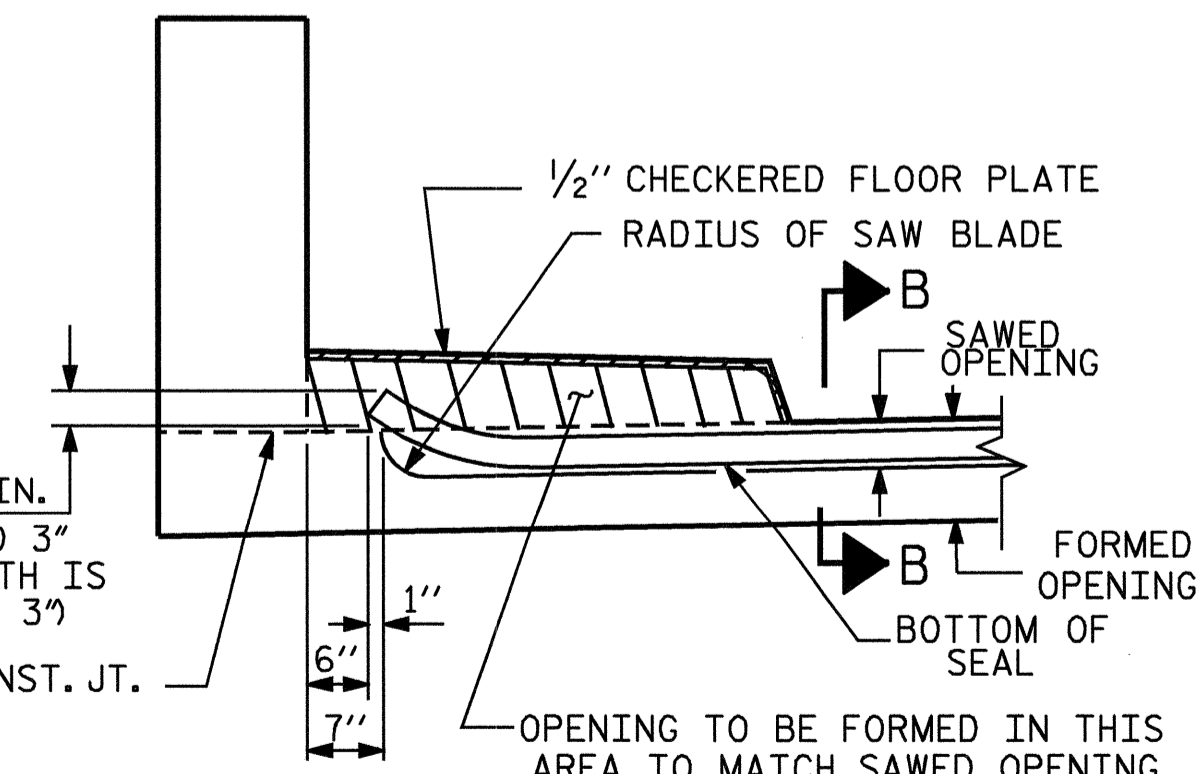
DETAIL "A"



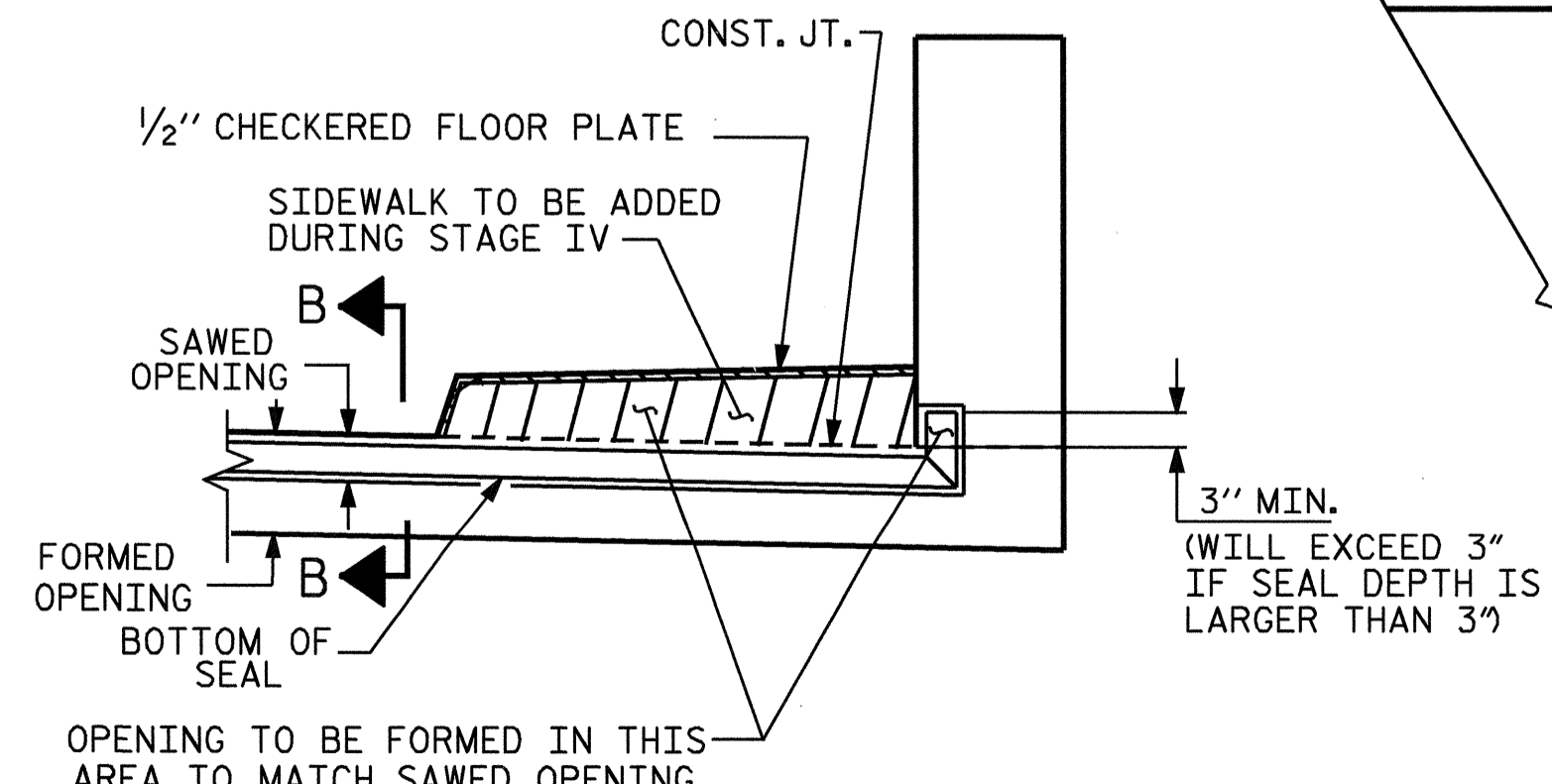
SECTION C-C



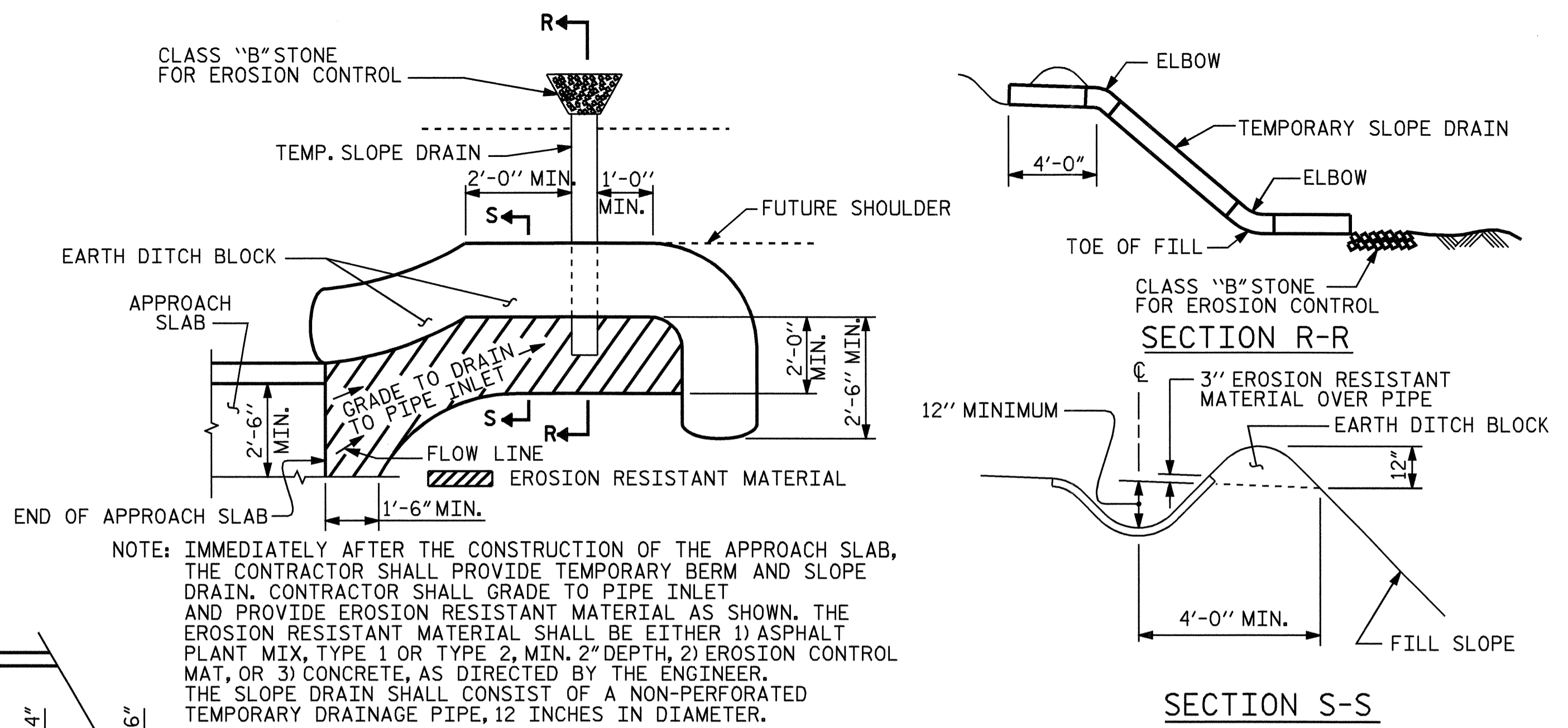
SECTION D-D



SECTION A-A
(TYPICAL STAGE II)



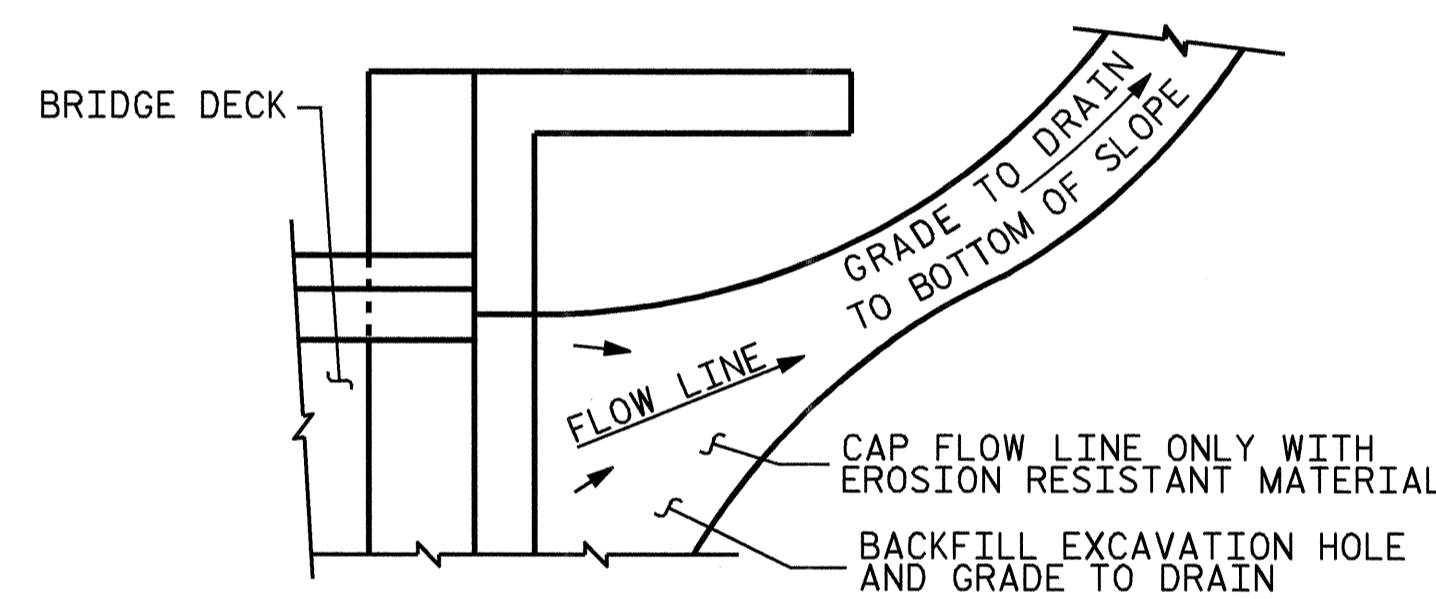
SECTION E-E
(TYPICAL STAGE I)



PLAN VIEW

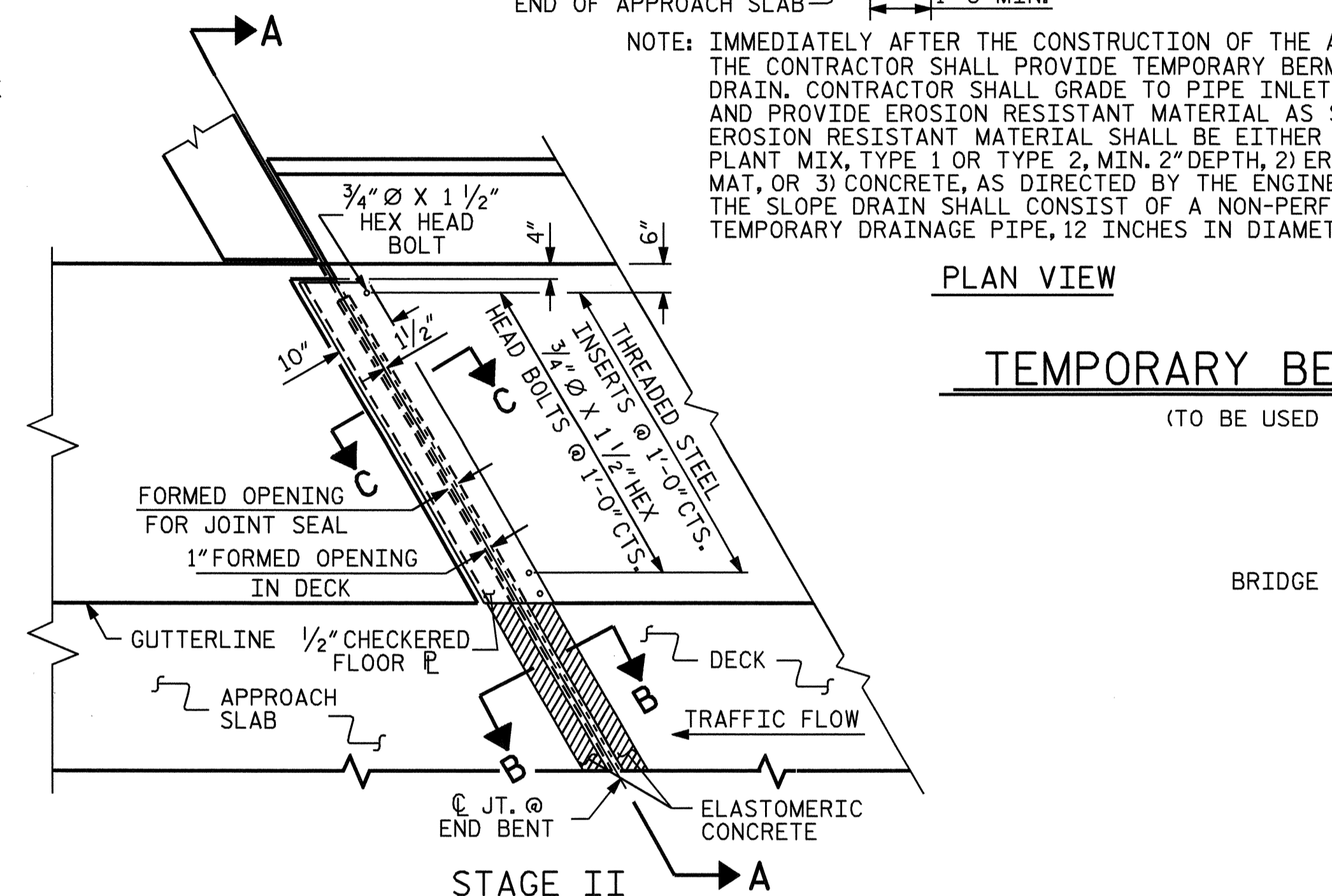
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

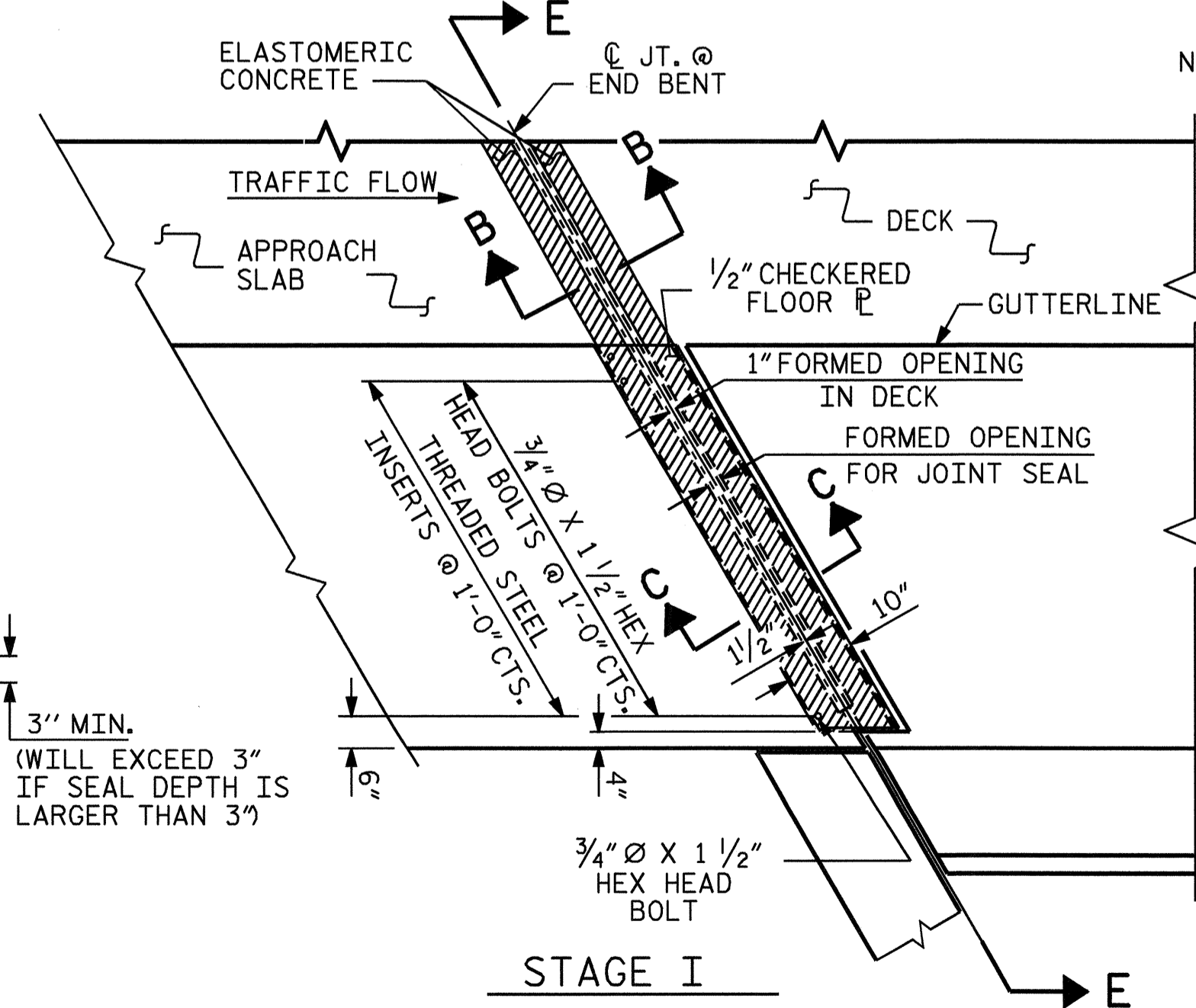


TEMPORARY DRAINAGE DETAIL

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.



STAGE II



STAGE I

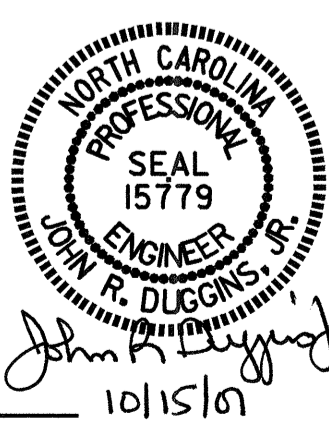
PLAN OF EVAZOTE JOINT SEAL WITH COVER
END BENT NO.1 SHOWN,
END BENT NO.2 SIMILAR

SIDEWALK WITH EVAZOTE JOINT SEAL

ASSEMBLED BY : M. POOLE	DATE : 06/07
CHECKED BY : J.R. DUGGINS	DATE : 08/07
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

PROJECT NO. B-3337
GUILFORD COUNTY
STATION: 21+05.50 -L-

SHEET 2 OF 3



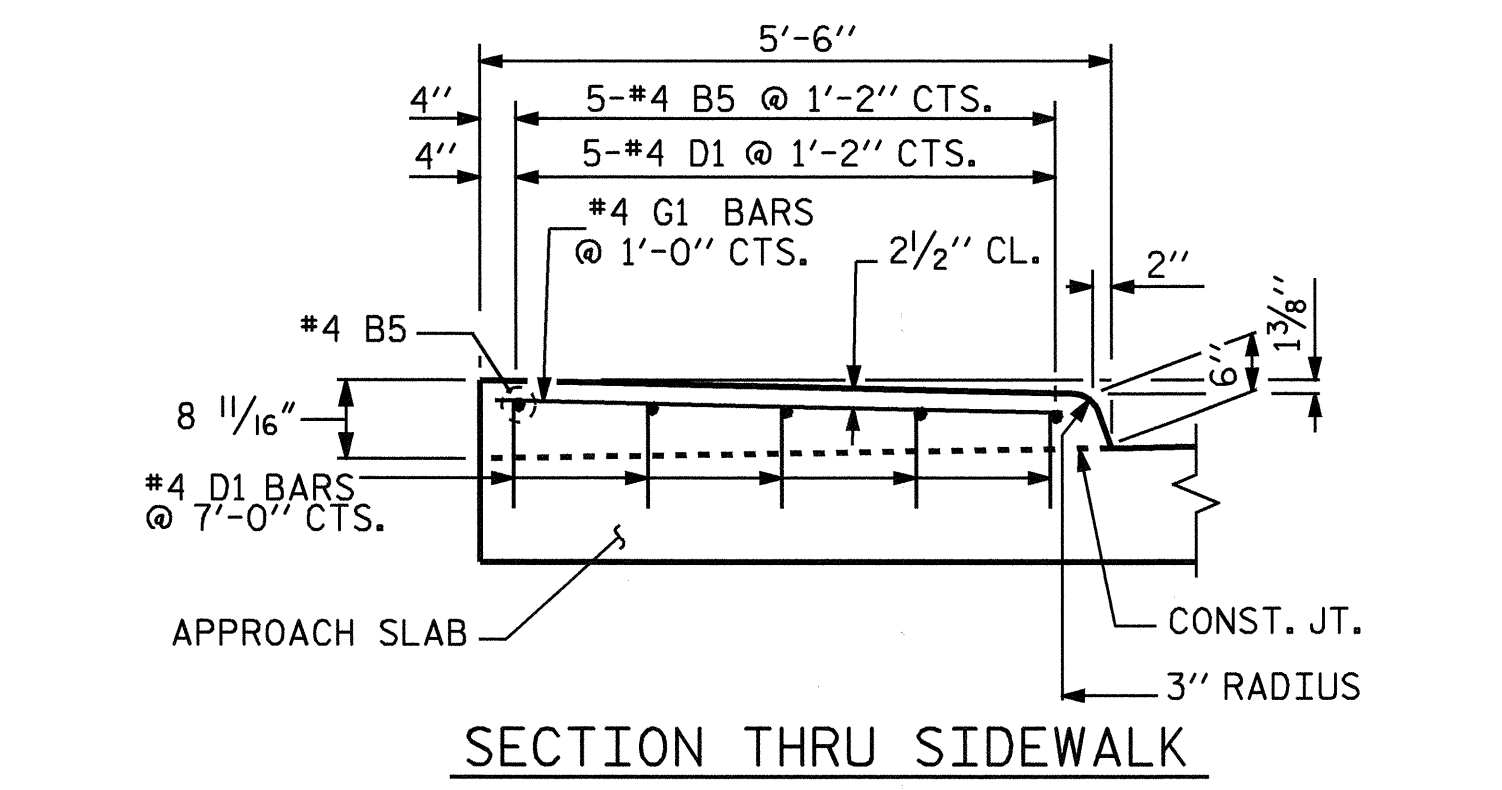
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BRIDGE APPROACH SLAB DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

1988
SHEET NO.
S-44
TOTAL SHEETS
45

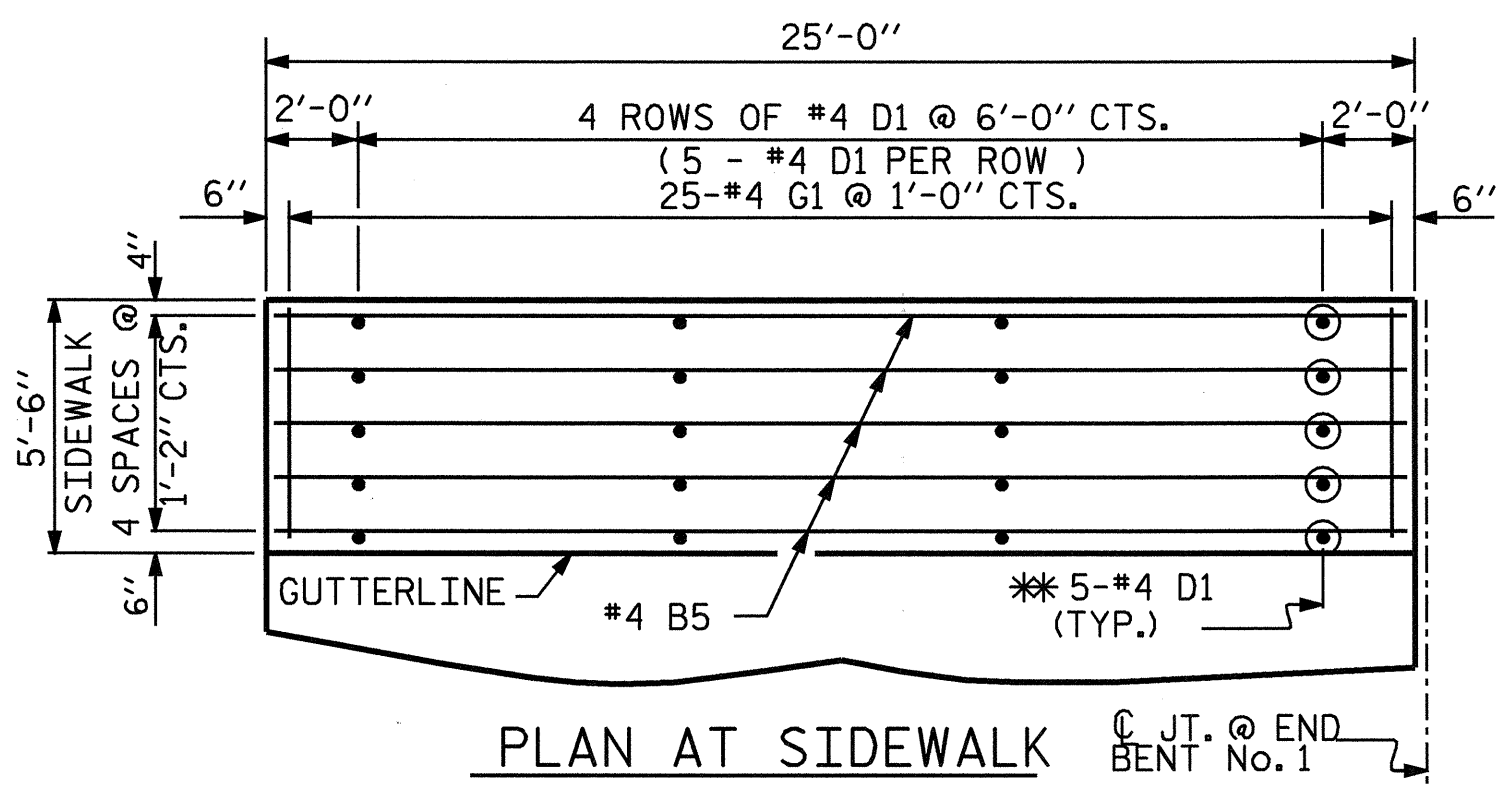
BILL OF MATERIAL

APPROACH SLAB NO. 1 STAGE I						APPROACH SLAB No. 1 STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	50	#4	STR	17'-4"	579	* A3	50	#4	STR	25'-9"	860
A2	52	#4	STR	17'-1"	593	A4	52	#4	STR	25'-7"	889
* B1	58	#5	STR	23'-9"	1437	* B3	94	#5	STR	23'-9"	2328
B2	58	#6	STR	24'-8"	2149	B4	94	#6	STR	24'-8"	3483
* B5	5	#4	STR	24'-8"	82	* B5	5	#4	STR	24'-8"	82
* D1	20	#4	STR	1'-0"	13	* D1	20	#4	STR	1'-0"	13
* G1	25	#4	STR	5'-0"	84	* G1	25	#4	STR	5'-0"	84
REINFORCING STEEL					LBS. 2742	REINFORCING STEEL					LBS. 4372
* EPOXY COATED REINFORCING STEEL					LBS. 2195	* EPOXY COATED REINFORCING STEEL					LBS. 3367
CLASS AA CONCRETE						CLASS AA CONCRETE					
POUR 1 (SLAB & CURB)					26.9 C.Y.	POUR 1 (SLAB & CURB)					43.7 C.Y.
POUR 2 (SIDEWALK)					3.1 C.Y.	POUR 2 (SIDEWALK)					3.1 C.Y.
TOTAL					30.0 C.Y.	TOTAL					46.8 C.Y.

APPROACH SLAB NO. 2 STAGE I						APPROACH SLAB No. 2 STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	30	#4	STR	17'-4"	347	* A3	30	#4	STR	25'-9"	516
A2	32	#4	STR	17'-1"	365	A4	32	#4	STR	25'-7"	547
* B1	58	#5	STR	13'-9"	832	* B3	94	#5	STR	13'-9"	1348
B2	58	#6	STR	14'-8"	1278	B4	94	#6	STR	14'-8"	2071
* B5	5	#4	STR	14'-8"	49	* B5	5	#4	STR	14'-8"	49
* D1	15	#4	STR	1'-0"	10	* D1	15	#4	STR	1'-0"	13
* G1	15	#4	STR	5'-0"	50	* G1	15	#4	STR	5'-0"	84
REINFORCING STEEL					LBS. 1643	REINFORCING STEEL					LBS. 2618
* EPOXY COATED REINFORCING STEEL					LBS. 1288	* EPOXY COATED REINFORCING STEEL					LBS. 1973
CLASS AA CONCRETE						CLASS AA CONCRETE					
POUR 1 (SLAB)					16.2 C.Y.	POUR 1 (SLAB)					26.4 C.Y.
POUR 2 (SIDEWALK)					1.9 C.Y.	POUR 2 (SIDEWALK)					1.9 C.Y.
TOTAL					18.1 C.Y.	TOTAL					28.3 C.Y.



SECTION THRU SIDEWALK

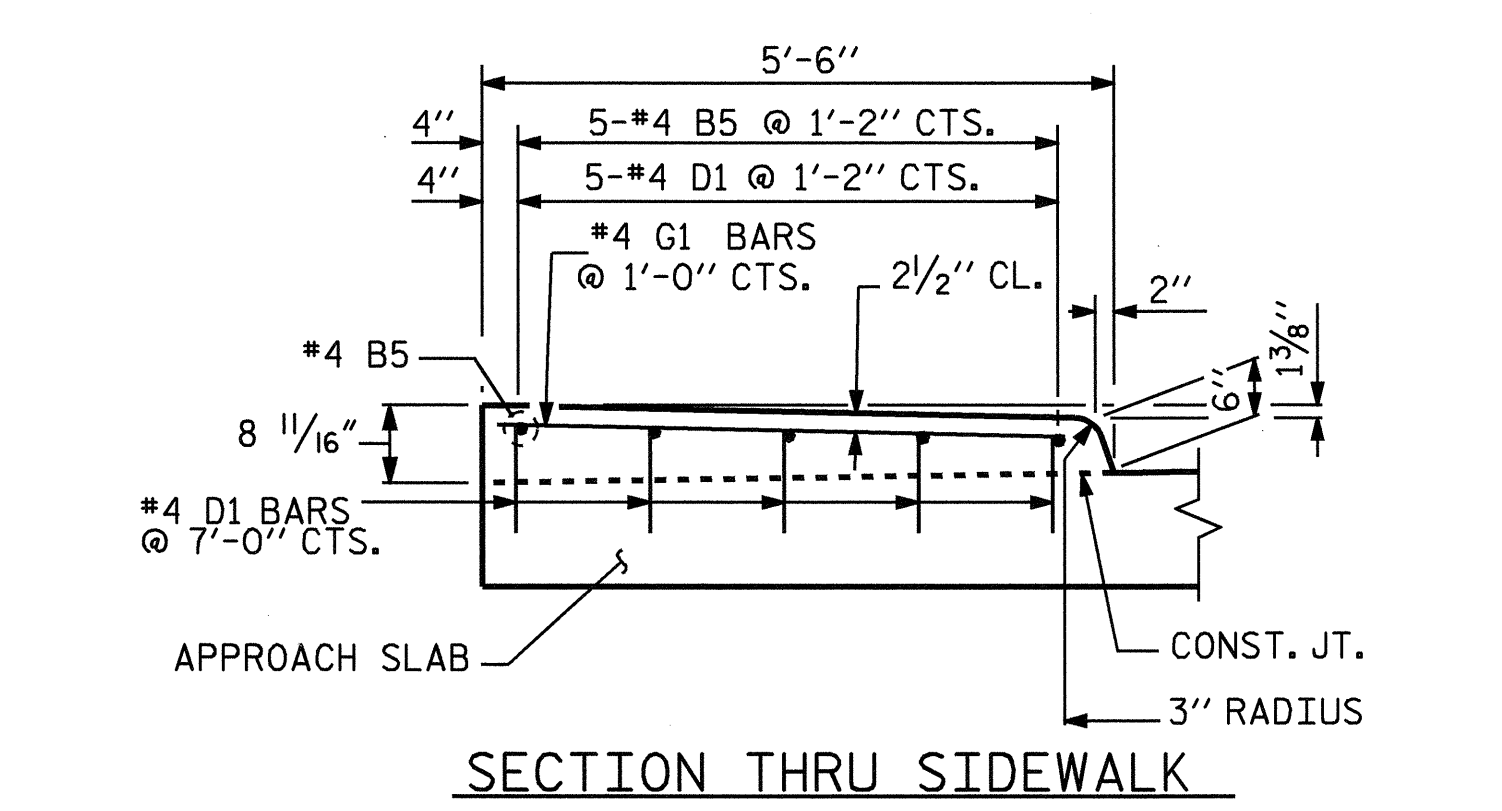


PLAN AT SIDEWALK

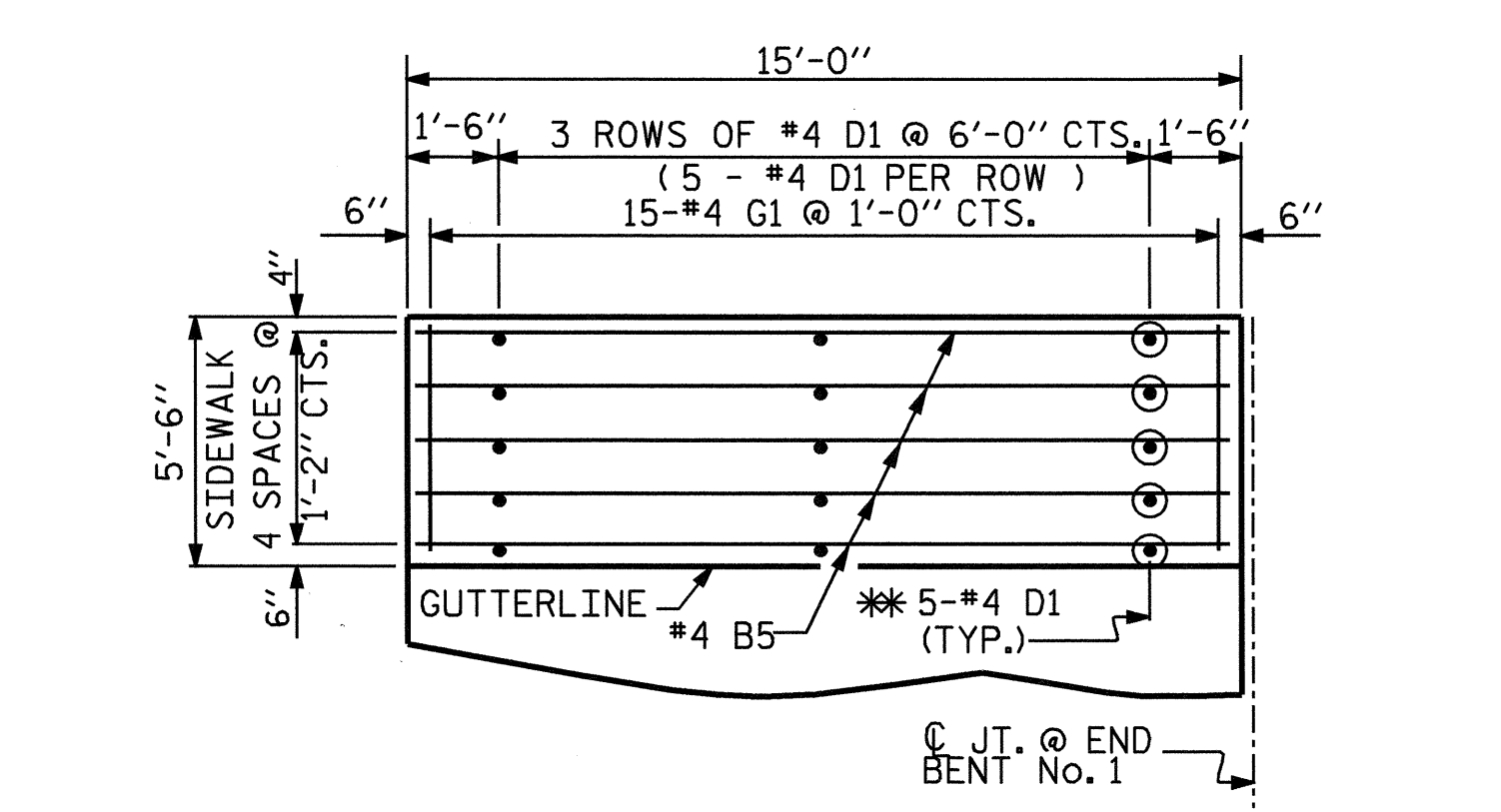
SIDEWALK DETAILS

APPROACH SLAB No. 1

** THESE DOWELS ARE TO BE PLACED AFTER SAWING OF THE JOINT. THE HOLES SHALL BE DRILLED AND THE DOWELS GROUTED IN PLACE.



SECTION THRU SIDEWALK



PLAN AT SIDEWALK

SIDEWALK DETAILS

APPROACH SLAB No. 2

** THESE DOWELS ARE TO BE PLACED AFTER SAWING OF THE JOINT. THE HOLES SHALL BE DRILLED AND THE DOWELS GROUTED IN PLACE.

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 SAWED PRIOR TO THE CASTING OF THE CONCRETE PARAPET, END POST AND SIDEWALK.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

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

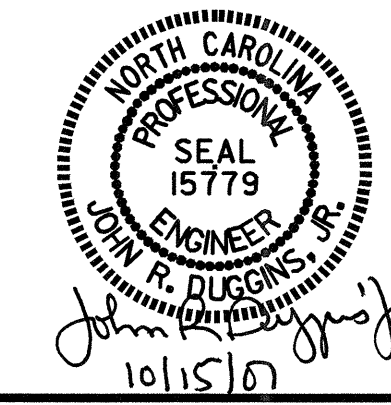
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

PROJECT NO. B-3337
GUILFORD COUNTY
 STATION: 21+01.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

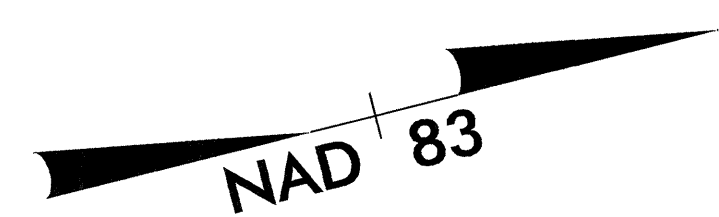
BRIDGE APPROACH SLAB



REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	45
1			3			45
2			4			45

DRAWN BY: M. POOLE DATE: 06/07
 CHECKED BY: J.R. DUGGINS DATE: 09/07

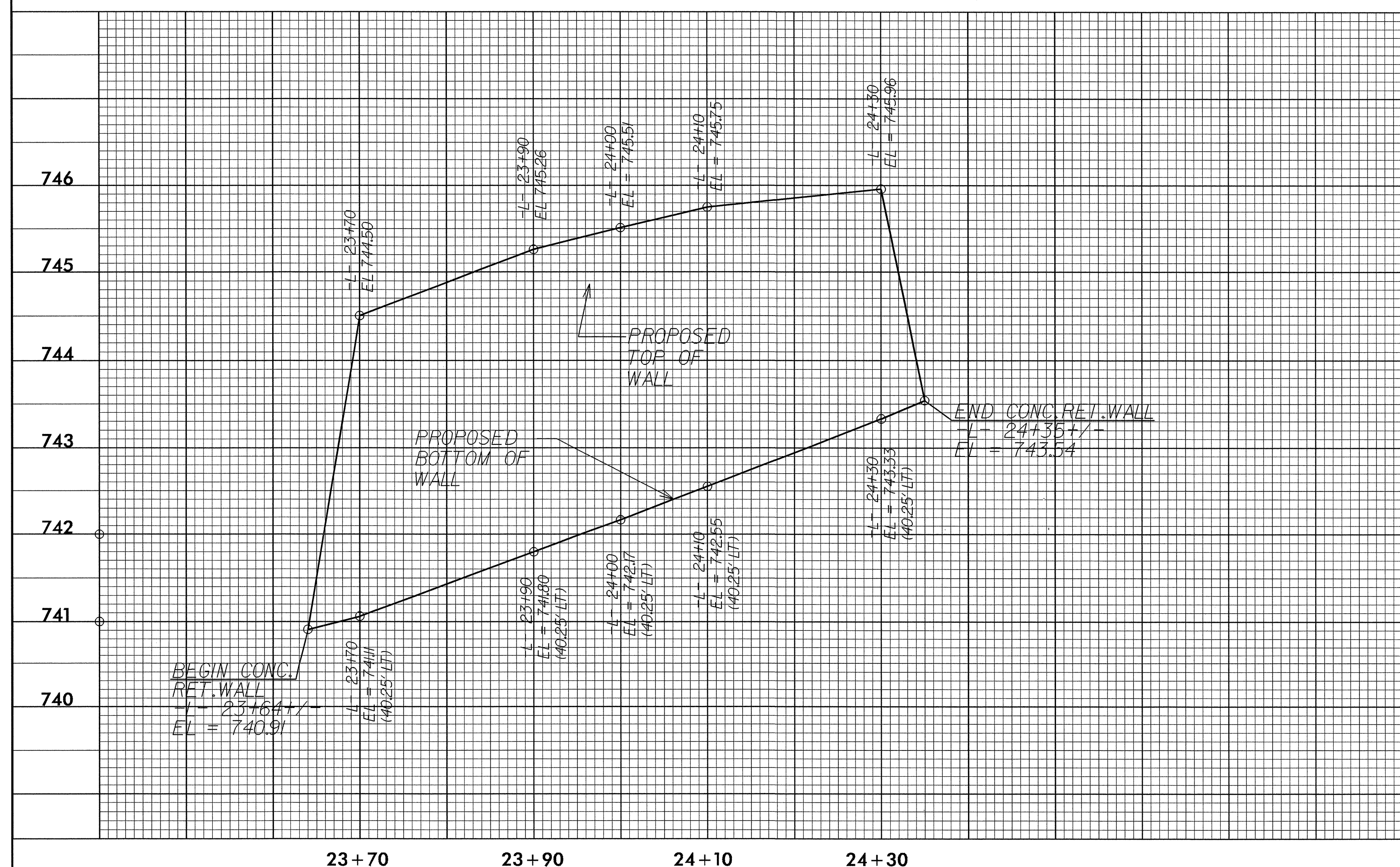
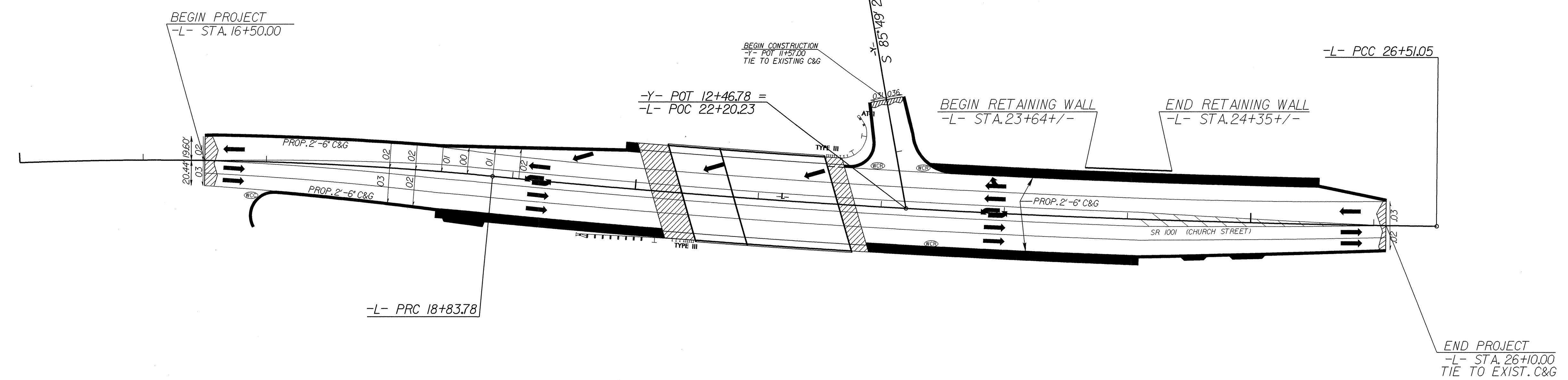
15+00



20+00

PLAN
NTS

25+00



BILL OF MATERIAL	
GRAVITY RETAINING WALL	210 SQ.FT

SEE STANDARD GRAVITY RETAINING WALL SHEET FOR TYPICAL SECTION, DETAILS, AND NOTES FOR GRAVITY RETAINING WALL.

PROJECT NO.: B-3337
GUILFORD COUNTY
STATION: -L- 23+64 - 24+35
SHEET OF

WALL ELEVATIONS

PREPARED BY: JRM DATE: 9-20-07
REVIEWED BY: CAG DATE: 9-20-07

GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE
 CONTRACT OFFICE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

REVISIONS						SHEET NO. W-1
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
2			4			2

NOTES

FOR GRAVITY RETAINING WALLS, SEE SECTION 453 OF THE STANDARD SPECIFICATIONS.

THE STANDARD GRAVITY RETAINING WALL IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
 TOTAL UNIT WEIGHT = 120 PCF (18.8 KN/m³)
 COHESION = 0 PSF (0 kPa)
 FRICTION ANGLE = 35 DEGREES
 (GROUNDWATER WITHIN 5'-0" (1.5m) OF BOTTOM OF FOOTING)
 FRICTION ANGLE = 30 DEGREES
 (GROUNDWATER MORE THAN 5'-0" (1.5m) BELOW BOTTOM OF FOOTING)

DO NOT USE A STANDARD GRAVITY RETAINING WALL IF THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE THE BOTTOM OF FOOTING.

DO NOT USE A STANDARD GRAVITY RETAINING WALL WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT BELOW THE WALL.

DO NOT PLACE CONCRETE UNTIL OBTAINING APPROVAL OF THE EXCAVATION DEPTH AND CHECKING FOUNDATION MATERIAL FOR IN-SITU ASSUMED SOIL PARAMETERS.

USE CLASS "A" CONCRETE AND PROVIDE CLASS I SURFACE FINISH FOR ALL EXPOSED SURFACES.

PROVIDE 3" (75mm) DIAMETER WEEP HOLES ON 10'-0" (3m) CENTERS ALONG WALL. SLOPE WEEP HOLES ON A 1" (25mm) PER FOOT (300mm) SLOPE THROUGH THE WALL SO THAT WATER DRAINS OUT OF THE FRONT OF THE WALL.

CONSTRUCT A HORIZONTAL DRAIN IN SUBDRAIN FINE AGGREGATE AT LEAST 1'-0" (300mm) TALL AND 1'-0" (300mm) WIDE TO CONNECT ALL STONE DRAINS.

PROVIDE GROOVED CONTRACTION JOINTS EVERY 10'-0" (3m) AND EXPANSION JOINTS EVERY 30'-0" (9m) ALONG THE WALL.

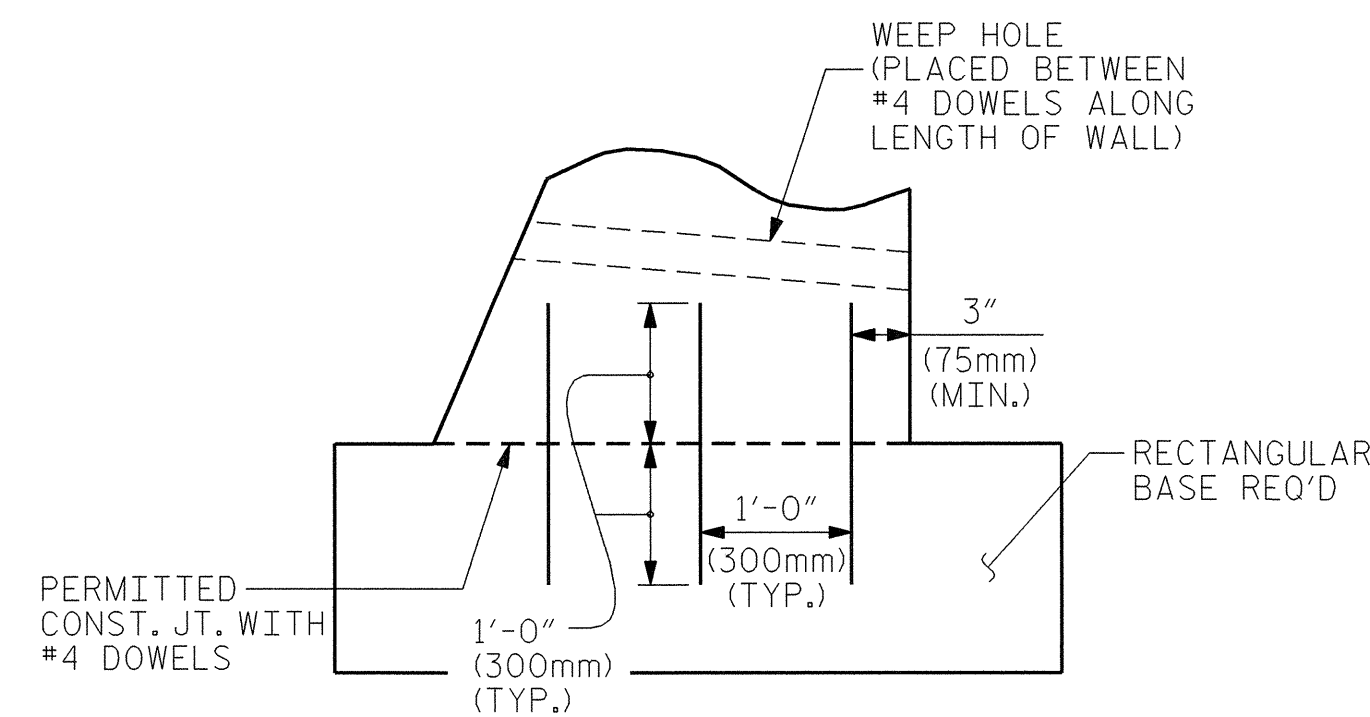
DO NOT BACKFILL BEHIND WALL UNTIL CONCRETE DEVELOPS A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI (20.7 MPa). COMPACT BACKFILL IN ACCORDANCE WITH SUBARTICLE 235-4(C) OF THE STANDARD SPECIFICATIONS. PLACE BACKFILL WITHIN 3'-0" (1m) OF THE BACK OF THE WALL WITH HAND OPERATED EQUIPMENT. DO NOT OPERATE HEAVY EARTH MOVING EQUIPMENT WITHIN 10'-0" (3m) OF THE BACK OF WALL.

WHEN A CONSTRUCTION JOINT IS LOCATED AT THE BASE OF THE WALL, IN SECTION, PROVIDE A MINIMUM OF 3-#4 DOWELS AT AN EQUAL SPACING. SPACE ALL DOWELS AT 1'-6" (460mm) CENTERS ALONG THE LENGTH OF THE WALL.

SEE RETAINING WALL ENVELOPE DETAIL SHEET FOR PLAN AND PROFILE VIEW (WALL ENVELOPE) AND PROPOSED ELEVATIONS FOR GRAVITY RETAINING WALL.

BEFORE BEGINNING WALL CONSTRUCTION FOR THE GRAVITY RETAINING WALL, SURVEY ALL EXISTING GROUND ELEVATIONS SHOWN ON THE PLANS AND SUBMIT A REVISED WALL ENVELOPE FOR REVIEW. DO NOT START WALL CONSTRUCTION UNTIL THIS ENVELOPE IS ACCEPTED.

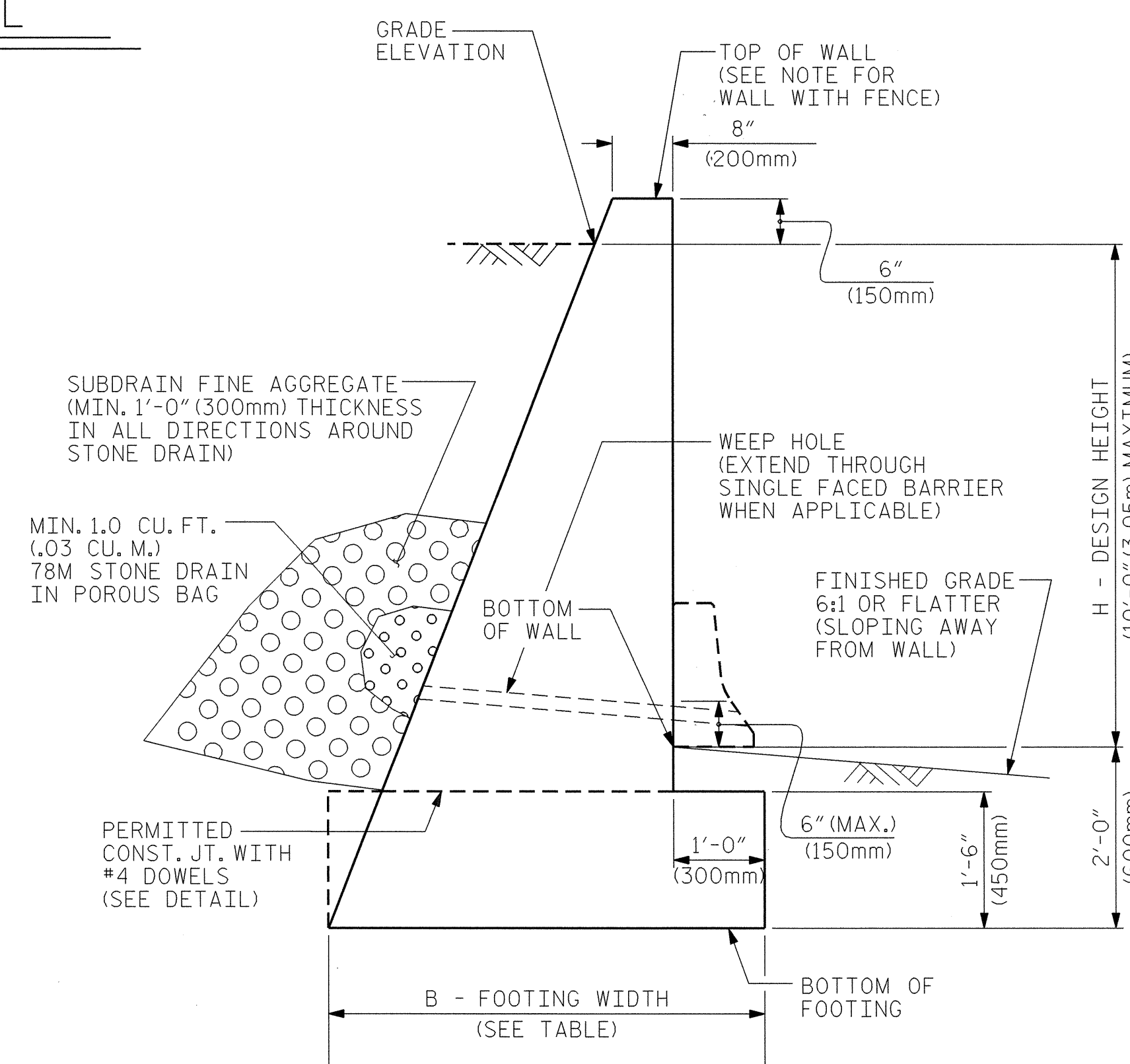
NO SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE GRAVITY RETAINING WALL FROM STATION 23 + 64, 40.25 FT LEFT, TO STATION 24 + 35, 40.25 FT LEFT. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.



DETAIL

H + 2 (ft)	< 6
H + 0.6 (m)	< 1.83
NO SLOPE CONDITION WITHOUT TRAFFIC SURCHARGE	.60

B/(H + 2) RATIO



TYPICAL SECTION

PROJECT NO.: B-3337
 GUILFORD COUNTY
 STATION: -L- 23+64 - 24+35
 SHEET OF

GEOTECHNICAL ENGINEERING UNIT
 EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE
 CONTRACT OFFICE
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD GRAVITY RETAINING WALL

REVISIONS						SHEET NO. W-2 TOTAL SHEETS 2
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

PREPARED BY: JRM	DATE: 9-20-07
REVIEWED BY: CAG	DATE: 9-20-07

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

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